

SERVICE MANUAL

Fujica P-100 Single-8 Sound Movie Camera

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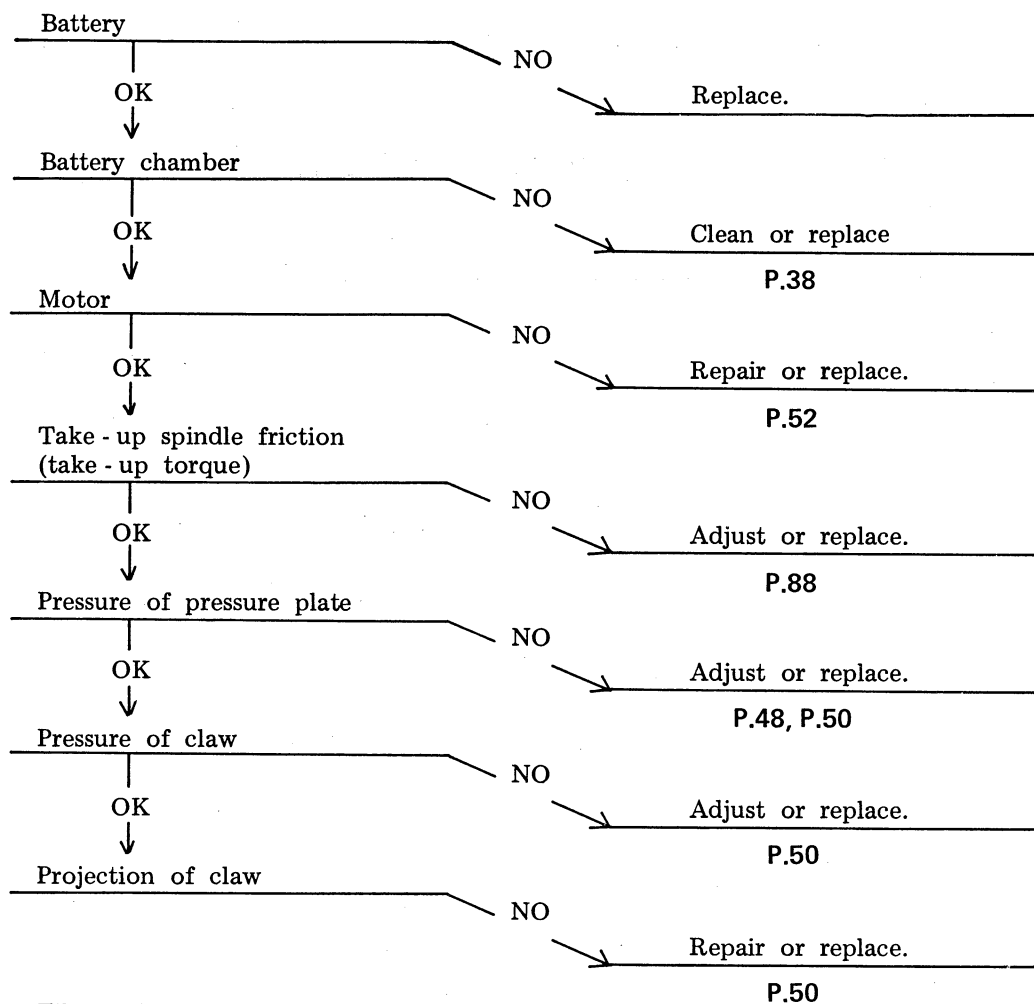
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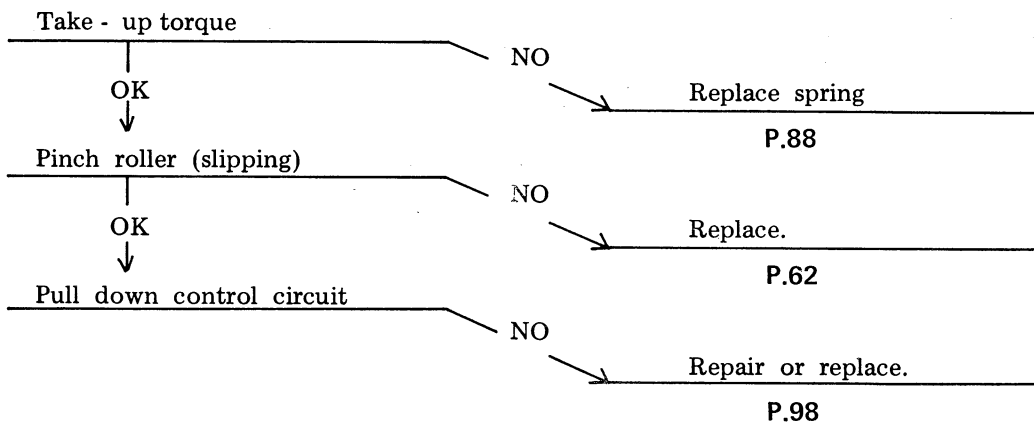
I TROUBLESHOOTING

1. Film is not transported correctly.

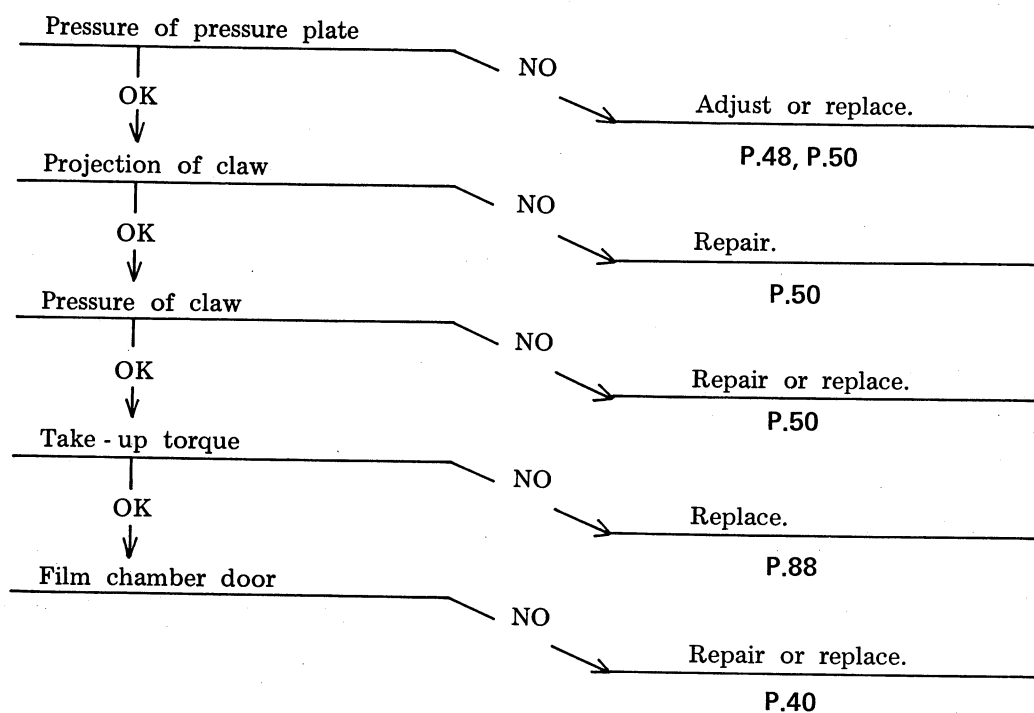
1 - 1 Film is not transpored.



1 - 2 Film is jammed.

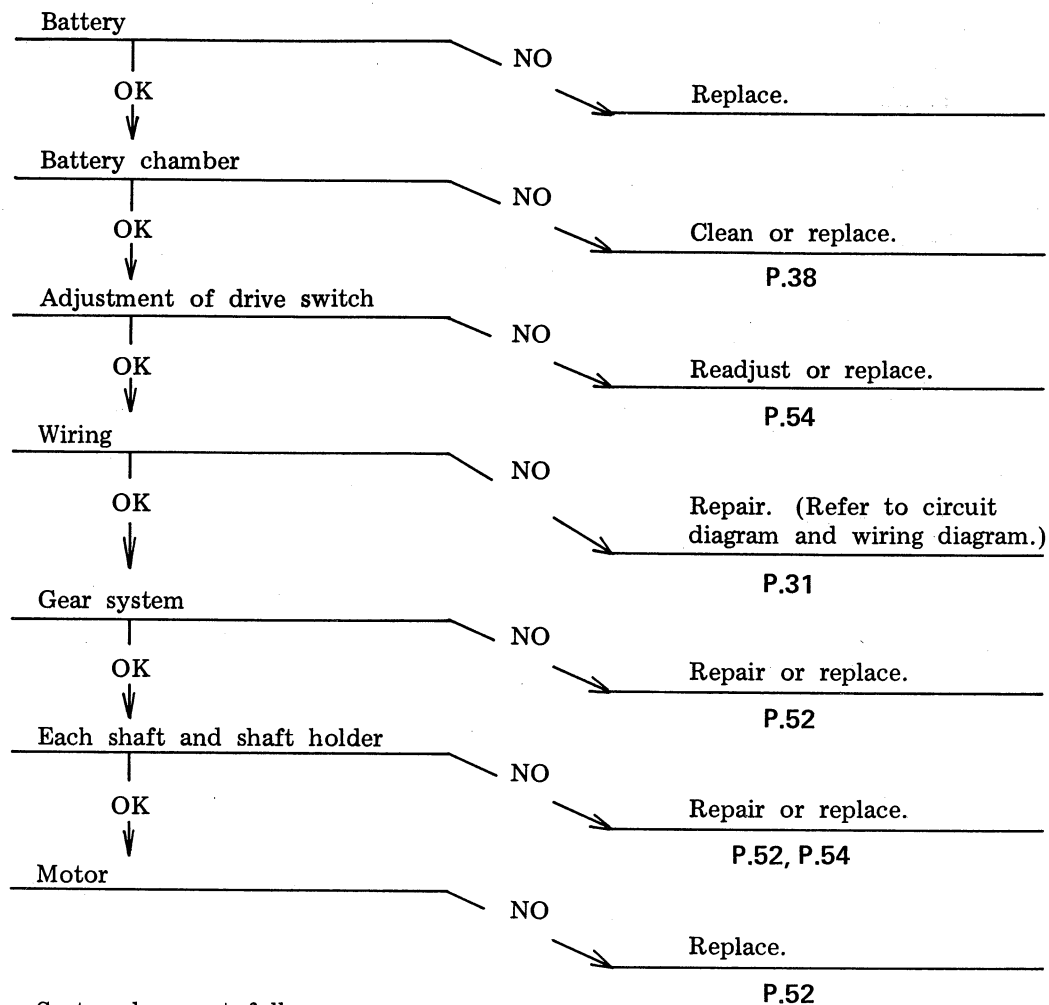


1 - 3 Multiple exposure

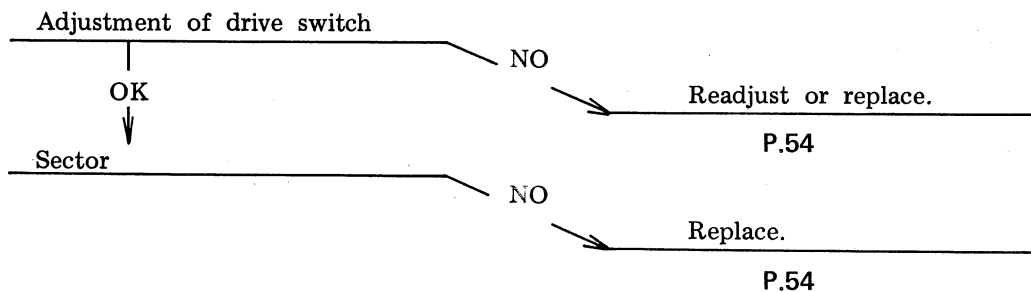


2. Pull-down motor

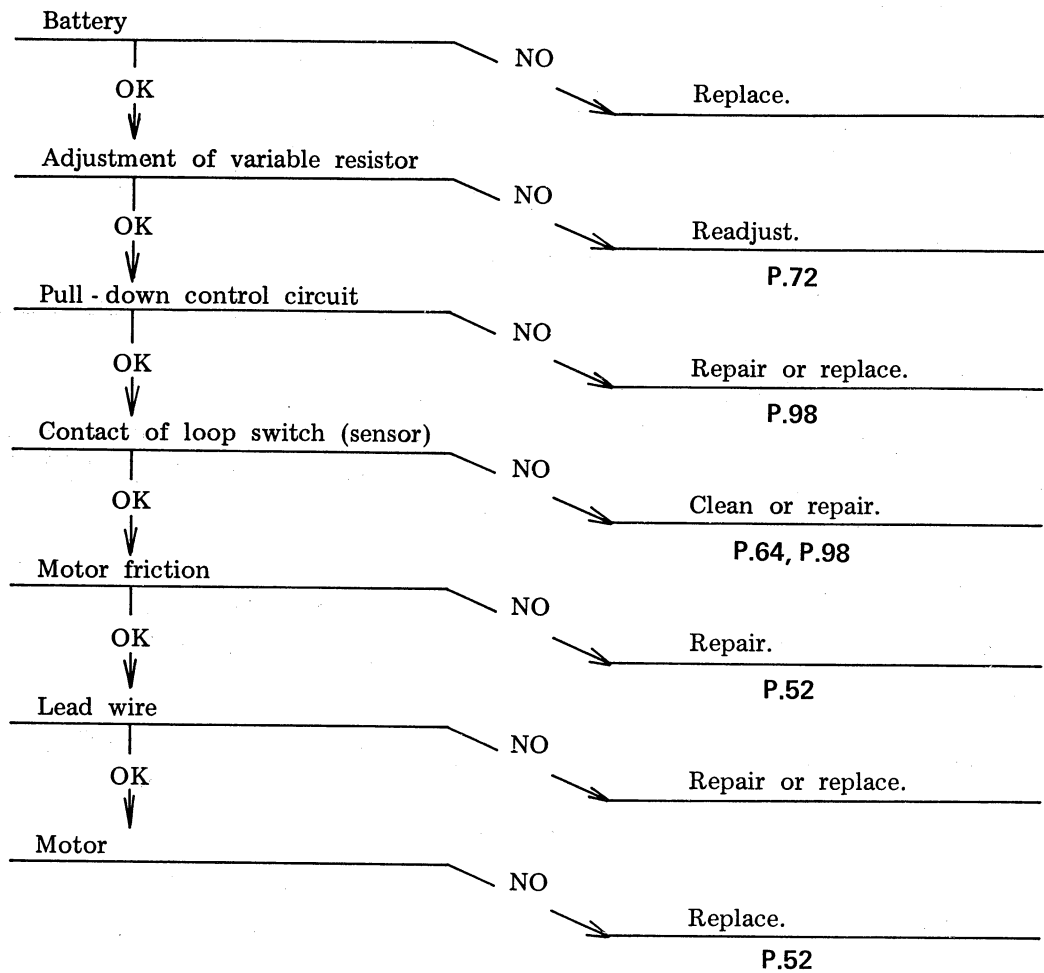
2-1 Motor does not operate.



2-2 Sector does not fully open.

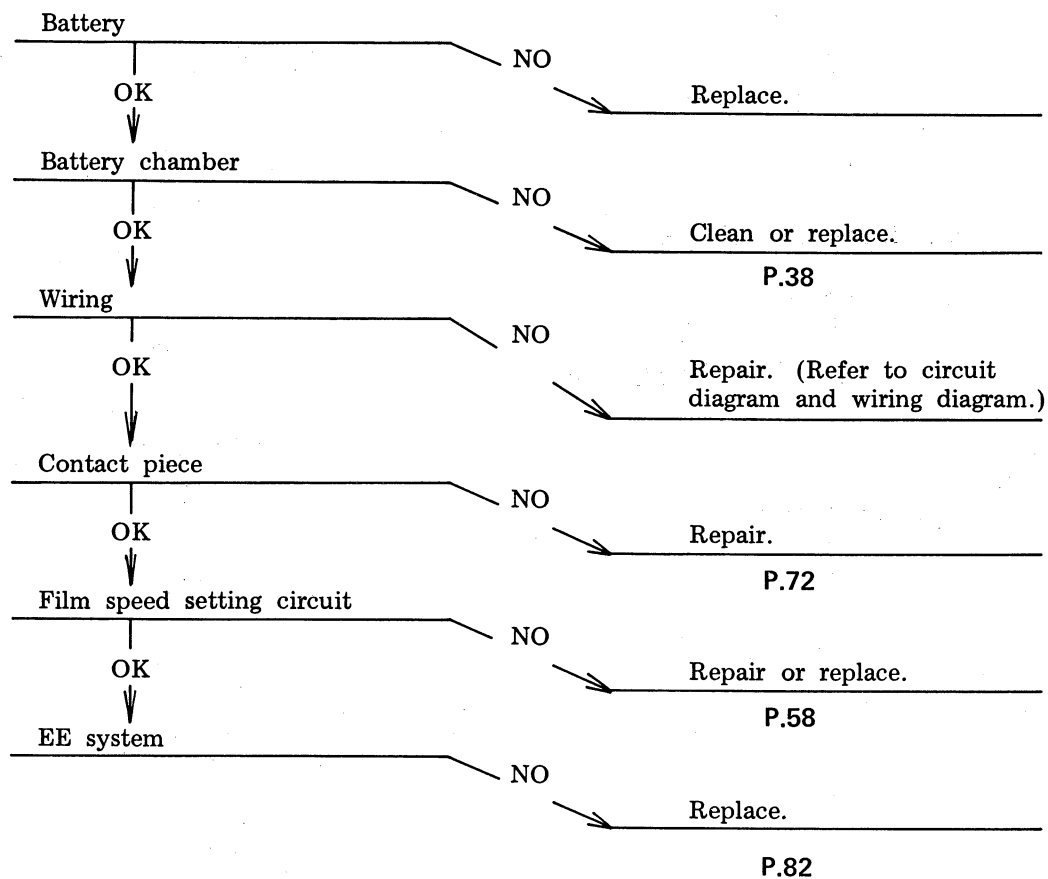


2 - 3 Incorrect filming speed

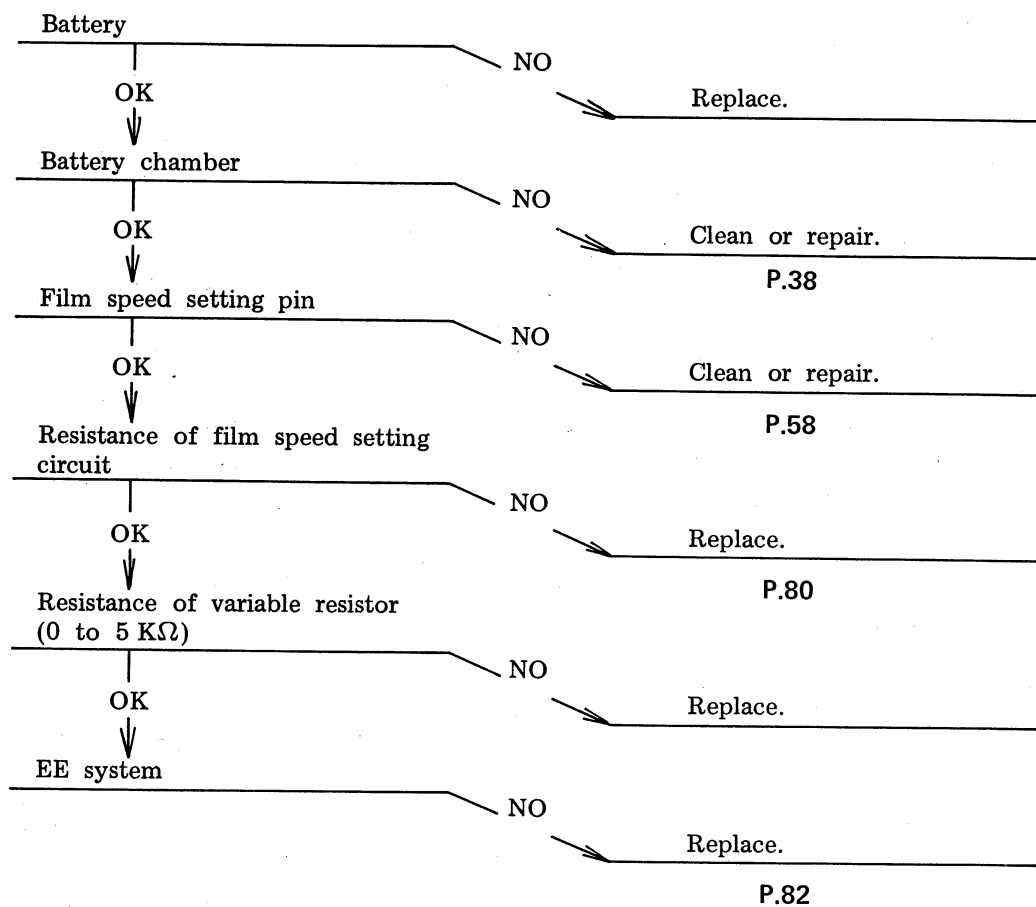


3. Exposure

3 - 1 EE system does not work.

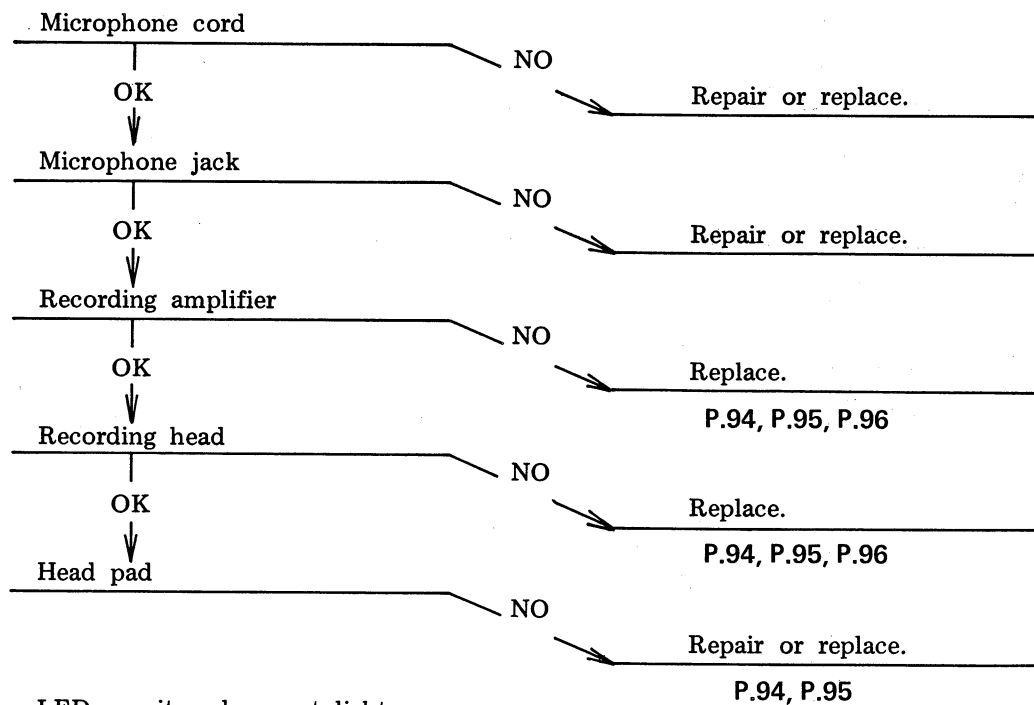


3 - 2 EE system does not work correctly.

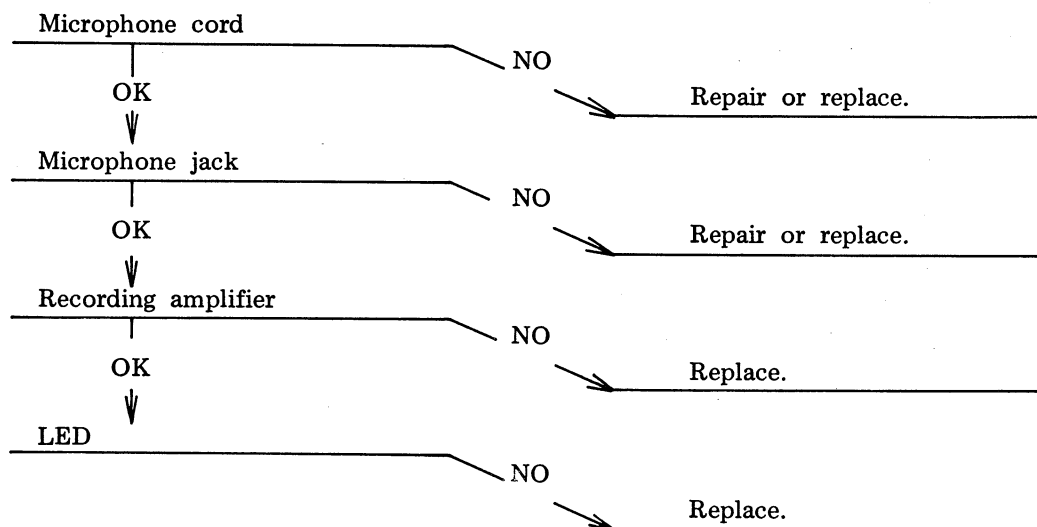


4. Sound recording system

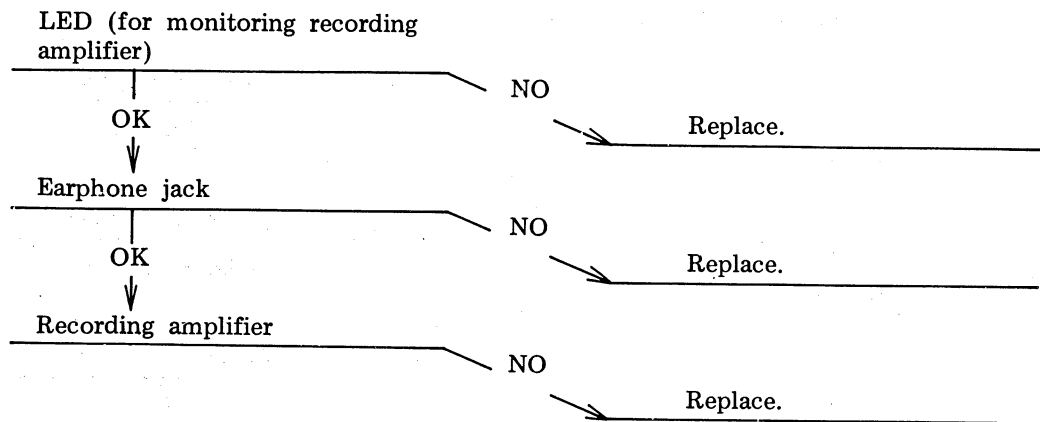
4 - 1 Sound is not recorded.



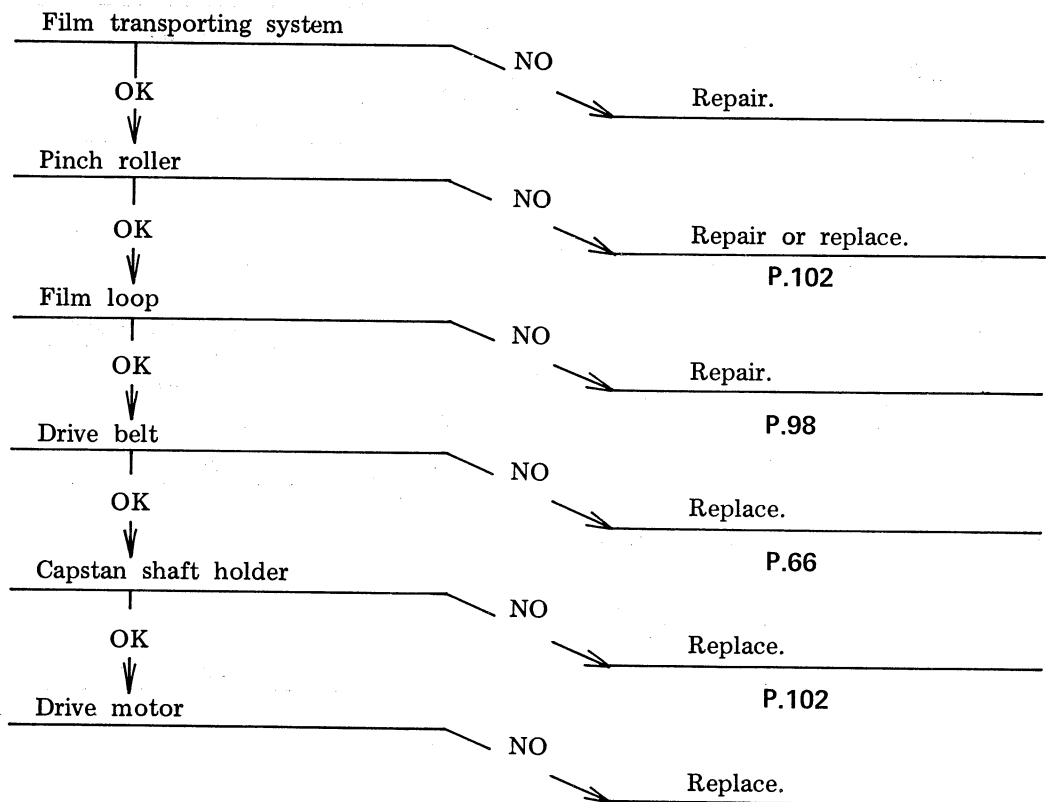
4 - 2 LED monitor does not light.



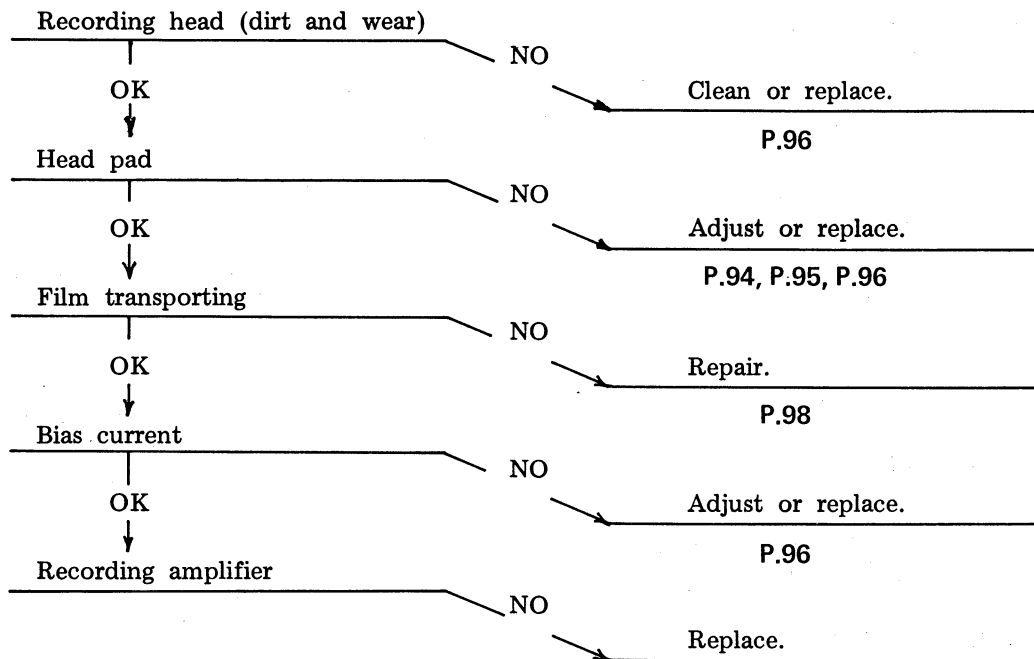
4 - 3 Monitoring cannot be made. (Earphone)



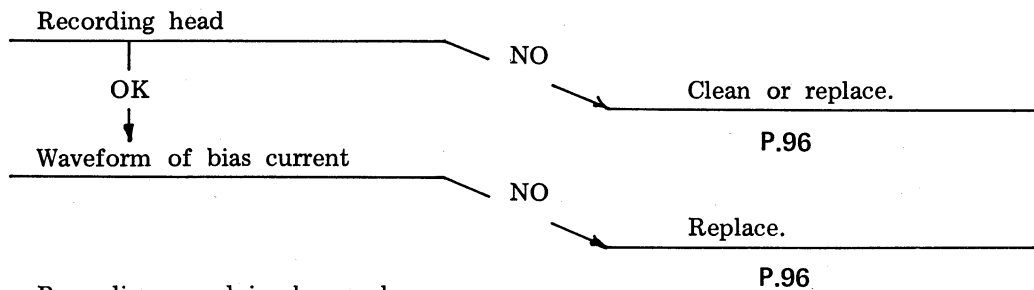
4 - 4 Wow - flutter is too high.



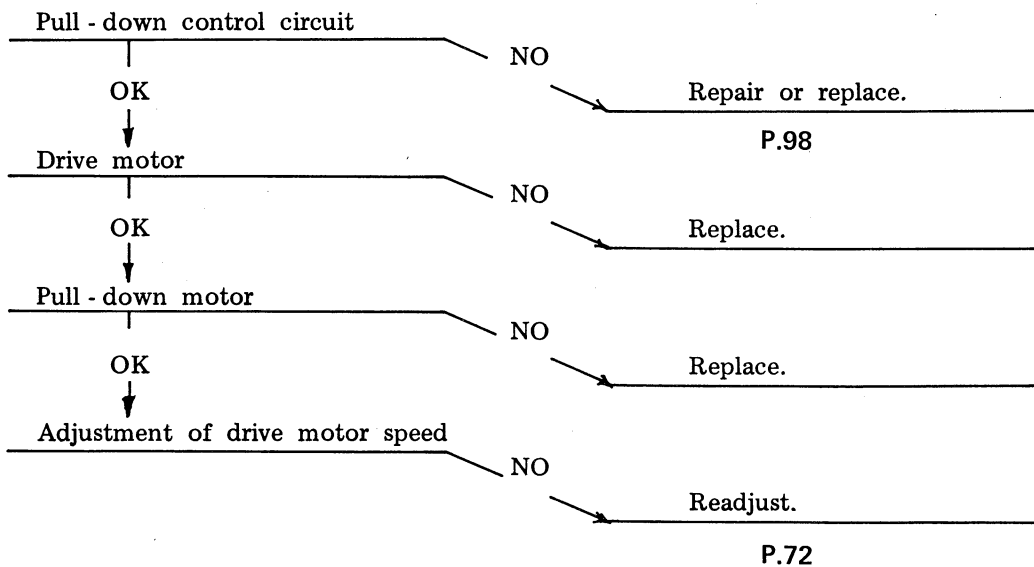
4 - 5 Frequency characteristics are low.



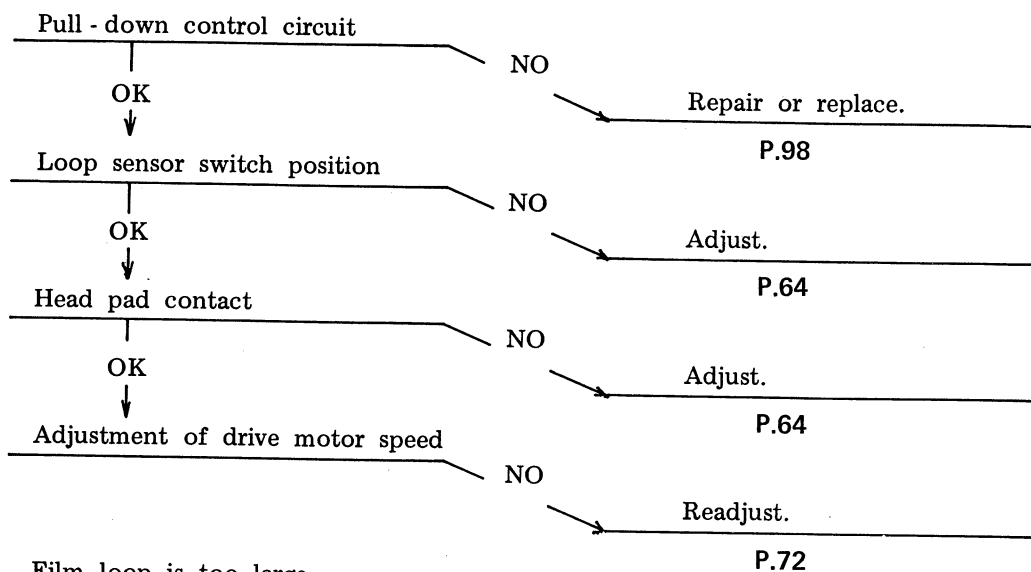
4 - 6 Distortion factor is too high.



