



## OUTLINE OF REPAIRS

OUTLINE OF REPAIRSTABLE OF CONTENT

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# 1. FILM ADVANCE & SHUTTER RELEASE MECHANISMS

## 1. Film advancement not performed smoothly:

### 1) Improper selection of CA8844 (Lever)

8844 is available in following 3 types. Adjustment should be made on the timing of brake release by replacement of 8844 with a proper type.

#### Caution:

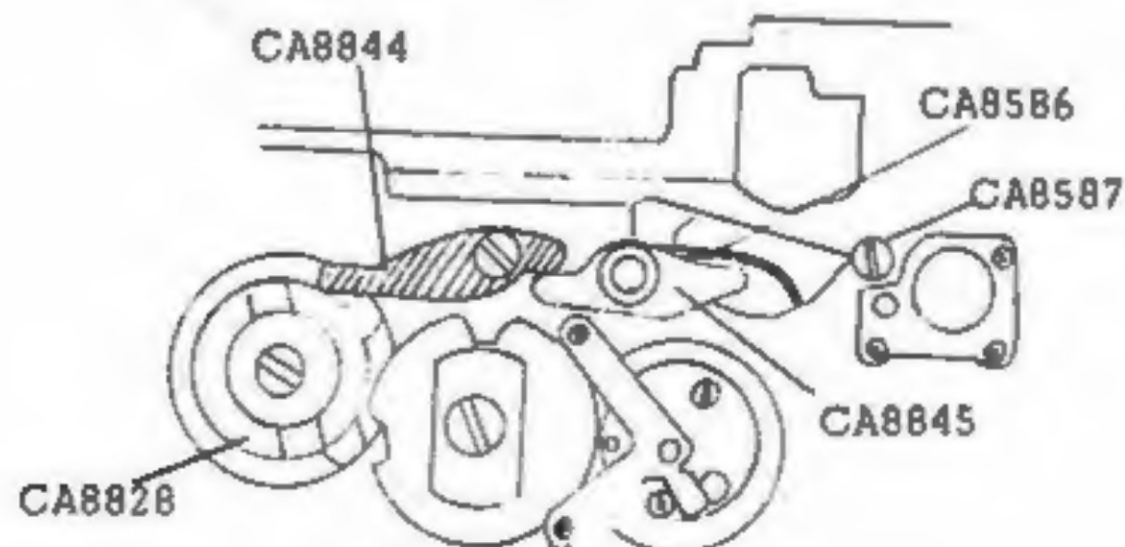
Some of 8844 are bent for adjustment of engagement between 8828 (Shaft) and 8833 (Plate). This should be checked at the time of replacement.



CA8844a

CA8844b  
(for slower timing)CA8844c  
(for faster timing)

If, even upon replacement with 8844C, the film advance motion is not smooth yet, the portion marked A may be slightly hammered out. (Do not work excessively, as it will cause the spring to be readily pressed from the beginning of the motion.)





## 2) Adjustment required of brake force

Strengthen the force of 8586 (Spring) with 8587 (Eccentric screw).  
After this adjustment, be sure to check the bouncing effect.

## 2. Film cannot be advanced.

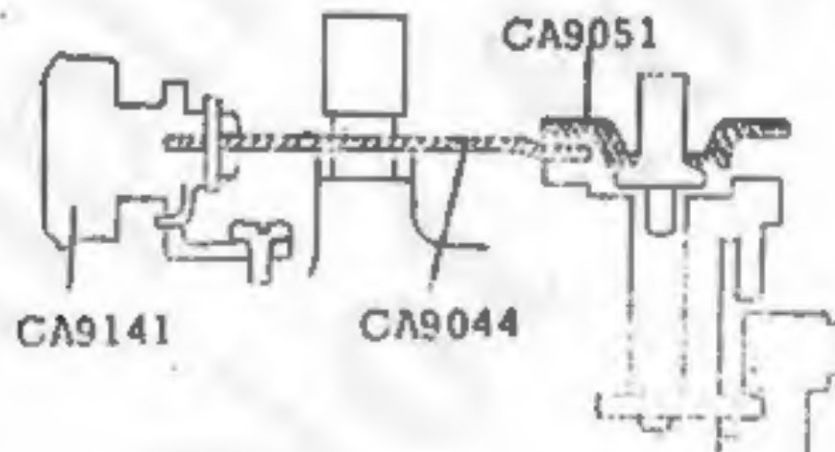
### 1) Parts coming loose or fallen off.

- (1) Check all parts relative to the film advance mechanism.
- (2) Check if any parts of the shutter mechanism have fallen off.
- (3) Check for any springs and screws of the Front Die-Casting either coming loose or falling off.

Make necessary repairs.

### 2) CA9051 (Plate) stuck with CA9044 (Plate)

When 9051 is extremely deformed, replacement is required. Clean the sliding portion of both 9051 and 9044, and apply small amount of Molicote (Grease) Type U.



## 3. Shutter automatically released, immediately upon completion of the film advance motion:

### 1) Insufficient engagement between CA8592 (Claw) and the Gear A.

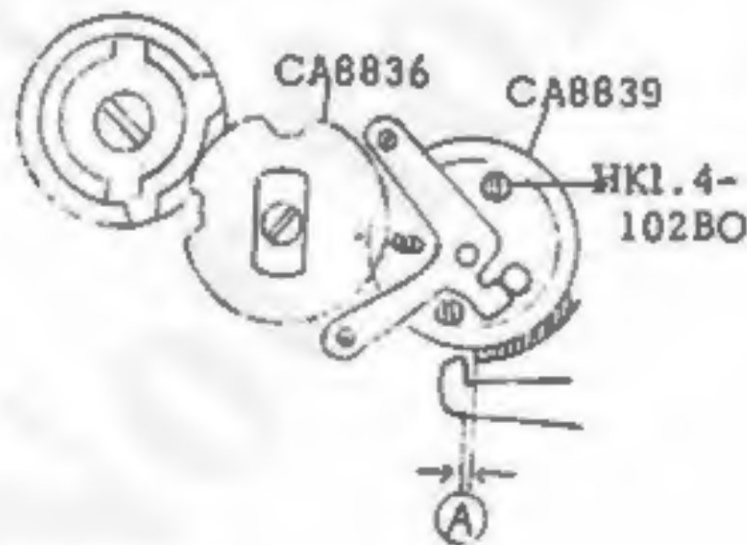
- (1) If insufficiency is in the horizontal direction, replace either 8592 or the Gear A (the whole assembly of 8543, Shaft) with a new one.

- (2) If insufficient engagement is found in the vertical direction,
  - o Bend 8592 and adjust
  - o Adjust tolerance on 8592
  - o Replace 8592
  - o Replace the Gear A (the whole assembly of 8543)
4. Excessive or insufficient film advancement for Shutter-Charging
  - 1) Improper adjustment of Eccentric Screw (8809)

In case of insufficient film advancement, loosen two HK1.4-102BO to widen the distance at A by adjusting (8809).

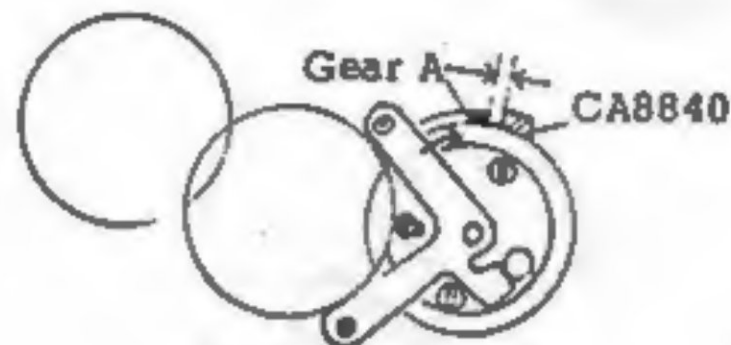
In case of excessive film advancement, narrow the distance at A by adjustment of (8809).

Care must be taken not to make an over adjustment causing the mechanism unchargeable.



Prior to film advancement, when the Gear A is pressed in the arrowed direction, the distance between 8840 and the Gear A should be  $-0.10 \sim +0.3$ . ( $-0.10$  means the state where the Gear A comes in contact with 8840 and further moves by 0.1.)

Adjustment is similarly made by (8809).



### Checkup

Gently wind up the film and see if the Gear A turns 0.3mm or more when 8592 (Claw) gets engaged on to it.

### 2) Delayed release of CA8824

Even upon film advancement, the shutter release button cannot be pressed down.

Refer to the checkup column below.

Take out the lower part of 8824 (Lever) (shown below) by 0.05 - 0.1mm.



Take out 0.05 - 0.1.

### Checkup

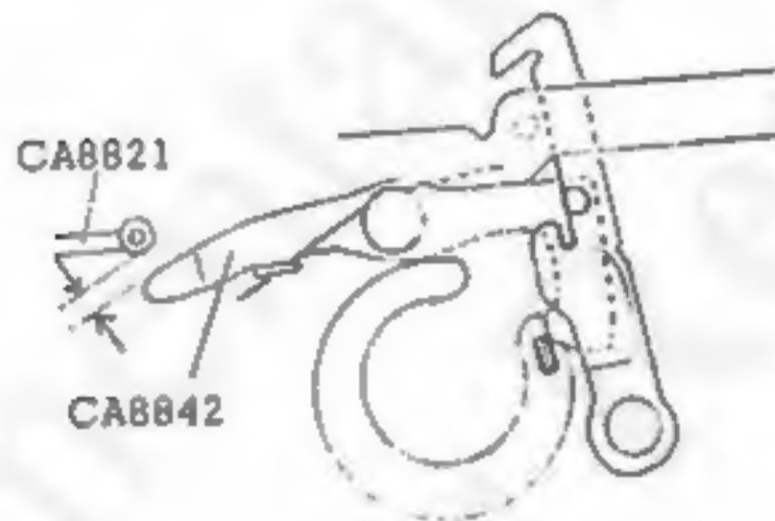
The Lock Lever should be released only after 2G and 3G are disengaged.

## 5. Locking device for the Film-advancing not operating properly

### 1) Improper operation of related parts

Refer to the following checkup column, and check the operation of related parts.

- (1) If the shutter cannot be released upon film advancement, check if 8842 (Lever) and the Stopper Ring of 8821 (Lever) are in contact with each other. They should not.



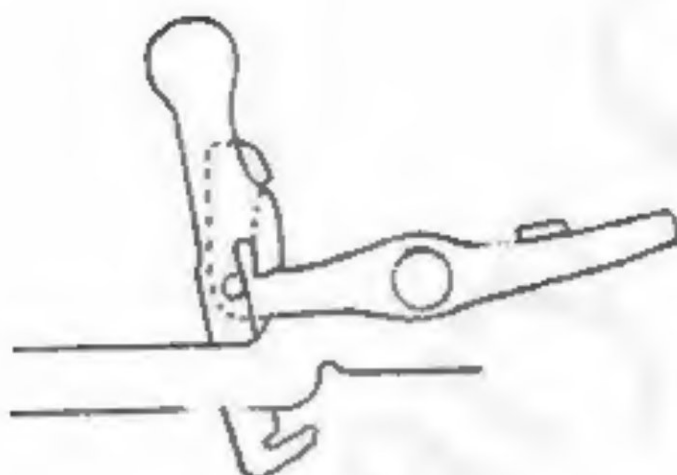
- (2) When the release button returns to its original position after the shutter release, 8862 (Plate) should return until its oblong hole hits 8864 (Shaft).
- (3) The operation should be accurately carried out from 8842 → 8821 → 8824 until CA8824 hits the CA9053 of the body.

(Release of Locking-device for the Film-Advancing)

## 6. The shutter can be released during or prior to film advancement.

### 1) Improper operation of related parts

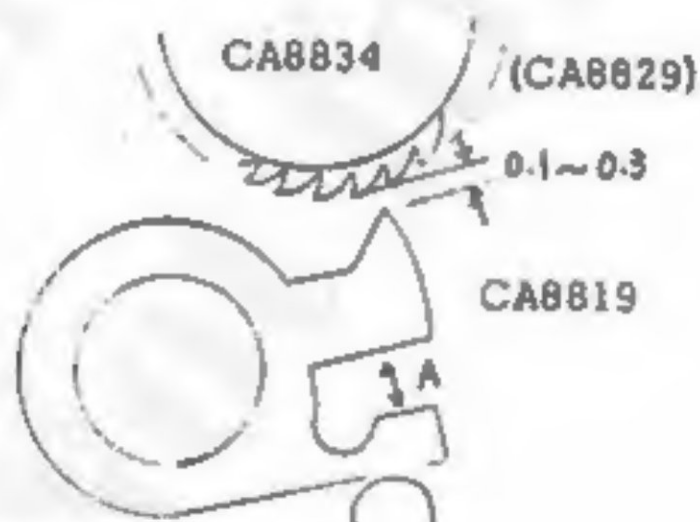
Check the operation of related parts. If the shutter cannot be released even upon film advancement, make sure 8850 (Pin) is not hitting 8810 (Plate).



## 7. Shutter cannot be charged.

- 1) Improper operation and/or adjustment of CA8819 (Claw)

Refer to the checkup column. Adjust the distance A on 8819.



### Checkup

- o When the film advance lever is returned to its original position during the film advancing operation, 8819 should engage onto (8829) to prevent reversion of 8834. (Apply force on the sprocket.)
- o During the film advancing motion, 8819 should stay away from the (8829) with a distance of 0.1~0.3.
- o 8819 should be in engagement with 8829 for more than its own (8819) thickness in the vertical direction.



8. Film advancing operation is not smoothly carried out.

- 1) CA8828 (Shaft) and CA8836 (Gear) stuck together.

Adjust the position of 8501 (Plate).

- 2) Delayed release action of CA8586 (Spring)

Ref: E-4 1-2)

- 3) CA8578 (Lever) stuck.

Check the appropriate parts and make necessary repairs or adjustments.

- 4) Excessive charging force CA8412 (Lever).

Check the operation of the related parts and make necessary repairs or adjustments.

Checkup:

The charging force of 8412 should be: 430 - 500 gr.

