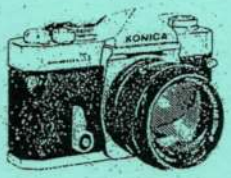
KONICA

AUTOREFLEX T3

Camera Repair



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INTRODUCTION TO KONICA AUTOREFLEX

This manual is compiled from factory data. Konica is the registered trademark of Konishiroku Photo Ind. Co of Tokyo, Japan. In the US these fine cameras are distributed by Konica Corporation, Woodside , NY 11377. A good supply of parts and fine service is available from them. This manual while specific to the T3 , will also give you a lot of help on all the mechanical Konica Autoreflexes and other similar trapneedle cameras including the Canon EX. If new to repair, you should have READ OUR VERY POPULAR BASIC TRAINING IN CAMERA REPAIR, too. Tools, lubricants, cements and solvents for repairing cameras are available from us. We suggest you also get catalogs of Brookstone Corp. Peterborough, NH...and the catalog of Edmunds Scientific, 300 Edscorp Bld in Barrington, NJ. Used parts and junk cameras for parts and used cameras from Brooklyn Camera Exchange, 549 E. 26 St. Brooklyn NY 11210 or other used camera dealers in Shutterbug Ads and similar publications.

REPAIR ON THE KONICA AUTOREFLEX is fairly straigtforward and requires no knowledge of solid state electronics. The battery lasts a long time since you note all it does is to power the meter needle. It indicates a proper aperture but is too weak to set the lens by itself so it is clamped or trapped in place when the release is pressed. The stop down thing stops down like a typewriter tabulator key until it hits the needle. Various teflon and nylon strings are used inside the mechanism which require care. Shutter is a simple Copal Square but it is important that it be accurate..since in NO WAY can the meter give a different aperture if the shutter is slow or fast to compensate. This is of course, a shutter preferred system like Canon AE-1 but mechnaical instead of electronic.

Owners AND INVESTORS IN Konica Autoreflexes which are possible classics should be sure they have the accessory Konica WA and tele lenses in the Konica mount. These lenses are much rarer than the cameras since most cameras were bought without extra lenses. Also collect Konica accessories by the maker.

KONICA AUTOREFLEX T3 CAMERA REPAIR MANUAL
edited by Ed Romney

1. Specifications

1)	Type	35 mm focal plane, TTL-AE* single lens reflex camera
2)	Film Used	35 mm cartridge film (J135)
3)	Picture Size	24 x 36 mm
4)	Standard Lens	Hexanon AR 50 mm F1.7 (6 elements in 5 groups) Hexanon AR 50 mm F1.4 (7 elements in 6 groups) Hexanon AR 57 mm F1.2 (7 elements in 6 groups) Color dynamic coating Closest taking distance, 0.45 m
5)	Mount	Bayonet Konica Mount Type II 47 mm dia, flange back 40.5 mm
6)	Aperture Mechanism	AE type fully automatic aperture, minimum aperture F16, w/field-depth checking mechanism
7)	Shutter	Vertically-running metal focal plane copal square S B,1 - 1/1000 sec, multiplex equal distance scale, single axis non-rotary dial, time exposure

* AE = Automatic exposure control.

8)	Sync System	M contact : class M, FP, and MF all speeds adjustable X contact : strobo adjustable to 1/125 sec.
9)	Self-timer	Built-in one-piece body, full operate time, 10 sec. w/safety lock mechanism
10)	Viewfinder	Penta-prism type, eye-level viewfinder, mag. factor 0.78 (50 mm lens ∞) Condenser and Fresnel type lenses used. Micro-diaprism or split image spot matching type. Composition : shutter speed and exposure meter needle, exposure warning mark, full-aperture F value indicating mark, aperture light-measuring point battery check mark.
11)	Exposure Control	TTL (through-the-lens) fully automatic exposure control Variable metering system with use of 2 ultra-high sensitivity compound CdS cells. o AE type fully automatic aperture lens (Full-Aperture Metering System) AE mode : priority is given to shutter speed ; proper aperture automatic control type. Manual mode : film sensitivity, shutter speed, right aperture direct readout type coupled with full-opening F value of lens. o Preset type aperture lens (Stopped-down Aperture Metering System) Fixed point matching (Zero method)

type coupled with film sensitivity, shutter speed, and aperture.

Two 1.3V mercury battery cells (either Eveready No. EPX - 675 or Mallory MA. PX - 675) used as power source. Power switch and battery checker mounted in.

12) AE coupling Range — EV1.5 (F1.2, 1/2 sec. when F1.2 lens at ASA100) - EV18 (F16, 1/1000 sec.)

13) Film Sensitivity Range — ASA12 - 3200 (DIN12 - 36)

14) Film Loading — Konica EL (easy loading) method.

15) Film Winding Up — Single cocking by means of top lever (winding angle, 162° ; pulling angle 30°) w/double exposure prevention device.

16) Film Counter — Automatic resetting type

17) Film Rewinding — Crank type, rewind button automatically resettable

18) Others — Double exposure, film display pocket, wind completion indicator mark, special hot shoe clip

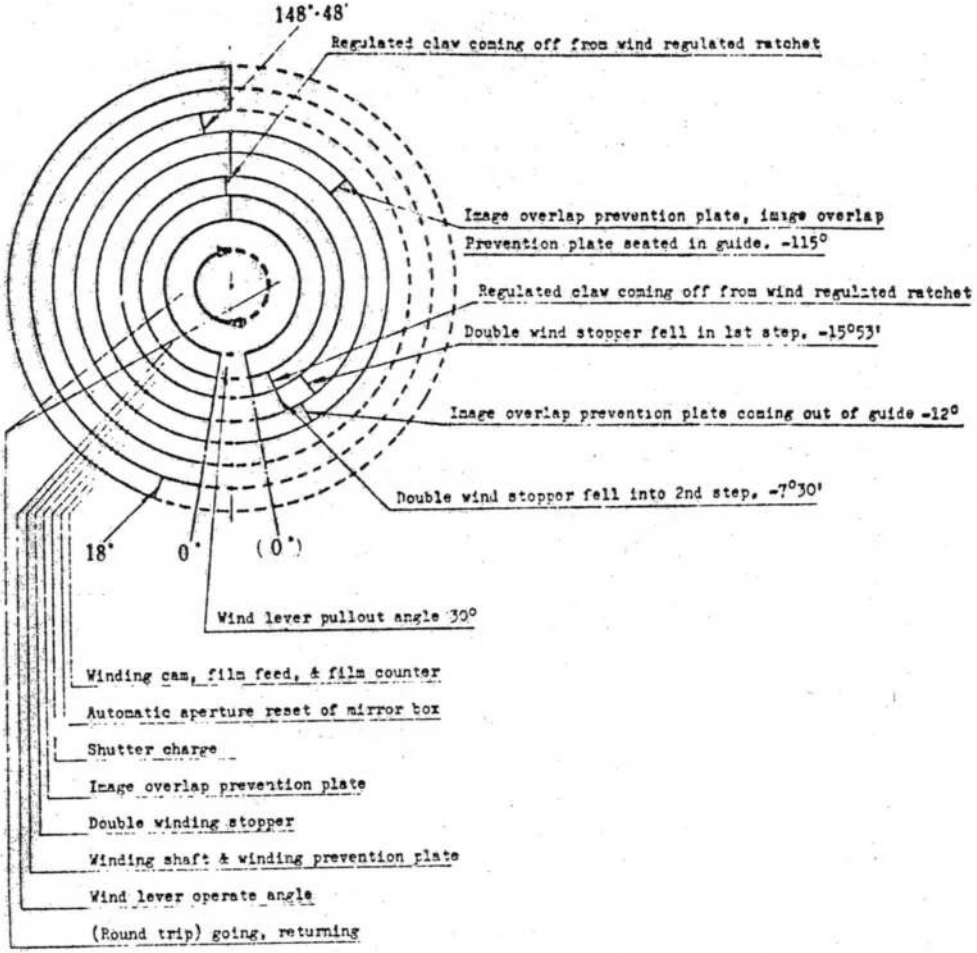
19) Dimensions and Weight

	W	H	T	
W/1.7	150	95	91 mm	955 gr.
W/1.4	150	95	91 mm	1,015 gr.
W/1.2	150	95	93 mm	1,200 gr.
Body only	150	95	45 mm	720 gr.

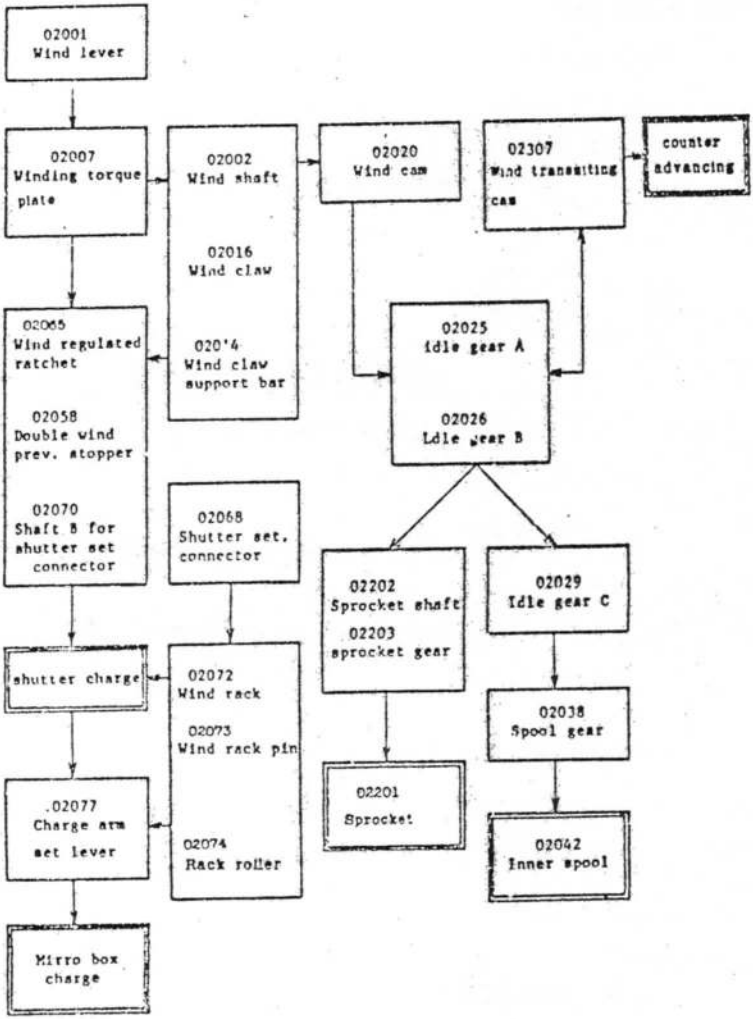
2. Description of Each Mechanism

2-1 Wind-up Mechanism

2-1-1 Cocking Sequence



2-1-2 Winding Mechanism



Wind shaft sub-assembly

On the Auto Reflex T, the metal for film counter serves as an upper metal of the wind shaft sub-assembly, but on this new camera, Auto Reflex T3, the wind shaft sub-assembly is regulated by means of the upper metal to eliminate the unsmoothness of winding between the wind shaft sub-assembly and upper metal for the film counter.

Wind Lever Sub-assembly

The wind lever is secured in position by the set screw for wind lever. This arrangement precludes the possibility of screw loosening as no friction will acts on this set screw.

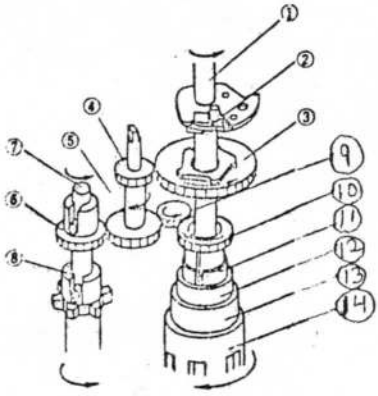
The wind lever can therefore be returned to the starting position from any point during use in spite of winding friction.

2-1-3 Film Feed Mechanism

As the wind lever is operated, the wind shaft (1) is rotated so that the winding claw (2) which is integrally formed with the wind shaft in turn causes the winding cam 3 to move in the direction of the arrow.

The winding cam (3) is formed integrally with various gears shown at left to rotate the gears in the direction of an arrow in the following dequence:

Winding cam (3) → idle gear A (4) → idle gear B (5) → sprocket gear (6) .



The sprocket gear (6) causes the sprocket shaft to be rotated through sprocket shaft pin, and the set screw of the sprocket shaft (7) transmits rotating motion to the sprocket (8) . The sprocket (9) feeds the film through its gear train.

Also, by means of the idle gear B (5) the rotation of the idle gear C (9) and spool gear (10) is imparted to permit the friction spring 11, fixed to the groove of the spool gear (10) , to be fixed to the collar for spool. The friction spring (11) and collar (12) are designed to slip when the torque increases to a certain level.

The film, placed in the groove between the inner spool (13) and outer spool (14) , is wound in the arrow direction.

A difference in the rotating angle of the sprocket (8) and that of the film being fed is taken up by the slippage of the friction spring (11) and collar (12) .

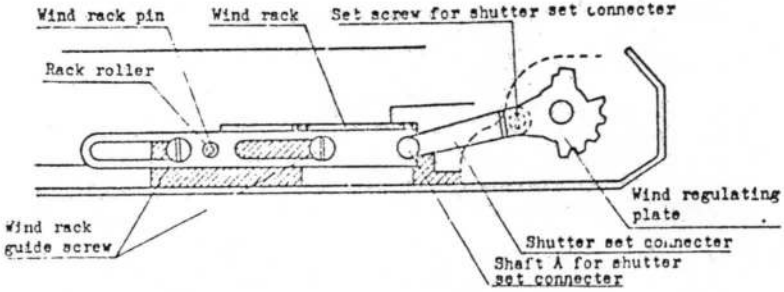
2-1-4 Shutter Charge Mechanism

The shutter charge mechanism of the Auto Reflex T3 is similar to that of the Auto Reflex T except that the diecast bottom portion is given ample thickness for increased body reinforcement. For this reason, the wind rack is attached from the top of

diecast portion.

This means, therefore, that wind rack cannot be replaced unless the mirror box is removed.

Friction resistance is relatively small as the sliding motion of the wind rack is regulated by the use of wind rack guide screw only. Also, since the shutter setting connector is quite short, force acting on the wind rack is linear and smooth so that film can be wound up far more easily than in the event of Auto Reflex T. This also greatly improves structural durability of the new camera.



2-1-5 Multi Exposure Mechanism

The multi exposure mechanism is so designed that, when the multi exposure lever mounted on top of the finder cover is pulled up, neither can the film be fed, nor the film counter is operated. In this case, other mechanisms can be charged, however.

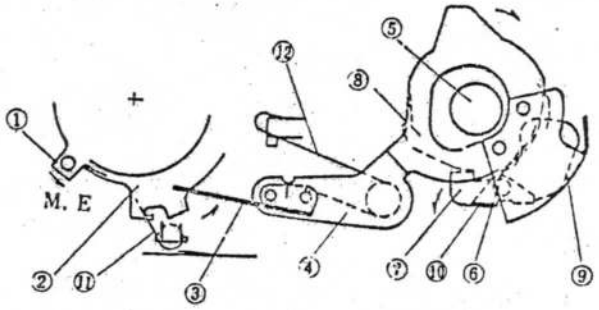
1. When the multi exposure lever (1) is pulled until it is butted against in the arrow direction, the multi-exposure ring plate (2) is to push the multi-exposure cam plate (3)

2. The multi-exposure cam (4) rotates in the arrow direction, touches the wind shaft (5) , and then comes to a stop.

3. The stopper (6) is pushed by the rotation of the multi-exposure cam (4) , and the wind claw is detached from the wind cam (8) . When the film is wound up in this condition, the sprocket gear (5) is operated along the idle gear A (4) but the gear train remains inoperative. Other mechanisms are charged in this case.

4. Image overlap prevention plate guide (9) is formed integrally with the idle gear A (4) . In ordinary winding, the image overlap prevention plate (10) passes through the inside of the idle gear C (9) ; the plate (10) goes through the outside of the guide (9) . In multi-exposure mode, it goes through the inside thereof for both go and return.

5. The multi-exposure lever can be reset by means of the multi-exposure ring spring (11) ; the idle gear A (4) can also be reset by the multi-exposure cam spring (12) .



2-1-6 Image Overlap Prevention Mechanism

The image overlap prevention mechanism refers to a mechanism which neither feeds the film, nor puts the film counter into operation normally and when the wind lever is operated without the film in multi-exposure mode of operation.

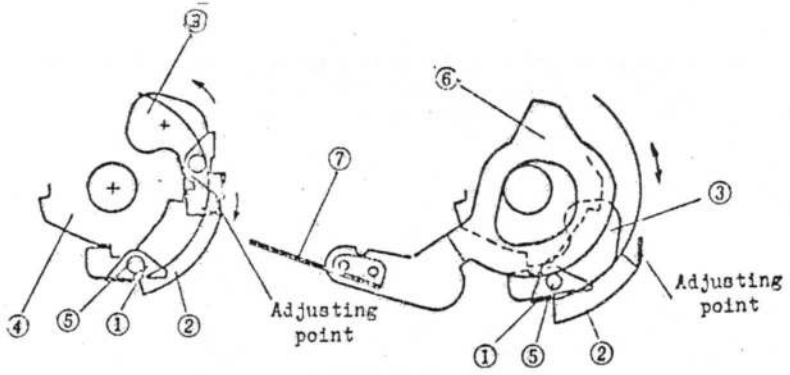
1. In normal winding operation, the image overlap prevention plate (1) passes through the inside of the guide (2), but when the wind lever is reset, the plate (1) is seated onto the outside of the guide (2) when the wind claw is on its way back to the original position along the wind cam, thereby causing the claw (3) to be disengaged from the wind cam (4).

   If the film winding is made in this condition, the gear train does not move so that the film cannot be fed.

2. In the multi-exposure mode, the stopper pin (5) for the prevention plate is pushed by the multi-exposure cam (6) and thus makes a reciprocating motion along the said cam. Therefore, the wind claw (3) is located away from the wind cam.

   The guide (2) makes a portion together with the multi-exposure cam (6) so that the (1) invariably goes through inside the guide (2).

   To adjust this guide (2), bend its tip-end properly.



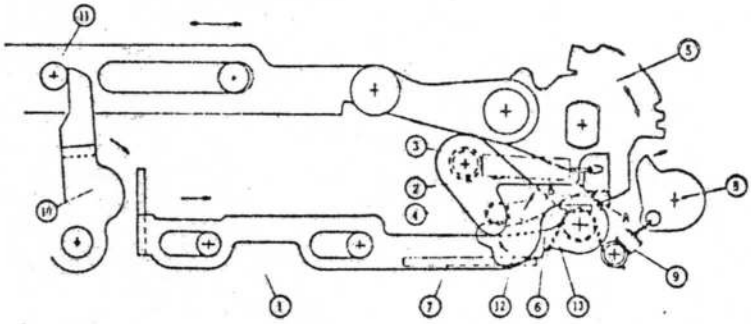
2-1-7 Safety Mechanism

With the releasing completed, the double wind releasing lever ① is set into the condition shown in the above figure by means of the releasing lever spring ②. The double wind stopper ③ keeps away from the path of winding regulated ratchet as the double wind releasing pin ④ is pressed by the lever ①. The release safety lever ⑥ is pushed by the pin ④, and then rotates the upper side of the release lever ⑦, thereby locking the release lever. When the winding is started, claw ⑧ slides on along the periphery of the wind regulating ratchet ⑤. In this case, the regulating prevents the wind regulating ratchet from being reversed as the force is caused by the regulating claw spring ⑨ to act on in the arrow direction.

