Service Manual

MINOLTA X-700

(2017-100/200)

MINOLTA

MINOLTA X-700 (2017-100)
(2017-200)···Black

Type of camera

Electronically cantrolled 35mm focal plane shutter single-lens reflex AE camera

Photography system : Program AE, aperture priority AE, and manual photographs

Standard lens : MD50mmF1.2, MD50mmF1.4, MD50F1.7

Lens mount : Minolta SLR bayonet mount.

Film used : J135 rolled film

Size of image field : 24mm×36mm

Shutter

Electronically controlled focal plane shutter (Traveling horizontally)

Shutter speed : 4 sec. to 1/1000 sec. (stepless) in auto (P and A modes). 1, 1/2, 1/4 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500, 1/1000 sec. and B (buld) in manual mode.

Shutter dial : Click stop endless dial (with position P/A lock).

Shutter release : Electromagnetic release, remote cord, wireless controller IR-1 can be mounted.
Shutter release locks in case of battery voltage drop.
Shutter button is provided with sensor switch. (Metering and displaying continuos for 15 sec. after touching the sensor switch.)
With main switch at ON))), intermittent electronic alarm is given to warn against camera vibration when the shutter speed indicated in the viewfinder becomes less than 1/30 second.

Self-timer : Electronic self-timer starts by using the shutter button. 10 second operation is indicated by LED blink and intermittent electronic alarm (with the main switch set at ON))). Shutter pre-operation notice is given. Self-timer operation can be cleared after its start.

Synchro

Flash synchro : X contact, electroflash is synchronized at speeds lower than 1/60 second; flash bulb is at speeds lower than 1/15 second.

Hot shoe : Direct contact (with electric shock prevention device), synchro auto control contact.

Synchro terminal : JIS B type socket

Filml winding, rewinding

Film winding : Single-operation lever winding at an angle of 130° (preliminary angle : 30°) auto winding by motor 1 or auto winder G.

Film counter : Auto resetting calculation.

Film rewinding : Auto rewind and crank system; auto reset of rewind button.

Viewfinder

Focusing screen : Center···Split, microprism
Periphery···Acutematte

Viewfinder vision : 95% (standard 24mm×36mm image field).

Magnification : 0.9 (50mm standard lens at ∞)

Visibility : −1 diopt.

Viewfinder indication : Shooting mode LED, shutter speed scale, shutter speed indication LED, shutter speed non-interlock alarm LED, exposure compensation indication, exposure compensating, LED, set aperture valash ready signal, FDC indication, faulty P mode indication.

Mirror : Slide-up quick return

Exposure control

Light-Metering system :
TTL center-weighted average metering.
(Minolta direct metering, using auto electroflash 280PX/CLE)

Receiver element : Silicon photocell

Auto exposure interlock range :
EV1-18 (ASA100 F1.4 lens)

Film speed scale : ASA/ISO 25-1600 (locked every 1/3 stage)

Exposure Compensation :
This is possible in the ±2EV range of the standard (locked every 1/2 stage)

Power supply

Battery used	: Two 1.5V alkaline manganese batteries (JIS LR44/A76) or 1.55V silver ox oxide battery G-13 type (JIS SR44) or equivalent.
Main switch	: Changeover type ON))), ON, OFF.
Metering switch (Battery check)	: Shutter button sensor switch system.

Back cover

Back cover control lift and one-touch lock system, memo-holder with grip (film speed conversion), multi-function back compatibility.

Others

Film signal, preview button, battery case, eyepiece cap.

Size & weight

Size	: 137mm(W) × 89mm(H) × 51.5mm(D)
Weight (body only)	: 505g (less battery)

Exclusive accessories

- Multi-function back (Code No. 8744)
- Auto electro flash 280PX (Code No. 8808)

X-700 (2017-100……Chrome model / 2017-200……Black model) Parts List

■ This Parts List based upon the existing models (as of Jan. 1983, 2017-200 Black model).

■ Regarding those modified in the course of production, part No. on the exploded view of the Parts List is provided with ● or ◉.

● : Modified in the course of production, and individually not interchangeable with previous type. (Some part is interchangeable)

◉ : Discontinued in the course of production, newly added or temporarily used.

■ Regarding those provided with ● or ◉, be sure to refer to the specified page (P.   is provided under part No.)

For the modification details, described on P. 21 or after.

Read and understand the description on P. 21 before hand.

■ This Parts List based upon X-700 (with AE lock) even though 2 types, AE lock/non AE lock, are on the market.
For X-700 with non AE lock, described on P. 35～P. 40 as exclusive parts.

■ For 2017-100 (Chrome model), described on P. 20 as exclusive parts.
Parts other than on P. 20, refer to P. 1～P. 17 since those are common parts with 2017-200.
In other hand, for wiring of flexible P.C. board set of 2017-100, refer to P. 39～P. 40 since AE lock is not provided.