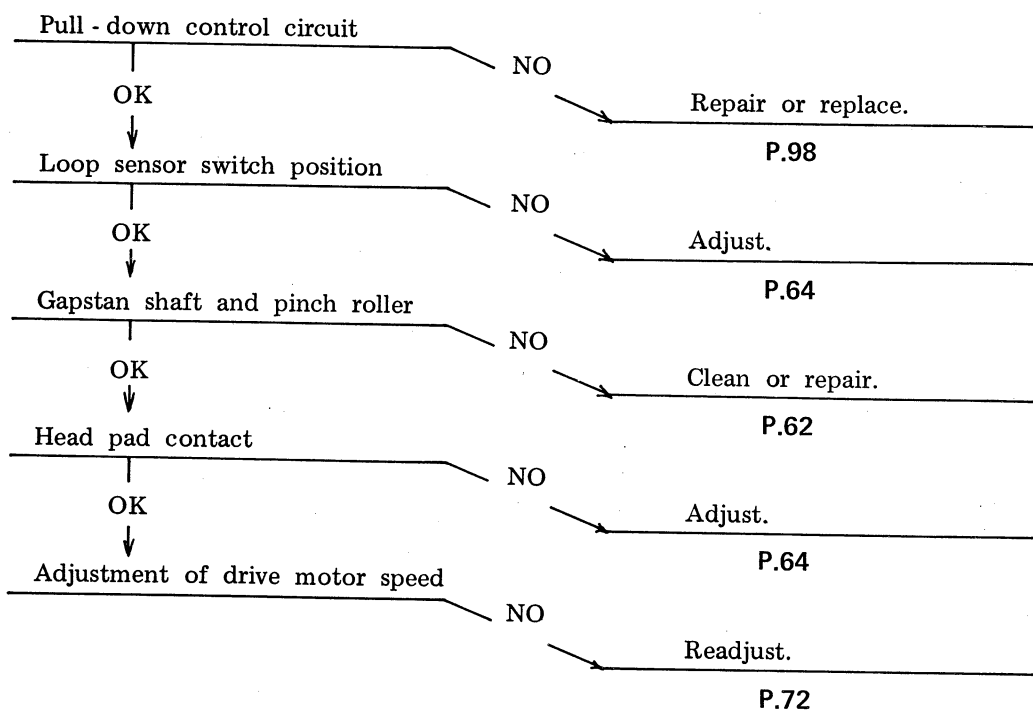
4 - 7 Recording speed is abnormal.



4 - 8 Film loop is too small.



4 - 9 Film loop is too large.



II DISASSEMBLY

1. Front cover assembly (1 - 1)

1 - 1 Remove two screws (2 - 39) and remove the name plate (2 - 38).

NOTE: It will not be easy to remove the name plate (2 - 38) as it is installed with adhesive.

1 - 2 Remove the screw (1 - 10).

1 - 3 Remove two screws (1 - 11).

Now, the front cover assembly (1 - 1) can be removed.

1 - 4 To remove the filter ring (1 - 6) and filter (1 - 7) from the front cover assembly, remove three screws (1 - 9).

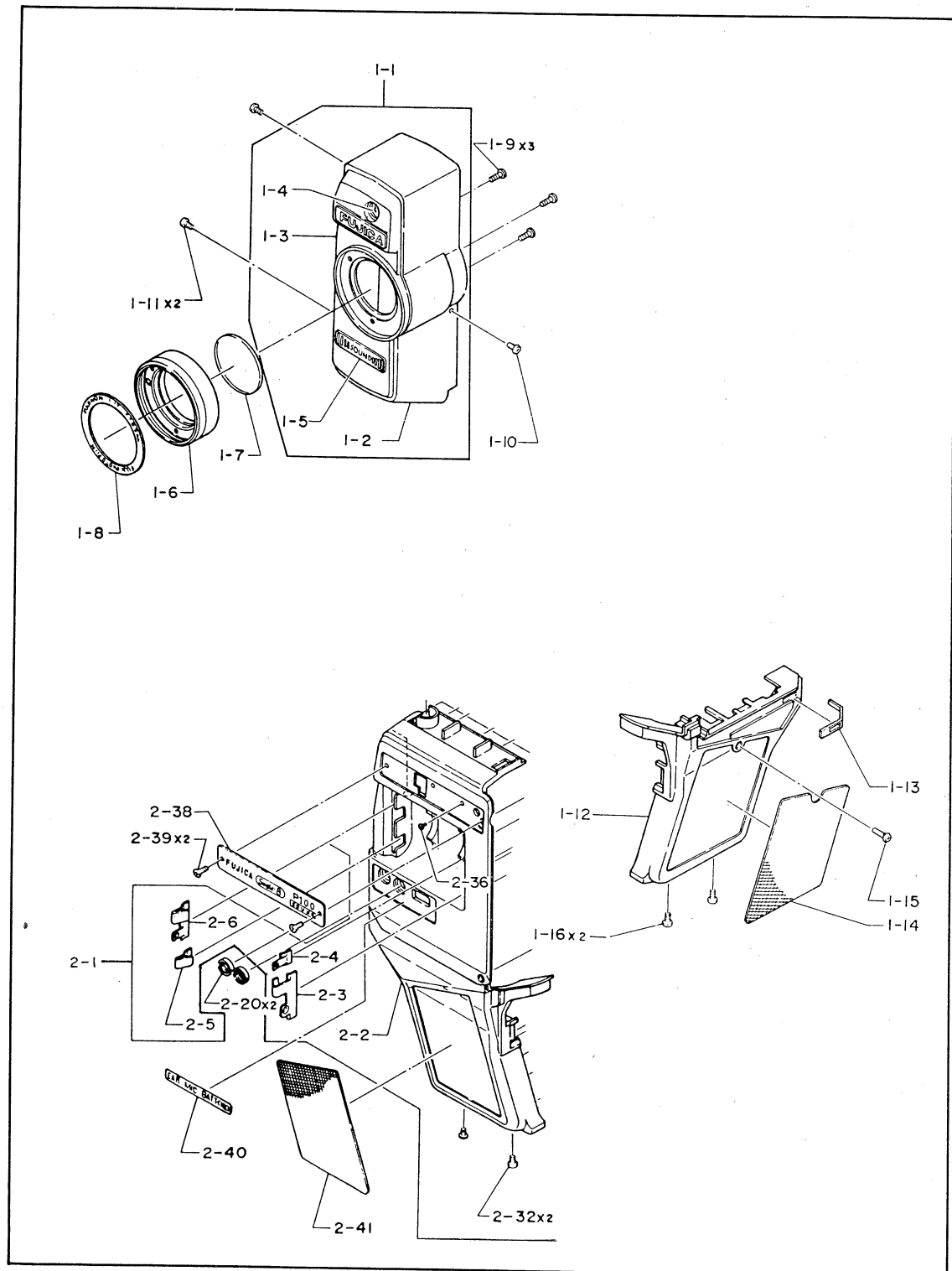
2. Grip cover (1 - 12)

2 - 1 Remove the screw (1 - 15).

2 - 2 Remove two screws (2 - 16). The grip cover (1 - 12) can then be removed.

NOTE: When the grip cover is removed, remove hand strap eyelet (2 - 34), shaft (2 - 35) and Run - Lock button (2 - 37) also, and keep them separately. The tripod socket (2 - 33) may be removed if it comes off as the camera is turned up side down. It is secured lightly with adhesive.

Fig. 1



3. Microphone assembly (2 - 71)

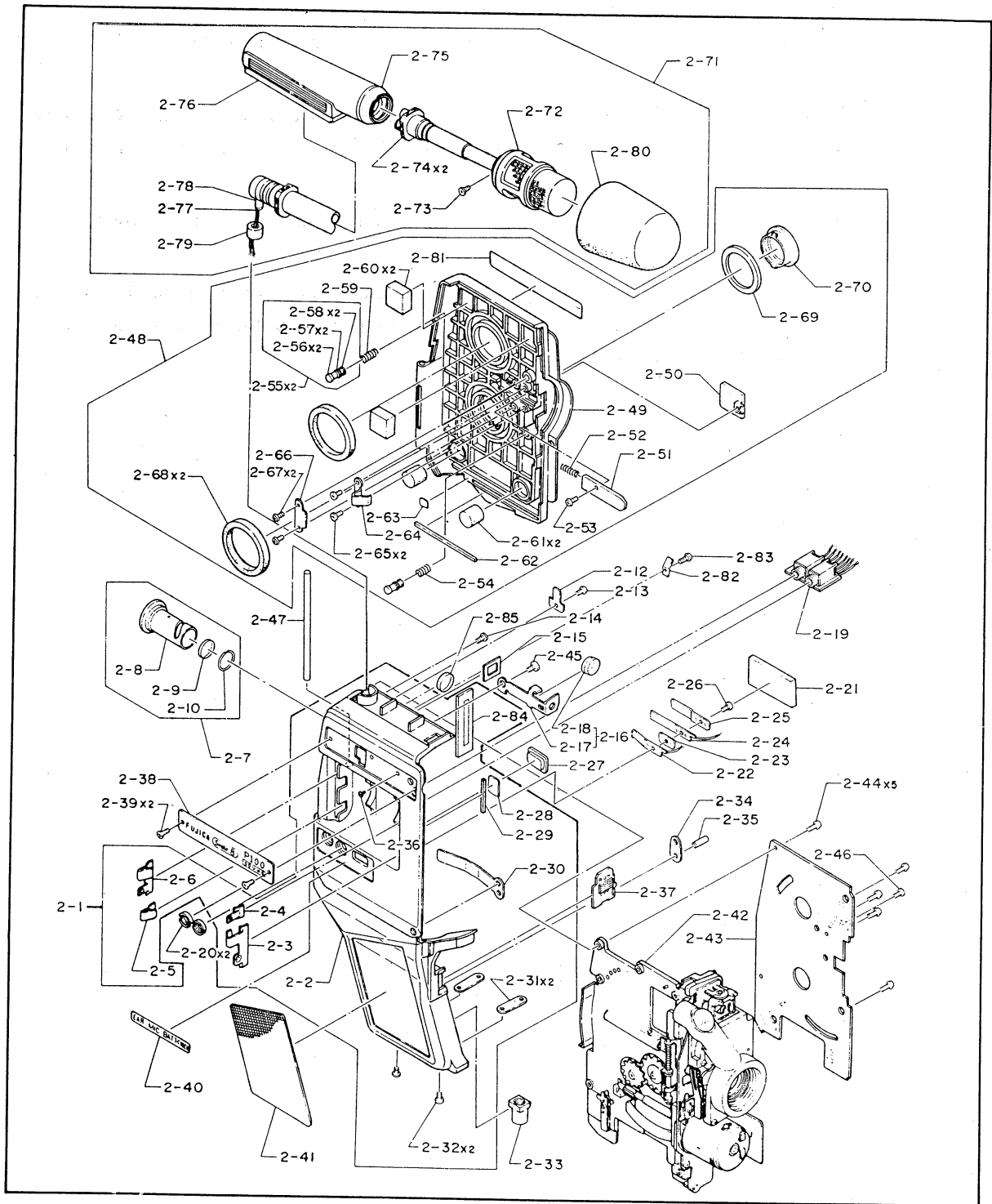
- 3 - 1 Remove the screw (2 - 46) and two screws (2 - 44), and remove the film chamber plate (2 - 43).
- 3 - 2 Disconnect the lead wires (W1 and W2) extended from the microphone at the automatic film speed setting circuit assembly (4 - 22).

CAUTION: Use the soldering iron carefully so that it does not come into contact with the camera body and chassis.

- 3 - 3 Remove the screw (2 - 14). Now, the microphone assembly (2 - 71) can be removed.
- 3 - 4 To further disassemble the microphone assembly, remove the cap (2 - 75) and pull out the microphone head assembly (2 - 72).

CAUTION: The cap (2 - 75) has been installed with adhesive.
When removing it, be careful not to damage the cover (2 - 76).

Fig. 2

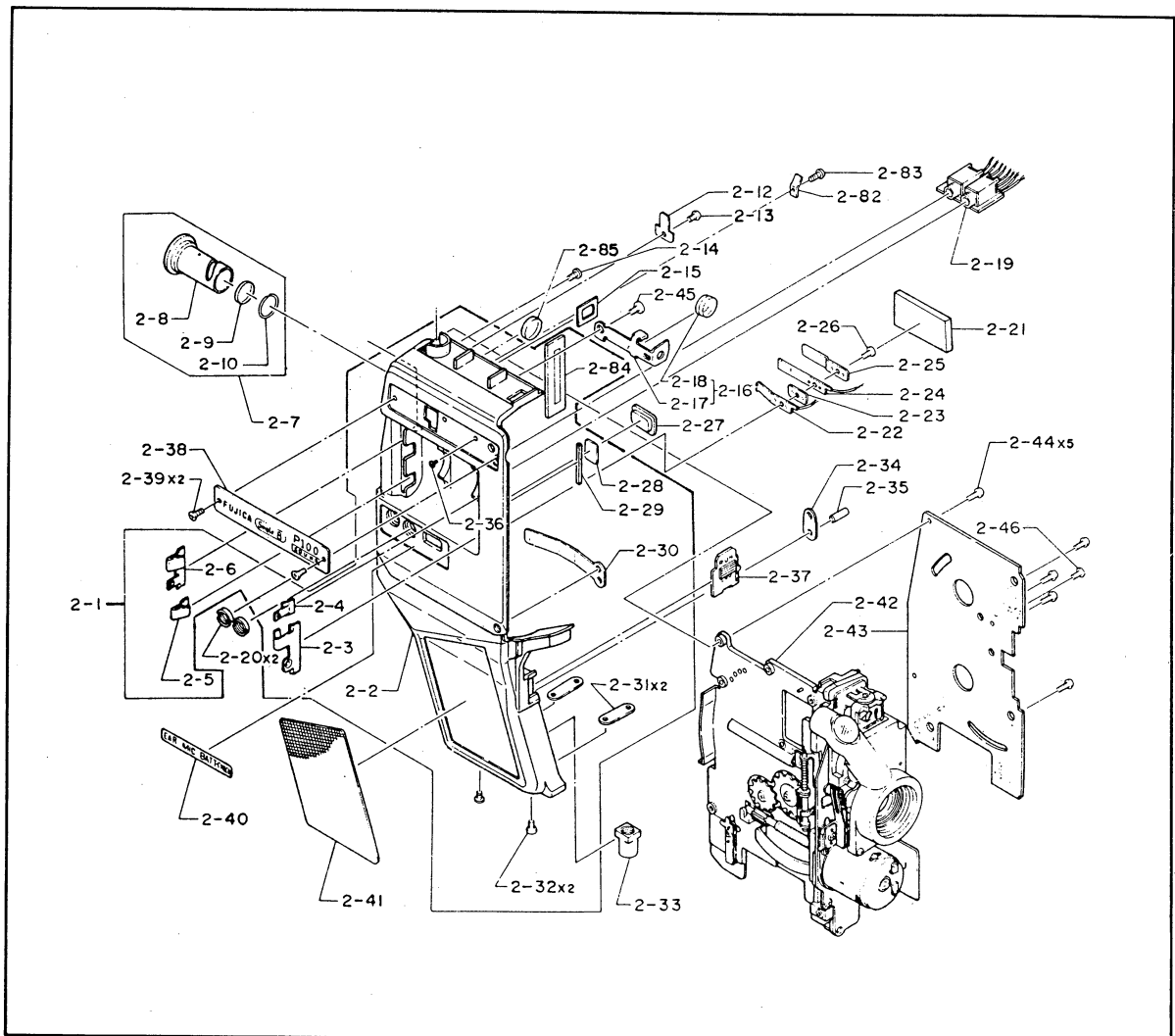


4. Mechanism assembly (2 - 42)

- 4 - 1 Disconnect lead wires W3 (red), W4 (white), W5 (yellow), W6 (red) and W7 (blue) from the automatic film speed setting circuit assembly (4 - 22).
- 4 - 2 Disconnect lead wires W8 (orange), W9 (red), W10 (red), W11 (red), W12 (black), W13 (black), W14 (gray), W15 (blue), and W16 (green) from the control circuit assembly (3 - 65).
- 4 - 3 Remove three screws (2 - 44). The mechanism assembly (2 - 42) can then be removed.

CAUTION: When using the soldering iron to disconnect lead wires, be careful not to allow the soldering iron coming into contact with the camera body and mechanism assembly.

Fig. 3



5. Viewfinder assembly (3 - 1)

- 5 - 1 Remove three screws (3 - 12). The viewfinder assembly (3 - 1) can then be removed.
- 5 - 2 When removing the afocal lens assembly, be careful not to hook it on the aperture blade.

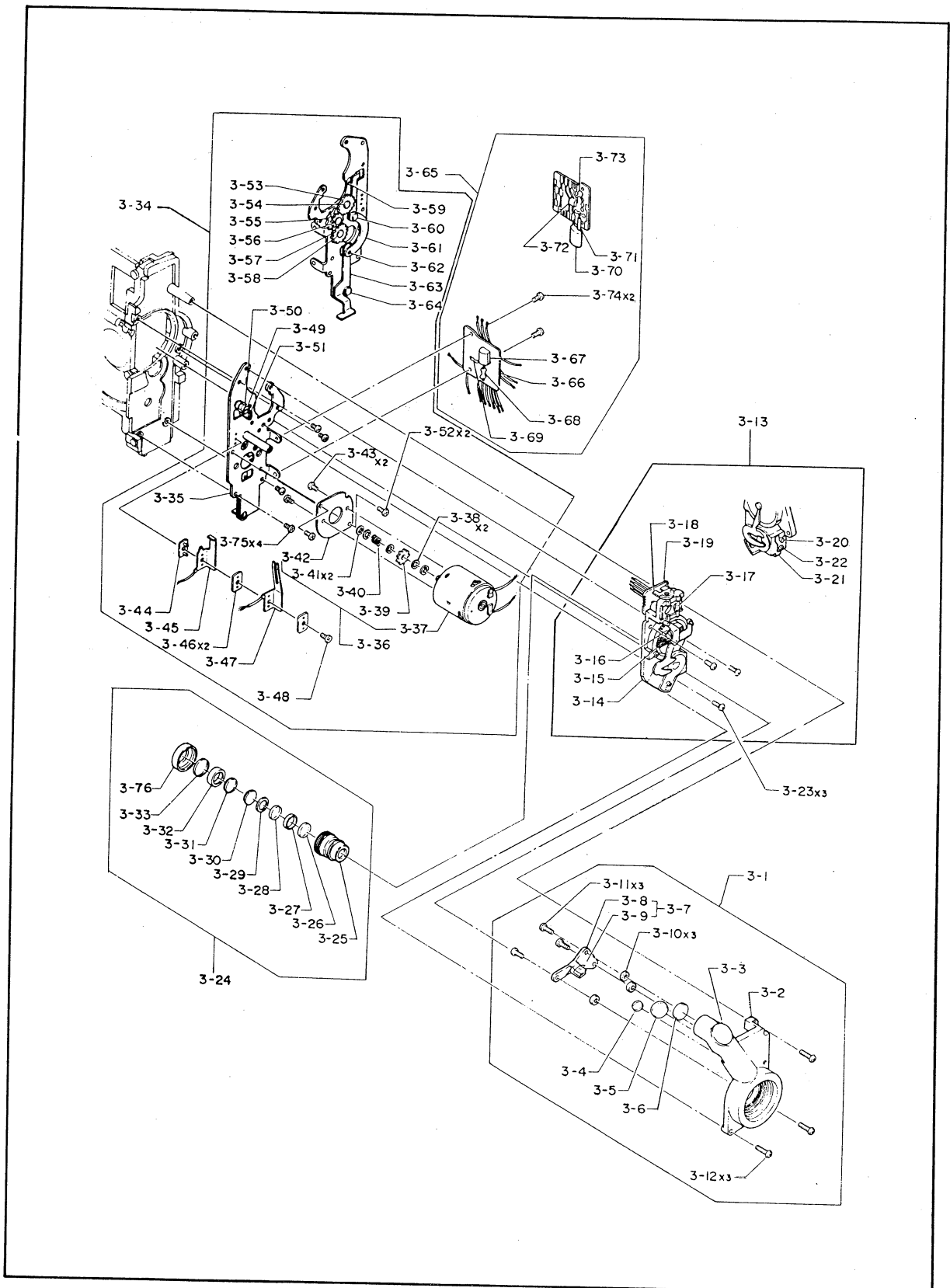
6. EE mechanism assembly (3 - 13)

- 6 - 1 Disconnect lead wires W23 (green), W24 (purple) and W25 (red) extended from the EE mechanism assembly (3 - 13) at the automatic film speed setting circuit assembly (4 - 22).
- 6 - 2 Remove three screws (3 - 23). The EE mechanism assembly can then be removed.

7. Master lens assembly (3 - 24)

- 7 - 1 Remove the screw (3 - 22), and remove the leaf spring (3 - 21) and shaft (3 - 20).
- 7 - 2 Pull out the master lens assembly (3 - 24) from the meter assembly (3 - 14).

Fig. 4



8. Drive motor assembly (3 - 34)

8 - 1 Disconnect lead wires W17 (green) and W18 (gray) from the control circuit assembly (3 - 65).

8 - 2 Remove four screws (3 - 75), and remove the drive motor assembly (3 - 34).

NOTE: (1) When the drive motor assembly is removed, remove the sector assembly (4 - 71) and worm gear (4 - 72) also and keep them separately.

(2) The shaft holder (4 - 15) may not be removed.

9. Film gate assembly (4 - 47)

9 - 1 Remove two screws (4 - 69).

9 - 2 Remove two screws (4 - 70), slide the film gate assembly (4 - 47) toward the film chamber side, and remove it.

CAUTION: When removing the film gate assembly, be careful not to allow the light shielding plate (4 - 59) installed on the back of the film gate assembly being hooked with the main frame (4 - 1).

10. Automatic film speed setting circuit assembly (4 - 22)

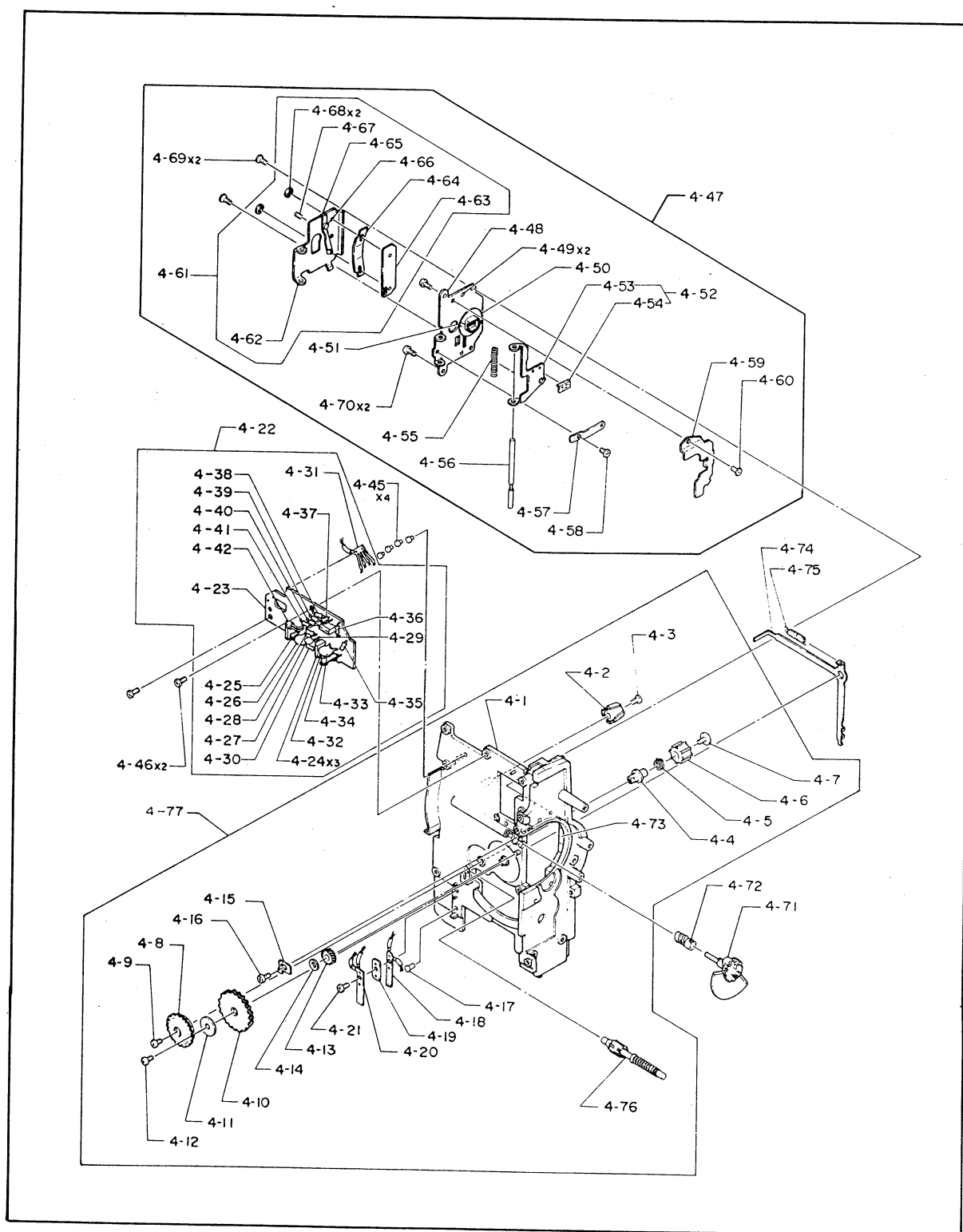
10 - 1 Disconnect the lead wire W27 (green) from the contact piece (4 - 18).

10 - 2 Disconnect the lead wire W28 (gray) from the contact piece (4 - 20).

10 - 3 Remove two screws (4 - 46), and remove the automatic film speed setting circuit assembly (4 - 22).

NOTE: Remove four film speed setting pins (4 - 45) also and keep them separately.

Fig. 5



11. Sound recorder assembly (5 - 1)

11 - 1 Disconnect lead wires W29 (gray), W30 (orange), W3 (blue) and shielded wire W32 (both two positions) from the jack assembly (2 - 19) by the use of a soldering iron.

11 - 2 Remove four screws (5 - 124), and remove the sound recorder assembly (6 - 1).

CAUTION: (1) The capstan shaft assembly (5 - 51) has been simply inserted.
Be careful not to drop it off.

(2) The lead wire W5 (yellow) has been lightly secured with adhesive.
Pull it to remove.

11 - 3 To remove the shutter release button (5 - 92), pull it.
The shutter release button has been simply fitted.

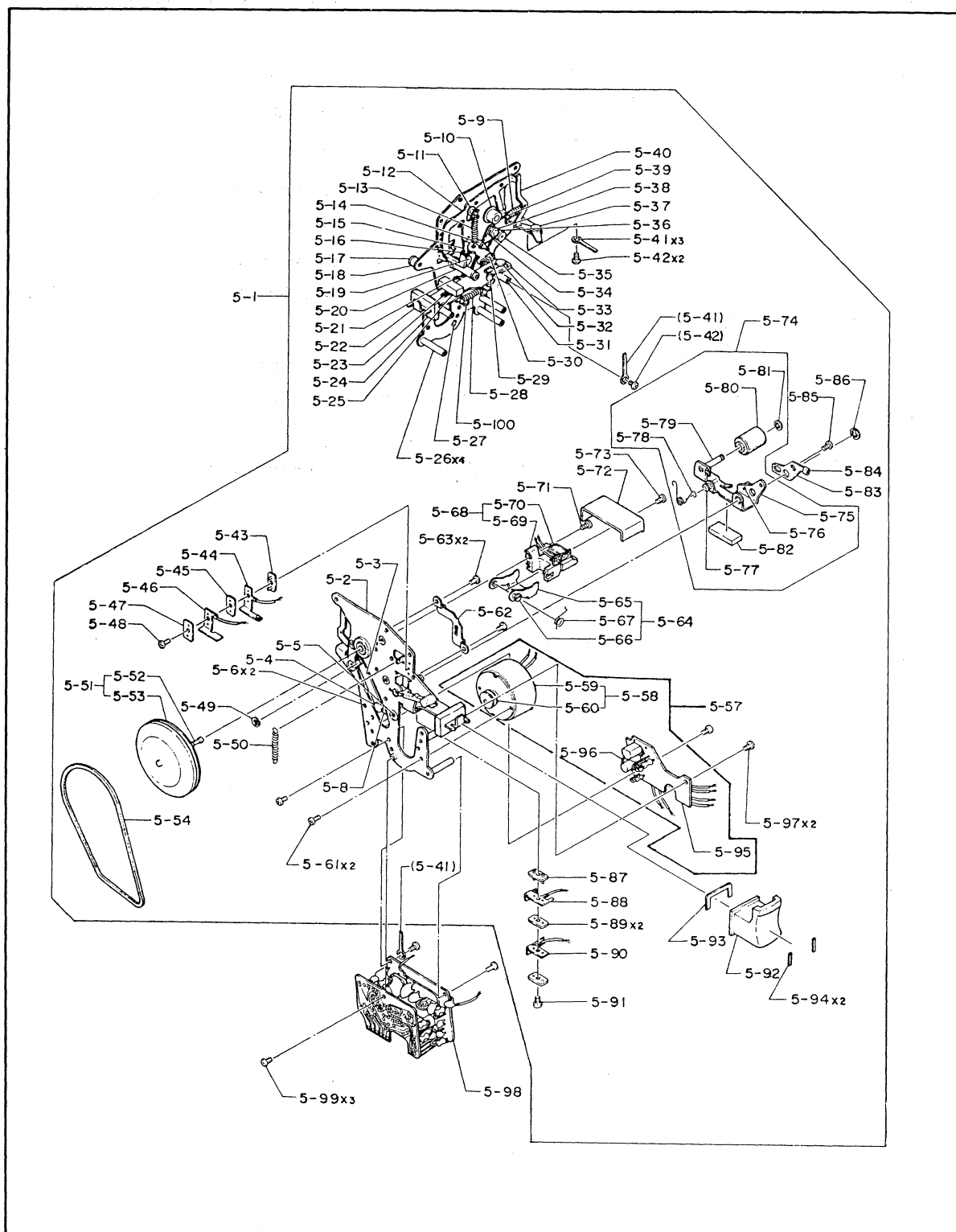
11 - 4 To remove the head holder assembly (5 - 68), remove the screw (5 - 73) and head cover (5 - 72), disconnect lead wires W33 (brown) and W34 (black) from the recording amplifier assembly (5 - 98), and remove the screw (5 - 71).

12. Recording amplifier assembly (5 - 98)

12 - 1 Disconnect the lead wire W37 (red) from the recording amplifier assembly (5 - 98).

12 - 2 Remove three screws (5 - 99), and remove the recording amplifier assembly (5 - 98).

Fig. 6



13. Film chamber door assembly (2 - 48)

Pull out the hinge shaft (2 - 47). The film chamber door assembly (2 - 48) can then be removed.

14. Disassembling the film chamber door assembly

14 - 1 Remove two screws (2 - 65). The leaf spring (2 - 64) can then be removed.

14 - 2 Remove two screws (2 - 67). The holder (2 - 66) can then be removed.

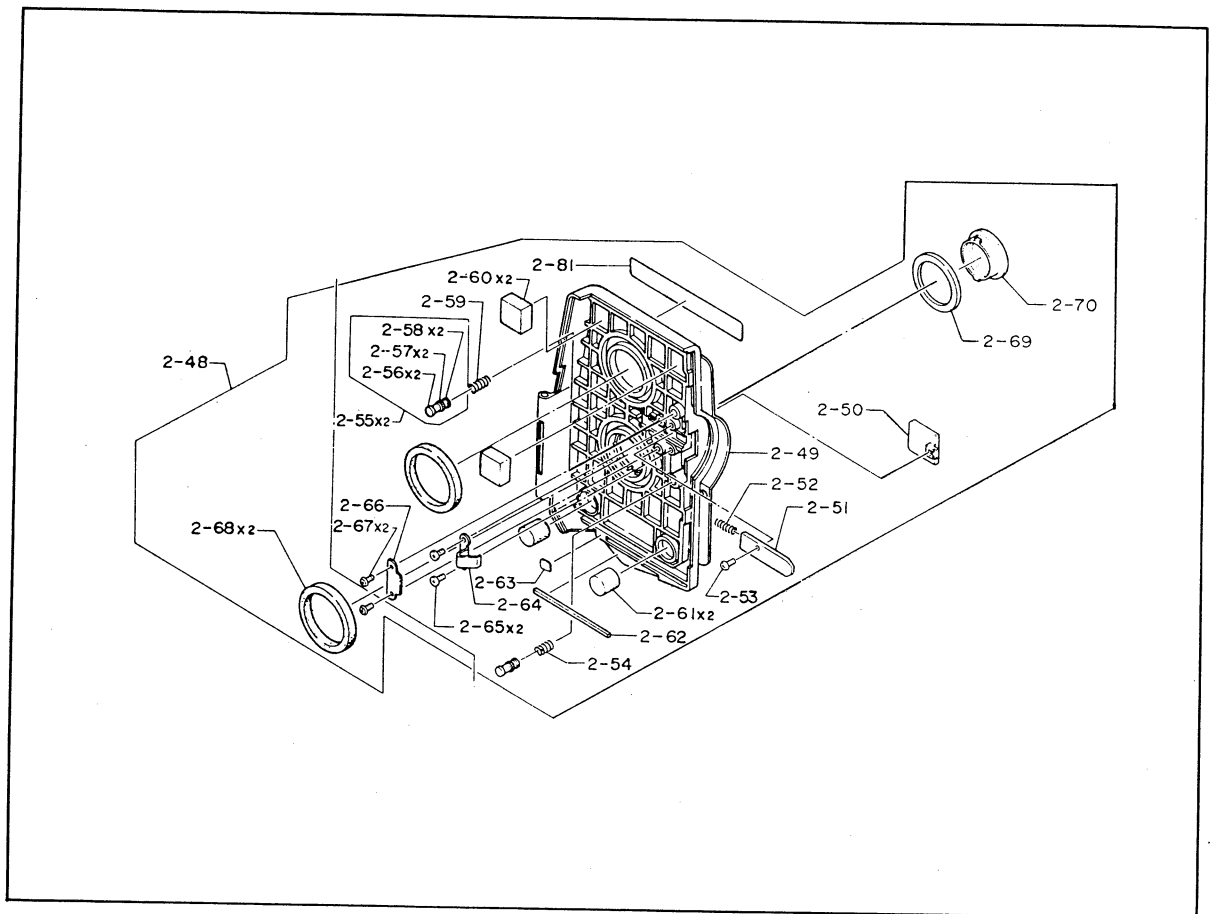
14 - 3 Remove the screw (2 - 53). The lock lever (2 - 51), spring (2 - 52) and door lock button (2 - 50) can then be removed.

14 - 4 Turn the film confirmation window (2 - 70) counterclockwise by the use of a piece of rubber belt. Both the film confirmation window (2 - 70) and window frame (2 - 69) can be removed.

14 - 5 Two rubber rings (2 - 68) and moquette (2 - 61) are installed with adhesive. Thoroughly clean them with solvent to remove the adhesive after removing them.

14 - 6 Two moquettes (2 - 60) are installed with pieces of double face adhesive tape.

Fig. 7



15. Disassembling side cover assembly (2 - 1)

15 - 1 To remove the eyepiece assembly (2 - 7), pull it after removing the screw (2 - 13) and holder (2 - 12).

NOTE: The stopper boss of the camera body is fitted into the cam groove of the eyepiece. When pulling out the eyepiece assembly from the camera body, twist the eyepiece slightly.

15 - 2 To remove the lens (2 - 85), remove the screw (2 - 83) and holder (2 - 82).

15 - 3 To remove the lens assembly (2 - 16), remove the screw (2 - 45).

15 - 4 The viewfinder frame (2 - 15) can be removed simply by pulling it because it is installed with adhesive. (When removing the viewfinder frame, be careful not to damage it.

15 - 5 To remove contact pieces (2 - 22 and 2 - 24), holder (2 - 25) and battery check button (2 - 27), remove the screw (2 - 26).

