Nikon®

Model S
Model S-2

Rangefinder Cameras

Service Manual

1955

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H O W T O R E P A I R

N I K O N C A M E R A

" S "

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DISASSEMBLING, REPAIR AND REASSEMBLING

OF

NIKON CAMERA "S"

1. Removal of Front-cover and Focusing Mount Assy

(1) Remove 4 screws (#68) and 2 screws (#69).

(2) Remove Front cover (#2) carefully. Be careful not to damage the upper-left part, into which focusing-wheel (#58) is inserted.

(3) Set the focusing mount at 3 ft.

(4) Remove screw (#17d) and 3 screws (#17f).

(5) Focusing mount assy is now ready to be removed. Be careful not to bend the top of lever (#70).

Reassembling is made by referring to the procedure described above and working in reverse order.

NOTE: In putting focusing mount on its seating surface, care should be taken to set it at 3 ft. and to check the meshing of gears. After checking smoothness of turning action, tighten the focusing mount with the 4 retaining screws.

REPAIR (A) Stickiness and Unevenness of Focusing Mount Assy

Check the action of the focusing mount assy alone and if the working condition is found imperfect, do the following.

(1) Release the spring seen at rear side and related to lever (#70.

(2) Unscrew male thread (thread is left-threaded).

(3) Clean both male and female thread with a clean brush. If the condition is found still imperfect after this, do the following:

a. Wash and clean male thread only with cleaning fluid, then check the condition again.

b. If still imperfect, wash and clean female thread, too.

NOTE: If possible it is not advisable to apply both procedures a. and b., since these threads have a special lubricant applied to them, and removal of this lubricant may cause another undesirable condition.

CAUTION: These threads are multi-threaded, so be careful to keep the correct relative position.
Check the condition again, by hanging the spring in its normal position.

2. Removal of Top-Cover

(1) Lift and turn knobs (#605) located bottom side of rear-cover, from S to O.

(2) Loosen set-screw (#453e) which can be seen through the hole of the rewinding knob (#373).

(3) Take out rewinding assy by turning rewinding knob (#373) after inserting a small rod as driver between yoke of rewinding shaft (#377).

(4) Loosen slightly set-screw (#458a) by lifting up high speed dial (#341).

(5) Set high speed dial in any position except 1/500. Remove dial by turning.

(6) Set slow speed dial at T.

(7) Unscrew 5 screws (#68).

(8) Remove A-R lever (#329) by taking off screw (#331).

(9) Take out guard ring-shutter button (#316).

(10) Unscrew shutter button (#328).

(11) Now top-cover is ready to be lifted off.

NOTE: At step (11), in some cameras, plate-cam and lever - (the former is located under top-cover and the latter on the main body) - make it impossible to left up top-cover. By freeing these parts from each other, step (11) can be done. This procedure will be understood very easily after working on a few cameras.

Reassembling is done by referring to the above-mentioned steps.

NOTE: Slow speed dial should be set at T.
Care should be taken in order to prevent trouble between plate-cam and lever. (refer to step (11) and its NOTE) Check the meshing of gears used for winding and cocking. If fitting of exposure-counter is found to be loose, remove the winding-knob and exposure-counter dial, then widen the slot of dial slightly at the end of the counter dial shaft. Set slow speed dial at 1/20 and check the working condition of shutter.

3. Removal of Base-cover

(1) Take off rear cover.

(2) Remove 2 screws (#428).

(3) Base-cover is ready to be removed.

Reassembling is made referring to above steps.

NOTE: Put the base-cover on with care so that base-plate or edge of base-plate does not interfere with wiring.

4. Removal of Slow Speed Gear Train

(1) Remove front cover and focusing mount assy.

(2) Remove base-cover.

(3) Set slow dial at T - high speed dial is set at 1/20 - and keep shutter open.

(4) Remove screw (#441) which holds cover on slow speed gear train. Unscrewing is done from the aperture plate side.

(5) Remove cover (#481) from the front side - that is lens side.

(6) Take out 2 screws (#454g) from base-cover.

(7) Remove slow speed gear train from front side by freeing the pivot that is seen at the end of gear train, and yoke of gear train-actuating lever.

Reassembling is made in reverse order.

NOTE: Make sure of the relationship between the pivot of segment gear of gear train and the yoke of the actuating lever. Without putting cover (#481), base-cover etc. try 1/8 shutter speed at least 20 times. If 1/8 is obtained everytime, the working condition is right. If 1/8 is found sometimes 1/20, recheck assembly again according to the repair-procedure.

REPAIR (B) Repair of Slow Speed

(1) Troubles:

a. 1/8 is not obtained everytime.

b. 1/2 or 1 works as T.

c. Slow speed is not obtained.

(2) Cause of trouble: Certain items are related to specific slow speed trouble, therefore the proper repair procedure should be decided on after the following points are checked. Unnecessary disassembly is not advisable, since troubles may be needlessly compounded.

a. If 1/8 appears sometimes as 1/20:
All slow speeds but 1/8 work properly, trouble is limited to 1/8 only. Remove base-cover according to procedure 3. By loosening 2 screws (#454g) and shift the gear train assy slightly towards the front side. If 1/8 still does not work perfectly, remove gear train assy.

b. If 1/8 and 1/4 work correctly, but 1/2 or 1 give T. remove gear train assy.

c. If all slow speed do not work:

1. High speed dial may not be set at correct 1/20. Checking proper setting of high speed dial is made by shifting to B. If unproper setting of high speed dial is found, another check should be made without removing the gear train assy.

2. "Slow speed gear train-actuating lever" (#392) and gear train assy are found defective.
Remove gear train assy and check.

REPAIR (C) Repair of Slow Speed Gear Train Assembly

Cleaning with cleaning fluid is usually the only repair work necessary. Further disassembling is not advisable. Cleaning is done as follows:
Put some cleaning fluid as gasoline, benzene etc. in small container. Clean gear train assy in this container and carefully remove any small particles which may be found between teeth of gears.
After cleaning, dry it and put a small quantity of good watch oil on the pivots. Check the working condition of gear train assy.
Move the segment gear and release it. Smoothness of action indicates good operation of gear train assy.
The same trial should be made by freeing the relationship between the ankle and escapement gear.
If after doing this, the slow speeds still do not work properly, it is necessary to replace, the slow speed gear train with a new one.

5. Shutter Curtain Travel

REPAIR (D) Apparent lack of uniformity in Shutter Curtain Action in which the contrast of the ends of negative is different is treated as follows:

This trouble may be caused by various exterior reasons but usually the trouble is caused by a defect in the camera. By using test equipment the cause of the trouble can generally be found. Comparing the contrast at the beginning and end of the negative will determine "method of repair". The beginning of the negative is the winding side and the end is the rewinding side. A difference in contrast is caused by the change of the width of the slit as the curtain travels across the film. If the width at the end is wider than at the start.

(1) Increase spring tension of rear shutter curtain.

(2) Decrease spring tension of front shutter curtain.

To increase spring tension of rear shutter curtain.

(1) Remove screw (#367) which stops turning of nut (star-shaped). The star-wheel is engaged into shaft (#370A).

(2) Insert proper screw-driver into slot of shaft (#370A).

(3) Hold nut (#366) by finger pressure and then:

a. Loosen nut and shaft by exerting pressure on nut to right and driver to left. Do not turn the shaft until nut and shaft become loose, then:

b. Turn driver to left about 1/10 of turn.

c. Retighten them by turning nut to left, holding driver still.

(4) Reinsert screw (#367).

To decrease spring tension of front curtain.
Steps are the same as "to increase spring tension of rear shutter curtain" except direction is reversed.

If the width at end is narrower than at start.
The principle of adjustment is the same but the following is done.

(1) Decrease spring tension of front shutter curtain.

(2) Increase spring tension of rear shutter curtain.

REPAIR (E) Shutter can not be tripped.

Shutter button can be pressed down but shutter curtains do not move. The following checking should be done after removing the base-cover. Press down shutter-button.

(1) Check the relative movement between cam (#350) and lever (#429). The downward movement of flat spring (#411) caused by press down action of shutter button puts lever (#429) in turning, then this turning of lever (#429) unhooks cam, this makes front curtain travel.

(2) Make sure of downward movement of shutter tripping shaft (#390). This movement is seen by watching the base-plate (#8) and the flat, high speed spring (#411).
The correct movement is such that the shutter tripping shaft (#390) moves down along with the flat spring (#411) by pressing the shutter button, if no movement of shutter tripping shaft is detected, it indicates that action of shaft (#390) and flat spring (#411) is incorrect.

Procedure of REPAIR (E)

(1) Remove top-cover and check shaft (#390) and springs (#397).

(2) Unhook spring-escapement (#397) from plate-escapement (#393) and remove shaft (#390).

(3) Clean shaft (#390) completely.

(4) Apply a small quantity of good lubricant on shaft (#390) and bushing.

(5) Put back shaft (#390) into camera body and hook spring (#397) onto plate-escapement (#393).

(6) Check movement of shaft (#390) by pressing down shutter button.

Following this procedure, the operation of the shutter tripping action should be satisfactory but, if the action of the shaft (#390) is still not found to be smooth or is still faulty, it indicates that tension of spring (#397) is unsufficient, therefore:

(7) Unhook spring (#397) from plate-escapement (#393) and plate (#393).

(8) Add more tention to spring (#397) by bending it slightly.

(9) Reset shaft (#390) and spring (#397), and check the working condition of shutter tripping mechanism by:
Winding shutter, Tripping shutter, Run of shutter curtains.
Repeat this a number of times. Smooth performance of these actions indicates that repair has been done correctly.

6. Synchronization

To check synchronization, wiring circuit or insulation, it is necessary to use the proper testing equipment but in the event there is a lack of this equipment the following check and repair will usually be sufficient.

Synchronization will not be obtained unless the proper flashbulb is used, for example;

In the "F" outlet-G.E. No.6
In the "S" outlet-G.E. No.5 or No.11

Repair is necessary, however, if results with the correct flashbulb are as follows:

REPAIR (F)

(1) F - Terminal
Pictures taken with flashbulb shows unevenness of illumination through out the entire area of negative.
If the beginning of the negative is underexposed - "Time Lag" is short. A longer "Time Lag" is required.
If the end of the negative is underexposed - "Time Lag" is long. A shorter "Time Lag" is required.

A flash unit with a test lamp should be used for testing, if a "Universal Tester" or "Circuit Tester" is not available.

a. Connect cord in "F".

b. Wind the shutter and set the high speed dial at 1/200, slow speed dial at 1/20.

c. Watch light-on of test lamp by turning high speed dial slowly by hand. If the angle of turn from the starting point to light-on is within 15° - 21°, synchronization is good.
The angle of turn of the high speed dial is determined as follows: Refer to Fig. (3), Sub 8.
As you turn, the coincidence of the line on the high speed dial which indicates 1/500, with the line on the Slow speed dial which indicates 1/20, is approximately 15°.

The coincidence of the line on the high speed dial which indicates 1/500, with the lower end of the number 8 which indicates 1/8 sec. shutter speed on the slow speed dial, is approximately 21°.
The smaller angle of turn before "light-on" means the longer "Time Lag".
The larger angle of turn before "light-on" means the shorter "Time Lag".

Procedure of RAPAIR (F)

a. Remove base-cover.

b. Loosen 2 screws (#658) which secure the laminated sandwich to the base-plate.

c. Shift the spring (#652A) to right or left (looking from bottom-side and lens-side down) - this spring is seen under laminated unit. By doing this, the position of the switch can be adjusted.

When "Time Lag" is too short, shift spring (#652A) to left.
When "Time Lag" is too long, shift spring (#652A) to right.

(2) S - Terminal

To check the S-circuit set shutter time at 1/20 and wind shutter. Press shutter button, and slow down the shutter dial by pressing the dial lightly with your finger in order to watch shutter curtain action.
Sufficient pressure will make the front curtain travel to the end of the aperture slowly.
If the light-on of lamp is observed, just after the front curtain reached the end of the aperture, S-synchronization is good.

Repair: An "open" in the circuit is caused usually by defective contact of the terminals. Contact is made by spring (#652A). Adjust this spring (#652A) so as to make contact positive.

(3) Insulation

The insulation should be checked with a tester systematically.
The causes of defective insulation or a "short" are:

a. Dust, oil, or other undesirable materials, when they become attached to or make contact with the wiring inproperly, usually cause insulation breaks, this trouble is found mainly at the laminated unit.

b. Insufficient tightening of screws (#658), or inadvertant contact of spring (#652A) with other screws sometimes causes a "short".

c. Removal of insulating paint may also causes trouble.

(4) Wiring Circuit

The wiring circuit should be checked with a tester systematically. Check the contacts carefully.

REPAIR (G) Range-finder

Read fully before proceeding.

If trouble is lack of coincidence of double image in horizontal and vertical direction, - adjustment is as follows:

NOTE: Inclination of the image caused by the unproper position of the prism (as diffrentiated from simple non-coincidence) should be repaired by disassembling the optical system. This work may take some time and requires a degree of skillfulness in optical adjustment.

(1) Adjustment of coincidence in horizontal direction.
Remove 2 screws (#12) and remove stopper (#35) located in front of finder shoe (#11) on top-plate. Through the hole under stopper (#35) the adjustment can be done.
Loosen screw (#241d) and turn ring-adjustment (#207) so as to make double images at infinity target coincide.

NOTE: Focusing mount assy should be set at infinity before adjustment. In most cases very little turning of #207 is required for adjustment.

When adjustment in horizontal direction is completed, tighten screw (#241d).
Replace stopper (#35) and tighten it with 2 screws (#12).

(2) Adjustment of coincidence in vertical direction.
Remove 4 screws (#68) and 2 screws (#69) and take off front-cover.
Adjusting is done through the hole located beside objective of range finder.
Loosen screw (#243b) and turn ring-adjustment (#211) until coincidence in vertical direction is obtained.

NOTE: Focusing mount assy is set at infinity before adjustment and in most cases very little turning of #211 is required for adjustment.

When adjustment in vertical direction is completed, tighten screw (#243b) and replace the front cover.

NOTE: When uncoincidence in both directions is found, make adjustment in vertical direction at first and then proceed with adjustment in horizontal direction.

In some cases, it is necessary to make adjustment in both directions at the same time.

REPAIR (H) Replacement of Shutter Curtain

Procedure;

(1) Remove aperture plate (#6) by unscrewing 4 screws (#17a).

(2) Keep in mind the relative position of both curtains. Release spring tension of curtain which is to be replaced.

(3) Replace shutter curtain - using a good adhesive like Glyptol. Care should be taken to keep the same relationship with the other curtain.

(4) Replace the aperture-plate (#6).

(5) Check the flange-focal distance - theoretically, it is 31.78mm (focusing mount assy is set at infinity). Flange distance is the distance from the plane created by the rear surface of the three bayonet shoulders inside focusing mount, to the plane created by the inner two tracks on aperture-plate. (on these tracks the film travels.)

NOTE: Whenever the focusing mount assy or aperture-plate is removed and then replaced, the range-finder and flange focal distance should be checked.

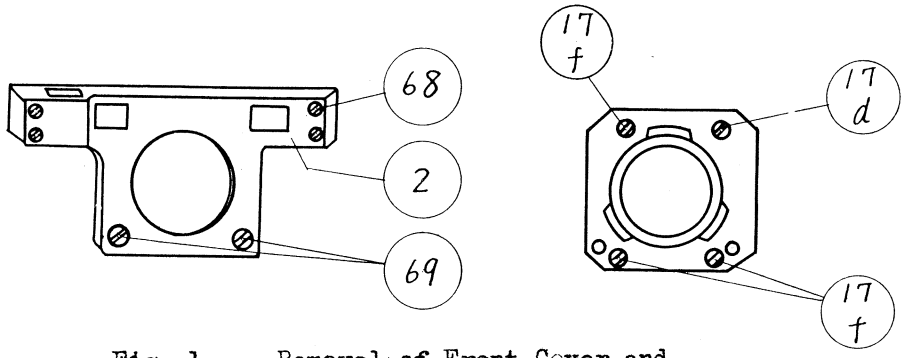


Fig. 1 Removal of Front Cover and Focusing Mount assembly

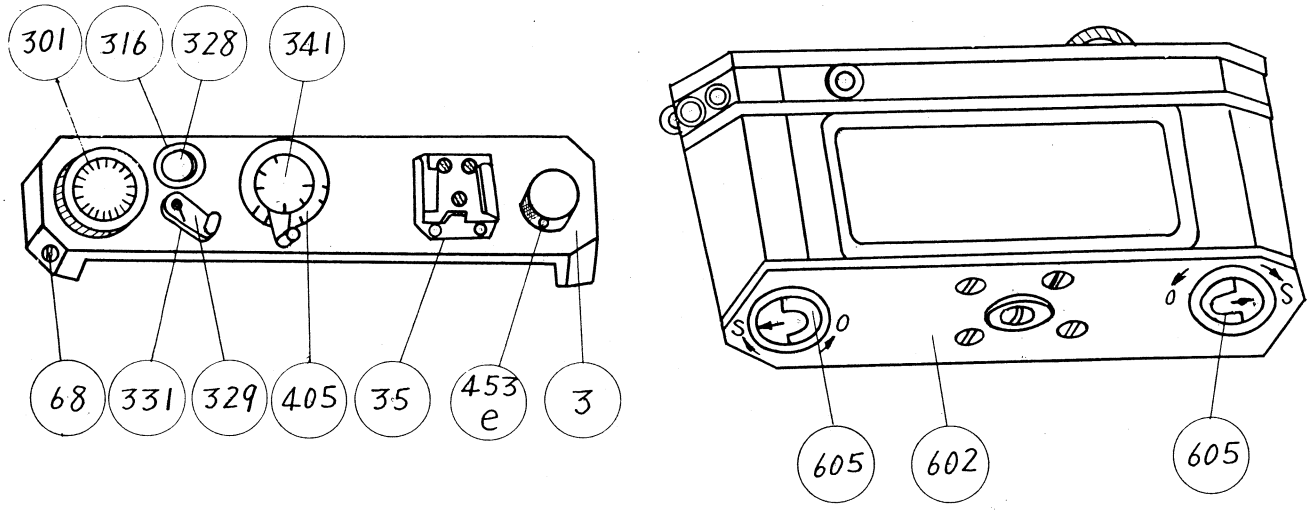


Fig. 2 Removal of Top Cover and Camera Back

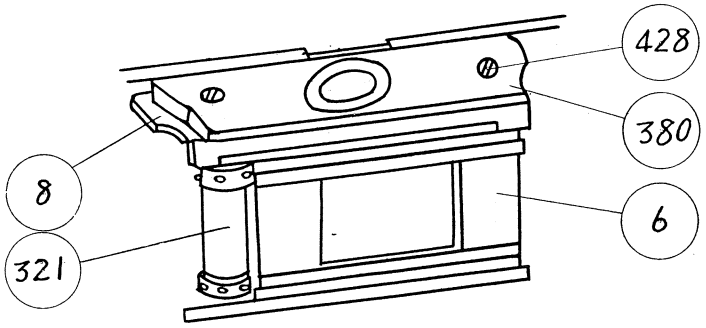


Fig. 3 Removal of Base-Cover

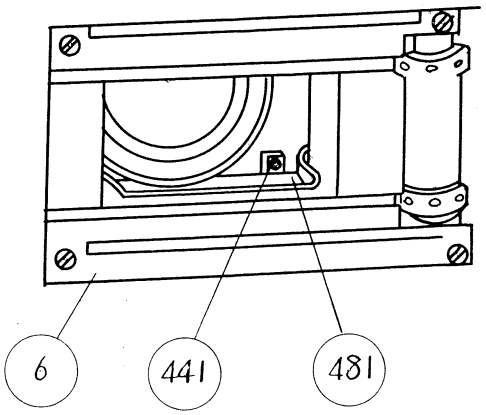


Fig. 4. Removal of Slow Speed Gear Train - 1.

