Mamiya

SERVICE INSTRUCTIONS

Mamiya ZE-2

QUARTZ

BELL & HOWELL • MAMIYA COMPANY

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MMZE2SI

Repair Manual

for

Mamiya ZE-2

QUARTZ

The screw which has a mark of black circle dot on head of the its identification number is new type screw, so called "Tapping screw".

For example: ●TB2 x 4 ----------Tapping screw

●M1100-13771-------Tapping screw

Note: Special attention should be payed to tightening the screw in order to avoid marking oversized or broken hole.

Attention for cleaning up plastic parts of camera surface:

(1) Rub and wipe gently plastic parts with tissue paper or chamois without moistening it in any cleaning fluid.

(2) Some really stubborn dirt or grease?
You can use only "Benzine".
Moisten tissue or chamois in benzine, and rub and wipe surfaces for removing them, but never use any other fluids like alcohol, ether and keton.
Otherwise it may cause fading and crack to the plastic surface.

Content

4. Position of aperture arm

5. Adjustment of Auto exposure and manual shutter speed

6. Adjustment of viewfinder infinity

7. Shutter release

8. Electronic circuit, switching and trouble shooting

Preface (Important notices)

P-1 This ZE-2 service instruction book is made in base on the ZE service instruction book.

Thus, the ZE-2 service instruction book should be used in conjunction with the ZE service instruction book.

P-2 Soldering and static electricity

Hybrid IC circuit and manual shutter speed circuit have been adopted on the ZE-2 camera newly.

Always pay your great attention for soldering and static electricity.

P-3 Tapping screw

Carefully read the ZE service instruction preface "P-2 tapping screw" again and deepen your understanding about the tapping screw.

1. Dis. and reassembly

Please always refer to diagrams of the ZE-2 parts catalog when dis. and reassembing.

However, only some particular ones have been described here in the text.

1-1 Disassembly of front housing with mirror housing and viewfinder:

A. Disassembly

Primarily unsolder following leadwires by referring to the electro circuit diaghrams.

1. From flexible PCB.

a.	White, yellow and orange leadwires from shutter	3 pcs
b.	Purple leadwire from main SW	1
c.	Green leadwire from reset SW	1
d.	Orange readwire from battery house	1
c.	Pink readwire between VR2 and VR3	1
f.	Green (Output) and purple leadwires from manual PCB.	2
g.	Green, brown and blue leadwires from selector PCB.	3
h.	Red leadwire from shutter	1
i.	Red leadwire from X synchro terminal	1

2. From selector PCB

a.	Pale blue leadwire from main SW	1
b.	Black leadwire from reset SW	1
c.	Pale blue leadwire from battery house	1
d.	Pink leadwire from manual PCB	1
e.	Yellow leadwire from manual PCB	1
f.	White leadwire from flexible PCB	1

3. From manual PCB

a.	Green, white, black, black and purple from flexible PCB	5

Total 25 pcs.

4. The arabic numeral in a circle as shown in Fig. 1 indicate the procedure of disassembly.

Reassembly is normally the reverse of disassembly

text.

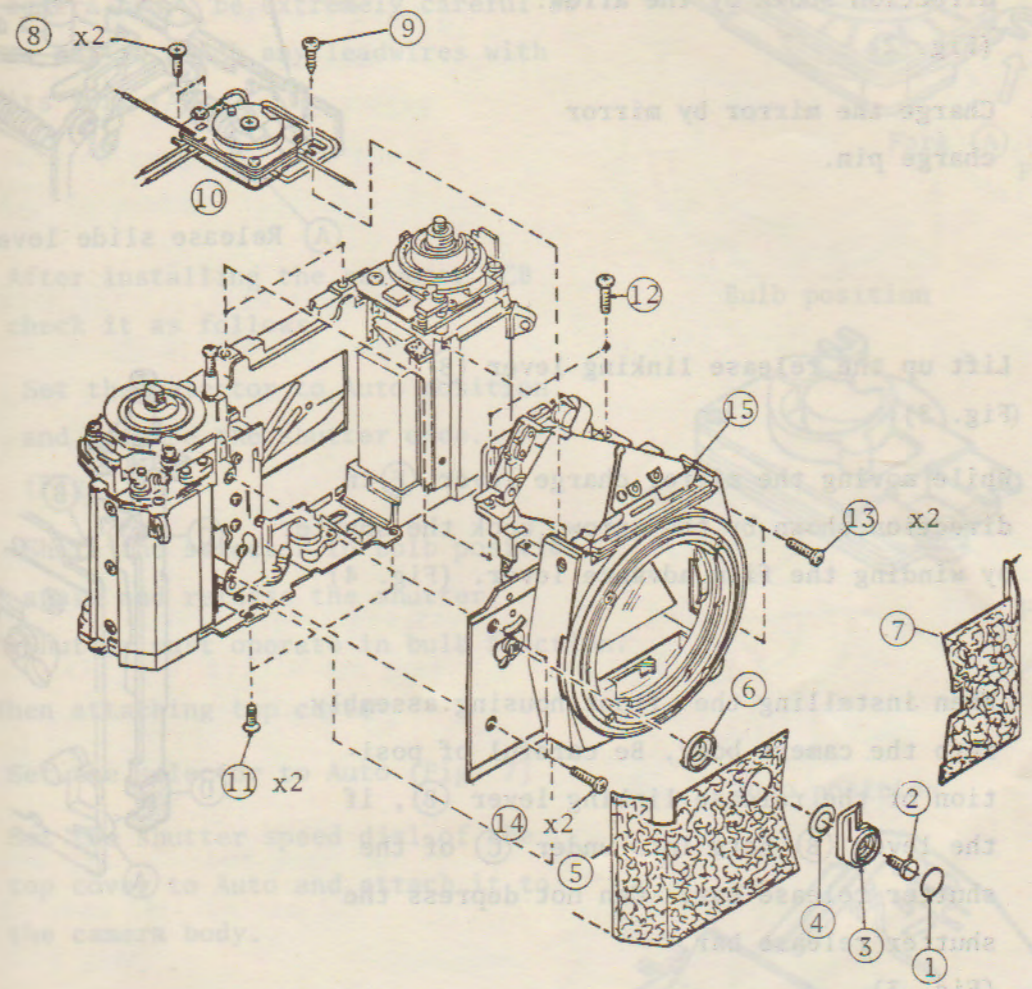


Fig.1

B. Significant notices when reassembling:

1. First charge the mirror of front housing assembly as follows.

   a. Move the release slide lever Ⓐ in direction shown by the arrow. (Fig. 2)

   b. Charge the mirror by mirror charge pin.

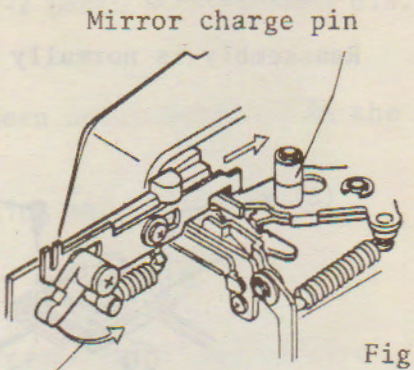


Fig.2

2. Lift up the release linking lever Ⓑ (Fig. 3)

3. While moving the mirror charge lever Ⓔ in direction shown by the arrow, cock the shutter by winding the film advance lever. (Fig. 4)

4.

   a. When installing the front housing assembly into the camera body, Be careful of position of the release linking lever Ⓑ, if the lever Ⓑ gets into under Ⓒ of the shutter release bar, Can not depress the shutter release bar. (Fig. 3)

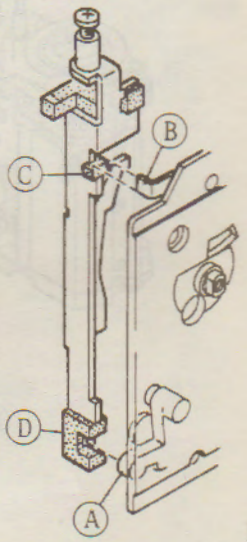


Fig.3

   b. Be careful for engaging the release slide lever Ⓐ with concave Ⓓ of end of the shutter release bar. (Fig. 3)

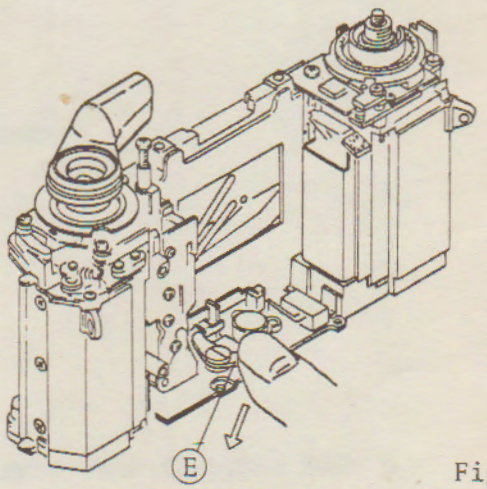


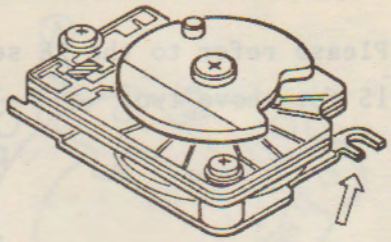
Fig.4

5. Installing selector PCB

a. First set the selector to bulb. (Fig. 5.6)

b. When installing the selector into the camera body, be extremely careful so as not to pinch any leadwires with its fork Ⓐ.

Bulb position



Fork Ⓐ

Fig.5

c. After installing the selector PCB check it as follows.

1) Set the selector to Auto position and release the shutter once. (Fig. 7)

2) Shift the selector to bulb position again and release the shutter. Shutter must operate in bulb function.

Bulb position

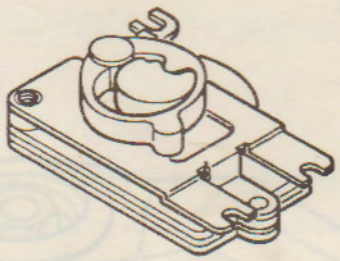


Fig.6

6. When attaching top cover

a. Set the selector to Auto (Fig. 7)

b. Set the shutter speed dial of the top cover to Auto and attach it to the camera body.

Note: It is required to check that the shutter dial correspond with the selector correctly.

Auto position

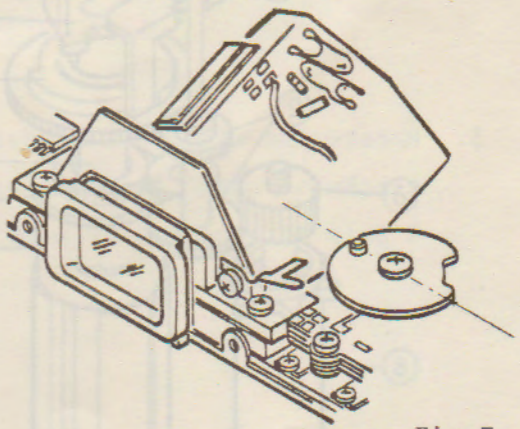
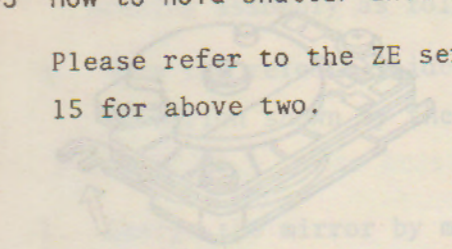


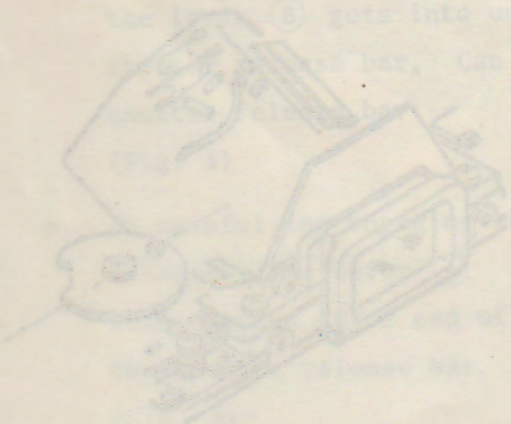
Fig.7

1-2 Dis. and reassembly of M1100-14702 bottom base plate

1-3 How to hold shutter unit with your fingers

Please refer to the ZE service instruction book "1-2 and 1-3" page 13 to 15 for above two.





2. Film counter mechanism and film advance

2-1 Outline of the mechanism

A. Film advance

1. When closing the back cover, the film counter advance cam (B) strikes to the film counter gear with the lever (A) is pushed. (Fig. 8)

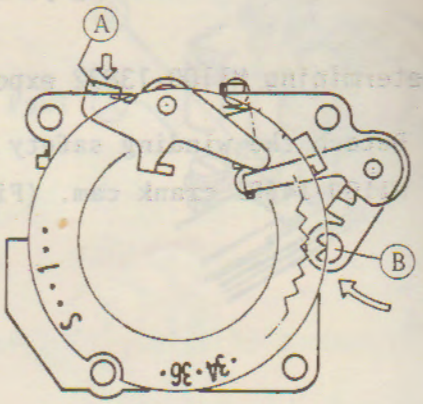


Fig.8

2. With the (1) film advance lever wound, the (3) sector gear is rotated by the protrusion (2).

   Then the (4) winding axle rotates.

