

Nikon FA

ニコン FA

REPAIR MANUAL

修理指針



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Tokyo, Japan

SPECIFICATIONS & MECHANISM

Contents	Page
[1] SPECIFICATIONS	M1
[2] MECHANISM OUTLINE	
Mirror raise mechanism	M7
Mirror down mechanism	M9
Viewfinder display	M11

1. SPECIFICATIONS

Type of camera: Electronically controlled 35mm single-lens reflex

Usable film: 35mm film

Picture format: 24mm x 36mm

Standard lenses: AI-S Nikkor 50mm F1.2, 50mm F1.4, 50mm F1.8

Lens mount: Nikon bayonet mount

Maximum aperture index: Automatic with AI-S and AI Nikkor lenses

Shutter: Electromagnetically controlled vertical-travel, metal focal plane shutter with titanium curtains

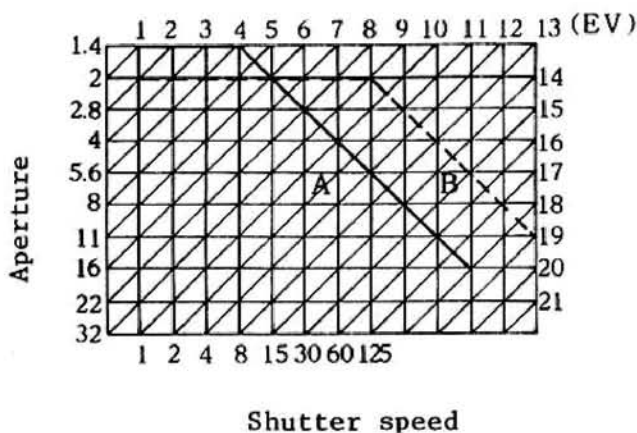
Shutter speeds: Stepless speeds from 1/4000 to 1 sec. in P and A auto-exposure modes; 13 speeds from 1/4000 to 1 sec. on S and M; mechanically controlled, 1/250 sec. at M 250 setting and long exposure at B setting available

Exposure control: Three exposure modes: P (programmed), S (shutter-priority) and A (aperture-priority); M (manual) exposure mode selected via Mode changeover knob

P mode: With minimum aperture setting of the lens, the FA automatically selects the optimum combination of shutter speed and lens aperture settings for correct exposure by the prearranged program of its microcomputer

Also, the FA's microcomputer activates the High-Speed program automatically via Focal length (Fmm) signal when Nikkor or Nikon Series E lenses of 135mm * or longer are used

* High-Speed program operable lenses are AI-S Nikkor, Nikon Series E lenses and new teleconverters for AI-S type



ASA/ISO 100

A: AI-S Nikkor 50mm F1.4 lens in use

B: AI-S Nikkor 135mm F2 lens in use

S mode: With minimum aperture setting of the lens, when a shutter speed is set, the FA automatically picks the matching lens aperture steplessly for correct exposure.

A mode: When a aperture of the lens is set, the FA automatically picks the matching stepless shutter speed for correct exposure.

M mode: Both aperture and shutter speed are set manually.

Viewfinder: Fixed eyelevel pentaprism type

Frame coverage: Approx. 93%

Finder magnification: Approx. 0.80X with 50mm lens set at infinity

Finder diopter: -1 ± 0.5 dpt.

Focusing screen: Interchangeable matte/fresnel focusing screen with central split-image rangefinder spot and microprism collar (Nikon Type K2) as standard; two other types of screens available optionally (Type B2 and E2)

How to change focusing screens: By pulling the focusing screen, release latch at the top front of the mirror box. A special tweezers is provided for screens change.

View finder information

a: Ready-light LED

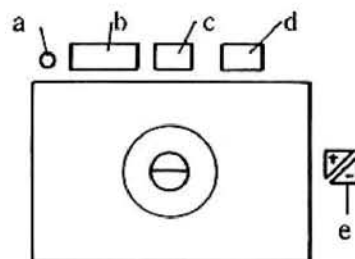
b: LCD panel; 7-segments, 4-digit

c: ADR aperture f-number in use

d: Shutter speed in set

e: Exposure compensation mark

LED lights up which exposure compensation in use



Film-advance lever: Single stroke; 165° full angle MD switch remains off in stand-off position. Release button is locked in rest position. Depressing of shutter button is prevented during film-advancing.

Exposure meter: Instant stop-down measurement for shutter control except on M mode Meter incorporated with two SPDs for Automatic Multi-pattern Metering (AMP)

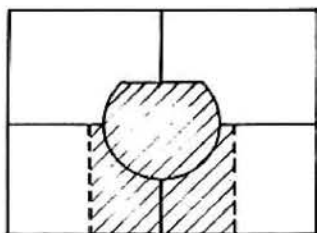
Exposure meterings for Nikkor and Nikon Series E lenses

○: operable

X: inoperable

Mode	Type of lens	A M P	Centerweighted metering
P, S, A with stop-down switch off	AI-S, AI and series E	○	○
	Modified AI	×	○
	AI-S, AI and series E with teleconverter for AI-S type	○	○
	Modified AI with teleconverter for AI-S type	×	○
	AI-S, AI, modified AI and series E with teleconverter for AI type	×	○
M	All types	×	○
All modes with stop-down switch on	All types	×	○

Automatic Multi-Pattern Metering (AMP)



On P, S and A modes, AMP system divides the scene inside the frame into five segments and reads the brightness of each individual segment as shown in the figure. In accordance with the data of these segments, correct exposure is calculated to give optimum exposure automatically. Center of the frame surrounded by broken lines is divided into 4 segments vertically and horizontally.

Metering range: LV1 - LV20 at ASA/ISO 100 with F1.4 lens

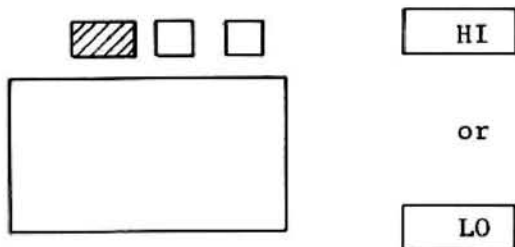
Film speed range: ASA/ISO 12 - 4000

Exposure compensation: +2 - -2EV

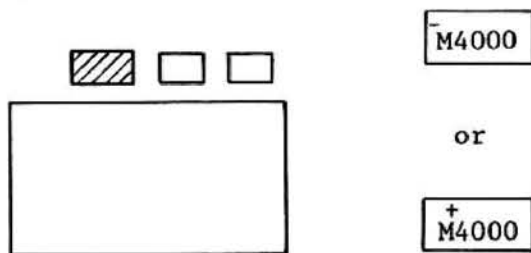
+1 - -1EV at ASA/ISO 12 and 4000.

Exposure compensation mark inside the viewfinder lights up during in operation.

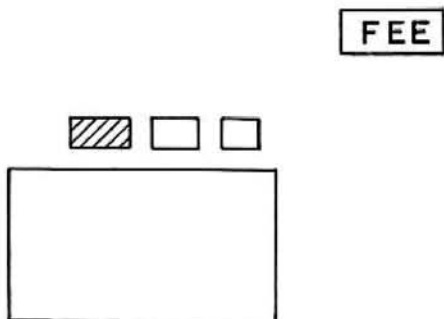
Out of metering range warning: P, S and A modes



Over/under exposure warning: M mode



Warning if aperture is not set at minimum: P mode



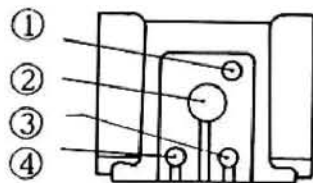
If the f/stop is not set at f/11 or larger f/number, FEE is indicated.

FEE is also indicated on S mode when correct exposure is not obtained at the aperture setting other than the minimum aperture.

Battery consumption: Metering: Approx. 9.4mA
 Shutter releasing: Approx. 17mA
 Exposure compensation LED lighting: Approx. 2mA

Accessory shoe: 4 contacts provided

1. Monitor contact
2. Sync contact
3. TTL flash auto-stop signal contact
4. Ready-light contact



Flash synchronization: Sync with electronic flash unit at 1/250 sec. or lower.

On P, S and A modes (with the SB-15 or 16):
 flash sync automatically set to 1/250 sec.;
 LCD shows "250"

On M mode (with SB-15 or 16):

When shutter dial is set between 1/500 sec.
 and 1/4000 sec., flash sync automatically set
 to 1/250 sec. and LCD shows "M 250".

At 1 - 1/250 sec. settings, shutter speed is
 as set.

Ready-light lights up after flash output is
 charged on both P, S, A and M modes.

Self-timer: 8 - 14 sec. delayed exposure; mechanical type;
 cancellable after setting.

Frame counter: Additive type, self-resetting; until the frame
 counter reaches "1", shutter fires at 1/250 sec, LCD
 in the viewfinder displays "C 250" on P, S and A modes,
 and "MC 250" on M mode.

Multiple exposure: Possible via lever

Shutter release: At 1 - 1/4000 dial settings, depressing shutter
 release button halfway turns power switch on and
 further depressing turns magnetic release switch on and
 to release shutter.
 At M 1/250 and B settings, shutter releases
 mechanically.

Power switch: Power switch is turned on when shutter release button
 is depressed halfway; it remains on for approx. 16 sec.
 after finger is lifted off the button.
 By setting shutter dial to M 1/250 or B, power switch
 turns off.

Battery check: By confirming if power switch is on by depressing shutter release button halfway.

Battery voltage	Power switch
2.5V or more	Remains on for approx. 16 sec.
2.5V - 2.3V	Remains on momentaly
2.3V or less	Fails to turn LCD readout on Prohibits shutter release

Power source: Two 1.55V silver-oxide batteries, one 3V lithium battery or two alkaline-manganese batteries.

Battery power is supplied by the MD-15's power source when attaching the motor drive to the FA.

Flash synchronization

on M250/B release: Ready-light lights up when the speedlight is charged; TTL flash output control unavailable.

Depth-of-field preview: Via lever provided; when lever actuated, P and S modes changed into full-aperture center-weighted metering on A mode; A and M modes changed into stop-down center-weighted metering

Shutter dial lock: Locked at M250 and B settings; released by depressing the button

Eyepiece shutter: Closed by turning eyepiece shutter lever clockwise

Motor drive coupling: MD-11, MD-12, MD-15; by tripod/motor drive coupling socket; film-advance coupling angle: 135°

Handgrip: Detachable; must be detached when attaching motor drive

Camera back: Hinged; safety lock provided

Data back contacts: Provided for the data back MF-16

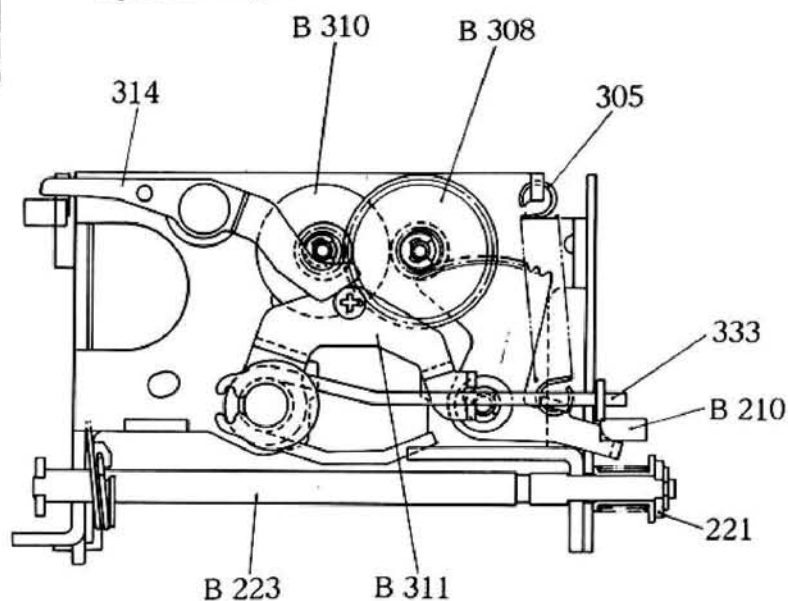
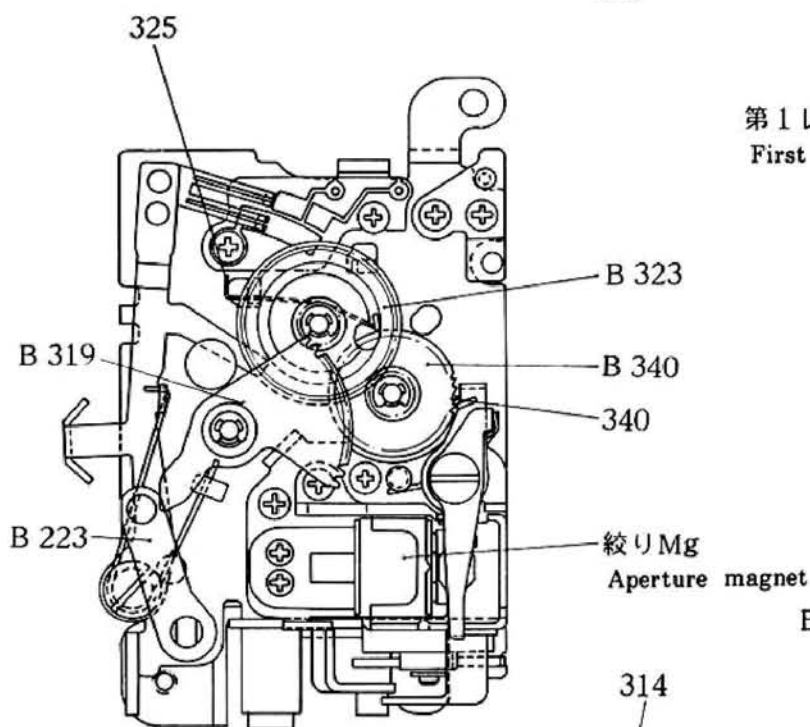
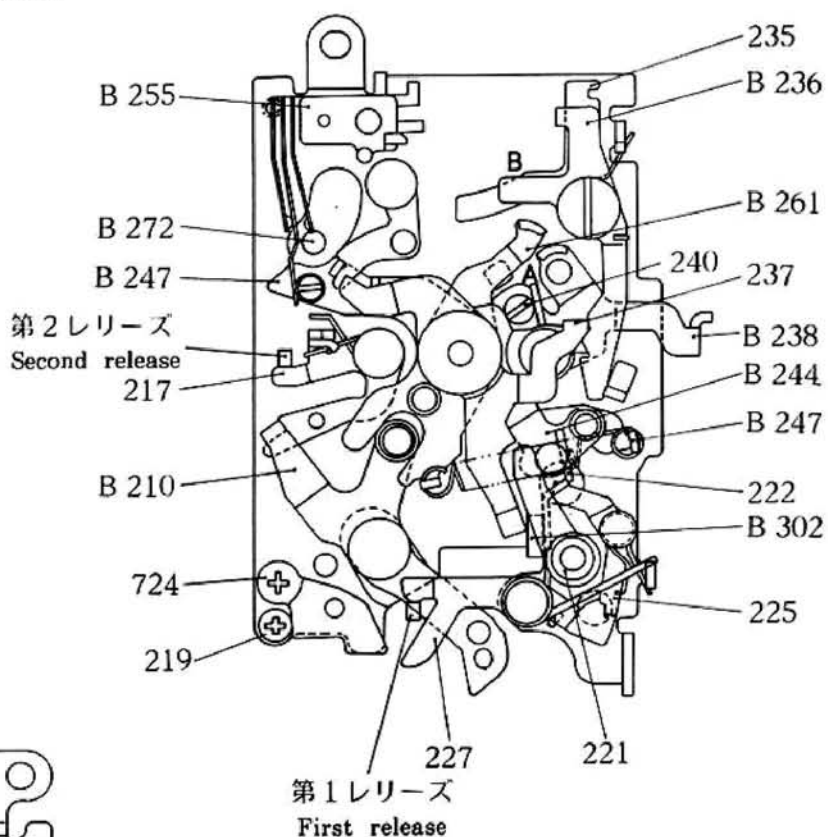
Demensions: 142.5mm (W) x 92mm (H) x 64.5mm (D)

Weight: Approx. 625g (without lens)

ミラーアップ Mirror raise mechanism

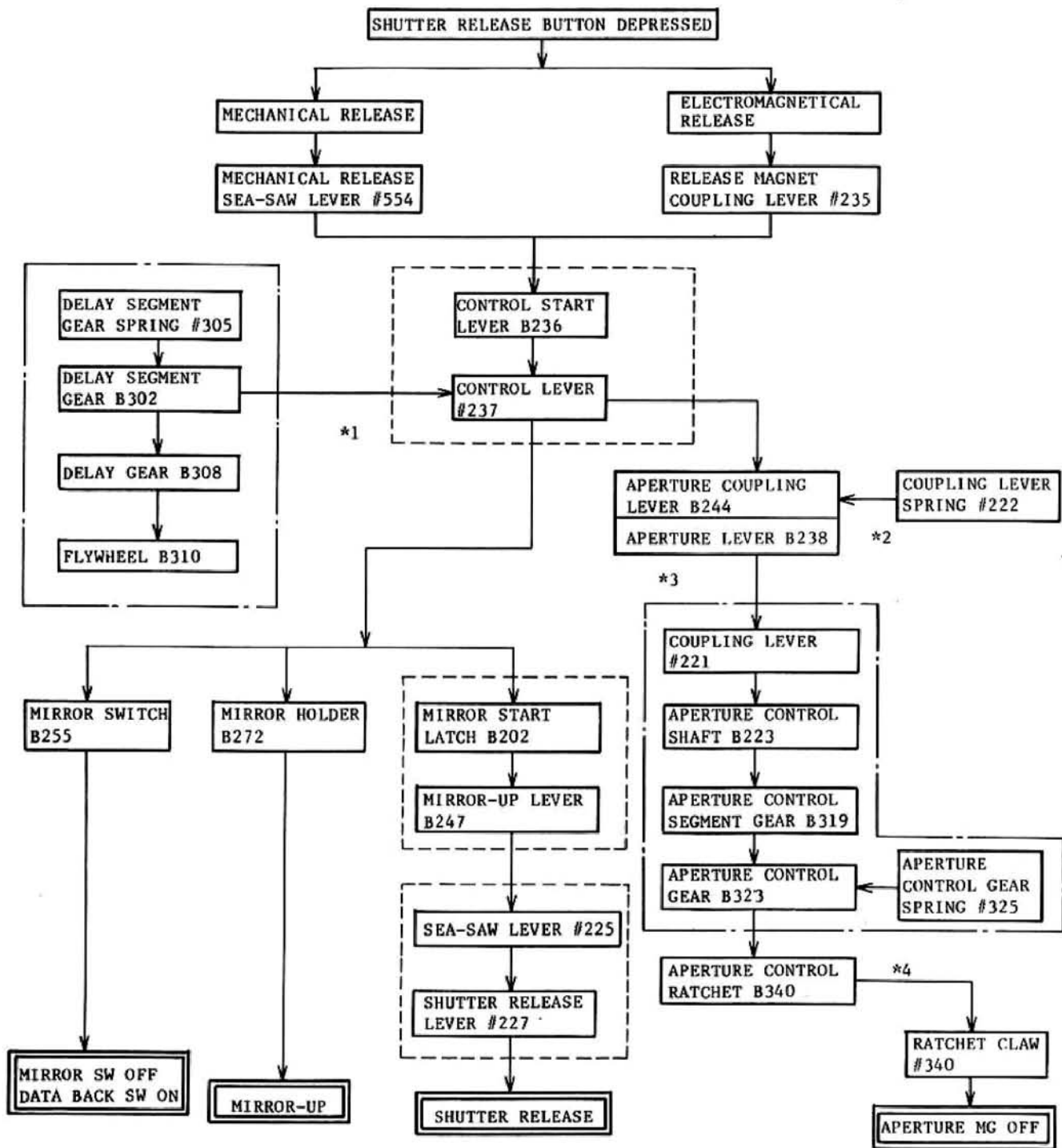
※各図はチャージ状態を示している。

All figures show mech. of charged condition.

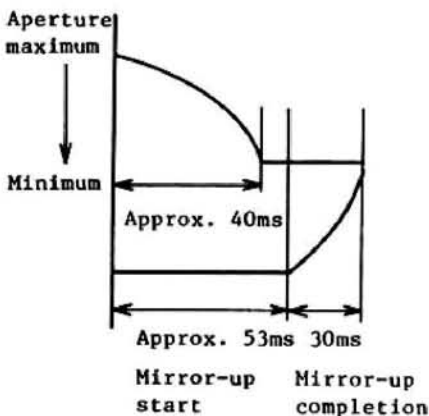


MIRROR RAISE MECHANISM

Broken-line enclosure indicates that the parts of mechanism are released in this sequence.



Control lever start

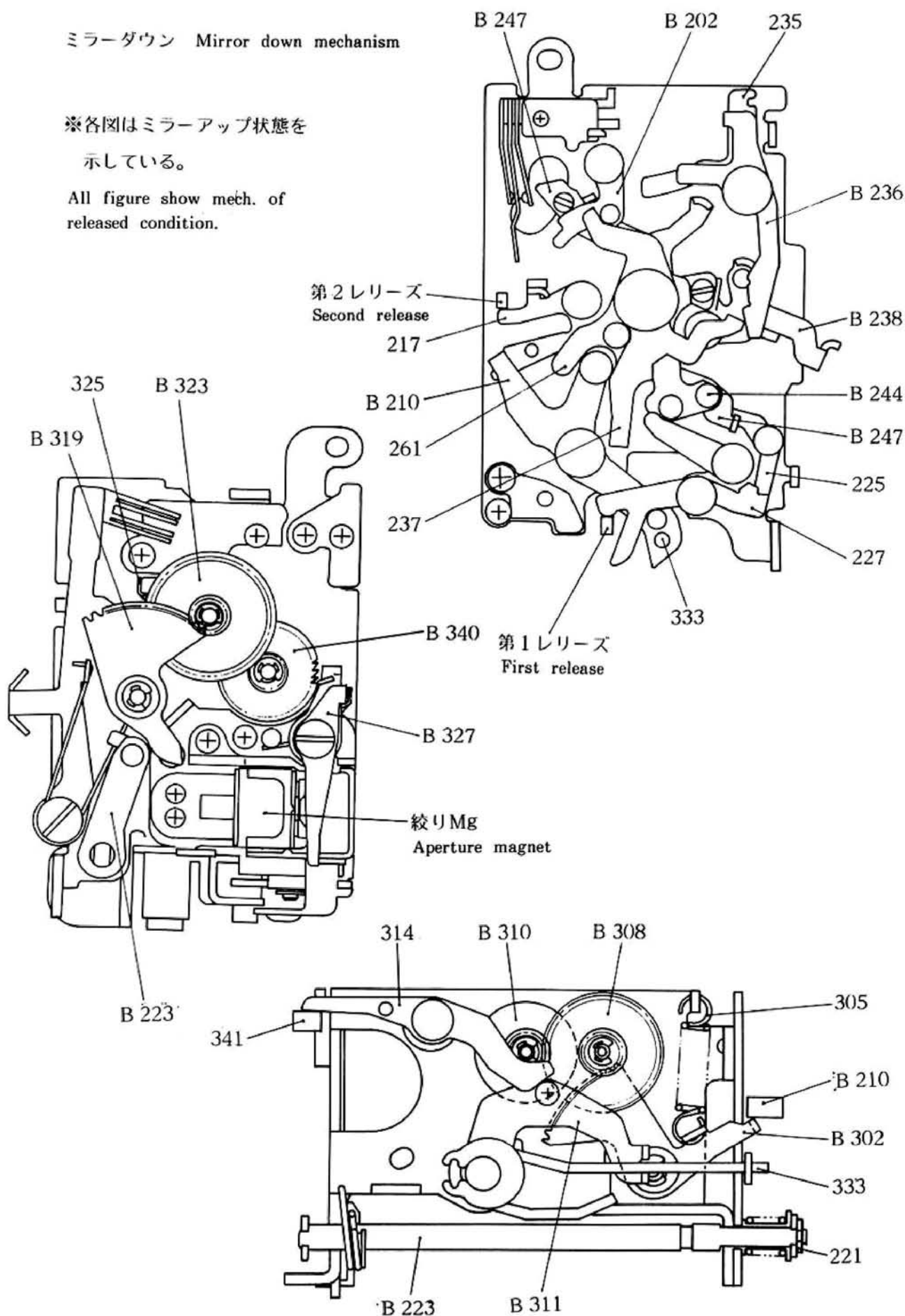


- *1: Flywheel B310 and Delay gear B308 delay action of Mirror up lever B247 for approx. 53ms.
- *2: Coupling lever spring #222 makes Aperture coupling lever B244 and Aperture lever B238 turn clockwise.
- *3: Coupling lever spring #222 and Delay gear B308 controls the time for approx. 40ms that Aperture lever B238 stops down the aperture from the max. opening to the min. opening.
- *4: On P and S modes, when Aperture magnet is turned off, the ratchet claw latches Ratchet #340 and Aperture coupling lever B244 to control Aperture lever B238.

ミラーダウン Mirror down mechanism

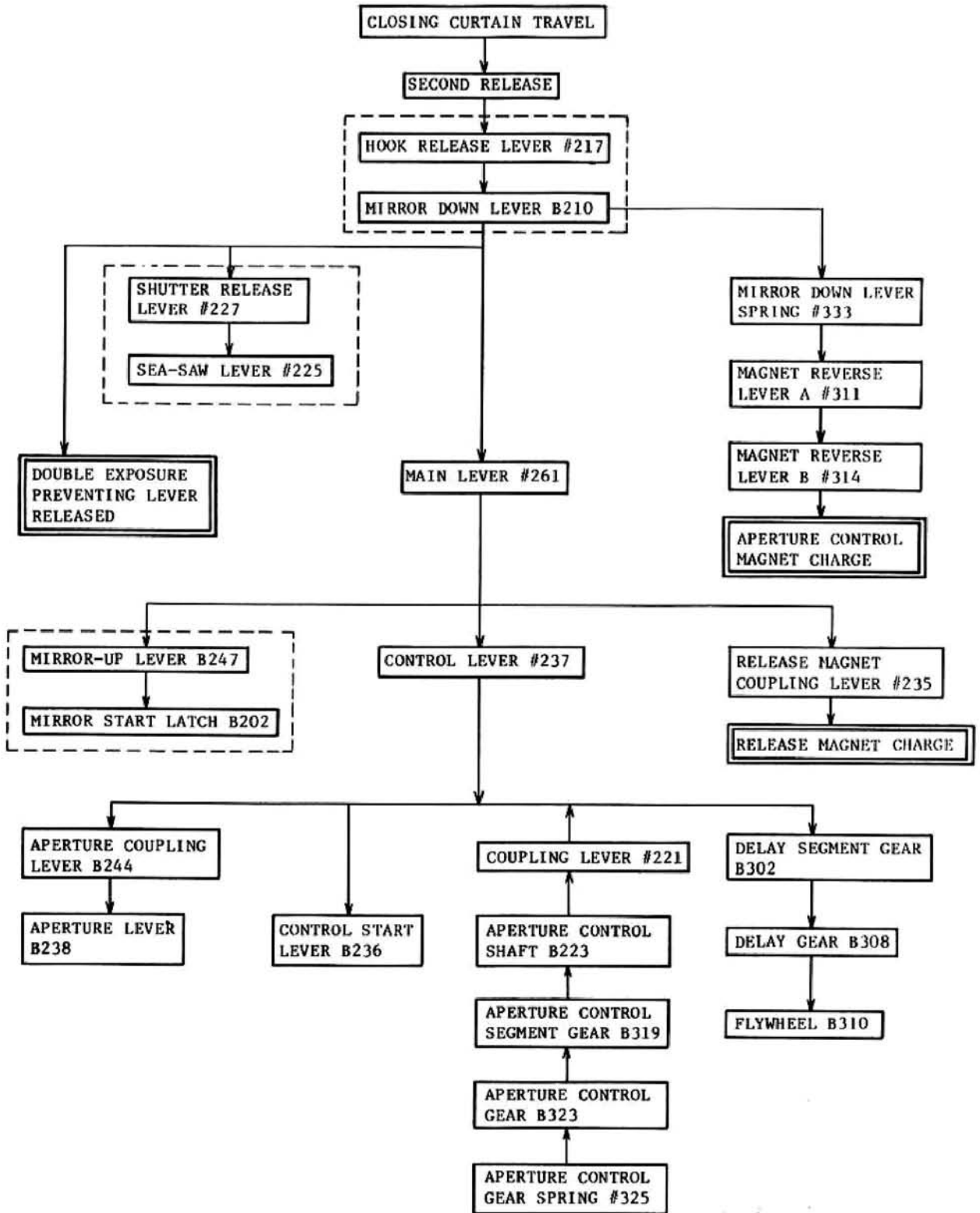
※各図はミラーアップ状態を示している。

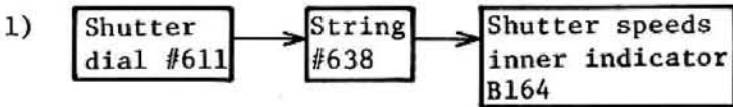
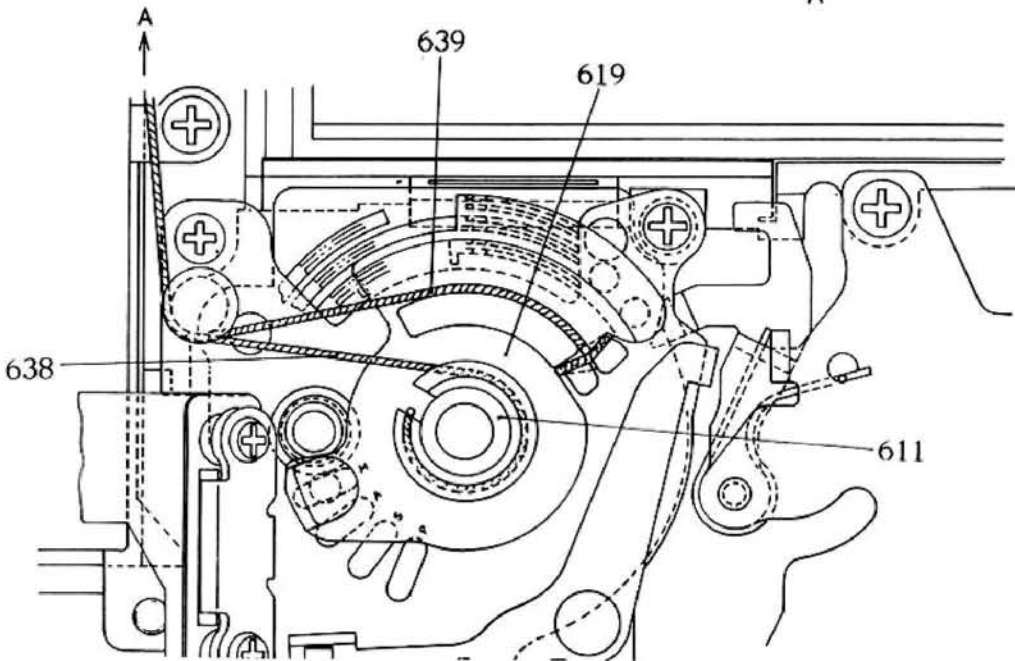
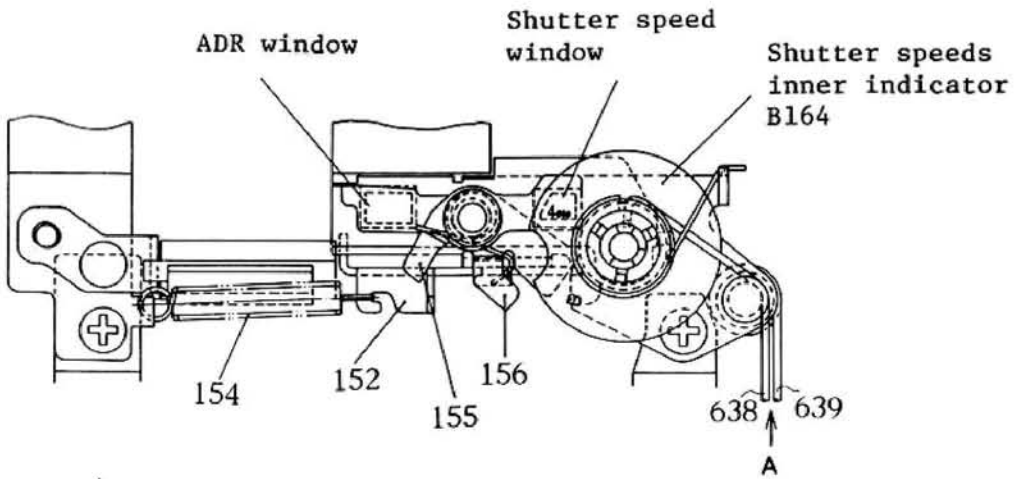
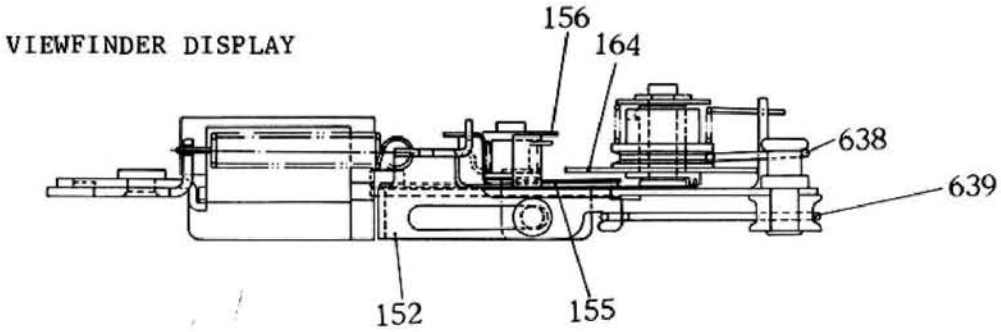
All figure show mech. of released condition.



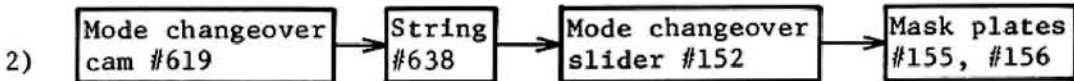
MIRROR DOWN MECHANISM

Broken-line enclosure indicates that the parts of mechanism are latched in this sequence.

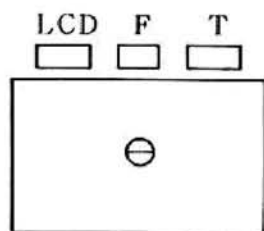




Turning shutter dial #611 makes shutter speeds inner indicator B164 rotate via String #638 to indicate the shutter speed in use.



By turning Mode changeover cam B619, the mask plates cover either ADR window or shutter speed window.

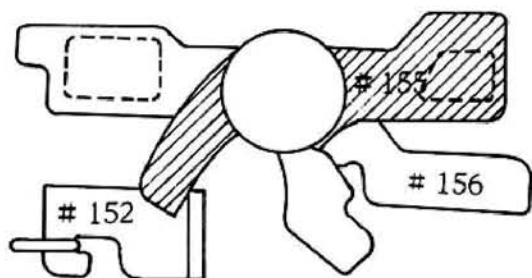


(ASA/ISO 100)
(EV 15 $\frac{1}{500}$ F = 8)

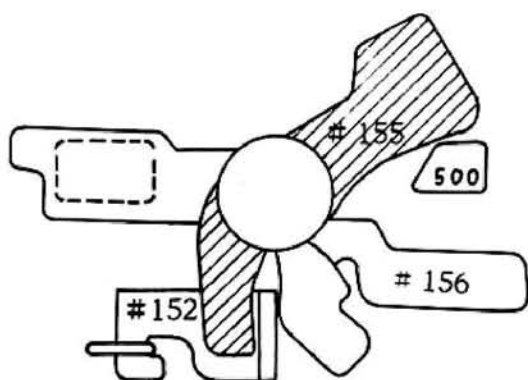
Viewfinder display patterns changeable with the mode selection.

Mode	LCD	ADR	Shutter speed
P	500		
S	F8		500
A	500	8	
M	M500	8	

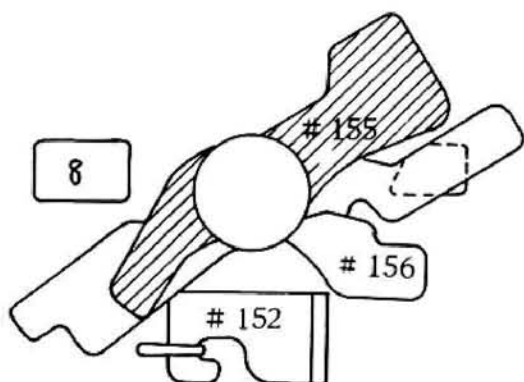
ASA/ISO 100, EV15



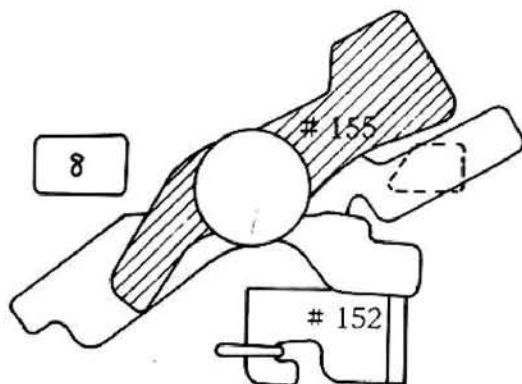
P mode



S mode



A mode



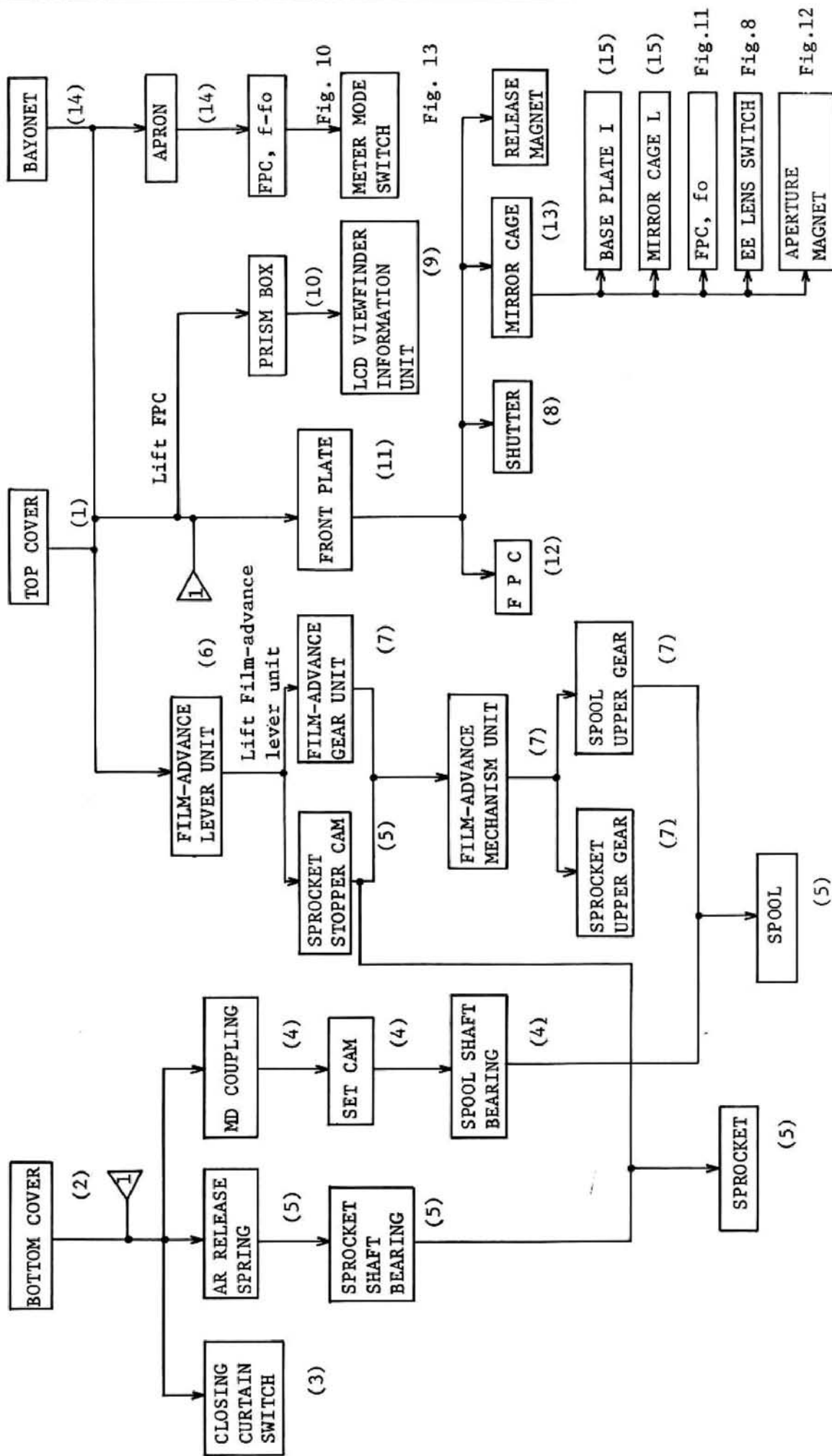
M mode

DISASSEMBLING & ASSEMBLING & ADJUSTMENTS & EXPLOSION DRAWINGS

Contents	Page
[1] DISASSEMBLING	
1. Disassembling outline	D1
2. Disassembling procedure	D2
[2] ASSEMBLING, ADJUSTMENTS AND EXPLOSION DRAWINGS	
1. Film-advance Shaft, Sprocket (Figure 1)	A1
2. Film-advance Mechanism Unit (Figure 2)	A2
3. Film-advance Lever Unit (Figure 3)	A3
4. Body, Shutter (Figure 4)	A5
5. Bottom Cover (Figure 5)	A7
6. Rewind Shaft (Figure 6)	A9
7. Mirror Mechanism (Figure 7)	A11
8. Mirror Mechanism (Figure 8)	A13
9. Front Plate 1 (Figure 9)	A15
10. Bayonet (Figure 10)	A17
11. Front Plate 2 (Figure 11)	A19
12. Front Plate 3 (Figure 12)	A21
13. Pentagonal Prism (Figure 13)	A25
14. FPC (Figure 14)	A27
15. Top Cover (Figure 15)	A34
15-1. Shutter Speed Accuracy Adjustments	A35
15-2. Switches/Gray Code Checking	A37
16. Camera Back Hinge (Figure 16)	A39
17. Camera Back (Figure 17)	A40

1. DISASSEMBLING OUTLINE

Note: 1) Numbers in parentheses refer to disassembling procedures.
 2) Figure numbers refer to figures in reassembling procedures.



2. DISASSEMBLING PROCEDURE

- Note: 1) Disassembling should be started after batteries are removed.
- 2) Figure numbers refer to figures in reassembling procedure.
- 3) Be sure to learn how the lead wires are arranged.

(1) Top cover

Fig. 3

Film-advance lever B401

Leatherette #403
Cover ring,
film-advance lever
#402

Tool: J11126

Fig. 12

Shutter dial #601

⊖ Screw #793x3
Shutter dial button
#616

Fig. 6

Rewind knob #654

Rewind crank spring
#656
Washer, rewind shaft
#660
Friction spring #662
Rewind shaft tube #665

Fig. 6

O/C knob #686

Snap ring, O/C knob
#659
Tool: J5272

Fig. 6

ASA dial unit B2661

Axle, O/C lock lever
#689
Tool: J11089
Screw #703x2
Lever, rewind knob
lock B688
Retainer, ASA index
ring #687

TOP COVER B23

Fig. 15

Screw #754x2

Screw #753x3

(2) Bottom cover

Battery chamber lid B137 Fig. 5

↓
Bottom cover B24 Fig. 5

Screw #751x3

(3) Closing curtain switch

Unsolder lead wires from
Closing curtain switch B549 Fig. 5

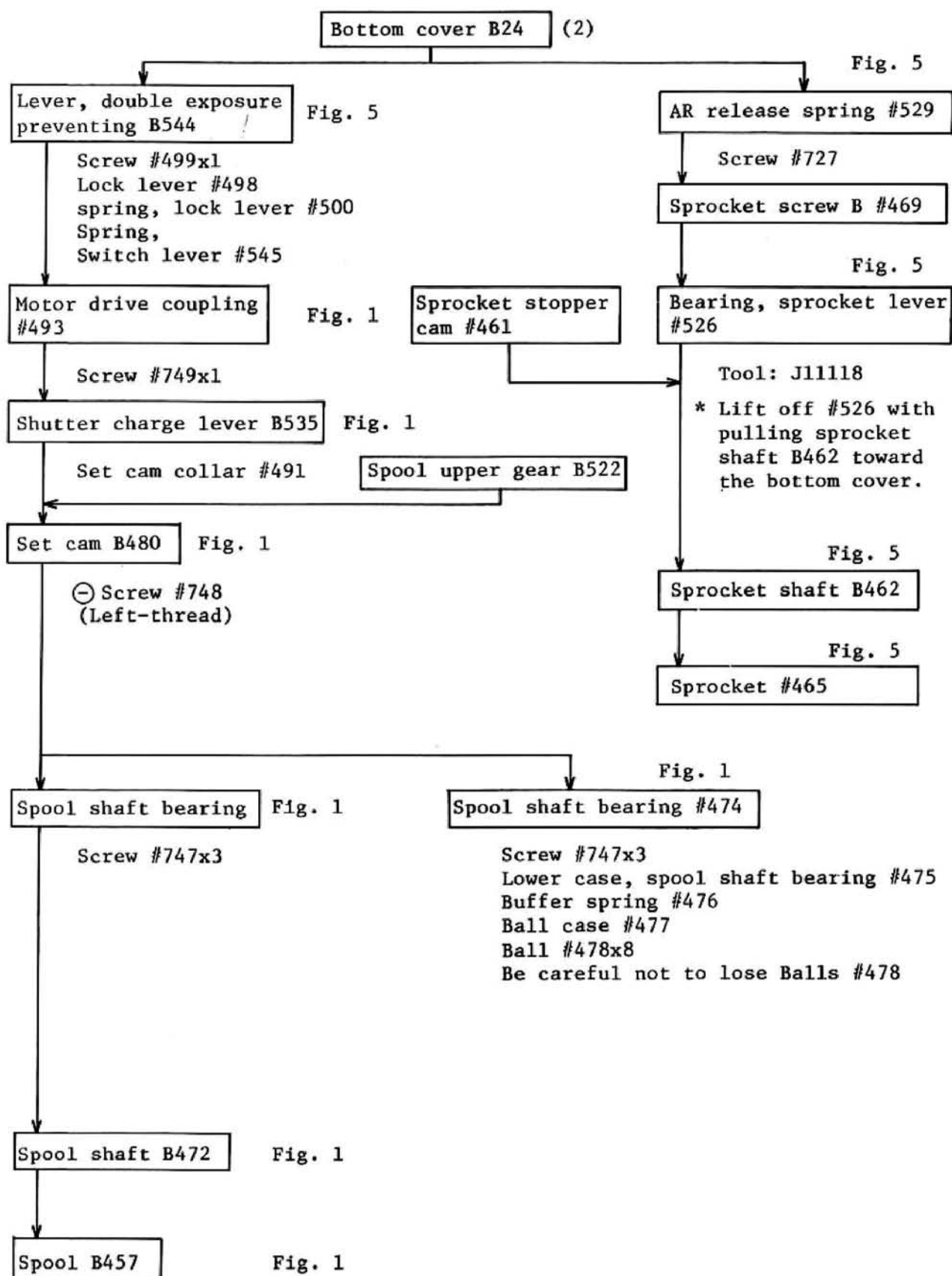
↓
Lead wires
#1078 (blue), #1070 (blue)
#1079 (brown), #1071 (brown)

↓
Closing curtain switch B549 Fig. 5

Screw #743

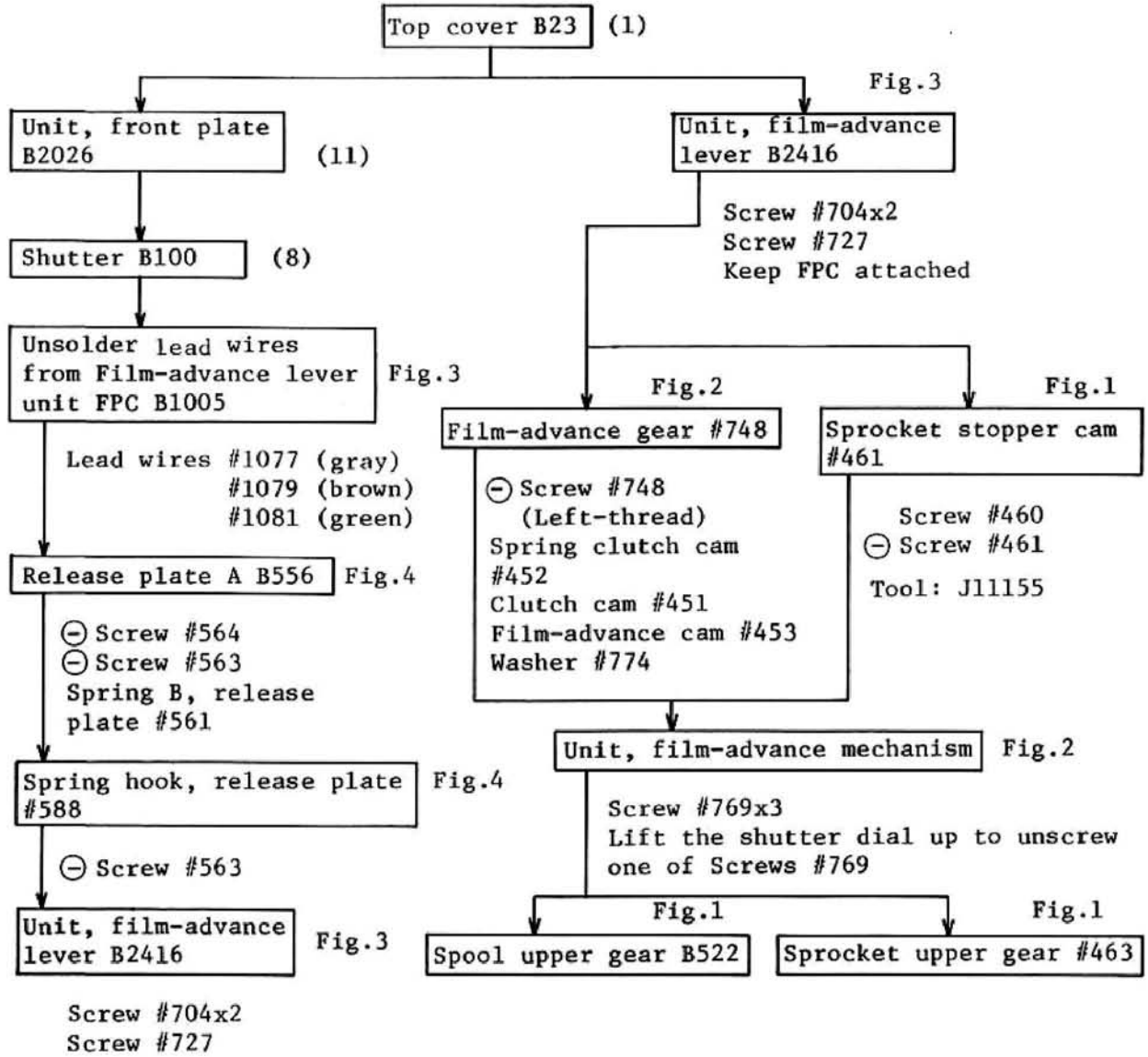
(4) Spool

(5) Sprocket

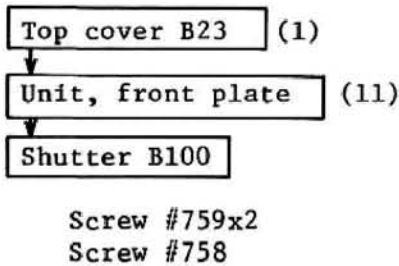


(6) Film-advance lever unit

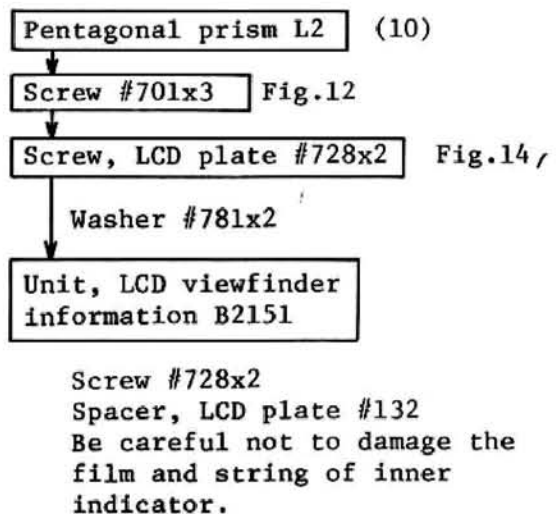
(7) Film-advance mechanism unit



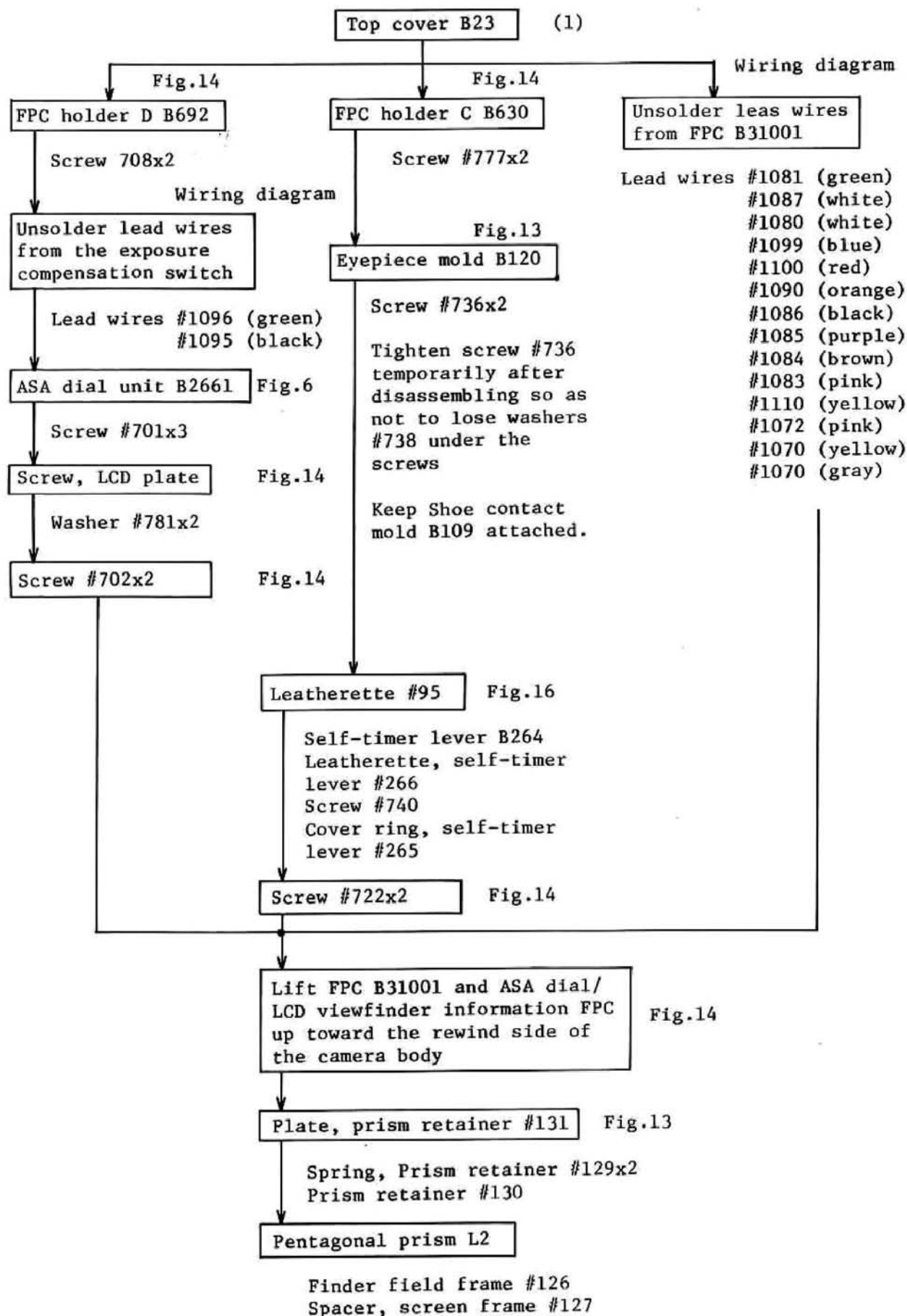
(8) Shutter



(9) Unit, LCD viewfinder information



(10) Pentagonal prism



(11) Unit, front plate

FPC holder D B691 Fig.14

Screw #708x2

Unsolder lead wires from the exposure compensation switch Fig.6

Lead wires #1096 (green)
#1095 (black)

ASA dial unit B2661 Fig.6

Screw #701x3
One of screws #701 locates under the exposure compensation dial lock spring

Screw, ASA dial/LCD viewfinder information FPC B1002 Fig.14

Screw #702x2

FPC holder C B630 Fig.14

Acceptor, FPC holder C B628
Screw #777x2

Screw, Shutter dial Fig.12

Unscrew one of screws #701 located at the eyepiece side

Unsolder lead wires from FPC B31001 Wiring diagram

Leadwires #1080 (white)
#1081 (green)
#1072 (pink)
#1112 (white)

Unsolder lead wires from Shoe contact mold B109 Wiring diagram

Lead wires #1105 (orange)
#1082 (orange)
#1106 (black)



Screws, MD base plate Fig.14

Screw #704x2

Unsolder lead wires from the MD base plate Wiring diagram

Peel off Tape #46
Lead wires #1077 (gray), #1076 (yellow), #1075 (black), #1074 (red), #1073 (blue), #1072 (pink), #1071 (brown)

Self-timer lever B264 Fig.13

Leatherette, self-timer lever #266
Cover ring, self-timer lever #265
Screw #740

Leatherettes A #95 and B #96 Fig.16

Cover, variable resistors B27 Fig.13

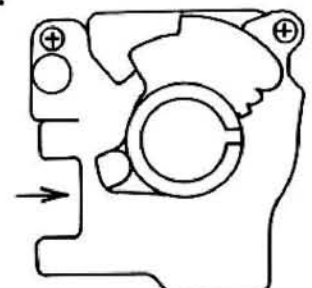
Screw #701x3
Retainer, printed circuit #28

Unscrew screws from Front plate unit B2026 Fig.13

Screw #755x5
Screw #743
Screw #756x2

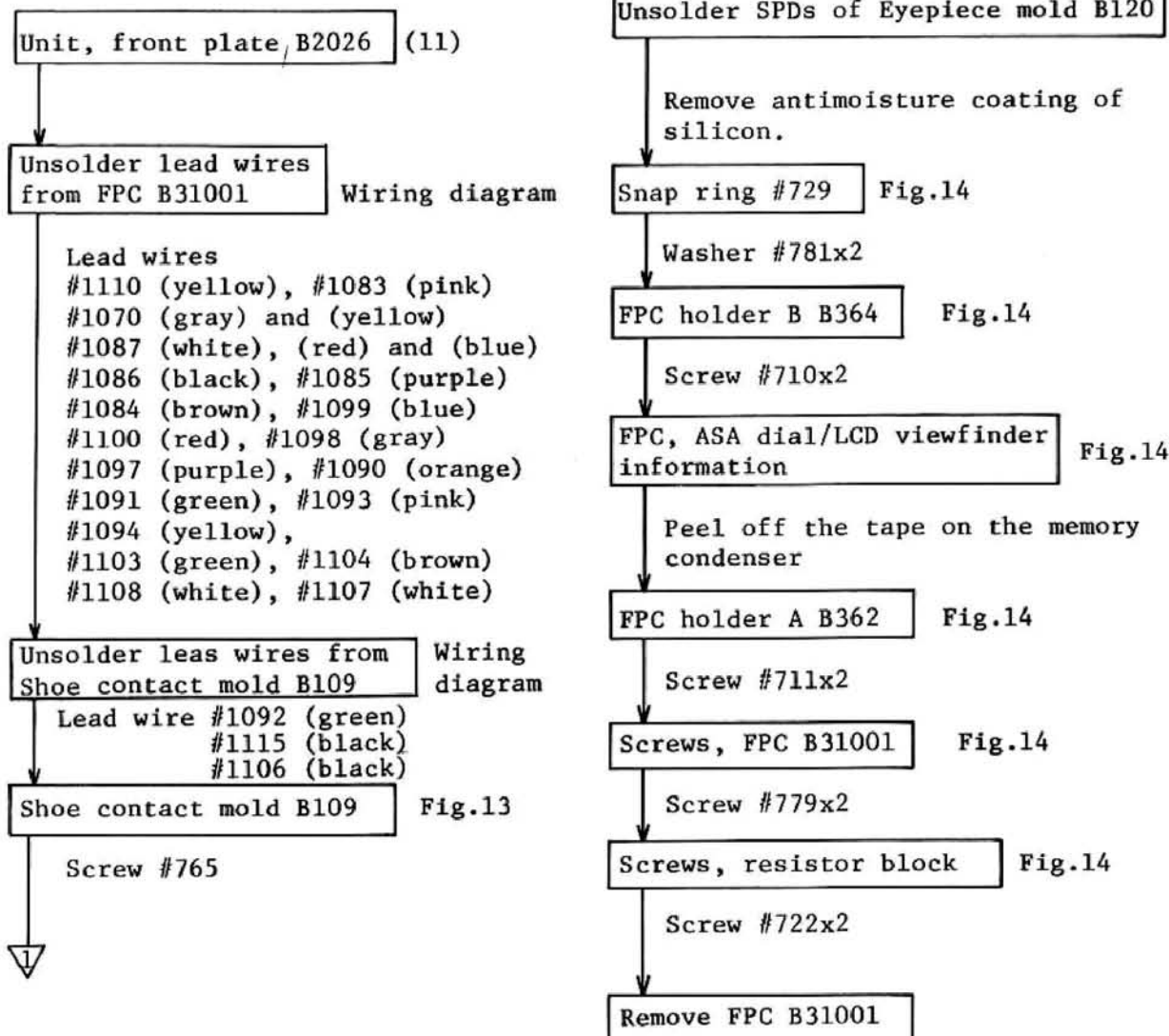
Remove Front plate unit B2026

Peel off the tape under the shutter dial.
Separate shutter control FPC #99 from the cutout of shutter dial when removing.



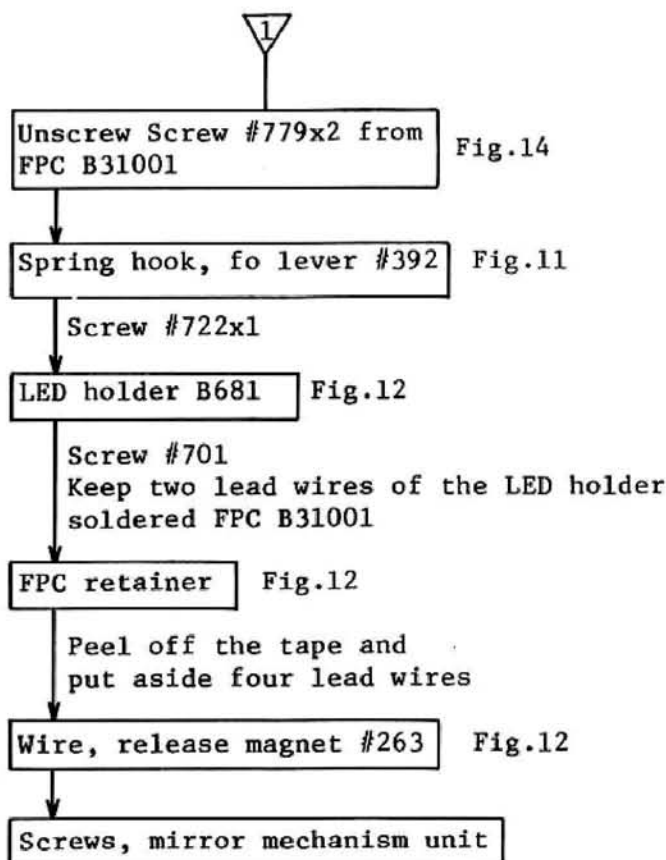
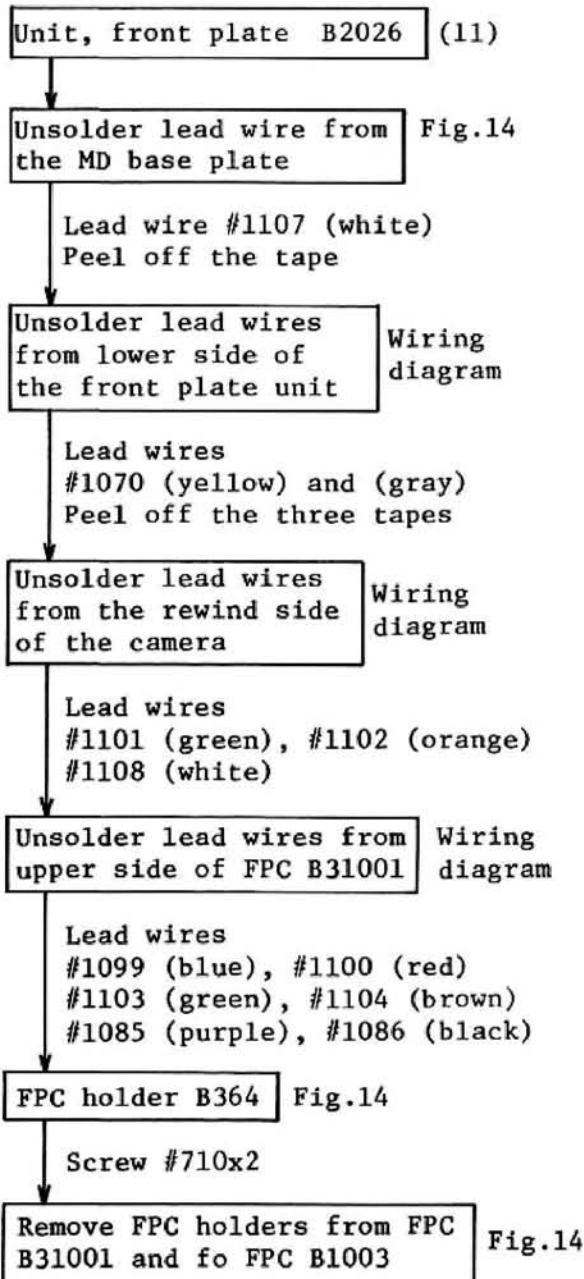
(12) F P C

Mount a tool lens to facilitate holding
of camera disassembled.
Be careful not to damage the MD contact.



Be careful not to break the FPC
when removing.

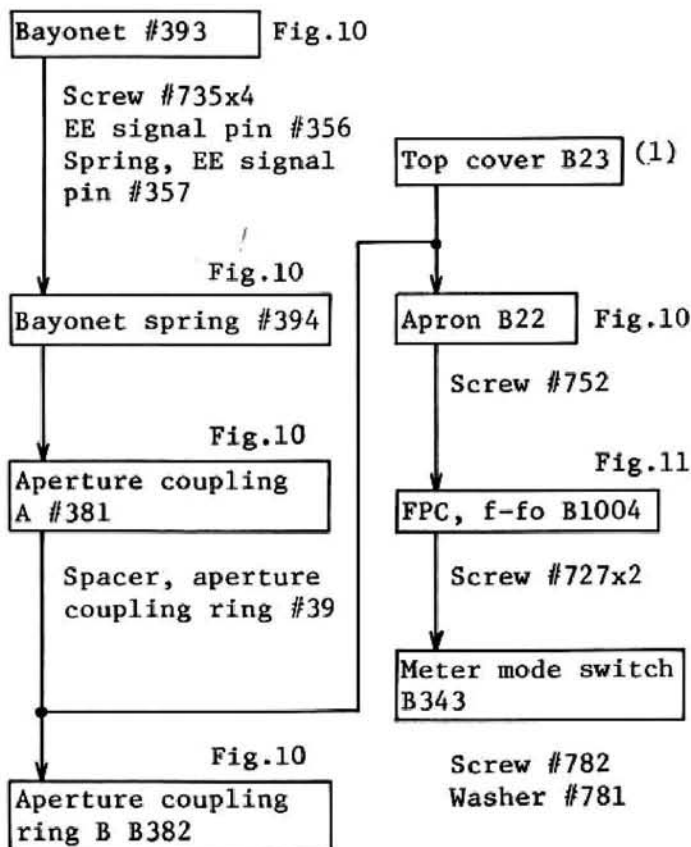
(13) Mirror box



Screws
#713, #286
#358 and #260
Lift FPC B31001 up to unscrew these screws.
Be careful not to bend Mirror light baffle plate #283.