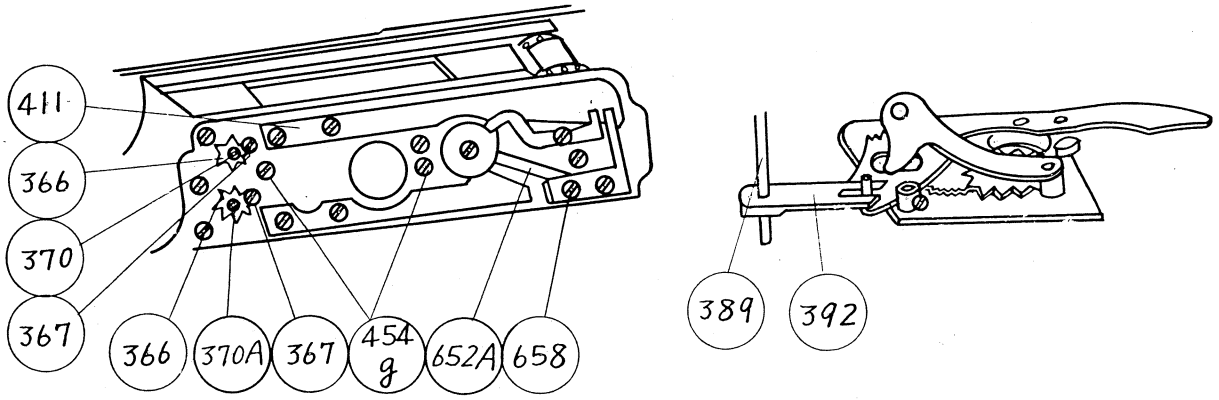


Fig. 5. Removal of Slow Speed Gear Train - 2.

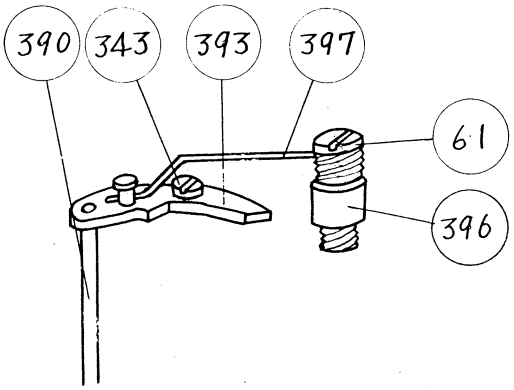


Fig. 6. Repair of Shutter which can not be tripped.

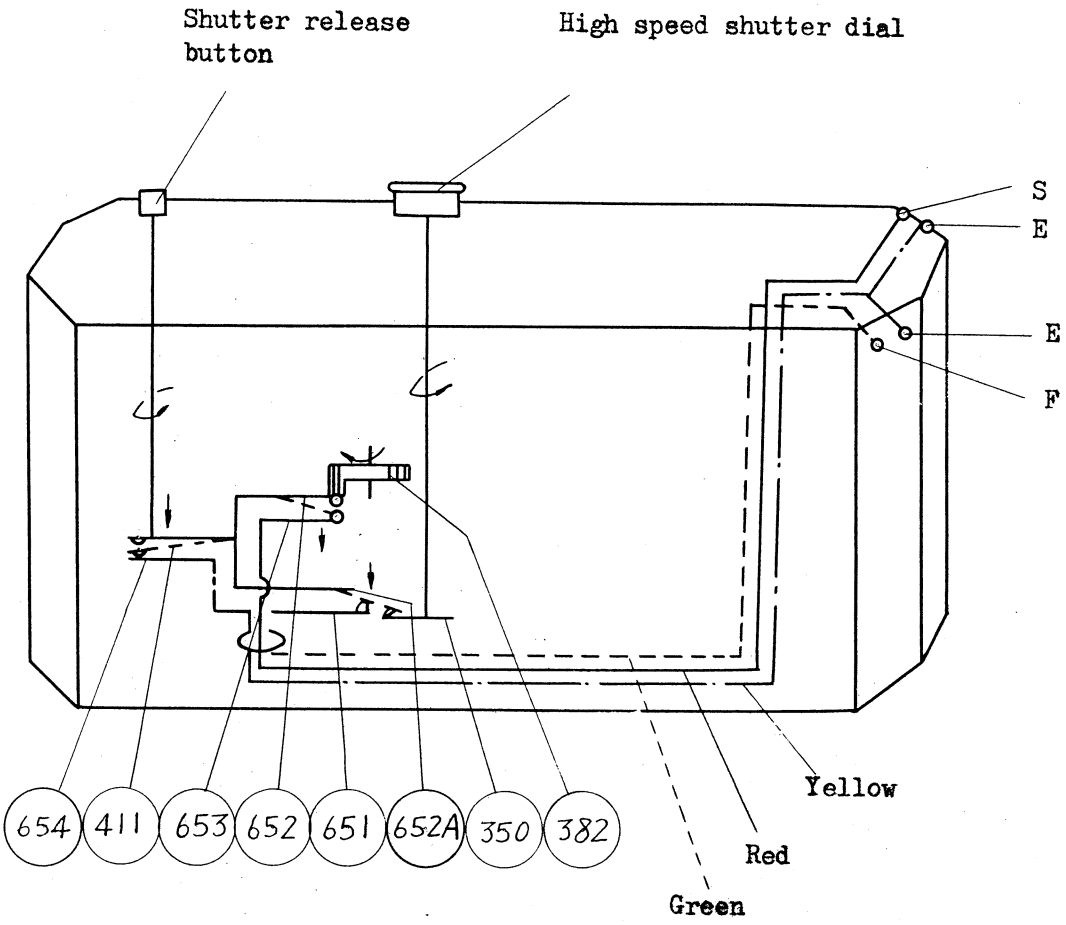


Fig. 7 Synchronization Circuit

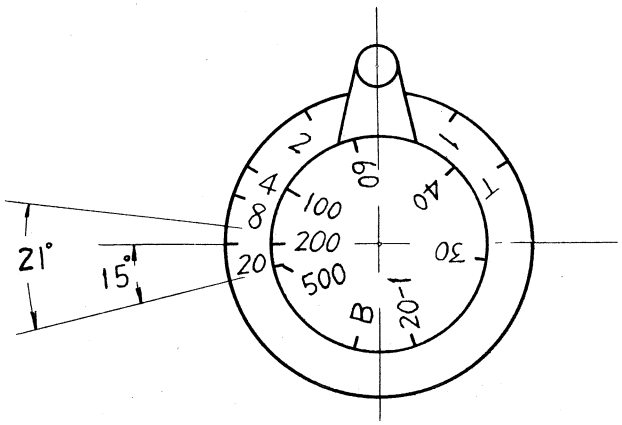
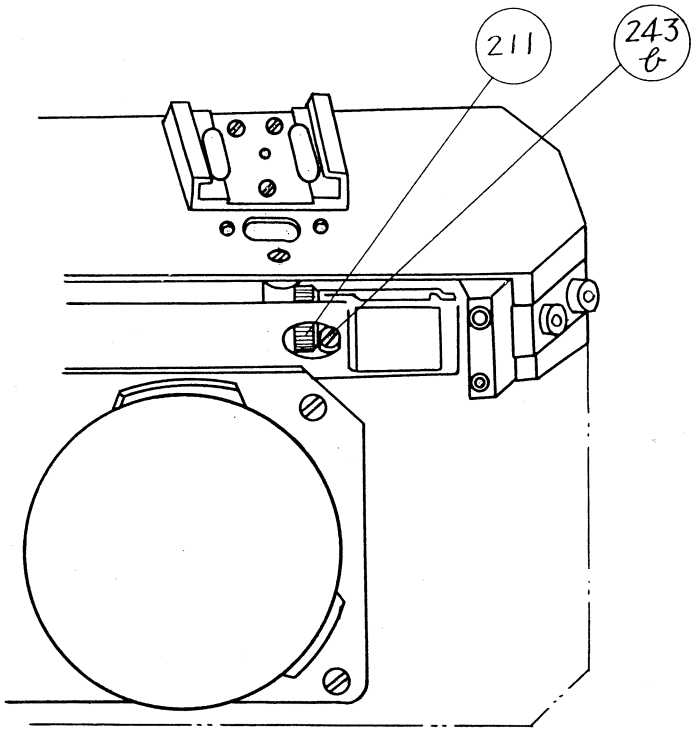


Fig. 8 Adjustment of Timelag (Repair F)



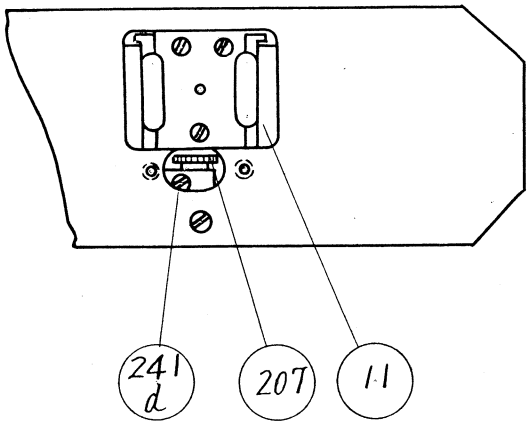


Fig. 9 Adjustment of Rangefinder

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HOW TO REPAIR NIKON S2

Contents

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PRELIMINARY REMARKS

It is important to learn how to disassemble and reassemble first and then proceed to adjustment and repair. For this purpose, this instruction is consists of the following two parts:

I. Disassembling and reassembling

II. Adjustment and repair

The following are some preliminary remarks:

Unsmoothness of shutter action, focusing, winding and other operation of the camera will usually be adjusted and repaired by cleaning and oiling.

For cleaning, parts are to be removed and brushed and if necessary washed using cleaning fluid such as gasoline, benzine etc.

For lubrication, the best heat and cold-proof oil or good watch oil must be used.

When slack is found in the coupling of standard lens and focusing mount, correct it by slightly bending bayonet flange of lens barrel.

Sometimes, you will find small holes created in the shutter curtain which holes were made by directing the lens toward the sun, letting its image fall on the curtain and burn it. In this case the shutter curtain must be replaced.

It is not advisable to remove focusing mount assembly unless it is needed for repair or adjustment. When the focusing mount is removed, check of the flange-focal distance and parallelism between the mount surface and focal plane must be done. Flange-focal distance is the distance from the plane created by the rear surface of the three bayonet shoulders inside focusing mount to the plane created by the inner two tracks on the aperture-plate. (On these tracks the film travels.)

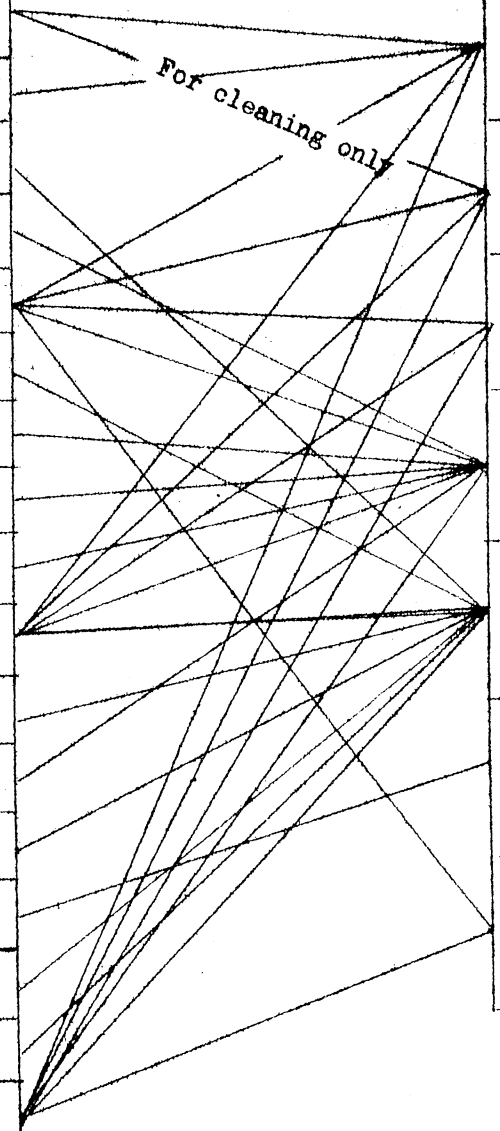
Flange-focal distance is theoretically 31.78mm when distance scale is set at infinity.

Before starting repair or adjustment, decide extent of disassembling and do not go beyond the decided extent. (See the next page.)

Glass parts are cleaned by slightly touching by soft cotton cloth dampened with a little of ether or mixture of ether and alcohol. Small particles on glass surface must be removed by using a soft haired brush or a feather beforehand.

After reassembling, repair or adjustment having been finished, apply a little drop of cement to each screw head in order to prevent screws from accidental loosening.

Repair or Adjustment
7. Focusing mount
8A. Image coincidence of rangefinder
9A. Shutter release mechanism
9B. High speed shutter time
9C. Slow speed shutter time
10A. Curtain travels but shutter does not open
10B. Shutter dial setting and index error
10C. Impossible to release shutter
10D. Shutter release button
10E. Control of Slow speed time
11A. Insulation and leakage
11B. Safety contact
11C. Fast shutter contact
11C(2) Slight adjustment of F-contact
11D. X-contact
12. Winding lever
14. Replacement of shutter curtain



Parts to be removed
1. Front-cover
2. Focusing mount assembly
3. Light-baffle
4. Bottom-cover
5. Top cover
5(2) Rewinding knob only
6. Slow speed gear train

CHAPTER I

DISASSEMBLING AND REASSEMBLING

1. REMOVAL OF FRONT-COVER

(1) Remove the camera back. (Fig. 1)

(2) Removing the front cover: (Fig. 2)

a. Unscrew 4 screws #35 and #38

b. Locate the distance scale of the focusing mount at any distance other than infinity and place the infinity-lock-lever #70 behind the focusing wheel #58.

c. Now remove the front cover #2.

2. REMOVAL OF FOCUSING MOUNT ASSEMBLY

(1) Remove the front cover according to "1".

(2) Removing the focusing mount assembly: (Fig. 3)

a. Unscrew 3 screws #82 and one screw #82.

b. Remove the focusing mount assembly, taking care that the infinity-lock-lever does not bind behind the focusing wheel.

NOTE: In putting the focusing mount on its seating surface, care should be taken to set it at 3 ft. and to check the meshing of gears. After checking smoothness of turning action tighten the focusing mount with the 4 retaining screws.
Check the flange-focal distance (See page 1).

3. REMOVAL OF LIGHT-BAFFLE

(1) Remove the front-cover according to "1".

(2) Remove the focusing mount assembly according to "2".

(3) Removing the light-baffle: (Fig. 3)

a. Unscrew 4 screws #471 and #476.

b. Take out the light-baffle #9, taking care not to deform it.

NOTE: Some NIKON camera S2 has a new type light-baffle. (Fig. 14)

The new type light-baffle is a combination of side baffle and upper-baffle as shown by #9 in Fig. 14.

The lower baffle #10 is separated from the side baffle.

The new type light-baffle is removed as follows:

(1) Removing the side-baffle and lower-baffle: (Fig. 14)

a. Remove the top-cover according to "5".

b. Remove the following parts which are contained in the top housing of the camera body: (Fig. 7, 9)

Finder-shoe clip, Rangefinder, F-lever and X-lever of synchronization.

c. Remove the bottom-cover according to "4".

d. Remove the front cover according to "1".

e. Peel off the front leather, unscrew #471 and #456 and then remove the front plate #6 together with the focusing mount assembly and lower light baffle. (Fig. 14)

f. Unscrew #19 and #20.

g. Now remove the side light-baffle.

(2) Removing the lower light-baffle only: (Fig. 14)

a. Remove the front-cover according to "1".

b. Remove the focusing mount assembly according to "2".

c. Unscrew 2 screws #386.

d. Remove the lower baffle #10.

4. REMOVAL OF BOTTOM-COVER

(1) Remove the camera back.

(2) Removing the bottom-cover: (Fig. 4)

a. Unscrew 4 screws #22.

b. Now remove the bottom-cover #7.

5. REMOVAL OF TOP-COVER.

(1) Remove the camera back.

(2) Removing the rewinding knob: (Fig. 5)

a. Erect the crank #334 and loosen the screw #347.

b. Remove the knob and keep the spring #348 and washer #347 with the knob.

(3) Taking off the synchronization dial: (Fig. 5, 9)

a. Unscrew one of 2 screws #343.

b. Make a mark on the dial as illustrated in Fig. 5 or 11 C, which serves as a reference for reassembling to keep the dial at its correct position relative to the synchro-cam.

c. Unscrew the other screw #343.

d. Now take off the synchro-dial #341.

(4) Unscrew 2 screws #40 on the top-cover. (Fig. 5)

NOTE: a. Round heads of screws #40 serve as stoppers for synchro-dial.

The screw head which acts as a stopper at the end of 1/1000 is adjusted to fit the groove end. Therefore, take care to identify the screws when replacing them.

b. There should be no slack between the screw head and groove end when the dial is click stopped at 1/1000.

(5) Remove the synchronizer outlet in front of the finder-shoe by unscrewing the outlet, revolving it counter-clockwise using a special tool. (Fig. 5)

(6) Removing the high speed shutter dial: (Fig. 5)

a. Pull up the dial #373 and loosen the screw #325.

b. Turn the high speed dial counter-clockwise and take it off.

(7) Removing the slow speed shutter dial: (Fig. 5)

a. Set the slow speed dial at 1/30.

b. Unscrew the screw #402 and take off the dial pulling it up.

