

PENTAX™

Service Manual

ENGLISH

PENTAX **istD*



PRODUCT No. 76180

[TABLE OF CONTENTS]

PREPARATION	2
Preparation of Digital Adjustment.....	2
DISASSEMBLY AND ASSEMBLY	3
Outline of Disassembly and Assembly.....	3
1. Caution	3
2. Chart for Assemble, Adjustment and Confirmation.....	3
DISASSEMBLY AND ASSEMBLY PROCEDURES	6
I. Disassembly procedure of main body	6
II. Assembly procedures of Front Housing Block	15
III Assembly procedure of main body	26
FW FIRMWARE.....	56
1. Checking Firmware Version.....	56
2. Updating Firmware Version (1)	56
3. Updating Firmware Version (2)	57
TECHNICAL INFORMATION	58
Battery consumption current	58
Block diagram	59
Circuit diagram.....	60
Table of Error Code (Digital adjustment)	61
AE Program line and APEX chart	62
76180 PROGRAM SOFTWARE FLOW CHART	63
INFORMATION FOR PREPATION	70
Table of Jigs, Tools and Testers for *istD.....	70
Method for marking power adapter	72
Method for making temporally bottom cover	72
AF confirmation chart and scale.....	73

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 for the digital adjustment. (Refer to the Preparation of digital adj.)

Preparation of Digital Adjustment

[Required equipment]

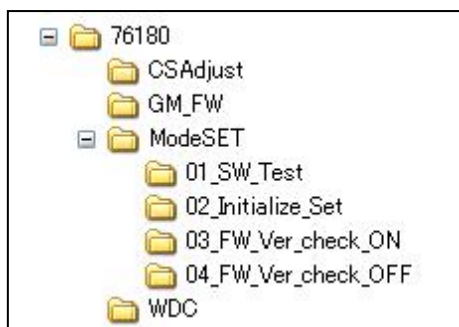
Programmed software 76180 (for Digital adjustment, contained 95901 P401-00B)

Computer (for Digital adjustment)

CF card 6 pieces (8MB or above)

CF card reader

1. Preparation for the adjustment and confirmation of CF cards (6pcs.)
 - 1) Product FW (Firmware) of *istD (2 pieces): use for service and updating FW
 - 2) Switch function checking
 - 3) Default setting
 - 4) FW version check [ON]: use for service
 - 5) FW version check [OFF]: use for service
2. Installing procedure of the Adjustment Software (Setting of the Computer)
 - ① Turn on the test computer.
 - ② Place the Programmed software of 76180 (95901 P401-00B) into the CD-ROM drive.
 - ③ Copy the [76180] folder from the Programmed software contained in the CD-ROM to [C: drive] as shown in the picture below.



- ④ Copy the file from each folder (01~04) of [ModeSET] to each CF card.
[CAUTION] Since the name of all files is same, you should distinguish them by name label etc.
- ⑤ Copy the file from [GM_FW] to two CF cards (for FW).
[CAUTION] You should use latest firmware whenever creating the CF cards for updating.
- ⑤ Rename one of two CF cards which were created for updating firmware from [kb321b.bin] to [fwdc112b.bin].
 - ◆ The CF card named [kb321b.bin] should be used for repairing the camera.
 - ◆ The CF card named [fwdc112b.bin] should be used for updating FW of customer's camera.

DISASSEMBLY AND ASSEMBLY

Outline of Disassembly and Assembly

1. Caution

- 1) Be sure to use the conductive mat and wrist strap to prevent static failure of circuits.
- 2) Do not stress to the connector terminals and flexible boards because they are very delicate parts. 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. Chart for Assemble, Adjustment and Confirmation

I. Disassembly procedure of main body	6
II. Assembly procedures of Front Housing Block	15
1. Front Housing Block	15
2. 0-B52·B62	15
3. 0-M22	15
4. 0-G100	16
5. [CONF] Checking the Mirror Function	17
6. A104	18
7. [ADJ] Positioning 1 st and 2 nd Mirror	18
8. 0-J201 · A163	19
9. 0-L3 · L2	19
10. M301	20
11. [ADJ] Viewfinder Focus · Parallax	20
11-1. Parallax	20
11-2. Viewfinder Focus	20
12. 0-J100	21
13. M51	21
14. [ADJ] Positioning 0-O170 (SI-LED)	21
15. 0-O100	22
16. 0-M100	22
17. 0-S300	22
18. [ADJ/CONF] AF Joint stroke	23
19. 0-T100 (1)	23
20. [ADJ] Viewfinder Indications	23
20-1. Preparation	23
20-2. Adjustment	24
21. 0-T100 (2)	24
III Assembly procedure of main body	26
1. Battery Chamber and Related Parts	26
2. 0-E000 (Shutter Block)	26
3. Front Housing Block	27
4. T903 (Tv/Av dial)	27
5. 0-A3 (Bottom Plate assy.)	28

6. Around Pentaprism (2)	28
7. 0-Q200 • 0-T800 (Flash P.C. Board assy. • Power P.C. Board assy.)	29
8. A49 (Remote Control Base Plate).....	30
9. A5 (Right Shoulder Plate)	30
10. Around Pentaprism (1)	31
11. [CONF] Function Check I	31
11-1. Preparation (The following preparation is required checking the function.)	31
11-2. Function Check	32
11-3. Exposure • Release	32
11-4. Mode dial	32
11-5. AF	33
12. [ADJ.] Shutter Speed (1/4000sec.)	33
12-1. Preparation for the shutter adjustment.....	33
12-2. Adjustment.....	34
13. [CONF] CCD Base Plate Support Pillar.....	34
14. 0-T600 (CCD Block)	34
15. 0-T700 (CF P.C. Board assy.).....	35
16. [CONF] Function Check II.....	36
16-1. Battery • DC Power Input, Connection between 0-T100 and 0-T600.....	36
16-2. Writing FW	37
17. A102 (Front Cover)	37
18. A153 (Front Cover, Left).....	38
19. A201 (Back Cover)	38
20. [ADJ] Positioning 0-J100	39
21. 0-A301 (Top cover)	39
22. [CONF] Function check III	40
22-1. Preparation	40
22-2 [CONF] Static Current.....	41
22-3 [CONF] Preview • LCD panel illumination	41
22-4 [CONF] Switch Function.....	41
22-5. [CONF] AF • SI (Superimpose) Function	42
22-6. [CONF] Shooting • Playback Function	42
22-7. [CONF] Flash Function.....	42
22-8. [CONF] Aperture Control • CCD	42
22-9. [CONF] CF card cover SW	43
23. [ADJ] Adjustment with Programmed Software (SLR operation).....	43
24. [ADJ.] Adjustment with programmed Software (Digital operation).....	44
24-1. Installing Adjustment Software.....	44
24-2. Setting of *istD	44
24-3. Procedure of adjustment	45
24-4. Procedure of WDC adjustment.	45
25. Arranging the lead wires for CE marking.....	48
26. A401 (Bottom Cover).....	48
27. [CONF] Checking the back-up function	48

28. [CONF] Final function check	49
28-1. Confirmation of the Metering function	49
28-2. Confirmation of the Exposure value (for reference)	49
28-3. Confirmation of White Balance	49
28-4. Confirmation of the Battery Exhaustion Warning	51
28-5. Confirmation of AF Focus Position by FI (Focus Indicator).....	51
28-7. Cleaning the CCD.....	53
28-8. Default setting.....	55

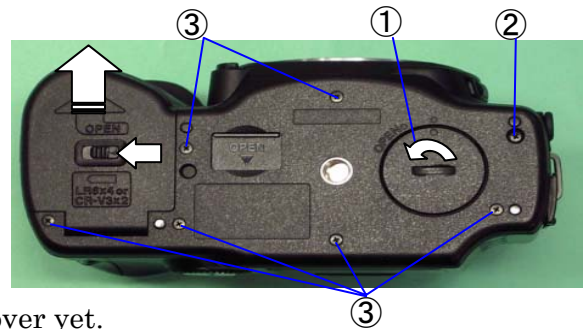
DISASSEMBLY AND ASSEMBLY PROCEDURES

I. Disassembly procedure of main body

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

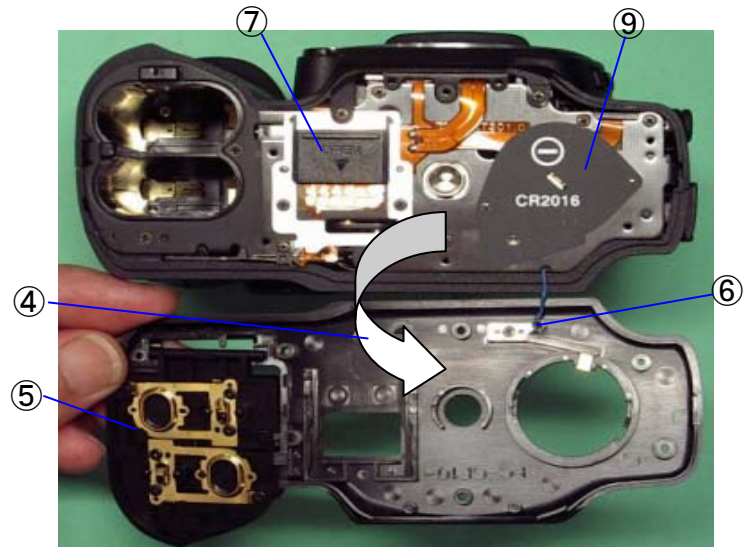
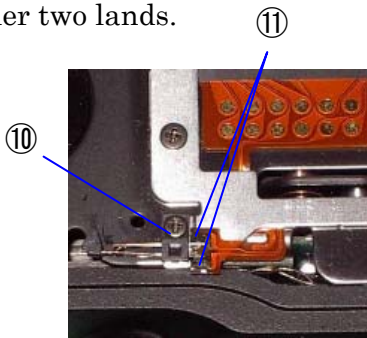
1. A401 (Bottom Cover)

- ① A431···Remove the cover by using a coin.
- ② A61 (Screw, 2mm)



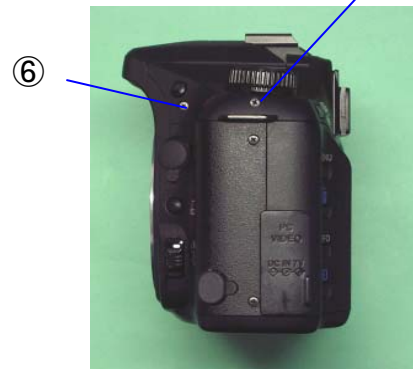
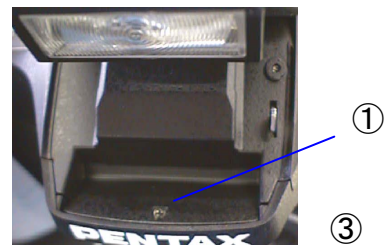
- ③ A67 x6 (Screw)···Do not remove the bottom cover yet.
- ④ Open the battery cover, and then lift up A401 from rear side as shown in the figure below.
- ⑤ 0-A412, A419 (Battery cover shaft)
- ⑥ Unsolder a blue wire, and then remove A401 from the main body.

- ⑦ A421
- ⑧ Peel off PT x6.
- ⑨ A434
- ⑩ CNL-B1.4x1.6, A424 (Reset switch)
- ⑪ Unsolder two lands.



2. 0-A301 (Top Cover)

- ① TY-CNS1.4x2.5···Pop-up the built-in flash.
- ② A70 (Screw (Ni), Inside the battery chamber)
- ③ A61 (Screw, 2.5mm)
- ④ A62 (Screw, 3.5mm)
- ⑤ A63 (Screw, 4.2mm)
- ⑥ A69 (Screw (TY), 3.5mm)
- ⑦ A64 x2 (Screw, 11mm)



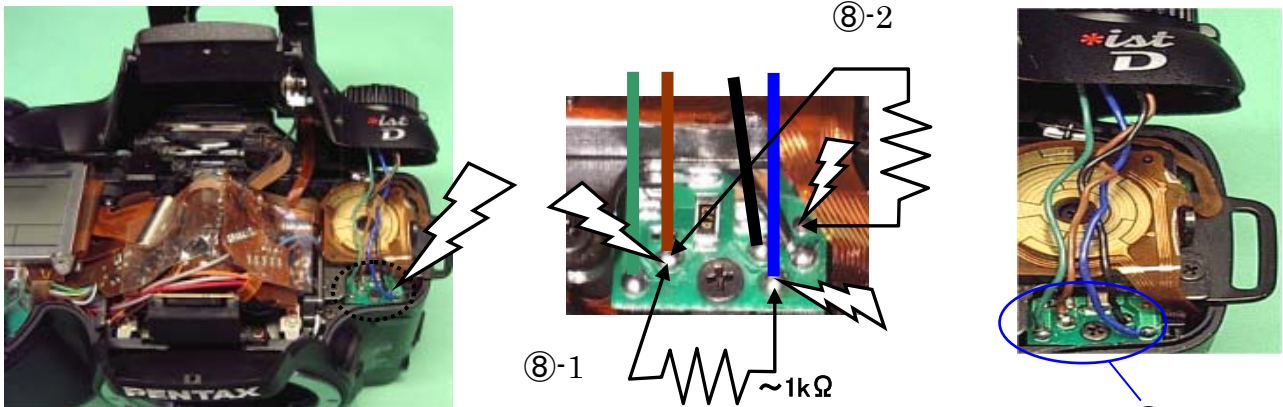
⑧ Lift up the top cover, and then discharge the main capacitor at the following positions.

-1. Between a brown lead wire and a blue lead wire.

[NOTE] If the above position is not available for discharging proceed as follows.

-2. Between a brown lead wire and a land behind a black wire as shown in the figure below.

[CAUTION] Be careful short and electric shock when handling the camera.



⑨ Unsolder 4 lead wires (Blue, Black, Brown, Green)···Q100

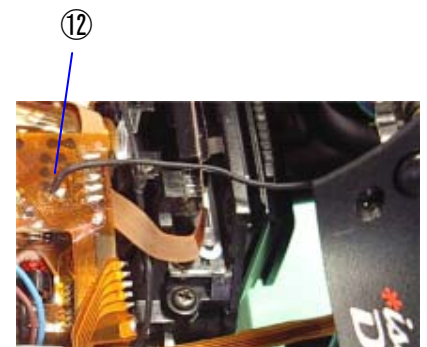
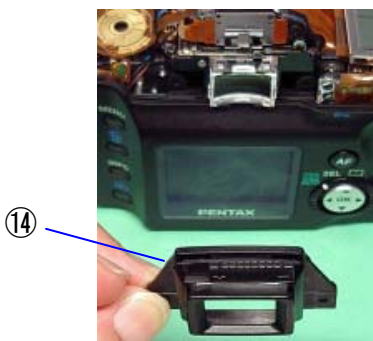
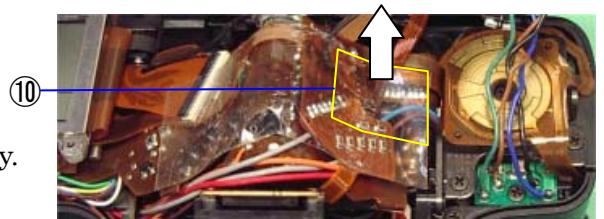
⑩ Peel off T72 (20x15).

⑪ Unsolder 6 lands··· T51

⑫ Unsolder a black lead wire··· A330

⑬ Remove the top cover (0-A301) from the main body.

⑭ M311··· DT



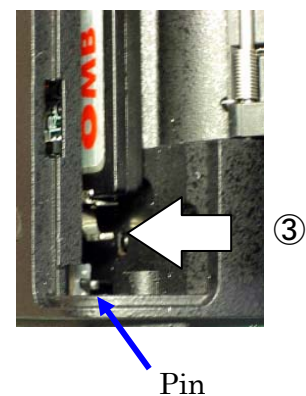
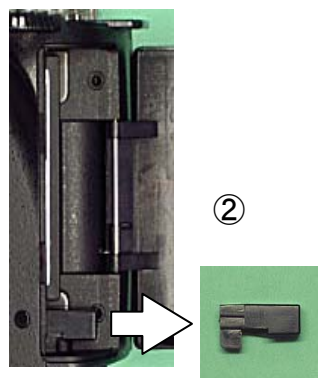
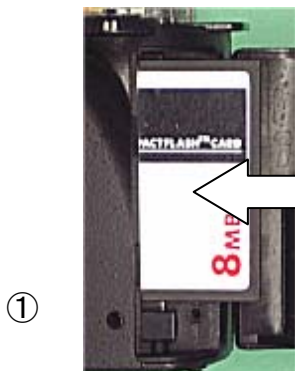
3. A201 (Back Cover)

① Insert the CF card to the camera to remove T691.

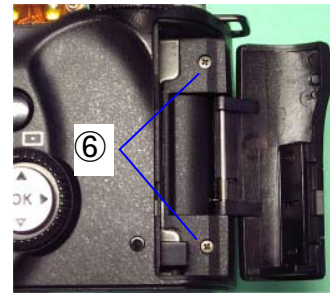
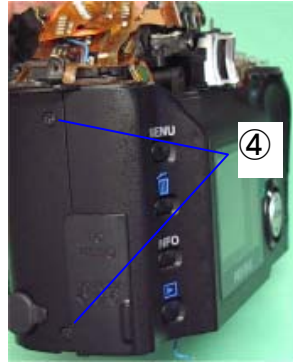
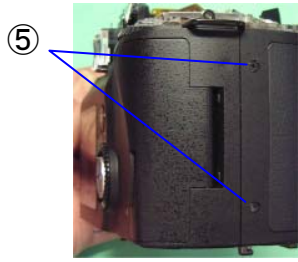
② T691···Pull out T691with care to prevent damage.

③ Remove the CF card with pressing the CF card eject lever.

[NOTE] Do not touch the CF card switch pin because it is very delicate part.



- ④ A62 x2 (Screw, 3.5mm)
- ⑤ A68 x2 (Screw (TY), 6mm)
- ⑥ A69 x2 (Screw (TY), 3.5mm)

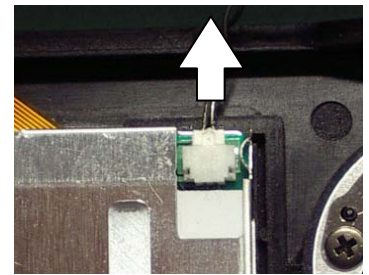
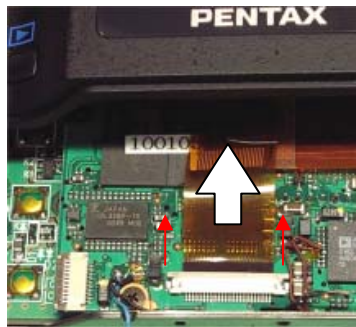


- ⑦ Lift up A201 while opening the terminal cover.
- ⑧ Disconnect the flexible board of 0-O301 from the connector terminal.
- ⑨ Disconnect the connector terminal of T905 from 0-O301 by using the tweezers with care to prevent damage.
- ⑩ A201

4. A153 (Front Cover, Left)

- ① CNL-D1.7x2.5 (2pcs.)
- ② A153

⑧



⑨

5. A102 (Front Cover)

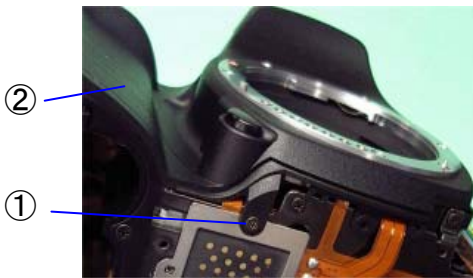
- ① CNL-D1.7x3.0
- ② A102

①



②

①

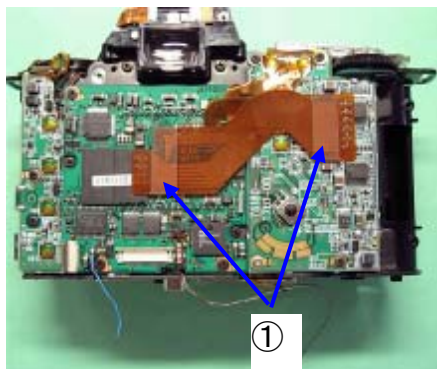


②

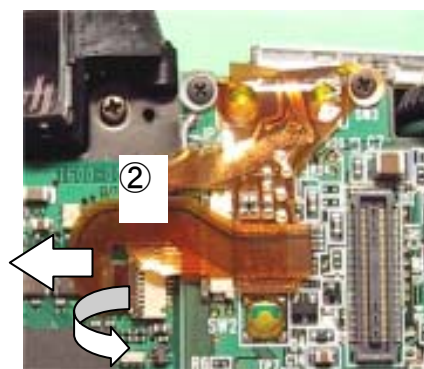
①

6. 0-T700 (CF P.C. Board assy.)

- ① 0-T950...Disconnect both connector terminals of 0-T950 from 0-T600 and 0-T700.
- ② Disconnect the flexible board of T100 from the connector terminal of T600.

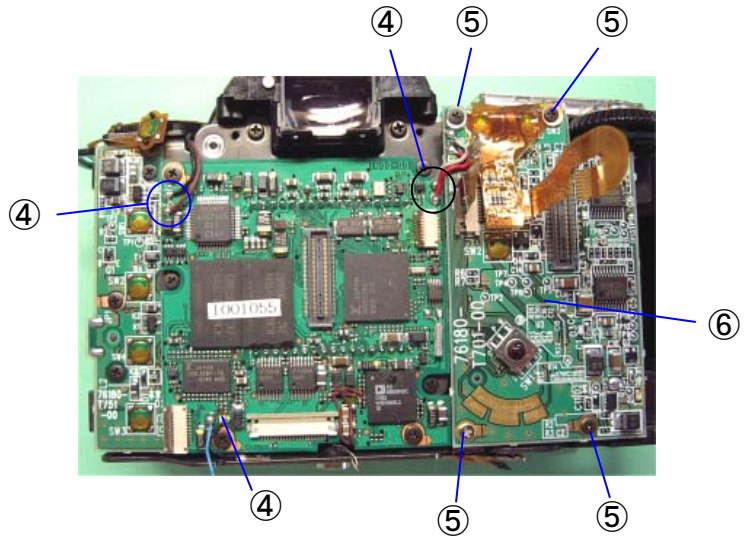
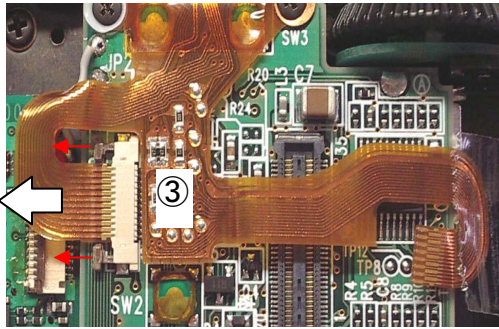


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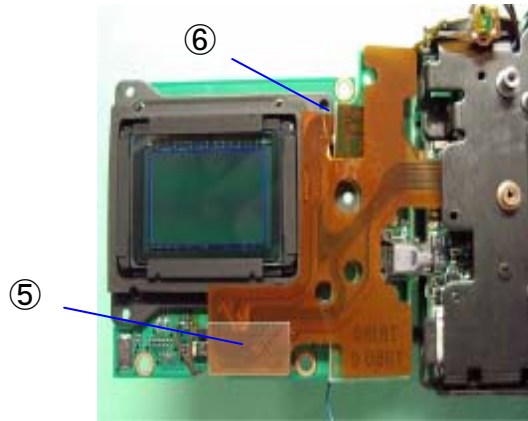
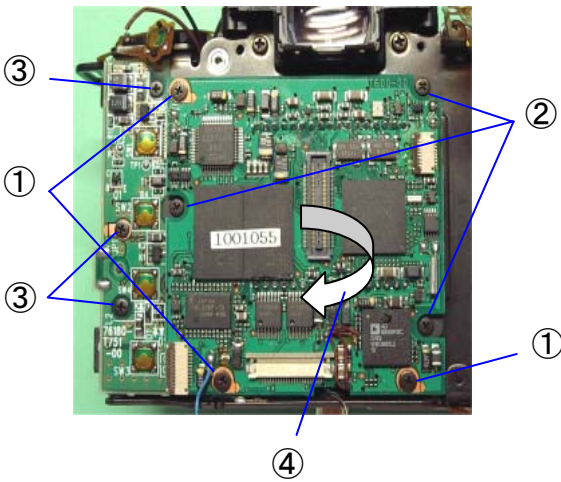
②

- ③ Disconnect the flexible board of T100 from the connector terminal of T700.
- ④ Unsolder 5 lead wires on T600. (Brown, Black (T800), Red, Gray (T700), Black (A433))
- ⑤ CNL-D1.7x2.5 (4pcs.)
- ⑥ 0-T700



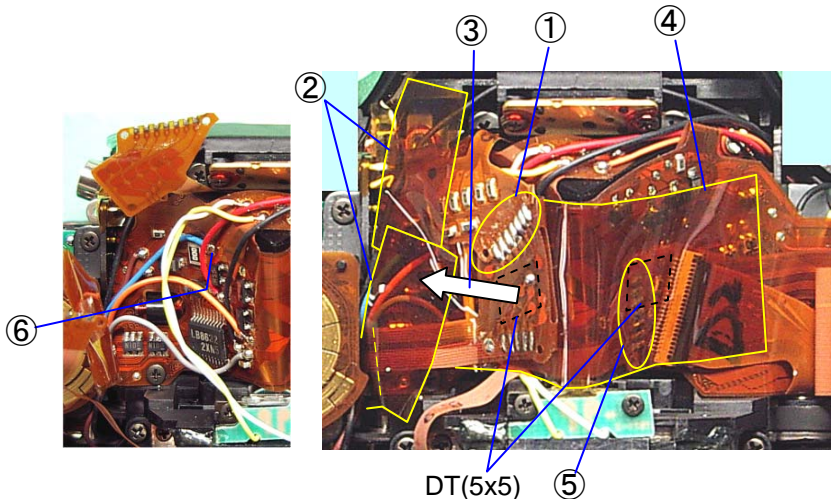
7. 0-T600 (CCD BLOCK)

- ① A60 x3 (Shoulder screw)
- ② TY-CNL-D1.7x2.5 (3pcs.)
- ③ TY-CNL-D1.7x2.5 (3pcs.)... There are two washers at the USB part underneath 0-T750.
- ④ Turn up 0-T600, 0-T750 and T960 from left side as shown in the figure below.
- ⑤ 0-T600... Disconnect the connector terminal of 0-T960 from 0-T600. (CCD side)
- ⑥ 0-T750... Disconnect the flexible board of 0-T960 from the connector terminal of 0-T750.



