

**Canon®**  
**T70**  
MULTIPLE PROGRAM AE  
DUAL METERING SYSTEM



# REPAIR GUIDE

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T-70

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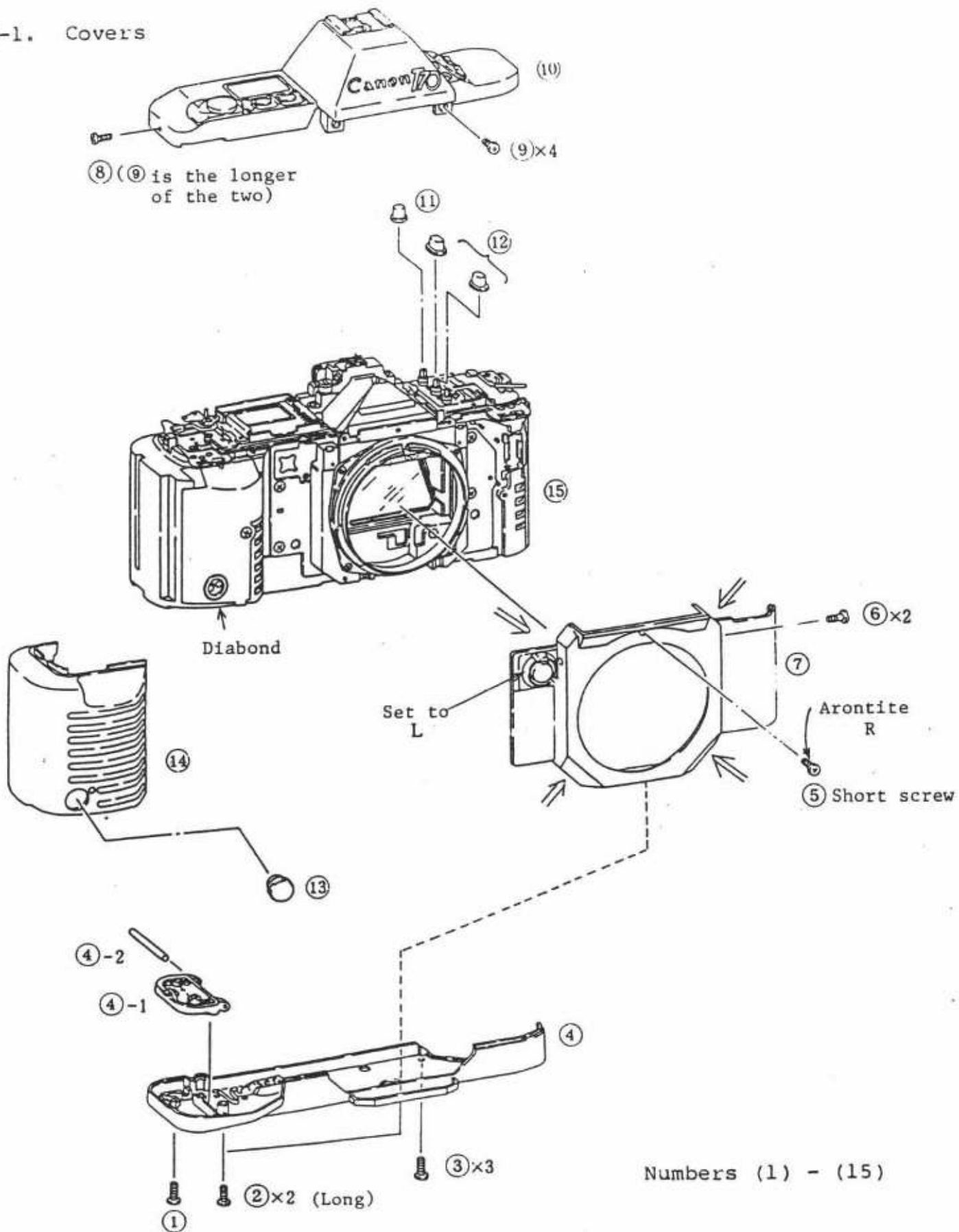
## COLOR CODE

To save space on drawings, it has been necessary to use a color code. The code is:

|        |    |        |    |                 |    |
|--------|----|--------|----|-----------------|----|
| Black  | BL | Blue   | BU | Gold            | GL |
| Brown  | BR | Violet | V  | Tan             | T  |
| Red    | R  | Purple | PR | Pink            | PK |
| Orange | O  | Gray   | GY | Sky Blue        | SB |
| Yellow | Y  | White  | W  | Yellowish Green | YG |
| Green  | GN | Silver | S  |                 |    |

# I. ASSEMBLY & DISASSEMBLY

## I-1. Covers



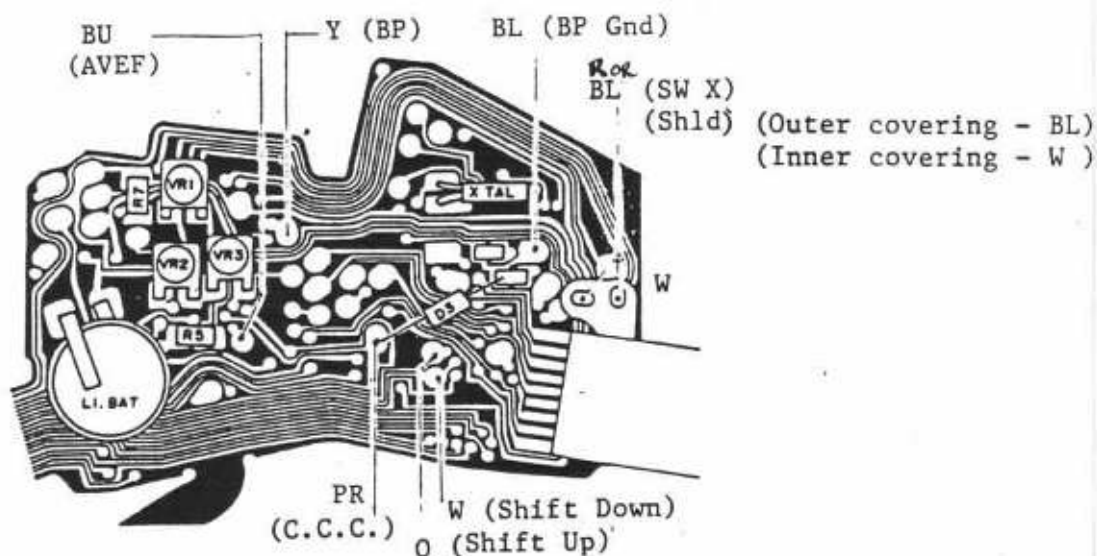
Numbers (1) - (15)

## I. ASSEMBLY & DISASSEMBLY

### I-1. Covers

#### Disassembly Notes

1. Bottom Cover (4): Push the film rewind button in the marked direction before removing the bottom plate. This is necessary to prevent deforming of the spring which would cause the button to not operate smoothly.
2. Front Cover (7): Set the shutter speed shift lock lever to "L" to prevent bending the switch contacts. Loosen the two screws in the right end cover (4). Pinch the front cover at the four corners as shown and lift off.
3. Top Cover (10): To remove the top cover completely, unsolder the seven leads shown below.

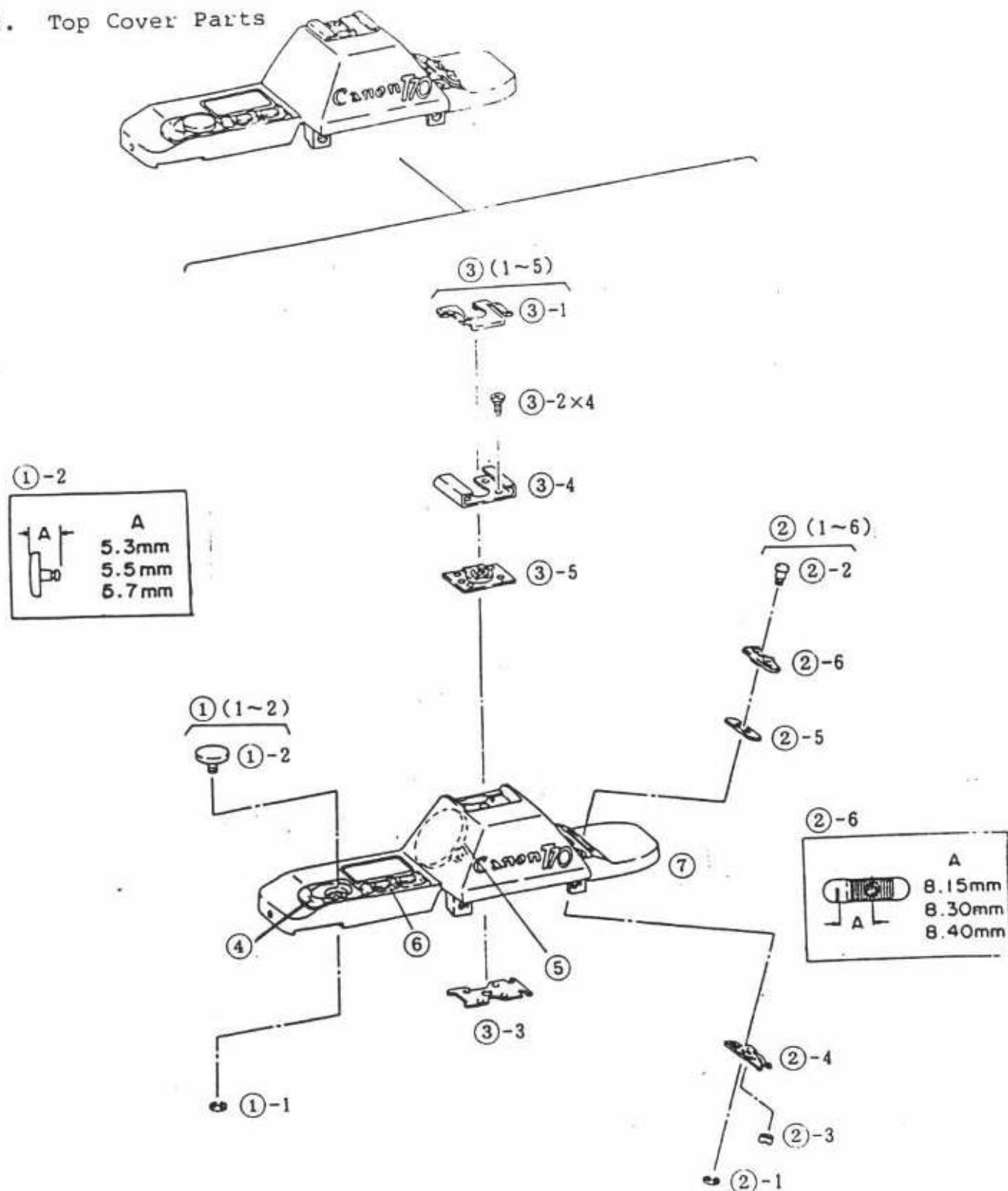


#### Assembly Notes

1. After resoldering shielded leads, be sure to recover with insulating tape.
2. Don't pinch wires when reinstalling the covers.
3. Screw (5) is shorter than the other cover screws. If a longer screw is used here it will scratch the pentaprism.
4. When reinstalling the bottom cover, push the film rewind button as explained above.

# I. ASSEMBLY & DISASSEMBLY

## 1-2. Top Cover Parts



Numbers (1) - (16)

## I. ASSEMBLY & DISASSEMBLY

### I-1. Top Cover Parts

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#### Disassembly Notes

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1. Shutter Button Seat (4), Beeper (5), and Swift Switch (6) are all bonded to the top cover with diabond.

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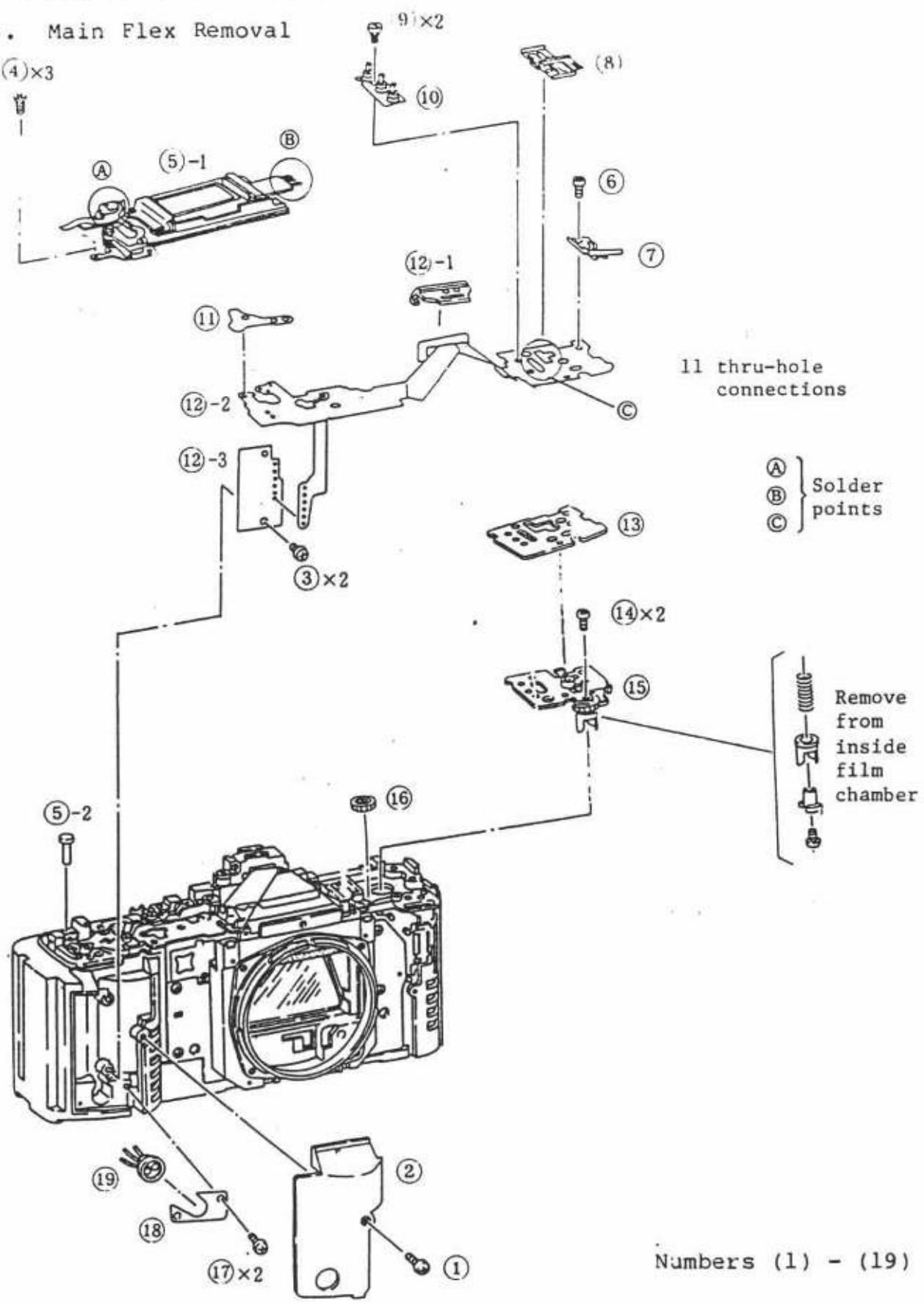
#### Assembly Notes

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1. The maximum height of the shutter button above its seat should be  $0.3 \pm 0.3\text{mm}$  when the button is all the way up.
2. Insure that the index of the selector lever (2)-6 aligns with the different selected indices on the top cover.

I. ASSEMBLY & DISASSEMBLY

I-3. Main Flex Removal



## I. ASSEMBLY & DISASSEMBLY

### I-3. Main Flex Removal

#### Disassembly Notes

1. To remove the LCD panel (5), the jumper wires (B) and main flex leads (A) have to be unsoldered and three screws (4) removed.  
Caution: 1. One of the thru-hole pins at (A) has an enlarged head. Use solder wick and be careful not to tear the flex when removing the flex.  
2. Don't use force when unsoldering the (B) section.

### 2. Main Flex Removal

- 2.1. SPC stopper (12)-1 is bonded to the SPC. Remove it with the flex.
- 2.2. Remove solder from the 11 thru-hole pins in (12)-2 with solder wick. See page 8 for positions.
- 2.3. Remove the 12 lead wires from the main flex (12). See page 7 for positions.
- 2.4. Unsolder the 5 solder points on the shutter flex.
- 2.5. Unsolder the LED jumper leads (C).

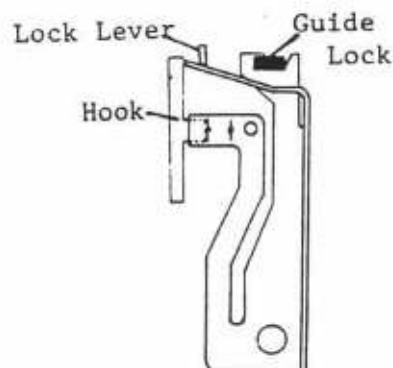
#### Adjustment Notes

1. Don't exert pressure on the flex after the thru-hole pins are soldered. This could break the underside pattern.
2. Don't use excess solder. This could cause shorts between the LCD panel and ground.
3. When installing the SPC stopper, engage the elongated hole first.
4. When installing the LCD (5)-1 and soldering at (A), don't release them until the solder is thoroughly set, or it may splatter all over.

5. Install the remote jack (19) and its holder (18) as shown.

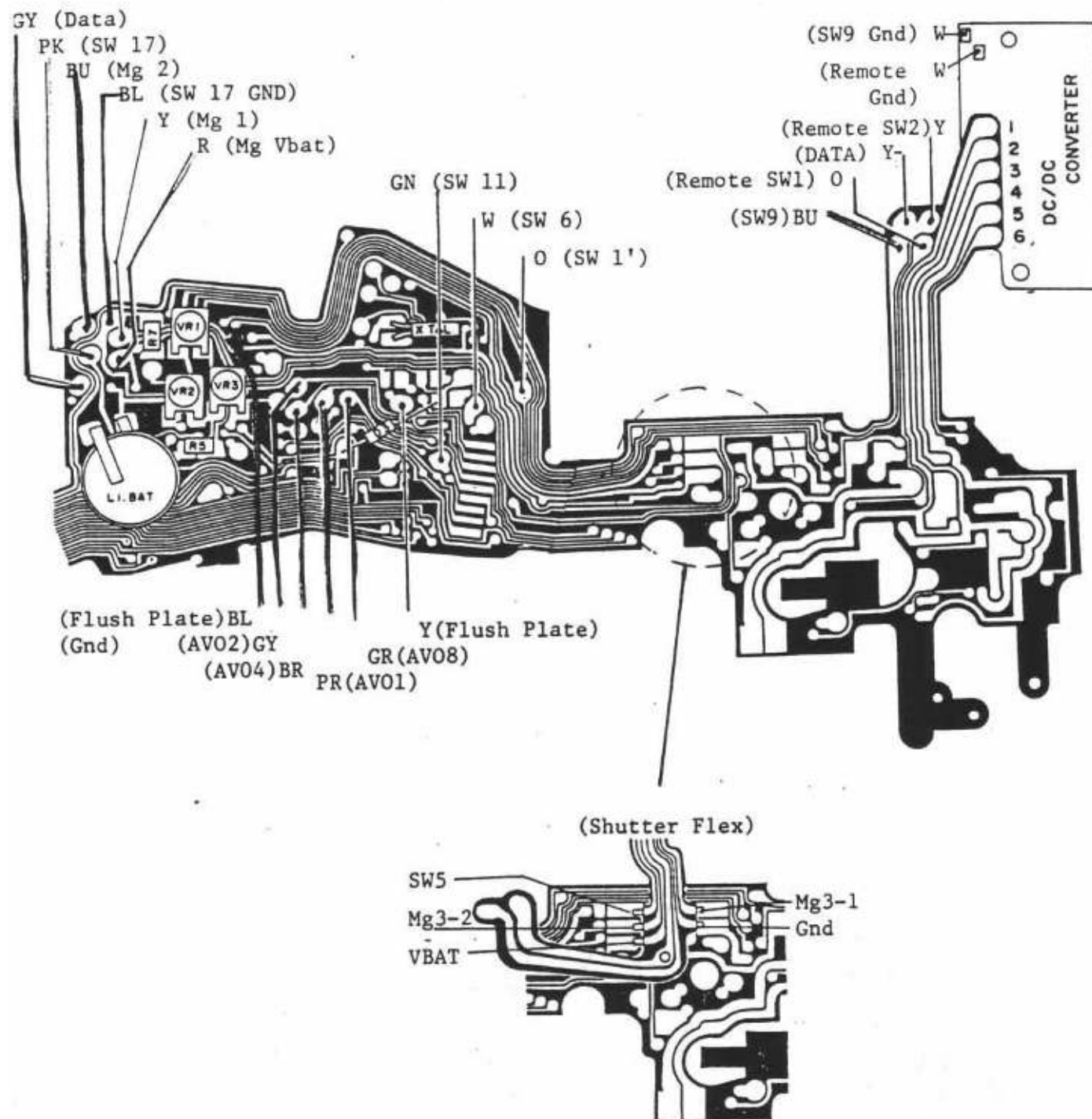


6. Back Cover Switch (7)
  - 6.1. With the back cover open, hold the opening hook down and push the lock lever in the marked direction so they latch.
  - 6.2. Push the back cover switch (7) in the direction shown and fix it in place.



# I. ASSEMBLY & DISASSEMBLY

## I-3. Main Flex Removal



# I. ASSEMBLY & DISASSEMBLY

## I-3. Main Flex Removal

### Thru-hole Connections:

A: SW4-2

B: SW4-M (Enlarged head)

C: SW4-1

D: SW10 GND

E: SW18 GND

F: SW18

G: Data (+)

H: SW10

I: Motor (-)

J: VBAT (+) (Enlarged Head)

K: VBAT (-) (Enlarged Head)

### To LCD Board:

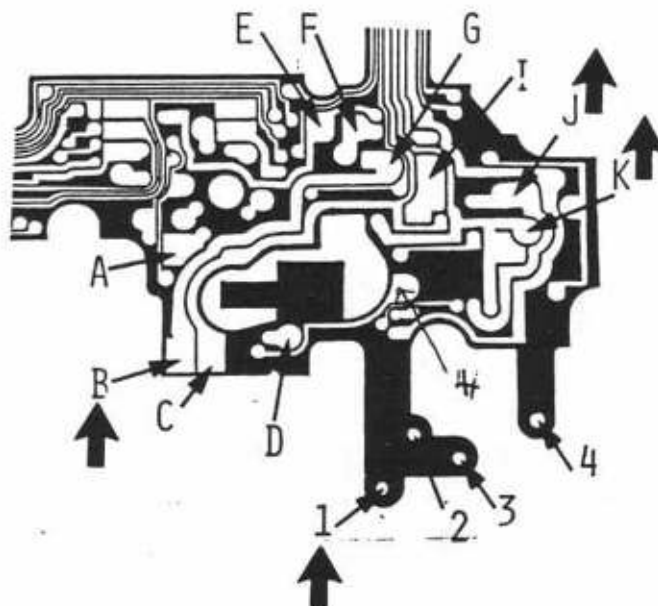
1: SW3 (Enlarged Head)

2: SW1

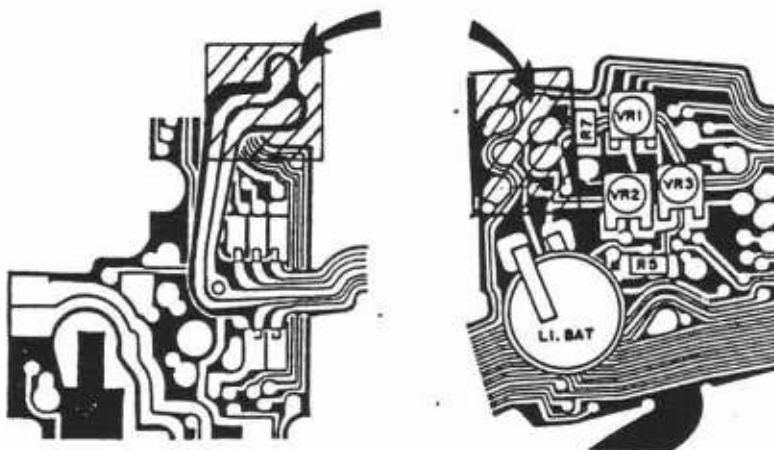
3: GND

4: SW2

↑ : Enlarged Head

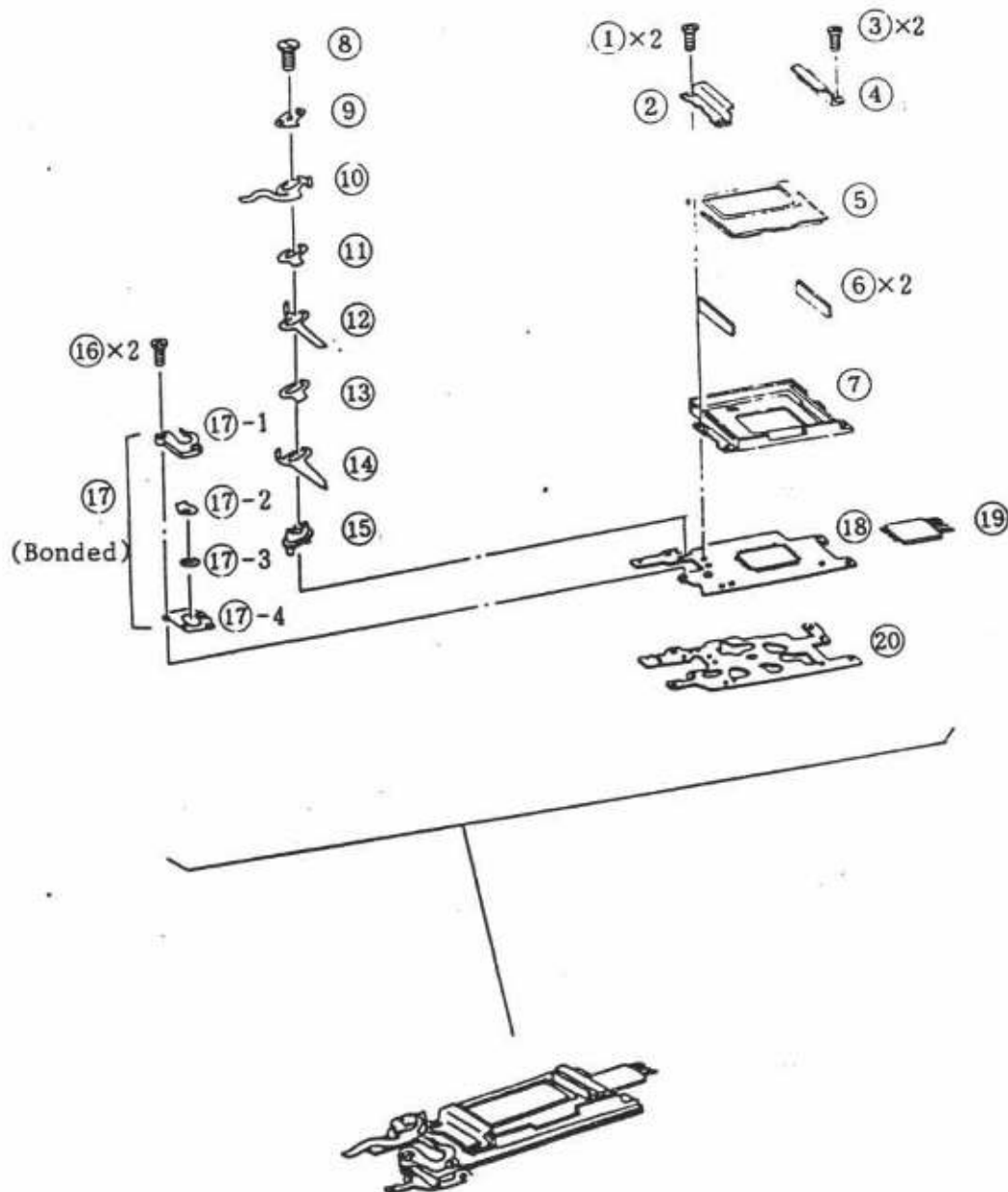


Apply insulating tape over the area shown.



