

Mamiya

SERVICE INSTRUCTIONS

FOR

**Mamiya RB 67
PRO S**

Trouble Shooting

Repair Manual

**Special Tool List and Special Measuring
Instrument List**


Mamiya
CAMERACO., LTD.
TOKYO, JAPAN

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T R O U B L E S H O O T I N G

Before repairing, refer to page 39 Special pointers on Using the Mamiya RB67 Pro-S of INSTRUCTIONS.

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<u>Defect</u>	<u>Possible cause</u>	<u>Reference page</u>
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<u>Defect</u>	<u>Possible cause</u>	<u>Reference page</u>
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REPAIR MANUAL

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Camera Body

1. Removing and attaching methods for the relative parts of Right and Left panels

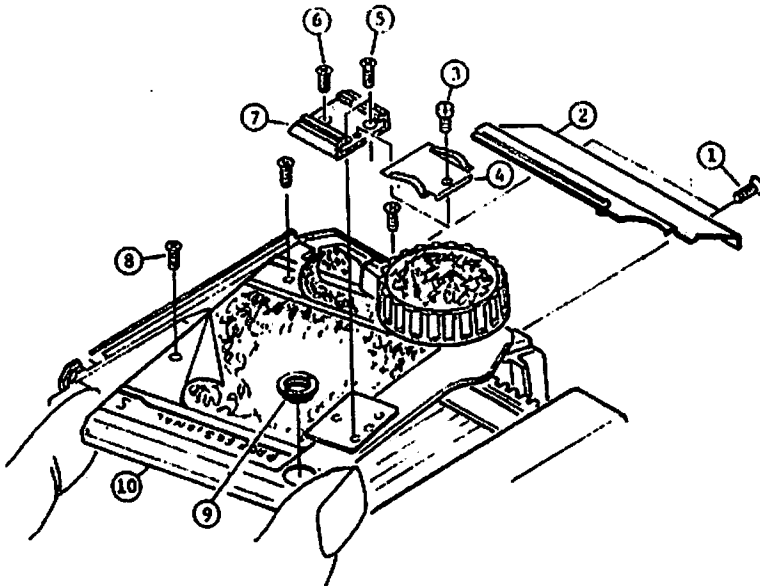


Fig.1

1-1 Right panel (aRS1631)

- (1) The arabic numeral in a circle indicates the procedure of removing.
- (2) Slide Right panel forward, then pull out upward as shown in Fig.1.

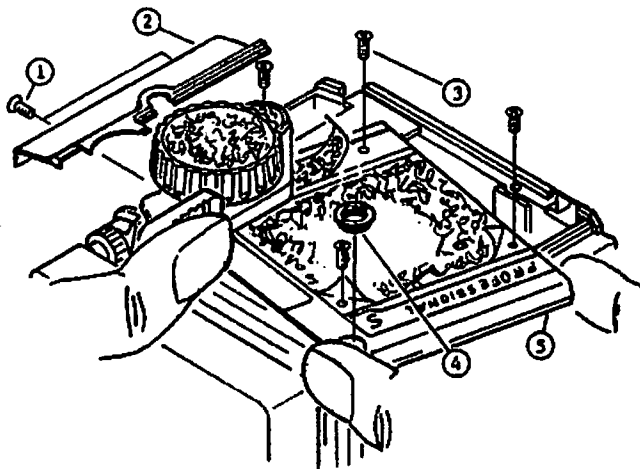


Fig.2

1-2 Left panel (aRS1641)

- (1) The arabic numeral in a circle indicates the procedure of removing.
- (2) Press down the cocking lever and slide Left panel forward, then pull out upward as shown in Fig 2.

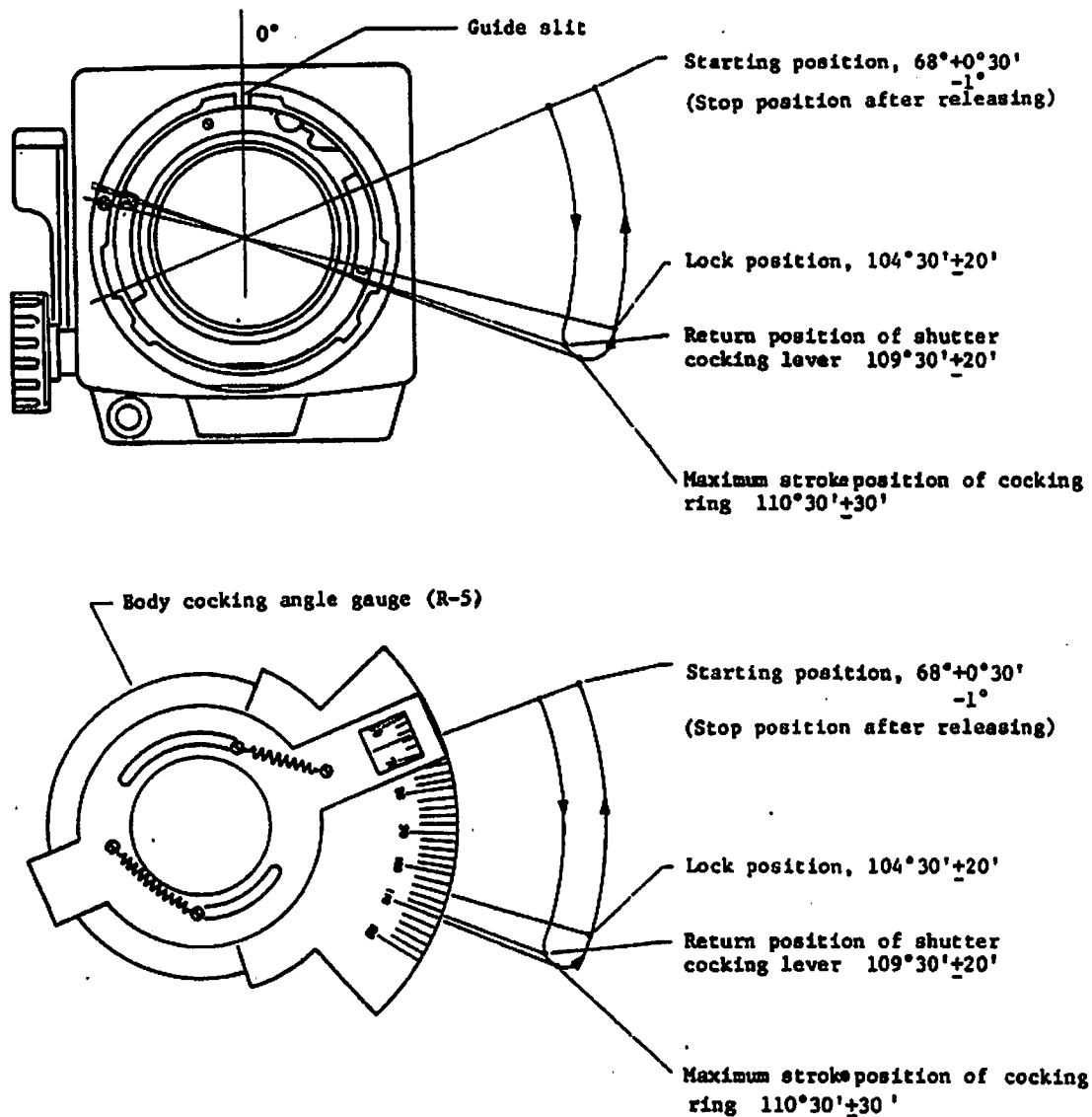
1-3 Attaching

- (1) Attach Right and Left panels in the reverse order of the arabic numeral in a circle.

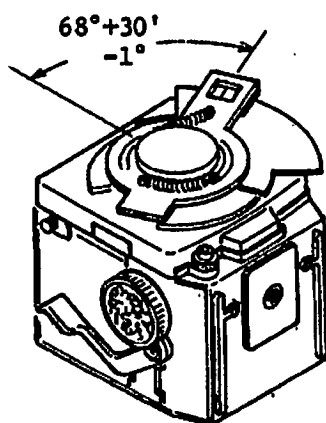
* Light baffle plate, lower (RS1134) should be placed on Light baffle plate, upper (RS1133).

2. Operating shutter cocking ring, shutter release and mirror raising mechanism

2-1 Operating standard for Body cocking ring



2-2 Checking the operating position of shutter cocking ring



a) Checking starting position

1. Press the shutter release button.
(Mirror and Light baffle plate snap up.)
2. Check it turning lightly the tip of the gauge lever with the fingers.

Fig.5

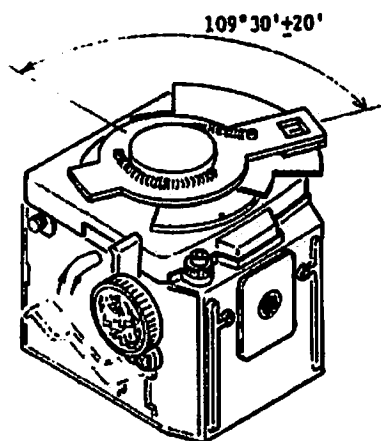


Fig. 6

b) Checking return position

1. While turning the tip of the gauge lever with the fingers counterclockwise, press down the shutter cocking lever gradually until the scale of the gauge indicates 109° ; then release the fingers.
The shutter cocking lever does not return to the original position if the release position is inside the standard.
2. Operate as in 1 until the scale shows $109^\circ 50'$.
The shutter cocking lever returns to the original position if the release position is inside the standard.

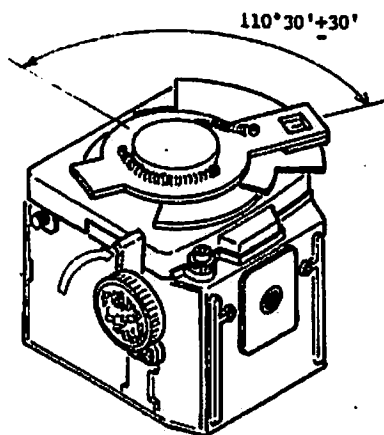


Fig. 7

c) Checking stroke allowance

Check it where the shutter cocking lever is fully pressed down while turning the tip of the gauge lever with the fingers counterclockwise.

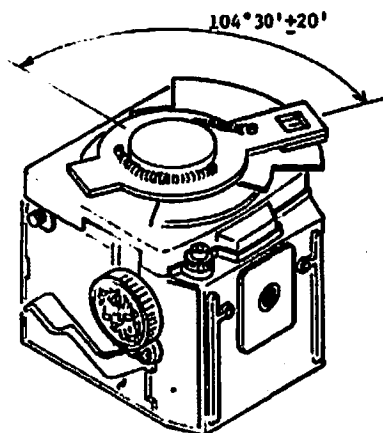


Fig. 8

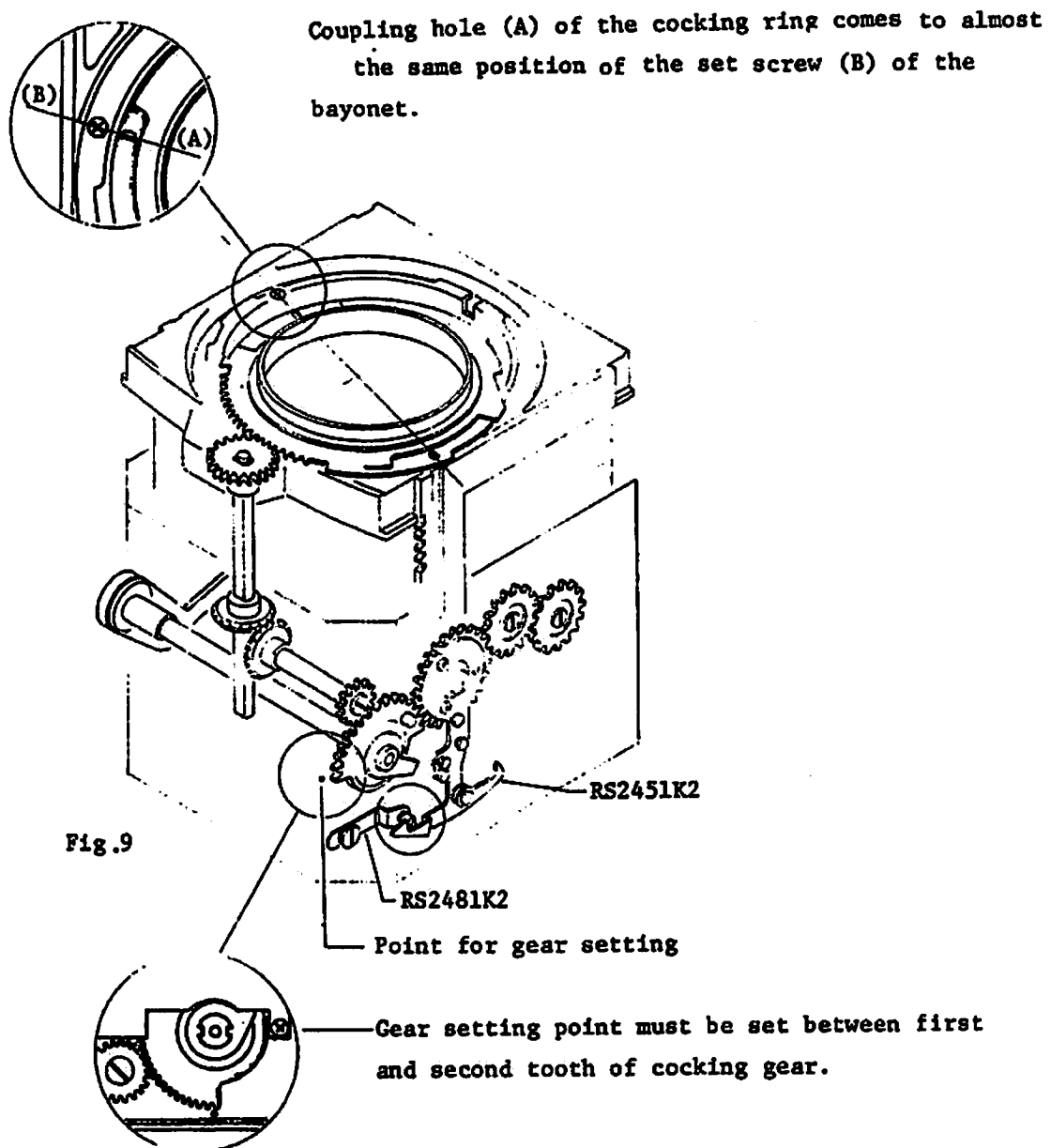
d) Checking lock position

After setting the mirror and returning the shutter cocking lever, check it turning the tip of the gauge with the fingers counterclockwise.

2-3 Adjusting the position of Shutter cocking ring

a) Standard gear meshing position of cocking ring at lock position

Standard gear meshing position is as shown in Fig. 9 when Mirror raising lever (RS2451K2) is hooked on Hang lever (RS2481K2) after setting the mirror.



b) Adjusting lock position

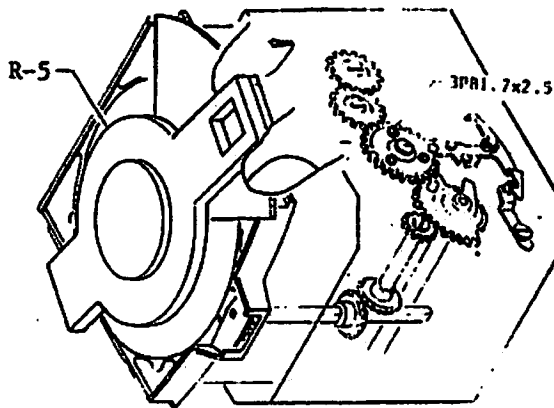


Fig.10

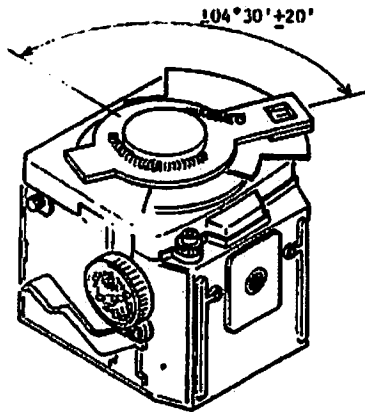


Fig.11

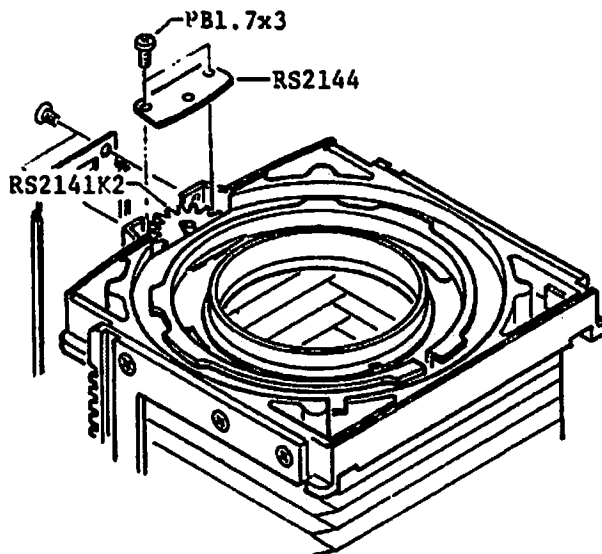


Fig.12

- (1) Adjust the lock position($104^{\circ}30' \pm 20'$) of cocking ring by sliding Mirror raising lever after loosening three Screws (3PB1.7x2.5).

Use Body cocking angle gauge (R-5) to adjust the lock position as shown in Fig. 10.

- (2) In case the above method fails to adjust, change the meshing point between the gear of Cocking shaft and Cocking ring by one tooth after removing Catch plate (RS2144) as shown in Fig. 12.

Then confirm the operation.

C) Adjusting return position of Shutter cocking lever

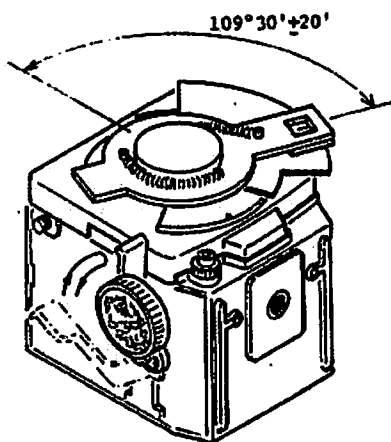


Fig. 13

- (1) Shutter cocking lever shall return to the original position when the lever of the gauge comes to the standard of $109^{\circ}30' \pm 20''$.

At this position, Ratchet pawl is separating from the tooth of Ratchet gear as shown in Fig. 14.

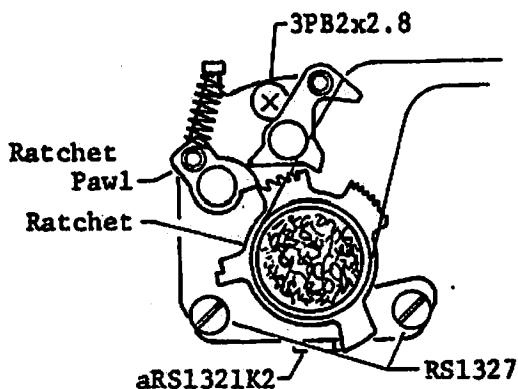


Fig. 14

- (2) In case the lever fails to return, adjust the position of Cocking base plate (aRS1321K2) after loosening Screw (RS1327) and (3PB2x2.8BN1).

Screw (RS1327) is tightened with Nut from inside of the body.

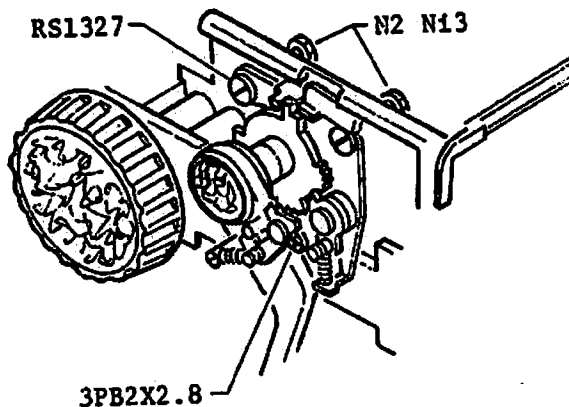


Fig. 15

* In case the return position exceeds more than $109^{\circ}50'$, Cocking lever may not return.

* When it shows less than $109^{\circ}10'$, shutter does not cock.

2-4 Reassembly relative to mirror raising gear mechanism

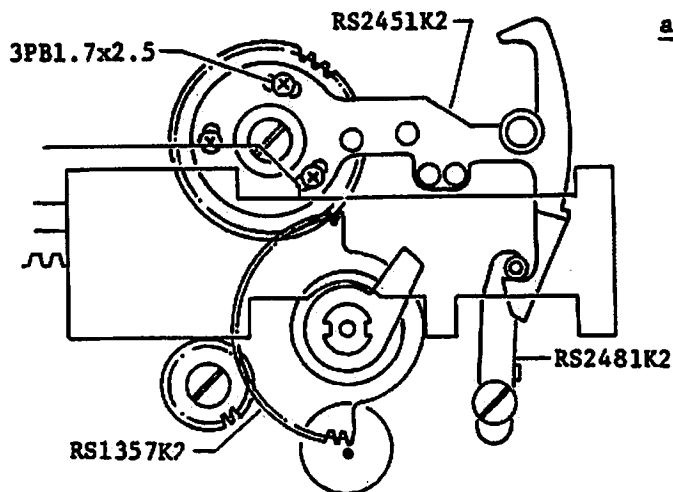


Fig.16

a) Wheel setting and mirror raising lever

Align the space between the first and second tooth of Cocking gear (RS1357K2) with the point for gear setting when Mirror raising lever (RS2451K2) is hooked on Hang lever (RS2481K2).

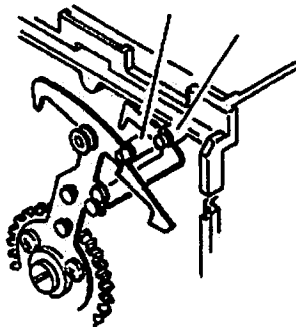


Fig.17

b) Adjusting pin for mirror holder and Light baffle plate

Operate Mirror raising lever (RS2451K2) and Light baffle plate lever (RS2475K2) with the fingers as shown in Fig. 17. These levers shall operate smoothly. Mirror and Light baffle plate shall be free from play when they are raised. Adjust play by bending pin for Mirror holder and Light baffle plate.

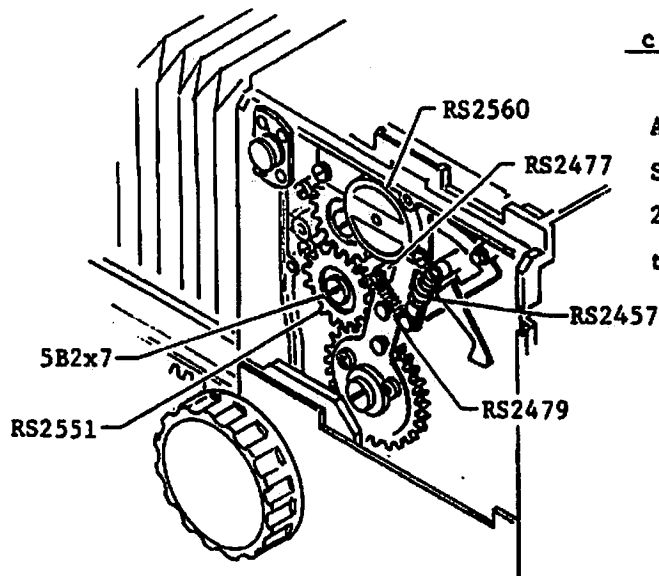


Fig.18

c) Attaching Governor

Attach Spring (RS2457), Collar (RS2477), Spring (RS2479), Governor (RS2560K2) and 2 pieces of Gear (RS2551) in order; then tighten 2 pieces of Screw (5B2x3) securely.

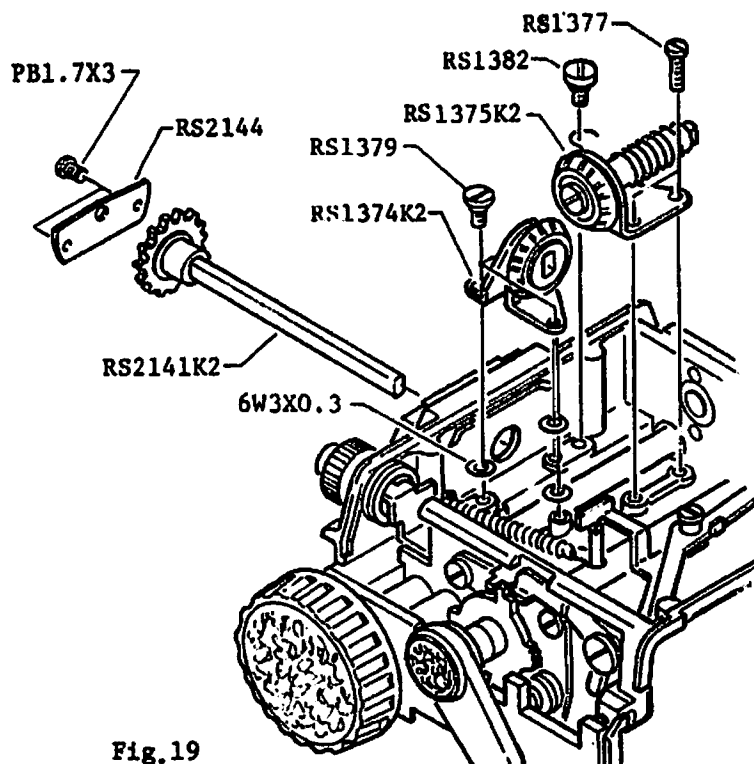
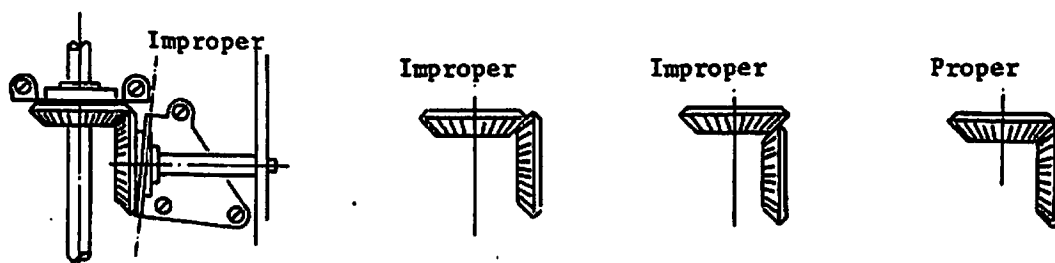


Fig. 19

d Attaching Bevel gear

- (1) Tighten Bevel gear (RS1374K2) with Shoulder screw (RS1379).
- (2) Attach Bevel gear (RS1375K2) with Screw (RS1377) and (RS1382)
- (3) Adjust the position of Bevel gear (RS1375K2) so that it moves smoothly.



e) Attaching Cocking shaft

- (1) Attach Cocking shaft (RS2141K2).
- (2) Position Bevel gear so that the end of Cocking shaft comes to the position of Nut located at the rear part of the body when Front panel (RS2111) is retracted.

