

**PENTAX™**

# Service Manual

ENGLISH

**PENTAX *K10D***



Product No. 76830

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## **PREPARATION**

The following preparations are required before disassembling and assembling the camera.

1. Prepare the Jigs, tools and testers. (Refer to the Table of Jigs, tools and testers.)
2. Make the preparation with referring next section of “Preparation of adjustment”.

### **Preparation of Adjustments**

#### **[Required equipment]**

Programmed software for 76830 (Supply with CD-ROM)

Computer (PC)

SD card 3 pieces (16MB or above)

SD card reader or USB cable (I-USB17) ... For connecting with PC

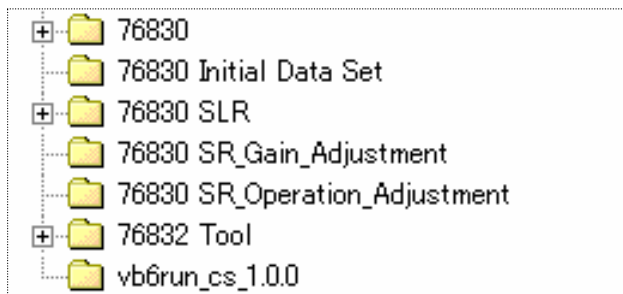
### **1. Prepare SD card (3 pcs) for confirming adjustment**

Prepare SD card (3pcs).

- (1) For product FW (Firmware) of K10D
- (2) For updating FW for customer
- (3) For writing initialize data

### **2. Setting for computer and prepare the SD card**

\*Set the Programmed software for 76830 in the CD-ROM drive.



- (1) Copy the five holder from the Programmed software contained in the CD-ROM to [C: drive] as shown in below.

[76830]: For Digital adjustment

[76830 Initial Data Set]: For writhing initial data

[76830 SLR]: For SLR function adjustment

[76830 SR Gain Adjustment]: For SR gain adjustment

[76830 SR Operation Adjustment]: For SR unit adjustment

- (2) Copy the file [GM\_FW] to the SD card from [76830] holder. (For product FW)  
\*Use the latest version of firmware. (The file name is “kb421b.bin”.)
- (3) Copy the file [DL\_FW] to the SD card from [76830] holder. (For updating FW)  
\*Use the latest version of firmware. (The file name is “fwdc162b.bin”.)
- (4) Copy two files in the [Initial Data Set] folder to SD card (For writing initial data)
- (5) Complete the setting of [Set up the VB run time] (carry out by K100D or \*istDL2)  
\*Refer to the K100D service manual for details.
- (6) Execute [3. Calibration of light source for Digital adjustment]

### **3. Calibration of light source for Digital adjustment**

Execute Calibration of light source before Digital adjustment.

When replace the light source or master lens for 76180 (D20 or D20-01), this calibration is necessary.

#### **[Required equipment]**

K10D Master body for calibration

(PENTAX Corporation will lend the master body. Please contact with us)

Adjusting software for 76830

Computer (Windows 2000 or Xp, support USB)

Light source (Example: LV3300, A light source)

Master lens for 76180 (D20 or D20-01)

\*Use the same master lens as the ID number printed on CD-ROM to adjust it accurately.

#### **3-1. Setting for computer**

Complete the [2. Setting for computer and prepare the SD card] of [PREPARTAION].

(Use Digital adjustment software)

#### **3-2. Calibration of light source**

(1) Before calibration, turn ON the light source and leave 30 minutes for stabilizing light source.

(2) Calibrate Color temperature and Brightness by using color meter and LV checker as shown below table.

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

\*Calibrate with using the master body according to the following procedure.

#### **3-3. Setting for Master body and Master lens**

(1) Set the mode dial to [M].

(2) Set the focus mode lever to [MF].

(3) Set the SR lever to [OFF]

(4) Attach the master lens and F8 set ring to the body.

(5) Set the aperture to [F8 position].

#### **3-4. Procedure for calibration**

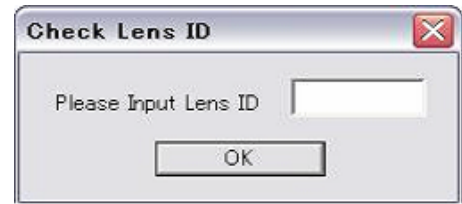
(1) Connect the AC adaptor to the master body.

(2) Connect to PC with USB cable.

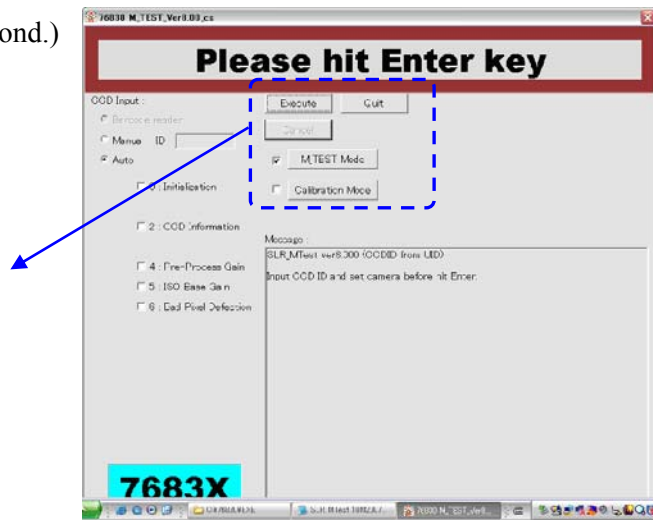
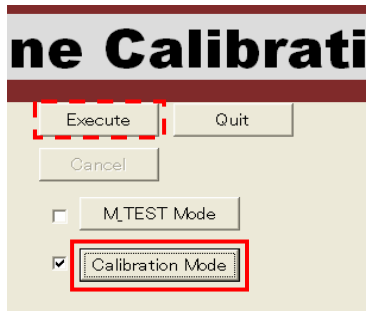
(3) Turn ON the power and confirm that the camera is recognized by PC.

(4) Set the light source to [LV12].

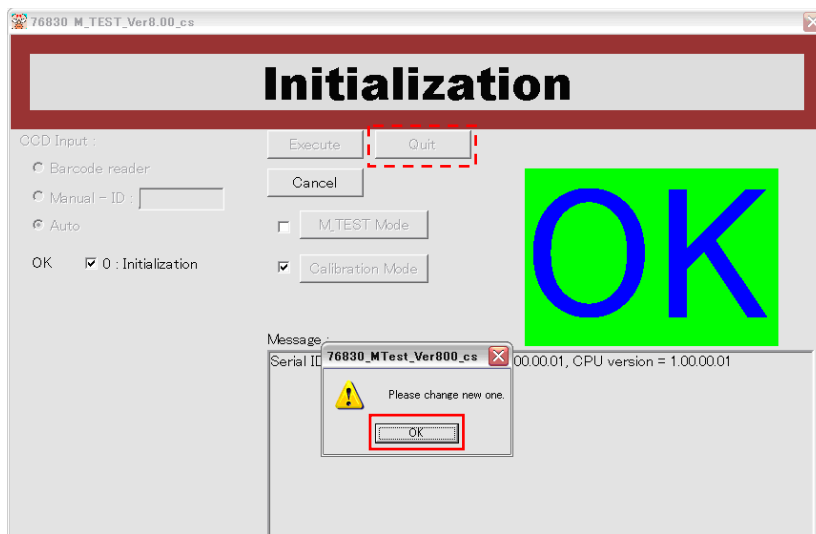
- (5) Surely set the camera and lens toward center of light window and cover the whole camera and light window by using a dark curtain.
- (6) Start the adjusting software [76830 MTest.exe] in [EXE] holder.
- (7) Input the lens ID number correctly then press [OK] button.



- (8) When start the adjusting software, following screen will be displayed.
- (9) Click [Calibration Mode].
- (10) Press [Execute] button on screen to execute.  
(Release 30 times and it takes approx.30 second.)



- (11) When calibration is completed, following screen will be displayed.
- (12) Press [OK] button and press [Quit] button to finish the adjusting software.



- (13) Double click hot plug icon of the taskbar at the lower right of a desktop and then follow “Safe removal of hardware”. Turn OFF the camera and disconnect the camera.

## Outline of Assembly and Disassembly

### 1. Caution

(1) Be sure to use the anti-static mat and wrist strap to prevent static failure of circuits.

(2) This product is used lead free solder.

Surface of solder will be white-tinged color. Solder quickly, because melting temperature is high and so if heat to much, it is possible to damage to PC board.

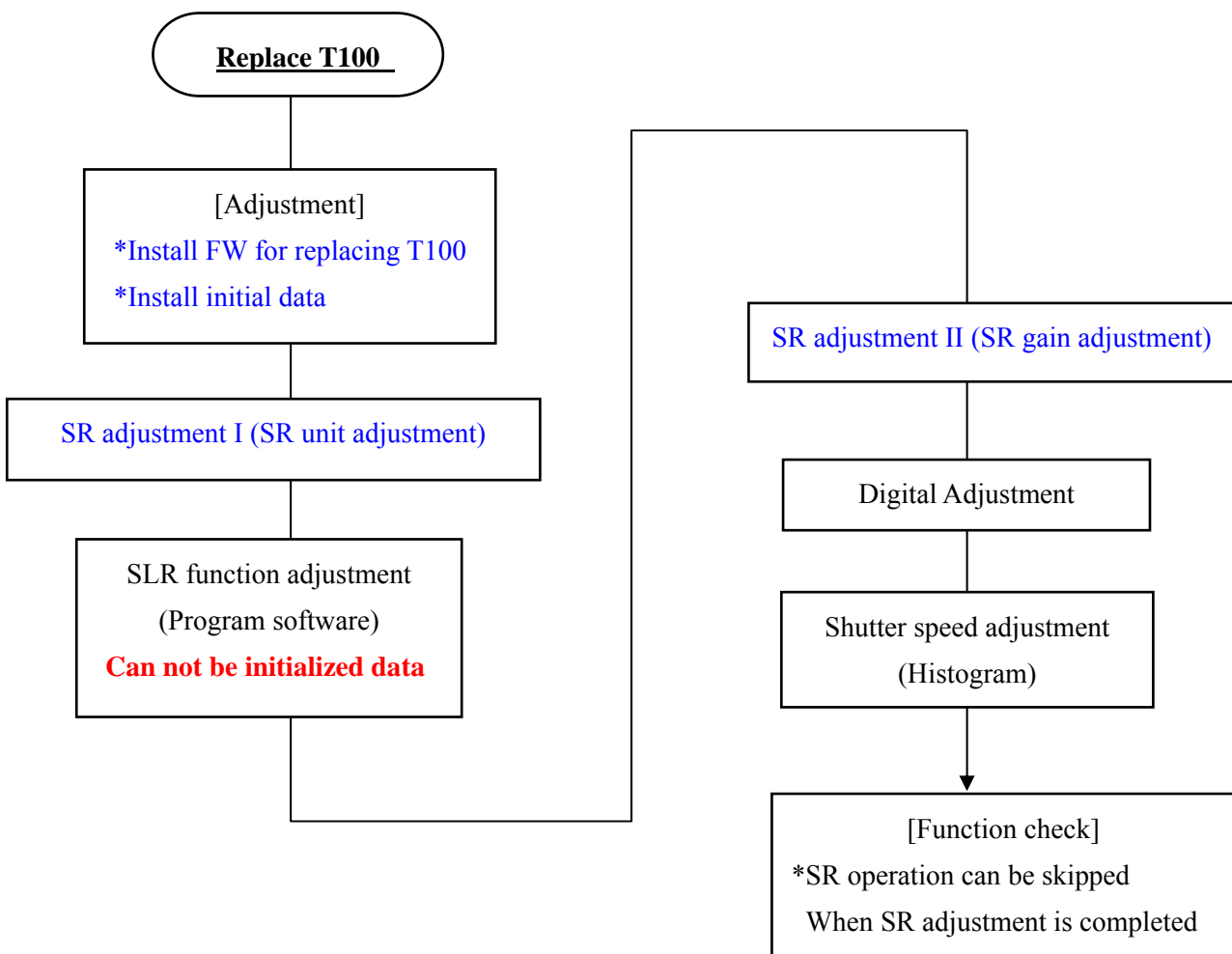
Soldering iron requirement: The temperature can be adjusted up to 400° and exclusive use for lead free solder. Also it is desirable to use antistatic soldering iron.

The temperature for tip of soldering iron must set between 340° ~ 360° for lead free solder.

(3) Do not stress to the connector terminals and flexible boards because they are very delicate parts. Pay careful attention to the connector terminals and flexible boards and, we recommend marking to the flexible board before disconnecting them. This will be helpful to reconnect the flexible board to the connector terminal properly.

### 2. Adjustment Flow when replace T100

Following flow chart is method for adjustment when replacing T100.



### 3. Flowchart for Assemble, Adjustment and Confirmation

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## DISASSEMBLY AND ASSEMBLY PROCEDURES

### 1. Disassembly procedure of main body

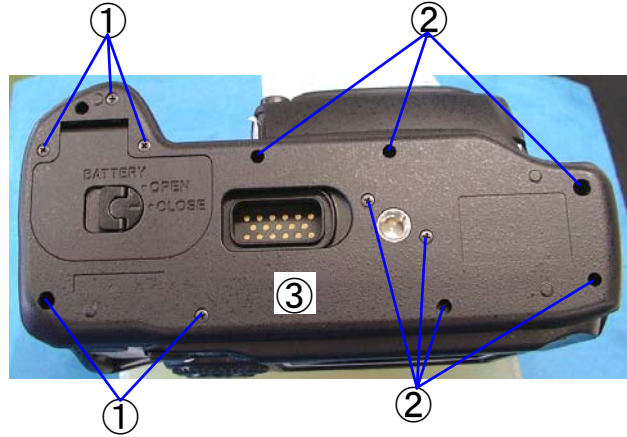
[Preparation] Remove the Hot shoe cover, Eye cap and Battery from the main body.

#### 1. A401 (Bottom cover)

[Caution]

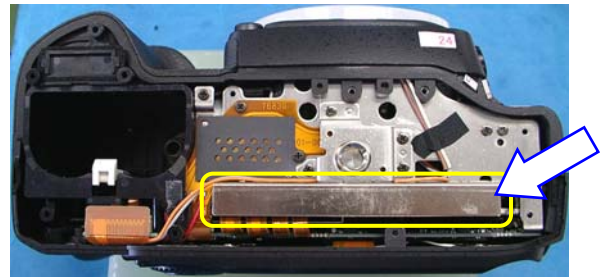
There is strong magnet in the CCD/SR blocks therefore please do not place a screw or magnetic card near the camera after the outside cover is removed.

- ① Screw (x5)
- ② Screw (x7)
- ③ Remove A401, battery cover.



[Caution]

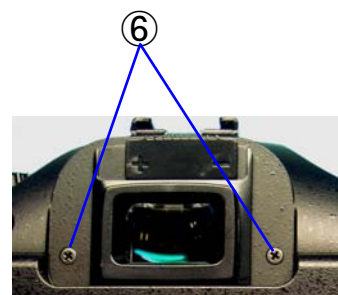
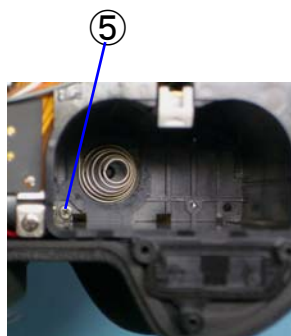
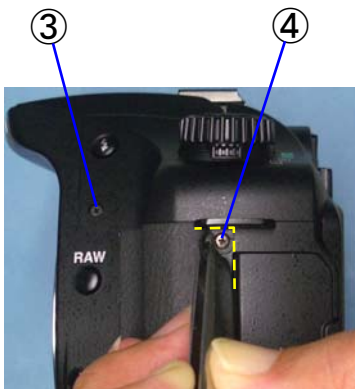
There is SR/CCD block at bottom side of the camera as shown with arrow, therefore please pay attention the handling of the camera.



#### 2. A301 (Top cover)

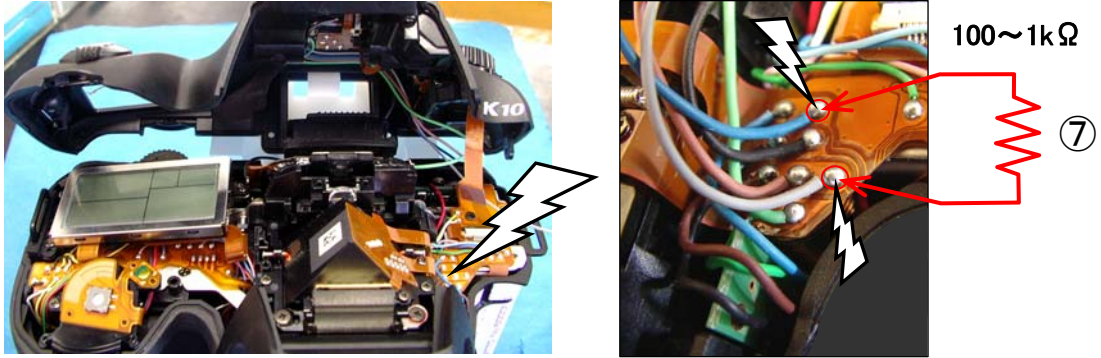
- ① Screw, O ring
- ② Screw ... Pop-up the flash
- ③ Screw
- ④ Screw... Peel off the grip rubber
- ⑤ Screw...(Inside of battery chamber)
- ⑥ Screw (x2)

[Caution] Be careful the electric shock where flash circuit board is inside the cover.



⑦ Discharge the main capacitor

Lift up the A301 then discharge the main capacitor by using 100Ω-1kΩ resistor.  
(Discharge between Blue and Brown (gray) soldering land on T750.)

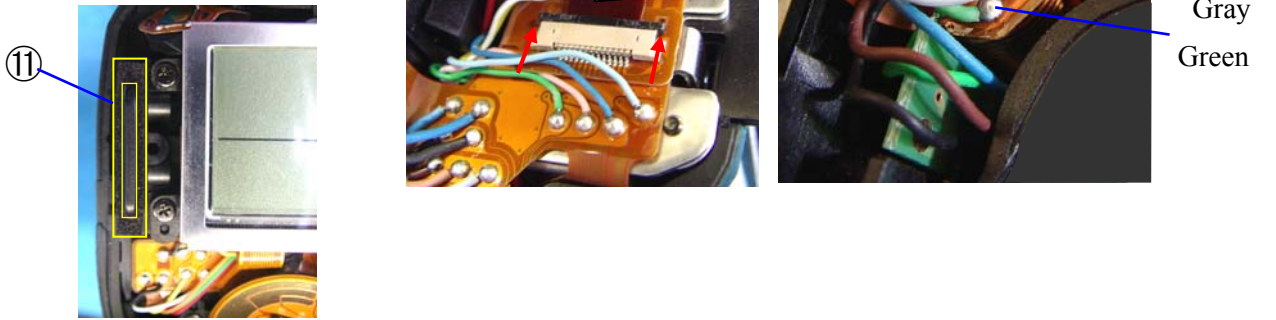


⑧ Disconnect T51 flex board from connector. (Slide lock)

⑨ Unsolder lead 5 wires.

⑩ A301

⑪ A27 (Water proof sheet)



**3. A150 and A201 (Front cover • Back cover)**

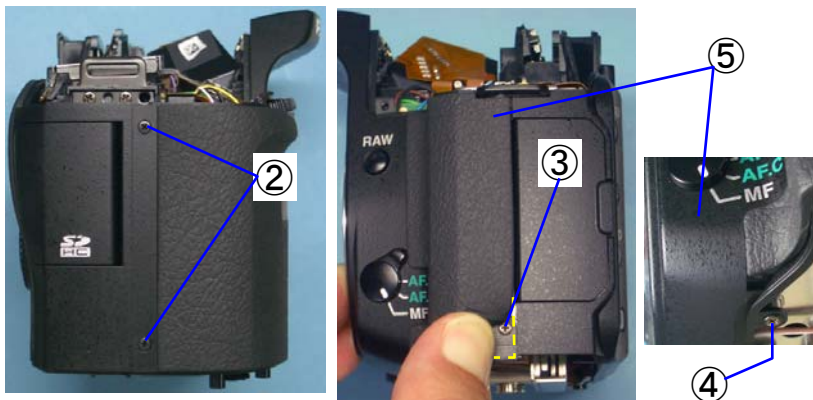
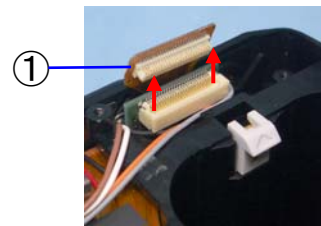
① Disconnect T920 flex board from connector. (Plug-in connector)

② Screw (x2)

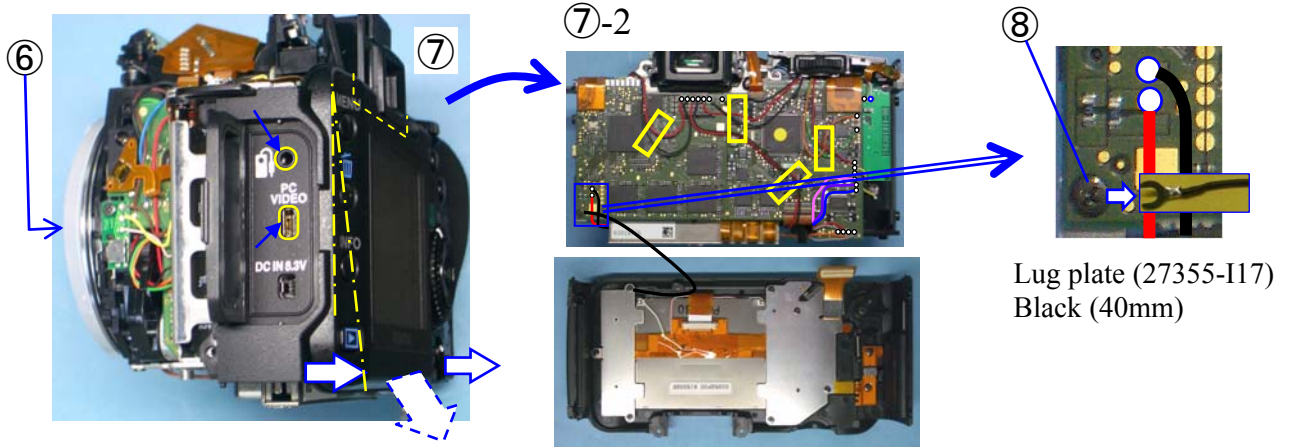
③ Screw ... Peel off the grip rubber.

④ Screw

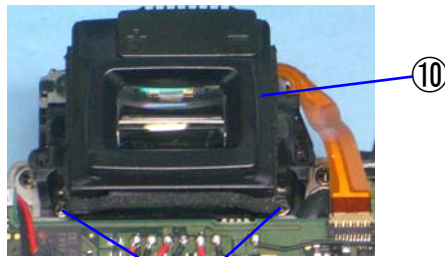
⑤ A150



- ⑥ Put mount cover on the body to protect SI-LED and TV dial part.
- ⑦ Start from terminal side and then lift up the bottom side
- ⑧ Loosen the screw then remove a rug plate.

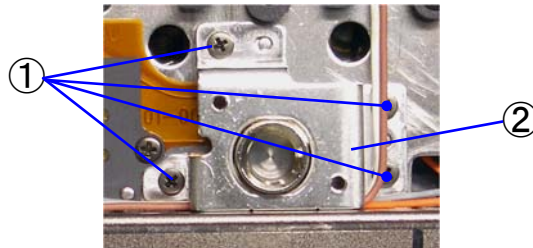


- ⑨ Screw (x2)
- ⑩ M311



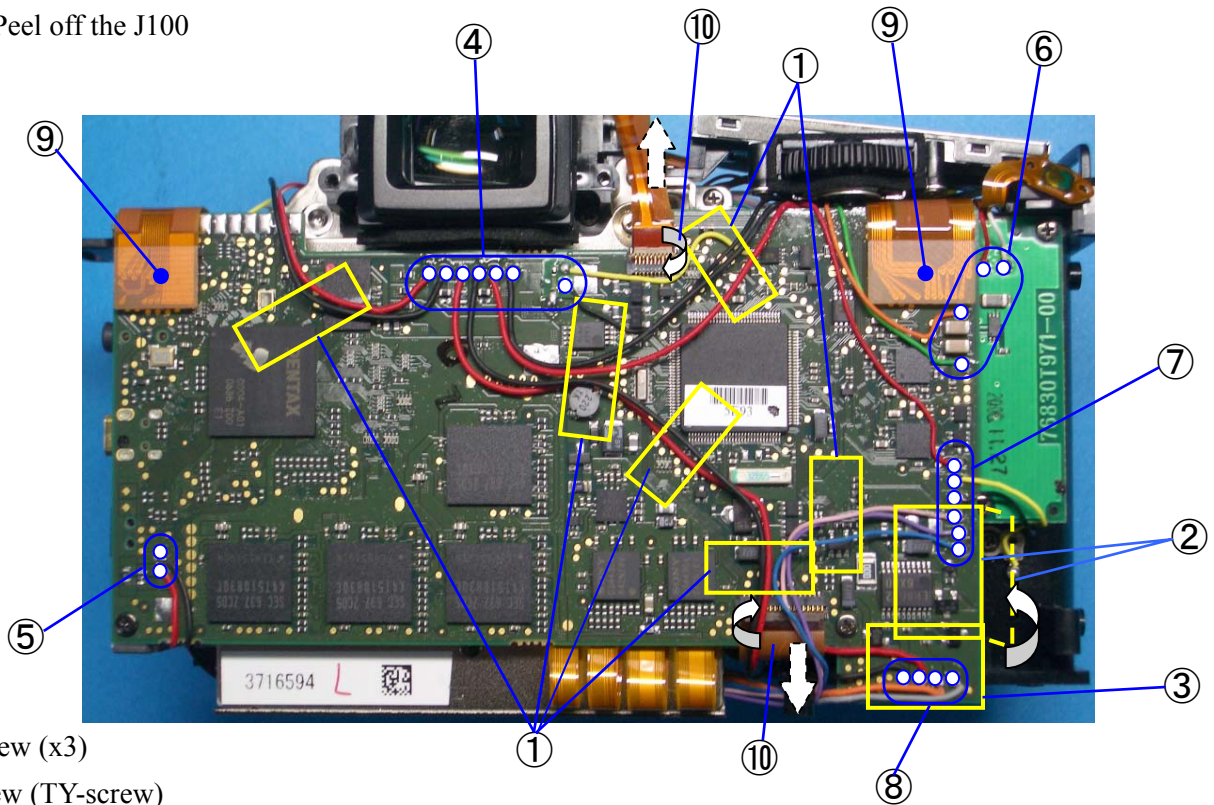
**4. 0-A51(Tripod plate)**

- ① Screw (x4)
- ② 0-A51



**5. 0-T100 (Main PC board)**

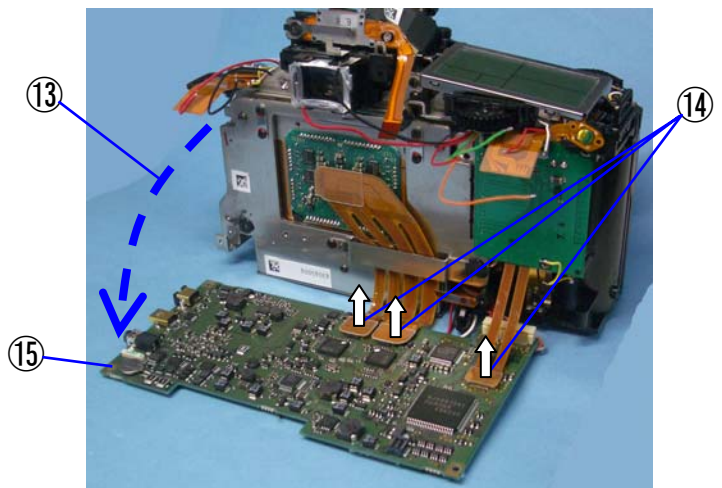
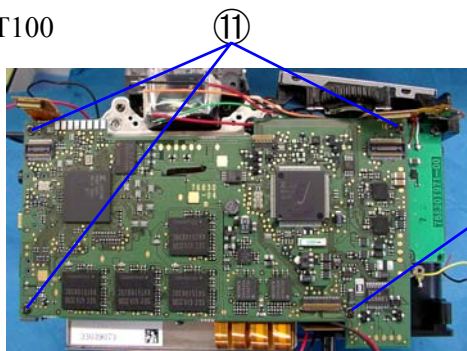
- ① Peel off the BT (5x15)... (x6)
- ② Peel off T90
- ③ Peel off U5 (76030- A35)
- ④ Unsolder 7 lead wires
- ⑤ Unsolder 2 lead wires
- ⑥ Unsolder 4 lead wires
- ⑦ Unsolder 6 lead wires
- ⑧ Unsolder 4 lead wires
- ⑨ Disconnect flex from connector (2 points Plug-in connector)
- ⑩ Disconnect flex from connector (2 points Flip lock connector)
- ...Peel off the J100



- ⑪ Screw (x3)
- ⑫ Screw (TY-screw)
- ⑬ Put 0-T100 down as shown in figure bellow.

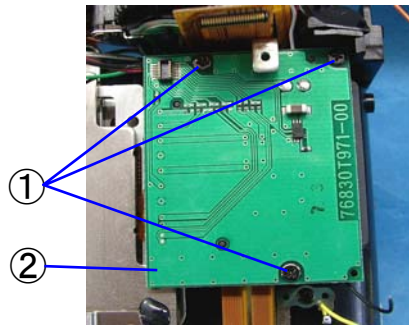
**[Caution]**The flex from SR/CCD should be take care carefully, otherwise it will effect the performance of SR function.

- ⑭ Disconnect flex from connector (3 points Plug-in connector)
- ⑮ T100



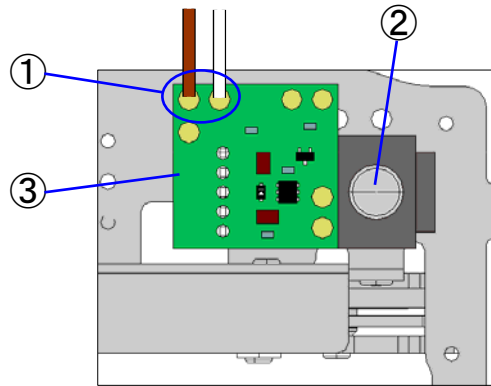
**6. 0-T970 (SD circuit block)**

- ① Screw (x3)
- ② 0-T970



**7. 0-T770 (PZ Circuit block)**

- ① Unsolder lead wire x2 (Brown and White)
- ② Remove shoulder screw
- ③ 0-T770



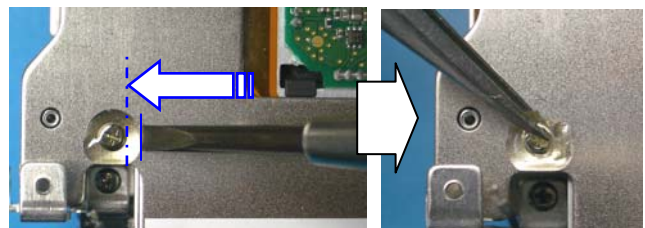
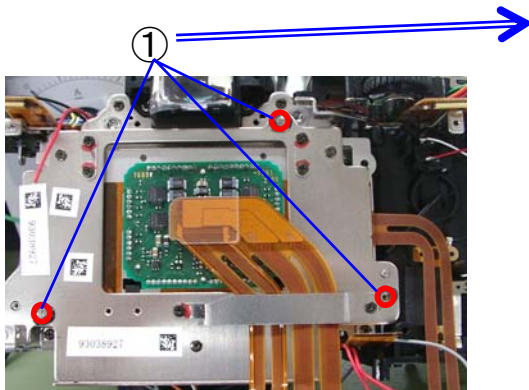
**8. 0-C000 (SR/CCD block)**

[Caution 1] Pay attention, there is powerful magnet is carried in the inside of a CCD/SR block.

