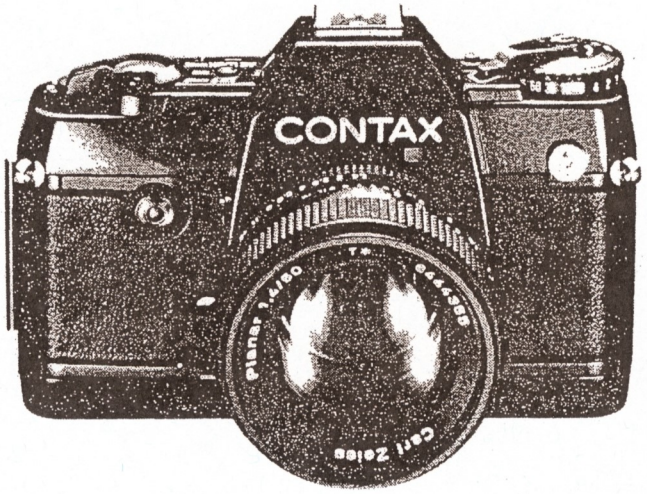
CONTAX 137 MA QUARTZ

REPAIR MANUAL



KYOCERA CORPORATION
YASHICA DIVISION

CONTENTS:

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SPECIFICATIONS

Type	: 35㎜ direct drive SLR featuring electronically controlled AUTO/manual exposure, focal-plane shutter.
Image size	: 24×36㎜
Lens mount	: Contax/Yashica large-diameter bayonet mount.
Shutter	: Quartz-timed electronically controlled horizontal travel type cloth focal-plane shutter.
Shutter speeds	: AUTO mode·····11sec to 1/1000 sec. Manual mode ·····13 Settings of 1sec to 1/1000sec, "B" and "X" (1/60sec).
Synch Terminals	: X Contact (synch speed 1/60 sec.), and direct X contact.
Self-Timer	: Quartz-timed electronic self-timer with 10sec. delay. LED flashes during operation, accelerating 2sec. before shutter release. Can be cancelled during countdown.
Shutter Release	: Real Timer Electromagnetic Release System; auxiliary remote release via "Release Socket" (electronic accessory connection).
Exposure Control	: Through-the-lens (TTL) center-weighted metering at full aperture using SPD (Silicon Photo Diode) Cell. · EV range from EV 0 (f/1.4 at 2sec) to 18 (f/16 at 1/1000sec.) at ASA/ISO 100 with f/1.4 lens. · ASA/ISO range from 12 to 3200. · Exposure metering system: Coupled to main switch circuit in switching on and off (lights up and then automatically switches off in ten seconds when the release button is slightly pressed or when the shutter is released).
Exposure Compensation	: +2EV ~ −2EV via exposure compensation dial (click stops at every 1/2 EV; can be set for in-between-click stops).
AE Lock	: Operated via main switch (locks in memory-oriented shutter speed).
Auto Flash Control	: Direct TTL metering automatically coupling with Contax TLA Auto Flash or RTF 540 Flash units system via an SPD sensor. · Synch speed : shutter speed automatically set to 1/60 sec. upon completion of recycling.

Viewfinder	: Silver-coated, fixed eye-level pentaprism type with horizontal split-image/microprism focusing screen; field shov·· 95% of the picture area; ×0.86magnification (with 50㎜ lens).
Viewfinder display	: Shutter speeds indicated by 15 indicator LED′s; Over-and Under-exposure indications; Greer LED flash ready/after-flash signal mark; aperture scale; exposure counter; exposure compensation warming LED. Shutter Speed LED′s flash to indicate AE Lock operation.
Film advance	: Fully automatic with Real Time Direct Drive using the camera′s micro-motor.
Exposure modes	: Single or continuous exposure selected by exposure mode selector; continuous exposures up to 3 frames per second.
Exposure counter	: One on the camera body and one in the viewfinder, count increasing order, automatic resetting type.
Accessory Shoe	: Direct X contact, and accepts TLA Auto Flash system units.
Camera back	: Opens by lifting film rewind knob:with film feed indicator and memo holder (Camera back removable)
Main lamp	: Indicates normal camera operation when power is turned on, Lights green for battery checking. Flashes red when self-timer is used.
Power source	: Four 1.5V size AA dry batteries or four 1.2V size AA nickel-cadmium batteries.
Number of rolls on one set of batteries;	About 50 rolls with alkaline dry batteries; about 20 rolls with manganese dry batteires; about 30 rolls with nickel-cadmium batteries (assuming all 36-exposure rolls, room temperature, continuous exposure mode).
Power supply check	: Combined with the main lamp.The main lamp lights up green when the batteries are in good condition.
Miscellaneous	: With depth of field preview button and data back LED.
Dimensions and weight	: 143(W)×92.5(H)×51(D)㎜; 665grams(with batteries).

1. DISASSEMBLING OF THE EXTERIOR PARTS.

(1) Bottom Cover and Bottom Plate S.

a) Remove ① the Bottom Cover Ass'y (068245)

b) Remove ② two Lock Plate Set screws (137135×2), ③ two TR Spring (131711×2) and ④ Bottom Cover Lock Plate (137134).

c) Remove ⑤ two Bottom Plate (s) Set Screws (61911529×2) and Bottom Plate (s) (137133)
See (Fig 1)

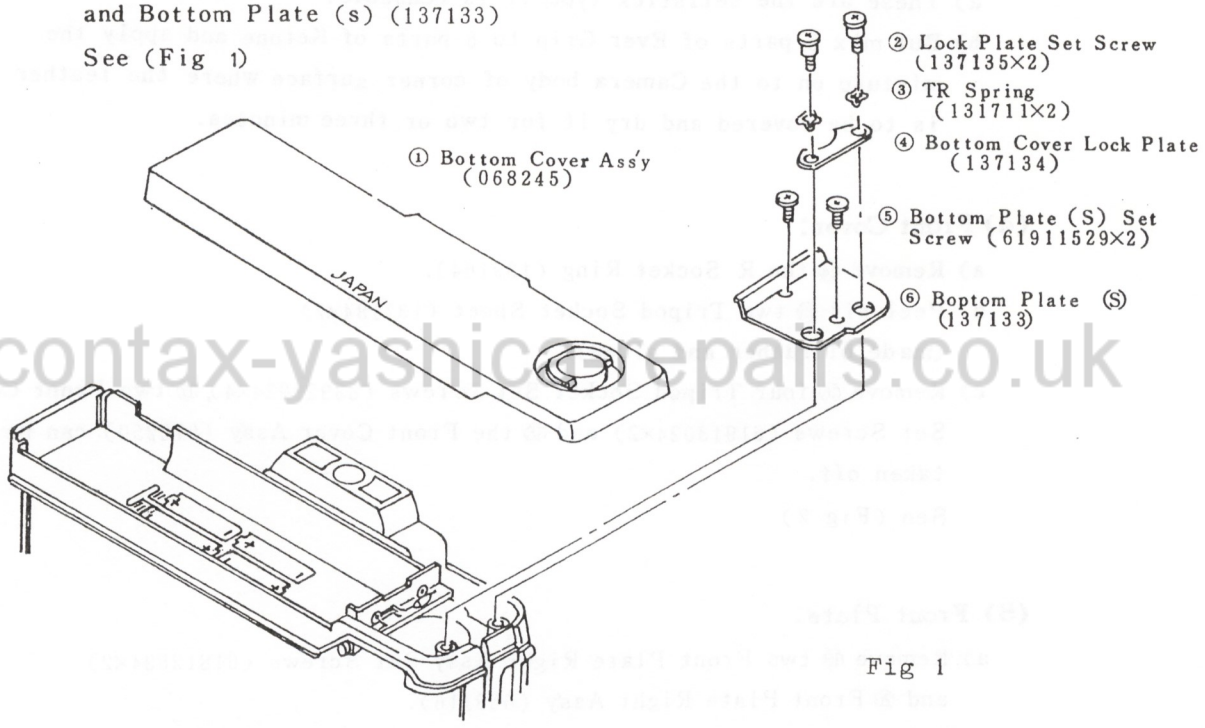

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Fig 1

(2) Top Cover:

a) Remove ① the Crank Arm Ass'y (072623).

b) Remove ② the Mark Ring Nut (157655) and ③ the Mark Ring (157654)

c) Remove ④ three Corrective Dial Set screws (63905024×3), ⑤ Corrective Dial (157653), ⑥ ASA Name Plate (157646), ⑦ ASA Spring (157645) and ⑧ ASA Dial (157644).

d) Remove ⑨ four Top Cover Set Screws (61912529×4) and ⑩ two Front Cover Set Screws (61913529×2).

e) Remove ⑪ the Top Cover Ass'y (072201) in the upward direction.
See (Fig 2)

Note: a) Release Button(137269)(Fig 6) easily falls off when the Camera Body is turned upside-down.

b) Make sure the Release Button is in position when reassembling.

(3) Leathers:

a) Peel off ⑫ the Front Leather Right (1371187) and ⑬ Front Leather Left (137188).

See (Fig 2)

〔Note for reassembling〕

a) These are the selfstick type, it is reusable.

b) But mix 5 parts of Ever Grip to 5 parts of Ketone and apply the mixture on to the Camera body of corner surface where the leather is to be covered and dry it for two or three minutes.

(4) Front Cover:

a) Remove ⑭ the R Socket Ring (139164).

b) Peel off ⑮ two Tripod Socket Sheet (137184×2) (made of rubber and glued).

c) Remove ⑯ four Tripod Socket Set Screws (63929024×4), ⑰ two Front Cover Set Screws (61913024×2) and ⑱ the Front Cover Ass'y (072250) can be taken off.

See (Fig 2)

(5) Front Plate:

a) Remove ⑲ two Front Plate Right Ass'y Set Screws (61812524×2) and ⑳ Front Plate Right Ass'y (068116).

b) Remove ㉑ three Front Plate Left Ass'y Set Screws (61812524×3) and ㉒ Front Plate Left Ass'y (137110).

See (Fig 2)

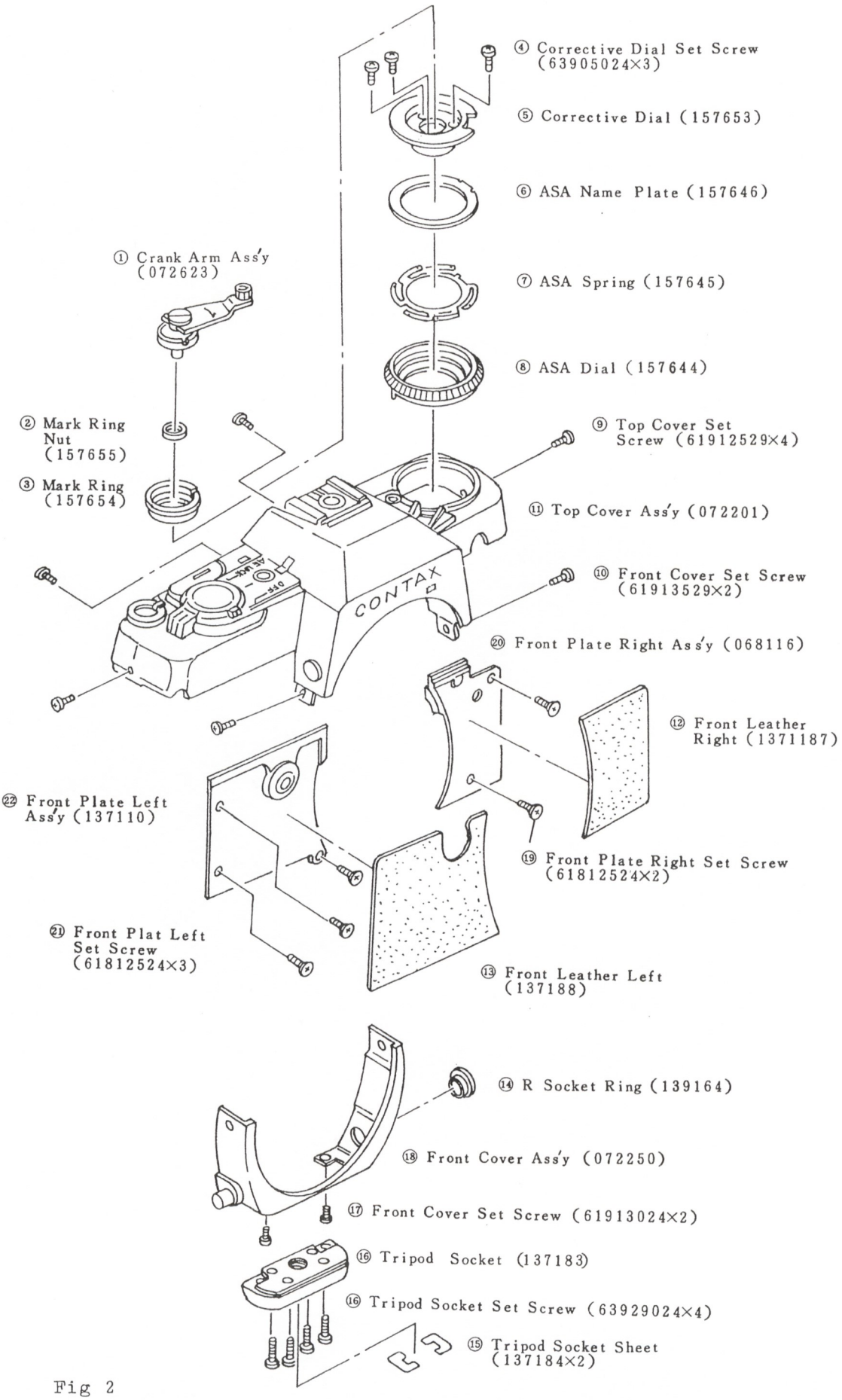
④ Corrective Dial Set Screw (63905024×3)
⑤ Corrective Dial (157653)
⑥ ASA Name Plate (157646)
① Crank Arm Ass'y (072623)
⑦ ASA Spring (157645)
⑧ ASA Dial (157644)
② Mark Ring Nut (157655)
③ Mark Ring (157654)
⑨ Top Cover Set Screw (61912529×4)
⑪ Top Cover Ass'y (072201)
⑩ Front Cover Set Screw (61913529×2)
CONTAX
⑳ Front Plate Right Ass'y (068116)
⑫ Front Leather Right (1371187)
㉒ Front Plate Left Ass'y (137110)
⑲ Front Plate Right Set Screw (61812524×2)
㉑ Front Plat Left Set Screw (61812524×3)
⑬ Front Leather Left (137188)
⑭ R Socket Ring (139164)
⑱ Front Cover Ass'y (072250)
⑰ Front Cover Set Screw (61913024×2)
⑯ Tripod Socket (137183)
⑯ Tripod Socket Set Screw (63929024×4)
⑮ Tripod Socket Sheet (137184×2)

Fig 2

2. DISASSEMBLING OF THE MIRROR BOX ASSY FROM THE CAMERA BODY (W/FPC, RELEASE BASE PLATE and S BASE PLATE).

(1) Unsolder five Lead Wires and six soldering points on the front left side

a) Unsolder two Black lead wires (from Shutter Magnet), Pink and Gray lead wires (from Transfer Switch), white and Purple lead wires (from motor).

b) Unsolder four soldering points of FPC (1) and FPC (2).

c) Unsolder two soldering points of FPC (1) and Trigger Switch.

d) Remove two FPC (1) Set Screws (63911522)(63911526). See (Fig 3)

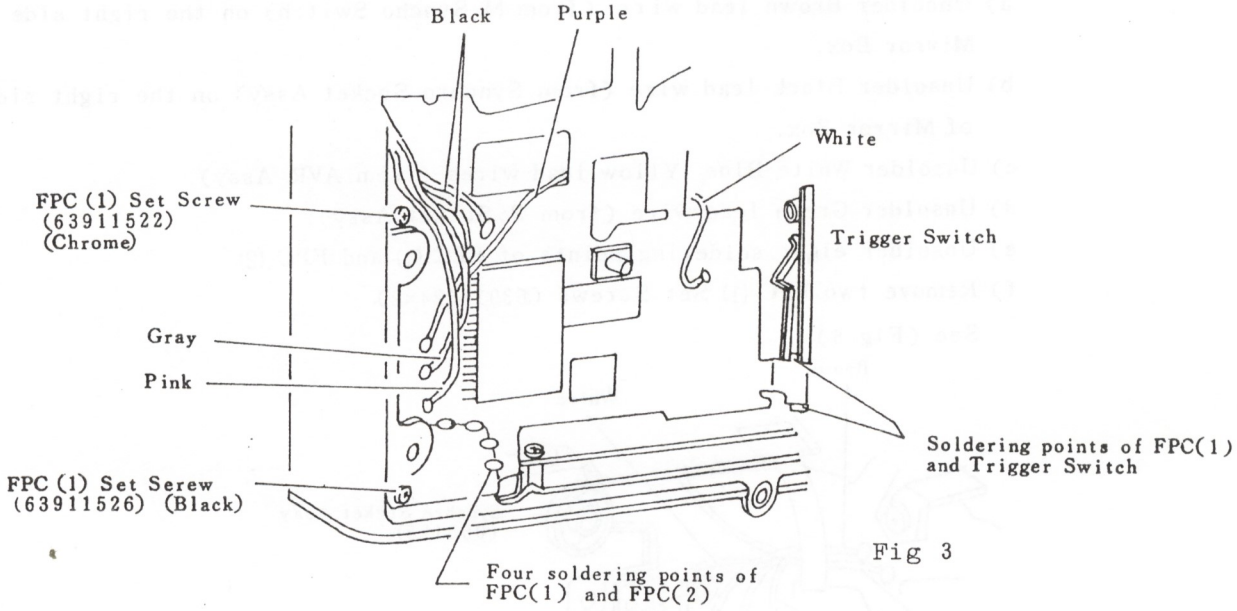

Fig 3

(2) Unsolder two Lead wires on the front side.

a) Unsolder Blaek and Brown lead wires (from S Synchro Switch). See (Fig 4)

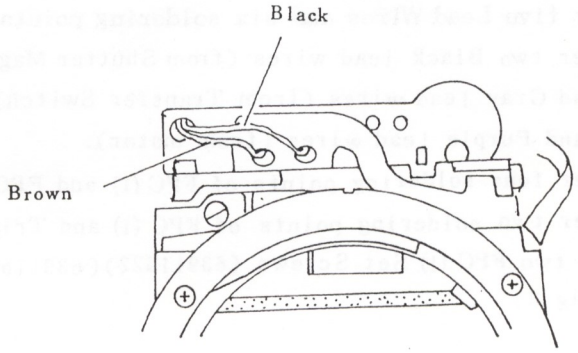

Fig 4

(3) Unsolder six lead wires and eight soldering points on the front right side.

a) Unsolder Brown lead wire (from M.Syncho Switch) on the right side of Mirror Box.

b) Unsolder Black lead wire (from Synchro Socket Ass'y) on the right side of Mirror Box.

c) Unsolder White, Blue, Yllow lead wires (from AVR Ass'y).

d) Unsolder Green lead wire (from R.Socket Ass'y).

e) Unsolder eight soldering points of FPC (1) and FPC (2).

f) Remove two FPC (1) Set Screws (63911524×2).

See (Fig 5)

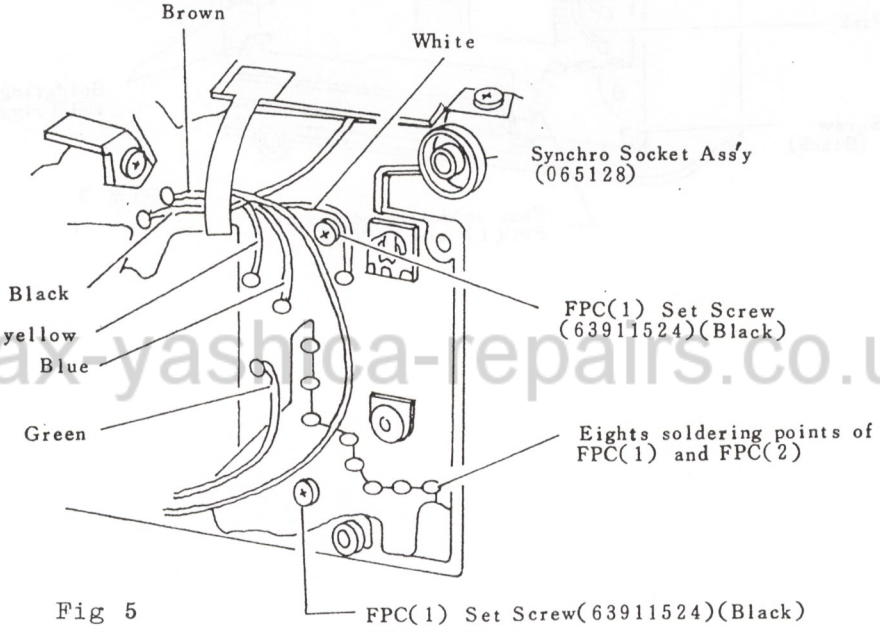

Fig 5

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(4) Remove the Release Base Plate Ass'y, Insutation Sheet and Eye Piece Frame.

a) Remove ① two Release Base Plate Ass'y Set Screws (61913022×2) and ② Storap Holder Set Screw (66001016)

b) Unsolder ③ soldering point of FPC (1) and Transfer Switch Ass'y (068441).

c) Remove ④ Release Base Plate Ass'y (068255).

Note: R.Button (137258) Comes off.

