SAMSUNG

SERVICE MANUAL

GX-20

SAMSUNG
TECHWIN

CONTENTS

C O N T E N T S

Ⅰ. SPECIFICATION

1. Main Specifications

Image Sensor	- Type : 23.4 × 15.5mm, CMOS
	- Effective Pixel : Approx. 14.6 Mega-pixel
	- Total Pixel : Approx. 15.1 Mega-pixel
Lens	- Mount : PENTAX bayonet KAF2 mount
	- Usable Lens : Schneider D-XENON, D-XENOGON, SAMSUNG lens
	∗ PENTAX DSLR lenses are available
	∗ KAF2, KAF, KA mount lenses
Viewfi nder	- Type : Pentaprism, Natural-Bright-Matte II Focusing Screen
	- Field of View : About 95%
	- Magnifi cation : About 0.95X (50mm F1.4 lens・∞)
	- Diopter Adjustment : About -2.5 ~ +1.5m^{-1}
LCD Monitor	- Low-temperature polysilicon TFT color LCD Monitor, 2.7" (approximately 230K pixels), Brightness & Color control, Wide angle view
Preview	- Type : Live View(up to 3 minutes.), Optical Preview, Digital Preview
Focusing	- Type : TTL phase-matching 11-point AF
	- Modes : AF Single, Continuous AF, Manual focus
Shutter	- Type : Electronically controlled vertical-run focal plane shutter
	- Speed : Auto : 1/4000sec. ~ 30sec. (No step)
	Manual : 1/4000sec. ~ 30sec. (1/3EV or 1/2EV step) Bulb
Exposure Control	- Metering System : TTL open-aperture 16-segment
	Metering : Multi, Center-weighted, Spot
	Metering range : EV0 ~ 21 (ISO100・50mm F1.4)
	- Modes : Auto, Program, Shutter Priority AE, Aperture Priority AE, Sensitivity Priority AE, Shutter & Aperture Priority, Manual, Bulb, Flash X-sync, User Mode
	- Compensation : ±3 EV (1/2 EV step), ±2EV (1/3 EV step)
	- AE Lock : AEL

- ISO : Auto, 100, 200, 400, 800, 1600, 3200 (1/3EV or 1/2EV step), 6400 (User setting)

    When expanded Bulb mode: 1600 (Maximum)

Flash	- Type : Built-in retractable P-TTL manual pop-up fl ash
	- Modes : Auto, Fill-in, Auto & Red eye, Fill-in & Red eye, Front curtain synchro, Front curtain synchro & Red eye, Rear curtain synchro, Wireless
	- Guide Number : 13 (at ISO 100)
	- Angle of View Coverage : 28 mm wide-angle (Equivalent to 35mm)
	- Sync. Speed : 1/180sec., Red-eye reduction (Control Range : -2 ~ +1 EV)
	- Recharging Time : 3.6 Sec (when fl ash fi red at maximum)
	- External Flash : SEF-36PZF, SEF-54PZF (optional)
Synchro	- Hot Shoe, X Synchro socket (Sync. Speed : 1/180sec.)
	- High Speed Synchro, Wireless Synchro (External Flash)
White Balance	- Modes : Auto, Daylight, Shade, Cloudy, Tungsten, Fluorescent(W, D, N), Flash, Manual, Color Temperature (1, 2, 3)
Shooting	- Modes : Auto, Program, Sensitivity Priority, Shutter Priority, Aperture Priority, Shutter & Aperture Priority, Manual, Bulb, Flash X-sync., User mode
	- Live View : Field of View : Approx. 97% Magnifi cation(4X, 8X), Grid display, AF Frame
	- Drive Modes : Single, Continuous (Hi, Standard), Self-timer (12sec., 2sec.), Remote Control, Auto Bracket, Expand Bracket, Multi Exposure
	- Picture Wizard : Standard, Vivid, Portrait, Landscape, Custom 1, Custom 2 * Parameter : $\pm$4 (9-step)
	- Continuous :
	• JPEG : 3fps (Hi Continuous : up to 38 shots) 2.3fps (Standard Continuous : depends on memory capacity)
	• RAW : 3fps (Hi Continuous : up to 16 shots) 2.3fps (Standard Continuous : up to 16 shots)
Shake Reduction	- Type : Image Sensor Shift
	- Effective Range : Max. 4EV (depends on lens and shooting conditions)
Dust Reduction	- Yes

Ⅰ. SPECIFICATION

Self-timer	- 2sec., 12sec., Remote control, Remote control 3sec.
	Remote control Continuous (Compatible with Pentax Remote Control, Optional)

Storage
- Media : SD (up to 4GB guaranteed), MMC (up to 2GB guaranteed),
  SDHC (up to 8GB guaranteed)
- File Format : RAW (DNG), JPEG (DCF), EXIF 2.21, DPOF 1.1, PictBridge 1.0
- Image Size :
  • JPEG : 14.6M (4672X3104), 10M (3872X2592), 6M (3008X2000), 2M (1824X1216)
  • RAW : 14.6M (4672X3104 pixel)
- Capacity (512MB)
  • 14.6M : RAW 21
  • 14.6M : Super Fine (1)35, Super Fine(2)61, Fine 109, Normal 213
  • 10M : Super Fine (1)52, Super Fine (2)87, Fine 153, Normal 319
  • 6M : Super Fine (1)91, Super Fine (2)147, Fine 254, Normal 474
  • 2M : Super Fine (1)239, Super Fine (2)381, Fine 639, Normal 1060
  ＊ These fi gures are measured under Samsung's standard conditions and may vary
     depending on shooting conditions and camera settings.

Image Play
- Type : Single image, Thumbnail, Rotate, Slide Show (4-type Transition Effect),
  Histogram, Magnifi cation (up to 32X)
- Edit : Rotate, Digital Filter : B&W (4 types), Sepia (3 types), Color Selection (18 types),
  Color (6 types), Soft (3 steps), Illustration, HDR (3 steps), Slim (±8 steps),
  Brightness (±8 steps)

Interface
- Digital Output : USB 2.0 (HI-SPEED)
- Video Output : NTSC, PAL (user selectable)
- DC Power Input Connector : DC 8.3V, 2A (100 ~ 240V)
- External Release Socket
- X Synchro Socket for External Flash

Power Source
- Dedicated battery : Lithium ion battery : SLB-1674, Charger : SBC-L6
- Battery life : Approx. 500 min./1,000 shots (without fl ash on),
  Approx. 430 min./860 shots (with fl ash 50% on),
  Approx. 400 min./800 shots (with fl ash 100% on)

Dimensions(WxHxD)

- 142mmX101mmX71.5mm (excluding the projecting parts of the camera)

Weight
- 727g (Body only) , 806g (Memory card & Battery included)

Operating Temperature

- 0 ~ 40°C

Operating Humidity

- 5 ~ 85%

Software
- Application : Samsung Master, Samsung RAW Converter 2.0, Adobe Reader

Ⅰ. SPECIFICATION

2. System Requirements

For Windows	PC with processor better than Pentium III 450MHz (Pentium 800MHz recommended) Windows 2000/ME/XP/Vista Minimum 256MB RAM (512MB recommended) 250MB of available hard disk space (1GB recommended) USB port CD-ROM drive 1024x768 pixels, 16-bit color display compatible monitor (24-bit color display recommended)
For Macintosh	Power Mac G4 or later Mac OS 10.2 or later Minimum 256MB RAM 250MB of available hard-disk space USB port CD-ROM drive

3. Names of Working Parts

Front & Top

Green Button

Flash Button

Built-in Flash

Mode dial

Shutter Button

Main Switch

Front dial

Self-Timer lamp / Remote control receiver

Lens mount index

Lens unlock button

Lens information contacts

Mirror

AF coupler

SAMSUNG

GX 20

RAW

SAF
CAF
MF

Strap holder

External flash sync terminal

RAW Button

Focus mode lever

Terminal Cover

MENU

PC
VIDEO

INFO

DC IN 8.3V

Remote control port

USB / Video terminal

DC input terminal

● Do not attempt to adjust the aperture lever or the mirror in the camera body. Failure to follow this instruction may cause the product to malfunction.

Ⅰ. SPECIFICATION

Rear

Memory Card Slot

Memory Card Cover

Exposure Compensation /
LCD panel lamp button

Self-Timer lamp / Remote control receiver

Rear e-dial

Hot shoe

LCD Panel

Diopter adjustment lever

AE-L/ Lock Button

Metering
mode lever

Strap Holder

Exposure
bracket button

Viewfi nder

MENU button

Delete /
Picture Wizard

AF Button

INFO button

OK Button

Direction button

Playback button

Card access lamp

Card cover lock

LCD Monitor

OIS (Optical Image
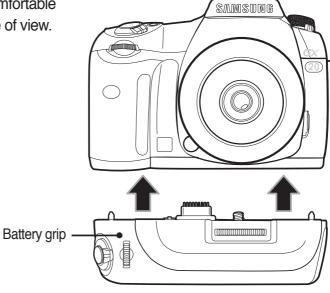Stabilization) lever

Focus point selection dial

Fn Button

4. Using the Vertical Battery Grip (SBG-D1V)

■ Using the battery grip gives you a more comfortable position while shooting with a vertical angle of view.

Battery grip
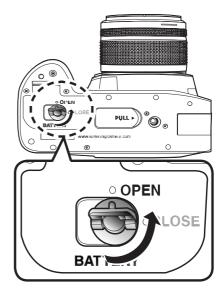
▲ Installing the battery grip

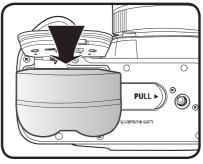■ Battery grip supports the green button (⊙) function while you can still adjust the exposure using the battery grip.

▲ Vertical position when using the battery grip
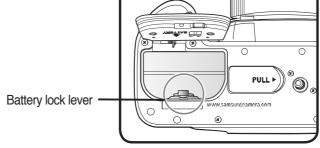
Ⅰ. SPECIFICATION

5. Inserting the Battery

1. Rotate the Battery cover unlock lever as shown in the illustration and open the cover.

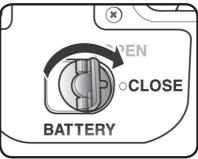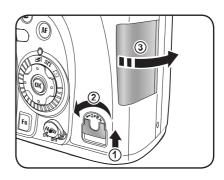2. Insert the battery as shown on the picture.

Battery lock lever

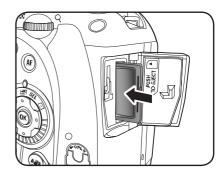3. Close the Battery cover and rotate the battery cover lock lever as shown.
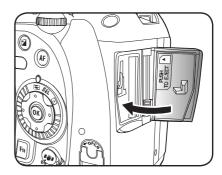
6. Inserting the Memory Card

■ SD / SDHC memory card and Multi Media Card can be used with this camera.

■ Captured images are recorded on the Memory Card. Make sure the camera is turned off before inserting or removing the Memory Card.

1. Lift up the Card Cover Lock as shown (①) and rotate it to the OPEN position (②) (Card cover opens (③)).

2. Have the front of the memory card facing toward the LCD monitor and insert the memory card.
   - Press the memory card one more time to remove it out of the memory card slot.
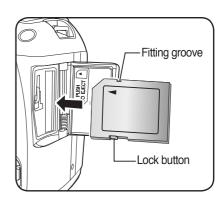
3. Close the Card cover.

● Do not remove the Memory Card while card access lamp is lit.
● Always format new Memory Cards before use. Also format Memory Cards used with other cameras.
● If the memory card cover is left open, the power will not turn on.
● Make sure the memory card is correctly positioned before inserting it into the camera.

Fitting groove

Lock button

Ⅰ. SPECIFICATION

7. Attaching and removing the lens

■ Some functions are restricted when lenses are not set to Aperture A (Auto).
To allow shutter release, set [Use Aperture Ring] in [CUSTOM2 MENU] menu.

● Turn the camera off before attaching or removing the lens to prevent unexpected lens problems.

1. Check that the camera is off.

2. Remove the body mount cover (①) and lens mount cover (②). Be sure to put the lens down with the lens mount side facing upward to avoid damage.

3. Align the red dots on the camera and the lens, and secure by turning the lens clockwise until it clicks. After attaching, check that the lens is secure. Also check that the red dots of the lens are on top and the attached portion does not move sideways.

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4. Remove the front lens cap by pushing the indicated portions inward.

5. To detach the lens, hold down the lens unlock button (③) and turn the lens counterclockwise.

- ● The body mount cover (®Á) is a cover to prevent damage during shipping.
- ● The camera body and lens mount incorporate lens information contacts and an AF coupler.
  Dirt, dust, or corrosion may damage the electrical system.
  Clean the contacts with a soft dry cloth.

Attaching and removing the lens must be done in a clean place.
Please avoid contact with liquid water. If the camera°Øs body or the lens gets wet or dirty, camera malfunction may occur.

Ⅰ. SPECIFICATION

8. LCD Monitor Indications

■ The following indicators appear on the LCD monitor depending on the status of the camera.

LCD monitor

While Power is On or Operating Mode Dial

Guides appear on the LCD monitor for 3 seconds when powered on or setting dial mode ( ).

● You can set the specifi c time the guides will appear on the LCD monitor for.
Select the desired time from [SETUP MENU] > [Guide Display].

Detailed Information

① Flash mode
② Custom mode
③ Button guide
④ Battery status
⑤ Date and time
⑥ e-dial information
⑦ Shooting mode (Mode dial position)

⑧ OIS (Optical Image Stabilization)
⑨ Sensitivity
⑩ White balance
⑪ Focus Point position information
⑫ AF mode
⑬ Metering type
⑭ Drive mode/Extended Bracket

● Indicators [Metering type], [Focus Point Information], [White balance], and [Sensitivity] only appear when a setting other than the default setting is selected.

Ⅰ. SPECIFICATION

Capture Mode

Press the INFO button in capture mode to display the capture function settings on the LCD monitor.

Detailed Information

1	2	3	4	5	6	7

TAv · USER · ⊙ · ⚡ · ⏱ · AF.C

AUTO — 8

30 · 29 1/2000 · + 1.0 · 9

28 · 27 F 5.6 · ⚡± - 1.0 · WB · Standard — 10

26 45mm · — 11

25 · 24 ISO AUTO · 100 - 400 · — 12

23 10000K · G2A1 · Adobe · — 13

22 RAW+ · 10M · 《🖐》 · — 14

21 · 20 · 01/01/2008 09:31 — 15

19 18 17 16

1. Shooting mode

2. Custom mode

3. Metering mode

4. Flash mode

5. Drive mode

6. Exposure Bracket /
   Multi Exposure

7. AF mode

8. Focus point location

9. Extended Bracket

10. Picture Wizard mode

11. Colour Tone

12. Saturation

13. Contrast

14. Sharpness

15. Date and time

16. Colour space

17. OIS (Optical Image Stabilization)

18. Quality level

19. BA compensation value (GM) /
    BA compensation value (BA)

20. Recorded pixels

21. Battery Status

22. File type

23. White balance

24. ISO sensitivity

25. ISO range (Auto)

26. Lens focal length

27. Aperture Value

28. Flash Exposure Value

29. Shutter Speed

30. Exposure Compensation Value

Ⅰ. SPECIFICATION

Playback Mode

Press the INFO button in playback mode to display the image information on the LCD monitor. Whenever pressing the INFO button, Basic information, Histogram, Detail information and no information will display in that order.

Detailed Information

● You can change the information initially displayed by pressing the playback button (▶).

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1. Captured images

2. Exposure Bracket /
   Multi Exposure

3. Drive mode

4. Metering mode

5. Flash mode

6. OIS (Optical Image Stabilization)

7. DPOF settings

8. Folder name and Stored image number

9. Protect icon

10. AF mode

11. Extended Bracket

12. Focus point information

13. Exposure Compensation Value

14. Lens focal length

15. Flash Compensation Value

16. Picture Wizard mode

17. Colour Tone / Saturation

18. Contrast / Sharpness

19. Date & Time

20. File type / Image size /
    Quality / Colour Space

21. Sensitivity / White Balance /
    WB compensation (GM) /
    WB compensation (BA)

22. Aperture Value

23. Shooting mode

24. Shutter Speed

● Indicators 5 (Flash mode) and 15 (Flash compensation Value) only appear when the image was taken with flash.

Ⅰ. SPECIFICATION

Histogram Display

Brightness Histogram that distributes brightness of the image and RGB Histogram that distributes colour of the image are selectable by pressing the direction buttons (▲▼).

Image folder number and fi le number

Protect icon

Capture quality (Image fi le type)

▲ Playback

INFO

DPOF settings

Indicator for Brightness Histogram and RGB Histogram

Histogram (R)

Histogram (G)

Histogram (B)

▲ Y Histogram

Histogram (Brightness)

▲ RGB Histogram

- DPOF icon (🖶) will display only when an DPOF set image is played back.
- Image-protect icon (🔒) appears only when the image is protected from deletion.
- If [Exposure Warning] is set to [On] in the [PLAYBACK MENU], the over exposed area in the playback image blinks in red while the under exposed area blinks in yellow.
- Histogram shows you the distribution of brightness in recorded images. If the bars in the histogram are higher towards the right, the image may be too bright. If the bars are higher on the left, the image may be too dark. If the lighting conditions are too bright to check the subject by using the LCD, checking the histogram will enable more precise exposure control for the shots.

100-0001 🔒 🖶 ⬍ : RGB
JPEG

Pixel

Dark   Bright

Distribution of brightness

Ⅰ. SPECIFICATION
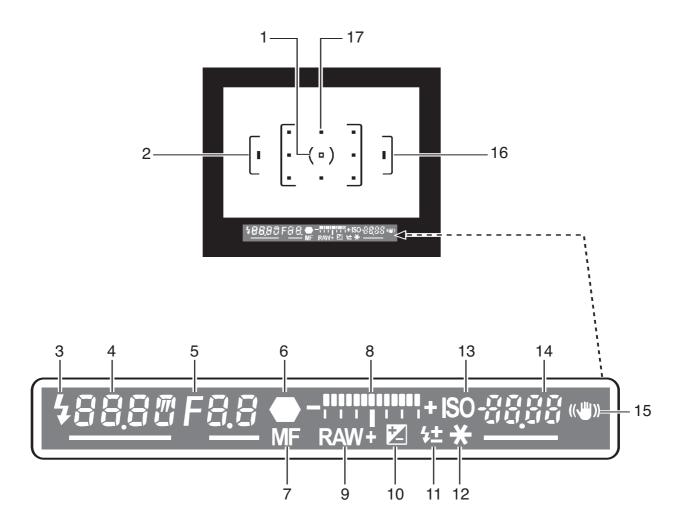
9. Viewfi nder Indications

Capture Mode

When the power is turned on, the current setting values appears in the viewfi nder as soon as you press the shutter button halfway.

1. Spot metering frame

2. AF Frame

3. Flash status

   Appears when fl ash is available and blinks when fl ash is recommended but not set.

4. Shutter speed

   Displays the shutter speed when capturing or adjusting (Shutter speed can beadjusted using this front dial ( ) and rear dial ( ).)

5. Aperture

   Displays the aperture value when capturing or adjusting (Aperture value can be adjusted using this front dial ( ) and rear dial ( ).)

6. Focus indicator

   Appears when image is focused.

7. Manual Focus

   Appears when the Manual Focus is selected.

8. Exposure Bar

   Displays the Exposure Compensation Value. The differences between Current Exposure Value and Proper Exposure Value in the M mode.

9. Indicate the RAW fi le format is selected.

   It appears when the fi le format is selected to RAW (RAW+).

10. EV compensation

    Appears when EV compensation is available or in use.

11. Flash Exposure Compensation

12. AE Lock indicator

    Appears when AE is locked.

13. ISO Indicator

14. Number of recordable images / EV compensation

    Shows the number of recordable images (including the number of recordable images using the Drive mode.) with current quality and recorded pixel setting. The differences between the compensated exposure and proper exposure will be displayed. In the M mode, the exposure value can be different. In the Sensitivity priority mode / Shutter & Aperture Priority mode, ISO sensitivity will display.

15. OIS (Optical Image Stabilization) indicator

16. AF Frame

17. Focus point

Ⅰ. SPECIFICATION

10. LCD Panel Indications

■ The following information appears in the LCD panel on top of the camera.

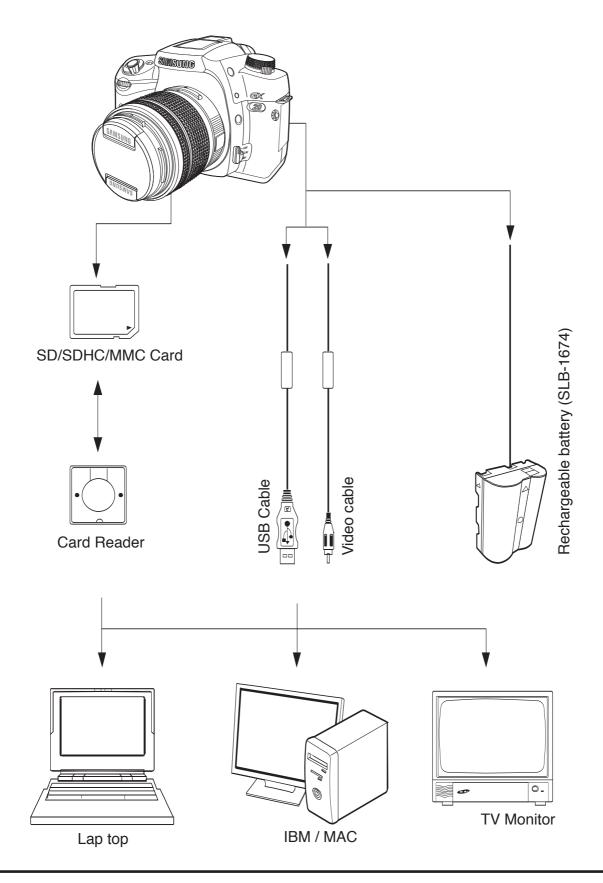- This Document can not be used without Samsung's authorization -

1. Multi exposure

2. Aperture

3. Flash mode

    ⚡   : Built-in fl ash is ready (when blinking, fl ash should be used; or incorrect lens is mounted)

    👁   : Red-eye reduction fl ash on

    A   : Auto discharge

    SLOW : First curtain synchro / Rear curtain synchro

    W   : Wireless Mode

4. Drive mode

    ▭   : Single frame

    🖳 : Continuous Shot

    ⟳ : Self-timer

    📱 : Remote control mode

5. White Balance (If Auto WB is selected, no icon will display)

    ± : White Balance Compensation

6. Number of recordable images / EV compensation value / PC (Pb)

    (PC=Personal Computer (Removable disk), (Pb=PictBridge))

7. Displays the ISO sensitivity

8. RAW/RAW+ button in use

9. Battery status

10. Exposure Bar

11. Exposure compensation

12. Flash Exposure Compensation indicator

13. Auto Bracket

14. Shutter speed

Ⅰ. SPECIFICATION

11. CONNECTION DIAGRAM

SD/SDHC/MMC Card

Card Reader

USB Cable

Video cable

Rechargeable battery (SLB-1674)

Lap top

IBM / MAC

TV Monitor

Ⅱ. INSTALLATION

1. Software Notes

■ **Samsung Master : This is the all-in-one multi media software solution**
  You can download, view, edit and save your digital images with this software.
  You can also edit and save the still images.
  This software is only compatible with Windows.

■ **Using Samsung RAW Converter 2.0, you can convert a RAW (*.dng) le into a JPEG or TIFF**
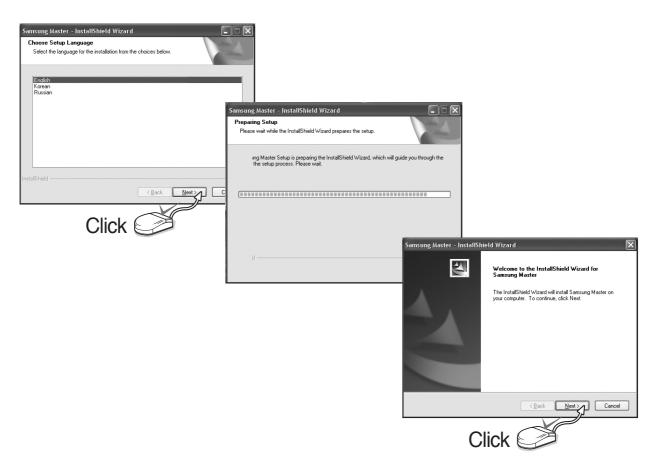 **fi le format.**

- You should allow 5~10 seconds for running the automatic setup program according to the capability of your computer. If the frame is not shown, run the [Windows Explorer] and select [setup.exe] in the CD-ROM Drive root directory.
- PDF documents of the user manual are included in the Software CD-ROM supplied with this camera. Search the PDF fi les with Windows explorer.
  Before opening the PDF fi les, you must install the Adobe Reader included in the Software CD-ROM.
- To install the Adobe Reader 6.0.1, the Internet Explorer 5.01 must be installed.
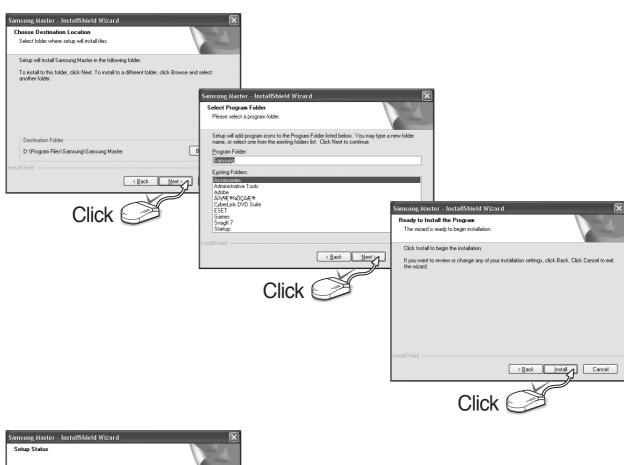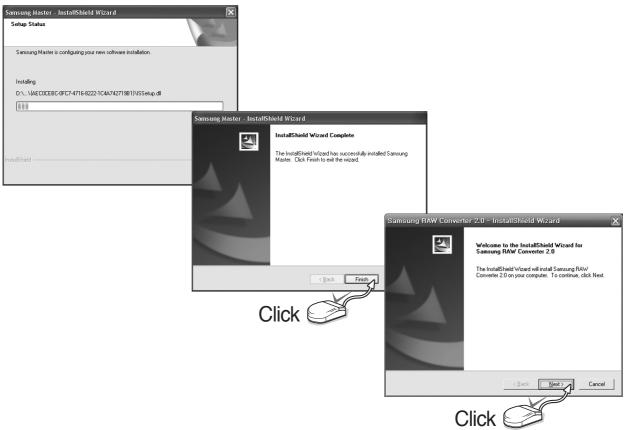 To upgrade the Internet Explorer, visit www.microsoft.com.

Ⅱ. INSTALLATION

2. Setting up the application software

■ To use this camera with a PC, install the application software first. After this has been done, the stored images in the camera can be moved to the PC and can be edited by an image editing program.

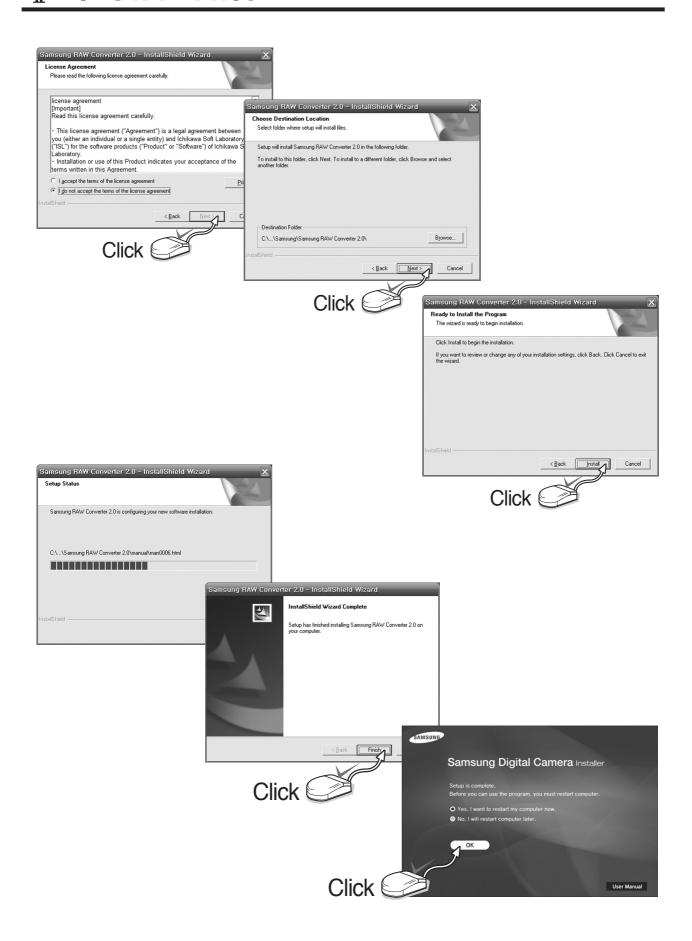1. Install the Digimax Master by following the instructions shown on your PC monitor.

Samsung Master - InstallShield Wizard

Choose Destination Location
Select folder where setup will install files.

Setup will install Samsung Master in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select another folder.

Destination Folder
D:\Program Files\Samsung\Samsung Master

InstallShield

< Back   Next >

Click

Samsung Master - InstallShield Wizard

Select Program Folder
Please select a program folder.

Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.

Program Folder:
Samsung

Existing Folders:
Accessories
Administrative Tools
Adobe
ÀÌ½ºÆ®®½ØÇ£Á£Æ®
CyberLink DVD Suite
ESET
Games
SnagIt 7
Startup

InstallShield

< Back   Next >

Click

Samsung Master - InstallShield Wizard

Ready to Install the Program
The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

InstallShield

< Back   Install   Cancel

Click

Samsung Master - InstallShield Wizard

Setup Status

Samsung Master is configuring your new software installation.

Installing

D:\...\{AEC0CEBC-0FC7-4716-8222-1C4A742719B1}\ISSetup.dll

InstallShield

Samsung Master - InstallShield Wizard

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed Samsung Master. Click Finish to exit the wizard.

< Back   Finish

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Welcome to the InstallShield Wizard for Samsung RAW Converter 2.0

The InstallShield Wizard will install Samsung RAW Converter 2.0 on your computer. To continue, click Next.

< Back   Next >   Cancel

Click

Ⅱ. INSTALLATION

Samsung RAW Converter 2.0 - InstallShield Wizard

License Agreement

Please read the following license agreement carefully.

license agreement
[Important]
Read this license agreement carefully.

· This license agreement ("Agreement") is a legal agreement between
you (either an individual or a single entity) and Ichikawa Soft Laboratory
("ISL") for the software products ("Product" or "Software") of Ichikawa S
Laboratory.
· Installation or use of this Product indicates your acceptance of the
terms written in this Agreement.

○ I accept the terms of the license agreement
◉ I do not accept the terms of the license agreement

InstallShield

< Back   Next >   C

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Choose Destination Location

Select folder where setup will install files.

Setup will install Samsung RAW Converter 2.0 in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select
another folder.

Destination Folder
C:\...\Samsung\Samsung RAW Converter 2.0\   Browse...

InstallShield

< Back   Next >   Cancel

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Ready to Install the Program

The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit
the wizard.

InstallShield

< Back   Install   Cancel

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Setup Status

Samsung RAW Converter 2.0 is configuring your new software installation.

C:\...\Samsung RAW Converter 2.0\manual\man0006.html

InstallShield

Samsung RAW Converter 2.0 - InstallShield Wizard

InstallShield Wizard Complete

Setup has finished installing Samsung RAW Converter 2.0 on
your computer.

< Back   Finish

Click

SAMSUNG

Samsung Digital Camera Installer

Setup is complete.
Before you can use the program, you must restart computer.

○ Yes, I want to restart my computer now.
◉ No, I will restart computer later.

OK

User Manual

Click

2. After restarting the computer, connect the PC to the camera with the USB cable.

3. Turn the camera power on.
   The [Found New Hardware Wizard] will
   open and the computer will recognize the camera.

● If you have installed the camera driver, the [Found New Hardware Wizard] may not open.
● If the download window of Digimax Master opens after starting Samsung Master, the camera driver
  was setup successfully.

Ⅱ. INSTALLATION

3. Troubleshooting

■ Please check the following if the USB connection malfunctions.

Case 1	The USB cable is not connected or you are using a cable with an incorrect specifi cation. ➜ **Use a USB cable with the correct specifi cation.**
Case 2	The camera is not recognized by your PC. Sometimes, the camera may appear under [Unknown Devices] in Device Manager. ➜ **Turn off the camera, remove the USB cable, plug in the USB cable again, and then turn on the camera.**
Case 3	There is an unexpected error during fi le transfer. ➜ **Turn the camera power off and on again. Transfer the fi le again.**
Case 4	When using the USB hub? ➜ **There may be a problem in connecting the camera to the PC through the USB hub if the PC and the hub are not compatible. Wherever possible, connect the camera to the PC directly.**
Case 5	If used with any other USB devices? ➜ **The camera may malfunction when it is connected to the PC at the same time as another USB cable. In this case, disconnect the other USB cable, and connect only one USB cable to the PC.**

- This Document can not be used without Samsung's authorization -

Case 6	When I open the Device Manager (by clicking Start ➜ (Settings) ➜ Control Panel ➜ (Performance and Maintenance) ➜ System ➜ (Hardware) ➜ Device Manager), there are [Unknown Devices] or [Other Devices] entries with a yellow question mark (?) beside them or devices with an exclamation mark (!) beside them. ➜ **Right-click on the entry with the question (?) or exclamation (!) mark and select "Remove". Restart the PC and connect the camera the again. For Windows 98 PC, remove the camera driver also, restart the PC, and then reinstall the camera driver.**

Case 7	In some security programs (Norton Anti Virus, V3, etc.), the computer may not recognise the camera as a removable disk. ➜ **Stop the security programs and connect the camera to the computer. Refer to the security program instructions about how to stop the program.**

Case 8	If a PC connected with the camera stops responding while Windows is starting. ➜ **In this case, disconnect the PC and the camera and Windows will start. If the problem happens continuously, set the Legacy USB Support to disable and restart the PC. The Legacy USB Support is in the BIOS setup menu (The BIOS setup menu differs from the PC manufacturers and some BIOS menus don't have Legacy USB Support). If you can't change the menu by yourself, contact the PC manufacturer or BIOS manufacturer.**

Case 9	The camera is connected to the USB port located on the front of the computer. ➜ **When the camera is connected to the USB port located on the front of the computer, the computer may not recognise the camera. Connect the camera to the USB port located on the back of the computer.**

Ⅲ. EXPLODED VIEW AND PART LIST

1. GX-20 : Fig. 1

2. GX-20 : Fig. 2
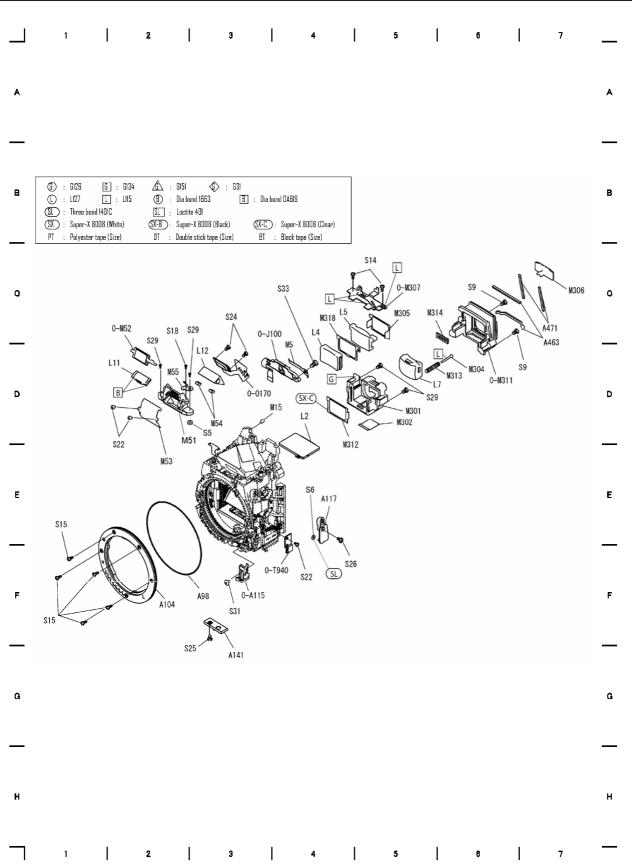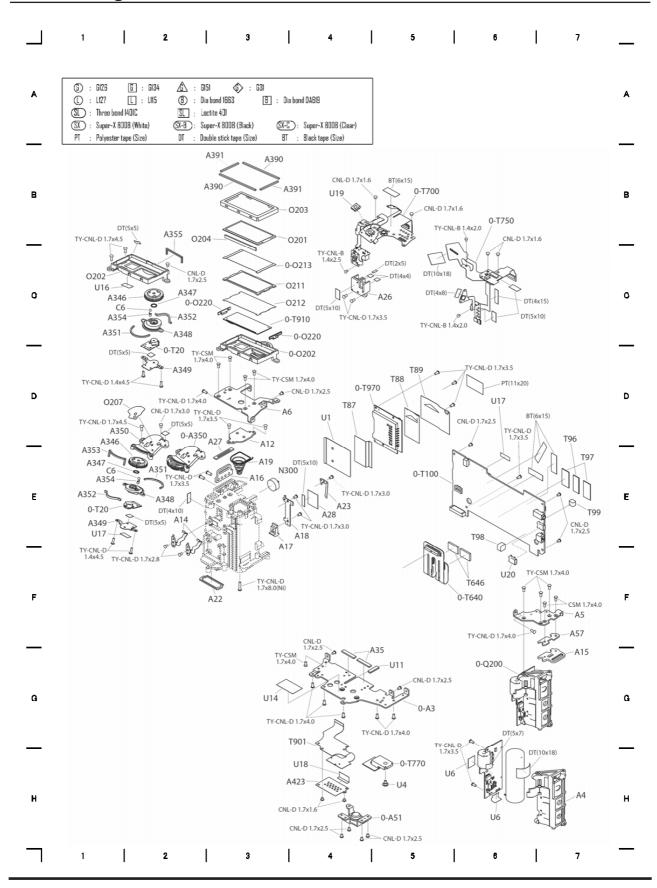
Ⅲ. EXPLODED VIEW AND PART LIST

3. GX-20 : Fig. 3

4. GX-20 : Fig. 4

G : G126 G : G134 G : G151 G : G31
L : L127 L : L115 B : Dia bond 1663 B : Dia bond DA619
SL : Three bond 1401C SL : Loctite 401
SX : Super-X 8008 (White) SX-B : Super-X 8008 (Black) SX-C : Super-X 8008 (Clear)
PT : Polyester tape (Size) DT : Double stick tape (Size) BT : Black tape (Size)

A391 A390 A390 A391 O203 O204 O201 O-O213 O211 O212 O-T910 O-O220 0-O202
DT(5x5) A355 TY-CNL-D 1.7x4.5 CNL-D 1.7x2.5 O202 U16 A346 A347 C6 A354 A352 A351 A348
DT(5x5) O-T20 TY-CSM 1.7x4.0 A349 TY-CNL-D 1.4x4.5
O207 TY-CNL-D 1.7x4.0 CNL-D 1.7x3.0 TY-CNL-D 1.7x3.5 CNL-D 1.7x2.5 A6
TY-CNL-D 1.7x4.5 A350 DT(5x5) 0-A350 A27 A12 A19 A16 N300 DT(5x10)
A346 A353 A347 C6 A351 A354 A352 0-T20 A348 TY-CNL-D 1.7x3.5 DT(4x10)
A349 DT(5x5) A14 A17 A18 A28 A23 TY-CNL-D 1.7x3.0
U17 TY-CNL-D 1.4x4.5 TY-CNL-D 1.7x2.8 TY-CNL-D 1.7x8.0(Ni) A22

CNL-D 1.7x1.6 BT(6x15) 0-T700 U19 CNL-D 1.7x1.6 0-T750
TY-CNL-B 1.4x2.0 CNL-D 1.7x1.6
TY-CNL-B 1.4x2.5 DT(2x5) DT(4x4) A26 DT(10x18) DT(4x8) DT(4x15)
DT(5x10) TY-CNL-D 1.7x3.5 TY-CNL-B 1.4x2.0 DT(5x10)

T89 TY-CNL-D 1.7x3.5 PT(11x20) U17 BT(6x15)
T88 0-T970 T87 U1 CNL-D 1.7x2.5 TY-CNL-D 1.7x3.5 T96 T97
0-T100 T99 CNL-D 1.7x2.5
T98 U20 TY-CSM 1.7x4.0
T646 0-T640
CSM 1.7x4.0 A5 TY-CNL-D 1.7x4.0 A57 A15 0-Q200

CNL-D 1.7x2.5 A35 TY-CSM 1.7x4.0 U11 CNL-D 1.7x2.5
U14 0-A3 TY-CNL-D 1.7x4.0 TY-CNL-D 1.7x4.0
DT(5x7) TY-CNL-D 1.7x3.5 U6 DT(10x18)
T901 U18 0-T770 U4 A423 U6 A4
CNL-D 1.7x1.6 0-A51 CNL-D 1.7x2.5 CNL-D 1.7x2.5

Ⅲ. EXPLODED VIEW AND PART LIST

1. The parts with numbers starting " 0 - " are assembled parts.

2. Only available parts are listed below.

* The column Q is a number of parts used.