   The (5) take-up spool rotates and the (TC) triple-cam gear is rotated by the arm (C) of (3) sector gear.

3. The (6) sprocket gear is rotated through the (7) idle gear.

   The (8) film advance sprocket rotates. Conseqently the film is rolled up on the take-up spool.

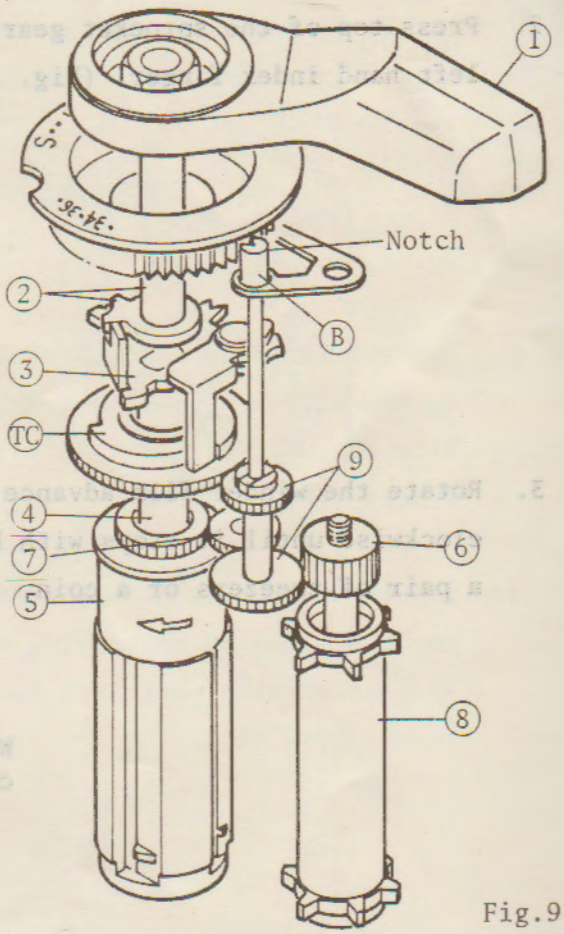


Fig.9

B. Advance of exposure counter

1. As the (B) exposure counter advance cam is rotated through the (9) advance cam gear engaged with the triple-cam gear, one tooth of the (D) film counter gear is advanced by the notch of the (B) advance cam.

2. When opening the back cover, the lever Ⓐ returns and the Ⓑ advance cam is detached from the Ⓓ film counter gear. Then the film counter is reset to starting position.

2-2 Determining M1100-13832 exposure counter advance cam

1. Detach the winding safety arm from the M1100-14501 crank cam. (Fig. 10)

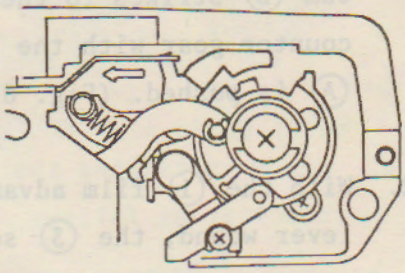


Fig.10

2. Press top of the sprocket gear with your left hand index finger. (Fig. 11)

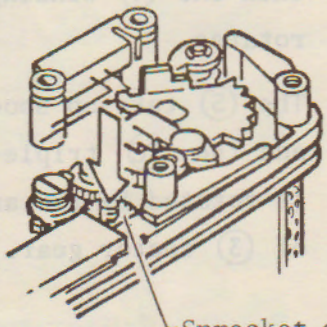


Fig.11

3. Rotate the winder film advance coupling clockwise until it stops with head of a pair of tweezers or a coin. (Fig. 12)

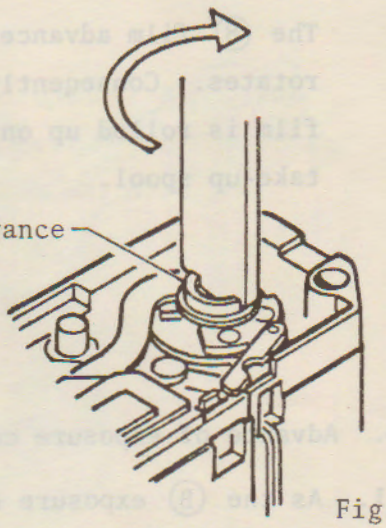


Fig.12

4. Insert the exposure advance cam into exposure advance gear as facing notch of the cam to the pawl Ⓐ. (Fig. 13)

5. Apply a fine grease on top face of the sprocket gear and put the spring on it.

6. Install the M1100-13802 exposure counter unit.

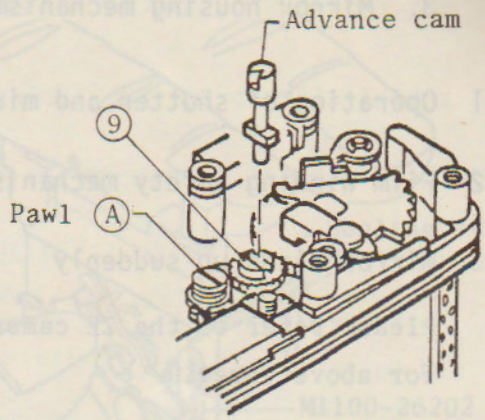


Fig.13

2-3 Adjustment of M1100-1316T1 winding pawl and M1100-13411 idle gear pawl

Please refer to the ZE camera service instruction book "2-1" page 17.

3. Mirror housing mechanism and shutter cocking

3-1 Operation of shutter and mirror

3-2 Film winding safety mechanism

3-3 Mirror rises up suddenly

Please refer to the ZE camera service instruction chapter "3" page 19 to 22 for above three.

3-4 Adjustment of M1100-26202 latch

A. Check

1. Charge the mirror.

2. Raise up the mirror by unlatching the M1100-2741T1 latch. (Fig. 14)

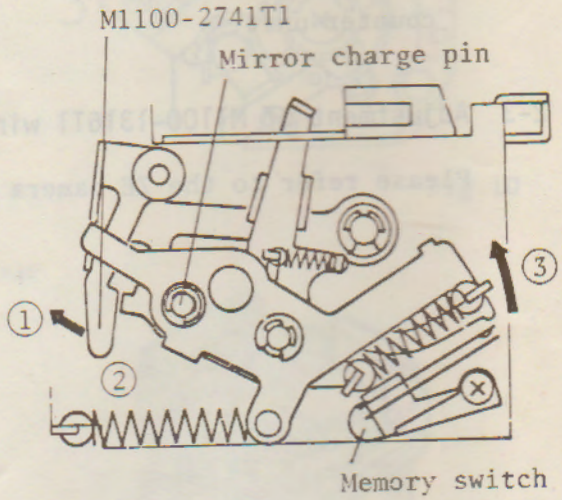


Fig.14

3. Put the focusing screen frame on the mirror housing and hold it with your left hand index finger. (Fig. 15)

4. Set the mirror back to viewing position once by depressing the Ⓐ - lever with your left hand thumb. (Fig. 15)

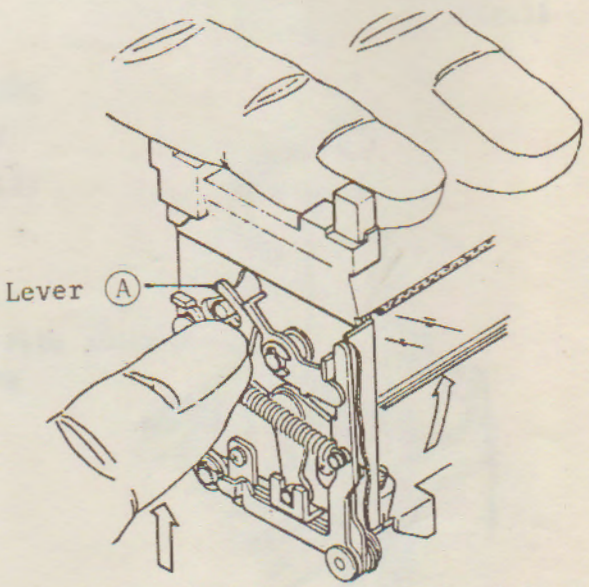


Fig.15

5. When raising up the mirror slowly, the M1100-26202 latch should unlatch a little before the mirror touches to the sealing strip. (Fig. 16)

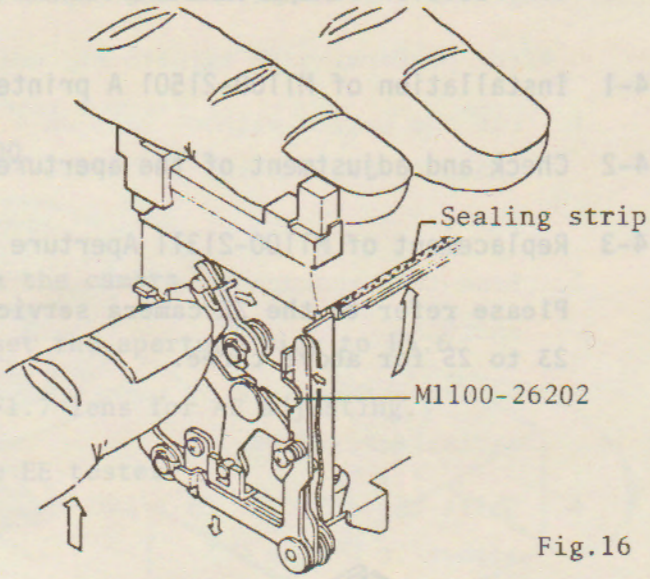


Fig.16

B. Adjustment

Adjustment is made by bending the latch end. (Fig. 17)

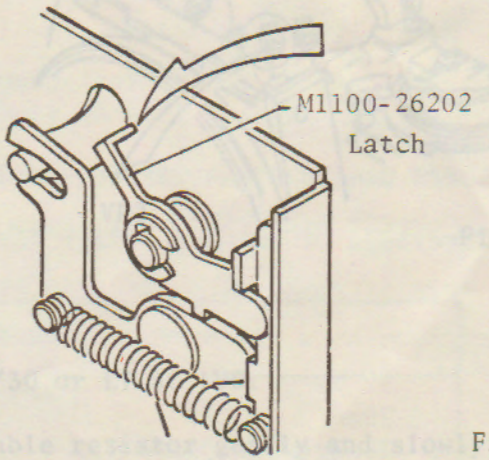


Fig.17

4. Position of aperture arm

4-1 Installation of M1100-21501 A printed board

4-2 Check and adjustment of the aperture arm

4-3 Replacement of M1100-21311 Aperture value ring

Please refer to the ZE camera service instruction book chapter "4" page 23 to 25 for above three.

5. Adjustment of Auto exposure and manual shutter speed

5-1 AE adjustment

1. Set the ASA film speed dial to 100.
2. Set the selector to AE position.
3. Put the EN-3 working top cover on the camera.
4. Attach a lens to the camera and set the aperture ring to F5.6.

   Note: Please arrange one 50 mm F1.7 lens for AE adjusting.
5. Check LV12, LV15 and LV9 with the EE tester.
6. Adjustment

   Adjustment is made by turning VR2 variable resistor with the EN-4 adjusting driver. (Fig. 18)

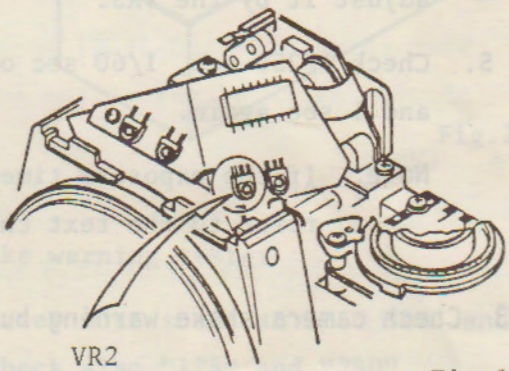


Fig.18

   a. First adjust it as the LED lights up on 1/125 or 1/250 at LV12.
   b. Next adjust it as the LED lights up or blinks at 1/1000 at LV15.
   c. Adjust it as the LED lights up on 1/30 or LT at LV9.

   Note: 1) You must turn the VR2 variable resistor gently and slowly.
   2) Replacing the VR2 is possible when damaging it.
   3) Never touch any other variable resistors.

		T. (LED)	f	ASA	Adjust
1	LV12	$\frac{1}{125}$ or $\frac{1}{250}$	5.6	100	VR2
2	LV15	$\frac{1}{1000}$ BlinKing is also good.			
3	LV9	LT or $\frac{1}{30}$			

5-2 Adjustment of manual shutter speed

After performing AE adjustment, adjust manual shutter speed as follows.

1. Put the camera without lens on a shutter speed tester and set the selector to 1 sec.
2. Read the exposure time by releasing the shutter.
3. Adjustment is made by turning the VR5 variable resistor.
4. Shift the selector to 1/500 sec. Then adjust it by the VR5.
5. Check 1/250 sec, 1/60 sec or 1/30 sec. and 1 sec again.