■このパーツリストは，現在生産中（1983年1月現在）のモデル（2017-200……Black model）を基本にまとめてあります。

■生産途中で変更された部品には，パーツリスト展開図側の部品番号の頭に記号（●印又は◉印）を付けてあります。

●印：生産途中で変更され，その部品単独では旧タイプとの互換性がないもの
（一部互換性がある場合もあります）

◉印：生産途中に廃止，新設，又は一時的に使用された部品を示す。

■●印又は，◉印が付いている部品については，必ず指示されたページを参照して下さい。
（部品番号の下に，P.　と表示）

部品の変更内容は，P. 21以降に記載してあります。P. 21の説明を理解の上で利用下さい。

■X-700には，AEロック機能無しと，AEロック機能付の2種類ありますが，このパーツリストは，AEロック機能付のX-700を基本にまとめてあります。
AEロック機能無しX-700については，P. 35～P. 40に専用部品表としてまとめてあります。

■2017-100（Chrome model）については，Page 20に専用部品表としてまとめています。
記載以外は，2017-200と共通ですので，Page 1～Page 17を参照して下さい。
尚，2017-100には，AEロック回路が無い為，フレキシブル基板セット，リード線の記線はそれぞれPage 39, Page 40を参照して下さい。

I N D E X

※ mark shows exclusive part for Chrome model (2017-100).
★ mark shows exclusive part for both models, AE lock, non AE lock.

I N D E X

※ mark shows exclusive part for Chrome model (2017-100).

★ mark shows exclusive part for both models, AE lock, non AE lock.

I N D E X

★ mark shows exclusive part for both models, AE lock, non AE lock.

I N D E X

※ mark shows exclusive part for Chrome model (2017-100).
★ mark shows exclusive part for both models, AE lock, non AE lock.

I N D E X

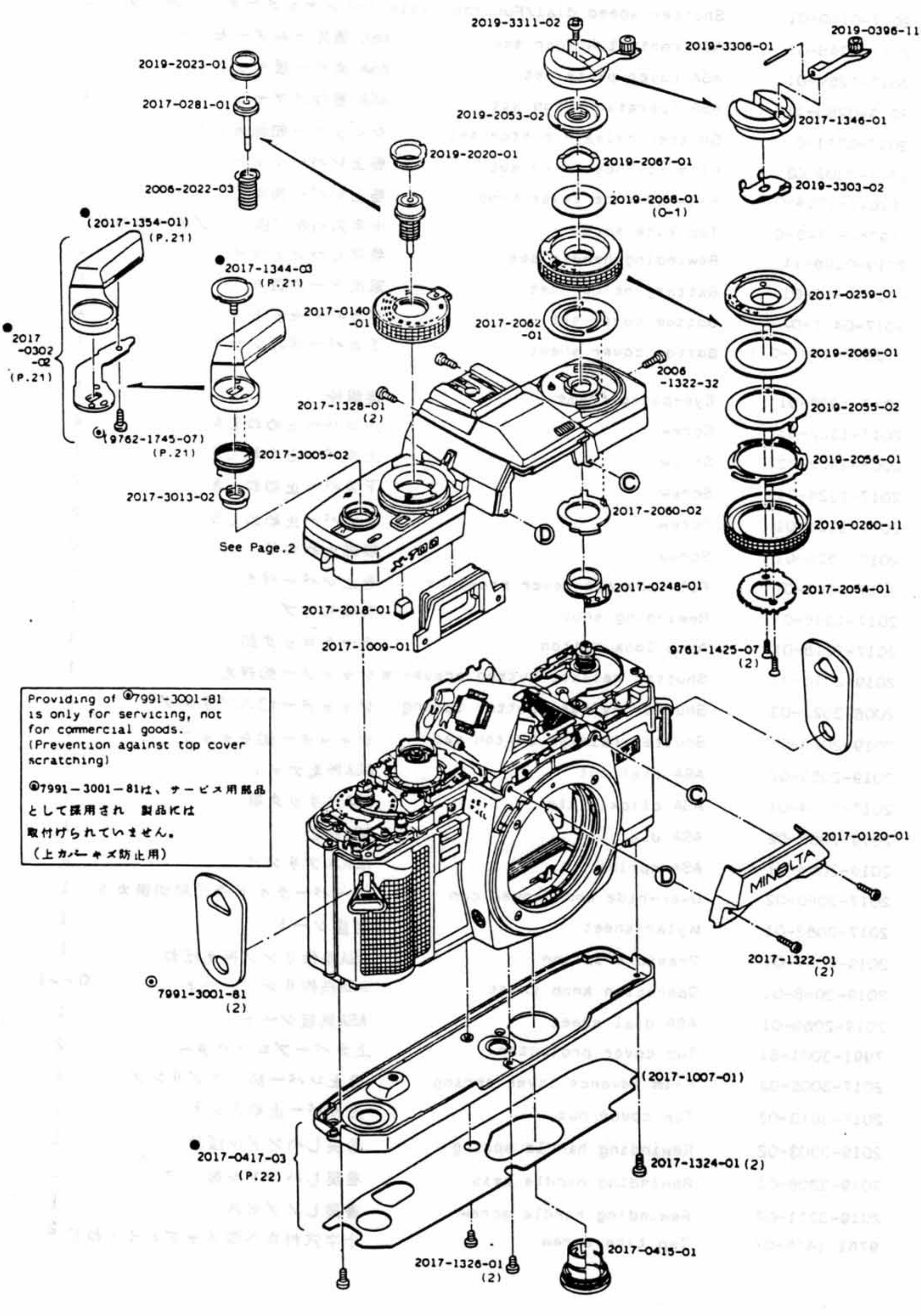
※ mark shows exclusive part for Chrome model (2017-100).
★ mark shows exclusive part for both models, AE lock, non AE lock.
☆ mark shows exclusive part for model of non AE lock.

I N D E X

I N D E X

I N D E X

☆mark shows exclusive part for model of non AE lock.

