

**Nikon**

**PHOTOMIC FT<sub>N</sub> FINDER**

**(Work No. 20FD9)**

**REPAIR MANUAL**

**PARTS LIST**

**(REVISED)-2**

**NIPPON KOGAKU K.K.**

**Tokyo, Japan**

**(70.8. d) H**

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## NOTE:

Marks in the "Term of Sale" column of the parts list are;

- ..... Can be supplied individually
- △ ..... Not supplied individually but only as subassembly
- △..... Supplied either as part or subassembly
- ✗ ..... Not considered as repair part
- ☒..... Delivered as a product from the Sales Department  
(i.e., not supplied as repair part)

## REVISED REPAIR MANUAL:

## • REVISION-1

- 1) Both Earlier (E) and New (N) illustrations are given in this Repair Manual.  
Fig. 1a - Fig. 10a (Fig. 8 and Fig. 9 are unrevised)
- 2) The way of repairing is partially changed (marked \*), but it is also available to the earlier parts.  
(Earlier number of part is, however, used in this Repair Manual)
- 3) Both (E) and (N) are given in the parts list.  
New parts (#240 - #245) are on page 39a.
- 4) New subassemblies are on page 42a.

## • REVISION-2

Parts marked with  $\Delta$  have been revised as shown by drawings or descriptions and list..

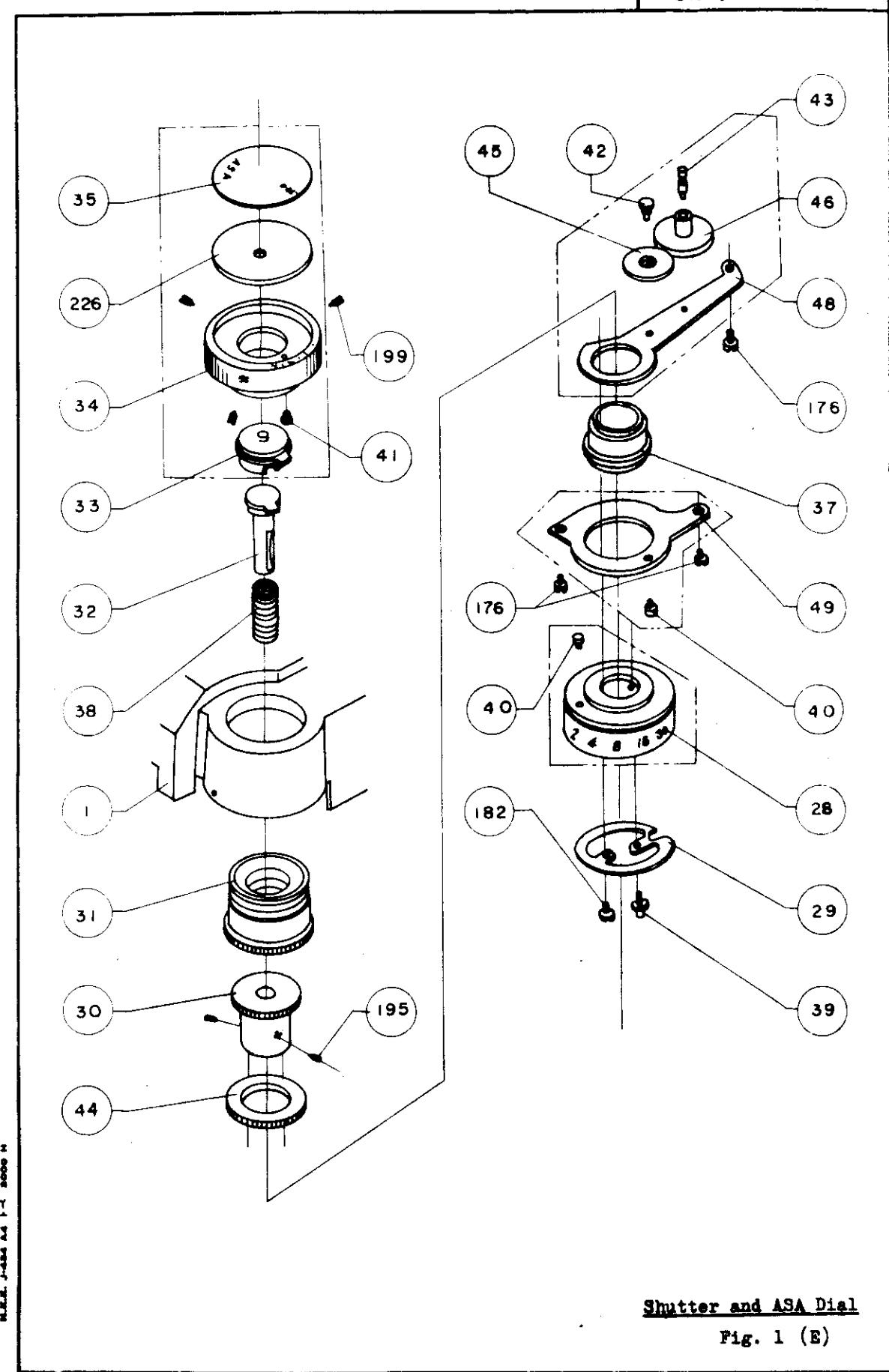
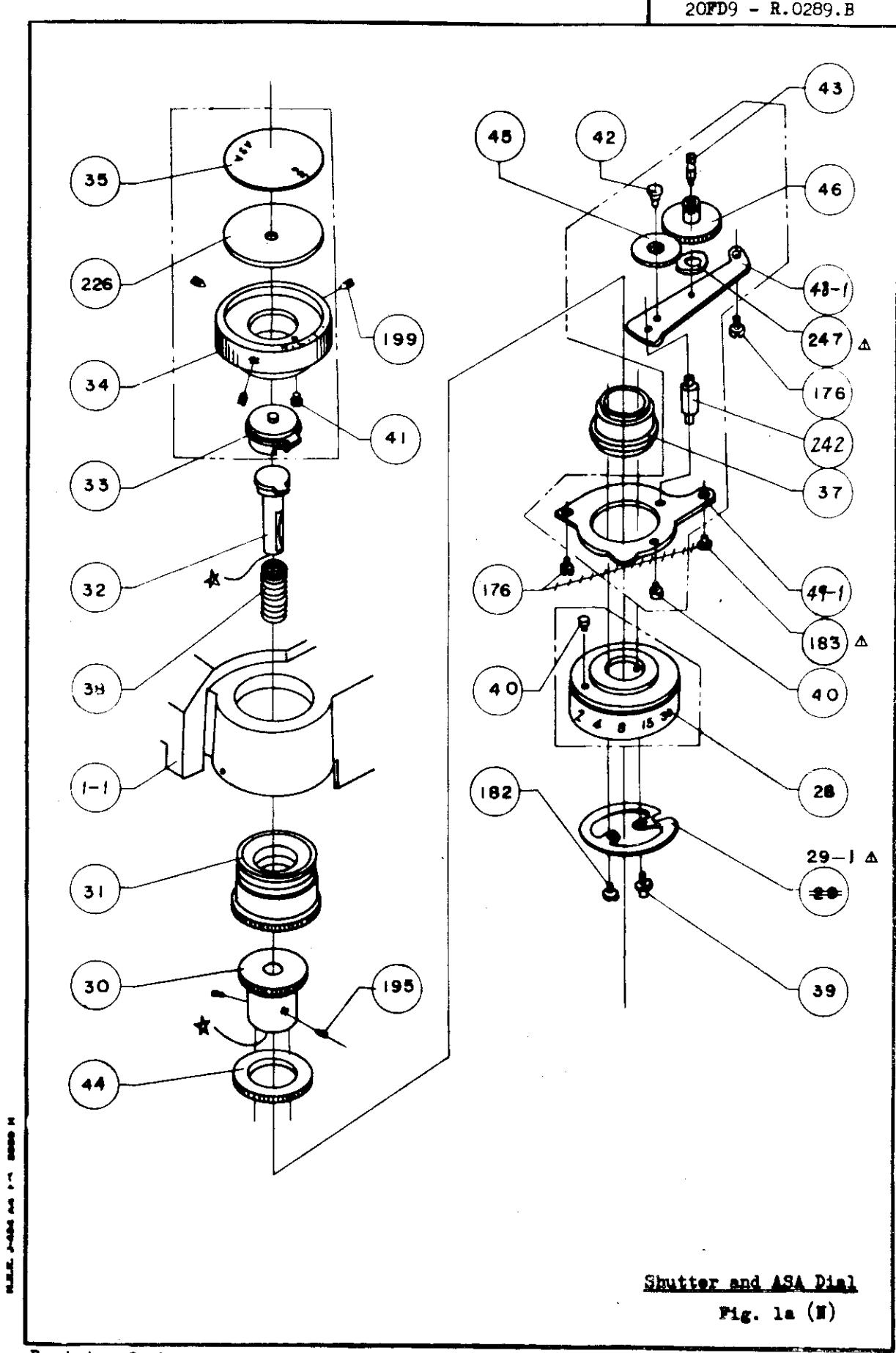
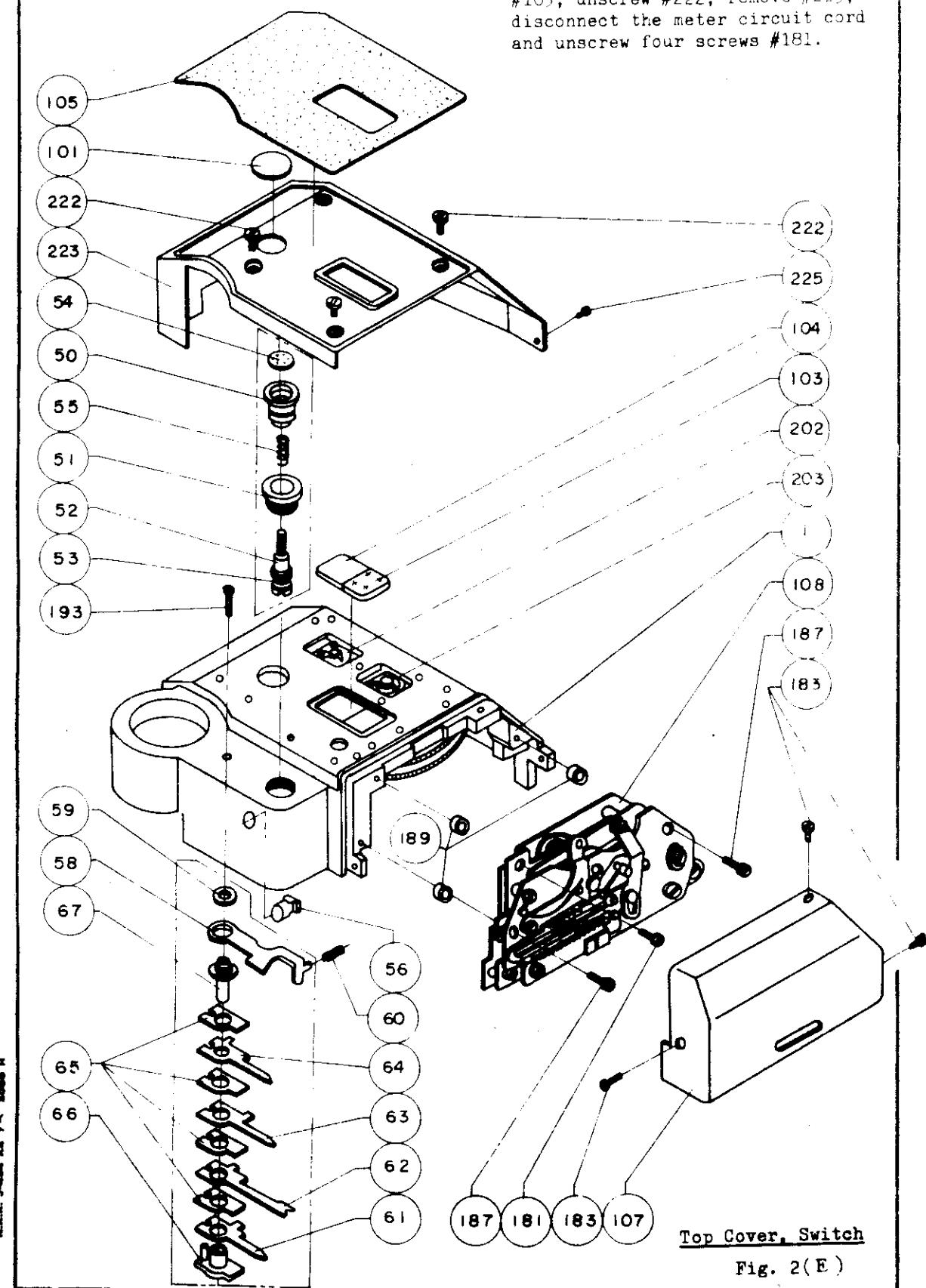
Shutter and ASA Dial

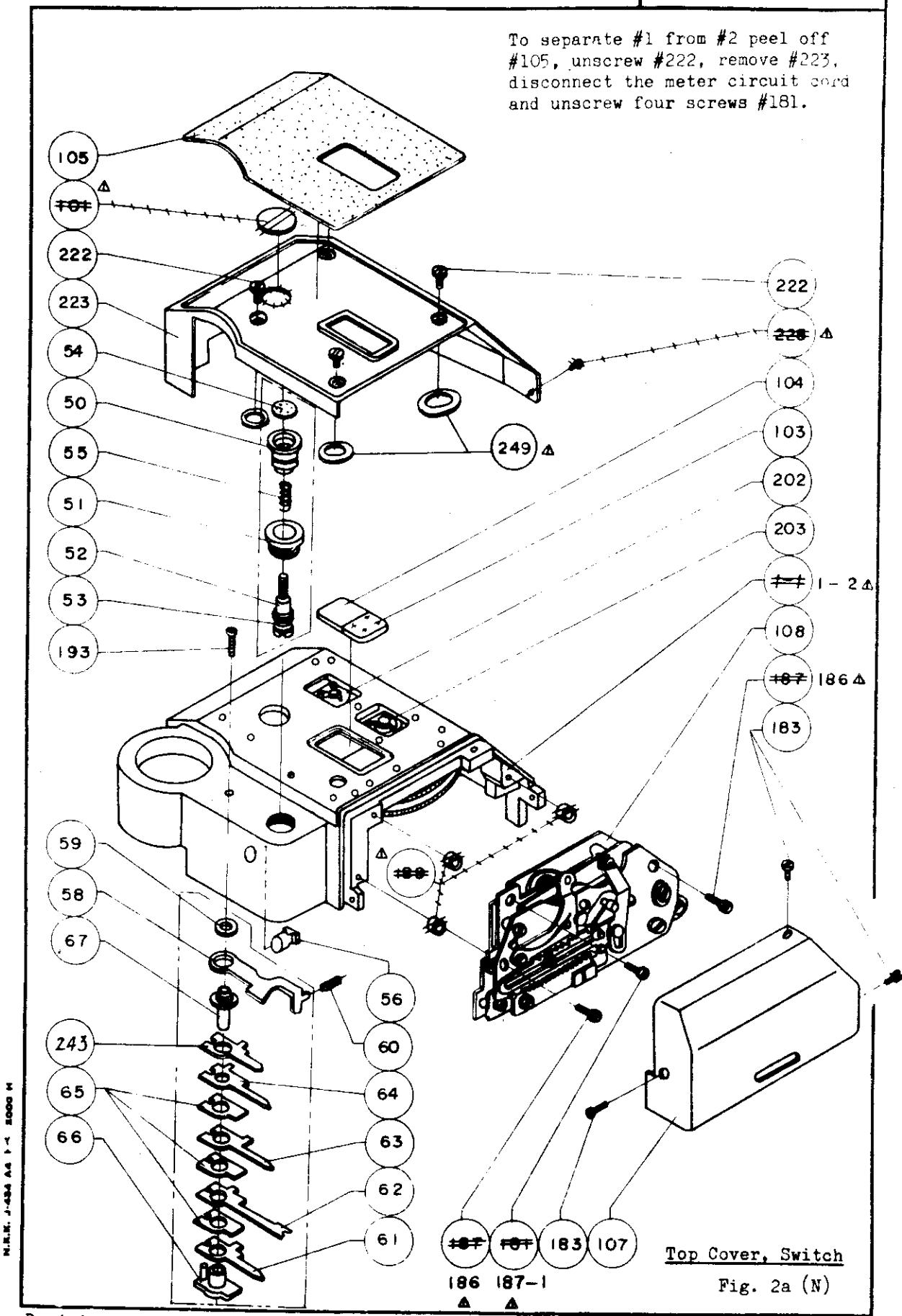
Fig. 1 (E)

