Service Manual

5000	**CODE No. 2073-200**
α 5000	**CODE No. 2073-400**
MAXXUM 5000	**CODE No. 2073-600**

MINOLTA

IMPORTANT SERVICE INFORMATION

This service manual has been reprinted in its entirety. It includes certain sections that can only be serviced by utilizing specialized test equipment not for resale to the independent service facilities. It is therefore recommended that the sections listed below not be serviced in any manner.

If the AF mechanism is disturbed in any way by such attempts, the resulting repair will be both time consuming and costly. Minolta will assist if any repair or adjustment is needed for this area. Please contact the closest Regional branch.

Following is a list of the pages in this manual describing the areas not recommended for servicing:

SECTION	PAGE(S)	DESCRIPTION
REPAIR GUIDE	8 to 10	MIRROR BOX ASSEMBLING
"	25 to 31	AF ADJUSTING
TROUBLESHOOTING CHART	46 to 50	AF/MANUAL FOCUSING FAILURE

MINOLTA 5000 (2073-200)·····Black
MINOLTA α 5000 (2073-400)·····Black
MINOLTA MAXXUM 5000 (2073-600)·····Black

TYPE OF CAMERA

35mm SLR camera with autofocus, automatic exposure, and auto film transport controlled by microcomputers.

Exposure mode : Programmed auto-exposure ; metered manual exposure
Standard lens : MINOLTA A LENS 50mm F1.7
50mm F1.4
Lens mount : Minolta A mount
Film : 35mm cartridge film
Film-frame size : 24mm×36mm

SHUTTER

Electronically controlled vertical-traverse focal-plane type

Shutter speed : P mode : 1/2000 to 4 sec. (stepless),
M mode : 1/2000 to 4 sec. (with 1-Ev settings), 1/100, B (only in M mode)
M mode···1/100, 1/60 to 4 sec ; set at 1/100 sec for manually set speed of 1/125 sec or faster

Shutter release : Electromagnetic shutter release ; with remote control terminal ; shutter locks when battery voltage is low

Operating button : With touch switch : metering and indication remain ON for 10 sec after the finger is removed from the touch switch ; with click stop on the half way
Touch switch ; activates metering and indication
Depressing halfway ; activates autofocusing and indication
Depressing all the way ; releases shutter

Slow shutter speed warning : Audible beeping with main switch (((in P mode, shutter-speed of warning is automatically change to match focal length of lens in use

For focal length	
shorter than 35mm	1/20 sec or slower
from 35mm to 105mm	1/45 sec or slower
longer than 105mm	1/1000 sec or slower

Self-timer : Electronic with 10-sec delay ; started by depressing operating button ; operation indicated by beeping sound with main switch in (((position ; countdown timer in data panel ; cancelable before shutter release.

FLASH SYNC

Type : TTL Direct Autoflash Metering (P, M modes)
Contact : Four contacts on hot shoe
Sync speed : P mode···automatically set at 1/100 or 1/60 sec
AF-assist : By pre-emission of light

FILM WINDING, REWINDING

Type : Continuous film advance up to approx. 1.5 fps
Film loading : Auto loading (auto advance to first frame by closing back cover)
End of roll : Indicated by blinking LCDs (frame number, film-cartridge symbol, film-loaded symbol, winding symbol) simultaneously and by beeping (with main switch at (((●)
Rewinding : Auto rewind starts by rewind-release button and rewind switch lever ; displaying amount of unrewound film on LCD ; auto stop when completed

VIEWFINDER

Type : SLR pentaprism type (fixed)
Focusing screen : Accute-Matte focsuing screen with focus zone (Not interchangeable)
Field of view : 94% of 24×36mm film-frame area
Magnification : 0.85× with 50mm standard lens focused at infinity
Dioptric power : −1 diop.
Lighting : Bulit-in LED to light viewfinder indication
Automatically turned ON in low light
Mirror : Fixed-hinge type quick return mirror (with half-mirror, sub-mirror)

VIEWFINDER INDICATION

Exposure indication LCD : Exposure mode, shutter speed, aperture, metering out-of-range warning, metered manual pointers, Over-/under-exposure warning; Low-battery warning low-battery signal

Flash indication : Flash-ready signal (2Hz and FEC signal (8Hz) indicated by blinking ϟ (red LED)

Focus indication : Autofocus
- In-focus indication "●" (green LED glows
- Too-close warning "▶" (red LED) glows
- Unmeasurable warning "▶◀" (red LED blinks

Manual focus (when manual focus)
- In-focus indication "●" (green LED glows
- Far-focus/near-focus indication "▶" or "◀" (red LED glows
- Unmeasurable warning "▶◀" (red LED blinks

LCD IN DATA PANEL (BODY LCD)

Exposure mode, "ISO", film speed ISO setting), self-timer symbol, low-battery signal (low-battery warning), "bulb", film-cartridge symbol, film-loaded symbol, amount of unrewound film, winding/rewinding symbol, frame number, self-timer countdown, bulb elapsed time

METREING CONTROL

Metering : TTL center-weighted averaging type; full-aperture metering; Direct (TTL, off-film) Metering with exclusive flash

Receiver element : 2 Silicon photocells, above of eyepiece; at bottom of mirror box

Auto exposure : Ev-1 to 20 with ISO 100 film and f/1.4 lens

Film speed range : ISO 25 to 6400 with 1/3-Ev settings; (flash control range: ISO 25 to 1000 with 1/3-Ev settings) Automatic with DX-coded films

Backlight compensation : Compensates exposure by +2Ev, by depressing "BLC" button in P mode

Program : One of three programs (NORMAL, WIDE, TELE) is automatically set to match focal length of lens; flash program automatically set with exclusive flash

AUTOFOCUS

Type : TTL phase-detection type

Working : BV-3 to 14

Focus sensor : CCD

Indication : In-focus indication; viewfinder LED and beeping sound with main switch (((● Unmeasurable warning; viewfinder LED

Focusing : Activated by depressing halfway operating button, and locked with focus-in; manual focusing possible by changing focus-mode switch to M

POWER

Battery : Four batteries are used from one of the following types:

Type	AM4	AM3	SUM3	NR-AA
Number of films	25 rolls	65 rolls	20 rolls	20 rolls
KODACOLOR VR 100 24 EXP.				

※Number of film per set of batteries. As determined by Minolta's standard testing method.

: Built-in lithium battery for memory backup, lasts 10 years or more

Battery check : Auto check while exposing; warning by viewfinder indication and body LCD.
Low battery signal blinks when near exhaustion—replace with fresh batteries.

Main switch : Sliding switch with LOCK, OFF, ON, (((● positions;
(((● for beeping indication when; slow-shutter-speed, in-focus, end of roll, self-timer operation

OTHER

Back cover : Interchangeable; with grip, film window

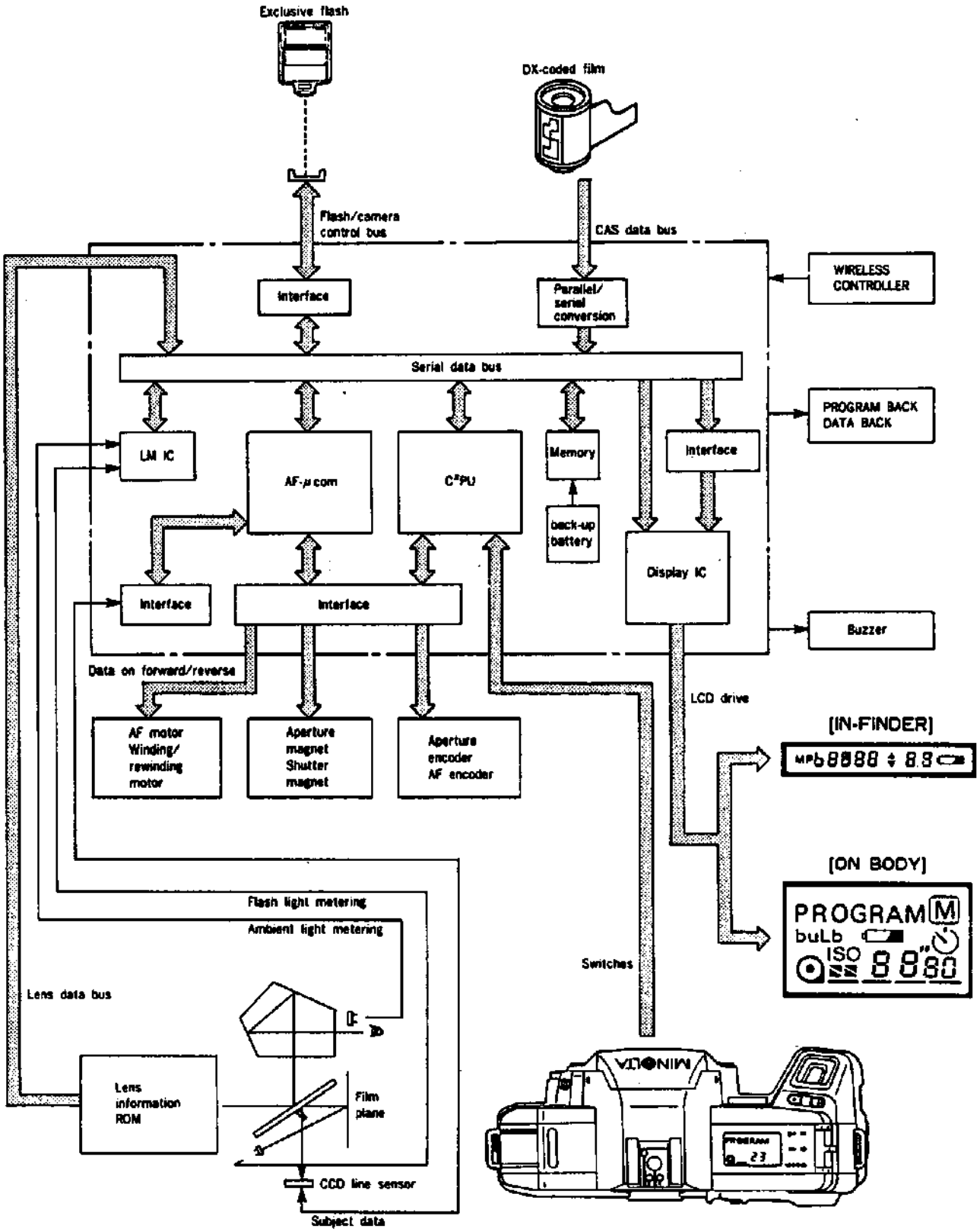
DIMENSIONS & WEIGHT

Dimensions : 138mm(W)×92.5mm(H)×52.0mm(D)

Weight (body only) : 550 g (without batteries)

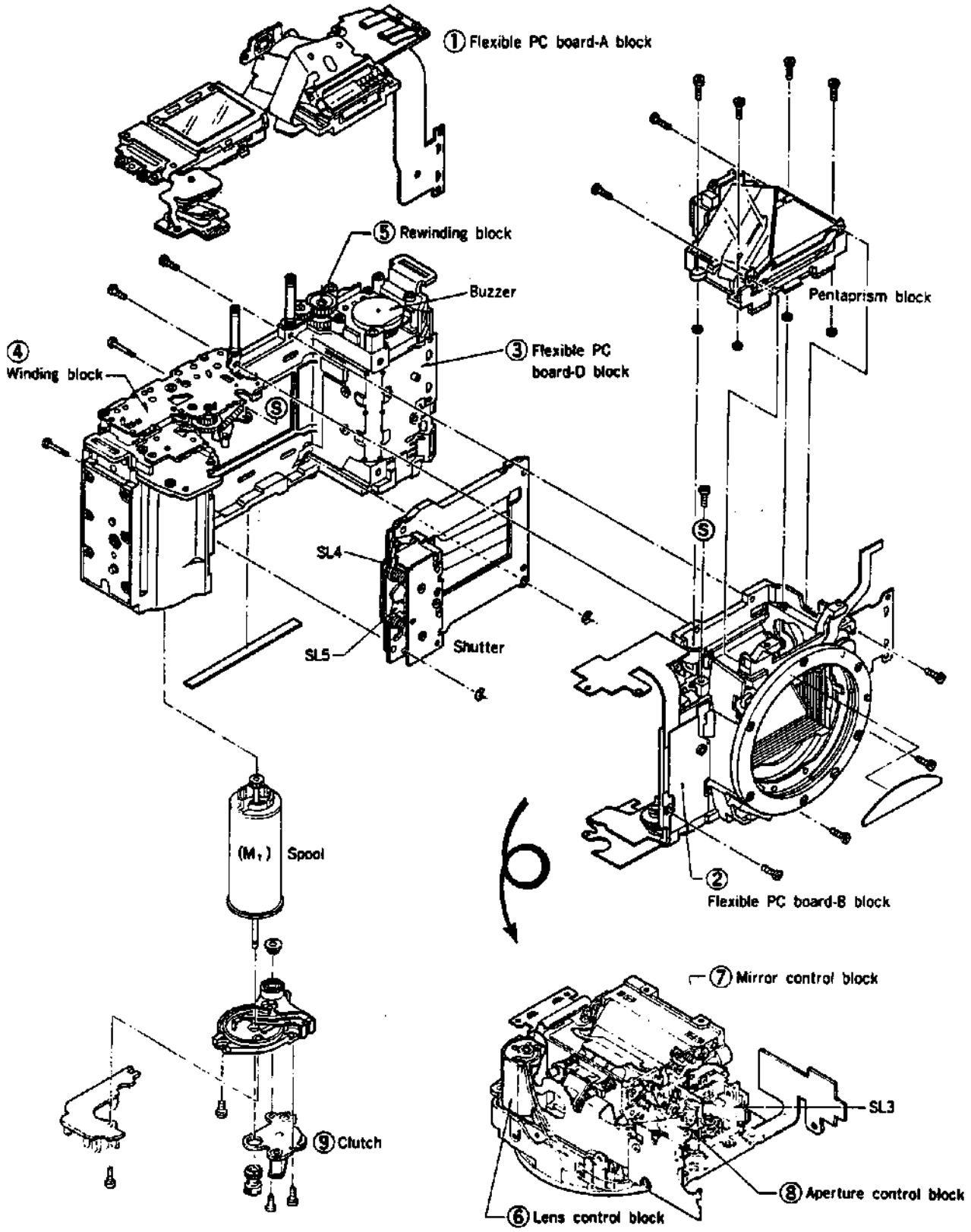
2073 mechanism description contents

1 . Electronic control system



2. Mechanical block description

(1) Block diagram



(2) Block description

① Flexible PC board-A block

Composed of $IC_{1, 2, 3, 4,}$ and $_{10}$. Controls metering, indication, exposure and then calculates the data, following program. Also controls timing of each IC operation.

② Flexible PC board-B block

- Composed of $IC_{6, 7, 8}$ and $_{9}$. Detects in-focus position and calculates defocus amount to operate AF.
- Supplies power to M_1 (camera drive motor), M_2 (AF drive motor).

③ Flexible PC board-D block

- Composed of IC_5. Decodes film speed on DX-coded film.
- Has contacts to PROGRAM BACK, DATA BACK, REMOTE CORD.

④ Winding block (interlocked with M_1 forward rotation)

Composed of clutch interlocking with M_1 rotation, clutch interlocking with rewinding gears, and winding/rewinding gears. Transports and takes up film, charges shutter.

⑤ Rewinding block (interlocked with M_1 forward rotation)

Composed of rewinding fork, rewinding gears.
Rewinds film, being interlocked with M_1 rotation.

⑥ Lens control block

Composed of M_2, AF coupler, AF encoder, AF drive gears.
AF encoder monitors M_2 rotation (interlocked with lens shifting amount) and shifts lens interlocking with AF coupler.

⑦ Mirror control block (interlocked with M_1 reverse rotation)

Composed of mirror-up lever mainly.
Controls mirror (turns up/down).

⑧ Aperture control block (interlocked with M_1 reverse rotation)

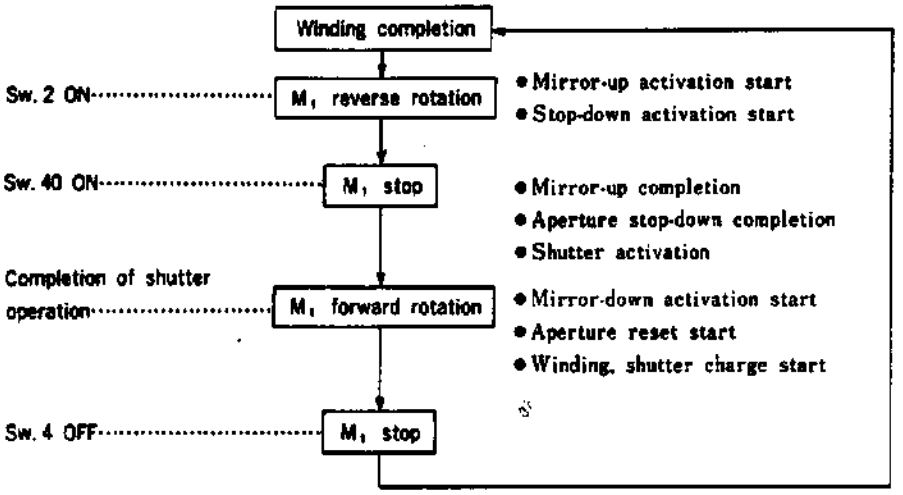
Composed of SL_3, aperture encoder, aperture-ring gears.
During stop-down operation, aperture encoder monitors rotation amount of aperture ring, and completes stop-down with SL_3 separation.

⑨ Clutch

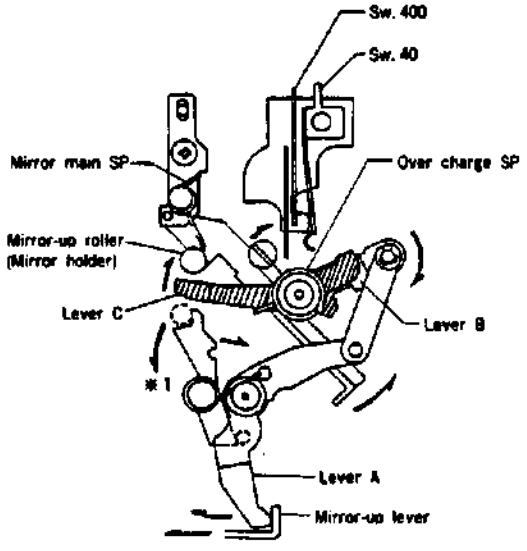
Transmits M_1 rotation to mirror box (mirror control block, aperture control block), during M_1 reverse rotation.

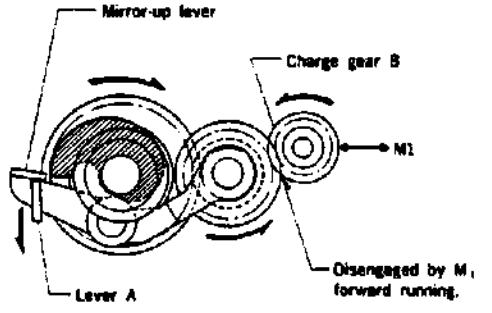
3. Mechanical description (Description of M, running direction in Service Manual: while shutter releasing···reverse, winding···forward)

(1) Operation cycle



(2) Mirror-up/-down mechanism





■Operation when mirror-up

M, starts running (reverse) ·····Charge gear B engages with mirror-box gears.

Mirror-up activation starts ·····Being pushed by mirror-up lever, levers A, B, C shift to push up mirror-up roller.

Sw. 400 ON ·····Sw. 4 OFF

Shutter-lock release ※1 ·····By $SL_{1,2}$, shutter blades are held.

Sw. 40 ON ·····Mirror-up completion signal.

M, stop ·····By Sw. 40 ON.

Mirror-up completion

■Operation when mirror-down

M, starts running (forward)

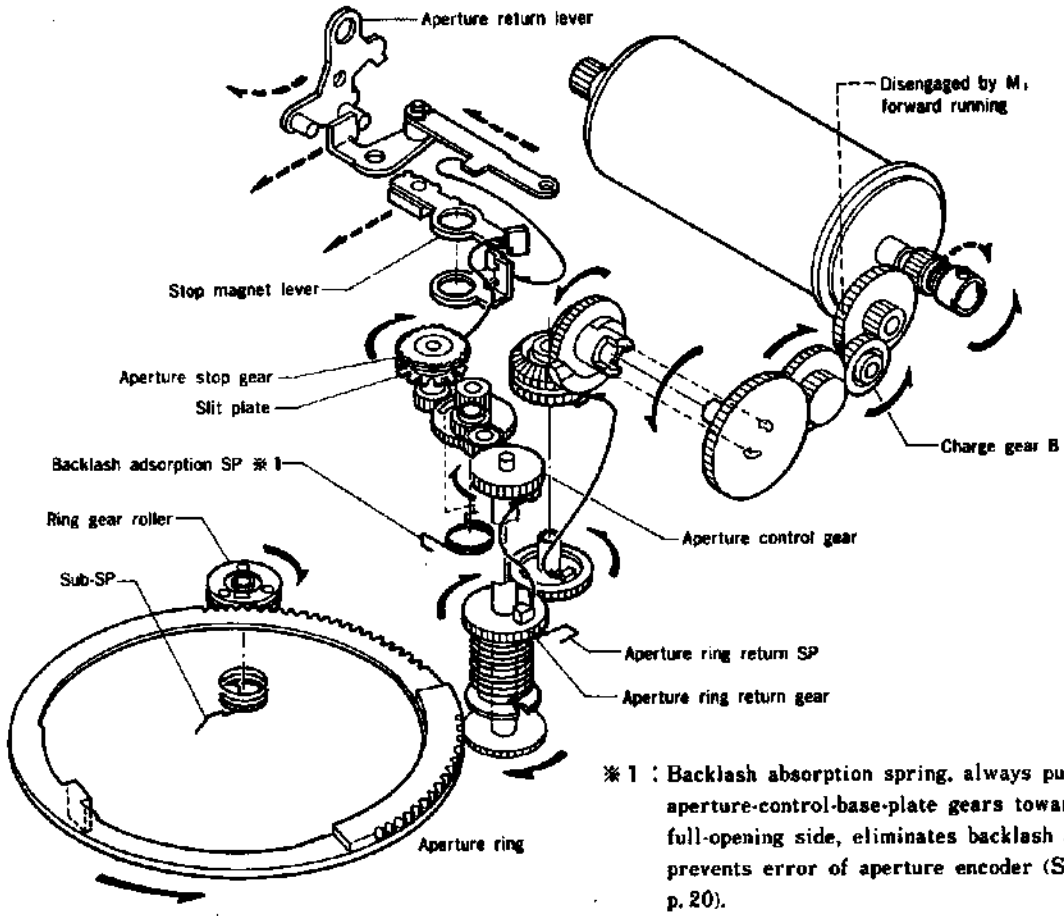
Mirror-down activation starts ·····By mirror main spring.

Sw. 40 OFF

Sw. 400 OFF ·····Sw. 4 ON before Sw. 400 OFF.

Mirror-down completion ·····Charge gear B and mirror-box gear are disengaged.

(3) Aperture control mechanism



※1 : Backlash absorption spring, always pushing aperture-control-base-plate gears towards full-opening side, eliminates backlash and prevents error of aperture encoder (See p. 20).

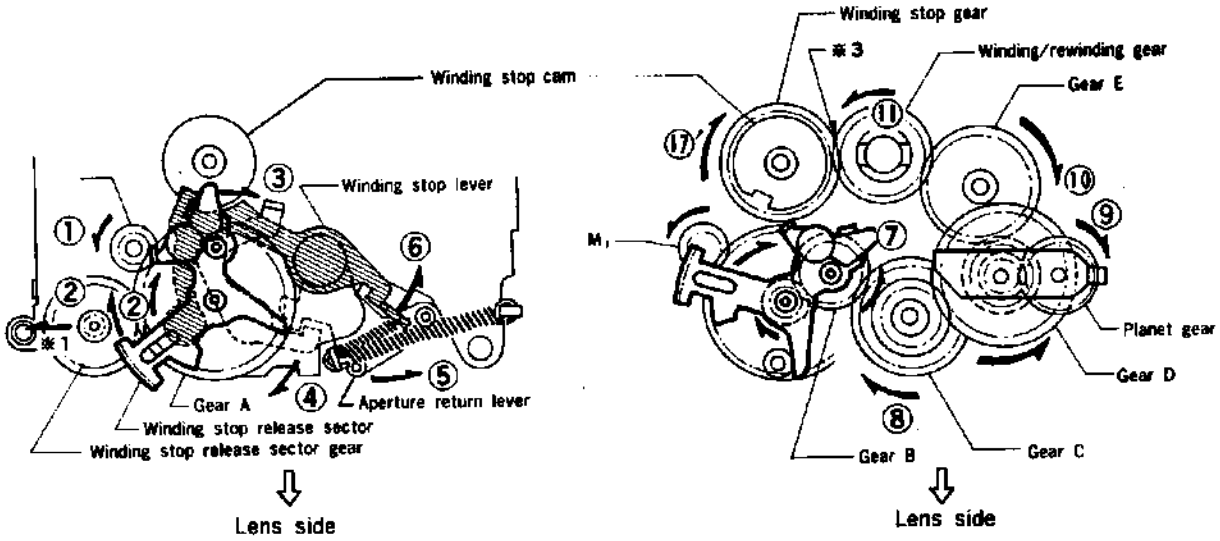
■Operation when stop-down

- M_1 starts running (reverse) ..... With charge gear B engaging with mirror-box gears, shutter-release activation starts.
  For full-opening setting, SL_3 separates, and aperture-stop-gear locks by stop-magnet-lever, (no activation of aperture ring).
- Stop-down activation starts ..... Rotating, aperture-ring-return-gear charges aperture-return-spring → Ring-gear-roller rotates by sub-spring → Aperture ring rotates in the direction of stop-down + Aperture-control-gear rotates.
- Slit plate rotates, generating aperture pulse
- Aperture pulse count ..... Pulse is counted, corresponding to amount of setting aperture from full-opening. 1 stop = 8 pulse
- Aperture-ring stop ..... SL_3 separates → Stop-magnet-lever stops aperture-stop-gear → Aperture ring stops. (Aperture-ring-return-gear continues rotation.)
- Completion of stop-down

■Operation when resetting to full-opening

- M_1 starts running (forward) ..... Charge gear B is disengaged → Mirror-box gears idle.
- SL_3 charge ..... Almost the same time that mirror box gears become idle, SL_3 is charged by aperture-return-lever on winding-base-plate side, and aperture-stop-gear is disengaged.
- Aperture ring return ..... Forced by aperture-ring-return-spring, aperture-ring-return-gear rotates, pushing aperture-control-gear.
  (Aperture ring is returned to stop position)
- Full-opening

(4) Winding, rewinding mechanism



■Operation when winding

M_1 starts running (forward) ..... Mirror-down activation starts.

Winding stop-release-sector shifts to disengage aperture-return-lever ..... • SL_3 charge ⑤
• Winding-stop-lever is released ⑥
• Sw. 4 ON ⑥

Reduction gears B & C are engaged to transmit rotation ⑦, ⑧ ..... Gears D, E, and winding/rewinding gear rotate ⑨, ⑩, ⑪. ※4

Sprocket axis rotation ..... Friction SP rotates

Sprocket rotation ⑭ ..... Film transport.

Sprocket gear rotation ⑯

Shutter-charge-gear rotation ⑰ ..... Shutter and aperture-return-lever are charged by cam rotation ⑳′, ⑲′.

Winding-stop-gear rotation ⑰′ ..... Winding-stop-cam rotates (Aperture-return-lever is charged completely……ready for winding-stop-lever engagement.)

Spool gear rotation ⑱ ..... Film is wound.

Sw. 4 OFF ⑳ ..... By engagement of winding-stop-cam with winding-stop-lever, Sw. 4 is turned OFF (= winding completion).

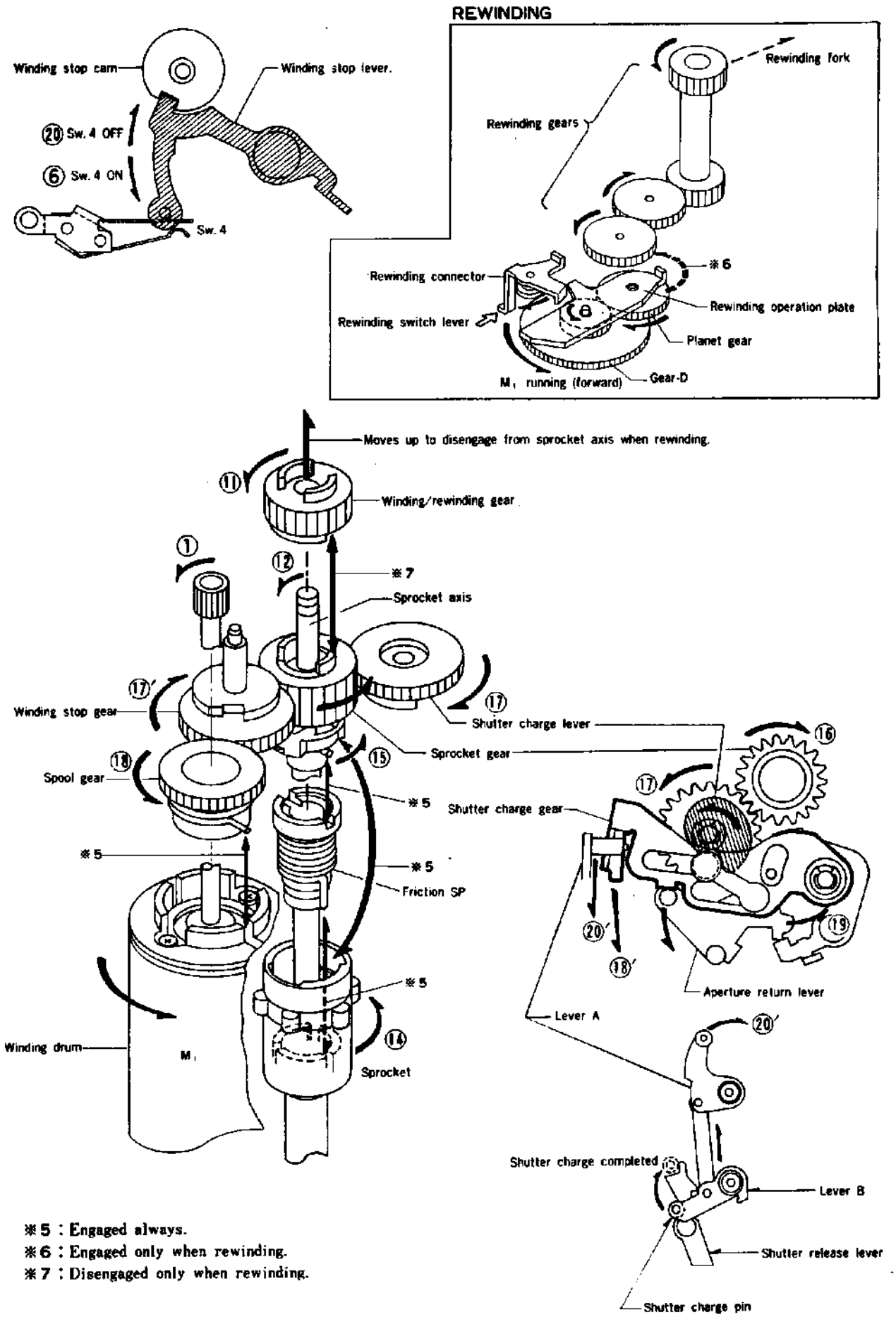
M_1 stop

※1 : When tooth tip of winding-stop-release-sector gear and that of drive gear about to touch, the drive gear will shift to engage smoothly.

※2 : Drive gear, engaging with winding-stop-release-sector gear, shifts winding-stop-release-sector forcedly to release aperture-return-lever.

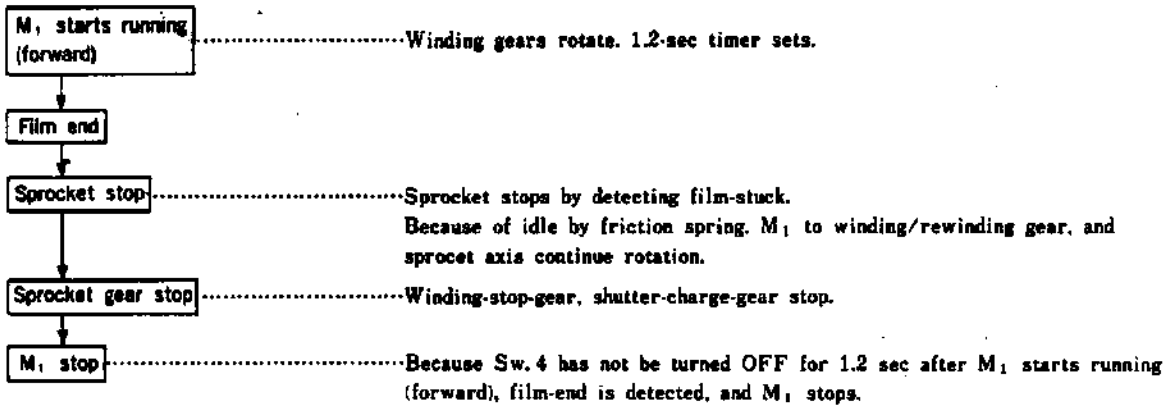
※3 : Winding-stop-gear rotates, interlocked with sprocket-gear.

※4 : Planet gear engages with rewinding gears only when rewinding, but not when winding.

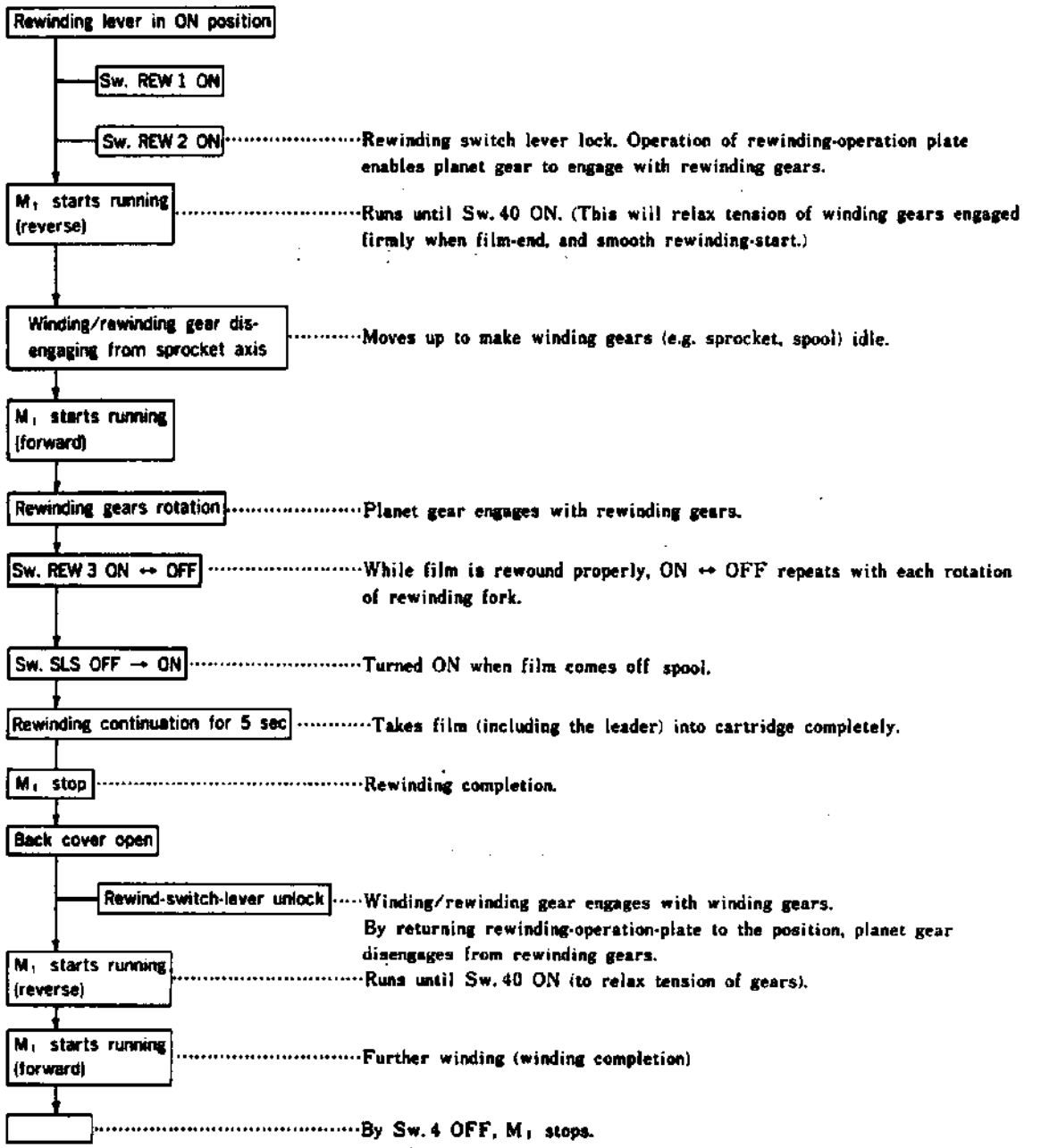


※5 : Engaged always.
※6 : Engaged only when rewinding.
※7 : Disengaged only when rewinding.

■Operation when film end



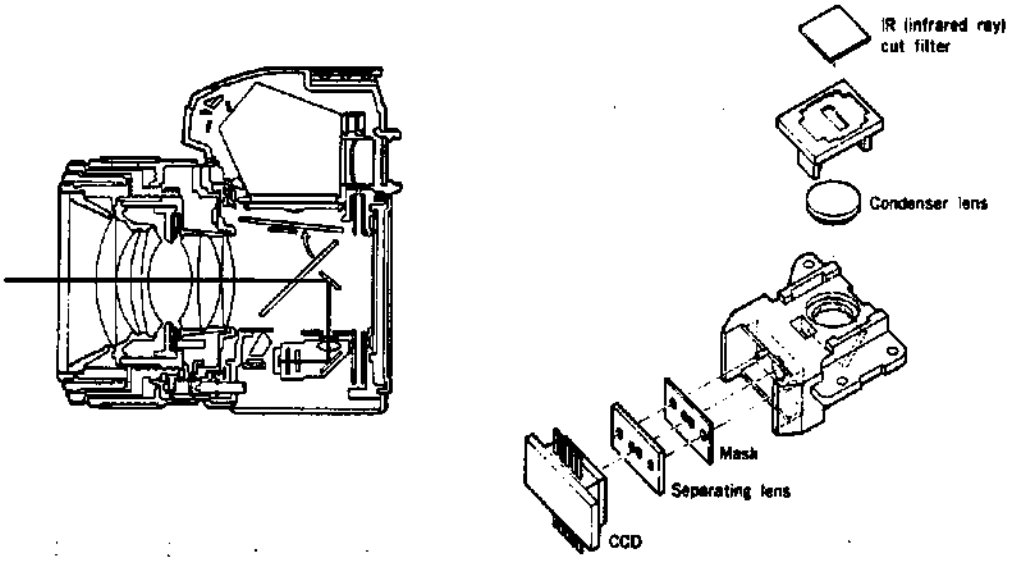
■Operation when rewinding



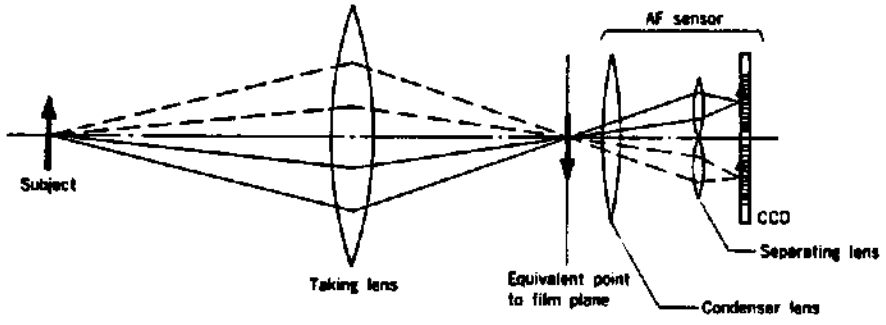
4. Principle of auto focusing (explanatory diagram)

(1) Light path

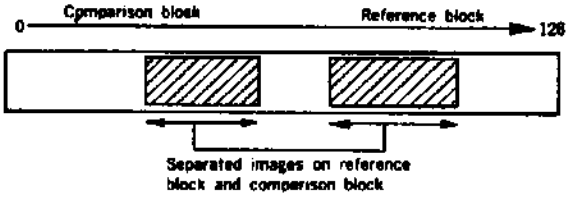
The light from taking lens passes through main mirror (half mirror), reflects on sub mirror, and strikes on AF sensor.
AF sensor is composed with optical elements (IR cut filter, condenser lens, separating lens etc.) and CCD image sensor.



(2) AF sensor

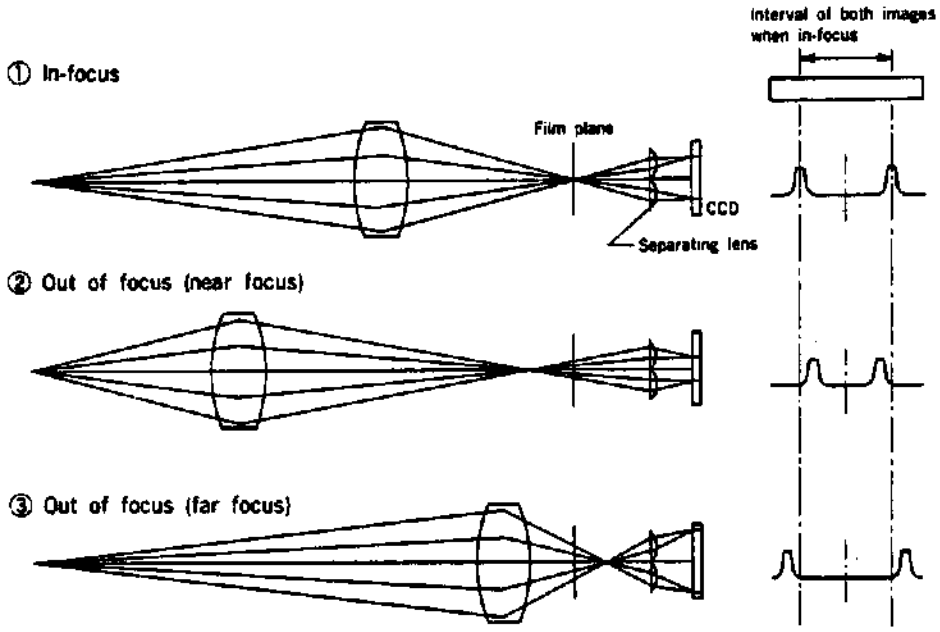


- Separating lens is composed with 2 extremely small lenses (lined side by side). The image, formed by taking lens, is separated into two images (in right and left) and formed on CCD image sensor by separating lens.
- CCD image sensor sequentially outputs electric charge of each picture element, as phase difference signal of 2 images, to IC_6 through IC_3.



Phase differance detection system detects focusing state comparing positions of 2 images.
Comparison block is composed with more picture elements than reference block so that comparison block can detect focus amount and defocus direction.

(3) Phase difference detection system



① In-focus

After light from taking lens is focused on specified position which corresponds to actual film plane.

Light is separated into two images and formed on CCD image sensor by separating-lens.

② Out of focus (near focus)

In case that light is focused on front side of specified position, space in between 2 images becomes narrower than that of in-focus.

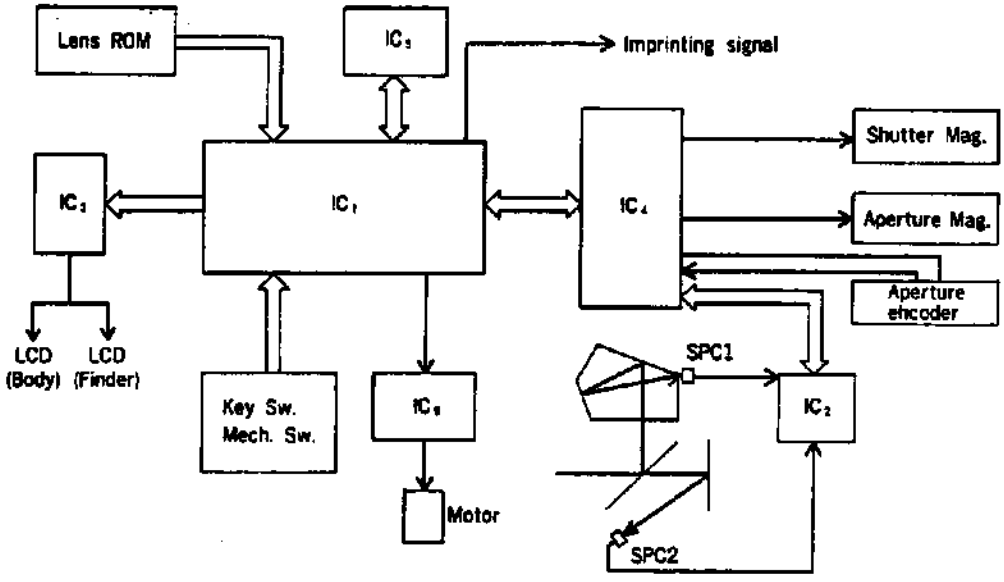
③ Out of focus (far focus)

In case that light is focused on rear side of specified position, space in between 2 images becomes wider than that of in-focus.

Comparison block is composed with more picture elements than that of reference block. AF circuit detects phase difference while shifting image on comparison block one by one, comparing image on reference block.

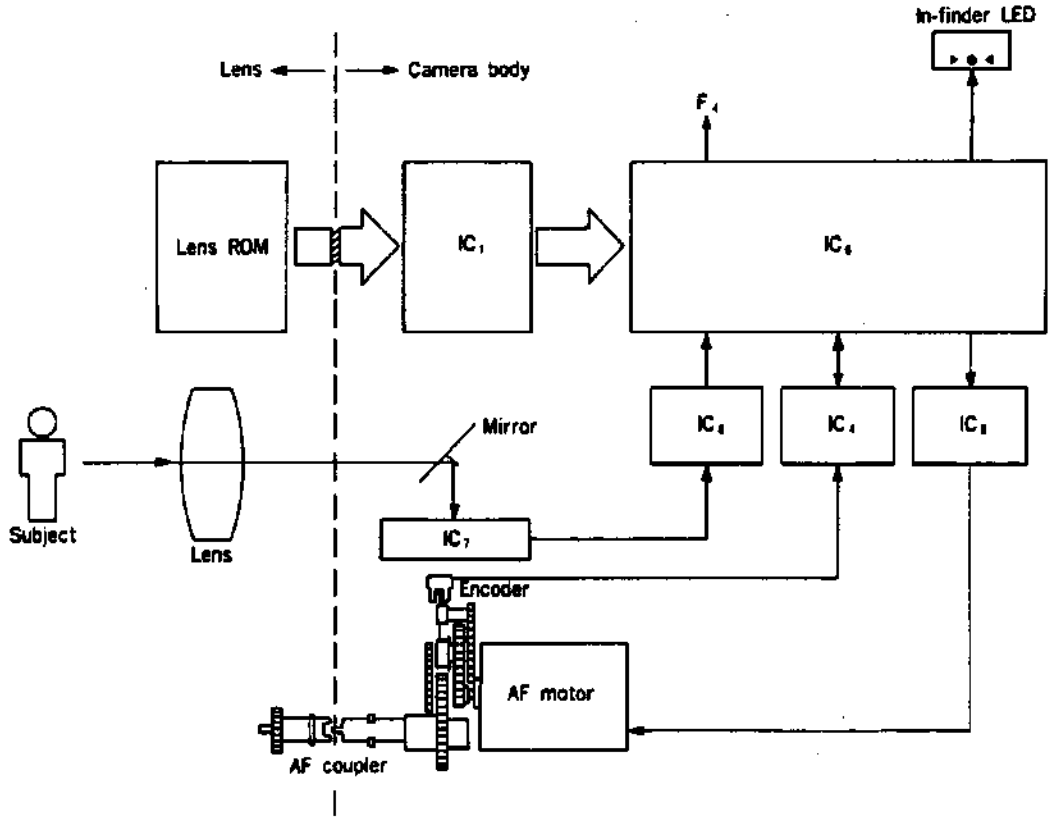
Since space in between 2 images at in-focus is specified, in-focus position and defocus amount can be calculated by image data on refernce block and comparison block.

5. Summary of body circuit



Metering Sw. ON → IC_1 starts to activate.
Ambient light metering is activated by SPC1. Bv data (A/D converted by IC_2) inputs to IC_1 through IC_4.
IC_4 calculates data corresponding to setting conditions (ISO, exposure mode, lens information, etc.), and displays calculations in LCDs through IC_{10} and IC_3.
Release Sw. ON → Attraction of shutter magnet simultaneous with output of imprinting signal → Activation of winding motor reverse running through IC_9.
Counts pulse generated by rotation of aperture slit plate corresponding to amount of setting aperture, interlocking with activation of winding motor, to control aperture.
(With full-open setting, aperture magnet separates simultaneous with activation of winding motor.)
Completion of pulse-count → Separation of aperture magnet.
With mirror-up switch ON, completion of mirror-up is detected → Winding motor running stops simultaneous with shutter magnet controlling (corresponding to shutter speed setting).
Winding motor starts to reactivate (forward running) after completion of shutter traveling.
Winding-completion switch OFF → Detection of winding completion → Winding motor running stops → Frame counter counts up 1 (remains "0" with no film loaded).
Winding-completion switch remains ON at condition of film-stuck → Detection of film end → Indication of film end.

6. Summary of AF circuit



Auto focusing block is composed with three ICs ($IC_{6,7,8}$).

IC_6 detects signal from IC_7 through IC_5 corresponding to conditions of subject, and calculates in-focus direction and defocus amount simultaneous with detecting of lens-ROM-information through IC_1.

AF motor running direction, running amount, running speed are calculated (selected) according to lens-ROM-information.

Running direction : determined by in-focus direction

Running amount : determined by pulse corresponding to defocus amount

Running speed* : selected corresponding to defocus amount

※Four speeds : No regulation, High speed, Low speed, step

IC_6 controls AF motor running, through IC_3, monitors by encoder (photo interruptor).

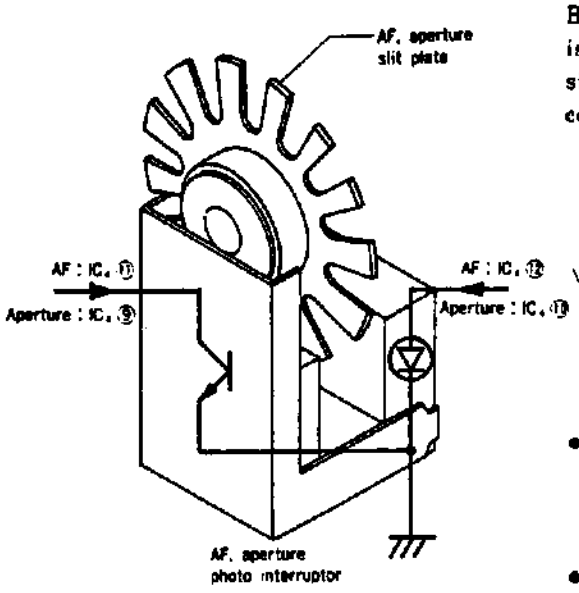
AF motor running stops after required pulse, correspoding to IC_6 calculation, is detected.

AF circuit discriminates whether in-focus or not.

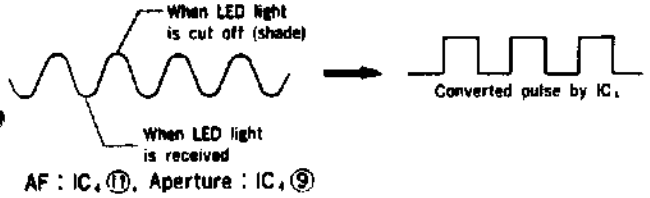
- **Operation with exclusive flash mounted**

  In case that defocus amount is not detected in low light condition (with exclusive flash fully charged), IC_6 outputs H signal to F_4. → Flash projects AF-assist light → Camera detects light reflected from subject and detects defocus amount.

7. Function of encoder



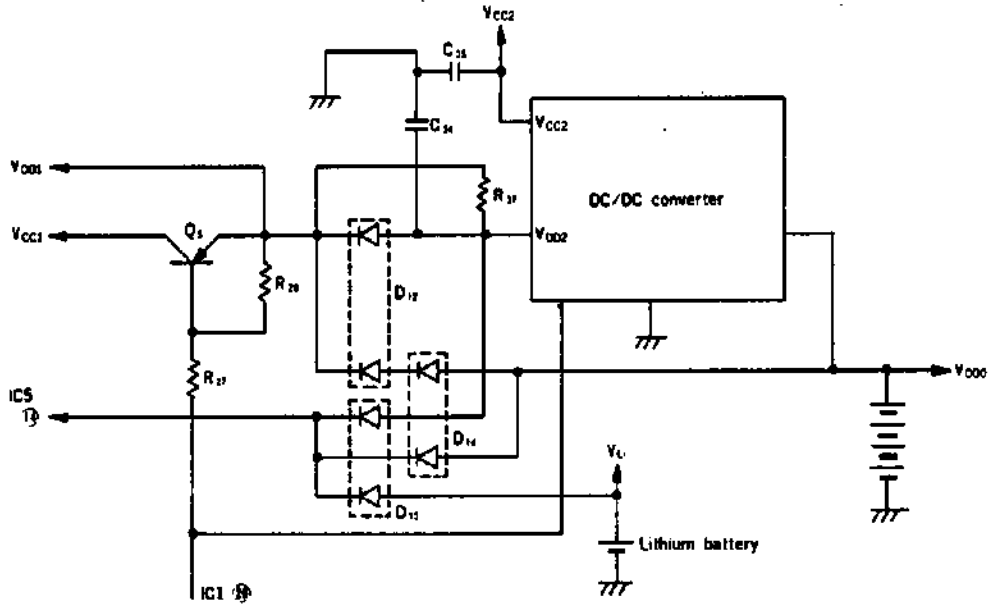
By slit plate rotation, light from LED to photo transistor is cut off repeatedly. Photo transistor outputs light/shade signal of LED. Light, received by photo transistor, is converted into pulse and input to IC_1, IC_8 by IC_4.



AF : IC_4⑪, Aperture : $IC_4$⑨

- **AF**
  Counts pulse generated by rotation of AF slit plate interlocking with M_2 rotation, monitors AF coupler rotation (lens shifting monitor)
- **Aperture**
  Counts pulse generated by rotation of aperture slit plate interlocking with stop-down operation, monitors shifting amount of aperture ring.

8. Power source circuit



With battery holder attached, battery power is supplied to each IC as V_{DD0} and V_{DD1}.
By turning metering Sw. ON → IC_1㉘ becomes at L → Q_5 ON → DC/DC converter is activated, stabilized power is supplied (as V_{CC1} and V_{DD1}) Output of V_{CC2}.

Function of lithium battery

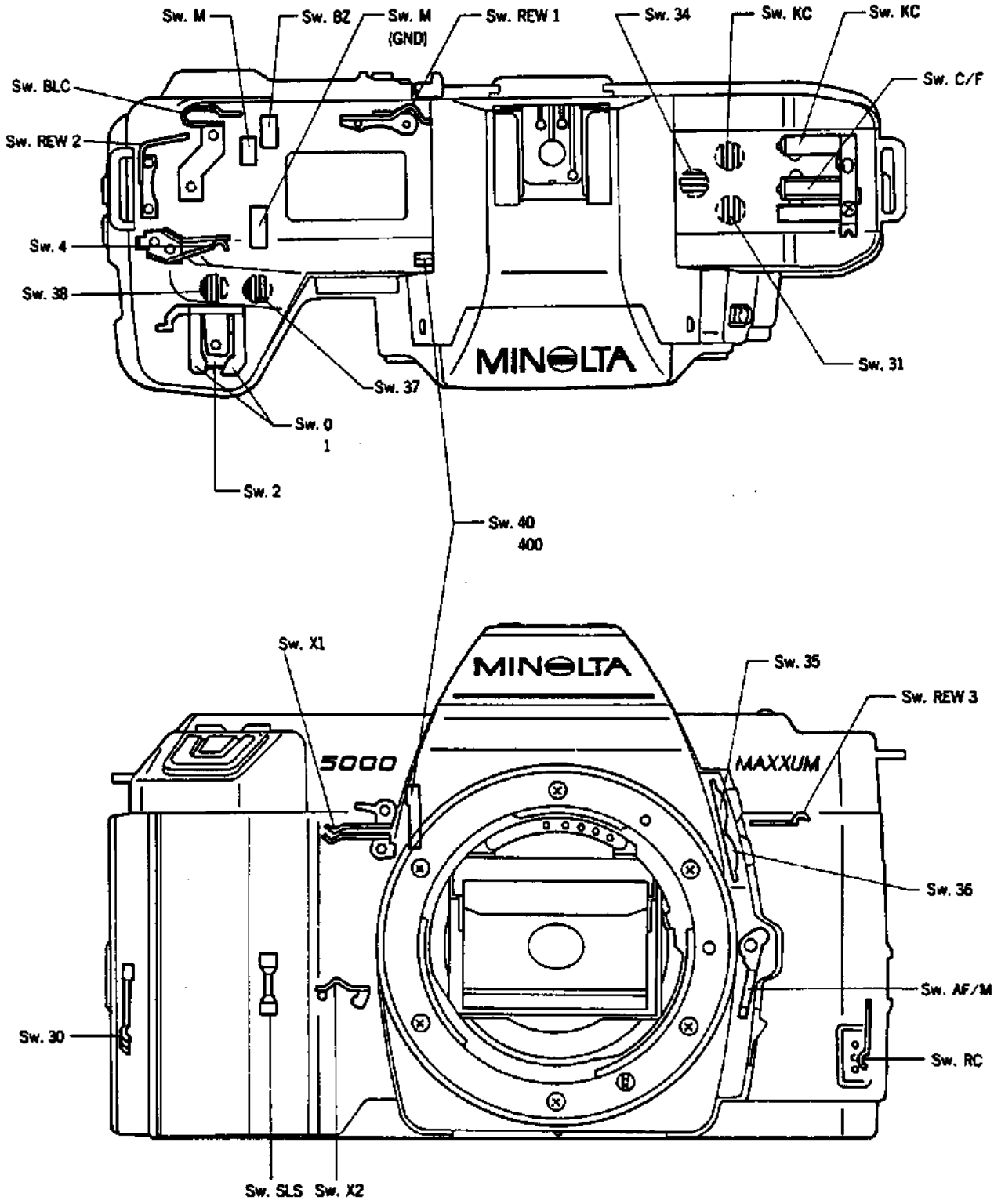
When battery in grip is exhausted or removed for replacement, lithium battery supplies power, through D_{13}, to IC_5 (memorizing ISO setting and frame number with indicators OFF).

When lithium battery exhaustion

$IC_4$① checks V_{L1} voltage, and this signal is input through I/O Bus to IC_1. If the voltage is less than 2.3V, attaching battery grip will make LCD "ISO" signal and ISO setting blink for 10 sec.

9. Function of switches

(1) Position of switches



(2) Function of switches

Mark	Name	Condition of operation
Sw. 0	Touch switch	ON by touching operation button
Sw. 1	Metering switch	ON by depressing operation button one step Remains ON for 10 sec before shutter release ON by depressing operating button to click stop
Sw. 2	Relese switch	ON by depressing operating button all the way
Sw. 4	Winding-completion switch	OFF→ON with winding start ON→OFF with winding completion
Sw. 40	Mirror-up switch	ON with mirror-up completion OFF with mirror-down
Sw. 400	Sub-switch of Sw. 4	
Sw. M	Main switch	By sliding main switch Sw. M (((●→Sw. BZ OFF, Sw. M ON→Sw. BZ ON
Sw. Bz	Buzzer switch	By sliding main switch Sw. M (((●, Sw. BZ OFF
Sw. RC	Back-cover switch	OFF by closing back-cover
Sw. REW 1	Rewinding switch 1	ON by sliding rewind switch lever
Sw. REW 2	Rewinding switch 2	ON by locking rewind switch lever
Sw. REW 3	Rewinding switch 3	ON→OFF→ON with one rotation of rewinding fork
Sw. SLS	Film detecting switch	OFF with film wound by spool
Sw. BLC	Backlight compensation switch	ON by depressing BLC button (Metering and indication circuits activated by Sw. BLC ON/compensates exposure by +2Ev)
Sw. AF/M	Focus mode switch	By sliding focus mode switch ON in M mode, OFF in AF mode
Sw. C/F	C/F switch	ON by opening control key cover (Creative photography : ISO, P/M, SELF can be set) OFF by closing the cover (Full-auto photography : Exposure mode is automatically set to program
Sw. KC	Control-key cover switch	Momentary ON by opening/closing control key cover (Metering and indication circuits activated by Sw. KC ON)
Sw. X1	Sync switch 1	OFF→ON with completion of 1st shutter blade traveling OFF with completion of 2nd shutter blade traveling
Sw. X2	Sync switch 2	• ON with shutter charge start • OFF with completion of 2nd shutter blade traveling
Sw. 30	Battery switch	ON→OFF by attaching battery grip
Sw. 31	ISO key switch	Sets film-speed by depressing shutter-speed up/down key with ISO key held down (Metering and indication circuits activated by Sw. 31 ON)
Sw. 33	Self-timer key switch	Sets/Cancels self-timer mode each time depressed (Metering and indication circuits activated by Sw. 33 ON)
Sw. 34	P/M key switch	Sets exposure mode P/M/P…each time depressed (Metering and indication circuits activated by Sw. 34 ON)
Sw. 35	F stop-up key switch	When the key is held down, the value changes rapidly. Each time the key is pressed, the value changes by one stop corresponding to pressed control key.
Sw. 36	F stop-down key switch	
Sw. 37	Shutter speed down key switch	
Sw. 38	Shutter speed up key switch	

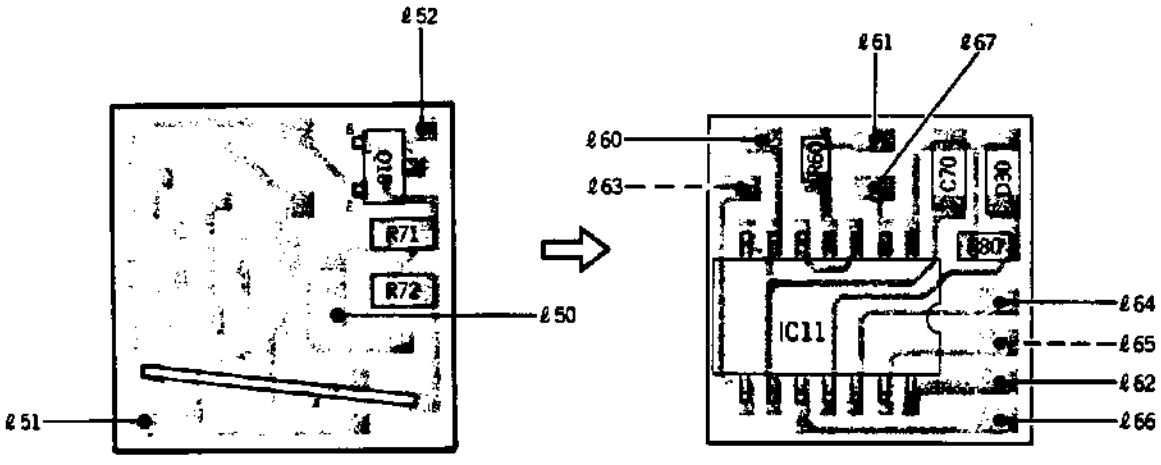
SERVICE MANUAL SUPPLEMENTARY INFORMATION

Model 5000, α5000, MAXXUM5000

Code No. 2073-200,-400,-600

■ Modification of PC board-C

■ PC board-C has been modified as below (from Body No. 141·····).



List of lead wires

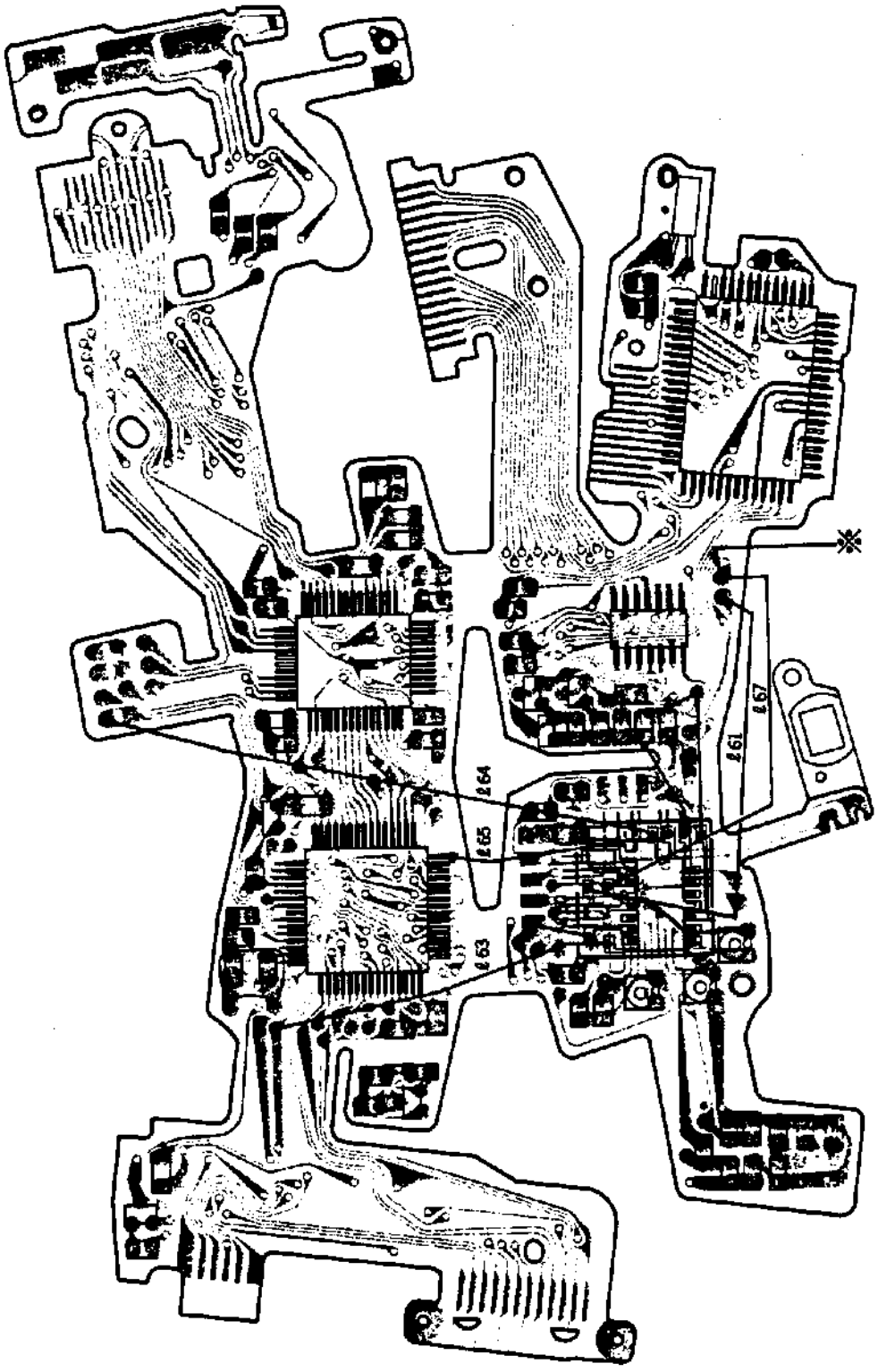
	Part No.	Color	Type	Note
ℓ 50	9391-0807-03	Orange	φ0.08/7 45mm	Discon.
ℓ 51	9391-0807-03	Orange	φ0.08/7 20mm	〃
ℓ 52	9391-0807-07	Purple	φ0.08/7 35mm	〃
ℓ 60	9391-0807-00	Black	φ0.08/7 20mm	Addition
ℓ 61	9391-0807-01	Brown	φ0.08/7 55mm	〃
ℓ 62	9391-0807-03	Orange	φ0.08/7 20mm	〃
ℓ 63	9391-0807-03	Orange	φ0.08/7 40mm	〃 (Flex PCB-A set)
ℓ 64	9391-0807-04	Yellow	φ0.08/7 25mm	〃
ℓ 65	9391-0807-05	Green	φ0.08/7 30mm	〃 (Flex PCB-A set)
ℓ 66	9391-0807-07	Purple	φ0.08/7 20mm	〃
ℓ 67	9391-0807-09	White	φ0.08/7 55mm	〃

■ Interchangeablity

- From previous to new PC board-C (2073-0451-01 to -02) : interchangeable.
- From new to previous PC board-C (2073-0451-02 to -01) : uninterchangeable.

✣This information should be filed additionally to Service Manual.

■Wiring diagram of new PC board-C (2073-0451-02)



※When replacing previous PC board-C by new one, remove R_{60} from flex PCB-A.
(Flex PCB-A 2073-0413-01 for servicing will have R_{60} discontinued in order. For flex PCB-A w/o R_{60}, USE NEW PC board-C 2073-0451-02.)

No. 2073-002

SERVICE MANUAL SUPPLEMENTARY INFORMATION

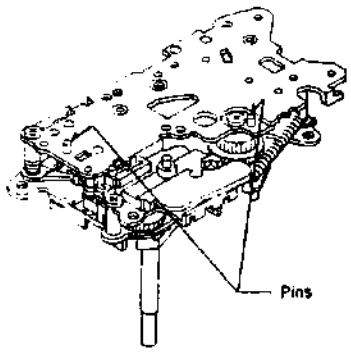
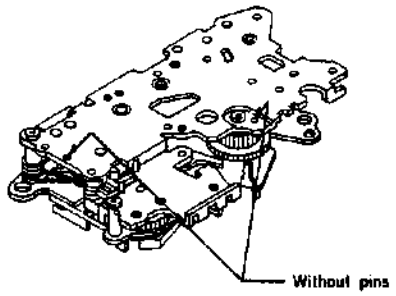
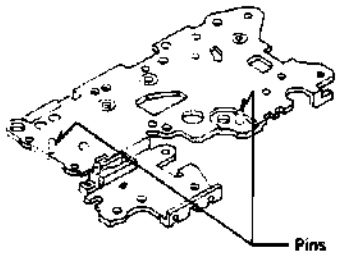
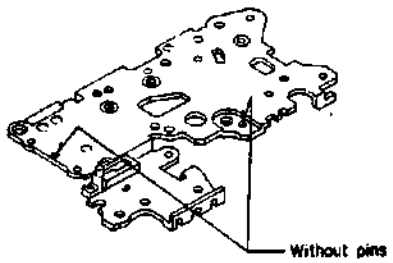
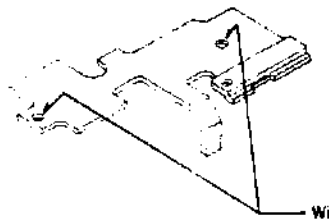
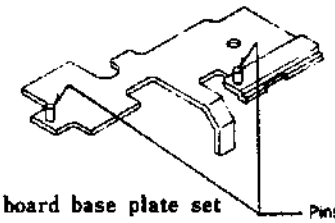
5000, α5000, MAXXUM5000

2073-200, -400, -600

■ Modification of winding base plate

■For common use of winding base plate with 2072.

■Modified parts (Type A and B are interchangeable as a set.)

Type A	⇨	Type B
2073-0304-01 		2073-0309-01 ※1 ※2  Winding base plate set 巻上げ台板セット
(2073-0303-01) 		(2073-0303-02) 
2073-3084-01 		2073-0384-01  Flexible board base plate set フレキ敷板セット

※1 : Parts of widing base plate set (2073-0309-01) are common to those of 2073-0304-01 except winding base plate set upper (2073-0303-02) and 6 parts in ※2.

※2 : Sprocket axis set (0352), changeover gear spring (3095), collar (9446), changeover gear (3009), spacer (4204), double-faced tape (9384-2190-50) are included in Type A ; not in Type B (supplied as single parts).