The charge arm set lever ⑩ is pushed by the wind rack pin ⑪ to rotate in the arrow direction, thereby forcing the double wind release lever ① out in the arrow direction.

The double wind stopper ③ is rotated by the double wind stopper spring ⑫ in the arrow direction to slip on the periphery of the release safety lever ⑥ so that it falls in the portion A to prevent film winding to be made continuously just before the completion of the winding. Since the release safety lever ⑥ is rotated by the lever spring ⑬ in the arrow direction, the release lever ⑦ can be released when the double wind stopper ③ drops into the portion B of the wind regulating ratchet.

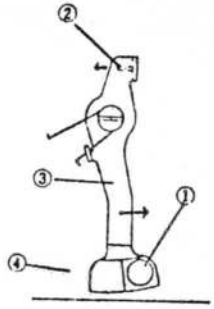
(While the double wind stopper exists in between the portion A and B, the image overlap prevention plate is disengaged from the image overlap prevention plate guide of the film counter, and the wind claw comes into engagement with the wind cam.)



2-1-8 Wind Completion Indication

A window (1) for the wind completion indication is provided to the lower left-hand side of the shutter dial in the viewfinder cover (4). Indication before and after winding is made on this window.

When green indication is made on the window, it indicates winding completion, that is, picture-taking can be made in this case; when red indication is observed on the window, it indicates that winding operation is not made as yet, that is, picture-taking cannot be made in that case.



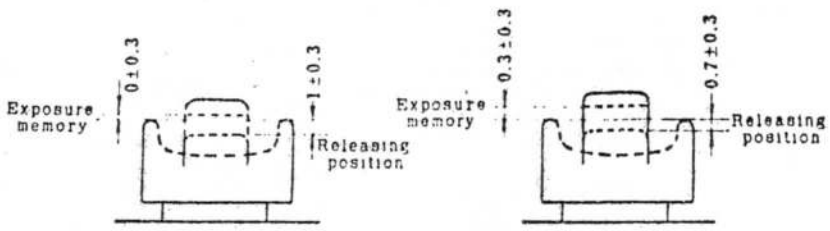
The inner mechanism is shown at right, and red is indicated on the window. If the wind lever is cocked before winding, shutter motion is transmitted to the transmitting lever (2) so that the lever is rotated in the arrow direction. As the lever is rotated, the wind completion indication lever sub-assembly (3) is operated in the arrow direction under the tension of spring and green mark appears on the indicator window.

As the shutter is released, the transmitting lever is returned to the original position, in turn operating the wind completion indicator lever assembly. Now a red mark appears on the indicator window.

2-2 Release Mechanism

2-2-1 Releasing Position

The body releasing position is in such a relation as shown below. Allowance after releasing of more than 0.3 mm is secured on the T3.

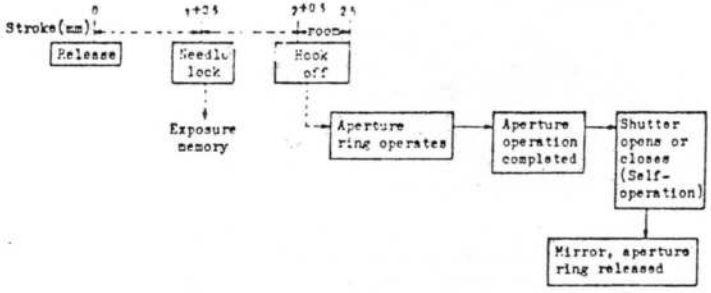


Previous Model

New Model (after Improvement)

2-2-2 Release Sequence

As the body release button is pressed, in the auto mode operation, releasing takes place in the following sequence.



2-2-3 Automatic Resetting Mechanism

The automatic resetting mechanism is a mechanism capable of automatically resetting the meter switch lever (release lock changing knob) to the ON position before the completion of winding and prior to winding when the said lever is in the OFF position.

When the meter switch lever (1) is moved to the OFF position, the changing knob metal (2) and changing knob drive pin (3) are rotated in the arrow direction to make the portion A to engage with the click lever (4). The portion B of the wind connecting lock lever (5) is pushed by the drive pin (3), so that the tip-end of the wind connecting lock lever (5) is rotated to the position shown in the figure, below the release lever (6) for release lever locking. When the said lever is wound up in the locked state, the portion C of the wind connecting lock lever is pushed by the tip-end of the wind support plate (7). This in turn causes the portion B to push the pin (3), making the portion

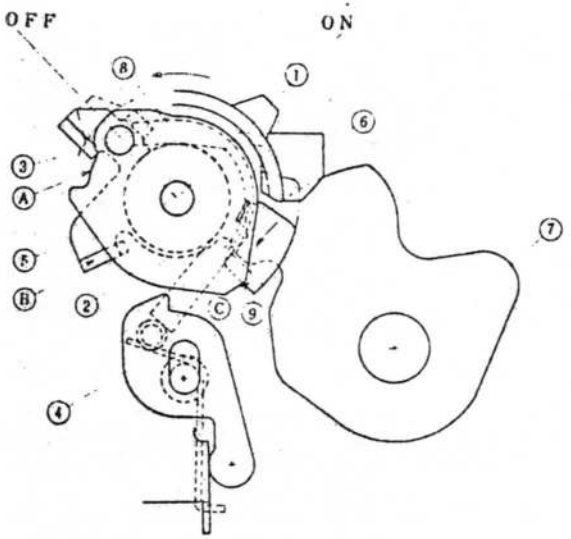
A of the (2) disengage from the click lever (4). The wind connecting lock lever (2) is now returned to the original position by means of the automatic resetting spring (8).

As the meter switch lever (1) is moved back to the ON position, the portion A of the wind connecting lock lever (2) is disengaged from the click lever (4), so that the changing knob metal (2) is now rotated. In this case, the wind connecting lock lever is returned to the initial position under the tension of the lock lever spring (9).
(See figure shown under Item 2-2-4 below.)

2-2-4 Time Exposure Mechanism

The time exposure mechanism causes the wind connecting lock lever (5) to be positioned on the upper side of the release lever (6) and stops bulb with the release (6) held down, when the shutter speed is set to the bulb and meter switch lever (1) to the OFF position with the release button depressed.

As the meter switch lever (1) is returned to the ON position, shutter diaphragm is closed and releasing completed since the release lever is also reset by the release spring.



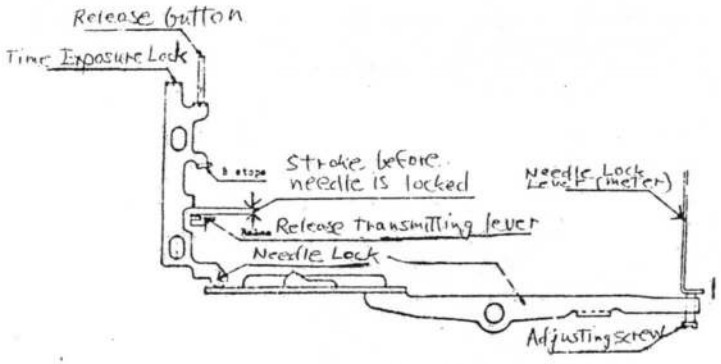
2-2-5 Needle Lock Mechanism

The needle lock mechanism of the T3 differs from that of Auto AUTOREFLEX T in that the needle lock stroke of the former is made shorter and that a load difference is given purposely between the needle lock and release load.

The needle lock position of the release lever is from 0.7 to 1.3 mm at release stroke, that is, within the range in which the release transmitting lever is depressed.

When the needle lock level is pushed by the tip-end of the release lever, the needle lock adjusting screw pushes the needle lock lever (meter), thereby pushing and locking the meter needle in position.

The needle lock position is adjusted by means of needle lock adjusting screws.



2-3 Mirror Box Mechanism

2-3-1 Features

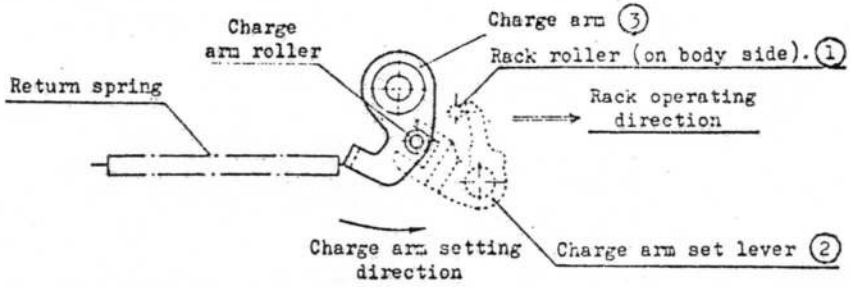
The functions of the mirror box used in the T3 are basically the same as those of the AUTOREFLEX T, but the following design refinement has also been achieved with the T3:

(1) Increased Strength of Mirror Box Diecasting

- O Rib is provided at each critical point to give increased structural rigidity.
- O The body mounting washer is shifted to the periphery of the mount to eliminate deformation.

(2) Wind and release safety devices are all shifted to the body side so that a series of motions between the winding and releasing are carried out by the mirror box alone. Therefore, there is no need to consider its relationship with

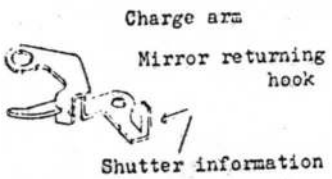
the body. As a result of this design improvement, the mirror charge system has been changed as shown below.



Operating Sequence

Referring to the figure above, the rack roller (1) is riveted to the wind rack to rotate the charge arm set lever (3) to be attached to the bottom of the body, together with the linear motions of the rack. The charge arm (3) is then set, based on the amount of this rotation.

(3) The mirror box hooking lever design has been changed to solve the problem of anticipated winding.



As shown at left, the charge arm engages directly with the notch portion of the mirror returning hook linearly. On the T3, it is not necessary to pay special attention to the amount of charge arm engagement with the hook, as on the Auto Reflex T.

Hook releasing can be achieved by receiving shutter information from the arrow direction.

(4) Prevention of Exposure Accuracy Degradation due to Bound opening of Lens Barrel Aperture Diameter

The timing of the shutter release position is delayed from the F4 position of the Auto Reflex T to the F11 position, to ensure precise releasing when the aperture diameter has been stabilized.

(5) Simlified Mirror Rising Mechanism

Function of shutter releasing action is given to the mirror rising lever by abandoning the use of shutter release lever of the Auto Reflex T. Thus, the method of mirror rising

method employed on the T3 is different from that of the T.

(6) Increased Ease of Mirror Mounting and Dismounting

Mirror frame pin length is increased and the E-ring at the tip-end thereof is freed.

(7) Mirror Angle Adjustment

Plug screws are used as mirror angle adjusting pins. Therefore, mirror angle can be adjusted without lifting the mirror from the front thereof.

(8) Lens Release Button Stroke

2 mm play is given to the stroke to bring the full stroke to 4 mm thereby preventing lens from coming off.

2-3-2 Mirror Operation

The mirror action of the T3 is delivered by operation of the two levers shown in the figure below.

Operating Sequence
(When Rising)

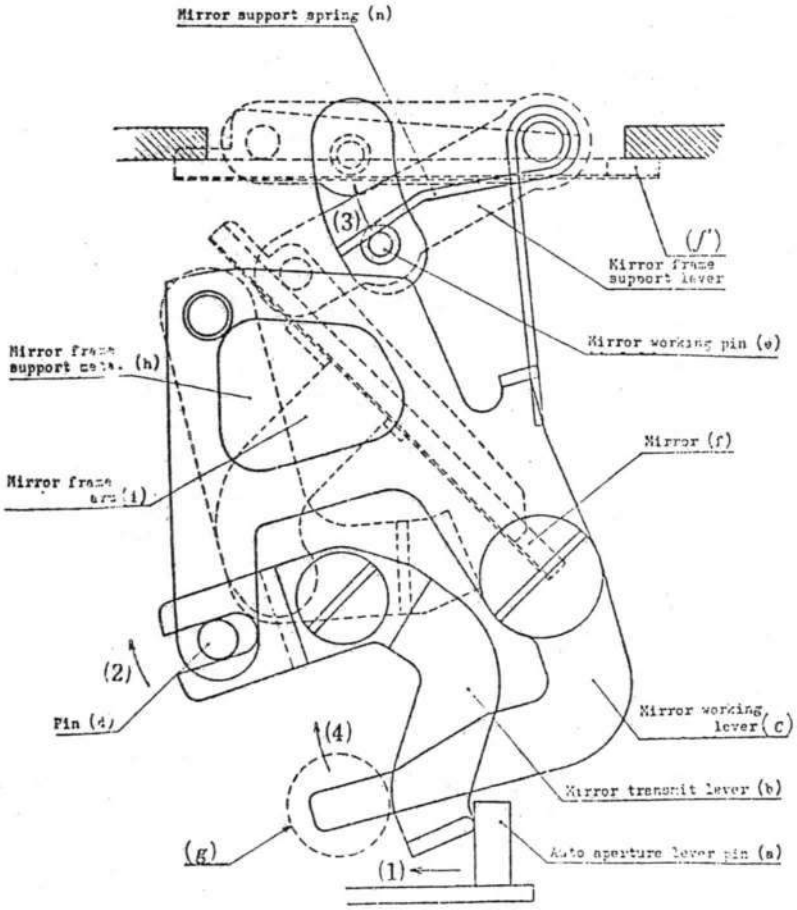
(1) The automatic aperture lever pin (a) causes the mirror transmitting lever (b) to be rotated.

(2) The mirror transmitting lever (b) causes the mirror working lever (c) to be forced upward through a pin (d).

(3) The mirror working lever (c) causes the mirror working lever pin (e) to be lifted along the cam to the position of mirror (f).

(4) One end (g) of the mirror working lever (c) causes the shutter release lever to be operated.

Mirror Mechanism



(When Resetting)

As the automatic aperture lever pin (a) is restored on the basis of behind the shutter curtain information, the mirror mechanism is returned to the original position by means of mirror support spring (n).

2-3-3 Automatic Aperture Mechanism

The automatic aperture mechanism of T3 is unique in that it employs the mirror charge system and hook stop device.

Operating Sequence (See Fig. of Automatic Aperture Mechanism)

- Charging and Releasing

  (S) The charge arm (a) is set in the arrow direction by operation of body setting lever.

  (1) The charge arm is placed onto the hook (b) at the winding end.

  (2) The automatic aperture lever (d) is released by releasing action through the release transmitting lever (c), and the automatic aperture lever (a) is operated by the action of mirror rising spring.

  (3) Coordinating with the operation of the automatic aperture lever, the mirror working mechanism is actuated by the mirror working lever pin (e).

  (4) The tumbler pin (f) of the automatic aperture lever operates the tumbler spring (g) in the direction of compression, thereby absorbing the existing shock therein.

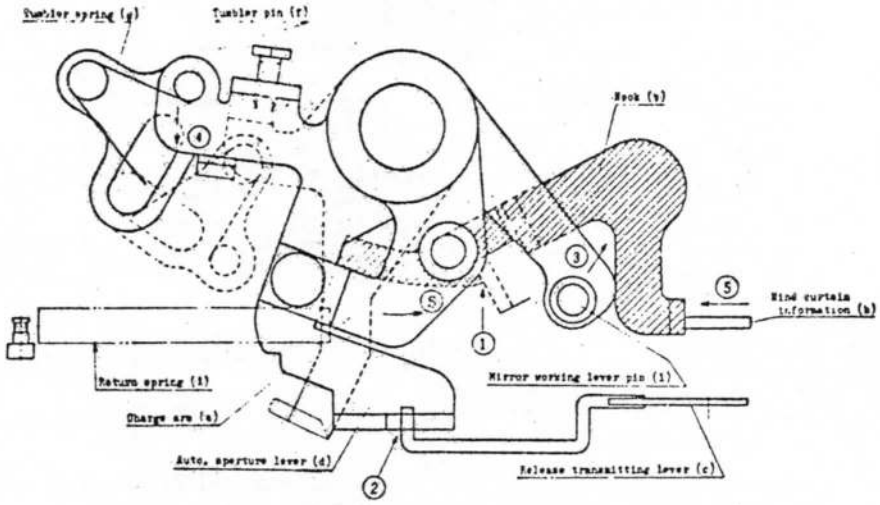
- When Rewinding

  (5) The mirror restoring hook (b) is released by behind the shutter curtain information (h).

  As the hook is released, the charge arm (a) and automatic aperture lever are restored at the same time by means of return spring (i), thus bringing the hook of portion 2 to be released.

  During this time, shock is absorbed by the compression of the tumbler spring, just as in the case of mirror rising.

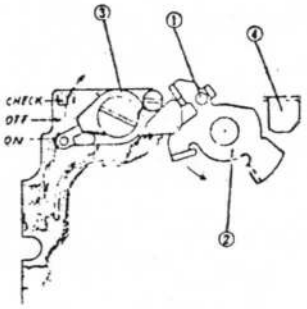
Automatic Aperture Mechanism



2-4 Meter Switch and Battery Case

2-4-1 Meter Switch

Meter switch is interlocked with the release lock changing knob that serves also as a release button holder on the top of the finder cover.
When the knob index is set to the ON position, the switch is turned ON, thus making releasing possible. On the other hand, when the knob index is set to the OFF position, the electrical circuit of the meter is disconnected and the release button is also locked at the same time.



As the index is set to the OFF position, the click operates so that the knob is prevented from accidentally turning.

Also, when winding is made with the release lock changing knob set to OFF position, the knob is automatically returned and reset to the ON position, thereby making releasing possible.

Battery check should be made much in the same manner, that is, when the release lock changing knob is set to the CHECK position

on top of the finder cover, the battery check circuit is actuated to cause the meter needle to deflect up to the red marking within the viewfield. Also, as the hand is removed from the knob, it returns to the OFF position.

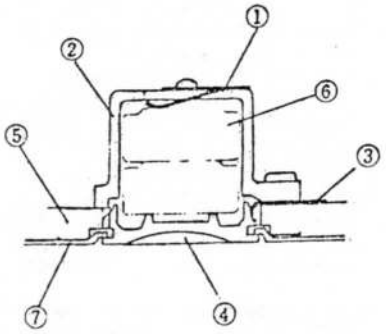
The operation of the internal mechanism is as shown above. The wind transmitting lock lever ② secured to the film counter base plate by the changing knob driving pin ①, which is coupled to the release lock changing knob, rotates in the arrow direction. This in turn causes the switch driving plate ③ which is interlocked thereto be operated, thereby electrically disconnecting the circuit from it. At the same time, the wind transmitting lock lever ② comes under the release plate ④ to lock the releasing. As a result, the lever is placed into the click attached to the finder cover at that position, thereby stopping each part action.