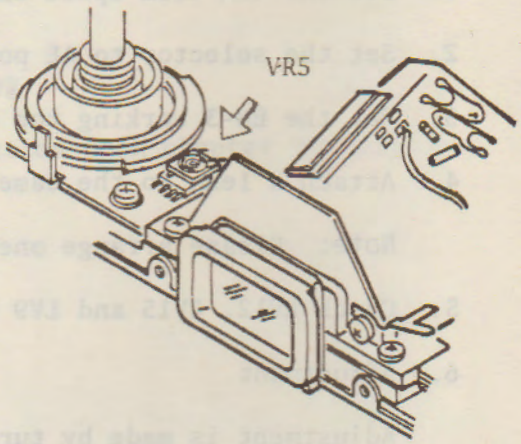


Fig.19

Note: If the exposure time is incorrect and can not adjust it, please refer to the text chapter "8".

5-3 Chech camera shake warning buzzer at range of lens focul length.

Threshold of warning buzzer for each lens

	LT. 30	60	125	250	
28mm 28mm - 50mm Zoom 35mm 50mm	▒				
135mm 80mm - 200mm Zoom 70mm - 150mm Zoom	▒	▒			
200mm	▒	▒	▒		
Over 301mm	▒	▒	▒	▒	

Fig. 20

1. Attach the top cover to the camera body and set the selector to Auto position.

2. Mount the lens of EN-18 camera shake warning tester to the camera.

3. Set the knob of the tester to "30". (Fig. 21)

4. When LED lights up at 1/30 and LT in turning the lens aperture ring, the warning buzzer must sound.

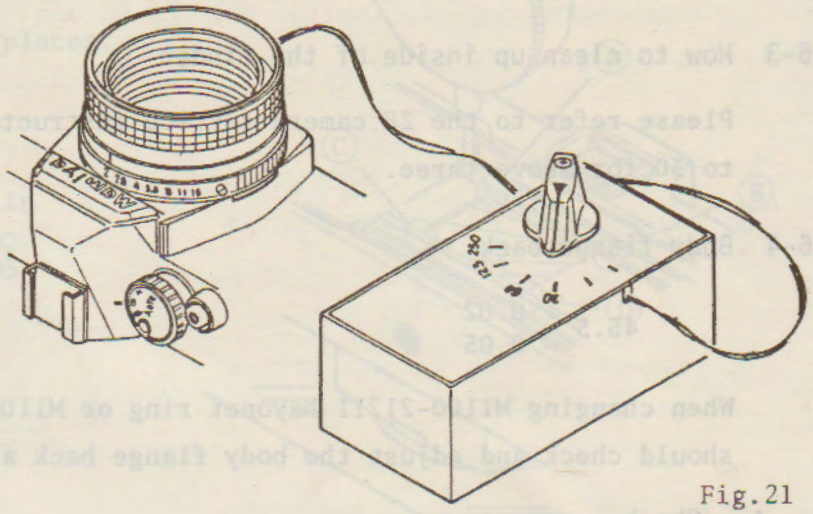


Fig.21

Fig. 21

EN-18 Camera shake warning tester

5. When shifting the knob to "60", the buzzer must sound at 1/60 sec. and slower shutter speed thand 1/60 sec. check also "125" and "250".

Note: 1) Notwithstanding a camera body is correct in checking with EN-18 warning tester, the buzzer sounds incorrectly when mounting a certain lens.

In above case, replace the lens signal board with new one. (Fig. 22)

2) For some other trouble please refer to the text chapter "8".

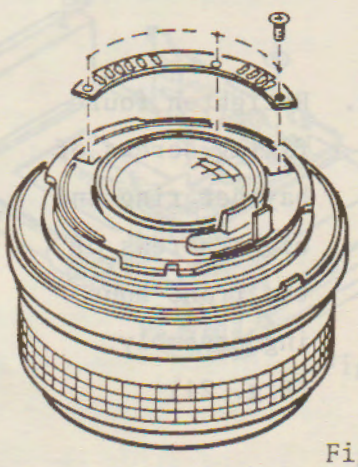


Fig.22

6. Adjustment of viewfinder infinity

6-1 Replacement of mirror and mirror angle 45 degree

6-2 Adjustment of viewfinder infinity

6-3 How to clean up inside of the finder

Please refer to the ZE camera service instruction book chapter "5" page 27 to 30 for above three.

6-4 Body flange back

$$45.5\ ^{+\ 0.02}_{-\ 0.05}$$

When changing M1100-21211 bayonet ring or M1100-21112 front hausing, you should check and adjust the body flange back as follows.

A. Check

1. Set the dial gauge to Zero by using the T-2 block gauge 45.5 mm. (Fig. 23)

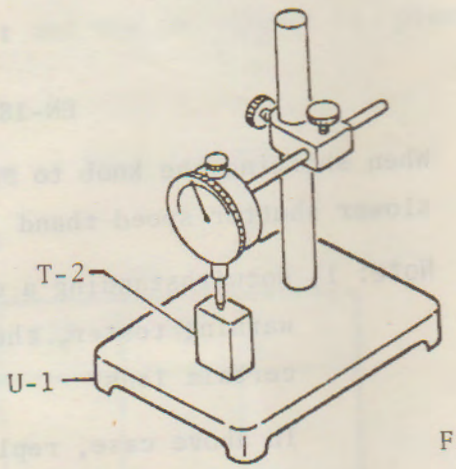


Fig.23

2. Retighten four fixing screws of bayonet ring and eight screws of the front housing assembly. (Fig. 24)

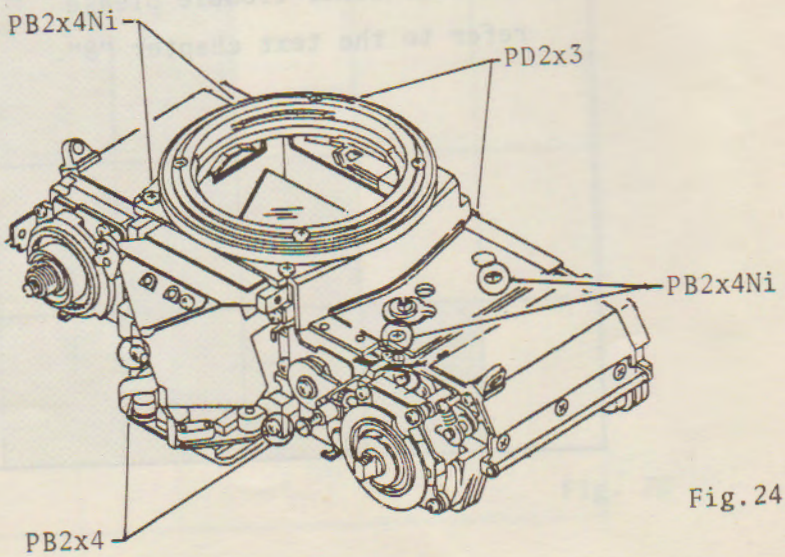


Fig.24

3. Put the camera body on a surface plate by facing the bayonet rings downward. (Fig. 25)

4. Measure four pointed places A, B, C and D. (Fig. 25)

   Each place should be in tolerance 45.5 mm $^{+0.02}_{-0.05}$

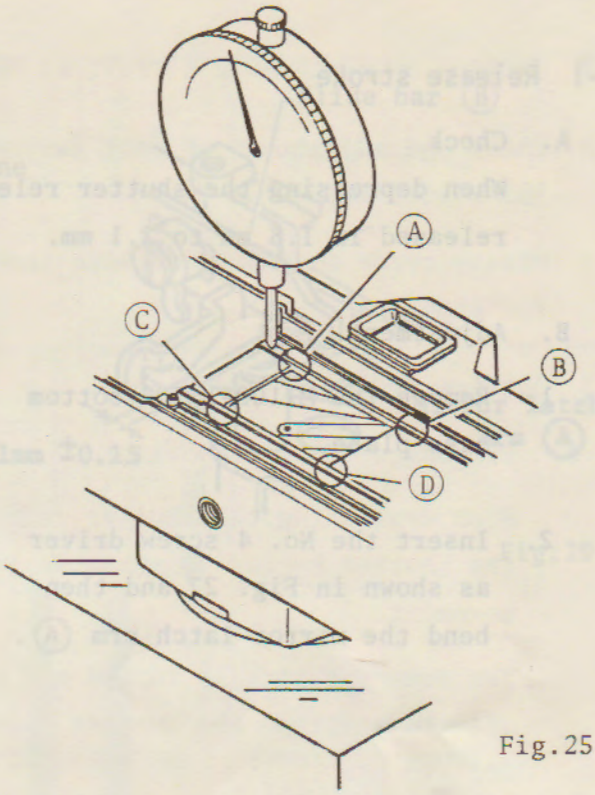


Fig.25

B. Adjustment

1. Referring to the text "1-1", remove the front housing with mirror housing and focusing screen frame from the camera body.

2. Adjustment is made by putting following washers 4W2x0.03, 0.05 or 0.1 required place which are shown in Fig. 26.

   Note: 1) Apply "patex" or any other adhesive on the place before putting the washer.

   2) The eight screws must be tighten sufficiently.

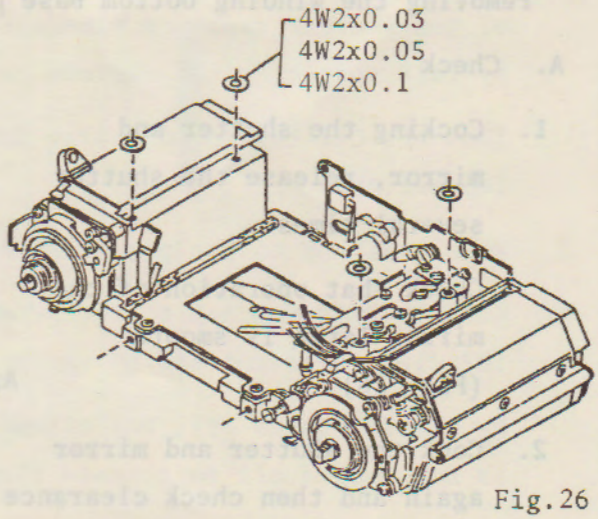


Fig.26

7. Shutter release

7-1 Release stroke

A. Check

When depressing the shutter release button slowly, shutter should be released in 1.8 mm to 2.1 mm.

B. Adjustment

1. Remove the M1100-14702 bottom base plate.

2. Insert the No. 4 screw driver as shown in Fig. 27 and then bend the mirror latch arm (A).

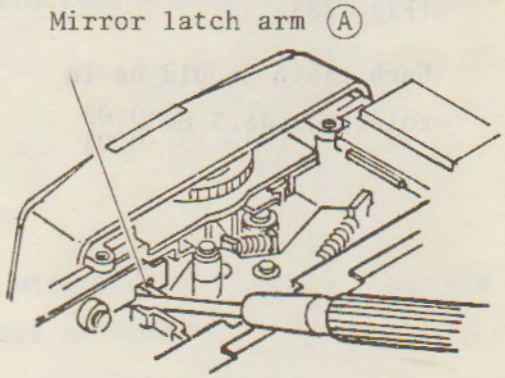


Fig.27

7-2 Shutter release by selftimer

When releasing the shutter by selftimer, Selftimer should operate slightly more after releasing the shutter.

If not or can not release it, do following check and adjustment after removing the winding bottom base plate.

A. Check

1. Cocking the shutter and mirror, release the shutter several times.

   Check that operation of the mirror latch is smooth. (Fig. 28)

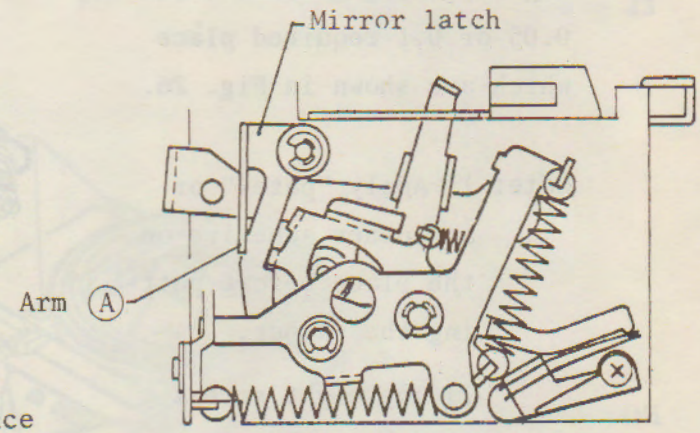


Fig.28

2. Cock the shutter and mirror again and then check clearance between the mirror latch arm (A) and slide bar (B). (Fig. 29)

   Limit: 1 mm ± 0.15

Note: Use 1 mm diameter rod or t=1 mm a strip of plate for measuring it.

B. Adjustment

1. If the mirror latch does not come off smoothly, polish up latch face with a fine oil-stone and a little dab of grease would help a lot.