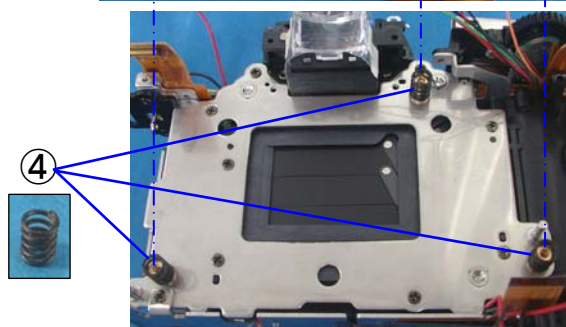
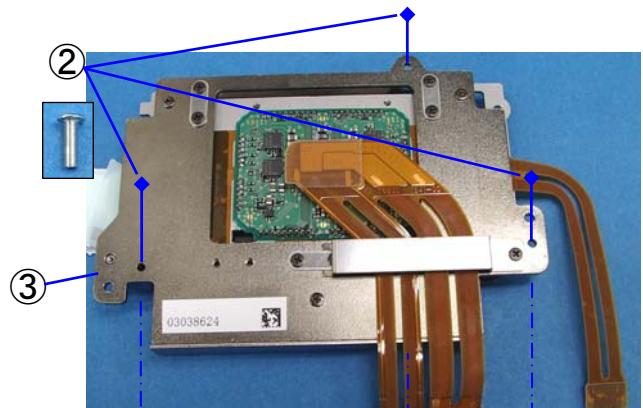
[Caution 2] Since a performance is spoiled, a CCD/SR block cannot be disassembled and also don't apply the external pressure to a movable part

[Caution 3] The flex from SR/CCD should be take care carefully, otherwise it will effect the performance of SR function.

- ① Remove the glue with using tools. (3 position)

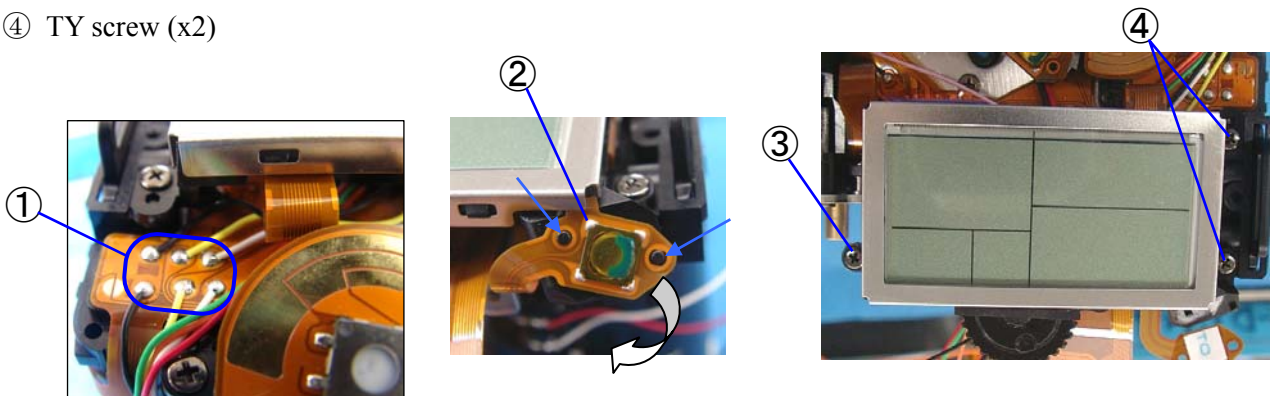


- ② A31 Adjusting screws x3
- ③ 0-C000 --- Do not scratch on surface of CCD.
- ④ A32 Coil spring x3

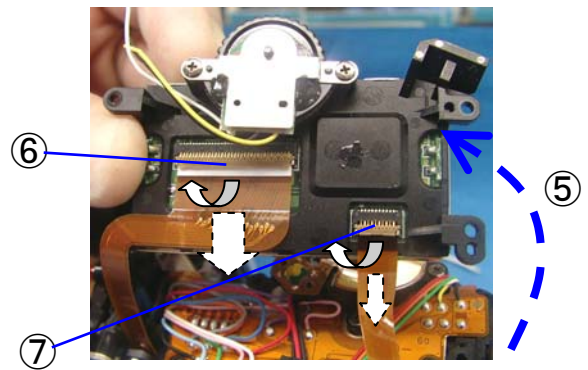


### **9. O201 (LCD block)**

- ① Unsolder 6 lead wires.
- ② Peel off [AE-L] SW from double stick tape.
- ③ Screw
- ④ TY screw (x2)

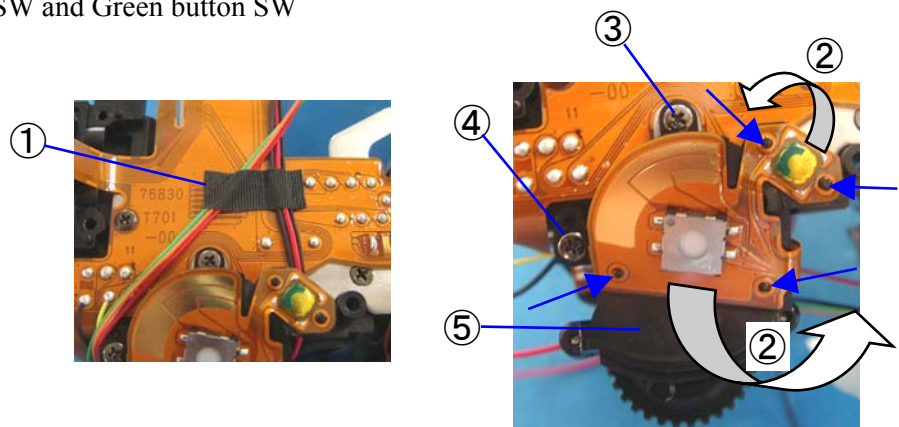


- ⑤ Lift up LCD block as shown figure below.
- ⑥ Disconnect O100 flex from connector. (Flip lock type)
- ⑦ Disconnect T700 flex from connector. (Flip lock type)



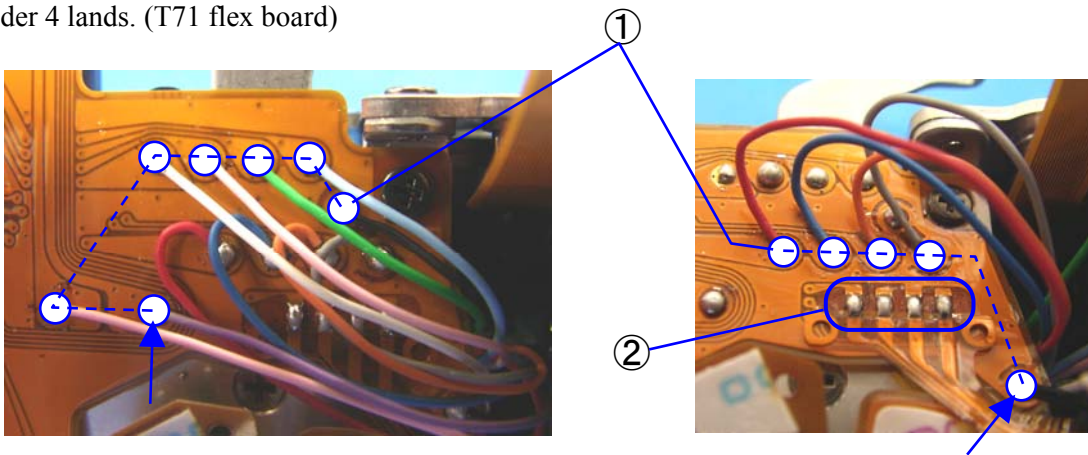
### **10. A350 (Main SW retainer plate)**

- ① Peel off BT(6x15)
- ② Peel off the flex on release SW and Green button SW
- ③ Screw
- ④ TY screw
- ⑤ A350

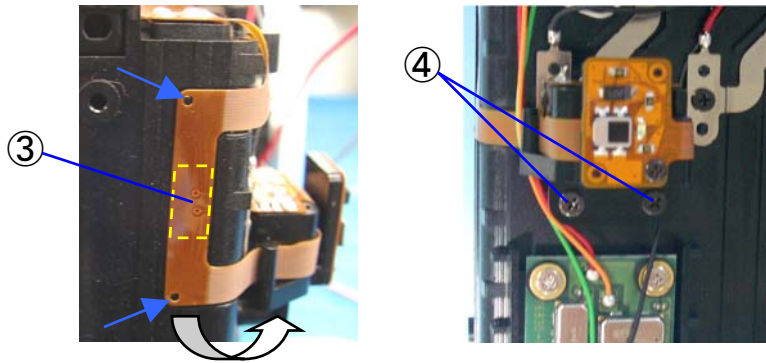


**11. 0-T700 (Upper right side flex board)**

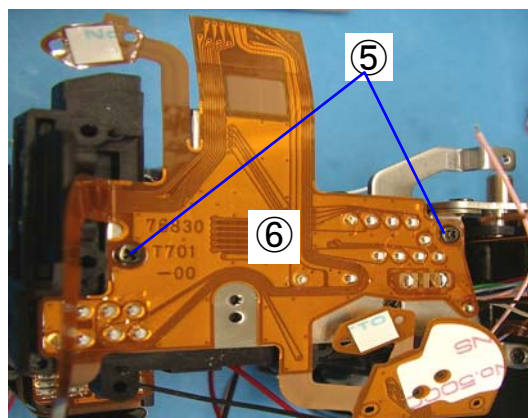
- ① Unsolder 12 lead wires.
- ② Unsolder 4 lands. (T71 flex board)



- ③ Peel off flex board
- ④ TY screw (x2)

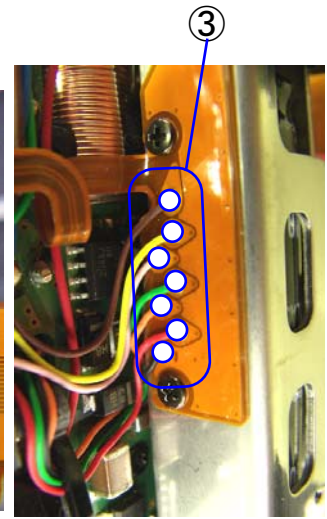
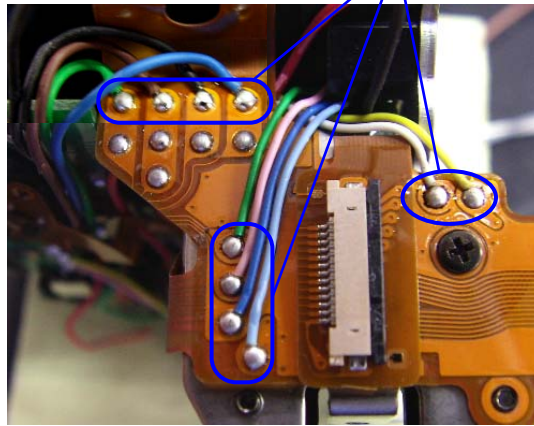
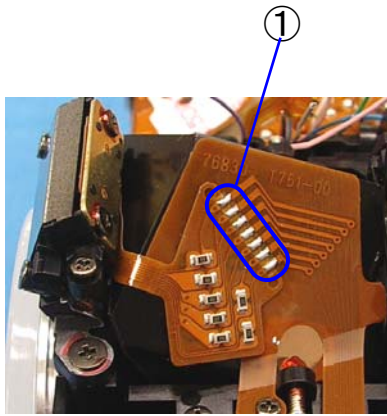


- ⑤ Screw (x2)
- ⑥ T700

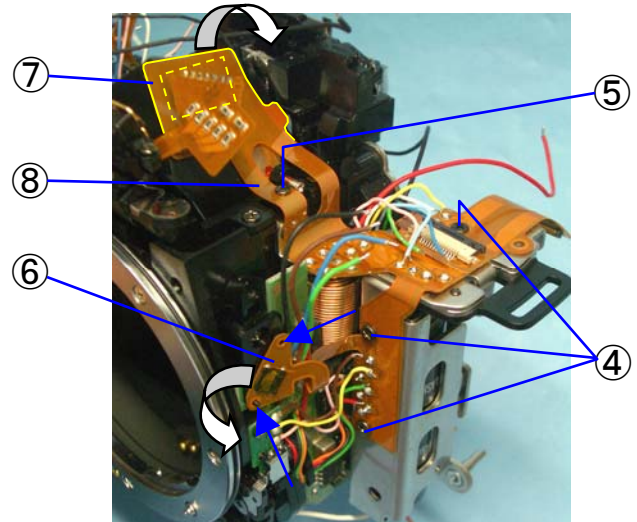


**12. 0-T750 (Upper left side flex board)**

- ① Unsolder 7 lands. (O170 flex)
- ② Unsolder 10 lead wires.
- ③ Unsolder 7 lead wires.

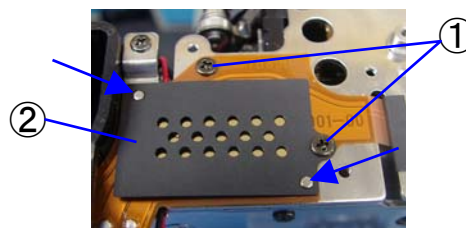


- ④ Screw (x3)
- ⑤ TY screw
- ⑥ Peel off the flex of RAW SW
- ⑦ Peel off the flex of Pentaprism
- ⑧ T750

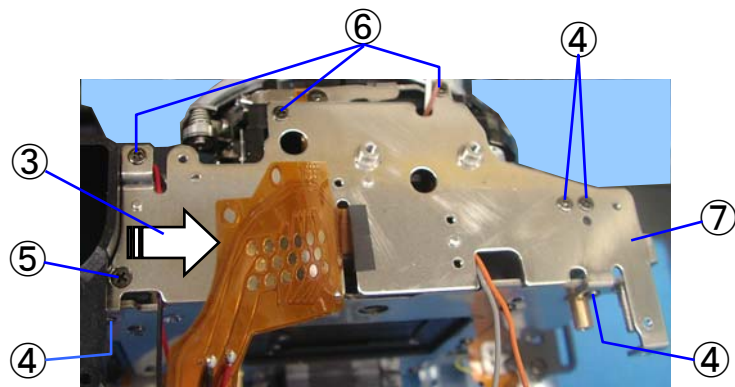


**13. 0-A3 (Bottom Plate)**

- ① Screw x2
- ② A423 (Mask)



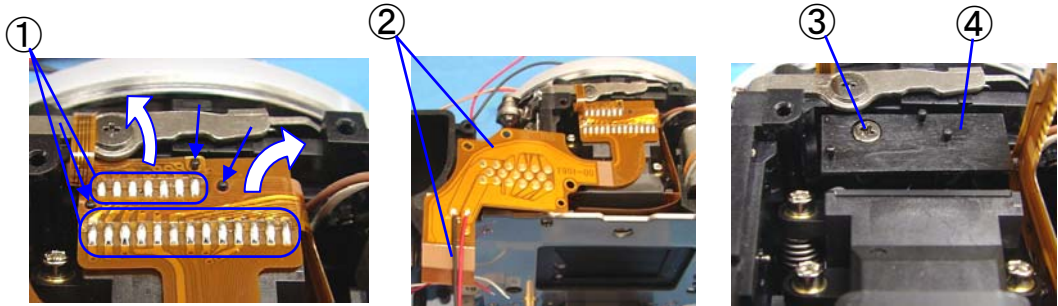
- ③ T901 --- lift up flex.
- ④ TY-CNL-D1.7x2.5 (x2)  
TY-CNL-E1.7x2.2 Ni(x2)
- ⑤ TY-CSM
- ⑥ TY-CNL-D1.7x4.0 (x3)
- ⑦ A3





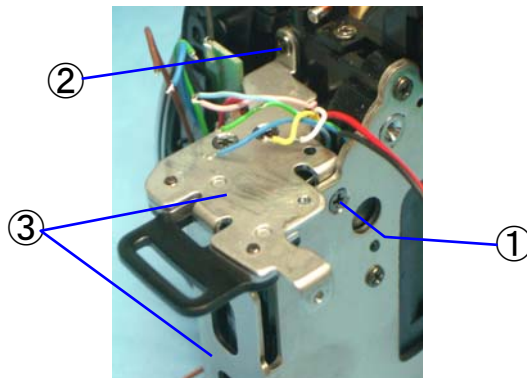
### **14. T901 (Lowe flex board)**

- ① Unsolder T301/M100 flex land (20 lands)
- ② Unsolder two read wires / T901
- ③ Screw
- ④ A141



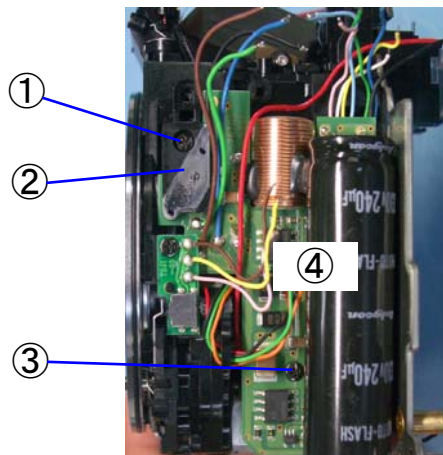
### **15. A5 (Right shoulder plate)**

- ① CSM screw
- ② TY screw
- ③ A5 and related parts.



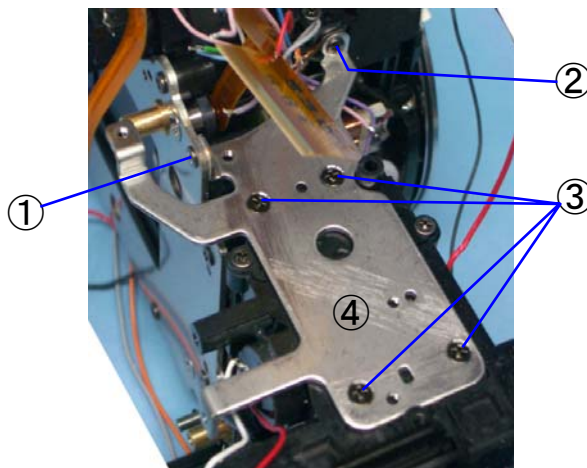
### **16. 0-Q200 (Flash PC board)**

- ① TY screw
- ② A117
- ③ TY screw
- ④ 0-Q200



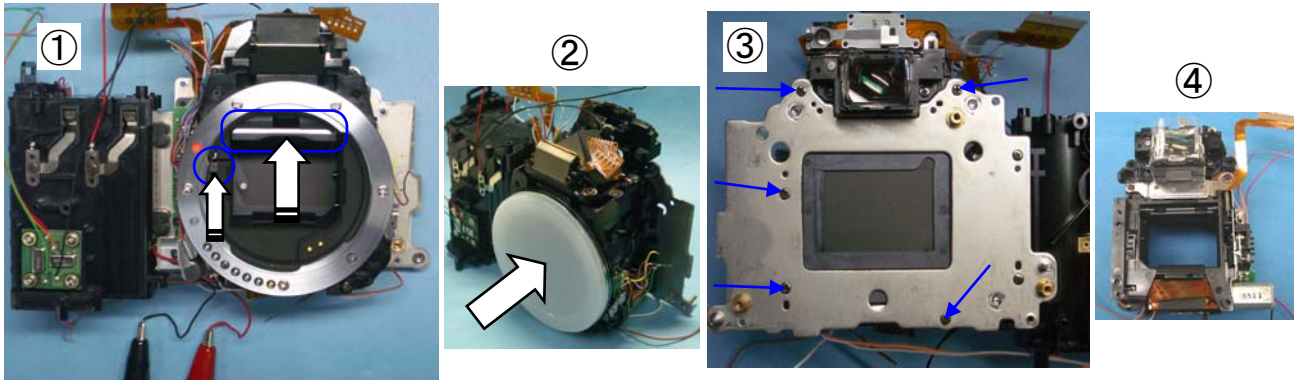
### **17. A6 (Left shoulder plate)**

- ① CNL-D
- ② TY-CNL-D
- ③ TY-CSM x4
- ④ A6



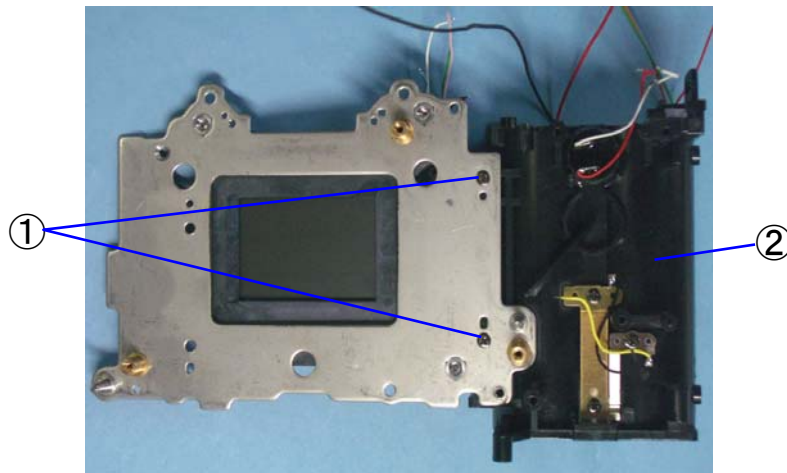
### **18. 0-A101 (Front housing block)**

- ① Supply DC2V to 0-S250 (Mirror motor).  
(Positive (+) on Red wire) Set the front housing block to mirror up position.
- ② Put mount cover on the body to protect SI-LED part.
- ③ Screws x5
- ④ 0-A101



### **19. A13 (Battery chamber) and related parts**

- ① Screw x2
- ② A13 and related parts.



### **20. 0-E000 (Shutter block)**

- ① A70 shoulder screw x3
- ② 0-E000
- ③ Main plate

**2. Assembly and Disassembly procedure of front housing block**

\*Disassemble the front housing block in reverse order of assembly procedures.

**1. Front housing block**

B41, M120, (DT(4x15)),

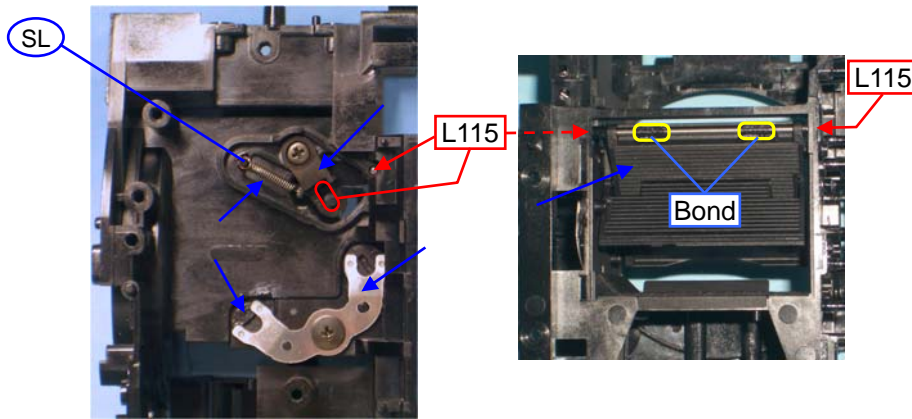
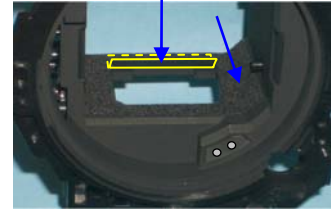
B58 x2, B59, TY-CNL-G 1.7x2.0,

0-B52 (mirror sheet),

B66 (shaft) ----A screw lock (SL) and L115 are applied.

B63, B57

B62 (spring) ---- Apply screw lock.

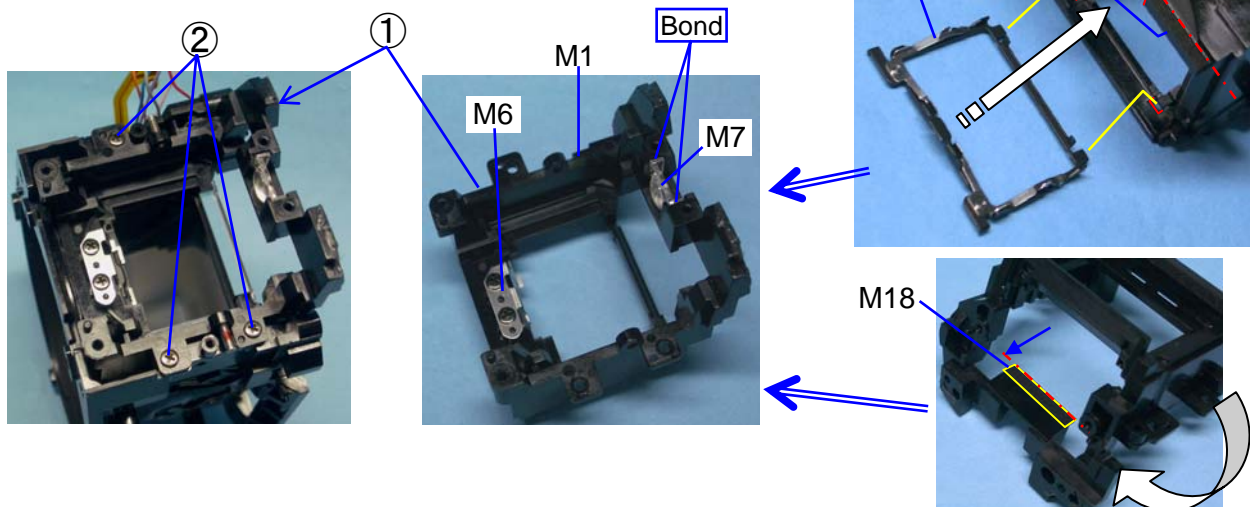


**2. M1**

\*B65, 0-M4, M6, M7 and M18 are installed on M1.

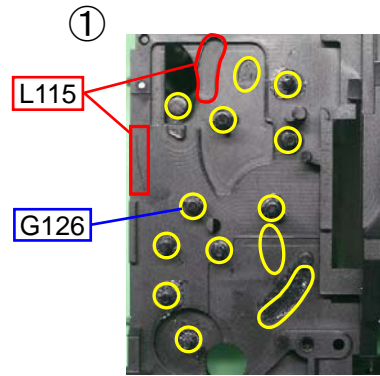
① M1

② TY-CNL1.7x4.0 x3



### 3. 0-G100

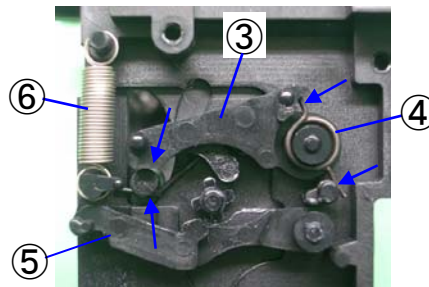
- ① Apply G126 at 13 positions and apply L115 at 2 positions.
- ② Install B20 to B11.



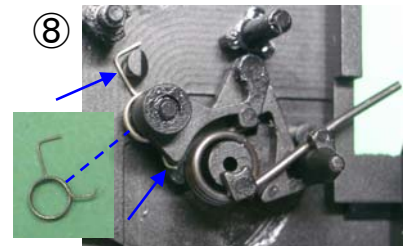
- ③ B11 ---Hook the spring to shaft of mirror sheet.

**[Caution]** Caution for come off spring.

- ④ B19
- ⑤ B10
- ⑥ B21



- ⑦ Install B17 to B9.
- ⑧ Install B18 to B9.



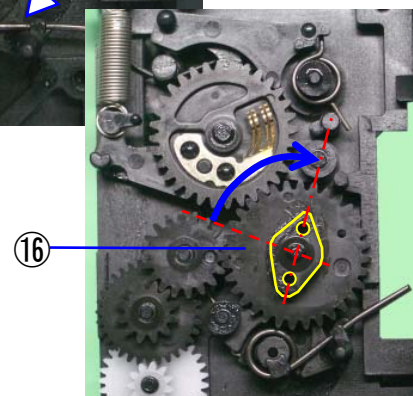
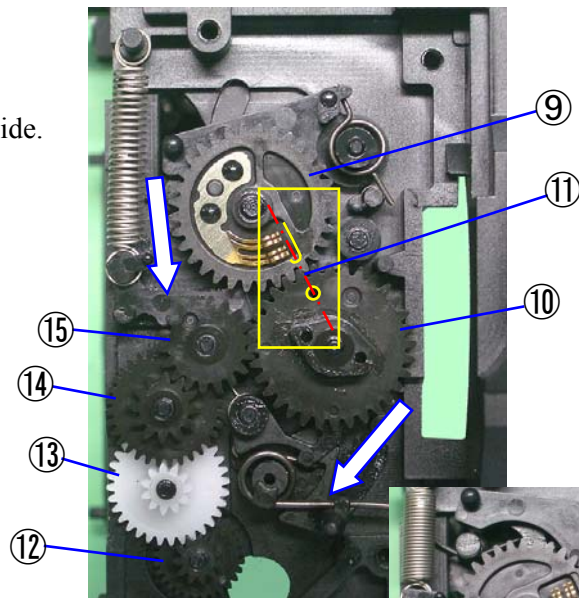
- ⑨ 0-B8

---Apply G126 to surface of cam.

- ⑩ B7

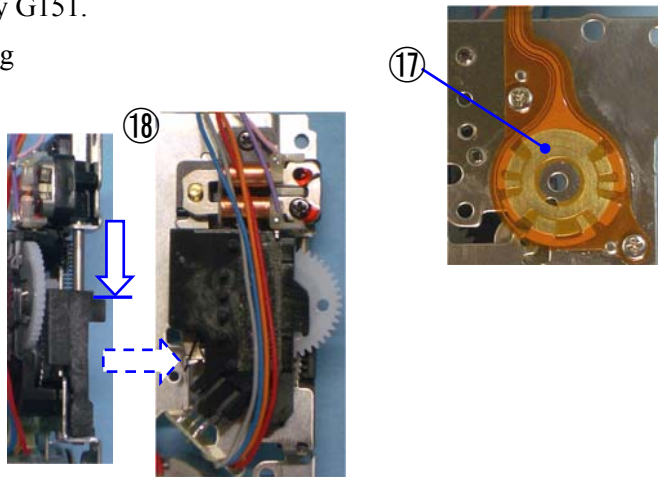
---Apply G126 to surface of cam on both side.

- ⑪ Align the both hole of 0-B8 and B7.
- ⑫ B3
- ⑬ B4
- ⑭ B5
- ⑮ B6



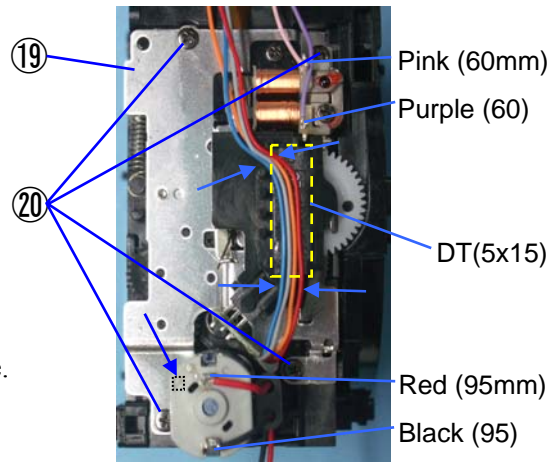
- ⑯ Turn B7 clockwise until the arrow indicated in figure right.