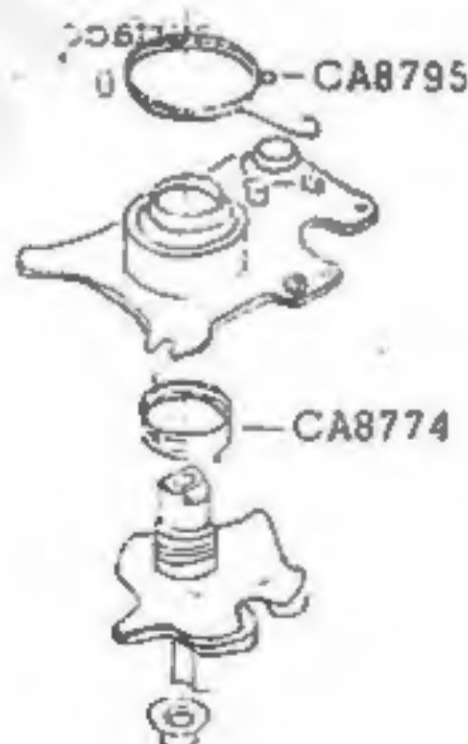
9. CA8749 (Lever) does not return completely and/or smoothly to the original position.

- 1) Top-cover mounted slightly off position.

When 8703 (Top-cover) is mounted off position, it will cause 8753 (Decoration) and 9083 (Washer) to rub each other.

The position of the 8703 should be adjusted.

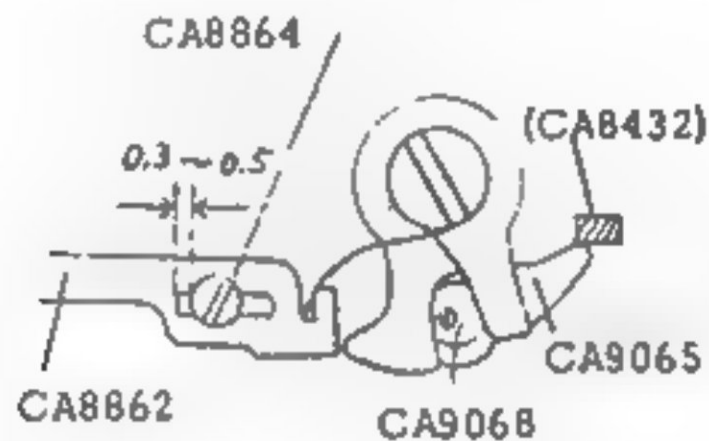
- 2) CA8774 (Spring) and CA8795 (Spring) worn out, broken or entangled.



10. The shutter releasing position of the button too deep or too shallow.  
Excessive or insufficient leeway in the button motion after the shutter release.

1) Improper adjustment of CA9068 (Collar).

9068 should be adjusted so that the mirror commences its operation when the distance between the oblong hole of 8862 and 8864 at their edges is  $0.3 \sim 0.5$ .



Checkup

- o Make sure 9065 does not hit 8432 (Hook) prior to or during the film advancing motion.
- o Taking the upper edgesurface of 9083 as the basis, the shutter should be released within  $0 \sim 0.2$ .

11. Heavy touch of the Shutter Release Button

- 1) Operation of CA9078 (Plate)
- 2) Releasing force of the CA8432 (Hook) too heavy.

Checkup

- o The releasing force of (8432) should be 50 gr. or below.

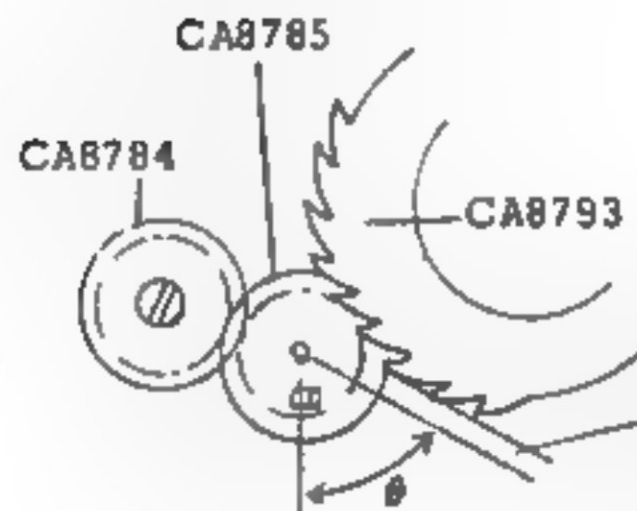
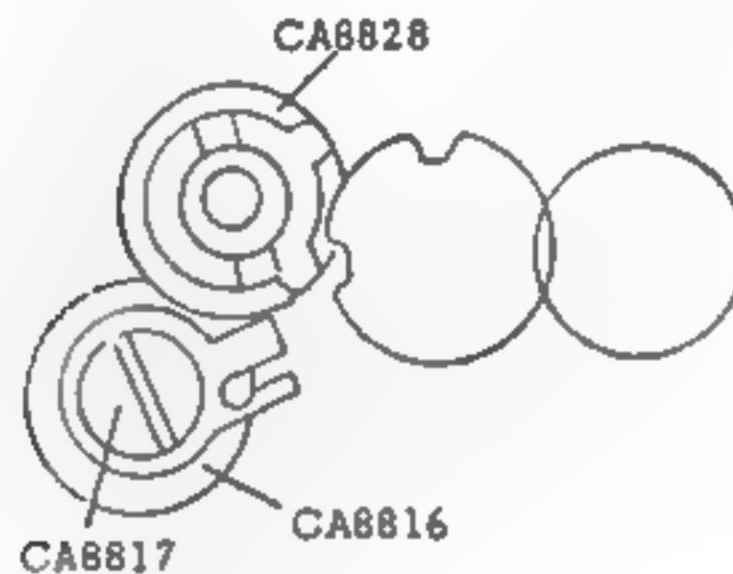
## 12. Uneven intervals between picture frames.

### 1) Improper positioning of Sprocket Teeth

After the film is advanced and locked, bring 8785 (Gear) to rise within the range  $\phi$ , and make following adjustments:

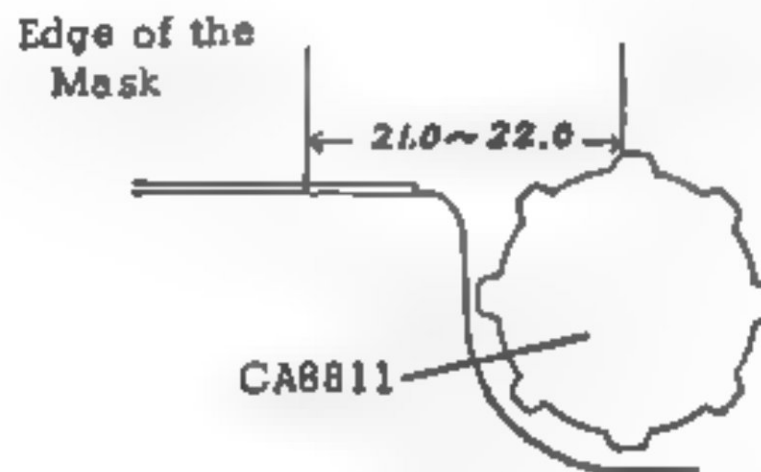
Loosen 8817 (Screw) and change the position of engagement between 8816 (Gear) and 8834 (Gear).

The Sprocket will turn 1.66mm more, or less, when the engagement is changed by a tooth on 8816 (Gear).  $\rightarrow$  (The lowest gear is 8834.)



The clearance between boss of 8785 and 8793 should be over than 1mm.

The space between 8793 and 8785 should be 1mm or above.  
 The clearance between boss of 8785 and 8793 should be over than 1mm.



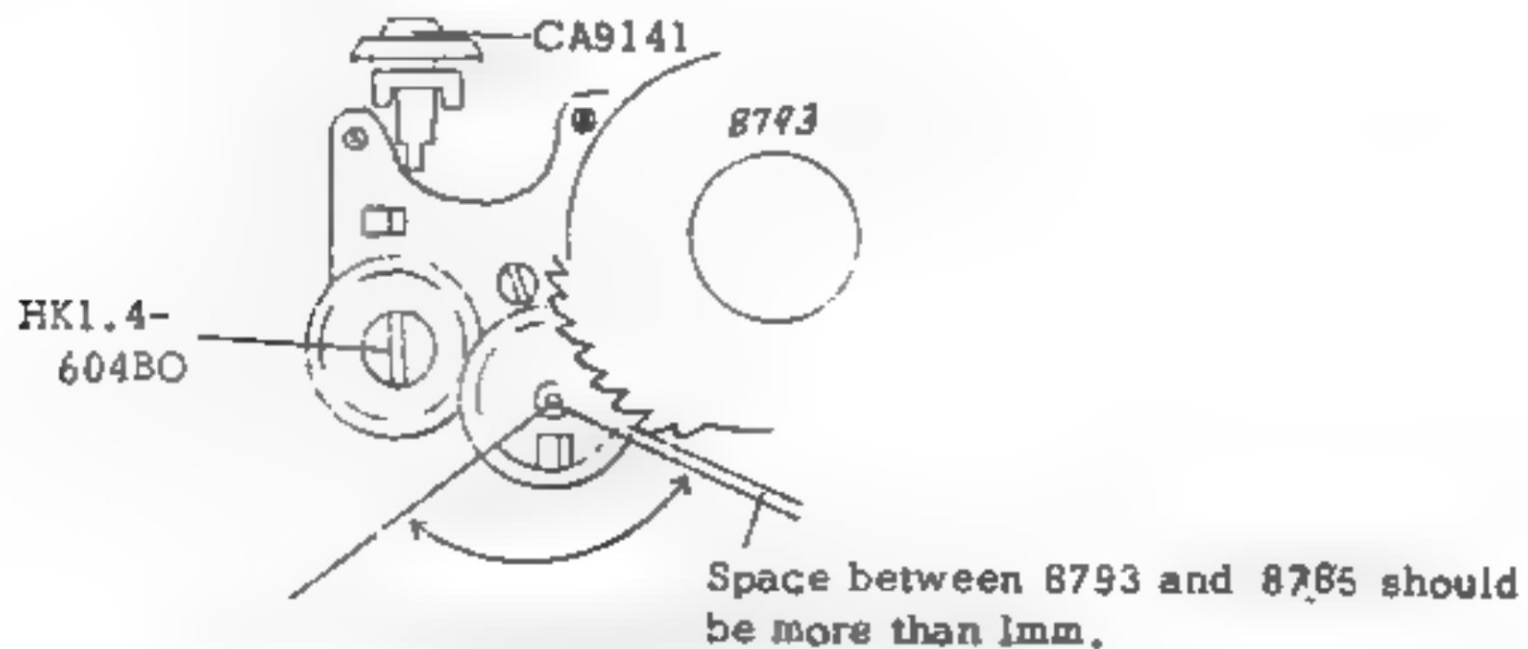
### Checkup

When the Sprocket is pressed toward the Mask, the distance between the edge of the Mask and the Sprocket Teeth should be 21.0 - 22.0 mm.

### 13. Film Counter Plate not moving properly.

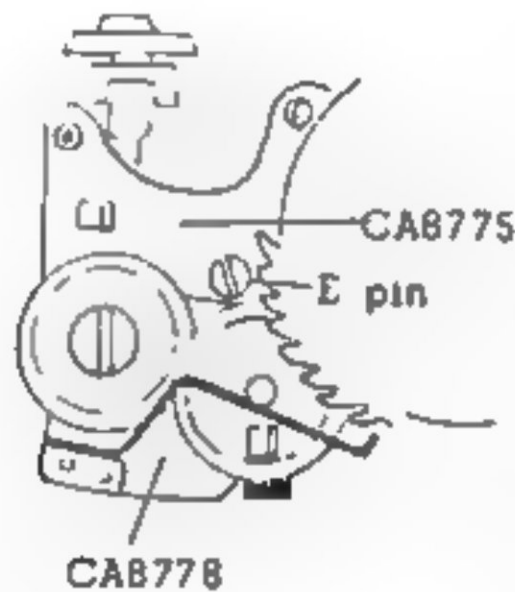
#### 1) Improper positioning of CA8785 (Gear).

Set 9141 and loosen HK7.4-604 BO on 8784 to let it rise and adjust 8785 position. Upon completion of film advancement, 8785 should be positioned as follows (within the range shown by arrows.)



2) Improper positioning of CA8778 (Lever)

Keeping the E pin of 8775 at the neutral position of its eccentric motion, bend the Plate (A) so that 8778 will hit the E pin when the Rear Cover is closed.

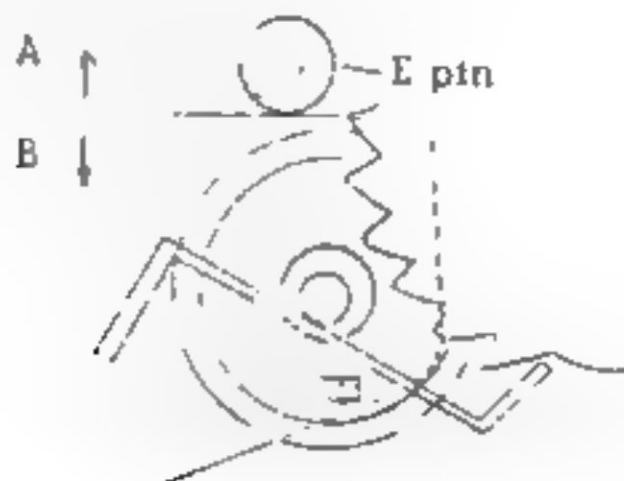


3) Improper material used for CA8786 (Ring)

If the material for 8786 is soft and is deformed, replacement will be required.

4) Improper position of CA8790 (Stopper)

When the Rear Cover is closed, the tip of (8790) should hit the bottom of the teeth of (8793). If it does not, an adjustment should be made by bending (8790) at the S position. Some room may be permissible between (8787) and (8790).





Checkup

- o When the Rear Cover is closed, (8790) should not supple.
- o Even is 8793 is shaken vertically, 8793 should be engaged with (8790) at least for its own thickness.
- o The tip of (8790) should be lower than the upper surface of 8793.
- o At the commence of motion, (8785) should work on the 4th tooth of 8793.

## 5) Adjustment of CA8802 (Pin)

Adjust the E pin like that 8793 will be travelled by 1.2 - 1.8 teeth space by means of (8785).

When there is insufficient travel, adjust (8802) in the A direction shown above, and when excessive in the B direction.

Upon adjustment of (8802) realign 8778 and (8790).