15 - 6 To remove the jack assembly (2 - 19), remove two nuts (2 - 20).

15 - 7 Battery contacts (2 - 3 and 2 - 6) are tightly fitted.

To remove them, pull them carefully so as not to deform them.

15 - 8 To the battery contacts (2 - 4 and 2 - 5), lead wires have been connected by soldering. Note that they cannot be removed unless the solder is removed thoroughly.

(When using a soldering iron to remove the solder, be careful not to melt the camera body by heat of the soldering iron.)

Fig. 8

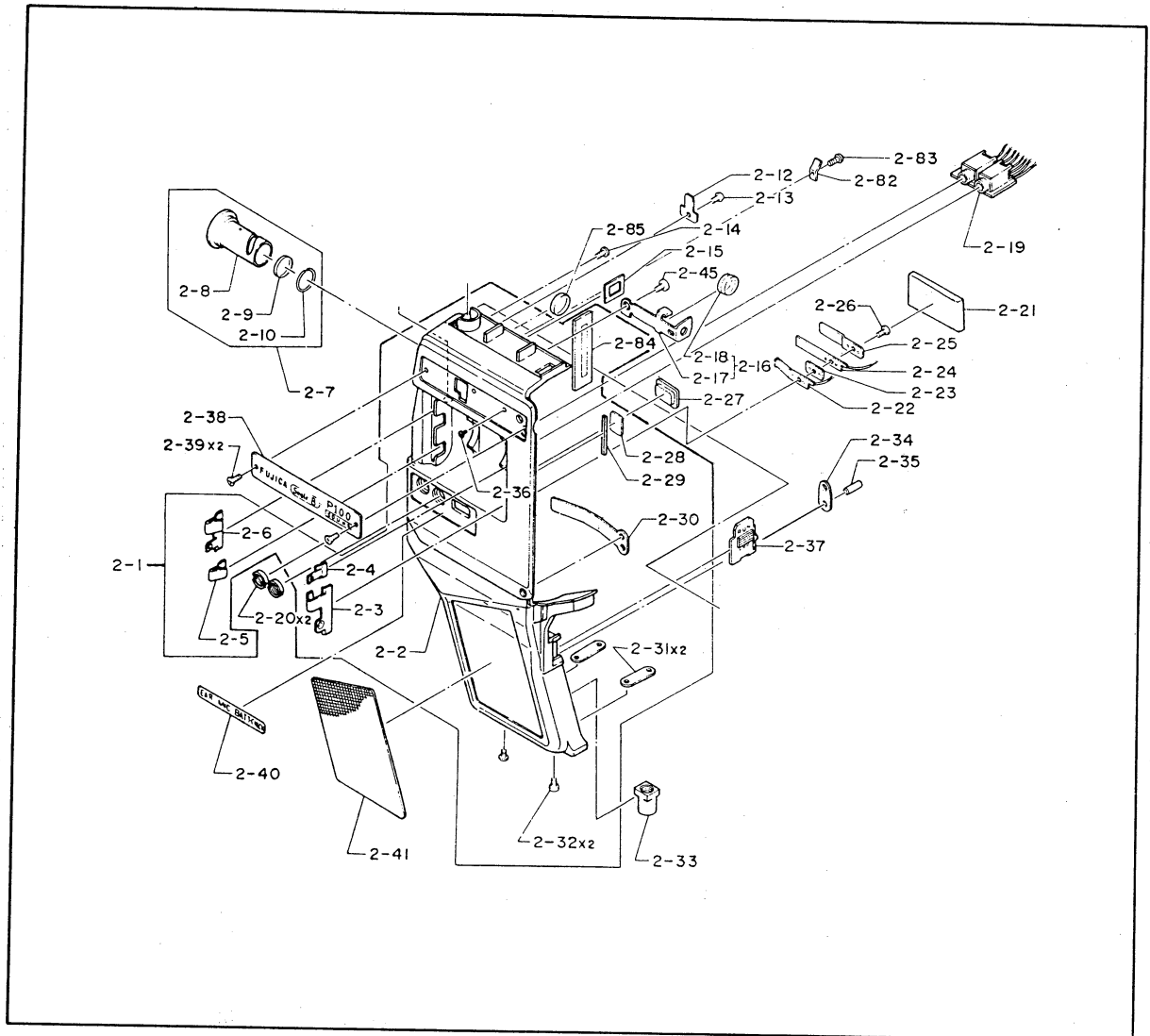


Fig. 9

LAYOUT OF OPTICAL SYSTEM

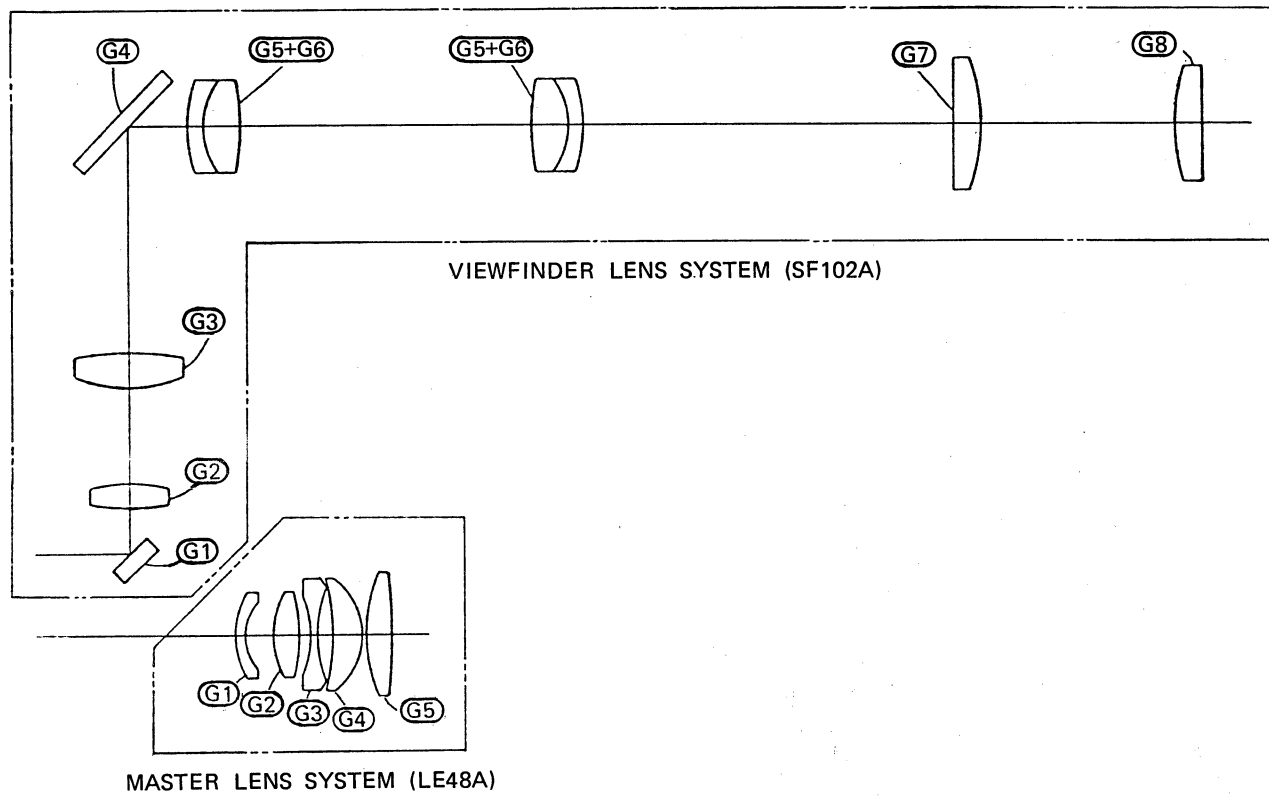


Fig. 10



III REASSEMBLY, REPAIR AND ADJUSTMENT

1. Side cover assembly (2 - 1)

1 - 1 Cover plate (2 - 28)

- a. With the black face of the cover plate (2 - 28) faced upward, install it correctly with adhesive.
- b. Failure from installing the cover plate will result a light leaking.
If the cover plate installed with the white face faced upward, light leaking may occur.

1 - 2 Viewfinder frame (2 - 15)

- a. Fit the viewfinder frame (2 - 15) to the V - groove on the side cover, and secure it with adhesive.
- b. Be sure to install the viewfinder frame after removing dust from it.
- c. Note that position of the viewfinder frame differs from that of the Fujica P300 Sound.

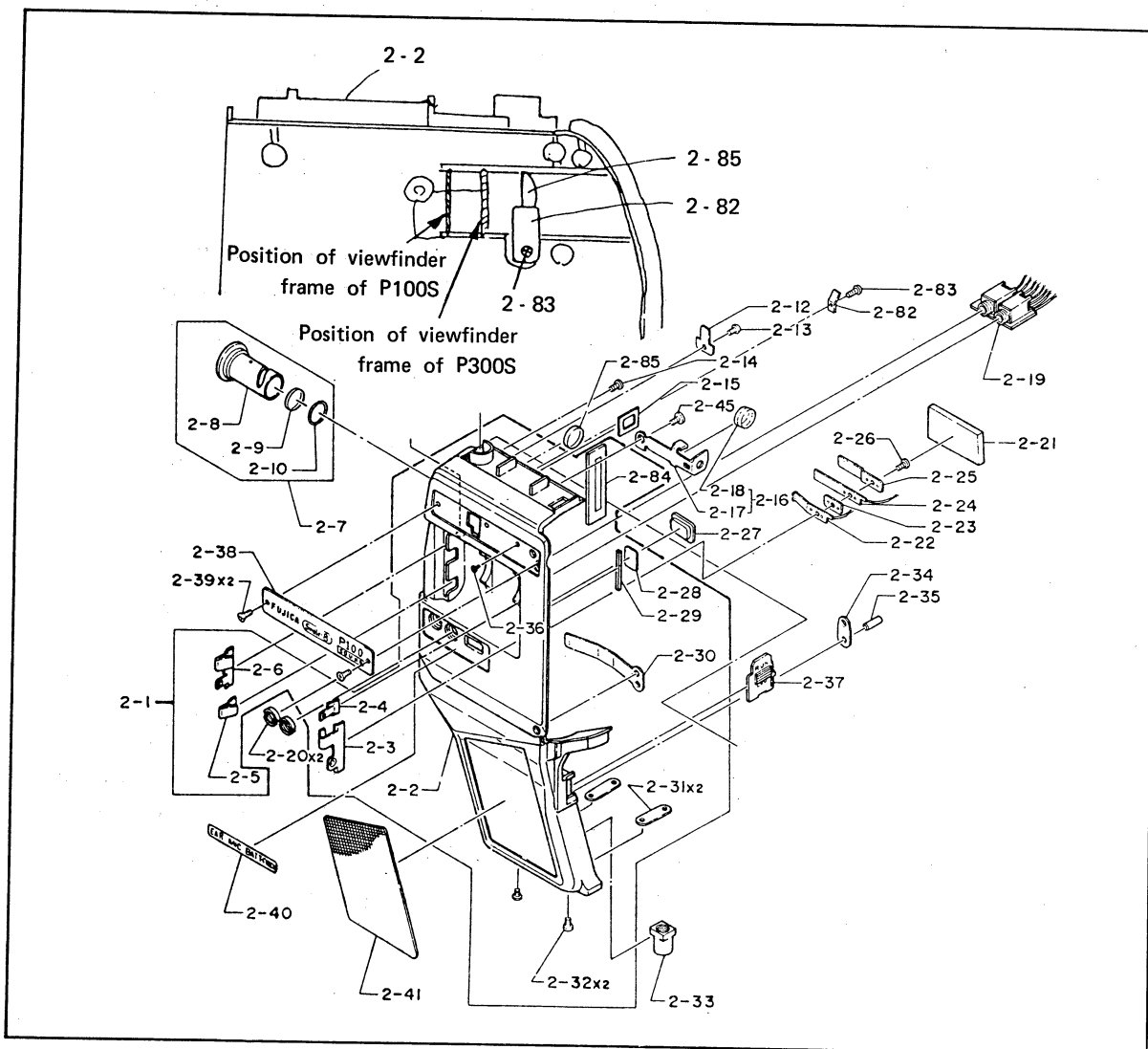
1 - 3 Lens assembly (2 - 16)

- a. Install the lens assembly with Araldite carefully so that the lens (2 - 18) is inserted toward the correct direction without being floated or tilted.
- b. The lens frame (2 - 17) must have a proper spring function or otherwise lens alignment may change after completing adjustment of parallax.
When installing the lens frame, be sure to fold it correctly at the fold.
- c. Install both the lens (2 - 18) and lens frame (2 - 17) carefully and correctly.
If anyone of them is installed incorrectly, object will not be seen correctly in the viewfinder or parallax will not be adjusted correctly.

1 - 4 Battery check button (2 - 27)

- a. After applying the battery check button (2 - 27) to the side cover, place the contact piece (2 - 22), insulation plate (2 - 23), contact piece (2 - 24) and holder (2 - 25) in that order on the side cover, and secure them with the screw (2 - 26).
- b. Install the moquette (2 - 21) to shield light.
- c. When the battery check button is installed, make sure that it operates smoothly.

Fig. 11



1 - 5 Eyepiece assembly (2 - 7)

- a. Carefully examine the lenses (2 - 9) and (2 - 11) for their inserting directions, and apply them to the eyepiece barrel.
- b. Securely and correctly install two holders (2 - 10) and secure the lenses with the holders and adhesive.
(To apply adhesive to the lens (2 - 11), use the small hole on the eyepiece barrel.)
- c. Fit the stopper boss of the side cover to the camgroove of the eyepiece barrel, and insert the eyepiece assembly (2 - 7) into the side cover (2 - 2).
- d. Before installing the holder (2 - 12), check it for deformation.
If this holder is deformed, turning friction of the eyepiece will be too tight or too loose.
- e. When the eyepiece assembly is installed, make sure that it turns smoothly with a proper resistance.

1 - 6 Jack assembly (2 - 19)

Apply the jack assembly (2 - 19) to the side cover, and secure it with two nuts (2 - 20).

1 - 7 Battery contacts (2 - 3 and 2 - 6)

- a. Check the battery contacts (2 - 3 and 2 - 6) for deformations.
When the portion of the battery contact which is fitted into the side cover is deformed, the battery contact may come off as vibrated or shocked.
- b. Make sure that the battery contacts are clean and not corroded.
- c. Firmly fit the battery contacts to the slits on the side cover.



1 - 8 Battery contacts (2 - 4 and 2 - 5)

- a. Apply solder to the battery contacts (2 - 4 and 2 - 5) slightly, and fit them into the slits on the side cover tightly.

NOTE: (1) Do not apply solder to the battery contacts heavily.
The battery contacts will not be fitted into the slits.

- (2) Solder may be applied after inserting the battery contacts into the slits. In this way, however, the side cover may be melted or the connected lead wire may be disconnected.

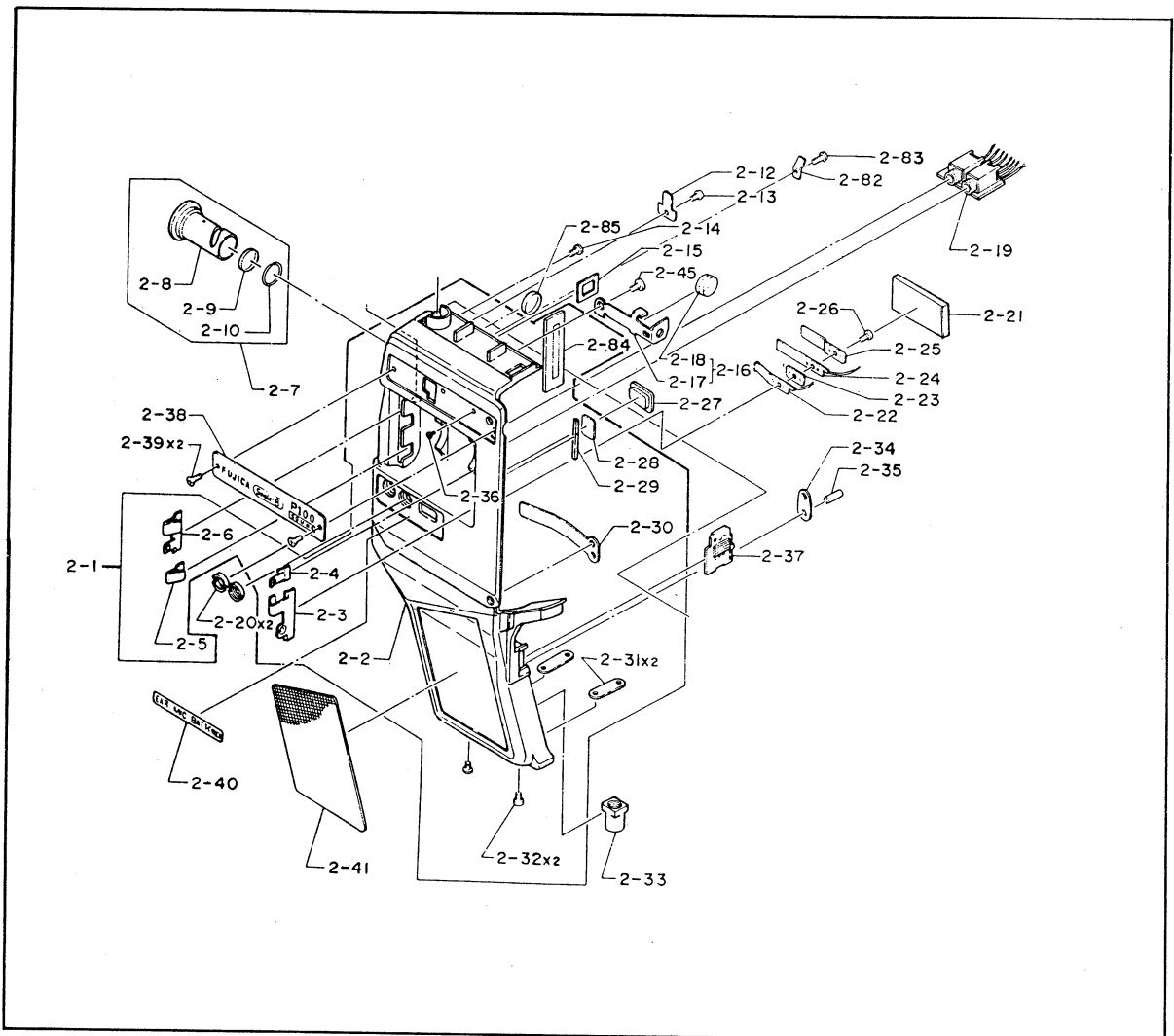
Thus, it is recommended that solder be applied to the battery contacts slightly before fitting them into the slits.

- b. Make sure that the battery contacts are clean and not corroded.
- c. Firmly and fully fit the battery contacts into the bottoms of the slits.
- d. Connect lead wires W6 (red) and W10 (red) to the battery contact (2 - 4) by means of a soldering.
- e. Connect lead wires W12 (black) and W26 (black) to the battery contact (2 - 5) by means of a soldering.

1 - 9 Cover plate (2 - 31)

Install both cover plates (2 - 31) securely with two screws (2 - 32).

Fig. 13



2. Film chamber door assembly (2 - 48)

2 - 1 Flicker preventing pin assembly (2 - 55)

- a. Make sure that the flicker preventing pin assembly (2 - 55) is fitted to the film chamber door correctly without tilting and it operates smoothly without any dragging.
- b. The spring (2 - 59) must be weaker than the spring (2 - 54).
- c. Note that the flicker preventing pin assembly must operate smoothly or otherwise a flicker of picture or multiple exposure will occur.

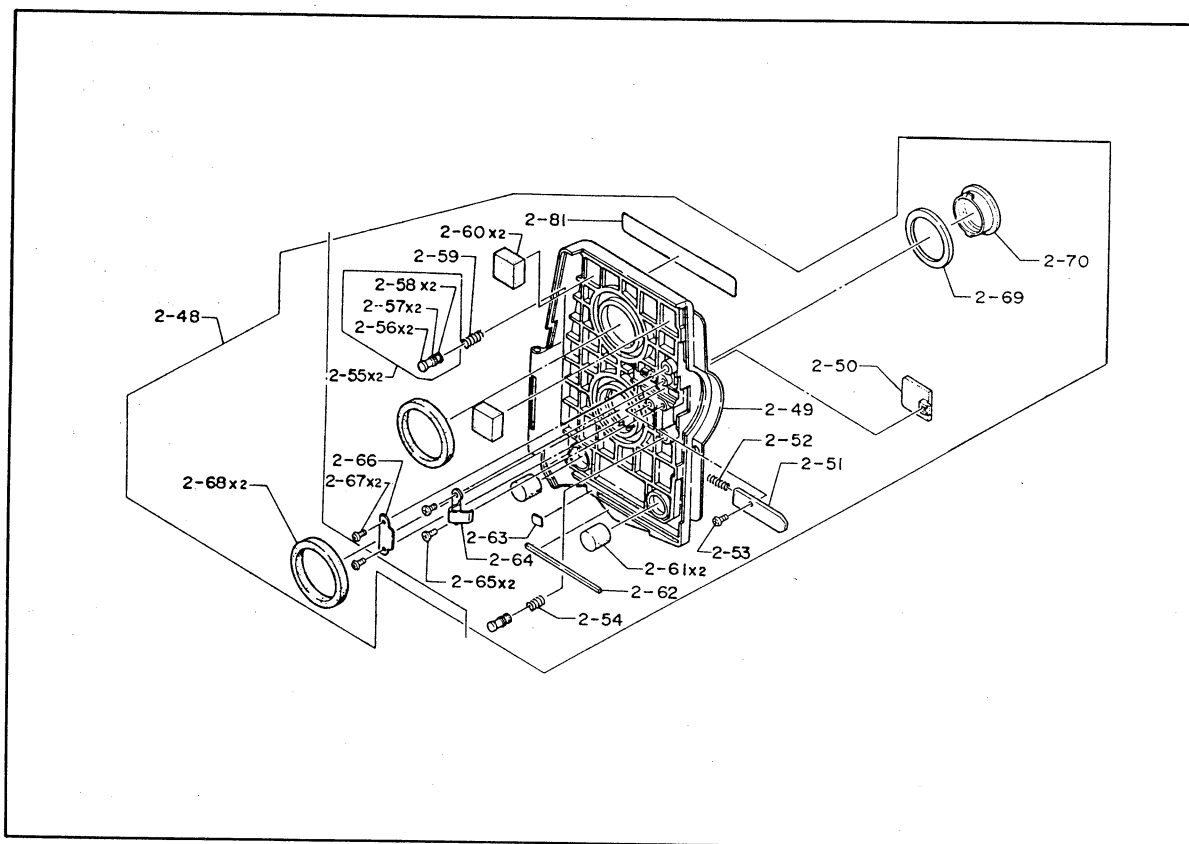
2 - 2 Door lock button (2 - 50)

- a. Make sure that the door lock button (2 - 50) can be operated smoothly by the act of spring (2 - 52).
Check the spring (2 - 52) to insure that it is not deformed.
- b. Apply Helicolube to the sliding surface of the lock lever (2 - 51) slightly.
- c. Install the lock lever and holder (2 - 66) securely with the appropriate screws.

2 - 3 Leaf spring (2 - 64)

- a. The leaf spring (2 - 64) functions to push the holder (5 - 62) of the film gate assembly (5 - 47).
- b. When this spring is bent excessively, the pressure plate of the film gate assembly does not close completely causing film not to be transported correctly or causing an incorrect focusing.
- c. When this spring is contrarily bent insufficiently, the pressure plate will close before the flicker preventing pin comes into contact with film, causing the film not to be transported correctly.
- d. When this spring is bent excessively or not bent sufficiently, replace it with a new one.

Fig. 14



2 - 4 Film confirmation window (2 - 70)

With the film confirmation window (2 - 70) fitted to the window frame (2 - 69), match the projected portion of the film confirmation window to the notch on the film chamber door, and fit the film confirmation window and window frame to the film chamber door. Next, turn the film confirmation window clockwise from the film chamber door side to secure the film confirmation window.

2 - 5 Rubber ring (2 - 68)

The two rubber rings (2 - 68) function to fix film cartridge and to shield light. Make sure that they are installed correctly and firmly without being deformed, floated or peeled off.

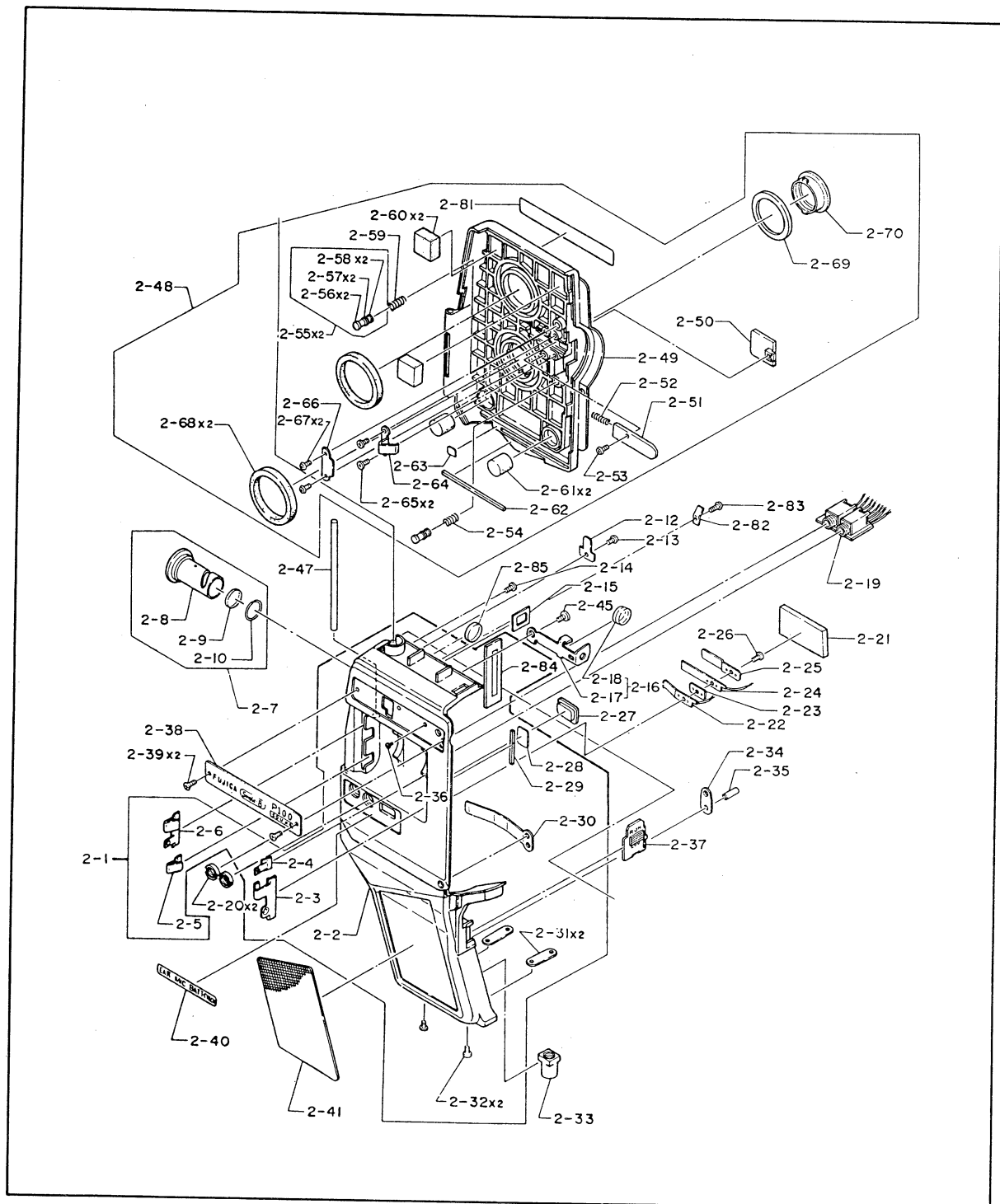
2 - 6 Moquettes (2 - 60 and 2 - 61)

- a. The moquette (2 - 60) functions to push the film speed setting pins (4 - 45) correctly. Install it correctly and carefully so that it is not floated, peeled off or tilted. (Use a piece of double face adhesive tape.)
- b. The moquette (2 - 61) functions to push the pin (4 - 17) correctly. Make sure that it is installed correctly with adhesive without being deformed, floated or peeled off.

2 - 7 Plate (2 - 63)

The plate (2 - 63) functions to push the 4th lever (5 - 40) of the sound recorder assembly (5 - 1). Make sure that this plate is installed in its position correctly with adhesive.

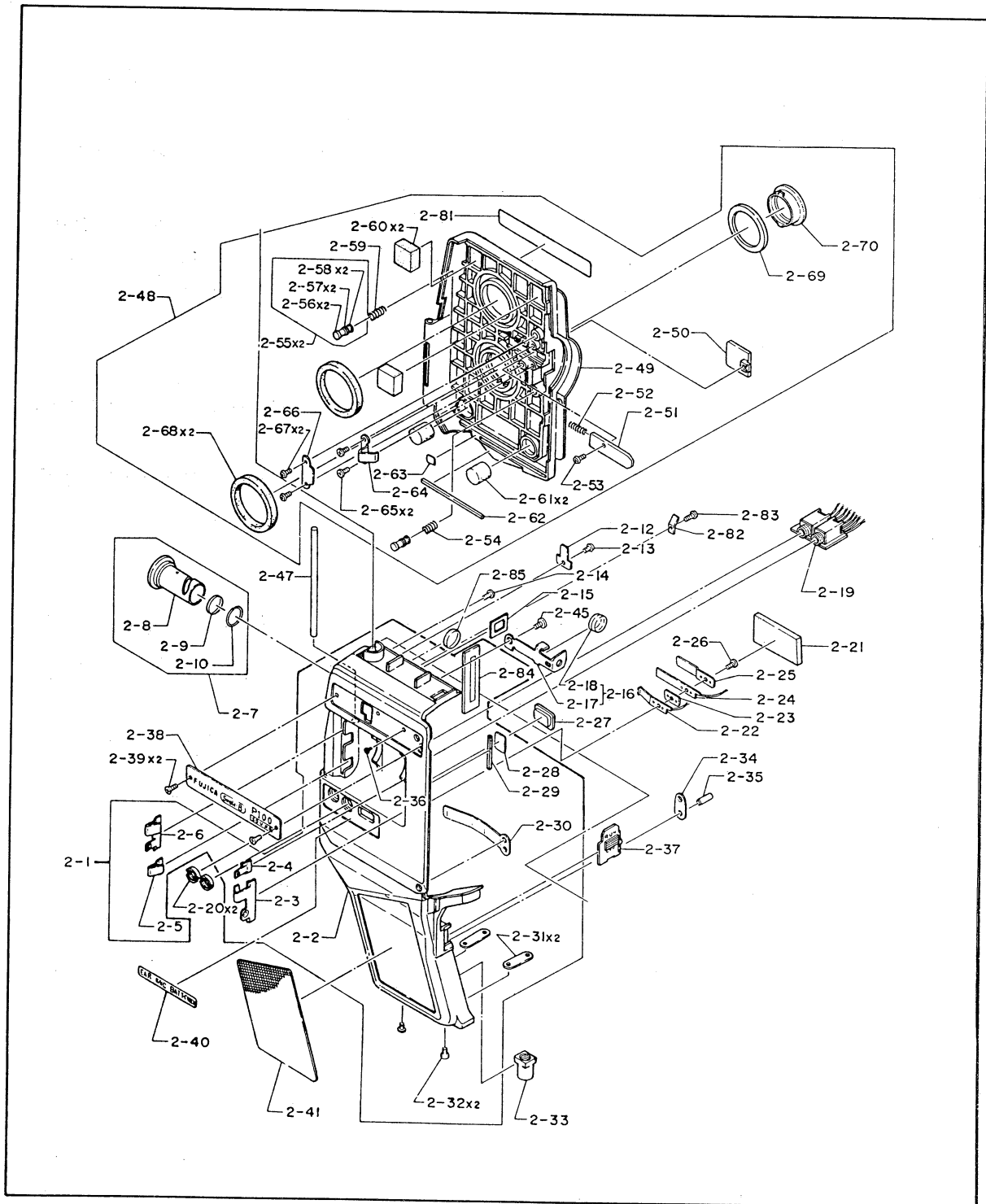
Fig. 15



3. Installing film chamber door assembly

- a. Apply the film chamber door assembly to the side cover assembly, and fit the hinge shaft (2 - 47) into the hinge.
- b. When they are combined, make sure that the film chamber door can be opened and closed smoothly.

Fig. 16



4. Footage counter assembly (4 - 77)

4 - 1 Assembling gears

- a. Make sure that the gear (4 - 13) has been firmly heatcaulked.
After caulking the gear, make sure that it turns lightly and smoothly.
- b. Make sure that the helical gear (5 - 10) has been firmly installed with the screw (4 - 12). After tightening the screw, make sure that the gear turns lightly.
- c. Fit the gear (4 - 76) to the position, and make sure that it operates lightly.
- d. Install the gear (4 - 8) on the film take - up spindle (4 - 4) with the screw (4 - 9). Further, install the spring (4 - 5) and film take - up wheel (4 - 6) with the screw (4 - 7).

4 - 2 Film feed spindle (4 - 2)

- a. Make sure that the screw (4 - 3) of the film feed spindle (4 - 2) is tightened firmly.
- b. After tightening the screw, make sure that the film feed spindle turns lightly.
- c. Check the film feed spindle for deformation and broken tooth, and replace the film feed spindle as required.

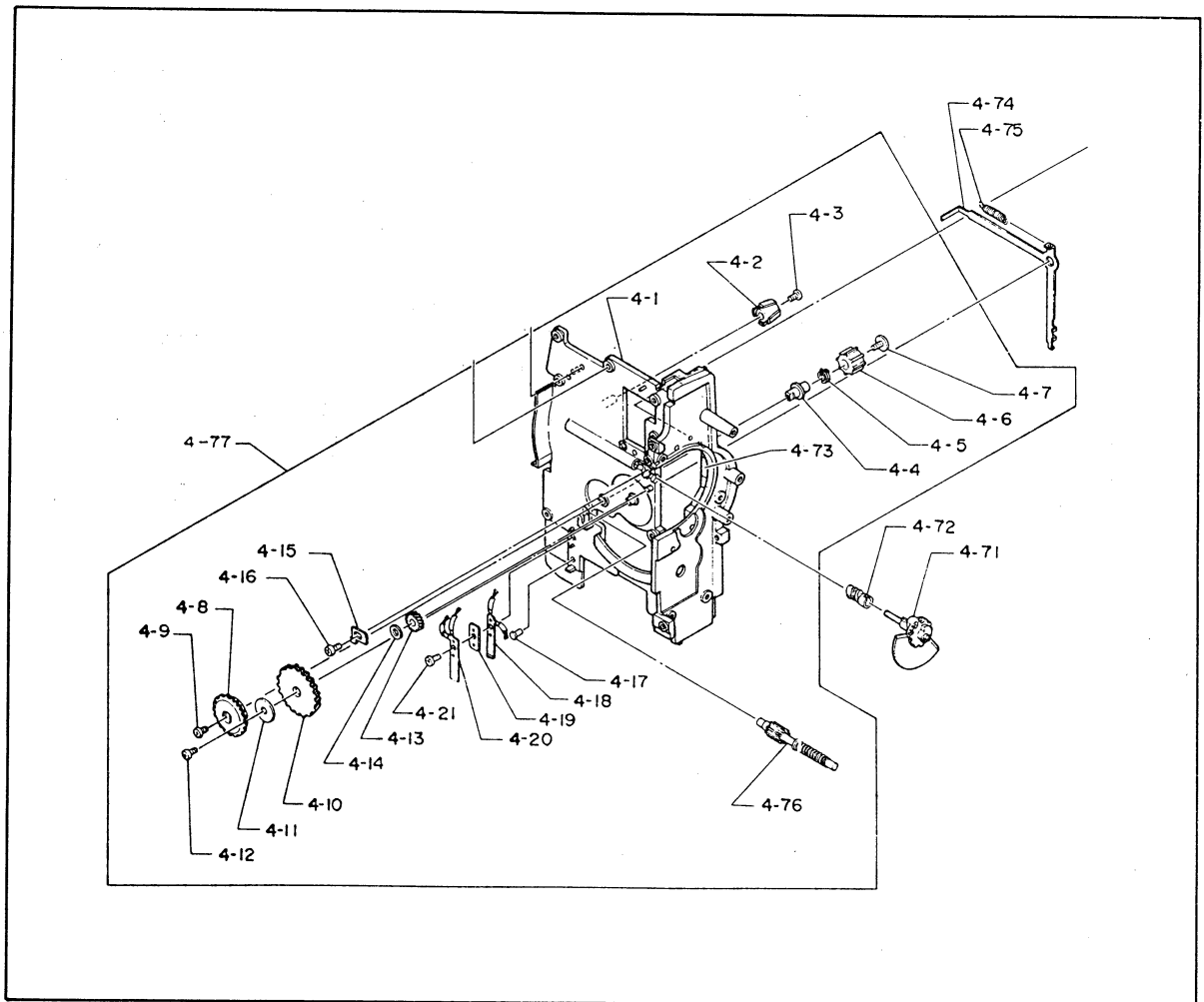
4 - 3 Contact pieces (4 - 18) and (4 - 20)

- a. Apply solder to the contact pieces (4 - 18) and (4 - 20) preliminarily.
- b. Install the contact piece (4 - 18), insulation plate (4 - 19) and contact piece (4 - 20) with the screw (4 - 21).
- c. Make sure that both the contact pieces (4 - 18) and (4 - 20) are clean and not deformed.
- d. Install the pin (4 - 17) without fail.