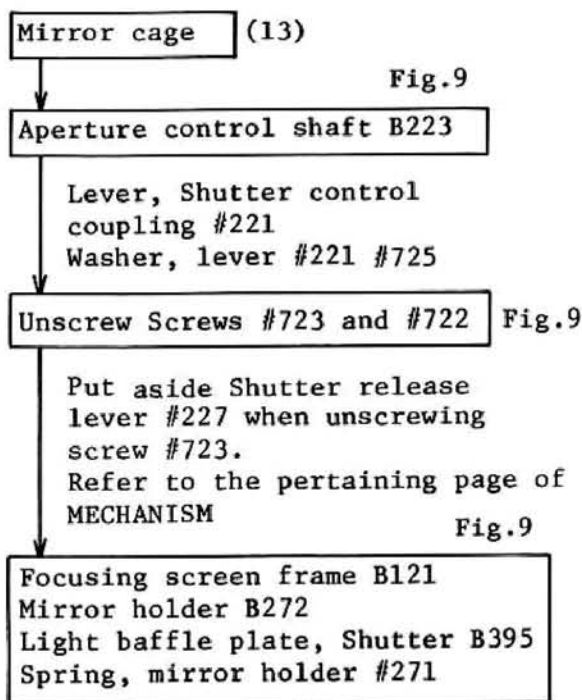
1

(14) Bayonet



Remove spring #379

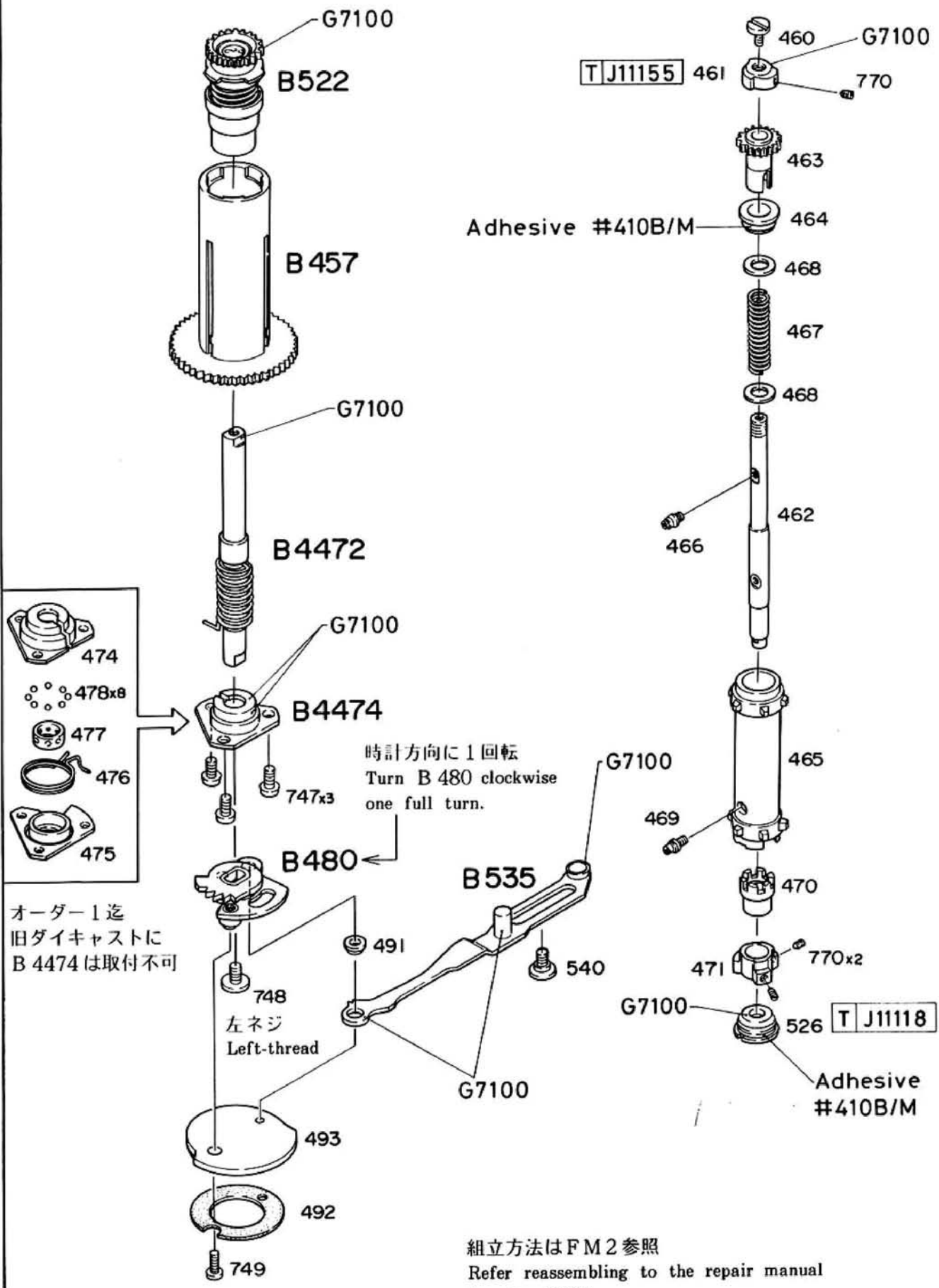
(15) Base plate I, Mirror cage L



Washer #718

1. 巻上軸 スプロケット軸部 FILM-ADVANCE SHAFT, SPROCKET

外周



組立方法はFM2参照
 Refer reassembling to the repair manual
 for the FM2

Fig. 1

組立方法はFM2参照
Refer reassembling to the repair manual for the FM2

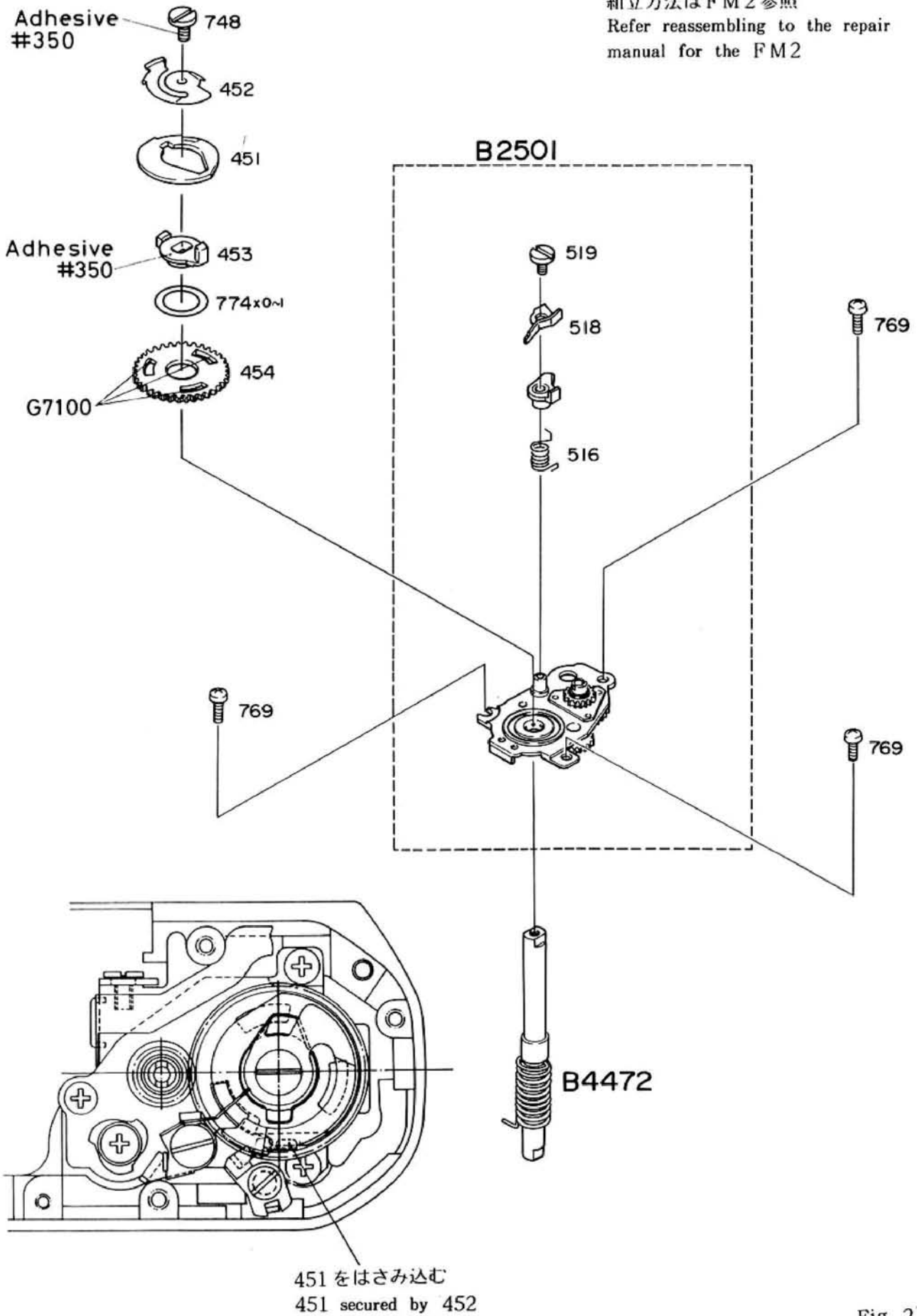


Fig. 2

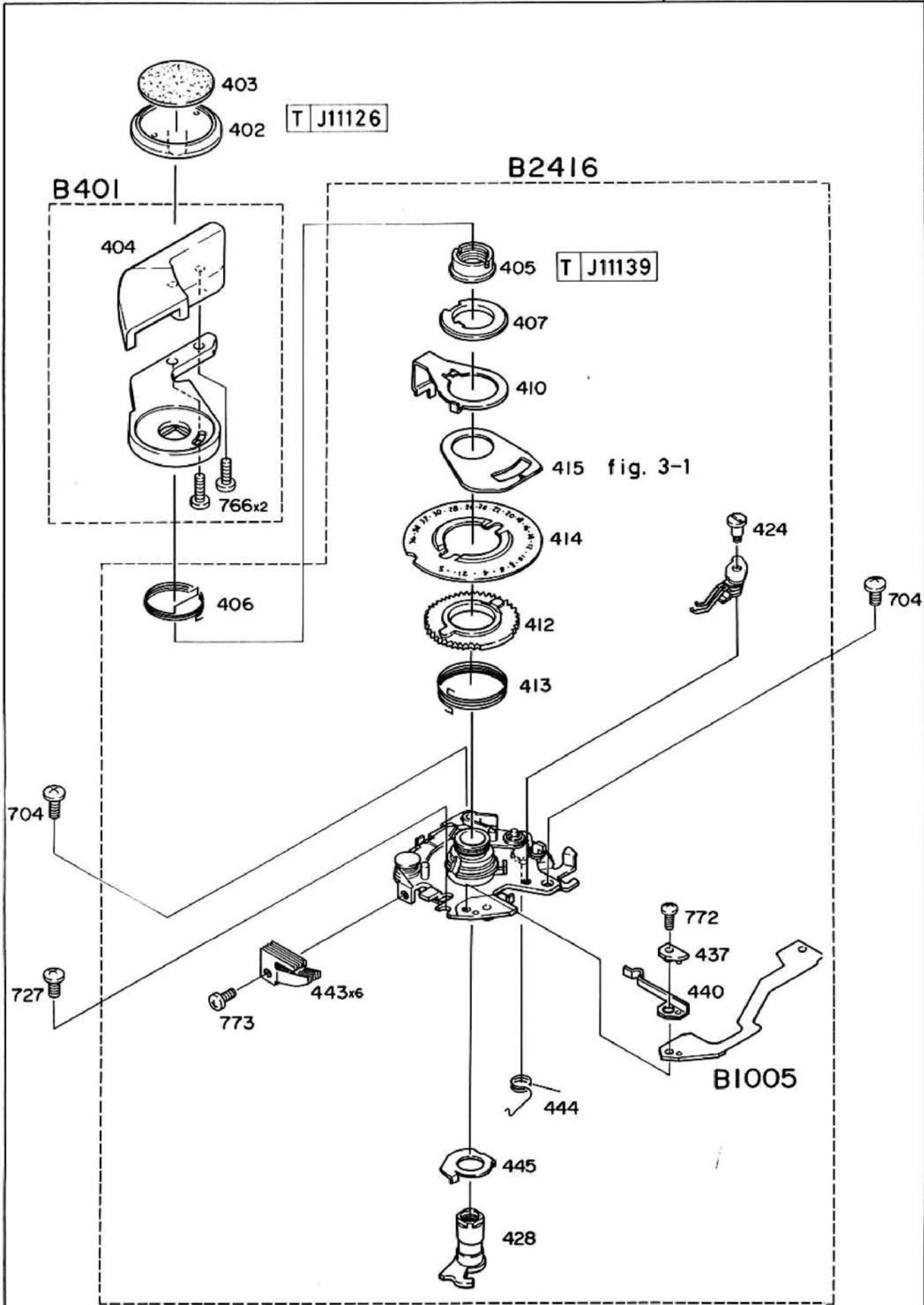
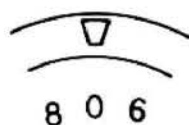


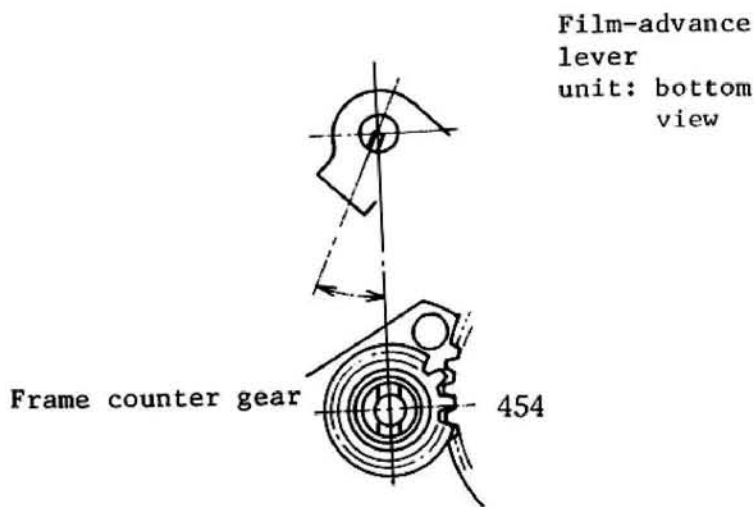
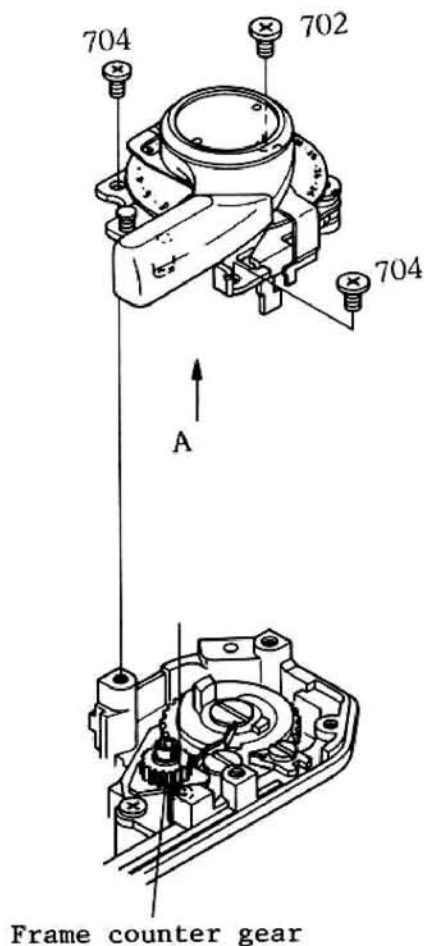
Fig. 3

Fig. 3-1 FRAME-COUNTER INDEX #415 POSITION

To be aligned 1/2 or more of one full calibration mark of counter scale.



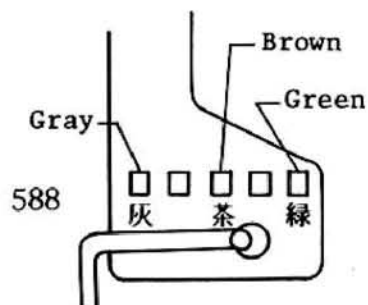
3-1 FILM-ADVANCE LEVER UNIT INSTALLATION



Place Film-advance lever unit toward left-upper side after installation.

3-2 FILM-ADVANCE LEVER UNIT FPC B1005 SOLDERING

Route Film-advance lever unit FPC B1005 under the film-advance lever unit and secure it with Release plate spring hook #588. (Refer to Figure 4)



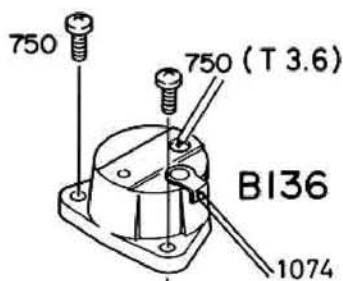
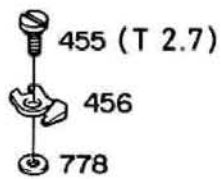


fig. 4-1

Adhesive #501

148



87

穴 a

758

367

99

759

759

TJ11186

B589

fig. 4-3

588

563

702

B100

fig. 4-2

B85

89

90

B556

G7100

564

561

560

G7100

563

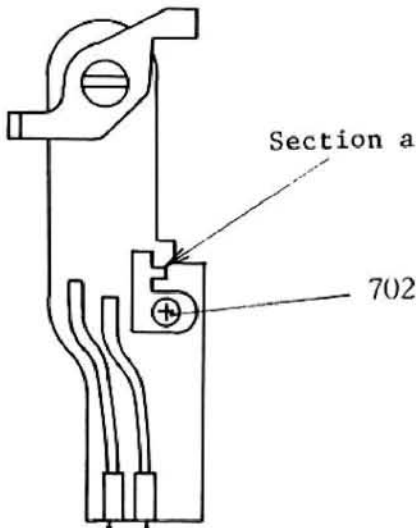
Fig. 4

Fig. 4-1 Route Lead wire #1074 from Battery chamber B136 through opening A of the body die-casting.

Fig. 4-2 When installing the shutter unit, pick the right-side plate and place it downward.

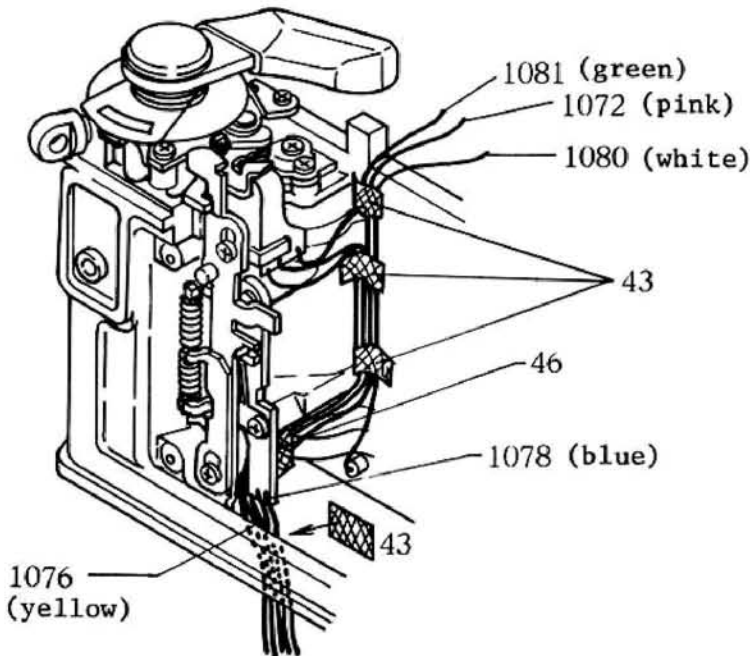
Fig. 4-3 RELEASE SWITCH BASE PLATE B589 POSITIONING

Loosen Screw #702 and position Release switch base plate B589 so that the brush of Release plate A B556 gets in contact with section a as shown in the figure. Be sure to re-tighten #702 after adjustment.



Lead wire (yellow) Lead wire (blue)

4-1 ROUTE OF LEAD WIRES TO FILM-ADVANCE LEVER UNIT AND RELEASE SWITCH BASE PLATE



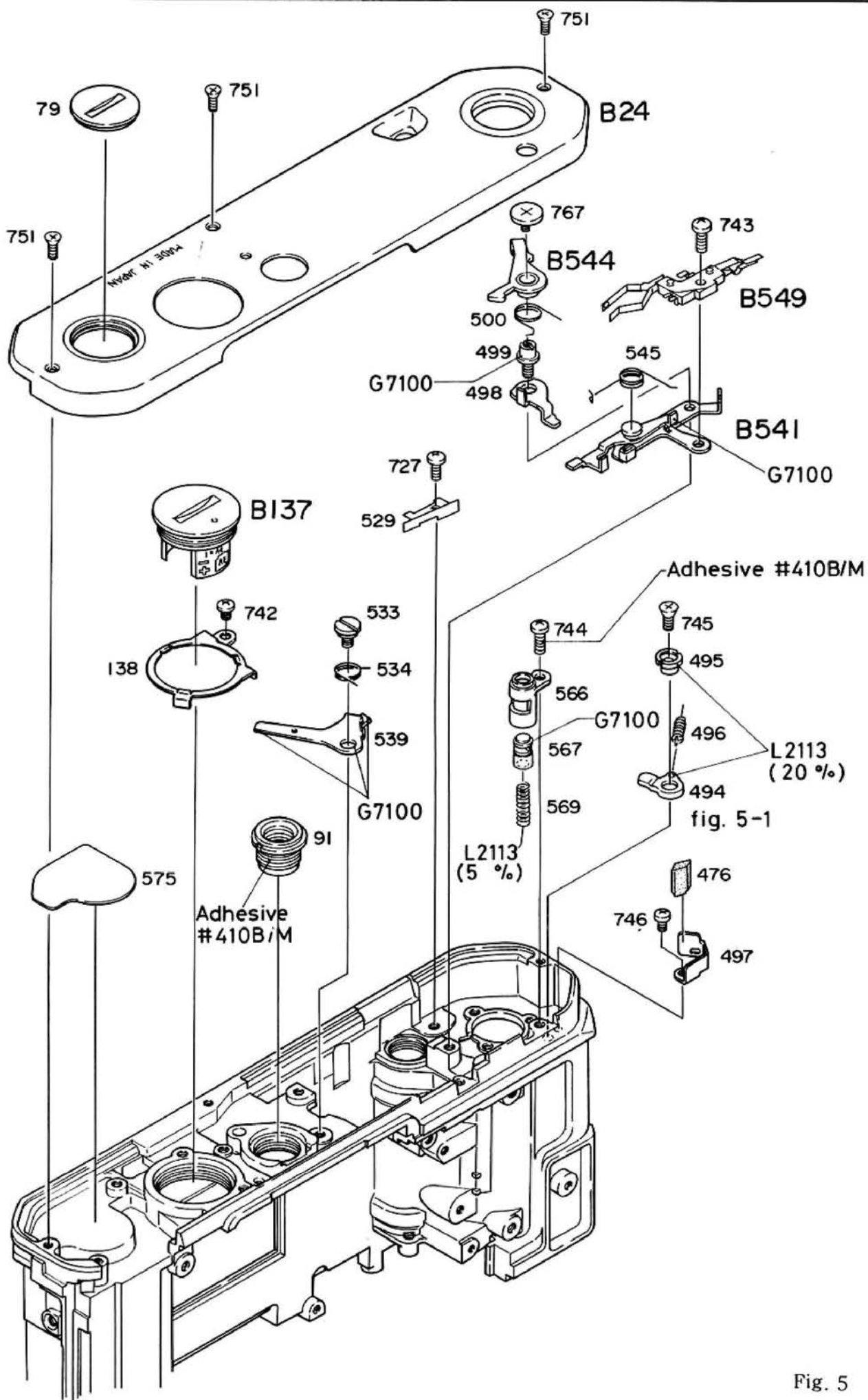
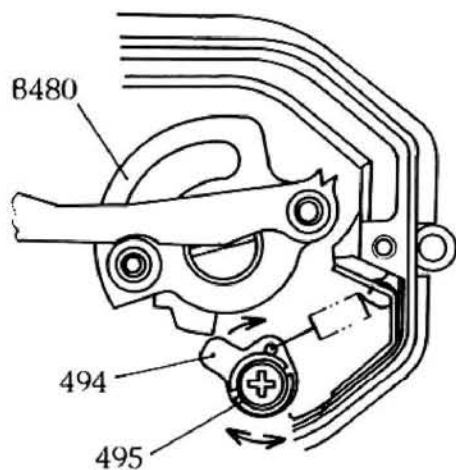


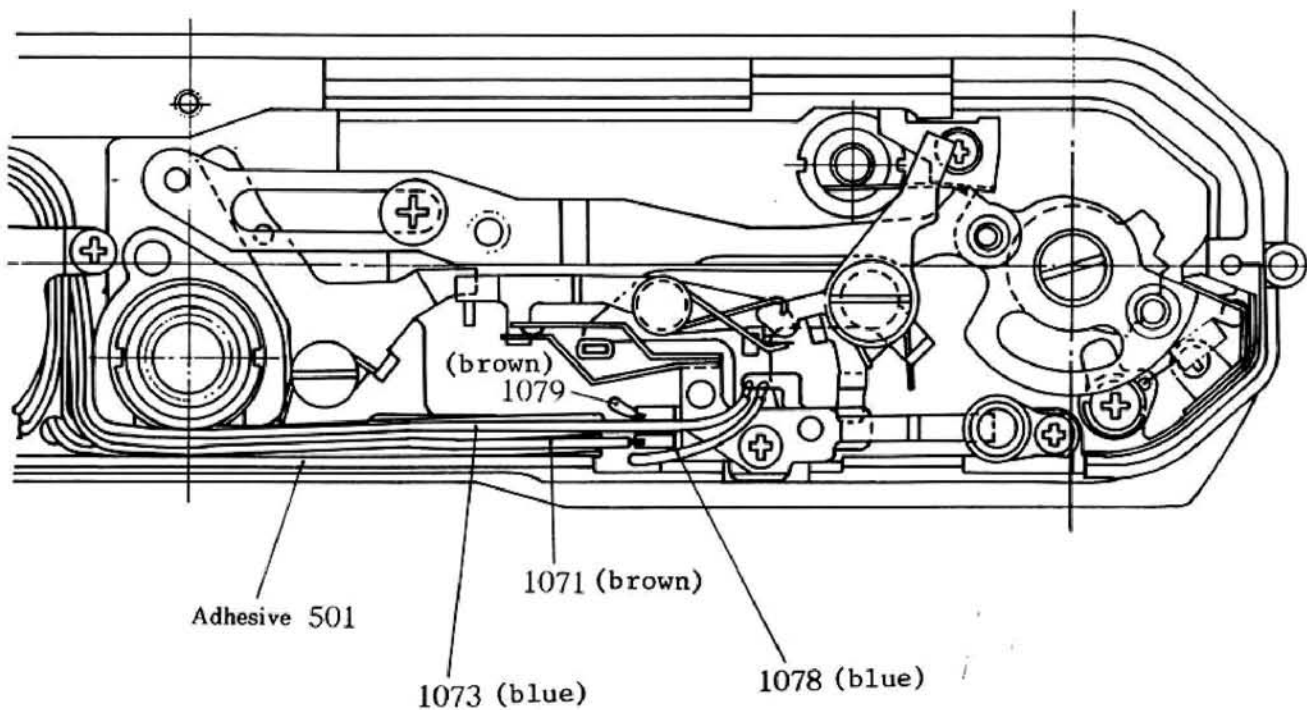
Fig. 5

Fig. 5-1 PENDULUM #494 ADJUSTMENT

Set cam B480 should move 0.2 - 0.6mm after being disengaged from Pendulum #494.



5-1 LEAD WIRES ROUTE/SPRING HOOK



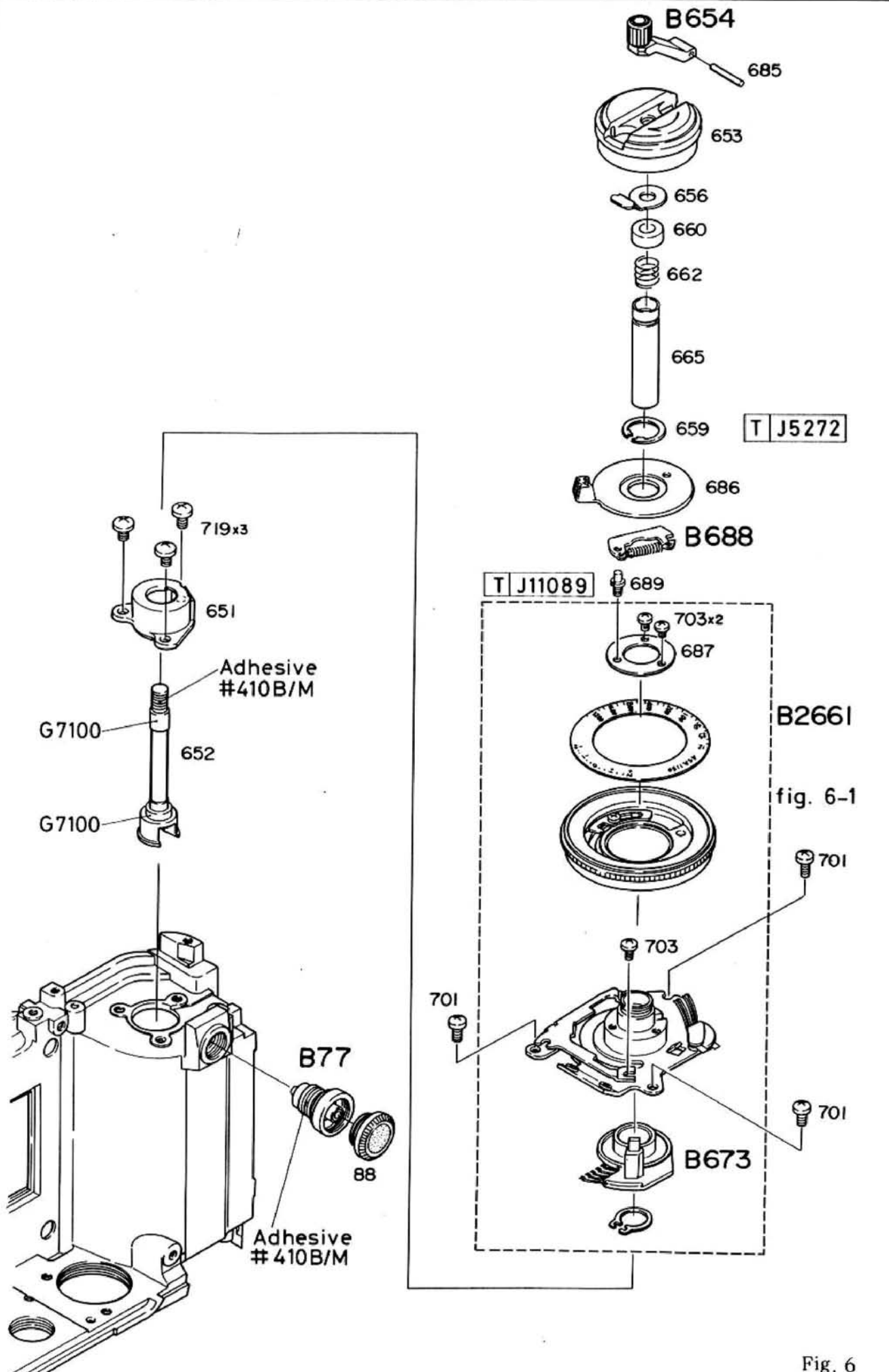
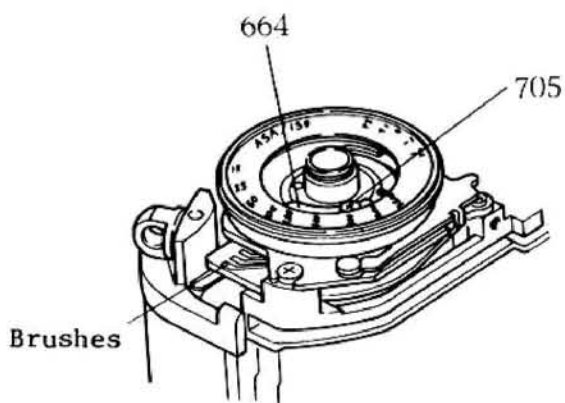


Fig. 6

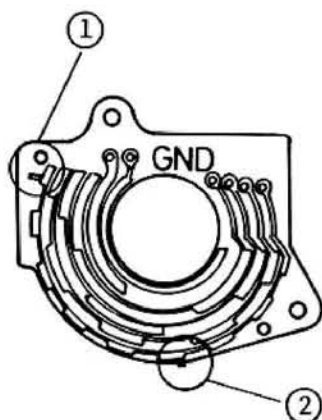
Fig. 6-1 ASA BASE PLATE BRUSH B673 POSITIONING



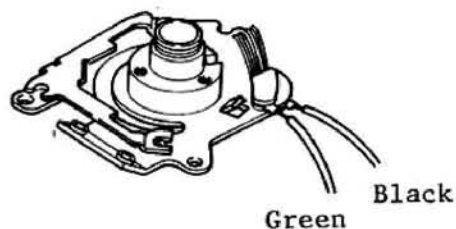
Positioning should be made at the following two settings.

ASA dial .	Exposure compensation dial
1. 12	+1
2. $400 + 2/3$	0

Loosen Screw #705 to position ASA dial coupling plate #664 so that ASA brushes can contact the patterns on FPC B1002 properly for the dial settings.



6-1 LEAD WIRES SOLDERING



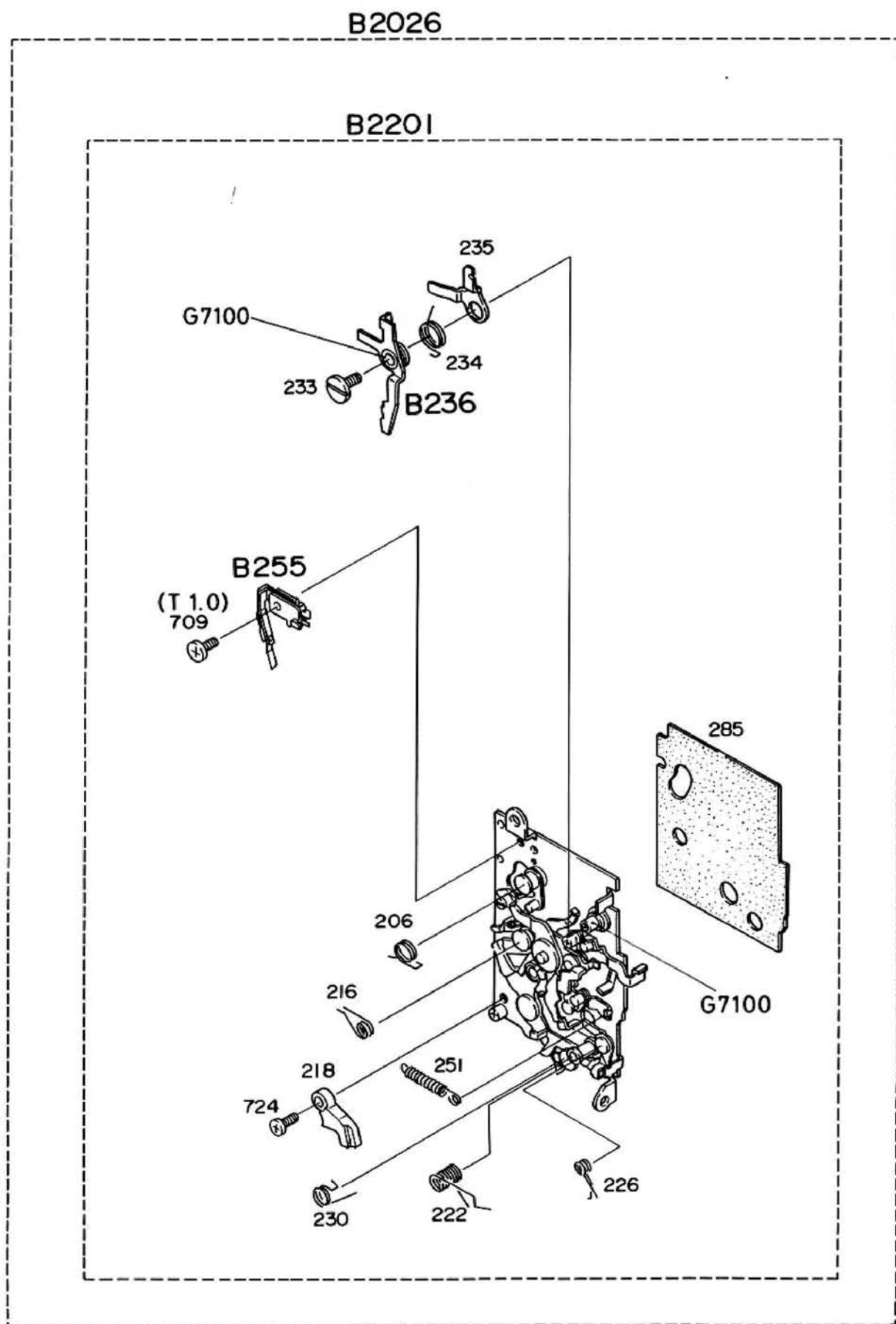
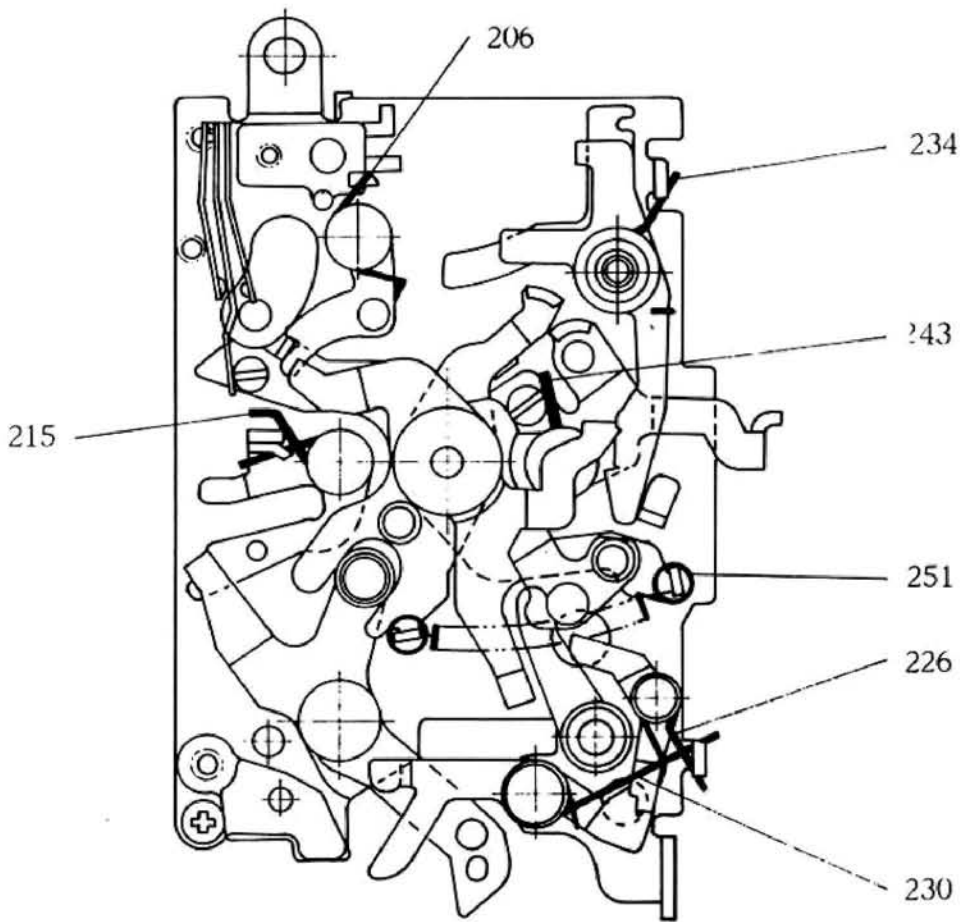
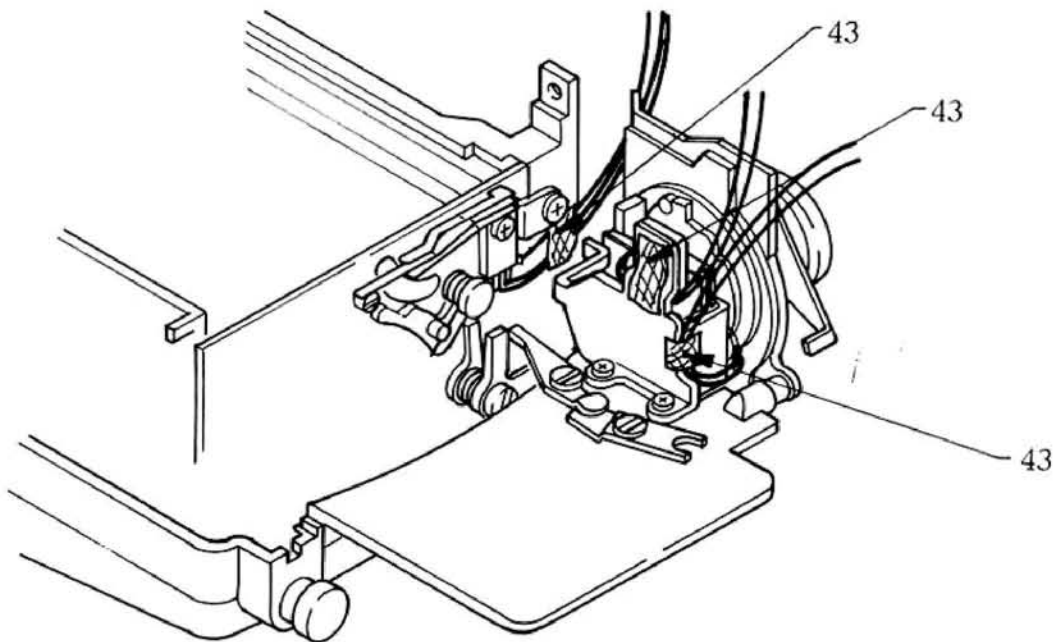


Fig. 7

7-1 SPRING HOOKS OF BASE PLATE I B2201 18060-137-5



7-2 ROUTE OF MIRROR SWITCH AND DATA BACK SWITCH LEAD WIRES



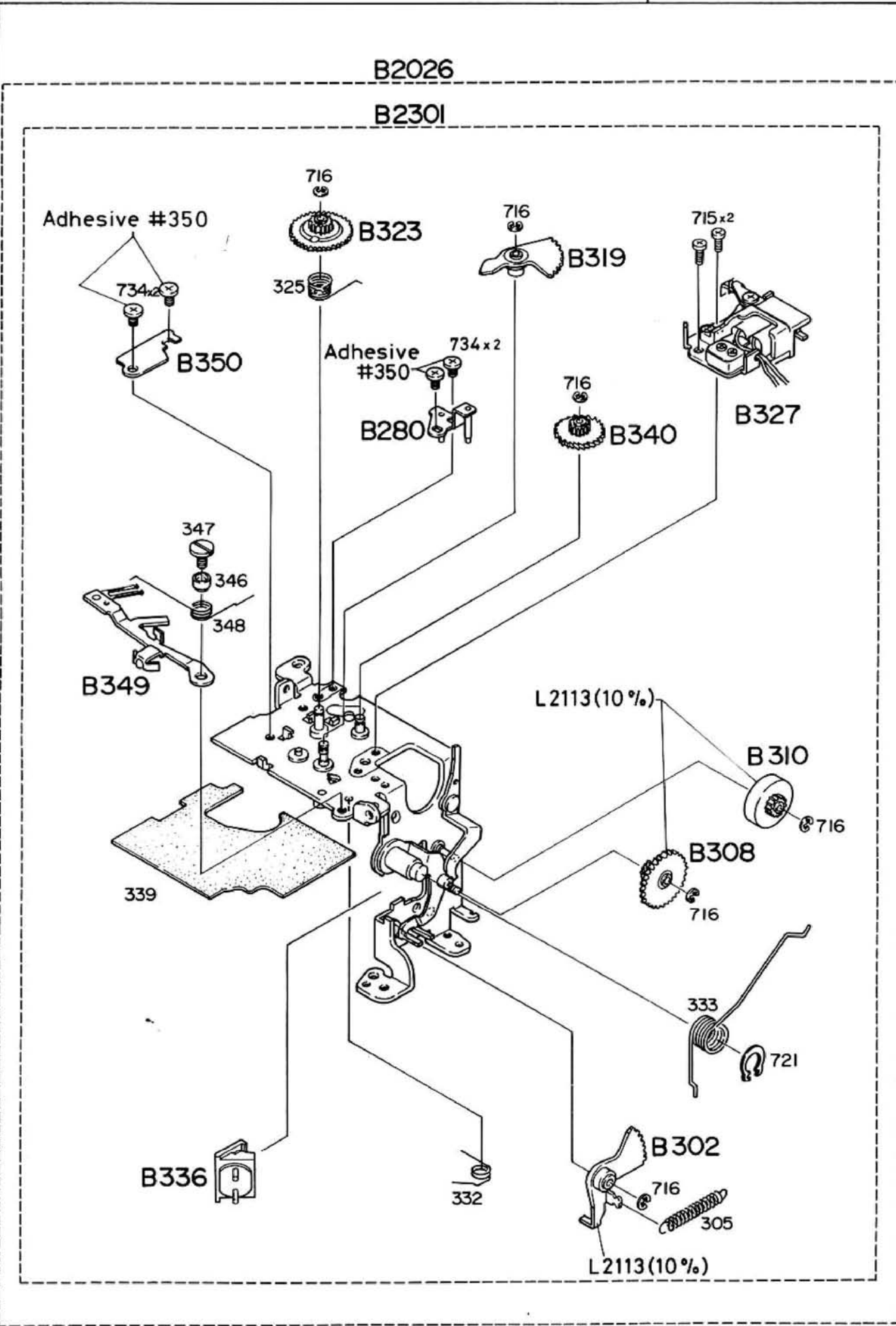
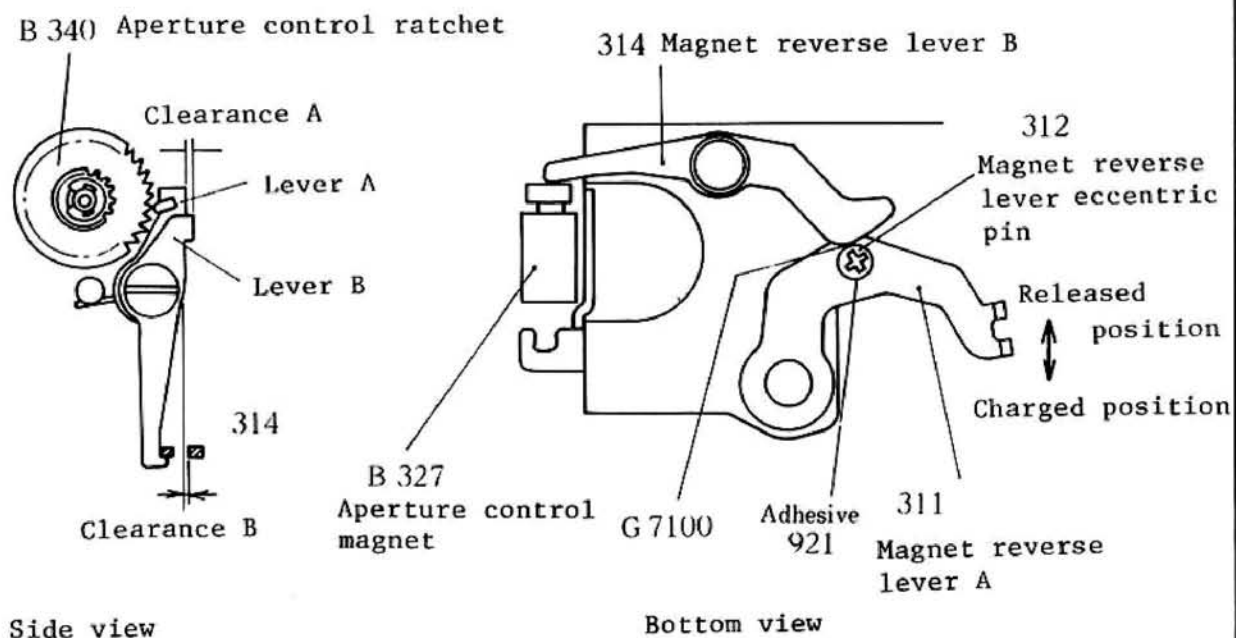


Fig. 8

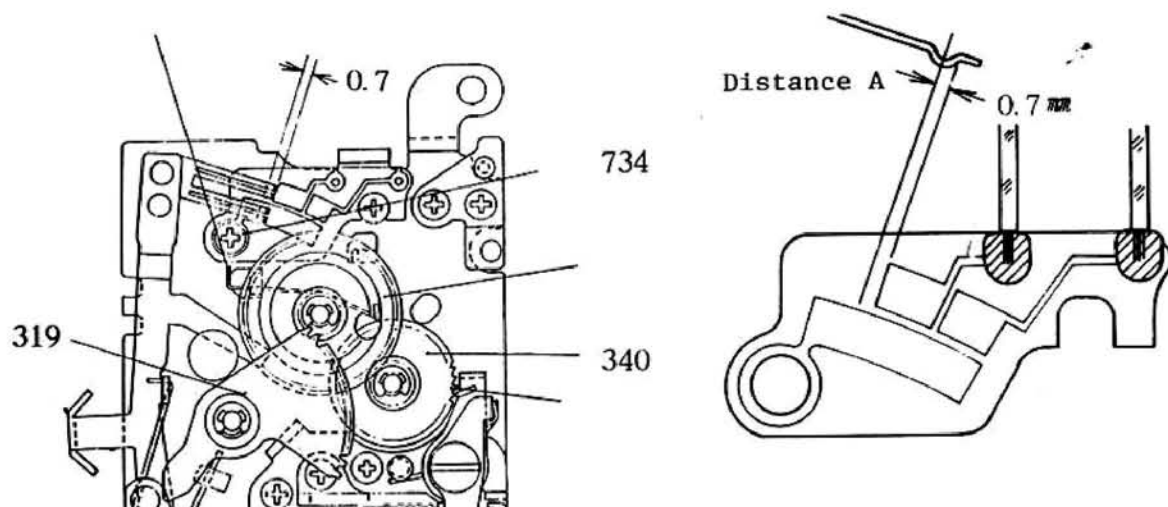
8-1 POSITIONING OF APERTURE CONTROL MAGNET REVERSE LEVER



- 1) Adjust Magnet reverse lever eccentric pin #312 so that Clearance A between Lever A and Lever B can be 0.1 - 0.3mm in released position (mirror down).
- 2) Clearance B between Magnet reverse lever B #314 and Lever B should be 0.1mm or more when engaging Lever A with Aperture control ratchet B340 in charged position (mirror up).

8-2 FOCAL LENGTH (Fmm) SWITCH POSITIONING

Loosen Screws #734 and move focal length switch to the position where Distance A is 0.7mm.



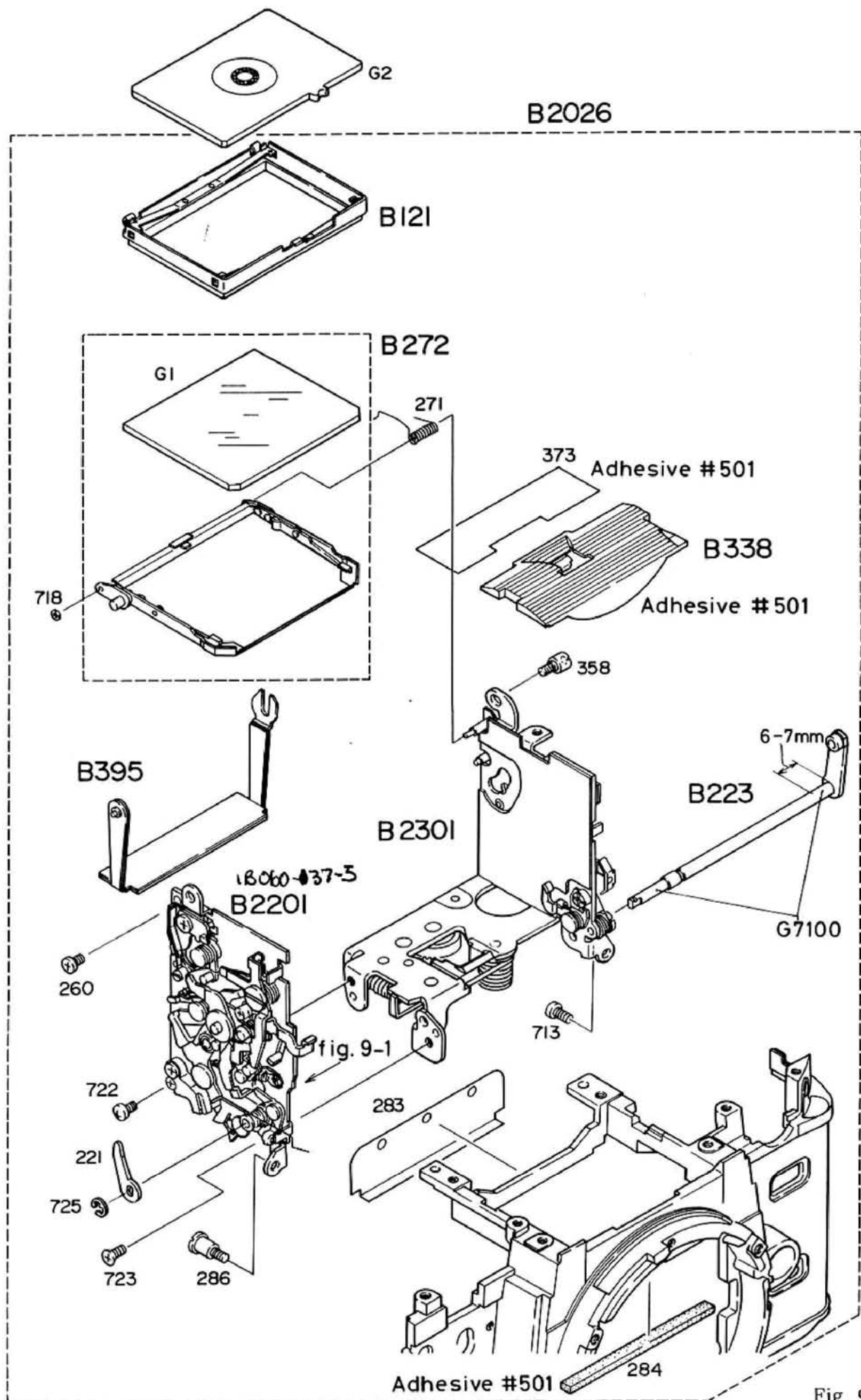
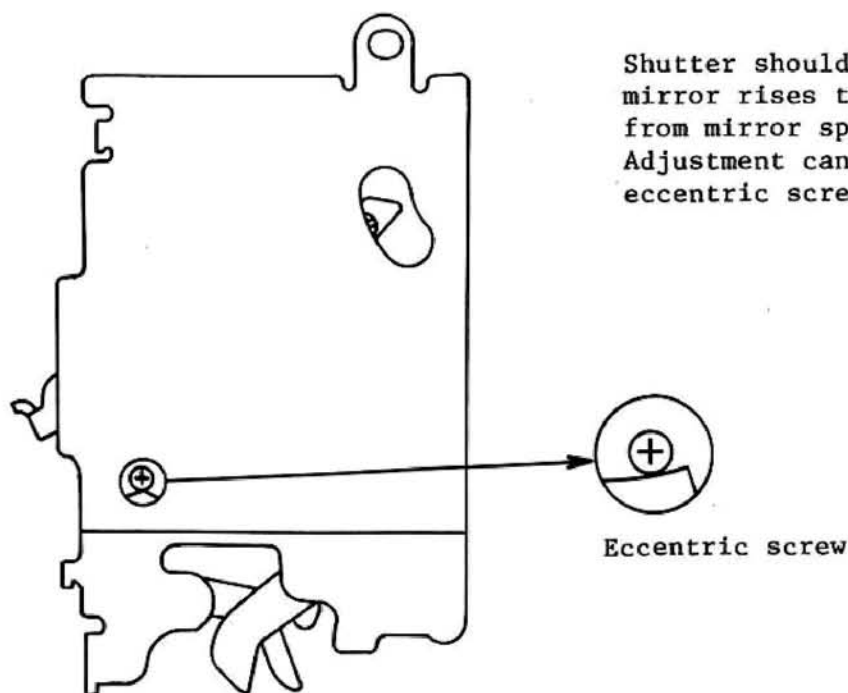


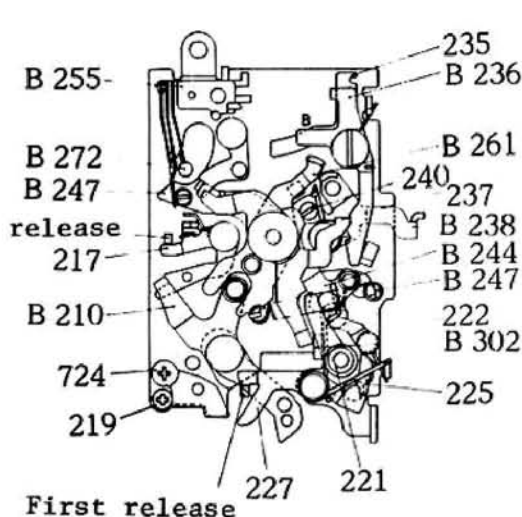
Fig. 9

Fig. 9-1 SHUTTER RELEASE START POSITION



Shutter should be released when mirror rises to the position 1mm from mirror sponge.
Adjustment can be made by turning the eccentric screw inside Base plate I.

9-1 APERTURE LEVER HEIGHT ADJUSTMENT



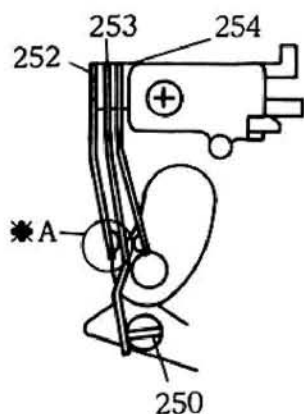
Charged position: $3.1 \begin{matrix} +0.1 \\ -0 \end{matrix}$ mm

Adjustments can be made by turning Aperture lever eccentric pin #240

Released position: $3.1 \begin{matrix} +0.7 \\ +0.5 \end{matrix}$ mm

Adjustments can be made by turning Eccentric pin #219 with loosening Screw #724

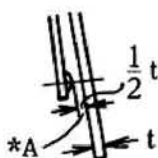
9-3 MIRROR SWITCH ADJUSTMENT



9-2 MIRROR CAGE INSTALLATION

When installing mirror cage, position Stop-down actuating lever B294 and Mechanical release lever B552 (see Figure 11) respectively to A and B in Figure 9-2.

- 1) Raise mirror to up position.
- 2) Place mirror down with finger and adjust #250 so that clearance *A is half of #253's thickness.



B2026

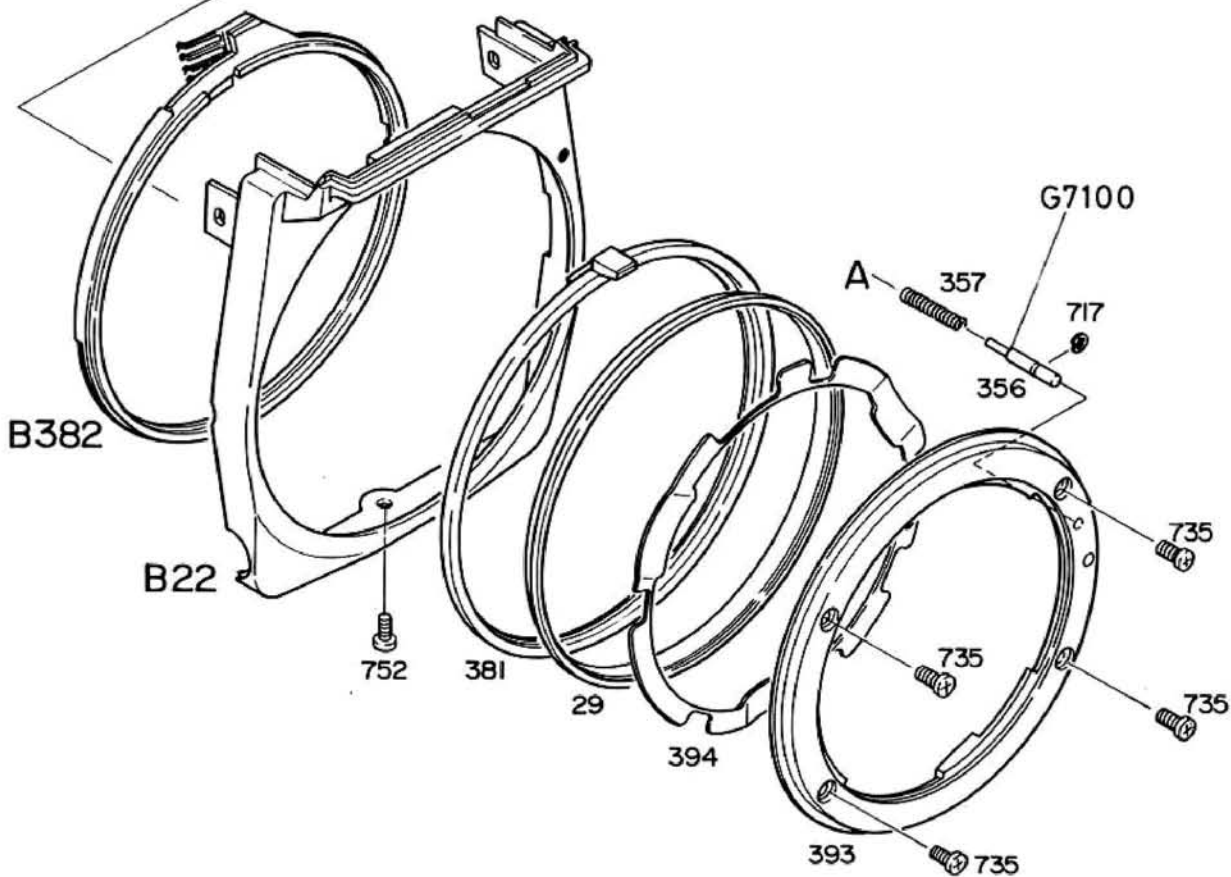
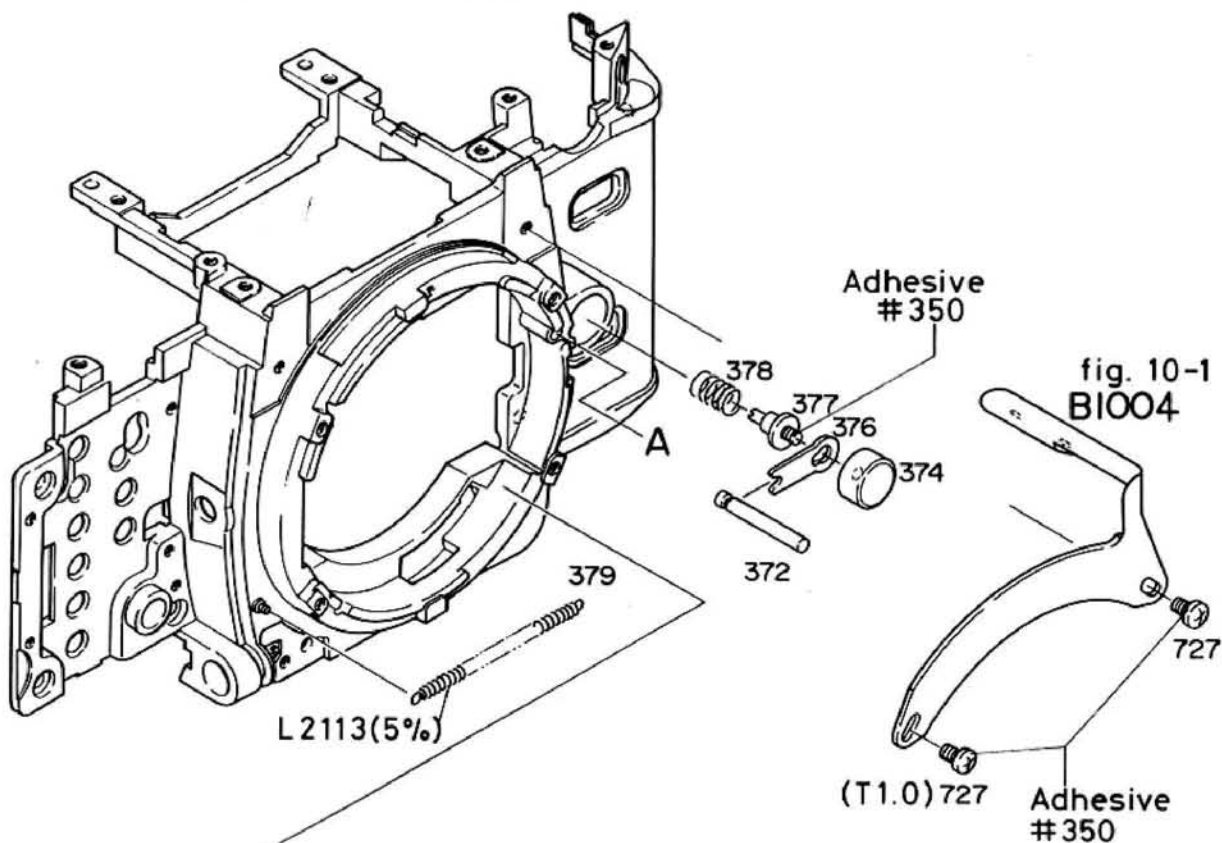
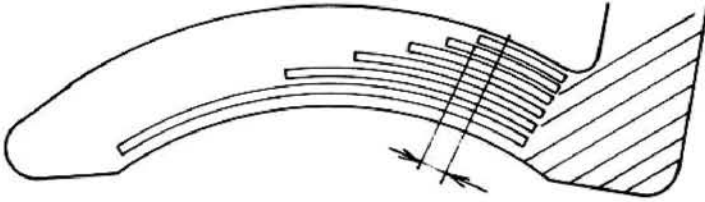


Fig.10

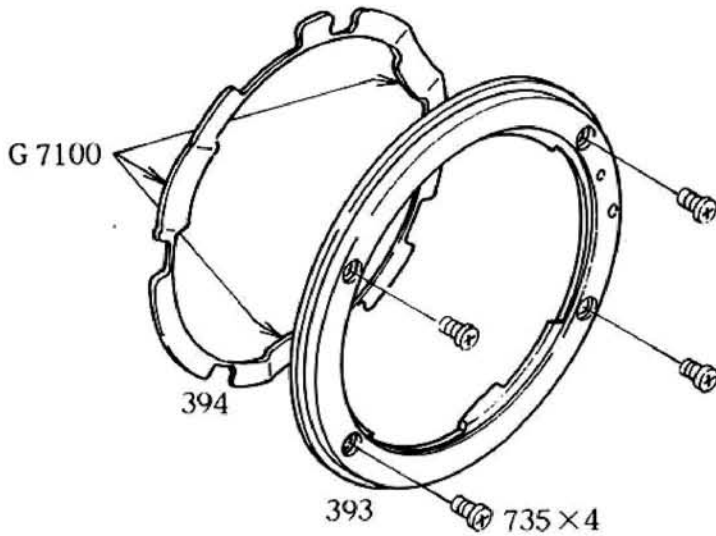
Fig. 10-1 f-fo FPC POSITIONING



Loosen Screw #727 to slide f-fo FPC so that one tip of f-fo brushes can contact the shortest pattern on f-fo FPC at a distance of 1mm from left end.

f-fo FPC pattern

Fig. 10-2 Apply grease G7100 onto three inner-protruding sections of Bayonet spring #394.



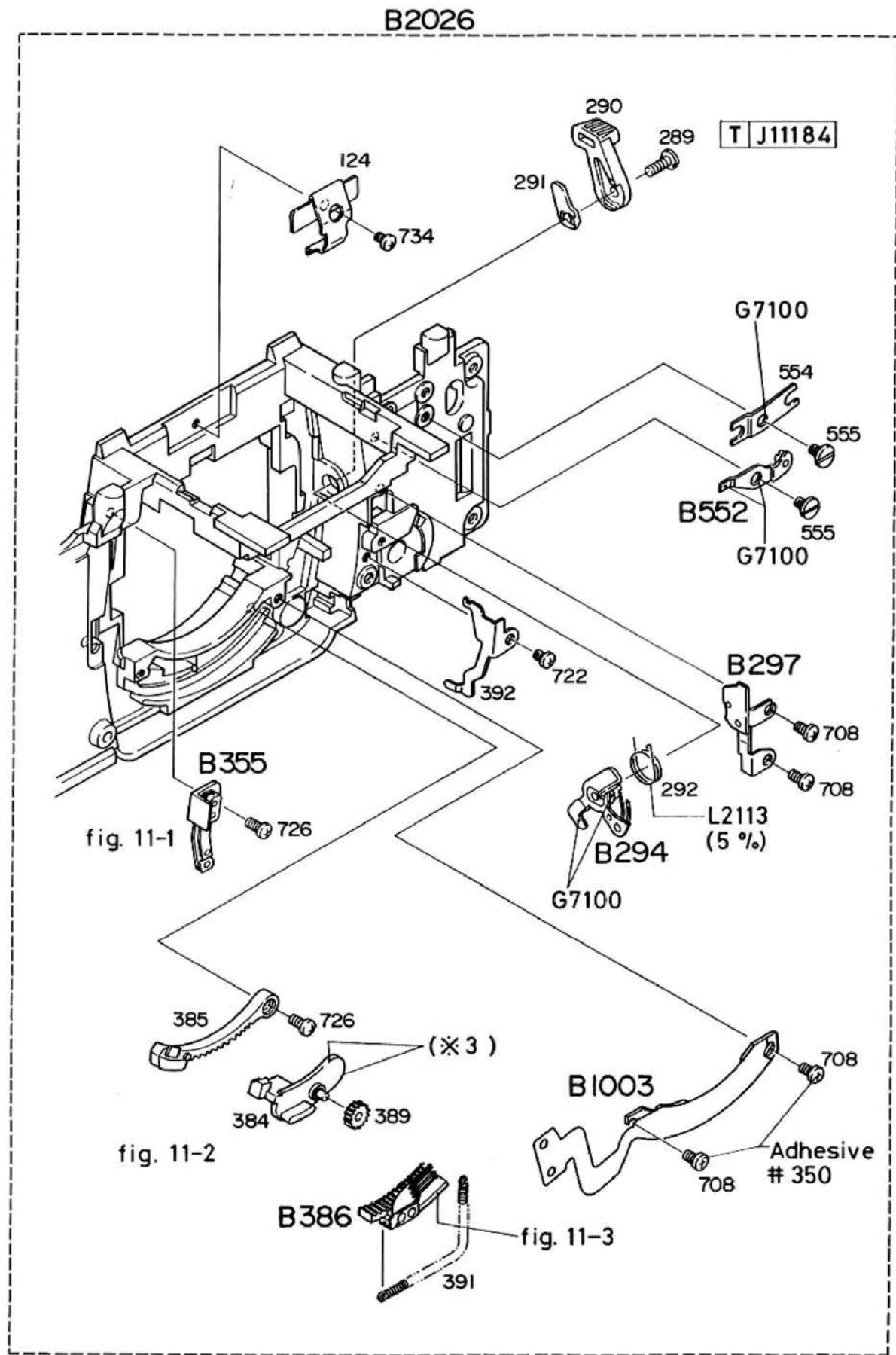
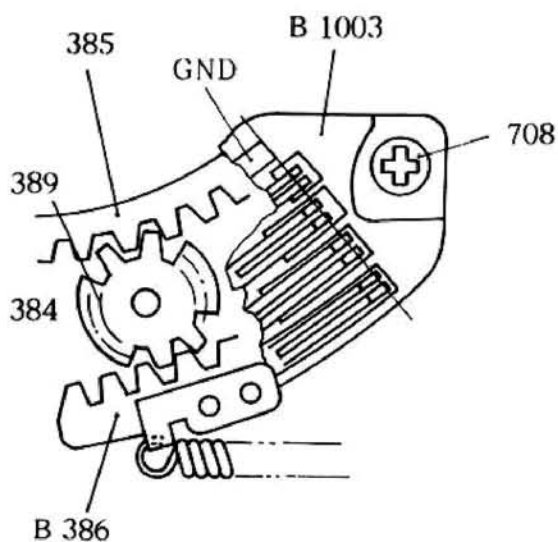


Fig.11

Fig. 11-1 Place EE lens switch B355 to the upper-left side of body die-casting.

Fig. 11-2 fo BRUSH GEAR B386 INSTALLATION



1. Place fo lens block to the right.
2. Engage fo gear #389 with the third tooth of fo retaining gear #385 and with the third clearance of fo brush gear B386.
3. Install fo FPC B1003 so that fo brushes can contact the right ends of GND patterns.

Fig. 11-3 Coat the working faces of fo lens block #384 and fo brush gear B386 with a pencil.

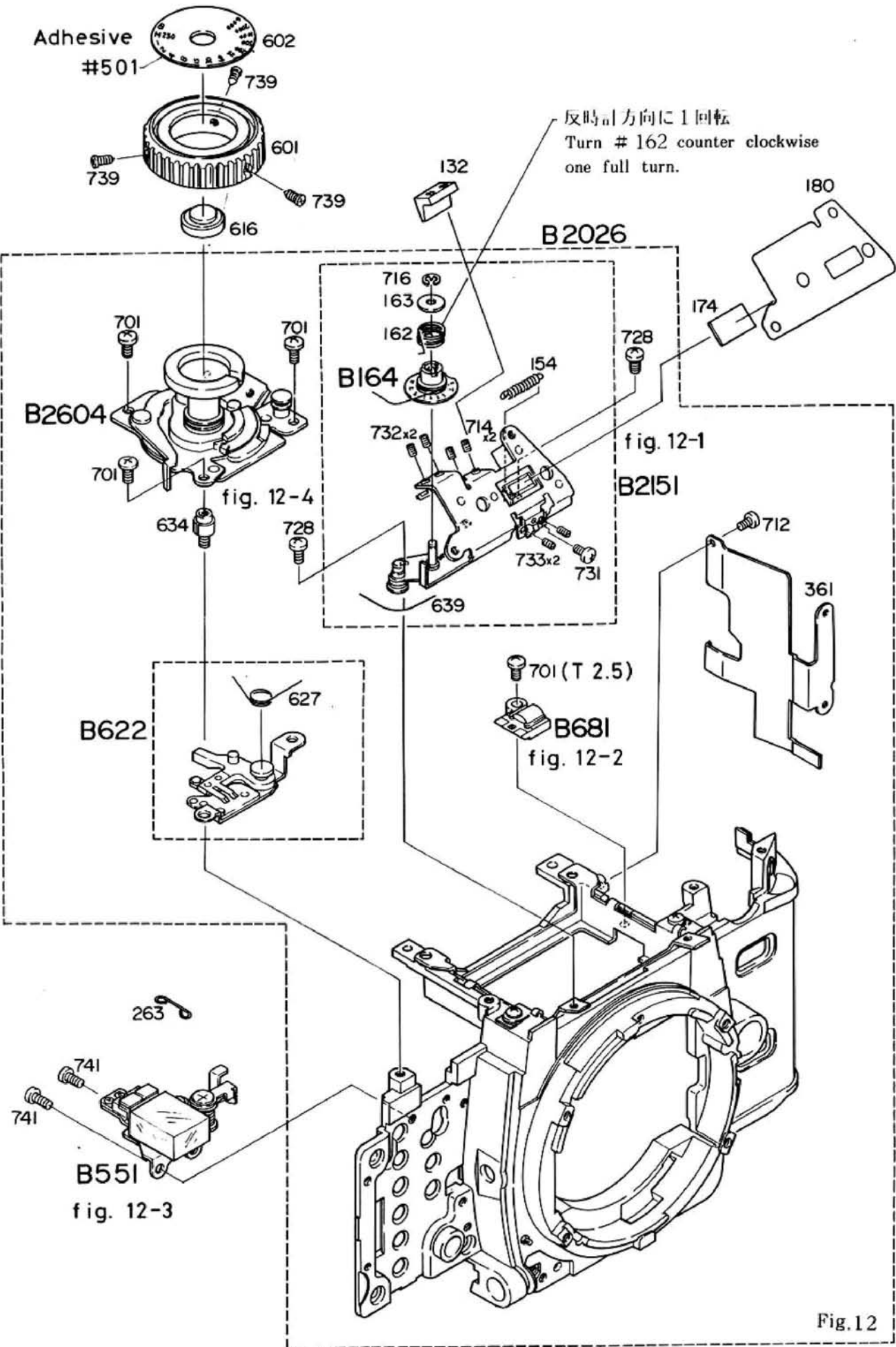
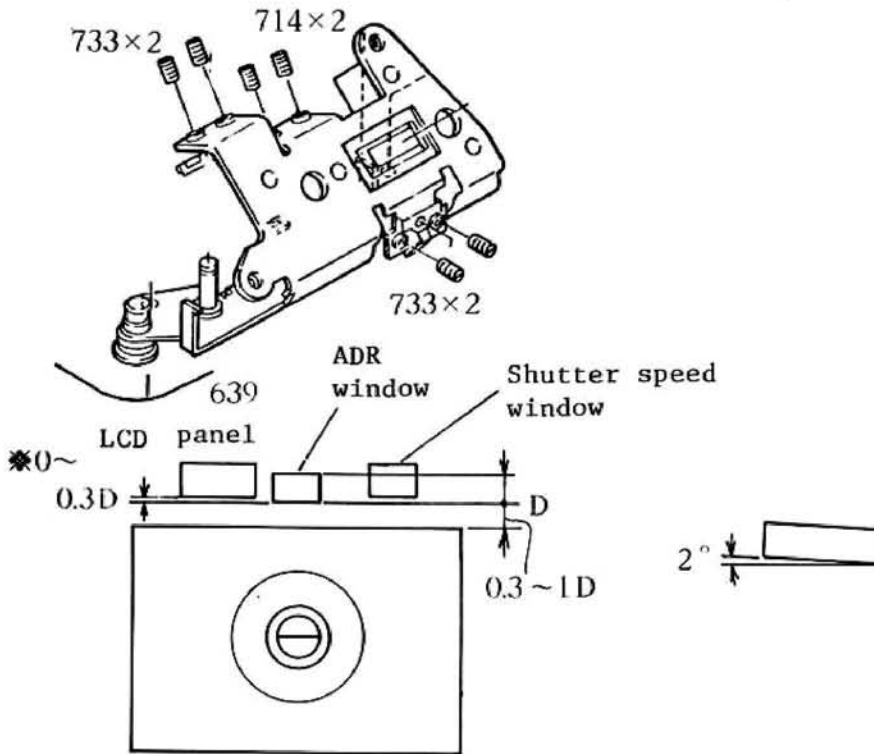


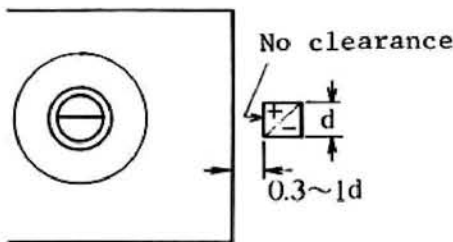
Fig.12-1 VIEWFINDER INFORMATION POSITIONINGS



Adjustments are available only for vertical directions.

Information	Adjusting screws	Screw in		Screw out	
		Right screw	Left screw	Right screw	Left screw
Shutter speed window	#732	Right down	Left down	Right up	Left up
ADR window	#714	Right down	Left down	Right up	Left up
LCD panel	#733	Right up	Left up	Right down	Left down

Fig. 12-2 Exposure compensation LED positioning



Inclination: 2° or less

Adjustments can be made by loosening Screw #701.

In case further adjustments are required, change the installing position of prism box.

In case the LED lighting is necessary for positioning, connect one lead wire (yellow) with a resistor of 200Ω to +3V and the other one (pink) to GND as a power supply.

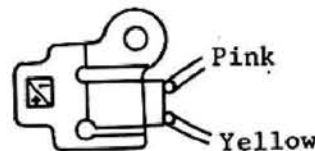
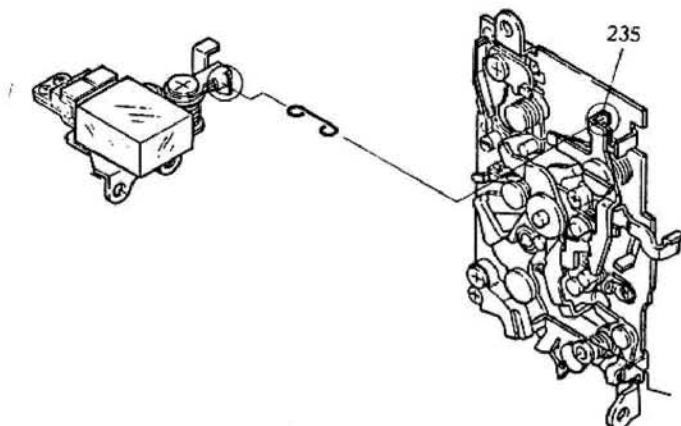
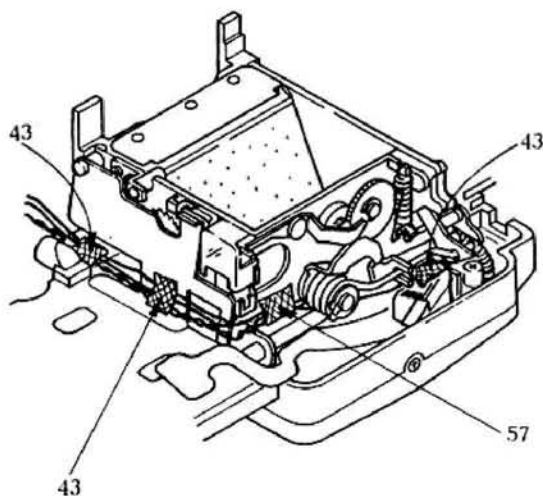


Fig.12-3 Place Release magnet unit B551 to rewind side.