When the knob is rotated further, the switch is turned ON for checking and a change-over is made to the battery check circuit. Since the click is not provided at this position, the knob is returned to the OFF position under the tension of the spring as the hand is removed therefrom.

Also, when winding is made with the switch turned OFF, the wind transmitting lock lever ② is pushed by the wind support plate secured to the winding shaft, so that the click is released and then returned to the ON position.

2-4-2 Battery Case

The battery case is as shown at right. Two pieces of battery cells, either Eveready No. EPX-675 or Mallory No. PX-675, ⑥ are used. The minus contact ① piece is fused onto the battery case ②.



The plus contact piece ③ is also secured by mounting screws and is contact with screw portion of the battery cover ④.

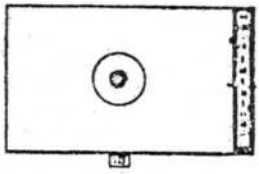
Also, battery cover mounting screws are threaded into the diecast body ⑤. The numeral ⑦ represents the bottom cover ⑦.

2-5 Finder Mechanism

2-5-1 Optical System

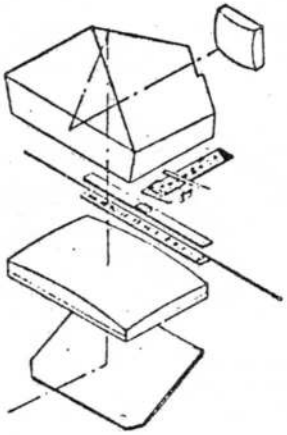
The finder mechanism of the present model, TJ, is similar

to that of Auto Reflex T, and its optical system is as shown in the figure at right.



A difference between these two models is that coating is done on the eyepiece and both ends of capacitor lens to prevent reflection and to improve transmittivity.

Also, as a means tc prevent the ingress of dirt and dust, a dustproof cover is provided on the Fresnel frame.



Further, a split image type focusing plate is provided on the T3 in addition to the hitherto available micro diaprism, to meet ever-increasingly severe requirements of camera users.

To replace focusing plate, first remove pentaprism, dismount Fresnel frame in its entirety, and then replace Fresnel lens with new one.

(Since the dustproof cover is provided on the T3, the Fresnel lens cannot be removed alone.)

2-5-2 Shutter Speed Mechanism

Because the shutter speed mechanism of the Auto Reflex T has the film placed over the pulley just as in the case of a belt on the pulley, dirt and dust are often introduced into the viewfinder as a result of constant film rubbing against the pulley.

On the other hand, the shutter speed mechanism of Konica T3 has a spring kept taut between the shutter speed indicator drive gear (a) and the spring-loaded drum. The spring causes the film to be fused, thereby shifting it on a straight line. By so doong, the introduction of dirt and dust and snapping of the spring are prevented.

Operating Sequence

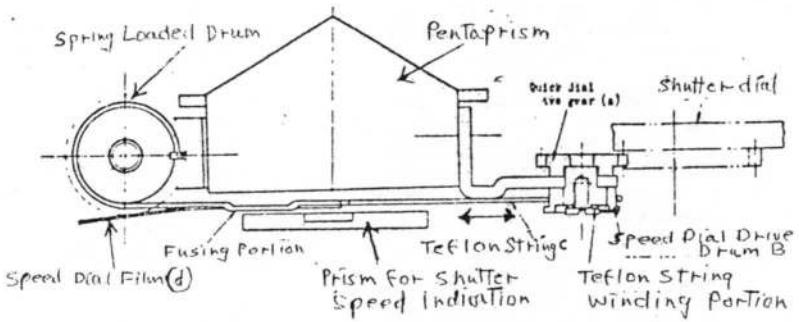
① The shutter speed dial drive gear (a) is interlocked with the rotation of the shutter dial to rotate the drive drum(b).

② To the drive drum (b) is secured the one end of a teflon yarn, just as in the cause of Auto Reflex T. Therefore, the speed dial film (d) is moved to other position by the drive drum.

③ When the shutter dial speed is changed from a high speed to a low speed the string is wound onto the drive drum while its spring tension is being stored onto it.

④ When the shutter speed is changed from a low speed to a high speed, the string is unwound from the drum under the tension of the spring.

Shutter Speed Indicator Mechanism



2-6 TTL-AE Mechanism (Through-The-Lens Automatic Exposure Control Mechanism)

2-6-1 Automatic Exposure Control

The automatic exposure control mechanism of Konica T3 is a speed preference type automatic exposure mechanism using two compound CdS cells loaded in the through-the-lens fashion.

First set the shutter dial ① to the speed corresponding to the sensitivity of the taking object. When this is done, the shutter ③ is rotated by the transmitting string ② which operates interlockingly with the shutter dial. The meter measures the light on the focusing plate ⑥ through the lens barrel ④ and mirror ⑤, with two CdS cells loaded at the back of the penta-prism ⑧, and causes the meter needle ⑨ to indicate a reading according to a change in that resistance.

When the release button ⑩ is pressed about 1 mm in by a finger, the levers ⑪ and ⑫ are operated, to cause the needle lock lever ⑬ to be operated in the arrow direction, thereby firmly holding the needle ⑨ in position. As the release button ⑩ is pressed ① mm further (2 mm in total), the hook lever ⑯ is operated by the pin ⑭ provided at the tip-end of the release button through the lever ⑮, thereby unhooking the hook portion marked with

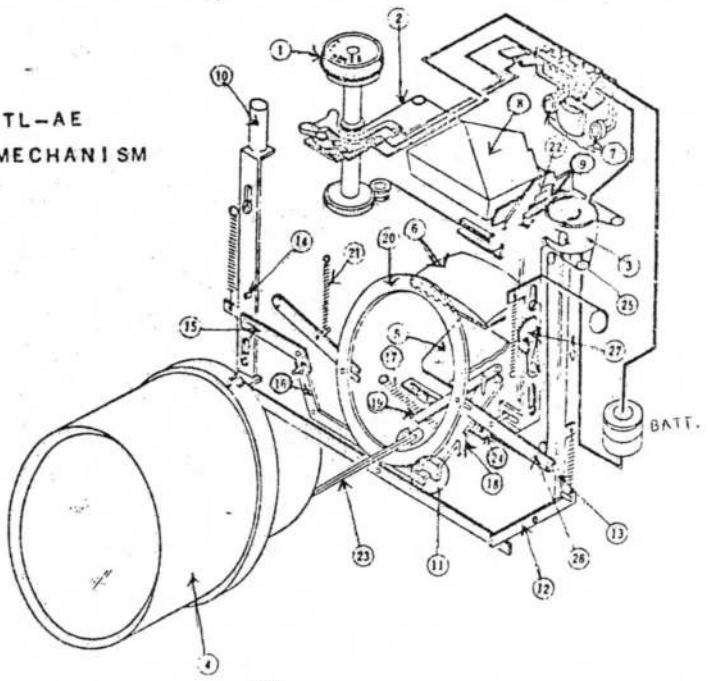
The automatic aperture lever (18) and manual aperture lever (19) are operated by the action of the spring that has been set at the time of film winding up. Following the operation of the aperture lever (19), the aperture ring (20) is rotated by the spring (21) to operate the aperture within the lens barrel (4) through body connection lever (23). The rotation angle of the aperture ring (20) causes the meter gear (22) that is connected to the connecting lever (26), to be operated. The said gear (22) drops down until it comes into contact with the needle (9) and stops. At the position where it is stopped, the aperture within the lens barrel is set.

The action of the automatic aperture lever (19) is interlocked with mirror operation and shutter release. When the automatic exposure has been made, the operating portion turns quickly, restoring the mirror and aperture ring. In this case, the aperture and gear needle are released.

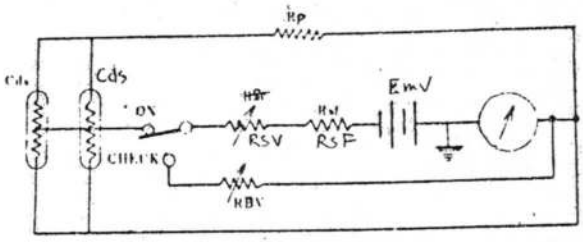
In manual picture-taking, the claw (2) in the exposure meter is disengaged through the A-M change-over pin when the aperture ring of the lens barrel is removed from the EE position, in turn detaching the gear and aperture ring from each other. As a result, the aperture ring (20) is set free so that a photo can be taken manually now.

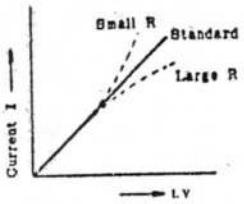
At that time, the manual mark (M) appears in the viewfinder, and hence the aperture as indicated by the needle in the viewfinder is read direct.

TTL-AE
MECHANISM



2-6-2 Metering Circuit





To improve linearity in the coupling range of EV1.5 - EV18, two pieces of compound CdS cells (one cell each for high- and low-intensity applications are contained in the case) are used.

Rp is the coupling correction resistance and Rsf and Rsv are correction resistance for making the brillance vs current characteristics linear.

Relationship between the Rsv resistance and circuit is shown in the figure above, and high-brillance current characteristic can be controlled by adjusting the Rsv.

Information such as shutter speed, film sensitivity, and open F value is fed while the exposure meter is being rotated. Equivalent spacing at which 4.5° deflection can be achieved per 1EV is about 106° deflection angle.

As some meter rotating position, the zero point of the meter needle is within the dial marking. Therefore, the warning mark (common to F-value indication marks) is rotated at the same time as above, indicating the bottom interlocking limit. (Refer to paragraph 2-6-5 below.)

As a power supply, two pieces of mercury cells are connected in series. Input voltage is rated for 2.67 V operation, but

operation at any voltage from 2.55 to 2.74 is possible.

A power check should be made on the voltage of the mercury cells. To make this check, do not fail to remove the lens and check it at ASA 100 and 1/125 second since the exposure meter is of rotating type.

RBV represents a correction resistance for power checking.

2-6-3 Information Feeding

Information is fed to the T3 much in the same way as the Auto Reflex T as the new model employs the same meter rotation technique as the previous model.

(a)	Shutter speed information	:	B·1 ~ 1/1000
(b)	Film sensitivity	:	ASA12 ~ ASA3200
(c)	Open F value	:	F1.2, F1.4 ~ F5.6

Information transmission is explained now with reference to Fig.22. On the T3, information (including film sensitivity (ASA) information) and F-value information transmission chains are integrated into one system. The system process is as follows: the information (2) from the pulley is connected to the F-value lever at the lower portion of the mirror box through the side pulley (25) for the exposure meter (3).

Incidentally, the information is also connected with the shift warning mark. Thus, when F-value information is fed, the shift warning mark (red mark) moves to indicate the open F-value of the mounted lens.

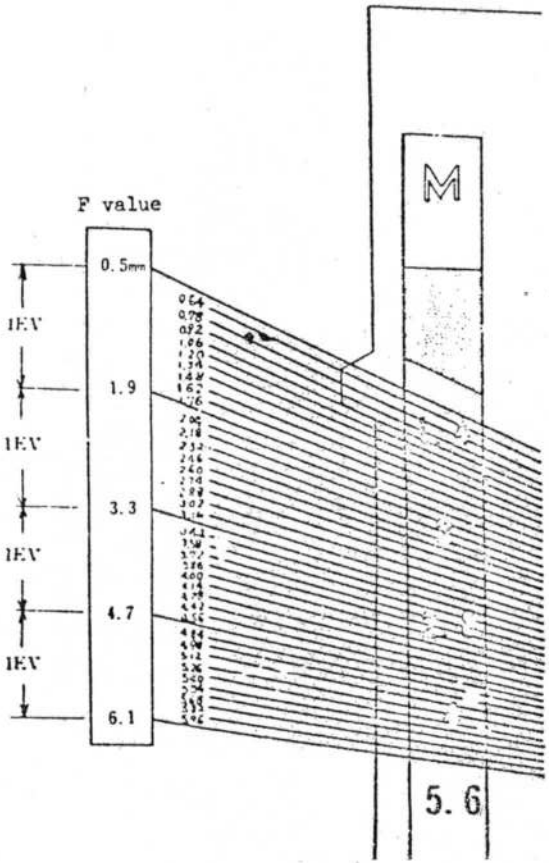
Amount of F Value of Each Lens

Model No.	(※※) F value	f	F 枚	Model No.	(※※) F value	f	F 枚
3571	0.5 ±0.1	57	14	3581	3.51 ±0.2	200	35
3570	1.10±0.1	52	18	3587	4.24 ±0.2	80~200	35
3586	4.39±0.2	21	4	3572	0.2 ±0.1	57	12
3585	4.02 ±0.2	28	55	3658	4.80 ±0.2	300	45
3584	3.06 ±0.2	55	28	3664	4.51 ±0.2	65~135	2
3585	0.81 ±0.2	85	18	3659	4.15 ±0.2	55	35
3582	2.91 ±0.2	100	28	3573	0.5 ±0.1	50	14
3645	3.50 ±0.2	135	32	3574	0.98 ±0.1	50	17
3662	1.50 ±0.1	55	2	3576	0.2 ±0.1	57	12
				3580	2.90 ±0.1	55~100	28

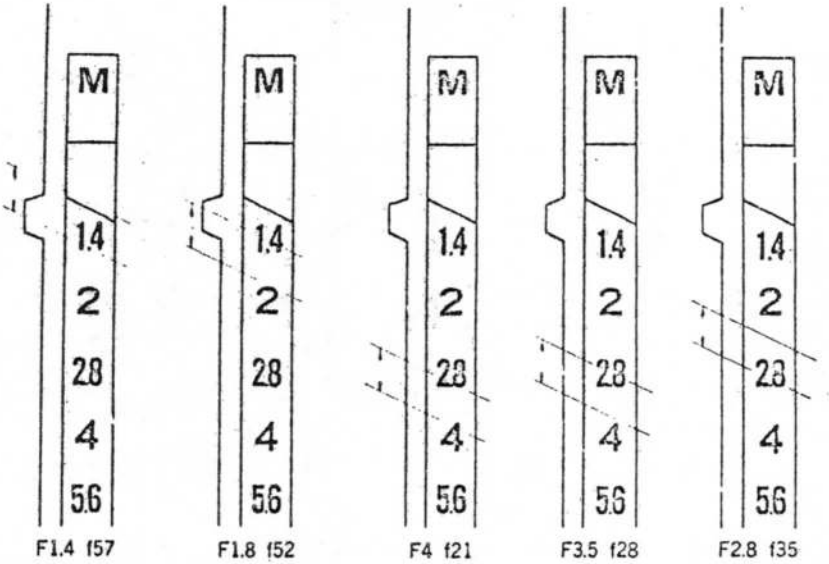
Notes : (1) Standard F value to be fed is 1.4 mm per 1EV.

(2) The position -0.2 EV from the center of 1.4 (see figure at left) is the standard for 0.5 F value.

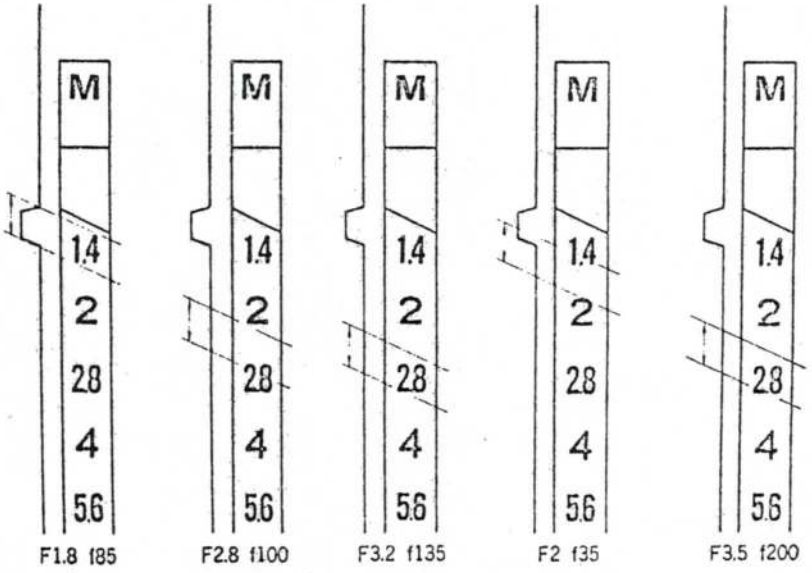
(3) Products standards is ± 0.3 EV for the reference position shown at right.



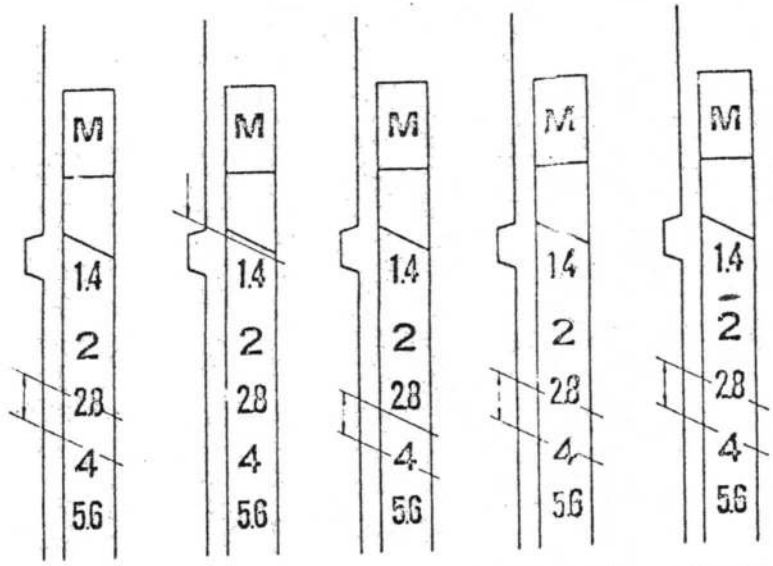
Shift Mark Position of Interchangeable Lens



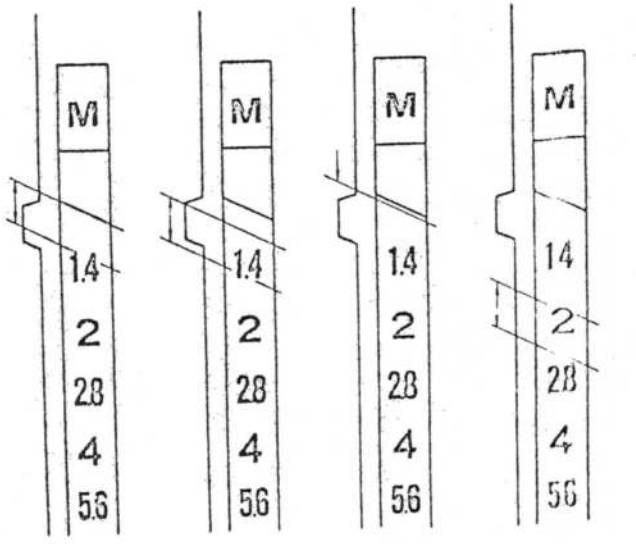
F1.4 f57 F1.8 f52 F4 f21 F3.5 f28 F2.8 f35



F1.8 f85 F2.8 f100 F3.2 f135 F2 f35 F3.5 f200



F3.5 f80~200　F1.2 f57　F4.5 f300　F4 f65~135　F3.5 f55



F1.4 f50　F1.7 f50　F1.2 f57　F2.8 f[illegible]~100

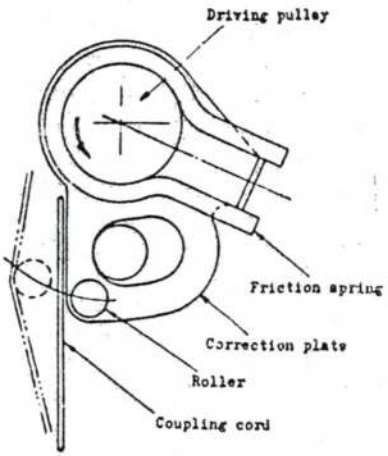
2-6-4 Backlash Correction Mechanism

When T (time) information and film sensitivity information is fed to the camera, backlash is caused by elongation of the cord due to forward and reverse rotation of the dial and by interlocking error.