   The column Location is an address in the illustrations of parts.(Fig. / Vertical / Horizontal)

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A3	AD97-16104A	Bottom plate assy.	1		4G5
A4	AD61-03788A	Right front piece	1		4H7
A5	AD61-03789A	Right shoulder plate	1		4F7
A6	AD81-05829A	Left shoulder plate	1	GX-10-A6	4D3
A12	AD81-05830A	Battery case cover	1	GX-10-A12	4D3
A14	AD81-05831A	Battery contact A	2	GX-10-A14	4E2
A15	AD61-03790A	Strap hook plate R	1		4G7
A16	AD81-05833A	Strap hook plate L	1	GX-10-A16	4E3
A17	AD81-05834A	Hook	1	GX-10-A17	4E3
A18	AD81-05835A	Hook spring	1	GX-10-A18	4E4
A19	AD81-05836A	Stimulate spring	1	GX-10-A19	4E3
A22	AD81-05837A	Battery cover waterproof sheet	1	GX-10-A22	4F3
A23	AD81-05838A	Reset switch contact	1	GX-10-A23	4E4
A26	AD61-03793A	Remote control base	1		4C5
A27	AD81-05839A	Strap plate waterproof sheet	1	GX-10-A27	4D5
A28	AD81-05845A	PE tape 12x15	1	GX-10-A28	4E4
A35	AD81-05841A	Dust collector sheet	2	GX-10-A35	4G5
A41	AD97-16109A	Sync terminal assy.	1		1F7
A44	AD81-08761A	Sync lead	1		1E6
A45	AD62-00089A	Insulate tube	1		1F6
A46	AD61-03796A	Sync spacer	1		1F6
A51	AD81-05842A	Tripod stand assy.	1	GX-10-0-A51	4H5
A54	AD81-05843A	Tripod screw waterproof sheet	1	GX-10-A54	2G4
A57	AD61-03797A	Strap plate spacer	1		4F7
A98	AD81-05845A	O-ring 55.3x0.75	1	GX-10-A98	3F3
A99	AD81-05846A	Lock button packing	1	GX-10-A99	1G5
A104	AD81-05847A	Mount ring	1	GX-10-A104	3F2
A107	AD81-05848A	Mount lock button	1	GX-10-A107	1G4
A115	AD81-05849A	AM Selecting slide plate assy.	1	GX-10-0-A115	3F3
A117	AD81-05850A	RAW button base	1	GX-10-A117	3E4
A141	AD81-03454A	Solder stand	1	GX-1S-A141	3F3

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A150	AD63-03344A	Front cover	1		1G5
A151	AD81-05852A	Grip rubber	1	GX-10-A151	1G2
A152	AD81-05853A	Grip rubber tape A	1	GX-10-A152	1G3
A153	AD81-05854A	Grip rubber tape B	2	GX-10-A153	1G3,1G4
A154	AD61-03369A	OIS Plate	1		1G2
A156	AD81-05856A	Remote control window	1	GX-10-A156	1F4
A161	AD63-01918A	SIDE_GRIP	1		1G4
A162	AD81-05858A	Side rubber tape A	1	GX-10-A162	1H5
A163	AD63-03347A	Side rubber tape B	1		1H5
A164	AD61-03368A	Name Plate	1		1G3
A165	AD81-05861A	AF mode lever	1	GX-10-A165	1H6
A166	AD81-05862A	AF mode click plate assy.	1	GX-10-0-A166	1F6
A168	AD81-05863A	O-ring 6x1	2	GX-10-A168	1H6,1F7
A169	AD81-05864A	RAW Button	1	GX-10-A169	1G6
A171	AD81-05865A	Screw C	2	GX-10-A171	2D4,2E4
A172	AD81-05866A	Cover retainer screw B	7	GX-1S-A73	1F4,2H3
A174	AD81-05867A	Retainer screw C	7	GX-10-A174	2H4,2H5
A175	AD81-05868A	Cover retainer screw	3	GX-10-A175	2B4
A201	AD63-01749A	Back Cover	1		1C5
A201-1	AD63-02338A	Double-sided Tape 1.2x11	4		
A201-2	AD63-02337A	Double-sided Tape 1.2x28	1		
A203	AD81-05870A	Antireflection sheet	1	GX-10-A203	1D4
A204	AD61-03491A	GUIDE_RIB	1		1C5
A205	AD63-01917A	Rear Grip Rubber	1		1A5
A206	AD63-02325A	Rear Grip Tape A	1		1B5
A207	AD63-02326A	Rear Grip Tape B	1		1A5
A208	AD63-02327A	Rear Grip Tape C	1		1B5
A210	AD63-01751A	SD card cover	1		1C3
A211	AD61-03488A	CARD_LOCK_PLATE	1		1B4
A212	AD81-05878A	Key spatula cam plate	1	GX-10-A212	1D4
A213	AD81-05879A	Key spatula spring	1	GX-10-A213	1C5
A214	AD81-05880A	SD card seal	1	GX-1S-A214	1C4
A217	AD81-05881A	SD card cover spring	1	GX-10-A217	1C3
A218	AD61-03316A	Lining board C	1		1D1
A220	AD63-02313A	I-LCD cushion A	1		1D4
A221	AD63-02313A	I-LCD cushion B	1		1C4

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A224	AD81-05883A	Rear remote control window	1	GX-10-A224	1D2
A225	AD81-05884A	Access lamp window	1	GX-10-A225	1C5
A226	AD81-05885A	Handle base	1	GX-10-A226	1C6
A227	AD64-02392A	Open lever handle	1		1B6
A228	AD81-05887A	Handle shaft	1	GX-10-A228	1B6
A229	AD81-05888A	Handle spring	1	GX-10-A229	1C6
A241	AD64-01812A	I-LCD Window	1		1B7
A242	AD63-02323A	I-LCD Window Retainer Tape	1		1B6
A244	AD61-03319A	Bottom Cover Attachment Plate	1		1C5
A245	AD63-02322A	LCD_SHIELD_FORM	4		1D1,1D2
A251	AD81-05892A	Focus point select dial	1	GX-10-A251	1C6
A252	AD81-05893A	Bearing plate	1	GX-10-A252	1D4
A253	AD81-05894A	Brush assy.	1	GX-10-0-A253	1D3
A255	AD81-05895A	4-way control key	1	GX-10-A255	1D3
A256	AD81-05896A	Lever click spring	1	GX-10-A256	1D3
A257	AD81-05897A	OK Button	1	GX-10-A257	1E3
A258	AD81-05898A	Rubber sheet £¡	1	GX-10-A258	1D2
A259	AD61-03312A	4WAY_KEY_PLATE	1		1D1
A260	AD64-01992A	INFO Button	1		1D3
A261	AD64-01993A	MENU Button	1		1D3
A262	AD64-01994A	Delete Button	1		1D3
A263	AD64-01995A	PLAY_BUTTON	1		1D3
A264	AD73-00262A	Rubber Sheet B	1		1D3
A265	AD61-03313A	MODE_FPCB_PLATE	1		1E2
A266	AD81-05906A	AF Button	1	GX-10-A266	1D3
A267	AD64-01996A	Fn Button	1		1D3
A268	AD81-05908A	Xv Button	1	GX-10-A268	1D3
A269	AD81-05909A	Rubber sheet C	2	GX-10-A269	1D2
A270	AD73-00263A	FN_BUTTON_RUBBER	1		1D3
A271	AD81-05911A	OPS Switch lever	1	GX-10-A271	1D6
A272	AD81-05912A	SR guide plate	1	GX-10-A272	1D4
A273	AD81-05913A	Guide plate	1	GX-10-A273	1D5
A281	AD63-01753A	Connector cover	1		1E7
A281-1	AD63-02338A	Double-sided Tape 1.2x8.5	2		
A281-2	AD63-02337A	Double-sided Tape 1.2x28	2		
A282	AD81-05915A	Card cover shaft	2	GX-10-A282	1C3,1D7

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A283	AD81-05916A	Lock pin	2	GX-10-A283	1D6,1E6
A284	AD81-05917A	Lock pin spring	2	GX-10-A284	1E6
A285	AD81-05918A	O-ring 1.0x0.75	2	GX-10-A285	1D7,1E7
A291	AD81-05919A	O ring 22.7x0.8	1	GX-10-A291	1C6
A292	AD81-05920A	O-ring 18.9x0.7	1	GX-10-A292	1D4
A293	AD81-05921A	O-ring 3.56x0.64	2	GX-10-A293	1C5
A294	AD81-05922A	O-ring 1.2x0.4	2	GX-10-A294	1E6
A295	AD63-02335A	SD_COVER_CUSHION	1		14B
A296	AD63-02336A	CONNECTOR_COVER_CUSHION	1		1C6
A301	AD97-16106A	Top cover assy.	1		2E6
A302	AD81-05926A	LCD Window	1	GX-10-A302	2B2
A303	AD81-05927A	LCD window double-sided tape	1	GX-10-A303	2B2
A304	AD81-05928A	O-ring 1.5x0.5	1	GX-10-A304	2E4
A310	AD81-05929A	PVF Tape 2x3	1	GX-10-A310	2C2
A311	AD81-05930A	Main SW lever	1	GX-10-A311	2B2
A312	AD81-01250A	Main SW click spring	1	GX-1S-A312	2D1
A313	AD81-01251A	Main SW lever spring	1	GX-1S-A313	2C1
A314	AD81-05931A	Main SW brush	1	GX-10-A314	2D2
A316	AD97-16105A	Release button assy.	1		2B1
A317	AD81-05932A	Release button rubber	1	GX-10-A317	2B2
A318	AD81-01150A	Retainer ring A	1	GX-1S-A318	1G5
A319	AD81-05933A	Main SW lever water proof sheet	1	GX-10-A319	2C2
A321	AD97-14322A	Hot shoe base assy.	1	GX-1S-0-A321	2B3
A322	AD81-02919A	Hot shoe (B)	1	GX-1S-A322	2B3
A323	AD81-01253A	Hot shoe spring (B)	1	GX-1S-A323	2B3
A330	AD81-05934A	Hot shoe ground plate	1	GX-10-A330	2D2
A331	AD81-05935A	Mode dial assy.	1	GX-10-0-A331	2B4
A332	AD81-05936A	Support plate	1	GX-10-A332	2D4
A333	AD81-05937A	Mode dial brush	1	GX-10-A333	2D4
A334	AD81-01254A	Mode dial spring	1	GX-1S-A334	2C4
A335	AD81-05938A	O-ring 16x1	1	GX-10-A335	2B4
A337	AD81-05939A	Photometry switch lever	1	GX-10-A337	2B4
A338	AD81-05940A	Lever click spring	1	GX-10-A338	2D4
A339	AD81-05941A	Lever brush	1	GX-10-A339	2E3
A340	AD81-05942A	O-ring 18x1	1	GX-10-A340	2C4
A341	AD81-05943A	Round shape double-sided tape	1	GX-10-A341	2F3

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A342	AD81-05944A	Mode dial base plate	1	GX-10-A342	2F3
A345	AD81-07560A	Hot shoe retainer screw	3	GX-1S-A348	2D3
A346	AD81-05945A	Dial	2	GX-10-A346	4C3,4D2
A347	AD81-05946A	Dial O-ring	2	GX-10-A347	4C3,4D1
A348	AD81-05947A	Dial base plate A	2	GX-10-A348	4D4,4E1
A349	AD81-05948A	Dial base plate B	2	GX-10-A349	4D4,4E1
A350	AD81-05949A	Main SW Base plate	1	GX-10-A350	4D2
A351	AD81-05950A	Dial waterproof sheet A	2	GX-10-A351	4D2,4D3
A352	AD81-05951A	Dial waterproof sheet B	2	GX-10-A352	4D4,4E1
A353	AD81-05952A	Dial waterproof sheet C	1	GX-10-A353	4D1
A354	AD81-05953A	Dial click spring	2	GX-10-A354	4C3,4E1
A355	AD81-05954A	Dial waterproof sheet D	1	GX-10-A355	4C4
A362	AD81-05955A	Flash arm assy.	2	GX-10-0-A362	2D6
A363	AD81-05956A	Arm retainer	2	GX-10-A363	2D5
A365	AD81-05957A	Flash hook lever Assy.	1	GX-10-0-A365	2E3
A366	AD81-05958A	Flash hook lever case	1	GX-10-A366	2E2
A367	AD81-05959A	Flash hook spring	1	GX-10-A367	2E3
A368	AD81-05960A	Flash hook plate	1	GX-10-A368	2E4
A372	AD81-05961A	Flash hook case water proof sheet	1	GX-10-A372	2D2
A375	AD81-05962A	Green button	1	GX-10-A375	2B2
A376	AD81-05963A	AE-L button	1	GX-10-A376	2B3
A377	AD81-01151A	Retainer ring B	4	GX-1S-A356	1G5,2C2,2C3,2C4
A378	AD81-05964A	Top cover button rubber	4	GX-10-A378	1G6,2B2,2B3,2C4
A379	AD81-05965A	AEB button	1	GX-10-A379	2C4
A380	AD81-05966A	POP contact brush	1	GX-10-A380	2D3
A381	AD81-05967A	Shoe spacer	1	GX-10-A381	2D3
A401	AD63-02558A	Bottom Cover	1		1H6
A403	AD63-03348A	Certification seal	1		2H5
A404	AD68-02995B	Serial Number Plate	1		1H6
A406	AD81-05970A	Battery polarity seal	1	GX-10-A406	2G7
A411	AD61-03791A	Battery cover plate	1		2G6
A412	AD63-03345A	Battery cover	1		2H7
A413	AD81-05973A	Battery cover spring	1	GX-10-A413	2H6
A415	AD66-00615A	Battery cover lock claw	2		2G6,2G7
A417	AD81-05975A	Battery cover click spring	1	GX-10-A417	2G6
A418	AD61-03792A	Battery cover handle plate	1		2G7

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A419	AD81-05977A	Battery cover shaft	1	GX-10-A419	2H7
A421	AD81-05978A	O-ring 12.5x1.0	1	GX-10-A421	2G7
A423	AD81-05979A	BG Connector mask	1	GX-10-A423	4H4
A425	AD81-05979A	O-ring 28x0.8	1	GX-10-A425	2H7
A427	AD97-16107A	Battery cover handle assy.	1		
A427	AD64-02393A	Battery cover handle	1		2H6
A428	AD81-05982A	Spring pin	1	GX-10-A428	2H6
A451	AD81-05983A	Waterproof sheet 1x11	2	GX-10-A451	1D6,1G6
A453	AD81-05984A	BOTTOM_COVER_CUSHION	2	GX-10-A453	1F5,1G6
A454	AD81-05985A	BOTTOM_COVER_CUSHION	1	GX-10-A454	2G3
A456	AD81-05986A	Waterproof sheet 1.2x11	3	GX-10-A456	1C5,1E5
A457	AD81-05986A	Waterproof sheet 1.2x20	2	GX-10-A457	2B6,2G5
A461	AD81-05988A	Waterproof sheet 1.2x158	1	GX-10-A461	2F6
A463	AD81-05989A	Waterproof sheet 1.5x34	3	GX-10-A463	2C6,3C7
A464	AD81-05990A	Waterproof sheet 1.2x96	2	GX-10-A464	2B5,2E4
A471	AD81-05991A	Waterproof sheet 1.5x25	2	GX-10-A471	3C7
A472	AD81-05992A	Waterproof sheet 1.2x105	1	GX-10-A472	2F5
A473	AD81-05993A	Waterproof sheet 1.2x9	1	GX-10-A473	2B6
A481	AD81-05994A	Waterproof sheet 1.2x28	1	GX-10-A481	2F5
A482	AD81-05995A	BOTTOM_COVER_CUSHION	1	GX-10-A482	2G5
C6	AD81-05996A	Stainless ball 2.0	2	GX-10-C6	4C4,4D1
J100	AD81-05997A	Photo sensor block	1	GX-10-0-J100	3C3
L2	AD81-05998A	Fresnel lens	1	GX-10-L2	3D4
L4	AD81-05999A	Eyepiece front lens	1	GX-10-L4	3C4
L5	AD81-06001A	Eyepiece Intermediate lens	1	GX-10-L5	3C4
L7	AD81-06002A	Eyepiece rear lens	1	GX-10-L7	3D6
L11	AD81-06002A	SI Lens	1	GX-1S-L11	3D2
L12	AD81-01454A	SI Prism	1	GX-1S-L12	3D3
M5	AD81-06003A	J100 Retainer plate	1	GX-10-M5	3C4
M15	AD81-06004A	Eccentric screw	1	GX-10-M15	3D4
M51	AD81-06005A	SI holder	1	GX-10-M51	3D2
M52	AD81-06006A	SI Mirror sheet assy.	1	GX-10-0-M52	3C2
M53	AD81-02673A	SI cover	1	GX-1S-M53	3E2
M54	AD81-01157A	SI prism molt	2	GX-1S-M54	3D3
M55	AD81-06007A	SI spring	1	GX-10-M55	3D2
M301	AD81-06008A	Eyepiece frame	1	GX-10-M301	3D5

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
M302	AD81-05187A	PVF tape 10x13.5	1	GX-10-M302	3D5
M304	AD81-02691A	Intermediate lens guide shaft	1	GX-1S-M304	3D6
M305	AD81-06009A	Light seal frame A	1	GX-10-M305	3C5
M306	AD81-06010A	Diopter adjusting lever	1	GX-10-M306	3C7
M307	AD81-06011A	Guide plate assy.	1	GX-10-0-M307	3C5
M311	AD63-03346A	Eyepiece frame cover	1		3D6
M312	AD81-06013A	Light seal frame B	1	GX-10-M312	3D4
M313	AD81-06014A	Intermediate lens spring	1	GX-10-M313	3D6
M314	AD81-06015A	Adjusting lever w-p sheet	1	GX-10-M314	3C6
M318	AD81-06016A	Light seal frame C	1	GX-10-M318	3C4
N300	AD81-06017A	Piezo-Electric buzzer	1	27830-N300	4D3
O170	AD81-06018A	SI Block	1	GX-10-0-O170	3D3
O201	AD07-00093A	LCD Panel	1		4B3
O202	AD81-06020A	LCD Flame	1	GX-10-O202	4C2
O203	AD81-06021A	LCD Retainer	1	GX-10-O203	4B3
O204	AD81-06022A	Conductive rubber	1	GX-10-O204	4B2
O207	AD81-06023A	Main SW Adhesive tape	1	GX-10-O207	4D1
O211	AD81-06024A	Light guide	1	GX-10-O211	4B3
O212	AD81-06025A	Reflection sheet	1	GX-10-O212	4B3
O213	AD81-06026A	Diffusion sheet	1	GX-10-0-O213	4B3
O220	AD81-06027A	LED P.C. Board	2	GX-10-0-O220	4C2,4C4
O301-1	3811-001967	Lead Wire Pink 60	1		
O301-2	3811-001969	Lead Wire White 30	1		
Q1	AD81-06029A	Flash cover	1	GX-10-Q1	2B6
Q2	AD81-06030A	Flash case	1	GX-10-Q2	2D5
Q3	AD81-06031A	Adjusting plate	1	GX-10-Q3	2C6
Q4	AD81-06032A	Adjusting screw	1	GX-10-Q4	2D5
Q5	AD81-06033A	Flash pop-up button	1	GX-10-Q5	2D4
Q6	AD81-06034A	Flash button spring	1	GX-10-Q6	2C4
Q7	AD81-06035A	Flash frame shaft A	1	GX-10-Q7	2C5
Q8	AD81-06036A	Flash frame shaft B	1	GX-10-Q8	2C6
Q9	AD81-06037A	Pop-up spring	1	GX-10-Q9	2D6
Q10	AD81-06038A	Flash frame shaft	1	GX-10-Q10	2D6
Q11	AD81-06039A	F Case waterproof sheet A	1	GX-10-Q11	2B6
Q12	AD81-06040A	F Case waterproof sheet B	1	GX-10-Q12	2B6
Q20	AD81-06041A	Flash window	1	GX-10-Q20	2D5

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
Q21	AD81-06042A	O-ring 3.14x0.63	1	GX-10-Q21	2C6
Q22	AD81-06043A	O-ring 3.48x0.64	2	GX-10-Q22	2C5,2C6
Q23	AD81-06044A	Flash double stick tape	1	GX-10-Q23	2D5
Q24	AD61-03794A	Flash retainer	1		
Q26	AD81-06045A	Cover retainer screw	2	GX-10-Q26	2D6
Q100	AD97-16108A	Flash assy.	1		2C5
Q200	AD97-16110A	Flash P.C.board assy.	1		3F5
T20	AD81-06048A	Tv/Av Dial P.C. Board	2	GX-10-0-T20	4D3,4EI
T50	AD81-06049A	Shoe F.P.C. Board	1	GX-10-0-T50	2F3
T61	AD63-03331A	Double-sided tape 1.2x8.5	2		1C7,1D7
T62	AD63-03330A	Double-sided tape 1.2x11	8		1B4,2E2,2E3
T63	AD63-03329A	Double-sided tape 1.2x28	3		1B4,IC7
T90	AD63-03314A	Copper foil tape	1		1C3
T91	AD63-03313A	Copper foil tape	1		1D3
T93	AD63-03315A	Copper foil tape	1		1D2
T94	AD63-03316A	Copper foil tape	1		1F4
T95	AD63-03317A	Copper foil tape	1		2C5
T100	AD92-00644A	Main P.C. board	1		
T640	AD92-00640A	T100-T650 circuit block	1		4F6
T646	AD61-03795A	Connector retainer	2		4F6
T700	AD81-06053A	Upper flex circuit -A block	1	GX-10-0-T700	4C4
T750		Upper flex circuit -B block	1		4C5
T770	AD81-06055A	PZ P.C.Board	1	GX-10-0-T770	4G5
T901	AD81-06056A	Lower F.P.C. board	1	GX-10-T901	4H4
T902	AD92-00643A	Sync circuit board	1		1F6
T903	AD63-02329A	4WAY_KEY_DOME_SHEET	1		1D2
T904	AD63-02330A	AF_BUTTON_DOME_SHEET-	1		1C2
T905	AD63-02331A	MODE_BUTTON_DOME_SHEET-	1		1D3
T910	AD92-00642A	O200 P.C.Board	1		4B2
T921-2	AD63-02361A	BACK_FPCB_TAPE	1		
T921-3	6003-001637	TY-CNL-D1.7X3.0	2		
T940	AD92-00641A	AF/MF select circuit block	1		3F4
T970	AD92-00639A	SD card circuit block	1		4E5
U1	AD81-06064A	SD card cover	1	GX-10-U1	4D4
U2	AD81-01103A	Cover retainer screw F	2	GX-1S-A69	2D5
U4	AD81-06066A	TB wheel retainer screw	1	GX-10-U4	4H5

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
U6	AD81-06068A	PI tape 8x10	1	GX-10-U6	4H6
U8	AD81-06070A	Insulating tape 13x32	1	GX-10-T91	1F3
U10	AD81-06072A	Black tape 6x15	4	GX-10-U10	2E2,4D7
U11	AD81-06073A	PVF tape 7x11	1	GX-10-U11	4G5
U13	AD81-06075A	PET sheet 4x4	1	GX-10-U13	1D4
U14	AD81-06076A	Insulating tape 12x20	1	GX-10-U14	4G3
U16	AD63-03318A	F tape 6x10	1		4C1
U17	AD63-03319A	PVF tape 3.8x10 (0.08)	2		4D6,4EI
U18	AD63-03320A	PVF tape 8x12	1		4H4
U19	AD81-08760A	Release SW	1		4B4
U20	3722-002788	USB terminal	1		4F6

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
DT1	AD63-03321A	Double stick tape 1.2x8.5	2		1D6,1E6
DT2	AD63-03322A	Double stick tape 1.2x11	8		1C4,2E2
DT3	AD63-03323A	Double stick tape 1.2x28	5		1D3,1E7
DT4	AD63-03324A	Double stick tape 2x40	1		1H5
DT5	AD63-03325A	Double stick tape 2x5	5		1H5
DT6	AD63-03334A	Double stick tape 2x15	1		1G5
DT7	AD63-03335A	Double stick tape 2x24	1		1H3
DT9	AD63-03336A	Double stick tape 3x25	2		1G2,1G3
DT11	AD63-03337A	Double stick tape 4x6	2		1H3,2D2
DT12	AD63-03338A	Double stick tape 4x10	1		1G3
DT13	AD63-03339A	Double stick tape 4x15	1		1H4
DT14	AD63-03342A	Double stick tape 4x25	1		1G4
DT17	AD63-03343A	Double stick tape 5x17.5	1		1H3
DT18	AD63-03341A	Double stick tape 5x25	1		2C2
DT19	AD63-03340A	Double stick tape 5x40	1		1G2
DT20	AD63-03333A	Double stick tape 6x6	1		1H2
DT21	AD63-03332A	Double stick tape 6x8	2		1G4,1H3
DT22	AD63-03328A	Double stick tape 9x50	1		1G3
DT24	AD63-03327A	Double stick tape 11x42	1		1G3
DT25	AD63-03326A	Double stick tape 17x45.3	1		1G4
DT25	AD63-03326A	Double stick tape 17x45.3	1		1G4

Ⅲ. EXPLODED VIEW AND PART LIST

5. PACKING ITEM_GX-20

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User's Manual

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▶ **PACKING ITEM_PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-1	6902-000938	PE BAG (FOR ACCESSORY)	1	Exclusive
5-2	AD46-00159A	CD_SAMSUNG_RAW_CONVERTER_GX-20	1	Exclusive
5-3	3903-000346	AC CODE CABLE_KOR-D1	1	Common
	3903-000347	AC CODE CABLE_EXP-D1	1	Common
	AD81-00681A	AC CODE CABLE_USA-D1	1	Common
	AD81-00682A	AC CODE CABLE_UK-DSC220SE	1	Common
	3903-000348	AC CODE CABLE_AUS-D1	1	Common
	AD81-00700A	AC CODE CABLE_TSOE	1	Common
5-4	AD68-01903A	U_MANUAL_GX-20_KOR	1	Exclusive
	AD68-01904A	U_MANUAL_GX-20_ENG	1	Exclusive
	AD68-01905A	U_MANUAL_GX-20_GER	1	Exclusive
	AD68-01906A	U_MANUAL_GX-20_FRA	1	Exclusive
	AD68-01907A	U_MANUAL_GX-20_SPA	1	Exclusive
	AD68-01908A	U_MANUAL_GX-20_ITA	1	Exclusive
	AD68-01909A	U_MANUAL_GX-20_DUT	1	Exclusive
	AD68-01910A	U_MANUAL_GX-20_RUS	1	Exclusive
	AD68-01911A	U_MANUAL_GX-20_CHI_S	1	Exclusive
	AD68-01912A	U_MANUAL_GX-20_SWE	1	Exclusive
	AD68-01913A	U_MANUAL_GX-20_DAN	1	Exclusive

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PACKING ITEM_PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-5	AD68-01914A	Q/MANUAL_GX-20(8 LANGUAGE)	1	Exclusive
5-6	AD68-02660A	Q_MANUAL_GX-20_KOR	1	Exclusive
	AD68-02661A	Q_MANUAL_GX-20_ENG	1	Exclusive
	AD68-02662A	Q_MANUAL_GX-20_GER	1	Exclusive
	AD68-02663A	Q_MANUAL_GX-20_FRA	1	Exclusive
	AD68-02664A	Q_MANUAL_GX-20_SPA	1	Exclusive
	AD68-02665A	Q_MANUAL_GX-20_ITA	1	Exclusive
	AD68-02666A	Q_MANUAL_GX-20_DUT	1	Exclusive
	AD68-02667A	Q_MANUAL_GX-20_RUS	1	Exclusive
	AD68-02668A	Q_MANUAL_GX-20_CHI_S	1	Exclusive
	AD68-02669A	Q_MANUAL_GX-20_SWE	1	Exclusive
	AD68-02670A	Q_MANUAL_GX-20_DAN	1	Exclusive

▶ **PACKING ITEM_PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-7	6801-001642	WARRANTY CARD_KOREA	1	Common
	6801-001646	WARRANTY CARD_EXP	1	Common
	6801-001658	WARRANTY CARD_2 YERARS	1	Common
	6801-001650	WARRANTY CARD_RUS(3 YEARS)	1	Common
	6801-001647	CARD_PRODUCT(Mexico)	1	Common
	6801-001659	WARRANTY CARD_TURKEY	1	Common
	6801-001660	SERVICE_CENTER_TURKEY	1	Common
	6801-001656	WARRANTY CARD_IRAN	1	Common
	6801-001662	WARRANTY_CARD_Argentina	1	Common
	6801-001675	WARRANTY CARD_TSOE(CHINA)_PRODUCT	1	Common
	6801-001663	AS_CENTER_MANUAL_TSEO_S	1	Common
	6801-001664	LOCAL_WARRANTY_CARD_INDIA	1	Common
	6801-001665	LOCAL_WARRANTY CARD_ITALIA	1	Common
	6801-001681	WARRANTY CARD_CANADA	1	Common
	AD68-02558A	PRC_CARD_RUSSIA	1	Common
5-8	AD81-00883A	LI-ION BATTERY_SLB-1674	1	Exclusive
5-9	AD81-06277A	CHARGER_SBC-L6	1	Exclusive

▶ **PARTS LIST FOR GX-20_CODE**

No	Color	Lengtn	From to	No	Color	Lengtn	From to
1	RED	95	A14-T100	35	SKY BLUE	45	Q200-T100
2	BLACK	20	A12-T200	36	WHITE	45	Q200-T100
3	GLAY	50	A12-A12	37	YELLOW	45	Q200-T100
4	BLACK	65	T100-T200	38	ORANGE	150	S350-T100
5	BLACK	35	T200-T200	39	GLAY	145	S350-T100
6	BLACK	100	A330-T200	40	BLACK	45	S31-T200
7	RED	90	S250-T100	41	ORANGE	45	S31-T200
8	BLACK	85	S250-T100	42	GREEN	50	S31-T200
9	PINK	15	O300-T930	43	RED	40	S31-T200
10	WHITE	70	O300-T930	44	RED	30	N300-T100
11	PINK	45	G119(G100)-T200	45	WHITE	30	N300-T100
12	VIOLET	40	G119(G100)-T200	46	YELLOW	30	T10-T100
13	RED	95	T72-T200	47	BLACK	30	T10-T100
14	ORANGE	80	T72-T200	48	YELLOW	45	T940-T200
15	BLUE	85	T72-T200	49	BROWN	40	T940-T200
16	GLAY	85	T72-T200	50	BLUE	40	T940-T200
17	GREEN	35	E0-T200	51	RED	40	T940-T200
18	SKY BLUE	40	E0-T200	52	WHITE	45	T940-T200
19	PINK	50	E0-T200	53	BLACK	50	T940-T200
20	BLACK	45	E0-T200	54	RED	100	T970-T100
21	WHITE	60	E0-T200	55	BLACK	105	T970-T100
22	PINK	60	G119(A300)-T200	56	ORANGE	115	T970-T100
23	VIOLET	60	G119(A300)-T200	57	GREEN	110	T970-T100
24	BLACK	30	A105-T200	58	GLAY	40	I17-T100
25	BLUE	170	Q100-Q200	59	WHITE	50	S300-T770
26	GREEN	140	Q100-Q200	60	BROWN	50	S300-T770
27	BROWN	125	Q100-Q200	61	BLACK	125	T770-T100
28	BLACK	110	Q100-Q200	62	RED	125	T770-T100
29	WHITE	25	Q104-Q110	63	BLUE	180	T770-T100
30	RED	115	Q200-T770	64	YELLOW	170	T770-T100
31	BLACK	80	Q200-T770	65	VIOLET	180	T770-T100
32	BLUE	30	Q200-T100				
33	GREEN	30	Q200-T100				
34	PINK	50	Q200-T100				

Ⅴ. FIRMWARE

1. Firmware Basic Version Check

1. Turn on the camera.

2. Turn on the camera while pressing
   the menu button.

3. Check the firmware version.

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2. Firmware Full Version Check

1. Turn on the camera.

2. Download the following attached file and save it in an SD card (ROOT).
   ※ Right click the mouse on the "download the program file" button and then select "Save as (A)... ".

3. Insert a memory card and leave the cover open.

Ⅴ. FIRMWARE

4. Turn on the camera.

5. Check the firmware version.

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3. Firmware Upgrade Procedure

Caution

If the battery goes flat during the upgrade, the camera will be damaged.
Two types of power modes therefore need to be used for safety purposes.

1. Download the latest firmware file and save it into the ROOT. (An MMC card can't be used for the firmware upgrade.)
   Check that the name of the firmware file is "FWGX20B.BIN".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card for firmware into the camera.

Ⅴ. FIRMWARE

4. Close the SD card cover of the camera.

5. Turn on the camera while pressing the 「MENU」 butto .

6. If the following indication appears on the LCD monitor, select 「YES」 using the direction keys and press the OK button.

PROGRAM UPDATE

YES
NO

CURRENT VERSION 0.01
UPDATE VERSION 0.01

The firmware upgrade starts.

(Updating takes about 60 secs. Updating time depends on the contents of the firmware.)

  * Never attempt to turn off the power.

Ⅴ. FIRMWARE

7. When the 「COMPLETE」 sign
   appears, turn off the main switc.

* When the firmware upgrade is completed, the SD card LED (red) indicating its status, keeps blinking.

When the firmware upgrade is completed, the camera is set back to the original factory settings (language, date, time).

Readjustments for each item are not needed, as the firmware upgrade is not relevant to the data related to adjustments.

4. Firmware Upgrade Procedure After Main Board Replacement

✍ **Caution**

If the battery goes flat during the upgrade, the camera will be damaged.
Two types of power modes therefore need to be used for safety purposes.

1. Download the firmware to replace the main board and save it into the ROOT in the SD memory card (an MMC card can't be used.). Check that the name of the firmware is "KB454B.BIN".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card (firmware for replacing the main board) into the camera.

Ⅴ. FIRMWARE

4. leave the cover open.

5. Turn on the camera.

6. The following message will appear on the LCD monitor.

DETECTED BOTH F/W FILE
COMPLETE LOADING
-------- CPU --------
CURRENT VER.1.00.00.04
UPDATE VER.1.00.00.04
======= DSP =======
CURRENT VER.1.00.00.04
UPDATE VER.1.00.00.04
>>> EJECT CARD <<<

7. Remove the SD card.
   (Keep the memory card cover open.).

The firmware upgrade starts for replacing the main board.
(Updating takes about 60 secs. Updating time depends on the contents of the firmware.)

 * Never attempt to turn off the power.

Removing the current firmware….

Ⅴ. FIRMWARE

Preparing to write new firmware….

Writing new firmware….

8. When the upgrade is completed, the camera's power is turned off automatically.

After the firmware upgrade for replacing the main board, run the EEPROM PATCH.

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5. Run EEPROM PATCH

1. Download two files for EEPROM PATCH and
   save them into the ROOT in the SD memory
   card (an MMC card can't be used.).
   The files are "KB454.eep" and "MODSET.454".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card (two files for EEPROM PATCH) into the camera.

4. leave the cover open.

Ⅴ. FIRMWARE

5. Turn on the camera.

6. The following message will
   appear on the LCD monitor.

7. When the 「COMPLETE」 sign
   appears, turn off the main switc.

After the firmware upgrade for replacing the main board and the execution of the EEPROM PATCH are completed, make sure to carry out adjustments.

See "Adjustments" for detailed adjustments.

Ⅵ. ADJUSTMENT

1. Preparation for Adjustments

Preparation Equipment :

□ Adjustments program software (written in CD-R) for 77012 (GX-20)

□ Personal Computer (below PC for adjustment)

    OS : Windows XP SP2
    CPU : above 1GHz
    RAM : above 512MB
    HD Bin Memory : above 500MB

□ 5 SD cards (above 16MB)

□ SD card reader or a USB cable to the body of the camera (connect to the PC)

1. Prepare three SD cards for adjustment.

  * Prepare three SD cards.

1. For product firmware (GM_FW)

2. For initial data settings (Initial Data Set)

3. For initial settings (factory initialized, 「Initialize Set」)

4. For firmware when replacing the T100 circuit board (Product ID FW)

2. Setting the computer and writing an SD card

* Insert the 77012 (GX-20) CD-R for adjustment into the CD-Rom drive of the computer.
(77010£ƒPENTAX K20D)

① Copy the「77010」folder from the CD-R onto the C drive. (Adjustment software main body)

② Copy a file in the「GM_FW」file to an SD card (for product firmware).

③ Copy two files in the「Initial Data Set」folder to an SD card.

④ Copy a file in the「Initialize Set」folder to an SD card.

⑤ Copy two files in the「Product ID FW」folder to an SD card.

3. Software Installation

📝 **IMPORTANT**

Install the three types of the following software.

◆ Net Framework Ver2.0 (new)
◆ VC++2005 SP1 (new)
◆ VB Runtime (unnecessary if the「VB Run Time Set-up」program for GX-1S and GX10 is
installed already)

Ⅵ. ADJUSTMENT

* Insert the 77012 CD-R for adjustment into the CD-Rom of the computer.

① Double click on the "dotnetfx.exe" file in the 「NetFramework2.0」 folder.
   If the installer is executed, install the software according to the instructions on the screen.

② Double click on the "vcredist_x86.exe" file in the 「VC++2005 SP1」 folder and execute the installation.

③ When the 「VB Run Time Set-up」 program is not installed, double click on the "setup.exe" file in
   the°∏vb6run_cs_x.x.x°πfolder and execute the installation.

2. Calibration of light source for digital adjustments

> ✎ **IMPORTANT**
>
> Calibration of light source has to be done prior to the 77012 digital adjustments.
> When the adjustment software, the light source or the photometry standard lens for adjustments are replaced, calibration must be done. (Calibration process is identical to the 76832 (GX10).)

Preparation Equipment :
- □ Master body for 76830(K10D) light source calibration

- □ 77012 digital adjustments software (M-Test)

- □ PC (Windows XP, USB port standard device)

- □ Light box (LB-3300, Light source A)

- □ Photometric standard lens for adjustments and F8 set ring

- ※ Use a lens with an ID no. identical to the lens ID no. as shown on the CD-R (adjustments software).

- □ USB cable

- □ AC adaptor

- □ Material for blocking light (dark curtain)

- □ Color thermometer for photography (for light source adjustments)

- □ LV checker (for checking LV values)

1. Computer Set-up

「2. Setting the computer」 in the 「Preparation」 section has to be completed.
(Use the digital adjustment software.)

Ⅵ. ADJUSTMENT

2. Calibration

① For a stable light source, wait for 30 mins after turning on the power of the light source prior to calibration.

② Adjust the brightness and the color temperature using the color thermometer for photography and the LV checker as below.

Light	Brightness	Color temperature
LV12	LV12.00Ev ±0.50	2,856K ±30
LV11	LV11.00Ev ±0.01	-

* Calibration is performed in the following sequence with a K10D master body.

3. Master body and photometric standard lens set-up

① Set the mode dial to 「M」.

② Set the focus mode lever to 「MF」.

③ Set the SR lever to「OFF」.

④ Install the photometric standard lens for adjustments and the F8 set ring on the body.

⑤ Set the aperture stop of the photometric standard lens to 「F8」.

4. Calibration procedure

① Connect the AC adaptor to the camera (master body).

② Access to the PC using the USB cable.

③ Turn on the camera and check that the camera is recognized by the PC.

④ Set the light box to 「LV12」.

⑤ Position the lens on the top center of the light box.

⑥ Cover the whole camera and the rest of the top section.

⑦ Double click on the "77010_M-Test_CS_Ver_.exe" file in the 「77010-M-Test CS」 folder.

⑧ Enter the lens ID no. and click on "OK" on the lens input screen. (e.g.:123)

⑨ Click on "Yes (Y)" if the lens no. is entered correctly.

⑩ The digital adjustment screen appears. Click on the icon for calibration at the top left of the screen.

⑪ The calibration screen appears. Click on the "Enter" key (or "START" button).
   (Release 15 times about for 35 secs.)

Ⅵ. ADJUSTMENT

⑫ When all the adjustments are completed, the OK image appears.

⑬ End the adjustments software by clicking on the [X] button (or [END] button).

※ See the 「Error code table」 in the manual for NG adjustment.

3. Adjustments flow chart when replacing the T100

The sequence of adjustments items when replacing the T100 main circuit board is as follows.

- Note Prod. ID FW「Product ID FW」
- Set the initial data「Initial Data Set」

SR adjustment (SR unit adjustment)
「K20D_SR_Operation_Adjustment」

Single-lens reflex functional section adjustment
「K20D_PDCAdj」(※Data initialization is unavailable)
「K20D_Uniformity_CS」
「K20D_FI_CS」

SR adjustment (SR gain adjustment)
「77010 SR_Gain For CS」

Digital section adjustment
「77010 M-Test CS」

WDC (Adjust the defective white pixels)
「77010_White Pixel Adjust」

Shutter speed adjustment according to the histogram
「K20D_PDCAdj」

Function test
*SR check can be skipped if SR adjustment is completed.

Initial settings
(Initialized at the factory)
「Initialize Set」

Ⅵ. ADJUSTMENT

4. OPS unit (Operation) adjustments

> ### 📝 IMPORTANT
>
> 【CAUTION 1】This adjustment must be performed when replacing the T100 circuit boar.
>
> 【CAUTION 2】The adjustment must be performed on a rigid, stable and even area without vibration.

Preparation Equipment　:
- □ OPS unit adjustment program for the GX-20

- □ SR unit adjustment plate

- □ PC (Windows 2000 or XP, USB port standard device)

- □ USB cable

- □ AC adaptor or DC code • constant voltage DC8.3 V for 76830

1. Computer set-up

① Copy the 「K20D SR Operation Adjustment」 folder onto the PC.

⊟ 📁 K20D SR Operation Adjustment↵

2. Preparation

① Set the AF change lever to 「MF」 (top position).

※ Camera setting: mode dial "M", OPS switch "ON"

② Mount the OPS unit adjustment plate (↓) on the body.

③ Put the body on a stable support (table) downwards.

④ Check the CCD ID no. when replacing the T100 circuit board.

3. Adjustment procedure

① Start the PC.

② Connect the body to the PC using the USB cable and connect the AC adapter to the body. (power ON)

③ Check that the hot plug icon display is recognized on the PC.

④ Double click on the 「K20D SR Operation.exe」 file in the adjustment software folder and execute it.

⑤ The adjustment screen appears.

⑥ Click on the [Start] button.

Ⅵ. ADJUSTMENT

⑦ The following screen appears.

⑧ Adjust by selecting INPUT or SKIP as below.

≪ If the T100 is not replaced ≫

click on the [Skip] button.

≪ If the T100 is replaced ≫

enter the CCD ID no. twice.

↓

Click on INPUT.

※ Click on the "Cancel" button when stopping the adjustment.

The following is the screen during adjustment (Adjustment time: 3mins 30secs).

✎ **IMPORTANT**

Do not generate any vibrations or walk around the work area during adjustment.
If vibration occurred during adjustment, readjustment is needed even if the adjustment is completed.

※ Click on the "Stop" button when stopping the adjustment.

⑨ If the following screen is displayed, the adjustment is completed.

⑩ Check the "Unconnect" display, and end the adjustment by clicking on the [X] button.

※ If the adjustment is displayed as NG, the green turns into red.

Ⅵ. ADJUSTMENT

5. OPS gain adjustment

> ### ✏ IMPORTANT
>
> 【CAUTION 1】This adjustment must be performed when replacing the T100 main circuit board, the T640 relay board or the T970 circuit board.
>
> 【CAUTION 2】This adjustment must be performed after the OPS adjustment (unit adjustment).
>
> 【CAUTION 3】The adjustment must be performed on a rigid, stable and even area without vibration.
>
> 【CAUTION 4】Handle the adjustment stage carefully, as it is heavy.
> Do not touch the black vibration plate.