See (Fig 6)

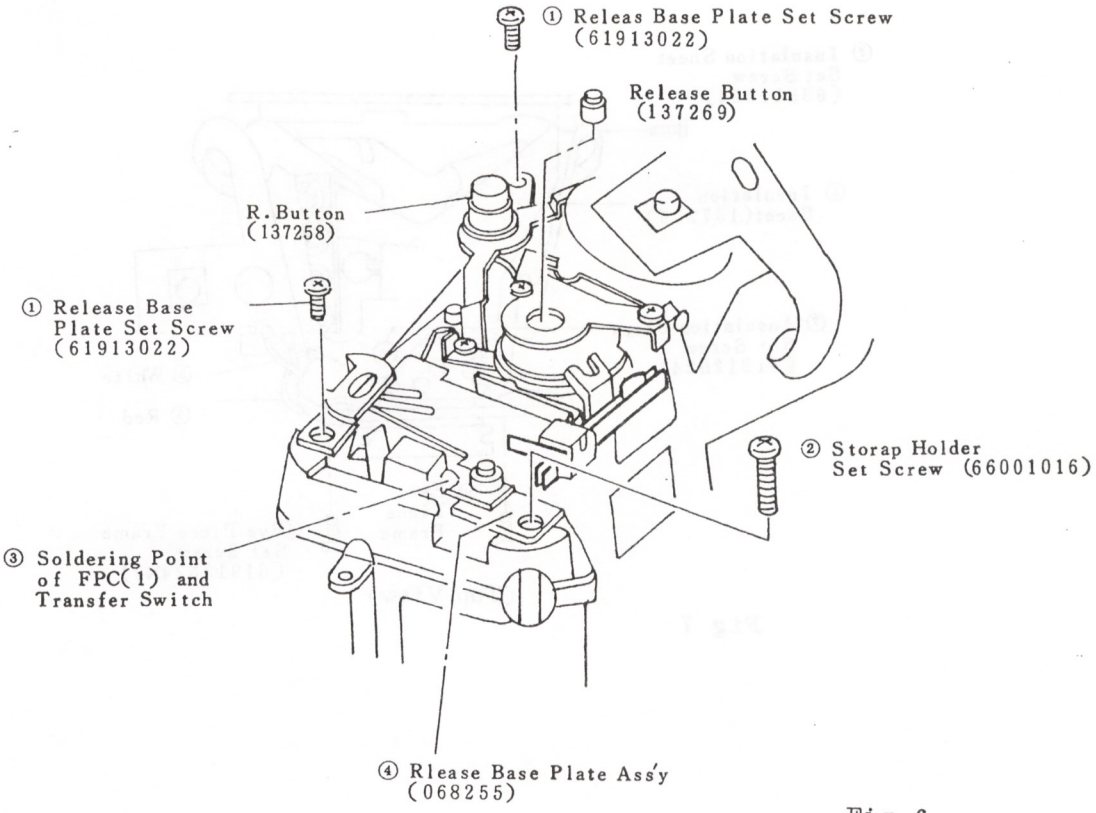


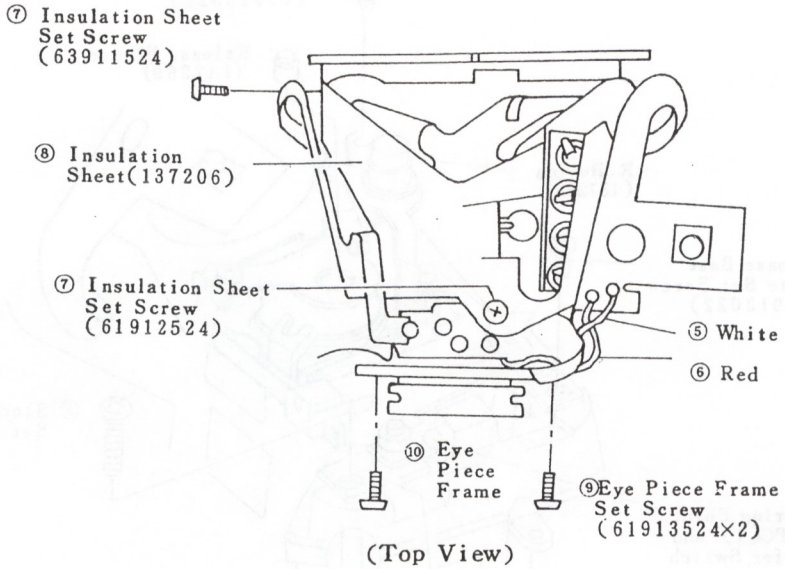
Fig 6

d) Unsolder ⑤White, ⑥Red lead wires (from EXP Corrective LED Ass'y).

e) Remove ⑦ two Insutation Sheet Set Screws (63911524)(61912524) and ⑧ Insutation Sheet (137206).

f) Remove ⑨ two Eye Piece Set Screws (61913524×2) and ⑩ Eye Piece Frame (137185).

See (Fig 7)



(Top View)

Fig 7

(5) Remove the ASA Base and S.Base Plate.

a) Remove ① two Steel Ball Holder Ass'y Set Screws (63913024×2) and ② Steel Ball Holder Nut (66511710).

b) ③ Steel Ball Holder Ass'y (072637), will be removed together with Steel Ball Spring (157636), Steel Ball (66701520) and Arm Lock Pin (157642) with the Tweezers as shown in (Fig 8).

Note: Steel Ball (66701520) and Arm Lock Pin (157642) easily falls off when Steel Ball Holder Ass'y is removed or reassembling.

c) Romove ④ post Spacer (157605).

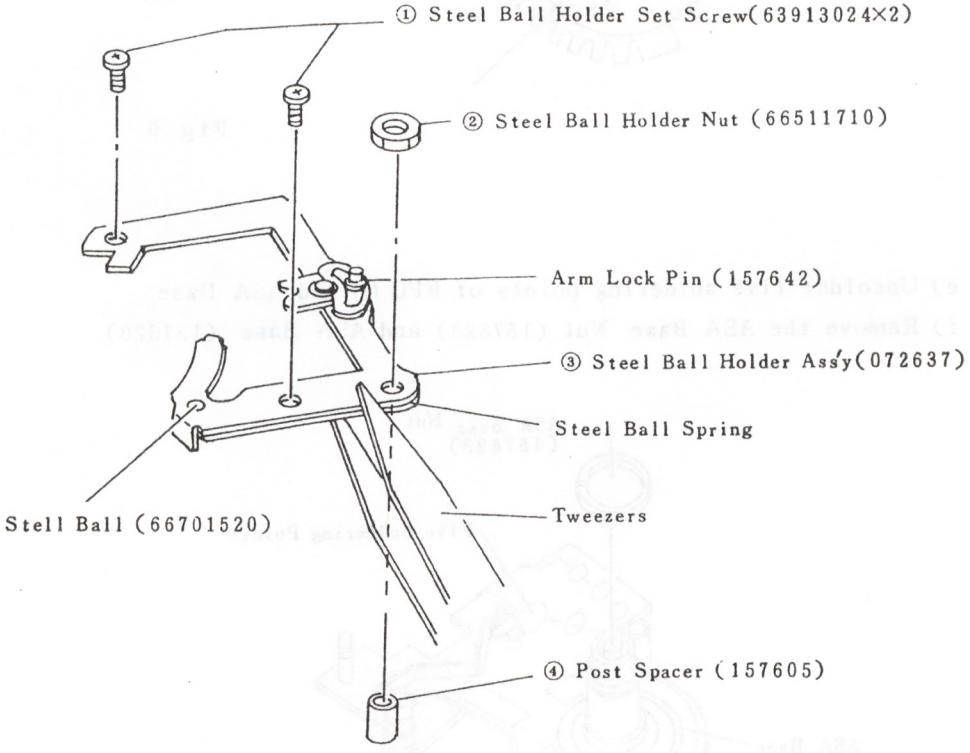


Fig 8

d) Remove the C Ring (66130625), Corrective Click Ass'y (072615) and ASA Contact Base Ass'y (072612).

[Note for reassembling C Ring (66150625)]
Insert and position the C Ring opposite to Strap Holder Set Screw (Right) (66001016) as Shown in (Fig 9).

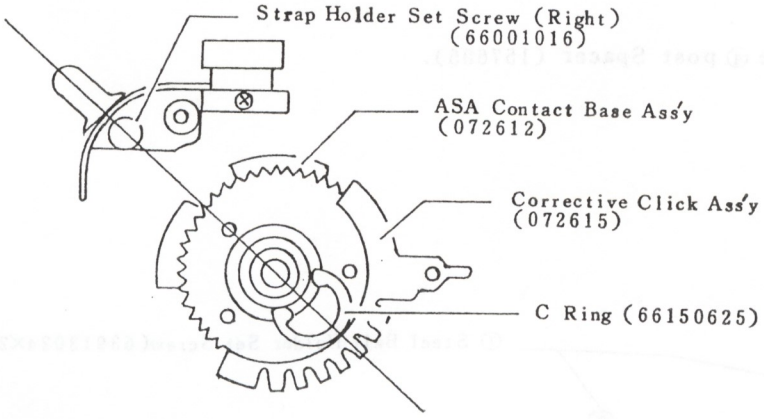


Fig 9

e) Unsolder five soldering points of FPC (1) and ASA Base.
f) Remove the ASA Base Nut (157623) and ASA Base (157620)

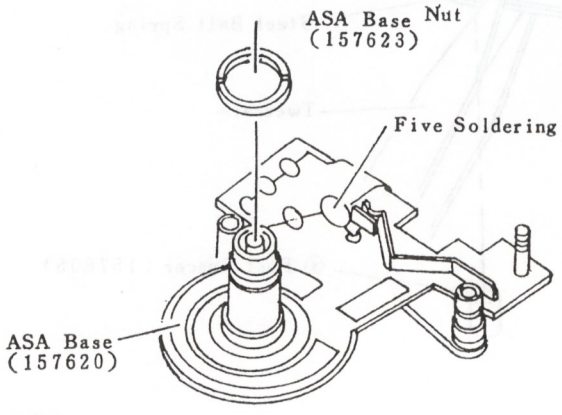


Fig 10

g) Remove the S.Click Spring (157618), Washer (60138110) and S.Click Ass'y (072610).

h) Unsolder two soldering points of FPC (1) and S.Base Plate.

i) Remove the S.Click Arm Shaft (157614), S.Click Arm Ass'y (072631), S.Base Post (157607), S.Base Set Screw (61913024) and S.Base Plate (157608).
See (Fig 11)

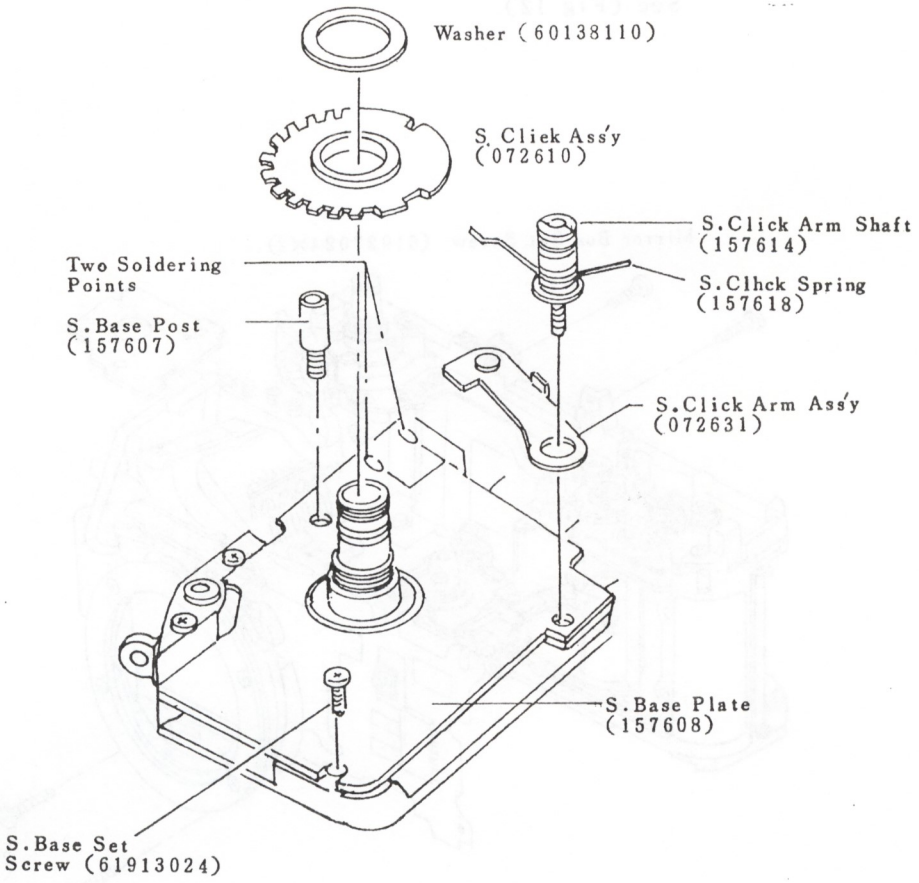


Fig 11

(6) Remove the Mirror Box Ass'y.

a) Remove four Mirror Box Set Screws (137703×2, 61927024×2) and Mirror Box Ass'y gently. (Mirror Box Ass'y will be removed together with Release Base Plate and S. Base Plate).

Note: Carefully pull the Mirror Box from the Camera Body to ward front untill the Diaphram Lever (072276) clears the Mirror Box opening.

See (Fig 12)

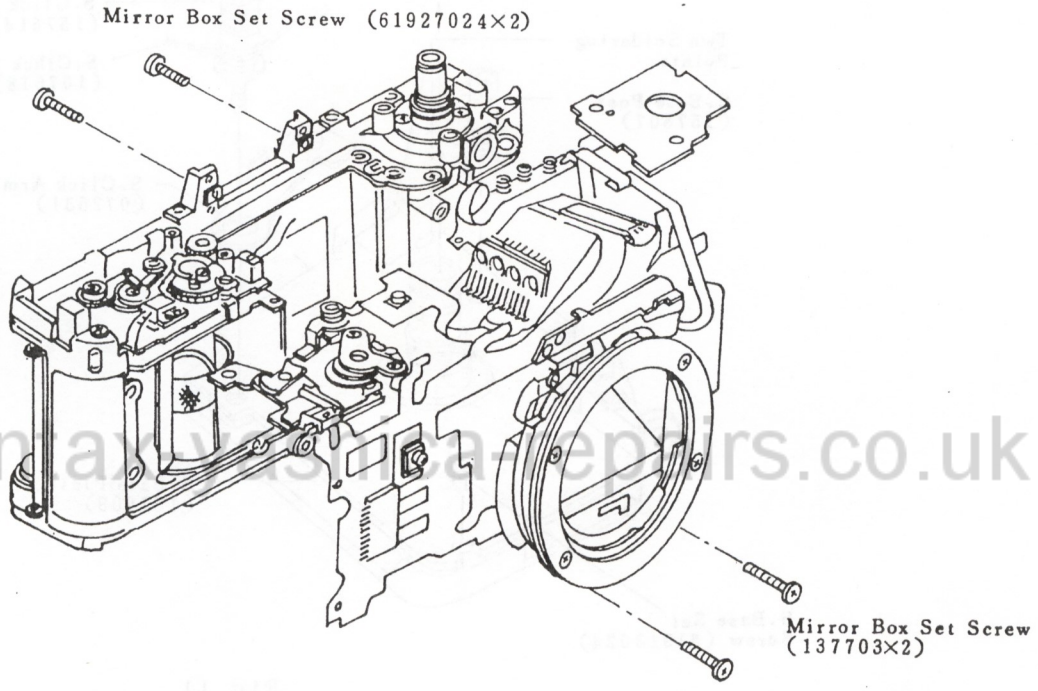


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Fig 12

3. DISASSEMBLING OF THE SHUTTER MECHANISM ASS'Y FROM THE CAMERA BODY.

(1) Disassembling of the Shutter Mech. Ass'Y from the Camera Body.

a) Unsolder two soldering points of FPC (2) and SPD-2 at bottom of the Shutter Mech. Ass'y.

b) Remove four Shutter Mech. Set Screws (63912224×2, 63903024, 63913024) and Pull the Shutter Mech. Ass'y upward.

See (Fig 13)

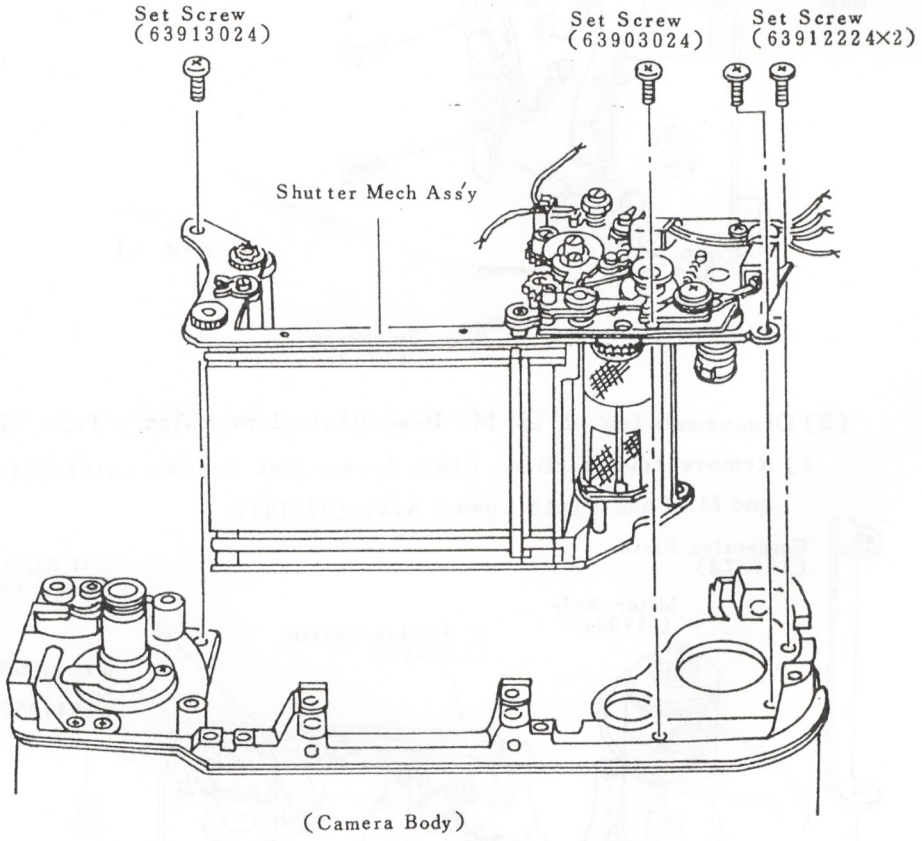

Fig 13

(2) Disassembling of the MU Base Plate Ass'y (068770) from the Shutter Mech.Ass'y.

a) Remove four MU Base Plate Set Screws (61812524×3, 61912024) and MU Base Plate Ass'y.
See (Fig 14)

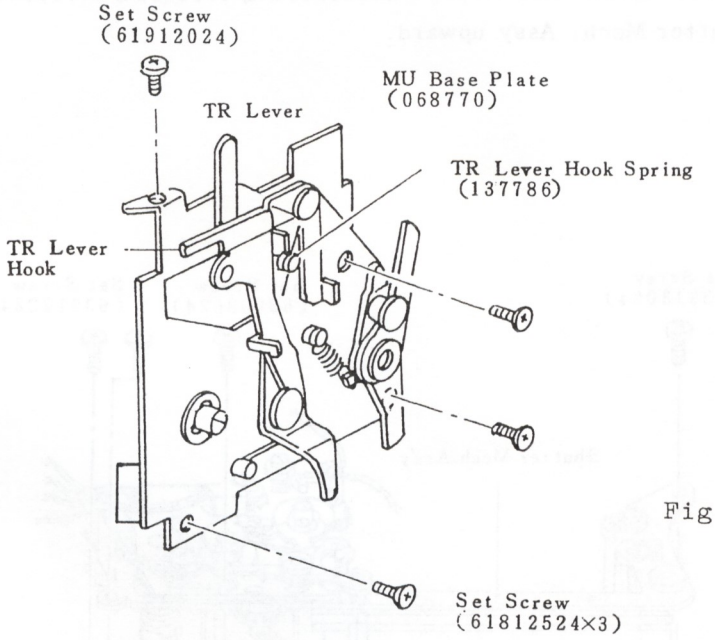

Fig 14

(3) Disassembling of the M. Base Plate Lower Ass'y from Shutter Mech. Ass'y.

a) Remove four M. Base Plate Lower Set Screws (61813024×3, 61812022) and M. Base Plate Lower Ass'y (072709)

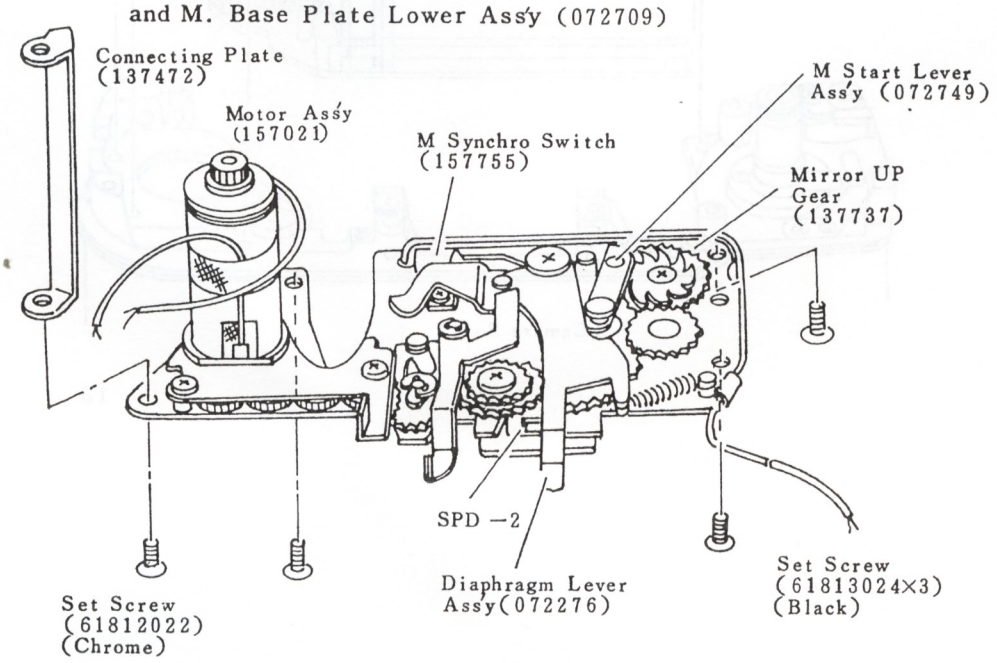

Fig 15

o The following illustration is showing the application points of Grease or Launa Oil.

Note: Oil & Grease should be given properly for smooth film advance operation at three frames per second.

