

PENTAX

SUPER PROGRAM

SERVICE MANUAL



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SPECIFICATION

Type:	35mm SLR camera with multi-mode automatic controls, electronically-controlled focal plane shutter, and open-aperture center-weighted Through-The-Lens metering.
Six Exposure Control Modes:	Programmed AE, Aperture-priority AE, Shutter-priority AE, Metered Manual, TTL Auto Flash, and Programmed Auto Flash mode.
Exposure Control Mode Setting:	By using combination of settings on shutter dial and aperture ring of "A" series lenses.
Film:	35mm film
Format:	24 x 36mm
Lens Mount:	Pentax KA Bayonet (A Pentax K bayonet mount with electrical contact.)
Shutter:	Seiko MFC-E3 vertical-run metal focal-plane shutter, automatic exposure and manual setting electronically-controlled speeds from 15 to 1/2000 sec, 1/125., and B. Electromagnetic shutter release with release button lock.
Exposure Indication in Viewfinder:	Liquid Crystal Display (LCD) Automatic and manual shutter speeds, automatically set lens apertures, exposure factor warning, shutter-speed setting error warning, battery life warning, and Programmed AE indication (P), LCD window illumination.
External Indication:	Automatic and manual shutter speeds, Programmed AE indication (P) and shutter cocked indicator.
Flash Synchronization:	Hot shoe (X-Synch contact, dedicated flash contacts), X-synch at 1/125 sec.
Dedicated Automatic Flash Coupling:	Automatic setting of 1/125 sec. Synch speed with dedicated automatic flash units. TTL-automatic flash control provides film-plane metering. Slower than 1/125 sec. synch flash photography is possible at Manual mode setting.
Self-Timer:	Electronically controlled, delay time indication by flashing lamp and electronic buzzer. 12 sec. delay time. Possible to cancel at any time; initiate process by pressing shutter release button.
Viewfinder:	Silver-coated pentaprism finder with split-image/micropism focusing screen; shows 92% of the picture area, 0.82X magnification with 50mm lens at infinity; -1.1 Diopter eyepiece.
Mirror:	Back-swing type instant - return mirror.
Film Loading:	Magic-needle loading.
Film Transport:	Single-stroke, rapid wind lever with 135° throw and 30° stand-off angle; LCD shutter cocked indicator; film advance and rewind indicator window. Accept Winder ME II, Motor Drive A.
Exposure Counter:	Additive type, automatic resetting. Automatically sets shutter-speed at 1/1000 sec. up to 0 frame on the counter when shutter dial is set at AUTO or M. Film.
Rewind:	Crank type.
Exposure Metering:	Open aperture. Through-The-Lens, center weighted, average area metering system with GPD cell. Film-plane Metering for dedicated automatic electronic flashes.
Metering Range:	EV1 (f/1.4 1 sec.) - EV19 (f/16 1/2000sec. or f/22 1/1000sec.) with 50mm f/1.4 lens and ASA/ISO 100 film.
ASA/ISO Range:	6 - 3200.
Exposure Compensation Exposure:	Compensation dial indexed at 4X, 2X, 1X, 1/2X and 1/4X.
Depth-of-Field Preview:	Via depth-of-field preview lever when aperture set manually.
Power Source:	Two 1.5V alkaline or silver-oxide batteries or one 3V lithium battery.
Metering Circuit Main Switch:	Switched on by shutter release button and remains on for about 30 sec. Shut-off by built-in timer.
Battery Warning:	When batteries grow weak, LCD alternately flashes exposure designations and '000' sign. When batteries exhausted, LCDs go blank and shutter locks.
Battery Cover:	Standard camera back with spring catch, built-in memo holder/grip, fully interchangeable with Dial Data ME and Digital Data M.
Sizes:	131mmx86.5mmx47.5mm body only without batteries.
Weight:	490g without batteries.

1. Body covering

- A19 Body covering, left
- A20 Body covering, right

2. Bottom cover assy.

- CSS 1.7x3 x3
- 0-A401
- C117 R button

3. Winding lever and other related parts.

- C139 Winding lever cover
- C8 Winding lever nut Left handed screw
Tools: 23600K-C134-A-2
- 0-C69 Winding lever assy.
- C7 Winding lever friction spring
- C92 Top cover retainer nut Tools: 24500K-C92-A

4. Rewind knob assy.

- 0-D6 Rewind knob assy.
- D24 Nut Tools: 23600K-D4-A-2
- W103 for Adj.
- 0-D11 ASA/ISO dial assy.

5. Shutter dial and other related parts.

- * Set Shutter dial to "L".
- F17 Nut Tools: 23903K-A346-A
- W97 t=0.1
- F18/F21 Shutter dial
- F19 Lock button

6. Top cover assy.

- A333 x2 Top cover retainer screw A
- A342 x2 Top cover retainer screw C
- A334 Top cover retainer screw B
- Unsolder Gray lead wire (No. 15) on Shoe contact piece C (M204).
- A300 Top cover assy.

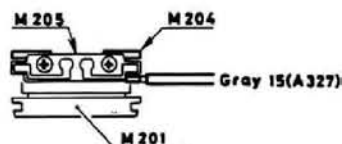


Fig. 1

7. Unsoldering lead wires.

- Unsolder the four lead wires on P. C. board assy. (T100) at the bottom side of the body.

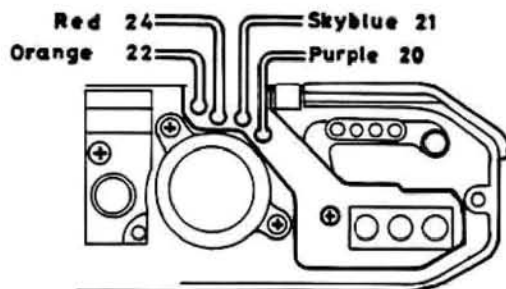


Fig. 2

8. Tripod seat

- CSM1.7x5.5
- CNL-D1.7x5
- 0-A53 Non-cord terminal assy.

* Not necessary to unsolder the lead wire on 0-A53.

- A13 Tripod seat

9. Connector assy.

- CNL-D1.7x4.5
- A25 Connector retainer screw

* Not necessary to unsolder Connector assy. (0-A21) on P. C. board.

10. SV block

* Be careful with the disassembling order of the following parts.

- CNM- 1.7x4
- A41 Installing screw B
- R103 SV warning lever retainer screw

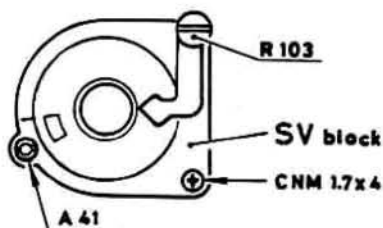


Fig. 3

11. Shutter dial block

- CNS1.7x2.5 Located under Shutter dial. Refer to Fig. 4.
- Install Nut (F17), Shutter dial (F18) and Lock button (F19) temporarily.
- Lift up LCD part.
- F3 Shutter dial retainer screw
- CNS1.7x2.5 Located next to F3.

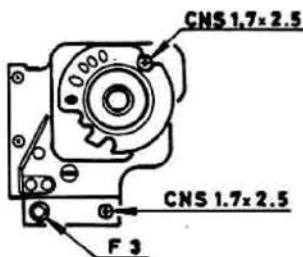


Fig. 4

12. Unsoldering lead wires.

- Unsolder Gray lead wire on Eyepiece frame (M201) and Brown, Red and White lead wires on P.C. board located under Shutter dial block (F100).

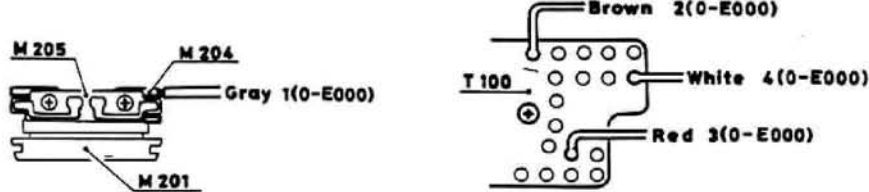


Fig. 5

13. Front board / Mirror housing complete assy.

* Set the shutter in the cocked condition.