To eliminate this backlash, a backlash correction mechanism is provided on the dial base plate of the T3.

o Description of Mechanism
The backlash is caused as The backlash is caused as a lack of meter rotation when the direction of dial rotation is changed in the 1st step. This backlash can be prevented by adjusting the amount of the string at that 1st step.

Suppose the dial is now rotated in the arrow direction (low speed ⟶ high speed) and then it is rotated in the reverse direction, then the needle does not return to the 1st step to the extent of 1EV. As a result, a lack of meter rotation is caused.



The shutter dial and the driving pulley are rotated together so that the cord is taken up onto the driving pulley as they are rotated.

The driving pulley is provided with a friction spring and its tip-end is connected to the correction plate. The correction plate has a roller mounted on the position where it comes into contact with the cord.

When the driving pulley is turned clockwise, the roller on the correction plate is moved to the position indicated by a dotted line.

Thus, the cord is pulled taut more to prevent backlash from being caused. Also, when the driving pulley is further rotated, the amount of correction is regulated by the long hole of the correction plate to cause the roller to be stopped.

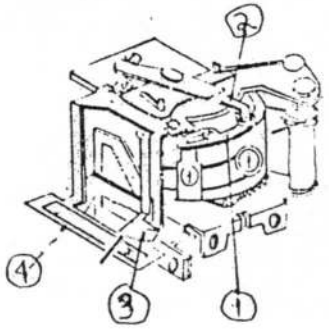
As the driving pulley in contact with the friction spring causes the string to be taken up onto the pulley to the extent specified.

Next, as the shutter dial is turned counterclockwise, the correction plate returns to the state as shown by the solid line, the string is pulled back more to prevent backlash from being caused.

2-6-5 Warning Mechanism for Indicating The Limit of Coupling

When lens of particular specification is used outside the coupling range EV 1.5 ~ EV 18, a warning must be issued to indicate the difficulty of proper picture-taking. (See Coupling Range Table on the next page.) For example, if the F1.4 lens is set at ASA400,1/8 second, the meter indicates F1.4 In this case, the combination is EV 2, which means that picture-taking can made, but when it is set at 1/4, 1/2, or 1 second, the meter indicates in excess of F2. Similarly, when it is set at 1/2 second, the meter indicates in excess F4. In these cases, warning information is issued from the top of the exposure meter to warn it with a shift mark (red mark). This mechanism is explained below in conjunction with the figure at left.

A correcting metal is provided on top of the meter and a lever, (2) which operates interlockingly with the warning mark (3) is provided at the position in contact with the said correcting metal (1). When the F value has gone out of the coupling range, the lever (2) is caused to operate by means of the correcting metal (1), thereby shifting the warning mark to the scale plate (4) as it operates interlockingly with the lever (2). Thus, the limit of the coupling range is covered.



COUPLING RANGE TABLE

Full-Apt. F Value	ASA Sensitivity															Meter Rotating Posn	Meter Indication															
1.2	12	25	50	100	200	400	800	1600	3200								1.2	1.4	2	2.8	4	5.6	8	11	16								
1.4		12	25	50	100	200	400	800	1600	3200									1.4	2	2.8	4	5.6	8	11	16							
2			12	25	50	100	200	400	800	1600	3200										2	2.8	4	5.6	8	11	16						
2.8				12	25	50	100	200	400	800	1600	3200											2.8	4	5.6	8	11	16					
4					12	25	50	100	200	400	800	1600	3200												4	5.6	8	11	16				
(4.5) 5.6						12	25	50	100	200	400	800	1600	3200												4.5	5.6	8	11	16			
Shutter Speed															B	2^{+8}														1	2	
														B	1	2^{+7}													1	2	3	
													B	1	2	2^{+6}												1	2	3	4	
												B	1	2	4	2^{+5}											1	2	3	4	5	
											B	1	2	4	8	2^{+4}										1	2	3	4	5	6	
										B	1	2	4	8	15	2^{+3}									1	2	3	4	5	6	7	
									B	1	2	4	8	15	30	2^{+2}								1	2	3	4	5	6	7	8	
								B	1	2	4	8	15	30	60	2^{+1}							1	2	3	4	5	6	7	8	9	
							B	1	2	4	8	15	30	60	125	2^{0}						1	2	3	4	5	6	7	8	9	10	
						B	1	2	4	8	15	30	60	125	250	2^{-1}					1	2	3	4	5	6	7	8	9	10	11	
					B	1	2	4	8	15	30	60	125	250	500	2^{-2}				1	2	3	4	5	6	7	8	9	10	11	12	
				B	1	2	4	8	15	30	60	125	250	500	1000	2^{-3}			1	2	3	4	5	6	7	8	9	10	11	12	13	
			B	1	2	4	8	15	30	60	125	250	500	1000		2^{-4}		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		B	1	2	4	8	15	30	60	125	250	500	1000			2^{-5}	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	B	1	2	4	8	15	30	60	125	250	500	1000				2^{-6}	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	1	2	4	8	15	30	60	125	250	500	1000					2^{-7}	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	2	4	8	15	30	60	125	250	500	1000						2^{-8}	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	4	8	15	30	60	125	250	500	1000							2^{-9}	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	8	15	30	60	125	250	500	1000								2^{-10}	6	7	8	9	10	11	12	13	14	15	16	17	18			
	15	30	60	125	250	500	1000									2^{-11}	7	8	9	10	11	12	13	14	15	16	17	18				
	30	60	125	250	500	1000										2^{-12}	8	9	10	11	12	13	14	15	16	17	18					
	60	125	250	500	1000											2^{-13}	9	10	11	12	13	14	15	16	17	18						
	125	250	500	1000												2^{-14}	10	11	12	13	14	15	16	17	18							
	250	500	1000													2^{-15}	11	12	13	14	15	16	17	18								
	500	1000														2^{-16}	12	13	14	15	16	17	18									
	1000															2^{-17}	13	14	15	16	17	18										

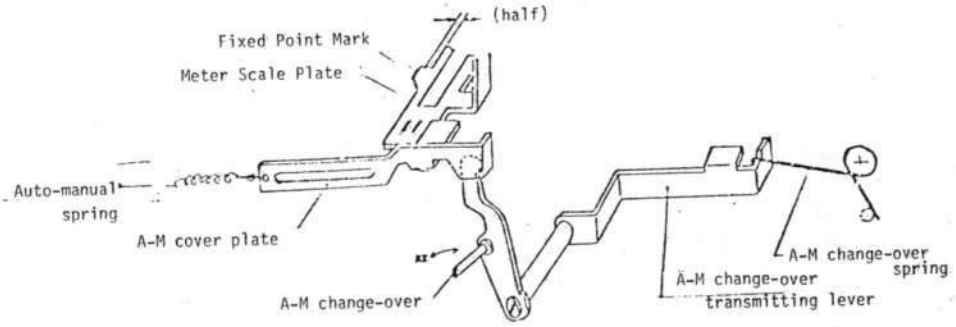
266 AM Changing Mechanism

The AM Mark change-over is explained with reference to the figure is shown below. When the lens barrel aperture ring is switched to EE position. The M mark cover plate is pulled under the force of the cover plate spring, thus covering the M mark .

When the aperture ring is shifted from the EE position, the cover plate moves to the left under the tension of the auto-manual spring so that the M mark appears now.

Standards for Changing M Mark

(A)	When lens is not used in M mode	:	The M mark should appear perfectly.
(B)	When lens is used in EE mode	:	The M mark should disappear completely. If the mark does not completely disappear or more than half of the M mark cover plate is within the viewfield, proper picture-taking is possible.
(C)	AM change-over pin should move lightly	:	The auto-manual spring should be stronger than the cover plate spring in tension; all levers concerned should move lightly.



2-6-7 Cord Tensioning Mechanism

The coupling cord (hereinafter called the cord) for meter rotation is a one continuous cord, extending from the shutter speed dial to the F-value lever through the exposure meter.

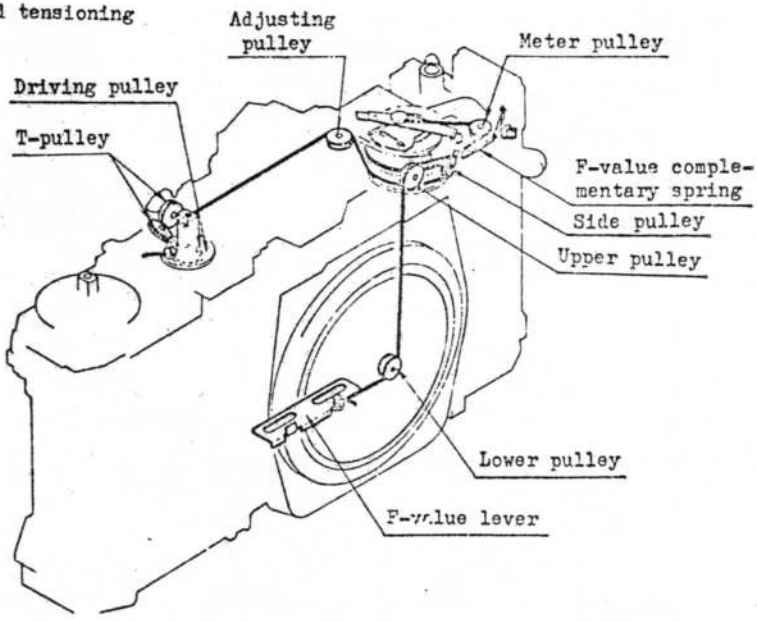
To explain the sequence in which the cord should be passed through, first connect the cord to the pin just above the F-value lever, and allow it go through the lower pulley and thence to the upper pulley. The cord goes past the metal pulley attached to the column of the meter, and is wound onto the side pulley along the groove of the meter case. It is then taken up onto the adjusting pulley, two T pulleys, and finally to the drive pulley.
Now secure it with a set screw.
While the cord is being wound onto various pulleys, it obtains shift warning mark information between the upper pulley and metal pulley. Also, since the adjusting pulley can be moved in the arrow direction, the cord tension can be adjusted. Further, the exposure amount correction is made on the T pulley at 1/125 sec. In between the T pulley and drive pulley, backlash correction is to be accomplished.

Features of the cord tensioning mechanism.

1 Easy replacement is possible as only one cord is used.

2 Various information is corrected in the middle of the cord.

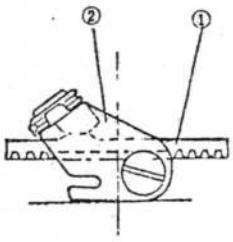
Cord tensioning



2-6-8 1/125 Sec Exposure Correction

To ensure proper sync matching of X contact in the shutter mechanism, 1/125 sec has been adjusted to 7.04 11.84 ms($^{+0.15}_{-0.60}$ EV).

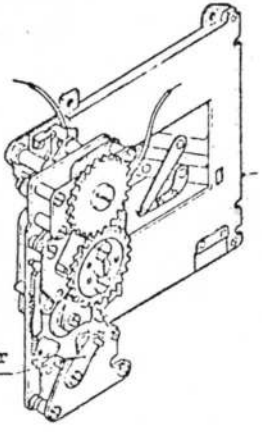
On the T3, the error of exposure amount due to a drive in film speed has been improved by means of a correction mechanism. An internal view of the mechanism is as shown at right. That is, a protrusion is provided on the top of the shutter dial gear (1) and the cord is pulled by the correction pulley base plate (2) when at 1/125 and operating the exposure meter at speeds higher than as usual, thereby achieving exposure correction.



The amount of exposure can be adjusted by bending the 2-horn portion of the correction pulley base plate (2).

2-7 Shutter

The shutter sub-assembly of the Konica Auto Reflex T3 is similar to that of the previous model T, only the difference being the length of the self connection lever. For this reason, the description of the shutter mechanism is omitted from this service manual. To replace the shutter, therefore, simply change this connecting lever. It is thus desirable to carry spare levers in stock.



2-8 Manual Aperture and Self-timer Mechanism

o Features

On the previous model, Auto Reflex T, both manual aperture and self-timer are two independent mechanisms; on the new model T3, these two mechanisms are operated by one common lever. The T3 differs from the T in the following points:

1) Self-timer with safety lock mechanism.

2) Manual aperture that makes field-depth checking at AE.

2-8-1 Self-timer

1) When Self-timer is set

When the clutch button fitted to the front self-timer lever is depressed, the clutch lever (a) falls out of engagement with the manual aperture sliding plate (b), and then comes into engagement with the self-timer lever pin (c) located to the shutter side. When the self-timer lever is rotated in the direction of (1), the clutch lever located on the same axis is rotated in the direction of (1). This is turn causes the self-timer lever pin mounted on the shutter side to be pushed in the direction of (1), thereby setting the self-timer in position. At that time, the setting stroke is regulated by the pin (t) fitted to the manual aperture sliding plate (b).

2) When Self-timer is Reset

As the self-timer is released, the self-timer lever on the shutter side starts to rotate, pushing the clutch lever (a) in the direction of (2). The clutch lever as fitted to the clutch lever pin (u) slides onto the manual aperture sliding plate (b) and then falls into the long hole of (b). Now the self-timer is reset.

2-8-2 Manual Aperture

1) The AE detection stopping is accomplished by the stepped gear of the meter. Therefore, EE ring reverse prevention clutch is not required. Also, unlike the Auto Reflex T, the rotation is inversed so that the EE ring position is at all times on the full-aperture side. Therefore, when the manual aperture lever is released by manual aperture action, the EE ring operates to the minimum aperture diameter. If the automatic exposure control is in effect at that time, operation of the EE ring is regulated by the stepped gear of the exposure meter, thereby making manual aperture operation possible during automatic exposure control.

2) Operating Sequence

When the self-timer lever is turned in the direction of (2) without depressing the safety button, the clutch lever a is operated in the direction of (2). Similarly, at that time, the manual aperture sliding plate (b) is operated in the direction of (2) as it is in engagement with the clutch lever (a). Now, the wire driving lever (e) is rotated about (f) in the direction of (3), so that it is released from the click spring of (g). This click spring is provided to rule out the possibility of unexpected exposure correction.

At that time, since the clutch lever is also operated in the direction of (2), the needle lock lever (1) is rotated about (j) and in the direction of (4), by the said clutch lever at the (h) position.

On the (k) portion, on the other hand, the clutch lever is lifted in the direction of (5) about (i), so that the stepped gear is dropped by the action on the exposure meter side so as to hold the needle in position.

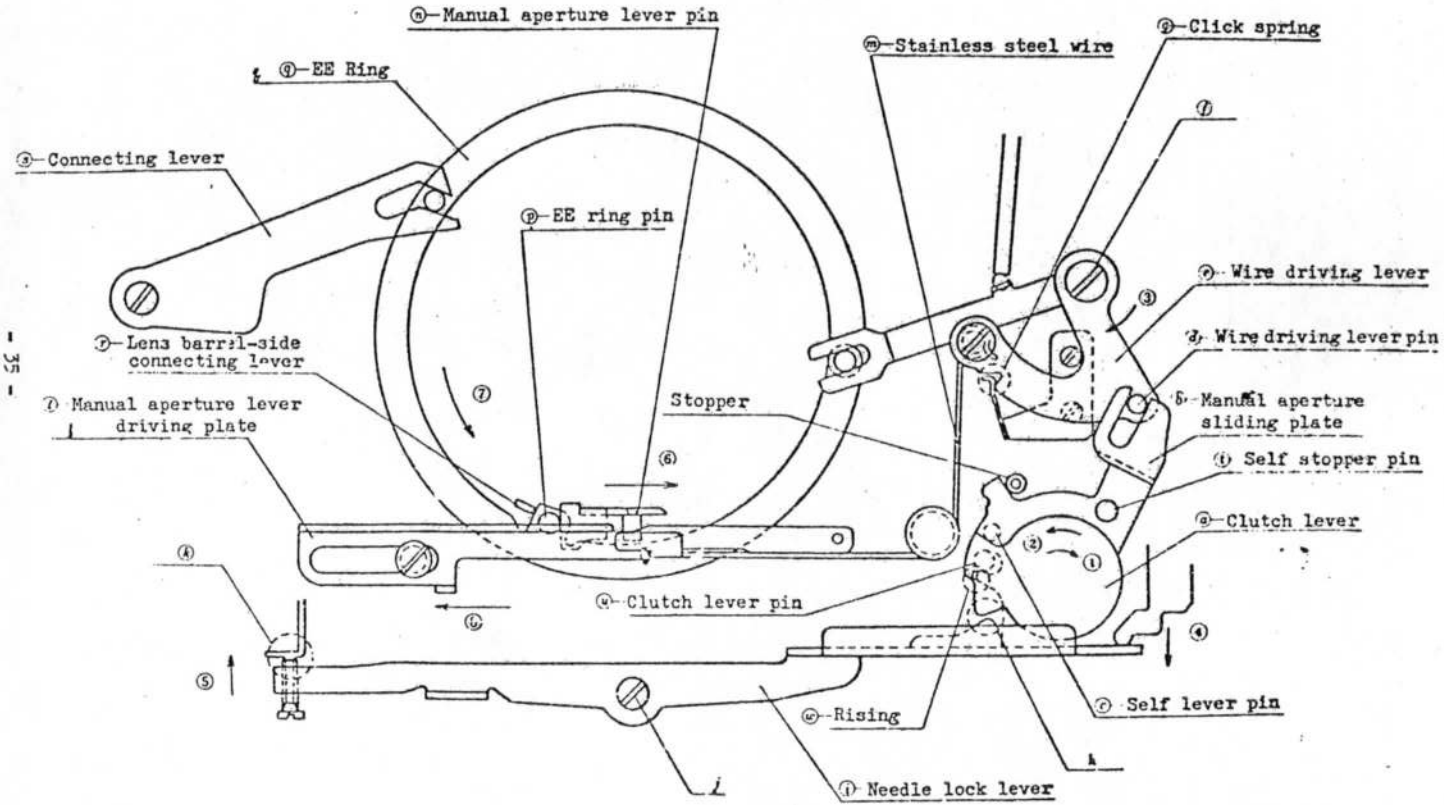
As the self-timer lever is further forced in, the manual aperture lever driving plate (L) is pulled in the direction of (6) by means of stainless wire (m).