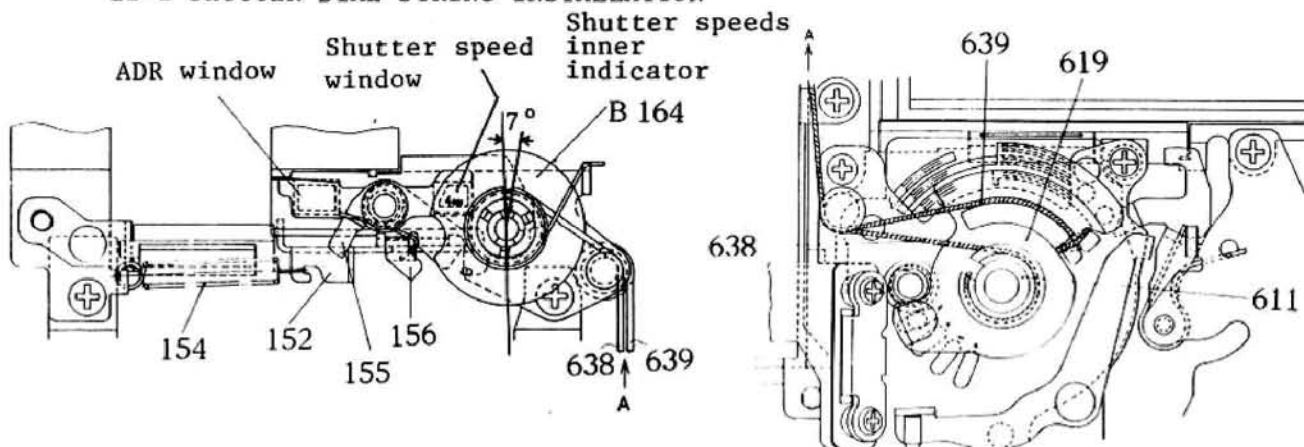
Fig. 12-4 Hook one end of the connecting wire to Release magnet unit B551 and the other end to Release magnet coupling lever #235 as shown in the figure below.



12-1 ROUTE OF LEAD WIRES, BOTTOM OF FRONT PLATE



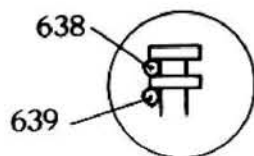
12-2 SHUTTER DIAL STRING INSTALLATION



12-3 SHUTTER SPEEDS INNER INDICATOR STRING #638 INSTALLATION

- 1) Set shutter dial to 4000.
- 2) Pull the string so that the cutout of Tube #611 can position 7° from the vertical line in the figure.

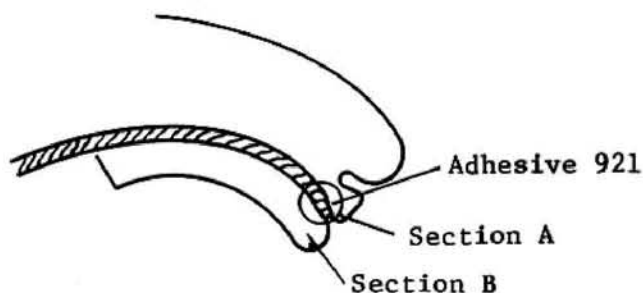
3)



- 4) Wind the rest of string onto Tube #611. Secure the end of string by Adhesive #921.
- 5) Turn indicator B164 so that "4000" can be visible through the shutter speed window. Be careful not to scratch the shutter speeds inner indicator.
- 6) Turn shutter dial from 4000 to B one full turn to check the indications.

12-4 STRING #639 INSTALLATION

- 1) Set mode selector to P.
- 2) Pull string #639 until Spring #154 moves 0.5mm and secure the string temporarily.

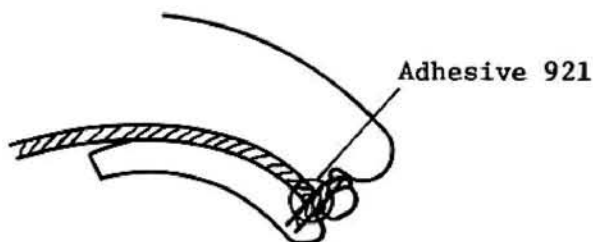


- 3) Change mode selector in the following order.

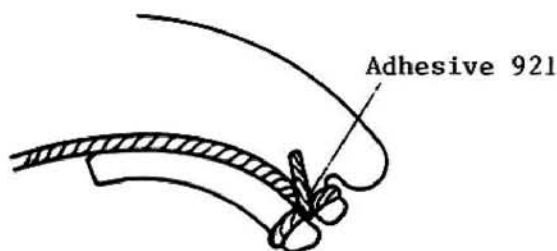
P → S → A → M → A → S → P

Check if the ADR and shutter speed windows can be shut properly.

- 4) Wind the string onto section A one full turn.



- 5) Wind the string onto Section B one full turn.



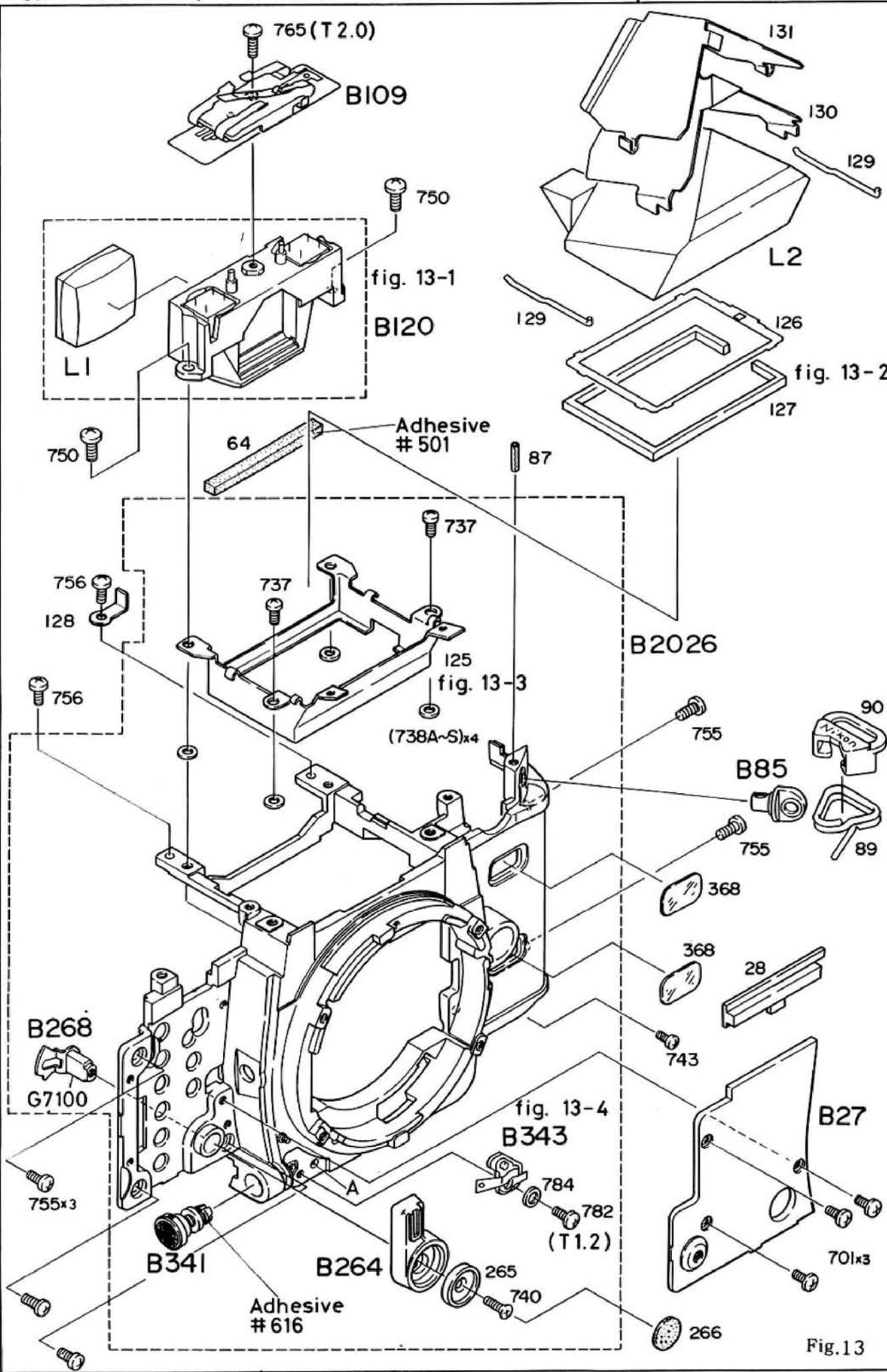


Fig.13

Fig. 13-1 As the positioning of SPDs is tricky, replace Eyepiece mold B120 when replacement of SPD is required.

Fig. 13-2 Viewfield frame #126 and Screen frame spacer #127 should be installed, with the wider frames (A) to the eyepiece side positioned.

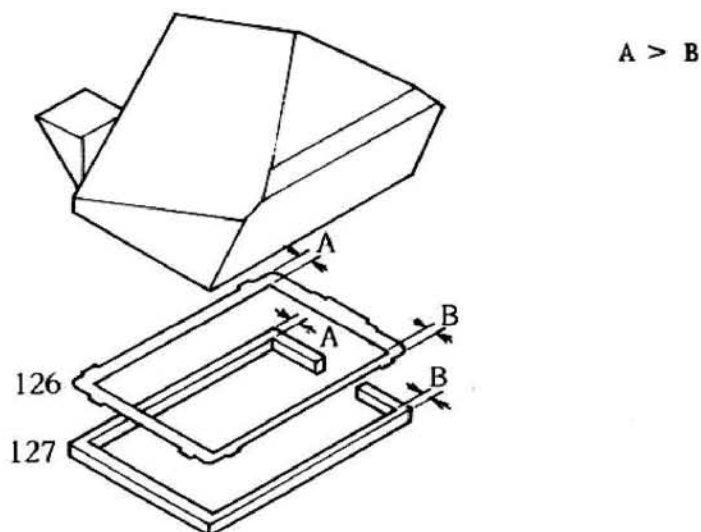


Fig. 13-3 Infinity focus adjustment

Adjustments can be made by selecting Washers #738 A - U of different thickness.

Standard: $46.5 \pm 0.07\text{mm}$

Mirror 45° angle adjustment

Adjustments can be made by turning Eccentric pin #329 inside the mirror cage.

Standard: $45^\circ + 10'$ (Vertical)
 $45^\circ + 20'$ (Horizontal)

Refer details to the repair manual for the FM2.

Fig. 13-4 Route the lead wire of Meter mode switch through opening A of body die-casting.

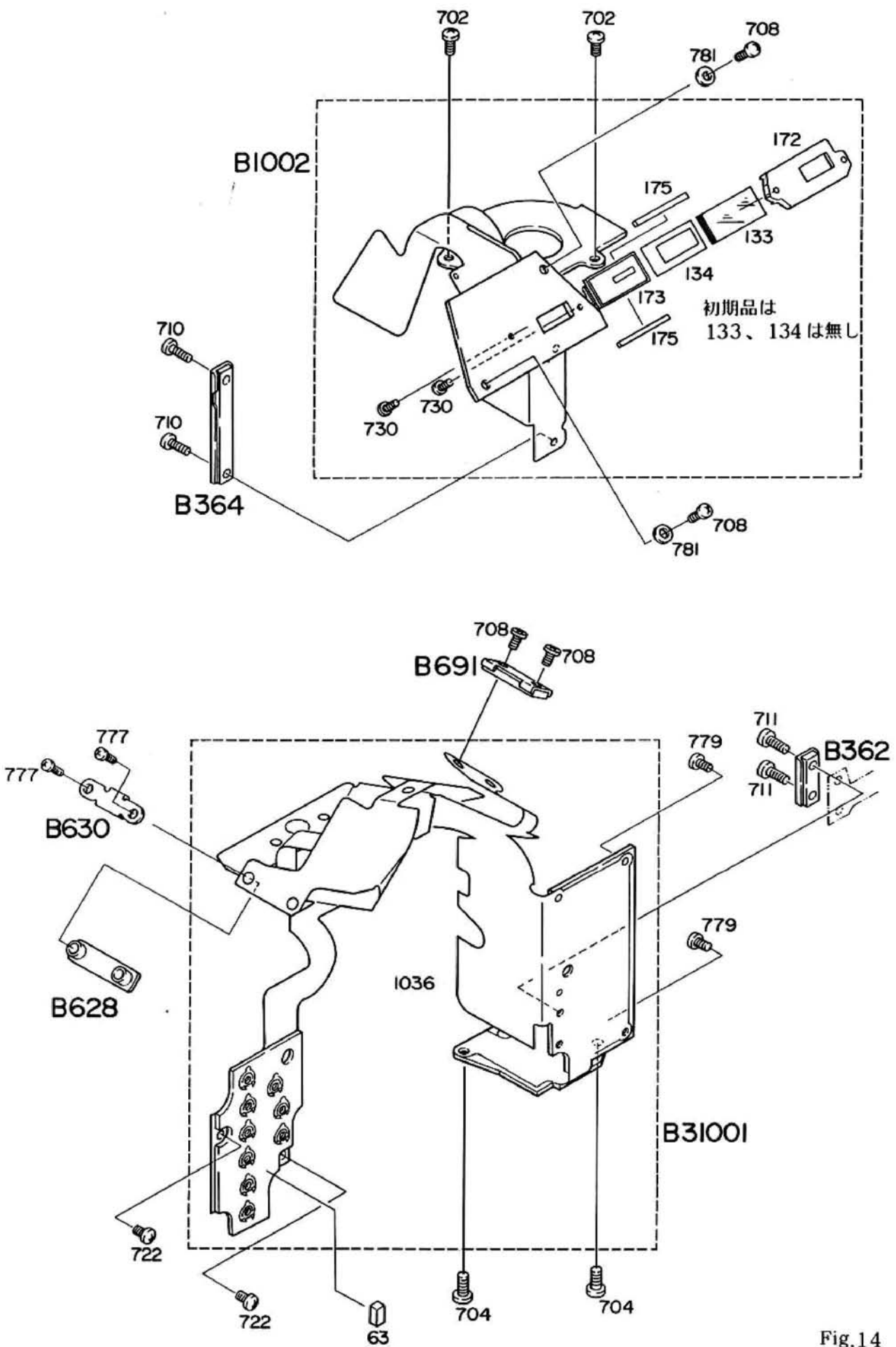


Fig.14

14-1 MAIN FPC, ASA/LCD FPC INSTALLATION

Mount 50/1.4 AI-S lens

Rewind side screws tightening

B362
⊕ 711x2

fo FPC press-contact

⊕ 779x2

FPC bending

Variable resistor block screw tightening

⊕ 722x2

Rewind side lead wires soldering

Six lead wires

SPD lead wires soldering

Clean the solder joints with alcohol and apply moisture-proof coating to them after soldering.

Prism (upper) lead wires soldering

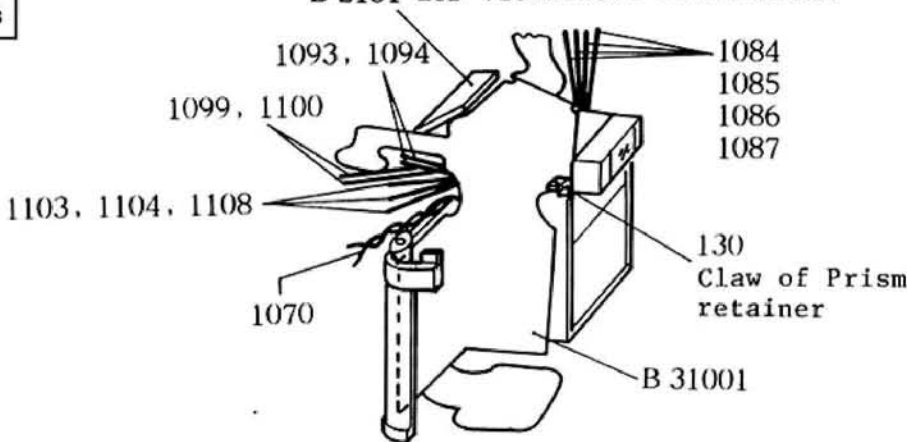
ASA/LCD FPC installation (press-contact)

B364 ⊕ 729x2,
⊕ 710x2, ⊕ 781x2

ASA/LCD FPC bending

Hook the opening of ASA/LCD FPC to the claw of Prism retainer #130.
(Refer to Wiring diagram)

B 2151 LCD viewfinder information

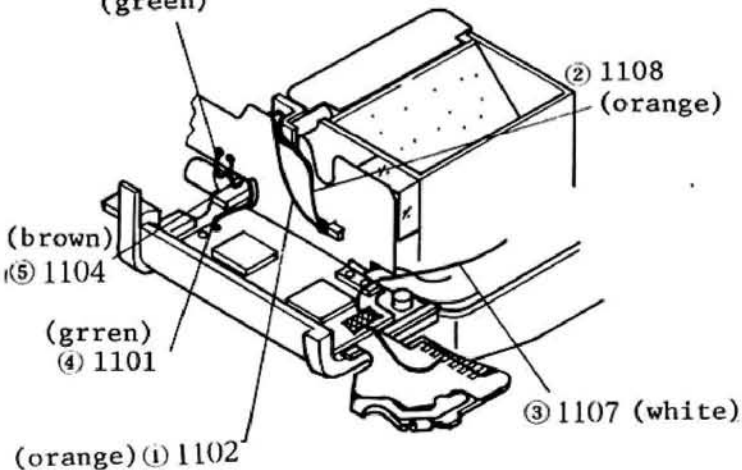


Place fo FPC B1003 between LCD viewfinder information B2151 and claw of Prism retainer #130, and bend the FPC along the shape of pentagonal prism.

Route of lead wires:

- 1) Rewind side: To bayonet side
- 2) Film-advance side: To upper side

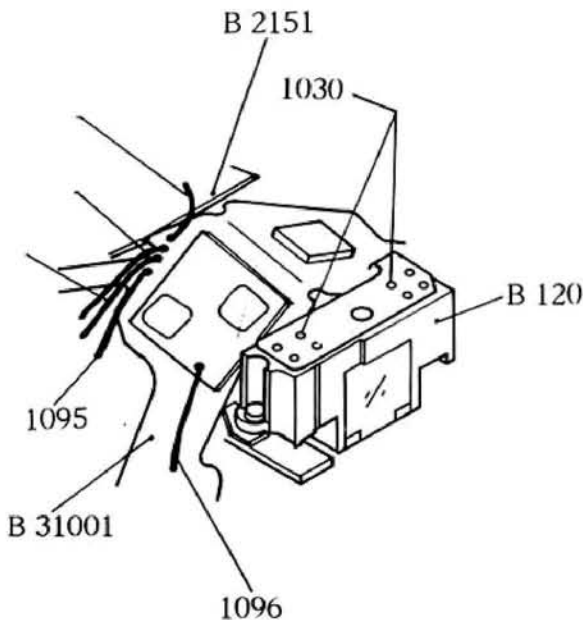
⑥ 1103 (green)



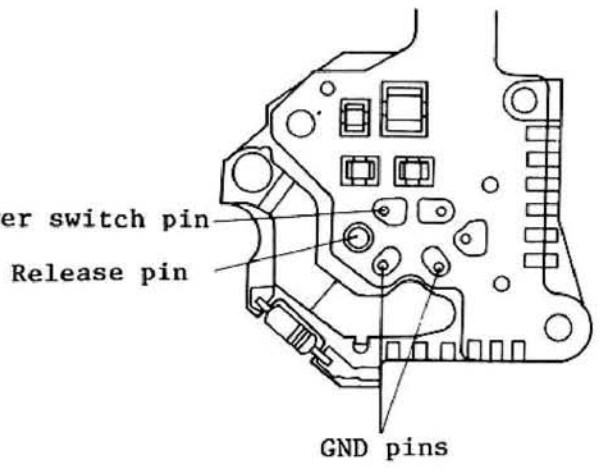
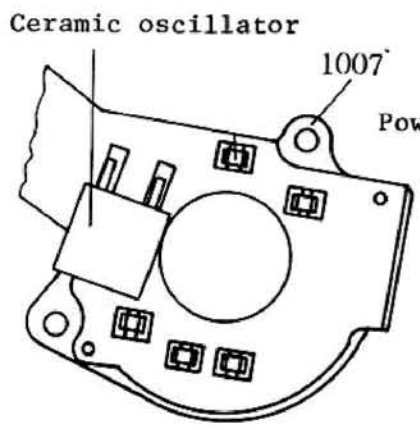
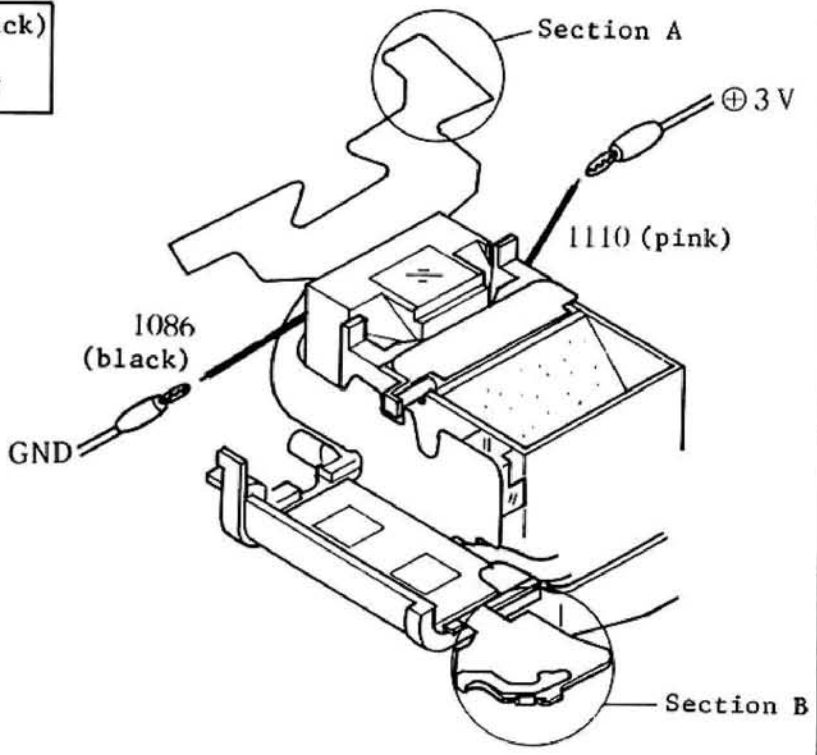
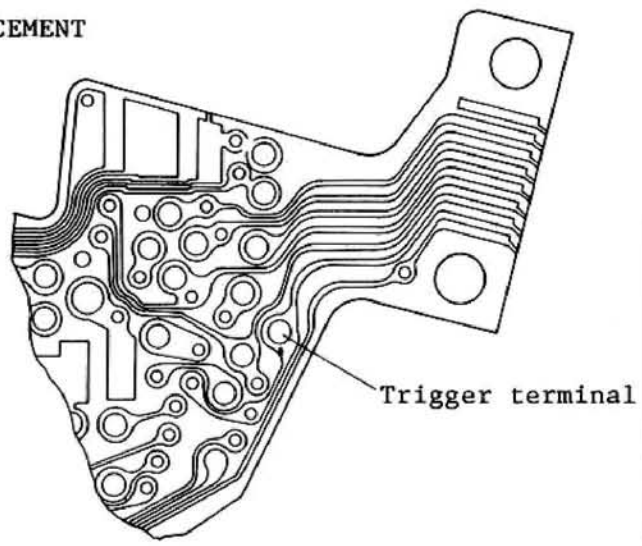
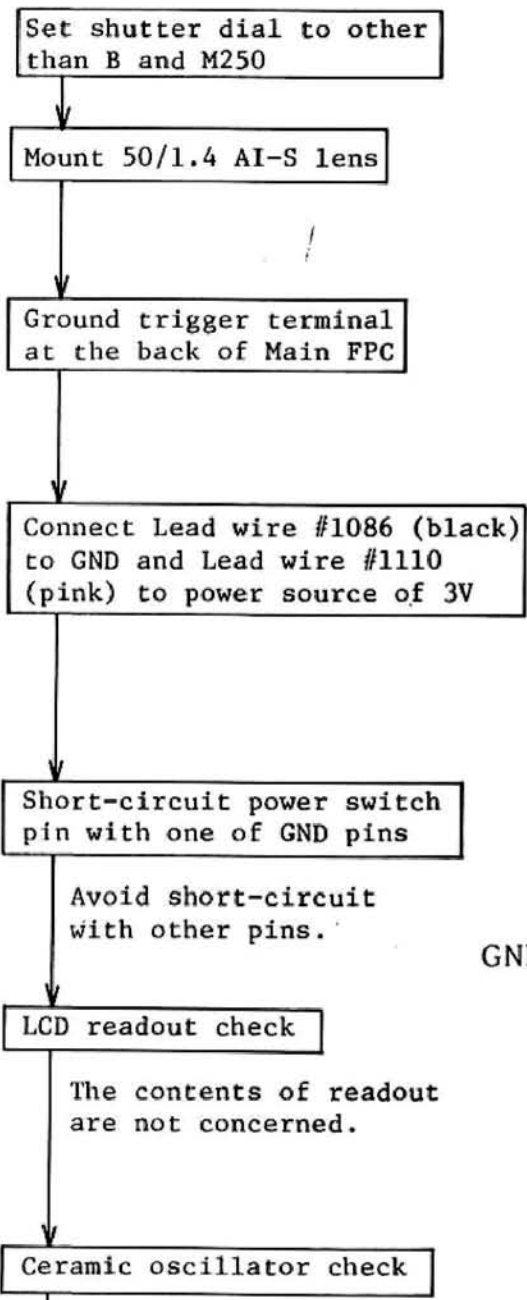
⑦ 1091 (green)

⑧ 1093 (pink)

⑨ 1094 (yellow)



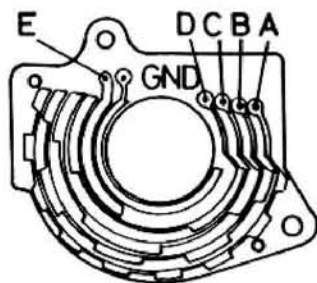
14-2 MAIN FPC CHECKING AFTER REPLACEMENT
(FRONT PLATE SEPARATED)



1

ASA base plate
press-contact checking

Use an oscilloscope to measure the voltage of each terminal.



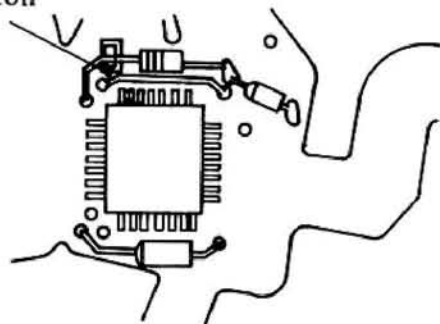
Terminals A - E: High
GND: Low

D/A converter checking

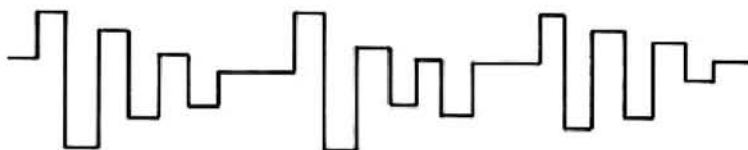
Connect an oscilloscope to the head amplifier side of condenser C12 to see the wave form.

Calculation

VOLTS/DIV: 10 mv
TIME/DIV: 2 ms



Meter mode sw off



Meter mode sw on

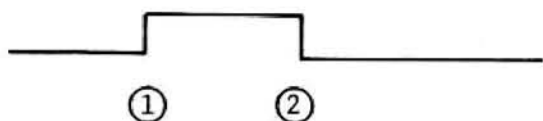


16 sec.-hold checking

When disconnecting short-circuit between power switch pin and GND pin, the LCD should be turned off after 16 sec..

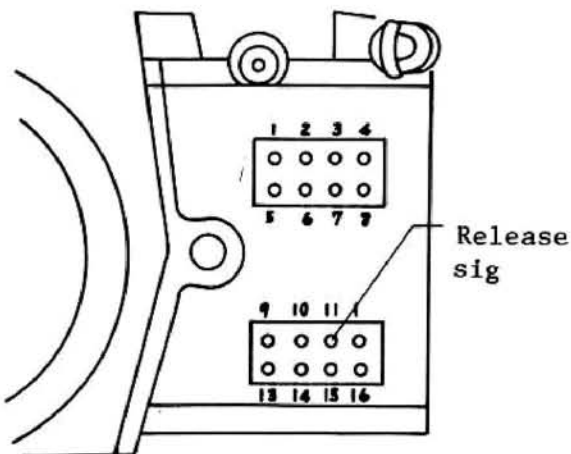
Release signal checking

Use an oscilloscope to measure the voltage of terminal 11.



1: Power switch pin ON

2: Release pin ON



14-3 FRONT PLATE UNIT/BODY DIE-CASTING INSTALLATION

Front plate settings: 1. Charge mirror
 2. Set shutter dial to B
 3. Set self-timer lever to rest position

Charge shutter

Install front plate
 Fit Release lever pin #557 with Mechanical release lever #555. Observe it through opening A. Remove Shutter dial lock lever #426.

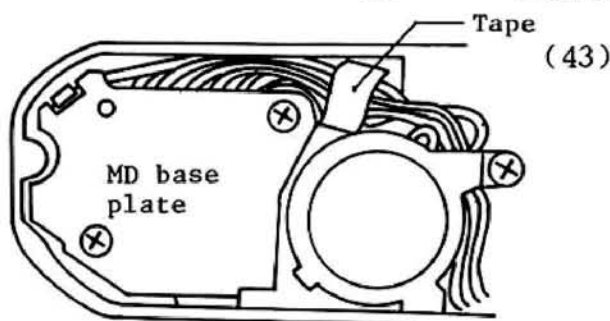
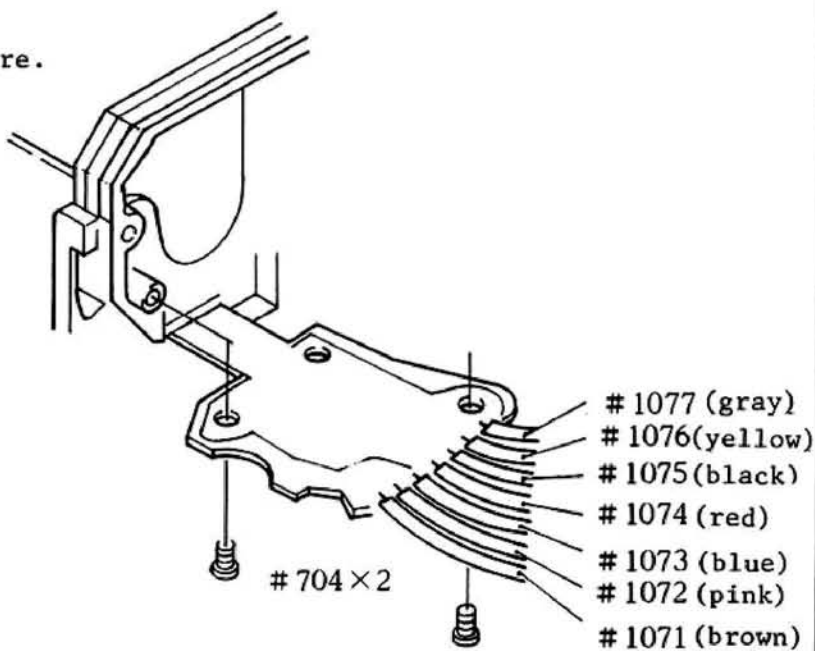
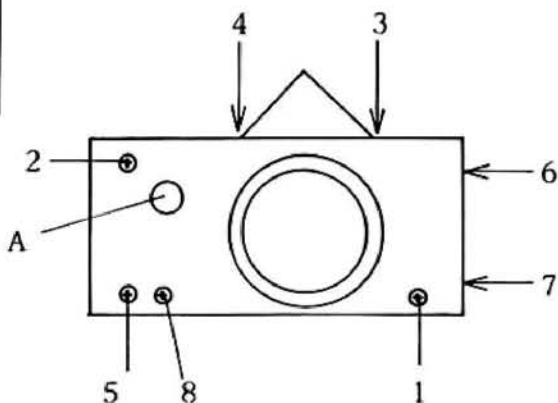
Place and hold front plate toward lower-left (film-advance side). Release shutter with holding Front plate.

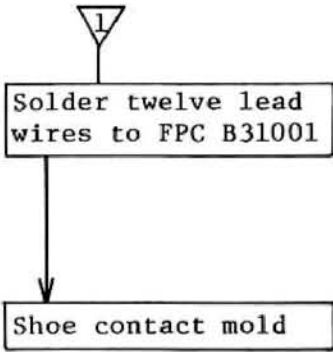
Tighten screws of front plate temporarily

Refer to the right figure.

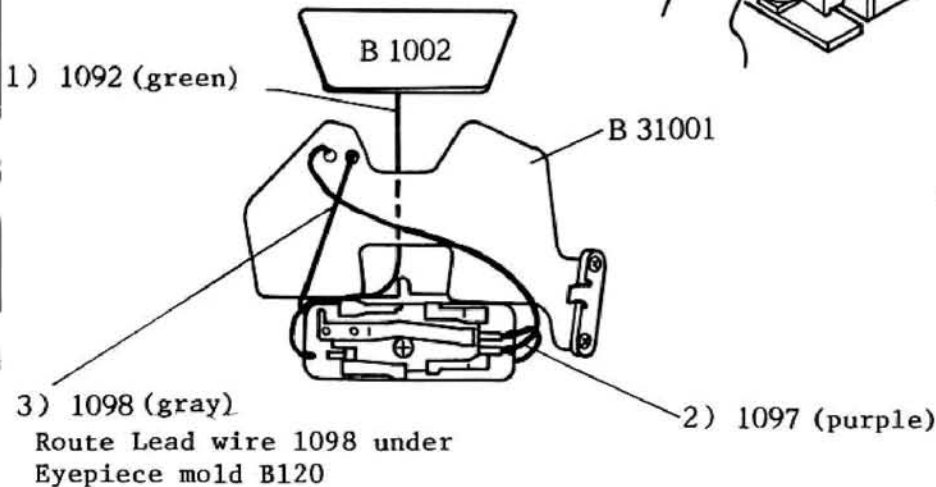
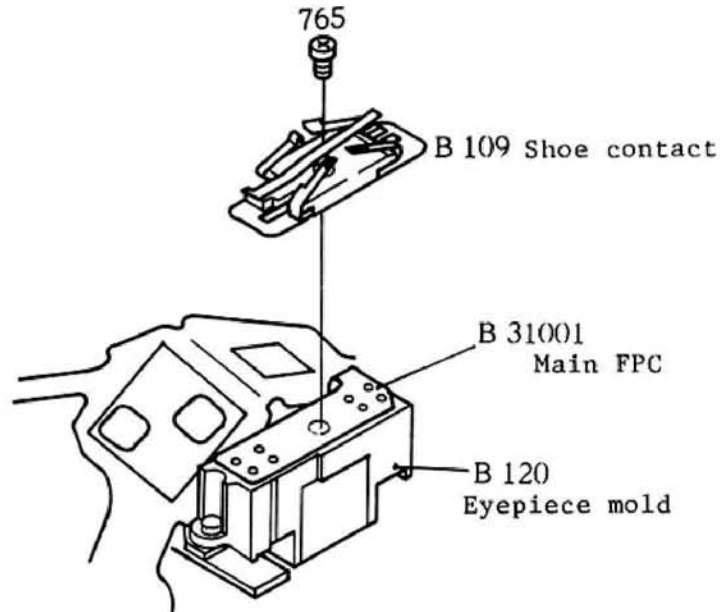
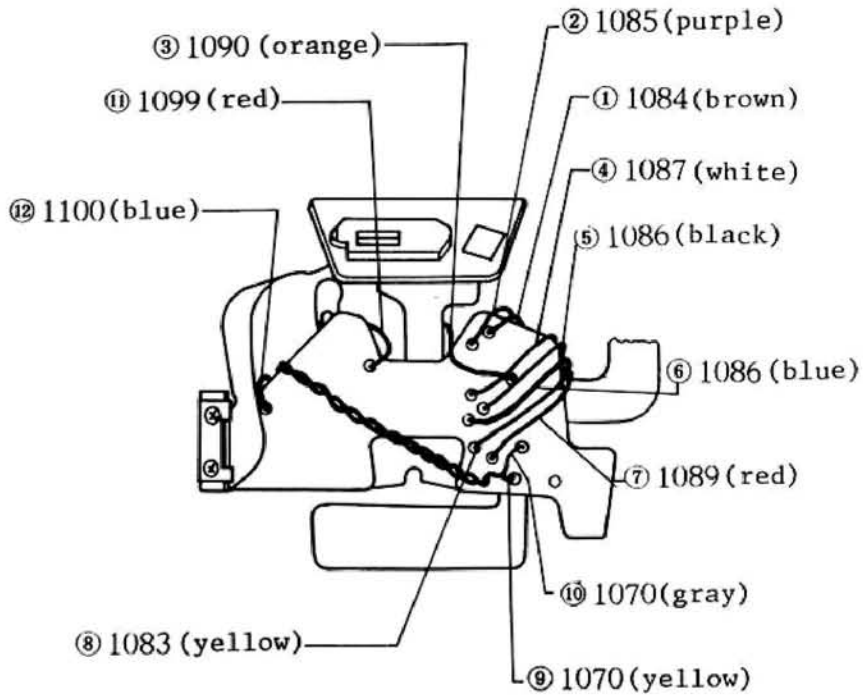
Solder and arrange lead wires at the bottom of body.

#704x2





⊕ 765



Solder lead wires to shoe contact

Tighten screws of ASA base plate

Fig.14

⊕ 702x2
Extend Lead wires #1095 (black) and #1096 (green) from the side of sync terminal.

Install ASA dial base plate B2661 and solder lead wires

Fig.6

⊕ 701x3

Press-contact main FPC with fo FPC

Fig.14

B692
⊕ 708x2

Solder lead wires to upper main FPC

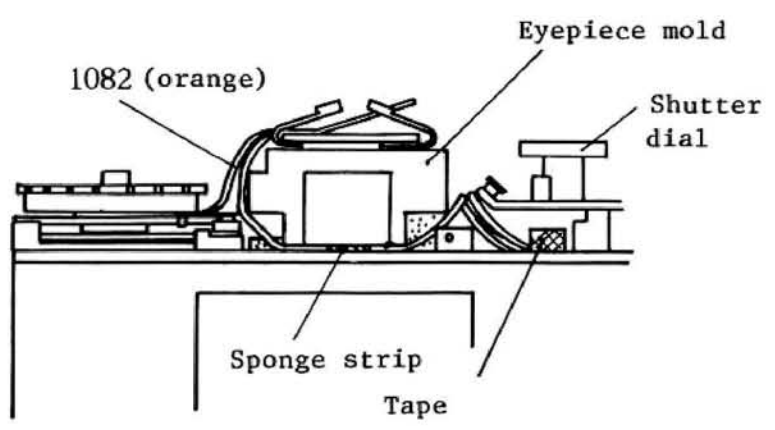
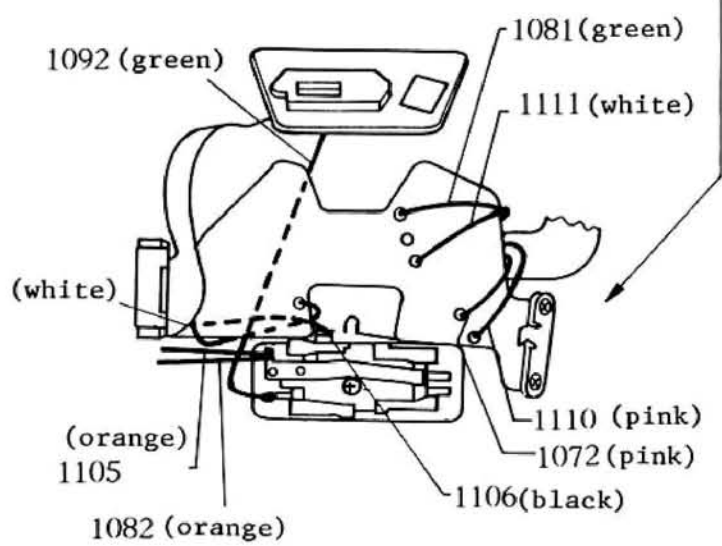
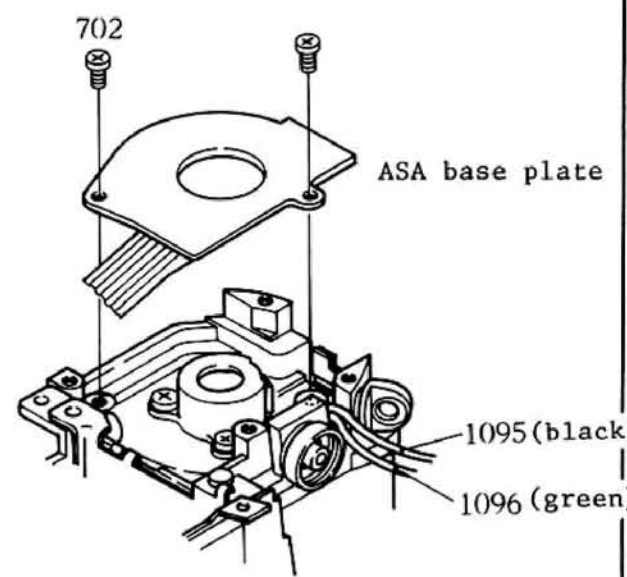
Press-contact shutter dial, main and shutter control FPCs.

Fig.14

B630
B628
⊕ 777x2
Route lead wires under FPCs when installing

Provide ASA base plate brush positioning

Fig.6



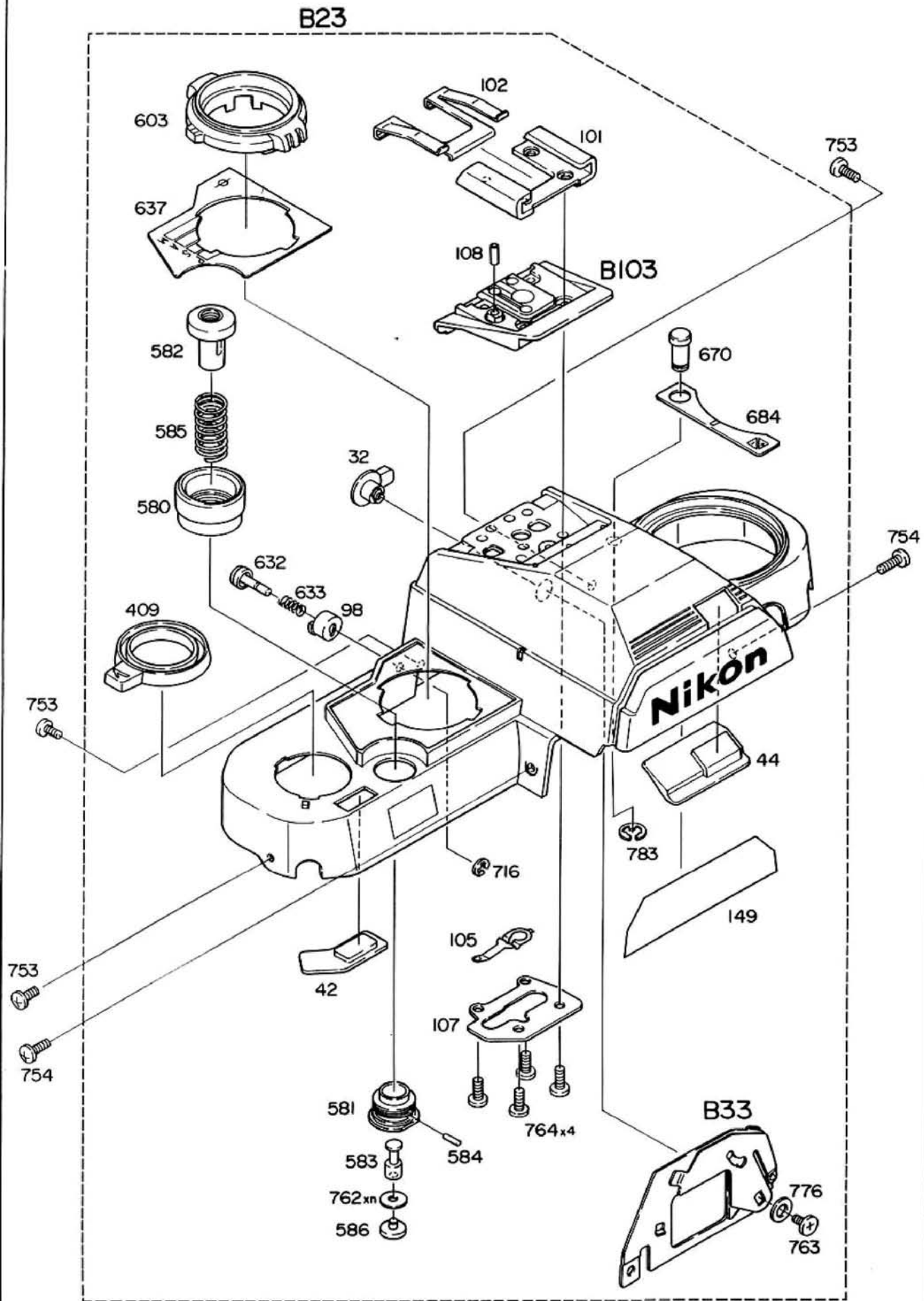
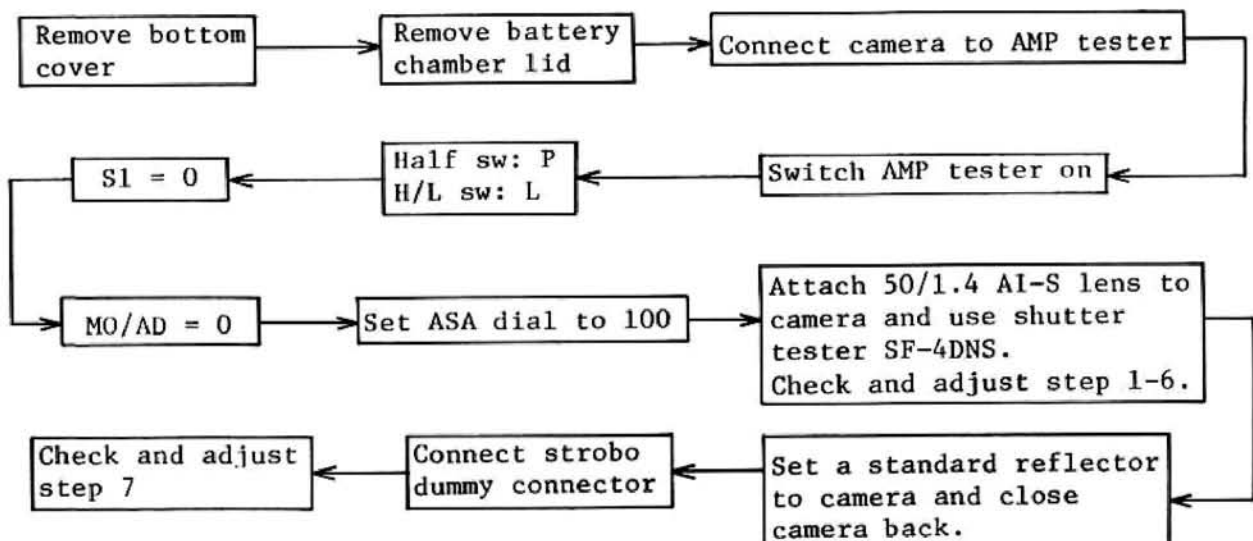


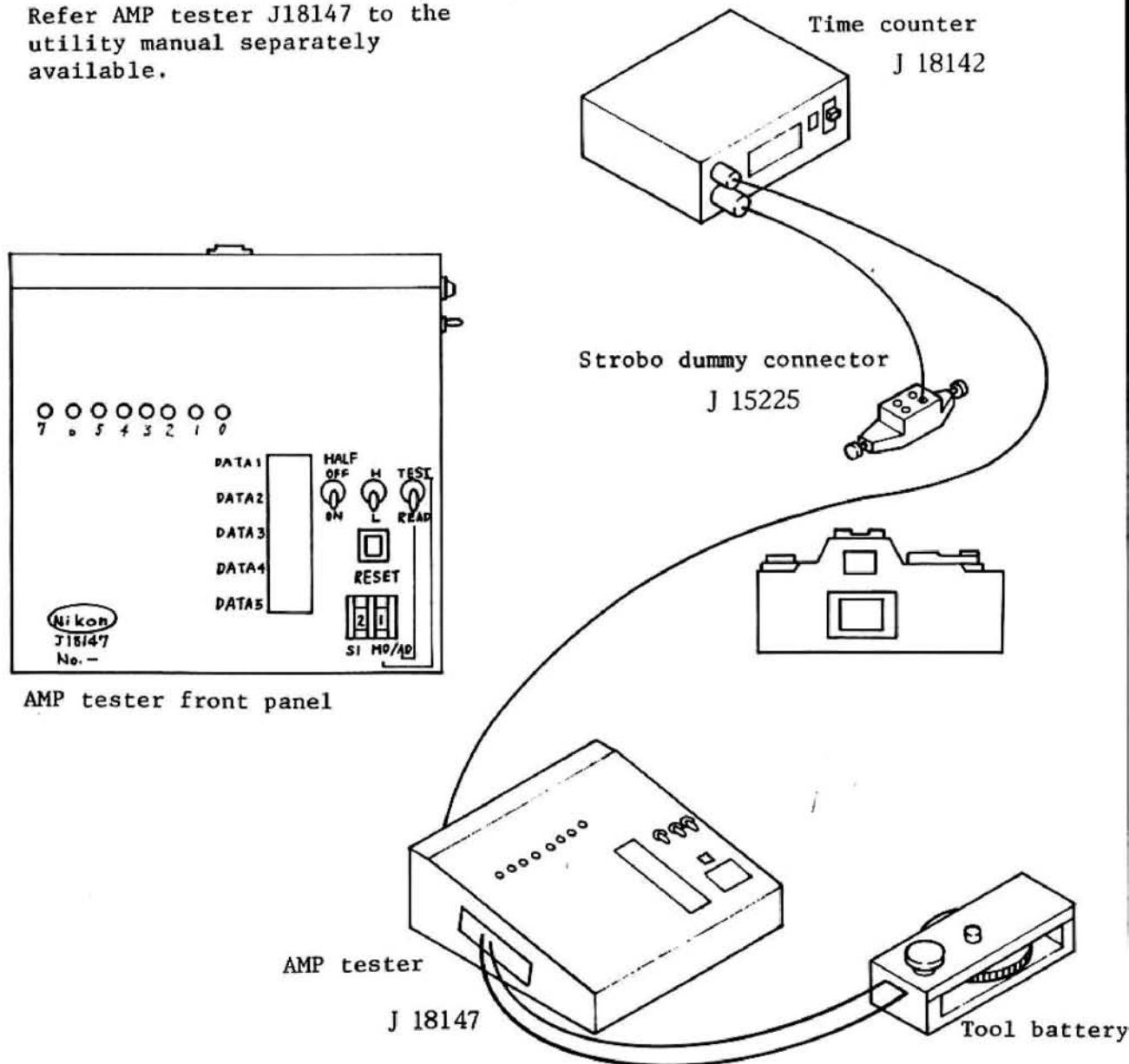
Fig.15

15-1 SHUTTER SPEED ACCURACY ADJUSTMENTS



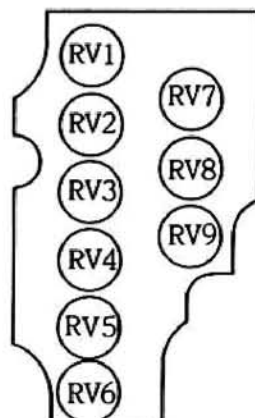
Step 1-7 are detailed on next page.

Refer AMP tester J18147 to the utility manual separately available.



Adjustments

* LV 11.833 is equal to LC 12-1/6.



Variable resistors block

1	Shutter speeds delivery for blank exposure	1) Reset frame-counter to S. 2) Set shutter dial to 1 - 4000 Standard: 3.906 ms (2.86 - 5.84)
Set frame-counter to 1 or more		
2	Shutter speeds delivery on M mode	T = 1/4000 sec. 0.244 ms (0.179 - 0.334) T = 1/1000 sec. 0.977 ms (0.715 - 1.334) T = 1 sec. 1.000 ms (812 - 1231)
3	AMP adjustment Center: Off-center segment 1: segment 2: segment 3: segment 4:	1) Set mode changeover knob to P, S or A. 2) Turn meter mode switch off. 3) AMP tester setting: S1 = 0, MO/AD = 0, H/L sw = L, HALF sw = ON Turn RV2 to adjust DATA 1 from 23 to 24 at LV 11.833 Turn RV3 to adjust DATA 2 from 23 to 24 at LV 12 Turn RV4 to adjust DATA 3 from 23 to 24 at LV 12 Turn RV5 to adjust DATA 4 from 23 to 24 at LV 12 Turn RV6 to adjust DATA 5 from 23 to 24 at LV 12
	Checking	DATA 1 should be 24 at LV 12. DATA 2-5 should be 23 at LV 11.833.
Turn Meter mode switch on.		
4	Shutter speeds delivery on A mode	Setting: LV12, F5.6, 1/125 sec. Adjustments can be made by turning RV9. Standard: 7.81 ms (5.15 - 11.84 ms)
	Checking	Shutter speeds: 0.623 - 1.533 ms (LV15, F5.6) (LV6, F5.6)
5	Shutter speeds delivery on S mode	Setting: LV12, F16, 1/125 sec. Adjustments can be made by turning RV1. Standard: 7.81 ms (5.72 - 10.67 ms) F5.6 (5.10 - 6.28)
	LCD readout	F5.6
6	Shutter speeds delivery on P mode	Setting: LV12, F16, 1/125 sec. Adjustments can be made by turning RV8. Standard: 7.8 ms (5.72 - 10.67 ms) F5.6 (5.10 - 6.28)
	Checking	Shutter speed: 2.02 - 3.77ms } (LV15, F16) F6.72 - 13.45 } 16.18 - 30.19 ms } (LV19, F16) F2.38 - 4.75 }
	LCD readout	125 (LV12, F16) FEE (LV12, F8)
7	Sync speed on TTL mode	Setting: LV15, F1.4, Automatic mode Adjustments can be made by turning RV7. Standard: 0.09 ms + 0.013 - 0.012
	LCD readout	250 (ready-light LED glowing)

15-2 SWITCHES/GRAY CODE CHECKING

The switches and gray codes can be checked by AMP tester J18147 without disassembling top cover.
Refer the AMP tester to p.A35, shutter speed accuracy adjustment and its utility manual.

ASA dial gray codes (SV)

SI = \$0
MO/AD = \$8

*1: ASA film speed

*1	LED4	LED3	LED2	LED1	LEDO
12+1	OFF	OFF	OFF	OFF	OFF
12	OFF	OFF	OFF	ON	OFF
50	OFF	ON	ON	OFF	ON
100	OFF	ON	OFF	ON	OFF
400	ON	ON	OFF	ON	ON
800	ON	ON	ON	ON	ON
3200	ON	OFF	ON	ON	OFF

Shutter dial gray codes (TV)

SI = \$0
MO/AD = \$9

*2: Shutter speed

*2	LED3	LED2	LED1	LEDO
1	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	ON
4	OFF	OFF	ON	ON
8	OFF	OFF	ON	OFF
15	OFF	ON	ON	OFF
30	OFF	ON	ON	ON
60	OFF	ON	OFF	ON
125	OFF	ON	OFF	OFF
250	ON	ON	OFF	OFF
500	ON	ONJ	OFF	ON
1000	ON	ON	ON	ON
2000	ON	ON	ON	OFF
4000	ON	OFF	ON	OFF

f-fo gray code (AV)

SI = \$0
MO/AD = \$A

*3: Aperture

*3	LED4	LED3	LED2	LED1	LEDO
1.4	OFF	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	ON	OFF
2.8	OFF	OFF	ON	OFF	ON
4	OFF	ON	ON	OFF	ON
5.6	OFF	ON	OFF	ON	OFF
8	OFF	ON	OFF	OFF	OFF
11	ON	ON	OFF	ON	ON
16	ON	ON	ON	ON	ON

fo gray code (AVo)

SI = \$0
MO/AD = \$B

LED fo	3	2	1	0
	OFF	OFF	OFF	OFF
1.2	OFF	OFF	OFF	ON
1.4	OFF	OFF	ON	ON
1.8	OFF	OFF	ON	OFF
2	OFF	ON	ON	OFF
2.5	OFF	ON	ON	ON
2.8	OFF	ON	OFF	ON
3.5	OFF	ON	OFF	OFF
4	ON	ON	OFF	OFF
4.5	ON	ON	OFF	ON
5.6	ON	ON	ON	ON
8	ON	ON	ON	OFF
11	ON	OFF	ON	OFF

Focal length (Fmm) sw

EE lens sw

SI = \$0
MO/AD = \$C

Focal length	LED	1	0
Normal		ON	ON
135mm or more		ON	OFF
Teleconverter		OFF	ON

Fmm sw

Pin	LED	2
Out		ON
In		OFF

EE lens sw

Mode changeover sw

Counter sw

SI = \$0
MO/AD = \$D

Mode	LED	1	0
P		OFF	OFF
S		ON	OFF
A		ON	ON
M		OFF	ON

Mode changeover sw

Counter	LED	5
S - S2		ON
1 - 36		OFF

Counter sw

Stop-down sw

SI = \$0
MO/AD = \$D

	LED	4
Stop-down		OFF
Normal		ON

Stop-down sw

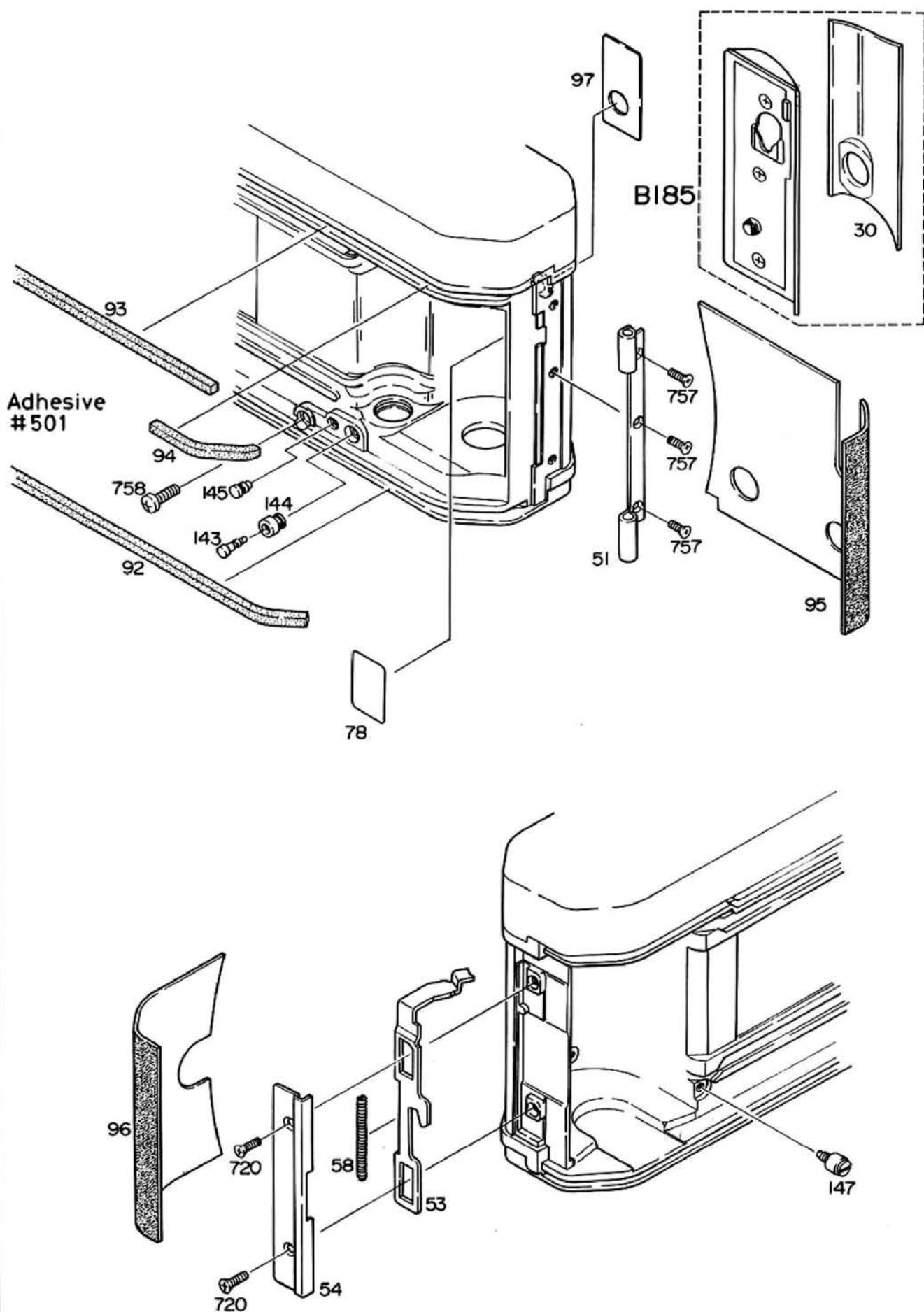


Fig.16

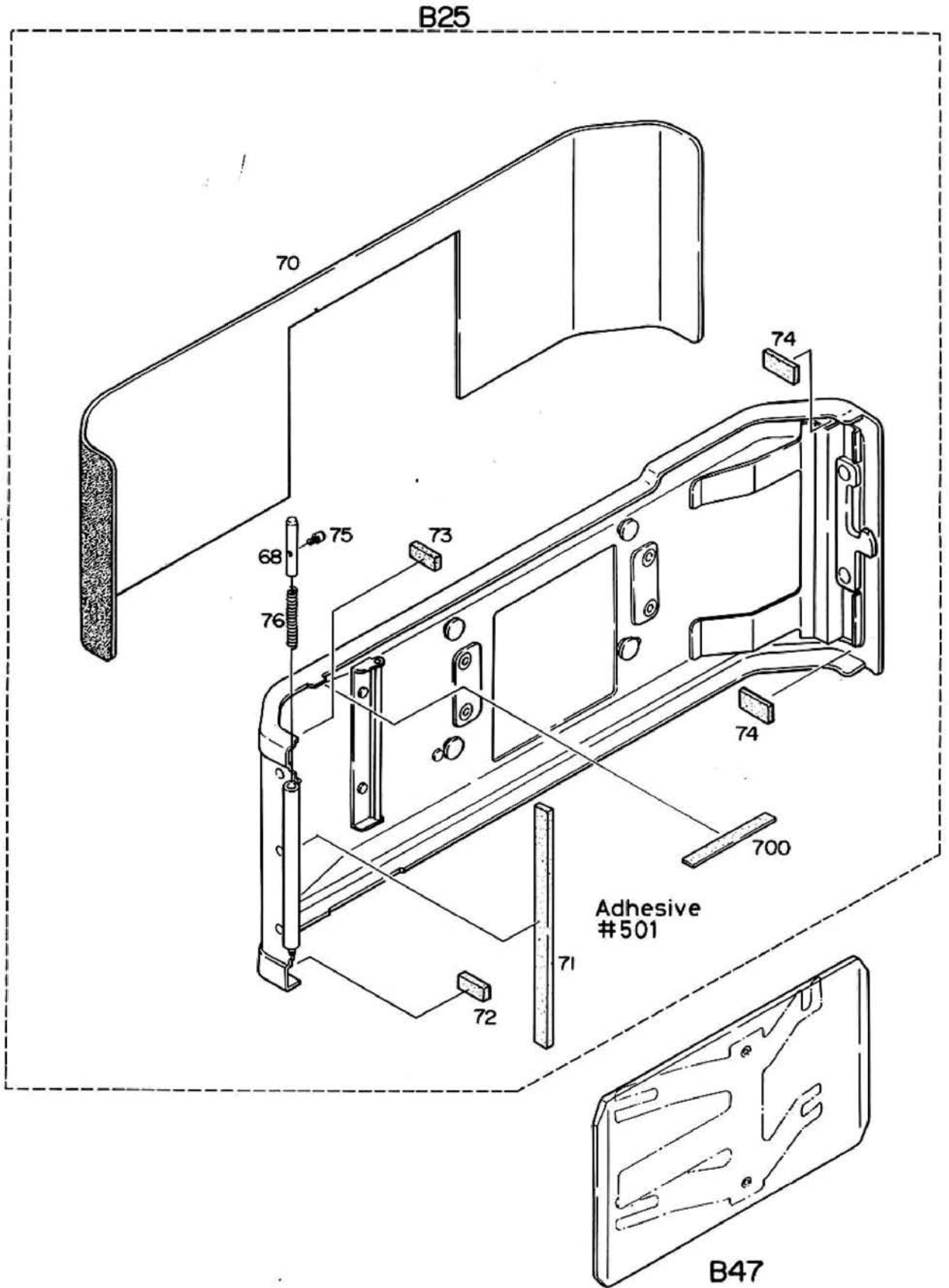


Fig.17

ELECTRIC CIRCUIT

Contents	Page
CAMERA OPERATION BLOCK DIAGRAM	E1
CIRCUIT OPERATION OUTLINE	E2
AUTOMATIC MULTI-PATTERN METERING (AMP) OUTLINE	E6
CIRCUITRY ARCHITECTURE	E8
WIRING DIAGRAM	E11
CIRCUIT DIAGRAM	E12
SWITCHES	E13
CHECKING LANDS (TOP)	E15
CHECKING LANDS (BOTTOM)	E16
HEAD AMPLIFIER TERMINALS	E17
ANALOG HIC TERMINALS	E18
DIGITAL HIC TERMINALS	E19
ASA DIAL/LCD VIEWFINDER INFORMATION FPC TERMINALS ..	E21
RESISTOR BLOCKS, MD BASE PLATE	E22
LCD READOUT	E24
GRAY CODE TABLES	E27
TIMING CHART	
1. Metering sequence	E31
2. Shutter release sequence	E32

TECHNICAL INFORMATION

AFC

Product Name: Nikon FA (FAA16001/FAA16051)

Ref. No. FA-840007

Modified From:

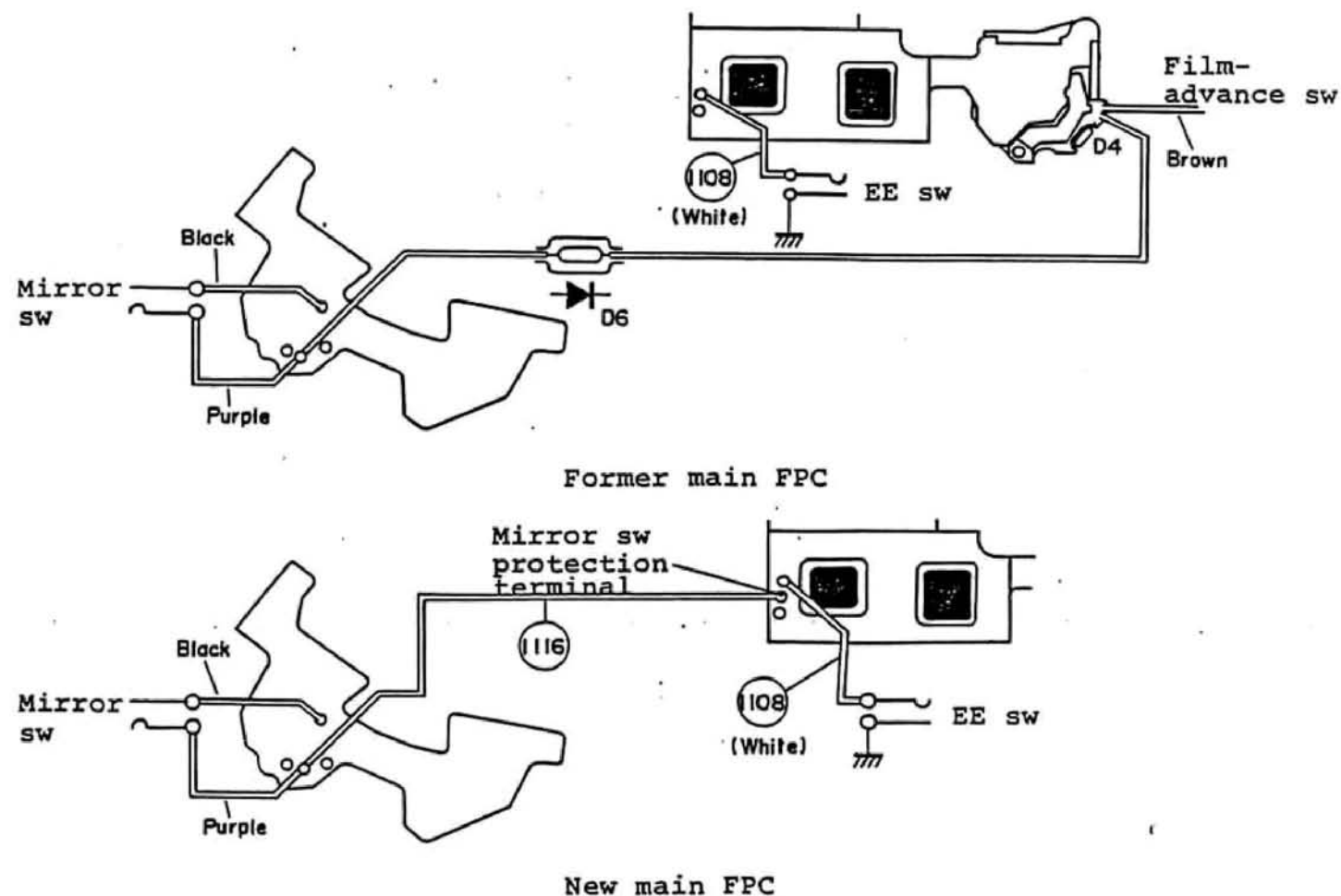
Date: April 1984

Subject: MIRROR SWITCH MAY BE FAULTILY OPEN

Repair Manual:

It has been reported that Mirror switch B255 may be faultily open and deliver critical fastest speed.

For preventing this trouble, Main FPC B31001 has been modified as shown below.



NIPPON KOGAKU K.K.

TECHNICAL & REPAIR SERVICE DEPT.

Fuji Bldg. 2-3, 3-chome, Marunouchi, Chiyoda-ku, Tokyo 100 Japan
Tel. (03) 214-5311. Telex: 02222950 (NIKON J) & J22601 (NIKON)
CABLE: NIKKO TOKYO

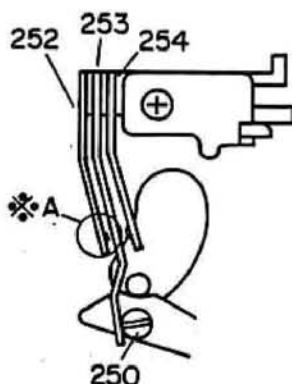
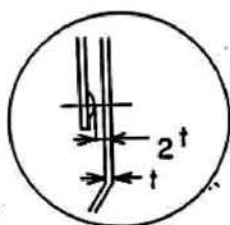
For service

When a camera is brought for repairs in this matter, replace Mirror switch B255 with new one and adjust it as follows.

Mirror switch adjustment

1) Positioning of mirror switch

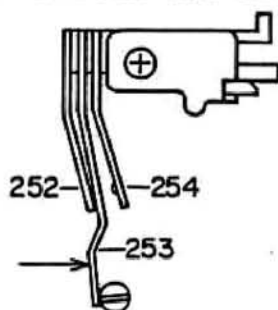
Raise the mirror up and use a finger to place it down. Turn #250 to adjust Clearance A for a half of #253's thickness.



2) Contact pressure of mirror switch

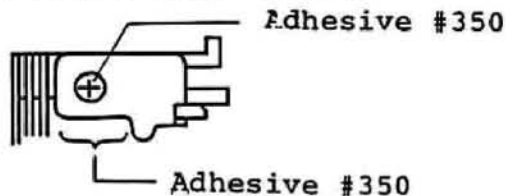
When mirror switch is turned on, pushing #253 toward #254 allow #252 to follow #253 0.1mm or more with keeping its contact. Bend either #252 or #253 to adjust the contact pressure, if necessary.

Be sure to check ON/OFF of mirror switch and DB switch #254.



3) Mirror switch cementing

Apply Adhesive #350 to the bottom of mirror switch as well as the screw head.

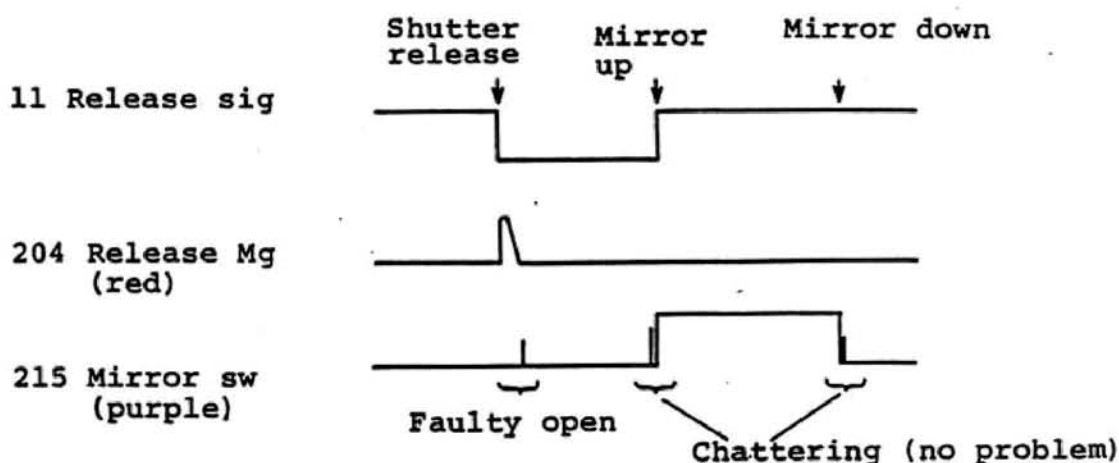


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Cable: NIKKO TOKYO

4) Wave form checking

Use an oscilloscope to check the wave form of mirror switch.



Trigger Land 11 or Land 204 to see the wave form of Land 215.

Refer the locations of checking lands to the repair manual p.E16.