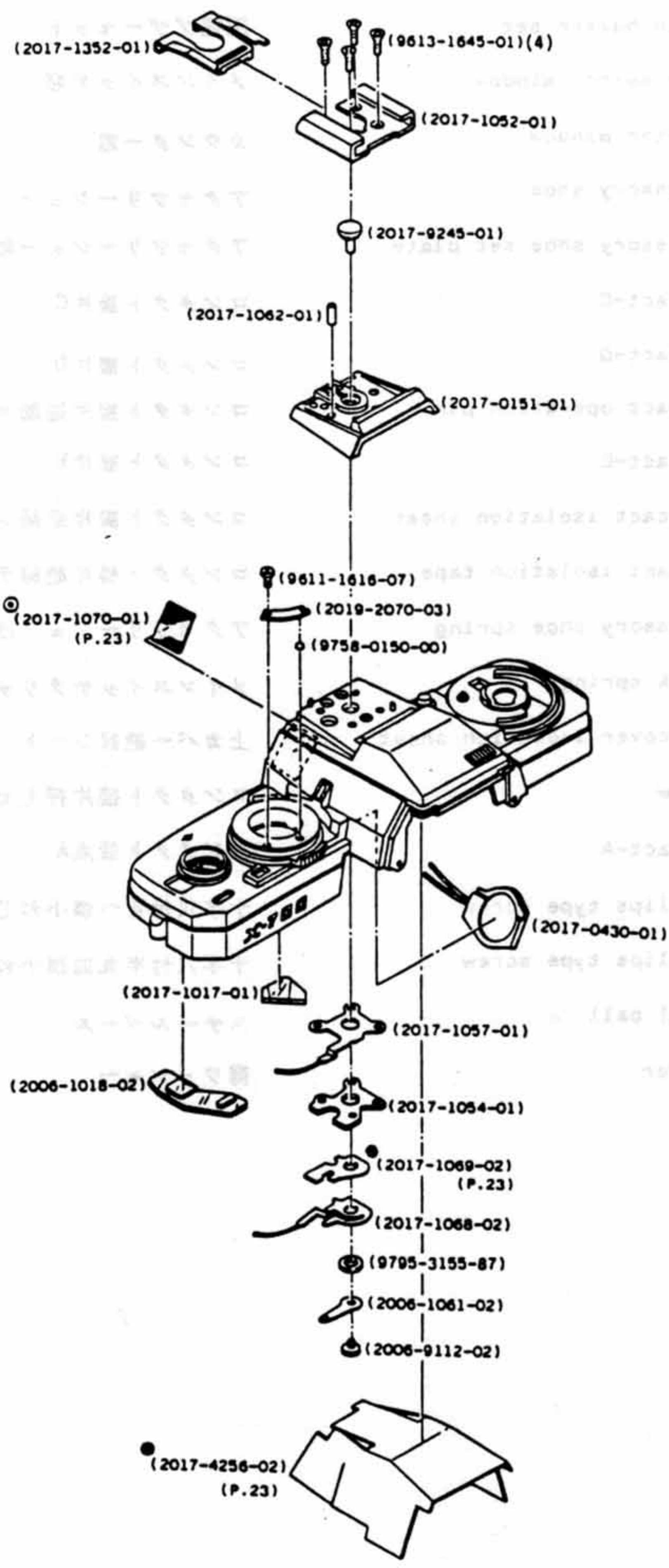


Providing of ©7991-3001-81
is only for servicing, not
for commercial goods.
(Prevention against top cover
scratching)