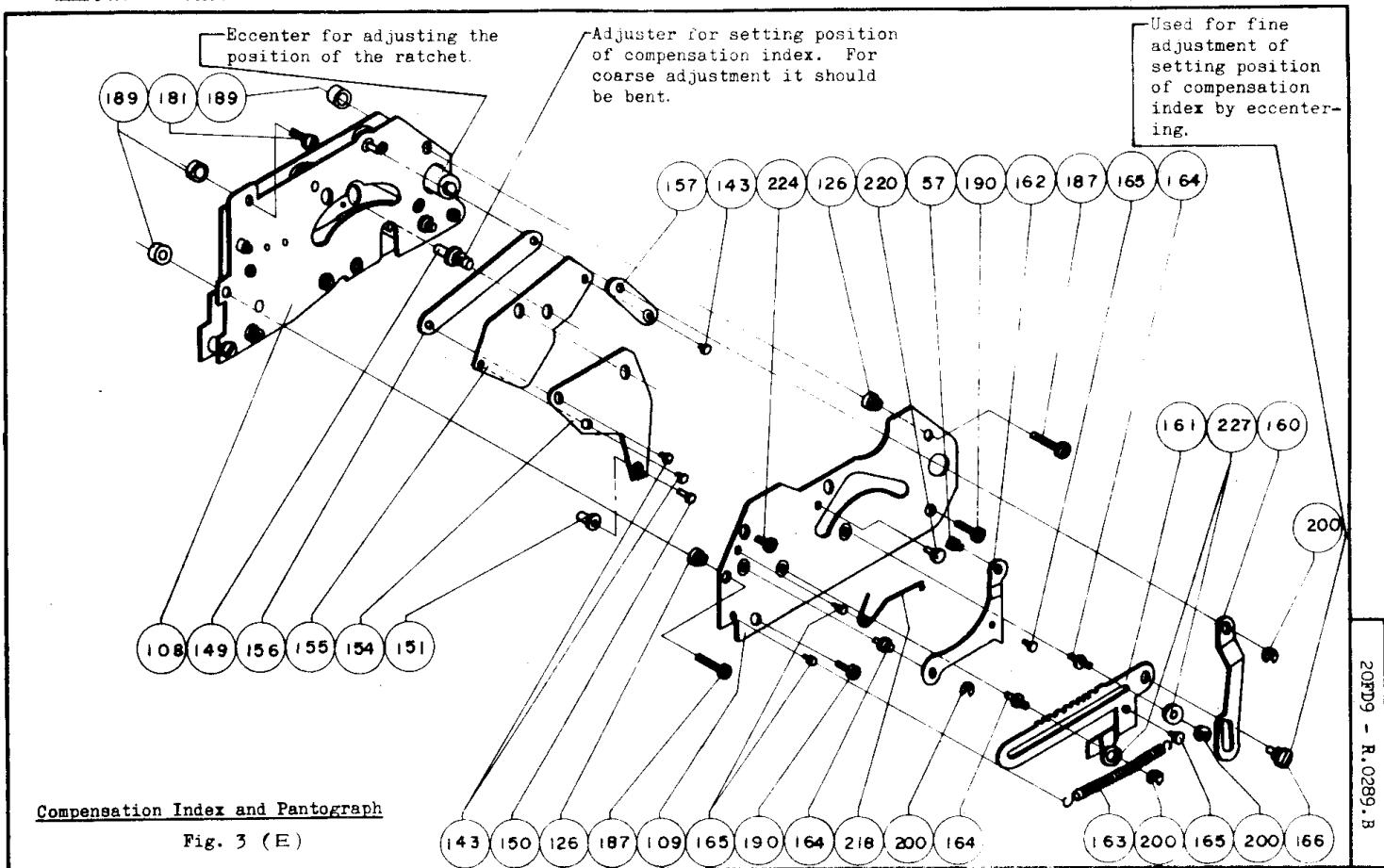


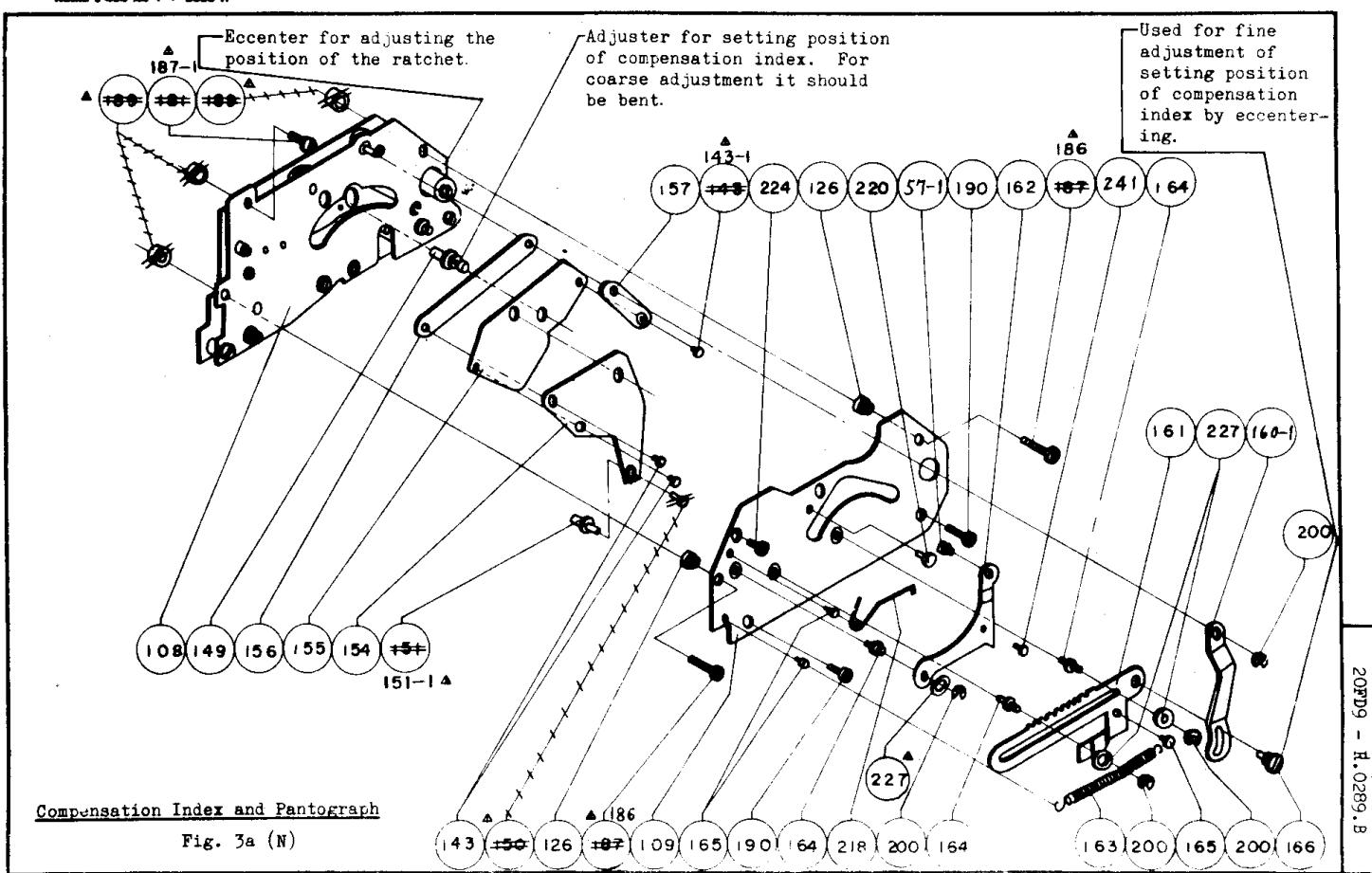
To separate #1 from #2 peel off #105, unscrew #222, remove #223, disconnect the meter circuit cord and unscrew four screws #181.

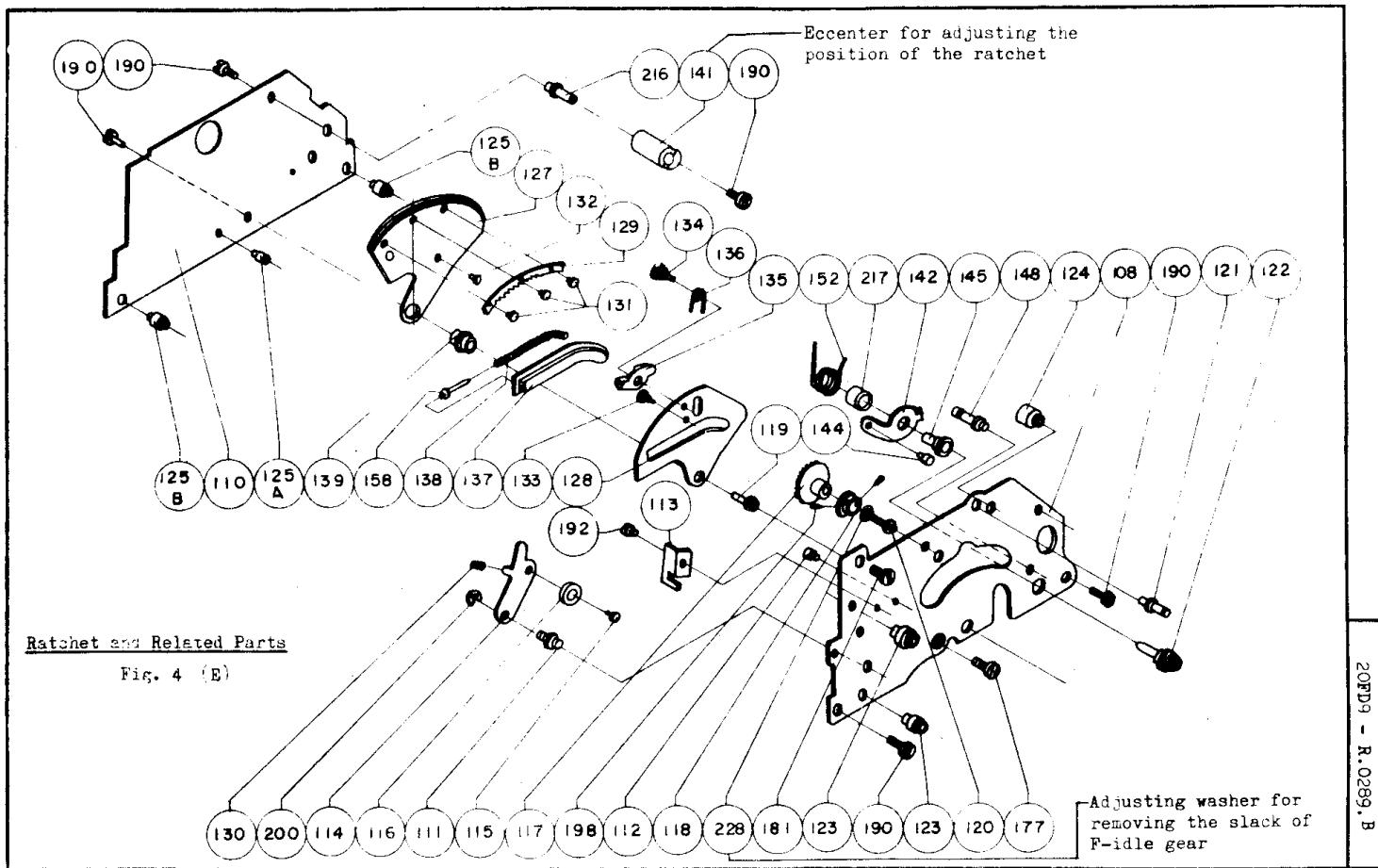


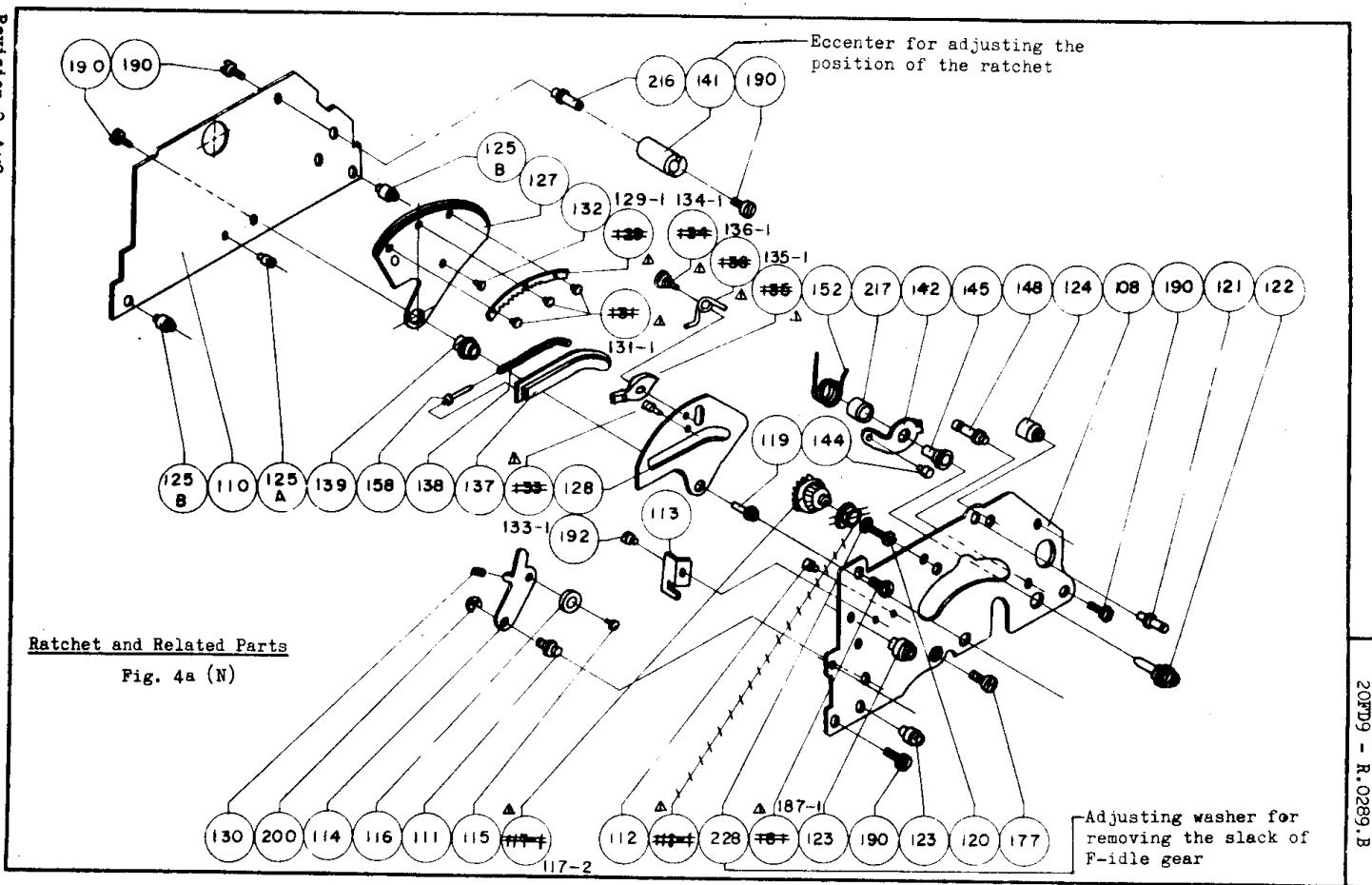
To separate #1 from #2 peel off #105, unscrew #222, remove #223, disconnect the meter circuit cord and unscrew four screws #181.