- ⑰ Clean code plate by solvent and apply G151.
- ⑱ Latch the lever of G100 while pushing down the sliding plate.



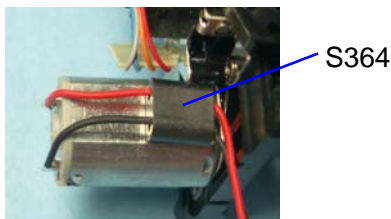
- ⑲ 0-G100  
---Surely install G100 without any gap between plate.

- ⑳ TY-CNL-D1.7x3.0 (x4)



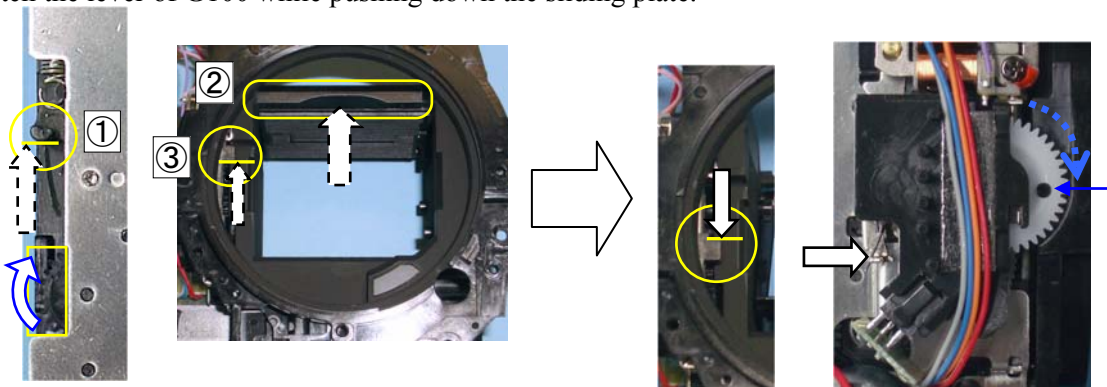
**[Arrangement when replace G100]**

1. Arrange the lead wires with DT (5x15) as shown in figure.
2. Solder 4 lead wires.(Pink, Purple, Red, Black)
3. Affix A364 on the mirror motor by DT (3x6).



**[Notice for Disassembly]** Set the mirror seat at top position before removing 0-G100.

- 1.As shown in a figure, a gear is turned, and it sets to a mirror up position.  
Mirror up: (Shutter charge lever(1) and mirror seat(2) and sliding plate(3) must be top end position. )
2. Latch the lever of G100 while pushing down the sliding plate.



#### **4. [CONFIRMATION] Checking the mirror function**

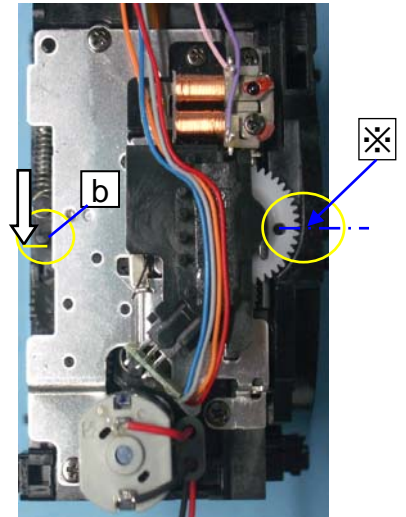
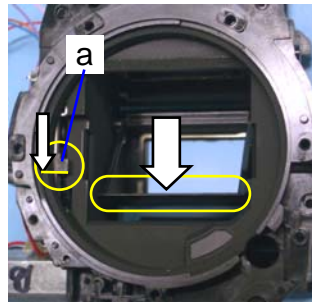
**[Required equipment]** Power supply

- ① Confirm the following points while applying DC2V to the mirror motor. (Red wire: Positive)
  - 1) The mirror seat must be moved smoothly without noise.
  - 2) The shutter charge lever(b) and sliding plate(a) must be moved smoothly and surely go up and down.

- ② Set the mirror seat to the down position while applying DC1.5V.  
 (Fine adjustment is possible when turn white gear at behind of G100)  
 Mirror down: mirror, sliding lever, shutter charge lever at down position.  
 White gear must be positioned as shown in figure.---- (⊗)

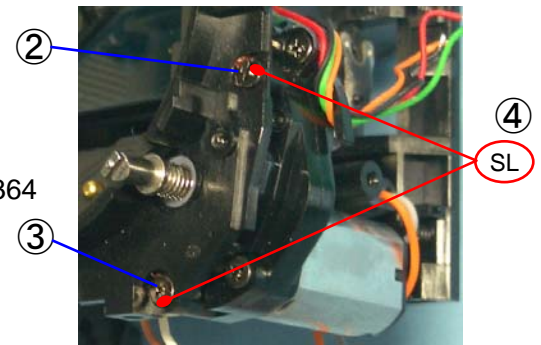
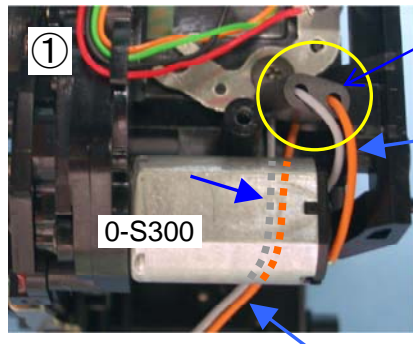
- ③ Both mirror seats 1<sup>st</sup> and 2<sup>nd</sup> must be returned smoothly to the original position when both mirror seats are passed inward about 3mm by finger pressure.

- ④ Set the mirror seat to the down position.

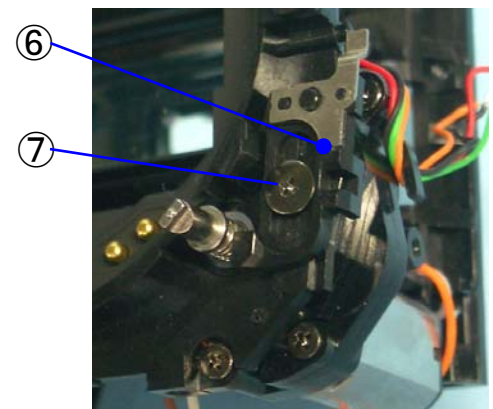
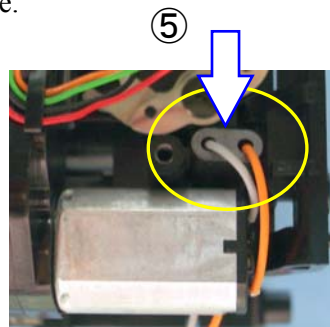


#### **5. 0-S300**

- ① Arrange the lead wires from motor and S364 as shown in figure and then attach 0-S300.
- ② TY-CNL-D1.7x3.5
- ③ TY-CNL-D1.7x5.5
- ④ Apply screw lock.

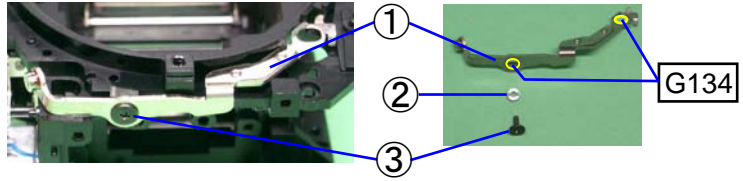


- ⑤ Install S364 as shown in figure.
- ⑥ 0-A115
- ⑦ TY-CNL-G1.7x2.5



**6. A104**

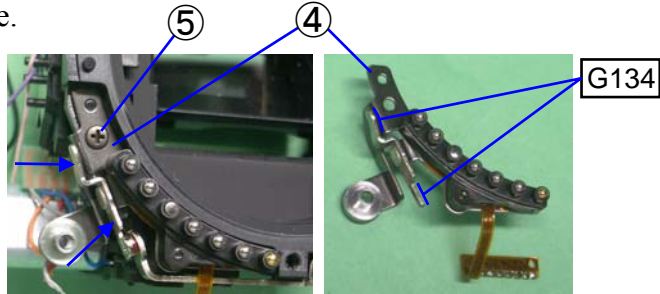
- ① 0-A121
- ② A133
- ③ TY-CNL-F1.4x4.0



- ④ 0-A126 and related parts.

Apply G134 as shown in figure.

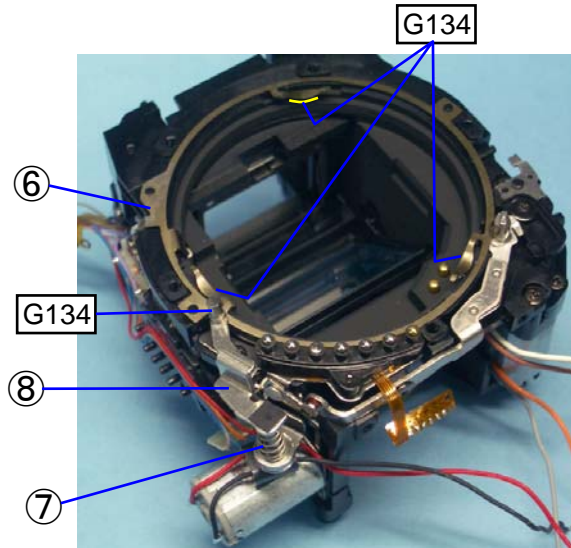
- ⑤ TY-CNL-D1.7x3.0



- ⑥ A105 -- Apply G134 as shown in figure.

- ⑦ A110

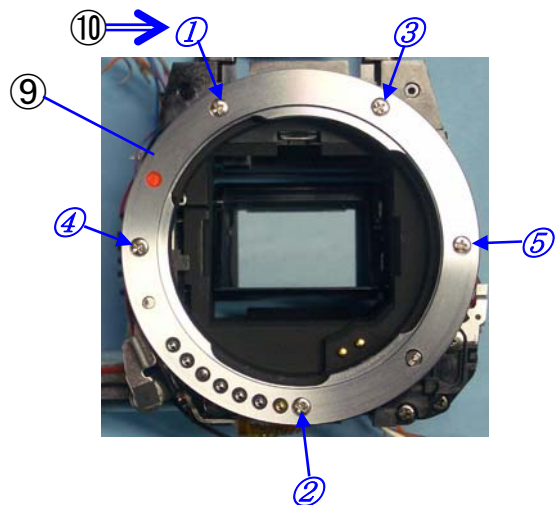
- ⑧ 0-A108 -- Apply G134 to two shaft part.



- ⑨ A104

- ⑩ TY-CNS 2.0x4.5 (Ni-screw x5)

\*Tighten screw diagonally as shown in figure.



## 7. [ADJUST] POSITIONING 1ST AND 2ND MIRROR

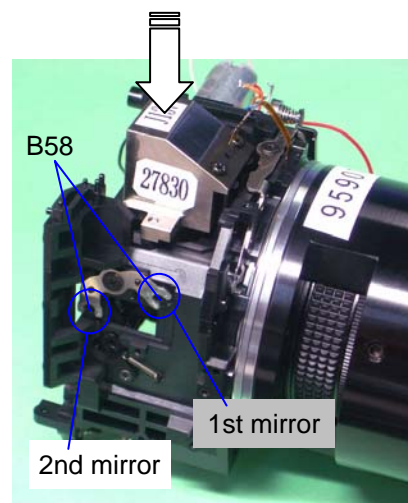
**[Required equipment]** 1<sup>st</sup> mirror angle (45°) adjusting jig, Mirror angle adjusting jig for 27830 (need modify), Mirror positioning scope.

\*Adjustment is performed by turning B58 (2 pcs). The Y-axis (the vertical direction) is adjusted to a 0 target.

\*Front housing must set mirror down position.

- ① Positioning 1<sup>st</sup> mirror : Put the 1<sup>st</sup> mirror angle (45°) adjusting jig on the camera, and then adjust the mirror seat so that the adjusting jig touches the mirror without gap.

Tolerance ---- X-axis :  $\pm 15'$   
Y-axis :  $\pm 10'$



- ② Positioning 2<sup>nd</sup> mirror : Attach the mirror positioning scope and the 2<sup>nd</sup> mirror angle adjusting jig to the camera, and then adjust the mirror angle while looking through the eyepiece lens.

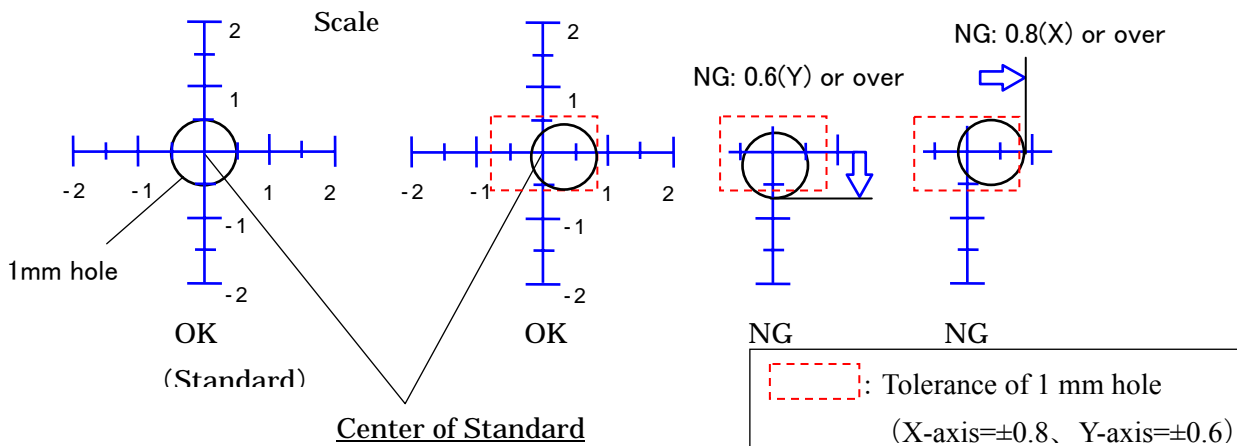
Tolerance ---- X-axis :  $\pm 0.3\text{mm}$   
Y-axis :  $\pm 0.1\text{mm}$

(Refer to below tolerance for positioning scope)

- ③ After adjustment is done, apply the supper-glue to both B58.

### ■ Tolerance for 2<sup>nd</sup> mirror position

(Using with the mirror positioning scope)

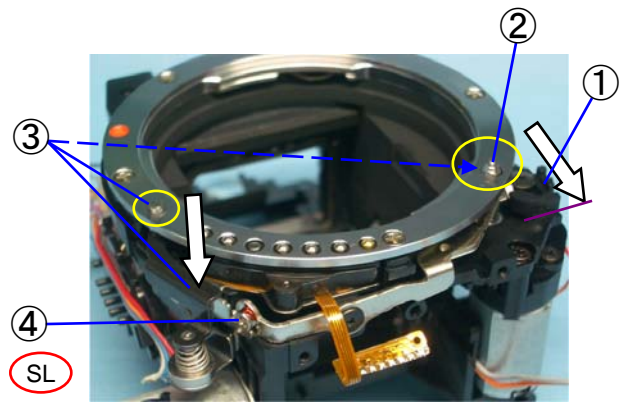




## 8. [ADJ] AF Joint stroke

[Required equipment] Vernier calipers

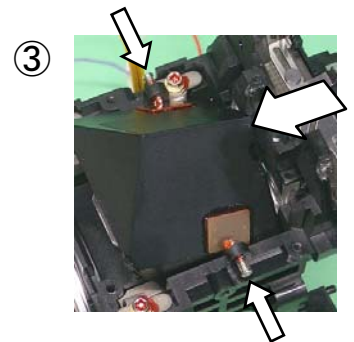
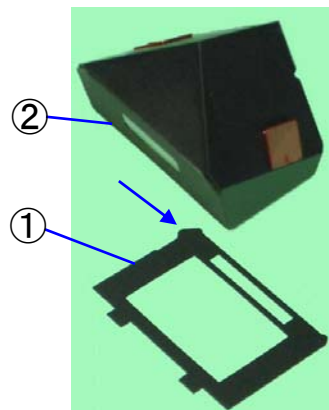
- ① Set the AF lever (0-A115) to the AF.C position.
- ② AF coupler(0-S300) must be projected from the mount surface by 1.2mm or more.
- ③ When the mount lock pin comes to the mount surface with depressing the mount lock lever, the AF coupler must not be projected out of the mount surface.
- ④ Adjust 0-A121 by turning an eccentric screw, and apply the screw lock.



## 9. L2 and 0-L3

[Caution] Confirm there is neither dust nor scratch on L2 and 0-L3.

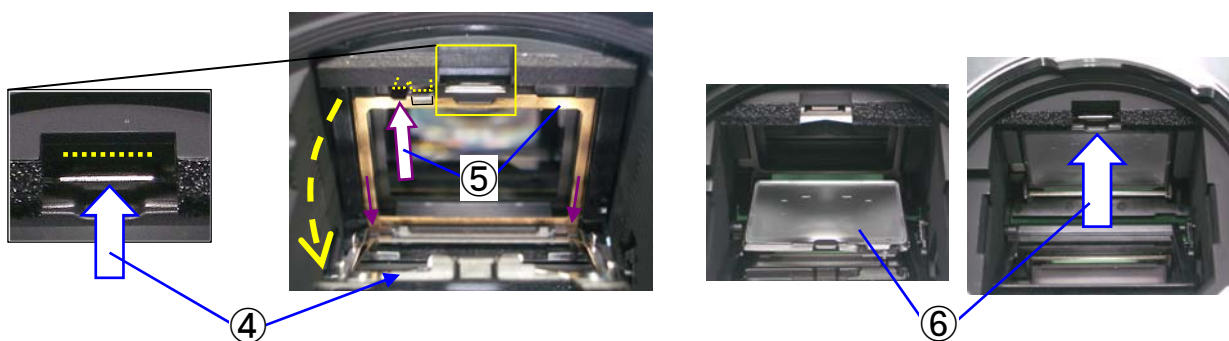
- ① M3
- ② 0-L3
- ③ Tighten M16 (Adjustment screw) temporary while pushing 0-L3 front side.



- ④ Down the focusing screen frame (0-M4) by releasing the hook portion.
- ⑤ Push the arrow part in figure and install M22.

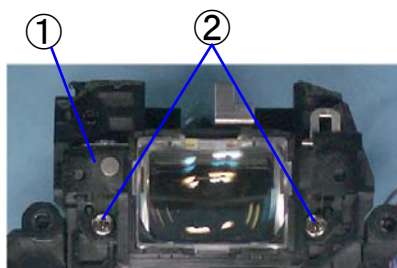
In the case of temporary adjustment, Using with the M22-00E(0.35).

- ⑥ Put the focusing screen (L2) on the frame and then push it back until it locks in place.



## 10. M301

- ① Eyepiece (M301,L7 and other)
- ② TY-CNL-D1.7x4.0 (x2)



## 11. [ADJUST] VIEWFINDER FOCUS AND PARALLAX

[Required equipment] 50mm lens, Collimator, Focus master lens

[Preparation]

1. Adjust the diopter by the diopter adjustment lever.
2. Set the AF mode switch to to MF position. (Upper position)

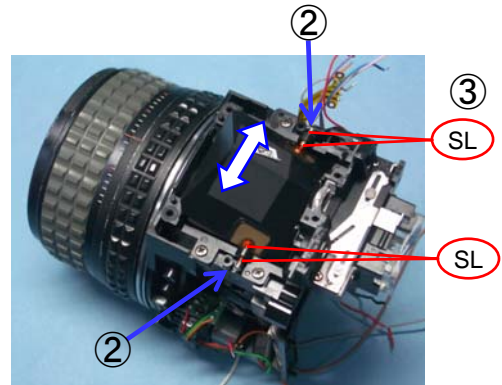
### 11-1. Parallax

[Caution] Confirm that the Pentaprism must be installed securely.

- ① [Confirmation] Confirm there is neither gap nor an inclination at an upper and lower, Right and left position.
- ② [Adjustment] Adjust right and left position by turning M16 x2.

Standard: Right/Left Less than 1°  
Upside down Less than 1°

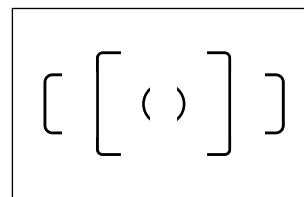
- ③ Apply screw lock to M16. (4 position)



### 11-2. Viewfinder focus

- ① [Confirmation] Confirm a viewfinder focus.  
 \*One scale for focus master lens is 0.03mm.

Standard : 0±0.06 mm

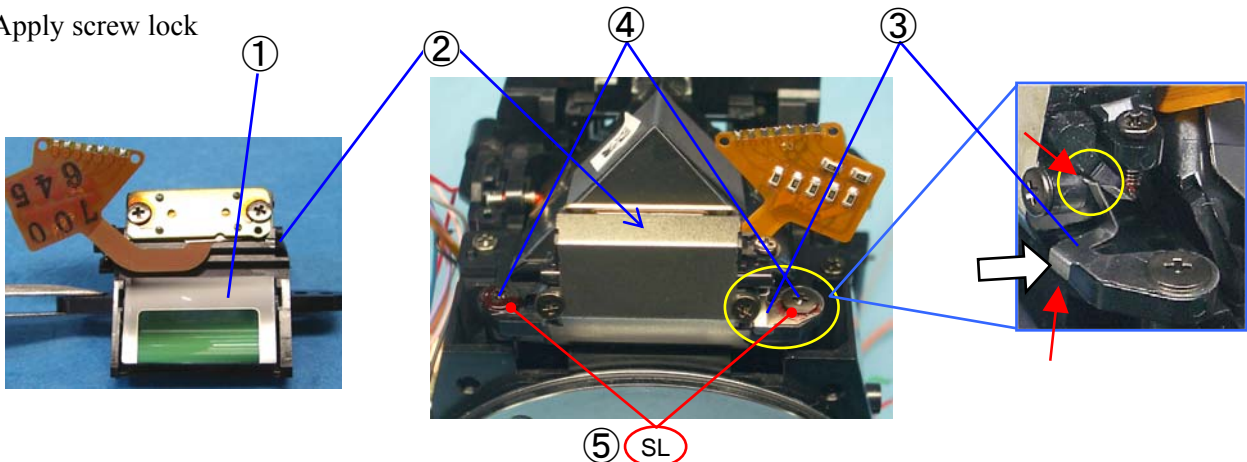


- ② [Adjustment] Exchanges for M22 of other thickness.  
 The tolerance level at the time of adjustment is 0±0.04 mm.

M22-00A	-00B	-00C	-00D	-00E	-00F	-00G	-00H	-00I	-00J
t=0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60

## 12. SI block

- ① Confirm that there is neither dust nor scratch on inside prism and mirror.
- ② SI block (0-M51, 0-M52, M53, L11, L12, 0-O170 and other)
- ③ Attach M55 (SI spring) as shown figure
- ④ TY-CNL-F1.7x4.5 (x2) --- Install SI block and M55(spring) to the pentaprism side as shown figure
- ⑤ Apply screw lock



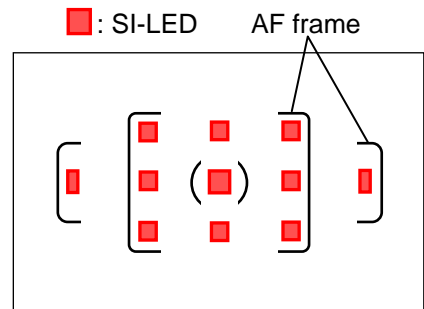
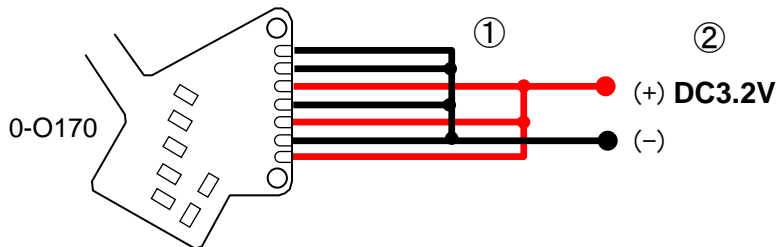
### 13. [ADJUST] POSITIONING SI-LED

[Required equipment] Power supply, lead wires

① Solder and arrange the lead wires on 0-O170 as shown in the figure below.

[Caution] Do not stress to the lands of 0-O170.

② Apply DC3.2V to 0-O170, and confirm the positioning  
And lighting of SI-LED 11 points.

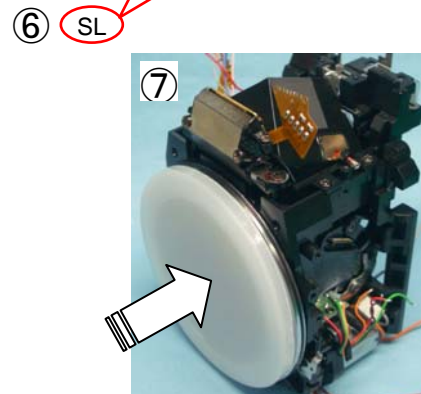
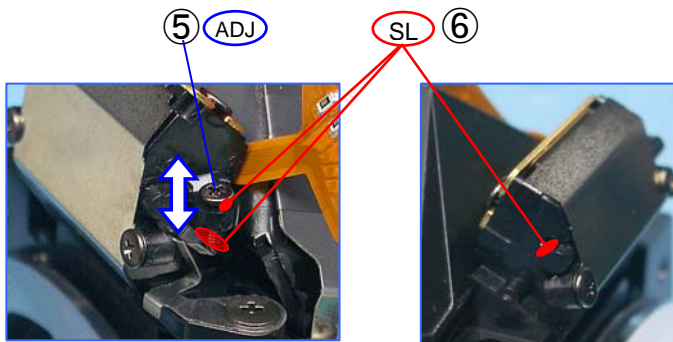
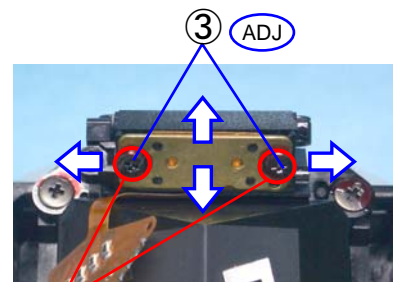


③ [ADJ-1] Loosen 2 screws, and then adjust the position of 0-O170.

④ Tighten 2 screws, and then confirm the position again.

⑤ [ADJ-2] Turn adjusting screw to adjust fine adjustment for up and down position then confirm the position again.

⑥ After adjustment is done, apply the screw-lock to 5 points and remove the lead wires from 0-O170.



⑦ A mount cover is attached in order to protect a SI-LED part hitting during work.

### 14. 0-O100

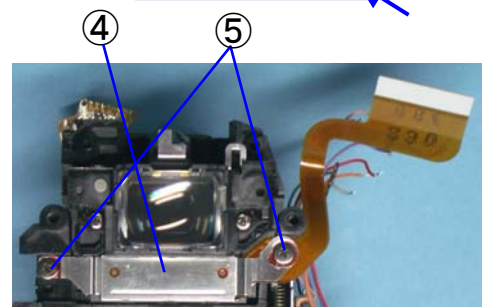
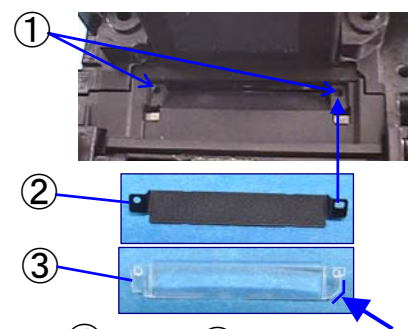
① Apply small amount of dia bond (Black) as shown in figure.

② M9

③ M2 prism -- Make sure that there is no dust on M2.

④ 0-O100

⑤ TY-CNL-F1.7x3.0 x2 -- Temporarily tighten screws while holding 0-O100 plate.



#### [Note of Disassembly]

1. Remove the screw lock which is stick to the screw.
2. Unscrew (x2) while pressing the plate of 0-O100.
3. If M2 does not replace, you do not necessary to disassemble.

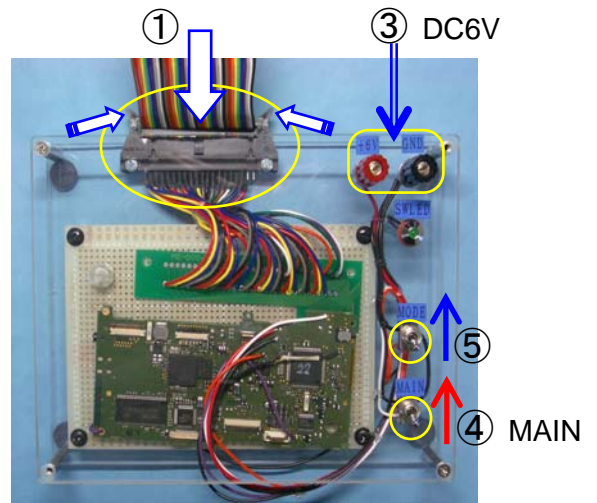
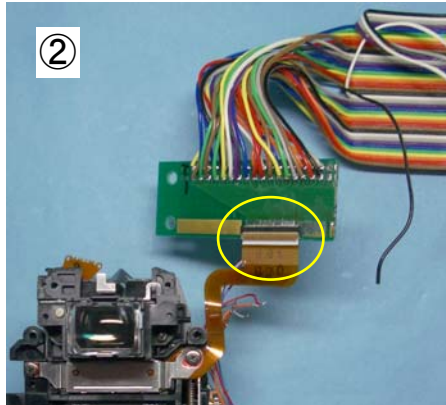
## 15. [ADJUST] POSITIONING 0-O100 (VIEWFINDER INDICATIONS)

Preparation: O100 cable for 76830, O100 positioning jig for 76700, Power supply (8V, 3A).

### 15-1 Preparation

- ① Connect the 0-O100 cable for 76830 to the jig as shown figure.
- ② Connect the flex board of 0-O100 to the cable.
- ③ Apply 6.0 V to the jig.
- ④ Turn the main SW ON.
- ⑤ Turn the mode SW ON.

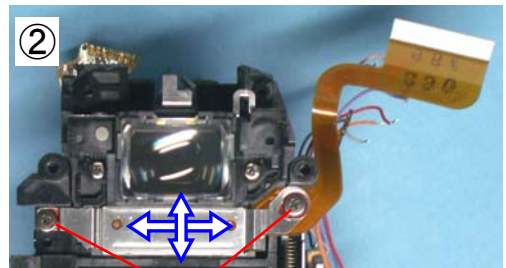
\*Indication of O100 is display



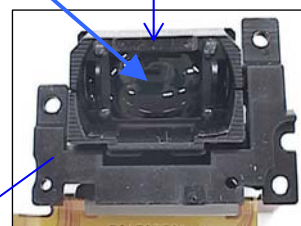
### 15-2 Adjustment

- ① [Confirmation] Check whether the position of the display is straight.
- ② [Adjustment] Loosen the screw and change the position.
- ③ After adjustment is done, apply screw lock.