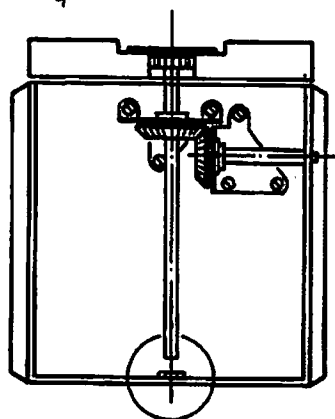


Fig. 20

f) Winding Spring

- (1) Wind Spring (RS1381) with 2 1/4 turns and tighten Idle gear (RS1361) with Screw (RS1368) when the mirror is raised.
- (2) Check the smooth operation of Mirror raising lever.

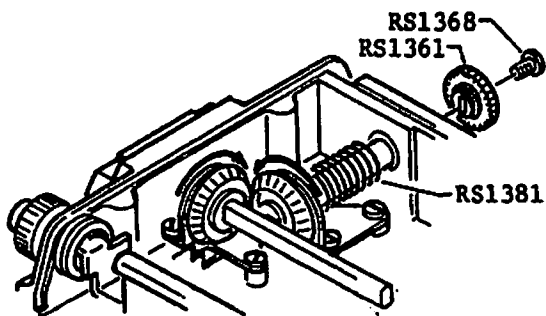


Fig. 21

g) Attaching Cocking ring (RS2133)

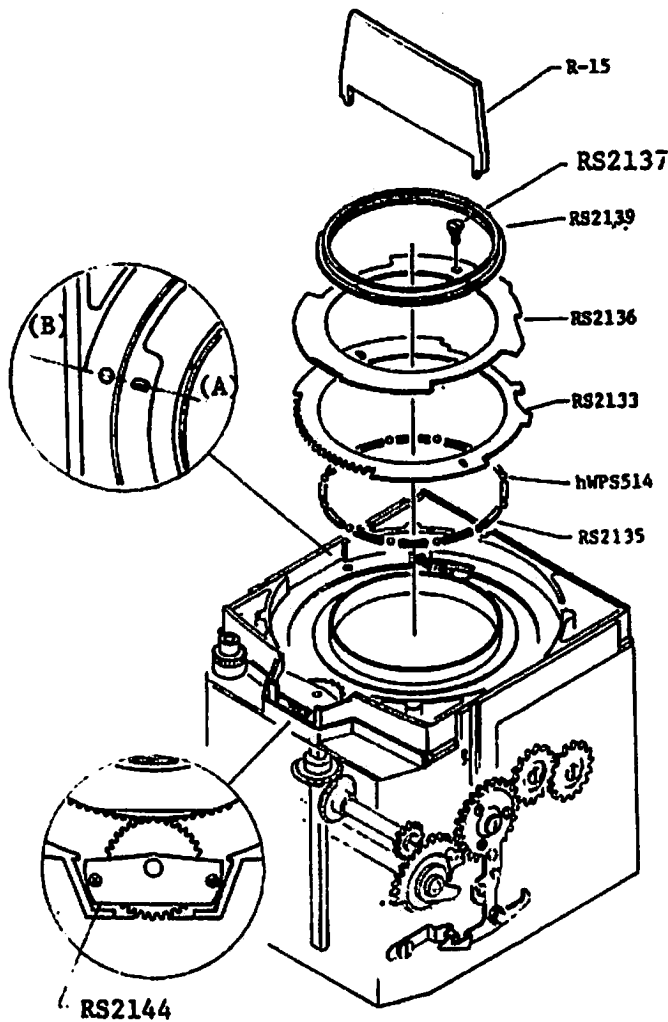


Fig 22

h) Check operations of gear relation

- (1) Mirror raising lever is hooked on the lever.
- (2) Insert a driver into the hole of the cocking ring and move clockwise. Confirm that the cocking ring returns to its original position when gently releasing it as shown in Fig. 23.
- (3) At original position, Cocking ring shall not move counter-clockwise.

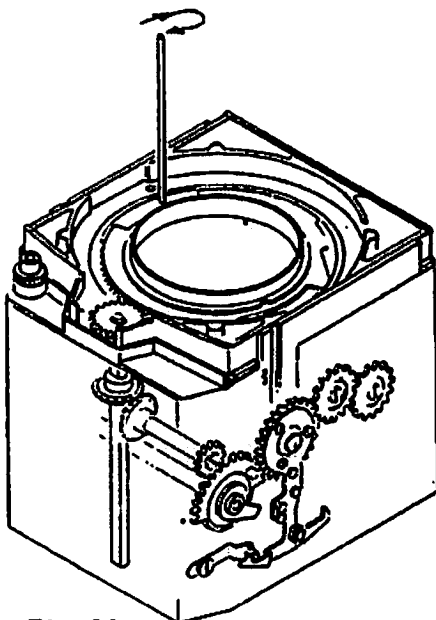


Fig 23

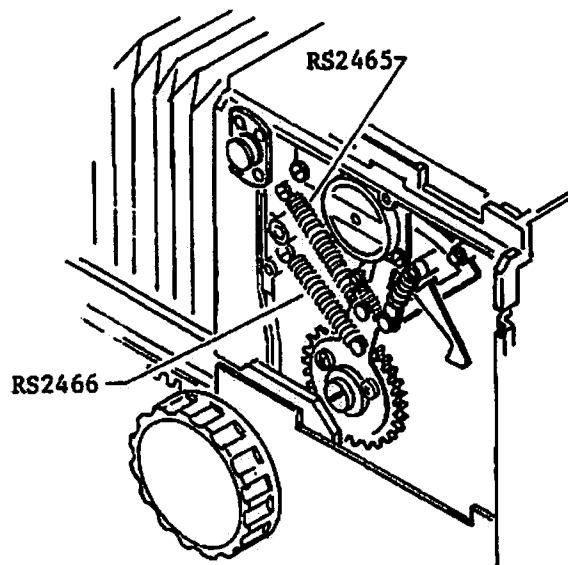


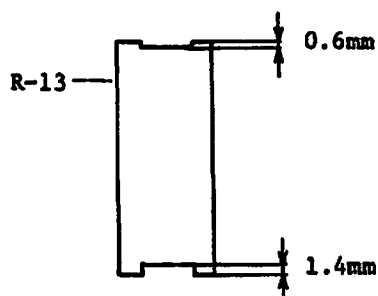
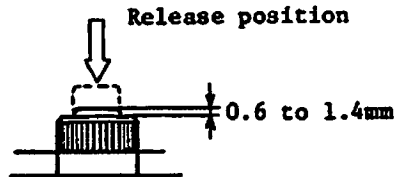
Fig.24

1) Attaching Spring

- (1) Attach Spring (RS2465) and (RS2466).
 - (2) Check raising condition of the mirror holder and the light baffle plate by operating the mirror raising lever.
- * Do not operate the mirror raising lever only by installing the spring (RS2465, RS2466) without attaching the governor.

- Note :
- (1) Refer to attaching Bayonet 7-1 b
 - (2) Refer to Adjusting the position of Shutter cocking ring 2-3 a,b and c.
 - (3) Check the shutter charging and releasing after attaching lens to the body.

3. Release position of shutter button



- (1) Use Shutter release button check gauge(R-13) to check whether shutter release button can be released at 0.6mm side and can not be released at 1.4mm side.

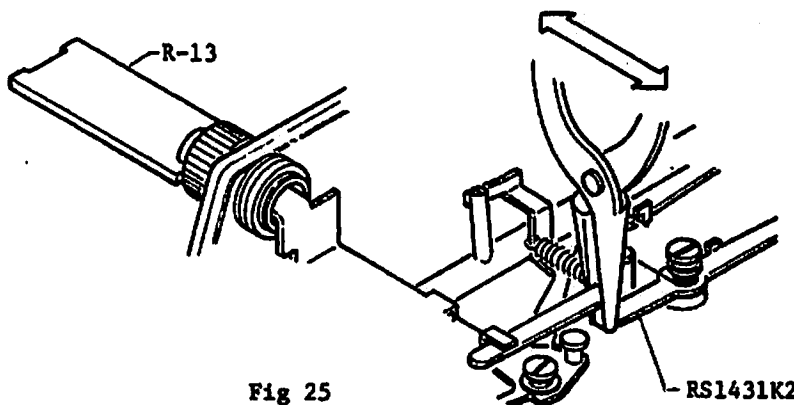
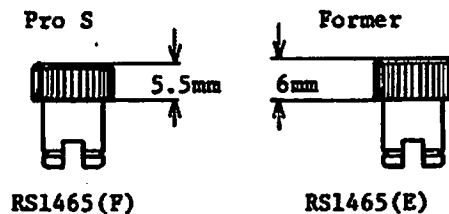


Fig 25

- (2) Adjust the release position by bending Release lever(RS1431K2) with a pincers.



NOTE:

There are 2 kinds of Locking hub (RS1465).

Type (F) for RB67 Pro-S

Type (E) for RB67 only.

4 Resetting prevention mechanism of Cocking lever

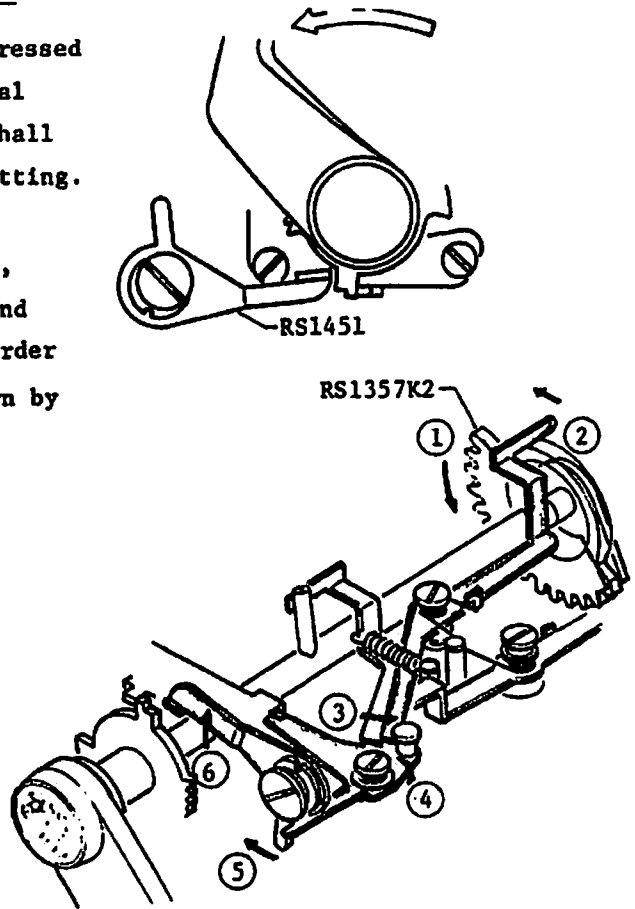
4-1 Operation mechanism

a) Resetting prevention and release

When Shutter cocking lever is pressed down and returned to its original position, Stop lever (RS1451) shall prevent Cocking lever from resetting.

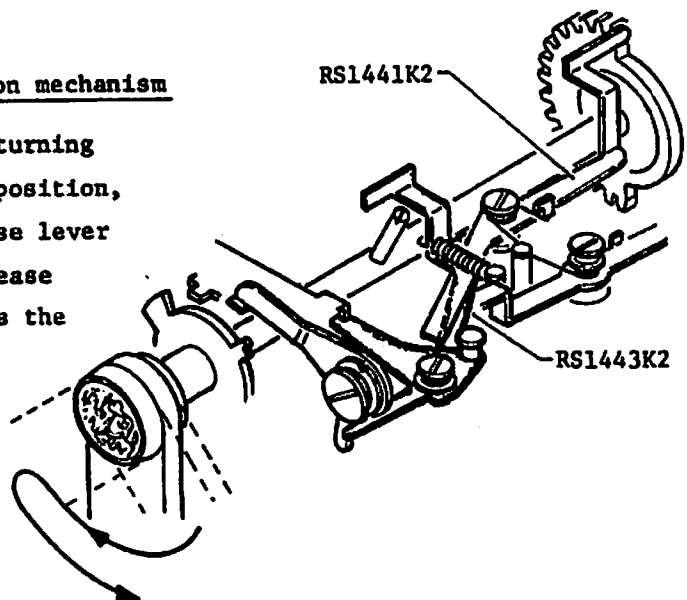
When Shutter button is released, Cocking gear (RS1357K2) turns and relative parts operate in the order of numerals in a circle as shown by the arrow in Fig. 27.

Then Stop lever comes off from Ratchet plate, and Cocking lever can be reset.



b) Shutter release prevention mechanism

When Cocking lever is returning halfway to its original position, operation of Lower release lever (RS1443K2) and Upper release lever (RS1441K2) prevents the shutter button from releasing.



4-2 Adjusting procedure

a) Clearance between Stop lever and Ratchet plate after shutter setting

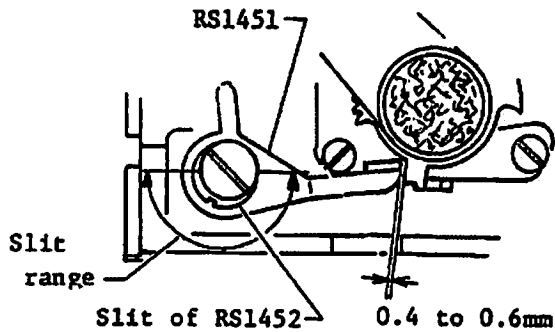


Fig. 29

After setting Shutter cocking lever, clearance between the edge of Stop lever (RS1451) and Ratchet plate shall be kept approximately 0.4 to 0.6mm. (Fig. 29)

Clearance can be adjusted by turning Eccentric hub (RS1452).

The slit of Eccentric hub is placed within a range as shown by the arrow. (Fig. 29)

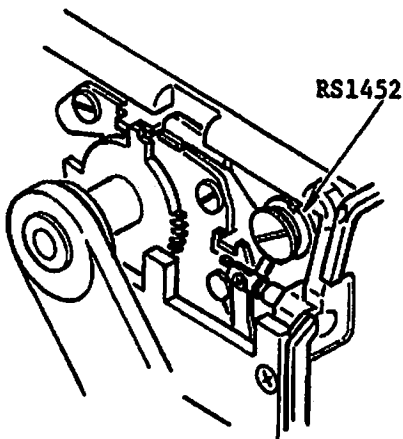


Fig. 30

* After finishing adjustment, Shoulder screw is tightened with a nut inside of the body and glued by adhesive (DB Bond).

- NOTE:
1. Shutter button may not release when Cocking lever is returned rapidly exceeding the clearance of less than 0.4mm.
 2. Shutter button may not release by a slight touch with a finger on Cocking lever forward exceeding the clearance of more than 0.6mm.

**b) Clearance between Stop lever and Ratchet plate ,
when starting shutter setting**

Above clearance shall be kept 0.3 to 0.5mm,
when shutter cocking lever starts to set.

(Fig. 31)

Adjustment can be done by bending the edge of
Stop lever (RS1421K2) with a pincers. (Fig. 32)

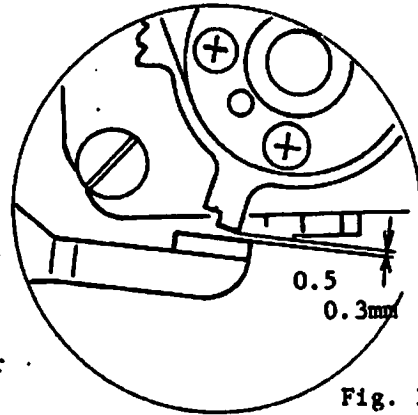


Fig. 31

* When clearance is very little, Cocking lever
may not be pressed down perfectly.

* When exceeding more than 0.5mm, Cocking
lever may stop half-way with a bounce and
shutter button can not be released due
to the followings.

Ratchet plate springs up before Stop
lever puts in Ratchet plate.

Consequently Ratchet plate is caught by
Ratchet pawl.

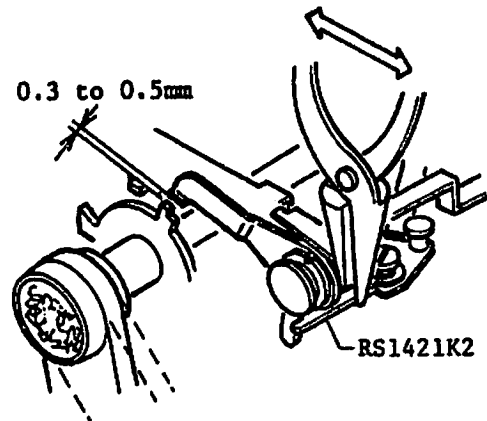


Fig. 32

**c) Adjusting Upper release lever (RS1441K2)
after shutter setting**

Adjust the clearance between Stop
lever (RS1421K2) and Upper release
(RS1441K2) lever by bending the edge of
Upper release lever with a pincers so
as to keep 0.5 - 1mm. (Fig. 34)

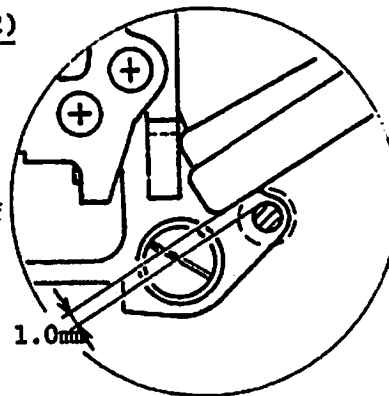


Fig. 33

* After adjusting, confirm the clearance
between Stop lever and Ratchet plate
by releasing Shutter button.

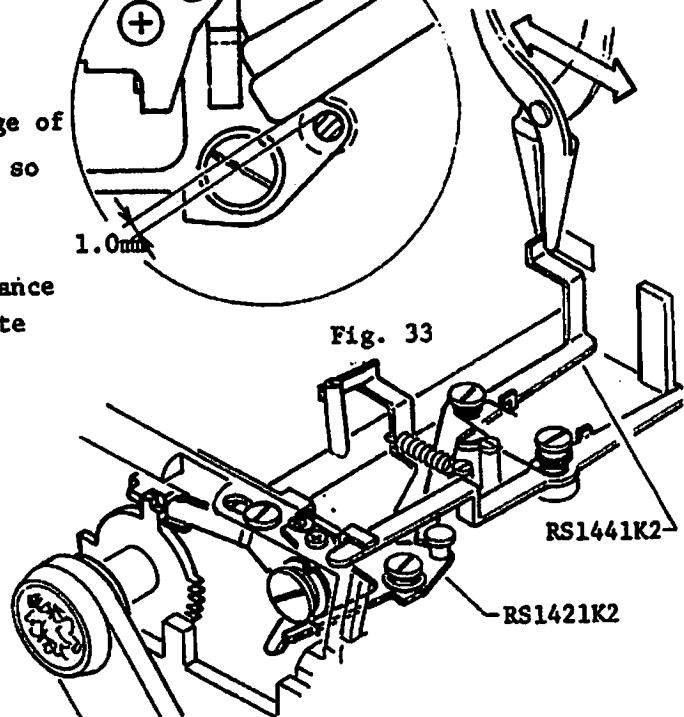


Fig. 34

Note: Difference of adjusting method between former RB67 and RB67 Pro-S.

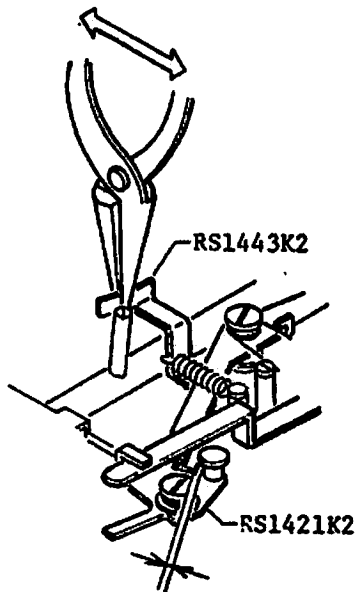


Fig. 35

RB67 (Former model)

After setting shutter cocking lever, bend the edge of the Lower release lever (RS1443K2) to keep the clearance of 1 to 2mm from the pin of Stop lever (RS1421K2) by using a pincers as shown in Fig 35.

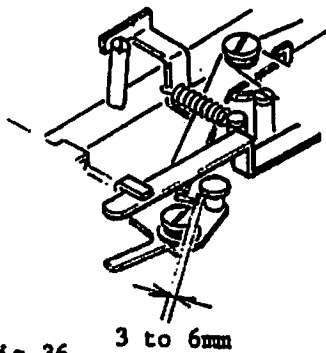
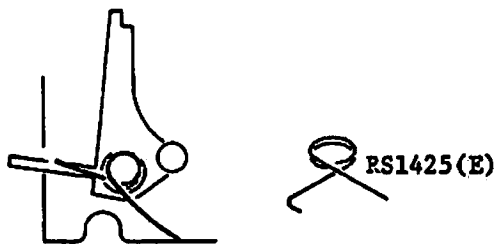
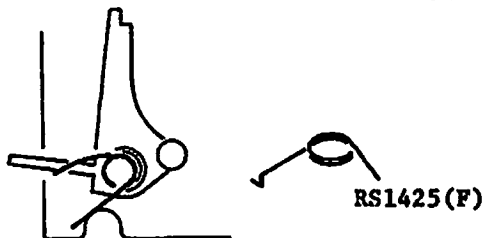


Fig. 36

RB67 Pro-S

No Adjustment is needed for Lower release lever.
(Lower release lever is kept approximately 3 to 6mm from the pin of Stop lever.

- * Two types of Spring (RS1425) available
- RS1425(E) for RB67 (Former model)
- RS1425(F) for RB67 Pro-S



5 Replacing Mirror holder and Light baffle plate

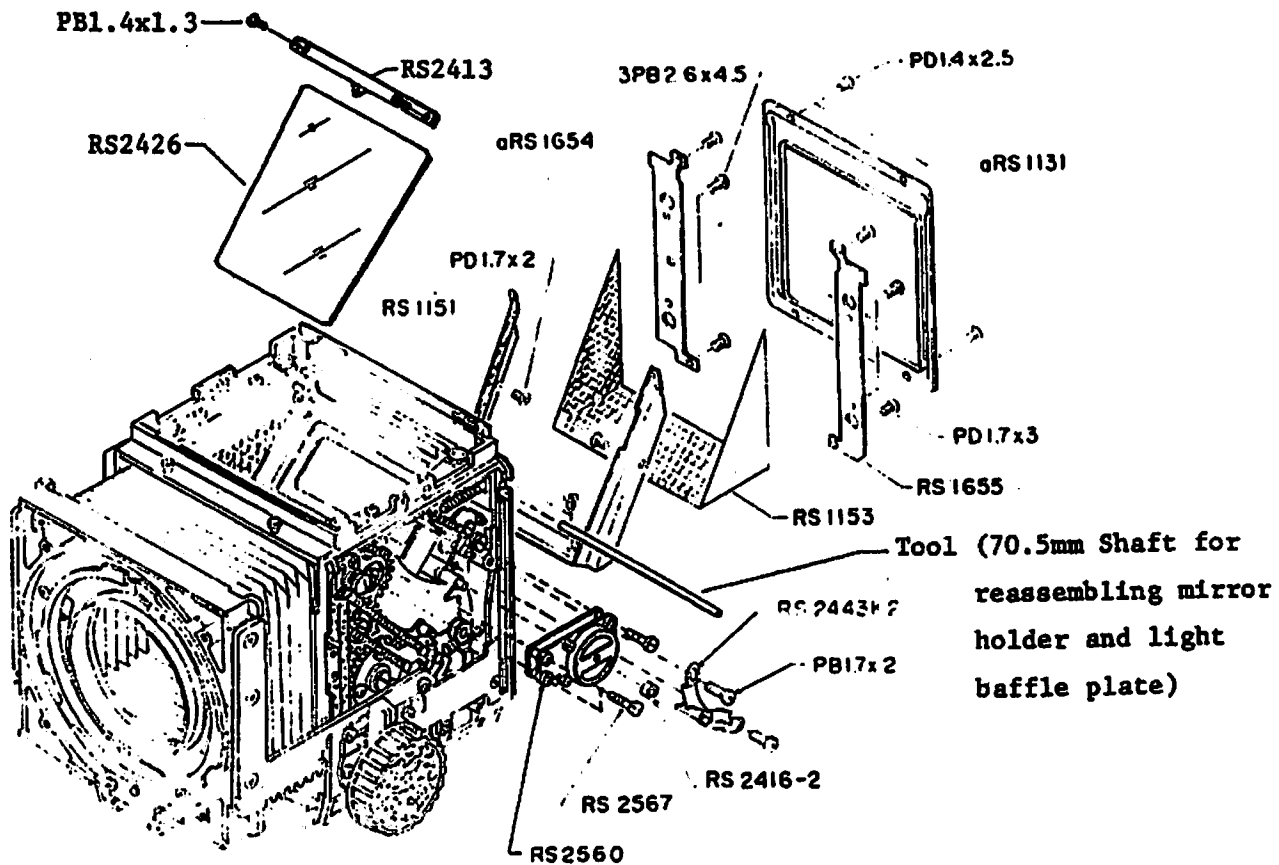


Fig 37

5-1 Removing

- (1) Remove above parts keeping Mirror being pressed down.
- (2) Insert Tool (71.5mm shaft) for reassembling Mirror holder before removing them.
- (3) Remove them as shown in Fig. 38.