Preparation Equipment :

□ SR gain adjustment program (SR_GainForCS) for the GX-20

□ SR gain adjustment device for the GX10 (driving stage • controller • speed meter)

□ SR gain adjustment chart for GX10 (identical to the GX10)

□ PC (Windows XP (SP2), USB port standard device)

□ D-XENON 50-200 mm lens

□ USB cable

□ AC adapter (or DC code for 76830)

1. Computer set-up

① 「NetFramework2.0」 and 「Visual C++Runtime2005」 must be installed on the PC already.

② The 77010 「SR_GainForCS」 folder must be copied onto the hard disk.

2. Preparation

① Set up the chart (■) 2.00m from the tripod knob of the camera.

② Set the lighting to LV 10 to 12 without the surface of the chart spotted.

③ Set the zoom ring of the D-XENON 50-200mm lens to 200mm and its distance ring to 2m.

(Fix the four sections with tape to prevent vibration.)

Ⅵ. ADJUSTMENT

④ Mount the lens on the body of the camera.

⑤ Set the body as below.

- Mode dial 「M」

- AF change lever 「MF」

- OPS switch 「ON」

⑥ Mount the body of the camera onto the vibration plate.

⑥ Fix the camera firmly using the two knobs.

⑦ Locate the chart (■) on the center of the finder. (Within the spot metering frame.)

【Check】 Check again that the distance is 2.0mm.

Turn on the controller and turn the dial up to 1,000 rpm.

Turn off the controller after checking.

⑨ Connect the camera to the PC using the USB cable, and turn it on.

3. Adjustment

① Double click on the "SR_GainForCS.exe" file in the 77010「SR_GainForCS」folder.

② Start the adjustment by clicking on the "Execute" button.

Ⅵ. ADJUSTMENT

③ Turn on the controller (1,000 rpm). Adjust the X direction by clicking on the "OK" button.

④ Turn off the controller, and click on the "OK" button.(The following adjustment starts.)

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⑤ Turn on the controller again (1,000 rpm), and click on the "OK" button. (Adjust the following)

⑥ Turn off the controller, and change the positions of the camera and the stage to the Y direction adjustment. ↓

> ✎ **IMPORTANT**
>
> Handle the stage carefully, as it is heavy. Do not touch the black vibration plate.

Ⅵ. ADJUSTMENT

⑦ Set up the chart (■) 2.00m from the tripod knob of the camera and locate the chart on the center of the finder.

⑧ Click on [OK], and adjust the Y direction in the same way as the X direction adjustment.

⑨ If all the adjustments are completed, then the OK message appears.

⑩ End the adjustments by clicking on the [X] button or [Quit] button.

6. SLR (Single Lens Reflex) functional section adjustment

📝 **IMPORTANT**

【CAUTION 1】This adjustment must be performed when replacing the T100 circuit board.

【CAUTION 2】Each setting except for the custom function will be initialized when executing this adjustment.

【CAUTION 3】Adjust the shutter speed after adjusting the digital section.
See「Shutter speed adjustment according to the histogram」.

Preparation Equipment :
□ SLR adjustment program for 77010 (comprised of three types as below)

K20D PDCAdj (SLR adjustment except for the following),

K20D Uniformity CS (AF sensor uniformity adjustment),

K20D FI CS§§(AF focus adjustment

□ PC (Windows XP (SP2), USB port standard device)

□ USB cable

□ AC adapter (or DC code for the 76830)

□ Light source for the AE adjustment (LV6 • LV8 (or 9) • LV12 • LV15 (or 16), shutter tester)

□ Digital photometric standard lens (No.95901-D20, Lens ID No. attachment), F8 set ring

□ F5.6 set plate for photometric standard lens (No.95901-D20 only)

□ Side AF gradient adjustment tool (square)

□ AF gradient adjustment tool (cross)

□ Hexagonal driver 1.5mm (HD-M1.5)

Ⅵ. ADJUSTMENT

□ Two types of AF chart for 2m

□ AF focus standard lens for 2m

□ D-FA(FA) Macro 50mm F2.8

□ FA(F) 35-80mm F4-5.6

□ Constant voltage (above 8V • 3 A)

□ Battery adapter for 76830

1. Computer set-up

① Install PC 「VB run time」 set-up, 「NetFramework2.0」 and 「Visual C++Runtime2005」 on the PC
   (Refer to preparation).

② Copy the 「K20D PDCAdj」 folder, the 「GX20 Uniformity CS」 folder and the 「GX20 FI CS」 folder.

2. Preparation

① Attach the lower cover and the battery cover to the body (connection terminal cover is not needed.)

② Set the focus lever mode to 「MF」.

③ Set the exposure mode dial to 「M」.

④ Set the SR (OIS) lever to 「OFF」.

⑤ Connect the camera to the PC using the USB cable and turn on the camera.

3. Adjustment (K20D PDCAdj

① Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」folder (Adjustment screen display).

② Start the communication with the camera by clicking on the "Op" icon. (USB open)

【Check】Check that the USB IO is displayed as 「Connect」.

③ Adjust and check according to the display

※Data initialization

【CAUTION】Select 「No」, as the SR adjustment data is cleared.

Replace the main board?

No

6:BATTERY LEVEL ADJUST

Adjustment screen and all the items display

1：EEPROM CHECKING

2：EXPOSURE ADJUST

Ⅵ. ADJUSTMENT

◇[BV ADJUST]

F5.6 Set Plate

3 : AF AND RELATED ADJUST
↓

◇Adjust [CCD POSITION ADJUST]

↓

◇Adjust [AGC LEVEL ADJUST]

↓
↓

5 : EEPROM CHECKING
(※Perform this after completing all the adjustments and checking.)

※ The following adjustment must be performed when replacing the T100 circuit board
  (unnecessary to follow the following order.)

6 : BATTERY LEVEL ADJUST

Bc Adjust

ⓘ SET REGULATED DC POWER SUPPLY TO 8.0 v.
   TURN THE SELECT SW TO GRIP POSITION.

OK

Bc Adjust

ⓘ TURN THE SELECT SW TO BATTERY POSITION.

OK

Battery adaptor for 76830

Select SW : ① Battery

② Battery & Grip

③ Grip

7 : SHUTTER SPEED ADJUST

 * See 「Shutter speed adjustment according to the histogram」.

4. Ending procedure

① Click on the "Cl" icon, and disconnect the communication with the camera. (USB close)

【Check】Check that the USB IO is displayed as 「Unconnect」.

② Click on the "end" icon, and end the adjustment program.

P D C Adj Ver.0:1:1

USB Test(a)   Af Adj(d)   Ae Adj(e)   Etc. (E)

Op Cl p.s ver   end m.n

Product Number:

K20D   Interface Support : USB IO   Unconnect

Ⅵ. ADJUSTMENT

7. Exposure adjustment - BV adjust (brightness value)

Determining exposure is one of the most important things in shooting.

If the exposure value is increased, a photo will come out with a bright tone. If the exposure value is decreased, a photo will come out with a dark tone. The metering sensor measures the quantity of light to determine the appropriate exposure in order for a subject to have the appropriate brightness.

1. Adjustment procedure

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
　　Check that the USB IO is displayed as "connected".

⑥ Mount the diaphragm set ring on the camera with the aperture open.

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If there isn't a tool for the diaphragm set ring, a lens which can set the aperture to 1.4 can be used.

⑦ Connect the camera to the EV tester.

Ⅵ. ADJUSTMENT

⑧ Click on the "2. EXPOSURE ADJUST - BV ADJUST" button.

Enter the lens ID no. and click on "Input".

⑨ Select the type of the EV tester.

⑩ If you click on the BV ADJUST button, a message "Set the EV tester to LV6" will appear.
Set the EV tester to LV6 and click on the "OK" button.

After the following message appears, change the set plate to an F5.6 set plate.

Click on "OK" and continue with the adjustment.

Ⅵ. ADJUSTMENT

A message "Set the EV tester to LV15" will appear. Set the EV tester to LV15 and click on the "OK" button.

If the adjustment is completed, the following message will appear. Click on the "OK" button.

The adjustment value is saved in the camera.

Click on the "CLOSE" button.

Ⅵ. ADJUSTMENT

⑪ Click on the "CI" button on the top menu of the main screen.
Check that the USB IO has been changed to "Unconnect" from "Connect".

⑫ Click on the "end" button and end the program.

⑬ Disconnect the USB cable from the camera and check the side light.

    1. Attach a bundle lens to the camera and set the camera as follows.

       AV mode, aperture stop F8, ISO 200, spot side light, focus MF mode, set the lens distance to 35M, set the distance ring to infinitive.

    2. Put the camera near the EV tester.

    3. Check the Tv display by changing the brightness (LV) and half-pressing the release button as shown in the following table.

	LV6	LV8	LV9	LV10	LV12	LV15	LV15(분활측광)
Tv 표시	Tv0.5"	Tv8	Tv15	Tv30	Tv125	Tv1000	Tv750

If the shutter speed values change identically to the table above according to the changes of the LV values with the aperture stop of F8, the adjustment has been completed. Otherwise perform the adjustment again.

8. AF sensor position adjustment

The AF sensor captures an image of the subject clearly. The following adjustment must be performed when replacing the AF sensor or when there is a problem with an AF function.

1. Adjustment procedure

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
　 Check that the USB IO is displayed as "connected".

Ⅵ. ADJUSTMENT

⑥ Install a cross gradient adjustment tool.
　Set the focus mode to MF.

⑦ Connect the camera (Cross installation) to the EV tester.

⑧ Click on the "3.AF AND REL ADJ - CCD POSITION ADJ - ADJUSTMENT" button.

⑨ Click on the "DumpStart" button on Alpha-CROSS.

Ⅵ. ADJUSTMENT

Set the LV value on the EV tester to 12 and click on the "OK" button.

If the measurement values are displayed in green, it is normal.
(Adjust the position of the AF sensor to make the sizes and shapes of the graphs uniform.)

If the measurement values are not displayed in green and the sizes and shapes of the graphs are different, adjust the gradient of the AF sensor by turning the two areas with an Allen wrench as shown in the following figure. Adjust the gradient until the green appears on the screen. (The values are better to close to "0".).

⑩ Install the square gradient adjustment tool.

VI. ADJUSTMENT

Click on the "DumpStart" button on Beta-SQUARE.

Set the LV value on the EV tester to 12 and click on the "OK" button.

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If the measurement values are displayed in green, it is normal.

If the measurement values are not displayed in green and the sizes and shapes of the graphs are different, adjust the gradient of the AF sensor by turning the two areas with an Allen wrench as shown in the following figure. Adjust the gradient until the green appears on the screen. (The values are better to close to "0".).

Ⅵ. ADJUSTMENT

⑪ Install a standard lens (50M F1.4).

Set the distance from the camera mount plane to the AF chart no.1 to 1,954.5mm(=1.9545m) using the tripod.

1.9545m

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Click on the "Start" button in "Focus".

Check the conditions of the camera and chart settings as below and click on the "OK" button.

Ⅵ. ADJUSTMENT

Move the centers of the blue graphs in the three sections (left, middle, right) to the red reference lines.
Move the centers of the graphs to the red lines by moving the camera mounted on the tripod slightly
(the bottom of the curve is the center.).
If the centers of the graphs are moved to the red lines, then click on the "Next" button.

If the measurement values are displayed in green, it is normal.

If the measurement values are not displayed in green, adjust the height of the AF sensor by turning the three areas with an Allen wrench as shown in the following figure. Adjust the height until the green appears on the screen.

Turn the Allen wrench in the same direction for all three areas.
If you turn each area in different directions, the gradient will change.
You need to check the gradient or adjust it again.

Ⅵ. ADJUSTMENT

9. AF sensor position check

This is a process to check if the AF sensor has been positioned correctly.

1. Procedure

① Install a 35-80 F4-5.6 lens on the camera.

If there isn't a 35-80 F4-5.6 lens, a bundle lens can be used.

Set the items as below if a bundle lens is used for adjustment. Focus MF mode, lens distance 55m, distance ring 0.4m.

② Connect the camera to the EV tester. (Install a 35-80 lens or a bundle lens)

③ Click on the "3. AF AND REL ADJ - CCD POSITION ADJ - POSITION CHECK" button.

VI. ADJUSTMENT

④ Set the EV tester LV to 12. Set the distance ring to 0.4m from 80mm for the 35-80 lens, and click on the "CHECK" button. Set the distance ring to 0.4m from 55mm for the bundle lens.

⑤ If the AF sensor is positioned correctly, the following message will appear. Click on the "OK" button.

If "NG" appears, then adjust the position of the AF sensor again.

Close the AF sensor position check screen by clicking on the "CLOSE" button.

CCD POSITION   [Form instance No,2]

CCD POSITION CHECK

MOUNT F ZOOM LENS 35-80 ONTO CAMERA.

SET THE LENS TO MIN. DISTANCE (0.4M)

AND TELE END (80MM).

SET LIGHT SOURCE TO LV 12.

SET FOCUD-MODE SW OF CAMERA TO MF.

CHECK   Close

Ⅵ. ADJUSTMENT

10. AGC level adjust : AGC (Automatic Gain Control)

This circuit reduces intermodulation and prevents saturation occurring at the amplification stage of the AF sensor. For example, if the input value is greater than the standard value in the AF amplification circuit, this circuit reduces the gain. If the input value is smaller than the standard value, this circuit increases the gain for better output.

Auto Gain Control
If the signal is stronger than the standard, saturation of the signal is prevented by controlling the gain (similar to sensitivity of film). If the signal is weaker than the standard, it increases the level of the signal up to the standard.

1. Adjustment procedure

① Install a 50mm F1.4 lens on the camera. (Set the focus mode to MF.)

② Connect the camera to the EV tester. (Install a 50m lens.)

③ Click on the "3. AF AND REL ADJ - AGC LEVEL ADJUST" button.

Ⅵ. ADJUSTMENT

④ Select the type of EV tester and adjust the LV values (light value, reference exposure value) in the following order 6, 7, 12 and 15 by clicking on the "AGC Adjust" button.
If the adjustments are completed, click on the "Close" button.

11. Uniformity CS : Adjustment to make the outputs of each AF sensor uniform.

The outputs of each AF sensor are not uniform. This is an adjustment process to improve the performance of the AF sensor by making the outputs uniform.

Adjust the AF sensor when the AF sensor has been replaced or when it is faulty.

1. Adjustment procedure

① Install a Macro 50mm F2.8 lens to the camera. (Set the focus mode to MF, infinitive.)

② Connect the camera to the EV tester. (Install a 50m lens.)

Ⅵ. ADJUSTMENT

③ Double click on the "X20_SLR_Uni_.exe" file in the 「GX20_Uniformity_CS」 folder.

④ Click on the "Execute" button and start the adjustment.

⑤ If the adjustment is completed, the "OK" message will appear at the bottom left of the screen.

⑥ Click on the [X] button and end the adjustment.

⑦ If an adjustment error occurs, the "NG" message and an error code will be displayed.
   See「Error code table」in the manual.

Ⅵ. ADJUSTMENT

12. FI CS adjustment (focus)

Equipment to be used :

　□ Two types of 2m AF charts (No.1, No.2)

　□ A 2m AF focus standard lens

* The 2m AF chart is installed in the following conditions.

1) The distance from the camera mount to the 2m AF chart: 1,954.5 mm (=1.9545m)

2) The chart has to be perpendicular to the optic axis of the lens in the up, down, left and right directions.

3) Shed the lighting on the surface of the chart until the LV value reaches 11 or 12.
　 (If the brightness is low, the adjustment is NG.)

1. Adjustment procedure

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "GX20_SLR_FI_.exe" file in the 「GX20_FI_CS」 folder.

④ The adjustment screen appears.

⑤ Click on the "Enter" button after entering the temperature (℃). (@ : Use the mouse pointer to select "Fahrenheit".)

⑥ The following screen appears after the temperature adjustment.

⑦ Set the camera to the vertical line of the AF chart no.1.

⑧ Start adjusting the position of the chart by clicking on the "OK" button.

⑨ If the positions of the camera and the chart are not aligned, the following message appears.
Adjust the position of the camera to match the red line with the yellow line.

⑩ If the camera and the chart are positioned correctly, the following message appears.
If this state is maintained, the adjustment starts automatically.

📝 IMPORTANT

Do not touch the camera or the chart during the adjustment. The adjustment has to be performed again if there is contact, even if it was OK.

Ⅵ. ADJUSTMENT

⑪ If the adjustment is OK, then adjust the position of the AF chart No.2 (horizontal line) to the camera.

⑫ Adjust the position of the camera and the chart in the same way as the vertical sensor's adjustment. (Up and down direction).

⑬ If the adjustment is completed, then the "OK" message appears.

⑭ Click on the [X] button and end the adjustment.

13. Battery level adjustment

This is a process which checks the residual quantity of the camera's battery power and displays it in the LCD information window.

Equipment to be used :
- 76830 battery adapter

- Constant voltage (above DC8V • 3 A)

1. Adjustment procedure

① Connect the battery adapter to the camera.

Battery adaptor for 76830
Select SW : ①Battery
②Battery & Grip
③Grip

② Connect the USB cable from the camera to the PC.

③ Turn on the camera and check that the hot plug icon is displayed on the PC.

④ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

Ⅵ. ADJUSTMENT

⑤ The adjustment screen appears.

⑥ Click on the "Op" icon and start the communication with the camera. Check that the USB IO is displayed as "connected".
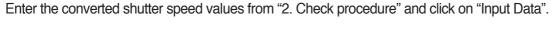

⑦ Click on the "6. BATTERY LEVEL ADJUST" button.

⑧ Adjust by changing the Select SW according to the instructions on the screen.

⑨ If the adjustment is completed, then click on the "CI" button.
　　Check that the USO IO is changed to "Unconnect" from "Connect".

⑩ Click on the "end" button and end the program.

Ⅵ. ADJUSTMENT

14. Image sensor (Digital adjustment M-Test)

Preparation Equipment :

▫ 77010 digital adjustment program (77010-M-Test CS)
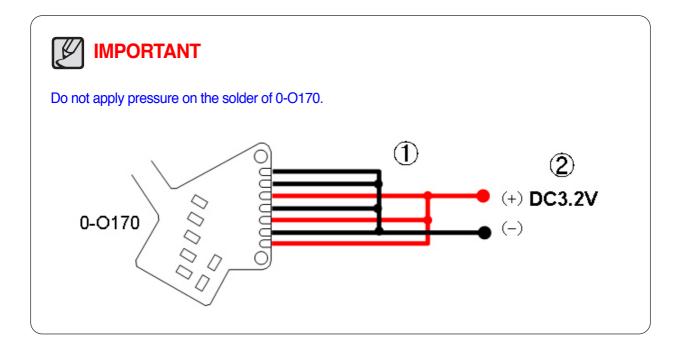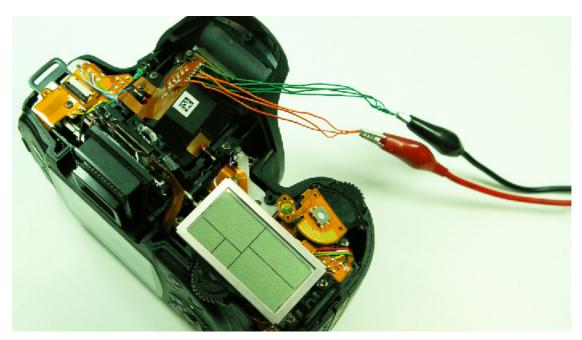
▫ Light box (LB-3300, light source A)

▫ PC (below Windows XP (SP2), USB port standard device)

▫ Photometric standard lens for adjustments and F8 set ring

※ Use a lens with an ID no. identical to the lens ID no. as shown on the CD-R (adjustments software).

▫ USB cable

▫ AC adapter

▫ Material for blocking light (dark curtain)

▫ Color thermometer for photography (for light source adjustments)

▫ LV checker (for checking LV values)

1. Computer and light source set-up

① 「NetFramework2.0」 and 「VisualC++Runtime2005」 must be installed on the PC.

② Copy the 「77010-M-Test CS」folder onto the hard disk.

③ 「light source adjustment for digital adjustment」 must be completed with the 76830 master body.

④ Adjust the brightness and the color temperature using the color thermometer for photography and the LV checker as below.

Light	Brightness	Color temperature
LV12	LV12.00Ev $\pm$0.50	2,856K $\pm$30
LV11	LV11.00Ev $\pm$0.01	-

2. Camera and photometric standard lens set-up

⑤ Set the mode dial to 「M」.

⑥ Set the focus lever to 「MF」.

⑦ Set the OPS lever to 「OFF」.

⑧ Install the photometric standard lens for adjustments and the F8 set ring on the body.

⑨ FSet the aperture stop of the photometric standard lens to the 「F8 position」.
   (or set a 50M F1.4 lens to F8)

Lens ID No

⑩ Cover the light box (Brightness measurement equipment (light source A, color temperature 2,850K±10, brightness LV11.00)) with a light blocking cover and position the lens in the middle of the light box.

Ⅵ. ADJUSTMENT

3. Adjustment procedure

① Connect the USB cable from the camera to the PC, and turn on the camera.

② Double click on the "77010_M-Test_CS_Ver_.exe" file in the 「77010-M-Test CS」 folder.

③ Enter the lens ID no. and click on "OK" on the lens input screen. (e.g.:123)

④ Click on "Yes (Y)" if the lens no. is entered correctly.

⑤ Hit the "Enter" key (or click on the "START" button) and start the adjustment.
   (Start the adjustment according to the instructions.)

⑥ If all the adjustments are completed, then the "OK" message appears.

⑦ Click on the [X] button (or [END] button) and end the adjustment program.
   (Adjustment time: approx. 3 mins 30 secs).

Ⅵ. ADJUSTMENT

15. WDC adjustment

※ Defective white pixels adjustment (light source • reference lens are not needed.)

 * Adjusting a few times may fix the bad pixels.

Camera set-up : Mode dial M, focus lever MF, lens removal, memory removal.

1. Adjustment procedure

① Connect the AD adapter to the body of the camera.

② Connect the USB cable from the body of the camera to the PC.

③ Turn on the camera and check that the PC recognizes the camera.

④ Start the adjustment program (77010_WhitePixelAdjust.exe).

⑤ Click on the "START" button in the adjustment program, or hit the "Enter" key on the keyboard.

⑥ If all the adjustments are completed, then the "OK" message appears.

⑦ Click on the [X] button (or [END] button) and end the adjustment program.
(Adjustment time: approx. 70secs).

16. Shutter speed adjustment

This adjustment is performed when replacing the shutter layer or when the shutter speed is faulty. By entering the standard shutter speed values, the correct shutter speed corresponding to the standard values can be achieved.

* 「single-lens reflex functional section • digital section adjustment」 must be done prior to this adjustment.

* Adjust the shutter speed when replacing the 0-T100 main board.

Preparation Equipment :
  □ Single-lens reflex functional adjustment program

  □ PC (Windows 2000 or XP, USB port standard device below, PC)

  □ Photometric standard lens for adjustments and F8 set ring

  □ Light source (LB-3300, use LV8 or LV9)

  □ USB cable

  □ AC adapter

  □ An SD card for test shooting

  □ Transparent ruler (metric ruler, scratch-free plastic material)

1. Camera settings

① Set up the camera as below.

【External button】	Mode dial M, Focus lever MF, WB luminescent light, ISO 200
【MENU】	Natural mode, definition • size : best definition • 6M(L), or 10M, saturation • sharpness • contrast : standard (initial values)
【Playback】	Quick view 5secs, set the view display as histogram
【Custom】	Allows release apart from the diaphragm ring A.

Ⅵ. ADJUSTMENT

2. Check procedure

① Set the EV tester to LV9.

② Set the shutter speed to Tv 500.

③ Set the 50M F1.4 lens aperture stop to "open" (F1.4).

④ Connect the EV tester to the camera.

> ### ✎ IMPORTANT
>
> Block the window of the light source from the external light.

⑤ Take about 3 shots.

> ### ✎ IMPORTANT
>
> The peak has to be in the following range of the histogram when looking at the images on the LCD monitor. If it is displayed as NG, check the settings again, or perform the BV adjustment and digital adjustment (CCD) again.

Ⅵ. ADJUSTMENT

⑥ Set the camera to ISO 1600 and Tv4000 with the identical light source and open aperture stop (F1.4).

⑦ Connect the camera to the EV tester and take about 3 shots.

⑧ Play back the two images taken on the LCD monitor and compare the differences of the pitches on the histogram. Measure the differences (mm) on the LCD monitor with a ruler.

> 📝 **IMPORTANT**
>
> This has to be checked in front of the camera. Do not damage (scratch) the LCD screen.

< **Example** >

Playback the image (Histogram display)

The example above shows that the peak value of Tv4000 has a difference +1.5mm to the right compared to the peak value of Tv500 (standard).

⑨ Select a histogram zone (A to D) corresponding to the peak position of Tv4000 from the following figure. (The example above corresponds to type B.)

⑩ Calculate the shutter speed (mS) from the differences of the histogram zone and the peak position,
referring to the following conversion table of shutter speeds.
(Find the shutter speed from the conversion table for the example above. The histogram zone is B.
The difference is +1.5mm to the right. Therefore the shutter speed value is 0.273mS)

Conversion table of shutter speed
(Apply to GX-10 • GX-1S • GX-1L)

Differ mm		The left from standard										
Zone		-10.0	-9.5	-9.0	-8.5	-8.0	-7.5	-7.0	-6.5	-6.0	-5.5	-5.0
	A	0.116	0.122	0.129	0.135	0.142	0.148	0.154	0.161	0.167	0.174	0.180
	B	0.054	0.064	0.073	0.083	0.092	0.102	0.111	0.121	0.130	0.140	0.149
	C	(0.001)	0.001	0.014	0.026	0.039	0.052	0.065	0.078	0.090	0.103	0.116
	D	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	0.004	0.020	0.036	0.052	0.068	0.084

(mS)

Differ mm		The left from standard										右 側
Zone		-4.5	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5
	A	0.186	0.193	0.199	0.206	0.212	0.218	0.225	0.231	0.238	**0.244**	0.250
	B	0.159	0.168	0.178	0.187	0.197	0.206	0.216	0.225	0.235	**0.244**	0.254
	C	0.129	0.142	0.154	0.167	0.180	0.193	0.206	0.218	0.231	**0.244**	0.257
	D	0.100	0.116	0.132	0.148	0.164	0.180	0.196	0.212	0.228	**0.244**	0.260

(mS)

Differ mm		The right from standard										
Zone		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
	A	0.257	0.263	0.270	0.276	0.282	0.289	0.295	0.302	0.308	0.314	0.321
	B	0.263	0.273	0.282		0.301	0.311	0.320	0.330	0.339	0.349	0.358
	C	0.270	0.282	0.295	0.308	0.321	0.334	0.346	0.359	0.372	0.385	0.398
	D	0.276	0.292	0.308	0.324	0.340	0.356	0.372	0.388	0.404	0.420	0.436

(mS)

Differ mm		The right from standard										
Zone		6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0			
	A	0.327	0.334	0.340	0.346	0.353	0.359	0.366	0.372			
	B	0.368	0.377	0.387	0.396	0.406	0.415	0.425	0.434			
	C	0.410	0.423	0.436	0.449	0.462	0.474	0.487	0.500			
	D	0.452	0.468	0.484	0.500	0.516	0.532	0.548	0.564			

(mS)

3. Input procedure for the converted shutter speed values

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
Check that the USB IO is displayed as "connected".

⑥ Click on the "7. SHUTTER SPEED ADJUST" button.

Ⅵ. ADJUSTMENT

Select "Shutter Tester for 1/4000 Sec" from "Select".

Ignore the message, and click on the "OK" button.

Enter the converted shutter speed values from "2. Check procedure" and click on "Input Data".

If the procedure is completed, the following message appears. Click on the "OK" button.

If it is displayed as NG, enter the default value 「0.25」 in the "Input Data" section and end the procedure. (To validate the converted data.) If it is NG, check the relevant adjustment items again.

Ⅵ. ADJUSTMENT

If the adjustment is completed, the values are saved in the camera.

Click on the "Close" button and close the adjustment window.

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⑪ Click on the "CI" button. Check that the USB IO has been changed to "Unconnect" from "Connect".

⑫ Click on the "end" button and end the program.

Ⅵ. ADJUSTMENT

17. AF-LED (Super-imposer) position adjustment

Remove the super-imposer PCB as shown in the following figure.

① Connect the lead wires to the 0-O170 (SI-LED) as shown in the following figure.

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② Apply DC3.2 V and check if the 11 SI-LEDs are turned on and check the positions.

■ : SI-LED   AF frame

③【Adjustment 1】Loosen the two screws which
               hold the 0-O170.
               … Remove the adhesive
               (5 areas) for the screws.

Ⅵ. ADJUSTMENT

④ Check if the screws are fixed.

⑤【Adjustment 2】Perform the fine adjustments to up and down by turning the adjustment screws.
(Check again)

⑥ After the adjustment, apply the screw adhesive to the five areas, and remove the lead wires.

⑦ Attach the mount cover to prevent the SI-LEDs from being affected during the work.

18. Photometric element position adjustment procedure

Preparation : Penlight or similar object

* The mirror has to be down.

① Block the view finder with the back of the hand.

② Aim the light from the penlight onto the AE sensor and find a position where the shape of the AE sensor
   is shown on the 1st mirror by changing the angle of the penlight.

Ⅵ. ADJUSTMENT

* If a lens is attached, the AE sensor can be seen more easily.

③ The AE sensor has to be positioned as shown in the following figure without being shifted.

Center position of the AE sensor

Tolerance : 0.250.85 mm (actual dimension)

Center position of the finder

Spot metering frame (Ø2.5)   AE sensor (0-J100)

④ Remove the adhesive which holds the AE sensor (0-J100).

⑤ Loosen the screws and adjust the position of the AE senor (0-J100).

⑤ Tighten the screws and check it again.

⑥ After the adjustment, apply the adhesive to the two areas of the screws for the AE sensor (0-J100).

Ⅷ. SERVICE INFORMATION

1. Caution

1. Do the disassembling and assembling camera where the blocking static electricity mat is on the table.

2. When handling the major PCBs of camera, please wearing the band which cuts off the electric current on the wrist.

3. When handling the major parts, be careful of below caution.

Parts	Caution
F PCB type	When assembling the F PCB to the CONNECTOR by using pincette, be careful of tearing and hooking.
CCD CCD & IR CUT	Be careful of the handprinting while handling them. Using the pincette which has soft tip. The spot will be shown by using normal alchol when cleaning them. Do the repairing where is no dust.
PCB type	Wearing the band which cuts off the electric current and do the reparing Where the blocking static electricity mat is on by preventing the defect of parts.
CONTACT type	Be careful of defect and change by pincette.

Ⅶ. SERVICE INFORMATION

2. Disassembling Process For Camera Body

● Preparation : Remove the parts from the body of the camera (hot shoe cover, eyepiece, contact cover, etc.)

1> A401 (Bottom Cover)

Caution

Do not leave screws, steel balls or magnetic cards near the OIS block because there is a strong magnet in the OIS block when the cover is open.

① Five screws

② Eight screws

③ A401 • Battery cover

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> **Caution**

The OIS block protrudes at the bottom. Don't cause any impact to this area.

2> A301 (Top Cover)

① Screw • O-ring

② Screw…pop up the STROBO.

③ Screw

④ Screw…flip the rubber.

⑤ Screw (inside the battery room)

⑥ Two screws

⑦ Discharging the strobe's main condenser.

Lift up the A301 and discharge the electricity, charged in the main condenser, with resistance.

(The white lead wire and the brown lead wire on the T750).

$100\sim1k\Omega$

⑦

Ⅶ. SERVICE INFORMATION

⑧ Five lead wires.

⑨ Remove the T51 PCB from the connector (sliding lock).

⑩ A301

⑪ A27 (waterproof sheet)

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3> A150 · A201 (Front Cover · Rear Cover)

① Remove the T920 PCB from the connector
   (plug type).

② Set the AF lever to MF.

③ Two screws (↓)

④ Screw…flip the grip rubber.

⑤ Screw

⑥ A150

VII. SERVICE INFORMATION

⑧ Five lead wires ⑦ : Install the mount cover to prevent damage to the SI-LED • TV dial

⑧ A201…Beware of the terminal section at the end and remove the rear cover by lifting the bottom a little.

⑨ Two screws

⑩ M311

4> 0-T100 (Main Circuit Block)

① Three BTs (6 x 15)

② U8 (BT 3.8 x 10)

③ Twenty-one lead wires

④ Remove the PCB from the connector (2ea, flip type).

⑤ Remove the PCB from the connector (4ea, plug type)

✎ Caution

Don't apply excessive pressure on the PCB of the CCD block as this may affect its performance.
Ensure that the PCB is not bent.

Ⅶ. SERVICE INFORMATION

⑥ Three screws

⑦ A TY screw

⑧ Beware of the connector on the SD card circuit board, and move the main PCB (T100) down as shown in the figure below.

> ### ✎ Caution
>
> Beware that the PCB on the OIS block may be damaged if the main board (T100) is moved too far from the body of camera.

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⑨ Remove the PCB from the connector (plug type).

⑩ T100

Ⅶ. SERVICE INFORMATION

5> 0-T970 (SD Circuit Block)

① Two lead wires (red, white)

② Three screws

③ 0-T970

6> 0-T770 · 0-A51 (PZ Circuit Block · Tripod Holder)

① Two lead wires (white, brown)

② Screw

③ When removing the 0-T770 and lead wires, be careful of the double sided tape.

④ Four screws

⑤ 0-A51

Ⅶ. SERVICE INFORMATION

※.OIS/CCD Block

Caution

■ Don't disassemble the OIS block, because it can't be adjusted currently.

■ Beware of parts' attraction to the body of the camera because there is a strong magnet inside the OIS block.

■ Don't put excessive pressure on the moving parts of the OIS block.

■ Don't put excessive pressure on the PCB of the OIS block.

7> O201 (LCD Block)

① Remove the PCB from the 「AE-L」 butto.

② Screw

③ A TY screw

Ⅶ. SERVICE INFORMATION

④ Flip the LCD block (O201) forward as shown in the figure (↓).

⑤ Remove the O100 PCB from the connector (flip lock).

⑥ Remove the T700 PCB from the connector (flip lock).

⑦ Remove the BT (6 x 15) from the grip area and pull out the four lead wires.

⑧ Flip two PCBs to the outside and place the LCD block (O201) back into position.

⑨ Remove the soldering from the three lead wires.

⑩ O201

Ⅶ. SERVICE INFORMATION

8> A350 (Main SW)

① Remove the BT (6 x 15) and pull out the two lead wires.

② Remove the soldering from the three lead wires.

③ Remove the PCB near the release switch and the green button.

④ Screw

⑤ A TY screw

⑥ A350

9> 0-T700 (Top Right Relay Board)

① 12 Lead wires (not identical to wiring 76830 : ②G119 · ④G100 · ①A105 · ⑤E000)

Ⅶ. SERVICE INFORMATION

② Four soldering areas on the T71 PCB.

③ Remove the PCB from the DT.

④ Two TY screws

⑤ Two screws

⑥ T700

Ⅶ. SERVICE INFORMATION

10> 0-T750 (Top Left Relay Board)

① Seven soldering areas on the O170 PCB

② Four lead wires

③ Seven lead wires

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④ Two screws

⑤ Two TY screws

⑥ Remove the connector from the Q200.

⑦ Remove the PCB from the RAW button.

⑧ Remove the PCB from the penta area.

⑨ T750

VII. SERVICE INFORMATION

11> 0-Q200 (STROBO Board) · Related Parts

① A TY screw

② A117

③ Set the AF switch to the bottom position.

④ A TY screw

⑤ 0-T940…remove carefully, beware of the switch.

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⑥ A TY screw

⑦ TY-CNL screw

⑧ CSM screw
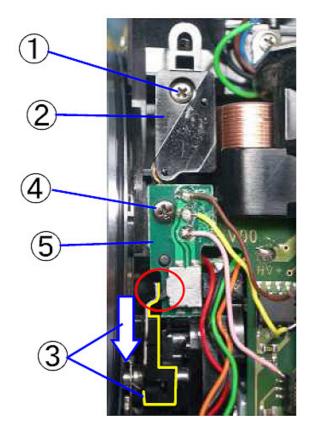
⑨ Q200. Related parts

12> 0-A3 (Large Plate)

① CNL-D (A423)

② Remove the U18 (8 x 12) and the
   A423 (mask)

③ CNL-D

④ Lift up the T901 PCB.

⑤ CNL-D Ä1.7 x 2.5 (Two)

⑥ TY-CSM

⑦ TY-CNL-D Ä1.7 x 4.0 (Three)

⑧ 0-A3

13> T901 (Bottom Relay Board)

① Twenty soldering areas on the T301·M100
   PCB
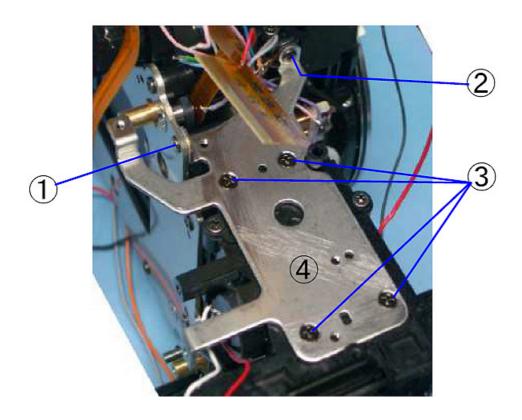
② T901 · two lead wires

③ Screw

④ A141

14> A6 (Left Large Plate · Related Parts)

① CNL-D

② TY-CNL-D

③ Four TY-CSM screws

④ A6

Ⅶ. SERVICE INFORMATION

3. Assembling Process For Camera Body

1> A6 (Left large plate) · related parts

① A6 ··· Tidy up the lead wire and the flexible PCB as shown in the figure.

② Four TY-CSM1.7x4.0 screws

③ TY-CNL-D1.7x4.0

④ CNL-D1.7x2.5

2> T901 (Bottom relay board)

① A141

② TY-CNL-1.7x3.5

③ T901(Two red and black lead wires)

④ Solder on the twenty land areas of the T301 · 100 flexible PCB.

Black   Red

Ⅶ. SERVICE INFORMATION

3> 0-A3 (Bottom large plate)

① The four parts have to be attached to the 0-A3.

② Put the O-A3into the body of the camera while tidying up the lead wires and the flexible PCB.

③ Three TY-CNL-D1.7x4.0

④ Two CNL-D1.7x2.5

⑤ TY-CSM1.7x4.0

⑥ Connect the theT901 flexible PCB to the 0-A3.

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⑦ A423 (Mask) ↓

⑧ CNL-D1.7x1.6 (2개)

⑨ Attach the U12 (8x12) firmly.

⑩ Tidy up the two lead wires (red · black, S250).

VII. SERVICE INFORMATION

4> 0-Q200 (Strobe board) · related parts

① Position the Q200 and related parts as shown in the figure.

② TY-CNL-D1.7x4.0

③ CSM1.7x2.5

④ Two TY-CNL-D1.7x4.0

⑤ A117 ··· The W93 (t=0.3) has to be attached at
   the bottom of the back.

⑥ TY-CNL-D1.7x3.5

⑦ Set the AF lever to the middle (AF.S).

⑧ 0-T940 ··· Install this without damaging to the
   SW section.

⑨ TY-CNL-D1.7x3.0

5> 0-T750 (Top left relay board)

① T750 ··· Tidy up as shown in the figure.

② TY-CNL-B1.4x2.0

③ Two CNL-D1.7x1.6

④ Fix the flexible PCB on the penta section with
　 the DT(10x18).

⑤ TY-CNL-B1.4x2.0

⑥ Fix the flexible PCB with the DT (15x4).

⑦ Fix the flexible PCB with the DT (10x5).

⑧ Connect the connector of the Q200.

⑨ Fix the flexible PCB on the RAW button with
　 the DT (8x4).

Ⅶ. SERVICE INFORMATION

⑩ Solder on the seven land areas of the O170 flexible PCB.

⑪ Four lead wires

⑫ Seven lead wires

6> 0-T700 (Top right relay board)

① T700 ⋯ Tidy up as shown in the figure. ↓

② Two CNL-D1.7x1.6
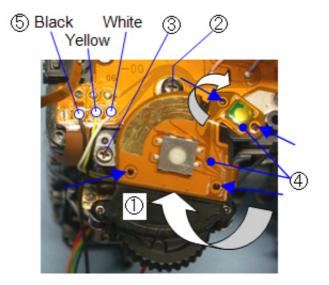

③ Two TY-CNL-D1.7x3.5

④ Fix the flexible PCB with the DT (10x4).

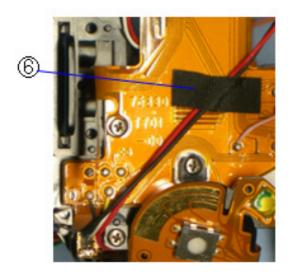⑤ Solder on the four land areas of the T71 flexible PCB.

⑥ Twelve lead wires

7> A350 (Main SW)

① A350 ··· Tidy up as shown in the figure.

② CNL-D1.7x3.0

③ TY-CNL-D1.7x4.5

④ Fix the flexible PCBs on the F release SW and the green button SW section with the O207 (DT) and the DT (5x5).
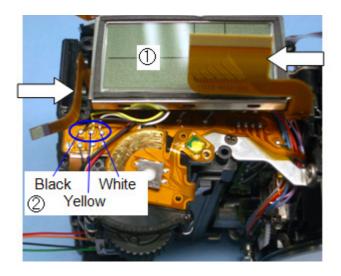
⑤ Solder on the three lead wires.

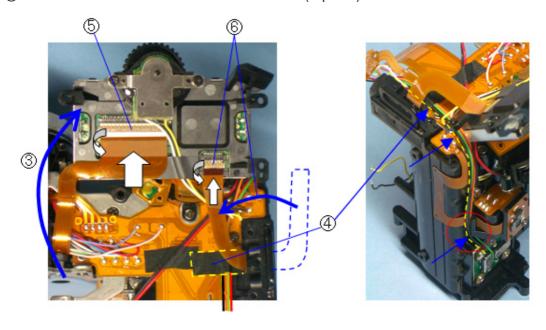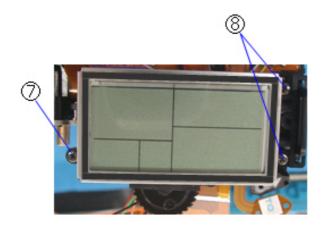⑥ Use the BT (6x15) for the two lead wires (A14 battery armature).