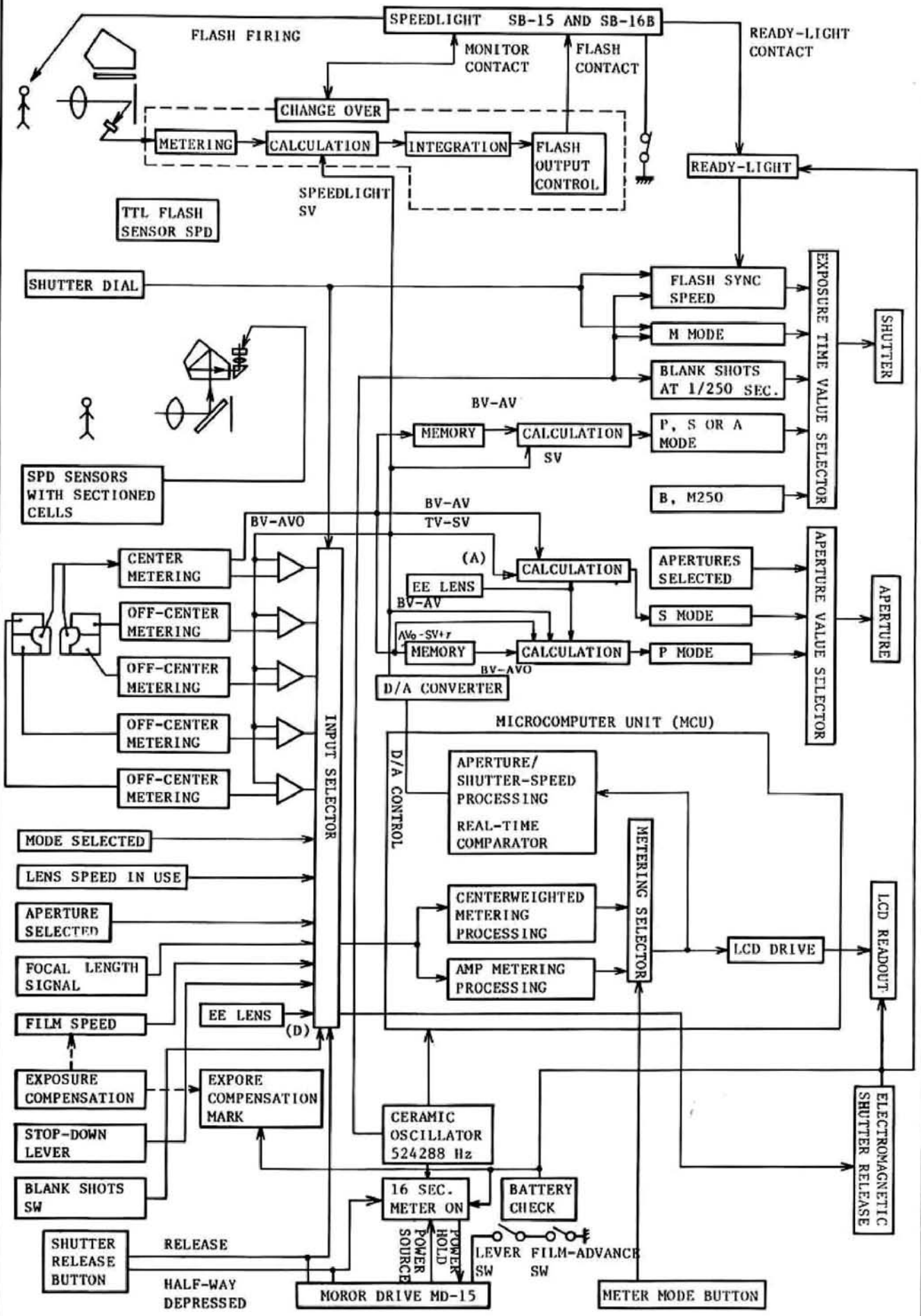
Release shutter so many times as to check that the wave form is free from the faulty open of mirror switch.

Even if the trouble reccurs after replacement of mirror switch, replace Main FPC B31001 with new one.

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CAMERA OPERATION BLOCK DIAGRAM



CIRCUIT OPERATION OUTLINE

The basic circuit formation of the FA is similar to that of the FG, but the introduction of the automatic multi-pattern metering (MAP) has added some features including A/D converter, or microcomputer unit (MCU) as the digital data processing devices.

1. Exposure data input block

1) Metering data input

This block is divided into the automatic multi-pattern metering (AMP) and aperture/shutter-speed control. For the AMP, it is necessary to input the five brightness analog values from the SPDs into the MCU with the help of D/A converter and the five comparators. For aperture/shutter-speed control, only the brightness value of center area is utilized.

2) Other data input

The following exposure data of digital amount as the gray code are inputted into the MCU via the input selector.

Mode selected: 2-bit Shutter dial: 4-bit

Lens speed in use: 4-bit

Aperture selected: 2-bit

Focal length signal: 2-bit

EE lens signal: 1-bit

Film speed: 5-bit

Stop-down lever: 1-bit

Turning exposure compensation switch on makes exposure compensation LED light up and the compensated film speed is inputted into the MCU.

2. DIGITAL DATA PROCESSING

The exposure data are processed in the MCU with the control of the clock of ceramic oscillator 524 kHz (= 219).

1) Correct exposure value

Correct exposure value is obtained for the AMP as BVans and for the center-weighted metering as BVO.

2) LCD readout

LCD readout value is processed for the different mode selected and outputted at terminals 00 - 07 to drive LCD panel.

3) D/A conversion

Correct exposure value of digital is converted into a value of analog in the D/A converter and utilized for shutter speed and aperture opening control.

a) While metering

The correct exposure value (BV) is being compared with the brightness value (AV0) on a real-time basis. The MCU verifies and determines the correct exposure value (BV-AV0) to be equal to the real brightness value.

b) After shutter release

On P and S modes, the aperture control value determined by the MCU is converted into an analog value.

c) After mirror rising

On A, S and P modes, the shutter speed control value determined by the MCU is converted into an analog value. The TTL flash control value is provided when ready-light lights up. Aperture and shutter speed control depends on the central brightness value, but also takes account of off-center brightness values by shifting the film speed value.

3. APERTURE AND SHUTTER SPEED CONTROL

The aperture and shutter speed control of the FA is regarded as the same type of the FG added the aperture control on S mode.

1) Aperture control

a) Aperture control on S mode

Aperture will be stopped down to the following condition:

$$(BV-AV) = (TV-SV)$$

BV - AV: Central brightness value

$$BV + SV = TV + AV$$

TV - SV: Shutter speed value

b) Aperture control on P mode

Aperture will be stopped down to the following condition:

$$(BV-AV) = -(BV-AV) + (AV_0-SV+\alpha) + (BV-AV_0)$$

$$AV = \frac{1}{2} (BV+SV) - \frac{\alpha}{2} \text{ (aperture value)}$$

$$TV = \frac{1}{2} (BV+SV) - \frac{\alpha}{2} \text{ (shutter speed value)}$$

BV - AV: Central brightness value

BV - AV₀: Correct exposure value (Program memory)

AV₀ - SV + α : Aperture value

When lenses of 135mm or longer are used or teleconverters are attached, α increases up to 5 and the high-speed program mode is activated. Otherwise, α remains 2 and the normal program mode works; is the same program the FG has incorporated. The focal length of a lens used is detected as Fmm signal via the position of notch of lens.

c) Aperture control on A and M modes

Aperture is stopped down to the selected value on A and M modes, or when i) the ready-light lights up, ii) the stop-down switch is closed, iii) the blank-shots switch is closed.

2) Shutter speed control on A, S and P modes

There is no operative difference between the three modes after shutter speed will be determined as follows.

$$(BV-AV) + (-SV) \equiv TV$$

BV - AV: Central brightness value

- SV: AMP value

3) Flash output control on TTL mode

Monitor contact of speedlight SB-15/16 transmits TTL mode signal to the camera.

The outputs of TTL flash sensor circuit and speedlight SV are calculated to be utilized for the flash output control.

4. DIGITAL SHUTTER SPEED CONTROL

Shutter speed is controlled by clock of 524.288 kHz in ceramic oscillator.

1) Shutter speed control on M mode

13 shutter speeds from 1/4000 to 1 sec. are controlled digitally.

2) Flash sync speed

Flash sync shutter speed is controlled when ready-light lights up.

a) A, S or P mode

To be controlled at 1/250 sec.

b) M mode

1/500 - 1/4000 sec.: To be controlled at 1/250 sec.

1 - 1/250 sec.: To be the shutter speed in use.

3) Blank shots shutter speed control

While the blank shots switch is closed (before frame counter reaches "1"), shutter speed is controlled at 1/250 sec. regardless of the mode selection.

5. BATTERY CHECK/16 SEC. METER ON

1) 16 sec.-meter hold

a) 16 sec. hold

Power switch is turned on by first stroke of shutter release button when power voltage is approx. 2.45V or more, power stays on for 16 sec. after finger is lifted off button, also it stays on for 16 sec. after mirror down.

b) Instant hold

When power voltage is approx. 2.44V or less, power stays on only for approx. 0.2 sec. to warn low battery power.

2) Viewfinder display/release lock

When power voltage is approx. 2.3V or less, LCD readout and LED displays (ready-light, exposure compensation) are turned out, and electromagnetic shutter release is locked.

Ready-light LED can light up when shutter speed dial is set at B or M250.

6. ELECTROMAGNETIC SHUTTER RELEASE

Release switch is turned on by second stroke of shutter release button, and release signal is generated to initiate release sequence.

Release signal is put into Input selector and the MCU provides a signal to charge magnet of electromagnetic release.

It is followed by the mechanical shutter release sequence.

When shutter release button is fully depressed, release signal is generated after exposure value processing.

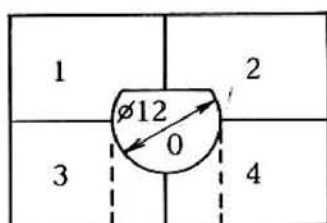
7. MOTOR DRIVE CONNECTION

Motor drives MD-15 and MD-12 are usable.

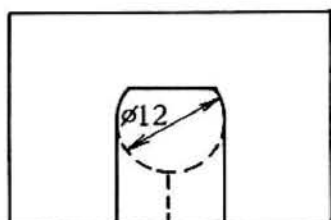
MD power switch and MD film-advance switch are used by both the MD-15 and the MD-12. Battery power is supplied from the MD-15 and power hold of the MD-15 is controlled by the FA.

The camera's release switch is electrically connected to the MD-15. The second release switch for the MD-12 is turned on by the stroke of MD-12's shutter release pin.

AUTOMATIC MULTI-PATTERN METERING (AMP) OUTLINE



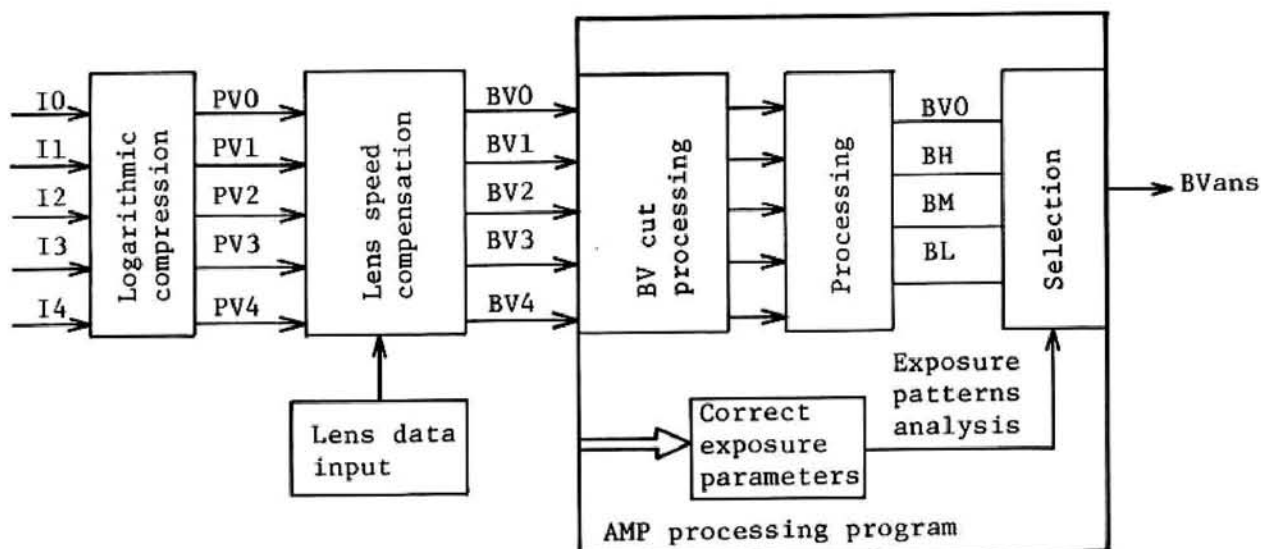
a) AMP metering mode



b) Centerweighted metering mode

Two SPD sensors with sectioned cells are used and the picture frame is divided into five segments (4 off-center areas and center area).

1. Five segmental outputs are logarithmically compressed (PV0-PV4).
2. Signals PV0 - PV4 are compensated for lens speed in use (BV0-BV4).
3. Signals BV0 - BV4 are processed to meet with one of the selective exposure patterns BV0, BH, BM and BL. Then the selected pattern signal is fed as BVans.



BV0: Centerweighted exposure pattern

BH: High-light zone weighted exposure pattern.

BM: Averaging exposure pattern

BL: Low-light zone weighted exposure pattern.

Lens speed compensation program

This program processes the five segmental SPD outputs to be fit for the real exposing condition on the film plane.

Since the SPD outputs of off-center areas are subject to the effect of vignetting, they are compensated by the fo signal fed according to type of lens in use.

Thus, when a lens in use can not feed fo signal to the camera body, the AMP is not operated.

AMP processing program

This program processes the five segmental SPD outputs and determine the correct exposure value.

The SPD output of higher than EV $16 \frac{1}{3}$ (ASA/ISO 100) will be removed.

When the following conditions are fulfilled, the AMP is operated.

1. Meter mode switch is off.
2. Blank shots switch is off.
3. Stop-down switch is off.
4. Ready-light terminal is off.
5. P, S or A mode is selected.
6. fo signal is fed.

CIRCUITRY ARCHITECTURE

The FA's circuitry contains eight FPCs, six ICs, sixteen resistors twenty-seven condensers, three diodes and one ceramic oscillator.

F P C	I C	
1. Main FPC	1. Head amplifier	
2. ASA dial/LCD viewfinder information FPC (ASA/LCD FPC)	2. Mode selector	} Analog HIC
	3. D/A converter	
3. fo FPC	4. Digital IC	} Digital HIC
4. f-fo FPC	5. Microcomputer	
5. Film-advance lever unit FPC	6. LCD driver	
6. Shutter dial FPC	IC 1-5 are mounted on Main FPC.	
7. Shutter control FPC	IC 6 is mounted on ASA dial/LCD viewfinder information FPC.	
8. Shoe contact FPC.		

Head amplifier: Five head amplifiers for metering and one head amplifier for TTL flash output are provided to control shutter speed and flash output.

Mode selector: To realize the multi-mode operation, mode changeover circuit and aperture control circuit are provided.

D/A converter: To realize high rate analog-to-digital conversion, 6-bit D/A converter is provided.
D/A converter is controlled by the MCU to execute high-rate sequential comparison.

Digital IC: It feeds operation timing control on manual mode and various input data into the MCU as a multiplexer function.

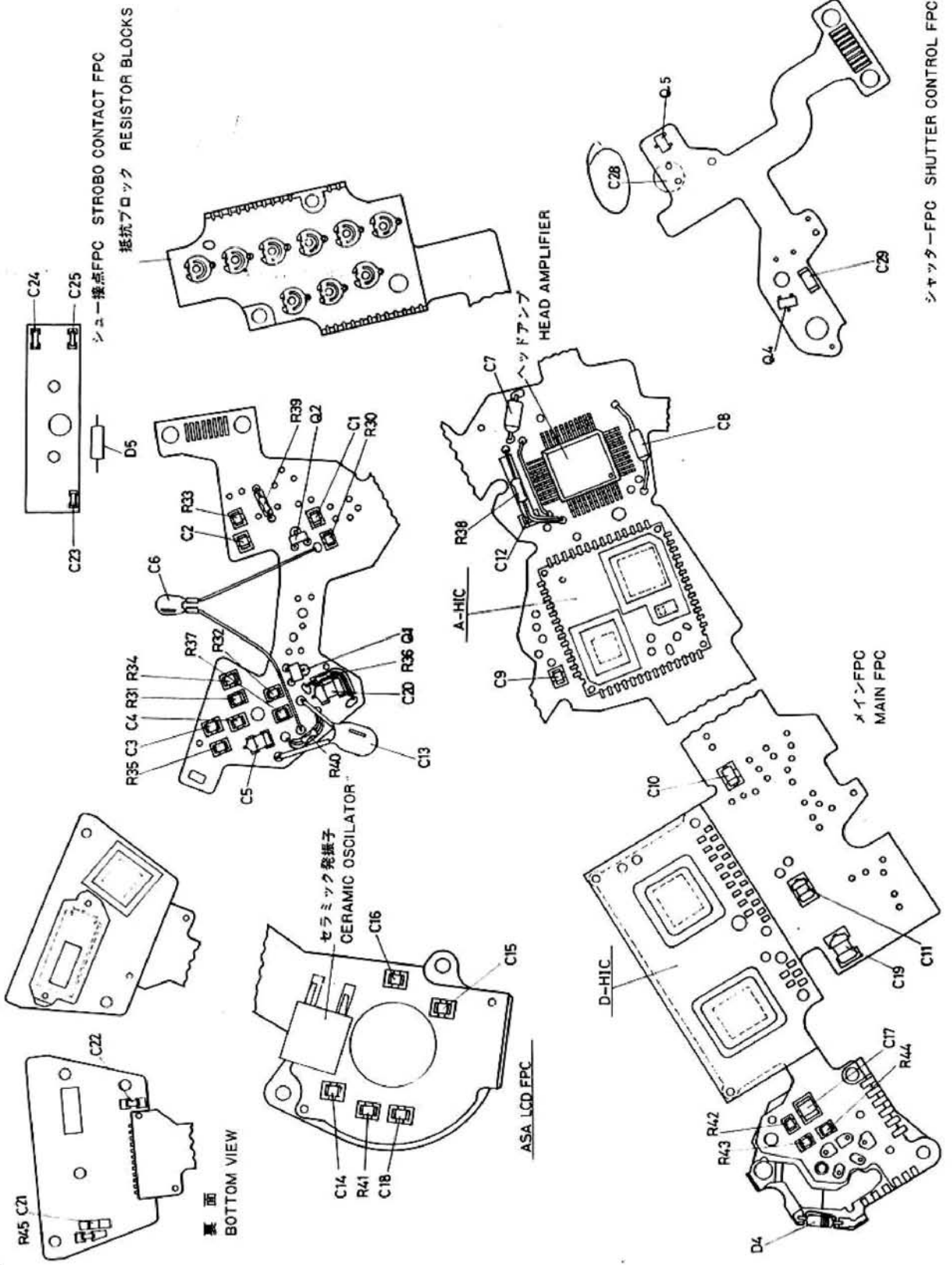
Microcomputer: A brain to realize the AMP and multi-mode operation. It controls the other five ICs with a 524 kHz high-rate processing.

LCD driver: It drives LCD readout by the display output signals of MCU.

Analog HIC: Analog control circuit module composed of mode selector and D/A converter ICs bonded onto a ceramic board.

Digital HIC: Digital control/computation module composed of digital IC and microcomputer chip bonded onto a glass-epoxy resin plate.

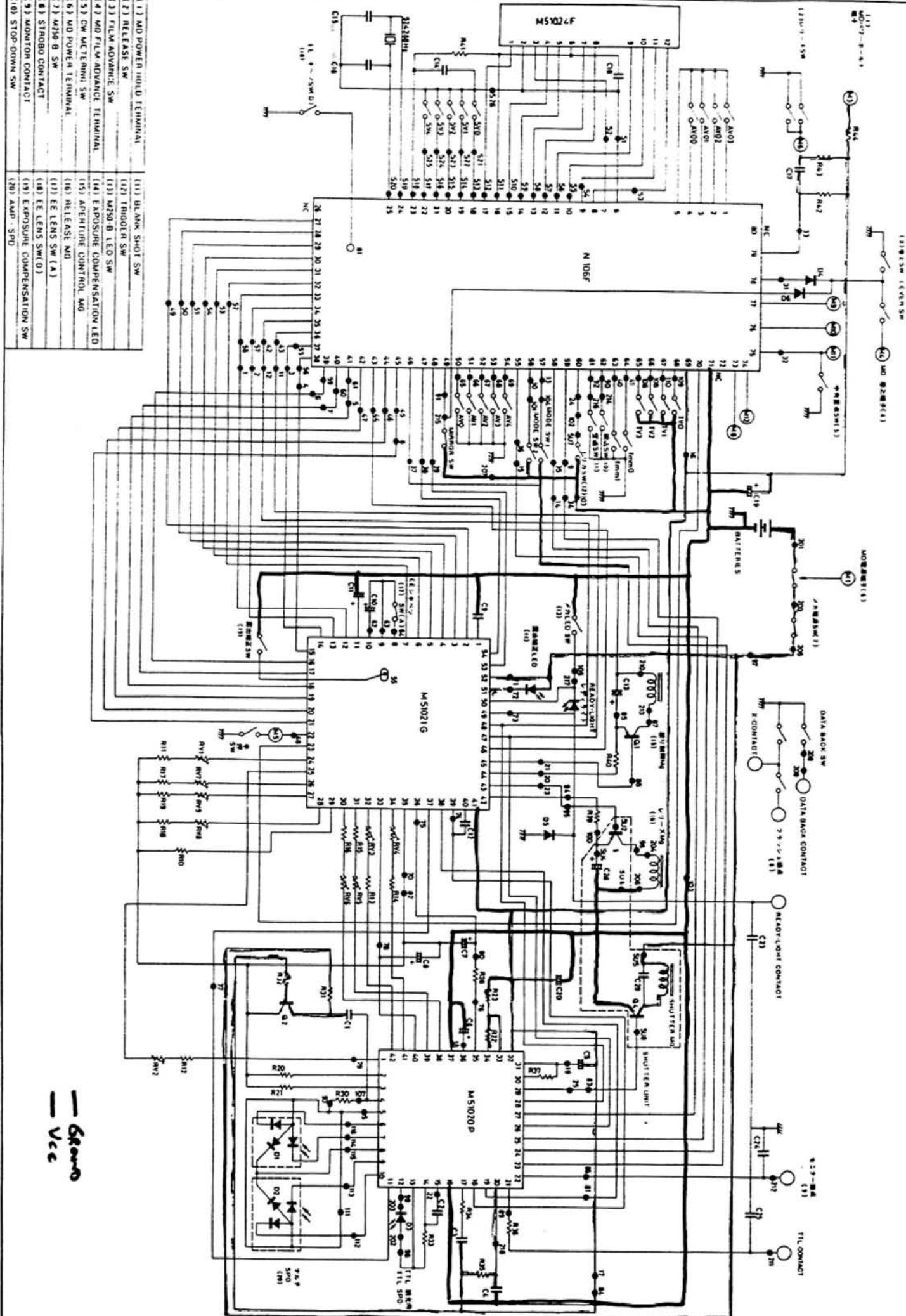
Ceramic oscillator: To operate the MCU at high rate, a compact oscillator of higher capacity is used.



CIRCUITRY PARTS LIST

Index		Function	Index		Function
C1	560 P	Latch release	R30	150 K	Latch release
C2	0.022 μ	Flash output control latch release	R31	100 K	Latch release
C3	0.01 μ	Flash output control integration	R32	330 K	Latch release
C4	0.022 μ	Integration start timing	R33	150 K	Flash output control latch release
C5	1.0 μ	Timer condenser	R34	1 K	Flash output control integration
C6	2.2 μ	Memory condenser	R35	270 K	Integration start timing
C7	1.0 μ	Noise filter	R36	1 K	Firing stop sig
C8	0.1 μ	Noise filter	R37	180	Timer
C9	0.15 μ	Power-off	R38	1 K	Noise timer
C10.	0.15 μ	Differentiation	R39	390	Release Mg
C11	3.3 μ	Program memory	R40	390	Aperture Mg
C12	47 P	Phase compensation	R41	820 K	* Power-on reset
C13	82 μ	Aperture Mg - C	R42	820 K	Release differentiation
C14	0.056 μ	* Power-on reset	R43	100 K	Release pull-up
C15	100 P	* Ceramic oscillation	R44	1 K	HD power hold
C16	100 P	* Ceramic oscillation	R45	2 M	* Discharge
C17	0.12 μ	Release differentiation			
C18	0.15 μ	* Power source condenser			
C19	10 μ	Power source condenser			
C20	10 μ	Power source condenser			
C21	0.047 μ	* Rectification			
C22	0.15 μ	* Oscillation			
C23	0.01 μ	Noise reduction			
C24	0.01 μ	Noise reduction	Q1		Aperture Mg
C25	2200 P	Noise reduction	Q2		Latch release
C28	82 μ	Aperture Mg	Q3		Power supply
C29	0.033 μ	Shutter Mg	Q4		Shutter Mg
			Q5		Release Mg

* Located on ASA/LCD FPC

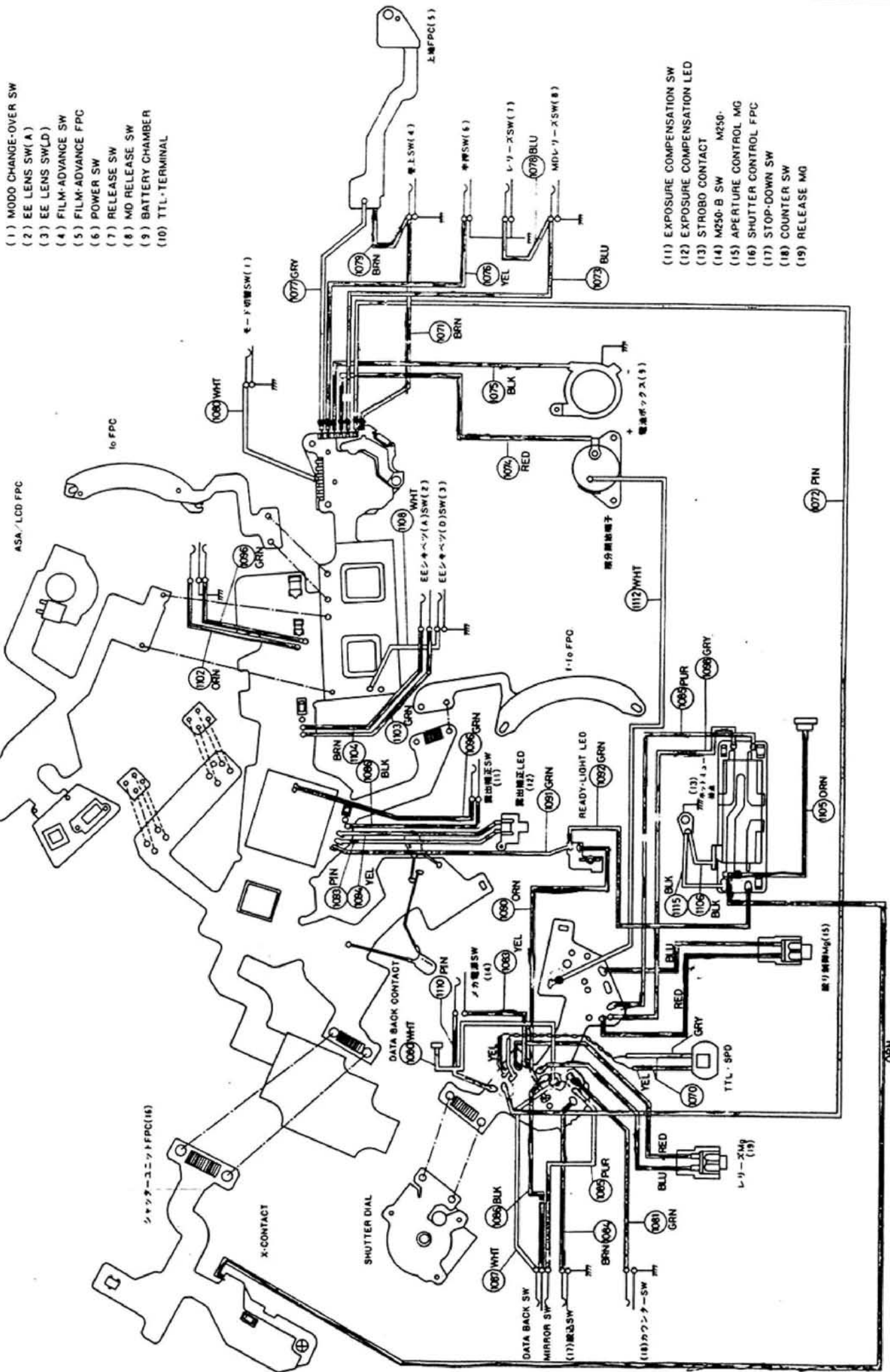


- (1) M0 POWER HOLD TERMINAL
- (2) RELEASE SW
- (3) FILM ADVANCE SW
- (4) M0 FILM ADVANCE TERMINAL
- (5) CW M/T TERMIN SW
- (6) M0 POWER TERMINAL
- (7) M50 B SW
- (8) STROBO CONTACT
- (9) EXPOSITOR CONTACT
- (10) STOP-DOWN SW
- (11) BLANK SHOT SW
- (12) TRIODER SW
- (13) M50 B LED SW
- (14) EXPOSURE COMPENSATION LED
- (15) APERTURE CONTROL M0
- (16) RELEASE M0
- (17) EE LENS SW (A)
- (18) EE LENS SW (O)
- (19) EXPOSURE COMPENSATION SW
- (20) AMP SPD

— Ground
— Vcc

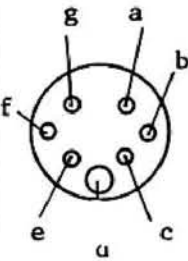
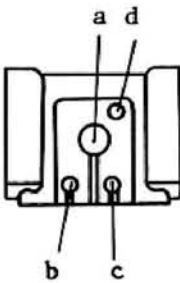
- (1) MODO CHANGE-OVER SW
- (2) EE LENS SW(A)
- (3) EE LENS SW(LD)
- (4) FILM-ADVANCE SW
- (5) FILM-ADVANCE FPC
- (6) POWER SW
- (7) RELEASE SW
- (8) MD RELEASE SW
- (9) BATTERY CHAMBER
- (10) TTL-TERMINAL

- (11) EXPOSURE COMPENSATION SW
- (12) EXPOSURE COMPENSATION LED
- (13) STROBO CONTACT
- (14) M250-B SW M250-
- (15) APERTURE CONTROL MG
- (16) SHUTTER CONTROL FPC
- (17) STOP-DOWN SW
- (18) COUNTER SW
- (19) RELEASE MG

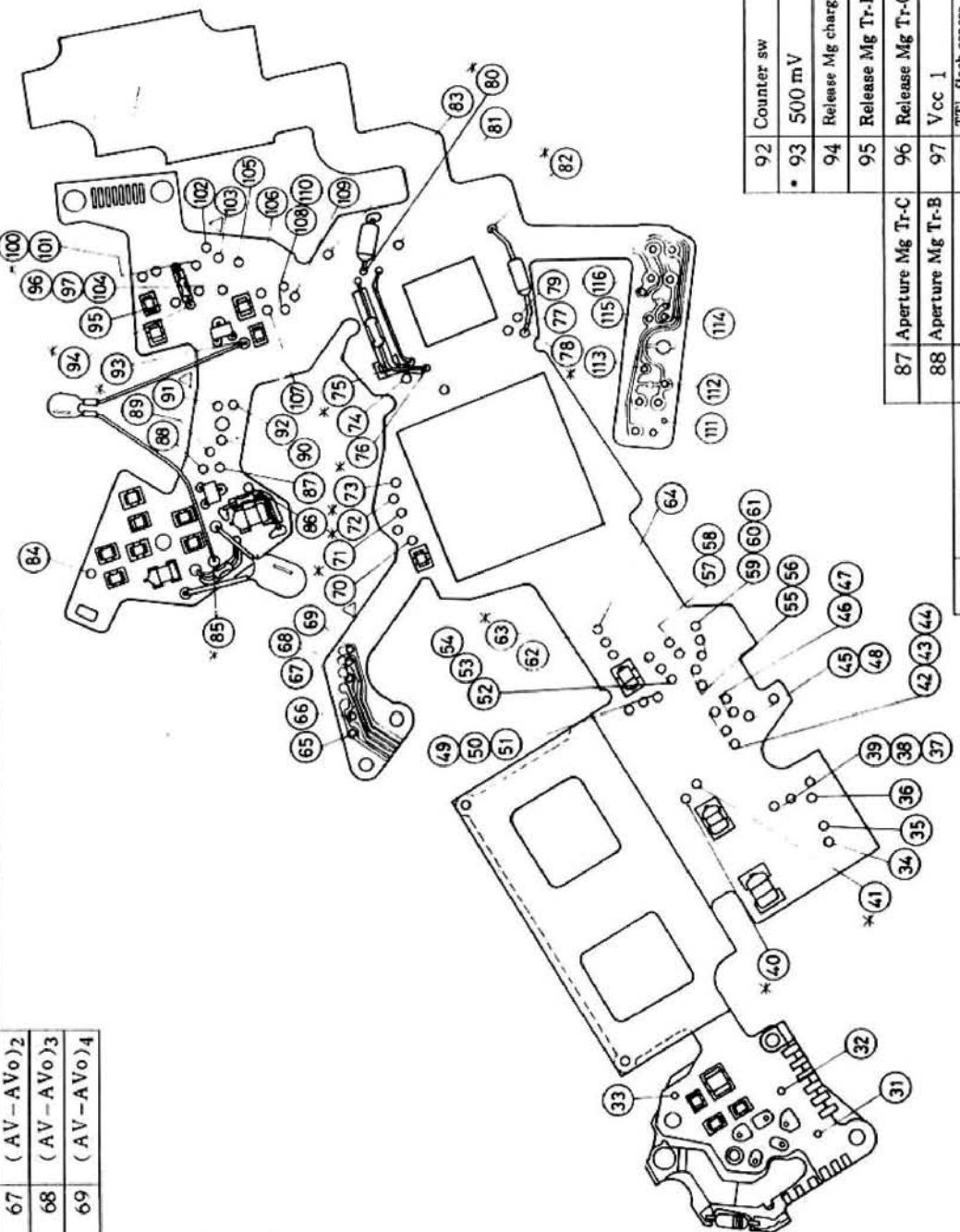


SWITCHES

Name	Location	Type	Function
Main sw Release sw power sw	Release plate	Slide switch (3)	It starts metering/LCD readout when shutter release button halfway depressed. It turns release Mg off and raises mirror when shutter release button fully depressed.
Counter sw	Film-advance lever unit	Contact spring	Counter sw turns on to control shutter speed at 1/250 sec. in all modes before frame counter reaches "1". LCD readout shows C250 or MC250. Counter sw turns off when counter advances "1" or more, and LCD readout shows the shutter speed in use.
Shutter dial brush	Shutter dial	Slide brush (5) Gray code	By turning shutter dial, shutter dial brush senses the signal of shutter speed in use.
Power on/off sw	Shutter dial	Slide sw (2)	By turning shutter dial, the metering LCD readout, and power hold circuit are turned off at M1/250 or B.
Mode changeover brush	Shutter dial	Slide brush (3) Gray code	By turning mode changeover lever, it senses the mode P/S/A/M selected.
Mirror sw	Mirror cage Base plate I	Contact spring	It turns off directly before mirror rising to stop metering, and turns on after mirror down.
Data back sw	Mirror cage Base plate I	Contact spring	It turns on mirror rising to provide the data back with trigger signal, and turns off after mirror down.
Stop-down sw	Front plate	Slide sw (2)	It turns on by pressing stop-down lever. P and S modes are changed to A mode. On A and M modes, stopped down metering is activated.
Meter mode sw	Front plate	Contact spring	By pressing meter mode button, center weighted metering is activated in all modes.
EE lens sw	Front plate	Contact spring	By mounting a lens except AI or AI-S type, lens type signal pin on bayonet is pressed to change aperture control timing (analog) and compensate the lens speed (digital).
fo brush	Lower front plate	Slide brush (6) Gray code	By mounting a lens of AI or AI-S type, it senses the lens speed. When a modified AI lens is mounted, the lens speed is regarded as F2.8 and center-weighted metering is activated.
f-fo brush	Aperture coupling ring ring	Slide brush (6) Gray code	Turning aperture ring enables f-fo brush to sense the aperture value. (1/3 f/stop gradation)
ASA brush	ASA unit	Slide brush (6)	Turning ASA dial enables to ASA brush to sense the film speed. (1/3 EV gradation)

Name	Location	Type	Function
Focal length (Fmm) signal sw	Mirror cage L	Slide sw (2)	<p>It senses Fmm signal and:</p> <ol style="list-style-type: none"> 1. Shifts the program to the high-speed when lenses of 135mm or larger, or AI-S type teleconverters are used. 2. Compensates the lens speed when AI-S type teleconverters are used.
Exposure compensation sw	ASA unit	Slide sw (2)	It turns on by setting exposure compensation and exposure compensation LCD lights up.
Closing curtain sw	Bottom body	Contact spring	It turns on after releasing shutter and makes motor drive advance the film while lever sw is on.
MD release sw	Bottom body	Contact spring	It turns on by the shutter release pin of the MD-11/12, and generates release signal to perform electromagnetic release.
MD connector	Bottom body		<p>a: Power on sig (Power hold starts when low)</p> <p>b: Release sig (Shutter is released when low)</p> <p>c, e: GND</p> <p>d: MD power supply</p> <p>f: 16 sec. hold sig</p> <p>g: Film-advance sig</p>
Shoe contact	Top cover		<p>a: Sync contact X-contact on enables the flash to fire.</p> <p>b: Ready-light contact Shutter speed is automatically set at 1/250 sec. on P, S and A modes and also is set at 1/250 sec. when Shutter dial is set between 500 and 400 on M mode.</p> <p>c: TTL flash output control contact Stops the flash firing when the flash output provides the right amount of light.</p> <p>d: Monitor contact</p>
Trigger sw	Shutter		It turns on by shutter charge and off by shutter release.
X-contact	Shutter		It turns on by opening curtain travel completion and off by closing curtain travel completion.

31	Film-advance sw	49	B5	62	R 5 terminal	70	GND	75	Differentiation input	80	Noise filter mic point
32	S 1	50	B4	* 63	Differentiation C	71	Vcc 1	76	Metering output	81	Bch reference voltage
33	Release input	51	B3	64	Differentiation change over	72	Exposure compensation LED	77	237 mV	82	GND
34	Trigger sig	52	B0	65	(AV - AVo)0	73	Ready-light	78	C 5 in	83	Shutter Mg Tr-B
35	A-M change over	53	B1	66	(AV - AVo)1	74	SV (DA output)	79	A/D temperature compensation		
36	M-TIME	54	B2	67	(AV - AVo)2						
37	ASA warning	55	C7 out	68	(AV - AVo)3						
38	Bch 1	56	C6 out	69	(AV - AVo)4						
39	Bch 2	57	Mode A sig A								
* 40	Fmm 1	58	Mode B sig B								
* 41	Fmm 0	59	C5 out								
42	Mirror sig	60	C4 out								
43	Release sig	61	C3 out								
44	Charge sig										
45	Power hold										
46	Speed light sig										
47	Power sig										
48	Power sw										



101	Mode sw
102	Trigger sw
△103	GND
104	Mode sw 1
105	Mechanical release LED
106	TV 3
107	Latch release ④

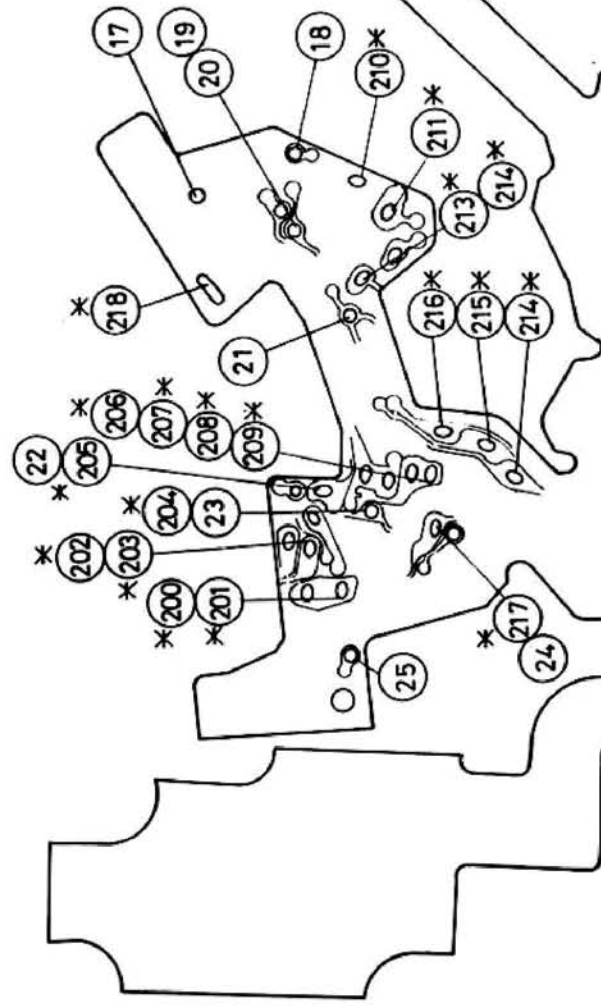
92	Counter sw
* 93	500 mV
94	Release Mg charge
95	Release Mg Tr-B
96	Release Mg Tr-C
97	Vcc 1
98	TTL flash sensor SPD (A)
99	TTL flash sensor SPD (K)
100	Release Mg Tr-E

87	Aperture Mg Tr-C
88	Aperture Mg Tr-B
89	Stop sig
90	Stop-down sw
△ 91	Mirror sw

84	Vcc 2
* 85	Aperture Mg Tr-E
86	Speed light

△ Useless solder joint
* Lead wire soldering terminal

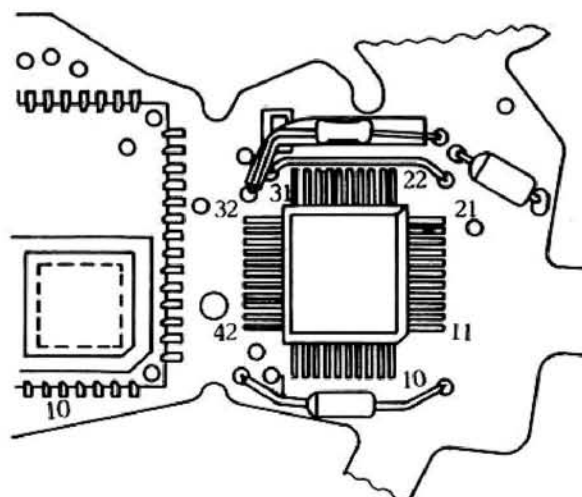
200 ~ 218 are lead wire soldering terminals.



1	Mode sig B	12	Mirror sig
2	Mode sig A	13	Mode sw 1
3	C 7 out	14	A-M change over
4	C 6 out	15	M-TIME
5	C 3 out	16	Vcc 2
6	C 5 out	17	Vcc 2
7	C 4 out	18	Memory C
8	Power hold	19	Timer C
9	Trigger sig	20	Aperture Mg charge
10	Mode sw O	21	Aperture Mg Tr-B
11	Release sig	22	Latch release 15
		23	Release Mg Tr-B
		24	Trigger sw
		25	Shutter Mg Tr-B

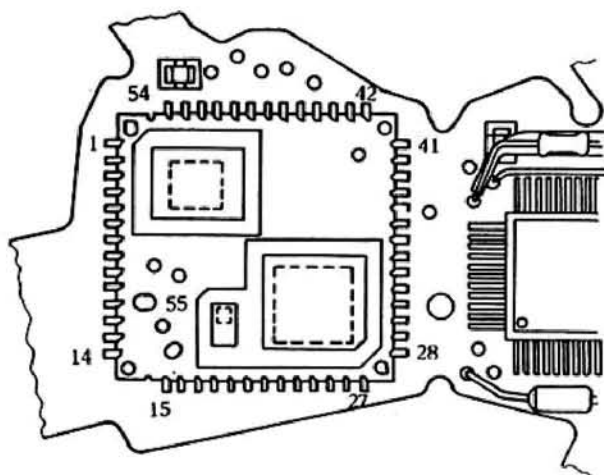
*200	Mechanical power source sw (pink)	*213	Aperture control Mg (red)
*201	MD power source terminal (pink)	*214	Stop down sw Mg (brown)
*202	TTL SPD(yellow)	*215	Mirror sw(purple)
*203	TTL SPD (gray)	*216	Blank shots sw (green)
*204	Release Mg (red)	*217	Ready-light LED (orange)
*205	Mechanical power source (yellow)	*218	Integration start terminal (white)
*206	Release Mg (blue)		
*207	Mirror sw (black)		
*208	Data back sw (white)		
*209	Data back contact (white)		
*210	Aperture control Mg (blue)		
*211	TTL flash output control (purple)		
*212	Monitor contact (gray)		

HEAD AMPLIFIER TERMINALS



H1	D/A temperature compensation	H22	Speedlight terminal
H2	A3 off-set adjustment (1)	H23	ASA warning signal input
H3	A3 off-set adjustment (2)	H24	Trigger signal input
H4	Latch release	H25	T-TIME input
H5	500 mv bias output	H26	Release signal input
H6	A1 metering input	H27	A - M changeover signal input
H7	A2 metering input	H28	Mirror signal input
H8	A3 metering input	H29	Shutter magnet control output
H9	A4 metering input	H30	Timer condenser discharge
H10	A5 metering input	H31	Timer condenser
H11	237 mv output	H32	Vcc
H12	TTL metering output	H33	Y adjustment (1)
H13	TTL 237 mv bias output	H34	Y adjustment (2)
H14	TTL latch release (1)	H35	Metering output
H15	TTL latch release (2)	H36	Memory condenser
H16	GND	H37	GND
H17	TTL stretch	H38	A5 metering output
H18	SV input	H39	A4 metering output
H19	BCH reference voltage	H40	A3 metering output
H20	Integration start timing	H41	A2 metering output
H21	Firing stop signal	H42	A1 metering output

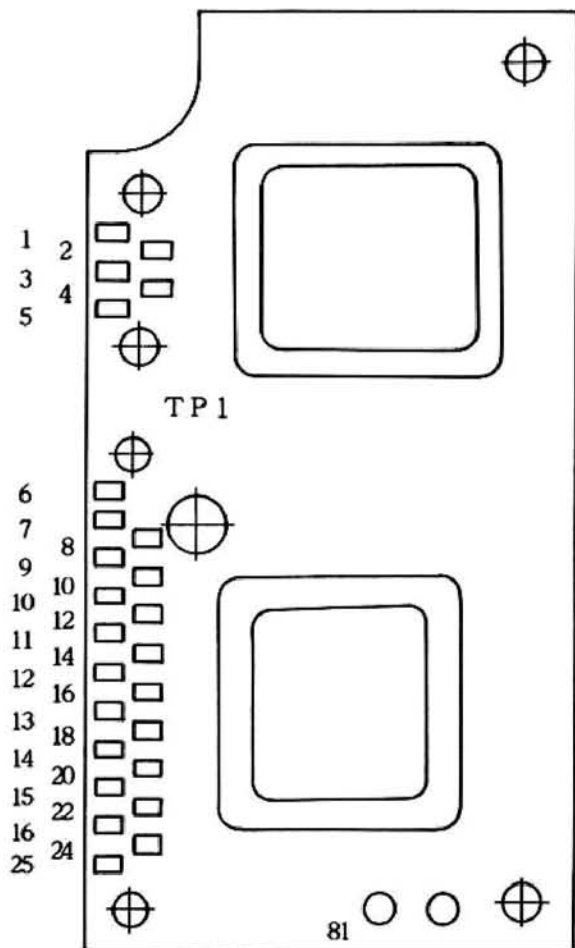
ANALOG HIC TERMINALS



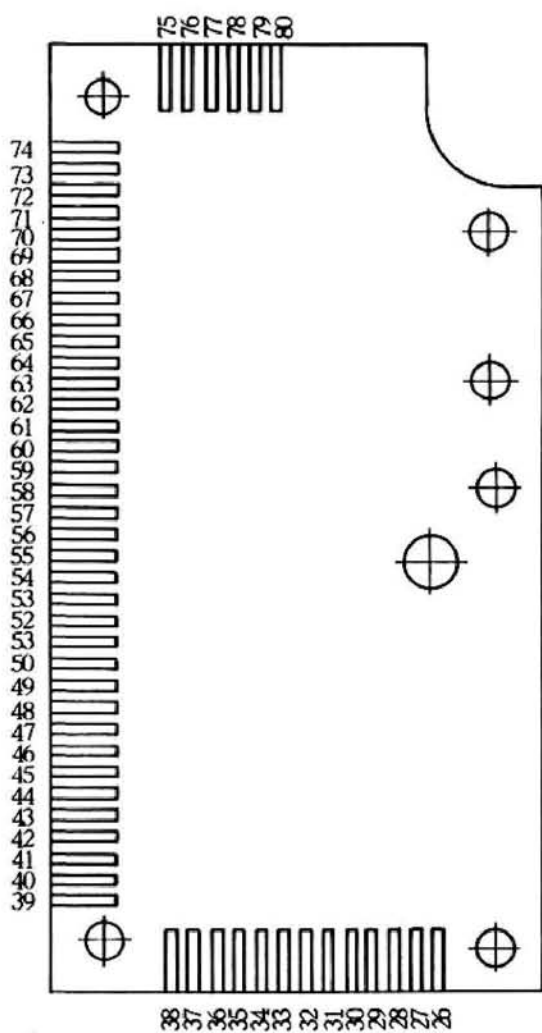
A1	Power-off condenser	A29	R10 terminal
A2	B5 input	A30	C3 input
A3	B4 input	A31	C4 input
A4	B3 input	A32	C7 input
A5	B2 input	A33	C5 input
A6	B1 input	A34	C6 input
A7	B0 input	A35	GND
A8	Differentiation compensation resistor changeover	A36	Lens speed compensation input
A9	Differentiation compensation condenser	A37	Shutter speed ratio reference voltage
A10	R5 terminal	A38	BCH reference voltage
A11	Program memory condenser	A39	DAC current compensation
A12	Mode sig B	A40	Phase compensation condenser
A13	Mode sig A	A41	Vcc 2
A14	C7 output	A42	Release Mg charge
A15	C6 output	A43	Release Mg Tr-B
A16	C5 output	A44	Aperture charge
A17	C4 output	A45	Aperture Mg Tr-B
A18	C3 output	A46	Charge sig
A19	Power sig	A47	Release sig
A20	Speedlight sig	A48	Mirror sig
A21	Power hold sig	A49	Ready-light sig
A22	Power sw	A50	Mechanical shutter control sw
A23	Aperture ENABLE	A51	Exposure compensation LED
A24	S mode level	A52	Vcc 1
A25	ADC level	A53	BCH 2 output
A26	TTL flash output control level	A54	BCH 1 output
A27	A mode level	A55	Exposure compensation sw
A28	P mode level		

DIGITAL HIC TERMINALS

TOP



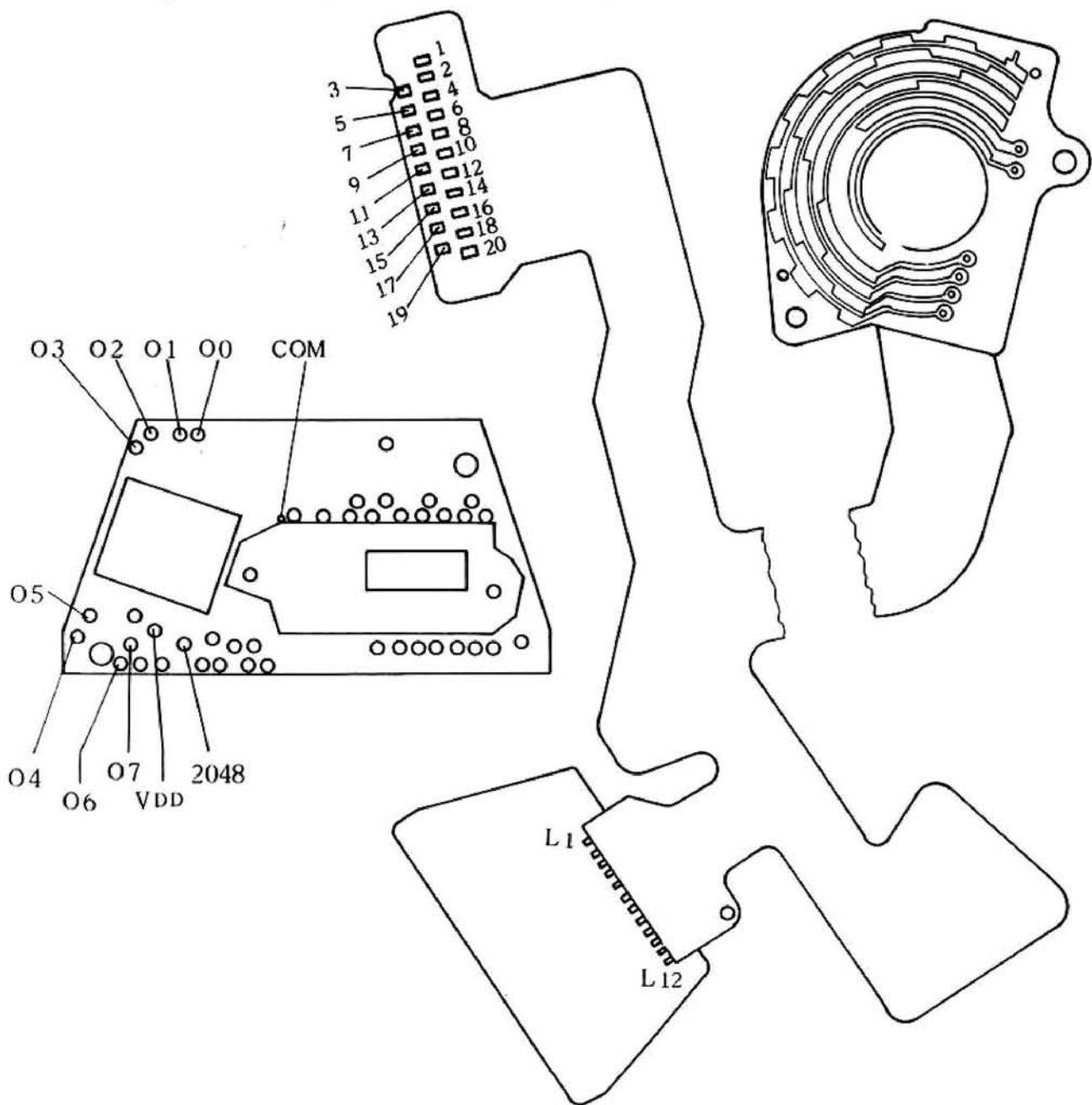
BOTTOM



DIGITAL HIC TERMINALS

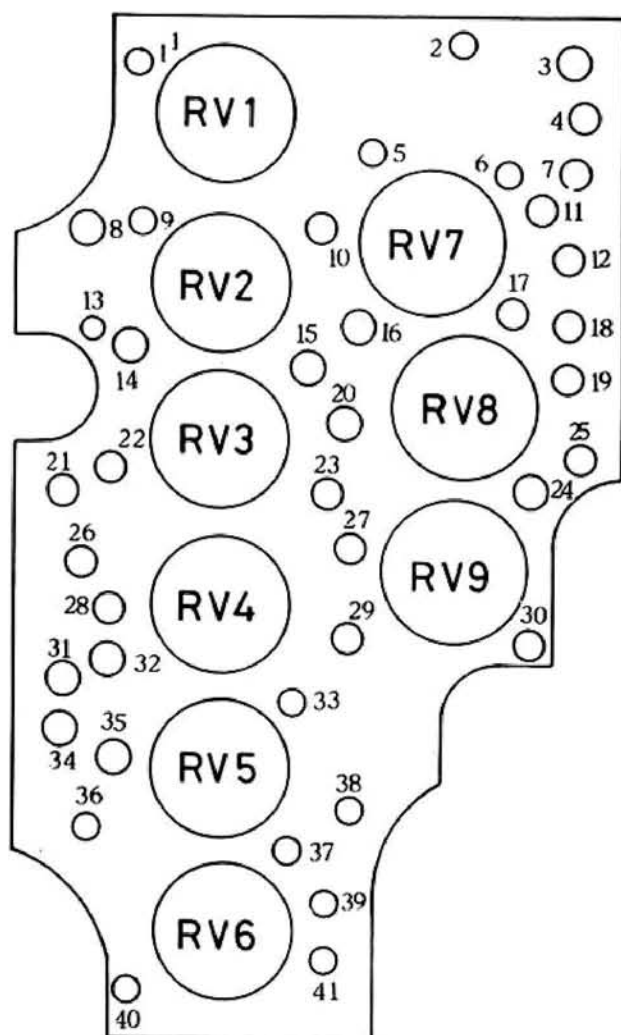
F1	(AV ϕ IN) 3	F29	B3	F57	(Mode sw) 1
F2	(AV ϕ IN) 2	F30	B2	F58	A-M changeover
F3	(AV ϕ IN) 1	F31	B1	F59	Trigger sig
F4	(AV ϕ IN) 0	F32	B0	F60	Trigger sw
F5	Vss	F33	Mode sig B	F61	Blank shots sw
F6	Vss	F34	Mode sig A	F62	Stop-down sw
F7	BCH 2	F35	Mirror sig	F63	(Fmm) 1
F8	00	F36	Release sig	F64	(Fmm) ϕ
F9	01	F37	Off-center 2	F65	(TV IN) 3
F10	02	F38	Off-center 4	F66	(TV IN) 2
F11	03	F39	Central	F67	(TV IN) 1
F12	04	F40	Off-center 1	F68	(TV IN) 0
F13	05	F41	Off-center 3	F69	VDD
F14	06	F42	Power sig	F70	Stop-down ENABLE
F15	07	F43	Charge sig	F71	Vss
F16	VDD	F44	Speedlight sig	F72	NC
F17	$\overline{2048}$	F45	Power hold sig	F73	Verify output
F18	(SV in N) 0	F46	ASA warning sig	F74	SO
F19	(SV in N) 1	F47	BCH 1	F75	SI
F20	(SV in N) 2	F48	BCH 2	F76	$\overline{SC}/\overline{T0}$
F21	(SV in N) 3	F49	Mirror sw	F77	Verify input
F22	(SV in N) 4	F50	(AV-AV0) IN 0	F78	Film-advance sw
F23	Power-on reset	F51	(AV-AV0) IN 1	F79	Release input
F24	EX terminal	F52	(AV-AV0) IN 2	F80	NC
F25	X terminal	F53	(AV-AV0) IN 3	F81	EE/AI
F26	NC	F54	(AV-AV0) IN 4		
F27	B5	F55	M-TIME		
F28	B4	F56	(Mode sw) ϕ		

ASA DIAL/LCD VIEWFINDER INFORMATION FPC TERMINALS



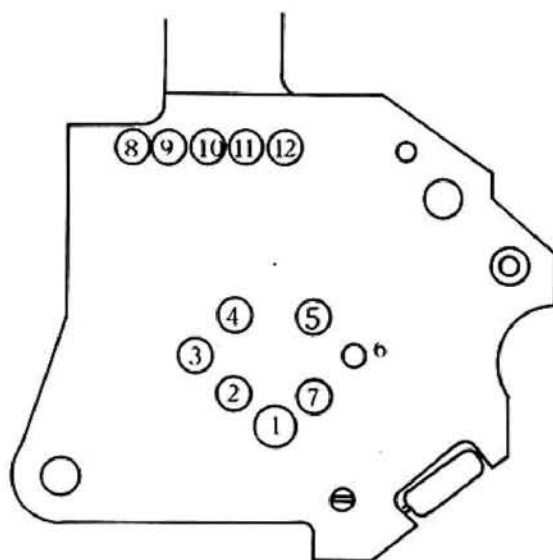
S1	VSS (L2)	S10	O7 (L4)	S19	EX terminal
S2	BCH 2 (L3)	S11	VDD (VCC 2) (L6)	S20	X terminal
S3	O0 (L12)	S12	2048 (L1)	S21	(SV IN) 0
S4	O1 (L11)	S13	(SV IN) 0	S22	(SV IN) 1
S5	O2 (L10)	S14	(SV IN) 1	S23	(SV IN) 2
S6	O3 (L9)	S15	(SV IN) 2	S24	(SV IN) 3
S7	O4 (L8)	S16	(SV IN) 3	S25	(SV IN) 4
S8	O5 (L7)	S17	(SV IN) 4	S26	VSS
S9	O6 (L5)	S18	Power-on reset		

RESISTOR BLOCKS (B1 - B41)



- RV1 S mode adjustment
- RV2 Central lever adjustment
- RV3 Off-center 2 (upper-right) level adjustment
- RV4 Off-center 4 (lower-right) level adjustment
- RV5 Off-center 1 (upper-left) level adjustment
- RV6 Off-center 3 (lower-left) level adjustment
- RV7 TTL flash output control adjustment
- RV8 P mode adjustment
- RV9 A mode adjustment

MD base plate



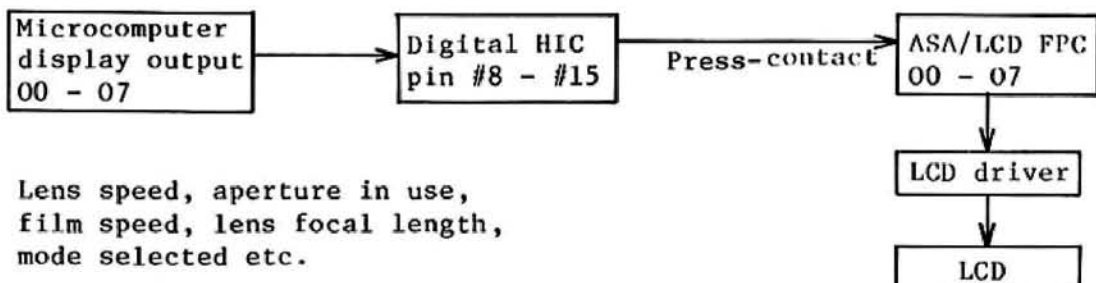
MD base plate (M1 - M12)

M1	VCC 1	M7	GND
M2	GND	M8	Verify output
M3	MD power hold	M9	Verify input
M4	MD film-advance signal	M10	SC/TO
M5	MD power sw	M11	SI
M6	MD release sig	M12	SO

Resistor blocks

B1		3, K	B22	S	C7 input
B2	L	VCCZ	B23		A1 - C7 mid point
B3	K	Shutter γ (33)	B24	B	P mode level
B4	J	Shutter γ (34)	B25	A	A mode level
B5		4, J	B26	Q	Integration start timing
B6	I	S mode level	B27		A mode level mid point
B7	H	D/A temperature compensation	B28	T	C6 input
B8	M	R10 terminal	B29		GND
B9		S mode level mid point	B30		25, A
B10		6, I	B31	U	R21 terminal
B11	G	A2 output	B32	W	C4 output
B12	F	A1 output	B33		A2 - C6 mid point
B13	N	GND	B34	V	R20 terminal
B14	O	A/D level	B35	X	C3 input
B15		A/D level mid point	B36		A4 - C4 mid point
B16	E	Flash output control level mid point	B37		18, D
B17E	E	Flash output control level	B38		31, U
B18	D	A4 output	B39		34, V
B19	C	A5 output	B40		A5 - C3 mid point
B20		P mode level mid point	B41		19, C
B21	P	Central	B42	R	NC

LCD READOUT



Lens speed, aperture in use,
film speed, lens focal length,
mode selected etc.

Microcomputer display outputs can be measured by AMP tester J18147.
Set the camera with 50/1.4 lens to AMP tester.

AMP tester setting: SI dial = 0 MO/AD dial = 2
READ/TEST switch = READ

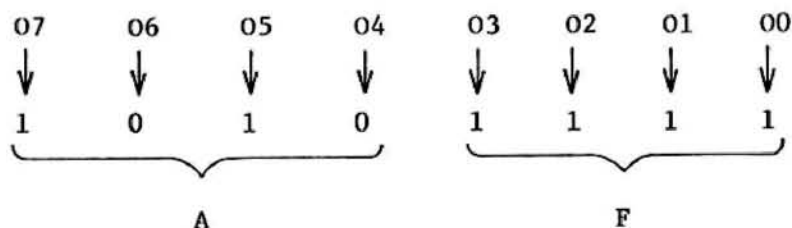
Microcomputer display output is appeared on DATA 1 display.

(Example 1)

Camera setting: F2, ASA100, Frame counter = 1 or more
A mode, EV = 12

"AF" is appeared on DATA 1 display.

"A" is equivalent to 1010 and "F" to 1111 in hexadecimal.



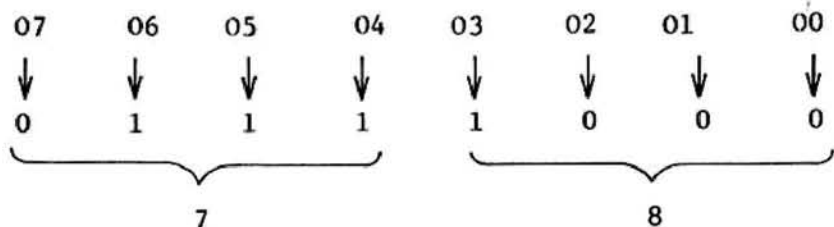
LCD readout is 1000

(Example 2)

Camera setting: F5.6, ASA100, M mode, EV = 12,
Frame counter = 1 or more

"78" is appeared on DATA 1 display.

7 = 0111, 8 = 1000



LCD readout is $\bar{M}125$.