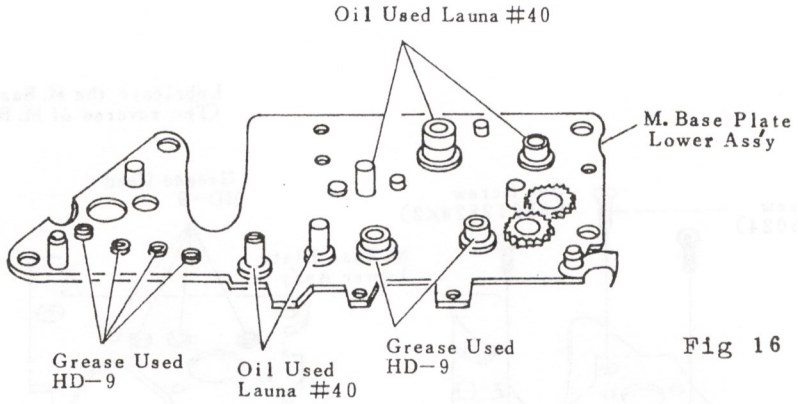

Fig 16

(4) Disassembling of the Motor Ass'y from M. Basc Plate Lower Ass'y.

a) Remove two Motor Set Screws (61813024×2) and Motor Ass'y (157021) See (Fig 17)

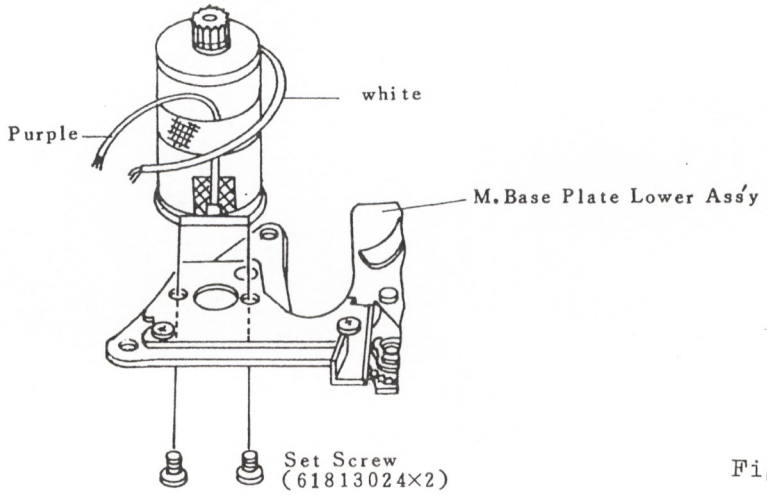

Fig 17

(5) Disassembling of the M. Base Plate (S) Ass'y from M. Base Plate Lower Ass'y.

a) Remove three M. Base Plate (S) Set Screws (63912524×2, 61813024) and M. Base Plate (S).
See (Fig 18)

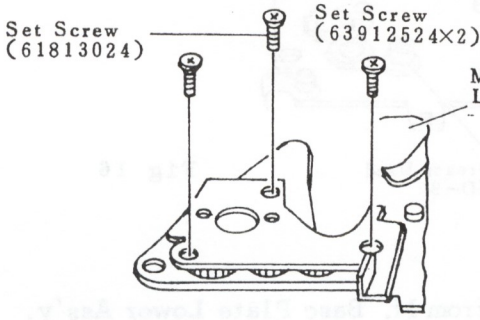

Fig 18

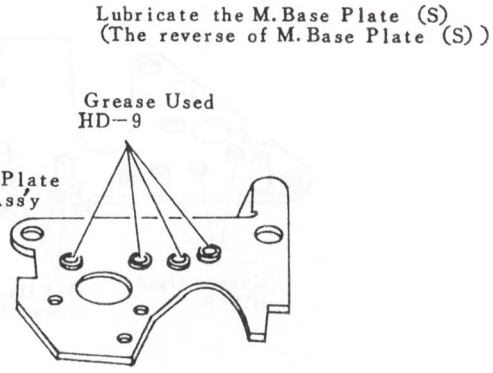

Fig 19

4. REPLACEMENT PROCEDURE OF 1st (071372) & 2nd (072486) SHUTTER CURTAIN ASS'Y.

(1) Disassembling of 1st & 2nd Shutter Curtain Ass'y from the Shutter Mech. Ass'y

a) Discharge the spring tension of 1st & 2nd Shutter Curtains respectively by turning ㊸ ㊹ the Ratchet wheel (137488×2). Clockwise until the Curtains becomes very slack. (Fig 20).

b) Remove the respective Parts ①～㊻ shown in (Fig 20) in numerical order.

〔Note for disassembling〕

※⑬ Shutter Shaft Screw (137390) is counter-clockwise Screw.

c) Pull upward ㊼ the Shutter Base Plate Upper Ass'y (072301) carefully.

d) Pull upward ㊽ the 2nd (072486) & ㊾ the 1st (072485) Shutter Curtain Ass'y carefully from ㊿ the Shutter Base Plate Lower Ass'y with Image Frame (137475), Base Plate Post (M) (137469) and Base Plate Post (D) (137468).

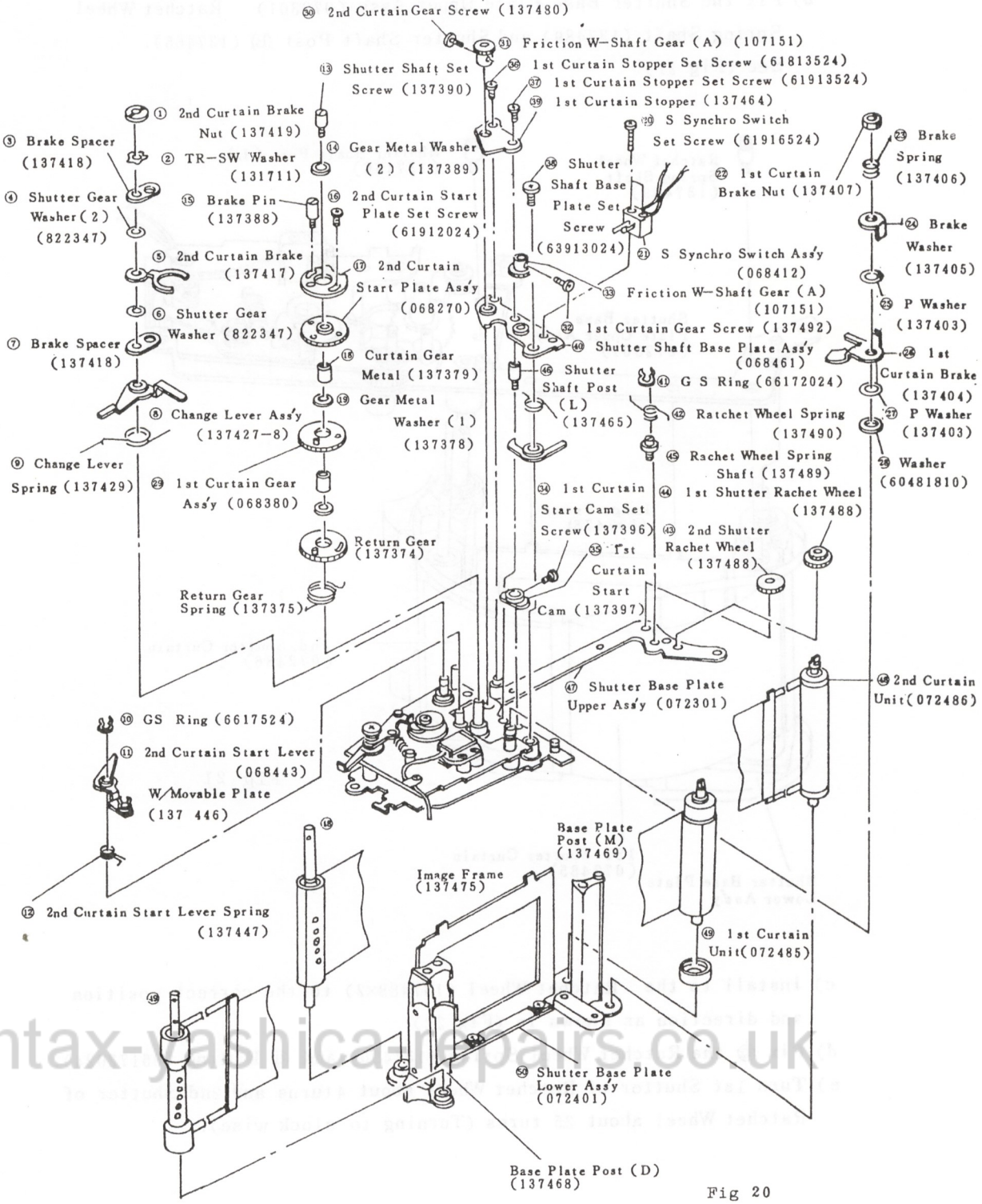

Fig 20

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(2) Reassembling of the 1st & 2nd Shutter Curtain Ass'y.

a) Fix the 1st & 2nd Shutter Curtain Ass'y properly to the Shutter Base Plate Lower Ass'y. See (Fig 21).

b) Fix the Shutter Base Plate Upper Ass'y (072301) Ratchet Wheel Spring Shaft (137489) and Shutter Shaft Post (L) (137465). See (Fig 21)

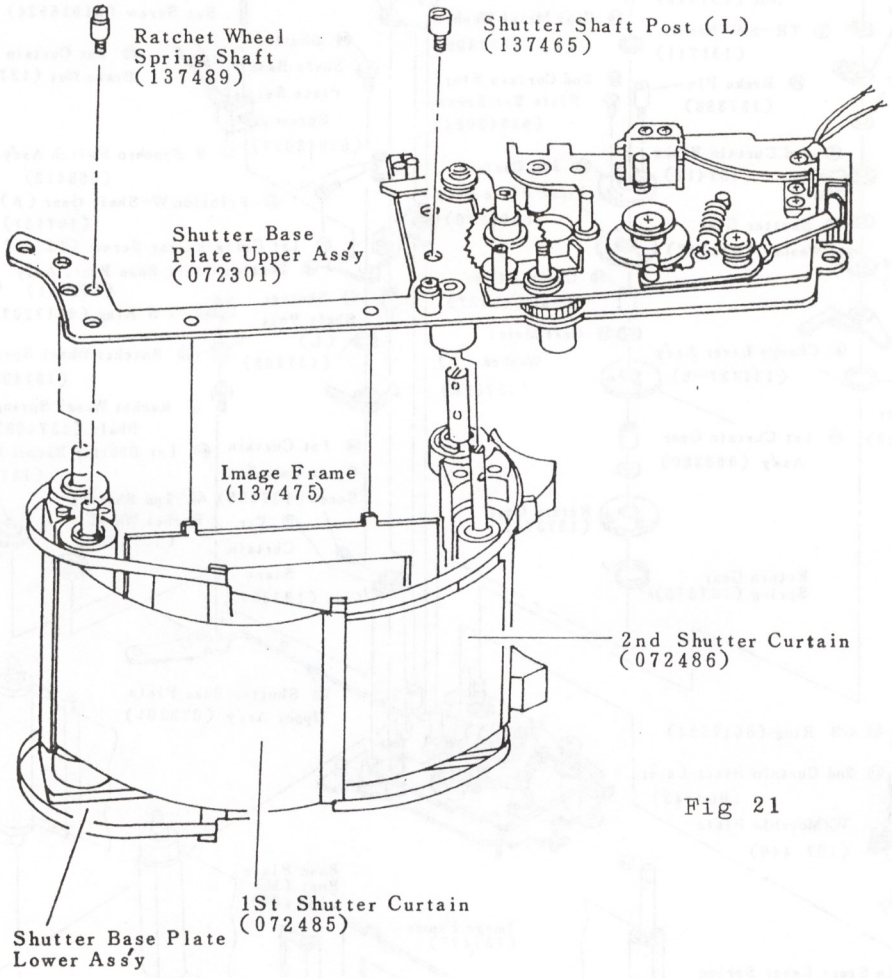

Fig 21

c) Install to the Ratchet Wheel (137488×2) to the correct position and direction as shown in (Fig 22)

d) Fix ㊷ the Ratchet Wheel Spring (137490) and ㊶ E Ring (66172024).

e) Turn 1st Shutter of Ratchet Wheel about 4 turns and 2nd Shutter of Ratchet Wheel about 2.5 turns (Turning to clock wise).

f) By turning the 1st Shutter Curtain Shaft with a screwdriver (Counter-clockwise) in the direction of the arrow, then make sure the metal edge of the 1st Shutter Curtain is in position when installing the 1st Curtain Start Cam (137397) and 1st Curtain Start Cam Set Screw (137396) to the correct position and direction as shown in (Fig 22).

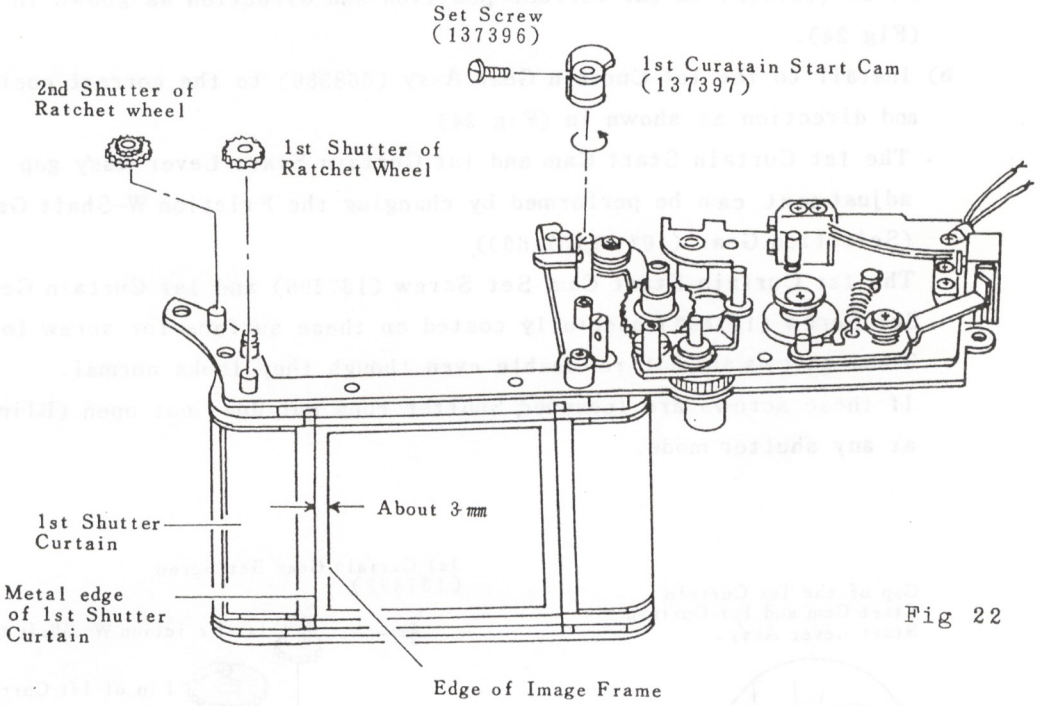

Fig 22

g) Pay attention to the direction and position of the Return Gear (137374) and Shutter Shaft Base Plate Ass'y (068464). See (Fig 23)

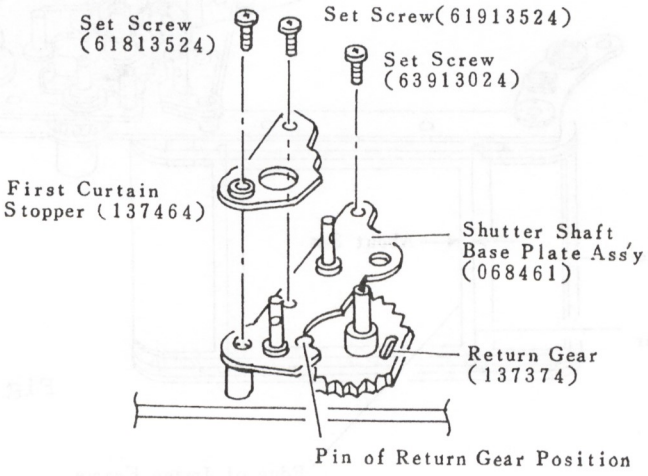

Fig 23

(3) Reassembling of the Shutter Curtain and Adjustment of the Shutter Curtain Position.

a) By turning the 1st Shutter Curtain Shaft with a screwdriver (Counter-clockwise) in the direction of the arrow, then make sure the metal edge of the 1st Shutter Curtain is in position when installing the Friction W-Shaft Gear (selection Gear) and 1st Curtain Gear Set Screw (137492) to the correct position and direction as shown in (Fig 24).

b) Install to the 1st Curtain Gear Ass'y (068380) to the correct position and direction as shown in (Fig 24).

- The 1st Curtain Start Cam and 1st Curtain Start Lever Ass'y gap adjustment can be performed by changing the Friction W-Shaft Gear (Selection Gear (107151,107166)).
- The 1st Curtain Start Cam Set Screw (137396) and 1st Curtain Gear Set Screw (137492) specially coated on these surface for screw lock. These screws are not re-usable, even though they looks normal. If these screws are loosened, Shutter runs but does not open (Blind) at any shutter mode.

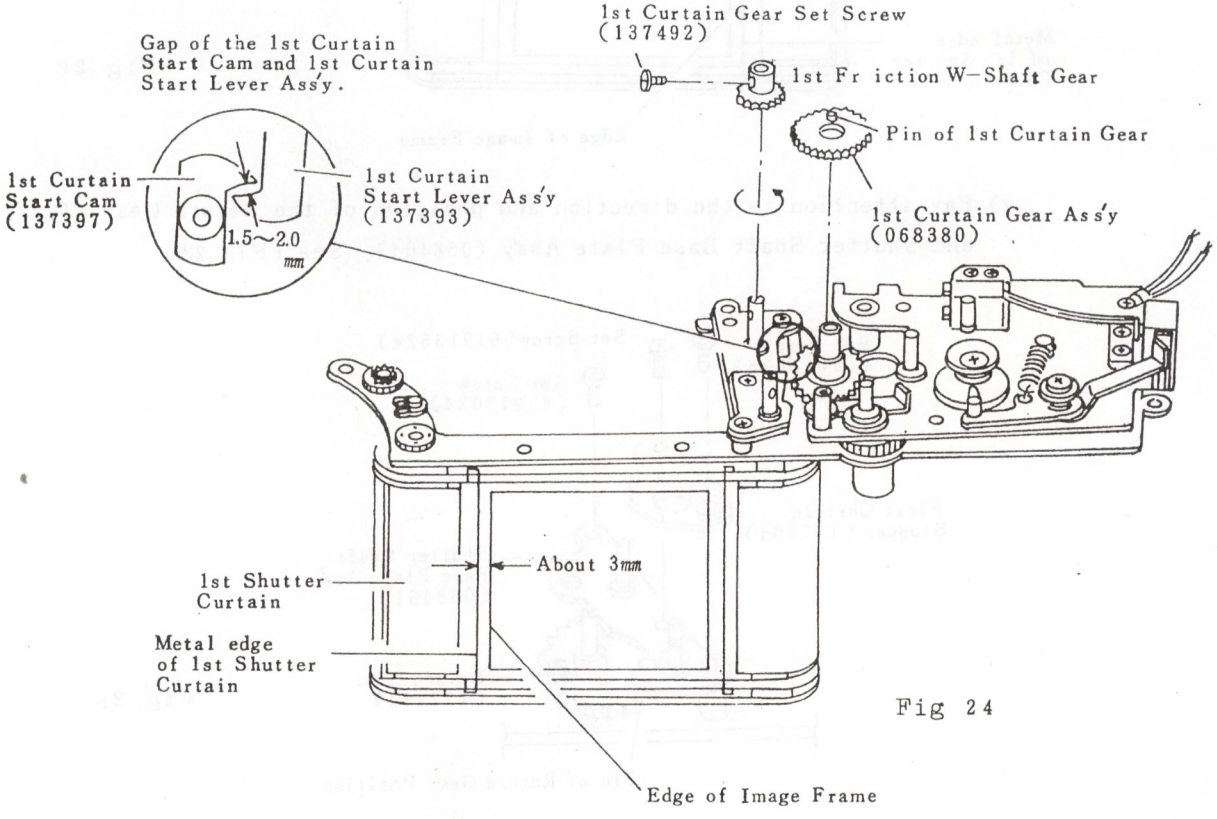

Fig 24

c) By turning the 2nd Shutter Curtain Shaft with a screwdriver (counter-clockwise) in the direction of the arrow, then make sure the metal edge of the 2nd Shutter Curtain should overlaps with the 1st Shutter Curtain when installing the 2nd Friction W-Shaft Gear and 2nd Curtain Gear Set Screw (137480) to the correct position and direction as shown in (Fig 25-1).

d) Install to the 2nd Curtain Gear Ass'y (068385) to the correct position and direction as shown in (Fig 25-2).

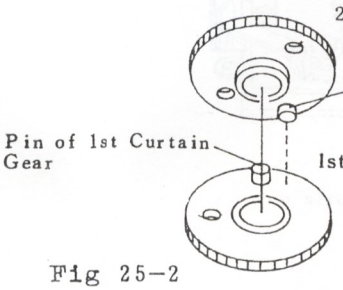

Fig 25-2

Fig 25-1

e) Cock the Shutter by turning the Counter Cam Set Screw (66001031) clockwise.

f) Check the 1st & 2nd Shutter Curtain position.

- The metal edge of the 1st Shutter Curtain Should overlaps with the 2nd Shutter Curtain as shown in (Fig 26).
- The 1st Shutter Curtain should be parullel with the 2nd Shutter Curtain.