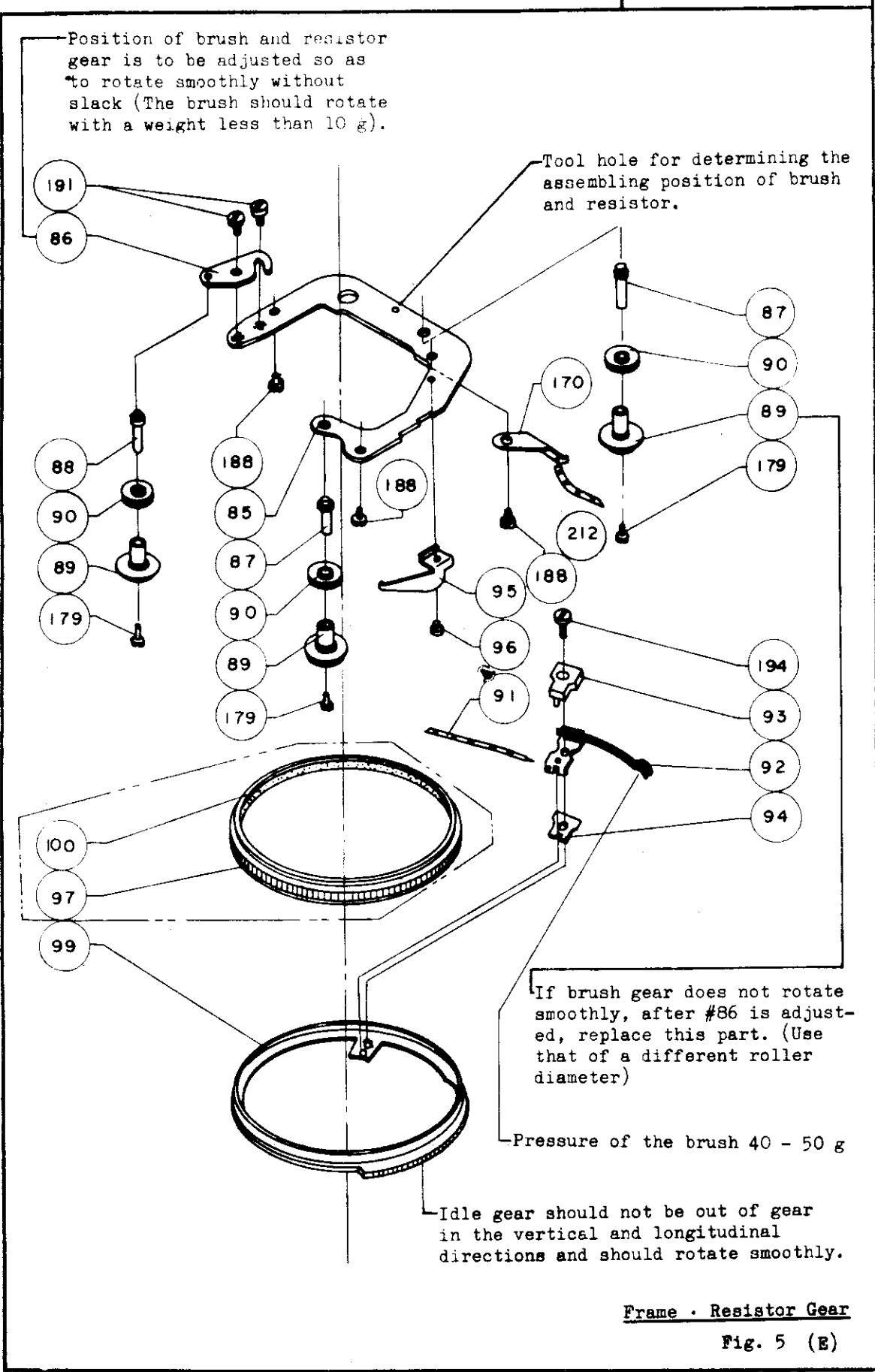


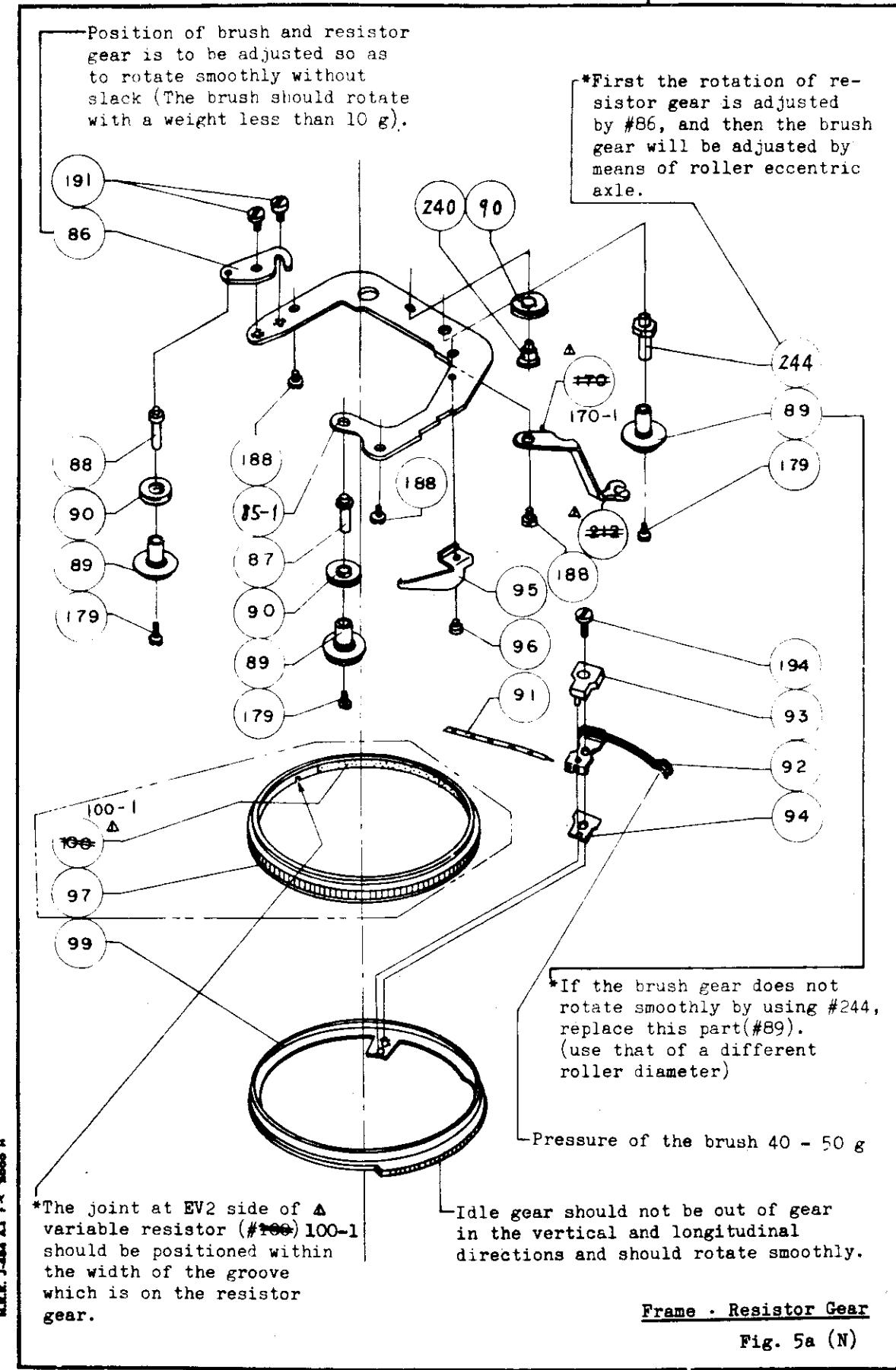




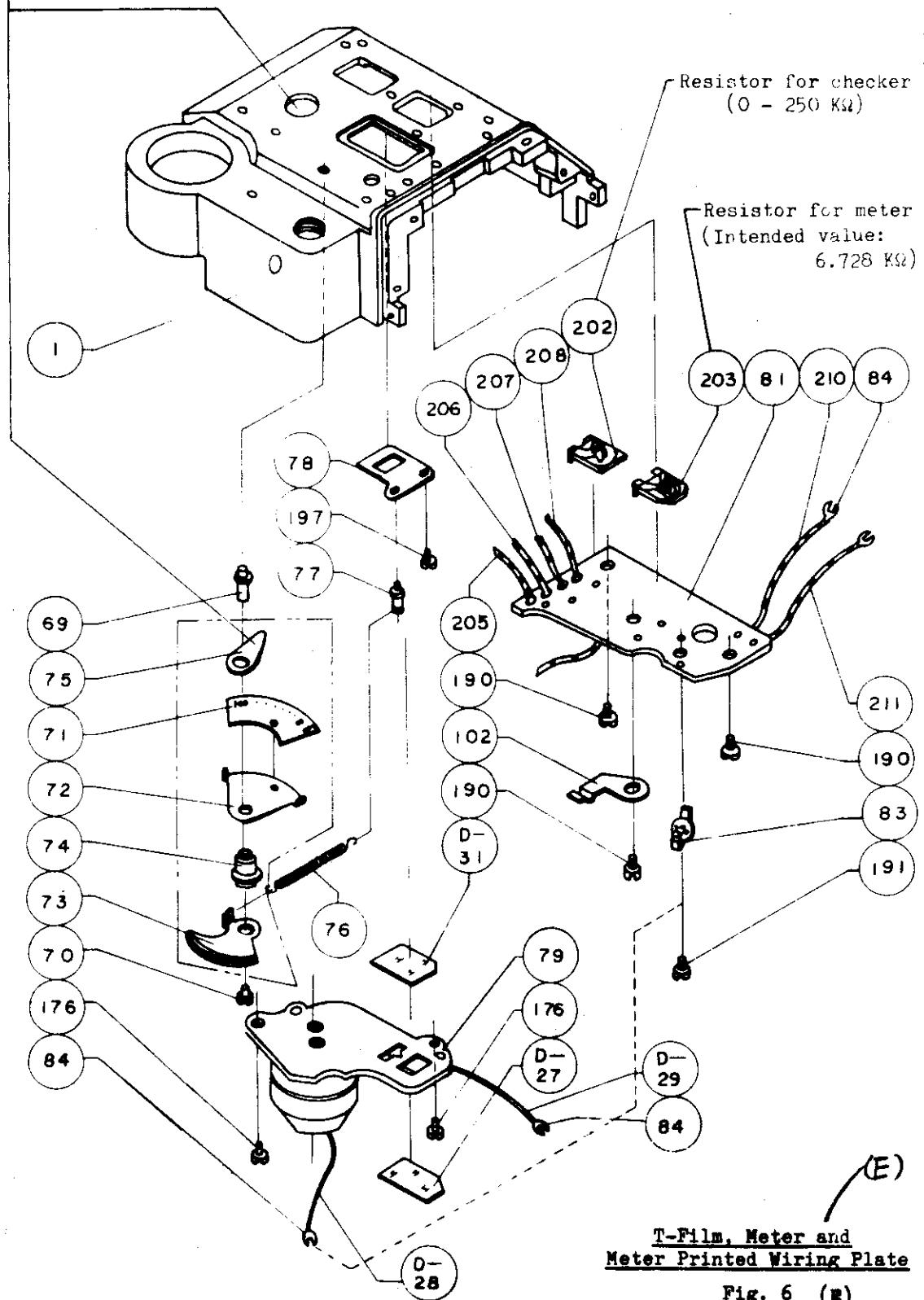




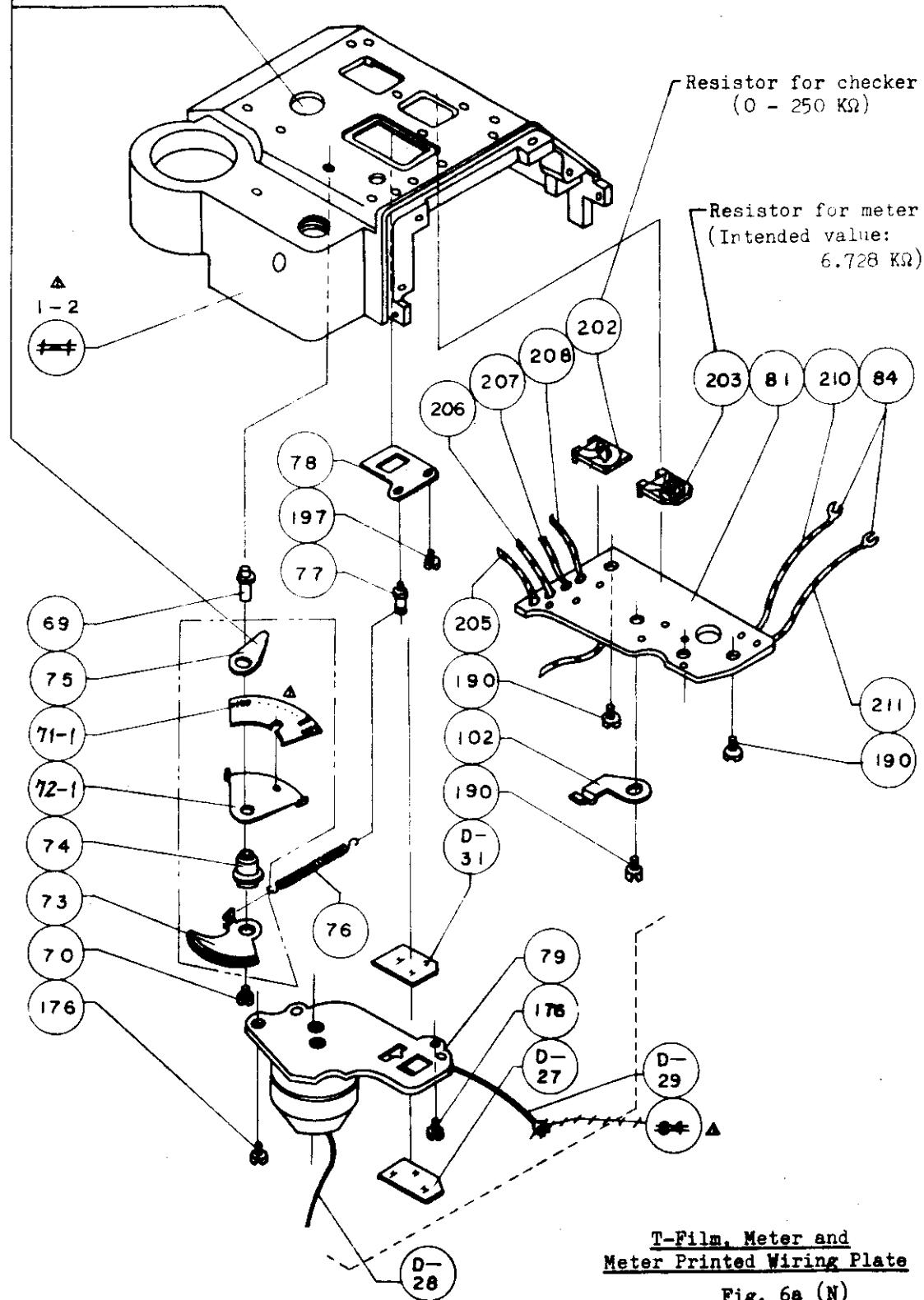


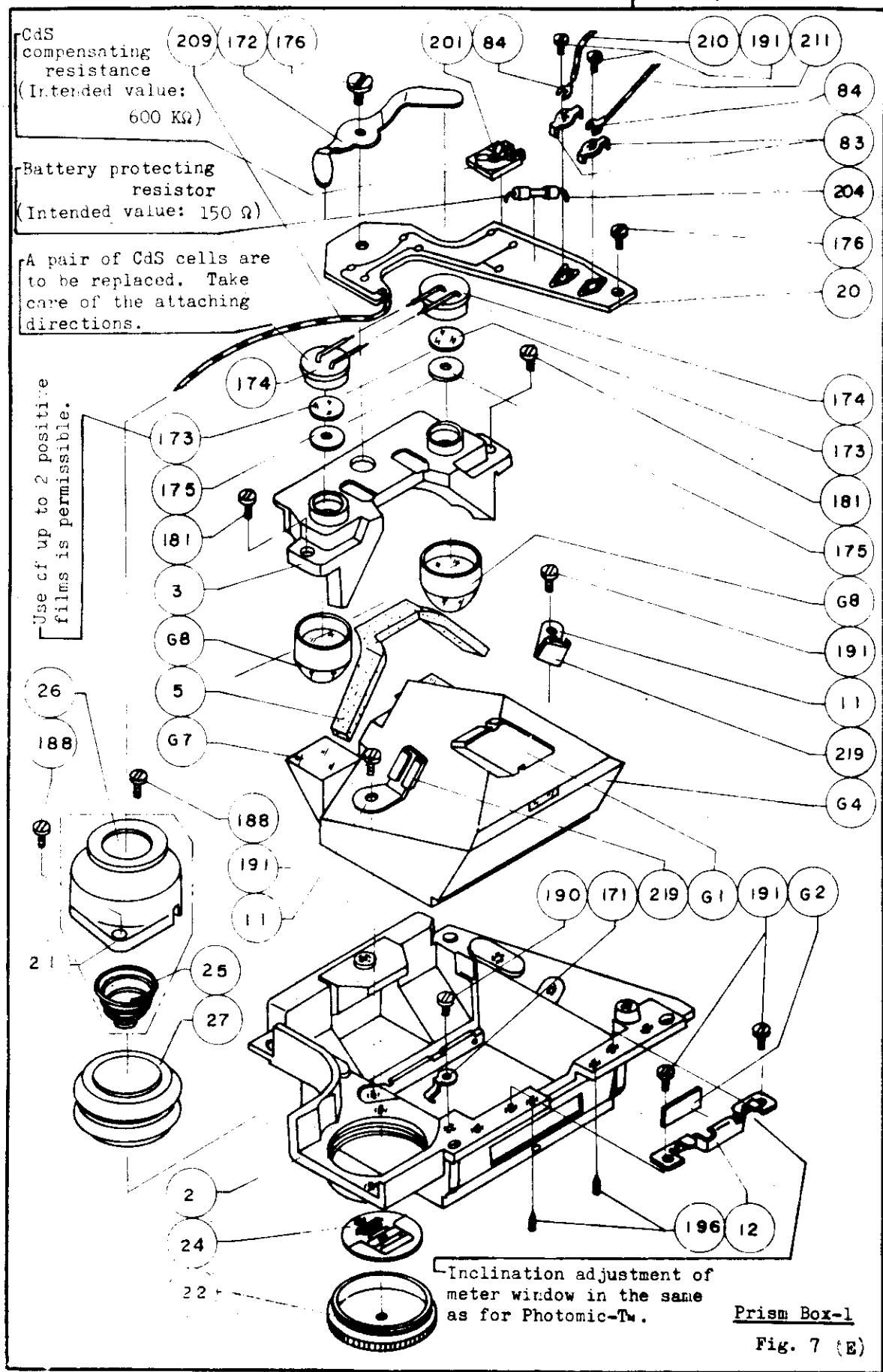


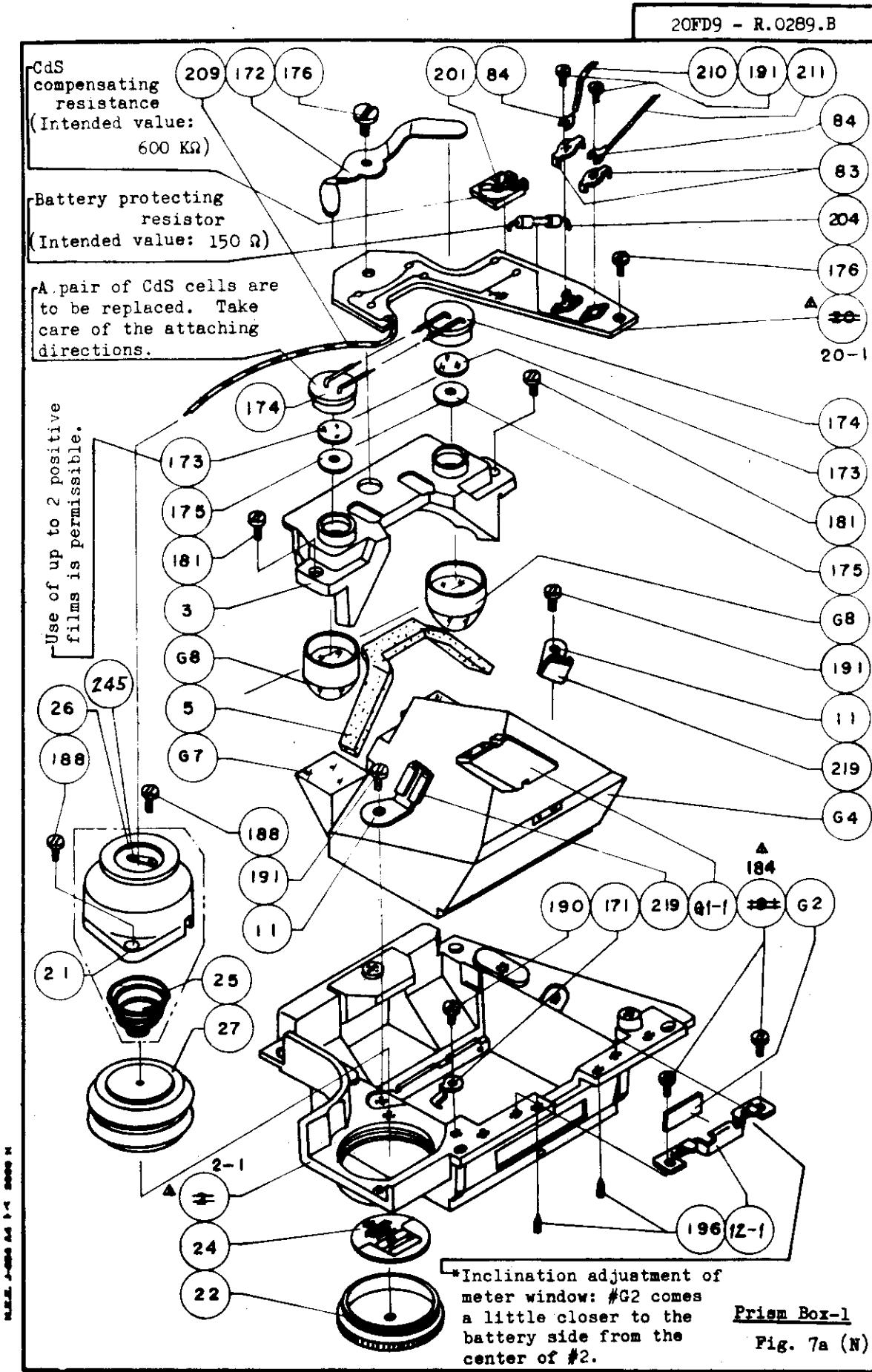
Fine adjustment of T-film is performed directly through the hole in #1. #75, cemented to #71, is to be separated before adjustment and cemented again after adjustment.