The three points explained above, i.e. the positions of 8778, (8790), and (8802), are all related to the movement of the Film Counter Plate.

## 6) CAB795 (Spring) entangled

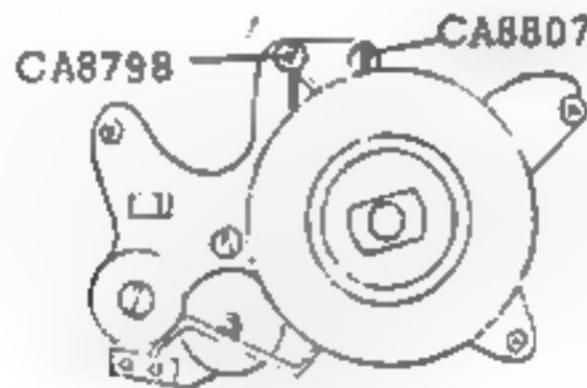
Check the relative part and adjust.



14. S point of the Film Counter Plate out of position.

1) Adjustment of CA8807 (Pin)

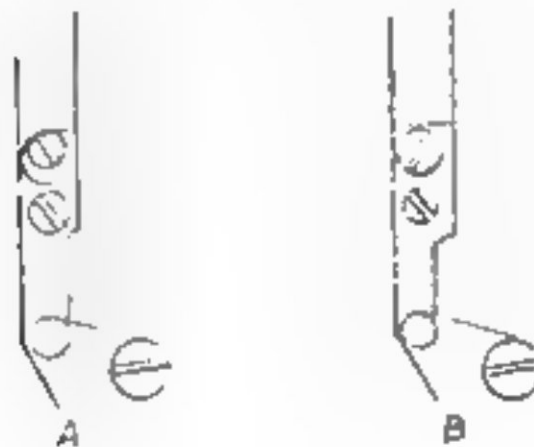
Loosen 8798 and adjust eccentricity of 8807 so that the tip of (8790) touches the bottom of the first tooth of 8793.



15. Little leeway stroke after the shutter release by the self-timer.

1) Adjustment of CA9089 (Screw)

Refer to the checkup column on the next page and make following adjustments.



A : Bigger leeway stroke after the shutter release and shorter self-timer operation.

B : Little stroke after the shutter release and longer self-timer operation.

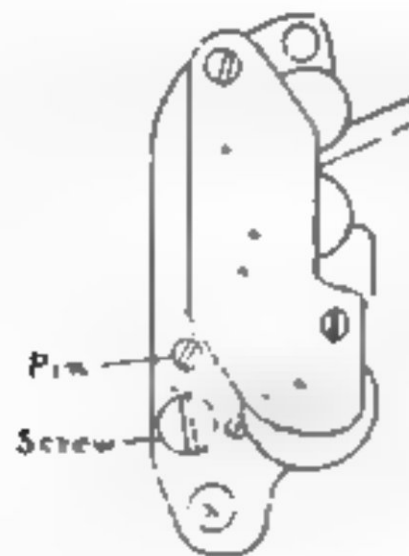
### Checkup

The duration of operation of the self-timer is to be 9 - 14 seconds when it is fully set. The leeway stroke after the shutter release should be 0.2mm or above.

16. ST lever not pointing straight up.

- 1) S stopper pin of the self-timer not properly adjusted.

Loosen the screw and adjust the S stopper pin (eccentric).  
After adjustment, tighten the screw fully and bond it with Aron Alpha.



### Checkup

The slant at the tip of the ST lever should be 0.3mm or less.

## II. SHUTTER AND MIRROR

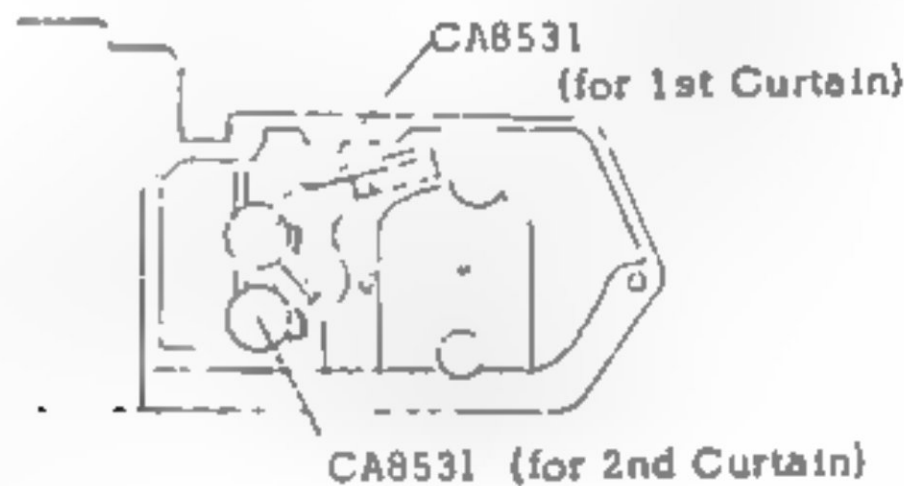
### 1. Excessive or insufficient speed of the curtains.

#### 1) Improper adjustment of CA8531 (Nut)

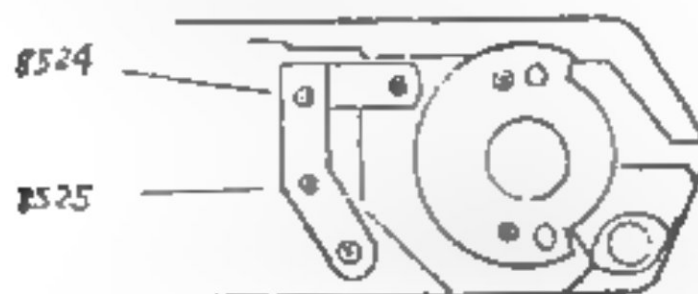
The curtain speed is adjusted by 8531. Refer to the checkup column and make adjustment.

Turn 8531 to the right to weaken the curtain tension and thus slow down the speed.

Turn 8531 to the left to increase the tension and thus speed up the curtain run.



Adjustments may be made by 8525 (Shaft) and 8524 (Shaft). Turn them to the right for stronger tension and faster speed, and to the left for weaker tension and slower speed. Care must be taken not to deform the driver groove at the upper end of 8525 and 8524, as it will cause poor operation of the curtains.



Checkup

Use the shutter tester 7F7L1 and/or 7F7L3. The speed should be 11.7~12.1 ms. at 1/1000 sec.

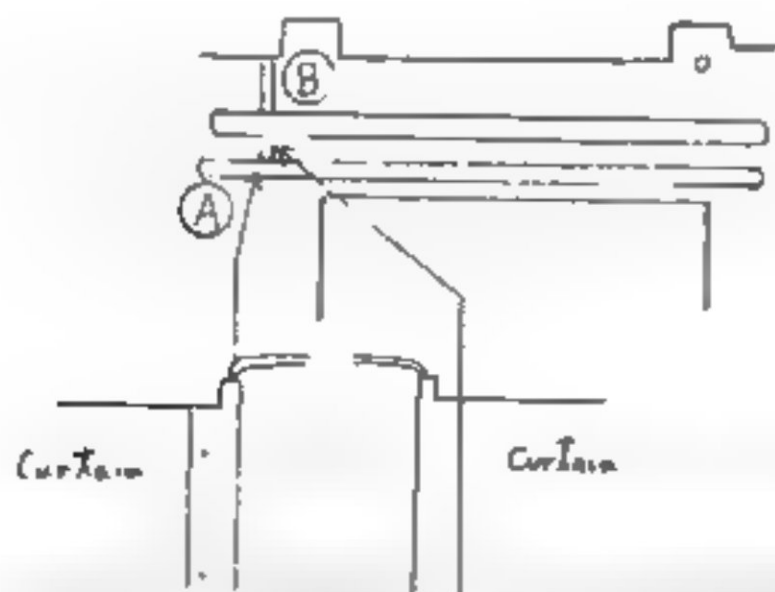
## 2. 1st curtain bounces.

## 1) Adjustment of the curtain position.(Patch inclined.)

- (1) Turn 8519 (Shaft) to let 8592 (Claw) engage on to the Gear A and lock it. Do not directly touch the metal part of (8519) with fingers.
- (2) Remove 8857 (Shaft) on the lens side, turn 8521 (Stopper), lower 8520 (Shaft), and disengage 8520 from the Gear B.
- (3) Rotate the Gear B to bring its boss to the position coincident with that of the Gear A as shown below.



- (4) Do not change the position of the Gear B but turn 8520 until the Patch of 8600 (Curtain) reaches closest to the Scratched line (A below) on the Die-cast Body. Then raise (8520) and let it engage onto the Gear B.





Make fine adjustment on the alignment of the Patch of 8600 and the Scratched-Line on the die-cast by adjusting the 5 holes' positions.

Tolerance: 0 - 0.3mm

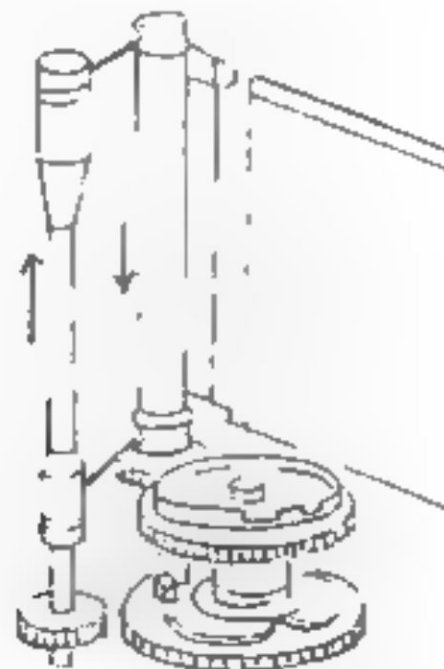
(From the point of perfect coincidence with the Scratched-Line up to 0.3mm passing it.)

- (5) Return 8521 to the original position and tighten 8857 (Shaft).
- (6) Loosen PUK1.4 x 1.8SO of 8522 (Stopper), slide aside the 8522, and raise 8519 (Shaft) to release its engagement with the Gear A.
- (7) While keeping the proper relationship between the Gears A and B (items (1) through (3) above), rotate (8519) until 8538 (Curtain) reaches closest to the Scratched-Line on the Die-Cast (see Ⓑ in the illustration in page 18 ), and lower (8519) until it gets engaged with the Gear A.

Make fine adjustment on the alignment of the Patch of 8538 and Scratched-Line on the die-cast by adjusting the 5 holes' positions.

Tolerance:  $0_{-}^{+0.15}$  mm

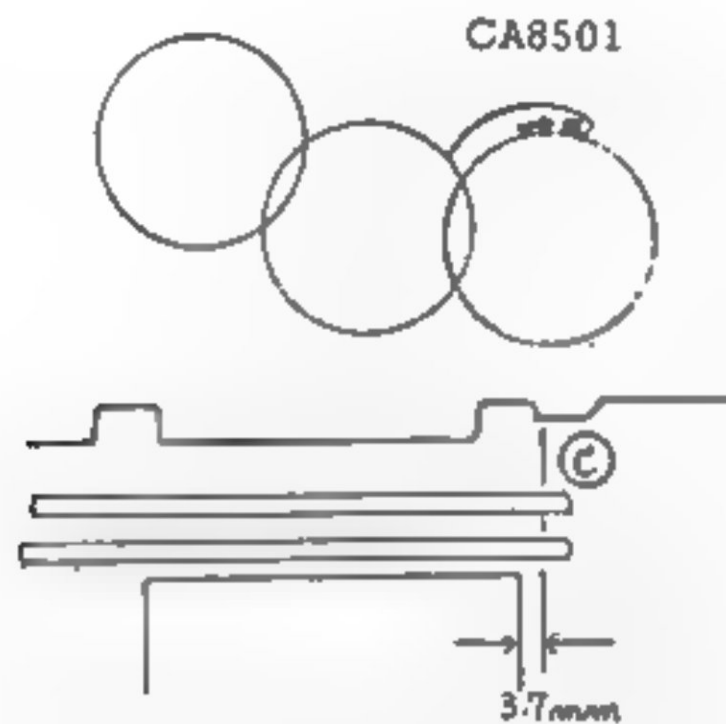
- (8) Return 8522 (Stopper) to the original position and tighten PUK1.4 x 1.8SO.



2) 1st curtain stops at the improper position.

After the shutter is released, when the boss of the Gear A is pressed against 8501 (Base Plate), the edge of 8538 (Curtain) should almost reach the Scratched-Line (see C below.)

If it does not, an adjustment may be made by moving vertically the mounting position of 8517 (Stopper) assembled in 8519 (Shaft).



Reference: (Stopping point of the second curtain)

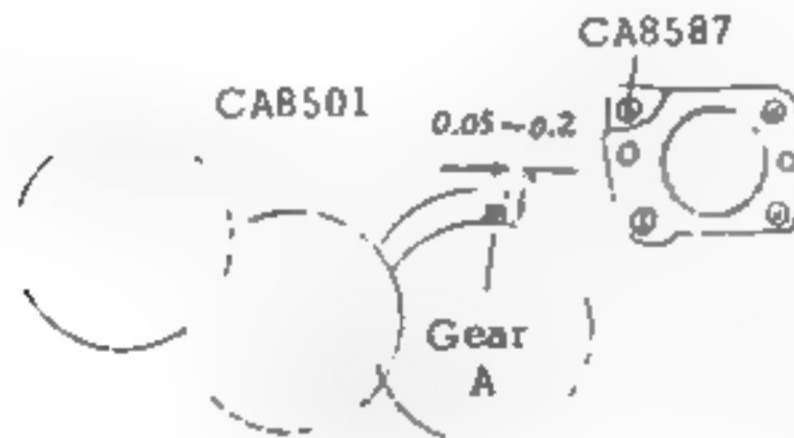
At 1/000 sec. the boss of the Gear B (covered with a rubber ring) should hit (8502) but not at the speed of 1/1.

Checkup

The first curtain should stop at  $3.7^{+0.5}$  from the edge of the mask. Also, the overlapping with the Patch of second curtain should be 2.5mm or above.

3) Brake adjustment unsatisfactory.