①



③ SL M125



## 16. 0-M100

Preparation: Hexagonal screwdriver 1.5mm

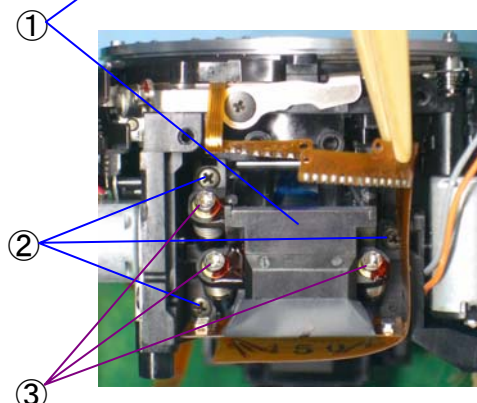
- ① 0-M100 (when replacing 0-M100 put M125 at sensor side)

[Caution] There is no dust and stain on the surface of lens.

- ② TY-CNL-D1.7x4.0 (x3)

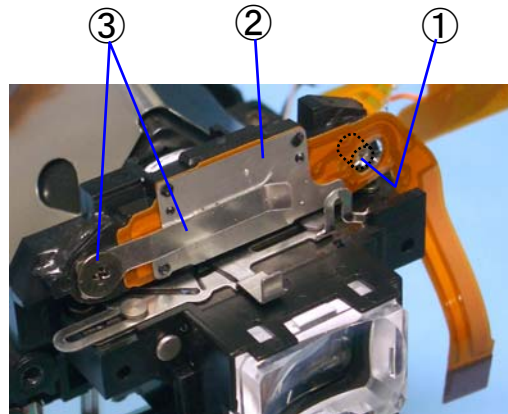
[ADJ] Temporary adjustment of AF block --- Screw in 3 adjusting screws until they stops, then screw back two turns.

[NOTE] After CCD position adjustment with programmed software is done, Apply screw-lock agent to between the head of adjustment screws and washers.



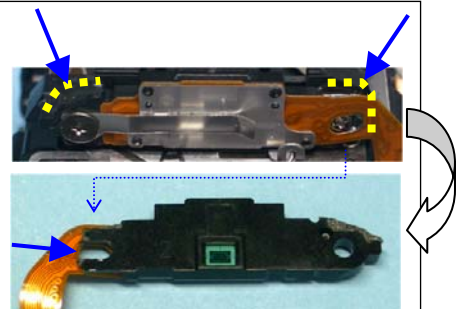
### **17.0-J100**

- ① M10 -- Set the diopter lever at end of left side and then install it.
- ② 0-J100
- ③ M5-TY-CNL-G1.7x5.0 (Temporary)



#### **[Caution]---** Disassembly

1. Set the Diopter lever to the left side.
  2. Unscrew TY-CNL-G1.7x5.0 -M5.
  3. Remove the bonds which are around the 0-J100.
- \* Not to damage 0-J100
4. 0-J100, M10

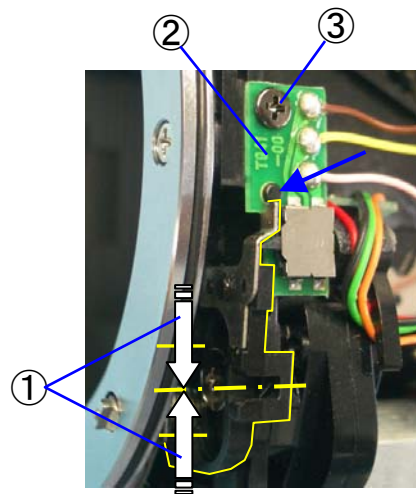


### **18.0-T940**

- ① Set AF mode lever to AF.S (Center position)
- ② 0-T940
- ③ TY-CNL-D1.7x3.0

#### **[Caution for disassembly]**

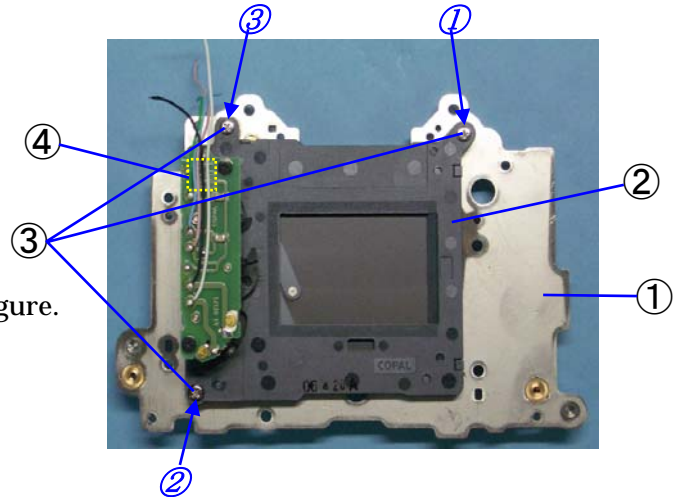
When take off 0-T940, the AF lever should be set At center (AF.S)



### 3. ASSEMBLY PROCEDURE OF MAIN BODY

#### 1. 0-E000 (Shutter block)

- ① Main body
- ② 0-E000
- ③ A70 x3 (Shoulder screws)
- \*Tighten A70 in numeric order.
- ④ Arrange 5 lead wires by DT (5x5) as shown in figure.
- \*After install, 0-E000 has a little movement.



#### 2. A13 (Battery Chamber) and related parts

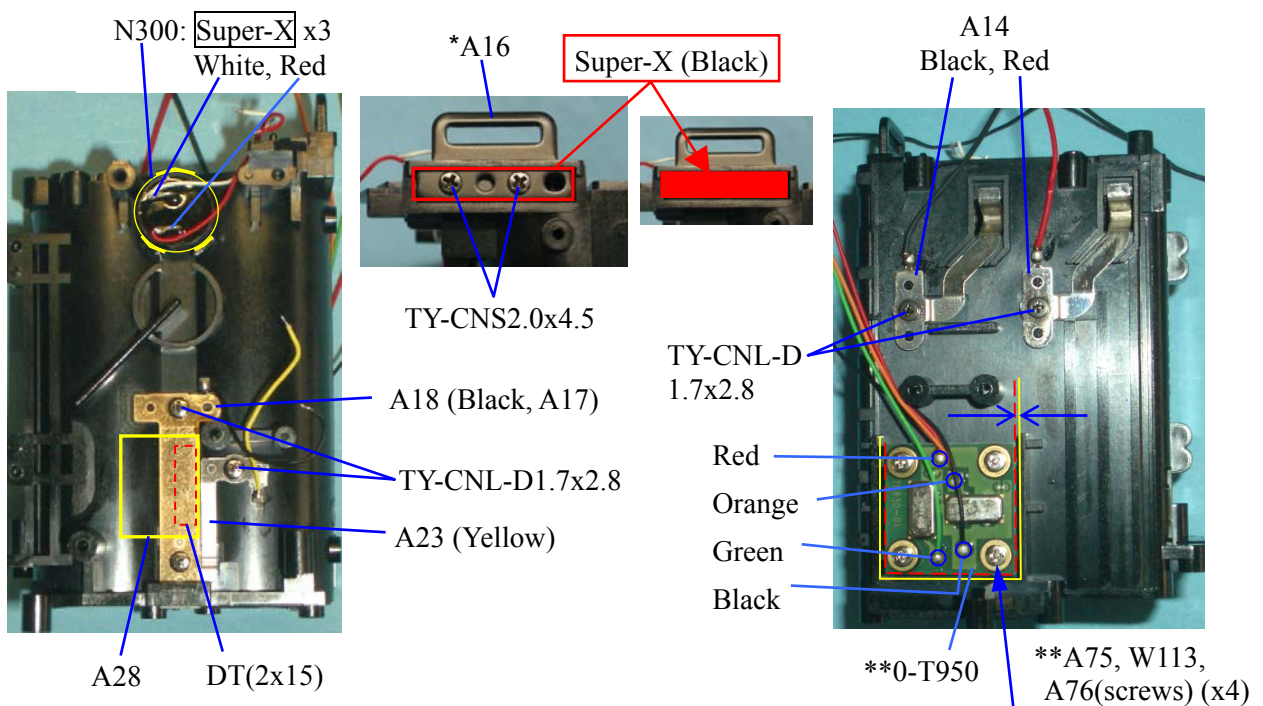
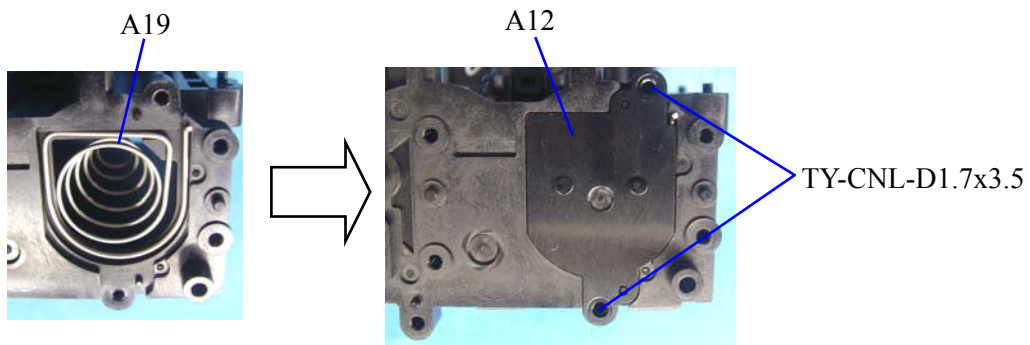
- ① A13 (Battery Chamber) and related parts.

[Confirmation] Each parts are installed properly.

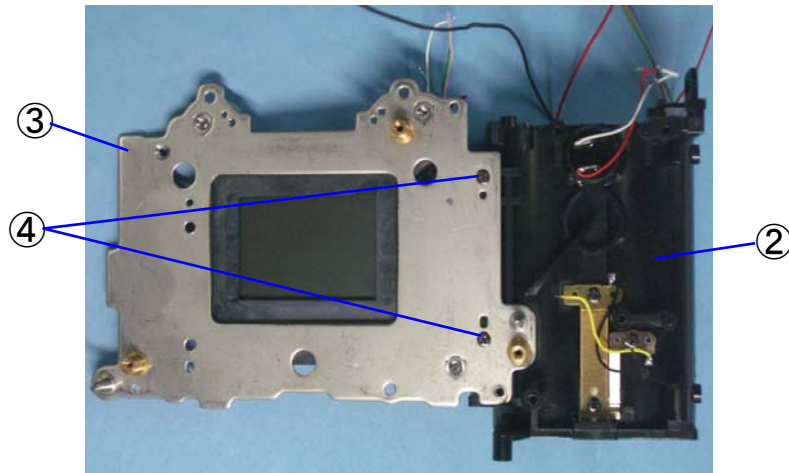
[Caution] \*A16: Apply superX (Black) as shown in figure. Do not apply out of red square area.

\*\* Install A75 to 0-T950 properly. Make sure there is no deformation.

There is the gap between side of PC board and A13.

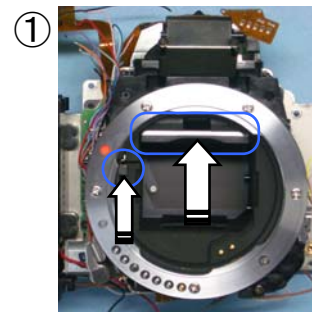


- ② A13
- ③ Main body
- ④ TY-CNL-D1.7x4.0 x2

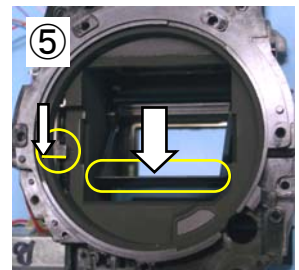
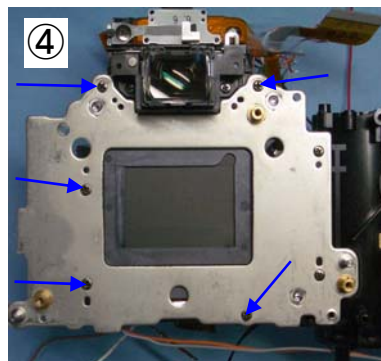
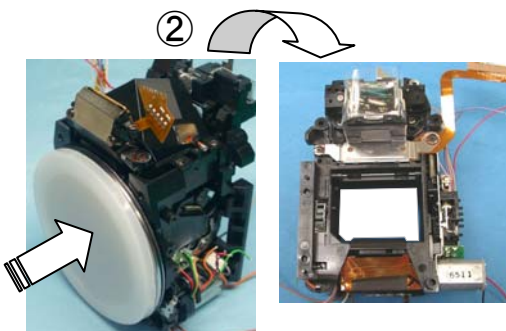


**3. 0-A101 (Front housing block)**

- ① Apply DC 2V to the mirror motor, and set mirror up position.  
(Red --- +)
- ② To prevent the damage of SI-LED, attach mount cover. Then put downward.
- ③ Put main body to the front housing without pinching lead wire or flex.
- ④ TY-CNS2.0x5.0 x5
- ⑤ Apply DC2V to the mirror motor, and set mirror down position.

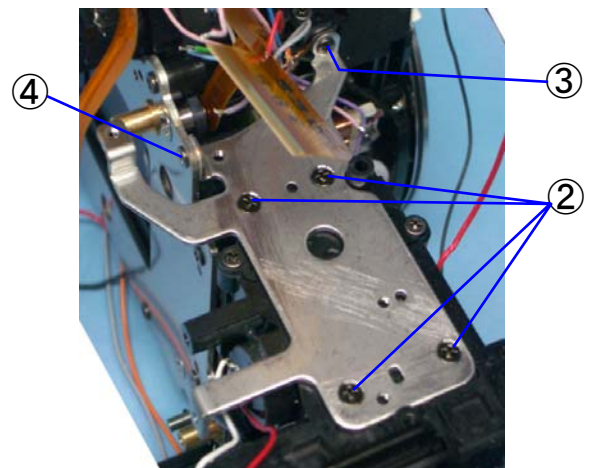
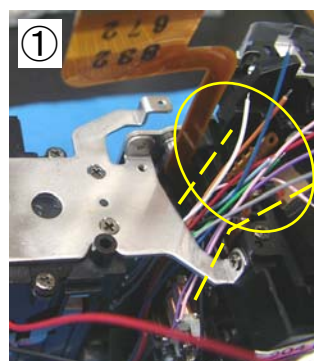


**[Caution]** Do not make scratch on the eyepiece lens while working.



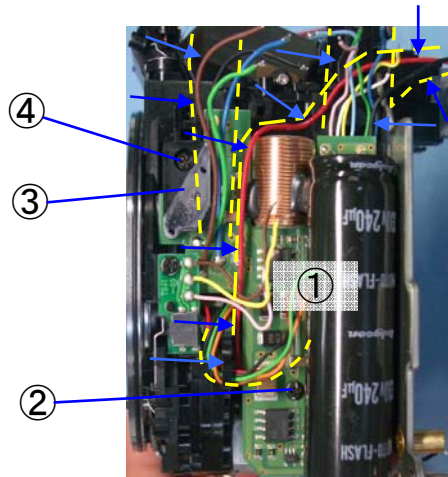
**4. A6 (Left shoulder plate)**

- ① A6 -- Arrange the lead wires and flex as shown in figure.
- ② TY-CSM1.7x4.0 x4
- ③ TY-CNL1.7x4.0
- ④ CNL-D1.7x2.5



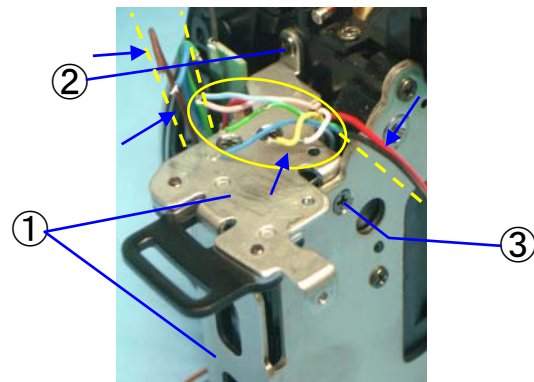
**5. 0-Q200 (Flash PC board)**

- ① 0-Q200 --- Arrange the lead wires as shown figure.
- ② TY-CNL-D1.7x3.5 (bottom side)
- ③ A117
- ④ TY-CNL-D1.7x3.5



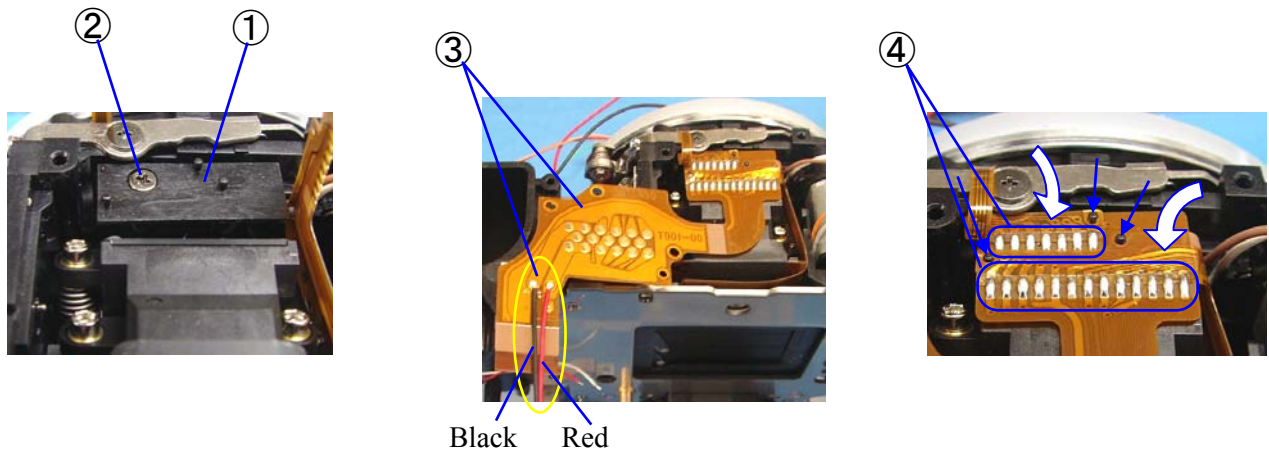
**6. A5 (Right shoulder plate) and related parts**

- ① A5 and related parts  
-- Arrange the lead wires as shown figure.
- ② TY-CNL-D1.7x4.0
- ③ CSM1.7x2.5



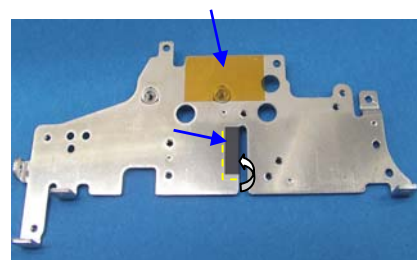
**7. T901 (Lower flex board)**

- ① A141
- ② TY-CNL-D1.7x3.5
- ③ T901 (Red and Black lead wire)
- ④ T301 and M100 flex land 20 position.



**8. A3 (Bottom plate)**

- ① Make sure there is two tape on 0-A3





② Arrange the lead wires and flex as shown figure then install 0-A3.

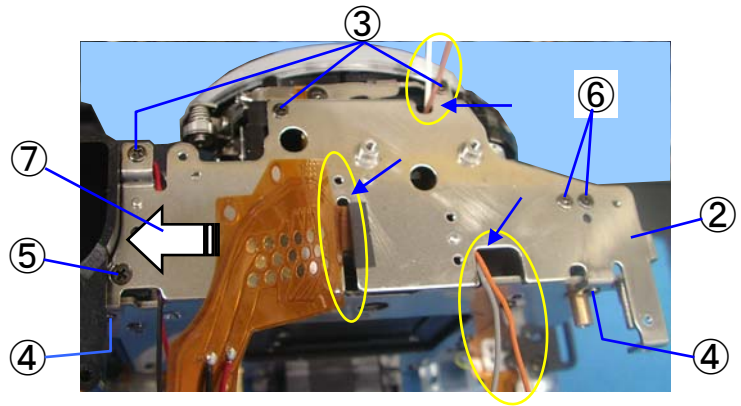
③ TY-CNL-D1.7x4.0 x3

④ CNL-D1.7x2.5 x2

⑤ TY-CSM1.7x4.0

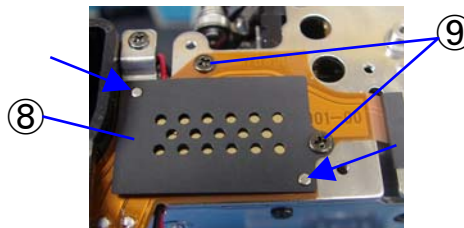
⑥ TY-CNL-E1.7x2.2 Ni x2

⑦ Arrange T901 flex and 0-A3 as shown in figure.



⑧ A423 (Mask)

⑨ CNL-D1.7x1.6 x2



**9. 0-T750 (Upper left side flex board)**

① 0-T750 -- Attach to the body

② CNL-D1.7x1.6 x3

③ TY-CNL-B1.4x2.5

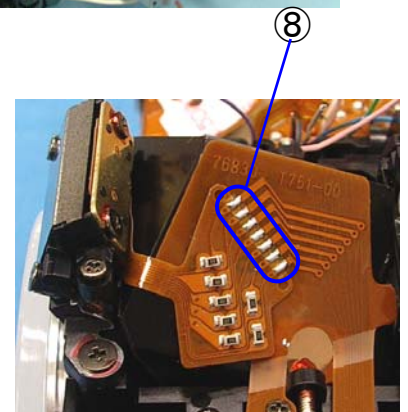
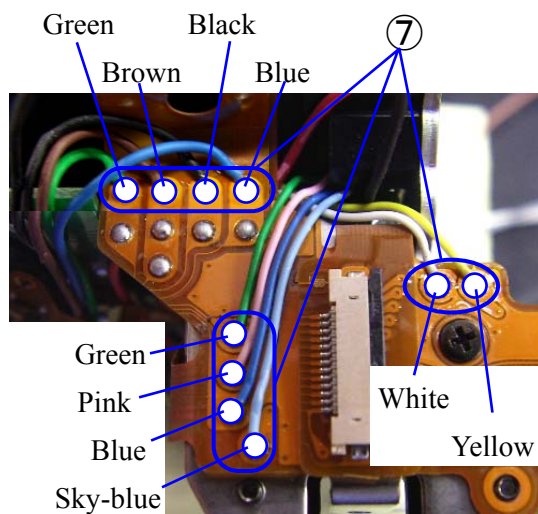
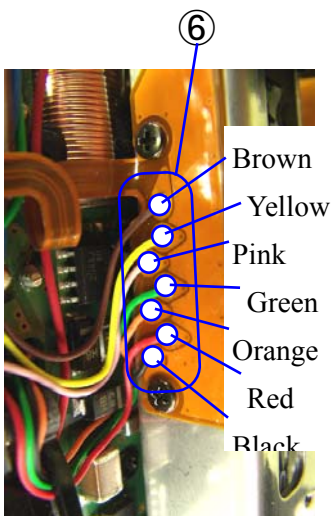
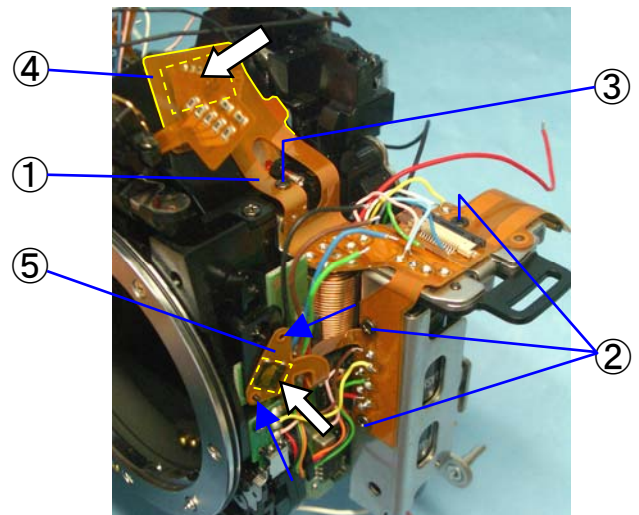
④ Fix Pentaprism with DT (10x18)

⑤ Fix RAW button SW with DT (5x5)

⑥ Solder 7 lead wires.

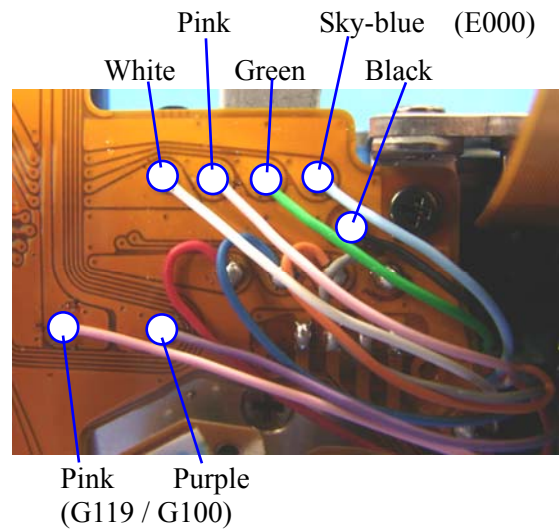
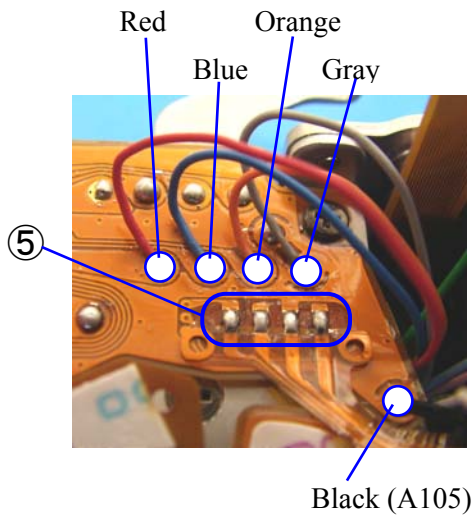
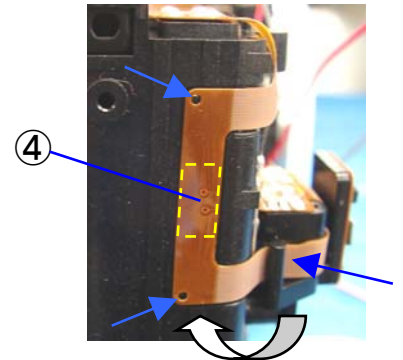
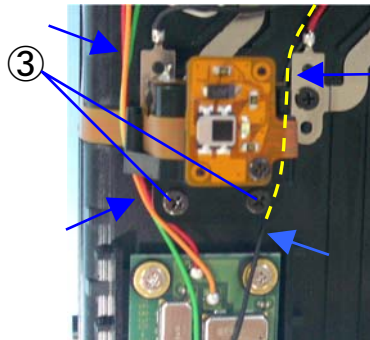
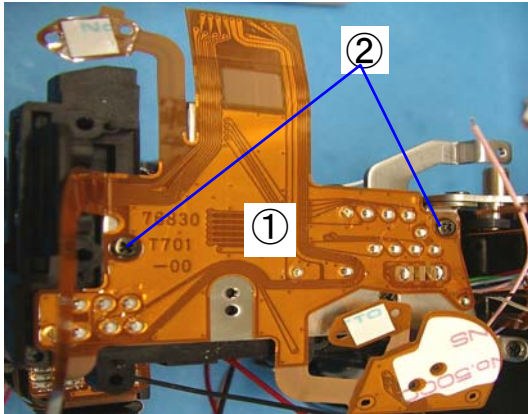
⑦ Solder 10 lead wires.

⑧ Solder 7 lands. (O170 flex)



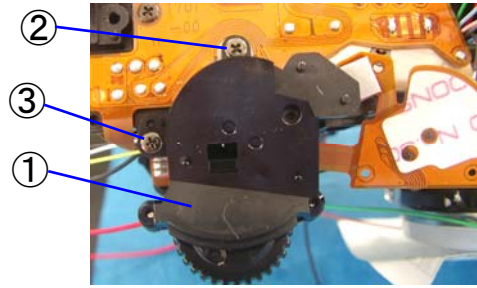
**10. 0-T700 (Upper right side flex board)**

- ① 0-T700 --- Attach to the body
- ② CNL-D1.7x1.6 x2
- ③ TY-CNL-D1.7x3.5 x2
- ④ Fix flex with DT (10x4)
- ⑤ Solder 4 lands. (T71 flex)
- ⑥ Solder 12 lead wires.

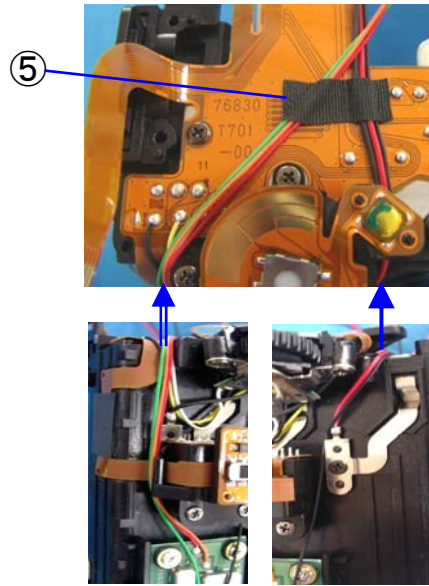
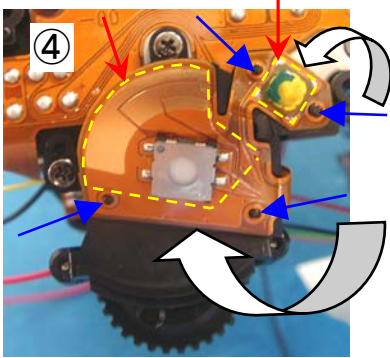


**11. A350 (Main SW plate)**

- ① A350
- ② CNL-D1.7x3.0
- ③ TY-CNL-D1.7x4.5

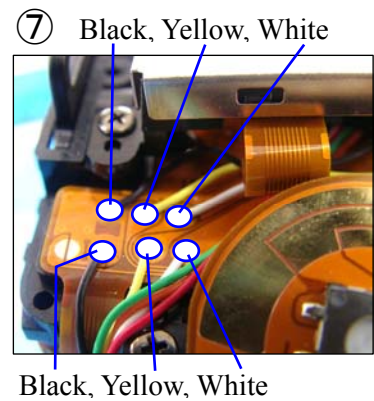
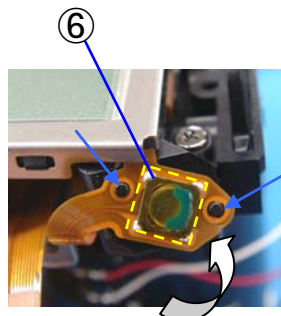
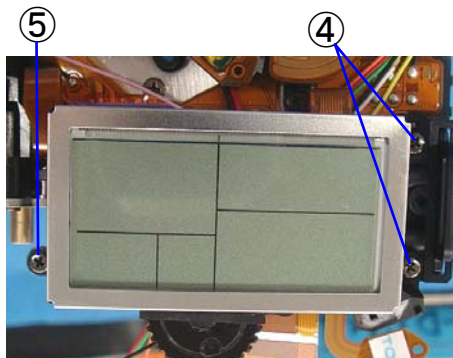
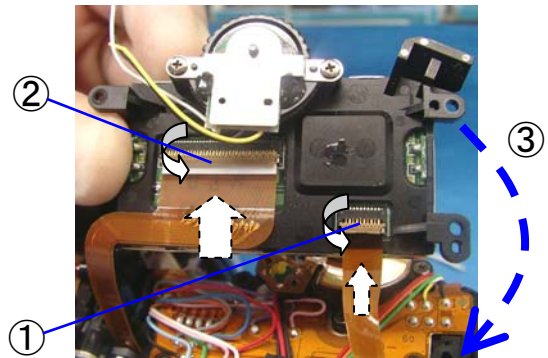


- ④ Fix the flex which around release SW/Green button SW with DT (5x5)
- ⑤ Arrange the lead wires with BT (6x15).