- CNL-B 1.7x3.5 Spacer (B45) side.
- CNS1.4x3.5
- CNL-D1.7x2.5 x2 Located both sides of Eyepiece frame (M201).
- W14 Take care not to lose it.
- A132 x4 Front board retainer screw
- Front board assy. / Mirror housing complete assy.

14. Shutter block

- A8 Shutter light seal cover
- CNL-D1.7x3 x3
- 0-E000 Shutter block

15. Film counter and other related parts.

* Remove Back cover assy.

- Unhook Counter dial spring (C57) from Counter dial retainer plate (C25).
- C25 Counter dial retainer plate
- C57 Counter dial spring
- W91 for Adj.
- 0-C34 Counter dial assy.
- C54 Counter dial indicator retainer screw
- C15 Counter dial indicator
- CNS1.7x4x2
- 0-C2 Winding seat assy.

16. Joint cover

- C212 Joint retainer screw
- C213 Spring washer
- C207 Joint
- C209 Joint cover
- 0-C129 Shutter charge lever assy.
- C144 Shutter charge collar
- W14 t=0.1
- Install Joint (C207), Joint retainer screw (C212) and Spring washer (C213) temporarily.

17. Winding guide plate assy.

- 0-I402 Release pin collar
- * Not necessary to unsolder the lead wire on 0-I402.

- C146 Seat plate retainer screw
 - CNL-D1.7x2.5 x2
 - 0-C102 Winding guide plate assy.
18. Bottom release lever
- CNL-D1.4x2
 - C149 Bottom release lever
 - Bottom release lever spring
19. R lever assy.
- LW13
 - 0-C105 R lever assy.
 - C126 R lever spring
20. Wind completion switch
- CNM 1.7x4
 - I500 Wind completion switch
- * Not necessary to unsolder the lead wire on I500.
21. Winding hook lever and other related parts.
- Unhook Winding ratchet spring (C145) from Winding lever ratchet (C107).
 - LW13
 - W2 for Adj.
 - C107 Winding lever ratchet
 - C130 Winding ratchet collar
 - 0-C108 Winding hook lever assy.
 - C125-02 Hook lever spring
22. Winding lever ratchet wheel assy, and other related parts.
- C212 Joint retainer screw
 - C213 Spring washer
 - C207 Joint
 - 0-C106 Winding lever ratchet wheel assy.
 - C137 Winding shaft restitution spring
 - C12 Winding spring hook collar
23. Winding shaft assy.
- CNL-D 1.7x3
 - C72 Winding shaft retainer
 - 0-C22 Winding shaft assy.
 - C30 Main gear
24. Top mech. plate assy.
- CSS1.7x3.5
 - C146x2 Seat plate retainer screw
 - 0-C1 Top mech, plate assy.
25. 2nd gear
- C32 2nd gear shaft

- C31 2nd gear
- C36 2nd gear washer

26. Sprocket gear

- CNS 1.7x2
- C40 Sprocket shaft pin
- C33 Sprocket gear
- C64 Silent ratchet spring
- W8 $t=0.15$

1. Sprocket gear

- W8 $t=0.15$
- C64 Silent ratchet spring
- C33 Sprocket gear
- C40 Sprocket shaft pin
- CNS1.7x2 Adhesive: Apply Threebond 1405D on the threads.

2. 2nd gear

- C36 2nd gear washer
- C31 2nd gear
- C32 2nd gear shaft

Adjustment: When installing 2nd gear (C31), align the punch mark on C31 with the notch of Sprocket gear (C33).

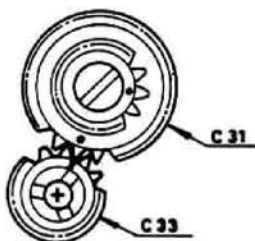


Fig. 6

3. Top mech. plate assy.

- 0-C1 Top mech. plate assy.
- C 146x2 Seat plate retainer screw
- CSS1.7x3.5

4. Winding shaft assy.

- C30 Main gear

Adjustment: When installing Main gear (C30), align its punch mark with the punch mark on 2nd gear (C31). Make sure that the punch mark on 2nd gear (C31) has been also aligned with Sprocket gear (C33).

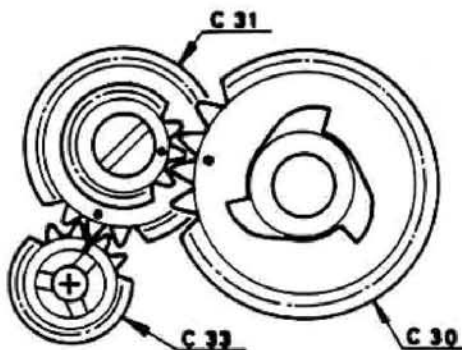


Fig. 7

- 0-C22 Winding shaft assy.
- C72 Winding shaft retainer
- W2 for Adj.
- CNL-D1.7x3

Note:

Use W2 underneath Winding shaft retainer (C72), in case of Winding shaft assy. (0-C22) touches against Winding shaft retainer when Winding mech. is being cocked.

5. Confirmation: Sprocket (Perforation) position

- Winding mech. is in the cocked position, lightly push Sprocket toward the film aperture side to eliminate its play. Sprocket must be positioned in the range as shown in Fig. 8.

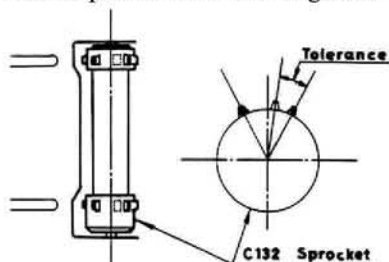


Fig. 8

Confirmation:

Within tolerance

A pair of Sprocket teeth should be positioned between the symmetrical position with the center of Sprocket and slightly shifted toward Winding lever side. Refer to Fig. 8.

Without tolerance

The center of Sprocket tooth should not be positioned the center of Sprocket.

Adjustment:

Adjustment can be made by changing the engagement of 2nd gear.

6. Winding lever ratchet wheel assy.

- C12 Winding spring hook collar
- C137 Winding shaft restitution spring

Adjustment:

Install Winding spring hook collar (C12) as shown in Fig.9, then wind the spring several times and pull it toward Battery case assy. (0-A11). The proper spring tension will be made when the end of C137 reaches the position as shown in Fig. 9.

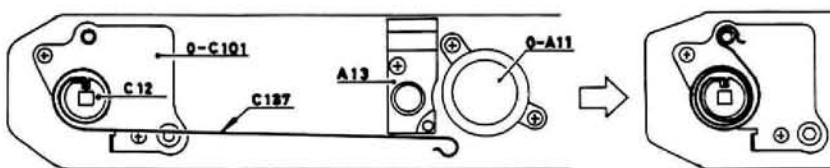


Fig. 9

- 0-C106 Winding lever ratchet wheel assy.
- C207 Joint
- C213 Spring washer
- C212 Joint retainer screw --- install temporarily.

7. Winding hook lever assy, and other related parts.

- C125-02 Hook lever spring
- 0-C108 Winding hook lever assy.
- C130 Winding ratchet collar
- C107 Winding lever ratchet
- W2 for Adj.
- LW13
- Hook Winding ratchet spring (C145) to Winding lever ratchet (C107).

8. R lever assy.

- C126 R lever spring
- 0-C105 R lever assy.
- LW13

9. Bottom release lever

- C148 Bottom release lever spring
- C149 Bottom release lever
- CNL-D 1.4x2

Adjustment:

Bend the contact piece of Bottom release SW board assy. (0-I404) so that the clearance between 0-I404 and Bottom release lever (C149) becomes approx. 1.5mm as shown in Fig. 10.

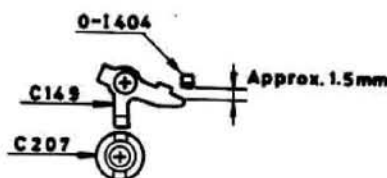


Fig. 10

10. Wind completion switch

- I500 Wind completion switch
- CNM1.7x4

Adjustment:

Set the camera in the cocked condition.

At first, set the eccentric screw on Winding hook lever assy. (0-C108) the farthest position from the moving contact piece of Wind completion SW (I500) by turning the eccentric screw.