8> O201 (LCD block)

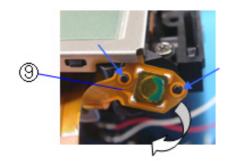① O201 ··· Tidy up as shown in the figure.

② Solder on the three lead wires.

③ Make the O201 as shown in the figure. (↓)

④ Use the BT (6x15) for the front four lead wires (T950).

⑤ Connect the O100 flexible PCB to the connector. (Flop lock)

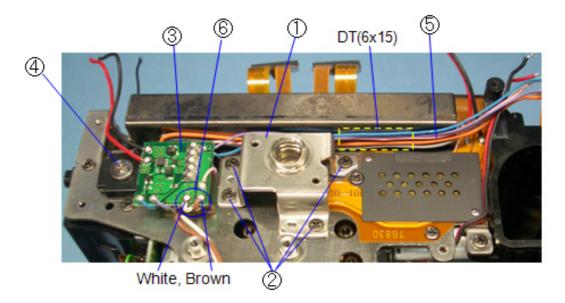⑥ Connect the T700 flexible PCB to the connector. (Flip lock)

⑦ CNL-D1.7x2.5

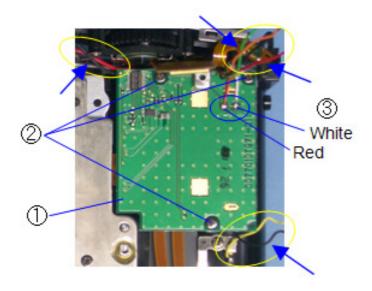⑧ Two TY-CNL-D1.7x4.5

⑨ Fix the 「AE-L」 flexible PCB with the DT(5x5).

9> 0-T770 · 0-A51 (PZ circuit block · tripod holder)

① 0-A51

② Four CNL-D1.7x2.5

③ 0-T770

④ U7 screw

⑤ Use the DT (6x15) for the lead wires from the 0-T770.

⑥ Solder on the two lead wires (brown, white).

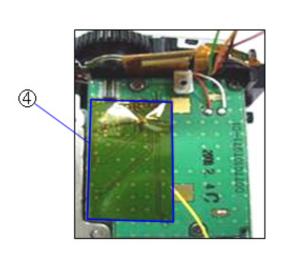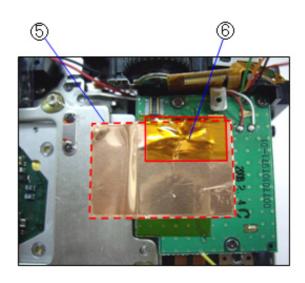# 10> 0-T970 (SD circuit block)

① 0-T970 ⋯ Tidy up the lead wires as shown in the figure.

② ② Three TY-CNL-D1.7x3.5

③ Solder on the two lead wires (red, white).

④ Attach the T88. ↓

⑤ Attach the T89.

⑥ Attach the U13 (11x20).

Ⅶ. SERVICE INFORMATION

11> 0-T970 (SD circuit block)

> 📝 **주 의**
>
> Do not put excessive pressure on the PCB with the image sensing device, as it may affect the performance.

① T640 ··· Connect the connector evenly. (Plug type)

② Attach the T98 onto the T100 land area as shown in the figure.

③ Position the T100 as shown in the figure.

④ Connect the flexible PCB to the connector. (Plug type)

⑤ Connect the connector by pushing the T100 onto the camera body. (Plug type)

⑥ Three CNL-D1.7x2.5 ↓

⑦ TY-CNL-D1.7x3.5

Ⅶ. SERVICE INFORMATION

12> Solder on the T100 lead wire

① Connect the flexible PCB to the connector. (Four areas, plug type)

② Connect the flexible PCB to the connector. (Two areas, flip lock)

③ Solder on the twenty-one lead wires.

④ U8 (3.8x10)

⑤ U3 (BT 6x15) ··· Three sections

⑥ Attach the T99 onto the land area.

(Q200) Black Red
(T901) Black Red
(A14) Black Red
(T950) Orange Green

Red Black (T770)

Black Red (S250) Orange (S300) Gray

Red Black (T950)

Yellow (A18)
Black
Pink (T770)
Purple
Blue

13> External sealing check

> ### ✎ Check
>
> Check if there is twisting, peeling, cracking or damage to each sealing. Ensure that the dial doesn't make contact with the waterproof sheet when turning the front digital dial.

① Front · Rear digital dial

Ⅶ. SERVICE INFORMATION

② M311

A471 x2

A463 x2

③ A150

A451

A453

A453

④ A201

A474 x2

A451

A204

A456

A457

A456

Ⅶ. SERVICE INFORMATION

⑤ A301

A461   A462   A460

A472

⑥ A401

A54   A455

PC-GF10

A454

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14> A150 · 201(Front parts · Rear cover)

① M311 ⋯ Install the visibility adjustment lever.

② Two CNL-D1.7x3.0

③ Install the cover to protect the SI-LED · Tv dial.

④ A98 (O-ring) ⋯ Ensure that the O-ring is installed without a cave-in, crack or damage.

⑤ U1(=27370-A115)

⑥ A201 ⋯ Install the A201 slowly from the bottom. (Be careful of the external ports.)

⑦ A150 ··· Set the mode lever and the AF-SW of the camera body to "MF".

⑧ CNL-D1.7x3.0

⑨ TY-CNL-D1.7x5.5 ··· Attach a rubber grip.

⑩ A172(Two TY 1.7x4.5 screws)

⑪ Connect the T920 flexible PCB to the connector. (Plug type)

15> A301 (Top parts)

* The armature of the main SW must not be deformed.

* Apply the G151 onto the main SW land.

① A27(sheet) ⋯ no cave-ins or cracks

② A301

Ⅶ. SERVICE INFORMATION

③ Solder on the five lead wires ↓

④ Connect the T51 flexible PCB to the connector. (Slide lock)

⑤ A173 (Two TY 1.7x6.0 screws)

⑥ A171 (TY 1.7x4.0 screw) · A304 (O-ring)

⑦ A171 ··· Pop up the strobe.

⑧ TY-CNL-D1.7x7.0 ··· Attach a rubber.

⑨ A173

⑩ TY-CNL-D1.7x8.0 Ni (inside the battery room)

16> A401 (Bottom parts)

Check

Check the installation of the sealing parts.

A22

① A401 · Battery cover

② A174 (Eight 1.7x4.0 screws)

③ A172 (Five TY 1.7x4.5 screws)

Ⅱ. INSTALLATION

1. Software Notes

■ **Samsung Master : This is the all-in-one multi media software solution**
   You can download, view, edit and save your digital images with this software.
   You can also edit and save the still images.
   This software is only compatible with Windows.

■ **Using Samsung RAW Converter 2.0, you can convert a RAW (*.dng) le into a JPEG or TIFF fi le format.**

   ● You should allow 5~10 seconds for running the automatic setup program according to the capability of your computer. If the frame is not shown, run the [Windows Explorer] and select [setup.exe] in the CD-ROM Drive root directory.
   ● PDF documents of the user manual are included in the Software CD-ROM supplied with this camera. Search the PDF fi les with Windows explorer.
   Before opening the PDF fi les, you must install the Adobe Reader included in the Software CD-ROM.
   ● To install the Adobe Reader 6.0.1, the Internet Explorer 5.01 must be installed.
   To upgrade the Internet Explorer, visit www.microsoft.com.

Ⅱ. INSTALLATION

2. Setting up the application software

■ To use this camera with a PC, install the application software first. After this has been done, the stored images in the camera can be moved to the PC and can be edited by an image editing program.

1. Install the Digimax Master by following the instructions shown on your PC monitor.

Click

Click

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Samsung Master - InstallShield Wizard

Choose Destination Location
Select folder where setup will install files.

Setup will install Samsung Master in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select another folder.

Destination Folder
D:\Program Files\Samsung\Samsung Master

InstallShield

< Back   Next >

Click

Samsung Master - InstallShield Wizard

Select Program Folder
Please select a program folder.

Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.

Program Folder:
Samsung

Existing Folders:
Accessories
Administrative Tools
Adobe
ÀÌ½¾E®¼0Ç£Å/E®
CyberLink DVD Suite
ESET
Games
SnagIt 7
Startup

InstallShield

< Back   Next >

Click

Samsung Master - InstallShield Wizard

Ready to Install the Program
The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

InstallShield

< Back   Install   Cancel

Click

Samsung Master - InstallShield Wizard

Setup Status

Samsung Master is configuring your new software installation.

Installing

D:\...\{AEC0CEBC-0FC7-4716-8222-1C4A742719B1}\ISSetup.dll

InstallShield

Samsung Master - InstallShield Wizard

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed Samsung Master. Click Finish to exit the wizard.

< Back   Finish

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Welcome to the InstallShield Wizard for Samsung RAW Converter 2.0

The InstallShield Wizard will install Samsung RAW Converter 2.0 on your computer. To continue, click Next.

< Back   Next >   Cancel

Click

Ⅱ. INSTALLATION

Samsung RAW Converter 2.0 - InstallShield Wizard

License Agreement
Please read the following license agreement carefully.

license agreement
[Important]
Read this license agreement carefully.

· This license agreement ("Agreement") is a legal agreement between you (either an individual or a single entity) and Ichikawa Soft Laboratory ("ISL") for the software products ("Product" or "Software") of Ichikawa Soft Laboratory.
· Installation or use of this Product indicates your acceptance of the terms written in this Agreement.

○ I accept the terms of the license agreement
◉ I do not accept the terms of the license agreement

InstallShield
< Back   Next >   Cancel

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Choose Destination Location
Select folder where setup will install files.

Setup will install Samsung RAW Converter 2.0 in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select another folder.

Destination Folder
C:\...\Samsung\Samsung RAW Converter 2.0\   Browse...

InstallShield
< Back   Next >   Cancel

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Ready to Install the Program
The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

InstallShield
< Back   Install   Cancel

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Setup Status

Samsung RAW Converter 2.0 is configuring your new software installation.

C:\...\Samsung RAW Converter 2.0\manual\man0006.html

InstallShield

Samsung RAW Converter 2.0 - InstallShield Wizard

InstallShield Wizard Complete

Setup has finished installing Samsung RAW Converter 2.0 on your computer.

< Back   Finish

Click

SAMSUNG

Samsung Digital Camera Installer

Setup is complete.
Before you can use the program, you must restart computer.

◉ Yes, I want to restart my computer now.
○ No, I will restart computer later.

OK

User Manual

Click

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2. After restarting the computer, connect the PC to the camera with the USB cable.

3. Turn the camera power on.
   The [Found New Hardware Wizard] will
   open and the computer will recognize the camera.

● If you have installed the camera driver, the [Found New Hardware Wizard] may not open.
● If the download window of Digimax Master opens after starting Samsung Master, the camera driver was setup successfully.

Ⅱ. INSTALLATION

3. Troubleshooting

■ Please check the following if the USB connection malfunctions.

Case 1	The USB cable is not connected or you are using a cable with an incorrect specifi cation. ➜ **Use a USB cable with the correct specifi cation.**

Case 2	The camera is not recognized by your PC. Sometimes, the camera may appear under [Unknown Devices] in Device Manager. ➜ **Turn off the camera, remove the USB cable, plug in the USB cable again, and then turn on the camera.**

Case 3	There is an unexpected error during fi le transfer. ➜ **Turn the camera power off and on again. Transfer the fi le again.**

Case 4	When using the USB hub? ➜ **There may be a problem in connecting the camera to the PC through the USB hub if the PC and the hub are not compatible. Wherever possible, connect the camera to the PC directly.**

Case 5	If used with any other USB devices? ➜ **The camera may malfunction when it is connected to the PC at the same time as another USB cable. In this case, disconnect the other USB cable, and connect only one USB cable to the PC.**

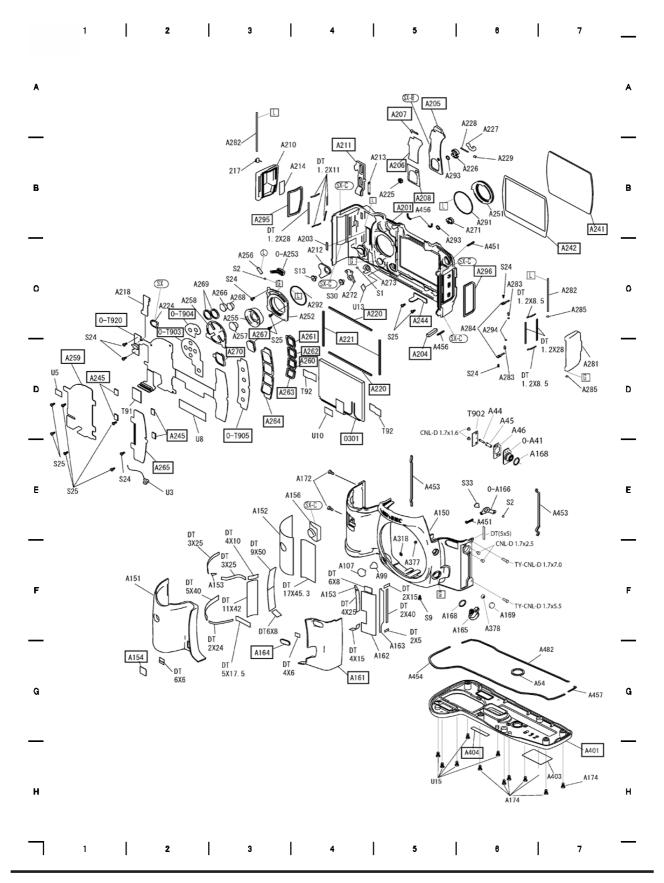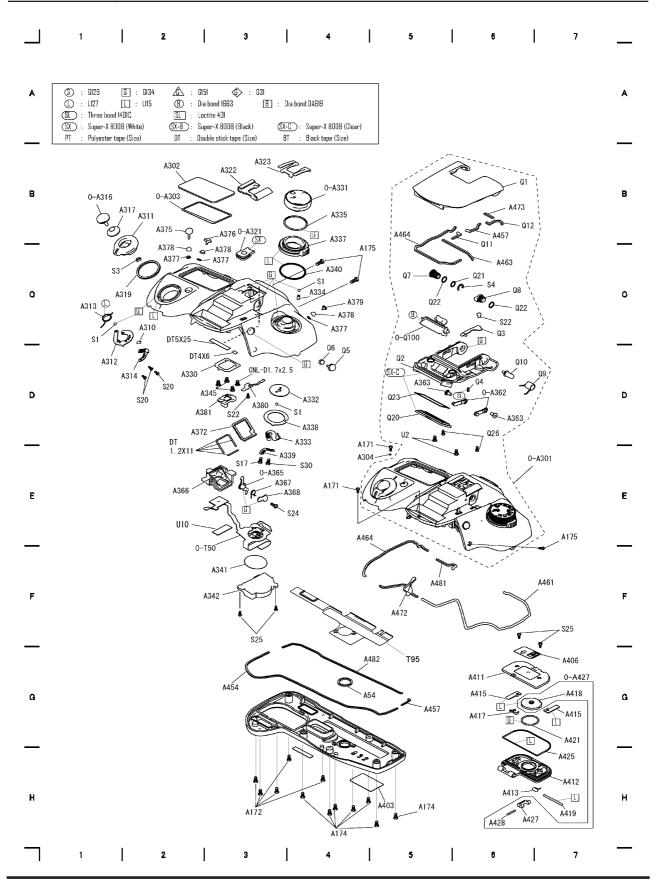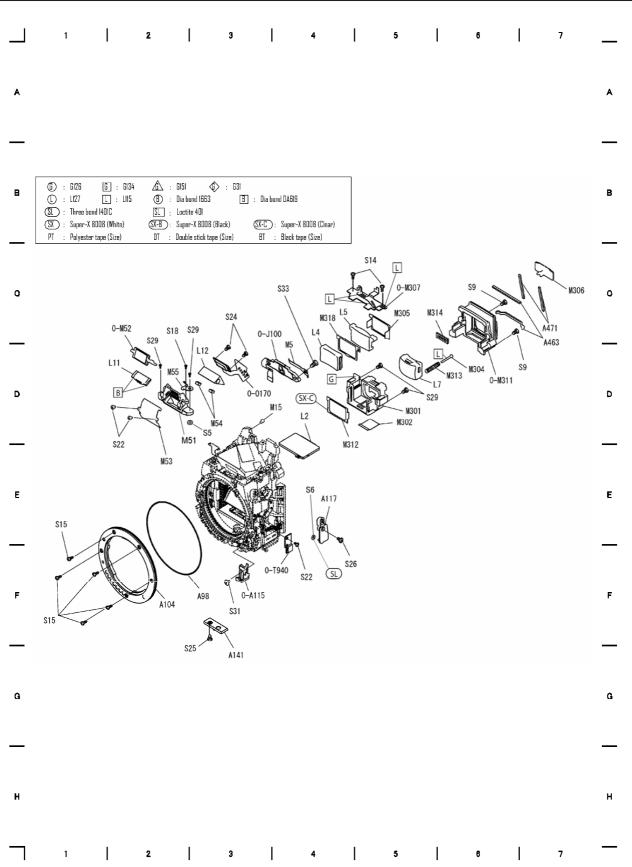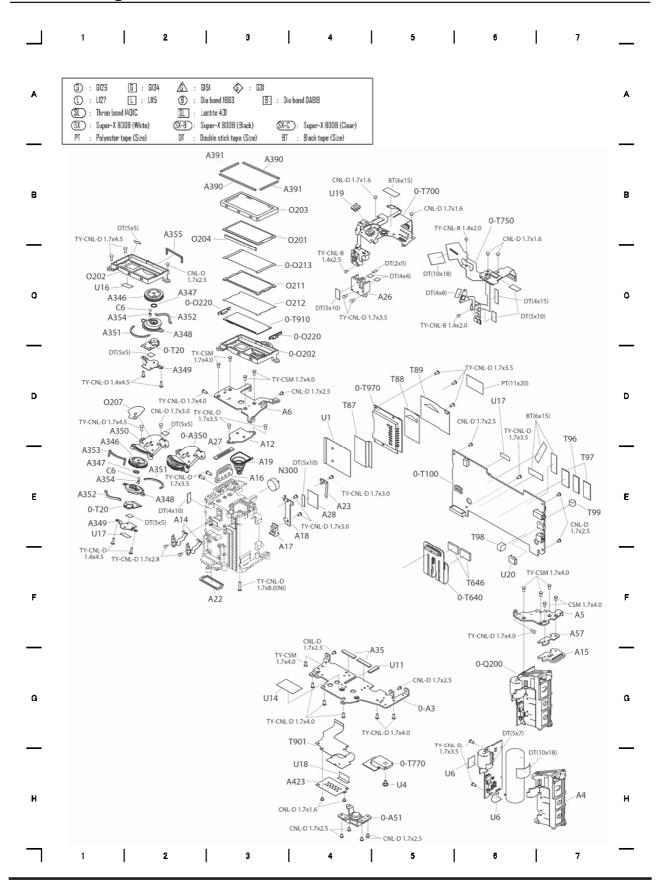| Case 6	When I open the Device Manager (by clicking Start ➜ (Settings) ➜ Control Panel ➜ (Performance and Maintenance) ➜ System ➜ (Hardware) ➜ Device Manager), there are [Unknown Devices] or [Other Devices] entries with a yellow question mark (?) beside them or devices with an exclamation mark (!) beside them. ➜ **Right-click on the entry with the question (?) or exclamation (!) mark and select "Remove". Restart the PC and connect the camera the again. For Windows 98 PC, remove the camera driver also, restart the PC, and then reinstall the camera driver.**
Case 7	In some security programs (Norton Anti Virus, V3, etc.), the computer may not recognise the camera as a removable disk. ➜ **Stop the security programs and connect the camera to the computer. Refer to the security program instructions about how to stop the program.**
Case 8	If a PC connected with the camera stops responding while Windows is starting. ➜ **In this case, disconnect the PC and the camera and Windows will start. If the problem happens continuously, set the Legacy USB Support to disable and restart the PC. The Legacy USB Support is in the BIOS setup menu (The BIOS setup menu differs from the PC manufacturers and some BIOS menus don't have Legacy USB Support). If you can't change the menu by yourself, contact the PC manufacturer or BIOS manufacturer.**
Case 9	The camera is connected to the USB port located on the front of the computer. ➜ **When the camera is connected to the USB port located on the front of the computer, the computer may not recognise the camera. Connect the camera to the USB port located on the back of the computer.**

1. GX-20 : Fig. 1

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2. GX-20 : Fig. 2

Legend box:
- Ⓖ : G126
- Ｇ : G134
- △ : G151
- ◇ : G31
- Ⓛ : L127
- Ｌ : L115
- Ⓑ : Dia bond 1663
- Ｂ : Dia bond DA619
- ⓈⓁ : Three bond 1401C
- ＳＬ : Loctite 401
- ⓈⓍ : Super-X 8008 (White)
- SX-B : Super-X 8008 (Black)
- SX-C : Super-X 8008 (Clear)
- PT : Polyester tape (Size)
- DT : Double stick tape (Size)
- BT : Black tape (Size)

3. GX-20 : Fig. 3

G : G126	G : G134	⚠ : G151	◇ : G31
L : L127	L : L115	B : Dia bond 1663	B : Dia bond DA619
SL : Three bond 1401C		SL : Loctite 401	
SX : Super-X 8008 (White)		SX-B : Super-X 8008 (Black)	SX-C : Super-X 8008 (Clear)
PT : Polyester tape (Size)		DT : Double stick tape (Size)	BT : Black tape (Size)

4. GX-20 : Fig. 4

Ⅲ. EXPLODED VIEW AND PART LIST

1. The parts with numbers starting " 0 - " are assembled parts.

2. Only available parts are listed below.

* The column Q is a number of parts used.

   The column Location is an address in the illustrations of parts.(Fig. / Vertical / Horizontal)

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A3	AD97-16104A	Bottom plate assy.	1		4G5
A4	AD61-03788A	Right front piece	1		4H7
A5	AD61-03789A	Right shoulder plate	1		4F7
A6	AD81-05829A	Left shoulder plate	1	GX-10-A6	4D3
A12	AD81-05830A	Battery case cover	1	GX-10-A12	4D3
A14	AD81-05831A	Battery contact A	2	GX-10-A14	4E2
A15	AD61-03790A	Strap hook plate R	1		4G7
A16	AD81-05833A	Strap hook plate L	1	GX-10-A16	4E3
A17	AD81-05834A	Hook	1	GX-10-A17	4E3
A18	AD81-05835A	Hook spring	1	GX-10-A18	4E4
A19	AD81-05836A	Stimulate spring	1	GX-10-A19	4E3
A22	AD81-05837A	Battery cover waterproof sheet	1	GX-10-A22	4F3
A23	AD81-05838A	Reset switch contact	1	GX-10-A23	4E4
A26	AD61-03793A	Remote control base	1		4C5
A27	AD81-05839A	Strap plate waterproof sheet	1	GX-10-A27	4D5
A28	AD81-05845A	PE tape 12x15	1	GX-10-A28	4E4
A35	AD81-05841A	Dust collector sheet	2	GX-10-A35	4G5
A41	AD97-16109A	Sync terminal assy.	1		1F7
A44	AD81-08761A	Sync lead	1		1E6
A45	AD62-00089A	Insulate tube	1		1F6
A46	AD61-03796A	Sync spacer	1		1F6
A51	AD81-05842A	Tripod stand assy.	1	GX-10-0-A51	4H5
A54	AD81-05843A	Tripod screw waterproof sheet	1	GX-10-A54	2G4
A57	AD61-03797A	Strap plate spacer	1		4F7
A98	AD81-05845A	O-ring 55.3x0.75	1	GX-10-A98	3F3
A99	AD81-05846A	Lock button packing	1	GX-10-A99	1G5
A104	AD81-05847A	Mount ring	1	GX-10-A104	3F2
A107	AD81-05848A	Mount lock button	1	GX-10-A107	1G4
A115	AD81-05849A	AM Selecting slide plate assy.	1	GX-10-0-A115	3F3
A117	AD81-05850A	RAW button base	1	GX-10-A117	3E4
A141	AD81-03454A	Solder stand	1	GX-1S-A141	3F3

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A150	AD63-03344A	Front cover	1		1G5
A151	AD81-05852A	Grip rubber	1	GX-10-A151	1G2
A152	AD81-05853A	Grip rubber tape A	1	GX-10-A152	1G3
A153	AD81-05854A	Grip rubber tape B	2	GX-10-A153	1G3,1G4
A154	AD61-03369A	OIS Plate	1		1G2
A156	AD81-05856A	Remote control window	1	GX-10-A156	1F4
A161	AD63-01918A	SIDE_GRIP	1		1G4
A162	AD81-05858A	Side rubber tape A	1	GX-10-A162	1H5
A163	AD63-03347A	Side rubber tape B	1		1H5
A164	AD61-03368A	Name Plate	1		1G3
A165	AD81-05861A	AF mode lever	1	GX-10-A165	1H6
A166	AD81-05862A	AF mode click plate assy.	1	GX-10-0-A166	1F6
A168	AD81-05863A	O-ring 6x1	2	GX-10-A168	1H6,1F7
A169	AD81-05864A	RAW Button	1	GX-10-A169	1G6
A171	AD81-05865A	Screw C	2	GX-10-A171	2D4,2E4
A172	AD81-05866A	Cover retainer screw B	7	GX-1S-A73	1F4,2H3
A174	AD81-05867A	Retainer screw C	7	GX-10-A174	2H4,2H5
A175	AD81-05868A	Cover retainer screw	3	GX-10-A175	2B4
A201	AD63-01749A	Back Cover	1		1C5
A201-1	AD63-02338A	Double-sided Tape 1.2x11	4		
A201-2	AD63-02337A	Double-sided Tape 1.2x28	1		
A203	AD81-05870A	Antireflection sheet	1	GX-10-A203	1D4
A204	AD61-03491A	GUIDE_RIB	1		1C5
A205	AD63-01917A	Rear Grip Rubber	1		1A5
A206	AD63-02325A	Rear Grip Tape A	1		1B5
A207	AD63-02326A	Rear Grip Tape B	1		1A5
A208	AD63-02327A	Rear Grip Tape C	1		1B5
A210	AD63-01751A	SD card cover	1		1C3
A211	AD61-03488A	CARD_LOCK_PLATE	1		1B4
A212	AD81-05878A	Key spatula cam plate	1	GX-10-A212	1D4
A213	AD81-05879A	Key spatula spring	1	GX-10-A213	1C5
A214	AD81-05880A	SD card seal	1	GX-1S-A214	1C4
A217	AD81-05881A	SD card cover spring	1	GX-10-A217	1C3
A218	AD61-03316A	Lining board C	1		1D1
A220	AD63-02313A	I-LCD cushion A	1		1D4
A221	AD63-02313A	I-LCD cushion B	1		1C4

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A224	AD81-05883A	Rear remote control window	1	GX-10-A224	1D2
A225	AD81-05884A	Access lamp window	1	GX-10-A225	1C5
A226	AD81-05885A	Handle base	1	GX-10-A226	1C6
A227	AD64-02392A	Open lever handle	1		1B6
A228	AD81-05887A	Handle shaft	1	GX-10-A228	1B6
A229	AD81-05888A	Handle spring	1	GX-10-A229	1C6
A241	AD64-01812A	I-LCD Window	1		1B7
A242	AD63-02323A	I-LCD Window Retainer Tape	1		1B6
A244	AD61-03319A	Bottom Cover Attachment Plate	1		1C5
A245	AD63-02322A	LCD_SHIELD_FORM	4		1D1,1D2
A251	AD81-05892A	Focus point select dial	1	GX-10-A251	1C6
A252	AD81-05893A	Bearing plate	1	GX-10-A252	1D4
A253	AD81-05894A	Brush assy.	1	GX-10-0-A253	1D3
A255	AD81-05895A	4-way control key	1	GX-10-A255	1D3
A256	AD81-05896A	Lever click spring	1	GX-10-A256	1D3
A257	AD81-05897A	OK Button	1	GX-10-A257	1E3
A258	AD81-05898A	Rubber sheet £¡	1	GX-10-A258	1D2
A259	AD61-03312A	4WAY_KEY_PLATE	1		1D1
A260	AD64-01992A	INFO Button	1		1D3
A261	AD64-01993A	MENU Button	1		1D3
A262	AD64-01994A	Delete Button	1		1D3
A263	AD64-01995A	PLAY_BUTTON	1		1D3
A264	AD73-00262A	Rubber Sheet B	1		1D3
A265	AD61-03313A	MODE_FPCB_PLATE	1		1E2
A266	AD81-05906A	AF Button	1	GX-10-A266	1D3
A267	AD64-01996A	Fn Button	1		1D3
A268	AD81-05908A	Xv Button	1	GX-10-A268	1D3
A269	AD81-05909A	Rubber sheet C	2	GX-10-A269	1D2
A270	AD73-00263A	FN_BUTTON_RUBBER	1		1D3
A271	AD81-05911A	OPS Switch lever	1	GX-10-A271	1D6
A272	AD81-05912A	SR guide plate	1	GX-10-A272	1D4
A273	AD81-05913A	Guide plate	1	GX-10-A273	1D5
A281	AD63-01753A	Connector cover	1		1E7
A281-1	AD63-02338A	Double-sided Tape 1.2x8.5	2		
A281-2	AD63-02337A	Double-sided Tape 1.2x28	2		
A282	AD81-05915A	Card cover shaft	2	GX-10-A282	1C3,1D7

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A283	AD81-05916A	Lock pin	2	GX-10-A283	1D6,1E6
A284	AD81-05917A	Lock pin spring	2	GX-10-A284	1E6
A285	AD81-05918A	O-ring 1.0x0.75	2	GX-10-A285	1D7,1E7
A291	AD81-05919A	O ring 22.7x0.8	1	GX-10-A291	1C6
A292	AD81-05920A	O-ring 18.9x0.7	1	GX-10-A292	1D4
A293	AD81-05921A	O-ring 3.56x0.64	2	GX-10-A293	1C5
A294	AD81-05922A	O-ring 1.2x0.4	2	GX-10-A294	1E6
A295	AD63-02335A	SD_COVER_CUSHION	1		14B
A296	AD63-02336A	CONNECTOR_COVER_CUSHION	1		1C6
A301	AD97-16106A	Top cover assy.	1		2E6
A302	AD81-05926A	LCD Window	1	GX-10-A302	2B2
A303	AD81-05927A	LCD window double-sided tape	1	GX-10-A303	2B2
A304	AD81-05928A	O-ring 1.5x0.5	1	GX-10-A304	2E4
A310	AD81-05929A	PVF Tape 2x3	1	GX-10-A310	2C2
A311	AD81-05930A	Main SW lever	1	GX-10-A311	2B2
A312	AD81-01250A	Main SW click spring	1	GX-1S-A312	2D1
A313	AD81-01251A	Main SW lever spring	1	GX-1S-A313	2C1
A314	AD81-05931A	Main SW brush	1	GX-10-A314	2D2
A316	AD97-16105A	Release button assy.	1		2B1
A317	AD81-05932A	Release button rubber	1	GX-10-A317	2B2
A318	AD81-01150A	Retainer ring A	1	GX-1S-A318	1G5
A319	AD81-05933A	Main SW lever water proof sheet	1	GX-10-A319	2C2
A321	AD97-14322A	Hot shoe base assy.	1	GX-1S-0-A321	2B3
A322	AD81-02919A	Hot shoe (B)	1	GX-1S-A322	2B3
A323	AD81-01253A	Hot shoe spring (B)	1	GX-1S-A323	2B3
A330	AD81-05934A	Hot shoe ground plate	1	GX-10-A330	2D2
A331	AD81-05935A	Mode dial assy.	1	GX-10-0-A331	2B4
A332	AD81-05936A	Support plate	1	GX-10-A332	2D4
A333	AD81-05937A	Mode dial brush	1	GX-10-A333	2D4
A334	AD81-01254A	Mode dial spring	1	GX-1S-A334	2C4
A335	AD81-05938A	O-ring 16x1	1	GX-10-A335	2B4
A337	AD81-05939A	Photometry switch lever	1	GX-10-A337	2B4
A338	AD81-05940A	Lever click spring	1	GX-10-A338	2D4
A339	AD81-05941A	Lever brush	1	GX-10-A339	2E3
A340	AD81-05942A	O-ring 18x1	1	GX-10-A340	2C4
A341	AD81-05943A	Round shape double-sided tape	1	GX-10-A341	2F3

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A342	AD81-05944A	Mode dial base plate	1	GX-10-A342	2F3
A345	AD81-07560A	Hot shoe retainer screw	3	GX-1S-A348	2D3
A346	AD81-05945A	Dial	2	GX-10-A346	4C3,4D2
A347	AD81-05946A	Dial O-ring	2	GX-10-A347	4C3,4D1
A348	AD81-05947A	Dial base plate A	2	GX-10-A348	4D4,4E1
A349	AD81-05948A	Dial base plate B	2	GX-10-A349	4D4,4E1
A350	AD81-05949A	Main SW Base plate	1	GX-10-A350	4D2
A351	AD81-05950A	Dial waterproof sheet A	2	GX-10-A351	4D2,4D3
A352	AD81-05951A	Dial waterproof sheet B	2	GX-10-A352	4D4,4E1
A353	AD81-05952A	Dial waterproof sheet C	1	GX-10-A353	4D1
A354	AD81-05953A	Dial click spring	2	GX-10-A354	4C3,4E1
A355	AD81-05954A	Dial waterproof sheet D	1	GX-10-A355	4C4
A362	AD81-05955A	Flash arm assy.	2	GX-10-0-A362	2D6
A363	AD81-05956A	Arm retainer	2	GX-10-A363	2D5
A365	AD81-05957A	Flash hook lever Assy.	1	GX-10-0-A365	2E3
A366	AD81-05958A	Flash hook lever case	1	GX-10-A366	2E2
A367	AD81-05959A	Flash hook spring	1	GX-10-A367	2E3
A368	AD81-05960A	Flash hook plate	1	GX-10-A368	2E4
A372	AD81-05961A	Flash hook case water proof sheet	1	GX-10-A372	2D2
A375	AD81-05962A	Green button	1	GX-10-A375	2B2
A376	AD81-05963A	AE-L button	1	GX-10-A376	2B3
A377	AD81-01151A	Retainer ring B	4	GX-1S-A356	1G5,2C2,2C3,2C4
A378	AD81-05964A	Top cover button rubber	4	GX-10-A378	1G6,2B2,2B3,2C4
A379	AD81-05965A	AEB button	1	GX-10-A379	2C4
A380	AD81-05966A	POP contact brush	1	GX-10-A380	2D3
A381	AD81-05967A	Shoe spacer	1	GX-10-A381	2D3
A401	AD63-02558A	Bottom Cover	1		1H6
A403	AD63-03348A	Certification seal	1		2H5
A404	AD68-02995B	Serial Number Plate	1		1H6
A406	AD81-05970A	Battery polarity seal	1	GX-10-A406	2G7
A411	AD61-03791A	Battery cover plate	1		2G6
A412	AD63-03345A	Battery cover	1		2H7
A413	AD81-05973A	Battery cover spring	1	GX-10-A413	2H6
A415	AD66-00615A	Battery cover lock claw	2		2G6,2G7
A417	AD81-05975A	Battery cover click spring	1	GX-10-A417	2G6
A418	AD61-03792A	Battery cover handle plate	1		2G7

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A419	AD81-05977A	Battery cover shaft	1	GX-10-A419	2H7
A421	AD81-05978A	O-ring 12.5x1.0	1	GX-10-A421	2G7
A423	AD81-05979A	BG Connector mask	1	GX-10-A423	4H4
A425	AD81-05979A	O-ring 28x0.8	1	GX-10-A425	2H7
A427	AD97-16107A	Battery cover handle assy.	1		
A427	AD64-02393A	Battery cover handle	1		2H6
A428	AD81-05982A	Spring pin	1	GX-10-A428	2H6
A451	AD81-05983A	Waterproof sheet 1x11	2	GX-10-A451	1D6,1G6
A453	AD81-05984A	BOTTOM_COVER_CUSHION	2	GX-10-A453	1F5,1G6
A454	AD81-05985A	BOTTOM_COVER_CUSHION	1	GX-10-A454	2G3
A456	AD81-05986A	Waterproof sheet 1.2x11	3	GX-10-A456	1C5,1E5
A457	AD81-05986A	Waterproof sheet 1.2x20	2	GX-10-A457	2B6,2G5
A461	AD81-05988A	Waterproof sheet 1.2x158	1	GX-10-A461	2F6
A463	AD81-05989A	Waterproof sheet 1.5x34	3	GX-10-A463	2C6,3C7
A464	AD81-05990A	Waterproof sheet 1.2x96	2	GX-10-A464	2B5,2E4
A471	AD81-05991A	Waterproof sheet 1.5x25	2	GX-10-A471	3C7
A472	AD81-05992A	Waterproof sheet 1.2x105	1	GX-10-A472	2F5
A473	AD81-05993A	Waterproof sheet 1.2x9	1	GX-10-A473	2B6
A481	AD81-05994A	Waterproof sheet 1.2x28	1	GX-10-A481	2F5
A482	AD81-05995A	BOTTOM_COVER_CUSHION	1	GX-10-A482	2G5
C6	AD81-05996A	Stainless ball 2.0	2	GX-10-C6	4C4,4D1
J100	AD81-05997A	Photo sensor block	1	GX-10-0-J100	3C3
L2	AD81-05998A	Fresnel lens	1	GX-10-L2	3D4
L4	AD81-05999A	Eyepiece front lens	1	GX-10-L4	3C4
L5	AD81-06001A	Eyepiece Intermediate lens	1	GX-10-L5	3C4
L7	AD81-06002A	Eyepiece rear lens	1	GX-10-L7	3D6
L11	AD81-06002A	SI Lens	1	GX-1S-L11	3D2
L12	AD81-01454A	SI Prism	1	GX-1S-L12	3D3
M5	AD81-06003A	J100 Retainer plate	1	GX-10-M5	3C4
M15	AD81-06004A	Eccentric screw	1	GX-10-M15	3D4
M51	AD81-06005A	SI holder	1	GX-10-M51	3D2
M52	AD81-06006A	SI Mirror sheet assy.	1	GX-10-0-M52	3C2
M53	AD81-02673A	SI cover	1	GX-1S-M53	3E2
M54	AD81-01157A	SI prism molt	2	GX-1S-M54	3D3
M55	AD81-06007A	SI spring	1	GX-10-M55	3D2
M301	AD81-06008A	Eyepiece frame	1	GX-10-M301	3D5

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
M302	AD81-05187A	PVF tape 10x13.5	1	GX-10-M302	3D5
M304	AD81-02691A	Intermediate lens guide shaft	1	GX-1S-M304	3D6
M305	AD81-06009A	Light seal frame A	1	GX-10-M305	3C5
M306	AD81-06010A	Diopter adjusting lever	1	GX-10-M306	3C7
M307	AD81-06011A	Guide plate assy.	1	GX-10-0-M307	3C5
M311	AD63-03346A	Eyepiece frame cover	1		3D6
M312	AD81-06013A	Light seal frame B	1	GX-10-M312	3D4
M313	AD81-06014A	Intermediate lens spring	1	GX-10-M313	3D6
M314	AD81-06015A	Adjusting lever w-p sheet	1	GX-10-M314	3C6
M318	AD81-06016A	Light seal frame C	1	GX-10-M318	3C4
N300	AD81-06017A	Piezo-Electric buzzer	1	27830-N300	4D3
O170	AD81-06018A	SI Block	1	GX-10-0-O170	3D3
O201	AD07-00093A	LCD Panel	1		4B3
O202	AD81-06020A	LCD Flame	1	GX-10-O202	4C2
O203	AD81-06021A	LCD Retainer	1	GX-10-O203	4B3
O204	AD81-06022A	Conductive rubber	1	GX-10-O204	4B2
O207	AD81-06023A	Main SW Adhesive tape	1	GX-10-O207	4D1
O211	AD81-06024A	Light guide	1	GX-10-O211	4B3
O212	AD81-06025A	Reflection sheet	1	GX-10-O212	4B3
O213	AD81-06026A	Diffusion sheet	1	GX-10-0-O213	4B3
O220	AD81-06027A	LED P.C. Board	2	GX-10-0-O220	4C2,4C4
O301	AD07-00079A	I-LCD	1		1D4
O301-1	3811-001967	Lead Wire Pink 60	1		
O301-2	3811-001969	Lead Wire White 30	1		
Q1	AD81-06029A	Flash cover	1	GX-10-Q1	2B6
Q2	AD81-06030A	Flash case	1	GX-10-Q2	2D5
Q3	AD81-06031A	Adjusting plate	1	GX-10-Q3	2C6
Q4	AD81-06032A	Adjusting screw	1	GX-10-Q4	2D5
Q5	AD81-06033A	Flash pop-up button	1	GX-10-Q5	2D4
Q6	AD81-06034A	Flash button spring	1	GX-10-Q6	2C4
Q7	AD81-06035A	Flash frame shaft A	1	GX-10-Q7	2C5
Q8	AD81-06036A	Flash frame shaft B	1	GX-10-Q8	2C6
Q9	AD81-06037A	Pop-up spring	1	GX-10-Q9	2D6
Q10	AD81-06038A	Flash frame shaft	1	GX-10-Q10	2D6
Q11	AD81-06039A	F Case waterproof sheet A	1	GX-10-Q11	2B6
Q12	AD81-06040A	F Case waterproof sheet B	1	GX-10-Q12	2B6