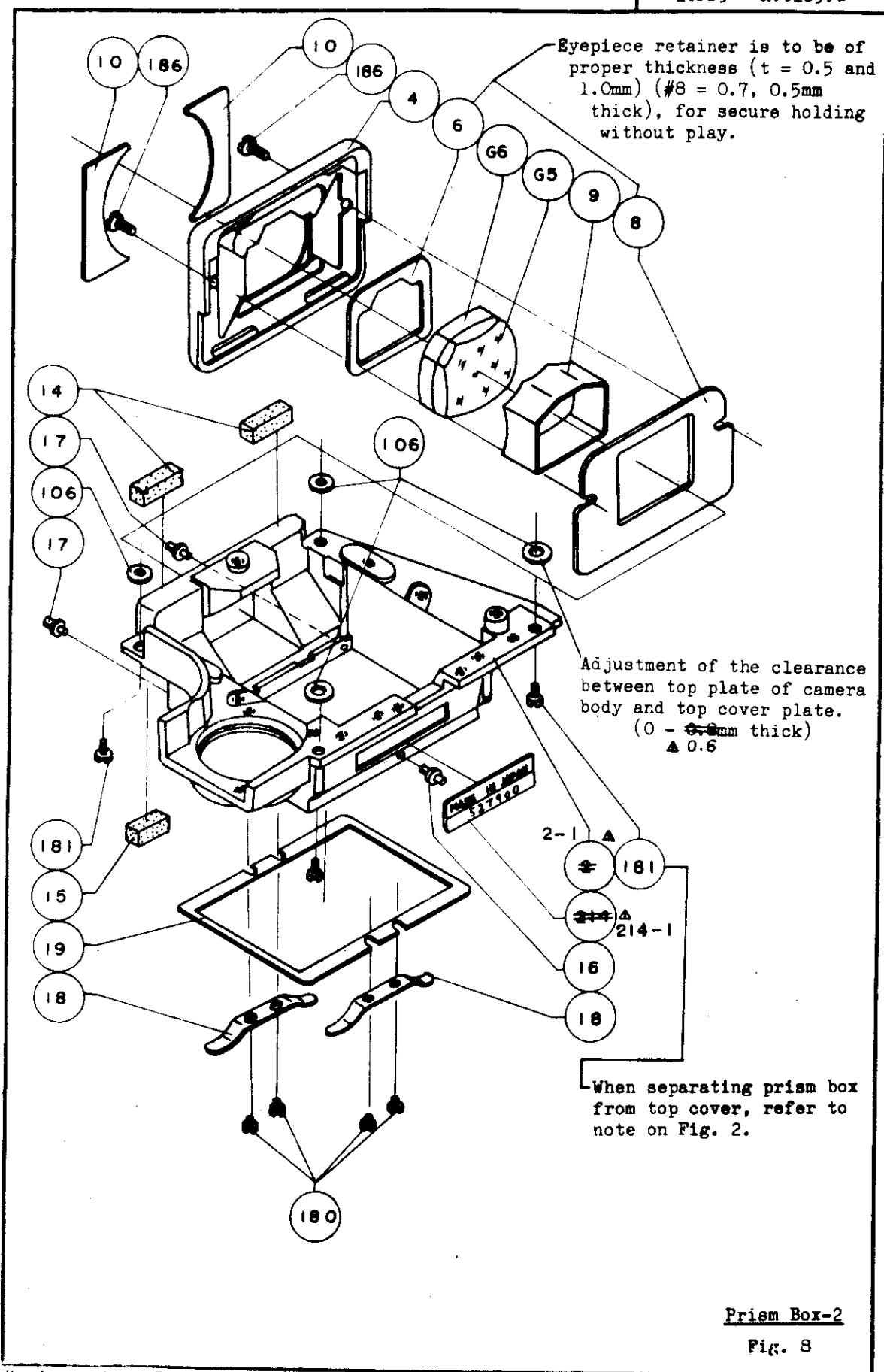


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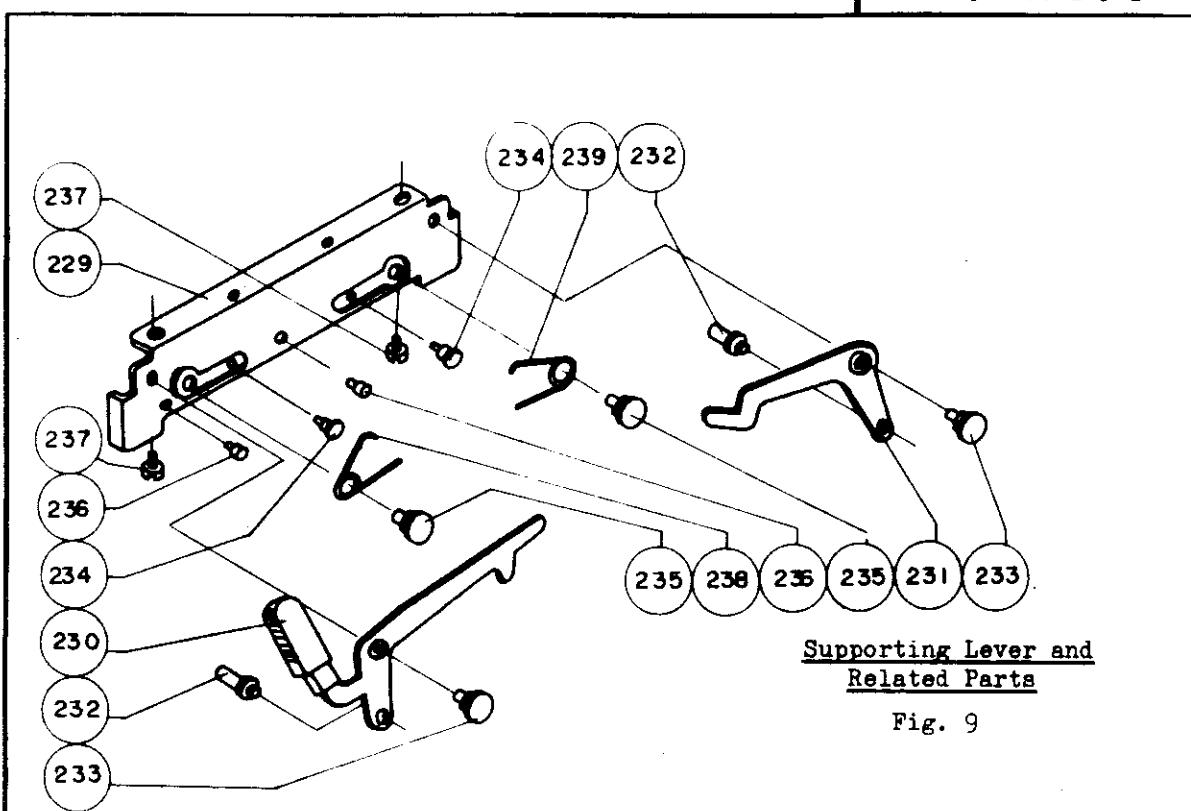


Fig. 9

R<sub>0</sub>: CdS compensation resistor #201  
 R<sub>1</sub>: Battery protecting resistor #204  
 R<sub>2</sub>: Meter resistor #203  
 R<sub>3</sub>: Checker resistor #202

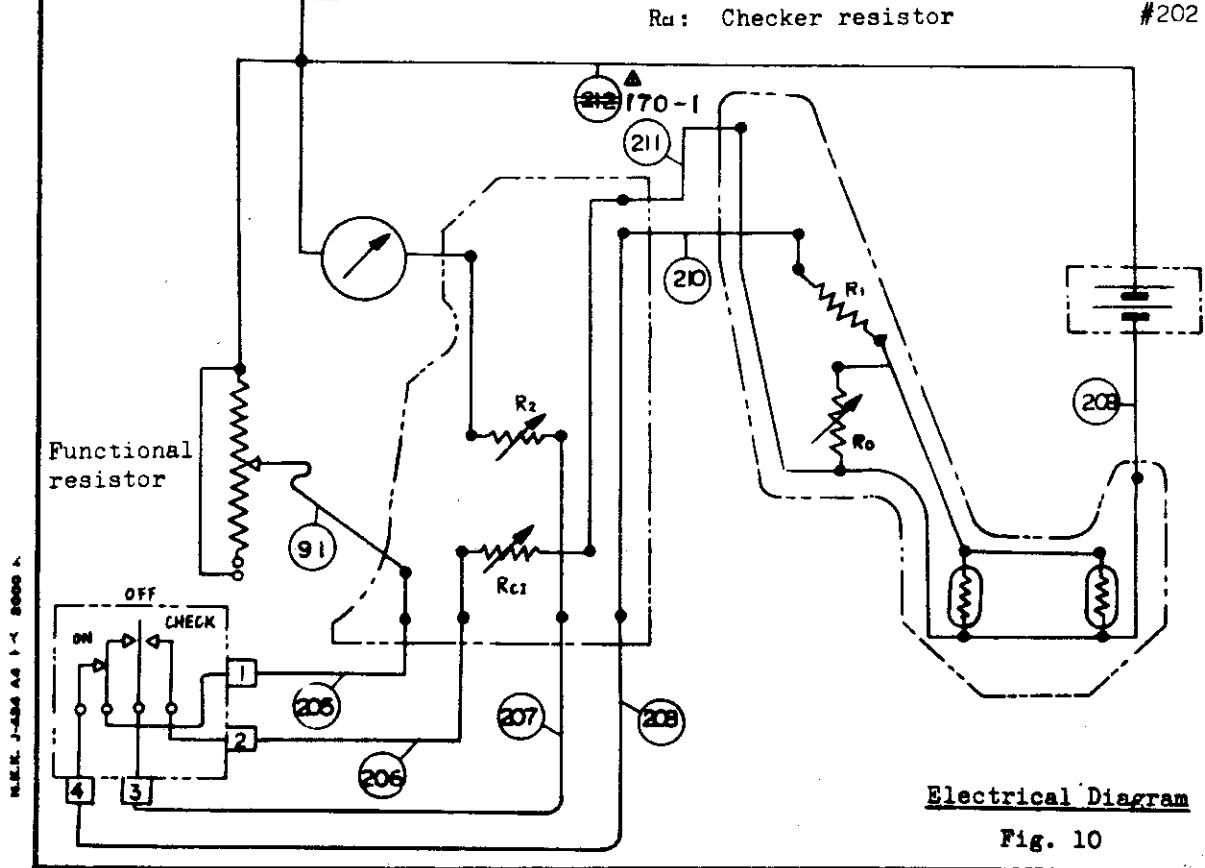
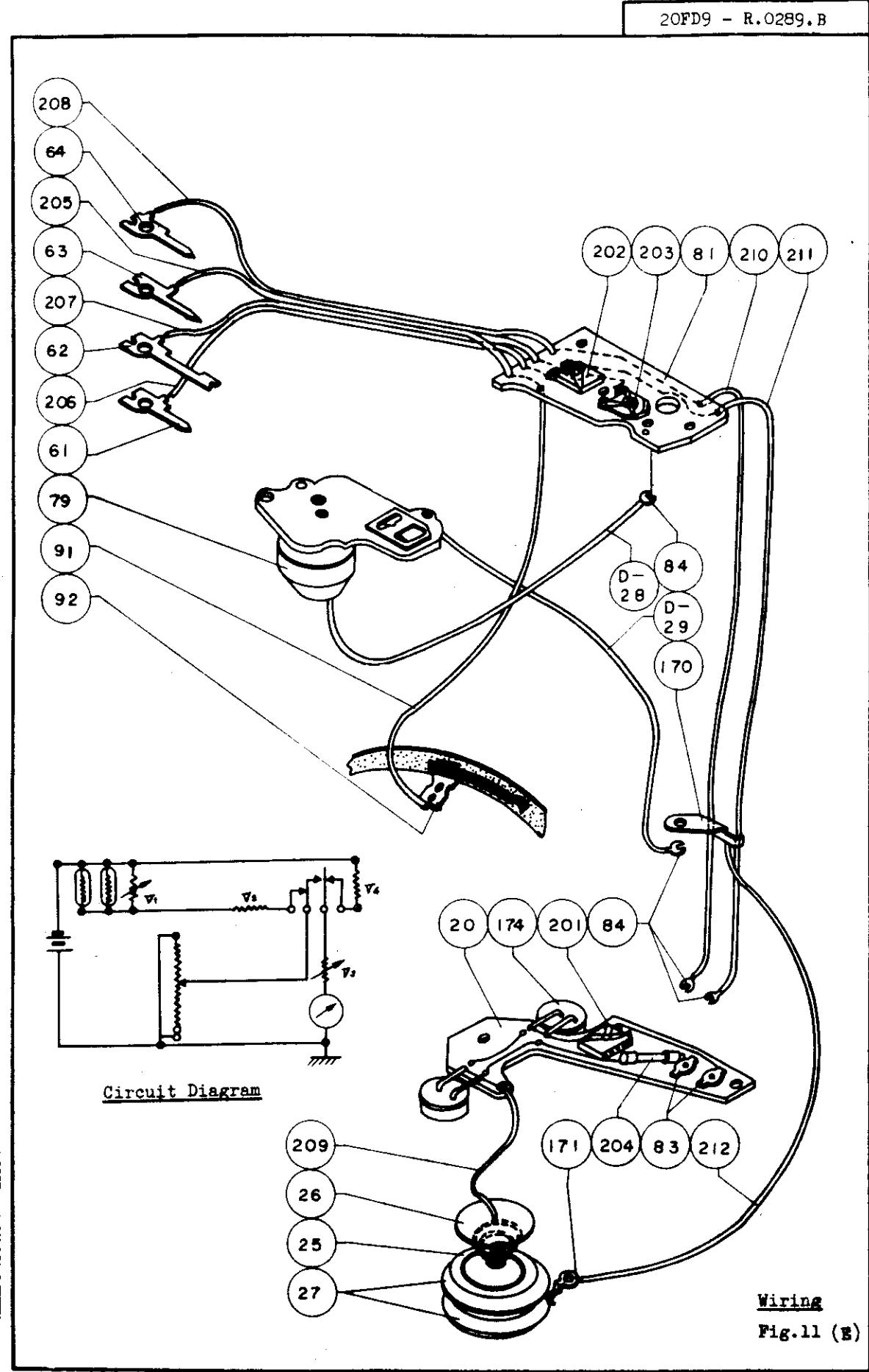
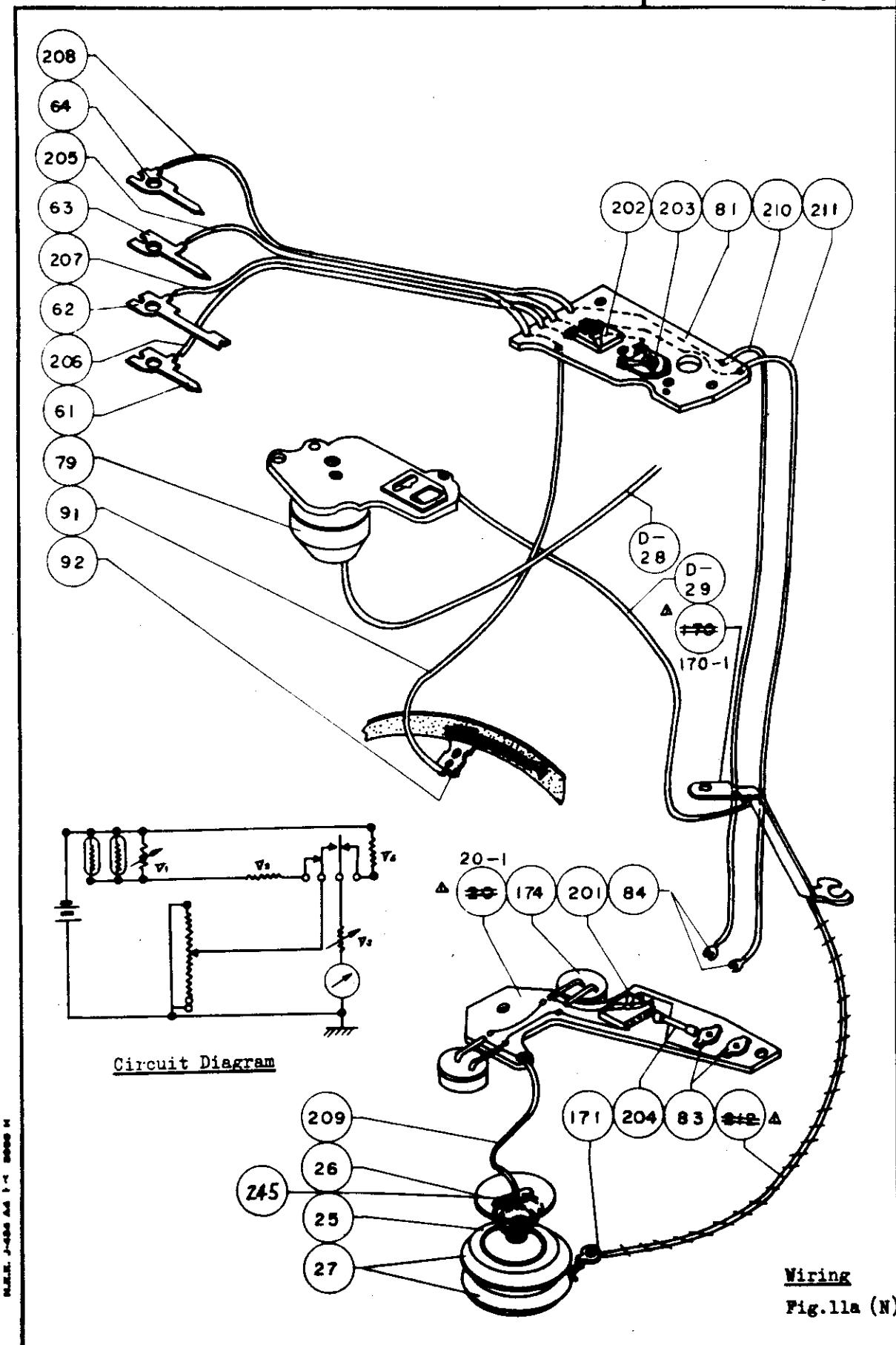