Secondly, bend the moving contact piece of I500 until it contacts with the eccentric screw on Winding hook lever assy. (0-C108).

Thirdly, the clearance 0.3mm between the moving contact piece and the fixed contact piece should be adjusted by turning the eccentric screw.

Confirmation:

With the shutter in the cocked position, Wind completion SW should be turned OFF when Winding lever is closed all the way against the camera body.

With the shutter in the uncocked position, Wind completion SW should be turned ON. Refer to Fig. 11 next page.

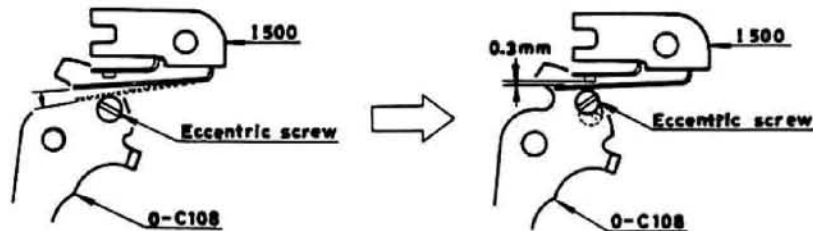


Fig. 11

11. Winding guide plate assy.

- 0-C102 Winding guide plate assy.
- C146 Seat plate retainer screw
- CNL-D1.7x2.5 x2

* Loosen Joint retainer screw (C212).

- 0-C129 Shutter charge lever assy.
- C209 Joint cover
- C212 Joint retainer screw

12. Winding seat assy.

When installing Winding seat assy. (0-C2), engage Counter dial transporting gear with Main gear (C30) so that Transporting claw assy. is positioned as shown in Fig. 12.

13. Counter dial assy.

- 0-C34 Counter dial assy.
- C57 Counter dial spring
- W9 for Adj.

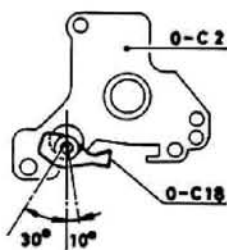


Fig. 12

- 0-C2 Winding seat assy.
- CNS 1.7x4 x2
- C25 Counter dial retainer plate
- Hook Counter dial spring (C57) to Counter dial retainer plate (C25) and apply Pliobond on the end of C57.
- C15 Counter dial indicator
- C54 Counter dial indicator retainer
- Install Winding lever temporarily.
- Install Back cover assy.

Confirmation:

Make sure that Film counter functions (advancing/returning) properly.

14. Shutter block

- 0-E000 Shutter block

15. Adjustment: T-Adjuster

Testers: Shutter tester (7F-9A2)
T-Adjuster (0C-2 or TA-07/II-01)
T-Adjuster cord (TA-240)

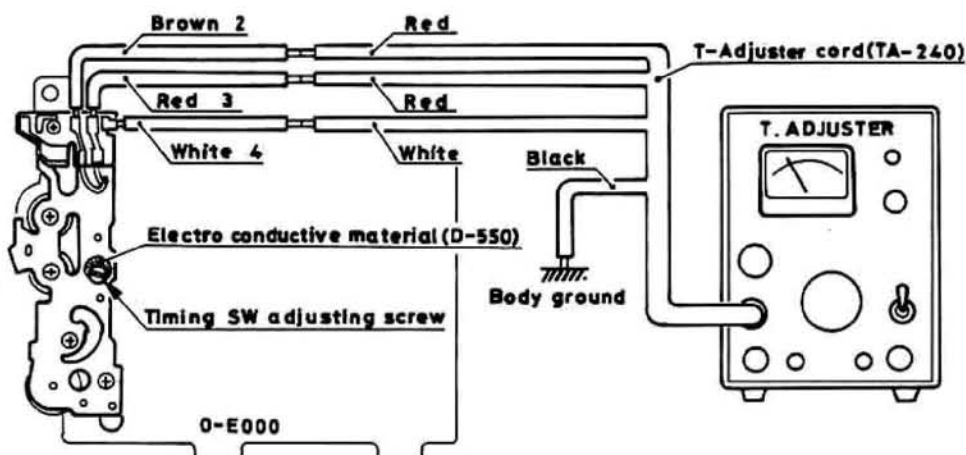


Fig. 13

- 1) Connect T-Adjuster cord (TA-240) as shown in Fig. 13.
- 2) Set MEASURE-CHECK SW of T-adjuster to CHECK side. Set the voltage at 2V. In this condition, Release the shutter. 2nd curtain should be held by the electromagnet (Time condition).
- 3) Set MEASURE-CHECK SW to MEASURE side and the voltage at 2.8V.
- 4) Set TIME SETTING DIAL to 0.5ms.
- 5) Adjust Timing SW by the adjusting screw so that Shutter speed becomes approx. 0.5ms (0.45~0.6ms).
- 6) After adjusting Timing SW, apply Electro-conductive material (Exclusively use DOTITE Ag-type D-550) on the adjusting screw.

16. Front board assy. / Mirror housing installation

- A8 Light seal plate

* Make sure that the shutter is in the cocked condition and Mirror housing is in the uncocked condition for the installation.

- CNL-B1.7x3.5
- CNS1.4x3.5
- A132x4 Front board retainer screw

Confirmation:

Check the shutter releasing position as follows:

- Release the shutter while pressing down the mirror seat with a finger
- Let the mirror seat flips-up gradually, check the shutter releasing position.
- * The shutter can be released by pushing the lever in the arrow direction in Fig. 14.
- The shutter should be released when the bottom side of Mirror seat reaches between B and C as shown in Fig.15.

Position A

The bottom side of Light seal (B60).

Position B

With Slide plate assy. (0-B245) flipped-up, the position where the bottom side of Mirror seat reaches in between A and C.

Position C

With Slide plate assy. (0-B245) flipped-up, the position where the bottom side of Mirror seat reaches the

same level as the top of Slide plate assy. (0-B245).

Adjustment:

If the releasing position is not in the range as mentioned above, adjustment can be made by bending Release lever (B24).

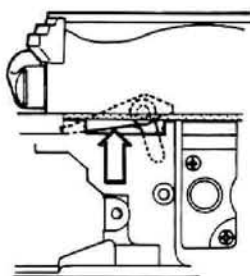


Fig. 14

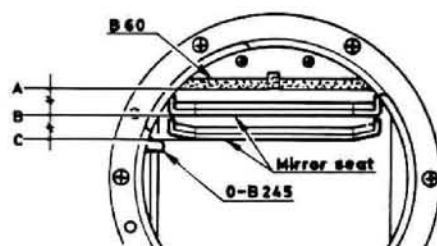


Fig. 15

- W14 for Adj. Located between the body proper and
- CNL-D1.7x3 x2

17. Adjustment: Mechanical back focus adjustment

- W14 for Adj.
- Standard 45.46mm ± 0.04 mm

18. Soldering lead wires.

- Solder the four lead wires from Shutter block.

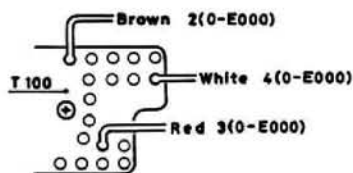
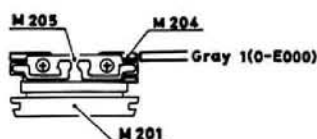


Fig. 16

19. Shutter dial block

- F100 Shutter dial block
- F3 Shutter dial retainer screw
- CNS1.7x2.5 Located next to F3.
- Set Shutter dial to "L" for removing Nut (F17), Shutter dial (F18) and Lock button (F19).
- Tools: 23903-A346-A
- CNS1.7x2.5 Located under Shutter dial.
- Install F19, F18 and F17 temporarily.

20. SV block installation

- * Be careful with the installing order.
- R103 Exposure factor warning lever retainer screw
- A41 Installation screw B
- CNM 1.7x4

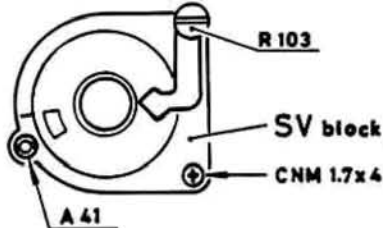


Fig. 17

21. Tripod seat

- A13 Tripod seat
- 0-A53 Non-cord terminal assy.
- CNL-D1.7X5
- CSML.7x5.5

22. Connector assy.

- CNL-D1.7x4.5
- A25 Connector retainer screw

23. Soldering lead wires.

- Solder the four lead wires on T100 at the bottom aide of the body proper.