Upon adjustment of the curtain speed, when the shutter is released at 1/1000 or B, there should be a room of 0.05 - 0.2mm between 8501 (Base Plate) and the Gear A. If not, it should be adjusted to be within that range by 8587 (Screw). (It will change the spring tension of 8586 (Spring).)



4) Spring tension of 8586 (Spring) weak.

If 8586 itself is worn out, make a replacement. Upon replacement, check the space between 8501 and the Gear A.

5) 8578 (Lever) not operating properly.

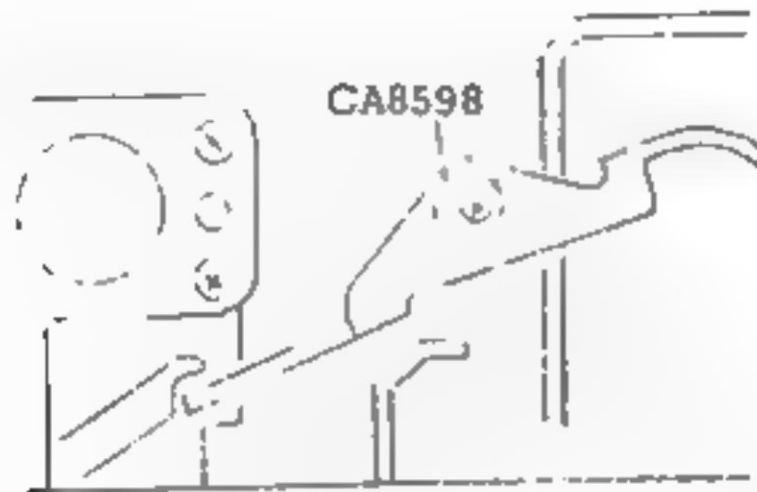
Looseness of 8585 (Screw) is to be checked. It should be tightened if loose. On the way of the film advancement, remove 8586 (Spring) from 8587 to check the operation of 8578. If it does not work properly, adjust or replace it.

6) Inaccuracy in surface finish of the sliding part of 8519.

To be cleaned, adjusted or replaced (in total assembly).

- 7) CA8595 (Lever) and CA8592 (Claw) stuck together.

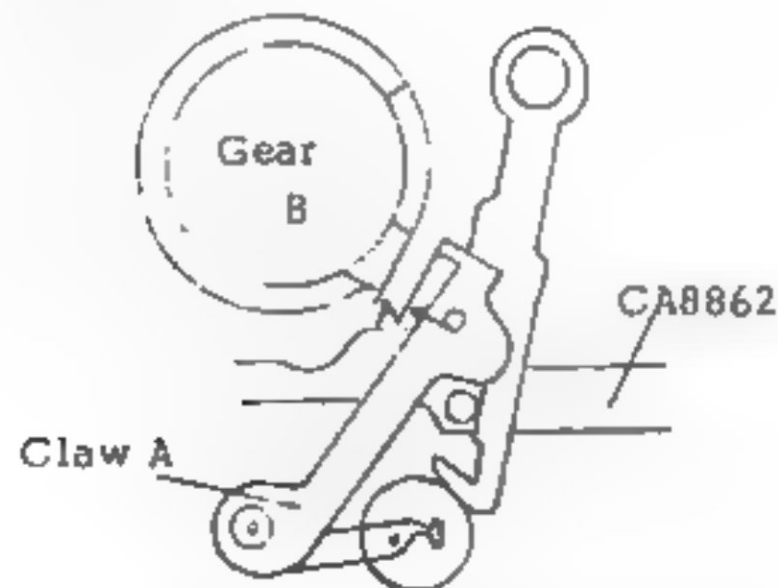
8598 (Washer) is to be mounted in the manner shown below.



3. Adjustment of "B" shutter speed (Irregularity of B stop, immediate closing or remaining open)

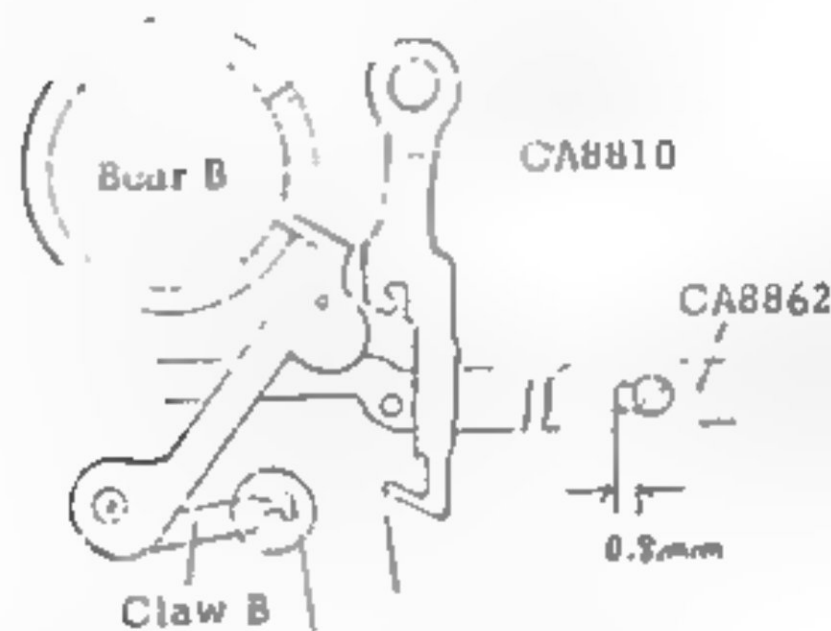
1) Adjustment of "Bulb"

- (1) Upon completion of shutter charging, 8862 (Plate) should return to the original position accurately. At this time there should be a space between Claw A of 8567 (Shaft) and the Gear B of 0.5mm or above. (See below, the portion marked A) If there is not, an adjustment must be made by bending the portion marked with a circle in the picture below.



- (2) Press 9078, let Claw A of 8567 engage onto the Gear B, and see if there is a space of 0.2mm or above between 8810 (Plate) and Claw B when the space between the oblong hole of 8862 (Plate) and 8864 (Shaft) gets to 0.8mm. If there is not, an adjustment should be made by bending the portion marked with a circle in the picture below.

Upon such an adjustment, check the point (1) above, again.

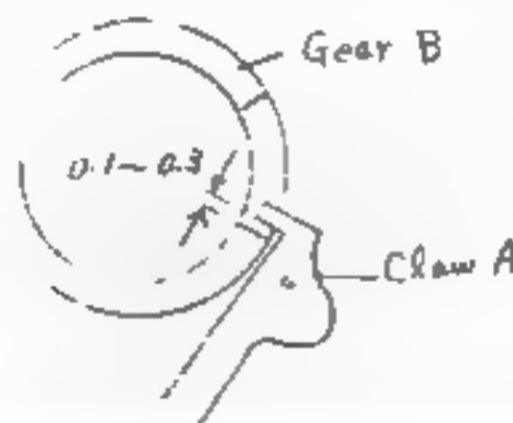


- 2) The space between Claw A and the Gear B.

Depending on the size of Claw A, there are three types of 8567 (Shaft). A proper selection should be made out of the three shown below, so that the space between Claw A and the Gear B would be 0.1 - 0.3 (as shown below).

CA8567S  
CA8567M  
CA8567L

An adjustment may be made by bending the tip of Claw A.





When Claw A is shaken if its lower edge hits the Gear B, an adjustment may be made by bending the Plate (B).



### Checkup

Vertically, Claw A and the Gear B should be engaged with each other for more than  $2/3$  of their thickness.

### 3) Shifts in releasing force of Claw A.

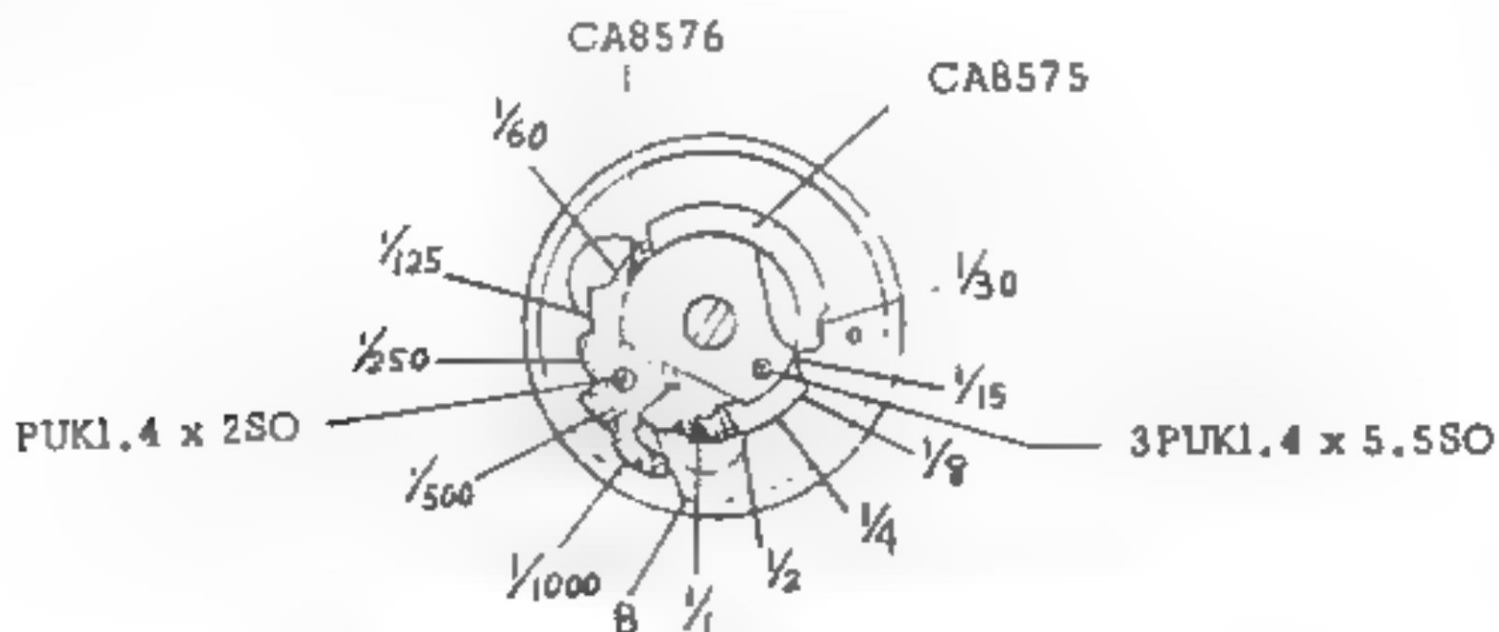
Where there is an extreme shifting in the releasing force, the portion of 8567 (Shaft), 8501 (Plate) and the Plate B where they fit with each other, should be cleaned. Then rub Claw A several times.

### Checkup

While the release button remains depressed at the shutter speed "B", release the shutter with 8595. Releasing Claw A with a tension gauge, measure it. It should show the value of 5 - 15g.

## 4. Shutter Timing

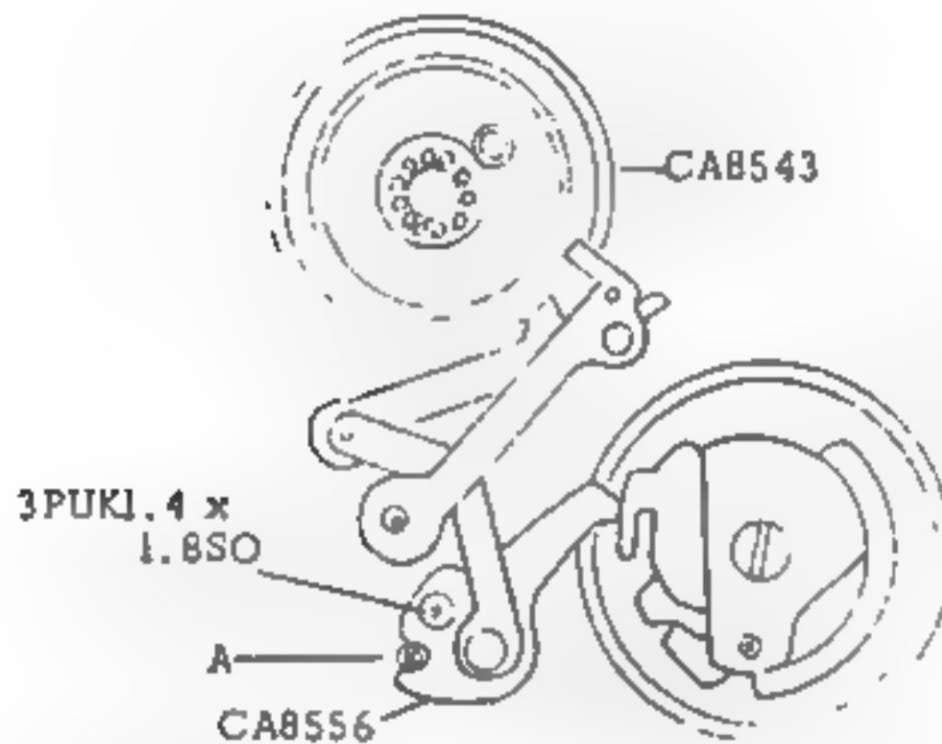
### 1) Positions of CA8575 (Cam) and CA8576 (Cam) at each speed:



## 5. Improper timing at high shutter speeds:

### 1) Adjustment of the Eccentric Screw

If the speed at  $1/1000 - 1/60$  sec. is in average longer (or shorter) than the proper timing, and adjustment is to be made with A of 8556 (Lever).



### Checkup

Refer to the Inspection Standard for the proper timing and make measurements with the shutter tester.

(For reference - Shutter Release

↓  
8592 releases the Gear A.

↓  
1st curtain starts the run.

↓  
The Cam of the Gear A is pressed.

↓  
The Lever of 8556 is worked.

↓  
The Claw of 8567 engages the Gear B

↓  
2nd curtain starts the run.