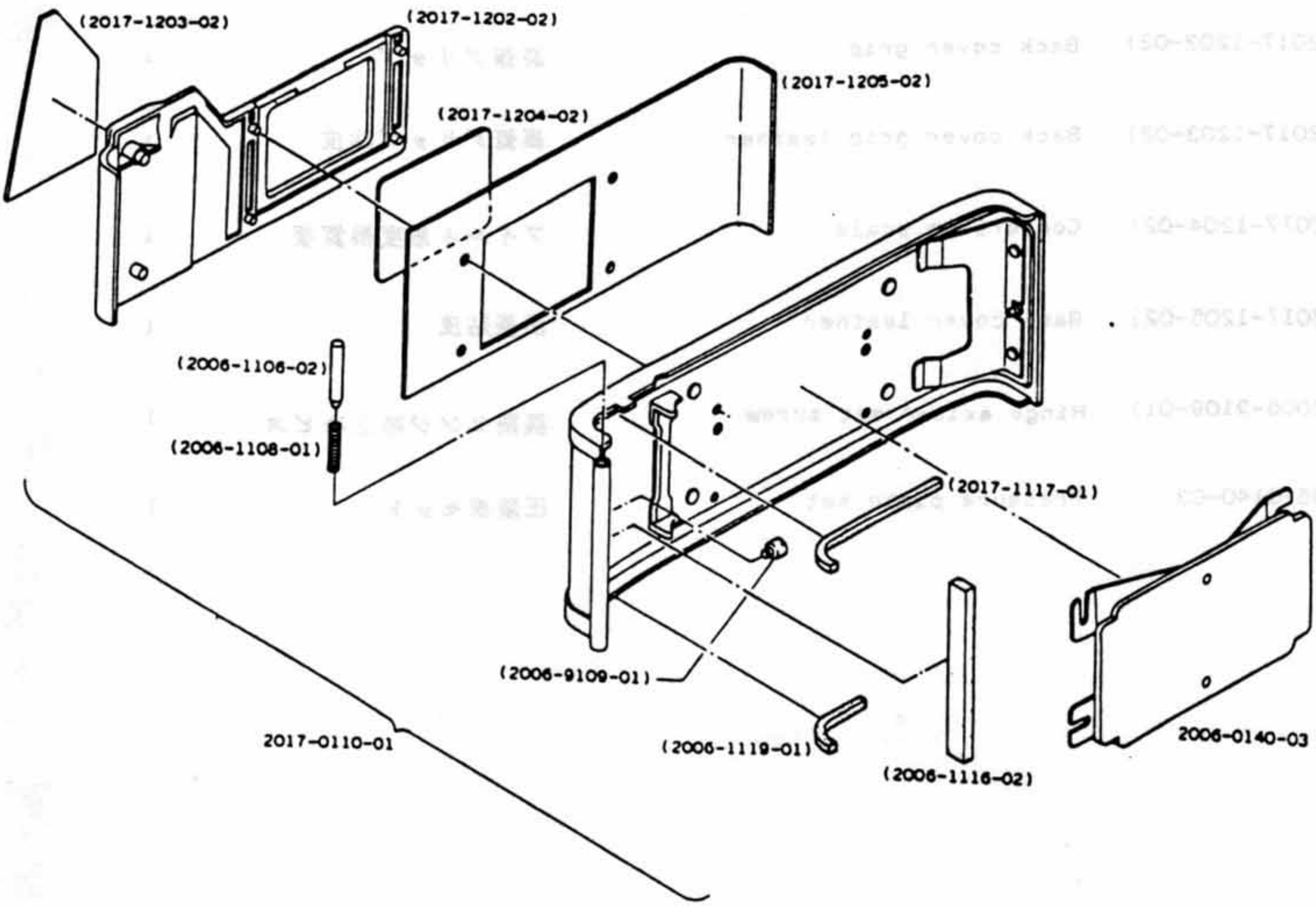
©7991－3001－81は、サービス用部品
として採用され 製品には
取付けられていません。
(上カバーキズ防止用)

Part No.	Part Name		Qty
2017-0120-01	Front top cover set	上部正面カバーセット	1
2017-0140-01	Shutter speed dial/Function selector	シャッターダイヤルセット	1
2017-0248-01	ASA contact holder set	ASA 接片ホルダーセット	1
2017-0259-01	ASA cover plate set	ASA カバー板セット	1
2019-0260-11	ASA operation knob set	ASA 操作ノブセット	1
2017-0281-01	Shutter release button set	シャッター釦軸セット	1
2017-0302-02	Film advance lever set	巻上レバーセット	1
(2017-1354-01)	Film advance lever knob	巻上レバー指当て	1
(9762-1745-07)	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
2019-0396-11	Rewinding handle set	巻戻しハンドセット	1
2017-0415-01	Battery holder set	電池ケース蓋セット	1
2017-0417-03	Bottom cover set	下カバーセット	1
(2017-1007-01)	Bottom cover sheet	下カバー保護シート	1
2017-1009-01	Eye-piece frame	接眼枠	1
2017-1322-01	Screw	上カバー止めねじA	2
2006-1322-32	Screw	上カバー止めねじB	1
2017-1324-01	Screw	下カバー止めねじA	2
2017-1326-01	Screw	下カバー止めねじB	2
2017-1328-01	Screw	接眼止めねじ .	2
2017-1344-03	Film advance lever pressure	巻上レバー押え	1
2017-1346-01	Rewinding knob	巻戻しノブ	1
2017-2018-01	Auto lock button	オートロック釦	1
2019-2020-01	Shutter release button pressure	シャッター釦押え	1
2006-2022-03	Shutter release button spring	シャッター釦スプリング	1
2019-2023-01	Shutter release button cap	シャッター釦キャップ	1
2019-2053-02	ASA dial nut	ASA押えナット	1
2017-2054-01	ASA click plate	ASAクリック板	1
2019-2055-02	ASA dial	ASA銘板	1
2019-2056-01	ASA spring	ASAスプリング	1
2017-2060-02	Over-ride changeover cam	オーバーライド表示用切換カム	1
2017-2062-01	Mylar sheet	防塵シート	1
2019-2067-01	Pressure spring	ASA操作リング押えばね	1
2019-2068-01	Operation knob sheet	ASA操作リングシート	0～1
2019-2069-01	ASA dial sheet	ASA銘板シート	1
7991-3001-81	Top cover protector	上カバープロテクター	2
2017-3005-02	Film advance lever spring	巻上レバー戻しスプリング	1
2017-3013-02	Top cover nut	上カバー止めナット	1
2019-3303-02	Rewinding handle spring	巻戻しハンドルばね	1
2019-3306-01	Rewinding handle axis	巻戻しハンドル軸	1
2019-3311-02	Rewinding handle screw	巻戻しノブビス	1
9761-1425-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2