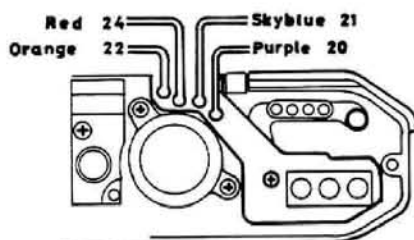


Fig. 18

24. Adjustment: Level adjustment for Aperture control voltage.

Testers: Oscilloscope
Regulated DC power supply
ML-245 {Master lens for 245}

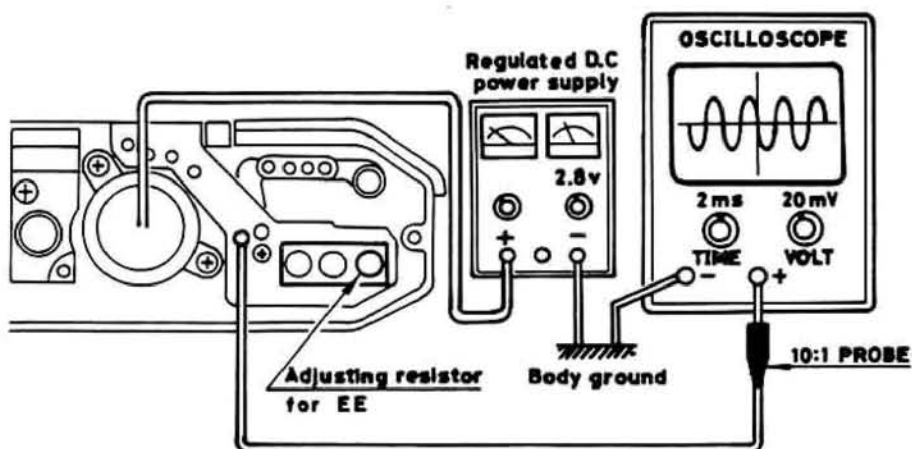


Fig. 19

Aperture control voltage can be measured as the following procedures:

- Mount Master lens for 245 (ML-245) on the camera and set the aperture of Master lens to the "A" position.
- Connect wires as shown in Fig. 19 and supply 2.8V to the camera.
- Set Shutter dial at Auto, and set the aperture so that it becomes smaller than f-2.8 by changing ASA speed dial or the brightness of the light source.
- At this time, the output voltage should be displayed $450\text{mV} \pm 50\text{mV}$ on the screen of Occilloscope.
- If this reading is out of range, the adjustment can be made by turning Adjusting resistor for EE as shown in Fig. 19.

25. Removal of Shutter dial and Winding lever.

- Set Shutter dial (F18) to "L".
- F17 Nut Tools: 23903K-A346-A
- F18 Shutter dial
- F19 Lock button
- 0-C69 Winding lever assy.

26. Top cover assy.

- Solder Gray lead wire of Top cover assy. to Shoe contact piece C (M204).
- A300 Top cover assy.
- A333x2 Top cover retainer screw A
- A342x2 Top cover retainer screw C
- A334 Top cover retainer screw B

27. Rewind knob assy.

- 0-D11 ASA/ISO dial assy.
- W103 for Adj.
- D24 Nut Tools: 23600K-D4-A-2
- 0-D6 Rewind knob assy.

28. Shutter dial and related parts

- F19 Lock button
- F18/F21 Shutter dial
- W97 $t=0.1$
- F17 Nut Tools: 23903K-A346-A

29. Winding lever assy. and other related parts

- C92 Top cover retainer nut Tools: 24500K-C92-A
Adhesive: Cemedine575

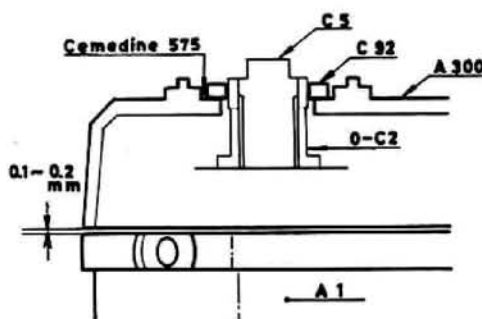


Fig. 20

Fasten Top cover retainer nut (C92) until the clearance between the bottom side of Top cover and the part of

Adhesive: Apply a screw Lock agent (Cemedine575) as shown in Fig. 20.

- C7 Winding lever friction spring
- 0-C69 Winding lever assy.
- C8 Nut

Tools: 23600K-C134-A-2

30. Check the functions as follows:

- Install Temporary bottom cover. Tools: 24500K-A401-A
- Set Regulated DC power supply at 2.8V.
- With Back cover opened, make sure that Shutter speed and f-stop LCD display indication in the viewfinder for Auto, Manual, 1/ 125 and B mode indicate properly.
- With Back cover closed, only Auto and Manual setting, LCD display indicates 1/1000 and the shutter should be released at the speed of 1/1000 until Film counter reaches "0".
- With Exposure factor is being set, EF LCD in the viewfinder flickers at only Auto and Manual setting.
- With the shutter in the cocked position, Wind cocking indicator of the external LCD should be turned ON.
- With the shutter in the uncocked position, Wind cocking indicator of the external LCD should be turned OFF.

31. Confirmation: Flash Ready ⚡ mark and Quench signal

Flash ready lamp signal indication

Tools: RLC-MV (Ready Lamp Checking Adapter)

- Apply 2.4V to RLC-MV, Flash ready ⚡ mark LCD in the viewfinder must turn ON.

Quench signal

- Approx. 2V of the output voltage will be measured when the shutter is released at Shutter dial setting B.

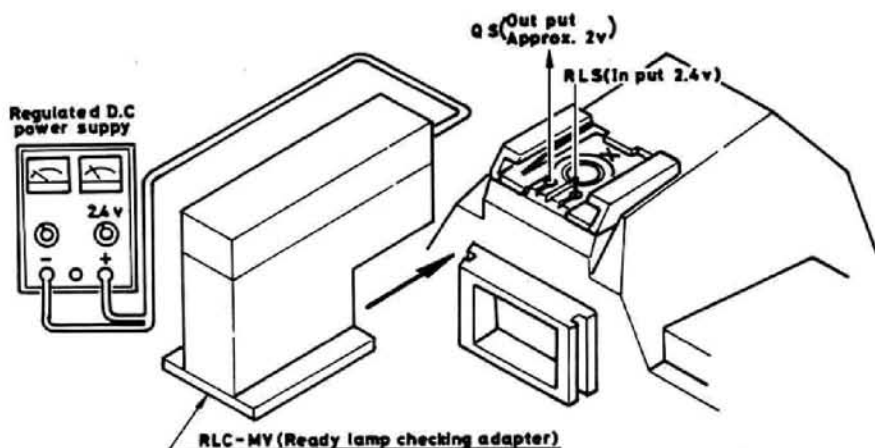


Fig. 21

32. Exposure value calibration

Aperture -priority AE mode

- EV 12
- ASA / ISO 100
- Diaphragm Setting Ring K (KA-00-1A)
- Shutter dial at AUTO
- Standard shutter speed 15.6ms (14.6 ~ 17.6ms)

Adjustment:

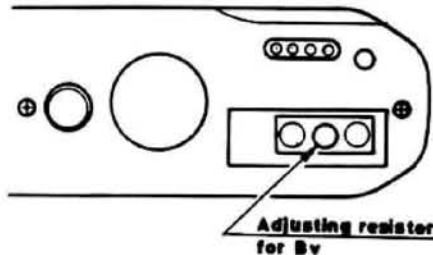
Shutter speed should be calibrated 15.6ms by adjusting register as shown in Fig. 22.

After adjusting EV12, check EV16 and EV8.

EV16 0.72 ~ 1.4ms

EV8 179 ~ 354ms

Fig. 22



Note:

This adjustment is actually adjusting an error of BV value, however, BV value can not be read directly. By checking TV value, BV value will be adjusted correctly.