# I. ASSEMBLY & DISASSEMBLY

## I-4. LCD Unit



Numbers: (1 - 17)

## I. ASSEMBLY & DISASSEMBLY

14

### I-4. LCD Unit

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#### Disassembly Notes

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1. Don't scratch the surface of the LCD (5). To clean it, wipe lightly with Fronsolve AE.
2. Switch holders (17)-1 and (17)-4 are welded together and cannot be separated. Take care not to lose (17)-2 and 3 when screws (16) are removed.
3. The ends of jumper lead (19) break easily. Take care not to bend them too much.

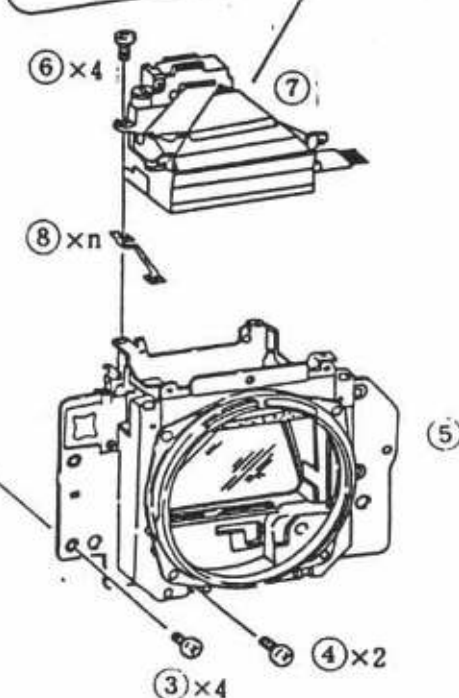
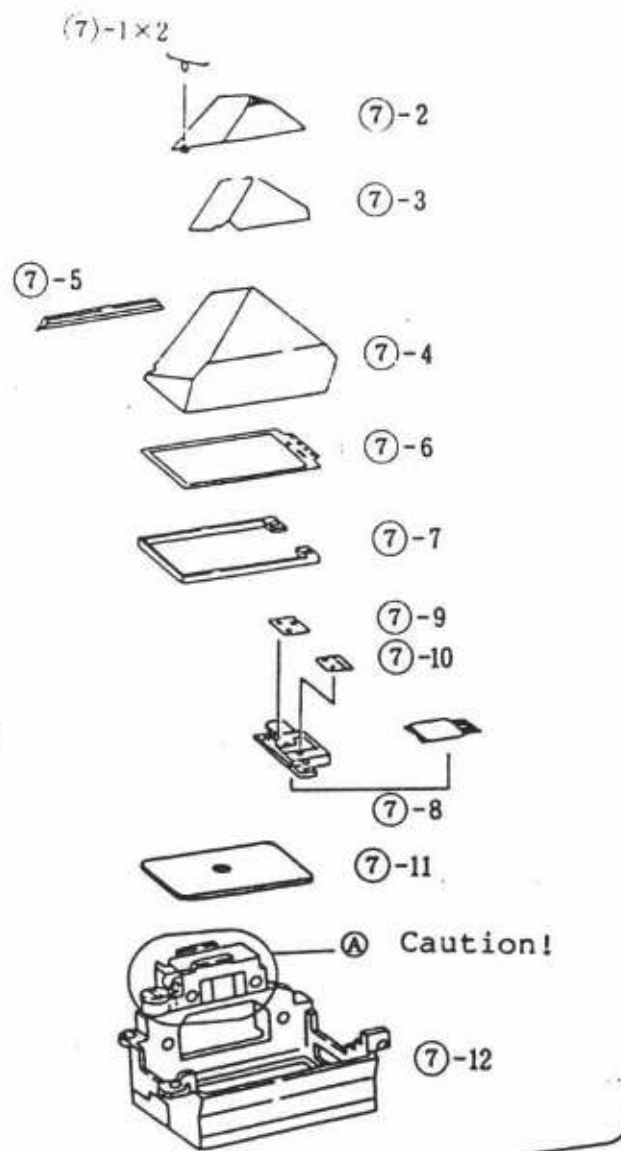
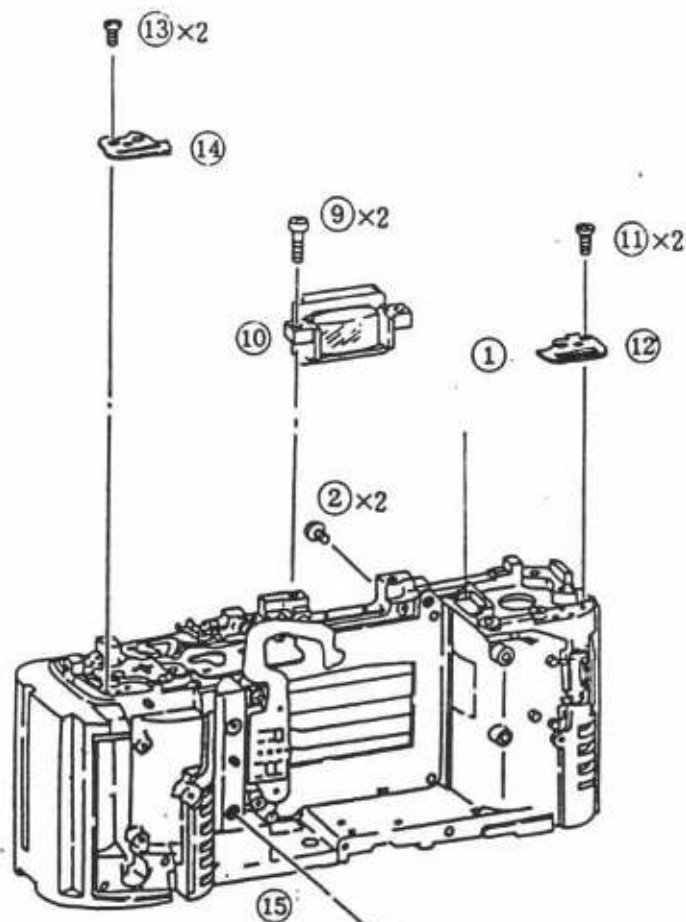
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#### Adjustment Notes

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1. Be sure the elastic connectors (6) are clean before installing them.
2. When installing (17)-2 and 3, make sure the convex side of 17-3 is next to (17)-2.
3. After assembling and installing the main switch parts (8) through (17), check that it makes the proper muted clicking sound (peko-peko in Japanese).

I-5. Front Panel, Pentaprism



## I-5. Front Panel, Pentaprism

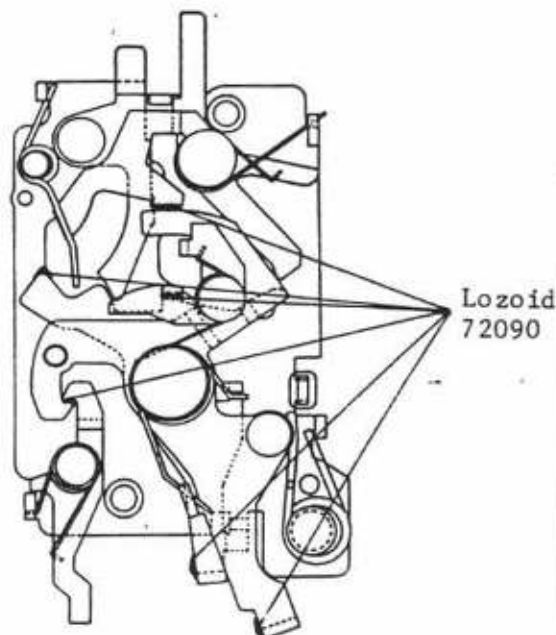
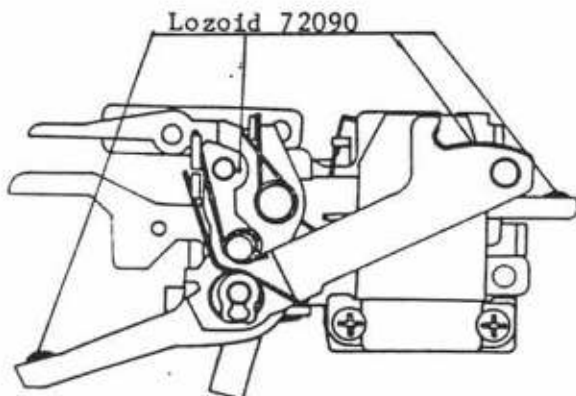
## Disassembly Notes

1. Remove Holder (1) (squeeze in, lift out) , and straighten the LED jumpers to prevent catching when the front panel is removed.
2. If SPC Holder (A) is removed, an extensive alignment procedure is required. Remove it only if necessary.
3. Rubber dust shields are used in the area of the pentaprism (7)-4 and the LED (7)-8. Remove them before removing the main part.

## Adjustment Notes

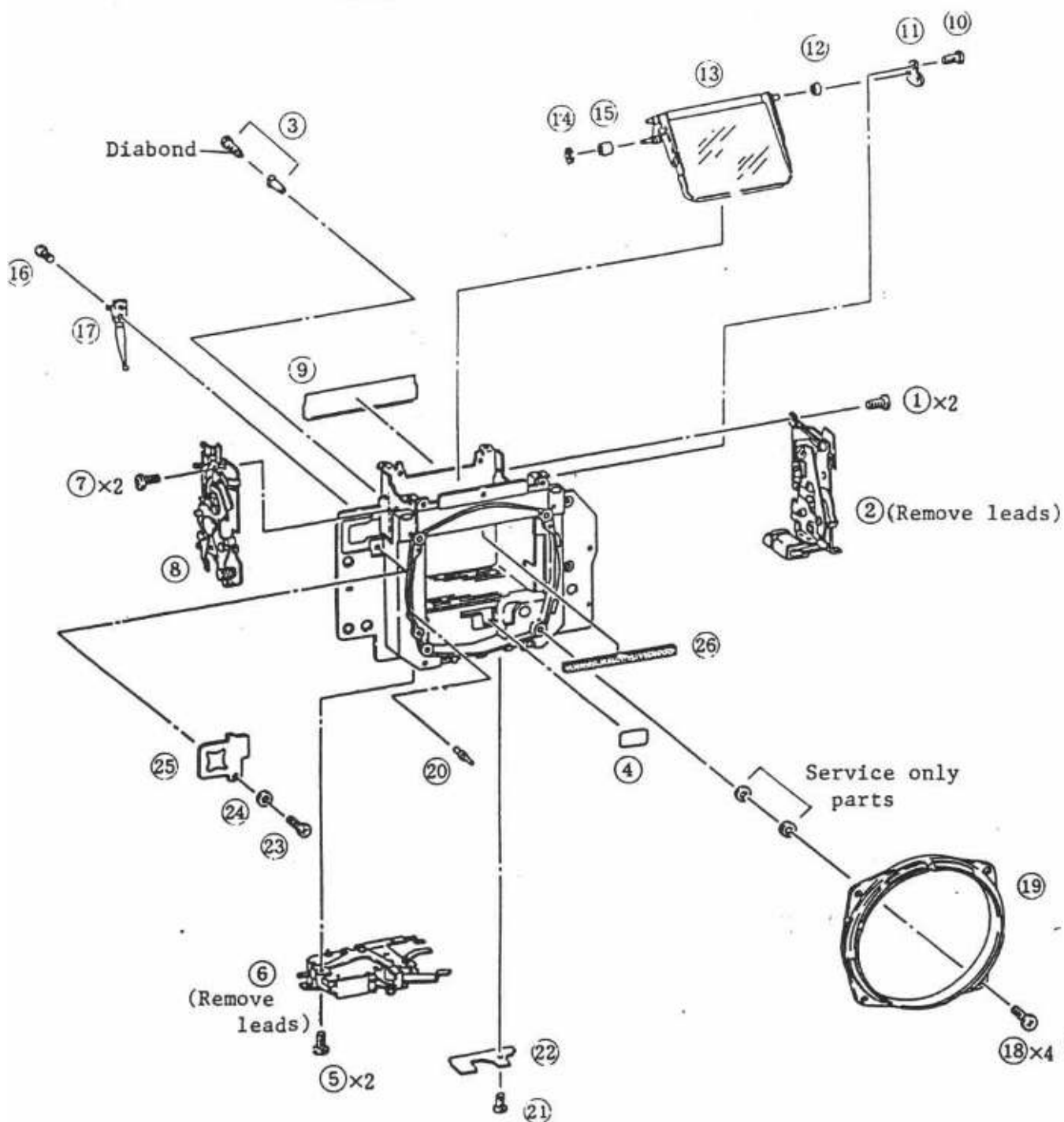
1. Install the front panel (5) into the body (15) with the shutter open and the mirror up.
2. Reinstall all rubber dust seals in the proper position.
3. If SPC Holder (A) was removed from the front panel, perform the SPC positioning adjustment.
4. Install the focusing screen (7)-11 with the two notches up and toward the LED.

## Lubrication and Spring Anchor Position

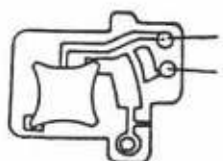


# I. ASSEMBLY & DISASSEMBLY

## I-6. Front Panel Parts

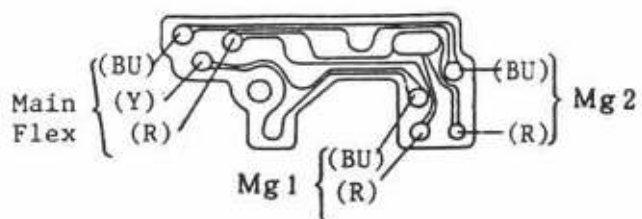


(25) Wiring



SW1 (O)  
Lock (W)

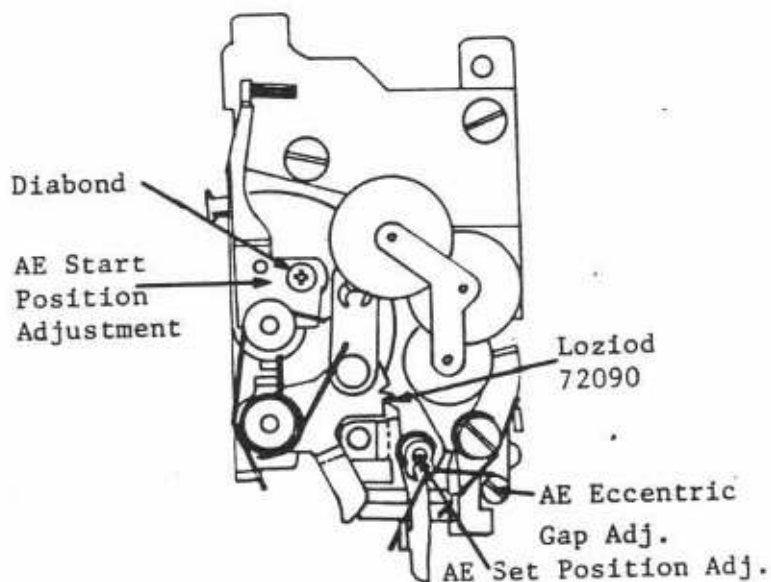
(22) Wiring



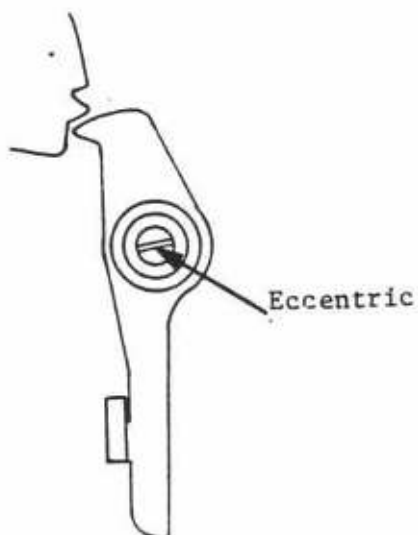
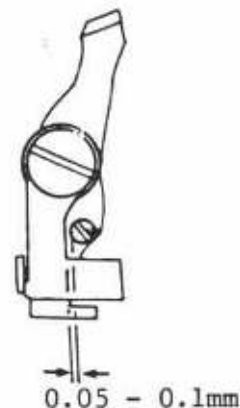
# I. ASSEMBLY & DISASSEMBLY

## I-6. Front Panel Parts

### 1. AE Unit Adjustment



### 2. AE Eccentric Gap Adjustment



### 3. Set Position Adjustment

Attach a tool standard lens and read the AE set position; adjust by turning the eccentric.  
(Norm:  $0.4 \pm 0.2F$ ).

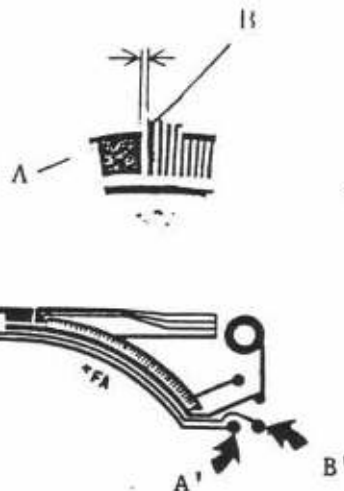
- o One or two steps of overcharge is sufficient for the front panel by itself.
- o If a tool standard lens is not available, install an ordinary standard lens (to place a load on the aperture signal charge lever) and adjust to obtain seven turns plus six teeth, +1 tooth.

# I. ASSEMBLY & DISASSEMBLY

## I-6. Front Panel Parts

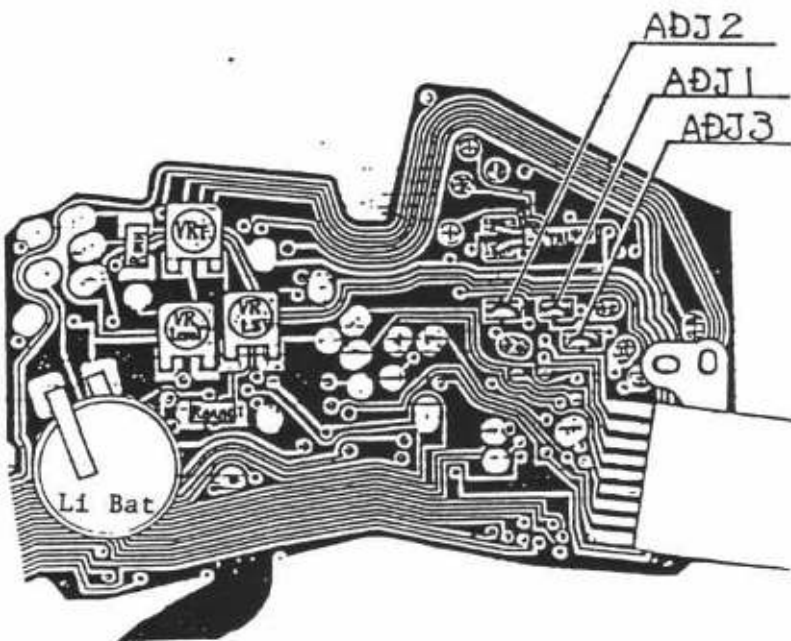
### 4. AE Start Position Adjustment

- 4.1. Attach a standard lens.
- 4.2. With the front panel set for automatic exposure, loosen the screw indicated in Figure 1 on page 14 and adjust the AE brush so that its tip is positioned between A and B. After completing the adjustment, paint the head of the screw with G103.
- 4.3. Connect the + probe of a multi-meter to A' and the - probe to the metal part of the AE unit; adjustment is satisfactory if there is no conductivity between the two points. Also confirm that there is no conductivity with the + probe of the multimeter connected to point B'.



### 5. AE Precision Adjustment

- 5.1. AE precision can be adjusted by cutting the pattern as indicated in Figure xx. (However, adjustment is only possible in the direction indicated.)



AE ADJ

| AE. ADJ |      |      | Shift<br>(F) |
|---------|------|------|--------------|
| ADJ1    | ADJ2 | ADJ3 |              |
| OFF     | OFF  | OFF  | 0            |
| ON      | OFF  | OFF  | -1/8         |
| OFF     | ON   | OFF  | -2/8         |
| ON      | ON   | OFF  | -3/8         |
| OFF     | OFF  | ON   | +1/8         |
| ON      | OFF  | ON   | +2/8         |
| OFF     | ON   | ON   | +3/8         |
| ON      | ON   | ON   | +4/8         |

# I. ASSEMBLY & DISASSEMBLY

## I-6. Front Panel Parts

### 6. Mirror Installation Adjustment

See page 13 for procedures for installing the mirror.

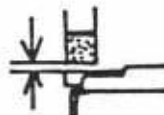
- 6.1. Adjust thrust play along the mirror axis by replacing collar (12).

Standard: 0.05 - 0.3 mm.

Drive pin collar adjustment

- 6.2. Adjust spacing between the mirror and the shock absorbing cushion by replacing collar (15).

Standard: 0 - 1.0mm



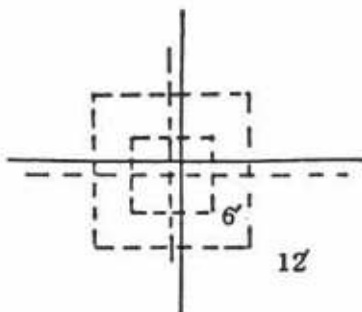
- 6.3. Mirror 45° adjustment

Turn the 45° adjustment nut inside the mirror box with a hex wrench. (for large adjustment, move adjusting plate (11) (pg 13) slightly).

Standard:

Horizontal - Within 8'

Vertical - Within 3'



Note: Since the accuracy of horizontal positioning is determined by component precision, replace the mirror box on units which do not meet the standards.

## I. ASSEMBLY & DISASSEMBLY

### I-6. Front Panel Parts

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#### 7. A-M Switching Position Adjustment

##### Standards:

0.2 - 0.7 mm from the mount surface

Contact resistance - 1 ohm or less

Adjust the switching position by bending the contacts; test contact resistance by connecting the + probe of a multimeter to the lead coming from SW11 and the - probe to the metal part of the front plate. Switching should occur when the aperture ring of a standard lens mounted on the front plate is turned to the A mark.

#### 8. Mgl Minimum Holding Voltage

Standard: 1 V or less

##### Inspection Procedure

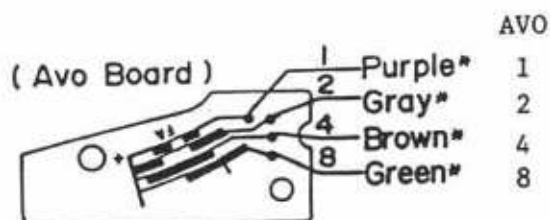
1. With the front panel unit set and a standard lens mounted, connect the + side of a regulated power source to the + lead of Mgl and the - side to the - lead.
2. Apply 3 V from the regulated power source.
3. Start the AE mechanism.
4. Reduce the voltage level from the regulated power source and read the voltage at which Mgl is released.