(8) Removing the A-R ring: (Fig. 5)

a. Loosen the screw #325 which can be seen through the hole on the ring.

The hole appears over the screw #325 of the retainer ring #350 as you revolve the ring from A to R.

b. Unscrew the retainer ring #350 revolving it counter-clock-wise.

c. Set the A-R ring at R.

d. Pull up the ring and take it off.

NOTE: When the ring is pulled up at any location other than R, click spring will be damaged.

When reassembling, it is necessary to place the A-R ring indicator at the index R on the top-cover.

(9) Removing the winding lever: (Fig. 5, 6)

a. Loosen the screw #325 on the index ring #303 of the frame-counter and take off the ring revolving it counter-clockwise.

b. Take off the frame-counter dial #305.

c. Unscrew 3 set screws #318 on the insert collar ring #304, and take it off by pulling up.

NOTE: When reassembling, take care not to tighten screws #318 too much.

d. Hold down spiral spring #317 with one finger to prevent the spring from coming out as you remove the winding lever #301 by giving a slight rocking movement.

NOTE: There is a circular plate spring #315 inside the winding-lever. Smoothness of the lever action depends upon the tension effected by this spring.

The friction effected by this spring also serves to prevent the lever from returning to its folded position after each winding stroke.

(10) Unscrew 3 screws #343 on the top-cover.

(11) Now remove the top-cover #3.

NOTE: a. Occasionally, the top-cover is stuck slightly to the camera body by glue used for leathering.

b. There is no difference regarding the order which may be taken for disassembling stated in paragraphs (3) to (10).

c. Cement should be applied to the screws #40 and #343 (Fig. 5) after reassembling is finished in order to prevent accidental loosening.

6. REMOVAL OF SLOW SPEED GEAR TRAIN ASSEMBLY

(1) Remove the camera back.

(2) Remove the front cover according to "1".

(3) Remove the focusing mount assembly according to "2".

(4) Remove the light-baffle according to "3".

NOTE: If the camera has the new type light-baffle, remove the lower baffle only. (Fig. 14)

(5) Remove the bottom-cover according to "4".

(6) Removing the slow speed gear train: (Fig. 3, 4)

a. Hold the slow speed gear train pressing down gently and unscrew 2 screws #464.

b. Remove the slow speed gear train by using a tweezer. Be careful of the connecting lever #434 and do not deform the lever #433. (Fig. 10A)

CHAPTER II

ADJUSTMENT AND REPAIR

7. STICKNESS AND UNEVENNESS IN FOCUSING ACTION

(1) Remove the front cover according to "1".

(2) Loosen the screws #17 and #82. (Fig. 3)

(3) Adjust the meshing of the idler gear #63 of the focusing gear train with the focusing mount #51. (Fig. 7)

(4) If the result of the above adjustment is not found satisfactory, remove the focusing mount assembly from the camera body according to "2".

(5) Release the spring seen at rear end and related to the lever #70, and unscrew the male screw of the focusing mount. (Fig. 3)

(6) Clean both of the male and female screw with a clean brush. If the condition is found still imperfect after this, do the following.

a. Wash and clean the male thread only with cleaning fluid, then check the condition again.

b. If still imperfect, wash and clean the female thread too.

NOTE: If possible, it is not advisable to apply both procedures "a" and "b", since these threads have a special lubricant applied to them, and removal of this lubricant may cause another undesirable condition.

CAUTION: These threads are multi-threaded, so be careful to keep the correct relative position.

Check the condition again, by hanging the spring in its normal position.

8. ADJUSTMENT OF RANGEFINDER

A. ADJUSTMENT OF IMAGE COINCIDENCE

(1) Remove the front-cover according to "1".

(2) Adjusting the Vertical Error in coincidence: (Fig. 2)

a. Loosen the screw #237 through the hole C in the front-plate.

b. Turn the knurled ring #222 in which the deflection prism is located by using end of a driver through the

window B in the front-plate untill the vertical error disappears.

The deflection prism is usually located as the image goes up when the ring #222 is turned downward.

c. After the above adjustment the screw #237 is tighten.

(3) Adjusting the Horizontal Error: (Fig. 2)

a. Turn the screw #216 through the window A in the front-plate until the horizontal error disappears.

NOTE: a. Adjustment of coincidence of the rangefinder should be done at a distance of infinity, using a collimator or a natural object located at a distance as far as possible.

b. When uncoincidence in both vertical and horizontal direction is found, make adjustment in vertical direction at first and then proceed with adjustment in horizontal direction.

c. In some cases, it is necessary to make both adjustment simultaneously.

B. INCLINATION OF IMAGE (Fig. 7)

Inclination of image is caused by unproper position of the prisms. To correct the inclination of image, it is necessary to remove the rangefinder assembly and disassemble the optical parts.

This work may take some time and requires a degree of skillfullness in optical adjustment.

9. ADJUSTMENT OF SHUTTER SPEED

A. SHUTTER RELEASE MECHANISM

Trouble in the 1/1000 sec. shutter time is occassionally caused by unproper action of the shutter release mechanism. Adjustment of the shutter release meachnism is done as bellow.

(1) Remove the top-cover according to "5".

(2) After the top-cover is removed, the high speed dial and winding lever are replaced for adjustment and checking of shutter speed. (Fig. 8, 9)

(3) Check the clearance between the escapement-lever #425 and tear-drop-cam #372. (Fig. 9, 10B)

a. When shutter is wound and dial is set at 1/1000, there must be a space (about 0.3mm) between the side surface of the 1/500 pin on the escapement-lever and the side of the tear-drop-cam.

b. When shutter is released at speed of 1/1000, top of the 1/500 pin should clear the lower surface of the tear-drop-cam by about 0.05mm.

NOTE: To take off or insert the escapement-lever, the spring #429 must be caught by the pin #330 which is riveted to the inside of the camera body..

B. ADJUSTMENT OF HIGH SPEED SHUTTER TIME

Error of travelling speed of shutter curtain causes error of shutter time, and effect high speed exposure badly.

Difference of travelling speed between front and rear curtain causes change of width of slit formed by ends of both curtains and accordingly brings lack of uninformity of exposure time along the longitude of the frame.

Error of travelling speed of shutter curtain is corrected as below.

(1) Remove the camera back.

(2) Remove the bottom cover according to "4".

(3) Loosen the set screw #326 for the tension worm. (Fig. 4)

(4) Adjust the front curtain speed by changing the tention which actuate travel of curtain.

To change the front curtain tension:

a. When width of the slit at the end of curtain travel is larger than that at its beginning, turn the front curtain tension worm #407 clockwise, decreasing the tension.

b. When width of the slit at the end of curtain travel is smaller than that at its beginning, turn the worm #407 counter-clockwise, increasing the tension.

(5) After the above adjustment, check the shutter speed and if it is found correct, tighten the set screw #326.

IMPORTANT: Rear curtain tension must not be changed, since it is set to factory standard. Therefore, error in shutter speed must be corrected by adjusting the front curtain tension only.

(6) When the error is found not caused by curtain tension error, inspect the light-baffle and correct its position if it contacts with the curtain.
(See - 3. Removal of light-baffle)

C. ADJUSTMENT OF SLOW SPEED SHUTTER TIME

Accuracy of slow shutter speed depends upon correct action of slow speed gear train. When the slow shutter speeds does not work properly or accuracy is impaired, inspect the slow speed gear train, and clean it at first.

(1) Remove the slow speed gear train according to "6".

(2) Cleaning the slow speed gear train:

a. Clean the train by a brush and take out flakes of film and other small particles which might accidentally dropped into the train.

b. When the result of the above cleaning is not satisfactory, clean the gear train with cleaning fluid. Put some cleaning fluid as gasoline, benzine etc. in a small container. Clean the gear train assembly in this container and carefully remove any small particles which may be found between teeth of gears.

c. After cleaning, dry it and put a small quantity of good watch oil on the pivots, and check the working condition of the gear train.

Move the segment gear and release it. If smoothness of action is obtained, it indicates the gear train assembly is in good condition.

Same trial should be made by freeing the relation-ship between the ankle and escapement gear.

d. After doing this, if slow speed still does not work properly, it is better to replace the slow speed gear train assembly with new one.

NOTE: Cleaning with cleaning fluid is usually the only repair work necessary. Further disassembling is not advisable.

10. MISCELLANEOUS TROUBLE IN SHUTTER

A. SHUTTER CURTAIN TRAVELS BUT SHUTTER DOES NOT OPEN

(1) Remove the top-cover according to "5".

(2) Check the action of shutter release mechanism.

(3) If the escapement shaft #430 does not go down when the release button is pushed, make the action of the escapement shaft smooth by cleaning and oiling.

(4) If the result ofthe above is not satisfactory, bend the spring #429 or replace it with a new one to increasethe spring tension which let the escapement go down.

B. INDEX ERROR AND UNSTABLENESS OF HIGH SPEED SHUTTER DIAL SETTING

(1) Check the set screw #325 on the side of the high speed shutter dial, and if it is found loose, tighten it after bringing thedial to its correct position. (Fig. 5)

(2) If the index error appears after winding, remove the bottom-cover according to "4".

(3) Tighten the screw on the shutter brake cam #395 at the end of the shutter dial axis, which might have been loosened. (Fig. 4,9)

C. IMPOSSIBLE TO RELEASE SHUTTER ALTHOUGH RELEASE BUTTON GOES

(1) Remove the bottom-cover according to "4".

(2) Check the work of the shutter release button spring #457. (Fig. 4)

(3) A shock accidentally given to the camera body might have shifted the spring #457 to an incorrect position making the spring end unable to effect the shutter release ankle #465 to work.

(4) Loosen the screws #407 and bring the spring #454 to the correct position and then tighten the screws to secure its position.

D. UNSMOOTH ACTION OF SHUTTER RELEASE BUTTON (Fig. 4)

(1) Remove the bottom-cover according to "4".

(2) Check the action of the shutter release ankle #465.

(3) If the above action is found unsmooth, adjust the rotating axis of the ankle #465.

E. SLOW SPEED DIAL DOES NOT CONTROL SHUTTER SPEED PROPERLY (Fig. 10B)

(1) Remove the focusing mount assembly and the light-baffle according to "2" and "3".

(2) Turn the slow speed dial and check the movement of the cam #433 which is controled by the dial.

(3) If the above control is not actuated properly, remove the bottom-cover according to "4".

(4) Loosen the screw #464 and adjust the relationship between the slow speed gear train and cam #433 and yoke #434 by shifting the slow speed gear train assembly.

(5) If the dial does not work properly after the above is done, remove the top-cover according to "5".

(6) Adjust the action of the slow speed setting lever #440 which control the shift of the slow speed shaft #406.

11. ADJUSTMENT OF FLASH SYNCHRONIZATION (Fig. 21, 22, 23)

If the synchronization does not work properly, the following inspection and adjustment are necessary.

A. Insulation and Leakage of electric current
B. Safety contact
C. Fast shutter contact or F-contact
D. Slow shutter contact or X-contact

A. INSULATION AND LEAKAGE OF ELECTRIC CURRENT (Fig. 5)

(1) One side of the synchronization circuit is grounded to the camera body. When the finder-shoe-plate is taken off, the following inspection is needed.

(2) Plate spring #754 fixed on the finder-shoe-plate should make contact with the top synchro-outlet.

Check whether the wire connecting #754 with the side synchro-outlet is broken.

B. SAFETY CONTACT (Fig. 4, 11A, B)

(1) Mechanism of safety contact

a. The safety contact is closed when the shutter release button is pressed down. It is the pressing down action of the shutter release shaft that prepares the synchronization circuit for triggering.

b. The shutter release button is prevented from going down when winding action is started but not completed as shown in Fig. 11A.

c. The end of the shutter release shaft makes contact possible between the contact points on the springs #471 and #472.

To adjust the safety contact do the following:

(2) Remove the camera back

(3) Remove the bottom-cover according to "4".

(4) Adjust the gap between the two contact points on #471 and #472 so as to make their action conform with the preceeding (1).

a. The above adjustment is made by bending the long plate spring #472 by using a thin pliers.

b. Notice that when the shutter button is free, the plate spring #454 lies flatly against the bottom plate.

C. FAST SHUTTER CONTACT (F-Contact) (Fig. 9,11C,D)

(1) Mechanism of Fast Shutter Synchronization

a. F-Contact is operated by the revolution of the fast shutter speed selector #374 driven by the shutter curtain drum.

b. The pin #400 located on the shutter speed selector #374 effects the movement of F-lever #701 when the shutter is released.

c. F-lever makes contact with a contact point on the F-spring #716, when the shutter is released.

d. Time lag of synchronization is adjusted by changing the distance between F-lever-point and F-spring-contact point.

e. The above distance is changed by the synchro-cam #342 which is under the synchro-dial #341.

f. The fast synchro contact is in operation from 1/1000 to the click stop between 60 and X on the synchro-dial.

(2) Slight adjustment of the fast shutter contact is made according to the following: (Fig. 5, 11C)

a. In order to adjust the time lag, remove the winding knob assembly, then loosen two screws #343 and turn the synchro-cam below the synchro-dial as you hold the synchro-dial.

The time lag is increased when synchro-cam is turned counter-clockwise.

b. Check the synchronization at 1/1000. If the time-lag at 1/1000 is correct, it is not usually necessary to check the time lags at other speeds.

When the above adjustment is not enough, the following is necessary:

(3) Remove the top-cover according to "5".

(4) Remove the finder-shoe plate #4 by unscrewing #471. (Fig. 5)

(5) The following parts shall be replaced after the top-cover is removed.

Synchronization dial
High speed shutter dial
Winding lever

(6) Bring the contact points to the correct position according to the following: (Fig. 11D)

a. Bend the F-spring to make the contact points about 5mm apart.

b. Bend the sub-spring #715 by using a thin pliers, so as to bring the F-spring point to the correct position.

The gap between the contact points at 1/1000 should be 0.4 - 0.5mm.

(7) When step (6) is done correctly, contact between the time points (F-spring and F-lever) will be momentarily be at least of 5 millisecond duration. (Fig. 9)

D. X-CONTACT (Fig. 9)

(1) Mechanism of X-Contact

a. When the synchro-dial is set at X, the fast shutter contact does not work because the F-spring contact is brought to a location beyond the travel of the contact.

b. X-contact is operated by X-lever, the movement of which is effected by the fast shutter speed selector driven by the shutter curtain drum just before the end of its revolution.

(2) Preparation for adjustment is the same as that for F-contact.

(3) To adjust time-lag of X-Contact:

a. Set the synchro-dial and the high speed shutter dial both at X.

b. The shutter is fully opened at the instant the X-contact is closed.

c. X-contact must be made 0 - 1 millisecond after the rear edge of the front curtain reaches the end of the film aperture opening.

When the X-contact does not work properly, check it according to the following:

(4) Correct the movement of the X-lever #709.

The lever should move freely, with slight tension from the X-contact spring #729.

(5) Correct the gap of X-contact so that it closes as described in the preceeding (3).

(6) When the trouble is caused by the bounding action of the front shutter curtain at the end of its travel, correct the brake for the pendurum #458 by adjusting the eccentric pin #461 on the brake-lever #460. (Fig. 4)

12. WINDING LEVER (Fig. 5,6)

If the winding mechanism does not act properly, check the action of the winding lever and when the lever-pin #313 or the pawl #310 is found damaged, the winding sub-assembly should be replaced.

NOTE: The winding sub-assembly consists of #306 - #308, #310 - #317.

To replace the winding sub-assembly, do the following:

(1) Remove the top-cover according to "5".

(2) Unscrew 3 screws #456 and remove the winding assembly.

(3) Place a new winding assembly taking care of the following:

a. Adjust the meshing of the gear #308 (of the winding assembly) with the idle gear #476.

The entire assembly must also be centered on the winding shaft #320.

To do the above, three holes in the plate #316 for the screws #456 may have to be enlarged.

b. Put the A-R ring #351 on the A-R bushing #357 and set it at R. (Fig. 5)

Test the smoothness of the winding, turning the take-up spool.

c. Turn the A-R ring to A. Then put on the lever #301 and check the smoothness of lever wind.

In this case, apply some friction to the sprocket with your finger as if film is loaded, or preferably by actually loading film.

(4) If the above test is satisfactory, the top-cover is then replaced.

NOTE: a. Make sure that the end of the coiled spring #317 does not scratch the ring #314. If it does, the winding action will not be smooth.

b. To finally replace the lever #301, put the split collar #315 inside the lever and then put the lever on the winding sub-assembly fitting the pin #316 into the key way of the lever.

13. CAMERA BACK (Fig. 1, 12)

In case there is slack in the fitting of the camera back to the camera body, repair is done as follows:

(1) Correct misalignment of the lock-link #603 (Fig. 12, marked with *).

This damage is caused by turning the lock handle when the camera back is not properly placed on the camera body. (Fig. 12B)

(2) When the lock handle is loose, tighten the screw #604. (Fig. 12A)

(3) A slight slack in the fitting of the camera back and the camera body is removed by bending the end of the lock-link #603 (at spool end), and by bending the tongue of #608 (at magazine end).

A very sight adjustment is all that is usually necessary for the above.

NOTE: Care must be taken for not to damage the flattness of the pressure plate #611. (Fig. 1)

14. REPLACEMENT OF SHUTTER CURTAIN

To replace the shutter curtain, if you are not equipped with a special tool to assemble curtain, drum and tension-shaft, adopt the following method "A".

If you are equipped with the said tool, follow the method "B"

A. REPLACEMENT OF SHUTTER CURTAIN WITHOUT USING SPECIAL TOOL.

Replacement of the curtain should be done on the camera body, drum and tension shaft being not removed from the body.

(1) Remove the camera back.

(2) Remove the front-cover according to "2".

(3) Peel off the front leather. (The leather becomes useless when it is peeled off.)

(4) Remove the top-cover according to "5".

(5) Unscrew 4 screws #471 and 1 screw #456. (Fig. 13)
Remove the front-plate #6, with the focusing mount assembly and the light-baffle.

NOTE: If the camera has a new type light-baffle, remove it according to the NOTE OF "3". (Fig. 14)

(6) Bend the upper light-baffle insideward, or remove it.

In order to remove the upper light-baffle, the following parts must be removed:

Finder-shoe plate
F-lever and X-lever of synchro-contact

(7) Remove the bottom-cover according to "4".

(8) Remove the slow speed gear assembly according to "6".

Now the curtains are ready to be replaced.

(9) To replace both of front and rear curtain: (Fig. 15-19)

Replace the front curtain first and then replace the rear curtain, using good adhesive like GLYPTOL.

a. To replace the front curtain: (Fig. 15, 16)

Place the end of front curtain ribbons on the pulleys of the drum-shaft first, and then place the end of front curtain on the tension shaft, using adhesive.