## 2) Adjustment of CA8576 (High Cam)

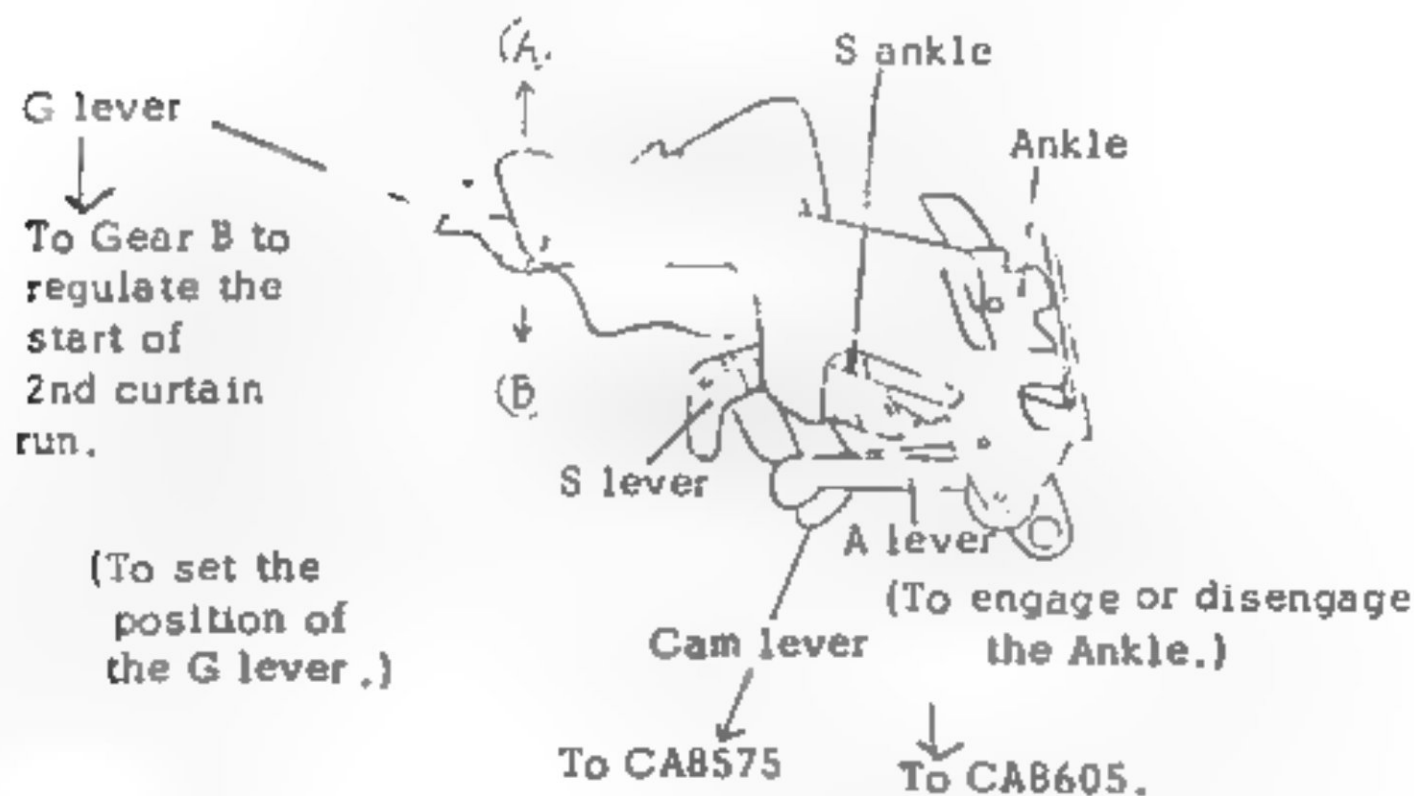
When a certain shutter speed takes longer than the proper timing, hammer out the appropriate portion of 8576, and when shorter shave it. In case of 1/1000 sec. widen or narrow the appropriate section.

For adjustment of 8576, remove PUK1.4 x 2SO, then 8576 will come off singly. See the Figure in E-24.

## 6. Improper timing at low shutter speeds:

### 1) Adjustment required for proper positioning of the Governor.

If the speed at 1/30 - 1/1 sec. is in average longer (or shorter) than the proper timing, an adjustment is made by moving the governor. When it is longer, the governor is to be positioned rather towards the direction A, and when shorter towards B.



### Checkup

Refer to the Inspection Standard for the proper timing and make measurements with the shutter tester.

(For reference: See the picture above for functions of the individual levers for the Governor.)

2) Adjustment required for the Low Cam.

When a certain shutter speed takes longer than the proper timing, hammer out the appropriate portion of 8575, and when shorter shave it.

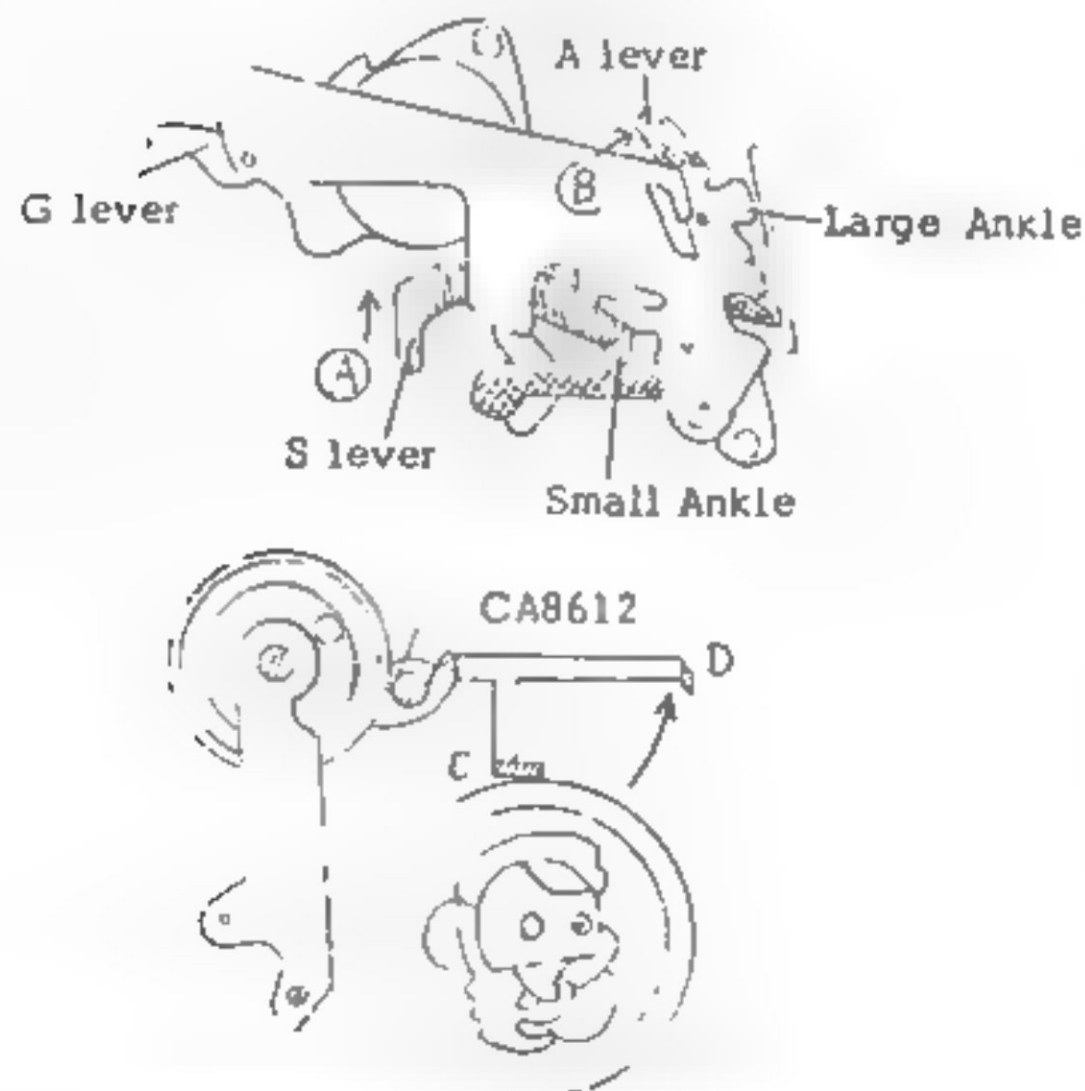
For adjustment of 8575 remove 3PUK1.4 x 5.5SO, then 8575 will come off singly. See the Figure in E-24.

7. Irregular shutter timing at the low speeds.

1) Little operation of CA8612 and large shaking.

Adjust by bending portions C and D of 8612 like that relative parts work as follows.

When 8575 is set at  $1/1 - 1/8$ , immediately prior to the shutter charging action 8612 starts working and portions A and B of the governor should move in the directions indicated by arrows to release the Large Ankle and Small Ankle of the governor.



Checkup

With 8575 set at  $1/1 - 1/8$ , when the Governor is worked upon completion of film advancement, the Ankle should not be engaged.

(For reference: Prior to the shutter charging action

The boss on the Gear A



presses

8612



presses

A lever of the Governor (in case of  $1/1$  &  $1/2$ )

or

S lever of the Governor (in case of  $1/4$  &  $1/8$ )



And just immediately prior to the shutter charging action, engagement between the Ankle and the Gear is released and the G lever gets in contact with the tooth of the Gear B.

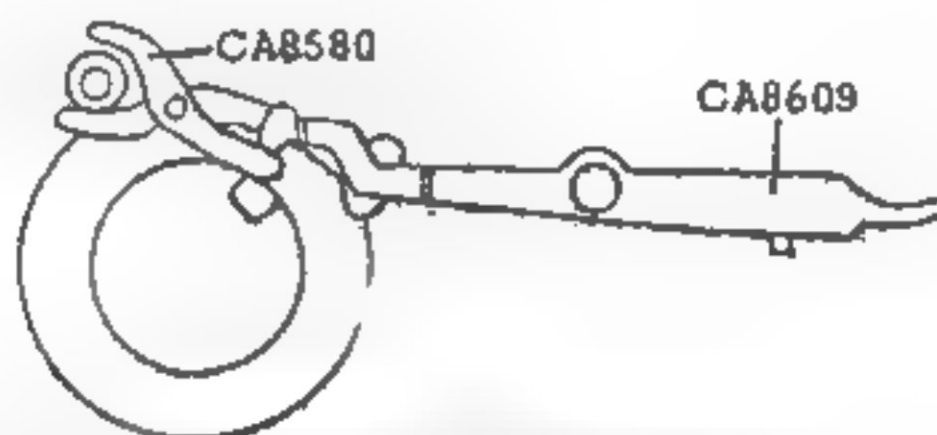


The shutter is released.

The Gear A is rotated and 8612 is sprung back to the original position.

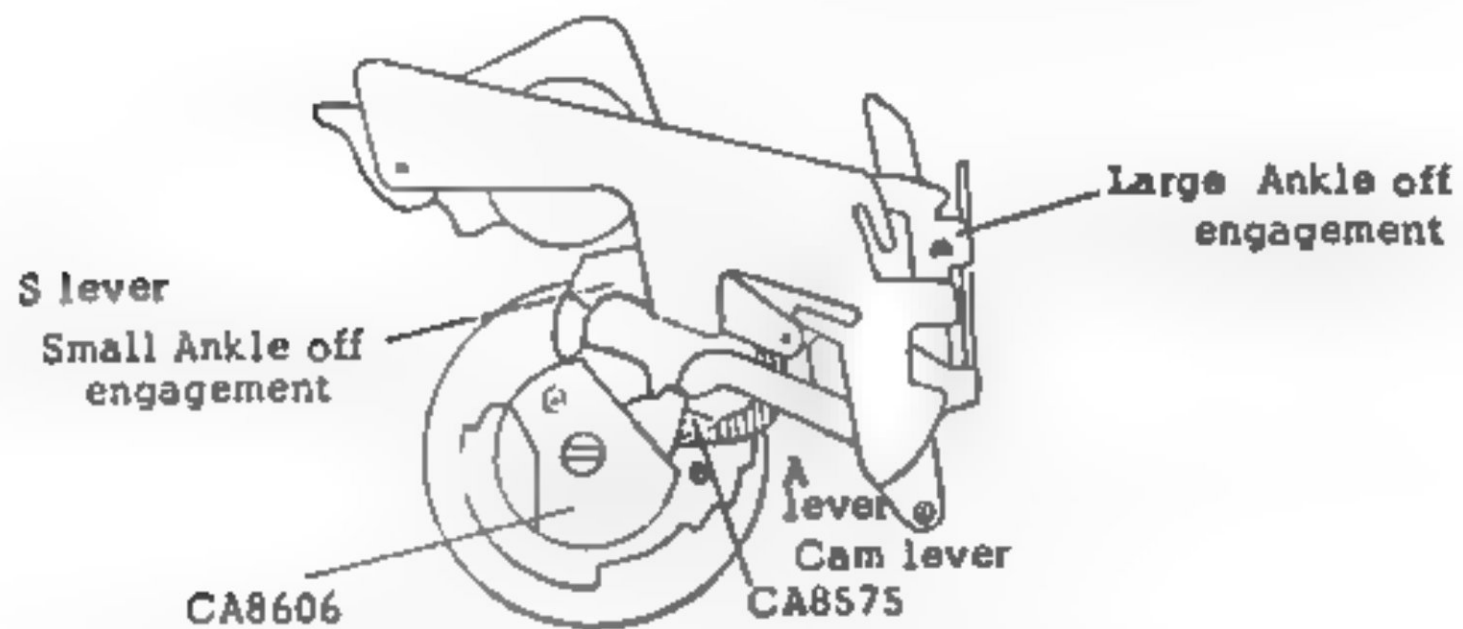
## 2) CA8580 lever rattling

Prior to film advancement, check the engagement between 8580 and 8609 by shaking vertically 8609. If such engagement is for less than  $2/3$  the thickness of 8609, adjust the room at the rivet of 8580 to be within 0.3.