Because the manual aperture lever pin (n) is pushed by the manual aperture lever driving plate (ℓ), the manual aperture lever (o) is operated in the direction of (6). Therefore, the EE ring pin (p) follows the action of the manual aperture lever, thus rotating the EE ring (q) in the direction of (7). Also, the lens barrel-side connecting lever (r) follows that operation, thus achieving the aperture closure.

To close the aperture during automatic exposure control mode, the meter sub-assembly operates interlockingly with the connecting lever (s), to turn the EE ring to the needle-locked aperture value

When in the manual aperture operation, the rotation of the EE ring is let free since (S) is disengaged from the exposure meter. In this case, the regulation of the aperture diameter is carried out on the lens barrel side.

Manual aperture self-timer mechanism



2-8-3 When Self-Timer Lever is Erroneously Operated

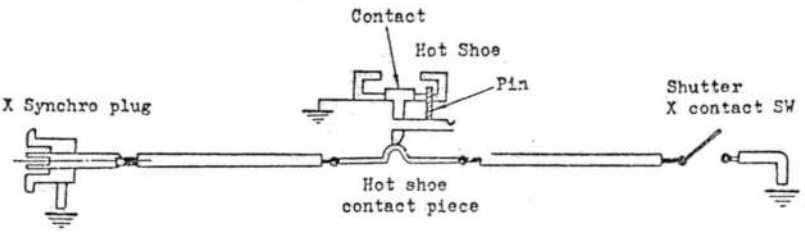
1) When an attempt is made to turn the self-timer lever (n) in the direction in which the self-timer can be set (in the (1) direction) with the safety button not depressed, (b) is prevented from being rotated as the stopper (v) operates in this case. In other words, neither does the clutch lever come into engagement with the self lever on the shutter side when the safety button is not depressed, nor does it rotate in the direction of (1). Therefore, self-timer cannot be set.

2) When an attempt is made to turn the self-timer lever in the direction of manual aperture by depressing the safety button, (u) pushes the raised portion (w) of the (b) so that (b) is operated in the direction of (2). The rest of the operation is the same as the normal operation, meaning that the manual aperture operation is now possible.

2-9 Hot Shoe Mechanism

On the present model, T3, a hot shoe clip is mounted. When this hot shoe clip is mounted on the body, contact is made with the contact plate on the camera side. Also, this hot shoe is provided with a electrical shock protection means so that the user or service personnel will not receive an electrical shock even if h· or they come into contact with this contact plate.

When a electric flash unit is attached to the hot shoe clip, the pin drops to enable electrical continuity to be established through the switch, so that the hot shoe circuit is now formed.



3. Key Points of Assembly Adjustment

3-1 Winding Operation

3-1-1 Winding Sequence

(1) When winding up the film, the following mechanisms should be set and operated properly.

Go : Shutter is charged, mirror and aperture set, film advanced, counter operated, and winding completed.

Return : Set and operate the mechanisms in the order mentioned below.

i) The double wind prevention stopper winds the film up and engages with the first step of the wind regulating ratchet.

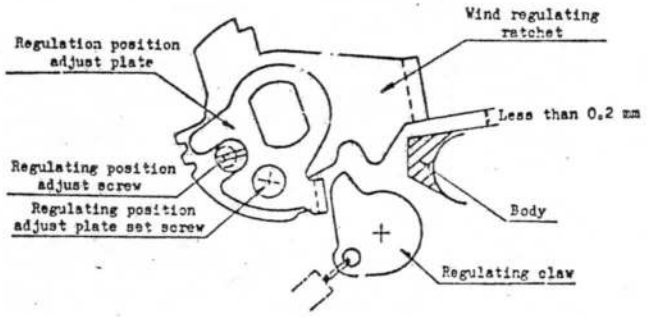
ii) The regulating claw is disengaged, and image overlap prevention plate comes away from the image overlap prevention plate guide. Then, the winding claw now engages with the wind cam.

iii) The double wind prevention stopper engages with the 2nd step of the wind regulating ratchet.

iv) Winding lever comes to a stop.

(2) The allowance from the position where the winding mechanism can be reset to the winding stopping position is as shown below.

To make adjustment, loosen the regulating position adjust set screws and then adjust while rotating the regulating position adjust screws.



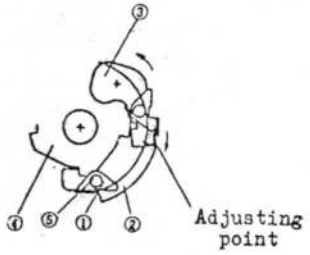
3-1-2 Vertical Backlash of Wind Shaft

The vertical backlash on the wind shaft must be less than 0.2 mm. This backlash can be adjusted by wind shaft backlash prevention washer.

3-1-3 Multi Exposure Change-over Check and Adjustment of Image Overlap Preventing Plate Guide

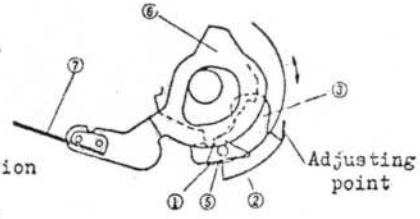
After attaching the film counter to the body, check the following:

(1) While winding up is made, the image overlap prevention plate 1 should not come into contact with the tip-end of the guide (2) thereof.



(2) Immediately after the regulating claw is unhooked from the wind regulated ratchet (the state in which the claw does not make contact with the body portion), apply force to the reverse direction of the sprocket by hand. In this condition, the image overlap prevention plate (1) should neither collide or pass through the inside of the guide (2) when lever is being returned to the original position.

(3) When the winding is made by pushing up the multi exposure cam coupling plate (7), the gear train must not move, and (1) and (2) shall not collide each other.



After adjusting the position of (1) and (2), set the rising position of (1) at a right angle and then bend the tip-end of (2) for necessary adjustment.

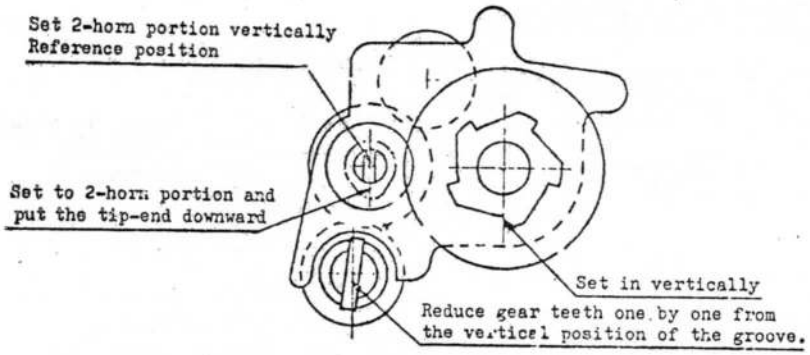
To check multi exposure, mount the finder cover after setting the rising portion of (7) at a right angle and confirm by

a right angle and confirm by winding the film while pulling the multi exposure lever.

3-2 Wind Gear Position

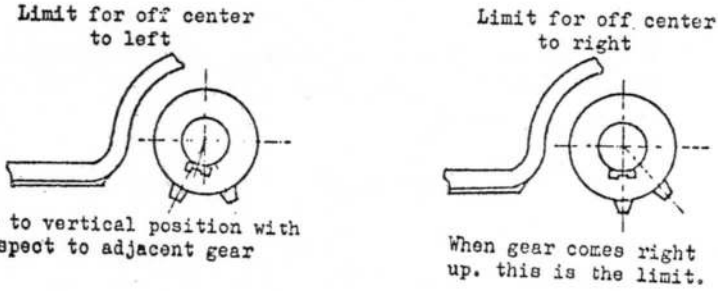
3-2-1 Regulating the Wind Gear Position

Assemble 202 (wind shaft sub-assembly) with the wind cam by regulating the gear position as shown below.



3-2-2 Sprocket Gear Position

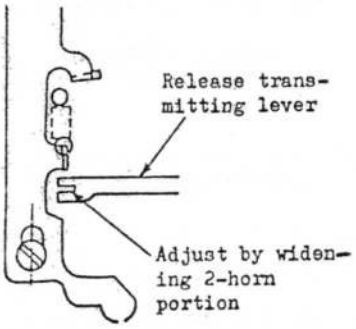
The gear position of the sprocket including clearance should be as shown below.



3-3 Releasing

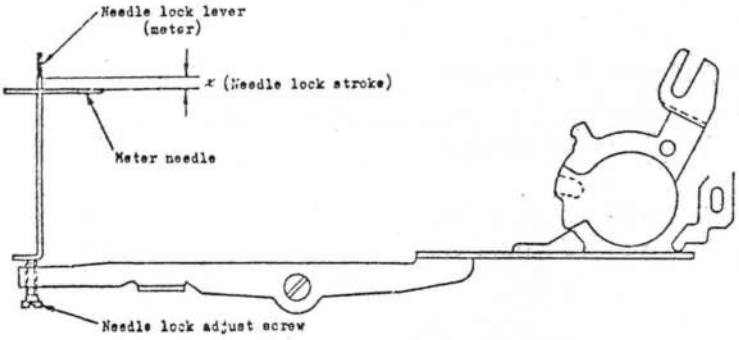
3-3-1 Release Position

- The release position can be adjusted by winding the 2-horn portion of the release transmitting lever as shown in the figure at right.
- After adjustment, check the needle lock position.
- If the releasing is made at somewhat higher position, the valve makes an instant action. Therefore, care should be taken to prevent this from occurring.



3-3-2 Needle Lock Adjustment

Move the needle lock lever of the meter up and down by vertically adjusting the needle lock adjusting screw to change the length of X.

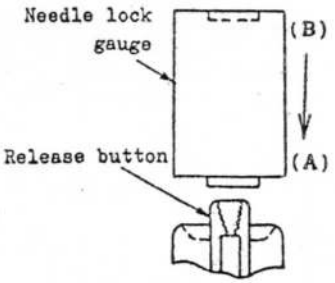


Adjustment of Needle Lock

Check up

After putting the finder cover back on, check if the needle is locked in position by placing the needle lock gauge against it.

Move the gauge until the tip-end of the gauge comes into contact with the release button. Move the adjusting screw up and down while making sure that no needle lock is made on the B side. When making a needle lock check, also see if the needle lock is achieved by the self-timer lever action. This check with the self-timer lever should be made by locking the needle until a click is effected, that is, before the EE ring starts to rotate.

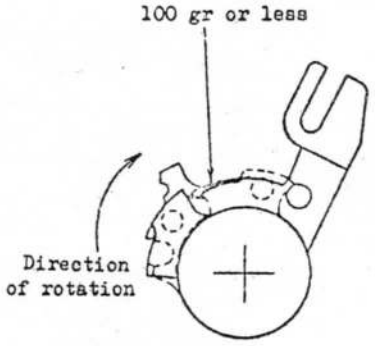


Needle lock check

3-3-3 Self-timer Return Load

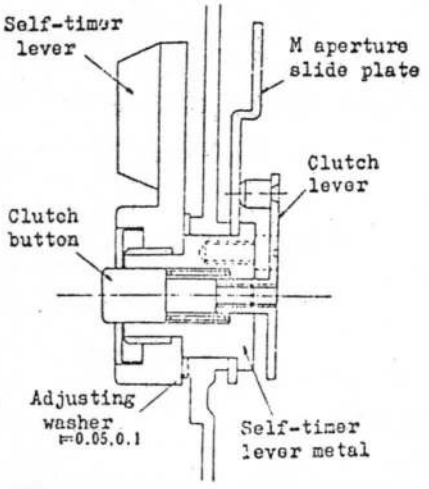
1) Check-up

Place the contact piece checking pressure gauge at the position where the self-timer lever pin of the clutch lever (on the shutter side) comes into contact with it. When the load is checked at that position, it shall be less than 100 gr near the end-point of the self-timer operation.



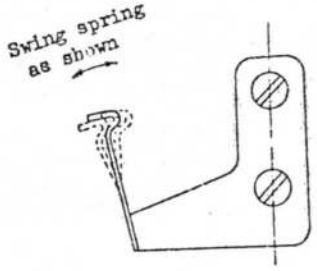
2) Adjustment

Remove an excessive play existing in the thrust direction using two types of adjusting washers (t = 0.05, 0.1) between the self-timer lever and mirror box. Also check self-timer return load.



3-3-4 Adjustment of Click Spring Tension

Bend the end of click spring to provide proper tension.



3-4 Mirror Box

3-4-1 Mirror Operation (See figure of para. 2-3-2.)

(1) Remove mirror supporting spring (n) and check the operation of mirror (f) only.

At that time, ensure that the mirror moves smoothly and that there is no excess play to the left and right thereof. When the play is too large, it is suggested to remove the left and right plays in existence between the mirror frame supporting metal (h) and mirror frame arm (i). (Carefully bend the mirror frame arm to a considerable extent.)

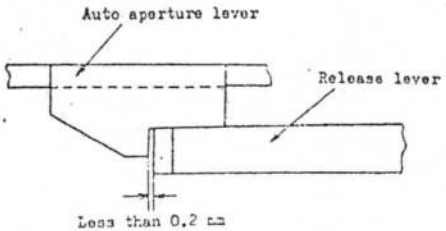
(2) Ensure that all levers concerned and the mirror are smoothly operated when the bent-portion of the mirror transmitting lever (b) is lifted up by hand. When the hand is removed therefrom, ensure that the associated mechanisms are all reset under the tension of mirror support spring.

(3) Hold the mirror upside down and move vertically. Ensure that the mirror returns to the 45° position at that time.

3-4-2 Automatic Aperture (See figure shown under para. 2-3-3.)

(1) Ensure that the charge arm and return spring (i) smoothly be hooked onto the hook (b) without touching other parts when setting the charge arm (a).

(2) Ensure that there is a clearance of less than 0.2 mm in between the automatic aperture lever (d) and release lever.



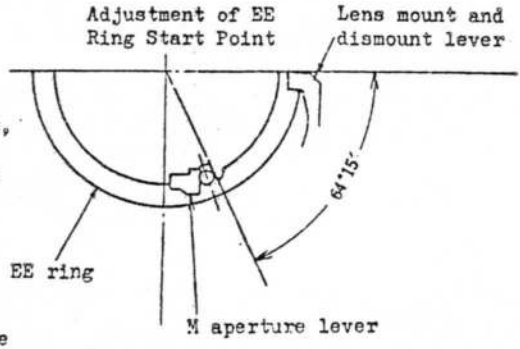
(3) Ensure that the mirror moves up with the rotation of the automatic aperture lever ⓓ and EE ring follows securely when the unhook lever is released after setting the charge arm ⓐ.

(4) Ensure that the charge arm is unhooked when the tip-end of the shutter persued lever is pushed after the mirror has lifted and that the automatic aperture mechanism and EE ring are returned to the original position under the spring of the return spring. Also ensure that the associated mechanisms of the mirror sub-assembly is now returned under the spring of mirror frame supporting spring.

3-4-3 EE Ring Sub-assembly

Adjust the start point of the EE ring using EE ring adjusting gauge.

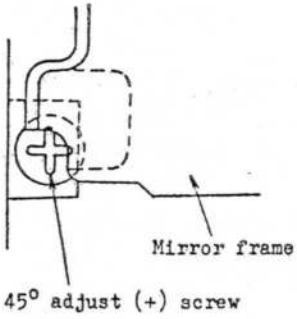
To make proper adjustment, move the hexheaded screw attached to the automatic aperture lever on the base of the mirror box to adjust the stationary position of the manual aperture lever.



o After adjustment, lock the hexheaded set screws firmly with Sundine.

3-4-4 Mirror Angle Adjustment

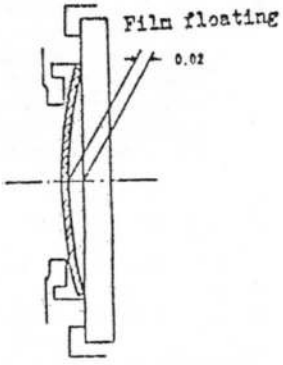
Mirror angle can be adjusted by moveing the mirror frame up and down directly so that the screw itself serves as a 45° stopper. This method of mirror angle adjustment is the same as that for Auto Reflex T.



3-5 Focus Adjustment and Focus Plate Replacement

3-5-1 Flange Back Adjustment

The base surface of the film loaded onto the camera body is pushed by the pressure plate. The emulsion side of the film is not held thereby since it must be exposed to optical light. For this reason, the emulsified side of the film is floated about 0.02 mm to the lens side in the case of Auto Reflex T. The 40.68 ± 0.02 mm flange back is thus set in consideration of the foregoing.



On the T3, various technical studies have in the past been made on this flatness. As a result, this floating has been eliminated from this model. That is to say, while #1, #4 rail surfaces could be set to 40.68 ± 0.02 mm on the hitherto available models, it is now possible to adjust to 40.66 ± 0.02 mm.

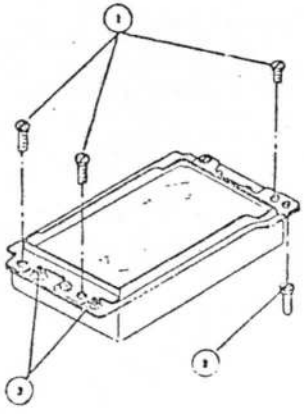
To be more specific, the pressure spring, pressure plate, film magazine, and magazine supporter have been added to improve the flatness of the pressure plate and adhesion of pressure plate to the film or vice versa.

Incidentally, the focus of viewfinder remains the same.

3-5-2 Adjustment of Viewfinder Focus

The viewfinder focus of the T3 is the same as that of Auto Reflex T. This can be adjusted by vertically moving the Fresnel by means of focus adjusting screws ② and ③ (3 pieces).

Fresnel frame should be secured to the right position using three set screws ① and check to make sure that there is no inclination of the Fresnel frame.



3-5-3 How to Replace Focusing Plate

To disassemble the camera, proceed as follows:

1 Disassemble the camera body in the sequence of Drawings A-9 thru A-25 and remove the finder cover.

2 Then disassemble in the sequence of Drawings B-16, B-17, B-21, B-22, and B-23 to remove the penta-prism frame.

3 Disassemble further in the sequence of Drawings D-3, D-4, and D-5 to remove the Fresnel frame.

4 Disassemble still further in the sequence of Drawings I-31 thru I-39 to replace parts assembled with the Fresnel and condenser.

Notes: 1) When replacing the body without the Fresnel frame sub-assembly (526) removed, the disassembling work (4) above is not needed.

2) Just as in the case of Auto Reflex T, it is not possible to replace the focusing plate without dismounting the Fresnel frame.

To assemble the camera body, proceed in the reverse order of disassembly. But, do not fail to check viewfinder focus.

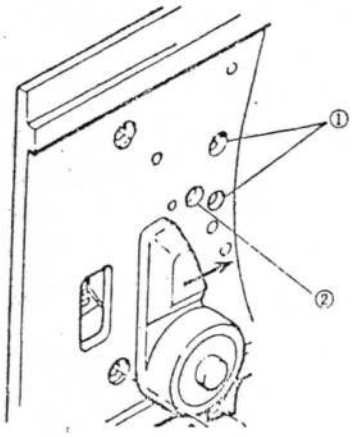
3-6 Shutter Dial

3-6-1 Adjustment of Shutter Dial Click

After assembling the shutter dial, adjustment (double click) of the shutter click and shutter dial click should be made by shifting the click position of the shutter side when mismatching is observed.