## I. ASSEMBLY &amp; DISASSEMBLY

## I-6. Front Panel Parts

## 9. AVO Adjustment

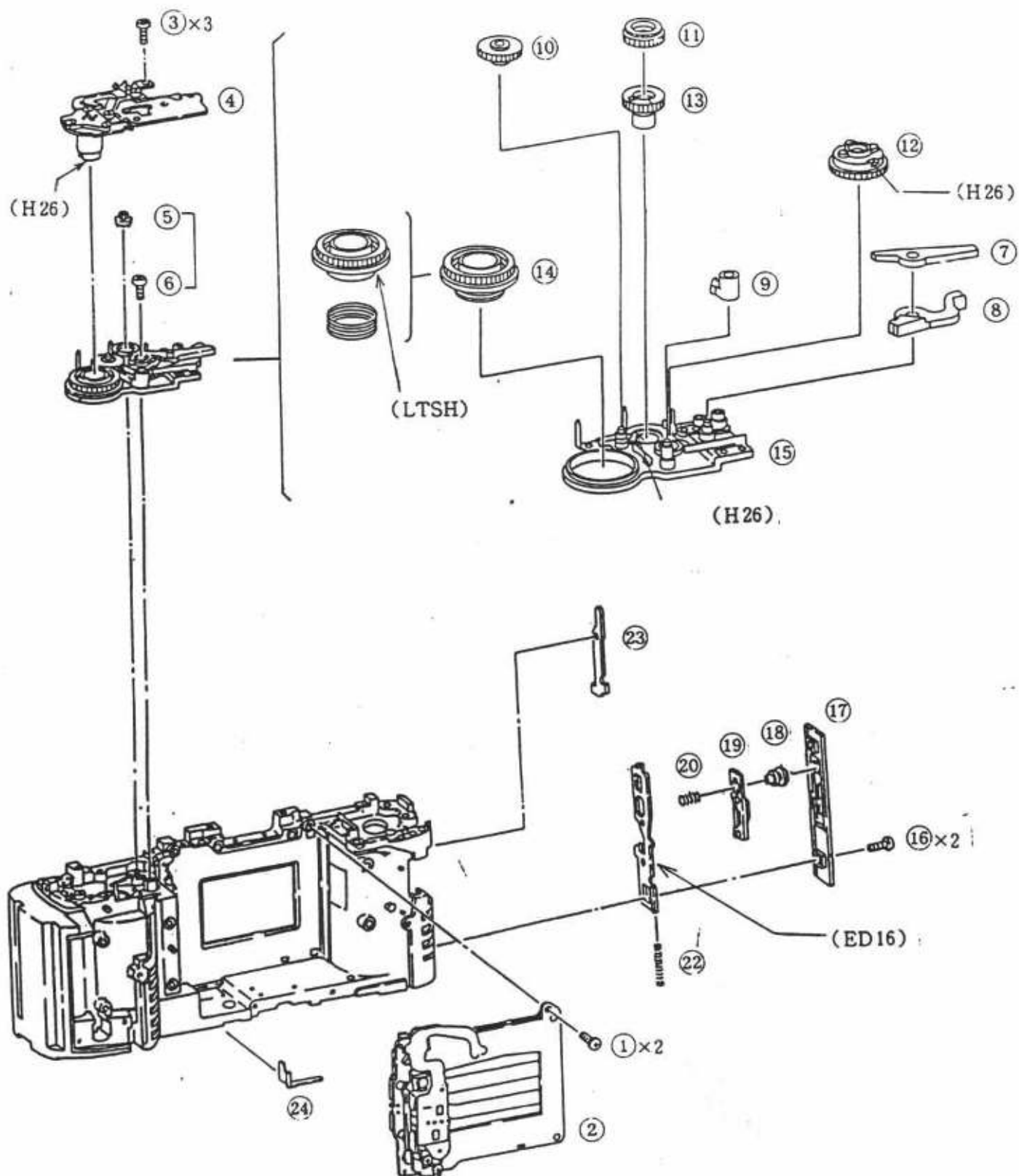
- 9.1. Connect the + probe of a multimeter to the green lead (AV08) from the AE unit and ground the - probe to the metal part of the front panel.
- 9.2. Set a depth gauge to 7.025 mm and check whether the AVO height is correct by confirming that switching between the f/2.5 and f/2.8 levels occurs within  $\pm 0.03$  mm of this height.
- 9.3. AVO is adjusted by means of a screw inside the maximum aperture compensation pin. (The screw is locked with G103; dissolve it with ketone.) After making the adjustment, paint the screw with G103.



| MAX F NO.                     | 5.6  | 4.5  | 4.0   | 3.5  | 2.8   | 2.5   | 2.0  | 1.8  | 1.4  | 1.2  |
|-------------------------------|------|------|-------|------|-------|-------|------|------|------|------|
| Pin Height<br>$\pm 0.05$ (mm) | 5.70 | 6.00 | 6.30  | 6.57 | 6.90  | 7.15  | 7.46 | 7.72 | 8.10 | 8.38 |
| Avo 8                         | 1    | 1    | 1     | 1    | 1     | 0     | 0    | 0    | 0    | 0    |
| Avo 4                         | 0    | 1    | 1     | 1    | 1     | 1     | 1    | 1    | 1    | 0    |
| Avo 2                         | 1    | 1    | 1     | 0    | 0     | 0     | 0    | 1    | 1    | 1    |
| Avo 1                         | 0    | 0    | 1     | 1    | 0     | 0     | 1    | 1    | 0    | 0    |
| Changeover                    | 5.85 | 6.15 | 6.435 | 6.74 | 7.025 | 7.305 | 7.59 | 7.91 | 8.24 |      |

## I. ASSEMBLY &amp; DISASSEMBLY

## I-7. Shutter, Upper Winding Parts



## I. ASSEMBLY & DISASSEMBLY

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### I-7. Shutter, Upper Winding Parts

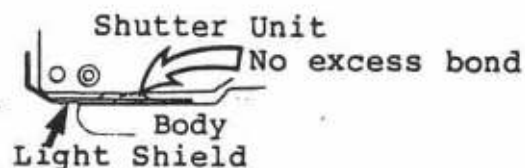
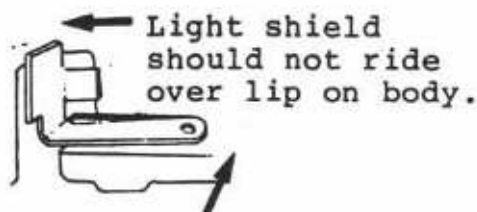
#### Disassembly Notes

1. Shutter Unit (2) Removal
  1. (3) through (24) need not be removed to remove the shutter unit.
  2. Don't bend the switch contacts on (4).
  3. Remove the shutter with it open.
2. Winding Baseplate Removal

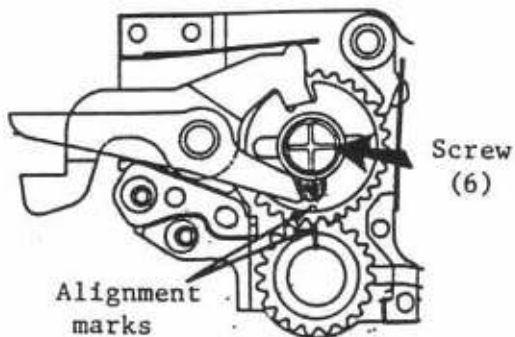
Hold gear (12) with a compass while removing (5) and (6).  
(If it is not held, gears may be chipped).

#### Adjustment Notes

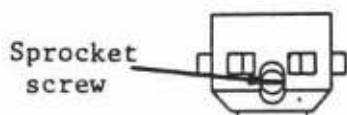
1. Shutter Unit Installation
  1. Before installing the shutter, check it according to the repair guide (located on the T50 Repair Guide microfiche).
  2. After installing the shutter, be sure to push the 1st curtain armature so the shutter is in the open position.
  3. Install light shield (24) as shown. It should not ride over the lip on the body.



2. Winding Baseplate Installation
  1. Don't bend any of the contacts.
  2. Perforation Adjustment



The drawing shows the position where the perforations should be aligned. The alignment marks align once for each three sprocket rotations. To wind, disengage the winding stopper and wind slowly with a screwdriver at screw (6). (Rough, fast winding may chip gears in the lower geartrain).



# I. ASSEMBLY & DISASSEMBLY

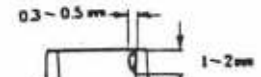
## I-8. Sprocket Removal (AL Cover and Lower Winding Parts)

Lube 3 points

H26



Upper

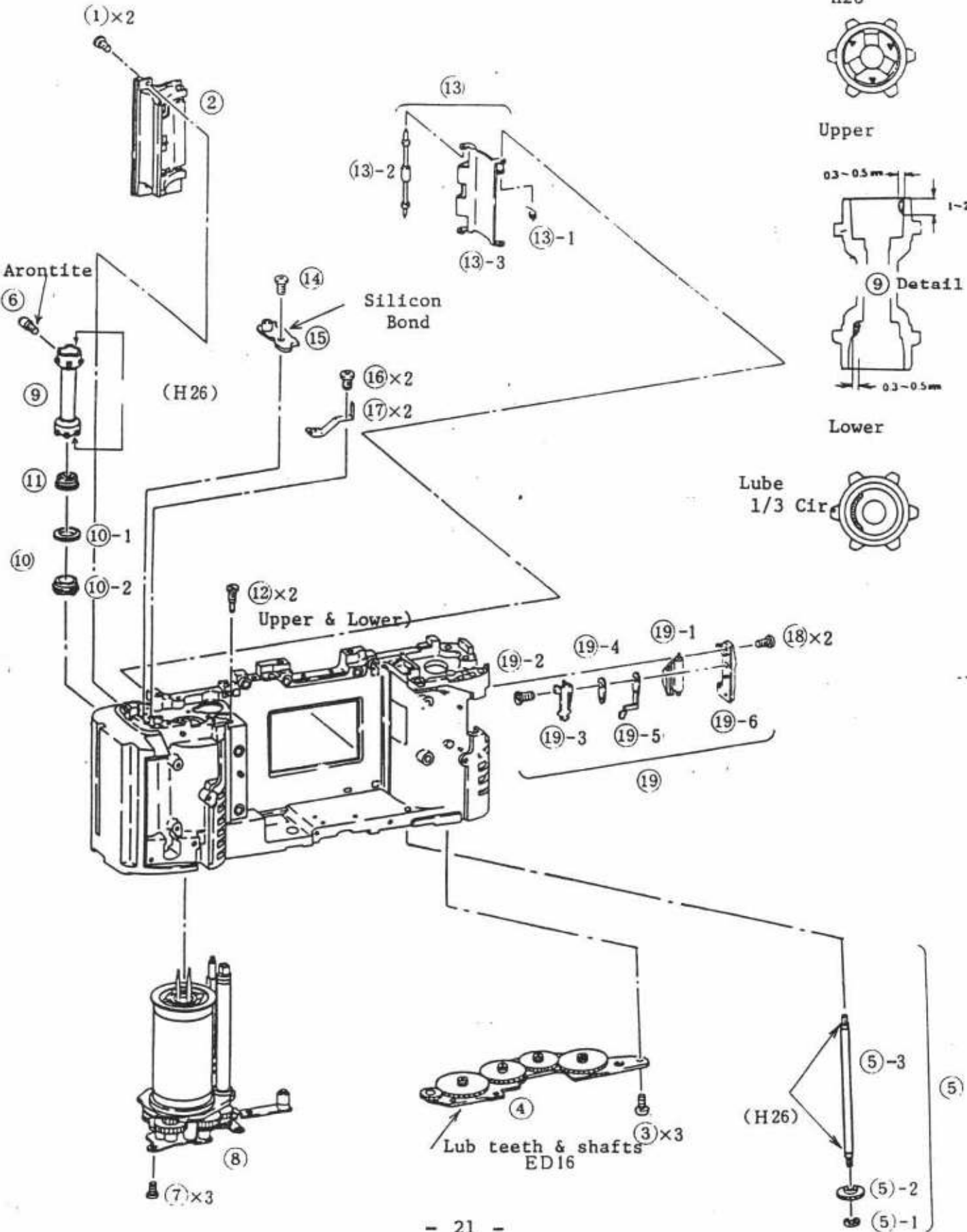


Detail



Lower

Lube  
1/3 Cir



# I. ASSEMBLY & DISASSEMBLY

## I-8. Sprocket Removal (AL Cover and Lower Winding Parts)

### Disassembly Notes

1. Remove the sprocket clutch screw before removing the upper winding baseplate.
2. Since the lower winding baseplate is only lightly welded, take care when removing it.

### Adjustment Notes

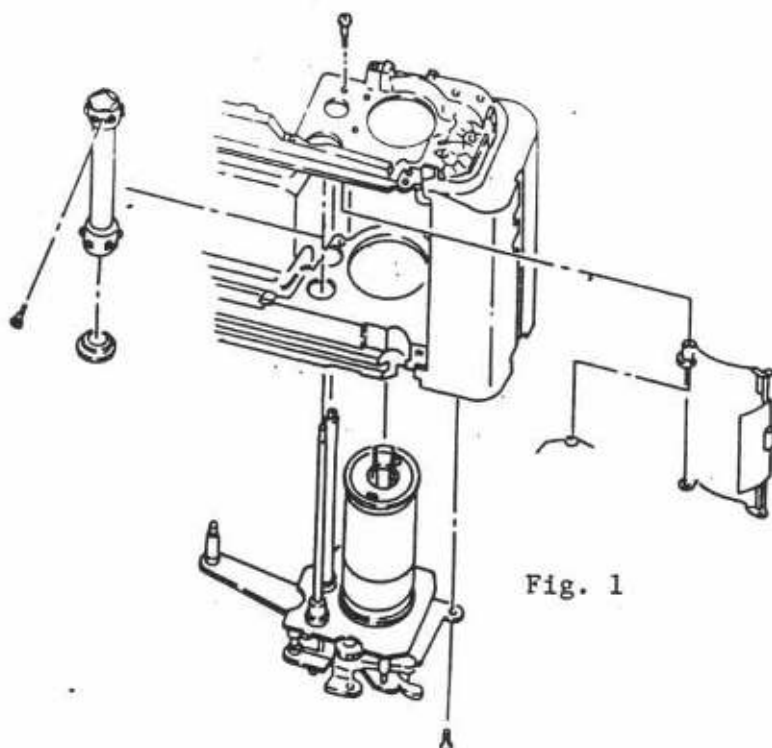


Fig. 1



Fig. 2

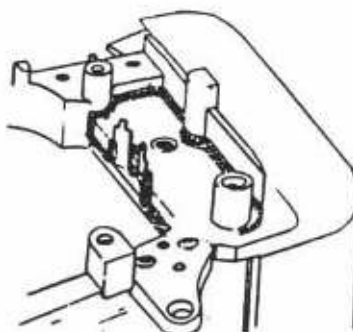
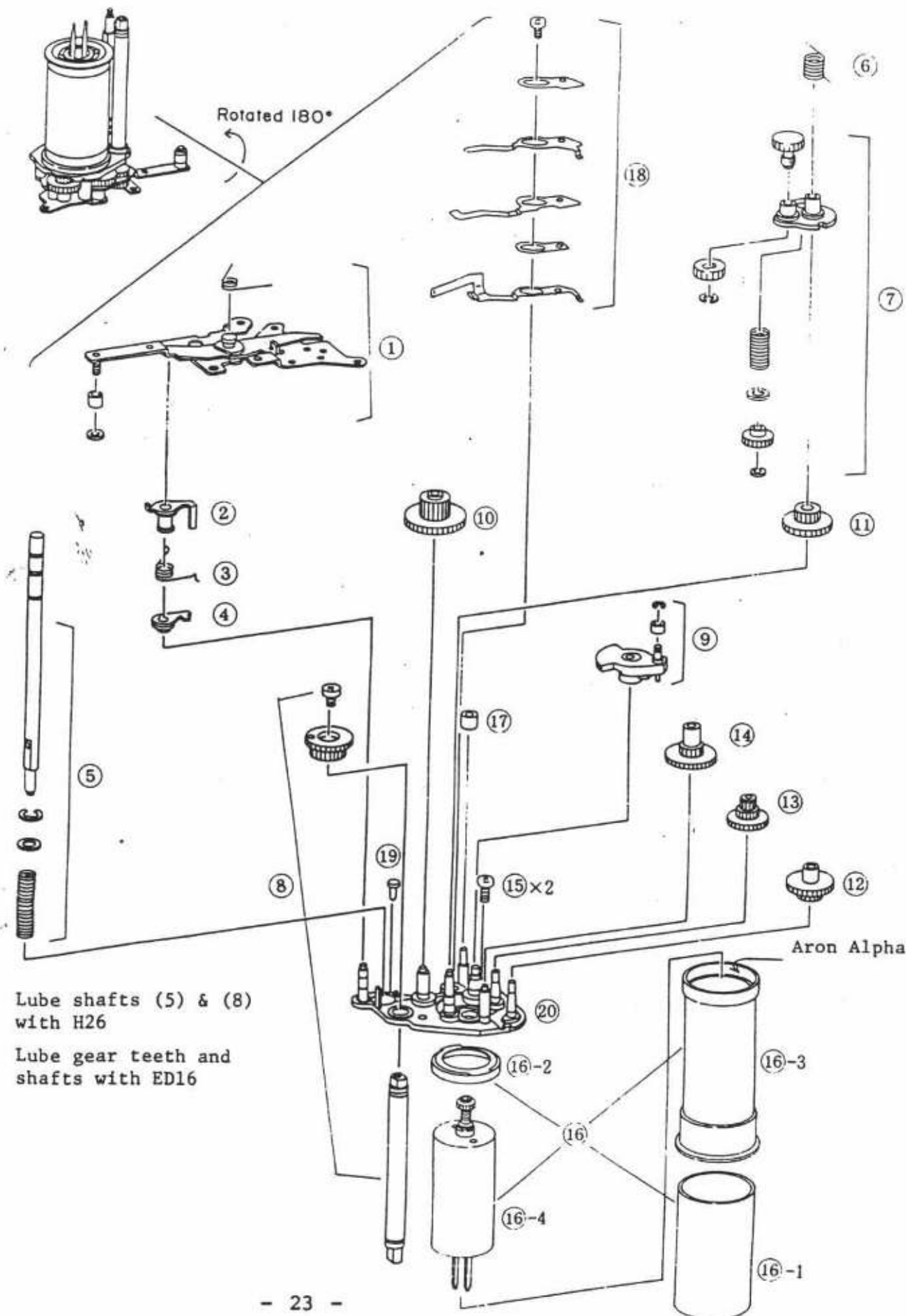


Fig. 3

1. There are flats on both sides of the sprocket shaft where the sprocket shoe fits. Put Arontite on the tip of the screw.
2. Install the AL cover as shown in the drawing.
3. The AL cover operating spring should exert a pull of 60 to 90 gcm when the cover separates from the spool cover. The angle should be  $115^\circ$ .
4. Ensure that the end of the spring is fully inserted in the groove in the body.
5. Hold AL cover (13) out of the way while removing the lower winding baseplate (w/motor).
6. Batter Leak Protection Be sure to install silicon rubber in the roof of battery chamber (15) to prevent battery leakage from corroding the inside of the camera.

I-9. Lower Winding Base



## I. ASSEMBLY &amp; DISASSEMBLY

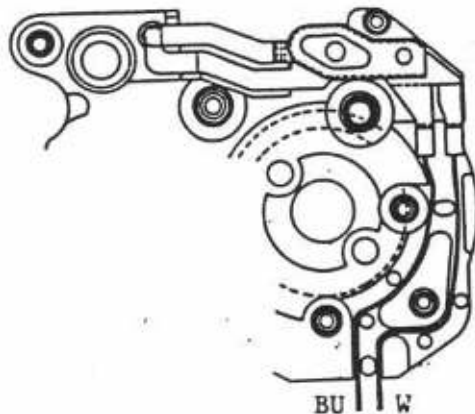
## I-9. Lower Winding Baseplate

## Disassembly Notes

1. Since the lower winding baseplate-2 (1) and the lower winding baseplate (20) are only lightly welded together at three of the plastic studs, take care when removing the entire unit together. (The welding is an assembly procedure to improve assembly line efficiency. It is not structurally important).
2. Check the location of all parts before disassembly.
3. Spool collar (16)-2 is bonded to the spool (16)-3 during assembly. If it is necessary to separate them, they must be replaced.

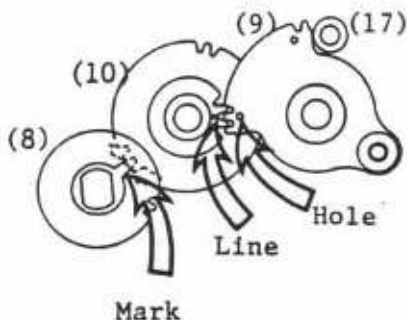
## Adjustment Notes

1. Bond the spool (16)-3 and collar (16)-2 with Aron Alpha.
2. Correctly position the alignment pin when installing the spool assembly (16), including the motor, on the baseplate (20).
3. Don't dirty the spool rubber. This will cause poor winding. Use alcohol (or Fronsolve AE) to clean the rubber.
4. Dress the leads from SW9 (18) as shown and bond with diabond. Leads must lay flat and not interfere with gears that mount above them. After installation, check that the switch operates properly. (If the switch does not make and break properly, the film transport bars will not appear on the LCD).



## 5. Lower Winding Gear Mesh

- 5.1. Align the mark on gear (10) with the leftmost hole in sector gear (9).
- 5.2. Put (9) against the stopper. [Take care with (17)].
- 5.3. Point the mark on gear (8) at the center of (10) and install it.



## I. ASSEMBLY &amp; DISASSEMBLY

## I-9. Lower Winding Baseplate

## Adjustment Notes

6. Install the lower winding baseplate-2 (1), otherwise known as the winding charge lever baseplate, onto the lower winding baseplate (20). (The back cover should be removed so (2) clears (1) when (1) is installed).

## 7. Overcharge Adjustment

Standard: 0.9 to 1.2 f/stops

7.1. Attach the AE Evaluation Tool Standard Lens (if available).

7.2. Remove the winding stopper, and turn the winding gear clockwise. Read the f/number at the point where the reversal occurs.

Adjust by changing the sector gear roller (A). If (A) does not provide sufficient adjustment, change collar (B).

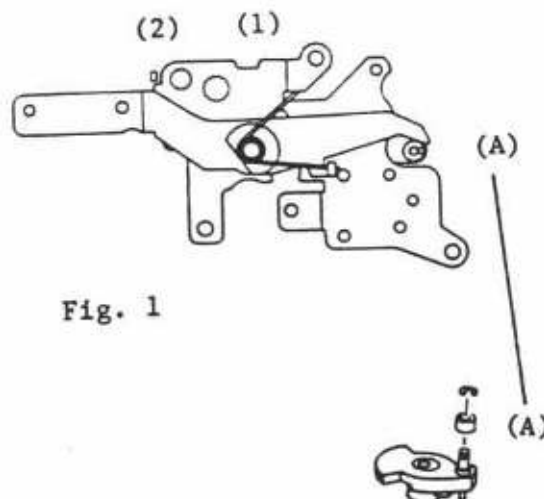


Fig. 1

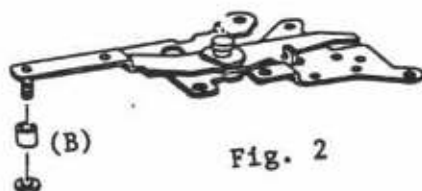


Fig. 2

## 8. Spool Torque Adjustment

Standard: 200-250 gcm

8.1. Adjust by changing gear (14) on page 19.

8.2. Wind from 20 to 26cm of film onto the spool. Attach a tension gauge to the film and pull. The limit (in grams) is from 200 to 250 g. (With 5 to 6 frames wound (20 to 26 cm), the radius of the spool is approximately one cm.

AE Evaluation Lens  
Aperture scale  
(below f/1.4)

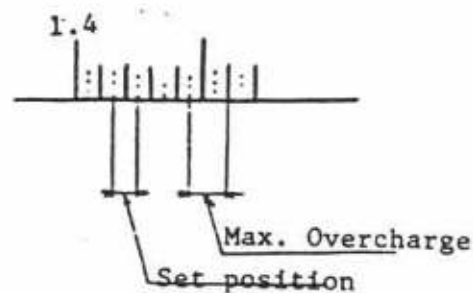


Fig. 3

# C O N T E N T S

|                                                                 | Page | Address |
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## II. ADJUSTMENTS

### II-1. Shutter

#### CURTAIN TRAVEL TIME

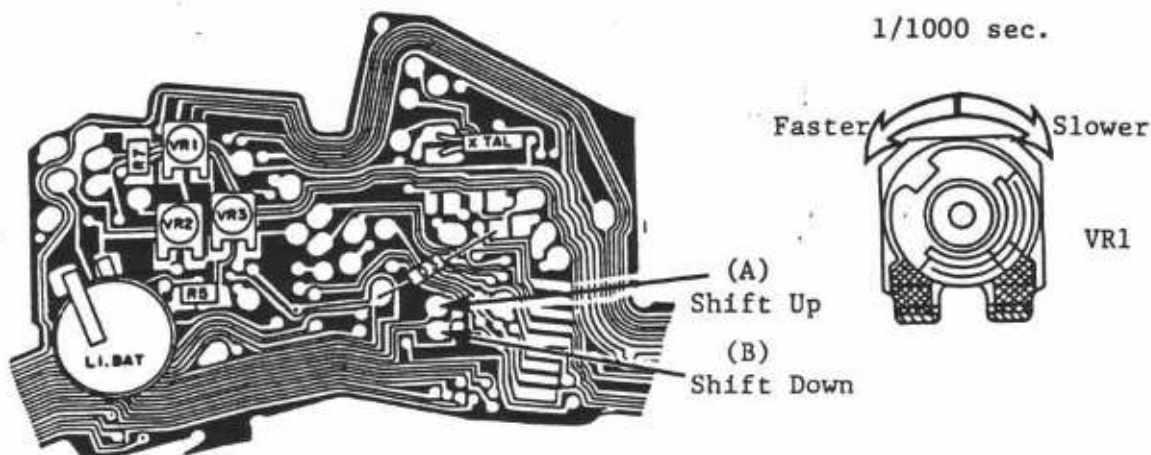
Standard:  $7.5 \pm 0.3\text{ms}$

#### X SYNC

Standard: A Line - 0.5ms or over  
B Line - 2.5ms or over  
C Line - N/A

SHUTTER SPEED: (Perform after Gain adjustment (pg. 29))

1. After the shutter is installed, only the first curtain travel time can be adjusted. (The adjustment is from the underside of the body, like the T50, but on the T70 the rewind gear assy. must also be removed).
2. Set the camera in TV mode at 1/1000 second.  
Push the mode switch and ground "A" to change modes (up).  
Push the mode switch and ground "B" to change modes (down).  
In the TV mode, grounding "A" shifts the shutter speed up.  
In the TV mode, grounding "B" shifts the speed down.
3. Adjust the 1/1000 second shutter speed with VR1.