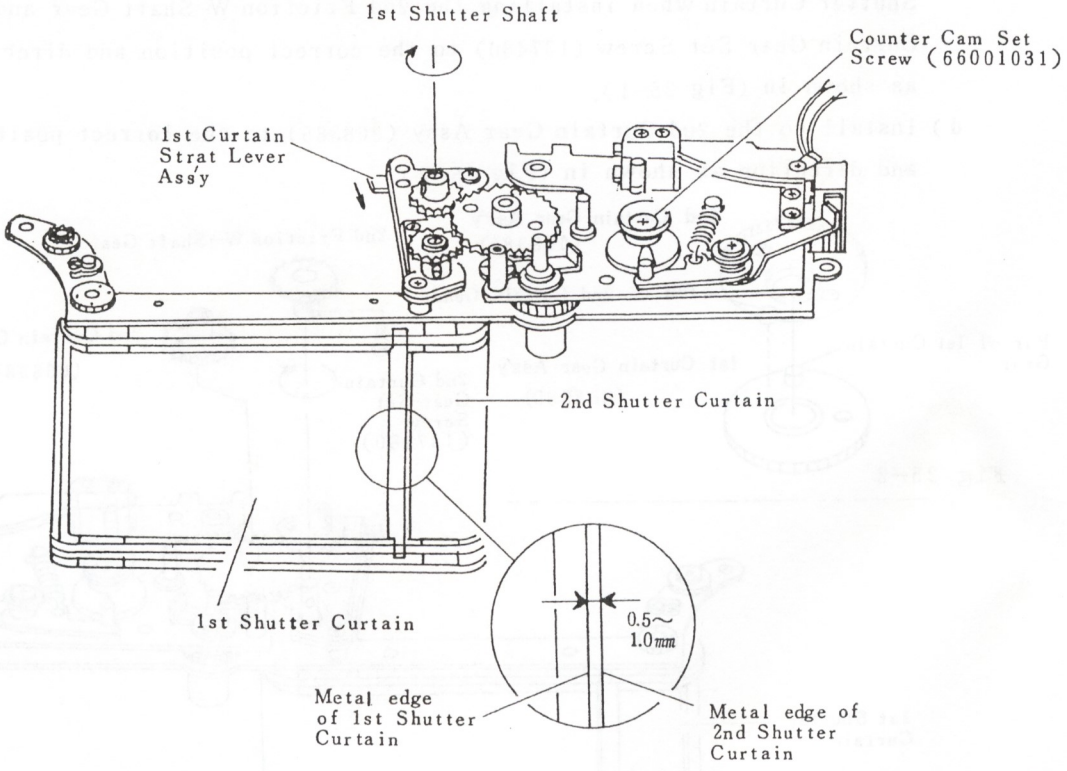

Fig 26

g) Release the Shutter Curtain by pushing the 1st Curtain Strat Lever Ass'y (Fig 26)

h) Fix the respective parts ① ~ ㉘ shown in (Fig 22) in numerical order.

i) Shutter is charged and turn the 1st Shutter Curtain Shaft clockwise with a screwdriver to take up slack or play from friction W-Shaft gear (107151 or 107166)
If do not, Shutter runs but does not open (Blind) at any Shutter mode.

(4) Shutter Magnet Position Adjustment

(1) Charge the Shutter

(2) Remove the 2nd Curtain Start Set Screw (61912024) and Brake Pin (137388).

(3) Separate the 2nd Curtain Start Plate Ass'y (068270) from 2nd Curtain Gear Ass'y (068385).

Note: The 2nd Curtain Start Plate Ass'y (068270) and 2nd Curtain Gear Ass'y (068385) are glued with very strong glue like crazy glue or Super glue, therefore, before attempting to free the 2nd Curtain Start Plate Ass'y (068270), apply Acetone or apply heat to the 2nd Curtain Start Plate Ass'y with a soldering iron and the 2nd Curtain Start Plate Ass'y will move freely.

Caution: Do not Press the 2nd Curtain Start Plate Ass'y downwards or force to free it.

(4) Make sure the Magnet and Movable Plate (137446) surfaces are parallel and they make complete contact with each other. (Fig 27)

(5) Adjust the position of 2nd Curtain Start Plate Ass'y to smoothly touch the 2nd Curtain Start Lever Ass'y (Fig 28)

(6) Apply 1.8 volts to Magnet (two black lead wires) directly from a regulated D.C power supply.

(7) Then release the 1st Shutter Curtain by pushig the 1st Curtain Strat Lever Ass'y (137393) (Fig 26) to ascertain that the Magnet will hold the 2nd Shutter Curtain.
Repeat this operation several times.

(8) After (7) operation, apply glue like crazy glue or super glue as shown in (Fig 29).

Note: CIean the Magnet and Movable Plate surfaces with Thinner.

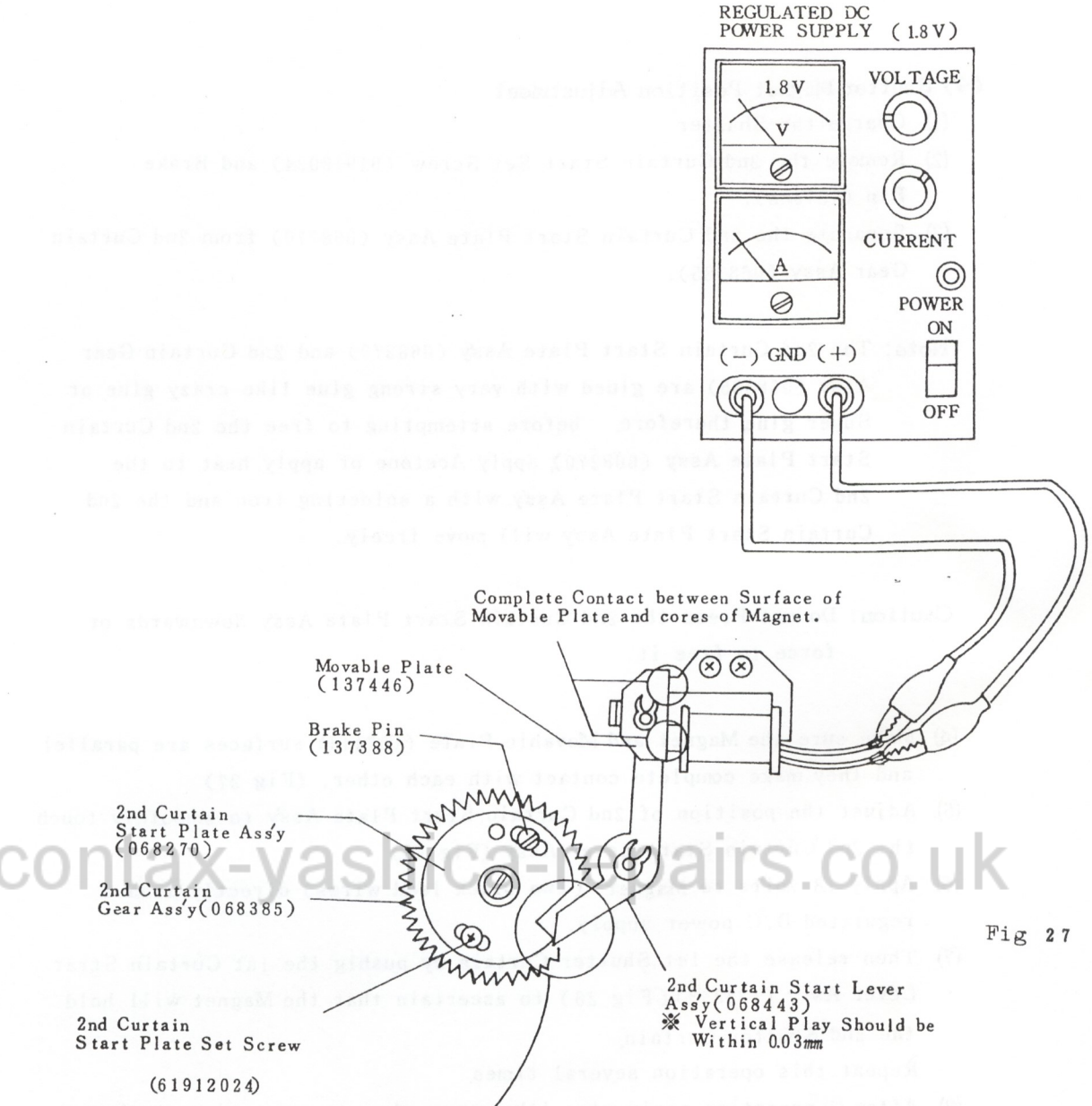

Fig 27

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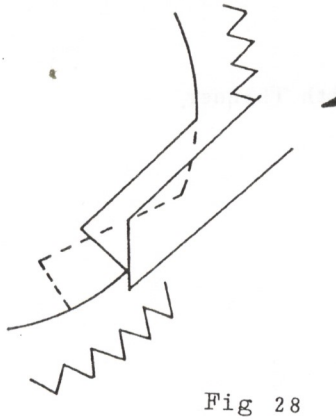


Fig 28

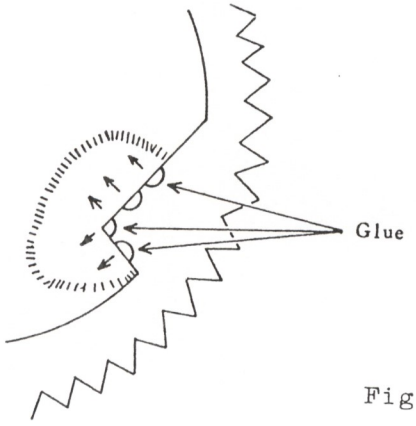


Fig 29

5. SHUTTER ADJUSTMENT

(1) Shutter Curtain Travel Speed (RUN TIME) Tolerance Limit.

Tolerance Limet.

11.5 ± 0.2ms

(The difference of 1st & 2nd Shutter Curtain Travel Speed should be within 0.2ms)

Adjusment of Shutter Curtain Travel Speed is performed by turning the Shutter Shaft.

Turming to counter-clockwise becomes faster

Turming to clockwise becomes slower

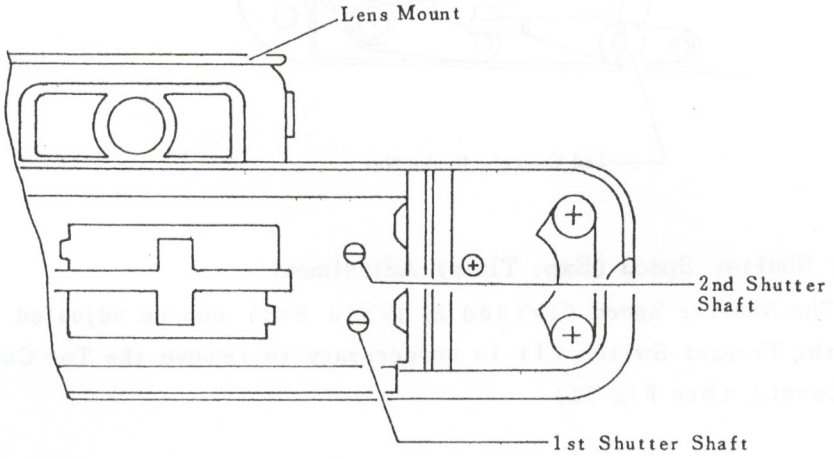


Fig 30

(2) Shutter Curtain Bound Adjustment.

a) Resolder temporary lead wire between the Transfer Switch and part of FPC(1) as shown in (Fig 31)

b) Check with Shutter Tester.

When there occurs bound, tighten Brake Nut until there is No bound.

o 2nd Curtain bound Adjustment.

c) Set the Shutter Speed at 1/1000 or 1/500 Sec.

When 2nd Curtain bounds, tighten 2nd Curtain Brake Nut (137419).

(Torque required for 2nd Curtain Brak·····about 50~80g/cm)

o 1st Curtain bound adjustment.

d) Set the Shutter Speed at X and B.

When 1st Curtain bounds, tighten 1st Curtain Brake Nut (137407)

Note: Brake Nuts must be locked with glue after adjustment.

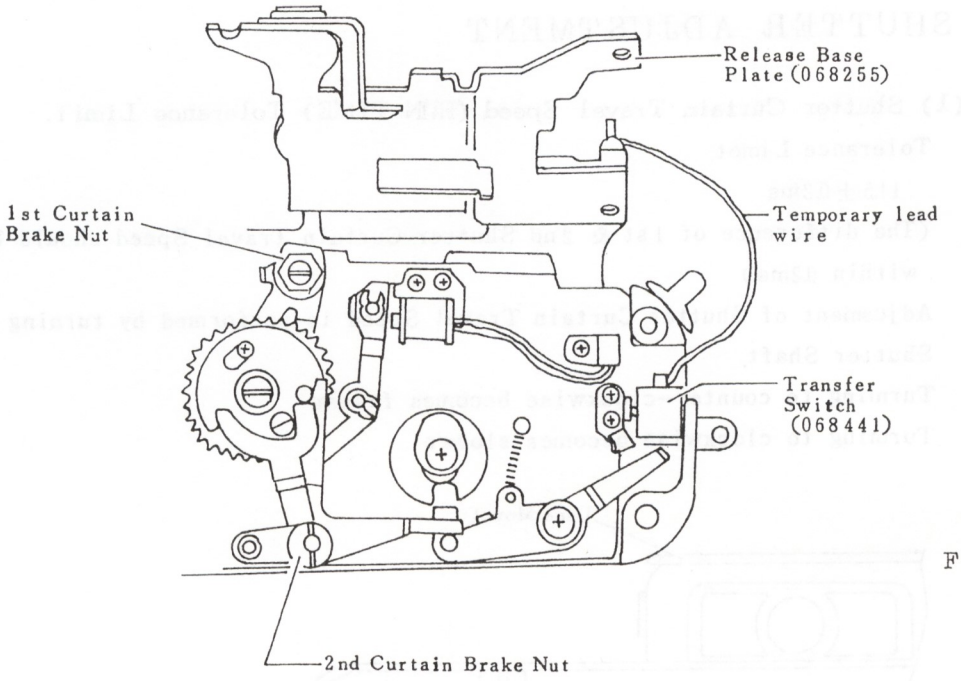


Fig 31

(3) Shutter Speed (Exp. Time) Adjustment.

The Shutter Speed (1/1000 & 1/500 Sec) can be adjusted by turning the Trigger Switch. (It is unnecessary to remove the Top Cover and Front Cover). (See Fig 32)

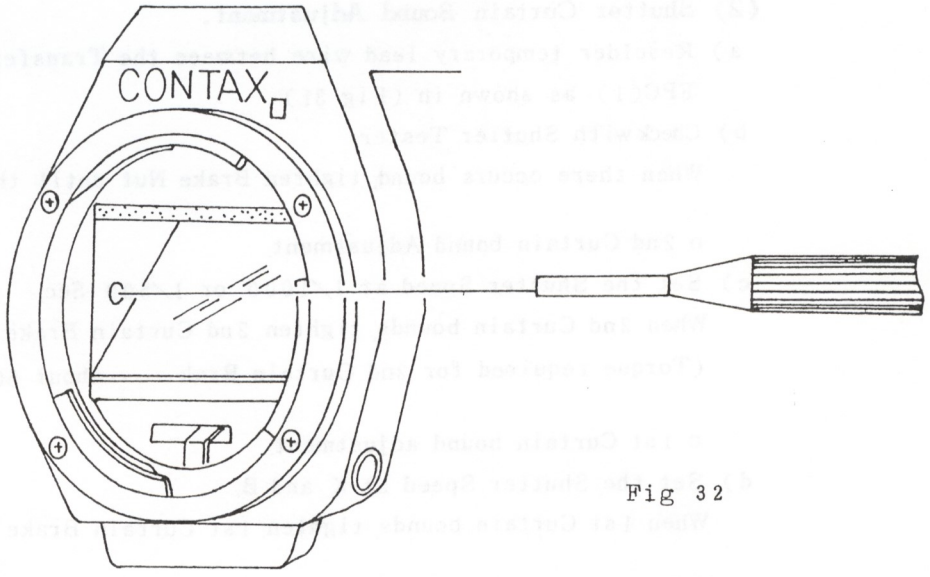


Fig 32

Shutter Speed Tolerance Limits

	Max.	Standard	Min.
X	22.8	21.3	19.9
1/1	1150	1000	871
1/2	574	500	435
1/4	287	250	218
1/8	144	125	109
1/15	71.8	62.5	54.4
1/30	35.9	31.3	27.2
1/60	17.9	15.6	13.6
1/125	8.97	7.81	6.80
1/250	4.81	3.91	3.17
1/500	2.40	1.95	1.59
1/1000	1.33	0.98	0.72

(msec)

(4) Synchronizing Contact

X-Contact Time Lag and Contact efficiency Adjustment.

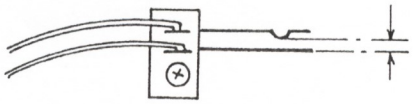
a) Set Shutter Dial at "X" position and check with Shutter Tester.

Synchronizer Time Lag

A-Slit : 0.6 msec. or more

B-Slit : 3.8 msec. or more.

o When Time Lag is too short, adjust the S. Synchro Switch Ass'y(068412)



Adjust the gap produced when setting winding-up to 0.2 to 0.3mm.

(S. Synchro Switch Ass'y)

b) Sync. Contact Efficiency

70% or more (TIME INT. 1msec, 2msec.)

c) Sync. Insulation Resistance

30MΩ or more (DC 500V)

6. DISASSEMBLING AND REASSEMBLING OF THE WINDING MECHANISM

(1) Disassembling of Winding Mech. Ass'y from the Camera Body.

(This operation can be performed after completion of "1. DISASSEMBLING OF THE EXTERIOR PARTS" on page 4. "2. DISASSEMBLING OF THE MIRROR BOX ASSY FROM CAMERA BODY W/FPC" on page 6. and "3. DISASSEMBLING OF SHUTTER MECHANISM ASSY FROM THE CAMERA BODY" on page 15).

a) Remove the respective parts ① ~ ㉚ Shown in (Fig 33) in numerical order.

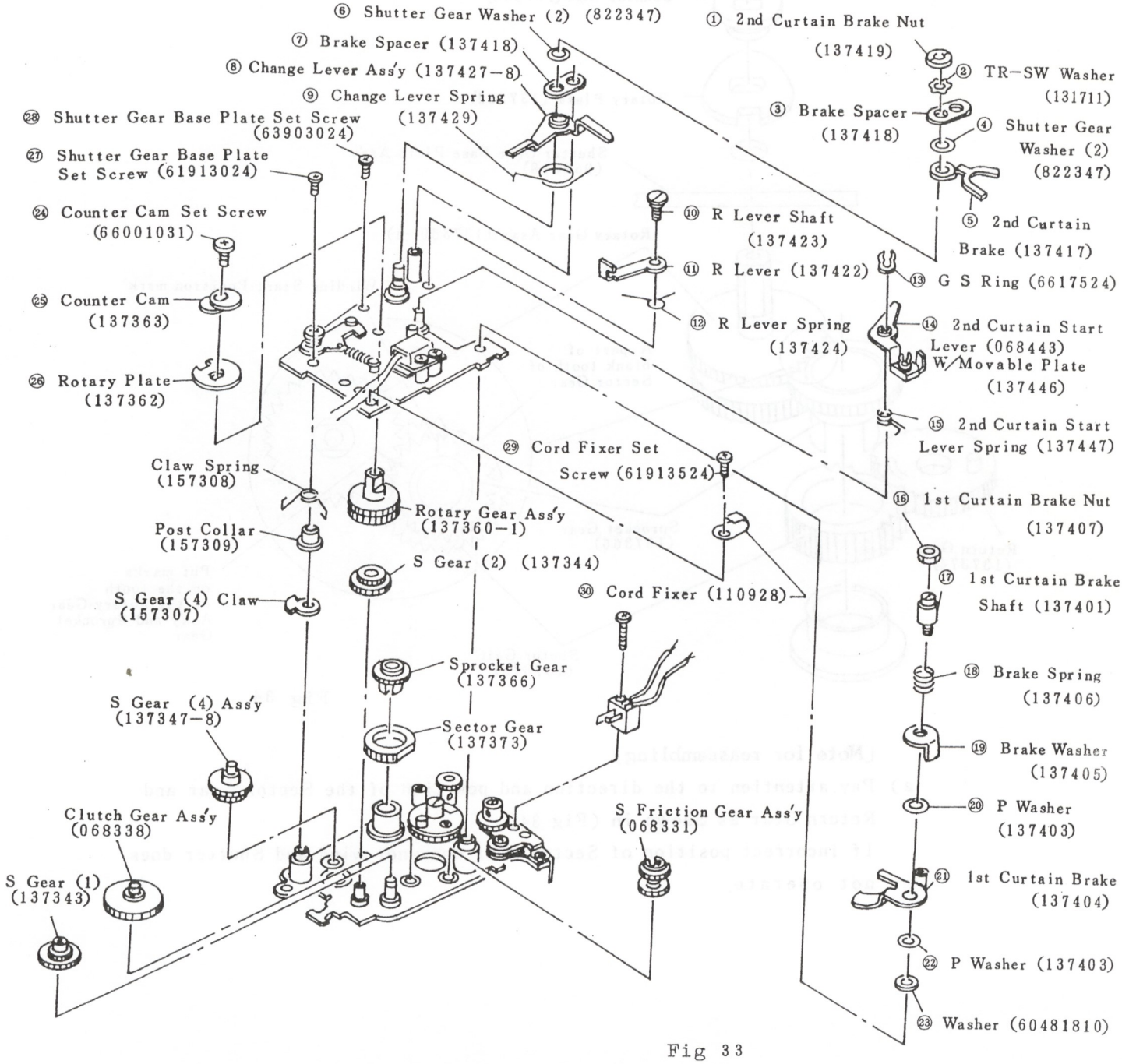


Fig 33

〔Note for disassembling〕

a) Befor removing the Rotary Gear Ass'y (137360−1) and Sprocket Gear (137366), put marks on the tooth of the Rotary Gear Ass'y and Sprocket Gear for indicating the original gear−engaged position (Fig 34)

※ Removing the Rotary Gear Ass'y and Sprocket Gear without taking this precautionary step causes incorrect the film perforations position.