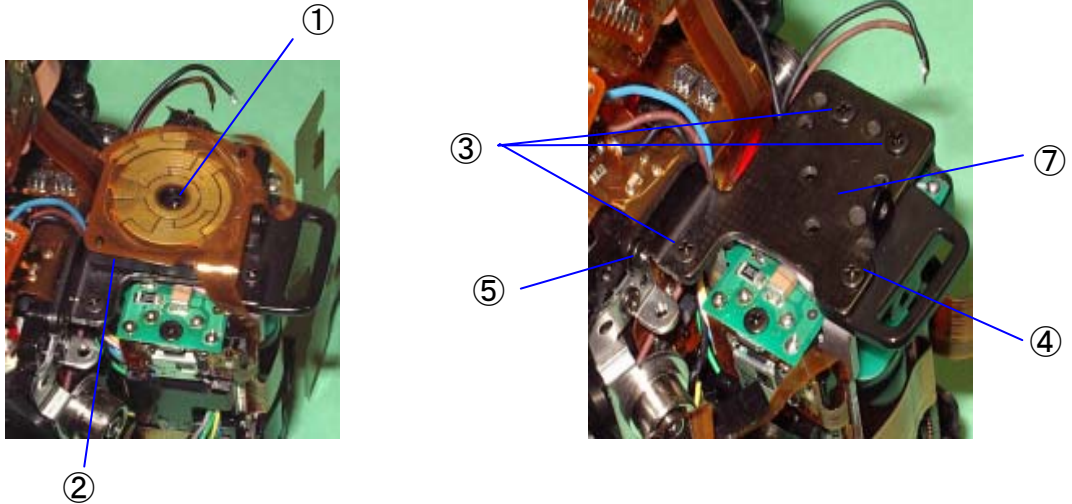
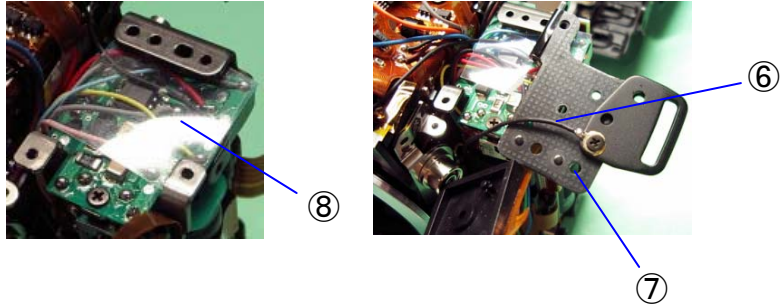
8. Around Pentaprism (1)

- ① Unsolder 7 lands... 0-O170.
- ② Peel off T74 x2 (20x10).
- ③ Peel off T100 from DT.
- ④ Peel off T64 (20x50).
- ⑤ Unsolder 7 lands... 0-J100.
- ⑥ Unsolder a blue wire... T800



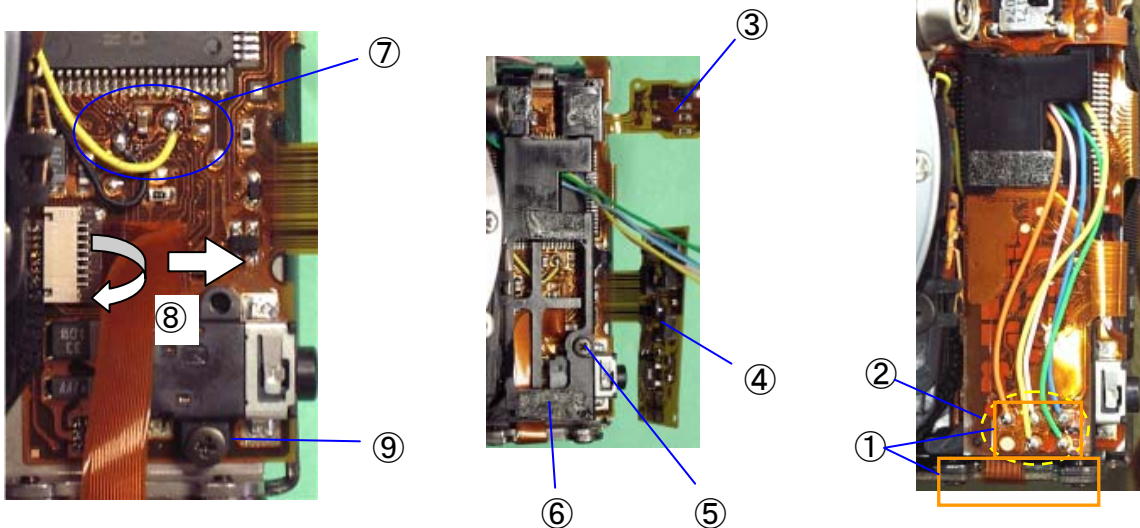
9. A5 (Right shoulder plate)

- ① CNL-D1.7x2.5
- ② A338
- ③ CNL-D1.7x2.5 (3pcs.)
- ④ CNL-D1.7x3.5
- ⑤ TY-CNL-D1.7x3.5 (PT 15x8)
- ⑥ Unsolder a black wire.
... for CE mark
- ⑦ A5
- ⑧ T62



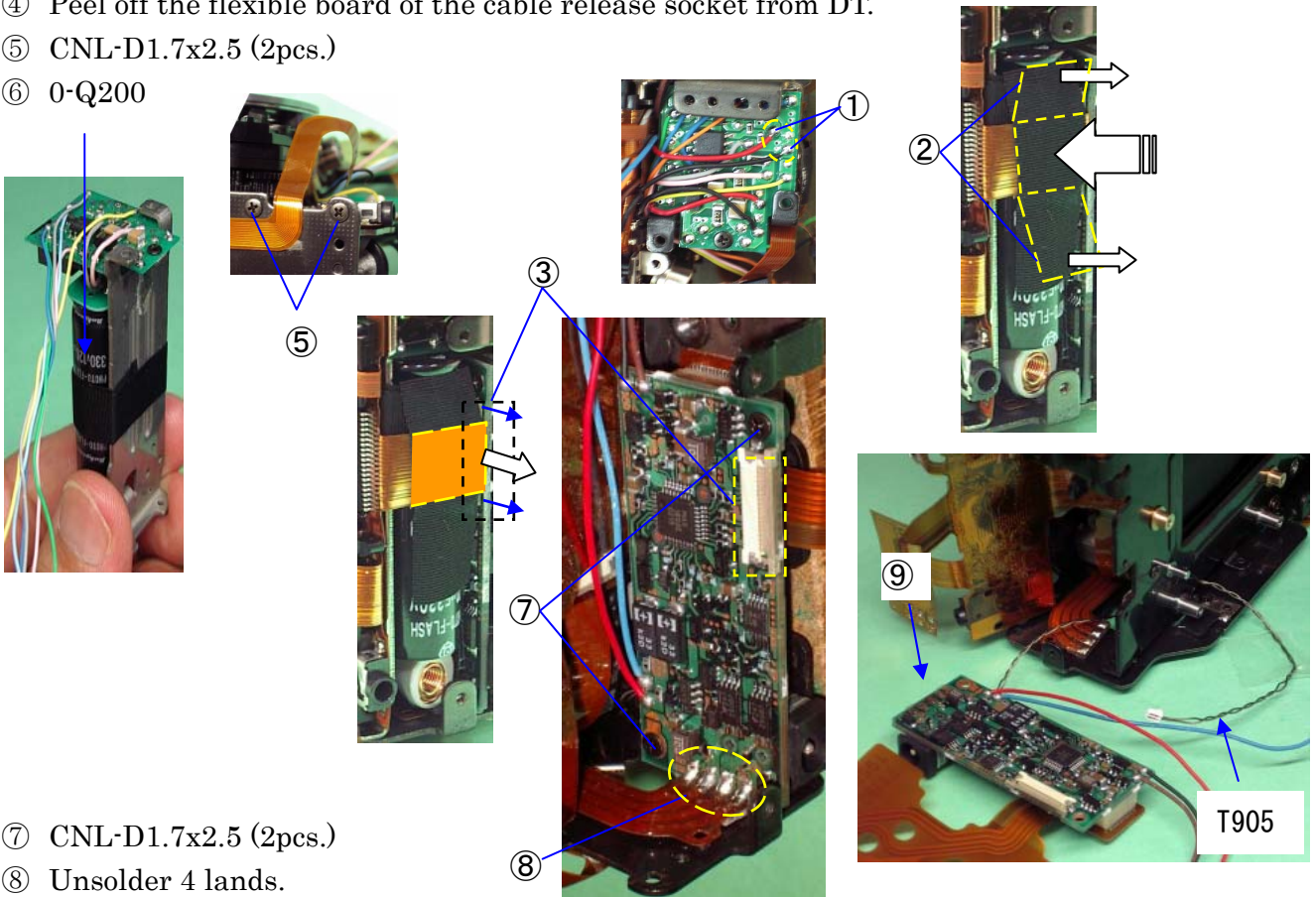
10. A49 (Remote control base plate)

- ① Peel off A427 (8x10) and A425 (10x20). (for CE mark)
- ② Unsolder 5 lead wires.
- ③ Peel off the flexible board of remote control.
- ④ Peel off the flexible board of T100.
- ⑤ CNL-D1.4x5.0
- ⑥ A49
- ⑦ Unsolder 2 lead wires. (Yellow, Black)
- ⑧ Disconnect the flexible board of T301 from 0-T100.
- ⑨ CNL-D1.4x4.0... Cable release socket



11. 0-Q200 • 0-T800 (Flash P.C. Board assy., Power P.C. Board assy.)

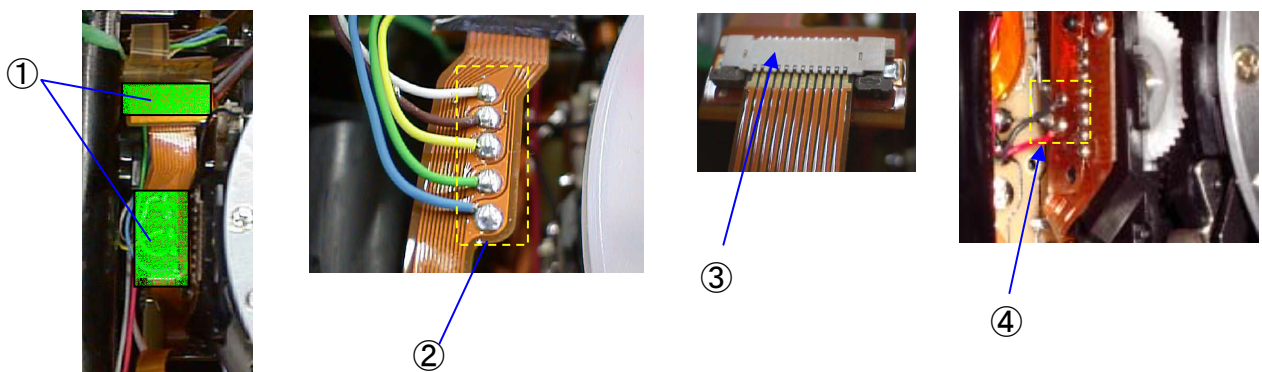
- ① Unsolder 2 lead wires. (Red, Black)
- ② Peel off BT (25x10) while holding 0-T100 with care to avoid breaking the flexible board.
- ③ Disconnect the flexible board of T100 from the connector terminal of 0-T800.
- ④ Peel off the flexible board of the cable release socket from DT.
- ⑤ CNL-D1.7x2.5 (2pcs.)
- ⑥ 0-Q200



- ⑦ CNL-D1.7x2.5 (2pcs.)
- ⑧ Unsolder 4 lands.
- ⑨ 0-T800··· 0-T800 is removed with T905 (Power supply cable).

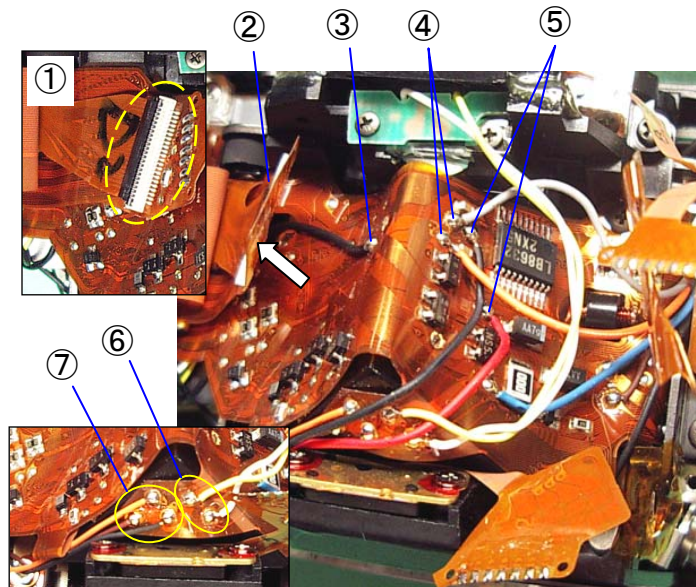
12. T301 (Mount P.C. Board)

- ① Peel off T69 (8x15) x2 from T301.
- ② Unsolder 5 lead wires.
- ③ Disconnect the flexible board of T301 from the connector terminal of 0-T100.
- ④ Unsolder 2 lead wires. (Red, Black N300)



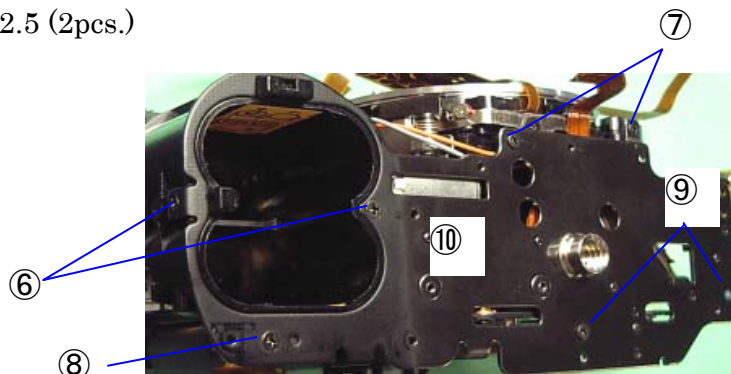
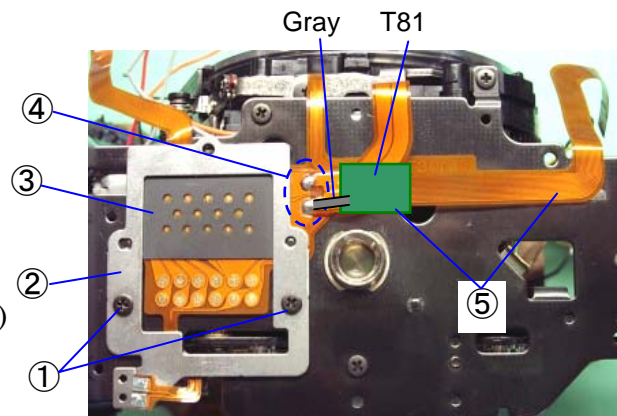
13. Around Pentaprism (2)

- ① Disconnect the flexible board of O100 from the connector terminal of 0-T100.
- ② Peel off the flexible board of T100 from DT.
- ③ Unsolder a black lead wire. (T900)
- ④ Unsolder 2 lead wires. (Orange, Gray S300)
- ⑤ Unsolder 2 lead wires. (Red, Black S250)
- ⑥ Unsolder 2 lead wires. (Yellow, White T970)
- ⑦ Unsolder 3 lead wires. (Orange, Brown, Black E000)



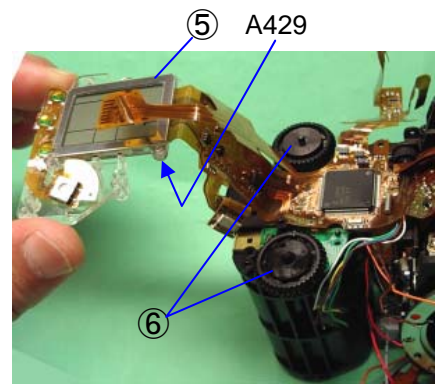
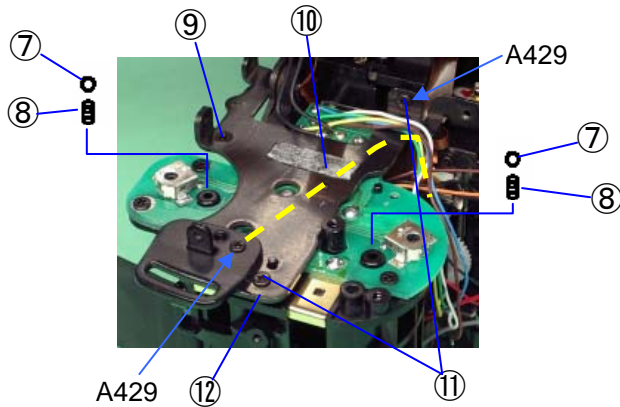
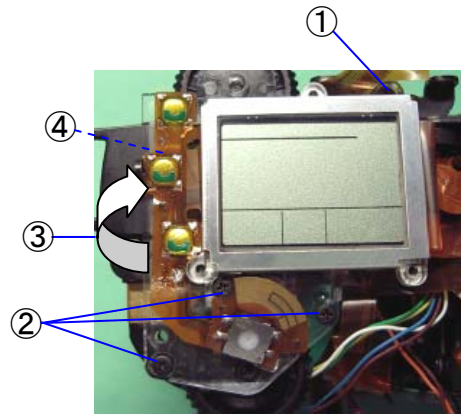
14. 0-A3 (Bottom Plate assy.)

- ① CNL-D1.7x2.0 (2pcs.)
- ② A422
- ③ A423
- ④ Unsolder 2 lands. (T301, T907)
Unsolder a gray lead wire. (T81, for CE mark)
- ⑤ Peel off T301 and T81 from bottom plate.
(T81 will remove with a lead wire.)
- ⑥ TY-CSM1.7x4.0 (2pcs.)
- ⑦ TY-CNL-D1.7x4.0 (2pcs.) ... A429 lug-plate for CE mark
- ⑧ CSM1.7x2.5
- ⑨ CNL-D1.7x2.5 (2pcs.)
- ⑩ 0-A3



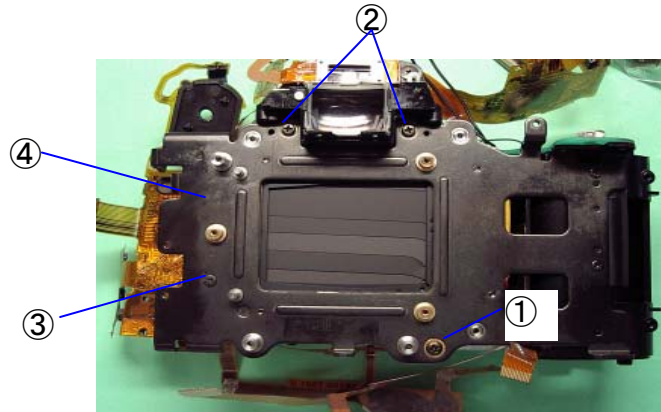
15. T903 (TV/AV Dial)

- ① CNL-D1.7x2.5
- ② TY-CNL-D1.7x9.0 (3pcs.)
- ③ Peel off the flexible board from the LCD frame.
- ④ TY-CNL-D2.0x9.0
 ... Underneath the flexible board of 0-T100.
- ⑤ Lift up the LCD frame of 0-T100.
 (If there is a lug-plate, remove it by loosening screw.)
- ⑥ T903 (2pcs.)
- ⑦ BO1.5 (2pcs.)
- ⑧ A17 (2pcs.)
- ⑨ CSM1.7x2.5
- ⑩ TY-CSM1.7x4.0... A429 lug-plate for CE mark
- ⑪ TY-CNL-D1.7x4.0 (2pcs.)
- ⑫ A6 ... If there is a lug-plate, remove it by loosening screw.)



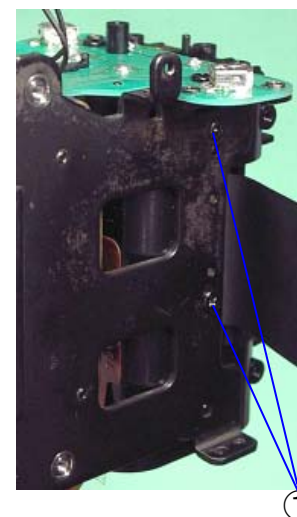
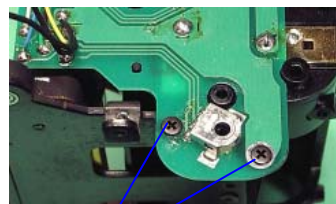
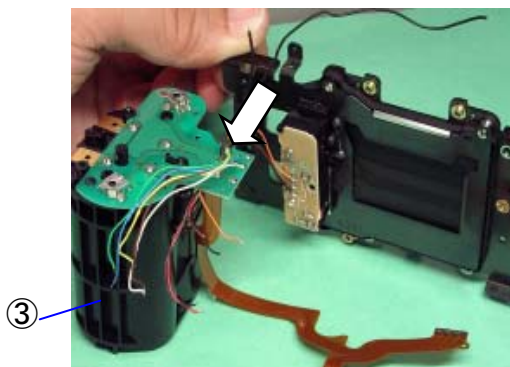
16. Front Housing Block

- ① TY-CNL-D2.0x9.0
- ② TY-CNM2.0x6.0 (2pcs.)
- ③ CNL-D1.7x2.5
- ④ Main base plate

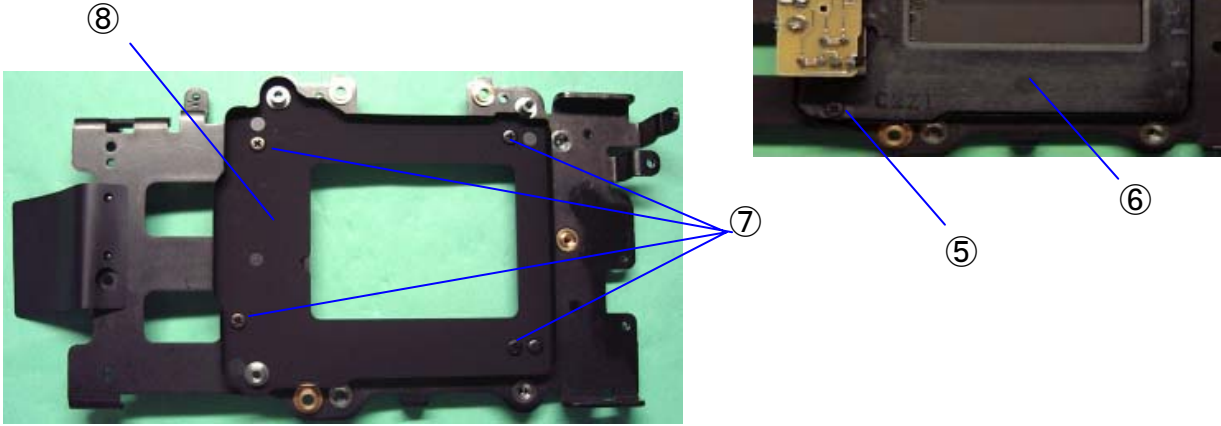


17. 0-E000 (Shutter Block)

- ① TY-CNL-D1.7x4.0 (2pcs.)
- ② CNL-D1.7x2.5 (2pcs.)
- ③ A13

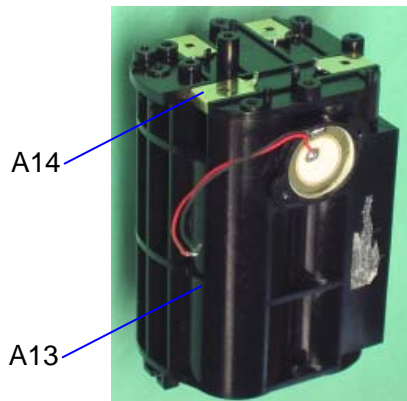
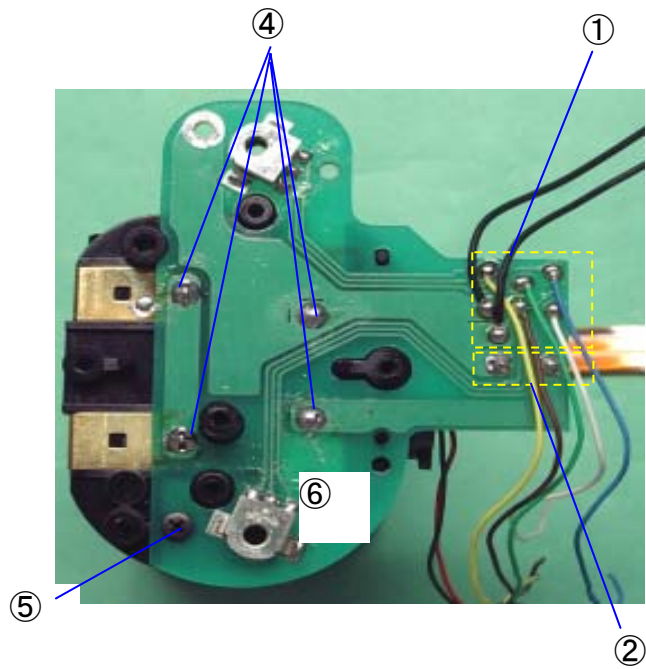


- ④ A71 x2 (Shoulder screw)
- ⑤ TY-CNL-D1.7x2.5
- ⑥ 0-E000
- ⑦ A65 x4 (Screw)
- ⑧ A2



18. Battery Chamber and Related Parts

- ① Unsolder 7 lead wires.
- ② Unsolder 2 lands.
- ③ T907···DT
- ④ Unsolder 4 lands.
- ⑤ TY-CNL-D1.7x4.0
- ⑥ 0-T900
- ⑦ A13, A14 (4pcs.), A15 (2pcs.)



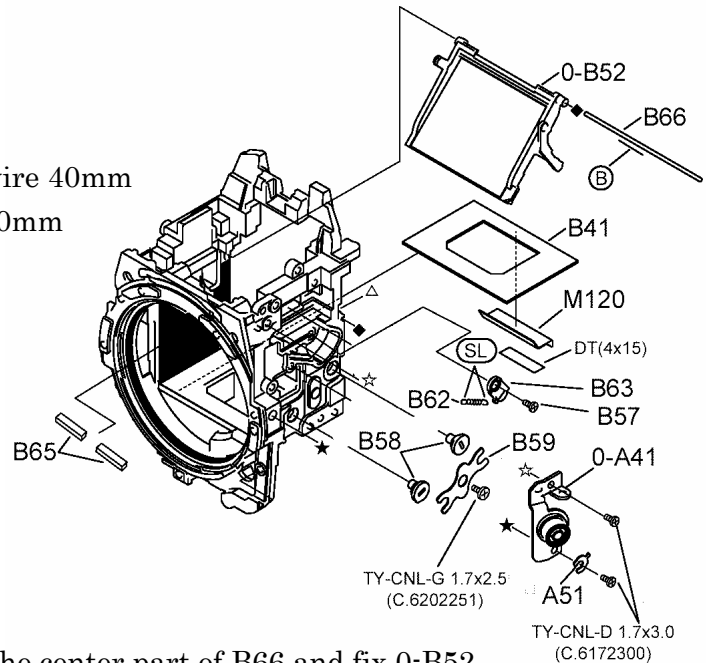
II. Assembly procedures of Front Housing Block

Disassemble the front housing block in reverse order of assembly procedures according to “Note of disassembly”.

Assembly Procedures

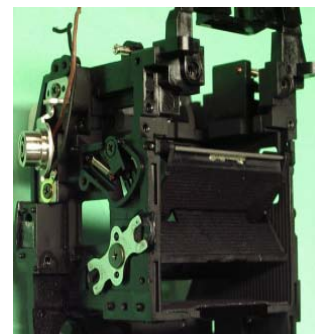
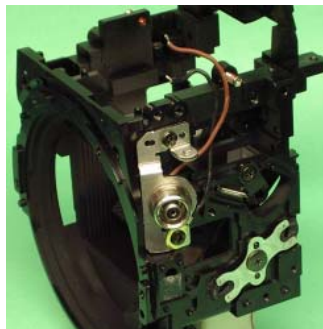
1. Front Housing Block

- ① B65 x2, B41, M120, B58 x2, B59
- ② 0-A41 (X-terminal)··· Brown lead wire 40mm
- ③ A51 (Lug plate)··· Black lead wire 40mm
- ④ TY-CNL-D1.7x3.0 (2pcs.)



2. 0-B52·B62

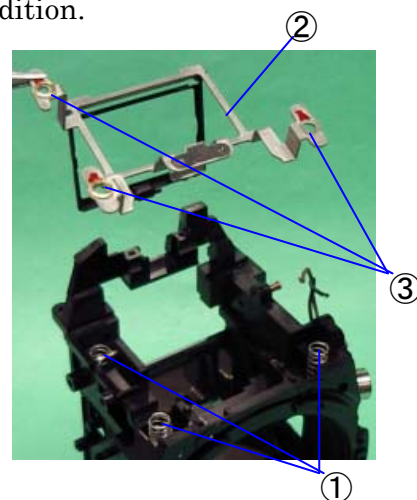
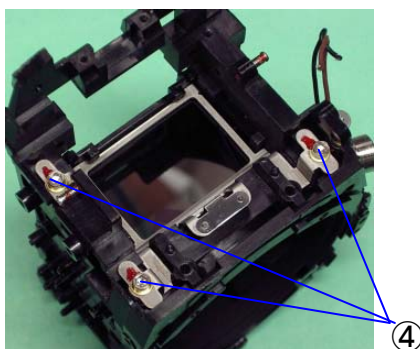
- ① 0-B52 (Mirror seat)
- ② B66··· Apply the Dia-bond 1663 in the center part of B66 and fix 0-B52.
- ③ B63
- ④ B57 (Shaft screw)
- ⑤ B62··· Apply the screw-lock agent on each end.



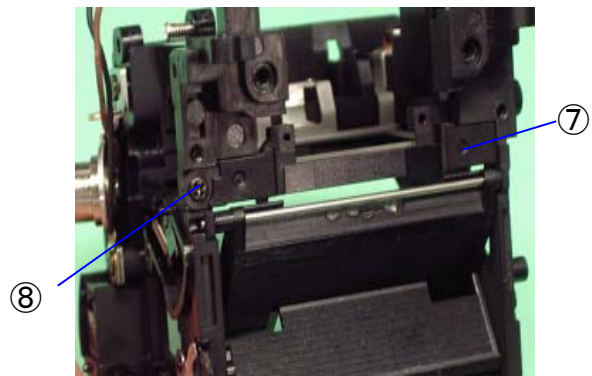
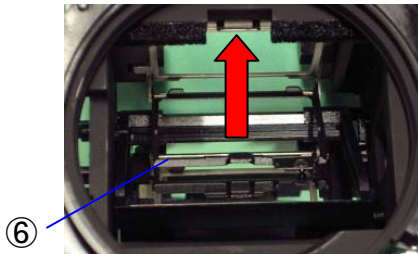
3. 0-M22

[Required equipment] Hexagonal screwdriver 1.5mm

- ① M104 (3pcs.)
- ② 0-M22 (0-M4, M23) ··· 0-M4 should be unhooked condition.
- ③ W65 x3 (t=0.5)
- ④ M103 x3 (Focus adjusting screw)

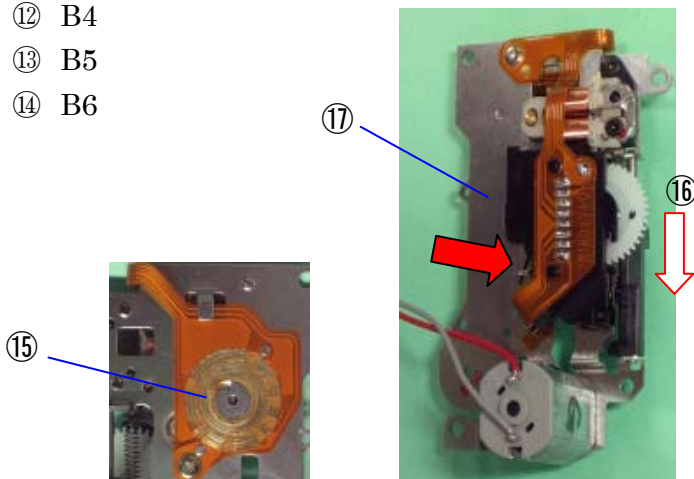
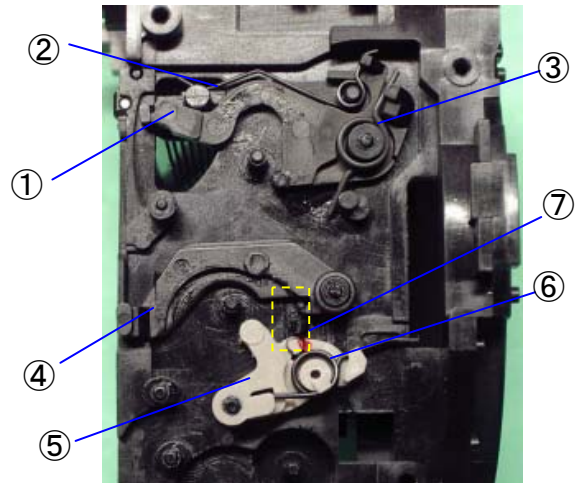


- ⑤ [ADJ.] Pre-adjusting the Focus
Screw-in 3 adjusting screws until they stops, and then screw back two turns.
- ⑥ Hook 0-M4.
- ⑦ Install M21 while positioning the boss.
- ⑧ TY-CNS1.7x3.5

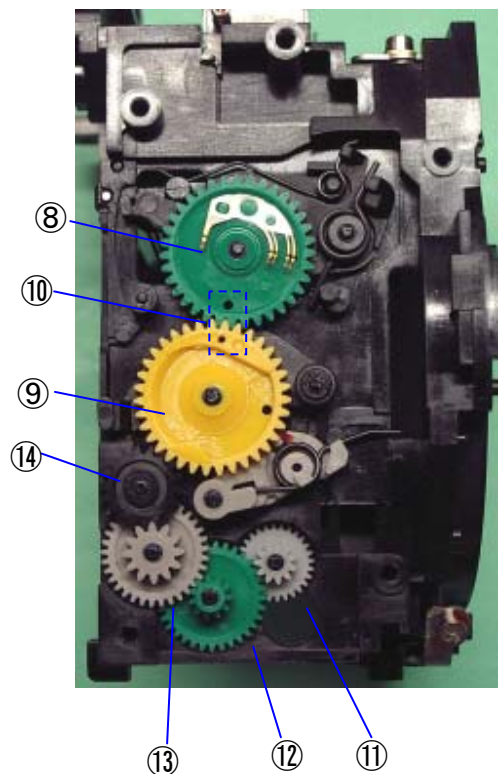


4. 0-G100

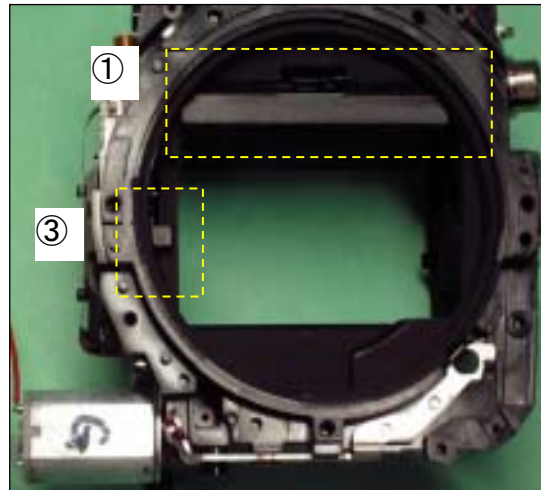
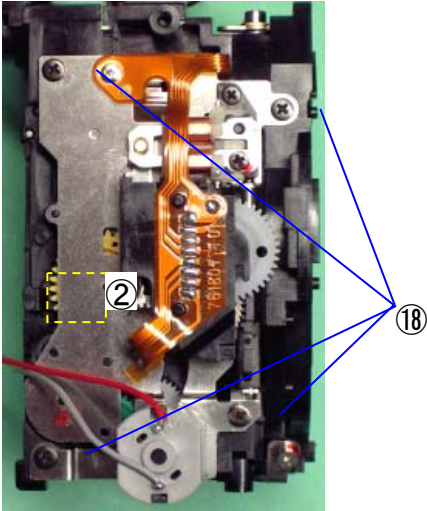
- ① B11
- ② B20··· The spring (B20) should be set on the shaft of 0-B52.
- ③ B19
- ④ B10
- ⑤ B9
- ⑥ B17
- ⑦ B18···Apply the screw-lock agent on end of spring.
- ⑧ 0-B8
- ⑨ B7
- ⑩ Align the both hole of 0-B8 and B7.
- ⑪ B3
- ⑫ B4
- ⑬ B5
- ⑭ B6



- ⑮ Clean the code plate and apply G151.
- ⑯ Latch the lever of G100 while pushing down the sliding plate.
- ⑰ 0-G100



⑱ TY-CNL-D1.7x3.5 (4pcs.)