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
Q20	AD81-06041A	Flash window	1	GX-10-Q20	2D5
Q21	AD81-06042A	O-ring 3.14x0.63	1	GX-10-Q21	2C6
Q22	AD81-06043A	O-ring 3.48x0.64	2	GX-10-Q22	2C5,2C6
Q23	AD81-06044A	Flash double stick tape	1	GX-10-Q23	2D5
Q24	AD61-03794A	Flash retainer	1		
Q26	AD81-06045A	Cover retainer screw	2	GX-10-Q26	2D6
Q100	AD97-16108A	Flash assy.	1		2C5
Q200	AD97-16110A	Flash P.C.board assy.	1		3F5
T20	AD81-06048A	Tv/Av Dial P.C. Board	2	GX-10-0-T20	4D3,4EI
T50	AD81-06049A	Shoe F.P.C. Board	1	GX-10-0-T50	2F3
T61	AD63-03331A	Double-sided tape 1.2x8.5	2		1C7,1D7
T62	AD63-03330A	Double-sided tape 1.2x11	8		1B4,2E2,2E3
T63	AD63-03329A	Double-sided tape 1.2x28	3		1B4,IC7
T90	AD63-03314A	Copper foil tape	1		1C3
T91	AD63-03313A	Copper foil tape	1		1D3
T93	AD63-03315A	Copper foil tape	1		1D2
T94	AD63-03316A	Copper foil tape	1		1F4
T95	AD63-03317A	Copper foil tape	1		2C5
T100	AD92-00644A	Main P.C. board	1		
T640	AD92-00640A	T100-T650 circuit block	1		4F6
T646	AD61-03795A	Connector retainer	2		4F6
T700	AD81-06053A	Upper flex circuit -A block	1	GX-10-0-T700	4C4
T750		Upper flex circuit -B block	1		4C5
T770	AD81-06055A	PZ P.C.Board	1	GX-10-0-T770	4G5
T901	AD81-06056A	Lower F.P.C. board	1	GX-10-T901	4H4
T902	AD92-00643A	Sync circuit board	1		1F6
T903	AD63-02329A	4WAY_KEY_DOME_SHEET	1		1D2
T904	AD63-02330A	AF_BUTTON_DOME_SHEET-	1		1C2
T905	AD63-02331A	MODE_BUTTON_DOME_SHEET-	1		1D3
T910	AD92-00642A	O200 P.C.Board	1		4B2
T921-2	AD63-02361A	BACK_FPCB_TAPE	1		
T921-3	6003-001637	TY-CNL-D1.7X3.0	2		
T940	AD92-00641A	AF/MF select circuit block	1		3F4
T970	AD92-00639A	SD card circuit block	1		4E5
U1	AD81-06064A	SD card cover	1	GX-10-U1	4D4
U2	AD81-01103A	Cover retainer screw F	2	GX-1S-A69	2D5

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
U4	AD81-06066A	TB wheel retainer screw	1	GX-10-U4	4H5
U6	AD81-06068A	PI tape 8x10	1	GX-10-U6	4H6
U8	AD81-06070A	Insulating tape 13x32	1	GX-10-T91	1F3
U10	AD81-06072A	Black tape 6x15	4	GX-10-U10	2E2,4D7
U11	AD81-06073A	PVF tape 7x11	1	GX-10-U11	4G5
U13	AD81-06075A	PET sheet 4x4	1	GX-10-U13	1D4
U14	AD81-06076A	Insulating tape 12x20	1	GX-10-U14	4G3
U16	AD63-03318A	F tape 6x10	1		4C1
U17	AD63-03319A	PVF tape 3.8x10 (0.08)	2		4D6,4EI
U18	AD63-03320A	PVF tape 8x12	1		4H4
U19	AD81-08760A	Release SW	1		4B4
U20	3722-002788	USB terminal	1		4F6

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
DT1	AD63-03321A	Double stick tape 1.2x8.5	2		1D6,1E6
DT2	AD63-03322A	Double stick tape 1.2x11	8		1C4,2E2
DT3	AD63-03323A	Double stick tape 1.2x28	5		1D3,1E7
DT4	AD63-03324A	Double stick tape 2x40	1		1H5
DT5	AD63-03325A	Double stick tape 2x5	5		1H5
DT6	AD63-03334A	Double stick tape 2x15	1		1G5
DT7	AD63-03335A	Double stick tape 2x24	1		1H3
DT9	AD63-03336A	Double stick tape 3x25	2		1G2,1G3
DT11	AD63-03337A	Double stick tape 4x6	2		1H3,2D2
DT12	AD63-03338A	Double stick tape 4x10	1		1G3
DT13	AD63-03339A	Double stick tape 4x15	1		1H4
DT14	AD63-03342A	Double stick tape 4x25	1		1G4
DT17	AD63-03343A	Double stick tape 5x17.5	1		1H3
DT18	AD63-03341A	Double stick tape 5x25	1		2C2
DT19	AD63-03340A	Double stick tape 5x40	1		1G2
DT20	AD63-03333A	Double stick tape 6x6	1		1H2
DT21	AD63-03332A	Double stick tape 6x8	2		1G4,1H3
DT22	AD63-03328A	Double stick tape 9x50	1		1G3
DT24	AD63-03327A	Double stick tape 11x42	1		1G3
DT25	AD63-03326A	Double stick tape 17x45.3	1		1G4
DT25	AD63-03326A	Double stick tape 17x45.3	1		1G4

Ⅲ. EXPLODED VIEW AND PART LIST

5. PACKING ITEM_GX-20

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User's Manual

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▶ **PACKING ITEM_PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-1	6902-000938	PE BAG (FOR ACCESSORY)	1	Exclusive
5-2	AD46-00159A	CD_SAMSUNG_RAW_CONVERTER_GX-20	1	Exclusive
5-3	3903-000346	AC CODE CABLE_KOR-D1	1	Common
	3903-000347	AC CODE CABLE_EXP-D1	1	Common
	AD81-00681A	AC CODE CABLE_USA-D1	1	Common
	AD81-00682A	AC CODE CABLE_UK-DSC220SE	1	Common
	3903-000348	AC CODE CABLE_AUS-D1	1	Common
	AD81-00700A	AC CODE CABLE_TSOE	1	Common
5-4	AD68-01903A	U_MANUAL_GX-20_KOR	1	Exclusive
	AD68-01904A	U_MANUAL_GX-20_ENG	1	Exclusive
	AD68-01905A	U_MANUAL_GX-20_GER	1	Exclusive
	AD68-01906A	U_MANUAL_GX-20_FRA	1	Exclusive
	AD68-01907A	U_MANUAL_GX-20_SPA	1	Exclusive
	AD68-01908A	U_MANUAL_GX-20_ITA	1	Exclusive
	AD68-01909A	U_MANUAL_GX-20_DUT	1	Exclusive
	AD68-01910A	U_MANUAL_GX-20_RUS	1	Exclusive
	AD68-01911A	U_MANUAL_GX-20_CHI_S	1	Exclusive
	AD68-01912A	U_MANUAL_GX-20_SWE	1	Exclusive
	AD68-01913A	U_MANUAL_GX-20_DAN	1	Exclusive

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PACKING ITEM_PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-5	AD68-01914A	Q/MANUAL_GX-20(8 LANGUAGE)	1	Exclusive
5-6	AD68-02660A	Q_MANUAL_GX-20_KOR	1	Exclusive
	AD68-02661A	Q_MANUAL_GX-20_ENG	1	Exclusive
	AD68-02662A	Q_MANUAL_GX-20_GER	1	Exclusive
	AD68-02663A	Q_MANUAL_GX-20_FRA	1	Exclusive
	AD68-02664A	Q_MANUAL_GX-20_SPA	1	Exclusive
	AD68-02665A	Q_MANUAL_GX-20_ITA	1	Exclusive
	AD68-02666A	Q_MANUAL_GX-20_DUT	1	Exclusive
	AD68-02667A	Q_MANUAL_GX-20_RUS	1	Exclusive
	AD68-02668A	Q_MANUAL_GX-20_CHI_S	1	Exclusive
	AD68-02669A	Q_MANUAL_GX-20_SWE	1	Exclusive
	AD68-02670A	Q_MANUAL_GX-20_DAN	1	Exclusive

▶ PACKING ITEM_PARTS LIST FOR GX-20_CODE

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-7	6801-001642	WARRANTY CARD_KOREA	1	Common
	6801-001646	WARRANTY CARD_EXP	1	Common
	6801-001658	WARRANTY CARD_2 YERARS	1	Common
	6801-001650	WARRANTY CARD_RUS(3 YEARS)	1	Common
	6801-001647	CARD_PRODUCT(Mexico)	1	Common
	6801-001659	WARRANTY CARD_TURKEY	1	Common
	6801-001660	SERVICE_CENTER_TURKEY	1	Common
	6801-001656	WARRANTY CARD_IRAN	1	Common
	6801-001662	WARRANTY_CARD_Argentina	1	Common
	6801-001675	WARRANTY CARD_TSOE(CHINA)_PRODUCT	1	Common
	6801-001663	AS_CENTER_MANUAL_TSEO_S	1	Common
	6801-001664	LOCAL_WARRANTY_CARD_INDIA	1	Common
	6801-001665	LOCAL_WARRANTY CARD_ITALIA	1	Common
	6801-001681	WARRANTY CARD_CANADA	1	Common
	AD68-02558A	PRC_CARD_RUSSIA	1	Common
5-8	AD81-00883A	LI-ION BATTERY_SLB-1674	1	Exclusive
5-9	AD81-06277A	CHARGER_SBC-L6	1	Exclusive

IV. WIRING DIAGRAM

▶ PARTS LIST FOR GX-20_CODE

No	Color	Lengtn	From to	No	Color	Lengtn	From to
1	RED	95	A14-T100	35	SKY BLUE	45	Q200-T100
2	BLACK	20	A12-T200	36	WHITE	45	Q200-T100
3	GLAY	50	A12-A12	37	YELLOW	45	Q200-T100
4	BLACK	65	T100-T200	38	ORANGE	150	S350-T100
5	BLACK	35	T200-T200	39	GLAY	145	S350-T100
6	BLACK	100	A330-T200	40	BLACK	45	S31-T200
7	RED	90	S250-T100	41	ORANGE	45	S31-T200
8	BLACK	85	S250-T100	42	GREEN	50	S31-T200
9	PINK	15	O300-T930	43	RED	40	S31-T200
10	WHITE	70	O300-T930	44	RED	30	N300-T100
11	PINK	45	G119(G100)-T200	45	WHITE	30	N300-T100
12	VIOLET	40	G119(G100)-T200	46	YELLOW	30	T10-T100
13	RED	95	T72-T200	47	BLACK	30	T10-T100
14	ORANGE	80	T72-T200	48	YELLOW	45	T940-T200
15	BLUE	85	T72-T200	49	BROWN	40	T940-T200
16	GLAY	85	T72-T200	50	BLUE	40	T940-T200
17	GREEN	35	E0-T200	51	RED	40	T940-T200
18	SKY BLUE	40	E0-T200	52	WHITE	45	T940-T200
19	PINK	50	E0-T200	53	BLACK	50	T940-T200
20	BLACK	45	E0-T200	54	RED	100	T970-T100
21	WHITE	60	E0-T200	55	BLACK	105	T970-T100
22	PINK	60	G119(A300)-T200	56	ORANGE	115	T970-T100
23	VIOLET	60	G119(A300)-T200	57	GREEN	110	T970-T100
24	BLACK	30	A105-T200	58	GLAY	40	I17-T100
25	BLUE	170	Q100-Q200	59	WHITE	50	S300-T770
26	GREEN	140	Q100-Q200	60	BROWN	50	S300-T770
27	BROWN	125	Q100-Q200	61	BLACK	125	T770-T100
28	BLACK	110	Q100-Q200	62	RED	125	T770-T100
29	WHITE	25	Q104-Q110	63	BLUE	180	T770-T100
30	RED	115	Q200-T770	64	YELLOW	170	T770-T100
31	BLACK	80	Q200-T770	65	VIOLET	180	T770-T100
32	BLUE	30	Q200-T100				
33	GREEN	30	Q200-T100				
34	PINK	50	Q200-T100				

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Ⅴ. FIRMWARE

1. Firmware Basic Version Check

1. Turn on the camera.

2. Turn on the camera while pressing the menu button.

3. Check the firmware version.

2. Firmware Full Version Check

1. Turn on the camera.

2. Download the following attached file and save it in an SD card (ROOT).
   ※ Right click the mouse on the "download the program file" button and then select "Save as (A)... ".

3. Insert a memory card and leave the cover open.

Ⅴ. FIRMWARE

4. Turn on the camera.

5. Check the firmware version.

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3. Firmware Upgrade Procedure

Caution

If the battery goes flat during the upgrade, the camera will be damaged.
Two types of power modes therefore need to be used for safety purposes.

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1. Download the latest firmware file and save it into the ROOT. (An MMC card can't be used for the firmware upgrade.)
   Check that the name of the firmware file is "FWGX20B.BIN".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card for firmware into the camera.

Ⅴ. FIRMWARE

4. Close the SD card cover of the camera.

5. Turn on the camera while pressing the 「MENU」 butto .

6. If the following indication appears on the LCD monitor, select 「YES」 using the direction keys and press the OK button.

PROGRAM UPDATE

YES
NO

CURRENT VERSION 0.01
UPDATE VERSION 0.01

The firmware upgrade starts.

(Updating takes about 60 secs. Updating time depends on the contents of the firmware.)

* Never attempt to turn off the power.

Ⅴ. FIRMWARE

7. When the 「COMPLETE」 sign
   appears, turn off the main switc.

* When the firmware upgrade is completed, the SD card LED (red) indicating its status, keeps blinking.

When the firmware upgrade is completed, the camera is set back to the original factory settings (language, date, time).

Readjustments for each item are not needed, as the firmware upgrade is not relevant to the data related to adjustments.

4. Firmware Upgrade Procedure After Main Board Replacement

> ✎ **Caution**
>
> If the battery goes flat during the upgrade, the camera will be damaged.
> Two types of power modes therefore need to be used for safety purposes.

1. Download the firmware to replace the main board and save it into the ROOT in the SD memory card (an MMC card can't be used.). Check that the name of the firmware is "KB454B.BIN".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card (firmware for replacing the main board) into the camera.

Ⅴ. FIRMWARE

4. leave the cover open.

5. Turn on the camera.

6. The following message will
   appear on the LCD monitor.

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7. Remove the SD card.

(Keep the memory card cover open.).

The firmware upgrade starts for replacing the main board.

(Updating takes about 60 secs. Updating time depends on the contents of the firmware.)

 * Never attempt to turn off the power.

Removing the current firmware….

Ⅴ. FIRMWARE

Preparing to write new firmware….

Writing new firmware….

8. When the upgrade is completed, the camera's power is turned off automatically.

After the firmware upgrade for replacing the main board, run the EEPROM PATCH.

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5. Run EEPROM PATCH

1. Download two files for EEPROM PATCH and
   save them into the ROOT in the SD memory
   card (an MMC card can't be used.).
   The files are "KB454.eep" and "MODSET.454".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card (two files for EEPROM PATCH) into the camera.

4. leave the cover open.

Ⅴ. FIRMWARE

5. Turn on the camera.

6. The following message will appear on the LCD monitor.

7. When the「COMPLETE」sign
   appears, turn off the main switc.

After the firmware upgrade for replacing the main board and the execution of the EEPROM PATCH are completed, make sure to carry out adjustments.

See "Adjustments" for detailed adjustments.

Ⅵ. ADJUSTMENT

1. Preparation for Adjustments

Preparation Equipment :

☐ Adjustments program software (written in CD-R) for 77012 (GX-20)

☐ Personal Computer (below PC for adjustment)

    OS : Windows XP SP2
    CPU : above 1GHz
    RAM : above 512MB
    HD Bin Memory : above 500MB

☐ 5 SD cards (above 16MB)

☐ SD card reader or a USB cable to the body of the camera (connect to the PC)

1. Prepare three SD cards for adjustment.

  * Prepare three SD cards.

1. For product firmware (GM_FW)

2. For initial data settings (Initial Data Set)

3. For initial settings (factory initialized, 「Initialize Set」)

4. For firmware when replacing the T100 circuit board (Product ID FW)

2. Setting the computer and writing an SD card

* Insert the 77012 (GX-20) CD-R for adjustment into the CD-Rom drive of the computer.
  (77010£ƒPENTAX K20D)

```
⊞ 📁 77010
⊟ 📁 77012 Tool
    ⊞ 📁 GM_FW
    ⊞ 📁 Initial Data Set
    ⊞ 📁 Initialize Set
    ⊞ 📁 Product ID FW
⊞ 📁 z1 (vb6run_cs_1.0.0
⊞ 📁 z2 (NetFramework2.0
⊞ 📁 z3 (VC++2005 SP1
```

① Copy the 「77010」 folder from the CD-R onto the C drive. (Adjustment software main body)

② Copy a file in the 「GM_FW」 file to an SD card (for product firmware).

③ Copy two files in the 「Initial Data Set」 folder to an SD card.

④ Copy a file in the 「Initialize Set」 folder to an SD card.

⑤ Copy two files in the 「Product ID FW」 folder to an SD card.

3. Software Installation

> 📝 **IMPORTANT**
>
> Install the three types of the following software.
>
> ◆ Net Framework Ver2.0 (new)
> ◆ VC++2005 SP1 (new)
> ◆ VB Runtime (unnecessary if the 「VB Run Time Set-up」 program for GX-1S and GX10 is installed already)

Ⅵ. ADJUSTMENT

* Insert the 77012 CD-R for adjustment into the CD-Rom of the computer.

① Double click on the "dotnetfx.exe" file in the 「NetFramework2.0」 folder.
  If the installer is executed, install the software according to the instructions on the screen.

② Double click on the "vcredist_x86.exe" file in the 「VC++2005 SP1」 folder and execute the installation.

③ When the 「VB Run Time Set-up」 program is not installed, double click on the "setup.exe" file in
  the°∏vb6run_cs_x.x.x°πfolder and execute the installation.

2. Calibration of light source for digital adjustments

> ✎ **IMPORTANT**
>
> Calibration of light source has to be done prior to the 77012 digital adjustments.
> When the adjustment software, the light source or the photometry standard lens for adjustments are
> replaced, calibration must be done. (Calibration process is identical to the 76832 (GX10).)

Preparation Equipment :
   □ Master body for 76830(K10D) light source calibration

   □ 77012 digital adjustments software (M-Test)

   □ PC (Windows XP, USB port standard device)

   □ Light box (LB-3300, Light source A)

   □ Photometric standard lens for adjustments and F8 set ring

   ※ Use a lens with an ID no. identical to the lens ID no. as shown on the CD-R (adjustments software).

   □ USB cable

   □ AC adaptor

   □ Material for blocking light (dark curtain)

   □ Color thermometer for photography (for light source adjustments)

   □ LV checker (for checking LV values)

1. Computer Set-up

   「2. Setting the computer」 in the 「Preparation」 section has to be completed.
   (Use the digital adjustment software.)

Ⅵ. ADJUSTMENT

2. Calibration

① For a stable light source, wait for 30 mins after turning on the power of the light source prior to calibration.

② Adjust the brightness and the color temperature using the color thermometer for photography and the LV checker as below.

Light	Brightness	Color temperature
LV12	LV12.00Ev ±0.50	2,856K ±30
LV11	LV11.00Ev ±0.01	-

* Calibration is performed in the following sequence with a K10D master body.

3. Master body and photometric standard lens set-up

① Set the mode dial to 「M」.

② Set the focus mode lever to 「MF」.

③ Set the SR lever to「OFF」.

④ Install the photometric standard lens for adjustments and the F8 set ring on the body.

⑤ Set the aperture stop of the photometric standard lens to 「F8」.

4. Calibration procedure

① Connect the AC adaptor to the camera (master body).

② Access to the PC using the USB cable.

③ Turn on the camera and check that the camera is recognized by the PC.

④ Set the light box to 「LV12」.

⑤ Position the lens on the top center of the light box.

⑥ Cover the whole camera and the rest of the top section.

⑦ Double click on the "77010_M-Test_CS_Ver_.exe" file in the 「77010-M-Test CS」 folder.

⑧ Enter the lens ID no. and click on "OK" on the lens input screen. (e.g.:123)

⑨ Click on "Yes (Y)" if the lens no. is entered correctly.

⑩ The digital adjustment screen appears. Click on the icon for calibration at the top left of the screen.

⑪ The calibration screen appears. Click on the "Enter" key (or "START" button).
   (Release 15 times about for 35 secs.)

Ⅵ. ADJUSTMENT

⑫ When all the adjustments are completed, the OK image appears.

⑬ End the adjustments software by clicking on the [X] button (or [END] button).

※ See the 「Error code table」 in the manual for NG adjustment.

3. Adjustments flow chart when replacing the T100

The sequence of adjustments items when replacing the T100 main circuit board is as follows.

- Note Prod. ID FW 「Product ID FW」
- Set the initial data 「Initial Data Set」

SR adjustment (SR unit adjustment)
「K20D_SR_Operation_Adjustment」

Single-lens reflex functional section adjustment
「K20D_PDCAdj」(※ Data initialization is unavailable)
「K20D_Uniformity_CS」
「K20D_FI_CS」

SR adjustment (SR gain adjustment)
「77010 SR_Gain For CS」

WDC (Adjust the defective white pixels)
「77010_White Pixel Adjust」

Digital section adjustment
「77010 M-Test CS」

Shutter speed adjustment according to the histogram
「K20D_PDCAdj」

Function test
*SR check can be skipped if SR adjustment is completed.

Initial settings
(Initialized at the factory)
「Initialize Set」

Ⅵ. ADJUSTMENT

4. OPS unit (Operation) adjustments

> ### ✎ IMPORTANT
>
> 【CAUTION 1】This adjustment must be performed when replacing the T100 circuit boar.
>
> 【CAUTION 2】The adjustment must be performed on a rigid, stable and even area without vibration.

Preparation Equipment :

□ OPS unit adjustment program for the GX-20

□ SR unit adjustment plate

□ PC (Windows 2000 or XP, USB port standard device)

□ USB cable

□ AC adaptor or DC code • constant voltage DC8.3 V for 76830

1. Computer set-up

① Copy the 「K20D SR Operation Adjustment」 folder onto the PC.

2. Preparation

① Set the AF change lever to 「MF」 (top position).

※ Camera setting: mode dial "M", OPS switch "ON"

② Mount the OPS unit adjustment plate (↓) on the body.

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③ Put the body on a stable support (table) downwards.

④ Check the CCD ID no. when replacing the T100 circuit board.

3. Adjustment procedure

① Start the PC.

② Connect the body to the PC using the USB cable and connect the AC adapter to the body. (power ON)

③ Check that the hot plug icon display is recognized on the PC.

④ Double click on the「K20D SR Operation.exe」file in the adjustment software folder and execute it.

⑤ The adjustment screen appears.

⑥ Click on the [Start] button.

Ⅵ. ADJUSTMENT

⑦ The following screen appears.

⑧ Adjust by selecting INPUT or SKIP as below.

≪ If the T100 is not replaced ≫

click on the [Skip] button.

≪ If the T100 is replaced ≫

enter the CCD ID no. twice.

↓

Click on INPUT.

※ Click on the "Cancel" button when stopping the adjustment.

The following is the screen during adjustment (Adjustment time: 3mins 30secs).

IMPORTANT

Do not generate any vibrations or walk around the work area during adjustment.
If vibration occurred during adjustment, readjustment is needed even if the adjustment is completed.

※Click on the "Stop" button when stopping the adjustment.

⑨ If the following screen is displayed, the adjustment is completed.

⑩ Check the "Unconnect" display, and end the adjustment by clicking on the [X] button.

※If the adjustment is displayed as NG, the green turns into red.

Ⅵ. ADJUSTMENT

5. OPS gain adjustment

> ### 📝 **IMPORTANT**
>
> 【CAUTION 1】This adjustment must be performed when replacing the T100 main circuit board, the T640 relay board or the T970 circuit board.
>
> 【CAUTION 2】This adjustment must be performed after the OPS adjustment (unit adjustment).
>
> 【CAUTION 3】The adjustment must be performed on a rigid, stable and even area without vibration.
>
> 【CAUTION 4】Handle the adjustment stage carefully, as it is heavy.
> Do not touch the black vibration plate.

Preparation Equipment :
- □ SR gain adjustment program (SR_GainForCS) for the GX-20

- □ SR gain adjustment device for the GX10 (driving stage • controller • speed meter)

- □ SR gain adjustment chart for GX10 (identical to the GX10)

- □ PC (Windows XP (SP2), USB port standard device)

- □ D-XENON 50-200 mm lens

- □ USB cable

- □ AC adapter (or DC code for 76830)

1. Computer set-up

① 「NetFramework2.0」 and 「Visual C++Runtime2005」 must be installed on the PC already.

② The 77010 「SR_GainForCS」 folder must be copied onto the hard disk.

---

2. Preparation

① Set up the chart (■) 2.00m from the tripod knob of the camera.

② Set the lighting to LV 10 to 12 without the surface of the chart spotted.

③ Set the zoom ring of the D-XENON 50-200mm lens to 200mm and its distance ring to 2m.

(Fix the four sections with tape to prevent vibration.)

Ⅵ. ADJUSTMENT

④ Mount the lens on the body of the camera.

⑤ Set the body as below.

- Mode dial 「M」

- AF change lever 「MF」

- OPS switch 「ON」

⑥ Mount the body of the camera onto the vibration plate.

⑥ Fix the camera firmly using the two knobs.

⑦ Locate the chart (■) on the center of the finder. (Within the spot metering frame.)

【Check】 Check again that the distance is 2.0mm.

Turn on the controller and turn the dial up to 1,000 rpm.

Turn off the controller after checking.

⑨ Connect the camera to the PC using the USB cable, and turn it on.

3. Adjustment

① Double click on the "SR_GainForCS.exe" file in the 77010 「SR_GainForCS」 folder.

② Start the adjustment by clicking on the "Execute" button.

Ⅵ. ADJUSTMENT

③ Turn on the controller (1,000 rpm). Adjust the X direction by clicking on the "OK" button.

④ Turn off the controller, and click on the "OK" button.(The following adjustment starts.)

⑤ Turn on the controller again (1,000 rpm), and click on the "OK" button. (Adjust the following)

⑥ Turn off the controller, and change the positions of the camera and the stage to the Y direction adjustment. ↓

> ✎ **IMPORTANT**
>
> Handle the stage carefully, as it is heavy. Do not touch the black vibration plate.

Ⅵ. ADJUSTMENT

⑦ Set up the chart (■) 2.00m from the tripod knob of the camera and locate the chart on the center of the finder.

⑧ Click on [OK], and adjust the Y direction in the same way as the X direction adjustment.

⑨ If all the adjustments are completed, then the OK message appears.

⑩ End the adjustments by clicking on the [X] button or [Quit] button.

6. SLR (Single Lens Reflex) functional section adjustment

> ✍ **IMPORTANT**
>
> 【CAUTION 1】This adjustment must be performed when replacing the T100 circuit board.
>
> 【CAUTION 2】Each setting except for the custom function will be initialized when executing this adjustment.
>
> 【CAUTION 3】Adjust the shutter speed after adjusting the digital section.
> See 「Shutter speed adjustment according to the histogram」.

Preparation Equipment :

▢ SLR adjustment program for 77010 (comprised of three types as below)

K20D PDCAdj (SLR adjustment except for the following),

K20D Uniformity CS (AF sensor uniformity adjustment),

K20D FI CS§§(AF focus adjustment

▢ PC (Windows XP (SP2), USB port standard device)

▢ USB cable

▢ AC adapter (or DC code for the 76830)

▢ Light source for the AE adjustment (LV6 • LV8 (or 9) • LV12 • LV15 (or 16), shutter tester)

▢ Digital photometric standard lens (No.95901-D20, Lens ID No. attachment), F8 set ring

▢ F5.6 set plate for photometric standard lens (No.95901-D20 only)

▢ Side AF gradient adjustment tool (square)

▢ AF gradient adjustment tool (cross)

▢ Hexagonal driver 1.5mm (HD-M1.5)

Ⅵ. ADJUSTMENT

- □ Two types of AF chart for 2m

- □ AF focus standard lens for 2m

- □ D-FA(FA) Macro 50mm F2.8

- □ FA(F) 35-80mm F4-5.6

- □ Constant voltage (above 8V • 3 A)

- □ Battery adapter for 76830

1. Computer set-up

① Install PC「VB run time」set-up,「NetFramework2.0」and「Visual C++Runtime2005」on the PC
   (Refer to preparation).

② Copy the「K20D PDCAdj」folder, the「GX20 Uniformity CS」folder and the「GX20 FI CS」folder.

2. Preparation

① Attach the lower cover and the battery cover to the body (connection terminal cover is not needed.)

② Set the focus lever mode to「MF」.

③ Set the exposure mode dial to「M」.

④ Set the SR (OIS) lever to「OFF」.

⑤ Connect the camera to the PC using the USB cable and turn on the camera.

3. Adjustment (K20D PDCAdj

① Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder (Adjustment screen display).

② Start the communication with the camera by clicking on the "Op" icon. (USB open)

【Check】 Check that the USB IO is displayed as 「Connect」.

③ Adjust and check according to the display

※Data initialization

【CAUTION】 Select 「No」, as the SR adjustment data is cleared.

Replace the main board?

6:BATTERY LEVEL ADJUST

Adjustment screen and all the items display

1:EEPROM CHECKING
↓

2:EXPOSURE ADJUST
↓

Ⅵ. ADJUSTMENT

◇[BV ADJUST]

3 : AF AND RELATED ADJUST
↓

◇Adjust [CCD POSITION ADJUST]

↓

◇Adjust [AGC LEVEL ADJUST]

↓
↓

5 : EEPROM CHECKING   (※Perform this after completing all the adjustments and checking.)

※The following adjustment must be performed when replacing the T100 circuit board
 (unnecessary to follow the following order.)

6 : BATTERY LEVEL ADJUST

Bc Adjust

ⓘ SET REGULATED DC POWER SUPPLY TO 8.0 v.
TURN THE SELECT SW TO GRIP POSITION.

OK

Bc Adjust

ⓘ TURN THE SELECT SW TO BATTERY POSITION.

OK

① ② ③

Battery adaptor for 76830
Select SW : ①Battery
②Battery & Grip
③Grip

7 : SHUTTER SPEED ADJUST

 * See 「Shutter speed adjustment according to the histogram」.

4. Ending procedure

① Click on the "Cl" icon, and disconnect the communication with the camera. (USB close)

【Check】Check that the USB IO is displayed as 「Unconnect」.

② Click on the "end" icon, and end the adjustment program.

P D C Adj Ver.0:1:1

USB Test(a)   Af Adj(d)   Ae Adj(g)   Etc. (E)

Op Cl p.s ver   end m.n

Product Number:
K20D   Interface Support : USB IO   Unconnect

Ⅵ. ADJUSTMENT

7. Exposure adjustment - BV adjust (brightness value)

Determining exposure is one of the most important things in shooting.

If the exposure value is increased, a photo will come out with a bright tone. If the exposure value is decreased, a photo will come out with a dark tone. The metering sensor measures the quantity of light to determine the appropriate exposure in order for a subject to have the appropriate brightness.

1. Adjustment procedure

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
　Check that the USB IO is displayed as "connected".

⑥ Mount the diaphragm set ring on the camera with the aperture open.

If there isn't a tool for the diaphragm set ring, a lens which can set the aperture to 1.4 can be used.

⑦ Connect the camera to the EV tester.

Ⅵ. ADJUSTMENT

⑧ Click on the "2. EXPOSURE ADJUST - BV ADJUST" button.

Enter the lens ID no. and click on "Input".

⑨ Select the type of the EV tester.

⑩ If you click on the BV ADJUST button, a message "Set the EV tester to LV6" will appear.
   Set the EV tester to LV6 and click on the "OK" button.

After the following message appears, change the set plate to an F5.6 set plate.

Click on "OK" and continue with the adjustment.

Ⅵ. ADJUSTMENT

A message "Set the EV tester to LV15" will appear. Set the EV tester to LV15 and click on the "OK" button.

If the adjustment is completed, the following message will appear. Click on the "OK" button.

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The adjustment value is saved in the camera.

Click on the "CLOSE" button.

Ⅵ. ADJUSTMENT

⑪ Click on the "CI" button on the top menu of the main screen.
   Check that the USB IO has been changed to "Unconnect" from "Connect".

⑫ Click on the "end" button and end the program.

⑬ Disconnect the USB cable from the camera and check the side light.

   1. Attach a bundle lens to the camera and set the camera as follows.

      AV mode, aperture stop F8, ISO 200, spot side light, focus MF mode, set the lens distance to 35M,
      set the distance ring to infinitive.

   2. Put the camera near the EV tester.

   3. Check the Tv display by changing the brightness (LV) and half-pressing the release button as
      shown in the following table.

	LV6	LV8	LV9	LV10	LV12	LV15	LV15(분활측광)
Tv 표시	Tv0.5"	Tv8	Tv15	Tv30	Tv125	Tv1000	Tv750

If the shutter speed values change identically to the table above according to the changes of the LV
values with the aperture stop of F8, the adjustment has been completed. Otherwise perform the
adjustment again.

8. AF sensor position adjustment

The AF sensor captures an image of the subject clearly. The following adjustment must be performed when replacing the AF sensor or when there is a problem with an AF function.
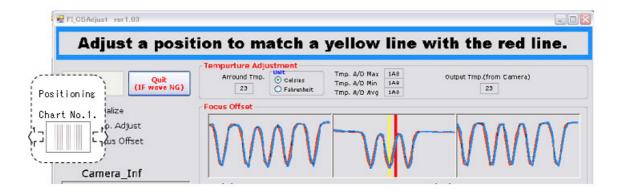
1. Adjustment procedure

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
   Check that the USB IO is displayed as "connected".

Ⅵ. ADJUSTMENT

⑥ Install a cross gradient adjustment tool.
   Set the focus mode to MF.

⑦ Connect the camera (Cross installation) to the EV tester.

⑧ Click on the "3.AF AND REL ADJ - CCD POSITION ADJ - ADJUSTMENT" button.

⑨ Click on the "DumpStart" button on Alpha-CROSS.

Ⅵ. ADJUSTMENT

Set the LV value on the EV tester to 12 and click on the "OK" button.

If the measurement values are displayed in green, it is normal.
(Adjust the position of the AF sensor to make the sizes and shapes of the graphs uniform.)

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If the measurement values are not displayed in green and the sizes and shapes of the graphs are different, adjust the gradient of the AF sensor by turning the two areas with an Allen wrench as shown in the following figure. Adjust the gradient until the green appears on the screen. (The values are better to close to "0".).

⑩ Install the square gradient adjustment tool.

Ⅵ. ADJUSTMENT

Click on the "DumpStart" button on Beta-SQUARE.

Set the LV value on the EV tester to 12 and click on the "OK" button.

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If the measurement values are displayed in green, it is normal.

If the measurement values are not displayed in green and the sizes and shapes of the graphs are different, adjust the gradient of the AF sensor by turning the two areas with an Allen wrench as shown in the following figure. Adjust the gradient until the green appears on the screen. (The values are better to close to "0".).

Ⅵ. ADJUSTMENT

⑪ Install a standard lens (50M F1.4).

Set the distance from the camera mount plane to the AF chart no.1 to 1,954.5mm(=1.9545m) using the tripod.

1.9545m

Click on the "Start" button in "Focus".

Check the conditions of the camera and chart settings as below and click on the "OK" button.

Ⅵ. ADJUSTMENT

Move the centers of the blue graphs in the three sections (left, middle, right) to the red reference lines.
Move the centers of the graphs to the red lines by moving the camera mounted on the tripod slightly (the bottom of the curve is the center.).
If the centers of the graphs are moved to the red lines, then click on the "Next" button.

If the measurement values are displayed in green, it is normal.

If the measurement values are not displayed in green, adjust the height of the AF sensor by turning the three areas with an Allen wrench as shown in the following figure. Adjust the height until the green appears on the screen.

Turn the Allen wrench in the same direction for all three areas.

If you turn each area in different directions, the gradient will change.

You need to check the gradient or adjust it again.

Ⅵ. ADJUSTMENT

9. AF sensor position check

This is a process to check if the AF sensor has been positioned correctly.

1. Procedure

① Install a 35-80 F4-5.6 lens on the camera.

If there isn't a 35-80 F4-5.6 lens, a bundle lens can be used.

Set the items as below if a bundle lens is used for adjustment. Focus MF mode, lens distance 55m, distance ring 0.4m.

② Connect the camera to the EV tester. (Install a 35-80 lens or a bundle lens)

③ Click on the "3. AF AND REL ADJ - CCD POSITION ADJ - POSITION CHECK" button.

Ⅵ. ADJUSTMENT

④ Set the EV tester LV to 12. Set the distance ring to 0.4m from 80mm for the 35-80 lens, and click on the "CHECK" button. Set the distance ring to 0.4m from 55mm for the bundle lens.

⑤ If the AF sensor is positioned correctly, the following message will appear. Click on the "OK" button.

If "NG" appears, then adjust the position of the AF sensor again.

Close the AF sensor position check screen by clicking on the "CLOSE" button.

CCD POSITION   [Form instance No,2]

CCD POSITION CHECK

MOUNT F ZOOM LENS 35-80 ONTO CAMERA.

SET THE LENS TO MIN. DISTANCE (0.4M)

AND TELE END (80MM).

SET LIGHT SOURCE TO LV 12.

SET FOCUD-MODE SW OF CAMERA TO MF.

CHECK   Close

Ⅵ. ADJUSTMENT

10. AGC level adjust : AGC (Automatic Gain Control)

This circuit reduces intermodulation and prevents saturation occurring at the amplification stage of the AF sensor. For example, if the input value is greater than the standard value in the AF amplification circuit, this circuit reduces the gain. If the input value is smaller than the standard value, this circuit increases the gain for better output.

Auto Gain Control

If the signal is stronger than the standard, saturation of the signal is prevented by controlling the gain (similar to sensitivity of film). If the signal is weaker than the standard, it increases the level of the signal up to the standard.

1. Adjustment procedure

① Install a 50mm F1.4 lens on the camera. (Set the focus mode to MF.)

② Connect the camera to the EV tester. (Install a 50m lens.)

③ Click on the "3. AF AND REL ADJ - AGC LEVEL ADJUST" button.

Ⅵ. ADJUSTMENT

④ Select the type of EV tester and adjust the LV values (light value, reference exposure value) in the following order 6, 7, 12 and 15 by clicking on the "AGC Adjust" button.
If the adjustments are completed, click on the "Close" button.

11. Uniformity CS : Adjustment to make the outputs of each AF sensor uniform.

The outputs of each AF sensor are not uniform. This is an adjustment process to improve the performance of the AF sensor by making the outputs uniform.

Adjust the AF sensor when the AF sensor has been replaced or when it is faulty.

1. Adjustment procedure

① Install a Macro 50mm F2.8 lens to the camera. (Set the focus mode to MF, infinitive.)

② Connect the camera to the EV tester. (Install a 50m lens.)

Ⅵ. ADJUSTMENT

③ Double click on the "X20_SLR_Uni_.exe" file in the 「GX20_Uniformity_CS」 folder.

④ Click on the "Execute" button and start the adjustment.

⑤ If the adjustment is completed, the "OK" message will appear at the bottom left of the screen.

⑥ Click on the [X] button and end the adjustment.

⑦ If an adjustment error occurs, the "NG" message and an error code will be displayed.
   See 「Error code table」 in the manual.

Ⅵ. ADJUSTMENT

12. FI CS adjustment (focus)

Equipment to be used :
  □ Two types of 2m AF charts (No.1, No.2)

  □ A 2m AF focus standard lens

* The 2m AF chart is installed in the following conditions.

1) The distance from the camera mount to the 2m AF chart: 1,954.5 mm (=1.9545m)

2) The chart has to be perpendicular to the optic axis of the lens in the up, down, left and right directions.

3) Shed the lighting on the surface of the chart until the LV value reaches 11 or 12.
   (If the brightness is low, the adjustment is NG.)

1. Adjustment procedure

  ① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

  ② Turn on the camera and check that the hot plug icon is displayed on the PC.

  ③ Double click on the "GX20_SLR_FI_.exe" file in the 「GX20_FI_CS」 folder.

  ④ The adjustment screen appears.

  ⑤ Click on the "Enter" button after entering the temperature (℃). (@ : Use the mouse pointer to select "Fahrenheit".)

⑥ The following screen appears after the temperature adjustment.

⑦ Set the camera to the vertical line of the AF chart no.1.

⑧ Start adjusting the position of the chart by clicking on the "OK" button.

⑨ If the positions of the camera and the chart are not aligned, the following message appears.
Adjust the position of the camera to match the red line with the yellow line.

⑩ If the camera and the chart are positioned correctly, the following message appears.
If this state is maintained, the adjustment starts automatically.

> 📝 **IMPORTANT**
>
> Do not touch the camera or the chart during the adjustment. The adjustment has to be performed again if there is contact, even if it was OK.

Ⅵ. ADJUSTMENT

⑪ If the adjustment is OK, then adjust the position of the AF chart No.2 (horizontal line) to the camera.

⑫ Adjust the position of the camera and the chart in the same way as the vertical sensor's adjustment. (Up and down direction).

⑬ If the adjustment is completed, then the "OK" message appears.

⑭ Click on the [X] button and end the adjustment.

13. Battery level adjustment

This is a process which checks the residual quantity of the camera's battery power and displays it in the LCD information window.

Equipment to be used :
  □ 76830 battery adapter

  □ Constant voltage (above DC8V • 3 A)

1. Adjustment procedure

① Connect the battery adapter to the camera.

Battery adaptor for 76830
Select SW : ①Battery
②Battery & Grip
③Grip

② Connect the USB cable from the camera to the PC.

③ Turn on the camera and check that the hot plug icon is displayed on the PC.

④ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

Ⅵ. ADJUSTMENT

⑤ The adjustment screen appears.

⑥ Click on the "Op" icon and start the communication with the camera. Check that the USB IO is displayed as "connected".

⑦ Click on the "6. BATTERY LEVEL ADJUST" button.

⑧ Adjust by changing the Select SW according to the instructions on the screen.

⑨ If the adjustment is completed, then click on the "CI" button.
   Check that the USO IO is changed to "Unconnect" from "Connect".

⑩ Click on the "end" button and end the program.

Ⅵ. ADJUSTMENT

14. Image sensor (Digital adjustment M-Test)

Preparation Equipment :

□ 77010 digital adjustment program (77010-M-Test CS)

□ Light box (LB-3300, light source A)

□ PC (below Windows XP (SP2), USB port standard device)

□ Photometric standard lens for adjustments and F8 set ring

※ Use a lens with an ID no. identical to the lens ID no. as shown on the CD-R (adjustments software).

□ USB cable

□ AC adapter

□ Material for blocking light (dark curtain)

□ Color thermometer for photography (for light source adjustments)

□ LV checker (for checking LV values)

1. Computer and light source set-up

① 「NetFramework2.0」 and 「VisualC++Runtime2005」 must be installed on the PC.

② Copy the 「77010-M-Test CS」folder onto the hard disk.

③ 「light source adjustment for digital adjustment」 must be completed with the 76830 master body.

④ Adjust the brightness and the color temperature using the color thermometer for photography and the LV checker as below.

Light	Brightness	Color temperature
LV12	LV12.00Ev ±0.50	2,856K ±30
LV11	LV11.00Ev ±0.01	-

2. Camera and photometric standard lens set-up

⑤ Set the mode dial to 「M」.

⑥ Set the focus lever to 「MF」.

⑦ Set the OPS lever to 「OFF」.

⑧ Install the photometric standard lens for adjustments and the F8 set ring on the body.