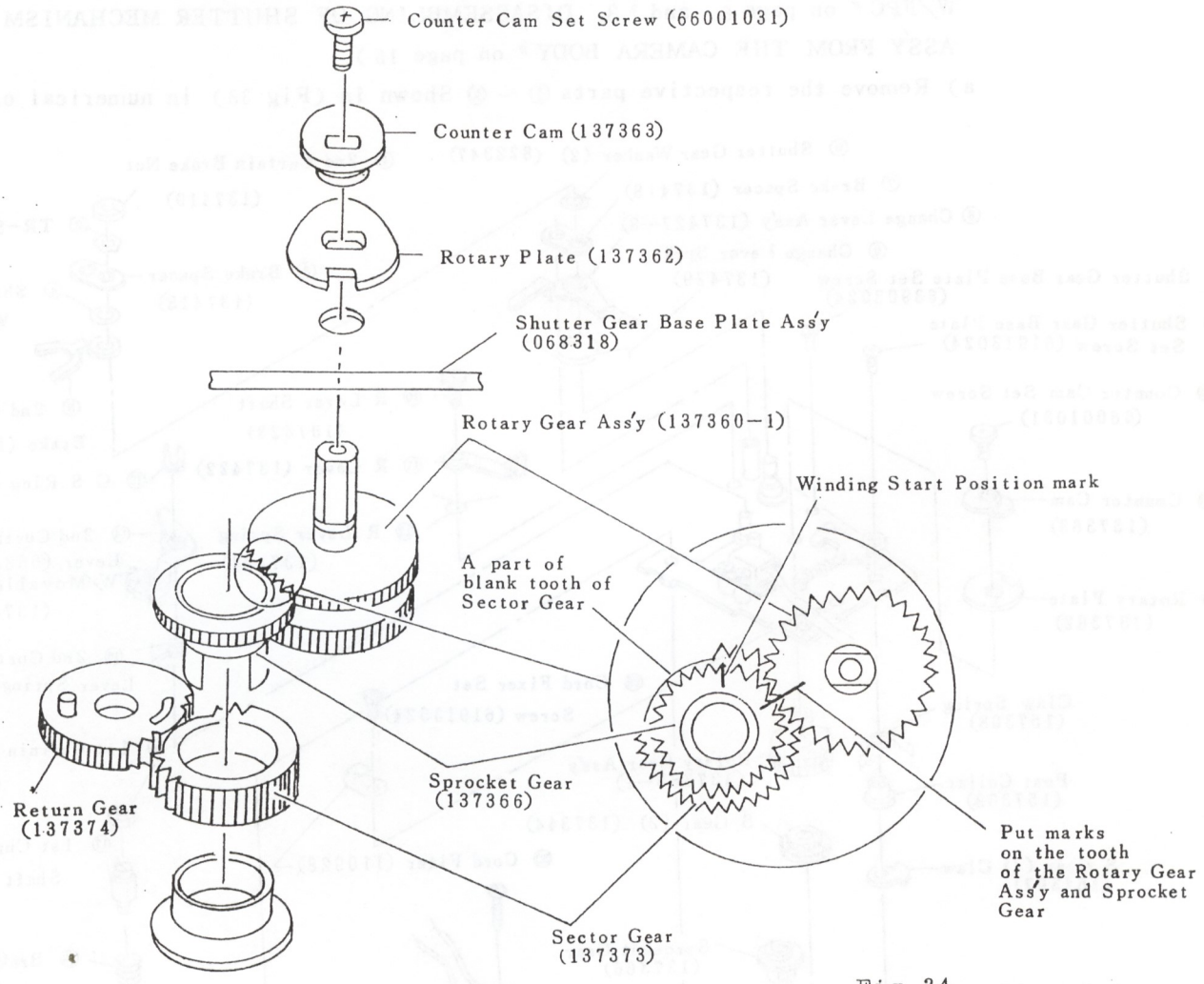


Fig 34

〔Note for reassembling〕

a) Pay attention to the direction and position of the Sector Gear and Return Gear as Shown in (Fig 34).

If incorrect position of Sector Gear, does not wind and Shutter does not operate.

7. FINDER DISPLAY AND FINDER FOCUS ADJUSTMENT

(1) Aperture Display Adjustment.

a) Set the standard Lens to Camera Body.

b) Set the Lens apertura at f/5.6 position.

c) Then confirming adjustment through finder, turn A-Name Plate Pulley and accomplish adjustment of aperture display. (See Fig 36)
Free from vignette of figures and inclination.

d) After adjustment, stop the Lens down to f/16 and string must be locked with glue.

※ Do not glue at A-Name Plate.

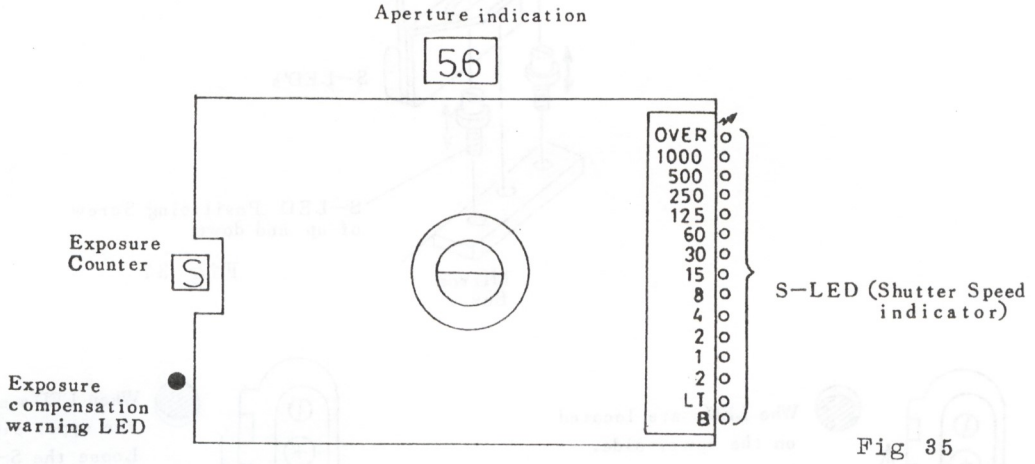


Fig 35

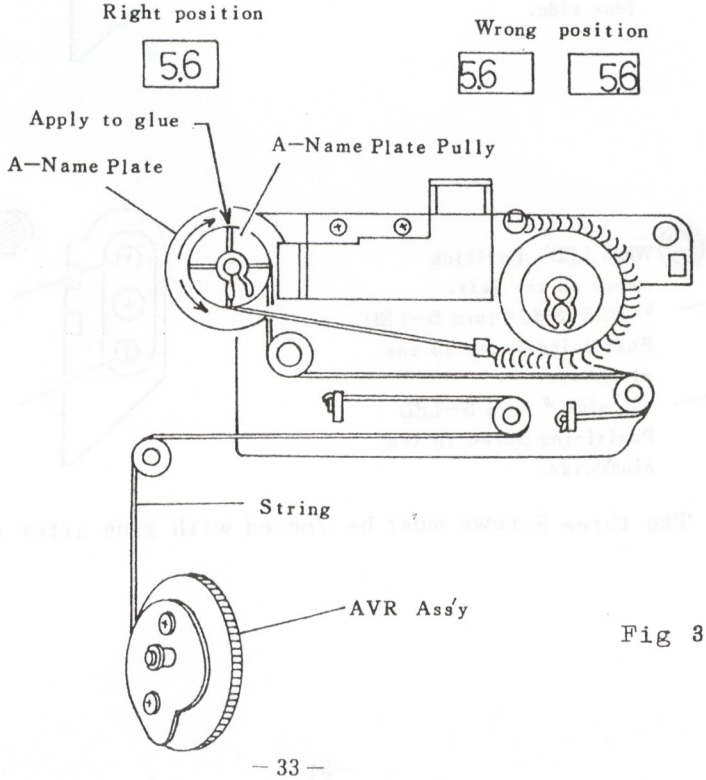


Fig 36

(2) S-LED Position Adjustment.

a) The position of LED Shall be adjusted so that all LED's from " B " to " OVER " and " ↗ " can normally be seen, when the eye in at the center of eyepiece when replacing FPC Ass'y, be sure to make this adjustment.

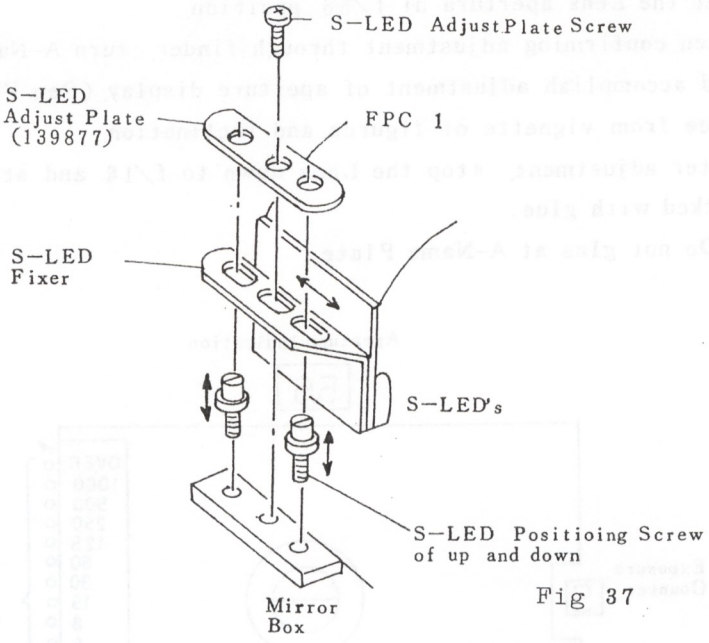
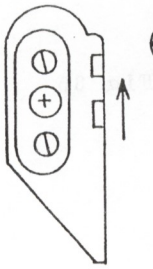
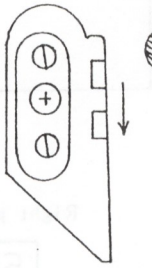


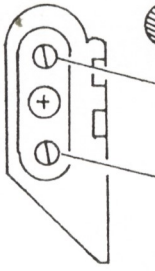
Fig 37



Whe LED's are located on the lower side. Loose the S-LED Adjust Plate Screw and shift the LED's toward the lens side.

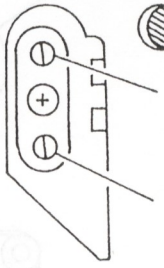


When LED's are located on the upper side. Loose the S-LED Adjust Plate Screw and shift the LED's toward the film side.



When LED's Position moves on the left. " OVER Side " turn S-LED Positioing Screw to the clockwise.

" B side " turn S-LED Positioing Screw to the clockwise.



When LED's position moves on the right. " OVER side " turn S-LED Positioing Screw to the counterclockwise.

" B side " turn S-LED Positioing Screw to the counterclockwise.

Note: The three Screws must be locked with glue after adjustment.

(3) Flange back distance & Finder Focus Adjustment.

a) Flange back distance.

o Flange back distance from the Body Mount plane to film rail plane.
To adjust flange back, add or reduce Washers.
Two different thickness of Adjusting Washers are available,
0.05mm (128666), 0.02mm (128667).

$$45.41\ ^{+0.02}_{-0.03}\text{mm}$$

o Distance from the film rail plane to the pressure plate rail plane.

$$0.22\ \pm 0.02\text{mm}$$

b) Finder focus error can be determined by the positions of the infinity (∞) symbol and index line on the lens in use.

o Rough adjustment of finder focus.
When the finder focus error is out of "$\pm\frac{1}{4}$" range (Fig 38)
adjust the finder focus by changing the P. Adjusting Washers (Fig 39).
Seven different thickness of P. Adjusting Washers are available,
therefore, select the proper one.

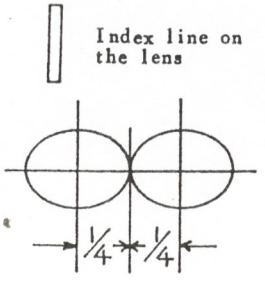


Fig 38

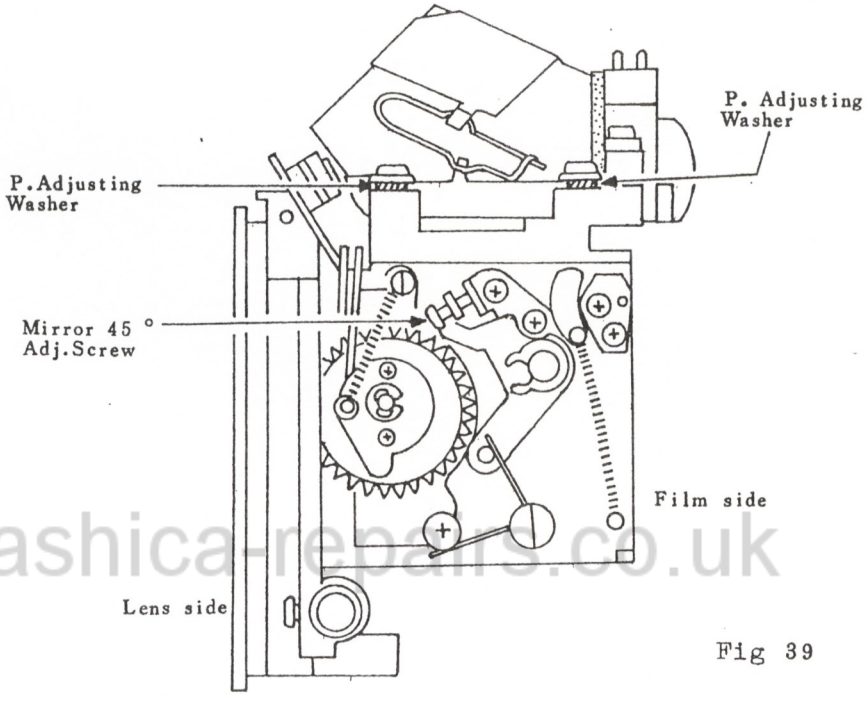


Fig 39

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o Fine adjustment of finder focus.

When the finder focus error is within the "$\pm\frac{1}{4}$" range (Fig 40) adjust by turning the Mirror Angle 45° Adjusting Screw (Fig 39). This adjustment can be performed from right side of the Mirror Box by removing the Front cover.

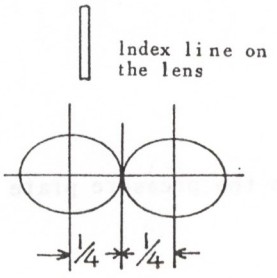

Fig 40

Note: a) Never turn the Mirror Angle 45° Adjusting Screw over $\frac{3}{4}$ revolution.

b) Operate the Shutter release several times without fail after the fine adjustment of finder focus.

Confirm the focus once more, and Mirror Angle 45° Adjusting Screw must be locked with glue after adjustment.

8. FLEXIBLE PRINTED CIRCUIT (F. P. C.)

(1) How To Fold and Form FPC(1)

a) Fold and Form the FPC(1) as shown (Fig 41) before installing

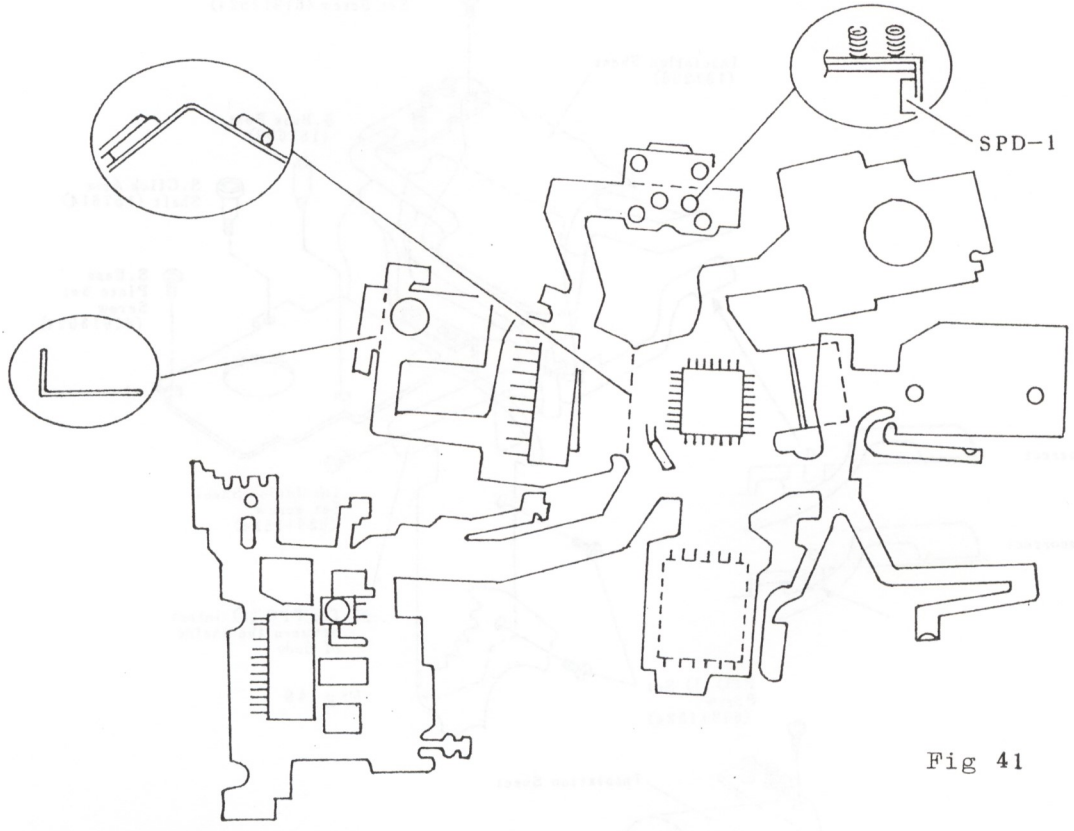

Fig 41

b) Fold and Form the FPC(1) to be installed as shown in (Fig 42)

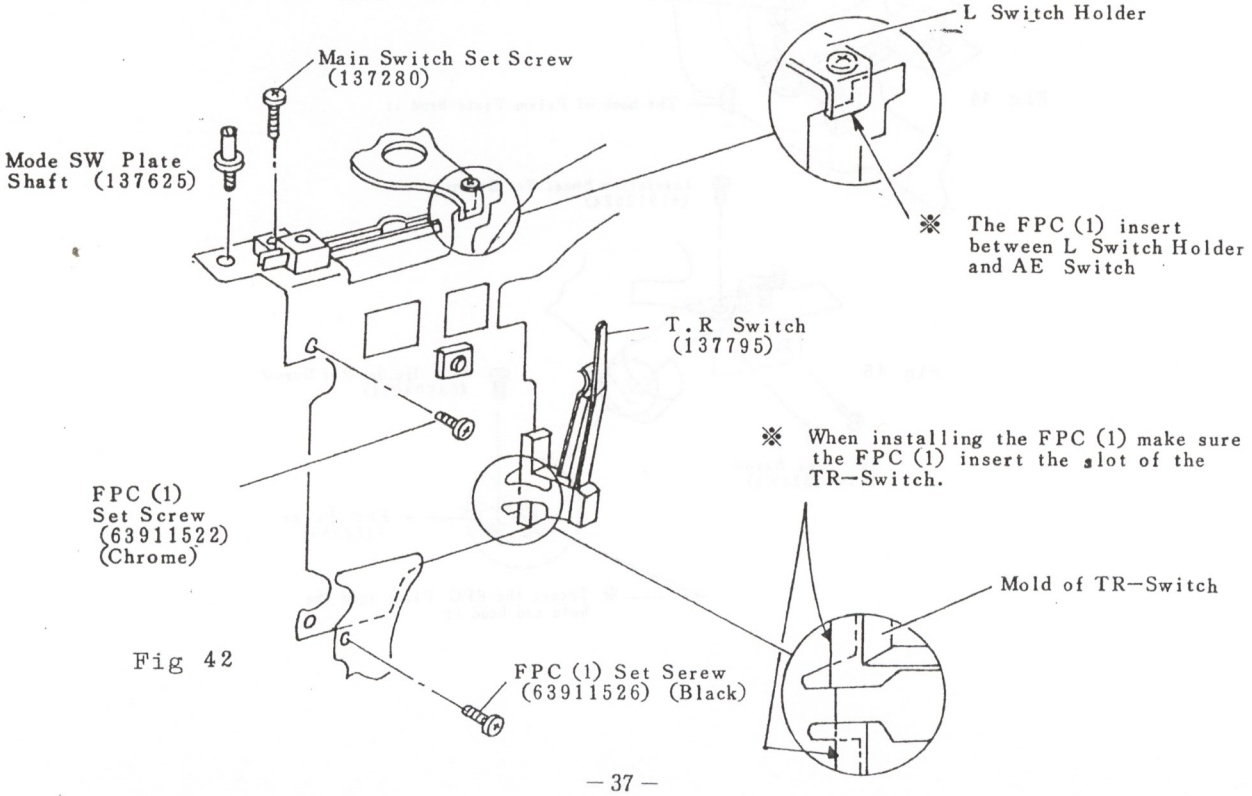

Fig 42

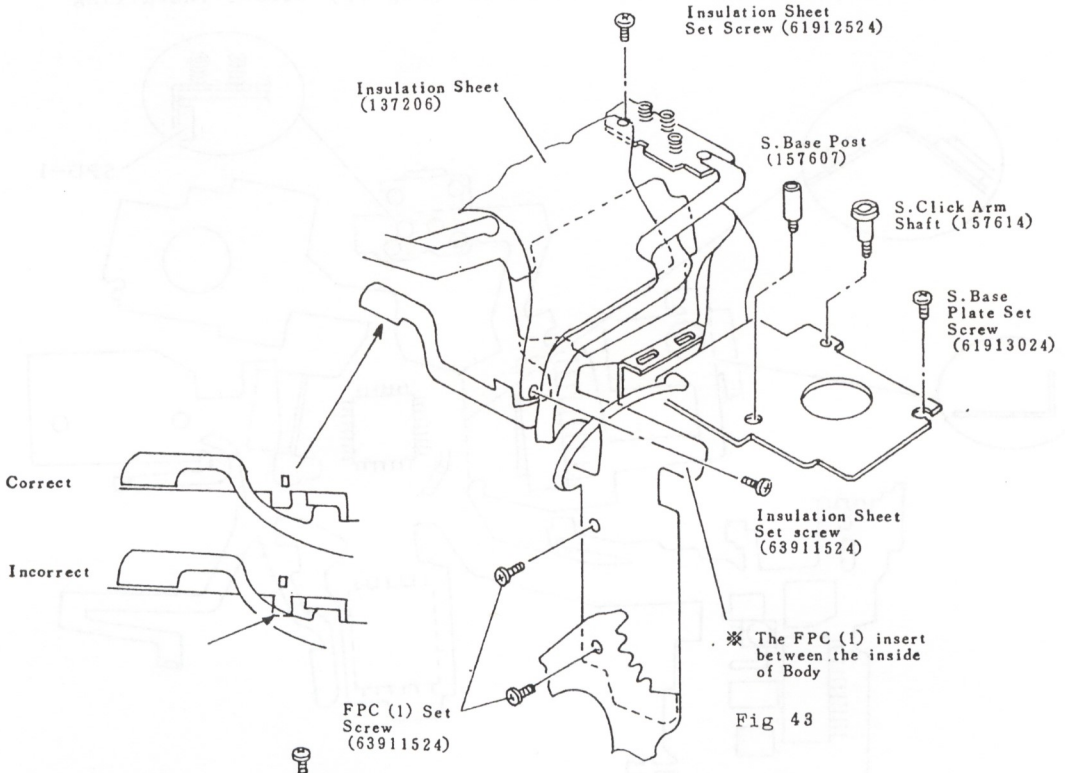

Fig 43

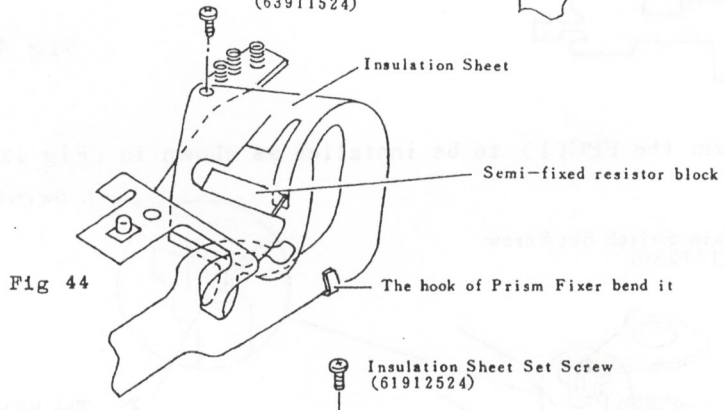

Fig 44

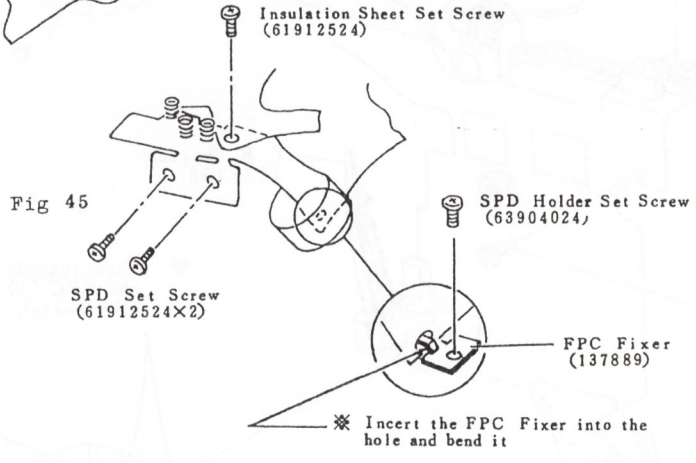

Fig 45

(2) Voltage Check & Adjustment

(〝BATT2〞Voltage, Standard Voltage, OFF-SET Voltage, Standard Voltage for Flash Exposure and Battery Check)