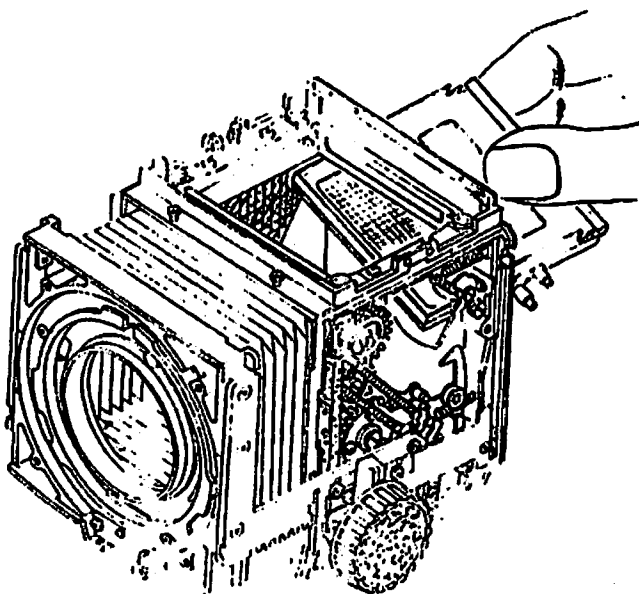


Fig 38

5-2 Attaching

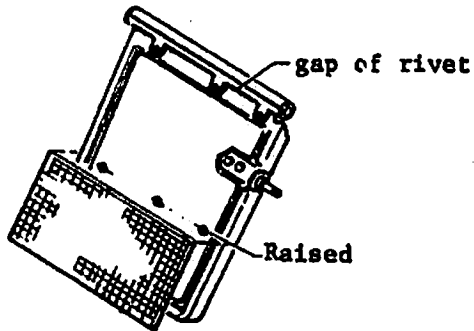


Fig. 39

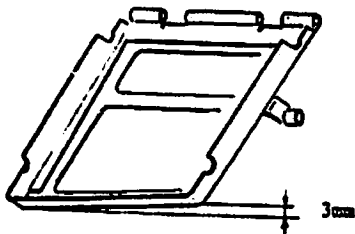


Fig. 40

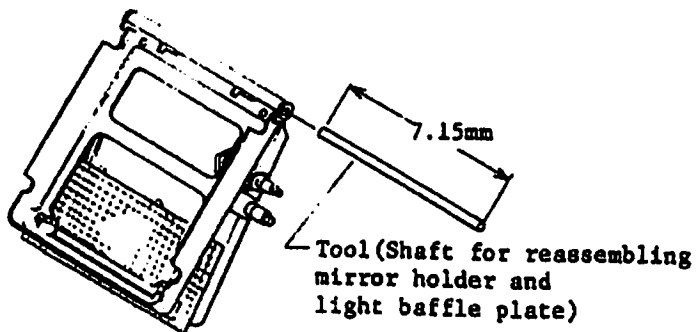


Fig. 41

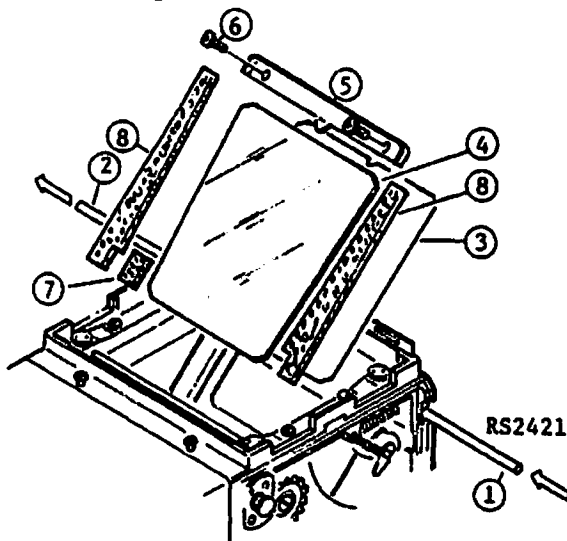


Fig. 42

- (1) Fill up gap of rivetted Light baffle plate by glue (DB. Bond), and paint mat lacquer.
- (2) The upper end of the mirror curtain is placed to set 3 raised marks.
- (3) In order to keep the parallel of Mirror holder, the left side of the Mirror holder is bent about 3mm as shown in Fig. 40.
- (4) Assemble in the reverse order of disassembly.
- (5) Replace shaft (RS2421).

- (6) Attach Mirror in the order of the numerals in a circle as shown in Fig. 42.
- (7) Mirror holder shall touch Stopper of both sides of the body.

6 Focusing track and focusing knob fixing lever

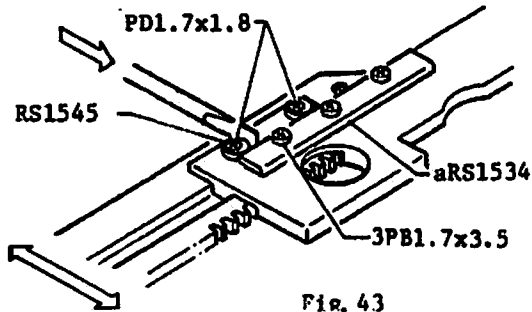


Fig. 43

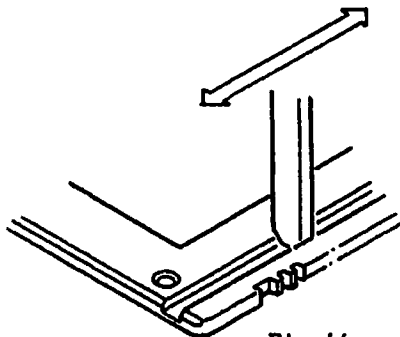


Fig. 44

6-1 Adjusting Rack plate

1. Extend the bellows.
2. Loosen Screw (3PB1.7x3.5).
3. Adjust the play and movement of the focusing track.
4. Tighten Screw (3PB1.7x3.5).
5. Support Screw (PD1.7x1.8BNi) with Eccentric collar (RS-1545) and tighten them.

NOTE: Use Screw lock to Screw (3PB1.7x3.5) and High lock S2 to Screw (PD1.7x1.8).

Before substituting Rack plate for new one, plane the edges of the groove by approximately 0.1mm. (Fig. 44)

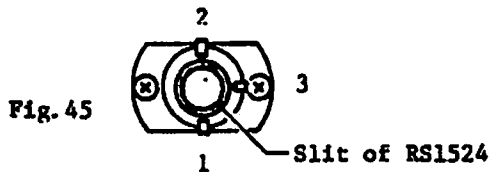


Fig. 45

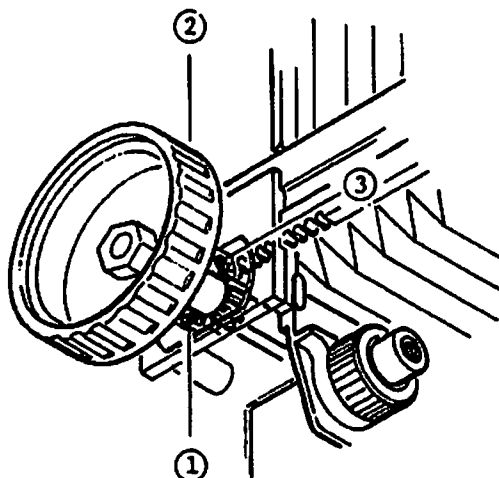


Fig. 46

6-2 Adjusting Focusing track

1. Slit of Pipe (RS1524) is positioned to the direction as shown in Fig. 45.
2. Adjust the mesh for Pinion shaft and Rack plate by fixing screws ① and ②.
3. Adjust the longitudinal play and torque of Pinion shaft by fixing screw ③.

6-3 Adjusting Focusing knob fixing lever

Focusing knob fixing lever shall operate at approximately 45 degrees as shown in Fig.47.

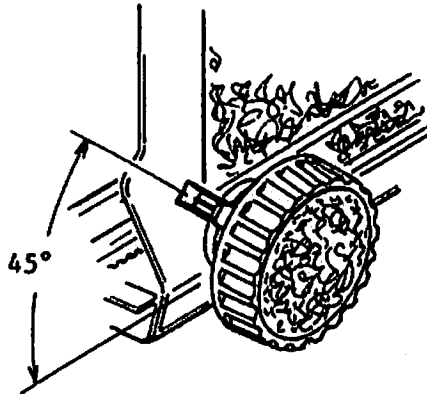


Fig.47

Adjustment

1. Remove Focusing knob.
2. Use Washer (6Wx0.05, 0.1 and 0.2) to adjust the position of Focusing knob fixing lever.

Washer (6Wx0.1) changes the angle of Focusing knob fixing lever approximately 45 degrees.

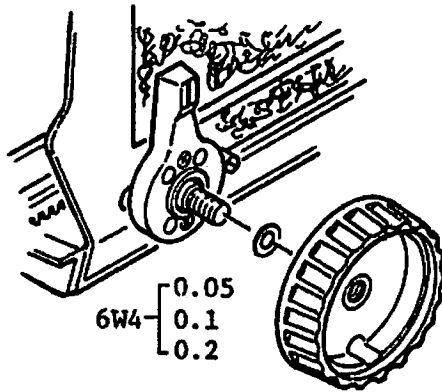


Fig.48

3. In case above method fails to adjust turn Setting ring (aRS-1486) or change the hole position of Setting lever (aRS-1481K2) after removing Screw (PD1.7x4.5BN1).

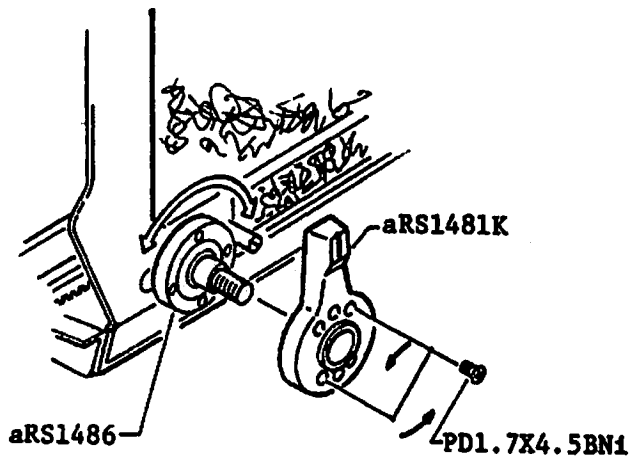


Fig.49

7 Body flange back and focus of view finder

7-1 Adjusting Body length

a) Setting Measuring Instruments

1. Place Camera body supporter (R-1) on Measuring instrument with dial gauge (U-1) and Standard gauge bar (R-2) on Camera body supporter (R-1).
2. Align the "0" on hand of dial with the hand.
3. Take Standard gauge bar off Camera body supporter.

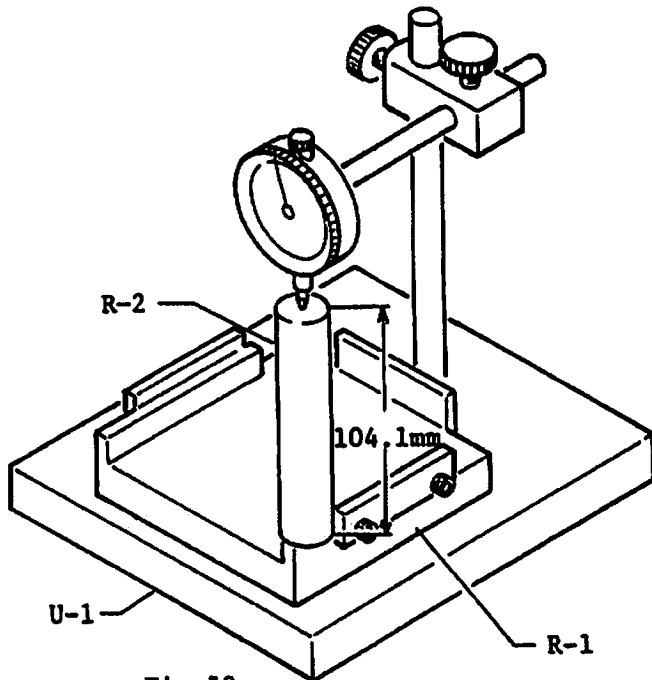


Fig.50

b) Attaching Bayonet

1. Attach Bayonet (RS2121K2)
2. Tighten 4 pieces of Screw (PD2.6x4.5cr3).
3. Place the Camera body on body supporter and parallel disc gauge (R-3) on Bayonet.

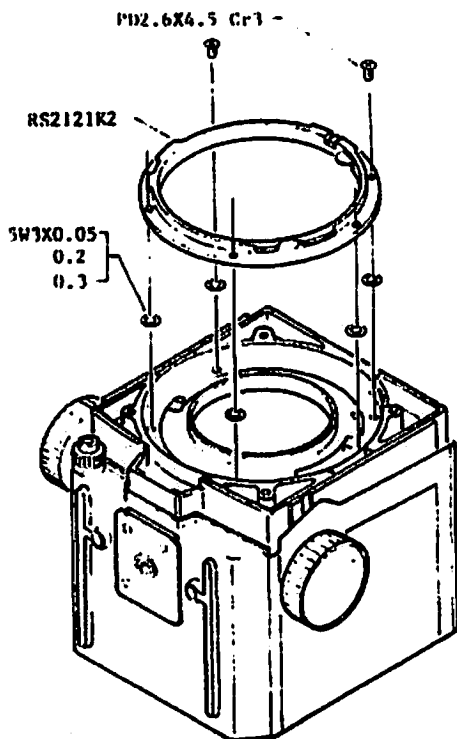


Fig.51

c) Adjusting parallelism

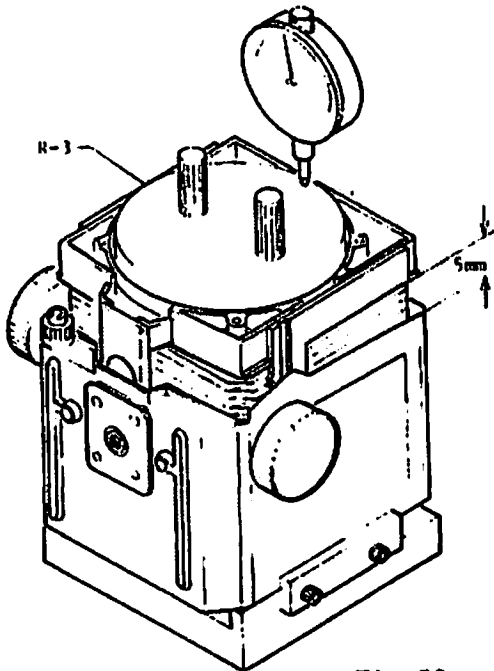


Fig.52

1. Extend the bellows by approximately 5mm.
2. Measure the parallelism at four corners. Parallelism at four corners shall be less than 0.1mm. Use Washer to adjust parallelism. (5W3x0.05, 0.2 and 0.3) as shown in Fig. 51, 52.

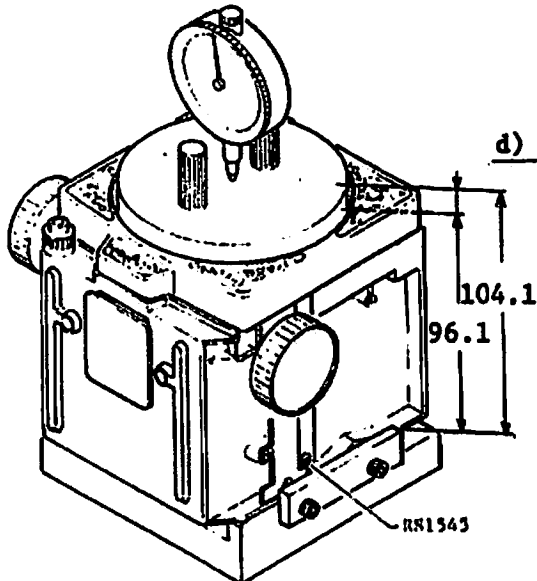


Fig.53

d) Adjusting infinity of Body length

1. Retract the bellows fully (infinity).
2. Measure the Body length at the center of Parallel disc gauge.
The Body length is 96.1mm
Use Eccentric stopper (RS-1545) to adjust the flange back.

NOTE: Both sides of Eccentric stopper shall hit with Guide plate simultaneously.

7-2 Adjusting focus of the view finder

- (1) Attach Focus checking ground glass frame (R-8) to the back of the camera body.
- (2) Set the chart at a distance of 1-3 meters.
- (3) Attach the lens to the camera.

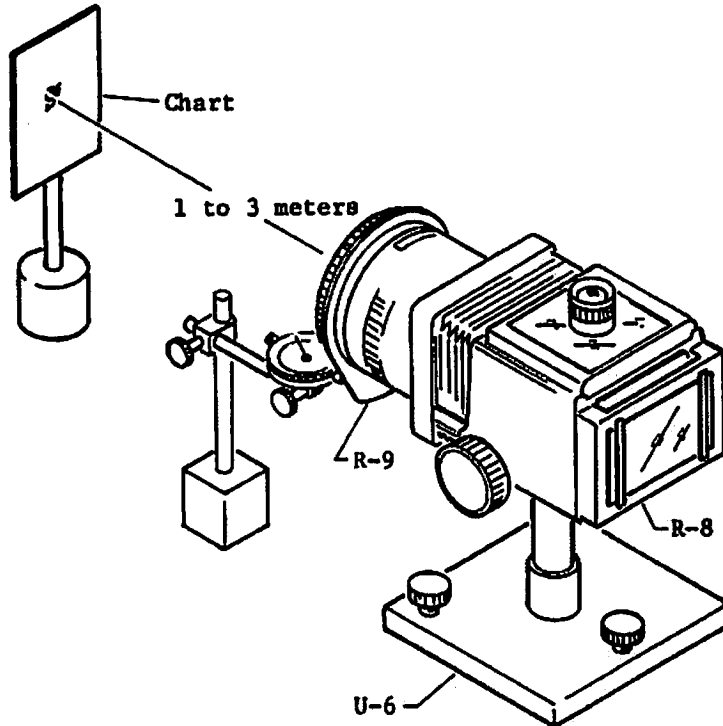


Fig.54

- (4) Attach Focus checking plate and ring (R-9) to the lens.
- (5) Place the camera on Camera body supporter (U-6).
- (6) Set Dial gauge with supporter.
- (7) Raise the mirror and focus on the chart while looking on the center of ground glass frame (R-8) then set the "0" point of the dial gauge.
- (8) Press down the mirror and focus on the chart while looking on the center of the focusing screen.

In this case dial gauge reading must coincide with "0".

In case dial gauge reading on does not coincide with "0", adjust the focus by equally turning.

Adjusting screw(RS2623) with adjusting driver (R-18).

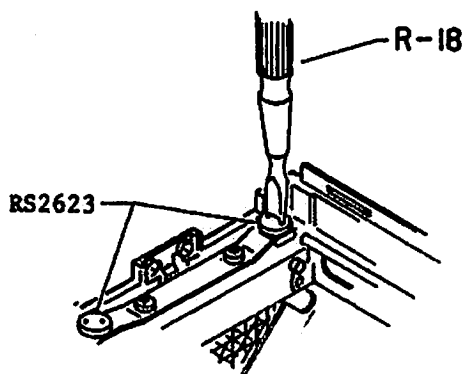


Fig.55

- * 1/4 turn of Adjusting screw shifts the focus by 0.1mm.

Note: Adjusting method without Dial gauge

Turn Adjusting screw equivalently with Adjusting driver so as to coincide focusing on Ground glass frame with that on Focusing screen.

NOTE: Focal point and Film guide rail position

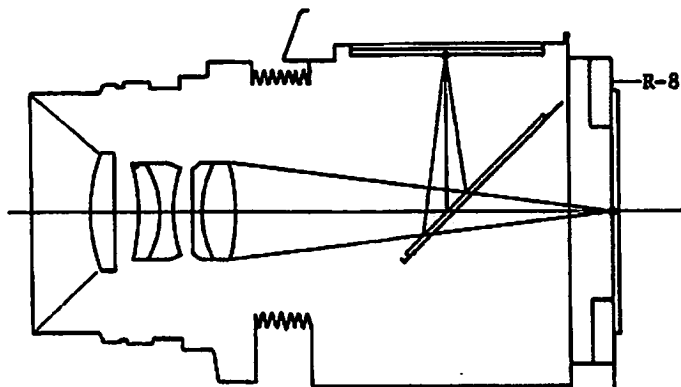


Fig. 56

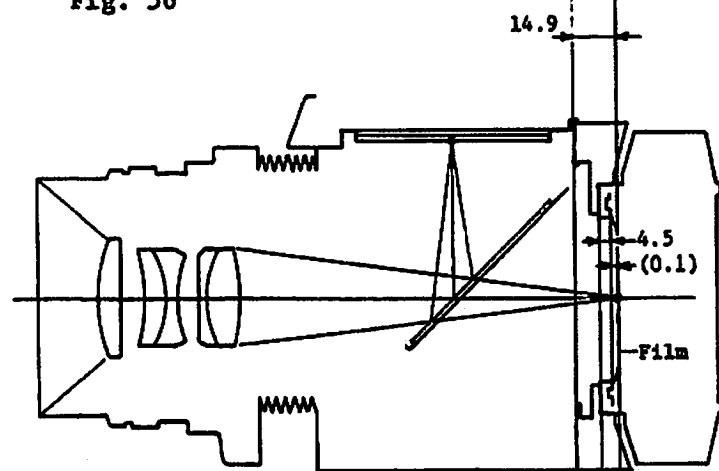


Fig. 57

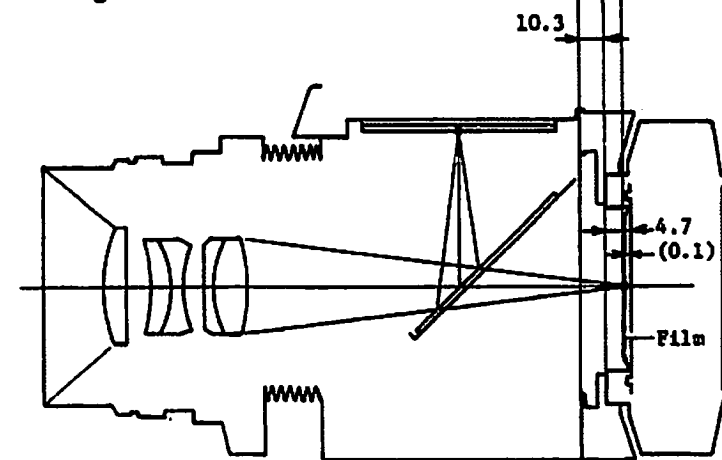


Fig. 58

1. Tool (R-8) Focusing Checking ground glass frame

Lens flange back is on Ground glass of Tool (R-8).

2. Pro-S Roll Film Holder

Film surface is 0.1mm shifting in the direction of rear side from Film guide rail

3. Roll Film Holder (Former model)

Film surface is 0.1mm shifting in the direction of front side from Film guide rail

* Use Tool (R-8) Focusing checking ground glass when adjusting Focusing.

8 Horizontal picture format indication mechanism

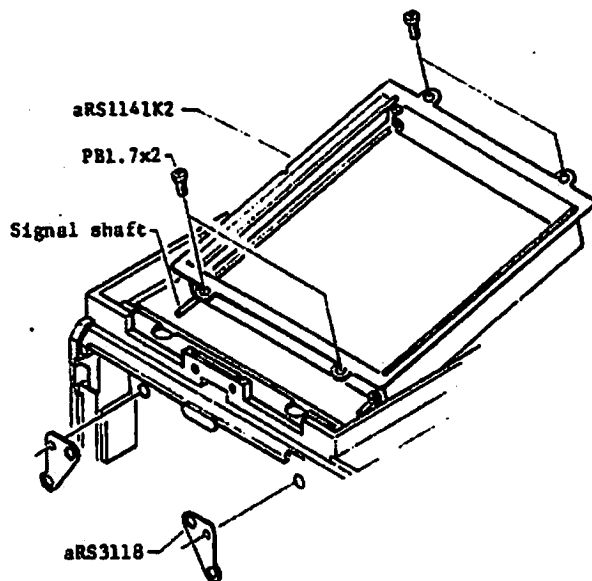


Fig. 59

8-1 Attaching Frame for Red bar assembly (aRS1141K2)

- (1) Attach above Frame with 4 pcs. of of Screws (PBL.7x2).
- (2) Attach 2 pcs. of Plate (aRS3118) so that Red signal bar moves slightly.