⑨ FSet the aperture stop of the photometric standard lens to the 「F8 position」.
   (or set a 50M F1.4 lens to F8)

Lens ID No

⑩ Cover the light box (Brightness measurement equipment (light source A, color temperature 2,850K±10, brightness LV11.00)) with a light blocking cover and position the lens in the middle of the light box.

Ⅵ. ADJUSTMENT

3. Adjustment procedure

① Connect the USB cable from the camera to the PC, and turn on the camera.

② Double click on the "77010_M-Test_CS_Ver_.exe" file in the「77010-M-Test CS」folder.

③ Enter the lens ID no. and click on "OK" on the lens input screen. (e.g.:123)

④ Click on "Yes (Y)" if the lens no. is entered correctly.

⑤ Hit the "Enter" key (or click on the "START" button) and start the adjustment.
   (Start the adjustment according to the instructions.)

⑥ If all the adjustments are completed, then the "OK" message appears.

⑦ Click on the [X] button (or [END] button) and end the adjustment program.
   (Adjustment time: approx. 3 mins 30 secs).

Ⅵ. ADJUSTMENT

15. WDC adjustment

※ Defective white pixels adjustment (light source • reference lens are not needed.)

* Adjusting a few times may fix the bad pixels.

Camera set-up : Mode dial M, focus lever MF, lens removal, memory removal.

1. Adjustment procedure

① Connect the AD adapter to the body of the camera.

② Connect the USB cable from the body of the camera to the PC.

③ Turn on the camera and check that the PC recognizes the camera.

④ Start the adjustment program (77010_WhitePixelAdjust.exe).

⑤ Click on the "START" button in the adjustment program, or hit the "Enter" key on the keyboard.

⑥ If all the adjustments are completed, then the "OK" message appears.

⑦ Click on the [X] button (or [END] button) and end the adjustment program.
　　(Adjustment time: approx. 70secs).

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16. Shutter speed adjustment

This adjustment is performed when replacing the shutter layer or when the shutter speed is faulty. By entering the standard shutter speed values, the correct shutter speed corresponding to the standard values can be achieved.

* 「single-lens reflex functional section • digital section adjustment」 must be done prior to this adjustment.

* Adjust the shutter speed when replacing the 0-T100 main board.

Preparation Equipment :
□ Single-lens reflex functional adjustment program

□ PC (Windows 2000 or XP, USB port standard device below, PC)

□ Photometric standard lens for adjustments and F8 set ring

□ Light source (LB-3300, use LV8 or LV9)

□ USB cable

□ AC adapter

□ An SD card for test shooting

□ Transparent ruler (metric ruler, scratch-free plastic material)

1. Camera settings

① Set up the camera as below.

【External button】 Mode dial M, Focus lever MF, WB luminescent light, ISO 200
【MENU】 Natural mode, definition • size : best definition • 6M(L), or 10M,
saturation • sharpness • contrast : standard (initial values)
【Playback】 Quick view 5secs, set the view display as histogram
【Custom】 Allows release apart from the diaphragm ring A.

Ⅵ. ADJUSTMENT

2. Check procedure

① Set the EV tester to LV9.

② Set the shutter speed to Tv 500.

③ Set the 50M F1.4 lens aperture stop to "open" (F1.4).

④ Connect the EV tester to the camera.

> ### 📝 IMPORTANT
>
> Block the window of the light source from the external light.

⑤ Take about 3 shots.

> ### 📝 IMPORTANT
>
> The peak has to be in the following range of the histogram when looking at the images on the LCD monitor. If it is displayed as NG, check the settings again, or perform the BV adjustment and digital adjustment (CCD) again.
>
>

Ⅵ. ADJUSTMENT

⑥ Set the camera to ISO 1600 and Tv4000 with the identical light source and open aperture stop (F1.4).

⑦ Connect the camera to the EV tester and take about 3 shots.

⑧ Play back the two images taken on the LCD monitor and compare the differences of the pitches on the histogram. Measure the differences (mm) on the LCD monitor with a ruler.

> 📝 **IMPORTANT**
>
> This has to be checked in front of the camera. Do not damage (scratch) the LCD screen.

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< Example>

Playback the image (Histogram display)

The example above shows that the peak value of Tv4000 has a difference +1.5mm to the right compared to the peak value of Tv500 (standard).

⑨ Select a histogram zone (A to D) corresponding to the peak position of Tv4000 from the following figure. (The example above corresponds to type B.)

Ⅵ. ADJUSTMENT

⑩ Calculate the shutter speed (mS) from the differences of the histogram zone and the peak position, referring to the following conversion table of shutter speeds.
(Find the shutter speed from the conversion table for the example above. The histogram zone is B. The difference is +1.5mm to the right. Therefore the shutter speed value is 0.273mS)

Conversion table of shutter speed
(Apply to GX-10 • GX-1S • GX-1L)

Differ mm		The left from standard										
		-10,0	-9,5	-9,0	-8,5	-8,0	-7,5	-7,0	-6,5	-6,0	-5,5	-5,0
Zone	A	0,116	0,122	0,129	0,135	0,142	0,148	0,154	0,161	0,167	0,174	0,180
	B	0,054	0,064	0,073	0,083	0,092	0,102	0,111	0,121	0,130	0,140	0,149
	C	(0,001)	0,001	0,014	0,026	0,039	0,052	0,065	0,078	0,090	0,103	0,116
	D	(0,001)	(0,001)	(0,001)	(0,001)	(0,001)	0,004	0,020	0,036	0,052	0,068	0,084

(mS)

Differ mm		The left from standard										右 側
		-4,5	-4,0	-3,5	-3,0	-2,5	-2,0	-1,5	-1,0	-0,5	0,0	0,5
Zone	A	0,186	0,193	0,199	0,206	0,212	0,218	0,225	0,231	0,238	**0,244**	0,250
	B	0,159	0,168	0,178	0,187	0,197	0,206	0,216	0,225	0,235	**0,244**	0,254
	C	0,129	0,142	0,154	0,167	0,180	0,193	0,206	0,218	0,231	**0,244**	0,257
	D	0,100	0,116	0,132	0,148	0,164	0,180	0,196	0,212	0,228	**0,244**	0,260

(mS)

Differ mm		The right from standard										
		1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
Zone	A	0,257	0,263	0,270	0,276	0,282	0,289	0,295	0,302	0,308	0,314	0,321
	B	0,263	0,273	0,282	0,291	0,301	0,311	0,320	0,330	0,339	0,349	0,358
	C	0,270	0,282	0,295	0,308	0,321	0,334	0,346	0,359	0,372	0,385	0,398
	D	0,276	0,292	0,308	0,324	0,340	0,356	0,372	0,388	0,404	0,420	0,436

(mS)

Differ mm		The right from standard										
		6,5	7,0	7,5	8,0	8,5	9,0	9,5	10,0			
Zone	A	0,327	0,334	0,340	0,346	0,353	0,359	0,366	0,372			
	B	0,368	0,377	0,387	0,396	0,406	0,415	0,425	0,434			
	C	0,410	0,423	0,436	0,449	0,462	0,474	0,487	0,500			
	D	0,452	0,468	0,484	0,500	0,516	0,532	0,548	0,564			

(mS)

3. Input procedure for the converted shutter speed values

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
   Check that the USB IO is displayed as "connected".

⑥ Click on the "7. SHUTTER SPEED ADJUST" button.

Ⅵ. ADJUSTMENT

Select "Shutter Tester for 1/4000 Sec" from "Select".

Ignore the message, and click on the "OK" button.

Enter the converted shutter speed values from "2. Check procedure" and click on "Input Data".

If the procedure is completed, the following message appears. Click on the "OK" button.

If it is displayed as NG, enter the default value 「0.25」 in the "Input Data" section and end the procedure. (To validate the converted data.) If it is NG, check the relevant adjustment items again.

Ⅵ. ADJUSTMENT

If the adjustment is completed, the values are saved in the camera.

Click on the "Close" button and close the adjustment window.

⑪ Click on the "CI" button. Check that the USB IO has been changed to "Unconnect" from "Connect".

⑫ Click on the "end" button and end the program.

Ⅵ. ADJUSTMENT

17. AF-LED (Super-imposer) position adjustment

Remove the super-imposer PCB as shown in the following figure.

① Connect the lead wires to the 0-O170 (SI-LED) as shown in the following figure.

> 📝 **IMPORTANT**
>
> Do not apply pressure on the solder of 0-O170.
>
>

② Apply DC3.2 V and check if the 11 SI-LEDs are turned on and check the positions.

■ : SI-LED   **AF frame**

③【Adjustment 1】Loosen the two screws which
　　　　　　　　　hold the 0-O170.
　　　　　　　　　… Remove the adhesive
　　　　　　　　　(5 areas) for the screws.

Ⅵ. ADJUSTMENT

④ Check if the screws are fixed.

⑤【Adjustment 2】Perform the fine adjustments to up and down by turning the adjustment screws.
(Check again)

⑥ After the adjustment, apply the screw adhesive to the five areas, and remove the lead wires.

⑦ Attach the mount cover to prevent the SI-LEDs from being affected during the work.

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18. Photometric element position adjustment procedure

Preparation : Penlight or similar object

* The mirror has to be down.

① Block the view finder with the back of the hand.

② Aim the light from the penlight onto the AE sensor and find a position where the shape of the AE sensor is shown on the 1st mirror by changing the angle of the penlight.

Ⅵ. ADJUSTMENT

* If a lens is attached, the AE sensor can be seen more easily.

③ The AE sensor has to be positioned as shown in the following figure without being shifted.

Center position of the AE sensor

Tolerance : 0.250.85 mm (actual dimension)

Center position of the finder

Spot metering frame (Ø2.5)   AE sensor (0-J100)

④ Remove the adhesive which holds the AE sensor (0-J100).

⑤ Loosen the screws and adjust the position of the AE senor (0-J100).

⑤ Tighten the screws and check it again.

⑥ After the adjustment, apply the adhesive to the two areas of the screws for the AE sensor (0-J100).

SERVICE MANUAL

GX-20

SAMSUNG

SAMSUNG TECHWIN

C O N T E N T S

CONTENTS

Ⅰ. SPECIFICATION

1. Main Specifications

Image Sensor	- Type : 23.4 × 15.5mm, CMOS - Effective Pixel : Approx. 14.6 Mega-pixel - Total Pixel : Approx. 15.1 Mega-pixel
Lens	- Mount : PENTAX bayonet KAF2 mount - Usable Lens : Schneider D-XENON, D-XENOGON, SAMSUNG lens 　　　　　　∗ PENTAX DSLR lenses are available 　　　　　　∗ KAF2, KAF, KA mount lenses
Viewfi nder	- Type : Pentaprism, Natural-Bright-Matte II Focusing Screen - Field of View : About 95% - Magnifi cation : About 0.95X (50mm F1.4 lens・∞) - Diopter Adjustment : About -2.5 ~ +1.5m^{-1}
LCD Monitor	- Low-temperature polysilicon TFT color LCD Monitor, 2.7" (approximately 230K pixels), 　Brightness & Color control, Wide angle view
Preview	- Type : Live View(up to 3 minutes.), Optical Preview, Digital Preview
Focusing	- Type : TTL phase-matching 11-point AF - Modes : AF Single, Continuous AF, Manual focus
Shutter	- Type : Electronically controlled vertical-run focal plane shutter - Speed : Auto : 1/4000sec. ~ 30sec. (No step) 　　　　　Manual : 1/4000sec. ~ 30sec. (1/3EV or 1/2EV step) Bulb
Exposure Control	- Metering System : TTL open-aperture 16-segment 　　　　　　　　　Metering : Multi, Center-weighted, Spot 　　　　　　　　　Metering range : EV0 ~ 21 (ISO100・50mm F1.4) - Modes : Auto, Program, Shutter Priority AE, Aperture Priority AE, Sensitivity Priority 　　　　　AE, Shutter & Aperture Priority, Manual, Bulb, Flash X-sync, User Mode - Compensation : ±3 EV (1/2 EV step), ±2EV (1/3 EV step) - AE Lock : AEL

- ISO : Auto, 100, 200, 400, 800, 1600, 3200 (1/3EV or 1/2EV step), 6400 (User setting)

When expanded Bulb mode: 1600 (Maximum)

Flash	- Type : Built-in retractable P-TTL manual pop-up fl ash
	- Modes : Auto, Fill-in, Auto & Red eye, Fill-in & Red eye, Front curtain synchro, Front curtain synchro & Red eye, Rear curtain synchro, Wireless
	- Guide Number : 13 (at ISO 100)
	- Angle of View Coverage : 28 mm wide-angle (Equivalent to 35mm)
	- Sync. Speed : 1/180sec., Red-eye reduction (Control Range : -2 ~ +1 EV)
	- Recharging Time : 3.6 Sec (when fl ash fi red at maximum)
	- External Flash : SEF-36PZF, SEF-54PZF (optional)
Synchro	- Hot Shoe, X Synchro socket (Sync. Speed : 1/180sec.)
	- High Speed Synchro, Wireless Synchro (External Flash)
White Balance	- Modes : Auto, Daylight, Shade, Cloudy, Tungsten, Fluorescent(W, D, N), Flash, Manual, Color Temperature (1, 2, 3)
Shooting	- Modes : Auto, Program, Sensitivity Priority, Shutter Priority, Aperture Priority, Shutter & Aperture Priority, Manual, Bulb, Flash X-sync., User mode
	- Live View : Field of View : Approx. 97% Magnifi cation(4X, 8X), Grid display, AF Frame
	- Drive Modes : Single, Continuous (Hi, Standard), Self-timer (12sec., 2sec.), Remote Control, Auto Bracket, Expand Bracket, Multi Exposure
	- Picture Wizard : Standard, Vivid, Portrait, Landscape, Custom 1, Custom 2 * Parameter : ±4 (9-step)
	- Continuous :
	• JPEG : 3fps (Hi Continuous : up to 38 shots) 2.3fps (Standard Continuous : depends on memory capacity)
	• RAW : 3fps (Hi Continuous : up to 16 shots) 2.3fps (Standard Continuous : up to 16 shots)
Shake Reduction	- Type : Image Sensor Shift
	- Effective Range : Max. 4EV (depends on lens and shooting conditions)
Dust Reduction	- Yes

Ⅰ. SPECIFICATION

Self-timer
- 2sec., 12sec., Remote control, Remote control 3sec.

  Remote control Continuous (Compatible with Pentax Remote Control, Optional)

Storage
- Media : SD (up to 4GB guaranteed), MMC (up to 2GB guaranteed),

  SDHC (up to 8GB guaranteed)
- File Format : RAW (DNG), JPEG (DCF), EXIF 2.21, DPOF 1.1, PictBridge 1.0
- Image Size :
  • JPEG : 14.6M (4672X3104), 10M (3872X2592), 6M (3008X2000), 2M (1824X1216)
  • RAW : 14.6M (4672X3104 pixel)
- Capacity (512MB)
  • 14.6M : RAW 21
  • 14.6M : Super Fine (1)35, Super Fine(2)61, Fine 109, Normal 213
  • 10M : Super Fine (1)52, Super Fine (2)87, Fine 153, Normal 319
  • 6M : Super Fine (1)91, Super Fine (2)147, Fine 254, Normal 474
  • 2M : Super Fine (1)239, Super Fine (2)381, Fine 639, Normal 1060
  ∗ These fi gures are measured under Samsung's standard conditions and may vary

    depending on shooting conditions and camera settings.

Image Play
- Type : Single image, Thumbnail, Rotate, Slide Show (4-type Transition Effect),

  Histogram, Magnifi cation (up to 32X)
- Edit : Rotate, Digital Filter : B&W (4 types), Sepia (3 types), Color Selection (18 types),

  Color (6 types), Soft (3 steps), Illustration, HDR (3 steps), Slim (±8 steps),

  Brightness (±8 steps)

Interface
- Digital Output : USB 2.0 (HI-SPEED)
- Video Output : NTSC, PAL (user selectable)
- DC Power Input Connector : DC 8.3V, 2A (100 ~ 240V)
- External Release Socket
- X Synchro Socket for External Flash

Power Source
- Dedicated battery : Lithium ion battery : SLB-1674, Charger : SBC-L6
- Battery life : Approx. 500 min./1,000 shots (without fl ash on),

  Approx. 430 min./860 shots (with fl ash 50% on),

  Approx. 400 min./800 shots (with fl ash 100% on)

Dimensions(WxHxD)

- 142mmX101mmX71.5mm (excluding the projecting parts of the camera)

Weight   - 727g (Body only) , 806g (Memory card & Battery included)

Operating Temperature

- 0 ~ 40°C

Operating Humidity

- 5 ~ 85%

Software   - Application : Samsung Master, Samsung RAW Converter 2.0, Adobe Reader

Ⅰ. SPECIFICATION

2. System Requirements

For Windows	PC with processor better than Pentium III 450MHz (Pentium 800MHz recommended) Windows 2000/ME/XP/Vista Minimum 256MB RAM (512MB recommended) 250MB of available hard disk space (1GB recommended) USB port CD-ROM drive 1024x768 pixels, 16-bit color display compatible monitor (24-bit color display recommended)
For Macintosh	Power Mac G4 or later Mac OS 10.2 or later Minimum 256MB RAM 250MB of available hard-disk space USB port CD-ROM drive

3. Names of Working Parts

Front & Top

Green Button

Flash Button

Built-in Flash

Mode dial

Shutter Button

Main Switch

Front dial

Self-Timer lamp /
Remote control
receiver

Lens mount index

Lens unlock button

Lens information
contacts

Mirror

AF coupler

Strap holder

External flash
sync terminal

RAW Button

Focus mode lever

Terminal Cover

Remote control port

USB / Video terminal

DC input terminal

● Do not attempt to adjust the
aperture lever or the mirror
in the camera body.
Failure to follow this
instruction may cause the
product to malfunction.

Ⅰ. SPECIFICATION

Rear

Memory Card Slot

Memory Card Cover

Exposure Compensation /
LCD panel lamp button

Self-Timer lamp / Remote control receiver

Rear e-dial

Hot shoe

LCD Panel

Diopter adjustment lever

AE-L/ Lock Button

Metering
mode lever

Strap Holder

Exposure
bracket button

Viewfi nder

MENU button

Delete /
Picture Wizard

AF Button

INFO button

OK Button

Direction button

Playback button

Card access lamp

Card cover lock

LCD Monitor

OIS (Optical Image
Stabilization) lever

Focus point selection dial

Fn Button

4. Using the Vertical Battery Grip (SBG-D1V)

■ Using the battery grip gives you a more comfortable position while shooting with a vertical angle of view.

Battery grip

▲ Installing the battery grip

■ Battery grip supports the green button (⊙) function while you can still adjust the exposure using the battery grip.

▲ Vertical position when using the battery grip

Ⅰ. SPECIFICATION

5. Inserting the Battery

1. Rotate the Battery cover unlock lever as shown in the illustration and open the cover.

2. Insert the battery as shown on the picture.

Battery lock lever

3. Close the Battery cover and rotate the battery cover lock lever as shown.

6. Inserting the Memory Card

■ SD / SDHC memory card and Multi Media Card can be used with this camera.

■ Captured images are recorded on the Memory Card. Make sure the camera is turned off before inserting or removing the Memory Card.

1. Lift up the Card Cover Lock as shown (①) and rotate it to the OPEN position (②) (Card cover opens (③)).

2. Have the front of the memory card facing toward the LCD monitor and insert the memory card.
   - Press the memory card one more time to remove it out of the memory card slot.

3. Close the Card cover.

● Do not remove the Memory Card while card access lamp is lit.

● Always format new Memory Cards before use. Also format Memory Cards used with other cameras.

● If the memory card cover is left open, the power will not turn on.

● Make sure the memory card is correctly positioned before inserting it into the camera.

Fitting groove

Lock button

Ⅰ. SPECIFICATION

7. Attaching and removing the lens

■ Some functions are restricted when lenses are not set to Aperture A (Auto).
To allow shutter release, set [Use Aperture Ring] in [CUSTOM2 MENU] menu.

● Turn the camera off before attaching or removing the lens to prevent unexpected lens problems.

1. Check that the camera is off.

2. Remove the body mount cover (①) and lens mount cover (②). Be sure to put the lens down with the lens mount side facing upward to avoid damage.

3. Align the red dots on the camera and the lens, and secure by turning the lens clockwise until it clicks. After attaching, check that the lens is secure. Also check that the red dots of the lens are on top and the attached portion does not move sideways.

4. Remove the front lens cap by pushing the indicated portions inward.

5. To detach the lens, hold down the lens unlock button (③) and turn the lens counterclockwise.

● The body mount cover (®Á) is a cover to prevent damage during shipping.
● The camera body and lens mount incorporate lens information contacts and an AF coupler.
  Dirt, dust, or corrosion may damage the electrical system.
  Clean the contacts with a soft dry cloth.

Attaching and removing the lens must be done in a clean place.
Please avoid contact with liquid water. If the camera°Øs body or the lens gets wet or dirty, camera malfunction may occur.

Ⅰ. SPECIFICATION

8. LCD Monitor Indications

■ The following indicators appear on the LCD monitor depending on the status of the camera.

LCD monitor

While Power is On or Operating Mode Dial

Guides appear on the LCD monitor for 3 seconds when powered on or setting dial mode (⊙).

● You can set the specifi c time the guides will appear on the LCD monitor for.
Select the desired time from [SETUP MENU] > [Guide Display].

Detailed Information

① Flash mode

② Custom mode

③ Button guide

④ Battery status

⑤ Date and time

⑥ e-dial information

⑦ Shooting mode (Mode dial position)

⑧ OIS (Optical Image Stabilization)

⑨ Sensitivity

⑩ White balance

⑪ Focus Point position information

⑫ AF mode

⑬ Metering type

⑭ Drive mode/Extended Bracket

● Indicators [Metering type], [Focus Point Information], [White balance], and [Sensitivity] only appear when a setting other than the default setting is selected.

Ⅰ. SPECIFICATION

Capture Mode

Press the INFO button in capture mode to display the capture function settings on the LCD monitor.

Detailed Information

- This Document can not be used without Samsung's authorization -

1. Shooting mode

2. Custom mode

3. Metering mode

4. Flash mode

5. Drive mode

6. Exposure Bracket /
   Multi Exposure

7. AF mode

8. Focus point location

9. Extended Bracket

10. Picture Wizard mode

11. Colour Tone

12. Saturation

13. Contrast

14. Sharpness

15. Date and time

16. Colour space

17. OIS (Optical Image Stabilization)

18. Quality level

19. BA compensation value (GM) /
    BA compensation value (BA)

20. Recorded pixels

21. Battery Status

22. File type

23. White balance

24. ISO sensitivity

25. ISO range (Auto)

26. Lens focal length

27. Aperture Value

28. Flash Exposure Value

29. Shutter Speed

30. Exposure Compensation Value

Playback Mode

Press the INFO button in playback mode to display the image information on the LCD monitor. Whenever pressing the INFO button, Basic information, Histogram, Detail information and no information will display in that order.

Detailed Information

● You can change the information initially displayed by pressing the playback button (▶).

1. Captured images

2. Exposure Bracket /
   Multi Exposure

3. Drive mode

4. Metering mode

5. Flash mode

6. OIS (Optical Image Stabilization)

7. DPOF settings

8. Folder name and Stored image number

9. Protect icon

10. AF mode

11. Extended Bracket

12. Focus point information

13. Exposure Compensation Value

14. Lens focal length

15. Flash Compensation Value

16. Picture Wizard mode

17. Colour Tone / Saturation

18. Contrast / Sharpness

19. Date & Time

20. File type / Image size /
    Quality / Colour Space

21. Sensitivity / White Balance /
    WB compensation (GM) /
    WB compensation (BA)

22. Aperture Value

23. Shooting mode

24. Shutter Speed

● Indicators 5 (Flash mode) and 15 (Flash compensation Value) only appear when the image was taken with flash.

Ⅰ. SPECIFICATION

Histogram Display

Brightness Histogram that distributes brightness of the image and RGB Histogram that distributes colour of the image are selectable by pressing the direction buttons (▲▼).

Image folder number and fi le number

Protect icon

Capture quality (Image fi le type)

▲ Playback

INFO

DPOF settings

Indicator for Brightness Histogram and RGB Histogram

Histogram (R)

Histogram (G)

Histogram (B)

▲ Y Histogram

▲ RGB Histogram

Histogram (Brightness)

● DPOF icon ( ) will display only when an DPOF set image is played back.
● Image-protect icon ( ) appears only when the image is protected from deletion.
● If [Exposure Warning] is set to [On] in the [PLAYBACK MENU], the over exposed area in the playback image blinks in red while the under exposed area blinks in yellow.
● Histogram shows you the distribution of brightness in recorded images. If the bars in the histogram are higher towards the right, the image may be too bright. If the bars are higher on the left, the image may be too dark. If the lighting conditions are too bright to check the subject by using the LCD, checking the histogram will enable more precise exposure control for the shots.

Distribution of brightness

Ⅰ. SPECIFICATION

9. Viewfi nder Indications

Capture Mode

When the power is turned on, the current setting values appears in the viewfi nder as soon as you press the shutter button halfway.

1. Spot metering frame

2. AF Frame

3. Flash status

    Appears when fl ash is available and blinks when fl ash is recommended but not set.

4. Shutter speed

    Displays the shutter speed when capturing or adjusting (Shutter speed can beadjusted using this front dial ( ) and rear dial ( ).)

5. Aperture

    Displays the aperture value when capturing or adjusting (Aperture value can be adjusted using this front dial ( ) and rear dial ( ).)

6. Focus indicator

    Appears when image is focused.

7. Manual Focus

    Appears when the Manual Focus is selected.

8. Exposure Bar

    Displays the Exposure Compensation Value. The differences between Current Exposure Value and Proper Exposure Value in the M mode.

9. Indicate the RAW fi le format is selected.

    It appears when the fi le format is selected to RAW (RAW+).

10. EV compensation

    Appears when EV compensation is available or in use.

11. Flash Exposure Compensation

12. AE Lock indicator

    Appears when AE is locked.

13. ISO Indicator

14. Number of recordable images / EV compensation

    Shows the number of recordable images (including the number of recordable images using the Drive mode.) with current quality and recorded pixel setting. The differences between the compensated exposure and proper exposure will be displayed. In the M mode, the exposure value can be different. In the Sensitivity priority mode / Shutter & Aperture Priority mode, ISO sensitivity will display.

15. OIS (Optical Image Stabilization) indicator

16. AF Frame

17. Focus point

Ⅰ. SPECIFICATION

10. LCD Panel Indications

■ The following information appears in the LCD panel on top of the camera.

- This Document can not be used without Samsung's authorization -

1. Multi exposure

2. Aperture

3. Flash mode

⚡   : Built-in fl ash is ready (when blinking, fl ash should be used; or incorrect lens is mounted)

👁   : Red-eye reduction fl ash on

A   : Auto discharge

SLOW : First curtain synchro / Rear curtain synchro

W   : Wireless Mode

4. Drive mode

▭   : Single frame

🖵 : Continuous Shot

⟳ : Self-timer

📱 : Remote control mode

5. White Balance (If Auto WB is selected, no icon will display)

± : White Balance Compensation

6. Number of recordable images / EV compensation value / PC (Pb)

(PC=Personal Computer (Removable disk), (Pb=PictBridge))

7. Displays the ISO sensitivity

8. RAW/RAW+ button in use

9. Battery status

10. Exposure Bar

11. Exposure compensation

12. Flash Exposure Compensation indicator

13. Auto Bracket

14. Shutter speed

Ⅰ. SPECIFICATION

11. CONNECTION DIAGRAM

SD/SDHC/MMC Card

Card Reader

USB Cable

Video cable

Rechargeable battery (SLB-1674)

Lap top

IBM / MAC

TV Monitor

Ⅱ. INSTALLATION

1. Software Notes

■ **Samsung Master : This is the all-in-one multi media software solution**
You can download, view, edit and save your digital images with this software.
You can also edit and save the still images.
This software is only compatible with Windows.

■ **Using Samsung RAW Converter 2.0, you can convert a RAW (*.dng) le into a JPEG or TIFF fi le format.**

- You should allow 5~10 seconds for running the automatic setup program according to the capability of your computer. If the frame is not shown, run the [Windows Explorer] and select [setup.exe] in the CD-ROM Drive root directory.
- PDF documents of the user manual are included in the Software CD-ROM supplied with this camera. Search the PDF fi les with Windows explorer.
  Before opening the PDF fi les, you must install the Adobe Reader included in the Software CD-ROM.
- To install the Adobe Reader 6.0.1, the Internet Explorer 5.01 must be installed.
  To upgrade the Internet Explorer, visit www.microsoft.com.

Ⅱ. INSTALLATION

2. Setting up the application software

■ To use this camera with a PC, install the application software first. After this has been done, the stored images in the camera can be moved to the PC and can be edited by an image editing program.

1. Install the Digimax Master by following the instructions shown on your PC monitor.

Click

Click

- This Document can not be used without Samsung's authorization -

Samsung Master - InstallShield Wizard

Choose Destination Location
Select folder where setup will install files.

Setup will install Samsung Master in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select another folder.

Destination Folder
D:\Program Files\Samsung\Samsung Master

InstallShield

< Back   Next >

Click

Samsung Master - InstallShield Wizard

Select Program Folder
Please select a program folder.

Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.

Program Folder:
Samsung

Existing Folders:
Accessories
Administrative Tools
Adobe
Àì½ºÆ®©¼©ÇÃ¾Æ®©
CyberLink DVD Suite
ESET
Games
SnagIt 7
Startup

InstallShield

< Back   Next >

Click

Samsung Master - InstallShield Wizard

Ready to Install the Program
The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

InstallShield

< Back   Install   Cancel

Click

Samsung Master - InstallShield Wizard

Setup Status

Samsung Master is configuring your new software installation.

Installing
D:\...\{AEC0CEBC-0FC7-4716-8222-1C4A742719B1}\ISSetup.dll

InstallShield

Samsung Master - InstallShield Wizard

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed Samsung Master. Click Finish to exit the wizard.

< Back   Finish

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Welcome to the InstallShield Wizard for Samsung RAW Converter 2.0

The InstallShield Wizard will install Samsung RAW Converter 2.0 on your computer. To continue, click Next.

< Back   Next >   Cancel

Click

Ⅱ. INSTALLATION

Samsung RAW Converter 2.0 - InstallShield Wizard

License Agreement
Please read the following license agreement carefully.

license agreement
[Important]
Read this license agreement carefully.

· This license agreement ("Agreement") is a legal agreement between you (either an individual or a single entity) and Ichikawa Soft Laboratory ("ISL") for the software products ("Product" or "Software") of Ichikawa Soft Laboratory.
· Installation or use of this Product indicates your acceptance of the terms written in this Agreement.

○ I accept the terms of the license agreement
● I do not accept the terms of the license agreement

InstallShield

< Back   Next >   Cancel

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Choose Destination Location
Select folder where setup will install files.

Setup will install Samsung RAW Converter 2.0 in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select another folder.

Destination Folder
C:\...\Samsung\Samsung RAW Converter 2.0\   Browse...

InstallShield

< Back   Next >   Cancel

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Ready to Install the Program
The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

InstallShield

< Back   Install   Cancel

Click

Samsung RAW Converter 2.0 - InstallShield Wizard

Setup Status

Samsung RAW Converter 2.0 is configuring your new software installation.

C:\...\Samsung RAW Converter 2.0\manual\man0006.html

InstallShield

Samsung RAW Converter 2.0 - InstallShield Wizard

InstallShield Wizard Complete

Setup has finished installing Samsung RAW Converter 2.0 on your computer.

< Back   Finish

Click

SAMSUNG

Samsung Digital Camera Installer

Setup is complete.
Before you can use the program, you must restart computer.

○ Yes, I want to restart my computer now.
● No, I will restart computer later.

OK

User Manual

Click

2. After restarting the computer, connect the PC to the camera with the USB cable.

3. Turn the camera power on.
   The [Found New Hardware Wizard] will
   open and the computer will recognize the camera.

● If you have installed the camera driver, the [Found New Hardware Wizard] may not open.
● If the download window of Digimax Master opens after starting Samsung Master, the camera driver was setup successfully.

Ⅱ. INSTALLATION

3. Troubleshooting

■ Please check the following if the USB connection malfunctions.

Case 1	The USB cable is not connected or you are using a cable with an incorrect specifi cation. ➜ **Use a USB cable with the correct specifi cation.**

Case 2	The camera is not recognized by your PC. Sometimes, the camera may appear under [Unknown Devices] in Device Manager. ➜ **Turn off the camera, remove the USB cable, plug in the USB cable again, and then turn on the camera.**

Case 3	There is an unexpected error during fi le transfer. ➜ **Turn the camera power off and on again. Transfer the fi le again.**

Case 4	When using the USB hub? ➜ **There may be a problem in connecting the camera to the PC through the USB hub if the PC and the hub are not compatible. Wherever possible, connect the camera to the PC directly.**

Case 5	If used with any other USB devices? ➜ **The camera may malfunction when it is connected to the PC at the same time as another USB cable. In this case, disconnect the other USB cable, and connect only one USB cable to the PC.**

Case 6	When I open the Device Manager (by clicking Start ➜ (Settings) ➜ Control Panel ➜ (Performance and Maintenance) ➜ System ➜ (Hardware) ➜ Device Manager), there are [Unknown Devices] or [Other Devices] entries with a yellow question mark (?) beside them or devices with an exclamation mark (!) beside them. ➜ **Right-click on the entry with the question (?) or exclamation (!) mark and select "Remove". Restart the PC and connect the camera the again. For Windows 98 PC, remove the camera driver also, restart the PC, and then reinstall the camera driver.**
Case 7	In some security programs (Norton Anti Virus, V3, etc.), the computer may not recognise the camera as a removable disk. ➜ **Stop the security programs and connect the camera to the computer. Refer to the security program instructions about how to stop the program.**
Case 8	If a PC connected with the camera stops responding while Windows is starting. ➜ **In this case, disconnect the PC and the camera and Windows will start. If the problem happens continuously, set the Legacy USB Support to disable and restart the PC. The Legacy USB Support is in the BIOS setup menu (The BIOS setup menu differs from the PC manufacturers and some BIOS menus don't have Legacy USB Support). If you can't change the menu by yourself, contact the PC manufacturer or BIOS manufacturer.**
Case 9	The camera is connected to the USB port located on the front of the computer. ➜ **When the camera is connected to the USB port located on the front of the computer, the computer may not recognise the camera. Connect the camera to the USB port located on the back of the computer.**

1. GX-20 : Fig. 1

2. GX-20 : Fig. 2

Legend box:
Ⓖ : G126 🄶 : G134 ⚠ : G151 ◈ : G31
Ⓛ : L127 🄻 : L115 Ⓑ : Dia bond 1663 🄱 : Dia bond DA619
🅂🄻 : Three bond 1401C 🅂🄻 : Loctite 401
🆂🆇 : Super-X 8008 (White) 🆂🆇-🄱 : Super-X 8008 (Black) 🆂🆇-🄲 : Super-X 8008 (Clear)
PT : Polyester tape (Size) DT : Double stick tape (Size) BT : Black tape (Size)

3. GX-20 : Fig. 3

Legend box:

Ⓖ : G126   Ｇ : G134   ⚠ : G151   ◇ : G31
Ⓛ : L127   Ｌ : L115   Ⓑ : Dia bond 1663   Ｂ : Dia bond DA619
Ⓢ̲Ⓛ : Three bond 1401C   Ｓ̲Ｌ : Loctite 401
Ⓢ̲Ⓧ : Super-X 8008 (White)   Ⓢ̲Ⓧ̲-Ｂ : Super-X 8008 (Black)   Ⓢ̲Ⓧ̲-Ｃ : Super-X 8008 (Clear)
PT : Polyester tape (Size)   DT : Double stick tape (Size)   BT : Black tape (Size)

4. GX-20 : Fig. 4

Ⅲ. EXPLODED VIEW AND PART LIST

1. The parts with numbers starting " 0 - " are assembled parts.

2. Only available parts are listed below.

* The column Q is a number of parts used.

  The column Location is an address in the illustrations of parts.(Fig. / Vertical / Horizontal)

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A3	AD97-16104A	Bottom plate assy.	1		4G5
A4	AD61-03788A	Right front piece	1		4H7
A5	AD61-03789A	Right shoulder plate	1		4F7
A6	AD81-05829A	Left shoulder plate	1	GX-10-A6	4D3
A12	AD81-05830A	Battery case cover	1	GX-10-A12	4D3
A14	AD81-05831A	Battery contact A	2	GX-10-A14	4E2
A15	AD61-03790A	Strap hook plate R	1		4G7
A16	AD81-05833A	Strap hook plate L	1	GX-10-A16	4E3
A17	AD81-05834A	Hook	1	GX-10-A17	4E3
A18	AD81-05835A	Hook spring	1	GX-10-A18	4E4
A19	AD81-05836A	Stimulate spring	1	GX-10-A19	4E3
A22	AD81-05837A	Battery cover waterproof sheet	1	GX-10-A22	4F3
A23	AD81-05838A	Reset switch contact	1	GX-10-A23	4E4
A26	AD61-03793A	Remote control base	1		4C5
A27	AD81-05839A	Strap plate waterproof sheet	1	GX-10-A27	4D5
A28	AD81-05845A	PE tape 12x15	1	GX-10-A28	4E4
A35	AD81-05841A	Dust collector sheet	2	GX-10-A35	4G5
A41	AD97-16109A	Sync terminal assy.	1		1F7
A44	AD81-08761A	Sync lead	1		1E6
A45	AD62-00089A	Insulate tube	1		1F6
A46	AD61-03796A	Sync spacer	1		1F6
A51	AD81-05842A	Tripod stand assy.	1	GX-10-0-A51	4H5
A54	AD81-05843A	Tripod screw waterproof sheet	1	GX-10-A54	2G4
A57	AD61-03797A	Strap plate spacer	1		4F7
A98	AD81-05845A	O-ring 55.3x0.75	1	GX-10-A98	3F3
A99	AD81-05846A	Lock button packing	1	GX-10-A99	1G5
A104	AD81-05847A	Mount ring	1	GX-10-A104	3F2
A107	AD81-05848A	Mount lock button	1	GX-10-A107	1G4
A115	AD81-05849A	AM Selecting slide plate assy.	1	GX-10-0-A115	3F3
A117	AD81-05850A	RAW button base	1	GX-10-A117	3E4
A141	AD81-03454A	Solder stand	1	GX-1S-A141	3F3

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A150	AD63-03344A	Front cover	1		1G5
A151	AD81-05852A	Grip rubber	1	GX-10-A151	1G2
A152	AD81-05853A	Grip rubber tape A	1	GX-10-A152	1G3
A153	AD81-05854A	Grip rubber tape B	2	GX-10-A153	1G3,1G4
A154	AD61-03369A	OIS Plate	1		1G2
A156	AD81-05856A	Remote control window	1	GX-10-A156	1F4
A161	AD63-01918A	SIDE_GRIP	1		1G4
A162	AD81-05858A	Side rubber tape A	1	GX-10-A162	1H5
A163	AD63-03347A	Side rubber tape B	1		1H5
A164	AD61-03368A	Name Plate	1		1G3
A165	AD81-05861A	AF mode lever	1	GX-10-A165	1H6
A166	AD81-05862A	AF mode click plate assy.	1	GX-10-0-A166	1F6
A168	AD81-05863A	O-ring 6x1	2	GX-10-A168	1H6,1F7
A169	AD81-05864A	RAW Button	1	GX-10-A169	1G6
A171	AD81-05865A	Screw C	2	GX-10-A171	2D4,2E4
A172	AD81-05866A	Cover retainer screw B	7	GX-1S-A73	1F4,2H3
A174	AD81-05867A	Retainer screw C	7	GX-10-A174	2H4,2H5
A175	AD81-05868A	Cover retainer screw	3	GX-10-A175	2B4
A201	AD63-01749A	Back Cover	1		1C5
A201-1	AD63-02338A	Double-sided Tape 1.2x11	4		
A201-2	AD63-02337A	Double-sided Tape 1.2x28	1		
A203	AD81-05870A	Antireflection sheet	1	GX-10-A203	1D4
A204	AD61-03491A	GUIDE_RIB	1		1C5
A205	AD63-01917A	Rear Grip Rubber	1		1A5
A206	AD63-02325A	Rear Grip Tape A	1		1B5
A207	AD63-02326A	Rear Grip Tape B	1		1A5
A208	AD63-02327A	Rear Grip Tape C	1		1B5
A210	AD63-01751A	SD card cover	1		1C3
A211	AD61-03488A	CARD_LOCK_PLATE	1		1B4
A212	AD81-05878A	Key spatula cam plate	1	GX-10-A212	1D4
A213	AD81-05879A	Key spatula spring	1	GX-10-A213	1C5
A214	AD81-05880A	SD card seal	1	GX-1S-A214	1C4
A217	AD81-05881A	SD card cover spring	1	GX-10-A217	1C3
A218	AD61-03316A	Lining board C	1		1D1
A220	AD63-02313A	I-LCD cushion A	1		1D4
A221	AD63-02313A	I-LCD cushion B	1		1C4

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A224	AD81-05883A	Rear remote control window	1	GX-10-A224	1D2
A225	AD81-05884A	Access lamp window	1	GX-10-A225	1C5
A226	AD81-05885A	Handle base	1	GX-10-A226	1C6
A227	AD64-02392A	Open lever handle	1		1B6
A228	AD81-05887A	Handle shaft	1	GX-10-A228	1B6
A229	AD81-05888A	Handle spring	1	GX-10-A229	1C6
A241	AD64-01812A	I-LCD Window	1		1B7
A242	AD63-02323A	I-LCD Window Retainer Tape	1		1B6
A244	AD61-03319A	Bottom Cover Attachment Plate	1		1C5
A245	AD63-02322A	LCD_SHIELD_FORM	4		1D1,1D2
A251	AD81-05892A	Focus point select dial	1	GX-10-A251	1C6
A252	AD81-05893A	Bearing plate	1	GX-10-A252	1D4
A253	AD81-05894A	Brush assy.	1	GX-10-0-A253	1D3
A255	AD81-05895A	4-way control key	1	GX-10-A255	1D3
A256	AD81-05896A	Lever click spring	1	GX-10-A256	1D3
A257	AD81-05897A	OK Button	1	GX-10-A257	1E3
A258	AD81-05898A	Rubber sheet £¡	1	GX-10-A258	1D2
A259	AD61-03312A	4WAY_KEY_PLATE	1		1D1
A260	AD64-01992A	INFO Button	1		1D3
A261	AD64-01993A	MENU Button	1		1D3
A262	AD64-01994A	Delete Button	1		1D3
A263	AD64-01995A	PLAY_BUTTON	1		1D3
A264	AD73-00262A	Rubber Sheet B	1		1D3
A265	AD61-03313A	MODE_FPCB_PLATE	1		1E2
A266	AD81-05906A	AF Button	1	GX-10-A266	1D3
A267	AD64-01996A	Fn Button	1		1D3
A268	AD81-05908A	Xv Button	1	GX-10-A268	1D3
A269	AD81-05909A	Rubber sheet C	2	GX-10-A269	1D2
A270	AD73-00263A	FN_BUTTON_RUBBER	1		1D3
A271	AD81-05911A	OPS Switch lever	1	GX-10-A271	1D6
A272	AD81-05912A	SR guide plate	1	GX-10-A272	1D4
A273	AD81-05913A	Guide plate	1	GX-10-A273	1D5
A281	AD63-01753A	Connector cover	1		1E7
A281-1	AD63-02338A	Double-sided Tape 1.2x8.5	2		
A281-2	AD63-02337A	Double-sided Tape 1.2x28	2		
A282	AD81-05915A	Card cover shaft	2	GX-10-A282	1C3,1D7