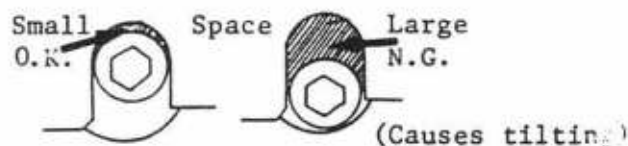
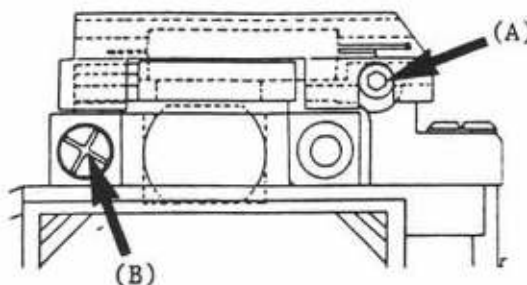


## II. ADJUSTMENTS

### II-2. SPC Positioning

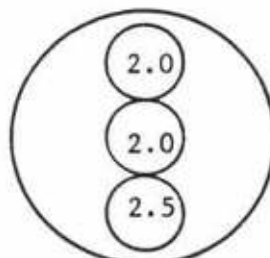
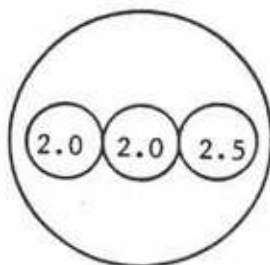
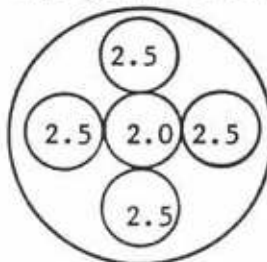
#### ADJUSTMENTS:

1. Horizontal : Eccentric hex screw "A"
2. Vertical: Cross-recess screw "B"
3. Adjustment required only when ICL, the SPC holder, or the pentaprism frame have been changed. Otherwise, check only.
4. Eccentric "A" should be prepositioned as shown before starting. (This is to prevent tilting).



#### ADJUSTMENT:

1. Use an FD 50mm f/1.4 lens set at the closest distance.
2. Make a blind from opaque, dull colored card of most anything. It should be larger than the field of view at the closest distance (min.: 16 x 25cm) and have a circular 4mm hole in the middle. The purpose is to simulate a point light source.
3. Put the camera on a tripod directly in front of the light source (EF500, etc.). Hold the card directly in front of the light source, which should be set as bright as possible (EV15, normally).
4. Set the camera in the TV mode and metering to Partial.
5. Set the film and shutter speeds as necessary. (For best results, the room should be fairly dark).
6. Adjust the card so the point light source is centered in the split image and focus on the point source.
7. Adjust the camera so the f/number indicated in the viewfinder is f/1.8 or f/2.0. ( Since selective area (partial) metering with AE lock is being used, SW1 must be released after each reading).
8. If the SPC is off to the left as shown, adjust the eccentric "A" . If it is off vertically, adjust "B".



## II. ADJUSTMENTS

### II-3. Gain, Level, and Level Shift

With the T70, the LCD gives a read-out which is directly related to the EV felt by the camera. This read-out (explained in detail later) is used to adjust the camera exposure.

#### 1. Gain and Level Adjustment

Gain is pre-adjusted when the electric parts unit is assembled. It need not be adjusted unless IC-3 is adjusted.

Use either the Tool Standard or shop standard FD 50mm f/1.4 lens set to the A mark.

Set the K value at 12.5 and check EV9 and EV15.

The settings of the film speed (ISO) and mode aren't important. (Ref: Fig. 1, 2, 3 and Tables 1 & 2 on this and following page)

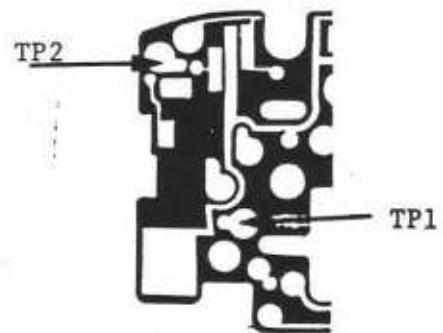
1. Ground TP1 with a temporary jumper.
2. Ground TP2 to activate selective area (Partial) metering.
3. Set the selector to Average.
4. To adjust GAIN, read and record the LCD read-out for EV9 and EV15. Change R5 so the two are similar (If one is  $-1/8$ , they both should be). Increasing R5 resistance reduces gain slope and vice versa. (At this point, the read-out may not be exactly as shown in Table 1, but if it is not it should vary by the same amount in the same direction. For example, if the EV9 reading is  $12 - 3/8$  instead of 13, the EV15 reading should be  $4 - 3/8$  instead of 5).
5. Adjust the LEVEL with VR2 so the EV9 reading is within  $\pm 1/8$  and the EV15 reading within  $\pm 2/8$ .

#### 2. Level Shift (LS) Adjustment

The LS adjustment is used to match the exposure from selective area metering and from center weighted average metering.

1. After the GAIN and LEVEL adjustments, remove the ground from TP2. (Activates center-weighted average metering)
2. With VR3, adjust for EV9 brightness so the LCD read-out is the same as above (within  $\pm 1/8$  EV).
3. Check EV15. (It should be within  $\pm 2/8$  EV).

Fig. 1



## II. ADJUSTMENTS

### II-3. Gain, Level, and Level Shift

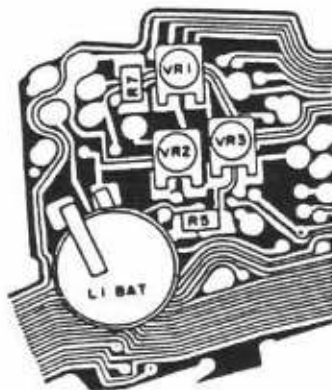
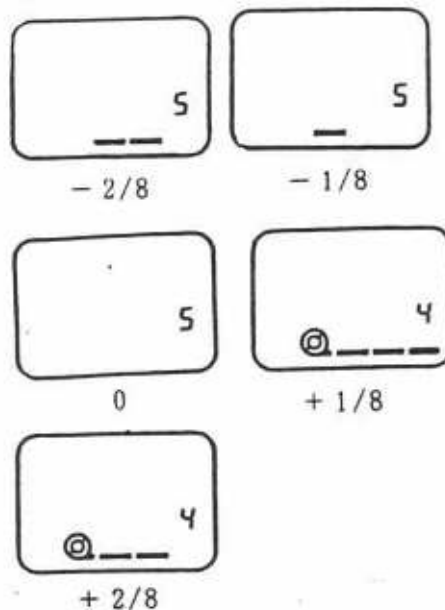


図-2

R5 : Gain Adjustment  
VR2: Level Adjustment  
VR3: Level Shift Adjustment

| EV | LCD |
|----|-----|
| 1  | 23  |
| 2  | 22  |
| 3  | 21  |
| 4  | 20  |
| 5  | 17  |
| 6  | 16  |
| 7  | 15  |
| 8  | 14  |
| 9  | 13  |
| 10 | 12  |
| 11 | 11  |
| 12 | 10  |
| 13 | 7   |
| 14 | 6   |
| 15 | 5   |
| 16 | 4   |
| 17 | 3   |
| 18 | 2   |

Table 1



Standard

EV9  $\pm 1/8$

EV15  $\pm 2/8$

Fig. 3 Indication at EV15

| EV      | Indication |
|---------|------------|
| $\pm 0$ |            |
| - 1/8   |            |
| - 2/8   |            |
| - 3/8   |            |
| - 4/8   |            |
| - 5/8   |            |
| - 6/8   |            |
| - 7/8   |            |

Table 2

## II. ADJUSTMENTS

### II-4. Inhibit voltage, Electronic Flash (EF) Changeover

#### INHIBIT VOLTAGE

Standard: 2.1  $\pm 0.2$  v  
-0.15

1. Install the back LR03 cell to open the battery detection switch (SW3).
2. Attach leads to VBATT (+) and (-) and supply 2.1V (Fig. 1).
3. Remove R7 (Pg. 30, Fig. 2) and install a 40KOhm variable resistor.
4. Set the selector switch to SELF-TIMER.
5. Ground TP1 (Pg. 29, Fig. 1).
6. Watching the self-timer counter, adjust the variable resistor till the camera just stops working.
7. Remove and read the variable. Install an R7 of the nearest value to the variable.

#### ELECTRONIC FLASH (EF) Changeover (LCD Check)

1. Ground TP-1 (Pg. 29, Fig. 1).
2. Set the selector switch to PART(AE. L).
3. The LCD read-out should be  $4 \pm 1/8$  (Pg. 30, Fig. 3).

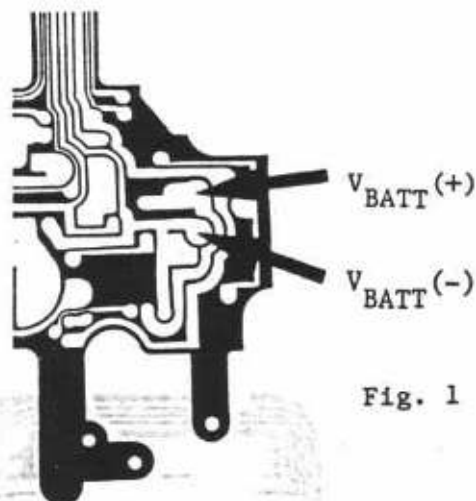


Fig. 1

#### (Viewfinder Check)

1. Install a 4.7 KOhm resistor from the CCC terminal to ground.
2. The viewfinder indication should be f/4.0 with the flash mark. The LCD should indicate 1/90sec.

If these standards are not met, find an adjusting resistor (R4) which causes the conditions to be met when installed from the EF land to either the KVC or GND land.

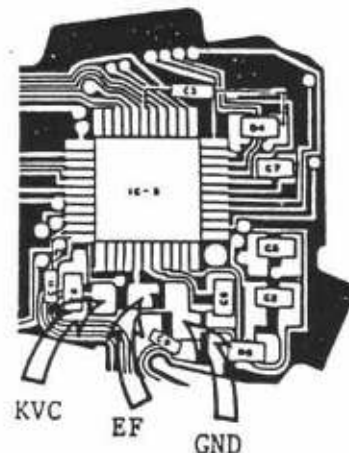


Fig. 2

## II. ADJUSTMENTS

### II-5. Offset

#### OFFSET

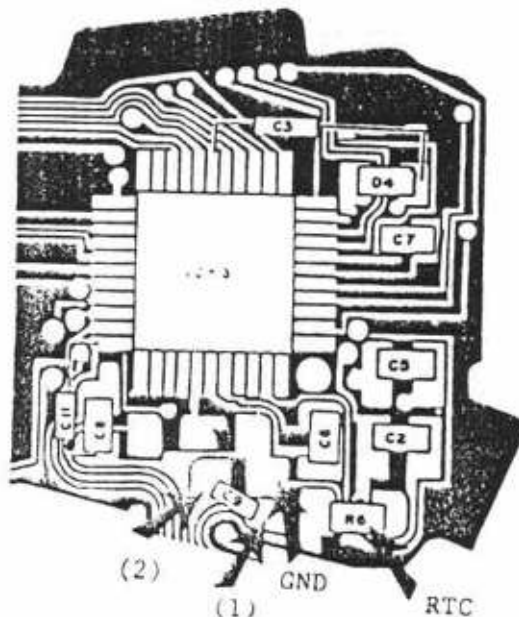
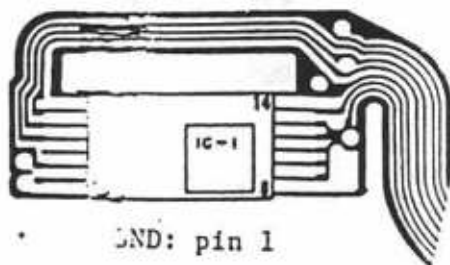
Offset adjustment is only necessary when IC1 has been changed.

Standard: IC1 p8 Voltage(V1) - IC1 p7 Voltage (V2)= 0 to 5mV

1. Remove RTC (R6) .
2. Short IC1 pin 10 to IC1 pin 7.
3. Read the voltage across pin 8 and ground. This is V1.
4. Read the voltage across pin 7 (MOS OUT) and ground. This is V2.
5. If  $V1 - V2 = 0$  to 5mV , adjustment is not necessary.

If adjustment is necessary, proceed.

6. Install a 100KOhm variable resistor from ground to null 1 (1) or null 2 (2) in the figure below.
7. Adjust the resistor until V1-V2 is within tolerances.
8. Remove and read the variable resistor.
9. Install a fixed resistor as close as possible to the variable's resistance in the variable's position.
10. Remove the short across pins 10 and 7.
11. Reinstall RTC.

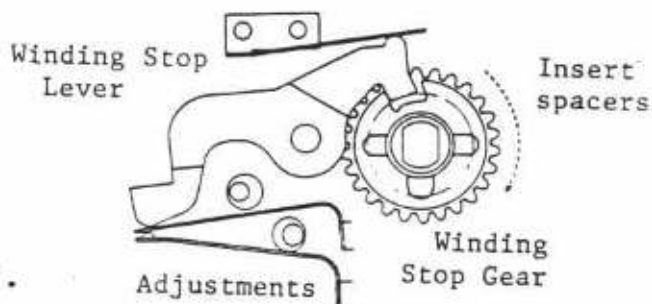


## II. ADJUSTMENTS

### II-6. SW4

This adjustment is necessary to prevent a dead spot because of switching overlap.

(Adjustment is made using spacers between the winding stop lever and gear).

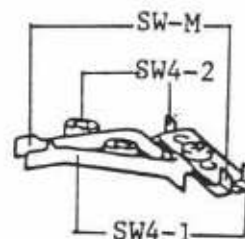


#### SW-1 and SW-M (Motor) Timing

1. With a 0.7mm spacer, SW4-1 and SW-M should both be off.
2. With a 1.0mm spacer, SW4-1 and SW-M should both be on.

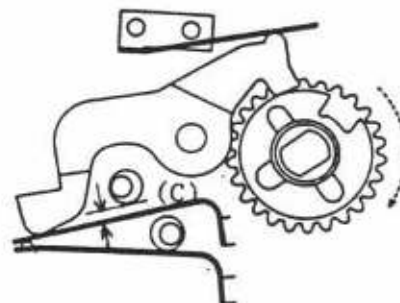
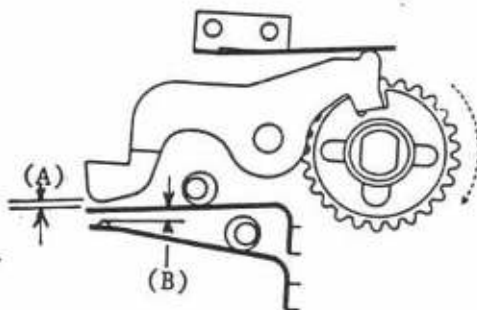
#### SW4-2 and SW-M Timing

1. With a 0.45mm spacer, SW4-2 and SW-M should both be off.
2. Without the spacer, both SW4-2 and SW-M should be on.



Eccentrics take a 0.9mm hex key.

After adjustment, the following requirements must all be met.



(A) = 0.4mm or over (B) = 0.5mm or over (C) = 0.5mm or over

Only if these conditions are met can correct operation be insured.

If both SW4-1 and SW4-2 are on at the same time, the power supply will be shorted and the camera will stop.

Use viewfinder focus adjusting washers as spacers.

III. OPERATING CURRENTS

---

(Power Supply: 3.3V regulated power supply)

Standards:

|                                      | (Less Than ) |
|--------------------------------------|--------------|
| 1. Camera Lock (off) or Stand-by:    | 100uA        |
| 2. Exposure Metering:                | 100mA        |
| 3. Winding (20th exp., lens = f/5.6) | 680mA        |
| 4. Rewinding film                    | 450mA        |
| 5. Rewinding time                    | 25 sec.      |

## S E R V I C E T O O L S L I S T

## C A N O N T 7 0

## MEASUREMENT

## TEST EQUIPMENT

- |                                            |                                                                                                                                                                                                              |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Shutter                                 | EF 500AC Multi-Exposure Tester                                                                                                                                                                               |
| 2. Exposure Meter                          | 2.1 Canon Light Source-4 (2854K)<br>2.2 D.C. Voltage Tester (1mV, 1uA specs.)<br>2.3 Ohmmeter<br>2.4 Standard Brightness Checker (CdS) or<br>Canon Luminance Meter (SBC)<br>2.5 Multi Camera Tester EF-500AC |
| 3. Viewfinder                              | Universal 600mm Range-viewfinder<br>Collimator or equivalent.                                                                                                                                                |
| 4. Electrical Adjustments                  | 4.1 Digital Multimeter (DMM)<br>4.2 Oscilloscope<br>4.3 Regulated Voltage Power Supply (LVPS)<br>4.4 Ohmmeter<br>4.5 AE Standard Tool Lens                                                                   |
| 5. Mirror angle (45°)                      | 5.1 Universal Type 90° Collimator or<br>5.2 Simplified 90° Collimator                                                                                                                                        |
| 6. Flange to Focal Plane<br>Distance (FFD) | 42.14mm Dial Gauge Set                                                                                                                                                                                       |
| 7. Mechanical                              | 7.1 Dial Tension Gauge-600g<br>7.2 Depth Micrometer*<br>7.3 2.5mm Hex Key (Mirror Angle)<br>7.4 0.9mm Hex Key (SPC Position, SW-4 Adj)                                                                       |

\* : Local Purchase

REF NO C12-1842-000

## CANON T70

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SP

41

T70 SERVICE PARTS POLICY

1. THE POLICY OF CAMERA SERVICE, TOKYO, IS TO STOCK ALL PARTS NECESSARY TO EFFECT EFFICIENT ECONOMICAL SERVICE. IT IS NEITHER NECESSARY NOR TECHNICALLY FEASIBLE TO STOCK SEPARATELY EVERY PART THAT GOES INTO EACH PRODUCT.

IN ESTABLISHING THE SPARE PARTS LIST, WE CONSIDER REPAIR DIFFICULTY, LABOR COST, SPECIAL TOOL REQUIREMENTS AND INDIVIDUAL PARTS Vs. ASSEMBLED UNIT COST TO DETERMINE IN WHICH FORM PARTS WILL BE STOCKED.

2. A RECENT REVIEW HAS SHOWN THAT IT IS MORE ECONOMICAL AND ADVANTAGEOUS TO THE CUSTOMER, THE SERVICE FACILITY AND US TO STOCK INDIVIDUAL PARTS UNLESS THERE IS AN OVERRIDING REASON FOR STOCKING PRE-ASSEMBLED UNITS.

THE UNITS LISTED BELOW ARE STOCKED AS UNITS BECAUSE THEY REQUIRE TOOLS OR TECHNIQS NOT NORMALLY AVAILABLE AT FIELD SERVICE LEVEL.

|              |                |              |                 |
|--------------|----------------|--------------|-----------------|
| CY1-1157-000 | SHUTTER FLEX   | CY1-1171-000 | SPOOL GEAR ASSY |
| CY1-1163-000 | EYEPiece       | CY1-1172-000 | MOTOR UNIT      |
| CY1-1164-000 | COVER, BATTERY |              |                 |

IN ADDITION TO THE ABOVE, WHICH ARE STOCKED ONLY AS UNITS, SOME INDIVIDUAL PARTS ARE STOCKED FOR THE FOLLOWING UNITS IN ADDITION TO THE UNIT.

|              |                     |              |                |
|--------------|---------------------|--------------|----------------|
| CG1-0218-000 | TOP COVER UNIT      | CG1-0227-000 | AE UNIT        |
| CG1-0219-000 | BACK COVER UNIT     | CG1-0228-000 | SHUTTER UNIT   |
| CG1-0222-000 | ELECTRIC PARTS UNIT | CG9-2636-000 | REMOTE CONTROL |
| CG1-0225-000 | MIRROR MECHANISM    |              | JACK UNIT      |
| CG1-0226-000 | AUTO DIAPHRAGM UNIT |              |                |

3. INDIVIDUAL ELECTRICAL COMPONENTS WHICH MAY REQUIRE REPLACEMENT ARE STOCKED.

4. THE SPARE PARTS LIST IS ADJUSTED PERIODICALLY TO INSURE THE NECESSARY PARTS ARE ALWAYS AVAILABLE, AND UNNECESSARY PARTS ARE REMOVED FROM THE STOCK LIST.

5. ASSEMBLIES SHOWN WITH THE N.S. MARK ARE SHOWN FOR CLARITY ONLY. THEY ARE NOT STOCKED IN THE FORM SHOWN.

キヤノン T70 サービス部品について

サービス部品は修理上の精度、工数、コスト、部品の使用頻度等、諸々の事由を勘案し、設定している。

特にユニット部品の構成部品中で、使用頻度の少ないものは、サービス部品とはしない。  
キヤノン T70 においては次のような部品設定とする。

下記部品はユニットのみをサービス部品とする。

|              |              |              |         |
|--------------|--------------|--------------|---------|
| CY1-1157-000 | シャッターフレキユニット | CY1-1164-000 | 電池蓋ユニット |
| CY1-1163-000 | 接眼           | CY1-1171-000 | スプールギア  |
|              |              | CY1-1172-000 | モーター    |

下記部品はユニット及び使用頻度の高いと考えられる部品をサービス部品とする。

|              |             |              |           |
|--------------|-------------|--------------|-----------|
| CG1-0218-000 | 上蓋ユニット      | CG1-0227-000 | AE 抵抗ユニット |
| CG1-0219-000 | 背蓋ユニット      | CG1-0228-000 | シャッターユニット |
| CG1-0222-000 | 電気部品ユニット    | CG9-2636-000 | 底蓋ユニット    |
| CG1-0225-000 | ミラー QR ユニット |              |           |
| CG1-0226-000 | 自動絞りユニット    |              |           |

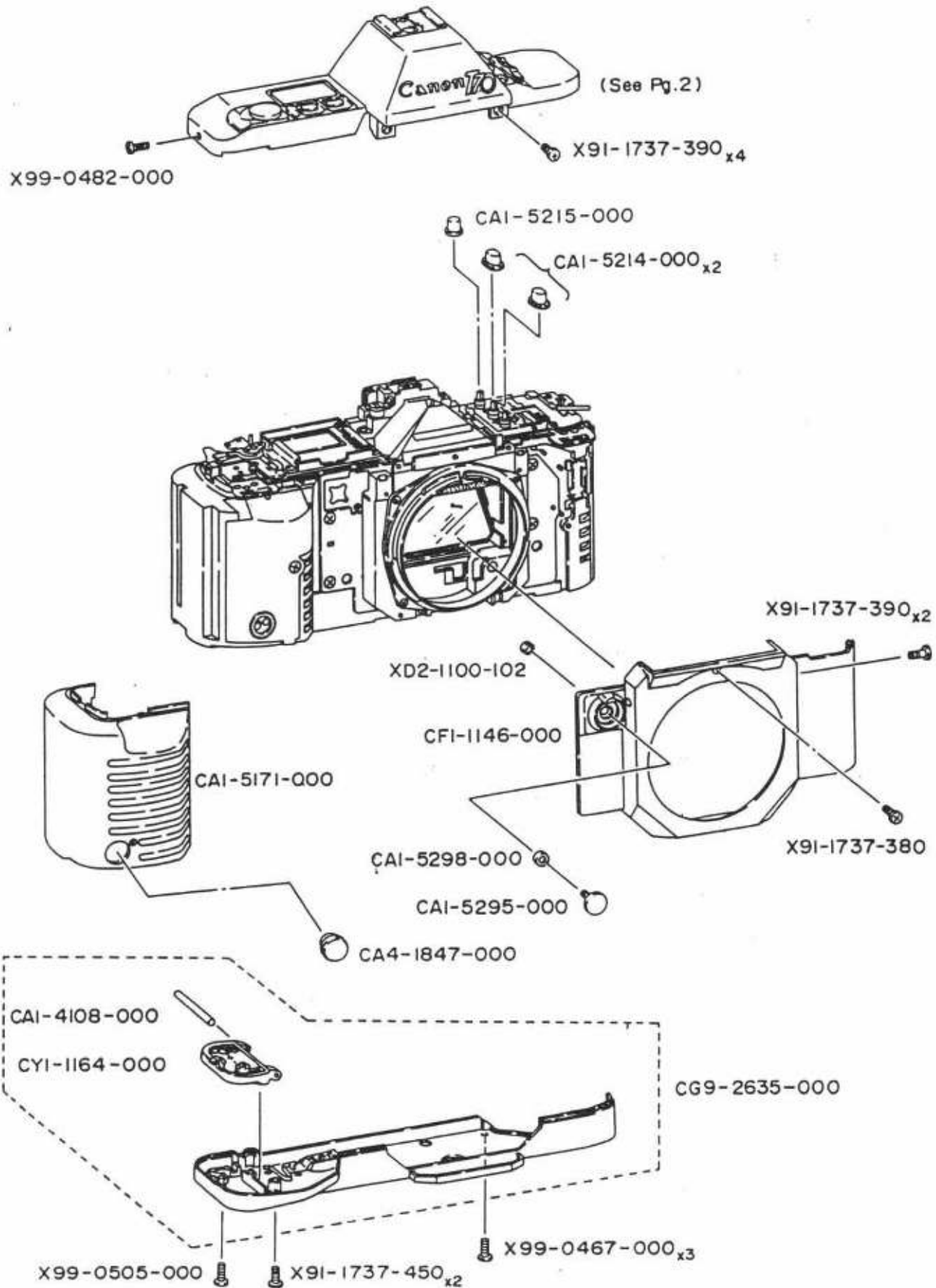
電気素子は一部のもの以外は、サービス部品としないが修理時のチェックが出来るよう定格を明示している。