LCD READOUT ON A, S, P, M MODE

AMP tester setting: SI dial = 0 MO/AD dial = 2

A mode Camera setting: 50/1.4 AI-S, Blank shots sw = High
ASA/ISO = 100

Outputs 07 - 00 (DATA 1 display)

EV \ AV	1.4	2	2.8	4	5.6	8	11	16
9	8F	7F	6F	5F	4F	3F	2F	1F
12	24	AF	9F	8F	7F	6F	5F	4F
15	36	36	CF	BF	AF	9F	8F	7F

S mode Camera setting: 50/1.4 AI-S, F = 16, Blank shots sw = High
ASA/ISO = 100

Outputs 07 - 00 (DATA 1 display)

EV \ TV	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500	1/1000	1/2000
9	1F	D7	C7	B7	A7	87	67	47	27	8F	8F	8F
12	4F	4F	4F	4F	D7	C7	B7	A7	87	67	47	27
15	7F	7F	7F	7F	7F	7F	7F	D7	C7	67	A7	87

P mode Camera setting: 50/1.4 AI-S, F = 16, Blank shots sw = High
ASA/ISO = 100

Outputs 07 - 00 (DATA 1 display)

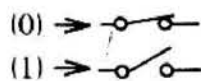
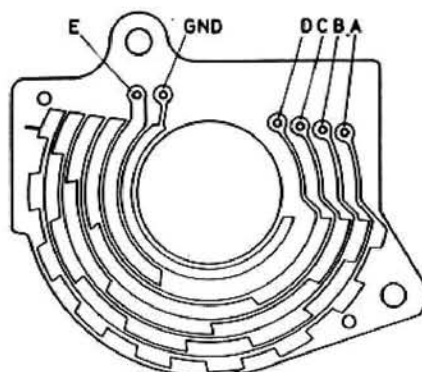
EV9: 6F, EV12: 7F, EV15: 8F

M mode Camera setting: 50/1.4 AI-S, Blank shots sw = High
ASA/ISO = 100

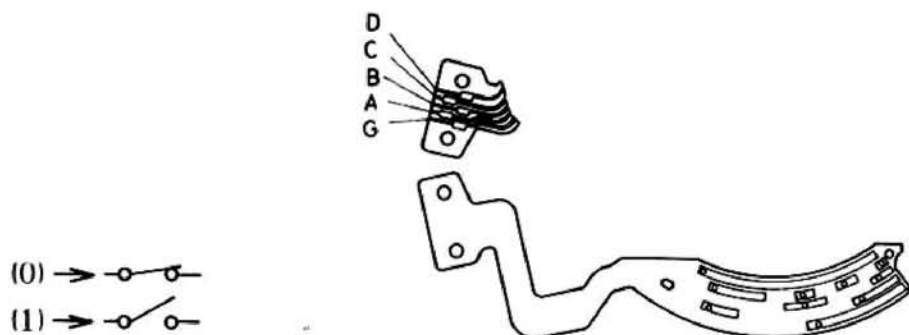
Outputs 07 - 00 (DATA 1 display)

EV	TV	"+"	"+ -" /	"-"
9	1/15	4A	48	4C
12	1/125	7A	78	7C
15	1/1000	AA	A8	AC
		F5.6-1/3	F=5.6	F5.6+1/3

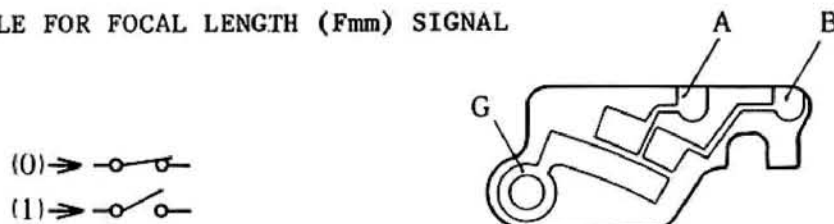
GRAY CODE TABLE FOR SV INPUT



No.	SV	ASA	SV4	SV3	SV2	SV1	SV0
			E	D	C	B	A
0	1	6	0	0	0	0	0
1		•	0	0	0	0	1
2		•	0	0	0	1	1
3	2	12	0	0	0	1	0
4		•	0	0	1	1	0
5		•	0	0	1	1	1
6	3	25	0	0	1	0	1
7		•	0	0	1	0	0
8		•	0	1	1	0	0
9	4	50	0	1	1	0	1
10	•	•	0	1	1	1	1
11		•	0	1	1	1	0
12	5	100	0	1	0	1	0
13		•	0	1	0	1	1
14		•	0	1	0	0	1
15	6	200	0	1	0	0	0
16		•	1	1	0	0	0
17		•	1	1	0	0	1
18	7	400	1	1	0	1	1
19		•	1	1	0	1	0
20		•	1	1	1	1	0
21	8	800	1	1	1	1	1
22		•	1	1	1	0	1
23		•	1	1	1	0	0
24	9	1600	1	0	1	0	0
25		•	1	0	1	0	1
26		•	1	0	1	1	1
27	10	3200	1	0	1	1	0
28		•	1	0	0	1	0
29		•	1	0	0	1	1
30	11	6400	1	0	0	0	1
31		•	1	0	0	0	0

GRAY CODE TABLE FOR f_0 SIGNAL INPUT

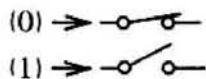
No	f_0	AV3	AV2	AV1	AV0
		D	C	B	A
0		0	0	0	0
1	f 1.2	0	0	0	1
2	f 1.4	0	0	1	1
3	f 1.8	0	0	1	0
4	f 2	0	1	1	0
5	f 2.5	0	1	1	1
6	f 2.8	0	1	0	1
7	f 3.5	0	1	0	0
8	f 4	1	1	0	0
9	f 4.5	1	1	0	1
10	f 5.6	1	1	1	1
11	f 8	1	1	1	0
12	f 11	1	0	1	0

GRAY CODE TABLE FOR FOCAL LENGTH (F_{mm}) SIGNAL

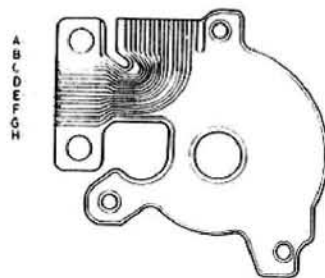
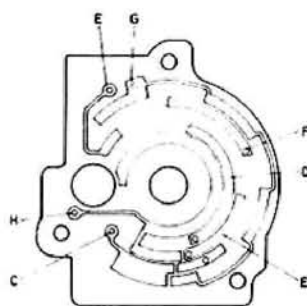
fmm 1 fmm 0

	Lens focal length	B	A
0	105 mm or shorter/ F_{mm} signal not provided	1	1
1	135 mm or longer	1	0
2	Teleconverter attached	0	1

GRAY CODE TABLE FOR TV (SHUTTER SPEED) INPUT



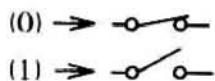
TV	Shutter dial	TV3	TV2	TV1	TV0
		D	E	F	G
0	1	0	0	0	0
1	2	0	0	0	1
2	4	0	0	1	1
3	8	0	0	1	0
4	15	0	1	1	0
5	30	0	1	1	1
6	60	0	1	0	1
7	125	0	1	0	0
8	250	1	1	0	0
9	500	1	1	0	1
10	1000	1	1	1	1
11	2000	1	1	1	0
12	4000	1	0	1	0



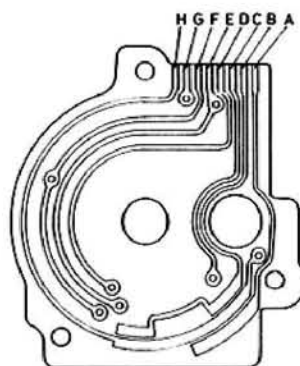
C: Mechanical release LED

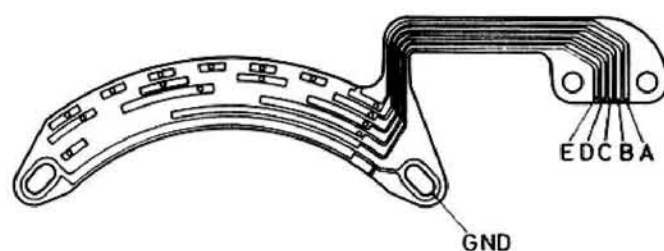
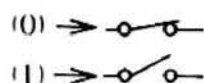
H: GND

GRAY CODE TABLE FOR EXPOSURE MODE INPUT



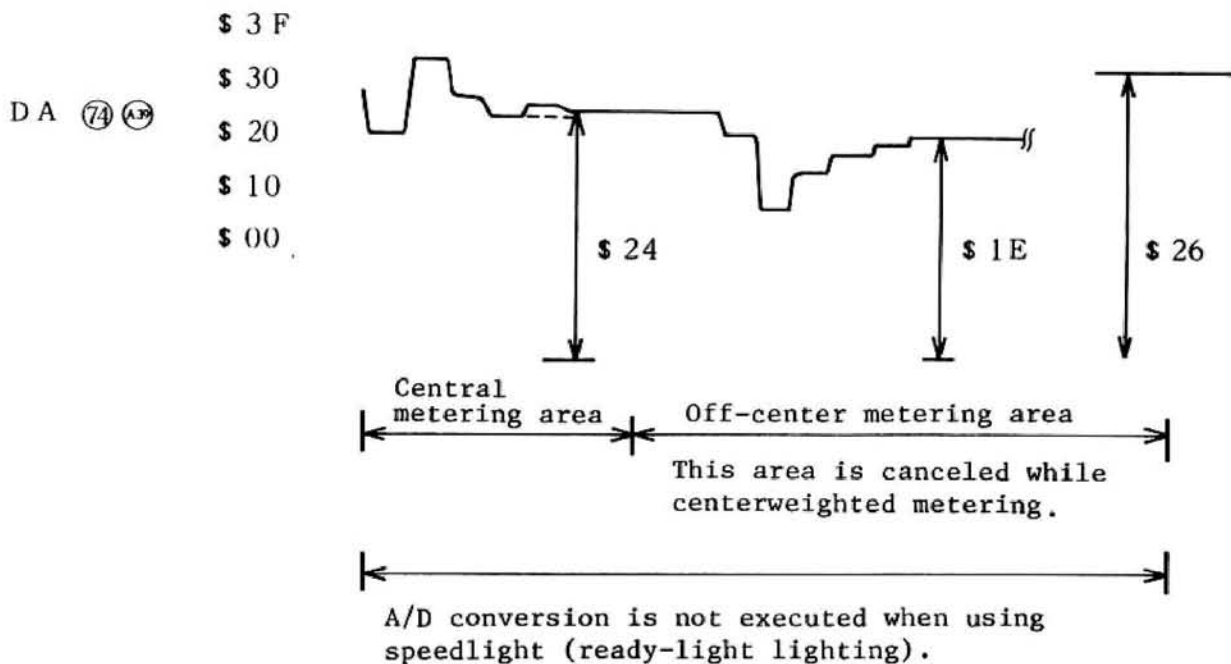
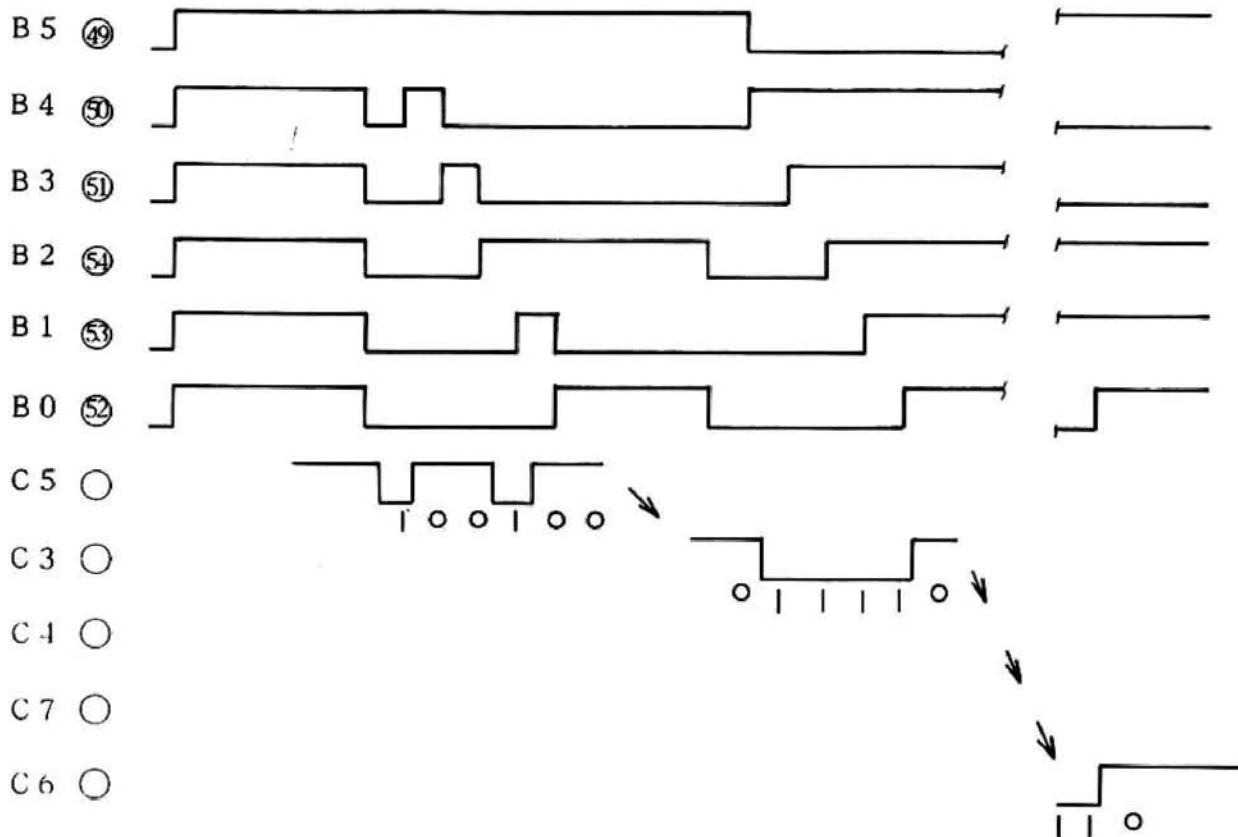
No	Mode	SW1	SW0
		B	A
0	P	0	0
3	S	1	0
2	A	1	1
1	M	0	1



GRAY CODE TABLE FOR f-f₀ SIGNAL INPUT

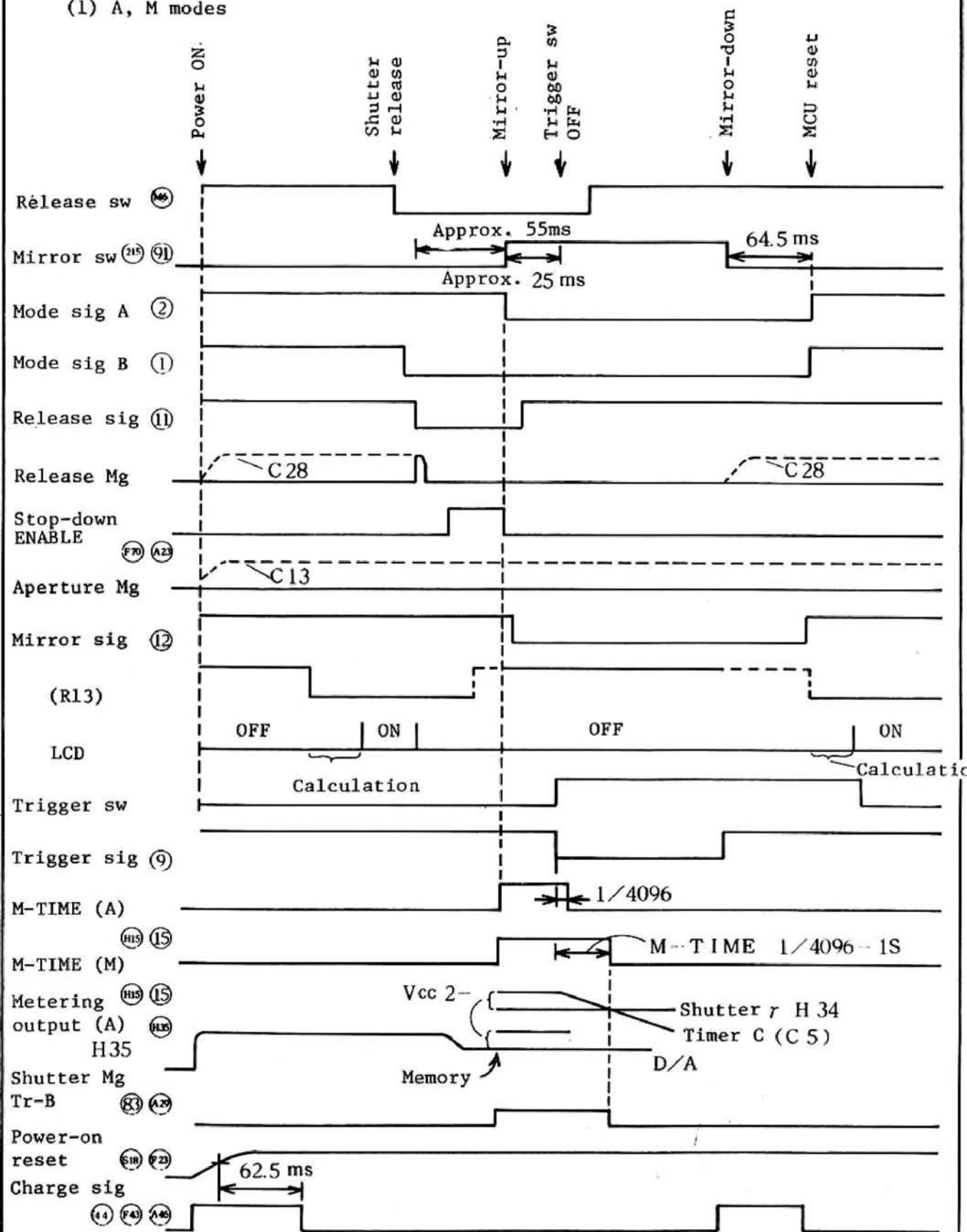
No.	(AV-AVo) ⁴	(AV-AVo) ³	(AV-AVo) ²	(AV-AVo) ¹	(AV-AVo) ⁰	Lens F1.2	Lens F1.4	Lens F1.8	Lens F2
	E	D	C	B	A				
0	0	0	0	0	0	1.2	1.4	1.8	
1	0	0	0	0	1	1.4		2	2
2	0	0	0	1	1				
3	0	0	0	1	0		2		
4	0	0	1	1	0	2		2.8	2.8
5	0	0	1	1	1				
6	0	0	1	0	1		2.8		
7	0	0	1	0	0	2.8		4	4
8	0	1	1	0	0				
9	0	1	1	0	1		4		
10	0	1	1	1	1	4		5.6	5.6
11	0	1	1	1	0				
12	0	1	0	1	0		5.6		
13	0	1	0	1	1	5.6		8	8
14	0	1	0	0	1				
15	0	1	0	0	0		8		
16	1	1	0	0	0	8		11	11
17	1	1	0	0	1				
18	1	1	0	1	1		11		
19	1	1	0	1	0	11		16	16
20	1	1	1	1	0				
21	1	1	1	1	1		16		
22	1	1	1	0	1	16		22	22
23	1	1	1	0	0				
24	1	0	1	0	0		(22)		
25	1	0	1	0	1	(22)		(32)	(32)

1. METERING SEQUENCE

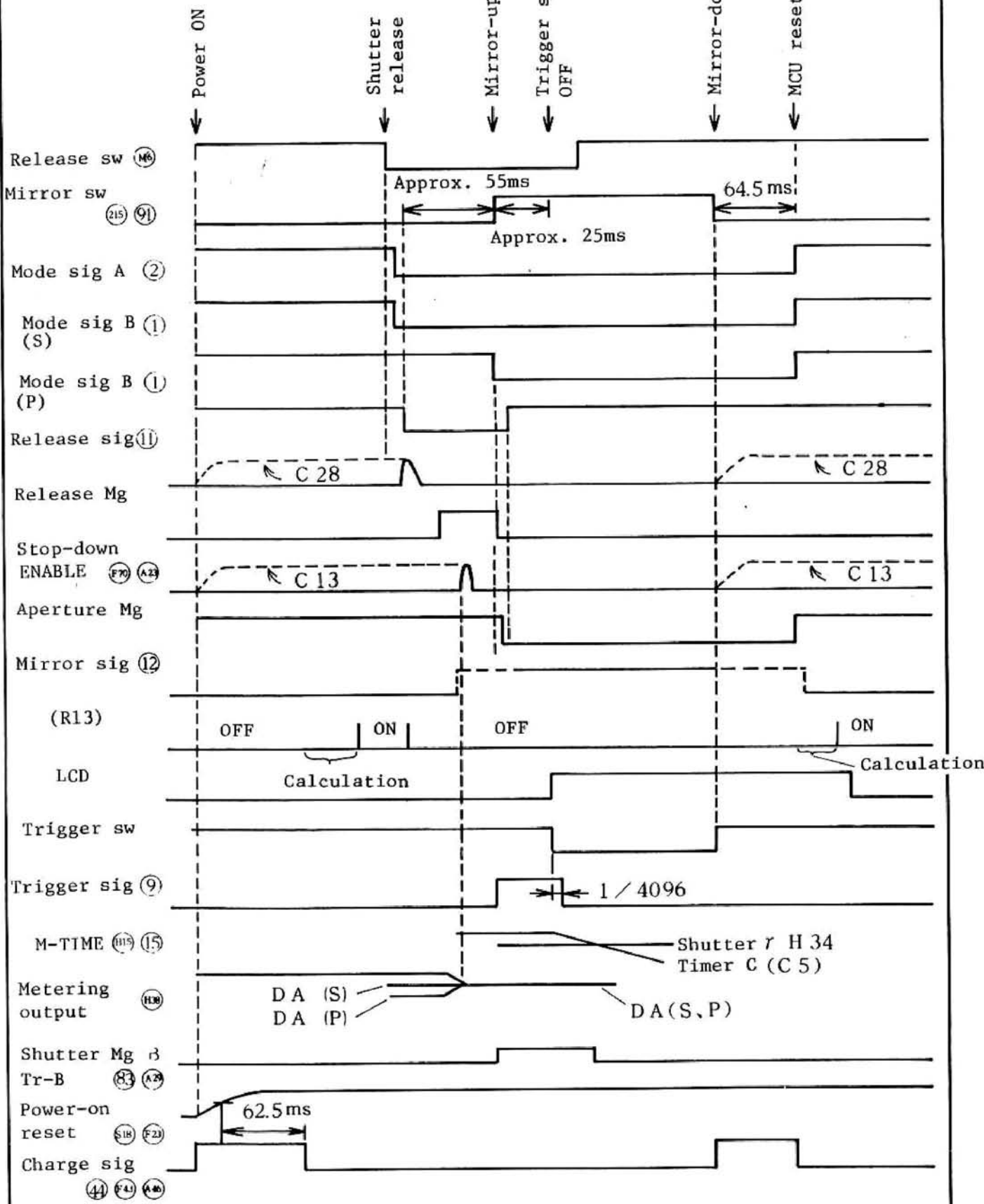


2. SHUTTER RELEASE SEQUENCE

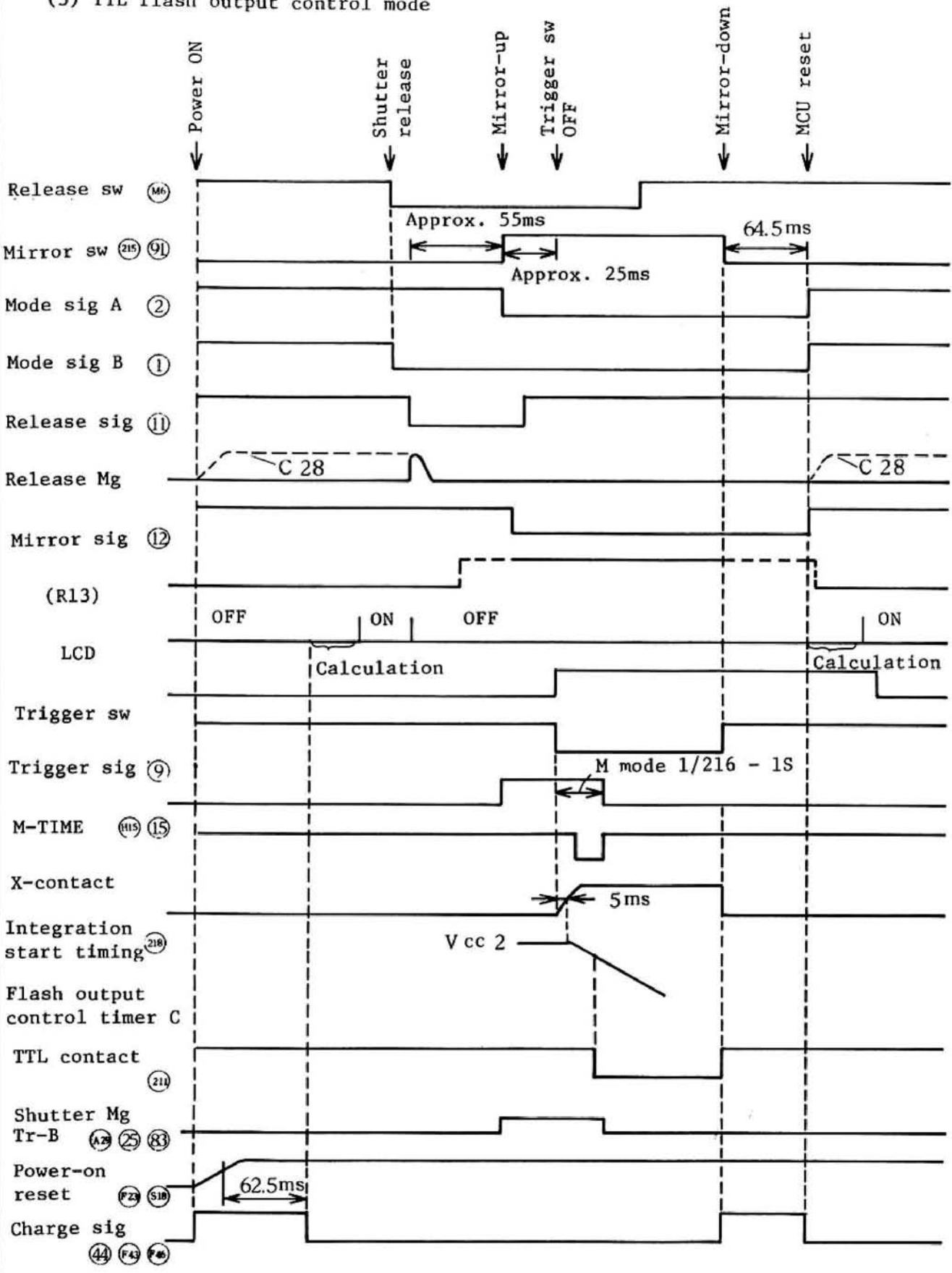
(1) A, M modes



(2) S, P mode



(3) TTL flash output control mode



CIRCUITRY OUTLINES

Contents	Page
1 POWER CONTROL CIRCUIT	C1
2 METERING CIRCUIT	C4
3 SHUTTER CONTROL CIRCUIT	C9
4 D/A CONVERTER ARCHITECTURE/APERTURE CONTROL CIRCUIT	C12
5 TTL FLASH OUTPUT CONTROL CIRCUIT	C19
6 DIGITAL HIC (INPUT)	C21
7 DIGITAL HIC (OUTPUT)	C24
8 VIEWFINDER DISPLAY	C28
9 RELEASE SIGNAL FLOW	C31
TROUBLESHOOTING FLOWCHART	
1 SHUTTER FAILS TO BE RELEASED	C33
2 SHUTTER IS HELD OPEN	C37
3 APERTURE FAILS TO BE CONTROLLED ON P AND S MODES	C39
4 SHUTTER SPEEDS DELIVERY IS FAULTILY HIGH-SPEED	C44
5 LCD READOUT FAILS TO OPERATE	C46
6 APERTURE CONTROL ON P AND S MODES ARE INACCURATE	C48
7 INCORRECT ADJUSTMENT OF SHUTTER SPEEDS DELIVERY	
7-1 Incorrect adjustment of AMP metering	C49
7-2 Incorrect adjustment of off-center areas variable resostors	C51
7-3 Incorrect adjustment of automatic exposure	C53
7-4 Shutter speed M1/4000 is inaccurate	C54
8 TTL FLASH OUTPUT CONTROL IS INACCURATE	C55

1. POWER CONTROL CIRCUIT

Vcc1: Power directly supplied from the batteries to the power control circuit

As the oscillation circuit is not operated before power switch is turned on, current drains slightly. (C1, C2, C28)
 Setting shutter dial to M250 or B cancels power supply.
 When attaching Motor drive MD-15, power supply terminal is moved by the protrusion of the MD-15 and power source is changed from camera's batteries to the MD-15's batteries.

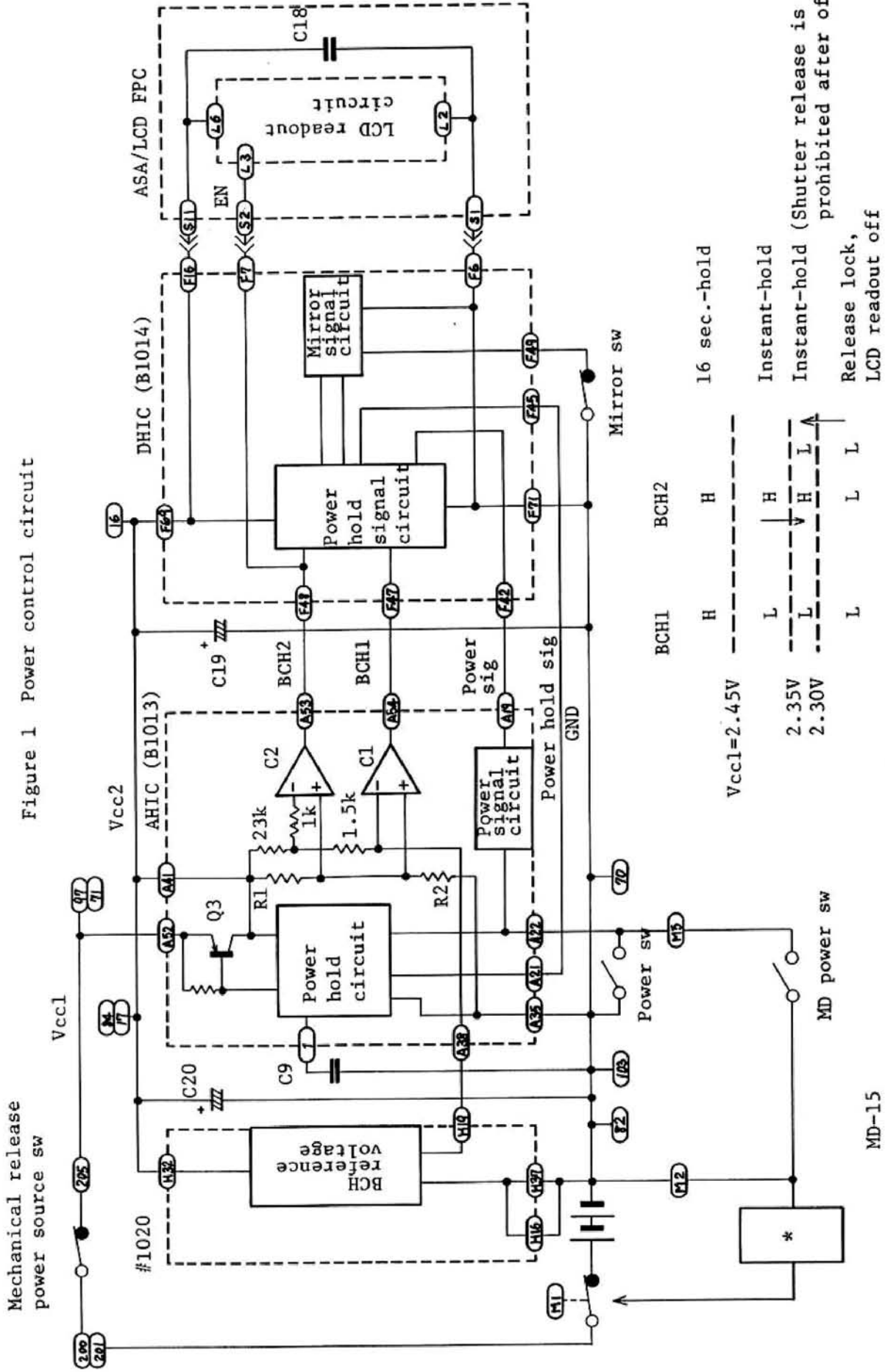
Vcc2: Power that activates the power control circuit after power switch is turned on

- (1) Depressing shutter release button halfway turns power switch on. Power hold circuit operates to turn TRANSISTOR Q3 on and Vcc2 increases up to the voltage of Vcc1. Then power is supplied to the whole circuit. Vcc2 supplies power to the circuit while power switch is held on.
- (2) BCH1 (COMPARATOR C1 output) and BCH2 (COMPARATOR C2 output) are varied along Vcc1 value. By laser trimming of RESISTORS R1 and R2, BCH1 and BCH2 have been adjusted as follows.

Vcc1	2.45V:	BCH1 = High,	BCH2 = High
2.45V	Vcc1	2.35V:	BCH1 = Low, BCH2 = High
2.35V	Vcc1	2.30V:	A histeresis is provided for COMPARATOR C2.
			BCH1 = Low, BCH2 = High (When Vcc1 goes down)
			BCH1 = Low, BCH2 = Low (When Vcc1 goes up)
2.30V	Vcc1:	BCH1 = Low,	BCH2 = Low

- (3) When both BCH1 and BCH2 are high, the power signal becomes high to start timing of the power hold for 16 sec. after lifting finger off from shutter release button and turning power switch off. When BCH1 is low, the power hold circuit operates for 1/8 sec.. While the power hold circuit is in operation, the power turns high to hold TRANSISTOR Q3 on and Vcc2 remains on for 16 sec. or 1/8 sec.. Turning the power hold signal low makes TRANSISTOR Q3 off and Vcc2 becomes 0V.
- (4) When BCH2 is low, the terminal EN of LCD driver turns low to turn LCD readout off. Also, both ready-light and exposure compensation LEDs are turned off and shutter release is prohibited.

Figure 1 Power control circuit



Reference voltage

* Power source for the camera

MD-15

- (5) When shutter is released during power hold, the release switch turns on to reset 16 sec.-hold and the power hold timing starts again after 64.5 ms from mirror switch on (morrer down).
- (6) Power supply can be checked by appearance of LCD readout.
- (7) When BCH1 and BCH2 are abnormal, check if the BCH reference voltage (H19, A3) are ($V_{cc2} - 1.237V$).
- (8) CONDENSERS C18, C19 and C20 function as power source condenser.

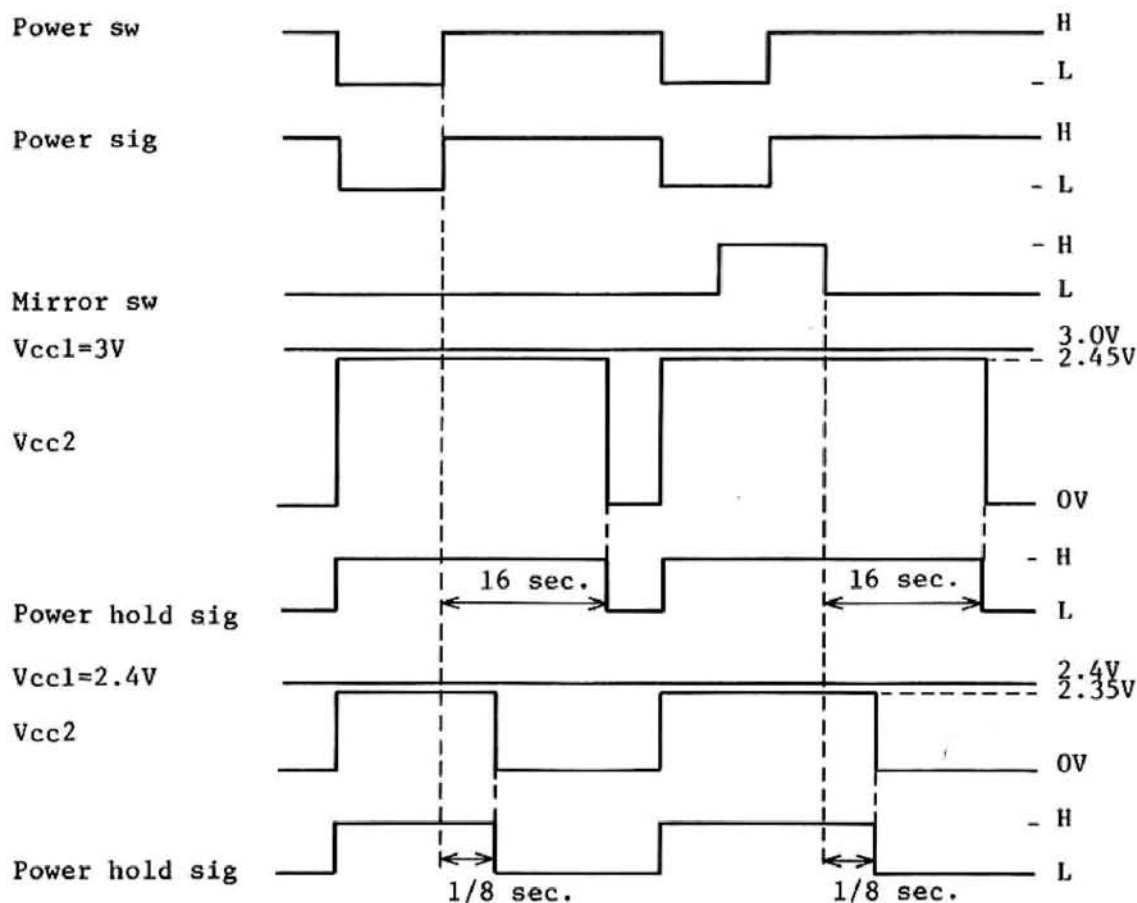


Figure 2 Power control timing chart

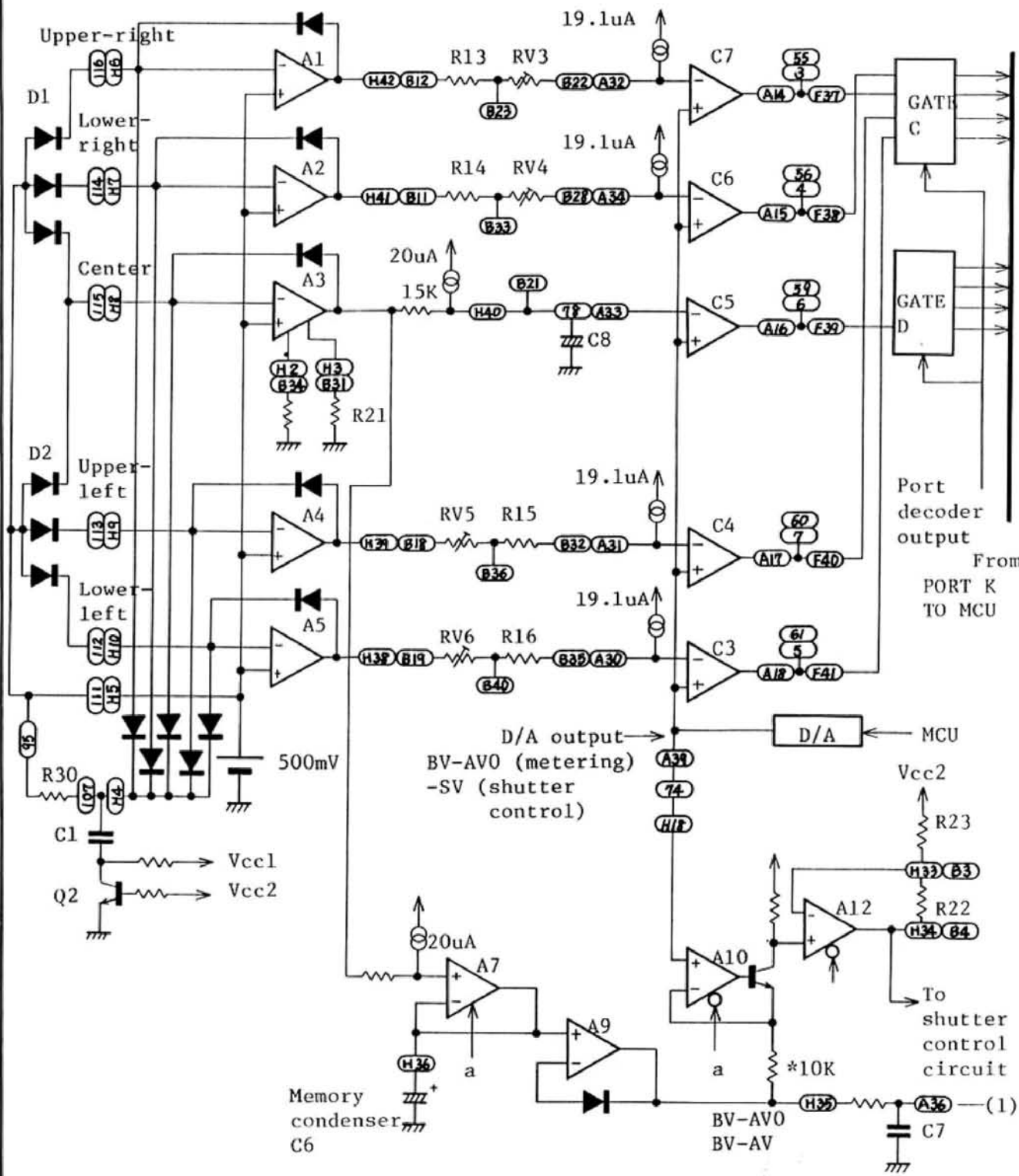
2-1 METERING CIRCUIT (A/D CONVERSION)

The center area outputs of SPD D1 and D2 flow into HEAD AMPLIFIER A3 in parallel, and the off-center areas outputs flow into HEAD AMPLIFIERS A1, A2, A4 and A5 respectively. HEAD AMPLIFIERS A1 - A5 are of the same circuitry architecture. As the center area outputs are utilized for the exposure control, only HEAD AMPLIFIER A3 has been provided with off-set adjustment through the laser trimming of RESISTORS R20 and R21.

The outputs of HEAD AMPLIFIERS A1 - A5 flow COMPARATORS C7 - C3 respectively via resistors. Deviations of off-center area outputs for the center area output is compensated by VARIABLE RESISTORS RV3, RV4, RV5 and RV6 when the brightness level of the scene is even.

The outputs of D/A converter controlled by Microcomputer unit (MCU) are inputted to anti-reverse input terminals of COMPARATORS C7 - C3, and the outputs processed in comparison with the metering output are inputted to Terminals F37 - F41 of Digital hybrid IC (DHIC). In the DHIC, the outputs are fed into the MCU via GATE CIRCUITS SC and SD, and the MCU recycles the outputs to the comparators. Thus, COMPARATORS C7 - C3, GATE CIRCUITS SC and SD, MCU and D/A converter form the sequential comparison A/D conversion device to digitalize the metering outputs.

The architecture of D/A output is shown in Figure 4. When release switch is off, the outputs of D/A converter are shifted by VARIABLE RESISTOR RV2 (Check land B14) and are supplied at Terminals A39 and H18. The center area output can be adjusted by turning VARIABLE RESISTOR RV2. Turning RV2 effects also the all metering outputs, but the off-center areas outputs are adjusted by turning VARIABLE RESISTORS RV3 - RV6.



*: -SV-(BV-AV)≡-TV

(1): To aperture control circuit

Figure 3 Metring circuit block diagram

2-2 A/D CONVERSION SEQUENCE

Refer to the metering sequence timing chart. 6-bit D/A converter covers the digits from 000000 to 111111. In hexadecimal, they are indicated as \$00 - \$3F. A, B, C, D, E and F in hexadecimal correspond to 10, 11, 12, 13, 14, and 15 in decimal system.

Table 1 shows the metering outputs with a 50/1.4 lens attached. The off-center metering level has been shifted by 1/6EV lower than that of the center area.

The sequential comparison and A/D conversion are executed by COMPARATOR C5, INPUT GATE \$D, MCU and D/A CONVERTER. See an example of the sequential A/D conversion.

- ① Brightness is EV12 and the center metering outputs \$24.
- ② The MCU's reference values B5 - B0 are initially set to 100000 (\$20), and the D/A CONVERTER outputs \$20.
- ③ Comparison is made between the outputs of the center metering and the D/A CONVERTER.
- ④ COMPARATOR C5's output is low.
- ⑤ Then, the C5's output is fed into the MCU via INPUT GATE \$D. The place 2^5 of register of the MCU is set to 1.
- ⑥ The reference values B5 and B4 are set to 1, and the D/A CONVERTER outputs \$30 (110000).
- ⑦ Comparison is again made between the outputs of the center metering and the D/A CONVERTER.

Center metering \$24 < D/A
CONVERTER
\$30

- ⑧ COMPARATOR C5's output is high. It tells the MCU that the setting of the reference value B4 is not correct.

Brightness value 50/1.4 (ISO 100)	Metering outputs	
	Center	Off-center
EV 0	\$ (00)	
1	03	
2	06	
3	09	
4	0C	0C - 0B
5	0F	0F - 0E
6	12	12 - 11
7	15	15 - 14
8	18	18 - 17
9	1B	1B - 1A
10	1E	1E - 1D
11	21	21 - 20
12	24	24 - 23
13	27	27 - 26
14	2A	2A - 29
15	2D	2D - 2C
16	30	30 - 2F
17	33	33 - 32
18	36	36 - 35
19	39	39 - 38
20	3C	3C - 3B
21	(3F)	

- ⑨ Then, the C5's output is fed into the MCU via INPUT GATE \$D. The place 2^4 of register of the MCU is set to 0.
- ⑩ The reference values B4 is set to 0 and B3 to 1, and the D/A CONVERTER outputs \$28 (101000).
- ⑪ Comparison is again made between the outputs of the center metering and the D/A CONVERTER.

Center metering $\$24 < \text{D/A CONVERTER } \28

- ⑫ COMPARATOR C5's output is high. It tells the MCU that the setting of the reference value B3 is not correct.
- ⑬ Next, the C5's output is fed into the MCU via INPUT GATE \$D. The place 2^3 of register of the MCU is set to 0.
- ⑭ The reference values B3 is set to 0 and B2 to 1, and the D/A CONVERTER outputs \$24 (100100).
- ⑮ Comparison is again made between the outputs of the center metering and the D/A CONVERTER.

Center metering $\$24 \geq \text{D/A CONVERTER } \24

- ⑯ COMPARATOR C5's output is low. In the same procedure, the place 2^2 of register of the MCU is set to 1 and the reference value B1 is set to 1. The D/A CONVERTER OUTPUTS \$26 (100110).
- ⑰ Thus, Center metering $\$24 < \text{D/A CONVERTER } \26
- ⑱ COMPARATOR C5's output is high. The place 2^2 of register of the MCU is set to 0. The reference value B1 is set to 0 and B0 to 1. The D/A CONVERTER OUTPUTS \$25 (100101).
- ⑲ Thus, Center metering $\$24 < \text{D/A CONVERTER } \25
- ⑳ This will be followed by the processing of the MCU and finally the output of the D/A CONVERTER is determined for \$24.

On A, S and P modes, metering outputs of off-center areas are also converted from analog to digital to realise the AMP metering. COMPARATORS C3, C4, C7 and C6 are corresponded to terminals 0, 1, 2 and 3 of INPUT GATE \$C. The off-center metering outputs range between \$23 - \$24 (\$1E) at EV12 with a 50/1.4 lens attached. D/A converter outputs are compared with the off-center metering outputs sequentially in the same comparison process as the center metering outputs.

See an example that the off-center metering output of lower-left segment are \$1E. The following comparisons show that the level of D/A converter output becomes equal to that of the metering output of lower-left segment (C3 input terminal).

Off-center metering output		D/A converter output
\$1E	<	\$20
\$1E	≅	\$10
\$1E	≅	\$18
\$1E	≅	\$1C
\$1E	≅	\$1E
\$1E	<	\$1F

In this way, the A/D conversions of upper-left, upper-right and lower-right segments are executed.

The A/D conversion of center metering outputs only will be in operation when 1) Meter mode switch is turned on, 2) Stop down switch is turned on, 3) exposure mode is M mode, 4) fo signal is not supplied. The A/D conversion is canceled when the ready-light terminal is charged with a speedlight unit.

2-3 EXPOSURE CONTROL

Aperture control and shutter speed control are based on the center metering output. HEAD AMPLIFIER A3 of center area is connected to AMPLIFIERS A7 and A9. AMPLIFIER A7 is kept floating by Signal a provided from Shutter control circuit (Figure 3) during mirror rise ($t_3 - t_6$) to memorize the metering output after aperture control. AMPLIFIER A9 is a buffer amplifier and the output of A9 is the metering output for exposure control. The metering output is equal to BV-AV0 at full aperture and is equal to BV-AV at aperture stopped down. The shift of outputs between two adjacent f/stops is approx. 18mv. RESISTOR R38 and CONDENSER C7 are connected to Aperture control circuit (Figure 4) for noise reduction.

Shutter speed calculation circuit

AMPLIFIERS A10 and A12 are operated by Signal a provided from Shutter speed control circuit during mirror rise ($t_3 - t_6$) on A, S and P modes. After mirror rise, the D/A output corresponding to -SV is generated by MCIJ. When the output corresponding to -SV is provided with the anti-reverse input terminal of AMPLIFIER A10, the potential of reversed terminal is also corresponding to -SV. As the output of AMPLIFIER A9 becomes BV-AV after mirror rise, the potential difference between both the terminals of resistor 10k Ω indicated by the mark "*" in Figure 2 is $(-SV) - (BV-AV)$. This leads $(-SV) - (BV-AV) \cong (-TV)$. Thus, the potential difference of the resistor is corresponding to -TV.

RESISTORS R22 and R23 are approx. 20k Ω , and amplify the output of AMPLIFIER A12 nearly twice. By laser trimming of RESISTORS R22 and R23, the shutter γ is adjusted, and the output of AMPLIFIER A12 shifts approx. 36mv per one f/stop.

3 SHUTTER SPEED CONTROL CIRCUIT

Figure 3 shows Shutter speed control circuit. Release signal, Mirror signal, Trigger signal, M-TIME and A/M signal are sequence signals generated from Digital HIC.

The output of AMPLIFIER A12 (-TV) flows to the reversed terminal of COMPARATOR A13.

Speed input sequence

- t0: Release signal turns low simultaneously with shutter release.
- t1: M-TIME becomes high during mirror rise.
- t2: Mirror signal goes low.
- t3: Release signal goes high.
- t4: Turning the trigger switch off turns Trigger signal low.
- t6: Trigger signal turns high along mirror down.
- t7: After approx. 65ms (on MCU reset), the mirror signal turns high.

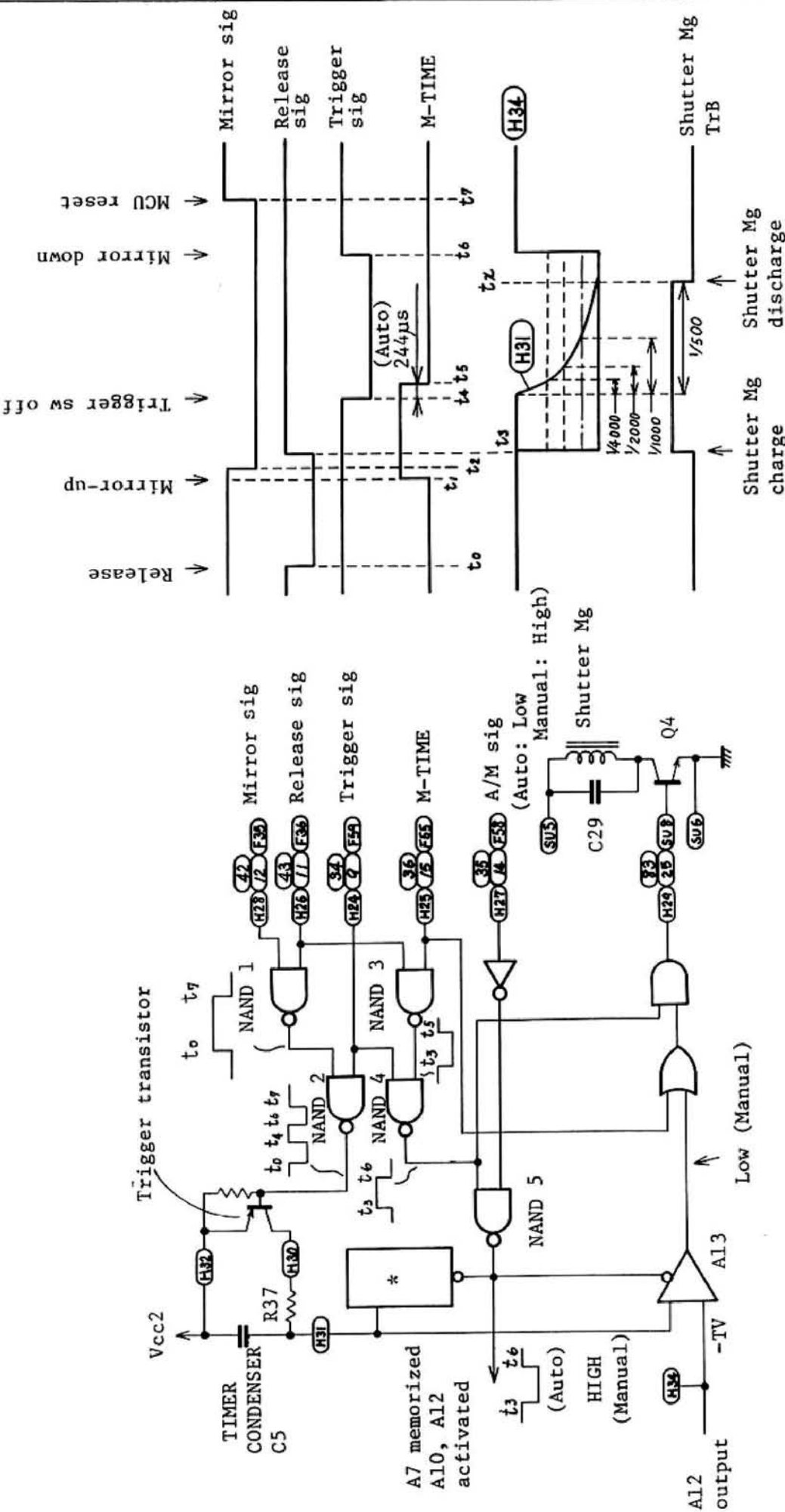
On M mode, M-TIME will turn low after a lapse of shutter speed selected. On A, S and P modes, M-TIME will turn low after a lapse of 1/4000sec. and limit the highest shutter speed.

Speed control sequence

By the mirror signal and the release signal, the output of NAND 1 remains high in the speed input sequence t0 - t7. By the trigger signal and output of NAND 1, the output of NAND 2 remains low in t0 - t4 and t6 - t7. Holding the trigger transistor on in t0 - t4 short-circuits TIMER CONDENSER C5. Holding the trigger transistor off in t4 - t6 charges TIMER CONDENSER C5. The output of NAND 3 is held low in t3 - t5 by the release signal and M-TIME. The output of NAND 4 is held high in t3 - t5 by the trigger signal and output of NAND 3.

As A/M signal is high on M, speedlight and blank shots modes, inverter output turns low to hold the output of NAND 5 high. On the other hand, A/M signal turns low on A, S and P modes and inverter output turns high to hold the output of NAND 5 low in t3 - t6. The output of NAND 5 functions as Signal a in Figure 2 and it activates AMPLIFIERS A10, A12 and A13 in t3 - t6.

On M mode, the output of NAND 5 turns high to make the output of AMPLIFIER A13 low. The AND output as well as OR gate output is equal to M-TIME signal, and thus TRANSISTOR Q4 (shutter control) is held on in t3 - t5 to determine the shutter speed. The output of NAND 4 limits Shutter control magnet charge within the sequence t3 - t6.



*: Timer current circuit

Figure 4 Shutter speed control circuit

On A, S and P modes, the output of NAND 5 turns low to activate AMPLIFIER A13 in $t_3 - t_6$. When the output of AMPLIFIER A12 is corresponding to -TV, TIMER CONDENSER C5 is short-circuited in $t_3 - t_6$ and the voltage of anti-reverse terminal of AMPLIFIER A13 is nearly equal to V_{cc2} . It allows the output of A13 to turn high and discharge TRANSISTOR Q4. When the output of A12 is corresponding to $1/500\text{sec}$, the output level of TIMER CONDENSER C5 becomes lower than that of A12 after a lapse of $1/500\text{sec}$. The output of A13 turns low and the outputs of both OR gate and AND gate turn low. TRANSISTOR Q4 turns off to discharge the shutter control magnet. So the closing curtain starts to travel.

4 D/A CONVERTER OUTPUT ARCHITECTURE & APERTURE CONTROL CIRCUIT

4-1 D/A CONVERTER OUTPUT ARCHITECTURE

The D/A converter is of 6-bit type (R-2R) controlled by the MCU. The output IDA alters along the values of \$00 - \$3F and will be supplied at both the terminals of RESISTOR R3. AMPLIFIER A7 is controlled by the mode changeover gate circuit. One of anti-reverse input terminals of A7 is selected according to ON/OFF of the release signal, mirror signal, mode signals A/B and ready-light contact. The selected terminal is connected to the anti-reverse input terminal of COMPARATOR A13 to generate D/A converter output at TERMINAL A39 (A13 output).

The reference voltage of 237mv for D/A converter IC as well as the head amplifier is fed into AMPLIFIER A1 and A1 generates the reference current source of 19.1 μ A for the mode selector IC.

Metering

When the release signal, mirror signal and mode signal A are high, the level of TERMINAL A25 is inputted into COMPARATOR A13. To perform A/D conversion, the signal BV-AV0 is set by MCU and then a proper voltage for both the terminals of RESISTOR R3 is generated in D/A converter. D/A converter output of TERMINAL A39 is altered by changing value of VARIABLE RESISTOR RV2, and thus the A/D conversion level of the metering output of center area can be adjusted.

Aperture control

Conditions: Mirror signal: High, Release signal: Low,
Ready-light: Off, TERMINAL 49: Low

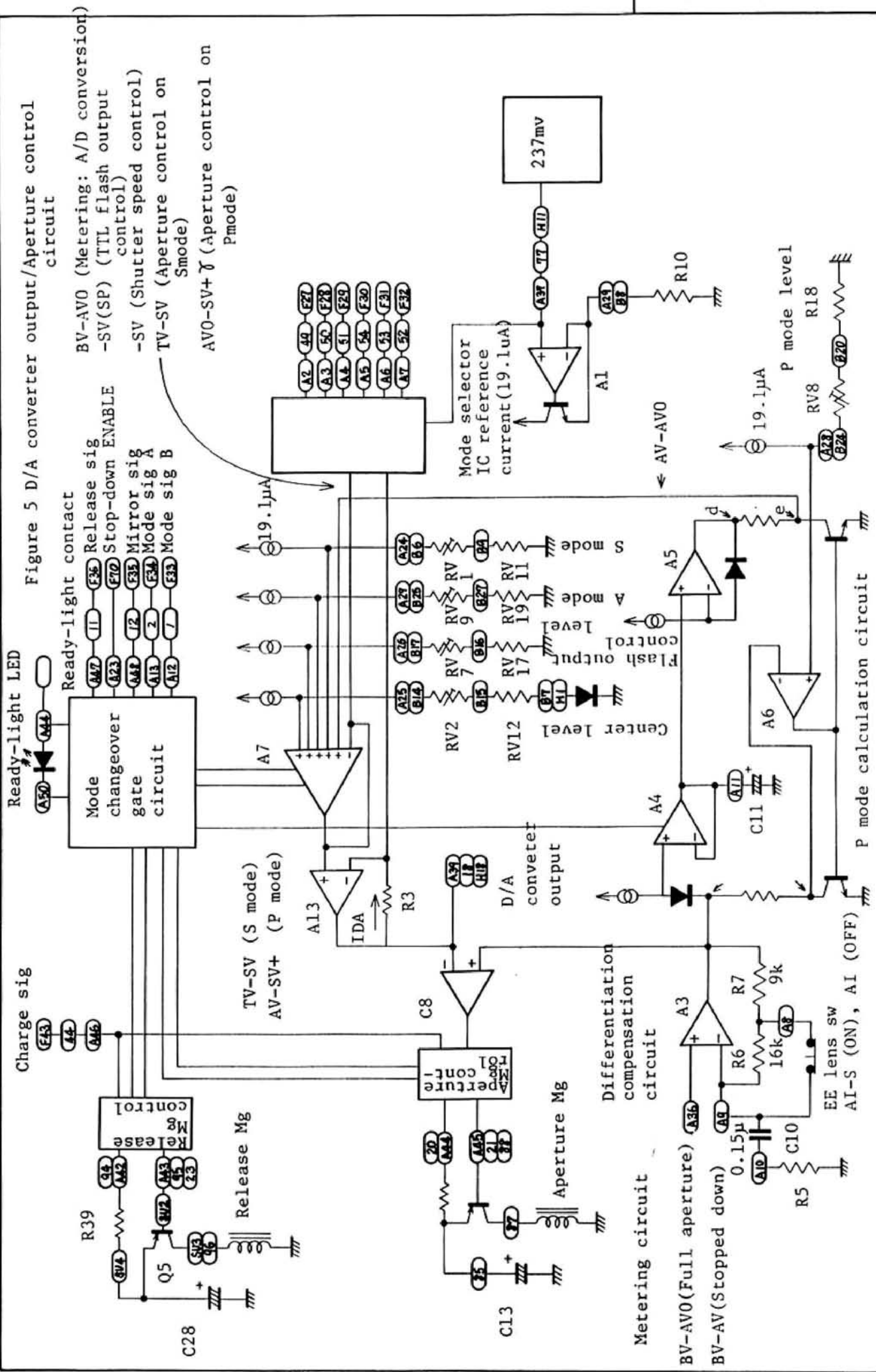
① S mode

Mode signals A and B are turned low to input the level of TERMINAL A24 into COMPARATOR A13. The signal (TV-SV) is set into D/A converter by MCU and the proper voltage is generated at both the terminals of RESISTOR R3. D/A output of TERMINAL A39 is altered by changing value of VARIABLE RESISTOR RV1 and thus aperture control is enabled on S mode.

② P mode

The mode signal A turns low and the mode signal B high to input the signal (AV-AV0) of P mode calculation circuit into COMPARATOR A13. The signal (AV0-SV+ γ) is set into D/A converter by MCU. D/A output of TERMINAL A39 becomes the signal (AV-SV+ γ).

Figure 5 D/A converter output/Aperture control circuit



Charge sig (F43, A4, A46)

Ready-light LED (A50, A44)

Mode changeover gate (A47, A23, A48, A18, A12)

Release sig (F36, F70, F35, F34, F33)
 Stop-down ENABLE (F70)
 Mirror sig (F35)
 Mode sig A (F34)
 Mode sig B (F33)

Mode selector IC reference current (19.1µA)

TV-SV (S mode) AV-SV+ (P mode)

Flash output level (A5)

Center level (A4)

D/A converter output (A1)

Differentiation compensation circuit (A3)

P mode calculation circuit (A6)

Aperture Mg (A13)

237mv

BV-AV0 (Metering: A/D conversion)
 -SV(SP) (TTL flash output control)
 -SV (Shutter speed control)
 TV-SV (Aperture control on S mode)
 AV0-SV+ (Aperture control on P mode)

19.1µA

RV2 RV12

RV9 RV11

RV7 RV17

RV19 RV11

RV17 RV11

RV9 RV11

RV19 RV11

RV17 RV11

RV19 RV11

RV17 RV11

RV9 RV11

RV7 RV17

RV19 RV11

RV17 RV11

RV9 RV11

RV19 RV11

RV17 RV11

RV19 RV11

RV19 RV11

RV17 RV11

RV9 RV11

RV7 RV17

RV19 RV11

RV17 RV11

RV9 RV11

RV19 RV11

RV17 RV11

RV19 RV11

Shutter control

Conditions: Mirror signal: Low, Ready-light: Off
TERMINAL A49: Low

The level of TERMINAL A27 is inputted into COMPARATOR A13. The signal (-SV) is set into D/A converter by MCU to generate the proper voltage at both the terminals of RESISTOR R3. The level of the signal (-SV) adjusted by VARIABLE RESISTOR RV9 is generated at TERMINAL A39. Thus, shutter speed on A mode and correct exposure on S and P modes are determined.

TTL flash output control

The ready-light LED is charged to turn TERMINAL A49 high. When the release signal or the mirror signal is held low after shutter release, the level of TERMINAL A26 is inputted into COMPARATOR A13. D/A converter output becomes the signal (-SV(SP)) and the proper voltage is generated at both the terminals of RESISTOR R3. The level of the signal (-SV(SP)) adjusted by VARIABLE RESISTOR RV7 is generated at TERMINAL A39 to realize TTL flash output control.

4-2 APERTURE CONTROL CIRCUIT

Differentiation compensation circuit

The metering output BV-AV0 (full aperture) or BV-AV (stopped down) is inputted into the anti-reverse input terminal of OP AMPLIFIER A3. The differentiation compensation circuit compensates the time lag where the aperture magnet stops down aperture. The EE lens switch (A) is turned on and RESISTOR R7 is used when an AI-S type lens is mounted. In case of the other type lenses, the EE lens switch (A) is turned off and both RESISTORS R6 and R7 are used.

Aperture control on S mode

Figure 6 shows the metering output, differentiation compensation output and D/A converter output after shutter release with a 50/1.4 AI-S type lens. After approx. 10ms from shutter release, aperture starts to move and aperture stop down is completed after approx. 40ms. D/A converter output of TERMINAL A39 is set to (TV-SV) and it is inputted into the reverse input terminal of COMPARATOR C8. Output of COMPARATOR C8 turns high at full aperture. When aperture is stopped down to f/5.6, BV-AV=TV-SV is obtained and it becomes $BV+SV=TV+AV$. Thus, the correct aperture value (AV) for shutter speed (TV) in use is determined. When the differentiation output increases up to the D/A converter output (TV-SV), COMPARATOR C8 and TERMINAL A45 of the aperture magnet control unit turn low to switch TRANSISTOR Q1 on. Then, charging the aperture magnet with CONDENSER C13 stops the aperture stop down. This timing is corresponded to crosspoint of the metering output and D/A converter output lines in the graph.

Aperture control on P mode

P mode calculation circuit

The potential of the anti-reverse input terminal of AMPLIFIER A4 is higher than the metering output at full aperture (BV-AV0) by the portion of one diode. The anti-reverse input terminal of OP AMPLIFIER A4 is floated between shutter release and mirror down, and the potential at full aperture is memorized in PROGRAM MEMORY CONDENSER C11. The output of OP AMPLIFIER A5 is equal to the signal (BV-AV0), and the voltage between Points b and c is equal to the voltage between points d and e in Figure 5. The potential of Point C is adjusted by VARIABLE RESISTOR RV8. The level of the metering output (BV-AV) is inputted into Point b via the differentiation compensation circuit. The potential difference between Points d and e, as well as the difference between Points b and c, corresponds to the signal (BV-AV) since the potential of Point c is functioned as level shift. The output of OP AMPLIFIER A5 (Point d) becomes (BV-AV0) and accordingly, the output of P mode calculation circuit (Point e) becomes (AV-AV0).

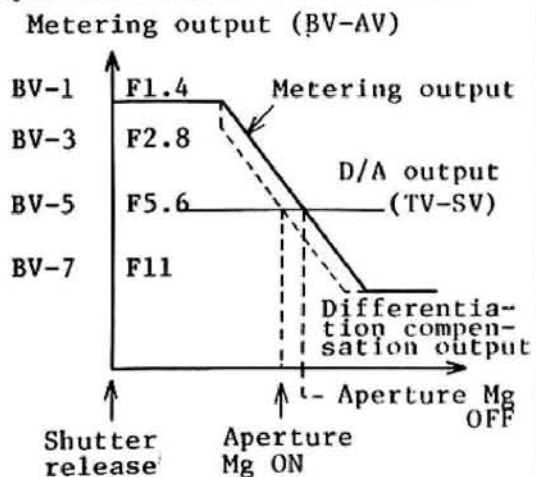
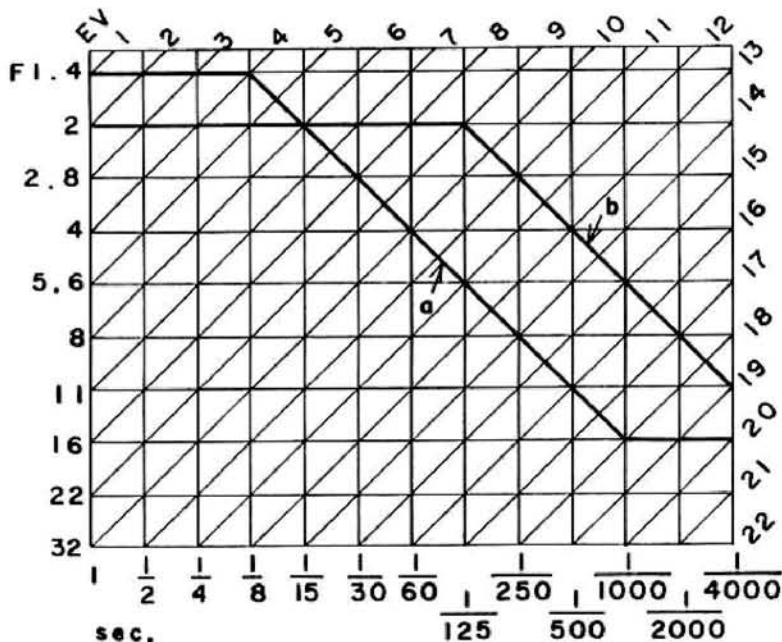


Figure 6

Aperture control on P mode

Figure 7 shows the metering output, differentiation compensation output, D/A converter output and (AV-SV+ γ) after shutter release with mounting a 50/1.4 AI-S type lens. The output of COMPARATOR C8 remains high at full aperture. When aperture is stopped down after shutter release, the metering output (BV-AV) goes down but the D/A converter output (AV-SV+ γ) goes up. When aperture is stopped down to f/5.6, BV-AV=AV-SV+ γ is obtained, and it becomes AV=1/2(BV+SV)- γ /2. Then, TV=1/2(BV+SV)+ γ /2 is obtained when shutter speed is controlled. In case a lens of less than 135mm is mounted, Switches fmm 1 and fmm 0 of Focal length switch turn off and γ is equal to 2 so as to activate a Normal program.

On the other hand, in case a lens of 135mm or longer, or a teleconverter is mounted, Switches fmm 1 and fmm 0 turn on and γ is equal to 5 so as to activate a High-speed program.



- a: Normal program (50/1.4)
- b: High-speed program (135/2)

Figure 8 Program lines

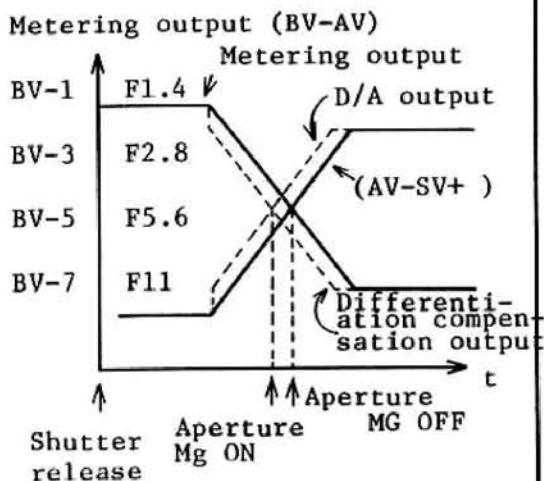


Figure 7

Aperture control

Aperture is not controlled but is stopped down to the f-number in set when the camera is the following conditions.

1) A and M modes

When the release signal turns low after shutter release, the mode signal A turns high to prohibit the aperture magnet control circuit operation.

2) S and P modes

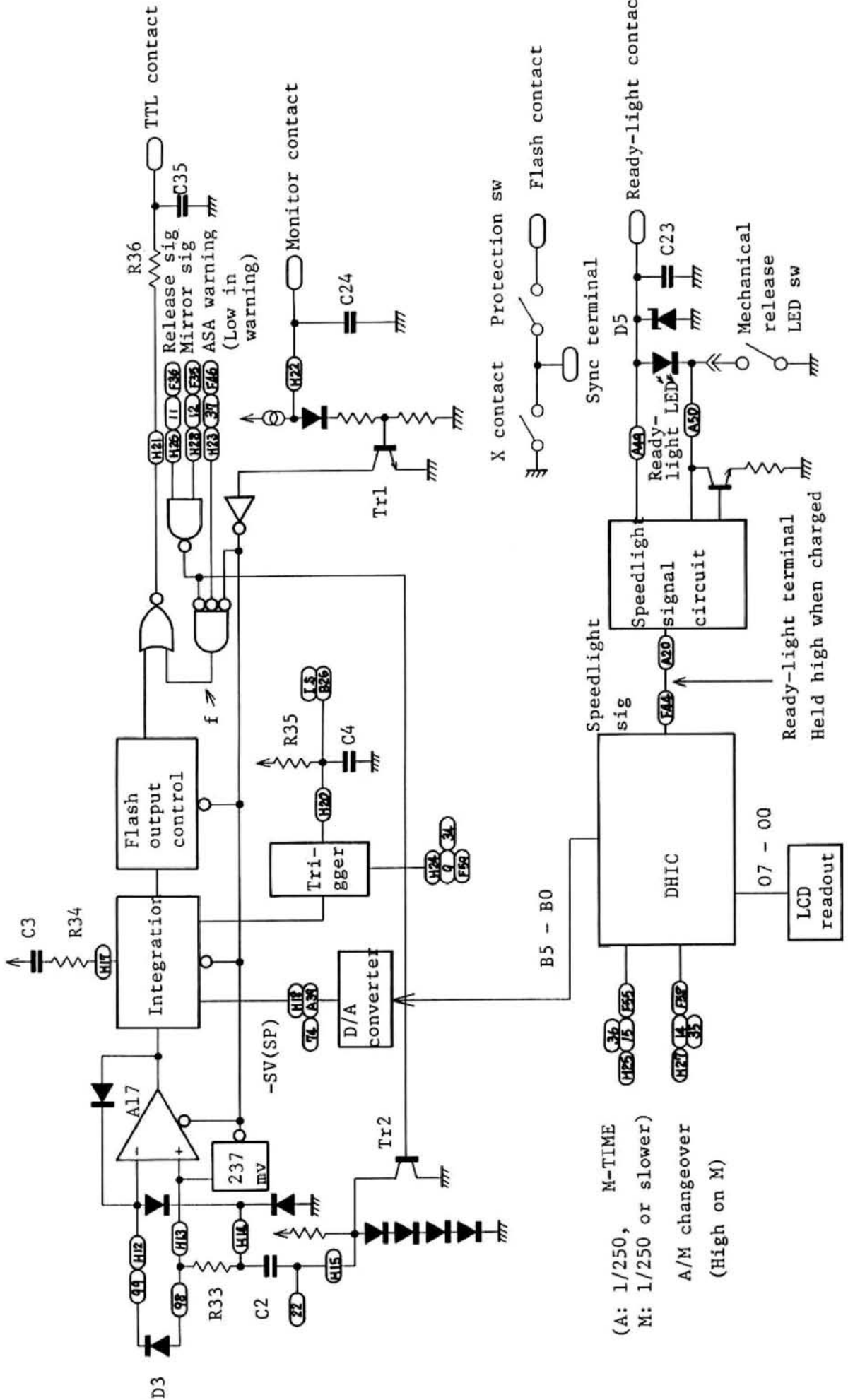
a) Ready-light LED in charge

When the release signal turns low after shutter release, the mode signal A turns high to prohibit the aperture magnet circuit operation.

b) Stop-down lever in use

When the stop-down switch turns on, the aperture magnet control circuit is not operated after shutter release.

Figure 9 TTL flash output control circuit



5 TTL FLASH OUTPUT CONTROL CIRCUIT

CONDENSERS C23, C24 and C25 are equipped with the ready-light contact, monitor contact and TTL contact to eliminate noises of the speedlight.

Ready-light interfase

Turning the power switch of the speedlight on supplies current flow from the ready-light contact, and the speedlight signal of TERMINAL A20 (output of the speedlight signal circuit) turns high. DHIC turns to speedlight mode and the A/M changeover signal of TERMINAL F58 turns high to be manual shutter speed. On A, S and P modes, LCD readout indicated "250" and M-TIME is fixed at 1/250sec. On M mode, M-TIME becomes 1/250sec or slower till 1sec and LCD readout indicates "M250" - "M1" accordingly. When shutter dial is set between 1/4000 and 1/500, M-TIME is 1/250sec and LCD readout indicates "M250". When the speedlight is charged, current of 2.5 - 7mA is supplied to light the ready-light LED up.

TTL flash output control interface

The monitor contact sets the analog circuit to the TTL mode and identifies that the camera can be used on TTL mode. The voltage of the monitor contact is approx. 1.5v while battery power is supplied to Vcc2. When the SB-15 or 16 is attached, the voltage of the monitor contact becomes 1.1v or more to turn TRANSISTOR Tr1 off and the input of the inverter turns high (but the output turns low).

As the release signal and mirror signal are inputted into NAND gate, the NAND output turns high when either the release signal or the mirror signal remains low. The ASA warning signal is inputted into TERMINAL A23 and it turns high when ASA dial is set to between 640 and 16. The potential of Point f in Figure 9 turns high when the inputs of three gates turn low, that is; 1) before shutter release or after mirror down, 2) ASA dial is set to 12 or less, or 800 or more, 3) TRANSISTOR Tr1 is turned off.

When the potential of Point f turns high, the output of NOR gate turns low to make the output of the TTL contact low. The X contact is not turned on but the TTL contact is turned low. Then the current flow of the ready-light LED is intermitted to warn that the ASA dial setting is out of range.

When checking the camera without the speedlight, short-circuiting the monitor circuit turns TRANSISTOR Tr1 off to set the camera in the same condition as the speedlight attached. Since the output of the NOR gate is an open collector, the TTL contact should be pulled up when observing the wave form of the output of the TTL contact.

TTL flash output control

Turning TRANSISTOR Tr1 off operates REFERENCE OP AMPLIFIER A17, integration circuit and flash output control circuit.

By shutter release, the shutter release signal is turned low.

The output of NAND gate turns high to make TRANSISTOR Tr2 be in operation and the latch release of the TTL flash sensor SPD (D3) is executed by charge of CONDENSER C2.

The D/A converter output of TERMINALS A39 and H18 after mirror rise is set to -SV(SP) which is the ASA film speed data for TTL flash output control by MCU inside DHIC.

Turning the trigger switch off makes the trigger signal low, and then the triggering of integration is executed after 4.1ms.

In the integration circuit, CONDENSER C3 is charged by the metering output of OP AMPLIFIER A17 and the D/A converter output -SV(SP) of TERMINAL H18.

When the level of CONDENSER C3 reaches proper value, the output of the flash output control circuit turns high and the output of NOR gate turns low. Thus the output of the TTL contact turns low to stop firing of the speedlight.

6 DIGITAL HIC (INPUT)

Multiplexer input

The multiplexer is used to add input terminals of MCU.

PORT K is a 4-bit input port of MCU and it is connected to the accumulator (MCU calculation resistor).

PORT P is a 4-bit output port of MCU and the data in the accumulator is supplied from PORT P.

The output of the port decoder is changed from 6 to \$E by the output of PORT P, and one of the gate circuits 6 - \$E is selected. 4-bit output of the selected gate circuit is inputted into PORT K of MCU.

Example:

When reading the lens speed data, set the output of PORT P to 7 and make the gate circuit 7 ENABLE. The gray code inputs of (AVO)3 - (AVO)0 are inputted into the accumulator of MCU via PORT K. These inputs are converted to binary by ROM of MCU and are used for the metering process, the LCD readout process and control value calculation.

The following data are inputted into MCU via the gate circuit.

- 1) Aperture in use AV-AVO (5-bit), 2) Film speed (5-bit),
- 3) Lens focal length fmm (2-bit), 4) Inspection input (1-bit)

Also, the output of the sequential comparison comparator C3 - C7 are inputted into MCU as metering data by the gate circuits \$C and \$D.

The following inputs are fed into MCU with being latched via the input circuit.

- 1) Shutter speed TV (4-bit), 2) Mode switch (2-bit),
- 3) Blank shots switch (1-bit), 4) Speedlight signal (1-bit),
- 5) Stop-down switch (1-bit)

These inputs and the EE lens switch (D) can be checked by AMP tester.

MCU input

EE lens switch (D)

EE lens switch (D) is inputted into TERMINAL R8 of MCU.

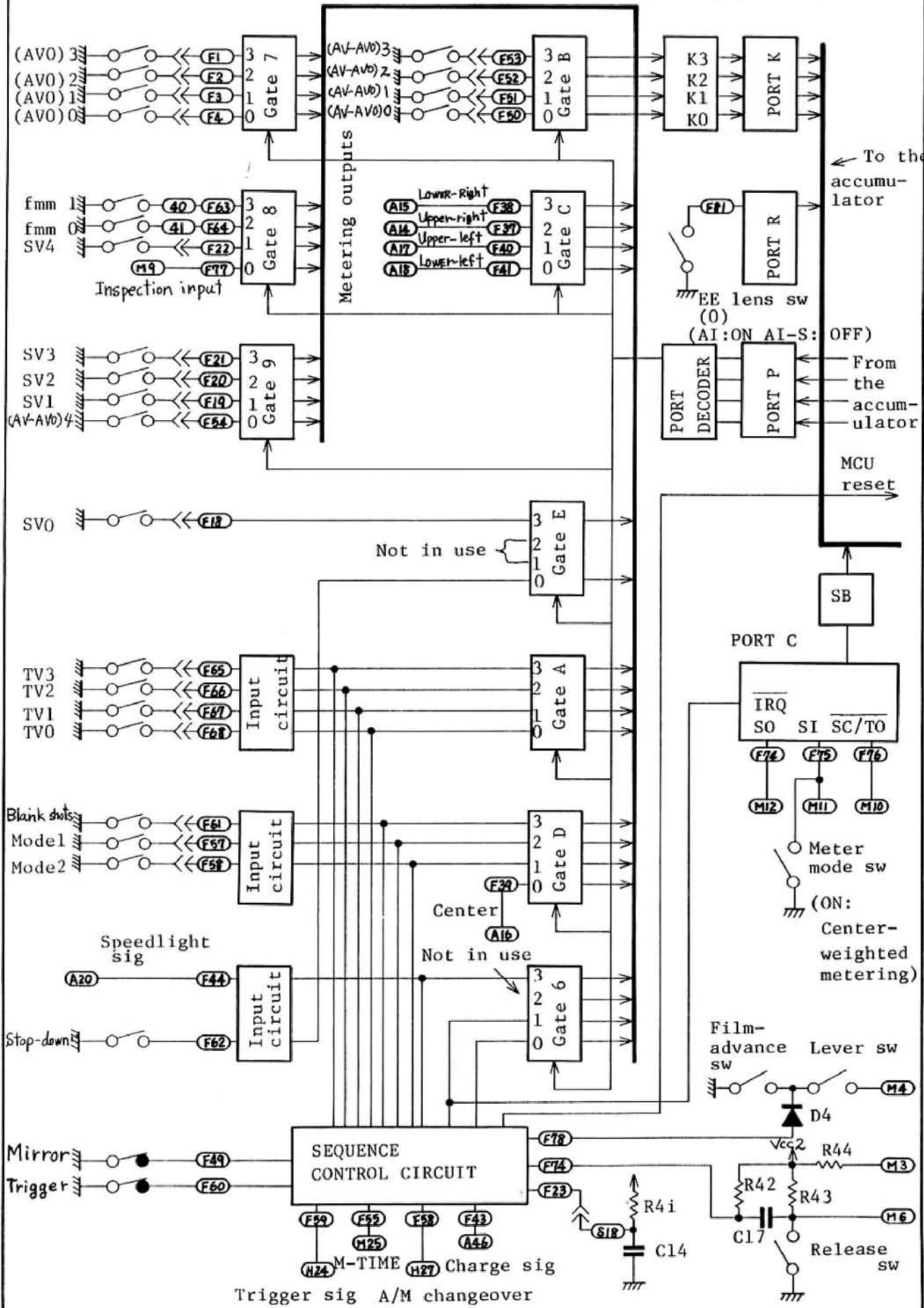
It turns on with an AI-type lens mounted and turns off with an AI-S type.