[Information]

The principal voltages for balancing the electrnic circuit including voltages mentioned have been correctly adjusted already when the Flexible Printed Circuit has been assembled in the factory, Spare Parts as well. But need adjust Standard Voltage for Flash Exposure when replace the FPC-1. Ass'y.

※ Without lens.

※ Turn on the main switch·····Main LED on. (It workes for 10sec).

※ Use the digital multi-meter that input inpedance is more than 10MΩ

a) 〝BATT 2〞 Voltage Adjustment (any ASA speed)

① Supply about 2.7 volts from Regulated D.C.Power Supply to the camera.

② Connect (+) of digital multi-meter to 〝Batt 2〞 check point, (-) to Ground (camera body), and read the voltage.

The voltage should be about 0.6 volt.

③ And then change the Supplied Voltage to about 2.8 volts.

④ Same Procedure as ② but

The voltage should be 0 volt.

When the adjustment is required, adjust it with the semi-fixed resistor Ra1-4.

Note: If maladjusted of 〝Batt 2〞 Voltage, Shutter does not operate when B.C LED lights UP.

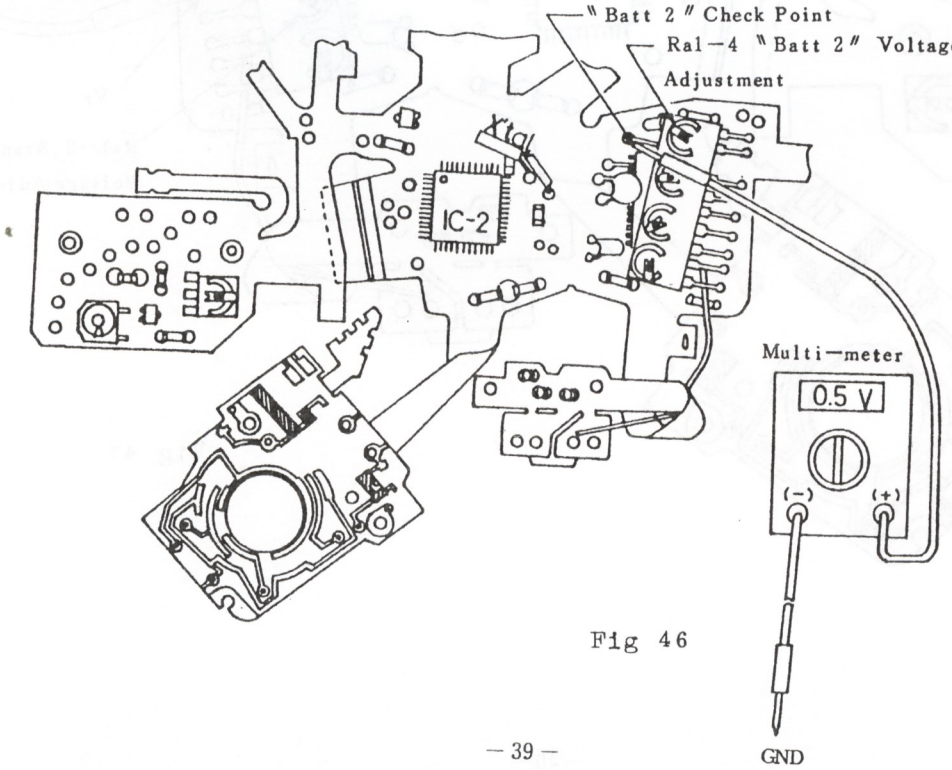

Fig 46

b) STANDARD Voltage Adjustment (ASA 100)

① Supply 5 volts from Regulated D. C. Power Supply to the camera.

② Connect (+) of digital multi-meter to Vr, (−) of digital multi-meter to Vs, and then read the voltage. (see Fig 47)
The voltage should be 300mv±5mv.
When the adjustment is required, adjust it with the semi-fixed resistor Ra1-2.

Note: If maladjusted of Standard Voltage, it not good for Auto Exposure.

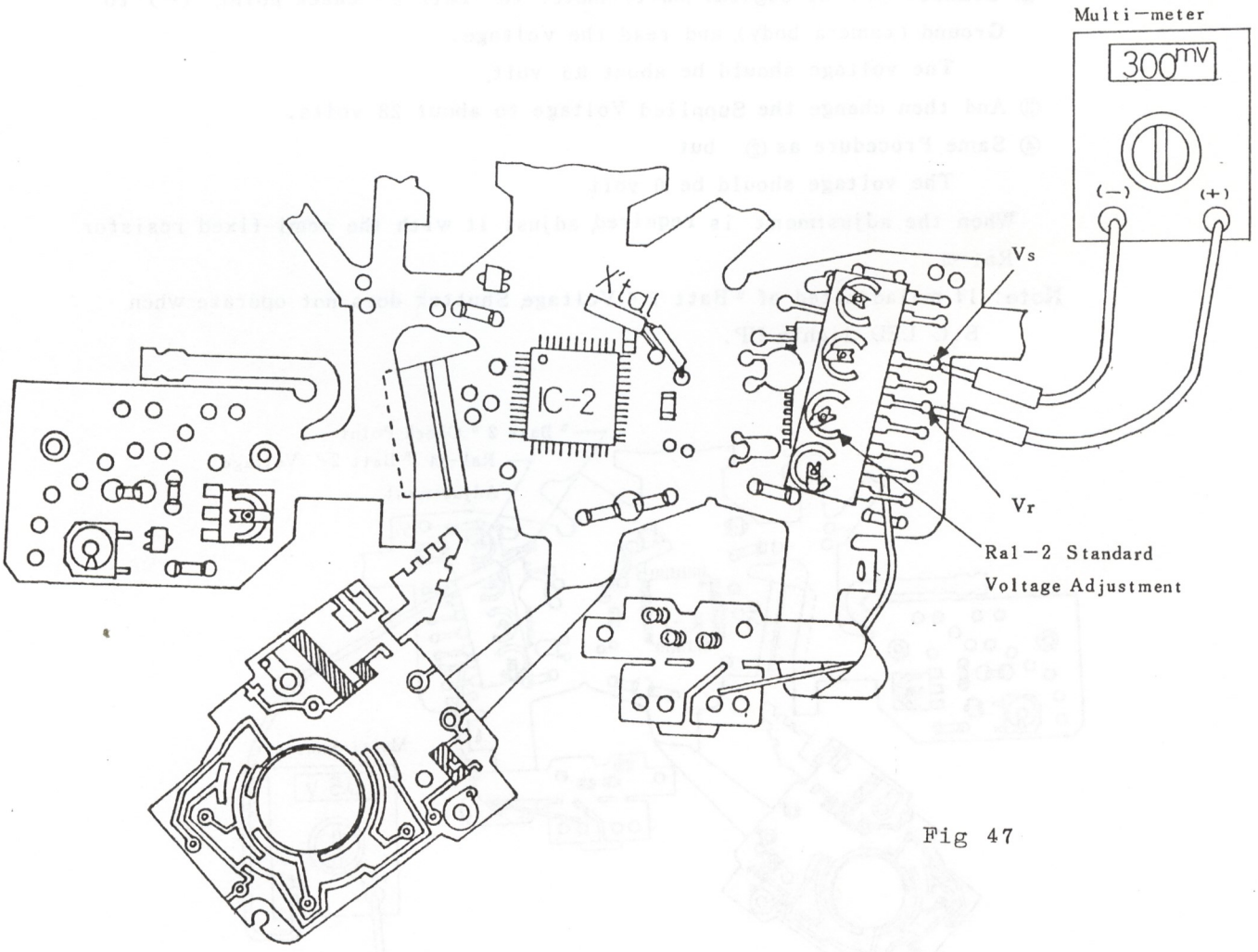

Fig 47

c) OFF-SET Voltage Adjustment.

※ Measurement should be made by exposing to light of more than LV12.

① Supply 5 volts from Regulated D.C.Power Supply to the camera.

② Connect (+) of digital multi-meter to Vc (-) of digital multi-meter to Va, and then read the voltage. (See Fig 48)
The voltage should be 10mv±5mv.
When the adjustment is required, adjust it with the semi-fixed resistor Ra1-1.

Note: If maladjusted of OFF-SET Voltage, it is uneveness of exposure when low (high) temperature or low (high) intensity.

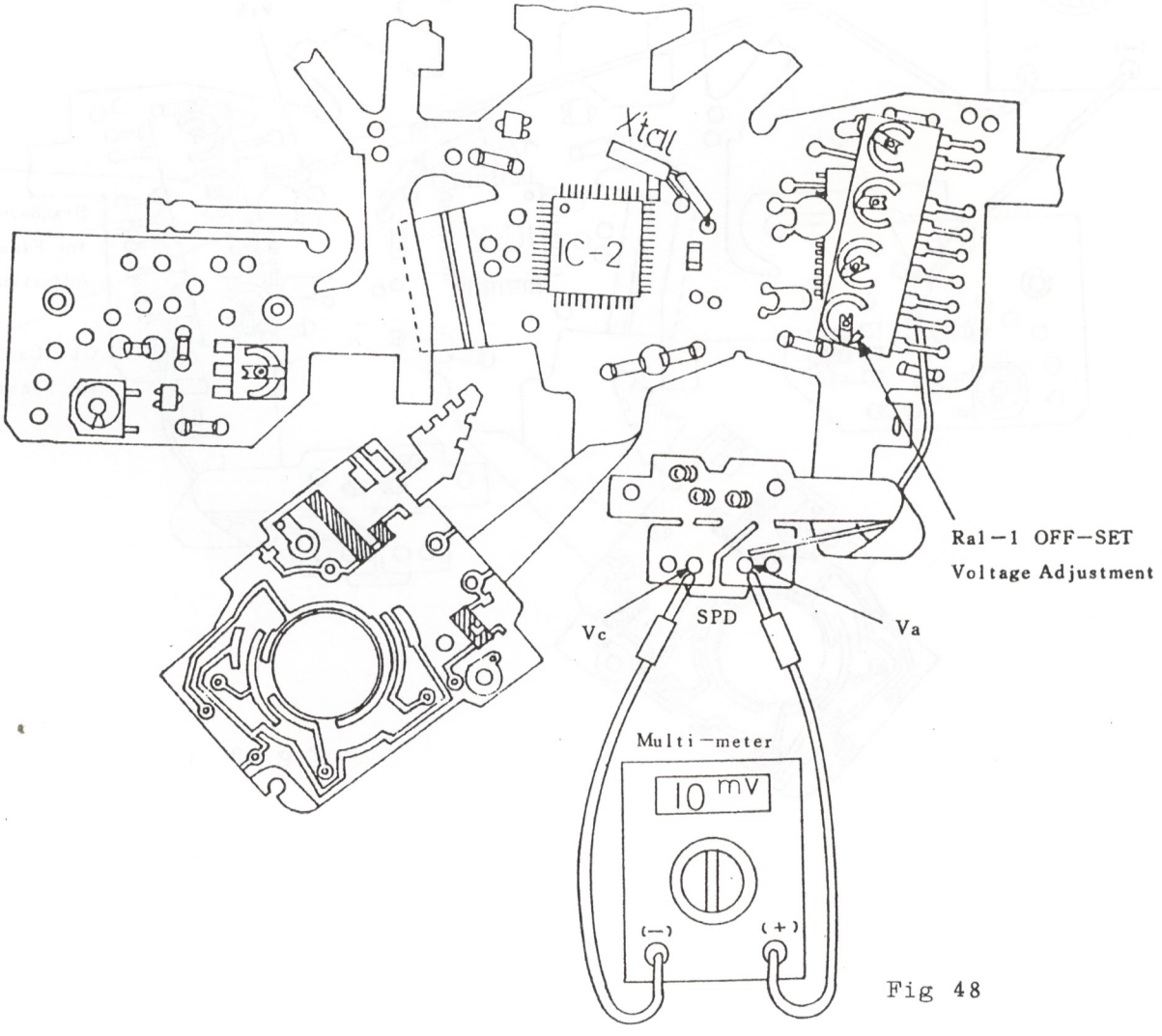

Fig 48

d) Standard Voltage for Flash Exposure (ASA 80)

① Supply 5 volts from Regulated D.C.Power Supply to the camera.

② Connect (+) of digital multi-meter to Vth, (-) of digital multi-meter to Vs', and then read the voltage. (See Fig 49)
The voltage Should be 200mv±5mv
when the adjustment is required, adjust it with the semi-fixed resistor Ra1-3.

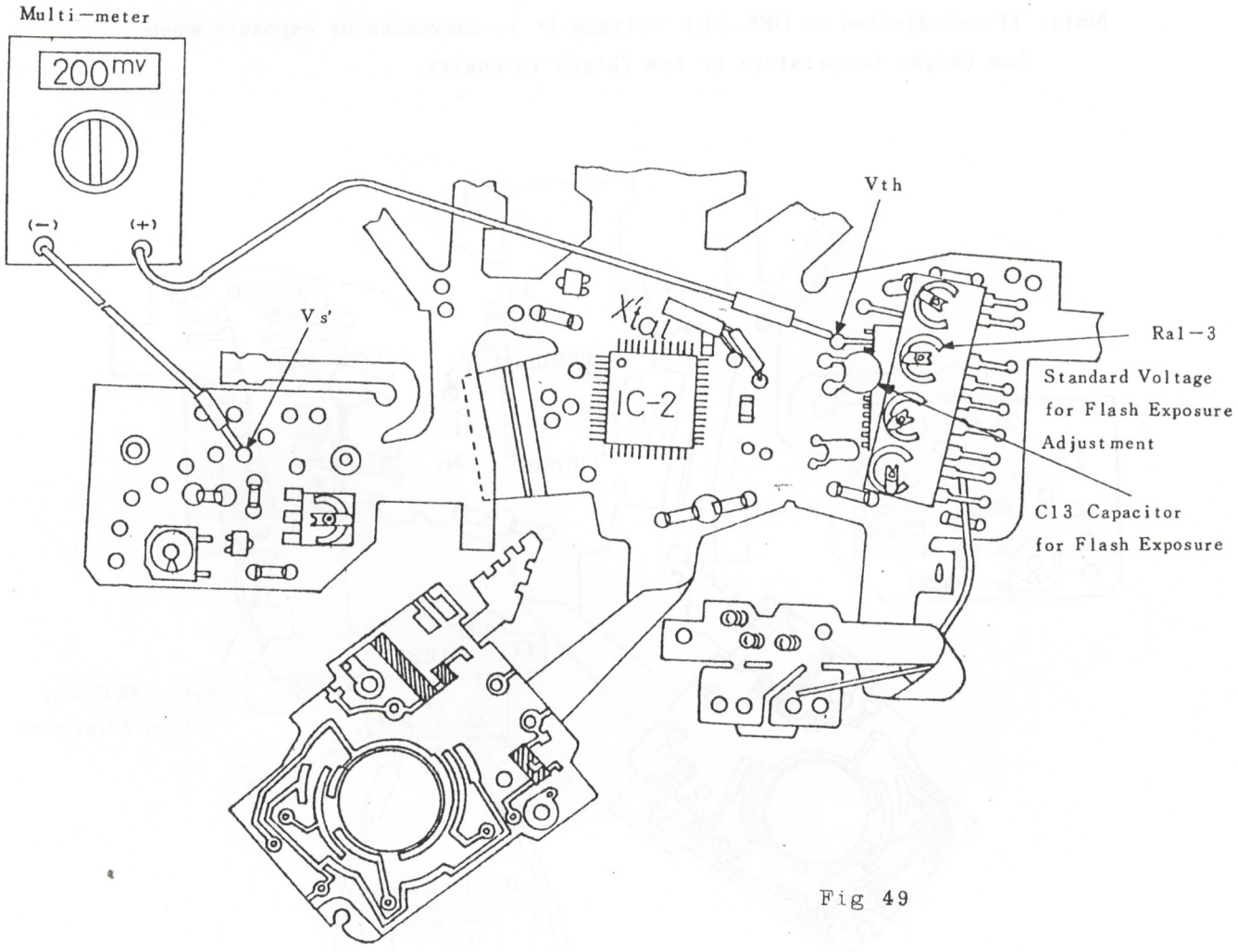

Fig 49

e) Battery Check Adjustment

① The adjustment should be performed while changing the Power Source Voltage.

Power Soure Voltage	Performance of Battery check LED
5.2 Volts	Green LED lights up Continuously
less than 4.9 Volts	Green LED does not light at all

When the adjustment is required, adjust it with the Semi-fixed resistor Ra 3.