✣This information should be filed additionally to Service Manual.

No. 2073-003

SERVICE MANUAL SUPPLEMENTARY INFORMATION

5000, α5000, MAXXUM5000

2073-200, -400, -600

■ Discontinuation of P.C. board-C

■ **Discontinuation of P.C. board-C due to modification of flexible PC board-A set**

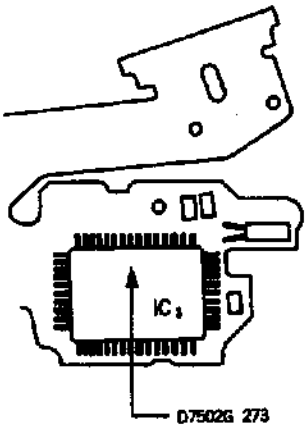
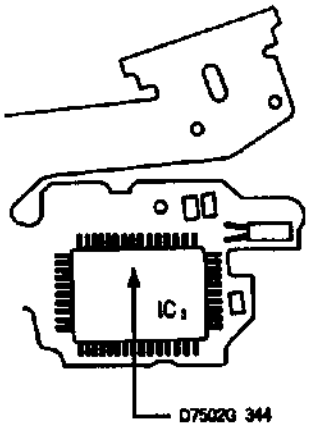
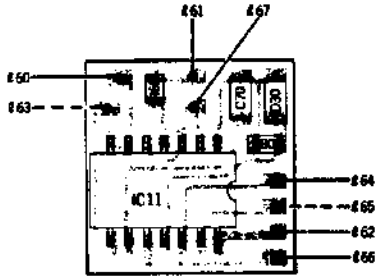
■ **Modification steps**

1 . Modification of flex PCB-A (1)

- Prior to discontinuation of P.C. board-C, printed wiring of flex PCB-A is modified, and Q_{10}, R_{71} & R_{72} are installed on flex PCB-A.
- Equivalent to flex PCB-A on next page, having previous IC_3 and no R_{60}.
- P.C. board-C is necessary for this flex PCB-A.
- This flex PCB-A is not supplied as servicing part.

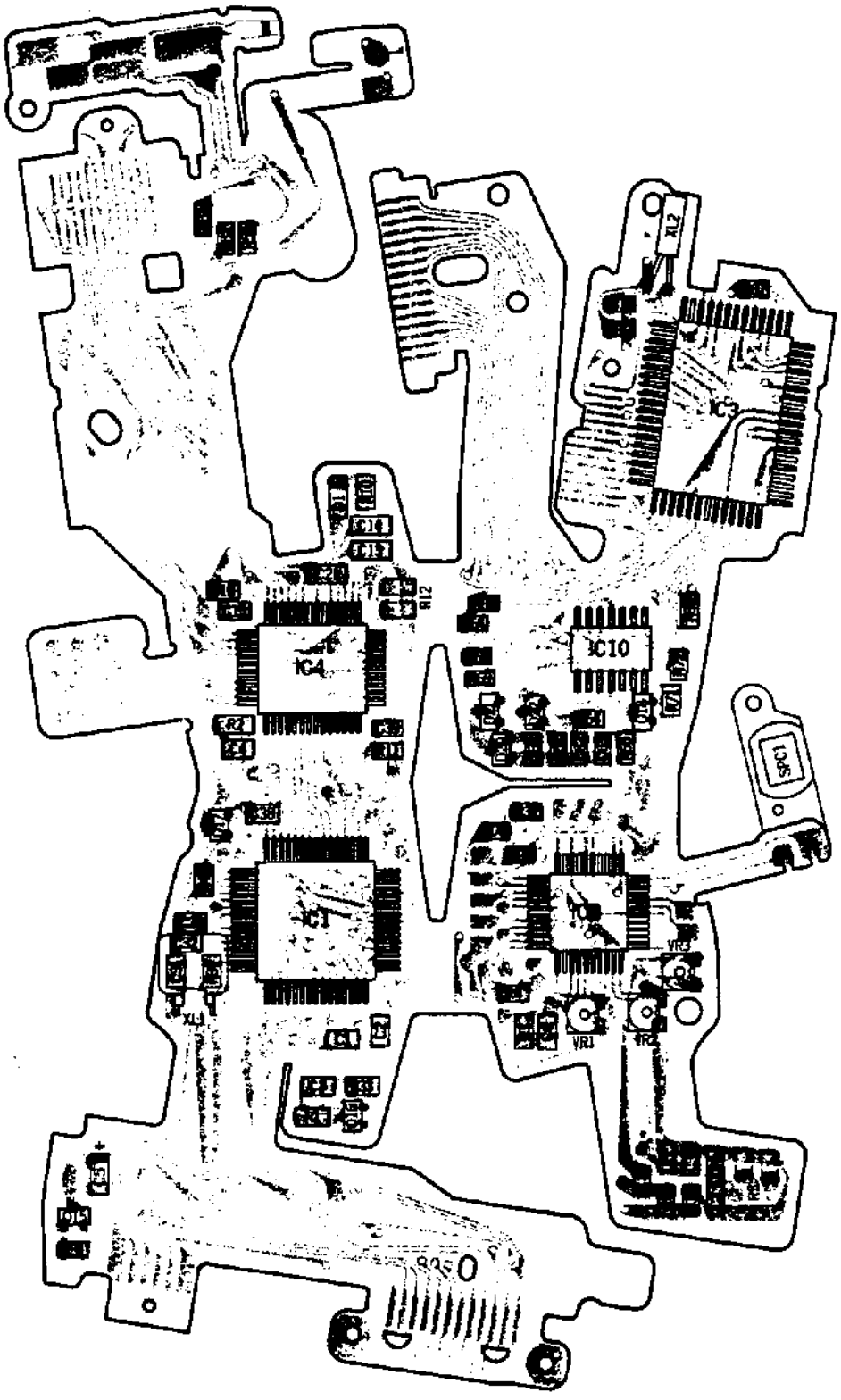
2 . Modification of flex PCB-A (2) and discontinuation of P.C. board-C

- R_{60} is added and IC_3 is modified. (Refer to next page.)

Type A	⇨	Type B
2073-0413-01 		2073-0413-02  • See next page for parts arrangement.
2073-0451-02 		Not used (discon.)
Lead wires ℓ_{60}, ℓ_{61}, ℓ_{62}, ℓ_{63}, ℓ_{64}, ℓ_{65}, ℓ_{66}, ℓ_{67}		Not used (discon.)

✣This information should be filed additionally to Service Manual.

■2073-0413-02 parts arrangement



I N D E X

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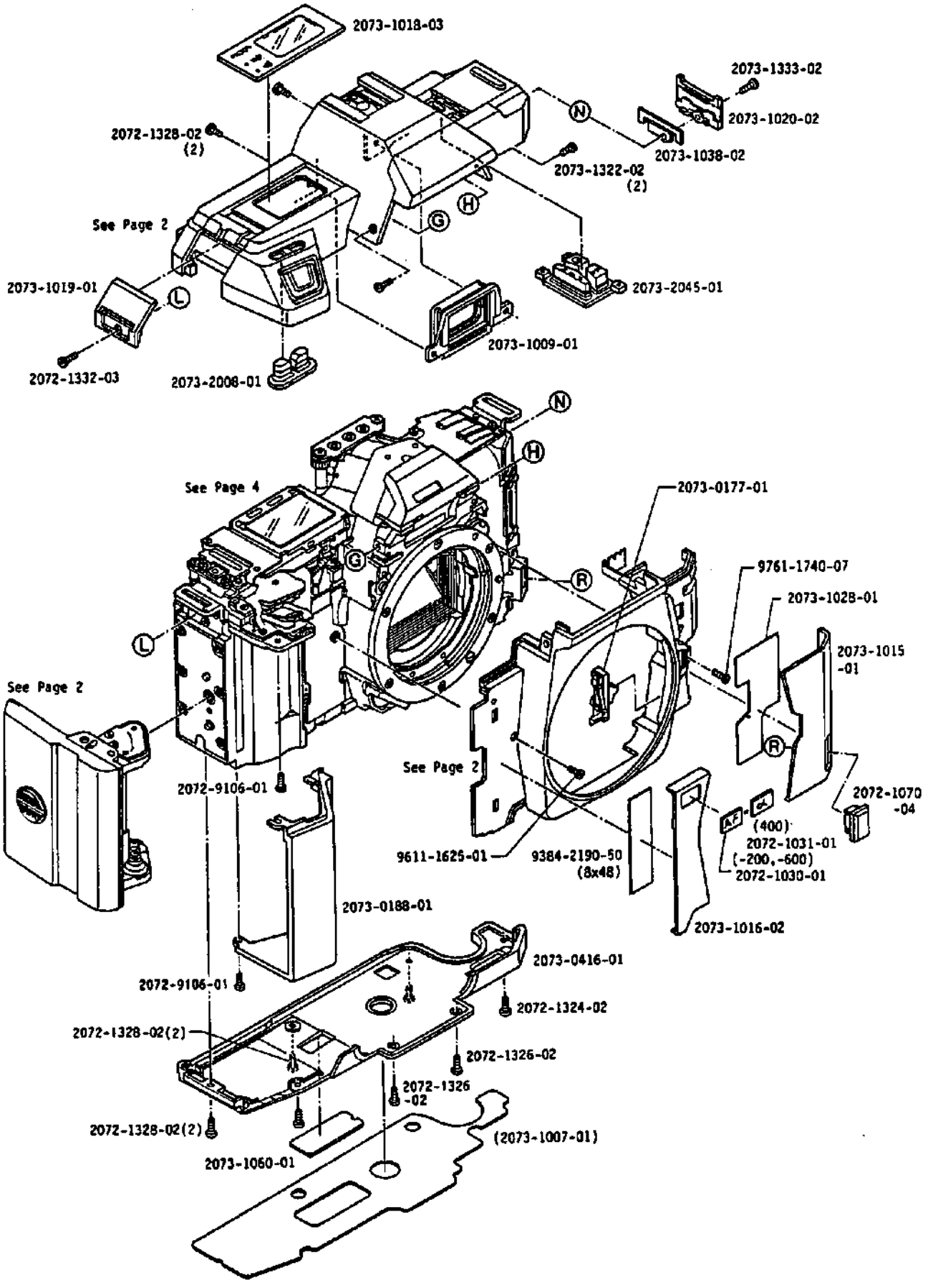
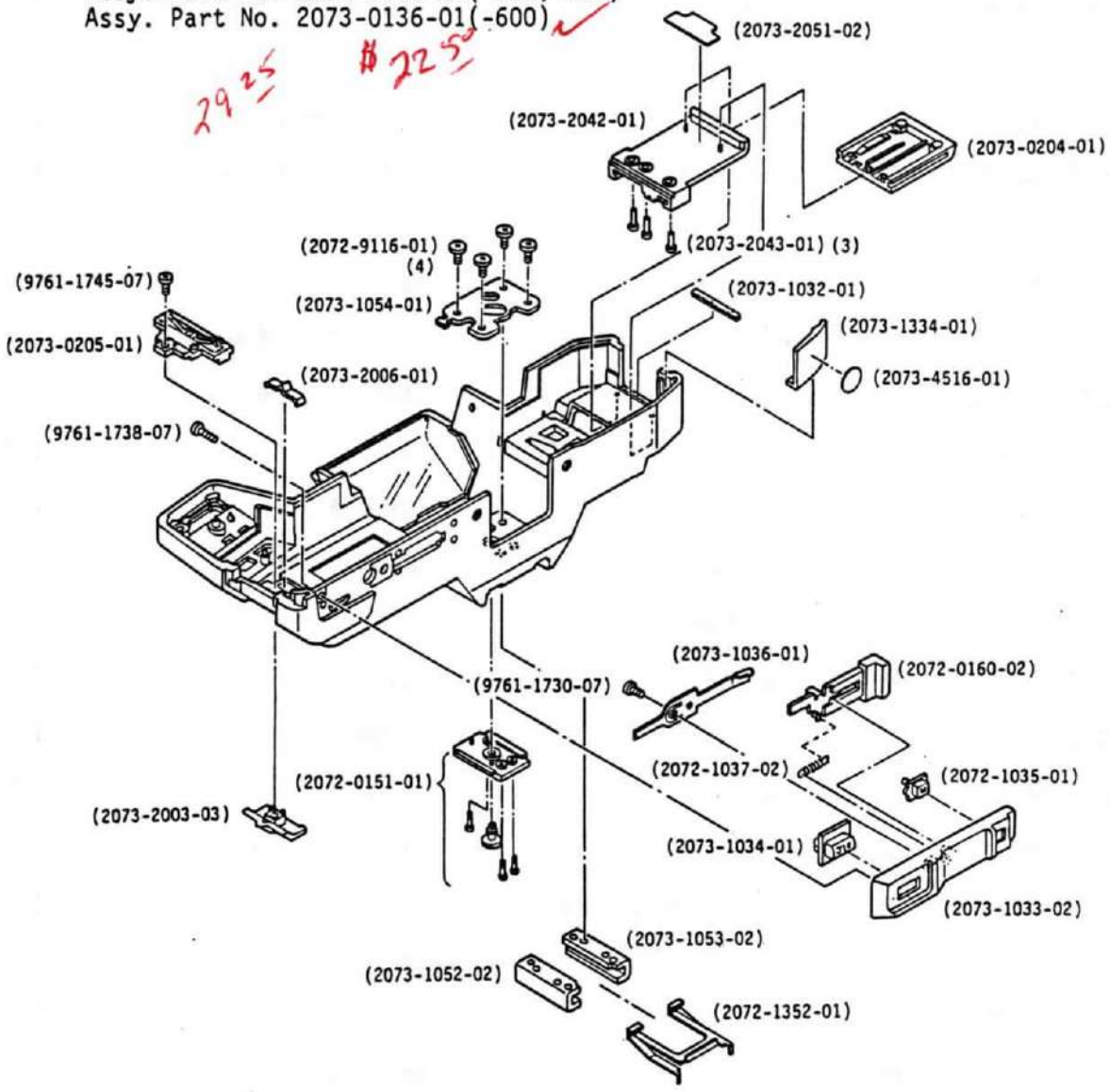
1

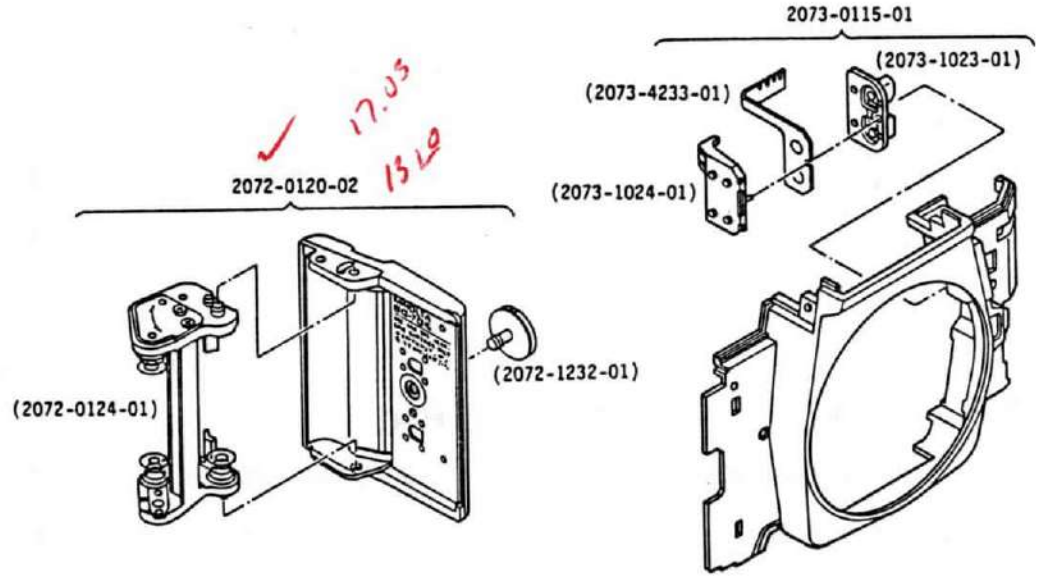
5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)



5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)

Assy. Part No. 2073-0132-01(-200,-400)
Assy. Part No. 2073-0136-01(-600)

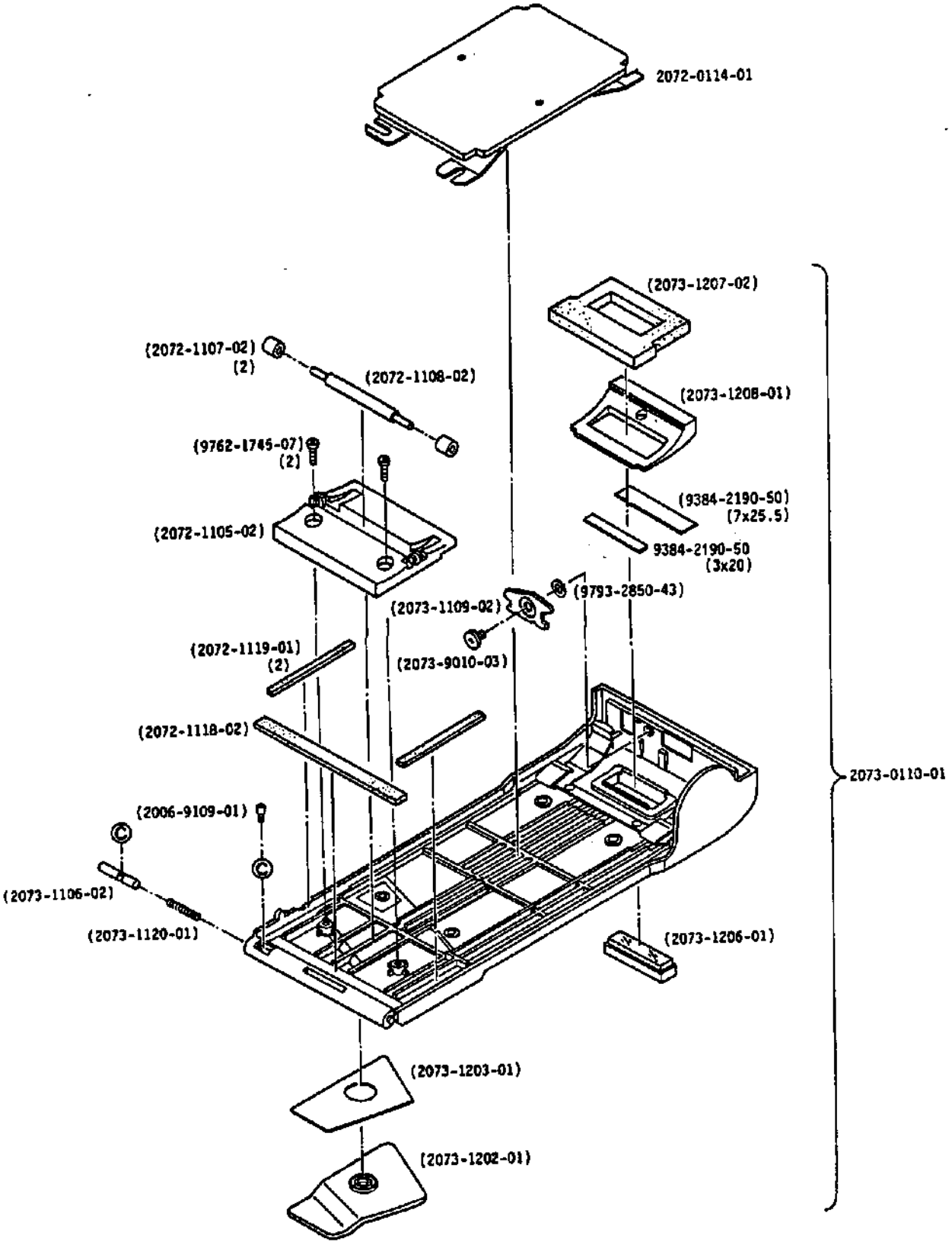




Part No.	Part Name		Qty.
2073-0177-01	Focus mode switch set	フォーカスモードSWセット	1
2073-0188-01	Handgrip set	ハンドグリップブセット	1
2073-0416-01	Bottom cover set	下カバーセット	1
(2073-1007-01)	Bottom cover sheet	下カバー保護シート	1
2073-1009-01	Eyepiece frame	接眼枠	1
2073-1015-01	Front side cover (Rewind side)	前面パネル（巻戻側）	1
2073-1016-02	Front side cover (Wind side)	前面パネル（巻上側）	1
2073-1018-03	Data window	ＬＣＤ窓	1
2073-1019-01	Strap eyelet cover	吊環右カバー	1
2073-1020-02	Strap eyelet cover	吊環左カバー	1
2073-1028-01	Double-faced tape	両面テープ	1
2072-1030-01	AF name plate (for -200,-600)	ＡＦ銘板	1
2072-1031-01	α name plate (for -400)	α銘板	1
2073-1038-02	Support plate	補強板	1
2073-1060-01	Serial number plate	ボディーナンバー銘板	1
2072-1070-04	Remote control terminal cap	リモコンターミナルキャップ	1
2073-1322-02	Screw	止めねじ	2
2072-1324-02	Screw	止めねじ	1
2072-1326-02	Screw	止めねじ	2
2072-1328-02	Screw	止めねじ	6
2072-1332-03	Screw	止めねじ	1
2073-1333-02	Screw	止めねじ	1
2073-2008-01	UP/down key	ＴＶアップダウンキー	1
2073-2045-01	Control key	キー	1
2072-9106-01	Screw	止めねじ	2
9384-2190-50	Double-faced tape (per roll)	両面テープ	1
9611-1825-01	Phillips type screw	十字穴付なべ小ねじ	1
9761-1740-07	Tap tite screw	十字穴付タップタイトねじ	1

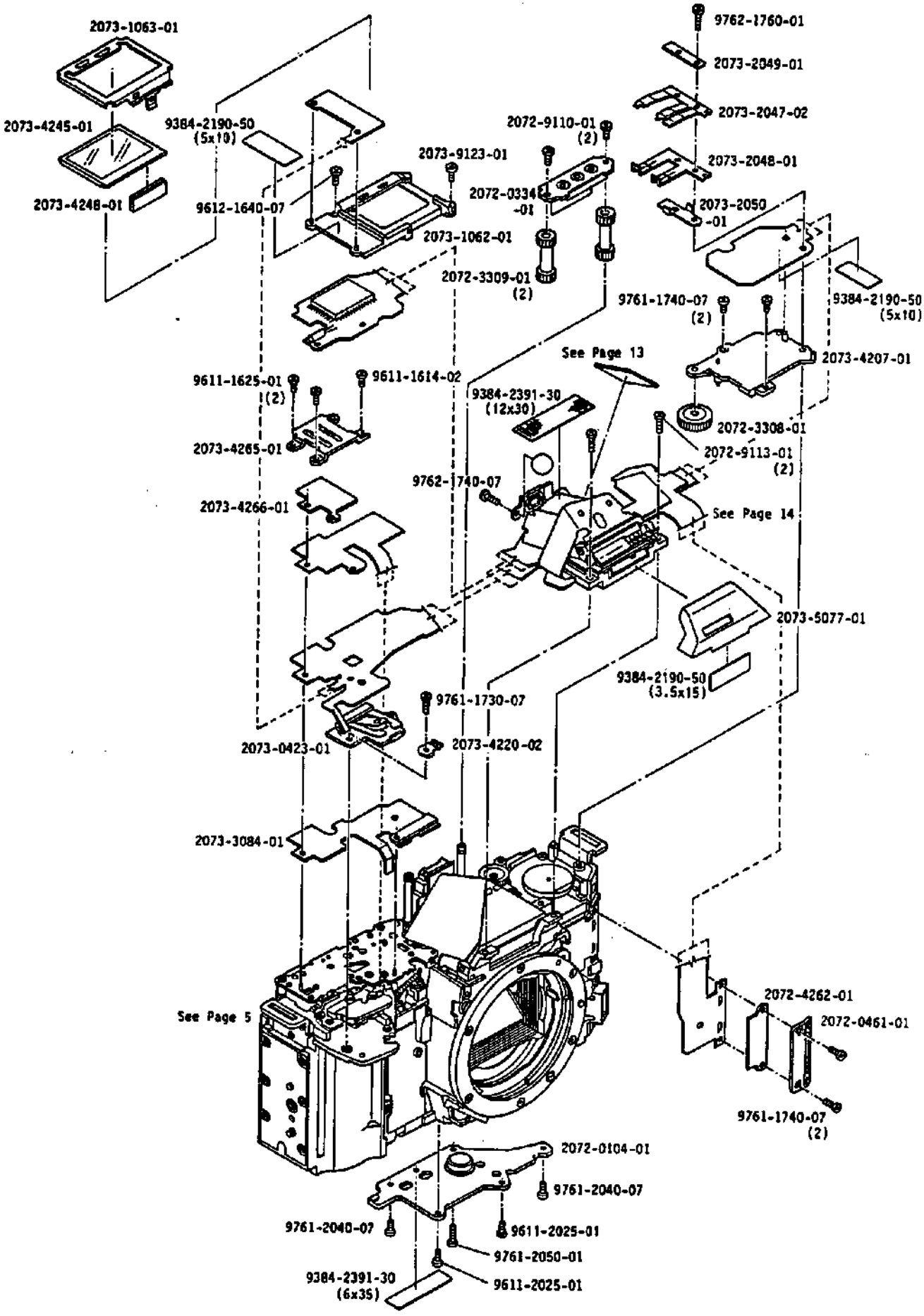
Part No.	Part Name		Qty.
2073-0115-01	Front cover set	前カバーセット	1
(2073-1023-01)	Aperture key	ＡＶアップダウンキー	1
(2073-1024-01)	Aperture key base	アップダウンキーゴムＳＷ台	1
(2073-4233-01)	Aperture key flexible board	ＡＶアップダウンキーフレキ	1
2072-0120-02	Battery holder set	電池ホルダーセット	1
(2072-0124-01)	Battery contact set	電池接片セット	1
(2072-1232-01)	Attaching screw	ホルダー固定ねじ	1
2073-0132-01	Top cover set (for 5000 & α5000)	上カバーセット	1
2073-0136-01	Top cover set (for MAXXUM 5000)	上カバーセット	1
(2072-0151-01)	Acc shoe base plate set	アクセサリーシュー座セット	1
(2072-0160-02)	Rewind switch lever set	巻き戻しレバーセット	1
(2073-0204-01)	Key cover set	キーカバーセット	1
(2073-0205-01)	Main switch knob set	メインＳＷつまみセット	1
(2073-1032-01)	Light shield plate	遮光片	1
(2073-1033-02)	Finger rest	上カバー指当	1
(2073-1034-01)	BLC button	逆光補正ボタン	1
(2072-1035-01)	Rewind release buton	Ｒ釦	1
(2073-1036-01)	Finger rest spring	指当ＳＰ	1
(2072-1037-02)	Rewinding spring	巻き戻しつまみＳＰ	1
(2073-1052-02)	Acc.shoe (Right)	アクセサリーシュー（右）	1
(2073-1053-02)	Acc.shoe (Left)	アクセサリーシュー（左）	1
(2073-1054-01)	Acc.set plate	アクセサリーシュー取付板	1
(2072-1352-01)	Acc.shoe spring	アクセサリーシューＳＰ	1
(2073-1334-01)	Top cover spacer	上カバースペーサー	1
(2073-2003-03)	Main switch	メインＳＷ	1
(2073-2006-01)	Main switch click plate	メインＳＷクリック板	1
(2073-2042-01)	Barrier protector plate	バリアキズ防止板	1
(2073-2043-01)	Barrier click pin	バリアクリックピン	3
(2073-2051-02)	Tape	テープ	1
(2073-4516-01)	Spacer tape	スペーサーテープ	1
(2072-9116-01)	Screw	止めねじ	4
(9761-1730-07)	Tap tite screw	十字穴付タップタイトねじ	1
(9761-1738-07)	Tap tite screw	十字穴付タップタイトねじ	1
(9761-1745-07)	Tap tite screw	十字穴付タップタイトねじ	1

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)



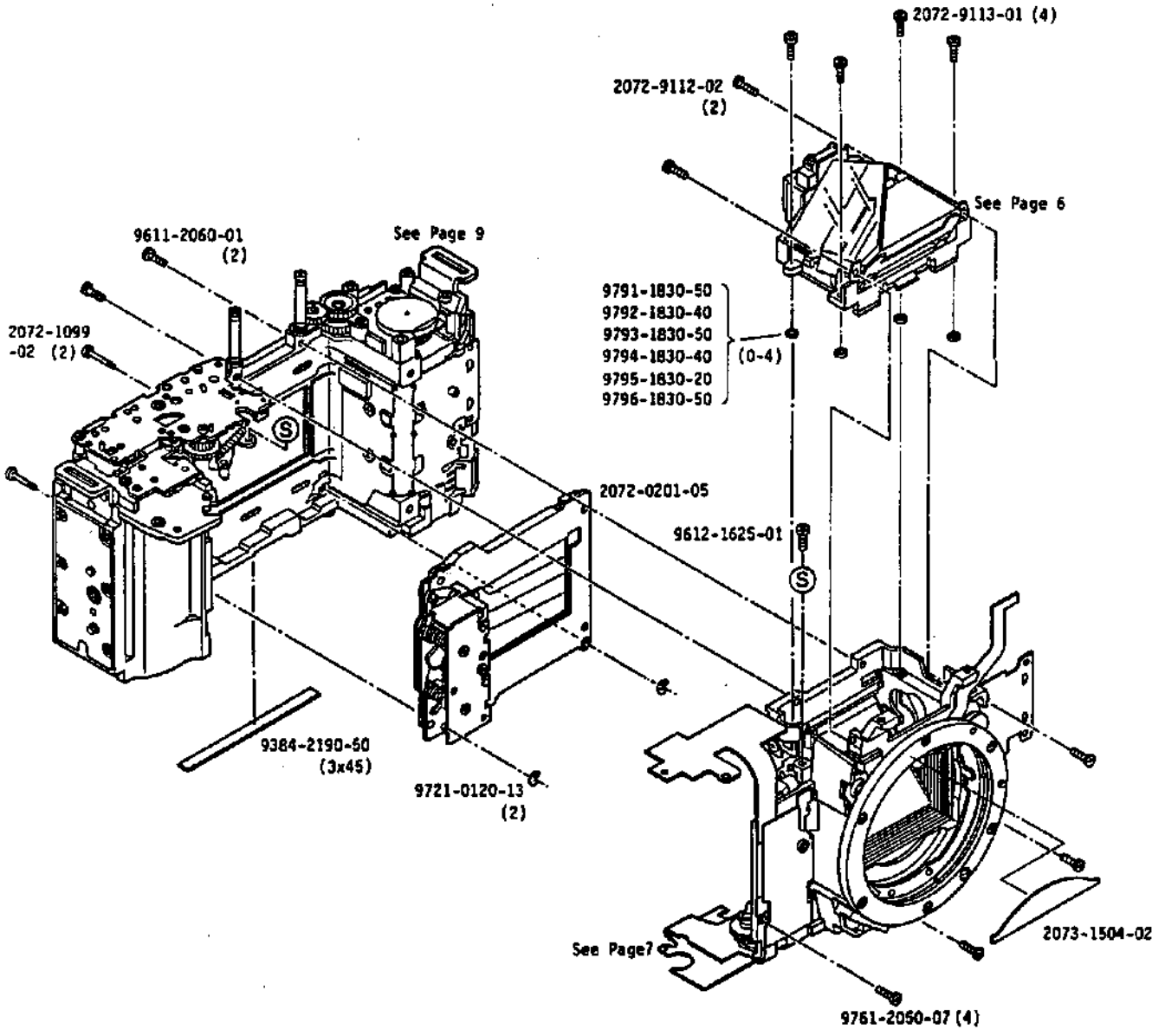
Part No.	Part Name		Qty.
2073-0110-01	Back cover set	裏蓋セット	1
(2072-1105-02)	Film guide-B	フイルムガイドB	1
(2073-1106-02)	Hinge axis-A	ヒンジ軸A	1
(2072-1107-02)	Film guide roller-B	裏蓋ローラーB	2
(2072-1108-02)	Guide roller-B axis	裏蓋ローラーB軸	1
(2073-1109-02)	Back cover lock plate	係止板	1
(2072-1118-02)	Light shield sponge-A	裏蓋遮光片A	1
(2072-1119-01)	Light shield sponge-B	裏蓋遮光片B	2
(2073-1120-01)	Hinge spring	ヒンジSP	1
(2073-1202-01)	Back grip	裏蓋グリップ	1
(2073-1203-01)	Back grip tape	裏蓋グリップテープ	1
(2073-1206-01)	Film cartridge window	パト表示窓	1
(2073-1207-02)	Light shield sponge	パト表示窓遮光片	1
(2073-1208-01)	Film cartridge window frame	パト表示窓取付枠	1
(2073-9010-03)	Screw	止めねじ	1
(2006-9109-01)	Hinge axis-A screw	ヒンジ軸止めねじ	1
(9384-2190-50)	Double-faced tape (per roll)	両面テープ	2
(9762-1745-07)	Tap tite screw	十字穴付タップタイトねじ	2
(9793-2850-43)	Washer	薄ワッシャー	1
2072-0114-01	Pressure plate set	圧着板セット	1

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)



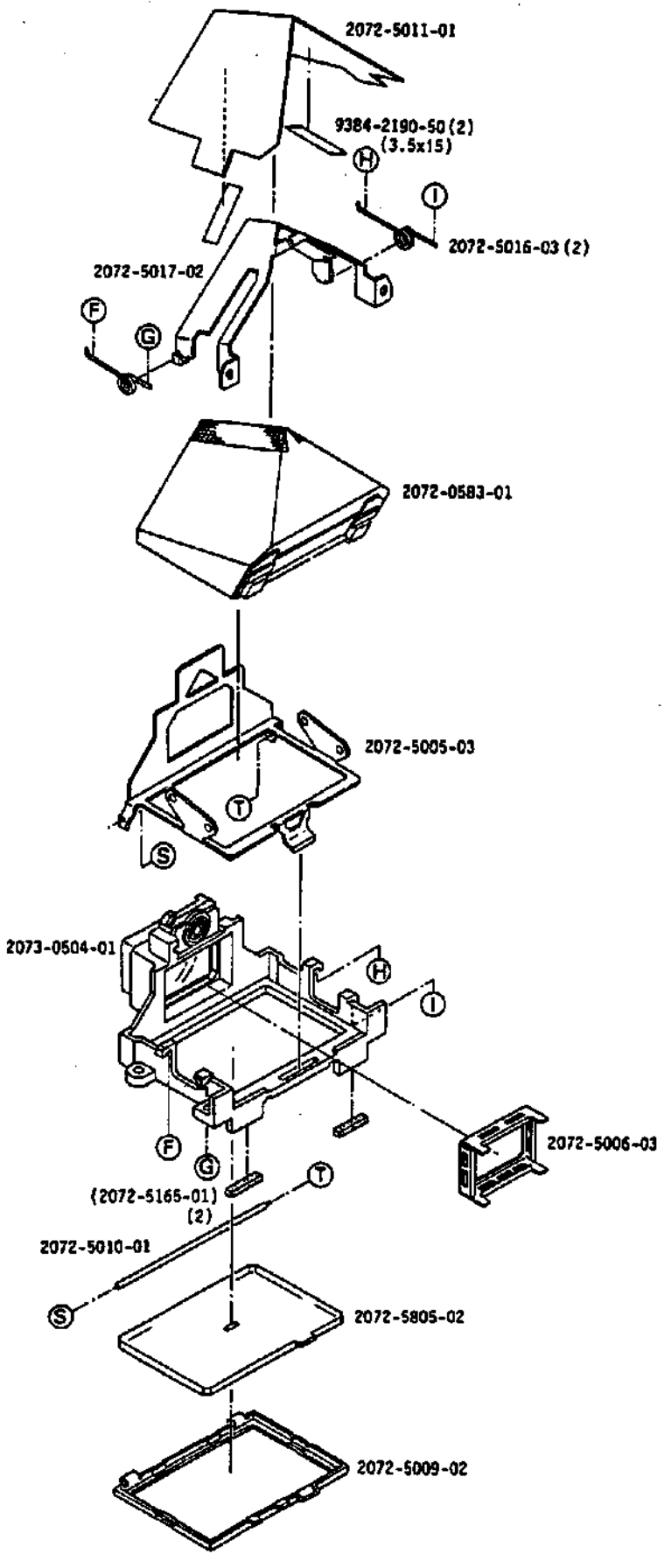
Part No.	Part Name		Qty.
2072-0104-01	Triped socket base plate set	三脚ねじ台板セット	1
2072-0334-01	Rewinding gear-E set	巻戻しギャーE台板セット	1
2073-0423-01	Release base plate set	レリーズ台板セット	1
2072-0461-01	Flexible board pressure plate-A set	フレキ押え板Aセット	1
2073-1062-01	LCD1 holder	ＬＣＤ１ホルダー	1
2073-1063-01	LCD1 cover	ＬＣＤ１押え	1
2073-2047-02	Barrier contact-A	バリア接片Ａ	1
2073-2048-01	Barrier contact-B	バリア接片Ｂ	1
2073-2049-01	Barrier contact pressure plate	バリア接片押え板	1
2073-2050-01	Barrier contact plate	バリア接片シート	1
2073-3084-01	Flexible board base plate	フレキ敷板	1
2072-3308-01	Rewinding gear-C	巻戻しギャーＣ	1
2072-3309-01	Rewinding gear-D2	巻戻しギャーＤ２	2
2073-4207-01	Key base plate	キートップ台板	1
2073-4220-02	Flexible pressure contact	フレキ圧接板	1
2073-4245-01	LCD1	ＬＣＤ１	1
2073-4248-01	Connector	ゴムコネクター	1
2072-4262-01	Rubber-A	フレキ押えゴムＡ	1
2073-4265-01	Flexible board pressure plate-B	フレキ押え板Ｂ	1
2073-4266-01	Rubber-B	フレキ押えゴムＢ	1
2073-5077-01	Light shield plate	採光窓遮光板	1
2072-9110-01	Screw	止めねじ	2
2072-9113-01	Screw	止めねじ	2
2073-9123-01	Screw	止めねじ	1
9384-2190-50	Douhle-faced tape (per roll)	両面テープ	3
9384-2391-30	Acetate tape (per roll)	アセテートクロステープ	2
9611-1614-02	Phillips type screw	十字穴付なべ小ねじ	1
9611-1625-01	Phillips type screw	十字穴付なべ小ねじ	2
9611-2025-01	Phillips type screw	十字穴付なべ小ねじ	2
9612-1640-07	Phillips type screw	十字穴付なべ小ねじ	1
9761-1730-07	Tap tite screw	十字穴付タップタイトねじ	1
9761-1740-07	Tap tite screw	十字穴付タップタイトねじ	4
9761-2040-07	Tap tite screw	十字穴付タップタイトねじ	2
9761-2050-01	Tap tite screw	十字穴付タップタイトねじ	1
9762-1740-07	Tap tite screw	十字穴付タップタイトねじ	1
9762-1760-01	Tap tite screw	十字穴付タップタイトねじ	1

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)



Part No.	Part Name		Qty.
2072-0201-05	Shutter set	シャッターセット	1
2072-1099-02	Shutter fixing axis	S固定軸A	2
2073-1504-02	BL contact holder cover	BL接点ホルダー覆い板	1
2072-9112-02	Screw	止めねじ	2
2072-9113-01	Screw	止めねじ	4
9384-2190-50	Double-faced tape (per roll)	両面テープ	1
9811-2060-01	Phillips type screw	十字穴付なべ小ねじ	2
9812-1625-01	Phillips type screw	十字穴付なべ小ねじ	1
9761-2050-07	Tap tite screw	十字穴付タップタイトねじ	4
9721-0120-13	E-ring	Eリング	2
9791-1830-50	Washer	薄ワッシャー	0-4
9792-1830-40	Washer	薄ワッシャー	
9793-1830-50	Washer	薄ワッシャー	
9794-1830-40	Washer	薄ワッシャー	
9795-1830-20	Washer	薄ワッシャー	
9796-1830-50	Washer	薄ワッシャー	

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)



Part No.	Part Name		Qty.
2073-0504-01	Penta.holder set	ペンタホルダーセット	1
(2072-5165-01)	Mirror cushion	ミラークッション	2
2072-0583-01	Pentaprism set	ペンタプリズムセット	1
2072-5005-03	Viewfinder frame	視野枠	1
2072-5006-03	Light shield plate	接眼レンズ遮光片	1
2072-5009-02	Fresnel lens holder	焦点板ホルダー	1
2072-5010-01	Fresnel lens holder axis	焦点板ホルダー軸	1
2072-5011-01	Isolation sheet	ペンタ絶縁シート	1
2072-5016-03	Penta.pressure spring	ペンタ押えＳＰ	2
2072-5017-02	Penta.pressure plate	ペンタ押え板	1
2072-5805-02	Fresnel lens	焦点板	1
9384-2190-50	Double-faced tape (per roll)	両面テープ	2

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)

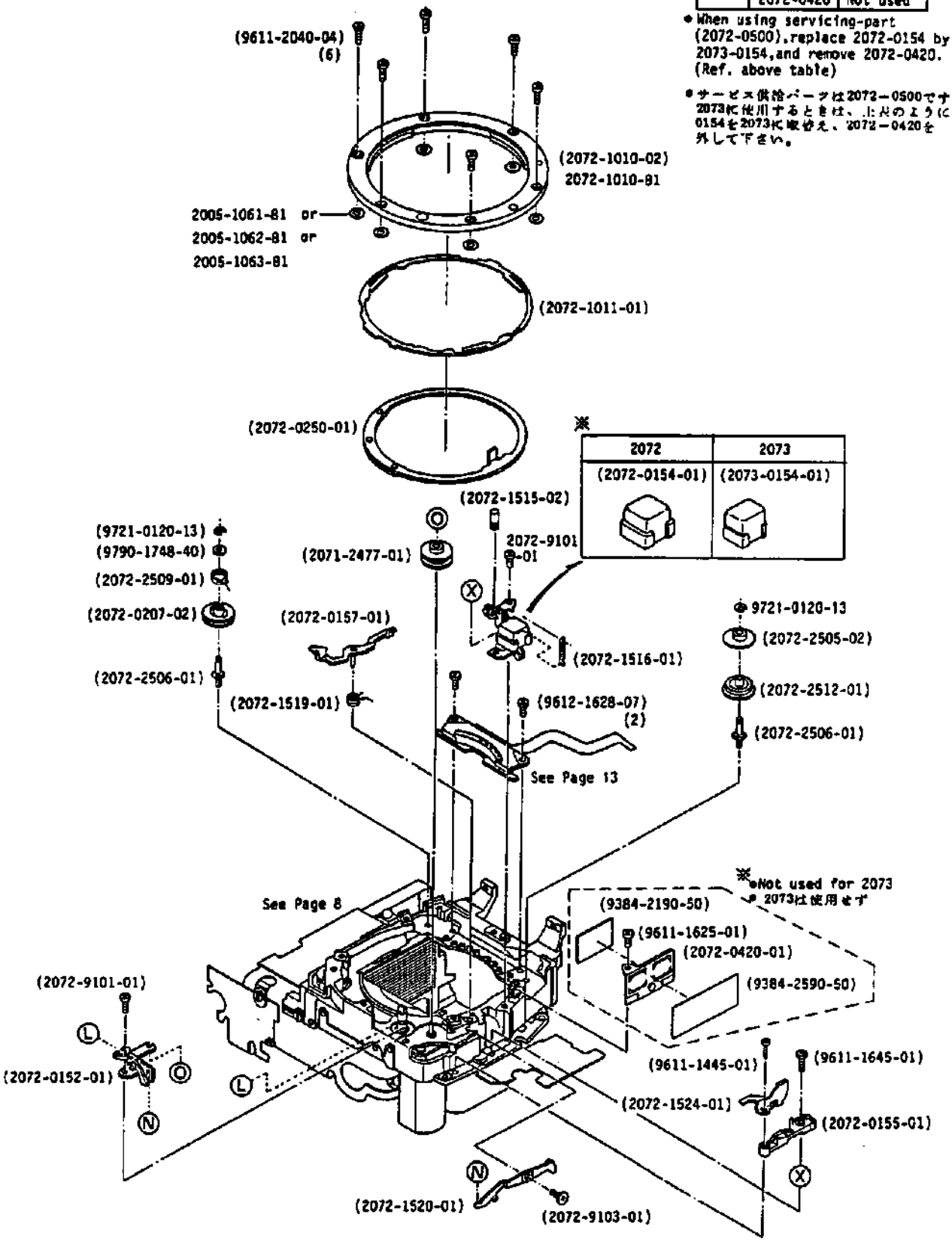
※ Assy.Part No. 2072-0500-02

※ •Difference in mirror box assembly between 2072 and 2073.
• 2072と2073のミラーボックスの違い

Model	2072	2073
Parts No.	2072-0154	2073-0154
	2072-0420	Not used

• When using servicing-part (2072-0500),replace 2072-0154 by 2073-0154,and remove 2072-0420. (Ref. above table)

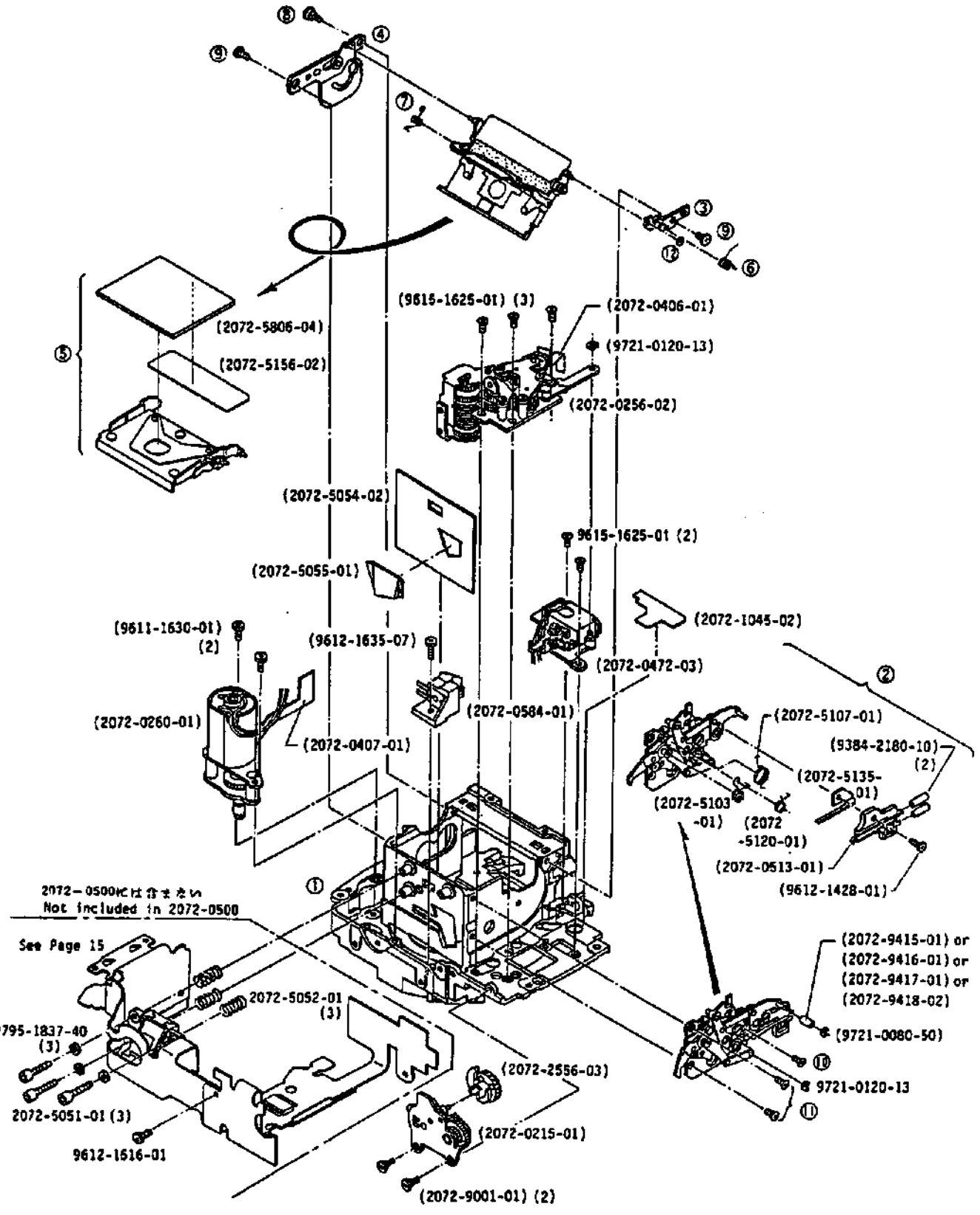
• サービス供給パーツは2072−0500です。2073に使用するときは、上表のように0154を2073に取替え、2072−0420を外して下さい。



Part No.	Part Name		Qty.
2072-0500-02	Mirror box assembly	ミラーボックス完成品	1
(2072-0152-01)	Coupler lever set	カプラーレバーセット	1
(2072-0154-01)	Lens lock plate set	ロック機構台セット	1
(2073-0154-01)	Lens lock plate set	ロック機構台セット	1
(2072-0155-01)	Focus mode switch plate set	フォーカスモード ＳＷ接片台セット	1
(2072-0157-01)	Lens lock lever set	保持レバーセット	1
(2072-0207-02)	Ring gear set	リングギヤーローラセット	1
(2072-0250-01)	Aperture ring set	絞りリングセット	1
(2072-0420-01)	Aperture key click plate set	アップダウンキー基板セット	1
(2072-1010-02)	Bayonet lens mount	バヨネット座板	1
2072-1010-81	Bayonet lens mount (-0.1mm)	バヨネット座板 (-0.1mm)	
(2072-1011-01)	Bayonet spring	バヨネットＳＰ	1
2005-1061-81	Adjustment washer-A (t=0.02mm)	調整ワッシャーＡ	Some
2005-1062-81	Adjustment washer-B (t=0.05mm)	調整ワッシャーＢ	
2005-1063-81	Adjustment washer-c (t=0.1mm)	調整ワッシャーＣ	
(2072-1515-02)	Lens lock pin	レンズロックピン	1
(2072-1516-01)	Lens lock spring	レンズロックＳＰ	1
(2072-1519-01)	Lens lock lever spring	保持レバーＳＰ	1
(2072-1520-01)	Connecting lever	連動レバー	1
(2072-1524-01)	Earth contact	フォーカスモードアース接片	1
(2071-2477-01)	Ring roller	リングローラー	1
(2072-2505-02)	Ring roller-B	リングローラーＢ	1
(2072-2506-01)	Ring roller axis	リングローラー軸	2
(2072-2509-01)	Aperture sub-spring	絞り込み補助ＳＰ	1
(2072-2512-01)	Ring roller-C	リングローラーＣ	1
(2072-9101-01)	Screw	止めねじ	2
(2072-9103-01)	Screw	止めねじ	1
(9384-2190-50)	Double-faced tape (per roll)	両面テープ	1
(9384-2590-50)	Mending tape (per roll)	メンディングテープ	1
(9611-1445-01)	Phillips type screw	十字穴付なべ小ねじ	1
(9611-1625-01)	Phillips type screw	十字穴付なべ小ねじ	1
(9611-1645-01)	Phillips type screw	十字穴付なべ小ねじ	1
(9611-2040-04)	Phillips type screw	十字穴付なべ小ねじ	6
(9612-1628-07)	Phillips type screw	十字穴付なべ小ねじ	2
(9721-0120-13)	E-ring	Ｅリング	2
(9790-1748-40)	Washer	薄ワッシャー	1

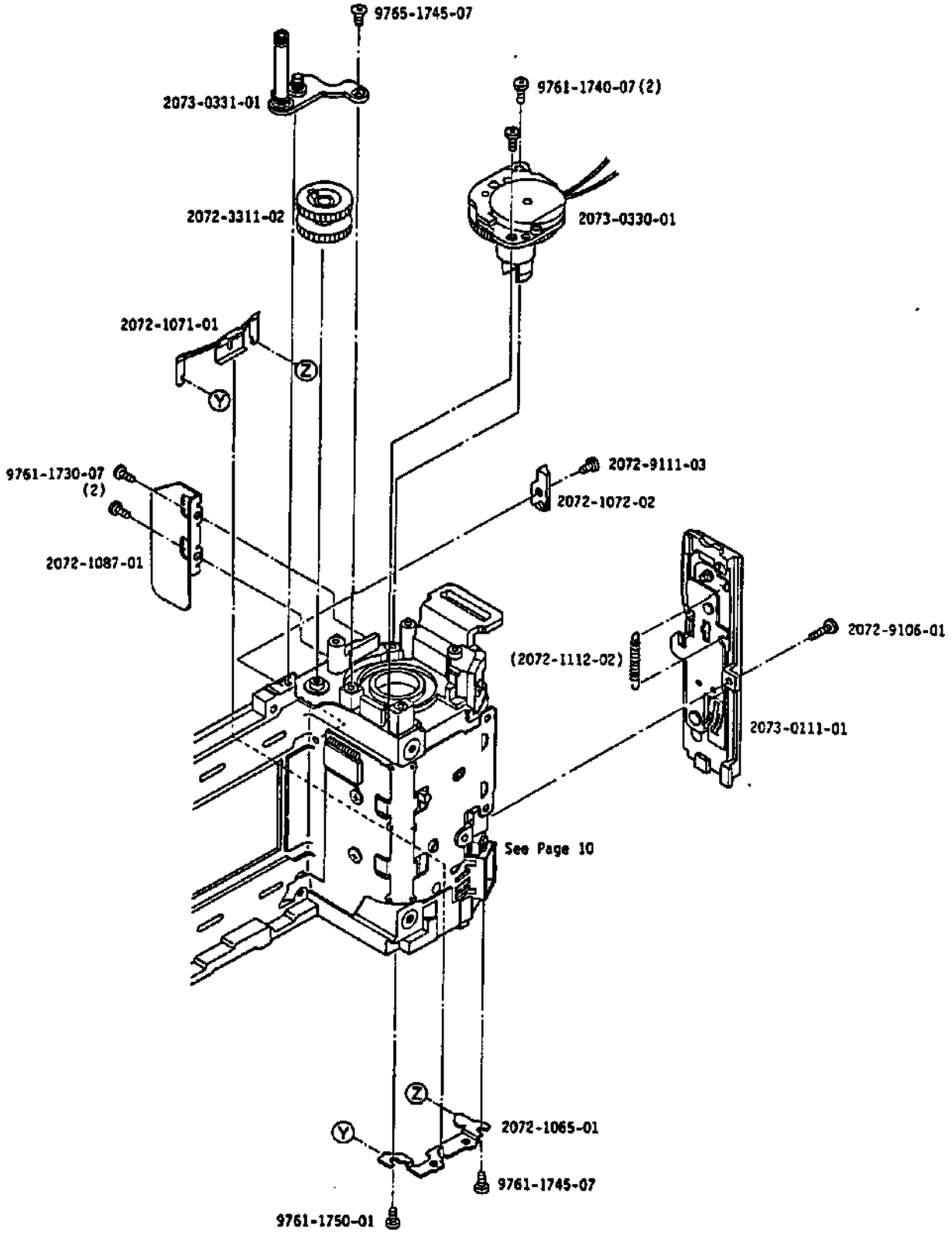
5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)

Assy. Part No. 2072-0500



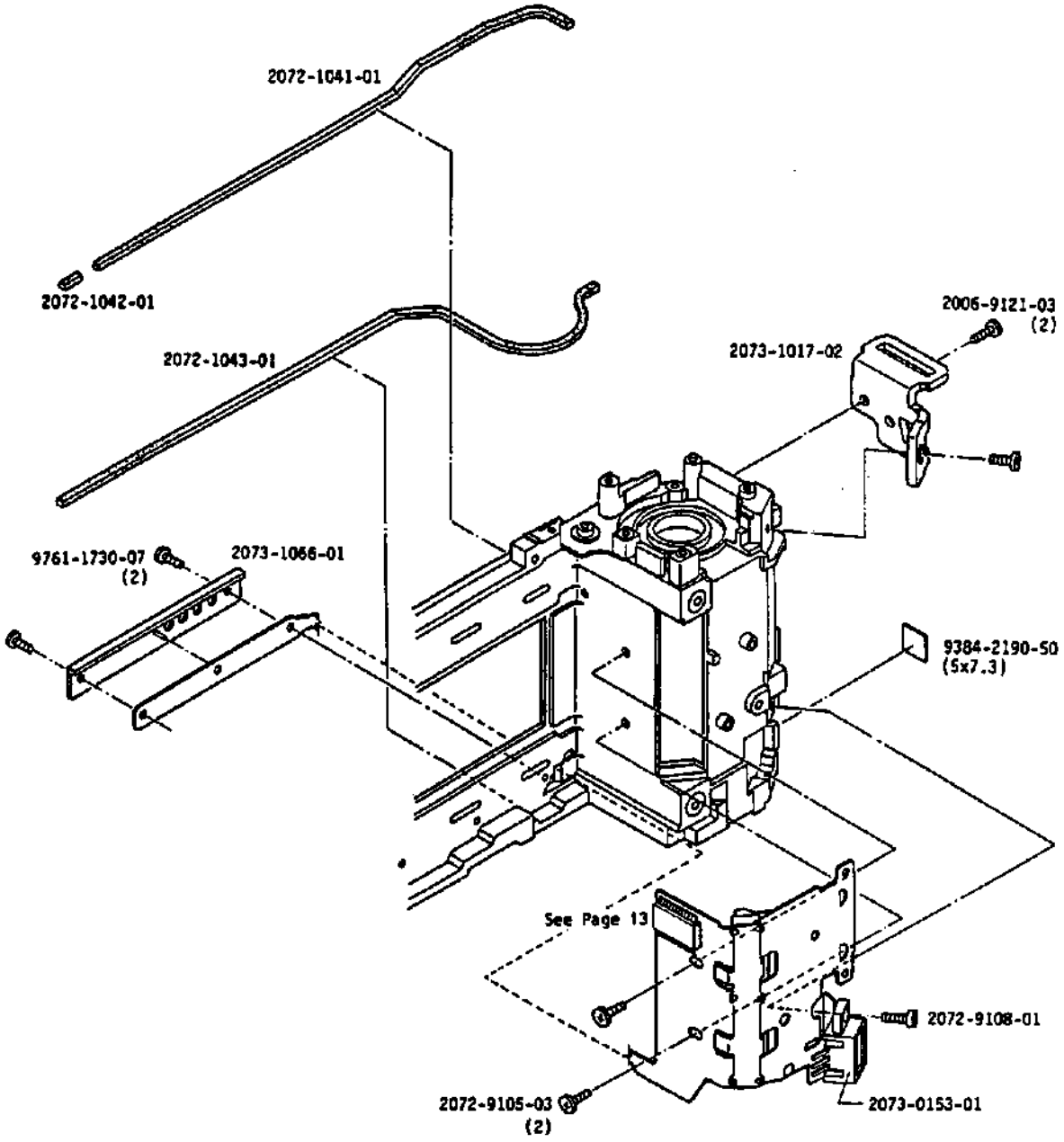
Part No.	Part Name		Qty.
2072-0500-02	Mirror box assembly	ミラーボックス完成品	1
(2072-0215-01)	Clutch base plate set	クラッチ台板セット	1
(2072-0256-02)	Aperture control base plate set	絞り制御台板セット	1
(2072-0406-01)	Photointerrupter-1 set	フォトインタラプター１セット	1
(2072-0260-01)	AF drive set	ＡＦ駆動セット	1
(2072-0407-01)	Photointerrupter-2 set	フォトインタラプター２セット	1
(2072-0472-03)	Aperture stop magnet set	絞りストップＭｇ．セット	1
(2072-0513-01)	S400 contact plate set	Ｓ４００接片台板セット	1
(2072-0584-01)	Flash receptor set	ストロボプリズム台セット	1
(2072-1045-02)	Light shield plate	セルフ遮光片	1
(2072-2556-03)	Bevel gear	カサ歯車	1
(2072-5054-02)	Flare shield plate	フレア防止シート	1
(2072-5055-01)	Light shield plate	ミラーボックス遮光板	1
(2072-5103-01)	Mirror up spring	ミラーアップレバーＳＰ	1
(2072-5107-01)	Mirror up over charge spring	ﾐﾗｰｱｯﾌﾟｵｰﾊﾞｰﾁｬｰｼﾞSP	1
(2072-5120-01)	Shutter release lever spring	Ｓレリーズレバーｓｐ	1
(2072-5135-01)	Earth contact	Ｓ４０アース接片	1
(2072-5156-02)	Light shield sheet	遮光シート	1
(2072-5806-04)	Mirror	主ミラー	1
(2072-9001-01)	Screw	止めビス	2
(2072-9415-01)	Collar-A (φ2.6)	Ｓチャージ調整カラーＡ	1
(2072-9416-01)	Collar-B (φ3)	Ｓチャージ調整カラーＢ	
(2072-9417-01)	Collar-C (φ2.2)	Ｓチャージ調整カラーＣ	
(2072-9418-02)	Collar-D (φ1.8)	Ｓチャージ調整カラーＤ	
(9384-2180-10)	Irrax tube (UL) (Per meter)	イラックスチューブ	2
(9611-1630-01)	Phillips type screw	十字穴付なべ小ねじ	2
(9612-1428-01)	Phillips type screw	十字穴付なべ小ねじ	1
(9612-1635-07)	Phillips type screw	十字穴付なべ小ねじ	1
(9615-1625-01)	Phillips type screw	十字穴付皿小ねじ	5
(9721-0060-50)	E-ring	Ｅリング	1
(9721-0120-13)	E-ring	Ｅリング	2
①	Mirror box set	ミラーボックスセット	1
②	Mirror operation plate set	ミラー台板セット	1
③	Mirror abjustment plate-A set	ミラー軸台板セット（右）	1
④	Mirror abjustment plate-B set	ミラー軸台板セット（左）	1
⑤	Mirror holder set	ミラーホルダーセット	1
⑥	Mirror spring	ミラーメインＳＰ	1
⑦	Sub mirror spring	サブミラーＳＰ	1
⑧	Screw	止めねじ	1
⑨	Screw	止めねじ	2
⑩	Phillips type screw	十字穴付皿小ねじ	1
⑪	Phillips type screw	十字穴付皿小ねじ	2
⑫	E-ring	Ｅリング	1
2072-5051-01	AF abjustment screw	ＡＦ調整ビス	3
2072-5052-01	AF abjustment spring	ＡＦ調整ＳＰ	3
9612-1616-01	Phillips type screw	十字穴付なべ小ねじ	1
9795-1837-40	Washer	薄ワッシャー	3

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)



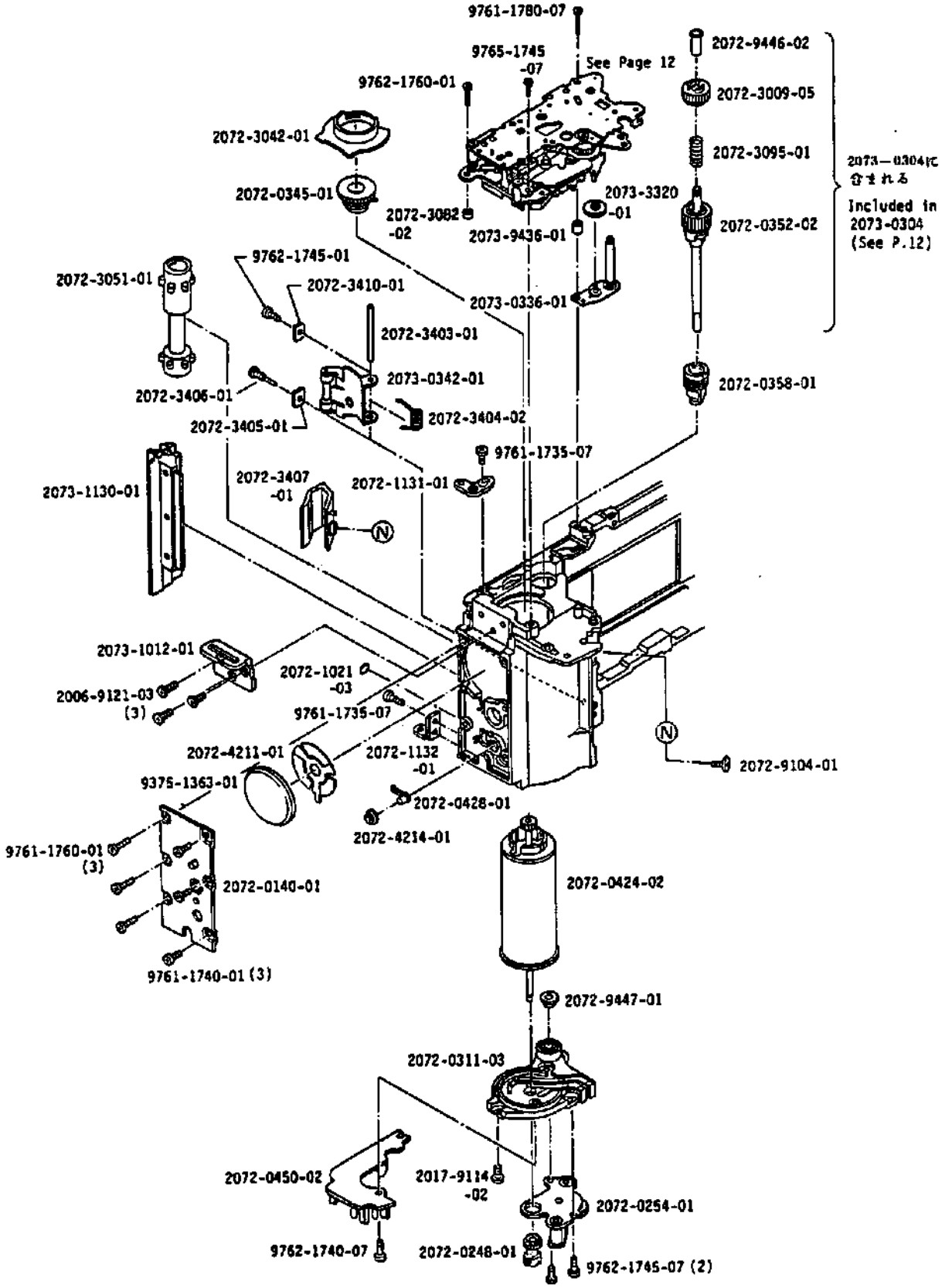
Part No.	Part Name		Qty.
2073-0111-01	Back cover release plate set	裏蓋開閉板セット	1
(2072-1112-02)	Back cover release spring	裏蓋ロックＳＰ	1
2073-0330-01	Rewinding base plate set (Right)	巻戻し台板セット（右）	1
2073-0331-01	Rewinding base plate set (Left)	巻戻し台板セット（左）	1
2072-1065-01	Contact pin base plate	ブラケット用信号ピン台板	1
2072-1071-01	Film cartridge pressure plate	パト回転防止板	1
2072-1072-02	Film cartridge receiver	パト口金受	1
2072-1087-01	Side spring	サイドバネ	1
2072-3311-02	Rewinding gear-F	巻戻しギヤーＦ	1
2072-9106-01	Screw	止めねじ	1
2072-9111-03	Screw	止めねじ	1
9761-1730-07	Tap tite screw	十字穴付タップタイトねじ	2
9761-1740-07	Tap tite screw	十字穴付タップタイトねじ	2
9761-1745-07	Tap tite screw	十字穴付タップタイトねじ	1
9761-1750-01	Tap tite screw	十字穴付タップタイトねじ	1
9765-1745-07	Tap tite screw	十字穴付タップタイトねじ	1

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)



Part No.	Part Name		Qty.
2073-0153-01	Remote control terminal set	リモコンターミナルセット	1
2073-1017-02	Strap eyelet (Left)	ストラップ取付環（左）	1
2072-1041-01	Body light shield sponge-A	ボディ遮光片A	1
2072-1042-01	Body light shield sponge-B	ボディ遮光片B	1
2072-1043-01	Body light shield sponge-C	ボディ遮光片C	1
2073-1066-01	Contact pin cover	信号ピンカバー	1
2072-9105-03	Screw	止めねじ	2
2072-9108-01	Screw	止めねじ	1
2006-9121-03	Tapping screw	止めねじ	2
9384-2190-50	Double-faced tape (per roll)	両面テープ	1
9761-1730-07	Tap tite screw	十字穴付タップタイトねじ	2

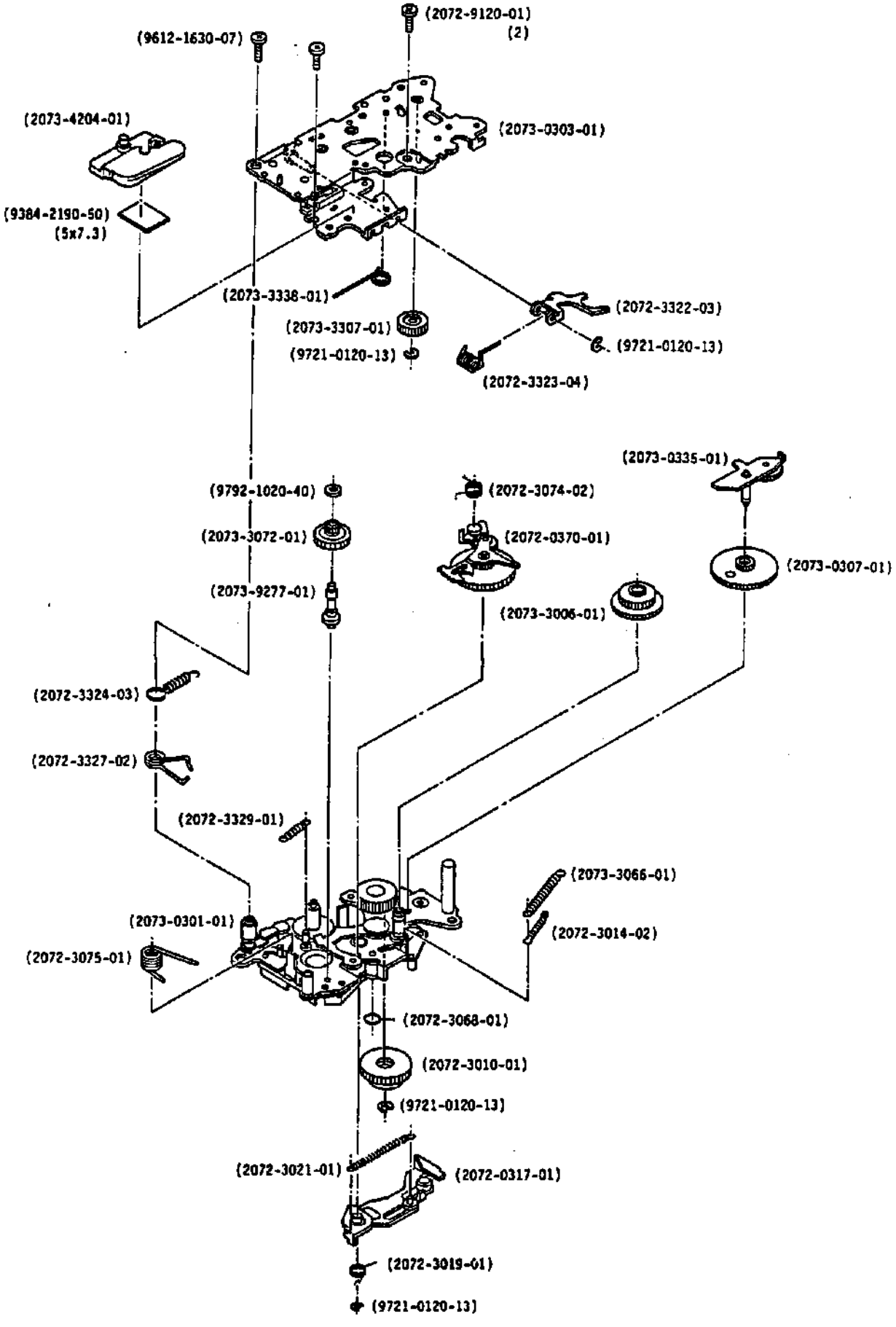
5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)