**12. O201 (LCD block)**

- ① Connect T700 flex to connector (flip lock type)
- ② Connect O100 flex to connector (flip lock type)
- ③ O201... Attach to the body
- ④ TY-CNL-D1.7x4.5 (x2)
- ⑤ CNL-D1.7x2.5
- ⑥ Fix [AE-L] flex part with DT (5x5)
- ⑦ Solder 6 lead wires.

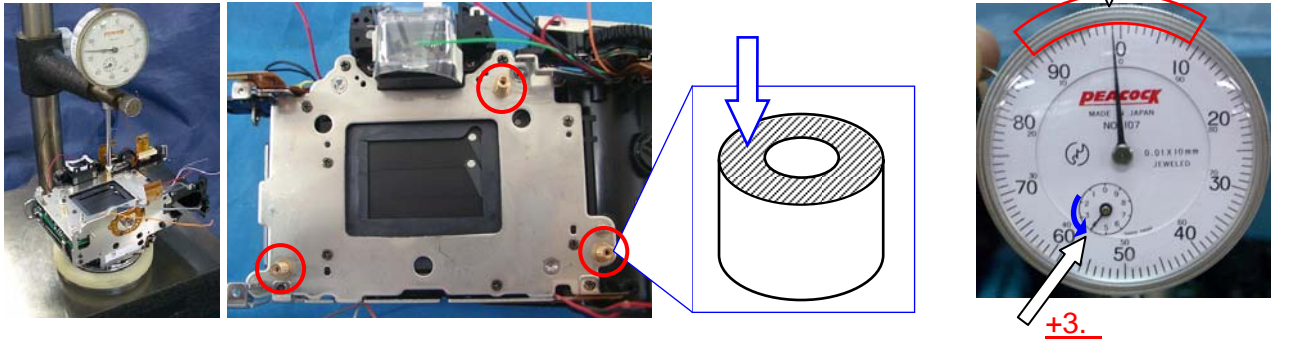


### 13. [CONFIRM] CCD BASE PLATE SUPPORT PILLAR

[Required equipment] Block gauge for 35mm, Dial gauge comparator, etc. (same as \*istD or K100D )

① Measure height of the CCD base support pillar (3 places) from the mount surface as shown in the figure.

Tolerance (For 76830 only):	<u>49.45±0.1 mm</u>
With using Block gauge for 35mm (45.46mm):	<u>+3.89~4.09 mm</u>



### 14. 0-C000 (SR/CCD block)

[Caution-1] CCD/SR block has strong magnet inside, therefore caution for adsorption of parts.

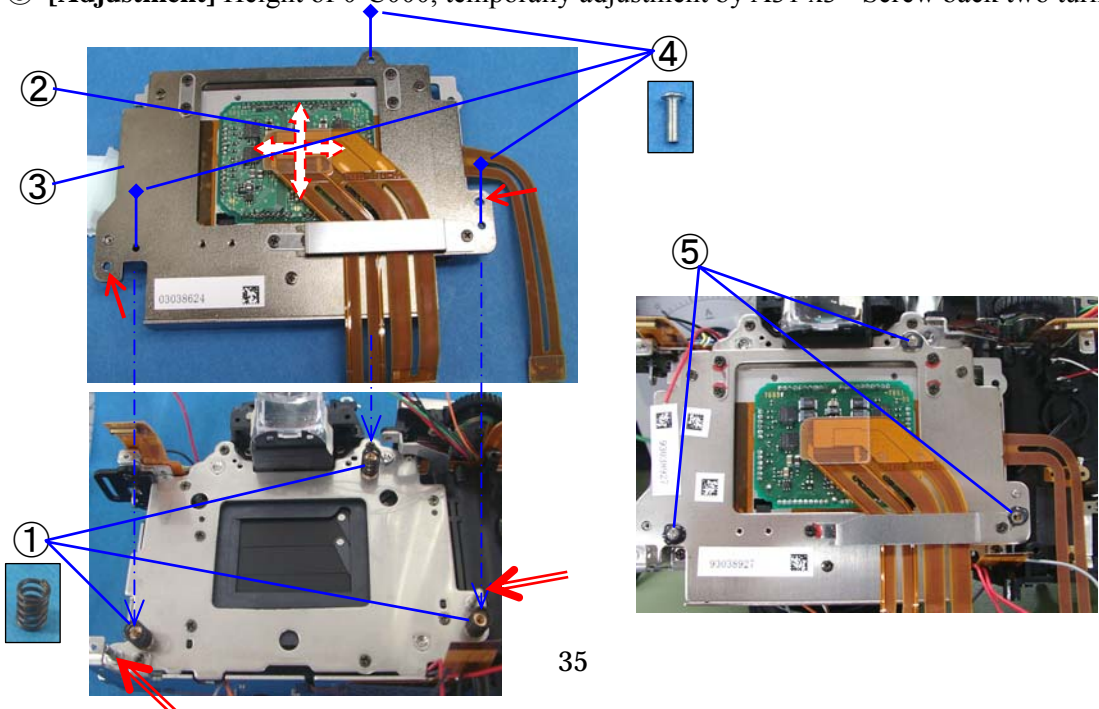
[Caution-2] Since a performance is spoiled, a CCD/SR block cannot be disassembled and also don't apply the external pressure to a movable part

[Caution-3] The flex from SR/CCD should be take care carefully, otherwise it will effect the performance of SR function.

[Caution-4] There is no scratch or dust on the CCD surface.

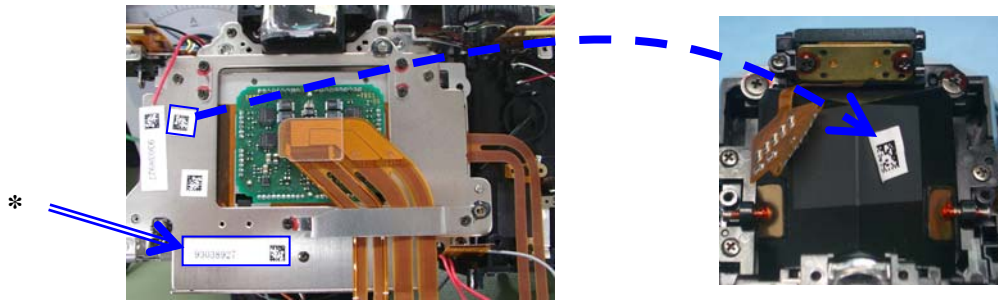
**\*To prevent the damage of SI-LED, attach mount cover. Then put downward.**

- ① A32 Coil spring x3 – install to pillar.
- ② [Confirmation] Center plate must move up and down and right and left by own weight.
- ③ Arrange lead wire and flex then install CCD/SR block according to the guide pin of the plate.  
[Caution] A32 must not come off and adsorption to magnet.
- ④ A31 adjusting screw x3 – Tighten A31 until stop while pressing to main body.
- ⑤ [Adjustment] Height of 0-C000, temporally adjustment by A31 x3 - Screw back two turns.



**[Caution] When replacing 0-C000:**

1. There is CCD ID No. seal on the plate. \*The No. can be readable.
2. Peel off the seal on the plate then replace the seal on the pentaprism.



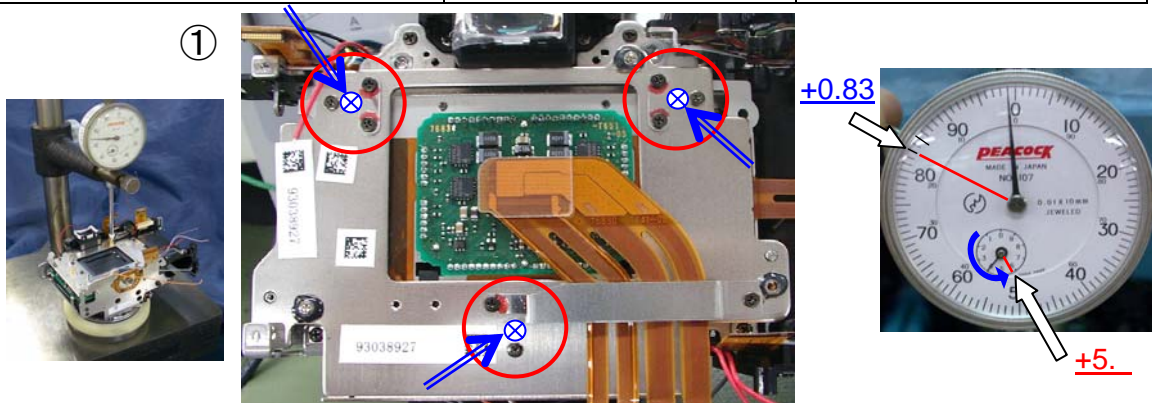
**15. [ADJUSTMENT] HEIGHT OF 0-C000**

**[Required equipment]** Block gauge for 35mm, Dial gauge comparator, etc. (same as \*istD series or K100D)

**Specified glue:** Cemedine Super-X (Clear) --- Order number 95901 A133

- ① Measure height of the CCD rear plate (3 places) from the mount surface as shown in the figure.

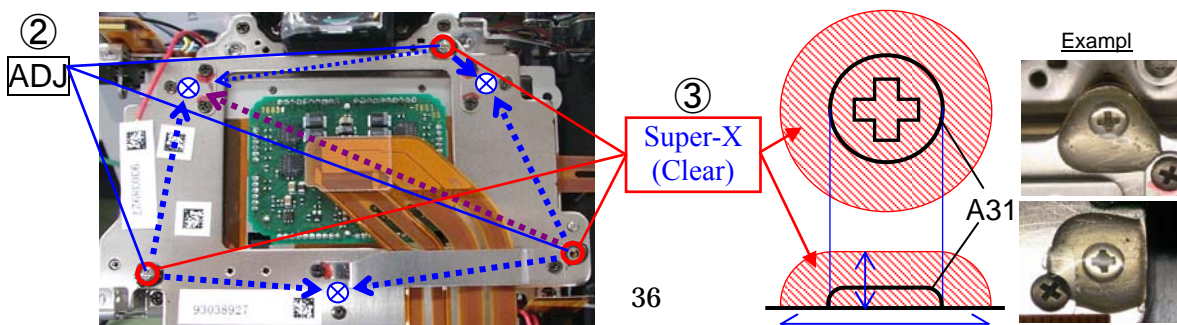
	Confirm for not disassembled body	When adjusting
Tolerance (For 76830 only):	<u>51.22~51.37 mm</u>	<u>51.29±0.01 mm</u>
With using Block gauge for 35mm (45.46mm):	<u>+5.76~5.91 mm</u>	<u>+5.83±0.01 mm</u> (+5.82~5.84 mm)



- ② **[Adjustment]** Turn three adjustment screw A31. Target for adjustment is +5.83±0.00 (Maximum and minimum difference is within 0.01)

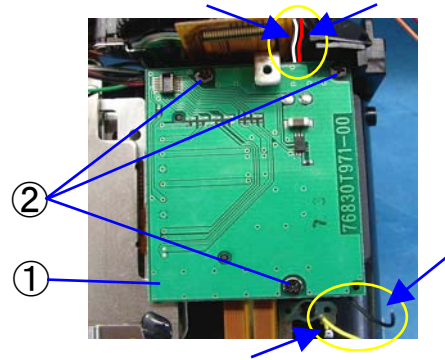
You must finish the adjustment with turning A31 tighten direction. (Clockwise direction)

- ③ After adjustment, clean A31 and around A31 by solvent then apply super-X on the top of screw as shown in figure.



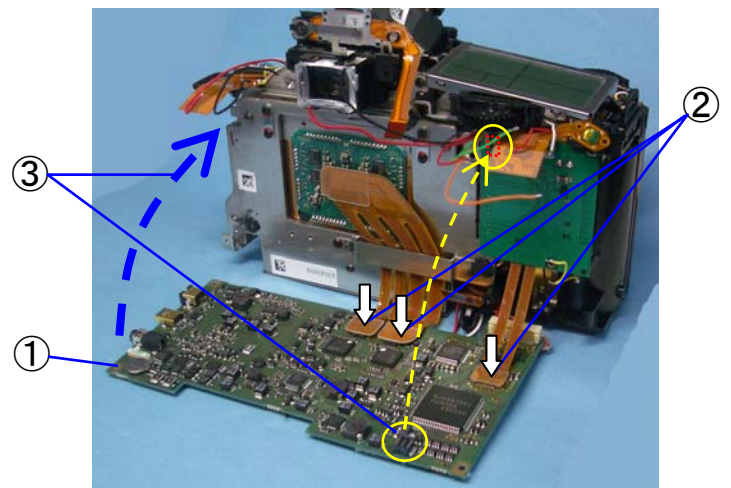
**16. 0-T970 (SD circuit block)**

- ① 0-T970 --Arrange the 4 lead wires as shown figure.
- ② TY-CNL-D1.7x3.5 (x3)

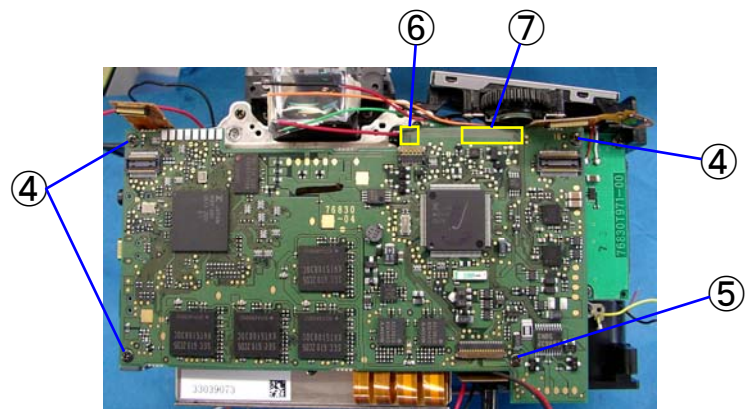


**17. 0-T100 (Main circuit block)**

- ① Set up T100 as shown figure.
- ② Connect 3 flex. (Plug-in type)
- ③ Attach T100 to the body and connect to the Connector. (Plug-in type)

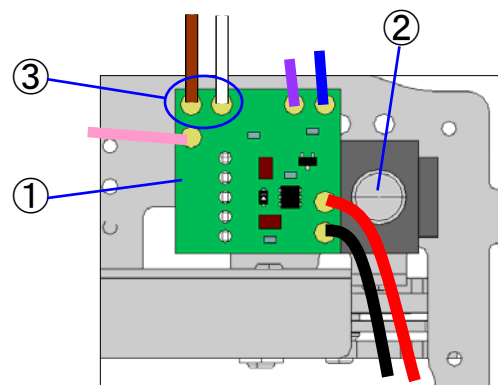
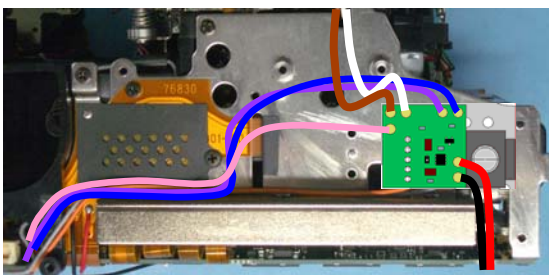


- ④ CNL-D1.7x2.5 x3
- ⑤ TY-CNL-D1.7x3.5
- ⑥ DT(4x4)
- ⑦ DT(4x15)



**18. 0-T770 (PZ circuit block)**

- ① 0-T770
- ② Shoulder screw (27355 -D35)
- ③ Two lead wire (Brown and White)



## 19. Soldering lead wires on T100

① Connect flex to connector. (2 point, Flip lock type)

Fix J100 flex with DT

② Connect flex to connector. (2 point, Plug-in type)

③ Solder 4 lead wires.

④ Solder 6 lead wires.

⑤ Solder 4 lead wires.

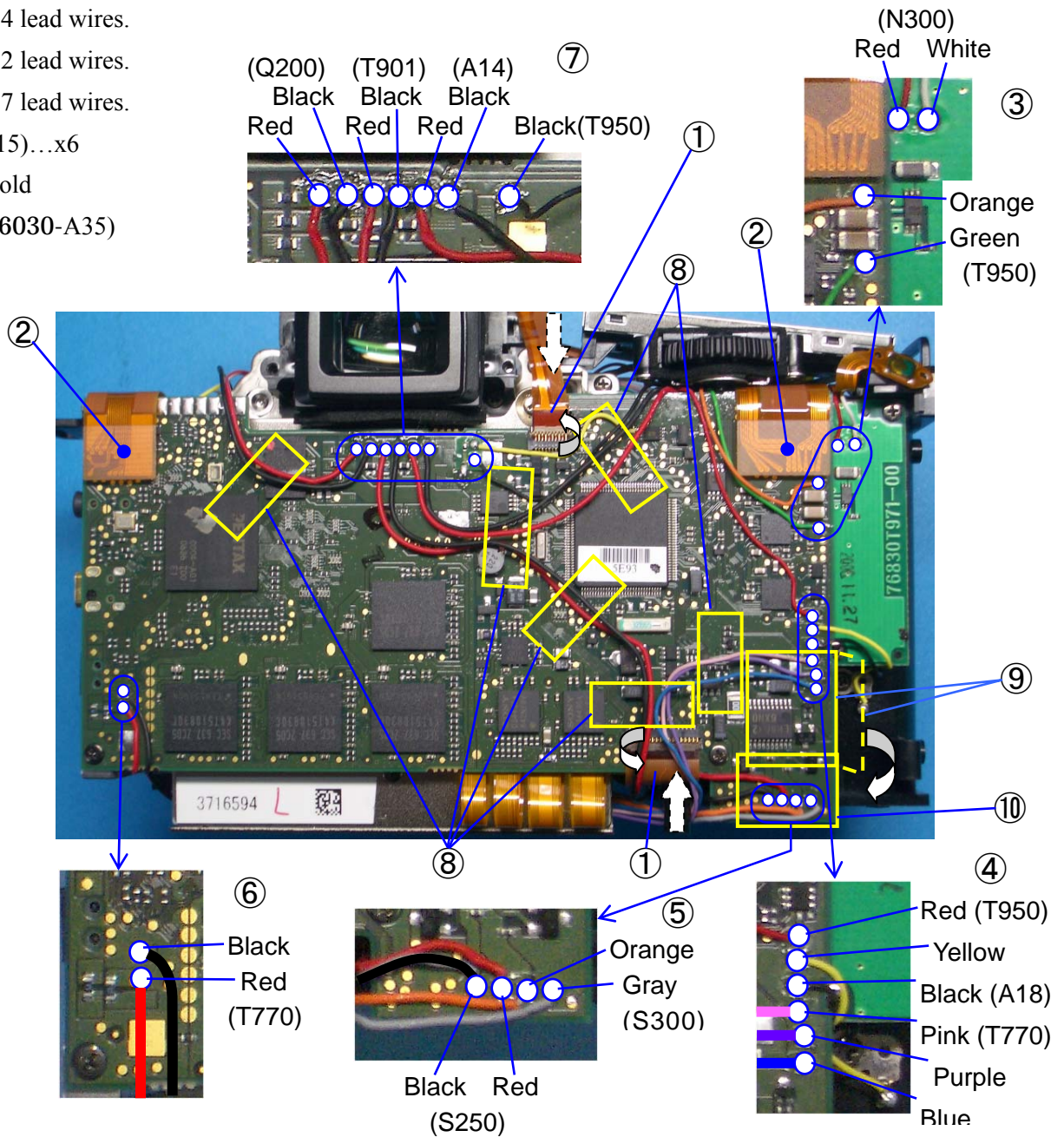
⑥ Solder 2 lead wires.

⑦ Solder 7 lead wires.

⑧ BT(5x15)...x6

⑨ T90 Hold

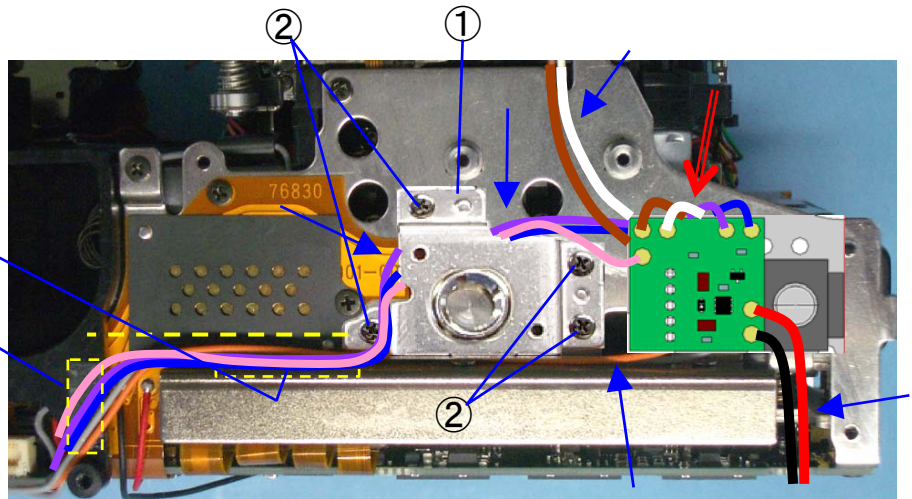
⑩ U5 (76030-A35)



## 20. 0-A51(Tripod plate)

- ① 0-A51
- ② CNL-D1.7x2.5 x4
- ③ Arrange lead wires as shown figure.  
(S300 and T770)

DT(4x15)  
DT(4x10)



## 21. [Adjustment] Initialization when replacing T100

**[Caution]** When replacing T100, you must execute this initialization. Do not execute with other reason.

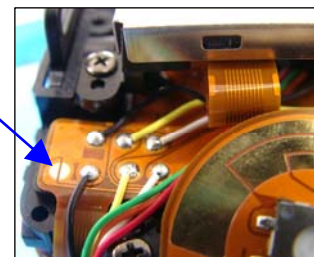
### [Required equipment]

SD card SD card 2 pieces (FW for replacing T100, for install initial data), TV monitor, Exclusive Video cable, Circuit tester, AC adaptor (or DC cord for 76830, Power supply DC8.3V/3A or above)

### 21-1. Preparation

- ① Connect the TV monitor by Video cable.
- ② Solder main switch land on T200.

Main SW  
Land



### 21-2. Power check

- ① Connect to the power supply by DC cord and set DC8.3V/3A.
- ② Connect the DC cord to the camera. Confirm that there is no short circuit or leak.

**[Caution]** If there is short circuit, disconnect the power immediately.

With this condition battery current is approx.320mA (metering switch off).

- ③ Disconnect DC cord.

### 21-3. Installing FW for replacing T100

**[Caution]** All setting will be cleared

- ① Connect the Video cable and AC adaptor to the camera.
- ② Surely install SD card (FW for replacing T100) to the card slot.
- ③ TV monitor will be displayed as right Fig.

If you cancel installation, disconnect AC adaptor first then remove SD card.

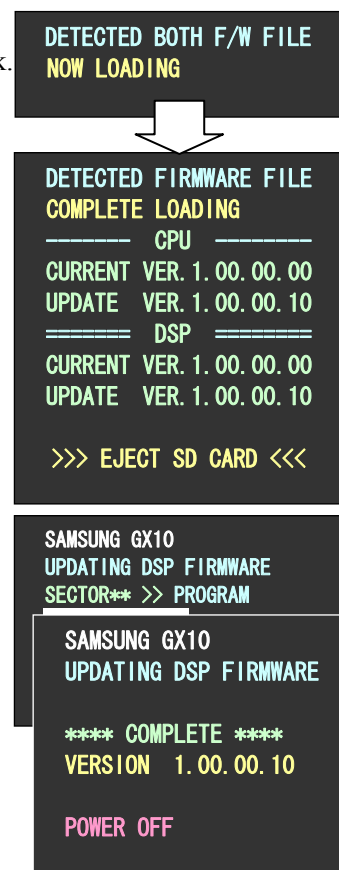
- ④ When [ >>> EJECT SD CARD <<< ] is displayed, remove the SD card.

Installation will be started. It takes approx.90sec. (UPDATING...)

**[Caution]** Do not turn OFF the power.

- ⑤ When [POWER OFF] is displayed, disconnect AC adaptor.

\*leave the video cable.





## 21-4. Data initialization

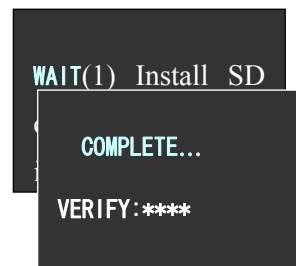
[Caution] If execute this initialization, all EEPROM data will be initialized (Cleared)

- ① Install SD card (For data initialization) to the camera.
- ② Connect the AC adaptor. (Initialization will be started.)

It takes approx 20 sec.)

[Caution] Do not turn OFF the power

- ③ When monitor display is turn off, (“WAIT...” → “COMPLETE...” →) disconnect the AC adapter.



## 22. [Adjustment] SR adjustment- 1 (Unit adjustment)

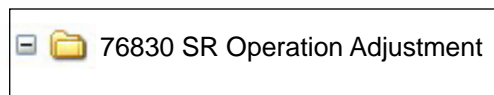
[Caution-1] When replacing T100, T970 or C000, you must execute this adjustment.

[Caution-2] Execute the adjustment on the stable table and do not give vibration to the camera while adjusting

[Required equipment] Programmed software for 76830 (for SR unit adjustment), SR adjustment stand  
Computer (Windows 2000 or Xp, USB port as standard equipment), USB cable, AC adaptor (DC cord for 76830 and power supply DC8.3V)

### 22-1. Setting for computer

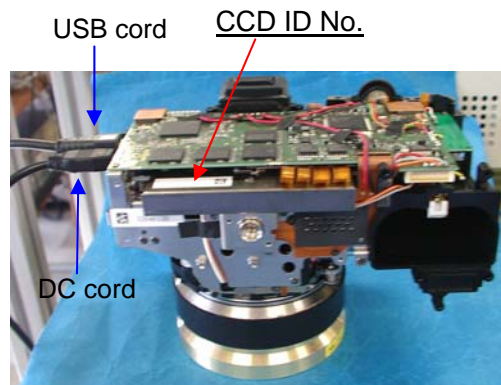
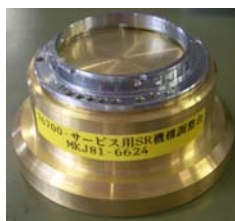
Copy the folder [76830 SR Operation Adjustment] to the PC



### 22-2. Preparation

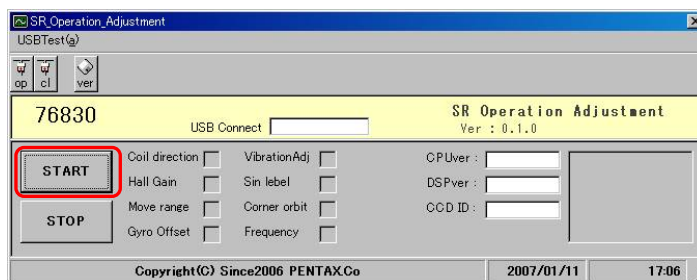
#### SR adjustment stand

- ① Set the AF mode lever to [MF].
- ② Attach SR adjustment stand to the camera
- ③ Put the camera on the stable table with lens downward.
- ④ If replace T100, confirm the CCD ID number.



### 22-3. Procedure for adjustment

- ① Start up the computer.
- ② Connect the camera to the computer via USB cable and connect the AC adapter (Power ON).
- ③ Confirm that the camera is recognized by computer. (Hot plug icon).
- ④ Click [K10D SR Operation cs.exe] in the adjustment software folder
- ⑤ Adjustment screen will be displayed.
- ⑥ Click [Start] to execute the program



- ⑦ CCD number input screen is displayed.
- ⑧ Select Input or Skip and execute the program.

<Not replace T100 or C00>

Click [Skip]

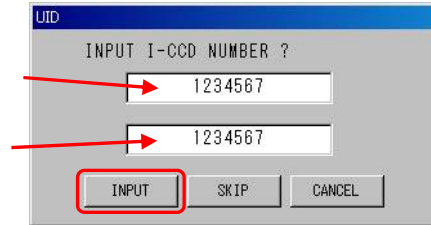
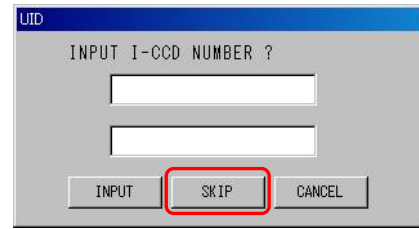
<Replaced T100 or C00>

Input I-CCD number twice.

Click [INPUT]

\* If cancel the adjustment, click [CANCEL]

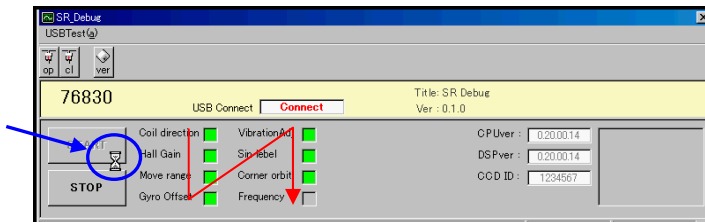
- ⑨ Adjusting screen (It takes about 3.5 minute)



**[Caution]**

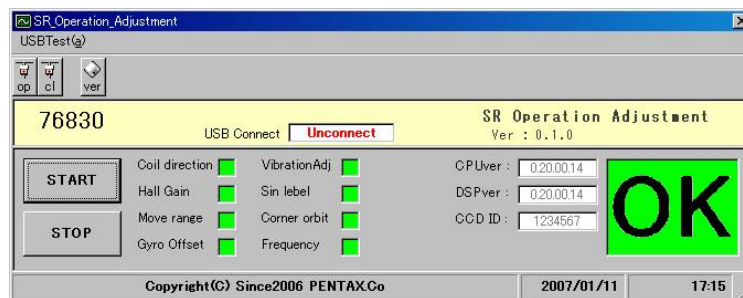
Do not give vibration to the camera while adjusting, also do not even walk around the camera also.

If you give vibration to the camera while adjusting, repeat the adjustment even pass the adjustment.



\*If you want to stop the adjustment, click [Stop].

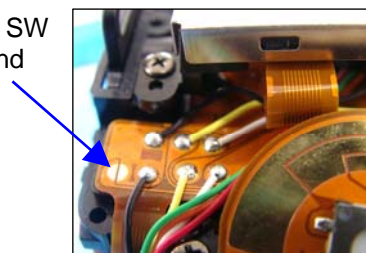
- ⑩ When the following screen is displayed, adjustment is completed.
- ⑪ Confirm that “Unconnect” is displayed then click [x] to finish the adjustment.



\*If adjustment is NG, green part will be changed to red.

- ⑫ Unsolder main SW land on T200.