SI

The meter mode switch turns on in centerweighted metering and TERMINAL SI turns low. To realize AMP metering, TERMINAL SI should be high.

Figure 10 Digital HIC (input)

Multiplexer ← | → MCU



The SI terminal is also used as a serial input to enable the display of the RAM reading or the inspection of MCU when using the AMP tester.

When the inspection input M9 turns low (the SI terminal remains low), the AMP tester selects the AMP mode.

If the SI terminal is short-circuited, the AMP tester is impossible to select the mode between the AMP and centerweighted modes when the SI input to \$0.

7 DIGITAL HIC (OUTPUT)

7-1 MCU outputs

The output of MCU are turned high on reset.

B5 - B0: B5 - B0 of D/A converter are controlled by TERMINALS
R5' - R0 of MCU.

Mode signal A: After shutter release, the mode signal A turns low when aperture is controlled and turns high when aperture is stopped down to the f-number in set. Also, it is turned low after mirror rise and is turned high by MCU reset.

Mode signal B: After shutter release, the mode signal B turns high in aperture control on P mode and turns low in aperture control on S mode or when aperture is stopped down to the f-number in set. Also, it is turned low after mirror rise and is turned high by MCU reset.

Release signal: By turning the release signal on, the interruption signal is provided with IRQ of MCU from the release input signal. After the mode signals A and B, and B5 - B0 are controlled, the release signal is turned low by controlling the port decoder. After mirror rise, the release signal is turned high after turning the mirror signal low.

Mirror signal: When the mirror switch is turned off by mirror rise, the mirror signal is inputted into MCU via the MPX mirror signal to be turned low.
The mirror signal is turned high after MCU reset.

Stop-down ENABLE: After the release signal turns low, the stop-down ENABLE turns high after approx. 11ms to enable the aperture magnet control circuit to be in operation. Then the stop-down ENABLE is turned low by mirror rise.
When aperture is controlled to the full aperture the stop-down ENABLE is turned high after approx. 3ms from turning the release signal low.

ASA warning signal: When ASA dial is set to 12 or less, or 800 or more during the ready-light charging, the ASA warning signal is turned low.

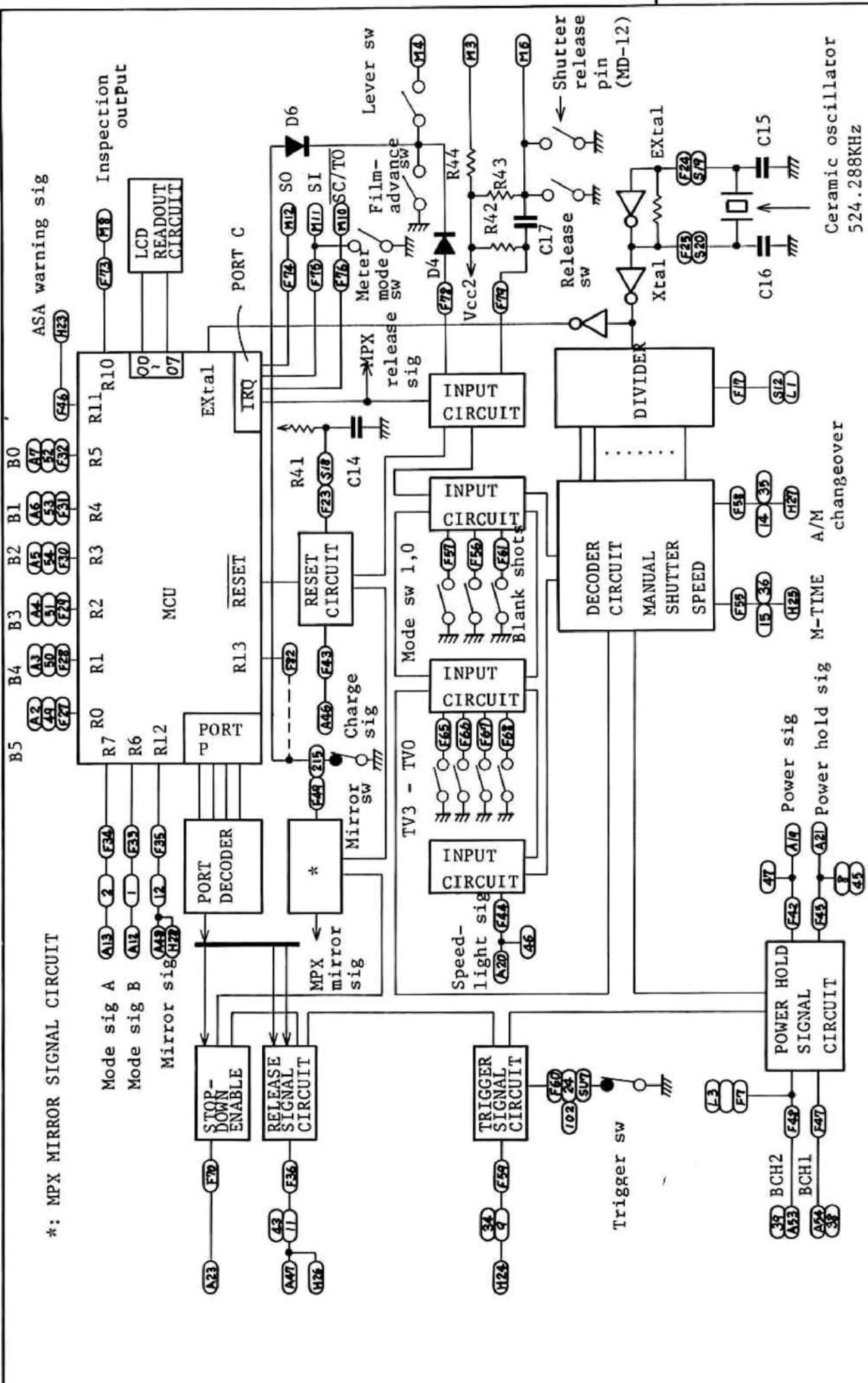


Figure 11 Digital HIC (output)

Mirror switch protection signal (R13):

After the power switch is on, MCU is reset and the mirror switch protection signal turns low when turning the charge signal low. After shutter release, the mirror switch protection signal turns high after 3ms from turning the stop-down ENABLE high. Then it turns low again after MCU reset.

The mirror switch protection signal is connected with the mirror switch to prohibit the reverse of the mirror switch.

07 - 00: 07 - 00 are 8-bit outputs to control the LCD readout circuit. These outputs are held high during power on reset and the LCD readout is not appeared. After display control, the LCD readout is appeared by the outputs. Outputs 07 - 00 are turned high again after shutter release and the LCD readout is turned off.

Inspection output: When setting the AMP tester to the AMP mode with setting the inspection input to low and the SI input to \$0 or low, the inspection output becomes a synchronizing signal to read the serial output of S0.

$\overline{SC}/\overline{TO}$: A clock to read S0.

S0: A serial output.

7-2 DIGITAL IC OUTPUT

The digital IC output provides the sequence control for the following operations that are not fit to the control by the MCU.

Power hold signal: Refer to the pertaining section of
1 POWER CONTROL CIRCUIT.

Trigger signal: The trigger signal turns low when the trigger switch turns off, and turns high after mirror down.

Charge signal: The charge signal is turned high shortly after the power turns on. After 62.5ms from power on reset time (approx. 30ms), the charge signal turns low. The signal turns high after mirror down and then turns low after approx. 65ms. When the charge signal remains high, quick charge is executed in both the release magnet control circuit and the aperture magnet control circuit.

$\overline{2048}$: $\overline{2048}$ divides the output of the ceramic oscillator to compose a clock (2048Hz) of the LCD readout circuit.

A/M changeover signal: The A/M changeover signal turns low on A, S and P modes and turns high on M mode. When the blank shots switch turns on or the speedlight signal turns high, the A/M changeover signal turns low even on A, S and P modes.

M-TIME: M-TIME turns high at mirror rise and turns low after the trigger signal turns low. Time counting is executed by dividing the output of the ceramic oscillator.

1) A, S and P modes

M-TIME becomes 1/4000sec and functions as highest-speed limiter. M-TIME becomes 1/250sec when the blank shots switch turns on or the speedlight signal turns high.

2) M mode

M-TIME becomes the proper shutter speed according to the shutter speed in set. M-TIME becomes 1/250sec when the blank shots switch turns on. When the speedlight signal remains high, M-TIME becomes 1/250sec or slower and becomes 1/250sec when the shutter dial is set between 1/4000 and 1/500.

8. WIEWFINDER DISPLAY

8-1 LCD readout circuit

LCD readout circuit is controlled by 8-bit outputs (07 - 00) of PORT 0 of MCU. Divided output 2048Hz of the ceramic oscillator is inputted into the LCD readout circuit as a clock. This divided output is fed into the oscillation circuit and further divided into 64 Hz for the LCD drive frequency.

Decoder

The decoder utilizes 6-bit outputs of PORT 0 to control LCD panel for "M88.8 ω ".

LCD readout "+", "-"

LCD readout "+" and "-" are controlled separately from the decoder by 2-bit outputs 02 and 01 of PORT 0.

LCD readout "+" is displayed when the terminal of 02 is low and "-" when the terminal of 01 is low.

Oscillation circuit

This circuit generates the power $V_{SSH} - 3V$ against power source of 3V by oscillation 1024Hz of the divider and OSCILLATION CONDENSER C22.

LCD driver

When power voltage is 3V, LCD is driven by rectangular wave form of $\pm 3V$. The phase of the common against LCD ON terminal is reversed, and LCD OFF terminal is in phase with common terminal.

LCD readout OFF

When power voltage and BCH2 are low, the EN terminal and eight NOR gate outputs turn low to make LCD readout turn off. Also, the eight NOR gate outputs turn low when the outputs of PORT 0 07 - 00 turn high after the MCU reset, and LCD readout is turned off.

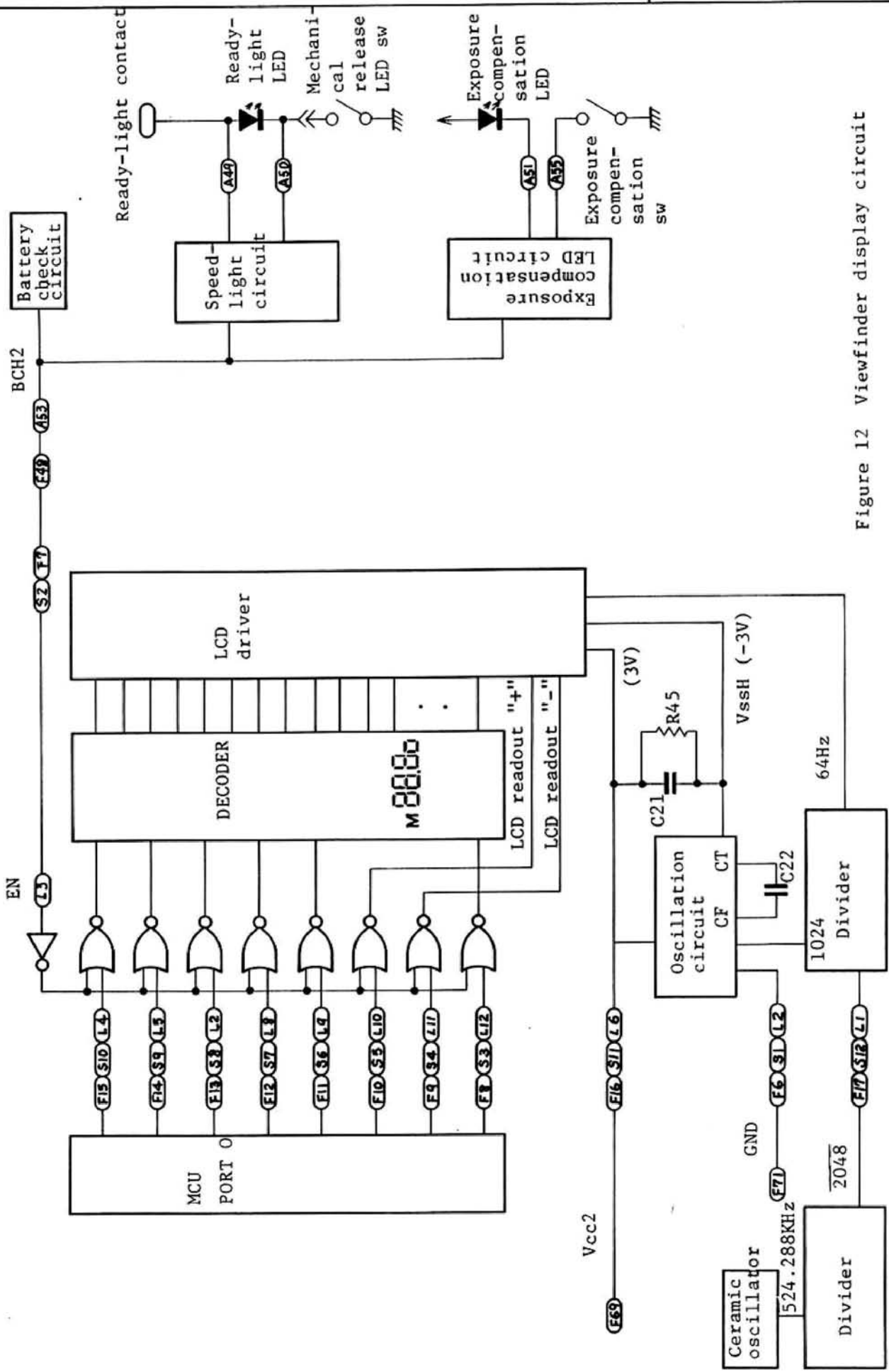


Figure 12 Viewfinder display circuit

8-2 LED drive

Ready-light LED

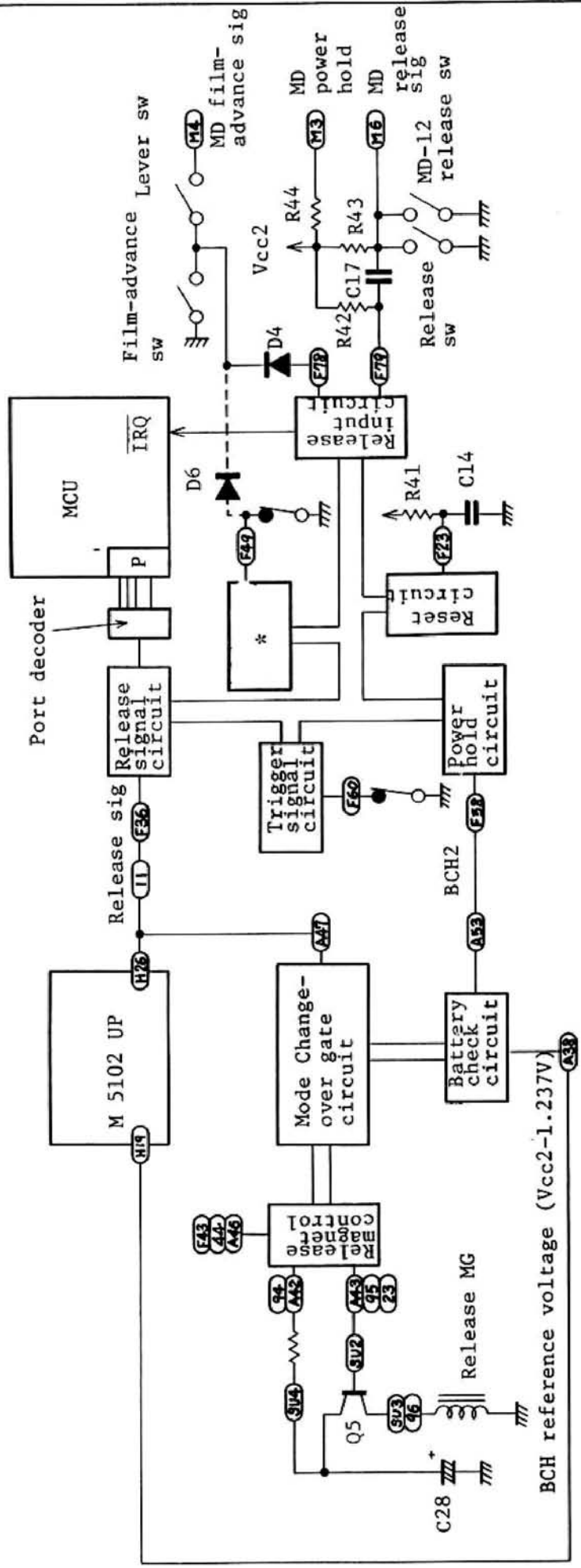
When BCH2 is high, the terminal A50 is closed and the speedlight unit provides a signal through the ready-light contact to light the LED. Even if BCH2 is low, mechanical release at B or M250 allows the mechanical release LED switch to be on and to enable the LED lighting.

Exposure compensation LED

When BCH2 is high, turning Exposure compensation switch on closes the terminal A51 and makes the LED light up.

9 RELEASE SIGNAL FLOW

* MPX mirror signal circuit



CONDENSER C28 should be charged before shutter release to activate the release magnet.

MCU release signal output condition

IRQ enabled condition (Release switch: ON, F79: LOW)

- 1 Mirror switch: ON
- 2 Ceramic oscillator: CHARGED
- 3 BCH2: HIGH
- 4 Trigger switch: ON

Figure 13 Release signal flow

TROUBLESHOOTING FLOWCHART

Tools: Oscilloscope, Digital voltmeter, Tool battery

Precaution:

- 1) Set the mode selector to A mode unless any instruction is given.

Measure the resistor value when "RESISTOR" is indicated.

The arrows on wave lines indicate up and down at start of the measurement of the signal.

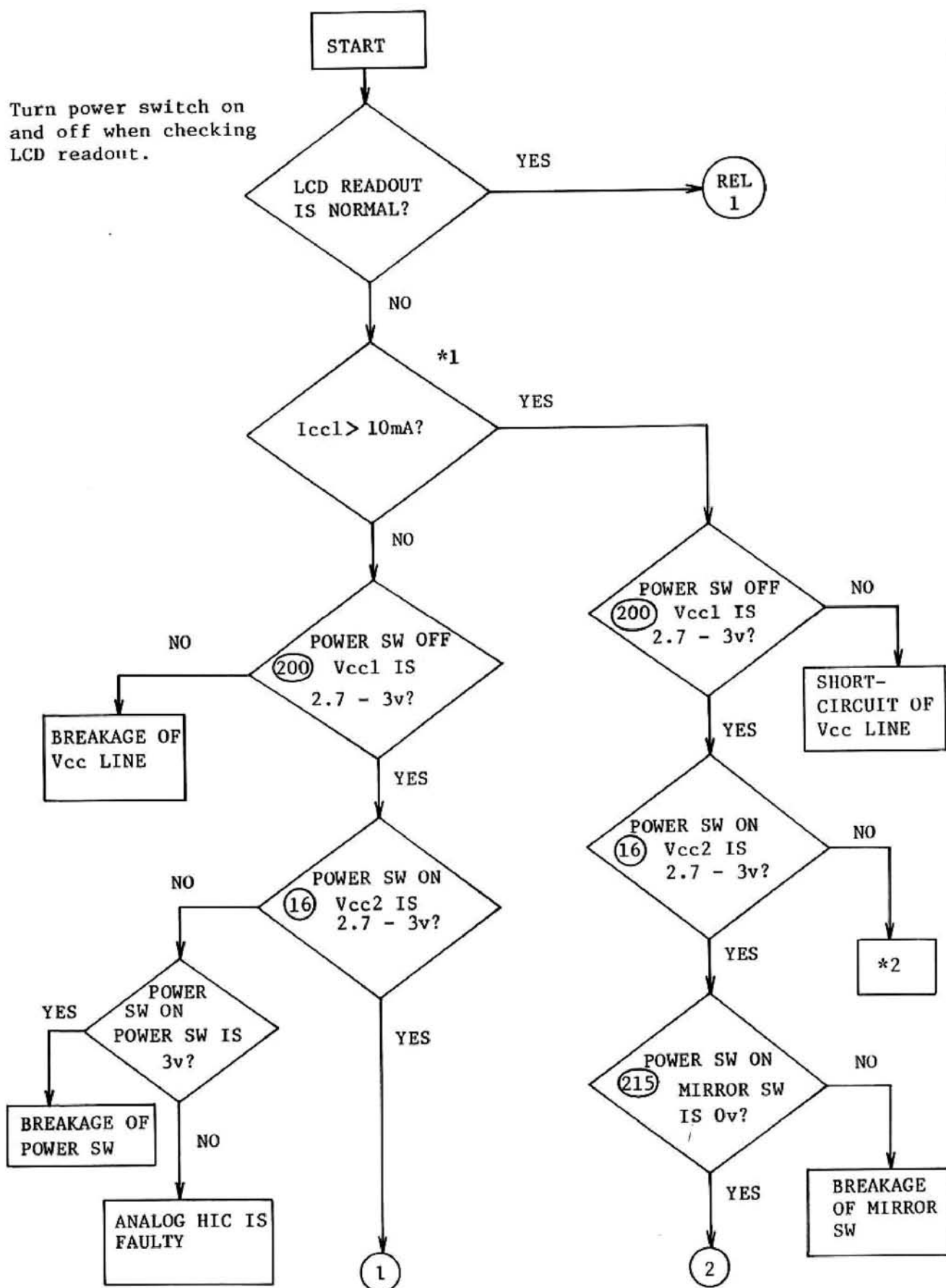
- 2) Measure the resistor value when checking the conductivity.
- 3) Set the range of Oscilloscope to 5 or 10 ms/DIV, and 0.1 v/DIV unless any instruction is given.
- 4) Use AMP tester to read out the gray codes of ASA, f-fo, fo and TV.
- 5) Remove the silicon coating on the check land.
- 6) Iccl is an operative current when the power switch on.
- 7) Provide checks for the TTL flash output control after and before removing the top cover.
- 8) Abbreviations:

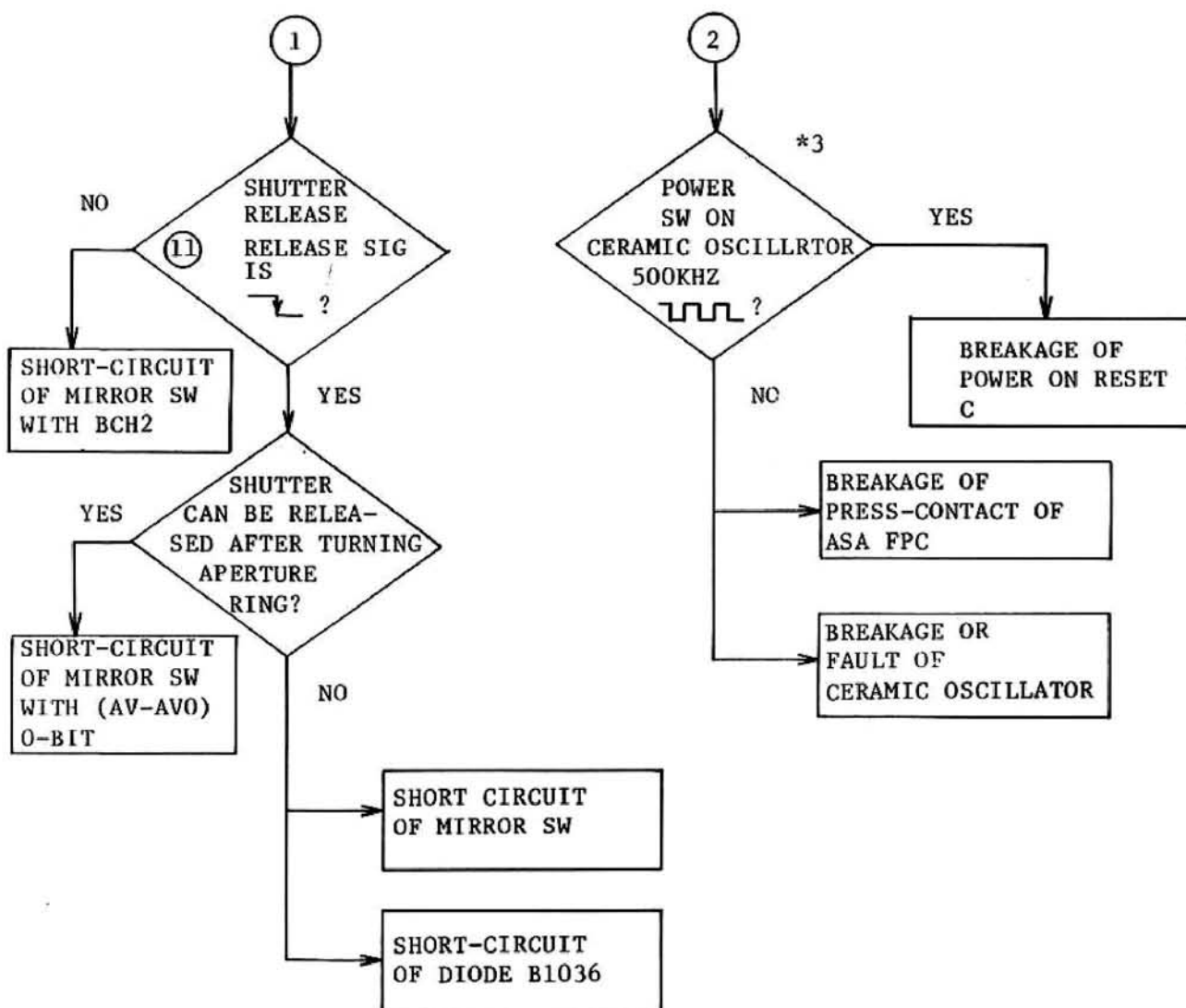
C: Condenser, R: Resistor, RV: Variable resistor,

MG: Magnet, SIG: Signal COM: Common

1 SHUTTER FAILS TO BE RELEASED

Turn power switch on
and off when checking
LCD readout.



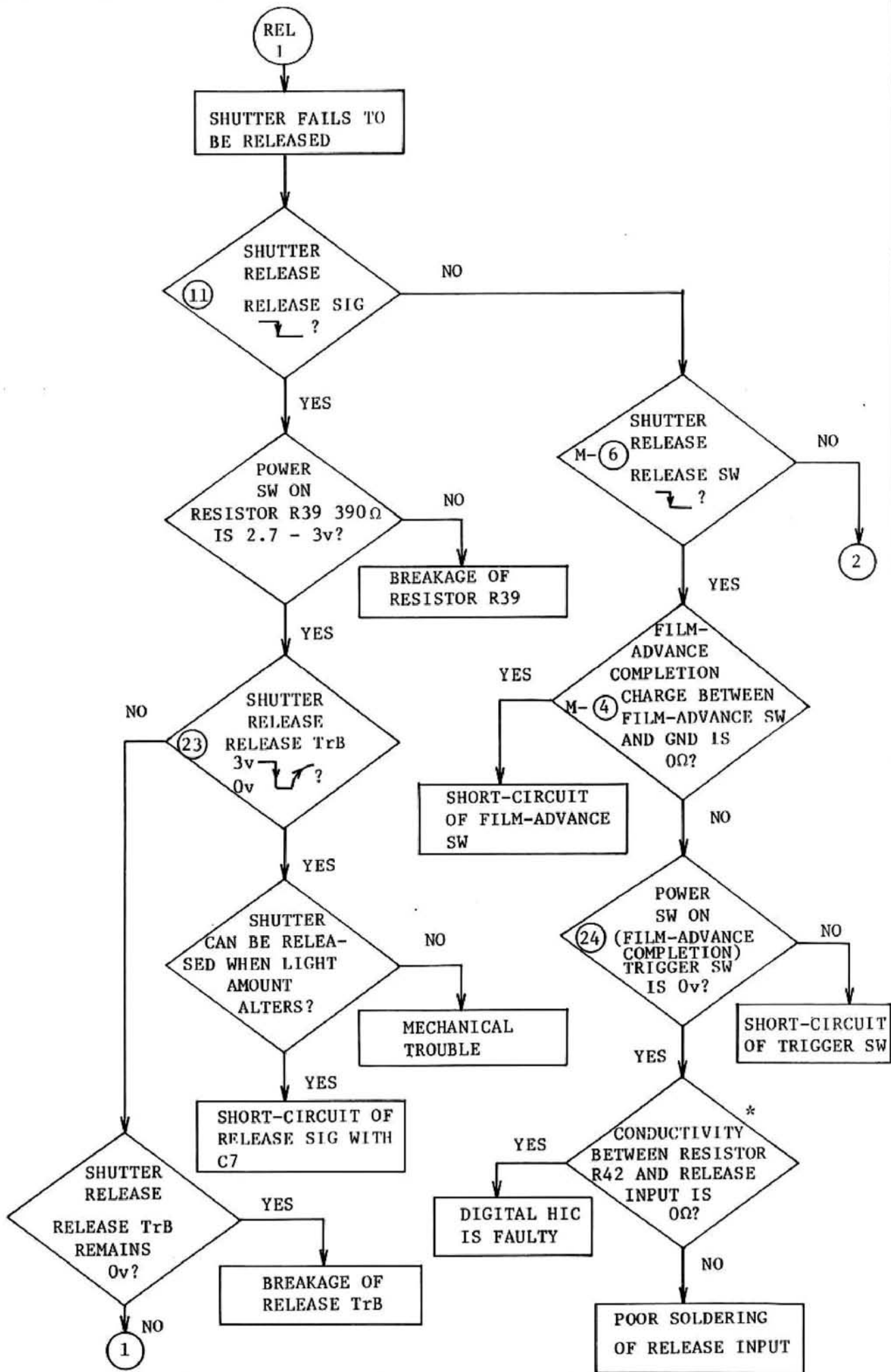


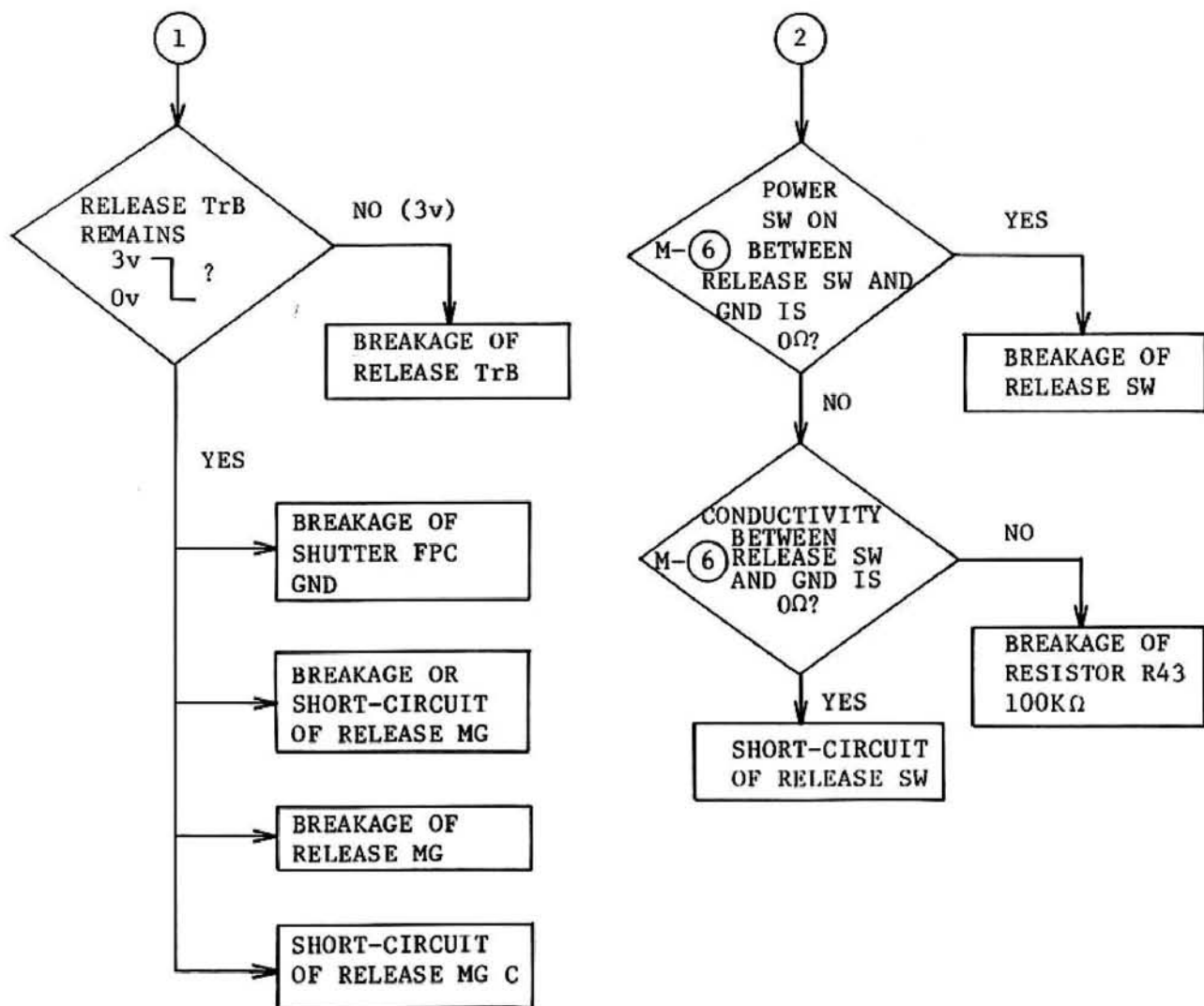
Turn power switch on and off when measuring the release signal.

*1: Since I_{ccl} varies for each camera, measure I_{ccl} at both steps when the value is around 10mA.

*2: SHORT-CIRCUIT OF LCD BASE PLATE WITH V_{cc2} ,
SHORT-CIRCUIT OF PASS C

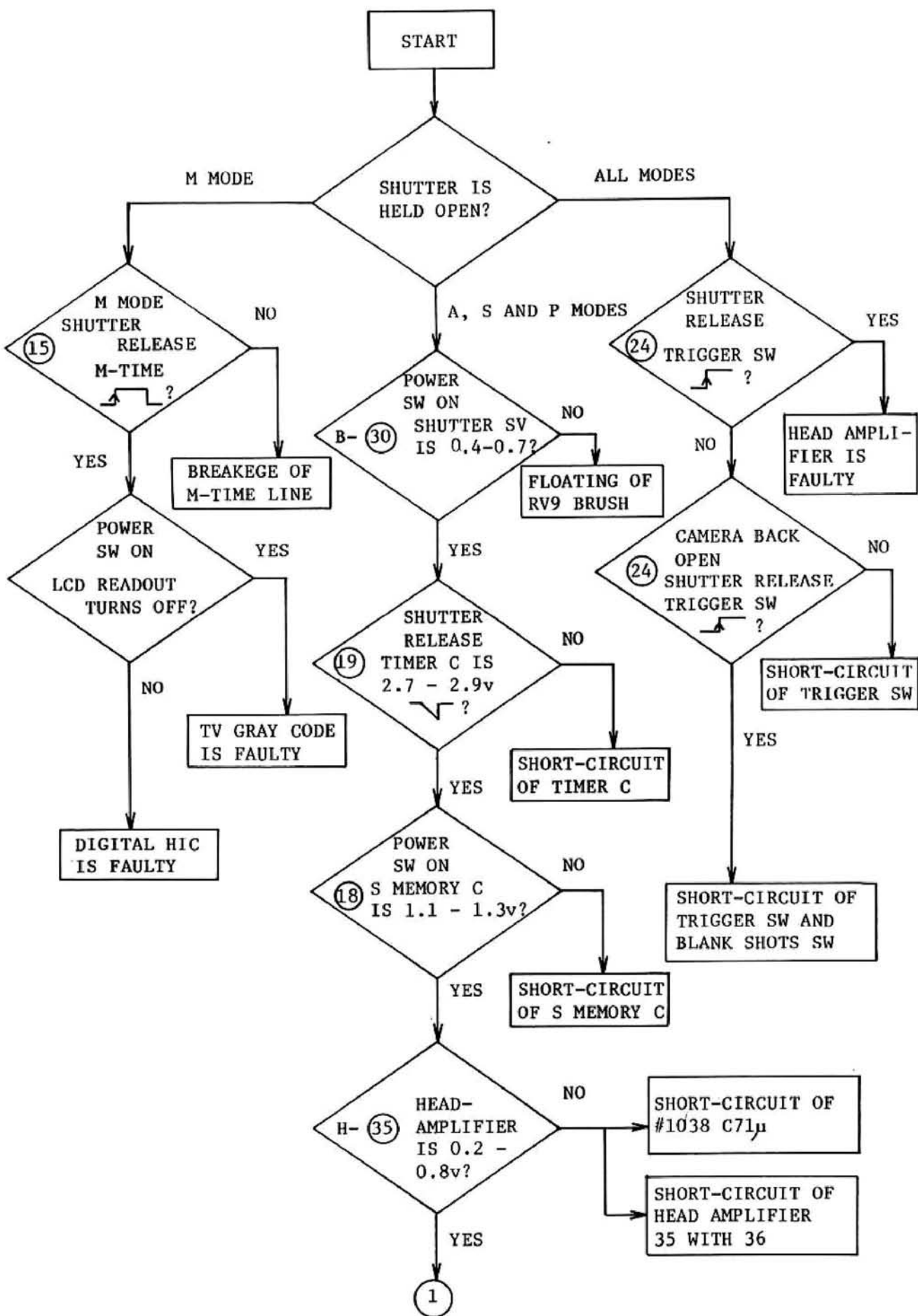
*3: The oscillation can be checked by M- (10) $\overline{SC}/\overline{T0}$ on the MD base plate.

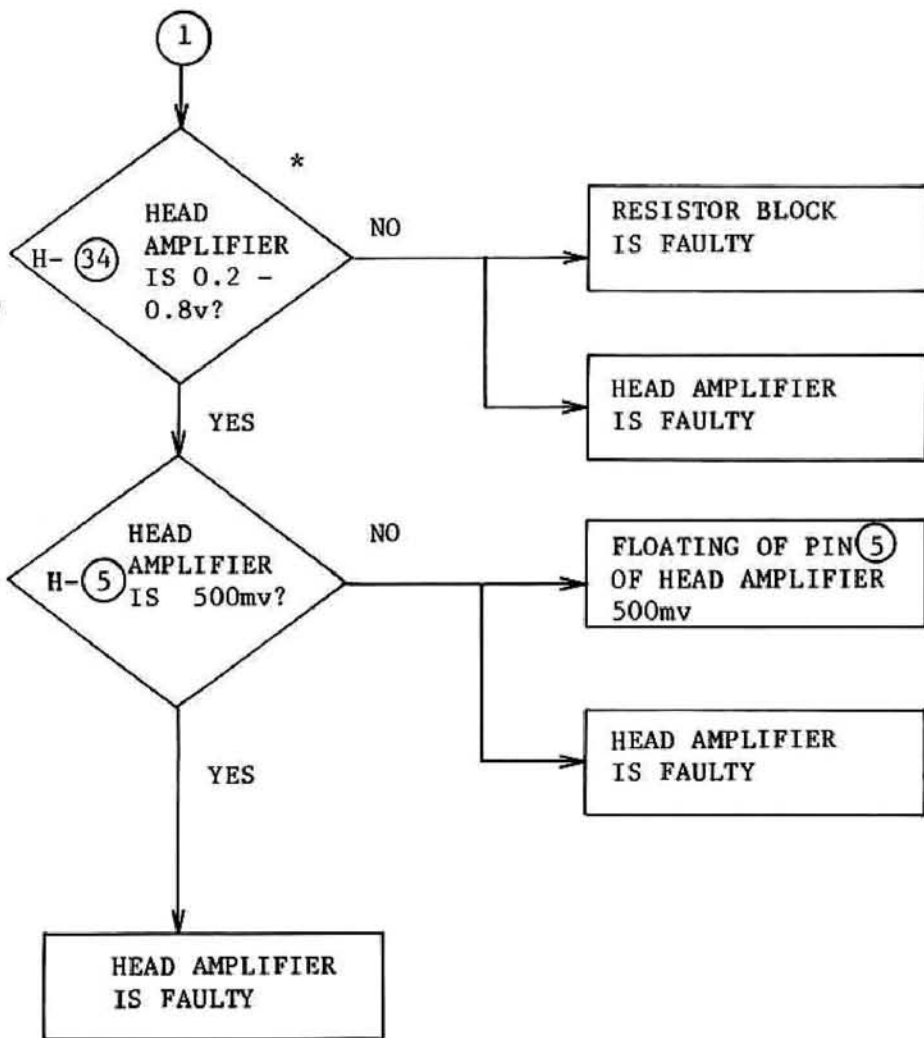




*: Conductivity between RESISTOR R42 of the MD base plate and the release input terminal of Digital HIC.

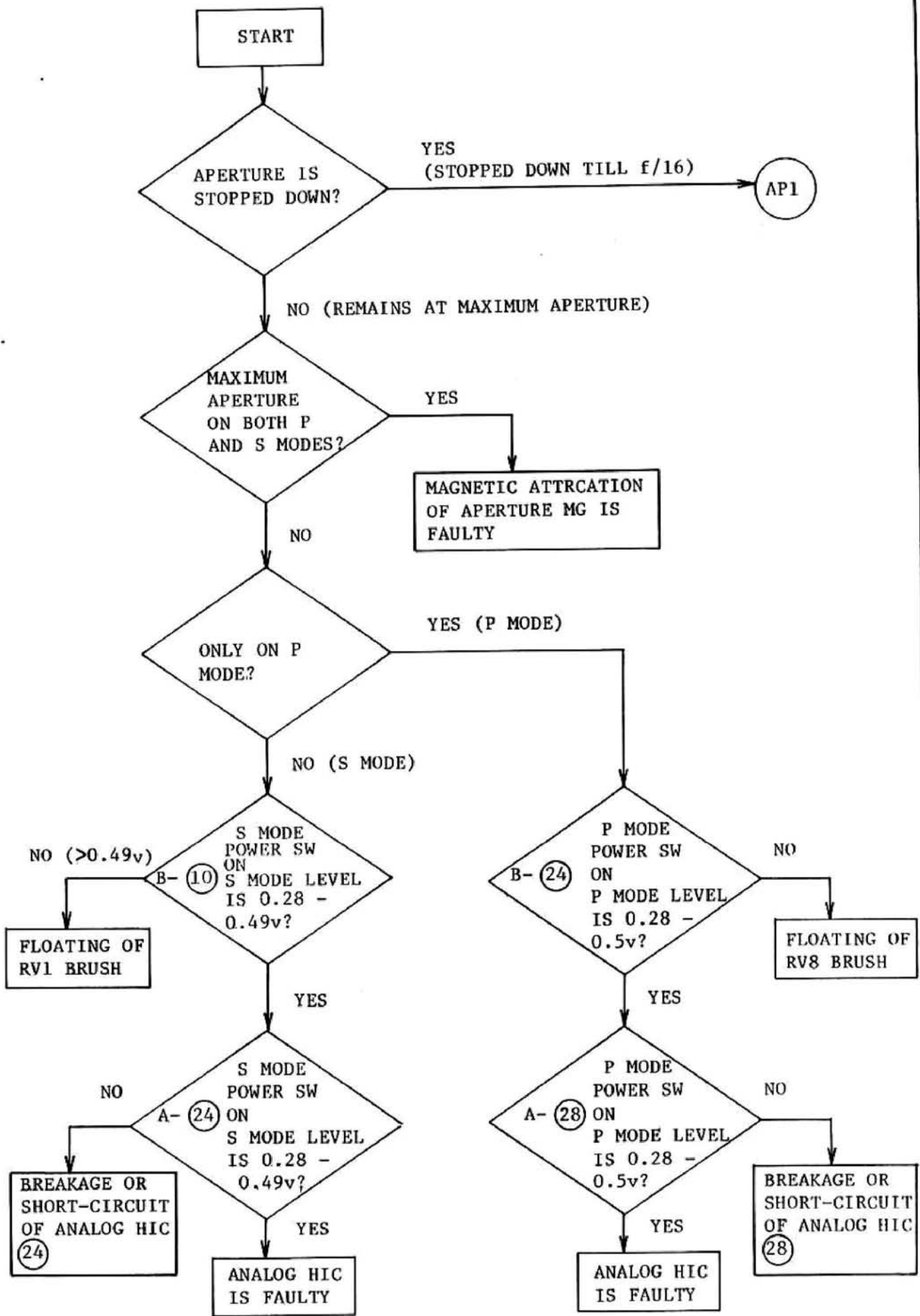
2 SHUTTER IS HELD OPEN

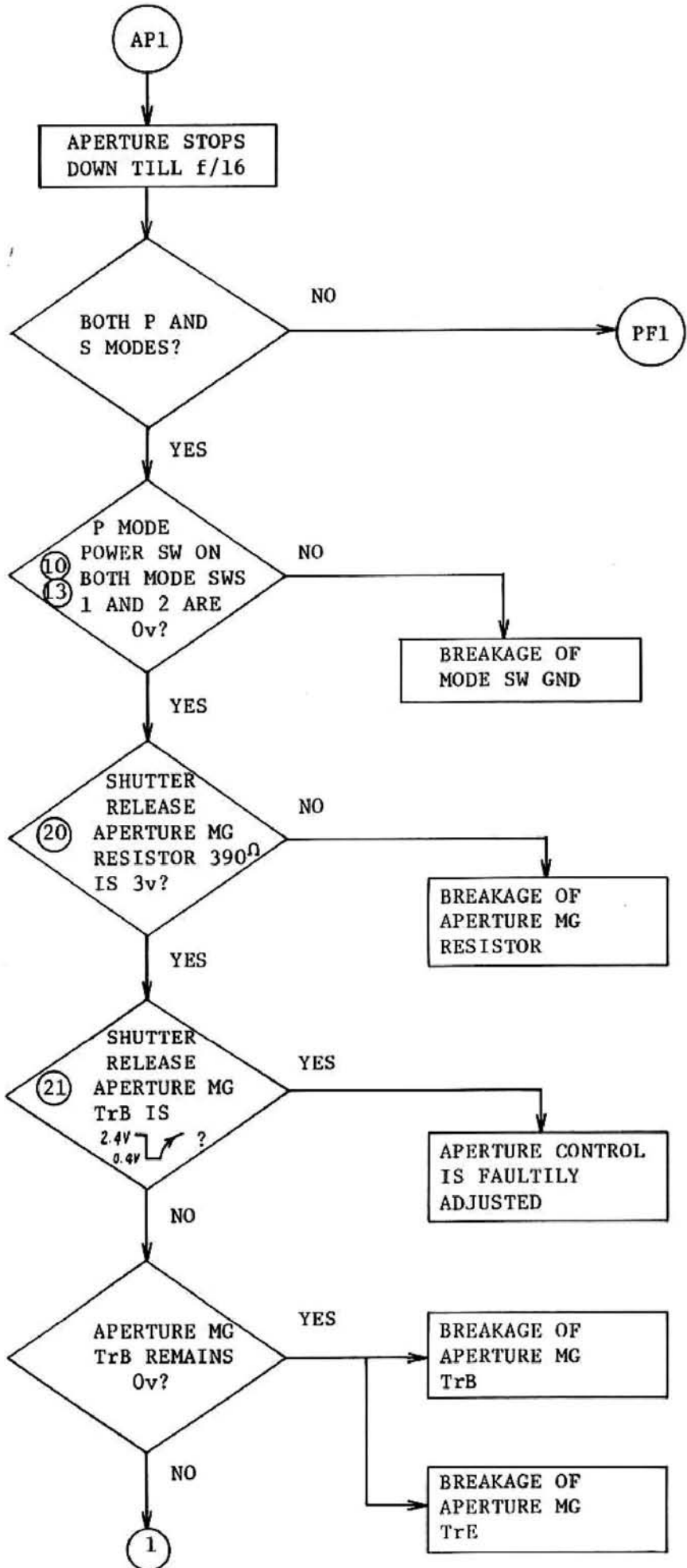


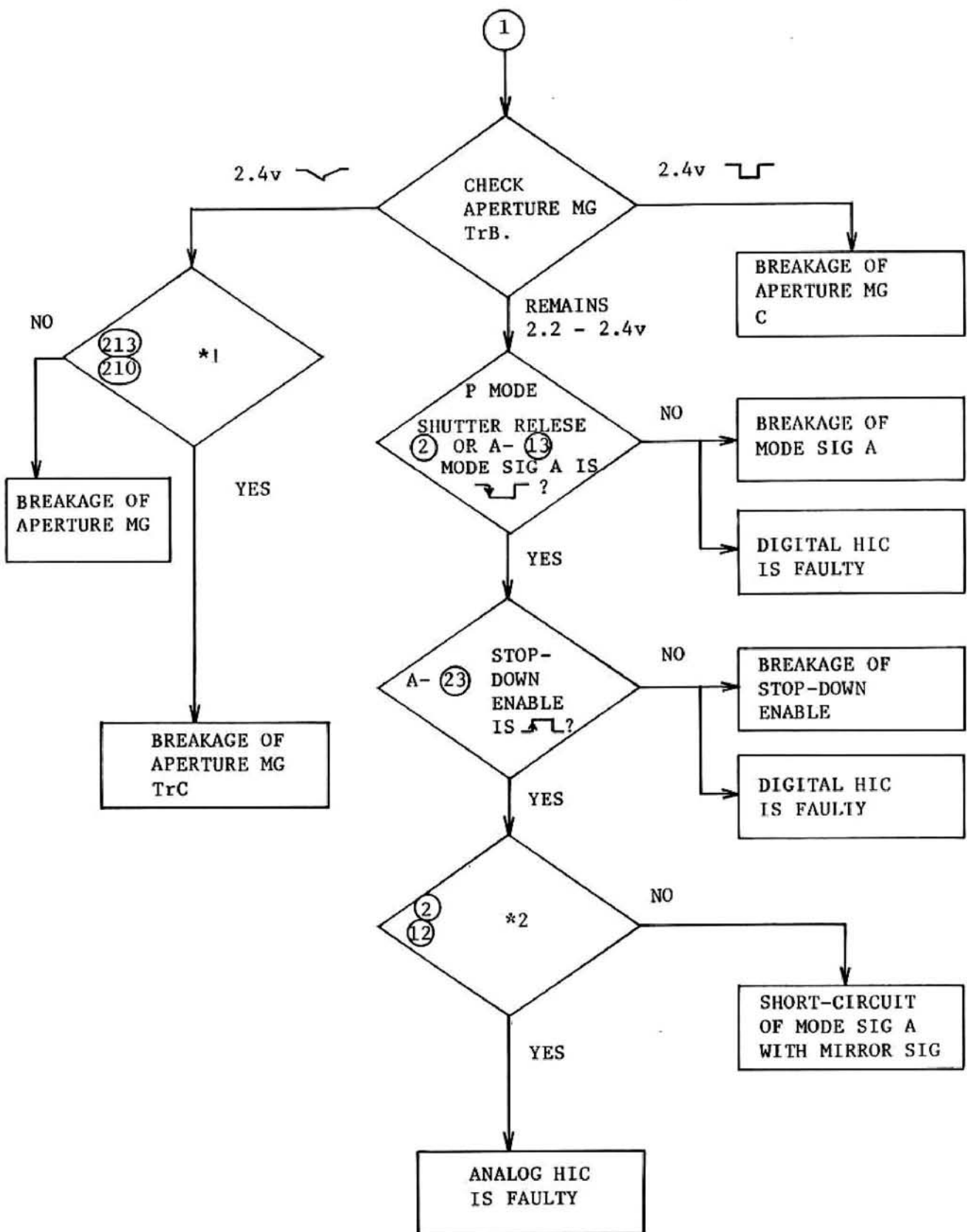


*: Reference voltage is Vcc2.



3 APERTURE FAILS TO BE CONTROLLED ON P AND S MODES

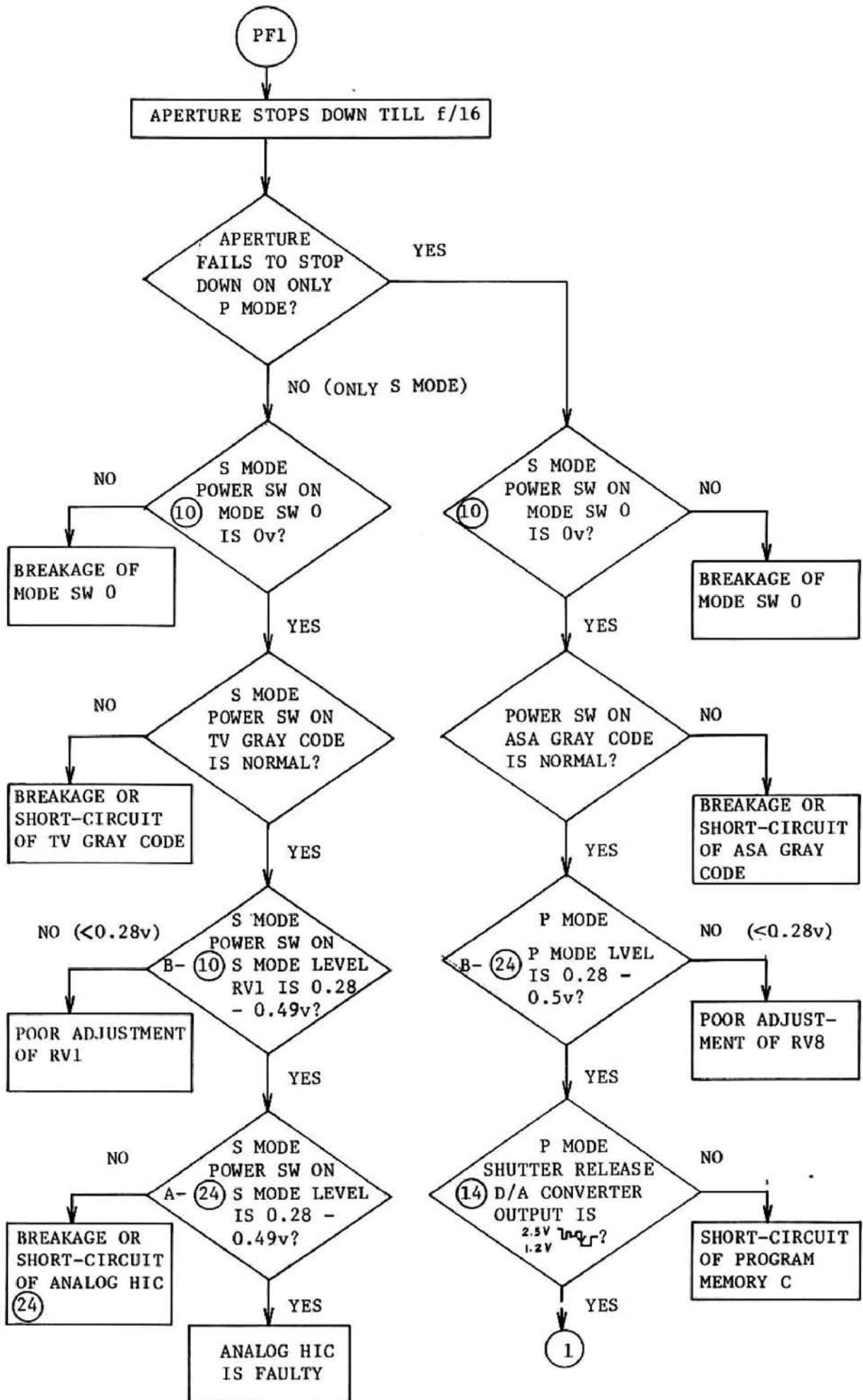


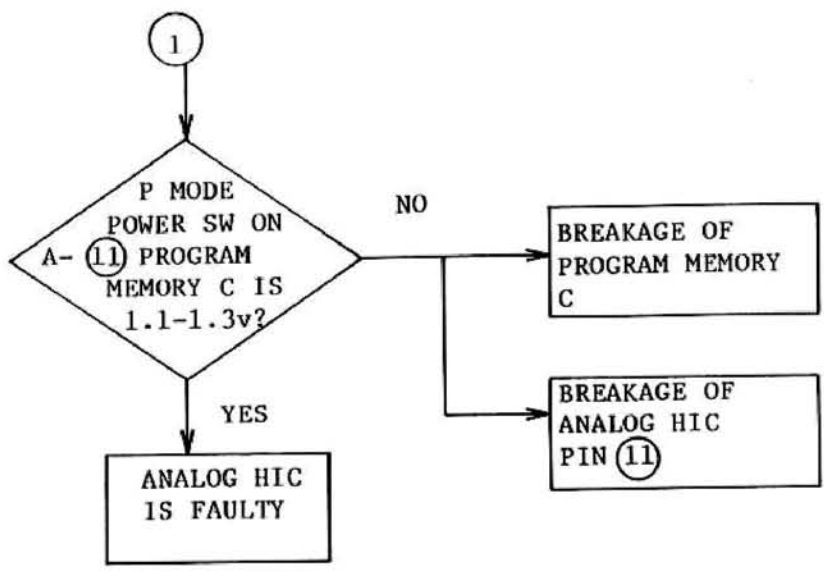




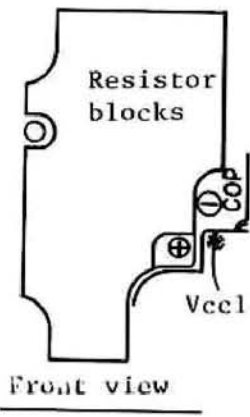
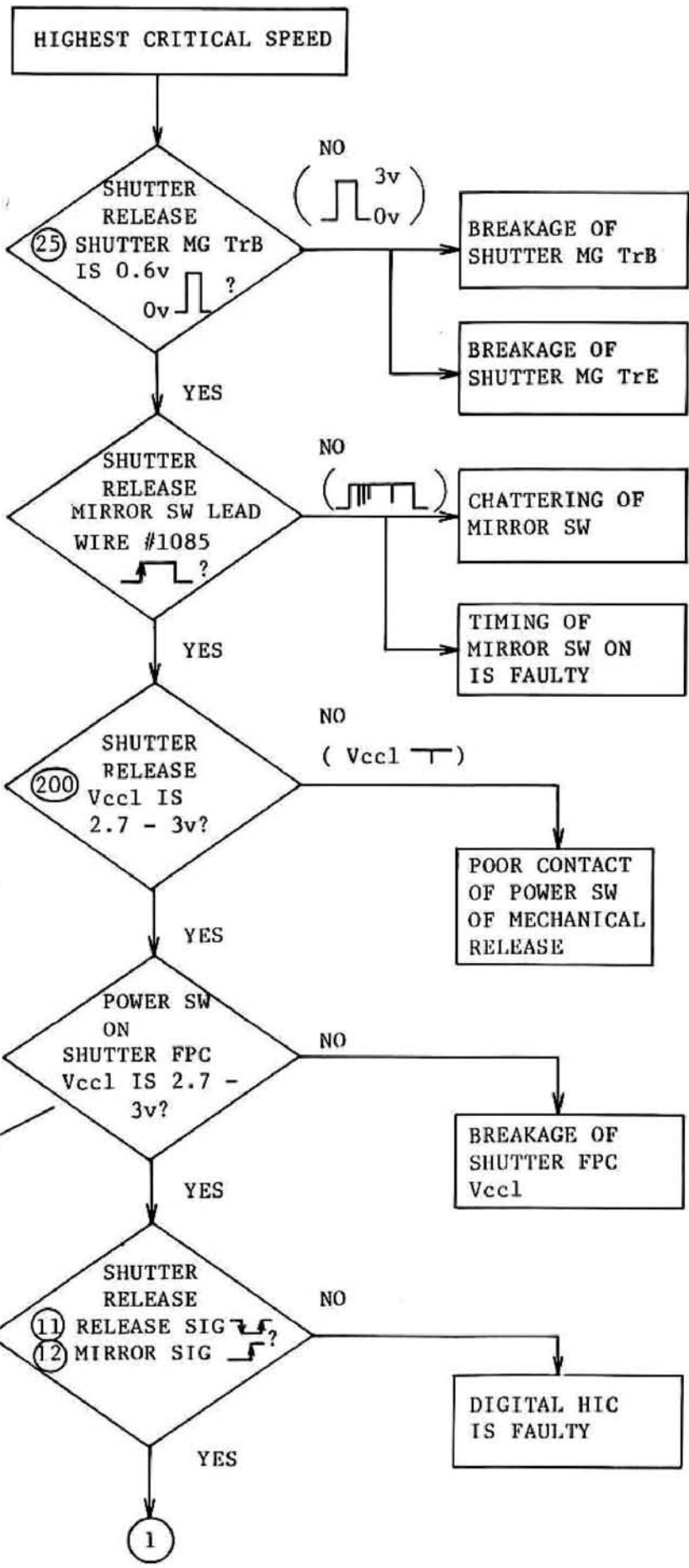
*1: CONDUCTIVITY BETWEEN APERTURE MG LEAD WIRES #1100 AND #1099 IS 0Ω?

*2: P MODE, SHUTTER RELEASE, MODE SIG A  ? MIRROR SIG 





4 SHUTTER SPEEDS DELIVERY IS FAULTILY HIGH-SPEED



1

BREAKAGE OR SHORT-CIRCUIT OF SHUTTER MG

POOR MAGNETICAL ATTRACTION OF SHUTTER MG

SHORT-CIRCUIT OF NOISE ABSORPTION C

SHUTTER SPEEDS DELIVERY IS FAULTILY HIGH-SPEED ON A, S AND P MODES

SHUTTER RELEASE MIRROR SW (215) ?

NO (\square)

CHATTERING OF ASA GND

YES

*1: Shutter speed is varied along the ASA dial setting.

CONDUCTIVITY BETWEEN ASA GND AND CAMERA BODY IS 0 ?

NO

*1

BREAKAGE OF ASA GND

YES

POWER SW ON TIMER C IS (19) 2.7 - 3.0v?

YES

SHORT-CIRCUIT OF HEAD AMPLIFIER 33 WITH 34

HEAD AMPLIFIER IS FAULTY

NO (<2.7v)

*2: The shutter magnet TrB provides 0.6v output, but the charging time is extremely short.

SHUTTER RELEASE TIMER C REMAINS 0v? (19)

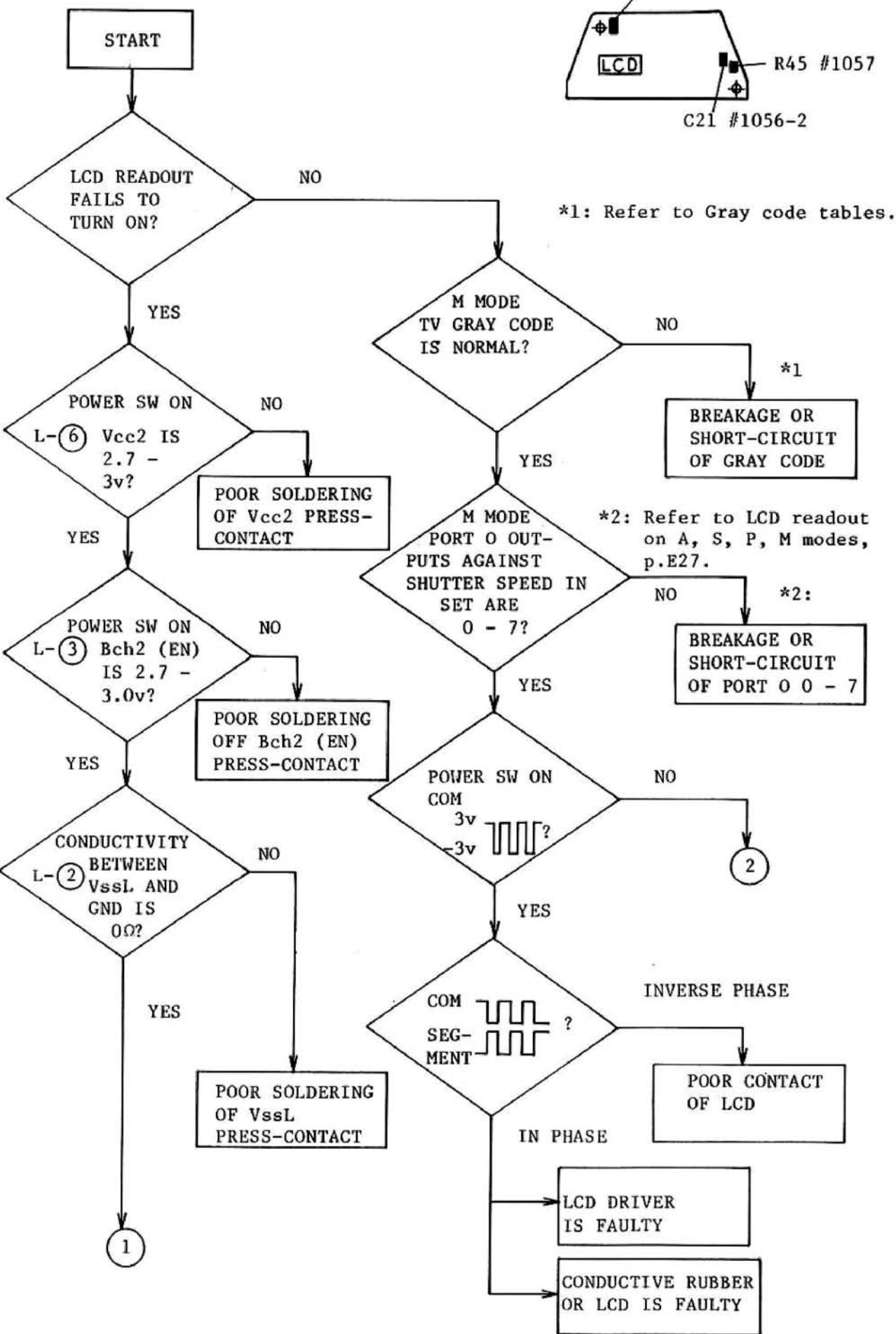
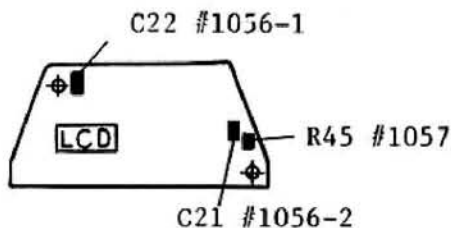
NO (\square)