2. When clearance is out of tolerance, adjust it by bending the mirror latch arm Ⓐ. (Fig. 29, 27)

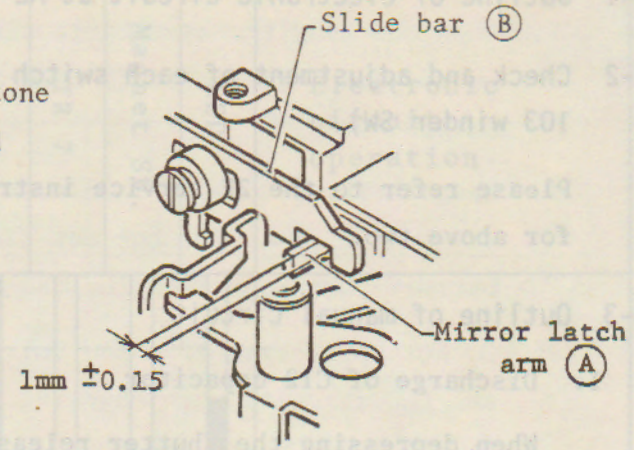


Fig.29

8. Electronic circuit, switching and trouble shooting

8-1 Outline of electronic circuit at AE

8-2 Check and adjustment of each switch (Main SW memory SW, reset SW and 103 winder SW).

Please refer to the ZE service instruction book chapter "6" page 31 to 38 for above two.

8-3 Outline of manual circuit

1. Discharge of C12 capacitor

When depressing the shutter release button slowly, the first blind of the shutter begins to run when the mirror approaches the top of its movement.

The memory switch is turned off right before the mirror starts to operate and then the current flows into the TR8 circuit through the IC1 - 9 pin.

The C12 is discharge with operation of the TR8.

At this time also the current flows into TR7 circuit.

2. Charge of C12 (Begin to count the exposure time)

When the first blind of the shutter begins to run, the trigger switch of the shutter exposure time control circuit is turned off.
By this switching the current to the TR8 circuit is cut off.

Thus the C12 begins to charge for counting the exposure time by the TR8 switches off.

3. When reaching to the predetermined voltage (Second blind runs)

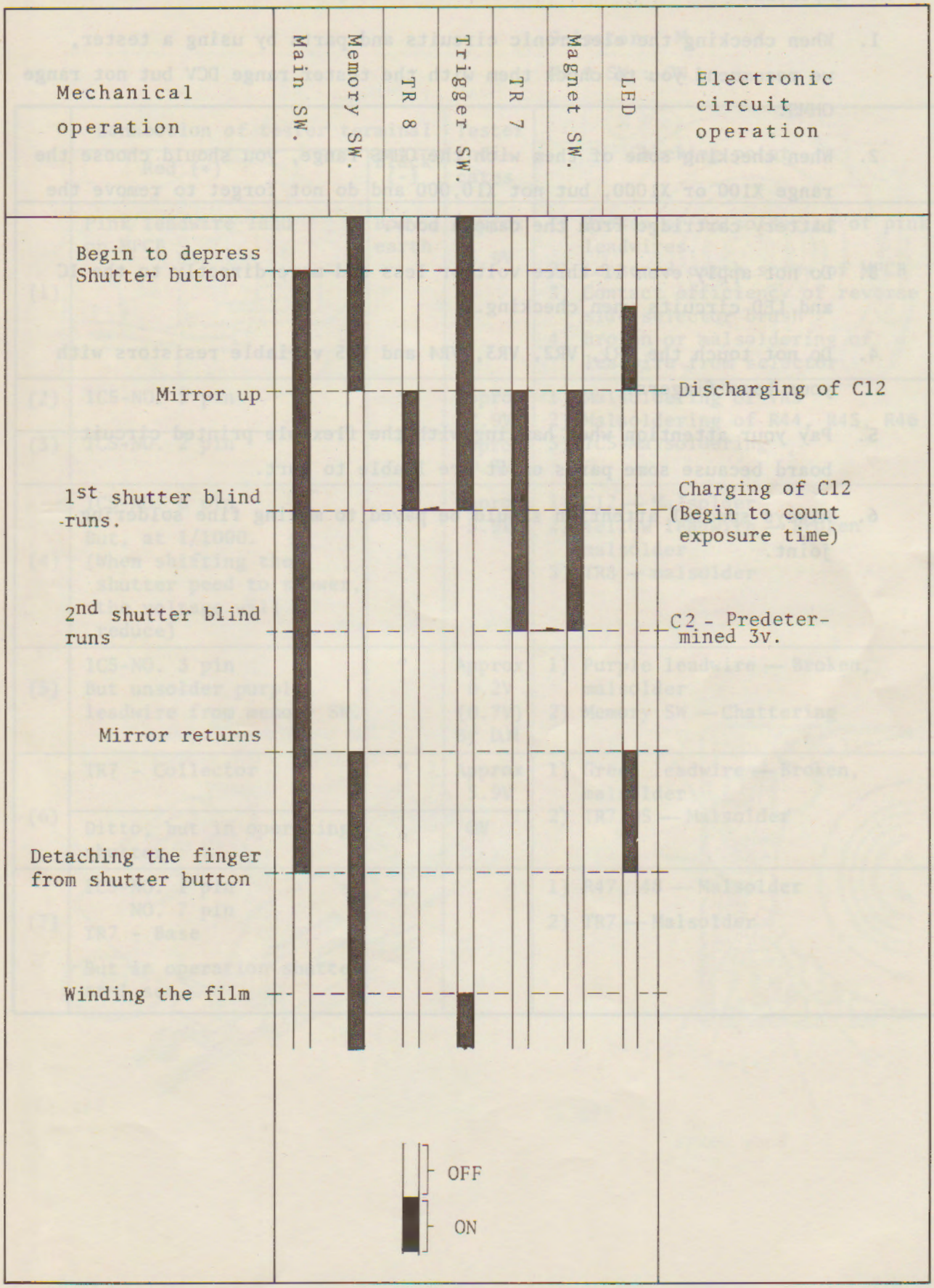
When the C12 reaches to the predetermined 3 volt, the current to the TR7 circuit is cut off by operation of the IC5 comparator.

By the TR7 turns off, the magnet which has held the second shutter blind is now turned off to release the second shutter blind.

Thus the proper exposure time is obtained. As soon as the mirror returns and the memory switch turns on and the LED lights up again.

With the finger detached from the shutter button, the main switch turns off and the LED puts out..
The trigger switch turns on with the film advance lever wound for next exposure.

Switching at M mode



8-4 Check by a Tester and trouble shooting

A. Important

1. When checking the electronic circuits and parts by using a tester, we recommend you to check them with the tester range DCV but not range OHMS.
2. When checking some of them with the OHMS range, you should choose the range X100 or X1000, but not X10,000 and do not forget to remove the battery cartridge from the camera body.
3. Do not apply even if three volt or less and more directly to the IC and LED circuits when checking.
4. Do not touch the VR1, VR2, VR3, VR4 and VR5 variable resistors with your bare fingers.
5. Pay your attention when handing with the flexible printed circuit board because some parts on it are liable to hurt.
6. Always special attention should be payed to making fine soldering joint.

B. Check by tester

1. Incorrect shutter speed at M mode

Selector: M

Main SW : ON

	Connection of tester terminal		Tester indicates	Checking point
	Red (+)	Black (-)		
(1)	Pink leadwire land on MPCB	Body earth	Approx 5.9V	1) Broken or malsoldering of pink leadwires. 2) Loosened earth screw of MPCB 3) Contact efficiency of reverse side selector brush 4) Broken or malsoldering of leadwire from selector
(2)	IC5-NO. 5 pin	"	Approx 2.9V	1) Malsoldering of VR5 2) Malsoldering of R44, R45, R46 3) IC5-Malsoldering
(3)	IC5-NO. 2 pin	"	Approx 0.3V	
(4)	IC5-NO. 6 pin But, at 1/1000. (When shifting the shutter peed to slower, the voltage will reduce)	"	Approx 5.9V	1) C12 — Malsolder 2) Yellow leadwire — Broken malsolder 3) TR8 — malsolder
(5)	IC5-NO. 3 pin But unsolder purple leadwire from memory SW.	"	Approx 0.2V (0.7V) By D.M	1) Purple leadwire — Broken, malsolder 2) Memory SW — Chattering
(6)	TR7 - Collector	"	Approx 5.9V	1) Green leadwire — Broken, malsolder 2) TR7.D5 — Malsolder
	Ditto, but in operating shutter	"	OV	
(7)	IC5-NO. 1 pin NO. 7 pin TR7 - Base But in operation shutter at 1 sec.	"		1) R47, 48 — Malsolder 2) TR7 — Malsolder

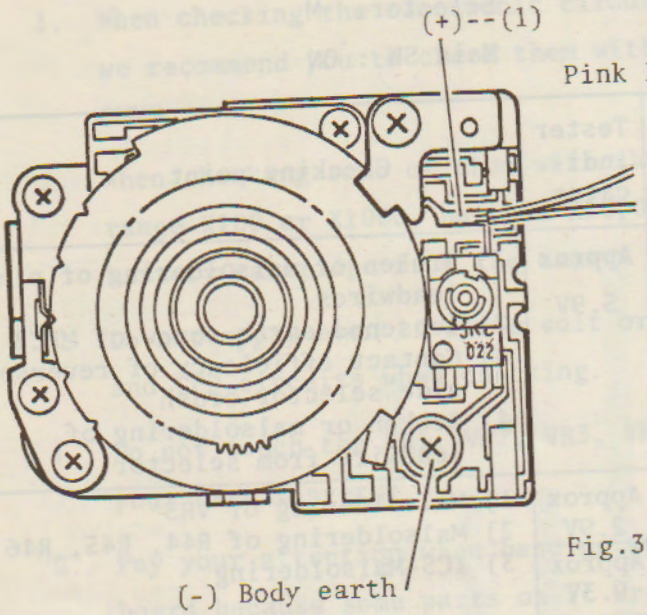


Fig.30

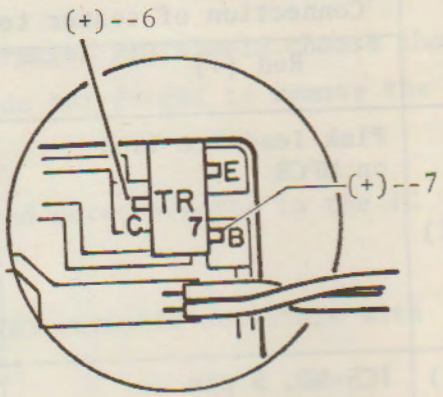


Fig.32

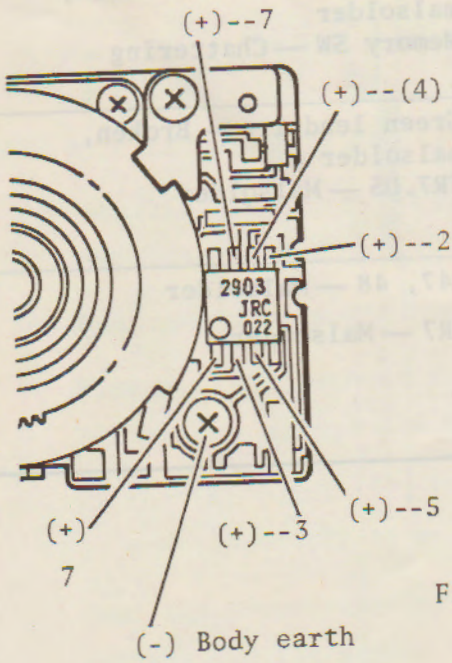


Fig.31

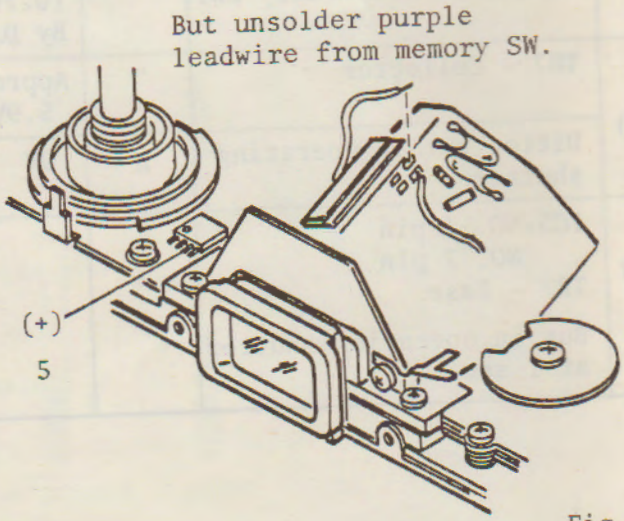


Fig.33

2. Does not sound the buzzer

Selector: Auto

	LED	Connection of tester terminal		Tester indication (Approx)	Checking point
		Red (+)	Black (-)		
(8)	LT	HIC - NO. 6 terminal	body earth	4.5 V	No.5,6 terminal — malsolder
	30	HIC - NO. 5 terminal			
(9)	LT	TR6 of HIC - Base	TR6 Emitter	0.7 V	1) D5 of HIC 2) TR6 — malsolder
	30				
(10)	LT	Contact of buzzer	Body earth	3 V	1) Red leadwire 2) TR6, 3) C11 4) IC4 — Malsolder
(11)		HIC-terminal Input pin 14 ——— ⑧ 4 ——— ⑦ 13 ——— ⑥		conti-nuity	1) 14, 4, 13 — malsolder 2) Pin housing — contact efficiency