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A283	AD81-05916A	Lock pin	2	GX-10-A283	1D6,1E6
A284	AD81-05917A	Lock pin spring	2	GX-10-A284	1E6
A285	AD81-05918A	O-ring 1.0x0.75	2	GX-10-A285	1D7,1E7
A291	AD81-05919A	O ring 22.7x0.8	1	GX-10-A291	1C6
A292	AD81-05920A	O-ring 18.9x0.7	1	GX-10-A292	1D4
A293	AD81-05921A	O-ring 3.56x0.64	2	GX-10-A293	1C5
A294	AD81-05922A	O-ring 1.2x0.4	2	GX-10-A294	1E6
A295	AD63-02335A	SD_COVER_CUSHION	1		14B
A296	AD63-02336A	CONNECTOR_COVER_CUSHION	1		1C6
A301	AD97-16106A	Top cover assy.	1		2E6
A302	AD81-05926A	LCD Window	1	GX-10-A302	2B2
A303	AD81-05927A	LCD window double-sided tape	1	GX-10-A303	2B2
A304	AD81-05928A	O-ring 1.5x0.5	1	GX-10-A304	2E4
A310	AD81-05929A	PVF Tape 2x3	1	GX-10-A310	2C2
A311	AD81-05930A	Main SW lever	1	GX-10-A311	2B2
A312	AD81-01250A	Main SW click spring	1	GX-1S-A312	2D1
A313	AD81-01251A	Main SW lever spring	1	GX-1S-A313	2C1
A314	AD81-05931A	Main SW brush	1	GX-10-A314	2D2
A316	AD97-16105A	Release button assy.	1		2B1
A317	AD81-05932A	Release button rubber	1	GX-10-A317	2B2
A318	AD81-01150A	Retainer ring A	1	GX-1S-A318	1G5
A319	AD81-05933A	Main SW lever water proof sheet	1	GX-10-A319	2C2
A321	AD97-14322A	Hot shoe base assy.	1	GX-1S-0-A321	2B3
A322	AD81-02919A	Hot shoe (B)	1	GX-1S-A322	2B3
A323	AD81-01253A	Hot shoe spring (B)	1	GX-1S-A323	2B3
A330	AD81-05934A	Hot shoe ground plate	1	GX-10-A330	2D2
A331	AD81-05935A	Mode dial assy.	1	GX-10-0-A331	2B4
A332	AD81-05936A	Support plate	1	GX-10-A332	2D4
A333	AD81-05937A	Mode dial brush	1	GX-10-A333	2D4
A334	AD81-01254A	Mode dial spring	1	GX-1S-A334	2C4
A335	AD81-05938A	O-ring 16x1	1	GX-10-A335	2B4
A337	AD81-05939A	Photometry switch lever	1	GX-10-A337	2B4
A338	AD81-05940A	Lever click spring	1	GX-10-A338	2D4
A339	AD81-05941A	Lever brush	1	GX-10-A339	2E3
A340	AD81-05942A	O-ring 18x1	1	GX-10-A340	2C4
A341	AD81-05943A	Round shape double-sided tape	1	GX-10-A341	2F3

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A342	AD81-05944A	Mode dial base plate	1	GX-10-A342	2F3
A345	AD81-07560A	Hot shoe retainer screw	3	GX-1S-A348	2D3
A346	AD81-05945A	Dial	2	GX-10-A346	4C3,4D2
A347	AD81-05946A	Dial O-ring	2	GX-10-A347	4C3,4D1
A348	AD81-05947A	Dial base plate A	2	GX-10-A348	4D4,4E1
A349	AD81-05948A	Dial base plate B	2	GX-10-A349	4D4,4E1
A350	AD81-05949A	Main SW Base plate	1	GX-10-A350	4D2
A351	AD81-05950A	Dial waterproof sheet A	2	GX-10-A351	4D2,4D3
A352	AD81-05951A	Dial waterproof sheet B	2	GX-10-A352	4D4,4E1
A353	AD81-05952A	Dial waterproof sheet C	1	GX-10-A353	4D1
A354	AD81-05953A	Dial click spring	2	GX-10-A354	4C3,4E1
A355	AD81-05954A	Dial waterproof sheet D	1	GX-10-A355	4C4
A362	AD81-05955A	Flash arm assy.	2	GX-10-0-A362	2D6
A363	AD81-05956A	Arm retainer	2	GX-10-A363	2D5
A365	AD81-05957A	Flash hook lever Assy.	1	GX-10-0-A365	2E3
A366	AD81-05958A	Flash hook lever case	1	GX-10-A366	2E2
A367	AD81-05959A	Flash hook spring	1	GX-10-A367	2E3
A368	AD81-05960A	Flash hook plate	1	GX-10-A368	2E4
A372	AD81-05961A	Flash hook case water proof sheet	1	GX-10-A372	2D2
A375	AD81-05962A	Green button	1	GX-10-A375	2B2
A376	AD81-05963A	AE-L button	1	GX-10-A376	2B3
A377	AD81-01151A	Retainer ring B	4	GX-1S-A356	1G5,2C2,2C3,2C4
A378	AD81-05964A	Top cover button rubber	4	GX-10-A378	1G6,2B2,2B3,2C4
A379	AD81-05965A	AEB button	1	GX-10-A379	2C4
A380	AD81-05966A	POP contact brush	1	GX-10-A380	2D3
A381	AD81-05967A	Shoe spacer	1	GX-10-A381	2D3
A401	AD63-02558A	Bottom Cover	1		1H6
A403	AD63-03348A	Certification seal	1		2H5
A404	AD68-02995B	Serial Number Plate	1		1H6
A406	AD81-05970A	Battery polarity seal	1	GX-10-A406	2G7
A411	AD61-03791A	Battery cover plate	1		2G6
A412	AD63-03345A	Battery cover	1		2H7
A413	AD81-05973A	Battery cover spring	1	GX-10-A413	2H6
A415	AD66-00615A	Battery cover lock claw	2		2G6,2G7
A417	AD81-05975A	Battery cover click spring	1	GX-10-A417	2G6
A418	AD61-03792A	Battery cover handle plate	1		2G7

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
A419	AD81-05977A	Battery cover shaft	1	GX-10-A419	2H7
A421	AD81-05978A	O-ring 12.5x1.0	1	GX-10-A421	2G7
A423	AD81-05979A	BG Connector mask	1	GX-10-A423	4H4
A425	AD81-05979A	O-ring 28x0.8	1	GX-10-A425	2H7
A427	AD97-16107A	Battery cover handle assy.	1		
A427	AD64-02393A	Battery cover handle	1		2H6
A428	AD81-05982A	Spring pin	1	GX-10-A428	2H6
A451	AD81-05983A	Waterproof sheet 1x11	2	GX-10-A451	1D6,1G6
A453	AD81-05984A	BOTTOM_COVER_CUSHION	2	GX-10-A453	1F5,1G6
A454	AD81-05985A	BOTTOM_COVER_CUSHION	1	GX-10-A454	2G3
A456	AD81-05986A	Waterproof sheet 1.2x11	3	GX-10-A456	1C5,1E5
A457	AD81-05986A	Waterproof sheet 1.2x20	2	GX-10-A457	2B6,2G5
A461	AD81-05988A	Waterproof sheet 1.2x158	1	GX-10-A461	2F6
A463	AD81-05989A	Waterproof sheet 1.5x34	3	GX-10-A463	2C6,3C7
A464	AD81-05990A	Waterproof sheet 1.2x96	2	GX-10-A464	2B5,2E4
A471	AD81-05991A	Waterproof sheet 1.5x25	2	GX-10-A471	3C7
A472	AD81-05992A	Waterproof sheet 1.2x105	1	GX-10-A472	2F5
A473	AD81-05993A	Waterproof sheet 1.2x9	1	GX-10-A473	2B6
A481	AD81-05994A	Waterproof sheet 1.2x28	1	GX-10-A481	2F5
A482	AD81-05995A	BOTTOM_COVER_CUSHION	1	GX-10-A482	2G5
C6	AD81-05996A	Stainless ball 2.0	2	GX-10-C6	4C4,4D1
J100	AD81-05997A	Photo sensor block	1	GX-10-0-J100	3C3
L2	AD81-05998A	Fresnel lens	1	GX-10-L2	3D4
L4	AD81-05999A	Eyepiece front lens	1	GX-10-L4	3C4
L5	AD81-06001A	Eyepiece Intermediate lens	1	GX-10-L5	3C4
L7	AD81-06002A	Eyepiece rear lens	1	GX-10-L7	3D6
L11	AD81-06002A	SI Lens	1	GX-1S-L11	3D2
L12	AD81-01454A	SI Prism	1	GX-1S-L12	3D3
M5	AD81-06003A	J100 Retainer plate	1	GX-10-M5	3C4
M15	AD81-06004A	Eccentric screw	1	GX-10-M15	3D4
M51	AD81-06005A	SI holder	1	GX-10-M51	3D2
M52	AD81-06006A	SI Mirror sheet assy.	1	GX-10-0-M52	3C2
M53	AD81-02673A	SI cover	1	GX-1S-M53	3E2
M54	AD81-01157A	SI prism molt	2	GX-1S-M54	3D3
M55	AD81-06007A	SI spring	1	GX-10-M55	3D2
M301	AD81-06008A	Eyepiece frame	1	GX-10-M301	3D5

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
M302	AD81-05187A	PVF tape 10x13.5	1	GX-10-M302	3D5
M304	AD81-02691A	Intermediate lens guide shaft	1	GX-1S-M304	3D6
M305	AD81-06009A	Light seal frame A	1	GX-10-M305	3C5
M306	AD81-06010A	Diopter adjusting lever	1	GX-10-M306	3C7
M307	AD81-06011A	Guide plate assy.	1	GX-10-0-M307	3C5
M311	AD63-03346A	Eyepiece frame cover	1		3D6
M312	AD81-06013A	Light seal frame B	1	GX-10-M312	3D4
M313	AD81-06014A	Intermediate lens spring	1	GX-10-M313	3D6
M314	AD81-06015A	Adjusting lever w-p sheet	1	GX-10-M314	3C6
M318	AD81-06016A	Light seal frame C	1	GX-10-M318	3C4
N300	AD81-06017A	Piezo-Electric buzzer	1	27830-N300	4D3
O170	AD81-06018A	SI Block	1	GX-10-0-O170	3D3
O201	AD07-00093A	LCD Panel	1		4B3
O202	AD81-06020A	LCD Flame	1	GX-10-O202	4C2
O203	AD81-06021A	LCD Retainer	1	GX-10-O203	4B3
O204	AD81-06022A	Conductive rubber	1	GX-10-O204	4B2
O207	AD81-06023A	Main SW Adhesive tape	1	GX-10-O207	4D1
O211	AD81-06024A	Light guide	1	GX-10-O211	4B3
O212	AD81-06025A	Reflection sheet	1	GX-10-O212	4B3
O213	AD81-06026A	Diffusion sheet	1	GX-10-0-O213	4B3
O220	AD81-06027A	LED P.C. Board	2	GX-10-0-O220	4C2,4C4
O301-1	3811-001967	Lead Wire Pink 60	1		
O301-2	3811-001969	Lead Wire White 30	1		
Q1	AD81-06029A	Flash cover	1	GX-10-Q1	2B6
Q2	AD81-06030A	Flash case	1	GX-10-Q2	2D5
Q3	AD81-06031A	Adjusting plate	1	GX-10-Q3	2C6
Q4	AD81-06032A	Adjusting screw	1	GX-10-Q4	2D5
Q5	AD81-06033A	Flash pop-up button	1	GX-10-Q5	2D4
Q6	AD81-06034A	Flash button spring	1	GX-10-Q6	2C4
Q7	AD81-06035A	Flash frame shaft A	1	GX-10-Q7	2C5
Q8	AD81-06036A	Flash frame shaft B	1	GX-10-Q8	2C6
Q9	AD81-06037A	Pop-up spring	1	GX-10-Q9	2D6
Q10	AD81-06038A	Flash frame shaft	1	GX-10-Q10	2D6
Q11	AD81-06039A	F Case waterproof sheet A	1	GX-10-Q11	2B6
Q12	AD81-06040A	F Case waterproof sheet B	1	GX-10-Q12	2B6
Q20	AD81-06041A	Flash window	1	GX-10-Q20	2D5

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
Q21	AD81-06042A	O-ring 3.14x0.63	1	GX-10-Q21	2C6
Q22	AD81-06043A	O-ring 3.48x0.64	2	GX-10-Q22	2C5,2C6
Q23	AD81-06044A	Flash double stick tape	1	GX-10-Q23	2D5
Q24	AD61-03794A	Flash retainer	1		
Q26	AD81-06045A	Cover retainer screw	2	GX-10-Q26	2D6
Q100	AD97-16108A	Flash assy.	1		2C5
Q200	AD97-16110A	Flash P.C.board assy.	1		3F5
T20	AD81-06048A	Tv/Av Dial P.C. Board	2	GX-10-0-T20	4D3,4EI
T50	AD81-06049A	Shoe F.P.C. Board	1	GX-10-0-T50	2F3
T61	AD63-03331A	Double-sided tape 1.2x8.5	2		1C7,1D7
T62	AD63-03330A	Double-sided tape 1.2x11	8		1B4,2E2,2E3
T63	AD63-03329A	Double-sided tape 1.2x28	3		1B4,IC7
T90	AD63-03314A	Copper foil tape	1		1C3
T91	AD63-03313A	Copper foil tape	1		1D3
T93	AD63-03315A	Copper foil tape	1		1D2
T94	AD63-03316A	Copper foil tape	1		1F4
T95	AD63-03317A	Copper foil tape	1		2C5
T100	AD92-00644A	Main P.C. board	1		
T640	AD92-00640A	T100-T650 circuit block	1		4F6
T646	AD61-03795A	Connector retainer	2		4F6
T700	AD81-06053A	Upper flex circuit -A block	1	GX-10-0-T700	4C4
T750		Upper flex circuit -B block	1		4C5
T770	AD81-06055A	PZ P.C.Board	1	GX-10-0-T770	4G5
T901	AD81-06056A	Lower F.P.C. board	1	GX-10-T901	4H4
T902	AD92-00643A	Sync circuit board	1		1F6
T903	AD63-02329A	4WAY_KEY_DOME_SHEET	1		1D2
T904	AD63-02330A	AF_BUTTON_DOME_SHEET-	1		1C2
T905	AD63-02331A	MODE_BUTTON_DOME_SHEET-	1		1D3
T910	AD92-00642A	O200 P.C.Board	1		4B2
T921-2	AD63-02361A	BACK_FPCB_TAPE	1		
T921-3	6003-001637	TY-CNL-D1.7X3.0	2		
T940	AD92-00641A	AF/MF select circuit block	1		3F4
T970	AD92-00639A	SD card circuit block	1		4E5
U1	AD81-06064A	SD card cover	1	GX-10-U1	4D4
U2	AD81-01103A	Cover retainer screw F	2	GX-1S-A69	2D5
U4	AD81-06066A	TB wheel retainer screw	1	GX-10-U4	4H5

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
U6	AD81-06068A	PI tape 8x10	1	GX-10-U6	4H6
U8	AD81-06070A	Insulating tape 13x32	1	GX-10-T91	1F3
U10	AD81-06072A	Black tape 6x15	4	GX-10-U10	2E2,4D7
U11	AD81-06073A	PVF tape 7x11	1	GX-10-U11	4G5
U13	AD81-06075A	PET sheet 4x4	1	GX-10-U13	1D4
U14	AD81-06076A	Insulating tape 12x20	1	GX-10-U14	4G3
U16	AD63-03318A	F tape 6x10	1		4C1
U17	AD63-03319A	PVF tape 3.8x10 (0.08)	2		4D6,4EI
U18	AD63-03320A	PVF tape 8x12	1		4H4
U19	AD81-08760A	Release SW	1		4B4
U20	3722-002788	USB terminal	1		4F6

▶ **PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Interchangeability	Location
DT1	AD63-03321A	Double stick tape 1.2x8.5	2		1D6,1E6
DT2	AD63-03322A	Double stick tape 1.2x11	8		1C4,2E2
DT3	AD63-03323A	Double stick tape 1.2x28	5		1D3,1E7
DT4	AD63-03324A	Double stick tape 2x40	1		1H5
DT5	AD63-03325A	Double stick tape 2x5	5		1H5
DT6	AD63-03334A	Double stick tape 2x15	1		1G5
DT7	AD63-03335A	Double stick tape 2x24	1		1H3
DT9	AD63-03336A	Double stick tape 3x25	2		1G2,1G3
DT11	AD63-03337A	Double stick tape 4x6	2		1H3,2D2
DT12	AD63-03338A	Double stick tape 4x10	1		1G3
DT13	AD63-03339A	Double stick tape 4x15	1		1H4
DT14	AD63-03342A	Double stick tape 4x25	1		1G4
DT17	AD63-03343A	Double stick tape 5x17.5	1		1H3
DT18	AD63-03341A	Double stick tape 5x25	1		2C2
DT19	AD63-03340A	Double stick tape 5x40	1		1G2
DT20	AD63-03333A	Double stick tape 6x6	1		1H2
DT21	AD63-03332A	Double stick tape 6x8	2		1G4,1H3
DT22	AD63-03328A	Double stick tape 9x50	1		1G3
DT24	AD63-03327A	Double stick tape 11x42	1		1G3
DT25	AD63-03326A	Double stick tape 17x45.3	1		1G4
DT25	AD63-03326A	Double stick tape 17x45.3	1		1G4

Ⅲ. EXPLODED VIEW AND PART LIST

5. PACKING ITEM_GX-20

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User's Manual

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▶ **PACKING ITEM_PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-1	6902-000938	PE BAG (FOR ACCESSORY)	1	Exclusive
5-2	AD46-00159A	CD_SAMSUNG_RAW_CONVERTER_GX-20	1	Exclusive
5-3	3903-000346	AC CODE CABLE_KOR-D1	1	Common
	3903-000347	AC CODE CABLE_EXP-D1	1	Common
	AD81-00681A	AC CODE CABLE_USA-D1	1	Common
	AD81-00682A	AC CODE CABLE_UK-DSC220SE	1	Common
	3903-000348	AC CODE CABLE_AUS-D1	1	Common
	AD81-00700A	AC CODE CABLE_TSOE	1	Common
5-4	AD68-01903A	U_MANUAL_GX-20_KOR	1	Exclusive
	AD68-01904A	U_MANUAL_GX-20_ENG	1	Exclusive
	AD68-01905A	U_MANUAL_GX-20_GER	1	Exclusive
	AD68-01906A	U_MANUAL_GX-20_FRA	1	Exclusive
	AD68-01907A	U_MANUAL_GX-20_SPA	1	Exclusive
	AD68-01908A	U_MANUAL_GX-20_ITA	1	Exclusive
	AD68-01909A	U_MANUAL_GX-20_DUT	1	Exclusive
	AD68-01910A	U_MANUAL_GX-20_RUS	1	Exclusive
	AD68-01911A	U_MANUAL_GX-20_CHI_S	1	Exclusive
	AD68-01912A	U_MANUAL_GX-20_SWE	1	Exclusive
	AD68-01913A	U_MANUAL_GX-20_DAN	1	Exclusive

Ⅲ. EXPLODED VIEW AND PART LIST

▶ **PACKING ITEM_PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-5	AD68-01914A	Q/MANUAL_GX-20(8 LANGUAGE)	1	Exclusive
5-6	AD68-02660A	Q_MANUAL_GX-20_KOR	1	Exclusive
	AD68-02661A	Q_MANUAL_GX-20_ENG	1	Exclusive
	AD68-02662A	Q_MANUAL_GX-20_GER	1	Exclusive
	AD68-02663A	Q_MANUAL_GX-20_FRA	1	Exclusive
	AD68-02664A	Q_MANUAL_GX-20_SPA	1	Exclusive
	AD68-02665A	Q_MANUAL_GX-20_ITA	1	Exclusive
	AD68-02666A	Q_MANUAL_GX-20_DUT	1	Exclusive
	AD68-02667A	Q_MANUAL_GX-20_RUS	1	Exclusive
	AD68-02668A	Q_MANUAL_GX-20_CHI_S	1	Exclusive
	AD68-02669A	Q_MANUAL_GX-20_SWE	1	Exclusive
	AD68-02670A	Q_MANUAL_GX-20_DAN	1	Exclusive

▶ **PACKING ITEM_PARTS LIST FOR GX-20_CODE**

Fig. No.	Parts No.	Parts Name	Q'ty	Remark
5-7	6801-001642	WARRANTY CARD_KOREA	1	Common
	6801-001646	WARRANTY CARD_EXP	1	Common
	6801-001658	WARRANTY CARD_2 YERARS	1	Common
	6801-001650	WARRANTY CARD_RUS(3 YEARS)	1	Common
	6801-001647	CARD_PRODUCT(Mexico)	1	Common
	6801-001659	WARRANTY CARD_TURKEY	1	Common
	6801-001660	SERVICE_CENTER_TURKEY	1	Common
	6801-001656	WARRANTY CARD_IRAN	1	Common
	6801-001662	WARRANTY_CARD_Argentina	1	Common
	6801-001675	WARRANTY CARD_TSOE(CHINA)_PRODUCT	1	Common
	6801-001663	AS_CENTER_MANUAL_TSEO_S	1	Common
	6801-001664	LOCAL_WARRANTY_CARD_INDIA	1	Common
	6801-001665	LOCAL_WARRANTY CARD_ITALIA	1	Common
	6801-001681	WARRANTY CARD_CANADA	1	Common
	AD68-02558A	PRC_CARD_RUSSIA	1	Common
5-8	AD81-00883A	LI-ION BATTERY_SLB-1674	1	Exclusive
5-9	AD81-06277A	CHARGER_SBC-L6	1	Exclusive

Ⅳ. WIRING DIAGRAM

▶ **PARTS LIST FOR GX-20_CODE**

No	Color	Lengtn	From to	No	Color	Lengtn	From to
1	RED	95	A14-T100	35	SKY BLUE	45	Q200-T100
2	BLACK	20	A12-T200	36	WHITE	45	Q200-T100
3	GLAY	50	A12-A12	37	YELLOW	45	Q200-T100
4	BLACK	65	T100-T200	38	ORANGE	150	S350-T100
5	BLACK	35	T200-T200	39	GLAY	145	S350-T100
6	BLACK	100	A330-T200	40	BLACK	45	S31-T200
7	RED	90	S250-T100	41	ORANGE	45	S31-T200
8	BLACK	85	S250-T100	42	GREEN	50	S31-T200
9	PINK	15	O300-T930	43	RED	40	S31-T200
10	WHITE	70	O300-T930	44	RED	30	N300-T100
11	PINK	45	G119(G100)-T200	45	WHITE	30	N300-T100
12	VIOLET	40	G119(G100)-T200	46	YELLOW	30	T10-T100
13	RED	95	T72-T200	47	BLACK	30	T10-T100
14	ORANGE	80	T72-T200	48	YELLOW	45	T940-T200
15	BLUE	85	T72-T200	49	BROWN	40	T940-T200
16	GLAY	85	T72-T200	50	BLUE	40	T940-T200
17	GREEN	35	E0-T200	51	RED	40	T940-T200
18	SKY BLUE	40	E0-T200	52	WHITE	45	T940-T200
19	PINK	50	E0-T200	53	BLACK	50	T940-T200
20	BLACK	45	E0-T200	54	RED	100	T970-T100
21	WHITE	60	E0-T200	55	BLACK	105	T970-T100
22	PINK	60	G119(A300)-T200	56	ORANGE	115	T970-T100
23	VIOLET	60	G119(A300)-T200	57	GREEN	110	T970-T100
24	BLACK	30	A105-T200	58	GLAY	40	I17-T100
25	BLUE	170	Q100-Q200	59	WHITE	50	S300-T770
26	GREEN	140	Q100-Q200	60	BROWN	50	S300-T770
27	BROWN	125	Q100-Q200	61	BLACK	125	T770-T100
28	BLACK	110	Q100-Q200	62	RED	125	T770-T100
29	WHITE	25	Q104-Q110	63	BLUE	180	T770-T100
30	RED	115	Q200-T770	64	YELLOW	170	T770-T100
31	BLACK	80	Q200-T770	65	VIOLET	180	T770-T100
32	BLUE	30	Q200-T100				
33	GREEN	30	Q200-T100				
34	PINK	50	Q200-T100				

Ⅴ. FIRMWARE

1. Firmware Basic Version Check

1. Turn on the camera.

2. Turn on the camera while pressing
   the menu button.

①

②

3. Check the firmware version.

VER:1.00

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2. Firmware Full Version Check

1. Turn on the camera.

2. Download the following attached file and save it in an SD card (ROOT).
 ※ Right click the mouse on the "download the program file" button and then select "Save as (A)... ".

3. Insert a memory card and leave the
 cover open.

Ⅴ. FIRMWARE

4. Turn on the camera.

5. Check the firmware version.

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3. Firmware Upgrade Procedure

📝 **Caution**

If the battery goes flat during the upgrade, the camera will be damaged.
Two types of power modes therefore need to be used for safety purposes.

---

1. Download the latest firmware file and save it into the ROOT. (An MMC card can't be used for the firmware upgrade.)
   Check that the name of the firmware file is "FWGX20B.BIN".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card for firmware into the camera.

Ⅴ. FIRMWARE

4. Close the SD card cover of the
camera.

5. Turn on the camera while pressing
the 「MENU」 butto .

6. If the following indication appears
on the LCD monitor, select 「YES」
using the direction keys and press
the OK button.

PROGRAM UPDATE

YES
NO

CURRENT VERSION 0.01
UPDATE VERSION 0.01

The firmware upgrade starts.

(Updating takes about 60 secs. Updating time depends on the contents of the firmware.)

* Never attempt to turn off the power.

Ⅴ. FIRMWARE

7. When the 「COMPLETE」 sign
   appears, turn off the main switc.

* When the firmware upgrade is completed, the SD card LED (red) indicating its status, keeps blinking.

When the firmware upgrade is completed, the camera is set back to the original factory settings (language, date, time).

Readjustments for each item are not needed, as the firmware upgrade is not relevant to the data related to adjustments.

4. Firmware Upgrade Procedure After Main Board Replacement

Caution

If the battery goes flat during the upgrade, the camera will be damaged.
Two types of power modes therefore need to be used for safety purposes.

1. Download the firmware to replace the main board and save it into the ROOT in the SD memory card (an MMC card can't be used.). Check that the name of the firmware is "KB454B.BIN".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card (firmware for replacing the main board) into the camera.

Ⅴ. FIRMWARE

4. leave the cover open.

5. Turn on the camera.

6. The following message will
   appear on the LCD monitor.

7. Remove the SD card.
   (Keep the memory card cover open.).

The firmware upgrade starts for replacing the main board.
(Updating takes about 60 secs. Updating time depends on the contents of the firmware.)

 * Never attempt to turn off the power.

Removing the current firmware….

Ⅴ. FIRMWARE

Preparing to write new firmware….

Writing new firmware….

8. When the upgrade is completed, the camera's power is turned off automatically.

After the firmware upgrade for replacing the main board, run the EEPROM PATCH.

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5. Run EEPROM PATCH

1. Download two files for EEPROM PATCH and save them into the ROOT in the SD memory card (an MMC card can't be used.).
   The files are "KB454.eep" and "MODSET.454".

2. Insert a fully charged battery into the camera (AC adapter connection is recommended for safety.).

3. Insert an SD card (two files for EEPROM PATCH) into the camera.

4. leave the cover open.

5. Turn on the camera.

6. The following message will appear on the LCD monitor.

7. When the 「COMPLETE」 sign
   appears, turn off the main switc.

After the firmware upgrade for replacing the main board and the execution of the EEPROM PATCH are completed, make sure to carry out adjustments.

See "Adjustments" for detailed adjustments.

Ⅵ. ADJUSTMENT

1. Preparation for Adjustments

Preparation Equipment :
- □ Adjustments program software (written in CD-R) for 77012 (GX-20)

- □ Personal Computer (below PC for adjustment)

  OS : Windows XP SP2
  CPU : above 1GHz
  RAM : above 512MB
  HD Bin Memory : above 500MB

- □ 5 SD cards (above 16MB)

- □ SD card reader or a USB cable to the body of the camera (connect to the PC)

1. Prepare three SD cards for adjustment.

* Prepare three SD cards.

1. For product firmware (GM_FW)

2. For initial data settings (Initial Data Set)

3. For initial settings (factory initialized, 「Initialize Set」)

4. For firmware when replacing the T100 circuit board (Product ID FW)

2. Setting the computer and writing an SD card

* Insert the 77012 (GX-20) CD-R for adjustment into the CD-Rom drive of the computer. (77010£ƒPENTAX K20D)

```
⊞ 📁 77010
⊟ 📁 77012 Tool
    ⊞ 📁 GM_FW
    ⊞ 📁 Initial Data Set
    ⊞ 📁 Initialize Set
    ⊞ 📁 Product ID FW
⊞ 📁 z1 (vb6run_cs_1.0.0
⊞ 📁 z2 (NetFramework2.0
⊞ 📁 z3 (VC++2005 SP1
```

① Copy the 「77010」 folder from the CD-R onto the C drive. (Adjustment software main body)

② Copy a file in the 「GM_FW」 file to an SD card (for product firmware).

③ Copy two files in the 「Initial Data Set」 folder to an SD card.

④ Copy a file in the 「Initialize Set」 folder to an SD card.

⑤ Copy two files in the 「Product ID FW」 folder to an SD card.

3. Software Installation

📝 **IMPORTANT**

Install the three types of the following software.

◆ Net Framework Ver2.0 (new)
◆ VC++2005 SP1 (new)
◆ VB Runtime (unnecessary if the 「VB Run Time Set-up」 program for GX-1S and GX10 is installed already)

Ⅵ. ADJUSTMENT

* Insert the 77012 CD-R for adjustment into the CD-Rom of the computer.

① Double click on the "dotnetfx.exe" file in the 「NetFramework2.0」 folder.
   If the installer is executed, install the software according to the instructions on the screen.

② Double click on the "vcredist_x86.exe" file in the 「VC++2005 SP1」 folder and execute the installation.

③ When the 「VB Run Time Set-up」 program is not installed, double click on the "setup.exe" file in the°∏vb6run_cs_x.x.x°πfolder and execute the installation.

2. Calibration of light source for digital adjustments

> ✍ **IMPORTANT**
>
> Calibration of light source has to be done prior to the 77012 digital adjustments.
> When the adjustment software, the light source or the photometry standard lens for adjustments are
> replaced, calibration must be done. (Calibration process is identical to the 76832 (GX10).)

Preparation Equipment :
  □ Master body for 76830(K10D) light source calibration

  □ 77012 digital adjustments software (M-Test)

  □ PC (Windows XP, USB port standard device)

  □ Light box (LB-3300, Light source A)

  □ Photometric standard lens for adjustments and F8 set ring

  ※ Use a lens with an ID no. identical to the lens ID no. as shown on the CD-R (adjustments software).

  □ USB cable

  □ AC adaptor

  □ Material for blocking light (dark curtain)

  □ Color thermometer for photography (for light source adjustments)

  □ LV checker (for checking LV values)

1. Computer Set-up

  「2. Setting the computer」 in the 「Preparation」 section has to be completed.
  (Use the digital adjustment software.)

Ⅵ. ADJUSTMENT

2. Calibration

① For a stable light source, wait for 30 mins after turning on the power of the light source prior to calibration.

② Adjust the brightness and the color temperature using the color thermometer for photography and the LV checker as below.

Light	Brightness	Color temperature
LV12	LV12.00Ev ±0.50	2,856K ±30
LV11	LV11.00Ev ±0.01	-

* Calibration is performed in the following sequence with a K10D master body.

3. Master body and photometric standard lens set-up

① Set the mode dial to 「M」.

② Set the focus mode lever to 「MF」.

③ Set the SR lever to「OFF」.

④ Install the photometric standard lens for adjustments and the F8 set ring on the body.

⑤ Set the aperture stop of the photometric standard lens to 「F8」.

4. Calibration procedure

① Connect the AC adaptor to the camera (master body).

② Access to the PC using the USB cable.

③ Turn on the camera and check that the camera is recognized by the PC.

④ Set the light box to 「LV12」.

⑤ Position the lens on the top center of the light box.

⑥ Cover the whole camera and the rest of the top section.

⑦ Double click on the "77010_M-Test_CS_Ver_.exe" file in the 「77010-M-Test CS」 folder.

⑧ Enter the lens ID no. and click on "OK" on the lens input screen. (e.g.:123)

⑨ Click on "Yes (Y)" if the lens no. is entered correctly.

⑧

⑨

⑩ The digital adjustment screen appears. Click on the icon for calibration at the top left of the screen.

⑪ The calibration screen appears. Click on the "Enter" key (or "START" button).
   (Release 15 times about for 35 secs.)

Ⅵ. ADJUSTMENT

⑫ When all the adjustments are completed, the OK image appears.

⑬ End the adjustments software by clicking on the [X] button (or [END] button).

※ See the 「Error code table」 in the manual for NG adjustment.

3. Adjustments flow chart when replacing the T100

The sequence of adjustments items when replacing the T100 main circuit board is as follows.

● Note Prod. ID FW 「Product ID FW」

● Set the initial data 「Initial Data Set」

SR adjustment (SR unit adjustment)

「K20D_SR_Operation_Adjustment」

Single-lens reflex functional section adjustment

「K20D_PDCAdj」(※Data initialization is unavailable)

「K20D_Uniformity_CS」

「K20D_FI_CS」

SR adjustment (SR gain adjustment)

「77010 SR_Gain For CS」

WDC (Adjust the defective white pixels)

「77010_White Pixel Adjust」

Digital section adjustment

「77010 M-Test CS」

Shutter speed adjustment according to the histogram

「K20D_PDCAdj」

Initial settings

(Initialized at the factory)

「Initialize Set」

Function test

*SR check can be skipped if SR adjustment is completed.

Ⅵ. ADJUSTMENT

4. OPS unit (Operation) adjustments

> ### 📝 IMPORTANT
>
> 【CAUTION 1】This adjustment must be performed when replacing the T100 circuit boar.
>
> 【CAUTION 2】The adjustment must be performed on a rigid, stable and even area without vibration.

Preparation Equipment :

  ▫ OPS unit adjustment program for the GX-20

  ▫ SR unit adjustment plate

  ▫ PC (Windows 2000 or XP, USB port standard device)

  ▫ USB cable

  ▫ AC adaptor or DC code • constant voltage DC8.3 V for 76830

1. Computer set-up

① Copy the 「K20D SR Operation Adjustment」 folder onto the PC.

2. Preparation

① Set the AF change lever to 「MF」 (top position).

※Camera setting: mode dial "M", OPS switch "ON"

② Mount the OPS unit adjustment plate (↓) on the body.

③ Put the body on a stable support (table) downwards.

④ Check the CCD ID no. when replacing the T100 circuit board.

3. Adjustment procedure

① Start the PC.

② Connect the body to the PC using the USB cable and connect the AC adapter to the body. (power ON)

③ Check that the hot plug icon display is recognized on the PC.

④ Double click on the 「K20D SR Operation.exe」 file in the adjustment software folder and execute it.

⑤ The adjustment screen appears.

⑥ Click on the [Start] button.

Ⅵ. ADJUSTMENT

⑦ The following screen appears.

⑧ Adjust by selecting INPUT or SKIP as below.

≪ If the T100 is not replaced ≫

click on the [Skip] button.

≪ If the T100 is replaced ≫

enter the CCD ID no. twice.

↓

Click on INPUT.

※ Click on the "Cancel" button when stopping the adjustment.

The following is the screen during adjustment (Adjustment time: 3mins 30secs).

> ✐ **IMPORTANT**
>
> Do not generate any vibrations or walk around the work area during adjustment.
> If vibration occurred during adjustment, readjustment is needed even if the adjustment is completed.

※ Click on the "Stop" button when stopping the adjustment.

⑨ If the following screen is displayed, the adjustment is completed.

⑩ Check the "Unconnect" display, and end the adjustment by clicking on the [X] button.

※ If the adjustment is displayed as NG, the green turns into red.

Ⅵ. ADJUSTMENT

5. OPS gain adjustment

📝 **IMPORTANT**

【CAUTION 1】 This adjustment must be performed when replacing the T100 main circuit board, the T640 relay board or the T970 circuit board.

【CAUTION 2】 This adjustment must be performed after the OPS adjustment (unit adjustment).

【CAUTION 3】 The adjustment must be performed on a rigid, stable and even area without vibration.

【CAUTION 4】 Handle the adjustment stage carefully, as it is heavy.
Do not touch the black vibration plate.

Preparation Equipment :
 □ SR gain adjustment program (SR_GainForCS) for the GX-20

 □ SR gain adjustment device for the GX10 (driving stage • controller • speed meter)

 □ SR gain adjustment chart for GX10 (identical to the GX10)

 □ PC (Windows XP (SP2), USB port standard device)

 □ D-XENON 50-200 mm lens

 □ USB cable

 □ AC adapter (or DC code for 76830)

1. Computer set-up

① 「NetFramework2.0」 and 「Visual C++Runtime2005」 must be installed on the PC already.

② The 77010 「SR_GainForCS」 folder must be copied onto the hard disk.

---

2. Preparation

① Set up the chart (■) 2.00m from the tripod knob of the camera.

② Set the lighting to LV 10 to 12 without the surface of the chart spotted.

③ Set the zoom ring of the D-XENON 50-200mm lens to 200mm and its distance ring to 2m.

(Fix the four sections with tape to prevent vibration.)

Ⅵ. ADJUSTMENT

④ Mount the lens on the body of the camera.

⑤ Set the body as below.

- Mode dial 「M」

- AF change lever 「MF」

- OPS switch 「ON」

⑥ Mount the body of the camera onto the vibration plate.

⑥ Fix the camera firmly using the two knobs.

⑦ Locate the chart (■) on the center of the finder. (Within the spot metering frame.)

【Check】 Check again that the distance is 2.0mm.

Turn on the controller and turn the dial up to 1,000 rpm.

Turn off the controller after checking.

⑨ Connect the camera to the PC using the USB cable, and turn it on.

3. Adjustment

① Double click on the "SR_GainForCS.exe" file in the 77010「SR_GainForCS」folder.

② Start the adjustment by clicking on the "Execute" button.

Ⅵ. ADJUSTMENT

③ Turn on the controller (1,000 rpm). Adjust the X direction by clicking on the "OK" button.

④ Turn off the controller, and click on the "OK" button.(The following adjustment starts.)

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⑤ Turn on the controller again (1,000 rpm), and click on the "OK" button. (Adjust the following)

⑥ Turn off the controller, and change the positions of the camera and the stage to the Y direction adjustment. ↓

> ✎ **IMPORTANT**
>
> Handle the stage carefully, as it is heavy. Do not touch the black vibration plate.

Ⅵ. ADJUSTMENT

⑦ Set up the chart (■) 2.00m from the tripod knob of the camera and locate the chart on the center of the finder.

⑧ Click on [OK], and adjust the Y direction in the same way as the X direction adjustment.

⑨ If all the adjustments are completed, then the OK message appears.

⑩ End the adjustments by clicking on the [X] button or [Quit] button.

6. SLR (Single Lens Reflex) functional section adjustment

> 📝 **IMPORTANT**
>
> 【CAUTION 1】 This adjustment must be performed when replacing the T100 circuit board.
>
> 【CAUTION 2】 Each setting except for the custom function will be initialized when executing this adjustment.
>
> 【CAUTION 3】 Adjust the shutter speed after adjusting the digital section.
> See「Shutter speed adjustment according to the histogram」.

Preparation Equipment :

□ SLR adjustment program for 77010 (comprised of three types as below)

   K20D PDCAdj (SLR adjustment except for the following),

   K20D Uniformity CS (AF sensor uniformity adjustment),

   K20D FI CS§§(AF focus adjustment

□ PC (Windows XP (SP2), USB port standard device)

□ USB cable

□ AC adapter (or DC code for the 76830)

□ Light source for the AE adjustment (LV6 • LV8 (or 9) • LV12 • LV15 (or 16), shutter tester)

□ Digital photometric standard lens (No.95901-D20, Lens ID No. attachment), F8 set ring

□ F5.6 set plate for photometric standard lens (No.95901-D20 only)

□ Side AF gradient adjustment tool (square)

□ AF gradient adjustment tool (cross)

□ Hexagonal driver 1.5mm (HD-M1.5)

Ⅵ. ADJUSTMENT

- Two types of AF chart for 2m

- AF focus standard lens for 2m

- D-FA(FA) Macro 50mm F2.8

- FA(F) 35-80mm F4-5.6

- Constant voltage (above 8V • 3 A)

- Battery adapter for 76830

1. Computer set-up

① Install PC 「VB run time」 set-up, 「NetFramework2.0」 and 「Visual C++Runtime2005」 on the PC (Refer to preparation).

② Copy the 「K20D PDCAdj」 folder, the 「GX20 Uniformity CS」 folder and the 「GX20 FI CS」 folder.

2. Preparation

① Attach the lower cover and the battery cover to the body (connection terminal cover is not needed.)

② Set the focus lever mode to 「MF」.

③ Set the exposure mode dial to 「M」.

④ Set the SR (OIS) lever to 「OFF」.

⑤ Connect the camera to the PC using the USB cable and turn on the camera.

3. Adjustment (K20D PDCAdj

① Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder (Adjustment screen display).

② Start the communication with the camera by clicking on the "Op" icon. (USB open)

【Check】 Check that the USB IO is displayed as 「Connect」.

③ Adjust and check according to the display

※ Data initialization

【CAUTION】 Select 「No」, as the SR adjustment data is cleared.