Main SW Land

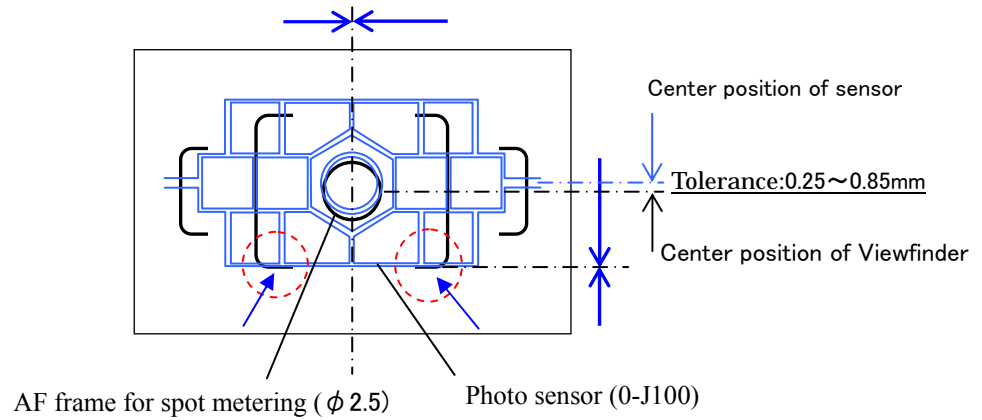


### 23. [Adjustment] Positioning 0-J100

[Required equipment] Penlight or equivalent

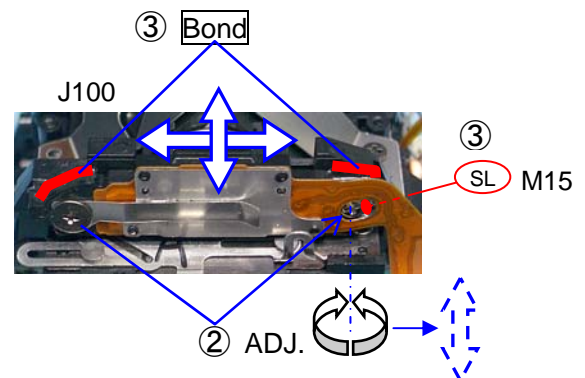
\*Adjustment and confirmation are the same as K100D. Refer to the service manual of 76700.

① [Confirm] Tolerance



② Adjust the position.

③ Apply the bond/Screw lock as shown in figure.

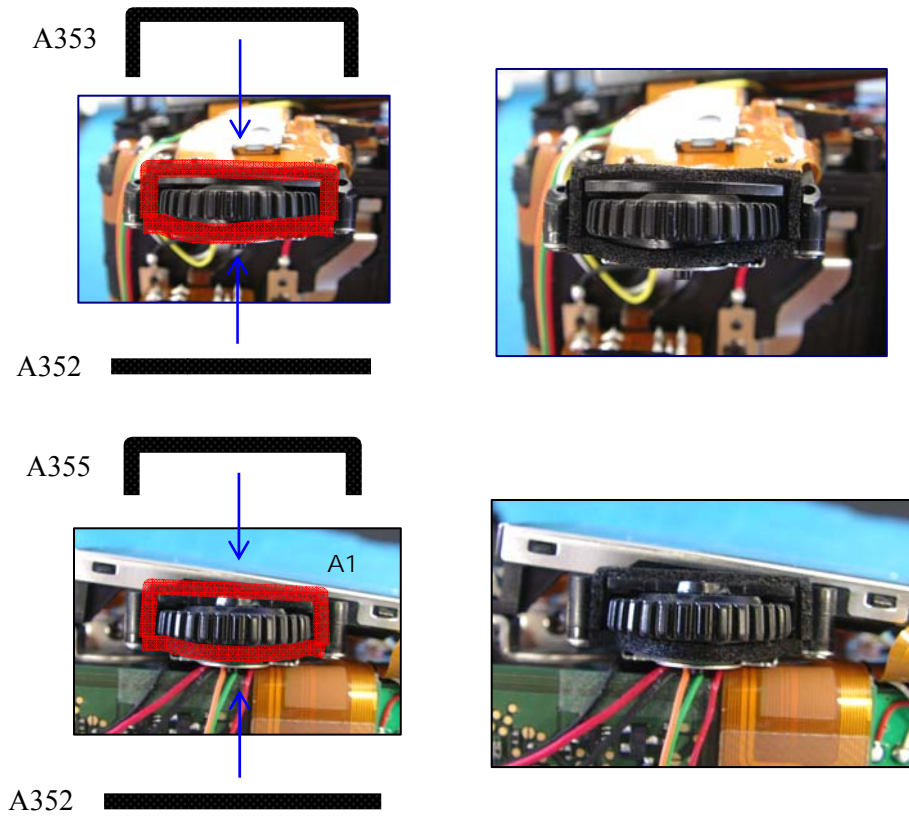


## 24.[Confirmation] Sealing on Body

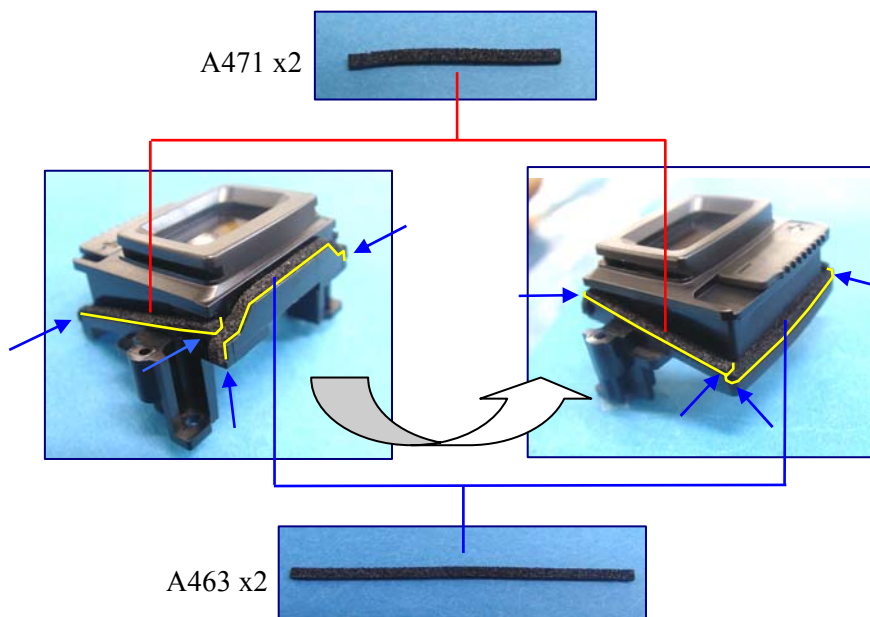
[Confirmation] The sealing should be installed correctly and without any dirt, dust and sand.

① Front and back side electric dial.

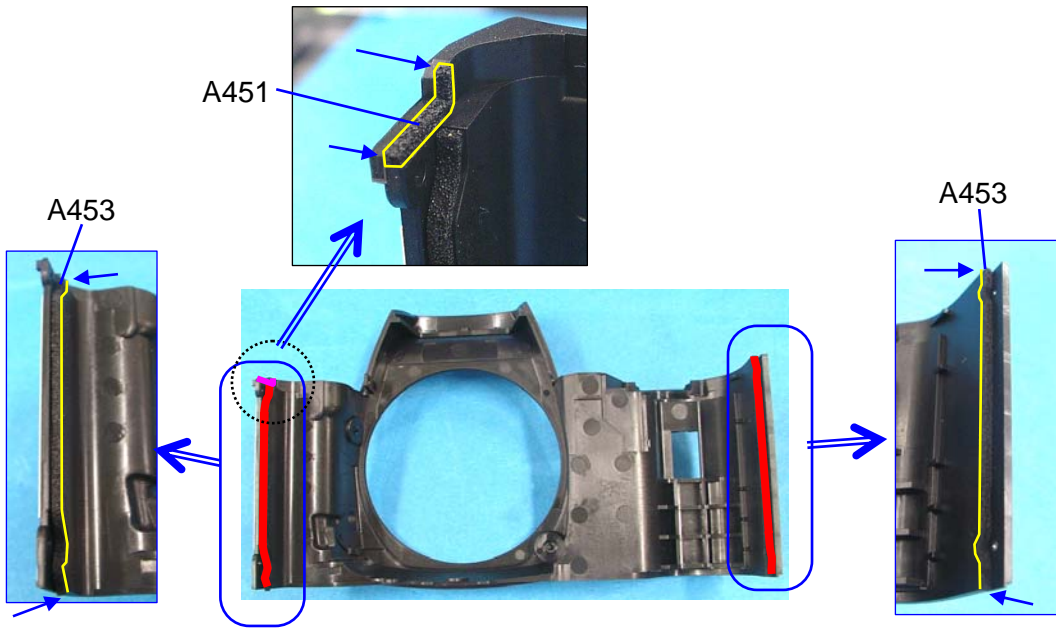
[Confirmation] When rotate the electric dial, it should not touch with a proof sheet.



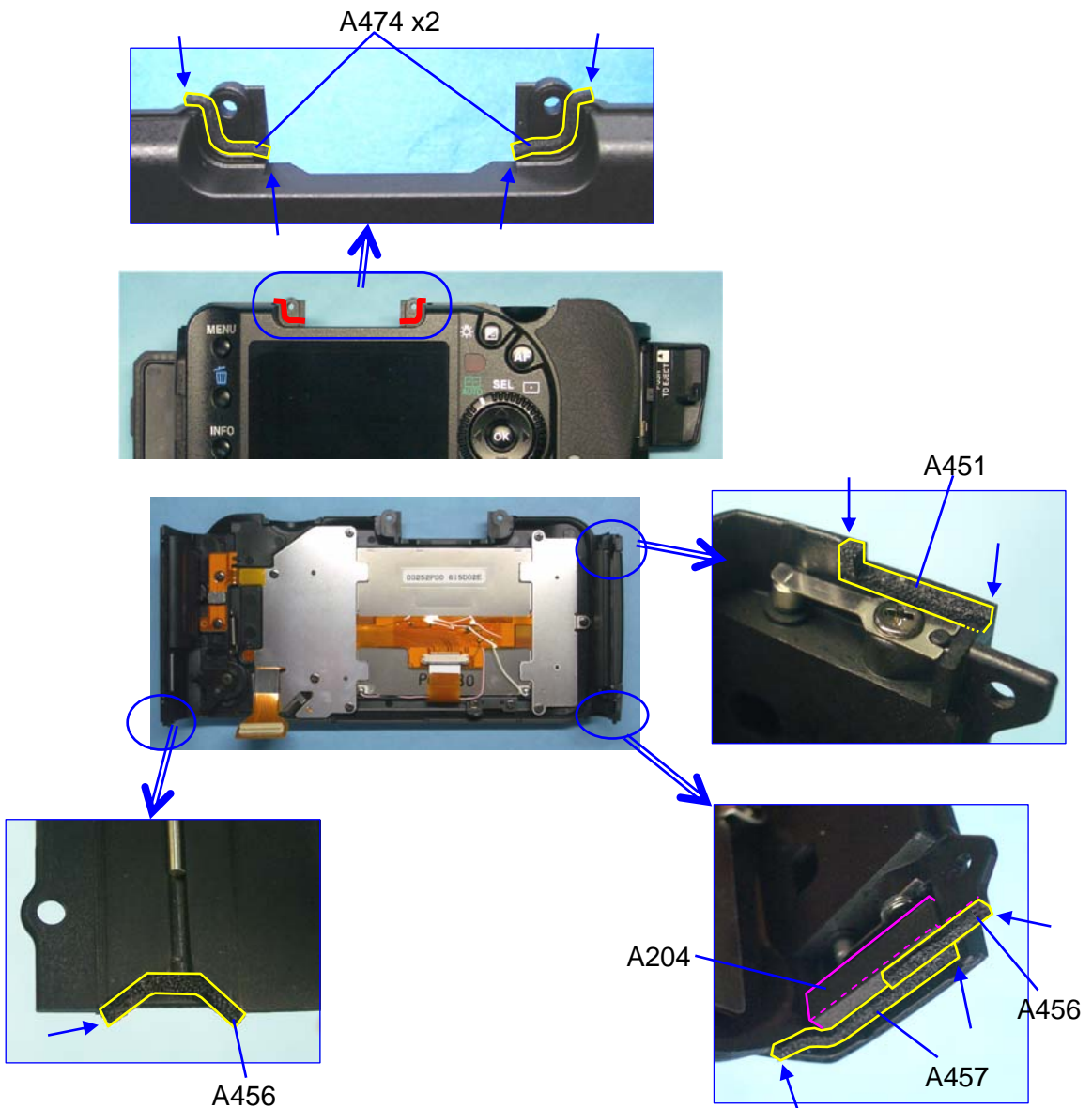
② M311



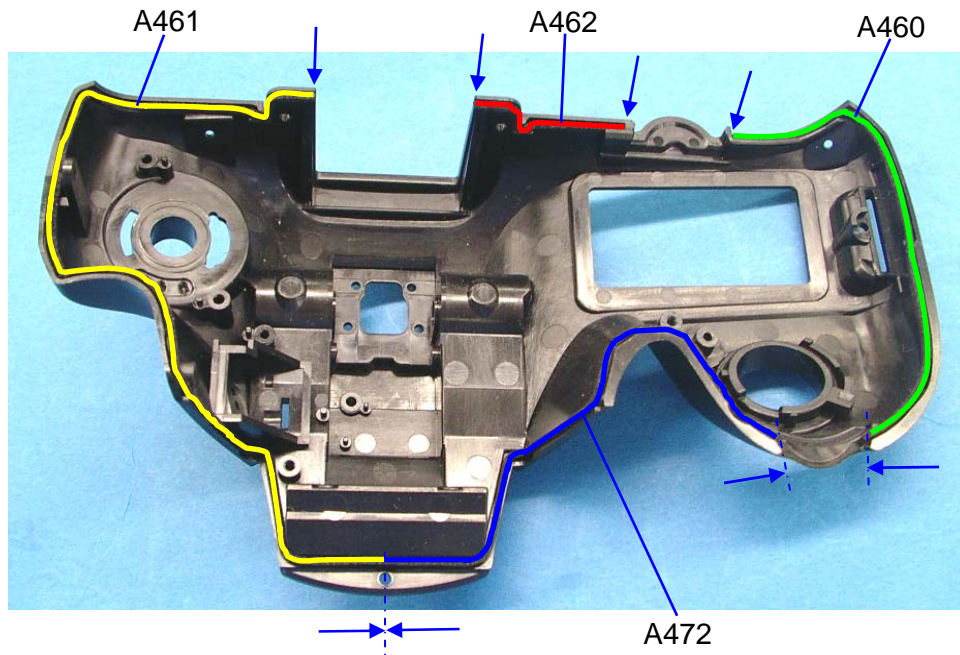
③ A150



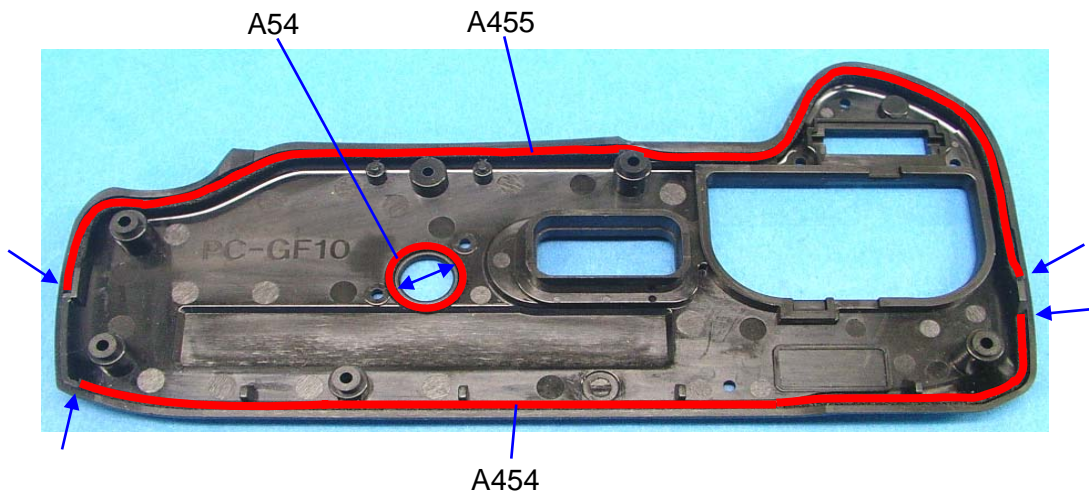
④ A201



⑤ A301



⑤ A401

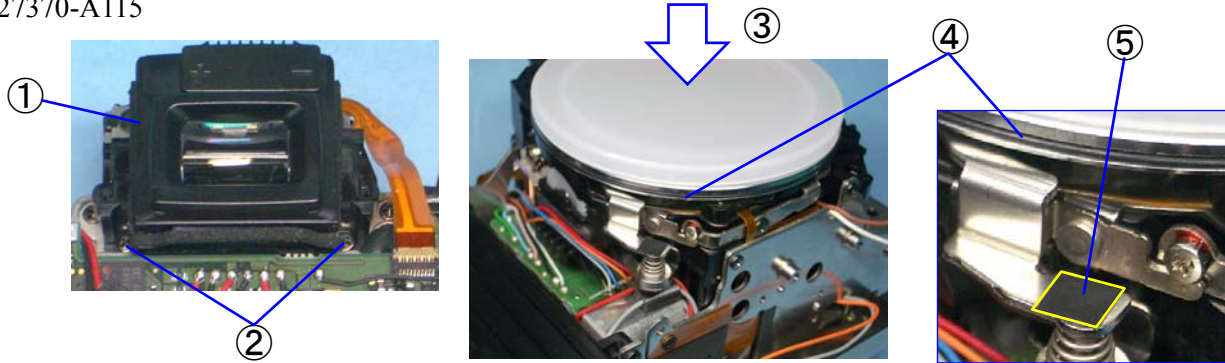


**[Caution]**

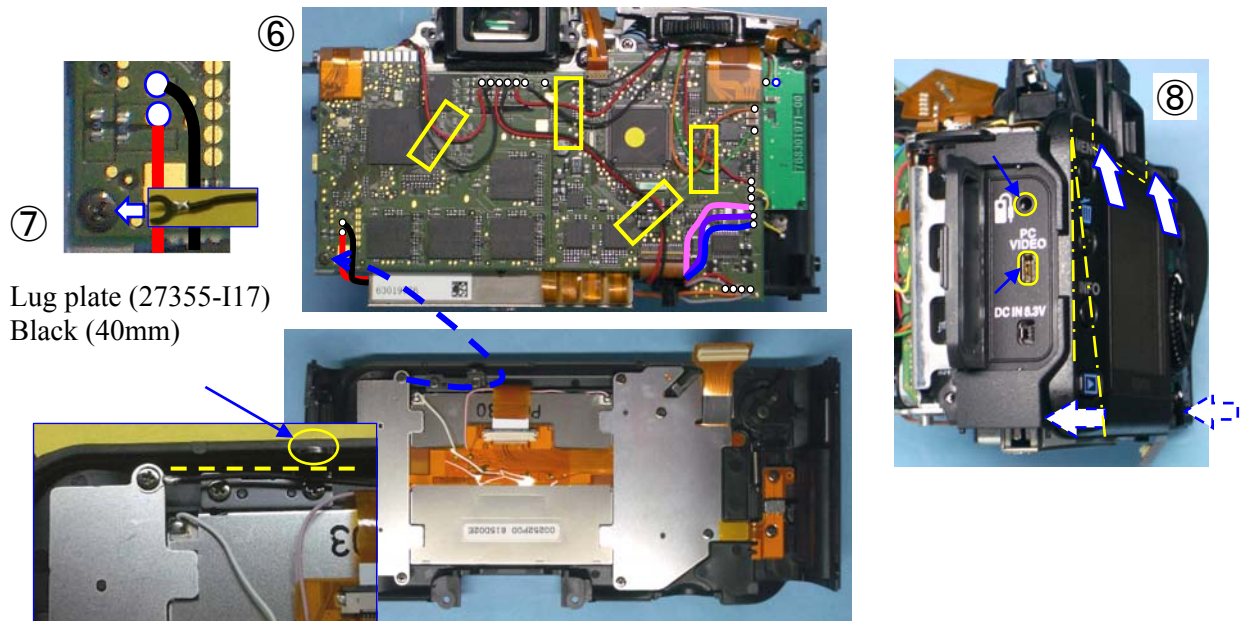
- Pay attention that sealing material should not pulling or twisting
- Install the sealing material carefully, especially when install the part of the curve, especially the periphery of A301, A401, and M311
- If the sealing material has a crack, crushing, cutting, etc., it should be replaced with new one
- When the disassembly/Assembly repeated, the performance of dust-proof, water-resistant construction will be falls.
- Deterioration of the sealing will progress according to the use conditions and the storage conditions. Immediately replace it by a new one if it is damaged, shows cracks, or has lost its elasticity.

**25. A150 and A201(Front cover and Back cover)**

- ① M311
- ② CNL-D1.7x3.0 x2
- ③ Prevent the damage of SI-LED and Tv dial attach mount cover.
- ④ A98 (O-ring) ---There needs to be no adhesion of crushing, a crack, dust, etc in O-ring.
- ⑤ 27370-A115

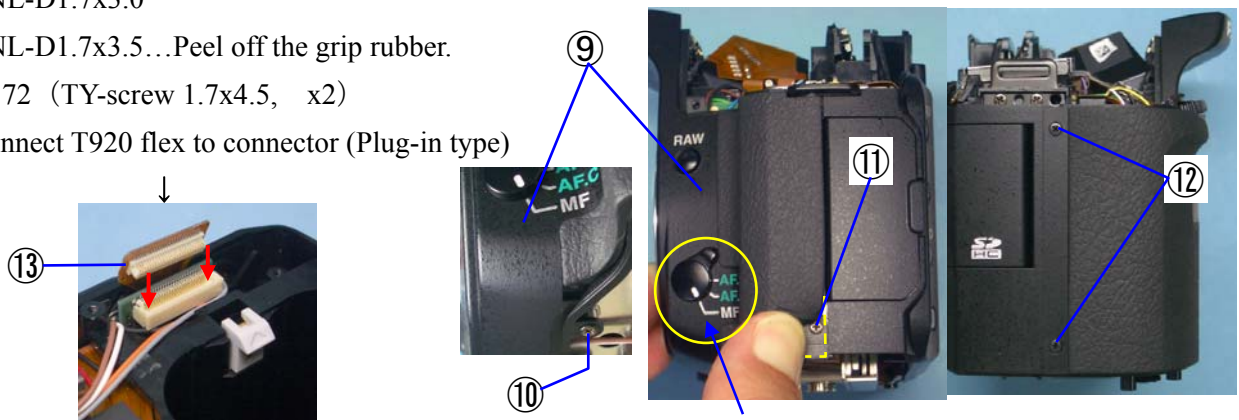


- ⑥ Place camera body and A201 as shown figure
- ⑦ The lug plate from rear cover fix with screw (See the direction of the lug plate)
- ⑧ A201 --- Attach rear cover to the eyepiece part first and then terminal side.



Lug plate (27355-I17)  
Black (40mm)

- ⑨ A150...Set the AF-SW to MF
- ⑩ CNL-D1.7x3.0
- ⑪ CNL-D1.7x3.5...Peel off the grip rubber.
- ⑫ A172 (TY-screw 1.7x4.5, x2)
- ⑬ Connect T920 flex to connector (Plug-in type)

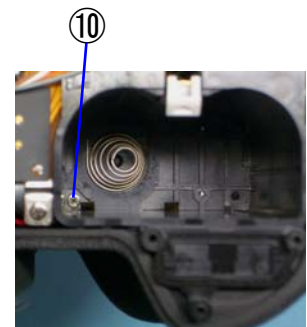
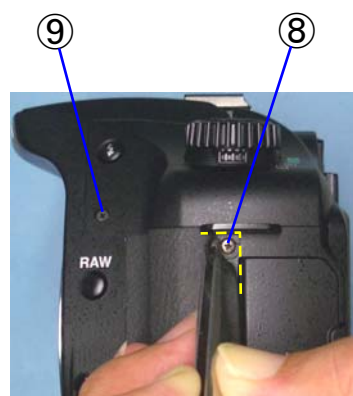
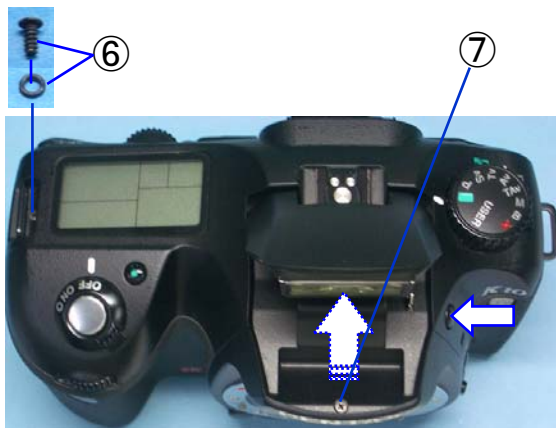
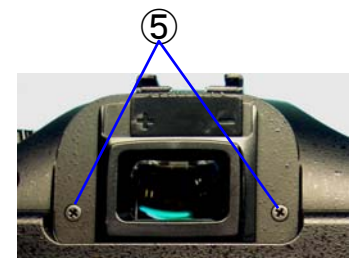
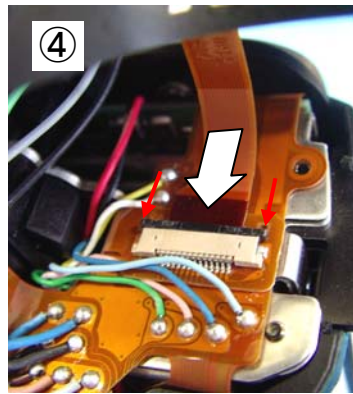
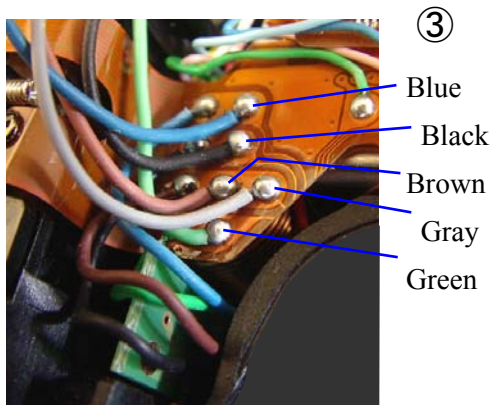
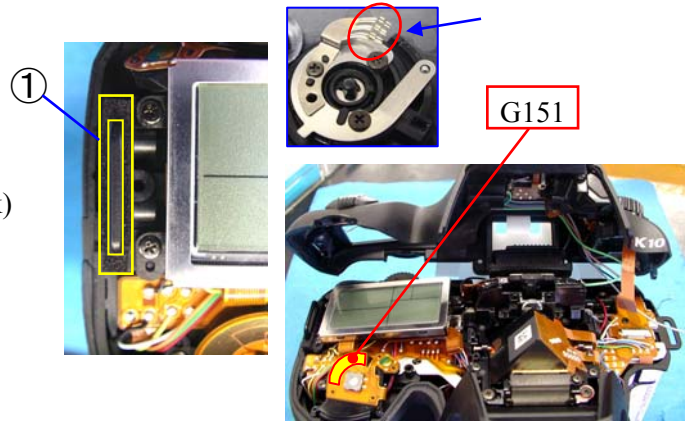


**26. 0-A301(Top cover)**

\*The brush should be without bend

\*Apply G151 to the main SW land.

- ① A27 (Water proof sheet)
- ② 0-A301
- ③ Solder 5 lead wires.
- ④ Connect the T51 flex to the connector(Slide lock)
- ⑤ A173 (TY-screw 1.7x6.0 x2)
- ⑥ A171 (TY-screw 1.7x4.0, A304 (O-ring)
- ⑦ A171 --- pop-up the flash.
- ⑧ CNL-D1.7 x 5.5 --- peel off the grip rubber.
- ⑨ A173
- ⑩ TY-CNL-D1.7x8.0 (In the battery chamber)





## **27. [Confirmation] Function check 1**

**[Required equipment]** Battery adaptor for 76830, DC code for 76830, Regulated DC power supply (8V/3A), SD card, Circuit tester, Lens for checking (FA50mmF1.4), Battery grip D-BG2, Cable switch CS-205, remote control F, Flash for checking (AF360FGZ etc)

### **27-1. Preparation**

- ① Install Bottom cover and battery cover. (not need terminal cover for D-BG2)

### **27-2. Battery consumption**

**[Caution]**If there is over current, disconnect the power immediately.

- ① Connect battery adaptor to the power supply and then set DC 5.6V (3A). (Set battery adaptor SW to battery)
- ② Set the battery adaptor to the camera and confirm the battery consumption current.  
There must be neither short nor leakage.
- ③ Release once and turn OFF the power of body then confirm the battery consumption current.
- ④ Set the battery adaptor SW to Grip and confirm the same as above ② and ③.
- ⑤ Remove the battery adaptor and connect the DC code to the power supply then set DC8.3V.
- ⑥ When connect the DC code to the camera, there must be neither short nor leakage.
- ⑦ Release once and turn OFF the power of body then confirm the battery consumption current.

<b><u>Consumption current</u></b> (Average)	Battery power (DC7.5V)	AC power (DC8.3V)
Main SW/OFF	*50 $\mu$ A	15mA
Main SW/ON --- Light metering OFF	300mA	320mA
Light metering ON	540mA	540mA
Auto power off condition	250 $\mu$ A	15mA

### **27-3. AF and SI check**

- ① Attach the lens (A position) to the camera and set the AF\_SW to AF.S.
- ② Check auto focus function while pressing the shutter release button halfway.
- ③ Confirm the display of SI (Superimpose) in the viewfinder.

### **27-4. Exposure mode and release function**

- ① Attach the lens (A position) to the camera and set the AF\_SW to MF
- ② Set the mode dial to P.
- ③ TV, AV value should be display on the LCD and viewfinder when press shutter button halfway.
- ④ TV,AV value should be changed when turning front and back side e-dial.
- ⑤ When green button is pressed, exposure mode should back to Hyper program mode.
- ⑥ Confirm the display on the LCD and viewfinder while changing the mode dial.
- ⑦ Attach cable switch to the camera, and then check the shutter release function.
- ⑧ Set remote control mode by Fn button, and check the release function using remote control.

At the same time, you will hear the beep.

(With default setting. If selected beep off on the main menu, camera won't beep)

- ⑨ When [+/-] button is pressed, light on the back light of LCD panel and exposure compensation can be set.
- ⑩ When press AE-L button, AE lock can be set
- ⑪ When press exposure bracket button, it can be set.
- ⑫ When press RAW button, [RAW+] should be displayed on LCD panel and it turn off with pressing ROW button again.

**27-5. Shooting and Playback check**

- ① Turn the main SW to OFF and insert the SD card (for Taking picture) into the camera.
- ② Turn the main SW ON
- ③ Press the MENU button and format the SD card according to indication of LCD monitor.
- ④ Set the Quality level and Recorded pixels to the default setting and take three pictures. (Quality Level: ☆☆☆, Recorded Pixels: 10M)
- ⑤ Press the Playback button and confirm the image quality.
- ⑥ When the INFO button is pressed during playback, the camera must switch from Normal Playback Screen to Histogram Display.
- ⑦ When the INFO button is pressed again, the camera must switch from Histogram Display to Detailed Information display.
- ⑧ Take the picture with vertical position. (Set Grip side on top and bottom)
- ⑨ Capture the image and confirm the images are displayed correct angle.
- ⑩ Press the Delete button twice, and then delete all images by the four-way controller key and OK button.
- ⑪ Turn the main SW to OFF and remove the SD card from the camera.