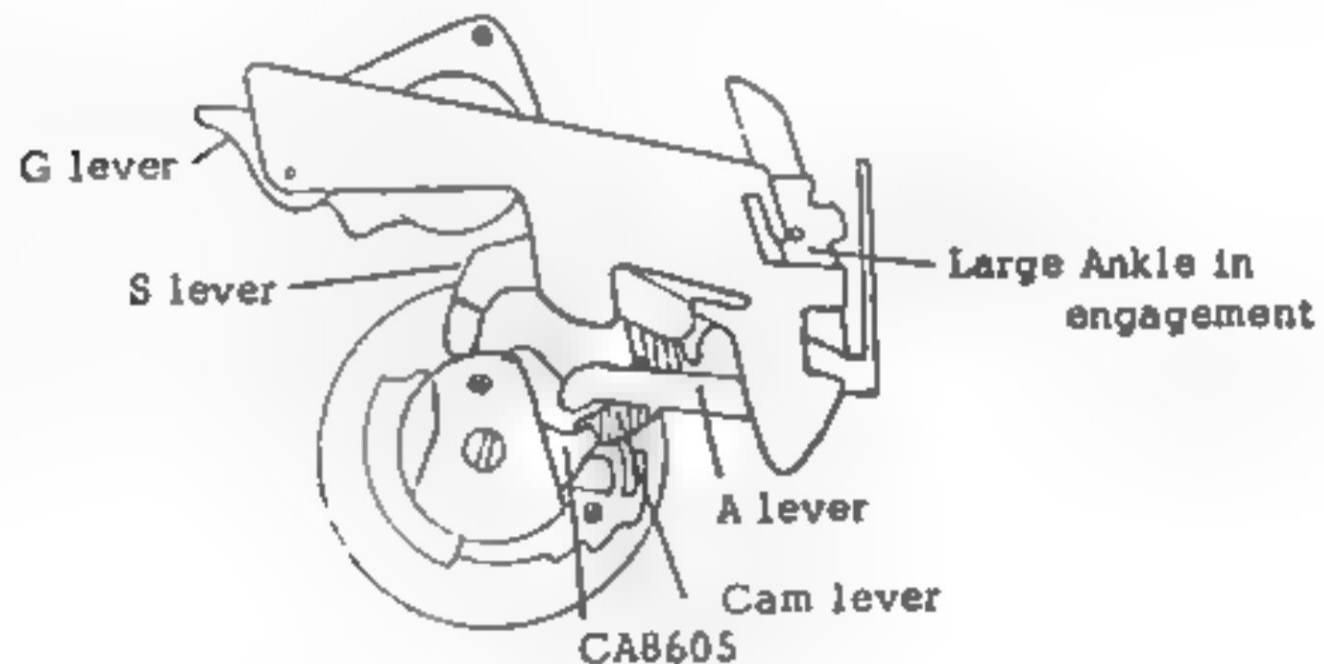
# Relationship between the Governor and the Cam in CA8577 (Gear):

At the shutter speed "B":



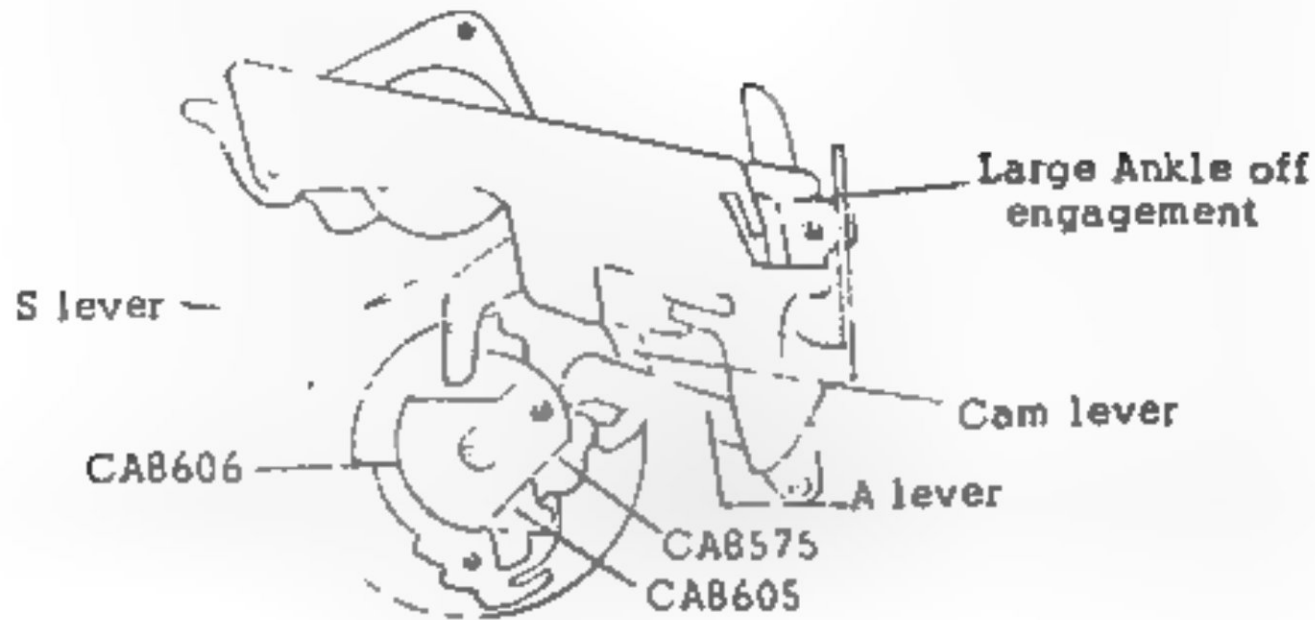
Both the S ankle and the L ankle are released from engagement by the S lever and the A lever.

At the shutter speed 1/1 and 1/2:



The A lever is released from 8605 and the L ankle is engaged. The S ankle remains off engagement by the S lever. To differentiate shutter timing for 1/1 and 1/2, the message is transmitted from 8575 to the Cam lever and the operating angle of the G lever will be changed.

At the shutter speeds,  $1/4$  and  $1/8$ :



The S lever escapes from 8606 and the S ankle is engaged. 8605 pushes the A lever and the L ankle remains unengaged. To differentiate the shutter speeds of  $1/4$  and  $1/8$  from each other, the message is transmitted from 8575 to the Cam lever to change the operating angle of the G lever.

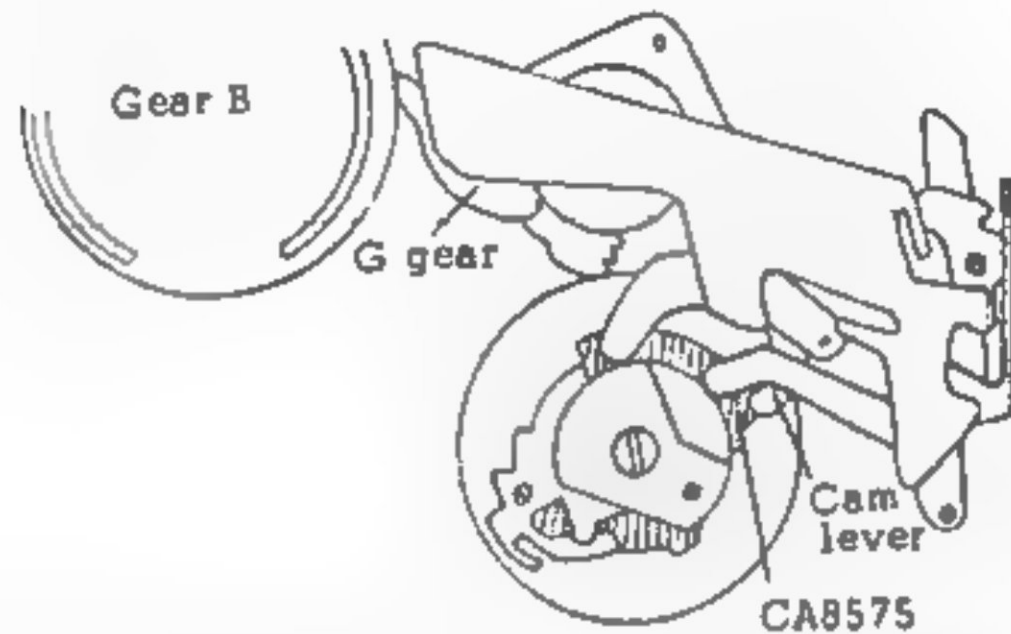
At the shutter speeds,  $1/15$  and  $1/30$ :



Action is transmitted from 8606 to the S lever and from 8605 to the A lever, while both the L ankle and the S ankle remain off the engagement. Without the use of the Ankle, the load is given only by the gears. Differentiation between  $1/15$  and  $1/30$  will be in the same manner as in the case of  $1/1 - 1/8$ .



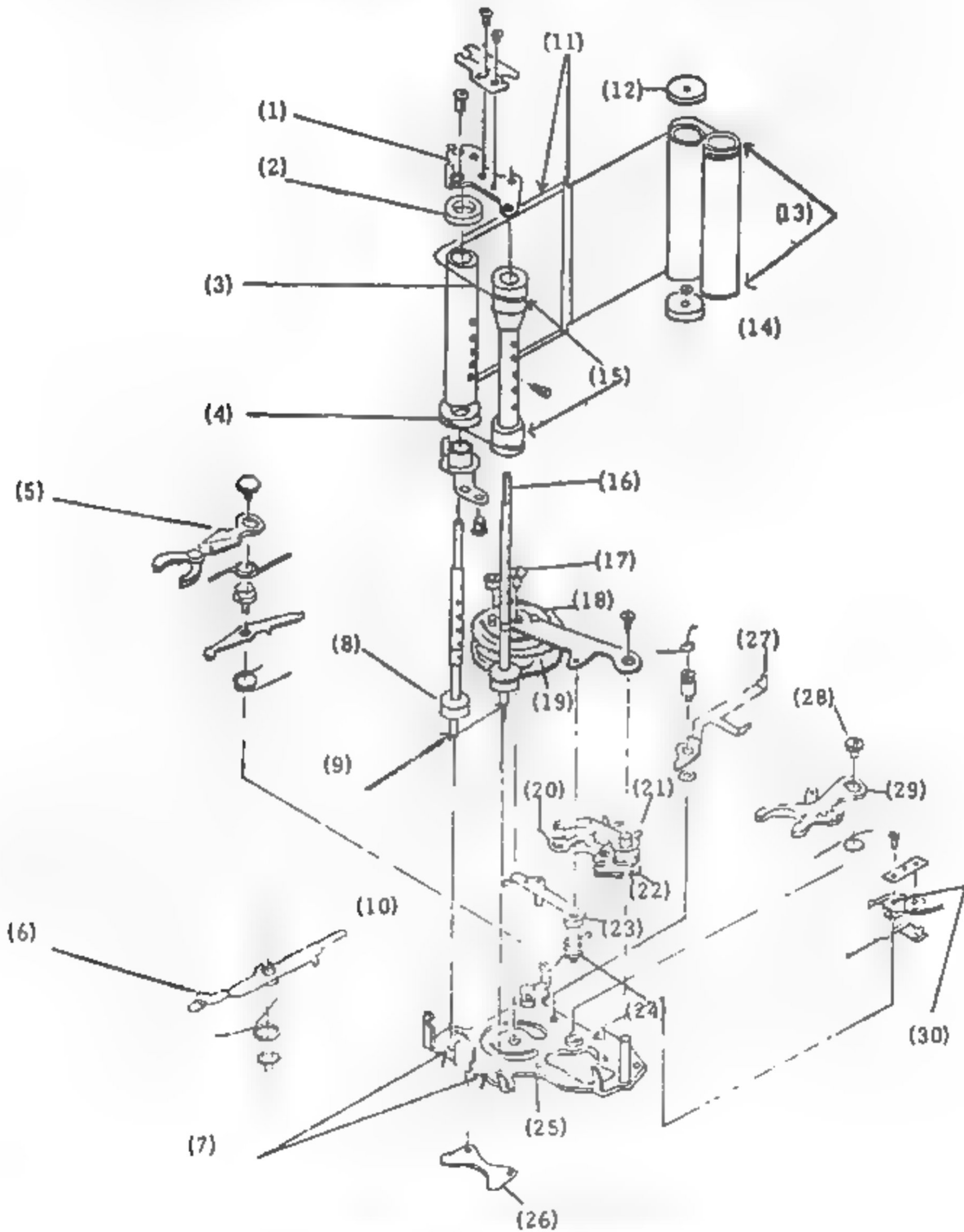
At the shutter speeds,  $1/60 - 1/1000$ :



In cases of  $1/60 - 1/1000$ , the action is transmitted from 8575 to the Cam lever of the Governor then to the G gear, and the arrowed portion of the Gear B is disengaged from the G gear. The governor will not be activated in this case.

# 8. Irregularity in Curtain Speeds:

Check the following items and make necessary repairs or adjustments.

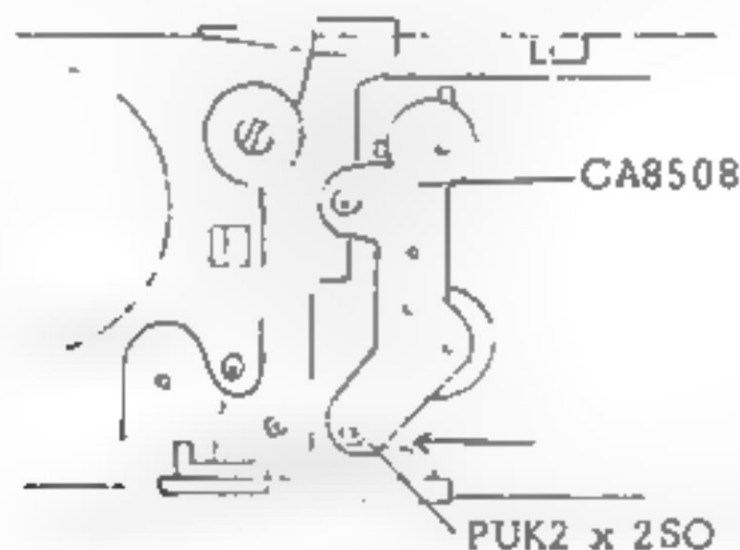


- (1) Mounting position of 8508.
- (2) Rotation of 8510. However, do not lubricate.
- (3) Whether 8537 (4 pieces) are off the roller.
- (4) Rotation of 8510. However, do not lubricate.
- (5) 8580. Check whether it with the Ring of the Shaft B.
- (6) 8609. Whether it is properly engaged on the lever.
- (7) 8501. Dirt or inaccuracy in surface finish at the guide holes for the Shaft A and B.
- (8) 8520. Check the engagement with the Gear B, any deformity or bent.
- (9) Shortage of lubricant and any scratches.
- (10) Pin
- (11) 8537. Check for any rubbing with 8540, also relation the string and the Patch.
- (12) 8529. Rotation to be checked, however no lubrication.
- (13) Check the manner in which the strings are bonded.
- (14) 8529. Check the rotation, but no lubrication.
- (15) Check the manner in which the strings are bonded.
- (16) 8519. Check its engagement with the Gear A, any deformity or bent.
- (17) 8545. Check if loose.
- (18) Gear B
- (19) Gear A
- (20) Lever off engagement
- (21) Lever. Check the relationship with the position of 8576

- (22) Lever. Check it is off position or whether it is efficiently working.
- (23) Claw. Check it is off position. Also check for the proper space between the Gear B.
- (24) 8570. Check if off position.
- (25) 8501. Check for deformity.
- (26) 8521. Check for deformity.
- (27) 8612. Check if it is stuck with the Gear A.
- (28) 8585. Check if loose.
- (29) 8578. Check for with the Ring of the Shaft A.
- (30) 8603. Check for the proper room between the Lever.