Part No.	Part Name		Qty.
2072-0140-01	Battery holder base plate set	電池ケース取付板セット	1
2072-0248-01	Motor gear set	モーターギャーセット	1
2072-0254-01	Aperture charge base plate set	絞りチャージ台板セット	
2072-0311-03	Motor contact plate set	モーター接片台セット	1
2073-0336-01	Rewinding base plate set	巻戻し台板セット	1
2073-0342-01	Film guide roller set	ローラーホルダーセット	1
2072-0345-01	Spool gear set	スプールギャーセット	1
2072-0352-02	Sprocket axis set	スプロケット軸セット	1
2072-0358-01	Sprocket friction set	ｽﾌﾟﾛｯｹｯﾄﾌﾘｸｼｮﾝAｾｯﾄ	1
2072-0424-02	Motor set	モーターセット	1
2072-0428-01	Plus contact plate set	電源入力＋端子セット	1
2072-0450-02	Converter P.C.board set	コンバーター基板セット	1
2073-1012-01	Strap eyelet (Right)	ストラップ取付環（右）	1
2072-1021-03	Safe loading signal	ローディング指標	1
2073-1130-01	Hinge cover	ヒンジカバー	1
2072-1131-01	Hinge (Upper)	ヒンジ（上）	1
2072-1132-01	Hinge (Lower)	ヒンジ（下）	1
2072-3009-05	Changeover gear	巻戻し切換ギャー	1
2072-3042-01	Light shield collar	遮光カラー	1
2072-3051-01	Sprocket	スプロケット	1
2072-3082-02	Winding base plate collar	巻上台板支柱	1
2072-3095-01	Changeover gear spring	切換ギャーＳＰ	1
2073-3320-01	Rewinding gear-C	巻戻しギャーＣ	1
2072-3403-01	Roller holder axis	ローラーホルダー軸	1
2072-3404-02	Roller holder spring	ローラーＳＰ	1
2072-3405-01	Washer	ローラーホルダーワッシャー	1
2072-3406-01	SLS screw	ＳＬＳ導通ビス	1
2072-3407-01	Film guide-A	フィルムガイドＡ	1
2072-3410-01	Washer	ローラーホルダーワッシャー	1
2072-4211-01	Cell contact plate	リチウム接片	1
2072-4214-01	Collar	＋端子絶縁カラー	1
2072-9104-01	Screw	止めねじ	1
2017-9114-02	Screw	止めねじ	1
2006-9121-03	Tapping screw	止めねじ	3
2073-9436-01	Winding base plate spacer	巻上台板スペーサー	1
2072-9446-02	Collar	スプロケット軸カラー	1
2072-9447-01	Sprocket axis receiver	スプロケット軸受（下）	1
9375-1363-01	Lithium cell (CR2016)	リチウム電池	1
9761-1735-07	Tap tite screw	十字穴付タップタイトねじ	2
9761-1740-01	Tap tite screw	十字穴付タップタイトねじ	3
9761-1760-01	Tap tite screw	十字穴付タップタイトねじ	3
9761-1780-07	Tap tite screw	十字穴付タップタイトねじ	1
9762-1740-07	Tap tite screw	十字穴付タップタイトねじ	1
9762-1745-01	Tap tite screw	十字穴付タップタイトねじ	1
9762-1745-07	Tap tite screw	十字穴付タップタイトねじ	2
9762-1760-01	Tap tite screw	十字穴付タップタイトねじ	1
9765-1745-07	Tap tite screw	十字穴付タップタイトねじ	1

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)

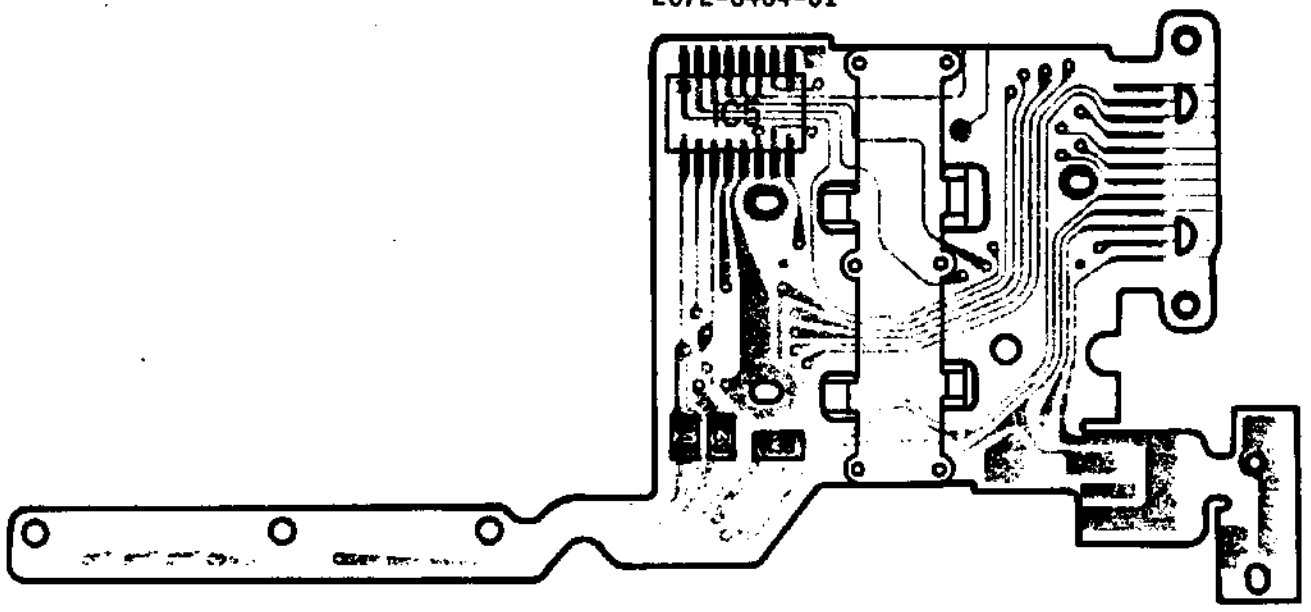
Assy Part No. 2073-0304-01



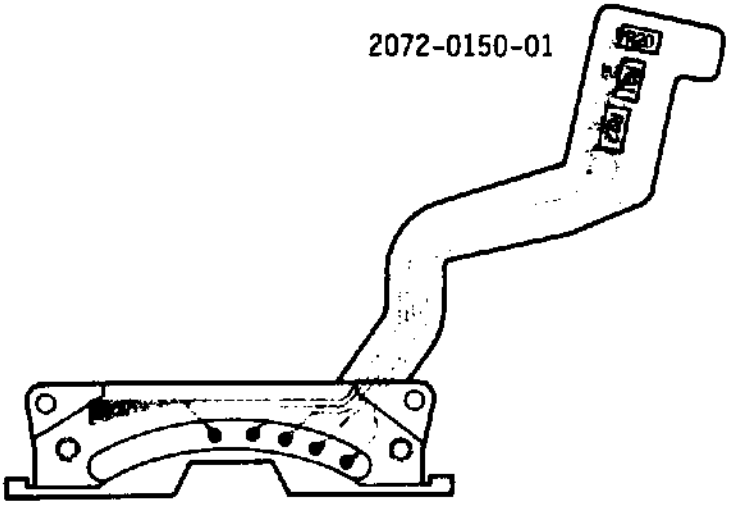
Part No.	Part Name		Qty.
2073-0304-01	Winding base plate Assembly	巻上台板ブロック	1
(2073-0301-01)	Winding base plate set (Lower)	巻上台板セット（下）	1
(2073-0303-01)	Winding base plate set (Upper)	巻上台板セット（上）	1
(2073-0307-01)	Reduction gear-D set	減速ギヤーDセット	1
(2072-0317-01)	Shutter charge lever set	ｼｬｯﾀｰﾁｬｰｼﾞﾚﾊﾞｰｾｯﾄ	1
(2073-0335-01)	Rewinding operation plate set	巻戻し切換遊星板セット	1
(2072-0370-01)	Winding stop release sector set	巻止め解除セクターセット	1
(2073-3006-01)	Reduction gear-C	減速ギヤーC	1
(2072-3010-01)	Shutter charge gear	シャッターチャージギヤー	1
(2072-3014-02)	Winding stop operation lever spring	巻止めレバーSP	1
(2072-3019-01)	Shutter charge lever spring	ｼｬｯﾀｰﾁｬｰｼﾞﾚﾊﾞｰSP	1
(2072-3021-01)	Charge spring	ｼｬｯﾀｰﾁｬｰｼﾞﾛｰﾗｰSP	1
(2073-3066-01)	Diaphragm return spring	絞り復帰レバーSP	1
(2072-3068-01)	Diaphragm release lever spring	絞り復帰解除レバーSP	1
(2073-3072-01)	Drive gear	解除駆動ギヤー	1
(2072-3074-02)	Winding stop lever spring	巻止め係止解除レバーSP	1
(2072-3075-01)	Drive gear spring	係止解除駆動ギヤーSP	1
(2073-3307-01)	Rewinding gear-B	巻戻しギヤーB	1
(2072-3322-03)	Fork	巻戻し切換フォーク	1
(2072-3323-04)	Fork spring	巻戻し切換フォークSP	1
(2072-3324-03)	Rewinding operation lever spring	巻戻し操作レバーSP	1
(2072-3327-02)	Rewinding stop lever spring	巻戻し係止レバーSP	1
(2072-3329-01)	Rewinding release lever spring	巻戻し係止解除レバーSP	1
(2073-3338-01)	Rewinding operation plate spring	切換遊星板SP	1
(2073-4204-01)	Spacer	TVスペーサー	1
(2072-9120-01)	Screw	止めビス	2
(2073-9277-01)	Drive gear axis	解除駆動ギヤー軸	1
(9384-2190-50)	Double-faced tape (Per roll)	両面テープ	1
(9612-1630-07)	Phillips type screw	十字穴付なべ小ねじ	1
(9721-0120-13)	E-ring	Eリング	4
(9792-1020-40)	Washer	薄ワッシャー	1

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)

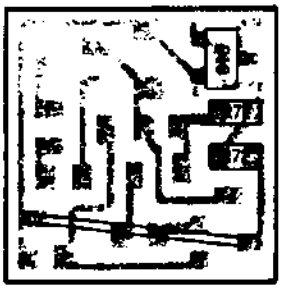
2072-0404-01



2072-0150-01



2073-0451-01



BL接点ホルダーセット

ASSY. PART NO. 2072-0150-01　　ASSY. PART NAME : BL CONTACT HOLDER SET

SYMBOL	PART NO.	PART NAME	TYPE	QTY
R20	9431-3316-62	FIXED RESISTOR	1/16W 330	1
R21	9431-1026-62		1/16W 1K	1
R22	9431-1016-62		1/16W 100	1

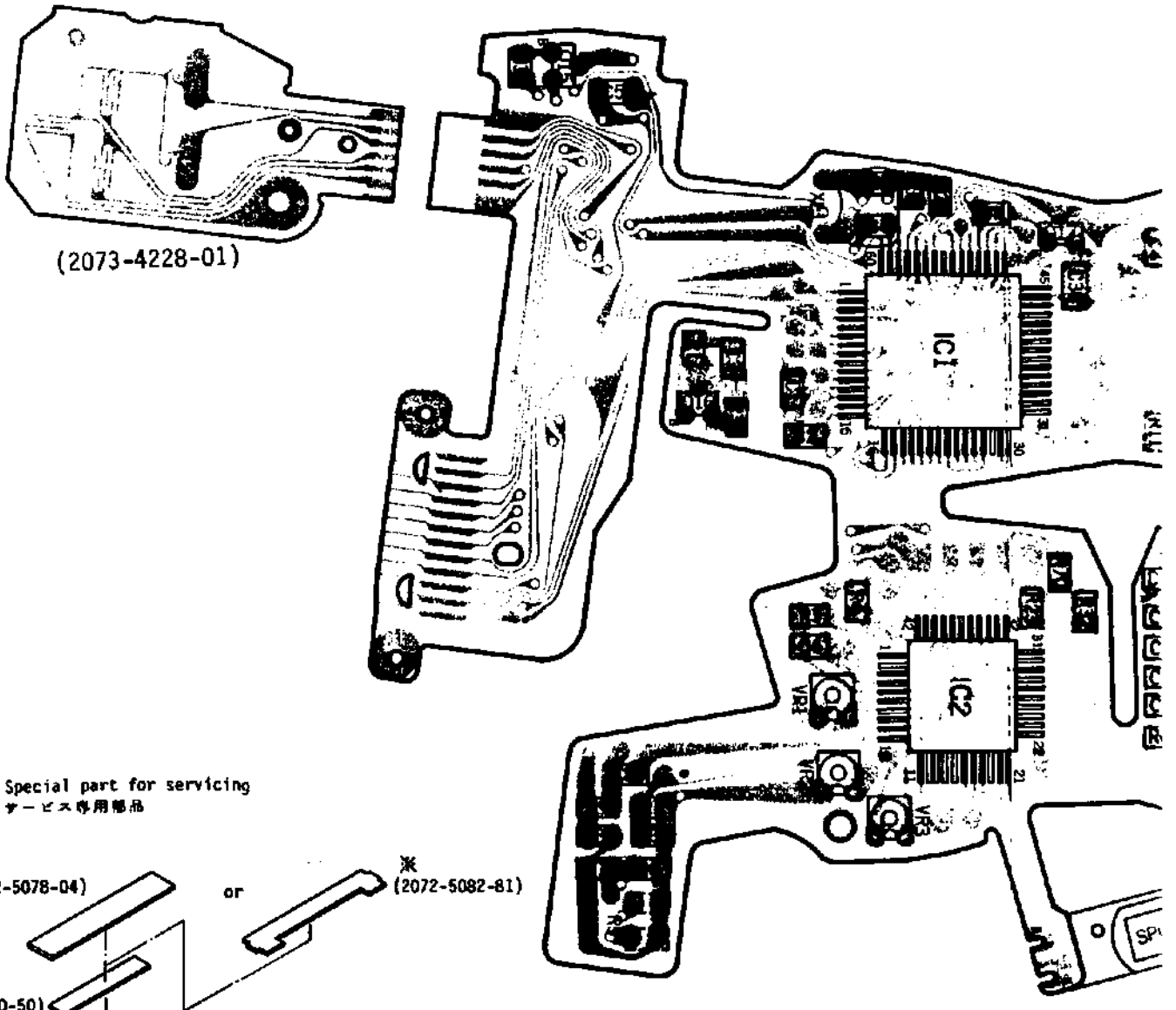
フレキシブル基板Dセット

ASSY. PART NO. 2072-0404-01　　ASSY. PART NAME : FLEXIBLE PC BOARD-D SET

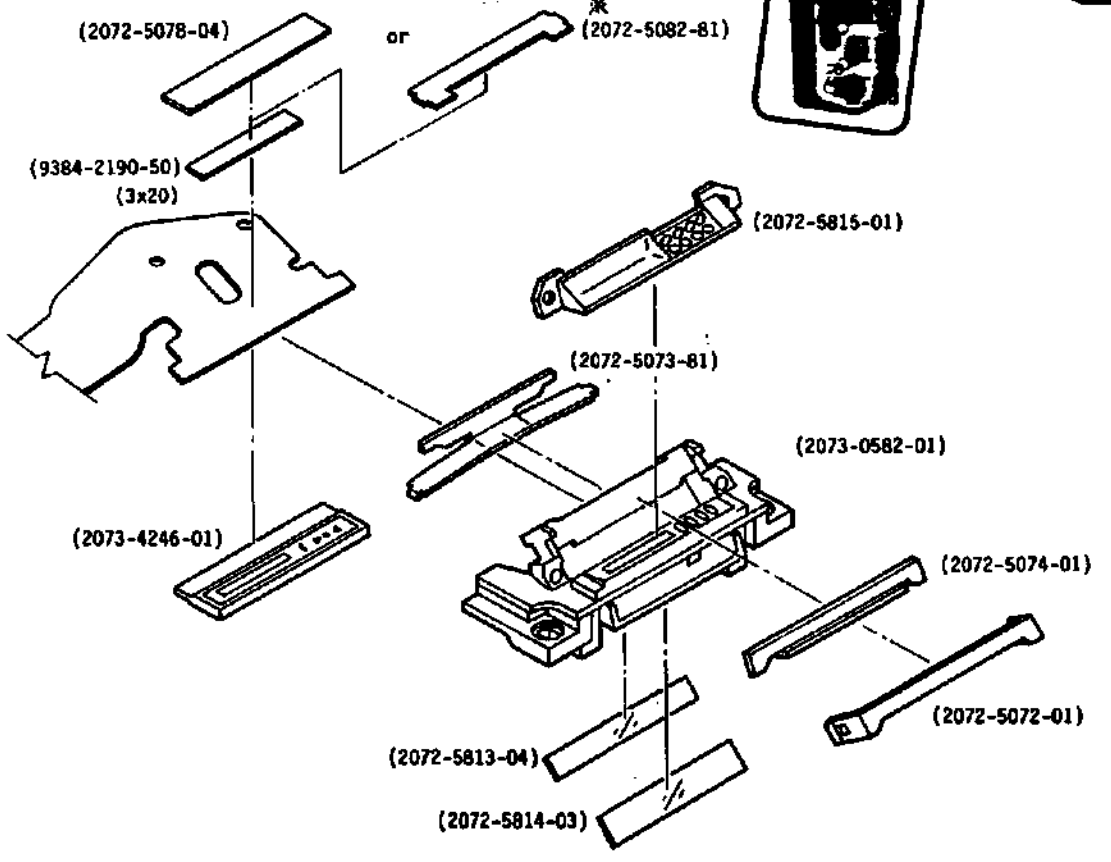
SYMBOL	PART NO.	PART NAME	TYPE	QTY
R38,R39,R40	9431-1016-62	FIXED RESISTOR	1/16W 100	3

C基板セット

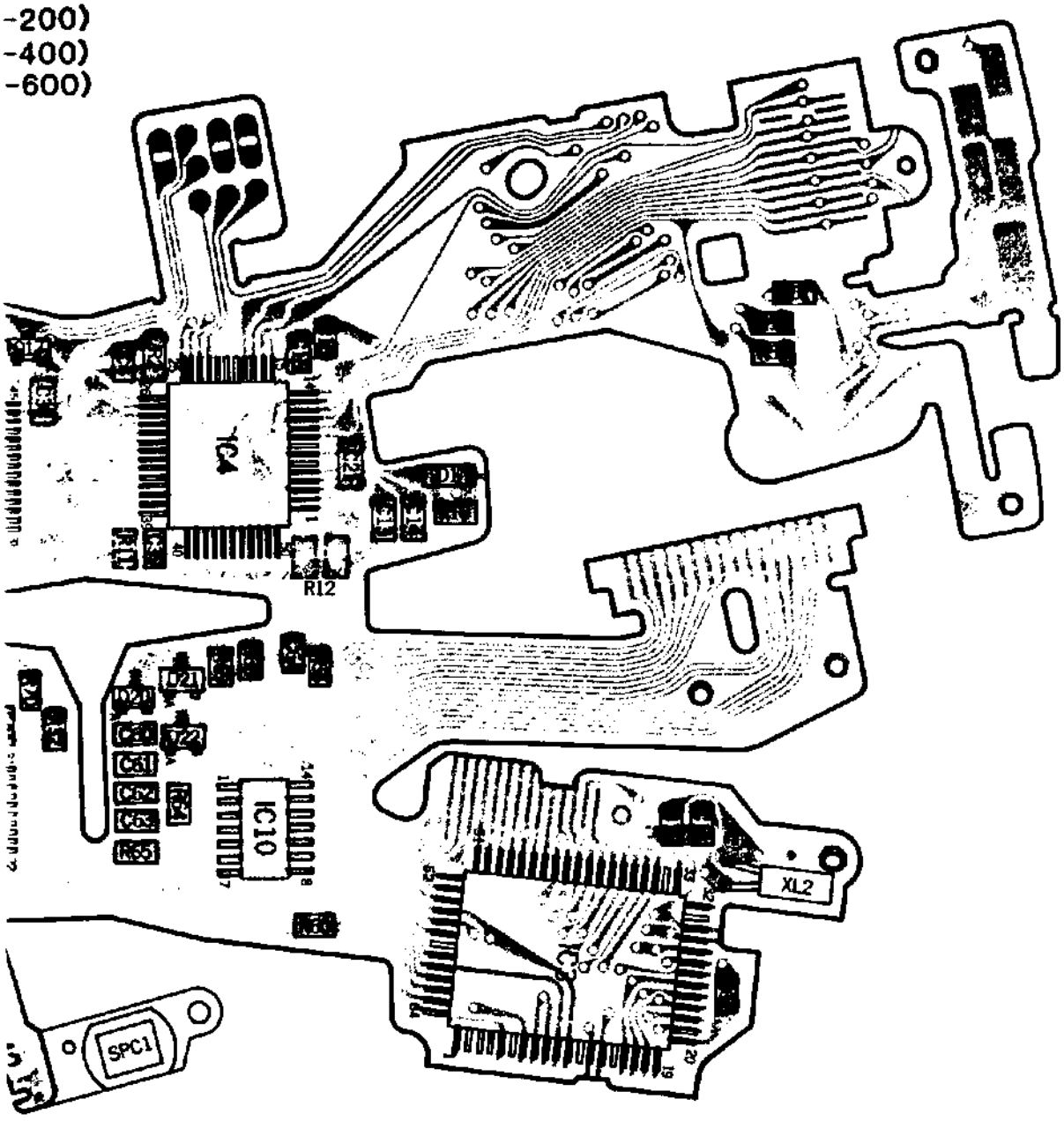
ASSY. PART NO. 2073-0451-01　　ASSY. PART NAME : PC BOARD-C SET



※ Special part for servicing
サービス専用部品



-200)
-400)
-600)



フレキシブル基板Aセット

ASSY. PART NO. 2073-0413-01　　ASSY. PART NAME : FLEXIBLE PC BOARD-A SET

SYMBOL	PART NO.	PART NAME	TYPE	QTY
IC10	9367-3461-06	IC	TOSHIBA, TC4023BF	1
	9367-3561-01		MITSUBISHI, M4023	
	9367-3562-01		MATSUSHITA, MN4023BS	
D1	9361-1461-03	DIODE	ROHM, RLS-73	1
D20,D21,D22	9361-5561-05		MATSUSHITA, MA28T-A ML	3
Q15,Q16,Q17	9362-1032-01	TRANSISTOR	TOSHIBA, 2SC2712	3
	9362-1032-02		TOSHIBA, 2SC2712	
	9362-1032-03		TOSHIBA, 2SC2712	
	9362-1032-04		TOSHIBA, 2SC2712	
	9362-1461-01		MITSUBISHI, 2SC3052	
	9362-1461-02		MITSUBISHI, 2SC3052	
	9362-1461-03		MITSUBISHI, 2SC3052	
	9362-1464-01		ROHM, 2SC2412	
	9362-1464-02		ROHM, 2SC2412	
	9362-1464-03		ROHM, 2SC2412	
	9362-1633-01		NEC, 2SC1623	
	9362-1633-02		NEC, 2SC1623	
	9362-1633-03		NEC, 2SC1623	
	9362-1633-04		NEC, 2SC1623	
R1,R67	9431-3346-62	FIXED RESISTOR	1/16W 330K	2
R2	9432-2068-61		1/8W 20M	1
R3,31,41,50	9431-1056-62		1/16W 1M	4
R4	9431-2436-62		1/16W 24K	1
R5 (RANKING RESISTOR)	9422-1046-63		1/8W 100K	0-1
	9422-2046-63		1/8W 200K	
	9422-2236-63		1/8W 22K	
	9422-2436-63		1/8W 24K	
	9422-2736-63		1/8W 27K	
	9422-3336-63		1/8W 33K	
	9422-3936-63		1/8W 39K	
	9422-5136-63		1/8W 51K	
	9422-6836-63		1/8W 68K	
R6	9431-2246-62		1/16W 220K	1
R7	9431-6826-62		1/16W 6.8K	1
R9	9431-6226-62		1/16W 6.2K	1
R10,R51,R52	9431-1036-62		1/16W 10K	3
R11 (RANKING RESISTOR)	9422-2746-63		1/8W 270K	0-1
	9422-3346-63		1/8W 330K	
	9422-4746-63		1/8W 470K	
	9422-6846-63		1/8W 680K	
R12 (RANKING RESISTOR)	9422-1036-63		1/8W 10K	0-1
	9422-1536-63		1/8W 15K	
	9422-2236-63		1/8W 22K	
	9422-3336-63		1/8W 33K	
	9422-6836-63		1/8W 68K	
R23,R32	9431-3336-62		1/16W 330K	2
R65,68,69,70	9431-1046-62		1/16W 100K	4
R33	9431-4746-62		1/16W 470K	1
R34	9431-2226-62		1/16W 2.2K	1
R60	9431-3326-62		1/16W 3.3K	1
R64	9431-1246-62		1/16W 120K	1
R66	9431-8236-62		1/16W 8.2K	1

フレキシブル基板Aセット

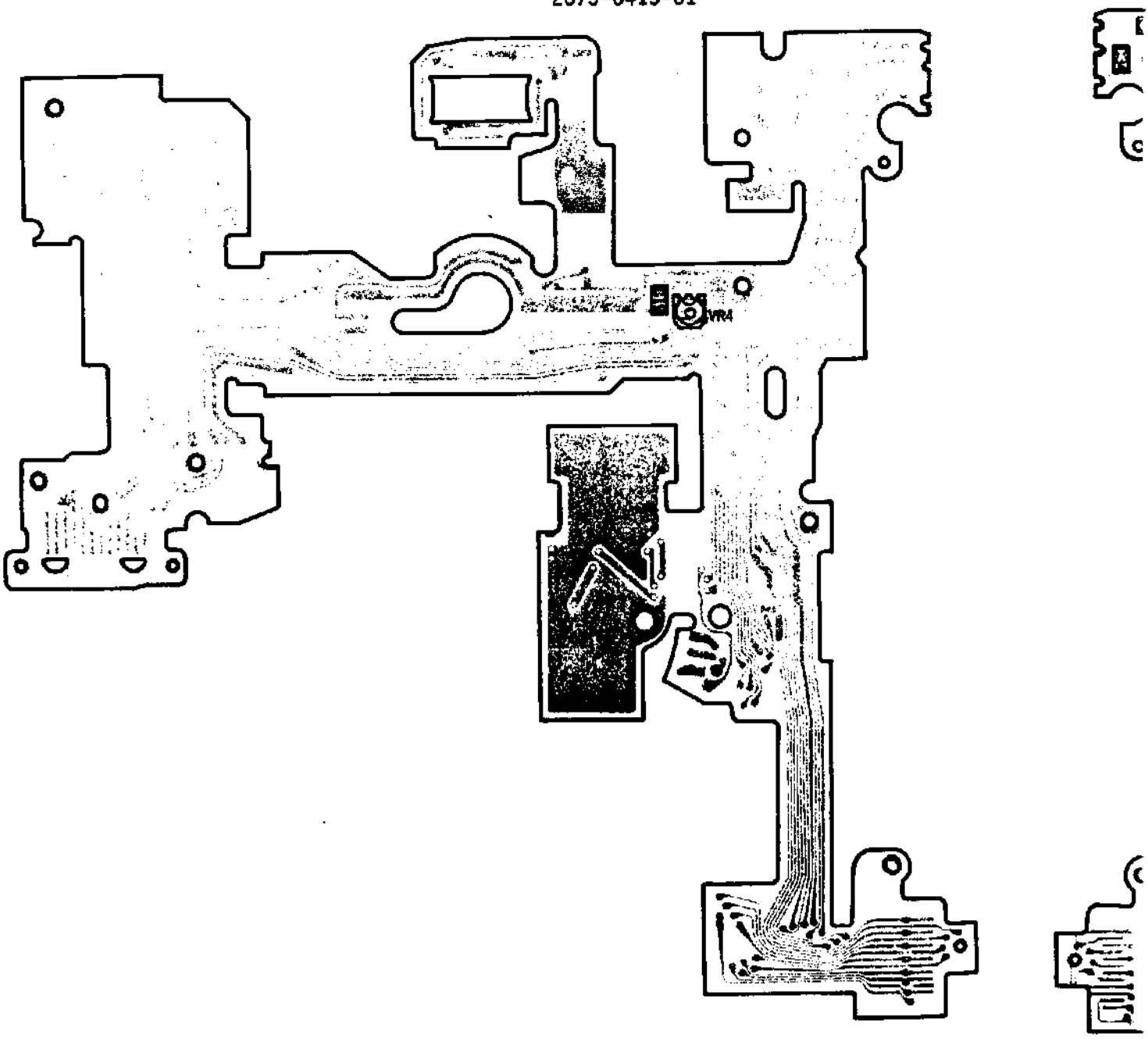
ASSY. PART NO. 2073-0413-01　　ASSY. PART NAME : FLEXIBLE PC BOARD-A SET

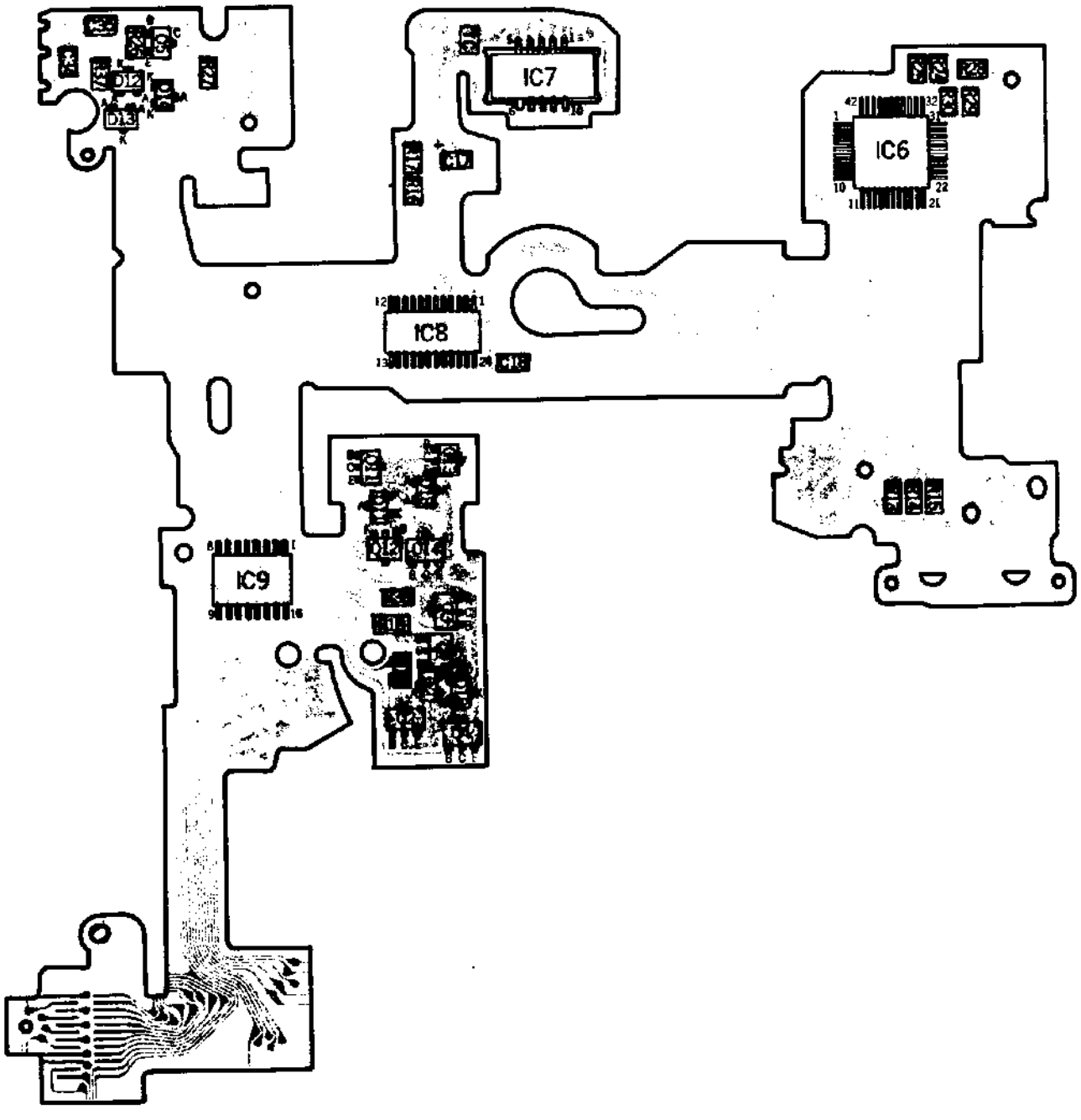
SYMBOL	PART NO.	PART NAME	TYPE	QTY
C1,C2	9564-2215-69	CONDENSER	CERAMIC, 220PF/25V	2
	9565-2215-37		CERAMIC, 220PF/50V	
C3,C16,C20	9564-3335-65		CERAMIC, 0.033μF/25V	3
	9564-3335-69		CERAMIC, 0.033μF/25V	
C4,C6,C7	9564-1035-69		CERAMIC, 0.01μF/25V	3
	9565-1035-37		CERAMIC, 0.01μF/50V	
C5	9531-1555-68		TANTALUM, 1.5μF/6.3V	1
	9532-1555-67		TANTALUM, 1.5μF/10V	
	9532-1555-68		TANTALUM, 1.5μF/10V	
C8,C15	9564-3325-69		CERAMIC, 3300PF/25V	2
	9565-3325-37		CERAMIC, 3300PF/50V	
C11,C12	9564-2204-65		CERAMIC, 22PF/25V	2
	9565-2204-65		CERAMIC, 22PF/50V	
C13	9564-1044-64		CERAMIC, 0.1μF/25V	1
C14	9564-3935-68		CERAMIC, 0.039μF/25V	1
	9565-3935-63		CERAMIC, 0.039μF/50V	
C21	9565-1835-63		CERAMIC, 0.018μF/50V	1
C31,C32,C64	9564-3304-65		CERAMIC, 33PF/25V	3
	9565-3304-65		CERAMIC, 33PF/50V	
C33,36,60,61,62, C63	9563-1048-61		CERAMIC, 0.1μF/16V	6
	9564-1048-63		CERAMIC, 0.1μF/25V	
C38	9565-2215-63		CERAMIC, 220PF/50V	1
	9564-2215-68		CERAMIC, 220PF/25V	
C39	9565-1025-37		CERAMIC, 1000PF/50V	1
VR1	9472-1039-63	VARIABLE RESISTOR	1/8W 10K	1
	9473-1039-63		1/4W 10K	
VR2,VR3	9472-2239-63		1/8W 22K	2
	9473-2239-63		1/4W 22K	
XL1	9373-4361-01	CRYSTAL RESONATOR	CSA4, 19MG1	1
XL2	9373-4161-02		KF-26	1
	9373-4162-01		C-2-32.7	
	9373-4163-01		DT-26S	
SPC1	2072-4292-01	SPC		1

Part No.	Part Name		Qty.
(2073-0582-01)	In-finder set	インファインダーセット	1
(2073-4228-01)	Flexible plate-H	Hフレキ	1
(2073-4246-01)	LCD-2	ＬＣＤ－２	1
(2072-5072-01)	In-finder pressure-B	インファインダー押え板Ｂ	1
(2072-5073-81)	In-finder pressure-C	ＬＣＤ押え	1
(2072-5074-01)	In-finder pressure-A	インファインダー押え板Ａ	1
(2072-5078-04)	LCD light shield	インファインダー遮光片	1
(2072-5813-04)	In-finder mirror-A	インファインダーミラーＡ	1
(2072-5814-03)	In-finder mirror-B	インファインダーミラーＢ	1
(2072-5815-01)	In-finder prism	採光プリズム	1
2072-5082-81	Pressure rubber	インファインダー押えゴム	1

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)

2073-0415-01



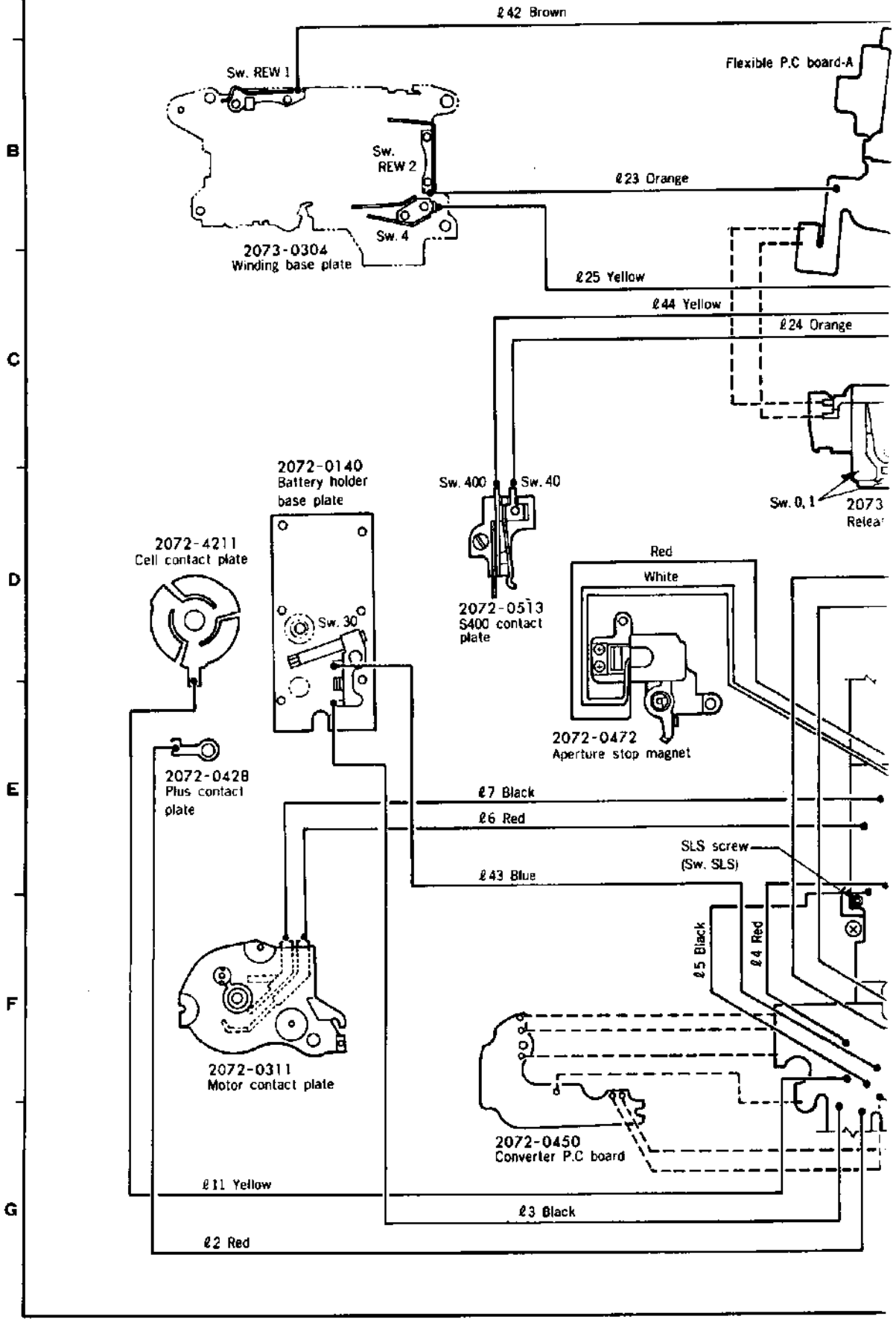

IC7
IC6
IC8
IC9

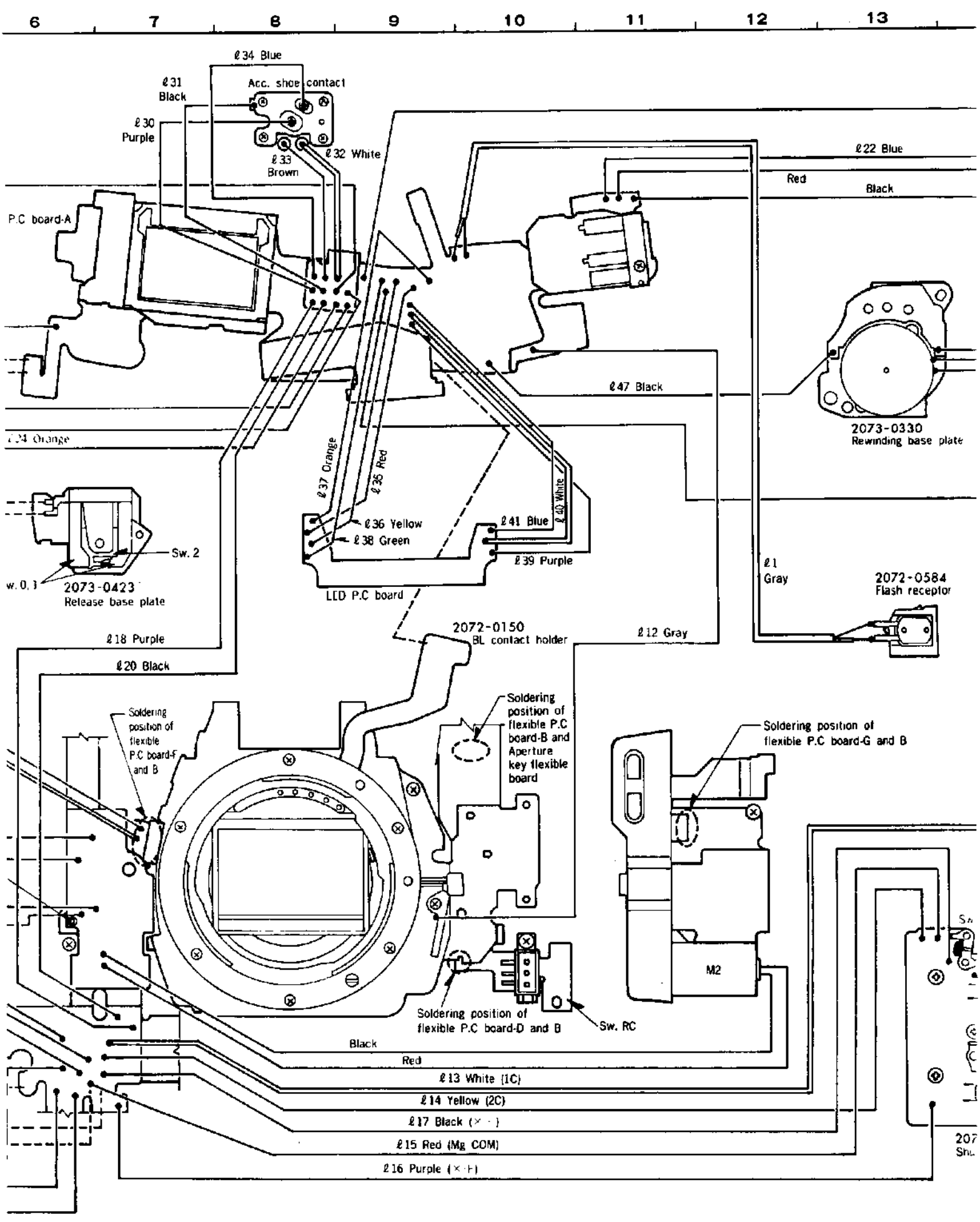
フレキシブル基板セット

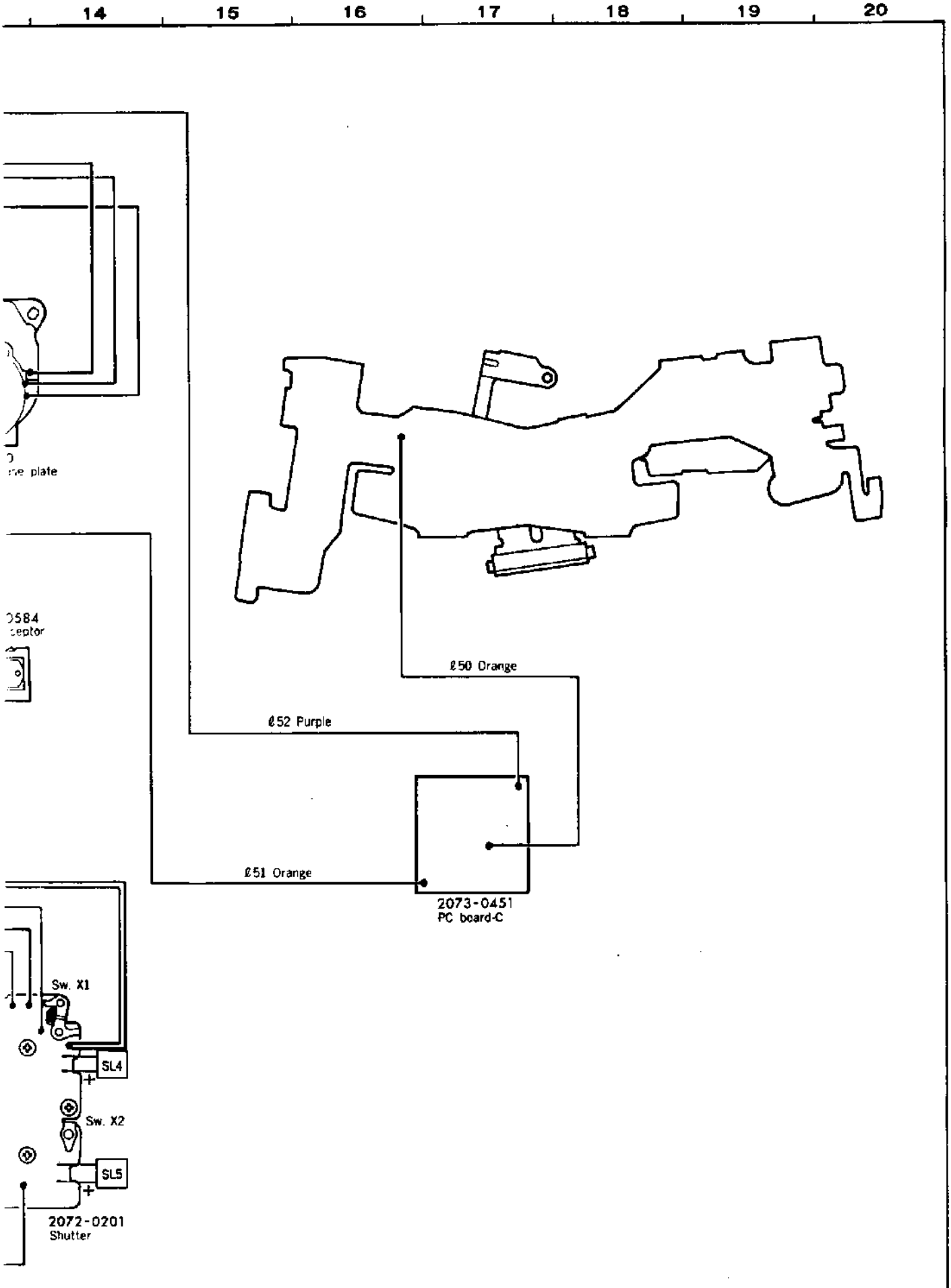
ASSY. PART NO. 2073-0415-01　　ASSY. PART NAME : FLEXIBLE PC BOARD-B SET

SYMBOL	PART NO.	PART NAME	TYPE	QTY
IC9	2072-4309-01	IC	MITSUBISHI, M51052P	1
TC	9372-2462-01	THERMISTOR	15-203-13004	1
D2,D11	9361-1462-01	DIODE	MATSUSHITA, MA151WA	2
	9361-1463-01		SANYO, DCA015	
D12,D13,D18,D19	9361-1364-04		TOSHIBA, 1SS182	4
	9361-1364-05		TOSHIBA, 1SS183	
	9361-1364-06		TOSHIBA, 1SS184	
	9361-1462-02		MATSUSHITA, MA151WK	
	9361-1463-04		SANYO, DCB015	
	9361-1465-01		MITSUBISHI, MC2838	
D14	9361-1364-01		TOSHIBA, 1SS179	1
	9361-1364-02		TOSHIBA, 1SS180	
	9361-1364-03		TOSHIBA, 1SS181	
	9361-1462-01		MATSUSHITA, MA151WA	
	9361-1463-01		SANYO, DCA015	
Q1,Q2,Q11,Q12	9362-2361-02	TRANSISTOR	TOSHIBA, 2SC2982	4
	9362-2361-03		TOSHIBA, 2SC2982	
	9362-2361-04		TOSHIBA, 2SC2982	
	9362-2461-01		SANYO, 2SD1620	
	9362-2462-01		MATSUSHITA, 2SD1119	
	9362-2462-02		MATSUSHITA, 2SD1119	
	9362-2462-03		MATSUSHITA, 2SD1119	
Q3,Q4,Q13,Q14	9363-1463-02		SANYO, 2SB1120	4
	9363-1463-03		SANYO, 2SB1120	
	9363-1464-02		MATSUSHITA, 2SB1073	
	9363-1464-03		MATSUSHITA, 2SB1073	
	9363-2361-02		TOSHIBA, 2SA1314	
	9363-2361-03		TOSHIBA, 2SA1314	
Q5	9363-1033-01		SANYO, 2SA1179	1
	9363-1033-02		SANYO, 2SA1179	
	9363-1033-03		SANYO, 2SA1179	
	9363-1033-04		SANYO, 2SA1179	
	9363-1363-01		TOSHIBA, 2SA1298	
	9363-1363-02		TOSHIBA, 2SA1298	
	9363-1461-01		NEC, 2SB736	
	9363-1461-02		NEC, 2SB736	
	9363-1461-03		NEC, 2SB736	
	9363-1461-04		NEC, 2SB736	
	9363-1461-05		NEC, 2SB736	
R13,R15	9431-1826-62	FIXED RESISTOR	1/16W 1.8K	2
R14	9431-1026-62		1/16W 1K	1
R16	9431-2736-62		1/16W 27K	1
R17	9431-8236-62		1/16W 8.2K	1
R18,R19	9432-1016-65		1/8W 100	2
R26,28,29,30,36	9431-3336-62		1/16W 330K	5
R24,R25	9431-1046-62		1/16W 100K	2
R27	9431-2226-62		1/16W 2.2K	1
R37	9431-2236-62		1/16W 22K	1
C17	9533-1055-67	CONDENSER	TANTALUM 1μF/16V	1
	9533-1055-68		TANTALUM 1μF/16V	
	9533-1055-70		TANTALUM 1μF/16V	
C18	9564-6825-69		CERAMIC 6800PF/25V	1
	9565-6825-37		CERAMIC 6800PF/50V	
C19	9564-3325-69		CERAMIC 3300PF/25V	1
	9565-3325-37		CERAMIC 3300PF/50V	
	9565-3328-65		CERAMIC 3300PF/50V	
C34,C35	9563-1048-61		CERAMIC 0.1μF/16V	2
	9564-1048-63		CERAMIC 0.1μF/25V	
VR4	9472-3339-64	VARIABLE RESISTOR	1/8W 33K	1

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)




6
7
8
9
10
11
12
13
ℓ34 Blue
ℓ31 Black
Acc. shoe contact
ℓ30 Purple
ℓ33 Brown
ℓ32 White
ℓ22 Blue
Red
Black
P.C board-A
ℓ47 Black
2073-0330
Rewinding base plate
ℓ24 Orange
ℓ37 Orange
ℓ35 Red
ℓ40 White
ℓ36 Yellow
ℓ38 Green
ℓ41 Blue
ℓ39 Purple
LED P.C board
Sw. 2
w. 0.1
2073-0423
Release base plate
ℓ1 Gray
2072-0584
Flash receptor
2072-0150
BL contact holder
ℓ12 Gray
ℓ18 Purple
ℓ20 Black
Soldering position of flexible P.C board-F and B
Soldering position of flexible P.C board-B and Aperture key flexible board
Soldering position of flexible P.C board-G and B
M2
Soldering position of flexible P.C board-D and B
Sw. RC
Black
Red
ℓ13 White (1C)
ℓ14 Yellow (2C)
ℓ17 Black (× -)
ℓ15 Red (Mg COM)
ℓ16 Purple (× +)


14
15
16
17
18
19
20
ø50 Orange
ø52 Purple
ø51 Orange
2073-0451
PC board-C
Sw. X1
SL4
Sw. X2
SL5
2072-0201
Shutter

LEAD WIRES LIST

SYMBOL	PART NO.	COLOR	TYPE		QTY
£1	2072-4401-02	GRAY	SHIELD WIRE	110mm	1
£2	9391-1207-02	RED	φ0.12/7	50mm	1
£3	9391-1207-00	BLACK	φ0.12/7	50mm	1
£4	9391-1207-02	RED	φ0.12/7	45mm	1
£5, £7	9391-1207-00	BLACK	φ0.12/7	45mm	2
£6	9391-1207-02	RED	φ0.12/7	40mm	1
£11, £14	9391-0807-04	YELLOW	φ0.08/7	65mm	2
£12	9391-0807-08	GRAY	φ0.08/7	55mm	1
£13	9391-0807-09	WHITE	φ0.08/7	65mm	1
£15	9391-0807-02	RED	φ0.08/7	65mm	1
£16	9391-0807-07	PURPLE	φ0.08/7	35mm	1
£17	9391-0807-00	BLACK	φ0.08/7	60mm	1
£18	9391-0807-07	PURPLE	φ0.08/7	110mm	1
£20	9391-0807-00	BLACK	φ0.08/7	110mm	1
£22, £41	9391-0807-06	BLUE	φ0.08/7	30mm	2
£23, £24	9391-0807-03	ORANGE	φ0.08/7	35mm	2
£25	9391-0807-04	YELLOW	φ0.08/7	105mm	1
£30	9391-0807-07	PURPLE	φ0.08/7	65mm	1
£31	9391-0807-00	BLACK	φ0.08/7	70mm	1
£32	9391-0807-09	WHITE	φ0.08/7	60mm	1
£33, £42	9391-0807-01	BROWN	φ0.08/7	60mm	2
£34	9391-0807-06	BLUE	φ0.08/7	65mm	1
£35	9391-0807-02	RED	φ0.08/7	40mm	1
£36, £44	9391-0807-04	YELLOW	φ0.08/7	40mm	2
£37	9391-0807-03	ORANGE	φ0.08/7	40mm	1
£38	9391-0807-05	GREEN	φ0.08/7	35mm	1
£39	9391-0807-07	PURPLE	φ0.08/7	30mm	1
£40	9391-0807-09	WHITE	φ0.08/7	30mm	1
£43	9391-0807-06	BLUE	φ0.08/7	50mm	1
£47	9391-0807-00	BLACK	φ0.08/7	45mm	1
£50	9391-0807-03	ORANGE	φ0.08/7	45mm	1
£51	9391-0807-03	ORANGE	φ0.08/7	20mm	1
£52	9391-0807-07	PURPLE	φ0.08/7	35mm	1

REPAIR

■ The contents of this manual are mainly related to the assembly and adjustment procedures for the 2073.

■ Since the procedures mentioned in this manual are for assembly they should be followed in reverse for disassembly.

■ Description of symbols

[G] : Grease usad & part greased

[O] : Oil used & part oiled

[B] : Adhesive used & part adhered

[T] : Tool used & tool number

■ Assembly and adjustment procedures

■Precautions

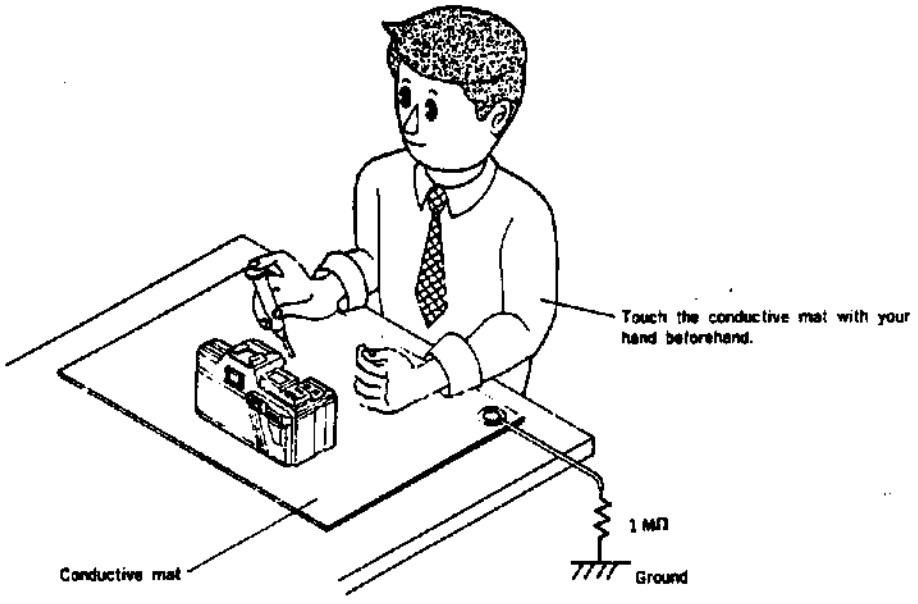
■The following precautions must be taken concerning all plastic parts.

1. When cleaning, use Flonsolve or alchol. Do not use thinner, ketone, ether etc.
2. Secure all parts with the specified screws, taking care not to exert excessive stress to them.

■Handling of the Flexible PC board

The flexible PC board uses MOS ICs and is very sensitive to static electricity Therefore, the following points must be kept in mind when repairing.

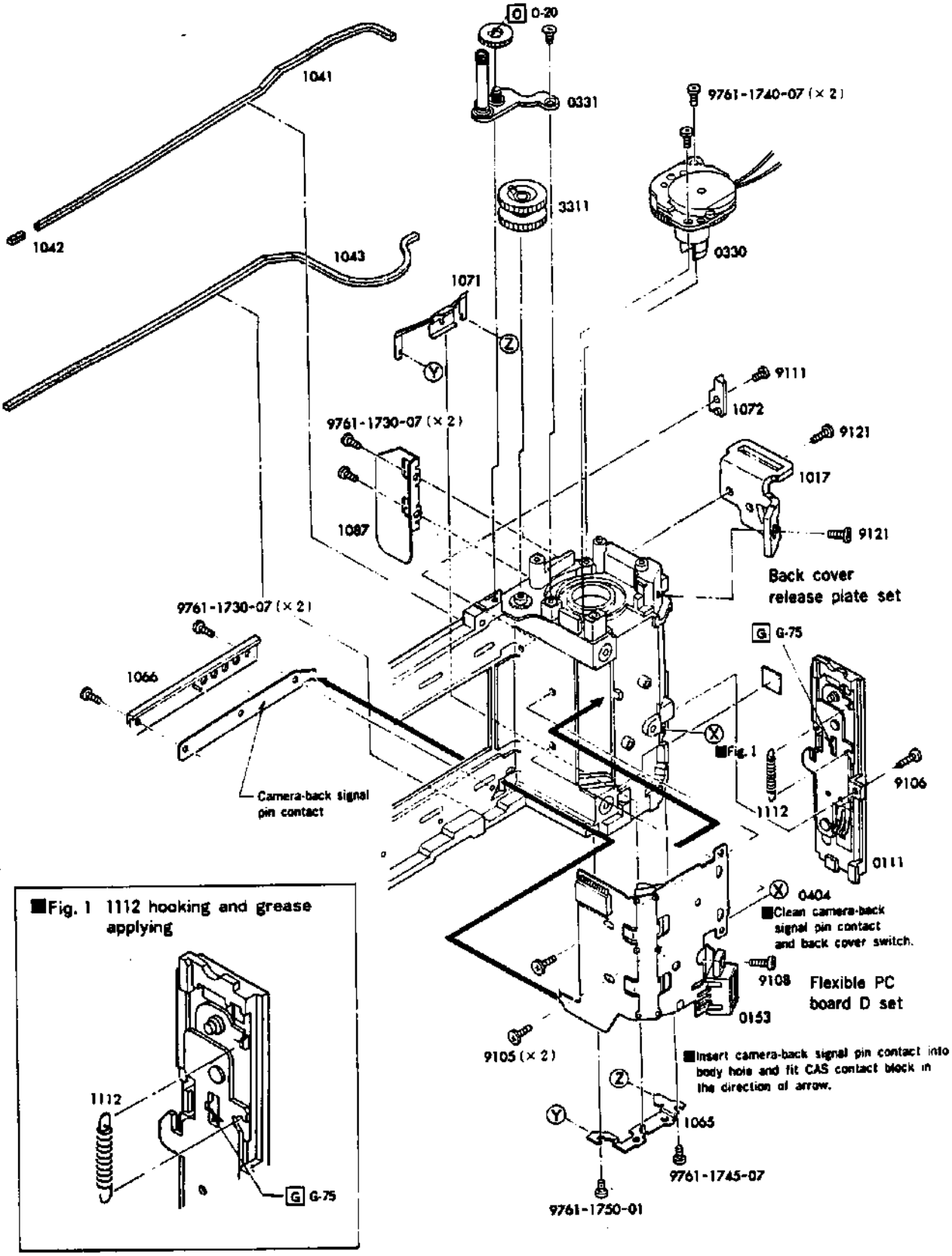
- When handling the flexible PC board itself or wiring it to the body, use a conductive mat to prevent static electricity, and perform all work as shown below.



■When grounding is impossible, connect the cable to a large metal plate (steel desk or shelf).

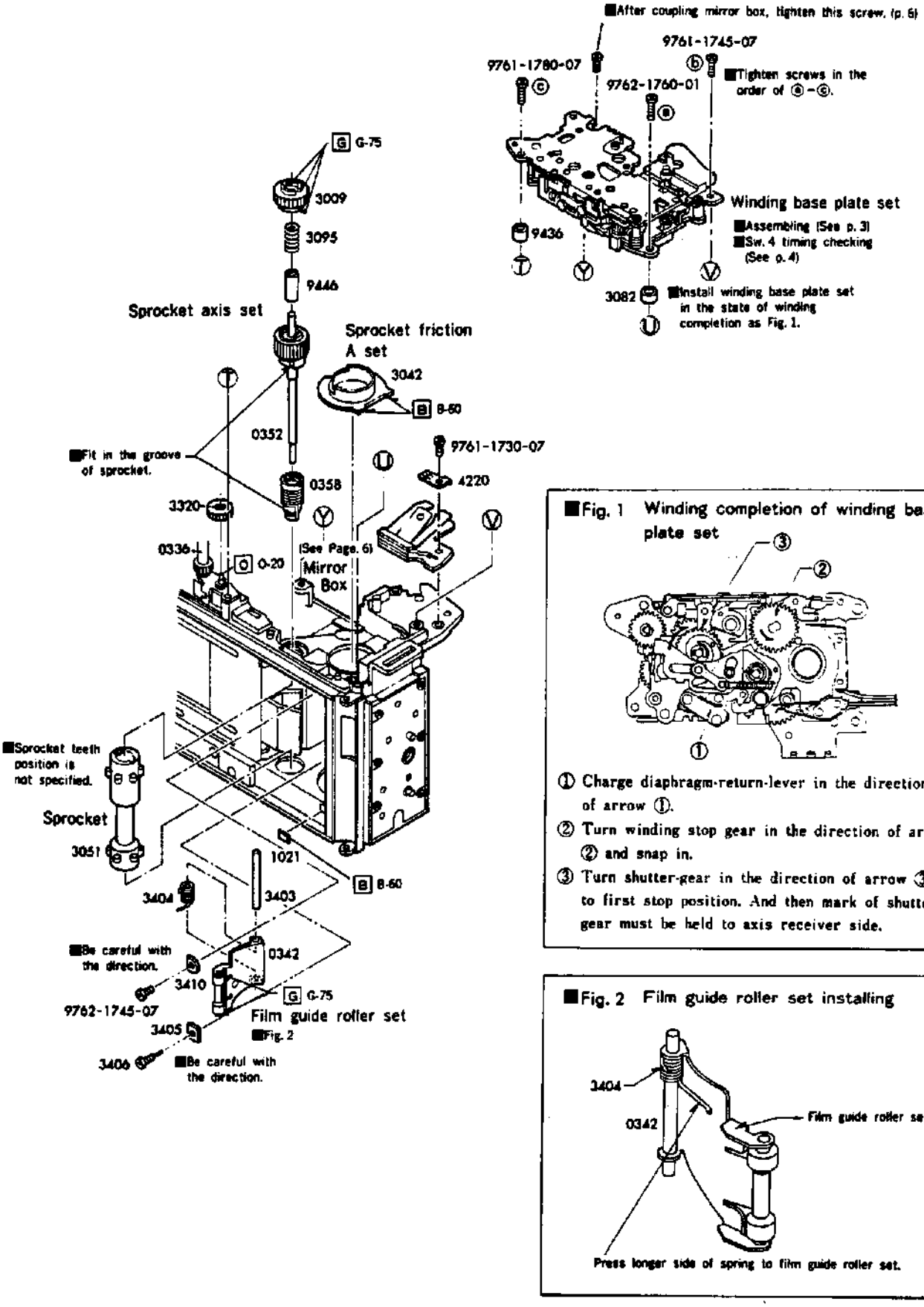
1 Flexible PC board D set, Back cover release plate set

■Beforehand, install film-cartridge-pressure-plate (1071), side-spring (1087), rewinding-base-plate-set (Left) (0330), and film-guide-roller-set (0342).
Then, install flexible PC board-D set (0404) and back-cover-release-plate-set (0111).



■Fig. 1 1112 hooking and grease applying

2 Film guide roller set, Sprocket, Winding base plate set



■Fig. 1 Winding completion of winding base plate set

① Charge diaphragm-return-lever in the direction of arrow ①.

② Turn winding stop gear in the direction of arrow ② and snap in.

③ Turn shutter-gear in the direction of arrow ③ to first stop position. And then mark of shutter gear must be held to axis receiver side.

■Fig. 2 Film guide roller set installing

4 Shutter, Mirror box block, Finder block assembling

■Arrange lead wires, flexible PC board referring next page.

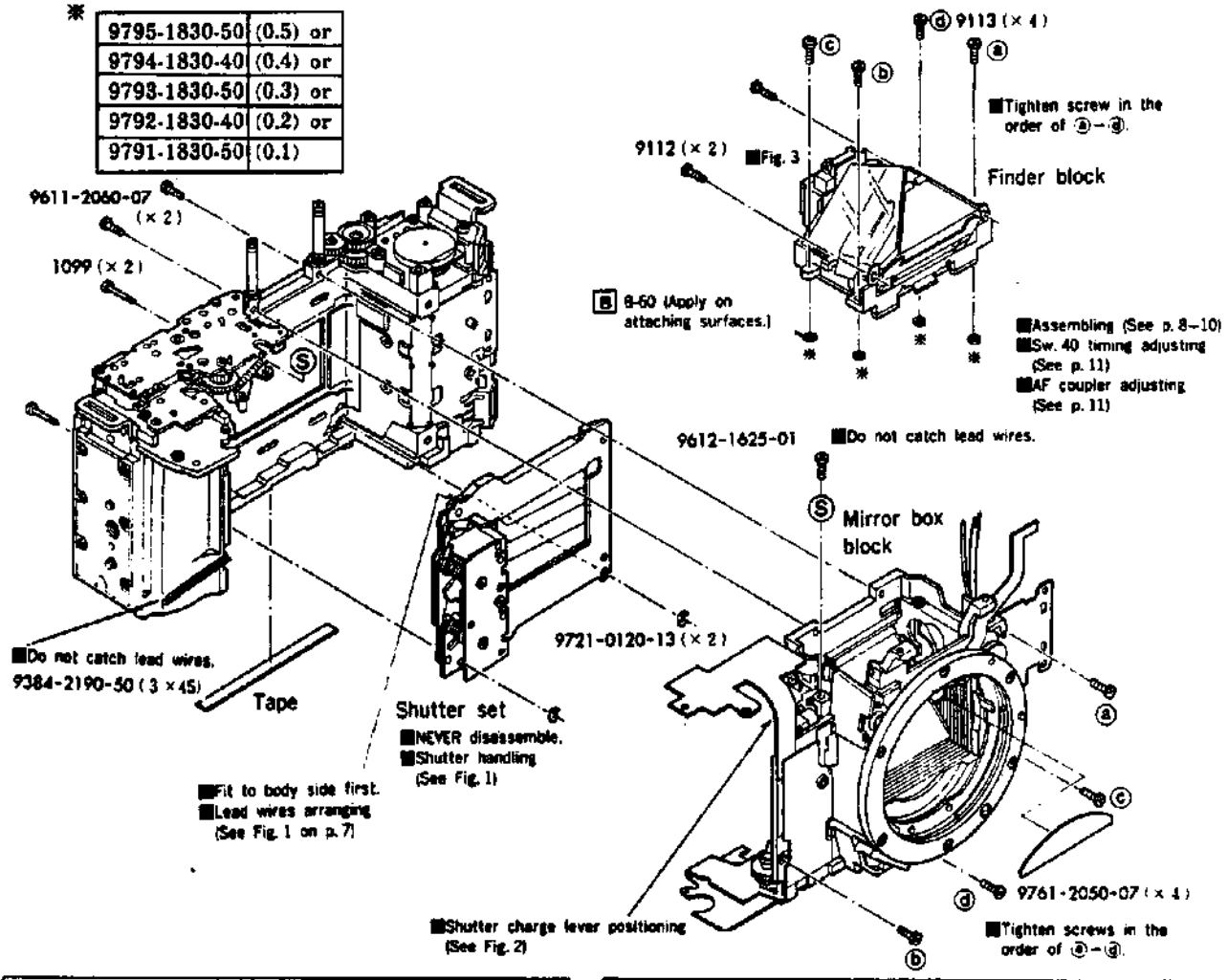
■On body side, complete winding of sprocket and take-up drum. (Lock take-up drum, turning it in winding direction.)

■On mirror box side, set charge lever in the state of shutter release completion.

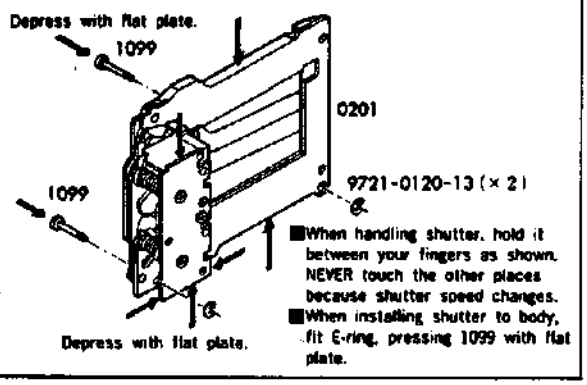
※When replacing mirror box, replace washer to ※screw (×4). When repairing other parts, use the same (or same thickness) washer (×4) which is used on the body.