1) Set the shutter dial to the 1/1000 sec.

2) Release the auto-manual changing pin and then press the release button. When this is done, two set screws of the shutter gear can now be seen through the adjusting hole on the front of the mirror box ①. So, loosen these set screws.

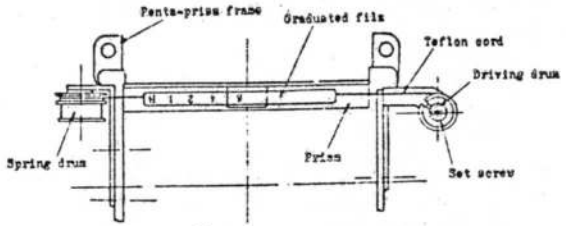


3) When the self-timer lever is moved in the arrow direction, an eccentric pin for shutter click adjustment can be observed through the adjusting hole (2). Move this slowly and gently by turning it.

3-6-2 Shutter Speed Display (in Viewfinder)

(1) Caution for Cord Tensioning

1) Pass the cord fused with the film through the underside of the penta-prism, making sure that it comes onto the spring drum sub-assembly side. At that time, the numeral on the film must be in the relations shown below.



Film Tensioning

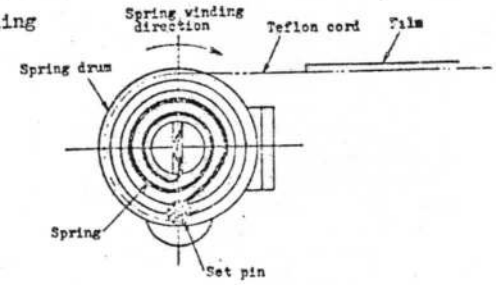
2) Pass the film through the tunnel, and check that nothing is in contact with it, lightly pulling it. If the film advance is unsmooth, it is often probable that the fused portion of the cord is tensioned.

3) Turn the spring drum about 3.5 times in the clockwise direction and keep the spring drum force in storage. Set the drum groove to the stop hole of the base plate secure it in position by hand.

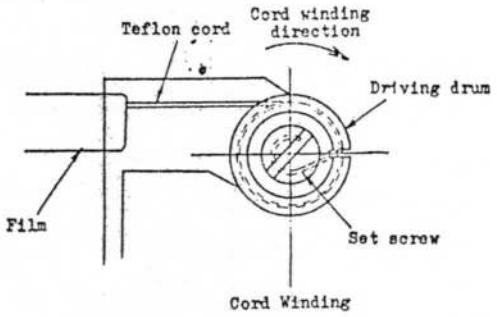
4) Hook the knot of the cord to the groove of the drum, rotate it clockwise half a turn along the periphery of the drum. Then lightly push the cord.

5) After pushing the cord, secure the sprint drum to the base plate by means of set pins, making sure that the drum does not move or gets loose.

Spring Winding



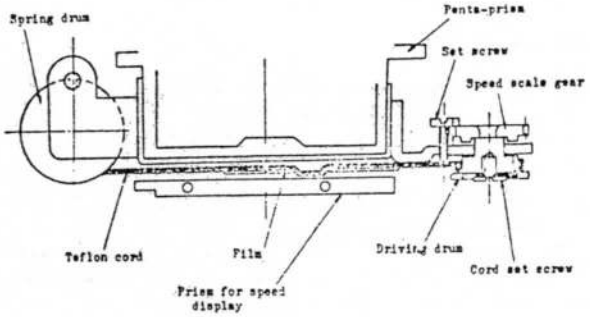
6) Secure the pulley, wind it 1¼ around the right-hand driving drum while keeping the cord taut, and lock it with set screws. At that time, the driving drum position must be at the position as shown, that is, the notch is located on the outer side.



7) After completing the cord tensioning, set the spring drum free and then confirm that the drum moves back and forth from B to 1000, and from 1000 to B. In this case, the reciprocating action from B to 1/1000 should be accomplished by the action of the spring.

Also, ensure that no cord overlapping occur when moving from 1/1000 to B. After checking the operation, bond both ends of the cord with Sundine 640.

8) After checking, lock the gear with M1.7 set screw at the position where the display of B is made for convenience of assembly.



(2) To Adjust Speed Indicato. Within Viewfield

Just as the Auto Relfex T, adjust the reciprocating action of the shutter speed indicator by deflecting it to the left and right.

3-7 Caution for Wiring

(i) Shutter M, X Lead Wires (Blue, Brown)

M lead wire (Brown) : Solder the M lead wire from the shutter through the underside of eyepiece to the M plug.

X lead wire (Blue) : Solder the X lead wire from the shutter through the underside of eyepiece to the contact place on the CdS cell holder.

Weld the lead wire from the contact plate to the X plug through the underside of eyepiece.

M and X lead wires should have more than enough length required and insert the excess wire in the space between the plug and rewinding shaft.

(ii) Meter Lead Wire

Ensure that the meter lead wire does not hold the base metal on the exposure meter when the finder cover is put on. The lead wire must therefore be laid beneath the variable resistor on both sides of the penta-prism.

(iii) Lead Wire of Battery Case

Two lead wires black.red of the battery case should be laid in parallel with each other in a space between the shutter and the camera body so as to hold them in that position by the lead wire holder.

3-8 To keep SS Wire Taut

This stainless wire is contained in the manual aperture lever driving plate (547). Connect this wire from the wire working lever (e) and the wire lock washer. (See illustrations shown in Section 2-8 "Manual Aperture and Self-timer Mechanisms.")

1) With the manual aperture lever drive plate (L) rest against the long hole extending in the direction of (c), wind the wire 1.1/2 turns to the wire set screw. At this time, care should be taken to avoid over-tensioning. If the wire is kept taut too much, the manual aperture may a quantity of lose its clicking efficiency.

2) Check to ensure that the aperture can be controlled to more than F16 by means of EE ring adjusting gauge. (If the wire gets loose too much, F16 cannot be obtained.)

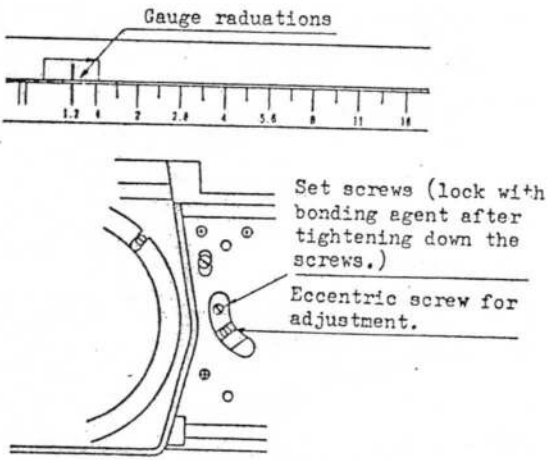
3-9 Method of Adjusting EE Mechanism

3-9-1 Adjustment of EE Ring Base Point

To adjust the EE ring base point, proceed as follows:

1. Place the gauge for EE ring on the mount.
2. Check to make sure that the meter needle within the viewfield comes within the low-brightness-side red mark (F1.4 side). (If it does not fall within the red mark, either remove the battery cells or move the shutter dial to the high-speed side until it comes in the red mark.)
3. Start the self-timer and then set the shutter. Immediately after releasing it, secure the self-timer lever in position. (That is, stop the EE ring in the gear detected condition.)
4. Move the eccentric screw mounted on the front body while observing the gauge reading and then adjust it until the gauge reads the F1.2.
5. After adjustment, secure it by means of set screws and then lock it with bonding agent.

EE ring adjust gauge



Caution:

1. When mounting the adjust gauge, ensure that the camera is set in the automatic mode.
2. After adjustment, ensure that the exposure meter needle does not come into contact with other part or parts as there is a clearance between the needle and gear.

3-9-2 Adjustment of EE Ring Accuracy

Unlike Auto Reflex T, the present T3 uses EE ring that has no gear teeth. For this reason, it is necessary to check the EE ring accuracy (rotating angle with respect to brightness), using an EE ring gauge.

To check this, proceed as follows:

1 Place the EE ring adjusting gauge on the mount.

2 After starting the self-timer with the EE ring set in the following combination, release the shutter.

3 Immediately after releasing the shutter, hold the self-timer lever and check the gauge reading position.

4 EE ring accuracy is satisfactory when held within ± 0.5 EV (gauge ± 1 graduation).

To adjust EE ring accuracy, proceed as follows:

1 Place the EE ring adjusting gauge on the mount.

2 Adjust EE ring with the adjusting pulley so that EE ring accuracy comes with ± 0.2 EV at LV_{100} 9, ASA 50, 1/30 (F2.8).

3 Also adjust the EE ring accuracy with the Rsv until the accuracy comes within ± 0.3 EV at LV_{100} 15, ASA 50, 1/250 (F8).

4 Check EE ring accuracy to ensure that it comes within (-0.3 +0.5 EV) at LV_{100} 15, ASA 50, 1/125 (F11).

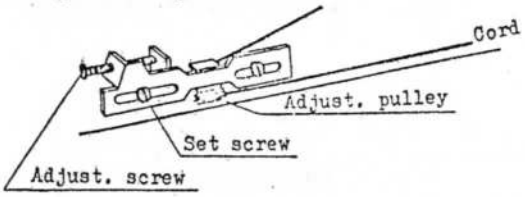
5 Check EE ring accuracy until it comes within ±0.5 EV at LV_{100} 12, ASA 50, 1/60 (F5.6).

Adjusting Standards ASA 50

LV_{100}	9	12	15	15
cd/m^2	71.6	57.3	4580	4580
Speed	1/30	1/60	1/250	1/125
Aperture	2.8	5.6	8	11
Reading	±0.2 EV	±0.5 EV	±0.3 EV	-0.3 EV +0.5
	(Adjust)	(Check)	(Adjust)	(Check)

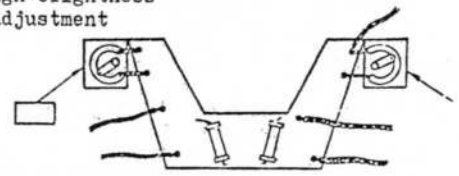
Adjusting Procedure

Low-brightness adjustment



Loosen set screw and adjust the rotating angle of exposure meter using the adjusting screw. (After adjustment, lock adjusting screw with a bond.)

High-brightness adjustment



Move the Rsv contact plate and adjust it while observing meter reading. (Rsv is a metallic film variable resistor.)

Caution:

1 When making measurement, care should be taken, to prevent unwanted light from being introduced from the eyepiece.

2 After adjustment of EE ring, adjust indication accuracy by moving the scale plate when it does not come within ±0.7 EV.

3 When 1/125 only is unsatisfactory, adjust the 1/125 speed correction amount and then do likewise with the shutter speed check point.

4 After adjusting this item and indication accuracy, also be sure to adjust battery check indication accuracy.

5 Have the EE ring key point (F1.2) checked in advance.

3-9-3 Adjustment of Indication Accuracy within Viewfield

Method of Adjustment

First check the above EE ring accuracy and then move the scale plate to the left and right to bring within the specified tolerance of ±0.7 EV.

Caution:

The same as Adjustment of EE ring Accuracy above.

3-9-4 Adjustment of Exposure Amount

Checking Procedure

Mount the standard lens (F1.2, 1.4, 1.7, and 1.8) in position and check them in the following combinations using the EE tester.

ASA 50

LV_{100}	9	11	15	15
cd/m^2	71.6	573	4580	4580
Speed	1/30	1/60	1/250	1/125
Aperture	2.8	5.6	8	11
Standard	±0.8 EV			

Method of Adjustment

After measuring a defective point of the above check points, using an EE ring, adjust the reading to within the specifications. For the method of adjustment, refer to "Adjustment of EE Ring Accuracy."

Also, if the exposure amount is insufficient even though the EE ring accuracy does not fall within the specifications, a check on the shutter speed and aperture diameter should also be performed.

Note: The same as "Adjustment of EE ring."

3-9-5 Power Check Indication Accuracy

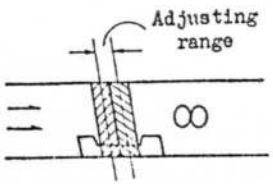
Checking Procedure

1 Load new mercury battery cells into the battery case. (Rated voltage, 2.67 V)

2 Dismount the lens and set the shutter dial to ASA 100, 1/125.

3 Adjust R_{BV} until the meter reading comes within the range indicated at right while pushing the switch to the CHECK position.

R_{BV} is the carbon film resistor in the light receiving section.



Adjust so that the needle is set to the concave in the battery check mark.

Cautions

1 When constant voltage power source (for DC operation) is available, check and adjust voltage to 2.67 V.

2 New battery should have 1.33 to 1.35 V per cell.

3-9-6 Adjustment of F Value and Bottom Limit Indication Mark

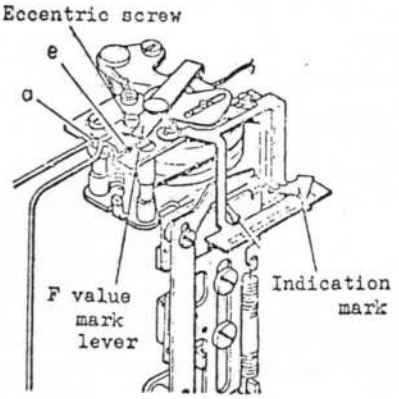
(1) Adjustment of F Value

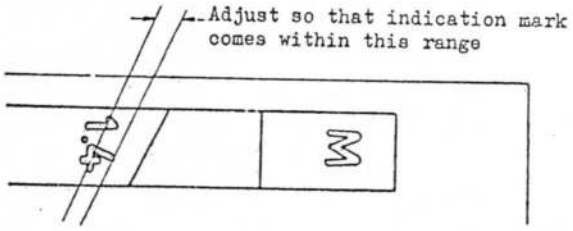
1 Mount the gauge for EE ring in position.

2 Set speed dial to ASA 50, and 1/4 sec.

3 Adjust F value range to the range shown below, using eccentric screw provided on the base plate.

4 After adjustment, lock it with bonding agent.





Cautions

1 For use of lenses of different type, refer to the appropriate sections on F-value Feeding and Shift Warning Position.

2 If adjustment range is too narrow, move F-value mark lever and cord setting position.

(2) Adjustment of Bottom Limit Indication Accuracy

1 Adjust after F-value indication has been adjusted as described in item (1) above.

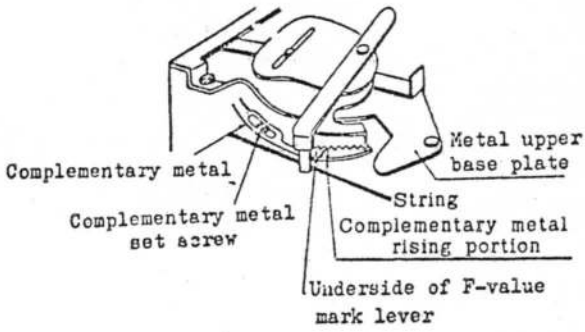
2 Set speed dial to ASA 50, 1 sec.

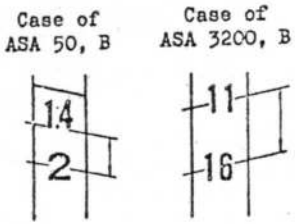
3 Loosen the complementary metal set screw from the meter case to bring the complementary metal rising portion into contact with the underside of the F-value mark lever.

4 Tighten set screws at the contacting position and lock it with bonding agent.

5 Check to see if the indication mark comes within the range shown in the figure when the speed dial is set to ASA 50, B.

6 Check if the indication mark falls within the range shown in the figure with the speed dial set to ASA 3200, B.

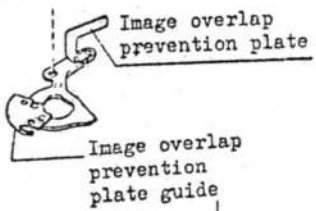


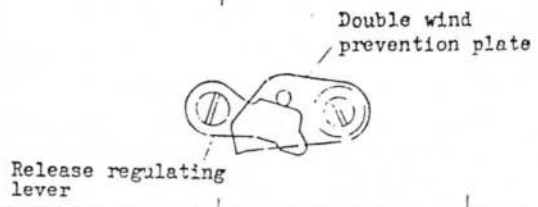


4. REPAIR GUIDE

4-1 Wind-up Mechanism

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Winding impossible	Double wind prevention lever (C-20) released insufficiently.	Remove bottom cover and checks double wind prevention lever for operation faulty. Check for operation of pursued lever.	Remove dust and dirt and chips. Apply molycoat and replace part. Bend pursued lever (E-14).	Care should be taken not to bend too much.
	Double wind release lever (C-13) operation faulty.	Check for flatness of long hole. Burr exists on long hole.	Flatten it or replace.	Apply Molycoat.
	Lower wind shaft metal (C-34) loose (Wind lever operation faulty).	Visually check	Re-tighten.	
	Wind regulation claw (C-25).	1. Check for faulty operation. 2. Check if wind regulation spring claw (F-45) off or broken.	Remove dust and chips. Apply molycoat Replace parts. Re-hook spring or replace.	
	Mirror stopped halfway.	1. Check if mirror working lever (E-9) is caught in pin groove of mirror frame supporting lever (E-12). 2. Check if mirror transmitting lever(E-6) is in contact with automatic aperture lever pin (J-22).	Bend mirror frame supporting lever. Bend mirror transmitting lever.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Winding impossible		3. Check if frame supporting lever spring (E-11) too strong.	Adjust spring balance. Apply Molycoat to operating portion.	
	Shutter not released.	1. Check shutter alone. 2. Check for faulty shutter operation. 3. Check pursued lever (E-14) for faulty operation.	Replace shutter. Replace shutter. Replace pursued lever (E-14).	
Continuous winding	Double wind prevention lever (C-20) operated.	Check if operation is faulty.	Remove dust and dirt and chips; apply Molycoat.	
	Image overlap prevention plate or image overlap prevention plate guide of multi-exposure cam (G-39) inaccurate.	Remove bottom cover and check to see if film is wound up just before double wind stopper falls on the first step while returning wind lever.	Replace part (C-7). Replace film counter (C-7) or wind shaft (C-31).  	
	Multi-exposure cam spring (G-17) off.	Visually check.	Re-hook	
	When returning wind lever image overlap prevention plate of multi-exposure cam passes inside image overlap prevention plate guide.	Check if film is wound while returning wind lever.	Adjust bend at tip-end of image overlap prevention plate guide. Be sure to check it after adjusting.	Refer to Para. 3-1-3 on "Key point of Assembly".