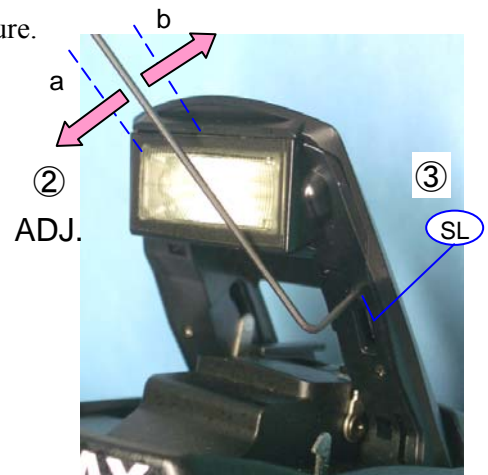
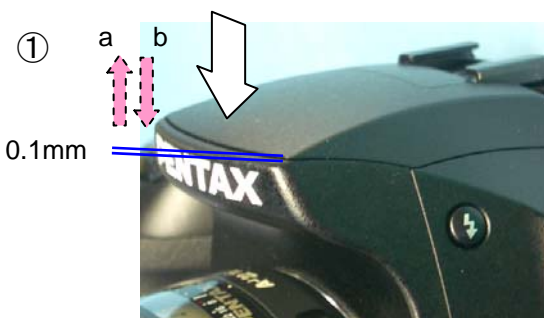
**27-6. Flash Check**

- ① The built-in flash pops up when the flash button is pressed. And, ⚡ must be appeared in the viewfinder and on the LCD panel when flash is fully charged.
- ② The flash must be discharged when taking a picture in low light condition.
- ③ The built-in flash must be retracted firmly when flush is pushed down by finger.  
\*If flash does not retract properly or too much gap (more than 0.2mm), follow the [Adjustment of flash retract position].
- ④ Confirm that ⚡ must be appeared and discharged when an external flash is attached.

**27-7. Adjustment of flash retract position**

[Preparation]: Hexagonal driver 0.9mm (HD-M0.9)

- ① There should be approx 0.1mm between a and b when push down the flash.
- ② It can be adjusted by turning the adjusting screw, refer to the picture.
- ③ Apply screw lock to the adjusting screw.



## **27-8. Check Aperture control and CCD**

- ① Attaching the lens to the camera. Set the focus mode and Capture mode to MF and B.
- ② The aperture of lens must change similarly when the aperture value (Av) is set in opening, the middle, and the minimum with the Av dial.
- ③ Detach the lens from camera, and depress the release button, and make the camera long exposure condition. Confirm there is neither dust nor scratch on the CCD.

## **27-9. Confirm with attaching D-BG2**

- ① Attach the D-BG2 and confirm each operation of battery grip.

## **27-10. Check SD card cover SW**

- ① The camera will turn OFF when the SD card cover is opened during the camera is turned ON.
- ② When close the SD card cover and press release bottom half way, the power must be turned ON.

## **28.[Adjustment] Adjustment for SLR operation**

[**Caution- 1**] When the T100 is replaced, should be follow this adjustment

[**Caution- 2**] When execute this adjustment, each setting will be initialized except custom function.

[**Caution-3**] If refraction type of shutter tester is not used, shutter speed will adjust section of

[31. Shutter speed adjustment by histogram]

### **[Required equipments]**

Programmed software for 76830 (for SLR operation), PC (Windows2000/XP with USB port equipped)  
USB cable , exclusive AC Adaptor (or DC cord for 76830), Light source for AE adjustment (LV6 /LV8 or LV9 / LV12 /LV15 orLV16 / Can be used Shutter tester), Master lens (95901 D20 with Lens ID No), Diaphragm set ring F8 (KA-0-1A), F5.6 diaphragm plate for Master lens, AF positioning jig (Square) for 27830, AF positioning jig (Cross) for 27250, HD driver (HD-M1.5)

AF chart for 2m x2 (Exclusive item), AF master lens for 2m, D-FA (FA) Macro 50mmF2.8,

FA (F) 35-80mm F4-5.6, Battery adaptor for 76830, Regulated DC power supply (8V · 3A)

Refraction type of shutter tester for digital SLR. (1/4000sec can be checked, refer to caution-3)

\*The adjustment method is same as 76700 (K100D)

Followings are listed particular contents for K10D. Refer to the service manual of 76700.

### **28-1. Setting the computer**

\* Setting the computer and Set up the VB run time should be completed

Refer to the service manual of 76642.

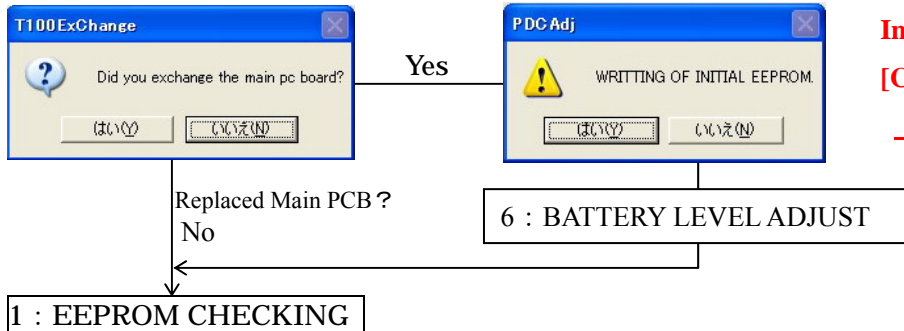
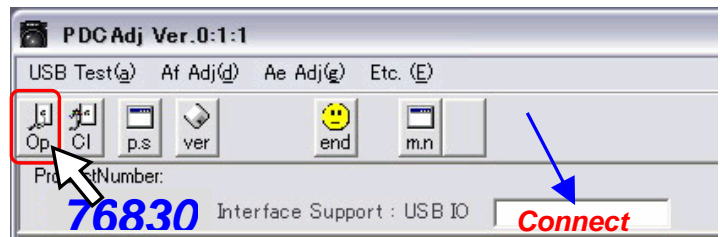
### **28-2. Preparation**

- ① Attach battery cover and bottom cover temporary. (no terminal cover)
- ② Set focus mode to [MF]
- ③ Set mode dial to [M]
- ④ Set SR lever to [OFF]



## 28-3. adjustment

- ① Click [Op] icon to start connection. (USB open)
  - \* Confirm that [Connect] is displayed on USB IO.
- ② Follow the screen and adjust or check.



**Initialize the data**  
**[CAUTION] Select [NO] otherwise**  
**SR adjustment data will be cleared.**

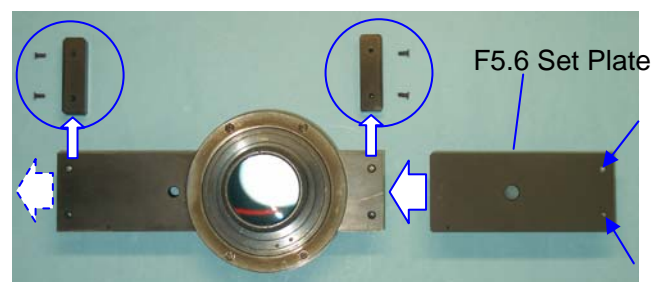
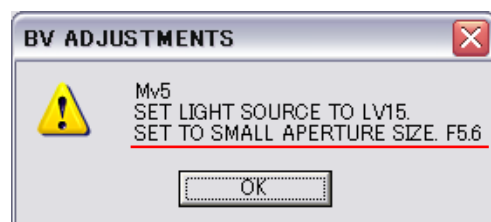
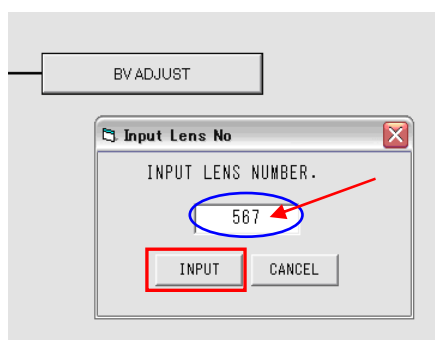
- ↓
- 1 : EEPROM CHECKING
- ↓
- 2 : EXPOSURE ADJUST

◇[BV ADJUST]

### [Required equipments]

- ↓ F5.6 diaphragm plate for Master lens, Master lens (95901 D20 with Lens ID No), Diaphragm set ring F8 (KA-0-1A), Light source for AE adjustment (LV6 /LV8 or LV9 /LV12 /LV15 orLV16 / Can be used Shutter tester)

- ① Input using Lens ID number then click [Input]
- ② When below right Fig is displayed, set the Light source and set the F5.6 diaphragm plate.
- ③ Put the camera and click [OK].

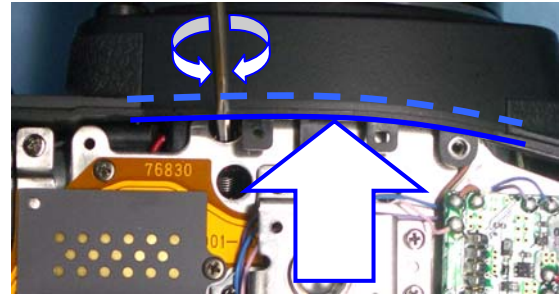
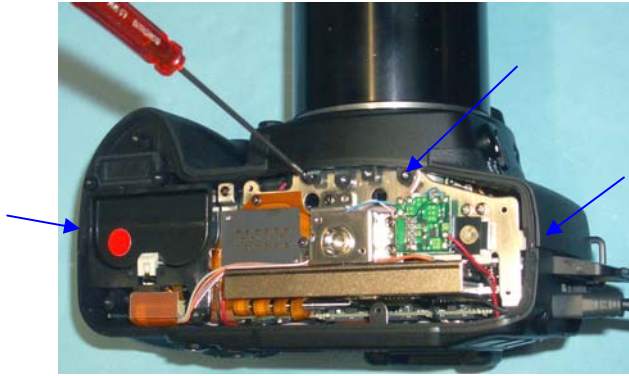


### 3 : AF AND RELATED ADJUST



Method for [CCD POSITION ADJUST]

- ① Remove the bottom cover. (Leave power and USB cable)
- ② Remove 3 screws.
- ③ Pull front cover to front side and put driver then turn the adjustment screw.



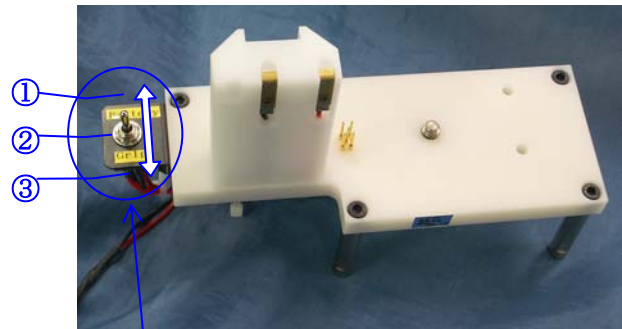
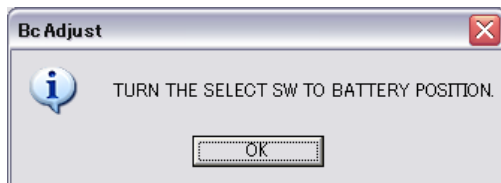
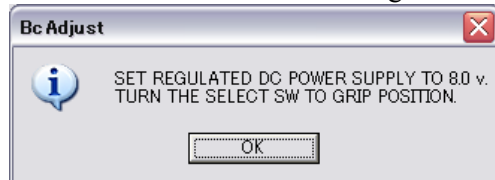
### 6 : BATTERY LEVEL ADJUST

#### ↓ [Required equipments]

Battery adaptor for 76830, Regulated DC power supply (8V/3A)

[Caution] When using battery adaptor, remove terminal cover for D-DB2.

- ① Follow the screen and set voltage and the Select switch.



Battery adaptor for 76830

Select SW : ①Battery

②Battery & Grip

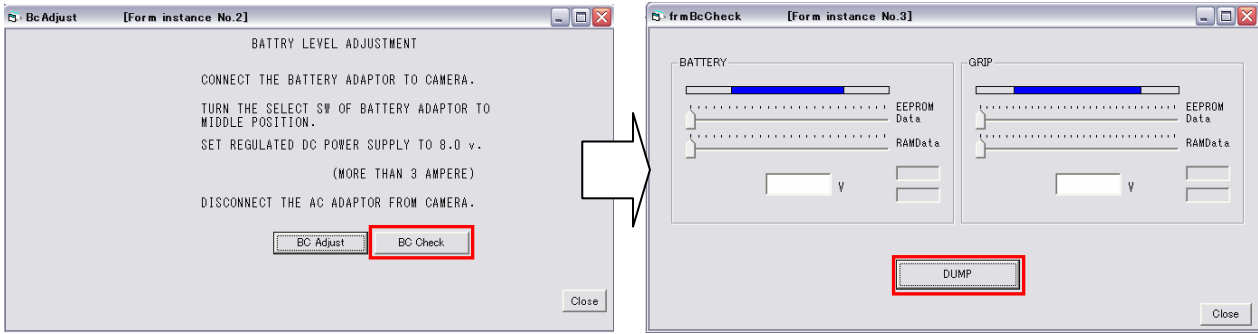
③Grip

#### Battery level check (optional)

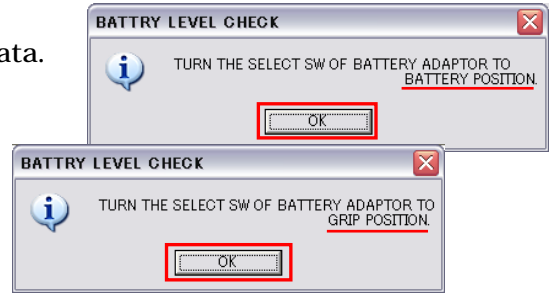
\*It can be confirmed battery side or D-BG2 side.

Set the voltage to DC8.0V correctly.

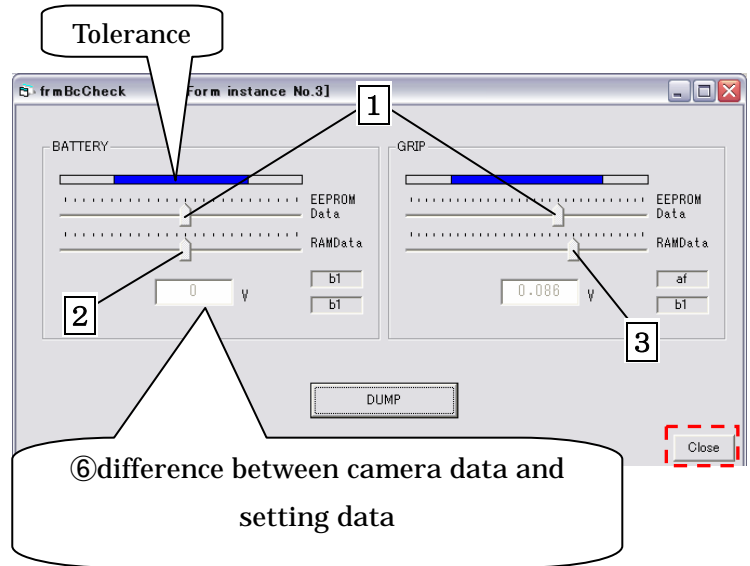
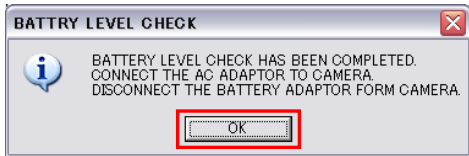
- ① Follow the screen and attach the battery adaptor then click [BC CHECK]
- ② Click [DUMP] (Read EEPROM data and indicate as shown figure -- [1])



- ③ Change the select SW to battery and click [OK].  
(Indicate setting voltage of battery side as shown in figure -- [2])
- ④ Change the select SW to Grip and click [OK].  
(Indicate setting voltage of D-BG2 side as shown in figure -- [3])
- ⑤ Content of checking will be displayed.
- ⑥ Confirm the difference between camera data and setting data.  
\*If difference is too much, execute the adjustment.



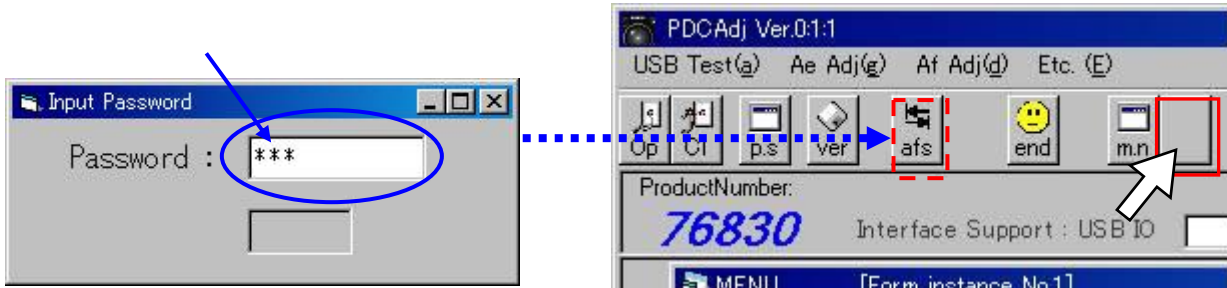
- ⑦ Follow the screen and click [OK] and [Close] to finish the checking.



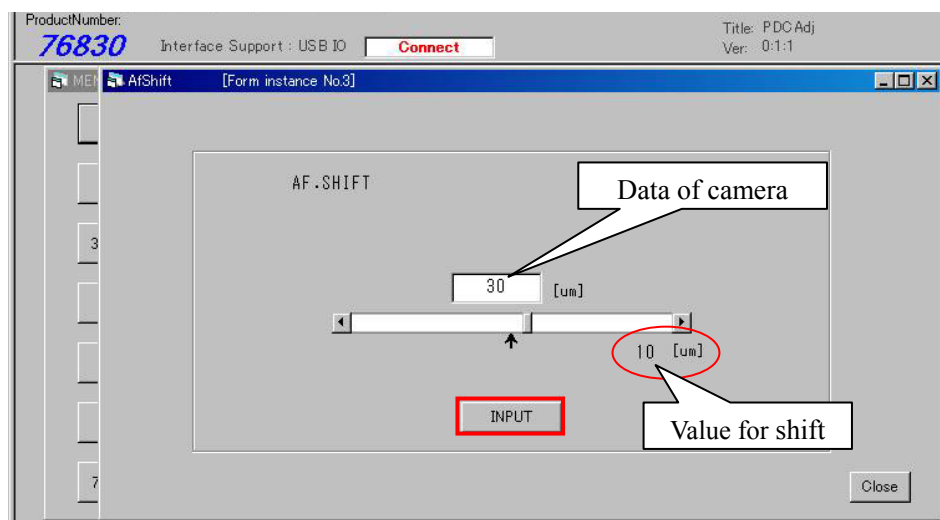
## 28-4. AF shift adjustment (Optional)

\*If AF does not improve by AF focus adjustment and there is no other factor, execute AF shift adjustment if necessary.

- ① Click  button as shown in fig.
- ② Input [AFS] by capital letter and press [Enter] key.



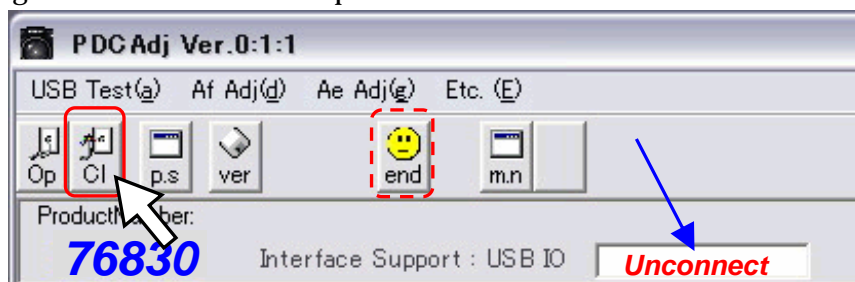
- ③ [afs] will be displayed on tool bar.
- ④ When click [afs] button, below AF shift screen will be displayed.
- ⑤ Move the cursor right or left to change the value of AF shift. (+: shift to front side, -: shift to back side)
- ⑥ Click [Input] to adjust. (Can not input more than  $\pm 100\mu\text{m}$ )



## 28-5. Procedure for Ending the program soft

- ① Click "Cl" icon and disconnect the correspond with camera. (USB close)  
[Confirm] [Unconnect] is displayed on USB IO.

\*Finish the Program soft with the same procedure of K100D.



## **29.[Adjustment]SR adjustment 2 (Gain adjustment)**

\*It is the same adjustment with K100D except adjusting software and power source.

**[Caution-1]** Execute this adjustment when replaced T100, T970 and C100 block.

**[Caution-2]** [SR adjustment- 1] should be completed before this adjustment.

**[Caution-3]** Do not give the camera the vibration when you adjust it.

Put on the sturdy and stabile table.

**[Caution-4]** The weight of the stage is more than 10kg, so pay attention the handling

**[Required equipments]** Adjustment software for 76830 (SR gain adjustment), USB cable, AC adaptor,

Personal computer (Windows 2000 or XP which equipped USB port), DA50-200mm lens

SR gain adjustment set (Controller, stage, speed meter), Chart (Attached in service manual)

### **29-1. Setting the computer**

① Copy [SR Gain adjustment] folder into the computer.

② [VB runtime set-up] should be completed.

\*Method for adjustment is the same as K100D. (Refer to service manual for 76700)

\*If adjustment is NG, refer to Technical information [Table of Error code]



### **30. [Adjustment] Digital**

**[Caution]**If execute this initialization, all setting will be initialized except custom function.

#### **[Required equipment]**

Programmed software for 76830(Digital), Computer (Windows 2000 or XP with USB port equipped )  
Light source (LB-3300: A light 2850 K $\pm$ 10, LV11.00), Master lens for 76180 (95901 D20), Diaphragm set ring F8 (KA-0-1A), AC adaptor (D-AC10), USB cable (I-USB17), Dark curtain, Color temperature tester (for calibration), LV meter (for calibration)

\*The adjustment method is the same as K100D.

\*Followings are listed particular contents for K10D. Refer to the service manual of 76700.

#### **30-1. Setting the computer and Light source**

- ① Copy the folder [76830] from the CD-ROM into the Computer.
- ② [3. Calibration of light source for Digital adjustment] should be completed before.
- ③ Confirm or calibrate color temperature and brightness by using color meter and LV checker as shown below table.

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

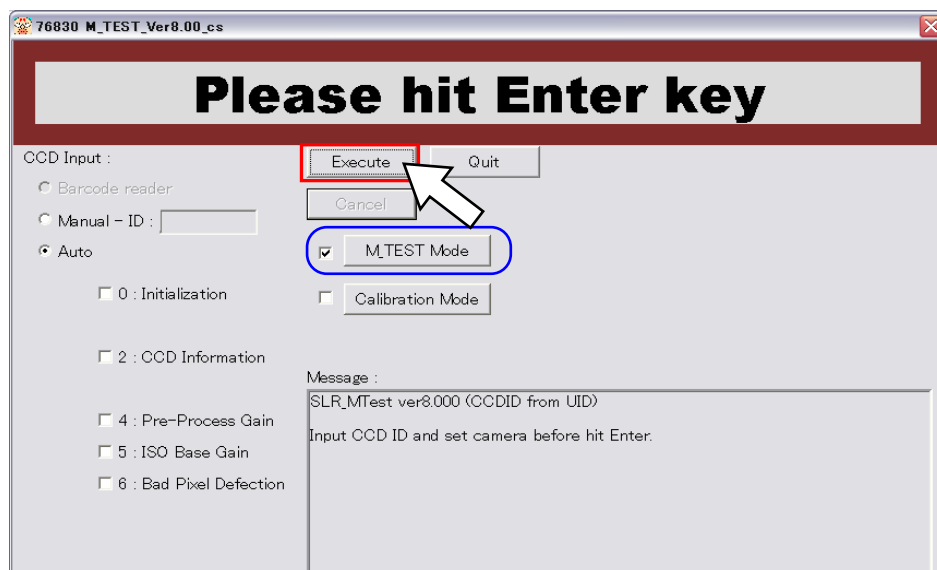
#### **30-2. Setting of camera and master lens**

- ① Set mode dial to [M]
- ② Set focus mode lever [MF]
- ③ Set SR lever to [OFF]
- ④ Attach the master lens 76180 and Diaphragm set ring F8 to the camera.
- ⑤ Set master lens to [F8 position]

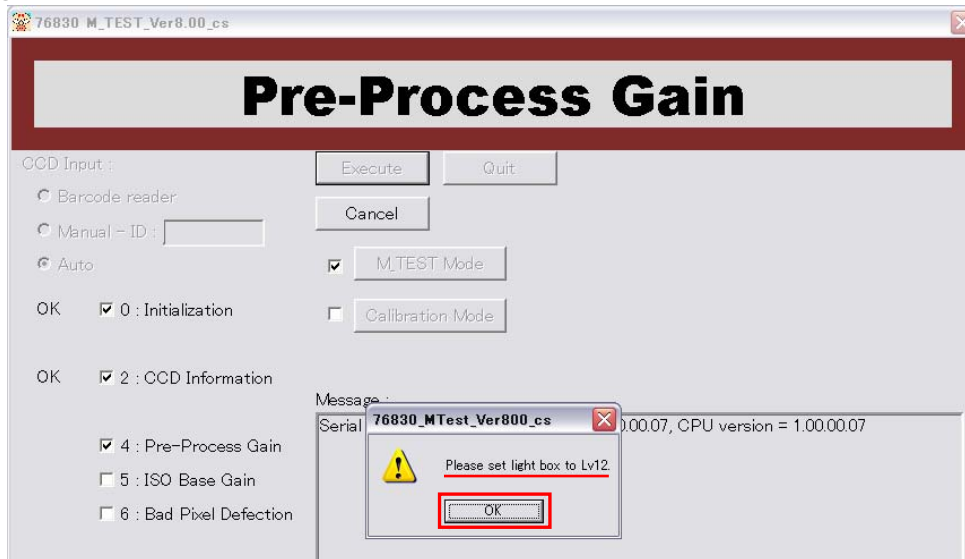
#### **30-3. Procedure of adjustment**

\*Start up the computer with the same method of K100D and follow the screen.

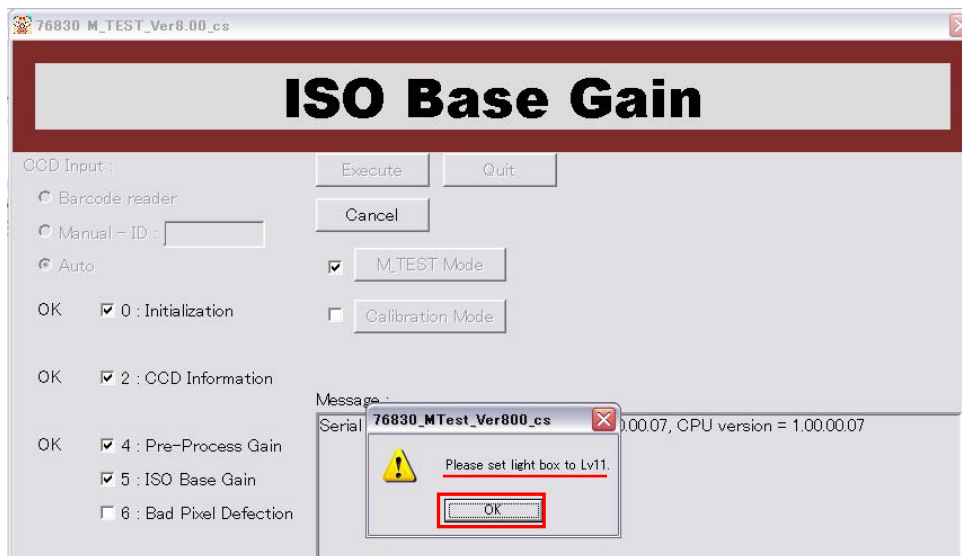
- ① Confirm setting [M\_Test Mode] and press [execute] button to start adjustment.



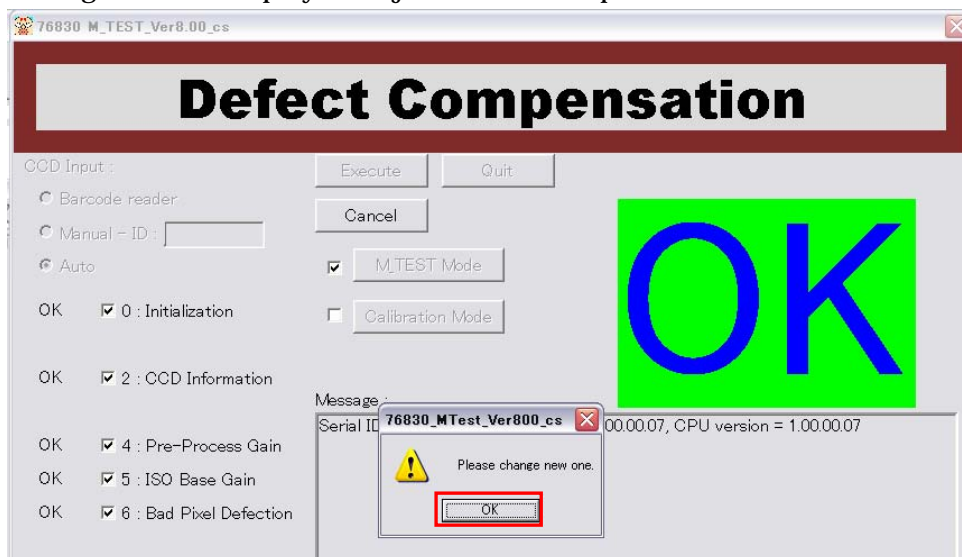
② Set the light source to LV12 and press[OK].



③ Set the light source to LV11.



④ When following screen is displayed, adjustment is completed.



\*If adjustment is NG, refer to Technical information [Table of Error code]

### **30-4. WDC Adjustment procedure**

\*The adjustment method is the same as K100D. Refer to the service manual of 76700.

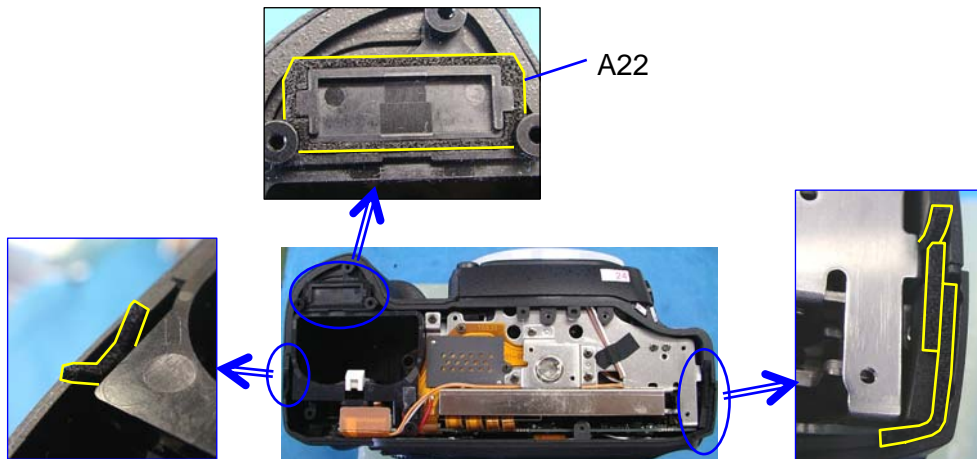
\*There is possibility that CCD pixel defect compensation can be adjusted by adjust repeatedly.

### **31. [Adjustment] Shutter speed adjustment by histogram**

\*The adjustment method is the same as K100D. Refer to the service manual of 76700.