Keep the pulley at the position where the shutter is released and bring the curtain end to the location shown in Fig. 16 before the adhesive fasten the ribbon and curtain on the pulley and tension shaft respectively.

Then make the curtain end parallel to the aperture edge by checking it as shown in Fig. 17. This adjustment should also be done before the adhesive congeals.

NOTE: When the shutter is released the end of front curtain must go over the aperture edge by 1.9 - 2.0mm. (Fig. 16)

b. To replace the rear curtain: (Fig. 18, 19)

Place the end of ribbon of rear curtain on the pulley of the tension shaft, and then place the end of rear curtain on the drum, using good adhesive. (Fig. 18)

Soon after the above is done, correct the over-lap and parallelism of the ends of both curtains, adjusting the rear curtain before the adhesive congeals. (Fig. 19)

NOTE: Make the width of overlap of both curtains must be as large as the width of curtain end plate, namely, 3.4mm.

(10) To replace the front curtain only:

Adopt the method explained in "a, (9)", but adjust the overlap and parallelism in reference with the end of the rear curtain.

(11) To replace the rear curtain only:

The method is the same as "b, (9)".

NOTE: For the time the adhesive congeals, keep the shutter released.

For reassembling, take care that the light-baffle #9 is to be placed inside the end of upper and lower baffle.

When the upper baffle was not taken off but bent inside-ward, errect it to its correct place.

Take care that the velveteen on the baffle not to touch the ribbon or the curtain which may hurt the shutter time.

(12) After the reassembling, the following are necessary:

a. Adjustment of the rangefinder.

b. Adjustment of the synchronization.

c. Alignment of the finder-shoe.

B. REPLACEMENT OF SHUTTER CURTAIN USING SPECIAL TOOL

In this case, the curtain drum and the tension spring shaft are removed from the camera body and set on the Tool for replacement of the curtain.

(1) Remove the camera back.

(2) Remove the front-cover, focusing mount assembly, light-baffle, bottom-cover and top cover according to "1" - "6" respectively.

(3) Refer Fig. 9 Remove:

#375 - speed indicater, #376 - nut and coiled spring, #372 - tear drop cam, #374 - high speed time selector (by removing tapered pin.

(4) Refer Fig. 10A. Remove #433 - slow speed changing cam by unscrewing set-screw. Then slow speed changing shaft is made free.

(5) Refer Fig. 4. Make free safety contact from the bottom-plate by unscrewing two screws. Remove the plate spring #454 by unscrewing two screws.

(6) The bottom-plate with shutter curtains is now ready to be removed from the camera body by unscrewing four screws which secure the bottom-plate to the camera body.

(7) Set the curtain drum and tension shaft on the Tool and replace the curtain.

NOTE: After shutter curtain is replaced, reassembly will be done in reverse order. In reassembly the following care should be taken:

a. The relative position of meshing of gears which are located on the bottom plate and shutter release shaft.

b. The position of gear which works as quick return motion of slow speed gear train (Ref. Fig. 3) will be adjusted after assembling by removing two screws and resetting gear.

c. The relative position between front and rear curtain.

d. Slow speed changing cam must be reset before securing the bottom plate to the camera body by four screws.

15. REPAIR PARTS FOR NIKON CAMERA MODEL S2

Item	Parts Number and (Quantity for 1 set)
Winding Ring	303 (1)
Exposure Counting Dial	319 (1) 332 (2) 291 (1) 305 (1) 365 (1)
Rewinding Knob	333 (1) 334 (1) 335 (1)
Shutter Dial Centre Index & Screw	375 (1) 309 (10)
Fast Shutter Speed Dial and Screw	373 (1) 325 (30)
Slow Shutter Speed Dial & Screw	401 (1) 402 (10)
Cameras Top Plate & Screw	3 (1) 343 (50) 40 (20)
Camera Front Plate	2 (1)
Finder Clip	29 (1) 32 (1) 33 (1)
Film Pressure Plate	610 (2) 611 (1) 612 (2)
Focusing sleeve assembly & screw	51 (1) 52 (1) 53 (1) 54 (1) 56 (1) 57b (2) 17 (1) 82 (3)
Rangefinder Assemblies & screw	201 - 243 (1 set)
Rangefinder Glass Parts	G1 (1) G2 (1) G3 (1) G4 (1) G5 (1) G6 (1)
Finder Glass Assemblies & screw	G7 (1) G8 (1) G9 (1) G10 (1)
Top Flash Synchro Outlet	46 (1) 47 (1) 48 (1)
Side Flash Synchro Outlet	751 (1) 752 (1) 753 (1) 757 (1) 758 (1) 759 (1)
Flash Synchro Safety Contact	741 (1) 742 (1) 744 (5) 745 (4) 746 (4) 747 (1)
Flash Synchro Contact Assemblies	701 - 739
Leather	43 (3)
Camera Back Assemblies	601 - 634 (1 set)
Shutter Release Buttom	349 (1)
Shutter Release Guard & A-R	350 (1) 351 (1)
1st & 2nd Shutter Curtain Ring	483 (3) 484 (3) 485 (3) 486 (24) 487 (3)
Shutter Spring	414 (1) 415 (1) 423 (1) 424 (1)
Rewinding Shaft Screw	338 (2)
Slow Speed Gear Train	501 - 534 (1 set)
Neck Strap Eyelet	25 (2)
Screw A	16 (20) 17 (60) 22 (40) 35 (30) 38 (1) 326 (50) 325 (30)
Screw B	56 (10)
Screw	456 (70)

****

The above parts are presumed to be necessary for repairs which seem most occasionally happen to be requested by consumers and possibly be kept in stock.

The other parts not listed in the table are to be supplied on demand.

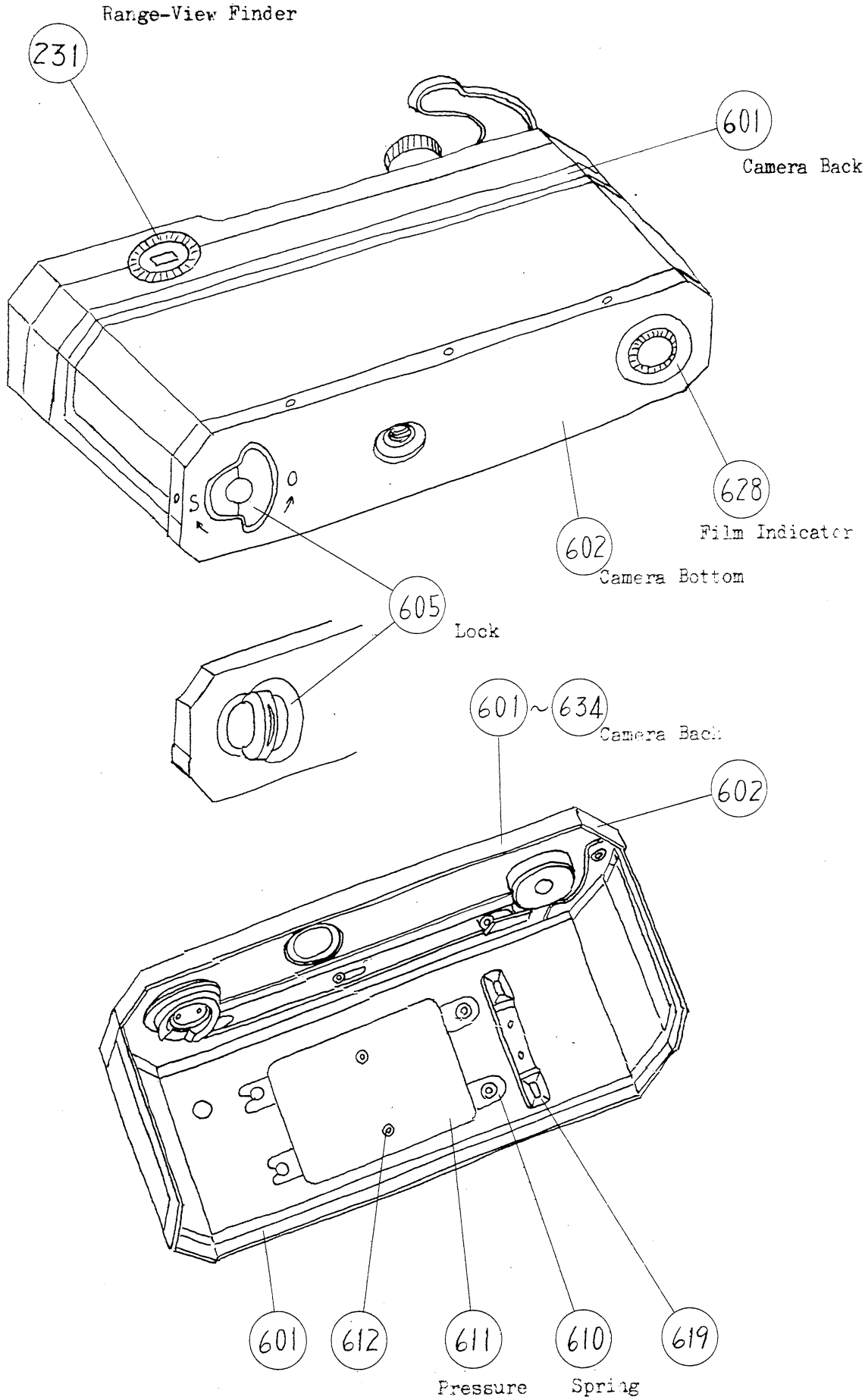

Range-View Finder
231
601
Camera Back
628
Film Indicator
602
Camera Bottom
605
Lock
601~634
Camera Back
602
601
612
611
Pressure Plate
610
Spring
619

Fig. 1

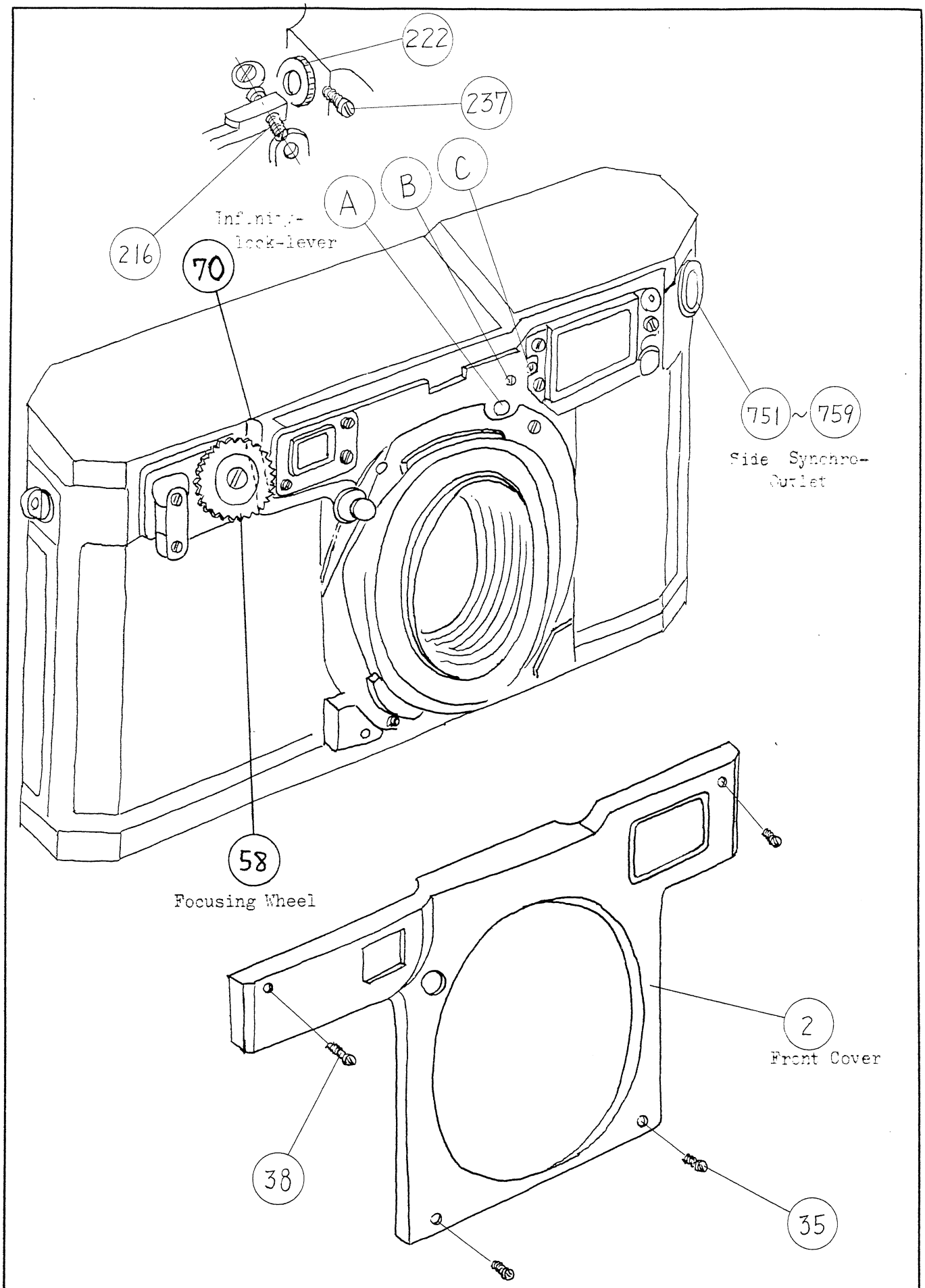

222
237
A
B
C
Infinity-
lock-lever
216
70
751 ~ 759
Side Synchro-
Outlet
58
Focusing Wheel
2
Front Cover
38
35

Fig. 2

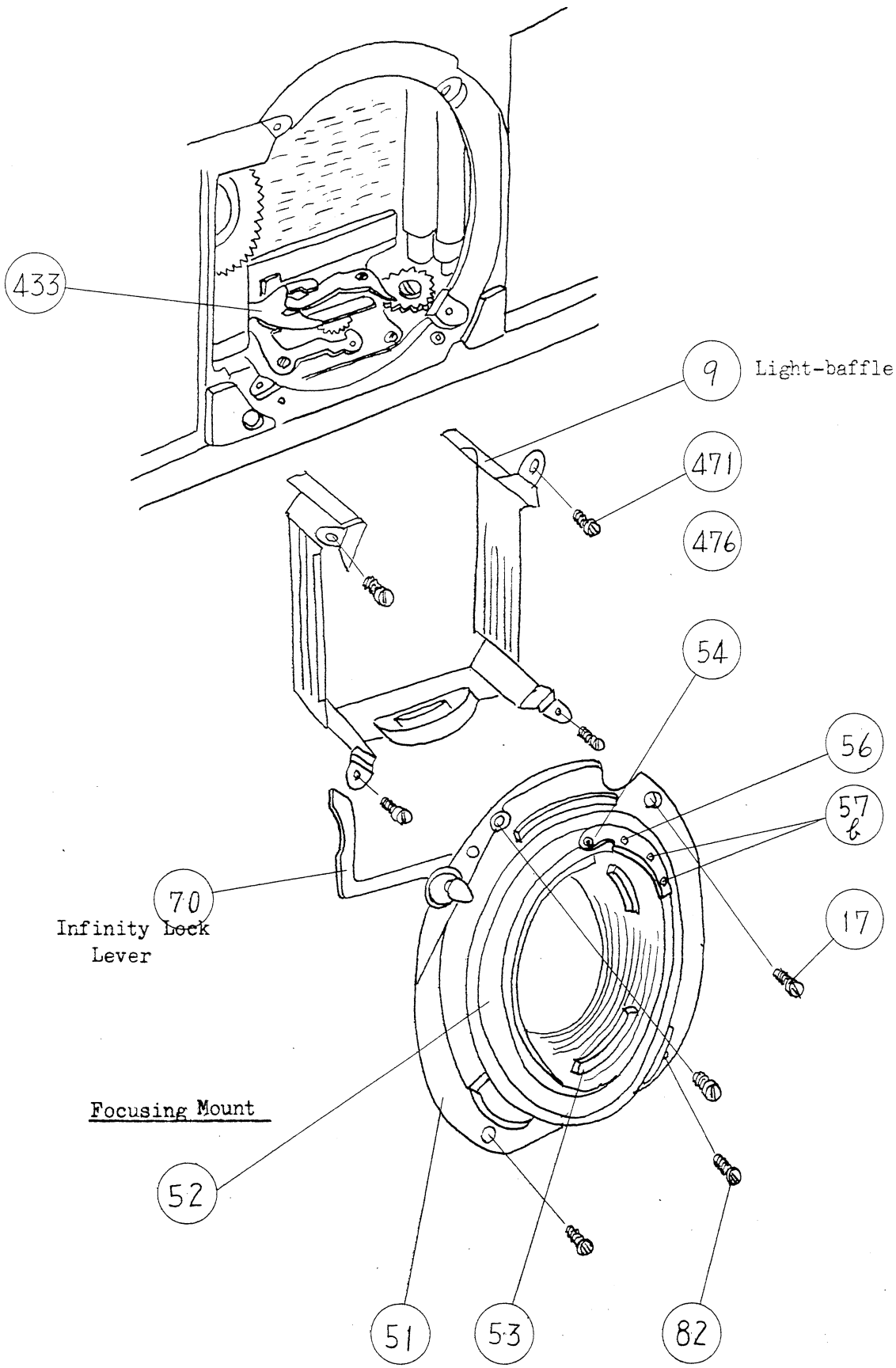

433
9
Light-baffle
471
476
54
56
57
b
70
Infinity Lock
Lever
17
Focusing Mount
52
51
53
82