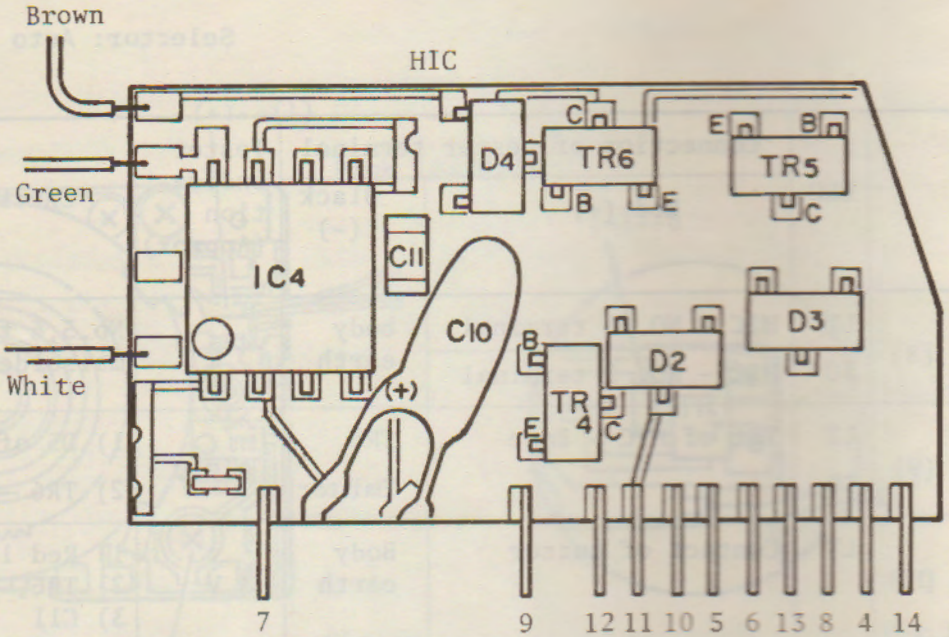


Fig.34

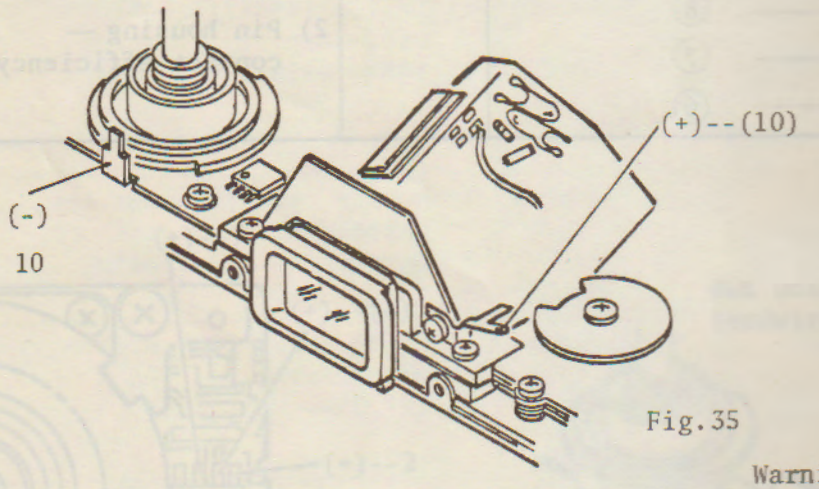


Fig.35

Warning signal input pins

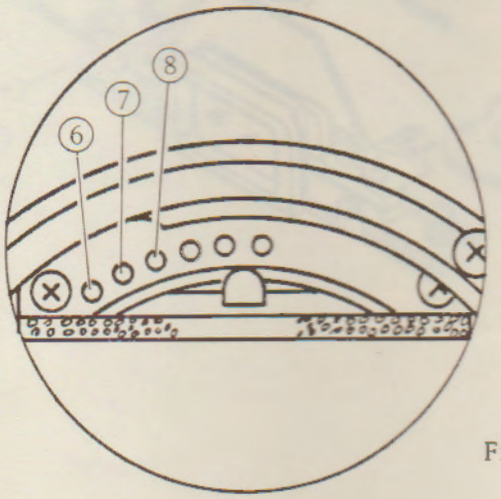


Fig.36

3. LED does not light up

Selector: Auto
Main Switch: ON

	Connection of tester terminal		Tester indication (Approx.)	Checking point
	Red (+)	black (-)		
(12)	Green leadwire land on HIC	HIC-NO.7 terminal	5.9 V	1) Reverse side selector brush — contact efficiency 2) Green leadwire — Broken, malsolder 3) HIC - NO.7 terminal — malsolder
(13)	HIC - NO.8 terminal	Body earth	3 V	1) LED - cathode 2) NO.8 terminal — malsolder
(14)	TR5 - Base	"	0.7 V	TR5 — Malsolder

Selector: M
Main Switch: ON

(15)	HIC - NO.9 terminal	Body earth	4.5 V	No. 9 terminal — malsolder

Note: Refer to Fig. 34 on previous page for connection of tester terminals.

4. Battery leak

Please refer to the ZE service instruction book "7-4" page 63 to 65.

C. Trouble shooting

1. Shutter speed too fast at M mode

⇩

(1)	Check text "8-4, B-1 (1) to (7)" in order	No →	
(2)	Memory SW —— Not switch off	→	Refer to the ZE service instruction book "6-2 B"
(3)	Trigger SW —— Not switch off	→	1) Yellow leadwire from trigger SW. — short 2) Refer to ZE service instruction book "7-2 B-7"
(4)	White leadwire from selector —— Malsolder	→	Resolder

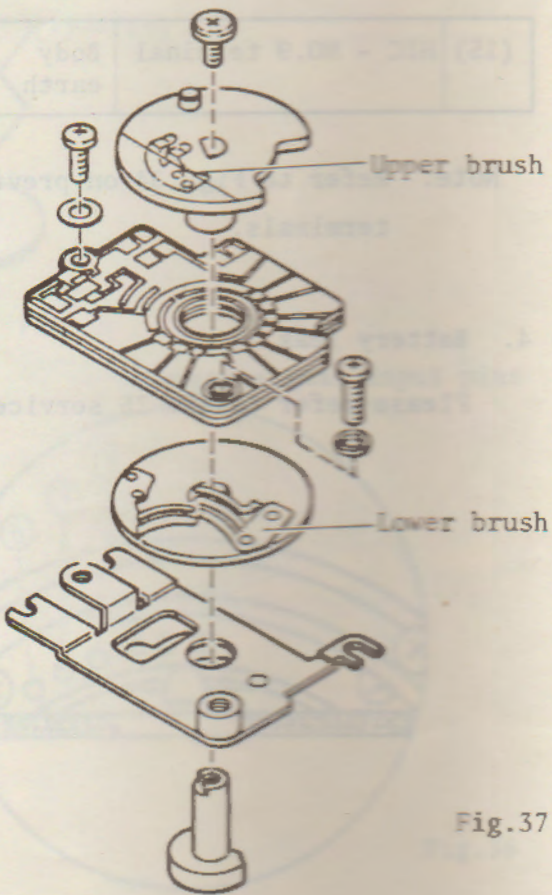


Fig.37

2. 2nd shutter blind does not run or shutter operates as bulb at M mode.

3. Shutter speeds are too slow and not adjustable at M.

- Yellow and white leadwires from shutter — Short
- IC5 - No.5 pin and yellow leadwire land — Short
- Green leadwire (output) and purple leadwire in MPCB — Short
- Black leadwire from MPCB — Malsolder
- Upper selector brush — Contact efficiency and dirty
- Yellow leadwire in selector P.C. board — Malsolder
- Contact efficiency of hot shoe earth contact — Not enough

4. Shutter speed becomes slower at LV9 with top cover

Note: Be carefull not to pinch any leadwires when tightening the selector.

5. When detaching finger from shutter release button, shutter speeds are incorrect.

Selector: M

	Main SW	Connection of tester terminal		Tester indication (Approx.)	Check point
		Red (+)	Black (-)		
(1)	OFF	Purple leadwire land on MPCB	Body earth	5.9 V	Purple leadwire —Malsolder
(2)	OFF	TR7 - Collector But unsolder the green leadwire	Body earth	5.8 V	D5 — Malsolder
	ON	" "	"	0 V	

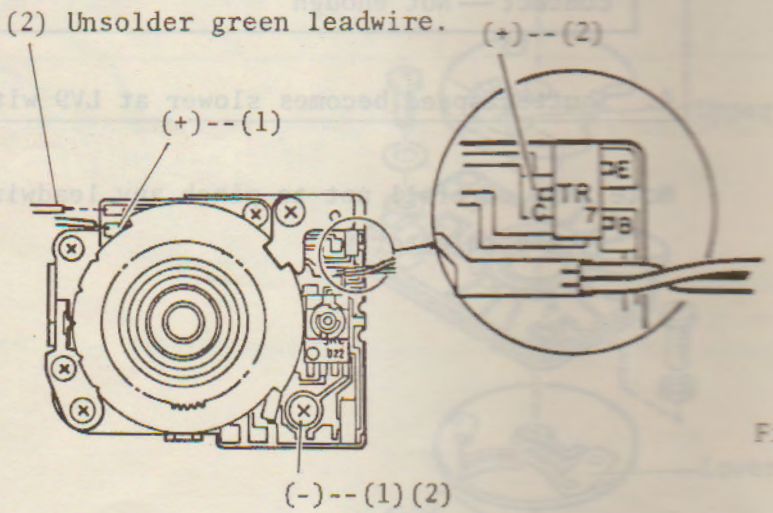


Fig.38

6. Buzzer does not sound at all

7. Buzzer does not sound a certain shutter speed.

(1)	Check text "8-4, B-2 (8) to (11) in order
(2)	Red leadwire of pulsating buzzer — Broken, malsolder
(3)	Warning signal input pins ⑥ ⑦ ⑧ — Be sunk
(4)	HIC-pattern — Broken, damage
(5)	Gray, purple, blue leadwires —Broken, malsolder

8. LED lights up on 1/1000 at M mode

(1)	Pink leadwires — Malsolder
(2)	Brown leadwire from selector — Malsolder
(3)	Reverse side brush of selector — Contact efficiency and dirty