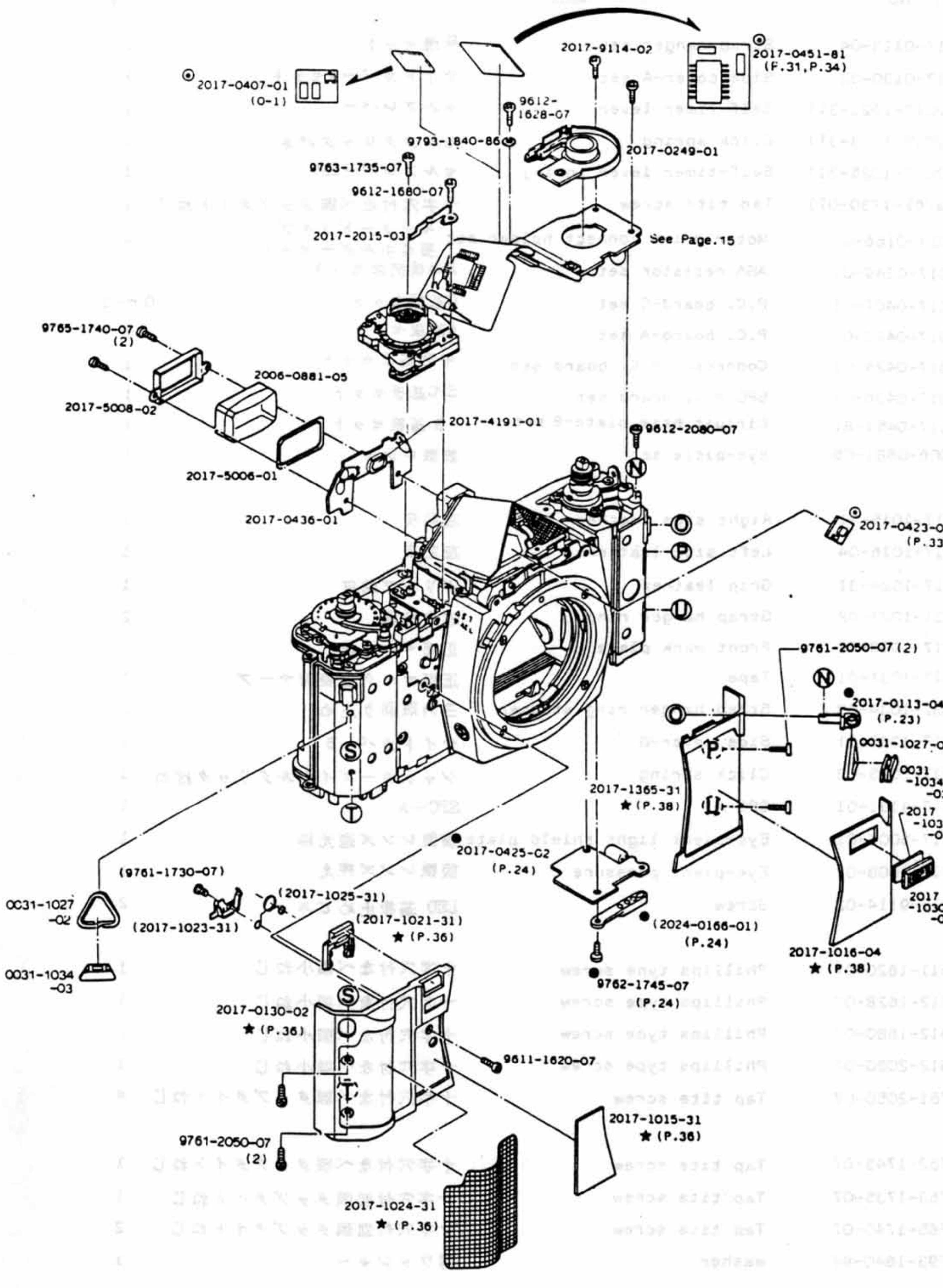
Assy. Part No.2017-0132-01



Part No.	Part Name		Qty
2017-0132-01	Top cover set	上カバーセット	1
(2017-0151-01)	Accessory shoe base set	アクセサリーシュー座セット	1
(2017-0430-01)	Piezo buzzer set	圧電ブザーセット	1
(2017-1017-01)	Main switch window	メインスイッチ窓	1
(2006-1018-02)	Counter window	カウンター窓	1
(2017-1052-01)	Accessory shoe	アクセサリーシュー	1
(2017-1054-01)	Accessory shoe set plate	アクセサリーシュー取付板	1
(2017-1057-01)	Contact-C	コンタクト接片C	1
(2006-1061-02)	Contact-D	コンタクト接片D	1
(2017-1062-01)	Contact operation pin	コンタクト接片連動ピン	1
(2017-1068-02)	Contact-E	コンタクト接片E	1
(2017-1069-02)	Contcact isolation sheet	コンタクト接片絶縁シート	1
(2017-1070-01)	Contact isolation tape	コンタクト接片絶縁テープ	1
(2017-1352-01)	Accessory shoe spring	アクセサリーシューばね	1
(2019-2070-03)	Click spring	メインスイッチクリックばね	1
(2017-4256-02)	Top cover isolation sheet	上カバー絶縁シート	1
(2006-9112-02)	Screw	コンタクト接片押えビス	1
(2017-9245-01)	Contact-A	コンタクト接点A	1
(9611-1616-07)	Phillips type screw	十字穴付なべ頭小ねじ	1
(9613-1645-01)	Phillips type screw	十字穴付半丸皿頭小ねじ	4
(9758-0150-00)	Steel ball	スチールボール	1
(9795-3155-87)	Washer	薄ワッシャー	1