[Note of Disassembly]

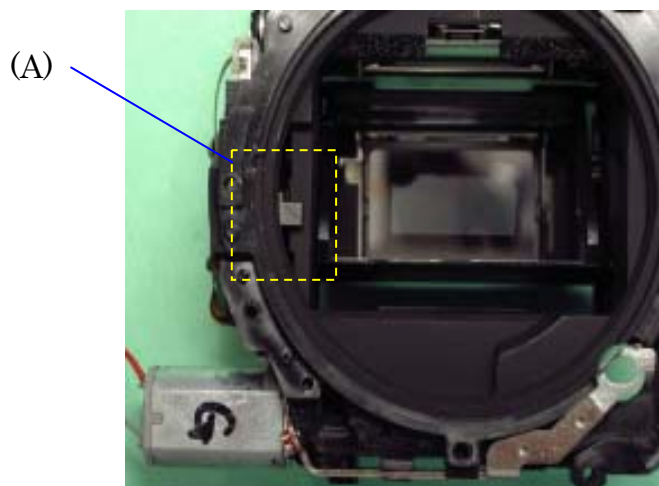
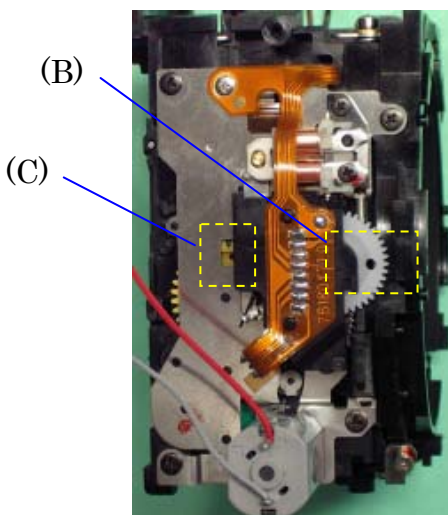
Set the mirror seat at top end position before removing 0-G100.

1. Apply DC1~3V to 0-S250 (Red lead wire: Positive) and set the mirror seat at top end position. (Mirror seat ① and Sliding plate ③ must be top end position, Shutter charge lever must be bottom end position ②.)
2. Push down the Sliding plate, and then latch the lever of G100.

5. [CONF] Checking the Mirror Function

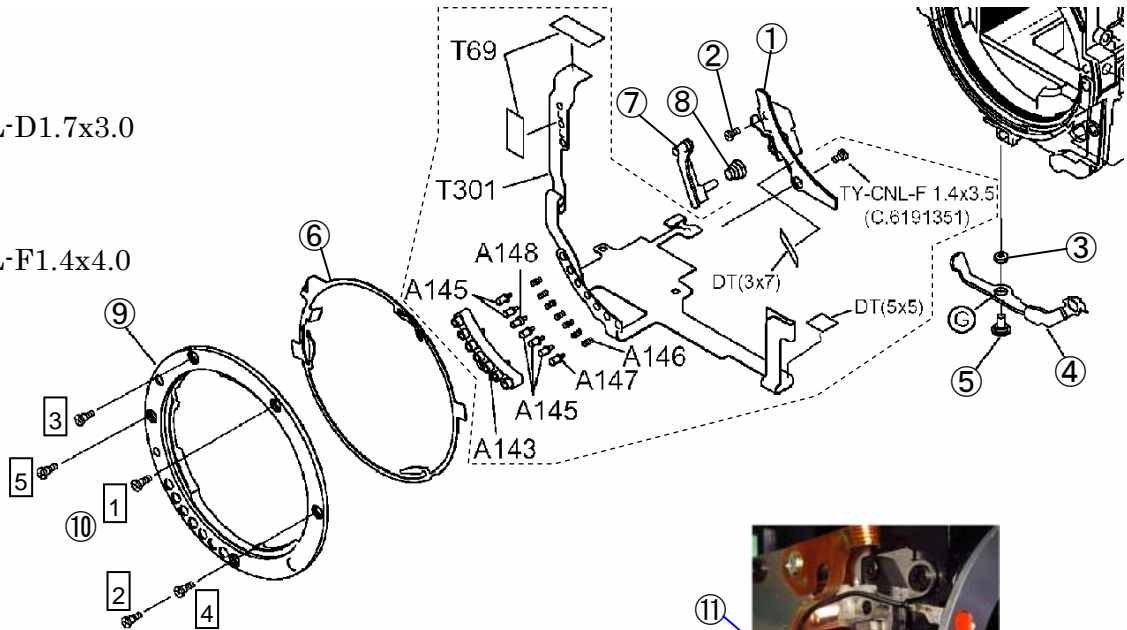
[NOTE] Make sure the latch lever of G100 is unlatched.

- ① Confirm the following items while applying DC3V to the mirror motor. (Red wire: Positive)
 - 1) The mirror seat must be moved smoothly without noise.
 - 2) The shutter charge lever and sliding plate must be moved smoothly.
- ② Set the mirror seat to the down position and then confirm that the Sliding plate (A), White gear (B) and Yellow gear (C) must be positioned as shown in figure below.
- ③ Both mirror seats 1st and 2nd must be returned smoothly to the original position when both mirror seats are pressed inward about 3mm by finger pressure.



6. A104

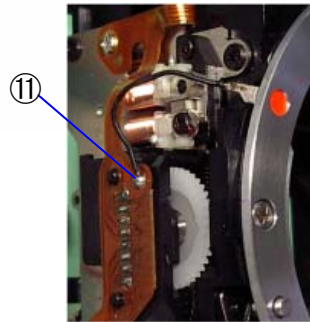
- ① 0-A126
- ② TY-CNL-D1.7x3.0
- ③ A133
- ④ 0-A121
- ⑤ TY-CNL-F1.4x4.0
- ⑥ A105
- ⑦ 0-A108
- ⑧ A110



- ⑨ A104
- ⑩ TY-CNS2.0x4.5Ni (5pcs.)

... Tighten 5 screws in the numerical order as shown in the figure above.

- ⑪ Solder a black lead wire... T71



7. [ADJ] Positioning 1st and 2nd Mirror

[Required equipment] 1st Mirror angle (45°) adjusting jig, Mirror angle adjusting jig for 27830, Mirror positioning scope

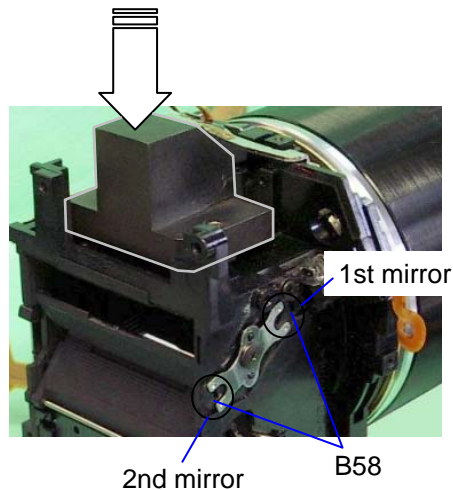
[NOTE] The manner of adjusting is the same as the other MZ-cameras. Adjust the desired value of Y axis to ±0.

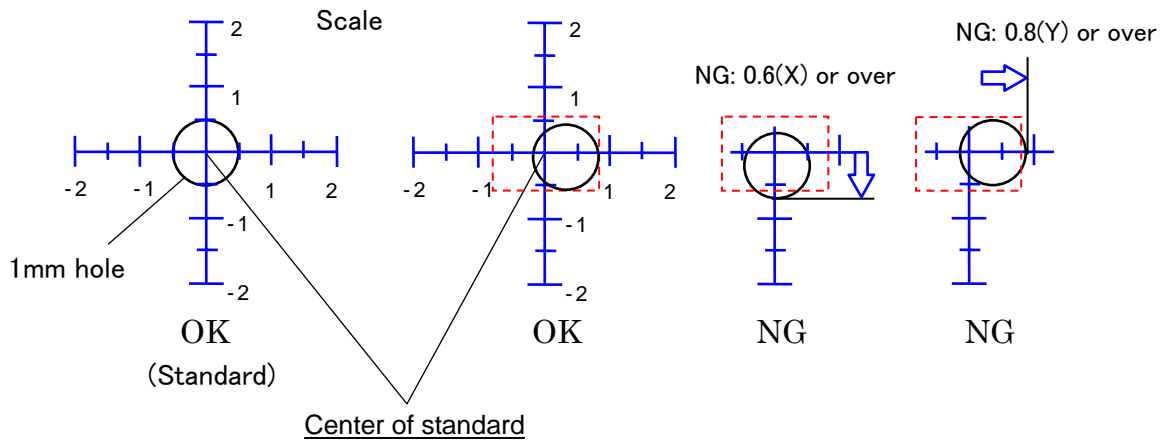
- ① Positioning 1st mirror: Put the 1st mirror angle (45°) adjusting jig on the camera, and then adjust the mirror seat so that the adjusting jig touches the mirror without gap by turning B58.

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



- ② Positioning 2nd mirror: Attach the mirror positioning scope and the 2nd mirror angle adjusting jig to the camera, and then adjust the mirror angle by turning B58 while looking through the eyepiece lens.





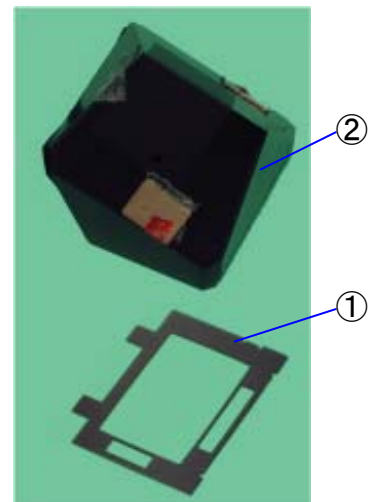
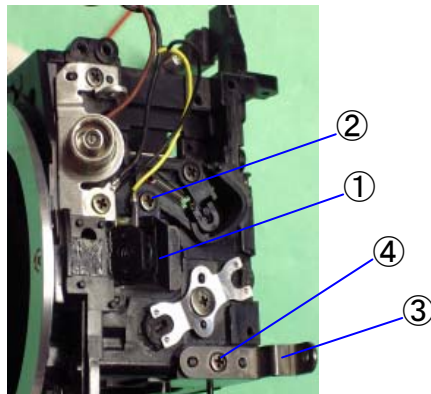
○ : Tolerance of 1mm hole □ : (X-axis = ± 0.6 , Y-axis = ± 0.8)

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

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

8. 0-J201 • A163

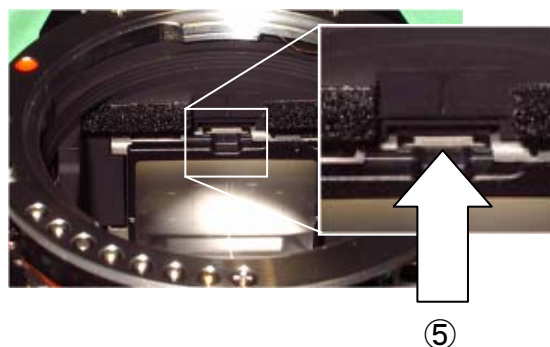
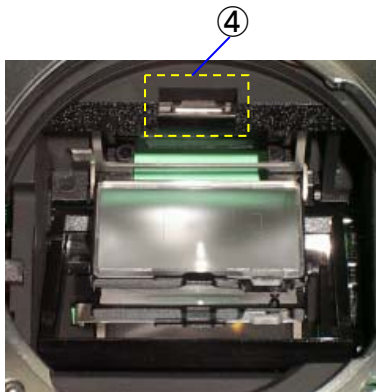
- ① 0-J201 (Yellow, Black)
- ② TY-CNL-D1.7x3.5
- ③ A163
- ④ TY-CNL-D1.7x3.0



9. 0-L3 • L2

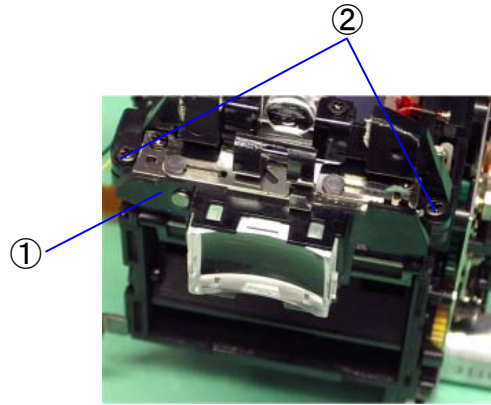
[CAUTION] Confirm there is neither dust nor scratch on 0-L3 and L2.

- ① M3... DT
- ② 0-L3
- ③ Temporarily tighten M16 x2 (Screw).
- ④ Down the focusing screen frame (0-M4) by releasing the hook portion.
- ⑤ Put the focusing screen (L2) on the frame and then push it back until it locks in place.



10. M301

- ① M301 (L5, L7, M302, 0-M307)
- ② TY-CNM1.7x4.5 (2pcs.)



11. [ADJ] Viewfinder Focus • Parallax

[Required equipment] Collimator, Focus master lens, Lens for checking (e.g. FA50mmF1.4)
[Preparation] Adjust the diopter by the diopter adjustment lever.

11-1. Parallax

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

- ① Confirm there is neither gap nor an inclination at an upper and lower, right and left position.

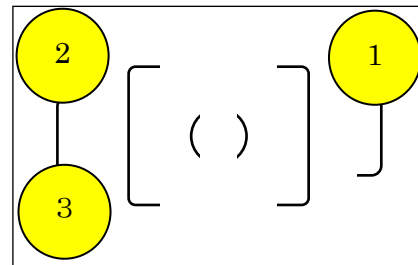
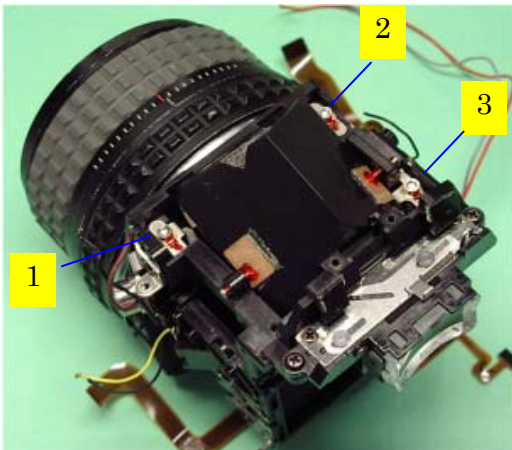
Standard: <u>Right/Left</u> 1° or less <u>Top/Bottom</u> $1^\circ 50'$ or less
--

- ② Adjust the parallax of right and left direction by the prism retainer screws (M16 x2).

11-2. Viewfinder Focus

[CAUTION] The focus must be adjusted at the center and corners in the viewfinder.

- ③ Adjust the focus to within $\pm 0.02\text{mm}$ by turning the adjusting screws (M103 x3) as shown in the figure below.



[NOTE] Each adjusting screw affects the focus in the viewfinder as shown in the figure above.

Standard: <u>$0 \pm 0.07\text{mm}$</u>

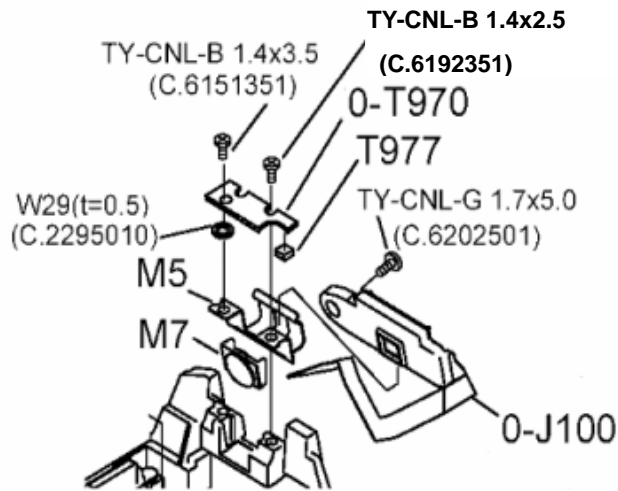
[NOTE] One scale of the Focus master lens = 0.03mm

- ④ After adjustment is done, apply the screw lock agent to M16 and M103.

12. 0-J100

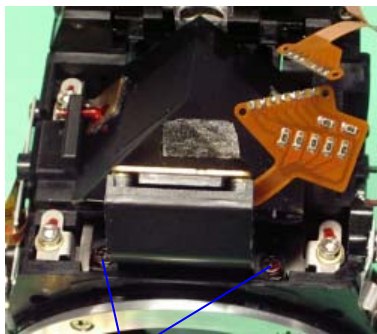
- ① M7
- ② M5
- ③ TY-CNL-B1.4x2.5... Left side
- ④ W29 (t=0.5)
- ⑤ 0-T970... White, Yellow lead wire 55mm
- ⑥ TY-CNL-B1.4x3.5
- ⑦ 0-J100
- ⑧ TY-CNL-G1.7x5.0, W5 (t=0.25)

[Note of Disassembly]
Set the diopter adjustment lever at the left end to remove 0-J100.

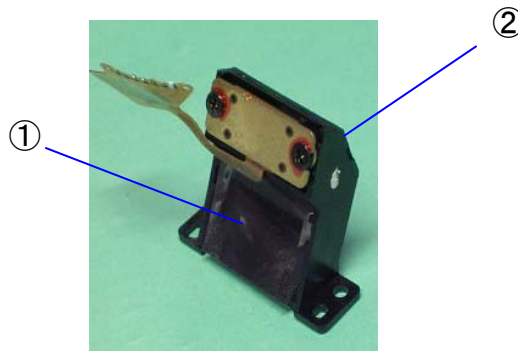


13. M51

- ① L12... Confirm there is neither dust nor scratches on L12, and then install it to M51.
- ② M51 (L10, L11, M53, 0-O170)... Install M51 to the Pentaprism (0-L3) without gap.
- ③ TY-CNL-F1.7x3.5 (2pcs.) ... Apply the screw-lock agent.



③



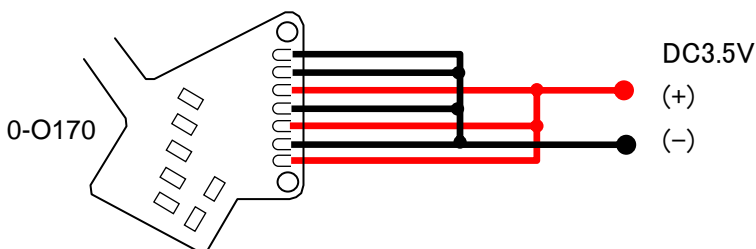
①

②

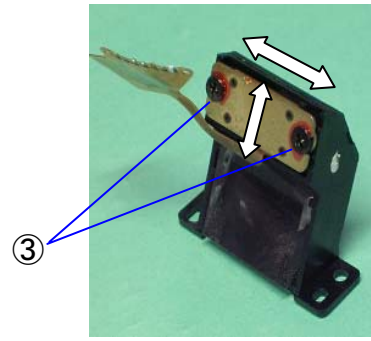
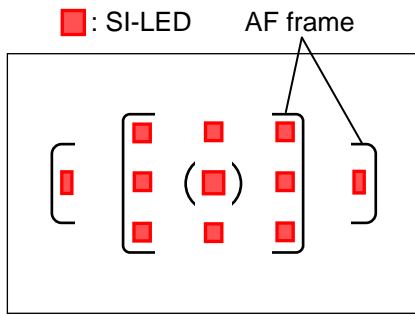
14. [ADJ] Positioning 0-O170 (SI-LED)

- 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.



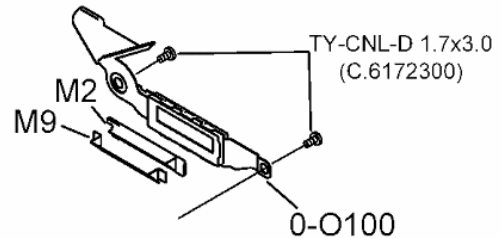
- ② Apply DC3.5V to 0-O170, and confirm the positioning and lighting of SI-LED 11points.



- ③ Loosen 2 screws, and then adjust the position of 0-O170.
- ④ Tighten 2 screws, and then confirm the position again.
- ⑤ After adjustment is done, apply the screw-lock agent to both screws and remove the lead wires from 0-O170.

15. 0-O100

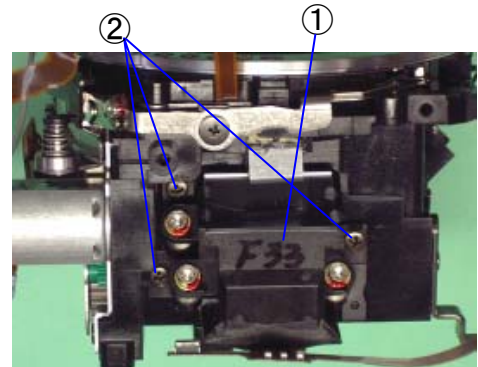
- ① M9
- ② M2
- ③ 0-O100
- ④ Temporarily tighten TY-CNL-D1.7x3.0 (2pcs.)



16. 0-M100

[Required equipment] Hexagonal screwdriver 1.5mm

- ① 0-M100
- ② TY-CNL-D1.7x3.5 (3pcs.)

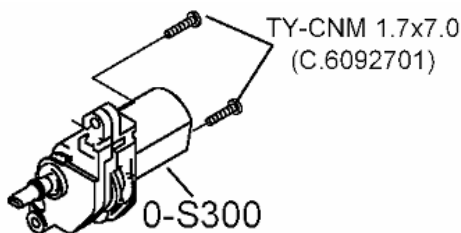


- ③ [ADJ] Temporary adjustment of AF block... Screw in 3 adjusting screws until they stops, then screw back two turns.

[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-S300

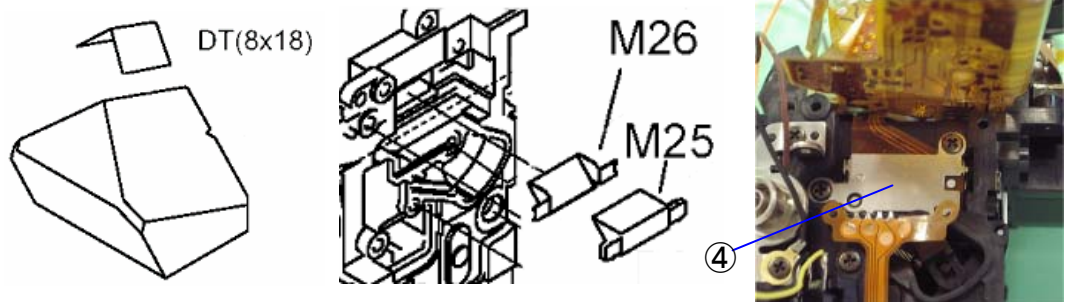
- ① 0-S300
- ② TY-CNM1.7x7.0 (2pcs.)... Apply the screw-lock agent to both screws.



18. [ADJ/CONF] AF Joint stroke

[Required equipment] Vernier calipers

- ① If AF mode SW (0-I331) is installed, set the AF mode SW to AF.S.
- ② [CONF] AF coupler must be projected from the mount surface by 1.2 mm or more.
- ③ [CONF] 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 [ADJ] Adjust 0-A121 by turning an eccentric screw, and apply the screw-lock agent to the screw.



19. 0-T100 (1)

- ① DT (8x18)
- ② M26
- ③ M25

- ④ Install the inner LCD display of T100. . . . TY-CNL-D1.7x3.0 (2pcs.)

20. [ADJ] Viewfinder Indications

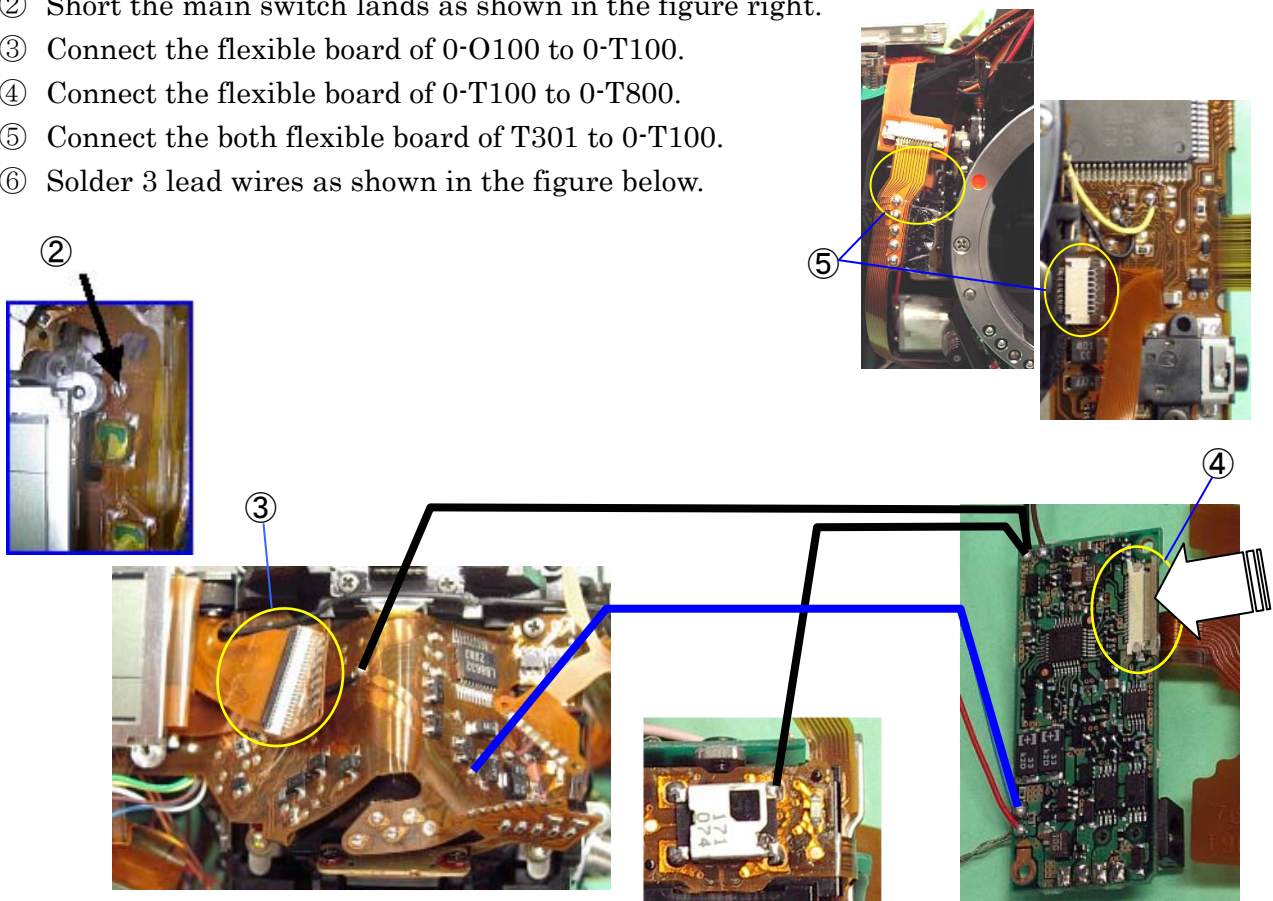
[Required equipment]

Regulated DC power supply (8V · 3A), DC cord (Jig), 0-T800, Cable switch CS-205

20-1. Preparation

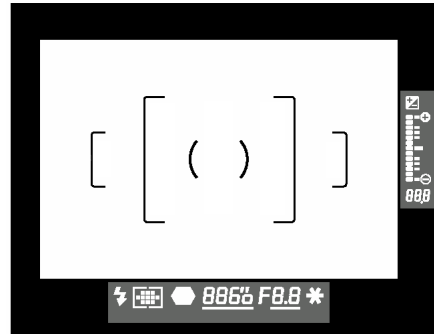
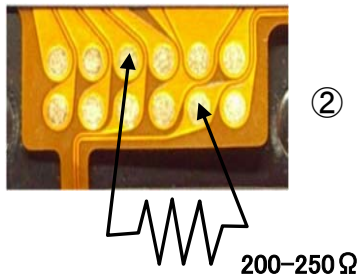
[CAUTION] Note miss wiring, wrong polarity and short circuit, because the lead wires are soldered to 0-T100 directly.

- ① Connect the DC cord to the DC power supply and set voltage to DC6.5V (3A).
- ② Short the main switch lands as shown in the figure right.
- ③ Connect the flexible board of 0-O100 to 0-T100.
- ④ Connect the flexible board of 0-T100 to 0-T800.
- ⑤ Connect the both flexible board of T301 to 0-T100.
- ⑥ Solder 3 lead wires as shown in the figure below.