Therefore, adjust T-adjustment and the resistance value of f-VR (6 K Ω $\pm 10 \Omega$) before adjusting BV value.

If BV value is adjusted without adjusting an error of f-VR and T-adjustment, Shutter priority AE mode and Programmed AE mode can not be controlled correctly.

$$EV = BV + SV = AV + TV$$

Manual shutter mode

Check each shutter speed respectively.

Shutter-priority AE mode

Testers: 7PE-25A3 (Shutter tester)
 ML-245 (Master Lens for 245)

Confirmation:

ASA/ISO

Set Master Lens for 245 to "A".

At first, set Shutter speed to 1/60, check the exposure value at EV16.

EV12 1/60 (F8) $\pm 1.0EV$

EV8 1/60 (F2) $\pm 1.0EV$

EV16 1/250 (F16) $\pm 1.0EV$

If these EVs are out of allowance, readjust Level adjustment for Aperture control voltage.

Programmed AE mode

Testers: 7PE-25A3 (Shutter tester)
 ML-245 (Master Lens for 245)

ASA/ISO 100

Set Shutter dial to AUTO.

Set ML-245 to "A".

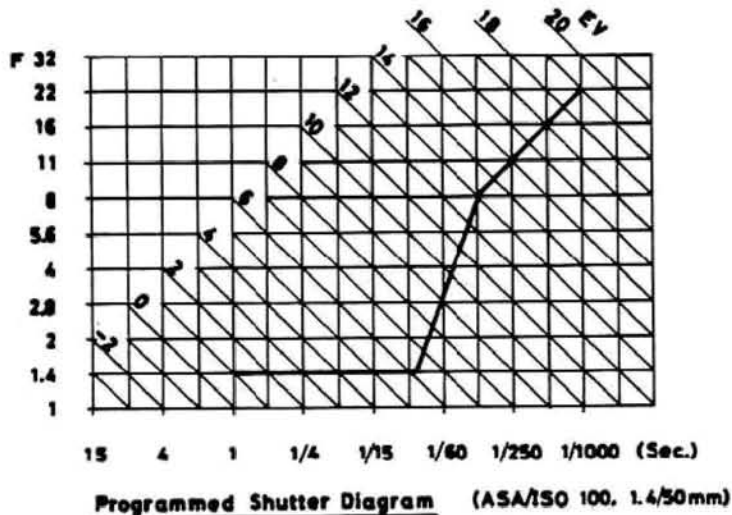


Fig. 23

Confirmation:

Check the exposure values at EV16, EV12, EV10, EV8 and EV6 respectively. The allowance limit of each exposure value is $\pm 1.0\text{EV}$.

33. Confirmation: Diaphragm-shutter synch. time

Testers: 7F-9A2 (Shutter tester)
DSST-240 (Diaphragm-Shutter Synch. Time for 240)

Set Shutter dial to 1/125 and mount DSST-240 on the camera.
Diaphragm-shutter synch. time standard -- 50 - 80ms

34. Adjustment: ASL (Auto Speed Light) adjustment

Testers: ST-245 (Storobo tester)
ML-245 (Master lens for 245)

Mount Master lens (ML-245) with f-5.6 setting and install Back cover for Storobo tester to the camera.
Set Shutter dial to Auto and set ASA/ISO ring to 100.
Set Mode selector lever of Flash unit (AF280T) to TTL AUTO and connect 4P Synch. cord B to the camera.
Set the camera equipped with Flash unit AF280T to Strobe Tester (ST-245) as shown in Fig. 24.
Set the range of Flash meter to "2.8 - 11".
Press the reset button. Release the shutter.
The needle of Flash meter must point to F8 $\pm 0.25\text{EV}$.

Adjustment: Turn Adjusting screw for ACL so that the needle of Flash meter points to 8 as shown in Fig. 25.

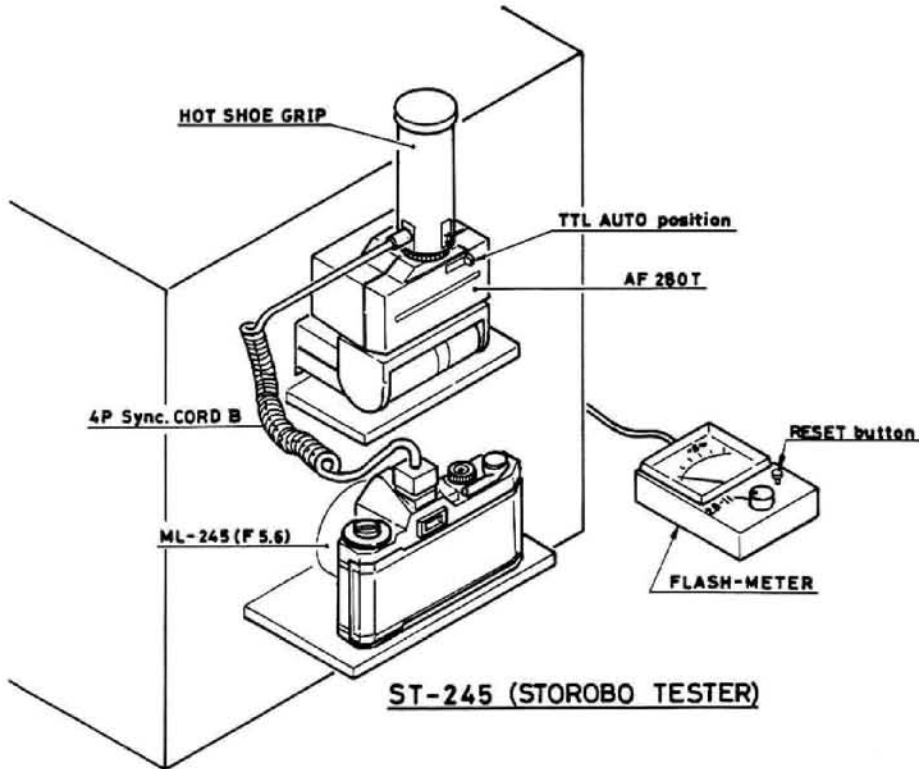


Fig. 24

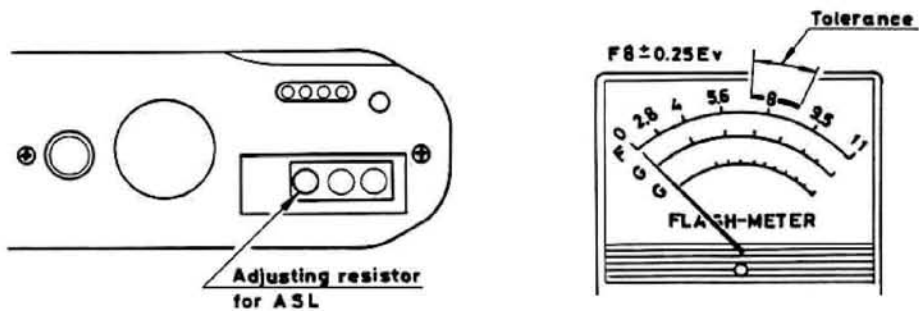


Fig. 25

35. Bottom cover assy.

- C117 R button
- 0-A401 Bottom cover assy.
- CSS 1.7x3 x3

36. Body covering

- A19 Body covering, left
- A20 Body covering, right

37. Winding lever cover

- C139 Winding lever cover Adhesive: Cemedine 575

DISASSEMBLY II

1. Mirror flip-up governor assy.

- CNS1.7x1.6 x2
- B400 Mirror flip-up governor assy.
- W2 for Adj.