4 - 4 Greasing

- a. Apply Squalol grease M4 to teeth of the gear (4 - 76) very slightly.
- b. For other gears, apply Helicolube to the intermeshing portions.

Fig. 17

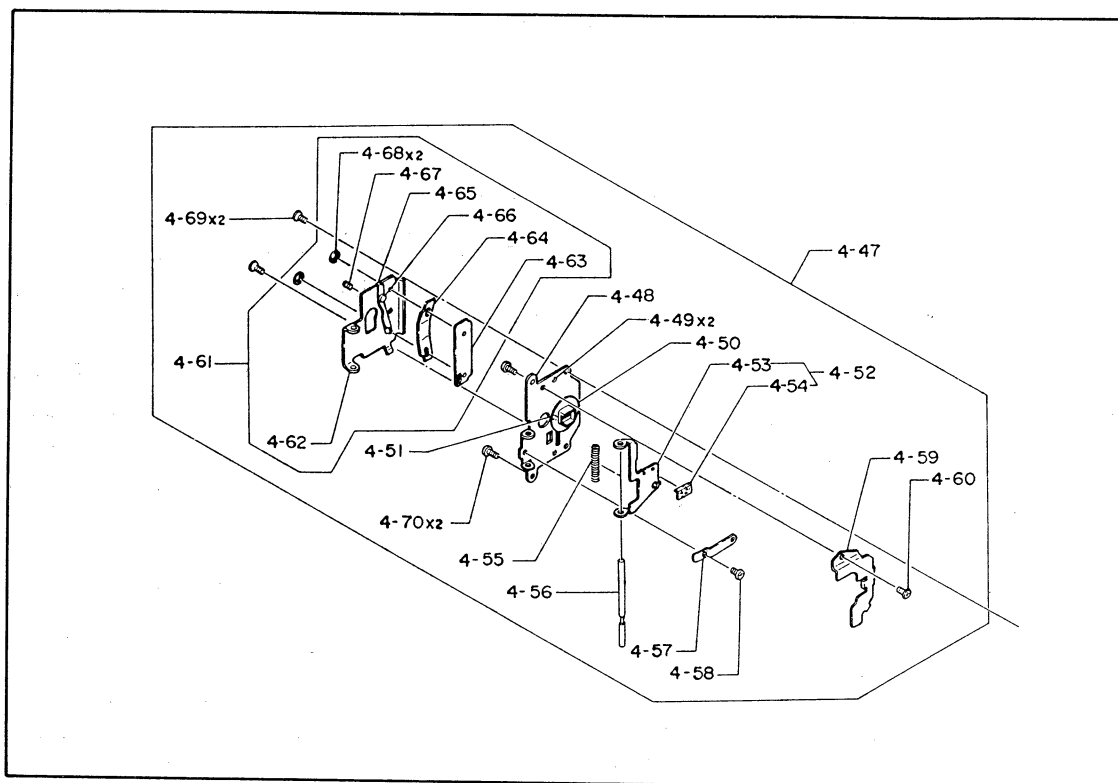


5. Film gate assembly (4 - 47)

5 - 1 Film draw out resistance

- a. Adjust film draw out resistance with the adjust screw (4 - 67) so that it is within the rating (65 ± 5 grams).
(For adjustment of film draw out resistance, use white film base.)
- b. When film draw out resistance cannot be adjusted with the adjust screw (5 - 67), remove the leaf spring (4 - 64) and adjust spring force of the leaf spring properly.
- c. When film draw out resistance cannot be adjusted with the adjust screw and leaf spring, replace the leaf spring with a new one.
- d. Note that if film draw out resistance is too high, film will not be transported correctly or correct filming speed will not be obtained.
Contrarily, when film draw out resistance is too low, flicker of picture or incorrect focusing will occur.

Fig. 18



5 - 2 Claw assembly (4 - 52)

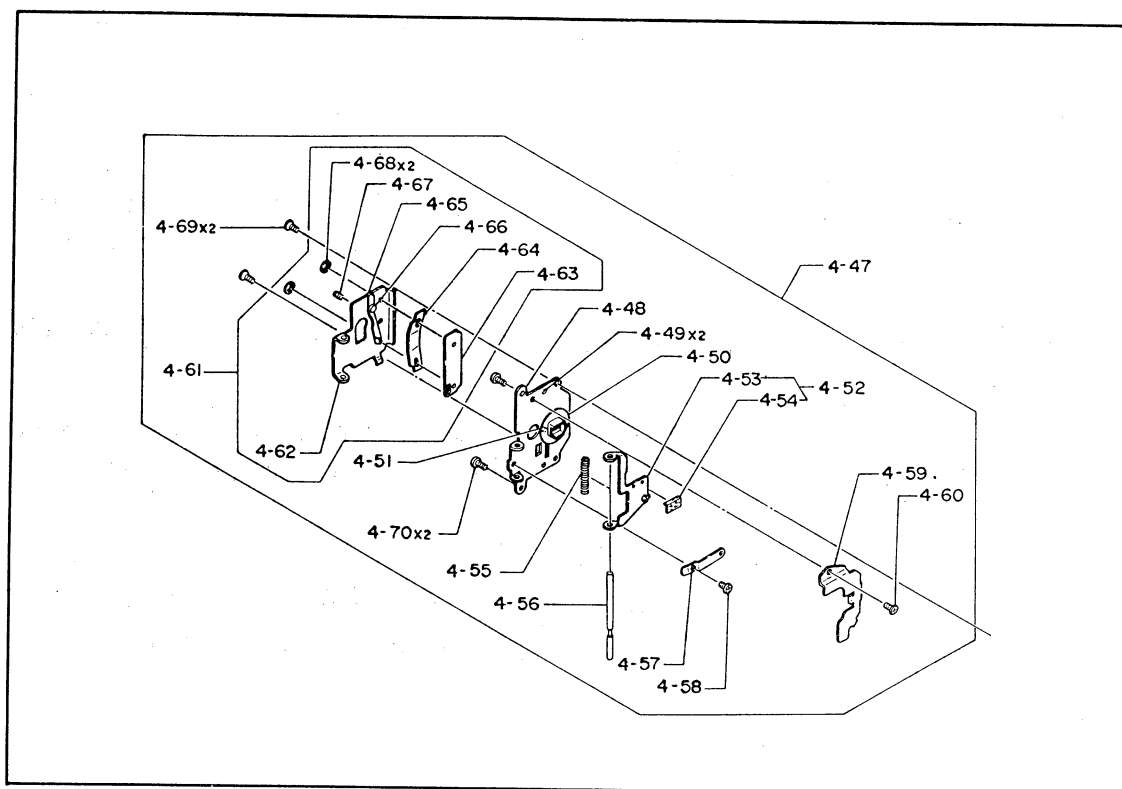
- a. When the holder (4 - 62) is opened in the rated value (5 ± 0.5 mm), the claw must not be projected above the film gate plane. (When the holder is opened fully, the claw is projected.) When the holder is opened 5 ± 0.5 mm and the claw is projected above the film gate plane, the leaf spring (4 - 65) is not bent correctly.
Correct the bending or replace the leaf spring (4 - 65) with a new one.
- b. When the holder (4 - 62) is closed, the claw must be projected above the film gate plane. Projection of the claw above the film gate plane should be 0.4 ± 0.1 mm. (Note: When measuring height of the claw, open the holder (4 - 62) completely.) When projection of the claw is incorrect, the leaf spring (4 - 65) must have been bent excessively or leaf spring (4 - 57) is too weak. Repair or replace the appropriate parts.
- c. Make sure that pressure of the claw is 4 to 7 grams.
When pressure of the claw is deviated from this range, strengthen or weaken the leaf spring (4 - 57) properly.
- d. When pressure of the claw is too high, driving sound will increase.

5 - 3 Greasing

Apply Helicolube to the guide shaft (4 - 56), claw and leaf spring (5 - 57) sliding surfaces and claw and film gate sliding surfaces.

NOTE: Note that greasing also effects in reducing driving sound.

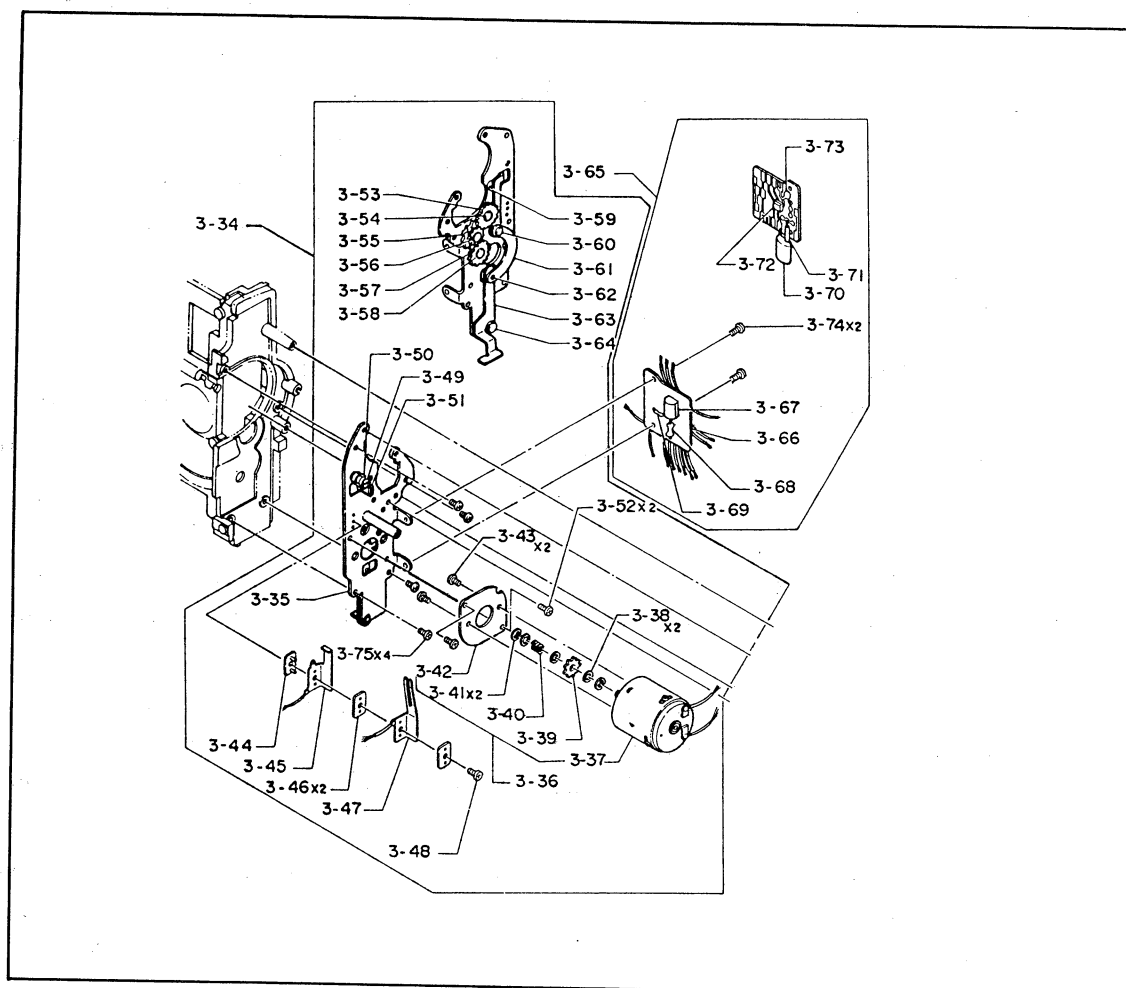
Fig. 19



6. Drive motor assembly (3 - 34)

- a. Make sure that tubes (3 - 50 and 3 - 51) are clean and heatshrunk sufficiently so that they do not come off the pins.
- b. Make sure that contact pieces (3 - 45 and 3 - 47) are clean.
When they are dirty, clean them with alcohol.
- c. Make sure that the contact pieces come into firm contact mutually as the shutter lever (3 - 61) and lever (3 - 63) operate, and that the levers return to the original positions with spring forces of the contact pieces.
- d. Make sure that each gear is caulked properly and turns smoothly without any play.
- e. Make sure that the motor turns smoothly without any noise.
- f. Make sure that the friction spring (3 - 40) has a proper strength. When this spring is too weak, film will not be transported correctly or correct filming speed will not be provided.
Moreover, friction current must be 1A or higher.
- g. Connect lead wires across the motor and printed circuit board (3 - 66) and across contact pieces (3 - 45 and 3 - 47) and the printed circuit board by means of a soldering.

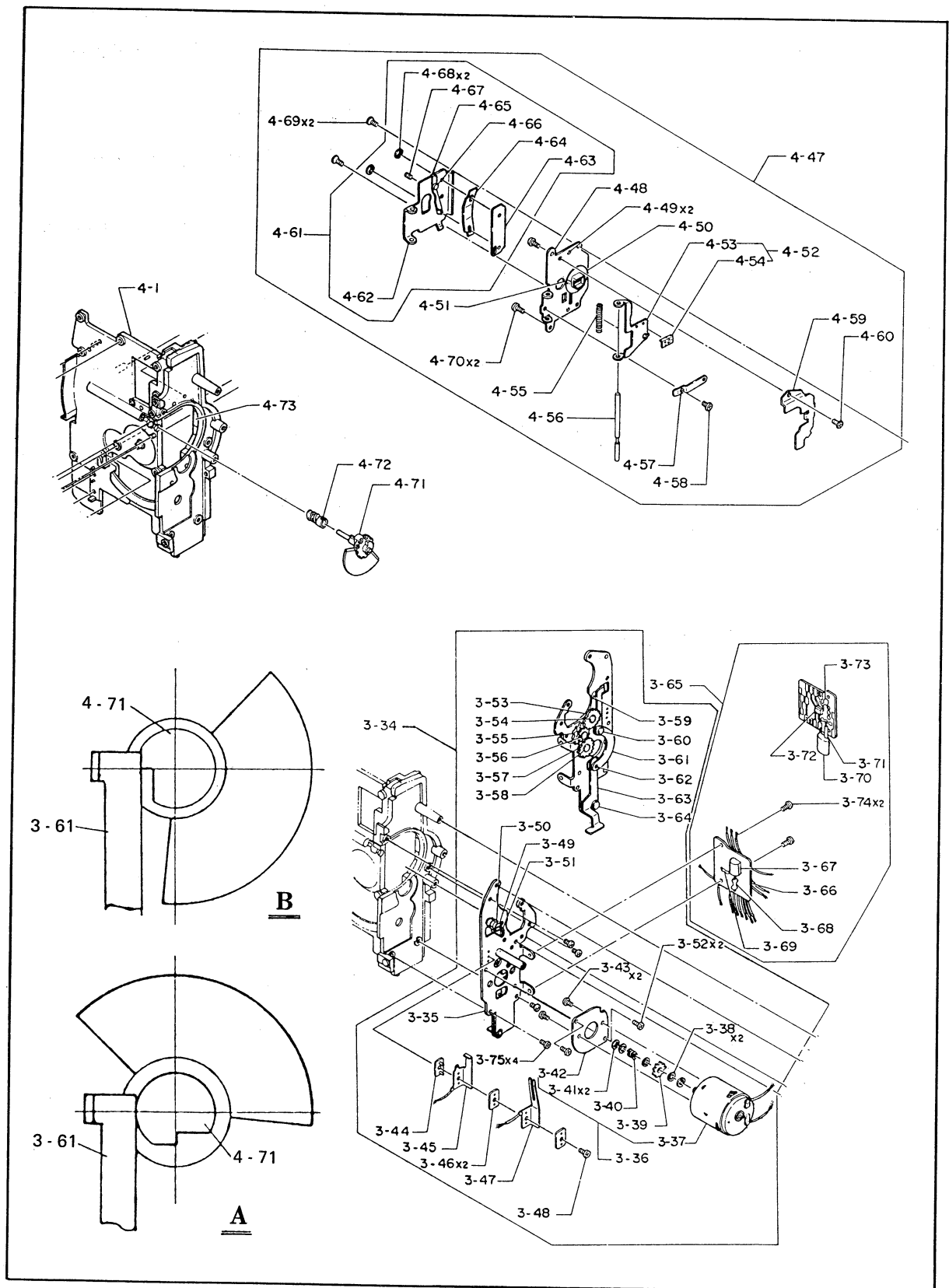
Fig. 20



7. Assembling film gate assembly and drive motor assembly

- a. Install the film gate assembly (4 - 47) on the main frame (4 - 1) with screws.
- b. Apply Helicolube to both ends of the shaft both surfaces of the cam portion and gear portion of the sector assembly (4 - 71).
- c. Apply Helicolube to the portion of the worm gear (4 - 72) where the worm gear is fitted to the sector shaft, fit worm gear to the sector shaft, and set them in the position through the film gate. (Make sure that the claw is fitted to the cam firmly.)
- d. Install the shaft holder (4 - 15) temporarily.
- e. Apply Helicolube to the gear portion of the drive motor assembly (3 - 34).
(Note: Exercise care so that grease will not be spread over the master lens.)
- f. Insert the shaft of the sector assembly into the shaft holder (3 - 59) of the drive motor assembly, and install them on the main frame with screws.
(Apply Squalol oil M1 to the shaft holder. Exercise care for oil spreading.)
- g. Properly adjust position of the shaft holder (4 - 15) so that play of the sector assembly toward the thrust direction is minimum (0.05 mm or less) and motor drive current is lowest.
- h. Adjust the eccentric pin (3 - 49) properly so that the drive switch turns on when the cam of the sector assembly (4 - 71) and shutter lever (3 - 61) are engaged as shown in Fig. A and the drive switch turns off when the cam and shutter lever are engaged as shown in Fig. B.
- i. The drive switch must turn on and off correctly as described above or otherwise the sector does not open fully or friction current flows continuously (drive switch does not turn off).

Fig. 21



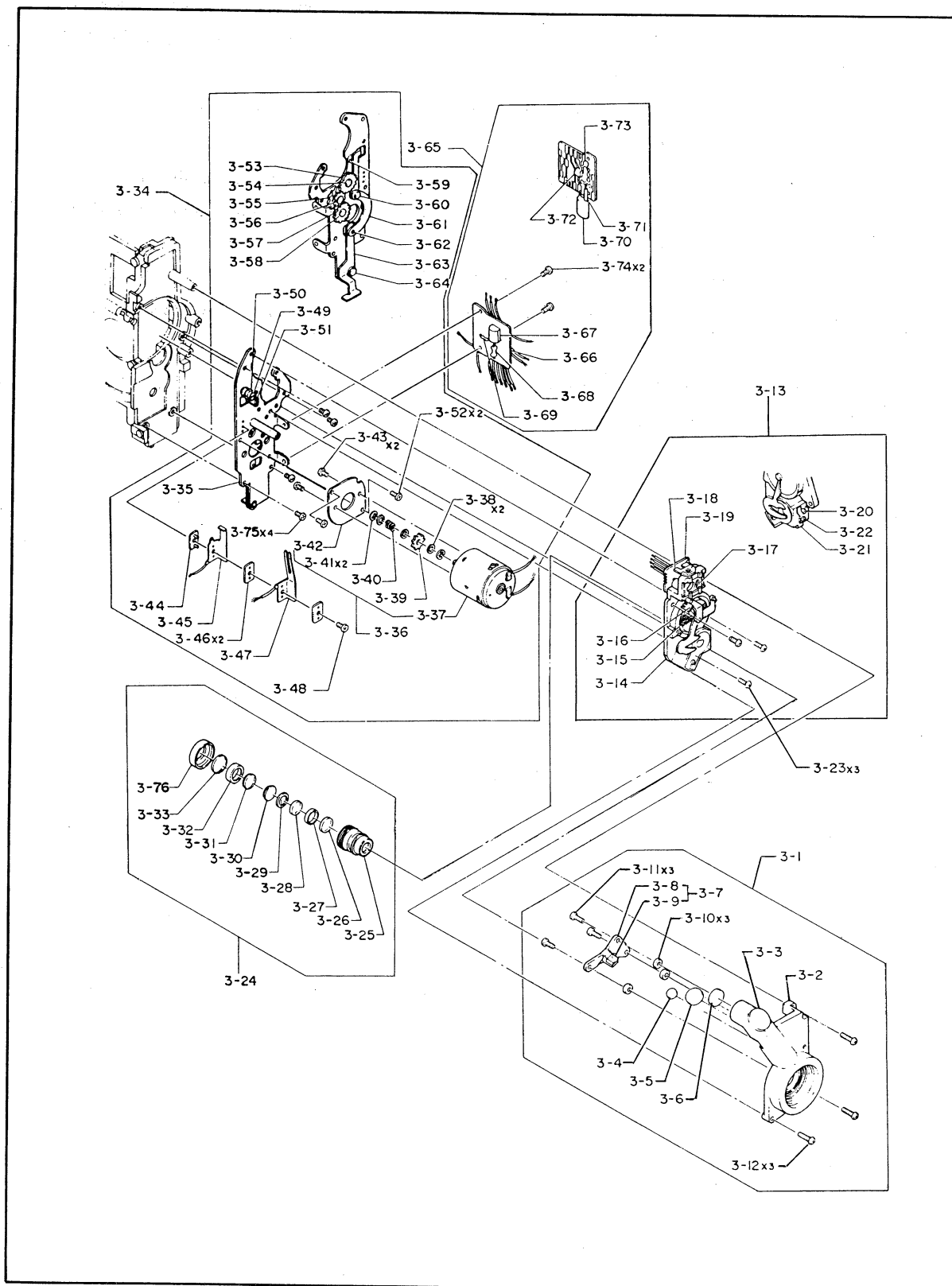
8. EE mechanism assembly (3 - 13)

- a. Fit the master lens assembly (3 - 24) to the EE mechanism assembly (3 - 13).
- b. Make sure that the master lens is clean before fitting it to the EE mechanism assembly.
- c. Install the shaft (3 - 20) and leaf spring (3 - 21) with the screw (3 - 22).
- d. Turn the shaft (3 - 20) and make sure that the master lens assembly operates smoothly with a proper friction.
- e. When installing the EE mechanism assembly, be careful not to touch the aperture blade, red filter, etc.

9. Viewfinder assembly (3 - 1)

- a. Make sure that the mirror (3 - 3) and lenses (3 - 4, 3 - 5 and 3 - 6) are correctly and securely installed on the viewfinder assembly (3 - 1) with Araldite.
- b. Optical axis of the mirror base assembly (3 - 7) has been adjusted.
Do not touch the screws (3 - 11).
- c. Install the viewfinder assembly (3 - 1) with three screws (3 - 12).

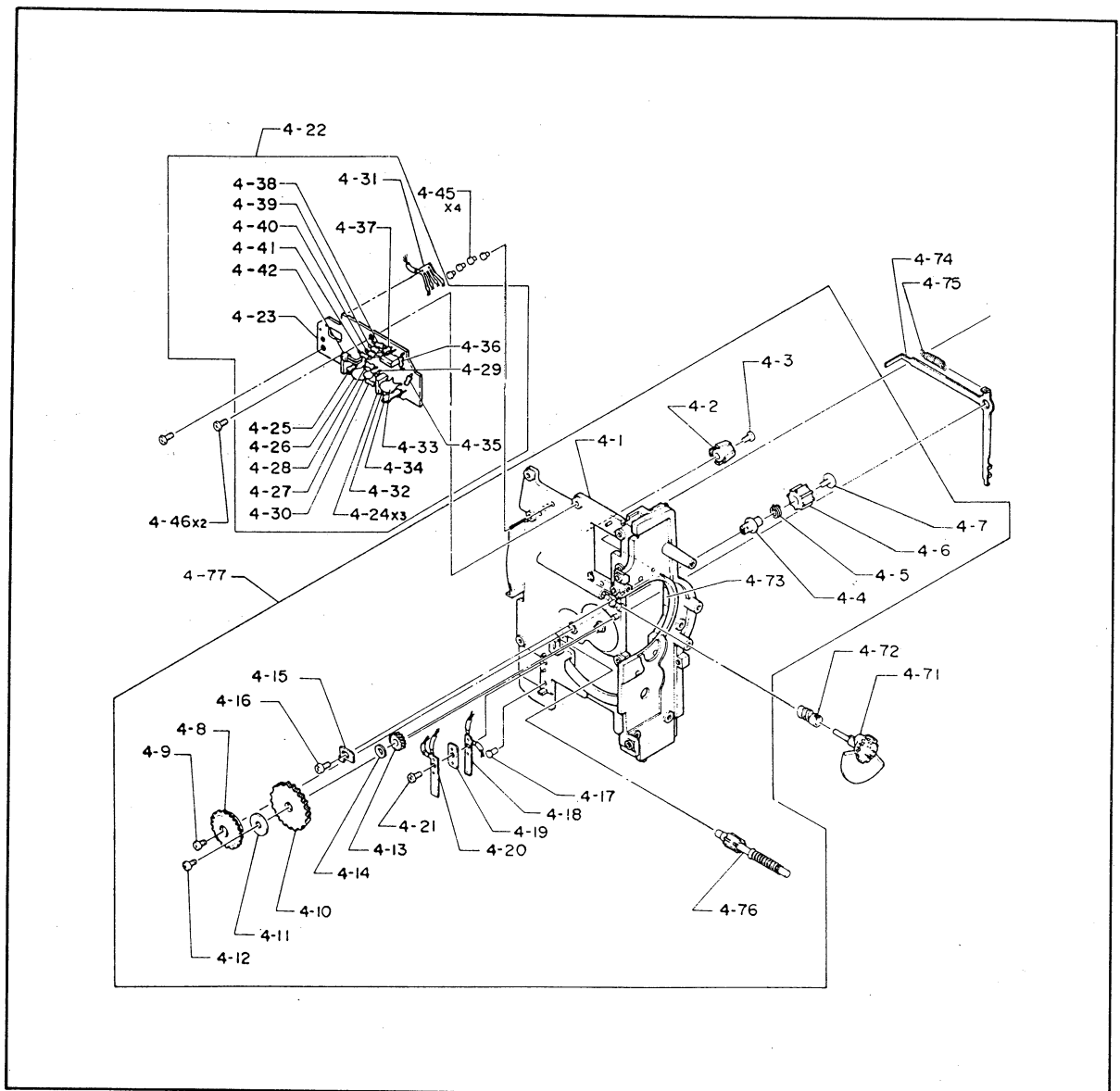
Fig. 22



10. Automatic film speed setting circuit assembly (4 - 22)

- a. Thoroughly clean the contact piece (4 - 31) of the automatic film speed setting circuit assembly (4 - 22) and contact portion of the printed circuit board (4 - 23) with alcohol.
- b. After inserting four film speed setting pins (4 - 45), install the automatic film speed setting circuit assembly.
- c. After installing the automatic film speed setting circuit assembly, push the film speed setting pins one by one, and make sure that all four pins come into firm contact with the contact piece (4 - 31).
(Note that when the contact piece (5 - 31) is deformed, poor contact will occur.)
- d. Make sure that the film speed setting pins return to the original positions with spring force of the contact piece.
- e. Connect three lead wires extended from the EE mechanism assembly by the use of a soldering iron.

Fig. 23



11. Sound recorder assembly (5 - 1)

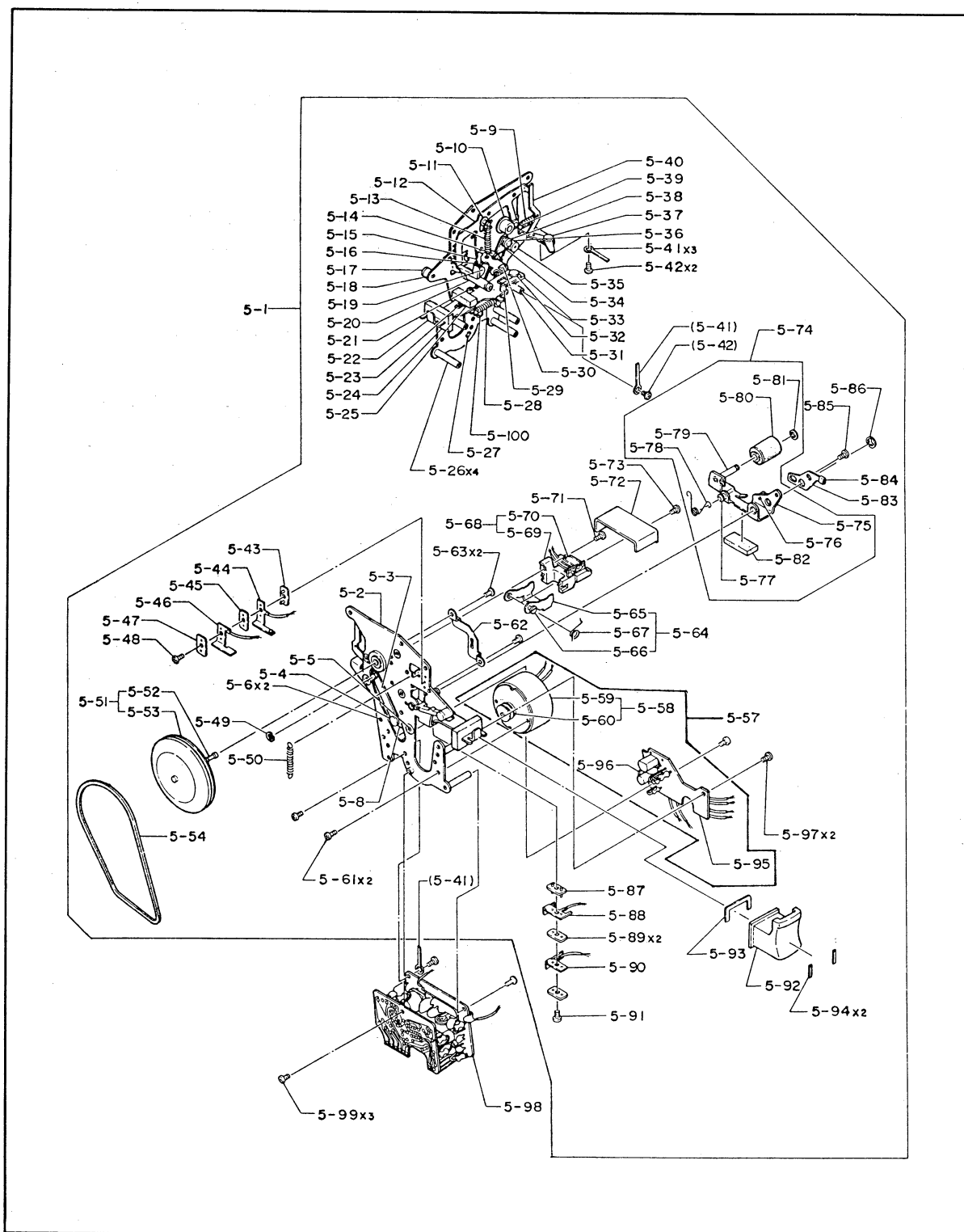
11 - 1 Greasing and oiling

- a. The sound recorder assembly has many parts such as sensor switch, recording head, capstan shaft, pinch roller and flywheel belt which must be kept away from grease and oil. When lubricating, be sure to apply correct lubricant very slightly to the necessary parts only. (Failure from this instruction will be resulted in an undesirable wow - flutter, gargle, etc.)
- b. Do not apply oil or grease to the sensor (5 - 18) at all.
- c. Apply Squalol grease M4 very slightly to the sliding portions of the parts other than the sensor.

11 - 2 Lever operations

- a. With the 4th lever (5 - 40) pushed, push the shutter lever (5 - 22) in a half way, and make sure that the film guide plate (5 - 65), lever (5 - 12) and sensor (5 - 18) operate.
- b. Push the shutter lever (5 - 22) further, and make sure that the pinch roller (5 - 80) comes into contact with the capstan shaft (5 - 52).
- c. Return the shutter lever, and make sure that the pinch lever assembly (5 - 74) returns.
- d. Make sure that the lever (5 - 12), sensor (5 - 18) and film guide plate (5 - 65) return and the film path is opened when the 4th lever (5 - 40) is returned.

Fig. 24



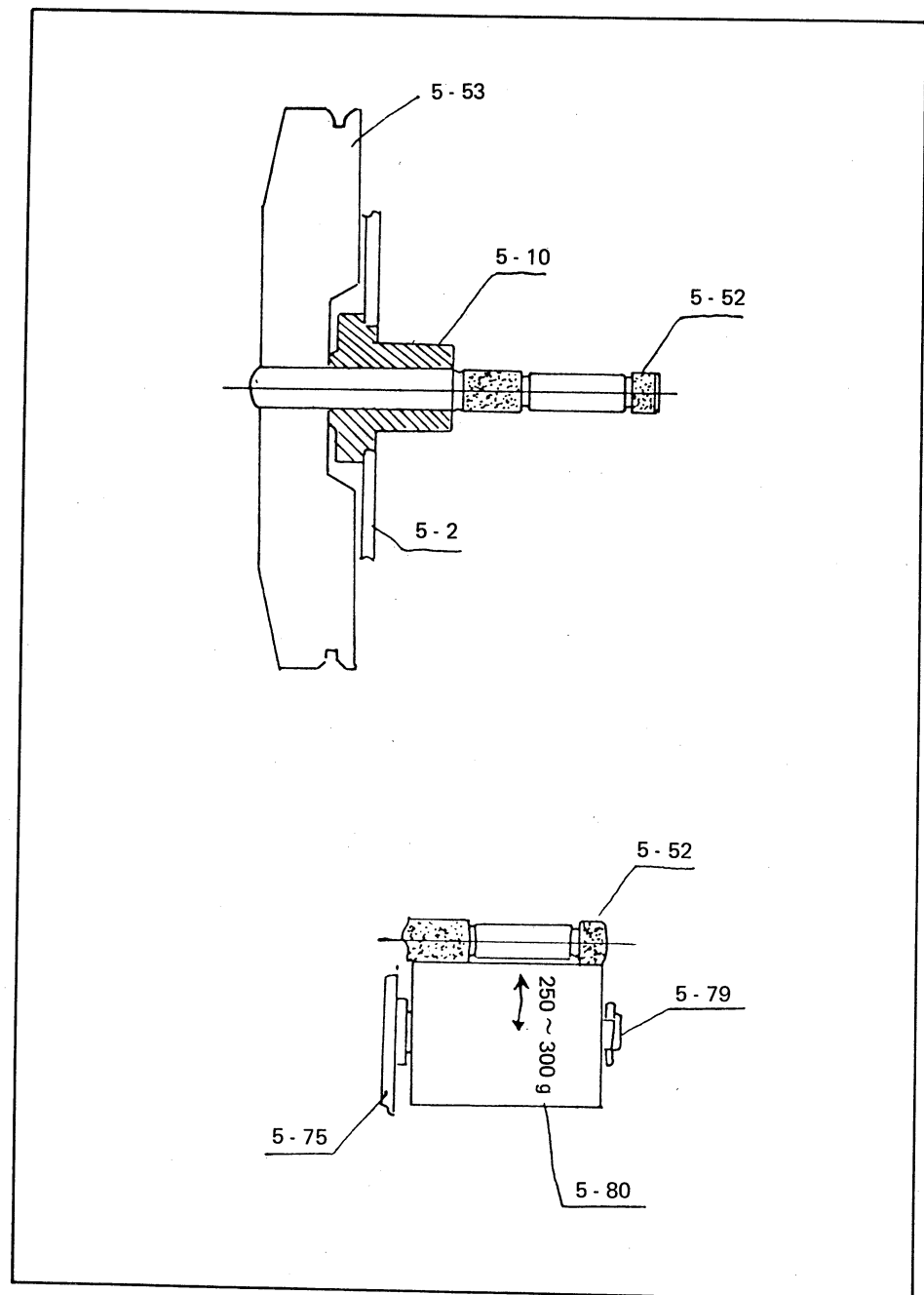
11 - 3 Flywheel (capstan shaft) rotation

- a. Make sure that the shaft is straight having no eccentricity.
- b. Check the flywheel for dynamic balance. It should be 1.5 gr - cm or less.
- c. Check the capstan shaft assembly (5 - 51) to insure that it is held securely by the shaft holder (5 - 10) and turns smoothly without play.
- d. The shaft holder (5 - 10) is impregnated with oil. Do not wash it.
- e. When the flywheel does not run smoothly, replace the relative parts.
- f. Check the groove to insure that no scar, cavity or other defective condition exists.