Replace the main board?
No

Adjustment screen and all the items display

1 : EEPROM CHECKING
↓
2 : EXPOSURE ADJUST
↓

VI. ADJUSTMENT

◇[BV ADJUST]

3 : AF AND RELATED ADJUST
↓

◇Adjust [CCD POSITION ADJUST]

↓

◇Adjust [AGC LEVEL ADJUST]

↓
↓

5 : EEPROM CHECKING   (※Perform this after completing all the adjustments and checking.)

※ The following adjustment must be performed when replacing the T100 circuit board
(unnecessary to follow the following order.)

6 : BATTERY LEVEL ADJUST

Bc Adjust

ⓘ SET REGULATED DC POWER SUPPLY TO 8.0 v.
TURN THE SELECT SW TO GRIP POSITION.

OK

Bc Adjust

ⓘ TURN THE SELECT SW TO BATTERY POSITION.

OK

Battery adaptor for 76830

Select SW : ①Battery

②Battery & Grip

③Grip

7 : SHUTTER SPEED ADJUST

* See 「Shutter speed adjustment according to the histogram」.

4. Ending procedure

① Click on the "Cl" icon, and disconnect the communication with the camera. (USB close)

【Check】 Check that the USB IO is displayed as 「Unconnect」.

② Click on the "end" icon, and end the adjustment program.

PDC Adj Ver.0:1:1

USB Test(a)   Af Adj(d)   Ae Adj(g)   Etc. (E)

Op   Cl   p.s   ver   end   m.n

Product Number:

K20D   Interface Support : USB IO   Unconnect

Ⅵ. ADJUSTMENT

7. Exposure adjustment - BV adjust (brightness value)

Determining exposure is one of the most important things in shooting.

If the exposure value is increased, a photo will come out with a bright tone. If the exposure value is decreased, a photo will come out with a dark tone. The metering sensor measures the quantity of light to determine the appropriate exposure in order for a subject to have the appropriate brightness.

1. Adjustment procedure

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
Check that the USB IO is displayed as "connected".

⑥ Mount the diaphragm set ring on the camera with the aperture open.

If there isn't a tool for the diaphragm set ring, a lens which can set the aperture to 1.4 can be used.

⑦ Connect the camera to the EV tester.

Ⅵ. ADJUSTMENT

⑧ Click on the "2. EXPOSURE ADJUST - BV ADJUST" button.

Enter the lens ID no. and click on "Input".

⑨ Select the type of the EV tester.

⑩ If you click on the BV ADJUST button, a message "Set the EV tester to LV6" will appear.
Set the EV tester to LV6 and click on the "OK" button.

After the following message appears, change the set plate to an F5.6 set plate.

Click on "OK" and continue with the adjustment.

Ⅵ. ADJUSTMENT

A message "Set the EV tester to LV15" will appear. Set the EV tester to LV15 and click on the "OK" button.

If the adjustment is completed, the following message will appear. Click on the "OK" button.

The adjustment value is saved in the camera.

Click on the "CLOSE" button.

Ⅵ. ADJUSTMENT

⑪ Click on the "CI" button on the top menu of the main screen.
   Check that the USB IO has been changed to "Unconnect" from "Connect".

⑫ Click on the "end" button and end the program.

⑬ Disconnect the USB cable from the camera and check the side light.

    1. Attach a bundle lens to the camera and set the camera as follows.

       AV mode, aperture stop F8, ISO 200, spot side light, focus MF mode, set the lens distance to 35M, set the distance ring to infinitive.

    2. Put the camera near the EV tester.

    3. Check the Tv display by changing the brightness (LV) and half-pressing the release button as shown in the following table.

	LV6	LV8	LV9	LV10	LV12	LV15	LV15(분활측광)
Tv 표시	Tv0.5"	Tv8	Tv15	Tv30	Tv125	Tv1000	Tv750

If the shutter speed values change identically to the table above according to the changes of the LV values with the aperture stop of F8, the adjustment has been completed. Otherwise perform the adjustment again.

8. AF sensor position adjustment

The AF sensor captures an image of the subject clearly. The following adjustment must be performed when replacing the AF sensor or when there is a problem with an AF function.

1. Adjustment procedure

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
   Check that the USB IO is displayed as "connected".

Ⅵ. ADJUSTMENT

⑥ Install a cross gradient adjustment tool.
   Set the focus mode to MF.

⑦ Connect the camera (Cross installation) to the EV tester.

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⑧ Click on the "3.AF AND REL ADJ - CCD POSITION ADJ - ADJUSTMENT" button.

⑨ Click on the "DumpStart" button on Alpha-CROSS.

Ⅵ. ADJUSTMENT

Set the LV value on the EV tester to 12 and click on the "OK" button.

If the measurement values are displayed in green, it is normal.
(Adjust the position of the AF sensor to make the sizes and shapes of the graphs uniform.)

If the measurement values are not displayed in green and the sizes and shapes of the graphs are different, adjust the gradient of the AF sensor by turning the two areas with an Allen wrench as shown in the following figure. Adjust the gradient until the green appears on the screen. (The values are better to close to "0".).

⑩ Install the square gradient adjustment tool.

Ⅵ. ADJUSTMENT

Click on the "DumpStart" button on Beta-SQUARE.

Set the LV value on the EV tester to 12 and click on the "OK" button.

If the measurement values are displayed in green, it is normal.

If the measurement values are not displayed in green and the sizes and shapes of the graphs are different, adjust the gradient of the AF sensor by turning the two areas with an Allen wrench as shown in the following figure. Adjust the gradient until the green appears on the screen. (The values are better to close to "0".).

Ⅵ. ADJUSTMENT

⑪ Install a standard lens (50M F1.4).

Set the distance from the camera mount plane to the AF chart no.1 to 1,954.5mm(=1.9545m) using the tripod.

1.9545m

Click on the "Start" button in "Focus".

Check the conditions of the camera and chart settings as below and click on the "OK" button.

Ⅵ. ADJUSTMENT

Move the centers of the blue graphs in the three sections (left, middle, right) to the red reference lines.
Move the centers of the graphs to the red lines by moving the camera mounted on the tripod slightly
(the bottom of the curve is the center.).
If the centers of the graphs are moved to the red lines, then click on the "Next" button.

If the measurement values are displayed in green, it is normal.

If the measurement values are not displayed in green, adjust the height of the AF sensor by turning the three areas with an Allen wrench as shown in the following figure. Adjust the height until the green appears on the screen.

Turn the Allen wrench in the same direction for all three areas.

If you turn each area in different directions, the gradient will change.

You need to check the gradient or adjust it again.

Ⅵ. ADJUSTMENT

9. AF sensor position check

This is a process to check if the AF sensor has been positioned correctly.

1. Procedure

① Install a 35-80 F4-5.6 lens on the camera.

If there isn't a 35-80 F4-5.6 lens, a bundle lens can be used.

Set the items as below if a bundle lens is used for adjustment. Focus MF mode, lens distance 55m, distance ring 0.4m.

② Connect the camera to the EV tester. (Install a 35-80 lens or a bundle lens)

③ Click on the "3. AF AND REL ADJ - CCD POSITION ADJ - POSITION CHECK" button.

④ Set the EV tester LV to 12. Set the distance ring to 0.4m from 80mm for the 35-80 lens, and click on the "CHECK" button. Set the distance ring to 0.4m from 55mm for the bundle lens.

⑤ If the AF sensor is positioned correctly, the following message will appear. Click on the "OK" button.

If "NG" appears, then adjust the position of the AF sensor again.

Close the AF sensor position check screen by clicking on the "CLOSE" button.

Ⅵ. ADJUSTMENT

10. AGC level adjust : AGC (Automatic Gain Control)

This circuit reduces intermodulation and prevents saturation occurring at the amplification stage of the AF sensor. For example, if the input value is greater than the standard value in the AF amplification circuit, this circuit reduces the gain. If the input value is smaller than the standard value, this circuit increases the gain for better output.

Auto Gain Control

If the signal is stronger than the standard, saturation of the signal is prevented by controlling the gain (similar to sensitivity of film). If the signal is weaker than the standard, it increases the level of the signal up to the standard.

1. Adjustment procedure

① Install a 50mm F1.4 lens on the camera. (Set the focus mode to MF.)

② Connect the camera to the EV tester. (Install a 50m lens.)

③ Click on the "3. AF AND REL ADJ - AGC LEVEL ADJUST" button.

Ⅵ. ADJUSTMENT

④ Select the type of EV tester and adjust the LV values (light value, reference exposure value) in the following order 6, 7, 12 and 15 by clicking on the "AGC Adjust" button.
If the adjustments are completed, click on the "Close" button.

11. Uniformity CS : Adjustment to make the outputs of each AF sensor uniform.

The outputs of each AF sensor are not uniform. This is an adjustment process to improve the performance of the AF sensor by making the outputs uniform.

Adjust the AF sensor when the AF sensor has been replaced or when it is faulty.

<u>1. Adjustment procedure</u>

① Install a Macro 50mm F2.8 lens to the camera. (Set the focus mode to MF, infinitive.)

② Connect the camera to the EV tester. (Install a 50m lens.)

Ⅷ. ADJUSTMENT

③ Double click on the "X20_SLR_Uni_.exe" file in the「GX20_Uniformity_CS」folder.

④ Click on the "Execute" button and start the adjustment.

⑤ If the adjustment is completed, the "OK" message will appear at the bottom left of the screen.

⑥ Click on the [X] button and end the adjustment.

⑦ If an adjustment error occurs, the "NG" message and an error code will be displayed.
　　See 「Error code table」 in the manual.

Ⅵ. ADJUSTMENT

12. FI CS adjustment (focus)

Equipment to be used :
 □ Two types of 2m AF charts (No.1, No.2)

 □ A 2m AF focus standard lens

* The 2m AF chart is installed in the following conditions.

1) The distance from the camera mount to the 2m AF chart: 1,954.5 mm (=1.9545m)

2) The chart has to be perpendicular to the optic axis of the lens in the up, down, left and right directions.

3) Shed the lighting on the surface of the chart until the LV value reaches 11 or 12.
    (If the brightness is low, the adjustment is NG.)

1. Adjustment procedure

 ① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

 ② Turn on the camera and check that the hot plug icon is displayed on the PC.

 ③ Double click on the "GX20_SLR_FI_.exe" file in the 「GX20_FI_CS」 folder.

 ④ The adjustment screen appears.

 ⑤ Click on the "Enter" button after entering the temperature (℃). (@ : Use the mouse pointer to select "Fahrenheit".)

⑥ The following screen appears after the temperature adjustment.

⑦ Set the camera to the vertical line of the AF chart no.1.

⑧ Start adjusting the position of the chart by clicking on the "OK" button.

⑨ If the positions of the camera and the chart are not aligned, the following message appears.
  Adjust the position of the camera to match the red line with the yellow line.

⑩ If the camera and the chart are positioned correctly, the following message appears.
  If this state is maintained, the adjustment starts automatically.

> ✎ **IMPORTANT**
>
> Do not touch the camera or the chart during the adjustment. The adjustment has to be performed again if there is contact, even if it was OK.

Ⅵ. ADJUSTMENT

⑪ If the adjustment is OK, then adjust the position of the AF chart No.2 (horizontal line) to the camera.

⑫ Adjust the position of the camera and the chart in the same way as the vertical sensor's adjustment. (Up and down direction).

⑬ If the adjustment is completed, then the "OK" message appears.

⑭ Click on the [X] button and end the adjustment.

13. Battery level adjustment

This is a process which checks the residual quantity of the camera's battery power and displays it in the LCD information window.

Equipment to be used :
  □ 76830 battery adapter

  □ Constant voltage (above DC8V • 3 A)

1. Adjustment procedure

① Connect the battery adapter to the camera.

Battery adaptor for 76830
Select SW : ①Battery
            ②Battery & Grip
            ③Grip

② Connect the USB cable from the camera to the PC.

③ Turn on the camera and check that the hot plug icon is displayed on the PC.

④ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」folder.

Ⅵ. ADJUSTMENT

⑤ The adjustment screen appears.

⑥ Click on the "Op" icon and start the communication with the camera. Check that the USB IO is displayed as "connected".

⑦ Click on the "6. BATTERY LEVEL ADJUST" button.

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⑧ Adjust by changing the Select SW according to the instructions on the screen.

⑨ If the adjustment is completed, then click on the "CI" button.
Check that the USO IO is changed to "Unconnect" from "Connect".

⑩ Click on the "end" button and end the program.

Ⅵ. ADJUSTMENT

14. Image sensor (Digital adjustment M-Test)

Preparation Equipment :

□ 77010 digital adjustment program (77010-M-Test CS)

□ Light box (LB-3300, light source A)

□ PC (below Windows XP (SP2), USB port standard device)

□ Photometric standard lens for adjustments and F8 set ring

※ Use a lens with an ID no. identical to the lens ID no. as shown on the CD-R (adjustments software).

□ USB cable

□ AC adapter

□ Material for blocking light (dark curtain)

□ Color thermometer for photography (for light source adjustments)

□ LV checker (for checking LV values)

1. Computer and light source set-up

① 「NetFramework2.0」 and 「VisualC++Runtime2005」 must be installed on the PC.

② Copy the 「77010-M-Test CS」folder onto the hard disk.

③ 「light source adjustment for digital adjustment」 must be completed with the 76830 master body.

④ Adjust the brightness and the color temperature using the color thermometer for photography and the LV checker as below.

Light	Brightness	Color temperature
LV12	LV12.00Ev $\pm$0.50	2,856K $\pm$30
LV11	LV11.00Ev $\pm$0.01	-

2. Camera and photometric standard lens set-up

⑤ Set the mode dial to 「M」.

⑥ Set the focus lever to 「MF」.

⑦ Set the OPS lever to 「OFF」.

⑧ Install the photometric standard lens for adjustments and the F8 set ring on the body.

⑨ FSet the aperture stop of the photometric standard lens to the 「F8 position」.
(or set a 50M F1.4 lens to F8)

Lens ID No

⑩ Cover the light box (Brightness measurement equipment (light source A, color temperature 2,850K±10, brightness LV11.00)) with a light blocking cover and position the lens in the middle of the light box.

Ⅵ. ADJUSTMENT

3. Adjustment procedure

① Connect the USB cable from the camera to the PC, and turn on the camera.

② Double click on the "77010_M-Test_CS_Ver_.exe" file in the 「77010-M-Test CS」 folder.

③ Enter the lens ID no. and click on "OK" on the lens input screen. (e.g.:123)

④ Click on "Yes (Y)" if the lens no. is entered correctly.

⑤ Hit the "Enter" key (or click on the "START" button) and start the adjustment.
(Start the adjustment according to the instructions.)

⑥ If all the adjustments are completed, then the "OK" message appears.

⑦ Click on the [X] button (or [END] button) and end the adjustment program.
(Adjustment time: approx. 3 mins 30 secs).

Ⅵ. ADJUSTMENT

15. WDC adjustment

※ Defective white pixels adjustment (light source • reference lens are not needed.)

 * Adjusting a few times may fix the bad pixels.

Camera set-up : Mode dial M, focus lever MF, lens removal, memory removal.

1. Adjustment procedure

① Connect the AD adapter to the body of the camera.

② Connect the USB cable from the body of the camera to the PC.

③ Turn on the camera and check that the PC recognizes the camera.

④ Start the adjustment program (77010_WhitePixelAdjust.exe).

⑤ Click on the "START" button in the adjustment program, or hit the "Enter" key on the keyboard.

⑥ If all the adjustments are completed, then the "OK" message appears.

⑦ Click on the [X] button (or [END] button) and end the adjustment program.
   (Adjustment time: approx. 70secs).

16. Shutter speed adjustment

This adjustment is performed when replacing the shutter layer or when the shutter speed is faulty. By entering the standard shutter speed values, the correct shutter speed corresponding to the standard values can be achieved.

* 「single-lens reflex functional section • digital section adjustment」must be done prior to this adjustment.

* Adjust the shutter speed when replacing the 0-T100 main board.

Preparation Equipment :
□ Single-lens reflex functional adjustment program

□ PC (Windows 2000 or XP, USB port standard device below, PC)

□ Photometric standard lens for adjustments and F8 set ring

□ Light source (LB-3300, use LV8 or LV9)

□ USB cable

□ AC adapter

□ An SD card for test shooting

□ Transparent ruler (metric ruler, scratch-free plastic material)

1. Camera settings

① Set up the camera as below.

【External button】 Mode dial M, Focus lever MF, WB luminescent light, ISO 200
【MENU】 Natural mode, definition • size : best definition • 6M(L), or 10M,
saturation • sharpness • contrast : standard (initial values)
【Playback】 Quick view 5secs, set the view display as histogram
【Custom】 Allows release apart from the diaphragm ring A.

Ⅵ. ADJUSTMENT

2. Check procedure

① Set the EV tester to LV9.

② Set the shutter speed to Tv 500.

③ Set the 50M F1.4 lens aperture stop to "open" (F1.4).

④ Connect the EV tester to the camera.

> ## ✎ IMPORTANT
>
> Block the window of the light source from the external light.

⑤ Take about 3 shots.

> ## ✎ IMPORTANT
>
> The peak has to be in the following range of the histogram when looking at the images on the LCD monitor. If it is displayed as NG, check the settings again, or perform the BV adjustment and digital adjustment (CCD) again.
>
>

Ⅵ. ADJUSTMENT

⑥ Set the camera to ISO 1600 and Tv4000 with the identical light source and open aperture stop (F1.4).

⑦ Connect the camera to the EV tester and take about 3 shots.

⑧ Play back the two images taken on the LCD monitor and compare the differences of the pitches on the histogram. Measure the differences (mm) on the LCD monitor with a ruler.

> 📝 **IMPORTANT**
>
> This has to be checked in front of the camera. Do not damage (scratch) the LCD screen.

< Example>

Playback the image (Histogram display)

+1.5 mm
Difference

The example above shows that the peak value of Tv4000 has a difference +1.5mm to the right compared to the peak value of Tv500 (standard).

⑨ Select a histogram zone (A to D) corresponding to the peak position of Tv4000 from the following figure. (The example above corresponds to type B.)

Ⅵ. ADJUSTMENT

⑩ Calculate the shutter speed (mS) from the differences of the histogram zone and the peak position, referring to the following conversion table of shutter speeds.
(Find the shutter speed from the conversion table for the example above. The histogram zone is B. The difference is +1.5mm to the right. Therefore the shutter speed value is 0.273mS)

Conversion table of shutter speed
(Apply to GX-10 • GX-1S • GX-1L)

Differ mm		The left from standard										
		−10.0	−9.5	−9.0	−8.5	−8.0	−7.5	−7.0	−6.5	−6.0	−5.5	−5.0
Zone	A	0.116	0.122	0.129	0.135	0.142	0.148	0.154	0.161	0.167	0.174	0.180
	B	0.054	0.064	0.073	0.083	0.092	0.102	0.111	0.121	0.130	0.140	0.149
	C	(0.001)	0.001	0.014	0.026	0.039	0.052	0.065	0.078	0.090	0.103	0.116
	D	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	0.004	0.020	0.036	0.052	0.068	0.084

(mS)

Differ mm		The left from standard										右 側
		−4.5	−4.0	−3.5	−3.0	−2.5	−2.0	−1.5	−1.0	−0.5	0.0	0.5
Zone	A	0.186	0.193	0.199	0.206	0.212	0.218	0.225	0.231	0.238	**0.244**	0.250
	B	0.159	0.168	0.178	0.187	0.197	0.206	0.216	0.225	0.235	**0.244**	0.254
	C	0.129	0.142	0.154	0.167	0.180	0.193	0.206	0.218	0.231	**0.244**	0.257
	D	0.100	0.116	0.132	0.148	0.164	0.180	0.196	0.212	0.228	**0.244**	0.260

(mS)

Differ mm		The right from standard										
		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
Zone	A	0.257	0.263	0.270	0.276	0.282	0.289	0.295	0.302	0.308	0.314	0.321
	B	0.263	0.273	0.282	0.292	0.301	0.311	0.320	0.330	0.339	0.349	0.358
	C	0.270	0.282	0.295	0.308	0.321	0.334	0.346	0.359	0.372	0.385	0.398
	D	0.276	0.292	0.308	0.324	0.340	0.356	0.372	0.388	0.404	0.420	0.436

(mS)

Differ mm		The right from standard										
		6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0			
Zone	A	0.327	0.334	0.340	0.346	0.353	0.359	0.366	0.372			
	B	0.368	0.377	0.387	0.396	0.406	0.415	0.425	0.434			
	C	0.410	0.423	0.436	0.449	0.462	0.474	0.487	0.500			
	D	0.452	0.468	0.484	0.500	0.516	0.532	0.548	0.564			

(mS)

3. Input procedure for the converted shutter speed values

① Turn off the camera and connect the AC adapter. Connect the USB cable from the camera to the PC.

② Turn on the camera and check that the hot plug icon is displayed on the PC.

③ Double click on the "K20D_PDCAdj01.exe" file in the 「EXE」 folder.

④ The adjustment screen appears.

⑤ Click on the "Op" icon and start the communication with the camera.
   Check that the USB IO is displayed as "connected".

⑥ Click on the "7. SHUTTER SPEED ADJUST" button.

Ⅵ. ADJUSTMENT

Select "Shutter Tester for 1/4000 Sec" from "Select".

Ignore the message, and click on the "OK" button.

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Enter the converted shutter speed values from "2. Check procedure" and click on "Input Data".

If the procedure is completed, the following message appears. Click on the "OK" button.

If it is displayed as NG, enter the default value 「0.25」 in the "Input Data" section and end the procedure.
(To validate the converted data.) If it is NG, check the relevant adjustment items again.

Ⅵ. ADJUSTMENT

If the adjustment is completed, the values are saved in the camera.

Click on the "Close" button and close the adjustment window.

⑪ Click on the "CI" button. Check that the USB IO has been changed to "Unconnect" from "Connect".

⑫ Click on the "end" button and end the program.

Ⅵ. ADJUSTMENT

17. AF-LED (Super-imposer) position adjustment

Remove the super-imposer PCB as shown in the following figure.

① Connect the lead wires to the 0-O170 (SI-LED) as shown in the following figure.

> 🖊️ **IMPORTANT**
>
> Do not apply pressure on the solder of 0-O170.
>
>

② Apply DC3.2 V and check if the 11 SI-LEDs are turned on and check the positions.

③【Adjustment 1】Loosen the two screws which
　　　　　　　　 hold the 0-O170.
　　　　　　　　 … Remove the adhesive
　　　　　　　　 (5 areas) for the screws.

Ⅵ. ADJUSTMENT

④ Check if the screws are fixed.

⑤【Adjustment 2】Perform the fine adjustments to up and down by turning the adjustment screws.
(Check again)

⑥ After the adjustment, apply the screw adhesive to the five areas, and remove the lead wires.

⑦ Attach the mount cover to prevent the SI-LEDs from being affected during the work.

18. Photometric element position adjustment procedure

Preparation : Penlight or similar object

* The mirror has to be down.

① Block the view finder with the back of the hand.

② Aim the light from the penlight onto the AE sensor and find a position where the shape of the AE sensor
　is shown on the 1st mirror by changing the angle of the penlight.

VI. ADJUSTMENT

* If a lens is attached, the AE sensor can be seen more easily.

③ The AE sensor has to be positioned as shown in the following figure without being shifted.

Center position of the AE sensor

Tolerance : 0.250.85 mm (actual dimension)

Center position of the finder

Spot metering frame (Ø2.5)　　　AE sensor (0-J100)

④ Remove the adhesive which holds the AE sensor (0-J100).

⑤ Loosen the screws and adjust the position of the AE senor (0-J100).

⑤ Tighten the screws and check it again.

⑥ After the adjustment, apply the adhesive to the two areas of the screws for the AE sensor (0-J100).

Ⅶ. SERVICE INFORMATION

1. Caution

1. Do the disassembling and assembling camera where the blocking static electricity mat is on the table.

2. When handling the major PCBs of camera, please wearing the band which cuts off the electric current on the wrist.

3. When handling the major parts, be careful of below caution.

Parts	Caution
F PCB type	When assembling the F PCB to the CONNECTOR by using pincette, be careful of tearing and hooking.
CCD CCD & IR CUT	Be careful of the handprinting while handling them. Using the pincette which has soft tip. The spot will be shown by using normal alchol when cleaning them. Do the repairing where is no dust.
PCB type	Wearing the band which cuts off the electric current and do the reparing Where the blocking static electricity mat is on by preventing the defect of parts.
CONTACT type	Be careful of defect and change by pincette.

Ⅶ. SERVICE INFORMATION

2. Disassembling Process For Camera Body

● Preparation : Remove the parts from the body of the camera (hot shoe cover, eyepiece, contact cover, etc.)

1> A401 (Bottom Cover)

Caution

Do not leave screws, steel balls or magnetic cards near the OIS block because there is a strong magnet in the OIS block when the cover is open.

① Five screws

② Eight screws

③ A401 • Battery cover

Caution

The OIS block protrudes at the bottom. Don't cause any impact to this area.
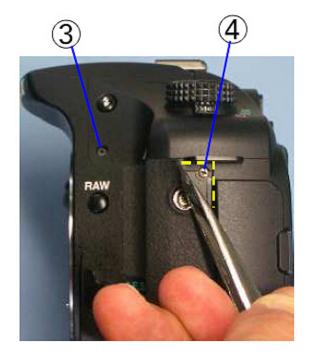
2> A301 (Top Cover)

① Screw • O-ring

② Screw…pop up the STROBO.

Ⅶ. SERVICE INFORMATION

③ Screw

④ Screw…flip the rubber.
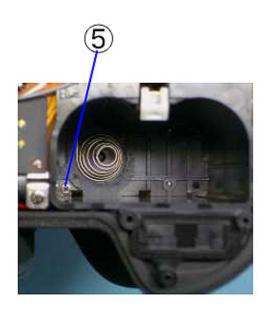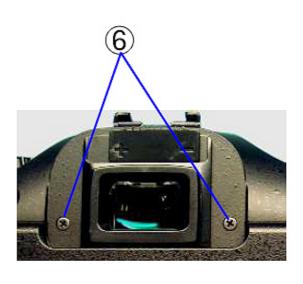
⑤ Screw (inside the battery room)

⑥ Two screws
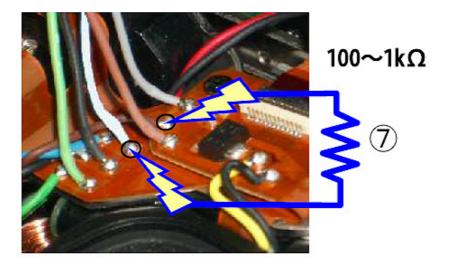
> **☑ Caution**
>
> Beware of an electric shock or a short circuit because there is a high voltage circuit inside the top cover.
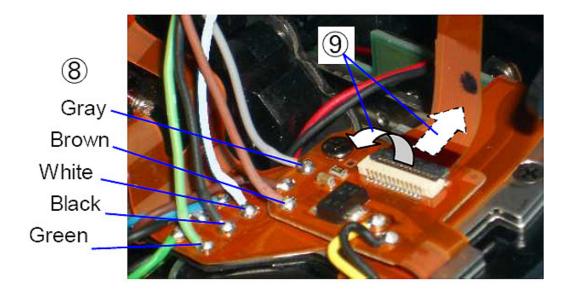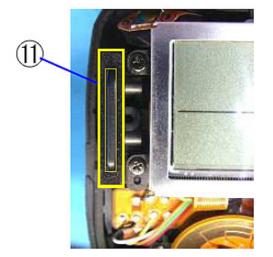
⑦ Discharging the strobe's main condenser.

   Lift up the A301 and discharge the electricity, charged in the main condenser, with resistance.

   (The white lead wire and the brown lead wire on the T750).

100～1kΩ

Ⅶ. SERVICE INFORMATION

⑧ Five lead wires.

⑨ Remove the T51 PCB from the connector (sliding lock).

⑩ A301
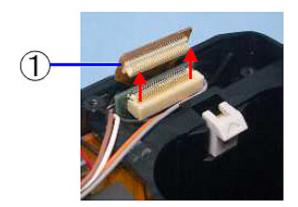
⑪ A27 (waterproof sheet)

3> A150 · A201 (Front Cover · Rear Cover)

① Remove the T920 PCB from the connector
    (plug type).

② Set the AF lever to MF.

③ Two screws (↓)

④ Screw…flip the grip rubber.

⑤ Screw

⑥ A150

Ⅶ. SERVICE INFORMATION

⑧ Five lead wires ⑦ : Install the mount cover to prevent damage to the SI-LED • TV dial

⑧ A201…Beware of the terminal section at the end and remove the rear cover by lifting the bottom a little.

⑨ Two screws

⑩ M311

4> 0-T100 (Main Circuit Block)

① Three BTs (6 x 15)

② U8 (BT 3.8 x 10)

③ Twenty-one lead wires

④ Remove the PCB from the connector (2ea, flip type).

⑤ Remove the PCB from the connector (4ea, plug type)

📓 **Caution**

Don't apply excessive pressure on the PCB of the CCD block as this may affect its performance. Ensure that the PCB is not bent.

Ⅶ. SERVICE INFORMATION

⑥ Three screws

⑦ A TY screw

⑧ Beware of the connector on the SD card circuit board, and move the main PCB (T100) down as shown in the figure below.

> ### 📝 Caution
>
> Beware that the PCB on the OIS block may be damaged if the main board (T100) is moved too far from the body of camera.

⑨ Remove the PCB from the connector (plug type).

⑩ T100

Ⅶ. SERVICE INFORMATION

5> 0-T970 (SD Circuit Block)

① Two lead wires (red, white)

② Three screws

③ 0-T970

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6> 0-T770 · 0-A51 (PZ Circuit Block · Tripod Holder)

① Two lead wires (white, brown)

② Screw

③ When removing the 0-T770 and lead wires, be careful of the double sided tape.

④ Four screws

⑤ 0-A51

Ⅶ. SERVICE INFORMATION

※.OIS/CCD Block

Caution

■ Don't disassemble the OIS block, because it can't be adjusted currently.

■ Beware of parts' attraction to the body of the camera because there is a strong magnet inside the OIS block.

■ Don't put excessive pressure on the moving parts of the OIS block.

■ Don't put excessive pressure on the PCB of the OIS block.

7> O201 (LCD Block)

① Remove the PCB from the 「AE-L」 butto.

② Screw

③ A TY screw

Ⅶ. SERVICE INFORMATION

④ Flip the LCD block (O201) forward as shown in the figure (↓).

⑤ Remove the O100 PCB from the connector (flip lock).

⑥ Remove the T700 PCB from the connector (flip lock).

⑦ Remove the BT (6 x 15) from the grip area and pull out the four lead wires.

⑧ Flip two PCBs to the outside and place the LCD block (O201) back into position.

⑨ Remove the soldering from the three lead wires.

⑩ O201

Ⅶ. SERVICE INFORMATION

8> A350 (Main SW)

① Remove the BT (6 x 15) and pull out the two lead wires.

② Remove the soldering from the three lead wires.

③ Remove the PCB near the release switch and the green button.

④ Screw

⑤ A TY screw

⑥ A350

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9> 0-T700 (Top Right Relay Board)

① 12 Lead wires (not identical to wiring 76830 : ②G119 · ④G100 · ①A105 · ⑤E000)

①

Ⅶ. SERVICE INFORMATION

② Four soldering areas on the T71 PCB.

③ Remove the PCB from the DT.

④ Two TY screws

⑤ Two screws

⑥ T700

Ⅶ. SERVICE INFORMATION

10> 0-T750 (Top Left Relay Board)

① Seven soldering areas on the O170 PCB

② Four lead wires

③ Seven lead wires

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④ Two screws

⑤ Two TY screws

⑥ Remove the connector from the Q200.

⑦ Remove the PCB from the RAW button.

⑧ Remove the PCB from the penta area.

⑨ T750

Ⅶ. SERVICE INFORMATION

11> 0-Q200 (STROBO Board) · Related Parts

① A TY screw

② A117

③ Set the AF switch to the bottom position.

④ A TY screw

⑤ 0-T940…remove carefully, beware of the switch.

⑥ A TY screw

⑦ TY-CNL screw

⑧ CSM screw

⑨ Q200. Related parts

Ⅶ. SERVICE INFORMATION

12> 0-A3 (Large Plate)

① CNL-D (A423)

② Remove the U18 (8 x 12) and the
   A423 (mask)

③ CNL-D

④ Lift up the T901 PCB.

⑤ CNL-D Ä1.7 x 2.5 (Two)

⑥ TY-CSM

⑦ TY-CNL-D Ä1.7 x 4.0 (Three)

- This Document can not be used without Samsung's authorization -

⑧ 0-A3

Ⅶ. SERVICE INFORMATION

13> T901 (Bottom Relay Board)

① Twenty soldering areas on the T301·M100
   PCB

② T901 · two lead wires

③ Screw

④ A141

     - This Document can not be used without Samsung's authorization -

14> A6 (Left Large Plate · Related Parts)

① CNL-D

② TY-CNL-D

③ Four TY-CSM screws

④ A6

Ⅶ. SERVICE INFORMATION

3. Assembling Process For Camera Body

1> A6 (Left large plate) · related parts

① A6 ··· Tidy up the lead wire and the flexible PCB as shown in the figure.

② Four TY-CSM1.7x4.0 screws

③ TY-CNL-D1.7x4.0

④ CNL-D1.7x2.5

2> T901 (Bottom relay board)

① A141

② TY-CNL-1.7x3.5

③ T901(Two red and black lead wires)

④ Solder on the twenty land areas of the T301 · 100 flexible PCB.

Black   Red

VII. SERVICE INFORMATION

3> 0-A3 (Bottom large plate)

① The four parts have to be attached to the 0-A3.

② Put the O-A3into the body of the camera while tidying up the lead wires and the flexible PCB.

③ Three TY-CNL-D1.7x4.0

④ Two CNL-D1.7x2.5

⑤ TY-CSM1.7x4.0

⑥ Connect the theT901 flexible PCB to the 0-A3.

---

⑦ A423 (Mask) ↓

⑧ CNL-D1.7x1.6 (2개)

⑨ Attach the U12 (8x12) firmly.

⑩ Tidy up the two lead wires (red · black, S250).

4> 0-Q200 (Strobe board) · related parts

① Position the Q200 and related parts as shown in the figure.

② TY-CNL-D1.7x4.0

③ CSM1.7x2.5

④ Two TY-CNL-D1.7x4.0

⑤ A117 ··· The W93 (t=0.3) has to be attached at the bottom of the back.

⑥ TY-CNL-D1.7x3.5

⑦ Set the AF lever to the middle (AF.S).

⑧ 0-T940 ··· Install this without damaging to the SW section.

⑨ TY-CNL-D1.7x3.0

5> 0-T750 (Top left relay board)

① T750 ··· Tidy up as shown in the figure.

② TY-CNL-B1.4x2.0

③ Two CNL-D1.7x1.6

④ Fix the flexible PCB on the penta section with
the DT(10x18).

⑤ TY-CNL-B1.4x2.0

⑥ Fix the flexible PCB with the DT (15x4).

⑦ Fix the flexible PCB with the DT (10x5).

⑧ Connect the connector of the Q200.

⑨ Fix the flexible PCB on the RAW button with
the DT (8x4).

VII. SERVICE INFORMATION

⑩ Solder on the seven land areas of the O170 flexible PCB.

⑪ Four lead wires

⑫ Seven lead wires

6> 0-T700 (Top right relay board)

① T700 ··· Tidy up as shown in the figure. ↓

② Two CNL-D1.7x1.6

③ Two TY-CNL-D1.7x3.5

④ Fix the flexible PCB with the DT (10x4).

Ⅶ. SERVICE INFORMATION

⑤ Solder on the four land areas of the T71 flexible PCB.

⑥ Twelve lead wires

7> A350 (Main SW)

① A350 ⋯ Tidy up as shown in the figure.

② CNL-D1.7x3.0

③ TY-CNL-D1.7x4.5

④ Fix the flexible PCBs on the F release SW and the green button SW section with the O207 (DT) and the DT (5x5).

⑤ Solder on the three lead wires.

⑥ Use the BT (6x15) for the two lead wires (A14 battery armature).

Ⅶ. SERVICE INFORMATION

8> O201 (LCD block)

① O201 ⋯ Tidy up as shown in the figure.

② Solder on the three lead wires.

③ Make the O201 as shown in the figure. (↓)

④ Use the BT (6x15) for the front four lead wires (T950).

⑤ Connect the O100 flexible PCB to the connector. (Flop lock)

⑥ Connect the T700 flexible PCB to the connector. (Flip lock)

⑦ CNL-D1.7x2.5

⑧ Two TY-CNL-D1.7x4.5

⑨ Fix the 「AE-L」 flexible PCB with the DT(5x5).

VII. SERVICE INFORMATION

9> 0-T770 · 0-A51 (PZ circuit block · tripod holder)

① 0-A51

② Four CNL-D1.7x2.5

③ 0-T770

④ U7 screw

⑤ Use the DT (6x15) for the lead wires from the 0-T770.

⑥ Solder on the two lead wires (brown, white).

10> 0-T970 (SD circuit block)

① 0-T970 ⋯ Tidy up the lead wires as shown in the figure.

② ② Three TY-CNL-D1.7x3.5

③ Solder on the two lead wires (red, white).

④ Attach the T88. ↓

⑤ Attach the T89.

⑥ Attach the U13 (11x20).

Ⅶ. SERVICE INFORMATION

11> 0-T970 (SD circuit block)

📝 **주 의**

Do not put excessive pressure on the PCB with the image sensing device, as it may affect the performance.

① T640 ⋯ Connect the connector evenly. (Plug type)

② Attach the T98 onto the T100 land area as shown in the figure.

③ Position the T100 as shown in the figure.

④ Connect the flexible PCB to the connector. (Plug type)

⑤ Connect the connector by pushing the T100 onto the camera body. (Plug type)

⑥ Three CNL-D1.7x2.5 ↓

⑦ TY-CNL-D1.7x3.5

Ⅶ. SERVICE INFORMATION

12> Solder on the T100 lead wire

① Connect the flexible PCB to the connector. (Four areas, plug type)

② Connect the flexible PCB to the connector. (Two areas, flip lock)

③ Solder on the twenty-one lead wires.

④ U8 (3.8x10)

⑤ U3 (BT 6x15) ··· Three sections

⑥ Attach the T99 onto the land area.

(Q200) Black Red
(T901) Black Red
(A14) Black Red

(T950) Orange Green

Red Black (T770)

Black Red (S250) Orange (S300) Gray

Red Black (T950)

Yellow (A18)
Black
Pink (T770)
Purple
Blue

13> External sealing check

> ### ✎ Check
>
> Check if there is twisting, peeling, cracking or damage to each sealing. Ensure that the dial doesn't make contact with the waterproof sheet when turning the front digital dial.

① Front · Rear digital dial

Ⅶ. SERVICE INFORMATION

② M311

A471 x2

A463 x2

③ A150

A451

A453

A453

④ A201

A474 x2

A451

A204

A456

A457

A456

⑤ A301

A461   A462   A460

A472

⑥ A401

A54   A455

PC-GF10

A454

14> A150 · 201(Front parts · Rear cover)

① M311 ⋯ Install the visibility adjustment lever.

② Two CNL-D1.7x3.0

③ Install the cover to protect the SI-LED · Tv dial.

④ A98 (O-ring) ⋯ Ensure that the O-ring is installed without a cave-in, crack or damage.

⑤ U1(=27370-A115)

⑥ A201 ⋯ Install the A201 slowly from the bottom. (Be careful of the external ports.)

⑦ A150 ··· Set the mode lever and the AF-SW of the camera body to "MF".

⑧ CNL-D1.7x3.0

⑨ TY-CNL-D1.7x5.5 ··· Attach a rubber grip.

⑩ A172(Two TY 1.7x4.5 screws)

⑪ Connect the T920 flexible PCB to the connector. (Plug type)

15> A301 (Top parts)

* The armature of the main SW must not be deformed.

* Apply the G151 onto the main SW land.
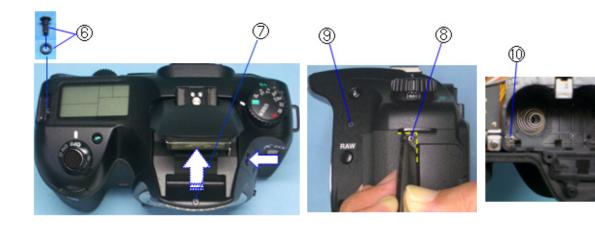
① A27(sheet) ⋯ no cave-ins or cracks

② A301

Ⅶ. SERVICE INFORMATION

③ Solder on the five lead wires ↓

④ Connect the T51 flexible PCB to the connector. (Slide lock)
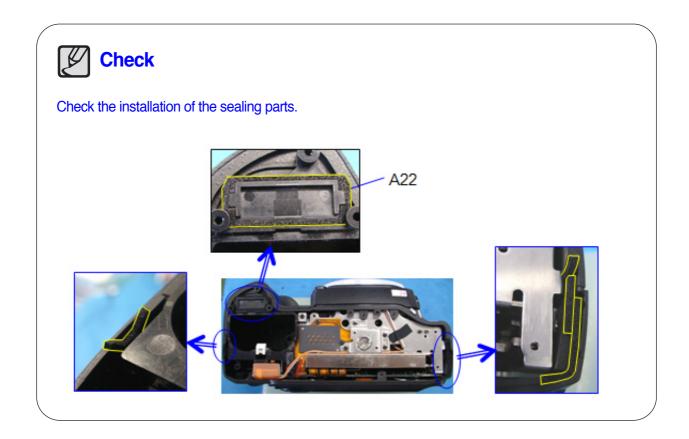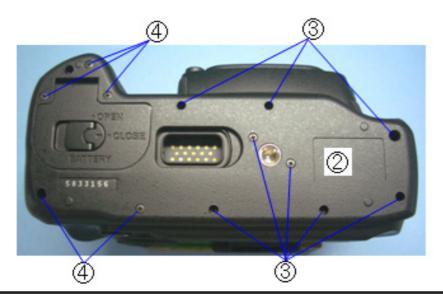
⑤ A173 (Two TY 1.7x6.0 screws)

⑥ A171 (TY 1.7x4.0 screw) · A304 (O-ring)

⑦ A171 ··· Pop up the strobe.

⑧ TY-CNL-D1.7x7.0 ··· Attach a rubber.

⑨ A173

⑩ TY-CNL-D1.7x8.0 Ni (inside the battery room)

16> A401 (Bottom parts)

> ✏ **Check**
>
> Check the installation of the sealing parts.
>
>
>
> A22

① A401・Battery cover

② A174 (Eight 1.7x4.0 screws)

③ A172 (Five TY 1.7x4.5 screws)