2. Unsoldering twenty-seven lead wires.

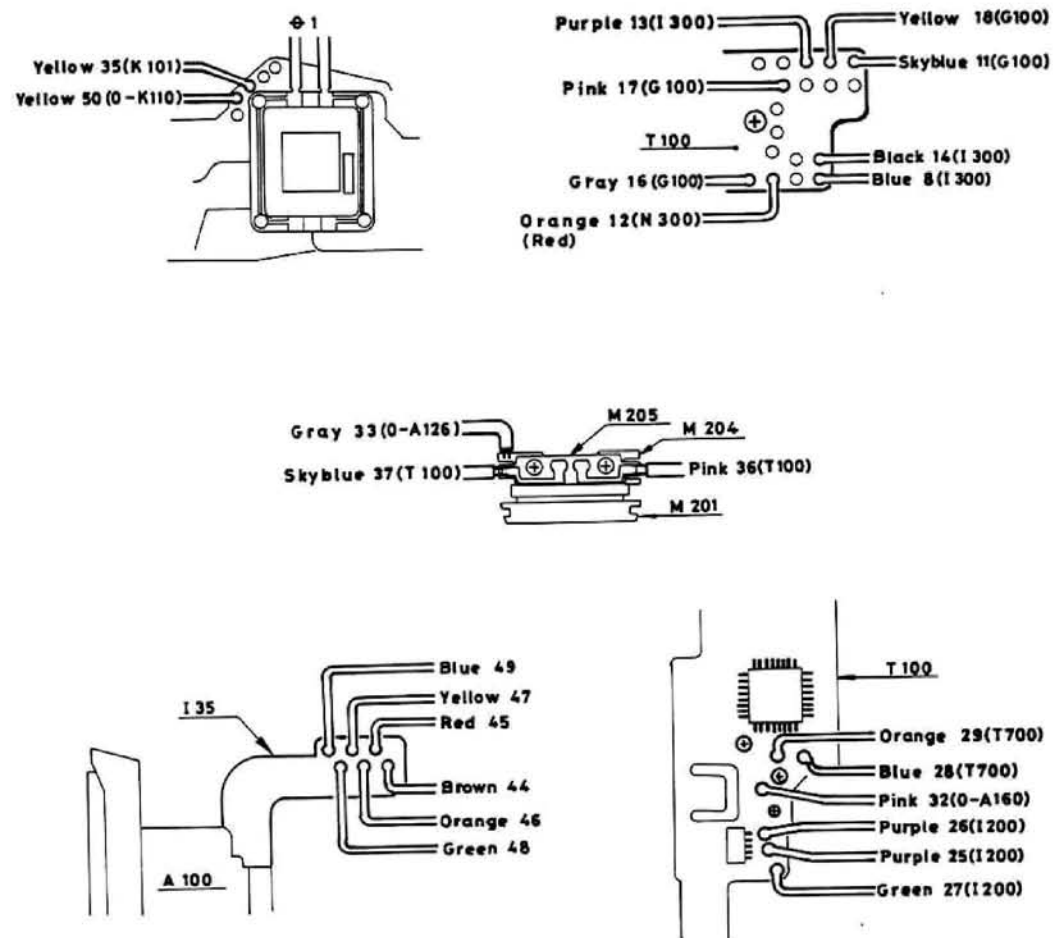


Fig. 26

3. P. C. board assy.

- T-CNL-E1.7x3.5 x2
- M205 Shoe board
- M204 Shoe contact piece C
- CNL-D1.4x2 Located under Shutter dial block (F100) on Supporter plate, right (B4).
- CNL-D1.7x4.5 x2 Located the side of Mirror housing assy. Where Cell frame (C1) is installed.
- CNS1.4x1.6 x2 Located on LCD installation plate (0-M31).
Inside of Mirror housing where LCD is installed.

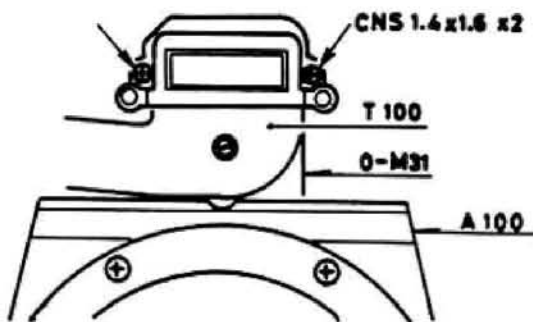


Fig. 27

- T100 / T1 P. C. board assy. / Cellframe
4. Self-timer SW and Piezo-electric buzzer
- CNS1.7x5
 - I305 Cord holder
 - I300 Self-timer SW
 - CNS1.7x3
 - A118 Buzzer lug plate
 - A3 Back cover key collar
 - N300 Piezo-electric buzzer
5. Mirror housing complete assy.
- CNM2x3 x2
 - CNM 1.7*3 x2 Rise the mirror seat to remove the screw.
 - 0-B000 Mirror housing complete assy.
6. LCD installing plate assy.
- CNL-D1.7x2.5 x2
 - 0-M31 LCD installing plate assy.
7. Eyepiece frame
- CNL-D1.7x4x2
 - M201 Eyepiece frame
8. Prism seat
- CNS1.7x3.5 x2
 - M2 Prism seat
9. Release magnet / Release magnet P. C. board assy.
- CNS 1.4x2 x2
 - S100 Release magnet
 - CNS1.7x1.6 x2
 - T700 Release magnet P. C. board assy.

1. Confirmation: Diaphragm control block checking

Apply 2V to Pink lead wire (+) and Gray lead wire (-) from the electromagnet of Diaphragm control block.

The armature must be repelled from the magnet core when supplying the voltage to the electromagnet.

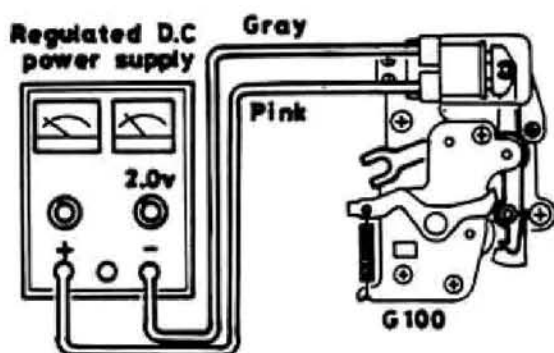


Fig. 28

2. Self-timer switch

- I 300 Self-timer switch
- I 305 Cord holder
- CNS 1.7x5

Confirmation:

Make sure that Self-timer switch turns ON / OFF properly.

3. Adjustment: f-VR resistance value adjustment

Tools: Diaphragm Setting Ring K (KA-00-1A)

Mount Diaphragm Setting Ring K on Front board assy, adjust the resistance value of f-volume / f-volume compensation VR assy. K101 / 0-K110 to be $6\text{ k}\Omega \pm 10\%$ by turning the adjusting register of 0-K110.

* Turn Diaphragm Setting Ring K clockwise direction to eliminate the play which causes the reading errors.

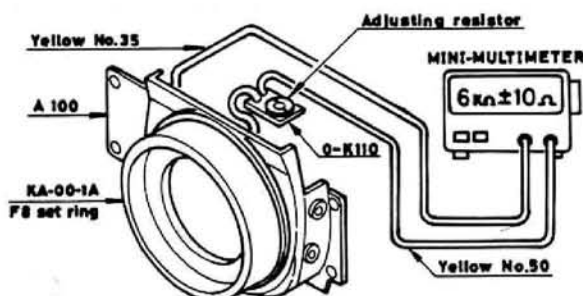


Fig. 29

4. LCD installation plate assy.

- 0-M31 LCD installation assy.
- CNL-D1.7x2.5 x2

5. Adjustment: Shock absorber rubber adjustment

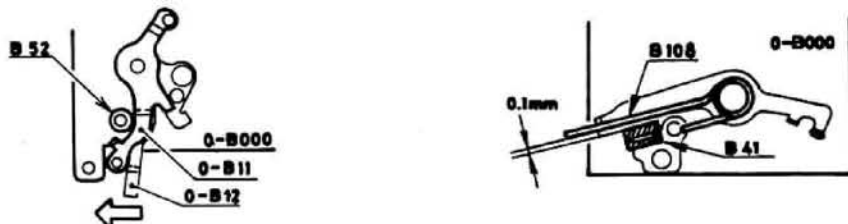


Fig. 30

Set Mirror actuator lever assy. (0-B11) against Shock absorber collar (B52).

Make sure that the clearance between Mirror flip-up spring and Shock absorber rubber(B41) is remained 0.1mm.

Adjustment can be made by replacing Shock absorber rubber (B41).