※

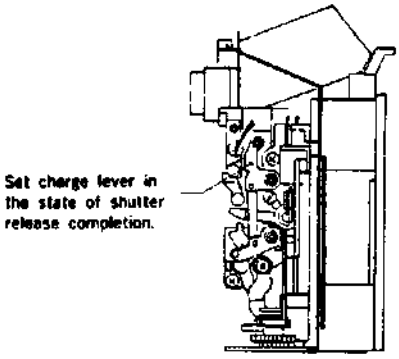
9795-1830-50	(0.5) or
9794-1830-40	(0.4) or
9793-1830-50	(0.3) or
9792-1830-40	(0.2) or
9791-1830-50	(0.1)



■Fig. 1 Shutter handling



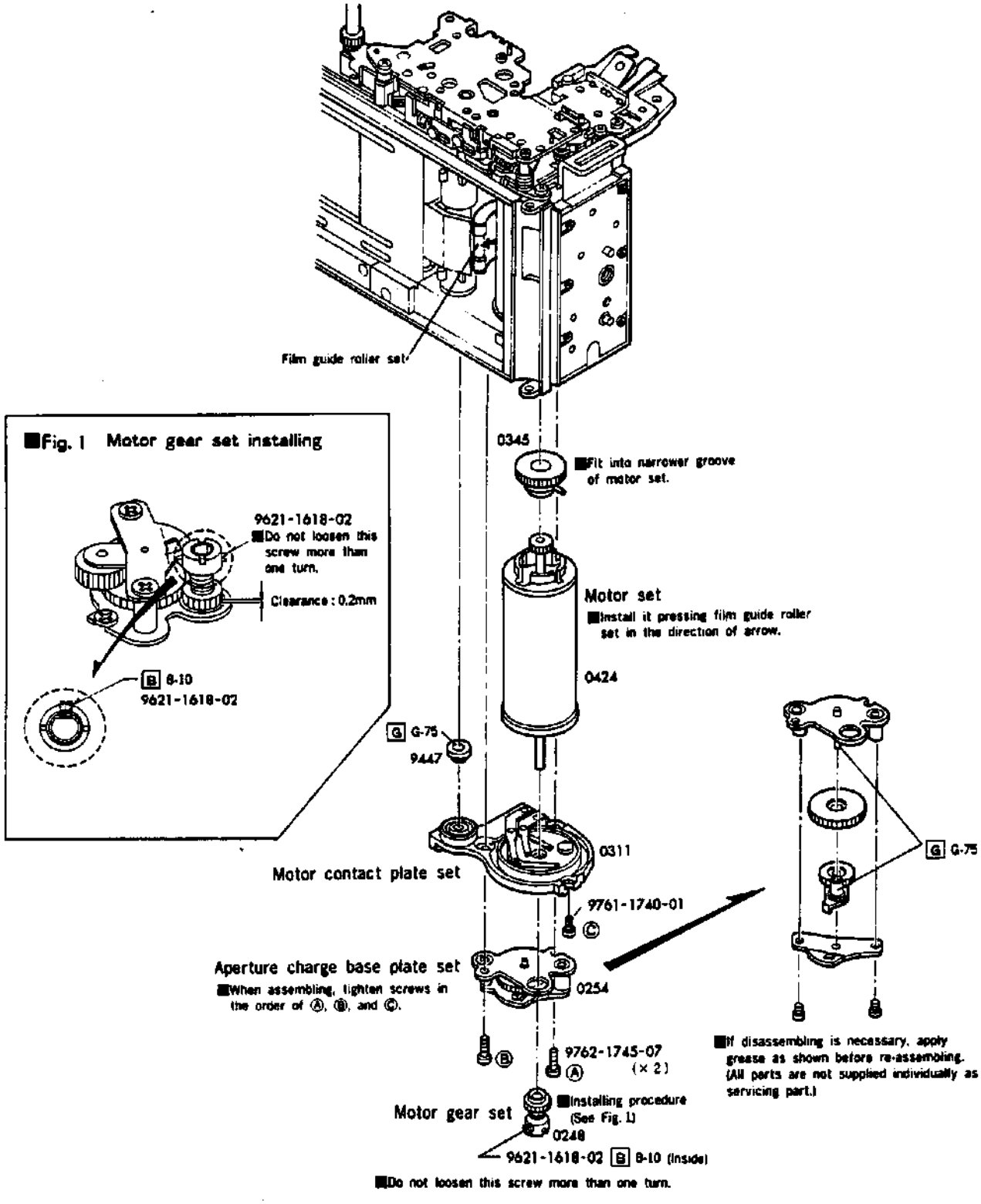
■Fig. 2 Shutter charge lever positioning



■Checking after assembling····· 1. Turn motor gear set counterclockwise 8 times (make sure that shutter curtain runs) and then clockwise 8 times, referring the procedure on p. 5.

2. Turn take-up drum to winding direction about one revolution and make sure that take-up drum engages and winding completes.

3 Motor set, Aperture charge base plate set



■Checking after assembling····· 1. Winding-stop disengages by turning motor gear set counterclockwise 2 times and clockwise 2 times (snap off).

2. Turn take-up drum to winding direction about one revolution and make sure that take-up drum engages and winding completes.

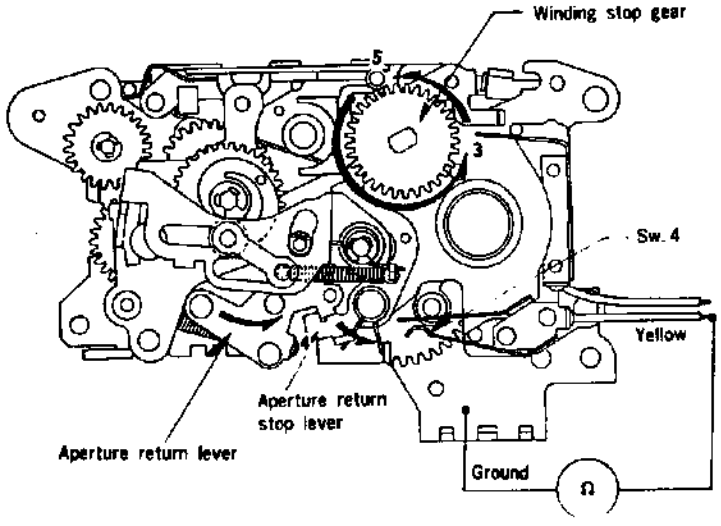
■ Sw. 4 timing checking

■Measuring instrument : Circuit tester

■Checking procedure

1. Set measuring instrument as Fig. below.
2. Disengage aperture return lever and aperture return stop lever. (Push aperture return stop lever in the direction of arrow.)
3. Turn winding stop gear 3/4 rotation counterclockwise. (Sw. 4 ON)
4. Engage aperture return lever and aperture return stop lever (Push aperture return lever in the direction of arrow).
5. Turn winding stop gear counterclockwise slowly and snap in. Make sure that Sw. 4 changes from ON to OFF.

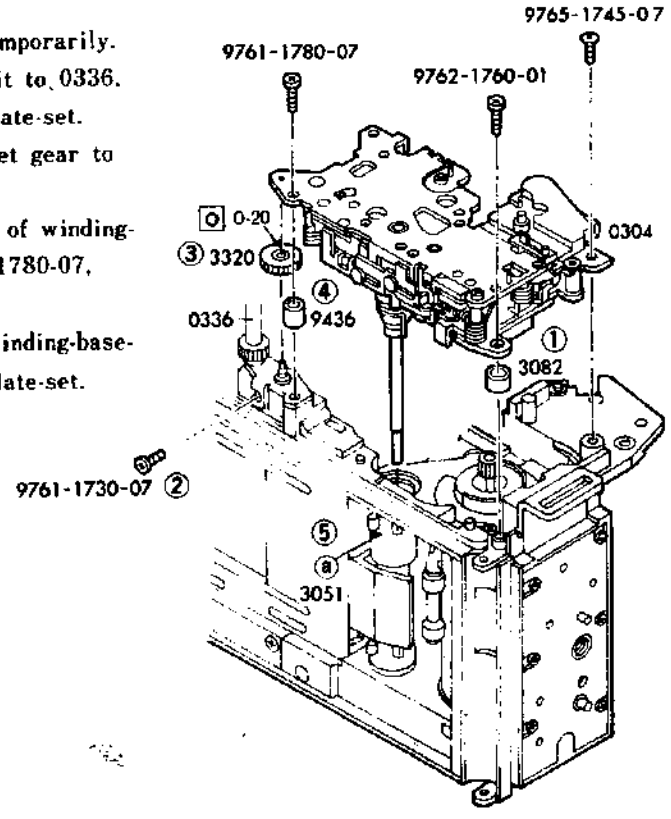
■Fig. 1



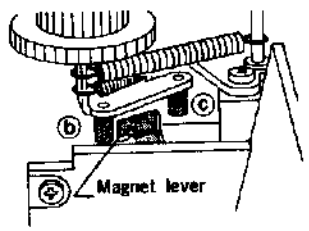
■ Winding-base-plate-set installing

■Installing procedure

① Fit 3082 into body.
② Put 0336 in place with screw (9761-1730-07) temporarily.
③ Apply O-20 to internal surface of 3320 and fit it to 0336.
④ Place 9436 on 0336, then install winding-base-plate-set.
⑤ If engagement is not securely, turn ⓐ of sprocket gear to engage.
⑥ Place magnet lever (on body) between ⓑ and ⓒ of winding-base-plate as fig. 2. Then, tighten screws (9761-1780-07, 9762-1760-01, and 9765-1745-07).
Make sure that there is no clearance between winding-base-plate-set and body nor bending of winding-base-plate-set.

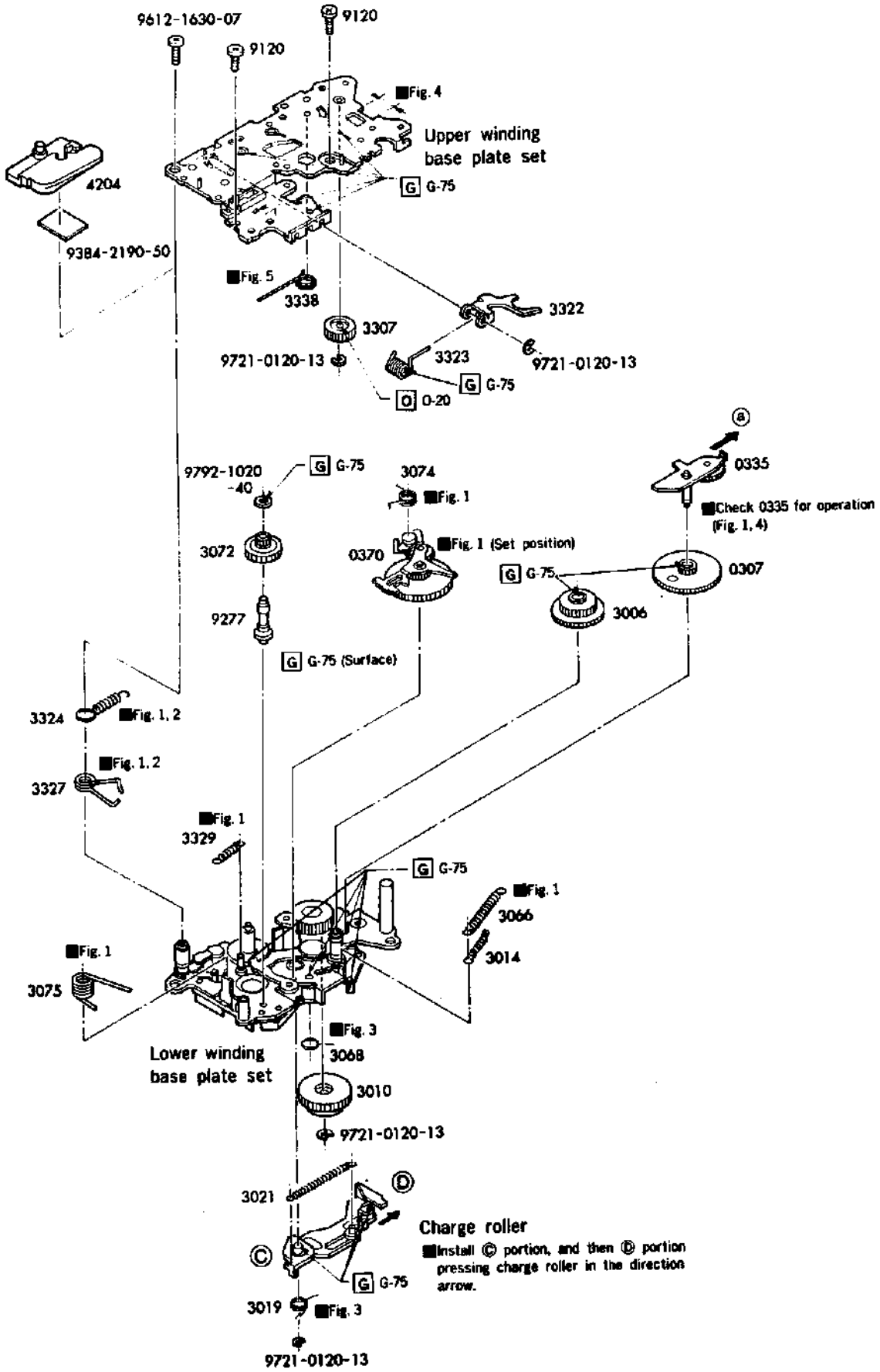


■Fig. 2

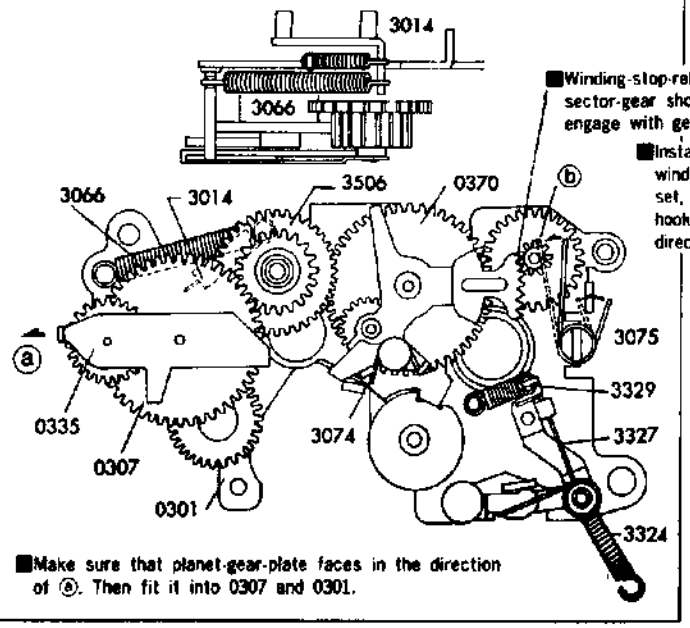


■ Winding base plate assembling

■After assembling, perform "Sw. 4 timing checking" on p. 4.

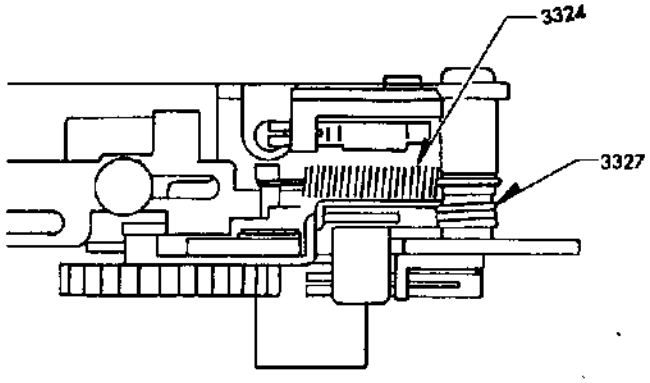


■Fig. 1 0370 installing, 3014, 3066, 3074, 3075, 3324, 3327, 3329, hooking.

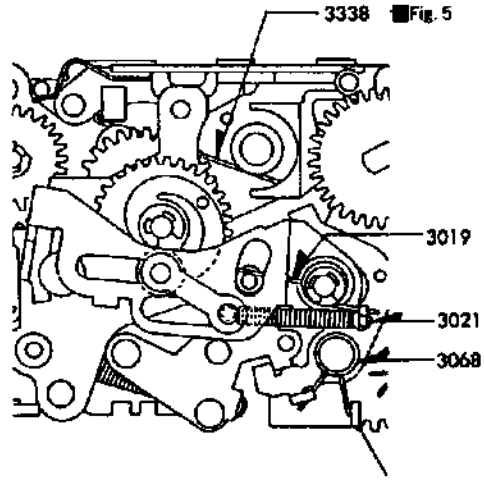


■[3075 hooking]
After installing winding-base-plate-set (Upper), engage 3075 (with longer end at ⓑ side) to dotted-line-position.
Holding 3075 and 3072 in position, set washer. (3075 should be placed over washer 9791-1020-40.)

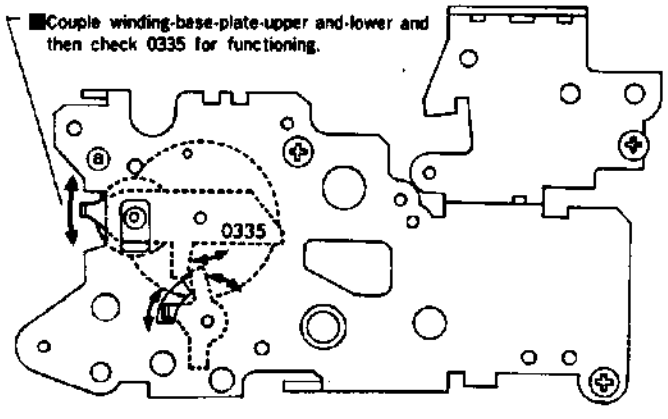
■Fig. 2 3324, 3327 hooking.



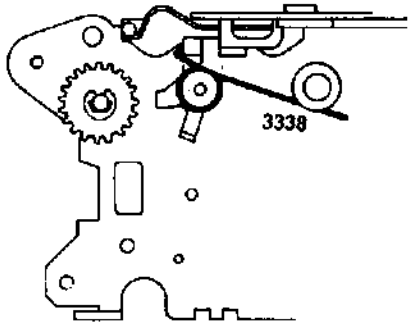
■Fig. 3 3019, 3021, 3068 hooking.



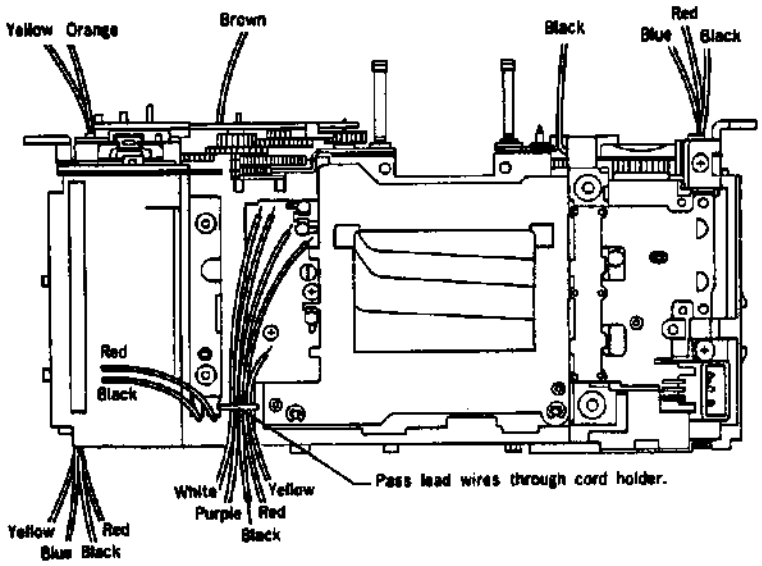
■Fig. 4 0335 operation check



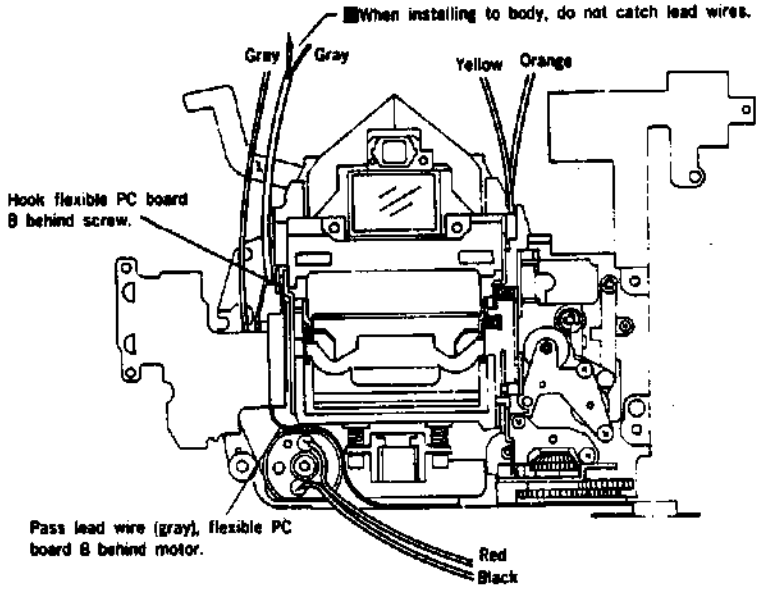
■Fig. 5 3338 hooking



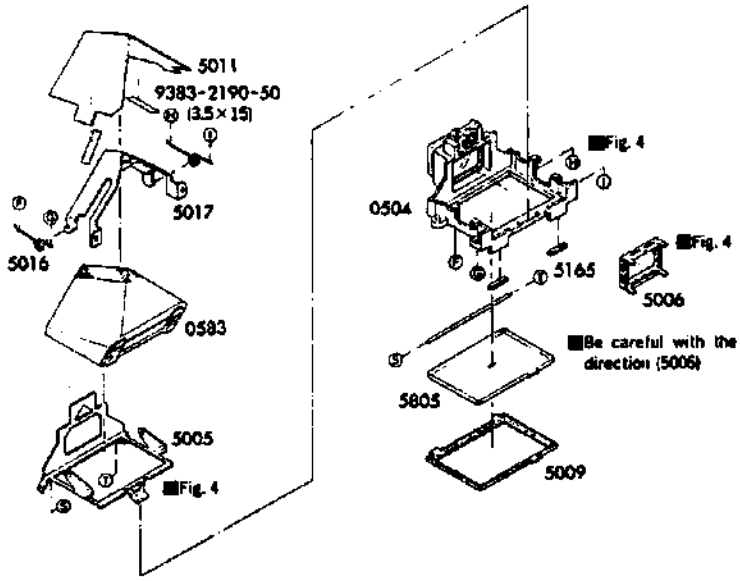
■Fig. 1



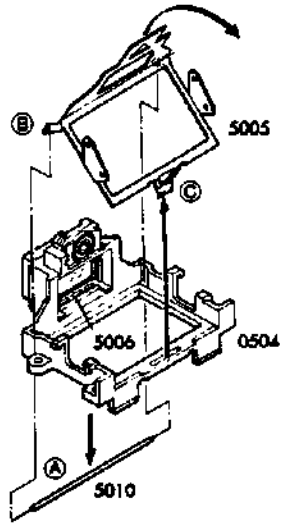
■Fig. 2



■Fig. 3 Finder block assembling



■Fig. 4 Disassmbly : 5010Ⓐ→5005Ⓑ→5005Ⓒ
Assembly : 5005Ⓒ→5005Ⓑ→5010Ⓐ



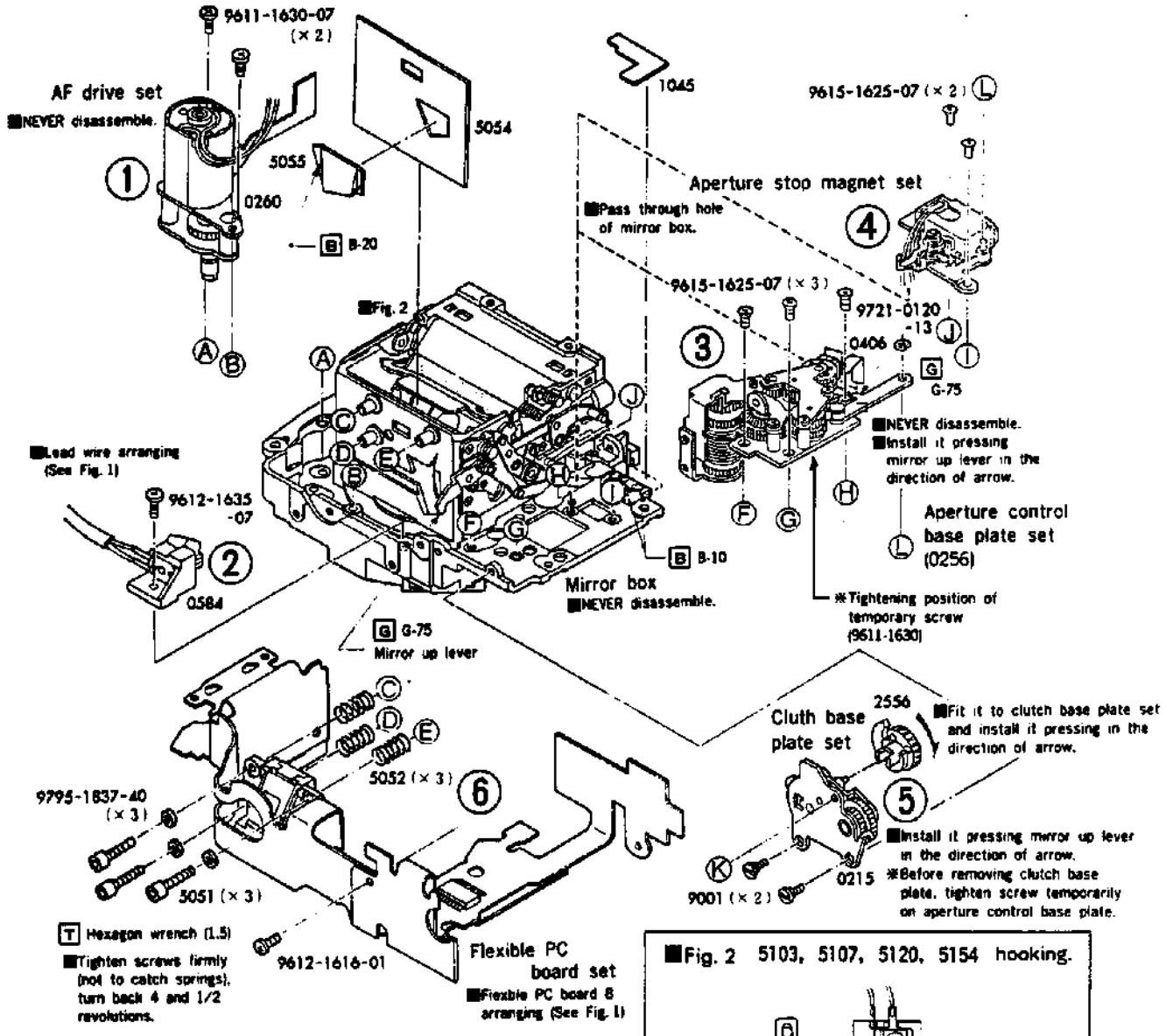
■Install 5006 and 5005 in order.

■ Mirror box assembling-1

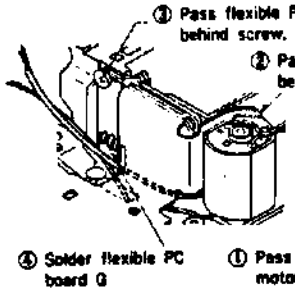
■When disassembling clutch base plate or aperture ring (See p. 9), tighten marked (*) screw on aperture control base plate, and never fail to remove this screw after completion of assembling.

■Assemble the parts in the order of ①–⑥.

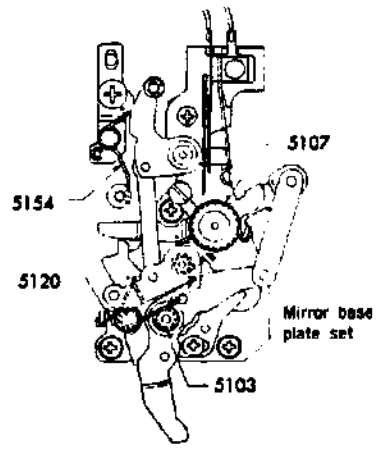
■When replacing mirror box, replace washer (see p. 6) to ※screw (×4). When repairing other parts, use the same (or same thickness) washer (×4) which is used on the body.



■Fig. 1 0584 lead wire, flexible PC board B arranging.

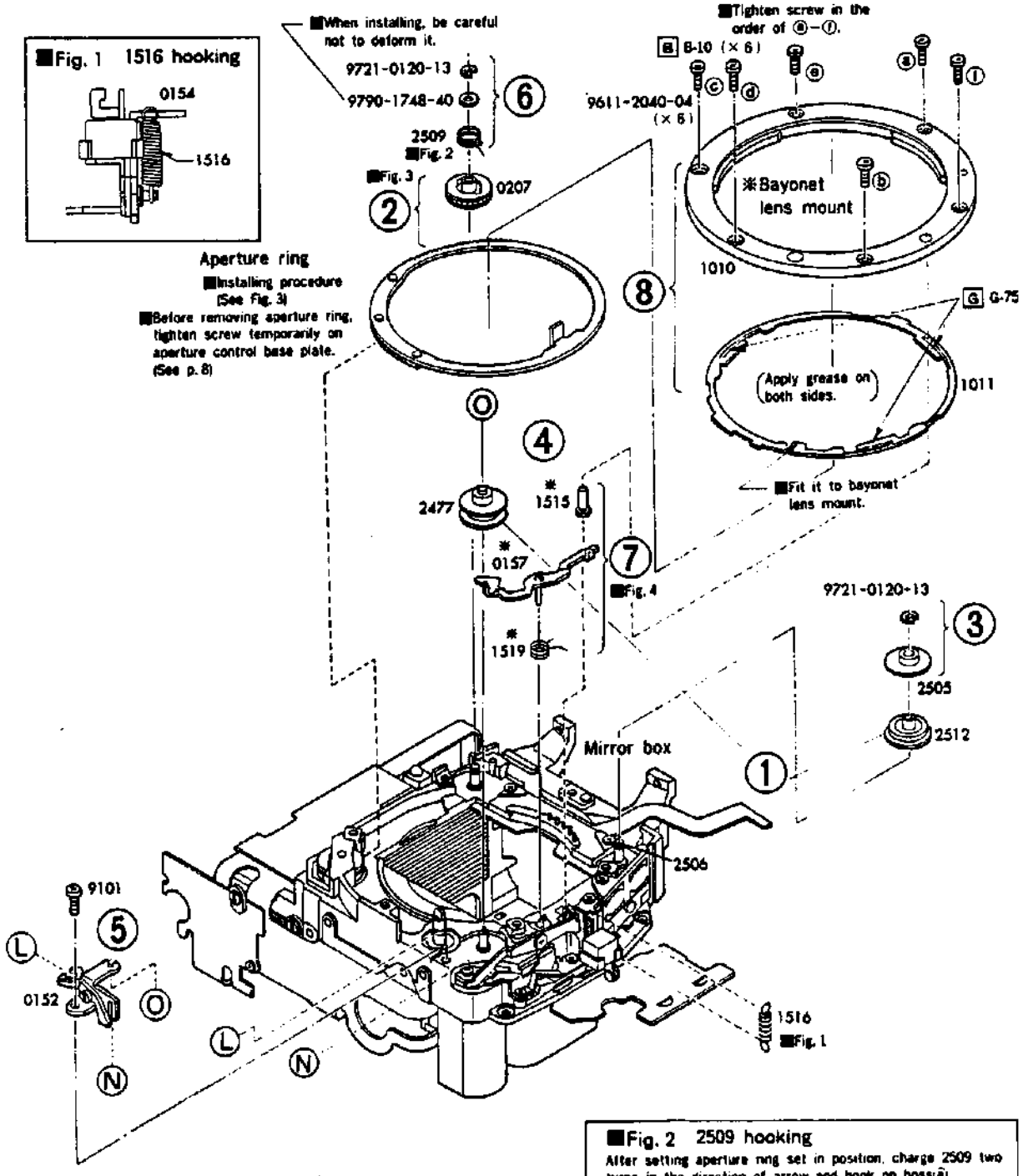


■Fig. 2 5103, 5107, 5120, 5154 hooking.



■ Mirror box assembling-2

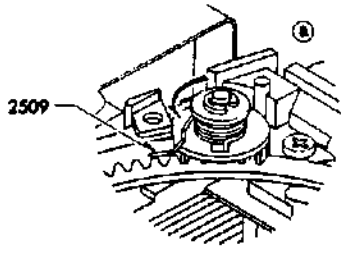
■When removing bayonet lens mount, hold marked (※) parts (×3) by tweezers etc. not to jump up.
■After assembling, adjust timing of Sw. 40 and AF coupler (p. 11).
■Assemble the parts in the order of ①-⑨.



■Fig. 1 1516 hooking

■Fig. 2 2509 hooking

After setting aperture ring set in position, charge 2509 two turns in the direction of arrow and hook on boss ⓐ.



■Aperture-ring-set installing

① Rotate gear (of aperture control base plate set) in the direction of arrow to its stop position, and hold it in position. NEVER rotate it reversely.

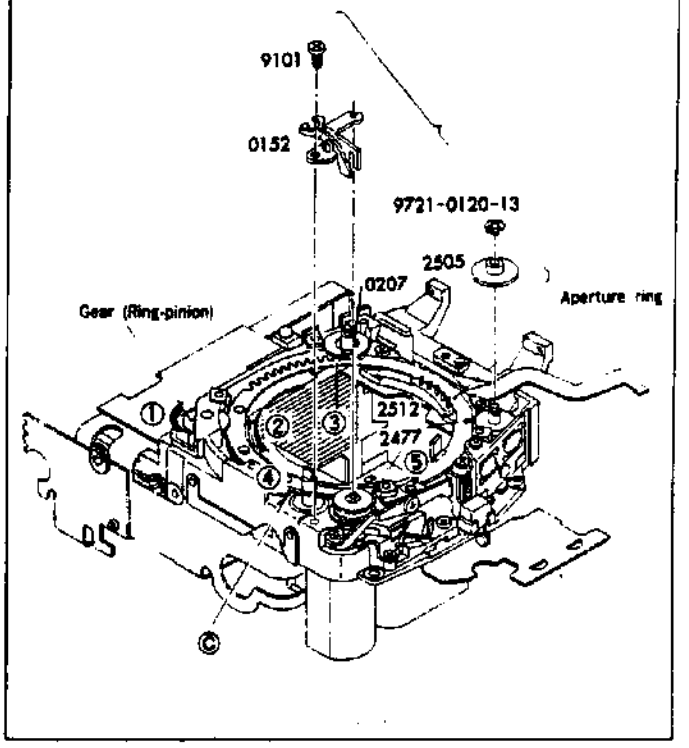
② Engage aperture ring with the gear.
Charging (rotating) the gear by one tooth, fit aperture ring to groove of body (to surface ⓒ of mirror box.)
Face the hole of 0207 ③ with the center of bayonet lens mount, taking care not to scratch mirror box.

③ Set aperture ring on pulley (2512), and set 2505, using E-ring.

④ Set 0152 on groove of AF coupler and tighten 9101.

⑤ Check aperture ring for functioning.

■Fig. 3 Aperture ring installing



■1515 installing and 1519 hooking

① Fit 1515 to E of 0154. (Fig. 4①)

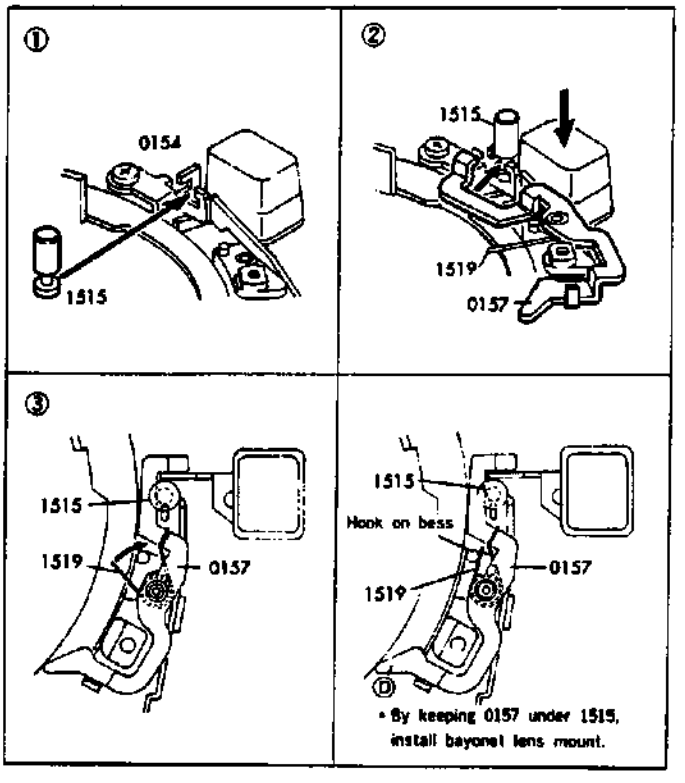
② Hook spring (1519) on 0157 and shift 0157 in the direction of arrow. (Fig. 4②)

③ Make sure that 1515, 0157, and 1519 are set as fig. 4③.

④ Fit lever of 0157 to the groove of 1515.
Then hook 1519 as fig. 4④.

⑤ Install bayonet lens mount and tighten screws.
(See p. 9.)
Make sure that AF coupler and 1515 are snapped. If not, re-install bayonet lens mount.

■Fig. 4 0157, 1515 installing and 1519 hooking



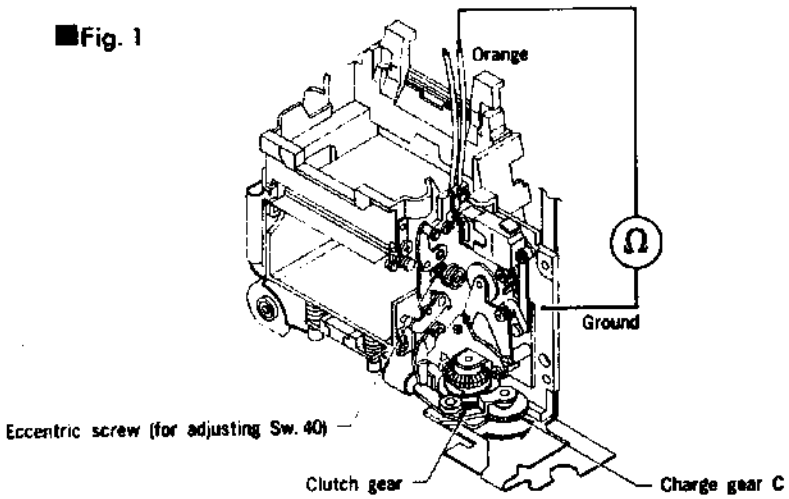
■ Sw. 40 timing adjusting

■Measuring instrument : Circuit tester

■Adjusting procedure

1. Set the measuring insturment as Fig. 1.
2. Turn charge gear C in the direction of arrow to stop position.
3. Turn back charge gear C slowly to return clutch gear for 3 teeth. Turn eccentric screw for changing Sw. 40 from ON to OFF.

■Fig. 1



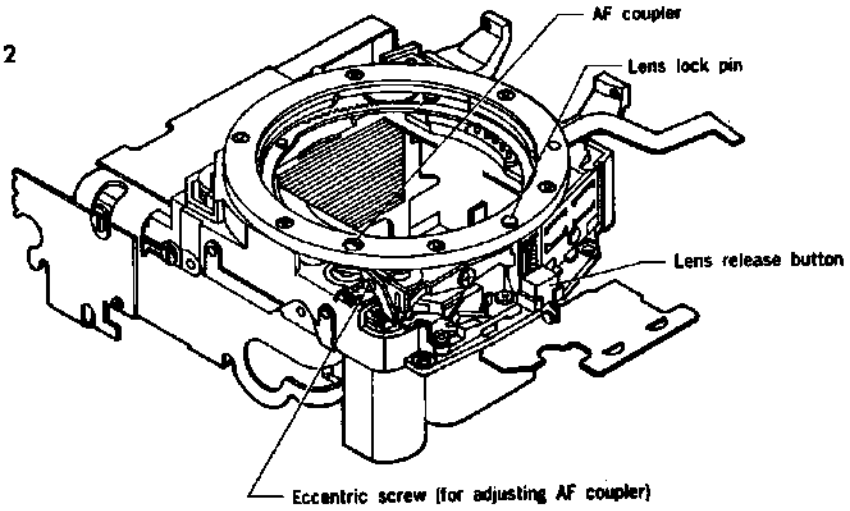
■ AF coupler adjusting

■Measuring instrument : Vernier calipers

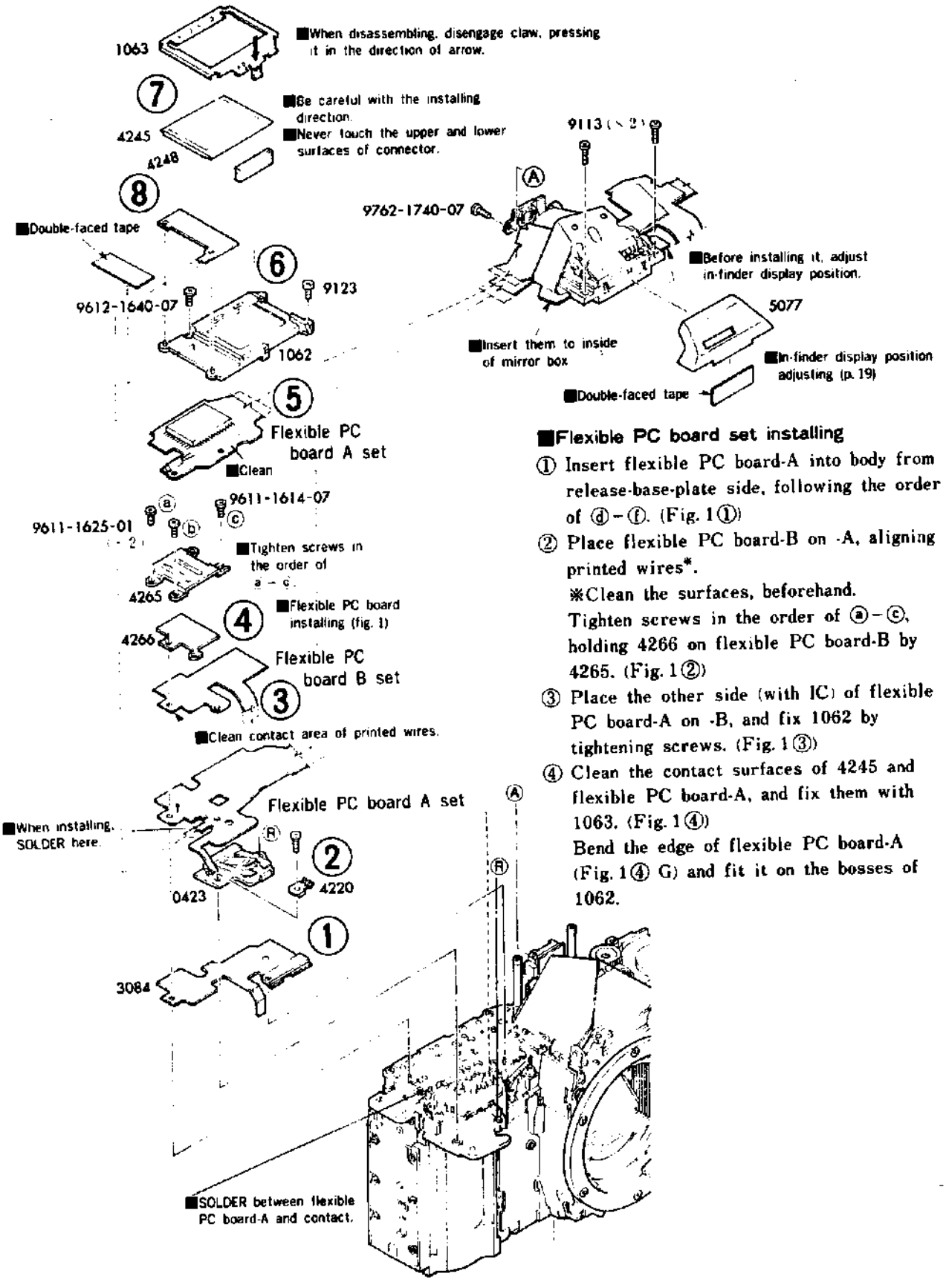
■Adjusting procedure

1. Press lens release button. Adjust the height of AF coupler turning eccentric screw, in order that AF coupler is not projected from bayonet lens mount when lens lock pin is lower than bayonet lens mount.
2. Press Ⓓ. (See Fig. 4 on p. 10.) Adjust height of AF coupler, turning eccentric screw, in order that AF coupler is projected $1.6^{+0.2}_{0}$mm from bayonet lens mount.
3. Repeat above adjusting procedures 1—2.

■Fig. 2



5 Flexible PC board A set assembling-1



■Flexible PC board set installing

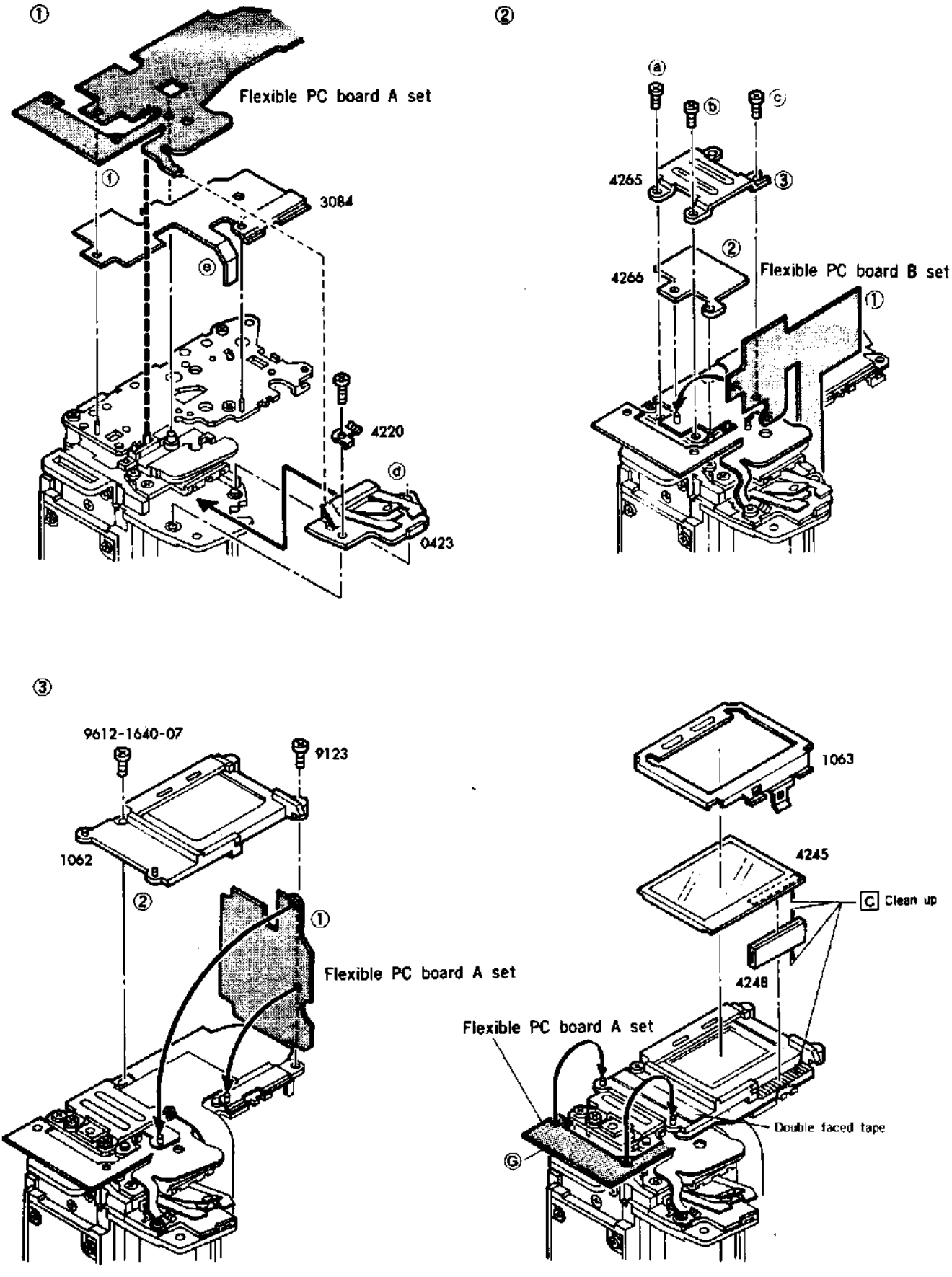
① Insert flexible PC board-A into body from release-base-plate side, following the order of ⓓ - ⓕ. (Fig. 1①)

② Place flexible PC board-B on -A, aligning printed wires*.
※Clean the surfaces, beforehand.
Tighten screws in the order of ⓐ - ⓒ, holding 4266 on flexible PC board-B by 4265. (Fig. 1②)

③ Place the other side (with IC) of flexible PC board-A on -B, and fix 1062 by tightening screws. (Fig. 1③)

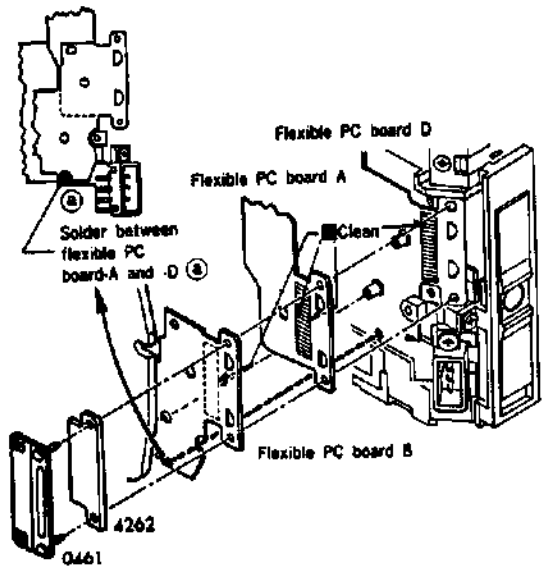
④ Clean the contact surfaces of 4245 and flexible PC board-A, and fix them with 1063. (Fig. 1④)
Bend the edge of flexible PC board-A (Fig. 1④ G) and fit it on the bosses of 1062.

■Fig. 1 Flexible PC board installing



6 Flexible PC board A set assembling-2

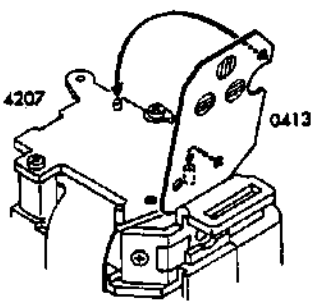
■Fig. 1 Flexible PC boards installing

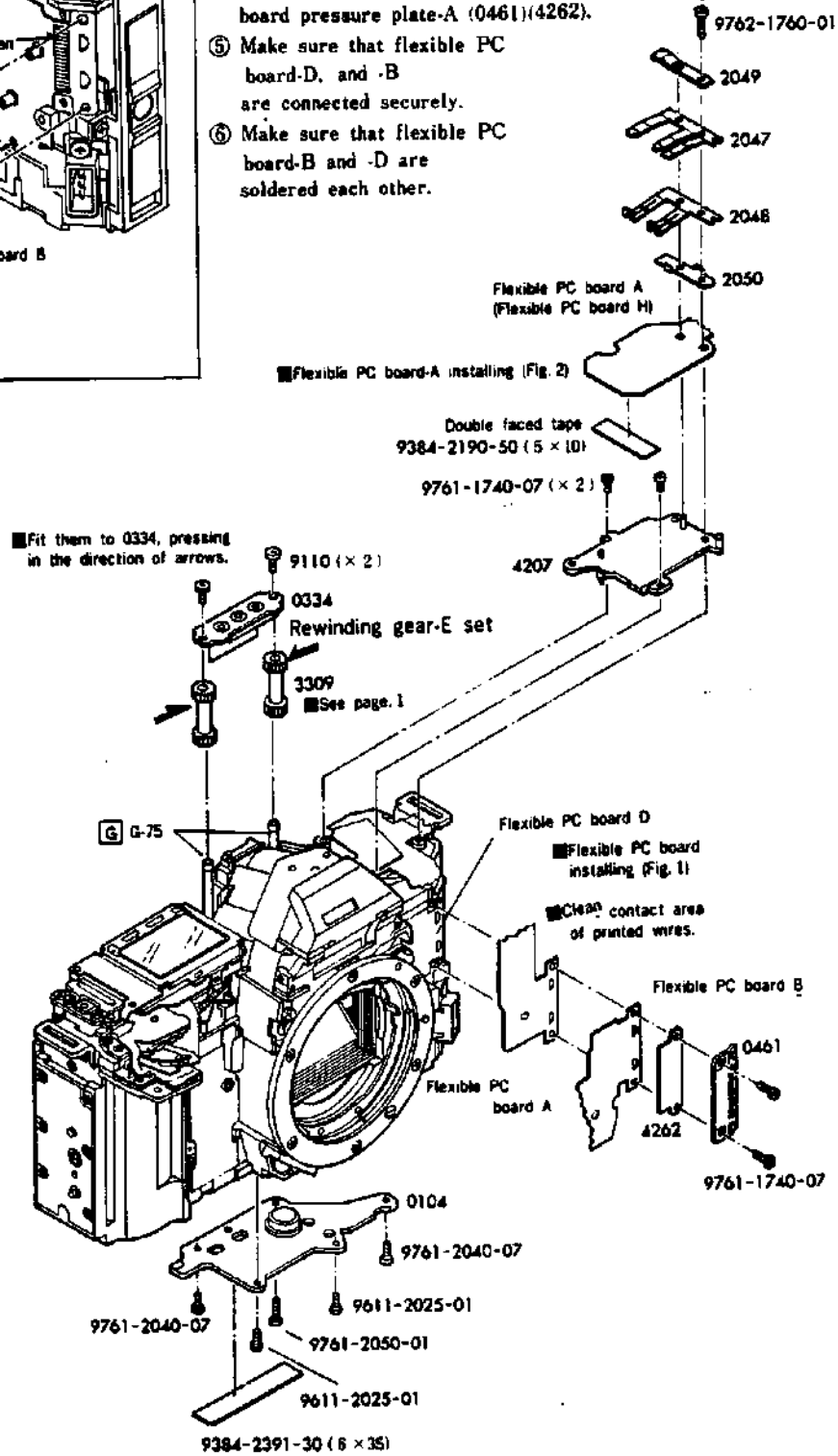


■Flexible PC board installing

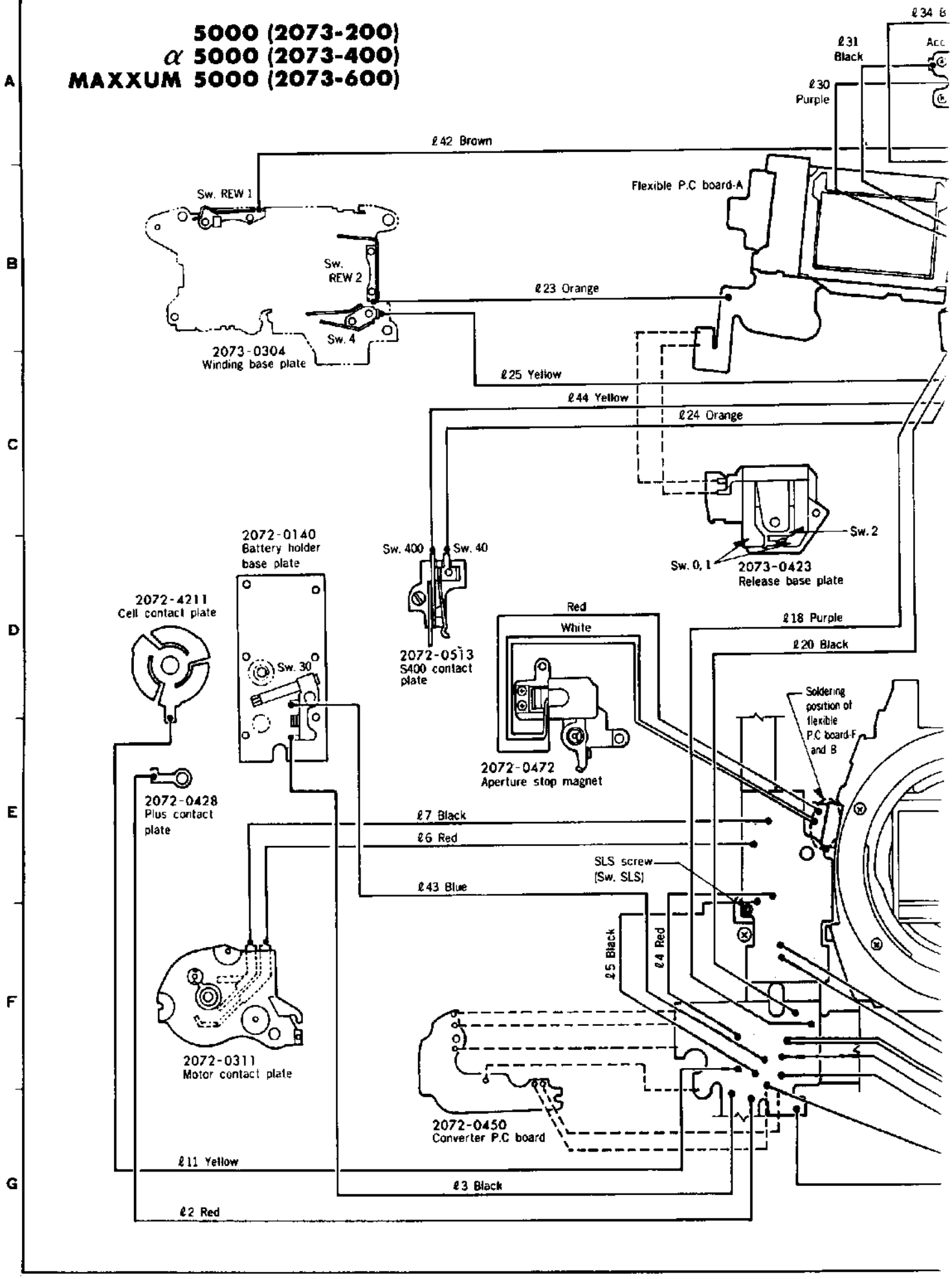
① Set mirror box to body. (See p. 6.)
② Clean contact area of flexible PC board-A and -D, pile up flexible PC board-A on -D, fitting them to bosses.
③ Pile up flexible PC board-B. Then, solder between flexible PC board-D and -B Ⓐ. (See fig. 1)
④ Hold flexible PC board-D, -A, and -B by flexible board pressure plate-A (0461)(4262).
⑤ Make sure that flexible PC board-D, and -B are connected securely.
⑥ Make sure that flexible PC board-B and -D are soldered each other.

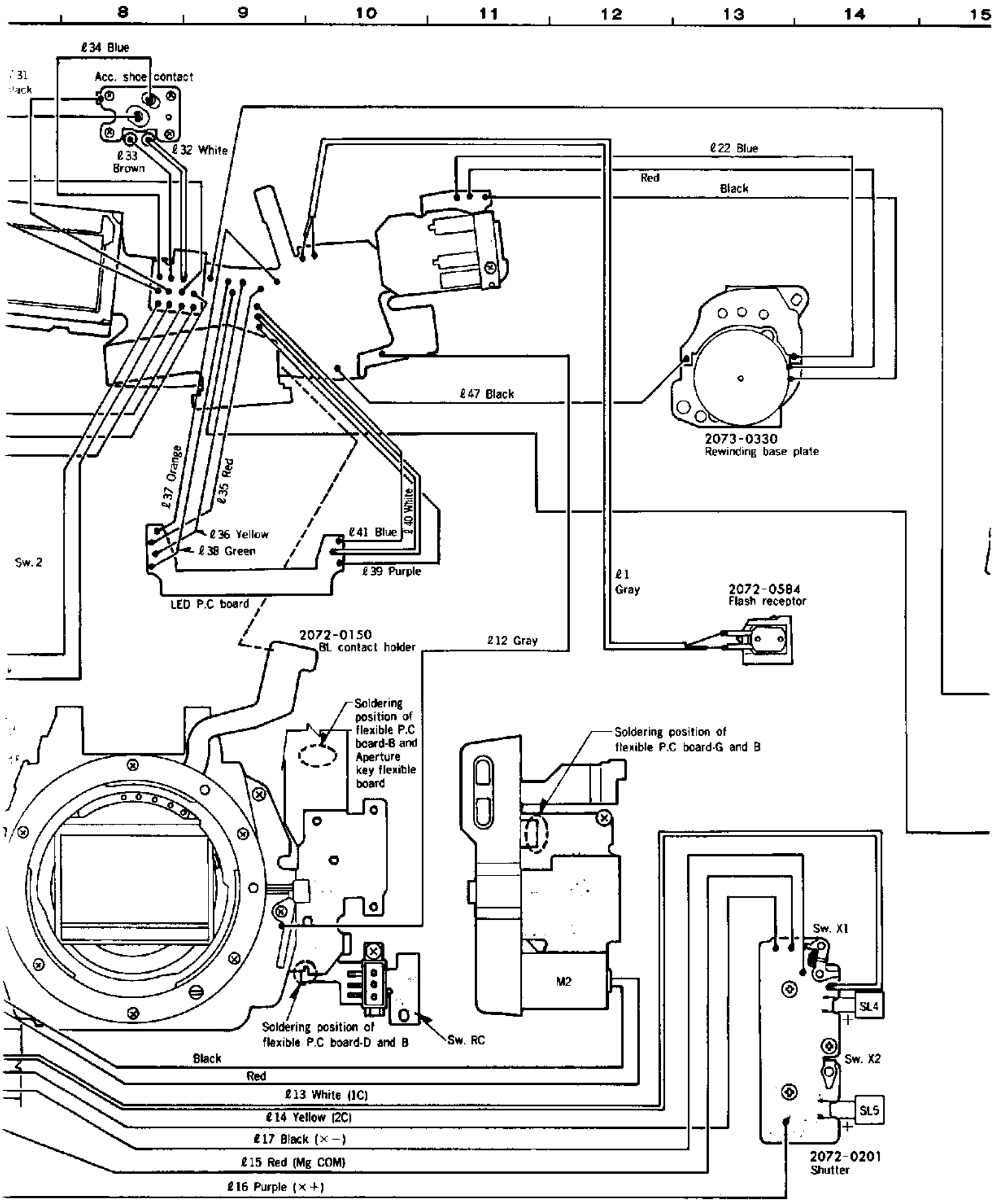
■Fig. 2 Flexible PC board A installing

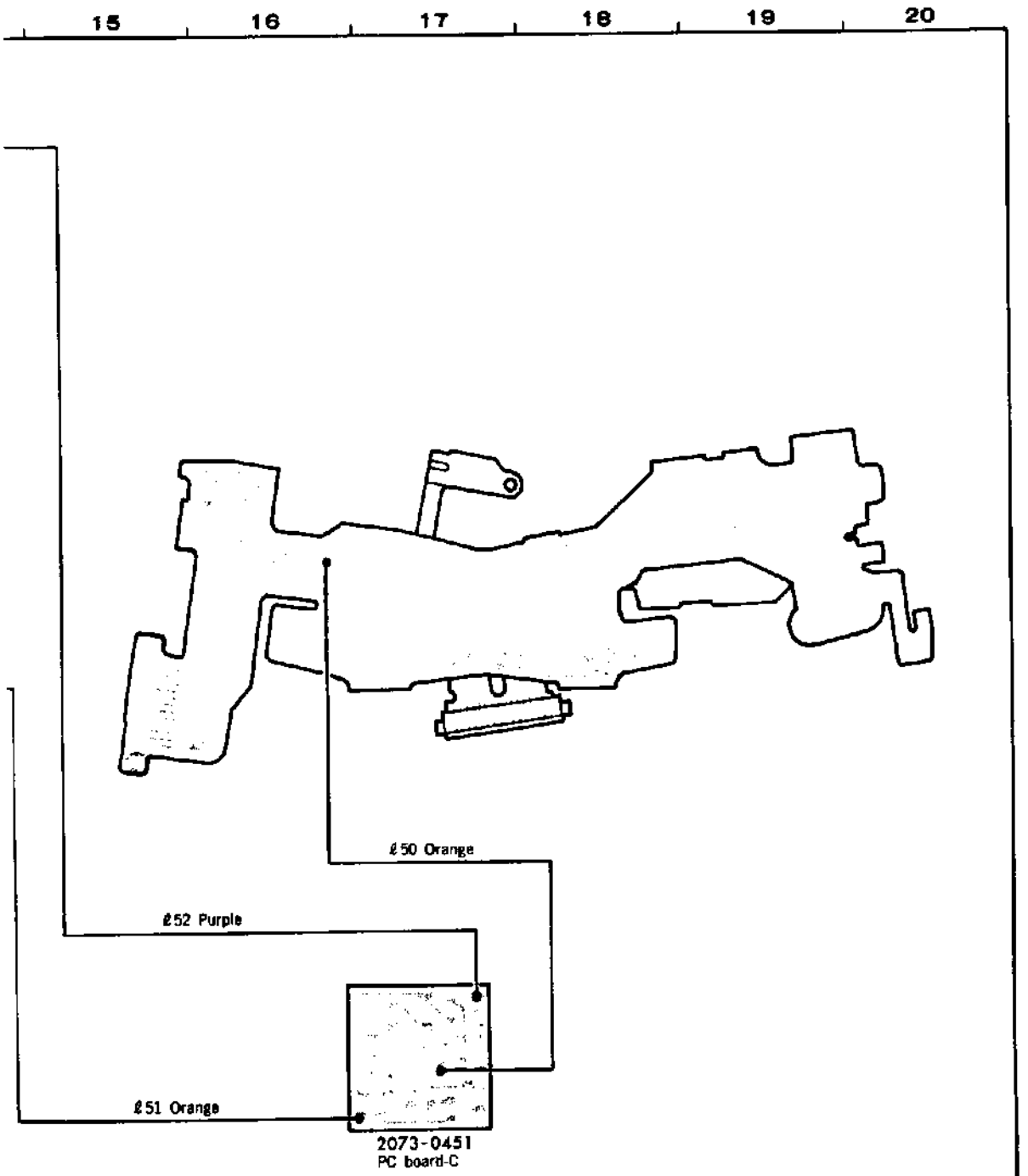




5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)

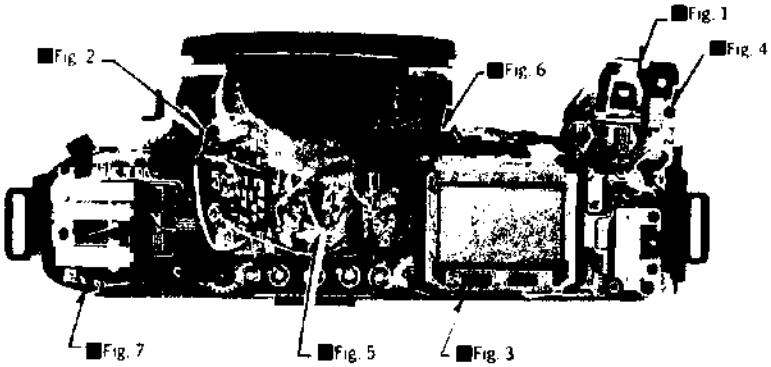



8
9
10
11
12
13
14
15
ℓ34 Blue
Acc. shoe contact
ℓ32 White
ℓ33 Brown
ℓ22 Blue
Red
Black
ℓ47 Black
2073-0330
Rewinding base plate
ℓ37 Orange
ℓ35 Red
ℓ40 White
ℓ36 Yellow
ℓ38 Green
ℓ41 Blue
ℓ39 Purple
Sw. 2
LED P.C board
ℓ1
Gray
2072-0584
Flash receptor
2072-0150
BL contact holder
ℓ12 Gray
Soldering position of flexible P.C board-B and Aperture key flexible board
Soldering position of flexible P.C board-G and B
M2
Sw. X1
SL4
Sw. X2
SL5
Soldering position of flexible P.C board-D and B
Sw. RC
Black
Red
ℓ13 White (1C)
ℓ14 Yellow (2C)
ℓ17 Black (×−)
ℓ15 Red (Mg COM)
ℓ16 Purple (×+)
2072-0201
Shutter

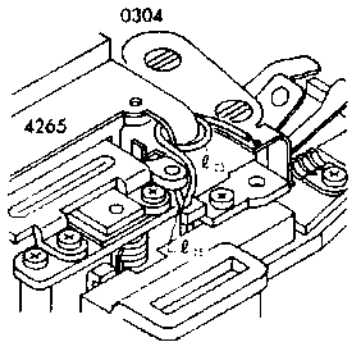

15
16
17
18
19
20
£50 Orange
£52 Purple
£51 Orange
2073-0451
PC board-C

■ Lead wire Arrangement

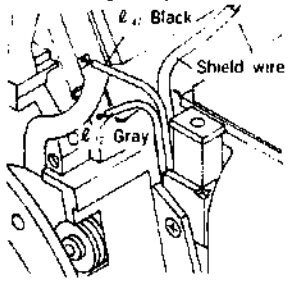
■Lead wire arranging on body's upside



■Fig. 1 Release up side

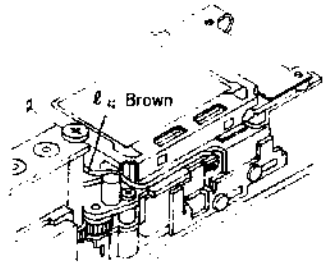


■Fig. 2 Lead wire arranging on body's up-left side

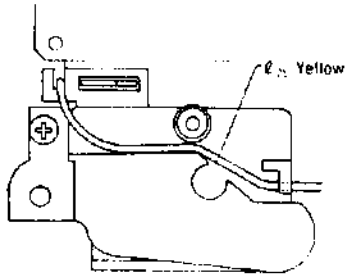


Do not catch lead wire in body.