**CAB508 (Plate) mounted off position.**

Loosen two PUK2 x 2SO of 8508 and adjust the position of 8508. Check for inclination of 8519 and 8520 and make necessary adjustment.



In case where the Shaft rattles vertically due to deformation of 8508, insert a U washer (0.1 - 0.2) underneath the Plate R on the arrowed side.

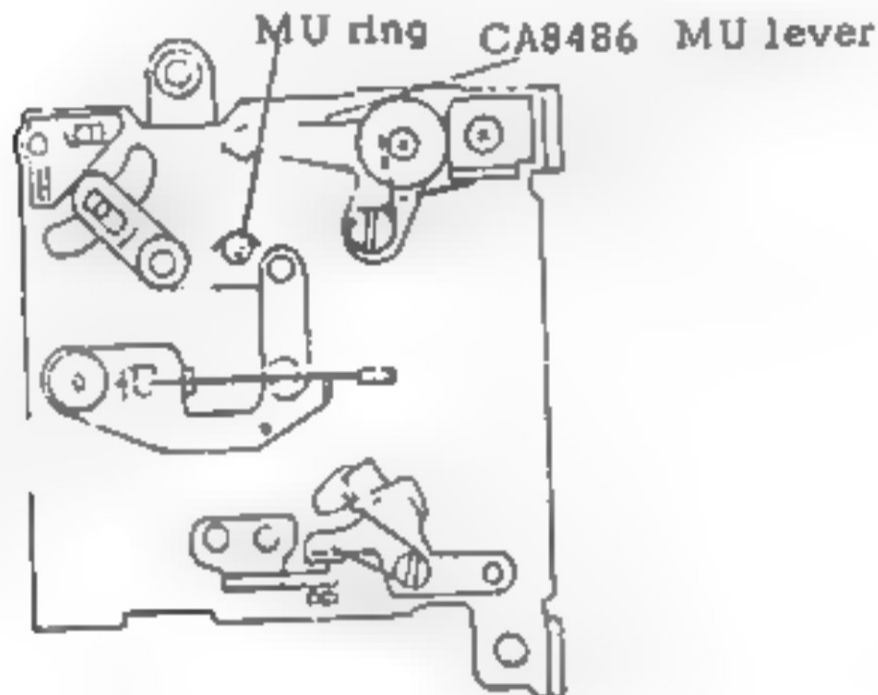
Checkup Vertical tolerance of the Shaft should be 0.2 or less.

9. Even when the mirror is raised, it does not reach the topmost position. During mirror-up operation, the MU knob gets heavy toward the end of its motion.

1) Improper selection of the MU ring

Make a proper selection of the MU ring to satisfy the requirement cited in the Checkup column below.

CA8451	MU ring (outer diameter 2.8φ)
CA8452	" ( " " 3.1φ)
CA8453	" ( " " 3.4φ)
CA8549	" ( " " 3.7φ)



Checkup

- (1) While the mirror is at the original lowered position, there should be a space of 0.2 or above between the tip of 8486 and the MU ring.
- (2) During the mirror-up operation, the mirror should be in such a position that its tip touches the damper and presses it accurately.
- (3) The MU knob should operate smoothly and should not get heavy toward the end of its motion.

### 10. Mirror bounds while being raised.

#### 1) Improper selection of CA8464 (Spring), 8466, 8467

If the mirror bounds for more than 4mm while being raised, the Spring should be replaced with a thicker one.

8464	0.4 $\phi$
8466	0.45 $\phi$
8467	0.55 $\phi$

In case that the mirror-rising time is more than 3.2ms., 8464 should be replaced with a thinner one.

### III. EXPOSURE METER

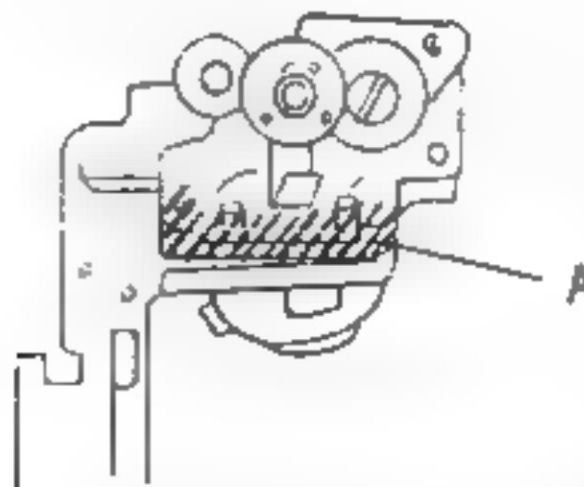
#### 1. The meter needle gets stuck.

##### 1) Filth or oil on CA9024 (Shaft)

Replace 9024.

Checkup No more sticking after the repair.

- (1) Remove 9025 (Base) and 4073 and take out 9024 positioned at the low-luminosity. If it cannot be removed because of adherence by Araldite take off 8961. (However, avoid removal of 8961 as much as possible.)
- (2) Clean the following parts with the ether alcohol and apply the oil Oilproof Liquid: 9025, around the area where 9024 is mounted, 8977 (Plate), and 9142.
- (3) Apply a little Araldite in the hole where the A fits in 9025 and set 9024



To be cleaned and  
applied with  
Oilproof Liquid.

- (4) Before mounting the Top cover, check the operation of CA8995.  
 Upon mounting the Top cover, check the indicator accuracy.  
 Ref: L-39

### Checkup

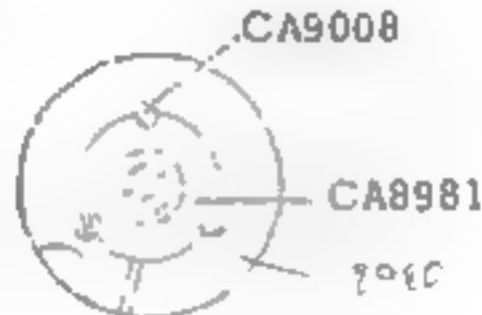
8955 follows 9010 in its operation.

## 2. Inaccurate indications

### 1) The zero point of the meter off-positioned

If the zero point is extremely out of position, adjust the position of 8981.

- (1) In case of + (an excessive swing), loosen 9008 and turn 8981 to the right.
- (2) In case of - (an insufficient swing), turn it to the left. Upon adjustment, turn the shutter dial to adjust the loosened string.



Fine adjustments are made by 9016 (a part of 8995 assembly). At this time, it is preferable not to loosen 9016.  
 If 9016 is overly tightened, the L lever (a part of 8995 assembly) may operate poorly. Therefore, upon tightening it, be sure to check the operation of the L lever.





## 2) Poor soldering

Check 9057 (Plate), various resistors, and lead wires for poor soldering or short-circuit, and make necessary repairs or adjustments.

## 3) Position of resistors

Check the following points and make necessary repairs or adjustments:

- o Is the resistor soldered onto the printed board as tightly as possible?
- o Isn't the resistor in contact with 9108?
- o Is the printed board fixed closer toward the surface of the rails on the camera body?



## 4) CdS wire disconnected

In case when the value indicated is extremely in minus either in high or low luminosity, check for disconnection of the CdS wire as follows:

- o Conductivity of the red CdS lead wire (for both high and low luminosities),
- o the black CdS lead wire (for high luminosity), and
- o the green CdS lead wire (for low luminosity).

## 5) Disconnection of wire in the mechanical part (no needle swing)

Remove the lead wire by unsoldering and check the conductivity of the mechanical part.

If disconnection is found, replace the whole meter assembly.

## 6) Improper operation of CA8879 (Ring)

Ref: E-40

## 7) Improper adjustment of the Cam gear positioning Screw

Ref: E-43

## 8) Improper operation of the Dial gear

Ref: E-44

## 9) Change in CdS features

Ref: E-45

(Attachment - Table)

<u>Meter Indication Accuracy</u>				
<u>LSB L7 Light Box</u>	K=1.3		ASA 100	
BV	S.S	F	Error	Tolerance
15	1/500	8	0.3 EV	± 0.6 EV
12	1/125	5.6	-	± 0.6 EV
9	1/4	11	-	± 0.6 EV
6	1/2	4	0.3 EV	± 0.6 EV

In cases of BV 15 and BV 6, check the error by directions of the turn of the aperture ring and the shutter dial.  
 For BV 12 and BV 9, start turning the shutter dial from the side of 1/1000 and the aperture ring from F16.

<u>LSB L1 Light Box</u>		K=1.3	(90V)	ASA 100
BV	S.S	F	Error	Tolerance
16	1/500	11	0.3 EV	$\pm 0.6$ EV
14	1/125	11	-	$\pm 0.6$ EV
12	1/125	5.6	-	$\pm 0.6$ EV
10	1/125	2.8	-	$\pm 0.6$ EV
8	1/2	11	-	$\pm 0.6$ EV
6	1/2	5.6	0.3 EV	$\pm 0.6$ EV

In cases of BV 16 and BV 6, check the errors by directions of the turn of the aperture ring and the shutter dial.

For BV 14, 12, 10, and 8, start the turn of the shutter dial from 1/1000 sec. and of the aperture ring from F 16.

### 3. Improper Operation of CA8879 (Ring)

- 1) Deformity or rough edge of CA8879 and protrusion at the string adhesion.

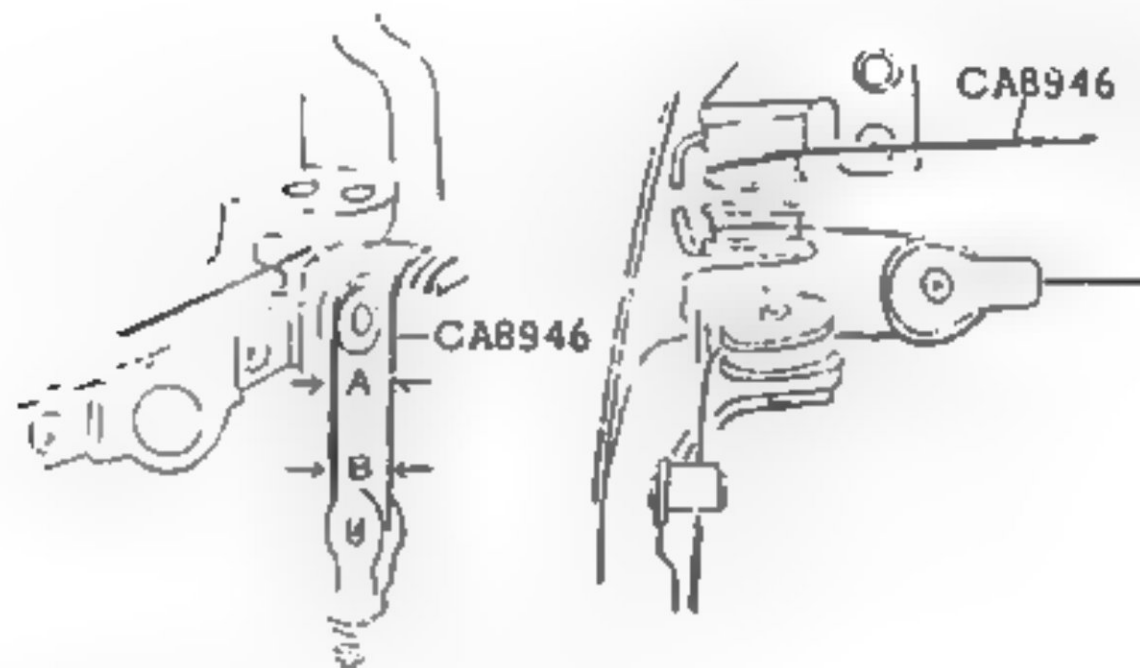
Replace 8879.

Method of Replacement:

- o With Cemedine 3000RS, bond the tips of the strings on 8879 as they were. (If they are bonded at the same position, it will give no problem in their functions.)
- o Do not allow the adhesive to protrude or heap up.

2) Adjustment of CA8946 (String) (dislocation and entanglement)

8946 is to be threaded as follows:



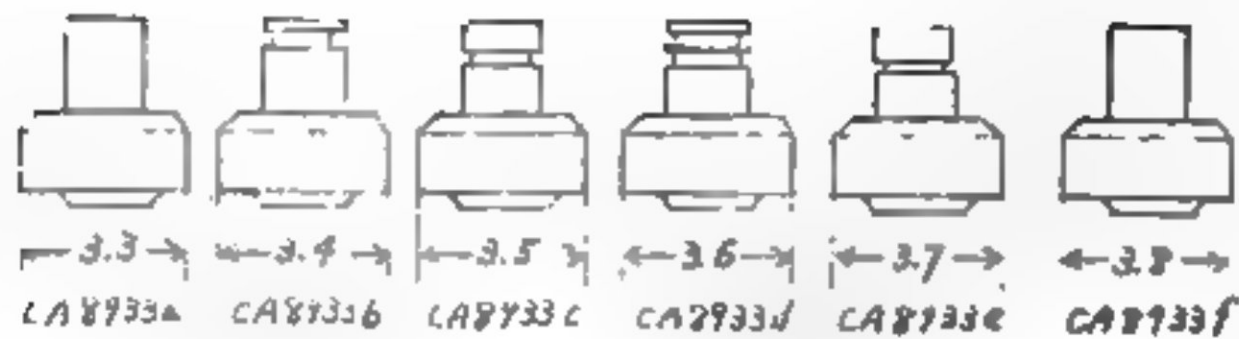
(Remarks:)

- o The string should not be dislocated from the pulley.
- o The width at A and B should be approximately the same.
- o When 8879 is turned until it hits the Cam Roller, there should be a space of less 1 mm between pulleys of the B spring and the B spring plate.