20-2. Adjustment

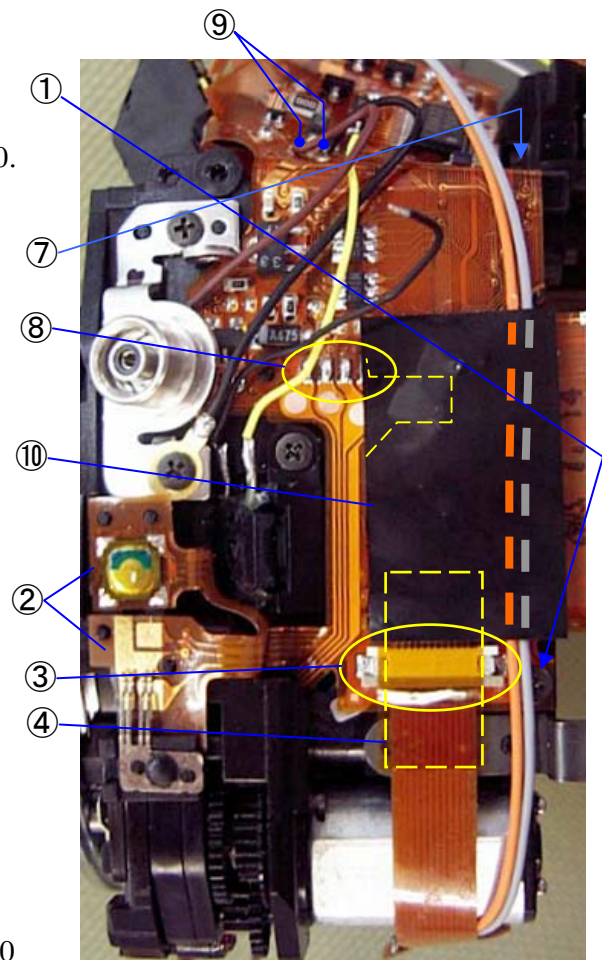
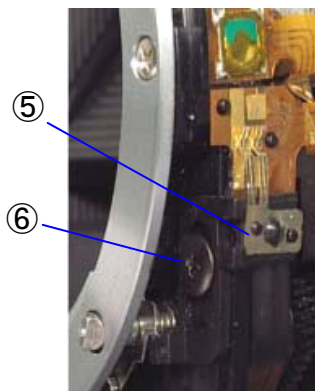
- ① Connect the DC cord to the camera. Confirm that the camera must be turned ON without a short circuit or leakage 5 seconds after the DC cord is connected to the camera. (Main SW/ON: Light metering OFF: Ave. 240mA, Light metering ON: Ave. 420mA)
- ② Solder a resistance (200~250 Ω) to T301 as shown in the figure.



- ③ Confirm the all displays must be turned on. (Some beginnings productions are required depressing the release button halfway down by using cable switch.)
- ④ Confirm the LCD in the viewfinder is in place as shown in the figure above.
- ⑤ Loosen the retainer screws of LCD, and then adjust the position of LCD.
- ⑥ After adjustment is done, apply the screw-lock agent to 4 screws.
- ⑦ Remove all lead wires and a resistance.

21. 0-T100 (2)

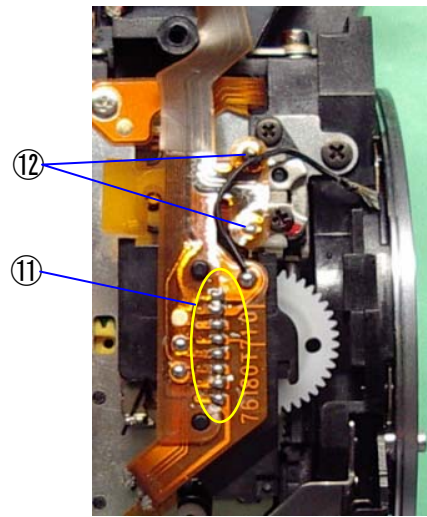
- ① TY-CNL-D1.4x2.5
- ② 0-T100... DT
- ③ Connect the flexible board of 0-M100 to 0-T100.
- ④ T69 (15x8)
- ⑤ 0-I331
- ⑥ TY-CNL-G1.7x2.5
- ⑦ TY-CNL-D1.4x2.5 (A101, Upper left)



- ⑧ Solder 4 lands... S300, 0-T100
- ⑨ Solder 2 lead wires... Brown, Black
- ⑩ BT (25x15) ... Arrange the lead wires of S300

- ⑪ Solder 8 lands. . . . T71, 0-T100
- ⑫ Solder 2 lands. . . . G100

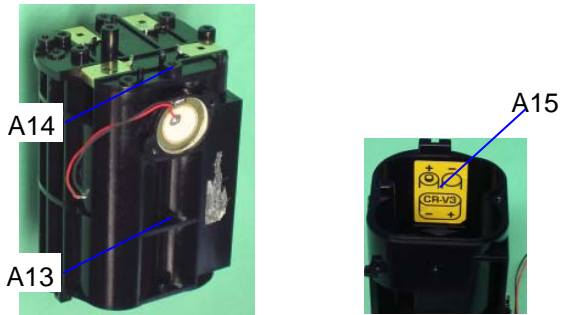
[Note of disassembly]
When peel off BT (⑩), hold the flexible board of S300 to avoid breaking it.



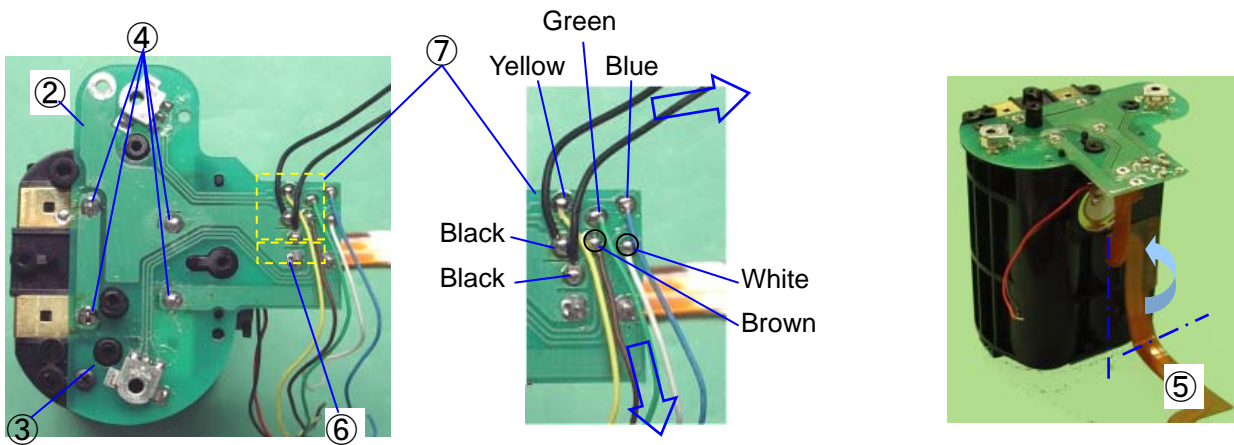
III. Assembly procedure of main body

1. Battery Chamber and Related Parts

- ① A13 (A14 (4pcs.), A15 (2pcs.))
- ② 0-T900

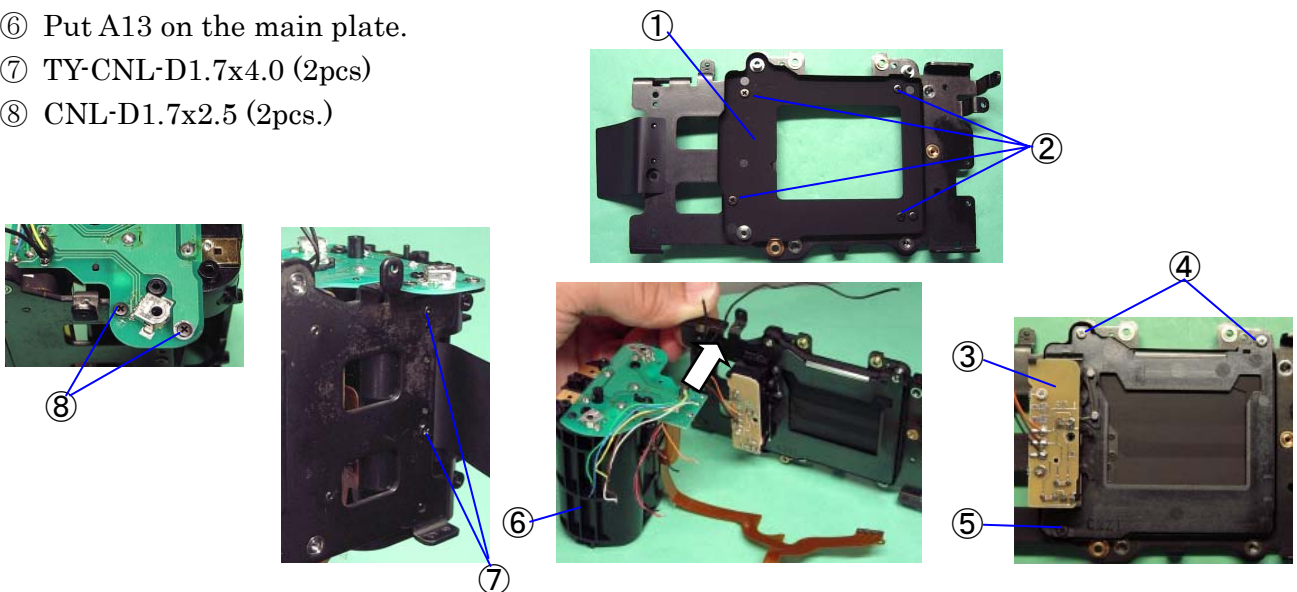


- ③ TY-CNL-D1.7x4.0
- ④ Solder 4 lands.
- ⑤ Fold down T907 as instructed in the figure (2 places) and stick it on A13 by using DT (8x18).
- ⑥ Solder 2 lands of T907.
- ⑦ Solder 7 lead wires with arranging the lead wires as shown in the figure below.



2. 0-E000 (Shutter Block)

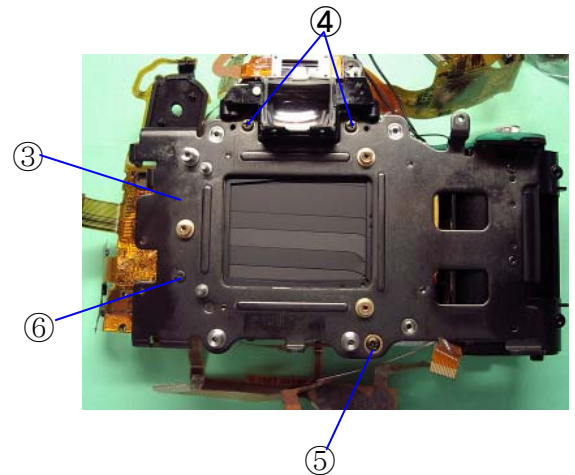
- ① Put A2 on the main plate.
- ② A65 x4 (Screw)···A2 must be installed in place.
- ③ 0-E000··· Confirm there is neither dust nor scratch on 0-E000.
- ④ A71 x2 (Shoulder screw)
- ⑤ TY-CNL-D1.7x2.5···Make sure 0-E000 is installed securely.
- ⑥ Put A13 on the main plate.
- ⑦ TY-CNL-D1.7x4.0 (2pcs)
- ⑧ CNL-D1.7x2.5 (2pcs.)



3. Front Housing Block

- ① Confirm the 0-E000 is in charge.
- ② Confirm the front housing block is in mirror down condition.
- ③ Put the main plate on the front housing block with care to avoid pinching lead wires or flexible boards.
- ④ TY-CNM2.0x6.0 (2pcs.)
- ⑤ TY-CNL-D2.0x9.0
- ⑥ CNL-D1.7x2.5

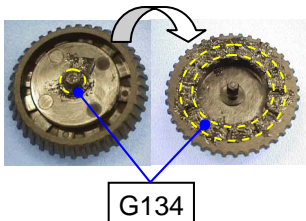
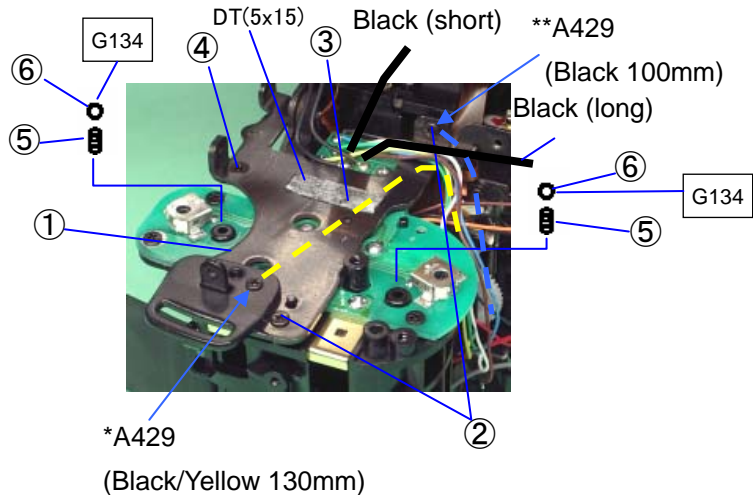
[NOTE] If necessary, install M311 (Eyepiece frame cove) to prevent scratches on the Eyepiece lens.



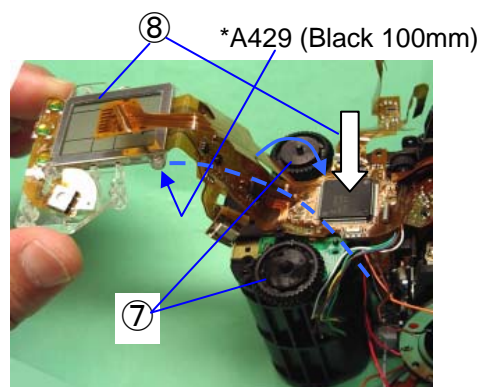
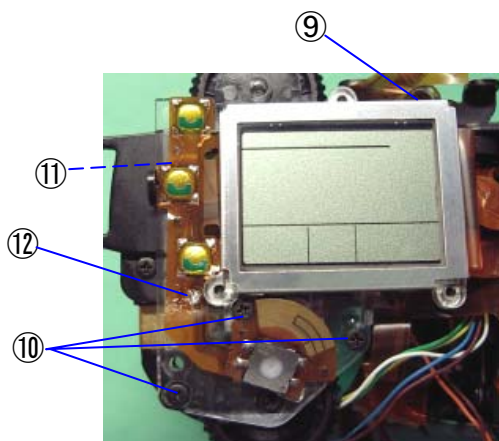
4. T903 (Tv/Av dial)

- ① A6
- ② TY-CNL-D1.7x4.0 (2pcs.)
(Tighten a retainer screw if the lug plate is installed.)
- ③ TY-CSM1.7x4.0

- ④ CSM1.7x2.5
- ⑤ A17 (2pcs.)
... Dial click spring
- ⑥ BO1.5 (2pcs.)... G134
- ⑦ T903 (2pcs.)... G134

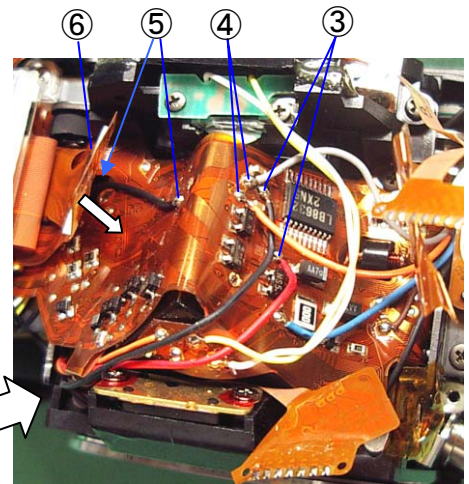
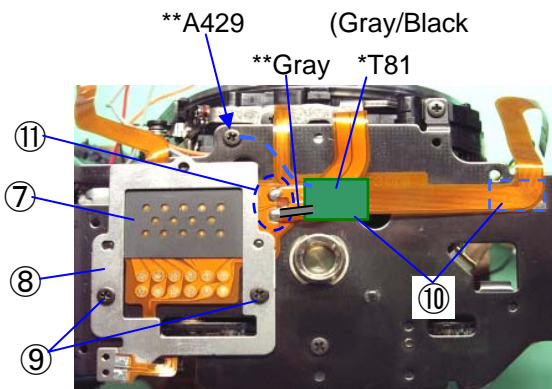
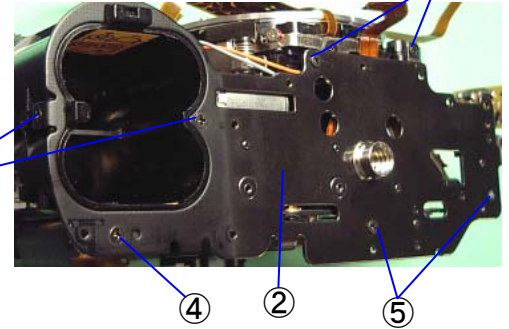
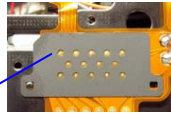


- ⑧ Install the LCD frame of 0-T100 with arranging the flexible board by using DT.
- ⑨ CNL-D1.7x2.5
- ⑩ TY-CNL-D1.7x9.0 (3pcs.)
- ⑪ TY-CNL-D2.0x9.0
- ⑫ Remove the solder from the main switch land of T100.
- ⑬ Stick the flexible board of 0-T100 on the LCD frame.



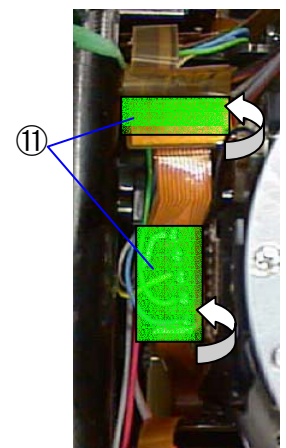
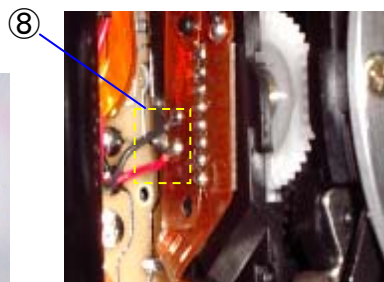
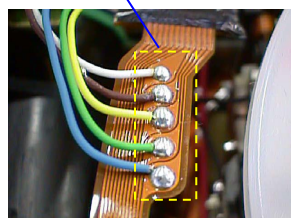
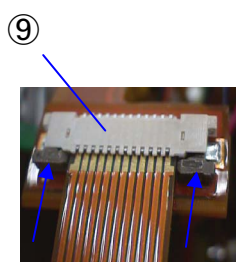
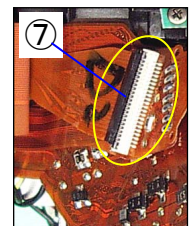
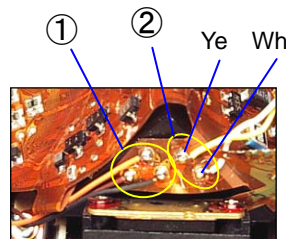
5. 0-A3 (Bottom Plate assy.)

- ① Arrange the flexible boards as shown in the figure.
 - ② 0-A3 ③ TY-CNL-D1.7x4.0 (2pcs.)
 - ④ CSM1.7x2.5
 - ⑤ CNL-D1.7x2.5 (2pcs.)
 - ⑥ TY-CSM1.7x4.0 (2pcs.)
 - ⑦ A423 ⑧ A422
 - ⑨ CNL-D1.7x2.0 (2pcs.)
 - ⑩ Stick T301 on the bottom plate by using DT (5x5).
(T81: for CE marking)
 - ⑪ Solder 2 lands. . . . T301 · T907
- (If the lug plate is installed, tighten a retainer screw ⑥ and solder two lead wires (T81).)

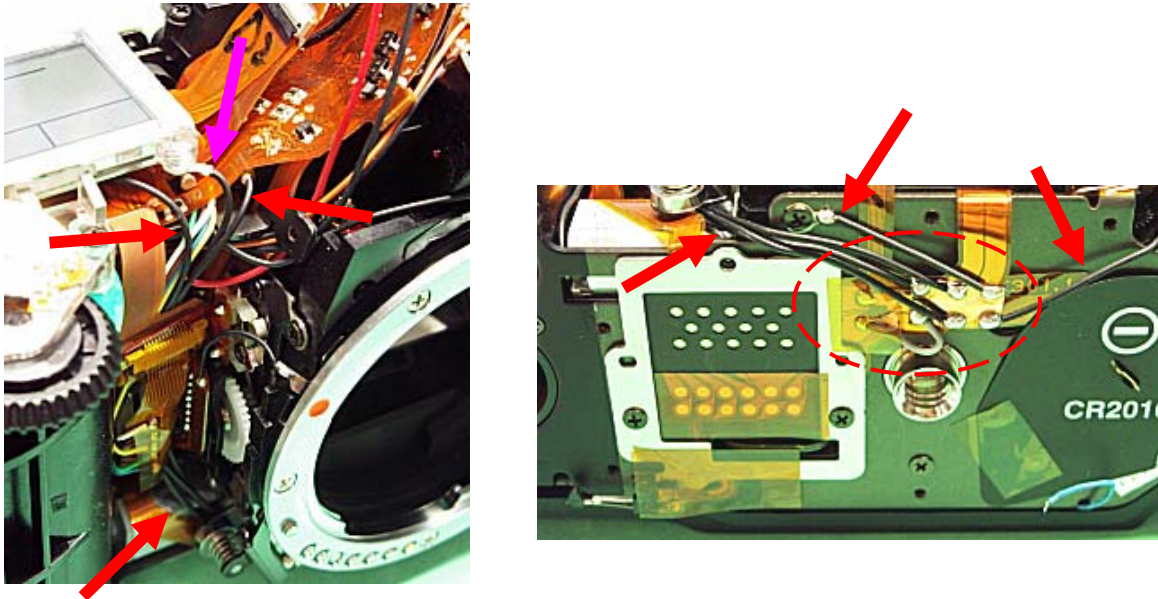


6. Around Pentaprism (2)

- ① Solder 3 lead wires. (Orange, Brown, Black from E000)
- ② Solder 2 lead wires. (Yellow, White from T970)
- ③ Solder 2 lead wires. (Red, Black from S250)
- ④ Solder 2 lead wires. (Orange, Gray from S300)
- ⑤ Pass a black wire through hole of T100 and solder it on T100. (T900).
- ⑥ Stick the flexible board of T100 by DT (5x5).
- ⑦ Connect the flexible board of O100 to the connector terminal of 0-T100.
- ⑧ Solder 2 lead wires. (Red, Black from N300)
- ⑨ Connect the flexible board of T301 to the connector terminal of 0-T100.
- ⑩ Solder 5 lead wires.
- ⑪ Stick T69 x2 (8x19) as shown in the figure right.



⑫ Arrange the lead wires for CE marking as shown in the figure below.



7. 0-Q200 • 0-T800 (Flash P.C. Board assy. • Power P.C. Board assy.)

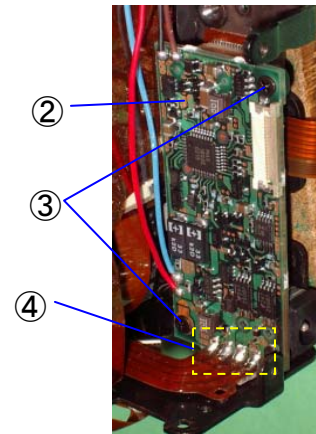
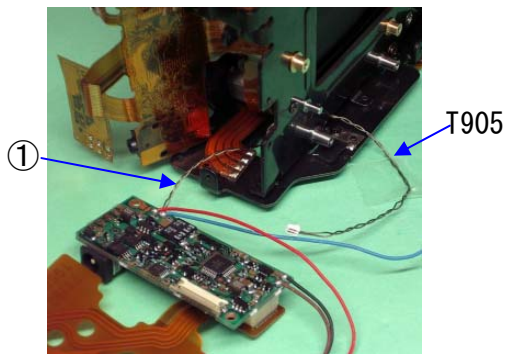
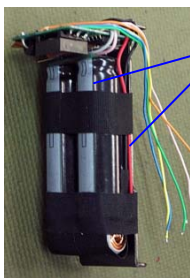
① Pass T905 (Power supply cable) through between the main plate and bottom plate.

② 0-T800

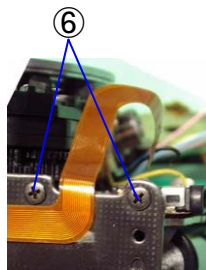
③ CNL-D1.7x2.5 (2pcs.)

④ Solder 4 lands.

⑤ A4, 0-Q200



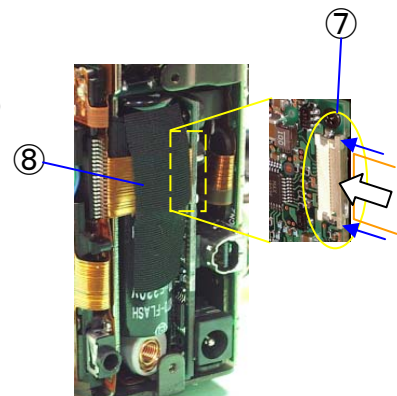
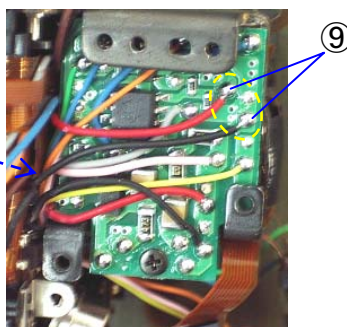
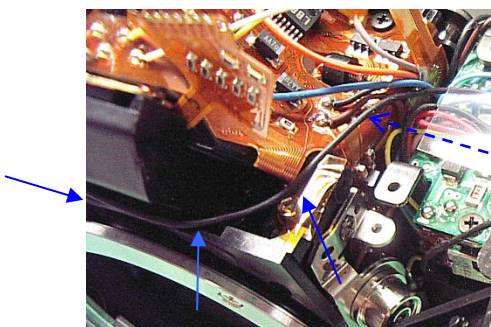
⑥ CNL-D1.7x2.5 (2pcs.)



⑦ Connect the flexible board of T100 to the connector terminal of 0-T800.

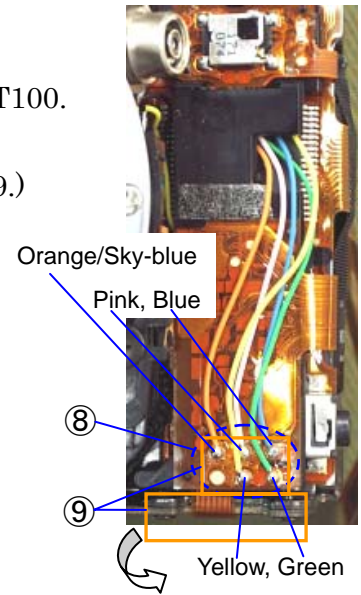
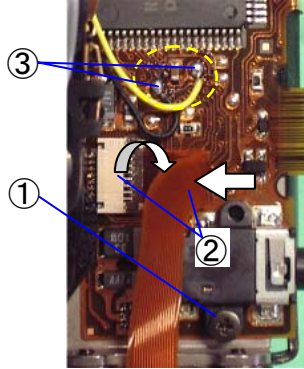
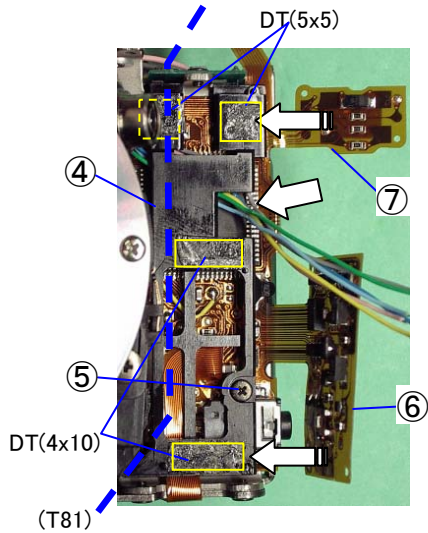
⑧ Stick BT (25x10) on the flexible board and main capacitor.

⑨ Solder 2 lead wires. (Red: T800, Black: T900)



8. A49 (Remote Control Base Plate)

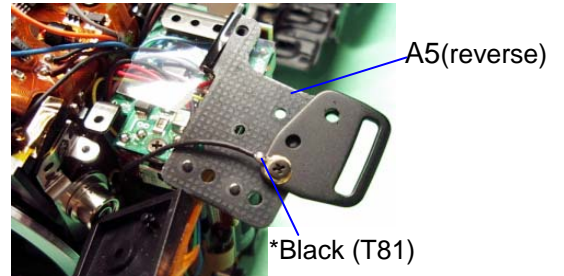
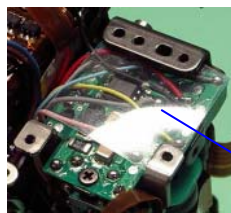
- ① CNL-D1.4x4.0... Cable release socket
- ② Connect the flexible board of T301 to the connector terminal of 0-T100.
- ③ Solder two lead wires. (Yellow, Black)
- ④ A49 (If there is a black wire for CE marking, arrange it inside A49.)
- ⑤ CNL-D1.4x5.0 *Black 130mm (CE)



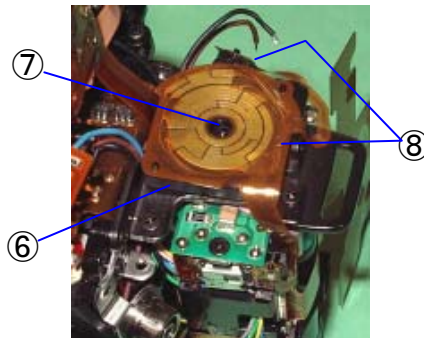
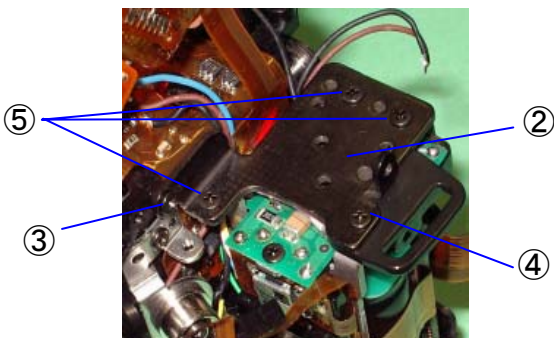
- ⑥ Stick the flexible board of T100 on A49 (Remote control base plate) by DT.
- ⑦ Stick the remote control receiver of 0-T100 on A49 with care to avoid breaking the flexible board.
- ⑧ Solder 5 lead wires. (Green, Blue, Yellow, Pink, Orange or Light blue)
- ⑨ PT (8x10), PT (10x20) ... for CE marking

9. A5 (Right Shoulder Plate)

- ① Put T62 on 0-Q200.
- ② A5 (Solder a black lead wire for CE marking)
- ③ TY-CNL-D1.7x3.5
- ④ CNL-D1.7x3.5
- ⑤ CNL-D1.7x2.5 (3pcs.)
- ⑥ A338... Mode dial base plate
- ⑦ CNL-D1.7x2.5

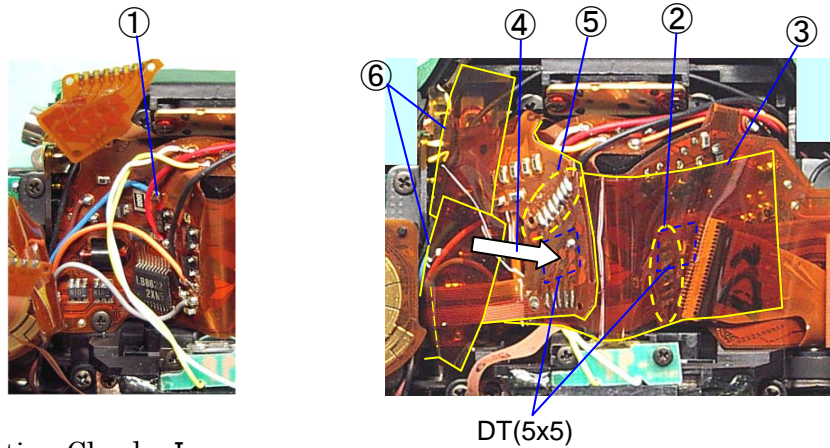


- ⑧ Stick the switch lands of 0-T100 on A338 with care to avoid breaking the flexible board.