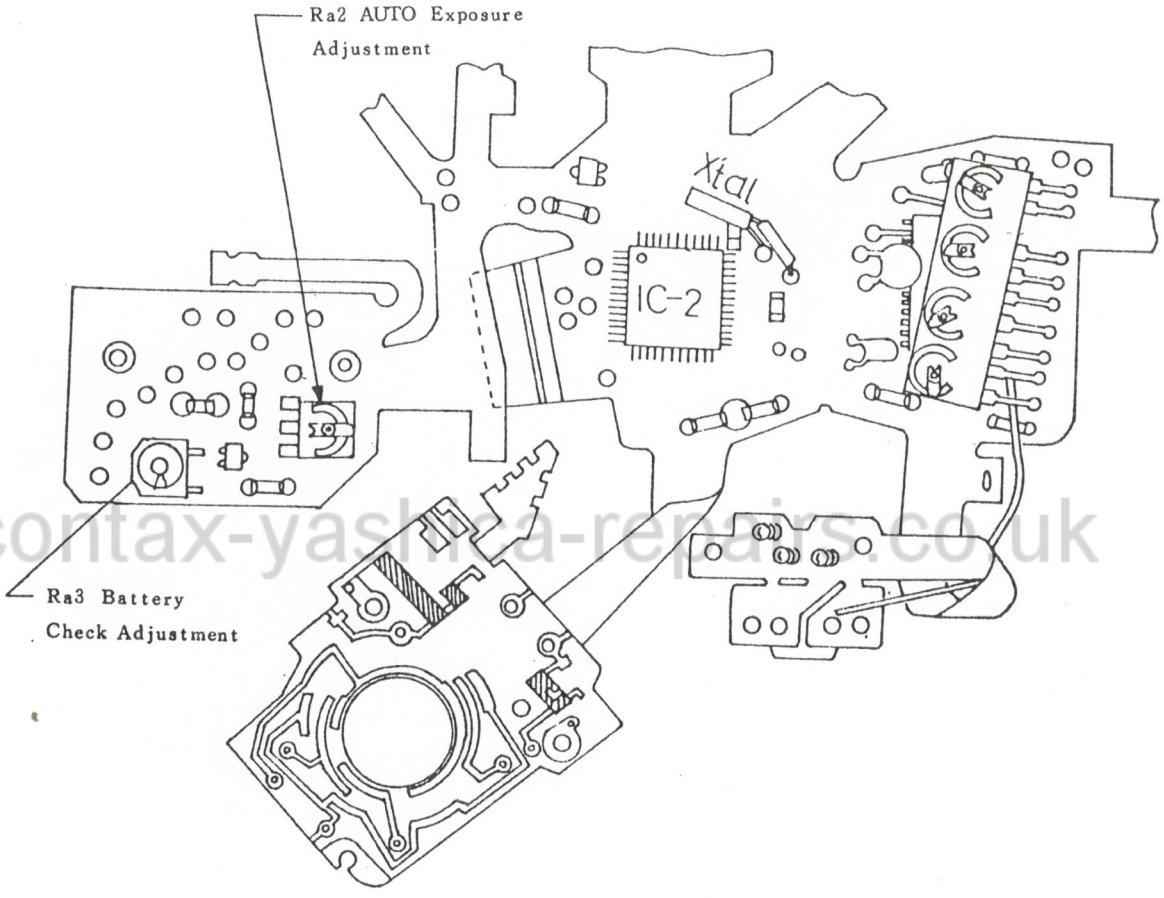

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Fig 50

Code	Description	Performace
IC−1	Analog IC	Exposure metering
IC−2	Digital IC	Control IC (Sequence) Power hold, OSC circuit, etc
IC−3	Voltage regulator	Constant out put of about 2.6V at input of 3to 10V
IC−4	Hybrid IC	Shutter sequence control and Shutter Magnet contorol, etc
IC−5	Hybrid IC	Motor dive
SPD−1	Silicon Photo Diode 1	Ordinary photographing (Auto, Speed Check)
SPD−2	Silicon Photo Diode 2	Flash light control
Tr 1	Transistor	B.C.LED drive.
Tr 2	Transistor	Power ON
Tr 3	Transistor	Controlling motor so that it rotates in the direction of winding
Tr 4	Transistor	Controlling motor so that it rotates in the direction of M−UP
Tr 5	Transistor	↙ LED drive
D 1	Diode	Protection Circuit
X′tal	Quarte	Crystal oscillation
Th	Thermistor	Temperature compensation
LED1	Light emitting diode 1	Exposure correction warning
LED2	Light emitting diode 2	Main LED (Red), Battery Check LED (Green)
LED3	Light emitting diode 3	Self−timer LED
LED4	Light emitting diode 4	Data Back coupling
LED5	Light emitting diode 5	Shutter LED
Ra 1	Semi−fixed resistor block	Voltage adjustment (Off−Set, Standard, Batt−2)
Ra 2	Semi−fixed resistor	Adjustment of Auto Exposure
Ra 3	Semi−fixed resistor	Adjustment of Battery Check Voltage
AVR		Aperture variable information resistor
ASA		Film speed information resistor
R 1	resistor 33Ω	Load resistance
R 2	resistor 910Ω	Bias resistance
R 3	resistor 100Ω	Making small the switching width of voltage at the times of light−up and light−off of LED
R 4	resistor 82Ω	B.C.LED current limiting
R 5	resistor 47KΩ	Stand by current limiting
R 6	resistor 47KΩ	Charging C14. Time constant of power−on reset signal

R 7	resistor 10KΩ	Limting courrent to CH terminel
R 8	resistor 51KΩ	Prevention of Flash mismotion
R 9	resistor 47KΩ	Limiting courrent to CH terminal
R 10	resistor 10KΩ	Limiting courrent to CH terminal
R 11	resistor 360Ω	↗ LEDcourrent limiting
C 1	Capacitor 2.2μF	Preventive oscillation of constant voltage IC
C 2	Capacitor 22μF	Preventive oscillation of constant voltage IC
C 3	Capacitor 0.22μF	Prevention of power source noise
C 4	Capacitor 0.22μF	Stability of oscillation
C 5	Capacitor 0.47μF	Time constant
C 6	Capacitor 0.047μF	Prevention of S—Mg counter electromotive force
C 7	Capacitor 0.22μF	Prevention of Motor noise
C 8	Capacitor 0.22μF	Prevention of Motor noise
C 9	Capacitor 0.22μF	Prevention of Motor noise
C 10	Capacitor 0.22μF	Stability of Standard voltage
C 11	Capacitor 33PF	Prevention of oscillation of A3 input
C 12	Capacitor 0.1μF	Double integral
C 13	Capacitor 82～180PF	Adjustment of Flash Exposure
C 14	Capacitor 0.1μF	In
C 15	Capacitor 10PF	Oscillation
C 16	Capacitor 10PF	Oscillation
C 17	Capacitor 1000PF	Stability of operation
C 18	Capacitor 0.2μF	Stability of operation

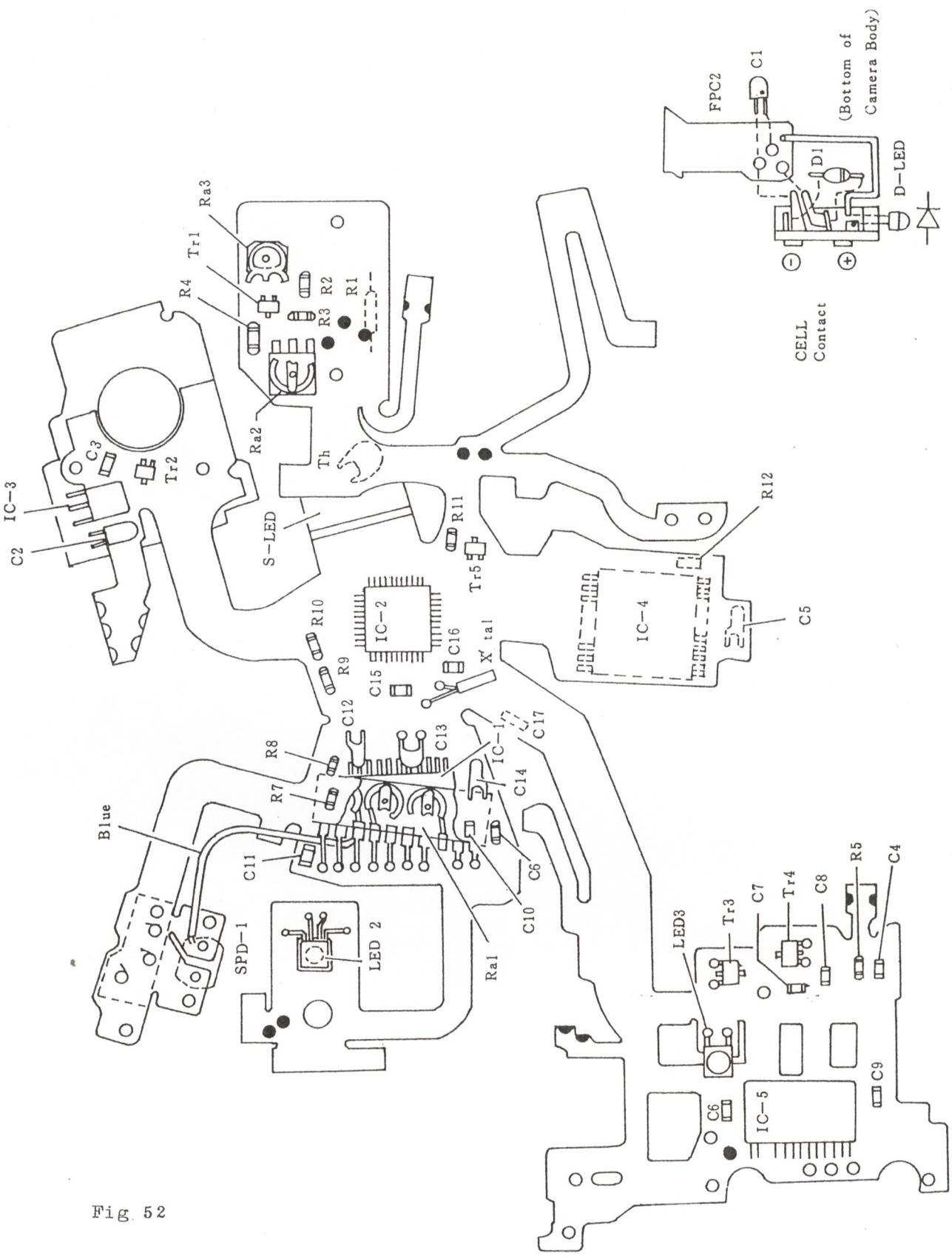

FPC2
C1
(Bottom of Camera Body)
D1
D-LED
CELL Contact
Ra3
Tr1
R4
R2
R1
R3
Ra2
Th
C3
Tr2
IC-3
C2
S-LED
R11
Tr5
R12
IC-2
IC-4
C5
R10
C16
X'tal
R9
C15
C12
C13
IC-1
C17
R8
R7
C14
Blue
C11
C6
C10
SPD-1
LED 2
Ra1
LED3
Tr3
C7
Tr4
C8
R5
C4
C6
IC-5
C9

Fig. 52

9. AUTOMATIC EXPOSURE AND FLASH OUT PUT ADJUSTMENT

(1) Automatic Exposure Adjustment.

Set the EE Tester (Multi Camera Tester) ····· ASA100, K=1.3

Set the Camera to be tested ····· AUTO, ASA80, f/5.6

Tolerance Limits

LV	S-LED display	EV Tolerance
LV 4	2	−0.6 ~ +0.6 EV
LV 8	1/8	−0.6 ~ +0.6 EV
LV12	1/ 125	−0.6 ~ +0.6 EV
LV15	1/1000	−0.6 ~ +0.76 EV

Automatic exposure can be adjusted by turning the Ra2 Semi-fixed resistor. (See Fig 50)

※ Adjustments can be done by removing the Front Leather Right. (See Fig 51)

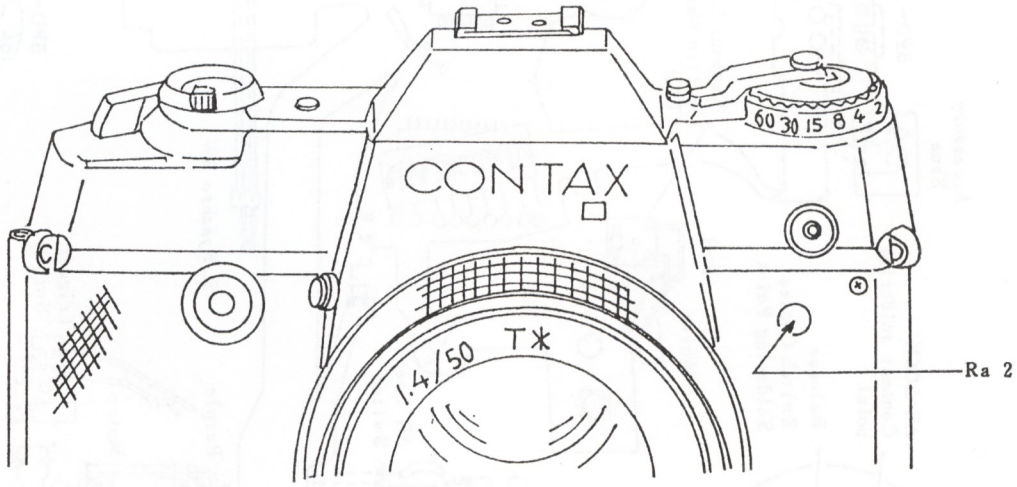


Fig 51

(2) Flash Out Put Adjustment (Flash at Auto Mode)

Adjust the Flash out put to ±0.5 EV at ASA100, F5.6 and the distance 2m by replacing C13 Copasitor.

(Use same type of Film as customer's when checking.)

137MA WIRING DIAGRAM

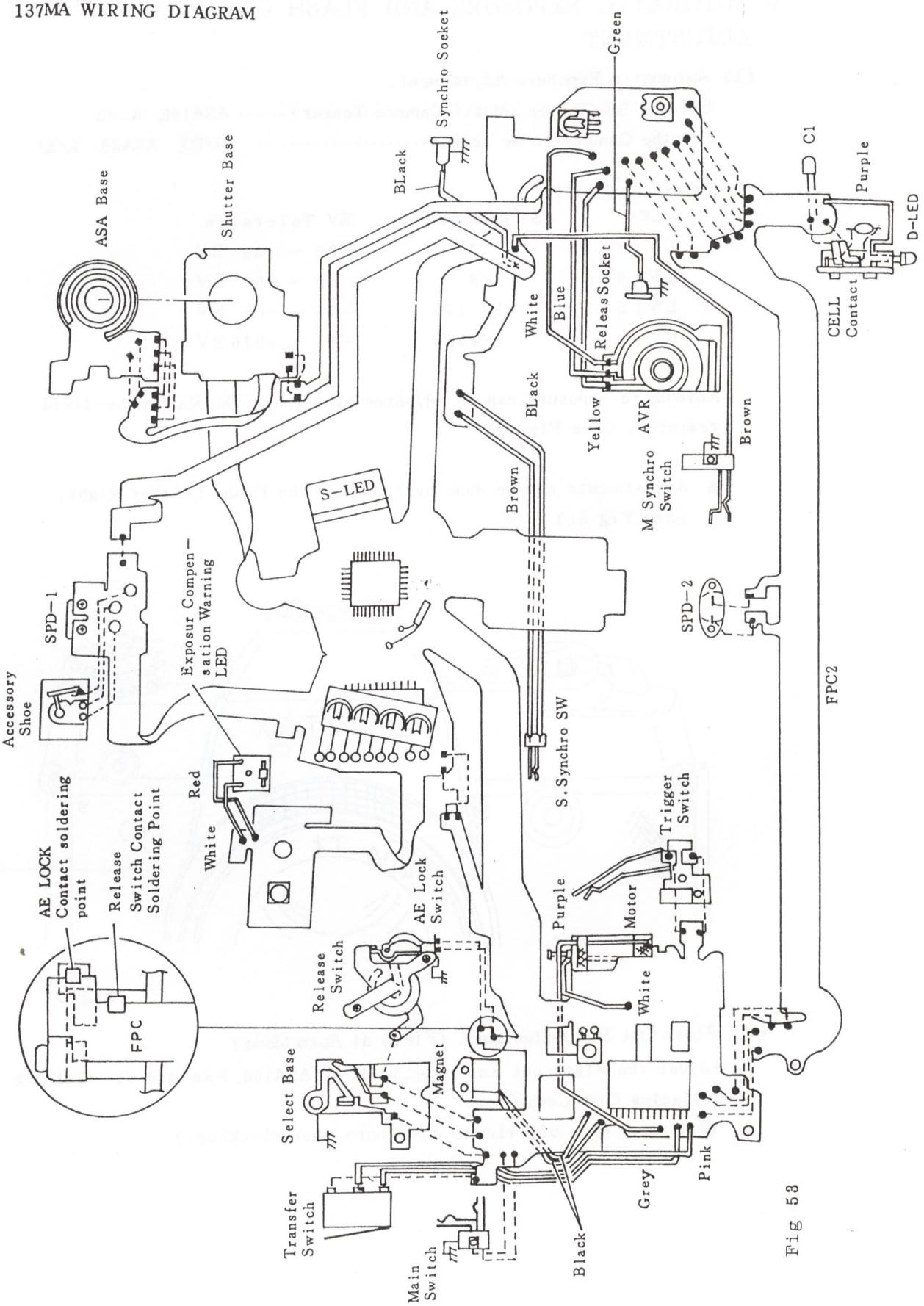


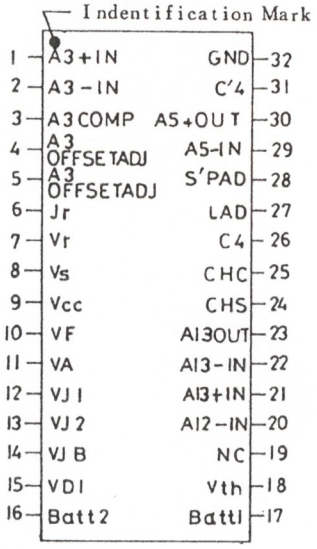
Fig 53

MALFUNCTION AND CAUSES

※ The terminal numbers of IC are indicated as shown in (Fig 54)

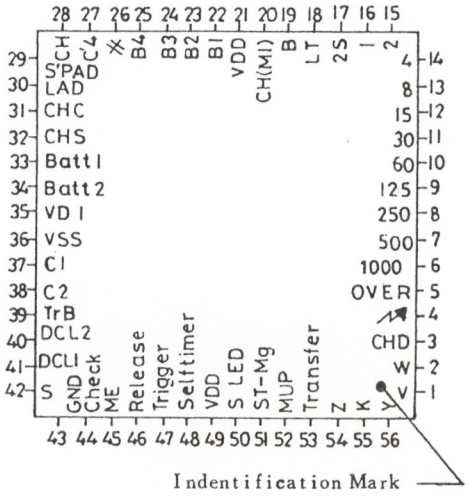
Analog IC

(IC–1)



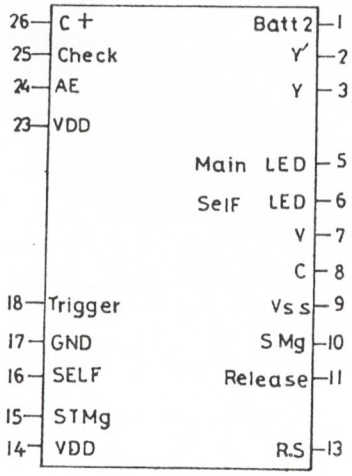
Digital IC

(IC–2)



Hybrid IC

(IC–4)



Hybrid IC

(IC–5)

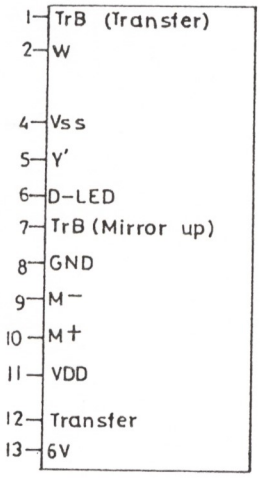


Fig 54

1. Defective of Shutter Mechamism

1-1) Shutter does not operate and Main Lamp (Red) does not flicker (Main Lamp continuously lights up) when Main Switch is turned ON.

(1) Bad soldering of Xtal, defective of Xtal.

(2) Bad soldering of C15 and C16, defective of C15 and C16.

(3) Bad soldering of IC-2 terminal #37, #38, #46, #48.

(4) Short Circuit between IC-2 terminal #46 and #47.

(5) Bad soldering of IC-4 terminal #11, #18, #17.

(6) Trigger Switch is kept "ON", shrot circuit of soldering point of Trigger Switch. (See Fig 56)

(7) Defective of IC-2.

(8) Bad soldering of soldering point of FPC-1 and S.Base. (See Fig 55)

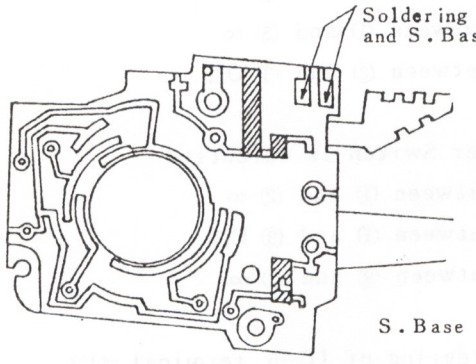


Fig 55

(9) Bad soldering of soldering point of FPC-1 and AE Switch. (137274) (See Fig 56)

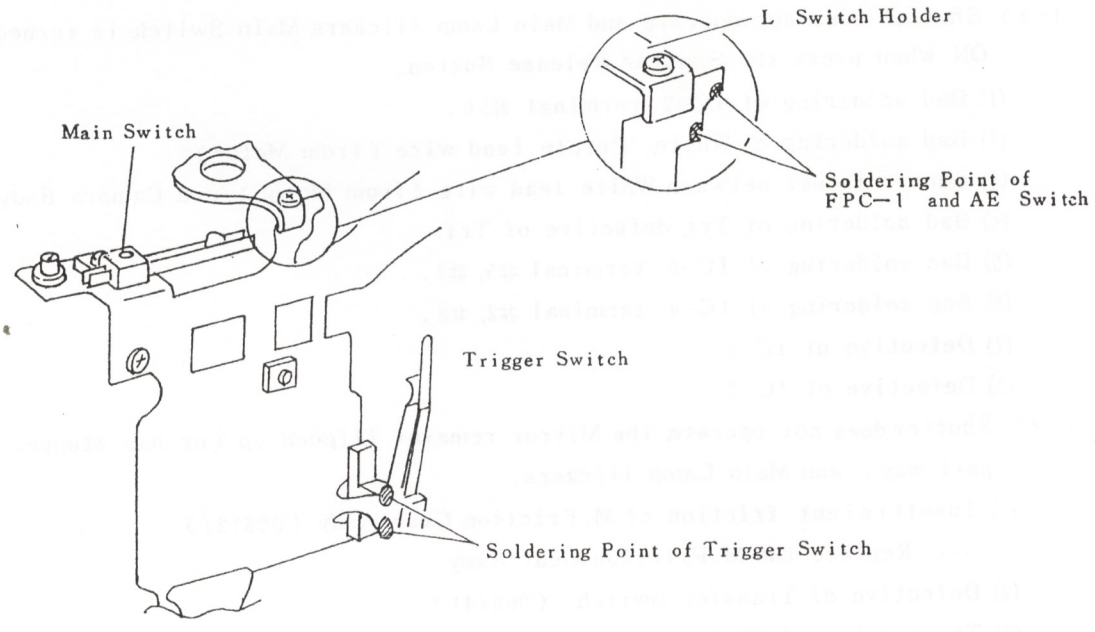


Fig 56

1-2) Shutter does not operate and Main Lamp flickers when Main Switch is turned ON.

(1) Bad soldering between Transfer Switch of earth and FPC-1.

(2) Defective of Transfer Switch (068441)

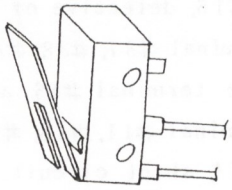


Fig 57 Transfer Switch

Transfer Switch is acceptable

- o Between ① and ② ∞
- o Between ① and ③ ∞
- o Between ② and ③ OΩ

Transfer Switch is defective

- o Between ① and ② ∞
- o Between ① and ③ OΩ
- o Between ② and ③ ∞

(3) Bad soldering of IC-5 terminal #12

(4) Defective of IC-4

(5) Defective of IC-5

1-3) Shutter does not operate and Main Lamp flickers, Main Switch is turned ON when press the Shutter Release Button.

(1) Bad soldering of IC-2 terminal #56.

(2) Bad soldering of White, Purple lead wire (from Motor).