Fig. 3

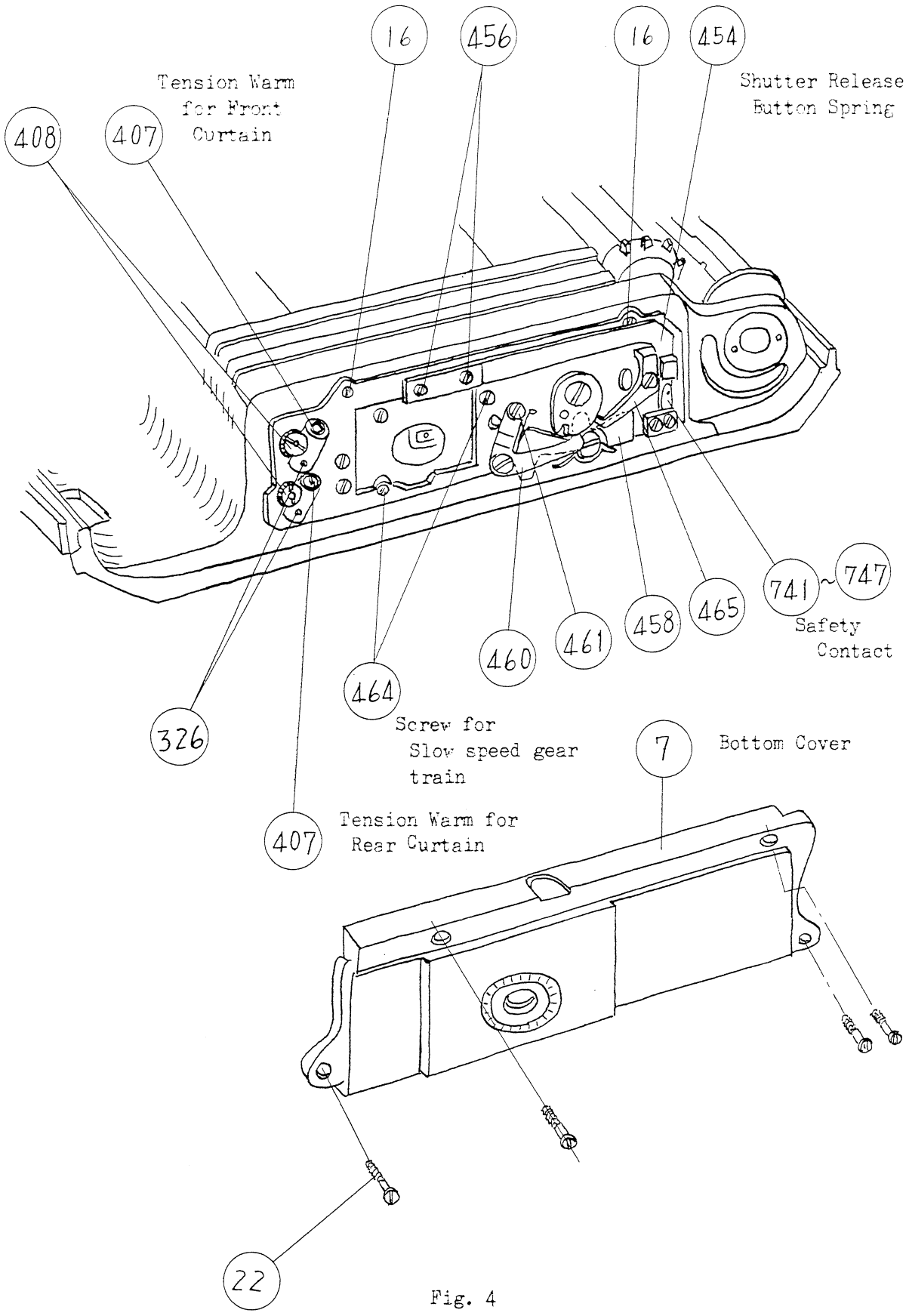

16
456
16
454
Tension Warm for Front Curtain
Shutter Release Button Spring
408
407
741
747
Safety Contact
458
465
461
460
464
326
Screw for Slow speed gear train
7
Bottom Cover
407
Tension Warm for Rear Curtain
22

Fig. 4

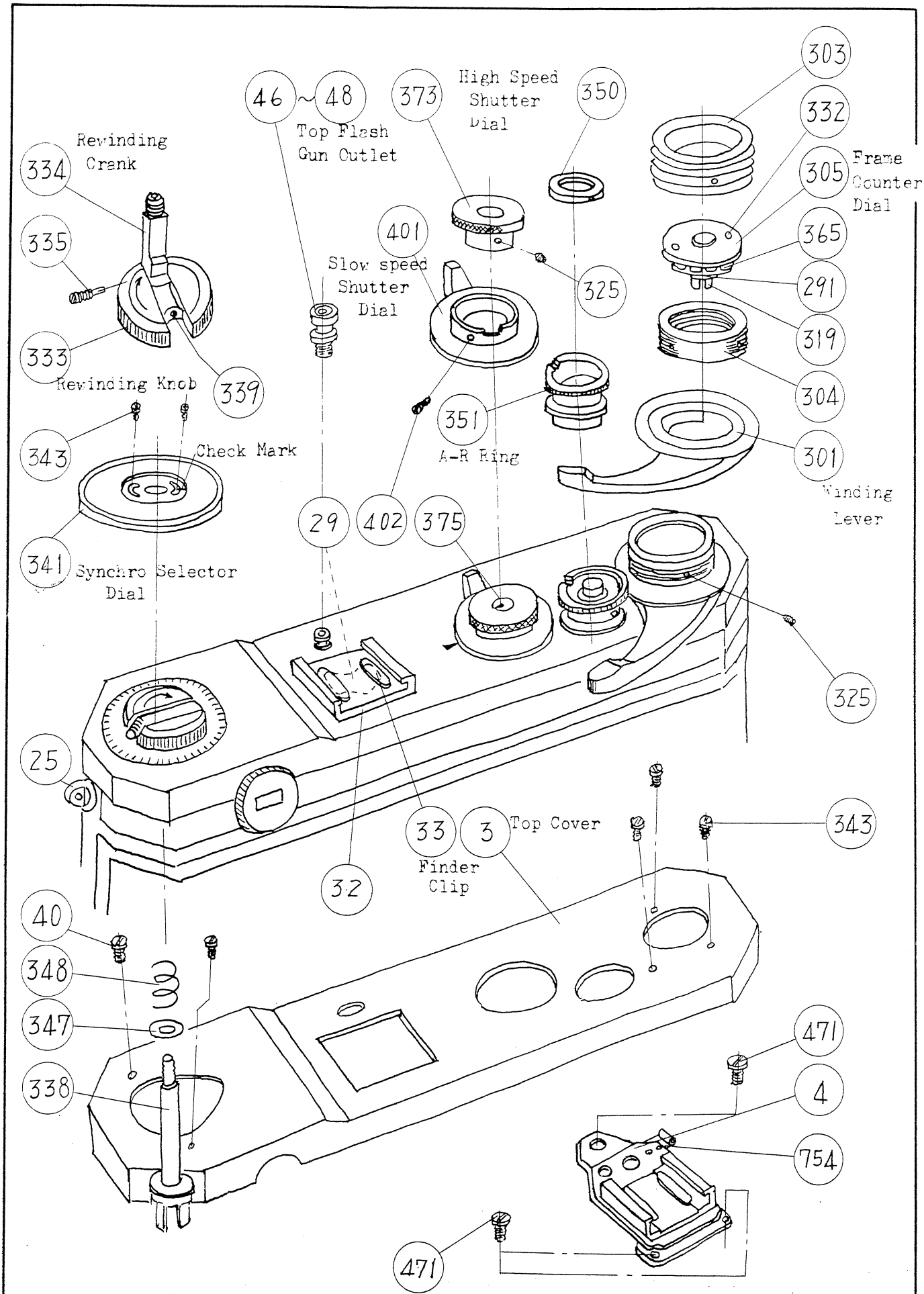

303
332
305
Frame Counter Dial
365
291
319
304
301
Winding Lever
350
High Speed Shutter Dial
373
46 ~ 48
Top Flash Gun Outlet
401
Slow speed Shutter Dial
325
351
A-R Ring
402
375
29
334
Rewinding Crank
335
333
339
Rewinding Knob
343
Check Mark
341
Synchro Selector Dial
325
25
33
Finder Clip
3
Top Cover
343
32
40
348
347
338
471
4
754
471

Fig. 5

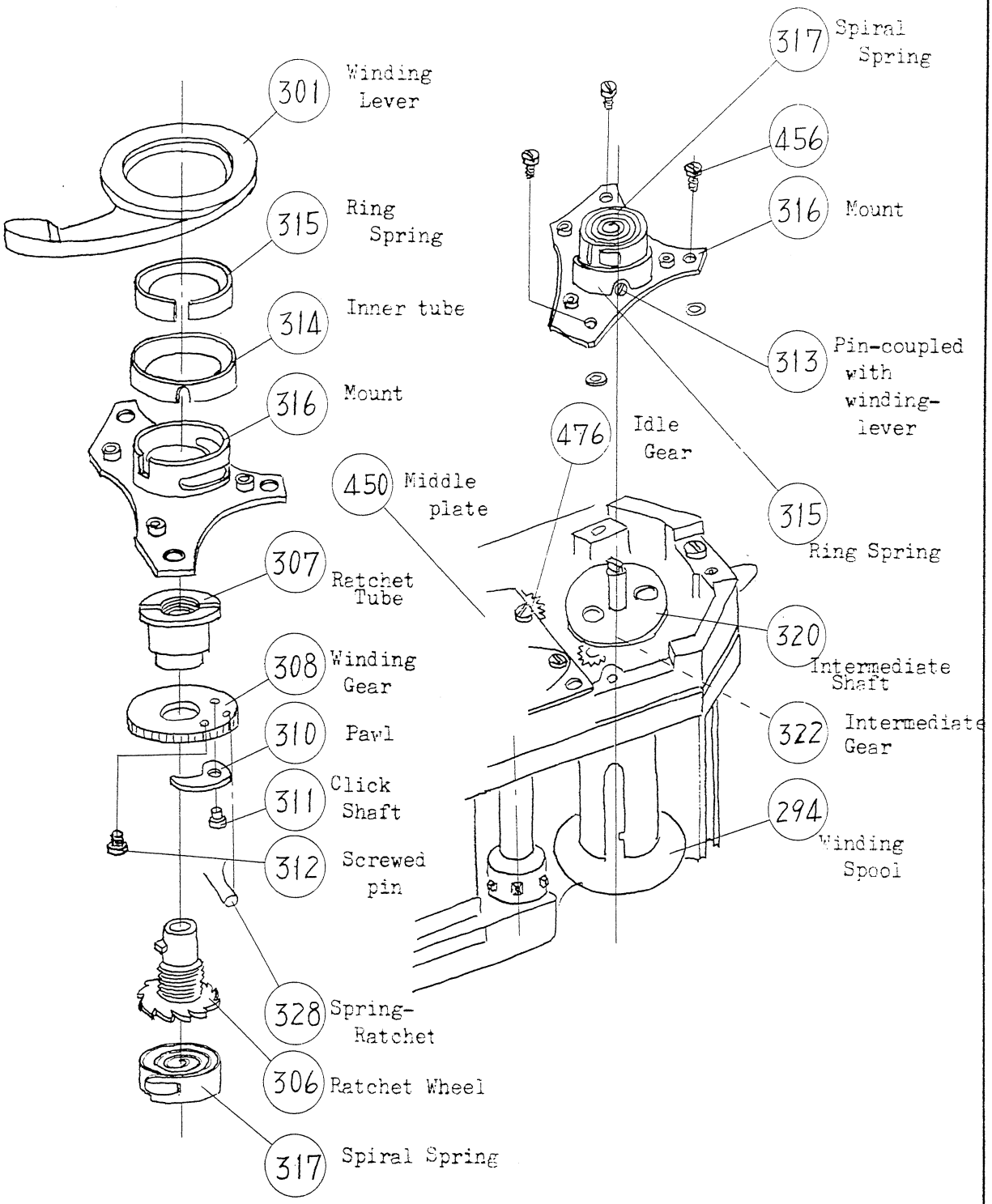

301 Winding Lever
315 Ring Spring
314 Inner tube
316 Mount
307 Ratchet Tube
308 Winding Gear
310 Pawl
311 Click Shaft
312 Screwed pin
328 Spring-Ratchet
306 Ratchet Wheel
317 Spiral Spring
317 Spiral Spring
456
316 Mount
313 Pin-coupled with winding-lever
476 Idle Gear
450 Middle plate
315 Ring Spring
320 Intermediate Shaft
322 Intermediate Gear
294 Winding Spool