Fig. 10





## ADJUSTMENT AND REASSEMBLY

## §1. ASA Scale (Fig. 1, 1a)

1-1. When cementing the ASA scale #35 onto #226 in replacement, be careful to keep the correct angle so that the index 6 makes an angle of  $13^{\circ} 20' \pm 10'$  from  $10^{\circ} 57' \pm 1'$  from the center of the notch found on ASA stopper #33, as shown in Fig. 12.

1-2. The compensation indices to be used practically according to the type of finder screen ranges between  $+1/2$  and  $-1 1/2$  steps. ASA 6400 cannot be brought to the figure 2 on the compensation indices.

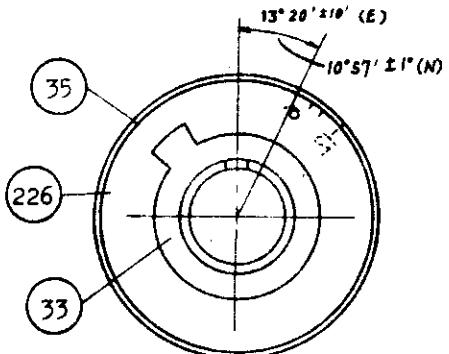


Fig. 12

## §2. Clutch and Clutch Shaft (Fig. 1, 1a)

Clutch #30 is set to clutch shaft #32 by means of two screws #195 in such a position that the bottom surfaces marked  $\star$  are flush with each other and at the same time one of the screws #195 falls into the rotation preventing groove on #32.

## §3. T-Dial (Fig. 1, 1a)

In assembling T-Dial #28 note that the distances of the attaching hole of T-Dial pin #39 and of T-Dial screw #182 from the center are slightly different.

## §4. Switch-off Button commonly used for Battery Checking (Fig. 2, 2a)

The button subassembly is removed by unscrewing bush #51. In this case the subassembly consisting of dial knob #34, T-bottom

plate #49, racket plate #48 and switch mold #66 should be removed  
 49-1 48-1  
 for replacement.

Bush #51 is to be fastened firmly, otherwise the operation of the switch will not be correct and will give adverse influences to other parts.

§5. Top Cover of the Compensation Base Plate Subassembly (Fig. 2, 2a)

When the base plate subassembly is attached to top cover #1 provided with brush gear #99, take care of the relative angular positions of brush gear, ratchet inside the base plate and connecting pin for pantagraph.

5-1. When base plate #108 is attached to top cover #1 by means of screws #187 and #181, the ratchet is connected with the pantagraph in the following way:

- 1) Move connecting pin #151 rightward using the finger or a screw driver until a tooth of ratchet #129 engages with pawl #135 at the position of f/1.4.

After making sure of this engagement, bring back #151 carefully to the position of f/5.6 (Fig. 2, 3 and 4).

The correct engagement may be confirmed by hearing a sound produced when #135 sets into #129, while moving #151 after the compensation index plate (#161) has been brought to the position of f/1.2.

The position of f/1.4 is found by the seventh setting after the setting to f/5.6 is started. (For reference, the fourth is for f/2.8 and the eighth for f/1.2)

- 2) F-idle gear #117 is attached to the base plate subassembly which is assembled up to the state of 1).

5-2. \*The gearing position of the above mentioned F-idle gear is adjusted so that it comes to the center of the gear part of brush gear (#99) as shown in Fig. 13. (Refer to Fig. 2a and Fig. 5a)

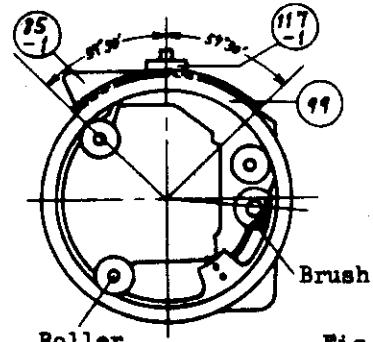


Fig. 13

5-3. Keeping the states 5-1 and 5-2, make engagement of #117 with #99. In this case, make sure of #99 geared without slack, because this may cause defective engagement in the vertical and longitudinal directions. (Fig. 2 and 4)  
 2a, 4a

§6. Compensation Index Plate (Fig. 3, 3a)

Adjustment of this plate should be made after that of the ratchet (#129) has been finished.

Attach this plate to the standard camera body with the front cover (#107) removed.

Using a go- and not-go gages, see the setting condition of pawl #162 provided for holding the compensation index in the positions of f/2.8 and f/1.2.

6-1. For fine adjustment, make use of eccentricing of lever pin #166 for moving the index plate.

6-2. For coarse adjustment, in addition to the above fine adjustment, it will be required to bend stud #149 on the paragraph B.

6-3. In adjustment the ratchet should be set in such a sequence that the compensation index holder pawl (#162) sets into #161 at the same time or after the pawl (#135) sets into #129, special care should be taken of setting in at the position of f/2.8 and f/1.2.

§7. Segment Gear (Fig. 3 and 4)

3a 4a

7-1. The rotating limits of segment gear #127 should be adjusted so as to ensure the correct compensation performed according to the type of lens being attached to the camera.

This adjustment is carried out by eccentricing the segment adjusting sleeve (#141), that is, by adjusting the setting-in position of the tooth of the ratchet (#129) into the pawl (#135) of f/2.8, using a go- and not-go gages, as follows:

- 1) Mount the FTW finder on the standard camera body, with its front cover removed.

- 2) Attach the gage lens to the camera body. Holding the milled ring on the lens, turn the lens until the locking pin sets into the groove on the lens.
- 3) Turn the aperture ring of the lens in the stop-down direction over f/5.6.
- 4) Moving the compensation index plate (#161) with the fingers, set the compensation index holder pawl (#162) into the tooth for f/1.2.
- 5) Holding the aperture ring of the lens, carefully turn the ring until the aperture is fully opened.  
Counting the number of sounds with which the pawl (#135) is set into the ratchet. (#129)
- 6) The position for f/2.8 is reached when the fourth sound is heard, after the #135 has been set into the position for f/5.6.
- 7) At the position for f/2.8 make adjustment using go- and not-go gages.

#### §8. Assembling the Frame, Resistor and Brush Gear (Fig. 5, 5a)

Resistor gear #97 and brush gear #99 should be attached to frame #85 so correctly as to make their rotations smooth and to give rise to no vertical and longitudinal slack. If their rotations are too heavy, the rotation of the segment will not be get smooth. If the slack is large, the engagement with the F-idle gear will not be right.

##### 8-1. Assembling the resistor gear (#97)

Moving frame adjustor #86, make the resistor gear perfectly fitted to the groove on the roller #90.

Make adjustment of the brush gear (#99) at the same time.

##### 8-2. If the adjustment of the brush gear cannot sufficiently be accomplished with that of the resistor gear, and the rotation is not smooth, replace roller #89. The rollers of different diameters are available or it is adjusted by means of roller eccentric axle (#244).

§9. Combination of Shutter Speed, f-number (EV), ASA Film Speed is to be as follows:

\*When set the shutter speed at T, f-number at f/5.6 (when using f/1.2 lens), ASA film speed at 400, the contact position of the variable brush should be adjusted so that it comes to the short circuit position of the variable resistor i.e. the groove on the brush gear. Such a combination will be obtained by adjusting the engaging position of segment gear (#127) with brush gear (#99), and the engagement of resistor gear (#97) with ASA scale (#35) and shutter speed dial (#28).

9-1. For engaging the segment gear with the brush gear, refer to §5.

9-2. Line up the figure 1/1000 on the T-dial (#28) to the index (Fig. 1).  
1a

9-3. \*Bring the groove (▲▲▲) on the resistor gear (#97) opposite the contact position of variable brush (#92). (Fig. 14)

Make this adjustment by turning the dial ring (#34) while being lifted up. If it cannot be made, releasing three dial set screws #199 on #34 shift the ring and reset it.

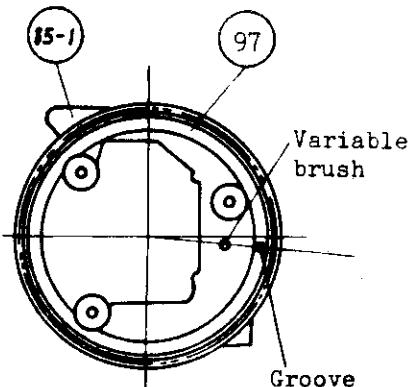


Fig. 14

9-4. To adjust the ASA scale, release three set screws #199 on #34, and line up the position of the figure 400 on the ASA scale to the index ▼ engraved on #34 and then set the scale in position. (Fig. 1, 1a)

§10. T-Film (Fig. 1 and 6)  
1a, 6a

T-film #71 is to be adjusted in such a way that, when the shutter speed dial is rotated while being coupled with the shutter speed dial on the camera body, no figure appear in the finder except a necessary figure, no matter in whatever direction the shutter speed dial is turned.

10-1. Fine adjustment

Detach T-film #71 from film holder #75. Move the T-film, using  
 a pin through the tool hole in the top of the top cover (#1).  
 After adjustment, fix the T-film with the film holder using ce-  
 menting agent.

#### 10-2. Coarse adjustment

Release T-dial pin #39 and T-dial screw #182, inside the T-dial  
 (#28). Now T-dial gear #44 held by clutch #30 and clutch sleeve  
 #37 can be rotated freely. Then, make adjustment by moving T-dial  
 2nd gear #46 or film underlay #72. (Fig. 1, 1a)  
 72-1

#### §11. Meter (Fig. 6, 6a)

For replacement of the meter, only unscrew screws #176.  
 When reattaching, however, take care of the relative position of  
 the T-film to the position of the window, especially of the spaces  
 at the ends of the T-film figures.

#### §12. Meter Printed Wiring Plate (Fig. 6, 6a)

The meter printed wiring plate is provided with semi-fixed resis-  
 tors for checker #202 and meter #203, each of them being adjusted  
 through the top cover from above.

For the accuracy adjustment refer to §21 (C).

#### §13. CdS Printed Wiring Plate (Fig. 7, 7a)

CdS #174, CdS auxiliary resistor #201 and battery protecting  
 resistor #204 constitute a subassembly so that they are to be  
 adjusted or replaced as a whole. For the accuracy adjustment  
 refer to §21 (A).

#### §14. Mirror Plate (Fig. 7, 7a)

Mirror G2 should be cemented to the mirror plate with neither bend

nor the possibility of separation.

Mirror adjusting screws #196 are to be screwed in, after the mirror has been completely stucked. The angular adjustment of the mirror is performed by means of set screws #196.

§15. Meter Needle Window inside the Eyepiece

Vertical, inclination and lateral adjustments are to proceed in the same way as with the Photomic-TN.

§16. Eyepiece Cup #4 (Fig. 8)

The eyepiece cup is to be attached securely so as not to cause loosening to the eyepiece lens. Choose a neoplane (#6) of proper thickness according to the thickness of the eyepiece lens.

§17. Clearance between Top Cover Plate #223 and Top Plate of Camera Body (Fig. 8)

The clearance is adjusted by changing the thickness of washer #106. In this adjustment the front side being fixed by the base plate (#229), the thickness at four positions of #106 is not always the same. The thickness of the washer ranges between 0 (without washer) and 0.8mm (the designed thickness: 0.4mm).

In assembling take care of the following points:

- 1) The refracting edge of G1 does not come into contact with the brush gear (#99).   
 G1-1
- 2) The operation of the ratchet and of the pantagraph coupling pin (#151) must be positive. (There are three types of prongs on the lens)

§18. Base Plate (Fig. 9)

This plate (#229) should be kept in a constant position to ensure the correct signal transmission from the camera body to the internal mechanism of the finder. Therefore, make sure of the attaching

position as follows:

- 1) The position of the base plate attached to the prism box (#2) should be symmetrical with respect to the center of the prism box.
- 2) No inclination of the base plate is permissible.
- 3) When the base plate, prism box (#2) and top cover (#1) are attached or detached, check for the correct engagement of the <sup>1-1</sup> ratchet.