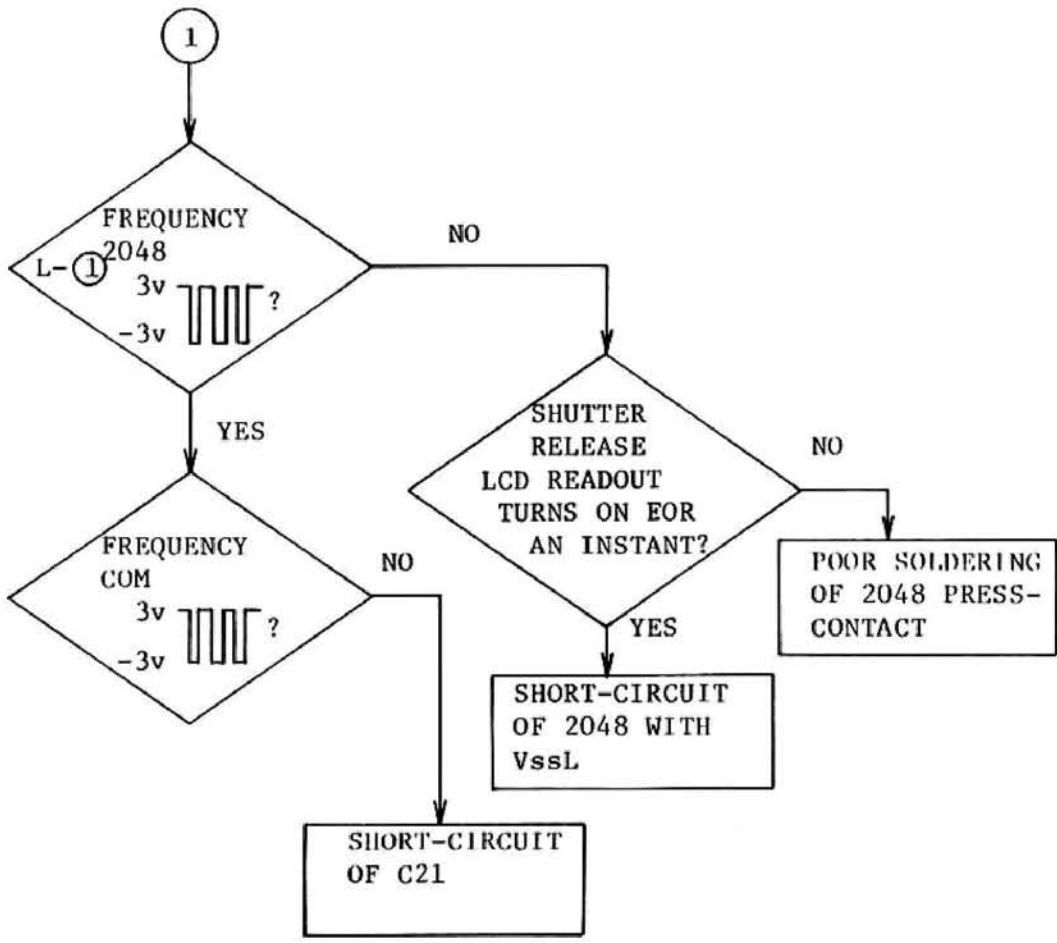
*2

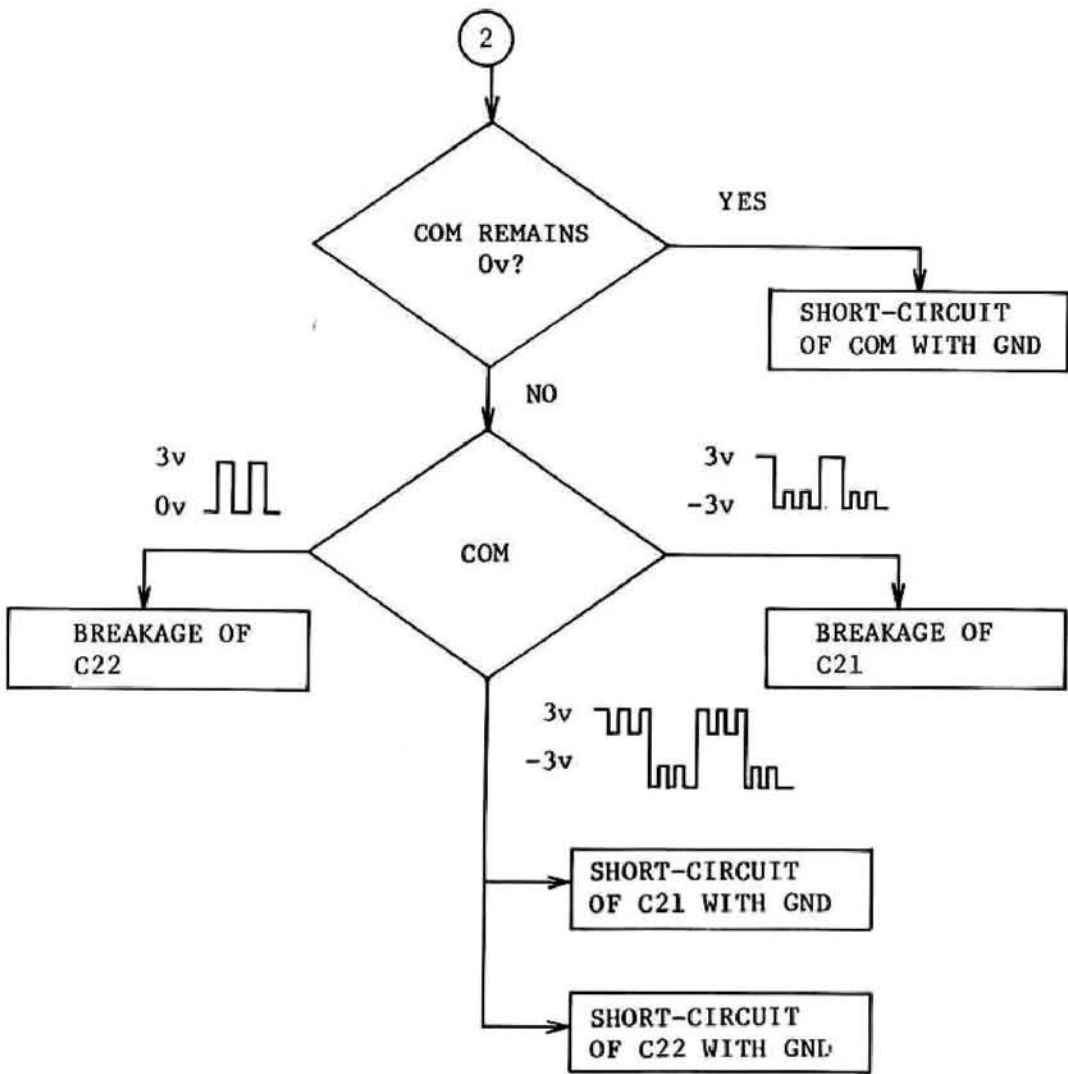
BREAKAGE OF TIMER C

BREAKAGE OF TIMER C RESISTOR

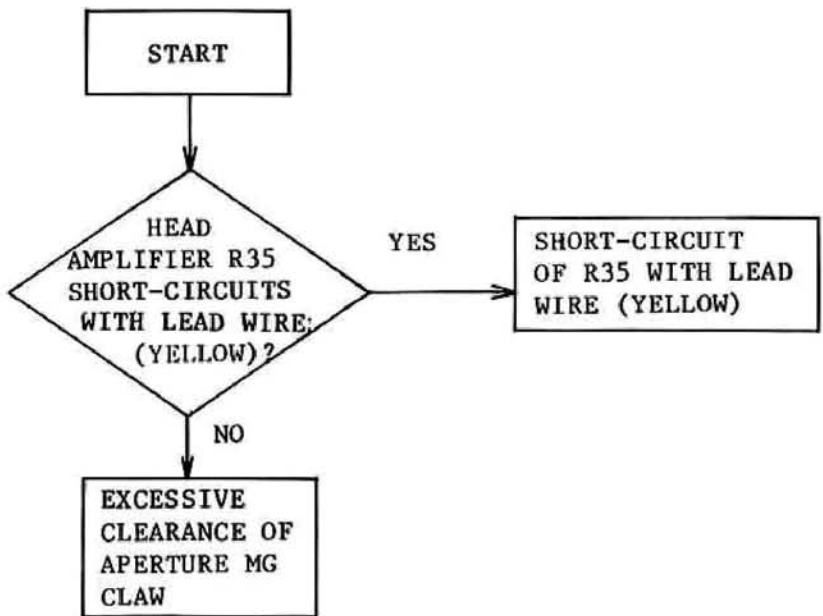
5 LCD READOUT FAILS TO OPERATE







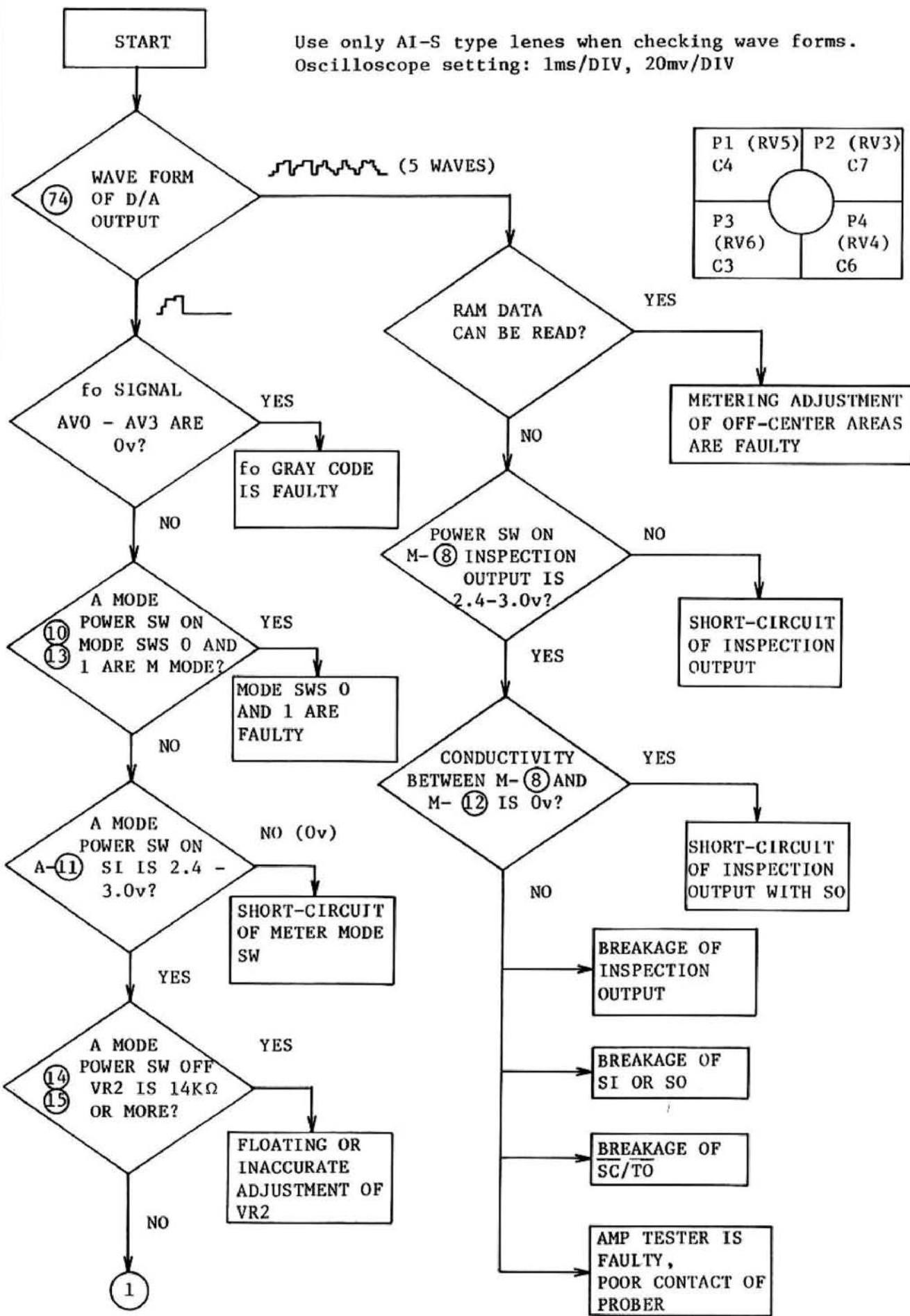
6 APERTURE CONTROL ON P AND S MODES ARE INACCURATE

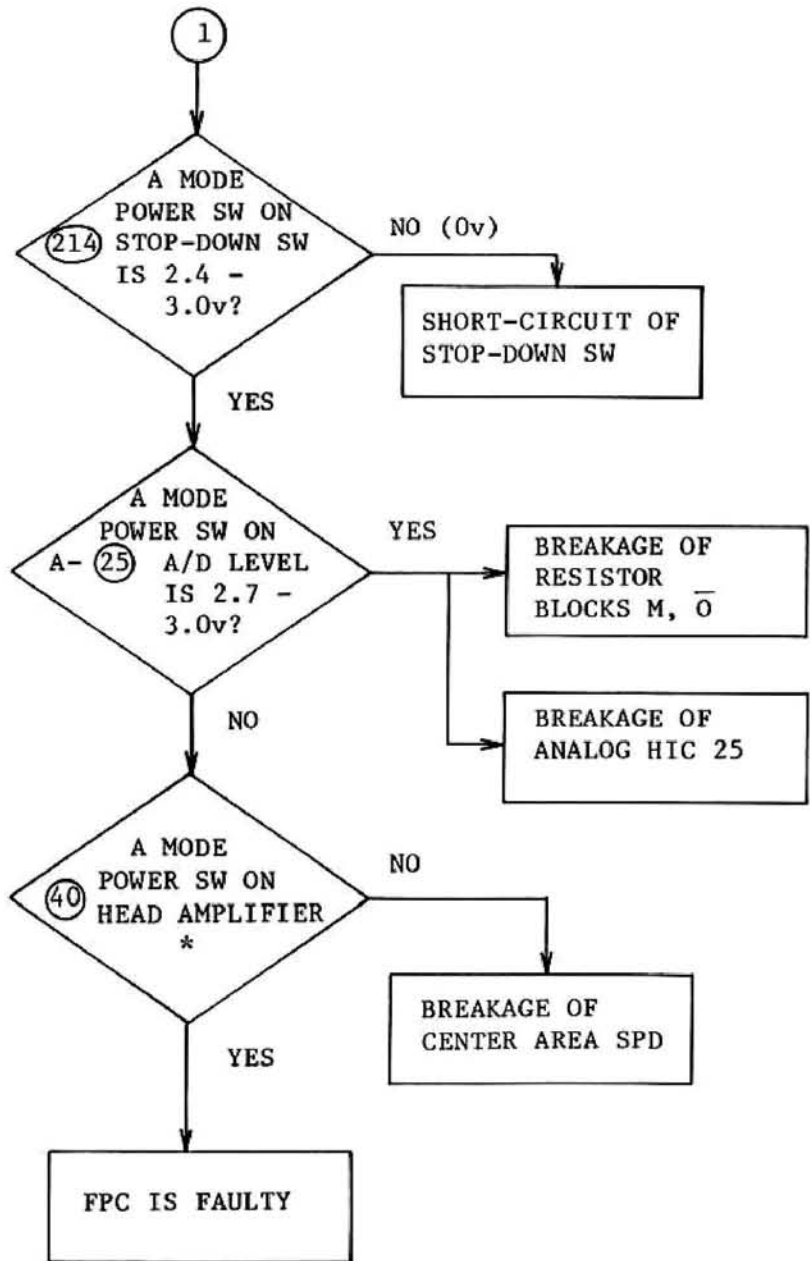


7 INCORRECT ADJUSTMENT OF SHUTTER SPEEDS DELIVERY

7-1 Incorrect adjustment of AMP metering

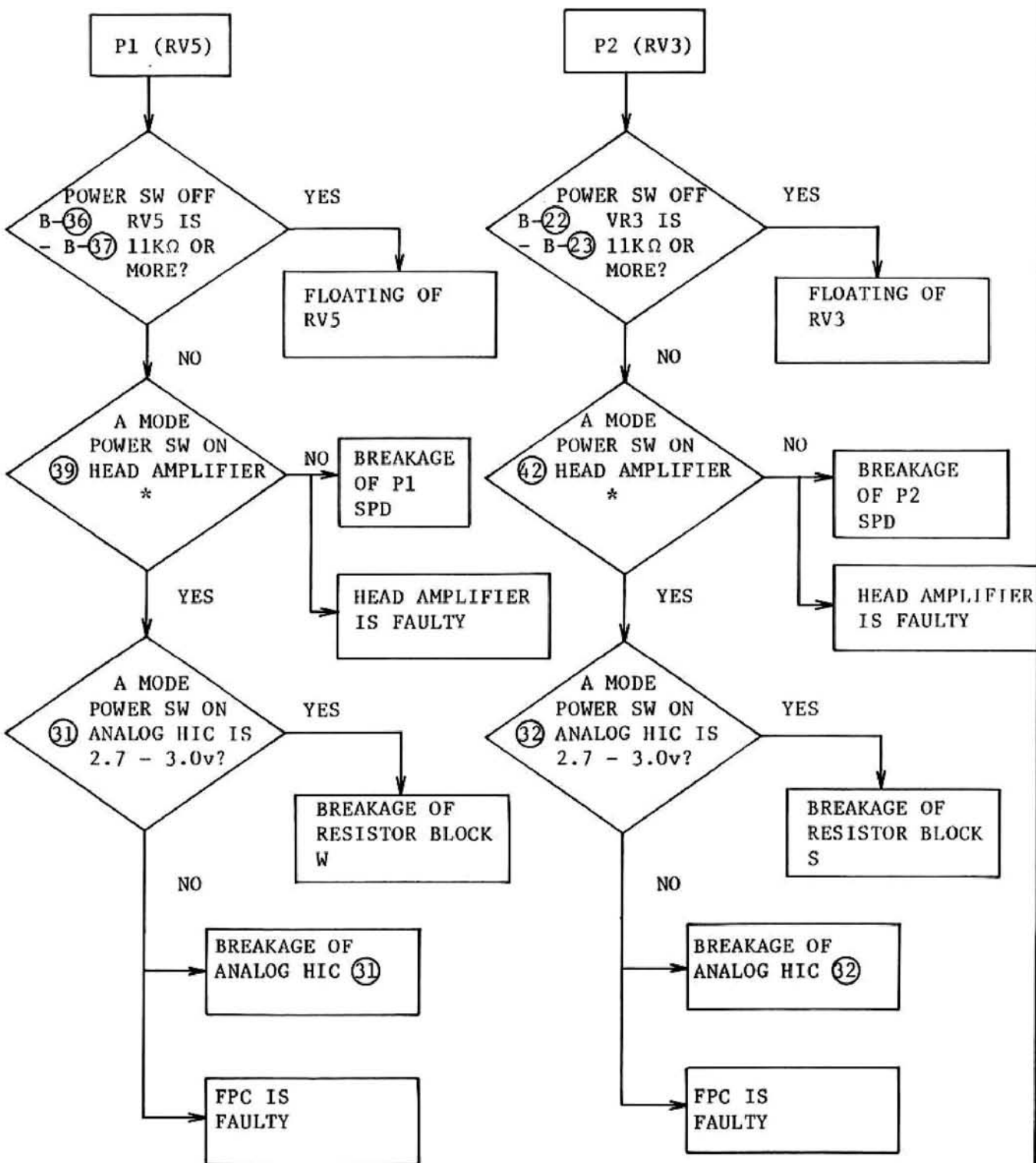
Use only AI-S type lenses when checking wave forms.
Oscilloscope setting: 1ms/DIV, 20mv/DIV



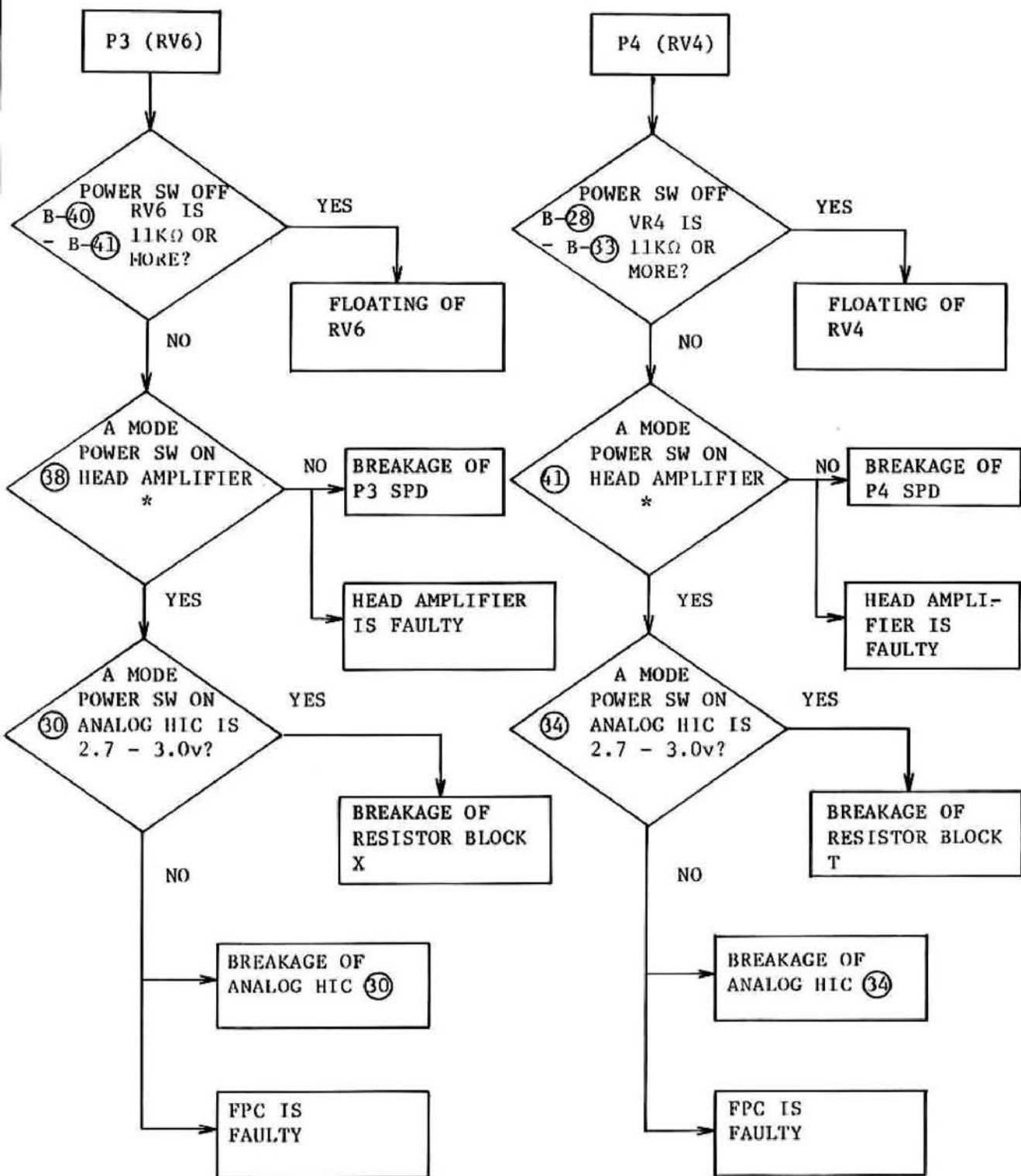


*: The wave form varies depending on the light amount?

7-2 Incorrect adjustment of off-center ares variable resistors



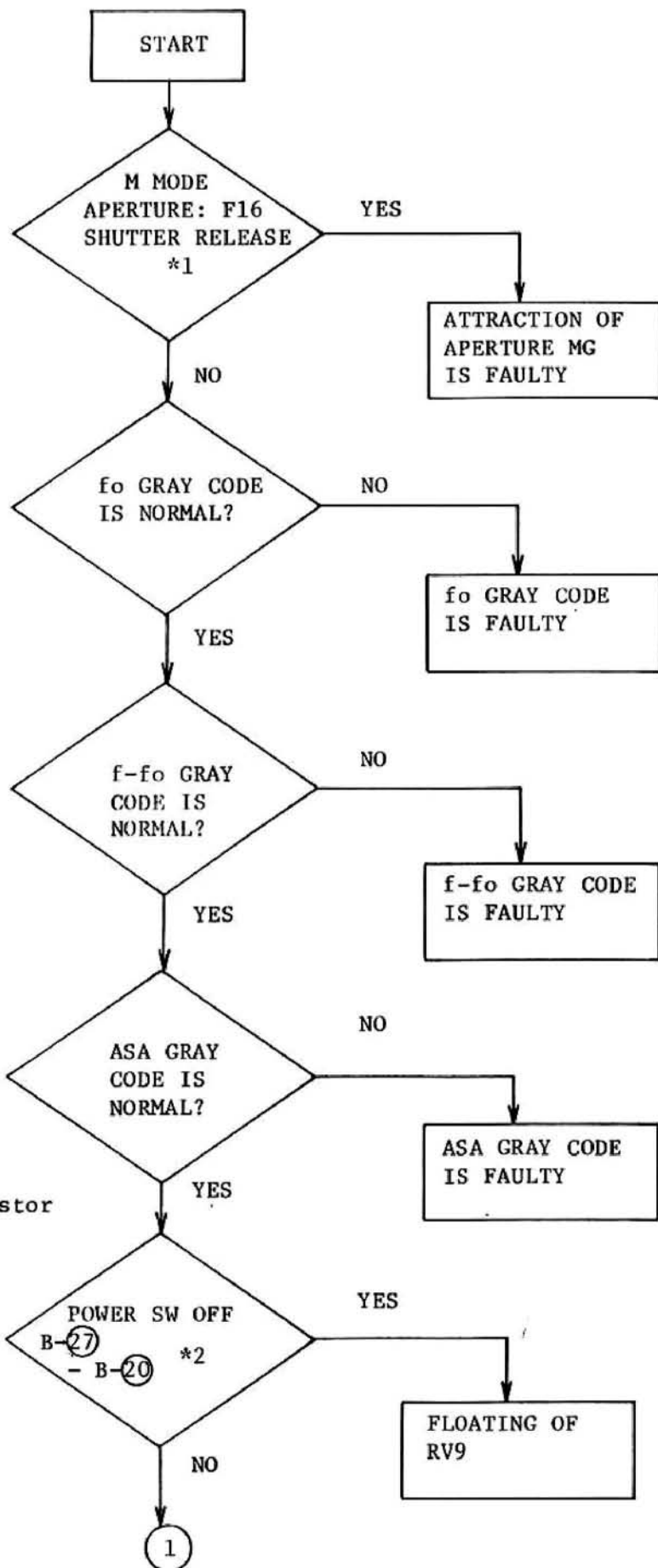
*: The voltage varies depending on the light amount?



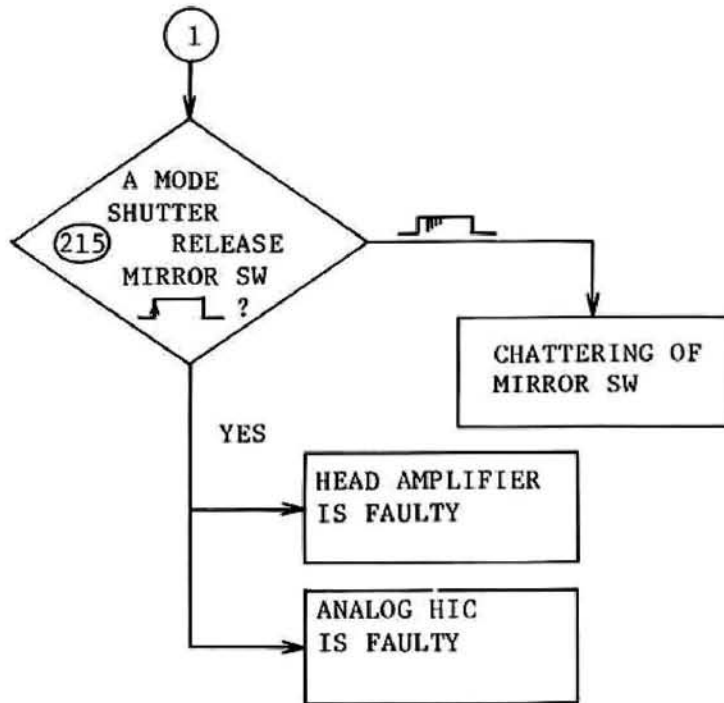
*: The voltage varies depending on the light amount?

7-3 Incorrect adjustment of automatic exposure

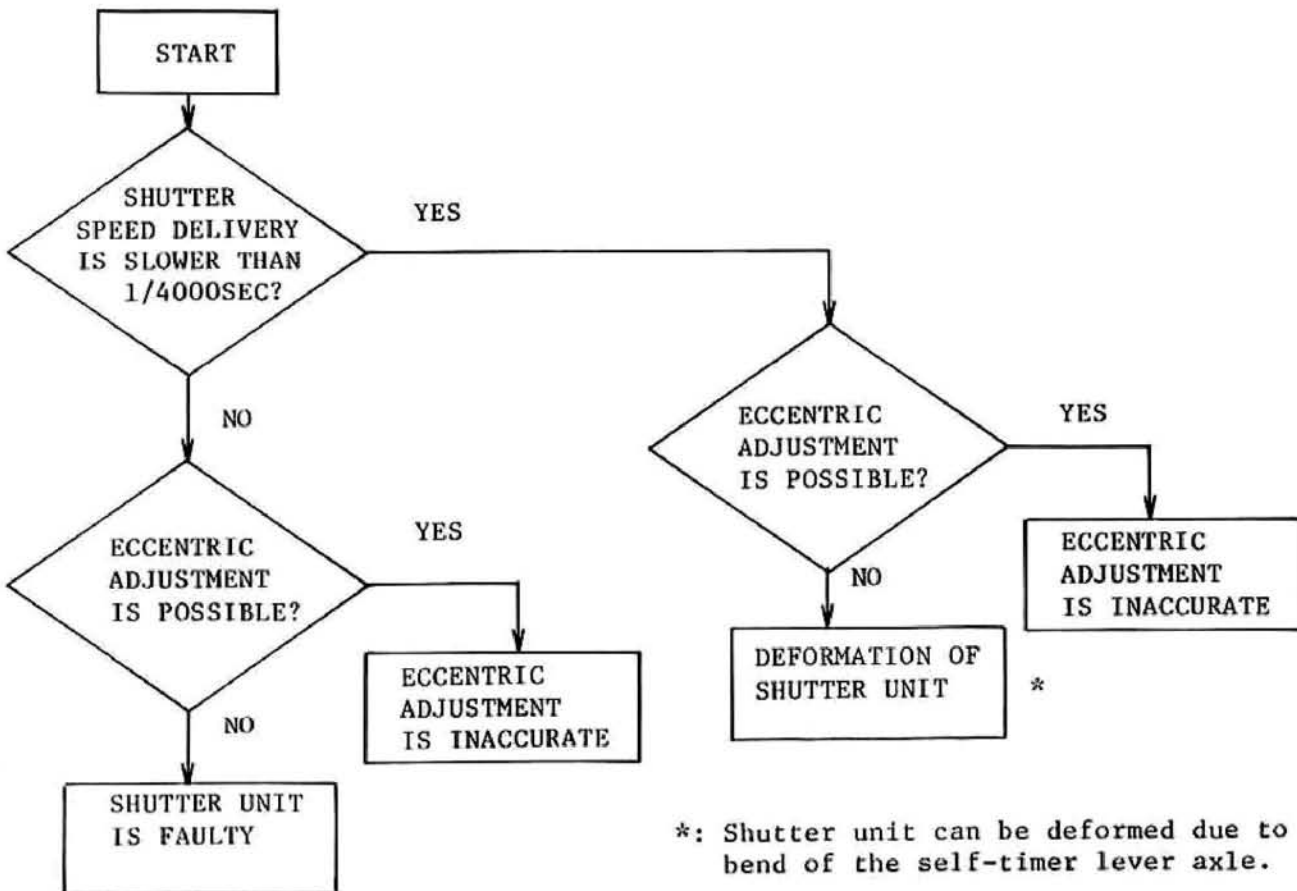
*1: Aperture becomes maximum aperture?



*2: A mode level resistor is 16KΩ or less?



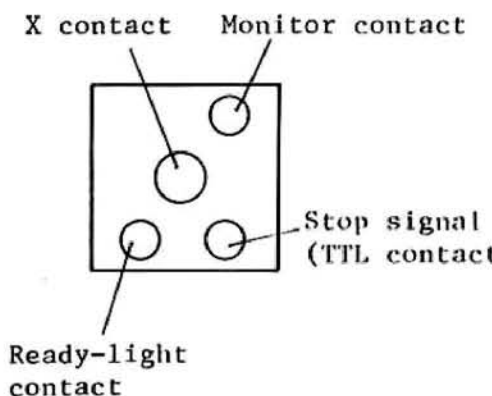
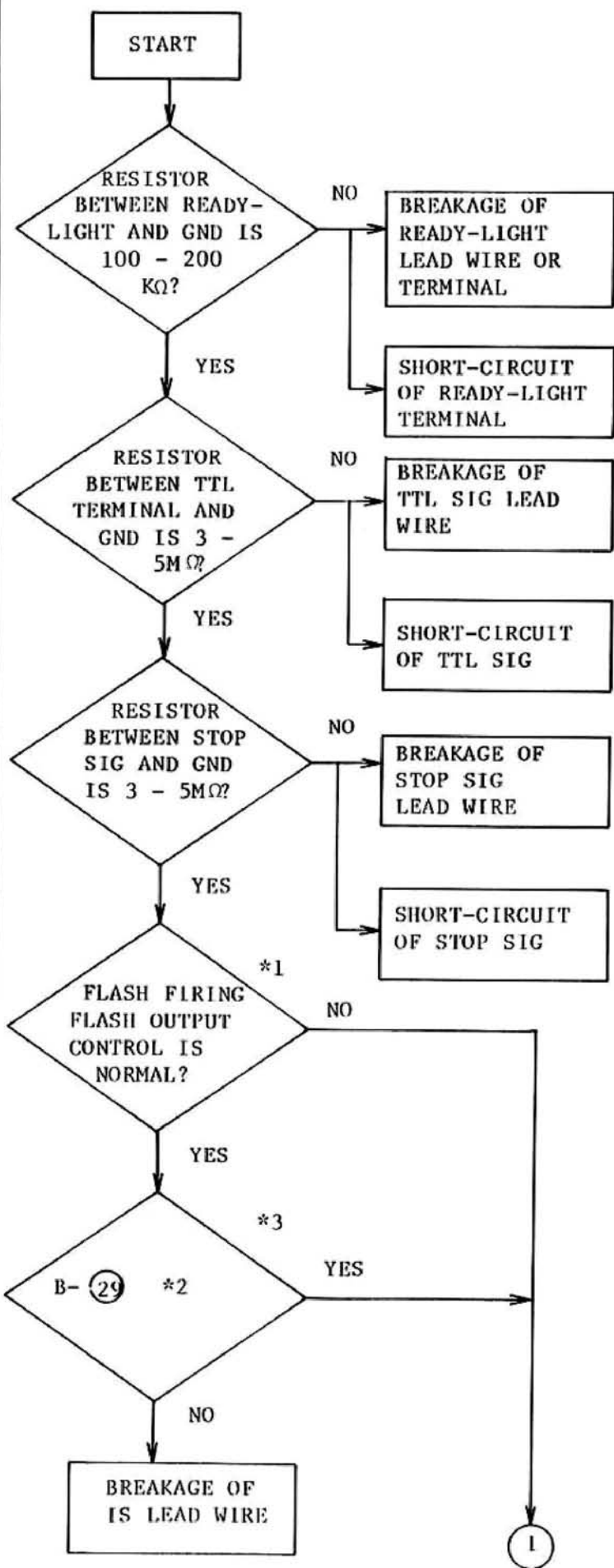
7-4 Shutter speed M1/4000 is inaccurate



*: Shutter unit can be deformed due to bend of the self-timer lever axle.

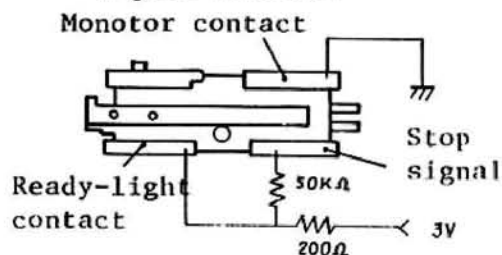
Shutter speed should be checked after eccentric adjustment.

8 TTL FLASH OUTPUT CONTROL IS INACCURATE



Setting for TTL flash output control

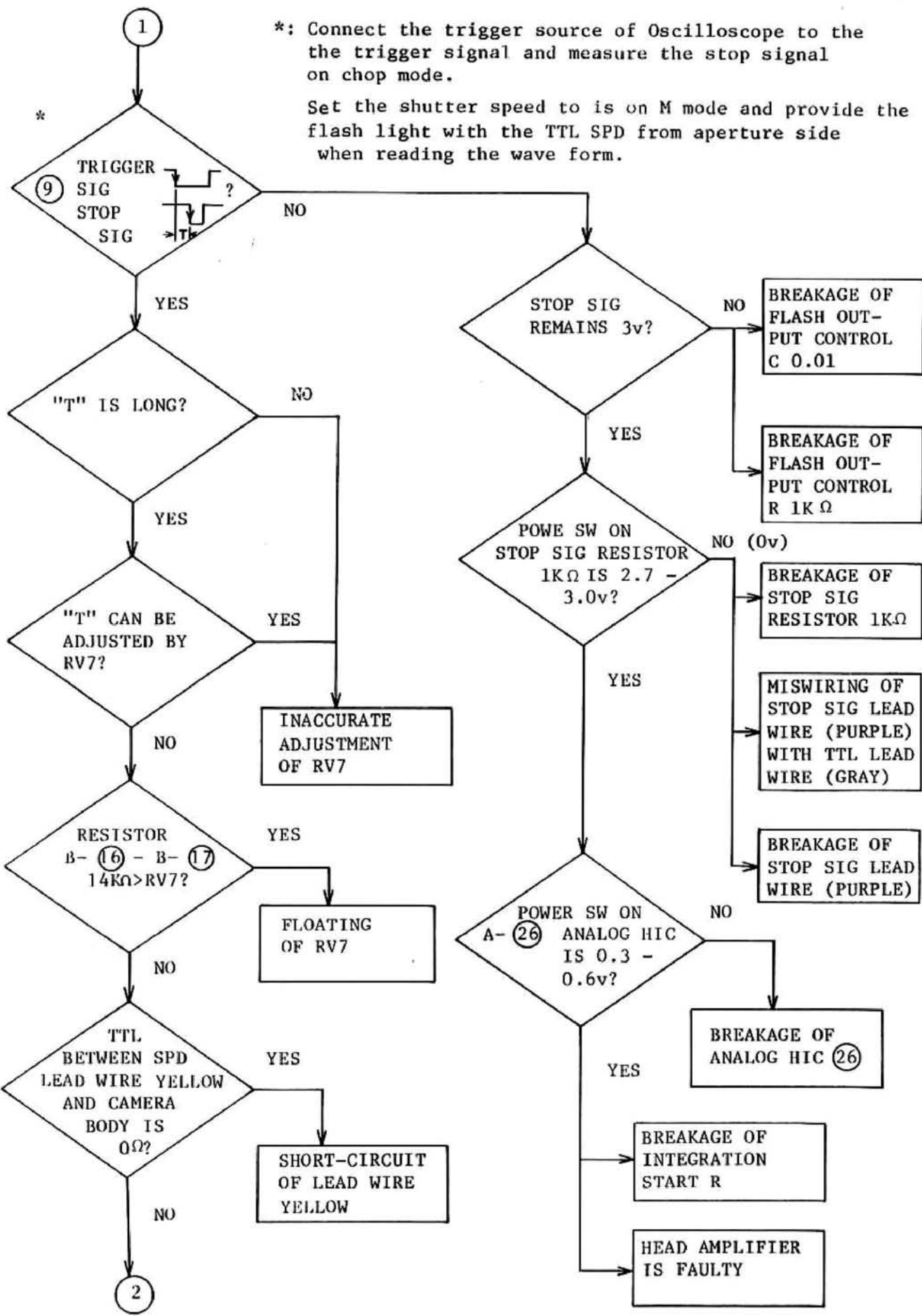
- 1) Provide current flow with the stop signal contact.
- 2) Connect the monitor contact with GND
- 3) Connect the prober of Oscilloscope to the stop signal contact.

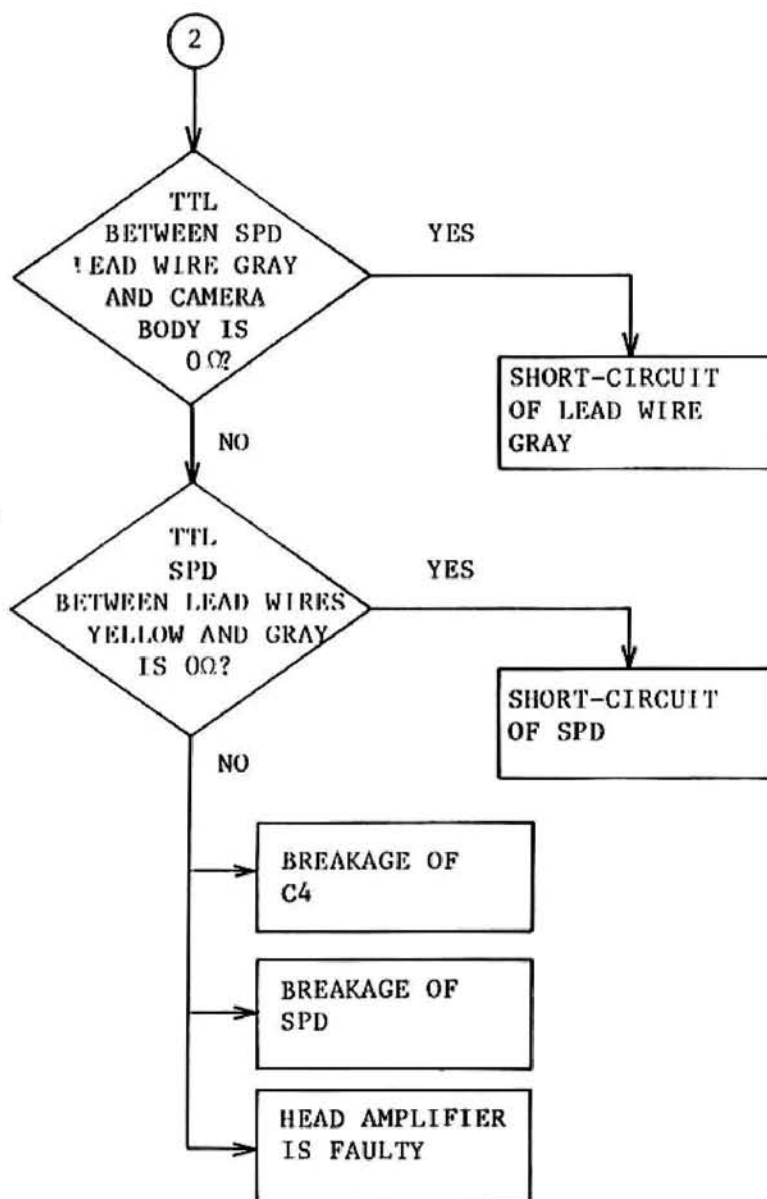


- *1: Use the SB-15 or 16 when checking the flash firing.
- *2: Conductivity between integration start and IS terminal is 0Ω
- *3: IS terminal is located inside the battery chamber.

*: Connect the trigger source of Oscilloscope to the the trigger signal and measure the stop signal on chop mode.

Set the shutter speed to is on M mode and provide the flash light with the TTL SPD from aperture side when reading the wave form.

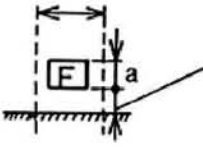
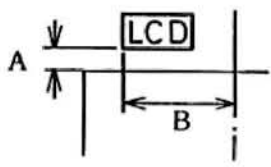
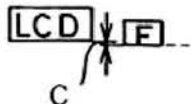
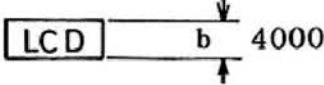


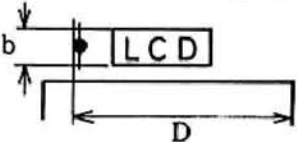
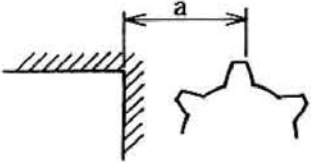



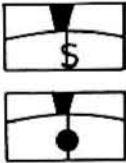
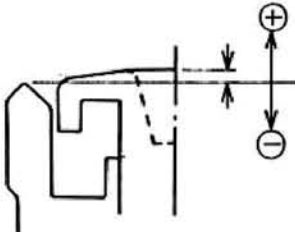
INSPECTION STANDARDS FOR REPAIR & TOOLS

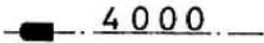
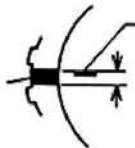

Contents	Page
[1] INSPECTION STANDARDS FOR REPAIR	R1
[2] TOOLS	R10

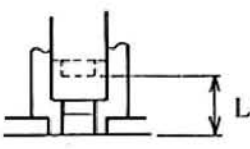
INSPECTION STANDARDS FOR REPAIR

Item	Standard	Tool
Diopter	-1 ± 0.5 dpt. inside split-image $-1 \begin{matrix} + 0.5 \\ - 1 \end{matrix}$ dpt. outside split-image	
Infinity focus	$\pm 20''$	
Focus difference between split-image and micro prism	To be no difference	
Infinity focus difference between before and after film-advance	To be no difference	J18006
Image inclination	1° or less	J18010
Parallax error	0.5mm or less vertically/horizontally	J9008
View field frame inclination	30' or less	
Viewfinder coverage	$93 \pm 2\%$	
ADR window position	To be within $\phi 5$ of focusing screen  Clearance A between viewfield frame and ADR window $A: 0.3a - 1a$ a : the height of ADR window Inclination: 2° or less	
LCD window position	 $A = 0.3a - 1a$ $B = 12.5\text{mm}$ or less Inclination: 2° or less	
Difference of position between ADR window and LCD window	 $C = \pm 0.2a$	
Shutter speed window	 b 4000 To be within the height of LCD panel (b) Inclination: 2° or less	

	Item	Standard	Tool
VIEWFINDER	Ready-light LED position	 <p style="text-align: right;">$D = 14.6\text{mm}$ or less</p> <p>To be within the height of LCD panel (b)</p>	
LENS MOUNT	Lens release button	Height: 0.7 - 1.2mm Tension: 1.5kg or less	
	EE lens pin	Tension: 60 - 120g Height: $1 \begin{matrix} + 0.3 \\ - 0.1 \end{matrix}$ mm	Slide caliper
	Aperture coupling ring rotation angle	$Q1 = 52.5 \begin{matrix} + 0^\circ \\ - 1 \end{matrix}$ $Q2 = 113.5^\circ$ or more	J18063
	Aperture lever height	After mirror charge: $3.1 \begin{matrix} + 0.1 \\ - 0 \end{matrix}$ mm Before mirror charge: 3.6 - 3.8mm Balance between before/after film-advancing: 0.3mm or more Full stroke: 7.1mm or more Tension: 90 - 120g	J18004
FILM-ADVANCE MECHANISM	Film-advance lever angle	Full: 165° Stand-off: 30° Winding: 135°	
	Film-advance lever torque	Film unloaded: 2.4kg-cm or less Film loaded: 3.5kg-cm or less	
	Vertical play of film-advance lever	1mm or less at the end of film-advance lever	
	Spool	Torque: 90 - 140g-cm Slipping load: 144 - 224g	J5019
	Sprocket	 <p style="text-align: right;">$a: 32.4 \pm 0.4\text{mm}$</p>	J18064-1
Play of sprocket teeth	0.8mm or less		

	Item	Standard	Tool
FILM-ADVANCE MECHANISM	Rewind button	 <p>Distance from bottom cover Original position: 0.2 ± 0.2mm Set position: 2.7mm or less Tension: 150g or less</p>	Slide caliper
FRAME COUNTER	Counter scale alignment	 <p>To be aligned with half or more of one full figure</p>	
	Frame counter sw	<p>To be turned on when counter reaches the position between "1" and the second dot from "S". LCD readout M mode: MC250 A, S, P mode: C250</p>	J18147
SHUTTER BUTTON	Stroke	 <p>Meter sw-ON: 0.3 - 0 mm Release: -0.2 - -0.5 mm Mechanical release: -1.2 - -1.5 mm</p>	Slide caliper
	Tension	<p>a) Meter sw-ON: 200g b) Release: 200 - 300g c) Difference between a) and b): 50g or more d) Mechanical release: 250 - 400g</p>	J5019
SELF-TIMER	Delay action time	8 - 14 sec.	
SHUTTER DIAL	Click-out torque	<p>600 ± 200 g-cm (800 ± 200 g-cm at the setting of 250 sec.)</p>	

	Item	Standard	Tool
SHUTTER DIAL	Shutter dial scale alignment	To be aligned with center of index mark 	
	Mechanical release lock	Shutter release is to be available by pressing the mechanical release lock button and setting the shutter speed dial to M250.	
MODE SELECTOR	Click-out torque	40 + 200 - 100 g-cm	
	Index alignment	To be without outstanding misalignment	
ASA/EXPOSURE COMPENSATION	ASA dial scale alignment	 To be aligned with ASA dial index	
	Exposure compensation setting range	ASA 12: +1 - -2 ASA 4000: +2 - -1 ASA 25 - 2000: ± 2	
	Exposure compensation dial scale alignment	 To be aligned scale dot with exposure compensation index	
	Exposure compensation dial lock button	Release stroke: 0.2mm or more Tension: 200 - 500g	
EYEPIECE SHUTTER	Eyepiece shutter lever	Tension: 100 - 300g To be clicked	
CAMERA BACK	Rewind know lift	Tension: Approx. 1kg	
	Camera back hinge vertical play	2mm or less	
	Pressure plate	Pressure: 350 - 500g Flatness: 0.02mm or less	
FILM RAILS	Flange focal distance	46.67 \pm 0.02mm Parallellness: 0.02mm or less Balance of height between internal and external film rails: 0.23 \pm 0.02mm Balance of height between internal film rails and aperture plate: 0.2mm or more	J18001-1 J19004

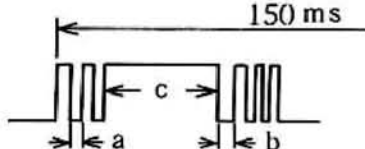
Item	Standard			Tool
MD coupling rotation	Start: +2° - -1° Wound: +132° - +138°			
MD coupling torque	Film unloaded: 2.4 kg-cm or less Film loaded: 3.5 kg-cm or less			
MD release shaft stroke	 <p data-bbox="369 525 873 672">Original position: $0.7 \begin{matrix} + 0.2 \\ - 0.3 \end{matrix}$ mm Release: 1.2 - 2.5mm Full: 3.5 ± 0.2 mm</p>			Slide caliper
MD sw	To be ON at the retracted position of film-advance lever To be OFF at the stand-off position of film-advance lever			
SHUTTER SPEEDS ACCURACY ON M MODE	Exposure time on manual mode	Shutter speed	Standard	Tolerance (ms)
		M250	3.906	± 0.45 EV 2.86 - 5.34
		4000	0.244	0.179 - 0.334
		2000	0.488	0.357 - 0.667
		1000	0.977	0.715 - 1.334
		500	1.953	1.430 - 2.67
		250	3.906	$+ 0.45$ $- 0.06$ EV 2.86 - 5.34
		125	7.81	6.35 - 9.62
		60	15.63	12.69 - 19.24
		30	31.25	25.4 - 38.5
		15	62.5	50.8 - 76.9
		8	125	101.5 - 153.9
		4	250	203 - 308
		2	500	406 - 616
	1	1000	812 - 1231	
Exposure unevenness	1/4000 - 1/2000: 0.5EV or less 1/1000 - 1/250: 0.25EV or less 1/125 - 1: 0.2EV or less			J19040 (50/F1.4)
Variation	1/4000, 1/2000: 0.45EV			

Item	Standard	Tool
Shutter speeds accuracy on A, S and P modes	1/4000: $\pm 0.75EV$ 1/2000, 1/1000: $\pm 0.65EV$ 1/5000 - 1: (A mode) F1.4 - F5.6: $\pm 0.6EV$ $F8 - F16: \begin{matrix} + 0.6 \\ - 1.0 \end{matrix} EV$ (S and P modes) F2.2 - F11: $\pm 0.45EV$ F1.4 - F2: $\pm 0.7 EV$	J19040 50/1.4 (AI-S)
Variation	1/4000, 1/2000: $\pm 0.45EV$ or less	
Auto limiter	To be 1/4000 or less	
Exposure amount of film plane	1/4000: $\pm 0.75EV$ 1/2000, 1/1000: $\pm 0.65EV$ 1/500 - 1/8: $\pm 0.6EV$ 1/4 - 1: 1) F1.4 - F5.6: $\pm 0.6EV$ $2) F8 - F16: \begin{matrix} + 0.6 \\ - 1.0 \end{matrix} EV$ Difference between normal and self-timer release: $\pm 0.5EV$ or less Difference between full aperture and stop-down meterings: $\pm 0.3EV$ or less	
Aperture control accuracy	Tolerance: $\pm 0.3AV$ or less (LV12, ASA100) $(F5.6, 1/250 sec.)$ $\pm 1.0AV$ or less (other conditions)	

SHUTTER SPEEDS ACCURACY ON A, S AND P MODES

Exposure time										
	EV	ASA	F No.	Shutter speed	Standard	Tolerance		F No.	Tolerance	
A	15	100	2.8	(4000)	0244	0.145~0.41	± 0.75			± 0.75
	"	"	4	(2000)	0488	0.311~0.766	± 0.65			± 0.65
	"	"	5.6	(1000)	0977	0.623~1.533				
	"	"	"	(125)	781	5.15 ~11.84	± 0.6			± 0.6
	"	"	8	(60)	156	10.29~23.65				
	"	"	11	(4)	250	1.65 ~3.79				
S	6	"	8	(1)	1000	6.60 ~15.16				
	"	"	(")	"	"	6.60 ~15.16		8	5.66~11.31	± 1
	12	"	(11)	30	313	2.29 ~4.28	± 0.45	11.31	8 ~16	
	"	"	(5.6)	125	781	5.72 ~10.67		5.66	5.10~ 6.28	± 0.3
	15	"	(")	1000	0.977	0.623~1.533	± 0.65	"	4 ~ 8	± 1
P	"	"	(2.8)	4000	0.244	0.145~0.41	± 0.75	2.83	2 ~ 4	± 0.75
	9	"	3.36	(453)	22.1	16.18~30.19	± 0.45	3.36	2.38~ 4.75	± 1
	12	"	5.6	(125)	781	5.72 ~10.67		5.66	5.10~ 6.28	± 0.3
15	"	9.51	(362)	2.76	2.02 ~3.77	9.51		6.72~13.45	± 1	

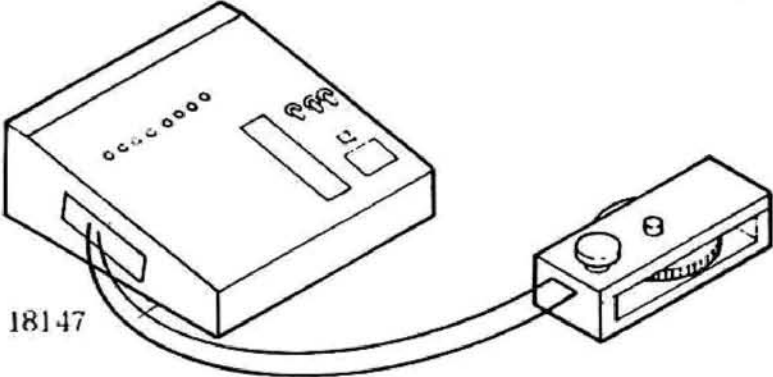
	Item	Standard			Tool	
METERING/LCD READOUT	Metering accuracy	M mode: $\pm 1/3EV$ or less A, S and P modes: $\pm 1/2$ or less			J19040 50/1.4 (AI-S)	
	Out-of-metering range warning on A, S, P mode	Too bright: "HI" (LV15, ASA100, F2) Too dark: "LO" (LV6, ASA100, F11)				
	Out-of-metering range warning on S mode	1) $(F-F0) + F0 >$ middle aperture opening between F16 and F11 Matching aperture unavailable: Shutter speed override Too bright: "HI" Too dark: "LO" 2) $(F-F0) + F0 \leq$ middle aperture opening between F16 and F11 Matching aperture unavailable: Shutter speed override Too bright: "FEE" Too dark: "LO"				
	Warning for minimum aperture setting on P mode	Aperture selected		LCD readout		
		F11 or larger		FEE		
		F16		Selected shutter speed		
	Stop-down metering	Mode	LCD readout			Conditions
		S	15			LV12 ASA100
		P	15			F16 1/125 sec.
		A M	125 $\bar{+}$ M 125			LV12 ASA100 F5.6 1/125 sec.
METERING SW	Meter hold	$16 \pm 1sec.$				
	Power cancel	LCD readout turns off by setting the shutter dial to M250.				

	Item	Standard			Tool	
SYNCHRONIZATION	Time-lag	0.118 - 0.361 ms			J19028-1 J15166 J9006	
	Contact efficiency	Gate time	1 ms	2.5 ms		
		Contact efficiency	60% or more	70% or more		
		Shutter speed on M mode	1/250	1/30		
Insulation resistance	30 MΩ or more					
BATTERY CHECK	Battery check voltage	2.50V: Meter 16 sec. - hold available 2.40V: Meter-ON available during shutter button depressed 2.30V: Shutter release prohibited			J9001-5	
TTL FLASH OUTPUT CONTROL	Ready-light	To be turned on when fully charged			SB-15 J18142 J15225 J15164	
	ASA setting error warning	ASA16 - 640: Ready-light glows ASA12 and ASA800 or more: Ready-light blinks				
	LCD readout shutter speed delivery	Mode/set speed	4000 - 500	250 - 1		A, S, P
		Shutter speed delivery	1/250	as set		1/250
LCD readout		M250	as set	250		
TTL flash output control	0.09 ms + 0.013 - 0.012 (LV15, ASA100, F1.4)			J9001-5 J15196		
DATA BACK CONTACT	Sync time	 <p>a: 2 ms or less (ON-chattering) b: 10 ms or less (OFF-chattering) c: 20 ms or more (Contact) Not to repeat contact within 150 ms.</p>			J90031	


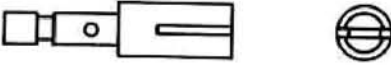
	Item	Standard	Tool
PICTURE FRAME	Frame size	$24 \begin{matrix} + 0.4 \\ 0 \end{matrix} \text{ mm} \times 36 \begin{matrix} + 0.4 \\ 0 \end{matrix} \text{ mm}$	
	Space between two adjacent frames	$2 \pm 1 \text{ mm}$	
	Variation of vertical positions of frames	0.4 mm or less	

TOOLS

Test equipment

Tool No.	Title	Remarks	Usable other tool
J19040	Shutter tester SF-4DNS	For 35mm focal-plane shutter camera with automatic mode	J19036
J18147	AMP tester	 <p>J 18147</p>	

Tool list

Tool No.	Name	Illustration	Class
J11184	Screw driver (Stop-down lever screw #289)		A
J11186	Screw driver (Grip guide screw #189)		A

潤滑油・接着剤一覧表 LUBRICANT AND BINDING AGENT LIST

潤滑油 LUBRICANTS

油 Oil	用途 Usage	番号 Items number	商品名 Items				
			日 本 Japanese	資材コード Material Cord No.	備 考 Remarks		
液体油 Liquid oil	常温用 At a normal temperature	L 1233	57Tオイル No.33	(シェル石油)	E 216		
		L 1309	モービ・ループ HD 80/90	(モービル石油)	E 223		
		L 1314	モービ・ループ HD 140	(")	E 224		
	低温用 At a low temperature	L 2010	アストロ・オイル	(ウィリアム・F・ナイ)	E 269		
		L 2113	D・O・Sセバケット	(三建化工)	E 274		
		L 2115	エクリプス・バイオニア エクリプス・バイオニア #10	(ジャイロ油)		廃止 代用 G7100 G8181	
		L 3016	スクワレル LA-10	(理研製油)	E 261		
		L 3025	" M-1	(")	E 262		
		L 3034	" M-2	(")	E 263		
		L 3044	" M-5	(")	E 264		
		L 3047	" H-1	(")	E 265		
		L 4010	ロジモール・オイル P-2	(ロジモール)	E 2831		
		L 4015	" P-2/M0	(")	E 2832		
	グリース Grease oil	常温用 At a normal temperature	G 6053	パーマループ H1003	(日本鉱油)	E 275	
			G 6252	ダフニー・コロネックス No.2	(出光興産)	E 226	16kg入
			G 6433	光学用グリース X-2	(杉浦研究所)	E 2837	
			G 6434	" X-3	(")	E 2838	G 6414の代用
			G 7821	リマックスグリース No.2	(丸善石油)	E 225	
			G 7910	LOSOID 1150 E/35019	(ロジモール)	E 2834	
G 7920			" 1160 B	(")	E 2835		
G 7930			モービラックスグリース No.2	(モービル)	E 2852		
G 7950			No. 502	(和光光学研究所)	E 2839	G 5201の代用	
G 7951			機軸用油	(")	E 2840	G 5204の代用	
G 7952		モリトン CK	(住鉱潤滑剤)	E 2841	G 5214の代用		
低温用 At a low temperature		G 7100	スクワグリース L-2	(理研製油)	E 266		
		G 7811	フォトループ 024	(日本鉱油)	E 272		
		G 7813	フォートループ 025	(NK仕様)	E 280		
		G 7814	マルテンブ PS No.1	(協同油脂)	E 276		
		G 7815	" PS No.2	(")	E 2844		
		G 7816	ホワイトグリース A	(トーオーポリマー)	E 2842	(FL-LUBE-A)	
		G 7825	イソフレックススーパーテル3000	(クルーバー社)	E 2843		
		G 7833	シリコン・グリース SH33(F)	(トーレ・シリコン)	E 2845		
		G 7848	ユニテンブ・グリース EP	(日本石油)	E 2846		
	G 7854	パーマループ C-1	(")	E 2847			
G 7855	" C-2	(")	E 2848				
G 7856	" C-3	(")	E 2849				
G 7857	" C-3-3	(")	E 2850				

潤滑油 LUBRICANTS

油 Oil	用途 Usage	番号 Items number	商品名 Items		
			日本 Japanese	資材コード Material Cord No.	備考 Remarks
グリース Grease oil	低温用 At a low temperature	G 7866	フォトループ 0 2 3 (日本 鉱油)	E 271	
		G 7870	モービル・グリース 2 8 (モービル石油)	E 2851	
		G 8181	メーカ調合 (N K 仕様)	E 281	
		G 8613	リキモリ・パウダー LM-13 (ロックレー)	E 2853	
		G 8800	I J-10 A NK仕様 (日本 鉱油)	E 282	
		G 7862	パーマーループ F-2		廃止

接着剤 BINDING AGENTS

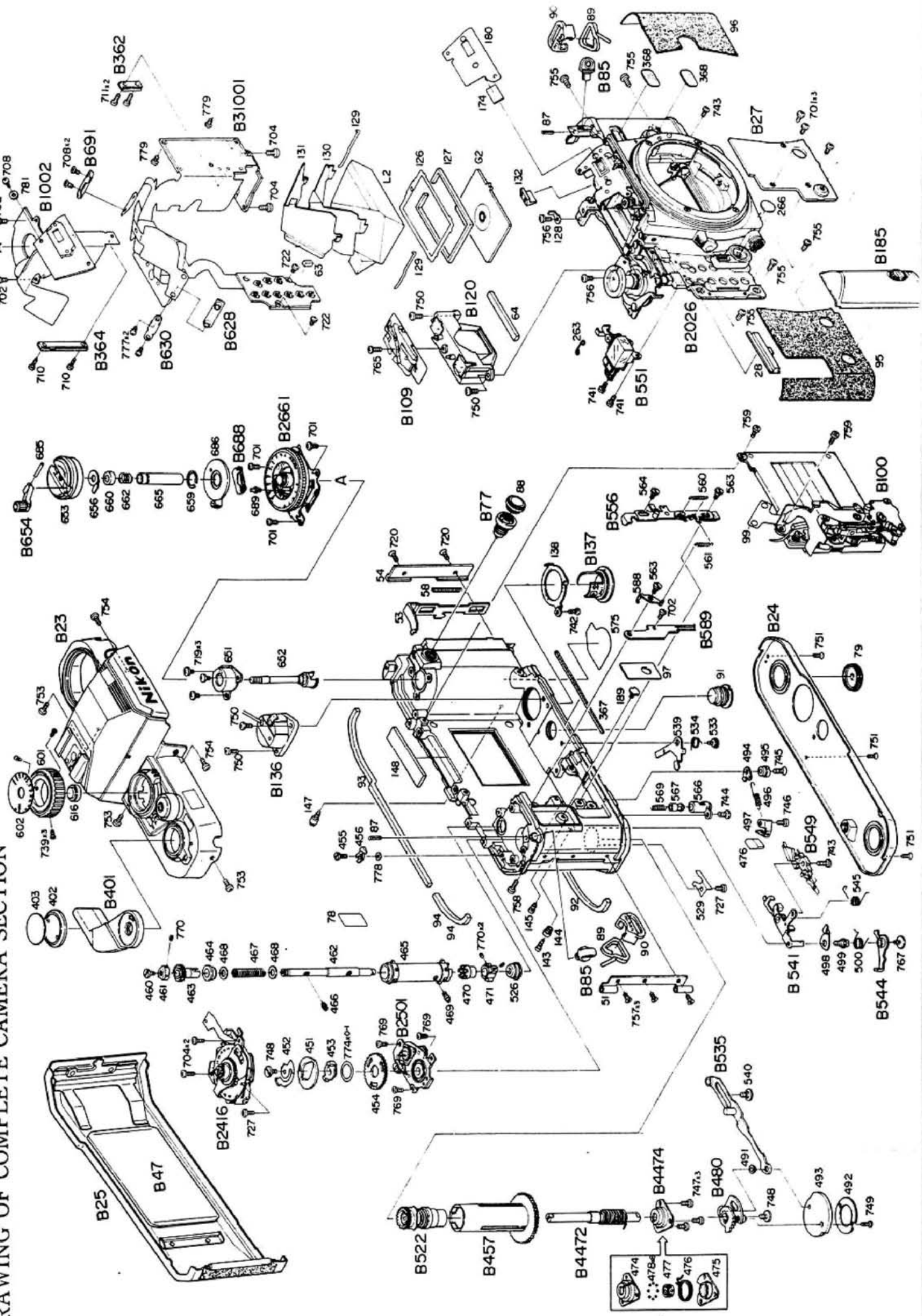
用途 Usage	番号 Items number	商品名 Items		
		日本 Japanese	資材コード Material Cord No.	備考 Remarks
皮類, ゴム類 For leather or rubber goods.	# 501	プライオボンド #30	E 154	
	# 519	セメダインハイコンタクト	E 174	
	# 520	ソニーボンド S C 306	E 183	
一般金属相互 ガラスと金属 For make metal goods together with metal goods or glass with metal	# 420	ハードロック E 510	E 187	1 : 1
	# 616	セメダインスーパー 7ml 入	E 153	} 同じ物
		セメダイン #1500 家庭用 40ml 入	E 171	
	# 621	主剤-セメダイン #1565 500 g 入	E 175	1 : 1~1.5
		硬化剤-ポリサルファイト 500 g 入	E 176	
	# 622	主剤-セメダイン #1565 500 g 入	E 175	100 : 10~20
		硬化剤-D液 (ポリアミン) 500 g 入	E 178	
	# 631	アラルダイト A T 1	E 180	
	# 645	主 剤-D M K 5	E 160	100 : 12
		硬化剤-H L 105	E 161	
# 648	セメダイン #1590	E 173	1 : 1	
	ハイスーパー 15 g 入			
# 649	主剤-アラルダイト A W 106	E 181	10 : 8 (体積比) 1 : 1	
	硬化剤-H V 953 U	E 182		
工程上の仮止め For temporary adhesion in the process	# 350	ネジロック (赤・白) 200 g 入	E 157	
	# 410	ロックタイト (B/M黄, ST/L赤, N/L青, SC/L紫) 50cc 入	(黄)E163, (赤)E164, (青)E165, (紫)E166	
	# 921	アロンアルファ # 201	E 155	(20 g 入)
	# 922	" # 202	E 156	(20 g 入)
充填を主とする接着 For replenishment	# 503	ウェザーパンシーラー 3ℓ 入	E 185	
	# 515	K E 45 R T V (黒・白) 100 g 入	E 186	
	# 516	スリーボンド 1104 1kg 入	E 184	
	# 701	セメダイン 1001 500g 入	E 179	
	# 520	ソニーボンド S C 306	E 183	
	# 519	セメダインハイコンタクト	E 147	

PARTS LIST

Contents

[1] Parts Number Reference Table	P1
[2] Parts List	P10
[3] Assembly List	P37

DRAWING OF COMPLETE CAMERA SECTION



修理用部品表訂正通知
REPAIR PARTS CHANGE LIST

対象機種 Product	部品番号		部品表頁	Relevant Page No	部品番号 Part No.	名称 Name	1台分 個数 Pcs. Per Unit	構成部品番号 Constituent Parts	参照 図番 Fig. No.	備考 Remarks	要求単位 A Unit for Order
	Part No.	Details									
FAA16001 (FA)	18060-141-8 (18060-141-7)	廃止 DISUSED	24		18060-141-8 (18060-141-7)	ASA-dial-plate ASA-dial-plate	1		8	RP-9128	1
		追加 ADDED			18001-256-SS	ASAダイヤル基板 ASA-dial-plate	1		8	RP-9128	1
	追加 ADDED		18999-009S	ASAダイヤル ASA dial	1		8	RP-9128	1		
	追加 ADDED		1K060-018	止め輪 ring	1		8	RP-9128	10		

PLEASE REFER TO THE DRAWING AND USE THE INDIVIDUAL REPAIR PARTS.

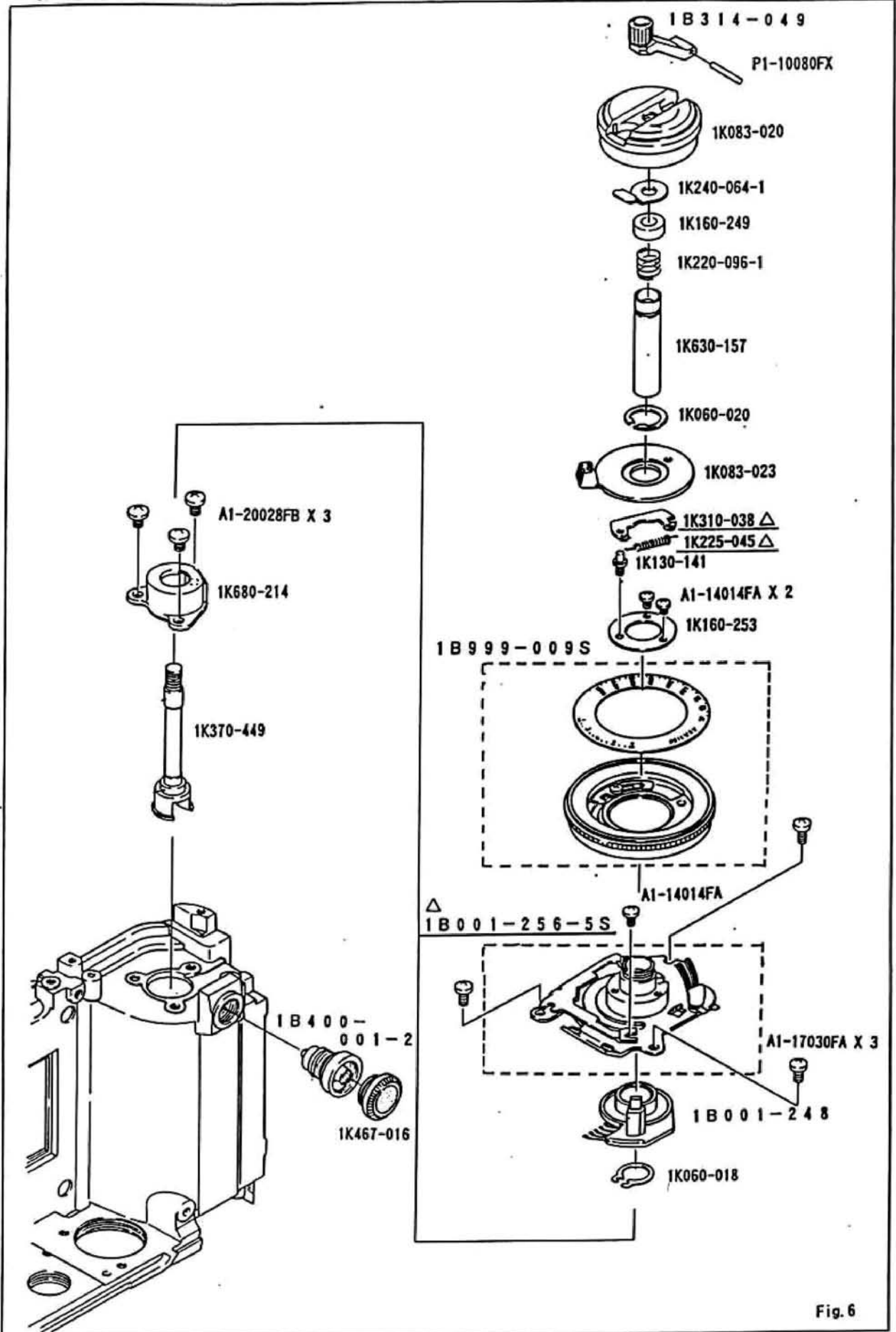
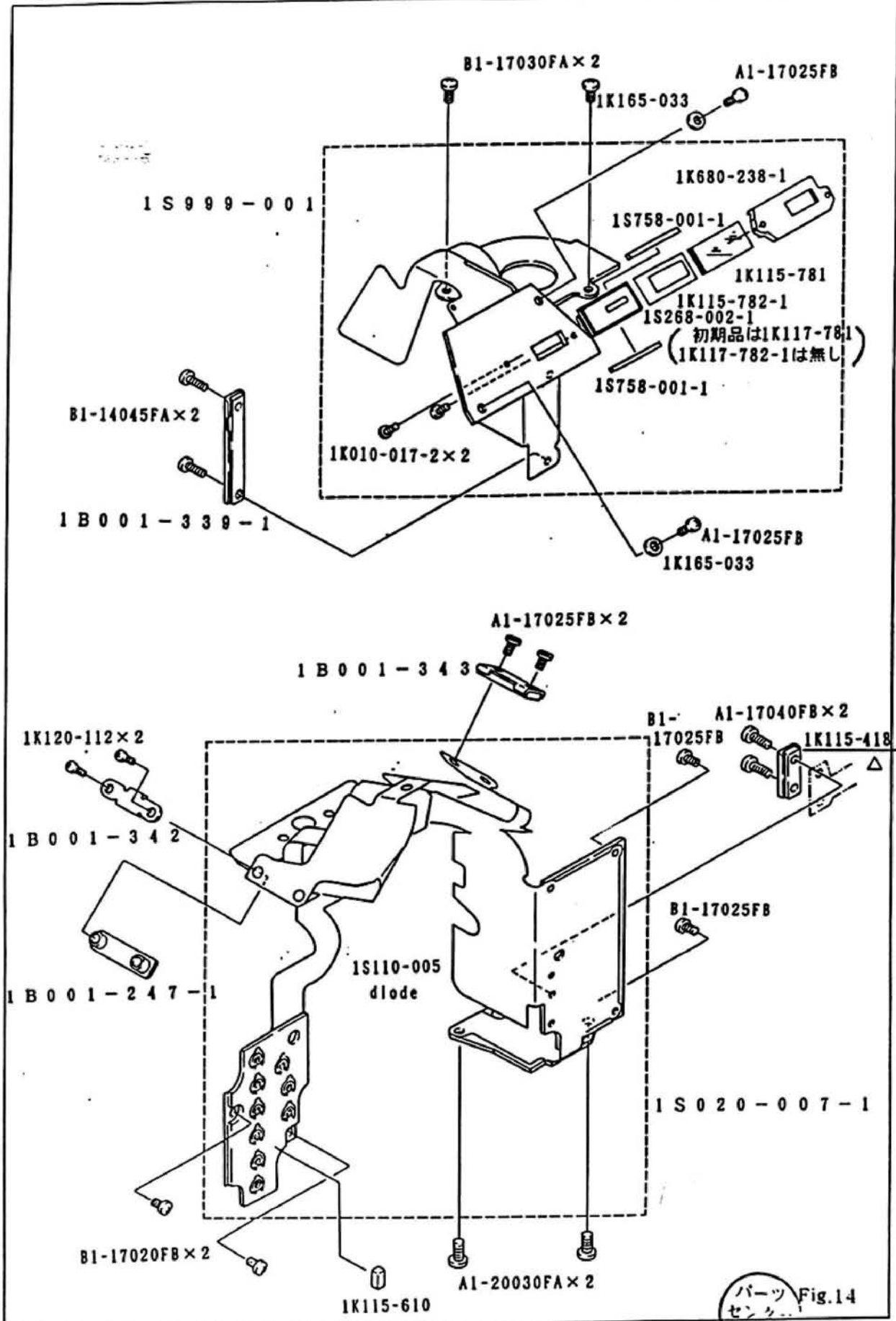


Fig. 6



Change page(差し替え) Δ x 1

パーツ Fig.14
センター
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部品番号 Part No	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
*1K001-005	753	上カバー止ネジ (黒) Screw (black)	3		15	○	Add.	
*1K001-004	757	蝶番止ネジ Screw	3		16	○	FM2	
*1K001-006-1 (1K001-006)	751	底カバー止ネジ (黒) Screw (black)	3		5	○	FM2	
1K001-017	754	上カバー止ネジ (黒) Screw (black)	2		15	○		
*1K010-017-2 (1K010-017)	730	LCD取付ネジ Screw	2		14	○	FM2	
*1K040-001-1 (1K040-001)	584	リリース釘ピン Screw	1	1B670-023-9 1B670-039 1B670-062 1B670-063	15	○△	FM2	
*1K050-022	718	チリトリワッシャー Washer	t=0.2 1	1B670-033-5 1B670-034-5	9	○△	FM2	
*1K050-029	738A	プリズムボックス調整座金 Washer, prism box	t=0.05 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-030	738B	"	t=0.06 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-031	738C	"	t=0.07 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-032	738D	"	t=0.08 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-033	738E	"	t=0.09 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	OLD
*1K050-034	738F	"	t=0.1 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-035	738G	"	t=0.01 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-036	738H	"	t=0.12 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-037	738I	"	t=0.2 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-038	738J	"	t=0.3 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-039	738K	"	t=0.4 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-040	738L	"	t=0.5 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	

部品表 Parts List

FAA16001-R. 3130. A

部品番号 Part No	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販 充 区 分 Term of Delivery	備 考 Remarks	要 求 単 位 Q'ty per order
*1K050-041	738M	プリズムボックス調整座金 Washer, prism box	t=0.6 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-042	738N	"	t=0.7 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-043	738P	"	t=0.8 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-044	738Q	"	t=0.9 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-045	738R	"	t=1.0 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-046	738S	"	t=1.1 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-047	738T	"	t=1.2 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-048	738U	"	t=0.03 0~4	1B670-033-5 1B670-034-5	13	○△	FM2	
*1K050-073	778	面カム外しレバー座金 Washer, axle #455	t=0.1 1		4	○	FM2	
*1K050-074	468	スプロバネ座金 Washer, sprocket spring	2		1	○	FM2	
*1K050-075	774A	巻上ギアワッシャー Washer, film-advance gear	t=0.05 0~1		2	○	FM2	
*1K050-076	774B	"	t=0.1 0~1		2	○	FM2	
*1K050-077	774C	"	t=0.2 0~1		2	○	FM2	
*1K050-078	774D	"	t=0.3 0~1		2	○	FM2	
*1K050-079	774E	"	t=0.25 0~1		2	○	FM2	
*1K050-080	774F	"	t=0.15 0~1		2	○	FM2	
1K050-111	163	バネ押しえ座金 Washer	1	1B150-018-7 1B150-042	12	○△		
1K050-112	718	ワッシャー Washer	t=0.3 0~1		9	○	FE2	
1K050-115	762	リリース紐ワッシャー Washer, release button	0~3	1B670-023-9 1B670-039	15	○△		OLD

部品表 Parts List

FAA16001-R. 3130. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
1K050-144	718	ワッシャー Washer t=0.1	0-1		9	○	FE2	
1K050-153-1	776	AR解除バネ, ワッシャー Washer, AR release spring	1	18670-023-9 18670-039 18670-062 18670-063	15	○△		
1K050-176	762	リリース鉤ワッシャー Washer t=0.3	0-3	18670-023-9 18670-039	15	○△	RP-8403 OLD	
1K050-217	183	平座金 Washer t=0.05	1			○	RP-8429 Add.	
1K050-218	135	リリース鉤ワッシャー Washer t=0.09	2			○△	RP-8431	
	738e		0-4	18670-033-5 18670-034-5			Add.	
*1K060-008	721	ダウンバネワッシャー Washer, mirror down spring	1	18670-033-5 18670-034-5	8	○△	FG	
*1K060-010	725	制御連結レバーワッシャー Washer, lever #221	1	18670-033-5 18670-034-5	9	○△	FG	
1K060-018		止め環 Ring	1		8	○	RP-9128	10
*1K060-020	659	開閉ノブ押えクリップ Snap ring, O/C Knob	1		6	○	FE2 35FB#659	
*1K080-005	90	三角環保護カバー Neck-strap protector	2		4.13	○	FM2	
1K083-019-1 (1K083-019)	637A	モード指標板(白) Mode index plate(White)	1	18670-023-9 18670-062	15	○△		
1K083-020	653	巻戻しノブ Rewind knob	1		6	○		
1K083-022	684A	補正指標板 Exposure compensation index	1	18670-023-9 18670-062	15	○△		
1K083-023	686	開閉ノブ O/C knob	1		6	○		
1K083-024S	409	多重レバー Multi-exposure lever	1	18670-023-9 18670-039 18670-062 18670-063	15	○△	RP-9015 RP-9020	
1K083-043-2 (1K083-043)	637B	モード指標板(黒) Mode index plate(Black)	1	18670-039 18670-063	15	○△		
1K083-044	684B	補正指標板 Exposure compensation index	1	18670-039 18670-063	15	○△		

部品表 Parts List

FA

FAA16001-R. 3130. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売 区分 Term of Delivery	備考 Remarks	要求単位 Order Unit Qty
*IK110-082	476	緩衝ゴム Shock absorber	1		5	○	FM2	
*IK115-154	71	遮光モルトA Light-tight sponge A	1	1B620-014-6	17	○△	FM2	
*IK115-155	72	遮光モルトB Light-tight sponge B	1	1B620-014-6	17	○△	FM2	
*IK115-156	73	遮光モルトC Light-tight sponge C	1	1B620-014-6	17	○△	FM2	
*IK115-157	74	遮光別珍B Light-tight cloth	1	1B620-014-6	17	○△	FM2	
*IK115-186	82	溝用モルトブレンA sponge strip A	1		16	○	FM2	
*IK115-189	83	溝用モルトブレンB sponge strip B	1		16	○	FM2	
*IK115-190	94	溝用モルトブレンC sponge strip C	1		16	○	FM2	
*IK115-191-1	284	ミラー制限モルト Sponge strip, mirror	1	1B670-033-5 1B670-034-5	9	○△	FM2	
*IK115-198	403	巻上げレバー撥革 Leatherette, self-timer lever	1		3	○	FM2	
*IK115-301-1	70	裏蓋撥革 Leatherette, camera back	1	1B620-014-6	7	○△	FM2	
IK115-395	266	セルフレバー撥革 Leatherette, self-timer lever	1		13	○		
IK115-396	285	L基盤遮光シート Light-baffle sheet	1	1B060-137-5	7	○△		
IK115-412	108	押し棒 Switch plunger	1	1B670-023-9 1B670-039 1B670-062 1B670-063	15	○△		
IK115-414	148	接眼下モルト Light-tight, eyepiece	1		4	○		
IK115-415-1 (IK115-415)	174	偏光板 Polarizer	1		12			
IK115-416-1	180	絶縁シート Insulating sheet	1		18	○		
IK115-417-1	339	L基盤遮光シート Light-baffle sheet	1	1B060-138-8	8	○△		
△ IK115-418		ゴム板 Rubber plate	1		14	○	RP-9440	
IK115-421-1	367	前ボディ下モルト Sponge strip	1		4	○		

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部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	部品番号 Assembly	参照 図番 Fig. No.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
IK208-022-1	670	補正ロック錠 Button, exposure compensation dial lock	1	1B670-023-9 1B670-039 1B670-062	15	○△		
IK208-023-1 (IK208-023)	582	S錠 Shutter release button	1	1B670-023-9 1B670-039	15	○△		
IK208-025-1 (IK208-025)	616	飾り錠 Shutter dial button	1		12	○		
*IK220-031	76	裏蓋着脱バネ Spring, camera back release	1	1B620-014-6	17	○△	FM2	
*IK220-038-1	58	止め爪バネ Spring, latch B #53	1		16	○	FM2	
*IK220-039	467	スプロケットバネ Sprocket spring	1		1	○	FM2	
IK220-089	357	E E信号ピンバネ Spring, EE signal pin	1	1B670-033-5 1B670-034-5	10	○△	F-301	
IK220-091	633	上ロック解除バネ Spring Shutter dial lock release	1	1B670-023-9 1B670-039 1B670-062	15	○△		
IK220-092-1	585	S錠バネ Spring, shutter button	1	1B670-023-9 1B670-039	15	○△	59F-1003 RP-8408 OLD	
IK220-095	378	増設錠バネ Spring, lens release button	1	1B670-033-5 1B670-034-5	10	○△	40FB1730	
*IK220-096-1 (IK220-096)	662	フリクションバネ Friction spring	1		6	○	RP-1NF. 9207 FE2. 35FB1662	
IK220-097	569	MD軸バネ Spring, MD shaft	1		5	○		
IK220-130	636	クリックバネ Click spring	1			○		
*IK225-042-1	496	振りバネ Pendulum spring	1		5	○	FM2	
△ *IK225-045		巻き戻し軸受け、板用バネ Spring, rewind shaft bearing	1		6	○	FE, FE2	
IK225-051	305	遅延バネ Spring, delay segment	1	1B670-033-5 1B670-034-5	8	○△	FG	
IK225-053S	251	ミラーアップバネ Mirror-up spring	1	1B060-137-5	7	○	RP-9020	
IK225-063-3 (IK225-063)	154	モードバネ Mode changeover spring	1	1B150-018-7 1B150-042	12	○△		
IK225-064	391	fo レバーバネ fo lever spring	1	1B670-033-5 1B670-034-5	11	○△		
IK225-065	560	リリース板バネA Spring A, release plate	1		4	○		

部品表 Parts List

FAA16001-R. 3130. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
IK230-101	444	リリースロックレバーバネ Spring.release lock lever	1	IB060-139-8 IB060-144-8	3	○△		
IK230-102-1	500	ロックレバーバネ Spring.lock lever	1		5	○		
IK230-103	534	ミラーチャージレバーバネ Spring.mirror charge lever	1		5	○		
*IK230-114	413	カウンターバネ Spring.frame counter	1	IB060-139-8 IB060-144-8	3	○△	FE2 RP-8335 OLD	
IK230-076-2							Add.	
*IK233-016-2 (IK233-016-1)	129	ペンタ押さえバネ Spring.prisma retainer	2		13	○	FM2	
*IK240-064-1	656	クランク受けバネ Rewind crank spring	1		6	○	FM2	
*IK240-065-1	394	バヨネットバネ Bayonet spring	1	IB670-033-5 IB670-034-5	10	○△	FM2	
*IK240-118-4 (IK240-118-3)	102	シューバネ(白) Shoe contact spring	1	IB670-023-9 IB670-062	15	○△	RP-8439 FG, FE2	Add.
IK240-151	105	ホットシュー-SW接片 Shoe switch contact	1	IB670-023-9 IB670-039 IB670-062 IB670-063	15	○△		
*IK240-156	124	スクリーン押さえバネ Spring.focusing screen lock	1	IB670-033-5 IB670-034-5	11	○△	FE2	
IK240-169-2 (IK240-169)	440	カウンター-SW接片 Contact.frame counter switch	1	IB060-139-8 IB060-144-8	3	○△		
IK240-237	443	クリックレバーバネ Click lever spring	6	IB060-139-8 IB060-144-8	3	○△		
*IK240-215-3 (IK240-215-2)	102	シューバネ(黒) Shoe contact spring(black)	1	IB670-039 IB670-063		○△	RP-8757 FE2	Add.
IK260-052-1 (IK260-052)	454	巻上げギア Film-advance gear	1		2	○	FM2	
*IK260-056	463	スプロケット上ギア Sprocket upper gear	1		1	○	FE2	
IK260-076	389	foギア fo gear	1	IB670-033-5 IB670-034-5	11	○△		
IK273-002	385	fo固定ギア fo retaining gear	1	IB670-033-5 IB670-034-5	11	○△		

部品表 Parts List

FAA16001-R. 3130. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
*IK275-010-1 (IK275-010)	465	スプロケット Sprocket	1		1	○	FM2	
*IK275-026-1 (IK275-026)	412	ラチェット Ratchet	1	1B060-139-8 1B060-144-8	3	○△	FM2	
*IK300-034	461	スプロケット制限カム Sprocket stopper cam	1		1	○	FM2	
*IK310-024	221	制御連結レバー Lever, shutter control Coupling	1	1B670-033-5 1B670-034-5	11	○△		
IK310-037	554	メカシーソーレバー See-saw lever, mechanical release	1	1B670-033-5 1B670-034-5	11	○△		
△ *IK310-038		開閉ロックレバー Lock lever	1		6	○	RP-9459 FE2	
*IK314-050	53	止め爪B Latch B, camera back	1		16	○	FM2	
*IK314-051-3 (IK314-051-1)	494	振り子 Pendulum	1		5	○	FM2	
IK314-116	235	リリースMg 連結レバー Lever, release magnet coupling	1	1B060-137-5	5	○△		
IK314-117-1	236	駆動レバー Actuating lever	1	1B314-037-1	7	○△	58P-1041 RP-8342 Add.	
IK314-129-2	498	ロックレバー Lock lever	1		5	○		
IK314-131-1 (IK314-131)	539	ミラーチャージレバー Mirror charge lever	1		5	○		
IK340-051-1 (IK340-051)	566	MD軸受 Bearing MD shaft	1		5	○		
IK340-052-1 (IK340-052)	581	かぶせレリー環 Shutter release button ring	1	1B670-023-9 1B670-039 1B670-062 1B670-063	15	○△		
*IK362-007-1	68	緩衝芯金B Hing shaft B	1	1B620-014-5	17	○△	FM2	
IK362-017	372	増設ピン Lens release pin	1	1B670-033-5 1B670-034-5	10	○△		
*IK370-194	143	データ 接点 Data back contact (positive)	1		16	○	FM2	
IK370-358-1	145	データ 接点 Data back contact (negative)	1		16	○	RP-8429 FM2	OLD

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	部品番号 Assembly	参照 図番 Fig. No.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
B1-20045FA	745	Screw	1		5	○		
K1-14018FB	733	Screw	2	1B150-018-7 X2 1B150-042	12	○△		
K1-14025FB	732	Screw	2	1B150-018-7 X2 1B150-042	12	○△		
K2-14015FA	770	Screw	3		1	○		
G1-17055FB	765	Screw	1		13	○		
G1-20050FC	266	Screw	1	1B060-144-8	3	○△	RP-8348	
P1-10080FX	685	ピン Pin	1		6	○		
P3-16060SX	87	ピン Pin	2	1B670-033-5 1B670-034-5	4.13	○△		
S1-00800SX	717	止め輪 Snap ring	1	1B670-033-5 1B670-034-5	10	○△		
S1-01200SB	729	止め輪 Snap ring	1	1B150-018-7 1B150-042		○△		
S1-01200SX	716	止め輪 Snap ring	7	1B060-138-8 X6 1B670-023-9 1B670-039 1B670-062 1B670-063	8.12 15	○△		
S1-02000SX	783	止め輪 Snap ring	1	1B670-023-9 1B670-039 1B670-062 1B670-063	15	○△		
*1G551-004-1	G1	ミラー Mirror	1	1B100-130	9	○△	FE2	
*1G950-004-1 (1G950-004)	G	フォーカシングスクリーン Focusing screen	1		9	○	FM2	

部品組品表 Sub Assembly List

FAA16001-R. 3130. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Q'ty Per Unit	大部組品番号 Main Assembly No.	参照 図番 Fig. No.	備考 Remarks	要求単位 Order Unit Q'ty
*1B001-085	B85	吊環 Eyelet	2	1B670-034-5 1B670-033-5	4.13	FM2	
*1B001-099-4 (1B001-099-1)	B121	スクリーン枠 Focusing screen frame	1	1B670-034-5 1B670-033-5	9	FM2	
*1B001-132-3 (1B001-132-1)	B4472	スプール軸 Spool shaft	1		1.2	FM2	
1B001-237-1	B27	半固定カバー Cover variable resistors	1		13		
1B001-238-2 (1B001-238)	B280	ミラー軸板 Mirror axle plate	1	1B060-138-8	8		
1B001-239-3 (1B001-239)	B294	絞り込み駆動レバー Lever, stop-down	1	1B670-034-5 1B001-239	11		
1B001-240-1 (1B001-240)	B338	ミラー遮光板 Light baffle plate, mirror	1	1B060-138-8	9		
1B001-245-1 (1B001-245)	B551	リリースマグネットユニット Unit, release magnet	1	1B670-034-5 1B670-033-5	12		
1B001-247-1	B628	圧接基板 Acceptor, FPC holder C	1		14		
1B001-248-1 (1B001-248)	B673	ASAブラシ ASA base plate brush	1	1B060-141-5	6		
1B001-249-3 (1B001-249-1)	B33	アイピース基板 Eyepiece base plate	1	1B670-023-9 1B670-039	15		
1B001-250A	B100	シャッター Shutter assembly	1		4	RP-9405	1
1B001-252-4 (1B001-252-1)	B395	シャッター遮光板 Light baffle plate, shutter	1	1B670-034-5 1B670-033-5	9		
1B001-253-3 (1B001-253)	B541	後幕SW基板 Closing curtain switch	1		5		
1B001-254-1	B549	後幕SW基板 Closing curtain switch	1		5		
△ 1B001-256-5S		ASAダイヤル基板 Base plate, ASA dial	1		6		
1B001-296-4 (1B001-296)	B103	シュー座モールド Shoe mount	1	1B670-039 1B670-023-8	15		
1B001-297-3		上地板 MD・SW MD SW, film-advance lever	1				Add.
*1B001-604-1	B522	スプール上ギア Spool upper gear	1			RP-9036 New FM2	Add.