11 - 4 Pinch roller lever assembly

- a. Check the pinch roller to insure that it contacts with the capstan shaft evenly.
- b. Measure and insure that pressure of the pinch roller is 250 to 300 grams.
- c. Pressure of the pinch roller may be adjusted by properly bending the pinch lever (5 - 75).
- d. Make sure that the pinch roller (5 - 80) is not scarred or deformed.
- e. Do not make the pinch roller dirty with oil, grease, etc.
- f. Make sure that the pinch roller turns smoothly having no eccentricity.
- g. Note that jamming occurs if the pinch roller is partially worn.

Fig. 25



11 - 5 Film guide plate assembly (5 - 64)

- a. Check the film guide plate (5 - 65) to insure that it contacts with the head holder evenly.
- b. Check the film transporting channel and insure that film is not cut or does not oscillate in the transporting channel.
(The rated film transporting channel gap is 0.2 mm.)
- c. Make sure that film is held by the film guide plate with a pressure of approximately 30 grams.
- d. The portion "A" (oblique - lined portion) of the film guide plate must have been finished to a smooth surface by means of buffing.

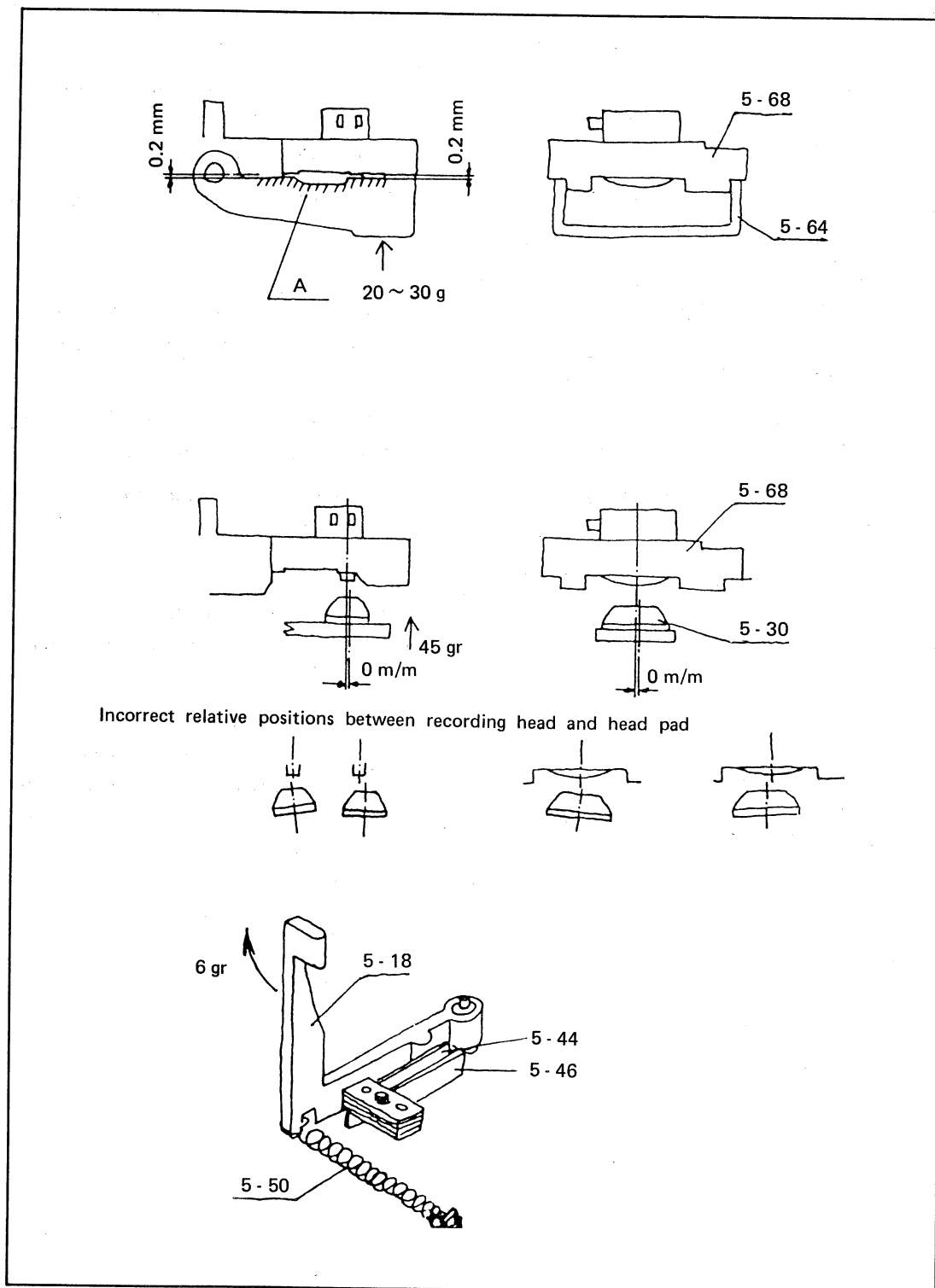
11 - 6 Head pad (5 - 30)

- a. Check the head pad to insure that it is pushed against the head in pressure of approximately 45 grams.
- b. Check the head pad to insure that it comes into contact with the head evenly at the entire area and it is centered correctly against the head.
(One sided contact or deviation of the center is not permitted.)
When adjusting position or posture of the head pad, properly bend the lever.
- c. Check the head pad (5 - 30) to insure that it is not damaged or deformed.
When replacing the head pad with a new one, install the new head pad with Pliobond.
- d. Check the head pad for cleanliness. No dirty head pad should be used.

11 - 7 Sensor (5 - 18)

- a. Check the sensor to insure that it is caused to operate with a pressure of 6 grams, causing the loop switch to turn on and off.
When pressure of the sensor is incorrect, replace the spring (5 - 50) with a proper one.
- b. Make sure that the surface of the sensor to which the film comes into contact is not scarred, dirty or deformed.
- c. Check the contact portion of the sensor switch to insure that it is clean.

Fig. 26



11 - 8 Position of the recording head

- a. Make sure that the recording head is positioned in the center of and in parallel to the sound track of film without any tilting.
- b. Make sure that height of the film gate assembly is the same as film guide of the head assembly.
Film should not be bent when it is being transported.
- c. Make sure that the metal portion of the head is not scarred or damaged but smooth.

11 - 9 Belt (5 - 54)

- a. Make sure that the belt (5 - 54) is applied to the grooves of the motor pulley (5 - 60) and flywheel (5 - 53) correctly and that the belt is not twisted.
- b. Make sure that width and height of the belt are even toward the entire belt loop, and that the belt has no scar, dirt, etc. on the surface.
- c. Turn the motor and make sure that the belt has a proper tension so that it does not slip.

11 - 10 Wiring and arrangement of lead wire

- a. Check each lead wire terminal for soldering and insulation.
Make sure that no lead wire has been short-circuited with other circuit pattern.
- b. Align the lead wires as shown in the right hand figure.
Clamp the lead wires extended from the recording amplifier assembly (5 - 98) with three lugs (5 - 41) and lead wires extended from the head with the protecting plate (5 - 62).

Fig. 27

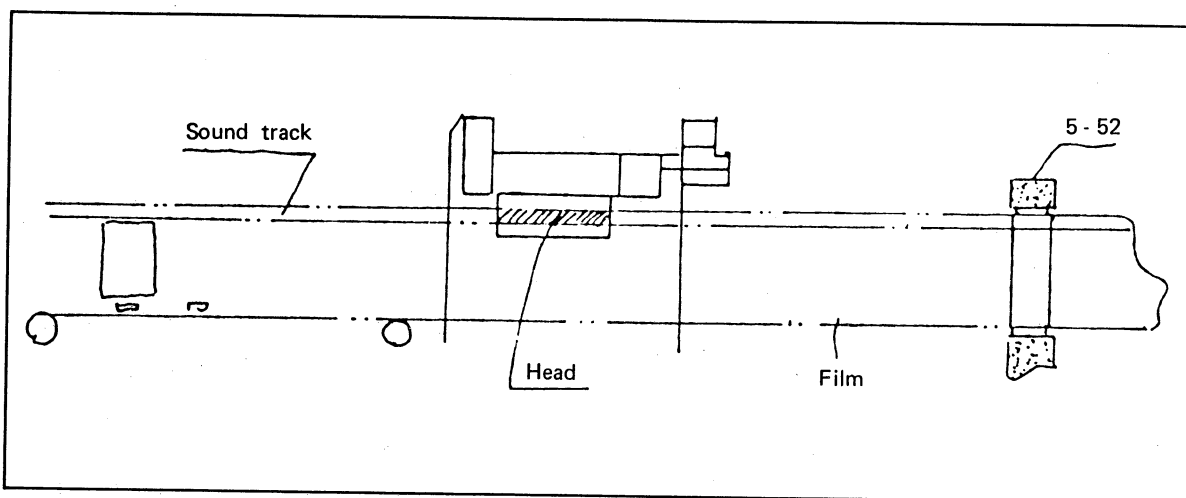
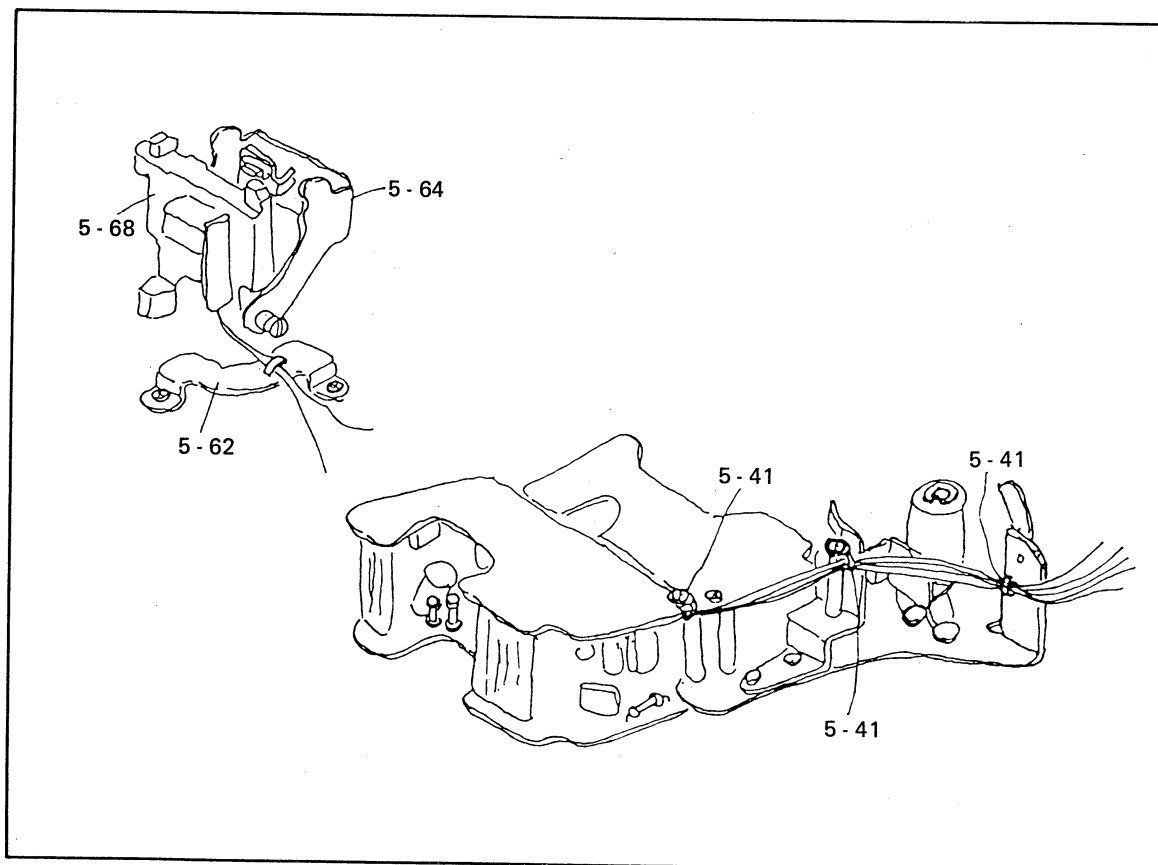


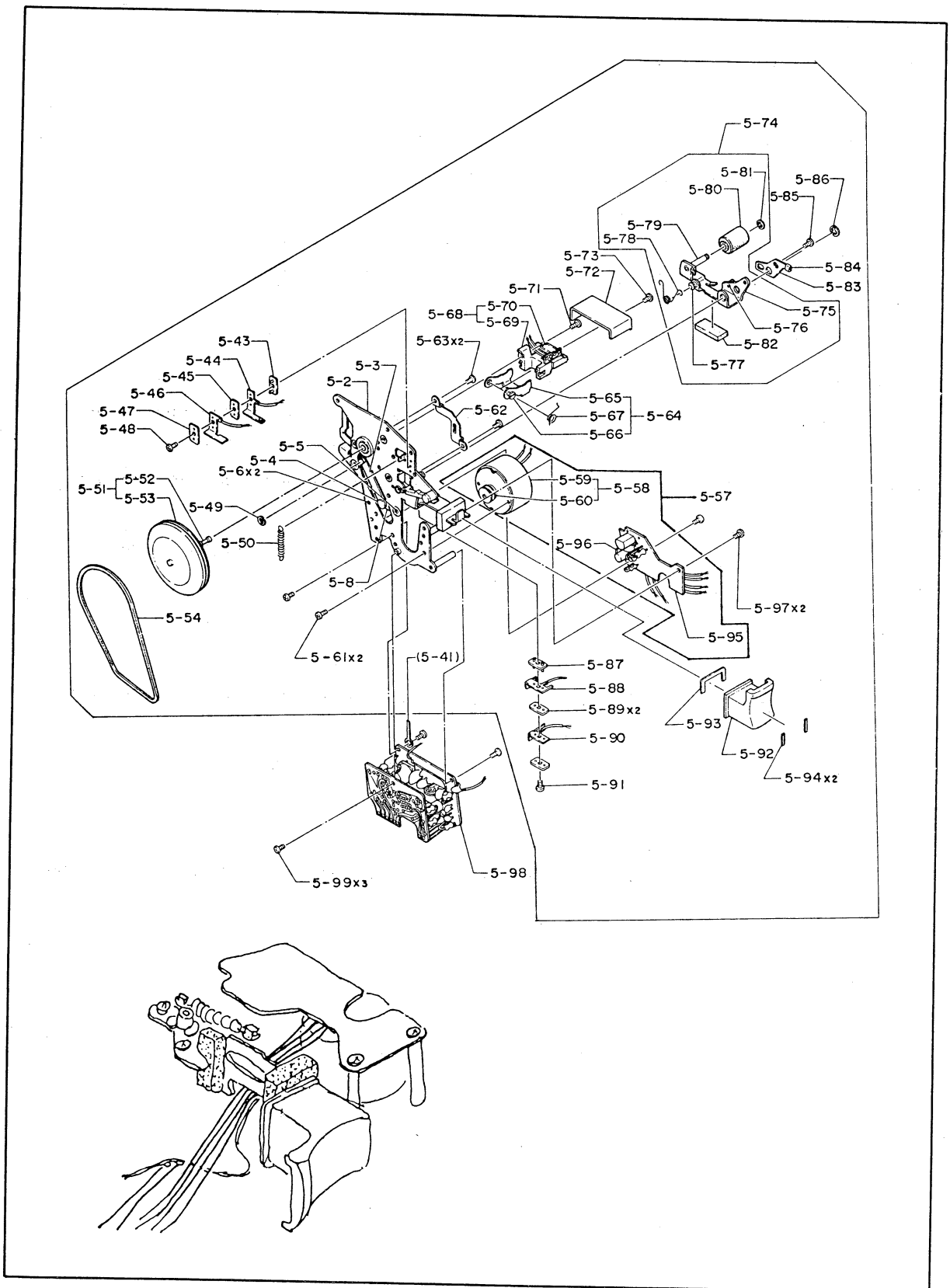
Fig. 28



12. Installing sound recorder assembly

- a. Apply Squalol grease M4 to the leaf spring (2 - 30).
- b. Pass the five lead wires extended from the recording amplifier behind the moquette (5 - 24), combine them with two lead wires extended from the sensor switch, and place them into the camera body as shown in the right hand figure.
- c. When installing the sound recorder assembly, be careful not to drop off the flywheel and do not touch the belt, etc.
- d. The cushions (5 - 93 and 5 - 94) attached to the shutter release button (5 - 92) absorb sound generated when the shutter release button is depressed and released. Make sure that they are attached to the shutter release button correctly and firmly.
- e. After installing the sound recorder assembly, make sure that the shutter release button moves lightly and smoothly without any dragging against the camera body.
- f. Make sure that the film guide, head pad lever, pinch roller, etc. operate smoothly also.

Fig. 29



13. Installing main frame (4 - 1)

- a. Install the main frame (4 - 1) on the side cover assembly (2 - 1) so that the lead wires in the side cover are not held between the main frame and side cover or the lead wires are not placed under the main frame.
- b. To secure the main frame on the side cover assembly, use three out of five screws (2 - 44) first. The remaining two screws (2 - 44) are used to install the film chamber plate (2 - 43) on the main frame and to further secure the main frame on the side cover assembly.
- c. Connect nine lead wires to the printed circuit board (3 - 66) and five lead wires to the automatic film speed setting circuit (4 - 23) by the use of a soldering iron. (Refer to the wiring diagram.)

14. Installing microphone assembly (2 - 71)

- a. Make sure that two cushions (2 - 74) are installed correctly. If any one of them is not installed correctly, the microphone head will be tilted down.
- b. Fit the microphone assembly to the side cover assembly and secure it with the screw (2 - 14).
- c. Connect the two lead wires extended from the microphone assembly to the automatic film speed setting circuit assembly (4 - 22).

15. Installing film chamber plate (2 - 43)

- a. Apply the spring (4 - 75) to the footage counter needle (4 - 74), and place them on the main frame.
- b. Apply the other end of the spring (4 - 75) to the main frame.
- c. Install the film chamber plate (2 - 43) on the main frame with the edge applied to the claw on the main frame, and secure it with two screws (2 - 44).
- d. Check the film chamber plate to insure that it is free from scar, scratch, dirt and floating.

16. Operation of pinch roller and adjustment of drive switch timing

- a. Depress the shutter release button gradually, and make sure that the EE switch and drive motor switch turn on first and then the capstan operates.
- b. Depress the shutter release button further, and make sure that the drive switch turns on as soon as the pinch roller comes into contact with the capstan shaft. When adjustment of this timing is required, loosen the screw (5 - 85) and adjust the eccentric pin (5 - 76).

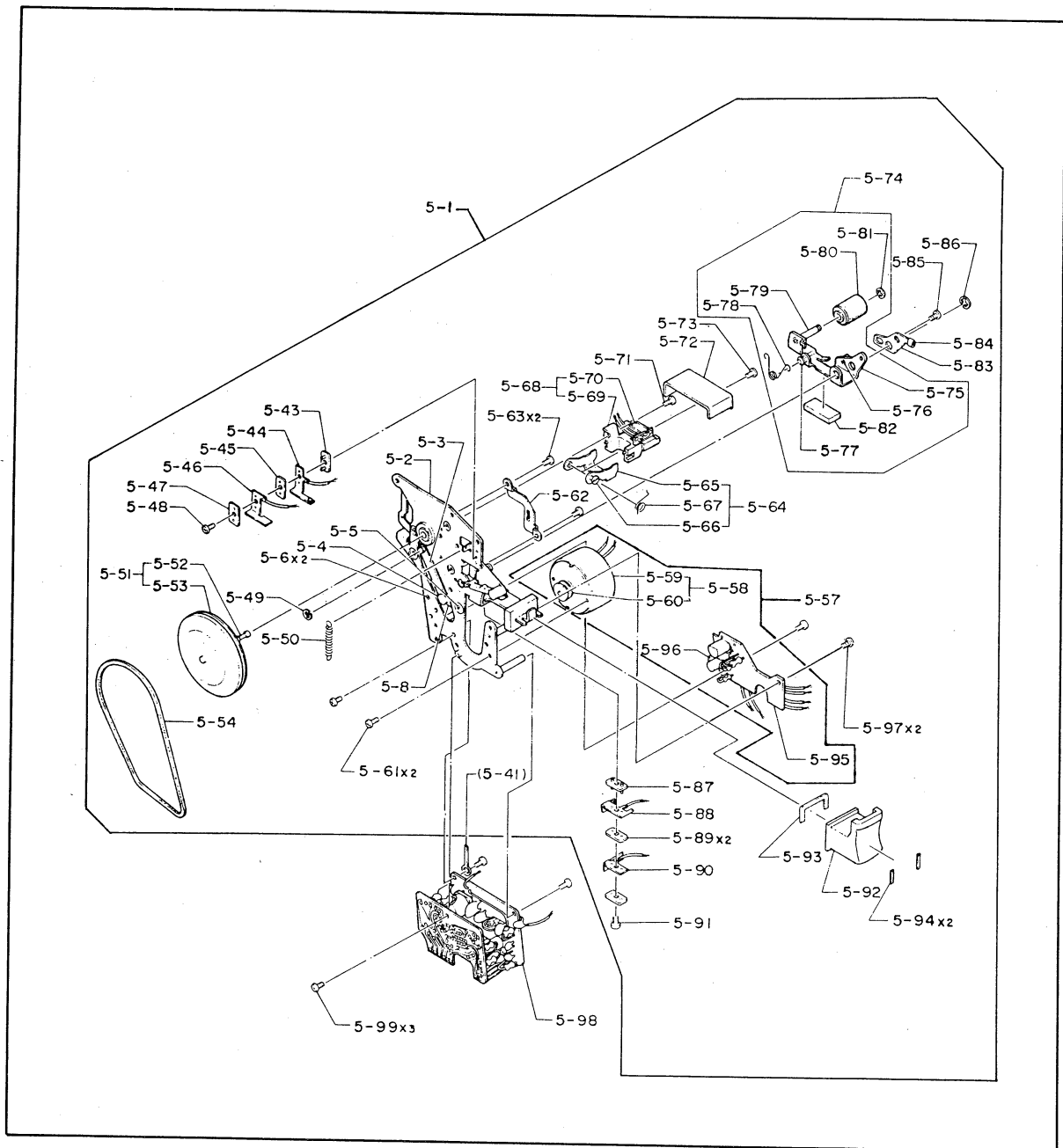
NOTE: Depress the shutter release button as gradually as possible.

- c. Release the shutter release button from depression, and make sure that the pinch roller is separated from the capstan shaft as soon as the drive switch turns off.
- d. The EE switch and drive motor switch should not turn off before the drive switch turns off.
- e. When the EE switch does not turn on, clean the contact pieces (5 - 88 and 5 - 90) first, and then properly bend them.

17. Adjustment of filming speed

- a. Cover up the photocell with a piece of black tape or other proper mean to fully open the meter.
- b. Install the film chamber plate temporarily, and load a sound film cartridge. (Use a comparatively new film cartridge.)
- c. Apply the camera to a filming speed meter, and adjust the variable resistor (5 - 96) so that filming speed is 18 FPS.
(The rated filming speed is 18 ± 0.5 FPS. However, try your best to adjust filming speed to 18.0 FPS.)

Fig. 31



18. Checking footage counter for operation

18 - 1 Advancement

- a. Make sure that the footage counter advances smoothly from "S" to "15 m (50ft)" without any dragging or skipping of the needle.
- b. When the footage counter needle (4 - 74) is not advanced, check the gear (4 - 76) for teeth and footage counter needle for the shape carefully.
Replace the defective parts if any.

18 - 2 Returning

- a. Open the film chamber door, take out the film cartridge and make sure that the footage counter needle returns correctly to "S" from any position of the scale.
- b. When the footage counter needle does not return, check the footage counter needle (4 - 74) and gear (5 - 76).

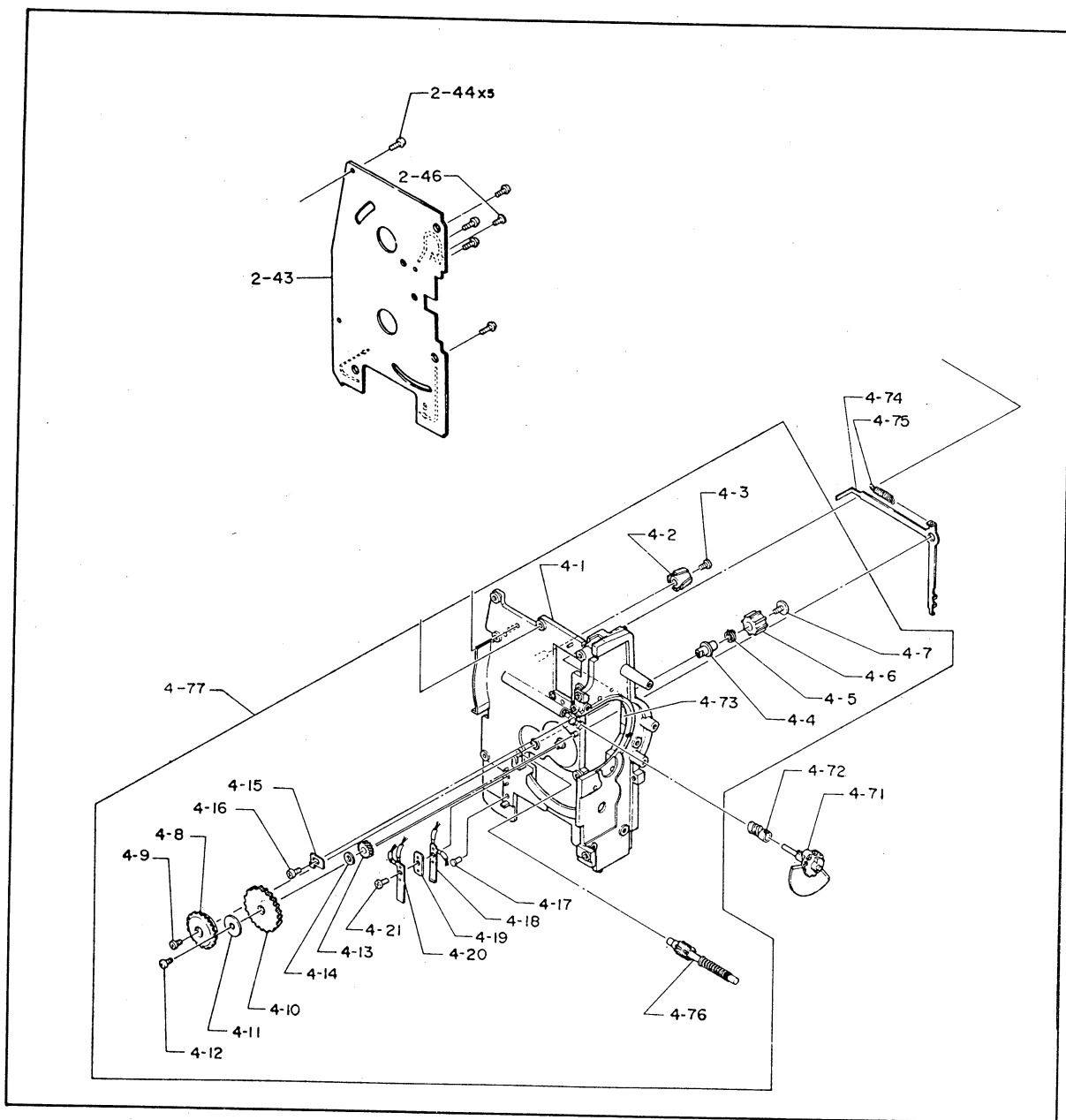
When the footage counter needle is hooked on the gear, properly bend the needle

CAUTION: Do not bend the footage counter needle too much.

When the needle is bent excessively, it will drag on the film chamber plate causing it not be advanced or returned.

- c. Check the footage counter needle for existence of bur on the surface.
Check the back of the film chamber plate also for existence of bur.
If any bur exists, the footage counter needle will not return smoothly.
Remove the bur, if any.

Fig. 32



19. Battery check button

- a. Apply positive (+) and negative (−) DC voltage respectively to contact pieces (2 - 24) and (2 - 22), depress the battery check button (2 - 27), and make sure that the LED (4 - 42) lights at 3.8V or higher, and that the LED does not light at 3.4V or lower.

NOTE: The LED may light or may not light at 3.5 to 3.7V.

- b. Depress the battery check button and measure voltage across lead wires W6 and W7. It should be equal to the battery voltage.
- c. Depress the battery check button, and insure that current is about 480 mA at 4V.
- d. As the results of the above inspections, when the condition is unsatisfactory, check all the relative lead wires for connection and soldering.

When all the lead wires are connected correctly, and the LED does not light or go out as described in 19 - a above, replace the LED with a new one, or when voltage across lead wires is not as described in 19 - b or current at 4V is not as described in 19 - c above, replace the automatic film speed setting circuit assembly (4 - 22) with a new one.

- e. When checking the battery check button, be sure to close the square window (for adjustment of battery check button) on the side cover.
(When this square window is opened, light applied to the lamp will be reflected and the lamp will look like as if it lights.)



20. EE mechanism assembly

20 - 1 Adjustment of exposure

- a. Make sure that voltage of the battery is 4V or higher.
- b. Adjust the variable resistor (3 - 18) and LV adjusting plate (3 - 17) so that the values shown in the following table are satisfied.

ASA	LIGHT SOURCE			RATED EXPOSURE	
25	Low luminosity	603.8 rlx	Equivalent to F : 2.8	4.3 ~ 10.8 lx	± 2/3 EV
	Medium luminosity	2415.2 rlx	Equivalent to F : 5.6	4.3 ~ 10.8 lx	± 2/3 EV
	High luminosity	9657.5 rlx	Equivalent to F : 11	4.3 ~ 10.8 lx	± 2/3 EV
200	Low luminosity	75.4 rlx	Equivalent to F : 2.8	0.53 ~ 1.35 lx	± 2/3 EV
	Medium luminosity	301.6 rlx	Equivalent to F : 5.6	0.53 ~ 1.35 lx	± 2/3 EV
	High luminosity	1207.2 rlx	Equivalent to F : 11	0.53 ~ 1.35 lx	± 2/3 EV

- c. When exposure at low luminosity is deviated from the rated exposure, properly move the LV adjusting plate (3 - 17) as indicated below.

When over: Reduce exposed area of CdS.

When under: Increase exposed area of CdS.

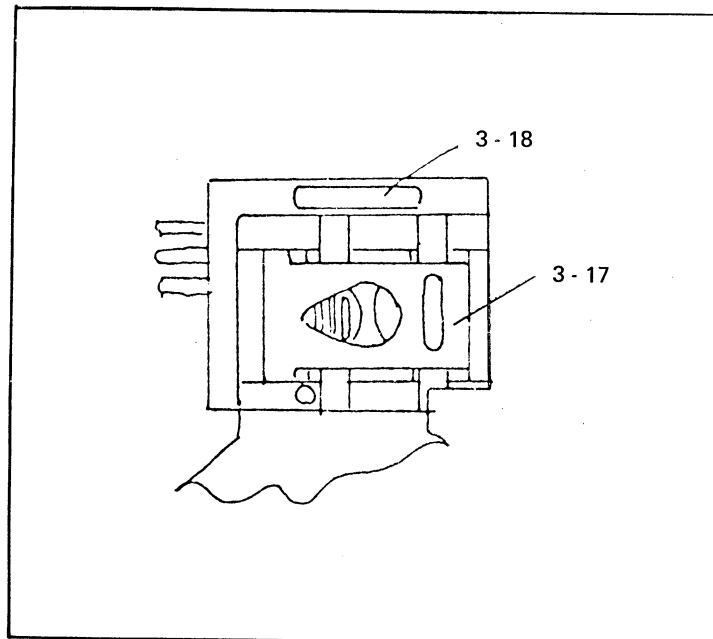
- d. When exposure at high luminosity is deviated from the rated exposure, properly adjust the variable resistor (3 - 18).

NOTE: (1) When adjusting exposure, be sure to install the front cover assembly (1 - 1) because the light guide is installed on the front cover assembly.

- (2) The rated exposures shown in the above table may be satisfied by adjusting the LV adjusting plate or variable resistor only. In this case, however, exposure may fluctuate greatly at other luminosities and deviate the rated exposures.

Thus, regard the instructions in 20 - 1 - c and d above.

Fig. 34



20 - 2 Rated exposure at each film speed

With the luminosity fixed at 603.8 lx, change over film speed (ASA number), and make sure that the rated exposure values shown in the following table are satisfied.

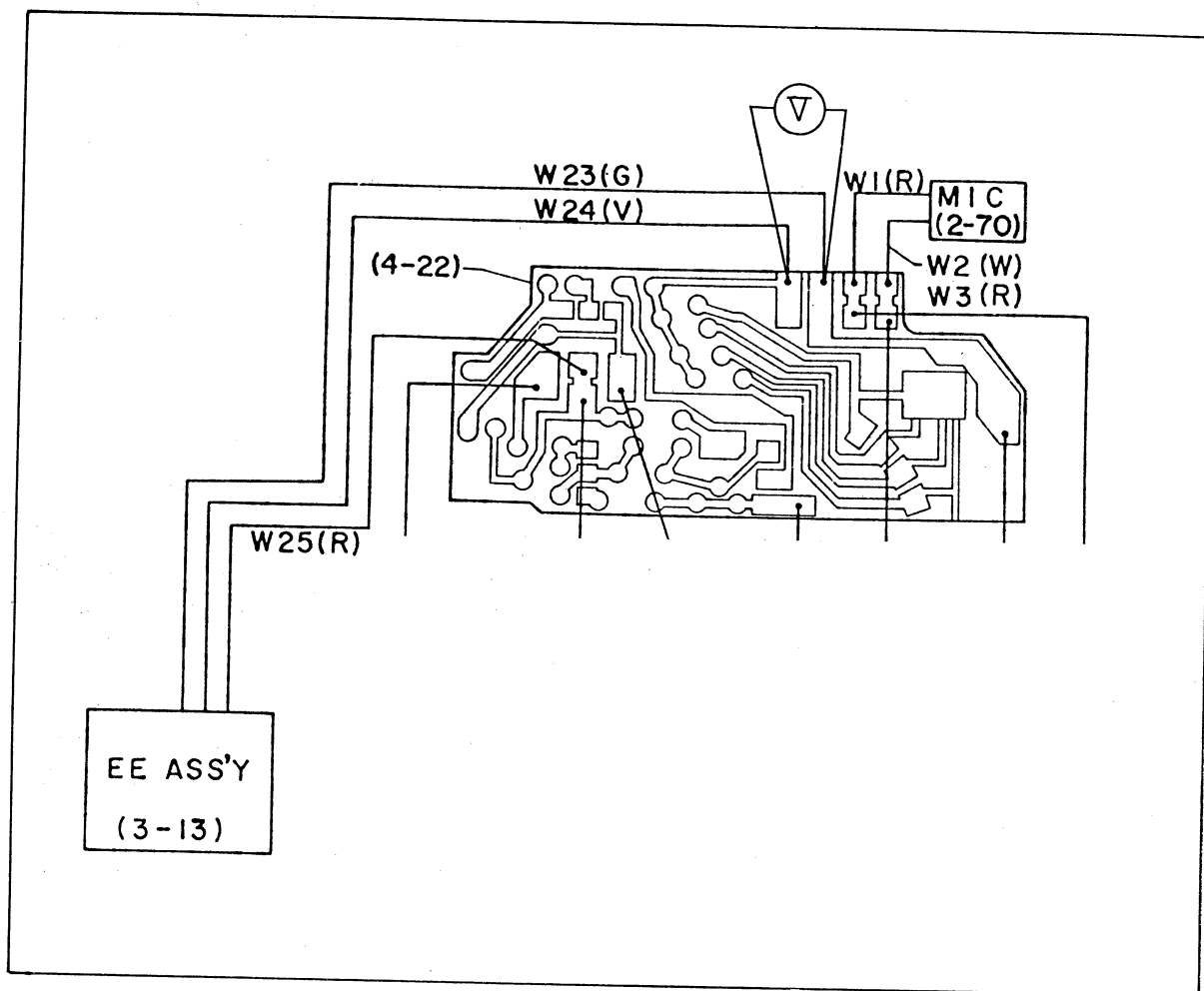
ASA	25	50	100	200	400
Rated exposure	4.3 ~ 10.8 lx	2.1 ~ 5.4 lx	1.06 ~ 2.7 lx	0.53 ~ 1.35 lx	0.27 ~ 0.68 lx
Tolerance	± 2/3 EV	± 2/3 EV	± 2/3 EV	± 2/3 EV	± 2/3 EV
F — value	Equivalent to F : 2.8	Equivalent to F : 4	Equivalent to F : 5.6	Equivalent to F : 8	Equivalent to F : 11

20 - 3 Rated resistance of automatic film speed setting circuit at each film speed.