#### §19. Circuit of Exposure Meter

The circuit of the meter in this type of finder is the same as that of the Photomic-T<sub>W</sub> except the following points, so that the resistors, CdS, functional resistors, etc. are all commonly specified with those for Photomic-T<sub>W</sub>:

- 1) Construction and specifications of the meter
- 2) Shape of the printed wiring plates
- 3) Construction of the switch and battery check

#### §20. Specifications of Main Parts

(Refer to "Repair Manual for Photomic-T<sub>W</sub>" so for the parts commonly used)

(A) Resistance of ~~W<sub>201</sub>~~  
#20-1

Total resistance of two CdS cells and of adjusting resistors #201 and #204:

| Brightness Cd/m <sup>2</sup> | 2(EV4)               | 64(EV9)            | 4096(EV15)           |
|------------------------------|----------------------|--------------------|----------------------|
| Range of resistance          | 77.9-62.9 k $\Omega$ | 5.9-4.7 k $\Omega$ | 0.42-0.36 k $\Omega$ |

(B) ND filter (positive film)

Common with that for Photomic-T<sub>W</sub>:

See §21 (B)

(C) Meter (one same type)

Internal resistance: 1.80 k $\Omega$

Torque: 0.32mg cm/deg.  
\*0.23

$$\frac{\text{Torque}}{(\text{Weight of moving part})^{1.5}} \times 10^5 = 1.348$$

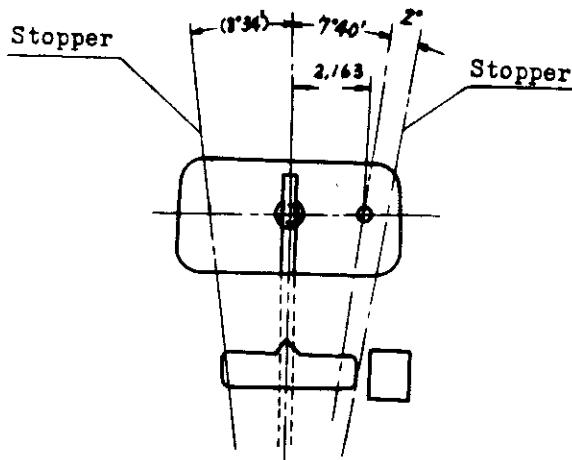


Fig. 15

Meter Needle

(D) Functional resistor (#100)

▲ #100-1

Table 2.

| EV                        | 2            | 3   | 4   | 5    | 6    | 7    | 8     | 9     | 10    | 11    | 12     | 13    | 14     | 15     | 16     | 17     |
|---------------------------|--------------|-----|-----|------|------|------|-------|-------|-------|-------|--------|-------|--------|--------|--------|--------|
| Upper limit of resistance | Not infinite | 100 | 30  | 7.1  | 2.9  | 1.45 | 0.79  | 0.43  | 0.26  | 0.156 | 0.097  | 0.061 | 0.040  | 0.027  | 0.015  | 0.010  |
| Lower limit               | 100          | 9.7 | 3.7 | 1.75 | 0.95 | 0.53 | 0.305 | 0.182 | 0.113 | 0.071 | 0.0465 | 0.030 | 0.0205 | 0.0143 | 0.0103 | 0.0077 |

(E) CdS auxiliary resistor (#201) (R<sub>0</sub>)

▲ Designation Resistance: 600kΩ (Used value 500kΩ - 1MΩ)

(F) Battery protecting resistor (#204) (R<sub>1</sub>)

▲ Designation Resistance: 50Ω (Used value 10Ω - 100Ω)

Provided Resistances: 10Ω, 20Ω, 30Ω, 40Ω, 50Ω, 80Ω

## Note:

The new type is indicated by the following discriminations against the earlier:

For #20 unit, CdS lead wire is colored green

For #100-1, a red dot is provided on the inside of resistor holder

(G) Meter internal resistor (#203) ( $R_1$ )Resistance: 0 — 10 K $\Omega$ (H) Battery checking resistor (#202) ( $R_{C1}$ )Resistance: 0 — 250 K $\Omega$ 

Note: (E) — (H) are common with  
Photomic-Tw. Refer to §21 (E) — (H).

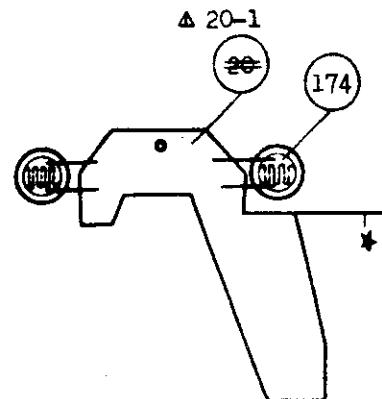


Fig. 16

(I) CdS printed wiring plate (Fig. 16)

The light receiving parts of CdS cells  
#174 should not be placed slantwise  
to the line  $\star$ .

When it is placed over #3, two CdS cells should be located so as  
to be put into the hole in #3 smoothly.

(J) Two batteries #27

1.3 V each.

## §21. Adjustment

(A) Temporary assembly and adjustment of CdS printed wiring plate  
subassembly #3

## 21A-1. Selection of CdS cells #174

Refer to §20 (A).

As the repair parts, request delivery of a pair of CdS cells.

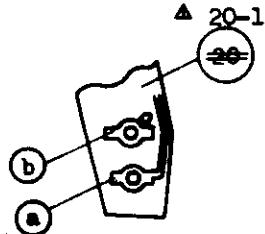
21A-2. For temporary assembling, first attach #201 ( $R_0$ ) to the printed  
wiring plate, without #204 ( $R_1$ ).Then, connect lead wires to the positions **a** and **b** on the printed  
wiring plate.21A-3. Connect the dial adjustable rheostat ( $DR_1$ )  
(1  $\Omega$  — 1 K $\Omega$ ) to **a** and **b** lead wires.  
(Fig. 17)

Fig. 17

## 21A-4. Adjustment of sensitivity of CdS cells

Make the resistance of  $R_o = 600 \text{ k}\Omega$  and of  $DR_i = 150 \text{ k}\Omega$ .

Temporarily assemble the top cover subassembly.

Fit the CdS printed wiring plate (~~#20~~) into the standard camera with 50mm f/1.4 lens and A-type screen. <sup>△ #20-1</sup> Expose this camera to the brightness box with EV9 brightness. In this case, the terminal resistance of ~~#20~~ should be  $4.8 \text{ k}\Omega - 6.0 \text{ k}\Omega$ . <sup>△ #20-1</sup>

If it is under  $4.8 \text{ k}\Omega$ , place the positive film in front of either or both of the CdS cells, so as to make the resistance between  $4.8 \text{ k}\Omega - 6.0 \text{ k}\Omega$ .

The use of the positive film up to 2 pieces is permitted.

(B) Assembling top cover subassembly #1  
1-1

## 21B. Adjustment of position of functional resistor

## 21B-1. Assemble temporarily the prism box together with pentaprism and eyepiece lens system, without the CdS printed wiring plate.

## 21B-2. Fit this into the standard camera with 50mm f/1.4 lens and A-type screen.

## 21B-3. See that the resistance between the terminal (#91) and the earth for EV2 — 17 is within the range given in Table 2 in §20 (D).

## (C) Adjustment

Refer to §22C for Photomic-T<sub>N</sub>, except §22C-8.

## (D) Inspection of metering accuracy

Refer to §22, D (1) for Photomic-T<sub>N</sub>.

## (E) Inspection of battery check

Refer to §22, D (2) for Photomic-T<sub>N</sub>.

## §22. If the accuracy is not sufficient,

Refer to "Trouble Chart", §25 for Photomic-T<sub>N</sub>.

## §23. Conditions for brightness measurement

Refer to §27 for Photomic-T<sub>N</sub>.

## \*§24. Additional note

6-4. Releasing order of compensation index holder pawl (#162)  
and ratchet pawl (#135)

When the lens is inserted into body, the ratchet pawl and compensation index holder pawl are released by the movement of the pantograph A whose pin is moved by the coupling prong of lens, and the order of their movements should be such that first #135 is released and then #163 is done.

The adjustment will be made by means of eccentric pin (#57-1 in Fig. 3a).

## DYNAMICAL REQUIREMENTS

| Item                              | Measuring method  | Requirement   |
|-----------------------------------|---|---|
| Rotating torque of dial ring      | Measure the rotating torque, all the gears being attached   | Within 350 $\mu$ - cm   |
| Lifting force for ASA clutch      | Measure the force for lifting the dial ring   | $750 \pm 100$ g   |
| Force for on-and-off of switch    | Measure the force for pushing the button  | Within about 500 g  |
| Force for coupling pin            | Measure the returning force of the coupling pin in the position of f/1.2                                | Not more than 100 g at f/1.2  |
| Lifting force for coupling pin    | Measure the force for lifting the pin at f/5.6  |   |
| Force for click roller of segment | Measure the pushing force for the coupling pin for movement from the position f/5.6 to f/8              | 300 — 500 g   |
| Pressure of sliding brush         | Measure the pressure, when the brush is in contact with the functional resistor                         | Pressure of brush<br>40 — 50 g  |
| Torque of brush ring              | Measure the rotating torque, the resistor gear and brush gear being attached to the frame and adjusted. | Take measurement by hanging a balance, on the tooth of brush gear. Not more than 10 g |

## LUBRICATION TABLE

| Surface to be lubricated of part #  | Lubricant | Refer to     |
|---|-----------|--------------|
| Fitting surfaces of top cover #1 and ASA gear #31   |           | Fig. 1<br>1a |
| Fitting surfaces of F-idle gear shaft #120 and F-idle gear #117                                   |           | Fig. 4<br>4a |
| Fitting surfaces of pawl shaft #134 and pawl spring #136  |           | Fig. 4<br>4a |
| Sliding surfaces between segment #128 and rocker pin #144   |           | Fig. 4<br>4a |
| Sliding surfaces of rocker spring bush #217 and rocker spring #152 and the inside surface of bush |           | Fig. 4<br>4a |
| Fitting surfaces of rocker shaft #122 and rocker lever #145                                       |           | Fig. 4<br>4a |
| Fitting surfaces of click shaft #111 and click lever #114   |           | Fig. 4<br>4a |
| Sliding surfaces of segment #128 and click roller #116  |           | Fig. 4<br>4a |
| Fitting surfaces of segment shaft #119 and segment collar #139 and segment gear #127              |           | Fig. 4<br>4a |
| Sliding surfaces of compensation index coupling lever #160 and compensation index plate #161      |           | Fig. 3<br>3a |

| No. of Part         | Name and Shape                  | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---------------------|---------------------------------|---------------|--------------------|---------------|--------------|---------|
| 20FD9-1             | Top cover (N) (E)               | 1             |                    | 1, 2.6        |              |         |
| △ 1-2               |                                 |               |                    | 1a, 2a<br>6a  | ×            |         |
| 2-1                 | Prism box                       | 1             | A2                 | 7, 7a<br>8    | △            |         |
| 3                   | CdS holder base                 | 1             | A4                 | 7, 7a         | △            |         |
| 4                   | Eyepiece cup                    | 1             |                    | 8             | ○            |         |
| 5                   | Dust tight piece                | 1             | A4                 | 7, 7a         | ○△           |         |
| 0.5<br>6 1.0        | Eyepiece neoplane<br>t=0.5, 1.0 | 1             |                    | 8             | ○            |         |
|                     |                                 |               |                    |               |              |         |
| 0.3<br>8 0.5<br>0.7 | Eyepiece washer<br>t=0.5, 0.7   | 1             |                    | 8             | ○            |         |
| 9                   | Eyepiece sleeve                 | 1             |                    | 8             | ○            |         |
| 10                  | Eyepiece leatherette            | 2             |                    | 8             | ○            |         |
| 11                  | Prism holder                    | 2             | A8x2               | 7, 7a         | △            |         |
| 12                  | Mirror plate (N) (E)            | 1             | A3                 | 7             |              |         |
| 12-1                |                                 |               | A3-1               | 7a            | △            |         |
|                     |                                 |               |                    |               |              |         |
| 14                  | Dust tight piece B              | 2             | A2x2               | 8             | ○△           |         |
| 15                  | Dust tight piece A              | 2             | A2x2               | 8             | ○△           |         |

| 20FD9 - R.0289.B |                          |               |                    |                 |              |         |
|------------------|--------------------------|---------------|--------------------|-----------------|--------------|---------|
| No. of Part      | Name and Shape           | Pcs. per Unit | No. of Subassembly | Ref. Fig. No.   | Term of Sale | Remarks |
| 20FD9-16         | Lock pin A               | 1             | A2                 | 8               | △            |         |
| 17               | Lock pin B               | 2             | A2x2               | 8               | △            |         |
| 18               | Fresnel spring holder    | 2             | A2x2               | 8               | ○△           |         |
| 19               | Prism mask               | 1             | A2                 | 8               | ○△           |         |
| △ 20-1           | CdS printed wiring plate | 1             | C1                 | 7, 7a<br>10,10a | △            |         |
| 21               | Battery case             | 1             | A14<br>A14-1       | 7, 7a           | △            |         |
| 22               | Battery case cap         | 1             | A15                | 7, 7a           | △            |         |
| 24               | Marking                  | 1             | A15                | 7, 7a           | △            |         |
| 25-1             | Battery spring           | 1             | A14<br>A14-1       | 7, 7a           | ○△           |         |
| 26               | Lug                      | 1             | A14<br>A14-1       | 7, 7a           | △            |         |
| 27               | Mercury battery          | 2             |                    | 7, 7a<br>10,10a | ○            |         |
| 28               | T-dial                   | 1             | A7                 | 1, 1a           | △            |         |
| △ 29-1           | T-dial spring            | 1             |                    | 1, 1a           | ○            |         |
| 30               | Clutch                   | 1             |                    | 1, 1a           | ○            |         |

| No. of Part | Name and Shape       | Pcs. per Unit | No. of Subassembly | 20FD9 - R.0289.B |              |         |
|-------------|----------------------|---------------|--------------------|------------------|--------------|---------|
|             |                      |               |                    | Ref. Fig. No.    | Term of Sale | Remarks |
| 20FD9-31    | ASA gear             | 1             |                    | 1, 1a            | ○            |         |
| 32          | Clutch shaft         | 1             |                    | 1, 1a            | ○            |         |
| 33          | ASA stopper          | 1             | A9                 | 1, 1a            | △            |         |
| 34          | Dial ring            | 1             | A9                 | 1, 1a            | △            |         |
| 35          | ASA scale            | 1             | A9                 | 1, 1a            | ○△           |         |
|             |                      |               |                    |                  |              |         |
| 37          | Clutch sleeve        | 1             |                    | 1, 1a            | ○            |         |
| 38          | Clutch spring        | 1             |                    | 1, 1a            | ○            |         |
| 39          | T-dial pin           | 1             |                    | 1, 1a            | ○            |         |
| 40          | T-dial stopper pin   | 2             | A7, All<br>A10-1   | 1, 1a            | ○△           |         |
| 41          | ASA stopper pin      | 1             | A9                 | 1, 1a            | ○△           |         |
| 42          | T-dial idle axle     | 1             | A10<br>A10-1       | 1, 1a            | ○△           |         |
| 43          | T-dial 2nd gear axle | 1             | A10<br>A10-1       | 1, 1a            | ○△           |         |
| 44          | T-dial gear          | 1             |                    | 1, 1a            | ○            |         |
| 45          | T-dial idle gear     | 1             | A10<br>A10-1       | 1, 1a            | ○△           |         |

| No. of Part | Name and Shape                            | Pcs. per Unit | No. of Subassembly     | Ref. Fig. No. | Term of Sale | Remarks |
|-------------|---|---------------|------------------------|---------------|--------------|---------|
| 20FD9-46    | T-dial 2nd gear                           | 1             | A10<br>A10-1           | 1, 1a         | ○△           |         |
| 48          | Racket plate (N) (E)                      | 1             | A10                    | 1             |              |         |
| 48-1        |   |               | A10-1                  | 1a            | △            |         |
| 49          | T-dial bottom plate                       | 1             | A11                    | 1             | △            |         |
| 49-1        | (N) (E)                                   |               | A10-1                  | 1a            |              |         |
| 50          | Top button                                | 1             | A16                    | 2, 2a         | △            |         |
| 51          | Button sleeve                             | 1             | A16                    | 2, 2a         | △            |         |
| 52          | Button axle                               | 1             | A16                    | 2, 2a         | △            |         |
| 53          | Switch collar                             | 1             | A16                    | 2, 2a         | △            |         |
| 54          | Top button leather                        | 1             | A16                    | 2, 2a         | ○△           |         |
| 55          | Button spring                             | 1             | A16                    | 2, 2a         | △            |         |
| 56          | Side button                               | 1             |                        | 2, 2a         | ○            |         |
| 57-1        | Compensation release pin<br>" (eccentric) | 1             | D1, D12<br>D1-1, D12-1 | 3<br>3a       | ○△           |         |
| 58          | Switch lever                              | 1             | A12<br>A12-1           | 2, 2a         | △            |         |
| 59          | Switch lever washer                       | 1             | A12<br>A12-1           | 2, 2a         | △            |         |
| 60          | Switch lever spring                       | 1             |                        | 2, 2a         | ○            |         |

| 20FD9 - R.0289.B |                         |               |                    |               |              |           |
|------------------|-------------------------|---------------|--------------------|---------------|--------------|-----------|
| No. of Part      | Name and Shape          | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | • Remarks |
| 20FD9-61         | Lead terminal (green)   | 1             | Al2                | 2, 2a         | △            |           |
|                  |                         |               | Al2-1              |               |              |           |
| 62               | Lead terminal (white)   | 1             | Al2                | 2, 2a         | △            |           |
|                  |                         |               | Al2-1              |               |              |           |
| 63               | Lead terminal (red)     | 1             | Al2                | 2, 2a         | △            |           |
|                  |                         |               | Al2-1              |               |              |           |
| 64               | Lead terminal (yellow)  | 1             | Al2                | 2, 2a         | △            |           |
|                  |                         |               | Al2-1              |               |              |           |
| 65               | Switch insulating plate | 4             | Al2x4              | 2, 2a         | △            |           |
|                  |                         |               | 3 Al2-1x3          |               |              |           |
| 66               | Switch mold             | 1             | Al2                | 2, 2a         | △            |           |
|                  |                         |               | Al2-1              |               |              |           |
| 67               | Switch center shaft     | 1             | Al2                | 2, 2a         | △            |           |
|                  |                         |               | Al2-1              |               |              |           |
|                  |                         |               |                    |               |              |           |
| 69               | Film shaft              | 1             |                    | 6, 6a         | ○            |           |
| 70               | Film shaft screw        | 1             |                    | 6, 6a         | ○            |           |
| 71               | T-film ▲ (N) (E)        | 1             | Al3                | 6             | △            |           |
| 71-1             |                         |               | Al3-1              | 6a            |              |           |
| 72               | Film underlay (N) (E)   | 1             | Al3                | 6             | △            |           |
| 72-1             |                         |               | Al3-1              | 6a            |              |           |
| 73               | Film gear               | 1             | Al3                | 6, 6a         | △            |           |
|                  |                         |               | Al3-1              |               |              |           |
| 74               | Film boss               | 1             | Al3                | 6, 6a         | △            |           |
|                  |                         |               | Al3-1              |               |              |           |
| 75               | Film holder             | 1             | Al3                | 6, 6a         | △            |           |
|                  |                         |               | Al3-1              |               |              |           |