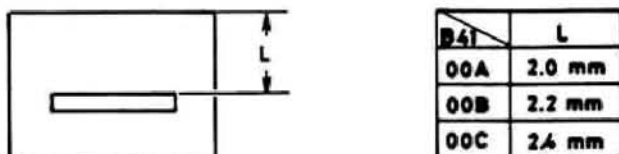


Fig. 31

6. Adjustment: Release magnet installing position

- T700 Release magnet P. C. board assy.
- CNS1.7x1.6x2 Release magnet
- S100 MD & TL distributing wire holder
- I 211
- CNS 1.4x2 x2

* Install Release magnet (S100) so that the clearance between Hook lever (B7) and the lever of Release magnet becomes 0.2 ~ 0.3mm as shown in Fig. 32.

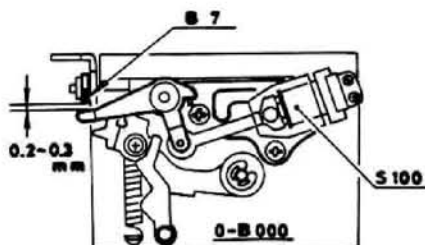


Fig. 32

7. MD and TL switch position adjustment

- With the mirror housing is in the charged condition

Allowable clearance between MD switch contact piece and MD & TL switch lever assy (0-B34) is approx. 0.3~0.5mm, but adjust the clearance closer to 0.3mm to obtain the best adjustment.

Make sure that the clearance of TL switch between Moving contact piece and the insulation tube of 0-B34 is remained 2mm. Check the continuity between Moving contact piece and Fixed contact piece. Refer to Fig. 33 left.

- With Mirror seat is flipped-up position

Check the continuity between MD switch contact piece and MD & TL switch lever assy. (0-B34). Refer to Fig. 33 right. Adjust Moving contact piece and Fixed contact piece of TL switch so that the clearance

becomes 0.2mm.

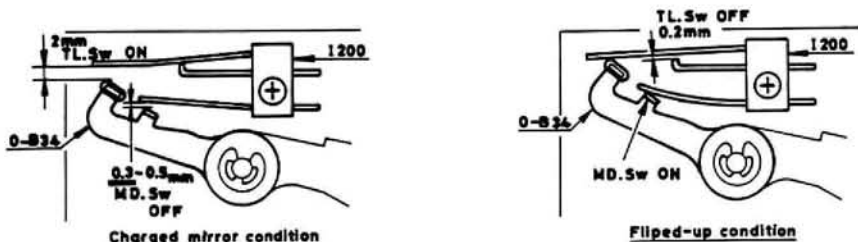


Fig. 33

8. Prism seat and Eyepiece frame

- M2 Prism seat
- CNS1.7x3.5 x2
- M201 Eyepiece frame
- CNL-D1.7x4 x2

9. Front board assy. and Mirror housing assy.

- A100 Front board assy.
- 0-B000 Mirror housing assy.
- CNM2x3 x2
- CNM 1.7x3 x2

* When installing Mirror housing assy. to Front board assy. be careful with the couplings as mentioned below.

- Stop down lever assy. (0-B241) and Coupling lever assy. (0-A174)
- Shutter plate assy. (0-B245) and Diaphragm control block (G100)
- Restitution link A assy. (0-B16) and Diaphragm control block

10. Adjustment: Parallax

Vertical direction 1° 50'

Horizontal direction 1°

11. Piezo-electric buzzer

- N300 Piezo-electric buzzer
- A3 Back cover key collar
- A118 Buzzer lug plate
- CNS1.7x3

* Insert Piezo-electric buzzer (N300) while pushing it toward the 2 o'clock position.

* Be careful with the soldering position of the lead wire of Piezoelectric buzzer because Red lead wire had been used in the initial productions.

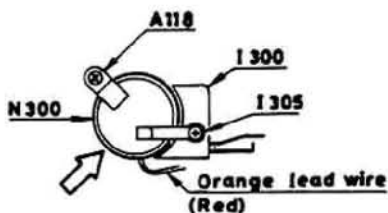


Fig. 34

12. P. C. board assy.

- Glue Cell frame / Photosensor (T1/T2) to P. C. board (T100).
Use Pliobond. Do not ooze out Pliobond on the photosensor part.
- Fasten the screws (CNL-D1.7x4.5 x2) for installing T1 and T100 to Mirror housing.
- Fasten the screws (CNS1.4x1.6 x2) for fixing the inner LCD to LCD installing plate assy (0-M31) without making scratches on Small mirror A (L6).
- Fasten the screw (CNL-D1.4x2) for installing P. C. board (T100) to B4. (Fasten the screw firmly because it is grounded.)
- M204 Shoe contact piece C
- M205 Shoe board
- T-CNL-E1.7x3.5 x2

Note:

Do not touch the photosensor part with bare fingers and carefully handle each flexible part and the lead wires of P. C. board assy.

13. Adjustment: LCD positioning adjustment

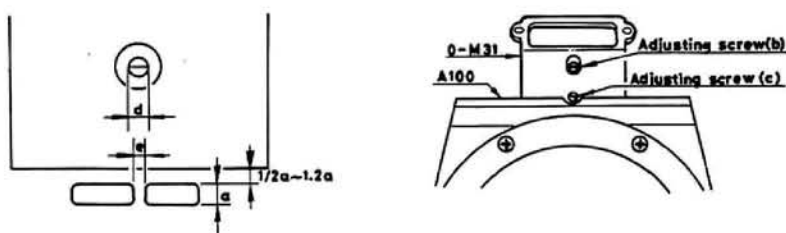


Fig. 35

While observing the LCD position in Viewfinder, make the adjustment as follows:

LCD window in Viewfinder should be positioned in parallel with the bottom side of Viewfinder.

Adjustment can be made by turning Adjusting screw (b).

LCD window should be positioned $1/2 - 1.2$ times of the width of (a) as indicated in Fig. 35 away from the viewfinder frame.

Adjustment can be made by turning Adjusting screw (c).

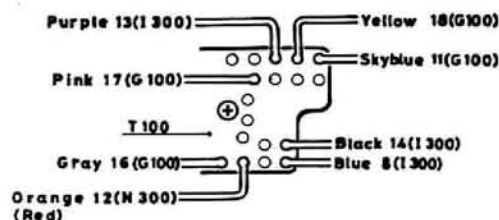
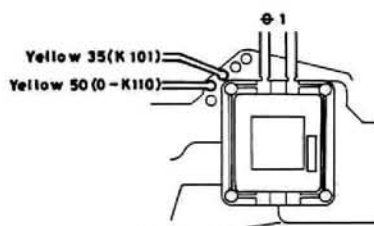
Make sure that the space as indicated (e) should be positioned in the range as indicated (d) of Sprit-image line.

14. Mirror flip-up governor

- B400 Mirror flip-up governor
- W2 for Adj.
- CNS1.7x1.6 x2

* After installing B400, raise Mirror seat with a finger, then move a finger away from it. It should return to its original position by itself.

15. Soldering twenty-seven lead wires.



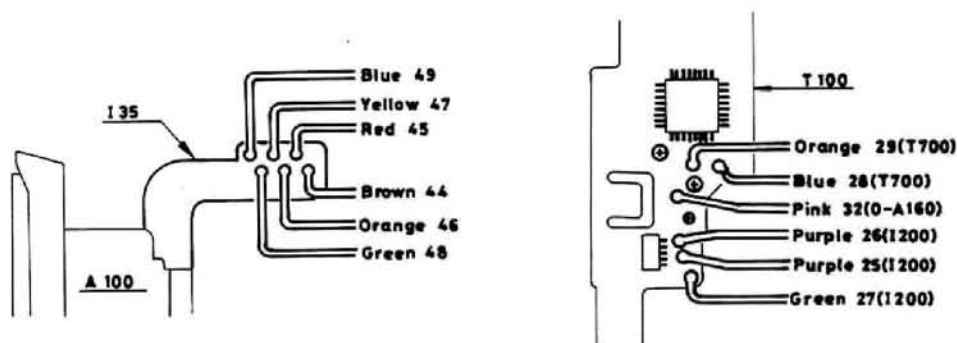
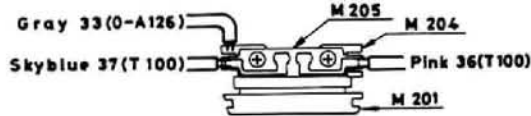


Fig. 36

16. Confirmation: Check the functions of Mirror housing as follow:

- Solder a lead wire and supply 2.8V as shown in Fig. 37.