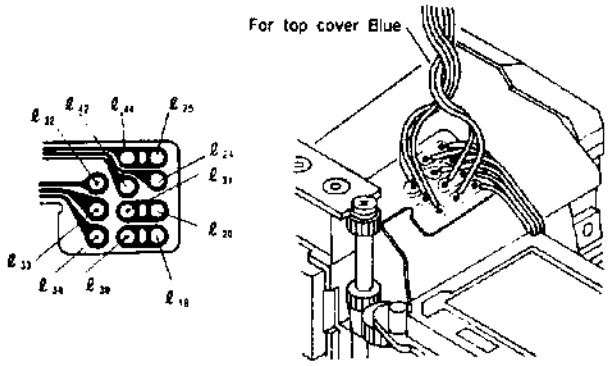
■Fig. 3 Lead wire arranging on back side of LCD



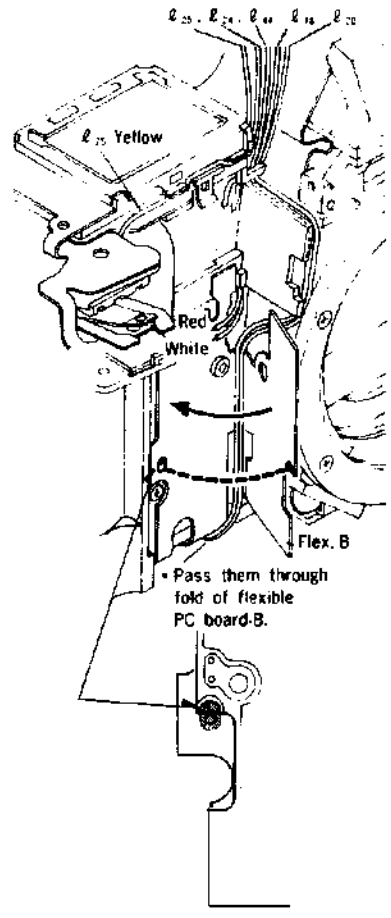
■Fig. 4 Lead wire arranging on release base plate set



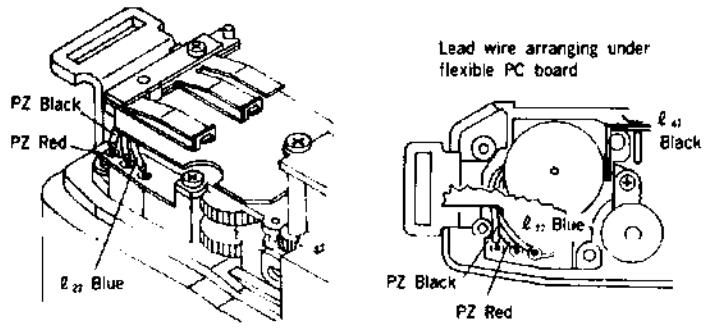
■Fig. 5 ℓ_{24}, ℓ_{25}, ℓ_{18}, ℓ_{20}, ℓ_{42}, ℓ_{44}, ℓ_{30}, ℓ_{31}, ℓ_{32}, ℓ_{33}, ℓ_{34}



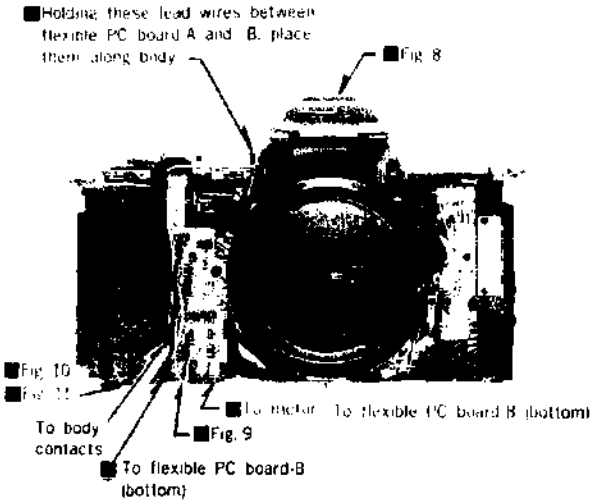
■Fig. 6 Lead wire (from mirror box and near LCD) arranging



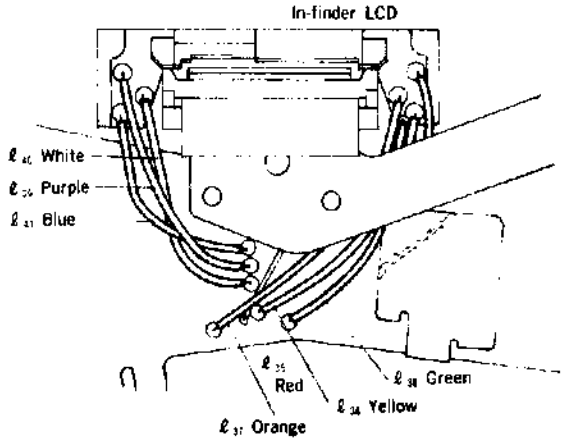
■Fig. 7 Lead wire arranging on body's left side



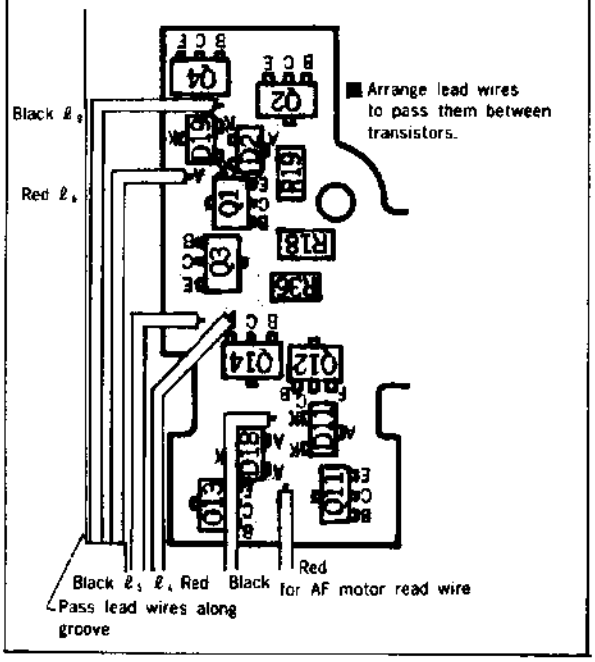
■Lead wire arranging on body's up and front sides



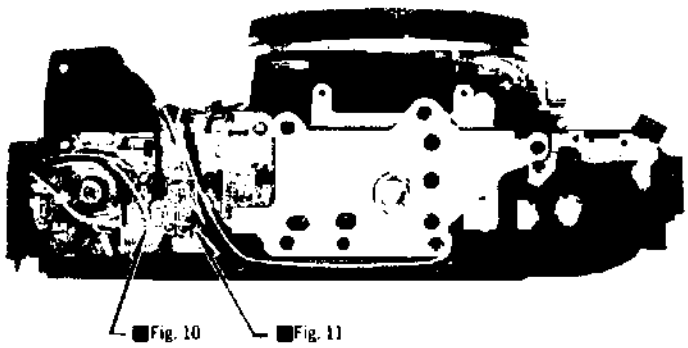
■Fig. 8 Lead wire arranging around top LCD and flexible PC board-A



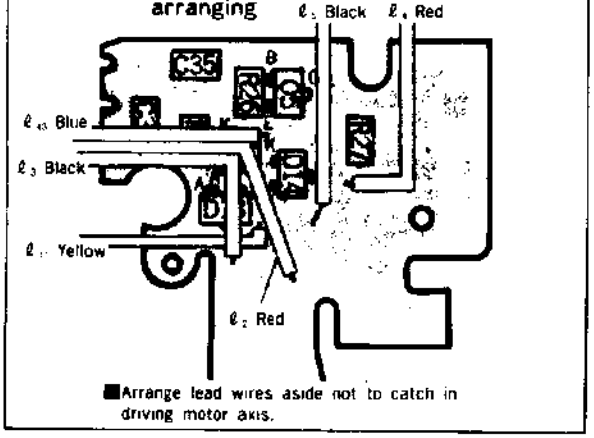
■Fig. 9 Lead wire arranging on body's front side



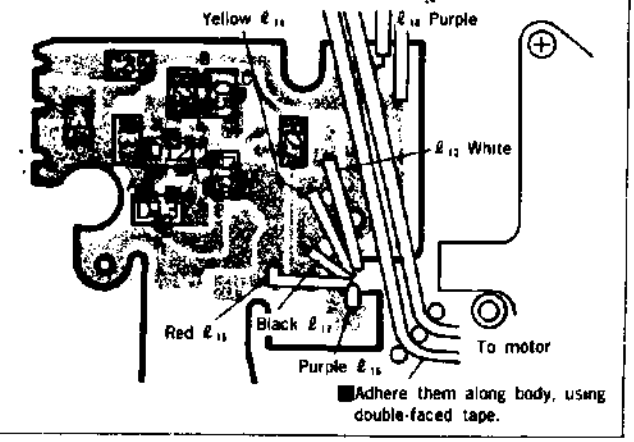
■Lead wire arranging on bottom of body



■Fig. 10 Lead wire (from converter PC board and flexible PC board-B) arranging



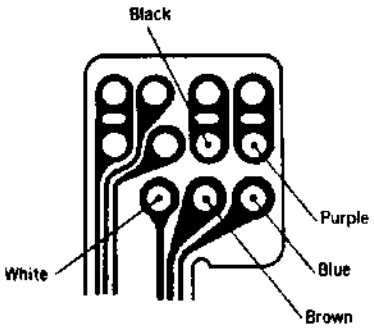
■Fig. 11 Lead wires (from flexible PC board-B and shutter) arranging



■ Preparation for checking/adjusting

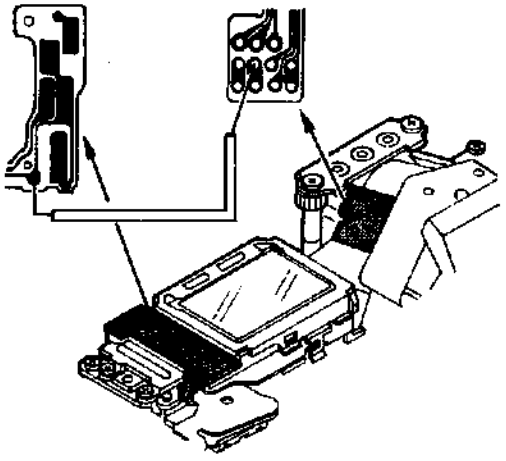
■Before adjusting, put the camera into the condition below, check general functioning.

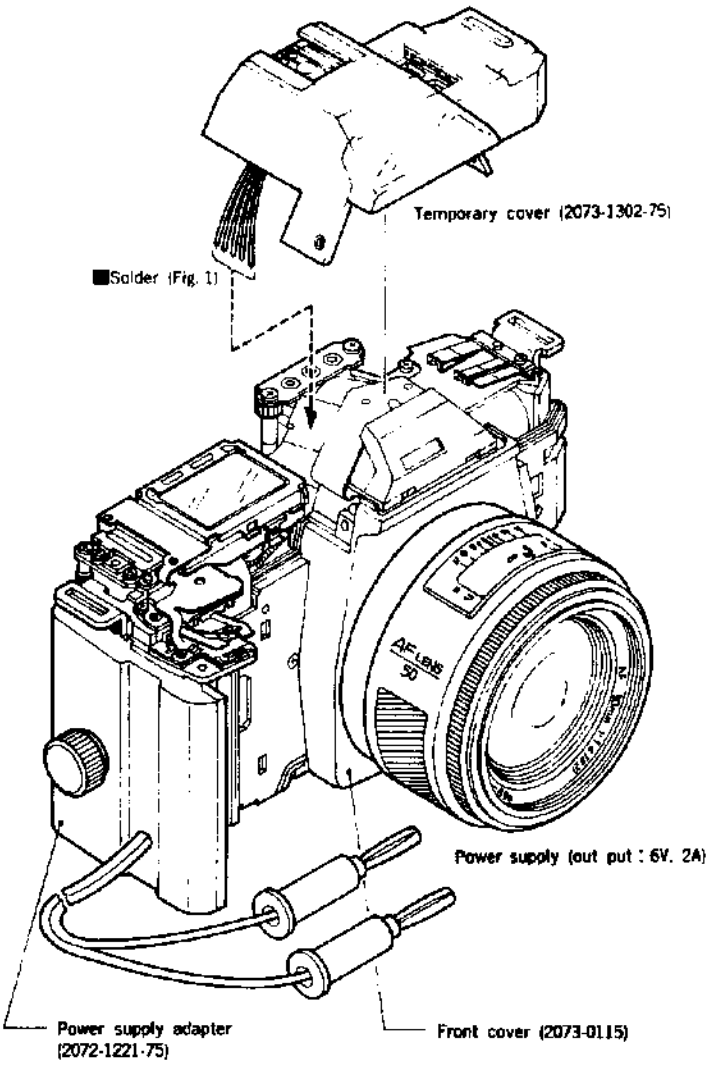
■Fig. 1



■Fig. 2

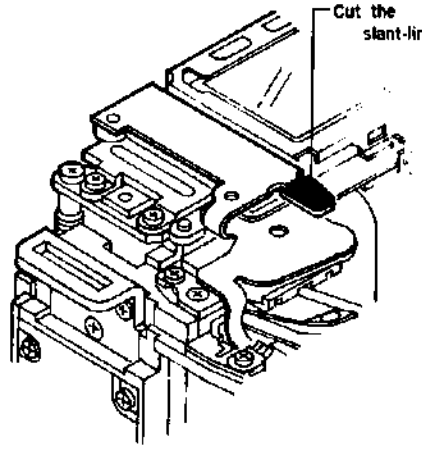
※Temporary lead wire for main switch circuit line turn ON





※

When flexible PC board-A is replaced by new one, lead wire (for main sw. ON) is unnecessary After adjusting, CUT printed wire as below.



■Check body functioning.

1. Key switch functioning
2. Shutter, winding functioning
3. Metering
4. AF functioning

■See Trouble Shooting for irlegular body functioning.

Focus Focus as Fig. 2. Focus Focus

■ Body focus adjusting

■Measuring instruments : Body back gauge
: Flat plate (for 2005)
: Dial gauge
: Temporary cover (2073-1302-75)

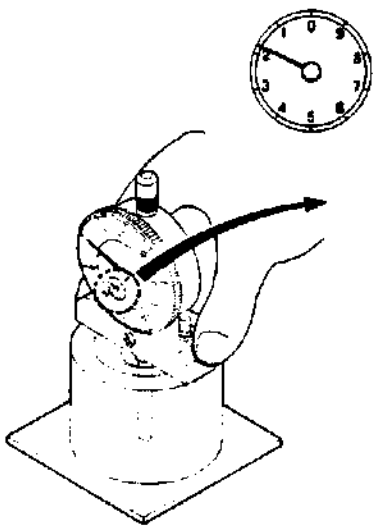
■Adjusting procedure

[Standard]

※ 44.70±0.01mm

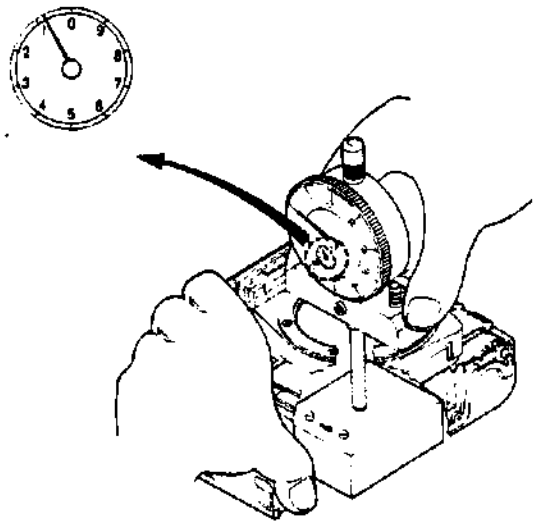
※Body focus is 1mm longer than conventional SLR body. Check short indicator of dial gauge as Fig. 1 and then measure body focus as Fig. 2.

■Fig. 1



43.70mm

■Fig. 2



44.70mm

- If the body focus is lower than the standard value, insert adjusting washers under the bayonet mount.

[Types of adjusting washers]

Parts No.	2005-1061-81	2005-1062-81	2005-1063-81
Thickness (mm)	0.02	0.05	0.1

- If the body focus is higher than the standard value, replace the bayonet mount with the bayonet mount used for repair (2072-1010-81) and adjust in combination with the adjusting washers.
The flange of the bayonet mount used for repair is 0.1mm thinner than that of the regular bayonet mount (2072-1010-02).

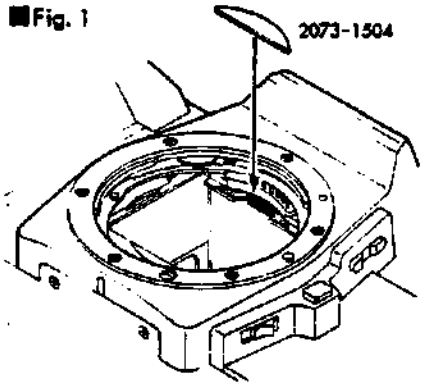
■ Finder focus adjusting

■**Measuring instruments** : 1000mm collimator (MODEL RC-1000 Ⅰ, Ⅱ, Ⅲ)
: Master lens (2072-0001-75)
: Magnifier
: VB adjuster (2072-5112-75)

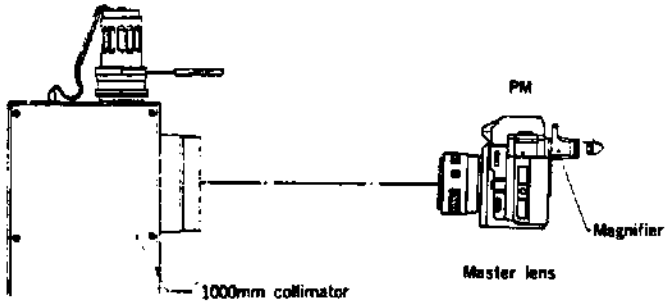
■**Adjusting procedure**

1. Remove BL-contact-holder-cover-plate (2073-1504), and replace focusing screen by PM type. (fig. 1)
2. Set the camera so that chart image is shown in the center of finder, and set the focusing lens of master lens to infinity (∞).

■Fig. 1

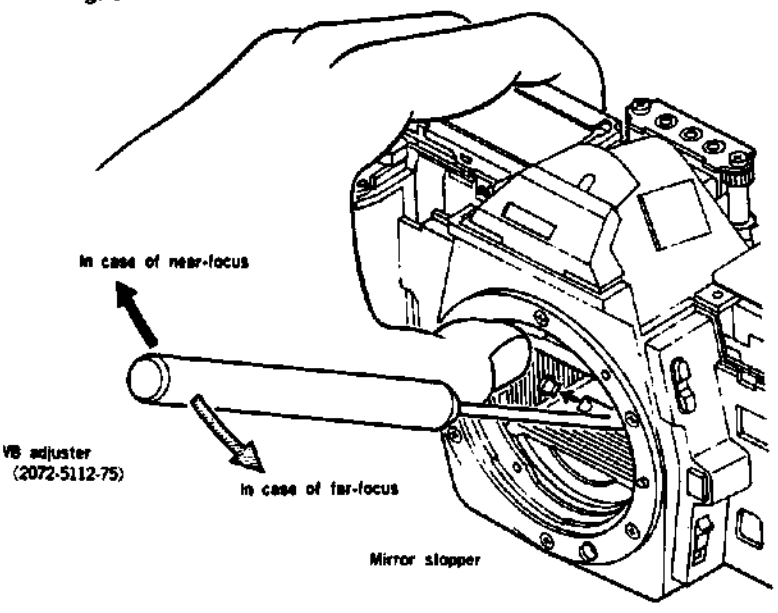


■Fig. 2



3. Make sure that the scale of master lens is positioned at infinity (∞) and move mirror stopper up and down to bring chart image into focus. (See Fig. 2)

■Fig. 3



● Adjust finder focus holding mirror with finger as Fig. 2.

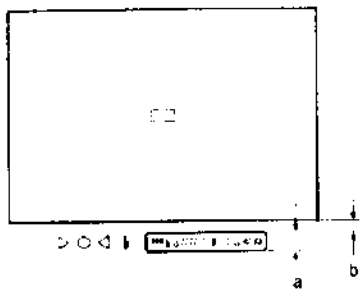
4. When the focusing ring of master lens is turned to adjust focus after operating shutter several times, chart image should be in focus at infinity (∞).

■ In-finder display position adjusting

■Adjusting procedure

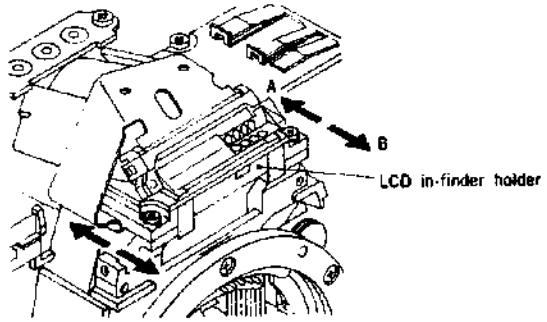
1. Loosen 2 screws and adjust by shifting in-finder holder back and forth to set LCD as fig. 1. (See Fig. 1, 2)

■Fig. 1



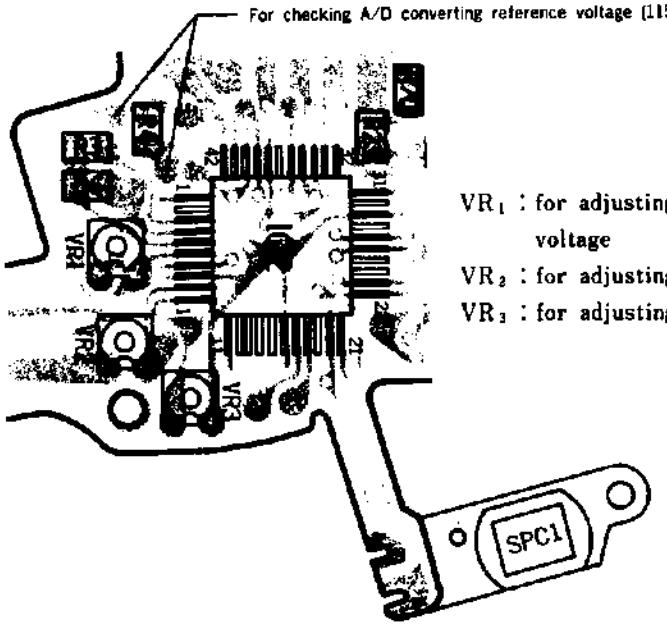
b=0.5a±0.3a

■Fig. 2



■ Exposure adjusting

■Position of resistor for exposure adjusting



VR_1 : for adjusting A/D converting reference voltage

VR_2 : for adjusting AE level

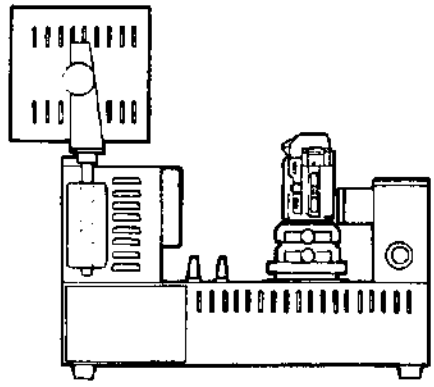
VR_3 : for adjusting strobo level

■ Manual shutter speed, X delay time checking

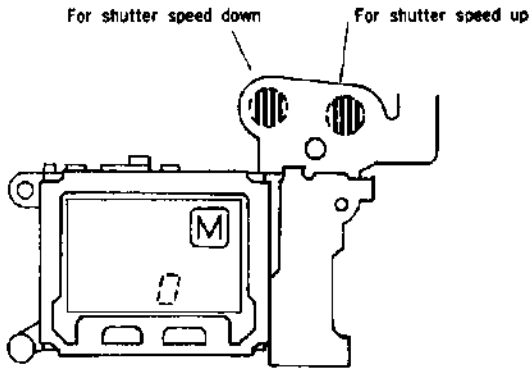
■Measuring instrument : Shutter tester (MODEL S-2201, S-2101, FS-1DMN4)
: Temporary cover (2073-1302-75)

■Checking procedure :

■Fig. 1



■Fig. 2



1. Checking manual shutter speed

Connect printed wires (fig. 2), using tweezers, for shutter speed up/down.

Shutter speed setting	Reference value (ms)	Allowable range (ms)	Exposure unevenness	Dispersion
1/2000	0.488	0.333~0.714	The difference between maximum and minimum values among A, B, C ranges should be lens than 0.6Ev. The difference between A-B, B-C ranges should be less than 0.3Ev.	Within 0.45Ev
1/1000	0.977	0.740~1.29		Within 0.3Ev
1/100	10	9.0~12.3		——
1/2	500	467~536		

See Check List p. 4 for checking shutter speed setting other than above list.

2. Checking X delay time

Shutter speed checking	Tolerance
1/100	A range·····0.3ms (min) B range·····3.0ms (min)

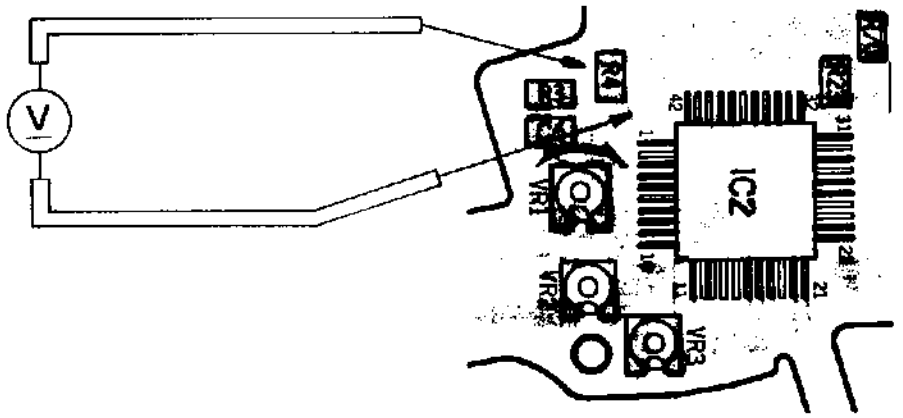
■ A/D convertion reference voltage adjusting

■Measuring instrument : Digital multimeter (Type 2508, 3476, 2507)

■Adjusting procedure

1. Solder measuring lead wires (×2).

■Fig. 1



2. With main switch and measuring switch (or touch switch) turned ON, adjust by turning VR_1 so that voltage is in **1152± 5 mV***

※Allowable range varies depending on room temperature as below:

Temperature (°C)	20±2.5	25±2.5	30±2.5
Allowable range (mV)	1133±5	1152±5	1171±5

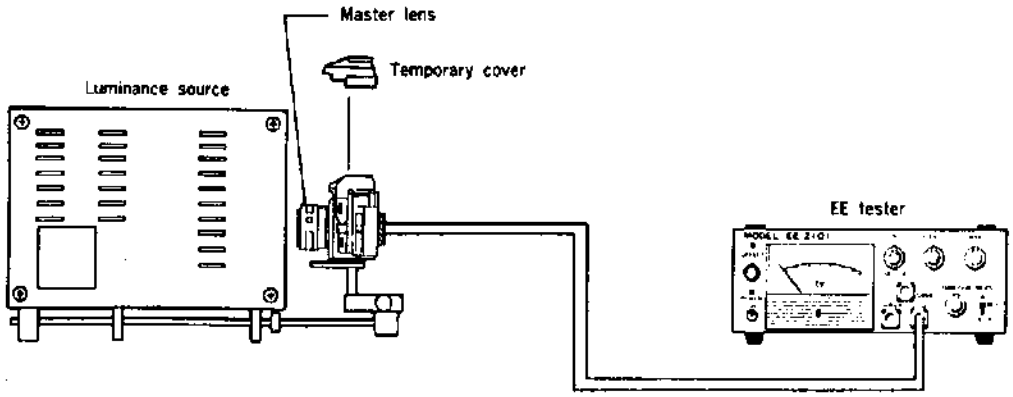
■ AE adjusting

■Measuring instruments : Luminance source (MODEL L-2101, L-222, L-223)
: EE tester (MODEL EE-2101, EE-2111)
: Master lens (2072-0001-75)
: Temporary cover (2073-1302-75)

■Adjusting procedure

1. Set the camera and measuring instruments as follows.

■Fig. 1



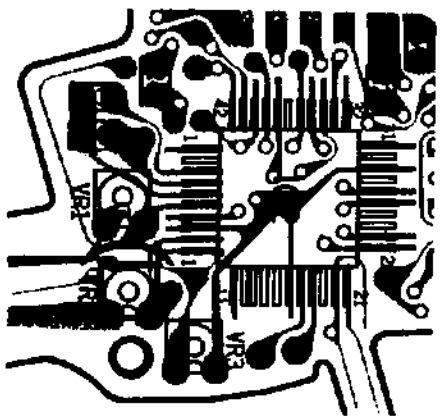
- Luminance source
  K value : 1.3
  Luminance : See Table below.
- Camera to be measured
  ISO : 100
  Exposure mode : P
  Focus mode Sw. : M
- Master lens
  Focusing ring : ∞
- EE tester
  K value dial : 1.3
  ASA dial : 100
- EE tester
  F dial : 5.6
  Ev dial : Same as luminance source.

2. Adjust AE level by turning VR_2 following the steps 1−3. (See Fig. 2)
Luminance and aperture in parentheses show the case of using luminance source L-222 or L-223.

Step	Luminance	Adjusting AE level	Checking AE level
1	Ev 10 (Ev 11)	0±0.3Ev	——
2	Ev 6 (Ev 5)	——	0±0.5Ev*
3	Ev 15 (Ev 15)		

※When out of allowable range, shift AE level at Ev 10 (11) so that each AE level meets allowable range.
If unadjustable, see Trouble-Shooting.

■Fig. 2



■ Strobo level adjusting

Use battery grip (batteries inserted) for body power source when adjusting.

■Subject : Time measurement from flash firing to firing-stop signaling.

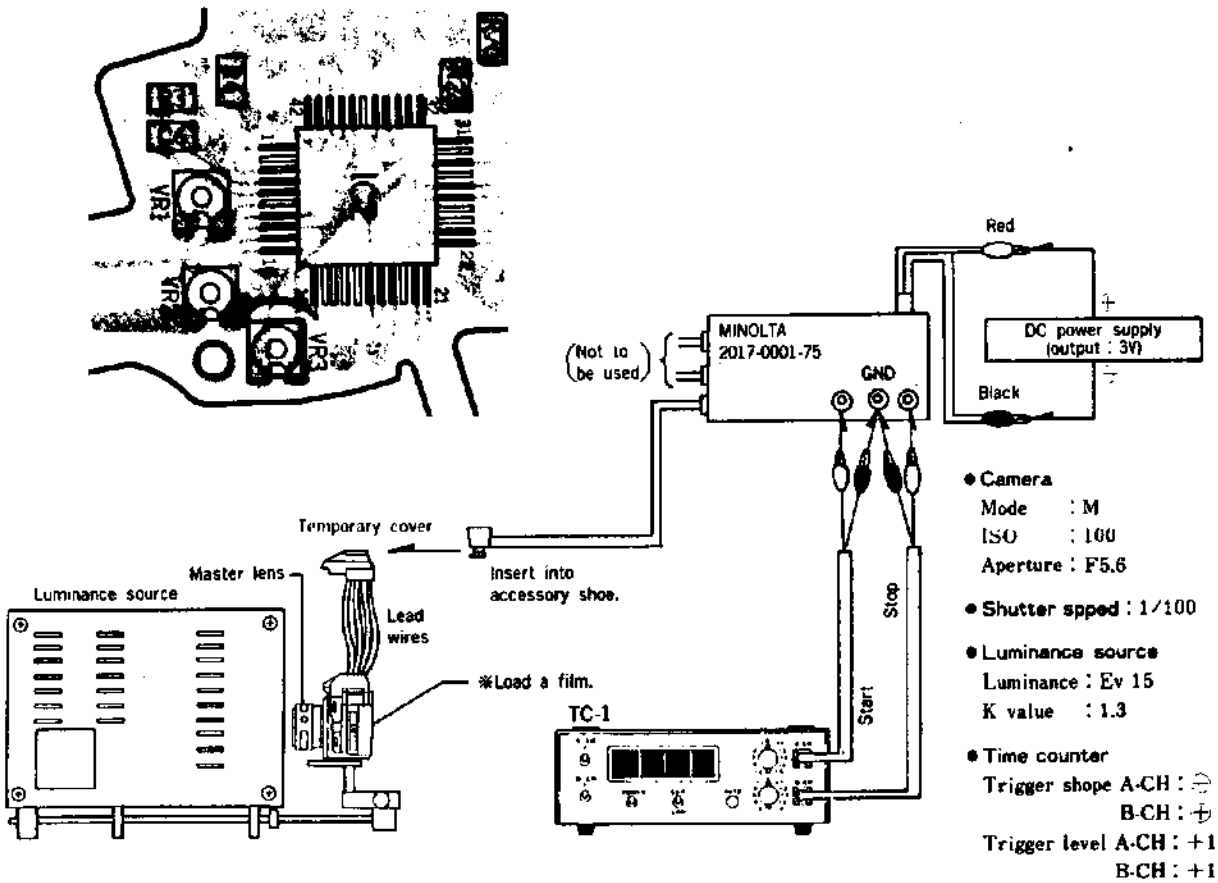
Ⓐ Adjusting by luminance source (MODEL L-2101)

- The MODEL L-2101 luminance should be used. However, ones with color temperatures ranging from 2600K to 3000K measured value of the Minolta color meter) at Ev 15 can also be used.
- Luminance boxes with long-wavelength cut filters and lamps with cold mirrors cannot be used because of measuring errors. (Example : MODEL L-223)
- When no luminance source is used for the adjustment, employ method Ⓑ on the next page.

■Measuring instruments : Luminance source (MODEL L-2101)
: Strobo level adjuster (2017-0001-75)
: Film (Use Kodacolor VR 100 which has been exposed to indoor light at least one day.)
: Temporary cover (2073-1302-75)
: Master lens (2072-0001-75)
: DC power supply (MODEL 524B)
: Time counter (MODEL TC-1)·····ST-5101 is usable.

■Adjusting procedure

1. Solder the lead wires of temporary cover to camera, connect the measuring instruments as Fig. below.



2. With the shutter released, adjust by turning VR_3 so that the indication of the time counter is

0.45±0.06ms

Ⓑ Adjusting by strobo tester (MODEL ST-Ⅲ)

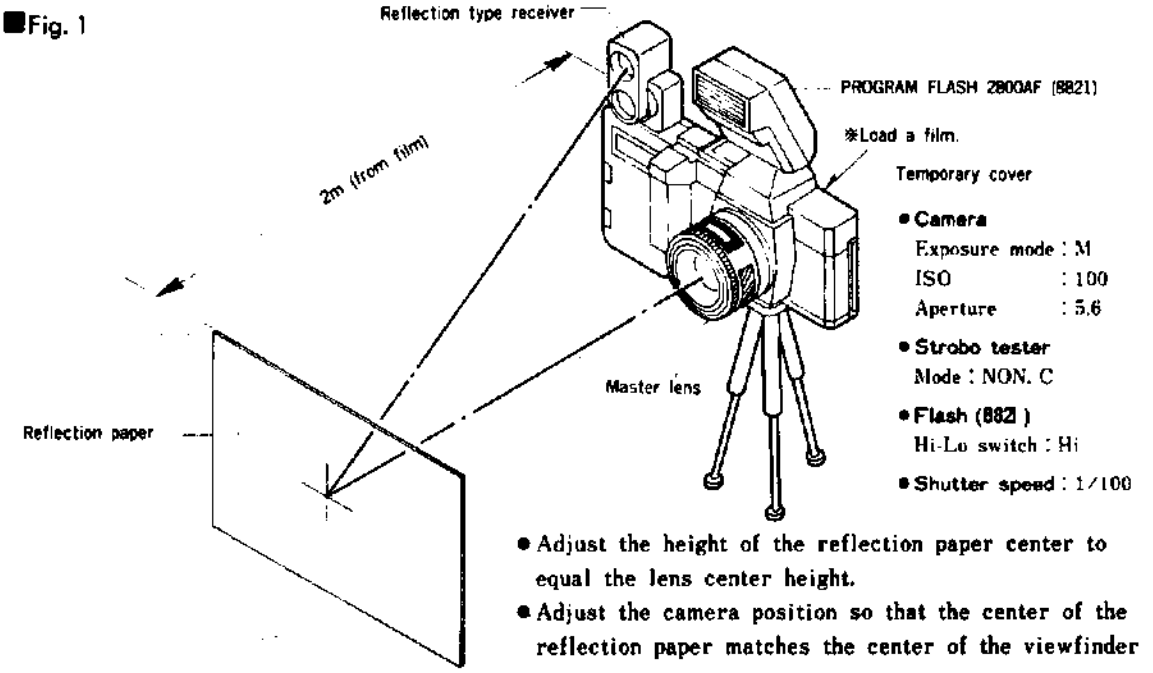
MODEL ST-Ⅰ, Ⅱ cannot be used because non-cord adjusting is impossible.

■**Measuring instruments** : Strobo tester (MODEL ST-Ⅲ)
: Film (※Use Kodacolor VR 100 which has been exposed to indoor light at least one day.)
: Master lens (2072-0001-75)
: Temporary cover (2073-1302-75)
: Reflection paper (1.3m×2m)……used for adjusting of Minolta AEF series.
: PROGRAM FLASH 2800AF (8821)

■**Preparations**

Set the measuring instruments as shown Fig. 1 below.

■Fig. 1

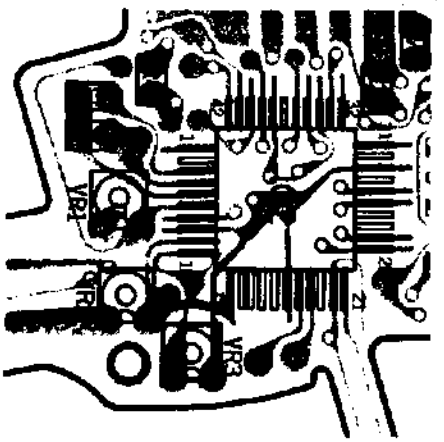


- Adjust the height of the reflection paper center to equal the lens center height.
- Adjust the camera position so that the center of the reflection paper matches the center of the viewfinder range.

■**Adjusting procedure (darken the room to eliminate the influence of external light)**

1. Set the flash main switch to ON, and 30 sec. or more after the pilot lamp illuminates, look into the viewfinder of the strobo tester (shown above) from near the flash, and then direct the eyepoint of the view center to the center of the reflection paper. Next release the camera shutter and read the indication of the strobo tester.
2. If the indication of the strobo tester is not within **F4.7±0.5Ev** . Adjust by turning VR_3. (See Fig. 2)

■Fig. 2



■ AF checking/adjusting

■When having replaced flexible PC board-B set, mirror or mirror box, or when having received trouble with AF, re-adjust AF following [1] to [6] (p. 27－31). When having received trouble other then AF, re-check AF following "AF operation checking" shown below.

■Measuring instruments
: Camera I/O tester 〈MODEL IO-5101〉
: AF Master lens 〈2072-0006-75〉
: Master lens 〈2072-0001-75〉 or user's lens
: AF adjusting tool 〈2072-0002-76〉
: Tripod attachment Ⅱ 〈2072-0003-76〉
: Grip ring 〈7983-9004-01〉
: AF chart-Ⅰ 〈2072-0004-75〉
: AF chart-Ⅱ 〈2072-0005-76〉
: Power supply adapter 〈2072-1221-75〉
: 1000mm collimator 〈MODEL RC-Ⅲ, Ⅱ, Ⅰ〉
: Hexagon wrench (1.5)
: TORX L wrench (T8)
: Flood lamp 〈color temperature : about 2800K〉

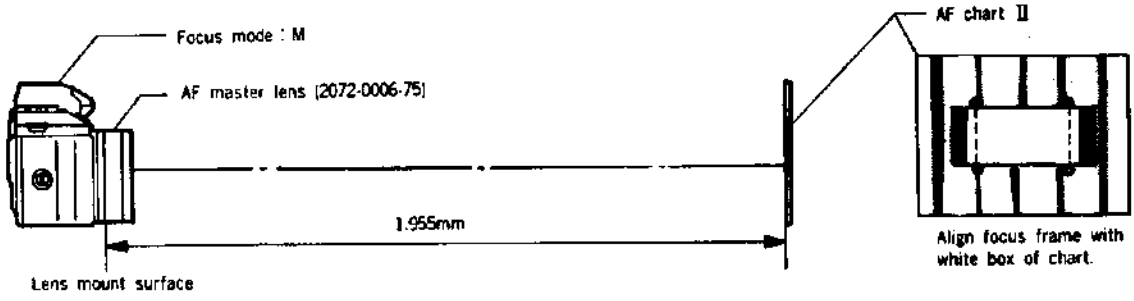
(The procedures are assumed as ROM pack Ver. 5.1 used.)

■ AF operation checking

Before AF checking, make sure the followings :
- Body-focus and finder-focus checking/adjusting have already been completed.
- External parts except bottom cover and front side cover (Rewinding side) (2073-1015) are on the body.

1. AF area checking

1) Set the instruments as below.



2) Turn touch switch (or metering switch) ON : low-contrast signal should be indicated (▶◀ blinking). If other focus signal than low-contrast lights, re-adjust AF following procedures [1] to [6] since it shown AF area deviation.

2. In-focus checking

Change the lens to master lens (2072-0001-75) or user's lens, and check AF operation with AF mode setting.

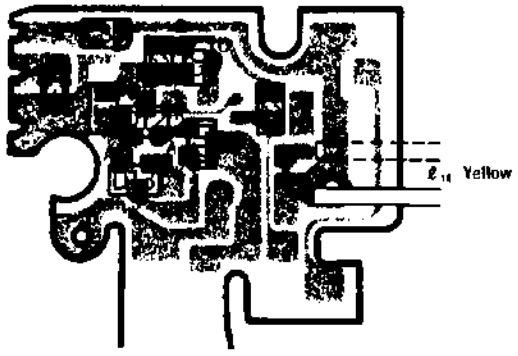
If the followings are not satisfied, perform [6] EZ adjusting.
- Center focus frame on chart of collimator, and autofocus : Lens should stop at ∞ with in-focus signal (◯) lighting.
- Autofocus on subject 2－3m away that can be autofocused : In-focus signal (◯) should light, and subject should clear in viewfinder.

■ Preparation for AF adjusting

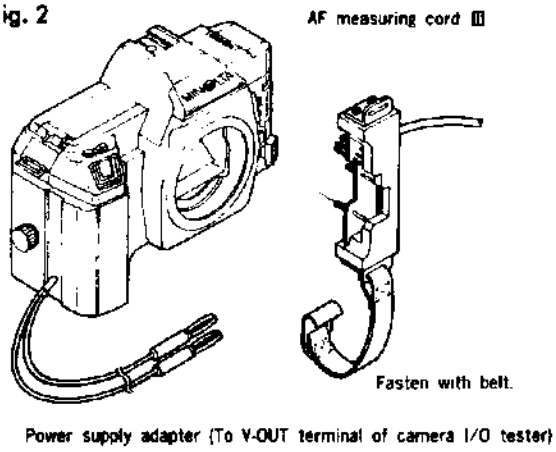
- Before adjusting AF, make sure the followings :
- Body focus and finder focus, checking/adjusting have already been completed.
- External parts except bottom cover and front side cover (Rewinding side) (2073-1015) are on the body.
- Focusing screen is standard type (2072-5805).
- If CCD image sensor module is out of position due to replacing flexible PC board-B set etc, AF adjusting screws (2072-5051 × 3) should be tighten fully and then loosened evenly by 3.5 turns.
- Turn VR_4 in the center position beforehand.

1. Unsolder SL_5 lead wire (ℓ_{14} Yellow) and solder it to GND. (Fig. 1)
2. Fasten AF measuring cord Ⅲ on to camera body. (Fig. 2)
3. Attach AF adjusting tool (2072-0002-76) and AF master lens (2072-0006-75) to grip ring of tripod attachment Ⅱ (2072-0003-76). (Fig. 3)
   (Attach camera body to either lens, depending on the adjusting.)

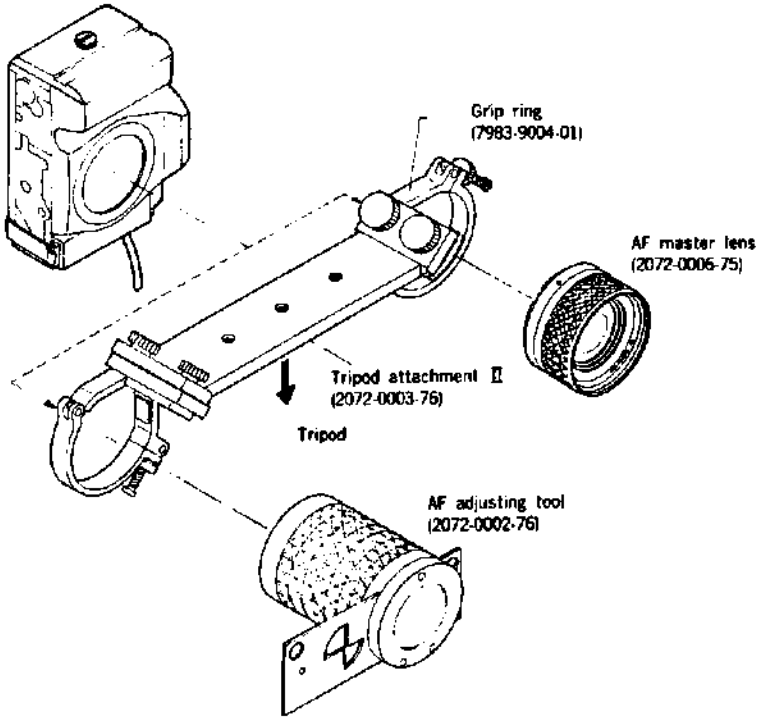
■Fig. 1



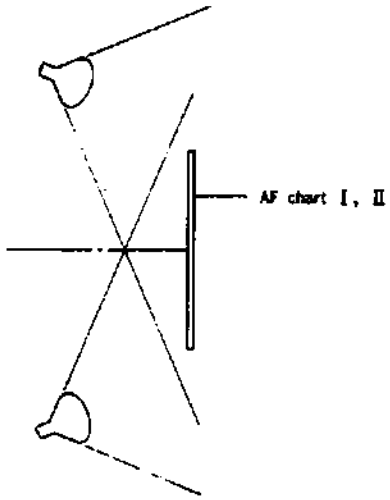
■Fig. 2



■Fig. 3



4. Give light to AF chart.
Light up AF chart evenly BV 3 or more) with flood lamp used.
Color temperature of flood lamp : 2800K (approx.) Measure the light of flood light on AF chart and check that the color temperature is about 2800°K.
Be careful that AF chart is not affected by other light source than flood lamp, such as fluorescent light, sunlight, etc., as much as possible.

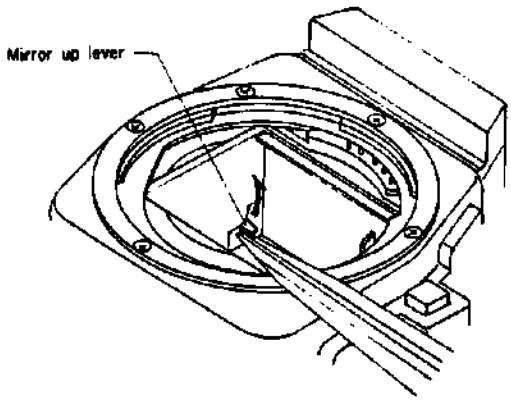


1 AF area adjusting

·····Adjustment to center AF area on focus frame

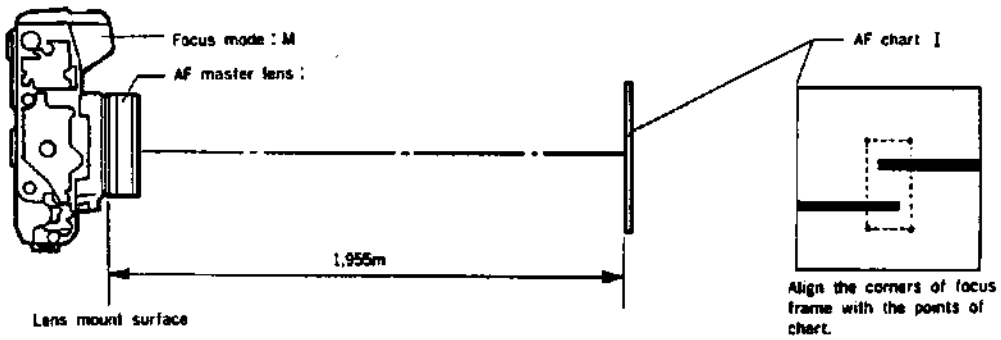
■Adjusting procedure

1. Keep shutter open.



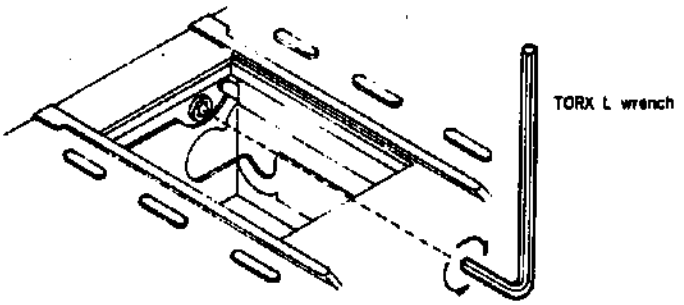
Lifting mirror up with tweezers, push mirror-up lever in the direction of arrow to keep shutter open. When shutter open, do not push mirror-up lever any longer; otherwise. M_1 will run idle.

2. Set the instruments as below.



(Continue on the next page)

3. Push [1] key and then [ENT] key of camera I/O tester.
4. Adjust position of sub mirror so that camera I/O tester shows [1.0±0.1] in LCD.



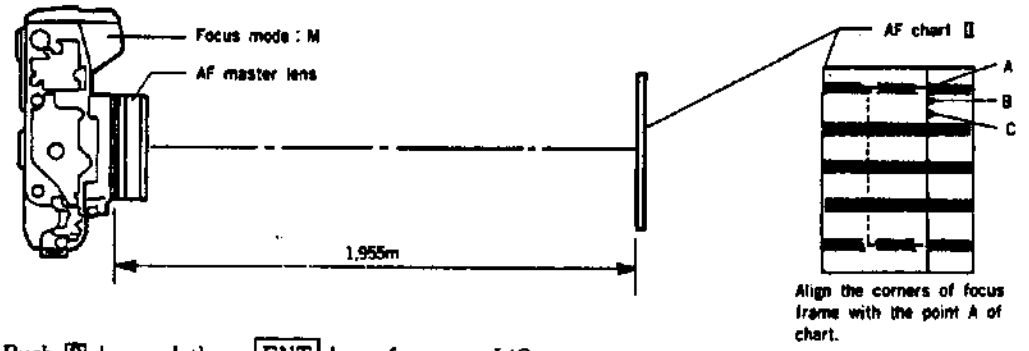
5. After the adjustment, push [RESTART] key of camera I/O tester.
6. Turn OFF the V-OUT of camera I/O tester for 2nd shutter-blade traveling.
(After 2nd shutter-blade travels, reset V-OUT to 6V.)

[2] MZ adjusting

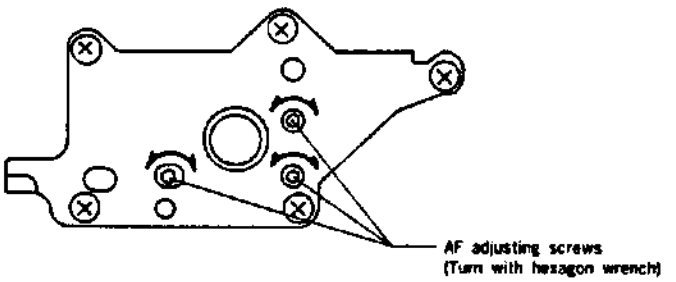
·····Adjustment of CCD image sensor positioning

■Adjusting procedure

1. Set the instruments as below.



2. Push [2] key and then [ENT] key of camera I/O tester.
3. Turn AF adjusting screws (×3) evenly so that camera I/O tester shows [10±30] in LCD.
(By equally rotating 3 screws once, the value is changed about 200. Counterclockwise rotation····· increase (+))



4. After the adjustment, push [RESTART] key of camera I/O tester.

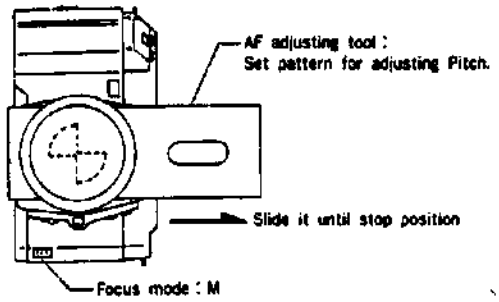
[3] Pitch, Yaw adjusting

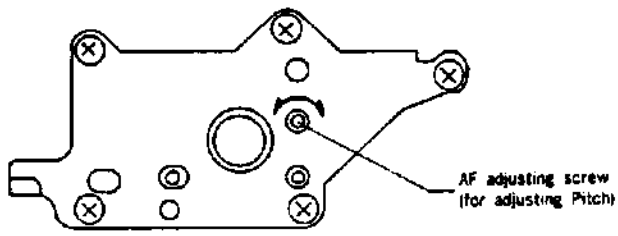
.....Adjustment of CCD image sensor tilting

Face the flood lamp to the camera (only for checking/adjusting of Pitch, Yaw).

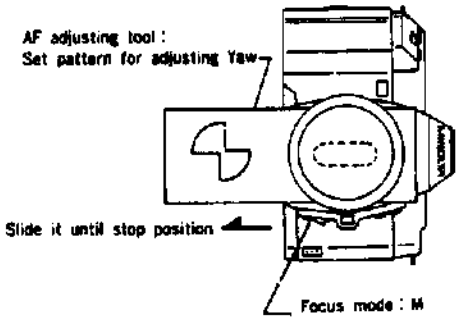
■Adjusting procedure

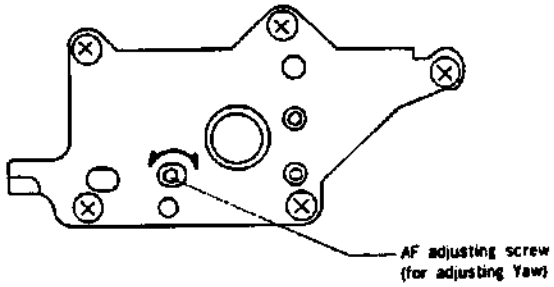
1. Pitch adjusting
   Set the instruments as below.





2. Push [3] key and then [ENT] key of camera I/O tester.
3. Turn AF adjusting screw (for adjusting Pitch) so that camera I/O tester shows [1.0±0.1] in LCD.
4. Yaw adjusting.
   Set the pattern of AF adjusting tool for adjusting Yaw.

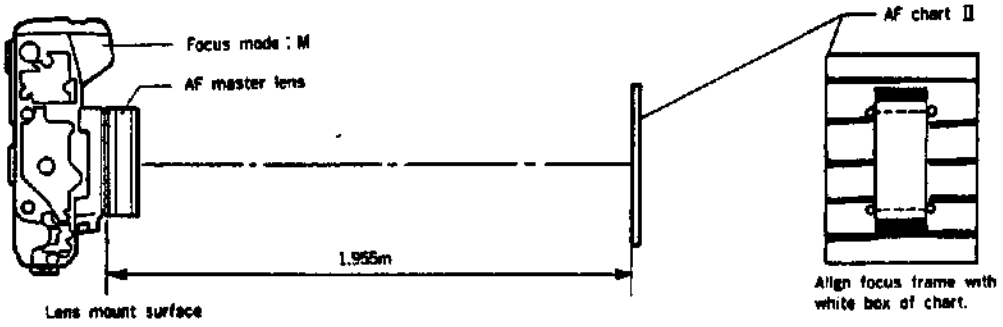




5. Turn AF adjusting screw (for adjusting Yaw) so that camera I/O tester shows [1.0±0.15] in LCD.
6. After the adjustment, push [RESTART] key of camera I/O tester.
7. Check Pitch and Yaw following the above procedures.
   If out of [Pitch·····1.0±0.1], [Yaw·····1.0±0.15], re-adjust and re-check.

4 AF area checking

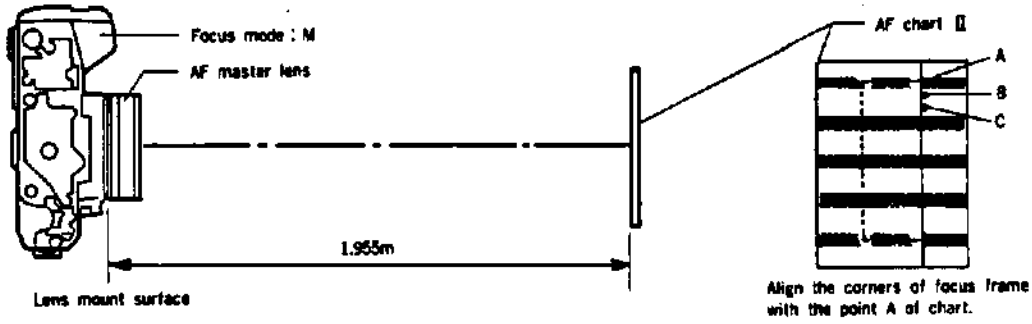
1. Set the instruments as below. (Disconnect AF measuring cord from AF signal adapter.)



2. Turn touch switch (or metering switch) ON : Low-contrast signal should be indicated (▶◀ blinking). If not, re-adjust and re-check AF area, following procedures from [1].

5 MZ checking

1. Set the instruments as below.



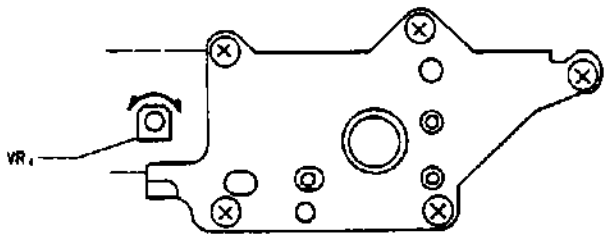
2. Push [2] key and then [ENT] key of camera I/O tester.
3. If camera I/O tester does not show [30±200] in LCD, re-adjust and re-check MZ following procedures from [2].

6 EZ adjusting

Set the instruments as shown in 5.

■Adjusting procedure

1. Push 2 key and then ENT key of camera I/O tester.
2. Shifting focus frame from portion A → B → C, read EZ value in LCD of camera I/O tester. (Since EZ value somewhat varies, average the EZ.)
3. Find intermediate EZ value, and align focus frame with relevant portion (A, B or C).
4. Turn VR_4 so that camera I/O tester shows 30±10 in LCD.



5. After the adjustment push RESTART key of camera I/O tester.
6. Checking of after adjust
   Change the lens to master lens (2072-0001-75) or user's lens.
   When autofocusing with general subject (2−3m away, except subject difficult for auto focusing), in-focus LED should glow and image in viewfinder should be sharp.

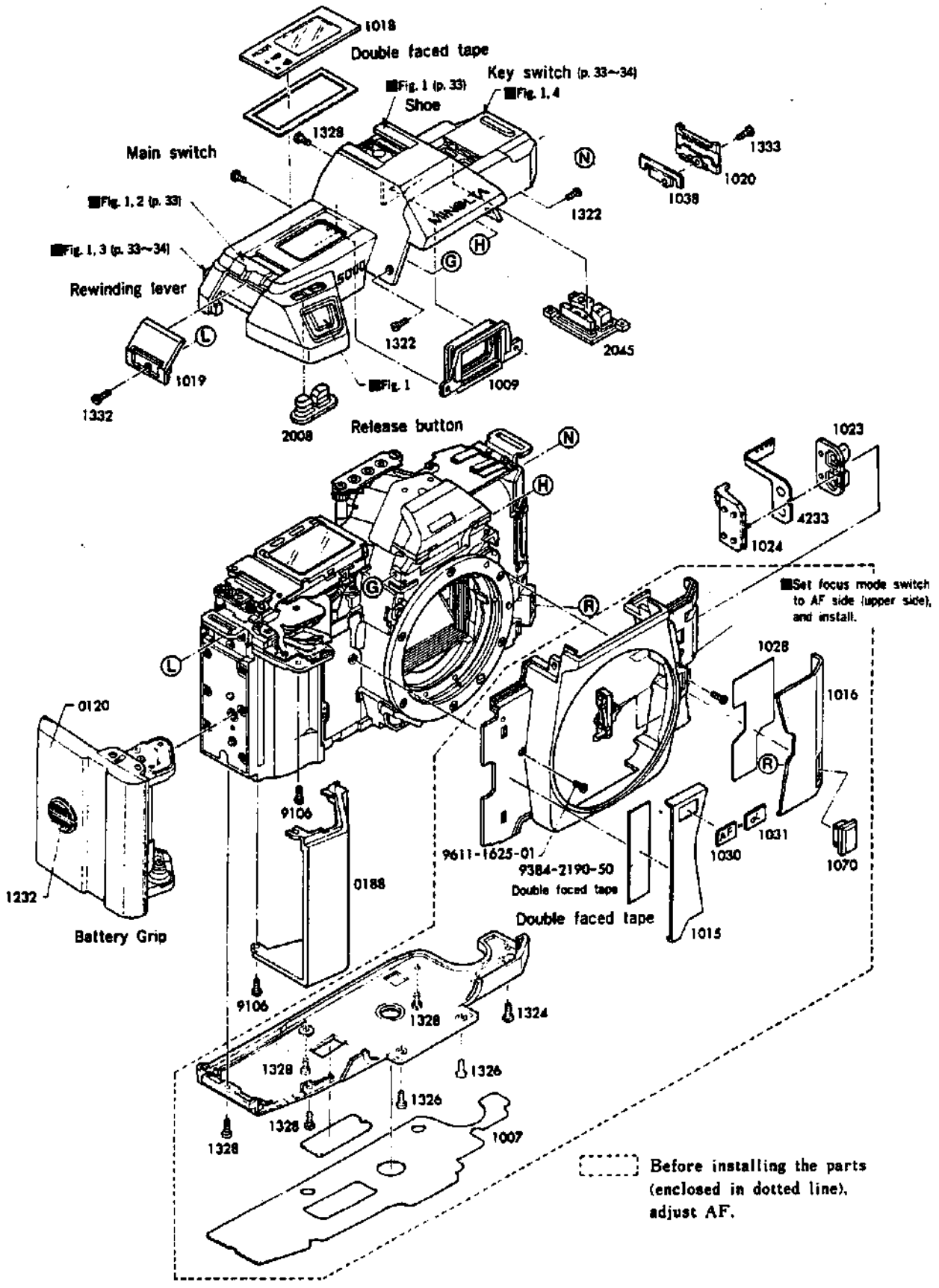
After completion of all adjustings, re-solder SL_5 lead wire (ℓ_{14}, Yellow) to orignal position. (Fig.1 on p. 26)

■ EZ checking

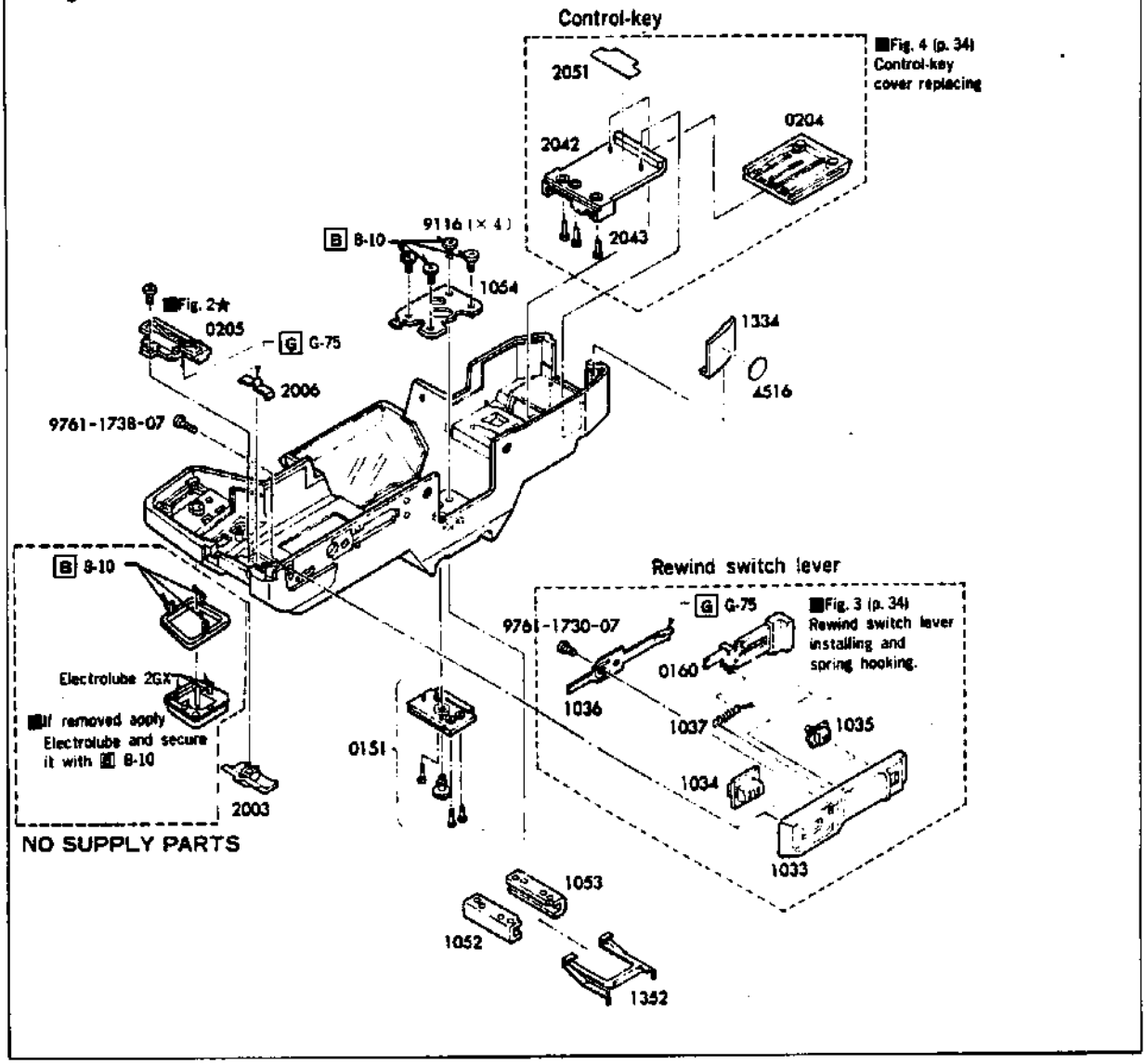
■After adjusting, apply the following standard for re-checking of EZ.

■Standard value 30±30

7 External parts (Completion)

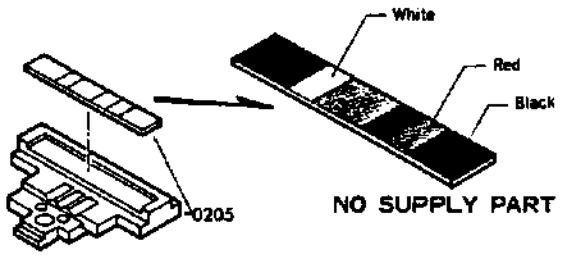


■Fig. 1 Top cover assembling

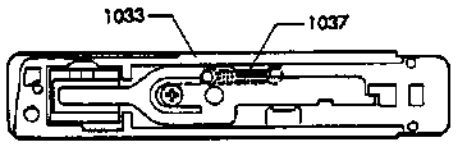


■Fig. 2 Seal attathing position

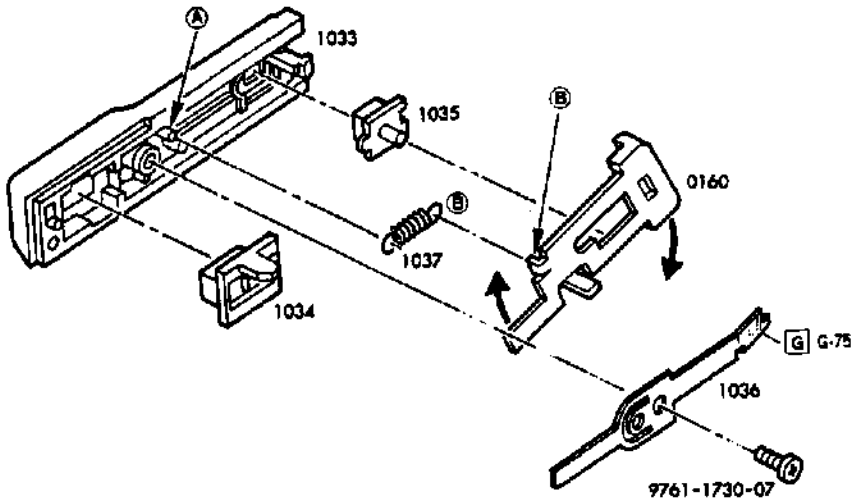
★When reattaching the seal, Be careful for the direction.



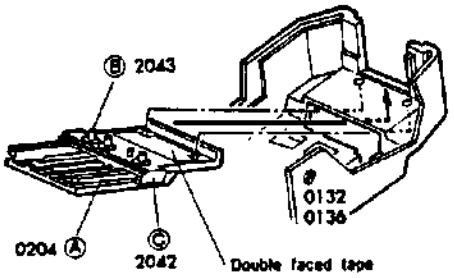
■Fig. 3 Rewind switch lever installing and spring hooking



■Hook the circle end of spring on Ⓐ (of 1033).
Holding it to the position, hook the other end of spring on Ⓑ (of 0160).
Set 0160 to 1033, pulling the spring slightly.
Then, place 1036 on them and tighten screw (9761-1730-07).

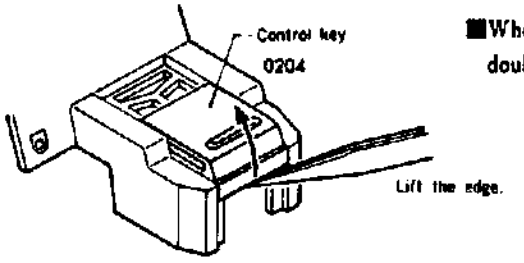


■Fig. 4 Control-key cover replacing



■When replacing control-key cover, replace parts Ⓐ, Ⓑ, and Ⓒ as a set.

■When installing: Insert Ⓑ and Ⓐ to Ⓒ in order.
Tilt and slide Ⓒ (Ⓑ and Ⓐ attached) from inside of top cover. And adhere with double-faced tape.



■When removing: Lift the edge of control-key cover to remove double-faced tape, and drop the cover inside.

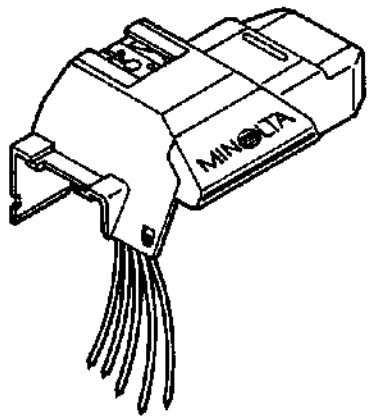
■ Measuring instruments

■Luminance source (MODEL L-2101, *L-222, *L-223)
■EE tester (MODEL EE-2101, EE-2111)
■Shutter tester (MODEL S-2201, S-2101, *FS-1DMN4)
■Time counter (MODEL TC-1)
■Digital multimeter (Type 2508, *3476, *2507)
■Camera I/O tester (MODEL IO-5101)
■Strobo tester (MODEL ST-Ⅲ)
■1000mm collimator (MOEEL RC-1000 Ⅲ, *Ⅱ, *Ⅰ
■DC power supply (MODEL 524B, *E-1, *E-2)

(Items marked "※" have been discontinued)

■ Exclusive tools

■Tool No. 2072-1302-75
Temporary cover



■ Tools used in common

■Tool No. 2017-0001-75
Strobo level adjuster

■Tool No. 2072-0001-75
Master lens

■Tool No. 2072-0002-76
AF adjusting tool (p. 36 Fig. 1)

■Tool No. 2072-0003-76
Tripod attachment Ⅱ p. 36 Fig. 2)

■Tool No. 7983-9004-01
Grip ring (p. 36 Fig. 2)

■Tool No. 2072-0004-75
AF chart Ⅰ

■Tool No. 2072-0005-76
AF chart Ⅱ

■Tool No. 2072-0006-75
AF master lens (p. 36 Fig. 3)

■Tool No. 2072-1221-75
Power supply adapter

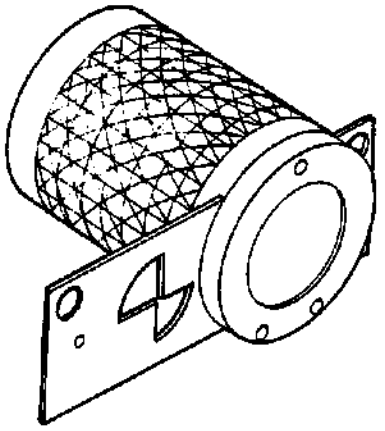
■Tool No. 2072-5112-75
VB adjuster

■Tool No. 2072-5151-75
Mirror positioner

■Tool No. 2072-5806-75
Mirror remover

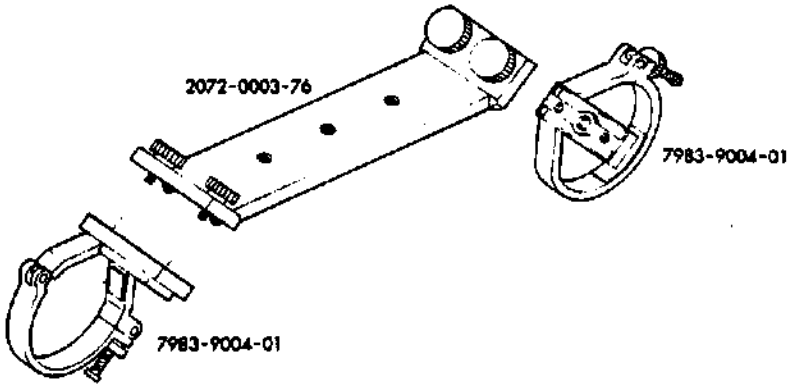
■Body back gauge
■Flat plate (for 2005)
■Dial gauge
■Hexagon wrench (1.5)
■TORX L wrench
■Reflection paper
(1.3m×2m)
……Seamless paper #22
(Supprior make)

■Fig. 1 **Tool No. 2072-0002-76**
AF adjusting tool

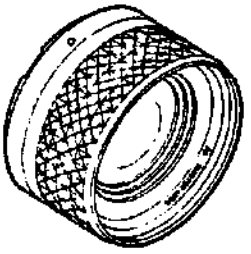


■Fig. 2 **Tool No. 2072-0003-76**
AF Tripod attachment Ⅱ

Tool No. 7983-9004-01
Grip ring



■Fig. 3 **Tool No. 2072-0006-75**
AF Master lens



■ Subsidiary materials

■Grease	■Oil	■Adhesives	■Cleaner	■Other
• G-75	• O-20	• B-10 • B-60	• FLONSOLVE	• Electrolube 2GX

TROUBLE SHOOTING

1. Introduction
   This Trouble-Shooting covers symptoms and causes of troubles found on camera side. Even when the trouble is found on camera side, the cause may lie in the related accessories. Use this chart, checking trouble with/without accessories on the camera depending on trouble.

2. Description
   (1) This Trouble-Shooting is classified mainly into TROUBLE SHOOTING CHART and TROUBLE SHOOTING MANUAL, which can be used properly depending on your desire.