9. LED does not light up at M and Auto.

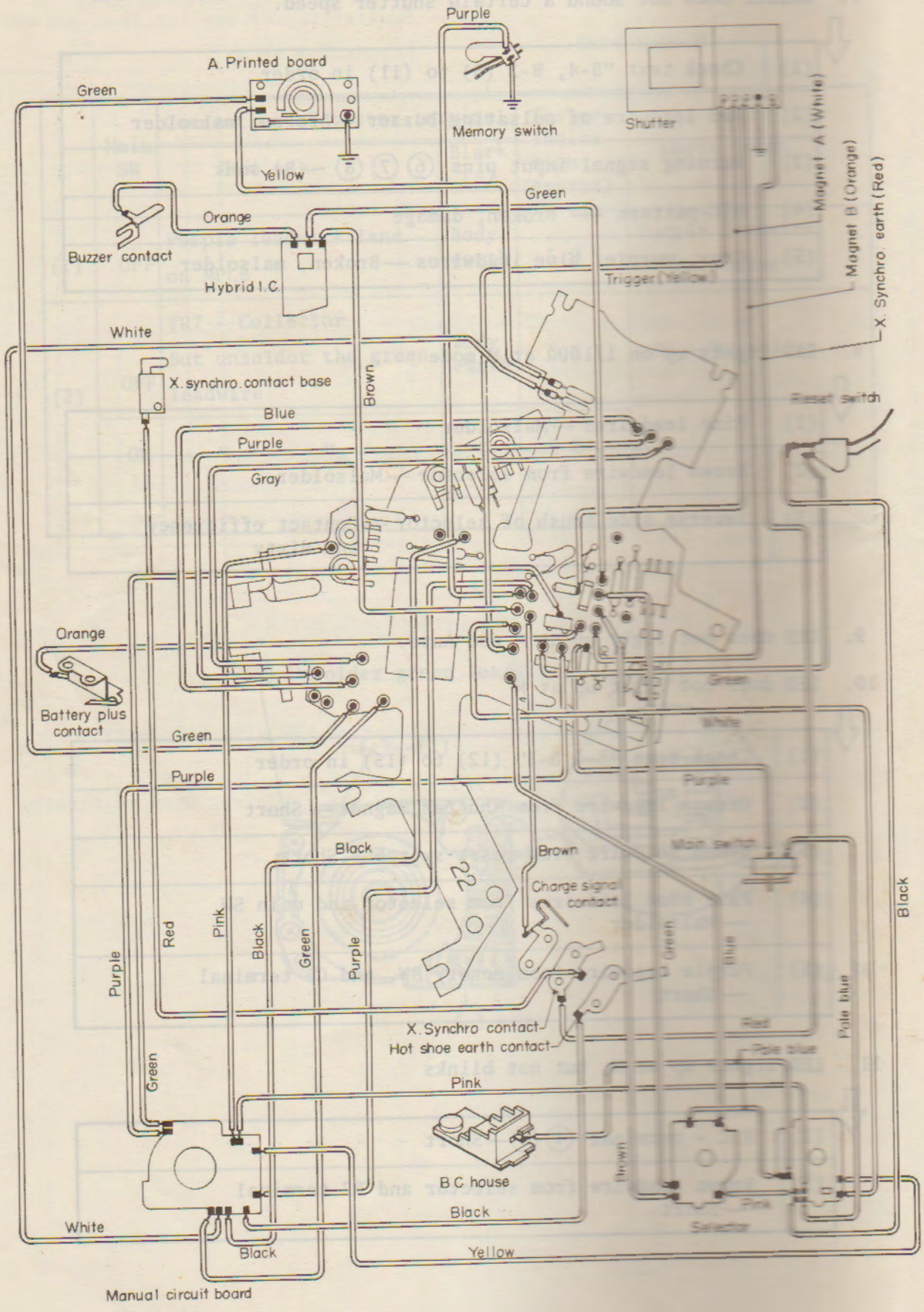
10. LED does not light up at M

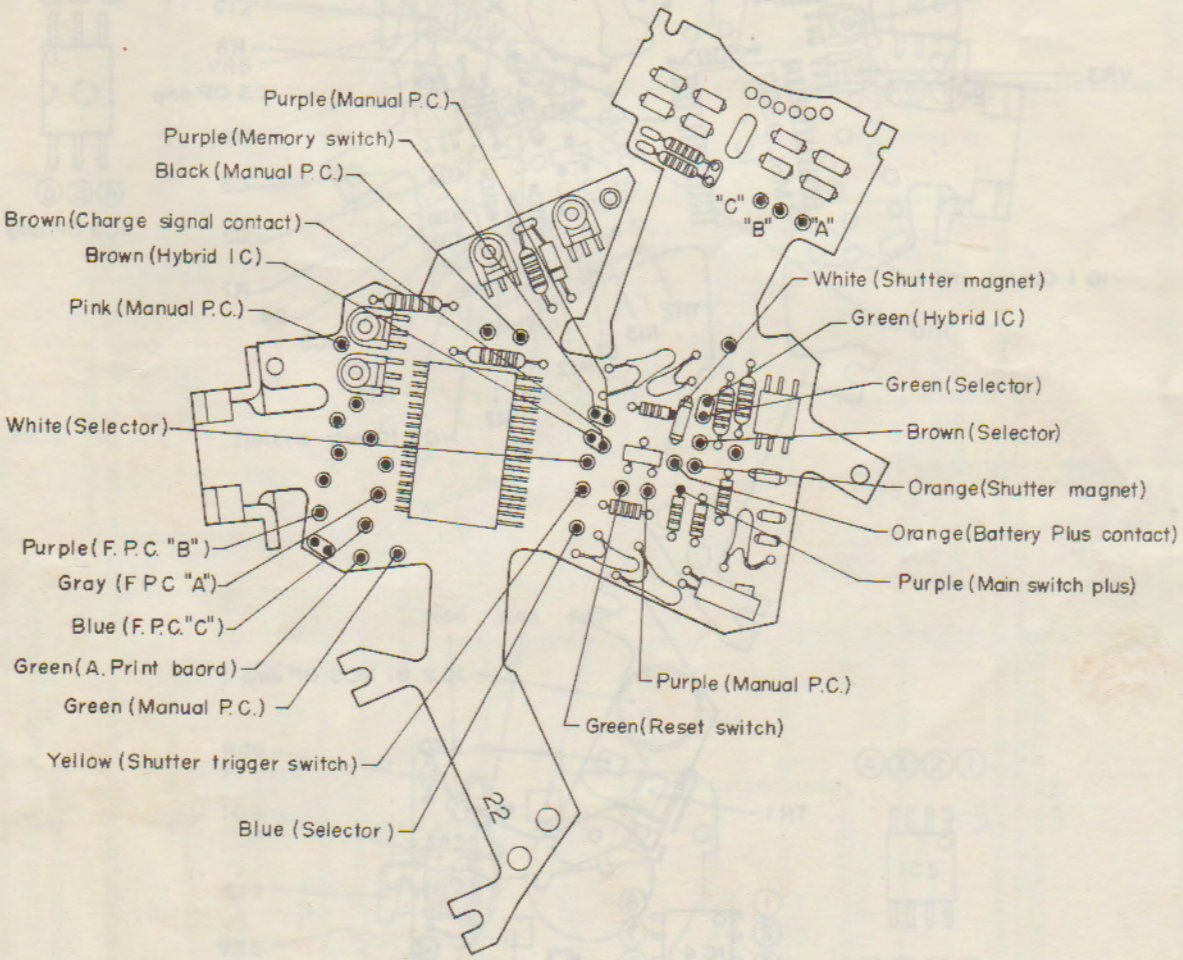
(1)	Check text "8-4 B-3" (12) to (15) in order
(2)	Orange leadwire from shutter magnet — Short
(3)	Green leadwire from reset switch — Short
(4)	Pale blue leadwires from selector and main SW — Malsolder
(5)	Purple leadwire from menory SW. and C1 terminal — Short

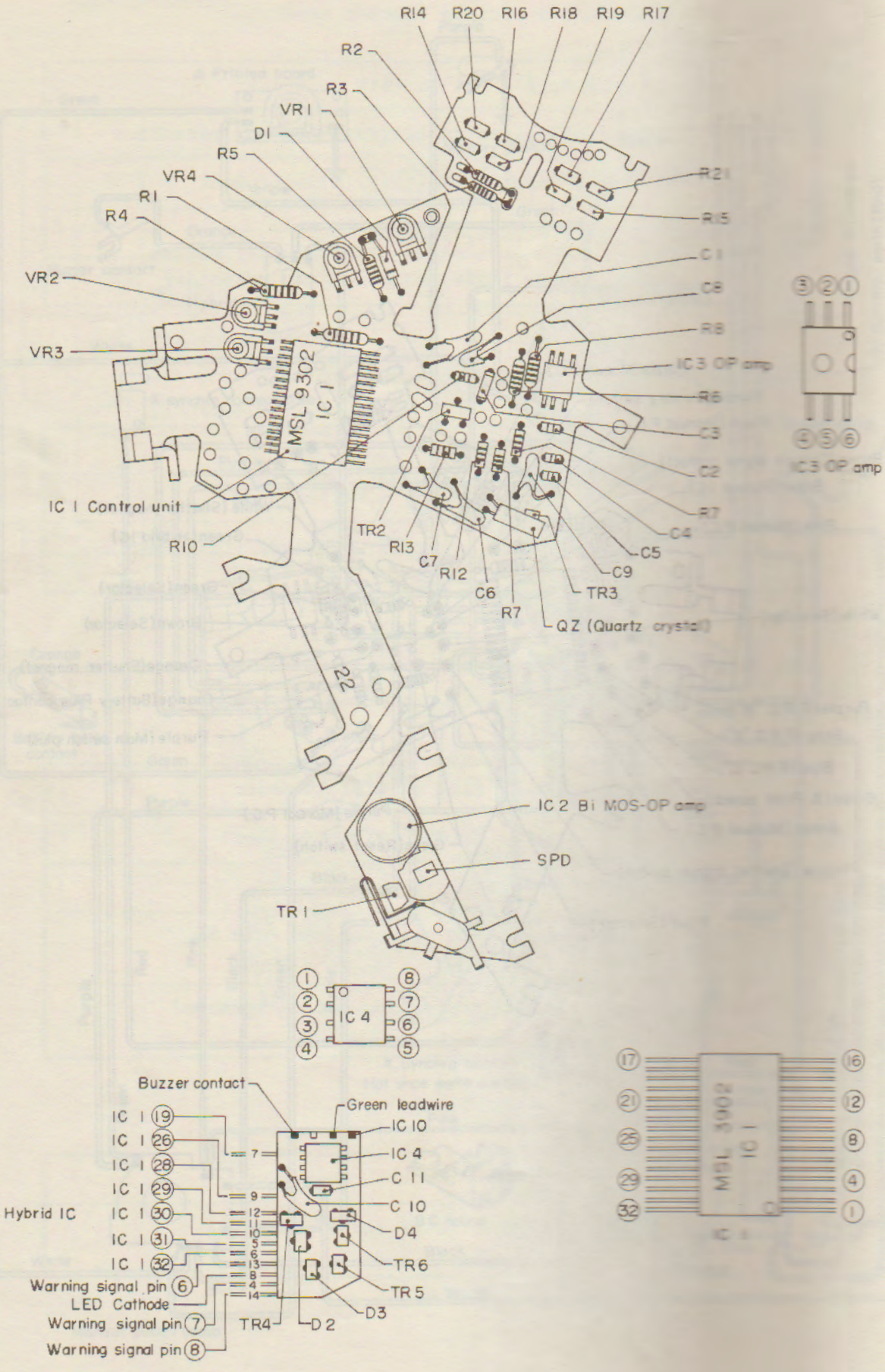
11. LED lights up at M, but not blinks

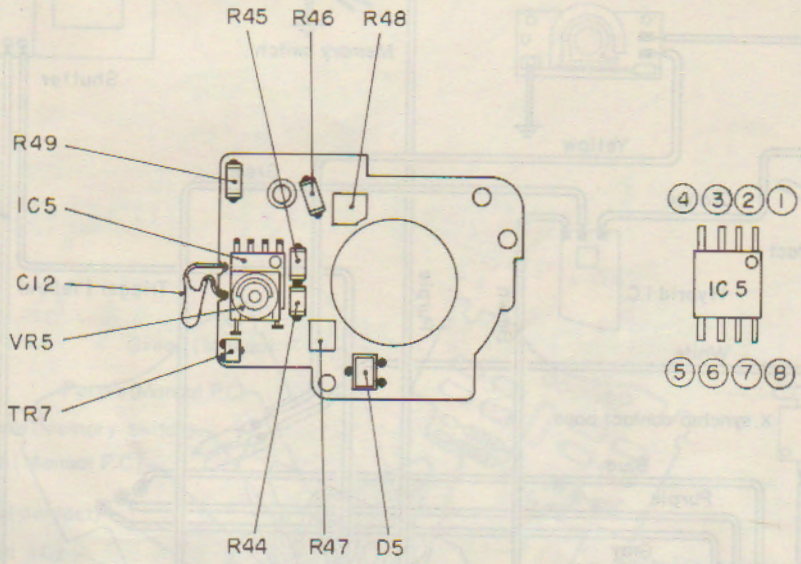
(1)	HIC - terminal ④ ⑧ — Short
(2)	Brown leadwire from selector and R7 terminal — Short

ZE-2 Electro circuit diagram

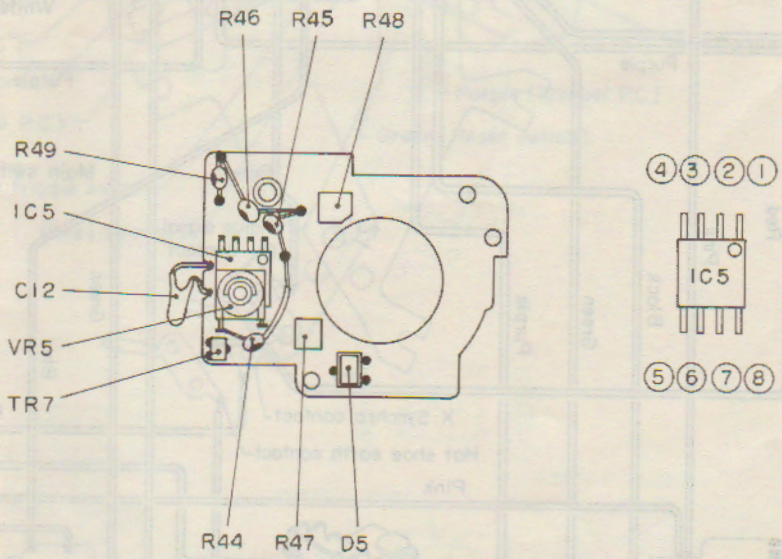



Purple (Manual P.C.)
Purple (Memory switch)
Black (Manual P.C.)
Brown (Charge signal contact)
Brown (Hybrid IC)
Pink (Manual P.C.)
White (Selector)
Purple (F.P.C. "B")
Gray (F.P.C "A")
Blue (F.P.C. "C")
Green (A. Print baord)
Green (Manual P.C.)
Yellow (Shutter trigger switch)
Blue (Selector)
"C"
"B"
"A"
White (Shutter magnet)
Green (Hybrid IC)
Green (Selector)
Brown (Selector)
Orange (Shutter magnet)
Orange (Battery Plus contact)
Purple (Main switch plus)
Purple (Manual P.C.)
Green (Reset switch)
22