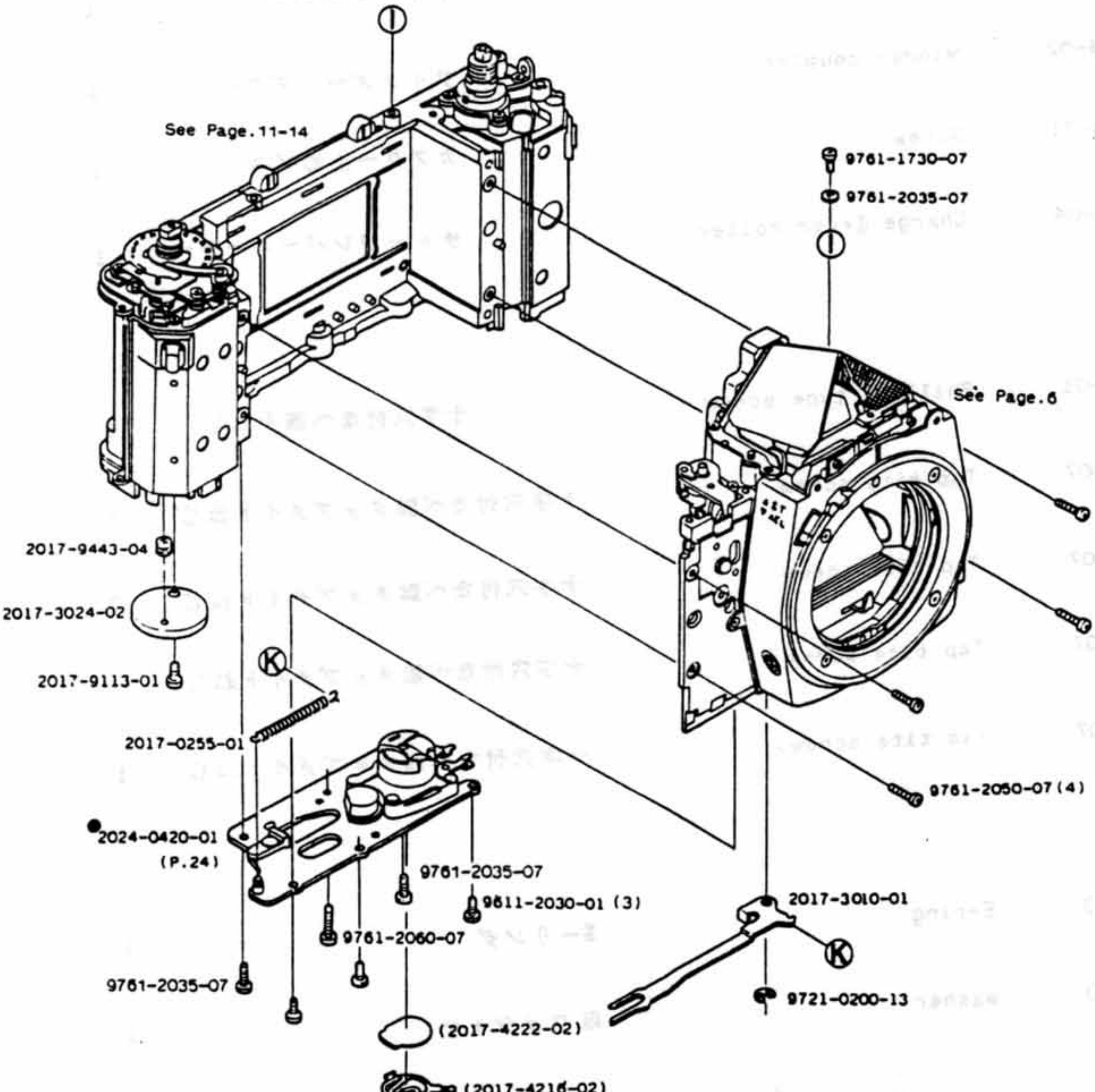

(2017-1203-02)
(2017-1202-02)
(2017-1205-02)
(2017-1204-02)
(2006-1106-02)
(2006-1108-01)
(2017-1117-01)
(2006-9109-01)
2006-0140-03
2017-0110-01
(2006-1119-01)
(2006-1116-02)

Part No.	Part Name		Qty
2017-0110-01	Back cover set	裏蓋セット	1
(2006-1106-02)	Hinge axis-A	ヒンジ軸A	1
(2006-1108-01)	Hinge spring	ヒンジスプリング	1
(2006-1116-02)	Back cover light shield plate	裏蓋遮光片	1
(2017-1117-01)	Back cover light shield plate-C	裏蓋遮光片C	1
(2006-1119-01)	Back cover light shield plate-B	裏蓋遮光片B	1
(2017-1202-02)	Back cover grip	裏蓋グリップ	1
(2017-1203-02)	Back cover grip leather	裏蓋グリップ貼皮	1
(2017-1204-02)	Conversion scale	フイルム感度換算板	1
(2017-1205-02)	Back cover leather	裏蓋貼皮	1
(2006-9109-01)	Hinge axis-A set screw	裏蓋ヒンジ軸止めビス	1
2006-0140-03	Pressure plate set	圧着板セット	1