   TROUBLE SHOOTING CHART

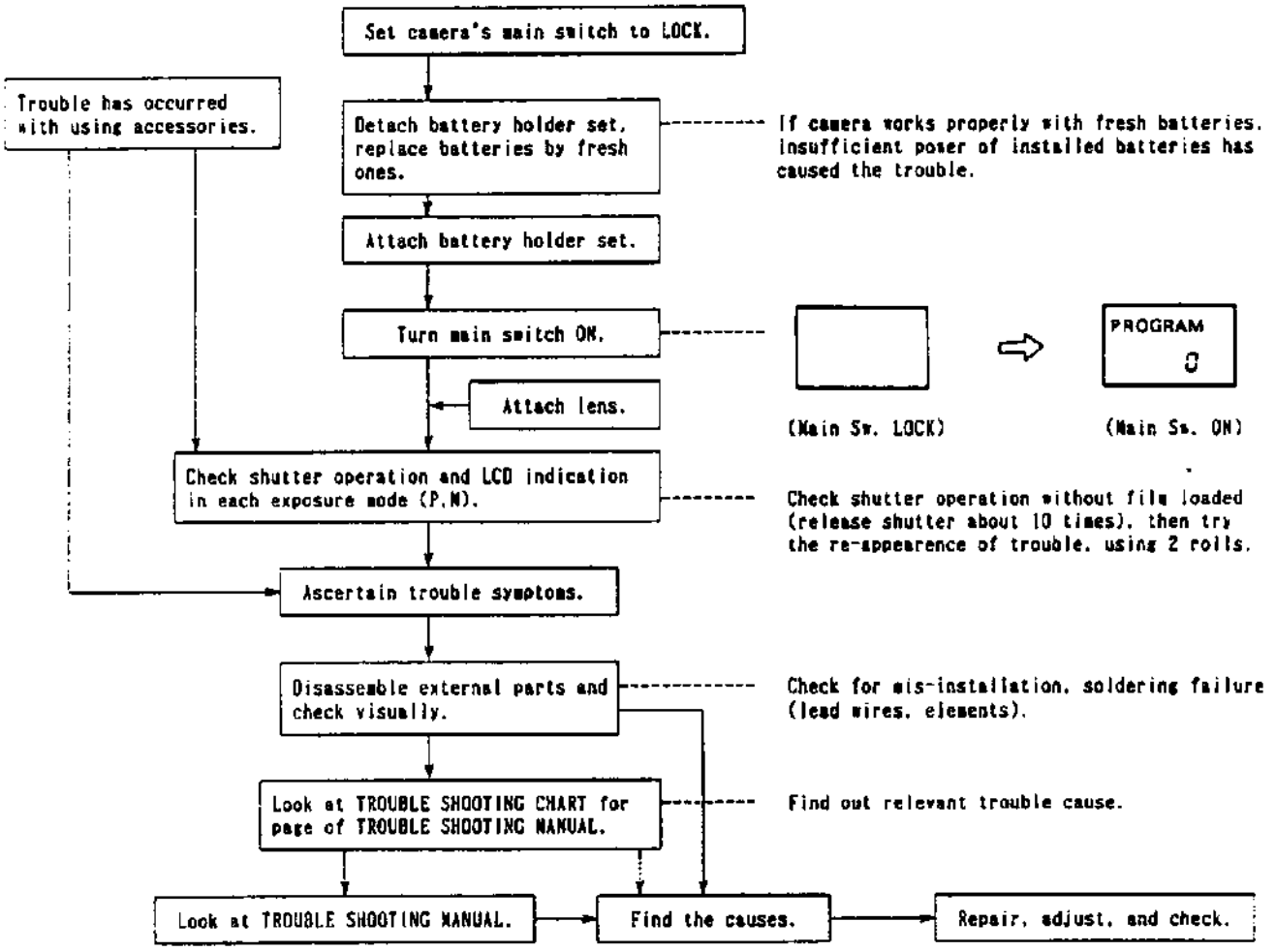
   - Provides you with significant points of troubles (symptoms, causes), including contents for TROUBLE SHOOTING MANUAL.

   TROUBLE SHOOTING MANUAL

   - Provides you with detailed trouble causes, including proper measures, and check points, etc.
   - Also provides you with checking method by YES-NO answering so that you can find out cause easily.

   (2) Trouble described here is due to a single cause only. Trouble due to plural causes should be checked collectively on the basis of the causes listed in this chart.

3. Repair procedure
   (1) Check the causes in the following order.



(2) If trouble does not reappear.
- Check operation by releasing shutter about 100 times (battery holder side, lens side up) with film loaded. (Attach user's batteries and lens.)
- Check operation about user's complaint and trouble symptom when received. following p. 81 "Repairing for trouble symptoms not reappear".

4. Servicing precautions
(1) Check voltage using digital multimeter (but not necessarily when input impedance is more than 10MΩ).
(2) Use circuit tester of which voltage is 3V or less to check conductivity.
(3) Trouble is most unlikely to occur in electrical parts, such as ICs, diodes, transistors, resistors, and condensers. Therefore, check the cause of trouble, with the focus on the defective soldering of lead wires and electrical parts, and switching contacts.
(4) When checking soldered or plated parts, avoid pressing the parts or pulling lead wires unnecessarily.
(5) Since voltage measuring parts are narrow, mount a pin or something similar at the tip of an alligator clip for measurement.
(6) When measuring printed wire for switch, measure the area outside switch operation with care not to flaw printed wire. For switch contacts, measure their base, which is not directly affected by contact pressure.
(7) Be sure to turn off the power switch before removing electrical parts (when DC power supply is used).
(8) The ideal temperature range for the soldering iron tip is 290°C to 340°C. If the temperature is higher, however, perform soldering quickly. Also, be sure to clean the tip when soldering.
(9) Be careful with static electricity when handling IC.
(10) When using DC power supply, set at 6V/2A.

5. Abbreviations
- Two layers : connection of flexible PC board-A & -B sets
- Three layers : connection of flexible PC board-A, -B, & -D sets
- Flex PCB-A : flexible PC board-A set
- Color of lead wires :

Black	Blk	Orange	O
Blue	Blu	Purple	P
Brown	Brn	Red	R
Gray	Gy	White	W
Green	Gn	Yellow	Y

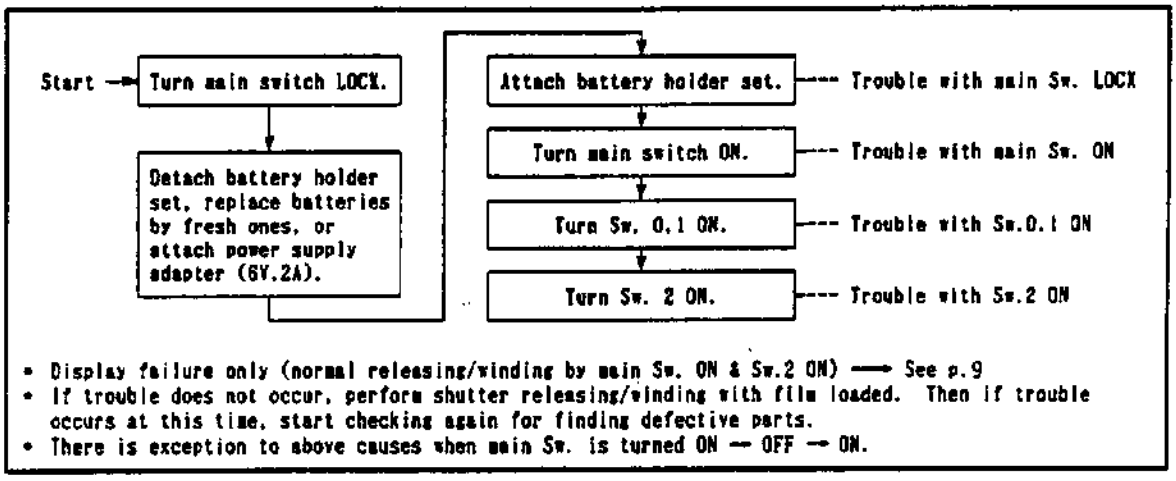
Contents

[1] TROUBLE SHOOTING CHART

- Description of marks
  Switches : Circled; remains ON. Uncircled; contact failure.
  Lead wires : Circled; short circuit with GND.
  Uncircled; disconnection (cold soldering at soldering point)
  Electric elements : Circled; short circuit. Uncircled; cold soldering or defect

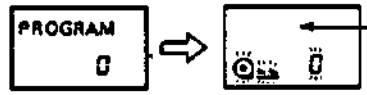
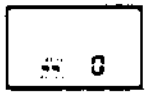
1. Shutter releasing/winding failure

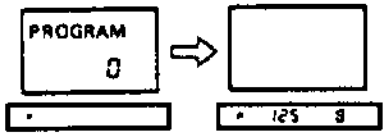
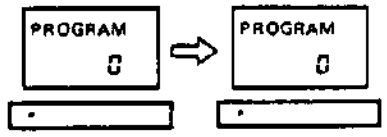
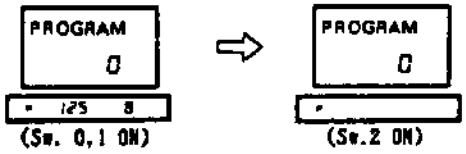
(For finding causes out, follow the below chart, first.)

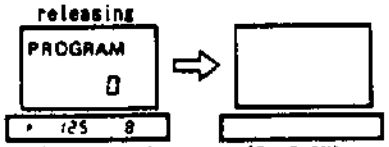
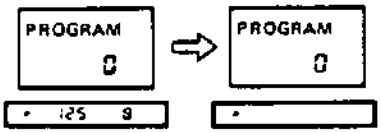


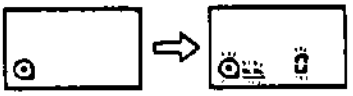
- Display failure only (normal releasing/winding by main Sw. ON & Sw.2 ON) ⟶ See p.9
- If trouble does not occur, perform shutter releasing/winding with film loaded. Then if trouble occurs at this time, start checking again for finding defective parts.
- There is exception to above causes when main Sw. is turned ON → OFF → ON.

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Trouble symptoms with main Sw.LOCK					
(1) Winding-motor running by attaching battery holder	22			. Converter PCB . Flex PCB-B . IC9	
■ Trouble symptoms with main Sw. ON					
(1) No LCD indication				(Main Sw. ON) ⇨ (Sw.0,1,2 ON)	
① By Sw.0.1 ON, LCDs still OFF. By Sw.2 ON, shutter does not release.	22	Main sw. ㉚	㉒ (R) ㉑ (Blk) ㊸ (Blu)	. Flex PCB-A C3, C5, C31, C32 C3, C5, C31, C32 XL1, XL1, IC1, IC4 R1, R33, Q16 . Flex PCB-B R27, D12, Q5 . Converter PCB	. Battery holder contact, spring contact: stain, off position . Battery base plate ⊕,⊖ contact : stain . Converter PCB & flex PCB-B : soldering failure
② Battery short-circuited for 0.5 sec with mirror up. By Sw.0,1,2 ON, LCDs still OFF. (With DC power supply, stand-by display and "▭" ON, then all disappear.)	23			. Flex PCB-B ⑪	

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
(2) Film-end display ON about 1.2 sec after.			 (Main Sw. LOCK) (Main Sw. ON)		
① After 1.2 sec of winding-motor running, film-end display ON.	23	④ ㊵⓪	㉕ (Y) ㊶ (Y)	. Flex PCB-A IC1, Q17, Q17 Q15 (including short circuit E-B) R31 . M1 . Converter PCB	. Rewinding base plate set : defect . Sprocket axis set : defect . Converter PCB & flex PCB-B : soldering failure . Motor contact plate set : stain on contacts . Diaphragm return lever : defect . Shutter set : defect
② No winding-motor running with mirror up and then film-end display ON	24			. Flex PCB-A IC1 . Flex PCB-B Q2, Q2, Q3 (including short circuit among them) . R19, R36, R36, IC9 . Converter PCB	. Converter PCB & flex PCB-B : soldering failure
③ After winding-motor running for 1.2 sec, film-end display ON with mirror up	24			. Flex PCB-B	. Gear on winding motor : falling; riveting failure . Clutch base plate : defect
④ By film loading, winding-motor running for 1.2 sec and film-end display ON	24			. Flex PCB-A IC1 Q15 (including short circuit E-B) R31 . M1	. Rewinding gears : defect . Sprocket axis : defect
(3) By turning main Sw. ON, shutter releasing	25			. Flex PCB-A IC1, C20	. Remote control terminal set : short circuit . Release base plate : defect . Three layers : defect
(4) Rewinding display ON and no shutter releasing  (Main Sw. ON)	25	REW1 REW2	㊷ (Brn) ㉓ (O)	. Flex PCB-A IC1	. Spring for rewinding : off position
(5) No LCD indication By Sw.2 ON, shutter releases, then film is wound 5 sec after.	25			. R70	

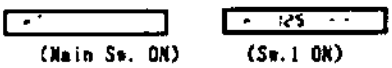
Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Trouble symptoms with Sw.0,1 ON					
(1) Shutter releasing (with normal display)  (Main Sw.ON) (Sw.0,1 ON)	25			. Flex PCB-A IC1	. Remote control terminal set : short circuit
(2) No metered value ON, no shutter releasing  (Main Sw. ON) (Sw.0,1 ON)	26			. Flex PCB-A Q16, Q18, R32	. Release base plate & flex PCB-A (at GND) : contact failure
■ Trouble symptoms with Sw.2 ON					
(1) Metered values disappear. (Stand-by display ON)  (Sw. 0,1 ON) (Sw.2 ON)					
① No winding-motor running	26	㊵	6 (R) 7 (Blk) 4 (R) 5 (Blk) ㉔ (O)	. Flex PCB-A IC1 . Flex PCB-B Q1, Q2, Q3, Q4 (including short circuit among them) IC9, R18 . Converter PCB . M1	. Motor set : defect . Motor contact plate set : stain on contacts . Two layers : contact failure . Between motor gear and bottom cover : lead wire catching . Aperture control base plate : foreign substance . Gear in aperture charge base plate : operation failure . Motor gear set : off position
② No winding-motor running with mirror up (including: mirror half way up)	27	40	24 (O)	. Flex PCB-A IC1 . Flex PCB-B IC9, D12, D12, Q1	
③ Winding-motor runs for 0.5 sec & stops w/o mirror up, then metered values disappear. (Stand-by display ON)	27				. Mirror up lever-A axis : riveting failure . Connecting plate between mirror up lever-A & -B : off position . Motor gear set : screw looseness
④ Shutter releases normally once, then at winding completion, metered values disappear and no more releasing	27			. Flex PCB-B IC9	

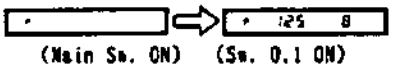
Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
(2) All LCDs disappear & no shutter releasing  (Sw.0,1 ON) (Sw.2 ON)	27			. Flex PCB-B Q2, Q3, Q4 (Including short circuit among them) . MI	
(3) Mirror down & winding-motor rotates slowly, then file-end display ON --- With DC power supply used (Stand-by display ON momentarily then all LCDs disappear --- With batteries used)  (Main Sw. ON) (Sw.2 ON)	27			. Flex PCB-B Q1 (Including short circuit B-C)	
(4) Mirror up & winding-motor does not rotate (Normal display) (Mirror slightly moves up & down each time Sw.2 ON)	28	4 400	25 (Y) 44 (Y)	. Flex PCB-A IC1	. Winding stop lever spring : breakage . Aperture return lever spring : breakage . Sw.40,400 : timing failure
(5) While holding Sw.2 ON, winding-motor rotates little by little (clicks), but no releasing. (During Sw.2 ON, metered-value ON; 0.5 sec after Sw.2 OFF, stand-by display ON.)  (Sw.0,1,2 ON) (Sw.2 OFF)	28	㊵	㉔ (O)	. Two layers : short-circuit . Flex PCB-A IC1	
(6) No shutter releasing (w/ normal display)	28	2		. Flex PCB-A R62, . Release base plate : defect	. Release base plate & flex PCB-A : screw looseness; stain on contacts

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Other releasing/winding failure					
(1) After rewinding completion, by opening back cover, film-end display appears w/ furthermore rewinding.  (Back cover open) (Rewinding completion)	29				. Shutter charge lever set : defect . Charge spring : off position . Rewinding changeover fork : deformation; inclined . Sprocket axis set : defect
(2) Shutter releasing by Sw.2 ON, regardless of main Sw. LOCK.  (Main Sw. LOCK, Sw.0,1 ON)	29			. Flex PCB-A IC1	. Lead wire for main Sw. ON : remains . Main Sw. printed wire on flex PCB-A : remains
(3) Normal AF operation & display, but, no releasing by Sw.2 ON.	29			. Flex PCB-B IC6	
(4) Short circuit, and no releasing (Irregular display)	29		2,3 (reversed) 4,5 (reversed) ⑮ (R)	. Flex PCB-B ⑫ . Converter PCB : defect	. Temporary screw for aperture control base plate set : remains
(5) W/ lens attached, winding-motor runs for 1.2 sec & film-end display ON. (Normal w/o lens)	30				. Aperture return lever : defect
(6) After releasing or winding completion, winding-motor continues to run idle.	30			. Flex PCB-B IC9 . Flex PCB-A IC1	
(7) At winding completion, winding-motor does not stop.	30			. Flex PCB-A IC1 . Flex PCB-B IC9 . Converter PCB	
(8) No releasing by remote control.	30				. Three layers : contact failure . Remote control terminal : defect
(9) By BLC Sw.ON, winding-motor runs for 1.2 sec & film-end display appears.	30			. Flex PCB-A IC1	
(10) By BLC Sw. ON, shutter releasing	30			. Flex PCB-A IC1	
(11) By back cover open, shutter releasing	30			. Flex PCB-A IC1	. Sw.RC contact : deformation; contact failure . Three layers : contact failure

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
(12) Irregular sound at releasing & winding	31			. M1	. Aperture pulse plate, aperture control base plate : oil shortage . Motor gear : lead wire catching . Winding gears : grease shortage . Flex PCB-B & motor gear : contact . Shutter : over-charged

2. Exposure failure
(AE/shutter/aperture operation failure)

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Underexposure (1) Underexposure with normal display (slightly exposed on negative)  (Main Sw. ON) (Sw.0,1 ON)					
① Minimum aperture regardless of setting	32		SL3 (R,W) reversed	. Flex PCB-A IC1, IC4 . SL3 . Flex PCB-B	. Flex PCB-B & SL3 lead wire : soldering failure . Two layers : contact failure
② Minimum aperture at other setting than maximum. (Normal AE at max setting)	32			. PI-1 . Flex PCB-A C14, C21, (C14), (C21) IC1, IC4 . Flex PCB-B	. Flex PCB-B & -F : soldering failure . Two layers : contact failure
③ Fast shutter speed (Normal aperture control)	32			. SL5	. Shutter : defect (uneven shutter speed)
④ Underexposure in all frames (ISO mis-decoding w/ DX coded film)	33			. Flex PCB-D IC5	. CAS contacts : contact failure . DX code : mis-reading
⑤ No mirror up (only circumference of frame exposed)	33				. Mirror holder : off position . Mirror up lever : riveting failure
(2) No exposure regardless of normal display (No slit shutter)  (Main Sw. ON) (Sw.0,1 ON)					
① No slit shutter in all exposure modes (Normal aperture control)	33		14 (Y) 15 (R)	. SL5 . Flex PCB-A IC1, IC4 . Flex PCB-B	. Shutter set : defect . Two layers : contact failure
② No slit shutter in all exposure modes (Minimum aperture)	34			. Flex PCB-A IC4, R69 . Flex PCB-B	. Two layers : contact failure
(3) 4-SEV under w/ "--" in aperture display (Min. aperture, normal shutter speed)  (Main Sw. ON) (Sw.1 ON)	34			. BL contact holder set . Flex PCB-A R20, R21, R22	. BL contacts (L1 to L5) : contact failure . Flex PCB-BL & -A : soldering failure . Lens's PCB : defect . Contacts on lens : stain

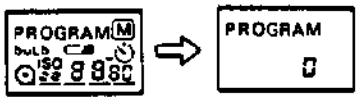
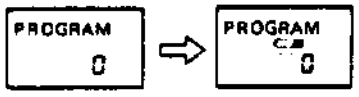
Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
(4) Underexposure regardless of overexposure display (Fastest shutter speed & minimum aperture)  (Main Sw. ON) (Sw.0,1 ON)	34			. Flex PCB-A VR1, VR2, R3, (R3) R4, C8, IC2	
(5) AE under in low luminance (Normal AE in mid/high luminance)	34			. Flex PCB-A R6, C7, IC2	
■ Overexposure					
(1) Overexposure w/ normal display (Max aperture regardless of setting)  (Main Sw. ON) (Sw. 0.1 ON)	35			. SL3 . Flex PCB-A IC1	. Aperture control base plate set : defect . SL3 magnet spring in aperture stop magnet set : breakage
(2) Slower shutter speed w/ normal display in all exposure modes (Spaces between frames are exposed.)	35		(29) (Y)		. Shutter set : defect
(3) . ISO mis-setting to slower speed side . ISO mis-decoding w/ DX-coded film	35			. Flex PCB-D . IC5	. CAS contact : contact failure . DX code : mis-decoding
(4) Overexposure (2EV) in all exposure modes	35	(BLC)		. Flex PCB-A : defect	
(5) Excessive AE over regardless of underexposure display  (Main Sw. ON) (Sw.0.1 ON)	35			. Flex PCB-A SPC1, (SPC) R3, R7 IC1, IC2, IC3, IC4 . Flex PCB-B IC8 . Flex PCB-D IC5	

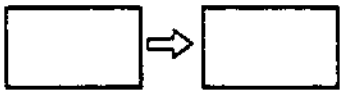
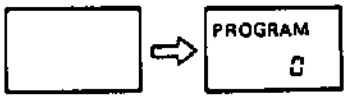
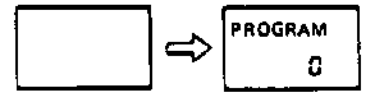
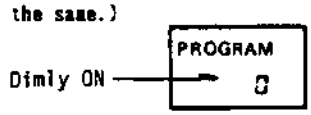
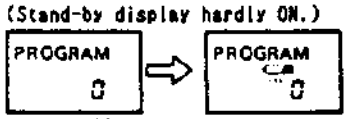
Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Uneven exposure					
(1) Uneven shutter speed/aperture control w/ normal display	36			. SL5 . Flex PCB-A C21, C39	. Aperture control base plate : defect . Shutter set : defect
(2) Uneven metered value display and irregular control	36			. Flex PCB-A (SPC1), C38, IC2	. Sponge (4511) : missing; deformation
(3) Metered values do not change regardless of luminance change	37	(BLC)		. (SPC2)	
■ Other exposure failure					
(1) 1/30 sec or faster shutter speed is fixed at 1/30 in all exposure modes. (Normal display)	37		13 (W)	. SL4 . Flex PCB-A IC4, IC1 . Flex PCB-B	. Two layers : contact failure
(2) Highest shutter speed is about 0.5-1ms faster/slower (Normal display)	37			. Flex PCB-A IC4	. Shutter set : defect
(3) Unadjustable AE	37			. Flex PCB-A IC2, (VR2), VR2	. A/D conversion reference voltage, 1152mV : adjusting failure
(4) Aperture does not fully open regardless of full-open setting with normal display	37				. Aperture control base plate set : defect . Aperture ring : off position
(5) Fixed shutter speed at 1/100 sec with " $\frac{1}{2}$ " blinking in all exposure modes. (Metered value 1/100 appears w/o flash attached)	38			. Flex PCB-A IC1, IC4, R23 . Flex PCB-D IC5 . Flex PCB-B IC6	. Flex PCB-BL & -A (at soldering point) : short circuit . Three layers : contact failure

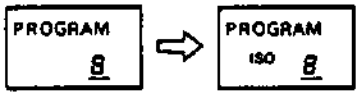
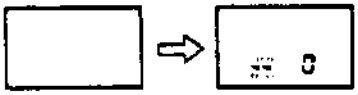
3. Display failure only

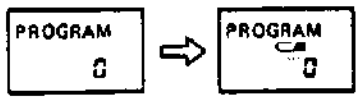
(Normal winding and shutter releasing)

☆ Refer to p.1 for shutter releasing and winding failure.

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Trouble symptoms with main Sw. LOCK					
(1) By attaching battery holder, "ISO" blinks for 10 sec.	39		11 (Y)	. Flex PCB-A IC1, IC4, R23 . Flex PCB-B D13 . Flex PCB-D IC5 . Converter PCB . Flex PCB-BL	. Lithium cell : exhausted . Three layers : contact failure
(2) By attaching battery holder, "ISO 5000" blinks.	39			. Flex PCB-BL R22	
(3) All LCDs ON for 0.5sec. then all disappear. (By Sw.0.1 ON, all LCDs ON for 10 sec.)  (By attaching battery holder, OR Sw.0.1 ON)	39			. Flex PCB-A IC3	
(4) All LCDs dimly ON (By main Sw.ON, stand-by display ON, but other LCDs dimly ON)  (Main Sw. LOCK) (Main Sw. ON)	39			. Flex PCB-A IC3	
(5) Some LCDs dimly ON (By main Sw.ON, stand-by display ON, but by Sw.0.1 ON, all LCDs dimly ON)	39			. Flex PCB-A IC3	
(6) Stand-by display ON occasionally (By Sw.0.1 ON, " ⊂⊃ " blinks.)  (Main Sw.ON, Sw.0.1 ON) (Main Sw. LOCK)	40			. Flex PCB-A IC10, R68	

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Trouble symptoms with main Sw. ON					
(1) Stand-by display does not appear ① By Sw.O.1 ON, all LCDs remain OFF (dimly ON depending on angle of view)  (Main Sw. ON) (Sw.O.1 ON)	40			. Flex PCB-A R64, R65, R66, R70, C11, C63, C64, C64, XL2, IC3, IC10 . Flex PCB-B IC8	. Flex PCB-A & -BL (at soldering point) : short circuit
② By Sw.O.1 ON, all LCDs remain OFF	40			. Flex PCB-A IC10 . Flex PCB-B R24	
③ By Sw.O.1 ON, stand-by display & metered-value display ON  (Main Sw. ON) (Sw.O.1 ON)	40			. Flex PCB-A IC3	
(2) Metered-value display ON immediately  (Main Sw. ON) (Sw.O.1 ON)	41			. Flex PCB-A C4 . Release base plate	
(3) Stand-by display ON normally, but other LCDs dimly ON (By Sw.O.1 ON, display remains the same.)  	41			. Flex PCB-A IC3, D21, D22	
(4) Stand-by display dimly ON  Either/Both are ON dimly. (Main Sw. ON)					
① By Sw.O.1 ON, display remains the same.	41			. Flex PCB-A IC3, D20, D21, D22	
② By Sw.O.1 ON, display appears normally.	41			. Flex PCB-A IC3, IC10	
③ By Sw.O.1 ON, display appears normally, but " ⊂⊐ " blinks. (Stand-by display hardly ON.)  Very dim (Main Sw. ON) (Sw. O.1 ON)	41			. Flex PCB-A IC3	

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
(5) Stand-by display & self-timer-indicator ON (By Sw.0.1 ON, metered-value display does not appear.) 	42			. Flex PCB-A IC3 . Flex PCB-B R25, (R25)	
(6) "PROGRAM" & film cartridge symbol ON. (By Sw.0.1 ON, stand-by display & metered-value display appear normally.)  (Main Sw. ON) (Sw.0.1 ON)	42			. Flex PCB-A & -H (at soldering point) : short circuit	
(7) Irregular stand-by display ON (By Sw.2 ON, "ISO" appears.)  (Main Sw. ON) (Sw.2 ON)	42			. Flex PCB-A IC3	
(8) Flickering display (By Sw. 0.1 ON, irregular display ON.)	42			. Flex PCB-A IC3	
(9) Irregular display	42			. Flex PCB-A XL2, (XL2), C11, (C11) C12, (C12), R67, IC3 IC10, D20	
(10) Rewinding symbol appears.  (Main Sw. LOCK) (Main Sw. ON)	43	(REV2)	(23) (O)	. Flex PCB-A IC1	
(11) Only " ½ " dimly ON (By Sw.0.1 ON, stand-by display ON, " ½ " clearly ON)	43			. Flex PCB-A IC3	
(12) By main Sw., Sw.0.1 ON, all LCDs remain OFF. (Might occur when attaching battery holder)	43		50 (O) 51 (Y) 52 (P)	. PC board-C	

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Trouble symptoms with Sw.Q.I ON					
(1) Metered value display remains OFF.	43	0 1		. Flex PCB-A IC1, R50, R51, R32	. Release base plate & flex PCB-A : contact failure
(2) " ⊂= " blinks always.  (Main Sw. ON) (Sw.Q.I ON)	43			. Flex PCB-A R68, (R68), IC3, IC4 IC10	
(3) Stand-by display flickers.	44			. Flex PCB-A C12	
(4) Stand-by display dimly ON, or disappears.	44			. Flex PCB-A IC3	
(5) "1/100","--", and " ϟ " blink. ("ISO 100" blinks when loading battery w/ lens attached.)	44			. Flex PCB-A R23, (R23)	. Flex PCB-A & -BL (at soldering point) : short circuit
(6) " ϟ " glows. (Metered value is normal.)	44			. Flex PCB-A IC3, IC10	
(7) All LCDs OFF. During releasing, display appears normally. After releasing, stand-by display ON. (Shutter speed is controlled as 4 sec.)	44			. Flex PCB-A R32	
■ Other display failure					
(1) All display OFF in viewfinder LCD only.	44				. In-finder set : defect
(2) Some segments OFF in LCD. ① The same segments OFF on body & in viewfinder LCD.	44			. Flex PCB-A IC3	
② Some segments OFF on body LCD only.	45			. Flex PCB-A IC3, LCD1	. Connector : twist, stain
③ Some segments OFF in viewfinder LCD only.	45			. Flex PCB-A IC3, LCD2	. Flex PCB-A & LCD2 : contact failure
(3) Display remains the same. (Exposure mode, shutter speed, & aperture do not change.)	45			. Flex PCB-A IC3, IC10	
(4) During rewinding, film-count-down-display does not appear.	45			. Flex PCB-A IC3	
(5) Film-cartridge symbol appears without film. (Frame number is counted up.)  	45	SLS		. Flex PCB-A IC1	

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
(6) Viewfinder LED indication failure ① One of "▷○◁" LEDs does not glow.	45		39 (P) 40 (W) 41 (Blu)	. Flex PCB-B R13, R14, R15, IC6	. Two layers : contact failure . In-finder set : defect
② All LEDs"▷○◁" do not glow.	46		37 (O)		
③ "▷○" glow simultaneously.	46			. Flex PCB-B IC6	. In-finder set : defect
④ "○◁" glow simultaneously.	46			. Flex PCB-B IC6	. In-finder set : defect
⑤ With exclusive flash (fully charged), "ϟ" does not blink.	46		35 (R) 38 (Gn)	. Flex PCB-A IC3, R60	. In-finder set : defect
⑥ Viewfinder illuminator OFF	46		35 (R) 36 (Y)	. Flex PCB-A IC4	. In-finder set : defect
⑦ "ϟ" glows with viewfinder illuminator ON.	46			. ℓ36 and ℓ38 : short-circuit	

4. AF/Manual focusing failure

(Focus indication LED failure only --- See p.13.)

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ AF and manual focusing failure	Low contrast scanning : Lens moves at a swoop to ∞ or minimum distance side.				
(1) Always "▷ ◁" LEDs blink. (Low contrast scanning in AF mode)	47			. Flex PCB-B IC6, IC7, IC8 . Converter PCB	. AF sensor filter : dust, stain . Sub-mirror, mirror : dust, stain
(2) No focusing with "--" in aperture display (All LEDs "▷○◁" do not glow; shutter is releasable regardless of out of focus in AF mode.)	47			. BL contact holder set R20, R21, R22 . Flex PCB-A : defect	. BL contacts (L1 to L5) : contact failure . Flex PCB-A & -BL : soldering failure . Lens's PCB : defect . Contacts on lens : stain
(3) No focusing, all LEDs"▷○◁" do not glow.	47			. Flex PCB-A IC1 . Flex PCB-B IC6	. Three layers : contact failure
(4) No focusing with "▷○◁" glowing or blinking (When main Sw., Sw.0,1 ON, AF motor possibly keeps running w/ ▷○◁ ON.)	47			. Flex PCB-B IC8	
(5) Regardless of out of focus in viewfinder, in-focus LED "○" glows.	48			. Flex PCB-B VR4	. AF sensor filter : dust, stain
(6) "▷" LED glows regardless of low contrast subject (white paper, etc.) (No "▷ ◁" LEDs blink)	48			. Flex PCB-B IC8	. AF sensor filter : dust, stain
(7) Shutter releases by Sw.2 ON even "▷ ◁" blinking in AF mode.	48			. Flex PCB-A IC1	
■ AF failure (Normal manual focusing)					
(1) Lens does not move in AF mode.	48	AF/M	63 (Brn) M2 lead wire	. Flex PCB-A IC1 . Flex PCB-B IC6 . M2 : defect	
(2) Lens does not move from near side to infinity side. (With 50mm/f:1.7 lens)	49			. Flex PCB-B Q12, Q13, IC6, IC9	
(3) Lens does not move from infinity side to near side. (With 50mm/f:1.7 lens)	49			. Flex PCB-B Q11, Q14, IC6, IC9	
(4) Lens (AF motor) moves slightly whenever Sw.1 ON.	49			. Flex PCB-A C13, C16, IC4 . Flex PCB-B IC6 . PI-2	. Flex PCB-B & -G : soldering failure . PI-2 & flex PCB-G : soldering failure

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
(5) AF motor continues running at minimum distance or infinity end	49			. Converter PCB . Flex PCB-B IC8	. Converter PCB & flex PCB-B : soldering failure
(6) Slow AF operation	49			. Flex PCB-B IC8	
(7) Irregular sound w/ AF operation					. AF drive set : defect; oil shortage
■ Manual focusing failure					
(1) AF motor runs idle by Sw.1 ON in manual focus mode. (Normal operation in AF mode)	50	AF/M	12 (Gy)	. Flex PCB-A IC1 . Flex PCB-B IC6	. Connecting lever : operation failure (catching)

5. Auto loading/rewinding failure, operation failure about key switch changeover and piezo buzzer

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Auto loading failure					
(1) No auto loading (Normal releasing and winding)	51	RC SLS		. Flex PCB-A IC1 . Flex PCB-D . Flex PCB-B	. Flex PCB-B & Sw.SLS pins : soldering failure . Three layers : contact failure . Two layers : contact failure
(2) Only 1 or 2 releasing (Usually 4 releasings for auto loading)	51			. Flex PCB-A IC1	
(3) Frame counter advances to "1" without film.	51			. Flex PCB-D IC5	
(4) No auto loading; continuous releasing starts before frame number "1"	51			. Flex PCB-A IC1	
■ Rewinding failure					
(1) No rewinding (No rewinding display; stand-by display remains ON)	52	REW1 REW2	23 (O) 42 (Brn)	. Flex PCB-A IC1	. Sw.REW1 contact : greased
(2) Rewinding stops halfway (Including; motor stops w/in 8 sec after rewinding starts) 	52	REW3 REW3	22 (Blu) 47 (Blk)	. Flex PCB-A IC3, R41, Q17 . Rewinding base plate set Q15	. Rewinding gears : foreign substance . Rewinding gear D2 (3309) : seizure . Rewinding changeover fork : defect . Film cartridge receiver (1072) : off position
(3) Always rewinding ON	52			. Flex PCB-A IC1	
■ Key switch changeover failure					
(1) Key switch (ISO, P/N, C/F, SELF, Control-key cover, UP, or DOWN) does not work.	53 54	31, 34 C/F, BR 35, 36 37, 38		. Flex PCB-A IC1 . Flex PCB-H	. Flex PCB-A & -H : soldering failure . Aperture key flexible board & flex PCB-A : soldering failure
(2) Data display does not follow the selection of key switch.	54			. Flex PCB-A IC1	. Flex PCB-A & -H (at soldering point) : short circuit
■ Peizo buzzer failure					
(1) No beeping	54	0	Buzzer lead wire (R, Blk)	. Buzzer . Flex PCB-A R34, IC1	
(2) Beeping excessively loud	54			. Flex PCB-A R34	
(3) Low beeping	55			. Buzzer	. Adhesion of piezo buzzer : insufficient
(4) Beeping by main Sw. ON	55			. Flex PCB-A IC1	

8. Operation failure using accessories

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Operation failure using exclusive flash unit					
(1) Data display failure with fully charged flash (Flash fires.)					
① Shutter speed does not change to X-sync speed (100); no "⅟" blinking	55		32 (W)	. Flex PCB-A IC4	. F2 terminal : contact failure
② No "⅟" blinking although X-sync speed is set.	55		35 (R) 38 (Gn)	. Flex PCB-A IC3, R80	. In-finder set : defect
③ "⅟" remains ON during releasing	55			. Flex PCB-A IC3	
④ X-sync speed does not change from 60 to 100 (100 to 60) although luminance is changed in P mode.	55			. Flex PCB-A IC1	
(2) Firing failure in flash mode with fully charged flash unit (Normal X-sync speed display)					
① No firing	56	X1 X2	16, 18, 30 (P) 17, 20, 31 (Blk)		. F1 terminal : contact failure
② Always full-firing	56		L (Gy) 33 (33) (Brn)	. SPC2 . Flex PCB-A IC1, IC2, IC4 . Flex PCB-B IC6	
③ Always brief-firing	56			. Flex PCB-A R9, C8, IC2	
④ Unstable firing (too much or too little)	56			. Flex PCB-A (C9), (VR3)	
⑤ Always flash is controlled 1-1.5 EV under.	57				. VR3 : adjusting failure . Sponge (4511) on flex PCB -A : missing
(3) With fully charged flash, shutter speed does not change to X-sync speed (100); no "⅟" blinking; no flash firing	57		(32) (W)		
(4) Only when attached to camera, flash is not completely charged.	57		(30) (P)		
(5) Underexposure in flash-photography (W/ X-sync speed display, normal firing)	57				. Power-level selector : remains LOW . See "Underexposure".
(6) AF illumination is not emitted in low light condition by Sw.1 ON in AF mode.	57		34 (34) (Blu)	. Flex PCB-A . Flex PCB-B IC6	. F4 terminal : contact failure . Two layers : contact failure

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Operation failure using Program Back					
(1) No imprinting	57			. Flex PCB-A IC1 . Flex PCB-D R38	. Back contacts : contact failure . Three layers : contact failure
(2) Intervalometer operation failure (e.g. Program Back does not charge flash; not release shutter)	58			. Flex PCB-A . Flex PCB-D	. Back contacts : contact failure . Three layers : contact failure
(3) Shutter releasing failure (No shutter releasing by Sw.2 ON then, shutter releases by OFF; irregular shutter operation)	58				. Program Back 70 : defect

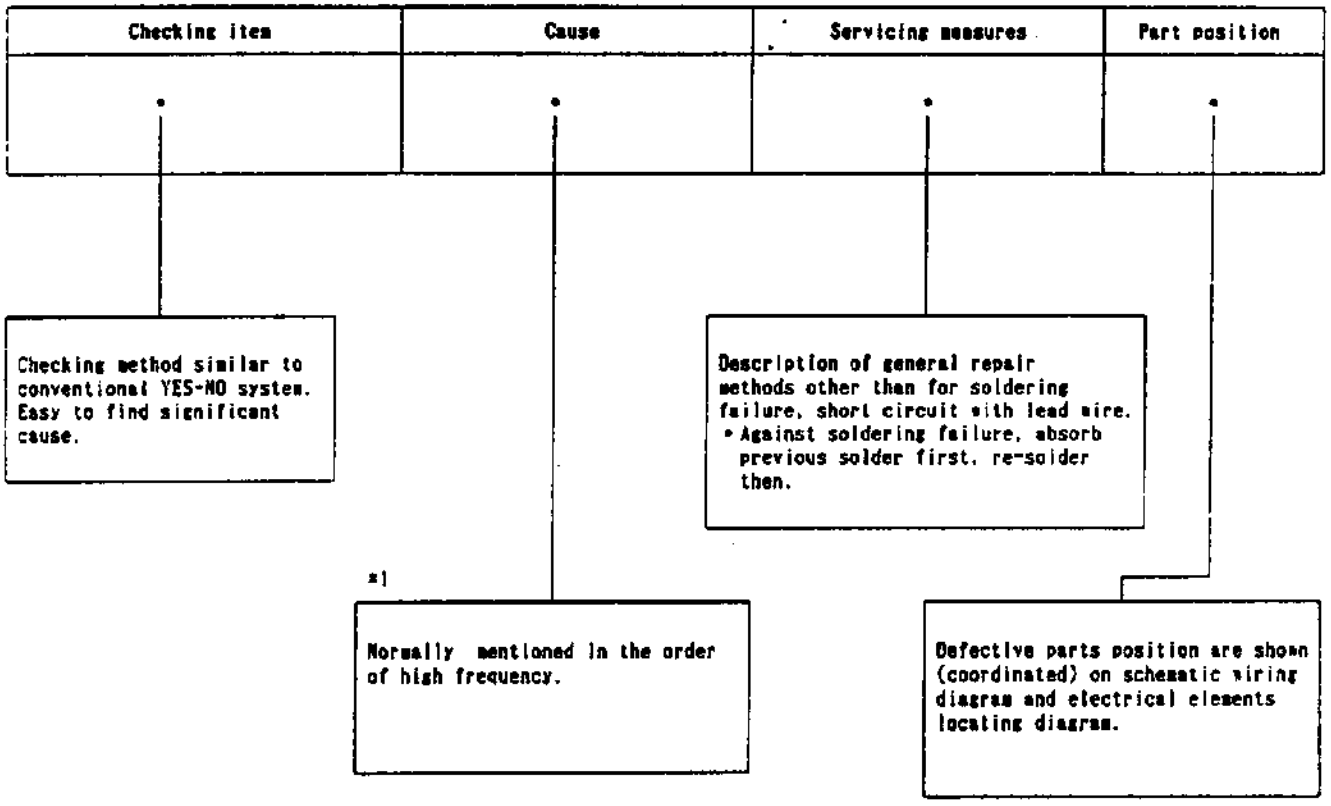
7. Other operation failure

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
■ Mis-decoding of CAS code					
(1) Incorrent setting of film speed (ISO) (One roll of film is all under-/ over-exposed.)	58			. Flex PCB-D IC5	. CAS contacts : contact failure . DX-coded film : defect
(2) "ISO 5000" appears when auto loading	58				. Flex PCB-BL : soldering failure . Flex PCB-B & -D : soldering failure
■ BLC Sw. operation failure					
(1) BLC Sw. does not function.	58	BLC		. Flex PCB-A IC1	. Sw.BLC & flex PCB-A : soldering failure
(2) Shutter releases by BLC Sw. ON	58			. Flex PCB-A IC1	
(3) Winding-motor runs idle for 1.2 sec by BLC Sw. ON	59			. Flex PCB-A IC1	
■ Battery drains sharply					
(1) No problem on camera or not recur	59				. Insufficient battery capacity . High internal resistance of battery . AAA-size sealed carbon-zinc batteries are used. . Continuous current flowing . Irregular operation of microcomputer . Cold weather condition
(2) Great current consumption when re-/winding	59				. Winding base plate set : grease shortage . Motor axis : stiffness . Film cartridge reciever : off position . Sprocket axis set : defect
(3) Not recur (or normal current consumption without top cover)	59				. Foreign substance inside . Tape for R10 : off position . Electrical elements on flex PCB-A & penta holder set/mirror box : short circuit
(4) Current leakage or short circuit	60				
① Current leakage (100-300 μA) by main Sw. LOCK	60		㉟ (R) ㊲ (O)	. Flex PCB-A D1, R10, C2, C5, C15 IC2, IC3, XL2 . Flex PCB-B D12 . Converter PCB	
② Current leakage (300 μA - 1mA) by main Sw. ON	60			. Flex PCB-D IC5 . Flex PCB-B IC6 . Converter PCB	

Symptoms	Page	Switches	Lead wires	Electrical elements	Mechanical & other causes
⑤ Current leakage (10mA or more) or short circuit	60	㉚	⑮	. Flex PCB-A IC4 . Flex PCB-B IC9, D12, Q5, D14, D2 . Converter PCB	. IC9 & temporary screw (in aperture control base plate) : short circuit
■ Light leakage	See p 89 for repair.				

[2] TROUBLE SHOOTING MANUAL

■ Description of Trouble Shooting Manual



*1: · Disconnection of lead wire includes soldering failure, also.
· Short circuit of lead wire with GND means short circuit with mechanical parts at soldering/catching part.

1. Shutter releasing/winding failure

★ If only display is defective with normal shutter releasing and winding, see relative item on p.39.

■ Trouble symptoms with main Sw.LOCK

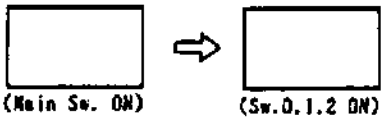
(1) Winding-motor running by attaching battery holder

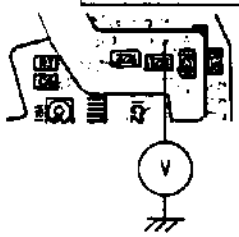
Checking item	Cause	Servicing measures	Part position
	Converter PCB: defect	Replace converter PCB (0450)	
	IC9⑤-⑥, ⑩-⑪ :short circuit		Q-2
	IC9: defect		Q-2

■ Trouble symptoms with main Sw.ON

(1) No LCD indication

① By Sw.0,1 ON, LCDs still OFF. By Sw.2 ON, shutter does not release.



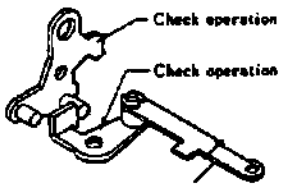
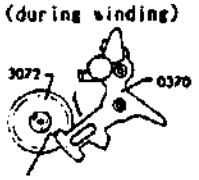
Checking item	Cause	Servicing measures	Part position
Soldering position at L35 (R) on flex PCB-A indicates approx. 6V? No →	L2 (R): disconnection		G-2
	L3 (Blk): disconnection		G-4
	Battery holder contact, spring contact: stain; off position		
Yes ↓	Battery base plate + , - contact: stain		
Soldering position at flex PCB-BL & -A indicates approx. 5.5V? No →	Converter PCB: defect	Replace converter PCB (0450)	
	Converter PCB & flex PCB-B: soldering failure	Re-solder	
Yes ↓	Main switch: contact failure		
	R27,D12,Q5 : soldering failure; defect		P-2, P-2, P-2
	IC1 ㉘, ㊽: soldering failure		L-3
	XL1, C31, C32: soldering failure; short circuit		L-3, L-3, L-3
	IC1③, ④, ⑫, ㉜: soldering failure		L-3
	IC4③, ㉖: soldering failure		K-3
	Flex PCB-A/-B: defect	Replace flex PCB-A (0413)/ -B (0415)	
After attaching battery holder, current approx. 50mA remains flowing.	Sw.30: remains ON	Re-form the contacts	
	L43 (Blu) - GND: short circuit		E-4
	C3, C5: short circuit; defect		L-3, M-2
	R1: soldering failure; defect		M-3
	R33: short circuit		L-4
	Q16 : soldering failure		M-3
	IC1 ㉕: soldering failure; ㊽ - ㊾: short circuit		L-3
	Converter PCB: defect	Replace converter PCB (0450)	
	Flex PCB-A: defect	Replace flex PCB-A (0413)	

② Batter short-circuited for approx. 0.5 sec with mirror up. By Sw.0,1,2 ON, LCDs still OFF.
(With DC power supply, stand-by display and " ▭ " ON, then all disappear.)

Checking item	Cause	Servicing measures	Part position
	Q1 : defect; C - E short circuit		R-3

(2) Film-end display ON about 1.2 sec after
① After 1.2 sec of winding-motor running, film-end display ON

PROGRAM 0 (Main Sw.LOCK) 0 (Main Sw.ON) ▭ Might blink

Checking item	Cause	Servicing measures	Part position
Check conductivity of Sw.4: Sw. 4 OFF when winding stops? No → Yes	Sw. 4: remains ON (P.69)	Re-form contact	
	L25 (Y) - GND: short circuit		C-5
	Winding base plate set: defect; screw off . Among gears: foreign substance . Winding stop cam and winding stop lever: foreign substance . Winding stop lever spring (3014) : off position . Winding stop lever: stiffness . Diaphragm return lever: stopper off position	Replace winding base plate set (0304), or disassemble and check it.	
	Sprocket axis set (0352): defect		
	* Q15: soldering failure; E - B : short circuit		M-2
	* R31: soldering failure, defect		M-2
	Sw.400: remains ON (P.69)	Re-form contact	
	L44 (Y) - GND: short circuit		C-5
	Q17: short circuit, defect		K-3
	IC) ㊸ - ㊹ : short circuit		L-3
	Converter PCB: defect	Replace converter PCB (0450)	
	Converter PCB & flex PCB-B : soldering failure	Re-solder	
During winding or after shutter traveling, film-end display appears. High possibility to occur with film loaded. 	Motor set (M1) : defect		
	Motor contact plate set (0311): stain on contacts		
	Diaphragm return lever (left fig.) : stiffness . Aperture stop magnet: oil shortage . Spring: off position	Re-form lever or replace aperture stop magnet set (0472) & apply grease (G-20/ G-75)	
	Diaphragm return lever spring (3066) : off position	Disassemble and check winding base plate set	
	Drive gear spring (3075) : off position		
	Shutter set : defect	Replace shutter set	
May occur with pentaprism side down (during winding) 	Winding stop release sector(0370): disengagement from drive gear (3072)	Replace winding stop release sector (0370)	

② No-winding motor running with mirror up and then film-end display ON

Checking item	Cause	Servicing measures	Part position
Check if flex PCB-A or -B has problem, following p. xx.	Q2: defect; E - B : short circuit		R-3
	Q3: defect; E - B : short circuit		R-3
	R19: soldering failure; defect		R-3
	R36: short circuit; defect		R-3
	Converter PCB: defect	Replace converter PCB (0450)	
	Converter PCB & flex PCB-B: soldering failure	Re-solder	
	IC1 ㊾ : soldering failure		L-3
	IC9 ⑥, ⑦, ⑪, ⑫ : soldering failure ⑥-⑦: short circuit		Q-2
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

③ After winding-motor running for 1.2 sec, film-end display ON with mirror up

Checking item	Cause	Servicing measures	Part position
Motor runs idle for 1.2 sec? → No	Gear on winding motor: falling; riveting failure	Replace motor set (0424)	
Yes →	Bevel gear in clutch base plate (0215): stiffness Mirror-up-lever-roller: seizure	Replace clutch base plate (0215), or apply O-20	
	Flex PCB-B: defect	Replace flex PCB-B (0415)	

④ By film loading, winding-motor running for 1.2 sec, film-end display ON
(May occur during winding)

Checking item	Cause	Servicing measures	Part position
Rewinding fork rotates smoothly when removing film softly at film-end display ON? → No	Rewinding gears: operation failure . Rewinding gears-D2 (3309): operation failure . Rewinding gear-E set (0334): operation failure . Rewinding gears-B,-C(3307) (3320) :foreign substance . Rewinding gears-C,-F (3308), (3311): foreign substance	→ Apply O-20 → Replace winding base plate set (0304), or disassemble to check	
Yes →	Q15: defect; E - B : short circuit		M-2
	R31: soldering failure; defect		M-2
	IC1 ㊾ : soldering failure		L-3
	Motor set (M1): defect	Replace motor set (0424)	
	Sprocket axis (0352) : defect		

(3) By turning main Sw. ON, shutter releasing

Checking item	Cause	Servicing measures	Part position
	Sw.2 ON: remains ON Release base plate set: defect	Replace release base plate set (0423)	
	Remote control terminal set: short circuit		
	C20: short circuit		L-2
	IC1 ⑤-⑥, ⑥-⑦, ⑯-⑰: short circuit		L-3
	Three layers: defect	Clean contact surface	

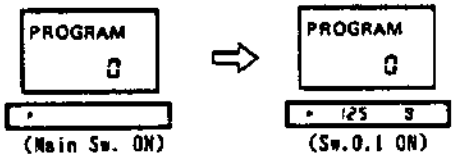
(Main Sw. ON)

(4) Rewinding display ON and no shutter releasing

Checking item	Cause	Servicing measures	Part position
No releasing	Sw. REW1: remains ON (P.70)	Re-form contact	
	L42 (Brn) - GND: short circuit		A-4
	Springs for rewinding: off position	Check springs (3324,3329)	
	IC1: defect	Replace flex PCB-A (0413)	L-3
Normal releasing	Sw.REW2: remains ON (P.70)	Re-form contact	
	L23 (O) - GND: short circuit		B-5
	IC1 ⑦-⑧, ⑧-⑨: short circuit		L-3

(5) No LCD indication (By Sw. 2 ON, shutter releases, then film is wound 5 sec after)

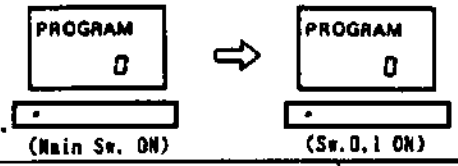
Checking item	Cause	Servicing measures	Part position
	R70: soldering failure; defect		K-4



(Main Sw. ON) (Sw.0.1 ON)

■ Trouble symptoms with Sw.0.1 ON
(1) Shutter releasing (with normal display)

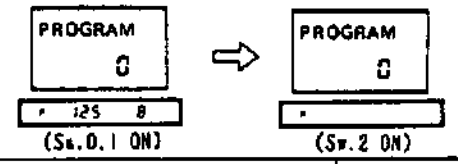
Checking item	Cause	Servicing measures	Part position
	Remote control terminal set: short circuit		
	IC1 ⑯ - ⑰: short circuit		L-3
	Flex PCB-A: defect	Replace flex PCB-A (0413)	



(Main Sw. ON) (Sw.0,1 ON)

(2) No metered values ON, no shutter releasing

Checking item	Cause	Servicing measures	Part position
	Release base plate set & flex PCB-A(GND): contact failure	Clean contact surface	
	Q16: short circuit: defect		M-3
	R32: soldering failure: defect		K-4
	Flex PCB-A: defect	Replace flex PCB-A (0413)	



(Sw.0,1 ON) (Sw.2 ON)

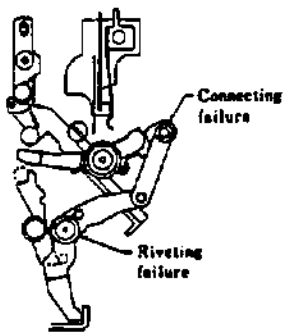
■ Trouble symptoms with Sw.2 ON
(1) Metered values disappear (stand-by display ON).
① No winding-motor running

Checking item	Cause	Servicing measures	Part position
Check conductivity of winding-motor (L6 - L7): When rotating motor slowly, the resistance shows 0.5 Ω or less? No →	Motor set (M1): defect (PCB beneath motor set: stain)	Replace motor set (0424) or clean contact surface	
	Contacts of motor contact plate set: stain	Clean contact surface	
	L6(R), L7(Blk) : disconnection		E-4,E-4
Yes →	L4(R), L5(Blk) : disconnection		F-6,F-5
	Q1 E - B : short circuit; defect		R-3
Check if flex PCB-A or -B has problem, following p.xx.	Q2 B - C , E - C : short circuit; defect		R-3
	Q3, Q4: defect		R-3,R-3
	Converter PCB: defect	Replace converter PCB (0450)	
	R18: soldering failure		R-3
	IC9④,⑨,⑩: soldering failure IC9: defect	Replace IC9 / flex PCB-B(0415)	Q-2
	IC1 ㊼: soldering failure		L-3
	Two layers: contact failure	Clean contact surface	
	Flex PCB-A: defect	Replace flex PCB-A (0413)	
	Flex PCB-B: defect	Replace flex PCB-B (0415)	
During Sw.2 ON, winding-motor runs slightly with metered values still ON	L24(O) - GND: short circuit		C-6
	Sw.40: remains ON (short circuit w/ SL-3) (P.69)		
By Sw.2 ON, winding-motor runs slightly	Between motor gear and bottom cover : lead wire catching		
	Aperture control base plate set: foreign substance		
	Gears in aperture charge base plate set: operation failure		
By Sw.2 ON, winding-motor runs idle for 0.5 sec	Motor gear set: off position	Tighten screws, & apply B-10	

② No winding-motor running with mirror up
(including: mirror half way up)

Checking item	Cause	Servicing measures	Part position
Shutter travels after mirror up	Sw.40: contact failure (P.69)	Check Sw.40 and L24 for connection.	
	L24(0): disconnection		C-6
	Q1: defect		R-3
	Q12: short circuit; defect		P-2
	IC1 ㊿: soldering failure		L-3
	IC9 : defect	Replace IC9/flex PCB-B(0415)	Q-2
Mirror half way up	IC9③-④: short circuit	Check soldering of IC9, or replace IC9/flex PCB-B (0415)	Q-2

③ Winding-motor runs for 0.5 sec & stops w/o mirror up, then metered values disappear (Stand-by display ON)

Checking item	Cause	Servicing measures	Part position
	Mirror up lever-A: riveting failure (left fig.)	Replace mirror box set (0500)	
	Connecting plate between mirror-up lever-A & -B : off position (left fig.)	Replace mirror box set (0500)	
	Motor gear set: screw looseness	Tighten screws & apply B-10	

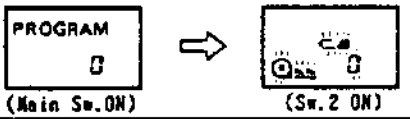
④ Shutter releases normally once, then at winding completion, metered values disappear and no more releasing

Checking item	Cause	Servicing measures	Part position
	IC9⑦-⑧: short circuit	Check soldering of IC9 or replace IC9/flex PCB-B (0415)	Q-2

(2) All LCDs disappear & no shutter releasing

Checking item	Cause	Servicing measures	Part position
	Q2: defect		R-3
	Q3 B - C , E - C : short circuit		R-3
	Q4 E - B : short circuit		R-3
	Motor set (M1): defect	Replace motor set (0424)	

(3) Mirror down & winding-motor rotates slowly, then film-end display ON
---- with DC power supply used (Stand-by display ON momentarily
then all LCDs disappear --- with batteries used)



(Main Sw.ON)

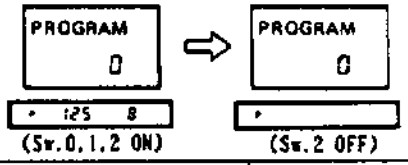
(Sw.2 ON)

Checking item	Cause	Servicing measures	Part position
	Q1 B - C : short circuit; defect		R-3

(4) Mirror up & winding-motor does not rotate (Normal display)
(Mirror slightly moves up & down each time Sw. 2 ON)

Checking item	Cause	Servicing measures	Part position
Each time Sw.2 ON, mirror slightly moves up & down.	Sw.4 : contact failure (P.69)		
	Sw.400 : contact failure (P.69)		
	L25(Y) : disconnection		C-5
	L44(Y) : disconnection		C-5
	IC1 ㊹ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
By Sw.2 ON again, - mirror slightly moves down. - mirror moves down and winding completes.	Sw.40, 400 : timing failure	Adjust the timing	
	Winding stop lever spring (3074) : breakage		
	Diaphragm return spring (3068) : breakage		

(5) While holding Sw.2 ON, winding-motor rotates little by little (clicks), but no releasing. (During Sw.2 ON, metered-value ON; 0.5 sec after Sw.2 OFF, stand-by display ON.)



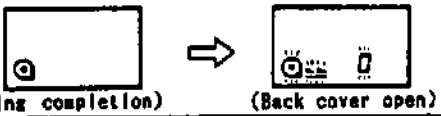
Checking item	Cause	Servicing measures	Part position
	L24(O) - GND : short circuit		C-6
	Sw.40 : remains ON (P.69)	Re-form contact	
	IC1 ㊾ - ㊿ , ㊿ - (51) : short circuit		L-3
	Two layers : short circuit	Clean contact surface	

(6) No shutter releasing (w/ normal display)

Checking item	Cause	Servicing measures	Part position
	Sw.2 : contact failure (P.69)		
	Release base plate set : defect	Replace release base plate set (0423)	
	Release base plate set & flex PCB-A : screw looseness; stain on contacts	Clean contact surface	
	R52 : soldering failure; defect		I-2
	IC1 ㊽ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

■ Other releasing / winding failure

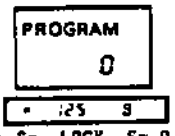
(1) After rewinding completion, by opening back cover, film-end display appears with furthermore rewinding



(Rewinding completion) (Back cover open)

Checking item	Cause	Servicing measures	Part position
	Shutter charge lever set(0317): defect . Roller : inclined; catching . Riveting failure	Replace shutter charge lever set (0317)	
	Charge spring (3021) : off position		
	Rewinding changeover fork : deformation; inclined	Replace winding base plate set (0303/0304)	
	Sprocket axis set (0352) : defect		

(2) Shutter releasing by Sw.2 ON, regardless of main Sw.LOCK



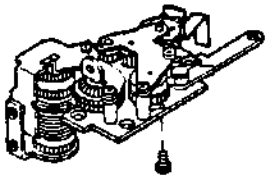
(Main Sw. LOCK, Sw.0.1 ON)

Checking item	Cause	Servicing measures	Part position
	Lead wire for main Sw.ON (on flex PCB-A) : remains		
	Main Sw. printed wire on flex PCB-A : connected		
	IC1 : defect	Replace flex PCB-A (0413)	L-3

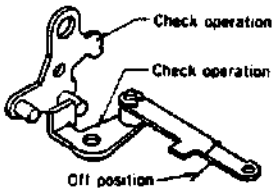
(3) Normal AF operation & display; but no releasing by Sw.2 ON

Checking item	Cause	Servicing measures	Part position
	IC6 ⑯ - ⑰ , ⑳ - ㉑ : short circuit		P-6
	IC8 : defect	Replace flex PCB-B (0415)	P-6

(4) Short circuit, and no releasing (Irregular display)

Checking item	Cause	Servicing measures	
 Temporary screw	Converter PCB : defect	Replace converter PCB (0450)	
	L2, L3 : reversed		G-2,G-4
	L4, L5 : reversed		F-6,F-5
	L15(R) - GND : short circuit		G-9
	Temporary screw for aperture control base plate (0256) : remains (left fig)		
	D2 : defect; short circuit		R-3
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

(5) W/ lens attached, winding-motor runs for 1.2 sec and film-end display ON (Normal w/o lens)

Checking item	Cause	Servicing measures	Part position
	Aperture return lever : defect	Replace aperture stop magnet (0472) or replace winding base plate set lower (0301)	

(6) After releasing or winding completion, winding-motor continues to run idle.

Checking item	Cause	Servicing measures	Part position
	IC1②: soldering failure		L-3
	IC9⑧: soldering failure; ⑦-⑧: short circuit		Q-2
	IC9 : defect	Replace IC9/flex PCB-8 (0415)	Q-2

(7) At winding completion, winding-motor does not stop

Checking item	Cause	Servicing measures	Part position
	Converter PCB : defect	Replace converter PCB (0450)	
	IC1 ㊻ - ㊼ : short circuit		L-3
	IC9⑤-⑥: short circuit		Q-2
	IC9 : defect	Replace IC9/flex PCB-8 (0415)	Q-2

(8) No releasing by remote control

Checking item	Cause	Servicing measures	Part position
	Remote control terminal set : defect		
	Three layers : contact failure	Clean contact surface	

(9) By BLC Sw. ON, winding-motor runs for 1.2 sec & film-end display appears

Checking item	Cause	Servicing measures	Part position
	IC1 ㊹ - ㊺ : short circuit		L-3

(10) By BLC Sw. ON, shutter releasing

Checking item	Cause	Servicing measures	Pasrt position
	IC1 ㊺ - ㊻ : short circuit		L-3

(11) By back cover open, shutter releasing

Checking item	Cause	Servicing measures	Part position
	Sw.RC contact : deformation; contact failure (P.71)		
	IC1⑥: soldering failure		L-3
	Three layers : contact failure	Clean contact surface	

(12) Irregular sound at releasing & winding

Checking item	Cause	Servicing measures	Part position
Irregular sound when turning aperture ring? — Yes	Aperture pulse plate: oil shortage	Apply O-20	
	Inside of aperture control base plate set : oil shortage		
	Clutch base plate set (0215) : oil shortage		
No → Normal with botton cover removed? — Yes	Motor gear : lead wire catching		
No	Motor set (MI) : defect	Replace motor set (0424)	
	Winding gears : grease shortage	Apply G-75	
	Flex PCB-B & motor gear : contact		
	Shutter : over-charged		

2 Exposure failure
(AE/shutter/aperture operation failure)

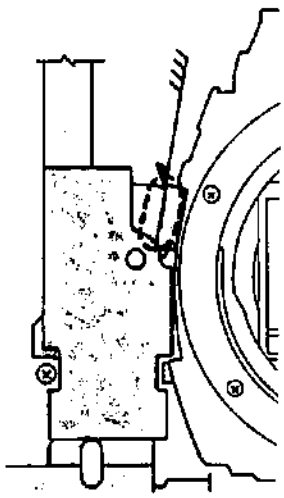
■ Underexposure

(1) Underexposure with normal display
(slightly exposed on negative)

① Minimum aperture regardless of setting

Checking item	Cause	Servicing measures	Part position
	SL3 lead wire & flex PCB-B : soldering failure		
	SL3 : defect (P.72)	Replace aperture stop magnet set (0472)	
	SL3 lead wires (R,W) : reversed		
	IC1 ⑱ : soldering failure; ㊸ - ㊹ : short circuit		L-3
	IC4 ⑱, ㉛ : soldering failure; ㉚ - ㉛, ㉛ - ㉜ : short circuit		K-3
	Two layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

② Minimum aperture at other setting than maximum (Normal AE at max setting)

Checking item	Cause	Servicing measures	Part position
	Flex PCB-B & -F : soldering failure		
	PI-1 holder : defect	Replace aperture control base plate set (0256)	
	PI-1 : defect (P.73)	Replace photointerrupter-1 set (0406)	
	C14, C21 : soldering failure; short circuit		J-3,J-3
	IC1 ㊸ : soldering failure ㊸ - ㊹ : short circuit		L-3
	IC4 ⑤, ⑨, ⑩, ㉗ : soldering failure		K-3
	Two layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

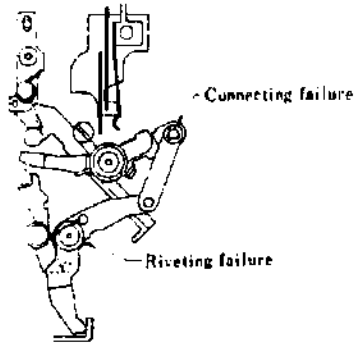
③ Fast shutter speed (Normal aperture control)

Checking item	Cause	Servicing measures	Part position
	SL5 : magnetic failure (P.72)	Clean SL5, or replace shutter set	
	Shutter set : defect (uneven shutter speed)	Replace shutter set (0201)	

④ Underexposure in all frames
(ISO mis-decoding w/ DX coded film)

Checking item	Cause	Servicing measures	Part position
	CAS contacts: contact failure	Clean contacts,or replace flex PCB-D (0404)	
	IC5 pins : soldering failure; short circuit		T-5
	Flex PCB-D : defect	Replace flex PCB-D (0404)	
No problem on camera	DX-coded film : defect; ISO : user's mis-setting		

⑤ No mirror up (only circumference of frame exposed)

Checking item	Cause	Servicing measures	Part position
	Mirror holder : off position	Replace mirror box set (0500)	
	Mirror up lever : riveting failure	Replace mirror box set (0500)	

(2) No exposure regardless of normal display (No slit shutter)

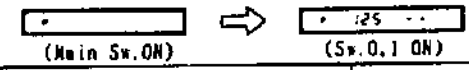
① No slit shutter in all exposure modes (Normal aperture control)

Checking item	Cause	Servicing measures	Part position
	SL5 : magnetic failure (P.72)	Clean SL5. or replace shutter set (0201)	
	Shutter : defect	Replace shutter set (0201)	
	L14(Y) : disconnection		G-9
	L15(R) : disconnection		G-9
	IC1 ㉛ : soldering failure		L-3
	IC4 17 : soldering failure; ⑯-⑰, ⑰-⑱ : short circuit		K-3
	Two layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	
Finder illuminator OFF in low luminance	IC1 ㊵ : soldering failure		L-3
	IC4 ㉙ : soldering failure		K-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

② No slit shutter in all exposure modes (Minimum aperture)

Checking item	Cause	Servicing measures	Part position
	R69 : short circuit		K-4
	IC4 ㊲ : soldering failure		K-3
	Two layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace felx PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

(3) 4-5EV under s/ "--" in aperture display
(Min. aperture, normal shutter speed)



Checking item	Cause	Servicing measures	Part position
	BL contacts (L1 to L5) : contact failure (stain)		
	BL contact holder & flex PCB-A : soldering failure		
	R20, R21, R22 : soldering failure		L-7,L-7,L-7
	BL contact holder : defect (disconnection of printed wire)	Replace BL contact holder set (0150)	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
Problem on lens	Contacts on lens side : stain		
	Lens's PCB : defect (disconnection)		

(4) Underexposure regardless of overexposure display
(Fastest shutter speed and minimum aperture)

Checking item	Cause	Servicing measures	Part position
	VR1, VR2 : soldering failure; defect		L-4,L-5
	R3 : short circuit; defect		L-4
	R4 : soldering failure; defect		L-4
	C6 : soldering failure; defect		L-4
	IC2 ④, ⑥, ⑦, ⑨, ㊲, ㊵ : soldering failure IC2 ④-⑤, ⑦-⑧, ㉕-㉖, ㊵-㊶ short circuit		L-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(5) AE under in low luminance (Normal AE in mid/high luminance)

Checking item	Cause	Servicing measures	Part position
	R6 : soldering failure; defect		M-5
	C7 : soldering failure; defect		M-5
	IC2 ㉖ : soldering failure		L-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

■ Overexposure

(1) Overexposure w/ normal display (Max.aperture regardless of setting)

Checking item	Cause	Servicing measures	Part position
	IC1 ㊲ - ㊳ : short circuit		L-3
	IC1 : defect	Replace flex PCB-A (0413)	L-3
	SL3 : magnetic failure (P.72)		
	Aperture control base plate : defect	Replace aperture control base plate set (0258)	
	SL3 magnet spring : breakage	Replace aperture stop magnet set (0472)	

(2) Slower shutter speed w/ normal display in all exposure modes (Spaces between frames are exposed)

Checking item	Cause	Servicing measures	Part position
	L14(Y) - GND : short circuit		G-9
	Shutter set : defect (SL5 no separation)	Replace shutter set (0201)	

(3) ISO mis-setting to slower speed side: ISO mis-decoding w/ DX coded film

Checking item	Cause	Servicing measures	Part position
	CA5 contacts : contact failure	Clean contacts, or replace flex PCB-D (0404)	
	IC5 pins : soldering failure; short circuit		T-5
	Flex PCB-D : defect	Replace flex PCB-D (0404)	
No problem on camera	DX-coded film : defect ISO : user's mis-setting		

(4) Overexposure (2EV) in all exposure modes

Checking item	Cause	Servicing measures	Part position
	Sw.BLC : short circuit (P.70)		
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(5) Excessive AE over regardless of underexposure display

Checking item	Cause	Servicing measures	Part position
	SPC1: soldering failure; short circuit		K-5
	R3, R7 : soldering failure; defect		L-4, M-5
	IC1 ㉚ : soldering failure; ㉛ - ㉜ : short circuit		L-3
	IC2 ③, ⑤, ⑳, ㉑, ㉔, ㉖, ㉗, ㊷ : soldering failure; ③-④, ④-⑤, ⑤-⑥, ⑥-⑦, ⑳-㉑, ㉓-㉔ : short circuit		
	IC3 ⑯ - ⑰ : short circuit		J-5
	IC4 ㉟, ㊴, ㊶ : soldering failure		K-3
	IC5 ①-② : short circuit		T-5
	IC8 ㉒ - ㉓ : short circuit		P-6
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0416)	

■ Uneven exposure

(1) Uneven shutter speed/aperture control w/ normal display

Checking item	Cause	Servicing measures	Part position
Shutter speed varies in M mode? Yes	SLS : magnetic failure (P.72)	Clean SLS, or replace shutter set (0201)	
	Shutter set : defect	Replace shutter set (0201)	
No	C21, C39 : soldering failure; defect		J-3, K-3
	Slit plate in aperture control base plate set : defect		
	P1-1 : off holder		
	Backlash absorption spring : off position	Replace aperture control base plate set (0256)	
	Aperture stop gear : riveting failure	Replace aperture control base plate set (0256)	

(2) Uneven metered value display and irregular control

Checking item	Cause	Servicing measures	Part position
	Sponge (4511) : missing; deformation	Replace sponge (4511)	
	SPC-1 : short circuit; defect		K-6
	C36 : soldering failure; defect		M-5
	IC2 : defect	Replace flex PCB-A (0413)	L-5

(3) Metered values do not change regardless of luminance change

Checking item	Cause	Servicing measures	Part position
	SPC-2 A - K : short circuit	Replace flex PCB-A (0413), if the problem still occurs with L1 disconnected	

■ Other exposure failure

(1) 1/30 sec or faster shutter speed is fixed at 1/30 in all exposure modes (Normal display)

Checking item	Cause	Servicing measures	Part position
	SL4 : magnetic failure (P.72)	Clean SL4, or replace shutter set (0201)	
	L13(W) : disconnection		G-9
	IC1 ㉙ : soldering failure		L-3
	IC4 ⑯, ㉚ : soldering failure		K-3
	Two layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

(2) Highest shutter speed is about 0.5-1 as faster/slower shutter speed (Normal display)

Checking item	Cause	Servicing measures	Part position
	Shutter set : defect (SL5 magnetic surface : stain)	Clean SL5, or replace shutter set (0201)	
	IC4 : defect	Replace flex PCB-A (0413)	K-3

(3) Unadjustable AE

Checking item	Cause	Servicing measures	Part position
	VR2 : soldering failure; short circuit		L-5
	IC2⑨: soldering failure		L-5
	A/D conversion reference voltage, 1152mV : adjusting failure	Re-adjust, following "REPAIR GUIDE" on p. xx	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(4) Aperture does not fully open regardless of full-open setting with normal display

Checking item	Cause	Servicing measures	Part position
	Aperture control base plate set (0258) : defect	Check if backlash absorption spring is off	
	Aperture ring (0250) : off position	Re-assemble, following "REPAIR GUIDE" on p.xx	

(5) Fixed shutter speed at 1/100 sec with " ⚡ " blinking in all exposure modes
(Metered value "1/100" appears w/o flash attached)

Checking item	Cause	Servicing measures	Part position
	IC1 ㊶ : soldering failure; ㉜ - ㉝ , ㉝ - ㉞ : short circuit		L-3
	IC4 ㉘ , ㉟ : soldering failure ㉞ - ㉟ , ㉟ - ㊳ : short circuit		K-3
	IC5 ② - ③ : short circuit		T-5
	IC6 ㊶ - ㊷ : short circuit		P-6
	R23 : short circuit		L-4
	Flex PCB-BL & -A (at soldering point): short circuit		
	Three layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

3. Display failure only (Normal winding and shutter releasing)

☆ Refer to p.22 for shutter releasing and winding failure.