R14
R20
R16
R18
R19
R17
R2
R3
VR1
D1
R5
VR4
R1
R4
VR2
VR3
MSL 9302
IC 1
IC 1 Control unit
R10
TR2
R13
C7
R12
C6
R7
C9
TR3
C5
C4
R7
C2
C3
R6
IC 3 OP amp
R8
C8
C1
R15
R21
IC 3 OP amp
IC 2 Bi MOS-OP amp
SPD
TR 1
IC 4
Buzzer contact
Green leadwire
IC 10
IC 4
C 11
C 10
D4
TR6
TR 5
D3
D 2
TR4
Hybrid IC
IC 1 19
IC 1 26
IC 1 28
IC 1 29
IC 1 30
IC 1 31
IC 1 32
Warning signal pin 6
LED Cathode
Warning signal pin 7
Warning signal pin 8
MSL 9302
IC 1

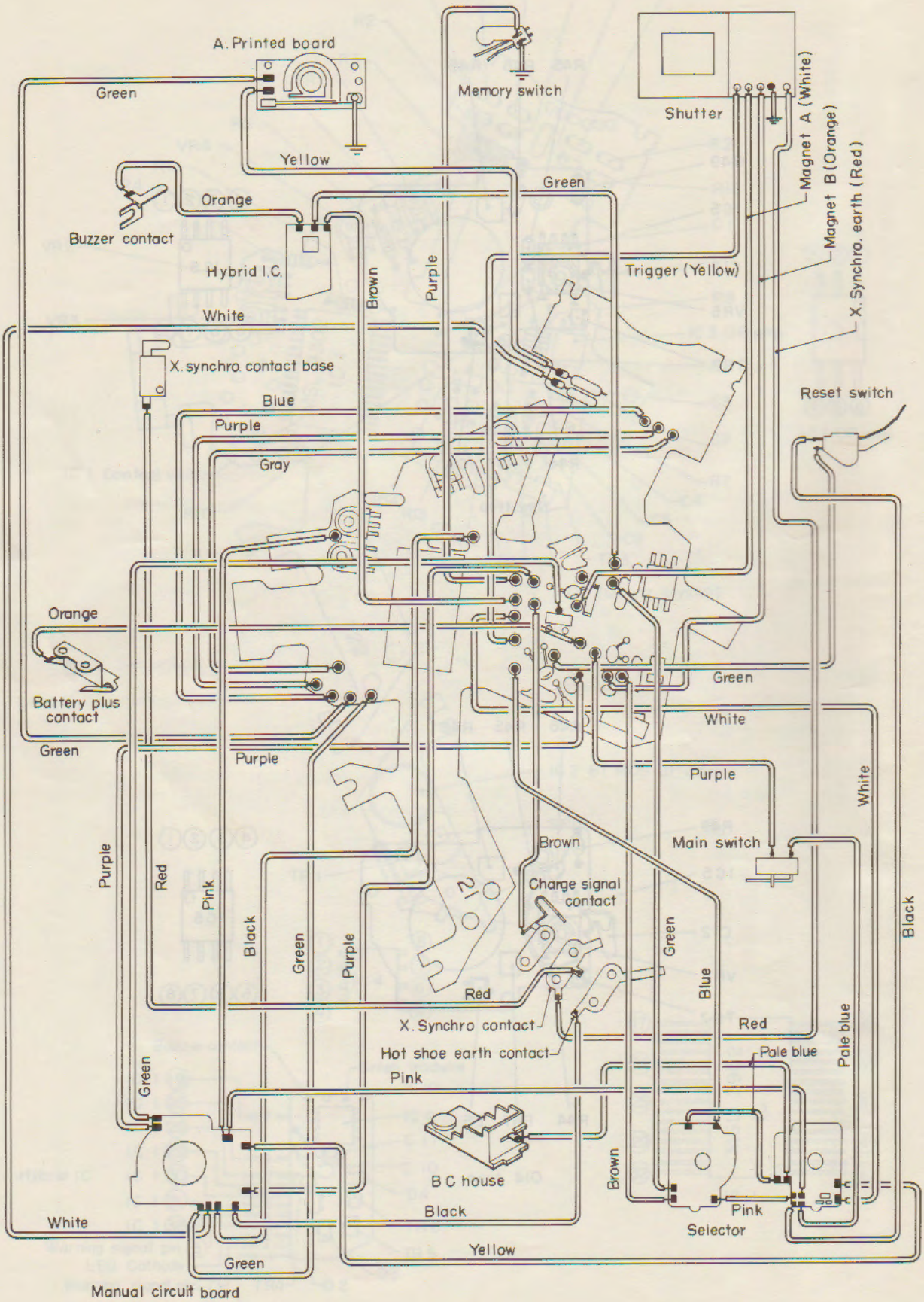


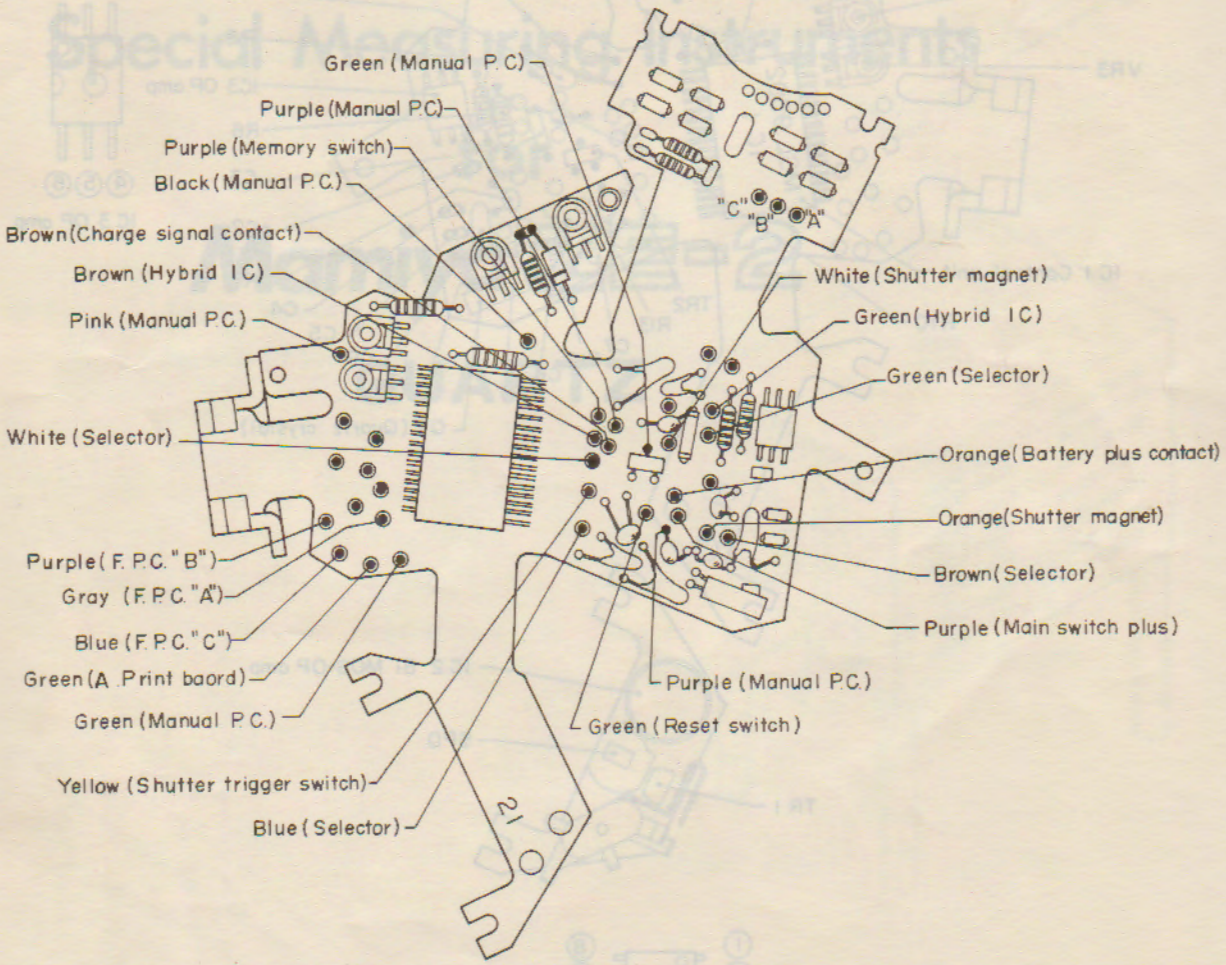
New tyep

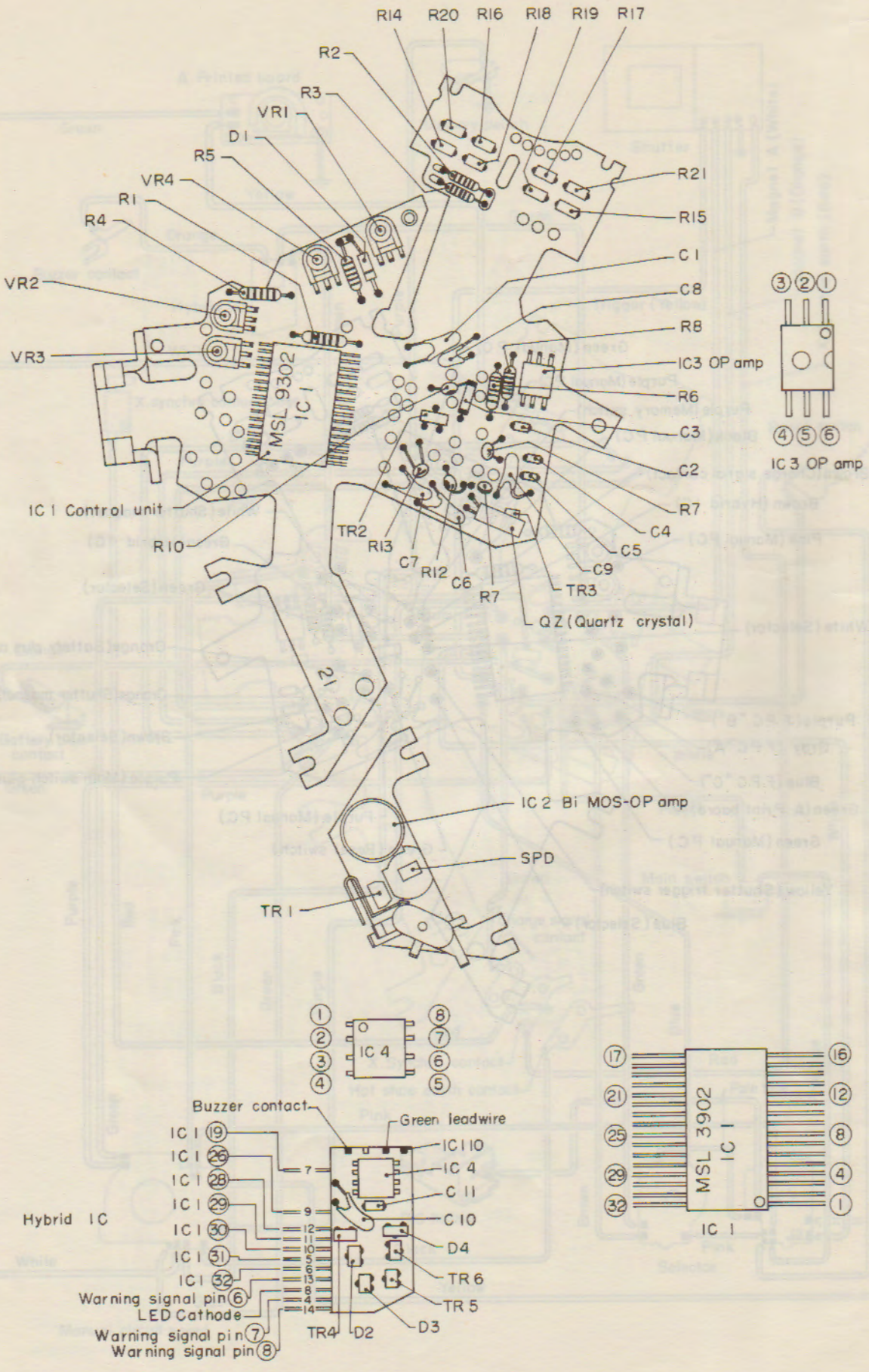


Old type

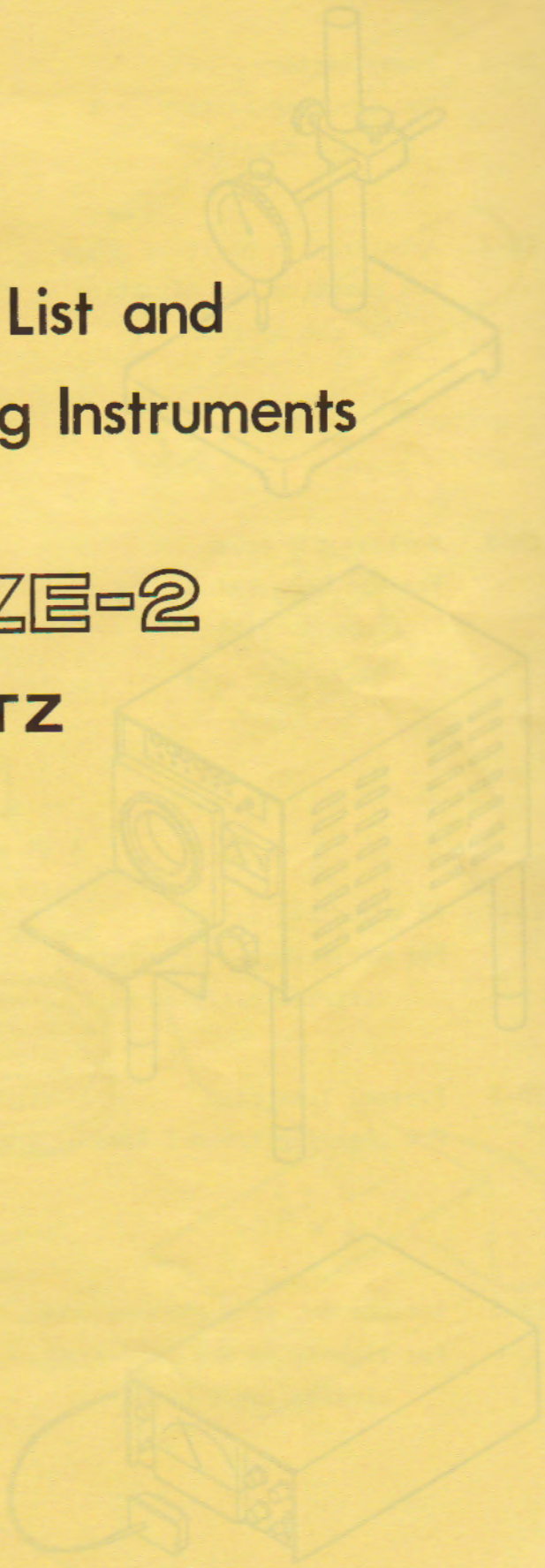
ZE-2 Electro circuit diagram



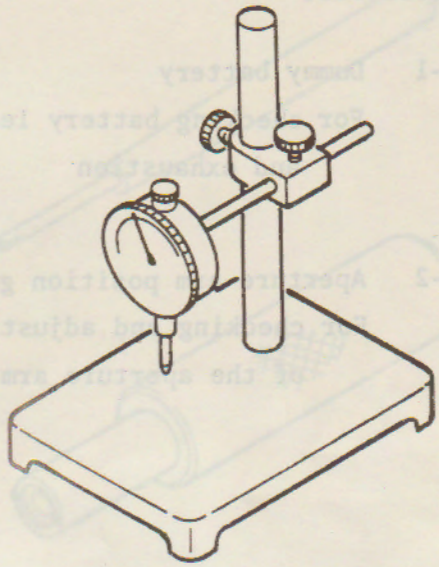

Green (Manual P.C.)
Purple (Manual P.C.)
Purple (Memory switch)
Black (Manual P.C.)
Brown (Charge signal contact)
Brown (Hybrid I.C.)
Pink (Manual P.C.)
White (Selector)
Purple (F.P.C. "B")
Gray (F.P.C. "A")
Blue (F.P.C. "C")
Green (A. Print baord)
Green (Manual P.C.)
Yellow (Shutter trigger switch)
Blue (Selector)
"C"
"B"
"A"
White (Shutter magnet)
Green (Hybrid I.C.)
Green (Selector)
Orange (Battery plus contact)
Orange (Shutter magnet)
Brown (Selector)
Purple (Main switch plus)
Purple (Manual P.C.)
Green (Reset switch)
21


R14
R20
R16
R18
R19
R17
R2
R3
VR1
D1
R5
VR4
R1
R4
VR2
VR3
R21
R15
C1
C8
R8
IC3 OP amp
R6
C3
C2
R7
C4
C5
C9
TR3
QZ (Quartz crystal)
MSL 9302
IC 1
IC 1 Control unit
R10
TR2
R13
C7
R12
C6
R7
21
IC 2 Bi MOS-OP amp
SPD
TR 1
IC 4
Buzzer contact
Green leadwire
IC 1 19
IC 1 26
IC 1 28
IC 1 29
IC 1 30
IC 1 31
IC 1 32
Warning signal pin 6
LED Cathode
Warning signal pin 7
Warning signal pin 8
IC 1 10
IC 4
C 11