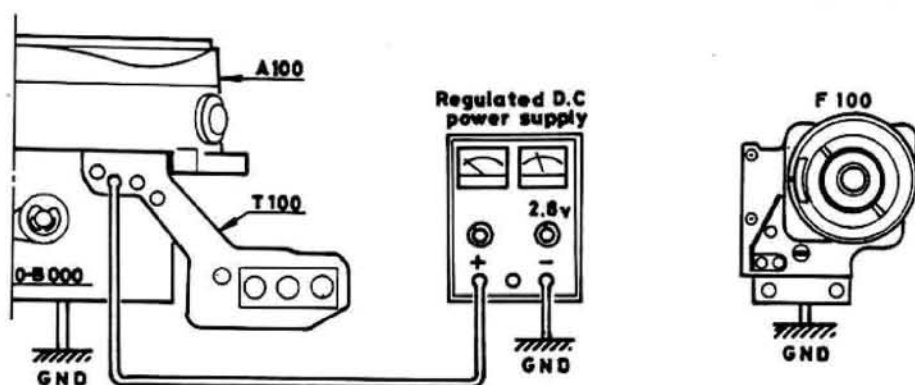
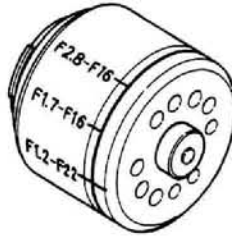


Fig. 37

- Set Shutter dial any positions except "L".
Cock Mirror housing and depress Shutter release button.
At this time, Mirror seat must flip-up.
Set Mirror seat in the original position by depressing Restitution link A assy. (0-B16).
- Cock Mirror housing again.
Pull out Self-timer lever and depress Shutter release button.
LED must flicker with beeping sound and then Mirror seat flip-up.
- Lamp(☉) in the viewfinder must light on when depressing
Lighting switch button assy. (0-A160).

17. Confirmation: Mount connector pin checking

Tools: CIJ-245 (Contact pin Inspection Jig for 245)



CIJ-245

Fig. 38

- Connect the lead wires and supply 2.8V in the same manner as Fig. 37.
- Mount CIJ-245 on the camera.
- Set Shutter dial to "M".

1. Set Contact pin Inspection Jig for 24500 to F1.2-F22.

1-1 The camera mounted with CIJ-245, decrease the manual shutter speeds by connecting the bottom contact column and GND of F block with a tweezers. Then face the camera toward a brighter subject. F22 of LCD in the viewfinder must flicker.

1-2 The camera mounted with CIJ-245, increase the manual shutter speeds by connecting the top contact column and GND of F block with a tweezers. Then face the camera toward a darker subject. F1.2 of LCD in the viewfinder must flicker.

Note: If other F number LCDs flicker, check broken lead wires and poor connections of the contact pins.

2. Set CIJ-245 to F2.8-F16.

Check if F16 and F2.8 of LCDs in the viewfinder flicker in the same manner as 1-1 and 1-2.

Note: If other F number LCDs flicker, check a short circuit between the contact pins or the lead wires and GND, except A/M contact pins.

3. Set CIJ-245 to F1.7-F16.

Check if F16 and F1.7 of LCDs in the viewfinder flicker in the same manner as 1-1 and 1-2.

Note: If other F number LCDs flicker, check wrong wirings between Connector board (I35) and P. C. board (T100).

* Brief explanation about Contact pin Inspection Jig for 24500 (CIJ-245).

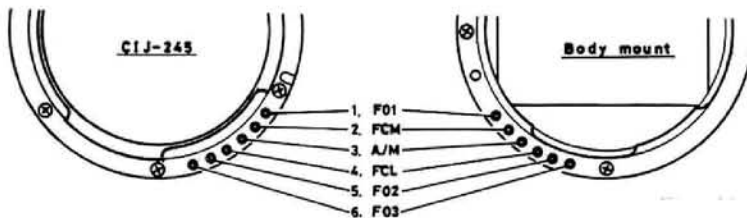


Fig. 39

Contact pin F01, F02 and F03

They receive the maximum f-stop which is converted to the electric signals from a lens.

Contact pin FCL and FCM

They receive the minimum f-stop which is converted to the electric signals from a lens.

It receives the auto manual switching signals from a lens.

CIJ-245 transmits the information as shown in Fig. 40 to the body mount whether the information is correct or incorrect.

Contact pin CIJ-245	F 01	FCM	A/M	FCL	F 02	F 03
F 1.2 – F 2.2	0	0	0	0	0	0
F 1.7 – F 1.6	0	1	0	1	0	1
F 2.8 – F 1.6	1	1	0	1	1	1

0 = ON
1 = OFF

Fig. 40

*1 indicates No continuity between Contact pin and GND.

*0 indicates Continuity between Contact pin and GND.

18. LCD display checking in each mode.

Mount Master Lens for 24500 (ML-245) or A lens on the camera. Check if LCD display indicates proper F numbers and shutter speeds in accordance with each mode setting.

Battery Checker checking 2.6V turns ON.
 2.4V alternately flickers exposure designations and '000' sign.

LIST OF SERVICING TESTERS, JIGS AND TOOLS FOR 24500

*Exclusively used Testers, Jigs and Tools for servicing 24500

Strobo Tester (ST-245)

Contact pin Inspection Jig for 24500 (CIJ-245)

Master Lens for 24500 (ML-245)

Grip Mount Socket Driver Bit (24500K-A45-A)

Preview Lever Seat Driver Bit (24500K-A17 1-A)

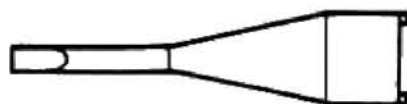
Preview Lever Retainer Screw Driver Bit (24500-A173-A1

Slide Seat Nut B Driver Bit (24500K-B 10-A)

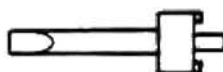
Top Cover Retainer Nut Driver Bit (24500K-C92-A)

Lighting Switch Button Nut Spanner (24500K-A160-A)

Bottom Cover Tool (24500K-A40 1-A)



24500K-C92-A



24500K-C92-A



24500K-A173-A



24500K-A160-A

*Other Testers Tools and Jigs

Shutter Tester (7F-9A2) or (7PE-25A3)

T-Adjuster (0C-2) or (TA-07/11-0 1)

T-Adjuster Connection Adapter for LX (TA-240)

Dial Gauge Comparator (PH-2)

45.46mm Block Gauge (229N-A01-A2)

Mount Block (23600N-A0 1, A104-A)

1000mm Collimator

Regulated DC Power Supply

Circuit Tester

Oscilloscope

Ready Lamp Checking Adapter (RLC-MV)

Digital Multi Meter TR-6355 or TR-6354

Diaphragm Setting Ring K (KA-00-1A)

Wind Lever Nut Spanner (23600K-C134-A-2)

Rewind Shaft Receptacle Nut Spanner (23600K-D4-A-2)

Nut Driver Bit (23903K-A346-A)

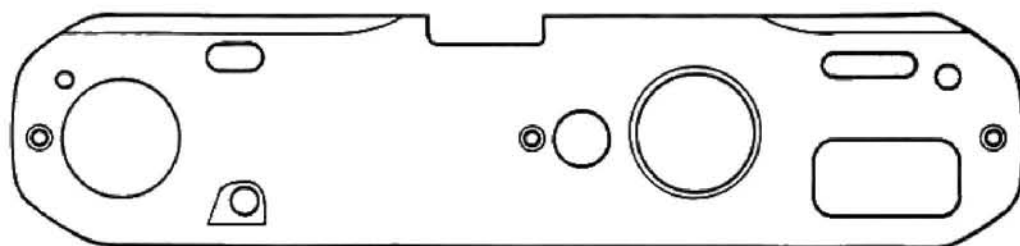
Diaphragm-Shutter Synch. Time Checking Adapter (DSST-240)



24500K-A171-A



24500K-B10-A



24500K-A401-A