※ 当初、サービス部品設定されない部品でも状況に応じ、サービス部品として、追加することもある。

※ ユニットの一部分でサービス部品としないものは N.S マークをつけてある。

以上

## CANON T70

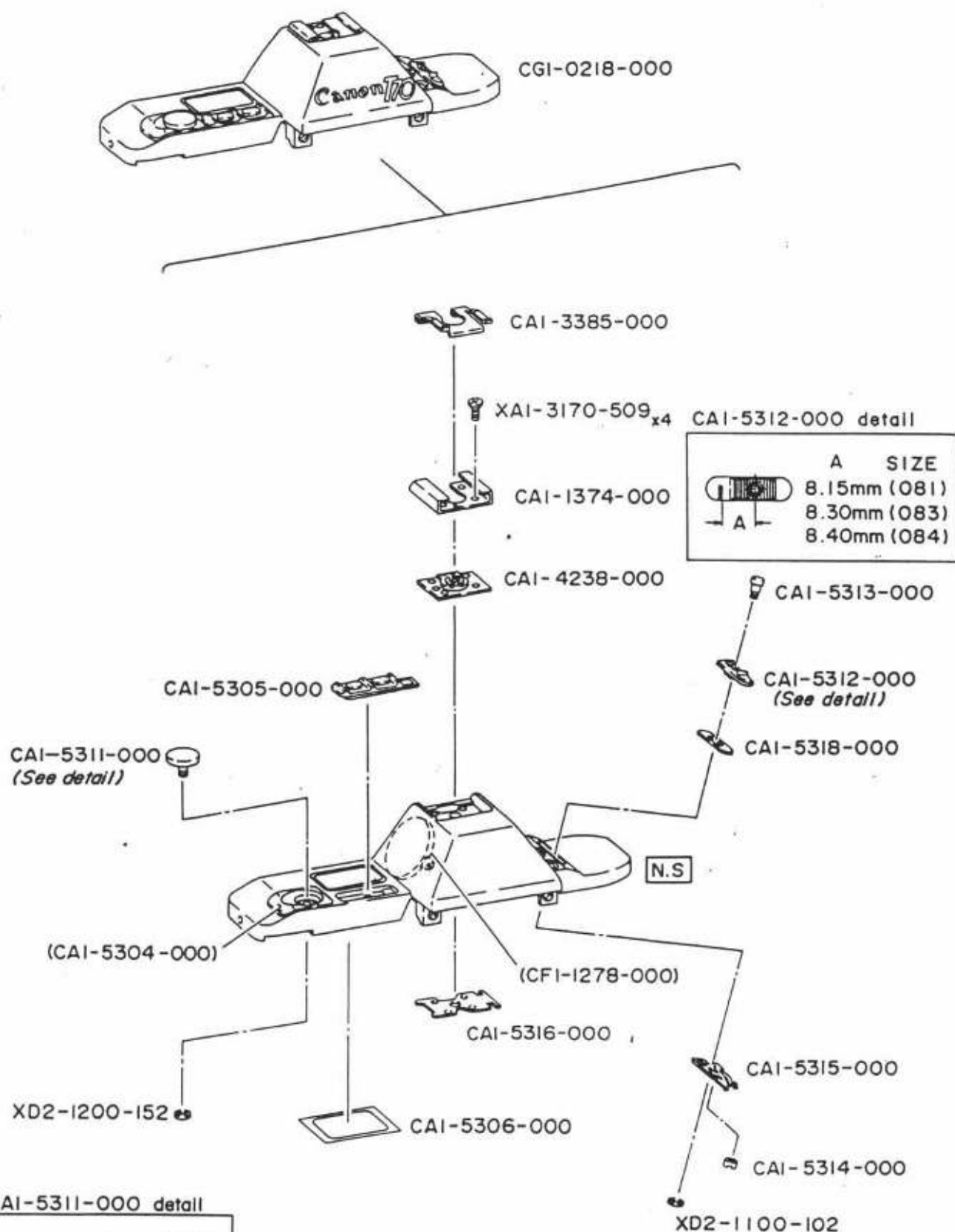


PARTS LIST

EXTERNAL PARTS

| MARK | PART NO.     | CLASS | QTY | DESCRIPTION             |
|------|--------------|-------|-----|-------------------------|
|      | CA1-4108-000 | D     | 1   | SHAFT, HINGE            |
|      | CA1-5171-000 | C     | 1   | COVER, GRIP             |
|      | CA1-5214-000 | D     | 2   | BUTTON                  |
|      | CA1-5215-000 | D     | 1   | BUTTON, B.C.            |
|      | CA1-5295-000 | D     | 1   | BUTTON                  |
|      | CA1-5298-000 | E     | 1   | COLLAR                  |
|      | CA4-1847-000 | D     | 1   | CAP, TERMINAL           |
|      | CF1-1146-000 | B     | 1   | COVER, FRONT            |
|      | CG9-2635-000 | B     | 1   | BASE COVER UNIT         |
|      | CY1-1164-000 | C     | 1   | COVER, BATTERY          |
|      | X02-1100-102 |       | 1   | E RING                  |
|      | X91-1737-380 |       | 1   | SCREW, CROSS-RECESS, PH |
|      | X91-1737-390 |       | 6   | SCREW, CROSS-RECESS, PH |
|      | X91-1737-450 |       | 2   | SCREW, CROSS-RECESS, PH |
|      | X99-0467-000 |       | 3   | SCREW, CROSS-RECESS, PH |
|      | X99-0482-000 |       | 1   | SCREW, CROSS-RECESS, PH |
|      | X99-0505-000 |       | 1   | SCREW, CROSS-RECESS, PH |

## CANON T70

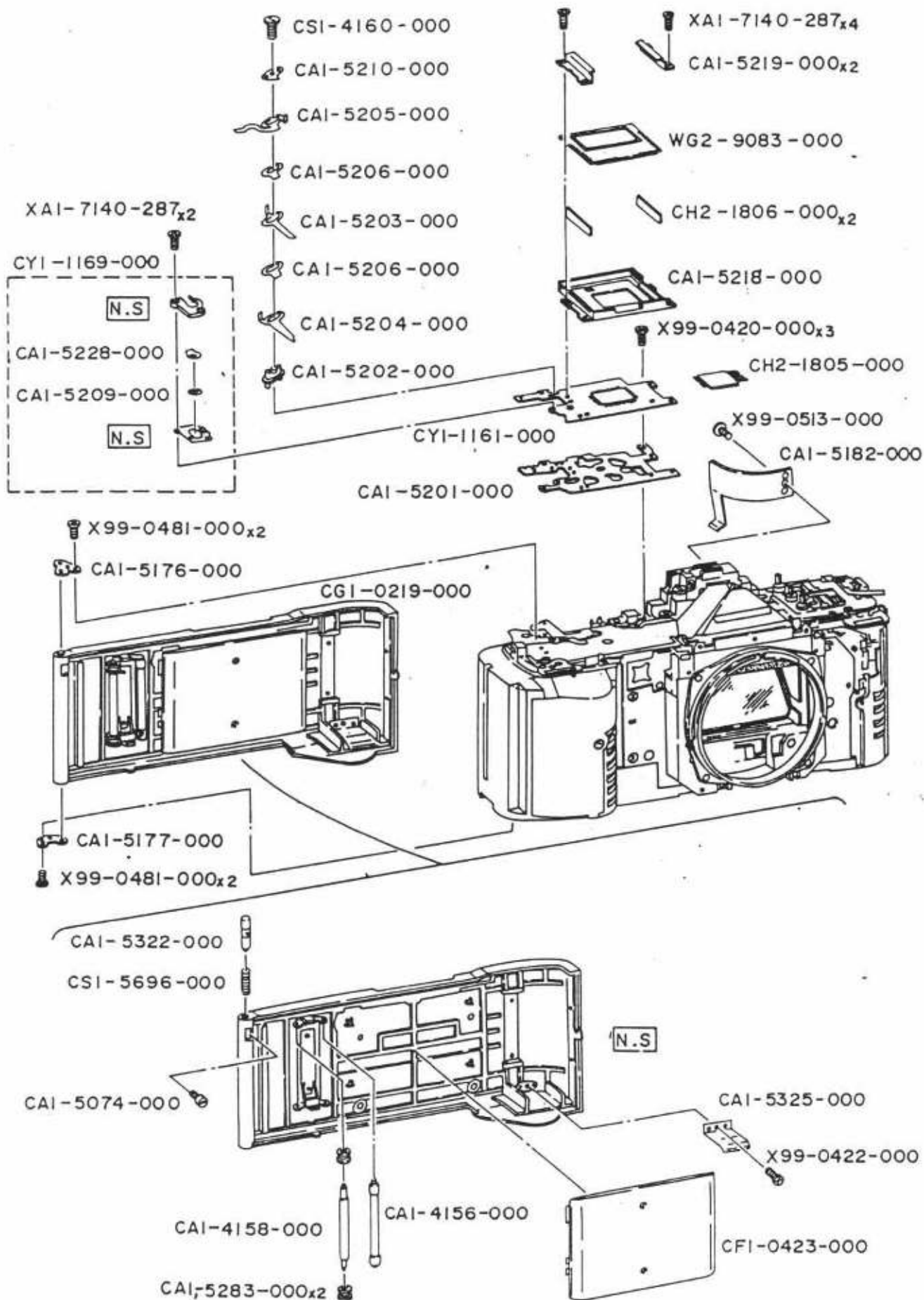


## PARTS LIST

## TOP COVER PARTS

| MARK | PART NO.                               | CLASS | QTY | DESCRIPTION              |
|------|----------------------------------------|-------|-----|--------------------------|
|      | CA1-1374-000                           | B     | 1   | SHOE, ACCESSORY          |
|      | CA1-3385-000                           | C     | 1   | SPRING, PLATE (BL)       |
|      | CA1-4238-000                           | B     | 1   | BASE, ACCESSORY SHOE     |
|      | CA1-5304-000                           | E     | 1   | SEAT, SHUTTER BUTTON     |
|      | CA1-5305-000                           | D     | 1   | SWITCH, SHIFT UP & DOWN  |
|      | CA1-5306-000                           | E     | 1   | SHIELD, LIGHT            |
|      | CA1-5311-000                           | D     | 1   | BUTTON, RELEASE          |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                          |
|      | CA1-5312-000                           | D     | 1   | LEVER, SELECTOR          |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                          |
|      | CA1-5313-000                           | D     | 1   | BUTTON, SELECTOR         |
|      | CA1-5314-000                           | E     | 1   | NUT                      |
|      | CA1-5315-000                           | D     | 1   | SPRING, LOCK             |
|      | CA1-5316-000                           | D     | 1   | PLATE, MOUNTING          |
|      | CA1-5318-000                           | D     | 1   | SHEET                    |
|      | CF1-1278-000                           | E     | 1   | BEEPER                   |
|      | CG1-0218-000                           | B     | 1   | TOP COVER UNIT           |
|      | XA1-3170-509                           |       | 4   | SCREW, CROSS-RECESS, FCH |
|      | XD2-1100-102                           |       | 1   | E RING                   |
|      | XD2-1200-152                           |       | 1   | E RING                   |

# CANON T70

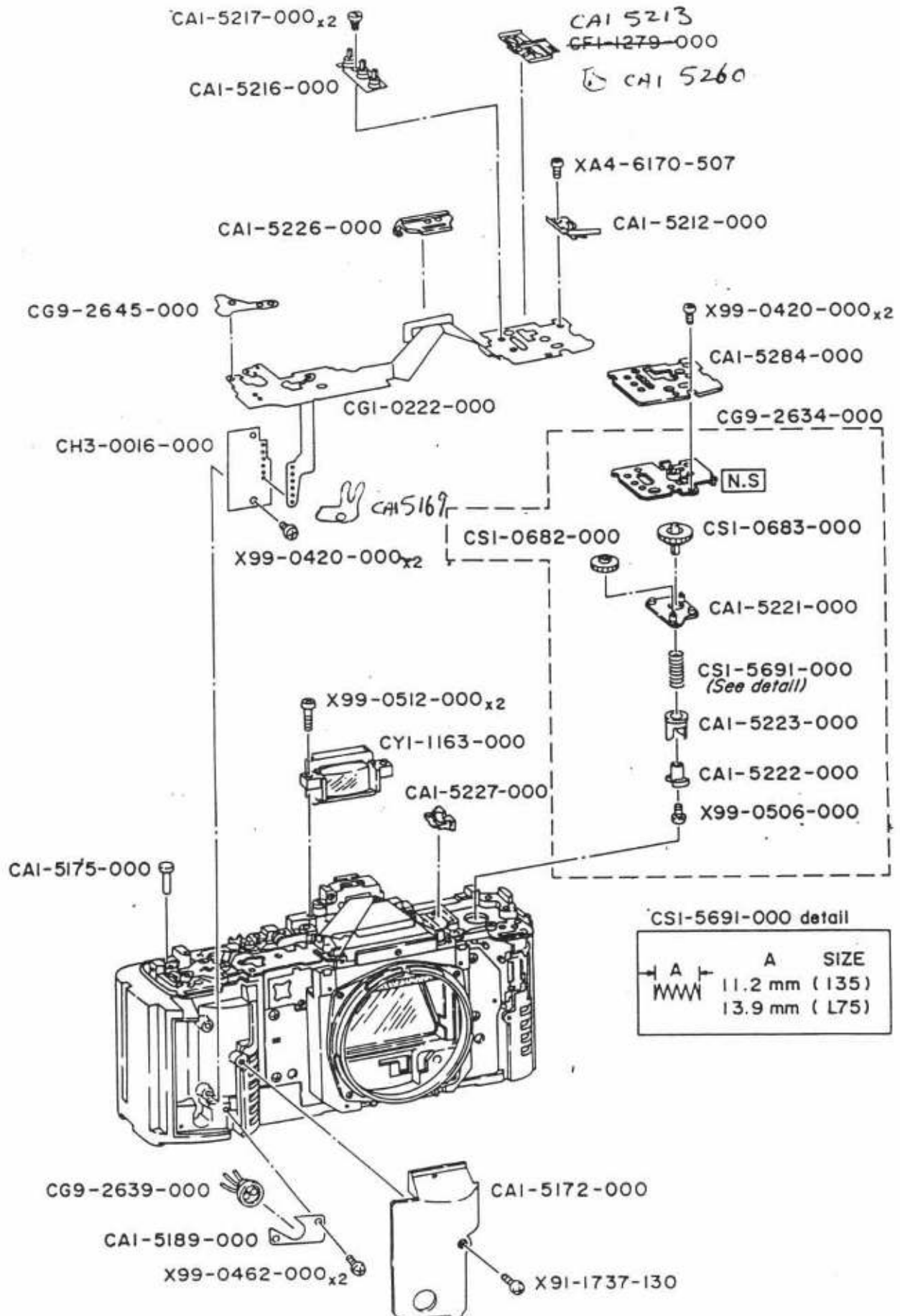


## PARTS LIST

## BACK COVER &amp; LCD PARTS

| MARK | PART NO.     | CLASS | QTY | DESCRIPTION             |
|------|--------------|-------|-----|-------------------------|
|      | CA1-4156-000 | D     | 1   | FILM GUIDE              |
|      | CA1-4158-000 | D     | 1   | ROLLER                  |
|      | CA1-5074-000 | E     | 1   | SCREW, STOPPER          |
|      | CA1-5176-000 | E     | 1   | HINGE, UPPER            |
|      | CA1-5177-000 | E     | 1   | HINGE, LOWER            |
|      | CA1-5182-000 | D     | 1   | GUIDE, CASSETTE         |
|      | CA1-5201-000 | E     | 1   | BASE, LCD               |
|      | CA1-5202-000 | D     | 1   | BASE, CONTACT           |
|      | CA1-5203-000 | D     | 1   | CONTACT, RELEASE        |
|      | CA1-5204-000 | D     | 1   | CONTACT, RELEASE        |
|      | CA1-5205-000 | D     | 1   | CONTACT, RELEASE        |
|      | CA1-5206-000 | D     | 2   | INSULATOR               |
|      | CA1-5209-000 | E     | 1   | CONTACT, CLICK          |
|      | CA1-5210-000 | D     | 1   | INSULATOR               |
|      | CA1-5218-000 | D     | 1   | CASE, LCD               |
|      | CA1-5219-000 | D     | 2   | HOLDER, LCD             |
|      | CA1-5228-000 | E     | 1   | COVER, SW2              |
|      | CA1-5283-000 | E     | 2   | ROLLER                  |
|      | CA1-5322-000 | D     | 1   | SHAFT, HINGE            |
|      | CA1-5325-000 | D     | 1   | SPRING, PLATE           |
|      | CF1-0423-000 | D     | 1   | PLATE, PRESSURE         |
|      | CG1-0219-000 | C     | 1   | BACK COVER UNIT         |
|      | CH2-1805-000 | D     | 1   | CABLE, FLAT (9)         |
|      | CH2-1806-000 | D     | 2   | CONNECTOR               |
|      | CS1-4160-000 | D     | 1   | SCREW                   |
|      | CS1-5696-000 | D     | 1   | SPRING, COIL            |
|      | CY1-1161-000 | C     | 1   | ELECTRIC PARTS UNIT     |
|      | CY1-1169-000 | D     | 1   | STOPPER, RELEASE        |
|      | WG2-9083-000 | E     | 1   | LCD                     |
|      | XA1-7140-287 |       | 6   | SCREW, CROSS-RECESS, PH |
|      | X99-0420-000 |       | 3   | SCREW, CROSS-RECESS, PH |
|      | X99-0422-000 |       | 1   | SCREW, CROSS-RECESS, PH |
|      | X99-0481-000 |       | 4   | SCREW, CROSS-RECESS, PH |
|      | X99-0513-000 |       | 1   | SCREW, CROSS-RECESS, PH |

## CANON T70

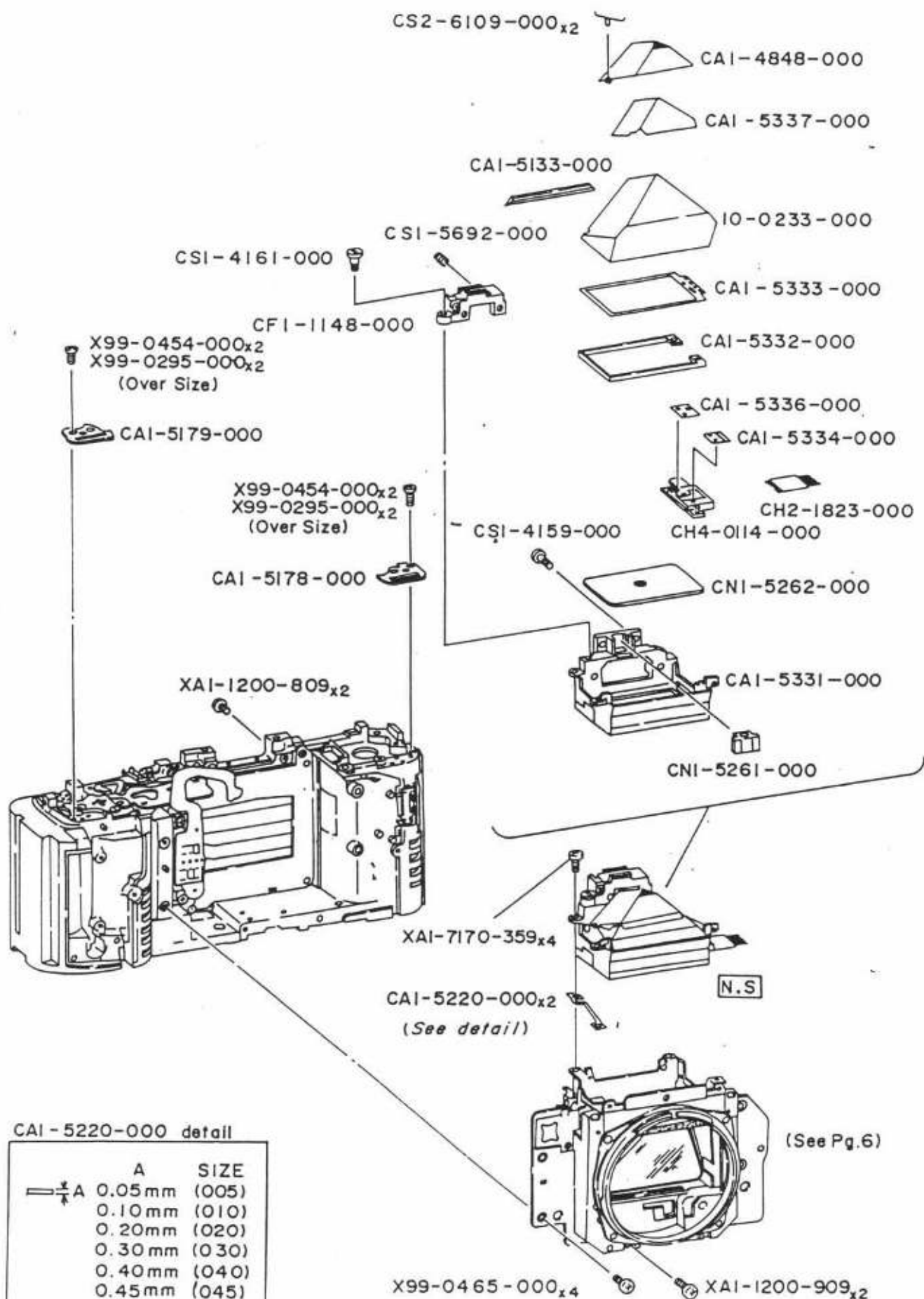


## PARTS LIST

## ELECTRIC PARTS UNIT

| MARK    | PART NO.                               | CLASS | QTY | DESCRIPTION              |
|---------|----------------------------------------|-------|-----|--------------------------|
|         | CA1-5172-000                           | E     | 1   | SPACE, GRIP              |
|         | CA1-5175-000                           | E     | 1   | PIN, BATTERY SENSOR      |
|         | CA1-5189-000                           | E     | 1   | HOLDER, JACK             |
|         | CA1-5212-000                           | E     | 1   | CONTACT, AL              |
|         | CA1-5216-000                           | E     | 1   | RUBBER, CONDUCTION       |
|         | CA1-5217-000                           | D     | 2   | SCREW                    |
|         | CA1-5221-000                           | E     | 1   | BASE, REWIND             |
|         | CA1-5222-000                           | E     | 1   | SHAFT, HOOK              |
|         | CA1-5223-000                           | E     | 1   | FORK, REWIND             |
|         | CA1-5226-000                           | E     | 1   | PLATE, STOPPER           |
|         | CA1-5227-000                           | E     | 1   | HOLDER, FLAT CABLE (6)   |
|         | CA1-5284-000                           | E     | 1   | INSULATOR                |
| CA15213 | <del>GF1-1279-000</del>                | D     | 1   | CONTACT, SELECTOR        |
|         | CG1-0222-000                           | B     | 1   | ELECTRIC PART UNIT       |
|         | CG9-2634-000                           | E     | 1   | REWINDING UNIT           |
|         | CG9-2639-000                           | E     | 1   | REMOTE CONTROL JACK UNIT |
|         | CG9-2645-000                           | E     | 1   | SUB FLX                  |
|         | CH3-0016-000                           | D     | 1   | CONVERTER, DC/DC         |
|         | CS1-0682-000                           | E     | 1   | GEAR                     |
|         | CS1-0683-000                           | E     | 1   | GEAR                     |
|         | CS1-5691-000                           | E     | 1   | SPRING, COIL             |
|         | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                          |
|         | CY1-1163-000                           | B     | 1   | EYEPIECE                 |
|         | XA4-6170-507                           |       | 1   | SCREW, CROSS-RECESS, PH  |
|         | X91-1737-130                           |       | 1   | SCREW, CROSS-RECESS, PH  |
|         | X99-0420-000                           |       | 4   | SCREW, CROSS-RECESS, PH  |
|         | X99-0462-000                           |       | 2   | SCREW, CROSS-RECESS, PH  |
|         | X99-0506-000                           |       | 1   | SCREW, CROSS-RECESS, PH  |
|         | X99-0512-000                           |       | 2   | SCREW, CROSS-RECESS, PH  |
|         | CA15260                                |       |     | INSULATOR                |
|         | CA15169                                |       |     | EARTH LUG                |