■ Trouble symptoms with main Sw. LOCK

(1) By attaching battery holder, "ISO" blinks for 10 sec.

Checking item	Cause	Servicing measures	Part position
After "ISO" blinks, metering etc. is normal? Yes	Lithium cell : exhausted		
	L11(Y) : soldering failure		
	Converter PCB (YD02):soldering failure	Re-solder	
	Three layers : contact failure	Clean contact surface	
	D13 : soldering failure		P-2
	IC1 ⑬, ㉗, ㊳ : soldering failure		L-3
	IC4① : soldering failure		K-3
	IC5 pins : soldering failure : short circuit		T-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	
No	Flex PCB-D : defect	Replace flex PCB-D (0404)	
Metering values "1/100", F"--", and " ϟ " blink? Yes	Flex PCB-BL : L1-L2 short circuit	Check flex PCB-BL and -A for soldering	
	R23 : short circuit		L-4

(2) By attaching battery holder, "ISO 5000" blinks.

Checking item	Cause	Servicing measures	Part position
	Flex PCB-BL : L4-L5 short circuit; L4 soldering failure	Check flex PCB-BL and -A for soldering	
	R22 : soldering failure		L-7

(3) All LCDs ON for 0.5 sec, then all disappear.
(By Sw.D.1 ON, all LCDs ON for 10 sec.)

(By attaching battery holder, OR Sw.D.1 ON)

Checking item	Cause	Servicing measures	Part position
	IC3⑧ : soldering failure		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5

(4) All LCDs dimly ON
(By main Sw. ON, stand-by display ON, but other LCDs dimly ON)

(Main Sw.LOCK) ⇨ PROGRAM 0 (Main Sw.ON)

Checking item	Cause	Servicing measures	Part position
	IC3 ㉒ - ㉓ : short circuit		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5

(5) Some LCDs dimly ON (By main Sw. ON, stand-by display ON, but by Sw.D.1 ON, all LCDs dimly ON)

Checking item	Cause	Servicing measures	Part position
	IC3 ㊹ - ㊺ : short circuit		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5

(6) Stand-by display ON occasionally
(By Sw.0,1 ON, " ▭ " blinks.)

PROGRAM 0 (Main Sw.LOCK) ⇨ PROGRAM 0 (Main Sw.ON, Sw.0.1 ON)

Checking item	Cause	Servicing measures	Part position
	IC10 ⑩ - ⑪ : short circuit		K-5
	IC10 : defect	Replace IC10/flex PCB-A (0413)	K-5
	R68 : short circuit; defect		K-4

■ Trouble symptoms with main Sw. ON
(1) Stand-by display does not appear
① By Sw.0,1 ON, all LCDs remain OFF
(dimly ON depending on angle of view)

(Main Sw.ON) ⇨ (Sw.0.1 ON)

Checking item	Cause	Servicing measures	
	R64,R65 : soldering failure; defect		K-5,K-5
	R66 : soldering failure; short circuit		K-4
	R70 : short circuit; defect		L-4
	C11, C83 : short circuit; defect		I-5,K-5
	C84 : soldering failure; short circuit		K-4
	XL2 : defect		I-5
	Flex PCB-BL & -A (at soldering point): short circuit	Check short circuit of L2-L3, L3-L4, L4-L5	
	* IC3 pins : soldering failure; short circuit		J-5
	ICB 1 - 2 : short circuit		P-6
	* IC10 pins : soldering failure; short circuit		
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

* Checking points for soldering failure / short circuit of IC3 and IC10 pins

Soldering failure: IC3 ⑤, ⑦, ⑲, ⑳, ㉑, (56), (57), (59), (61), (62), (63).
IC10 ②, ③, ⑤, ⑥, ⑦, ⑧, ⑨, ⑭
Short circuit: IC3 ⑥−⑦, ⑦−⑧, ㉖ to ㉚, (58) to (62), (52) - (53), (56) - (57), (63) - (64)
IC10 ②−③, ⑤−⑥, ⑥−⑦

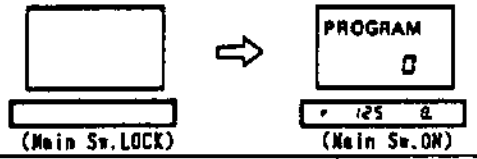
(Main Sw.ON) ⇨ PROGRAM 0 (Sw.0.1 ON)

② By Sw.0,1 ON, all LCDs remain OFF

Checking item	Cause	Servicing measures	Part position
No AF/manual focusing	IC10③-④: short circuit		K-5
	IC10 : defect	Replace IC10/flex PCB-A (0413)	K-5
Always minimum aperture when releasing	R24 : short circuit		P-6

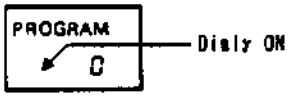
③ By Sw.0,1 ON, stand-by display & metered-value display ON

Checking item	Cause	Servicing measures	Part position
	IC3 ⑭ - ⑮ : short circuit		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5



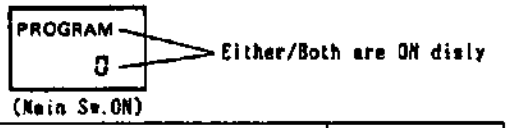
(2) Metered-value display ON immediately

Checking item	Cause	Servicing measures	Part position
	Sw.0 : remains ON		
	Sw.1 : remains ON (P.69)		
	Sw.XC : remains ON		
	Sw.BLC : remains ON		
	C4 : soldering failure; defect		K-3
	Release base plate set : short circuit	Replace release base plate set (0423)	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	



(3) Stand-by display ON normally, but other LCDs dimly ON
(By Sw.0,1 ON, display remains the same.)

Checking item	Cause	Servicing measures	Part position
	D21, D22 : soldering failure; defect		K-4,K-4
	IC3 ㉓, ㉔, ㉚ : soldering failure		J-5



(4) Stand-by display dimly ON

① By Sw.0,1 ON, display remains the same

Checking item	Cause	Servicing measures	Part position
	D20, D21, D22 : short circuit; defect		K-4,K-4,K-4
	IC3 ⑮-⑯, ⑰-⑱, ㉓-㉔, ㉔-㉕, ㉕-㉖, ㉚-㉛ : short circuit		J-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

② By Sw.0,1 ON, display appears normally

Checking item	Cause	Servicing measures	Part position
	IC3 ㉝-㉞, ㉞-㉟, ㉟-㊱, ㊾-㊿ : short circuit		J-5
	IC10 ⑨-⑩ : short circuit		K-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

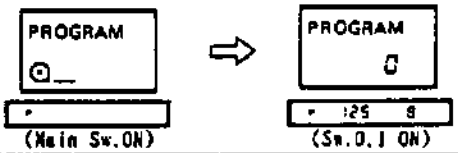
③ By Sw.0,1 ON, display appears normally, but "▭" blinks.
(Stand-by display hardly ON.)

Checking item	Cause	Servicing measures	Part position
	IC3 ⑪-⑫ : short circuit		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5

(5) Stand-by display & self-timer-indicator ON
(By Sw.0,1 ON, metered-value display does not appear.)

Checking item	Cause	Servicing measures	Part position
	B25 : short circuit; defect		P-6
	IC3⑤-⑧: short circuit		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5

(6) "PROGRAM" & film cartridge symbol ON (By Sw.0.1 ON,
stand-by display & metered-value display appear normally.)



Checking item	Cause	Servicing measures	Part position
	Flex PCB-A & - H (at soldering point): short circuit (printed wire between Sw.KC - Sw.C/F. Sw.C/F - Sw.33)		

(7) Irregular stand-by display ON
(By Sw.2 ON, "ISO" appears.)

Checking item	Cause	Servicing measures	Part position
	IC3 ㉕ : soldering failure		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5

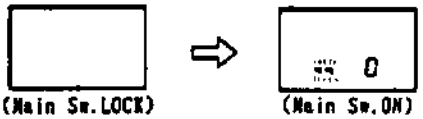
(8) Flickering display (By Sw.0.1 ON, irregular display ON)

Checking item	Cause	Servicing measures	Part position
	IC3 ⑳ : soldering failure		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5

(9) Irregular display

Checking item	Cause	Servicing measures	Part position
	XL2 soldering failure; short circuit		I-5
	C11, C12: soldering failure; short circuit		I-5,I-5
	R67 : soldering failure		I-6
	IC3 ⑳-㉑, ㉑-㉒ : short circuit		J-5
	IC10⑧-⑨: short cicuit		K-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
By Sw.1 ON, approx. 300mA flows, then irregular display disappears.	D20 : soldering failure		
Irregular display sometimes	IC3 ㉖ : soldering failure		J-5

(10) Rewinding symbol appears



Checking item	Cause	Servicing measures	Part position
	Sw.REW2 : remains ON (P.70)		
	L23(O) - GND : short circuit		B-5
	IC1⑦-⑧, ⑧-⑨: short circuit		L-3

(11) Only " ↯ " dimly ON (By Sw.O,I ON, stand-by display ON, " ↯ " clearly ON)

Checking item	Cause	Servicing measures	Part position
	IC3 ⑬ - ⑭ : short circuit		J-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(12) By main Sw., Sw.O,I ON, all LCDs remain OFF. (Might occur when attaching battery holder)

Checking item	Cause	Servicing measures	Part position
	L50(O) : disconnection		D-17
	L51(Y) : disconnection		E-15
	L52(P) : disconnection		D-15
	PC board-C set (0451) : defect	Replace PC board-C set (0451)	

■ Trouble symptoms with Sw.O,I ON

(1) Metered value display remains OFF.

Checking item	Cause	Servicing measures	Part position
Metered values ON by opening/ closing control-key cover or turning Sw. BLC ON	Sw.O, I : contact failure (P.69)		
	Flex PCB-A & release base plate set : contact failure	Clean contact surface	
	R50, R51 : soldering failure; defect		I-3,I-2
	IC1 ㊺, ㊼ : soldering failure		L-3
Metered values ON after shutter releasing	R32 : soldering failure; defect		K-4

(2) " ▭ " blinks always

Checking item	Cause	Servicing measures	
	R68 : soldering failure; short circuit		K-4
	IC3 ⑪, ㊺ : soldering failure		J-5
	IC4②, ⑦: soldering failure		L-3
	IC10 ⑩, ⑪, ⑫, ⑬ : soldering failure; ⑩ - ⑪, ⑪ - ⑫ : short circuit		K-5

(3) Stand-by display flickers

Checking item	Cause	Servicing measures	Part position
	C12 : short circuit		I-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(4) Stand-by display dimly ON, or disappears

Checking item	Cause	Servicing measures	Part position
	IC3 ㊳ - ㊲ : short circuit		J-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(5) "1/100", "--", and " ⚡ " blink.
("ISO 100" blinks when loading battery w/ lens attached.)

Checking item	Cause	Servicing measures	Part position
	R23 : short circuit; defect		L-4
	Flex PCB-BL & -A (at soldering point): short circuit	Check short circuit at L1-L2	

(6) " ⚡ " gloss. (Metered value is normal)

Checking point	Cause	Servicing measures	Part position
	IC3 ㊷ - ㊸ : short circuit		J-5
	IC10 ① - ② : short circuit		K-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(7) All LCDs OFF. During releasing, display appears normally. After releasing, stand-by display ON.
(Shutter speed is controlled as 4 sec.)

Checking item	Cause	Servicing measures	Part position
	R32 : short circuit; defect		K-4

■ Other display failure

(1) All display OFF in viewfinder LCD only

Checking item	Cause	Servicing measures	Part position
	In-finder mirror A, B (5813,5814) : off position	Adhere mirrors (5813,5814)	
	In-finder set : defect		

(2) Some segments OFF in LCD
① The same segments OFF on body & in viewfinder LCD

Checking item	Cause	Servicing measures	Part position
	IC3 pins : soldering failure; short circuit		J-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

② Some segments OFF on body LCD only

Checking item	Cause	Servicing measures	Part position
	Connector (4248) : twist; stain		
	LCD1 : defect	Replace LCD1 (4245)	
	IC3 ㊺ to ㊾ : soldering failure		J-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

③ Some segments OFF in viewfinder LCD only

Checking item	Cause	Servicing measures	Part position
	Flex PCB-A & LCD2 : contact failure		
	LCD2 : defect	Replace LCD2 (4246)	
	IC3 ㉟ to ㊹ : soldering failure		J-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(3) Display remains the same (Exposure mode, shutter speed & aperture do not change)

Checking item	Cause	Servicing measures	Part position
Shutter speed & aperture values only	IC3⑧, ⑨ : soldering failure		J-5
	IC3 ⑦ : soldering failure		J-5
	IC10 ⑧, ⑨ : soldering failure		• K-5

(4) During rewinding, film-count-down-display does not appear

Checking item	Cause	Servicing measures	Part position
	IC3 ⑩ : soldering failure		J-5
	IC3 : defect	Replace flex PCB-A (0413)	J-5

PROGRAM

(5) Film-cartridge symbol appears without film
(Frame number is counted up.)

Checking item	Cause	Servicing measures	Part position
	Sw.SL5 : contact failure (P.70)		
	IC1 ㊶ : soldering failure		L-3

(6) Viewfinder LED indication failure
① One of " ▷○◁" LEDs does not glow.

Checking item	Cause	Servicing measures	Part position
	L39(P), L40(W), L41(Blu):disconnection		C-10,C-10,C-10
	R13, R14, R15 : soldering failure		Q-6,Q-6,Q-6
	IC8 ㉙, ㉚, ㉛ : soldering failure		P-6
	In-finder set (0582) : defect		
	Two layers : contact failure	Clean contact surface	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

② All LEDs "▷○◁" LEDs do not glow

Checking item	Cause	Servicing measures	Part position
	L37(O) : disconnection		C-8

③ " ▷○" glow simultaneously

Checking item	Cause	Servicing measures	Part position
	In-finder set (0582) : short circuit		
	IC8 ㉙ - ㉚ : short circuit		P-6
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

④ " ○◁" glow simultaneously

Checking item	Cause	Servicing measures	Part position
	In-finder set (0582) : short circuit		
	IC8 ㉚ - ㉛ : short circuit		P-6

⑤ With exclusive flash (fully charged), " ⚡ " does not blink

Checking item	Cause	Servicing measures	Part position
	L35(R) , L38(Gn) : disconnection		C-9,C-9
	R80 : soldering failure		J-5
	In-finder set (0582) : defect		
	IC3 ⑬ : soldering failure		J-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

⑥ Viewfinder illuminator OFF

Checking item	Cause	Servicing measures	Part position
	L35(R) , L36(Y) : disconnection		C-9,C-9
	IC4 ⑬ : soldering failure		K-3
	In-finder set (0582) : defect		
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

⑦ " ⚡ " glows with viewfinder illuminator ON

Checking item	Cause	Servicing measures	Part position
	L38 (Y) - L38 (Gn): short circuit		C-9,C-9

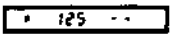
4. AF/Manual focusing failure
(Focus indication LED failure only --- See p.13.)

■ AF and manual focusing failure

(1) Always "▷◁" LEDs blink. (Low contrast scanning in AF mode)

Checking item	Cause	Servicing measures	Part position
	Converter PCB (at VCC2) : soldering failure	Replace converter PCB (0450)	
	IC6, IC7, IC8 : defect	Replace flex PCB-B (0415)	P-6,P-4,Q-3
	AF sensor filter : stain	Clean See fig. in (5)	
	Sub-mirror, mirror : stain	Clean See fig. in (5)	

(2) No focusing with "--" in aperture display
(All LEDs " ▷○◁ " do not glow; shutter is releasable regardless of out of focus in AF mode.)



(Sw.0.1 ON)

Checking item	Cause	Servicing measures	Part position
	BL contacts (L1 to L5): contact failure (stain)		
	Flex PCB-BL & -A : soldering failure		
	R20, R21, R22 : soldering failure		L-7,L-7,L-7
	BL contact holder set : defect (printed wire: disconnection)	Replace BL contact holder set (0150)	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
Problem on lens	Contacts on lens side : stain		
	Lens's PCB : defect (printed wire : disconnection)		

(3) No focusing, all LEDs " ▷○◁ " do not glow

Checking item	Cause	Servicing measures	Part position
	Three layers : contact failure	Clean contact surface	
	IC1 ⑤, ⑦, ⑨, ⑩ : soldering failure; defect	Replace flex PCB-A (0413)	L-3
	IC6 ㉔ : soldering failure; defect	Replace flex PCB-B (0415)	P-6

(4) No focusing with "▷○◁" glowing or blinking
(When main Sw., Sw.0.1 ON, AF motor possibly keeps running w/ "▷○◁" LEDs ON.)

Checking item	Cause	Servicing measures	Part position
	IC6 : defect	Replace flex PCB-B (0415)	P-6

(5) Regardless of out of focus in viewfinder, in-focus LED "○" glows.

Checking item	Cause	Servicing measures	Part position
 Clean places shown by arrow.	AF sensor filter : stain, dust		
	VR4 : adjusting failure	Re-adjust, following AF adjusting procedure	P-12
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

(6) " ▷ " LED glows regardless of low contrast subject (white paper etc.)
(No " ▷◁ " LEDs blink)

Checking item	Cause	Servicing measures	Part position
	AF sensor filter : dust; stain		
	IC8 : defect	Replace flex PCB-B (0415)	P-6

(7) Shutter releases by Sw.2 ON even "▷◁" blinking in AF mode

Checking item	Cause	Servicing measures	Part position
	IC1 : defect	Replace flex PCB-A (0413)	L-3

■ AF failure (Normal manual focusing)
(1) Lens does not move in AF mode

Checking item	Cause	Servicing measures	Part position
	Sw.1 : contact failure (P.69)		
	Sw. AF/M : remains ON (P.71)		
	AF motor (M2) lead wire: disconnection	Check AF motor alone for functioning	
	AF motor (M2) : defect	Check AF motor alone for functioning	
	IC1 ㊲ : soldering failure		L-3
	IC8 : defect	Replace flex PCB-B (0415)	P-6
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(2) Lens does not move from near side to infinity side (With 50mm/f:1.7 lens)

Checking item	Cause	Servicing measures	Part position
	Q12, Q13 : soldering failure; defect		Q-3,Q-3
	IC9 ①, ②, ⑬ : soldering failure		Q-2
	IC6 ⑬ : soldering failure		P-6
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

(3) Lens does not move from infinity side to near side (With 50mm/f:1.7 lens)

Checking item	Cause	Servicing measures	Part position
	Q11, Q14 : soldering failure; defect		Q-3,Q-3
	IC9 ③, ④, ⑮ : soldering failure	Replace IC9 or check soldering	Q-2
	IC6 ⑭ : soldering failure		P-6
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

(4) Lens (AF motor) moves slightly whenever Sw.1 ON

Checking item	Cause	Servicing measures	Part position
	Flex PCB-B & -G : soldering failure		
	PI-1 & flex PCB-G : soldering failure		
	PI-2 : defect (P.73)		
	C13, C16 : soldering failure; defect		J-3,J-2
	IC4 ④, ⑪, ⑫, ㉔, ㉕ : soldering failure ③-④, ④-⑤, ㉔-㉕ : short circuit		K-3
	IC6 ⑲, ⑳ : soldering failure ⑫-⑬, ⑬-⑭, ⑲-⑳ : short circuit		P-6
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

(5) AF motor continues running at minimum distance or infinity end

Checking item	Cause	Servicing measures	Part position
If the trouble symptom does not appear by changing over focus mode Sw., or by de-/attaching lens, the camera has no problem.	Converter PCB : defect	Replace converter PCB (0450)	
	Converter PCB & flex PCB-B : soldering failure	Re-solder (on converter PCB side, too)	P-6
	IC6 : defect	Replace flex PCB-B (0415)	

(6) Slow AF operation

Checking item	Cause	Servicing measures	Part position
	IC6 : defect	Replace flex PCB-B (0415)	P-6

(7) Irregular sound w/ AF operation

Checking item	Cause	Servicing measures	Part position
	Slit plate axis receiver on AF drive set (0260) : oil shortage	Apply O-20, or replace AF drive set (0260)	
	AF drive set : defect	Replace AF drive set (0260)	

■ Manual focusing failure

(1) AF motor runs idle by Sw.1 ON in manual focus mode

Checking item	Cause	Servicing measures	Part position
	Sw.AF/M : contact failure (P.71)		
	L12(Gy) : disconnection		D-11
	IC1 ㉟ : soldering failure		L-3
	Connecting lever : catching; operation failure	Replace connecting-lever (1520)	
	IC6 : defect	Replace flex PCB-B (0415)	P-6
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

5. Auto loading/rewinding failure, operation failure about key switch changeover and piezo buzzer

■ Auto loading failure

(1) No auto-loading (Normal releasing and winding)

Checking item	Cause	Servicing measures	Part position
Yes → Frame number increases w/o film?	Sw.SLS : contact failure (P.70)		
	Flex PCB-B & Sw.SLS pins : soldering failure		
No	IC1 ⑤1 : soldering failure		L-3
	Two layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	
	Sw.RC : contact failure (P.71)		
	IC1 ⑯ : soldering failure		L-3
	Three layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-D : defect	Replace flex PCB-D (0404)	

(2) Only 1 or 2 releasing (Usually 4 releasings for auto loading)

Checking item	Cause	Servicing measures	Part position
	IC1 : defect	Replace flex PCB-A (0413)	L-3

(3) Frame counter advances to "1" without film

Checking item	Cause	Servicing measures	Part position
	IC5 : defect	Replace flex PCB-D (0404)	T-5

(4) No auto loading; continuous releasing starts before frame number "1"

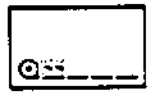
Checking item	Cause	Servicing measures	Part position
	IC1 ⑤-⑥: short circuit		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

■ Rewinding failure

(1) No rewinding (No rewinding display; stand-by display remains ON)

Checking item	Cause	Servicing measures	Part position
	L42(Brn), L23(O) : disconnection		A-4 ,B-5
	Sw.REW1 : contact failure (P.70)		
	Sw.REW1 contact : greased	Clean contact	
	Sw.REW2 : contact failure (P.70)		
	IC1 ⑧, ⑮ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(2) Rewinding stops halfway
(Including; motor stops within 8 sec after rewinding starts)



Checking item	Cause	Servicing measures	Part position
At rewinding completion, open back cover and remove film cartridge carefully. Rewinding-fork rotates smoothly? — No	Rewinding gears : catching · Rewinding gear-D2 (3309) : seizure · Rewinding gears : foreign substance · Rewinding changeover lever: defect		
Yes	L22(Blu) - GND : short circuit		A-13
	Sw.REW3 : contact failure; remains ON (P.70)		
	Q15 : short circuit; defect		M-2
	Q17 : soldering failure; defect		K-3
	R41 : soldering failure; defect		L-2
	L47(Blk) : disconnection		B-11
	IC3⑨- ⑩ : short circuit		J-5

(3) Always rewinding ON

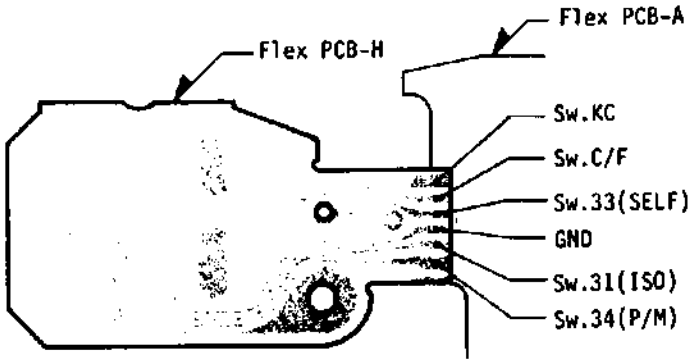
Checking item	Cause	Servicing measures	Part position
	IC1 : defect	Replace flex PCB-A (0413)	L-3

■ Key switch changeover failure

(1) Key switch (ISO, P/M, C/F, SELF, Control-key cover, UP, or DOWN) does not work.

Checking item	Cause	Servicing measures	Part position
ISO key switch does not work	Sw.31 printed wire : stain; contact failure		
	Flex PCB-A & -H : soldering failure		
	IC1 ⑯ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-H : defect	Replace flex PCB-H (4228)	
P/M key switch does not work	Sw.34 printed wire : stain; contact failure		
	Flex PCB-A & -H : soldering failure		
	IC1 ⑱ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-H : defect	Replace flex PCB-H (4228)	
C/F key switch does not work	Sw. C/F printed wire : stain; contact failure		
	Flex PCB-A & -H : soldering failure		
	IC1 ㉒ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-H : defect	Replace flex PCB-H (4228)	
Control-key cover switch does not work	Sw. BR printed wire : stain; contact failure		
	Flex PCB-A & -H : soldering failure		L-3
	IC1 ⑲ : soldering failure		
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-H : defect	Replace flex PCB-H (4228)	
Self-timer key switch does not work	Sw. 34 printed wire : stain; contact failure		
	Flex PCB-A & -H : soldering failure		
	IC1 ⑰ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-H : defect	Replace flex PCB-H (4228)	
F stop-up/-down key switch does not work	Aperture key flexible board & flex PCB-A : soldering failure	Check disconnection of printed wire, or replace aperture-key flexible board (4233)	
	Aperture-key flexible board : stain		
	Aperture key (1023) : contact failure		
	IC1 ⑳ , ㉑ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

Shutter speed up/down key switch does not work	Sw.37/38 printed wire on flex PCB-A : stain		
	Up/down key (2008) : stain		
	IC1 ㉒, ㉔ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
All keys do not work	Flex PCB-A & -H (at GND) : soldering failure		
	Flex PCB-H : defect	Replace flex PCB-H (4228)	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	



(2) Data display does not follow the selection of key switch

Checking item	Cause	Servicing measures	Part position
	Flex PCB-A & -H (at soldering point): short circuit		
	IC1 pins : short circuit		L-3

■ Piezo buzzer failure

(1) No beeping

Checking item	Cause	Servicing measures	Part position
	Sw.0 : contact failure		
	Buzzer lead wires(Blk/R):disconnection		A-13,A-12
	R34 : soldering failure; defect		L-3
	Piezo buzzer : defect		
	IC1 ㊾ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(2) Beeping excessively loud

Checking item	Cause	Servicing measures	Part position
	R34 : short circuit		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(3) Low beeping

Checking item	Cause	Servicing measures	Part position
	Adhesion of piezo buzzer: insufficient		
	Piezo buzzer : defect		

(4) Beeping by main Sw. ON

Checking item	Cause	Servicing measures	Part position
	IC1 : defect	Replace flex PCB-A (0413)	L-3

6. Operation failure using accessories

■ Operation failure using exclusive flash unit

(1) Data display failure with fully charged flash (Flash fires.)

① Shutter speed does not change to X-sync speed (100); no "ϟ" blinking

Checking item	Cause	Servicing measures	Part position
	F2 terminal : contact failure		
	L32(W) : disconnection		A-9
	IC4 ㉓ : soldering failure		K-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

② No "ϟ" blinking although X-sync speed is set.

Checking item	Cause	Servicing measures	Part position
	L35(R), L38(Gn) : disconnection		C-9,C-9
	R60 : soldering failure		K-5
	IC3 ⑬ : soldering failure		J-5
	In-finder set (0582) : defect		
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

③ "ϟ" remains ON during releasing

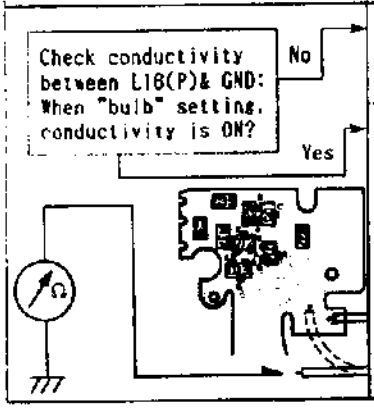
Checking item	Cause	Servicing measures	Part position
	IC3 ⑬-⑭ : short circuit		J-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

④ X-sync speed does not change from 60 to 100 (100 to 60) although luminance is changed in P mode

Checking item	Cause	Servicing measures	Part position
	IC1 : defect	Replace flex PCB-A (0413)	L-3

(2) Firing failure in flash mode with fully charged flash unit (Normal X-sync speed display)

① No firing

Checking item	Cause	Servicing measures	Part position
	Sw.X1 : contact failure		
	Sw.X2 : contact failure		
	F1 terminal : contact failure		
	L16(P), L17(Blk), L18(P), L20(Blk), L30(P), L31(Blk) : disconnection		G-9,G-9,D-7, A-7,A-7

② Always full-firing

Checking item	Cause	Servicing measures	Part position
	L1(Gy) : disconnection		D-12
	L33(Brn): disconnection; short circuit w/ GND		A-8
	SPC-2 : defect		
	IC1 ㊲ : soldering failure		L-3
	IC2 ⑰, ⑱, ㉜ to ㊲ : soldering failure; short circuit		L-5
	IC4 ㉒, ㉜, ㊷ to ㊹, ㊻ : soldering failure		K-3
	IC6 ㉒ : soldering failure		P-6
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

③ Always brief-firing

Checking item	Cause	Servicing measures	Part position
	R9 : soldering failure; defect		M-5
	C8 : soldering failure; defect		M-5
	IC2 : defect	Check short circuit, soldering failure	L-5

④ Unstable firing (too much or too little)

Checking item	Cause	Servicing measures	Part position
	VR3 : soldering failure; short circuit		L-5
	C8 : soldering failure; short circuit		M-5
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

Ⓢ Always flash is controlled 1-1.5 EV under

Checking item	Cause	Servicing measures	Part position
	VR3 : adjusting failure		L-5
	Sponge (4511) on flex PCB-A : missing		

(3) With fully charged flash, shutter speed does not change to X-sync speed (100); no "↯" blinking; no flash firing

Checking item	Cause	Servicing measures	Part position
	L32 (W) - GND : short circuit		A-9

(4) Only when attached to camera, flash is not completely charged

Checking item	Cause	Servicing measures	Part position
	L30(P) - GND : short circuit		A-7

(5) Underexposure in flash-photography (W/ X-sync speed display, normal firing)

Checking item	Cause	Servicing measures	Part position
"--" appears in aperture display? Yes	See "Underexposure (3)" on p.34		
"--" appears in aperture display? No	Power-level selector : remains LOW		

(6) AF illumination is not emitted in low light condition by Sw.1 ON in AF mode

Checking item	Cause	Servicing measures	Part position
	F4 terminal : contact failure		
	L34(Blu) : disconnection; short circuit w/ GND		A-8
	IC6 ㊴ : soldering failure	Check soldering of IC6, or replace flex PCB-B (0415)	P-6
	IC6 : defect	Replace flex PCB-B (0415)	P-6
	Two layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

■ Operation failure using Program Back

(1) No imprinting

Checking item	Cause	Servicing measures	Part position
	Accessory back contacts : contact failure		
	R38 : disconnection		U-5
	IC1 ⑩ : soldering failure		L-3
	Three layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-D : defect	Replace flex PCB-D (0404)	

(2) Intervalometer operation failure (e.g. Program Back does not charge flash; not release shutter)

Checking item	Cause	Servicing measures	Part position
	Accessory back contacts : contact failure		
	Three layers : contact failure	Clean contact surface	
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-D : defect	Replace flex PCB-D (0404)	

(3) Shutter releasing failure
(No shutter releasing by Sw.2 ON, then, shutter releases by OFF; Irregular shutter operation)

Checking item	Cause	Servicing measures	Part position
	Program Back 70 : defect	Replace PCB of Program Back & clean battery contact	

7. Other operation failure

■ Mis-decoding of CAS code

(1) Incorrect setting of film speed (ISO) (One roll of film is all under/overexposed)

Checking item	Cause	Servicing measures	Part position
	CAS contacts : contact failure	Clean contacts, or replace flex PCB-D (0404)	
	DX-coded film : defect		
	IC5 pins : soldering failure; short circuit		T-5
	Flex PCB-D : defect	Replace flex PCB-D (0404)	

(2) "ISO 5000" appears when auto loading

Checking item	Cause	Servicing measures	Part position
	Flex PCB-BL & -A : soldering failure		
	Flex PCB-B & -D : soldering failure		

■ BLC switch operation failure
(1) BLC Sw. does not function

Checking item	Cause	Servicing measures	Part position
	Sw.BLC : contact failure (P.70)		
	Sw.BLC & flex PCB-A: soldering failure		
	IC1 ㊺ : soldering failure		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(2) Shutter releases by BLC Sw. ON

Checking item	Cause	Servicing measures	Part position
	IC1 ㊺ - ㊽ : short circuit		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

(3) Winding-motor runs idle for 1.2 sec by BLC Sw. ON

Checking item	Cause	Servicing measures	Part position
	IC1 ㊹ - ㊺ : short circuit		L-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	

■ Battery drains sharply

. Check current consumption with DC power supply (2A, 6V):
Check point by point if current consumes excessively, and if there is short circuit.
→ Short-circuited; Excessive current flows. Check (4).

Normal

Check current leakage with camera-leak checker. p.66
(can be checked up to 200mA)
→ Current leakage is out of standard Check (4).

Normal → No problem on camera Check (1)(2)(3).

(1) No problem on camera or not recur

	Cause	Symptom
1	Insufficient battery capacity (depending on manufacturer, lot etc.)	Residual capacity: still remains
2	High internal resistance of battery	Even fresh battery does not activate camera at all
3	Use of AAA-size sealed carbon-zinc batteries	Battery performance is extremely low
4	Use in cold weather condition	Residual capacity is a lot in normal temperatures.
5	Continuously current flowing Camera has been left under the following conditions: (1) When main switch is LOCK, battery holder is improperly attached. (2) When main switch is ON, ① operating button is held down. ② control-key cover is incompletely closed. ③ "BLC" button is held down.	Battery exhausts in about 8 hours.
6	Irregular operation of microcomputer ① Because of static electricity flowing into camera ② Because of chattering at battery contact	Battery exhausts in about 0.5-8 hours.

(2) Great current consumption when re-/winding

Checking item	Cause	Servicing measures	Part position
	Winding base plate set : grease shortage	Replace winding base plate set (0304)	
	Winding motor (M1) axis : stiffness		
	Film cartridge receiver (1072) : off position		
	Sprocket axis set (0352) : defect		

(3) Not recur (or normal current consumption without top cover)

Checking item	Cause	Servicing measures	Part position
Check the trouble by vibrating camera or pressing flexible board slightly.	Foreign substance inside		
	Electrical element on flex PCB-A & penta holder set / mirror box set : short circuit		
	Tape for B10 : off position		J-3

(4) Current leakage or short circuit

① Current leakage (100-300 μA) by main Sw. LOCK

Checking item	Cause	Servicing measures	Part position
Current leakage increases/decreases by separating two layers? Yes	L35(R) - L37(D) : short circuit		C-9,C-9
	D1 : defect		J-3
	R10 : short circuit		J-3
	C2, C5 : defect		L-3,M-2
	C15 : short circuit		K-3
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
No	D12 : defect		P-2
	Converter PCB : defect	Replace converter PCB (0450)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	
Current leakage varies from 100 to 300 μA	XL2 : defect		I-5
Normal w/ IC2 (32) unsoldered	IC2 : defect	Replace flex PCB-A (0413)	L-5
Normal w/ IC3 (26)(58) unsoldered	IC3 : defect	Replace flex PCB-A (0413)	J-5

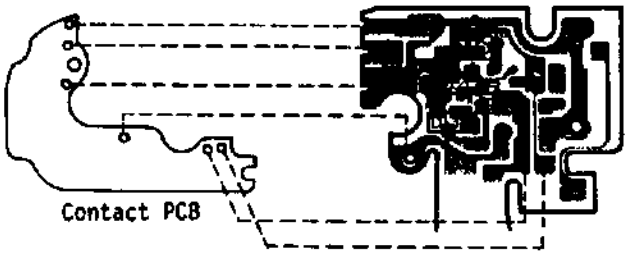
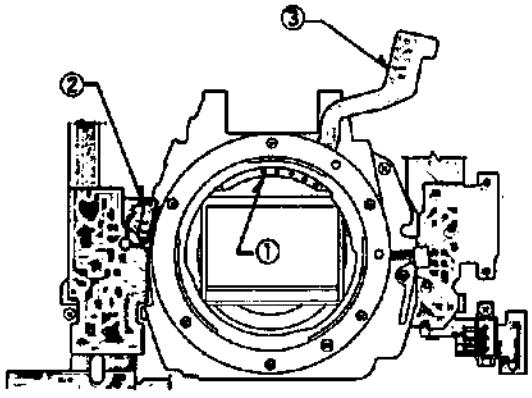
② Current leakage (300μA - 1mA) by main Sw. ON

Checking item	Cause	Servicing measures	Part position
Current leakage decreases by separating three layers & flex PCB-B, -D? Yes	IC5 : defect; (13) - (14) : short circuit	Replace flex PCB-D (0404)	T-5
No	Converter PCB : defect	Replace converter PCB (0450)	
	IC6 : defect	Replace flex PCB-B (0415)	P-6

③ Current leakage (10mA or more) or short circuit

Checking item	Cause	Servicing measures	Part position
About 10-30mA	D12: short circuit; defect		P-2
	Q5 : defect		P-2
	Converter PCB : defect	Replace converter PCB (0450)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	
About 30-60mA	Sw.30 : short circuit		
	D14 : defect		P-2
	Flex PCB-B : defect	Replace flex PCB-B (0415)	
About 60mA	IC4 : defect	Replace flex PCB-A (0413)	K-3
400mA or more	Converter PCB : defect	Replace converter PCB (450)	
	L15(R) - GND : short circuit		G-9
	IC9 & temporary screw in aperture control base plate (0256) : short circuit		Q-2
	D2 : defect		R-3
	IC9 12 - 13 : short circuit		Q-2
	Flex PCB-A : defect	Replace flex PCB-A (0413)	
	Flex PCB-B : defect	Replace flex PCB-B (0415)	

■ Repairing for trouble symptoms not reappear

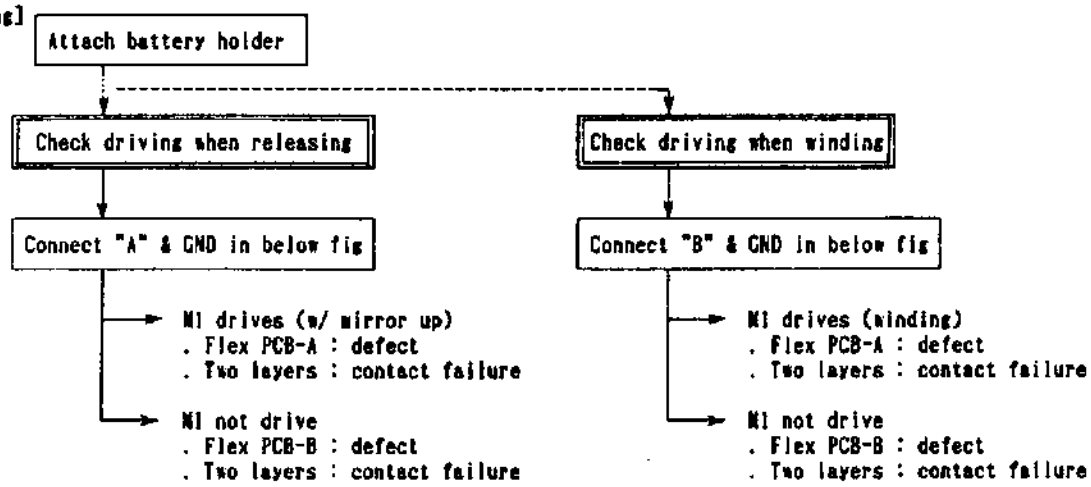
Trouble symptoms	Servicing measures
Shutter releasing/winding failure	. Remove top, bottom & front covers, then check soldering of lead wire/electrical elements visually. . Check winding base plate for functioning (foreign substance between gears?) . Check converter PCB for soldering.  . Check Sw.2, 4, 40, 400, 30, REWI for short circuit / contact failure
Exposure failure  	. Check shutter operation ---- irregular shutter speed? . Check and clean BL contacts ---------- ① . Check soldering between flex PCB-A and -BL ---------- ③ . Check soldering between flex PCB-F and -B ---------- ② . Check soldering of SL3 lead wire ---------- ②
AF operation failure  ⟵ Remove foreign substance, dust.	. Check BL contacts for connecting. . Check Sw.AF/M contact pressure. . Check L12 (Gy) for disconnection, catching. . Check AF sensor filter for stain, dust. . Check sub-mirror, mirror for stain.
For other items, check relevant symptoms, following Service Manual.	

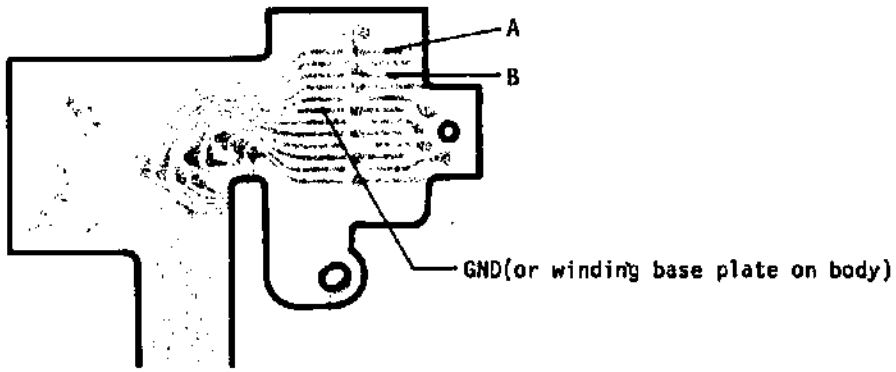
■ Checking for no winding-motor driving

When winding-motor (M1) does not drive for releasing or winding, check which flex PCB has problem, following the procedure below.

[Preparation] . Arrange lead wires on and around flex PCB-B and on converter PCB.
. Separate flex PCB-A and -B. (by removing screws at two layers)

[Checking]



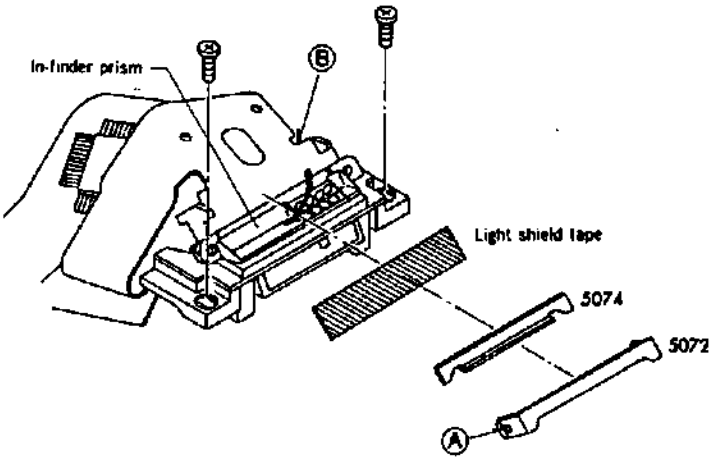


■ Servicing measures against "in-finder segments OFF"

1. Unjoin flex PCB-A and LCD2

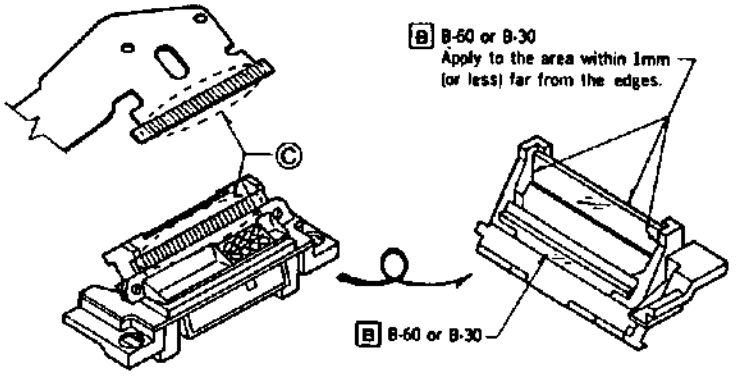
1) Unhook Ⓐ(right and left of in-finder pressure-B (2072-5072). Remove in-finder pressure -A (2072-5074). Light shield tape is unnecessary any more.
2) Strip off flex PCB-A in the direction of arrow, holding around Ⓑ of flex PCB-A. (Be careful not to scratch printed wire of flex PCB-A .)

■Fig. 1



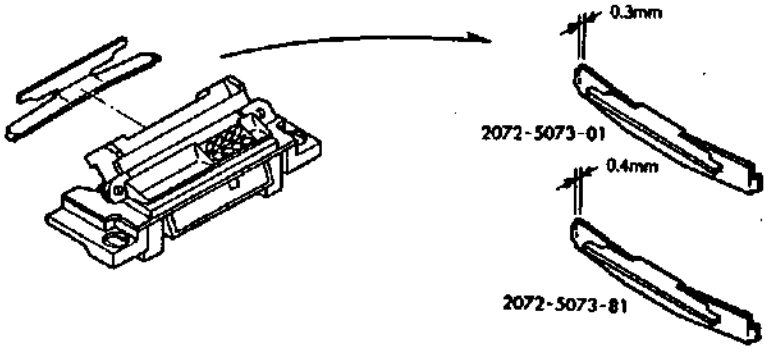
3) Wipe off coating Ⓒ between LCD2 and flex PCB-A using Fronsolve. (See fig.2)
   · Be careful not to scratch printed wire of flex PCB-A.
   · Wipe off coating thoroughfully.
   · Be careful not to flow Fronsolve in between LCD2 (2073-4246) and in-finder prism (2072-5815).
4) Turn in-finder set upside down, and reinforce mirror with B-60 (Bond G-17) or B-30 (Araldite).

■Fig. 2



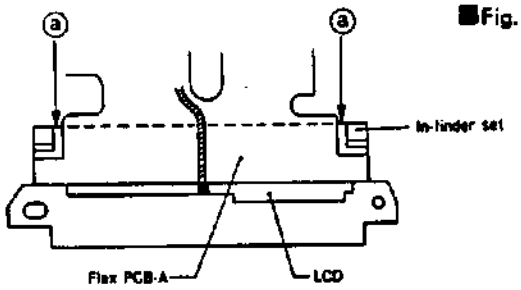
2. Re-join flex PCB-A and LCD2
1) Replace in-finder pressure-C 2072-5073-01 by -81. (See fig.3)

■Fig. 3

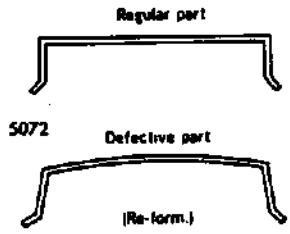


2) Attach in-finder set to body and tighten screws temporarily.
3) Align printed wire of LCD and flex PCB-A. (See fig.4.)
   make sure that there is clearance ⓐ between in-fidner set and flex PCB-A.
4) Holding flex PCB-A on LCD2, cover pressure rubber (2072-5082-81), and place in-finder pressure-A (2072-5074), -B (2072-5072). Holding the center of 5072 by finger, align printed wire of LCD and flex PCB-A. Refer to 3). (See fig.6.)
   ※ Make sure that 5072 has right angle (90°) and no deformation. (See fig.5.)

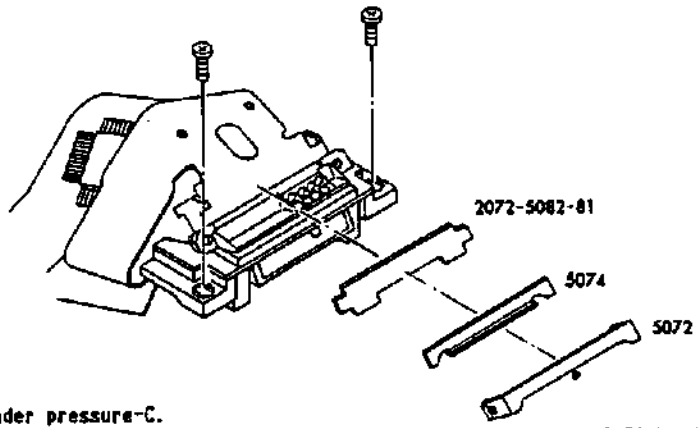
■Fig. 4



■Fig. 5

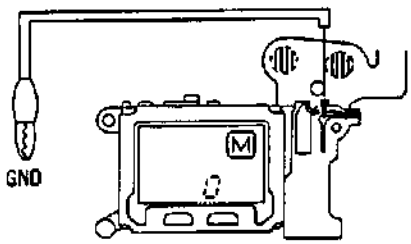


■Fig. 6



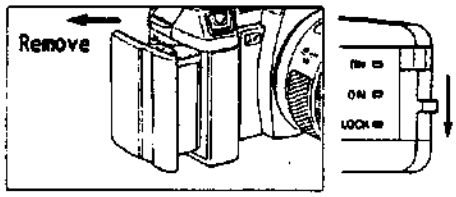
5) Fit 5072 to in-finder pressure-C.
   (Fit the hole of the 5072 one by one with tweezers, holding the center of 5072 by finger.)

3. Check that LCDs are ON
   ■ Checking with top cover removed
   1) Turn main switch LOCK, and detach battery holder.
   2) Connect lead wire for main switch ON
      (w/ alligator clip) as shown in fig.
   3) Press battery holder against camera body.
      Within 0.5 sec, connect the alligator clip to
      camera's GND.
   4) Make sure that all LCDs are ON, then fasten
      battery holder.

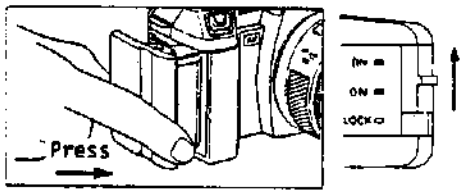


If some segments OFF
- Off position of flex PCB-A ---------- Re-position.
- Deformation of in-finder pressure-B ----- Re-form in-finder pressure-B (2072-5072)
- Breakage of LCD2 ---------- Replace LCD2 (2073-4248-01).
- Disconnection of flex PCB-A ---------- Replace flex PCB-A (2073-0413).

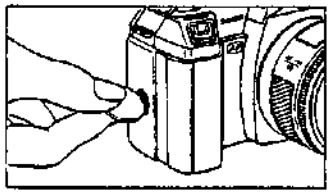
■ Checking with camera assembled completely



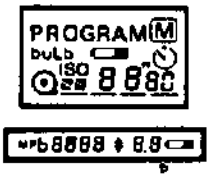
1) Turn main switch LOCK. and detach battery holder.



2) Press battery holder against camera body. Within 0.5 sec, turn main switch ON.



3) Make sure that all LCDs are ON. then fasten battery holder.

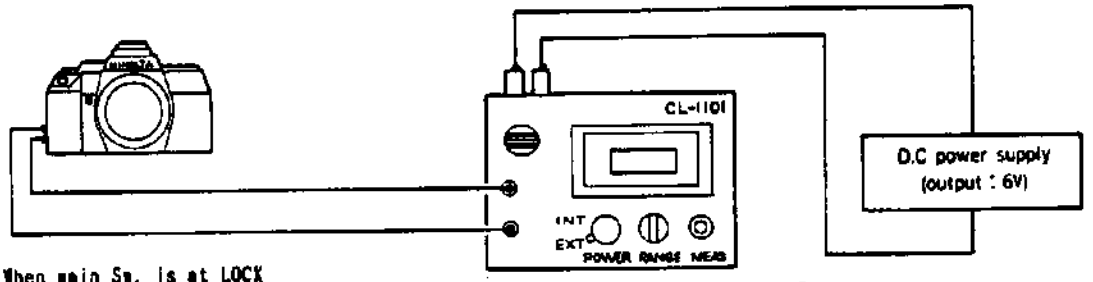


■ Current leakage checking

■ Standard

At main Sw. LOCK	100μA or less
At main Sw. ON/ ((	200μA or less
At main Sw. ON/ ((. & touch Sw. ON	150 mA or less

■ Measuring procedure ---- using camera-leak-checker (model CL-1101)



1) When main Sw. is at LOCK
   ① Turn camera's main Sw. LOCK, and set camera-leak-checker's RANGE to "mA".
   ② Attach power-supply-adapter to camera. All LCDs on body should be turned OFF.
   NOTE: If camera-leak-checker's RANGE is set to "μA", "1."
   appears on checker's LCD.
   ③ Change over the checker's RANGE to "μA" and read the metered value. The value should be 100 μA or less.

2) When main Sw. is ON
   ① Set the checker's RANGE to "mA", and turn camera's main Sw. LOCK→ON, for stand-by display appearing.
   NOTE: if camera-leak-checker's RANGE is set to "μA",
   "1." appears on checker's LCD.
   ② Change over the checker's RANGE to "μA" and read the metered value. The value should be 200 μA or less.

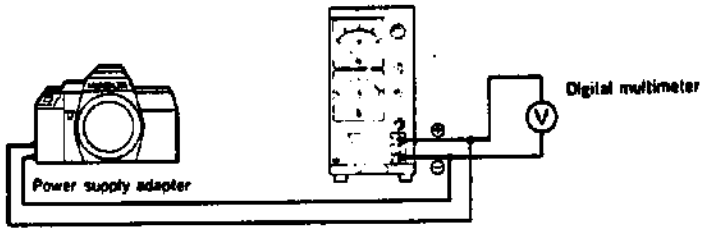
3) When main Sw. ON and touch Sw. ON
   ① Set the checker's RANGE to "mA", and turn touch Sw. ON for metered value appearing.
   ② Read the checker's metered value. The value should be 150 mA or less.

■ B.C.voltage checking

Measure the battery check level of 2073 as follows:

■ Measuring instruments : DC power supply (524B, or equivalent which outputs 2-6V/2A or more)
: Digital multimeter
: Power supply adapter (2072-1221-75)

■ Checking procedure



1) Connect both sides of resistor (1.5Ω/5W, on power supply adapter), using thick cord.
(Unless both sides of resistor are connected each other, measurement cannot be performed correctly because of voltage drop.)
2) Set the camera as fig. above.
3) Set the output voltage of DC power supply at 5V/2A.
4) Check that metered value appears in data display, by main Sw. and touch Sw. ON.
5) Lower the output voltage of DC power supply gradually, holding touch Sw.ON.
(Checking is possible only while metered value appears.)
6) Check that the voltage should meet the standard at the time when low-battery symbol starts to blink.
※Once low-battery symbol starts to blink, blinking does not stop even if the output voltage is heightened. When rechecking, turn main Sw. ON →LOCK→ON, and repeat checking pocedure 5) and 6).

■ Standard

2.2 ± 0.1V

when low-battery symbol starts to blink

- It is unnecessary to check release lock voltage when B.C. voltage is checked.
- If the voltage does not meet the standard, select ranking resistor for R11*, or replace flex PCB-A set (2073-0413) with new one.

* R11

Part No.	
9422-2746-63	270KΩ
9422-3346-63	330KΩ
9422-4746-63	470KΩ
9422-6846-63	680KΩ

■ Aperture control checking

■ Measuring instruments : Luminance source (Model L-2101, L-222, L-223)
: EE tester (Model EE-2101, EE-2111)
: Master lens (2072-0001-75)

■ Measuring procedure

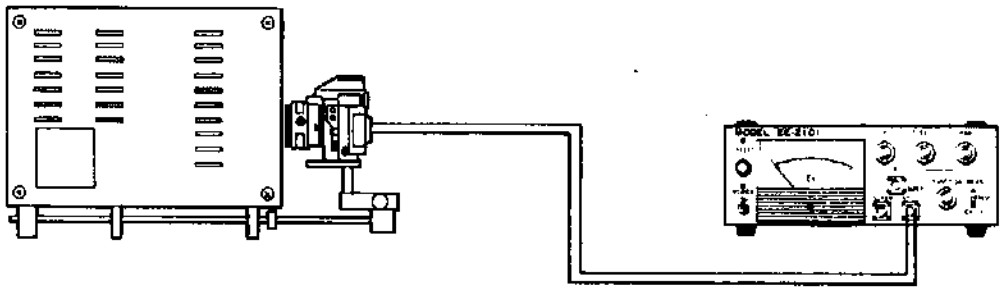
1) Set measuring instruments and body as fig. below.

• Luminance source
K value : 1.3
Luminance : EV11

• EE tester
FUNCTION : 35
ASA : F
K value : 1.3
MEAS-CALF: CALF
F : 5.6

• Master lens
Distance scale : ∞ (infinity)

• Body
Exposure mode : M
Shutter speed : bulb
Aperture : f/5.6
Focus mode : M

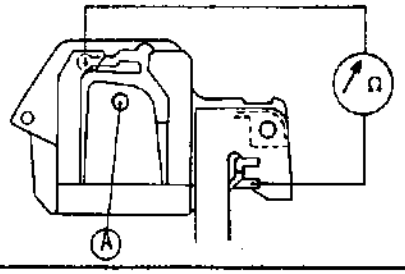
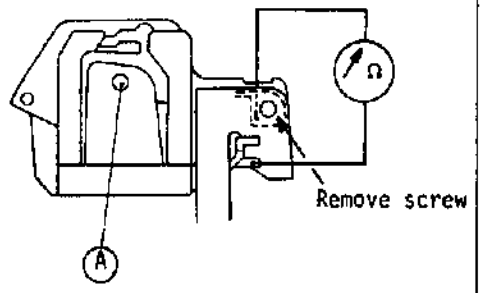
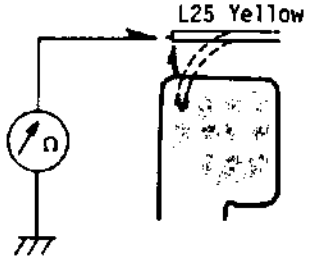
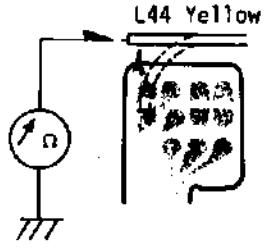
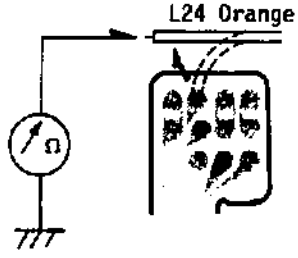


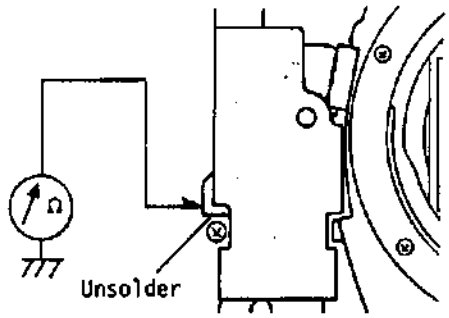
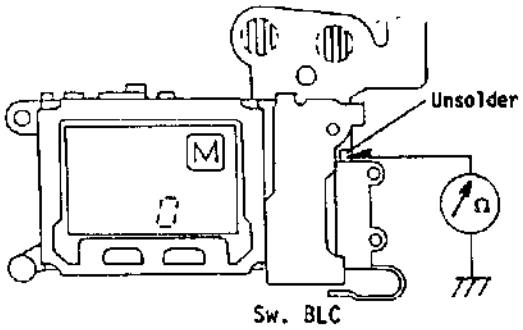
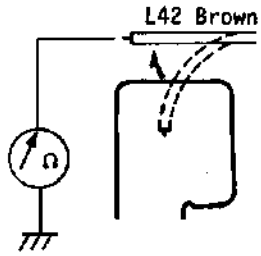
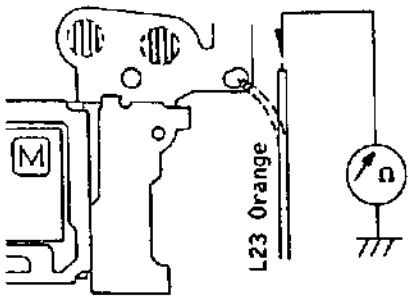
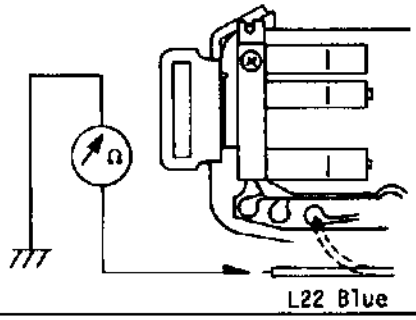
2) Release the shutter about ten times at bulb setting.
If the indicated values of EE tester and dispersion (difference between max. and min. values) do not meet Table below, see page 8 "2. Exposure failure".

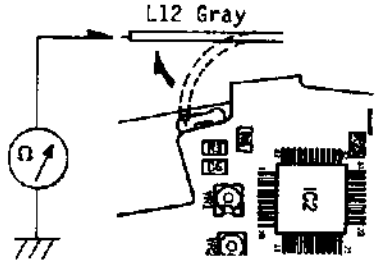
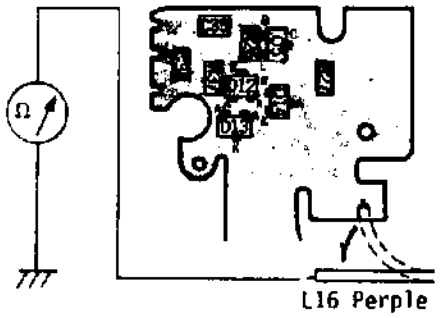
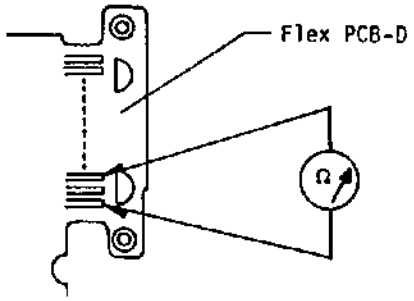
Indicated value	Dispersion
within ±0.5EV	within 0.5EV

[3] SWITCH AND ELECTRICAL ELEMENT CHECKING

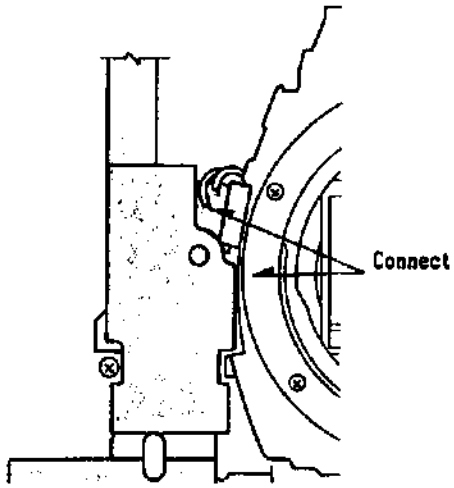
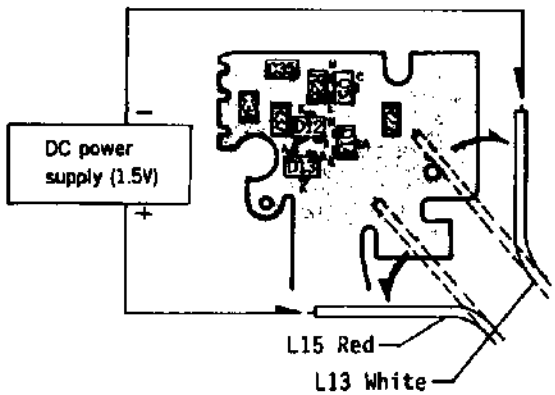
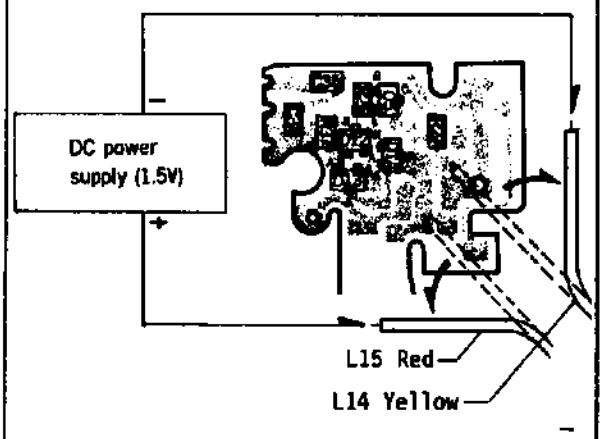
1. Switch

Sw.	Checking procedure	Requirement
Sw.1		ON by depressing Ⓐslightly. (Has a little resistance)
Sw.2		ON by depressing Ⓐ fully
Sw.4		Turn motor friction set counterclockwise twice and then turn clockwise twice: ON Turn spool slowly with finger: OFF when sprocket locks.
Sw.400		Turn motor friction set counterclockwise: ON when mirror lifts up by 2/3. Turn motor friction set clockwise from the position of mirror fully up: OFF when mirror is turned down by 1/3.
Sw.40		The same as for Sw.400 (For timing adjustment, see REPAIR GUIDE p.11)

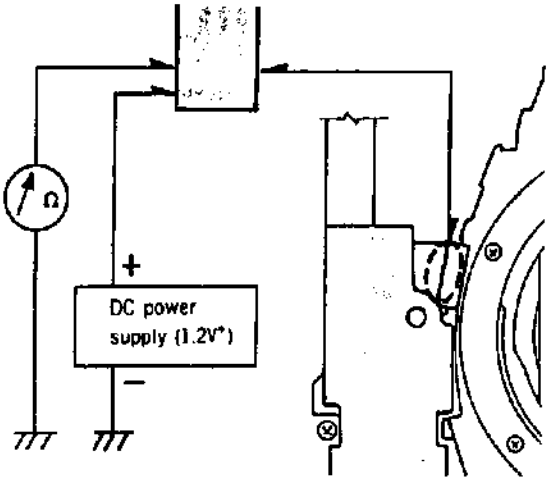
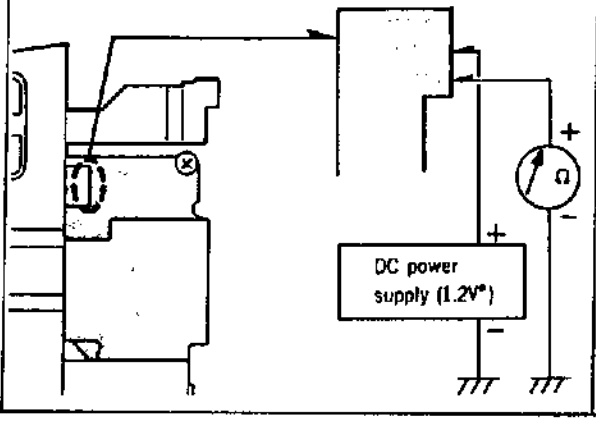
Sw.	Checking procedure	Requirement
Sw.SLS		ON (indiates resistance) without film OFF with film
Sw.BLC		ON by pushing the contact OFF except the above
Sw.REW1		ON by sliding rewind switch lever
Sw.REW2		With back cover closed, slide rewind switch lever: ON when rewind switch lever locks
Sw.REW3		Turned ON-OFF-ON by turning winding-gears with finger

Sw.	Checking procedure	Requirement
Sw.AF/M		Set Sw.AF/M: OFF at "AF" ON at "M"
Sw.X1 Sw.X2		Release shutter at "bulb" setting: ON when 1st shutter blade has run completely; OFF when 2nd shutter blade has run completely
Sw.RC		ON with back cover open; OFF with back cover closed

2. Magnet

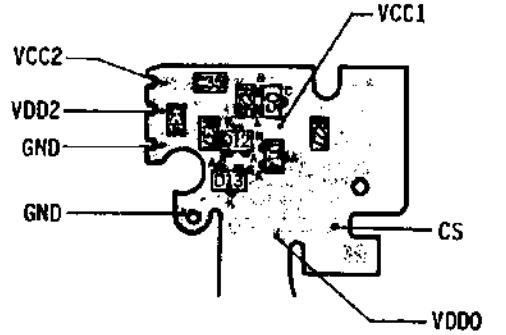
SL	Checking procedure	Requirement
SL3		Connect soldering point of SL3 lead wire (White) with GND: SL3 is separated (clicks): aperture ring locks and does not turn
SL4	Unsolder SL4 lead wires (L13 White, L15 Red), and connect them with DC power supply. 	1. Turn motor friction set counterclockwise, and unlock shutter: 2nd shutter blade runs. 2. Turn power OFF: 1st shutter blade runs (Check by sound of running, or check visually from mirror box side).
SL5	Unsolder SL5 lead wires (L14 Yellow, L15 Red), and connect them with DC power supply. 	Turn motor friction set counterclockwise, and unlock shutter: shutter remains open until power is turned OFF.

3. Encoder

PI	Checking procedure	Requirement
Aperture (PI-1)	Solder lead wire for measuring, and connect it with DC power supply. 	Turn aperture ring slowly with finger: pointer of circuit tester moves.
AF (PI-2)	Solder measuring lead wire and connect it with DC power supply. 	Turn AF coupler slowly with finger: pointer of circuit tester moves.

* DO NOT SET DC-POWER SUPPLY AT VOLTAGE MORE THAN 1.2V; otherwise LED will be damaged.