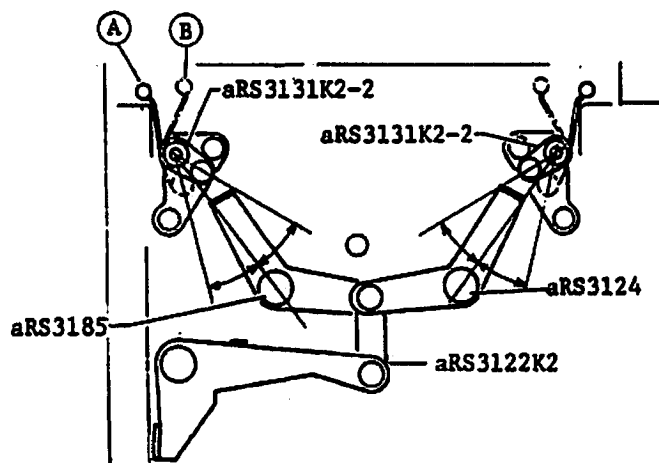
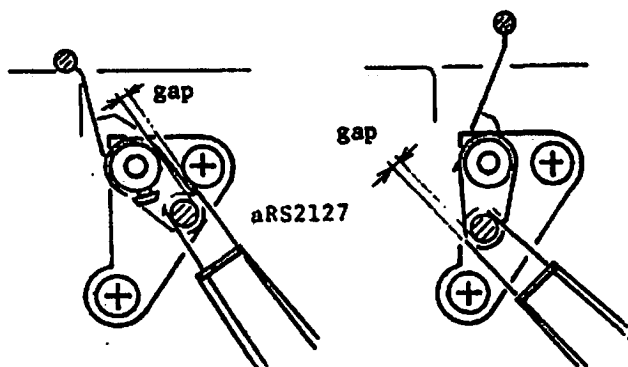


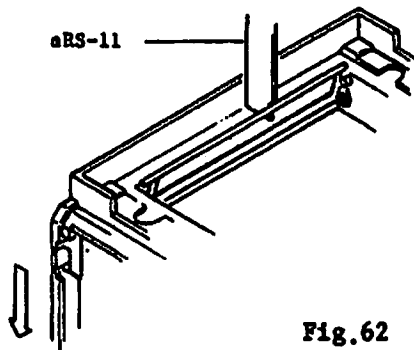
Fig. 60

8-2 Attaching Marking lever (aRS3131K2 1,2)

- (1) At vertical and/or horizontal position 2 pcs. of Marking lever are positioned so that Red signal bar moves to both sides equivalently against the center lines of Shoulder screw (aRS3124) and Shaft (aRS3185) from each shaft of Red signal bar.
- (2) Insert 0.1mm thick plate temporarily between Plate (aRS3118) and Marking lever when attaching Marking lever.
- (3) Check Retaining spring (aRS3127) so as to leave gaps equally both at the vertical and horizontal positions by turning Revolving adapter as shown in Fig. 61.



8-3 Adjusting Red signal bar



- (1) Turn the revolving adapter to the horizontal position.
- (2) Check the position of Red signal bar with Gauge for Red signal bar (aRS-11) as shown in Fig. 62.

Fig.62

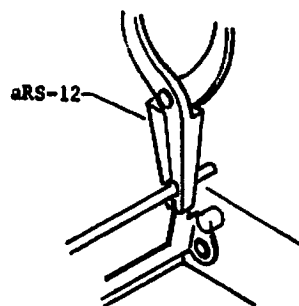
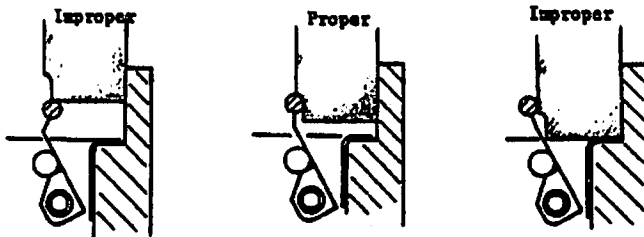
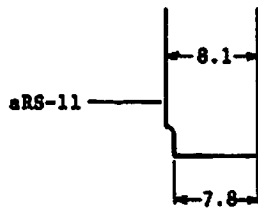


Fig.63

- (3) Bend arm with Adjusting pincers (aRS-12) as shown in Fig. 63
- (4) Check the position and movement of Red signal bar turning the revolving adapter to the horizontal position.

* Apply glued adhesive (Epoxy) to Red bar (aRS3111) when Red signal bar is out of place.

9 Releasing mechanism of Film winding stop

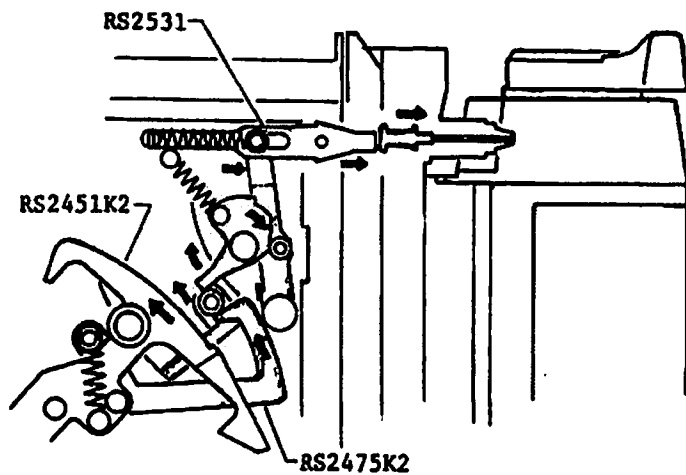


Fig. 64

9-1 Operation of Film winding stop mechanism

a) Horizontal position

Operation of mirror raising lever (RS2451K2) and Light baffle plate lever (RS2475K2) makes relative parts operate in the order of the arrow.

Then Coupling arm, right (RS2531) moves. (Fig. 64)

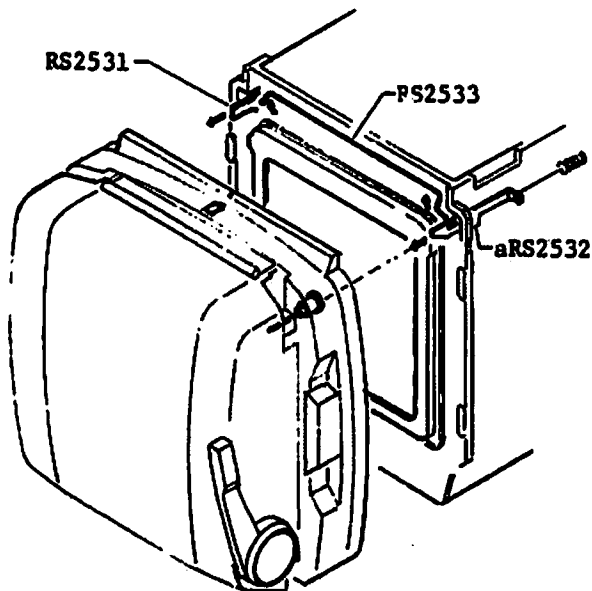


Fig. 65

b) Vertical position

In the above connection, Coupling plate, right (RS2531) links up with Coupling rod (RS2533) and Coupling arm, left (aRS2532).

9-2 Checking and adjusting Releasing mechanism
of Film winding stop

a) Adjusting positions and operation of
Coupling arm, right (RS2531)
(Horizontal position)

Rest position

Use 5.8mm side of Coupling lever check gauge
(R-16) to check the limit of 5.8mm.

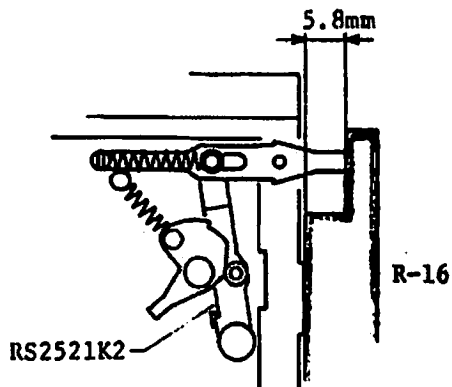


Fig. 66

Pushing position

- (1) Use 5.4mm side of the gauge (R-16) to check the limit of less than 5.4mm.
- (2) Confirm the smooth operation of Mirror keeping the gauge being attached.

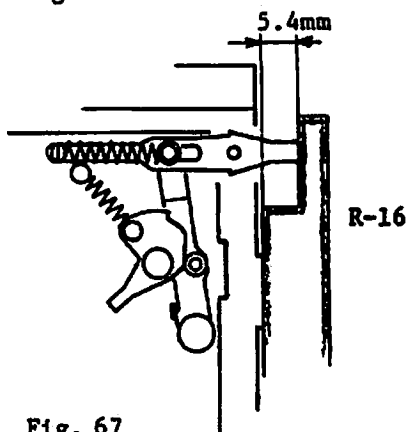


Fig. 67

Working length

Use 9.3mm plate of the gauge to check the
limit of move than 9.3mm.

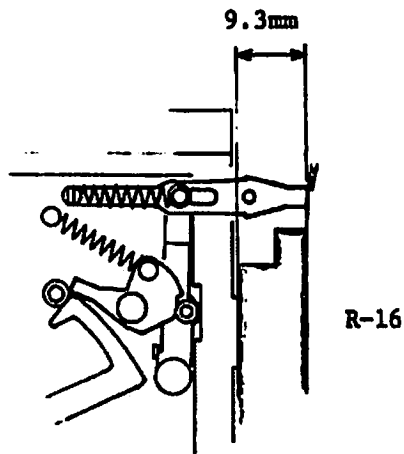


Fig. 68

When failing to satisfy above three limits,
bend Signal lever (RS2521K2) with a pincers.

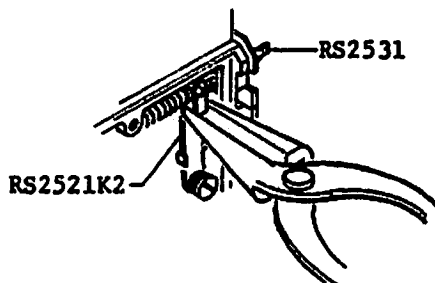


Fig. 69

b) Adjusting positions and operation of
Coupling arm, left (aRS2532)

(Vertical position)

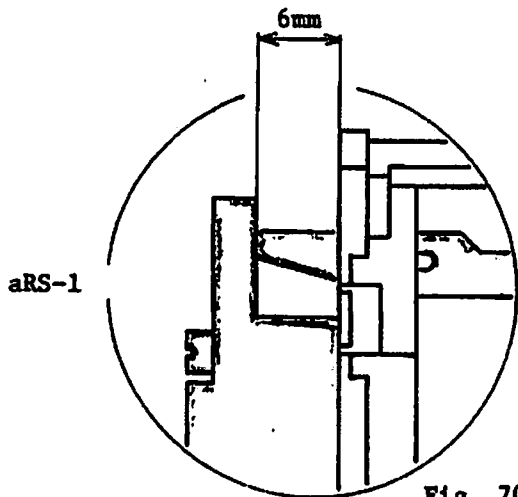


Fig. 70

Rest position

Use Jig for vertical and horizontal position (aRS-1) to check the limit of 5.9 to 6.1mm.

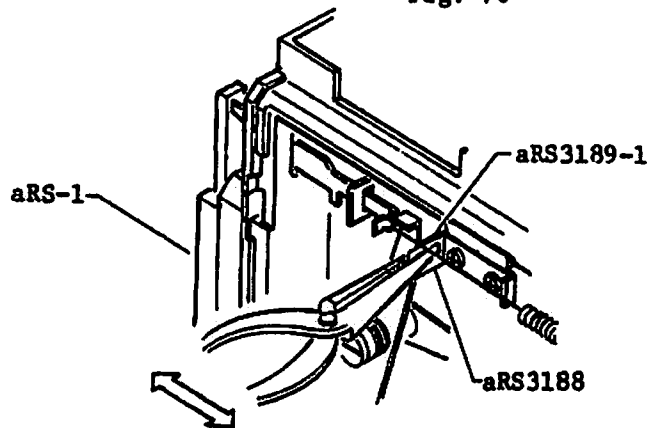


Fig. 71

For adjustment bend Stopper (aRS3189-1) and Setting spring (aRS3188) with a pincers.

Use 9.3mm plate of the gauge to check the limit of more than 9.3mm,

Working length

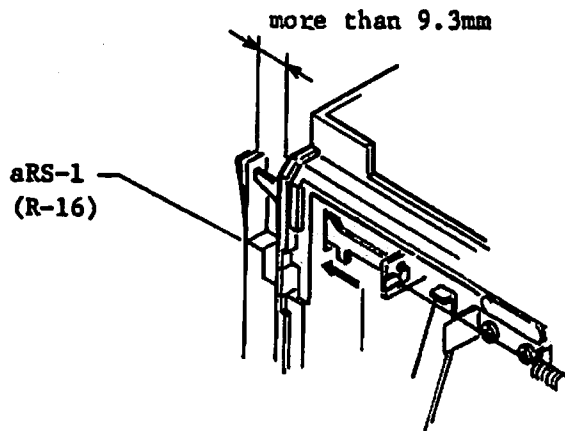


Fig. 72

* After adjusting, check the double exposure preventive mechanism referring to Item 10 Double exposure prevention mechanism at page 30.

9-3 Checking Coupling pin for film wind-stop
releasing of Revolving adapter

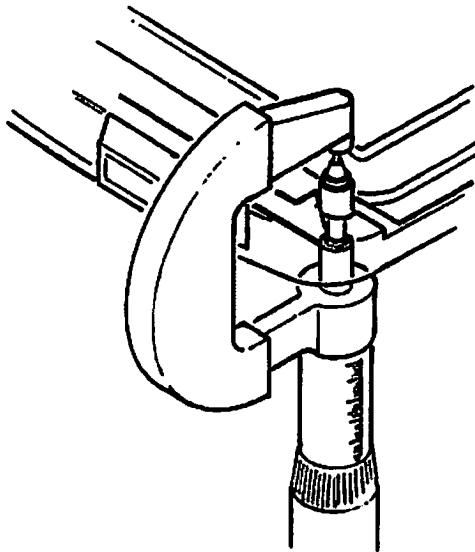
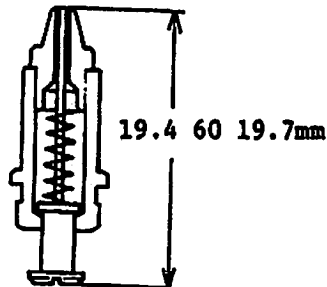


Fig. 73

- (1) Length of Coupling pin assembly
(RS1271K2) is 19.4 to 19.7mm.



6 8gr

- (2) The length from the surface of
polished guide rail of Revolv-
ing adapter to the top of
Coupling pin is kept 15.4 to
16.0mm.

- (3) Coupling pin shall move
slightly by the weight of 6
to 8gr.

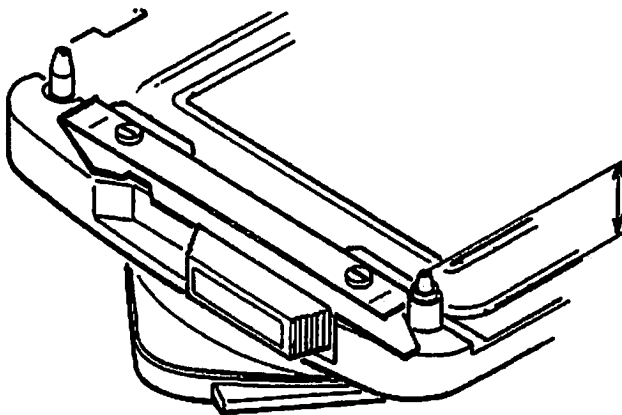


Fig. 74

9-4 Checking Film winding stop with
Roll film holder attached

Check Film winding stop release
attaching a film loaded PRO-S
roll film holder to the camera at
horizontal and vertical position.

10 Double Exposure Prevention Mechanism

10-1 Operation of double exposure prevention mechanism

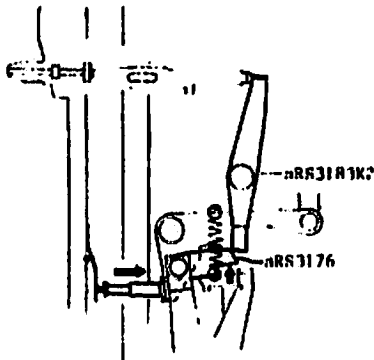


Fig. 75

a) Horizontal position

- (1) Coupling plate (aRS3176) is connected with No. 3 lever (aRS3183K2). (Fig. 75)

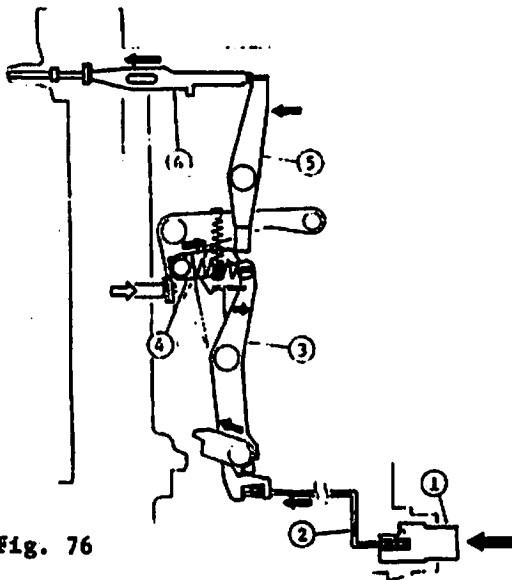


Fig. 76

- (2) The Arabic numerals in a circle and the arrow indicate the continuous operation of Coupling plate 6 due to Shutter button release.

Then, Coupling plate pushes Coupling pin of Revolving adapter. (Fig. 76)

- (3) When the film-loaded Roll film holder is not wound, Double exposure preventive plate sticks out and stops Coupling pin of Revolving adapter.

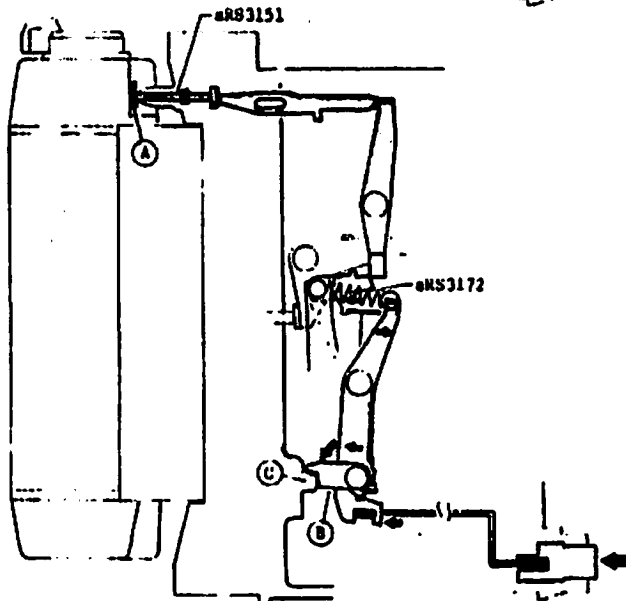


Fig. 77

- (4) In above condition, Spring (aRS3172) is extended by pushing the shutter button more deeply, and Stop plate (B) hits Body lug (C). Consequently, shutter button can not be released and double exposure is prevented. (Fig. 77)

b) Vertical position

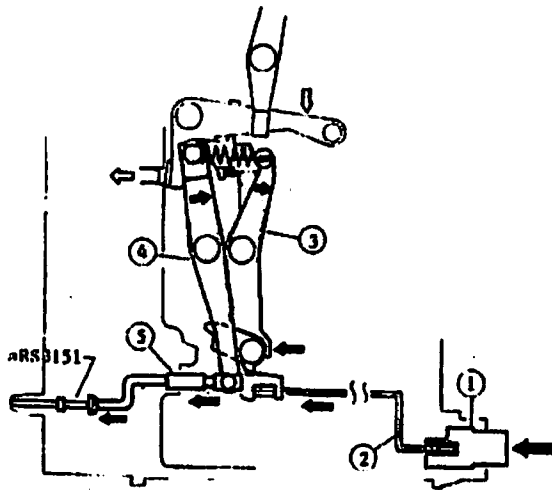


Fig. 78

- (1) The Arabic numerals in a circle and the arrow indicate the continuous operation of Linking nut 5 due to Mirror setting and Shutter button release.

Then, Coupling plate pushes Coupling pin of Revolving adapter. (Fig. 78)

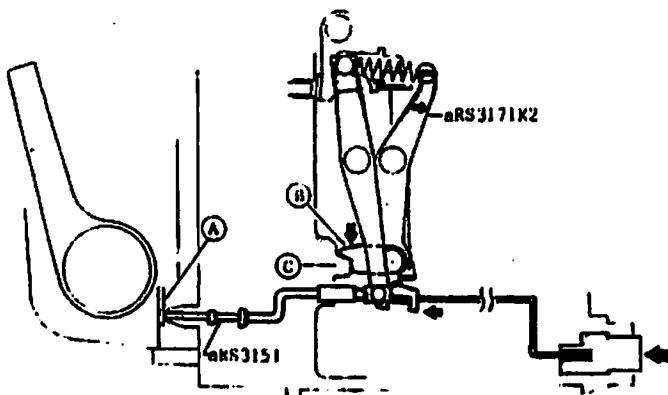


Fig. 79

- (2) When the film-loaded Roll film holder is not wound, Double exposure preventive plate sticks out and stops Coupling pin of Revolving adapter. (Fig. 79.)

- (3) In above condition, Spring (aRS3172) is extended by pushing the shutter button more deeply, and Stop plate B hits Body lug C. Consequently, shutter button can not be released and double exposure is prevented.

10-2 Adjusting method of Double-exposure prevention mechanism.

a) Adjusting clearance between Stop lever and Body lug

The clearance between Stop lever and Body lug shall be kept 0.05 to 0.1mm, when the shutter button is being released.
(Fig. 80)

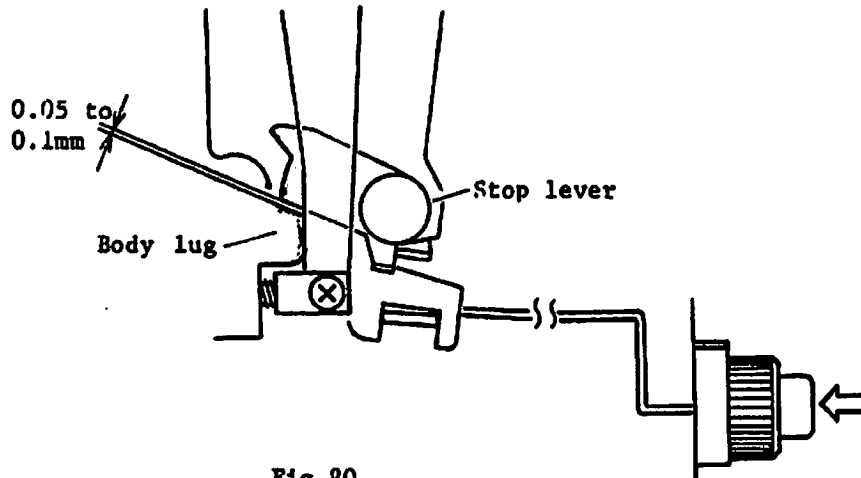


Fig.80

* Adjust the clearance by bending the edge of No. 1 lever (aRS3168) as shown in Fig. 81.

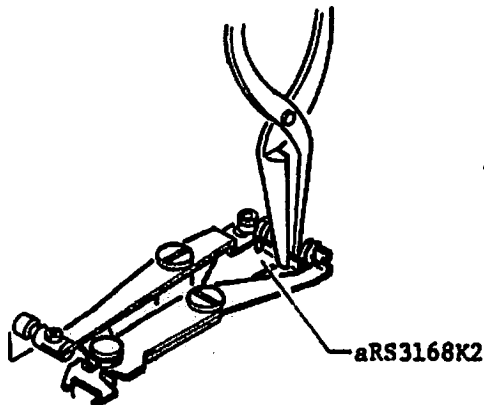


Fig.81

b) Adjusting stroke clearance of Stop lever

Clearance between Stop lever and lug of Body shall be kept 1.7mm as shown in Fig. 82.