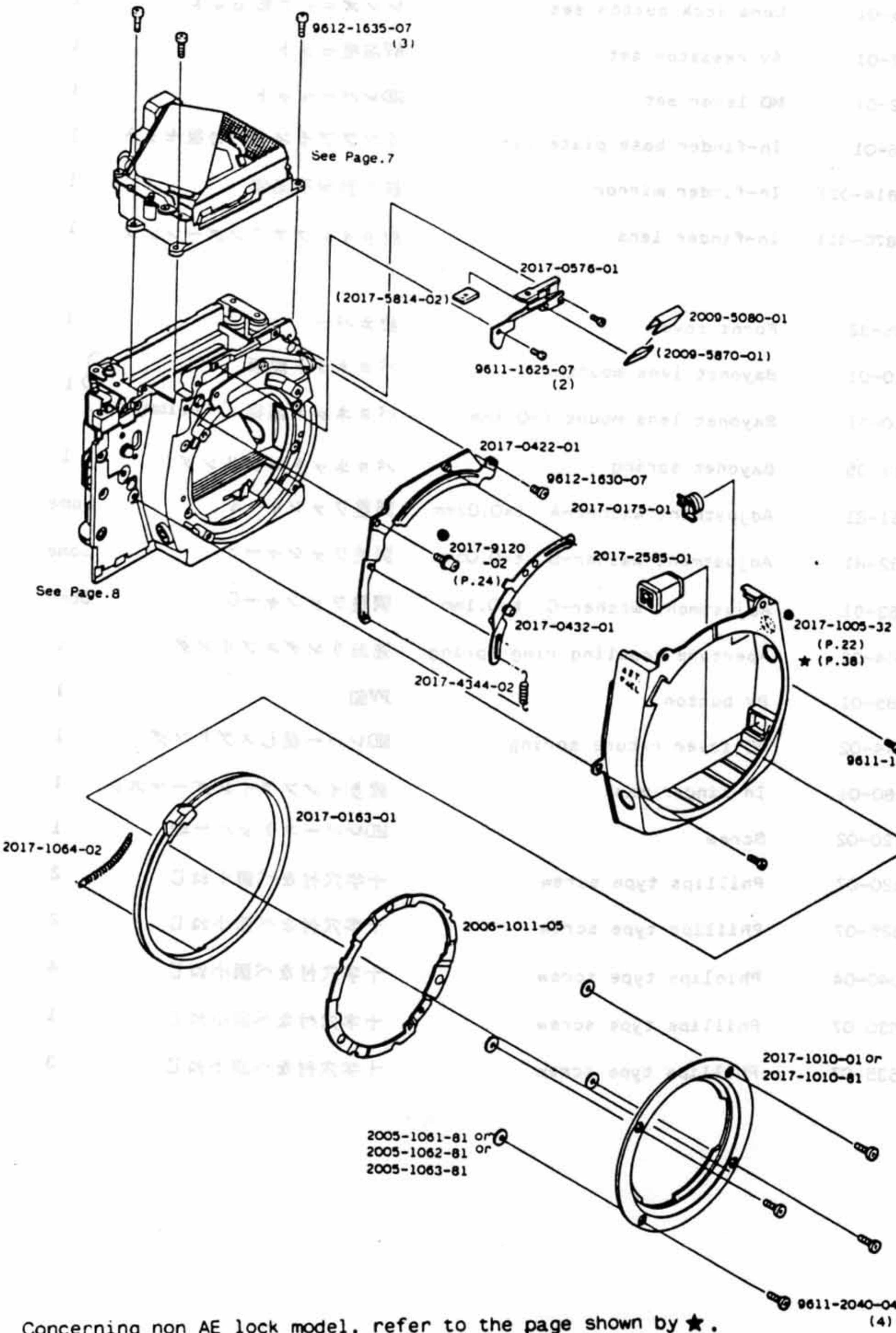
Concerning non AE lock model, refer to the page shown by ★.

Part No.	Part Name		Qty
2017-0113-04	Strap hanger set	吊環セット	1
2017-0130-02	Side cover-A set	サイドカバーAセット	1
(2017-1021-31)	Self-timer lever	セルフレバー	1
(2017-1023-31)	Click spring	セルフクリックバネ	1
(2017-1025-31)	Self-timer lever spring	セルフレバーSP	1
(9761-1730-07)	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
2024-0166-01	Motor drive connect holder set	モータードライブ 接点ホルダーセット	1
2017-0249-01	ASA resistor set	ASA抵抗体セット	1
2017-0407-01	P.C. board-C set	C基板セット	0～1
2017-0423-02	P.C. board-A set	A基板セット	1
2017-0425-02	Connector P.C. board set	中継基板セット	1
2017-0436-01	SPC P.C. board set	SPC基板セット	1
2017-0451-81	Circuit base plate-B set	B基板セット	1
2006-0881-05	Eye-piece set	接眼レンズ	1
2017-1015-31	Right side leather	右貼皮	1
2017-1016-04	Left side leather	左貼皮	1
2017-1024-31	Grip leather	グリップ貼皮	1
0031-1027-02	Strap hanger ring	三角吊環	2
2017-1030-02	Front mark plate	正面マーク板	1
2017-1031-01	Tape	正面マーク板接着テープ	1
0031-1034-03	Strap hanger ring stopper	三角環回り止め	2
2017-1365-31	Side cover-B	サイドカバーB	1
2017-2015-03	Click spring	シャッターダイヤルクリックばね	1
2017-4191-01	SPC-A	SPC－A	1
2017-5006-01	Eye-piece light shield plate	接眼レンズ遮光枠	1
2017-5008-02	Eye-piece pressure	接眼レンズ押え	1
2017-9114-02	Screw	LED 基板止めビス	2
9611-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1628-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1680-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-2080-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9761-2050-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	4
9762-1745-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9763-1735-07	Tap tite screw	十字穴付皿頭タップタイトねじ	1
9765-1740-07	Tap tite screw	十字穴付皿頭タップタイトねじ	2
9793-1840-86	Washer	薄ワッシャー	1