10. Around Pentaprism (1)

- ① Solder a blue lead wire. ··· 0-T800
- ② Solder 7 lands.··· 0-J100
- ③ Stick T64 (20x50) on 0-T100 as shown in the figure below.
- ④ Stick 0-T100 by DT (5x5) as shown in the figure below.
- ⑤ Solder 7 lands.··· 0-O170
- ⑥ Stick T74 x2 (20x10) on 0-T100 as shown in the figure below.

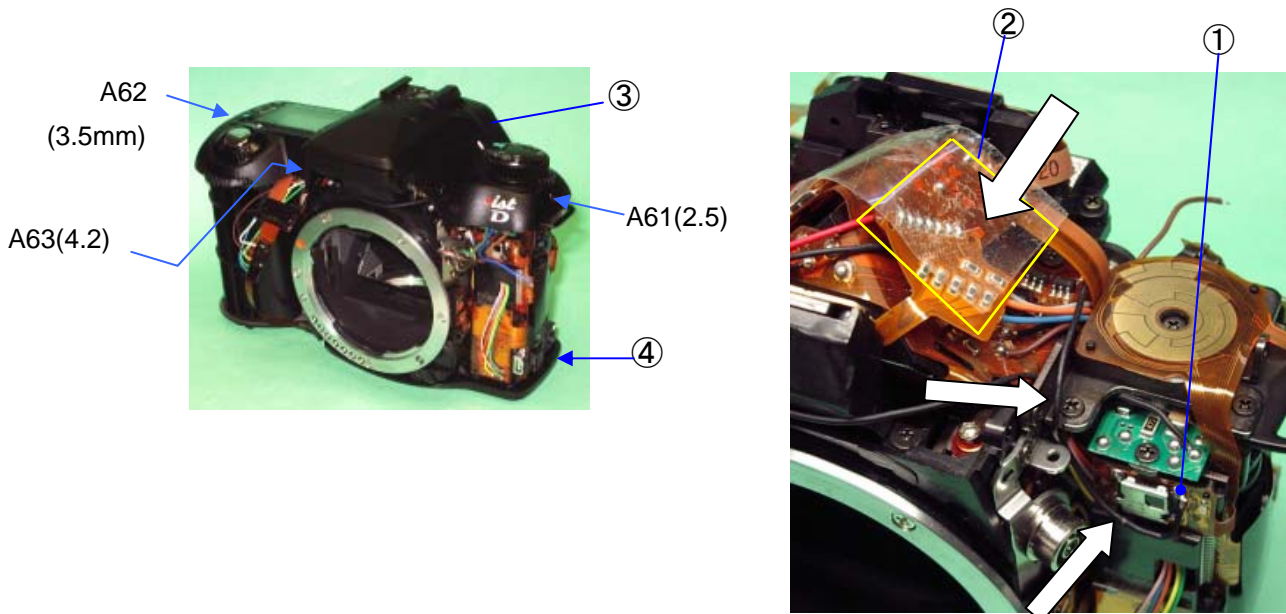


11. [CONF] Function Check I

[Required equipment] Regulated DC power supply (8V · 3A), DC cord (Jig), Lens for checking (e.g. FA50mmF1.4), Cable switch CS-205, Remote control F, Top cover (0-A301)

11-1. Preparation (The following preparation is required checking the function.)


- ① Temporarily solder a black lead wire No.6 (T800) to the upper right terminal of remote control receiver.
- ② Stick PT (20x20) on the Penta-prism as indicated by arrow in the figure to prevent short circuit.
- ③ Temporarily install 0-A301 by A61 (2.5mm), A62 (3.5mm) and A63 (4.2mm).
[CAUTION] Arrange the flexible boards and lead wires to outer side to prevent damage.
- ④ Temporarily install the bottom cover by A67x2 (5mm).



11-2. Function Check

[Caution] Do not touch the shutter blades while checking the function.

11-2-1. Power • Main SW



- ① Connect the DC cord to the DC power supply and set the voltage to DC6.5V (3A).
- ② Turn the main SW to OFF and connect the DC cord to the camera. At this time, there must be neither short nor Leakage. (Main SW/OFF: *Ave. 10mA)
- ③ Turn the main switch to ON and LCD must be displayed five seconds later. At that time, current consumption must be within the standard below.
(Main SW/ON: Light metering OFF: Ave. 240mA*, Light metering ON: Ave. 420mA*)
- ④ When the main SW is turned to , the diaphragm actuate lever (O-G100) must be done vertical motion. And, the LCD display must be illuminated.

* When the power is supplied by the DC input terminal.

11-3. Exposure • Release

- ① Attach a lens to the camera and set the AF_SW to MF position (up position).
- ② Set the mode dial to Green Program AE Mode.
- ③ The information of Tv and Av must be displayed in the viewfinder and on the LCD panel when the release button is depressed halfway.
- ④ The information of Tv and Av must be changed when the mode dial is set to the each exposure mode.
- ⑤ The bar graph must be displayed in the viewfinder when the mode dial is set to M.
- ⑥ The setting of multiple exposure and AEB must become possible when depressing the multiple exposure/AEB button.
- ⑦ Set the mode dial to B (Bulb).
- ⑧ 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. The shutter must open at the same time, too.
- ⑨ The camera must be released by the cable switch.
- ⑩ The camera must be released by a remote controller when the drive mode is set to the remote control mode. The PCV signal must sound at the same time, too.

11-4. Mode dial

- ① Set the mode dial to ISO.
- ② The ISO sensitivity must change from 200 to 1600 (3200) when the Tv dial is turned.
- ③ Set the mode dial to .
- ④ The quality level must change as follows when the Tv dial is turned.
(RAW ⇄ TIFF ⇄ ★★ ★ ⇄ ★★ ⇄ ★ ⇄)
- ⑤ The recorded pixels must change as follows when the Av dial is turned at the position other than RAW position. (L ⇄ M ⇄ S ⇄)
- ⑥ Set the mode dial to WB.
- ⑦ The setting of White Balance must change when the Av dial is turned.
- ⑧ Initialize the setting of ISO,  and WB by pushing the green button while setting the mode dial to each position.

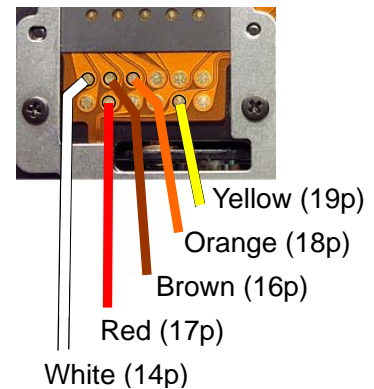
11-5. AF

- ① Set the mode dial to Green Program AE Mode and set the AF_SW to AF.S (down position).
- ② The distance ring of the lens must turn between infinity (∞) and shortest distance end when the shutter button is depressed halfway while covering the front of lens with the palm.
- ③ Confirm the operation of AF and SI display in the viewfinder while depressing the shutter button halfway.
- ④ Set the AF_SW to MF and detach the lens from the camera.
- ⑤ Turn the main switch to OFF and LCD must be disappeared five seconds later.
- ⑥ Disconnect the DC cord from the camera.

12. [ADJ.] Shutter Speed (1/4000sec.)

*Measure the shutter speed according to the following points whenever 0-E000 or 0-T100 is replaced.

[Required equipment] Programmed software 76180 (for SLR operation), Computer and related items, I/F buffer cable for 27250 (MZ-5), Shutter tester (measurable 1/4000), AC adaptor D-AC10, Shutter attachment 76180 (Newly issued: if necessary)



12-1. Preparation for the shutter adjustment

- ① Arrange the camera to release the shutter according to 11-1.
- ② Solder the I/F buffer cable on the main board.

[NOTE] Pass the cable through into the strap lug to prevent damage of the soldered lands.

- ③ Attach the shutter attachment 76180 to the main body with aligning the positioning studs. (If the attachment comes off easily, fix both ends with the adhesive tape.)
- ④ Connect the AC adaptor to the main body.



12-2. Adjustment

① Connect the camera to the PC, and adjust the shutter speed by the programmed software.

[The flow of adjustment is as follows.]

↓ Product select menu (Select *istD)

↓ 76180 test program (Select 1 even when you replace 0-T100.)

↓ Main menu (Select 7)

↓ Shutter speed adjustment

② Adjust the camera according to the instructed on the screen.

[NOTE] Read the shutter speed displayed on the window B as shown in the figure above.

③ Return to the MAIN MENU to finish the adjustment when the adjustment is completed.

④ Execute Eeprom checking (END) (select 5)

If standard data is NG, re-write by pressing 3. Other adjustments carry out on section 23.

⑤ Return to the MAIN MENU to finish the adjustment.

12-3. Remove temporarily installed for camera.

① Unsolder the I/F buffer cable and black lead wire No.6 (T800).

② Remove the top cover and bottom cover.

③ Peel off PT (20x20) on the left side of the pentaprism.

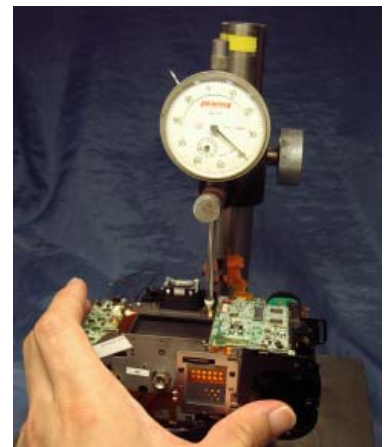
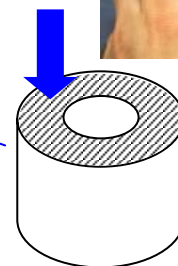
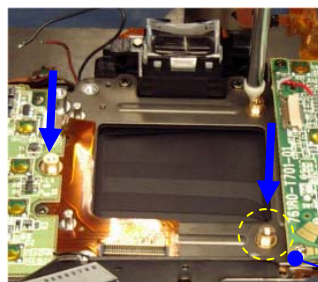
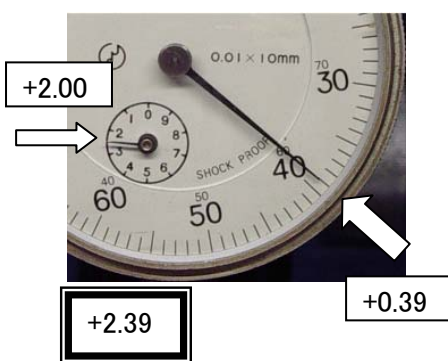
13. [CONF] CCD Base Plate Support Pillar

[Required equipment] Block gauge for 35mm, Dial gauge comparator, etc. (same as MZ series)

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

Tolerance: 47.85 ± 0.02 mm

when using the block gauge for 35mm: $+2.39 \pm 0.02$ mm



14. 0-T600 (CCD Block)

[Preparation] Attach the body mount cap to the camera to prevent damage of Tv dial.

[CAUTION] Confirm there is neither dust nor scratches in the surface of CCD of T600.

① Put 0-T750 (USB P.C. board assy.) on the flexible board of T960.

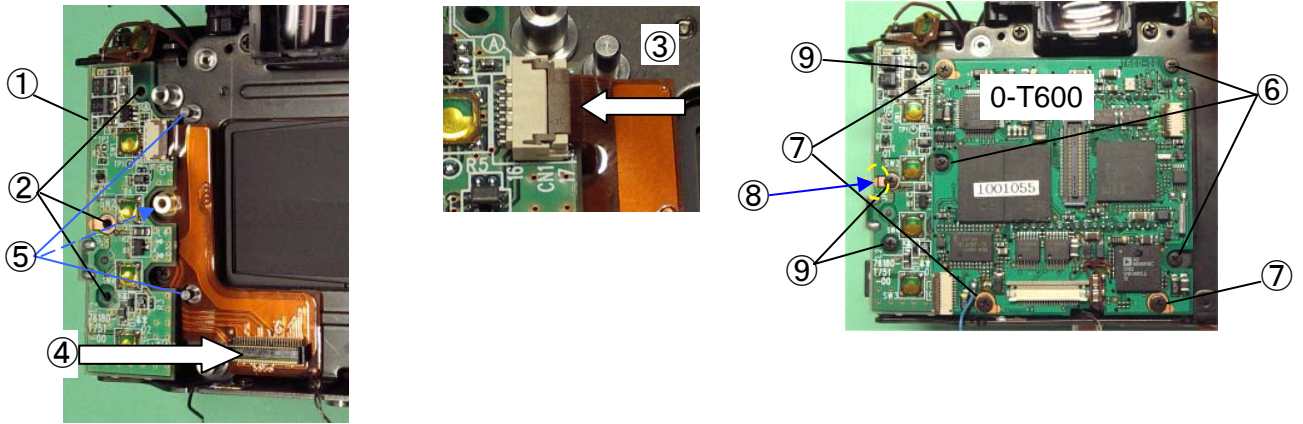
② Temporarily tighten CNL-D1.7x2.5 (3pcs.) a little bit loosely so that 0-T750 moves.

... Two washers should be placed at the USB part underneath 0-T750.

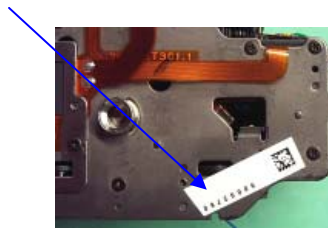
③ Connect the flexible board of T960 to the connector terminal of 0-T750.

④ Connect 0-T600 to the connector terminal of T960.

- ⑤ Install 0-T600 to the main body while matching it to two positioning studs so that there is no space between them.
- ⑥ CNL-D1.7x2.5 (3pcs.)···0-T600
- ⑦ A60 x3 (Shoulder screw)
- ⑧ Short the land of 0-T750 by solder as shown in the figure below.
- ⑨ Tighten CNL-D1.7x2.5 (3pcs.) on 0-T750.



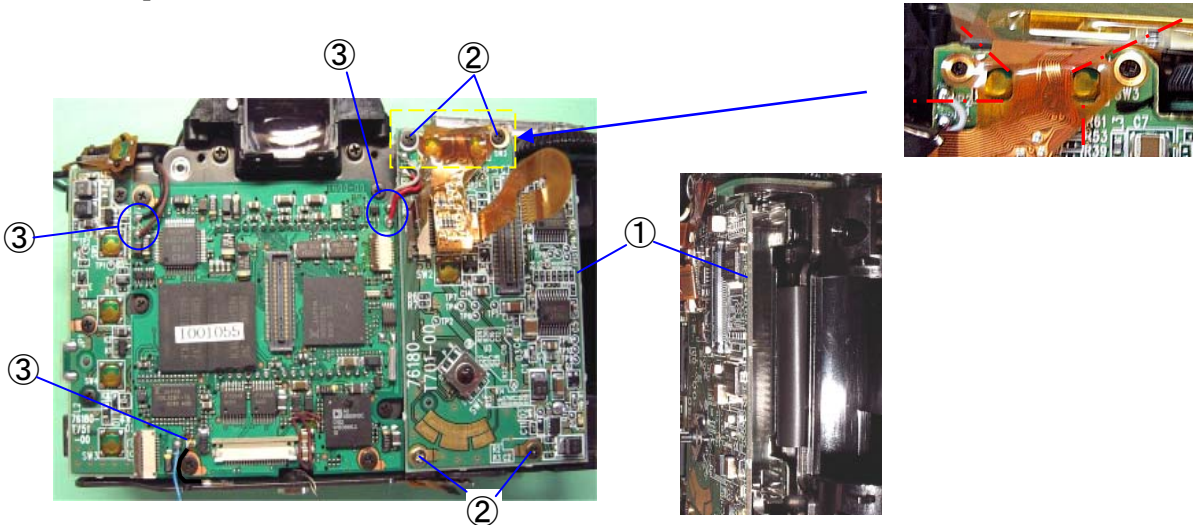
[CAUTION] Replace the ID number seal of CCD with new one attached 0-T600 whenever the CCD Block is replaced.



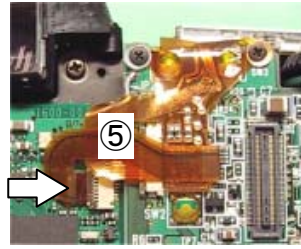
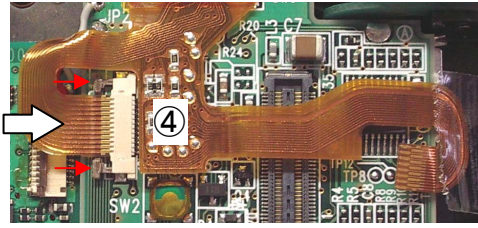
15. 0-T700 (CF P.C. Board assy.)

- ① Install 0-T700 while positioning A19 (Friction sheet).
- ② CNL-D1.7x2.5 (4pcs.)
- ③ Solder 5 lead wires on 0-T600··· Brown, Black (T800), Red, Gray (T700), Black (A433)

[NOTE] Cut the flexible board as shown in the figure below when 0-T100 is replaced with brand new parts.



- ④ Connect the flexible board of T100 to the connector terminal of T700.
- ⑤ Connect the flexible board of T100 to the connector terminal of T600.



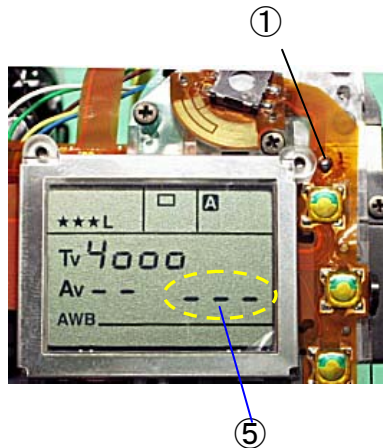
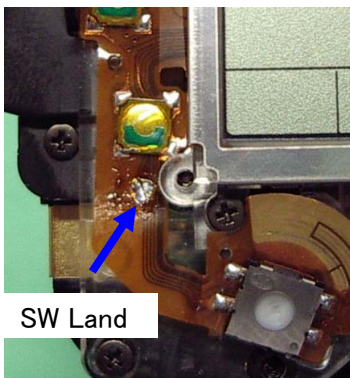
16. [CONF] Function Check II

[Required equipment] CF card for the firmware (FW), Color video monitor, Video cable (I-VC2), Battery adaptor (Jig: Battery grip D-BG1), Regulated DC power supply (8V · 3A), DC cord (Jig), AC Adapter (D-AC10)

[Preparation] Connect the video cable to the color video monitor.

16-1. Battery · DC Power Input, Connection between 0-T100 and 0-T600

- ① Short the main switch land on T100 by soldering as shown in the figure below.
- ② Connect the battery adaptor to the DC power supply and set the voltage to DC5.6V (3A).
- ③ Temporarily install the bottom cover by A67x2 (5mm).



- ④ Attach the battery adaptor to the camera. At this time, there must be neither short nor Leakage. (Main SW ON: Metering OFF: Ave.180mA*, Metering ON: Ave.370mA*)

* When the power is supplied by the Battery grip connection terminal.

[CAUTION] When the over-current occurs, remove the camera from the power supply at once.

- ⑤ When 0-T600 is connected to 0-T100 successfully, [- -] must be appeared on the LCD panel.
- ⑥ Remove the battery adaptor from the camera.
- ⑦ Connect the DC cord to the power supply and set the voltage to DC6.5V (3A).
- ⑧ Connect the DC cord to the camera and then the camera will be turned ON. At this time, there must be neither short nor Leakage.

(Main SW ON: Metering OFF: Ave.240mA*, Metering ON: Ave.420mA*)

* When the power is supplied by the DC input terminal.

- ⑨ Disconnect the DC cord, and the LCD display must be disappeared.
- ⑩ Connect both connector terminal of 0-T950 to 0-T600 and 0-T700.

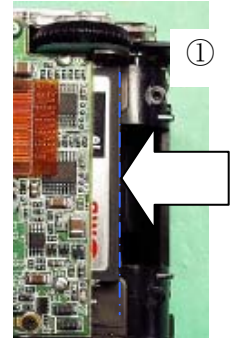
16-2. Writing FW

In this step, the connection of each circuit board and the output of a video signal are confirmed by writing FW.

[CAUTION]

1. Rewriting the FW (Firmware) is necessary whenever 0-T100 or 0-T600 is replaced.
2. Always use the latest version FW whenever writing the FW.
3. Never install or remove the CF card while turning the camera's power ON as this may cause the CF card or camera to be damaged and become unusable.
4. When the FW writing is done, the menu setting, the custom function setting, the language setting, and the date setting are initialized.

- ① Confirm the main switch land on 0-T100 is shorted by soldering.
- ② Insert the CF card (for writing FW) into 0-T700.
(The CF card is projected 5mm from end of 0-T700.)
- ③ Connect the video cable and AC adapter to the camera.
- ④ The version of CPU/DSP will be displayed on the TV monitor.

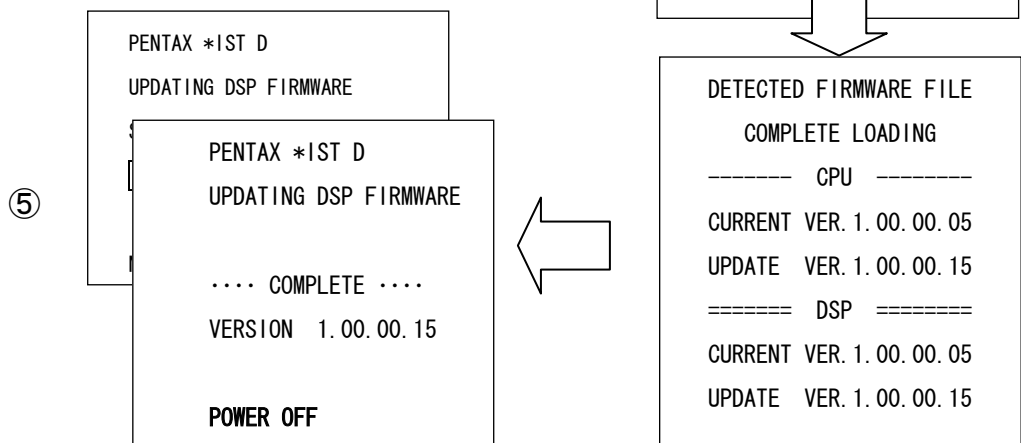
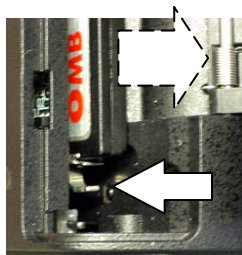


[NOTE] If you want to cancel writing firmware, disconnect AC adapter and eject the CF card.

- ⑤ Remove the CF card when the message as `>>> EJECT CF CARD <<<` is displayed, and then the loading of firmware will be started. Wait 30~60 sec. until the loading is finished.

[CAUTION] Do not turn OFF the camera while loading firmware.

- ⑥ Disconnect the video cable and the AC adapter from the camera when `POWER OFF` is displayed.



- ⑦ Remove soldering on the main SW land of T100.

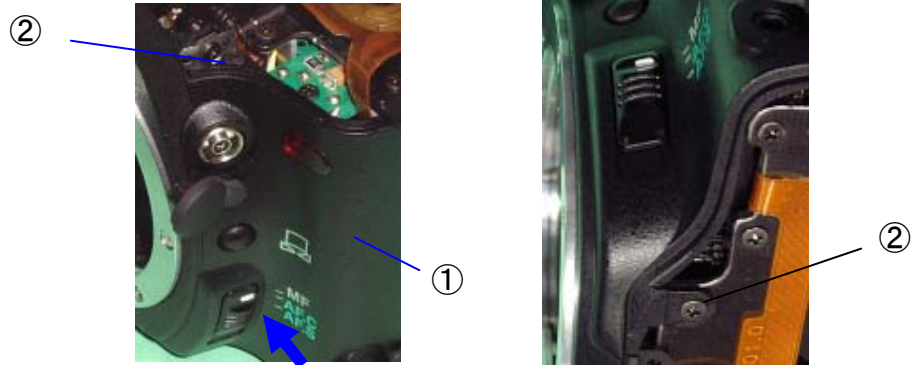
17. A102 (Front Cover)

- ① A102
- ② CNL-D1.7x3.0



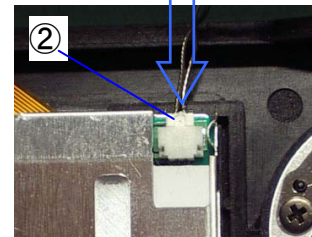
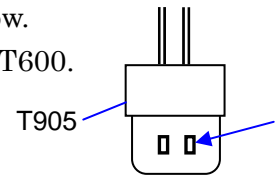
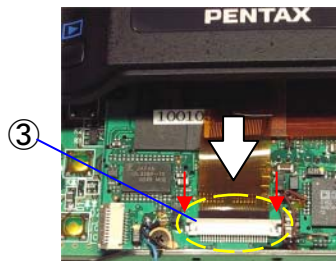
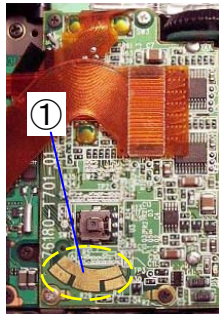
18. A153 (Front Cover, Left)

- ① A153··· Install the cover at MF position.
- ② CNL-D1.7x2.5 (2pcs.)



19. A201 (Back Cover)

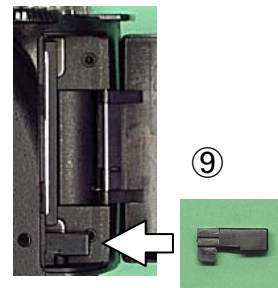
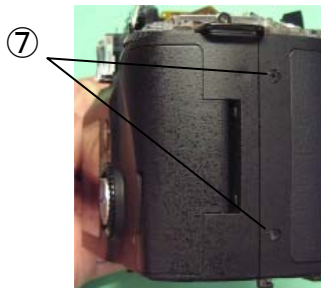
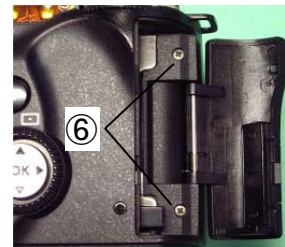
- ① Apply G151 to land on 0-T700.
- ② Connect the connector of T905 to 0-O301 as shown in the figure below.
- ③ Connect the flexible board of 0-O301 to the connector terminal of 0-T600.



- ④ Arrange the cable of T905 and a blue wire.
- ⑤ Open the CF card cover, and install A201 to the main body while engaging the four-way controller and the four-way control switch of 0-T700.

[NOTE] Confirm that the four-way controller is installed correctly.

- ⑥ A69 x2 (Screw (TY), 3.5mm)
- ⑦ A68 x2 (Screw (TY), 6mm)
- ⑧ A62 x2 (Screw, 3.5mm)
- ⑨ Set the CF card eject button (T691) firmly.



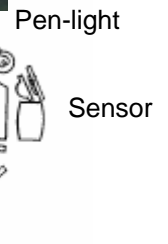
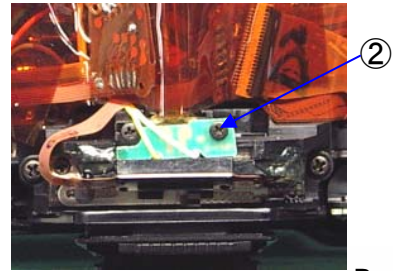
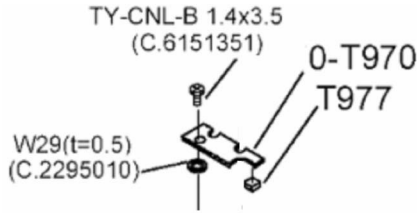
- ⑩ Confirm the function of all switches on the back cover and CF card cover.



20. [ADJ] Positioning 0-J100

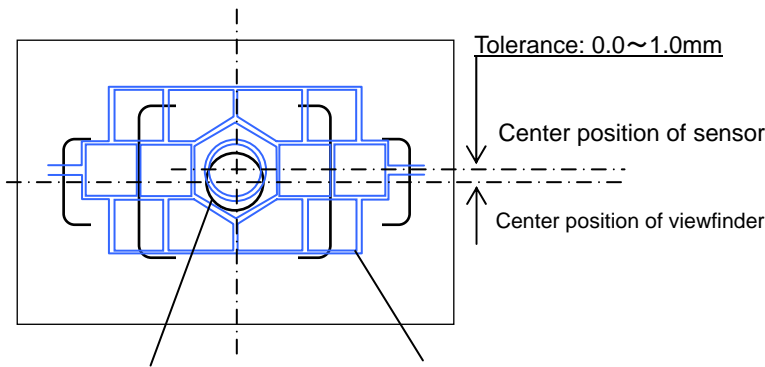
[Required equipment] Penlight or equivalent

- ① Confirm that the mirror seat is downed condition.
- ② Remove 0-T970 . . . There is a washers underneath 0-T970. Removing the lead wire is not necessary.