Fig. 6

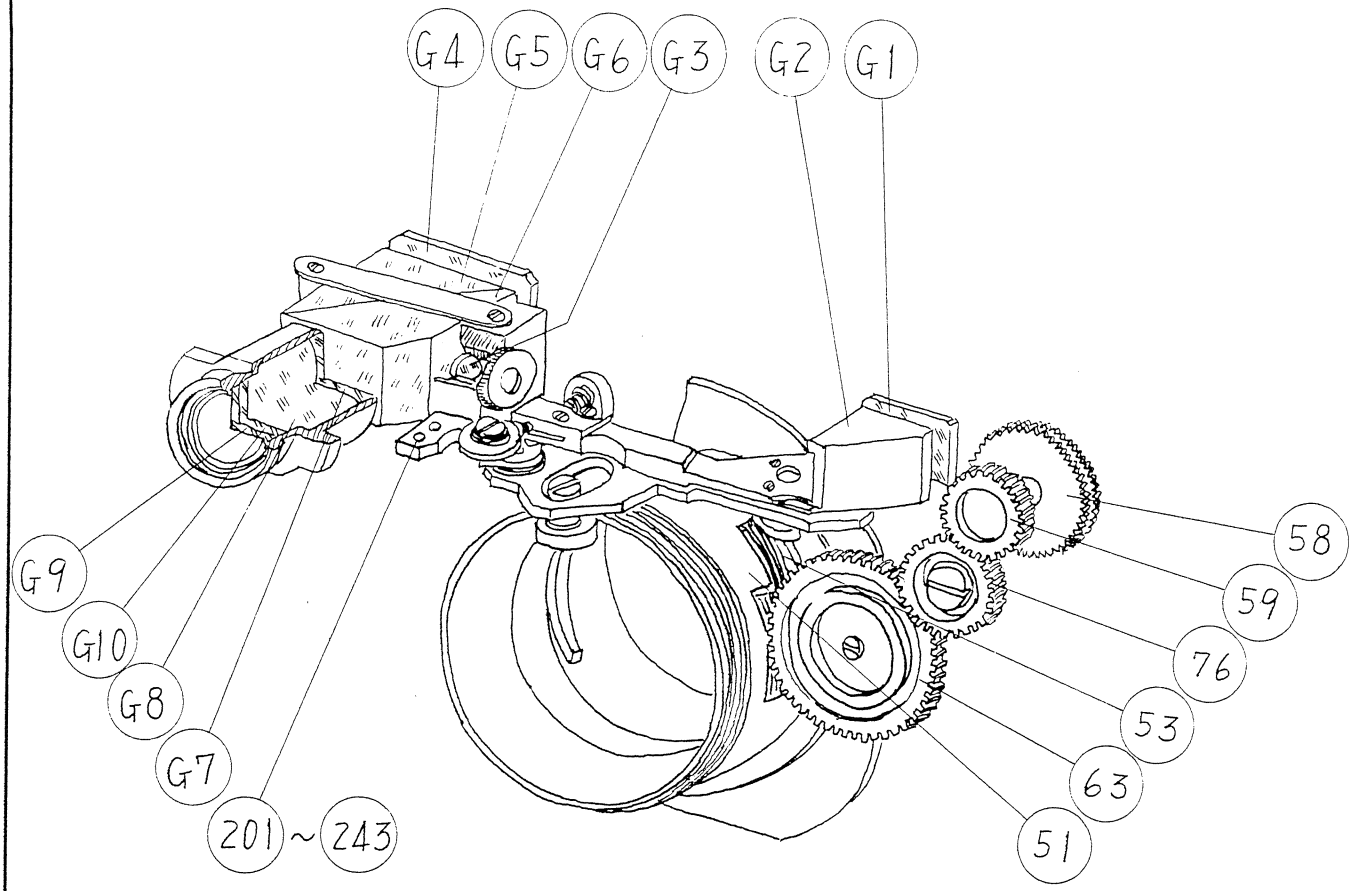

G4
G5
G6
G3
G2
G1
G9
G10
G8
G7
201 ~ 243
58
59
76
53
63
51

Fig. 7

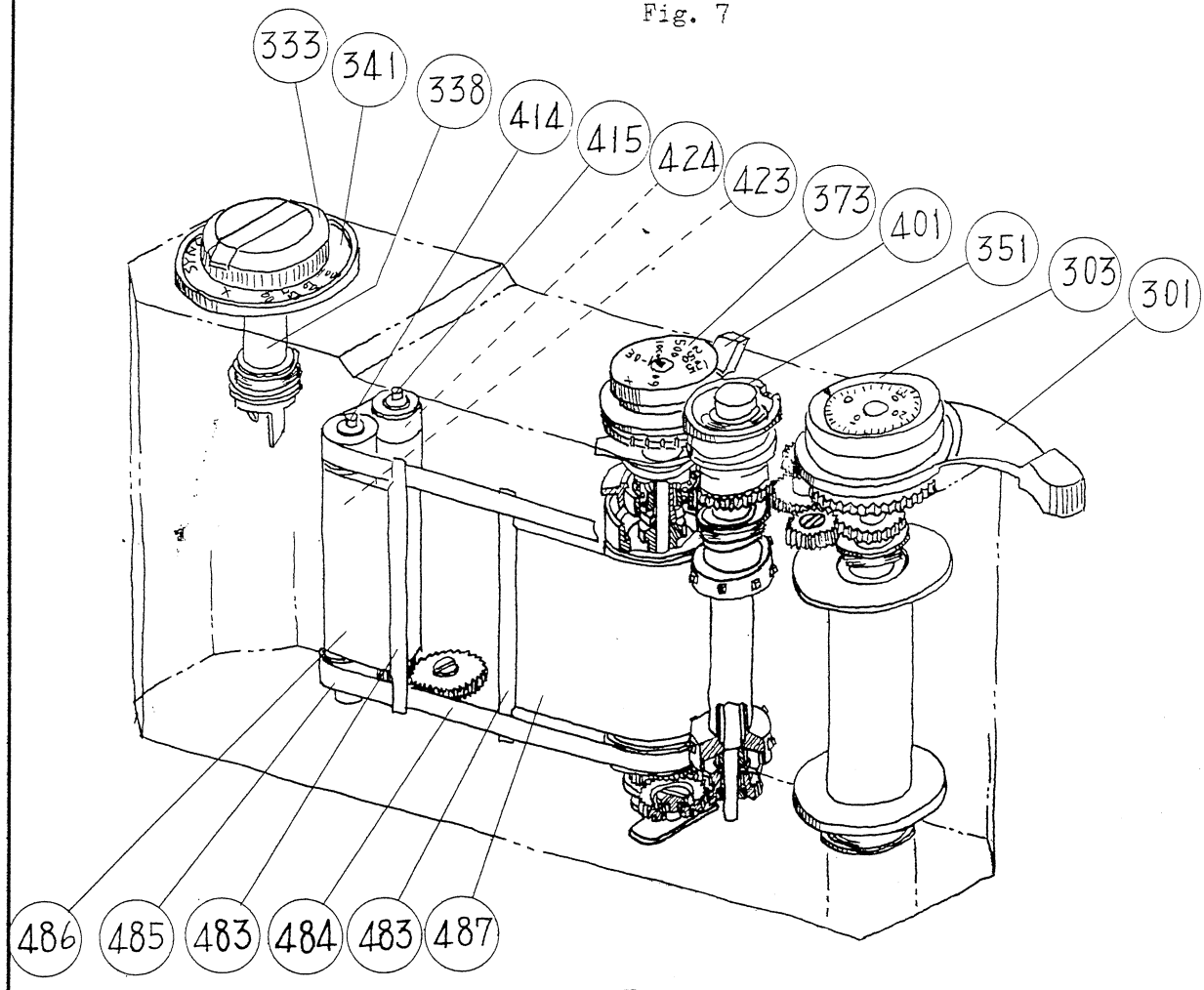

333
341
338
414
415
424
423
373
401
351
303
301
486
485
483
484
483
487

Fig. 8

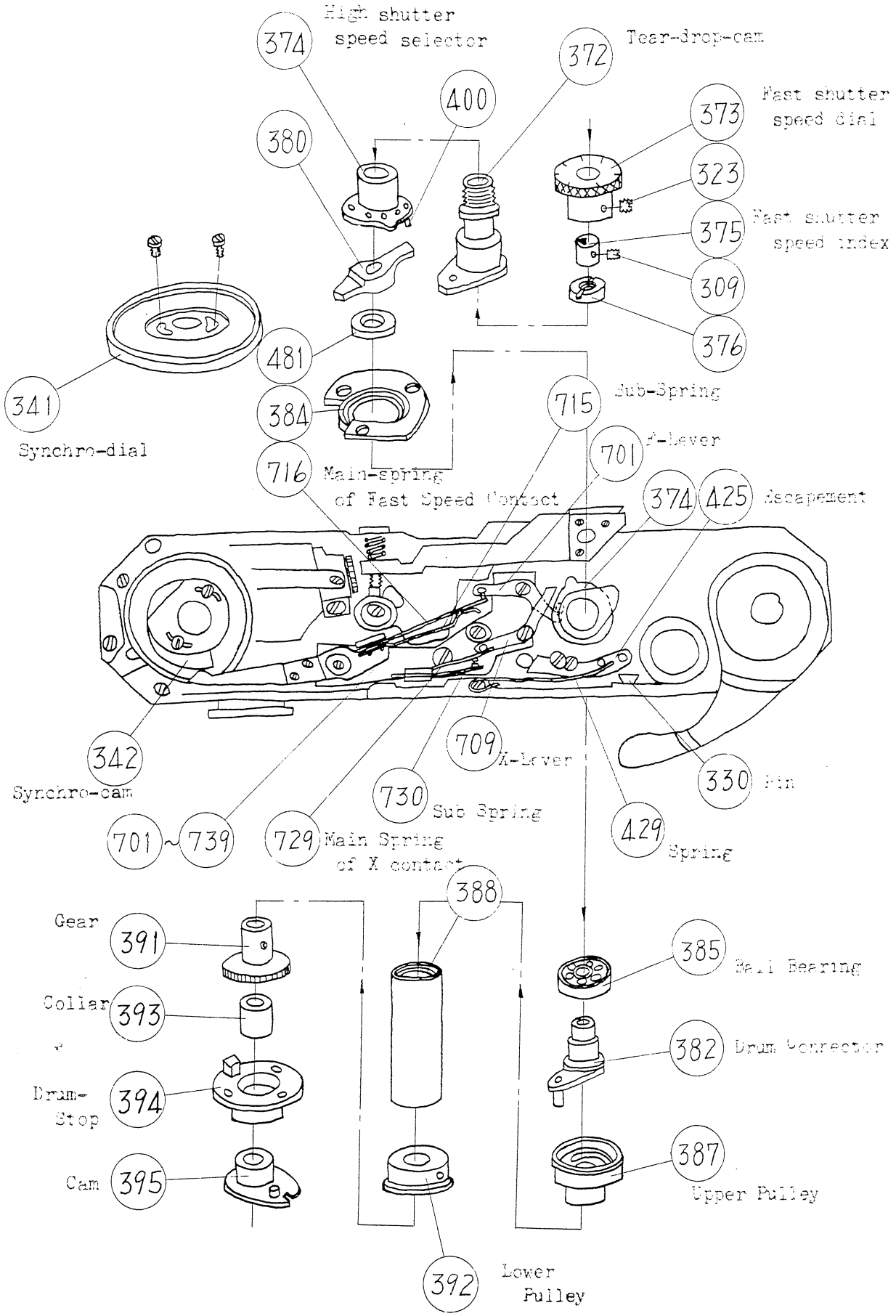
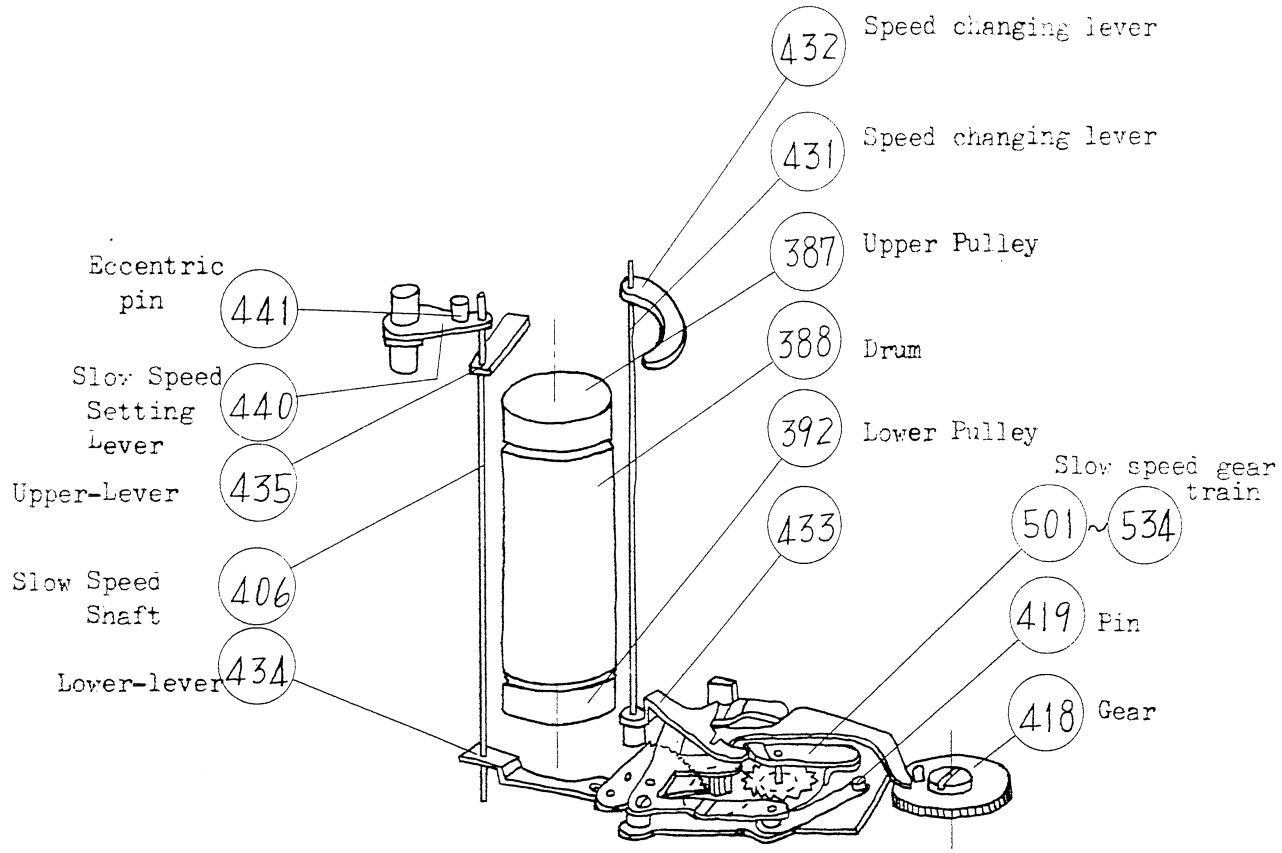
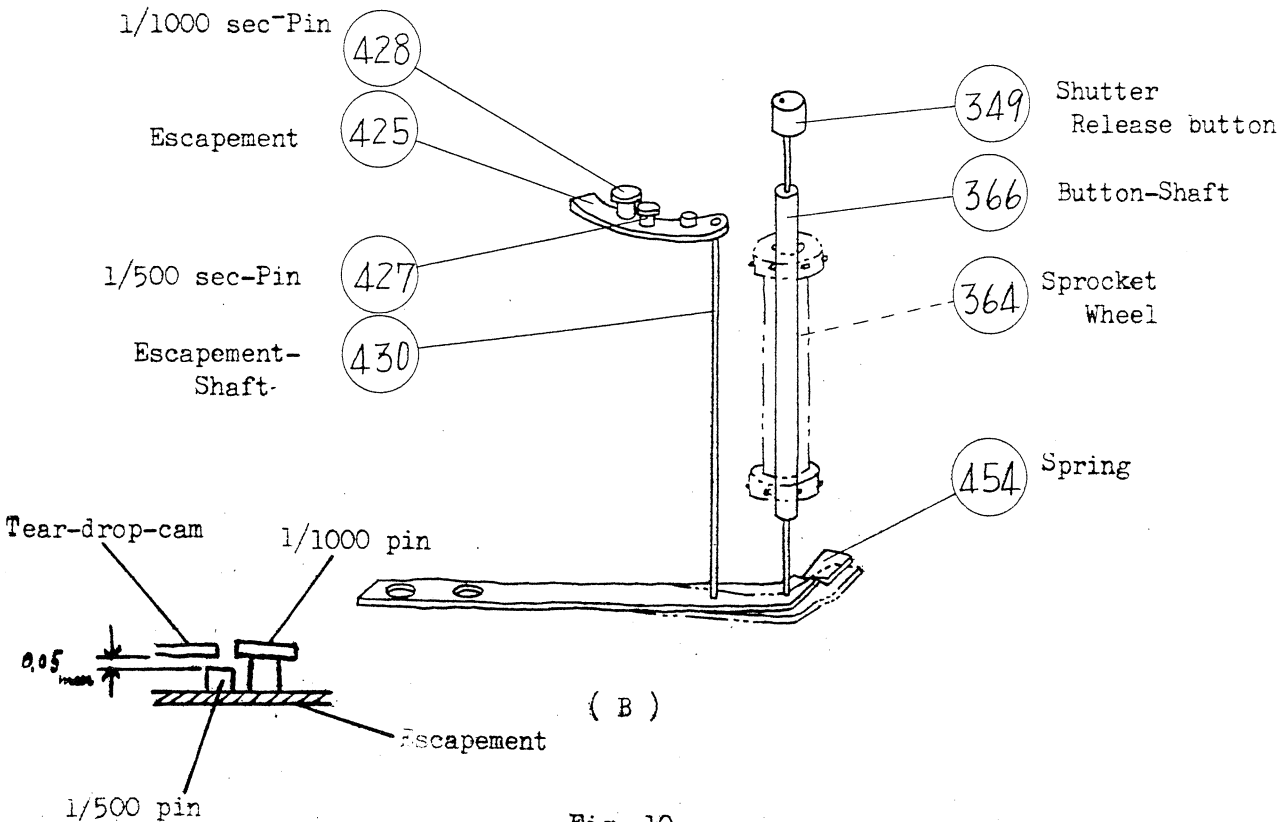

374
High shutter speed selector
372
Tear-drop-cam
400
373
Fast shutter speed dial
380
323
375
Fast shutter speed index
309
376
481
341
Synchro-dial
384
715
Sub-Spring
701
A-Lever
716
Main-spring of Fast Speed Contact
374
425
Escapement
342
Synchro-cam
709
X-Lever
330
Pin
730
Sub Spring
701 ~ 739
729
Main Spring of X contact
429
Spring
388
Gear
391
385
Ball Bearing
Collar
393
382
Drum Connector
Drum-Stop
394
387
Upper Pulley
Cam
395
392
Lower Pulley

Fig. 9


432
Speed changing lever
431
Speed changing lever
387
Upper Pulley
388
Drum
392
Lower Pulley
Slow speed gear train
501 ~ 534
433
419
Pin
418
Gear
Eccentric pin
441
Slow Speed Setting Lever
440
Upper-Lever
435
Slow Speed Shaft
406
Lower-lever
434

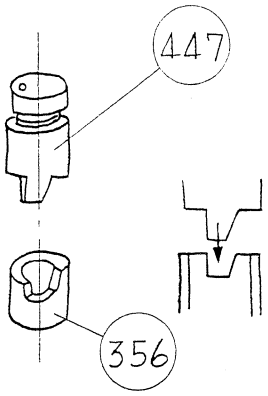
(A)


1/1000 sec-Pin
428
Escapement
425
1/500 sec-Pin
427
Escapement-Shaft
430
349
Shutter Release button
366
Button-Shaft
364
Sprocket Wheel
454
Spring
Tear-drop-cam
1/1000 pin
0.05 mm
Escapement
1/500 pin

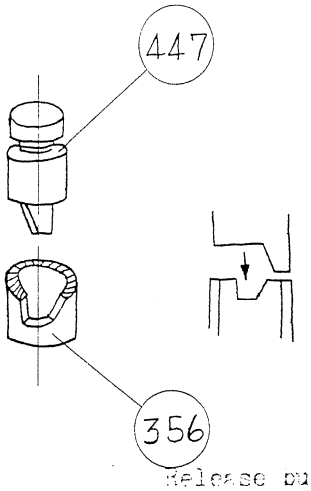
(B)

Fig. 10

Shutter Release Button



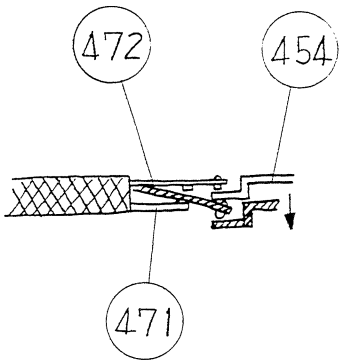
Release button goes down when winding has been completed

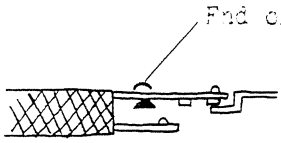


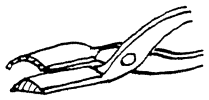
Release button is prevented to go down during the winding action

(A)

Safety Contact

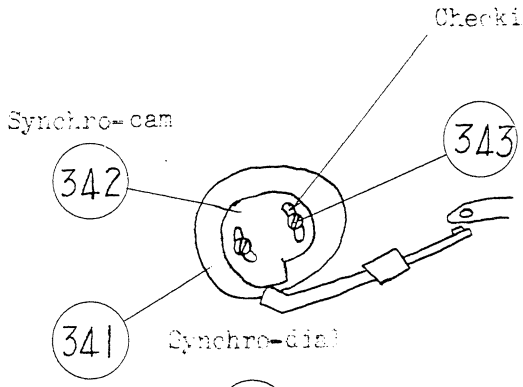




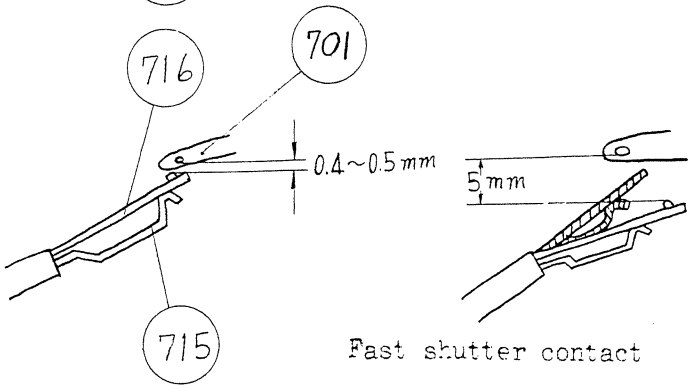


Safety Contact

(B)



(C)



Fast shutter contact

(D)