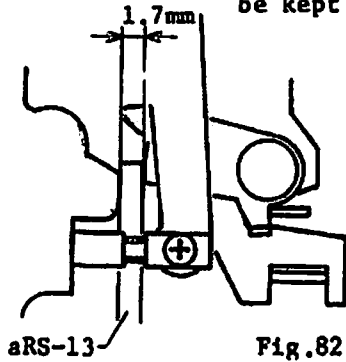


Fig.82

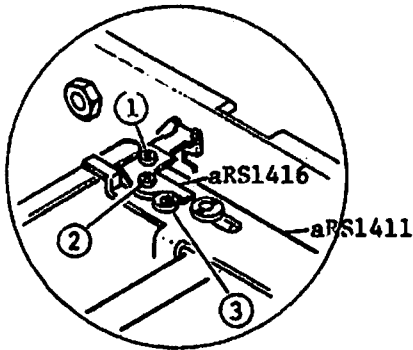


Fig.83

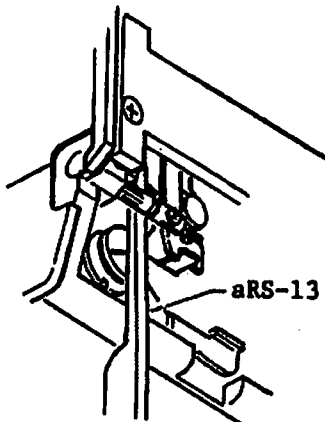


Fig.84

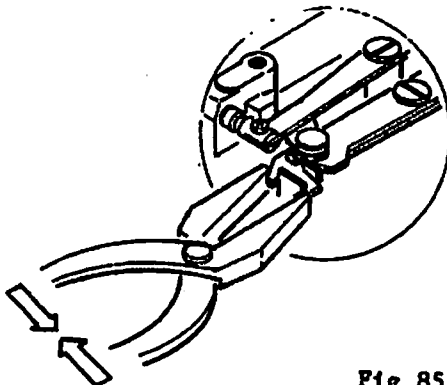


Fig. 85

Adjustment

- (1) Loosen Set screw 1 , 2 and 3 for Release plate supporter (aRS1416) fastened with Release plate (aRS1411) as shown in Fig. 83.
- (2) Insert Stop lever clearance gauge (aRS-13) into the lug of the body and Stop lever, then move Release plate supporter (aRS1416) so that the shutter button does not work.
- (3) Tighten Set screw 1 and 2.
- (4) Support Set screw 3 with Eccentric stopper (RS1545) and tighten it.
- (5) Check the clearance (1.7mm).
- (6) Apply Screw lock to Set screw 1 , 2 and 3.
- (7) Use a pincers to tighten the edge of Sub lever (aRS1416) so as not leave gaps between the edge of sub lever and Release plate supporting (aRS1516) as shown in Fig. 85.

c) Adjusting Release lock linking nut

Release lock linking nut (aRS1471) is coupled properly with double exposure prevention mechanism of Revolving adapter.

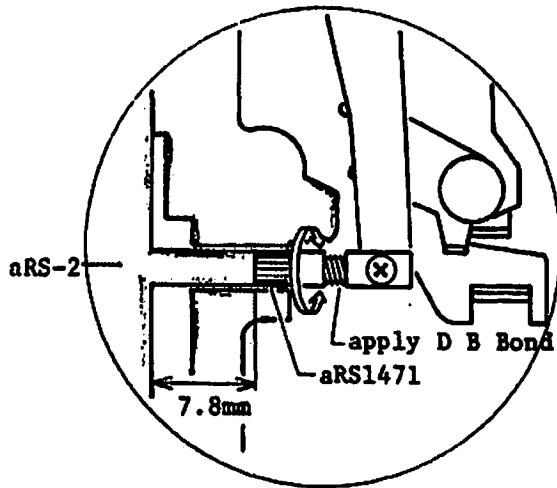


Fig. 86

At vertical and horizontal positions, adjustment can be done by turning the Nut so that it comes in slight touch with pin of Release lock bar adjusting tool (aRS-2). Then fix Release bar with a small amount of DB Bond. (Fig. 86)

Improper

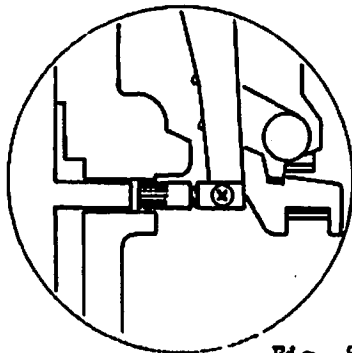


Fig. 87

* When there is gap between Release lock nut and the pin of Tool, double exposure prevention mechanism does not work perfectly. (Fig. 87)

Improper

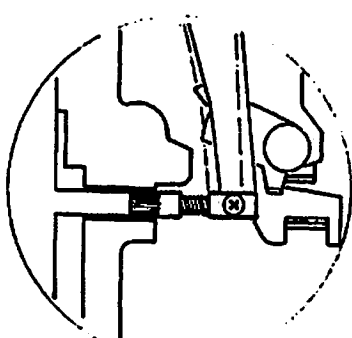


Fig. 88

* When the pin of Tool pushes Release lock nut exceedingly, Revolving adapter may not turn. (Fig. 88)

d) Adjusting turnover of double exposure
preventive mechanism at horizontal
and vertical position

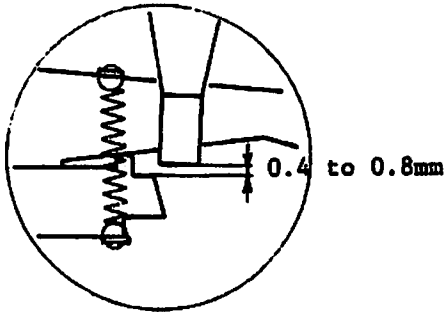


Fig. 89

1 Vertical position

Clearance between Coupling plate (aRS3176) and No. 3 lever (aRS3183K2) is kept 0.4 to 0.8mm (Fig. 89)

Adjustment can be done by bending the edge of No. 3 lever lengthwise with a pincers. (Fig. 90)

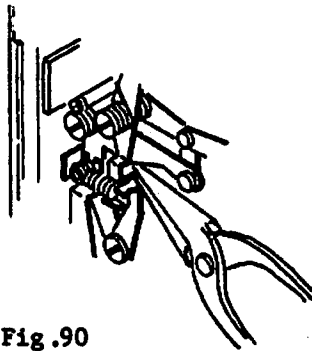


Fig. 90

2 Horizontal position

Check the connection of Coupling plate and No. 3 lever as shown in Fig. 91.

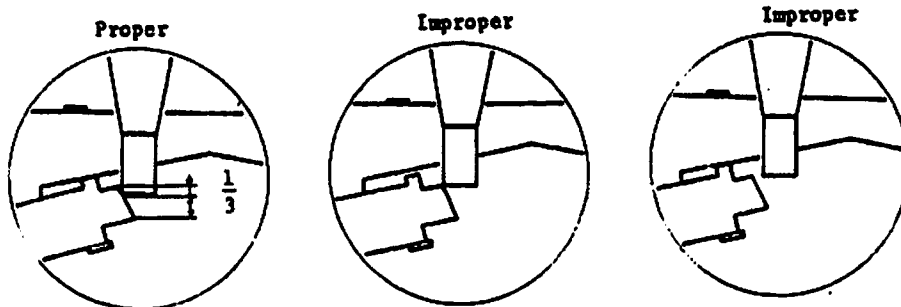


Fig. 91

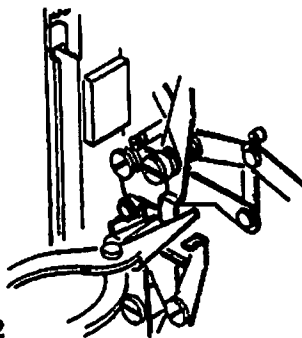


Fig. 92

Adjustment can be done by turning the edge of No. 3 lever transversely. (Fig. 92)

After checking, turn Revolving adapter for several times and confirm their fitting.

e) Checking Safety lock of Shutter
release button

(1) Horizontal position

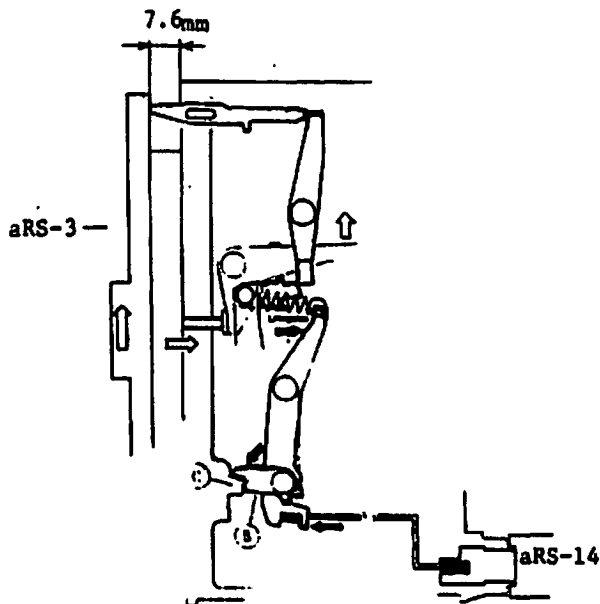


Fig 93

1. Attach Release lock positioning guage (aRS-3) or Pro-S Roll film holder to the body, and set it at horizontal position.
2. Set the Mirror and push Shutter button by using Lock positioning gauge (aRS-14).
3. Push the shutter button and confirm that Shutter button can not be released. (Fig. 93)

(2) Vertical position

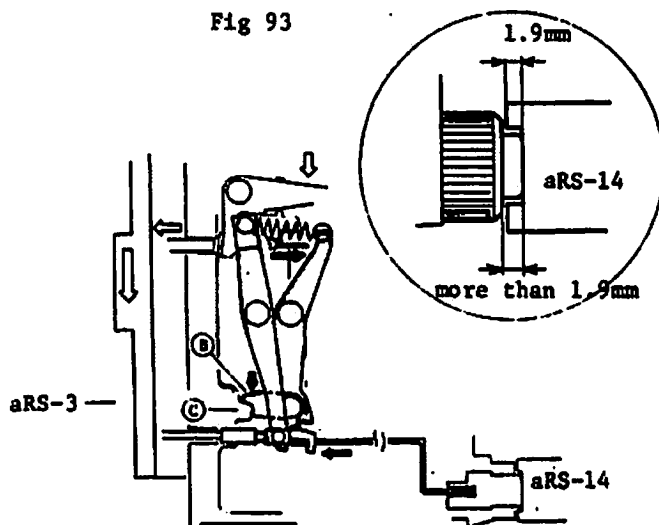


Fig 94

Procedures are almost same as above-mentioned with the exception that Gauge (aRS-3) is set at vertical position . (Fig. 94)

10-3 Checking Revolving adapter Coupling pin for
double exposure prevention

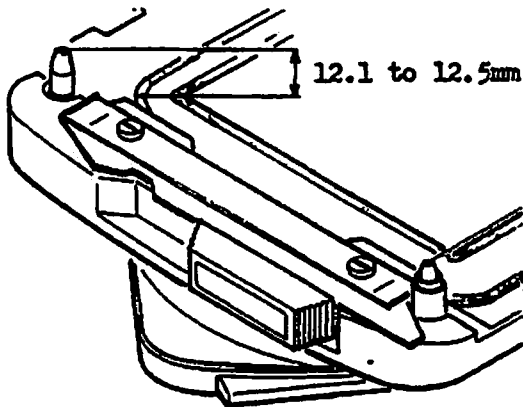


Fig. 95

- (1) The length from the surface of polished guide rail of Revolving adapter to the top of Coupling pin (aRS3151) is kept 12.1 to 12.5mm. (Fig. 95)

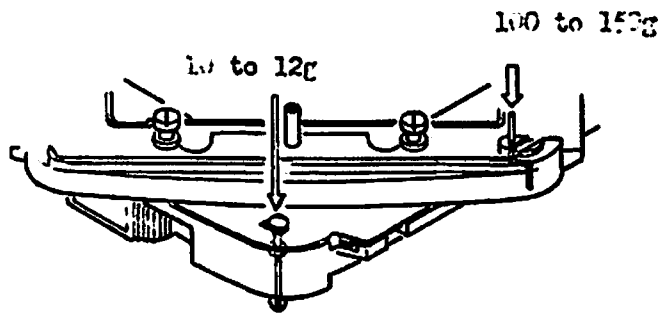


Fig. 96

- (2) Signal pin shall move half-way by weight of 10 to 12g, and turn back slightly (Fig. 96)
- (3) Release lock bar (aRS1261) shall move half-way by weight of 100 to 150g, and turn back smoothly. (Fig. 96)

11. Others

11-1 Adjusting Operation of Focusing Hood

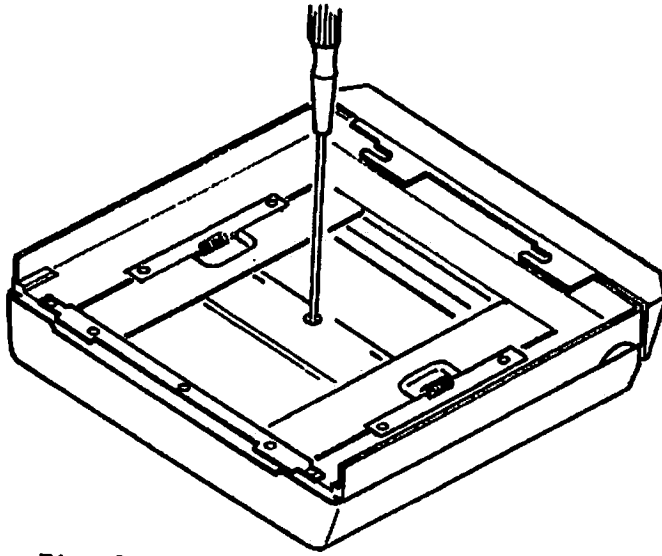
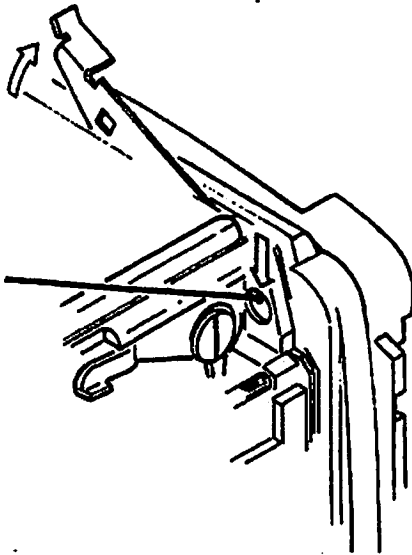


Fig. 97

1. Loosen 3 piece Screw (PD1.7x2.5) of Hinge plate (aRS2764).
2. Insert a driver in to the hole of the Panel (aRS2767).
Tighten 1 piece Screw.
Then adjusting Operation as shown in Fig. 97.

11-2 Removing Revolving adapter and Lens in trouble

a) Revolving adapter



1. Remove side plate, left (RS1621) or right (RS1622).
2. Pull R-lock lever out as much as possible.
3. Then thrust Slide plate with a screw,

b) Lens

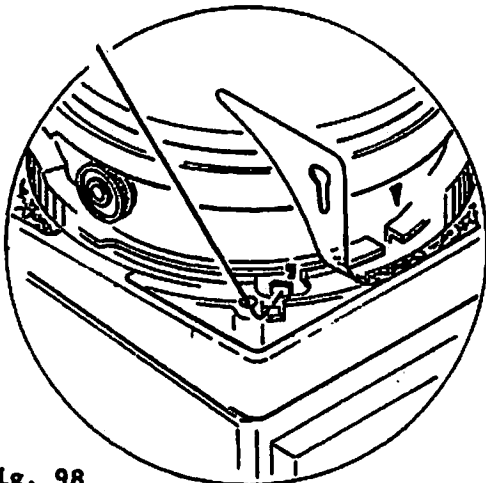


Fig. 98

1. Strip leatherette off the right-upper position of Front cover.
2. Then thrust Lens lock lever (RS2123K2) by hook-shaped rod from the hole of Front cover as shown in Fig. 98.

Roll Film Holder

12 Removing and attaching Top cover

12-1 Removing

- (1) Remove Winding lever (RSH6413) and Top cover retaining screws (PBl.7x3, PBl.7x4).
- (2) Remove Top cover (aRSH6621K2) pushing Preventive lever assy. (RSH7161K2) with a screw driver as shown in Fig. 99.

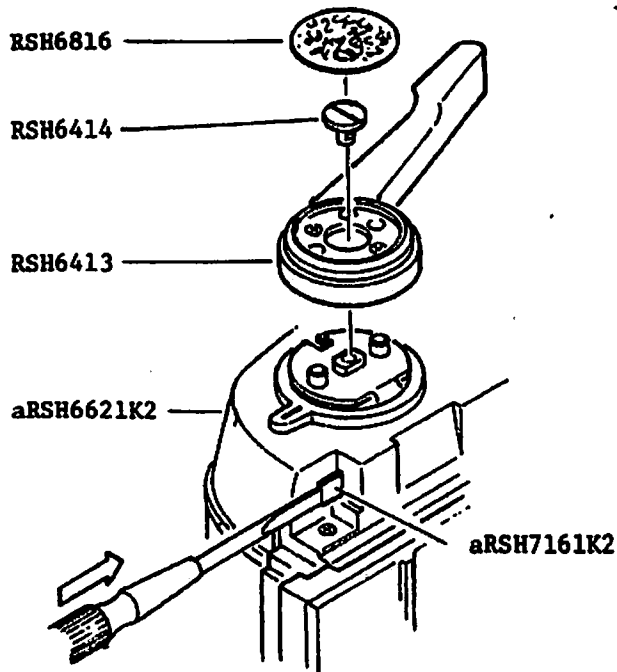


Fig. 99

12-2 Attaching

Locate the slit of Top cover on the top of the lever so as not to deform Preventive lever assy as shown in Fig. 100.

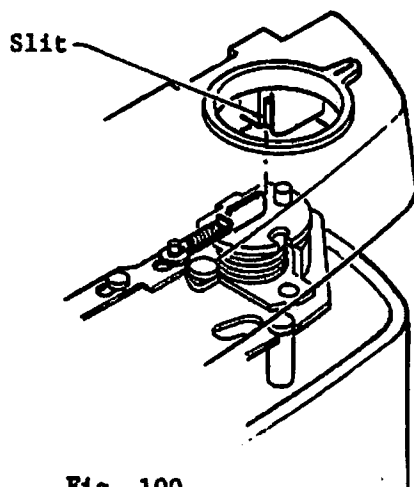


Fig. 100

13 Film advancing mechanism

The Arabic numerals in a circle and the arrow indicate the continuous operations of the film advancing.

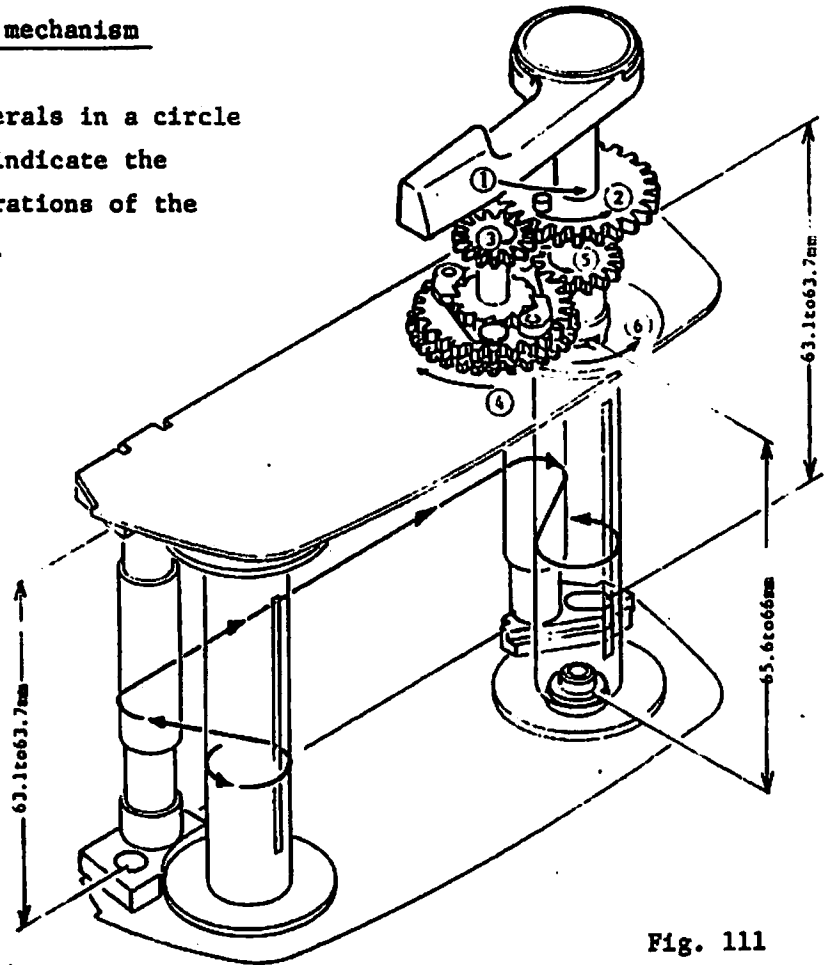


Fig. 111

14 Film wind-stop mechanism

14-1 Operating mechanism

- (1) By closing Back cover, Lever ① and ② are pushed.
- (2) Relative parts operate in the order of the numerals from 3 to 9 in a circle.
- (3) Both ends of Release lever ⑩ fit Counter dividing device and Winding stop gear ⑪ stopping film winding.

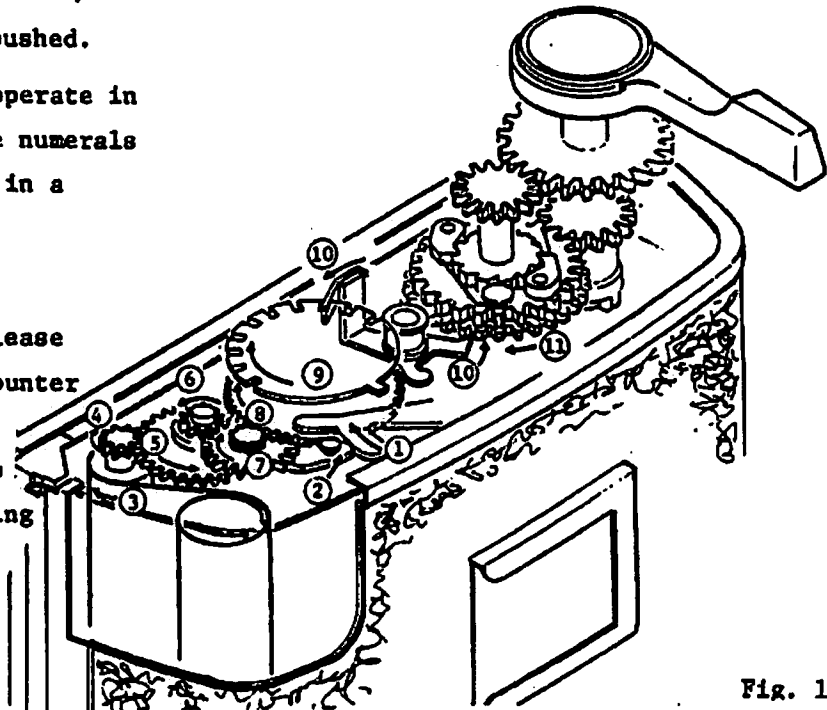


Fig. 112

14-2 Attaching and adjusting Film counter

a) Removing Film counter

- (1) Pull the end of Charging lever (aRS7112K2) thrusting the other end of the lever down Base plate (aRSH6411K2) with a screwdriver.
- (2) Remove Screw (RSH6498), and take out the film counter.

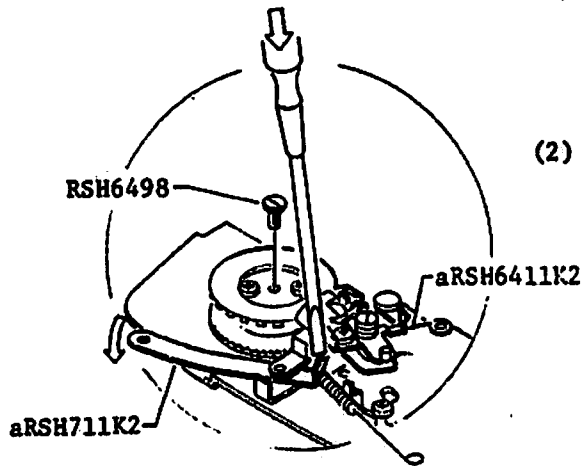


Fig. 113

b) Attaching Film counter

Before attaching, locate the position of Spring (RSH6495) and Anchor as shown in Fig. 114.

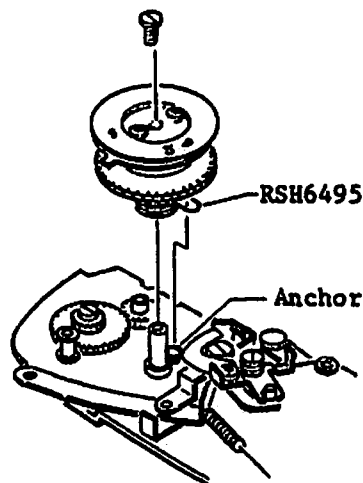


Fig. 114

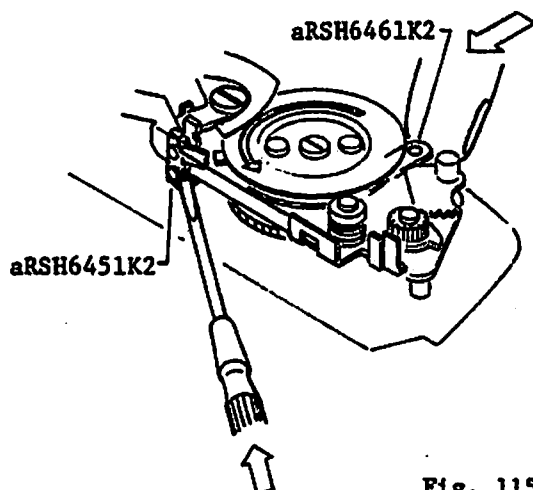


Fig. 115

Keep Release plate (aRS6461K2) with a finger and Release lever with a screwdriver being pushed for charging counter spring for $\frac{1}{2}$ turn in the direction of the arrow as shown in Fig. 115.