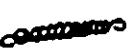
| No. of Part | Name and Shape             | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|-------------|----------------------------|---------------|--------------------|---------------|--------------|---------|
| 20FD9-76    | Film spring                | 1             |                    | 6, 6a         | ○            |         |
| 77          | Film spring stud           | 1             |                    | 6, 6a         | ○            |         |
| 78          | Meter window mask          | 1             |                    | 6, 6a         | ○            |         |
| 79          | Meter                      | 1             | B1                 | 6, 6a         | △            |         |
| 81          | Meter printed wiring plate | 1             | C2                 | 6, 6a         | △            |         |
| 83          | Terminal                   | 3             | Clx2, C2           | 6, 6a         | ○△           |         |
|             |                            | 2             | Clx2               |               |              |         |
| 84          | Lug                        | 4             | Blx2, C2x2         | 6, 6a, 7      |              |         |
|             |                            | 2             | △<br>=B2, C2x2     | 7a, 10<br>10a | ○△           |         |
| 85          | Frame (N) (E)              | 1             | B2, B3             | 5             |              |         |
| 85-1        |                            |               | B2-1, B3-1         | 5a            | △            |         |
| 86          | Frame adjustor             | 1             | B2, B3             | 5, 5a         | △            |         |
|             |                            |               | B2-1, B3-1         |               |              |         |
| 87          | Roller shaft               | 2             | B2x2, B3x2         | 5, 5a         | ○△           |         |
|             |                            | 1             | B2-1, B3-1         |               |              |         |
| 88          | Roller adjusting axle      | 1             | B2, B4             | 5, 5a         | ○△           |         |
|             |                            |               | B2-1, B4           |               |              |         |
| 89          | Roller<br>D=8.4, 8.8       | 3             | B2x3               | 5, 5a         | ○△           |         |
|             |                            |               | B2-1x3             |               |              |         |
| 90          | Plastic roller             | 3             | B2x3               | 5, 5a         | ○△           |         |
|             |                            |               | B2-1x3, B3-1       |               |              |         |

| No. of Part | Name and Shape         | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|-------------|------------------------|---------------|--------------------|---------------|--------------|---------|
| 20FD9-91-1  | Lead wire (gray)       | 1             | B2                 | 5, 5a         | ○△           |         |
|             |                        |               | B2-1               |               |              |         |
| 92          | Brush                  | 1             | B2                 | 5, 5a         | ○△           |         |
|             |                        |               | B2-1               |               |              |         |
| 93          | Brush mold             | 1             | B2                 | 5, 5a         | ○△           |         |
|             |                        |               | B2-1               |               |              |         |
| 94          | Brush insulating piece | 1             | B2                 | 5, 5a         | ○△           |         |
|             |                        |               | B2-1               |               |              |         |
| 95          | Earth brush            | 1             | B2, B3             | 5, 5a         | ○△           |         |
|             |                        |               | B2-1, B3-1         |               |              |         |
| 96          | Brush rivet            | 1             | B2, B3             | 5, 5a         | ○△           |         |
|             |                        |               | B2-1, B3-1         |               |              |         |
| 97          | Resistor gear          | 1             | B2, B5             | 5, 5a         | △            |         |
|             |                        |               | B2-1, B5           |               |              |         |
|             |                        |               |                    |               |              |         |
| 99          | Brush gear             | 1             | B2                 | 5, 5a         | ○△           |         |
|             |                        |               | B2-1               |               |              |         |
| 100         | Functional resistor    | 1             | B2, B5             | 5, 5a         | △            |         |
|             |                        |               | B2-1, B5           |               |              |         |
| 101         | Meter cap              | 1             |                    | 2, 2a         | ○            |         |
|             |                        |               |                    |               |              |         |
| 102         | Lead holder            | 1             |                    | 6, 6a         | ○            |         |
|             |                        |               |                    |               |              |         |
| 103         | Window plate (clear)   | 1             |                    | 2, 2a         | ○            |         |
|             |                        |               |                    |               |              |         |
| 104         | Window plate (opal)    | 1             |                    | 2, 2a         | ○            |         |
|             |                        |               |                    |               |              |         |
| 105         | Top cover leatherette  | 1             |                    | 2, 2a         | ○            |         |
|             |                        |               |                    |               |              |         |

| No. of Part | Name and Shape                                    | Pcs. per Unit | No. of Subassembly   | Ref. Fig. No.  | Term of Sale | Remarks |
|-------------|---|---------------|----------------------|----------------|--------------|---------|
| 20FD9-106   | Adjusting washer<br>T t=0.2, 0.3, 0.4<br>0.5, 0.6 | 4             |                      | 8              | ○            |         |
| 107         | Front cover<br>CHROME & BLACK                     | 1             |                      | 2, 2a          | ○            |         |
| 108         | Base plate B                                      | 1             | D1, D2<br>D1-1, D2   | 3, 3a<br>4, 4a | △            |         |
| 109         | Base plate C                                      | 1             | D1, D3<br>D1-1, D3-1 | 3, 3a          | △            |         |
| 110         | Base plate A                                      | 1             | D1, D4<br>D1-1, D4   | 4, 4a          | △            |         |
| 111         | Click shaft                                       | 1             | D1, D2<br>D1-1, D2   | 4, 4a          | ○△           |         |
| 112         | Stopper pin                                       | 1             | D1, D2<br>D1-1, D2   | 4, 4a          | ○△           |         |
| 113         | Click spring stopper                              | 1             | D1, D2<br>D1-1, D2   | 4, 4a          | ○△           |         |
| 114         | Click lever                                       | 1             | D1, D5<br>D1-1, D5   | 4, 4a          | △            |         |
| 115         | Click roller axle                                 | 1             | D1, D5<br>D1-1, D5   | 4, 4a          | ○△           |         |
| 116         | Click roller                                      | 1             | D1, D5<br>D1-1, D5   | 4, 4a          | ○△           |         |
| 117         | F-idle gear (N) (E)                               | 1             | D1, D6               | 4              | △            |         |
| ▲ 117-2     |   |               | D1-1, D6-1           | 4a             |              |         |
| 118         | F-pinion (N) (E)                                  | 1             | D1, D6               | 4              | △            |         |
| ▲ 118-1     | F-pinion gear                                     |               | D1-1, D6-1           | 4a             |              |         |
| 119         | Segment shaft                                     | 1             | D1, D2<br>D1-1, D2   | 4, 4a          | ○△           |         |
| 120         | F-idle gear shaft                                 | 1             | D1, D2<br>D1-1, D2   | 4, 4a          | ○△           |         |

| No. of Part | Name and Shape        | Pcs. per Unit | No. of Subassembly             | Ref. Fig. No. | Term of Sale | Remarks |
|-------------|-----------------------|---------------|--------------------------------|---------------|--------------|---------|
| 20FD9-121   | Pantograph shaft      | 1             | D1, D2<br>D1-1, D2             | 4, 4a         | ○△           |         |
| 122         | Rocker shaft          | 1             | D1, D2<br>D1-1, D2             | 4, 4a         | ○△           |         |
| 123         | Base plate front stay | 2             | D1x2, D2x2<br>D1-1x2, D2x2     | 4, 4a         | ○△           |         |
| 124         | Base plate rear stay  | 1             | D1, D2<br>D1-1, D2             | 4, 4a         | ○△           |         |
| 125A        | Back plate stay A     | 1             | D1, D4<br>D1-1, D4             | 4, 4a         | ○△           |         |
| 125B        | Back plate stay B     | 2             | D1x2, D4x2<br>D1-1x2, D4x2     | 4, 4a         | ○△           |         |
| 126         | Base plate C collar   | 2             | D1x2, D3x2<br>D1-1x2<br>D3-1x2 | 3, 3a         | ○△           |         |
| 127         | Segment gear          | 1             | D1, D7<br>D1-1, D7             | 4, 4a         | △            |         |
| 128         | Segment               | 1             | D1, D8<br>D1-1, D8             | 4, 4a         | △            |         |
| 129-1       | Ratchet               | 1             | D1, D7<br>D1-1, D7             | 4, 4a         | △            |         |
| 130         | Click spring          | 1             | D1<br>D1-1                     | 4, 4a         | ○△           |         |
| 131-1       | Ratchet rivet         | 3             | D1x3, D7x3<br>D1-1x3, D7x3     | 4, 4a         | ○△           |         |
| 132         | Segment spring stud   | 1             | D1, D7<br>D1-1, D7             | 4, 4a         | ○△           |         |
| 133-1       | Pawl spring stud      | 1             | D1, D8<br>D1-1, D8             | 4, 4a         | ○△           |         |
| 134-1       | Pawl shaft            | 1             | D1, D8<br>D1-1, D8             | 4, 4a         | ○△           |         |

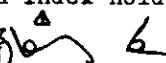
| 20FD9 - R.0289.B         |   |               |                    |               |              |         |
|--------------------------|---|---------------|--------------------|---------------|--------------|---------|
| No. of Part              | Name and Shape  | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
| 20FD9-<br>△ 135<br>135-1 | Pawl (N) (E)<br>               | 1             | D1, D8             | 4, 4a         | ○△           |         |
|                          |   |               | D1-1, D8           |               |              |         |
| △ 136<br>136-1           | Pawl spring (N) (E)<br>        | 1             | D1, D8             | 4, 4a         | ○△           |         |
|                          |   |               | D1-1, D8           |               |              |         |
| 137                      | Segment spring case<br>        | 1             | D1                 | 4, 4a         | ○△           |         |
|                          |   |               | D1-1               |               |              |         |
| 138                      | Segment spring<br>             | 1             | D1                 | 4, 4a         | ○△           |         |
|                          |   |               | D1-1               |               |              |         |
| 139                      | Segment collar<br>             | 1             | D1, D7             | 4, 4a         | ○△           |         |
|                          |   |               | D1-1, D7           |               |              |         |
|                          |   |               |                    |               |              |         |
| 141                      | Segment adjusting sleeve<br> | 1             | D1                 | 4, 4a         | ○△           |         |
|                          |   |               | D1-1               |               |              |         |
| 142                      | Rocker<br>                   | 1             | D1, D9             | 4, 4a         | △            |         |
|                          |   |               | D1-1, D9           |               |              |         |
| △ 143<br>143-1           | Pantograph pin<br>           | 3             | D1x3, D10x3        | 3, 3a         | ○△           |         |
|                          |   |               | D1-1x3<br>D10x3    |               |              |         |
| 144                      | Rocker pin<br>               | 1             | D1, D9             | 4, 4a         | ○△           |         |
|                          |   |               | D1-1, D9           |               |              |         |
| 145                      | Rocker lever<br>             | 1             | D1, D9             | 4, 4a         | ○△           |         |
|                          |   |               | D1-1, D9           |               |              |         |
|                          |   |               |                    |               |              |         |
| 148                      | Rocker spring stud<br>       | 1             | D1, D2             | 4, 4a         | ○△           |         |
|                          |   |               | D1-1, D2           |               |              |         |
| 149                      | Pantograph B stud<br>        | 1             | D1, D10            | 3, 3a         | ○△           |         |
|                          |   |               | D1-1, D10          |               |              |         |
| △ 150<br>150-1           | Rivet<br>                    | 1             | D1, D10            | 3, 3a         | ○△           |         |
|                          |   |               | D1-1, D10          |               |              |         |

| No. of Part     | Name and Shape  | Pcs. per Unit | No. of Subassembly           | Ref. Fig. No. | Term of Sale | Remarks |
|-----------------|---|---------------|------------------------------|---------------|--------------|---------|
| 20FD9-<br>151-1 | Coupling pin<br>(N)  (E)        | 1             | D1, D10                      | 3, 3a         | ○△           |         |
|                 |   |               | D1-1, D10                    |               |              |         |
| 152             | Rocker spring<br>  | 1             | D1,                          | 4, 4a         | ○△           |         |
|                 |   |               | D1-1                         |               |              |         |
|                 |   |               |                              |               |              |         |
| 154-1           | Pantograph A<br>   | 1             | D1, D10                      | 3, 3a         | △            |         |
|                 |   |               | D1-1, D10                    |               |              |         |
| 155             | Pantograph B<br>   | 1             | D1, D10                      | 3, 3a         | △            |         |
|                 |   |               | D1-1, D10                    |               |              |         |
| 156             | Pantograph C<br>   | 1             | D1, D10                      | 3, 3a         | △            |         |
|                 |   |               | D1-1, D10                    |               |              |         |
| 157             | Pantograph D<br>   | 1             | D1, D10                      | 3, 3a         | △            |         |
|                 |   |               | D1-1, D10                    |               |              |         |
| 158             | Segment spring shaft<br>   | 1             | D1                           | 4, 4a         | ○△           |         |
|                 |   |               | D1-1                         |               |              |         |
|                 |   |               |                              |               |              |         |
| 160             | Compensation index  |               | D1, D11                      | 3             |              |         |
| 160-1           | coupling lever<br>(N)  (E)  | 1             | D1-1, D11-1                  | 3a            | △            |         |
|                 |   |               |                              |               |              |         |
| 161             | Compensation index plate<br>   | 1             | D1 D11                       | 3, 3a         | △            |         |
|                 |   |               | D1-1, D11-1                  |               |              |         |
| 162             | Compensation index holder pawl<br>   | 1             | D1, D12                      | 3, 3a         | △            |         |
|                 |   |               | D1-1, D12-1                  |               |              |         |
| 163             | Compensation index plate spring<br>  | 1             | D1                           | 3, 3a         | ○△           |         |
|                 |   |               | D1-1                         |               |              |         |
| 164             | Compensation index plate pin<br>   | 3             | D1x3, D3x3                   | 3, 3a         | ○△           |         |
|                 |   |               | D1-1x3<br>D3-1x3             |               |              |         |
| 165             | Compensation index spring stud<br>   | 4             | D1x4, D3x2<br>D11, D12       | 3, 3a         | ○△           |         |
|                 |   |               | D1-1x3, D3-1<br>D11-1, D12-1 |               |              |         |

| No. of Part | Name and Shape           | Pcs. per Unit | No. of Subassembly     | Ref. Fig. No.  | Term of Sale | Remarks |
|-------------|--------------------------|---------------|------------------------|----------------|--------------|---------|
| 20FD9-166   | Index coupling lever pin | 1             | D1, D11<br>D1-1, D11-1 | 3, 3a          | ○△           |         |
|             |                          |               |                        |                |              |         |
|             |                          |               |                        |                |              |         |
|             |                          |               |                        |                |              |         |
| ▲ 170-170-1 | Lug plate A (N) (E)      | 1             |                        | 5, 5a          | ○            |         |
| 171         | Battery case terminal    | 1             |                        | 7, 7a          | ○            |         |
| 172         | CdS holder               | 1             |                        | 7, 7a          | ○            |         |
| 173         | Filter (film)            | 1 - 4         |                        | 7, 7a          | ○            |         |
| 174         | CdS cell                 | 2             | C1x2                   | 7, 7a          | ○△           |         |
| 175         | Diaphragm                | 2             | A4x2                   | 7, 7a          | ○△           |         |
| 176         | Racket plate screw       | ▲ 6           |                        | 1, 1a<br>7, 7a | ○            |         |
| 177         | Back plate stay A screw  | 1             | D1<br>D1-1             | 4, 4a          | ○△           |         |
|             |                          |               |                        |                |              |         |
| 179         | Roller shaft screw       | 3             | B2x3<br>B2-1x3         | 5, 5a          | ○△           |         |
| 180         | Fresnel holder screw     | 4             | A2x4                   | 8              | ○△           |         |