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Continuous winding	Shutter cocking impossible.	Check if winding regulated ratchet (C-27) is in contact with the body.	Replace wind rack (C-18). Apply molycoat.	
		Check release transmitting lever (E-19) for faulty operation.	Give proper clearance to manual aperture slide lever (D-24).	
		Check if shutter is defective.	Replace shutter.	
		Check if shutter setting gear is not wound enough.	Adjust gearing position with wind rack (C-18).	
	Release safety lever (C-23) is fitted by mistake in place of double wind prevention lever (C-20).	Remove bottom cover and check visually. 	Recondition tip-end of release regulating lever by striking.	
	Automatic aperture lever(J-21) in hooked to unhook lever (E-21).	Check if mirror is moved up and released when film is wound up.	1. Recondition of unhook lever for improved performance. 2. Check automatic aperture lever for proper operation. 3. Check clearance (less than 0.2) between unhook lever and automatic aperture lever. Adjust by bending unhook lever.	
Winding unsmooth	Long-hole portion of wind rack(C-18) defective.	Check wind rack for proper sliding.	Replace wind rack.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Winding unsmooth	Shutter defective	Check by operating shutter alone.	Replace shutter.	
	Wear out of parts related to winding.	Check roller for charge arm(J-24). Check gear line (C-33, 37, 38 and 49).	Clean and replace.	
Returning of wind lever	Wind shaft recoiling spring (C-29) broken.	Visually check.	Replace recoiling spring.	
	Wind lever drags.	Visually check.	Scrape film counter metal.	2-horn sliding portion of wind shaft should be place at higher place than metal.
	Image overlap prevention plate of multi-exposure cam(G-35) in contact with guide.	Remove finder cover and check visually.	Adjust bend of image overlap prevention plate guide.	Refer to Para.3-1-3 on "Key points of Assembly".
Position of perforations improper	Sprocket gear position.	Check the range in which the left-hand side of 2 gears adjacent to sprocket is horizontal with respect to right-side hand gear to the middle top.	Adjust sprocket gear position.	
Improper film advance	Reverse prevention mechanism operation faulty.	Check operation of reverse prevention claw (F-33). Check if reverse prevention claw spring (F-25) off.	Replace wind base plate (C-37). Re-hook spring.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Improper film advance	Wind angle too large.	Remove bottom cover and check visually.	Adjust with rivet (F-41) of winding regulated ratchet (C-27).	Refer to Para.3-1-2.
Improper operation of wind completion indicator	Operation of wind completion indicator (B-3) faulty.	Check if wind completion indicator spring (B-1) is off. Check if the lever is in contact with contributed.	Re-hook spring. kearrange cords.	
Improper position of wind completion indicator	Stopping position improper. Operation insufficient.	Check rised rising portion of indicator (B-3). Hind curtain inadequate. Check if stopper position is properly adjusted.	Re-bend rising portion. Bend pursued lever (E-14). Bend stopper position of shutter dial base plate (B-15).	
Film counter does not advance	Position of recoiling lever (G-35).	Check if stopping claw (G-33) is not released (not returned). Check if ratchet portion of film counter plate (G-19) is in contact with transmitting claw(G-31) (not advanced).	Re-bend recoiling lever. Re-bend recoiling lever.	
	Film cou ter metal caught in (G-41) film counter plate (G-19).	Remove recoiling spring for ratchet (G-20) and if it turns. (not returned).	Clean, enlarge hole or replace.	
	Film counter index (G-16) in contact with film counter plate (G-19).	Visual check.	Bend film counter index.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Film counter does not advance	Finder cover in contact with film counter.	Check if click claw pin (H-44) drags heavily. Check if there is enough clearance for nulti-exposure ring (H-40).	Filing claw pin. Remove excessive play from multi-exposure plate.	
	Wind transmitting cam (G-26) worn.	Visually check	Replace film counter (C-7).	Apply Molycoat.
Impossible multi-exposure	Multi-exposure ring (H-41) in contact with finder cover.	Check finder cover for faulty operation.	Replace finder cover.	
	Linking plate of multi-exposure cam (G-39) bent.	Check after removing finder cover.	Give right angle to rising section.	
Unsmooth film winding	Film drawing position.	Check if magazine holder (F-12) is in improper position.	Adjust with gauge (P-12).	Apply Sundine 640 to screw portion.
	Pressure plate (L-1) bent.	Check if pressure plate spring is too strong, or check if pressure plate is flat enough.	Replace pressure plate (L-1).	
	Others. (Refer to item "Unsmooth Winding".)			
Scratch observed on film	Pressure plate (L-1) scratched and unsatisfactorily finished.	Check visually.	Replace pressure plate.	
	Dust gathered on pressure plate.	Check visually.	Clean.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Film not wound	Outer friction spring (C-40) too strong.	Check by turning the spring by hand. Check friction.	Adjust friction springs.	
	Inner friction spring (F-24) too weak.	Check friction or rewind with film set in position.	Replace outer spool (C-41). Adjust friction plate spring (F-24).	

4-2 Release

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Faulty operation of body release	Release button (H-34) operation faulty.	Check if changing knob shaft (H-36) is in contact with release button.	Engage, adjust.	
	Operation of release regulating (C-23) lever.	Check visually.	Make operation smooth.	
	Release lock lease.	Check if release lock changing knob is mounted in position.	Re-mount.	
	Release lock lever spring fallen (C-27) off.	Check after removing finder cover.	Re-mount.	
B Instant	Shutter sub-assembly (B-29) defective.	Check shutter alone.	Replace shutter.	
	Release plate(C-11) does not push shutter valve lever perfectly. (released too early)	Check by operating B.	Adjust bend of release plate after checking release position.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Release position (relation with needle lock position)	Release position adjustment improper.	Check with gauge (P-10-2)	Bend 2-way forked portion of release transmitting lever (E-19).	Be sure to check needle lock position after release position adjustment.
	Needle lock position improper.	Check with gauge (P-10-1).	Adjust with needle lock adjust screw (G-50).	

4-3 Rewind

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Rewind button not locked	Sprocket stop lever (C-44) does not work.	Check if stop lever spring (C-42) is off. Check if stop lever operated.	Re-hook spring. Give proper clearance. Remove dust.	
Unsmooth rewinding	Rewind handle(A-9) operation faulty. Spool friction heavy.	Check if finder cover drags. Measure friction.	Adjust or replace washer. Re-bend friction spring (F-24) and spool spring(C-40), or apply molycoat or replace part.	
Rewind button not restored in rewind operation	Sprocket coil spring (C-47) load light.	Touch.	Adjust spring load.	"STANDARD" Pushed rewind button shall be restored to its original position by cocking less than two times under condition in which film is normally set.
	Sprocket screw (C-48) not properly seated in groove of sprocket (C-51).	Visual check.	Replace sprocket or spring.	
	Wave from spring (G-13) shaped improperly.	Visual check.	Replace sprocket shaft (C-50).	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Rewind lever operation irregular	Rewind crank spring (G-43) tension too weak.		Replace rewind crank spring. Re-bend rewind crank spring.	

4-4 Backlid

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Improper backlid closing	Lock claw operation faulty.	Check if lock claw spring (B-8) is too weak. Check if lock claw (B-9) is bent.	Replace or lengthen spring. Adjust bend.	
	Backlid drags.	Check if finder cover drags. Check if bottom cover drags. Check if lock claw cover (B-5) drags.	Bend or replace backlid. Bend or replace backlid. Bend or replace lock claw cover and backlid.	
	Lock claw not hooked.	Check visually to see how claw is hooked.	Replace or bend lock claw.	
Too loose backlid	Lock claw too loose. Body moltplen (F-2) out.	Visual check. Touch. Visual check. Touch.	Tighten. Replace moltplen.	
	Hinge (L-4) too loose.	Visual check. Touch.	Bend backlid hinge pin (L-3) to redrive, or replace backlid.	

4-5 Shutter dial

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
ASA-DIN switching impossible	Film speed changing gear (H-24) caught by film speed changing plate (H-23).	Check after removing film speed plate (A-21) and shutter speed plate (A-19).	Replace shutter dial (A-22).	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
ASA-DIN switching impossible	Speed dial (A-22) and shutter dial shaft (B-15) are not co-axial.	Check after removing film speed plate (A-21) and shutter speed plate (A-19).	Replace shutter dial (A-22).	
Unsmooth shutter dial operation	Shutter dial in contact with multi-exposure lever (H-41). Operation of meter linking lace faulty or improper engaging with within viewfield speed indicator drive gear.	Check if thread is off from pulley.	Apply EG-4. Re-string. Adjust mounted position of pentaprism frame(B-23) and shutter dial base plate(B-15). Or replace(I-12).	
Dial click faulty	Click position not fit. (Click of shutter does not fit to that of shutter dial base plate).	Shutter dial base plate (B-15) loosened.	1. Re-tighten screws(B-13,14). 2. Adjust shutter click position.	

4-6 Finder

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Improper focusing	Flange back incorrect.	Measure with flange gack gauge.	Adjust washer.	40.66±0.02
	Mirror angle incorrect.	Measure with mirror angle adjuster.	Adjust with mirror angle adjust screw (J-3).	45°± 20'
	Fresnel position changed.	Check screw-tightening.		
	Lens incorrect.			

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Shaft not in position	Penta-frame mounted aslant.	Look at object with naked eye and through finder at the same time.	Re-mount penta-prism frame (B-23). Adjust position of eyepiece (B-18) or replace.	
Inverted image	Penta-frame mounted distortedly.	Same as above.	Re-mount penta-prism frame (B-23).	
	Inclination of fresnel-mounted surface.	Set camera in parallel with object, and check to see how image is focused at four corners.	Adjust with focusing screw.	

4-7 Auto-manual Changing

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
M-mark changing and indication in finder	Operation of auto-manual changing pin (M-21).	Push (M-21) by finger and check operation.	Make auto-manual changing lever(D-17) operation smooth.	
	Expression plate of auto-manual change (D-26) operation faulty.	Check if expression plate spring (M-24) is off.	Re-hook spring.	
		Check if meter plate drags.	Re-bend.	
		Check if expression plate returns to proper position (When lens mounted).	Bend expression plate.	In no case adjust on meter side.
		Check if auto-manual spring(D-15) works.	Strengthen spring.	
Impossible to change to auto by EE	Auto-manual lever not completely released.	Check if EE changing claw is properly hooked inside meter.	Adjust with meter eccentric rivet.	
		Auto-manual changing pin(M-21) low.	Replace pin.	Be sure to check lens.

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
EE ring not operated by manual	EE ring drags.	Check if connection lever (E-55) and EE ring(D-14) in contact with pin.	Bend connection lever.	
		Check if EE ring is caught by manual aperture lever (J-14).	Bend manual aperture lever.	
		Check if connection lever is in contact with box.	Bend connection lever.	
		EE ring (D-14) bent.	Replace parts.	
	EE ring off.	Off from connection lever.	Bend connection lever. Remove excessive play.	
	Auto-manual lever not restored.	Auto-manual changing lever (D-17) operation faulty. Auto-manual changing claw of meter operates poor.	Make operation smooth. Make operation smooth. Or replace meter.	

4-8 Manual Aperture, Synchro and Self-timer

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Manual aperture does not operate	Wire of stainless steel (K-17) loosened.	Remove mirror box and check visually.	Re-string wire.	
	Manual aperture sliding lever(D-24) disengaged with wire working lever pin (E-58).	Remove mirror box and check visually.	Bend(D-24).	
	Wire cut.	Remove mirror box and check visually.	Replace manual aperture working lever (E-39).	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Manual aperture operation unsmooth	Portions engaged with each other.	Check if self-timer lever (D-21) operates.	Adjust thrust.	
Synchro circuit conducting faulty.	Circuit faulty. Hot shoe contact operation faulty.	Check if solder is off.	Re-solder. Adjust contact. Replace (C-58).	
Poor synchro circuit insulation	Circuit sheet. Insulation poor inside synchro socket (C-58). Shutter contact position.	Visual check.	Adjust contact position.	
Self does not operate	Self-timer faulty. Self-lever operation.	Check shutter alone. Friction strong. Check of parts drags.	Replace shutter. Adjust. Give proper clearance to parts.	

4-9 F Value and Speed Indicator Within Viewfield

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
F-value mark operation faulty	Complementary spring for F-value (B-10) off.	Visual check.	Re-hook spring.	
	F-value mark lever in contact with meter upper base plate portion.	Operation check.	Bend lever.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
F-value mark operation faulty	F-value red mark in contact with meter scale plate. F-value mark lever off from lace.	Visual check.	Bend lever. Set lace. Lock with Sundyne.	
Improper F-value indication	Adjustment dissatisfactory.	Check if F-value setting on lens side is correct.	Adjust with eccentric rivet.	
Improper alarm mark indication	Adjustment dissatisfactory.		Adjust.	
Right and left ends of speed indicator within viewfield hidden	Shutter speed scale adjustable plate (I-9) adjustment dissatisfactory.		Move adjustable plate.	Apply Sundyne 640 to it.
	Scale does not move.	Check if thread is off from driving pulley (I-12). Check if thread is cut. Check if shutter speed scale spring (I-25) is off or cut.	Re-string. Replace shutter speed scale plate (I-10). Replace shutter speed scale plate (I-10). Replace spring drum (I-14).	

4-10 Power Source Check

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Pointer does not deflect in power source check	Switch contact(H-7) not in proper contact with switch print (H-9). Circuit faulty.	Check if wire is disconnected, or solder off.	Clean(H-7) and (H-9). Bend or replace contact.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Improper power source check indication	Battery improper.	Check with tester.	Replace.	Battery voltage 1.28 ~ 1.37V
	Voltage drop.	Check with tester.	Replace.	Battery
	Adjustment dissatisfactory.	Check with tester.	Adjust with semi-fixed resistor.	Mallory: PX-675 Eveready: EPX-675

4-11 Meter

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Meter does not deflect	Supply voltage drop.	Check with tester. Visual check.	Replace battery. Bend or replace contact.	
	Minus contact(X-30) of battery case (C-2) off.	Check visually. Or push (M-30) with pincette etc.	Replace battery case.	
	Lead wire (except brown and blue) off.	Check with tester.	Re-solder or replace.	
	Contact plate for switch (H-7) of printed plate for switch (H-9) off.	Visual check.	Clean or replace bend of contacts (H-7) and (H-9).	
	CdS faulty.	Check with tester.	Replace.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Meter does not deflect	Meter does not operate alone.		Bend contact.	
		Check if dust and clip are stuck to movable portion.	Remove dust and chip.	
		Check if coil is disconnected in movable portion.		
		Check if pointer is in contact with scale plate.	Bend pointer.	
	Meter pointer in contact with penta-frame.	Visual check.	Bend meter needle.	
Meter does not deflect	Meter pointer in contact with needle lock lever.	Visual check.	Adjust with needle lock adjust screw (G-50).	Care should be taken to relation with manual aperture.
		Check if release plate (C-11) is pushed excessively.	Adjust washer of changing knob.	
			Adjust operation.	
			Apply molykote to sliding portion.	
			Or, replace meter.	
	EE ring returns improperly.	Check if EE ring return load is enough.	Bend spring for manual aperture lever (J-10).	85g 220g (in the direction of return).
Meter needle jumps	Stroke difference between needle lock position and release position too small.	Check needle lock after release.	Adjust with needle lock adjust screw (G-50).	
	Needle lock load light.	Check if needle lock spring load is enough.	Adjust spring load or replace meter.	
	Needle lock lever operation faulty.	Visual check.	Adjust operation or replace meter.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Meter needle stuck	Dust and oil stuck to insulator.	Visual check.	Clean.	
	Insulator angle improper.	Visual check.	Bend insulator.	
Meter operates under OFF condition	Circuit not broken.	Check if lock lever spring (C-27) is off or weak.	Re-bend or re-hook spring.	
Meter needle accuracy poor	CdS sensitivity not enough.		Replace meter.	
	Adjustment dissatisfactory.	Check with light source box.	Adjust with regulating pulley(C-53) or Rvs.	
	Thread off.	Visual check.	Adjust thread.	
Exposu	Shutter speed improper.	Check with shutter tester.	Adjust or replace.	
	Lens aperture improper.		Repair lens.	
	EE ring (D-14) operation faulty.	Operate after removing lens mount (D-7).	Clean, remove or replace.	
	EE ring caught by manual aperture lever.	Visual check.	Bend automatic aperture lever (E-40).	

4-12 Mirror

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Mirror does not charge	Charge arm (E-32) improperly set.	Check if charge arm roller (J-24) is worn.	Replace charge arm (E-32).	
	Automatic aperture lever spring(J-23) off from spring-hooking portion.	Visual check.	Re-hook.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Mirror angle (horizontal direction) (vertical direction)	Mirror stopper rubber (J-31) off from adjust screw(J-3).	Check if there is excessive play between mirror frame(J-34,35) and mirror frame supporting plate (J-29).	Bend mirror frame arms to remove excessive play.	
	Mirror angle adjust (J-3) loosened.	Check screw setting with screw driver.	Replace screw or adhere with sundyne 640 after angle adjustment.	

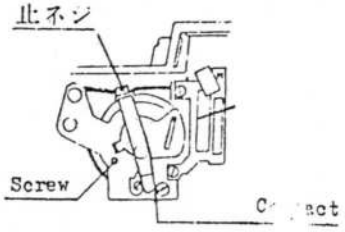
4-13 Relation with Lens Barrel

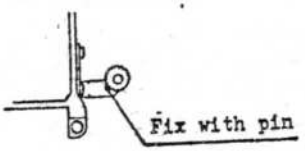
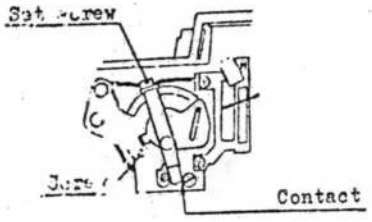
Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Not engaged with mirror box	Mount portion deformed.	Visual check.	Replace.	
	Auto-manual changing pin (M-21) projects.	Check if pin is inside.	Correct pin position.	
	Lens set metal(E-49) excessively projects.	Check if metal is not inside mount three-way claw.	Bend lens set metal after removing mirror box.	
Too tight or too loose engaging	Mount deformed or worn.	Visual check.	Replace.	
	Mount spring(J-41) too strong or too weak.		Adjust or replace mount spring.	
	F-value lever(E-53) operation unsmooth.		Adjust meter.	
	Lens set metal(E-49) loose.		Remove excessive play.	
	Lens set metal(E-49) worn.	Visual check.	Replace.	
	Lens set metal(E-49) mounted depressedly.	Visual check.	After removing mirror box, adjust by bending lens set metal.	
	Mirror box mount groove worn.		Replace.	

Symptom	Probable Cause	Check-up	Suggested Remedy	Remarks
Improper mounting position	Body mount three-way claw worn.	Visual check.	Replace.	
	Mirror box mount position bent and worn.	Visual check.	Replace mount.	