4. DC/DC converter

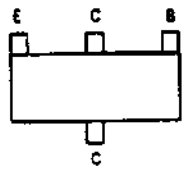


Check voltage between printed wires (shown in the figure) and GND (Sw.1 ON) :

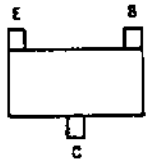
VCC1	6V
VCC2	13V
VDDO	8V
VDD2	6V
VLi	3V
CS	100mV or less

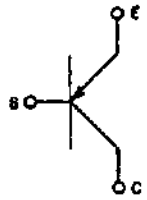
4. Transistor

Q3, Q4, Q13, Q14



Q5, Q18



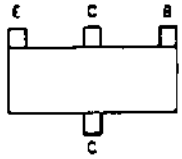


(PNP)

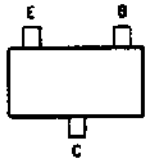
Check conductivity between the terminals of B, C, E.

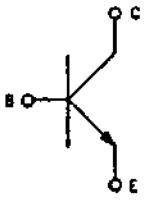
Terminals	B-C	B-C	B-E	B-E
Polarity of circuit tester	+ −	− +	+ −	− +
Pointer of circuit tester	Moves	Not move	Moves	Not move

Q1, Q2, Q11, Q12



Q15, Q16, Q17





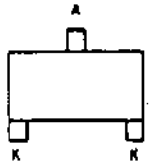
(NPN)

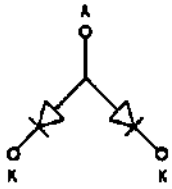
Check conductivity between the terminals of B, C, E.

Terminals	B-C	B-C	B-E	B-E
Polarity of circuit tester	+ −	− +	+ −	− +
Pointer of circuit tester	Not move	Moves	Not move	Moves

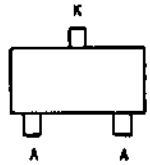
5. Diode

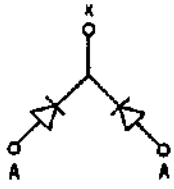
D2, D11, D14



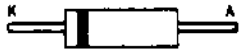


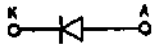
D12, D13, D16, D19





D1

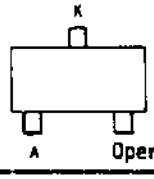


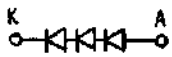


Check conductivity between the terminals of A, K.

Terminals	A-K	A-K
Polarity of circuit tester	+ −	− +
Pointer of circuit tester	Not move	Moves

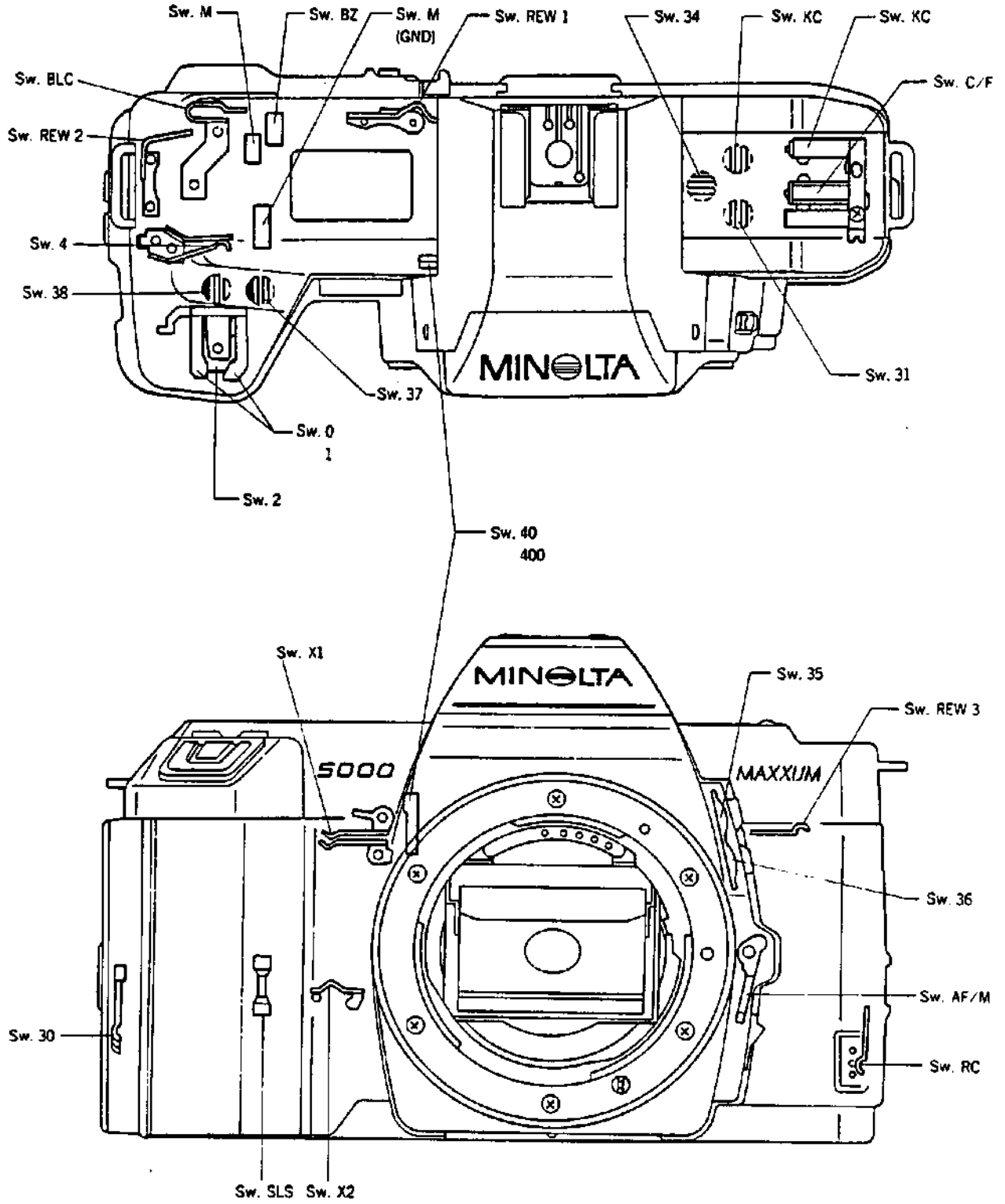
Varistor
D20, D21, D22





[4] Function of switches

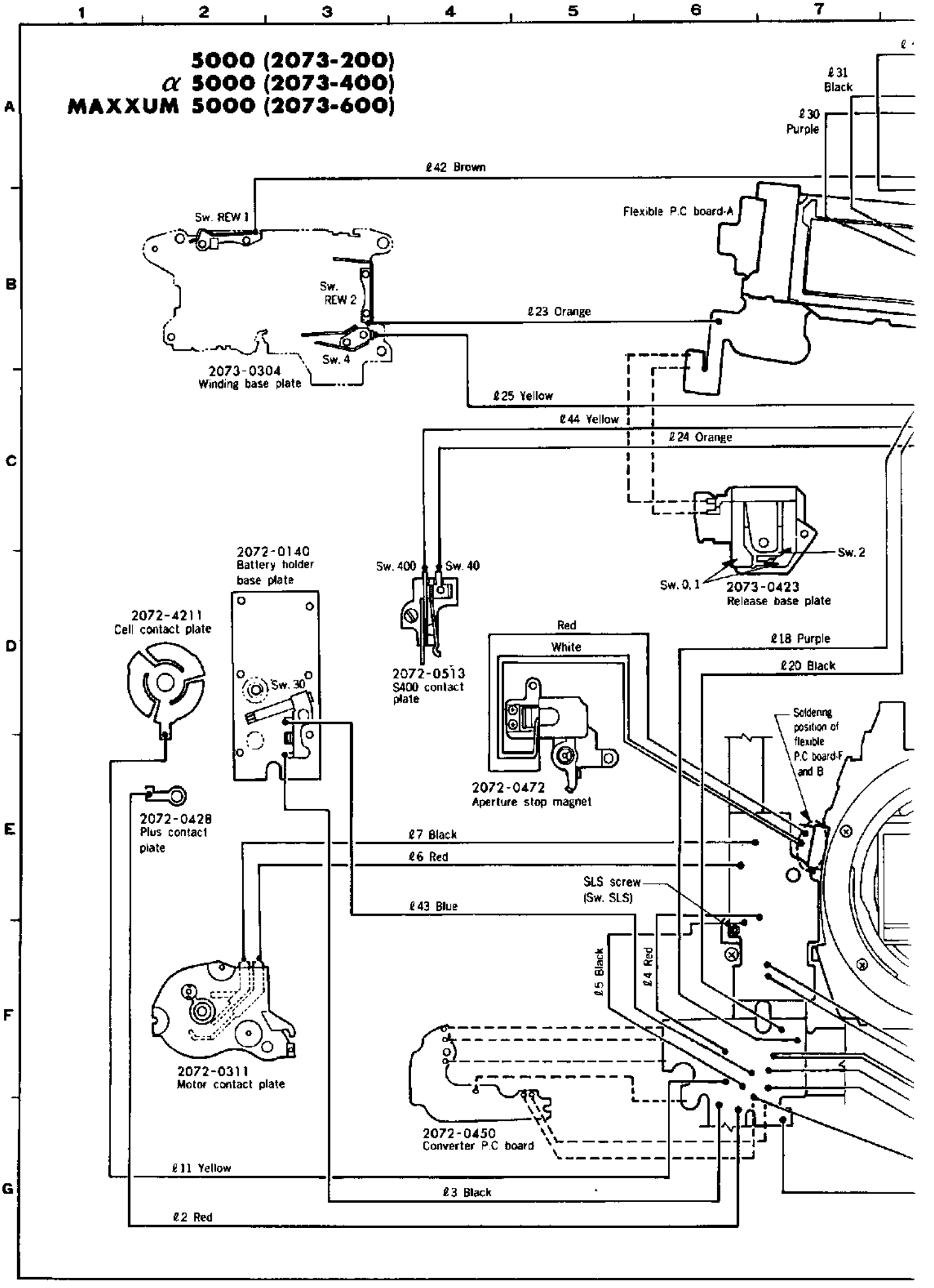
(1) Position of switches

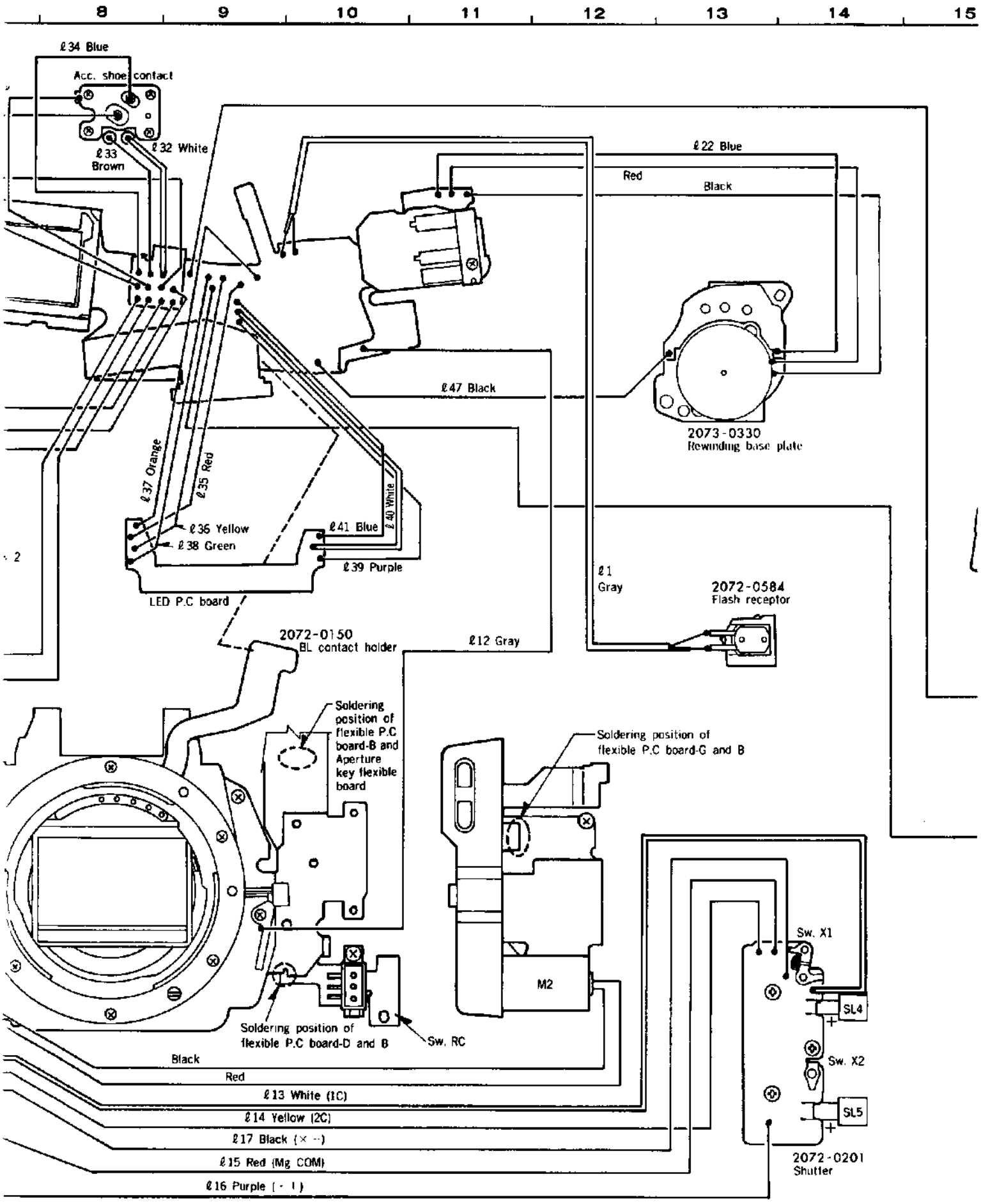


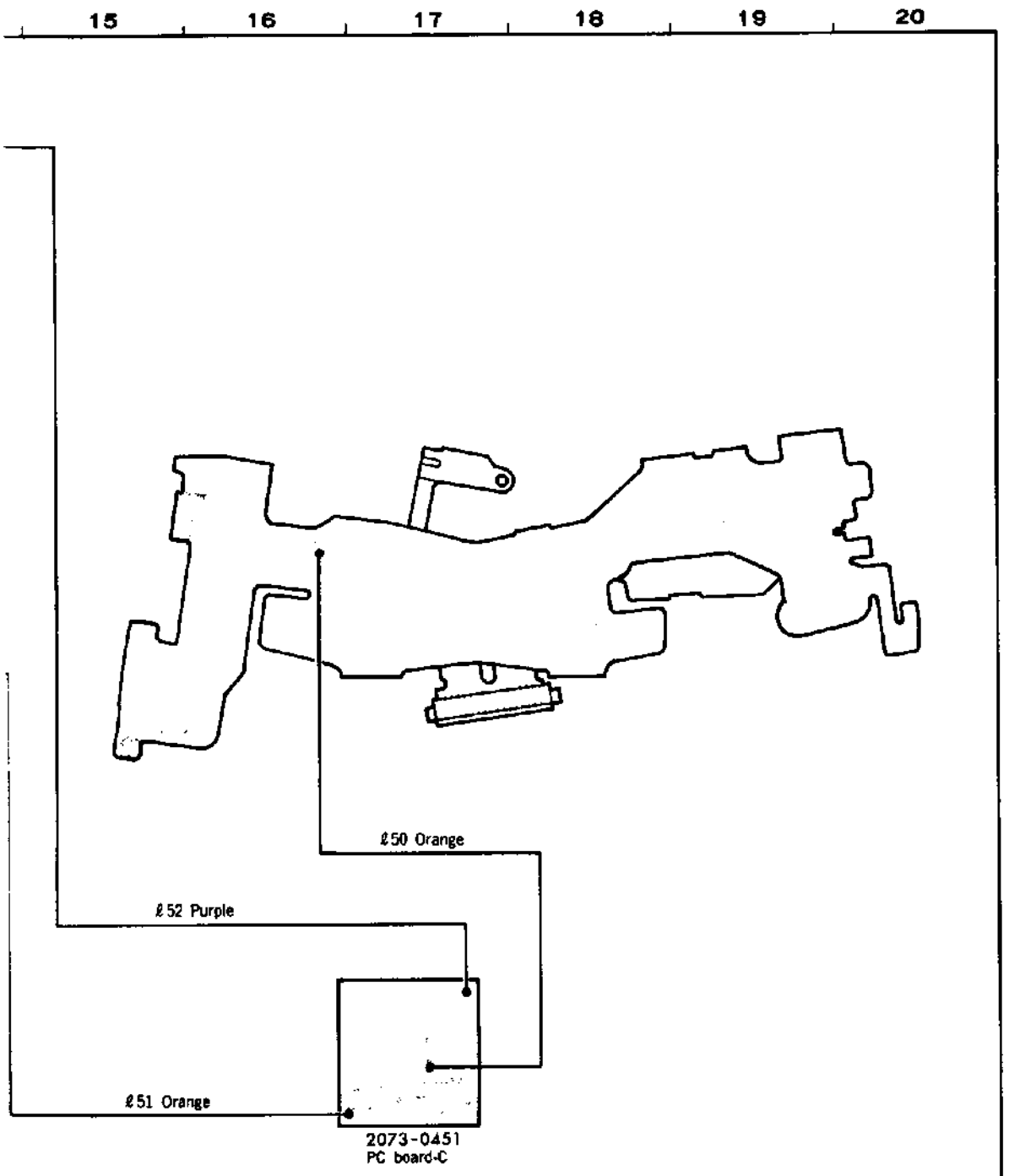
(2) Function of switches

Mark	Name	Condition of operation
Sw. 0	Touch switch	ON by touching operation button Remains ON for 10 sec before shutter release ON by depressing operating button to click stop
Sw. 1	Metering switch	ON by depressing operation button one step
Sw. 2	Relese switch	ON by depressing operating button all the way
Sw. 4	Winding-completion switch	OFF→ON with winding start ON→OFF with winding completion
Sw. 40	Mirror-up switch	ON with mirror-up completion OFF with mirror-down
Sw. 400	Sub-switch of Sw. 4	
Sw. M	Main switch	By sliding main switch Sw. M —Sw. BZ OFF, Sw. M ON→Sw. BZ ON
Sw. Bz	Buzzer switch	By sliding main switch Sw. M ((to , Sw. BZ OFF
Sw. RC	Back-cover switch	OFF by closing back-cover
Sw. REW 1	Rewinding switch 1	ON by sliding rewind switch lever
Sw. REW 2	Rewinding switch 2	ON by locking rewind switch lever
Sw. REW 3	Rewinding switch 3	ON→OFF→ON with one rotation of rewinding fork
Sw. SLS	Film detecting switch	OFF with film wound by spool
Sw. BLC	Backlight compensation switch	ON by depressing BLC button (Metering and indication circuits activated by Sw. BLC ON/compensates exposure by +2Ev)
Sw. AF/M	Focus mode switch	By sliding focus mode switch ON in M mode. OFF in AF mode
Sw. C/F	C/F switch	ON by opening control key cover (Creative photography : ISO, P/M, SELF can be set) OFF by closing the cover (Full-auto photography : Exposure mode is automatically set to program
Sw. KC	Control-key cover switch	Momentary ON by opening/closing control key cover (Metering and indication circuits activated by Sw. KC ON)
Sw. X1	Sync switch 1	OFF→ON with completion of 1st shutter blade traveling OFF with completion of 2nd shutter blade traveling
Sw. X2	Sync switch 2	• ON with shutter charge start • OFF with completion of 2nd shutter blade traveling
Sw. 30	Battery switch	ON→OFF by attaching battery grip
Sw. 31	ISO key switch	Sets film-speed by depressing shutter-speed up/down key with ISO key held down (Metering and indication circuits activated by Sw. 31 ON)
Sw. 33	Self-timer key switch	Sets/Cancels self-timer mode each time depressed (Metering and indication circuits activated by Sw. 33 ON)
Sw. 34	P/M key switch	Sets exposure mode P/M/1'…each time depressed (Metering and indication circuits activated by Sw. 34 ON)
Sw. 35	F stop-up key switch	When the key is held down, the value changes rapidly. Each time the key is pressed, the value changes by one stop corresponding to pressed control key.
Sw. 36	F stop-down key switch	
Sw. 37	Shutter speed down key switch	
Sw. 38	Shutter speed up key switch	

5000 (2073-200)
α 5000 (2073-400)
MAXXUM 5000 (2073-600)

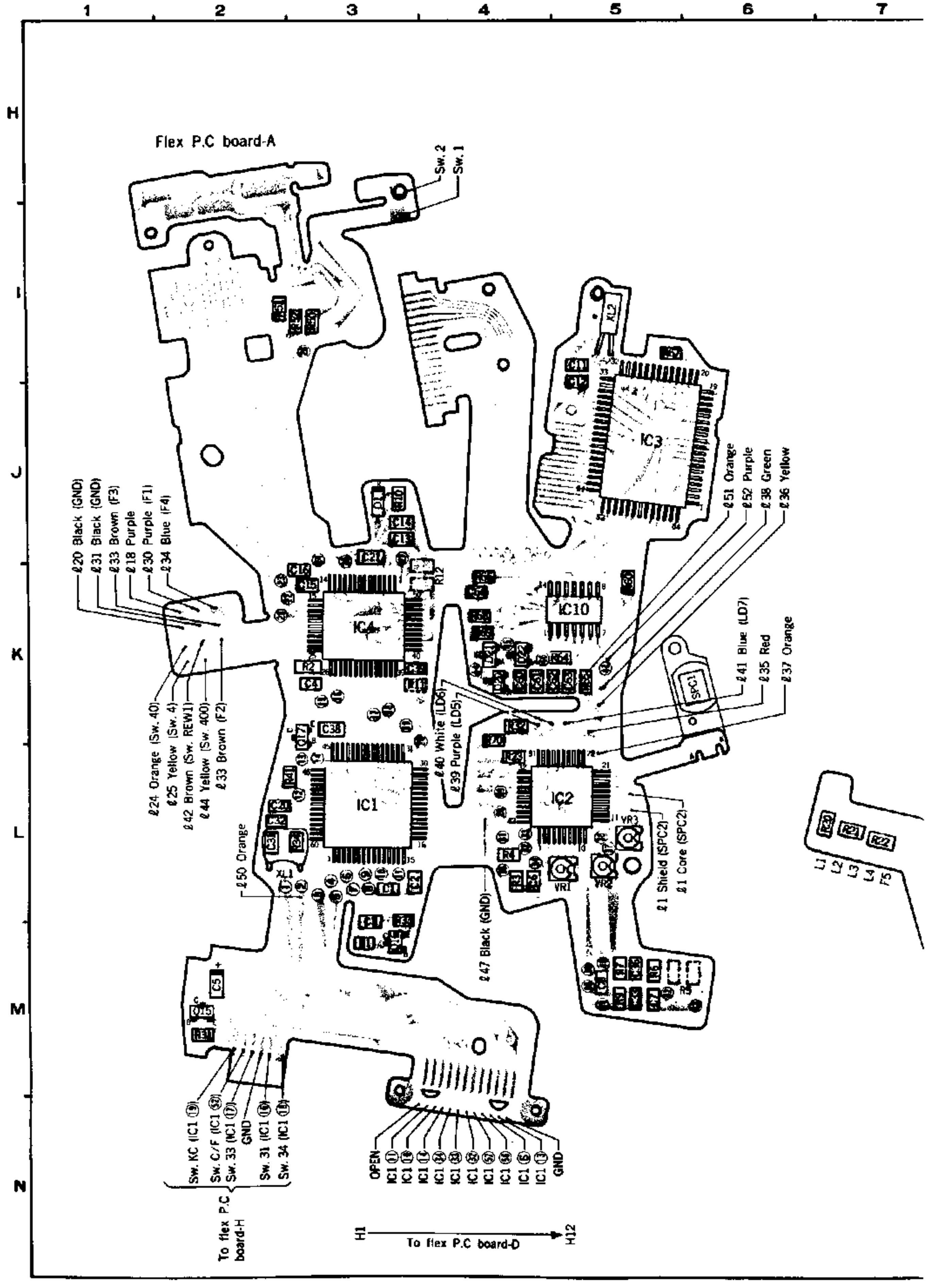


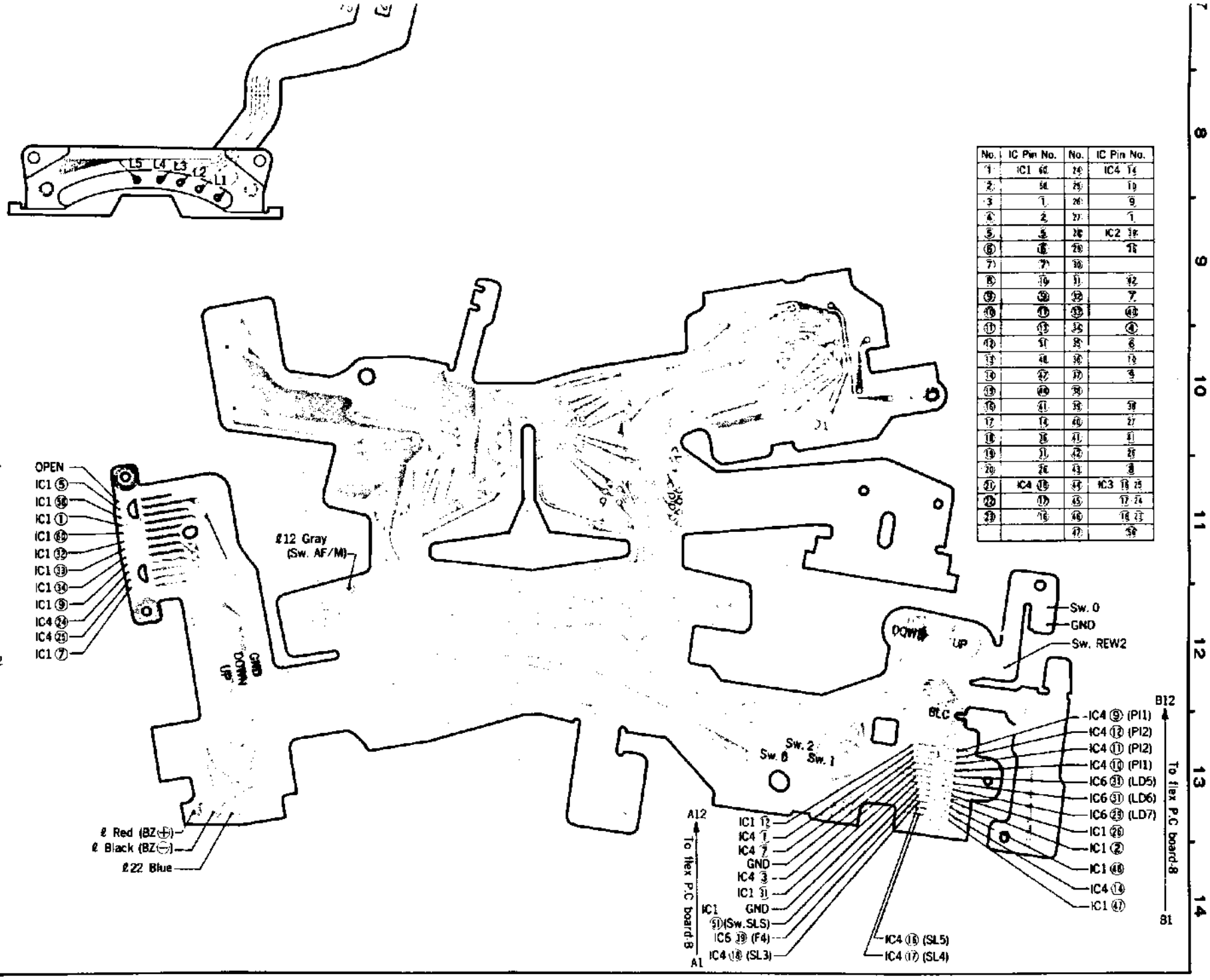

8
9
10
11
12
13
14
15
ℓ34 Blue
Acc. shoe contact
ℓ33 Brown
ℓ32 White
ℓ22 Blue
Red
Black
ℓ47 Black
2073-0330
Rewinding base plate
ℓ37 Orange
ℓ35 Red
ℓ36 Yellow
ℓ38 Green
ℓ41 Blue
ℓ40 White
ℓ39 Purple
LED P.C board
ℓ1
Gray
2072-0584
Flash receptor
2072-0150
BL contact holder
ℓ12 Gray
Soldering position of flexible P.C board-B and Aperture key flexible board
Soldering position of flexible P.C board-G and B
M2
Sw. X1
SL4
Sw. X2
SL5
2072-0201
Shutter
Soldering position of flexible P.C board-D and B
Sw. RC
Black
Red
ℓ13 White (1C)
ℓ14 Yellow (2C)
ℓ17 Black (× --)
ℓ15 Red (Mg COM)
ℓ16 Purple (- 1)


15
16
17
18
19
20
ℓ50 Orange
ℓ52 Purple
ℓ51 Orange
2073-0451
PC board-C

2073 Electrical Elements Locating Diagram

電気部品配置図

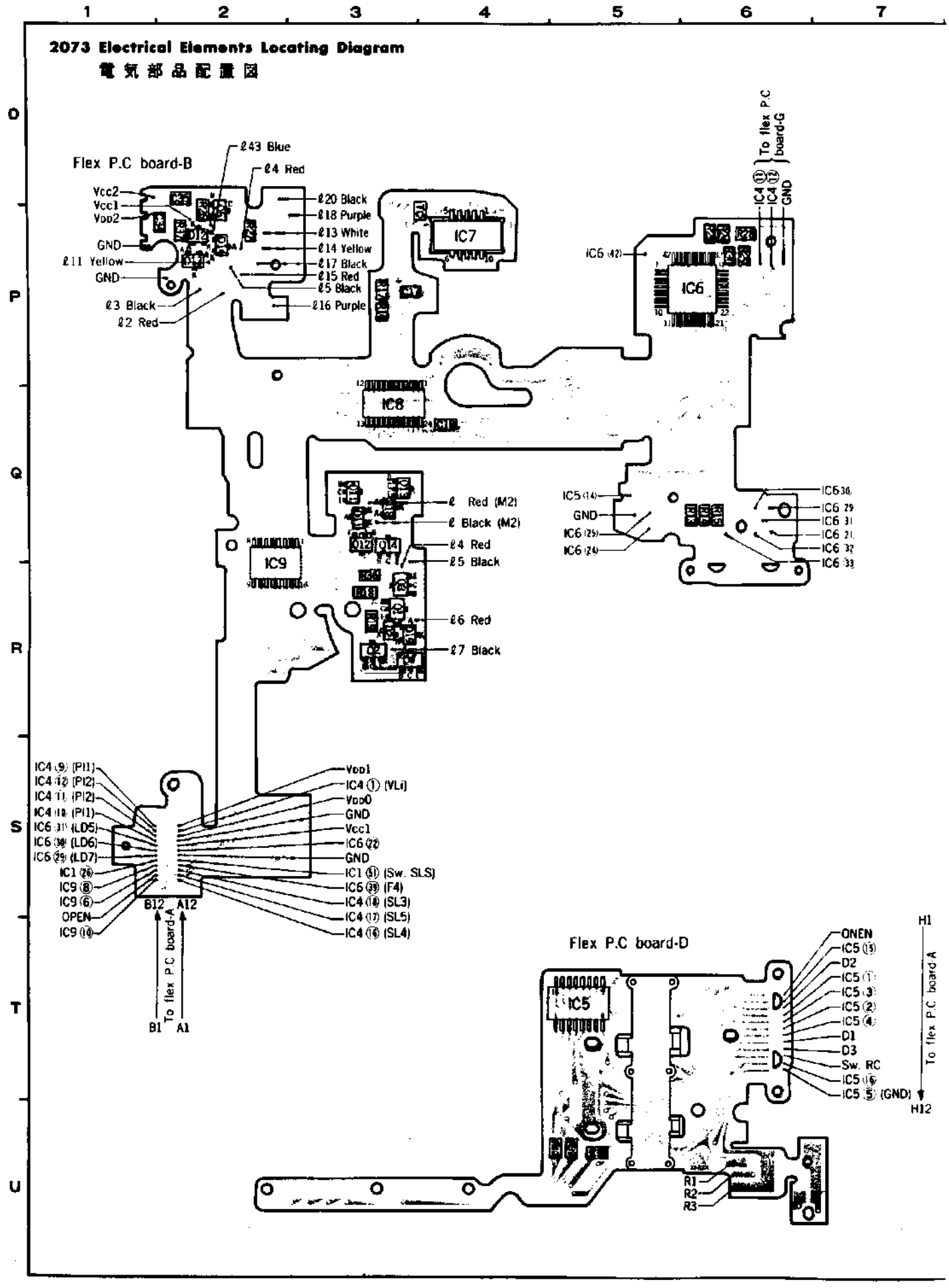


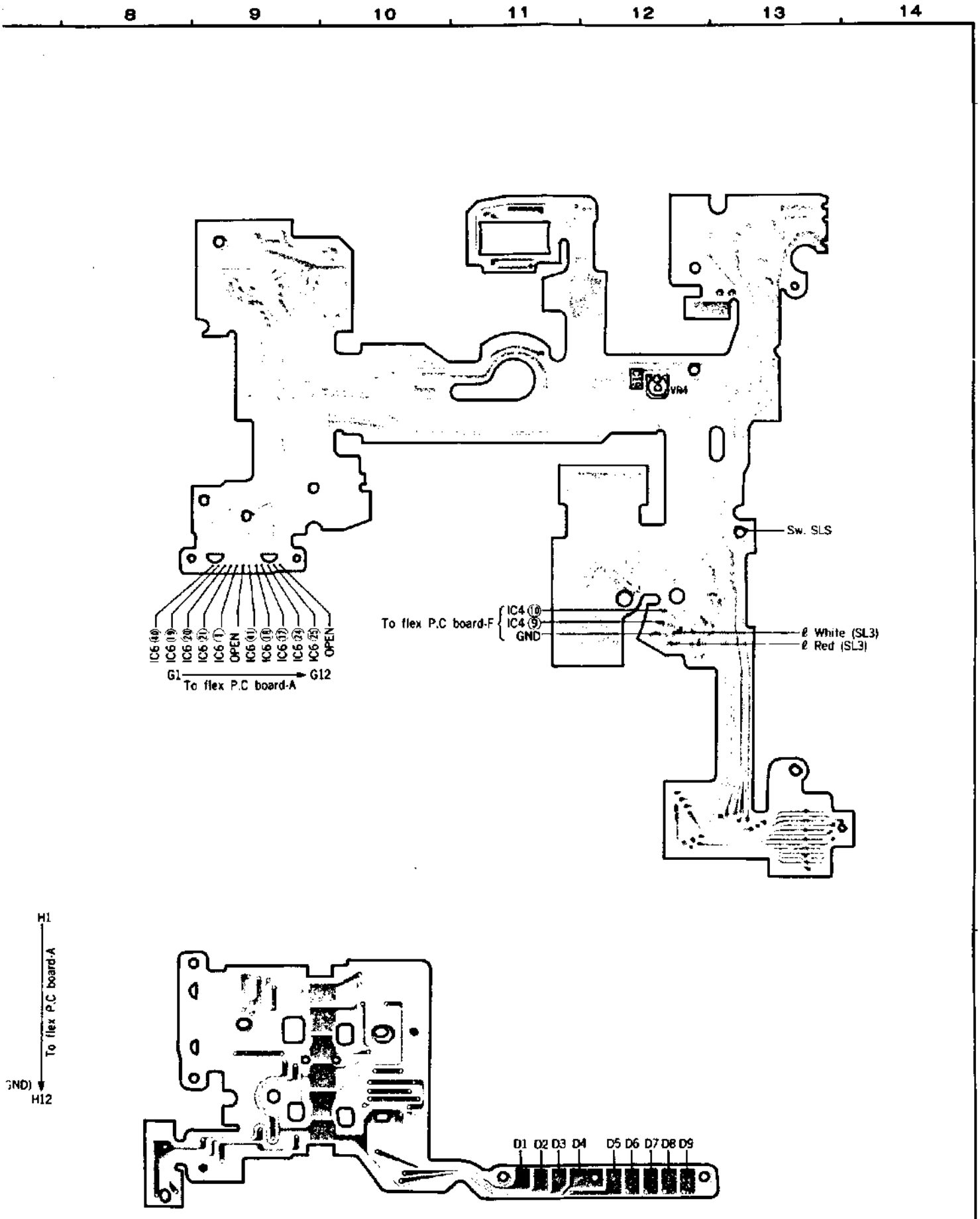


No.	IC Pin No.	No.	IC Pin No.
1	IC1 60	24	IC4 14
2	58	25	10
3	57	26	9
4	2	27	1
5	3	28	IC2 18
6	16	29	16
7	77	30	
8	76	31	12
9	75	32	7
10	71	33	48
11	73	34	4
12	51	35	6
13	48	36	19
14	47	37	5
15	49	38	
16	41	39	38
17	74	40	27
18	78	41	31
19	31	42	25
20	26	43	8
21	IC4 15	44	IC3 18 25
22	17	45	17 24
23	16	46	16 23
		47	50

2073 Electrical Elements Locating Diagram

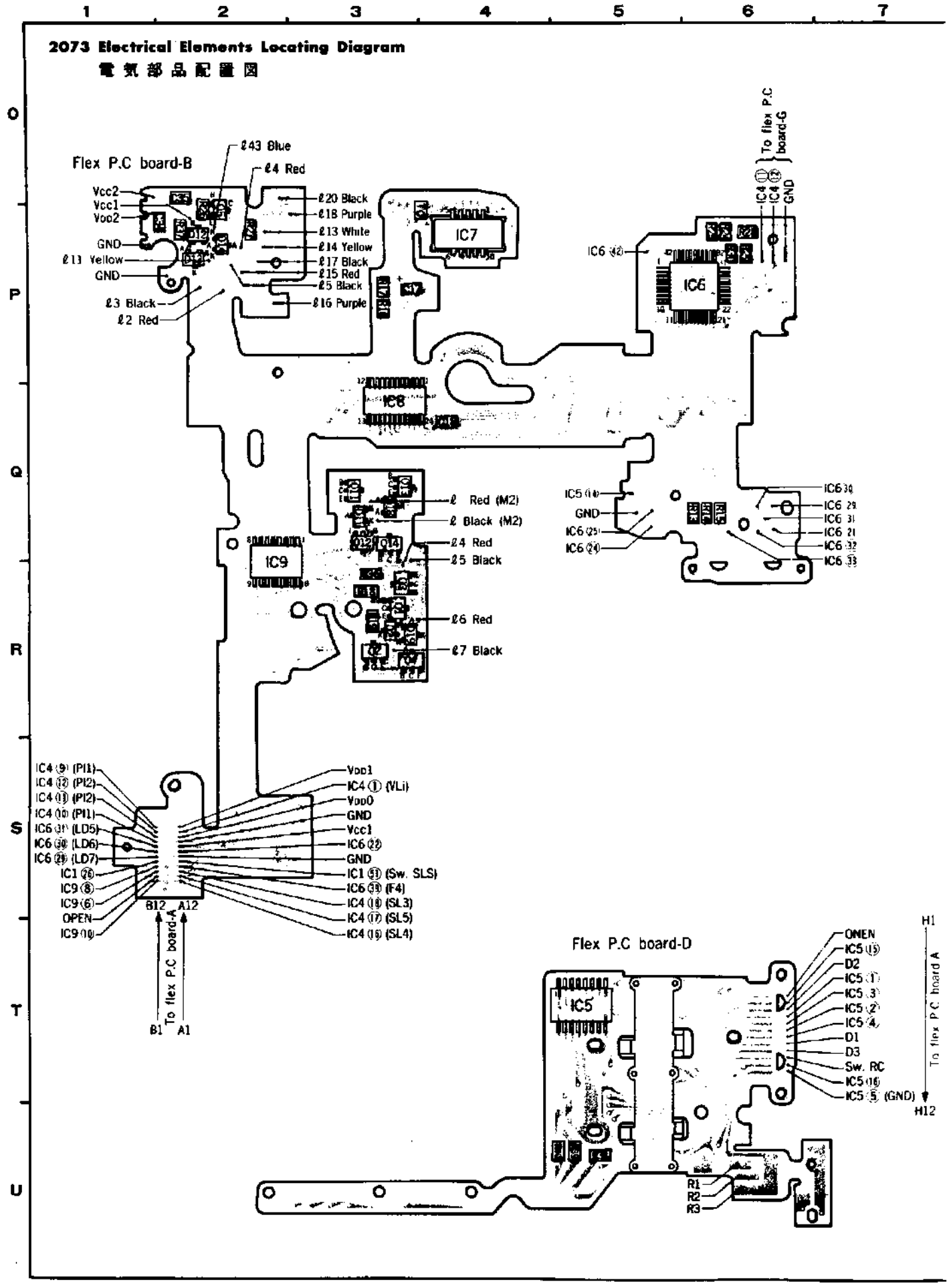
電 気 部 品 配 置 図

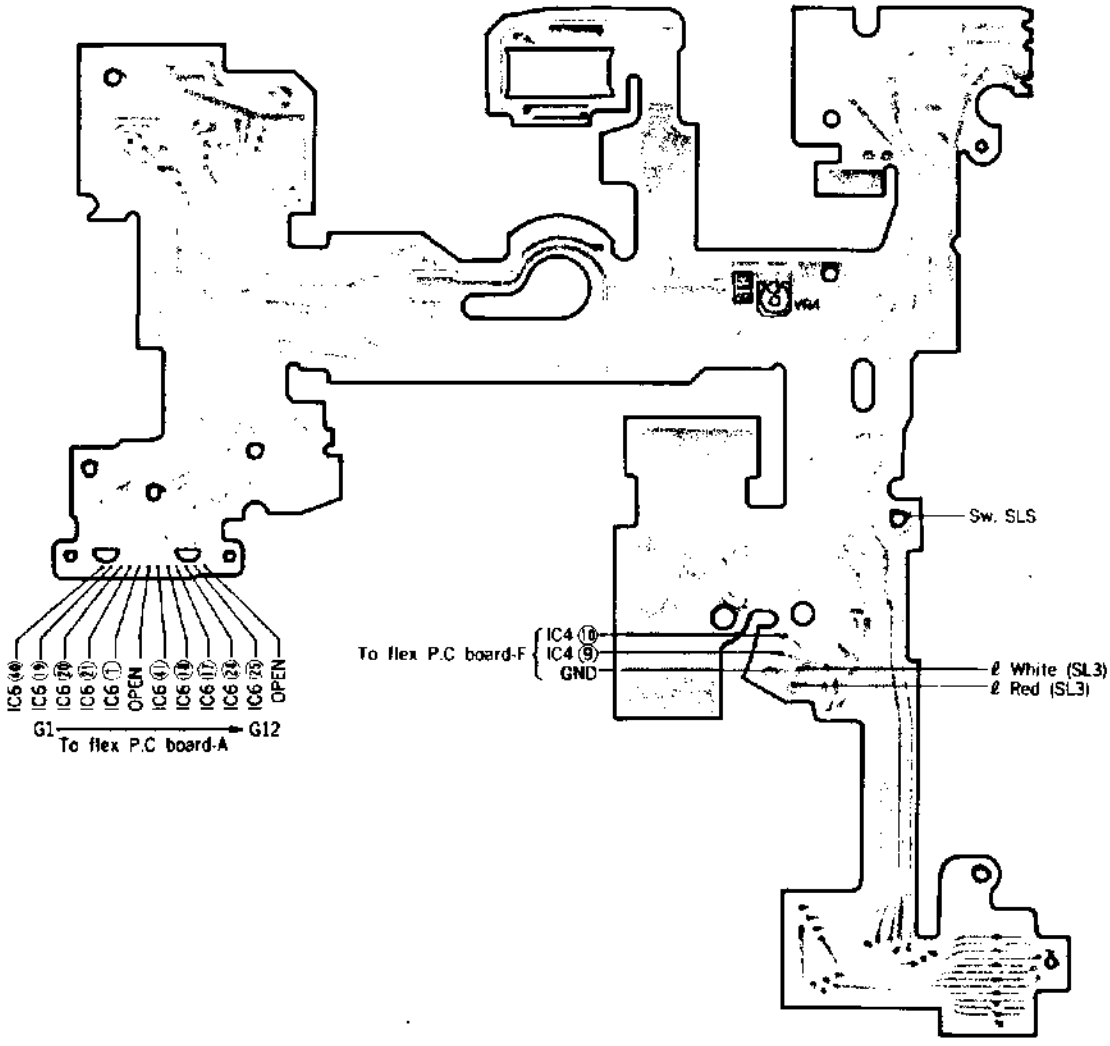


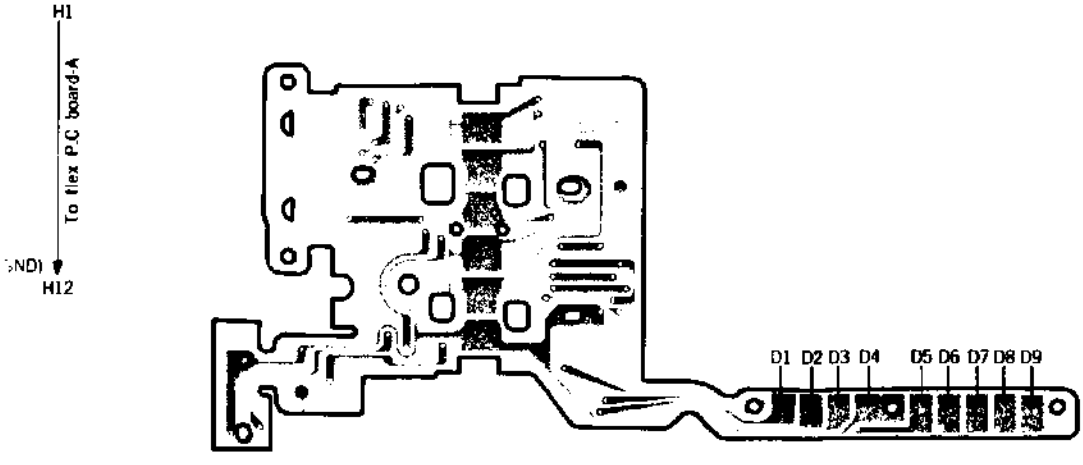

8
9
10
11
12
13
14
VR4
Sw. SLS
IC6 (40)
IC6 (19)
IC6 (20)
IC6 (21)
IC6 (1)
OPEN
IC6 (6)
IC6 (7)
IC6 (23)
IC6 (24)
IC6 (25)
OPEN
G1
G12
To flex P.C board-A
To flex P.C board-F
IC4 (10)
IC4 (9)
GND
White (SL3)
Red (SL3)
H1
To flex P.C board-A
GND)
H12
D1 D2 D3 D4 D5 D6 D7 D8 D9

2073 Electrical Elements Locating Diagram

電 気 部 品 配 置 図




Sw. SLS
To flex P.C board-F
IC4 (10)
IC4 (9)
GND
ℓ White (SL3)
ℓ Red (SL3)
IC6 (4)
IC6 (5)
IC6 (6)
IC6 (7)
IC6 (8)
OPEN
IC6 (1)
IC6 (2)
IC6 (3)
IC6 (24)
IC6 (23)
OPEN
G1
G12
To flex P.C board-A


H1
To flex P.C board-A
H12
D1 D2 D3 D4 D5 D6 D7 D8 D9

SYMBOL	PART NO.	PART NAME	TYPE	QTY
IC_{10}	9367-3461-06	IC	TOSHIBA, TC4023BF	1
	9367-3561-01		MITSUBISHI, M4023	
	9367-3562-01		MATSUSHITA, MN4023BS	
D_1	9361-1461-03	DIODE	ROHM, RLS-73	1
D_{20}, D_{21}, D_{22}	9361-5561-05		MATSUSHITA, MA28T-A ML	3
Q_{15}, Q_{16}, Q_{17}	9362-1032-01	TRANSISTOR	TOSHIBA, 2SC2712	3
	9362-1032-02		TOSHIBA, 2SC2712	
	9362-1032-03		TOSHIBA, 2SC2712	
	9362-1032-04		TOSHIBA, 2SC2712	
	9362-1461-01		MITSUBISHI, 2SC3052	
	9362-1461-02		MITSUBISHI, 2SC3052	
	9362-1461-03		MITSUBISHI, 2SC3052	
	9362-1464-01		ROHM, 2SC2412	
	9362-1464-02		ROHM, 2SC2412	
	9362-1464-03		ROHM, 2SC2412	
	9362-1633-01		NEC, 2SC1623	
	9362-1633-02		NEC, 2SC1623	
	9362-1633-03		NEC, 2SC1623	
	9362-1633-04		NEC, 2SC1623	
Q_{18}	9363-1033-01		SANYO, 2SA1179	1
	9363-1033-02		SANYO, 2SA1179	
	9363-1033-03		SANYO, 2SA1179	
	9363-1033-04		SANYO, 2SA1179	
	9363-1363-01		TOSHIBA, 2SA1298	
	9363-1363-02		TOSHIBA, 2SA1298	
	9363-1461-01		NEC, 2SB736	
	9363-1461-02		NEC, 2SB736	
	9363-1461-03		NEC, 2SB736	
	9363-1461-04		NEC, 2SB736	
	9363-1461-05		NEC, 2SB736	
R_1, R_{47}	9431-3346-62	FIXED RESISTOR	1/4W 330K	2
R_2	9432-2068-61		1/8W 20M	1
$R_{3, 31, 41, 50}$	9431-1056-62		1/4W 1M	4
R_4	9431-2436-62		1/4W 24K	1
R_5 (RANKING RESISTOR)	9422-1046-63		1/8W 100K	0~1
	9422-2046-63		1/8W 200K	
	9422-2236-63		1/8W 22K	
	9422-2436-63		1/8W 24K	
	9422-2736-63		1/8W 27K	
	9422-3336-63		1/8W 33K	
	9422-3936-63		1/8W 39K	
	9422-5136-63		1/8W 51K	
	9422-6836-63		1/8W 68K	
R_6	9431-2246-62		1/4W 220K	1
R_7	9431-6826-62		1/4W 6.8K	1
R_9	9431-6226-62		1/4W 6.2K	1
R_{10}, R_{51}, R_{53}	9431-1036-62		1/4W 10K	3
R_{11} (RANKING RESISTOR)	9422-2746-63		1/8W 270K	0~1
	9422-3346-63		1/8W 330K	
	9422-4746-63		1/8W 470K	
	9422-6846-63		1/8W 680K	
R_{12} (RANKING RESISTOR)	9422-1036-63		1/8W 10K	0~1
	9422-1536-63		1/8W 15K	
	9422-2236-63		1/8W 22K	
	9422-3336-63		1/8W 33K	
	9422-6836-63		1/8W 68K	
R_{23}, $R_{32, 72}$	9431-3336-62		1/4W 330K	3
$R_{65, 68, 69, 70, 71}$	9431-1046-62		1/4W 100K	5
R_{33}	9431-4746-62		1/4W 470K	1
R_{34}	9431-2226-62		1/4W 2.2K	1
R_{66}	9431-3326-62		1/4W 3.3K	1
R_{84}	9431-1246-62		1/4W 120K	1
R_{66}	9431-8236-62		1/4W 8.2K	1

SYMBOL	PART NO.	PART NAME	TYPE	QTY
C_1	9564-2215-69	CONDENSER	CERAMIC, 220PF/25V	1
	9565-2215-37		CERAMIC, 220PF/50V	
C_3, C_{19}, C_{20}	9564-3335-65		CERAMIC, 0.033μF/25V	3
	9564-3335-69		CERAMIC, 0.033μF/25V	
C_2, C_5, C_6, C_7	9564-1035-69		CERAMIC, 0.01μF/25V	4
	9565-1035-37		CERAMIC, 0.01μF/50V	
C_9	9531-1555-68		TANTALUM, 1.5μF/6.3V	1
	9532-1555-67		TANTALUM, 1.5μF/10V	
	9532-1555-68		TANTALUM, 1.5μF/10V	
C_8, C_{18}	9564-3325-69		CERAMIC, 3300PF/25V	2
	9565-3325-37		CERAMIC, 3300PF/50V	
C_{11}, C_{12}	9564-2204-65		CERAMIC, 22PF/25V	2
	9565-2204-65		CERAMIC, 22PF/50V	
C_{13}	9564-1044-64		CERAMIC, 0.1μF/25V	1
C_{14}	9564-3935-68		CERAMIC, 0.039μF/25V	1
	9565-3935-63		CERAMIC, 0.039μF/50V	
C_{21}	9565-1835-63		CERAMIC, 0.018μF/50V	1
C_{31}, C_{32}, C_{64}	9564-3304-65		CERAMIC, 33PF/25V	3
	9565-3304-65		CERAMIC, 33PF/50V	
$C_{33, 36, 60, 61, 62, 63}$	9563-1048-61		CERAMIC, 0.1μF/16V	6
	9564-1048-63		CERAMIC, 0.1μF/25V	
C_{38}	9565-2215-63		CERAMIC, 220PF/50V	1
	9564-2215-68		CERAMIC, 220PF/25V	
C_{39}	9565-1025-37		CERAMIC, 1000PF/50V,	1
VR_1	9472-1039-63	VARIABLE RESISTOR	1/6W 10K	1
	9473-1039-63		1/6W 10K	
VR_2, VR_3	9472-2239-63		1/6W 22K	2
	9473-2239-63		1/6W 22K	
XL_1	9373-4361-01	CRYSTAL RESONATOR	CSA4, 19MG1	1
XL_2	9373-4161-02		KF-26	1
	9373-4162-01		C-2-32.7	
	9373-4163-01		DT-26S	
SPC_1	2072-4292-01	SPC		1

CHECK LIST

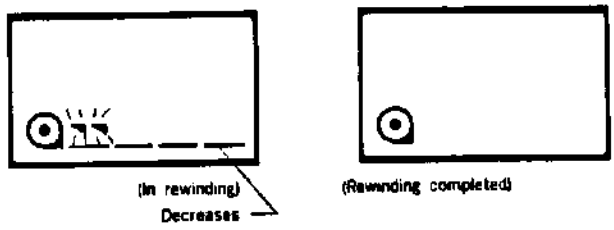
1. This check list shows the allowable quality level for servicing so as to warrant product quality to the users of Minolta cameras. Each item is detailed so that you can use this check list to meet the user's requirements. Also, use this to recheck the repaired camera before returning it to the user.
2. When delivery or acceptance inspections are required, however, do not directly apply this check list to check the result of actual measurement, but follow the acceptance check list (manual) involved after grasp the meaning of inspection purpose correctly.
3. Because of user's taste or special purposes, they may sometimes require standards other then this. In that case, check if it is possible to meet the user's request, and perform the necessary adjustment.

Check under the following conditions :
with standard lens (2550-100), main switch ON or (((● , exclusive flash 2800AF (8821) used.

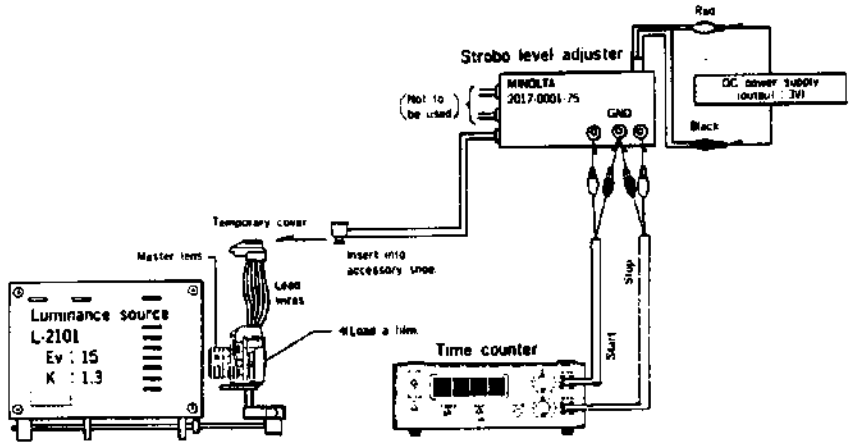
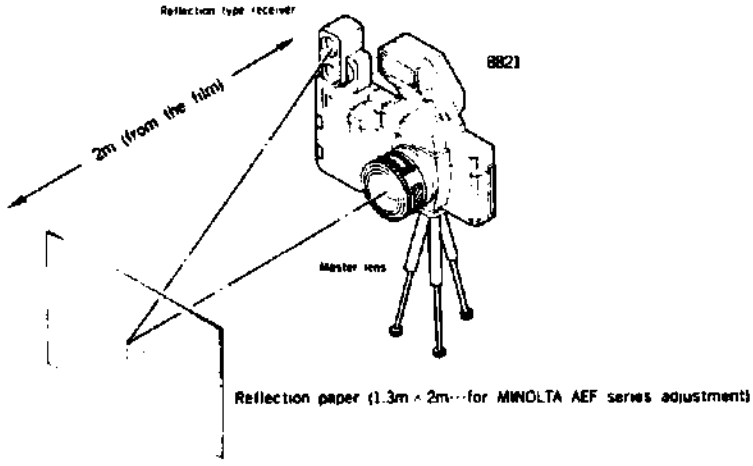
Item	Checking part	Requirement
Power ON/hold	Main switch	Movement……Free from squeak, roughness ; Has proper click.
	Touch switch	By touching operating-button, circuits (metering, indication, focus-assist*) are activated, and measured values are displayed. (Circuit-power holds ON for 10 sec after releasing operating-button.) ※In manual focus mode.
	Metering switch	By depressing operating-button to the first stop position, circuits (metering, indication, AF) are activated, and measured values are displayed. (Circuit-power holds ON for 10 sec after releasing operating-button.)
		● By operating switch*, circuits (metering, indication) are activated, and measured values are displayed ; (Circuit-power holds ON for 10 sec after releasing the switch.) ※control-key cover (opening/closing), "BLC" button, "P/M" key, self-timer key, or "ISO" key (activates circuits when released). ● By operating any of the switches (*marked switch, shutter-up/-down key**, and aperture-up/-down key**) during the operation of the circuits, circuit-power holds ON for 10 sec further after that. ※※only in M mode. ● After APO (auto power off) circuit is activated with exclusive flash used, flash is re-charged by touch switch (or metering switch) ON.
Exposure mode setting	Control-key cover	Movement……Free from squeak, roughnes ; Has proper click.
		● When control-key cover is closed, exposure mode is set at P (program). ● Each time "P/M" key is depressed with control-key cover open, the mode changes as PROGRAM ⇄ M ● By closing control-key cover with exposure mode set at M (manual), the mode changes over into P (program).
ISO setting	LCD on body	● Each time shutter-up/-down key is depresed with "ISO" key held down, ISO value changes to higher/slower value by 1/3 stop. (When the key is held down, the value changes rapidly.) ● By closing back cover. (w/DX-coded film), the ISO value is automatically set and displayed on LCD). ● (w/non DX film), previous ISO setting is displayed on LCD.

Note…In this Check List, aperture key and shutter speed key are called A-key, S-key respectively for convenience. In this CHECK LIST, "P/M" key means exposure mode selector key.

Item	Checking part	Requirement
Display in P mode	LCD in viewfinder	• Displays as follows :  • When required shutter speed-aperture combination is not available, both shutter speed and aperture blink. • When light level is outside metering range, "▲▼" blink.
Display in M mode	LCD in viewfinder	• Displays as follows :  • Metering indicator (any of ▲, ▼, ▲▼) glows. • Each time shutter-up/-down key is depressed, display of shutter speed changes by 1Ev. (Changes rapidly when the key is held down.) • Each time aperture-up/-down key is depressed, display of aperture changes by 0.5Ev. (Changes rapidly when the key is held down.) • When light level is outside metering range, "▲▼" blink.
Backlight compensation	LCD in viewfinder	• While "BLC" button is depressed in P mode, measured values increase by +2Ev. • While "BLC" button is depressed in M mode, metering indicators "▲▼" change by +2Ev.
Winding		Free from irregular sound, uneveness.
	Take-up spool	Rotates smoothly and takes up film without looseness.
	SLS roller	Rotates smoothly.
		• By closing back cover, film is wound by 4 frames and stops, displaying film-cartridge symbol, and frame number "1".  (Displays frame number "0", and no film-cartridge symbol if film is not loaded.) • During winding, winding symbol "◣ ◣" glows. • After shutter release, film is wound by 1 frame securely. • At the end of roll, winding automatically stops by detecting end of film. Camera beeps, if main switch at (((• , for 1 sec when winding stops.  (Auto stop)
Rewinding	Rewind switch lever	• Not moved unless depressing "R" (rewind release) button. • Free from unsmoothness, catching, roughness.
		• Free from irregular sound, uneveness. • LCD on body when rewinding : "– – – –" glow by rewind operation and decrease while rewinding. Rewinding symbol "◥ ◥" blinks while rewinding.

Item	Checking part	Requirement
Rewinding	Rewind switch lever	 ● When rewinding is completed, film is all taken up into cartridge. (except under conditions such as low battery voltage and temperature)
Shutter operation	Operating button	Free from catching, roughness, looseness; Has proper click.
	Shutter blades	Free from stain, uneven surface. Shutter opening/closing is smooth and complete*. ※Check opening with slow shutter speed (1/60 or slower): 1st and 2nd shutter blades are not in sight while shutter opens. 2nd shutter-blades do not hit 1st shutter-blades.
		In bulb setting. By depressing operating-button, bulb elapsed time is displayed as 0"→1"→2"→ replacing frame number.
	Self-timer	● By depressing self-timer key, self-timer indicator ⏲ is displayed. ● By depressing operating-button, self-timer starts displaying 10" in frame counter. Then, self-timer count down is displayed as 10"→9"→8"→……and shutter is released with 10 sec delay. ● When main switch is at (((●, camera beeps with start of self-timer. ● After self-timer starts, the operation is cancelled by turning main switch OFF, or depressing "ISO" key or "P/M" key. ● After self-timer starts, self-timer mode is cancelled by depressing self-timer key or closing control-key cover.

<table>
<tr><th>Item</th><th>Requirement</th></tr>
<tr><td>Exposure
(manual)</td><td>
Manual shutter speed　　※Check by measuring 5 times.
<table>
<tr><th>Setting speed</th><th>Reference speed</th><th>Tolerance</th><th>Dispersion*
(B range)</th><th>Exposure uneveness</th></tr>
<tr><td>1/2000</td><td>0.488ms</td><td>0.333－0.714ms</td><td>Within 0.45Ev (³⁷/₂₇%)</td><td rowspan="13">The difference between maximum and minimum values among A, B, C range should be less than 0.6Ev (⁵²/₃₁%).
The difference between A-B, B-C ranges should be less than 0.3Ev (²³/₁₉%).</td></tr>
<tr><td>1/1000</td><td>0.977ms</td><td>0.740－1.29ms</td><td rowspan="5">Within 0.3Ev (²³/₁₉%)</td></tr>
<tr><td>1/500</td><td>1.95 ms</td><td>1.58－2.4ms</td></tr>
<tr><td>1/250</td><td>3.91 ms</td><td>3.18－4.18ms</td></tr>
<tr><td>1/125</td><td>7.81 ms</td><td>6.34－9.62ms</td></tr>
<tr><td>1/60</td><td>15.6 ms</td><td>12.7－19.2ms</td></tr>
<tr><td>1/30</td><td>31.3 ms</td><td>29.2－33.5ms</td><td rowspan="8">——</td></tr>
<tr><td>1/15</td><td>62.5 ms</td><td>58.3－67ms</td></tr>
<tr><td>1/8</td><td>125 ms</td><td>117－134ms</td></tr>
<tr><td>1/4</td><td>250 ms</td><td>233－268ms</td></tr>
<tr><td>1/2</td><td>500 ms</td><td>467－536ms</td></tr>
<tr><td>1″</td><td>1 s</td><td>933－1070ms</td></tr>
<tr><td>2″</td><td>2 s</td><td>1.87－2.14s</td></tr>
<tr><td>4″</td><td>4 s</td><td>3.74－4.28s</td></tr>
<tr><td>1/100</td><td>10 ms</td><td>9.0－12.3ms</td></tr>
</table>
Synchro (X delay time)
<table>
<tr><th>Shutter speed</th><th>Measuring range</th><th>Tolerance</th></tr>
<tr><td rowspan="2">1/100</td><td>A range</td><td>0.3ms (min.)</td></tr>
<tr><td>B range</td><td>3.0ms (min.)</td></tr>
</table>
</td></tr>
<tr><td>Exposure
(auto)</td><td>
AE level
With standard lens (2550-100), ISO : 100, K value : 1.3
<table>
<tr><th>Mode</th><th>Luminance*</th><th>AE level tolerance</th></tr>
<tr><td rowspan="3">PROGRAM</td><td>Ev 6 (5)</td><td rowspan="3">0 ±0.8Ev</td></tr>
<tr><td>Ev 10 (11)</td></tr>
<tr><td>Ev 15</td></tr>
</table>
※Luminance given in ( ) are for luminance source, MODEL L-222 or L-223.
</td></tr>
</table>

Item	Requirement
Exposure (auto)	**Electric flash dimmer performance** 1. Check by a luminance box (When the luminance source is other than L-2101, check in the following No. 2 methods.) ● **Standard**···The time counter display shall be within the range of **0.26—0.78ms** ● **Checking procedures**···Set up a camera and measuring instruments as illustrated below to observe the time counter display when the shutter is released.  ● **Camera** Installation master lens (2072-0001-75) ※Film : Loaded Mode : M shutter speed : 1/100 ISO : 100 Aperture : F5.6 ● **Time counter (TC-1)** TRIG. slope A-CH : − B-CH : − TRIG. level A-CH : +1 B-CH : +1 2. Checking by strobo tester (Model ST-Ⅲ) ● **Standard**···Strobo tester display shall be within the range of **F4.7±0.8Ev** ● **Checking procedures**···Set up a camera and measuring instruments as illustrated below and release the shutter 30 seconds after the pilot lamp of the electric flash light up to observe the display of the electric flash.  ● **Camera** Installation master lens (2072-0001-75) ※Film : Loaded Mode : M ISO : 100 Aperture : F5.6 ● **Strobo tester** MODE : NON. C ● **Electric flash** Hi-Low changing Sw. : Hi ※Use Kodacolor VR (ISO 100) whick has been exposed to light (indoor) at least one day.

<table>
<tr><th>Item</th><th>Checking part</th><th>Requirement</th></tr>
<tr><td>Slow shutter speed warning</td><td></td><td>Camera beeps (4Hz) by turning touch switch ON under the following conditions :
<table>
<tr><th>Focal length of lens in use</th><th>Shutter speed</th></tr>
<tr><td>Shorter than 35mm</td><td>1/20 sec or slower</td></tr>
<tr><td>35mm to 105mm</td><td>1/45 sec or slower</td></tr>
<tr><td>Longer than 105mm</td><td>1/100 sec or slower</td></tr>
</table></td></tr>
<tr><td>Viewfinder illumination</td><td>LED (viewfinder illuminator)</td><td>Turned ON by covering the lens by hand, when touch ON, or while metering.</td></tr>
<tr><td rowspan="3">Autofocus</td><td>Focus mode switch</td><td>● Free from roughness, squeak ; Has proper click.
● When in "AF", AF circuit is activated by metering-switch ON.
● When in "M", focusing is activated by touch switch ON.</td></tr>
<tr><td></td><td>AF operation
● With subject possible to autofocus, AF should be activated, and green LED in viewfinder should glow showing focus-in.
● When in-focus with main switch in ((● position, camera should beep at 16Hz. (When green focus signal in viewfinder glows, check if image in viewfinder is clear with far and near subjects.)
● If subject (possible to autofocus) is closer than minimum distance, lens stops at minimum distance with focus signal "▶" glowing and shutter locked.
● (When subject is impossible to autofocus e.g. too dark, or low contrast) lens shifts and stops (stop position is not regulated) with focus signal "▶◀" glowing and shutter locked.</td></tr>
<tr><td></td><td>Manual focus operation
● With subject impossible to focus-assist, focus signal in viewfinder "▶◀" should blink.
● With subject possible to focus-assist ;
when in focus, green LED in viewfinder should glow showing in-focus.
When out of focus "▶" or "◀" should glow.
● When in focus with main switch ((● , camera should beep at 16Hz.
● Focus-assist activation should hold for 10 sec after touch switch OFF.</td></tr>
<tr><td>Winding/ rewinding time</td><td></td><td>W/M mode, film loaded (KODACOLOR VR 100 21EX), power supply adapter at 6V).
[Winding speed] Frame counter counts more than 17 (1.2 fps) while film is wound continuously for 10 sec from frame number 5, with shutter speed at 1/125 sec.
[Rewinding time] Within 23 sec from auto stop at end of roll to auto rewind stop (motor stop)</td></tr>
<tr><td>Battery check voltage</td><td></td><td>
<table>
<tr><th>Conditions</th><th>Standard</th></tr>
<tr><td>Low-battery signal begins blinking</td><td>2.2 ± 0.1V</td></tr>
<tr><td>All LCDs OFF</td><td>2.0 ± 0.1V</td></tr>
</table>
Check voltage using power supply adapter with both ends of its resistor connected</td></tr>
<tr><td>Battery consumption</td><td></td><td>
<table>
<tr><th>Item</th><th>Standard</th></tr>
<tr><td>Metering</td><td>150mA (max.)</td></tr>
<tr><td>AF activation</td><td>1.2A (max.)</td></tr>
<tr><td>Winding (with film in)</td><td>2.2A (max.)</td></tr>
<tr><td>Rewinding</td><td>2.2A (max.)</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Checking part</th><th>Requirement</th></tr>
<tr><td>Leak current</td><td></td><td>
<table>
<tr><th>Item</th><th>Standard</th></tr>
<tr><td>Main switch OFF</td><td>100μA (max.)</td></tr>
<tr><td>Main switch ON, (((e</td><td>200μA (max.)</td></tr>
</table>
</td></tr>
<tr><td rowspan="3">Focusing</td><td></td><td>Body focus·····44.70±0.01mm</td></tr>
<tr><td>Mirror</td><td>Should be free from losseness, unsmooth operation, timing failure, bound during shutter opening.</td></tr>
<tr><td>Viewfinder</td><td>Image should be free from inclination, uneven clearness.
Image sharpenss at infinity (∞). (check with lens set at ∞)</td></tr>
<tr><td rowspan="4">Others</td><td>Lens de-/attaching</td><td>Should have proper torque. Un-/locking should be smooth.
Attached lens should be free from looseness.</td></tr>
<tr><td>AF coupler</td><td>Projecting amount should be 1.6 $^{+0.4}_{0}$mm.
(Without lens in AF mode in the state of AF coupler projection, measure the length from flange to tip of AF coupler.)</td></tr>
<tr><td>Back cover</td><td>• Should open (lift) by itself when lock is released.
• De-/attaching, un-/locking, roller rotation, should be smooth.
• Should not rub body when opening/closing.</td></tr>
<tr><td>Pressure plate</td><td>Should be flat evenly; should be free from deformation, foreign substance.</td></tr>
<tr><td>Operation with exclusive flash</td><td></td><td>With exclusive flash fully charged.
• Viewfinder flash-signal ϟ should blink (2Hz) by touch switch ON.
• After activation of flash APO (auto power off) circuit, flash should be re-charged by touch switch ON.
• After flash fire, viewfinder flash-signal ϟ should blink (8Hz) for one see if exposure is correct.
• Shutter and aperture indication should change as follows, corresponding to exposure mode.
(ISO)
<table>
<tr><th>Mode</th><th>Shutter speed</th><th>Aperture</th></tr>
<tr><td>P</td><td>1/100 or 1/60 sec (corresponding to lighting conditions.)</td><td>Range from f/2.8 to f/8 corresponding to lighting conditions.</td></tr>
<tr><td>M</td><td>1/100 if manually setting speed is 1/125-1/2000 sec;
Remains the same if menually setting speed is "bulb"-1/100 sec.</td><td>Remains the same.</td></tr>
</table>
• Turn metering switch ON with flash's main switch in AF position, lens covered: AF-assist light should be emitted once.</td></tr>
<tr><td>Operation with PROGRAM BACK 70</td><td></td><td>• Controls camera properly.
• Imprints data correctly.</td></tr>
<tr><td>Operation with DATA BACK 70</td><td></td><td>• Imprints data correctly.</td></tr>
<tr><td>Operation with WIRESS CONTROLLER IR-1N, REMOTE CORD S/L</td><td></td><td>Should release shutter properly.</td></tr>
</table>