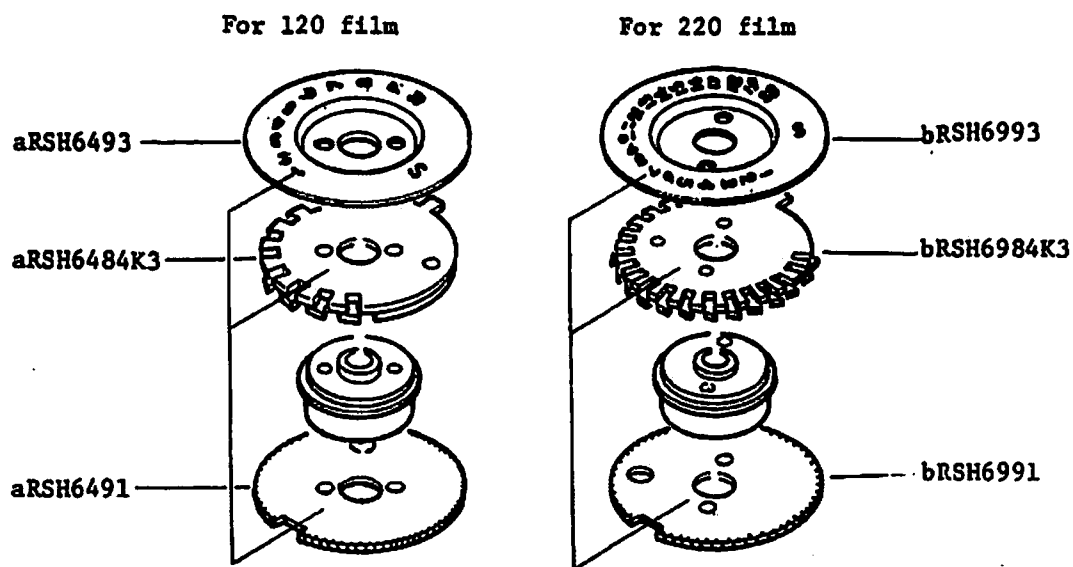


Fig. 116

NOTE: Locating positions of each parts are shown above Fig. 116.

c) Attaching Release lever spring

- (1) Keep Spring (aRSH6453) wound for $\frac{1}{2}$ turn with a tweezer. (Fig. 117)
- (2) Attach Charging lever and hook the spring on the lever as shown in Fig. 117 and 118.

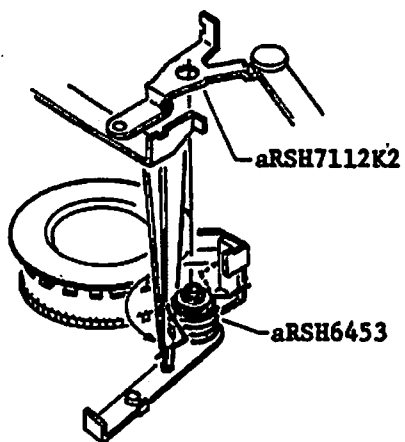


Fig. 117

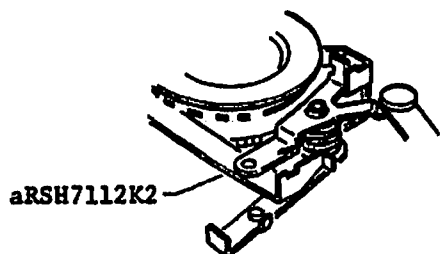


Fig. 118

15 Mechanism relative to Film wind-stop releasing

15-1 Operating mechanism

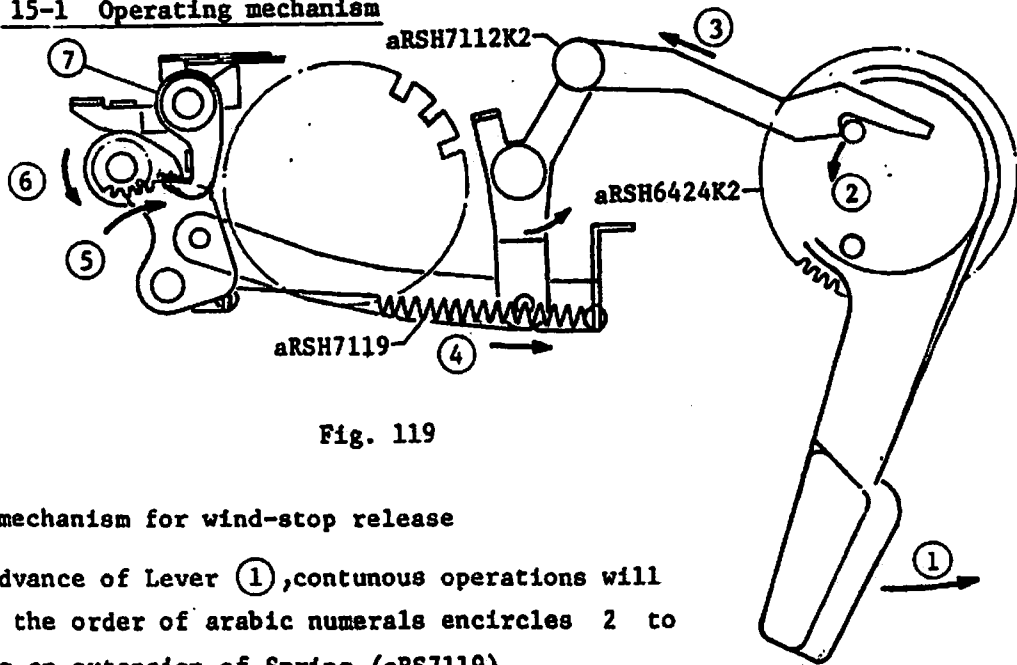


Fig. 119

a) Charging mechanism for wind-stop release

With an advance of Lever (1), continuous operations will follow in the order of arabic numerals encircled 2 to 7 causing an extension of Spring (aRS7119).

b) Film wind-stop releasing mechanism

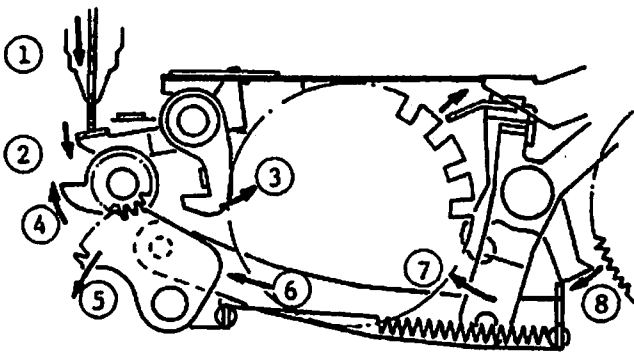


Fig. 120

- (1) With a release of shutter button
Coupling pin ① for film wind-stop
releasing operates pushing Signal
lever ② and continuous operations
from ③ to ⑦ encircled will follow.
- (2) Release lever comes off from
Counter dividing device and
Winding stop gear as shown in Fig. 120

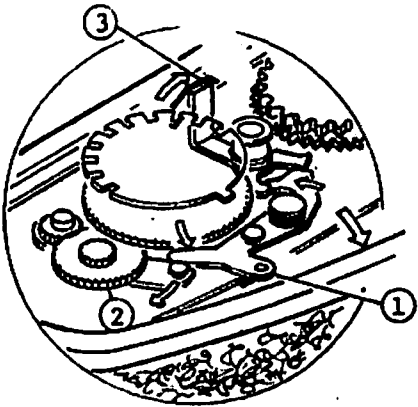


Fig. 121

* Release plate ①, Third gear ② and Release lever ③ come off from Film counter gear by opening Back cover. Consequently, Exposure counter automatically resets to S (Start) as shown in Fig. 121.

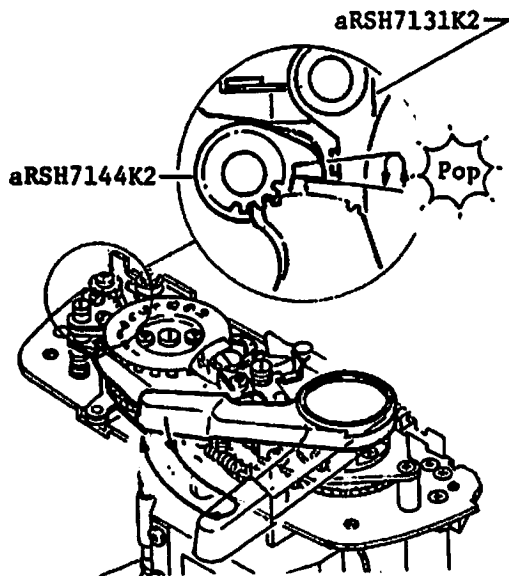


Fig. 122

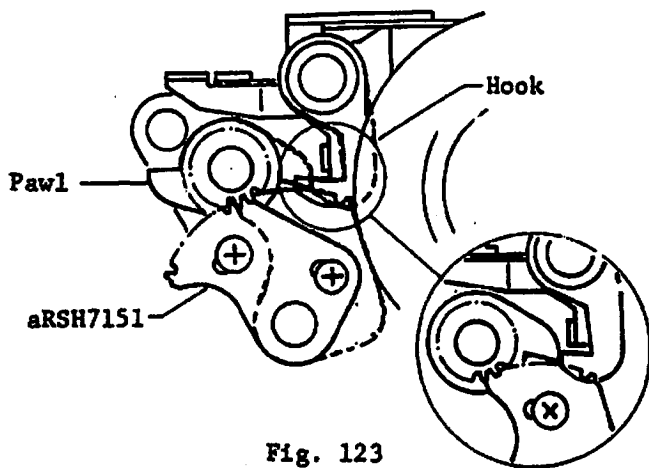


Fig. 123

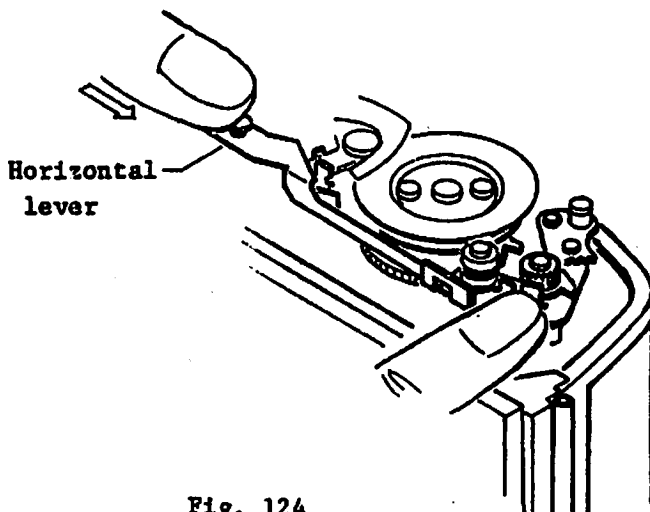


Fig. 124

a) Checking Pawl and Hook

- 1) By loading the film and advancing the Winding lever, Hook (aRSH7131K2) catches Pawl (aRSH7144K2).
- 2) Confirm the sound "POP" caused by the above-mentioned work of Hook and Pawl at every winding of the Lever for about 90° as shown in Fig. 122.
- * When it does not pop, wind-stop releasing mechanism is not in good condition.
- 3) Confirm that Pawl shall return to its original position when pushing Sector gear (aRSH7151) with a finger just before Hook catches Pawl, and release the finger as shown in Fig. 123

NOTE: Film wind-stop release unloaded
For changing Wind-stop release from setting position to releasing position slide Horizontal lever of Preventive lever assy. and push lever as shown in Fig. 124.

b) Checking operation of Charging lever

In case pawl does not pop by advancing the winding lever, check the following points.

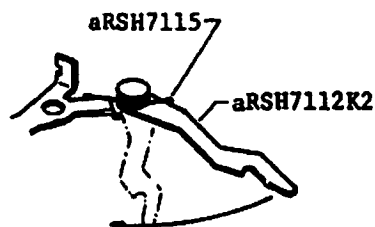


Fig. 125

- (1) Charging lever (aRSH7112K2) shall move slightly by the force of Spring (aRSH7115) as shown in Fig. 125.

- (2) Winding gear No. 1 (aRSH6424K2) and Base plate (aRSH6411K2) shall not prevent Charging lever from operating as shown in Fig. 126.

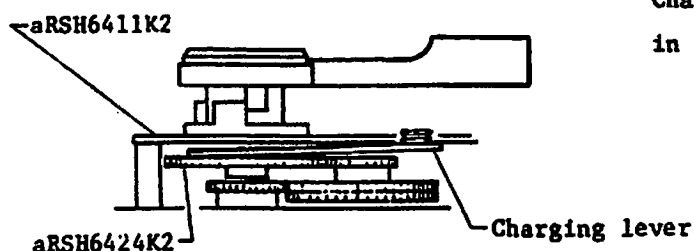


Fig. 126

c) Adjusting Hook and pawl overcharging amount

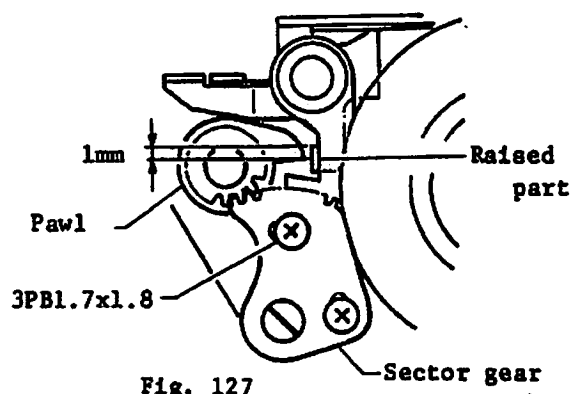


Fig. 127

- (1) When Winding lever is advanced, Pawl's operating range shall be within front half of the raised part of Signal lever.
- (2) Adjusting
Keep Release lever being released in order to separate pawl from Hook.
Loosen 2 pcs. of Screw(3PB1.7x1.8) and move position of Sector gear.
When needing further more adjustment, change the meshing position of the gear of Pawl and Sector gear as shown in Fig. 127.

d) Adjusting wind-stop releasing position

(1) Wind-stop release

By loading the film and advancing Winding lever, Release lever shall be released when placing the edge with 17.9mm long of Signal gauge (aRSH-15) so as to touch with Signal lever as shown in Fig. 128.

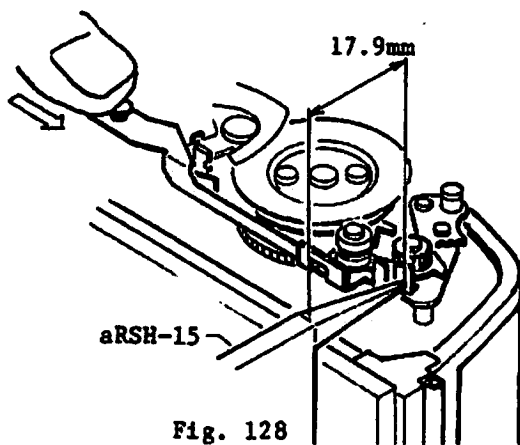


Fig. 128

Adjustment can be done by bending Signal lever with a pincers as shown in Fig. 129.

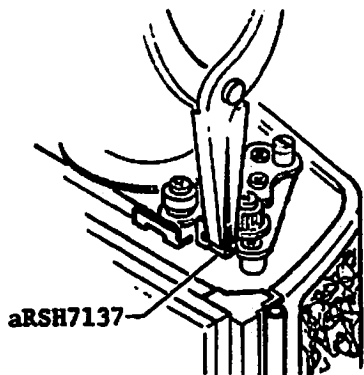


Fig. 129

(2) Horizontal lever operation of Preventive lever assy.

Load a film and advance winding lever.

- (1) Place the edge with 16.2mm long of Signal gauge (aRSH-15) so as to touch with Signal lever as shown in Fig. 130.
- (2) Horizontal lever of Preventive lever assy. shall return smoothly when returning Winding lever slowly.

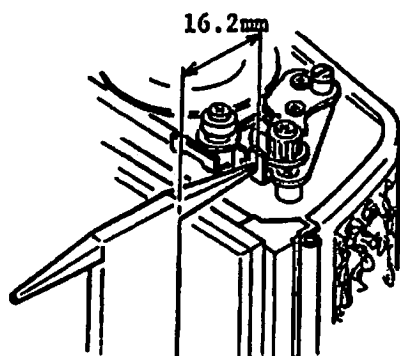


Fig. 130

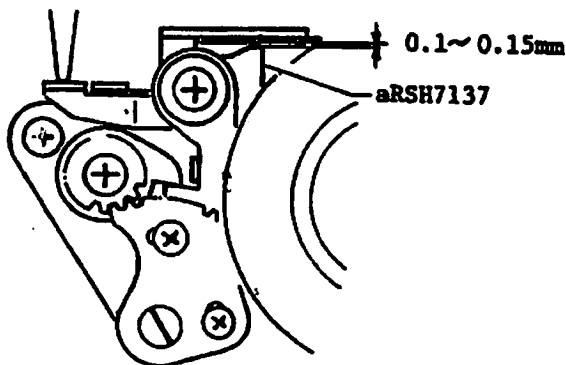


Fig. 131

Adjustment can be done by wearing away the edge of Signal lever to leave 0.1 to 0.15mm gaps between Horizontal lever and Signal lever as shown in Fig. 131.

* Film wind-stop release unloaded

Please refer to a) Note in Fig. 124.

e) Adjusting Stop lever

After loading and advancing the roll film, bend Connection arm of Charging lever with a pincers so as to leave 0.8 to 1.4mm gaps between Stop lever edge and Winding gear No. 1 (aRSH6424) as shown in Fig. 132.

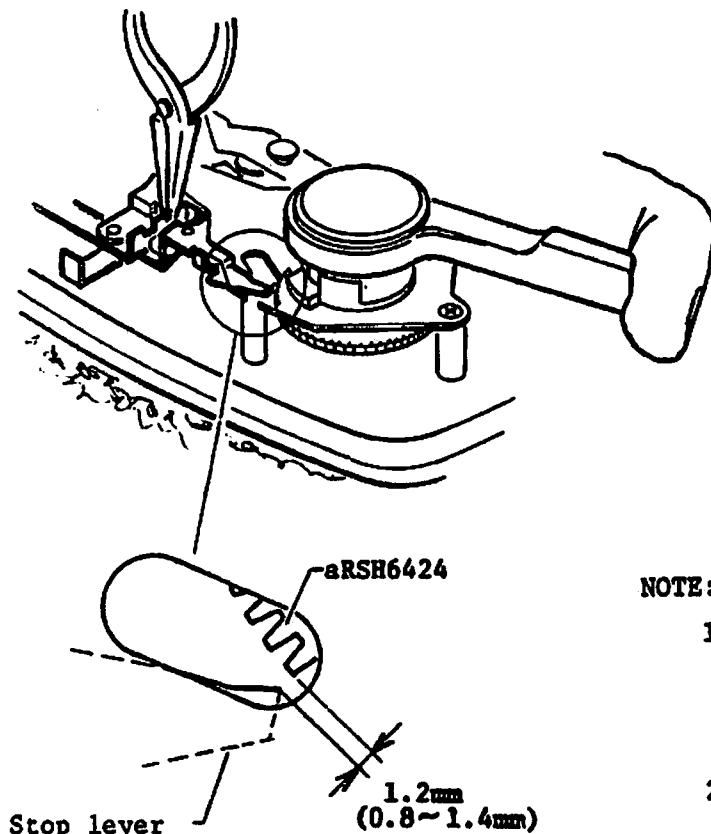


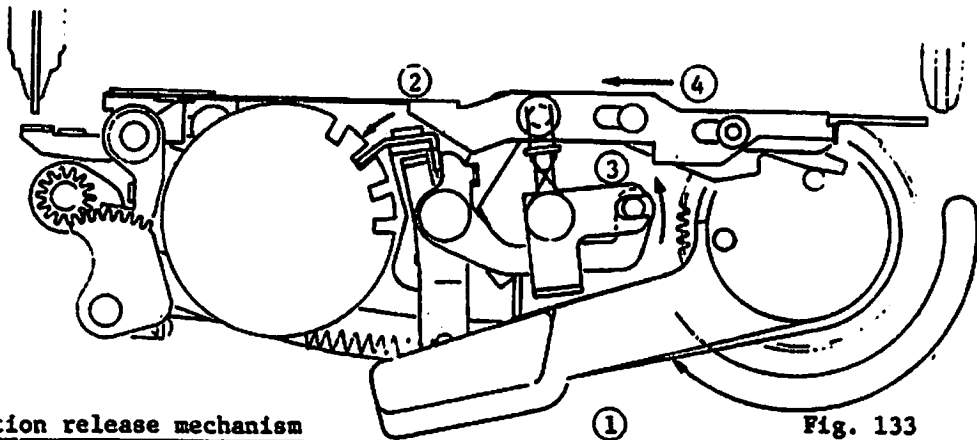
Fig. 132

NOTE:

- 1) Clearance less than 0.8mm
Ratchet type film advance sometimes cannot be done.
- 2) Clearance more than 1.4mm
Film advance lever may not return by the action of Film-wind stop in ratchet typ winding.

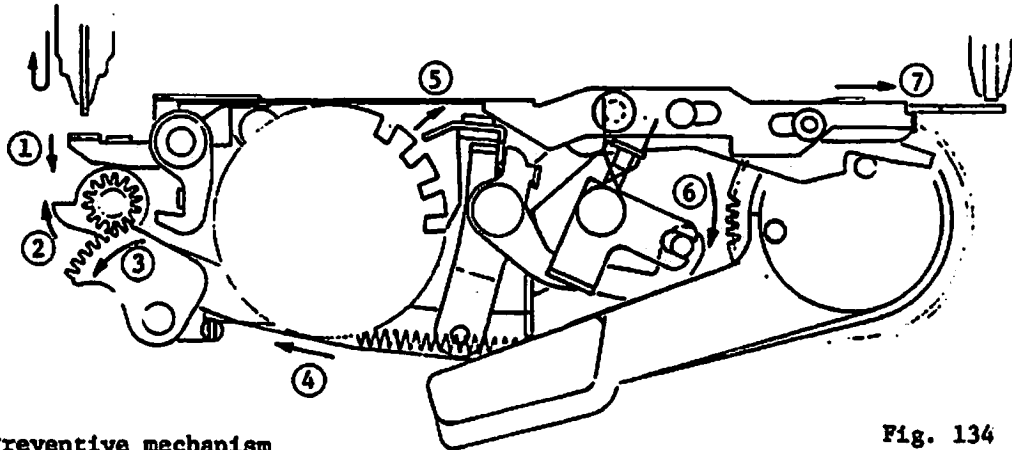
16 Double exposure preventive mechanism

16-1 Operating mechanism



a) Prevention release mechanism

By advancing Winding lever, continuous operations from ① to ④ will follow releasing the preventive mechanism as shown in Fig. 133.

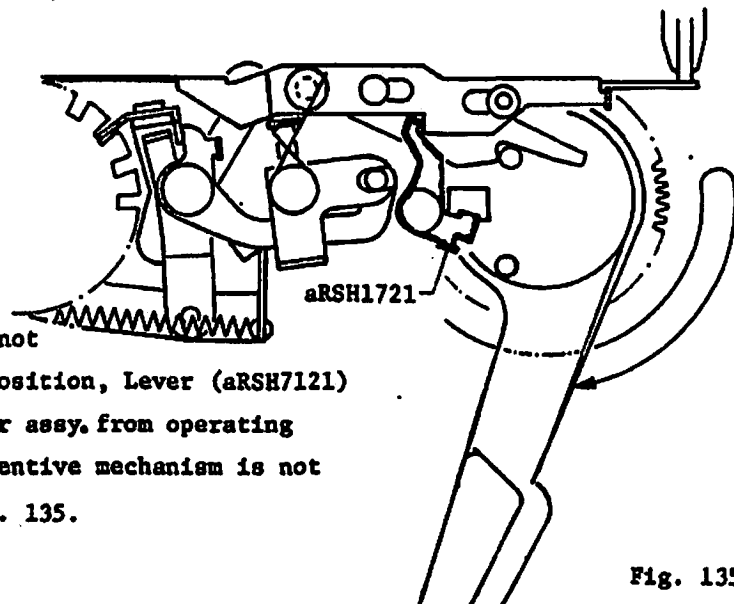


b) Preventive mechanism

Coupling pin of revolving adapter operates Signal lever and continuous operations from 1 to 7 will follow preventing the double exposure as shown in Fig. 134.

NOTE:

When Winding lever does not return to its original position, Lever (aRSH7121) prevents Preventive lever assy. from operating and double exposure preventive mechanism is not released as shown in Fig. 135.



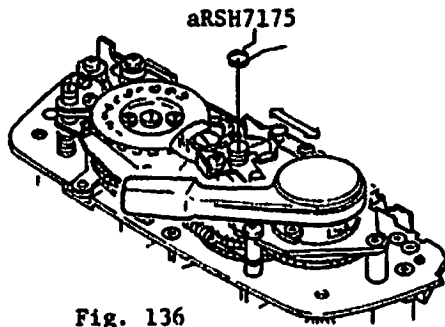


Fig. 136

Horizontal lever

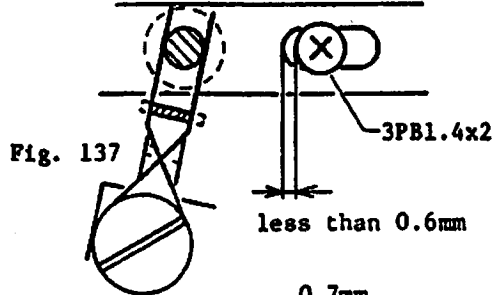


Fig. 137

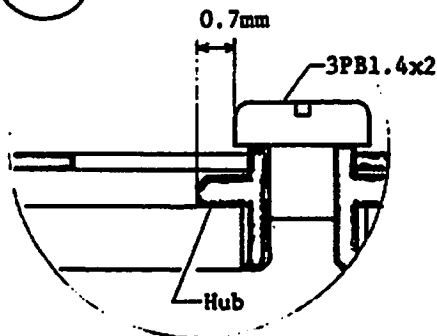


Fig. 138

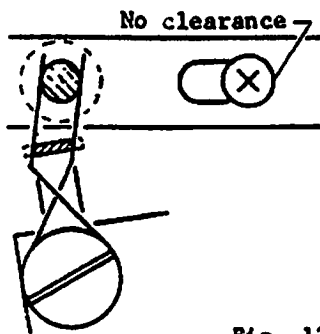


Fig. 139

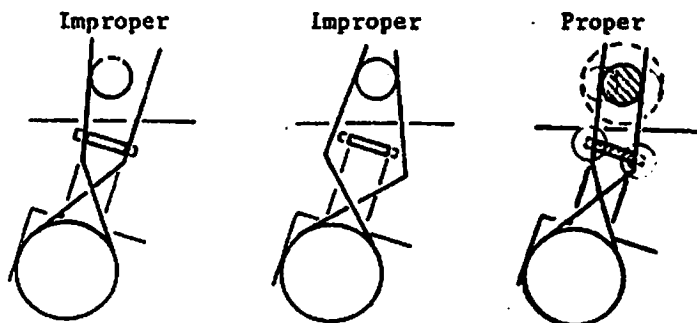


Fig. 140

a) Adjusting Preventive lever assy

Horizontal lever of the above lever assy. shall move very slightly with the weight of itself when removing (aRSH7175) as shown in Fig. 136.