(3) Short circuit between White lead wire (from Motor) and Camera Body.

(4) Bad soldering of Tr4, defective of Tr4.

(5) Bad soldering of IC-5 terminal #5, #7.

(6) Bad soldering of IC-4 terminal #2, #3.

(7) Defective of IC-4.

(8) Defective of IC-5.

1-4) Shutter does not operate, the Mirror remains flipped up (or has stopped part way) and Main Lamp flickers.

(1) Insufficient friction of M.Friction Gear Ass'y (068727)

.....Replace the M.Friction Gear Ass'y.

(2) Defective of Transfer Switch (068441)

(3) The tension of SW Lever (L) Spring (137435) is getting weak, therefore, Transfer Switch does not work properly.

(4) Bad soldering between Trigger Switch and FPC-1.
(Should be OFF when Shutter is cocked)
(5) Bad soldering of IC-2 terminal #2.
(6) Bad soldering of Pink lead wire on Transfer Switch.
(7) Short circuit between IC-2 terminal #53 and #54.
(8) Bad soldering of IC-5 terminal #1, #2.
(9) Defective of IC-5
(10) Defective of FPC-1 Ass'y.

1-5) Shutter does not operate, the Mirror has stopped part way and Main Lamp flickers.
(1) MU Lever (S) Spring (137780) has slipped out of the position.
(2) Short circuit between IC-4 terminal #1 and #2.
(3) Defective of IC-5.

1-6) The Shutter operates a few times and then stops part way, Main Lamp flickers.
(1) The TR Lever hook does not move smoothly or TR Lever hook Spring (137786) has slipped out of the position (See Fig 14).
(2) The TR Lever (located on the Mirror UP base plate Ass'y (068770) does not move smoothly. (See Fig 14)
(3) The First Curtain Start Lever Spring (137395) has slipped out of the position or broken.

1-7) The 2nd Shutter Curtain remains open about 5㎜, Main Lamp flickers.
(1) The Change Lever Ass'y (137427-8) blocks the operation (rotation of 2nd Curtain Start Plate Ass'y (068270) of Brake Pin (137388).·····Re-adjust the 2nd Curtain brake friction (excessive friction) by the 2nd Curtain Brake Nut (137419) (See Fig 31)
(2) Defective Change Lever Ass'y (137427-8)·····Rivetting failure.
(3) Foreign object (piece of solder, piece of film) is between Gears and Levers.

1-8) The 2nd Shutter Curtain remains open, Main Lamp flickers.
(1) Excessive friction of the 2nd Curtain Brake (137417)
·····Re adjust the 2nd curtain brake friction (insufficient friction) by the 2nd Curtain Brake Nut (137419).
(2) Foreign object is between Gear or Levers.

1-9) Shutter does not operate and Main Lamp does not light but S-LEDs light up normally.
(1) Defective of FPC-2.
(2) Defective of FPC-1.

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1-10) The 2nd Shutter Curtain remains open abowt 10㎜, Mirror remains flipped up and Main Lamp flickers.

(1) The 2nd Curtain Brake (137417) blockes the operation of 2nd Shutter Curtain when 2nd Curtain Brake Nut (137419) becomes loose and the 2nd Curtain Brake (137417) moves out of position.·····Correct the position of the 2nd Gear Ass'y (068385) and 2nd Curtain Brake (137417) and re-adjust the 2nd Curtain Brake Nut (137419).

(2) Foreign object is between Gears or Levers.

1-11) At "C" (continuously mode) exposure setting when Shutter Release is depressed, the Shutter operates a few times and then stops.

(1) Bad soldering of C2, defective of C2.

(2) Bad soldering of C17, defective of C17.

(3) Defective of IC-2.

(4) Bad soldering of soldering point of FPC-1 and S.Base (See Fig 55)

(5) Malcontact of Main Switch.

(6) Defective of IC-2.

1-12) At "S" (single mode) exposure setting when Shutter Release is depressed, the Shutter operates continuously.

(1) Malcontact of Select Switch Ass'y (1372901)

(2) Bad soldering of IC-2 terminal #42.

(3) Defective of IC-2.

1-13) At "C" (continuously mode) exposure setting when Shutter Release is depressed, the Shutter oprates single exposure.

(1) Short circuit between Selecter Base (137289) printed circuit patterns at Ⓐ and GND. (See Fig 58)

(2) Short circuit between C17 and Camera Body.

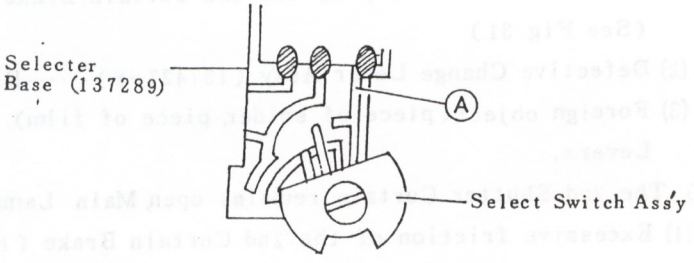

Fig 58

1-14) At "S" (single mode) exposure setting the Shutter operats when the Shutter Release is depressed (This is normally) and then the Shutter operates again when the finger is removed gently from the Shutter Releas Button.

(1) Release Base (131483) and P.S Switch (131509) is dirty·····Clean the Release Base and P.S Switch, or replace them. (See Fig 59)

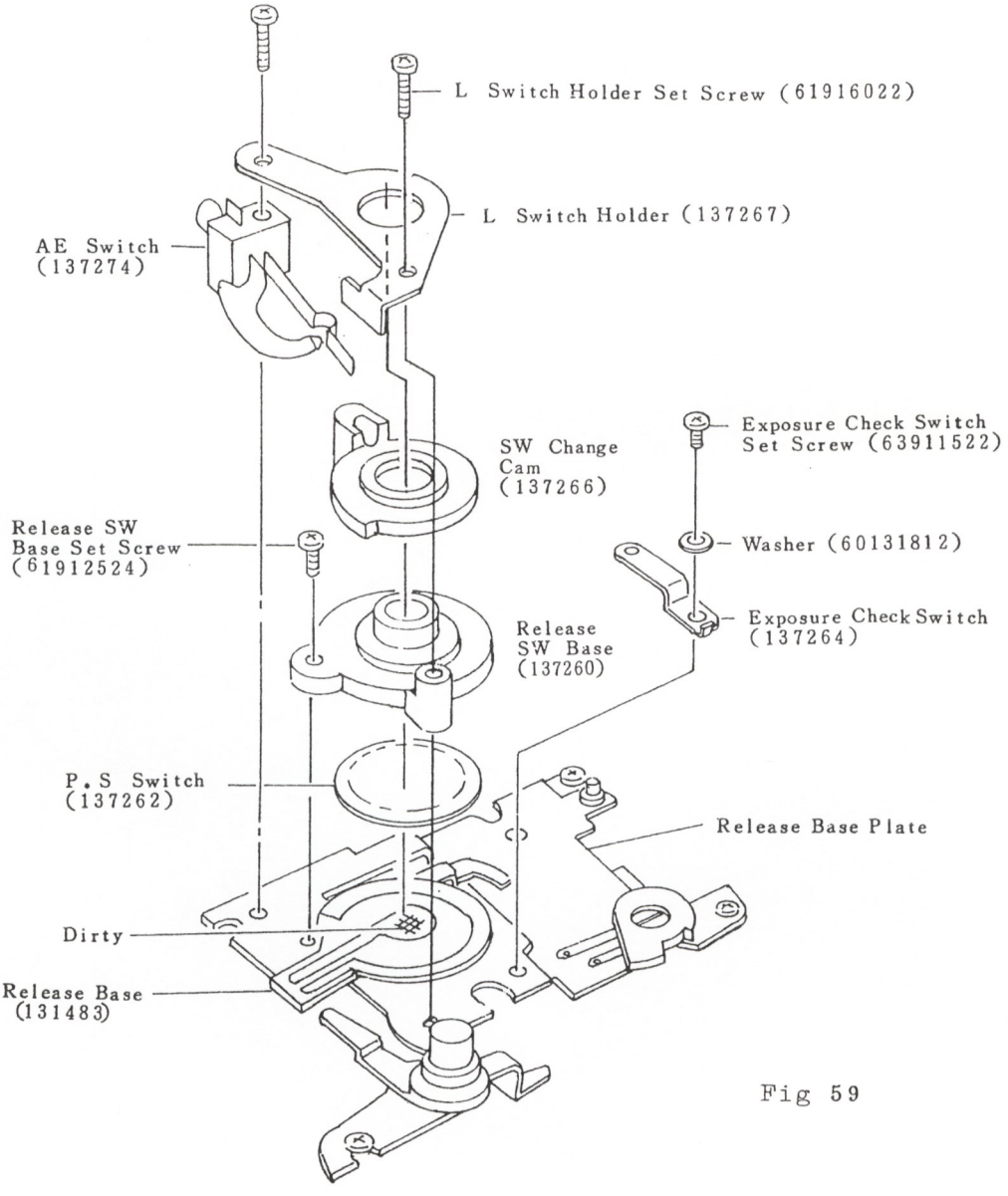
L Switch Holder Set Screw (61916022)
L Switch Holder (137267)
AE Switch (137274)
SW Change Cam (137266)
Exposure Check Switch Set Screw (63911522)
Washer (60131812)
Release SW Base Set Screw (61912524)
Exposure Check Switch (137264)
Release SW Base (137260)
P.S Switch (137262)
Release Base Plate
Dirty
Release Base (131483)

Fig 59

2. Incorrect Shutter Speed.

2-1) Shutter runs but does not open at all modes.
(The film is not exposed occasionally or always).

(1) There is a play or slack between surface of the Movable Plate (137446) and Magnet cores.

(2) 1st Curtain Gear Set Screw (137492) may become loose.

(3) 2nd Curtain Gear Set Screw (137480) may become loose.

(4) 1st Curtain Start Cam Set Screw (137396) may become loose.

(5) The 2nd Curtain Start Plate Ass'y (068270) is not firmly fixed to 2nd Curtain Gear Ass'y (068385)(Loosen the 2nd Curtain Start Plate Set Screw (61912024) and the Brake Pin (137388) and check whether the 2nd Curtain Start Plate Ass'y (068270) moves or not.)

(6) Improper position of the Magnet.

(7) Defective Magnet.

(8) Bad soldering of IC-4 terminal #10.

(9) Defective of IC-4.

(10) Defective of FPC-1 Ass'y.

(REMEDY)

(1) to (7), refer to P26

2-2) Shutter Speed is incorrect and the S-LED in wrong position.

(1) Bad soldering of IC-2 terminal #23 to #25.

(2) Bad soldering of the soldered joint part of S.Base and FPC-1.

(3) Malcontact of S.Click Ass'y (072610).

(4) Malcontact of Trigger Switch or maladjustment of Trigger Switch.

2-3) Shutter runs but does not open at "B" (Bulb) mode.

(1) Malcontact of S.Click Ass'y

(2) Bad soldering of the soldered joint part of FPC-1 and S.Base.

(3) Defective of FPC-1 Ass'y.

2-4) Shutter Speed is not stable.

(1) Bad soldering of Trigger Switch. (See Fig 56)

(2) Shutter Curtain Spring is getting week.
(The Shutter Cartain Unit is built-in Shutter Curtain Spring)

(3) Check the Shutter Mech. Ass'y.

2-5) The bottom part of film or transparency is not exposed.(See Fig 60)

(1) The Mirror flips up and does not remain in position but flips down a little during the exposure·····Replace the Start Lever Ass'y(068749)

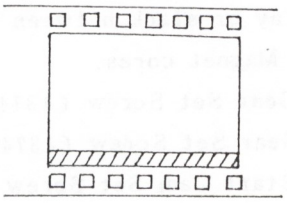

Fig 60

3. Defective of LED

Main Lamp

3-1) Main Lamp does not light.

(1) Malcontact of Main Switch (137280).

(2) Bad soldering of IC-4 terminal #5.

(3) Bad soldering of Main LED (137286), defective of Main LED.

(4) Short circuit of C2.

(5) Bad soldering of Main Switch and FPC-1.

(6) Bad soldering of IC-2 terminal #1.

(7) Bad soldering of R12.

(8) Defective of IC-3 and IC-4.

3-2) Main Switch is tured OFF but Main Lamp continuously lights up.

(1) Short circuit between (-) circuit and Camera Body.

(2) Main Switch is kept "ON".

B.C (Battery Check)

3-3) B.C LED does not light.

(1) Bad soldering of Main Switch and FPC-1. (See Fig 61)

(2) Malcontact of Main Switch (B.C Contact).

(3) Bad soldering of Main LED, defective of Main LED.

(4) Bad soldering of R4.

(5) Bad soldering of Tr1.

(6) Maladjustment of Battery Check Voltage.

(7) Bad soldering between FPC-1 and FPC-2.

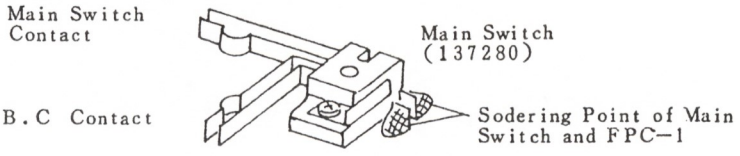

Fig 61

D-LED

3-4) D-LED does not light.

(1) Bad soldering of D-LED, defective of D-LED.

(2) Bad soldering of IC-5 terminal #6.

(3) Bad soldering of FPC-1 and FPC-2.

(4) Defective of IC-5.

(5) Short circuit of D-LED.

Exposure Compensation Warning LED

3-5) E.C.W LED does not light.

(1) Bad soldering of Corrective Switch (L) (157621) and Corrective Switch (S) (157622).

(2) Malcontact of Corrective Switch. (L), (S).

(3) Defective of E.C.W LED.

(4) Bad soldering of white and Red lead wires (from Exp Corrective LED Ass'y (068837)).

(5) Bad soldering of FPC-1 and ASA Base.

(6) Bad soldering of the soldered joint part of FPC-1 and S.Base.

3-6) E.C.W LED does not turn OFF.

(1) White lead wire of E.C.W.LED is short circuited to the Camera Body.

(2) Corrective Switch (L), (S) are kept "ON".

S-LED (Shutter-LED)

3-7) S-LEDs do not light.

(1) Defective of S-LED.

(2) Bad soldering of the soldered joint part of S-LED and FPC-1.

(3) Bad soldering of IC-2 terminal #5 to #19.

(4) Short circuit of C2.

3-8) Flash (⚡) LED does not light.

(1) Bad soldering of IC-2 terminal #4, #28.

(2) Bad soldering of R11, R7, R8.

(3) Bad soldering of Tr5, defective of Tr5.

(4) Short circuit between IC-2 tarminal #26 and #27.

(5) Bad soldering of the soldered joint part of S-LED and FPC-1.

(6) Defective of S-LED.

3-9) Flash (⚡) LED does not turn OFF.

(1) Defective of Tr5.

(2) Short circuit between IC-2 terminal #3 and #4.

(3) Short circuit between IC-2 terminal #27 and #28.

(4) Short circuit between IC-2 terminal #4 and #5.

3-10) S-LED dim lights

(1) Bad soldering of IC-2 terminal #21

(2) Defective of S-LED.

3-11) S-LED flickers at Auto

(1) Bad soldering of IC-2 terminal #34.

4. AUTO Exposure is Incorrect.

4-1) 〝OVER〃 LED continuously lights up and extremely under-exposed.

(1) Malcontact of ASA Contact Base Ass'y (072612).
(2) Malcontact of AVR Base Plate.
(3) Bad soldering of C12, defective of C12.
(4) Bad soldering of ASA Base and FPC-1.
(5) Bad soldering of IC-1 terminal #6 to #12, #27 to 30, 32.
(6) Bad soldering of IC-2 terminal #29, #30.
(7) Bad soldering of blue and yellow lead wires (from AVR).
(8) Bad soldering of Ra2, defective of Ra2.
(9) Defective of SPD-1.
(10) Defective of FPC-1 Ass'y.

4-2) 〝B〃 LED continuously lights up and extremely over-exposed.

(1) Malcontact of ASA Contact Base Ass'y, bad soldering of ASA Base and FPC-1.
(2) Bad soldering of C2, defective of C2.
(3) Malcontact of AVR Base.
(4) Short circuit of C11.
(5) Bad soldering of IC-1 terminal #1, #2, #3.
(6) Bad soldering of SPD-1, defective of SPD-1.
(7) Malcontact of Ra2.
(8) Short circuit between blue and yellow lead wires (from AVR).
(9) Bad soldering of white lead wire (from AVR)
(10) Defective of FPC-1 Ass'y.

4-3) In extremely darkness, 〝B〃 LED lights, than in a few seconds, 〝B〃 LED moves up than 〝OVER〃 LED lights.

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(REMEDY)

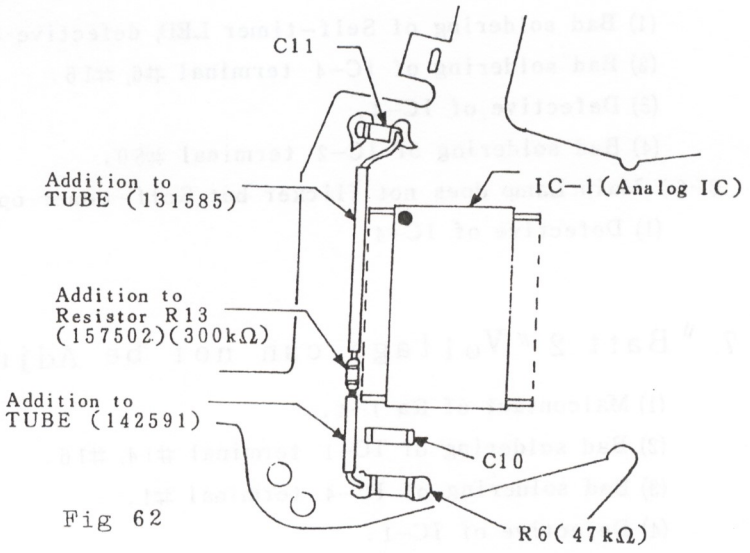

Fig 62

4-4) The film is extremely over-exposed at first frame, even though S-LED work normally.

(1) Contact surface of Shutter Magnet is dirty.

5. Defective Flash Photography.

(With TLA Flash Unit)

(1) Defective of Shoe Spring on the FPC-1.

(2) Check Top Cover (Accessory Shoe and etc.).

(3) Check Small mirror (SPD Mirror ..... 139738) by SPD-2.

(4) Bad Soldering of R9.

(5) M. Synchro Switch is kept "ON".

(6) Short circuit between M. Synchro Switch and Camera Body.

(7) Bad soldering SPD-2 and FPC-2.

(8) Defective of SPD-2.

(9) Maladjustment of standard voltaye for flash.

(10) Bad soldering C13.

6. Defective Self-Timer.

6-1) Self-timer does not operate.

(1) Malcontact of Select Switch Ass'y.

(2) Bad soldering between Select Base and FPC-1.

(3) Bad soldering of IC-2 terminal #40, #48.

(4) Defective of IC-2.

6-2) Self-timer LED does not light, but Self-timer operates and Main Lamp flickers.

(1) Bad soldering of Self-timer LED, defective of Self-timer LED.

(2) Bad soldering of IC-4 terminal #6, #16.

(3) Defective of IC-4.

(4) Bad soldering of IC-2 terminal #50.

6-3) Main Lamp does not flicker but Self-timer operates.

(1) Defective of IC-4.

7. "Batt 2" Voltage can not be Adjusted.

(1) Malcontact of Ra 1-4.

(2) Bad soldering of IC-1 terminal #14, #16.

(3) Bad soldering of IC-4 terminal #1.

(4) Defective of IC-1.

(5) Defective of FPC-1.

(6) Bad soldering of Semi-fixed resistor block.

(7) Defective of IC-4.

8. Standard Voltage can not be Adjusted.

(1) Bad soldering of C2.
(2) Bad soldering of IC-1 terminal #6 to #9, #32.
(3) Malcontact of Ra 1-2.
(4) Bad soldering of Semi-fixed resistor block.
(5) Check the ASA Base (Short circuit).
(6) Check the AVR Ass'y (Short circuit).
(7) Defective of IC-1.

9. OFF-SET Voltage can not be Adjusted.

(1) Bad soldering of SPD-1, defective of SPD-1.
(2) Malcontact of Ra1-3.
(3) Check the ASA Base
(4) Check the AVR Ass'y.
(5) Bad soldering of IC-1 terminal #1 to #5, #10 to #12.
(6) Bad soldering of C11, defective of C11.
(7) Bad soldering of C2.
(8) Bad soldering of R6.
(9) Defective of FPC-1 Ass'y.
(10) Bad soldering of IC-1 terminal #26.
(11) Bad soldering of IC-2 terminal #40.

10. Standard Voltage for flash can not be Adjusted.

(1) Bad soldering of SPD-2, defective of SPD-2.
(2) Malcontact of Ra1-3.
(3) Bad soldering of IC-1 terminal #11, #13, #18, #20, #21.
(4) Bad soldering of ASA Base and FPC-1.

11. The Main Lamp remains on, turming itself off automatically 10 second later but it does not.

(1) Short circuit of C5.
(2) Short circuit of IC-4 terminal #9 to #17.
(3) Bad soldering of C2.
(4) Short circuit between IC-2 terminal #43 and #44.
(5) Short circuit between IC-2 terminal #39 and #40.
(6) Bad soldering of Tr2, defective of Tr2.
(7) Defective of IC-2, IC-3, IC-4, IC-5.

12. When the Main Switch is turned on (and depress the Shutter Release Button), all of the electrical circuits in the Camera come on but it does not.

(1) Bad soldering between Cell Contat and FPC-2.
(2) Bad soldering of Main Switch or malcontact of Main Switch.
(3) Bad soldering of IC-4 terminal #25.
(4) Bad soldering of IC-2 terminal #44.
(5) Bad soldering of C5.
(6) Defective of IC-4.

13. Battery drain or Short Circuit.

(1) Inverse of Cell Contact Diode (D1)
(2) Short circuit of Camera Body and FPC-1, FPC-2, D-LED and Red lead wire of E.C.W LED.
(3) Defective of IC-2.

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