## CANON T70

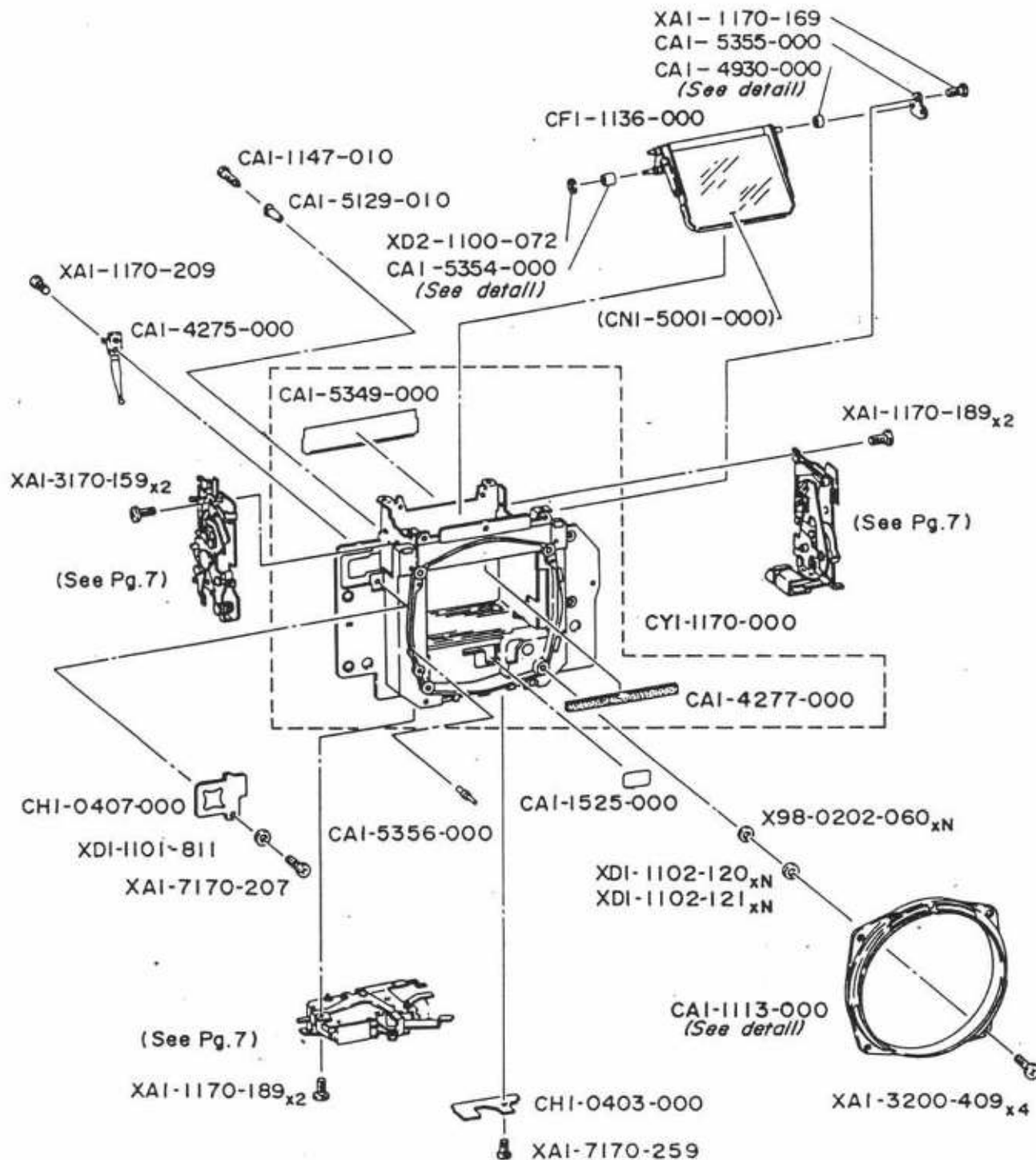


## PARTS LIST

## FINDER PARTS

| MARK | PART NO.                               | CLASS | QTY | DESCRIPTION             |
|------|----------------------------------------|-------|-----|-------------------------|
|      | 10-0233-000                            | C     | 1   | PENTAPRISM              |
|      | CA1-4848-000                           | E     | 1   | HOLDER, PENTAPRISM      |
|      | CA1-5133-000                           | D     | 1   | SPACE                   |
|      | CA1-5178-000                           | D     | 1   | LUG, NECK STRAP         |
|      | CA1-5179-000                           | D     | 1   | LUG, NECK STRAP         |
|      | CA1-5220-000                           | E     | 2   | WASHER, ADJUSTING       |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                         |
|      | CA1-5331-000                           | E     | 1   | BOX, PENTAPRISM         |
|      | CA1-5332-000                           | E     | 1   | SPACE                   |
|      | CA1-5333-000                           | E     | 1   | MASK, FINDER            |
|      | CA1-5334-000                           | E     | 1   | MASK, INDICATOR         |
|      | CA1-5336-000                           | E     | 1   | MASK, LED               |
|      | CA1-5337-000                           | E     | 1   | COVER, PENTAPRISM       |
|      | CF1-1148-000                           | E     | 1   | HOLDER, SPC             |
|      | CH2-1823-000                           | D     | 1   | CABLE, FLAT (6)         |
|      | CH4-0114-000                           | D     | 1   | LED                     |
|      | CN1-5261-000                           | E     | 1   | LENS/PRISM, SPC         |
|      | CN1-5262-000                           | C     | 1   | SCREEN, FOCUSING        |
|      | CS1-4159-000                           | E     | 1   | SCREW                   |
|      | CS1-4161-000                           | E     | 1   | SCREW                   |
|      | CS1-5692-000                           | E     | 1   | SPRING, COIL            |
|      | CS2-6109-000                           | D     | 2   | SPRING                  |
|      | XA1-1200-809                           |       | 2   | SCREW, CROSS-RECESS, PH |
|      | XA1-1200-909                           |       | 2   | SCREW, CROSS-RECESS, PH |
|      | XA1-7170-359                           |       | 4   | SCREW, CROSS-RECESS, PH |
|      | X99-0295-000                           |       | 4   | SCREW, CROSS-RECESS, PH |
|      | X99-0454-000                           |       | 4   | SCREW, CROSS-RECESS, PH |
|      | X99-0465-000                           |       | 4   | SCREW, CROSS-RECESS, PH |

## CANON T70



CAI-4930-000 detail

| A | A      | SIZE  |
|---|--------|-------|
|   | 1.15mm | (115) |
|   | 1.25mm | (125) |
|   | 1.35mm | (135) |

CAI-5354-000 detail

| A | SIZE             |
|---|------------------|
|   | 2.0 mm (050) 40  |
|   | 2.2 mm (040) 030 |
|   | 2.3 mm (030) 010 |
|   | 2.4 mm (020) 010 |
|   | 2.5 mm (010)     |

CAI-1113-000 detail

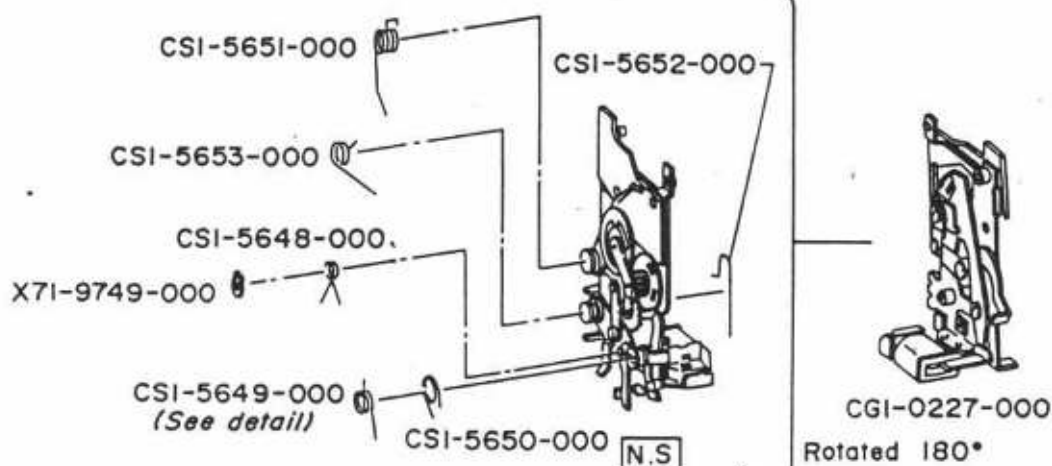
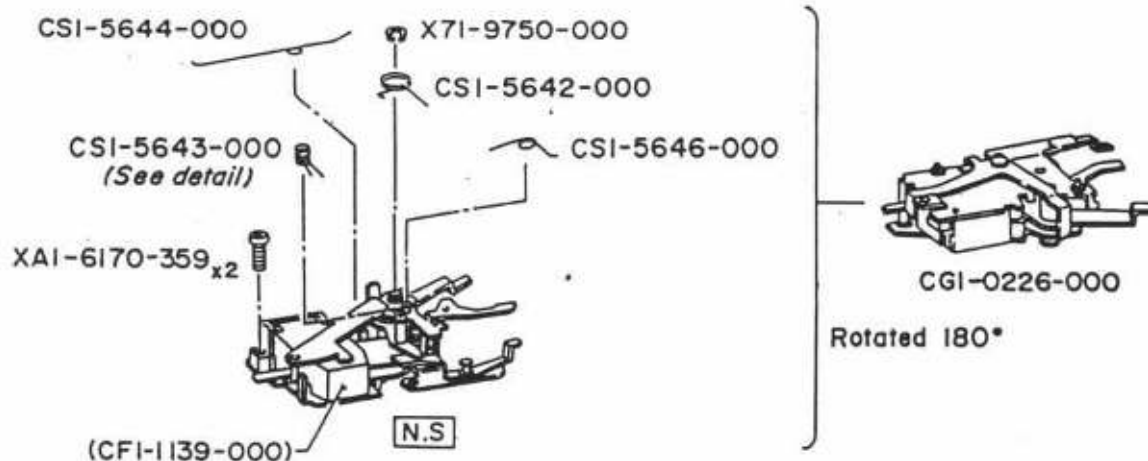
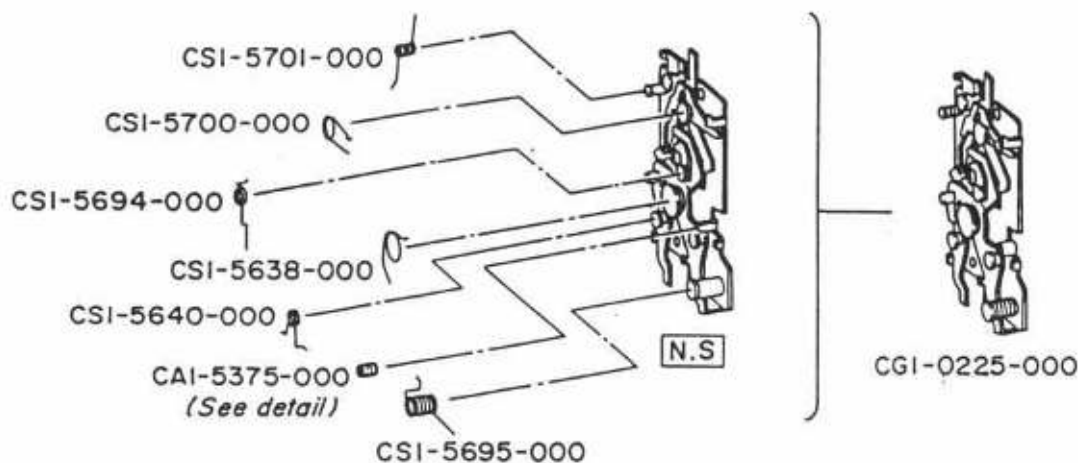
| A | SIZE                                           |
|---|------------------------------------------------|
|   | 5.3mm (000): Standard                          |
|   | 5.1mm (001):                                   |
|   | Special service part<br>(0.2mm under standard) |

## PARTS LIST

## MIRROR BOX PARTS

| MARK | PART NO.                               | CLASS | QTY | DESCRIPTION                   |
|------|----------------------------------------|-------|-----|-------------------------------|
|      | CA1-1113-000                           | D     | 1   | BODY MOUNT                    |
|      | CA1-1113-000(001)                      | E     | 1   | BODY MOUNT (SERVICE ONLY)     |
|      | CA1-1147-010                           | D     | 1   | SCREW, MAX. APERTURE CORRECT. |
|      | CA1-1525-000                           | B     | 1   | SHIELD, LIGHT                 |
|      | CA1-4275-000                           | D     | 1   | CONTACT, A.M                  |
|      | CA1-4277-000                           | D     | 1   | CUSHION                       |
|      | CA1-4930-000                           | E     | 1   | COLLAR                        |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                               |
|      | CA1-5129-010                           | D     | 1   | PIN, MAX. APERTURE CORRECTION |
|      | CA1-5349-000                           | E     | 1   | SHIELD, LIGHT                 |
|      | CA1-5354-000                           | E     | 1   | COLLAR                        |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                               |
|      | CA1-5355-000                           | E     | 1   | PLATE, ADJUSTING              |
|      | CA1-5356-000                           | E     | 1   | PIN, A.M                      |
|      | CF1-1136-000                           | C     | 1   | MIRROR ASSY                   |
|      | CH1-0403-000                           | E     | 1   | BOARD, PRINTED CIRCUIT        |
|      | CH1-0407-000                           | E     | 1   | BOARD, PRINTED CIRCUIT        |
|      | CN1-5001-000                           | A     | 1   | MIRROR                        |
|      | CY1-1170-000                           | E     | 1   | PANEL, FRONT                  |
|      | XA1-1170-169                           |       | 1   | SCREW, CROSS-RECESS, PH       |
|      | XA1-1170-189                           |       | 4   | SCREW, CROSS-RECESS, PH       |
|      | XA1-1170-209                           |       | 1   | SCREW, CROSS-RECESS, PH       |
|      | XA1-3170-159                           |       | 2   | SCREW, CROSS-RECESS, FCH      |
|      | XA1-3200-409                           |       | 4   | SCREW, CROSS-RECESS, FCH      |
|      | XA1-7170-207                           |       | 1   | SCREW, CROSS-RECESS, PH       |
|      | XA1-7170-259                           |       | 1   | SCREW, CROSS-RECESS, PH       |
|      | XD1-1101-811                           |       | 1   | WASHER                        |
|      | XD1-1102-120                           |       | 1   | WASHER                        |
|      | XD1-1102-121                           |       | 1   | WASHER                        |
|      | XO2-1100-072                           |       | 1   | E RING                        |
|      | X98-0202-060                           |       | 1   | WASHER                        |

## CANON T70



CAI-5375-000 detail

| A           | SIZE |
|-------------|------|
| φ 2.1 (010) |      |
| φ 2.4 (020) |      |
| φ 2.7 (030) |      |

CSI-5643-000 detail

| A          | SIZE |
|------------|------|
| 180° (010) |      |
| 175° (020) |      |
| 170° (030) |      |
| 165° (040) |      |

CSI-5649-000 detail

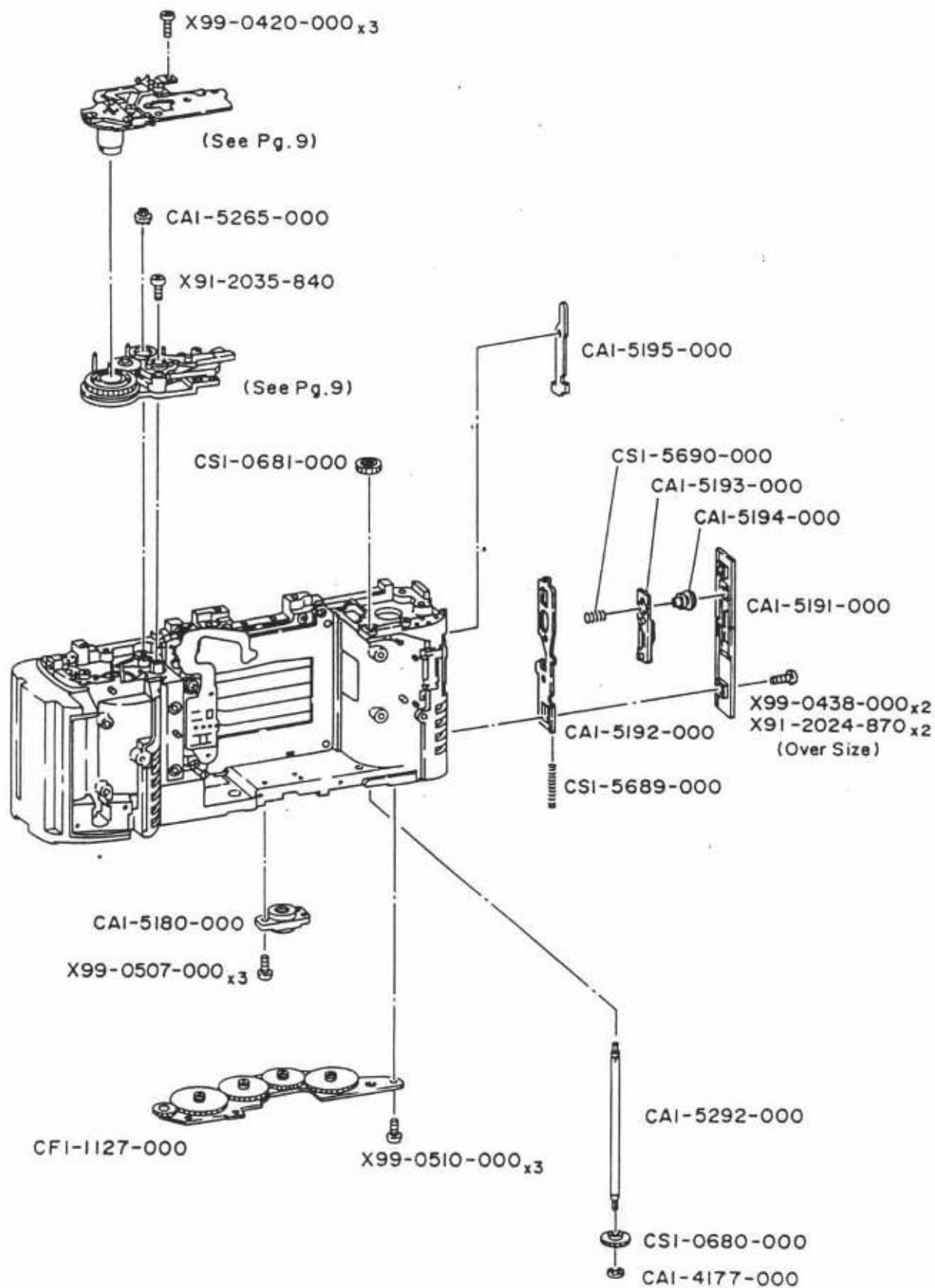
| A          | SIZE |
|------------|------|
| 146° (010) |      |
| 151° (020) |      |

## PARTS LIST

## MIRROR MECHANISM, AUTO DIAPHRAGM &amp; AE UNIT

| MARK | PART NO.                               | CLASS | QTY | DESCRIPTION             |
|------|----------------------------------------|-------|-----|-------------------------|
|      | CA1-5375-000                           | E     | 1   | RUBBER, COLLAR          |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                         |
|      | CF1-1139-000                           | E     | 1   | MAGNET NO.2 ASSY        |
|      | CG1-0225-000                           | D     | 1   | MIRROR MECHANISM UNIT   |
|      | CG1-0226-000                           | D     | 1   | AUTO DIAPHRAGM UNIT     |
|      | CG1-0227-000                           | D     | 1   | AE UNIT                 |
|      | CS1-5638-000                           | E     | 1   | SPRING                  |
|      | CS1-5640-000                           | E     | 1   | SPRING                  |
|      | CS1-5642-000                           | E     | 1   | SPRING                  |
|      | CS1-5643-000                           | E     | 1   | SPRING                  |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                         |
|      | CS1-5644-000                           | E     | 1   | SPRING                  |
|      | CS1-5646-000                           | E     | 1   | SPRING                  |
|      | CS1-5648-000                           | E     | 1   | SPRING                  |
|      | CS1-5649-000                           | E     | 1   | SPRING                  |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                         |
|      | CS1-5650-000                           | E     | 1   | SPRING                  |
|      | CS1-5651-000                           | E     | 1   | SPRING                  |
|      | CS1-5652-000                           | E     | 1   | SPRING                  |
|      | CS1-5653-000                           | E     | 1   | SPRING                  |
|      | CS1-5694-000                           | E     | 1   | SPRING                  |
|      | CS1-5695-000                           | E     | 1   | SPRING                  |
|      | CS1-5700-000                           | E     | 1   | SPRING                  |
|      | CS1-5701-000                           | E     | 1   | SPRING                  |
|      | XA1-6170-359                           |       | 2   | SCREW, CROSS-RECESS, PH |
|      | X71-9749-000                           |       | 1   | RETAINER                |
|      | X71-9750-000                           |       | 1   | RETAINER                |

# CANON T70

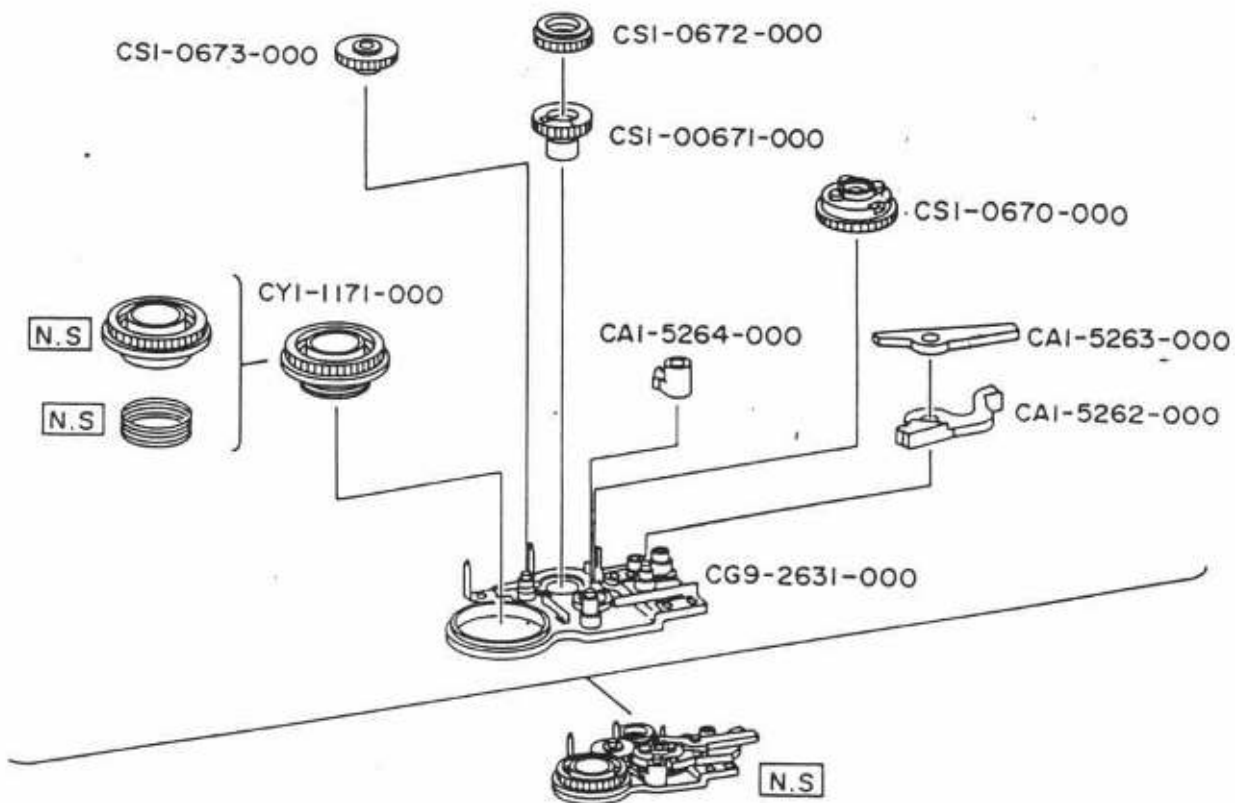
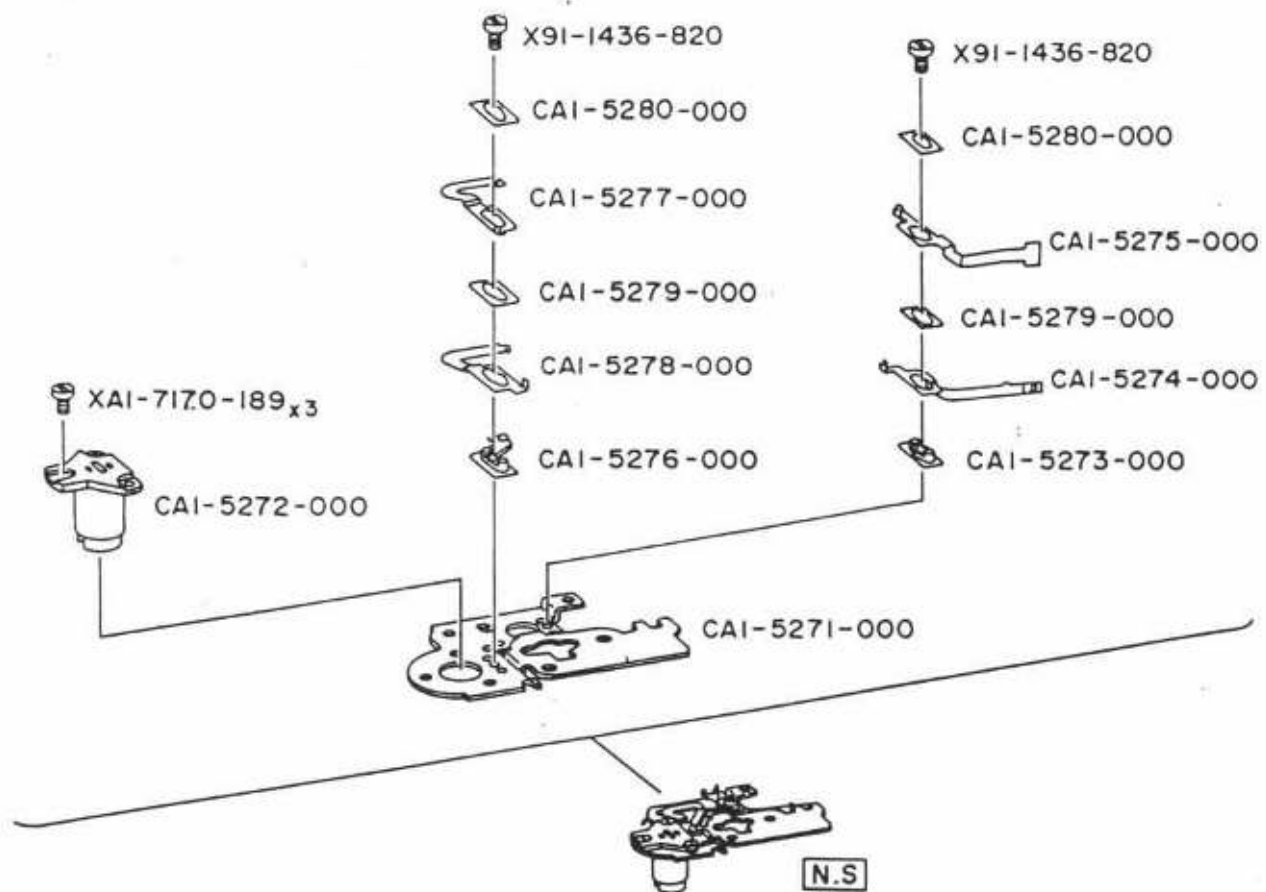