C 10
D4
TR 6
TR 5
TR4
D2
D3
Hybrid IC
MSL 3902
IC 1
IC 1
IC 3 OP amp

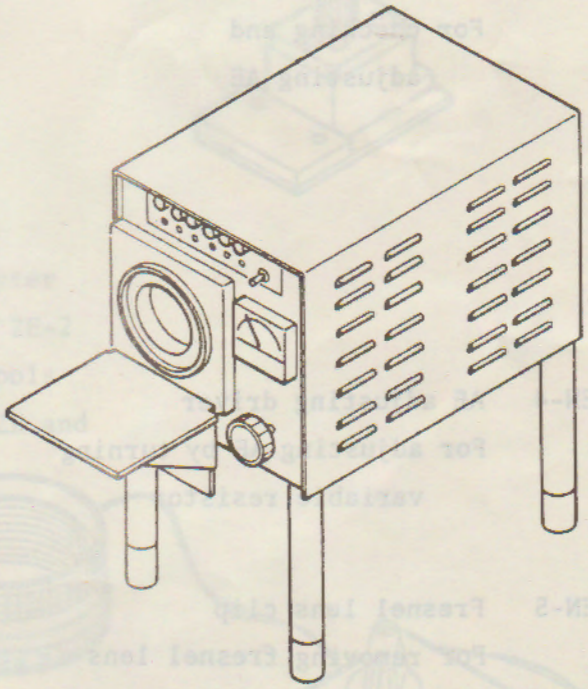
Repair Tool List and Special Measuring Instruments for Mamiya ZE-2 QUARTZ



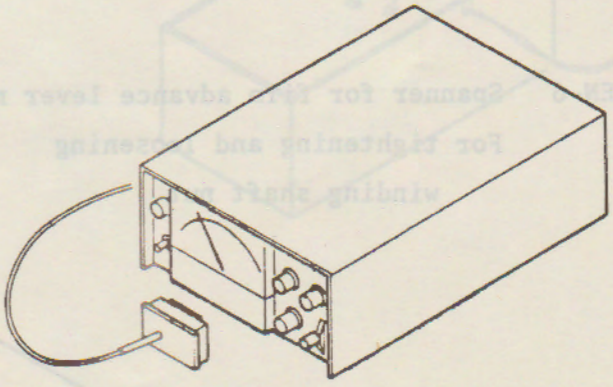
U-1 Measuring instrument with dial gauge



U-7 Light source box
Model LB360

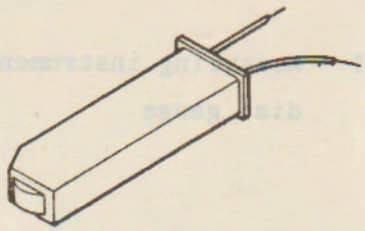


U-8 EE Camera Tester
Model CEE-1A

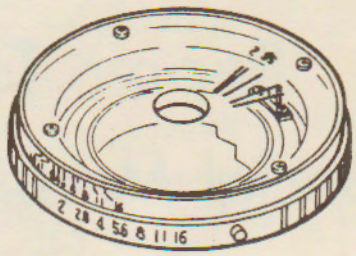


Tool list

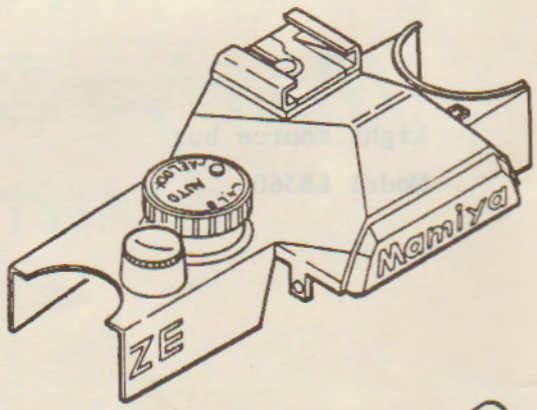
EN-1 Dummy battery
For checking battery leak
and exhaustion



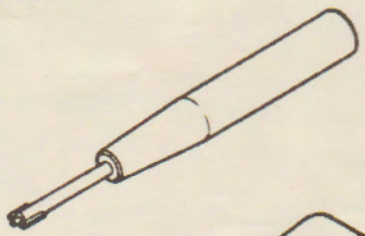
EN-2 Aperture arm position gauge
For checking and adjusting
of the aperture arm



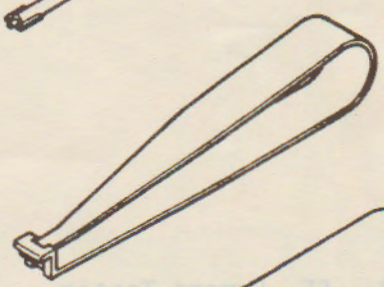
EN-3 Working top cover
For checking and
adjusting AE



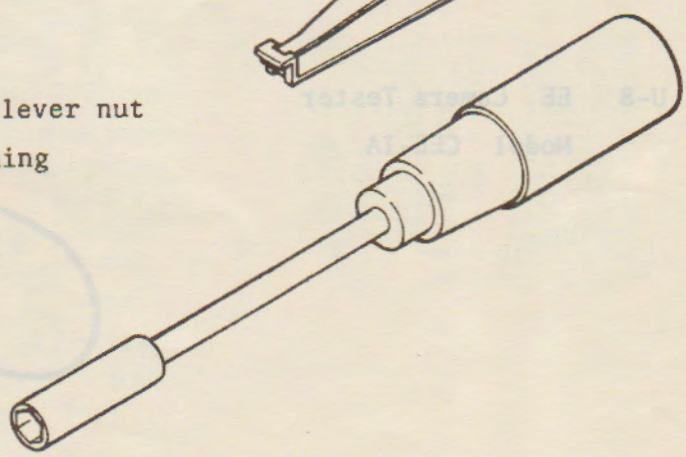
EN-4 AE adjusting driver
For adjusting AE by turning
variable resistor



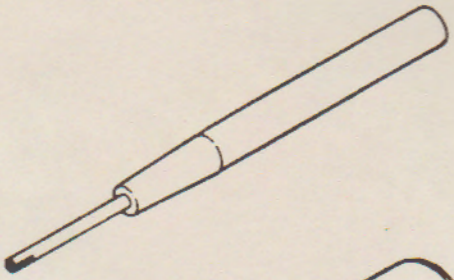
EN-5 Fresnel lens clip
For removing fresnel lens



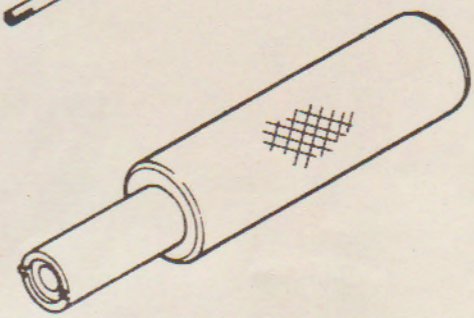
EN-6 Spanner for film advance lever nut
For tightening and loosening
winding shaft nut



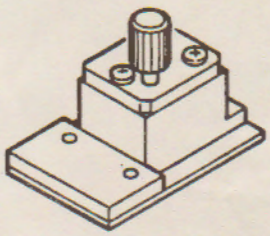
EN-7 Switch contact bender
For adjusting switch
contact



EN-8 Spanner for film speed scale not
For tightening and loosening film
speed compensation dial nut

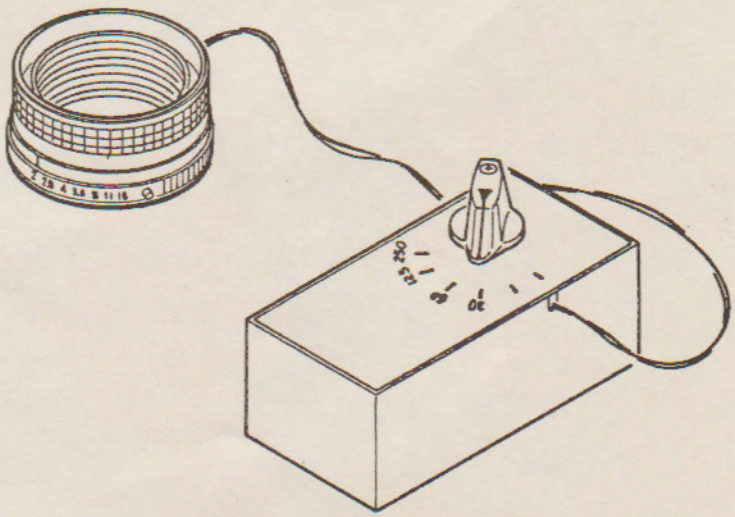


EN-9 Flash contact signal gauge
For checking flash
contact signal



EN-18 Camera shake worning tester

Note: The EN-18 camera warning tester is exclusively used for the ZE-2 camera, however all other tools are used in common for the ZE and ZE-2 cameras.



Printed in Japan
December-1980, P420