3) Improper selection of CA8933 (Roller) (diameter)

8933 comes in 6 types (see next page).

Referring to the checkup column on the right, make a proper selection and check the operation.

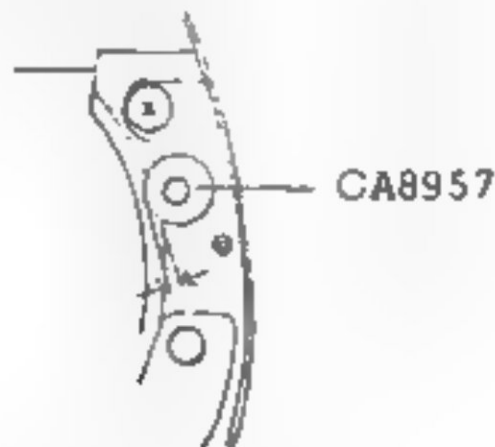


### Checkup

8933 should turn smoothly and accurately without an extreme difficulty such as stoppage and uneven movement.

#### 4) Improper diameter of CA8957 (Roller)

8957 comes in three types. Referring to the checkup column make a proper selection and check the operation.



Do not touch 8957 directly with bare fingers.

Checkup

8957 should always be protrusive from the surface where 8879 is joined with 8702.

A little space may be permissible between 8957 and 8879. (If the roller selection is made allowing no space between them, it sometimes causes poor returns of 8879.)

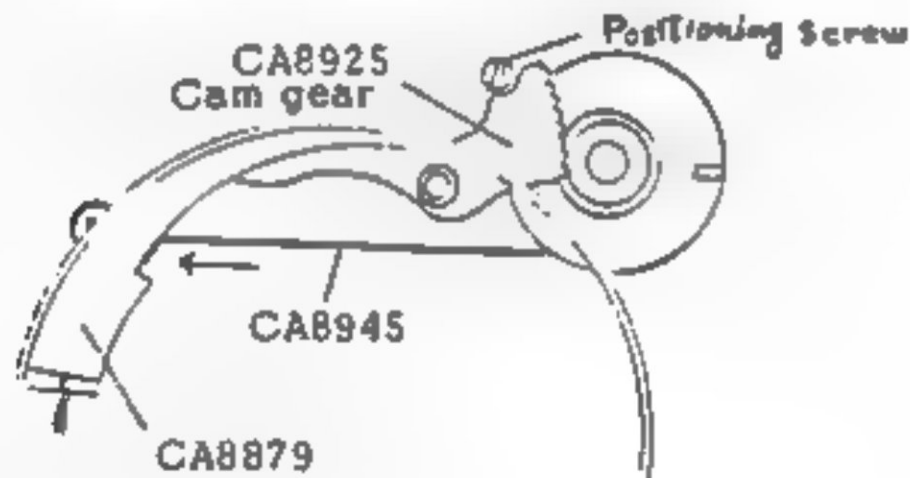
- 5) Spring pressure of CA8951 (Holder) too strong.

8951 should be checked for filth or deformity. Make necessary repairs or adjustments.

4. Improper Adjustment of the Cam gear positioning screw:

- 1) Adjustment of the Cam gear positioning screw.

When 8945 is pulled fully toward the arrowed direction, the space between 8879 and 8925 should be with 0.3mm. An adjustment should be made to fulfill this requirement by the Positioning screw.

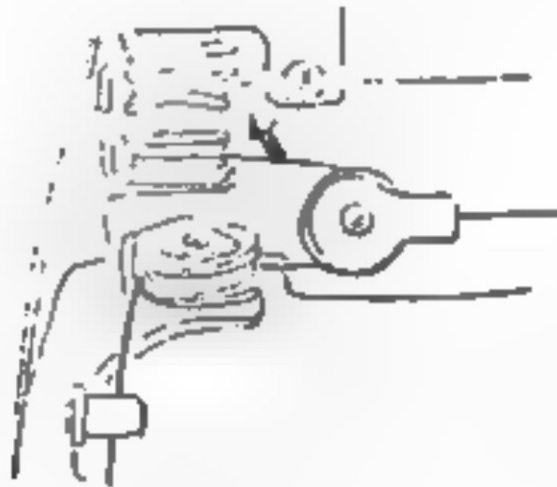
Checkup

- o Upon adjustment, there should be a space between the A and the stopper pulley.
- o When 8879 is turned to its fullest extent, the A should not hit 8925.

## 5. Dial Gear Operation:

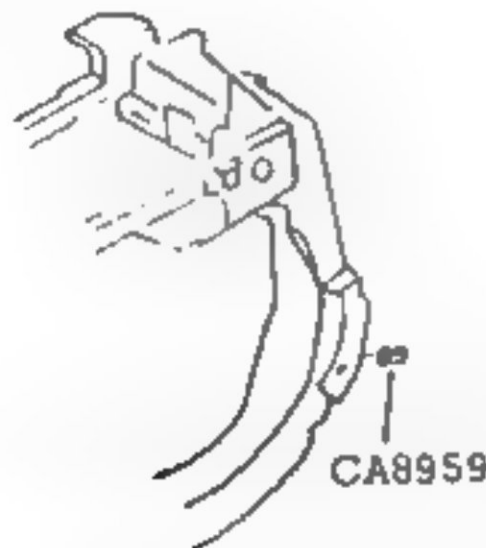
### 1) Adjustment of CA8944 (String)

8944 (the string for the dial gear) should be threaded as follows. When threading, it should be started from the arrowed direction to avoid crossing with the String.



### Checkup

- o If the meter is not mounted onto the Front Die-Casting, attach a 12 gr. weight at the tip of the string and check the operation.
- o Each pulley is to turn smoothly and accurately.
- o Tolerance on the dial gear should be 0.1 or less.
- o When the dial gear is rotates, 8924 should not move.





## 2) Tolerance adjustment on the dial gear (8880)

An adjustment is made with 8959 to bring the tolerance on 8880 to 0.1 or less.

## 6. Changes in CdS Features:

## 1) Changes in CdS Features (replacement of resistors)

Each resistor is to be matched. Following is the standard value of each resistor.

R1	12.4 K $\Omega$	Low luminosity and in general.
R2	9.6 K $\Omega$	High luminosity
R3	3.5 K $\Omega$	"
R4	$\infty$	Low luminosity
(R5		Warning switch)

ORDER OF MATCHING

For LSB L1  
MS 5014 to be used for adjustment.

<u>Order</u>	<u>BV</u>	<u>ASA</u>	<u>S.S</u>	<u>F</u>	<u>Range</u>	<u>Adjustment</u>
(1)	6	100	1/2	5.6	$\pm 0.6\text{EV}$	In case of a (+), lessen R4.
(2)	8	100	1/2	11	$\pm 0.6\text{EV}$	In case of a (+), increase R1.
When R1 is replaced, it returns to the state of the order (1).						
(3)	14	100	1/125	11	$\pm 0.6\text{EV}$	In case of a (+), lessen R3.

R3 cannot be utilized for less than 2 K $\Omega$ .  
At BV16, if R3 is found insufficient, check it with R2.

Since R3 also influences BV8, when R3 is replaced, it returns to the state of the order (2).

<u>Order</u>	<u>BV</u>	<u>ASA</u>	<u>S.S</u>	<u>F</u>	<u>Range</u>	<u>Adjustment</u>
(4)	16	100	1/500	11	$\pm 0.6\text{EV}$	In case of a (+), increase R2

Since R2 also influences BV14, when R2 is replaced, it returns to the state of the order (3).

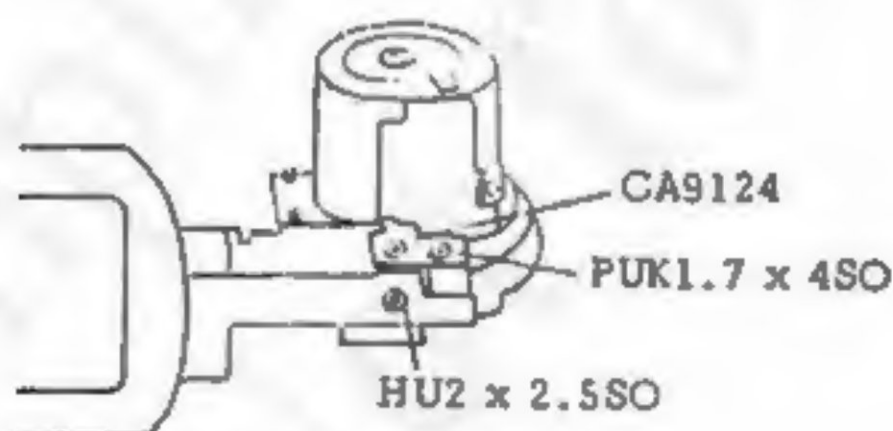
(5)	12	100	1/125	5.6	$\pm 0.6\text{EV}$	In case of a (+), lessen R1.
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When R1 is replaced, it returns to the state of the order (1).

## 7. Warning Switch Adjustment:

### 1) Adjustment of the L contact point position

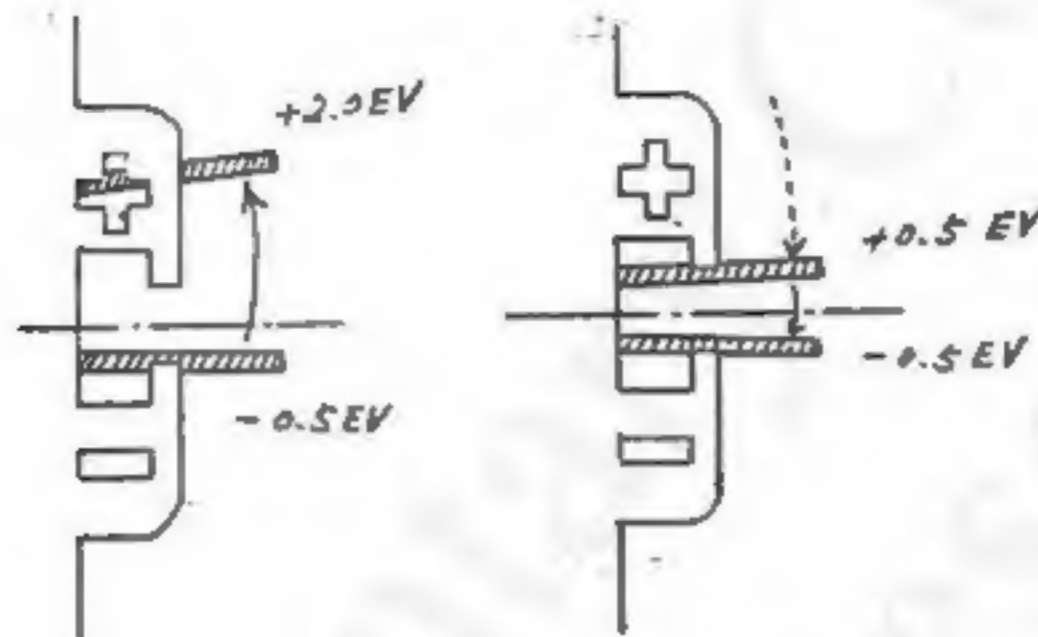
Ref. Checkup column. Loosen two PUK1.7 x 4SO on 9124. Slightly move HU2 x 2.5SO forward or backward for adjustment.



### Checkup

- o Place the mercury battery in the camera and turn off the main switch.
- o With ASA 100 at the shutter speed B, the aperture ring is gradually turned from F16 toward open. At this time, the meter needle should once jump to + 2.0EV above the index center before it stays at - 0.5EV. (See Fig. A)

- o At this time, the aperture should be slightly stepped down than F2.8.




- o When the lens aperture is stepped down from the wide open state, the meter needle should once swing down to a position lower than -0.5EV before it is stabilized at +0.5EV. (See Fig. B.)

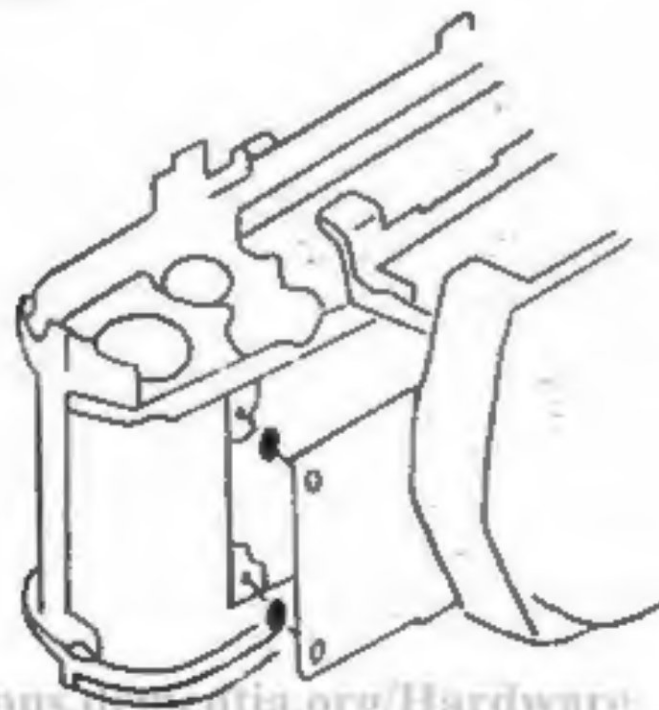
#### IV: MAJOR FUNCTIONS

##### 1. Poor focus

##### 1) Adjustment of flange back

$$fc = 46.00^{+0.02}$$

For adjustment, 9106 (Washer) (t = 0.01 round) or 9107 (Washer) (t = 0.02 ) is to be placed between the camera body and the Front Die-Casting.



Checkup

KC-0070G #01 Olympus M Mount U and KC-0070G #3 46.00 gauge are to be used to measure the four points on the rails.



Parallelism (the difference between measured points) should be less than 0.02.

2) Focus adjustment for the viewfinder.

A proper type of 9144 (Washer) and 9145 (Washer) is to be selected out of 8 types available for each. Pick the type with the same thickness and use them in a pair.

9144	a	t = 0.04	9145	a	t = 0.04
	b	0.06		b	0.06
	c	0.10		c	0.10
	d	0.15		d	0.15
	e	0.20		e	0.20
	f	0.25		f	0.25
	g	0.30		g	0.30
	h	0.35		h	0.35