## PARTS LIST

## REWIND GEAR &amp; LATCH MECHANISM

| MARK | PART NO.     | CLASS | QTY | DESCRIPTION             |
|------|--------------|-------|-----|-------------------------|
|      | CA1-4177-000 | D     | 1   | C RING                  |
|      | CA1-5180-000 | D     | 1   | SCREW, TRIPOD           |
|      | CA1-5191-000 | C     | 1   | COVER, RIGHT FRONT      |
|      | CA1-5192-000 | D     | 1   | HOOK                    |
|      | CA1-5193-000 | C     | 1   | KNOB, BACK COVER        |
|      | CA1-5194-000 | D     | 1   | BUTTON, LOCK            |
|      | CA1-5195-000 | D     | 1   | LEVER, LOCK             |
|      | CA1-5265-000 | E     | 1   | CLUTCH, SPOOL           |
|      | CA1-5292-000 | E     | 1   | SHAFT, REWIND           |
|      | CF1-1127-000 | E     | 1   | REWIND GEAR ASSY        |
|      | CS1-0680-000 | E     | 1   | GEAR                    |
|      | CS1-0681-000 | E     | 1   | GEAR                    |
|      | CS1-5689-000 | D     | 1   | SPRING, COIL            |
|      | CS1-5690-000 | D     | 1   | SPRING, COIL            |
|      | X91-2024-870 |       | 2   | SCREW, CROSS-RECESS, PH |
|      | X91-2035-840 |       | 1   | SCREW, CROSS-RECESS, PH |
|      | X99-0420-000 |       | 3   | SCREW, CROSS-RECESS, PH |
|      | X99-0438-000 |       | 2   | SCREW, CROSS-RECESS, PH |
|      | X99-0507-000 |       | 3   | SCREW, CROSS-RECESS, PH |
|      | X99-0510-000 |       | 3   | SCREW, CROSS-RECESS, PH |

# CANON T70

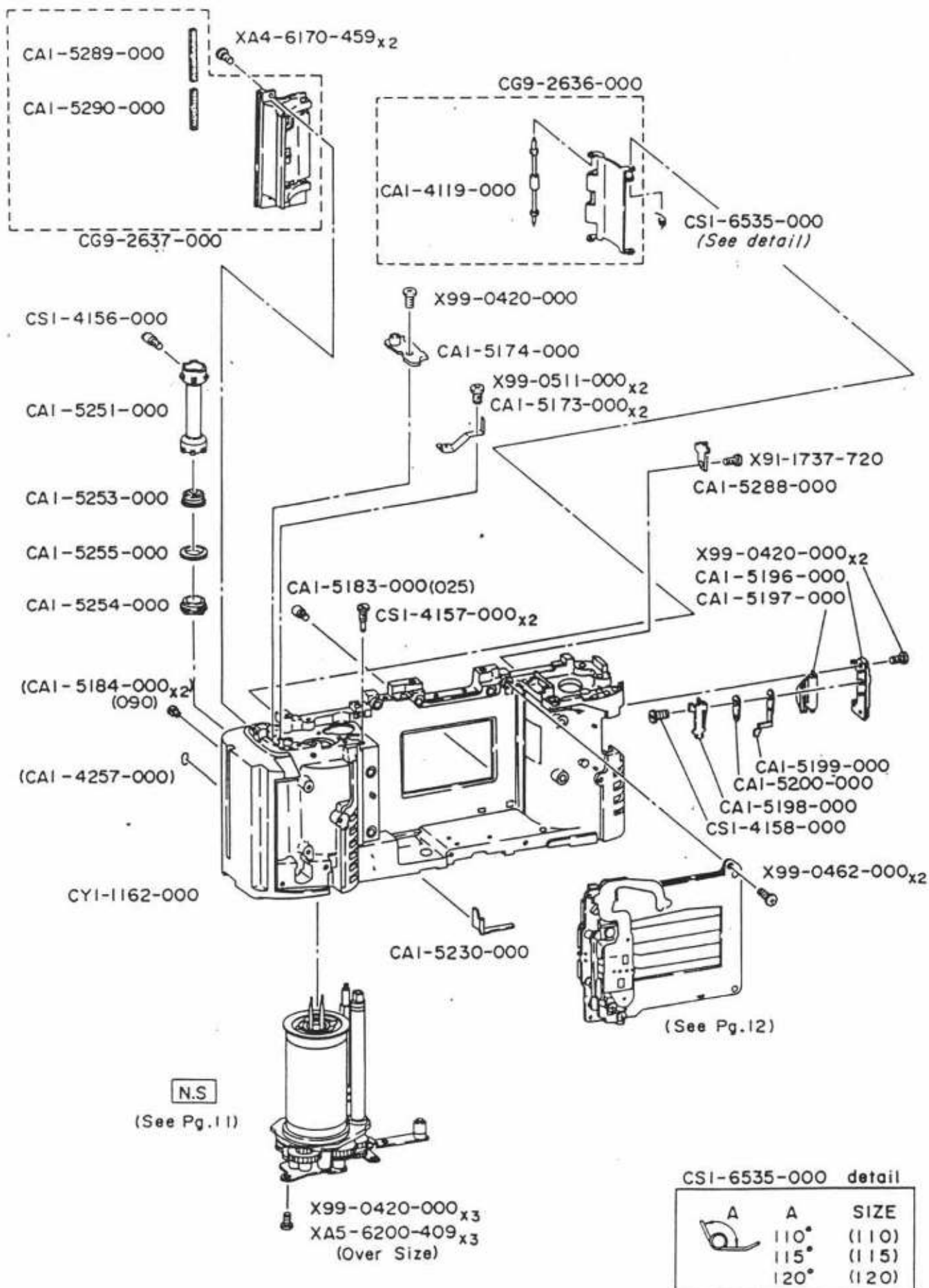


## PARTS LIST

## SWITCH &amp; GEAR MECHANISM

| MARK | PART NO.     | CLASS | QTY | DESCRIPTION                |
|------|--------------|-------|-----|----------------------------|
|      | CA1-5262-000 | E     | 1   | LEVER, WINDING STOPPER     |
|      | CA1-5263-000 | E     | 1   | LEVER, MIRROR RETURNING    |
|      | CA1-5264-000 | E     | 1   | LEVER, RETURNING STOPPER   |
|      | CA1-5271-000 | E     | 1   | BASEPLATE, UPPER WINDING-2 |
|      | CA1-5272-000 | E     | 1   | HOLDER, MOTOR              |
|      | CA1-5273-000 | D     | 1   | BASE, CONTACT              |
|      | CA1-5274-000 | D     | 1   | CONTACT                    |
|      | CA1-5275-000 | D     | 1   | CONTACT                    |
|      | CA1-5276-000 | D     | 1   | BASE, CONTACT              |
|      | CA1-5277-000 | D     | 1   | CONTACT                    |
|      | CA1-5278-000 | D     | 1   | CONTACT                    |
|      | CA1-5279-000 | E     | 2   | INSULATOR                  |
|      | CA1-5280-000 | D     | 2   | INSULATOR                  |
|      | CG9-2631-000 | E     | 1   | BASEPLATE, UPPER WINDING-1 |
|      | CS1-0670-000 | E     | 1   | GEAR                       |
|      | CS1-0671-000 | E     | 1   | GEAR                       |
|      | CS1-0672-000 | E     | 1   | GEAR                       |
|      | CS1-0673-000 | E     | 1   | GEAR                       |
|      | CY1-1171-000 | D     | 1   | SPOOL GEAR ASSY            |
|      | XA1-7170-189 |       | 3   | SCREW, CROSS-RECESS, PH    |
|      | X91-1436-820 |       | 2   | SCREW, CROSS-RECESS, PH    |

## CANON T70

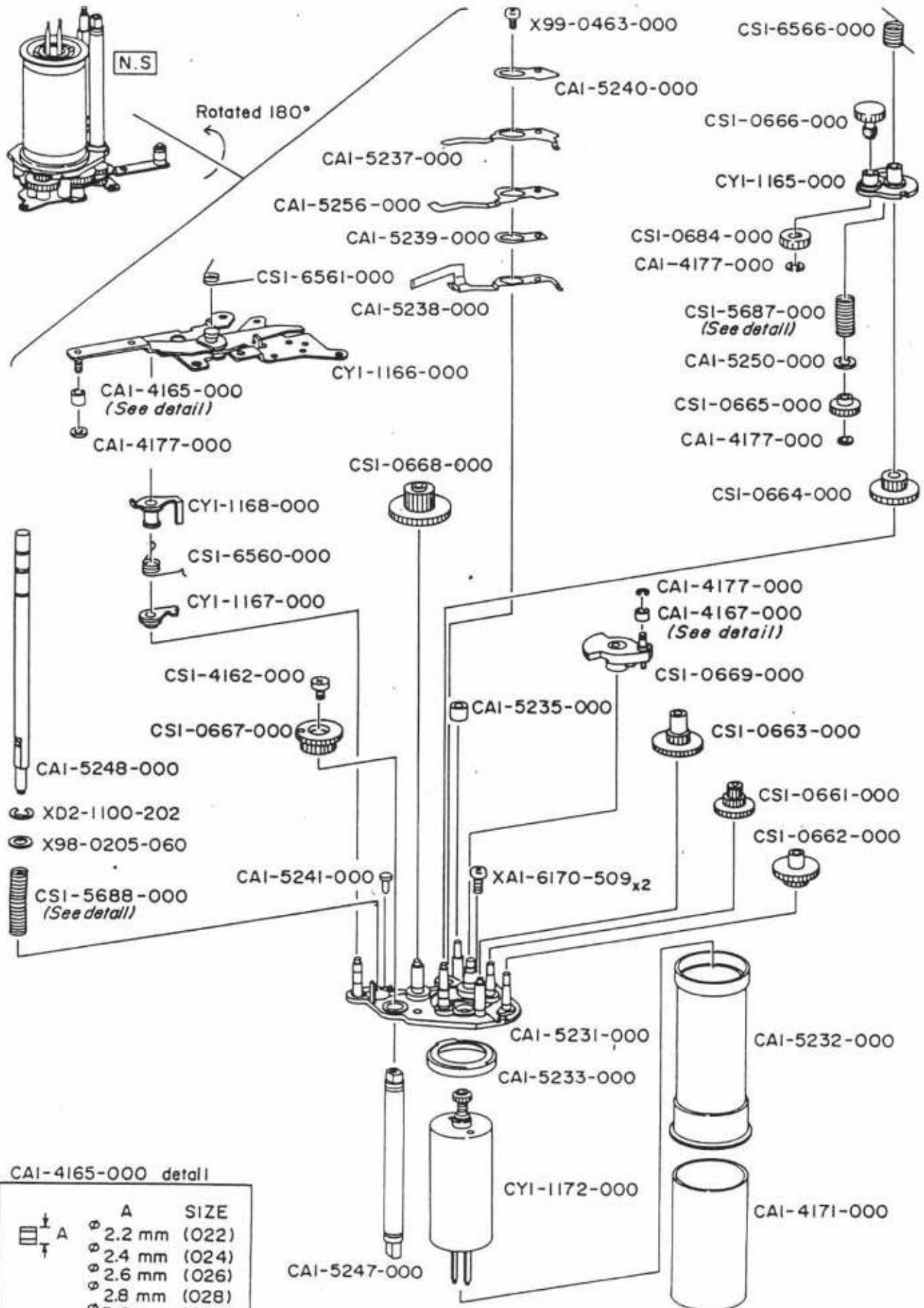


## PARTS LIST

## SPROCKET PARTS &amp; ROLLER HOLDER UNIT

| MARK | PART NO.                               | CLASS | QTY | DESCRIPTION             |
|------|----------------------------------------|-------|-----|-------------------------|
|      | CA1-4119-000                           | E     | 1   | ROLLER, AL              |
|      | CA1-4257-000                           | D     | 1   | SEAL, FILM              |
|      | CA1-5173-000                           | C     | 2   | CONTACT, BATTERY        |
|      | CA1-5174-000                           | E     | 1   | COVER, BATTERY BOX      |
|      | CA1-5183-000(025)                      | E     | 1   | SCREW                   |
|      | CA1-5184-000(090)                      | E     | 2   | CONTACT, DATA           |
|      | CA1-5196-000                           | E     | 1   | BASE, CASSETTE SWITCH   |
|      | CA1-5197-000                           | E     | 1   | LEVER, CASSETTE SWITCH  |
|      | CA1-5198-000                           | E     | 1   | CONTACT                 |
|      | CA1-5199-000                           | E     | 1   | CONTACT                 |
|      | CA1-5200-000                           | E     | 1   | RETAINER                |
|      | CA1-5230-000                           | D     | 1   | SHIELD, LIGHT           |
|      | CA1-5251-000                           | C     | 1   | SPROCKET                |
|      | CA1-5253-000                           | E     | 1   | COLOR, SPROCKET         |
|      | CA1-5254-000                           | E     | 1   | RING, CAM               |
|      | CA1-5255-000                           | E     | 1   | RING, RUBBER            |
|      | CA1-5288-000                           | E     | 1   | HOLDER, CASSETTE        |
|      | CA1-5289-000                           | E     | 1   | LIGHT, SHIELD           |
|      | CA1-5290-000                           | E     | 1   | LIGHT, SHIELD           |
|      | CG9-2636-000                           | D     | 1   | AL COVER UNIT           |
|      | CG9-2637-000                           | D     | 1   | ROLLER HOLDER UNIT      |
|      | CS1-4156-000                           | D     | 1   | SCREW                   |
|      | CS1-4157-000                           | E     | 2   | SCREW, SHAFT            |
|      | CS1-4158-000                           | E     | 1   | SCREW                   |
|      | CS1-6535-000                           | E     | 1   | SPRING                  |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                         |
|      | CY1-1162-000                           | E     | 1   | BODY                    |
|      | XA4-6170-459                           |       | 2   | SCREW, CROSS-RECESS, PH |
|      | XA5-6200-409                           |       | 3   | SCREW, CROSS-RECESS, PH |
|      | X99-0420-000                           |       | 6   | SCREW, CROSS-RECESS, PH |
|      | X99-0462-000                           |       | 2   | SCREW, CROSS-RECESS, PH |
|      | X99-0511-000                           |       | 2   | SCREW, CROSS-RECESS, PH |
|      | X91-1737-720                           |       | 1   | SCREW, CROSS-RECESS, PH |

## CANON T70



## PARTS LIST

## MOTOR &amp; GEAR MECHANISM

| MARK | PART NO.                               | CLASS | QTY | DESCRIPTION                |
|------|----------------------------------------|-------|-----|----------------------------|
|      | CA1-4165-000                           | E     | 1   | COLLAR, CHARGE             |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                            |
|      | CA1-4167-000                           | E     | 1   | COLLAR, CHARGE             |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                            |
|      | CA1-4171-000                           | D     | 1   | RUBBER, SPOOL              |
|      | CA1-4177-000                           | D     | 4   | C RING                     |
|      | CA1-5231-000                           | E     | 1   | BASEPLATE, LOWER WINDING   |
|      | CA1-5232-000                           | E     | 1   | SPOOL                      |
|      | CA1-5233-000                           | E     | 1   | SHAFT, SPOOL               |
|      | CA1-5235-000                           | E     | 1   | RUBBER, STOPPER            |
|      | CA1-5237-000                           | E     | 1   | CONTACT                    |
|      | CA1-5238-000                           | E     | 1   | CONTACT                    |
|      | CA1-5239-000                           | E     | 1   | INSULATOR                  |
|      | CA1-5240-000                           | E     | 1   | INSULATOR                  |
|      | CA1-5241-000                           | E     | 1   | PIN                        |
|      | CA1-5247-000                           | E     | 1   | SHAFT, WINDING             |
|      | CA1-5248-000                           | D     | 1   | SHAFT, SPROCKET            |
|      | CA1-5250-000                           | E     | 1   | WASHER                     |
|      | CA1-5256-000                           | E     | 1   | SPRING, PLATE              |
|      | CS1-0661-000                           | E     | 1   | GEAR                       |
|      | CS1-0662-000                           | E     | 1   | GEAR                       |
|      | CS1-0663-000                           | E     | 1   | GEAR                       |
|      | CS1-0664-000                           | E     | 1   | GEAR                       |
|      | CS1-0665-000                           | E     | 1   | GEAR                       |
|      | CS1-0666-000                           | E     | 1   | GEAR                       |
|      | CS1-0667-000                           | E     | 1   | GEAR                       |
|      | CS1-0668-000                           | E     | 1   | GEAR                       |
|      | CS1-0669-000                           | E     | 1   | GEAR                       |
|      | CS1-0684-000                           | E     | 1   | GEAR                       |
|      | CS1-4162-000                           | D     | 1   | SCREW                      |
|      | CS1-5687-000                           | E     | 1   | SPRING, COIL               |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                            |
|      | CS1-5688-000                           | E     | 1   | SPRING, COIL               |
|      | (ENTER SIZE WHEN ORDERING, SEE DETAIL) |       |     |                            |
|      | CS1-6560-000                           | E     | 1   | SPRING                     |
|      | CS1-6561-000                           | E     | 1   | SPRING                     |
|      | CS1-6566-000                           | E     | 1   | SPRING                     |
|      | CY1-1165-000                           | E     | 1   | BASE, PLANETARY GEAR       |
|      | CY1-1166-000                           | E     | 1   | BASEPLATE, LOWER WINDING-2 |
|      | CY1-1167-000                           | E     | 1   | LEVER, LOCK                |
|      | CY1-1168-000                           | E     | 1   | LEVER, CANCELLATION        |
|      | CY1-1172-000                           | D     | 1   | MOTOR UNIT                 |
|      | XA1-6170-509                           |       | 2   | SCREW, CROSS-RECESS, PH    |
|      | XD2-1100-202                           |       | 1   | E RING                     |
|      | X98-0205-060                           |       | 1   | WASHER                     |
|      | X99-0463-000                           |       | 1   | SCREW, CROSS-RECESS, PH    |

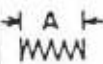
CA1-4167-000 detail

| A                                                                                     | SIZE         |
|---------------------------------------------------------------------------------------|--------------|
|  A | 2.8 mm (028) |
|                                                                                       | 3.0 mm (030) |
|                                                                                       | 3.1 mm (031) |
|                                                                                       | 3.2 mm (032) |
|                                                                                       | 3.3 mm (033) |
|                                                                                       | 3.4 mm (034) |
|                                                                                       | 3.5 mm (035) |
|                                                                                       | 3.6 mm (036) |
|                                                                                       | 3.7 mm (037) |

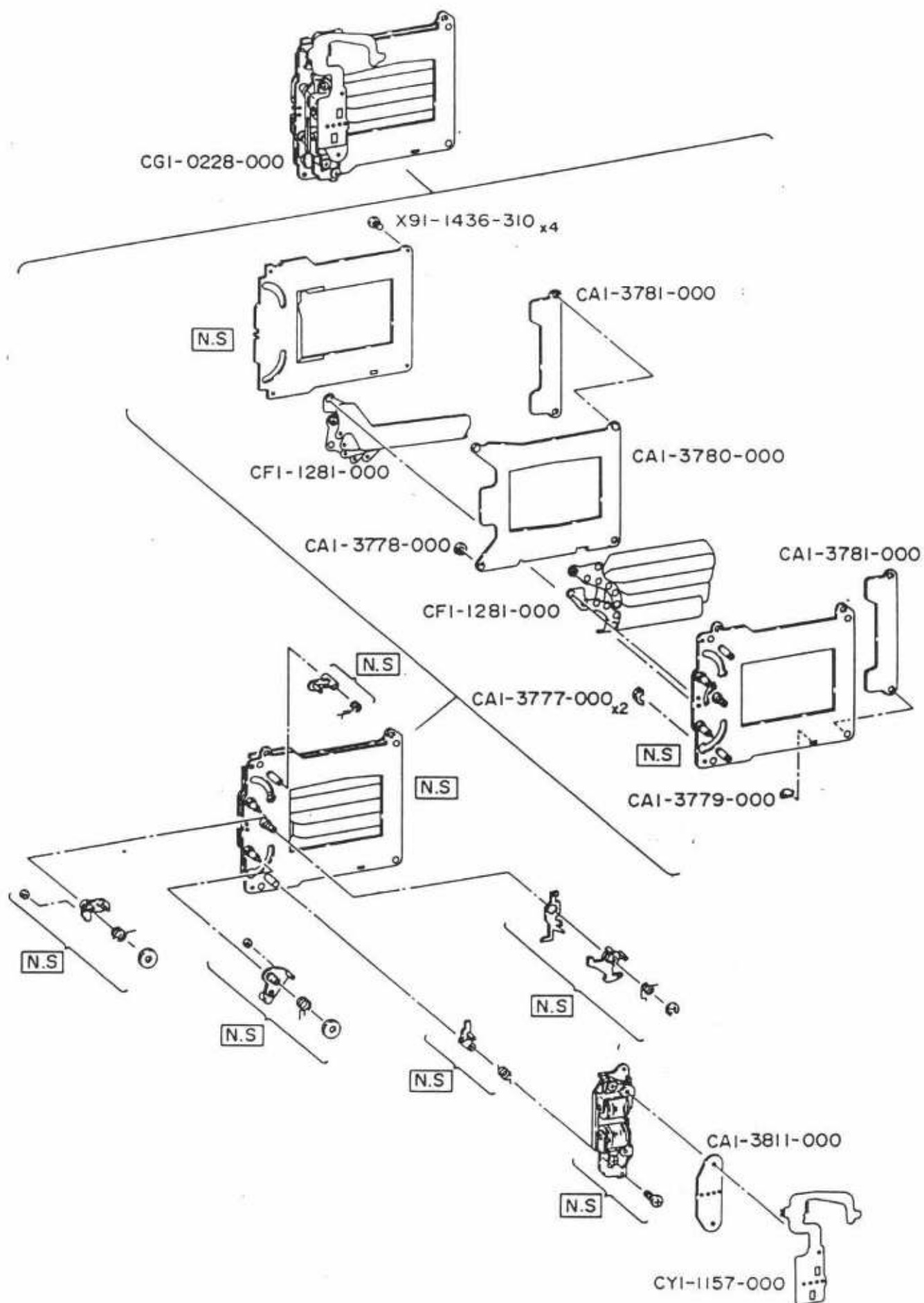
CS1-5687-000 detail

| A                                                                                     | SIZE         |
|---------------------------------------------------------------------------------------|--------------|
|  A | 6.5 mm (150) |
|                                                                                       | 7.7 mm (190) |

CS1-5688-000 detail

| A                                                                                       | SIZE          |
|-----------------------------------------------------------------------------------------|---------------|
|  A | 13.4 mm (200) |
|                                                                                         | 14.9 mm (250) |
|                                                                                         | 16.4 mm (300) |