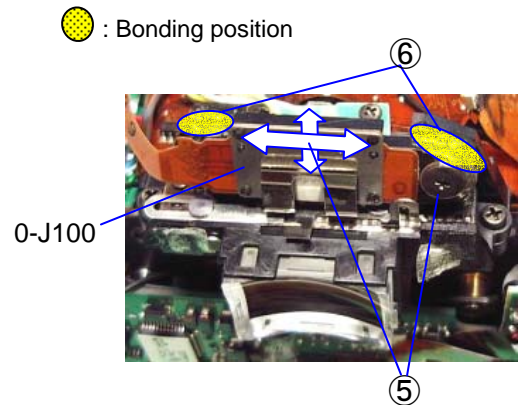


- ③ Cover the eyepiece with a black tape.
- ④ Strike light by a penlight to the photo sensor as shown in the figure right, and search the position where the pattern of the photo sensor can be seen on the 1st mirror from the mount ring side.

- ⑤ [CONF.] The photo sensor must be positioned at the center of AF frame as shown in the figure below.



AF frame for spot metering (φ 3.8) Photo sensor (0-J100)

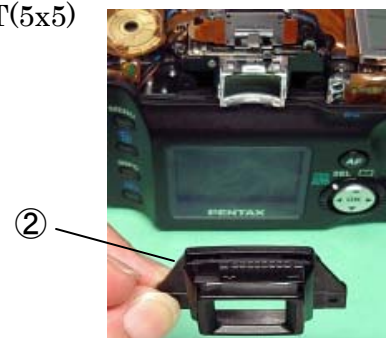
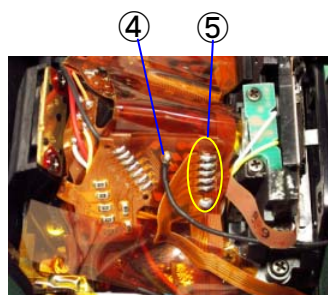


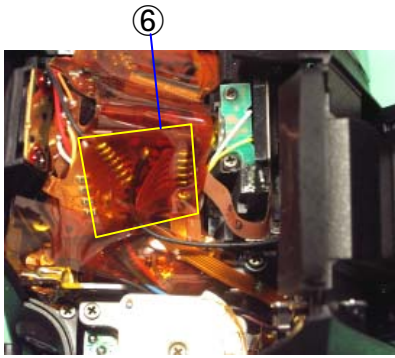
- ⑥ [ADJ.] Loosen the screw, and then adjust the position of sensor. Tighten screw and ensure position is not changed. If required, repeat adjustment procedures.
- ⑦ After adjustment is completed, apply the screw lock agent or Super-X to 0-J100 (2 places) as shown in the figure above right.
- ⑧ Install W29 and 0-T970.

[Ref.] Attaching brighter lens is advisable to assist better visibility. (Ex.: FA 50mm f/1.4 Lens)

21. 0-A301 (Top cover)

- ① Confirm that soldering on the main SW land of T100 is removed.
- ② Install M311 with engaging the Diopter adjustment lever. . . . DT(5x5)
- ③ Put 0-A301 on the main body.
- ④ Solder a black lead wire. . . . A330
- ⑤ Solder 6 lands. . . . T51
- ⑥ Stick T72 (20x15) on 0-T100.





⑦ Solder 4 lead wires (Blue, Black, Brown, Green)···Q100

[NOTE] Stick PT (10x20) on Q200 for CE marking.

⑧ A64 x2 (Screw, 11mm)

⑨ A69 (Screw (TY), 3.5mm)

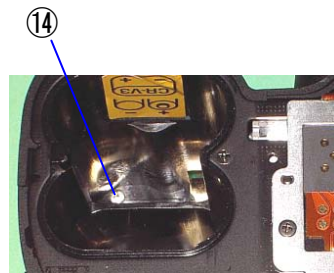
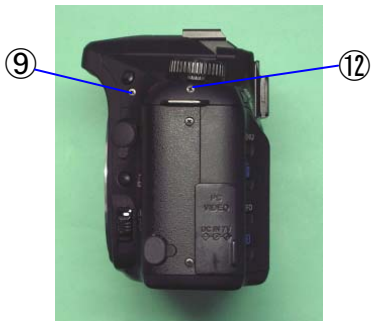
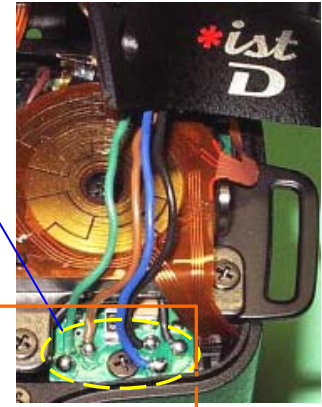
⑩ A63 (Screw, 4.2mm)

⑪ A62 (Screw, 3.5mm)

⑫ A61 (Screw, 2.5mm)

⑬ TY-CNS1.4x2.5

⑭ A70 (Screw (Ni),12mm)



22. [CONF] Function check III

[Required equipment] CF card 2pcs (for SW testing and Taking picture), Color video monitor, Video cable (I-VC2), Regulated DC power supply (8V · 3A), DC cord (Jig), Lens for checking (FA50mmF1.4), Flash for checking (AF360FGZ, AF500FTZ or AF330FTZ), Circuit tester

22-1. Preparation


- ① Connect the DC cord to the DC power supply and set voltage to DC6.5V.
- ② Connect the video cable to the color video monitor.
- ③ Temporarily install the bottom cover to the main body. (The battery cover, terminal cover and backup battery are not necessary.)

22-2 [CONF] Static Current

- ① Connect the DC cord to the camera and then the camera will be turned ON. At this time, there must be neither short nor Leakage.

Static current:
 Main SW/OFF ··· Ave.10mA
 Main SW/ON (Light metering OFF)··· Ave.240mA
 Main SW/ON (Light metering ON)··· Ave.420mA
 on the Auto power OFF condition··· Ave.10mA


22-3 [CONF] Preview · LCD panel illumination

- ① When the main SW is turned to , the diaphragm actuate lever must be done vertical motion.
- ② When the main SW returns to ON, the LCD display must be illuminated.

22-4 [CONF] Switch Function

- ① Turn the main SW to OFF and insert the CF card (for Testing) into the camera.
- ② Turn the main SW to ON while opening the CF card cover, and the screen for SW testing will be displayed on the LCD monitor.
- ③ Operate each SW and the dial according to the LCD monitor. The color of the display changes according to the operation when normally working. (See the table below)
- ④ Turn the main SW to OFF and remove the CF card from the camera.



Symbol	Button	Color display	Symbol	Button	Color display
a. SWS	release button	Change	v. <u>MODE</u>	Mode dial	Display code
b. SWR	Release button	Change	Green	Green mode	00
c. PRV	Preview dial	Change	P	Program	08
d. FLPOP	Pop-up	Change	TV	TV mode	0C
e. AFSTART	AF button	Change	AV	AV mode	04
f. MENU	MENU	Change	M	Manual mode	06
g. ERASE	Trash	Change	B	Bulb mode	0E
h. INFO	INFO button	Change	ISO	ISO mode	02
i. DISPLAY	Arrow	Change		File mode	03
j. 4WR	4 way button	Change	WB	White Balance	01
k. 4WL	4 way button	Change	w. <u>AEMODE</u>	<u>Metering mode lever</u>	Display code
l. 4WD	4 way button	Change	SPOT	SPOT	02
m. 4WU	4 way button	Change	CENTER-WEIGHTED	CENTER-WEIGHTED	00
n. XVAVSET	Exp. compensation button	Change	MULTI-SEGMENT	MULTI-SEGMENT	01
o. AEL	AEL button	Change	x. <u>AFAREA</u>	<u>Focus point select lever</u>	Display code
p. AEB	DPOF button	Change	SPOT	SPOT	02
q. FLMD	Flash button	Change	SEL	SEL	00
r. DRIVE	Self timer btn	Change	AUTO	AUTO	01
s. IF	Green dot	Change	y. <u>AFMODE</u>	<u>Focus mode SW</u>	Display code

t. MWB	Manual Balance	Change	MF	MANUAL	02
u. CFDOOR	CF door	Change	AFC	AF continuous	00
			AFS	AF single	01
z. TVDIAL	Tv dial	-- 0 -->+	ACDET	N/A	
1. AVDIAL	Av dial	-- 0 -->+	GRIP		
			MAIN		

22-5. [CONF] AF · SI (Superimpose) Function



- ① Attach the lens to the camera and set the focus mode lever to AF.S.
- ② The distance ring of the lens must turn between infinity (∞) and shortest distance end when the shutter button is depressed halfway while covering the front of lens with the palm.
- ③ Set the focus mode lever to SEL. Confirm that the red LED of SI (Superimpose) in the viewfinder must light by the four-way controller.

22-6. [CONF] Shooting · Playback Function

[CAUTION] Never install or remove the CF card while turning the camera's power ON as this may cause the CF card or camera to be damaged and become unusable.

- ① Turn the main SW to OFF and insert the CF card (for Taking picture) into the camera.
- ② Connect the video cable to the camera.
- ③ Turn the main SW to ON and then press the MENU button to display the menu screen on the TV monitor.
- ④ Format the CF card as the four-way controller according to the instruction on the menu screen. Confirm the CF card has been formatted correctly.
- ⑤ Set the Quality level and Recorded pixels to the default setting and take three pictures. (Quality Level: Best, Recorded Pixels: L)
- ⑥ Press the Playback button and confirm the image quality of them by the video monitor.
- ⑦ When the INFO button is pressed during playback, the camera must switch from Normal Playback Screen to Histogram Display.
- ⑧ When the INFO button is pressed again, the camera must switch from Histogram Display to Detailed Information display.
- ⑨ Press the Delete button, and then delete all images by the AV dial and four-way controller.
- ⑩ Turn the main SW to OFF and remove the CF card from the camera.
- ⑪ Disconnect the video cable from the camera.

22-7. [CONF] Flash Function

- 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.
- ④ Confirm that  must be appeared and discharged when an external flash is attached.

22-8. [CONF] Aperture Control · 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 of 0-T600.

22-9. [CONF] CF card cover SW

- ① The camera turns OFF when the CF card cover is opened during the camera is turned ON.
- ② Close the CF card cover and turn the main SW to OFF. When the main SW is turned ON again, the camera must be turned ON.

23. [ADJ] Adjustment with Programmed Software (SLR operation)

[NOTE] The adjusting method of this camera is basically the same as *ist (27830).

[Required equipment] Programmed software for 76180 (for SLR operation), Battery adaptor (use D-BG1), Regulated DC power supply (8V · 3A), AC adaptor (D-AC10), Temporary bottom cover (Hand made/exclusive item), Master lens 76180

The other items are the same as 27830 (*ist)

AF positioning jig (Square) for 27830, AF positioning jig (Cross) for 27250, AF chart for 2m x2 (Exclusive item), AF master lens for 2m, FA Macro 50mmF2.8, Light source (Shutter tester), Diaphragm set ring F8 (KA-0-1A), I/F buffer cable for 27250

For the other items, refer to the table of “Jigs, Tools and Testers”.

[CAUTION] When the following parts are replaced, do the adjustment as follows.

- 0-T100 ----- All adjustment.
- 0-J100, 0-J201 ----- AE adjustment (A)
- 0-M100, 0-B52 ----- AF adjustment (B)

[ADJ]

- ① Solder I/F buffer cable on the main board.

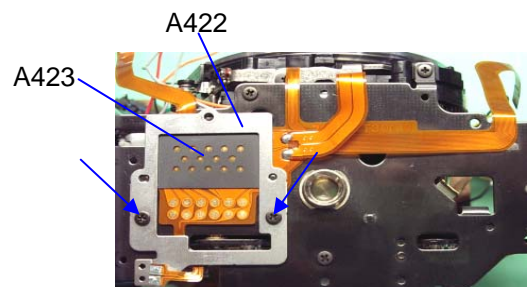
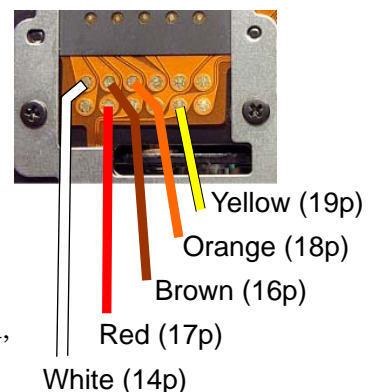
[NOTE] Pass the cable through into the strap lug to prevent damage of the soldered lands.

- ② Install the temporary bottom cover and battery cover to the camera, and then connect the AC adaptor to the camera.
- ③ Run the programmed software (for 76180), and then adjust the camera according to the instructed on the screen. About the flow of adjusting, refer to the programmed software flow chart.

[The flow of adjustment is as follows]

Product select menu (Select *istD) → 76180 test program* → Main menu → Eeprom checking (START) → Exposure adjustments (A) → AF adjustments (B) → Eeprom checking (END) → Main menu (Finish)

- ④ After adjusting camera, remove I/F buffer cable and AC adaptor from camera.



[NOTE]

1. When adjusting “CCD POSITION ADJUSTMENT”, remove the bottom cover, A422 and A423 to free T301. And, turn the adjustment screws of 0-M100 according to the instructed on the screen.
2. Adjust the battery level accordance to the instructed on the screen when 0-T100 is replaced.
3. The distance from the AF chart for 2m to the surface of mount: 1954.5mm (=1.9545m)

24. [ADJ.] Adjustment with programmed Software (Digital operation)

[Required equipment] Programmed software for 76180 (95901 P401-00B), Computer (for Digital adjustment), Light source (LB-3300: A light 2850 K° ±10, LV11.00), Master lens for 76180 (95901 D20), Diaphragm set ring F8 (KA-0-1A), AC adaptor (D-AC10), USB cable (I-USB2), Dark curtain, Color temperature tester (for calibration), LV meter (for calibration)

[CAUTION] The adjustment software is created based on the data of individual master lens. Therefore, use the same master lens as the ID number printed on CD to adjust it accurately.

[NOTE] The following system is required to adjust the camera and confirm recorded images.

Type: Notebooks

OS: Windows XP Home Edition / Professional

CPU: Intel 2.0 GHz or later recommend

Memory space: 512 MB or more

Display: SXGA+ 1400 x 1050 Full color or more

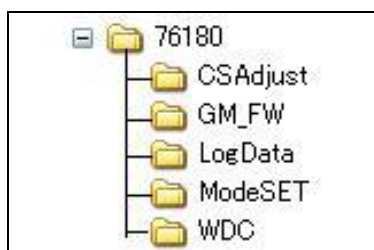
Free Disk Space: 30 GB or more

USB port (PC communication type USB2.0 x2 or more) must be standard equipment.

CD-ROM drive and PC card-slot (Type II x2 or more) must be standard equipment.

24-1. Installing Adjustment Software

- ① Turn on the test computer.
- ② Place the Programmed software for 76180 (95901 P401-00B) into the CD-ROM drive.
- ③ Copy the [76180] folder from the Programmed software contained in the CD-ROM to [C: drive] as shown in the picture below.



[NOTE] Log data will be created automatically whenever the camera is adjusted.

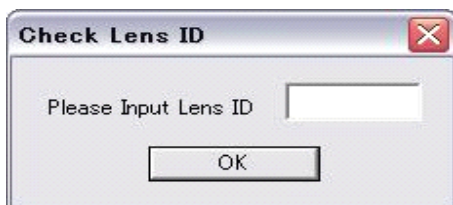
24-2. Setting of *istD

- ① Attach the Master lens 76180 and the Diaphragm set ring F8 (KA-0-1A) to the camera.
- ② Set the mode dial to **M**.
- ③ Set the aperture of Master lens to F8.

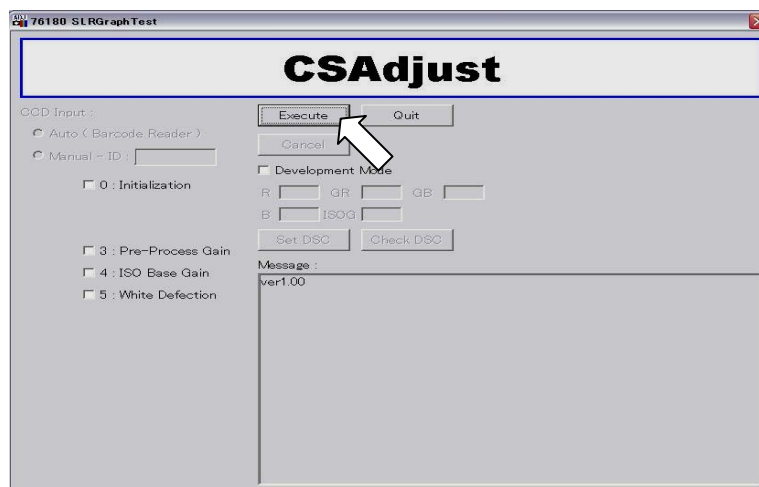
24-3. Procedure of adjustment

- ① Connect the AC adaptor to the camera.
- ② Connect the camera to the computer by the USB cable (I-USB2).
- ③ Attach the Master lens to camera while confirming the aperture of Master lens is set to F8.
- ④ Turn the main switch ON, and then confirm that the camera is recognized as a [Removable Disk] under [My Computer]
- ⑤ Set the camera and master lens toward center of light window of LB3300, and then cover the whole camera by using a dark curtain and so on.
- ⑥ Start the adjustment software (CSAdjust.exe). Input ID number of master lens and then click **OK** button.

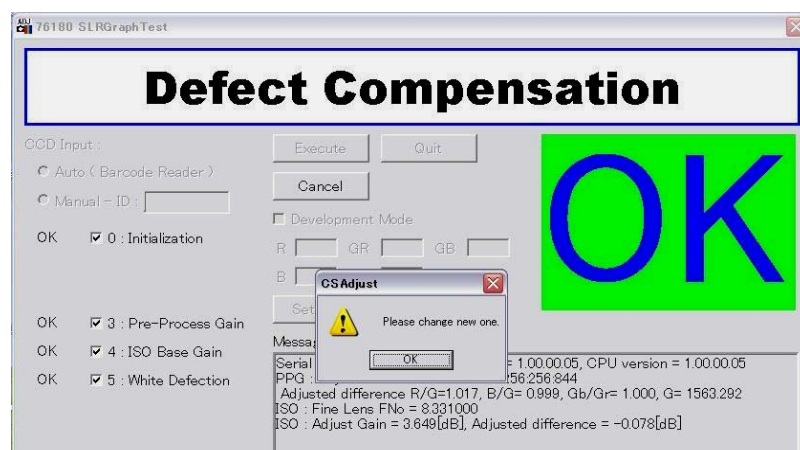
[CAUTION] The adjustment software ends compulsorily while indicating the following error message if ID number which is not correct is input and OK button is clicked. In that case, restart the adjustment software and then input correct ID.



- ⑦ The following window will be displayed when the adjustment software is started.
- ⑧ Execute the adjustment by clicking **Execute** button in the dialog box or push **Enter** key on the keyboard.



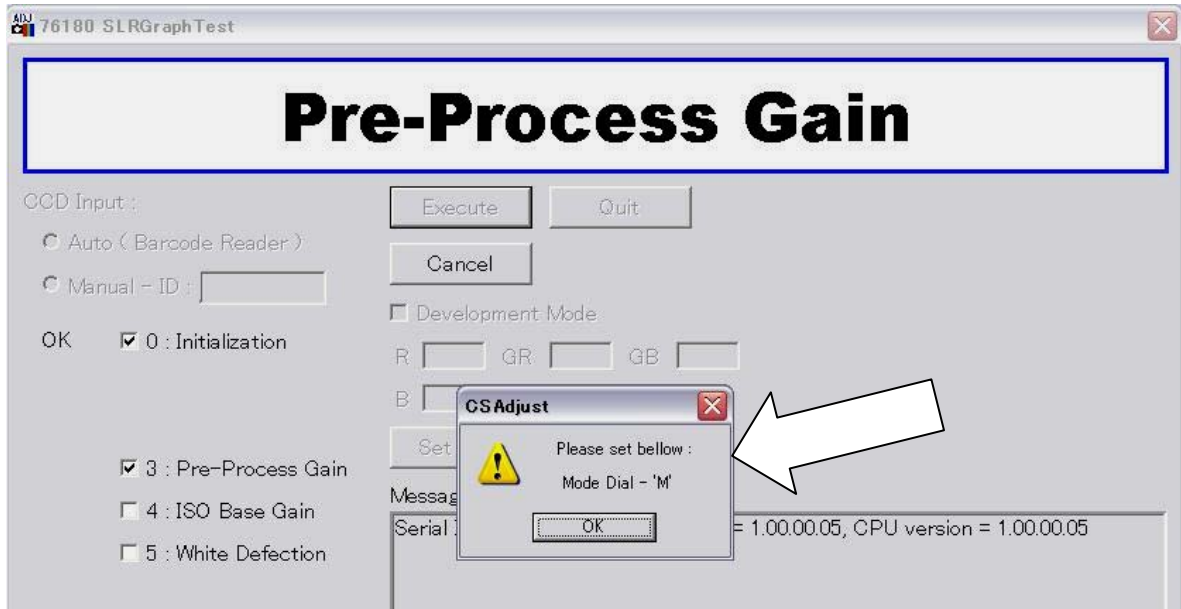
- ⑨ When the screen changes as follows, the adjustment is completed.



- ⑩ After adjustment is done, double-click the Hot Plug icon on the status bar at the bottom right of the desktop to stop a hardware device. And, turn OFF the camera and then disconnect the camera from the computer.

[Error Message]

- When the mode dial is not set to **M**, the following window will be displayed.



- When the error happens while adjusting the camera, the following window will be displayed. (About the detailed error code, refer to the error code table.)

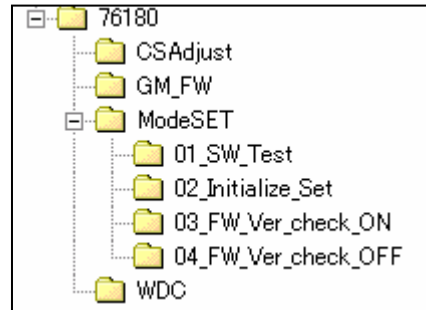


24-4. Procedure of WDC adjustment

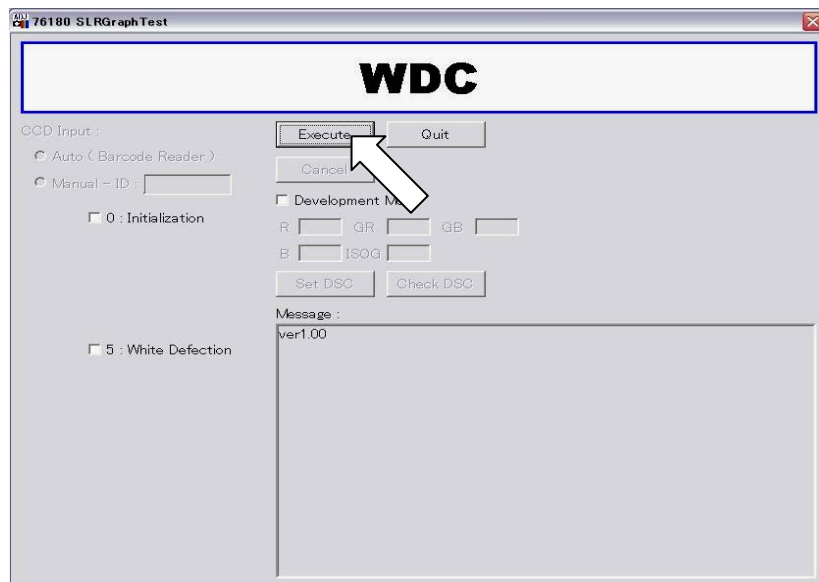
[NOTE] CCD white pixel defect compensation item only can be adjustable by this procedure.

- ① Connect the AC adaptor to the camera.
- ② Connect the camera to the computer by the USB cable (I-USB2).
- ③ Turn the main switch ON, and then confirm that the camera is recognized as a [Removable Disk] under [My Computer]
- ④ Start the adjustment software (WDC.exe).

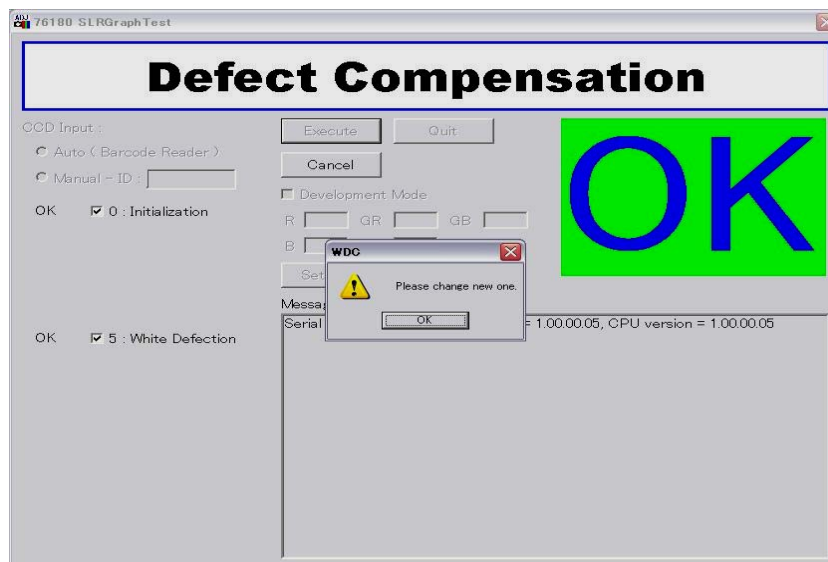
[NOTE] Lens ID number is not necessary.



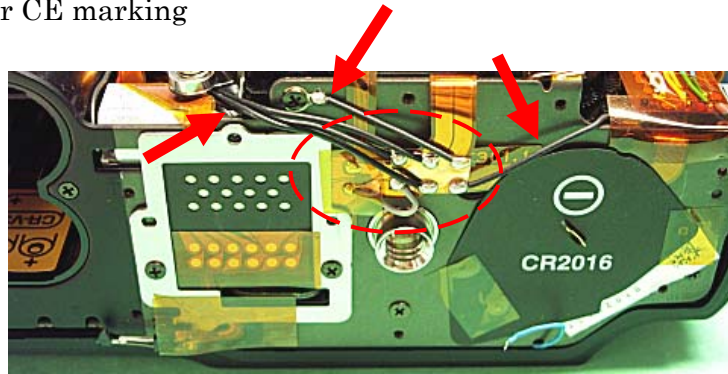
- ⑤ The following window will be displayed when the adjustment software is started.
- ⑥ Execute the adjustment by clicking **Execute** button in the dialog box or push **Enter** key on the keyboard.



- ⑦ When the screen changes as follows, the adjustment is completed.

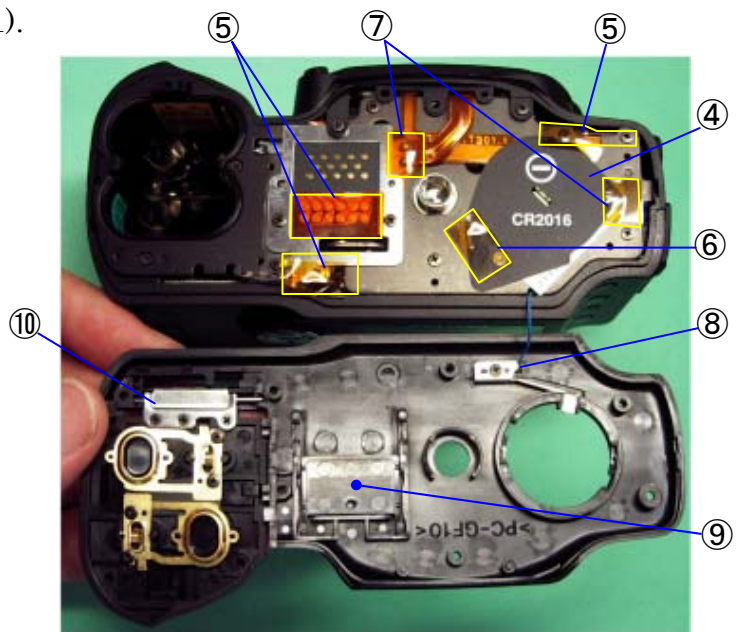
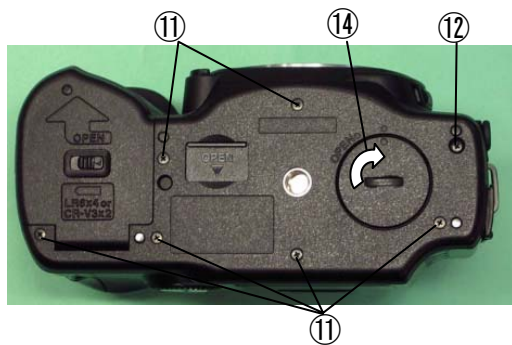
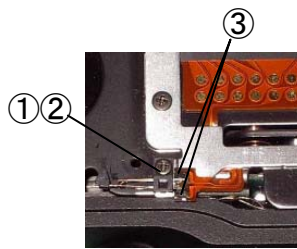


25. Arranging the lead wires for CE marking



26. A401 (Bottom Cover)

- ① A424
- ② CNL-B1.4x1.6
- ③ Solder two lands.
- ④ A434
- ⑤ Stick A425 x3 (10x20)
- ⑥ Stick A426 (8x14)
- ⑦ Stick A427 x2 (8x10)
- ⑧ Solder a blue lead wire to A432 (A401).
- ⑨ A421 (Connector cover)
- ⑩ 0-A412 (Battery cover), A419 (Shaft)
- ⑪ A67x6 (Screw)
- ⑫ A61 (Screw, 2mm)
- ⑬ Close the battery cover.
- ⑭ A435, A431 (Backup battery, cover)



27. [CONF] Checking the back-up function

- ① Confirm that the screen for setting the [Date] is not displayed when the main switch is turned ON once.
- ② Turn OFF the main switch.
- ③ Remove the battery from camera, and then turn ON the main switch.
- ④ Turn OFF the main SW, and then insert the battery to camera.
- ⑤ Confirm that the screen for setting the [Date] is not displayed when the main switch is turned ON again.

Battery consumption at the terminal of back-up battery:

When the terminal voltage is 3.0V: 7.5 μ A average (There is a pulse wave as 10 μ A per second.)

28. [CONF] Final function check

28-1. Confirmation of the Metering function

[Required equipment] Light source (Shutter tester), FA50mm F1.4

- ① Attach the lens (FA50mm) to the camera and set the aperture to the A position.
- ② Set the camera as follows.