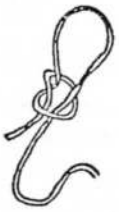
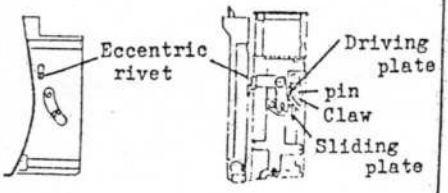
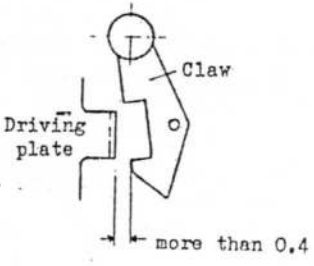
4-14 Meter Replacement

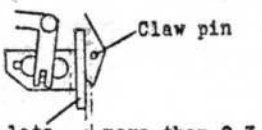
Disassembly

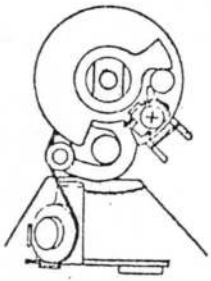
Process	Procedure		Cautions
(Outside) Rewinding	Perspective drawing	A 9-12	Rewind nandle screwed into rewind shaft.
Wind lever	"	A13-17	Use special tool: P-7 wind lever dressed screw(02005) P-3 wind lever set screw (02008)
Shutter dial	"	A18-22	Use special tool P-6, shutter dial set screw (04109). Disassemble with shutter speed set to B and film sensitivity ASA 12.
Finder cover	"	A23-25	Use special tool P-5, top cover setting nut (05111).
Bottom cover	"	A26-27	
Body leather peeling	"	A 6-7	Peel as much as mirror box can be removed.
(Inside) Wind completion Indication	Perspective drawing	B 1-3	
Electric wiring removal	"	Refer to N sheet	Black, yellow and green on printed plate for switch. Two black wires (from meter side) on CdS printed plate. Two blue spots on synchro-cord (hot shoe contact). Red cord under meter upper base plate.
T-thread removal	Fix meter movable portion (set screw). Fix shutter speed scale driving gear of penta-prism frame. (Use special tool P-11, shutter speed setting pin)		

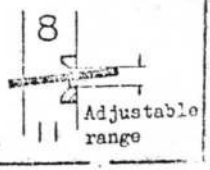
Process	Procedure	Oautions
	Loosen T-thread set screw of driving pulley and remove lace.	
Shutter dial base plate removal	Perspective drawing B11-15	
CdS holder removal	" B16-17	
(Eye-piece removal)	" B18-20	
Penta-prism frame removal	" B21-23	
Mirror box removal	" B24-25	
	Remove complementary spring for F-value (B-10).	
	Remove thread from F-value lever of meter.	Loosen F-thread fixing screw to remove.
Meter removal	Perspective drawing D 1-2	Remove thread from F-value lever (E-53). 

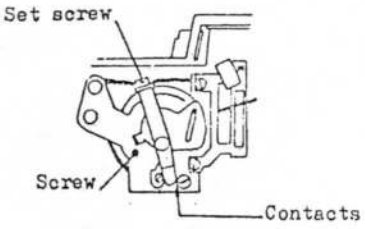
Assembling and Adjustment

Process	Procedure	Cautions
Meter mounting	Form a ring at end of thread over meter. Hook it to pin of F-value lever (E-53). Pull it to secure. Thread F-value pulley. Bend thread-in order to prevent thread from coming off, (Check pulley operation). Refer to: 0 sheet. Connect meter connection portion long hole to connection lever pin,. and fix them with three screws. Cut thread hooked to F-value lever (E-50) at 1 ~ 2 mm from the end and adhere with Sundyne 640.	How to form thread ring.  When holding meter, be sure to hold upper bakelite plate. In no case touch needle, scale plate red mark, etc.
	Check: 1. When meter needle lock lever is used, needle is locked. 2. Auto-manual changing pin (D-17) is used, meter changing plate and expression plate of suto-manual change (D-26) operate accurately. 3. When F-value mark eccentric pin of meter is used, F-value mark operate. 4. Under manual condition with lens set, claw should be more than 0.4 off from meter driving plate. 5. When lens is set to EE, meter claw is engaged with driving plate. There should clearance of more then 0.3 between claw pin and sliding plate.	 

Process	Procedure	Cautions
	Adjust with meter eccentric rivet. If adjustment cannot be made by only eccentric rivet, bend claw pin to adjust. In this case, be sure to check claw operation.	
Mirror box mounting	Charge shutter. Engage charge arm set lever of body (C-15) with charge arm roller of mirror box (J-24). Check if self-timer lever is engaged with pin of self-timer connection lever of shutter. Secure them with five screws. Check wind release. Needle lock adjustment: Needle lock should be made within play stroke of release lever. Needle lock should be made within play of self-lever.	Check auto-manual changing. Adjust release position (bend forked portion). * Fine adjustment will be made to release position and needle lock position in the process after finder cover is set.
Shutter dial base plate mounting	Set shutter to B (ASA 12). Mount shutter dial base plate at B position. Turn dial shaft and check operation (including click). Hook switch driving plate spring.	B position of shutter dial base plate. 
Penta-frame mounting	When shutter speed scale plate part is replaced, turn driving gear to match and set speed meter pointer to B (setting pin, furnished tool P-11). Clean penta-prism.	

Process	Procedure	Cautions
	Engage dial gear (H-12) with driving gear (I-12). Set them with four screws. Remove setting pin and check operation.	
Thread stretching	Set shutter dial base plate to B and ASA 12. Thrn thread twice clockwise from regulating pulley and T-pulley to driving pulley through correcting roller. Lock it with linking thread set metal. (Refer to O sheet.) Remove meter fixing pin. Turn dial to check meter for smooth operation. When F-value lever is pulled, meter should operate smoothly. Cut end of thread and adhere with Sundyne 640.	How to set linking thread. 
CdS holder mounting	Install eyepiece to CdS holder. Install CdS holder to penta-prism frame. Solder lead wire to prescribed points. Set battery, then perform meter operation check and ON-OFF CHECK.	Soldering should be done accurately and without excessive swelling.
Check and adjustment of flange back	Measure with gauge. Check if it reads within 40.66 ± 0.02. Adjust with washer.	

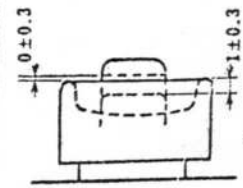
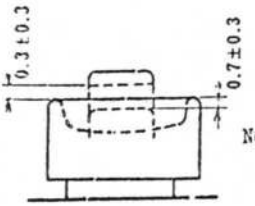
<table>
<tr><th>Process</th><th>Procedure</th><th>Cautions</th></tr>
<tr><td>Check and adjustment of mirror angle</td><td>Measure with gauge.
Check if it reads within $45^{\circ} \pm 20'$
(Adjust with adjust screw)</td><td></td></tr>
<tr><td>Finder focus adjustment</td><td>Install Lens.
Check with collimator.
(Adjustment should be made with focus adjust screw).</td><td></td></tr>
<tr><td>EE adjustment</td><td>Install shutter dial.
Pointer accuracy
<table><tr><td>LV 100 9</td><td>1/30 ASA50 F2.8</td></tr><tr><td>LV 100 15</td><td>1/250 ASA50 F 8</td></tr><tr><td>LV 100 12</td><td>1/60 ASA50 F5.6</td></tr><tr><td>LV 100 15</td><td>1/125 ASA50 F11</td></tr></table></td><td>Install ASA and shutter speed plate.
Adjust with adjust screw of adjust pulley. Adhere with Sundyne 640.
(Use semi-fixed resistor Rsv).
When adjusting at 1/125 sec., bend T-pulley base plate.</td></tr>
<tr><td>Claw position adjustment</td><td>Cardinal point adjustment.
LV 100 9
LV 100 12
LV 100 15
Check and adjust with EE ring adjust gauge.
(Refer to 3-9-1.)</td><td>Adjust with eccentric rivet.</td></tr>
<tr><td></td><td>Install lens.
Check with EE tester.
LV 100 9
LV 100 12 Refer to 3-9-4.
LV 100 15</td><td></td></tr>
<tr><td>Battery check indication</td><td>Remove lens.
Set shutter dial at 1/125, ASA 100.
Set switch to CHECK.
Adjust with semi-fixed resistor RBV.</td><td>Turn shutter dial from low speed side.
Adjustment should be performed within depression of battery check mark.
 
</td></tr>
</table>

Process	Procedure	Cautions
Meter pointer index matching	Perform pointer index matching at manual operation.	Position of F-value mark.
F-value mark adjustment	Install F1.4 lens. Loosen screw of meter F-thread mounting plate and insert thread. Adjust with eccentric rivet. Hook complementary spring for F-value (B-10). F-value mark should be fully restored when F-value lever (E-53) is pulled by finger and released softly. Adhere screw and eccentric rivet with Sundyne 640.	Refer to description of F-mark. Installation position of F-value mark lever. 
Warning mark adjustment	Keep F1.4. Set dial to ASA 50, 1 sec. Loosen correcting metal set screw on meter case, and adjust by moving rising position of it.	Refer to adjust of warning mark (3-9-6).
Cord arrangement	Arrange wiring cord.	Put it under penta-prism holding spring. Special care should be taken to cord under wind completion indicator (B-3).
Wind completion indicator mounting	Install. Hook spring. Check operation.	
Inspection	Film counter switch. Multi-exposure. M-mark indication.	

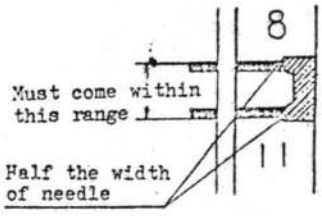
Process	Procedure	Cautions
'inder cover ıounting	Remove shutter dial. Mount finder cover. Wind and rewind. Install shutter dial. Needle lock adjustment. } Fine adjustment Release position. } Check { ON, OFF, CHECK switch. Automatic restoration by winding lock knob. Synchro conduction and insulation. Wind completion indication film counter. Multi-exposure indication film counter. Multi-exposure mechanism. Shutter dial operation.	Mount release locking knob (H-31) set to ON. Care should be taken not to cause interference with hot shoe contact. Use furnished tool. P-10-1 Adjust screw. P-10-2 Bending forked portion. Shutter dial build in. 
ıottom cover ıounting .eathering	Film forwarding. Rewinding. Check.	

5. Summary of Products (T3) Standards

Mechanism	Tolerance	Load & Check Point	Operation
Winding Up	1. Clearance angle: 30° 2. Winding up angle: 3° 3. The teeth of the sprocket gear shall not protrude beyond the face of film sliding rail (2nd ~ 3rd rail). 4. Vertical backlash on wind shaft sub-assembly shall be less than 0.2 mm. 5. Vertical backlash on sprocket and spool shall be less than 0.4 mm.	1. Cocking torque: 4.0 kg-cm (36-picture film is used). 2. Load at the tip-end of friction lever for clearance angle: 200 gr 700 gr. 3. Load on the O.D. of spool friction: 150 gr 400 gr. 4. Load shall be 80 gr at maximum outer spool friction; it shall be such that either outer spool is stationary when cocking is made or when a difference in rotation exists between outer spool and inner spool.	1. Cocking(wind) sequence: Shutter charge. mirror set. automatic aperture setting. film advancing. counting by counter and wind completion indication. 2. Cocking(rewind) sequence: i) Gear engages with 1st stage of double exposure prevention stopper. ii) Regulated claw fall off and wind claw engages with wind cam. iii) Engages with 2nd stage of double exposure prevention stopper. iv) Winding lever stops. However, when rewinding is made before the item(i), the sprocket shall not rotate.
Body Flange Back	1. Spacing between the face of 1,4 rail and lens mounting face of the mount shall be 40.66 ± 0.02 mm. 2. Rail tunnel amount: $0.2\ ^{+0.02}_{-0}$ mm		

Mechanism	Tolerance	Load & Check Point	Operation
Body Release	Body releasing position and meter needle lock position: Allowance after releasing shall be in excess of 0.3 mm.  Old  New	1. Releasing load: i) B: 400 gr or less ii) Others: 300^{+100}_{-50}gr 2. Needle lock load: 170^{+100}_{-50}gr Load difference between these shall be in excess of 70 gr. 3. Release lock changing knob operation: Load (on pressing point) ON - OFF 900±300gr OFF- C 500±200gr	1. Automatic release sequence: i) Needle lock. ii) Aperture ring operation. iii) Gear detection. iv) Mirror operation. v) Aperture, mirror operation completed. vi) Shutter opening and closing. vii) Mirror, aperture ring returned. Prior to shutter operation, mirror shall comes perfectly atop and aperture ring is rotating at the specified position. 2. When cocking is made with the release lock changing knob turned OFF, the knob shall return to ON before it reaches the winding or cocking end point.
Mirror	1. Mirror angle: 45° ± 20'		1. Even if releasing is done with the mirror left pulled up, other mechanisms shall perfectly function. In this case, the mirror can perfectly be returned to the 45° position by moving back it.

Mechanism	Tolerance	Load & Check Point	Operation
Automatic Aperture	Auto-Manual changing pin position (see attached drawing No. 1).	Aperture ring load: 85 gr or more. (Load in returning direction checked at lens barrel-side operating lever.)	
Manual Aperture	The amount of aperture ring shifting by manual aperture lever shall be more than 13 mm (F1.2 ~ 22).	Aperture load: 1.7 kg or less at tip-end of lever (when lens barrel not attached.)	Needle lock shall take place before manual aperture ring starts to operate.
F-value Automatic	Warning mark position.	ASA 100, 1 sec. M 1.4 2 2.8 4 5.6 8 11 16	Warning mark reference position. With F1.4 lens ASA 3200, 1 sec. M 1.4 2 2.8 4 5.6 8 11 16 Tolerance
Speed Dial	1. Dial backlash: 3° or less (incl. clicking backlash).	1. Operating torque: 300gr-cm ~ 1000gr-cm 2. ASA (DIN) changing clutch: 250gr-cm ~ 500gr-cm	B and 1/1000 sec stop shall positively takes place. Also ASA changing can be made at ASA 12 and ASA 3200 surely.

Mechanism	Tolerance	Load & Check Point	Operation
Exposure Meter	1. Accuracy of aperture ring claw in camera body: (F1.2 - 16) ±0.5	At ASA 50	1. Error due to reciprocating motion of speed dial shall be less than 0.3 EV within the viewfinder range (corresponding to the width of 2 needless).
	2. When standard lens fitted. Exposure accuracy ±0.8 EV.	At ASA 50	2. When releasing shutter, needle shall not deflect too much by clamping. After releasing, needle deflection shall be less than 0.5 EV.
	3. Fixed point matching accuracy: When standard lens is mounted, aperture set, and needle positioned at the fixed point, check aperture diameter.	Aperture dia. tolerance: 0.8 aperture Measuring point: ASA 50 LV15-1/500-F5.6	
	4. Viewfinder needle accuracy: ±0.7 EV or better. But at 1/125 sec., ±1.0 EV or better.		
	5. Battery check accuracy: w/o lens, ASA 100, 1/125 sec. Direction of speed dial rotation: Counterclockwise, 2.67 V		

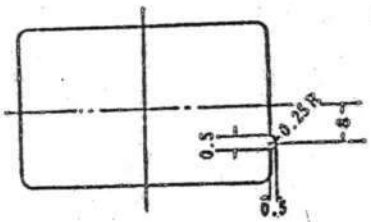
LV	4	8	11	15
Sec	1/2	1/15	1/30	1/250
F	2	2.8	5.6	8

LV	4	8	11	15
Sec	1/2	1/15	1/30	1/125
F	2	2.8	5.6	11

<table>
<tr><th>Mechanism</th><th>Tolerance</th><th>Load & Check Point</th><th>Operation</th></tr>
<tr><td>Shutter</td><td>Speed Standard
<table>
<tr><th>Sec.</th><th>Standard (ms)</th><th>EV</th></tr>
<tr><td>1</td><td>1320 ~ 758</td><td rowspan="7">±0.4</td></tr>
<tr><td>2</td><td>660 ~ 379</td></tr>
<tr><td>4</td><td>330 ~ 189.5</td></tr>
<tr><td>8</td><td>165 ~ 94.75</td></tr>
<tr><td>15</td><td>82.5 ~ 47.4</td></tr>
<tr><td>30</td><td>41.25 ~ 23.7</td></tr>
<tr><td>60</td><td>20.60 ~ 11.85</td></tr>
<tr><td>125</td><td>11.83 ~ 7.04</td><td>+0.15
-0.6</td></tr>
<tr><td>250</td><td>5.34 ~ 2.07</td><td>±0.45</td></tr>
<tr><td>500</td><td>2.85 ~ 1.33</td><td rowspan="2">±0.55</td></tr>
<tr><td>1000</td><td>1.43 ~ 0.67</td></tr>
</table>
1/1000 sec. exposure deviation:
±25%</td><td>Clutch button load:
200 ± 50 gr</td><td>Self-timer operation:
10 ± 3 sec.</td></tr>
<tr><td>Rewinding</td><td></td><td></td><td>Rewind button, in the pressed state, can be reset to the original position within the period of 2 cockings.</td></tr>
<tr><td>Backlid</td><td>Backlid lock backlash:
0.2 or less (at backlid center).</td><td>Adhesion pressure on pressure plate rail face:
600 1000 gr at picture center.</td><td>Lock claw is at all times being pulled under tension.
Backlid can be closed without removing this claw and can also easily be opened when the lock claw is pulled out.</td></tr>
</table>

Mechanism	Tolerance	Load & Check Point	Operation
Counter	The counter shall read counter No.1 at 3 cocking operations after closing backlid.		1. Film frames shall be advanced up to 38 according to the picture taken. 2. Wherever the counter reading, the scale plate shall return to the start position when the backlid is opened.
Finder Cover	1. Finder focus: 40.54 ± 0.02 mm 2. Finder frame: Frame shall cover 90% (both horizontal and vertical) of picture and shall not go out beyond 87% from the center. 3. Axis shift: within ±100' 4. Image collapse: within ±90' 5. Blur on one side: within 0.025 at 15 mm radius on the orthogonal line of picture frame.		
Synchro Circuit	1. Insulation resistance: more than 30 M when checked with a DC500V meggar (temp.: 20 ±15°; relative humidity: 65 ±20%).		1. When tested at 3V DC, perfect continuity shall be established. 2. When specified hot shoe clip is attached, perfect continuity shall be established.

Mechanism	Tolerance	Load & Check Point	Operation
Combination of Camera Body and Lens Barrel	1. F-value error due to metal fitting at the time of lens barrel shall be within 3 EV at the F-value mark. 2. With the lens barrel rest against the camera body and secured, the F-value mark shall be within ±0.3 EV with respect to the bottom position of F-value mark. (See figure in paragraph 2-6-3.)	Mounting and dismounting torques of lens barrel shall be: 3 kg-cm ~ 12 kg-cm.	When the lens barrel aperture is set to EE, EE ring is surely released by the action of the Auto aperture pin. When manually changing it, the Mark shall clearly appear within the viewfield when the EE ring is locked.
Wind Completion Indication			Prior to winding, the red mark appears, but it turns into green immediately upon winding completion. After releasing, the shutter shall be closed and green mark shall be changed to red at the same time.
Multi Exposure	Film drift due to multi exposure shall be less than 0.05 mm.		Film shall not advance by multi exposure mode operation. Also, the counter shall not operate.
T Exposure			With speed dial set to B and release button depressed, then off the lock knob. At this time, shutter shall remains open when the hand is removed therefrom. Also, when the lock knob is moved back to the ON position, the T shall be released and shutter closed.

Mechanism	Tolerance	Load & Check Point	Operation
Others	Product mark by type. 		

Attached Drawing