## CANON T70



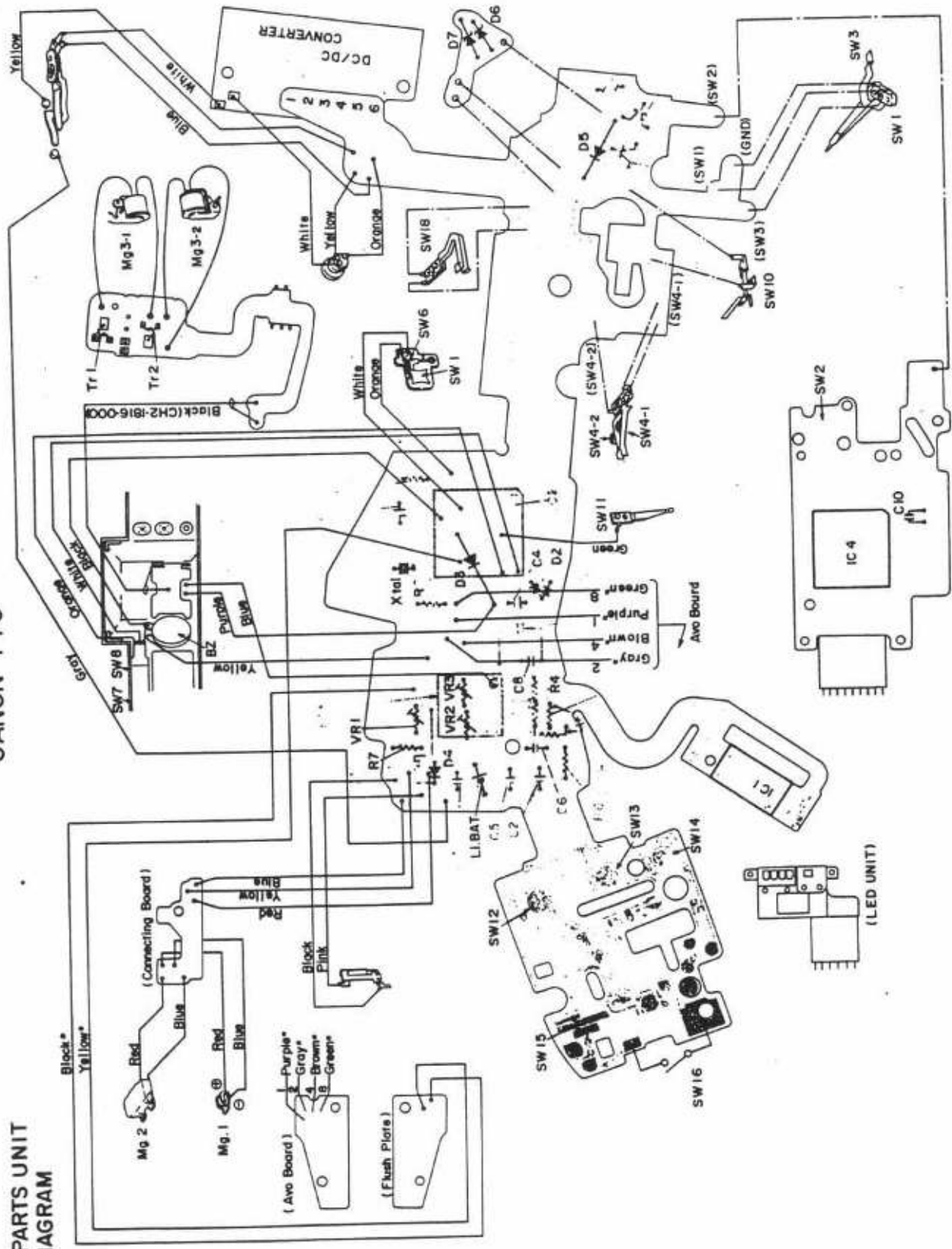
## PARTS LIST

## SHUTTER UNIT

| MARK | PART NO.     | CLASS | QTY | DESCRIPTION                |
|------|--------------|-------|-----|----------------------------|
|      | CA1-3777-000 | E     | 1   | RUBBER, STOPPER            |
|      | CA1-3778-000 | E     | 1   | RUBBER, STOPPER-A          |
|      | CA1-3779-000 | E     | 1   | RUBBER, STOPPER-B          |
|      | CA1-3780-000 | E     | 1   | PLATE, SEPARATOR           |
|      | CA1-3781-000 | E     | 2   | SPACE                      |
|      | CA1-3811-000 | E     | 1   | PLATE, CONTACT POSITIONING |
|      | CF1-1281-000 | C     | 2   | SHUTTER BLADE ASSY         |
|      | CG1-0228-000 | C     | 1   | SHUTTER UNIT               |
|      | CY1-1157-000 | C     | 1   | SHUTTER FLEX               |
|      | X91-1436-310 |       | 4   | SCREW, CROSS-RECESS, PH    |

CANON T70

ELECTRIC PARTS UNIT  
WIRING DIAGRAM



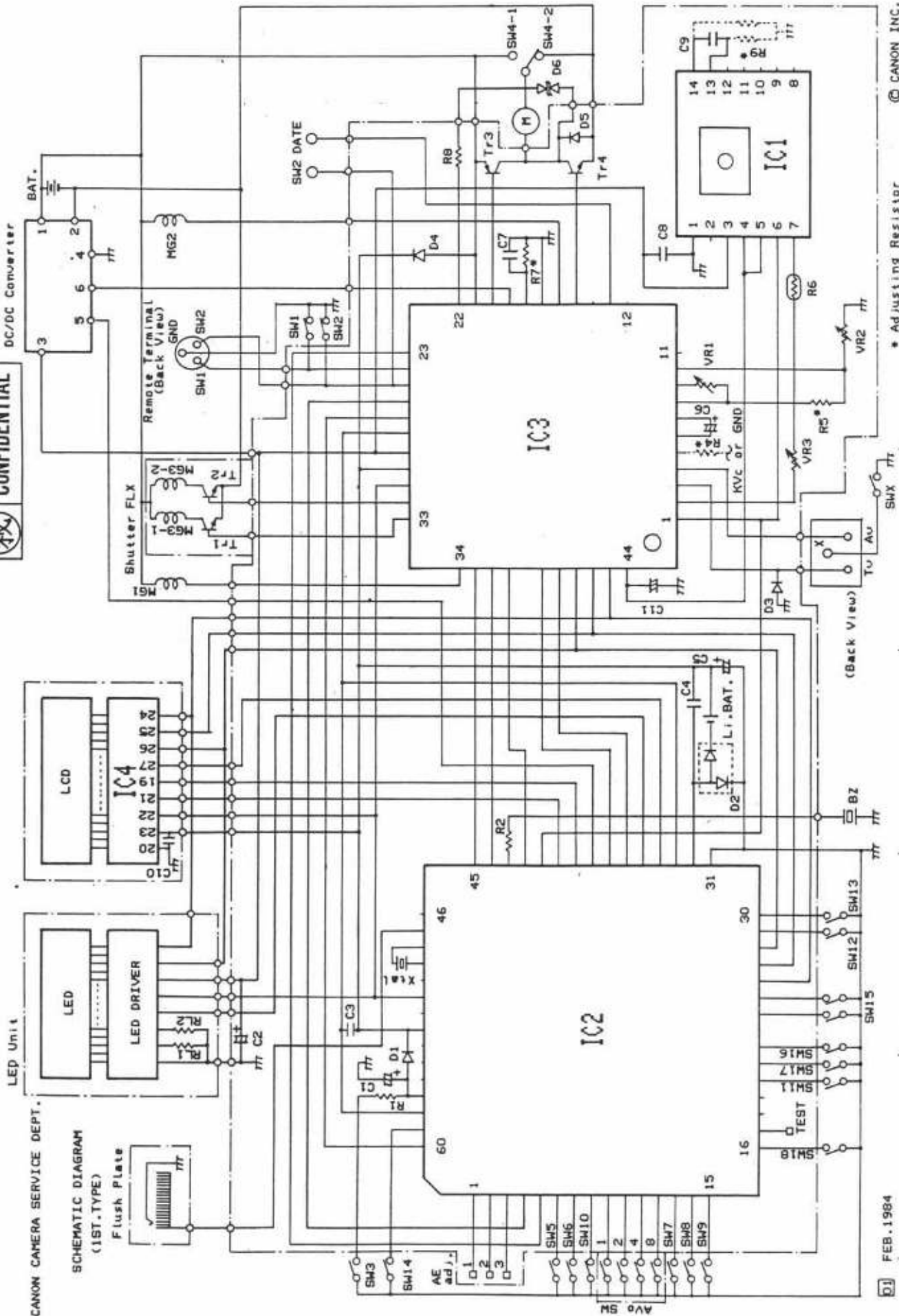
## ELECTRIC PARTS SPECIFICATION LIST

| SYMBOL  | SPEC. OR MFG     | SYMBOL | SPEC. OR MFG |                      |
|---------|------------------|--------|--------------|----------------------|
| B.U BAT | CR1220           | 3V     | SW1          | LIGHT METER, SW      |
| C1      | 4.7 uF           | T      | SW2          | RELEASE, SW          |
| C2      | 6.8 uF           | T      | SW3          | RESET, SW            |
| C3      | 0.22 uF          | T      | SW4-1        | WINDING, SW          |
| C4      | 0.1 uF           | C      | SW4-2        | WINDING COMP, SW     |
| C5      | 10 uF            | T      | SW5          | EXPOSURE COMP, SW    |
| C6      | 1 uF             | T      | SW6          | TV LOCK, SW          |
| C7      | 0.1 uF           | C      | SW7          | SHIFT UP, SW         |
| C8      | 0.1 uF           | C      | SW8          | SHIFT DOWN, SW       |
| C9      | 3300 PF          | C      | SW9          | WINDING DISPLY, SW   |
| C10     | 0.1 uF           | C      | SW10         | REWINDING DISPLY, SW |
| C11     | 4.7 uF           | T      | SW11         | A/M, SW              |
| D1      | 1S2095A          | VR1    | SW12         | MODE, SW             |
| D2      | MA151WA          | VR2    | SW13         | ISO, SW              |
| D3      | 1S2095A          | VR3    | SW14         | BATTERY CHECK, SW    |
| D4      | 1SS154           |        | SW15         | MODE SELECTOR, SW    |
| D5      | 1S955            |        | SW16         | AL START, SW         |
| D6      | 05Z6.8Z          |        | SW17         | CARTRING DISPLY, SW  |
|         |                  |        | SW18         | REWIND, SW           |
| DC/DC   |                  |        |              |                      |
| IC-1    | T2890            |        |              |                      |
| IC-2    | T6472            |        |              |                      |
| IC-3    | T1612            |        |              |                      |
| IC-4    | T6428            |        |              |                      |
| R1      | 2 KOHM           |        |              |                      |
| R2      | 2 KOHM           |        |              |                      |
| R4      | 6.8 - 360 KOHM   |        |              |                      |
| R5      | 3.32 - 3.92 KOHM |        |              |                      |
| R6      | 2 KOHM           |        |              |                      |
| R7      | 12.1 - 40.2 KOHM |        |              |                      |
| R8      | 220 KOHM         |        |              |                      |
| R9      | 4.3 - 470 KOHM   |        |              |                      |
| Tr1     | 2SC2982          |        |              |                      |
| Tr2     | 2SC2982          |        |              |                      |
| Tr3     | 2SA1314          |        |              |                      |
| Tr4     | 2SC2982          |        |              |                      |
| VR1     | 10 KOHM          |        |              |                      |
| VR2     | 12+40 KOHM       |        |              |                      |
| VR3     | 20+145 KOHM      |        |              |                      |
| XTal    | DT-261S          |        |              |                      |

# CANON T-70

**CONFIDENTIAL**

REF. No. C12-1841



## PARTS LIST

## ELECTRIC PARTS &amp; LEADS

| SYMBOL  | PART NO.     | CLASS | DESCRIPTION      | REMARKS        |
|---------|--------------|-------|------------------|----------------|
| BU. BAT | WK1-9022-000 | E     | BATTERY, LITHIUM | CR1220         |
| C1      |              |       | CAPACITOR TANT   | 4.7uF 4.0V     |
| C2      |              |       | CAPACITOR TANT   | 6.8uF 6.3V     |
| C3      |              |       | CAPACITOR TANT   | 0.22uF 6.3V    |
| C4      |              |       | CAPACITOR CERA   | 0.1uF 2.5V     |
| C5      |              |       | CAPACITOR TANT   | 10uF 6.3V      |
| C6      |              |       | CAPACITOR TANT   | 1uF 16V        |
| C7      |              |       | CAPACITOR CERA   | 0.1uF 25V      |
| C8      |              |       | CAPACITOR CERA   | 0.1uF 25V      |
| C9      |              |       | CAPACITOR CERA   | 3300PF 25V     |
| C10     |              |       | CAPACITOR CERA   | 0.1uF 25V      |
| C11     |              |       | CAPACITOR TANT   | 4.7uF 3.15V    |
| D1      |              |       | DIODE            | 1S2095         |
| D2      |              |       | DIODE            | MA151WA        |
| D3      |              |       | DIODE            | 1S2095         |
| D4      |              |       | DIODE            | 1SS154         |
| D5      |              |       | DIODE            | 1S955          |
| D6      |              |       | DIODE            | 05Z6.8Z        |
| DC/DC   | CH3-0016-000 | D     | CONVERTER, DC/DC |                |
| IC-1    | CH4-0112-000 | C     | IC               | T2890          |
| IC-2    | CH4-0110-000 | C     | IC               | T6472          |
| IC-3    | CH4-0111-000 | C     | IC               | T1612          |
| IC-4    | CH4-0113-000 | D     | IC               | T6428          |
| R1      |              |       | RESISTOR         | 2 KOHM 1/8W    |
| R2      |              |       | RESISTOR         | 2 KOHM 1/8W    |
| R4      | VR9-1087-000 | E     | RESISTOR         | 6.8 KOHM 1/8W  |
|         | VR9-1091-000 | E     | RESISTOR         | 10 KOHM 1/8W   |
|         | VR9-1664-000 | E     | RESISTOR         | 13 KOHM 1/8W   |
|         | VR9-1885-000 | E     | RESISTOR         | 16 KOHM 1/8W   |
|         | VR9-1886-000 | E     | RESISTOR         | 20 KOHM 1/8W   |
|         | VR9-1889-000 | E     | RESISTOR         | 30 KOHM 1/8W   |
|         | VR9-1892-000 | E     | RESISTOR         | 39 KOHM 1/8W   |
|         | VR9-1897-000 | E     | RESISTOR         | 68 KOHM 1/8W   |
|         | VR9-1412-000 | E     | RESISTOR         | 91 KOHM 1/8W   |
|         | VR9-2089-000 | E     | RESISTOR         | 130 KOHM 1/8W  |
|         | VR9-2099-000 | E     | RESISTOR         | 180 KOHM 1/8W  |
|         | VR9-2100-000 | E     | RESISTOR         | 270 KOHM 1/8W  |
|         | VR9-2101-000 | E     | RESISTOR         | 360 KOHM 1/8W  |
| R5      | VR9-1870-000 | E     | RESISTOR         | 3.32 KOHM 1/8W |
|         | VR9-1871-000 | E     | RESISTOR         | 3.40 KOHM 1/8W |
|         | VR9-1872-000 | E     | RESISTOR         | 3.48 KOHM 1/8W |
|         | VR9-1873-000 | E     | RESISTOR         | 3.57 KOHM 1/8W |
|         | VR9-1874-000 | E     | RESISTOR         | 3.65 KOHM 1/8W |
|         | VR9-1875-000 | E     | RESISTOR         | 3.75 KOHM 1/8W |
|         | VR9-1876-000 | E     | RESISTOR         | 3.83 KOHM 1/8W |
|         | VR9-1877-000 | E     | RESISTOR         | 3.92 KOHM 1/8W |
| R6      |              |       | RESISTOR         | 2 KOHM 1/8W    |
| R7      | VR9-2311-000 | E     | RESISTOR         | 12.1 KOHM 1/8W |
|         | VR9-2312-000 | E     | RESISTOR         | 12.7 KOHM 1/8W |
|         | VR9-2313-000 | E     | RESISTOR         | 13.1 KOHM 1/8W |
|         | VR9-2314-000 | E     | RESISTOR         | 14.0 KOHM 1/8W |
|         | VR9-2315-000 | E     | RESISTOR         | 14.7 KOHM 1/8W |
|         | VR9-3047-000 | E     | RESISTOR         | 15.4 KOHM 1/8W |
|         | VR9-3048-000 | E     | RESISTOR         | 16.2 KOHM 1/8W |
|         | VR9-3051-000 | E     | RESISTOR         | 17.8 KOHM 1/8W |
|         | VR9-3052-000 | E     | RESISTOR         | 20.5 KOHM 1/8W |

## PARTS LIST

## ELECTRIC PARTS &amp; LEADS

| SYMBOL | PART NO.     | CLASS | DESCRIPTION        | REMARKS        |
|--------|--------------|-------|--------------------|----------------|
|        | VR9-3053-000 | E     | RESISTOR           | 21.5 KOHM 1/8W |
|        | VR9-3054-000 | E     | RESISTOR           | 22.6 KOHM 1/8W |
|        | VR9-3055-000 | E     | RESISTOR           | 23.7 KOHM 1/8W |
|        | VR9-3056-000 | E     | RESISTOR           | 27.4 KOHM 1/8W |
|        | VR9-3057-000 | E     | RESISTOR           | 30.1 KOHM 1/8W |
|        | VR9-3058-000 | E     | RESISTOR           | 33.2 KOHM 1/8W |
|        | VR9-3059-000 | E     | RESISTOR           | 36.5 KOHM 1/8W |
|        | VR9-3060-000 | E     | RESISTOR           | 38.3 KOHM 1/8W |
|        | VR9-3061-000 | E     | RESISTOR           | 40.2 KOHM 1/8W |
| R8     |              |       | RESISTOR           | 220. KOHM 1/8W |
| R9     | VR9-1082-000 | E     | RESISTOR           | 4.3 KOHM 1/8W  |
|        | VR9-1083-000 | E     | RESISTOR           | 4.7 KOHM 1/8W  |
|        | VR9-1084-000 | E     | RESISTOR           | 5.1 KOHM 1/8W  |
|        | VR9-1085-000 | E     | RESISTOR           | 5.6 KOHM 1/8W  |
|        | VR9-1086-000 | E     | RESISTOR           | 6.2 KOHM 1/8W  |
|        | VR9-1087-000 | E     | RESISTOR           | 6.8 KOHM 1/8W  |
|        | VR9-1088-000 | E     | RESISTOR           | 7.5 KOHM 1/8W  |
|        | VR9-1089-000 | E     | RESISTOR           | 8.2 KOHM 1/8W  |
|        | VR9-1090-000 | E     | RESISTOR           | 9.1 KOHM 1/8W  |
|        | VR9-1091-000 | E     | RESISTOR           | 10 KOHM 1/8W   |
|        | VR9-1092-000 | E     | RESISTOR           | 11 KOHM 1/8W   |
|        | VR9-1093-000 | E     | RESISTOR           | 12 KOHM 1/8W   |
|        | VR9-1095-000 | E     | RESISTOR           | 15 KOHM 1/8W   |
|        | VR9-1097-000 | E     | RESISTOR           | 18 KOHM 1/8W   |
|        | VR9-1099-000 | E     | RESISTOR           | 22 KOHM 1/8W   |
|        | VR9-1103-000 | E     | RESISTOR           | 33 KOHM 1/8W   |
|        | VR9-1109-000 | E     | RESISTOR           | 56 KOHM 1/8W   |
|        | VR9-1115-000 | E     | RESISTOR           | 100 KOHM 1/8W  |
| Tr1    |              |       | TRANSISTOR         | 2SC 2982       |
| Tr2    |              |       |                    | 2SC 2982       |
| Tr3    | WA2-0411-000 | E     | TRANSISTOR         | 2SA 1314       |
| Tr4    | WA2-0216-000 | E     | TRANSISTOR         | 2SC 2982       |
| VR1    | CH9-0074-000 | E     | RESISTOR, VARIABLE | 10 KOHM        |
| VR2    | CH9-0075-000 | E     | RESISTOR, VARIABLE | 12+40 KOHM     |
| VR3    | CH9-0076-000 | E     | RESISTOR, VARIABLE | 20+145 KOHM    |
| X'TAL  |              |       |                    | DT-261S        |
|        | CH2-1816-000 |       | LEAD, SHIELDID     | (BLACK)        |
|        | Y11-3901-000 |       |                    | LEAD (WHITE)   |
|        | Y11-3902-000 |       |                    | LEAD (BLACK)   |
|        | Y11-3904-000 |       |                    | LEAD (PINK)    |
|        | Y11-3906-000 |       |                    | LEAD (ORANGE)  |
|        | Y11-3907-000 |       |                    | LEAD (YELLOW)  |
|        | Y11-3911-000 |       |                    | LEAD (BLUE)    |
|        | Y11-3912-000 |       |                    | LEAD (PURPLE)  |
|        | Y11-4502-000 |       |                    | LEAD (BLACK)   |
|        | Y11-4507-000 |       |                    | LEAD (YELLOW)  |
|        | Y11-4509-000 |       |                    | LEAD (GREEN)   |
|        | Y11-4512-000 |       |                    | LEAD (PURPLE)  |
|        | Y11-4513-000 |       |                    | LEAD (BLOWN)   |
|        | Y11-4514-000 |       |                    | LEAD (GRAY)    |

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|     | CA1-1113-000      | 6    | B-3,4   | *   | CA1-5219-000 | 3    | A-11,12 |
|     | CA1-1113-000(001) | 6    | B-3,4   | *   | CA1-5220-000 | 5    | B-1,2   |
|     | CA1-1147-010      | 6    | B-3,4   | *   | CA1-5221-000 | 4    | A-13,14 |
|     | CA1-1374-000      | 2    | A-9,10  | *   | CA1-5222-000 | 4    | A-13,14 |
|     | CA1-1525-000      | 6    | B-3,4   | *   | CA1-5223-000 | 4    | A-13,14 |
|     | CA1-3385-000      | 2    | A-9,10  | *   | CA1-5226-000 | 4    | A-13,14 |
|     | CA1-3777-000      | 12   | C-1,2   | *   | CA1-5227-000 | 4    | A-13,14 |
|     | CA1-3778-000      | 12   | C-1,2   | *   | CA1-5228-000 | 3    | A-11,12 |
|     | CA1-3779-000      | 12   | C-1,2   | *   | CA1-5230-000 | 10   | B-11,12 |
|     | CA1-3780-000      | 12   | C-1,2   | *   | CA1-5231-000 | 11   | B-13,14 |
|     | CA1-3781-000      | 12   | C-1,2   | *   | CA1-5232-000 | 11   | B-13,14 |
|     | CA1-3811-000      | 12   | C-1,2   | *   | CA1-5233-000 | 11   | B-13,14 |
|     | CA1-4108-000      | 1    | A-7,8   | *   | CA1-5235-000 | 11   | B-13,14 |
|     | CA1-4119-000      | 10   | B-11,12 | *   | CA1-5237-000 | 11   | B-13,14 |
|     | CA1-4156-000      | 3    | A-11,12 | *   | CA1-5238-000 | 11   | B-13,14 |
|     | CA1-4158-000      | 3    | A-11,12 | *   | CA1-5239-000 | 11   | B-13,14 |
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| *   | CA1-4167-000      | 11   | B-13,14 | *   | CA1-5241-000 | 11   | B-13,14 |
|     | CA1-4171-000      | 11   | B-13,14 | *   | CA1-5247-000 | 11   | B-13,14 |
|     | CA1-4177-000      | 8    | B-7,8   | *   | CA1-5248-000 | 11   | B-13,14 |
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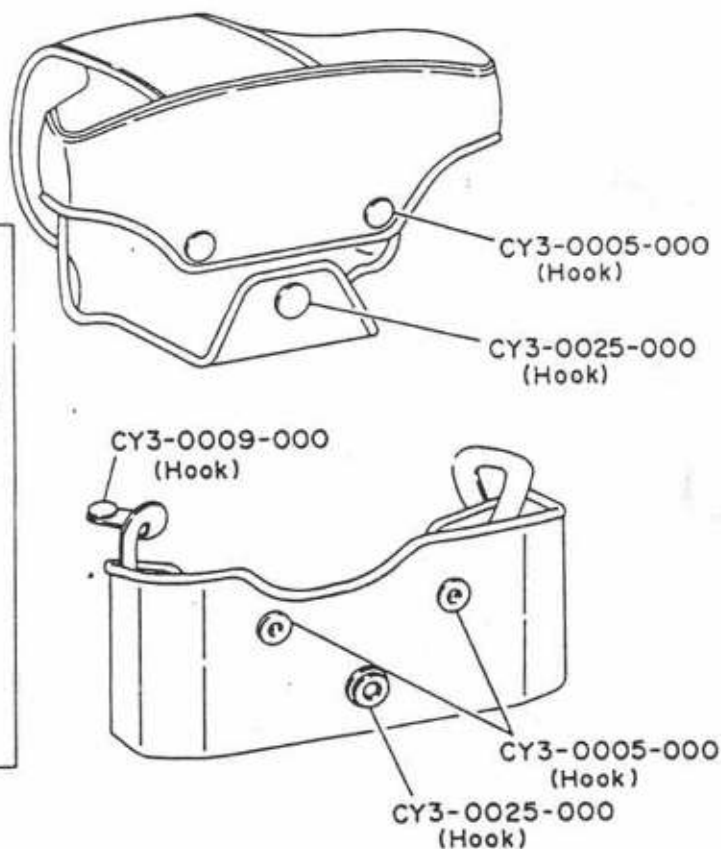
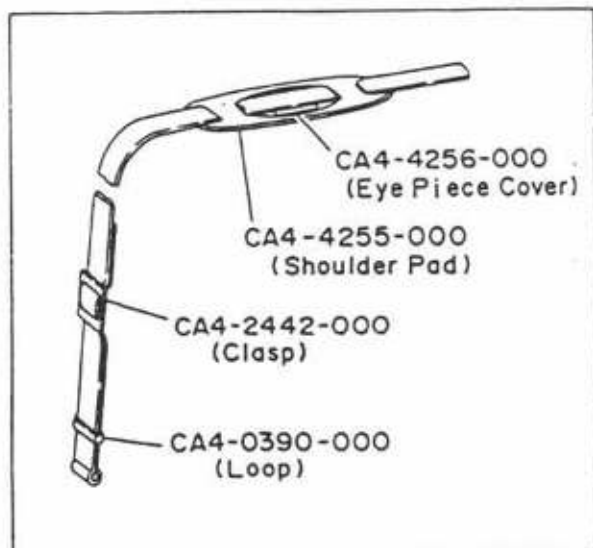
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