Capture mode: AV (Aperture-priority) mode, Aperture value: Av8 (FNo.8), Sensitivity: ISO200, Focus mode SW: Manual focus, Exposure setting step: 1/2 (Default setting of custom function)

- ③ Set the focusing ring to the infinity (∞).
- ④ Set the camera to the light source (Shutter tester).
- ⑤ Change the light value of light source and confirm that the TV value is displayed as follows while depressing the release button halfway.

	LV6	LV8	LV9	LV10	LV12	LV15	LV15 (Multi-segment)
Tv display	Tv0.5"	Tv8	Tv15	Tv30	Tv125	Tv1000	Tv750

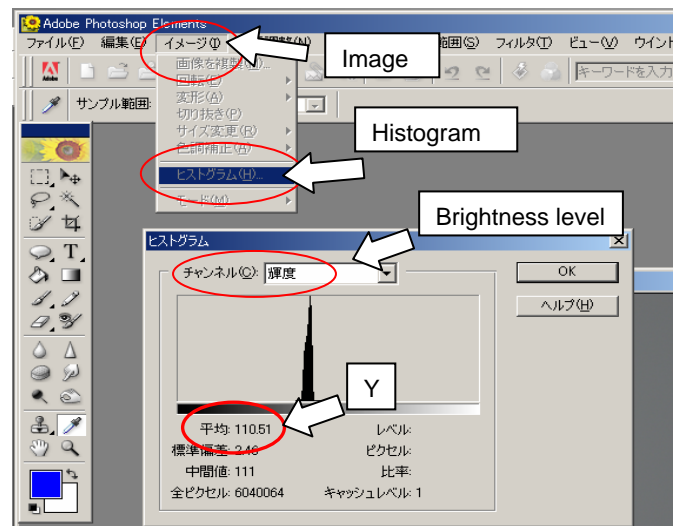
28-2. Confirmation of the Exposure value (for reference)

[Required equipment] Computer (for Digital adjustment), AC adaptor (D-AC10), USB cable (I-USB2), CF card (for taking picture), FA50mm F1.4, Light source (LB-3300: Color temperature must be calibrated $2850\text{ K}^{\circ}\pm 10$), Image viewing software (Adobe Photo shop)

- ① Attach the lens (FA50mm) to the camera and set the aperture to the A position.
- ② Set the camera as follows.

Capture mode: Green Program AE mode, Metering Method: Multi-Segment Metering, Focus mode SW: Manual focus, White Balance: Tungsten Light, Recorded pixels: L (Default setting), Quality Level: Best (Default setting)

- ③ Set the focusing ring to the infinity (∞).
- ④ Set the camera to the light source.
- ⑤ Take a picture while changing the light value of light source.
- ⑥ Open the recorded image by using the image viewing software (Adobe Photo shop).
- ⑦ Select the histogram as shown in the figure below.
- ⑧ Confirm that the level of brightness must not vary remarkably from the standard (Y=110).



Standard of Exposure value:

P, Tv, Av-AE mode Light value/Lens	Tolerance (EV)	
	AE Master Lens (P)	F/FA 50mm F1.4 (∞)
LV6~15	+0.95 ~ -0.25	+0.70 ~ -0.50
LV15 (Multi-segment)	+1.45 ~ +0.25	+1.20 ~ ± 0.00

Correlation table of EV with Y:

EV	-1.0	-0.5	±0	+0.5	+1.0
Y=	67	87	110	132	155

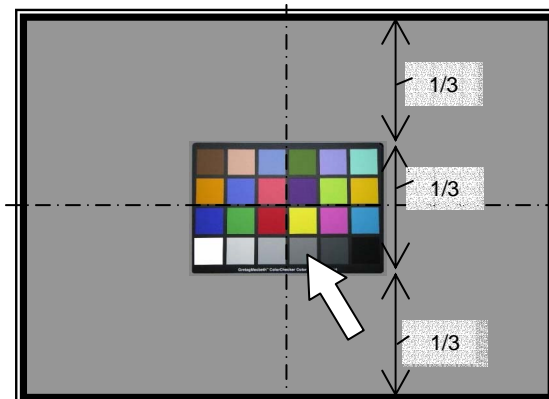
[NOTE] The standard is applied only when the camera is set to the condition as mentioned above.

28-3. Confirmation of White Balance

[Required equipment] Computer (for Digital adjustment), AC adaptor (D-AC10), USB cable (I-USB2), CF card (for taking picture), FA50mm F1.4, A light (2856 K°), Color checker (Macbeth™ Chart or equivalent), Fluorescent lamp (White 4244K°), Fluorescent lamp (Neutral white 5111K°), Image viewing software (e.g. Adobe Photo shop or ACDSee™), Gray chart (90x60cm or above)

[CAUTION] Both fluorescent lamps for checking should be used the Inverter (high-frequency converter) lighting.

- ① Attach the lens to the camera and insert the CF card to the camera.
- ② Set the camera as follows.
Capture mode: AV (Aperture-priority) mode, Metering Method: Multi-Segment Metering, Sensitivity: ISO200, Focus mode SW: AF.S, Recorded pixels: L (Default setting), Quality Level: Best (Default setting), Color Saturation: Normal, Image Sharpness: Normal, Contrast: Normal, Color Space: sRGB (Default setting)
- ③ Put the Color checker on the Gray chart as shown in the figure below.
- ④ Light up the Color checker by the A light.
- ⑤ Set the WB (White Balance) mode to “Tungsten Light”.
- ⑥ Position the camera so that the Color-Checker and Gray-Chart are framed in the viewfinder as shown in the figure below while looking through the viewfinder.
- ⑦ Take a picture of them while changing the aperture value (F2.8~F8) so that the TV value becomes between from 1/30 to 1/250.
- ⑧ Take a picture of them similarly by setting the WB to “Fluorescent Light W white (4200K°)” while using the Fluorescent lamp (white 4244K°) for lighting.
- ⑨ Take a picture of them similarly by setting the WB to “AWB” while using the Fluorescent lamp (Neutral white 5111K°) for lighting.
- ⑩ View the three pictures which have been taken above by the Image viewing software, and confirm whether the true color of Neutral 5 indicated by arrow in the figure below is reproduced or not while comparing with Color chart. And, confirm that other colors also have not been changed.



28-4. Confirmation of the Battery Exhaustion Warning

[Required equipment] Battery adaptor (Jig: Battery grip D-BG1), Regulated DC power supply

- ① Connect the battery adaptor to the DC power supply, and set the voltage to DC4.6V (3A).
- ② Attach the battery adaptor to the camera.
- ③ Turn the main SW to ON. When depressing the release button halfway, confirm that the following battery exhaustion warning must be displayed.

4.6V → 

28-5. Confirmation of AF Focus Position by FI (Focus Indicator)

[Required equipment] Collimator for AF (Chart), Focus master lens

[CAUTION] When attached a master lens that has not A position, *istD does not operate. Therefore, set the Custom Function of camera to operate with the master lens as follows.

- ① Set the Custom-function as follows.
[Main menu] → [Custom Function] → [F step other than A] → [On]
- ② Set the focus mode switch to “MF” and attach the focus master lens to the camera.
- ③ Position the camera toward collimator while aiming the center of the focus-point over the chart of Collimator.
- ④ Turn the focus ring of lens to the right end position. Look through the viewfinder and press the shutter release button halfway down. Turn back the focus ring gradually and stop it at the position where the FI indicator light up first. Read the distance scale of lens and assume it to be A. Read the focus position of opposite side (B) similarly while turning the focus ring from left side.
- ⑤ The center point between A and B = $(A + B) / 2$ must be within -0.05 to +0.06 mm.
(-: Back focus, +: Front focus)
- ⑥ If the confirmation of other focus points is necessary, select a necessary focus point by the following methods.

[CAUTION] When confirming the FI focus position, AF sensor must cross vertically to the line of collimator chart.

[Method of setting the TEST MODE]

- 1) Insert the battery to the body, and then turn ON the main switch.
- 2) Set the mode dial **WB** and the focus mode switch to “MF”.
- 3) Fully depress the release button while pressing the AF button and exposure compensation button.
- 4) Remove the battery and reinsert it while keeping above condition.
- 5) Set the mode dial at exposure mode, and then depress the flash mode button and exposure compensation button at the same time.
“PF1-1” will be displayed on the LCD panel. (If “PF1-1” will not displayed, start from 1) again)



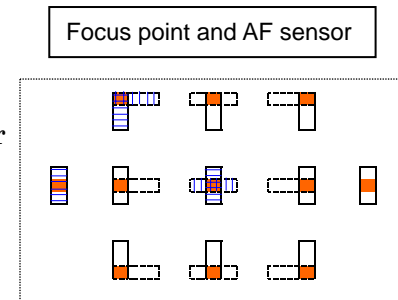
- 7) Change the display on the LCD panel from “PF1-1” to “PF1-2” by pressing four-way control key.
- 8) Turn OFF the main switch once.

You can select the desired focus sensor by changing the metering mode as follows.

Multi-Segment Metering → Vertical and Horizontal sensor

Center-Weighted Metering → Vertical sensor

Spot Metering → Horizontal sensor



[CAUTION]

The *istD camera does not operate when the F step is set other than A position. Therefore, change the setting of custom function from Off to On for “F step other than A”.

After the confirmation is done, reset the body as follows.

- 1) Remove the battery and reinsert it into the camera.
- 2) Confirm that “PF1-1” is not displayed when the Flash button and exposure compensation button are depressed at the same time.

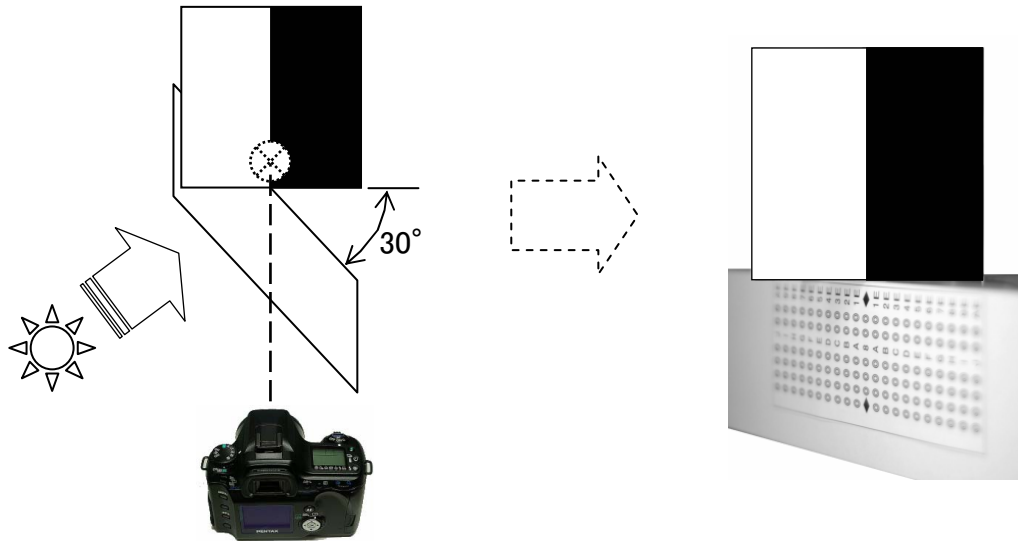
28-6. Confirmation of AF focus by taking a picture

This section describes the method of checking the AF focus for your reference. It will enable you to do the overall confirmation of the position of the AF focus, and also will be useful in the service.

[Required equipment] Computer (for Digital adjustment), AC adaptor (D-AC10), USB cable (I-USB2), CF card (for taking picture), FA50mm F1.4 (or 1.7), AF chart for confirmation, Scale for confirmation (attached the end of manual), Lighting (If the fluorescent lamp is used for lighting, the Inverter lighting (Flicker-less) must be used.), Image viewing software (For Example :ACDSee™, Adobe Photo shop or other)

- ① Attach the lens (FA 50mm) to the camera, and set the lens aperture to A position.
- ② Set the camera as follows.
Capture mode: AV (Aperture-priority) mode, Focus mode SW: AF.S, Focus point: Spot, White Balance: AWB, Recorded pixels: L (Default setting), Quality Level: Best, Color Saturation: Normal, Image Sharpness: Normal, Contrast: Normal
- ③ Set the aperture to open position by Av dial of camera.
- ④ Set the chart and scale as follows. Lighten the chart so that the white portion of chart becomes EV12 or more. If necessary, settle the camera on a tripod.
- ⑤ Set the camera so that the distance from the chart to camera becomes between 1m and 2m.
- ⑥ Turn the distance ring of the lens to infinity (∞) by depressing the shutter button halfway while covering the front of lens with the palm.
- ⑦ Take two pictures of chart while aiming the focus point of center (for Spot) to the border line between white and black chart.

- ⑧ The same manner with above. Turn the distance ring of the lens to minimum focus distance and repeat above (7) for confirming vertical sensor, set the camera at vertical position.
- ⑨ Display the images on the computer with image viewing software.
- ⑩ Confirm the camera in focus on chart.



[Supplement] If focus is NG, There is possibility with following factors.

AF focus position error or adjusting error. (Confirm AF focus position (FI) : NG)
 → Adjust positioning of 1st and 2nd Mirror, AF adjustment by programmed software (Part of SLR mechanism)

Height of the CCD Base Plate Support Pillar is NG
 → Confirm with disassembly, Adjust with washer and re-assemble.
 Related parts: Mount ring, Front, Front Housing Block, body main plate (pillar installing parts), A163 (reinforced plate) and other frame (0-A3, A4, A5,A6)

If camera is OK, There is possibility for trouble with the lens.

28-7. Cleaning the CCD

*This method of confirmation is assumption for CCD cleaning in service.

[Required equipment]

Computer, AC adaptor (D-AC10), USB cable (I-USB2), AF 50mm F1.4 (or F1.7), Light box, Cleaning paper for CCD (Clean wipe-P), solvent for cleaning (EE6310 or C600), Tweezers (recommend to use flat tip), CF card for test, Image viewing software (e.g. Photo shop, ACDsee, etc.)

[Confirmation]

- ① Attach the FA50mm lens to the camera and set the lens aperture to A position.

② Set the camera as follows.

Capture mode: AV (Aperture-priority) mode and Set AV 22 (FNo.22), ISO speed: 200, Focus mode SW: MF, Exposure compensation:+1/2EV, Recorded pixels: L (Default setting), Quality Level: Best.

③ Turn the distance ring of the lens to infinity (∞).

④ Take the pictures of the light box from on 3cm.

⑤ Display the images on the computer with image viewing software.

⑥ Set the image to life size (1:1) and confirm dust. (Better to make clear the position of dust with such as coordinate)

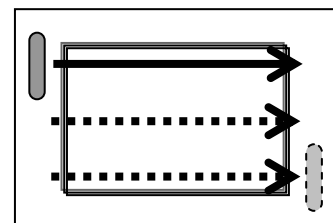
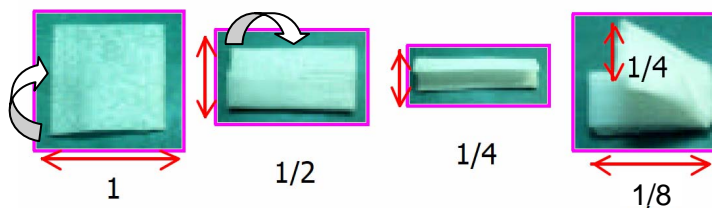
If you see dust clearly on image, there is possibility that the dust enters into the inside of CCD. (Disassembly and cleaning or replace T600)

[Cleaning method of dust]

[CAUTION] 1, For safety, use two type of power source for cleaning (AC adapter and full capacity of battery)

2, Do not use a brush-less blower and a spray type blower to clean the CCD because there is a possibility that dust enters into the inside of CCD.

① Cut the Clean wipe-P about 1/4 (50x105mm) and hold the Clean wipe-P 7-8mm width.



② Turn the main SW to ON and remove the lens.

③ Set [Sensor Cleaning] on the Main menu to ON.

④ Select [Mirror up] on the [Sensor Cleaning] screen by the four-way controller.

⑤ Press the OK button. The mirror is locked in the up position.

⑥ Dip Clean wipe-P: 95901 A15 in the Solvent.

⑦ Wipe the surface of CCD from upper left to right and repeat 3-4 times until lower right.

You can confirm dust or trace of wipe by cleaning at under the bright light source.

⑧ Turn off the power and return to step (1) of the confirmation then confirm dust.

[Supplement] Dust on the CCD

Cause of dust into the camera. → Dust enters from outside of the camera when changing the lens. Dust stick by moving mirror or shutter.
According to CCD characteristic the static electricity occurs when taking a picture and so the condition is dust stick easily. Besides customer can find dust easily by viewing image by the computer.
It is very difficult to remove dust completely therefore, before cleaning the camera, explain to customer for cleaning as much as possible.

28-8. Default setting

*This setting is initialized camera as condition of product shipment.

The initialized item is as follows.

Menu, Custom function, Language, Date / Time, ISO, WB, Recorded image, Recorded Pixels, Quality Level

[Required equipment] CF card (for Default setting), AC adaptor (D-AC10)

- ① Turn the main SW to OFF and then connect the AC adaptor to the camera.
- ② Insert the CF card (for Default setting) into the camera.
- ③ Turn the main SW to ON while the CF card cover is opened. The Default setting will start with blinking the access lamp.
- ④ After COMPLETE.. is appeared, turn the main switch to OFF and remove the CF card from the camera.
- ⑤ [Initial Setting] will be displayed on the LCD monitor when the main SW is turned ON.

FW FIRMWARE

1. Checking Firmware Version

1. Checking FW version for customer

- ① Turn the main switch to ON while pressing **MENU** button. The firmware version for customer **VER: *.* *** will be displayed on the LCD monitor for 5 seconds.

2. Checking FW version for Service

[Required equipment] CF card x2 (FW version check for [ON] and [OFF])

- ① Turn the main switch to OFF.
- ② Insert the CF card for **FW version check [ON]** into the camera.
- ③ Turn the main switch to ON while CF card cover is opened. Access lamp will blink for about 3 seconds.
- ④ After the access lamp is disappeared, turn the main switch to OFF and remove the CF card from the camera.
- ⑤ Turn the main switch to ON while pressing **MENU** button. The detailed firmware version (full version of CPU, DSP) **VER: *.* *.* *.* *** will be displayed on the LCD monitor for 5 seconds.

[CAUTION] Cancel the “FW version check” according to the following after confirming the version of FW.

- ⑥ Turn the main switch to OFF.
- ⑦ Insert the CF card for **FW version-check [OFF]** into the camera.
- ⑧ Turn the main switch to ON while CF card cover is opened. Access lamp will blink for about 3 seconds.
- ⑨ After the access lamp is disappeared, turn the main switch to OFF and remove the CF card from the camera.
- ⑩ Turn the main switch to ON while pressing **MENU** button. Confirm that the firmware version is displayed on the LCD monitor as **VER: *.* ***. If not, repeat a cancellation.

2. Updating Firmware Version (1)

[Required equipment]

Latest product Firmware for service (CF Card),

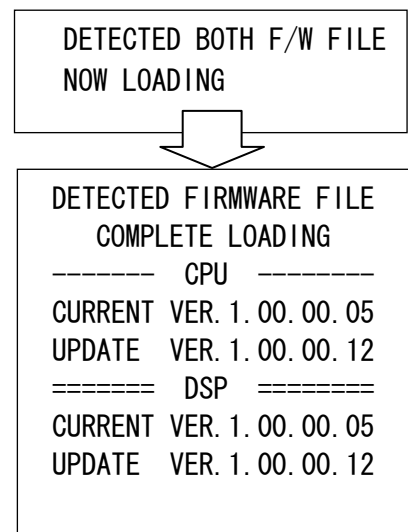
AC adaptor (D-AC10), full capacity of battery.

[CAUTION] If power is shut down during updating firmware, electric part in the camera will be damaged.

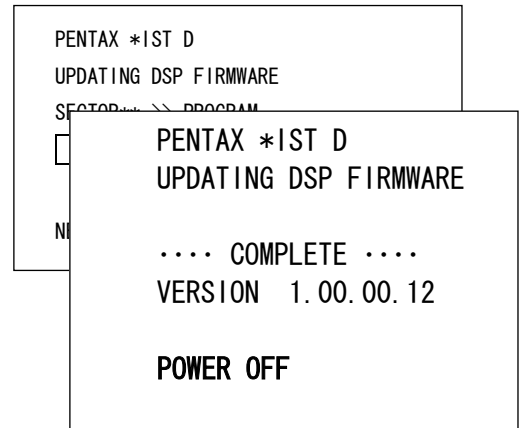
For safe, use two type of power source.

[CAUTION] When executing this updating, the camera will be set default setting. (Menu, Custom function, Language, Date / Time)

- ① Install the battery and connect the AC adaptor to the camera. Then turn the main switch to OFF.
- ② Insert the CF card into the camera.
- ③ **The CF card cover must open until installation is completed.**
- ④ Turn the main switch to ON.



- ⑤ FW version (CPU, DSP) will be appeared on the LCD monitor as shown in the figure.
If you cancel the updating, disconnect the all power at this point.
- ⑥ Remove the CF card when the message [>>> EJECT CF CARD <<<] is appeared then starting updating. (It takes approx 60sec for loading firmware)
[CAUTION] Do not turn OFF the camera while loading.
- ⑦ Turn the main switch to OFF when the following message [POWER OFF] is appeared. (Updating is completed)
- ⑧ Insert the CF card into the camera again then turn on the power condition with opening CF card cover.
- ⑨ Confirm that the latest version is displayed on CURRENT version. (Example: VER.1.00.00.15)
- ⑩ Remove battery and disconnect AD adapter without removing the CF card.
- ⑪ At the last remove the CF card.



3. Updating Firmware Version (2)

[Required equipment] Latest product Firmware for customer update (CF card), AC adaptor (D-AC10), full capacity of battery.

[CAUTION] If power is shut down during updating firmware, electric part in the camera will be damaged. For safe, use two type of power source.

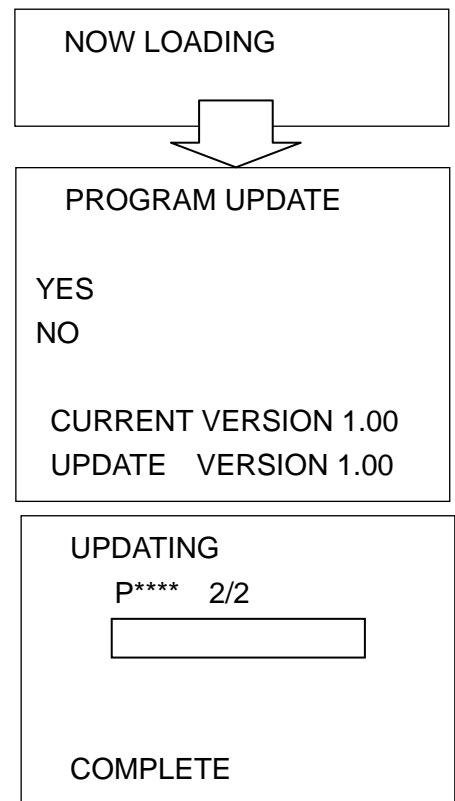
[CAUTION] When executing this updating, the camera will not reset customers setting.

- ① Install the battery and connect the AC adaptor to the camera.
- ② Insert the CF card into the camera.
- ③ Closes the CF card cover.
- ④ Turn the main switch to ON while pressing [MENU] button.
- ⑤ When program update screen is displayed as shown in figure. Select [YES] by pressing the four-way key then press OK. Update will be started. (It takes approx. 60sec for loading firmware)

* FW version for customer is displayed at this point.

[CAUTION] Do not turn OFF the camera while loading.

- ⑥ When [COMPLETE] is displayed, turn the camera OFF. (Updating is completed)



TECHNICAL INFORMATION

Battery consumption current

Condition: CF card [HAGIWARA SYS-COM 64/128/256MB

Micro-drive [IBM (Hitachi GST) 1GB]

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

Meaning of table: Lens --- O: With attaching lens X: Without lens -: No relation with lens

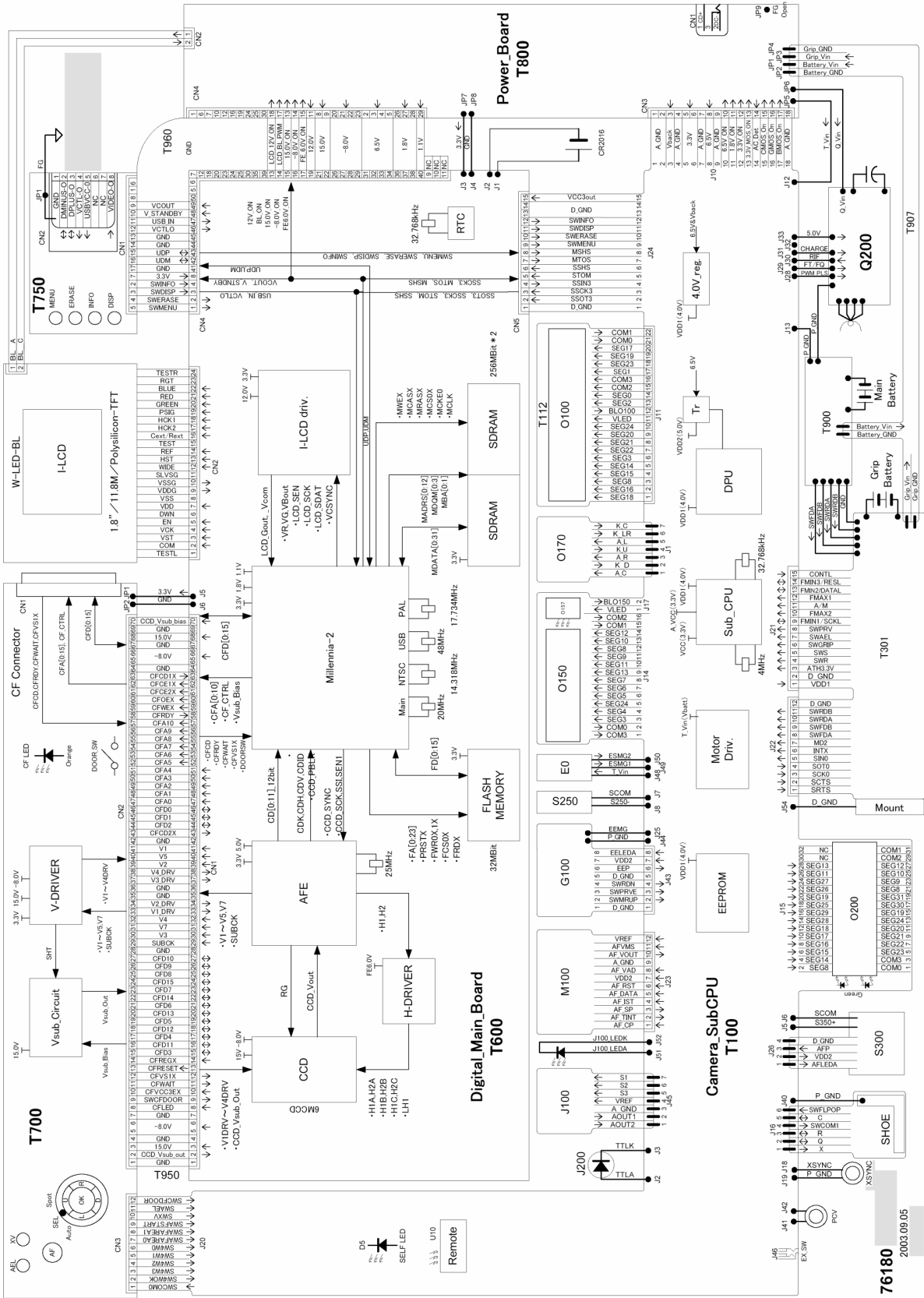
Memory Card --- CF:CF card M: Micro-drive X: Not insert

-: No relation with Memory card

*Column of Battery DC5.5V - The value is measured between battery contacts in camera.