(1) Horizontal lever

- 1) Advance winding lever and turn the exposure counter so that it sets between "S" to "1".
 - 2) Bend Spring (aRSH7175) so as to leave less than 0.6mm gaps between the slit of Horizontal lever and Screw (3PB1.4x2) as shown in Fig. 137
- * Judge 0.6mm gaps with an eye-measurement referring to 0.7mm gaps between edge of Hub and head of Screw (3PB1.4x2) as shown in Fig. 138.

(2) Adjustment at the counter "1"

- 1) Advance Winding lever, then Release lever fits Counter dividing device
 - 2) Bend Spring (aRSH7175) so as to leave no clearance between the other side of slit and screw as shown in Fig. 139.
- * Take care to keep both ends Spring parallel to each other when bending it as shown in Fig. 140.

NOTE: The location of Horizontal lever shall satisfy above (1) and (2).

b) Checking Double exposure prevention device

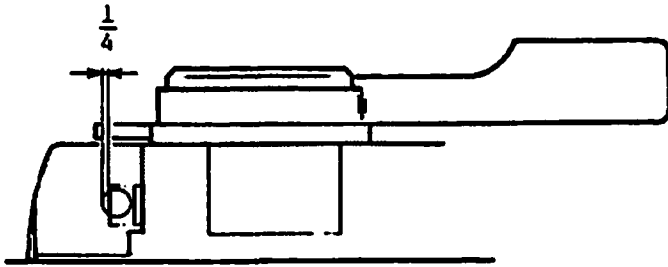


Fig. 141

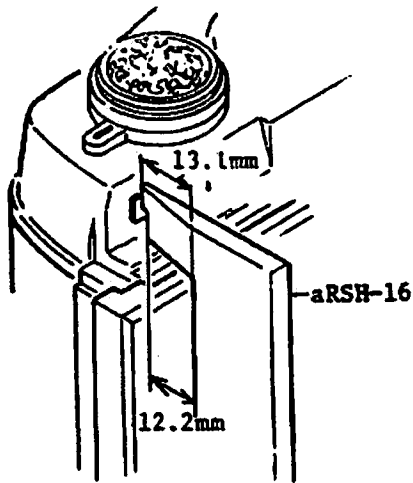


Fig. 142

- 1) By advancing Winding lever, Preventive lever shall disappear completely from the Top cover's hole for Coupling pin.
- 2) At released position, Preventive lever shall appear until it covers the hole more than $\frac{3}{4}$ as shown in Fig. 141.
- 3) Use Gauge for double exposure prevention device (aRSH-16) for confirmation, Preventive lever shall be within the range of 12.2 to 13.1mm including the play in the direction of to and for as shown in Fig. 142.

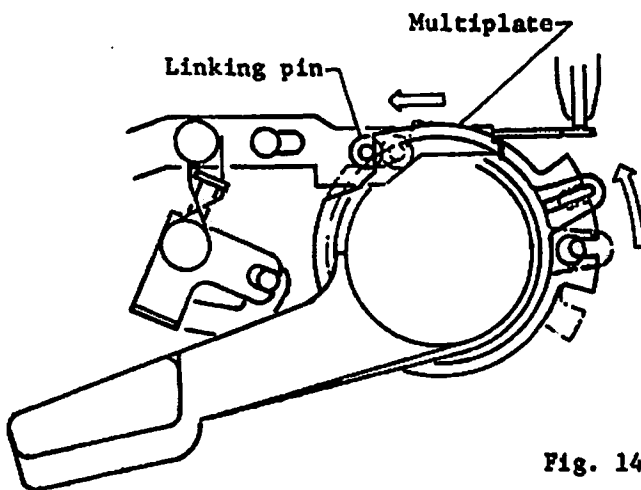


Fig. 143

17 Multiple exposure mechanism

- 1) At released position, Preventive lever moves until it fully covers the hole, and shutter button can not be released.
- 2) When Multiexposure lever is moved forward, Multi plate moves Linking pin of Operation lever, then Multiple exposure can be possible as shown in Fig. 143.

18 Operating mechanism of Red signal

Before exposure

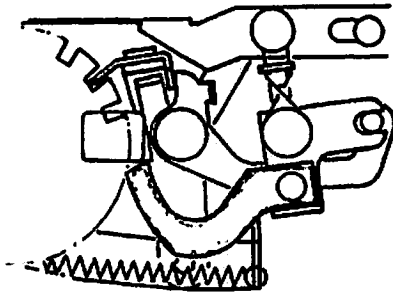


Fig. 144

Exposed

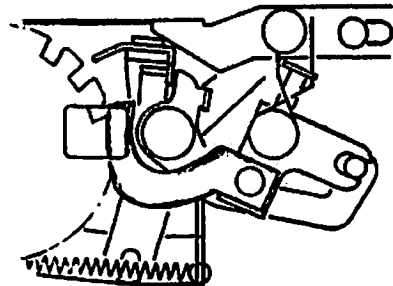


Fig. 145

a) Operation

- 1) Release lever fits Counter dividing device, and Red signal disappears as shown in Fig. 144.

- 2) Release lever comes off from Counter dividing device and Red signal appears as shown in Fig. 145.

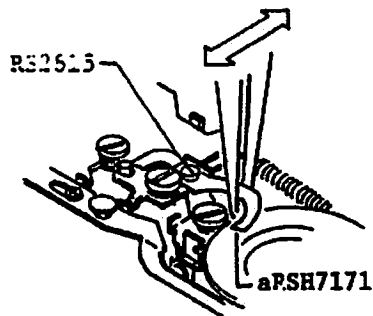


Fig. 146

b) Adjusting

Adjustment can be done by moving Red signal after loosening Screw (RS2615) as shown in Fig. 146.

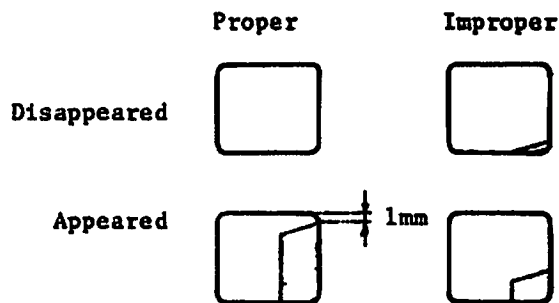


Fig. 147

19 Confirmation of Double exposure
preventive mechanism

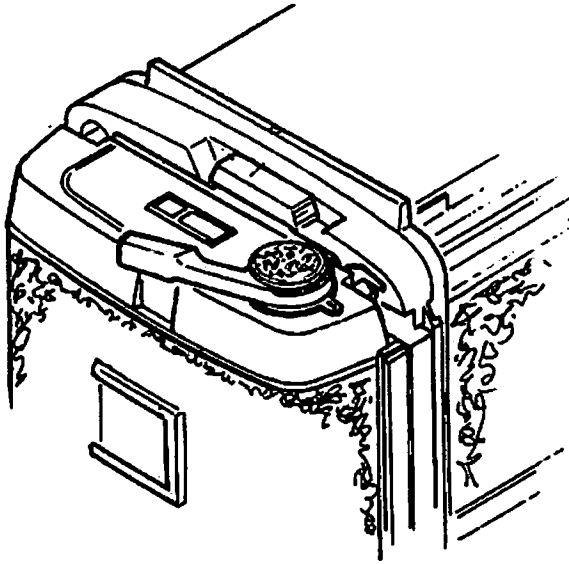


Fig. 148

Final confirmation shall be done for perfect operations on Body, Revolving adapter and Roll film holder, at vertical and horizontal positions.

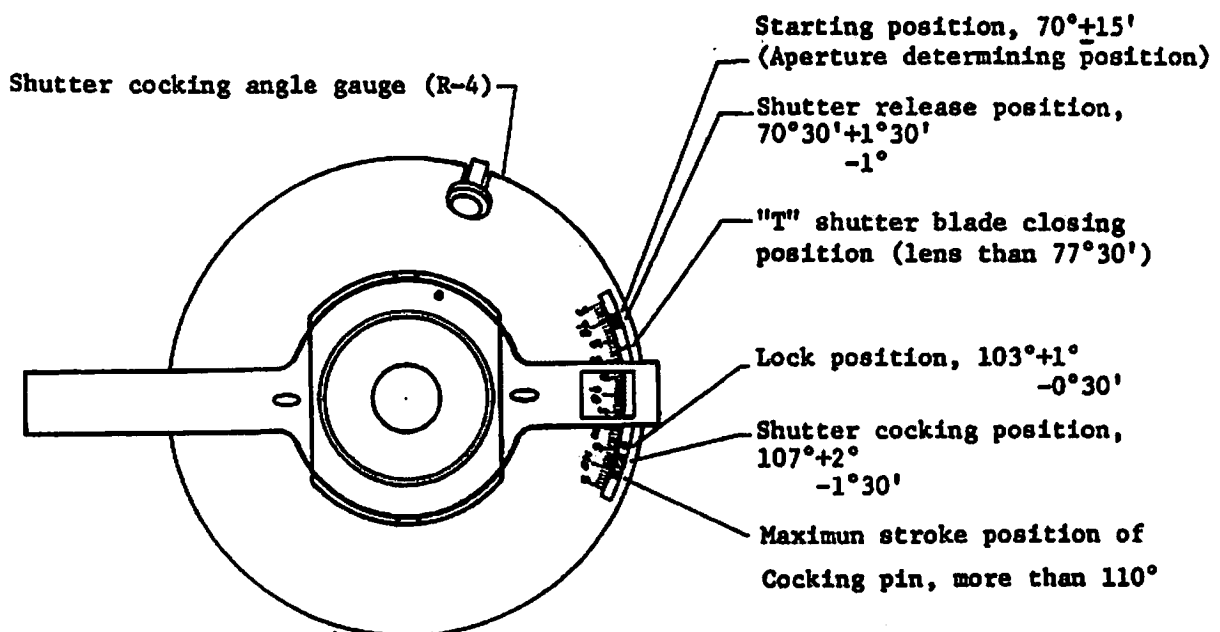
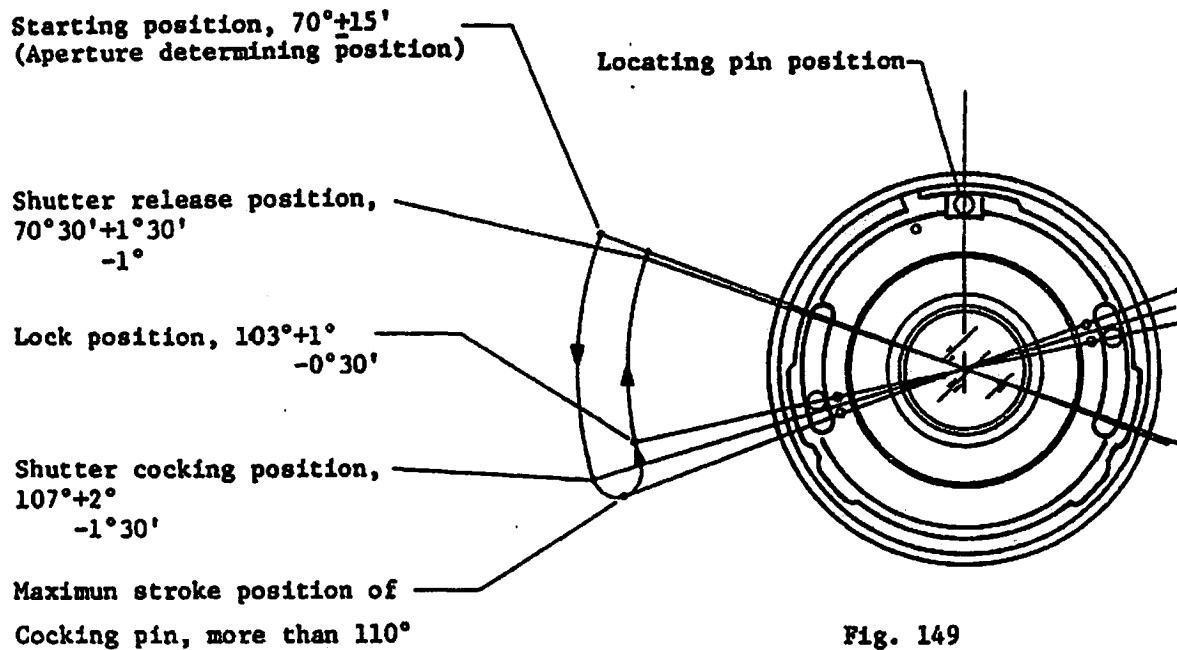
Attach Revolving adapter and Roll film holder to the body for final confirmation of double exposure preventive mechanism at horizontal and vertical positions.

Lens

20 Operating standard for Lens shutter cocking pin

20-1 Operating standard for Lens shutter cocking pin

(Figure illustrates the angle to the guide pin seen from the rear side of the lens.)



20-2 Checking the operating position of shutter cocking

1. Set the angle measuring gauge lever to the start position..
... $70^{\circ}+15'$ and install the lens on the Shutter cocking
angle gauge confirming whether the lens locating pin guide
and the lens locating pin are just fixed. (Fig. 151.)
2. Turn the gauge lever tip with a finger clockwise and
confirm that the shutter is charged within the range of
the shutter charge finish position. $105^{\circ}30'$ to 109°
3. Turn the gauge lever to the clockwise direction just after
the shutter charge until the gauge lever reaches the
maximum stroke position. more than 110°
4. Return gently to the original position until the gauge
lever comes to the lock position. $103^{\circ}+1^{\circ}-20'$
5. At the above position 4, keep unlocking lever pushing
down with a finder until passing through the lock position,
and turn the gauge lever so that the shutter can be released at
the point of shutter release position. $70^{\circ}30'+1^{\circ}30'-45'$
6. "T" position
Check the shutter by the same procedure mentioned above from
No. 1 through No. 5 . The shutter blade opens at the shutter
release position, and the shutter blade closes at the "T"
shutter blade closing position by turning the gauge lever
clockwise. less than $77^{\circ}30'$

20-3 Adjusting the operating standard of Shutter cocking.

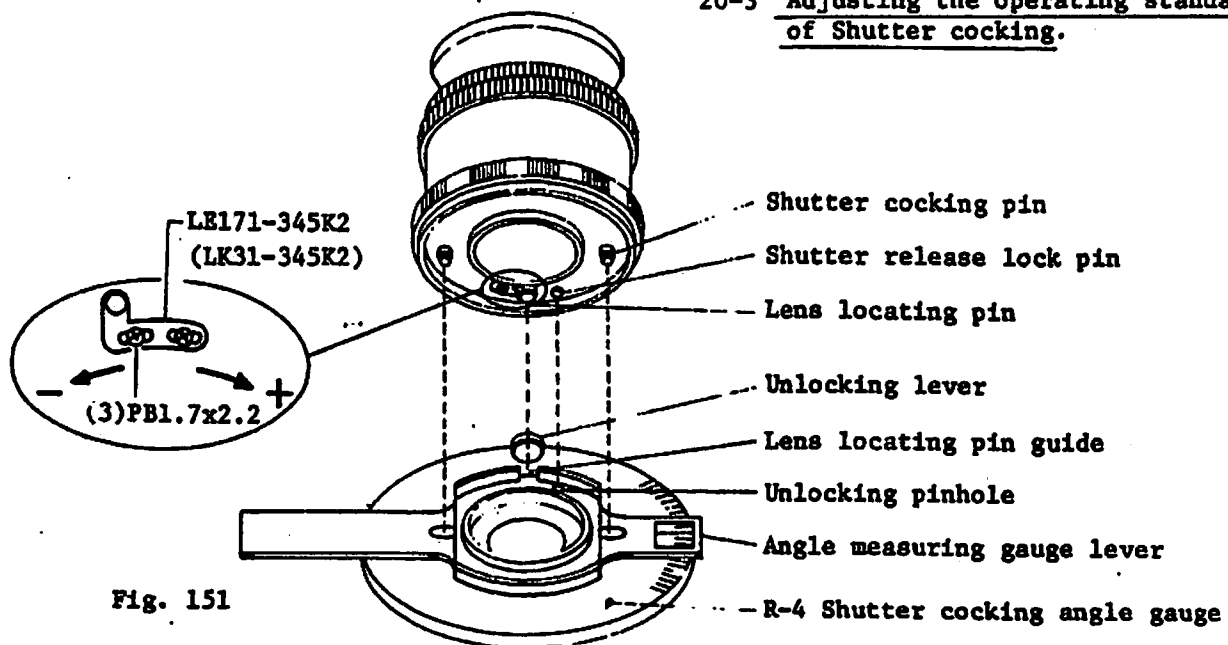


Fig. 151

In order to rectify the error during the checking process, its adjustment needs loosening the screw (3)PB1.7x2.2 of the lens locating pin (LE171-345K2) as shown in Fig. 151.

21 Adjusting method of RB Lens

21-1 Adjusting infinity of lens flange back

a) Setting Measuring Instrument

Set R-6 Lens infinity focusing check supporter on U-2 Auto-Collimator Model Vertical type. Then place the guide ring for the lens to be checked on R-6 Lens infinity focusing check supporter.

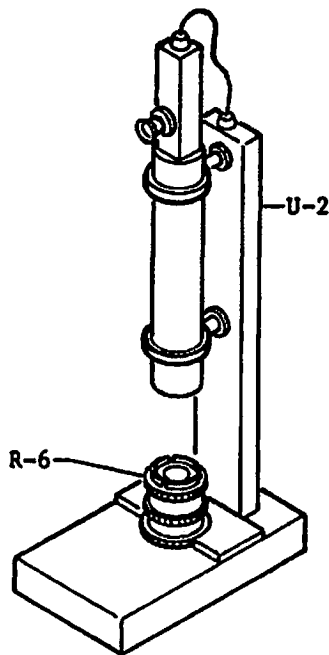


Fig. 152

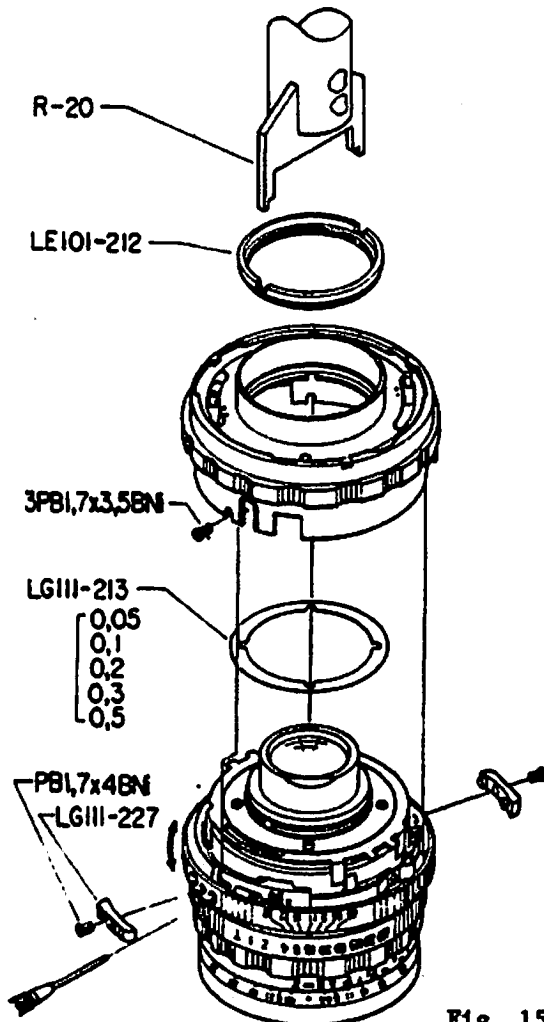
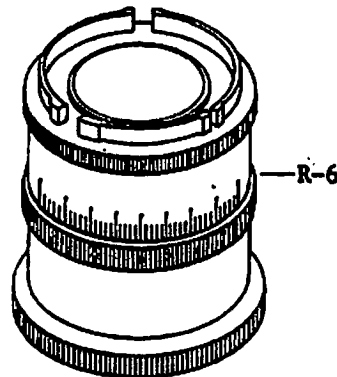
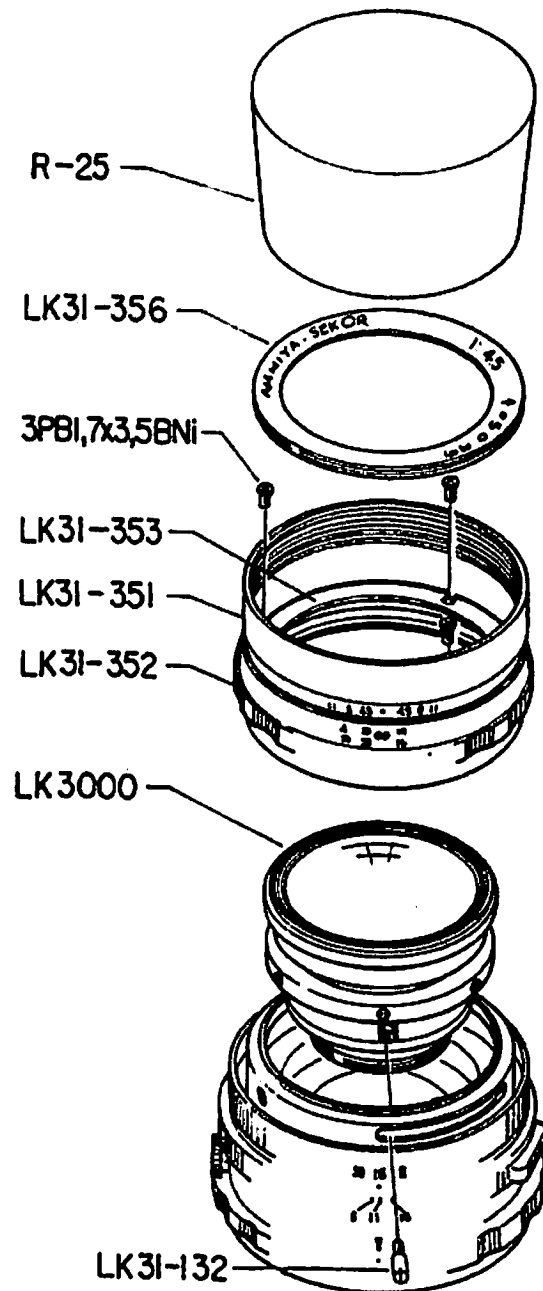


Fig. 153

b) Adjusting infinity

1. Remove Screw (PB1.7x4BN) and knob (LG111-227).
2. Remove 3 pieces of Screw (3PB1.7x3.5BN) shutter cover (LK31-331) and Fixing ring (LK31-221) by turning Aperture ring.
3. Use Wrench (R-20) to remove.
4. Remove shutter cover.
5. Use Adjusting washer 0.05 - 0.5 (LG111-213) to adjust infinity as shown in Fig. 153.

21-2 Removing Lens assy. for 50mm F4.5 and 65mm F4.5 NB Lenses



1. Use Rubber tightener (R-25) to remove Name ring (LK31-356).
2. Remove 3 pieces of Screw (3PB1.7x3.5BN1), then Depth of field scale ring (LK31-351) and focusing ring (LK31-352) can be removed.
3. Remove Coupling pin (LK31-132)
4. Lens assembly can be removed from the lens barrel by turning it counterclockwise.

21-3 Attaching Lens assembly for 50mm F4.5(LK31) and 65mm F4.5 NB(LH111)

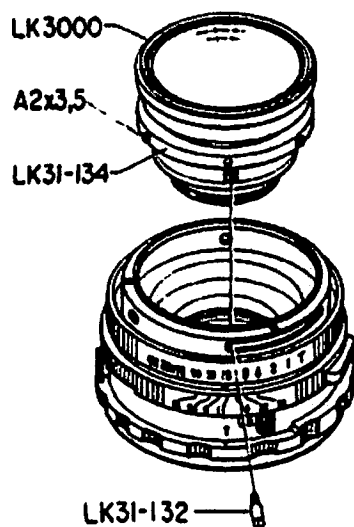


Fig. 155

1. Loosen 3 pieces of Set screw (A2x3.5)
2. Attach Lens assembly to the shutter in the lens barrel by turning Lens assembly clockwise as shown in Fig. 155.
3. Insert a screwdriver in a hole for coupling pin of Focus adjusting ring and move a screwdriver clockwise pressing it strongly until the front lens indicates infinity.