### **32. A401 Bottom cover**

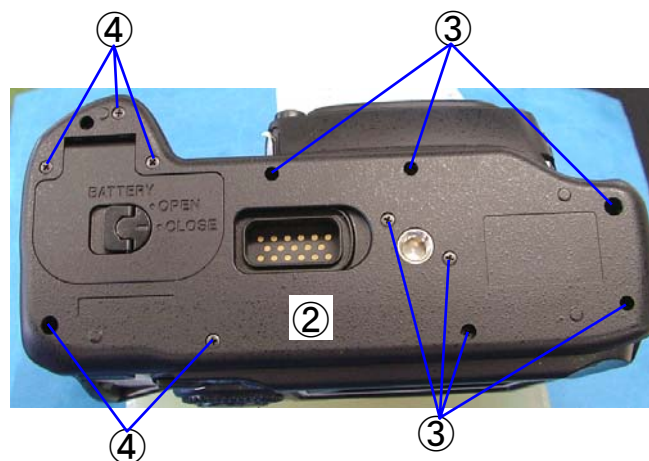
① Confirm the sealing.



② A401 and battery cover

③ A174(1.7x4.0 x7)

④ A172(TY 1.7 x 4.5 x5)



### **33.[Confirmation]Function Check 2 (Final)**

\*Method for confirmation is the same as K100D. Refer to the Service Manual of 76700 for details.

\* **[Confirmation of AF focus]**: Newly add AF chart and scale for confirmation. (Attached this manual)

\* **[CCD cleaning]**: Do not wipe with strong force otherwise it will be affect performance.

\*Followings are listed particular contents for K10D. Refer to the service manual of 76700.

### **33-1. Confirmation of SR function**

This confirmation is listed for [Method of confirmation for SR function on service]

**[Preparation]** Computer, Battery (or AC adaptor), USB cable, 50mm lens, SD card (for taking picture), Image viewing software (e.g. PENTAX PHOTO Browser™, ACDSec™, Adobe Photoshop, other)

- ① Attach the lens (FA50mm) to the camera and set the aperture to the A position.
- ② Set the camera as follows.  
Exposure mode: Tv (Shutter-priority) mode, Focus mode SW:AF.S mode, AE metering: Center-Weighted Metering, Single frame shooting (Fn Drive mode), AWB (Fn menu), Recorded pixels and Quality Level: [6M(10M)/★★★]
- ③ Set Tv8 (1/8sec) --- Approx.3.5 step
- ④ Set the camera 2m from subject.
- ⑤ Set the SR switch OFF. Hold the camera horizontal position (vertical position) and take picture 10 frames.
- ⑥ Next, set the SR switch ON. Hold the camera horizontal position (vertical position) and take picture 10 frames.

**[Caution]** To ensure the test, release the shutter after 1 second from SR indication is turned on in the viewfinder.

- ⑦ View the pictures which have been taken above by the Image viewing software.
- ⑧ Compare the image of SR function ON with SR function OFF and confirm the SR function effect to the picture.

**[Caution]** Effect of SR function may differ from condition of holding the camera.

**[Reference]** confirmation for SR mechanism (When use different type of focal length)

The shutter speed of prevention for shaking is calculate with [1 / focal length of the lens]

For instance, if the focal length is 200mm:  $1 / (200 \times 1.5) = 1/300$

\* Size of picture for digital camera is 23.5 x 15.7mm and it is about 1.5 times when converting it into the focal length of 35milli-size camera.

- ① Calculate the shutter speed of prevention for shaking as above.  
For instance, if the focal length is 200mm:  $1 / (200 \times 1.5) = \underline{1/300}$
- ② Converts above shutter speed to three step down.  
 $1/300 \rightarrow 1/150 \rightarrow 1/75 \rightarrow \underline{1/30}$  (Approx. Three step)
- ③ Set Tv 30
- ④ Follow the procedure of 21-1, ④ to ⑧

**[Caution]** The effect of the shake reduction is influenced by the focal length of the lens and the object distance and effect might not become visible in the short distance (D-FA50mm Macro 0.4m), also an enough effect might not become visible at the low temperature.

### **33-2. Default setting**

\*Method for setting is the same as K100D. Refer to the Service Manual of 76700 for details.

\*Only file number can be changed by [mode memory]. Refer to Operating manual.

### 33-3. FW version up

\*Version up latest FW if necessary,.

\* Method for version up is the same as K100D. Refer to the Service Manual of 76700 for details.

## TECHNICAL INFORMATION

### Battery consumption current

Condition : Lens [FA lens, A position], each mode and setting is default setting.

Lens --- ○: With      ×: Without

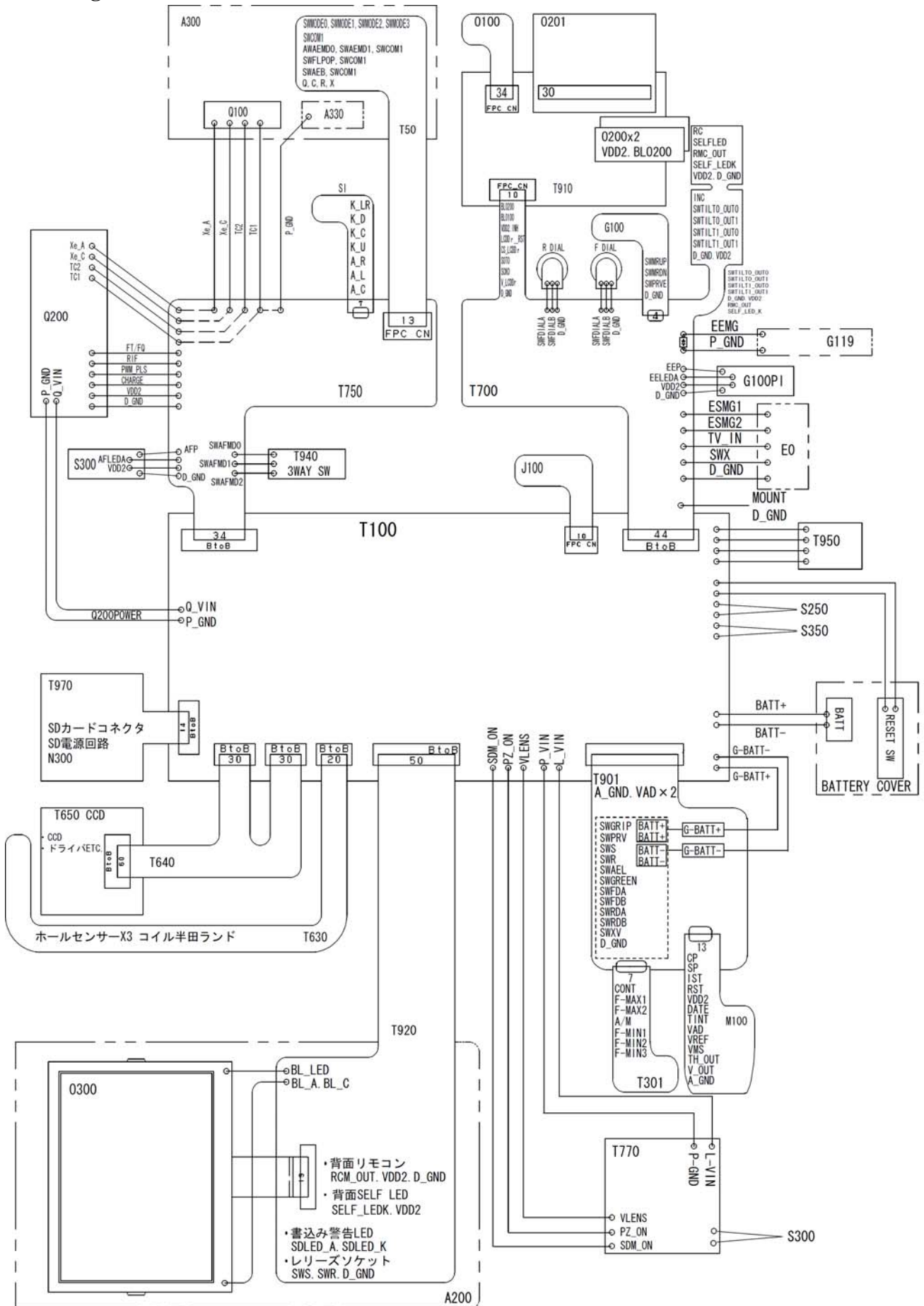
SD card --- ○: With      ×: Without

\*5,6 and 7 are peak value averages and others are normal average.

\*Column of Equivalent of battery: Using battery adaptor

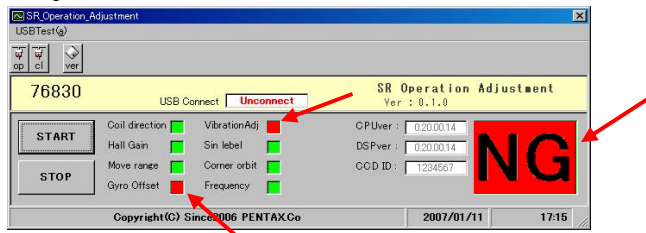
	Condition of camera	Lens	Card	Equivalent of battery		AC Power supply DC8.3V
				DC7.5V	DC8.3V (For ref)	
1	Main SW/OFF	○	×	50μA	50μA	15mA
		○	○	150μA	150μA	15mA
		×	×	50μA	50μA	15mA
2	After auto power OFF	○	×	250μA	250μA	15mA
		×	×	250μA	250μA	15mA
3	Main SW/ON (Meter OFF)	○	×	300mA	300mA	320mA
		○	○	300mA	300mA	320mA
		×	×	300mA	300mA	320mA
4	Main SW/ON (Meter ON)	○	×	540mA	500mA	540mA
		○	○	540mA	500mA	540mA
5	Charging Flash (Meter ON) *	○	×	2,100mA	2,200mA	2,200mA
6	Driving AF motor *	○	×	2,800mA	2,800mA	2,800mA
7	Operating Power zoom	PZ (AF)	×	3,500mA	4,000mA	3,500mA
		PZ (MF)	×	2,200mA	2,200mA	2,200mA
8	Releasing Shutter *	○	×	3,600mA	3,600mA	3,600mA
		○	○	3,600mA	3,600mA	3,600mA
9	Recording the image after release	○	○	600mA	620mA	650mA
10	Bulb	○	×	1,400mA	1,400mA	1,400mA
		○	○	1,400mA	1,400mA	1,400mA
11	Displaying menu (LCD)	○	×	600mA	600mA	600mA
12	Displaying menu (Video output)	○	×	500mA	500mA	500mA
13	Displaying playback image	○	○	600mA	600mA	600mA
14	Recording payback image in the card	○	○	620mA	620mA	620mA
15	Stand by for USB communication	○	○	350mA	350mA	350mA
16	Reading playback image in the card with USB communication	○	○	400mA	400mA	400mA

# Block Diagram



## Table of Error Code (SR unit adjustment)

When adjustment error is occurred, below screen will be displayed.

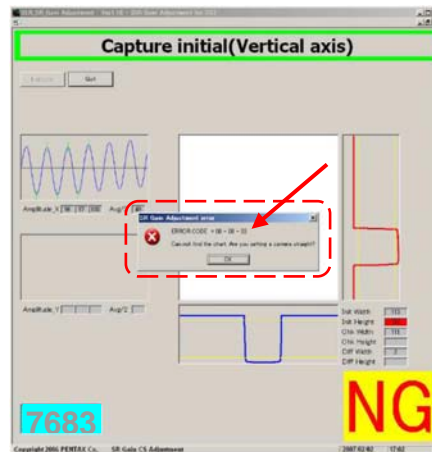


[Table of Error Code for SR unit adjustment] (aa-bb)

Error code	Contents		
01	00	DUTY ERROR (X axis)	X axis DUTY level error
	01	DRIVE ERROR (YL,YR axis)	Y axis driving error
	02		
	03	DUTY ERROR (YL,YR axis)	Y axis DUTY level error
02	00	Verf is NO GOOD (Hall X axis AD)	X axis hall sensor AD value error
	01	Verf is NO GOOD (Hall YL axis AD)	Y axis hall sensor AD value error
	02	Verf is NO GOOD (Hall YR axis AD)	
	03	Hall Gain is NO GOOD	hall sensor Vref is over limit
	04	-----	
	05	-----	
	06	Hall Gain is NO GOOD (Iref X)	X axis hall sensor Iref level error
	07	Hall Gain is NO GOOD (Iref YL)	YL axis hall sensor Iref level error
08	Hall Gain is NO GOOD (Iref YR)	YR axis hall sensor Iref level error	
03	00	Move range Error	X, Y axis move range error
04	00	Overlimit (X axis Error)	X axis oscillation level is over limit
	01	Overlimit (X axis Error All)	
	02	Overlimit (YL axis Error)	YL axis oscillation level is over limit
	03	Overlimit (YL axis Error All)	
	04	Overlimit (YR axis Error)	YR axis oscillation level is over limit
	05	Overlimit (YR axis Error All)	
06	00	Overlimit (Corner orbit [UR])	UR axis driving oscillation level is over limit
	01	Overlimit (Corner orbit [UL])	UL axis driving oscillation level is over limit
	02	Overlimit (Corner orbit [LR])	LR axis driving oscillation level is over limit
	03	Overlimit (Corner orbit [LL])	LL axis driving oscillation level is over limit
07	00	Overlimit (Frequency)	Frequency characteristic level error
	01		
08	00	-----	
09	00	Gyro Offset Error	Gyro output is uneven
10	XX	Vibratuon Adjustment No Good	Frequency adjustment error

## Table of Error Code (SR Gain adjustment)

When adjustment error is occurred, below screen will be displayed.



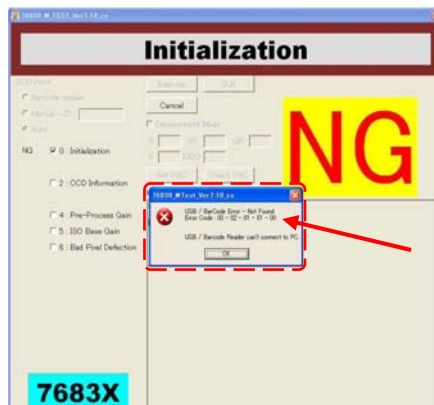
[Table of Error Code for Gain adjustment] (aa-bb-xx)

(aa)	(bb)	(xx)	
00 initialization	01 Read configuration file	01 Can't found setting file.	
	02 Initialize USB	01 Can't Power on 02, 03 Command error (Communication error)	
	03 Initial setting	04 Can't use this program (This program for another model) xx Command error (Communication error)	
01 Initial capture check (X axis)	01 Initial setting	01-06 Command error (Communication error)	
		07 SW error (Manual mode)	
		08-10 Command error (Communication error)	
		11 SW error (MF mode)	
		12 Command error (Communication error)	
		13 SW error (SR SW)	
		14 Command error (Communication error)	
		xx Command error (Communication error)	
		02 Config setting	xx Command error (Communication error)
		03 Set initial data	xx Command error (Communication error)
02 Sensitivity Adjustment (Gyro X)	04 Read initial data	01 Command error (Communication error)	
	05 Set ram data for SR	xx Command error (Communication error)	
	06 Camera release	xx Command error (Communication error)	
	07 Get capture data	xx Command error (Communication error)	
		01, 02 Command error (Communication error)	
	08 Display capture data	03 Can't display capture image	
		01 Initial image is out of spec (X axis)	
02 Check image is out of spec (X axis)			
03 Initial image is out of spec (Y axis)			
03 Capture check (X axis)	04 Check image is out of spec (Y axis)		
	[bb-xx] is the same as "01(aa) Initial capture check (X axis)"		
	04 Write gyro sensitivity data (X axis)	xx Command error (Communication error)	
	04 Prepare to remove USB	xx Command error (Communication error)	
05 initialization	01 USB clear up	xx Command error (Communication error)	
	02 Initialize USB	01 Can't Power on 02, 03 Command error (Communication error)	
	03 Initial setting	04 Can't use this program (This program for another model) xx Command error (Communication error)	
06 Initial capture check (Y axis)	04 Write gyro sensitivity data (X axis)	[bb-xx] is the same as "01(aa) Initial capture check (X axis)"	
		01 Set initial data	xx Command error (Communication error)
		02 Get gyro position data (X data)	xx Command error (Communication error)
		03 Calculate	01 Gyro wave data is something wrong (X data) 02 Gyro wave data is something wrong (Y data)
07 Sensitivity Adjustment (Gyro Y)	04 Write gyro sensitivity data (X axis)	xx Command error (Communication error)	
	[bb-xx] is the same as "01(aa) Initial capture check (X axis)"		
	09 Prepare to remove USB	xx Command error (Communication error)	



## Table of Error Code (Digital adjustment)

When adjustment error is occurred, below screen will be displayed.



## [Table of Error Code for Digital adjustment]

AA - BB - CC - DD - EE

AA: Adjusting item		
00	Initialize	Initialize check
02	CCD Information	CCD data display
04	Pre-Process Gain	WB Adjustment
05	ISO Base Gain	ISO Gain adjustment
06	Bad Pixel Defection	CCD pixel compensation adjustment

BB-CC: Error item	
-------------------	--

BB-CC: Initialize (AA=00)	
01-01	Reading setting file
02-01	Camera - PC connection
02-02	Camera - PC connection
02-03	Acquisition of camera status
02-04	Acquisition of camera information
03-01	CCD file open
03-02	CCD file size not correct
03-04	CCD file data is not correct
05-05	Missing setting file, light calibration file
06-01	DSP version is not the same
06-02	CPU version is not the same
07-01	Can not read ISOgain adjustment
07-02	Can not read PPG adjustment value

BB-CC: ISO Gain (AA=05)	
01-01	Mode dial is not switched
01-02	
01-03	Can not setting camera
01-04	
01-05	Mode dial is not "M" mode
01-07	Not setting multi segment metering
01-09	Not setting to allowing to release at M position
01-10	SR SW is not set to OFF
03-01	Can not set shutter speed
03-02	Can not set diaphragm
03-03	Can not set ISO
03-04	Can not set exposure compensation
03-05	Can not set WB
03-06	Can not metering
03-07	Can not acquisition of AE information
04-01	Can not set PPG gain value
10-01	
04-02	Can not set CCD gain value
10-02	
08-01	
14-01	CCD output value is not correct
17-01	Can not set adjusted value
17-02	Not switch to writing mode for adjusted value
17-03	Can not write adjusted value

DD-EE: Error content	
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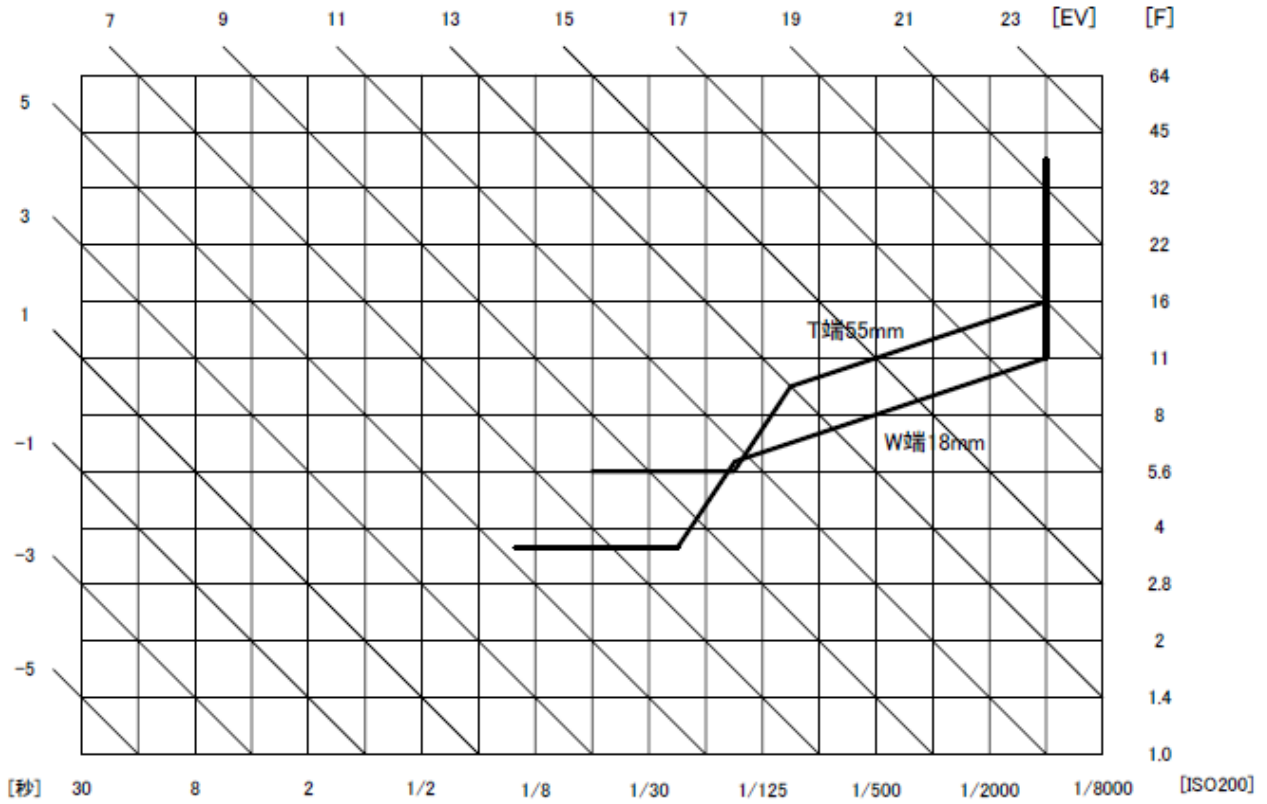
01-00	
01-01	Connection error for USB or No power of Camera
01-02	
02-01	Can not access to file
05-01	
06-01	Can not transfer USB command correctly
07-00	
07-01	
08-00	Out of range (too low )
08-01	Out of range (too high)
08-02	White scratch: many of high level pixels
08-03	White scratch: cannot correct (continuity scratch)
08-04	Black scratch: cannot correct (continuity scratch)
08-05	Cannot correct scratch
08-06	HW scratch correct failure
08-07	Can not set power control
08-08	AFE calibration NG
08-09	Can not acquisition of power control value
08-10	light compensation RGG ratio
09-00	FE version is not correct
09-01	Skipped previous process
09-02	Trying to adjust master body

BB-CC: Pre-Process Gain (AA=04)	
01-01	Mode dial is not switched
01-02	
01-03	Can not setting camera
01-04	
01-05	Mode dial is not "M" mode
01-07	Not setting multi segment metering
01-09	Not setting to allowing to release at M position
01-10	SR SW is not set to OFF
03-01	Can not set shutter speed
03-02	Can not set diaphragm
03-03	Can not set ISO
03-04	Can not set exposure compensation
03-05	Can not set WB
03-06	Can not metering
03-07	Can not acquisition of AE information
05-01	
08-01	Can not set PPG gain value
14-01	
05-02	
08-02	Can not set CCD gain value
14-02	
07-01	
12-01	CCD output value is not correct
20-01	Can not set adjusted value
20-02	Not switch to writing mode for adjusted value
20-03	Can not write adjusted value

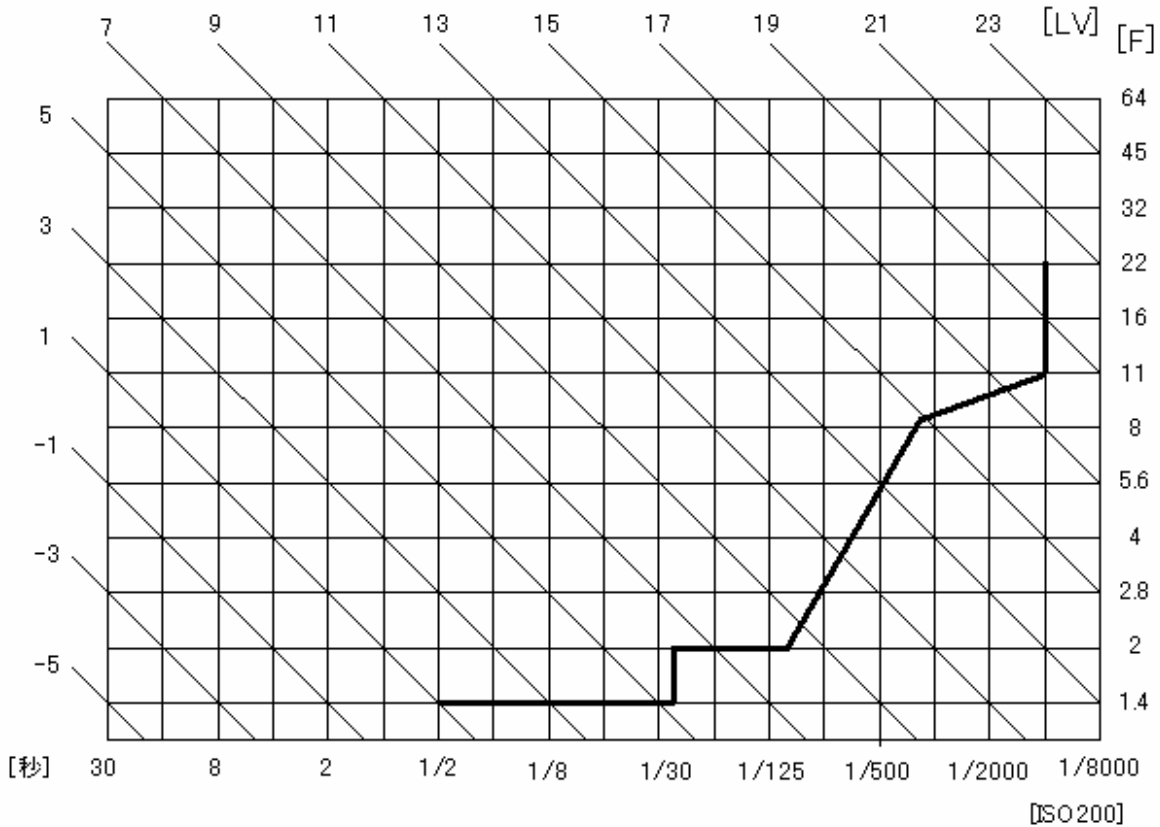
BB-CC: Bad Pixel Defection (AA=06)	
01-01	Mode dial is not switched
01-02	
01-03	Can not setting camera
01-04	
01-05	Mode dial is not "M" mode
01-07	Not setting multi segment metering
01-09	Not setting to allowing to release at M position
01-10	SR SW is not set to OFF
02-02	Can not set dummy lens
03-01	Can not set shutter speed
03-02	Can not set diaphragm
03-03	Can not set ISO
03-04	Can not set exposure compensation
03-05	Can not set WB
03-06	Can not metering
03-07	Can not acquisition of AE information
08-08	Can not write adjusted value

### AE Program line (normal) and APEX chart (ISO200)

\* Standard program exposure mode (DA F 3.5-5.6 / 18-55mm)

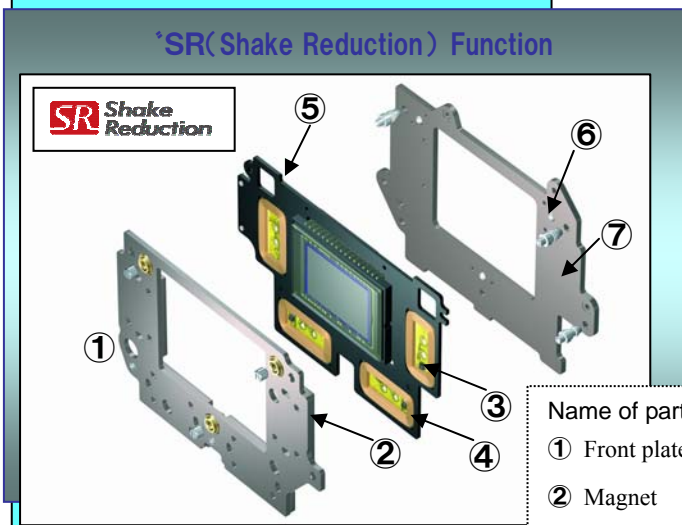


\* Standard program exposure mode (FA F 1.4/50mm)



# K10D SR Features <High Image Quality>

## 1. Main Technology for realization of High Image Quality



- Name of part
- ① Front plate
  - ② Magnet
  - ③ Position Sensor
  - ④ Coil
  - ⑤ Center plate
  - ⑥ Support ball
  - ⑦ Rear plate

**NEW CCD  
10M**

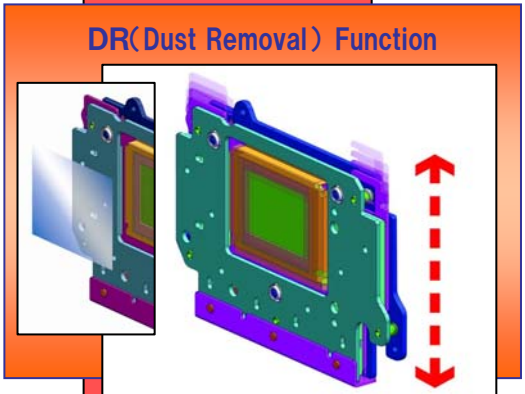
Newly developed 22bit  
A/D converter

Newly developed  
\*PRIME (PENTAX  
Real Image Engine)

DDR2  
Memory

SD  
SDHC  
Memory card

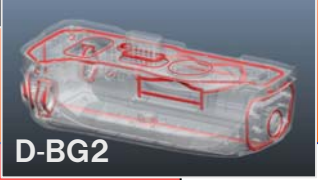
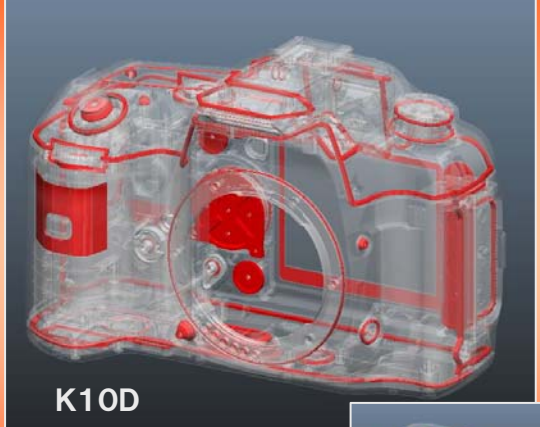
## 2. Support function for taking High Image Quality picture



**Original exposures etting function**

- P:**Hyper Program
- M:**Hyper Manual
- Sv:**Sensitivity-Priority mode
- TAv:**Shutter/Aperture-Priority mode

**Dust-proof, Water-resistant construction**



**Interface**



## **INFORMATION OF JIGS, TOOLS AND TESTERS FOR K10D**

Order No.

### **\* Exclusive use for K10D (76830)**

Program soft for 76830 (For SLR/digital/SR adjustment)	No.95901-P410
Battery Adaptor for 76830 (BATT level adjustment/ battery consumption check)	No. 95901-D26
DC cord for 76830 (DC input terminal, battery consumption check)	No. 95901-D25
O100 cable for 76830 ( For 76700- O100 positioning Jig)	No. 90901- J142
F5.6 Set plate for D20 (95901 D20)	
F5.6 Set plate A (For Lens ID No.101~130)	No. 95901-D27-00A
F5.6 Set plate B (For Lens ID No.1~99)	No. 95901-D27-00B
<b>Others:</b> For K10D : Li-ion Battery, Battery charger, AC adaptor	

### **\*76700**

76700 SR adjusting Jig (required AC100V)	No. 95901-J140
<b>[Caution]</b> <u>If your area is not 100V, you must provide transformer at locally.</u>	
76700 SR unit adjusting base	No. 95901-J141
76700 O100 positioning jig	No. 95901-J139
SR gain chart (Attached K100D service manual)	

**Others:** Common use with 76700 (K100D)

Refer to service manual for 76700.

Confirmation chart for AF and scale Ver.2