- Remove the film chamber plate (2 - 43).
- Disconnect the lead wires W23 and W24 extended from the meter at the automatic film speed setting circuit assembly (4 - 22).
- Connect an ohm - meter across the terminals on the printed circuit board from where the lead wires W23 and W24 have been disconnected.
- Push the film speed setting pins (4 - 45) one by one to change film speed, and make sure that the rated resistances shown in the following table are satisfied.

ASA	25	50	100	200	400
Resistance	1.65 to 1.82 KΩ	2.84 to 3.14 KΩ	5.44 to 6.01 KΩ	13.68 to 15.12 KΩ	∞

Fig. 35



20 - 4 Meter inspection

- a. Apply positive (+) and negative (−) voltage respectively to meter lead wires W25 and W23, change light value applied to the CdS, and make sure that the meter operates correctly.
- b. Change film speed (ASA number), and make sure that the meter operates one step by one step.
- c. Make sure that internal resistance of the meter is $1.54\text{ K}\Omega \pm 130\text{ }\Omega$.
- d. At the meter stopper position, the aperture should be shaped as shown in the right hand figure respectively in the maximum and minimum aperture sides.
- e. When the EE switch turns on, current should be about 5 mA.
When this current is abnormally high, the meter must have an internal trouble.

NOTE: When the shutter release button is depressed in a half way (the switch turns on at the 1st step) and current is high (200 mA or higher), not only the recording amplifier circuit and drive motor circuit but the meter itself has an internal trouble.

20 - 5 Adjustment of underexposure signal

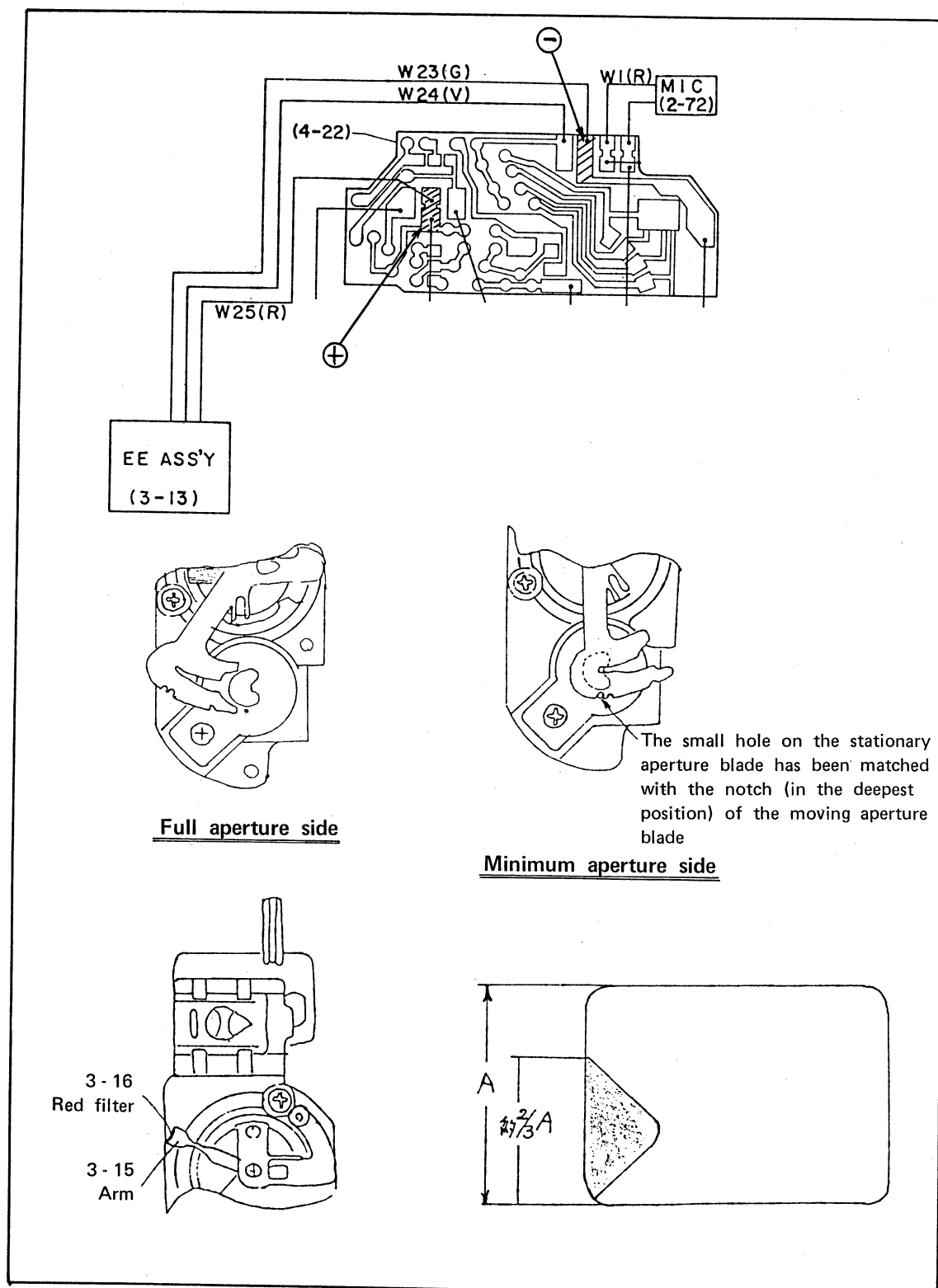
- a. Look through the viewfinder and properly bend the arm (3 - 15) so that the underexposure signal (red filter) appears in the viewfinder frame (2 - 15) as illustrated in the right hand figure.

NOTE: The size of underexposure signal shown in the right hand figure is maximum.

A size slightly smaller than this size may be permitted.

- b. The red filter should have no remarkable scratch or dirt.
- c. Face the camera to a bright object and make sure that the red underexposure signal goes out from the viewfinder as soon as the EE switch turns on.

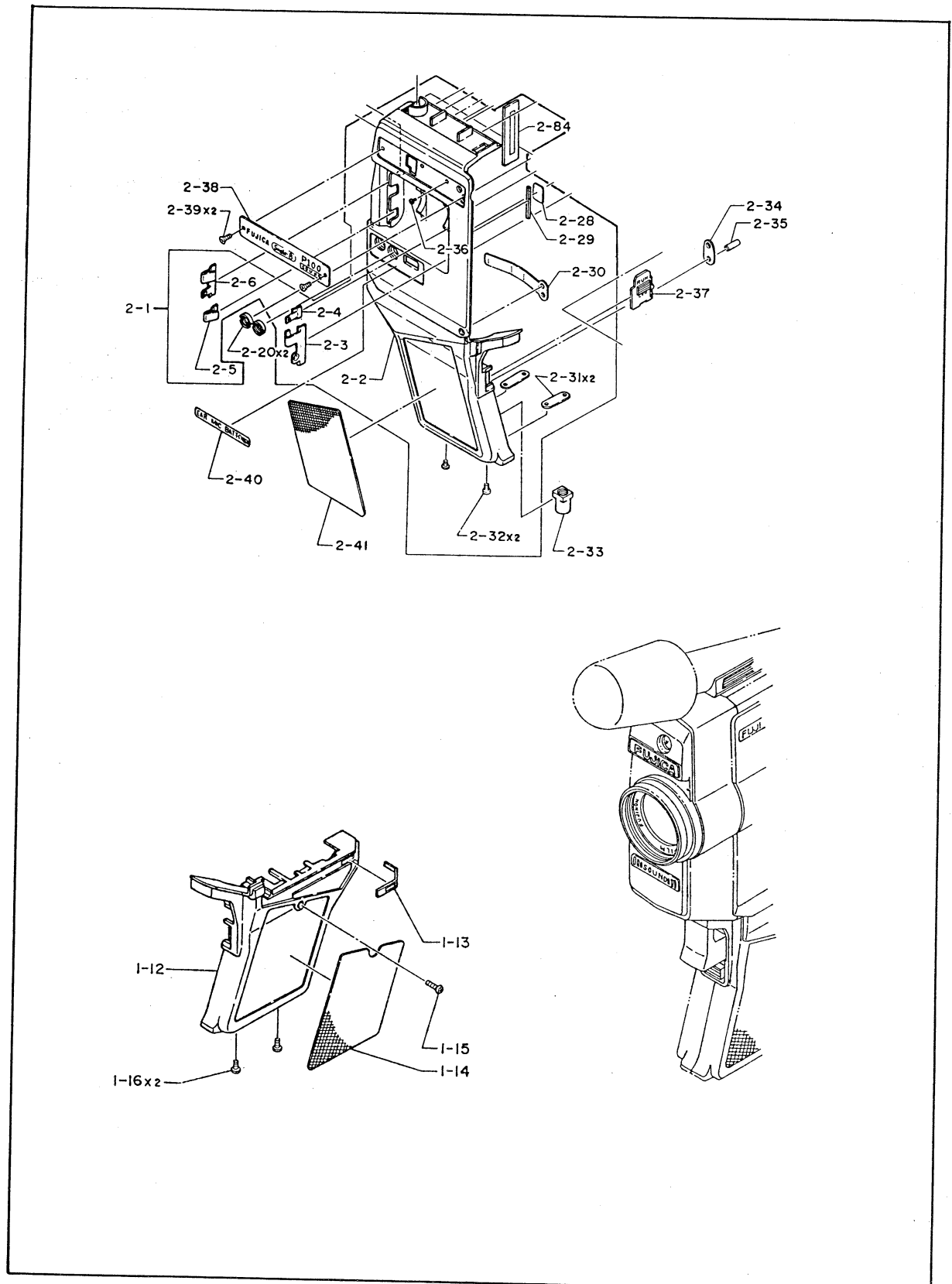
Fig. 36



21. Installing grip cover (1 - 12)

- a. Install the moquette (1 - 13) on the grip cover (1 - 12) with adhesive carefully so that none of the portion is floated or peeled off.
- b. Install the leather (1 - 14) with Pliobond carefully so that none of the portion is floated or peeled off.
- c. Fit the tripod socket (2 - 33) and secure it lightly with pliabond.
- d. Fit the Run - Lock button (2 - 37), shaft (2 - 35) and hand strap eyelet (2 - 34).
- e. Fit the grip cover (1 - 12) to the side cover.
- f. Tighten the screw (1 - 15) and two screws (1 - 16) to secure the grip cover (1 - 12) on the side cover (2 - 2)
- g. Check the shutter release button to insure that it moves smoothly without any dragging.

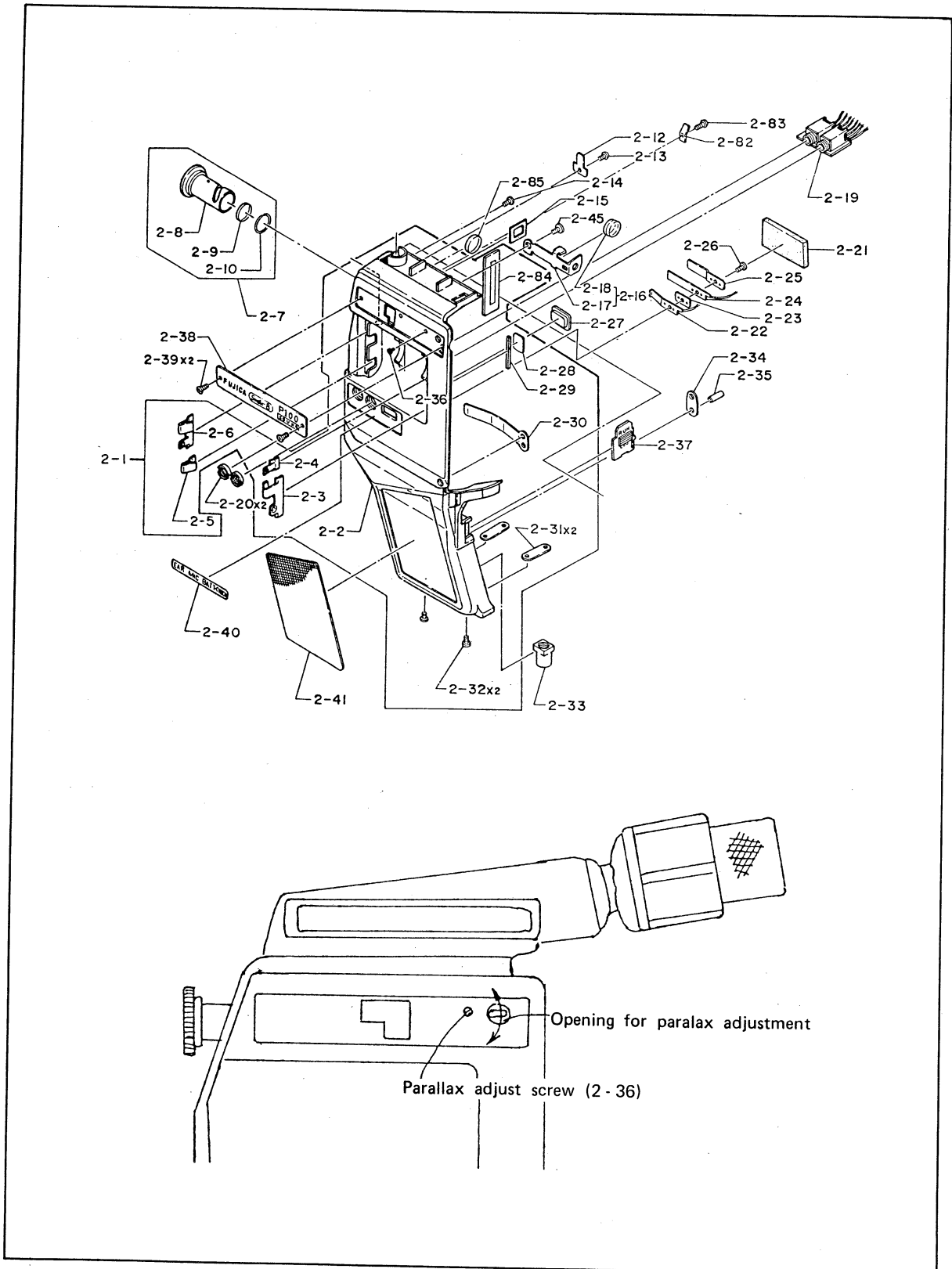
Fig. 37



22. Adjustment of parallax

- a. Set the camera on a parallax adjuster (JB308).
- b. Look into the viewfinder. When the chart of the parallax adjuster is deviated vertically against the viewfinder frame, adjust position of the lens assembly (2 - 16).
- c. When the chart is horizontally deviated against the viewfinder frame, turn the adjust screw (2 - 36) properly.
- d. After completing the above adjustments, look into the viewfinder and make sure that one side of the viewfinder frame is not remarkably blurred.
- e. Look at a vertically standing object with one eye directly and through the viewfinder with the other eye, and make sure that the object seen in the viewfinder is not tilted remarkably. (Rating : Within $1^{\circ}30'$)
- f. When parallax cannot be adjusted by the above described method, or when one side of the viewfinder is blurred or an object seen in the viewfinder is tilted remarkably, replace the lens assembly (2 - 16) or viewfinder assembly (3 - 1) with a new one.

Fig. 38



23. Adjustment of focus

- a. Load a comparatively new silent film.
- b. Cover the face of the photocell with a piece of black tape or by other proper mean to fully open the aperture.
- c. Set a collimator (Gokosha Model 80 mm) to "18.7".

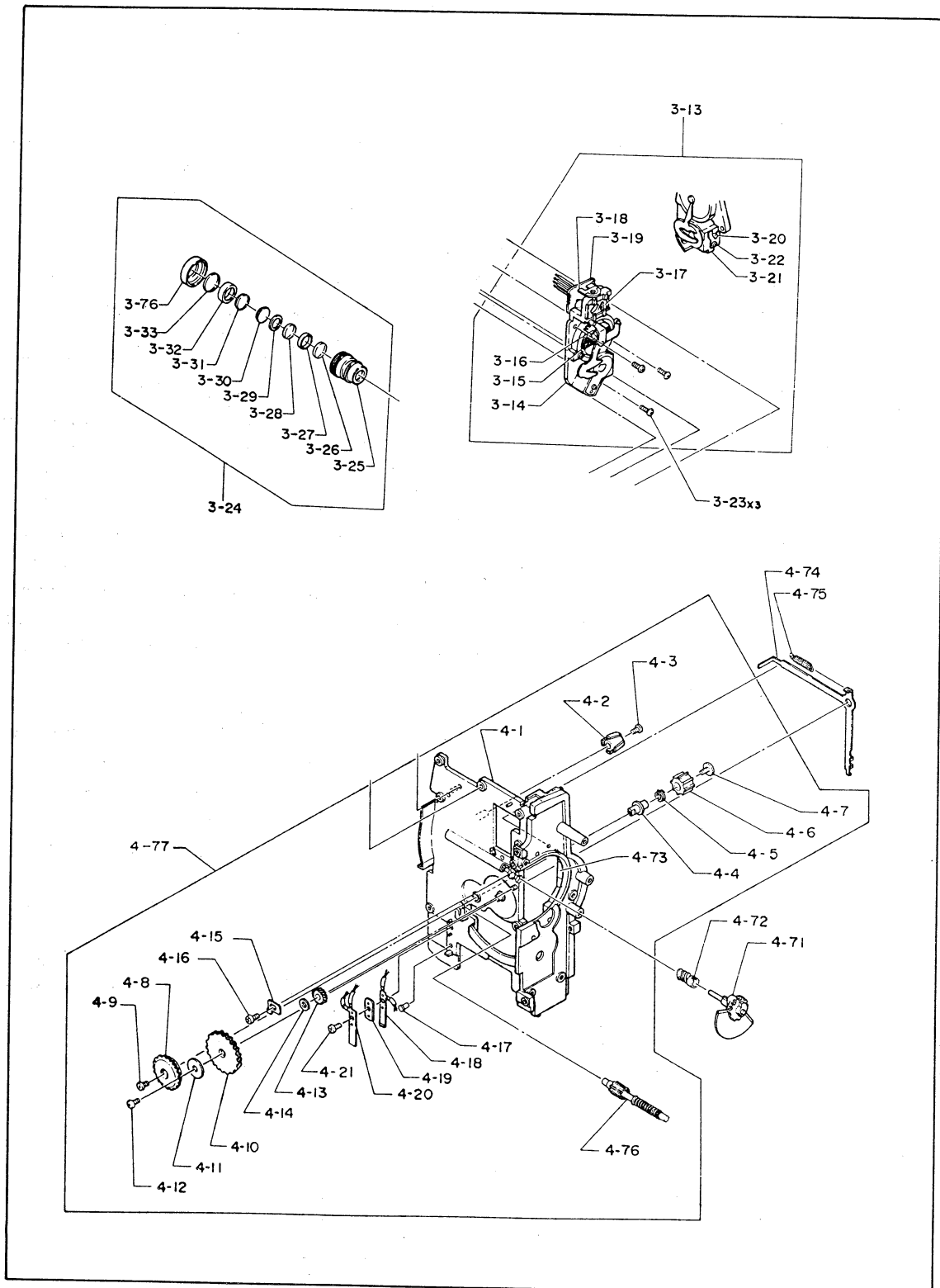
NOTE: The focusing distance of the camera is short (8.5 mm), and therefore it will be hard to adjust focus with the conventionally used collimator.

- d. With the shutter release button depressed, set the Run - Lock button to "LOCK", and by transposing the film, properly turn the shaft (3 - 20) to adjust focus.
- e. Adjust distance of object to 3.5 m.
- f. After completing the adjustment, advance the film again and make sure that focus has been adjusted correctly.
(Tolerance : 18.7±10 scale)

24. Film take - up torque

- a. The rated film take - up torque is 35 to 50 gr - cm.
- b. When actual film take - up torque is deviated from the above rating, replace the spring (4 - 5) with a proper one.
- c. Check the film take - up spindle (4 - 4), spring (4 - 5) and main frame (4 - 1) to insure that they are not resisting each other.
- d. Check shape of the groove on the film take - up wheel (4 - 6) into which the spring enters. (If this groove is not in a proper shape, the spring will come off from the film take - up wheel causing the film take - up wheel to idle.)
- e. Make sure that the screw (4 - 3) is tightened securely and that the screw has no scar or scratch on the surface.
- f. After tightening the screw, hold the film take - up wheel with your fingers, drive the motor and make sure that the film take - up wheel does not idle but your fingers feel a proper friction.

Fig. 39



25. Sound recording system

25 - 1 Rating of sound recording system and inspection method

Inspect the camera for ratings of the sound recording system with DC 4V applied to the camera and at $22 \pm 2^\circ\text{C}$ room temperature.

ITEM	RATING	METHOD OF INSPECTION
Microphone input	- 70 dBm	
Monitor output	- 23 ± 3 dBm	Apply sine - wave 1 KHz - 70 dBm to the microphone jack, and make sure that monitor output level is - 23 ± 3 dBm.
LED monitor	Should light at - 83 ± 6 dBm.	Apply sine - wave 1 KHz to the microphone jack, and read out input level at the time when the green LED goes out or starts to light.
Frequency characteristics	± 3 dBm at 100 to 3 KHz.	Apply sine - wave 100 to 3 KHz, - 70 dBm audio signal to the microphone jack to record the sound in a film, reproduce the sound by means of a sound movie projector or standard player, and make sure that output level of the reproduced audio signal is within ± 3 dBm in comparison with that at 1 KHz.
Distortion factor	6% or less	Apply sine - wave 400 Hz - 70 dBm audio signal to the microphone jack to record sound, reproduce the sound and read out distortion factor.
S/N ratio	Through an audibility compensation filter, level difference should be 30 dBm or more.	Apply sine - wave 1 KHz - 64 dBm audio signal to the microphone jack to record it, advance the film without recording any sound, play the film, and compare output level of the recorded portion against that of non - recorded portion.

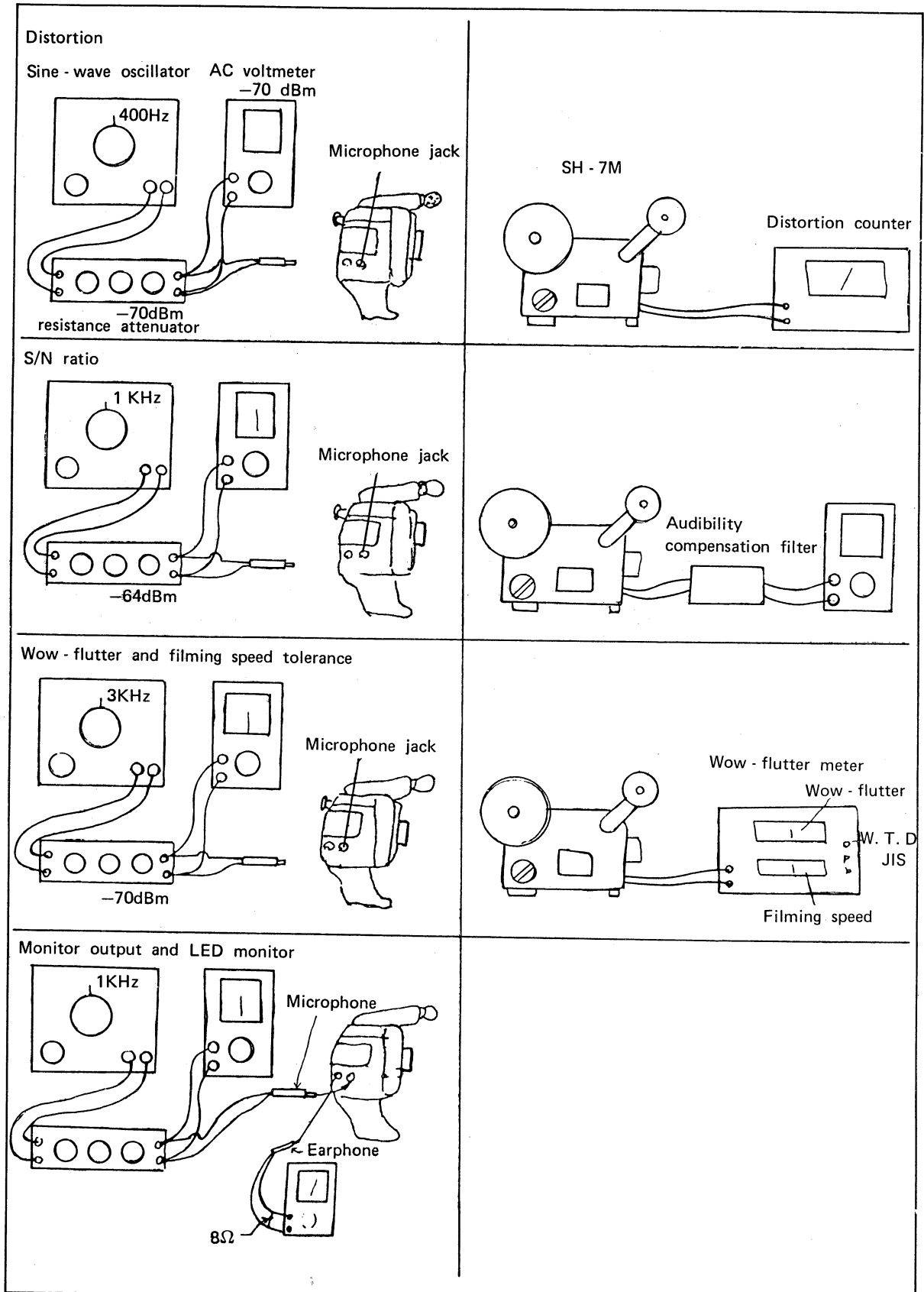
ITEM	RATING	METHOD OF INSPECTION
Wow - flutter	0.45% or less (JIS WTD)	Apply sine - wave 3 KHz — 70 dBm audio signal to the microphone jack to record it, reproduce the sound and read out wow - flutter.
Tolerance of filming speed	Within $\pm 3\%$	Apply sine - wave 3 KHz — 70 dBm audio signal to the microphone jack to record it, reproduce the sound, and read out filming speed during the reproduction.

25 - 2 Measuring instruments to be used

- 1) Sine - wave oscillator
- 2) AC voltmeter (dB meter)
- 3) Resistance attenuator
- 4) Audibility compensation filter
- 5) Wow - flutter meter
- 6) Distortion counter
- 7) Sound movie projector (SH - 7M, etc.)
- 8) DC voltmeter (To check battery checker operation)
- 9) Oscilloscope
- 10) Tester

For connections of these instruments, refer to the right hand figure.

Fig. 40



25 - 3 Inspection procedure

When recording performance is unsatisfactory, check the sound recording system in accordance with the following procedure.

Voltage applied to the camera; 4V

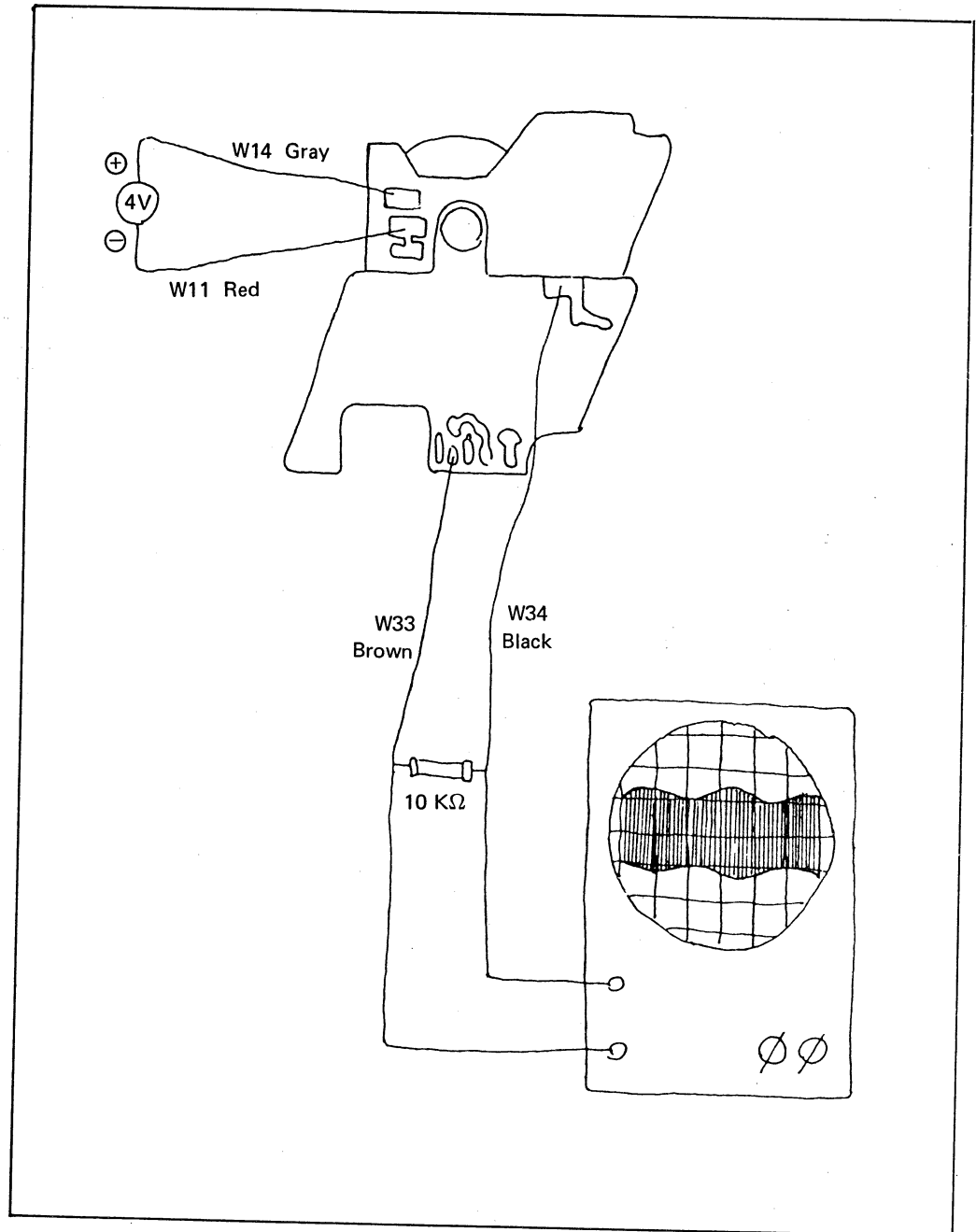
	OPERATION FOR INSPECTION	EXAMINATION AND RESULT
a. Before disassembling the camera, check the sound recording system as described in the right hand columns.	(1) Record audio signal through the microphone.	(1) When the LED does not light or sound cannot be monitored through an earphone, the amplifier is defective or circuit is disconnected or short-circuited. (2) When the LED lights and sound can be monitored through an earphone, lead wire of the head is disconnected, the head is defective or bias oscillation of the amplifier is faulty.
	(2) Play the recorded film and listen to the reproduced sound.	(1) When no sound is reproduced at all, the recording amplifier is defective, the circumferential circuit is defective or coil of the head is broken. (2) When sound is reproduced but quality is poor: a. The head is not clean. b. Poor contact of the head against film. c. Poor wow - flutter. d. Defective recording amplifier. e. Unstable film transporting.
b. Disassemble the camera.	(1) Remove the head cover (5 - 72), and check the lead wire connected to the recording head for soldering.	Sound is not recorded if the lead wire is disconnected or short-circuited.

	OPERATION FOR INSPECTION	EXAMINATION AND RESULT
	(2) Disconnect both lead wires from the recording head, and check bias current and bias oscillation waveform.	<p>(1) Bias current The amplifier is normal when bias current is within range of 1.05 to 1.95 mA.</p> <p>(2) Bias oscillation . . . The amplifier is normal when the waveform is sine - wave (50 KHz) having no distortion.</p> <p>(3) When no bias current is generated:</p> <p>a) The recording amplifier is defective.</p> <p>b) The circumferential circuit is defective.</p>

25 - 4 Parts standard for sound recording system and method of inspection

PARTS NAME	RATING	METHOD OF INSPECTION
Head	Input impedance : $200\Omega \pm 30\%$ at 1 KHz	(1) Measure impedance with an impedance meter. (2) Measure resistance with a tester as a simple method. The head is normal when resistance is about 85Ω .
Recording amplifier	Bias oscillation	Connect a $10\text{ K}\Omega$ resistor across lead wires W33 (brown) and W34 (black) of the head, connect both terminals of the resistor to an oscilloscope and observe waveform. Apply sound to the microphone, and make sure that the waveform shown in the right hand figure appears.

Fig. 41



25 - 5 Pull - down control system

a) Operation of the pull - down control system

Camera operation	Conditions of sensor switch (contact pieces (5 - 44 and 5 - 46))	Filming speed
With or without loading silent film, close the film chamber door, and operate the camera.	ON	20 FPS
Withoug loading film, open the film chamber door and operate the camera.	OFF	10 ~ 16 FPS
With a sound film loaded, close the film chamber door and operate the camera.	Repeats turning on and off at every frame.	18 FPS

b) Method to inspect the pull - down control circuit

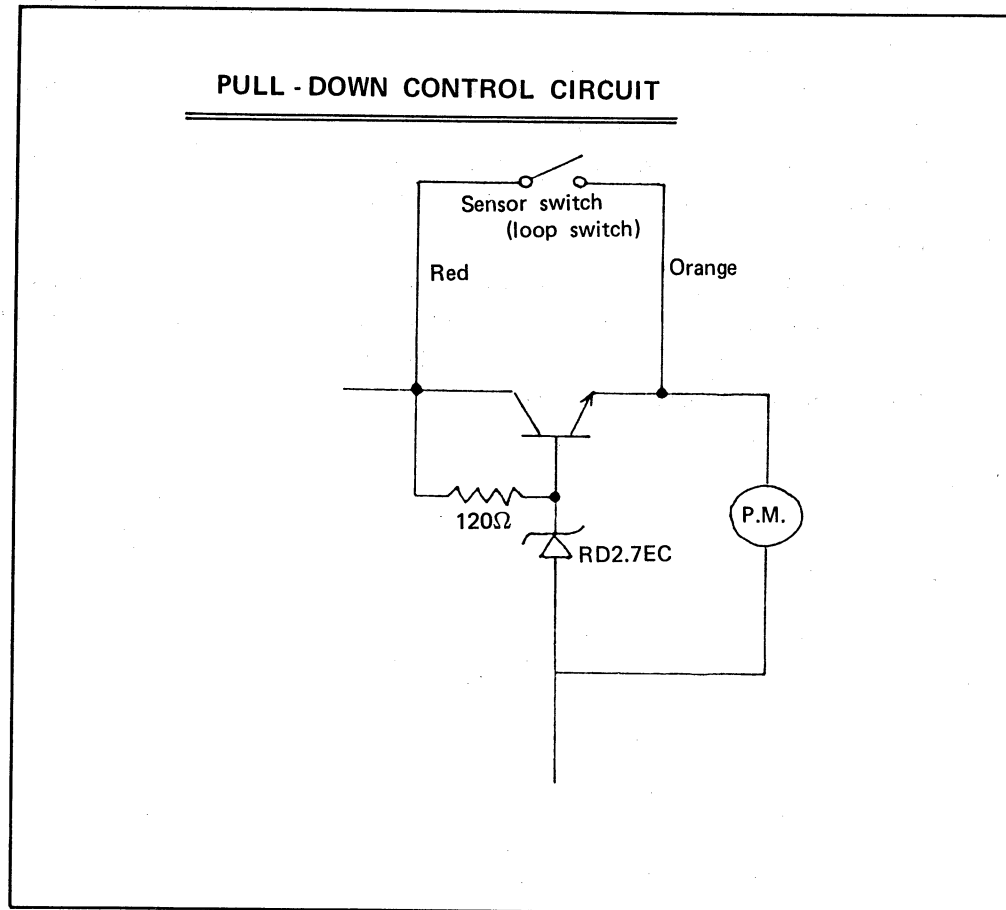
To check the pull - down control circuit, measure voltage across the pull - down motor terminals. The pull - down control circuit is normal when:

- Sensor switch (loop switch) is turned on and voltage is 4V.
- Sensor switch (loop switch) is turned off and voltage is 2.2V.

c) When filming speed is abnormal or unstable

- Adjust filming speed with the variable resistor of the governor assembly (5 - 95).
- Check the pull - down control circuit for performance.
- Check the sensor switch (contact pieces (5 - 44 and 5 - 46)) for contact pressure (rating: 3 to 6 grams) and cleanliness.
- Check the pull - down motor for friction.