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	大部組品番号 Main Assembly No.	参照 図番 Fig. No.	備考 Remarks	要求単位 Order Unit Qty
1B001-313-6 (1B001-313-1)	B2501	下地板 Unit. film-advance mechanism	1		2	FE2 New FM2	
△ 1B001-338	B362	圧接ゴムホルダーA FPC holder A	1		14	RP-9440 IK115-418 にて対応方	CORRECTED
1B001-339-2	B364	圧接ゴムホルダーB FPC holder B	1		14	RP-8526 Add.	
1B001-342	B630	圧接ゴムホルダーC FPC holder C	1		14		
1B001-343	B691	圧接ゴムホルダーD FPC holder D	1		14		
1B001-549	B109	シュー接点モールド Shoe contact mold	1			60F-1006 Add.	
1B060-078-5 (1B060-078-1)	B136	電池ケース Battery chamber	1		4		
1B060-080-3 (1B060-080-1)	B255	ミラーSWモールド Mirror swith	1	1B060-137-5	7		
1B060-081-3 (1B060-081-1)	B297	絞り込みプリント板座 Base. stop-down printed circuit	1	1B670-033-5 1B670-034-5	11		
1B060-082-4 (1B060-082-2)	B336	SPDホルダー SPD holder	1	1B060-138-8	8		
1B060-083-1	B343	C・P切り替えスイッチ Meter mode swith	1	1B670-033-5 1B670-034-5	13		
1B060-084-6 (1B060-084-2)	B622	電源SW切り替え基板 Power switch	1	1B670-033-5 1B670-034-5	12		
1B060-085-4 (1B060-085-2)	B681	LEDホルダー LED holder	1	1B670-033-5 1B670-034-5	12		
1B060-105-4 (1B060-105-1)	B355	EE鑑別スイッチ EE lens switch	1	1B670-033-5 1B670-034-5	11		
1B060-135-3 (1B060-135)	B185	グリップ Grip	1		16		
1B060-136-2 (1B060-136-1)	B327	制御Mg Aperture control magnet	1	1B060-138-8	8		
1B060-220-1 (1B060-137-4)	B2201	I基板 Base plate I	1	1B670-033-5 1B670-034-5	7. 9		
1B060-271-2 (1B060-138-7)	B2301	L基板 Base plate L	1	1B670-033-5 1B670-034-5	8. 9		



部組品表 Sub Assembly List

FAA16001-R. 3130. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	大部組品番号 Main Assembly No.	参照 図番 Fig. No.	備考 Remarks	要求単位 Order Unit Qty
1B260-004-1 (1B260-004)	B319	制御セグメントギア Aperture control segment gear	1	1B060-138-8	8	FG	
1B260-005	B302	セグメント遅延ギア Delay segment gear	1	1B060-138-8	8	FG	
1B273-001-1	B386	f _o ブラシギア f _o brush gear	1	1B670-033-5 1B670-034-5	11		
*1B277-005-1 (1B277-005)	B323	制御ギア Aperture control gear	1	1B060-138-8	8	FG. F-301	
*1B277-006	B308	遅延ギア Delay gear	1	1B060-138-8	8	FG	
*1B277-012	B304	制御ラチェット Aperture control ratchet	1	1B060-138-8	8	F-301	
*1B300-007-7 (1B300-007-1)	B480A	セットカムA Set cam A	0-1		1	RP-8417 Dis.	
*1B300-008-8 (1B300-008-2)	B480B	セットカムB Set cam B	0-1		1	RP-8417 Dis.	
*1B300-009-8 (1B300-009-1)	B480C	セットカムC Set cam C	0-1		1	RP-8417 Dis.	
*1B300-010-9 (1B300-010-2)	B480D	セットカムD Set cam D	0-1		1	RP-8417 Dis.	
*1B300-018-2 (1B300-018)	B480	セットカム Set cam	0~1		1	FE2. NewFM2 Add.	
*1B300-020-1 (1B300-020)	B480	セットカム Set cam	0~1	1B300-018-1 との 調整用	1	FE2. NewFM2 Add.	
*1B300-021-1 (1B300-021)	B480	セットカム Set cam	0~1		1	FE2. NewFM2 Add.	
1B310-029	B223	絞り制御横軸 Aperture control shaft	1	1B670-033-5 1B670-034-5	9		
△ 1B310-030	B688	開閉ロックレバー Rever. rewind knob lock	1		6	RP-9459	
*1B314-049	B654	巻き戻しクランク Rewind crank	1		6	FM2. NewFM2	
*1B314-073-2 (1B314-073-1)	B236	制御スタートレバー Control start lever	1	1B060-137-5	7		
1B314-074	B268	セルフカム Self-timer cam	1	1B670-033-5 1B670-034-5	13		
1B314-075-1	B535	シャッターチャージレバー Shutter charge lever	1		1		

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Q'ty Per Unit	大部組品番号 Main Assembly No.	参照 図番 Fig. No.	備考 Remarks	要求単位 Order Unit Q'ty
1B314-076-1	B544	二重巻上防止レバー Lever, double exposure preventing	1		5		
1B314-077	B552	メカリリースレバー Mechanical release lever	1	1B670-034-5 1B670-033-5	11		
1B314-078-4 (1B314-078-2)	B349	Fmm 信号レバー Focal length (Fmm) signal lever	1	1B060-138-8	8		
1B314-079-4 (1B314-079-1)	B556	リリース板A Release plate A	1		4		
*1B340-001-3 (1B340-001-2)	B4474	スプール軸受 Bearing, spool shaft	1		1	FM2	
*1B400-001-2 (1B400-001-1)	B77	シンクロターミナル Sync terminal	1		6	FM2	
*1B467-007-2 (1B467-007-1)	B137	電池キャップ Battery chamber lid	1		5	FM2	
1B470-004-5 (1B470-004-2)	B164	Tフィルム Shutter speeds inner indicator	1		1.2		
1B475-021-4 (1B475-021-3)	B350	Tダイヤル Shutter dial	1				Add.
*1B620-037 (1B620-014-2)	B25	裏蓋 Camera back	1		17	FM2	
*1B630-009	B457	スプール Spool	1		1	FE2, NewFM2	
1B640-017-4 (1B640-017-3)	B382	絞り連動環B Aperture coupling B	1	1B670-034-5 1B670-033-5	10		
1B670-014-5 (1B670-014)	B24	底カバー (白) Bottom cover (white)	1		5		
1B670-025-1 (1B670-025)	B24	底カバー (黒) Bottom cover (black)	1		5		
1B670-023-9 (1B670-023-8)	B23	上カバー (白) Top cover (white)	1		15	60F-1006 1B670-062-7 にて対応 OLD	
1B670-039 (1B670-024-9)	B23	上カバー (黒) Top cover (black)	1		15	60F-1006 1B670-063-7 にて対応 OLD	
1B670-065-8 (1B670-026-9)	B2026	前ボディ (白) Unit, front plate (white)	1		7 10 11 12 13		
1B670-066-8 (1B670-027-9)	B2026	前ボディ (黒) Unit, front plate (black)	1				

部品表 Parts List

FAA16001-R. 3130. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Qty Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
*IK100-035-1 (IK100-035)	89	三角環 Neck-strap ring	2		4.13	○	FM2	
IK100-051	263	連結ワイヤー Wire.release magnet	1	1B670-033-5 1B670-034-5	12	○△		
IK110-102-2 (IK110-102)	30	グリップ皮革 Leatherette.grip	1	1B060-135	16	○△		

部品表の部品番号及び部組品一覧表の部組品
番号欄にある()内の図番は、部品課
から出庫される R P の包装ラベルに表示され
ている図番(在庫管理部品)で、各々共通部品
です。

* COMMON PART AND RP CODE

A code in parenthesis under part
number is for common part. This
RP code is to be printed on package
label.

(1) 部品对照表

Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
G 1	1G551-004-1	44	1K680-218	94	1K115-190
G 2	1G950-004-1	45	1K680-219	95	1K115-427
G 3	1G415-005	46	1K115-659	96	1K115-428
G 4	1G104-020	48	1K240-049	97	1K115-429
G 5	1G247-019	51	1K610-168	98	1K630-159
G 6	1G218-002	53	1K314-050	99	1S705-035
G 7	1G710-003	54	1K610-359	101	1K406-014
G 8	1G118-003	57	1K115-660	102A	1K240-118-2
G 9	1G480-013	58	1K220-038-1	102B	1K240-215-1
G 10	1G550-012	59	1K240-033-1	103	1K680-205-1
G 11	1G550-013	63	1K115-610	104	1K370-434-1
G 12	1G550-014	64	1K115-761	105	1K240-151
G 13	1G550-015	68	1K362-007-1	106	1K370-435-1
G 14	1G950-023-1	70	1K115-301-1	107	1K600-187
G 15	1G950-024-1	71	1K115-154	108	1K115-412
		72	1K115-155	109	1K680-206
		73	1K115-156	110	1K240-152
21	1K660-027-2	74	1K115-157	111	1K240-153-3
22	1K080-012-4	75	1K123-034	112	1K240-154-3
23	1K670-016-2	76	1K220-031	113	1K240-155
24	1K620-062	78	1K115-753	115	1K115-773
26	1K670-017-1	79	1K467-030	116	1K600-289
27	1K625-025-1	80	1K640-279	117	1K600-290
28	1K680-217	81	1K640-187-1	118	1K610-377-1
29	1K640-298	82	1K370-189	119	1K610-378
30	1K110-102	83	1K640-188	120	1K500-222-1
31	1K370-523	84	1K060-005-1	124	1K240-156
32	1K206-015	85	1K100-034	125	1K620-063
33	1K610-358	86	1K044-001	126	1K576-036
34	1K340-049	87	P3-16060SX	127	1K680-318
35	1K570-025-1	88	1K467-016	128	1K610-489
36	1K570-026	89	1K100-035	129	1K233-016-2
37	1K370-451	90	1K080-005	130	1K115-473
38	1K370-452	91	1K400-078	131	1K550-008
42	1K625-007-2	92	1K115-186	132	1K680-307
43	1K115-658	93	1K115-189	133	1K115-781

部 品 对 照 表

Parts Number Reference Table

補助番号 Auxiliary Number	部 品 番 号 Part Number	補助番号 Auxiliary Number	部 品 番 号 Part Number	補助番号 Auxiliary Number	部 品 番 号 Part Number
134	1K115-782-1	173	1S268-002-1	221	1K310-024
135	1K050-033	174	1K115-415	222	1K230-088
136	1K680-208	175	1S758-001-1	223	1K370-412
138	1K610-173	176	1S705-011	224	1K370-413
140	1K240-050-1	177	1K630-148	225	1K314-114
141	1K048-022	178	1S260-007	226	1K230-089
142	1K610-174	179	1K610-345-1	227	1K314-115
143	1K370-194	180	1K115-416-1	228	1K370-414
144	1K630-081-1	181	1K115-783	229	1K640-273
145	1K370-358-1	182	1K048-033	230	1K230-090
146	1K370-521-1	183	1K165-026	231	1K370-415
147	1K146-016	185	1K680-209	232	1K340-044-1
148	1K115-414	186	1K620-059	233	1K136-014
149	1K115-603	187	1K380-013	234	1K230-091
151	1K610-337-1	188	1K150-024	235	1K314-116
152	1K610-338-1	189	1K130-128	236	1K314-117
153	1K370-436	201	1K610-313-2	237	1K314-118
154	1K225-063	202	1K310-023-2	238	1K314-119-1
155	1K610-339	203	1K050-060	239	1K370-414
156	1K610-340	204	1K370-291	240	1K366-029
157	1K370-437-1	205	1K370-298	241	1K370-417
158	1K230-096	206	1K230-087	242	1K340-045
159	1K370-438	207	1K370-293	243	1K230-092
160	1K275-017-2	208	1K330-003	244	1K314-120
161	1K370-439-1	209	1K330-004	245	1K370-418
162	1K230-097-2	210	1K314-112	246	1K370-301
163	1K050-111	211	1K370-294	247	1K314-121
164	1K470-013-1	212	1K640-238	248	1K366-030
165	1K610-341-1	213	1K370-296-1	249	1K370-292
166	1K370-458	214	1K370-411	250	1K366-031
167	1K275-019	215	1K370-297	251	1K225-059-1
168	1K610-342-2	216	1K230-054	252	1K240-137
169	1K048-023	217	1K314-113	253	1K240-138-1
170	1K610-343-2	218	1K680-143	254	1K240-139
171	1K610-344-1	219	1K366-015	255	1K680-200
172	1K680-238-1	220	1K340-043	256	1K600-182

部品对照表

Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
257	1K115-394	296	1K048-020	344	1K240-207
258	1K370-246-1	297	1K610-317	345	1K370-441
259	1K370-245-2	298	1S700-024-1	346	1K630-149
260	1K130-084	299	1K048-021	347	1K120-153
261	1K314-122	301	1K610-347	348	1K230-099
262	1K370-300	304	1K370-295-1	349	1K314-125-1
263	1K100-051	305	1K225-051	350	1S700-025-1
265	1K640-274	306	1K370-311-1	351	1K240-157-1
266	1K115-395	311	1K314-092	352	1K048-052
267	1K156-017	312	1K366-019-1	353	1K240-158
268	1K610-314	313	1K370-440-1	354	1K048-024
269	1K625-006-1	314	1K314-093	355	1K620-061
270	1K115-391-1	315	1K370-313-1	356	1K370-442-1
271	1K230-093	316	1K310-030	357	1K220-089
272	1K610-177	317	1K630-104	358	1K146-028
273	1K115-220-3	318	1K370-314	359	1K240-239
274	1K240-054-1	321	1K370-315-1	360	1K115-489
275	1K240-055-1	322	1K260-035	361	1K610-348
276	1K370-217	324	1K370-316-1	362	1K610-349
277	1K370-204	325	1K230-065-1	363	1K115-418
278	1K600-183	326	1K370-317-1	364	1K610-350
279	1K370-420	327	1B060-136-1	365	1K115-419
280	1K610-315	329	1K366-020	366	
281	1K370-421	330	1K314-124	367	1K115-421
282	1K370-422	331	1K370-319	368	1K600-188-1
283	1K610-170	332	1K230-067	369	1K366-034-2
284	1K115-191-1	333	1K230-098-1	370	
285	1K115-396	334	1K050-062	371	1K600-198
286	1K130-123	336	1K680-144-1	372	1K362-017
289	1K120-098	337	1K240-088	373	1K600-254
290	1K206-017-1	338	1K680-229	374	1K156-020
291	1K610-316	339	1K115-417	375	
292	1K230-094	340	1K275-018	376	1K600-223
293	1K156-018-1	341	1K208-028	377	1K130-140
294	1K314-123-1	342	1K220-101	378	1K220-095
295	1K240-140	343	1K680-248	379	1K225-075-1

部品对照表

Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
380	1K370-567	427	1K370-446	470	1K630-114
381	1K640-464	428	1K680-169-2	471	1K630-085
383	1K240-159-2	429	1K260-077	473	1K230-044-2
384	1K680-211	430	1K370-468	474	1K640-282
385	1K273-002	431	1K260-078	475	1K640-283
389	1K260-076	432	1K240-180	476	1K230-105
391	1K225-064	433	1K370-371-1	476	1K110-082
392	1K610-353	434	1K314-080	477	1K640-196
393	1K404-036	435	1K340-026	478	1K078-007
394	1K240-065-1	436	1K680-222	485	1K240-240
398	1K115-672	437	1K680-270	486	1K240-241
399	1K115-673	439	1K240-168	487	1K680-269-1
400	1K115-674	440	1K240-169	488	1K115-529
401A	1K206-012	441	1K370-469-1	489	1K680-271
401B	1K206-020	442	1K115-430-1	491	1K340-020
402A	1K146-040	443	1K240-237	492	1K115-433
402B	1K146-041	444	1K230-101	493	1K680-102-3
403	1K115-198	445	1K610-270	494	1K314-051-3
404	1K206-013-2	446	1K370-520-1	495	1K650-003-1
405	1K150-008	447	1K600-253	496	1K225-042-1
406	1K230-039	451	1K610-272-2	497	1K610-266-1
407	1K640-253	452	1K610-271-1	498	1K314-129-2
409	1K083-024-1	453	1K680-170-1	499	1K146-047-1
410	1K610-380-1	454	1K260-052-1	500	1K230-102-1
411	1K050-157	455	1K130-098	510	1K050-072
412	1K275-026-1	456	1K680-172-1	516	1K230-041
413	1K230-114	460	1K120-053	518	1K610-278
414	1K475-158-1	461	1K300-034	519	1K120-054
415	1K480-005	462	1K370-367	525	1K220-064
420	1K230-077	463	1K260-056	526	1K640-199
421	1K314-140	464	1K640-198	529	1K610-172-1
422	1K050-058	465	1K275-010-1	533	1K130-132
423	1K314-137	466	1K130-097	534	1K230-103
424	1K130-175-1	467	1K220-039	535	1K314-054-1
425	1K230-116-1	468	1K050-074	536	1K370-198
426	1K314-128	469	1K130-096	537	1K370-199-1

部品对照表

Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
538	1K640-317-1	580	1K630-152-1	628	1K600-189
539	1K314-131	581	1K340-052	629	1K630-150-1
540	1K130-056-1	582	1K208-023	630	1K610-357
541	1K610-364	583	1K370-456	631	1K115-422
542	1K370-200-1	584	1K040-001-1	632	1K208-021-1
543	1K314-132-1	585	1K220-092-1	633	1K220-091
544	1K314-133	586	1K370-457-1	634	1K130-142
545	1K230-025-1	588	1K610-365	635	1K370-505
546	1K115-193	589	1S700-028	636	1K220-130
547	1K240-170-1	601	1K201-025-1	637A	1K083-019
548	1K240-171	602	1K470-014	637B	1K083-043
549	1K680-223	603	1K206-011-1	638	1K115-423-1
550	1K340-050-1	604	1K610-354	639	1K115-424
552	1K314-134	605	1K340-046	640	1S700-027
553	1K366-033	606	1K370-443-1	651	1K680-214
554	1K310-037	607	1K314-126	652	1K370-449
555	1K130-133	608	1K370-444	653	1K083-020
556	1K314-135	609	1K370-445	655	1K225-045
557	1K370-453	610	1K048-025	656	1K240-064-1
558	1K048-028	611	1K340-047	657	1K201-014
559	1K240-172	612	1K370-446-1	659	1K060-020
560	1K225-065	613	1K610-355	660	1K160-249
561	1K225-066	614	1K240-161	661	1K610-360-1
562	1K314-136	615	1K048-026-1	662	1K220-096-1
563	1K130-134	616	1K208-025	663	1K201-026
564	1K130-135	617	1K078-003	664	1K600-190
565	1K370-454	618	1K220-090	665	1K630-157
566	1K340-051	619	1K680-212-1	666	1K470-015
567	1K370-455	620	1K240-162	667	1K640-278
568	1K240-173	621	1K150-025	668	1K610-361
569	1K220-097	622	1K610-356	669	1K610-362-1
571	1K240-174	623	1K680-213	670	1K208-022-1
572	1K048-029	624	1K240-163-1	671	1K370-450
573	1K048-030	625	1K370-447	672	1K340-048-2
575	1K115-432	626	1K048-027	673	1K680-215
577	1K165-052-1	627	1K230-100	674	1K240-164

部品对照表

Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
675	1K246-016	713	B1-17035FB	738	1K050-039
676	1K680-216	714	K1-14050FB	738	1K050-040
677	1K240-165	715	B1-17018FA	738	1K050-041
678	1K240-166	716	S1-01200SX	738	1K050-042
679	1K115-425	717	S1-00800SX	738	1K050-043
680	1S705-012-1	718	1K050-022	738	1K050-044
681	1K580-005	718	1K050-112	738	1K050-045
682	1K083-021-1	718	1K050-144	738	1K050-046
683	1S260-010	719	A1-20028FB	738	1K050-047
684A	1K083-022	720	A2-17030FB	738	1K050-048
684B	1K083-044	721	1K060-008	739	1K146-036-1
685	P1-10080FX	722	B1-17020FB	740	B2-17045FA
686	1K083-023	723	A2-17020FB	741	1K120-009
687	1K160-253	724	1K120-003	742	B1-20025FA
689	1K130-141	725	1K060-010	743	A1-20050FB
690	1K370-479	726	A1-17035FB	744	1K123-040
691	1K610-363	727	A1-20025FB	745	B2-20045FA
692	1K115-426	728	1K120-093	746	A1-17018FB
693	1K610-441-1	729	S1-01200SB	747	A1-20022FB
		730	1K010-017-2	748	1K120-060-2
		731	1K120-111	749	1K120-061
		732	K1-14025FB	750	B1-20045FB
		733	K1-14018FB	751A	A2-17025FC
		734	A1-17015FB	751B	1K001-006-1
701	A1-17030FA	735	1K123-039	752A	1K120-102-1
702	B1-17030FA	737	1K123-042	752B	1K120-157
703	A1-14014FA	738	1K050-029	753A	A1-17030FC
704	A1-20030FA	738	1K050-030	753B	1K001-003
705	1K120-100	738	1K050-031	754	A1-17040FC
706	1K126-015	738	1K050-032	754	1K001-017
707	1K060-018	738	1K050-033	755	A1-20040FB
708	A1-17025FB	738	1K050-034	756	B1-17035FA
709	1K120-141	738	1K050-035	757	1K001-004
710	B1-14045FA	738	1K050-036	758	A1-20060FT
711	A1-17040FB	738	1K050-037	759	A1-20030BX
712	B1-14020FA	738	1K050-038	760	P3-12080SX

部品对照表

Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
761	1K060-019	1004	1S705-018	1050	1S335-015
762	1K050-115	1005	1S705-030	1051	1S335-016
763	1K120-103	1007	1S700-040	1052	1S335-017
764	A1-17040FA	1008	1S700-041	1053	1S335-018
765	G1-17055FB	1009	1S700-042	1055	1S335-039
766	G1-20050FC	1010	1S700-058	1056	1S335-021
767	1K120-158	1013	1S708-002	1057	1S335-037
769	1K120-063	1014	1S700-044	1058	1S335-040
770	K2-14015FA	1015	1S700-045	1059	1S300-068
771	1K060-003	1016	1S322-014	1060	1S310-021
772	B1-14025FA	1017	1S700-050	1061	1S310-055
773	1K120-106	1018	1S700-051	1062	1S310-023
774	1K050-075	1020	1S237-034	1063	1S310-056
774	1K050-076	1021	1S237-035	1064	1S310-025
774	1K050-077	1022	1S237-036	1065	1S310-026
774	1K050-078	1023	1S210-002	1066	1S310-027
774	1K050-079	1024	1S210-003	1067	1S310-028
774	1K050-080	1025	1S210-004	1068	1S300-064
775	1K010-027	1026	1S700-046	1070	1S882-003
776	1K050-153	1027	1S125-007	1071	1S810-177
777	1K120-112	1028	1K115-465	1072	1S810-178
778	1K050-073	1029	1S705-037	1073	1S810-179
779	B1-17025FB	1030	1S250-005	1074	1S810-180
780	1K044-055	1031	1S250-006	1075	1S810-181
781	1K165-033	1032	1S250-008	1076	1S810-182
782	1K120-142	1033	1S380-001	1077	1S810-183
783	S1-20000SX	1034	1S125-006	1078	1S810-184
784	1K165-051	1035	1S130-008-1	1079	1S810-185
		1036	1S110-005	1080	1S810-186
		1037	1S113-004	1081	1S810-187
		1040	1S340-022	1083	1S810-189
		1041	1S340-023	1084	1S810-190
		1042	1S340-024	1085	1S810-191
1001	1S705-015	1043	1S340-025	1086	1S810-192
1002	1S705-016	1044	1S340-026	1087	1S810-193
1003	1S705-017	1045	1S340-032	1090	1S810-196

部品对照表

Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
1091	1S810-197	B 77	1B400-001-2	B364	1B001-339-1
1092	1S810-198	B 85	1B001-085	B382	1B640-017-4
1093	1S810-199	B100	1B001-250-2	B386	1B273-001-1
1094	1S810-200	B103	1B001-296-2	B395	1B001-252-1
1096	1S810-202	B109	1B060-106-5	B401A	1B206-014-2
1098	1S810-204	B120	1B150-023-2	B401B	1B206-016-2
1102	1S810-208	B121	1B001-099-2	B457	1B630-009
1103	1S810-209	B136	1B060-078-1	B4472	1B001-132-3
1104	1S810-210	B137	1B467-007-2	B4474	1B340-001-2
1105	1S810-211	B164	1B470-004-2	B2501	1B001-313-5
1106	1S810-295	B171	1B100-128-2	B522	1B001-128-4
1108	1S810-297	B185	1B060-135	B535	1B314-075-1
1110	1S810-323	B223	1B310-029	B541	1B001-253-1
1111	1S810-336	B236	1B314-073-1	B544	1B314-076-1
1112	1S810-349	B255	1B060-080-1	B549	1B001-254-1
1113	1S810-405	B264	1B206-013-1	B551	1B001-245
1114	1S810-406	B268	1B314-074	B552	1B314-077
1115	1S810-439	B272	1B100-130	B556	1B314-079-2
1120	1S720-025	B280	1B001-238	B589	1S045-012
1121	1S720-035	B294	1B001-239-2	B622	1B060-084-2
1122	1S720-038	B297	1B060-081-1	B628	1B001-247-1
		B302	1B260-005	B654	1B314-049
		B308	1B277-006	B673	1B001-248
		B310	1B260-003	B1003	1S017-004
		B319	1B260-004-1	B1004	1S017-005
		B323	1B277-005	B1005	1S017-007
B 22A	1B100-177-4	B327	1B060-136-1	B1002	1S020-004
B 22B	1B100-213-2	B336	1B060-082-2	B31001	1S020-007
B 23A	1B670-023-9	B338	1B001-240	B681	1B060-085-2
B 23B	1B670-039	B340	1B277-012	B688	1B310-030
B 24A	1B670-014	B341	1B208-011	B692	1B001-343
B 24B	1B670-025	B343	1B060-083-1	B2026A	1B670-033-5
B 25	1B620-014-6	B349	1B314-078-2	B2026B	1B670-034-5
B 27	1B001-237-1	B350	1S045-011-2		1S045-013
B 33	1B001-249-2	B355	1B060-105-1	B2151	1B150-018-7
B 47	1B001-086	B362	1B001-338	B2201	1B060-137-5

部品对照表

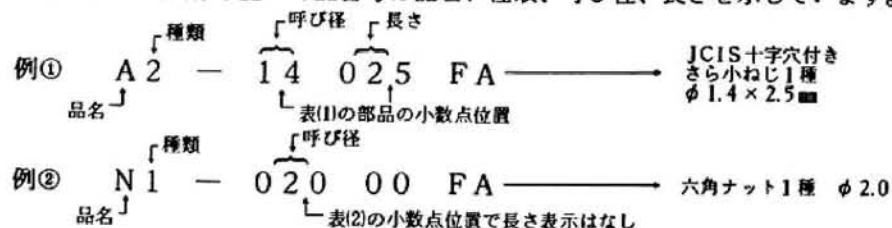
Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
B2301	1B060-138-8				
B2416	1B060-139-8				
B2604	1B060-140-3				
B2661	1B060-141-5				
B480A	1B300-007-7				
B480B	1B300-008-8				
B480C	1B300-009-8				
B480D	1B300-010-9				
L 1	1G013-013				
L 2	1G080-003				

記号説明 MARKS IN THE PARTS LIST

(1) 機械標準品

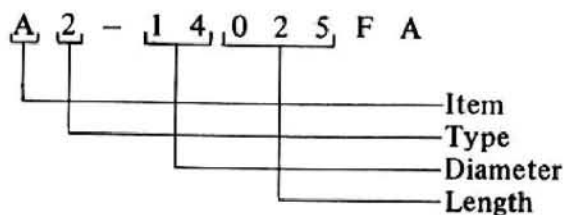
下の表に示す機械標準品の部品番号は品名、種類、呼び径、長さを示しています。



(1) Standard mechanical parts

Reference Number in the Parts List

A. Screw · pin



B. Nut · Washer · Snap ring

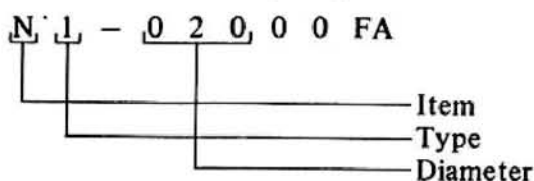


表 1

品名 Item	種類 Type	品名 Item	種類 Type		
JCIS 十字穴付き小ねじ 1種 Cross-point screw 1	A	六角穴付き止ねじ Hexagon socket head set screw	L		
	なべ Pan 1		丸先 Round point 1		
	さら Countersunk 2		とがり先 Cone point 2		
JCIS 十字穴付き小ねじ 3種 " screw 3	B	六角穴付きボルト Hexagon socket head bolt	M		
	なべ Pan 1				
	さら Countersunk 2				
十字穴付き小ねじ Cross-point screw	C	平行ピン Straight pin テーパピン Taper pin スプリングピン Spring cotter	P		
				丸先 Round point 1	
				とがり先 Cone point 2	
				くぼみ先 Half point 3	
十字穴付き タッピンねじB型 1種 Cross-point tapped screw B1	D	表 2	N		
	なべ Pan 1			六角ナット Hexagon nut	
	さら Countersunk 2			1種 Type 1 1	
十字穴付き タッピンねじB型 3種 " screw B3	E	平座金 Washer	R		
	さら Countersunk 2			ばね座金 Spring washer	
	丸先 Round point 1			小形丸 1	
十字穴付き タッピンねじ 2種 " screw 2	F	止め輪 Snap ring	S		
	さら Countersunk 2			鋼球 Steel ball	
	丸先 Round point 1			G型 Type G 2	
十字穴付き タップタイトねじ B型 1種 Cross-point tap-tight screw B1	G	へリサート Helicert	U		
	さら Countersunk 2			(mm) 1	
	丸先 Round point 1			(インチ) Inch 2	
十字穴付き タップタイトねじ B型 3種 Cross-point tap-tight screw B3	H	鋼球 Steel ball	T		
	さら Countersunk 2			(mm) 1	
	丸先 Round point 1			(インチ) Inch 2	
すりわり付き止ねじ Splitted set screw	K	へリサート Helicert	U		
				丸先 Round point 1	(mm) 1
				とがり先 Cone point 2	(インチ) Inch 2

(2) The term of sale column 販売区分欄

Mark 記号		Explanation 説明
○	Can be supplied individually	単独部品として販売するもの
△	Not supplied individually but only as subassembly	部組品でなければ販売しないもの
○△	Supplied either as part or subassembly	単独部品でも部組品でも販売するもの
×	Not considered as repair part	修理部品とは考えないもの
※	Should be sent to the factory if the repair is needed	単体では交換できないので、組む場合に工場での加工が必要なもの
☒	Delivered as a product from the sales department (i.e., not supplied as repair part)	商品として販売店で販売しているもの(修理部品扱いはしない)

(3) The remarks column 備考欄

32FB1 #664	Part number used in common	共通部品番号
(Blue×125mn)	Lead wire (color×length)	コードの色と長さ
53F2013 (FM-780028)	Technical information ref. number (number in parenthesis; English edition)	製品技術資料番号、()内は英文 No.
(2.1×3.8×0.007)	Washer (internal diameter ×external diameter×thickness)	ワッシャーの(内径×外径×厚さ)
(Black)	Black-finished parts	黒部品
(d=0.2)	Diameter of wire.	線径=0.2
(t=1)	Thickness	厚さ=1
Rev.	Revision	訂正
Add.	Addition	追加
Dis.	Discontinuation	廃止
Ⓟ	Plastic part	プラスチック部品
OLD	Part of the initial design	旧部品
R1 ..., D1 ... C1 ..., Q1 ... W1 ..., P1 ...	Abbreviation for electronic part	電気部品記号

*……既出部品

部品表の部品番号及び部組品一覧表の部組品番号欄にある()内の図番は、部品課から出庫されるRPの包装ラベルに表示されている図番(在庫管理部品)で、各々共通部品です。

* COMMON PART AND RP CODE

A code in parenthesis under part number is for common part. This RP code is to be printed on package label.

部 品 番 号 Part No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. per Unit	部 組 品 番 号 Assembly	参照図番 Figure	販 売 区 分 Term of Delivery	備 考 Remarks
*1K001-003 ✓	753	上カバー止ネジ (黒) Screw (black)	3		15	○	
*1K001-004	757	蝶番止ネジ Screw	3		16	○	FM ₂
*1K001-006-1 (1K001-006)	751	底カバー止ネジ (黒) Screw (black)	3		5	○	FM ₂
1K001-017 ✓	754	上カバー止ネジ (黒) Screw (black)	2		15	○	
*1K010-017-2 (1K010-017)	730	L C D 取付ネジ Screw	2		14	○	FM ₂
*1K040-001-1 (1K040-001)	584	リリース釘ピン Screw	1	1B670-023-9 1B670-039	15	○△	FM ₂
*1K050-022	718	チリトリ ワッシャー t=0.2 Washer	1	1B670-026-4 1B670-027-4	9	○△	FM ₂
*1K050-029	738A	プリズムボックス調整座金 t=0.05 Washer, prism box	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-030	738B	" t=0.06	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-031	738C	" t=0.07	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-032	738D	" t=0.08	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-033	738E 135	" t=0.09	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-034	738F	" t=0.1	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-035	738G	" t=0.01	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-036	738H	" t=0.12 Washer, prism box	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個 Pcs. per Unit	部組品番号 Assembly	参照図番 Figure	販売 区分 Term of Delivery	備考 Remarks
*1K050-037	738 I	プリズムボックス調整座金 t=0.2 Washer, prism box	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-038	738 J	" t=0.3	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-039	738 K	" t=0.4	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-040	738 L	" t=0.5	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-041	738 M	" t=0.6	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-042	738 N	" t=0.7	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-043	738 P	" t=0.8	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-044	738 Q	" t=0.9	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-045	738 R	" t=1.0	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-046	738 S	" t=1.1	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-047	738 T	" t=1.2	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-048	738 U	" t=0.03	0~4	1B670-026-4 1B670-027-4	13	○△	FM ₂
*1K050-073	778	面カム外しレバー座金 t=0.1 Washer, axle #455	1		4	○	FM ₂
*1K050-074	468	スプロバネ座金 Washer, sprocket spring	2		1	○	FM ₂
*1K050-075	774 A	巻上ギアワッシャー t=0.05 Washer, film-advance gear	0~1		2	○	FM ₂

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. per Unit	部組品番号 Assembly	参照図番 Figure	販売 区分 Term of Delivery	備考 Remarks
*1K050-076	774B	巻上ギア ワッシャー Washer, t=0.1 film-advance gear	0~1		2	○	FM2
*1K050-077	774C	" t=0.2	0~1		2	○	FM2
*1K050-078	774D	" t=0.3	0~1		2	○	FM2
*1K050-079	774E	" t=0.25	0~1		2	○	FM2
*1K050-080	774F	" t=0.15	0~1		2	○	FM2
1K050-111	163	バネ押え座金 Washer	1	1B150-018-1	12	○△	
1K050-115	762	リリース釦ワッシャー Washer, release button	0~3	1B670-023-9 ×0~3 1B670-039 ×0~3	15	○△	
1K050-153-1	776	AR解除バネ、ワッシャー Washer, AR release spring	1	1B670-023-9 1B670-039	15	○△	
*1K050-112	718	ワッシャー t=0.3 Washer	0~1			○	
*1K050-144	718	ワッシャー t=0.1 Washer	0~1			○	
*1K060-008	721	ダウンバネ ワッシャー Washer, mirror down spring	1	1B670-026-4 1B670-027-4	8	○△	FG
*1K060-010	725	制御連結レバー ワッシャー Washer, lever # 221	1	1B670-026-4 1B670-027-4	9	○△	FG
*1K060-020	659	開閉ノブ押えクリップ Snap ring, o/c knob	1		6	○	35FB # 659
*1K080-005	90	三角環保護カバー Neckstrap protector	2		4, 13	○	FM2
1K083-019	637A	モード指標板 Mode index plate	1	1B670-023-9	15	○△	

部 品 番 号 Part No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. per Unit	部 組 品 番 号 Assembly	参照図番 Figure	販 売 区 分 Term of Delivery	備 考 Remarks
1K083-020	653	巻戻ノブ Rewind knob	1		6	○	
1K083-022	684A	補正指標板 Exposure compensation index	1	1B670-023-9	15	○△	
1K083-023	686	開閉ノブ o/c knob	1		6	○	
1K083-024-1	409	多重レバー Multi-exposure lever	1	1B670-023-9 1B670-039	15	○△	
1K083-043	637B	モード指標板 Mode index plate	1	1B670-039	15	○△	
1K083-044	684B	補正指標板 Exposure compensation index	1	1B670-039	15	○△	
*1K100-035	89	三 角 環 Neckstrap ring	2		4,13	○	FM ₂
1K100-051	263	連結ワイヤー Wire, release magnet	1	1B670-026-4 1B670-027-4	12	○△	
1K110-102	30	グリップ擬革 Leatherette, grip	1	1B060-135	16	○△	
*1K110-082	476	緩衝ゴム Shock absorber	1		5	○	FM ₂
*1K115-154	71	遮光モルトA Light-tight sponge A	1	1B620-014-5	17	○△	FM ₂
*1K115-155	72	遮光モルトB Light-tight sponge B	1	1B620-014-5	17	○△	FM ₂
*1K115-156	73	遮光モルトC Light-tight sponge C	1	1B620-014-5	17	○△	FM ₂
*1K115-157	74	遮光別珍B Light-tight cloth B	1	1B620-014-5	17	○△	FM ₂
*1K115-186	92	溝用モルトブレンA Sponge strip A	1		16	○	FM ₂

部 品 番 号 Part No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. per Unit	部 組 品 番 号 Assembly	参照図番 Figure	販 売 区 分 Term of Delivery	備 考 Remarks
1K208-025	616	飾り釦 Shutter dial button	1		12	○	
*1K220-031	76	裏蓋着脱バネ Spring, camera back release	1	1B620-014-5	17	○△	FM ₂
*1K220-038-1	58	止め爪 バネ Spring, latch B # 53	1		16	○	FM ₂
*1K220-039	467	スプロケット バネ Sprocket spring	1		1	○	FM ₂
1K220-089	357	EE信号ピン バネ Spring, EE signal pin	1	1B670-026-4 1B670-027-4	10	○△	
1K220-091	633	上ロック解除バネ Spring, shutter dial lock release	1	1B670-023-9 1B670-039	15	○△	
1K220-092-1	585	S釦バネ Spring, shutter button	1	1B670-023-9 1B670-039	15	○△	
1K220-095	378	着脱釦バネ Spring, lens release button	1	1B670-026-4 1B670-027-4	10	○△	40FB # 730
*1K220-096-1 (1K220-096)	662	フリクションバネ Friction spring	1		6	○	35FB # 662
1K220-097	569	MD軸バネ Spring, MD shaft	1		5	○	
*1K225-042-1	496	振り子バネ Pendulum spring	1		5	○	FM ₂
*1K225-051	305	遅延バネ Spring, delay segment gear	1	1B670-026-4 1B670-027-4	8	○△	FG
1K225-059-1	251	ミラー up バネ Mirror-up spring	1	1B060-137-5	7	○△	
1K225-063	154	モードバネ Mode changeover spring	1	1B150-018-1	12	○△	
1K220-130	636	クリックバネ Click spring	1			○	

部 品 番 号 Part No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. per Unit	部 組 品 番 号 Assembly	参照図番 Figure	販 売 区 分 Term of Delivery	備 考 Remarks
IS810-189	1083	リード線 Lead wire	1			X	W-0056YE
IS810-190	1084	リード線 Lead wire	1			X	W-0056BN
IS810-191	1085	リード線 Lead wire	1			X	W-0056PU
IS810-192	1086	リード線 Lead wire	1			X	W-0056BK
IS810-193	1087	リード線 Lead wire	1			X	W-0056WH
IS810-196	1090	リード線 Lead wire	1			X	W-0056OR
IS810-197	1091	リード線 Lead wire	1			X	W-0056GN
IS810-198	1092	リード線 Lead wire	1			X	W-0056GN
IS810-199	1093	リード線 Lead wire	1			X	W-0056PU
IS810-200	1094	リード線 Lead wire	1			X	W-0056PU
IS810-202	1096	リード線 Lead wire	1			X	W-0056GN
IS810-204	1098	リード線 Lead wire	1			X	W-0056GY
IS810-208	1102	リード線 Lead wire	1			X	W-0056OR
IS810-209	1103	リード線 Lead wire	1			X	W-0056GN

部 組 品 番 号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 Pcs.per Unit	構 成 部 品 番 号 Constituent Parts	参照図番 Figure	備 考 Remarks
*1B001-085	B85	吊 環 Eyelet	2	1K100-034 1K044-001	4, 13	FM2
*1B001-086	B47	圧 板 Pressure plate	1	1K240-049 1K600-087	17	FM2
*1B001-099-2 (1B001-099-1)	B121	スクリーン枠 Focusing screen frame	1	1K240-068×2 1K620-032-1	9	FM2
*1B001-128-4 (1B001-128-2)	B522	スプール上ギヤ Spool upper gear	1	1K078-007 1K260-055 1K620-047 1K630-113	1	FM2
*1B001-132-3 (1B001-132-1)	B4472	スプール軸 Spool shaft	1	1K370-368-2 1K230-044-1	1, 2	FM2
1B001-237-1	B27	半固定カバー Cover variable resistors	1	1K150-024 1K625-025-1	13	
1B001-238	B280	ミラー軸板 Mirror axle plate	1	1K370-421 1K610-315		
1B001-239-2	B294	絞り込み駆動レバー Lever, stop-down actuating	1	1K048-020 1K240-140	11	
1B001-240	B338	ミラー遮光板 Light baffle plate, mirror	1	1K240-088 1K680-229	9	
1B001-245	B551	リリースマグネットユニット Unit, release magnet	1		12	
1B001-247-1	B628	圧接基板 Acceptor, FPC holder C	1	1K600-189 1K630-150-1×2	14	
1B001-248	B673	ASA ブラシ ASA base plate brush	1	1K240-164 1K680-215	6	
1B001-249-2	B33	アイピース基板 Eypiece base plate		1K340-049-1 1K370-451 1K370-452 1K370-523 1K570-025-1 1K570-026 1K610-358	15	

部 組 品 番 号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs.per Unit	構 成 部 品 番 号 Constituent Parts	参照図番 Figure	備 考 Remarks
1B001-250-2	B100	シャッター Shutter	1		4	
1B001-252-1	B395	シャッター遮光板 Light baffle plate, shutter	1	1K115-672 1K115-673 1K115-674 1K370-465×2 1K610-492	9	
1B001-253-1	B541	後幕SW基板 Closing curtain switch	1	1K115-193 1K314-132 1K370-200-1 1K610-364	5	
1B001-254-1	B549	後幕SW基板 Closing curtain switch	1	1K240-170 1K240-171 1K240-173 1K680-223 1S810-177 1S810-179	5	
1B001-296-2	B103	シュー座モールド Shoe mount	1	1K370-434-1 1K370-435-1 1K680-205-1	15	
*1B001-313-5 (1B001-313-1)	B2501	下地板 Unit, film-advance mechanism	1	1K050-072 1K078-007×24 1K120-054 1K230-041 1K260-053-1 1K260-117-2 1K310-019 1K314-069 1K340-023 1K370-224-1 1K370-225-1 1K370-601-1 1K610-187 1K610-273-1 1K625-027-1 1K610-278 1K640-355 1K640-356 1K260-118	2	FE2
1B001-338	B362	圧接ゴムホルダーA FPC holder A	1	1K115-418 1K610-349	14	
1B001-339-1	B364	圧接ゴムホルダーB FPC holder B	1	1K115-419 1K610-350	14	
1B001-342	B630	圧接ゴムホルダーC FPC holder C	1	1K115-422 1K610-357	14	
1B001-343	B691	圧接ゴムホルダーD FPC holder D	1	1K115-426 1K610-363	14	
1B060-078-1	B136	電池ケース Battery chamber	1	1K048-022 1K240-050-1 1K370-521-1 1K610-174 1K680-208 1S810-349	4	
1B060-080-1	B255	ミラーSWモールド Mirror switch	1	1K115-394 1K240-137 1K240-138-1 1K240-139 1K600-182 1K680-200 1S810-191 1S810-192 1S810-193	7	

部 組 品 番 号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs.per Unit	構 成 部 品 番 品 Constituent Parts	参照図番 Figure	備 考 Remarks
1B060-081-1	B297	絞り込みプリント板座 Base, stop-down printed circuit	1	1K048-021 1K610-317 1S700-024 1S810-190	11	
1B060-082-2	B336	SPDホルダー SPD holder	1	1K680-144-1 1S250-006 1S882-003	8	
1B060-083-1	B343	C.P切換スイッチ Meter mode switch	1	1K240-207 1K680-248 1S880-296	13	
1B060-084-2	B622	電源SW切換基板 Power switch	1	1K048-027 1K230-100 1K240-163 1K370-447 1K610-356 1K680-213 1S700-027 1S810-323 1S810-189	12	
1B060-085-2	B681	LEDホルダー LED holder	1	1K083-021-1 1K580-005 1K610-441-1 1S810-199 1S810-200 1S260-010	12	
1B060-105-1	B355	EE識別スイッチ EE lens switch	1	1K048-024 1K115-529×1 1K240-158 1K240-239 1K240-244 1K240-241 1K620-061 1K680-269 1S810-209 1S810-210 1S810-297	11	
1B060-106-5 (1B060-106-4)	B109	シュー接点モールド Shoe contact mold	1	1K240-152 1K240-153-3 1K240-154-3 1K240-155 1K680-206 1S113-004 1S810-204 1S810-203	13	
1B060-135	B185	グリップ Grip	1	1K010-027×3 1K110-102 1K380-013 1K620-059 1K680-209	16	
1B060-137-5 (1B060-137-4)	B2201	I基板 Base plate I 次ページへ続く	1	1K610-313-2 1K314-120 1K370-418 1K370-301 1K340-045 1K314-119-1 1K370-417 1K366-029 1K370-416 1K230-092 1K314-121 1K314-118 1K314-122-1 1K330-003 1K330-004 1K370-293 1K370-415 1K050-060 1K370-291 1K310-023-2 1K370-245-2 1K370-246-1 1K370-297 1K314-113 1K314-112 1K370-294 1K366-015 1K314-115	7, 9	

組立品番号 Assembly No	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. per Unit	構成部品番号 Constituent Parts	参照図番 Figure	備考 Remarks
		続き I 基板 Base plate I		1K370-414 1K640-273 1K340-043 1K370-413 1K314-114 1K314-188 1K366-031 1K370-298 1K370-292 1K366-030 1K370-296-1 1K370-300 1K370-411 1K640-238 1K230-087 1K366-034-2 1K680-143 1K230-054 1K230-088 1K120-003 1K230-090 1K230-089 1K230-091 1K136-014 1K225-059-1 1K314-116 1K120-141 1K115-396 1B314-073-1 1B060-080-1		
1B060-136-1	B.327	制御 Mg Aperture control magnet	1		8	
1B060-138-8 (1B060-138-7)	B.2301	L 基板 Mirror cage L	1	1K610-347-1 1K370-315-1 1K370-317-1 1K370-316-1 1K370-441 1K314-093 1K370-313-1 1K370-311-1×2 1K370-291-1 1K370-440-1 1K314-092 1K366-020 1K314-124 1K370-319 1K366-019-1 1K230-065-1 1K230-067 1K115-417 1K630-149 1K120-153 1K230-099 1K600-254 1S045-011-3 B1-17018FA×2 S1-01200SX×6 A1-17015FB×4 1B260-005 1B277-006 1B260-003 1B260-004-1 1B277-005 1B060-136-1 1B060-082-1 1B001-240 1B277-012 1B314-078-2 1B001-238		
1B060-139-8 (1B060-139-7)	B.2416	上地板 Unit, film-advance lever 次ページへ続く	1	1K150-008 1K230-039 1K640-253 1K610-380-1 1K050-157 1K275-026-1 1K230-114 1K475-158-1 1K480-005 1K230-077 1K130-175-1 1K230-116-1 1K680-169-2 1K260-077 1K370-468 1K260-078 1K240-180 1K680-270 1K240-169 1K240-237 1K230-101 1K610-270 1K060-003 B1-14025FA 1K120-106 1S810-180 1S810-183 1S810-185	3	RPは 巻止レ バー及 止ネジ は除く

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 Pcs.per Unit	構 成 部 品 番 品 Constituent Parts	参照図番 Figure	備 考 Remarks
1B060-139-8 (1B060-139-7)	B2416	続き 上地板 Unit, film-advance lever		1S810-187 1S810-324 1K610-381-1 1K340-040-1 1K314-105 1K370-519-1 1K050-058 1K314-137 1K314-128 1K370-466 1K370-371-1×2 1K314-080 1K340-026 1K370-469-1 1K370-520-1 1K680-222 1K314-140 1K240-168 1K600-253 1K115-430-1	3	
1B060-140-3	B2604	Tダイヤル基板 Shutter dial unit	1	1K610-354 1K340-046 1K370-443-1 1K370-445 1K370-444 1K314-126 1K048-025×3 1K017-006 1K610-355 1K370-446-1 1K240-161 1K048-026-1×2 1K370-505 1K680-212-1 1K240-162 1K340-047 1K078-003×2 1K220-090 1K150-025 P3-12080 SX 1K060-019 1K220-130	12	
1B060-141-5	B2661	ASAダイヤル基板 ASA dial unit	1	1K610-360-1 1K610-362-1 1K370-450 1K340-048-2 1K680-210 1K240-165 1K240-166 1K115-425×2 1K201-026 1K370-479 1K610-361 1S705-012-1 1K600-190 1K470-015 1K640-278 1K246-016 1K160-253 A1-14014 FA 1K120-100 1K126-015 1K060-018 1B001-248	6	
1B100-128-2	B171	ミラー調整板B Mirror adjusting Plate B	1	1K610-344-1 1G550-015		
1B100-130	B272	ミラーチリトリ Mirror holder	1	1K610-177 1K240-054-1 1K240-055-1 1K370-217×2 1G551-004-1 1K115-220-3 1K600-183 1K370-420 1K370-204×4 1K600-198 1K370-464 1K115-391-1	9	

部 組 品 番 号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs.per Unit	構 成 部 品 番 品 Constituent Parts	参照図番 Figure	備 考 Remarks
1B100-177-4	B22	エプロン (白) Apron (white)	1	1K080-010-4 1K680-219 1G218-008 1K115-485	10	
1B100-213-2	B22	エプロン (黒) Apron (black)	1	1K080-010-2 1K680-219 1G218-008 1K115-485		
1B150-018-7	B2151	表示板 Unit, LCD viewfinder information	1	1K610-337-1 1G550-012 1K610-342-2 1S260-007 1S705-011 1K115-773 1K630-148 1K370-436 1K610-338-1 1K610-340 1K610-339 1K370-438 1K370-437-1 1K370-458 1K610-341 1 1K048-023 1K275-019 1K610-345-1 1K610-343-2 1G550-013 1K115-783 1K115-424 1G550-014 1K050-033 1K048-033 1B150-014-5 1K115-773 1B100-128-2 1B470-004-2 1K230-096 1K225-063 1K050-111 1K230-097-2 1K120-111 S1-01200SB K1-14050FB×2 K1-14025FB K1-14018FB×2 1S-810-196 S810-197 1S-810-198 S1-01200SB	12	
1B150-023-2	B120	接眼モールド Eyepiece mold	1	1K500-222-1 1K610-378 1K610-377-1×2 1K600-289 1K600-290 1S250-005 1G118-003×2 1S250-008 1G013-013	13	
1B206-013-1	B264	セルフレバー Self-timer lever	1	1K625-006	13	
1B206-014-2	B401	巻上げレバー (白) Film-advance lever (white)	1	1K206-012-2 1K610-185-1 1K206-013-2 G1-20050FC×2	3	
1B206-016-2	B401	巻上げレバー (黒) Film-advance lever (black)	1	1K206-020 1K610-185-1 1K206-013-2 G1-20050FC×2		
1B208-011-	B341	C. P 切換釦 Meter mode button	1	1K208-028 1K680-271 1K220-101 1K044-005	13	
*1B260-003	B310	フライホイール Flywheel	1	1K640-239 1K050-062 1K260-033 1K050-083 1K246-008	8	FG

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs.per Unit	構 成 部 品 番 品 Constituent Parts	参照図番 Figure	備 考 Remarks
*1B260-004-1 (1B260-004)	B319	制御セグメントギヤ Aperture control segment gear	1	1K260-034-1 1K340-032	8	FG
*1B260-005	B302	セグメント遅延ギヤ Delay segment gear	1	1K260-030 1K340-031	8	FG
1B273-001-1	B386	fo ブラシギヤ fo brush gear	1	1K273-005-1 1K240-160 1K610-352	11	
*1B277-005	B323	制御ギヤ Aperture control gear	1	1K260-036 1K260-037-1	8	FG
*1B277-006	B308	遅延ギヤ Delay gear	1	1K260-031 1K260-032	8	FG
1B277-012	B340	制御ラチェット Aperture control ratchet	1	1K275-018 1K260-035	8	
*1B300-007-7 (1B300-007-1)	B480A	セットカムA Set cam A	0~1	1K625-008-4 1K370-227 1K630-087-1 1K600-101-2	1	FM2
*1B300-008-8 (1B300-008-2)	B480B	セットカムB Set cam B	0~1	1K625-008-4 1K370-227 1K630-087-1 1K600-102-3	1	FM2
*1B300-009-8 (1B300-009-1)	B480C	セットカムC Set cam C	0~1	1K625-009-5 1K370-227 1K630-087-1 1K600-101-2	1	FM2
*1B300-010-9 (1B300-010-2)	B480D	セットカムD Set cam D	0~1	1K625-009-5 1K370-227 1K630-087-1 1K600-102-3	1	FM2
1B310-029	B223	絞り制御横軸 Aperture control shaft	1	1K370-412 1K310-030 1K630-104 1K370-314	9	
1B310-030	B688	開閉ロックレバー Lever, rewind knob lock	1	1K310-038 1K225-045	6	
*1B314-049	B654	巻戻クランク Rewind crank	1	1K625-010 1K201-014 1K370-240	6	FM2
1B314-073-1	B236	制御スタートレバー Control start lever	1	1K 14-117 1K340-044-1	7	
1B314-074	B268	セルフカム Self-timer cam	1	1K610-314 1K156-017	13	

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 Pcs. per Unit	構 成 部 品 番 品 Constituent Parts	参照図番 Figure	備 考 Remarks
1B314-075-1	B535	シャッターチャージレバー Shutter charge lever	1	1K314-054-1 1K370-198 1K370-199-1 1K640-317	1	
1B314-076-1	B544	二重巻上防止レバー Lever, double exposure preventing	1	1K314-133 1K340-050-1	5	
1B314-077	B552	メカリリースレバー Mechanical release lever	1	1K314-134 1K366-033	11	
1B314-078-2	B349	Fmm 信号レバー Focal length (Fmm) signal lever	1	1K314-125-1 1K240-157-1 1K048-052	8	
1B314-079-2	B556	リリース板 A Release plate A	1	1K314-135-1 1K370-453 1K048-028 1K240-172 1K314-136 1K370-454	4	
1B340-001-2	B4474	スプール軸受 Bearing, spool shaft	1	1K078-007×8 1K640-196 1K640-201-1 1K640-202	1	FM2
*1B400-001-2 (1B400-001-1)	B77	シンクローターミナル Sync terminal	1		6	FM2
*1B467-007-2 (1B467-007-1)	B137	電池キャップ Battery chamber lid	1	1K467-017-2 1K630-082		FM2
1B470-004-2	B164	Tフィルム Shutter speeds inner indicator	1	1K470-013-1 1K275-017-2 1K370-439-1 1K165-026 1K115-423-1	1, 2	
*1B620-014-6 (1B620-014-2)	B25	裏 蓋 Camera back	1	1K620-046-3 1K370-193-1×4 1K600-079 1K370-176-1 1K370-580×2 1K240-033-1 1K610-280 1K370-578×2 1K362-014 1K610-163 1K370-577×3 1K362-007-1 1K680-098-2 1K115-301-1 1K115-154 1K115-55 1K115-156 1K115-157 1K123-034 1K220-031 1K115-715	17	FM2
*1B630-009	B457	スプール Spool	1	1K630-116 1K630-115 1K640-256		
1B640-017-4 (1B640-017-3)	B382	絞り連動環 B Aperture coupling B	1	1K240-159-2 1K640-404	10	

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個数 Pcs.per Unit	構成部品番号 Constituent Parts	参照図番 Figure	備考 Remarks
1B670-014	B24	底カバー (白) Bottom cover (white)	1	1K620-062 1K640-187-1 1K640-279 1K370-189 1K640-188 1K060-005-1	5	
1B670-025	B24	底カバー (黒) Bottom cover (black)	1	1K620-070 1K640-187-1 1K640-279 1K370-189 1K640-188 1K060-005-1		
1B670-023-9 (1B670-023-8)	B23	上カバー (白) Top cover (white)	1	1B001-249-2 1B001-296-2 1K670-016-1 1K625-007-2 1K680-218 1K406-014 1K240-118-2 1K240-151 1K600-187 1K115-412 1K115-603 1K083-024-1 1K630-152-1 1K340-052 1K208-023 1K370-456 1K040-001-1 1K220-092-1 1K370-457-1 1K050-115×0~3 1K206-015 1K120-103 1K630-159 1K208-021-1 1K220-091 S1-01200SX 1K206-011-1 1K083-019 1K208-022-1 S1-02000SX 1K083-022 A1-17040FA×4 1K050-153	15	
1B670-039 (1B670-024-9)	B23	上カバー (黒) Top cover (black)	1	1B001-249-2 1B001-296-2 1K670-026-1 1K625-007-2 1K680-218 1K406-014 1K240-215-1 1K240-151 1K600-187 1K115-412 1K630-152-1 1K083-024-1 1K208-023 1K340-052 1K040-001-1 1K370-456 1K370-457-1 1K220-092-1 1K206-015 1K050-115×0~3 1K630-159 1K120-103 1K220-091 1K208-021-1 1K206-011-1 S1-01200SX 1K208-022-1 1K083-043 1K083-044 S1-02000SX 1K050-153 A1-17040FA×4		
1B670-033-5 (1B670-026-9)	B2026	前ボディ (白) Unit, front plate (white) 次ページへ続く	1	1B100-177-4 1B001-085 1B206-013-1 1B314-074 1B001-239-2 1B060-081-1 1B208-011 1B060-083 1B060-105-1 1B640-017-4 1B273-001-1 1B314-077 1B06Q-084-2 1B060-085-2 1S017-004 1S017-005 1B150-018-7 1B060-140-3 1B060-137-5 1B060-138-8	7 10 11 12 13	

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. per Unit	構 成 部 品 番 品 Constituent Parts	参照図番 Figure	備 考 Remarks
1B670-033-5 (1B670-026-9)	B2026	前ボディ (白) Unit, front plate (white) 前ページより続き	1	1 B 001-099-2 1 B 310-029 1 B 100-130 1 B 001-252-1 1 K 310-024 1 K 060-010 1 K 225-051 1 K 230-098-1 1 K 050-022 1 K 060-008 1 K 230-093 A 2-17020 FB 1 K 670-017-1 1 K 640-298 P 3-16060 SX 1 K 240-156 1 K 620-063 1 K 130-084 1 K 610-170 1 K 115-191-1 1 K 130-123 1 K 120-098 1 K 206-017-1 1 K 610-316 1 K 230-094 1 K 370-442-1 1 K 220-089 1 K 146-028 1 K 610-348 1 K 362-017 1 K 156-020 1 K 600-223 1 K 130-140 1 K 220-095 1 K 225-075-1 1 K 370-567 1 K 273-002 1 K 680-211 1 K 225-064 1 K 260-076 1 K 404-036 1 K 610-353 1 B 001-245 1 K 240-065-1 1 K 130-133 1 K 310-037 A 1-17030 FA×3 1 K 130-142 B 1-14020 FA A 1-17025 FB×4 S 1-00800 SX B 1-17035 FB A 1-17035 FB×2 B 1-17020 FB×2 1 K 120-093×2 A 1-20025 FB×2 1 K 123-042×2 1 K 123-039×4 1 K 050-029~ 1 K 050-048×0~4 B 2-17045 FA 1 K 120-009×2 1 K 120-102-1 1 K 120-142 1 K 165-051 1 1 K 115-658×4 1 K 115-660×2 1 K 640-274 A 1-17015 FB 1 K 100-051		
1B670-034-5 (1B670-027-9)	B2026	前ボディ (黒) Unit, front plate (black) 次ページに続く	1	1 B 100-213-1 1 B 001-085 1 B 206-013-1 1 B 314-074 1 B 001-239-2 1 B 060-081-1 1 B 208-011 1 B 060-083 1 B 060-105-1 1 B 640-017-2 1 B 273-001-1 1 B 314-077 1 B 060-084-2 1 B 060-085-2 1 S 017-004- 1 S 017-005 1 B 150-018-7 1 B 060-140-3 1 B 060-137-4 1 B 060-138-6 1 B 001-099-2 1 B 310-029 1 B 100-130 1 B 001-252-1 1 K 310-024 1 K 060-010 1 K 225-051 1 K 230-098-1 1 K 050-022 1 K 060-008 1 K 230-093 A 2-17020 FB 1 K 670-017-1 1 K 640-298 P 3-16060 SX 1 K 240-156 1 K 620-063 1 K 130-084 1 K 610-170 1 K 115-191-1 1 K 130-123 1 K 120-098 1 K 206-017-1 1 K 610-316 1 K 230-094 1 K 370-442-1		

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 Pes.per Unit	構 成 部 品 番 品 Constituent Parts	参照図番 Figure	備 考 Remarks
1B670-034-5 (1B670-027-9)	B2026	前ボディ (黒) Unit, front plate (black)	1	1K220-089 1K146-028 1K610-348 1K362-017 1K156-020 1K600-223 1K130-140 1K220-095 1K225-075-1 1K370-567 1K273-002 1K680-211 1K225-064 1K260-076 1K404-036 1K610-353 1B001-245 1K240-065-1 1K130-133×2 1K310-037 A1-1700FA×3 1K130 B1-1402FX A1-17025FB×4 S1-00800SX B1-17035FB A1-17035FB×2 B1-17020FB×2 1K120-093×2 A1-20025FB×2 1K123-042×2 1K123-039×4 1K050-029~1K050-048×0~4 B2-17045FA 1K120-009×2 1K120-157 1K120-142 1K165-051 1K115-658×4 1K115-660×2 1K640-274 A1-17015FB 1K100-051		
1S017-004	B1003	fφ FPC FPC, fo	1	1K625-024 1S705-017	11	
1S017-005	B1004	f-φ FPC FPC, f-fo	1	1S705-018 1S700-041	10	
1S017-007	B1005	上地 FPC FPC, film-advance lever unit	1	1S705-030 1S700-058	3	
1S020-004	B1002	ASA/LCD FPC FPC, ASA dial/LCD viewfinder information	1	1S705-016 1S700-040 1S380-001 1S335-016×2 1S335-021×4 1S310-025 1S310-028 1S700-045 1S210-003	14	
1S020-007-1	B31001	FPC 次ページへ続く	1	1S705-015 1S322-014 1S237-034 1S125-006 1S130-008 1S340-023 1S340-024 1S340-025×2 1S340-026 1S340-032 1S335-015 1S335-017 1S335-018 1S335-020 1S335-021×3 1S310-021 1S310-022×2 1S310-023×3 1S310-024×2 1S310-026 1S310-027 1S708-002 1S237-035 1S237-036 1S125-007 1S700-044 1S220-002	14	

部 組 品 番 号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs.per Unit	構 成 部 品 番 号 Constituent Parts	参照図番 Figure	備 考 Remarks
1S020-007-1	B31001	前ページより続く F P C	1	1S210-004 1S700-046 1K115-465 1K048-030×5 1S110-005 1S300-068 1K240-174 1K048-029 1S700-042 1S300-064 1S340-022 1S700-050 1S700-051	14	
1S045-011-3	B350	Fmm 信号プリント板 Printed circuit, Fmm signal	1	1S700-025-1 1S810-207 1S810-208	8	
1S045-012	B589	リリースSW基板 Base plate, release switch	1	1S700-028 1S810-182 1S810-184	4	
1G013-013	L 1	接眼レンズ Eyepiece lens	1	1G104-020 1G247-019	13	
1G080-003	L 2	プリズム Pentagonal prism	1	1G415-005 1G480-013×2	1 13	
1S045-013		ダイオードケーブル Diode cable	1	1S110-005 1S720-039 1S810-460 1S810-461		