Fig. 11

Lock of Camera Back

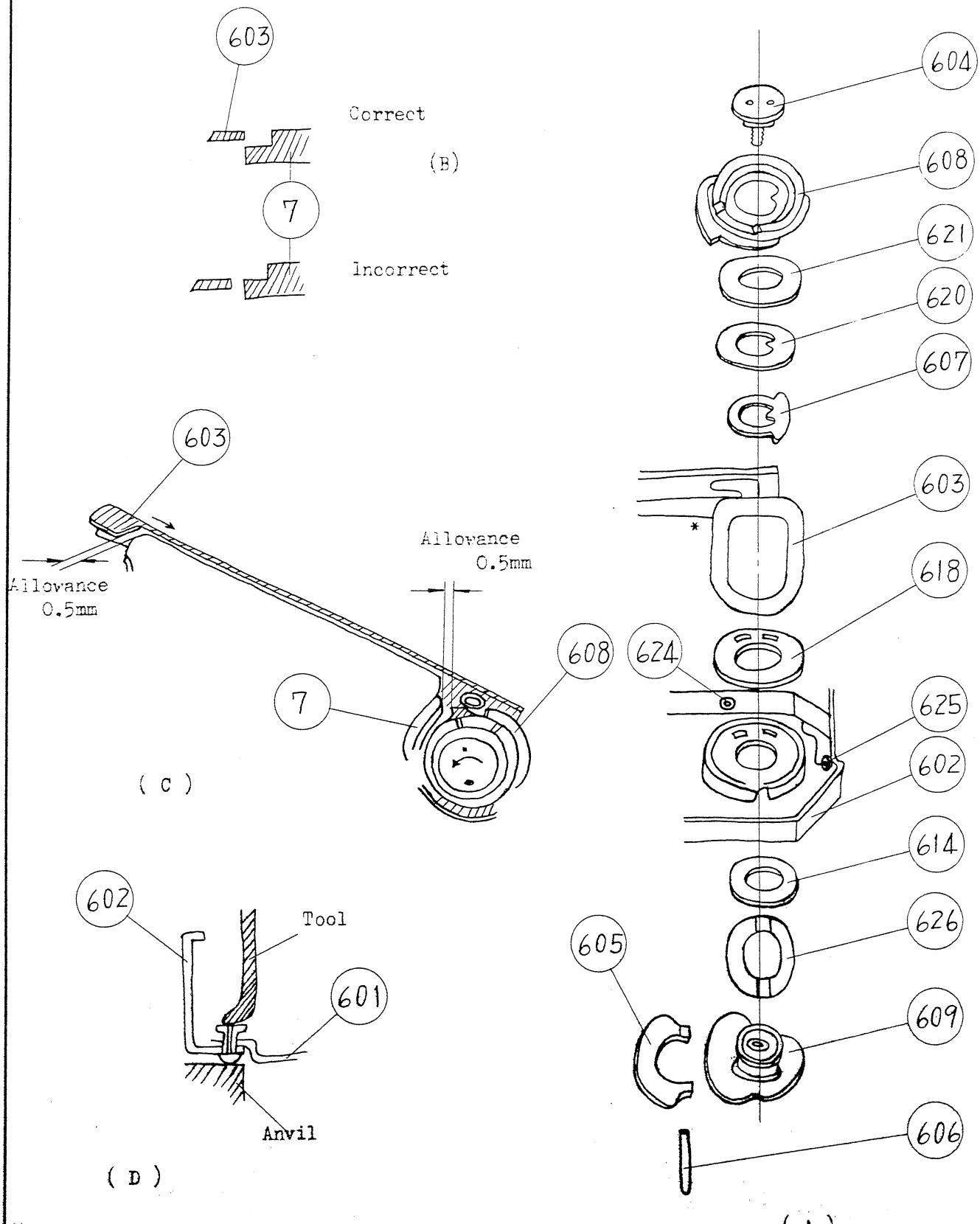
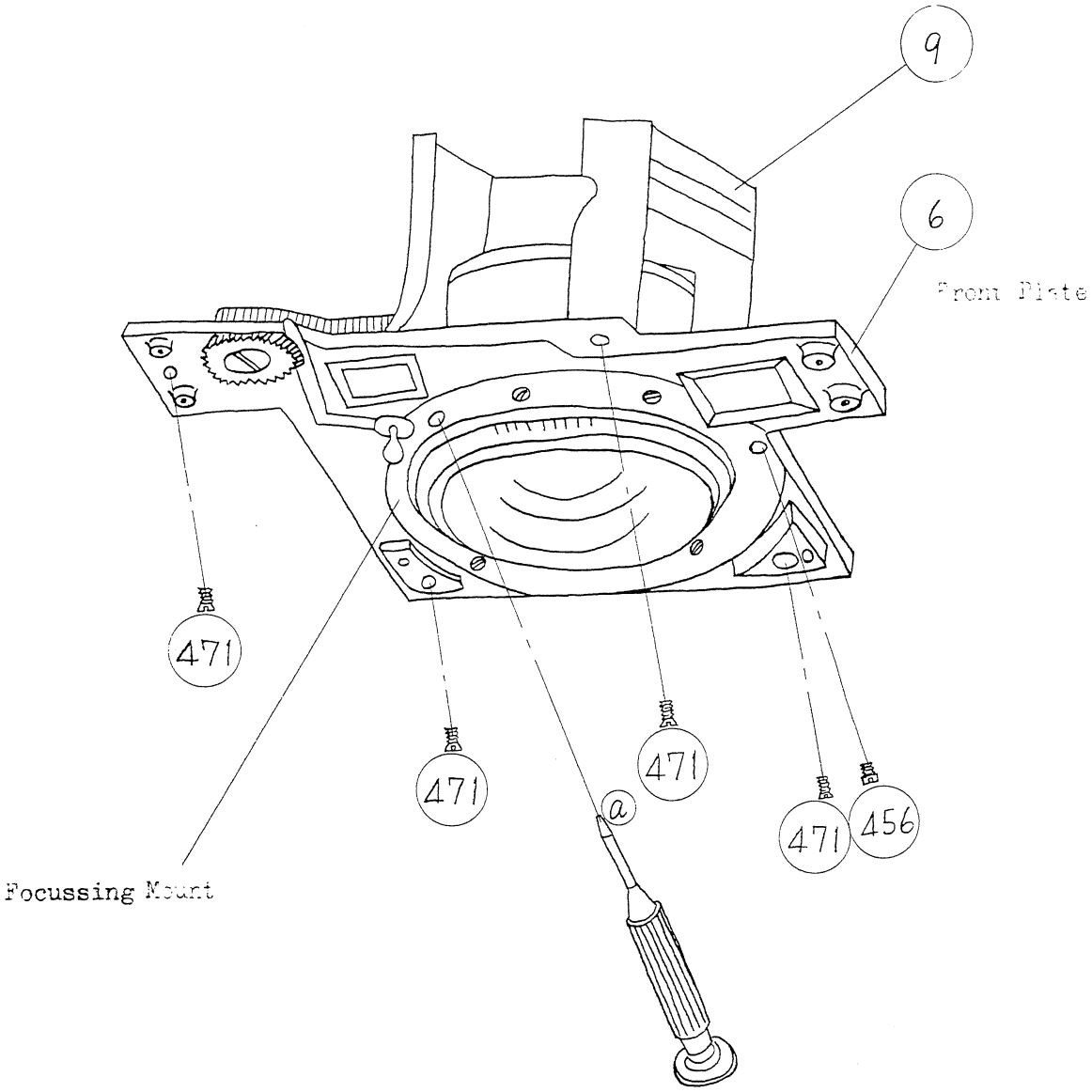


Fig. 12



Do not separate focusing mount and baffle from front plate.

Unscrew four #471, one #456, and unscrew one more #471 which fixes baffle to camera body by using a driver through the hole on the front plate.

Then the front plate goes off together with focusing mount and baffle.

Fig. 13

In case a baffle shown in this figure is used, it must be taken out separately, and not with front plate.

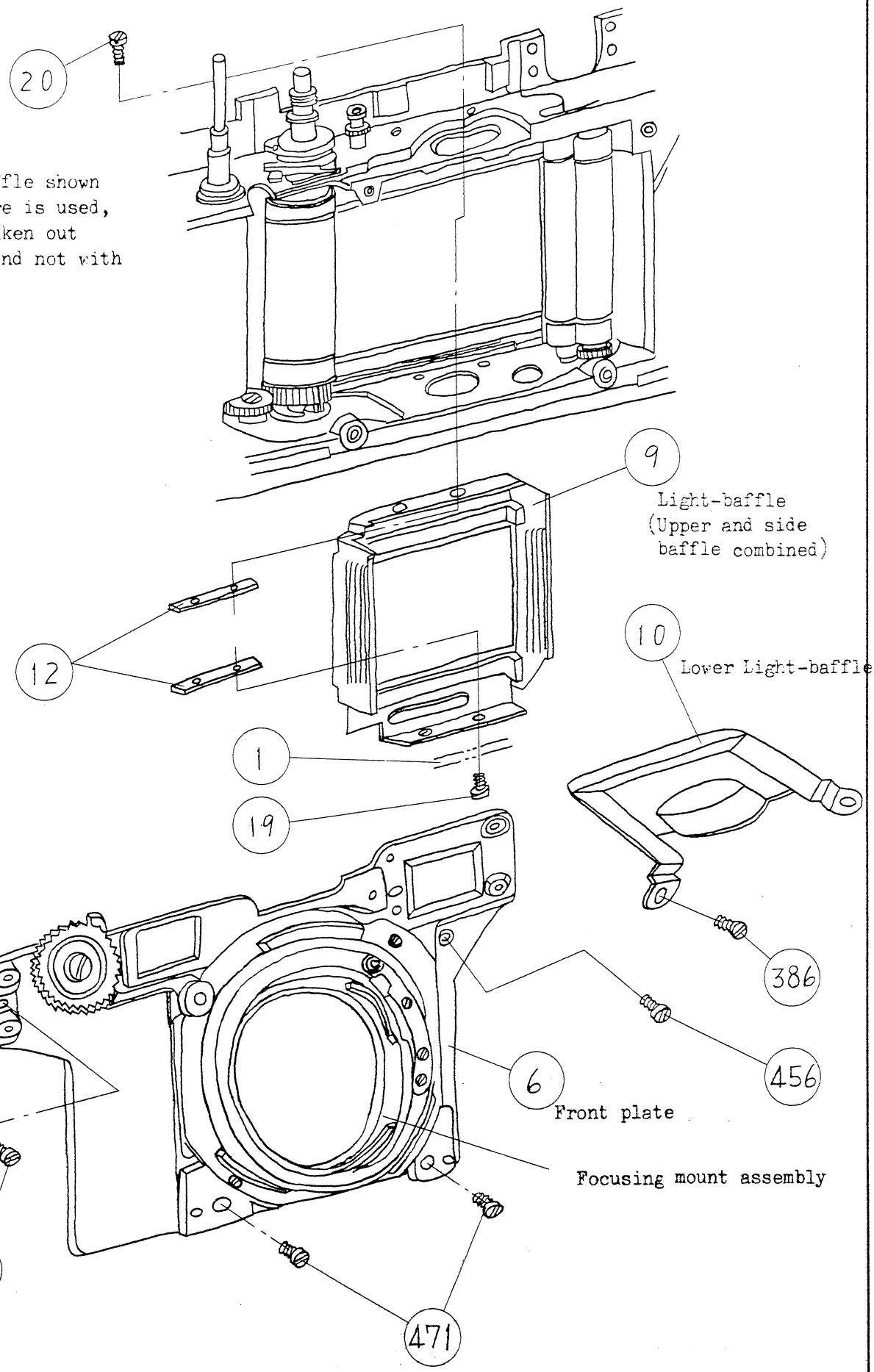
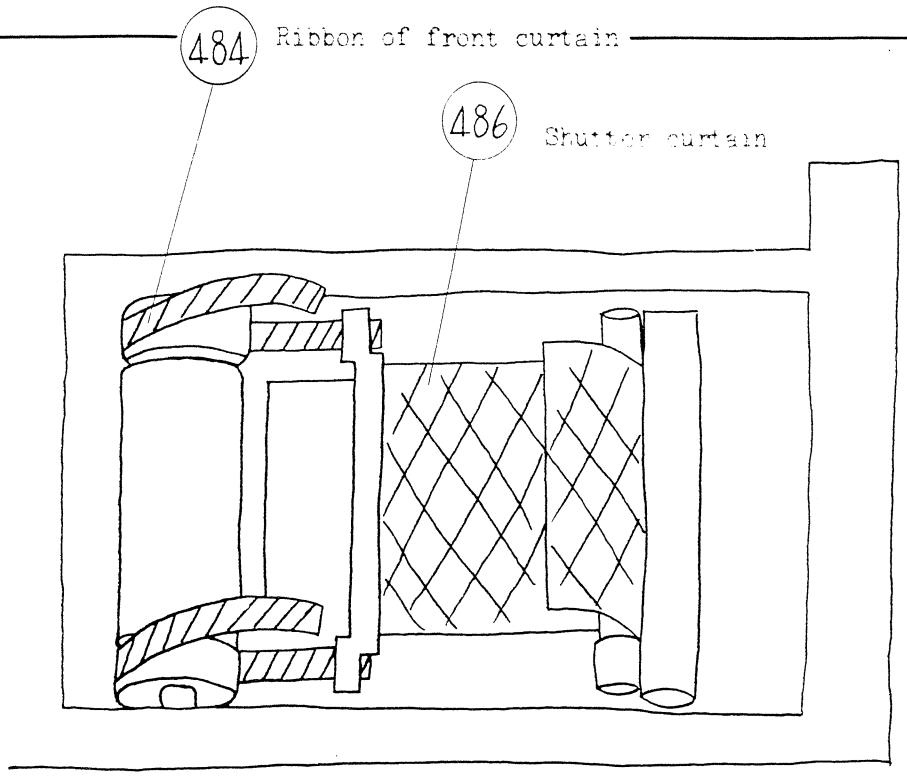
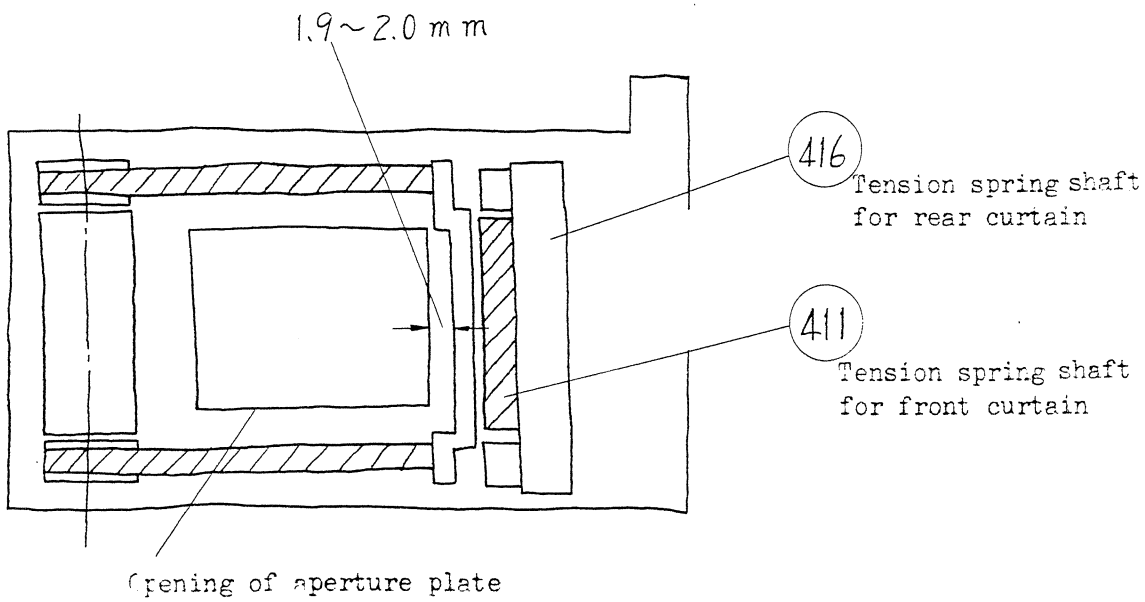


Fig. 14



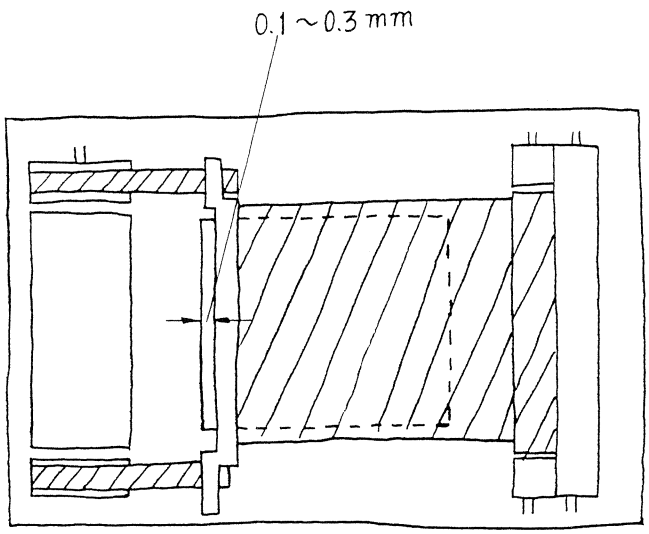
Stick the ribbon on the pulley at first and correct its place as shown in the following figures before the paste get dried.

Fig. 15



Release the shutter and relax the shutter brake and locate the front curtain to its correct place so as to hold the curtain end at 1.9mm - 2.0mm apart from the edge of aperture window and stick the other end on the tension spring shaft.

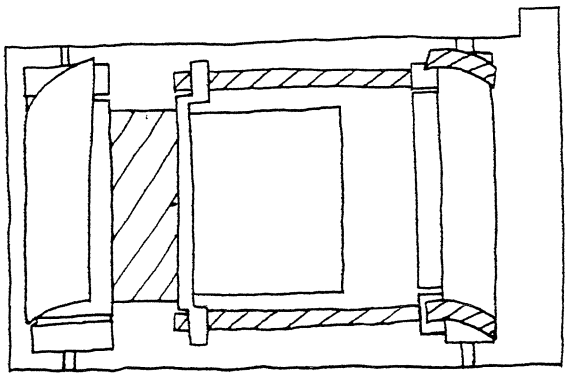
Fig. 16



Before the paste gets dry, end of curtain must be brought parallel to the aperture edge.

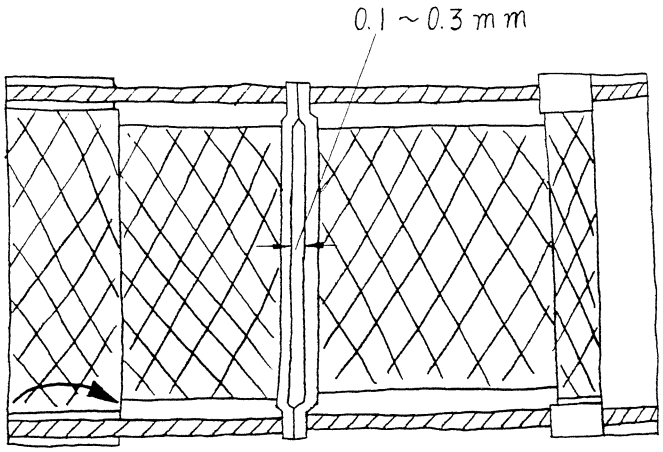
Wind the shutter and stop winding when the front curtain end and aperture edge make a narrow slit between them. Hold the camera against a light source and see the slit and adjust it to make the curtain end parallel to the aperture edge.

Fig. 17



For replacement of the rear curtain, stick the ribbon on the tension spring shaft at first and then stick the curtain on the drum.

Fig. 18



Make the rear curtain end parallel to the end of front curtain.

Wind the shutter a little and turn the drum by a finger to the arrow's direction then a slit appears between both ends of front and rear curtains.

Hold the camera against a light source and adjust the curtain ends to be parallel.