Fig. 42



25 - 6 Gargle

When sensor switch contact is poor (due to dirty contact or insufficient contact pressure), gargle occurs.

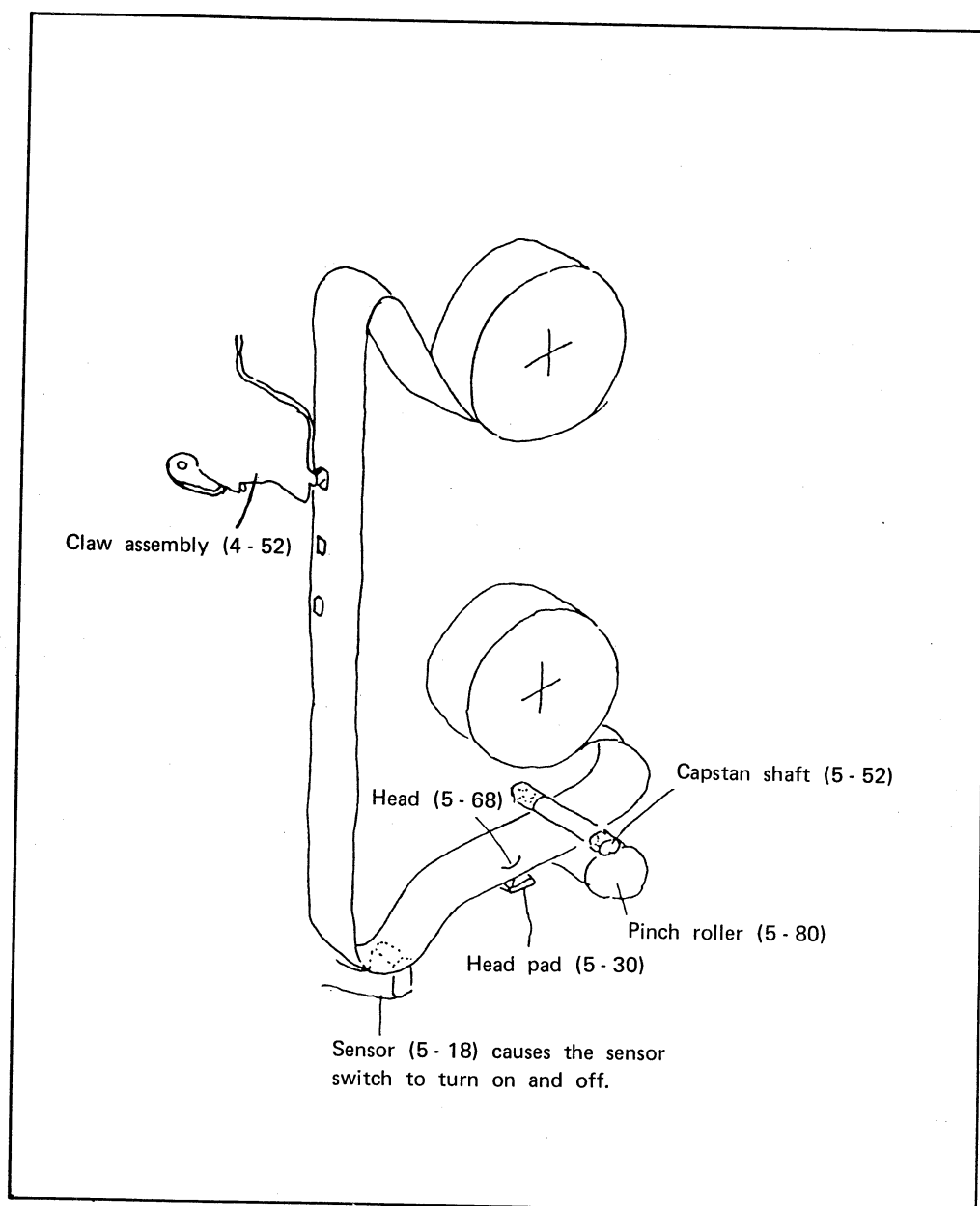
To be more specific, when sensor switch contact is poor, the pull - down control circuit does not operate normally.

With this circuit operated incorrectly, correct voltage is not applied to the terminals of the pull - down motor (for the sound system), causing the filming speed to drop.

With the filming speed dropped, film is pulled by the drive motor (pinch roller) without forming a film loop and the film does not come into contact with the recording head correctly (sound is recorded on the film repeatedly).

This occurrence is called "Gargle".

Fig. 43

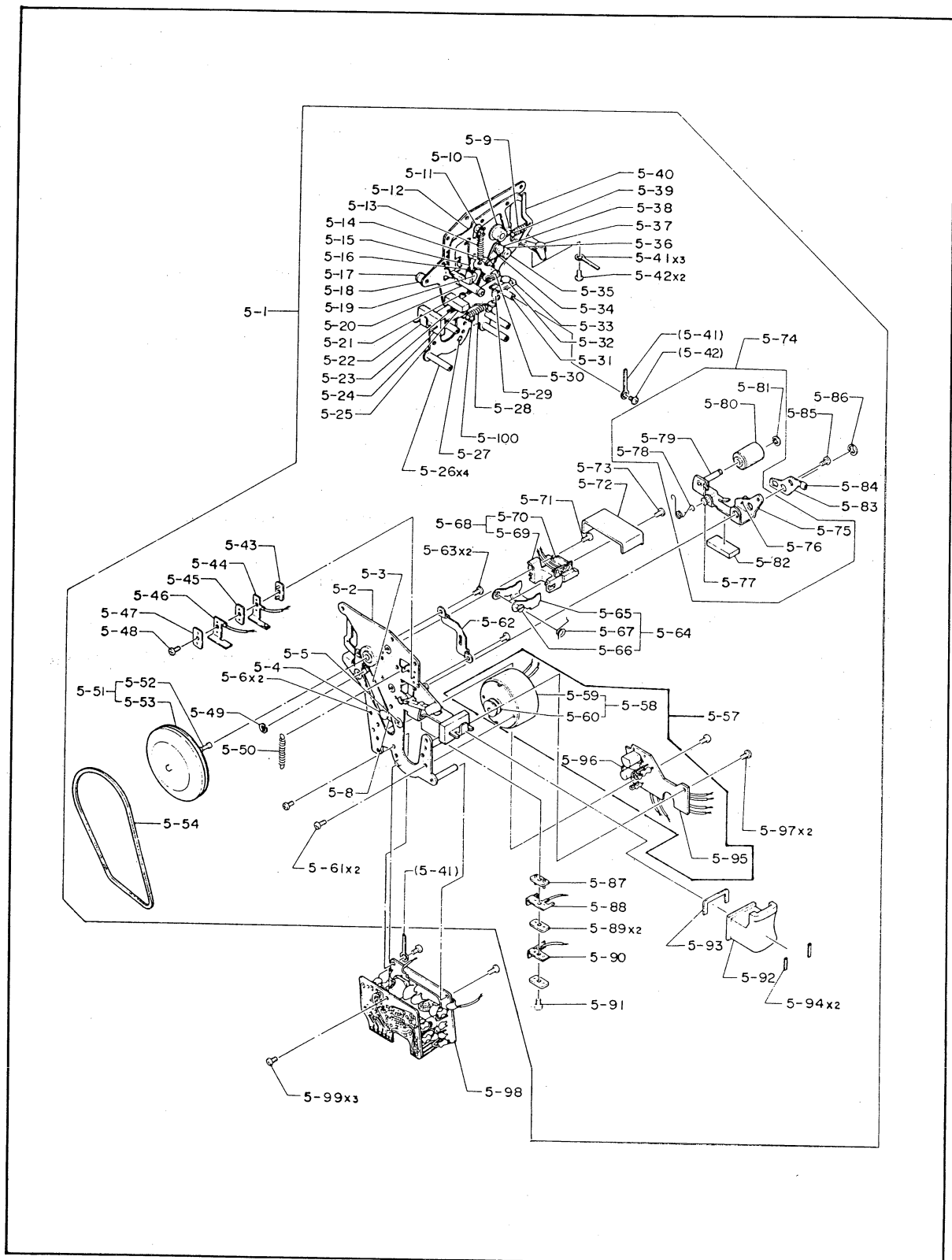


25 - 7 Procedure for repairing sound recorder assembly (improper wow - flutter)

Rating : 0.45% or less

CAUSE FOR OCCURRENCE OF WOW - FLUTTER	INSPECTION	CORRECTIVE ACTION
Fitting of capstan shaft (5 - 52) into the shaft holder (5 - 10).	Remove the belt, turn the flywheel (5 - 53), and make sure that it stops naturally. If it stops as if it is braked, the fitting of the capstan shaft is incorrect.	Clean and lap.
Belt (5 - 54)	Check the belt for existence of oil or dirt, deformation, and oscillation of the belt during operation of the sound recorder assembly.	Clean and replace.
Head pad (5 - 30)	Check the head pad for tape squeaking, floated head pad, dirty head pad and head pad pressure (40 to 50 grams).	Clean, repair or replace.
Pinch roller (5 - 80)	Check the pinch roller for smooth rotation, deformation (roughened surface), existence of dirt, and pinch roller pressure (250 to 300 grams).	Clean or replace.
Contact between capstan shaft and leaf spring	Check the leaf spring for surface wear and weakened spring force.	Replace.

Fig. 44



26. Installing front cover assembly (1 - 1)

- a. Check the front cover (1 - 2) and cover (1 - 3) to insure that they are clean and not scarred or scratched.
- b. Check the window plate (1 - 4) to insure that it is clean and not scarred or blurred.
- c. Check the name plate (1 - 5) to insure that it is installed firmly with adhesive and that it is clean and not scarred or scratched.
- d. When the filter (1 - 7) and filter ring (1 - 6) have not been installed, install them with three screws (1 - 9).
- e. Install the name ring (1 - 8) with adhesive as shown in the right hand figure so that none of the portion is floated.
- f. Place the front cover assembly (1 - 1) on the main frame, and secure it with the screw (1 - 10) and two screws (1 - 11).
- g. Depress the shutter release button and release it from the depression and make sure that it operate smoothly without any dragging.

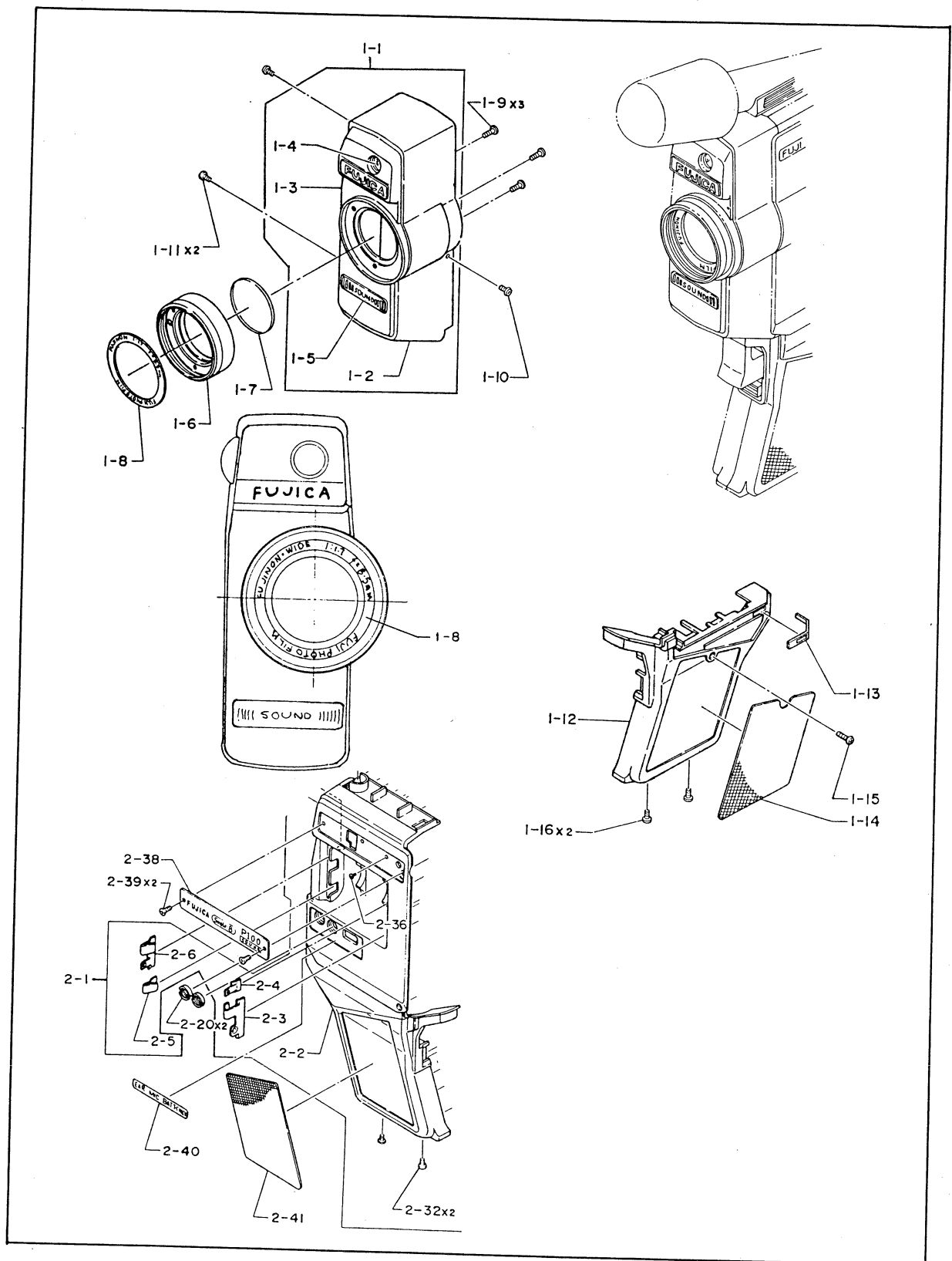
27. Installing name plate (2 - 38)

- a. Slightly warp the name plate (2 - 38), apply Pliobond to the camera body slightly, and install the name plate with two screws (2 - 39).
The Pliobond should not come out from the name plate.
- b. Make sure that the name plate is clean and not scratched or scarred.
- c. Make sure that the name plate is installed correctly on the camera body without being floated.

28. Installing leather (2 - 41)

Install the leather (2 - 41) with Pliobond correctly so that it is not floated, peeled off or tilted.

Fig. 45



IV INSPECTION

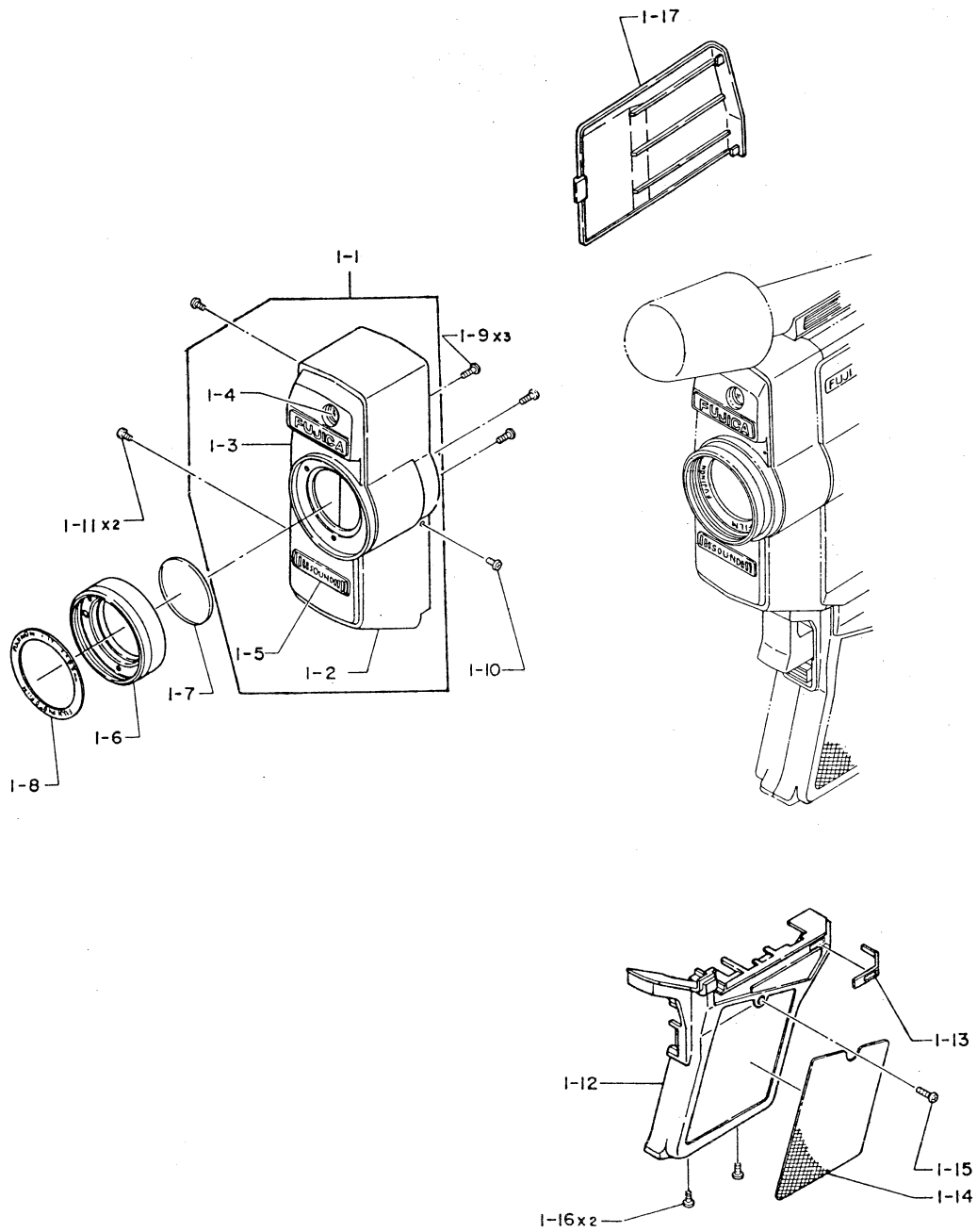
INSPECTION POINT	METHOD OF INSPECTION	REMARKS
1. EE System Operation of underexposure signal in the viewfinder	<p>Check that battery voltage is correct, depress the shutter release button in a half way (EE switch turns on) without loading film, cover up the EE window by your hand, and make sure that the red underexposure signal appears in the viewfinder.</p> <p>Move your hand away from the EE window, and make sure that the red underexposure signal disappears from the viewfinder.</p> <p>(Perform this inspection at a bright place.)</p>	
2. Film transporting system 2 - 1 Motor 2 - 2 Film transporting	<p>Depress the shutter release button, and make sure that the motor operates and that operating sound of the motor is normal.</p> <p>Load a film cartridge, depress the shutter release button and make sure that the film is transported normally.</p> <p>(Check film transporting through the film confirmation window.)</p>	
3. Sound recording system 3 - 1 Sound indicator 3 - 2 Monitor output 3 - 3 Sound recording	<p>Load a sound film cartridge, depress the shutter release button, apply a sound, and make sure that the green sound indicator flashes in the viewfinder.</p> <p>Make sure that the green sound indicator flashes in the same manner also when a separate microphone is connected to the microphone jack.</p> <p>Connect an earphone to the earphone jack, depress the shutter release button, and make sure that sound applied to the microphone can be heard from the earphone.</p> <p>Record sound actually, reproduce the sound by the use of a sound movie projector, and make sure that sound is recorded correctly.</p>	

INSPECTION POINT	METHOD OF INSPECTION	REMARKS
4. Footage counter	<p>Load a film cartridge (either sound or silent film cartridge) and transport the film by watching the footage counter needle.</p> <p>a) Make sure that the film is transported smoothly up to about 5 meters.</p> <p>b) Open the film chamber door, take out the film cartridge, and make sure that the footage counter needle returns to "S".</p>	
<p>5. General operations</p> <p>5 - 1 Adjustmetn of visibility</p> <p>5 - 2 Battery check button</p> <p>5 - 3 Shutter release button</p> <p>5 - 4 Run - Lock button</p> <p>5 - 5 Shutter lock</p> <p>5 - 6 Film chamber door</p>	<p>Turn the eyepiece, and make sure that it turns smoothly with a proper friction.</p> <p>With new batteries loaded (4V or higher), depress the battery check button and make sure that the green lamp lights in the viewfinder.</p> <p>Make sure that the shutter release button operates smoothly without dragging when it is depressed and returned.</p> <p>With the shutter release button depressed, set the Run - Lock button to "LOCK", leave your finger from the shutter release button, and make sure that the motor operates continuously.</p> <p>Set the Run - Lock button to "L", try to depress the shutter release button and make sure that the shutter release button cannot be depressed.</p> <p>Slide the film chamber door lock and make sure that the film chamber door opens easily. Close the film chamber door and make sure that the film chamber door is locked securely.</p>	
6. Appearance	<p>Check the camera body, film chamber door and front cover to insure that no scratch or dirt exists on them.</p> <p>Look into the viewfinder, and make sure that no dust or other foreign matter is seen in the viewfinder.</p>	

INSPECTION POINT	METHOD OF INSPECTION	REMARKS
7. Setting parts of the camera after completing the inspection	<p>When the inspection is completed, set each parts as indicated below and accommodate the camera in a box.</p> <p>(1) Remove the batteries from the camera.</p> <p>(2) Run - Lock button: R</p> <p>(3) Eyepiece: Fully into the camera</p> <p>(4) Footage counter needle: S</p>	

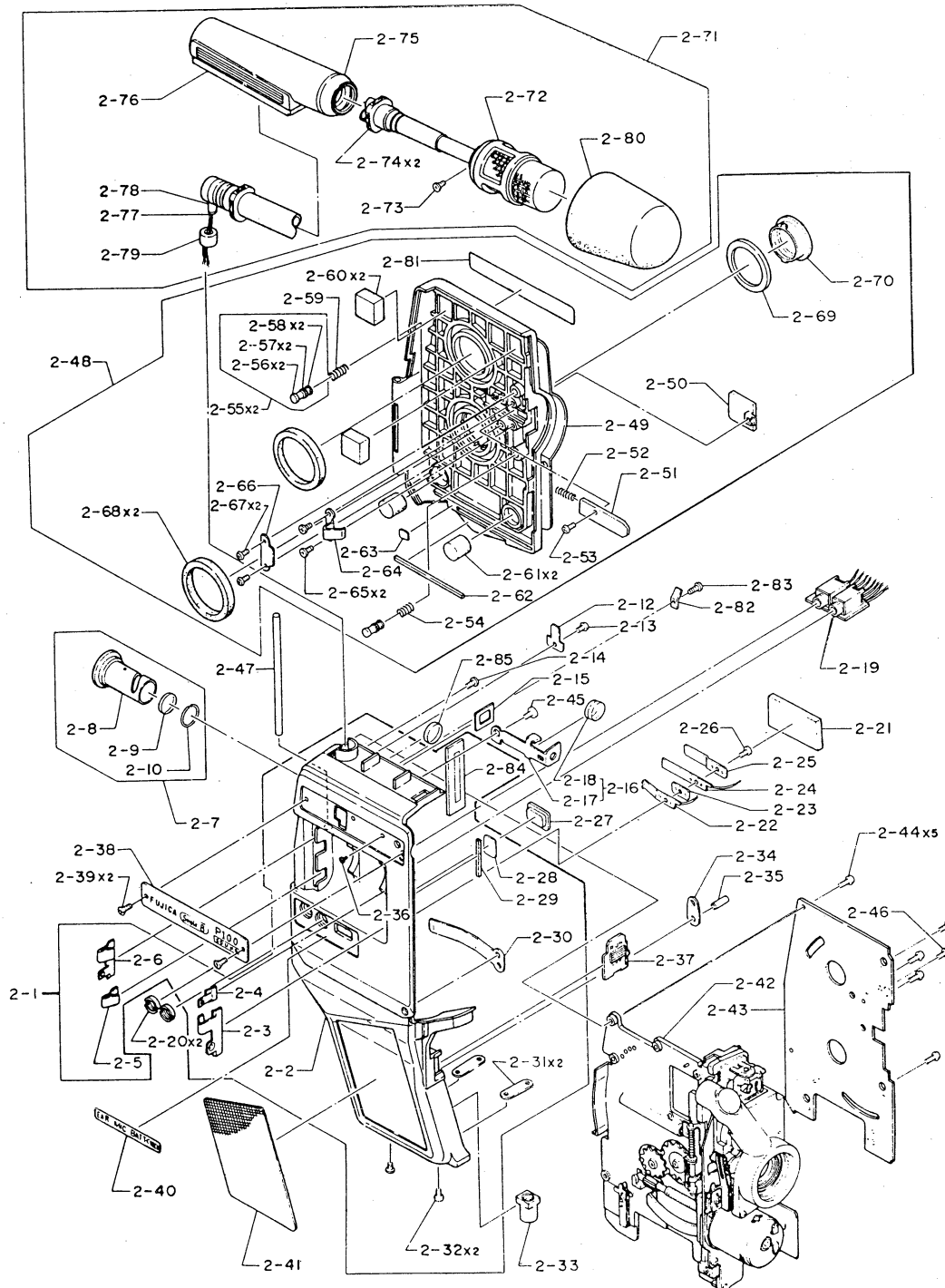
V PARTS LIST

Fig. 1



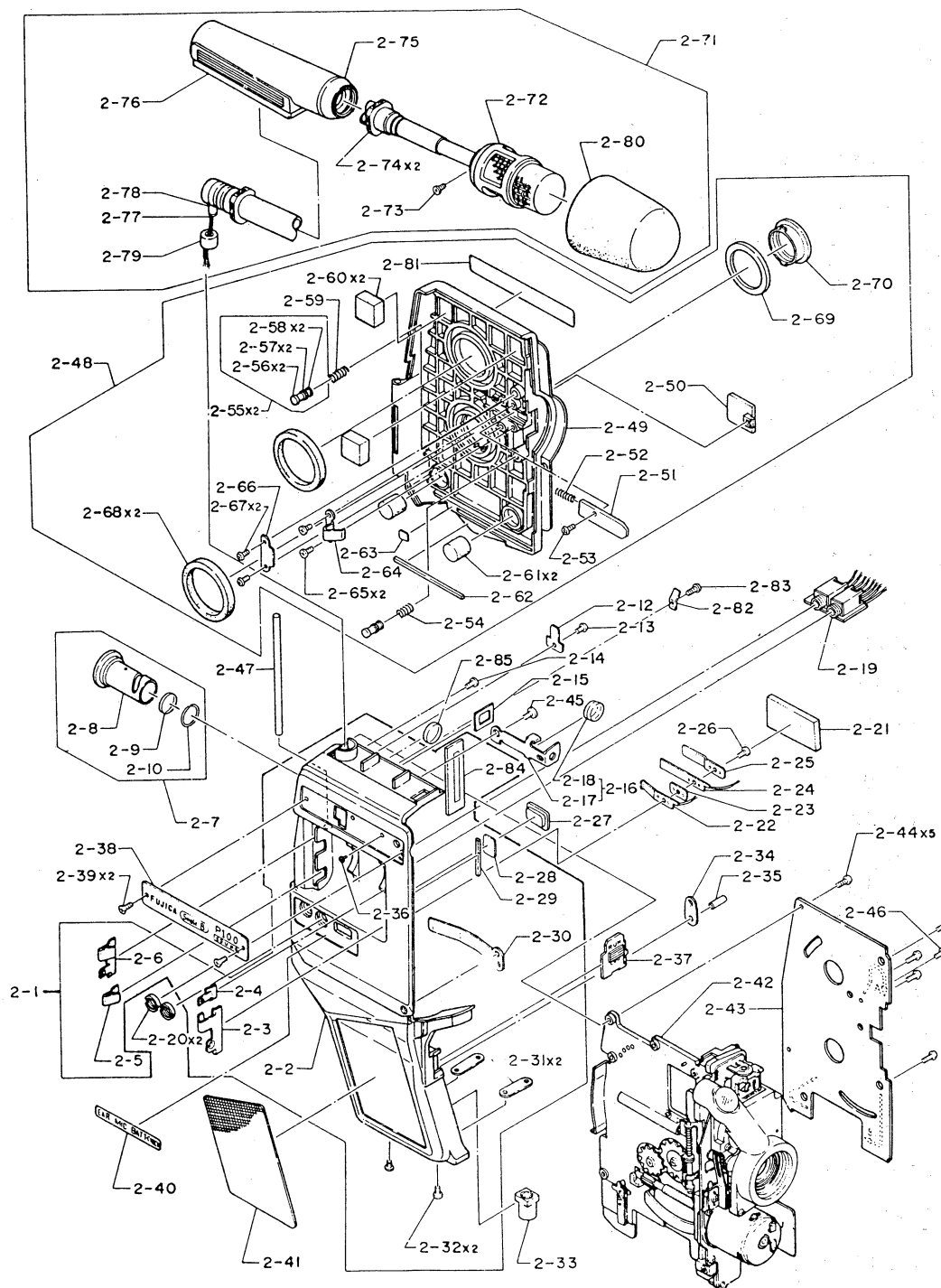
REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
1 - 1	303A2820200	Front cover assembly	1	
1 - 5	58B2473380	Name plate	1	P300S
1 - 6	23B2820880	Filter ring	1	
1 - 7	4B2910810	Filter	1	
1 - 8	58B2820570	Name ring	1	
1 - 9	110M170501M	Screw	3	
1 - 10	113M200501G	Screw	1	
1 - 11	113M200701M	Screw	2	
1 - 12	11B2472820	Grip cover	1	P300S
1 - 13	27B2473212	Moquette	1	P300S
1 - 14	59B2473153	Leather	1	P300S
1 - 15	110M200603M	Screw	1	
1 - 16	110M200303M	Screw	2	
1 - 17	11B2472835	Battery compartment cover	1	P300S

Fig. 2



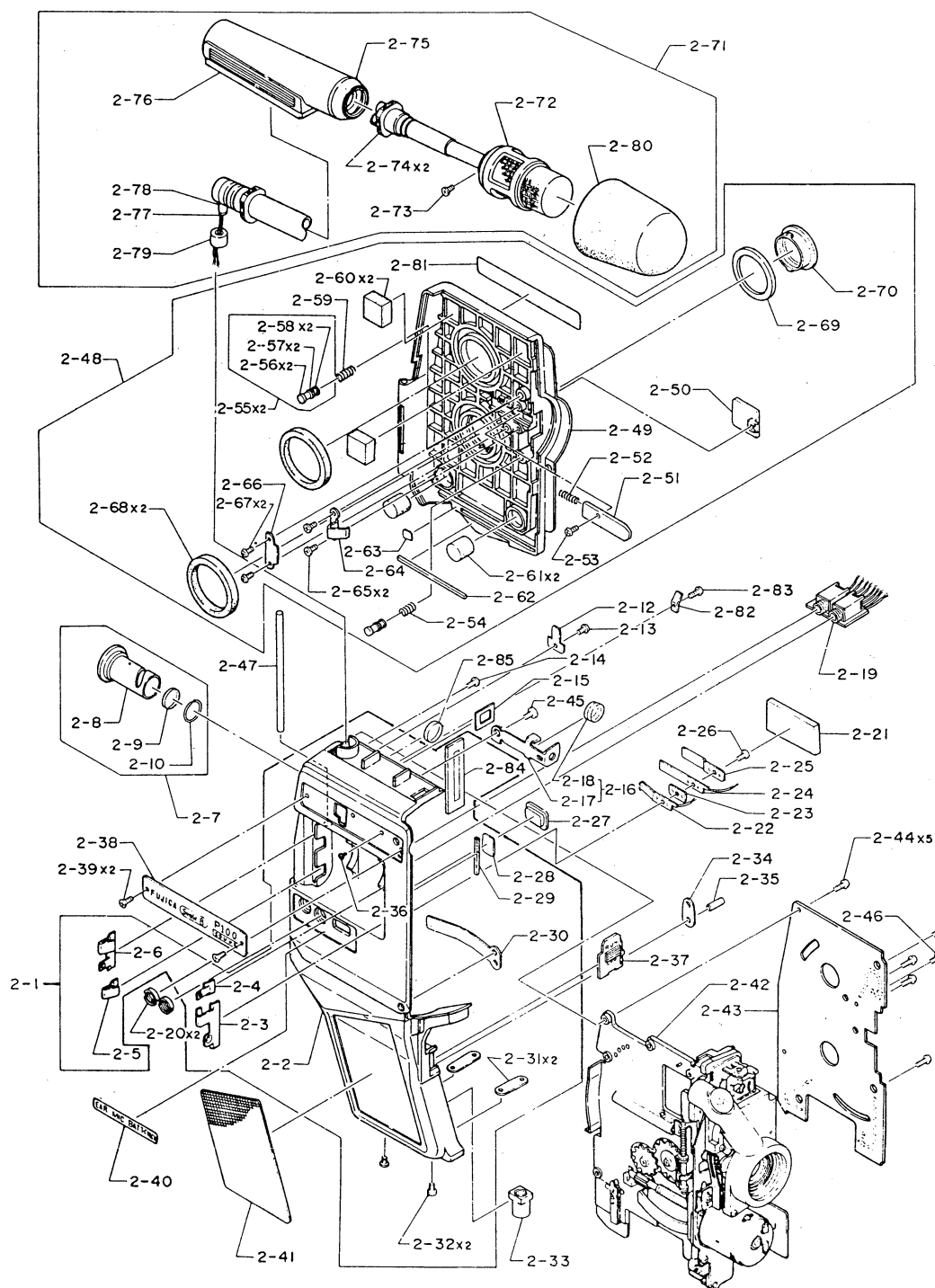
REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
2 - 1	301A2820170	Side cover assembly	1	
2 - 3	109B2472962	Battery contact	1	P300S
2 - 4	109B2472943	Battery contact	1	P300S
2 - 5	109B2472973	Battery contact	1	P300S
2 - 6	109B2472953	Battery contact	1	P300S
2 - 7	23A2820210	Eyepiece assembly	1	
2 - 8	23B2820481	Eyepiece barrel	1	
2 - 9	1B2281910	Lens	1	P2
2 - 10	50B1078410	Holder	1	P300S
2 - 12	85B2473091	Holder	1	P300S
2 - 13	113M200501M	Screw	1	
2 - 14	113M200703M	Screw	1	
2 - 15	20B2820470	Viewfinder frame	1	
2 - 16	20A2197800	Lens assembly	1	P2
2 - 19	110A2472630	Jack assembly	1	P300S
2 - 20	53B2473170	Nut	2	P300S
2 - 21	95B2472710	Moquette	1	P300S
2 - 22	109B2473020	Contact piece	1	P300S
2 - 23	115B1278230	Insulation plate	1	P300S
2 - 24	109B2473030	Contact piece	1	P300S
2 - 25	85B2473190	Holder	1	P300S
2 - 26	113M140303M	Screw	1	P300S
2 - 27	16B2473010	Battery check button	1	P300S
2 - 28	85B2473110	Cover plate	1	P300S
2 - 29	27B2473220	Moquette	1	P300S
2 - 31	85B2473070	Cover plate	2	P300S
2 - 32	110M200303M	Screw	2	P300S
2 - 33	53B2198030	Tripod socket	1	P300S
2 - 34	41B2473050	Hand strap eyelet	1	P300S
2 - 35	32B2473060	Shaft	1	P300S
2 - 36	120M200303M	Adjust screw	1	P300S
2 - 37	16B2473080	Run - Lock button	1	P300S