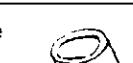
| 20FD9 - R.0289.B       |                            |   |                    |                    |                         |         |
|------------------------|----------------------------|---|--------------------|--------------------|-------------------------|---------|
| No. of Part            | Name and Shape             | Pcs. per Unit   | No. of Subassembly | Ref. Fig. No.      | Term of Sale            | Remarks |
| 20FD9-181              | Prism box screw            | ▲  | ▲ <del>4</del> 6   | 4, 4a, 7<br>7a, 8  | ○                       |         |
| 182                    | T-dial screw               |    | 1                  | 1, 1a              | ○                       |         |
| 183                    | Front cover screw          |    | ▲ <del>4</del> 4   | 2, 2a              | ○                       |         |
| ▲ 184                  | Prism holder screw         |    | ▲ 2                | 7a                 | ○                       |         |
|                        |                            |   |                    |                    |                         |         |
| 186                    | Eyepiece cup screw         |    | ▲ <del>4</del> 4   | 8                  | ○                       |         |
| ▲ <del>187</del> 187-1 | Base plate screw<br>▲ B    |  | ▲ <del>4</del> 1   | 3, 3a              | ○                       |         |
| 188                    | Frame screw                |  | 5                  | 5, 5a<br>7, 7a     | ○                       |         |
| ▲ <del>189</del>       | Base plate B collar        |  | ✗                  | 3, 3a              | ○                       |         |
| 190                    | Base plate stay screw      |  | ▲ <del>11</del> 11 | D1x7<br>D1-1x7     | 4, 4a, 6<br>6a, 7<br>7a | ○△      |
| 191                    | Mirror plate screw         |  | ▲ <del>6</del> 6   | B2x2<br>B2-1x2     | 7, 7a                   | ○△      |
| 192                    | Click spring stopper rivet |  | 1                  | D1, D2<br>D1-1, D2 | 4, 4a                   | ○△      |
| 193                    | Switch screw               |  | 1                  |                    | 2, 2a                   | ○       |
| 194                    | Brush stopper screw        |  | 1                  | B2<br>B2-1         | 5, 5a                   | ○△      |
| 195                    | Clutch shaft set screw     |  | 2                  |                    | 1, 1a                   | ○       |

| No. of Part | Name and Shape  | Pcs. per Unit | No. of Subassembly | Ref. Fig. No.    | Term of Sale | Remarks  |
|-------------|---|---------------|--------------------|------------------|--------------|--|
| 20FD9-196   | Mirror adjusting set screw  | 2             | A2x2               | 7, 7a            | ○△           |  |
| 197         | Window mask screw   | 1             |                    | 5, 6a            | ○            |  |
| ▲ 198       | F-pinion set screw  | 2             | D1x2<br>D6x2       | 4, 4a            | ○△           |  |
| 199         | Dial ring set screw   | 3             |                    | 1, 1a            | ○            |  |
| 200         | E-ring  | 5             | D1x5<br>D1-1x5     | 3, 3a            | ○△           |  |
| 201         | CdS auxiliary resistor<br>0 - 1.2MΩ   | 1             | C1                 | 7, 7a<br>10, 10a | ○△           |  |
| 202         | Battery checking resistor<br>0 - 250KΩ  | 1             | C2                 | 6, 6a            | ○△           |  |
| 203         | Meter internal resistor<br>0 - 10KΩ   | 1             | C2                 | 6, 6a            | ○△           |  |
| 204         | Battery protecting resistor<br>80Ω, 100Ω, 120Ω<br>150Ω, 140Ω, 160Ω<br>170Ω, 200Ω 10, 20, 30, 40, 50 | 1             | C1                 | 7, 7a<br>10, 10a | ○△           | 10, 20, 30, 40<br>50, 60, 70, 80<br>100, 120, 140<br>150, 160, 170 |
| 205         | Cord (red)  | 1             | A12<br>A12-1       | 10, 10a          | ○△           |  |
| 206         | Cord (green)  | 1             | A12<br>A12-1       | 10, 10a          | ○△           |  |
| 207         | Cord (white)  | 1             | A12<br>A12-1       | 10, 10a          | ○△           |  |
| 208         | Cord (yellow)   | 1             | A12<br>A12-1       | 10, 10a          | ○△           |  |
| 209         | Cord (brown)  | 1             | A14<br>A14-1       | 10, 10a          | ○△           |  |
| 210         | Cord (blue)   | 1             | C2                 | 10, 10a          | ○△           |  |

| 20FD9 - R.0289.B          |   |               |                      |               |              |         |
|---------------------------|---|---------------|----------------------|---------------|--------------|---------|
| No. of Part               | Name and Shape  | Pcs. per Unit | No. of Subassembly   | Ref. Fig. No. | Term of Sale | Remarks |
| 20FD9-211                 | Cord (black)  | 1             | C2                   | 10, 10a       | ○ △          |         |
| ▲ <del>212</del>          | Cord (gray)   | 1             |                      | 10, 10a       | ○            |         |
|                           |   |               |                      |               |              |         |
| ▲ <del>214</del><br>214-1 | Name plate (rear)<br>                                  | 1             | A2                   | 8             | ○ △          |         |
|                           |   |               |                      |               |              |         |
| 216                       | Segment adjusting shaft   | 1             | D1, D4<br>D1-1, D4   | 4, 4a         | ○ △          |         |
| ▲ 217<br>a, b             | Rocker spring bush<br>#217a $l=1.9$<br>#217b $l=1.7$  | 1             | D1<br>D1-1           | 4, 4a         | ○ △          |         |
| 218                       | Compensation index holder<br>pawl spring<br>(N)  (E) | 1             | D1<br>D1-1           | 4, 4a         | ○ △          |         |
| 219                       | Tin leaf  | 2             | A8x2                 | 7, 7a         | ○ △          |         |
| 220                       | Pawl pin  | 1             | D1, D3<br>D1-1, D3-1 | 3, 3a         | ○ △          |         |
|                           |   |               |                      |               |              |         |
| 222                       | Top cover plate screw   | 4             |                      | 2, 2a         | ○            |         |
| 223                       | Top cover plate   | 1             |                      | 2, 2a         | ○            |         |
| 224                       | Compensation index holder<br>pawl spring stud   | 1             | D1<br>D1-1           | 3, 3a         | ○ △          |         |
| ▲ <del>225</del>          | Top cover plate<br>side screw   | 1             |                      | 2, 2a         | ○            |         |

| 20FD9 - R.0289.B |                                      |                          |                    |               |              |         |
|------------------|--------------------------------------|--------------------------|--------------------|---------------|--------------|---------|
| No. of Part      | Name and Shape                       | Pcs. per Unit            | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
| 20FD9-226        | ASA dial                             | 1                        | A9                 | 1, 1a         | △            |         |
| 227              | Compensation index plate washer      | ▲ $\frac{1}{3}$          | D1x2<br>D1-1x2     | 3, 3a         | ○△           |         |
| 228              | F-idle adjusting washer              | ▲ $\frac{1}{3}$<br>0 - 3 | D1<br>D1-1         | 4, 4a         | ○△           |         |
| 229              | Lock lever base plate                | 1                        | E1<br>E2           | 9             | △            |         |
| 230              | Lock lever (left)                    | 1                        | E1<br>E3           | 9             | △            |         |
| 231              | Lock lever (right)                   | 1                        | E1<br>E4           | 9             | △            |         |
| 232              | Securing pin                         | 2                        | E1x2, E3<br>E4     | 9             | ○△           |         |
| 233              | Lock lever axle                      | 2                        | E1x2               | 9             | ○△           |         |
| 234              | Lock lever spring stud               | 2                        | E1x2<br>E2x2       | 9             | ○△           |         |
| 235              | Lock lever spring axle               | 2                        | E1x2<br>E2x2       | 9             | ○△           |         |
| 236              | Lock lever stopper                   | 2                        | E1x2<br>E2x2       | 9             | ○△           |         |
| 237              | Lock lever base plate screw          | 2                        |                    | 9             | ○            |         |
| 238              | Lock lever spring B<br>▲ (N) 6 (E)   | 1                        | E1<br>E2           | 9             | ○△           |         |
| 239              | Lock lever spring A<br>▲ 9 (N) 6 (E) | 1                        | E1<br>E2           | 9             | ○△           |         |
|                  |                                      |                          |                    |               |              |         |



| No. of Part | Name and Shape   | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale  | Remarks |
|-------------|--|---------------|--------------------|---------------|---|---------|
| 20FD9-G1    | Prism                       | 1             | A5                 | 7             |    |         |
| G1-1        |  |               | A5-1               | 7a            |   |         |
| G2          | Mirror                      | 1             | A3                 | 7, 7a         |    |         |
|             |  |               | A3-1               |               |   |         |
| G4          | Pentagonal prism            | 1             | A5                 | 7, 7a         |    |         |
|             |  |               | A5-1               |               |   |         |
| G5          | Eyepiece lens (convex)      | 1             | A6                 | 8             |    |         |
| G6          | Eyepiece lens (concave)     | 1             | A6                 | 8             |    |         |
| G7          | Light acceptance prism     | 2             | A5x2               | 7, 7a         |   |         |
|             |  |               | A5-1x2             |               |   |         |
| G8          | Light acceptance lens     | 2             | A4x2               | 7, 7a         |  |         |
| D-27        | Meter window lower plate  | 1             | B1                 | 6, 6a         |  |         |
|             |  |               | B1                 |               |   |         |
| D-28        | Lead wire (white)         | 1             | B1                 | 6, 6a         |  |         |
| D-29        | Lead wire (violet)        | 1             | B1                 | 6, 6a         |  |         |
| D-31        | Meter window upper plate  | 1             | B1                 | 6, 6a         |  |         |
|             |  |               | B1                 |               |   |         |

| No. of Sub-assembly | Name                             | Pcs. per Unit | No. of Constituent Part (*: Main parts)                                    | Ref. Fig. No.             | Remarks |
|---------------------|----------------------------------|---------------|--|---------------------------|---------|
| 20FD9-A2            | Prism box                        | 1             | *2, 14x2, 15x2, 16, 17x2<br>18x2, 19, 180x4, 196x2<br>214                  | 7, 8<br>7a                |         |
|                     | A3-1 Mirror plate                | 1             | *12, G2  | 7                         |         |
|                     | A4 Light acceptance lens         | 1             | *3, 5, 175x2, G8x2   | 7, 7a                     |         |
|                     | A5 Pentagonal prism              | 1             | *G4, G1, G7x2  | 7                         |         |
|                     | A6 Eyepiece lens                 | 1             | *G5, G6  | 8                         |         |
|                     | A7 T-dial                        | 1             | *28, 40  | 1, 1a                     |         |
|                     | A8 Prism holder                  | 2             | *11, 219   | 7, 7a                     |         |
|                     | A9 Dial ring                     | 1             | *34, 33, 35, 41, 226   | 1, 1a                     |         |
|                     | A10-1 Racket plate               | 1             | *48, 42, 43, 45, 46  | 1                         |         |
|                     | A11 T-dial bottom plate          | 1             | *49, 40  | 1, 1a                     |         |
|                     | A12-1 Switch                     | 1             | *67, 58, 59, 61, 62, 63<br>64, 65x4, 66, 205, 206<br>207, 208              | 2, 10                     |         |
|                     | A13-1 T-film                     | 1             | *74, 71, 72, 73, 75  | 6                         |         |
|                     | A14-1 Battery box                | 1             | *21, 25, 26, 209   | 7, 10                     |         |
|                     | A15 Battery case cap             | 1             | *22, 24  | 7                         |         |
|                     | A16 Switch button                | 1             | *51, 52, 53, 54, 55, 50  | 2                         |         |
| B2                  | B1 Meter                         | 1             | *79, 84x2, D-27, D28<br>D-29, D-31   | 6, 6a, 7<br>7a, 10<br>10a |         |
|                     | B2-1 B2-2 Resistor               | 1             | *99, 89x3, 90x3, 91, 92<br>93, 94, 179x3, 191x2, 194<br>B3, B4, B5         | 5, 7                      |         |
|                     | B3-1 B3 Frame                    | 1             | *85, 87x2, 95, 96  | 5                         |         |
|                     | B4 Frame adjustor                | 1             | *86, 88  | 5, 5a                     |         |
|                     | B5-1 B5 Resistor gear            | 1             | *97, 100   | 5, 5a                     |         |
|                     | C1-1 C1 CdS printed wiring plate | 1             | *20, 83x2, 174x2, 201<br>204   | 6, 6a, 7<br>7a, 10<br>10a |         |
| D1                  | C2 Meter printed wiring plate    | 1             | *81, 83, 84x2, 202, 203<br>210, 211  | 6, 6a, 7<br>7a, 10<br>10a |         |
|                     | D1-1 D subassembly               | 1             | *130, 137, 138, 141, 152<br>158, 163, 177, 190x7<br>200x5, 218, 224, 227x2 | 3, 4<br>6, 7              |         |

| No. of Sub-assembly                | Name                           | Pcs per Unit | No. of Constituent Part (*: Main parts)                           | Ref. Fig. No.  | Remarks |
|------------------------------------|--------------------------------|--------------|---|----------------|---------|
| 20FD9                              |                                |              | 228, 217, D2 - D12  |                |         |
| D2                                 | Base plate B                   | 1            | *108, 111, 112, 113, 119<br>120, 121, 122, 123x2<br>124, 148, 192 | 3, 4<br>3a, 4a |         |
| D3-1                               | Base plate C                   | 1            | *109, 126x2, 164x3, 165<br>x2, 220                                | 3              |         |
| D4                                 | Base plate A                   | 1            | *110, 125A, 125Bx2, 216   | 4, 4a          |         |
| D5                                 | Click lever                    | 1            | *114, 115, 116  | 4, 4a          |         |
| D6-1                               | F-idle gear                    | 1            | *117, 118, 198x2  | 4              |         |
| D7                                 | Segment gear                   | 1            | *127, 129, 131x3, 132<br>139                                      | 4, 4a          |         |
| D8                                 | Segment                        | 1            | *128, 133, 134, 135, 136  | 4, 4a          |         |
| D9                                 | Rocker                         | 1            | *142, 144, 145  | 4, 4a          |         |
| <del>D10</del><br><del>D10-1</del> | Pantograph                     | 1            | *154, 143x3, 149, 150<br>151, 155, 156, 157                       | 3, 3a          |         |
| D11-1                              | Compensation index             | 1            | *161, 160, 165, 166   | 3              |         |
| D12-1                              | Compensation index holder pawl | 1            | *162, 57, 165   | 3              |         |
| E1                                 | E subassembly                  | 1            | 233x2, E2, E3, E4   | 9              |         |
| E2                                 | Lock lever                     | 1            | *229, 234x2, 235x2, 236<br>x2, 238, 239                           | 9              |         |
| E3                                 | Lock lever (left)              | 1            | *230, 232   | 9              |         |
| E4                                 | Lock lever (right)             | 1            | *231, 232   | 9              |         |

| No. of Sub-assembly | Name                           | Pcs. per Unit | No. of Constituent Part (*: Main parts)   | Ref. Fig. No.  | Remarks |
|---------------------|--------------------------------|---------------|---|----------------|---------|
| 20FD9-A3-1          | Mirror plate                   | 1             | *12-1, G2   | 7a             |         |
|                     | Pentagonal prism               | 1             | *G4, G1-1, G7x2   | 7a             |         |
|                     | Racket plate                   | 1             | *48-1, 40, 42, 43, 45<br>46, 49-1, 242  | 1a             |         |
|                     | Switch                         | 1             | *67, 58, 59, 61, 62, 63<br>64, 65x3, 66, 205, 206<br>207, 208, 243  | 2a,10a         |         |
|                     | T-film                         | 1             | *74, 71-1, 72-1, 73, 75   | 6a             |         |
|                     | Battery box                    | 1             | *21, 25, 26, 209, 245   | 7a             |         |
| B2-1                | Resistor                       | 1             | *99, 89x3, 90x2, 91, 92<br>93, 94, 179x3, 191x2<br>194, B3-1, B4, B5  | 5a,7a          |         |
|                     | Frame                          | 1             | *85-1, 87, 90, 95, 96<br>240, 244   | 5a             |         |
| D1-1                | D subassembly                  | 1             | *130, 137, 138, 141, 152<br>158, 163, 177, 190x7<br>200x5, 218, 224, 227x2<br>228, 217, D2, D3-1, D4<br>D5, D6-1, D7, D8, D9<br>D10, D11-1, D12-1 | 3a,4a<br>6a,7a |         |
|                     | Base plate C                   | 1             | *109, 126x2, 164x3, 165<br>220, 241   | 3a             |         |
|                     | F-idle gear                    | 1             | *117-1, 118-1   | 4a             |         |
|                     | Compensation index             | 1             | *161, 160-1, 165, 166   | 3a             |         |
|                     | Compensation index holder pawl | 1             | *162, 57-1, 165   | 3a             |         |
|                     |                                |               |   |                |         |