NOTE: A hole for coupling pin shall locate a little bit back from the slit of the barrel as shown in Fig. 158.

Position of Set screw(A2x3.5)

50mm F4.5

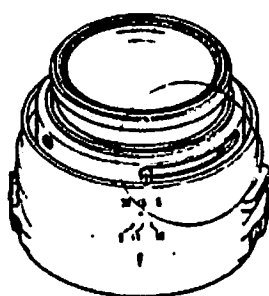


Fig. 156

65mm F4.5 NB

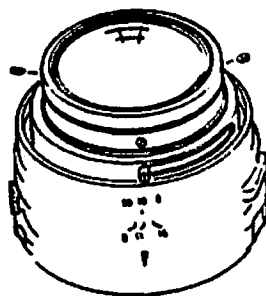


Fig. 157

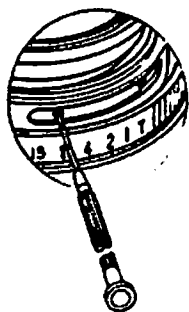


Fig. 158

4. Tighten one piece of Set screw (A2x3.5) as shown in Fig. 159
5. Check infinity indication of Focus adjusting ring by turning Linking pin (LK31-132) clockwise.
6. Loosen Set screw tightened before and move coupling pin clockwise and quietly until it touches the end of the slit.
7. Tighten 3 pieces of Set screw.

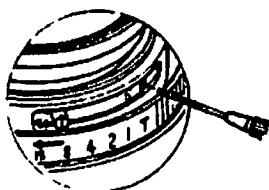
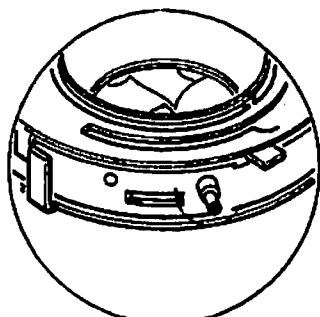


Fig. 159

NOTE: Please refer to Fig. 157 when attaching Floating ring screw (A2x3.5) to 65mm F4.5 lens.

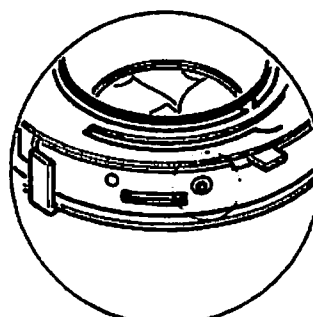
NOTE: Modification for RB67 Lenses Shutter and Shutter cover

Current Shutter



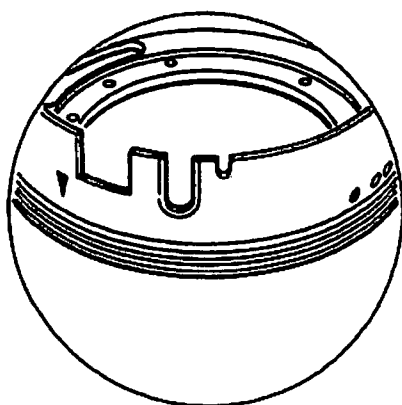
**653E-1
-2**

Modified Shutter



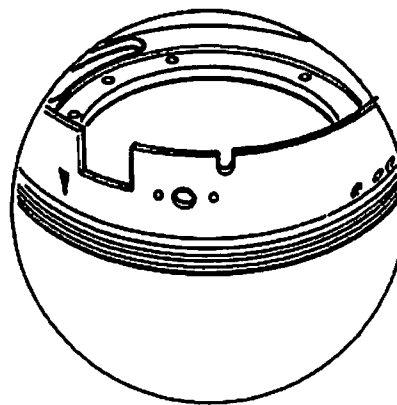
**653E-1A
-2A**

Current Shutter cover



**LK31-331
LG251-331
LE103-331
LE171-331
LE122-212**

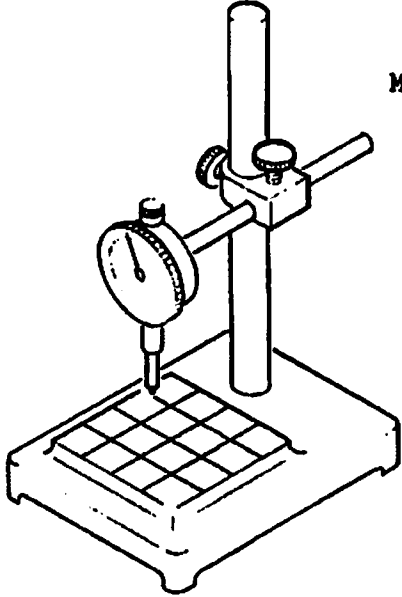
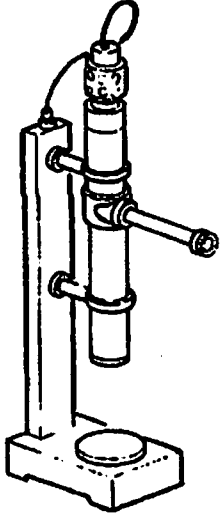
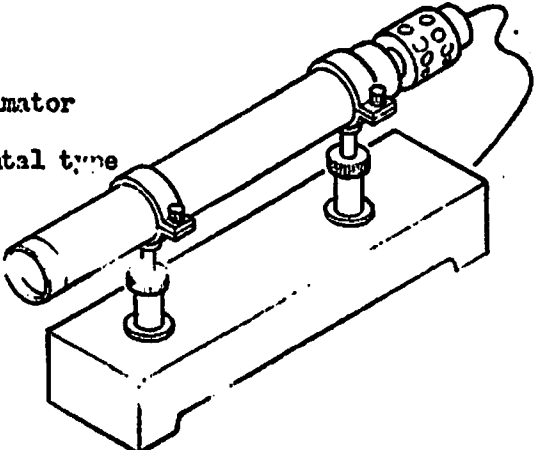
Modified Shutter cover



**LK31-331-A
LK251-331-A
LE103-331-A
LE171-331-A
LE122-212-A**

Special Tool List and Special Measuring Instrument List

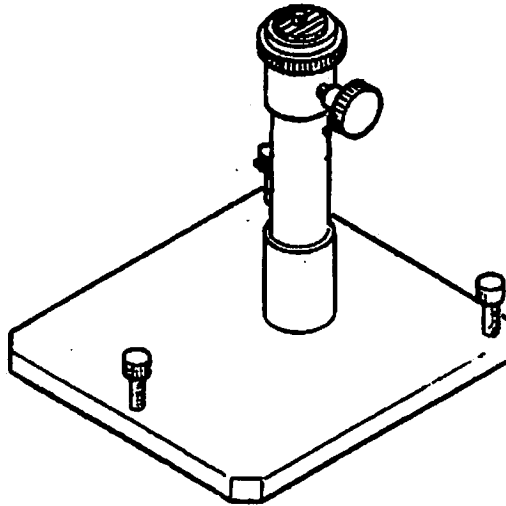
MEASURING INSTRUMENTS FOR ALL CAMERA LINES
OF
MAMIYA CAMERAS

Instrument No.	Description and Use	Delivery period
U-1	 <p>Measuring instrument with dial gauge For checking flange focal distance and parallel of lens mounting</p>	2 months
U-2	 <p>Auto collimator Model Vertical type</p> <p>For inspection of lens infinity (Please refer to the lens repair manual)</p>	3 months
U-3	 <p>Collimator Model Horizontal type</p> <p>For inspection of lens and finder infinity</p>	3 months

<u>Tool No.</u> (Old tool No.)	<u>Description & Use</u>	<u>Delivery Period</u>	<u>Unit Price</u> <u>FOB/Japan US\$</u>
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U-6

For adjusting
focus of the
View finder



Camera body Supporter

Tool No.
(Old tool No.)

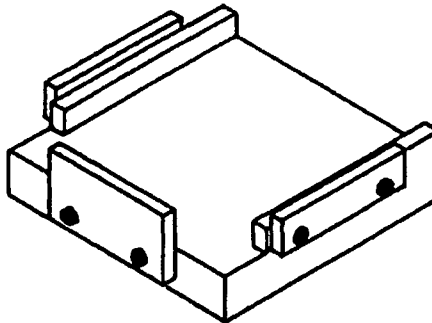
Description & Use

Delivery period

Unit Price
FOB/Japan US\$

R-1

1.5 months



Camera body supporter
(Exclusively used for Inst. No.U-1)

R-2

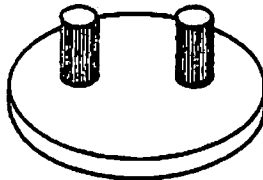
1.5 months



Standard gauge bar
(Exclusively used for Inst. No.U-1)

R-3

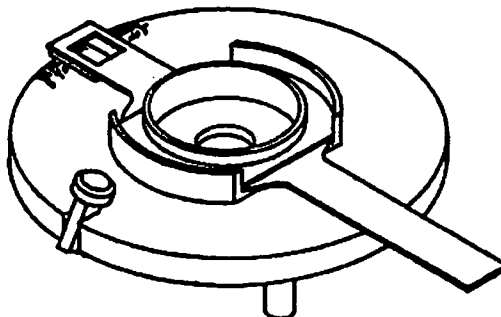
1.5 months



Parallel disc gauge
(Exclusively used for Inst. No. U-1)

R-4

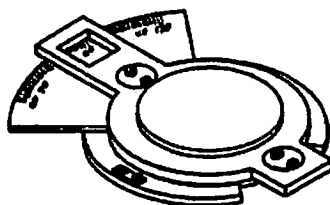
1.5 months



Shutter cocking angle gauge
(Please refer to the Lens-repair manual)

<u>Tool No.</u> (Old tool No.)	<u>Description & Use</u>	<u>Delivery Period</u>	<u>Unit Price</u> <u>FOB/Japan US\$</u>
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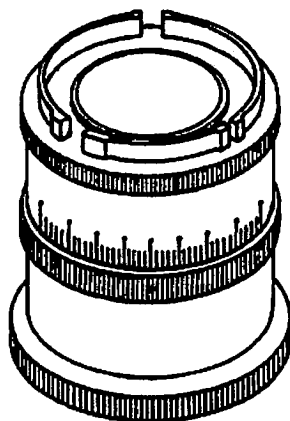
R-5



1.5 months

Body-cocking angle gauge
(Please refer to the Body-repair manual)

R-6

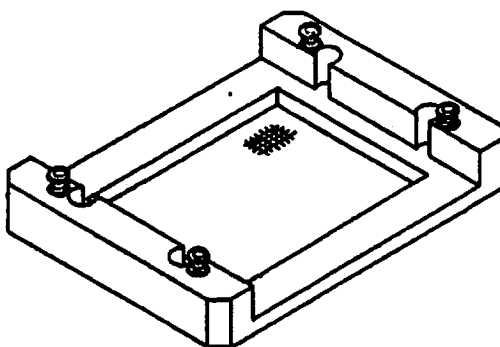


2.0 months

Lens infinity-focusing check supporter
(Please refer to the Lens-repair manual)

For Auto-Collimator
(Vertical type)

R-8

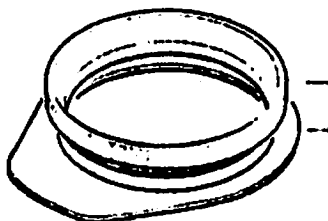


1.5 months

For checking Body-focusing
and Lens-focusing

Focusing checking ground glass frame.

R-9



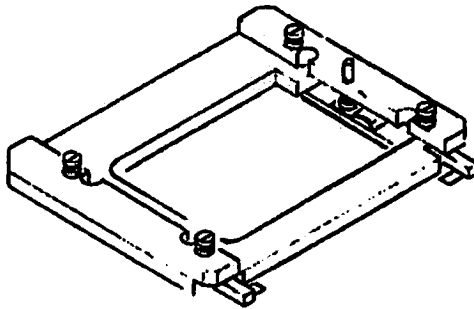
For using Dial gauge
checking Body-focusing
and Focusing screen

Focusing checking plate and ring

**SPECIAL TOOLS AND MEASURING
INSTRUMENTS FOR MAMIYA RB67 Pro S CAMERA**

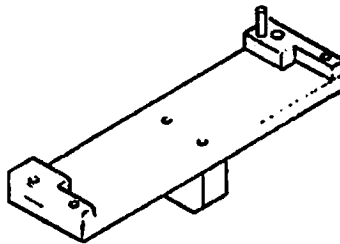
Instrument No.	Description & Use
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aRS-1	
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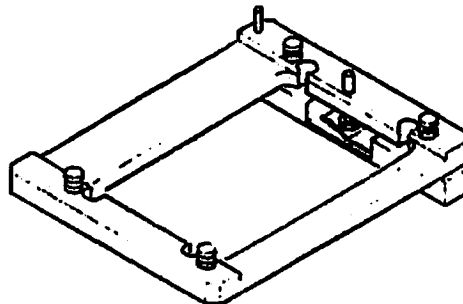
	Jig for vertical and horizontal position
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aRS-2	
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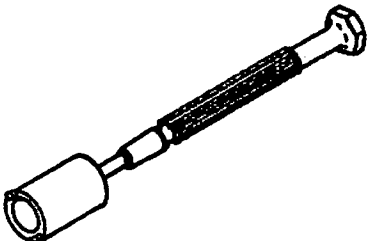
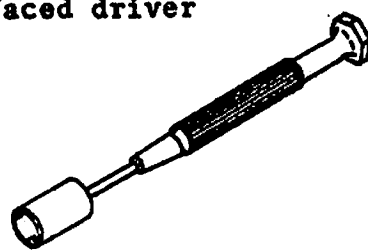
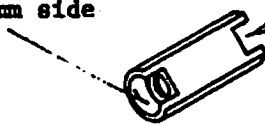
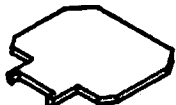
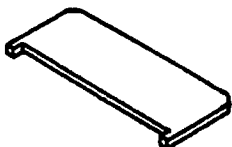
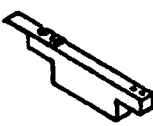


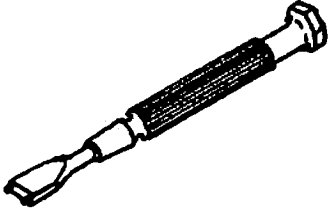
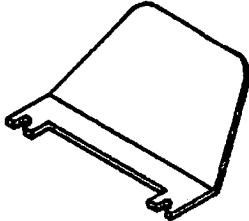
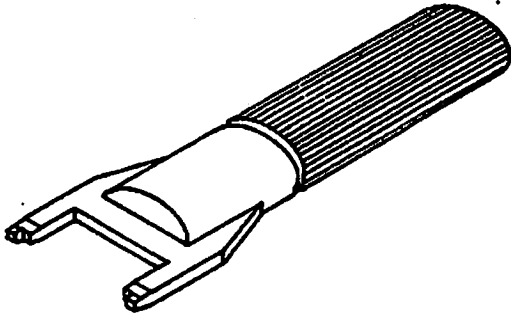
	Release lock bar adjusting tool
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aRS-3	
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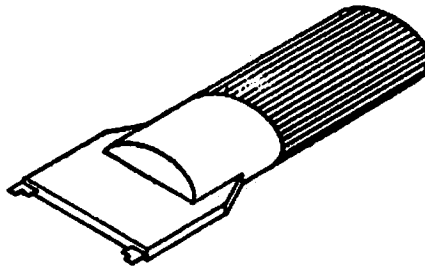


	Release lock pasitioning gauge.
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<u>Tool No.</u> (Old tool No.)	<u>Description & Use</u>	<u>Delivery Period</u>	<u>Unit Price</u> FOB/Japan US\$
R-11 (RS-1172)	 Pin faced driver	1.0 month	For tightening and loosening RS-1172 Nut
R-12 (RS-1342)	 Driver	1.0 month	For tightening and loosening RS-1342 Nut
R-13 (RS-1465)	 Shutter release button check gauge	1.0 month	Shutter must be released by pushing the shutter release button with shallow cut side-B and not be released with deep cut side-A
R-14 (RS-1616)	 Wrench	1.0 month	For tightening and loosening Tripod socket (RS-1616)
R-15 (RS-2139)	 Wrench	1.0 month	For wrenching Retaining nut (RS-2139)
R-16 (RS-2531)	 Coupling arm check gauge	1.0 month	For checking signal lever (RS-2531)

<u>Tool No.</u> (Old tool No.)	<u>Description & Use</u>	<u>Delivery Period</u>	<u>Unit Price</u> FOB/Japan US\$
R-18	 <p>Adjusting driver</p>	1.0 month	For adjusting RJ-2623-screw
R-19	 <p>Adjusting tool</p>	1.0 month	For adjustment of focusing screen
R-20	 <p>Wrench</p>	1.0 month	For wrenching shutter fixing nut For 50mm 65mm 90mm 127mm 180mm Lens

R-21
(LH61-124)

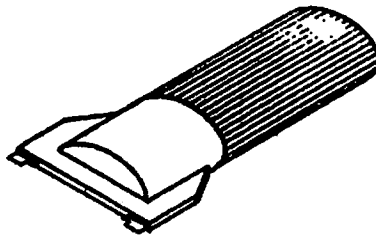


1.0 month

For 65mm f4.5 lens

Rear lens spanner

R-22
(LG111-116)

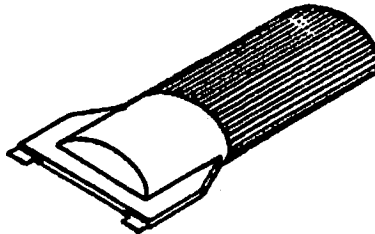


1.0 month

For 90mm f3.8 lens

Rear lens spanner

R-23
(LE101-114)

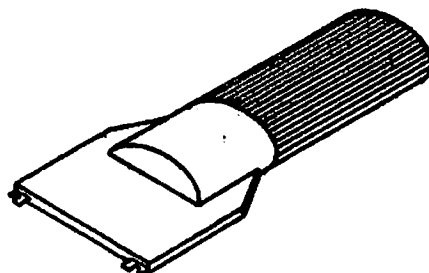


1.0 month

For 127mm f3.8 lens

Rear lens spanner

R-24
(LE121-121)



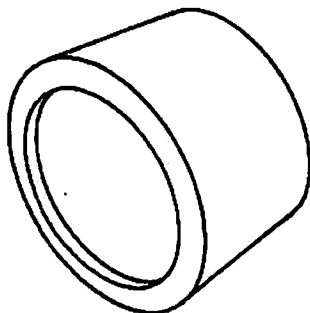
1.0 month

For 250mm f4.5 lens

Rear lens spanner

R-25

1.0 month

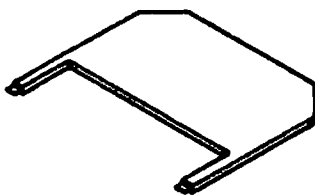


For tightening and
loosening lens-name
ring

Rubber tightener

R-26

1.5 months

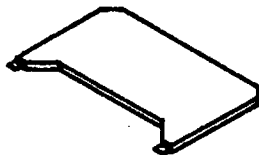


For 65mm f4.5 lens

Front lens wrench

R-27

1.5 months

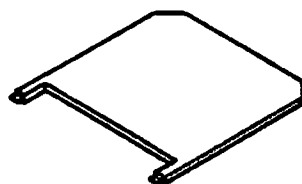


For 90mm f3.8 lens

Front lens wrench

R-28

1.5 months

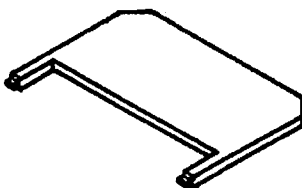


For 127mm f3.8 lens

Front lens wrench

R-29

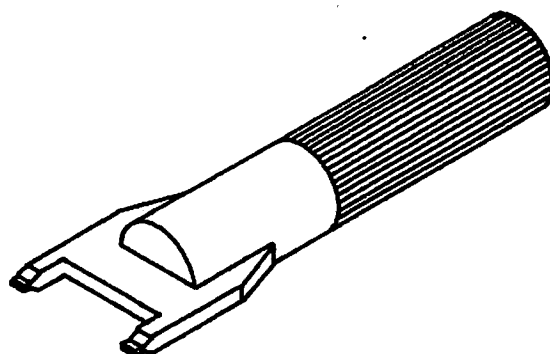
1.5 months



For 180mm f4.5 lens

Front lens wrench

R-30



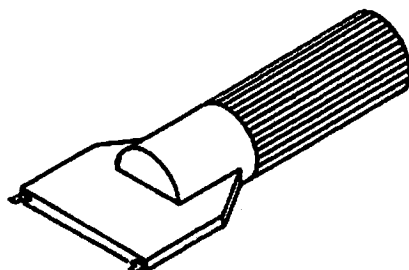
Wrench

1.5 month

For 360mm F6.3 lens
250mm f4.5 lens

Wrenching mounting
fixing nut.

R-31

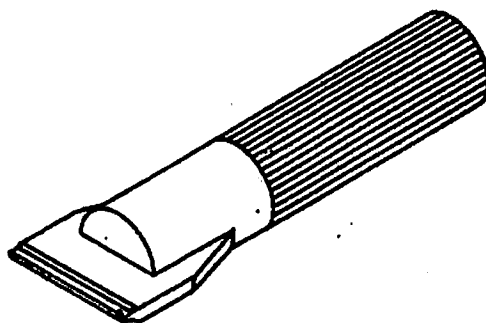


Rear lens spanner

1.5 month

For 360mm F6.3 lens

R-32



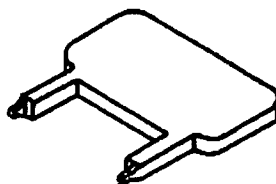
Wrench

1.5 month

For 360mm F6.3 lens
250mm f4.5 lens

Wrenching shutter
fixing nut

R-33



Rear lens wrench

1 month

For 50mm F4.5 lens

R-34



Standard gauge bar

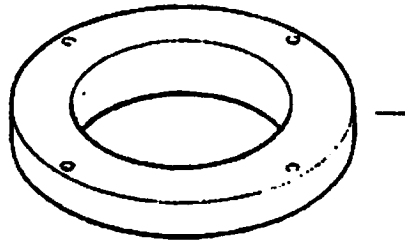
1.5 month

For checking length
and parallel
of shutter cover and
fixing ring

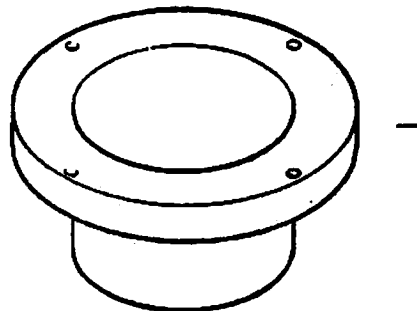
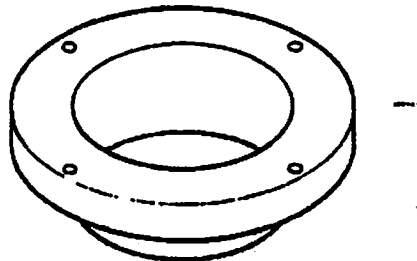
(Exclusively used for Inst. No U-1)

<u>Tool No.</u> (Old tool No.)	<u>Description & Use</u>	<u>Delivery period</u>	<u>Unit price</u> <u>FOB/Japan US\$</u>
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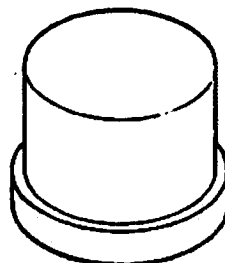
R-35



protective cover ring
1 set (3pcs)
For RE lens



R-36



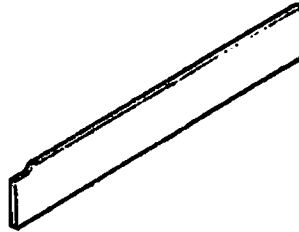
parallel gauge
For 50mm and 65mm

**SPECIAL TOOLS AND MEASURING
INSTRUMENTS FOR MAMIYA RB67 Pro S CAMERA**

Tools No.

Description & Use

aRS-11



Chicking for red signal bar

Gauge for red signal bar.

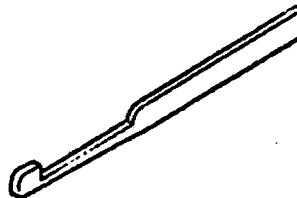
aRS-12



Adjusting for red signal bar

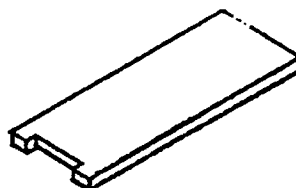
Adjusting plier

aRS-13



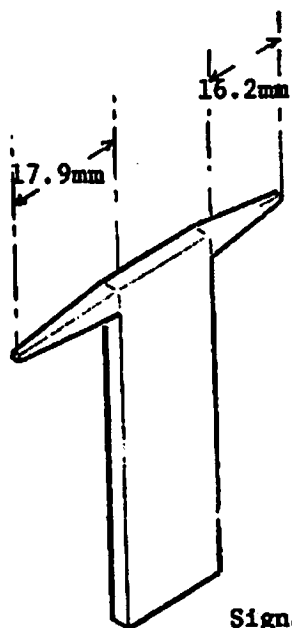
Stop lever positioning gauge.

aRS-14



Lock positioning gauge

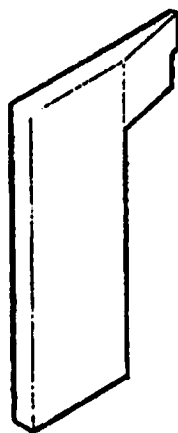
aRSH-15



For checking Wind-stop
release and Signal lever
positioning

Signal gauge

aRSH-16



Gauge for double exposure
prevention device