Fig. 2



REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
2 - 38	58B2820490	Name plate	1	
2 - 39	113M170301M	Screw	2	P300S
2 - 40	58B2473130	Name plate	1	P300S
2 - 41	59B2473140	Leather	1	P300S
2 - 43	58B2473160	Film chamber plate	1	P300S
2 - 44	113M200703M	Screw	5	P300S
2 - 45	53B1274210	Screw	1	P300S
2 - 46	114M200251M	Screw	1	P300S
2 - 47	19B2472930	Hinge shaft	1	P300S
2 - 48	302A2474110	Film chamber door assembly	1	P300S
2 - 50	16B2474170	Door lock button	1	P300S
2 - 51	47B1451310	Lock lever	1	P300S
2 - 52	50B2474130	Spring	1	P300S
2 - 53	113M200551M	Screw	1	P300S
2 - 60	27B2474140	Moquette	2	P300S
2 - 61	27B2474190	Moquette	2	P300S
2 - 62	27B2474150	Moquette	1	P300S
2 - 63	85B2474220	Plate	1	P300S
2 - 64	50B44730	Leaf spring	1	P300S
2 - 65	113M200351M	Screw	2	P300S
2 - 66	85B2474200	Holder	1	P300S
2 - 67	113M200401M	Screw	2	P300S
2 - 68	27B1276140	Rubber ring	2	P300S
2 - 69	84B2474180	Window frame	1	P300S
2 - 70	1B2200820	Film confirmation window	1	P300S
2 - 71	11A2472620	Microphone assembly	1	P300S
2 - 72	141A2472610	Microphone head assembly	1	P300S
2 - 73	111M200301M	Screw	1	P300S
2 - 74	95B2472760	Cushion	2	P300S
2 - 75	57B2472850	Cap	1	P300S
2 - 76	11B2472840	Cover	1	P300S
2 - 77	53B2472890	Screw	1	P300S

Fig. 2

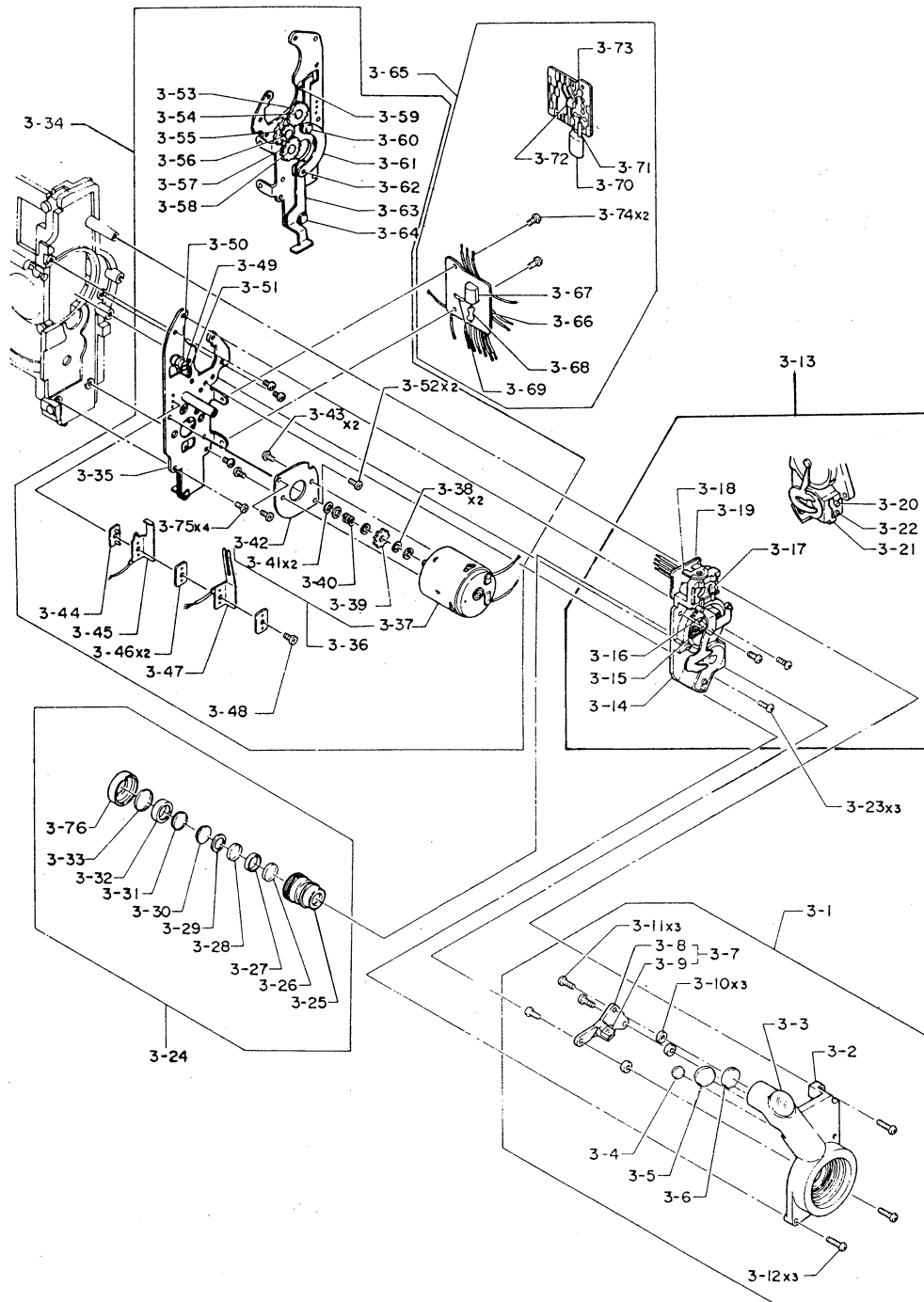


NOTE: 2 - 2 Side Cover (10B2472818) is used commonly with Fujica Single - 8 P300 Sound.

However, those of parts number the last digit of which is younger than 8 cannot be used for P100 Sound because they are slightly modified.

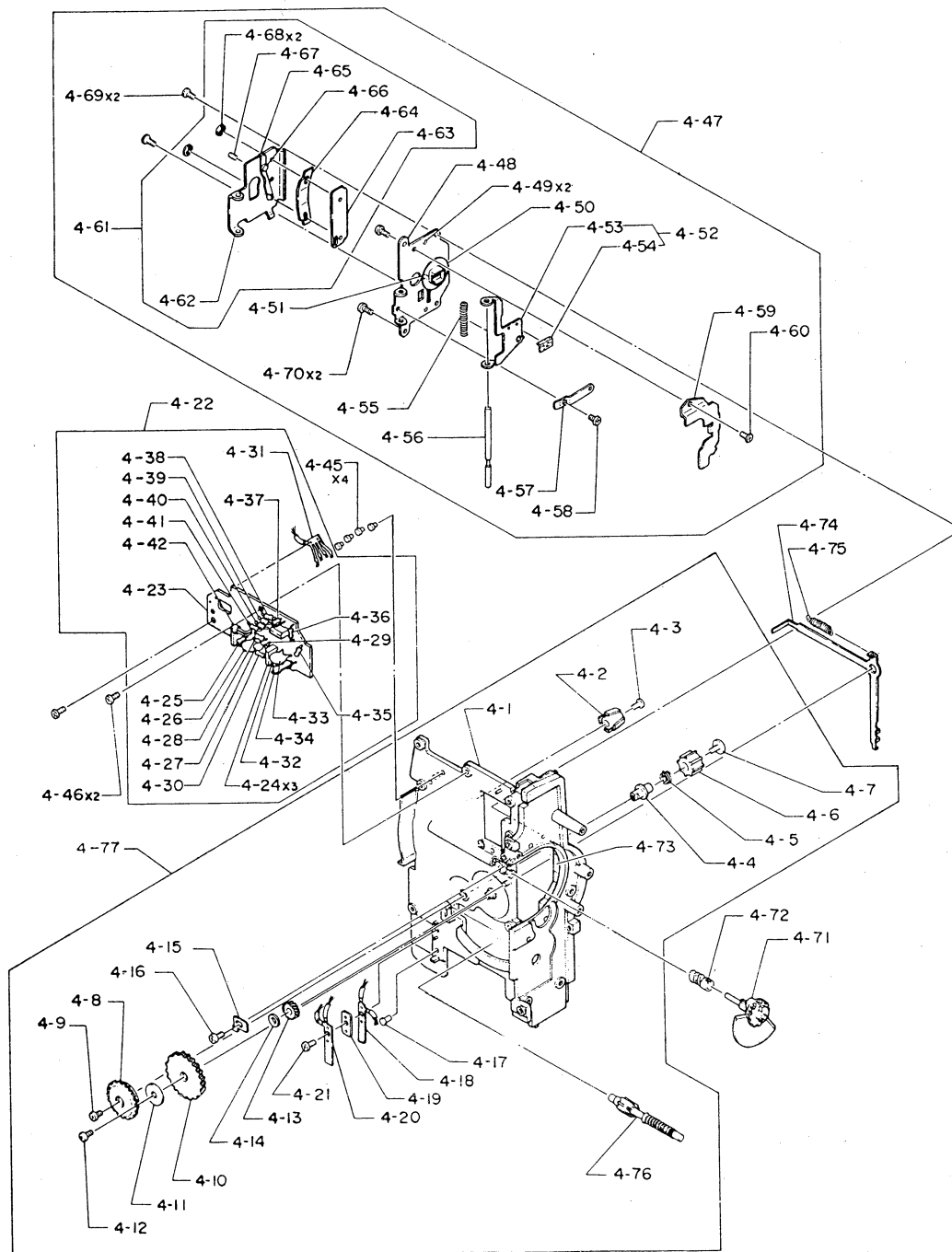
However, those of parts number the last digit of which is younger than 8 cannot be used for P100 Sound because they are slightly modified.

Fig. 3



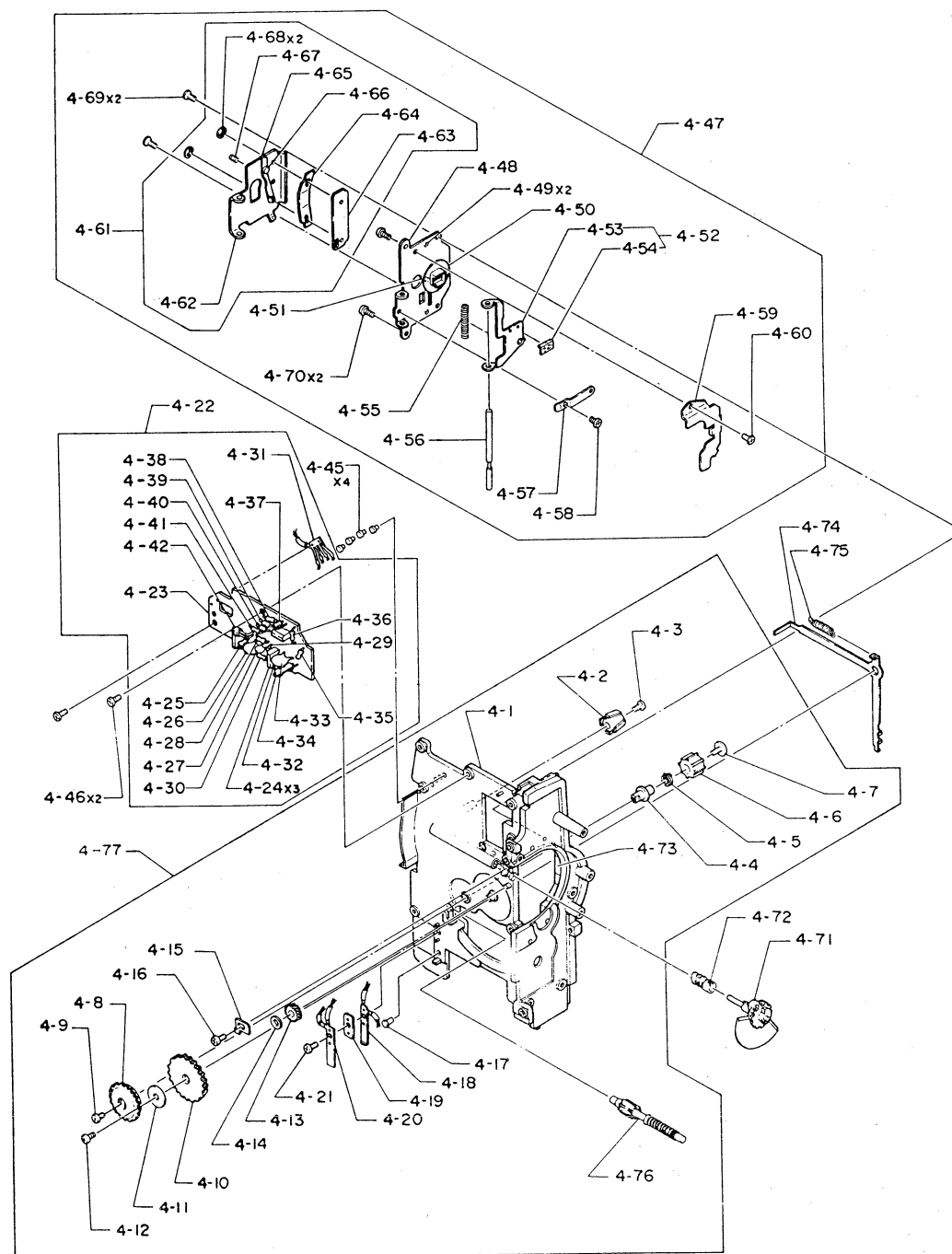
REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
3 - 1	10A2820330	Viewfinder assembly	1	
3 - 12	113M200703M	Screw	3	
3 - 13	317A2820230	EE mechanism assembly	1	
3 - 14	317A2820300	Meter assembly	1	
3 - 20	32B2203560	Shaft	1	P300S, P2
3 - 21	50B2203570	Leaf spring	1	P300S, P2
3 - 22	113M200501M	Screw	1	
3 - 23	110M200603M	Screw	3	
3 - 24	21A2820310	Master lens assembly	1	
3 - 31	1B2910790	Lens	1	
3 - 32	24B2820840	Spacer	1	
3 - 33	1B2910800	Lens	1	
3 - 34	46A2820240	Drive motor assembly	1	
3 - 35	46B2820531	Base plate	1	
3 - 36	101A2473500	Motor assembly	1	P300S
3 - 42	55B2473700	Seat plate	1	P300S
3 - 43	110M200301S	Screw	2	P300S
3 - 44	115B127030	Insulation plate	1	P300S
3 - 45	109B2473750	Contact piece	1	P300S
3 - 46	115B1278230	Insulation plate	2	P300S
3 - 47	109B2473760	Contact piece	1	P300S
3 - 48	110M140403S	Screw	1	P300S
3 - 52	110M200301S	Screw	2	P300S
3 - 65	110A2473521	Control circuit assembly	1	P300S
3 - 74	110M200251S	Screw	2	P300S
3 - 75	113M200501M	Screw	4	P300S
3 - 77	116B2473950	Capacitor	2	
3 - 78	106B2473970	Transistor	3	
3 - 79	117B2473960	Resistor	1	

Fig. 4



REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
4 - 2	32B1295810	Film feed spindle	1	P300S
4 - 3	53B560020	Screw	1	P300S
4 - 4	32B2473850	Film take - up spindle	1	P300S
4 - 5	50B655110	Spring	1	P300S
4 - 6	37B655150	Film take - up wheel	1	P300S
4 - 7	53B11560	Screw	1	P300S
4 - 8	34B2199800	Gear	1	P300S
4 - 9	53B560020	Screw	1	P300S
4 - 10	34B2199790	Helical gear	1	P300S
4 - 11	55B27340	Washer	1	P300S
4 - 12	113M170301S	Screw	1	P300S
4 - 15	31B2199770	Shaft holder	1	P300S
4 - 16	113M200301S	Screw	1	P300S
4 - 17	17B1277530	Pin	1	P300S
4 - 18	109B2473810	Contact piece	1	P300S
4 - 19	115B1278230	Insulation plate	1	P300S
4 - 20	109B2473800	Contact piece	1	P300S
4 - 21	113M140303S	Screw	1	P300S
4 - 22	318A2820220	Automatic film speed setting circuit assembly	1	
4 - 45	17B1277530	Film speed setting pin	4	P300S
4 - 46	113M200401S	Screw	2	P300S
4 - 47	315A2474260	Film gate assembly	1	P300S
4 - 58	110M200201S	Screw	1	P300S
4 - 60	110M170141M	Screw	1	P300S
4 - 67	120M200223S	Adjust screw	1	P300S
4 - 68	191M015T	E - clip	2	P300S
4 - 69	114M200401G	Screw	2	P300S
4 - 70	113M200501S	Screw	2	P300S
4 - 71	34A2473530	Sector assembly	1	P300S
4 - 72	34B2199760	Worm gear	1	P300S
4 - 73	85B2473860	Cover plate	1	P300S

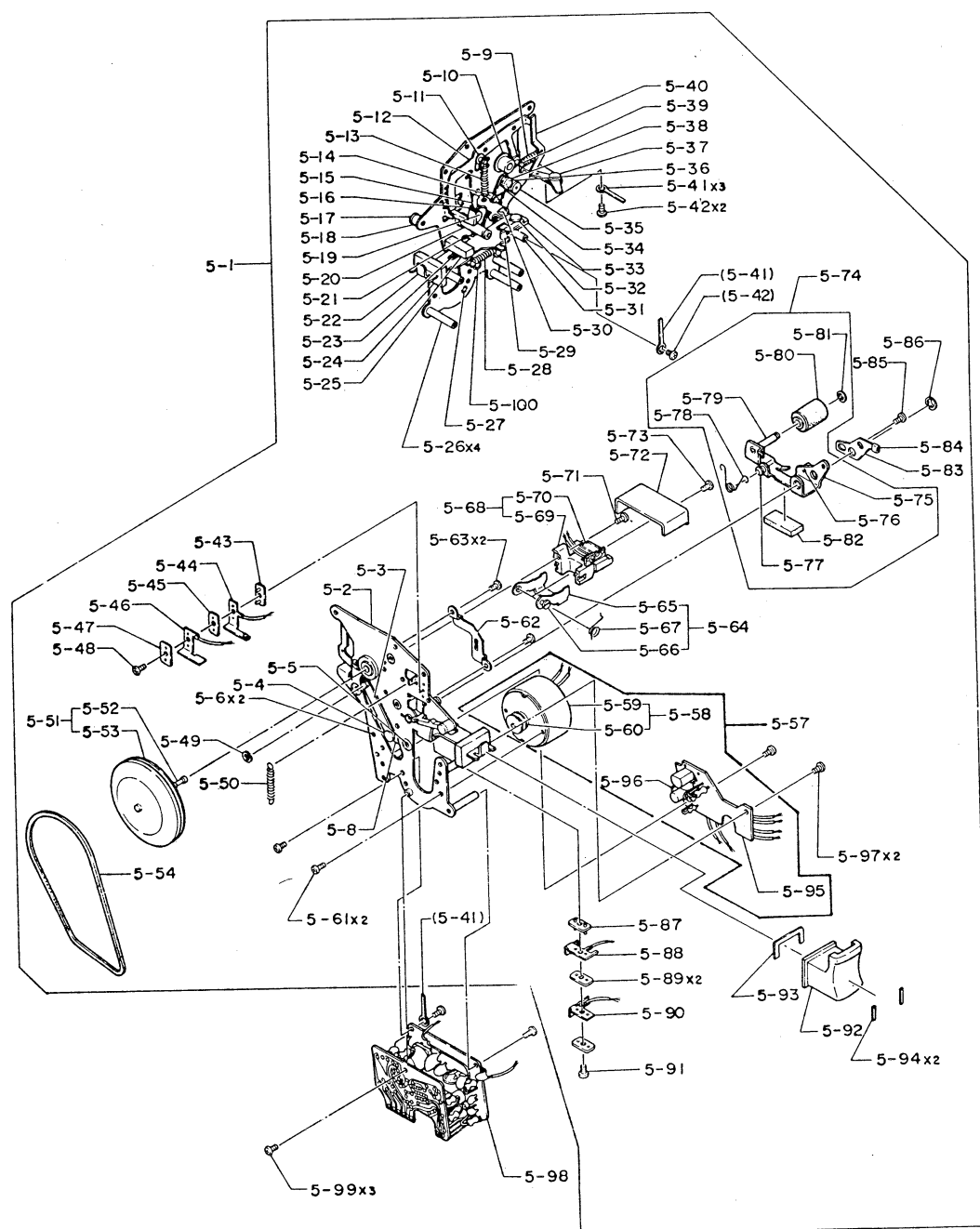
Fig. 4



REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
4 - 74	83B2473790	Footage counter needle	1	P300S
4 - 75	50B1276600	Spring	1	P300S
4 - 76	34B2473780	Gear	1	P300S
4 - 77	10A2820340	Footage counter assembly	1	

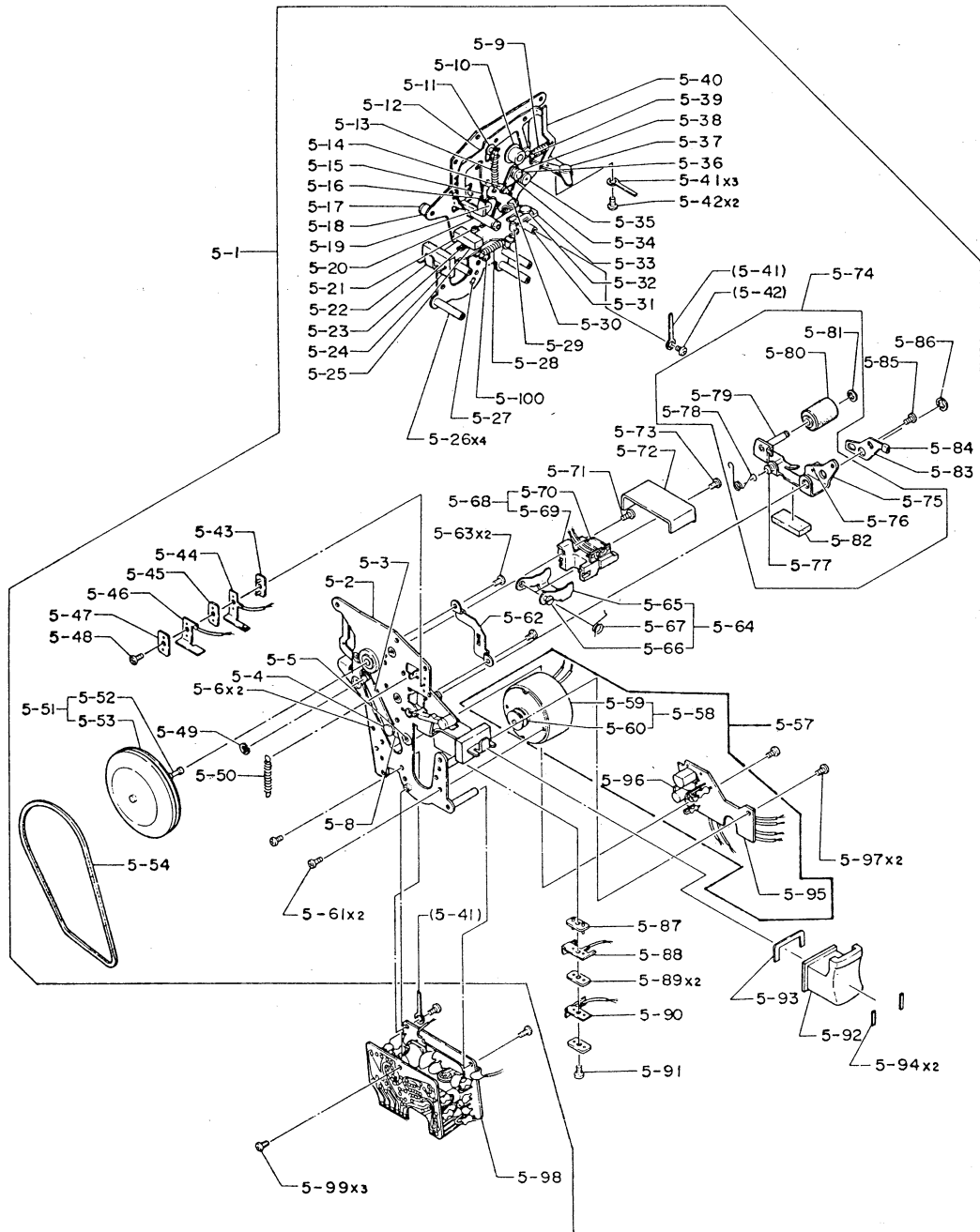
NOTE: Main frame (4 - 1) (10B2820610) is similar to that (5 - 1) (10B2473610) of Fujica P300 Sound.
However, the main frame for Fujica P100 Sound has no boss in the front.

Fig. 5



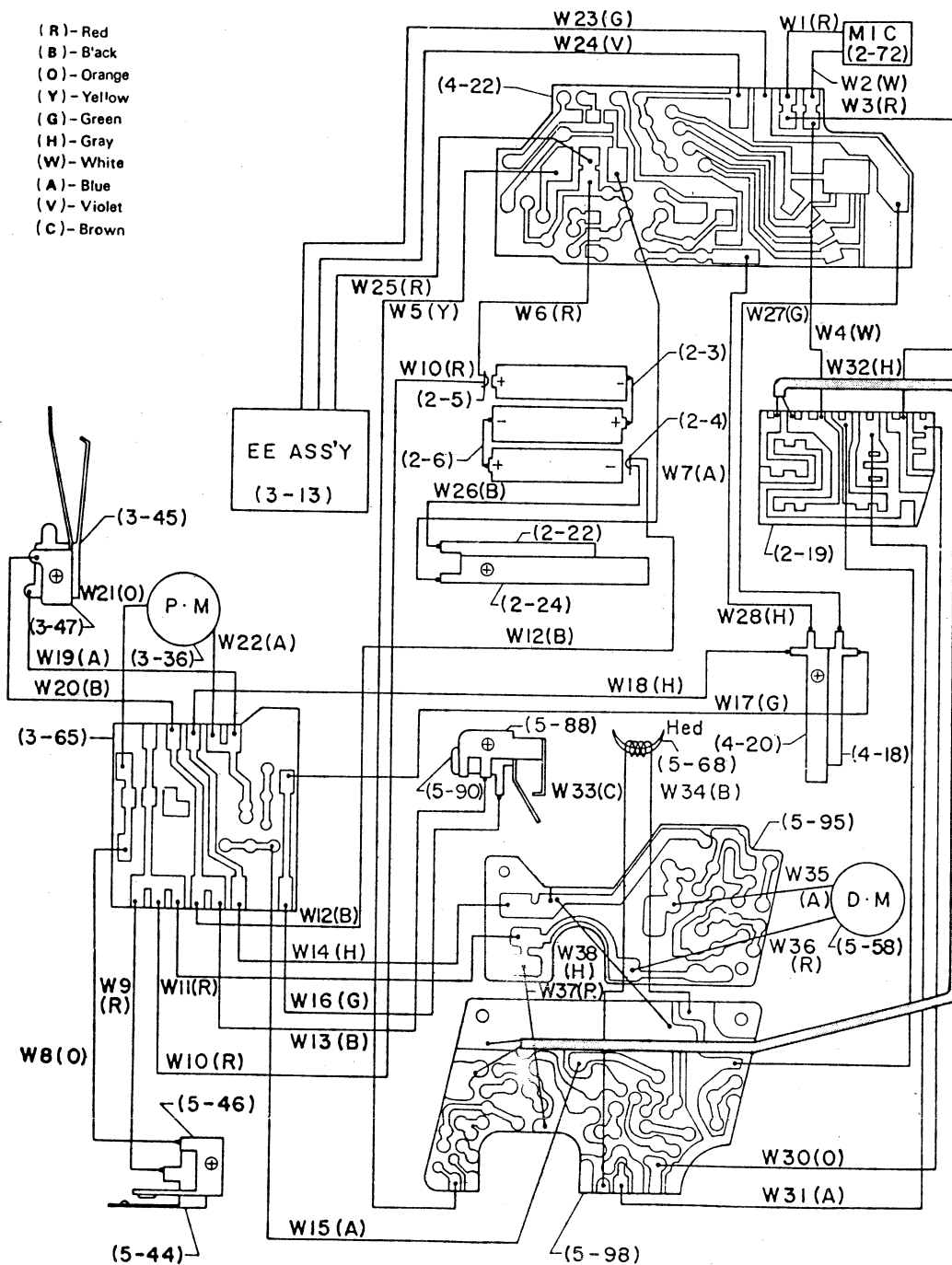
REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
5 - 1	347A2475320	Sound recorder assembly	1	P300S
5 - 9	50B2475940	Spring	1	P300S
5 - 13	50B1299090	Spring	1	P300S
5 - 16	50B2475860	Spring	1	P300S
5 - 21	115B2318090	Tube	1	P300S
5 - 24	27B2476020	Moquette	1	P300S
5 - 25	27B2476030	Moquette	1	P300S
5 - 28	50B1299250	Spring	1	P300S
5 - 30	51B1298710	Head pad	1	P300S
5 - 34	50B2475870	Auxiliary spring	1	P300S
5 - 41	111B72560	Lug	3	P300S
5 - 42	110M170401M	Screw	2	P300S
5 - 43	115B127030	Insulation plate	1	P300S
5 - 44	109B1299210	Contact piece	1	P300S
5 - 45	115B1278230	Insulation plate	2	P300S
5 - 46	109B1299200	Contact piece	1	P300S
5 - 47	110M140351M	Screw	1	P300S
5 - 49	191M015T	E - clip	1	P300S
5 - 50	50B1299190	Spring	1	P300S
5 - 51	32A2475350	Capstan shaft assembly	1	P300S
5 - 54	56B2475640	Belt	1	P300S
5 - 57	101A2475310	Drive motor/governor assembly	1	P300S
5 - 61	110M200253M	Screw	2	P300S
5 - 62	85B2475990	Protecting plate	1	P300S
5 - 63	110M200253M	Screw	2	P300S
5 - 64	44A2475280	Film guide plate assembly	1	P300S
5 - 65	44B2475510	Film guide plate	1	P300S
5 - 66	53B2475520	Screw	1	P300S
5 - 67	50B2475530	Spring	1	P300S
5 - 68	10A2475210	Head holder assembly	1	P300S
5 - 71	110M200653M	Screw	1	P300S
5 - 72	11B2475500	Head cover	1	P300S

Fig. 5



REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
5 - 73	110M200401M	Screw	1	P300S
5 - 74	47A2475260	Pinch lever assembly	1	P300S
5 - 78	50B2475970	Toggle spring	1	P300S
5 - 80	36B1298870	Pinch roller	1	P300S
5 - 81	191M020T	E - clip	1	P300S
5 - 82	51B2476040	Cushion	1	P300S
5 - 83	47B2475780	Interlock lever	1	P300S
5 - 84	115B127030	Tube	1	P300S
5 - 85	110M200253M	Screw	1	P300S
5 - 86	191M030T	E - clip	1	P300S
5 - 87	115B127030	Insulation plate	1	P300S
5 - 88	109B2475720	Contact piece	1	P300S
5 - 89	115B1278230	Insulation plate	1	P300S
5 - 90	109B2475730	Contact piece	1	P300S
5 - 91	110M140351M	Screw	1	P300S
5 - 92	16B2475700	Shutter release button	1	P300S
5 - 93	51B2476010	Cushion	1	P300S
5 - 94	51B2476000	Cushion	2	P300S
5 - 95	110A2475300	Governor assembly	1	P300S
5 - 97	110M170401M	Screw	2	P300S
5 - 98	110A2475340	Recording amplifier assembly	1	P300S
5 - 99	110M170401M	Screw	2	P300S
5 - 100	115B2473840	Insulation tube	1	
5 - 124	113M200501M	Screw	4	P300S

Fig. 6

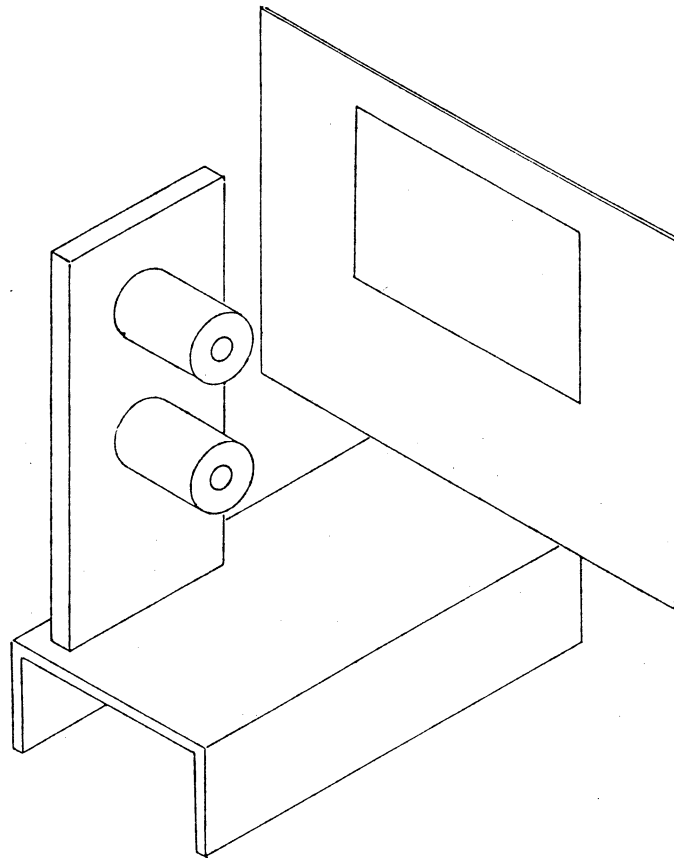


REF NO.	PART NO.	PART NAME	Q'TY	REMARKS
W 1	111B2476910	Lead wire (red)	1	P300S
W 2	111B2476920	Lead wire (white)	1	P300S
W 3	111B2477130	Lead wire (red)	1	P300S
W 4	111B2477140	Lead wire (white)	1	P300S
W 6	111B2476990	Lead wire (red)	1	P300S
W 7	111B2477010	Lead wire (blue)	1	P300S
W 8	111B2476960	Lead wire (orange)	1	P300S
W 9	111B2476950	Lead wire (red)	1	P300S
W10	111B2477000	Lead wire (red)	1	P300S
W12	111B2476970	Lead wire (black)	1	P300S
W13	111B2476930	Lead wire (black)	1	P300S
W16	111B2476940	Lead wire (green)	1	P300S
W17	111B2477040	Lead wire (green)	1	P300S
W18	111B2477050	Lead wire (gray)	1	P300S
W19	111B2477060	Lead wire (blue)	1	P300S
W20	111B2477070	Lead wire (black)	1	P300S
W21	111B2477080	Lead wire (orange)	1	P300S
W22	111B2477090	Lead wire (blue)	1	P300S
W26	111B2476980	Lead wire (black)	1	P300S
W27	111B2477020	Lead wire (green)	1	P300S
W28	111B2477030	Lead wire (gray)	1	P300S
W33	111B2477100	Lead wire (brown)	1	P300S
W34	111B2477110	Lead wire (black)	1	P300S

VI SPECIAL REPAIR TOOL LIST

Fig. 46

Parallax adjuster (JB308)



Note) All other special tools are same as those
for used for other Fujica single-8 movie
camera.