	Condition of camera	lens	Memory card	Battery CD5.5V	AC power supply DC6.5V
1	Main SW - OFF	O	-	50 μ A	10mA
		X	X	50 μ A	10mA
2	After auto power OFF	-	X	120 μ A	10mA
3	Main SW-ON (Meter SW-OFF)	O	-	180mA	240mA
		X	X	180mA	240mA
4	Main SW-ON (Meter SW-ON)	O	X, CF	370mA	420mA
		O	M	390mA	440mA
5	Charging flash(Meter SW-ON)	O	X	2,100mA	2,200mA
6	Driving AF motor	O	X	2,200mA	2,300mA
7	Releasing Shutter	O	X,CF	2,700mA	2,900mA
		O	M	2,800mA	2,900mA
8	After release the shutter, Recording image	O	CF	350mA	350mA
		O	M	390mA	420mA
9	Bulb	O	X, CF	1,200mA	1,200mA
		O	M	1,300mA	1,200mA
10	Displaying menu (Only LCD monitor display)	O	X	500mA	450mA
11	Displaying menu (Only Video output)	O	X	400mA	350mA
12	Displaying Playback image	O	CF	500mA	450mA
		O	M	600mA	550mA
13	Reading playback image in card	O	CF	500mA	450mA
		O	M	600mA	550mA
14	Stand by for USB communication	O	CF	300mA	300mA
15	Reading playback image in card with USB communication.	O	CF	350mA	300mA
16	Backup battery terminal (DC3.0V)	7.5 μ A (10 μ A pulse per one second)			

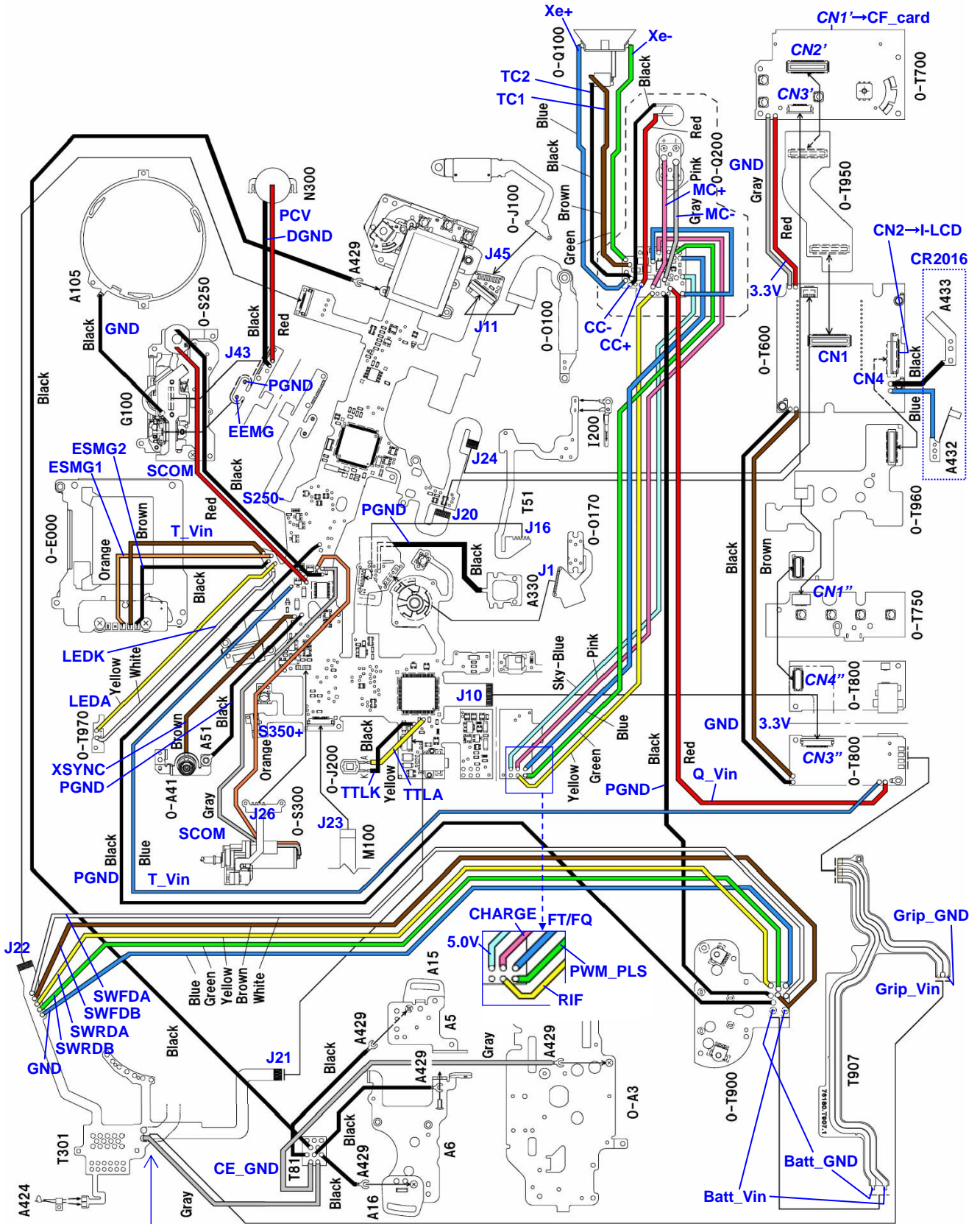
Block diagram



76180
2003.09.05

Circuit diagram

Refer with block diagram for terminal mark and connection mark. (J, CN)



*Corrected by NMCD03-810

Table of Error Code (Digital adjustment)

The error code is displayed as “aa-xx-xx-yy-zz” (example: 03-07-01-07-00) to explain the detailed error.

- aa : Adjustment item when error is happened
- xx : Not use in service
- yy : Type of error
- zz : Contents of error

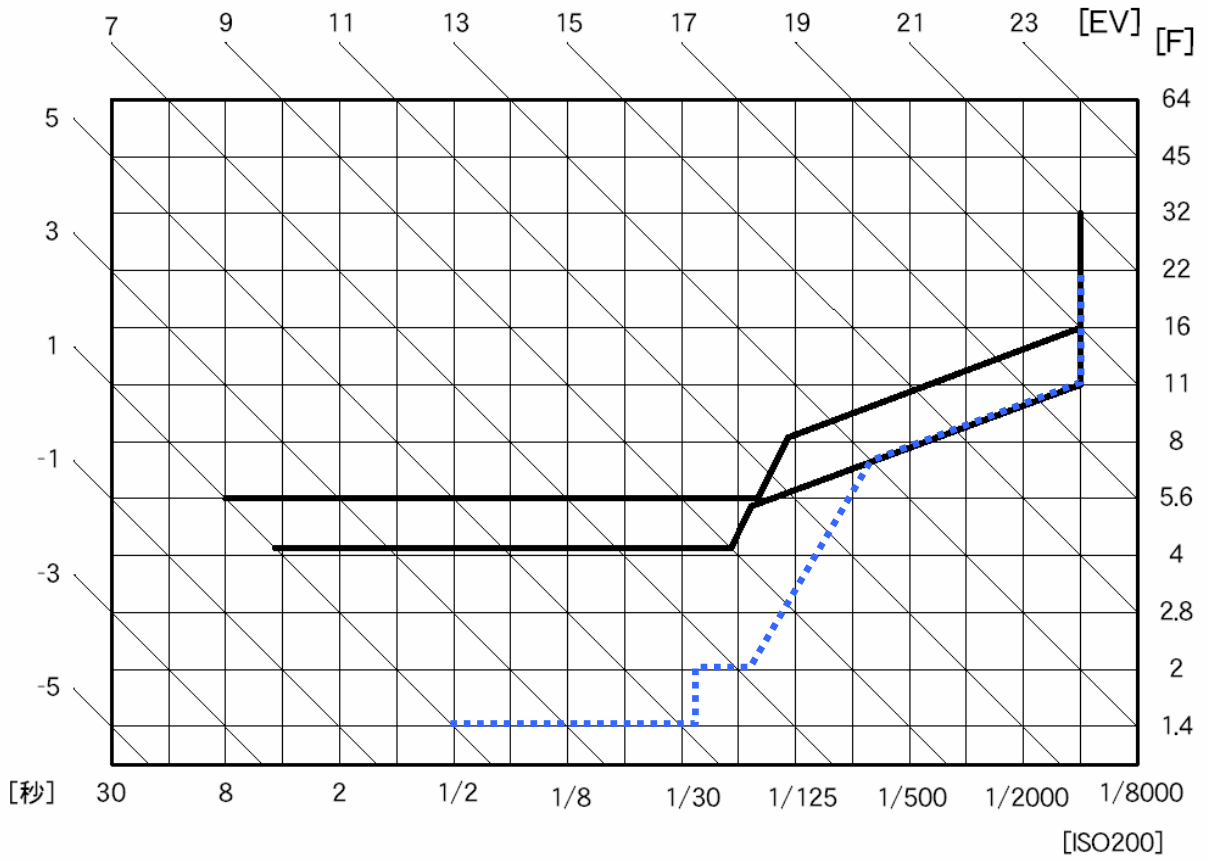


(aa)		(bb)		(xx)		(yy)		(zz)	
00	Initialization	-	NA	-	NA	00	Success	-	-
01	Product Information					01	USB/RS-232C	00	Not Found
02	CCD Information							01	Wrong communication
03	Pre-Process Gain							02	Not communicate
04	ISO Base Gain					02	File	00	Not found file
05	W Defect Compensation							01	Not Accessed
		02	Not correct format						
		03	Out of range						
				04	Out of range number				
				03	AP Parameter	00	Out of range value		
						01	Not correct format		
				04	AP Execution	00	Not supported		
				05	DSC	00	Not executed		
						01	Not correct		
				06	DSC Execution	00	Not supported		
						01	Rejected		
						02	Strange parameter		
				07	DSC Result	00	Strange data		
						01	Not correct mode		
						02	Wrong CPU state		
				08	Adjustment	00	Too small		
						01	Too large		
				09	DSC State	00	Wrong Version		
						01	Wrong adjustment Order		

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

FAJ 18-35mmF4-5.6: **Solid line**

FA50mmF1.4: **Dotted lie**



76180 PROGRAM SOFTWARE FLOW CHART

***** 76180 TEST PROGRAM *****
 TURN MAIN SW OF BODY ON.
 TURN SW OF I/O IF BOX ON.
 AFTER CONFIRMING ABOVE, PRESS KEY [1].
 AFTER REPLACING MAIN PC BOARD, PRESS KEY [2].

[1]

[2]

BATTERY LEVEL ADJUSTMENT (----> [6])

***** 76180 MAIN MENU *****
 EEPROM CHECKING (START) ----> [1]
 EXPOSURE ADJUSTMENTS (A) ----> [2]
 AF AND RELATED ADJUSTMENTS (B) ----> [3]
 NUMBER OF REPAIRS ----> [4]
 EEPROM CHECKING (END) ----> [5]
 BATTERY LEVEL ADJUSTMENT ----> [6]
 SHUTTER SPEED ADJUSTMENT ----> [7]
 FOCUS INDICATION CHECKING ----> [8]

***** EEPROM CHECKING (START) *****
 IF YOU ARE READY TO START, PRESS KEY [Y].
 WHEN YOU RETURN TO MAIN MENU, PRESS KEY [N].
 BEING REPAIRED.

***** EEPROM CHECKING (END) *****
 IF YOU ARE READY TO START, PRESS KEY [Y].
 WHEN YOU RETURN TO MAIN MENU, PRESS KEY [N].
 BEING REPAIRED.

DATA OF EEPROM IS BEING CHECKED.
 DATA OF EEPROM IS ALL OK!!
 EEPROM DATA CHECKING HAS BEEN COMPLETE
 EEPROM CHECKING AGAIN ----> [1]
 MAIN MENU ----> [2]

DATA OF EEPROM IS BEING CHECKED.
 DATA OF EEPROM IS ALL OK!!
 EEPROM DATA CHECKING HAS BEEN COMPLETE
 EEPROM CHECKING AGAIN ----> [1]
 MAIN MENU ----> [2]

[2] EXPOSURE ADJUSTMENTS

***** SELECT AE TYPE *****
TYPE 1 (LV6, 8, 10, 12, 16) ---- [1]
TYPE 2 (LV6, 9, 12, 15) ---- [2]

***** 76180 < A GROUP > *****
BV ADJUSTMENTS ----> [1]
TTL FLASH QUENCH SIGNAL ADJUSTMENT ----> [2]
LED ADJUSTMENT FOR J100 ----> [3]
MAIN MENU ----> [4]

***** BV ADJUSTMENTS *****
MOUNT F-8 SET RING ONTO CAMERA.
ATTACH LIGHT MEASURING MASTER LENS
FOR LX WITH WIDE OPENED POSITION.
KEEP TURNING ON METERING SW OF CAMERA.

SET LIGHT SOURCE TO LV 6.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

KEEP TURNING ON METERING SW OF CAMERA.
SET LIGHT SOURCE TO LV 16 (or 15).

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

BV ADJUSTMENTS HAVE BEEN COMPLETED.

BV ADJUSTMENTS AGAIN ----> [1]
NEXT OF TTL FLASH QUENCH SIGNAL ADJUSTMENT----> [2]
A GROUP MENU ----> [3]

***** TTL QUENCH SIGNAL ADJUSTMENT *****

MOUNT F-8 SET RING ONTO CAMERA.
ATTACH LIGHT MEASURING MASTER LENS
FOR LX WITH CLOSED F8 POSITION.

SET LIGHT SOURCE TO LV 8 (or 9).

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

TTL QUENCH SIGNAL ADJUSTMENT HAS BEEN COMPLETED.

TTL QUENCH SIGNAL ADJUSTMENT AGAIN ----> [1]
LED ADJUSTMENT FOR J100 ----> [2]
A GROUP MENU ----> [3]
B GROUP MENU ----> [4]

***** LED ADJUSTMENT FOR J100 *****

ATTACH BODY MOUNT CAP (BLACK) ONTO CAMERA.
ATTACH AN EYE PIECE COVER.
SET BUILT-IN FLASH TO POP-UP POSITION.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

*This adjustment only for the body with 1st FW →

[3] AF AND RELATED ADJUSTMENTS

***** AF ADJUSTMENT MAIN MENU *****

CCD POSITION ADJUSTMENT ----> [1]
 AGC LEVEL ADJUSTMENTS ----> [2]
 MONITOR OFFSET ADJUSTMENT ----> [3]
 UNIFORMITY ADJUSTMENT ----> [4]
 SATURATED OUTPUT AND TEMP ADJUSTMENT ----> [5]
 FOCUS ADJUSTMENT ----> [6]
 MAIN MENU ----> [0]

***** CCD POSITION ADJUSTMENT MENU *****

CCD POSITION SQUARE ADJUSTMENTS ----> [1]
 CCD POSITION CROSS ADJUSTMENTS ----> [2]
 CCD POSITION CHECK ----> [3]
 CCD FOCUS ADJUSTMENT ----> [4]
 TO AF-MAIN-MENU ----> [0]

[1] CCD POSITION SQUARE ADJUSTMENTS

***** CCD POSITION SQUARE ADJUSTMENTS *****

MOUNT CCD ADJUSTING TUBE (SQUARE) ONTO CAMERA.
 SET LIGHT SOURCE TO LV 12.
 SET FOCUS-MODE SW OF CAMERA TO MF.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
 WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

[2] CCD POSITION CROSS ADJUSTMENTS

***** CCD POSITION CROSS ADJUSTMENTS *****

MOUNT CCD ADJUSTING TUBE (CROSS) ONTO CAMERA.
 SET LIGHT SOURCE TO LV 12.
 SET FOCUS-MODE SW OF CAMERA TO MF.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
 WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

***** CCD POSITION ADJUSTMENTS *****

** SQUARE **

HD	----	:	*	:	----	(SCREW 3)
HC	----	:	*	:	----	(SCREW 3)
HU	----	:	*	:	----	(SCREW 3)
VR1	----	:	*	:	----	(SCREW 1)
VC	----	:	*	:	----	(SCREW 1)
VR1	----	:	*	:	----	(SCREW 1)

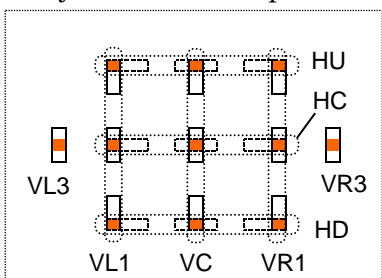
***** CCD POSITION ADJUSTMENTS *****

** CROSS **

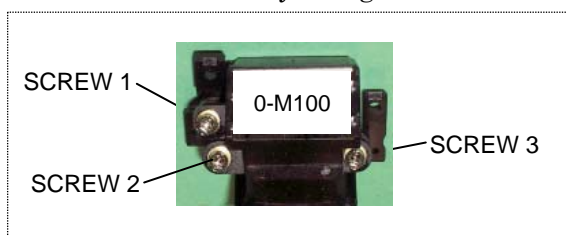
HC	----	:	*	:	----	(SCREW 1)
VC	----	:	*	:	----	(SCREW 1)

JUST A MOMENT

■ Symbols of CCD position



■ Position of Adjusting screws



***** MAIN MENU *****

***** < B GROUP > *****

***** CCD POSITION *****

[3] CCD POSITION CHECK

[4] CCD FOCUS ADJUSTMENT

***** CCD POSITION ADJUSTMENT *****
 ** POSITION CHECK **

MOUNT F ZOOM LENS 35-80 ONTO CAMERA.
 SET THE LENS TO MIN. DISTANCE (0.4M)
 AND TELE END (80MM).

SET LIGHT SOURCE TO LV 12.
 SET FOCUS-MODE SW OF CAMERA TO MF.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
 WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

***** CCD POSITION ADJUSTMENT *****
 ** CCD FOCUS ADJUSTMENT **

SET 2M CHART NO1.*
 SET 2M MASTER LENS.
 SET FOCUS-MODE SW OF CAMERA TO MF.
 SET FOCUS-POINT-MODE SW TO AUTO.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
 WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

***** CCD POSITION ADJUSTMENT *****
 ** POSITION CHECK **

*: AF CHART NO1

Position Chart No.1.

OK

SET A WAVE-LINE CENTER TO A GREEN LINE.

***** CCD FOCUS ADJUSTMENTS *****

ADJUSTED WITHIN TOLERANCE. :
 FOCUS DATA= ** :
 = :
 * :
 : :
 : :

***** < B GROUP > *****

[2] AGC LEVEL ADJUSTMENTS

[3] MONITOR OFFSET ADJUSTMENT

[4] UNIFORMITY ADJUSTMENT

***** AGC LEVEL ADJUSTMENT *****

MOUNT FOCUS MASTER LENS ONTO CAMERA.
SET LIGHT SOURCE TO LV 12.
SET FOCUS-MODE SW OF CAMERA TO MF.
SET FOCUS-POINT-MODE SW TO AUTO.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

[5]

SATURATED OUTPUT
AND TEMP ADJUSTMENT

***** MONITOR OFFSET ADJUSTMENT *****

MOUNT FOCUS MASTER LENS ONTO CAMERA.
SET LIGHT SOURCE TO LV 12.
SET FOCUS-MODE SW OF CAMERA TO MF.
SET FOCUS-POINT-MODE SW TO AUTO.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

***** UNIFORMITY ADJUSTMENTS *****

MOUNT FA MACRO 50mm F2.8 LENS ONTO CAMERA.
SET LIGHT SOURCE TO LV 12.
SET FOCUS-MODE SW OF CAMERA TO MF.
SET FOCUS-POINT-MODE SW TO AUTO.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

*Use FA Macro 50mm F2.8 lens for this adjustment.

***** SATURATED OUTPUT AND TEMP ADJUSTMENT *****

SATURATED OUTPUTADJUSTMENT --- [1]
TEMP ADJUSTMENT --- [2]
TO AF-MAIN-MENU --- [0]

***** SATURATED OUTPUT ADJUSTMENTS *****

MOUNT FOCUS MASTER LENS ONTO CAMERA.
SET LIGHT SOURCE TO LV 12.
SET FOCUS-MODE SW OF CAMERA TO MF.
SET FOCUS-POINT-MODE SW TO AUTO.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

***** TEMP ADJUSTMENT *****

CHECK ROOM TEMPERATURE
SET FOCUS-MODE SW OF CAMERA TO MF.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

***** TEMP ADJUSTMENT *****

<C> ---> PRESS KEY [1]
<F> ---> PRESS KEY [2]

1

INPUT ROOM TEMPERATURE <C> ? **

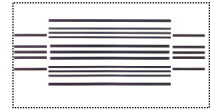
[6] FOCUS ADJUSTMENT

***** FOCUS ADJUSTMENT *****
HORIZONTAL POSITION AND ADJUSTMENT --- [1]
HORIZONTAL ADJUSTMENT --- [2]
VERTICAL POSITION AND ADJUSTMENT --- [3]
VERTICAL ADJUSTMENT --- [4]
AF-MAIN-MENU --- [0]

AF CHART NO1



AF CHART NO2



[1]
[2]

[3]
[4]

***** FOCUS ADJUSTMENT *****
SET 2M AF CHART NO1.
SET 2M MASTER LENS.
SET FOCUS-MODE SW OF CAMERA TO MF.
SET FOCUS-POINT-MODE SW TO AUTO.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

***** FOCUS ADJUSTMENT *****
SET 2M AF CHART NO2.
SET 2M MASTER LENS.
SET FOCUS-MODE SW OF CAMERA TO MF.
SET FOCUS-POINT-MODE SW TO AUTO.

AFTER CONFIRMING ABOVE, PRESS KEY [Y].
WHEN YOU RETURN TO FRONT MENU, PRESS KEY [N].

SET A WAVE-LINE CENTER TO A GREEN LINE.

Positioning
Chart No. 1.

SET A WAVE-LINE CENTER TO A GREEN LINE.

Positioning
Chart No. 2.

***** FOCUS ADJUSTMENT *****

JUST A MOMENT
COUNTER ->9

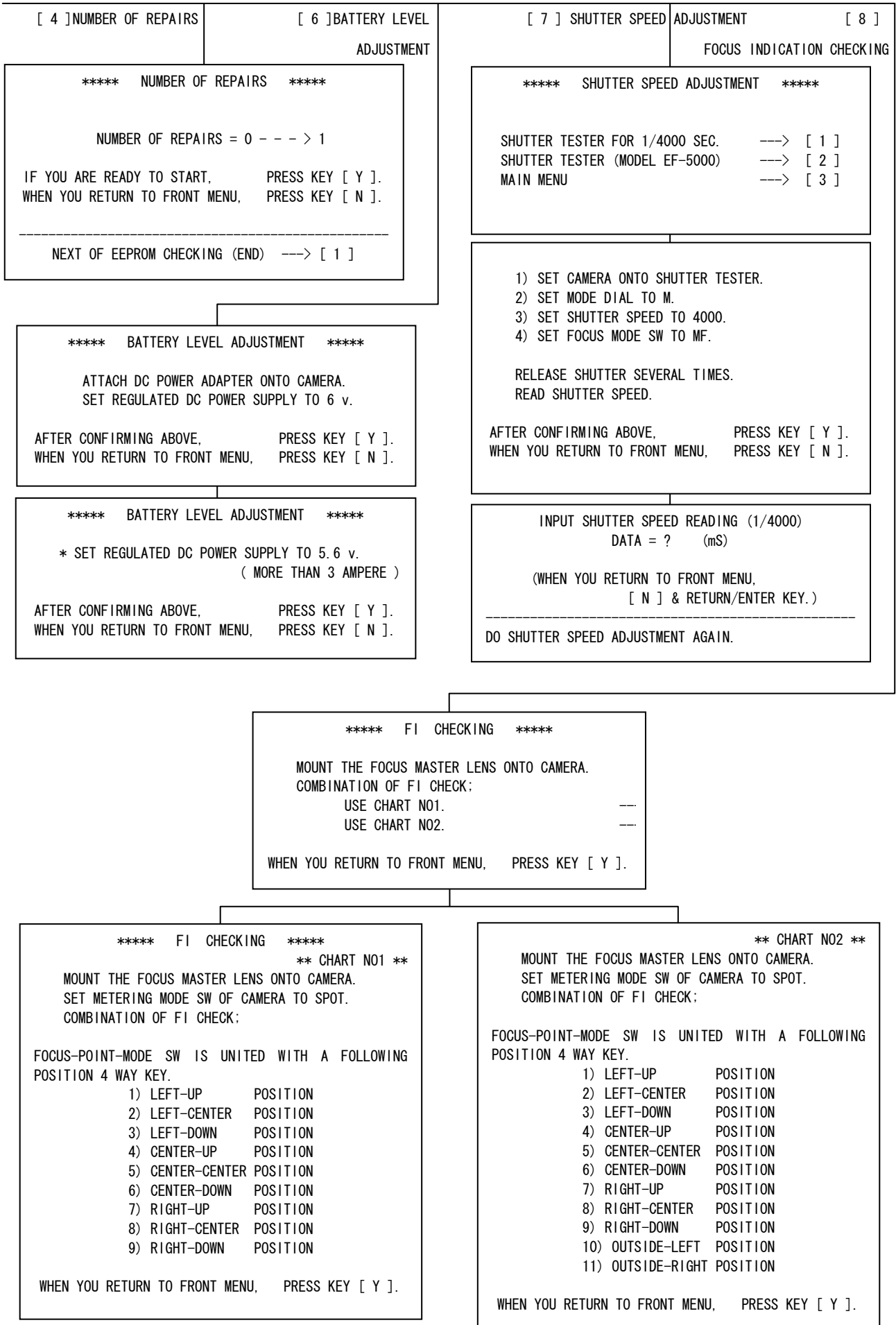
OK : FOCUS ADJUSTMENT

***** FOCUS ADJUSTMENT *****

JUST A MOMENT
COUNTER ->9

OK : FOCUS ADJUSTMENT

***** MAIN MENU *****



INFORMATION FOR PREPATION

Table of Jigs, Tools and Testers for *istD

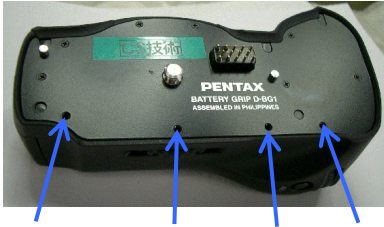
Exclusive use for 76180		<u>Order No.</u>	
1.	Programmed software for 76180 (for SLR operation)	95901-P401-00A	
2.	Programmed software for 76180 (for Digital operation)	95901-P401-00B	
3.	76180 Shutter attachment (for shutter tester)	95901-J138	
4.	Master lens for 76180 (must order with P401-00B)	95901-D20	
5.	DC cord for 76180	95901-D21	
6.	Battery adaptor for 76180 (use the D-BG1)	Provide locally	Hand made jig
7.	Temporary bottom cover	Provide locally	Hand made
8.	Clean wipe-P (1 case)	95901-A15	
9.	Resistor x1 (200-250Ω: for viewfinder indication adjustment)	Provide locally	
Others (1)		<u>Order No.</u>	
1.	AF positioning jig (Cross) for 27250	95901-M514	
2.	AF positioning jig (Square) for 27830	95901-M521	
3.	Mirror angle adjusting jig for 27830	95901-J137	
4.	2m AF chart for 27830	Attached SM	(SM 27830)
5.	AC adaptor (D-AC10)	Provide locally	
6.	USB cable (I-VC2)	Provide locally	
7.	Video cable (I-VC2)	Provide locally	
8.	Cable switch CS-205	Provide locally	
9.	Remote control F	Provide locally	
10.	FA Macro 50mmF2.8 (for AF adjusting)	Provide locally	
11.	CF card x 6 (for confirm adjustment, 8MB or above x5 and 32MB or above x1)	Provide locally	
Others (2) [Common in use for other Digital camera]		<u>Order No.</u>	
1.	Personal computer (Windows 2000 or XP, support USB)	Provide locally	
2.	Light source (LB3300 or equivalent, A light color temperature:2,850k°±10, brightness: LV11.00)	95901-M086	(LB3300)
3.	Color video monitor	Provide locally	
4.	LV checker (for correction of light source LV11.00)	95901-M085	
5.	Color temperature tester (for correction of light source)	Provide locally	(Minolta Color Meter III)
6.	Dark Curtain	Provide locally	

Others (2) [Common in use for other 35mm AF SLR]	<u>Order No.</u>
1. Personal computer (PC/AT)	Provide locally
2. Camera multi adapter II (or Multi adapter A)	95901-X100
3. I/F buffer cable for 27250	95901- X003
4. Hexagonal driver 1.5mm (HD-M1.5)	95901-K072
5. Shutter tester (measurable 1/4000ms)	
6. Collimator chart with 3 lines	95901-M021
7. AE master lens (ML-245)	95901-N027
8. Diaphragm set ring F8 (KA-0-1A)	95901-N026
9. Focus master lens for 35mm (KML-01)	95901-N017
10. 1st mirror angle adjusting jig for 45°	95901-J104
11. Dial gauge comparator (PH-2)	95901-N001
12. Block gauge for 35mm (229N-A01-A2)	95901-N004
13. Mount block (1620-A)	95901-N047
14. Mount spacer holder (23600N-A01,A104-A-B)	95901-N007
15. 1000mm Collimator	
16. Mirror positioning scope	95901-N049
17. Focus master lens for 2m(ML-259)	95901-N024
18. Pen light	Provide locally
19. Regulated DC power supply (capable current at least 3A)	Provide locally
20. Circuit tester	Provide locally

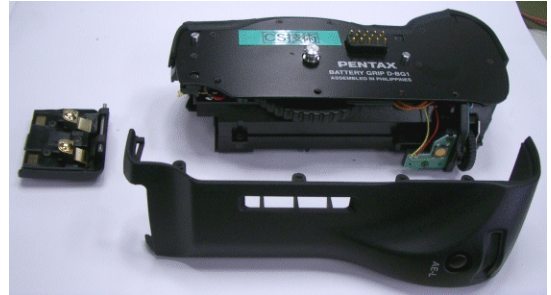
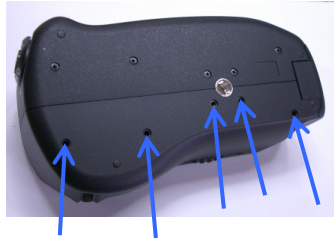
Method for marking power adapter

Preparation: Battery grip D-BG1 (Prod.No.79082) and lead wire for powers supply (x2)

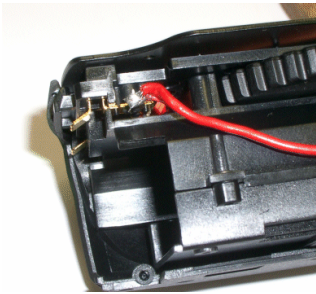
1. Remove Y78 x4



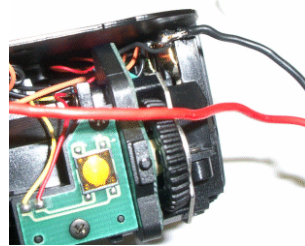
2. Remove Y79 x3 and Y80 x2



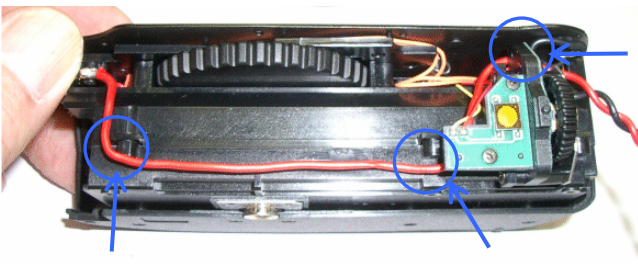
3. Solder (+) read wire for Y12



4. Solder (-) read wire for Y10



5. Arrange lead wire as shown in Fig.



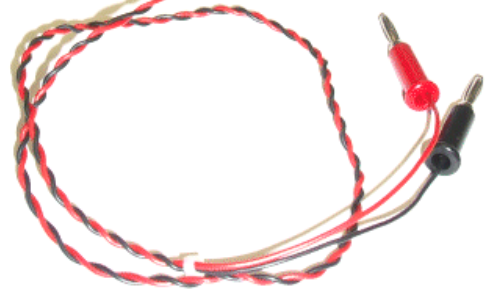
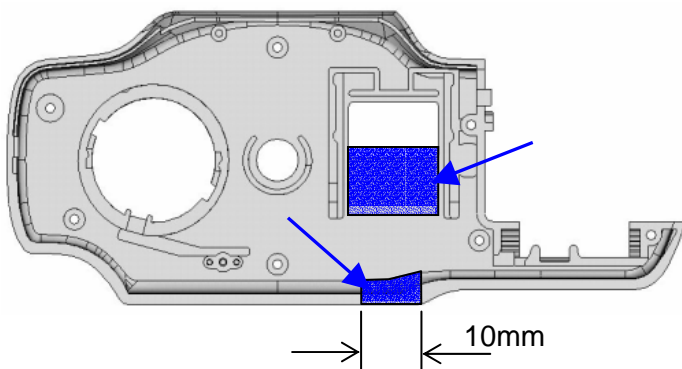
6. Drill a hole in Y2 and thread wires through hole then put back together.



Method for making temporarily bottom cover

Preparation: A401 bottom cover

① Cut off part of bottom cover as shown in fig for connecting camera cable.



AF confirmation chart and scale

These charts are for “confirmation of AF focus by taking picture” on page 52.

Scale for focus confirmation \longrightarrow

AF chart for confirmation \downarrow