Fig. 19

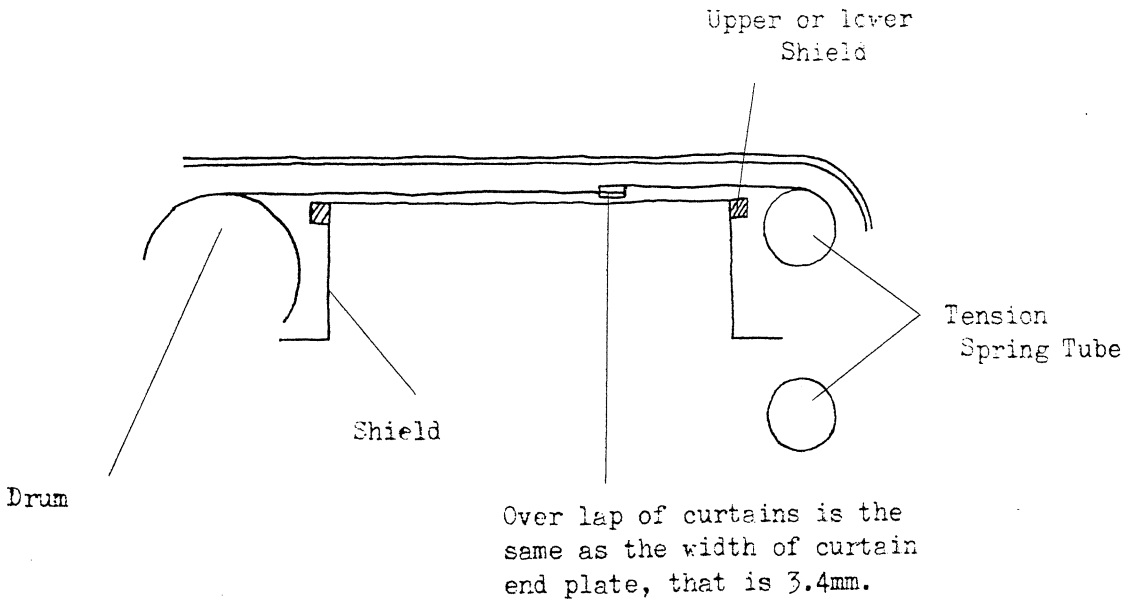


Fig. 20

Synchronization Circuit

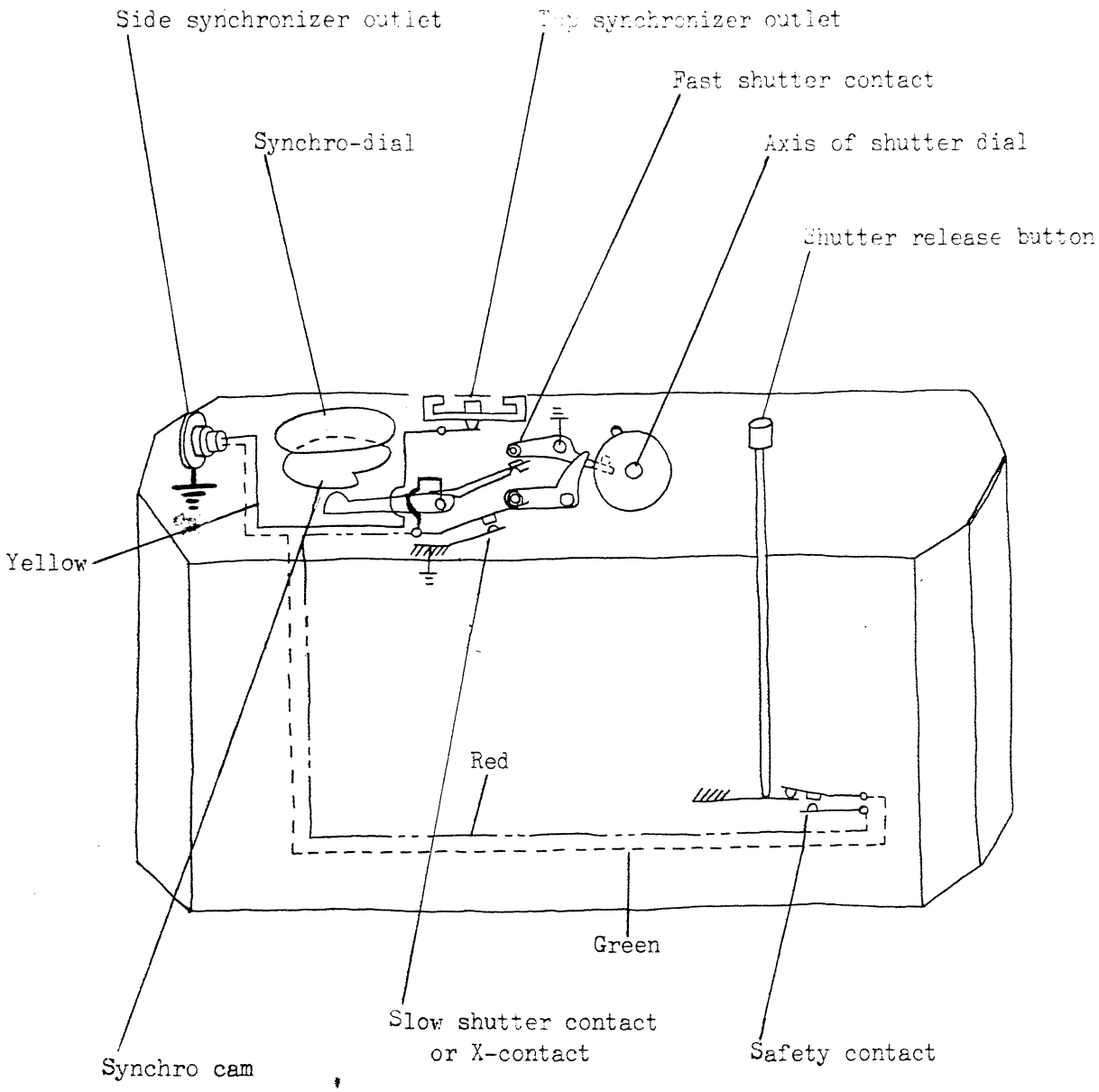
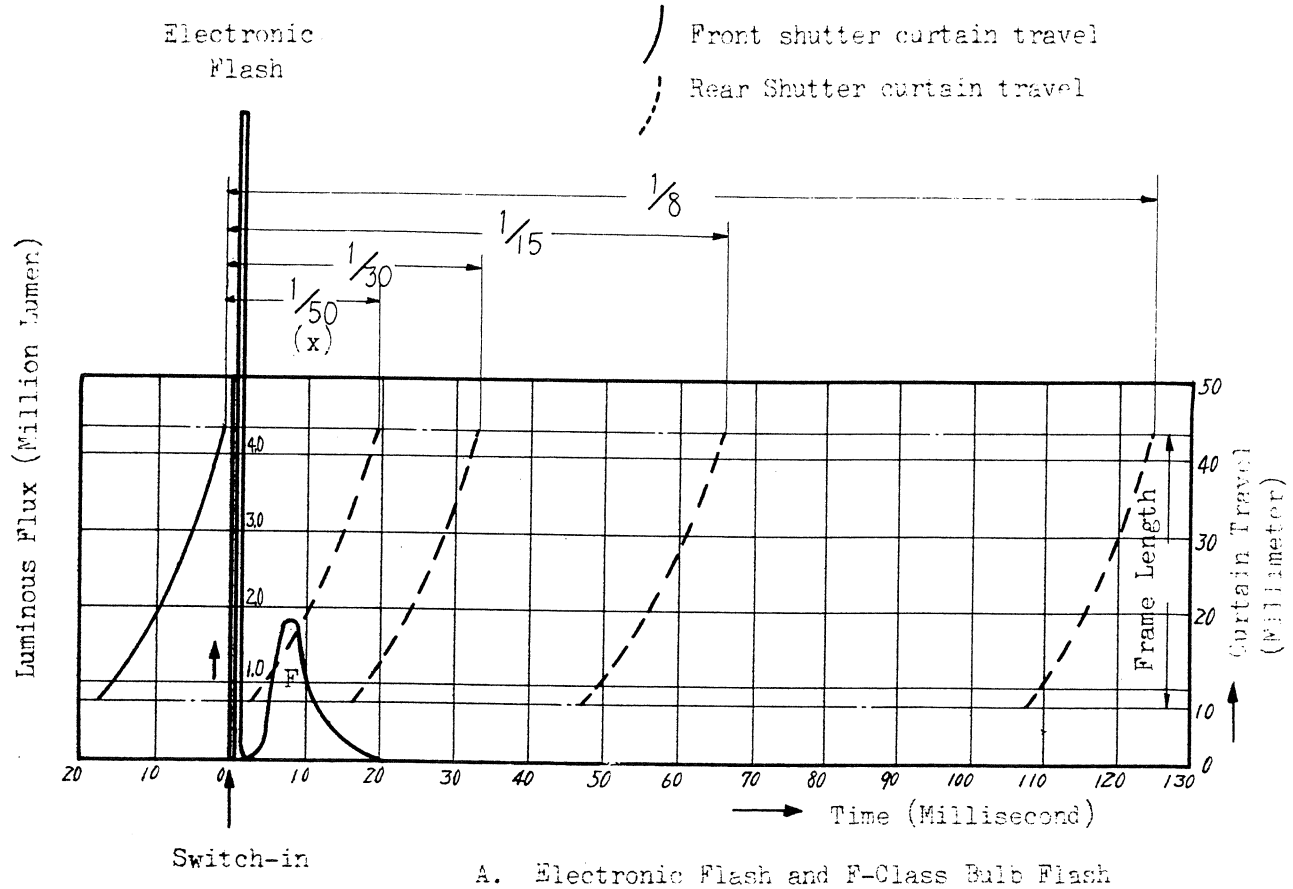
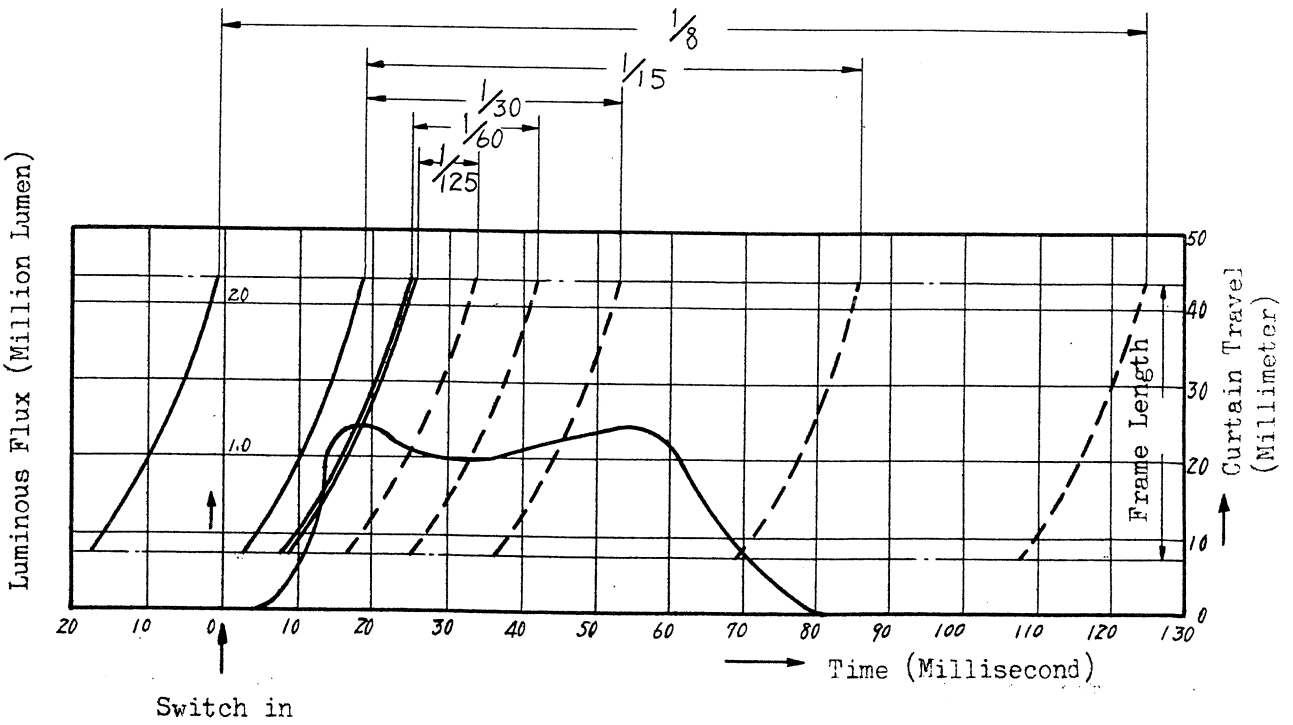


Fig. 21

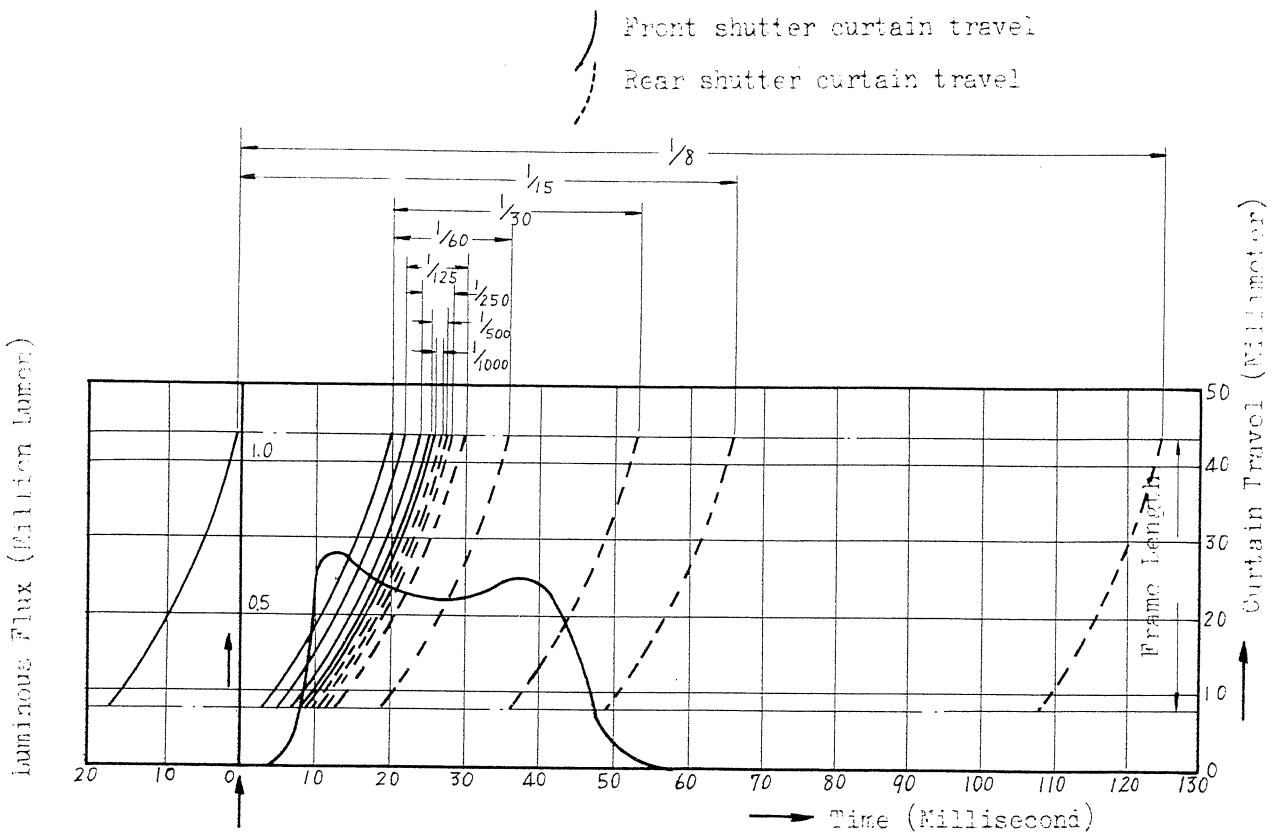


A. Electronic Flash and F-Class Bulb Flash



B. Large FP-Class Flash Bulb

Fig. 22


Front shutter curtain travel
Rear shutter curtain travel
1/8
1/15
1/30
1/60
1/125
1/250
1/500
1/1000
1.0
0.5
Luminous Flux (Million Lumen)
Curtain Travel (Millimeter)
Frame Length
Time (Millisecond)
Switch in
A. Small FP-Class Flash Bulb

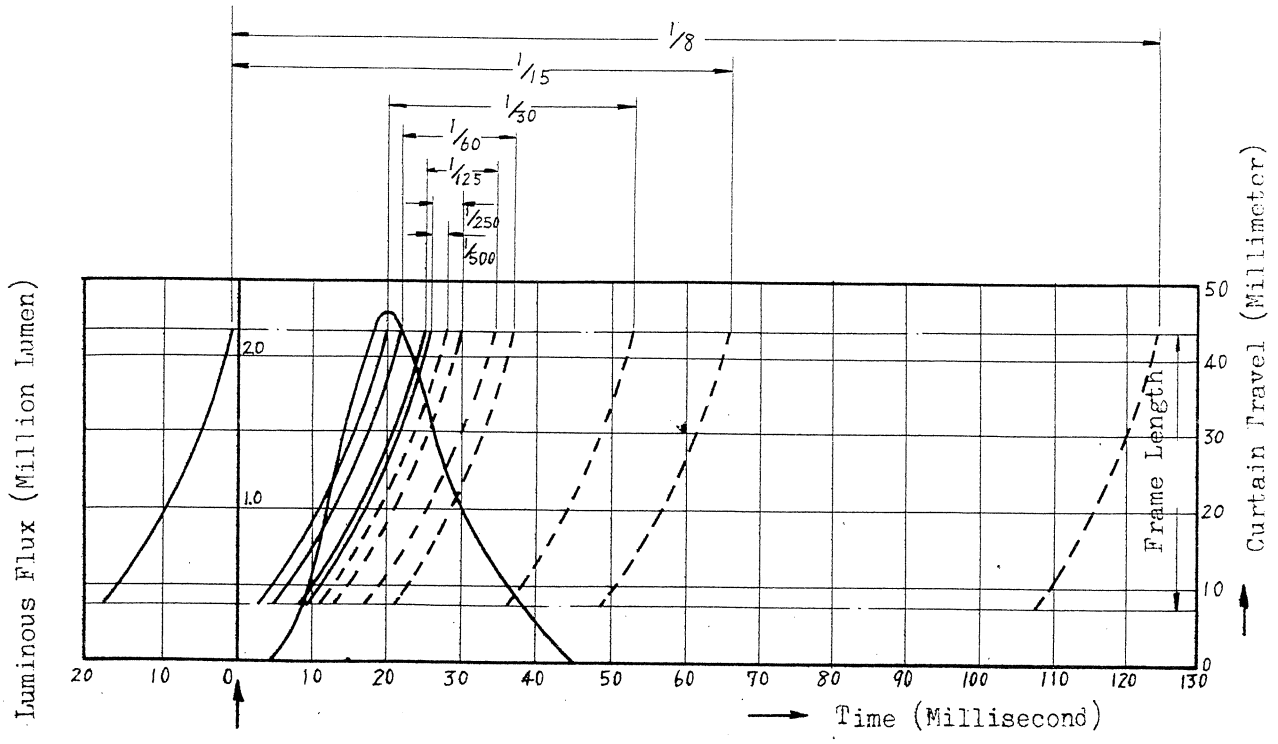

1/8
1/15
1/30
1/60
1/125
1/250
1/500
2.0
1.0
Luminous Flux (Million Lumen)
Curtain Travel (Millimeter)
Frame Length
Time (Millisecond)
Seitch in
B. M-Class Flash Bulb

Fig. 23