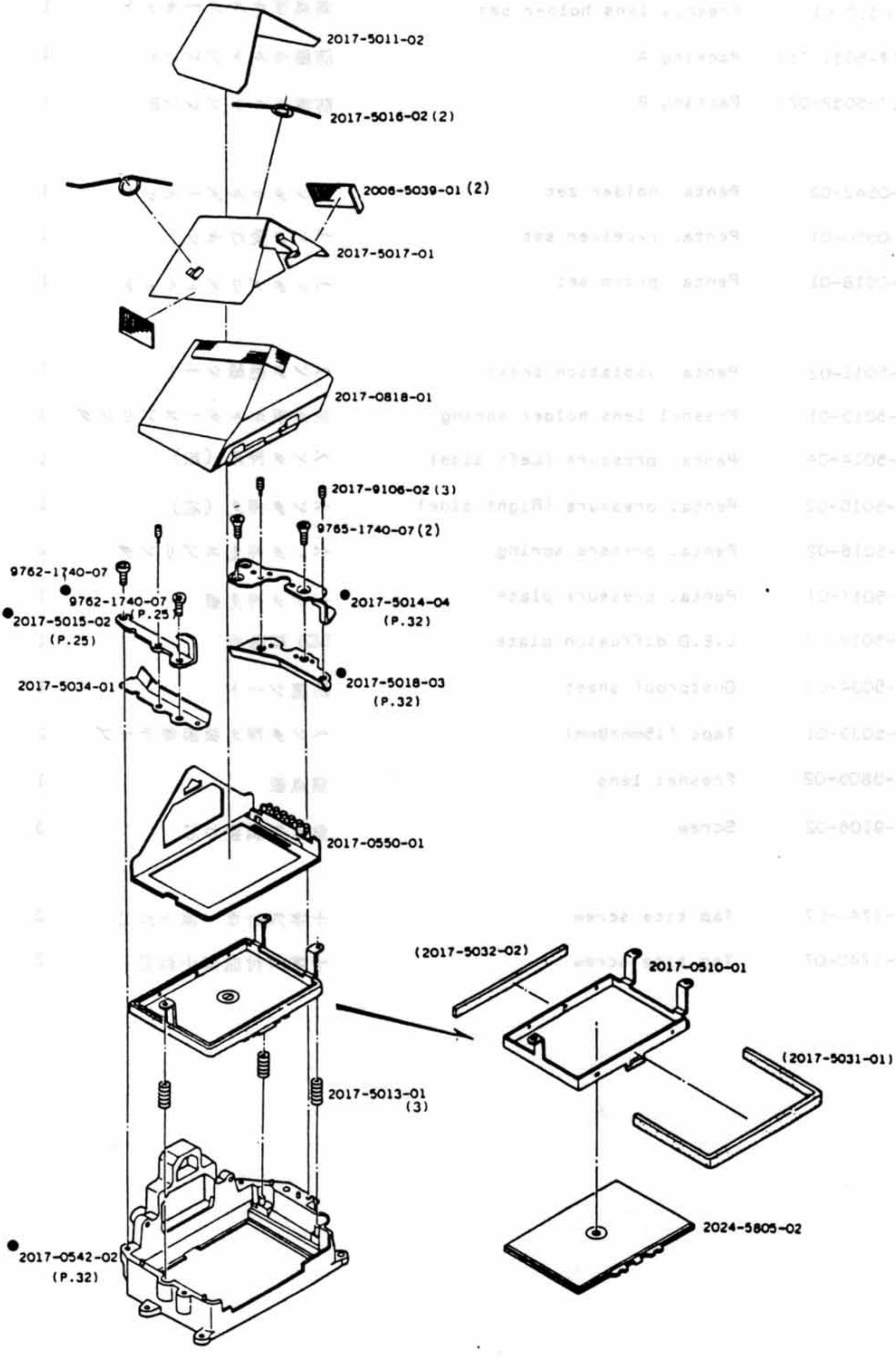
See Page.11-14
9761-1730-07
9761-2035-07
See Page.6
2017-9443-04
2017-3024-02
2017-9113-01
2017-0255-01
2024-0420-01
(P.24)
9761-2050-07 (4)
9761-2035-07
9811-2030-01 (3)
2017-3010-01
9761-2060-07
9761-2035-07
9721-0200-13
(2017-4222-02)
(2017-4216-02)

Part No.	Part Name		Qty
2017-0255-01	MP return sub spring-B set	MP戻し補助SPーBセット	1
2024-0420-01	Battery case base plate set	電池ケース台板セット	1
(2017-4216-02)	Battery contact(+)	電池接片（＋）	1
(2017-4222-02)	Battery light shield plate	電池ケース遮光板	1
2017-3010-01	Charge lever	チャージレバー	1
2017-3024-02	Winder coupler	ワインダーカプラー	1
2017-9113-01	Screw	カプラー止めビス	1
2017-9443-04	Charge lever roller	チャージレバーローラー	1
9611-2030-01	Phillips type screw	十字穴付なべ頭小ねじ	3
9761-1730-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9761-2035-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2
9761-2050-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	4
9761-2060-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9721-0200-13	E-ring	Eーリング	1
9792-1735-40	Washer	薄ワッシャー	1

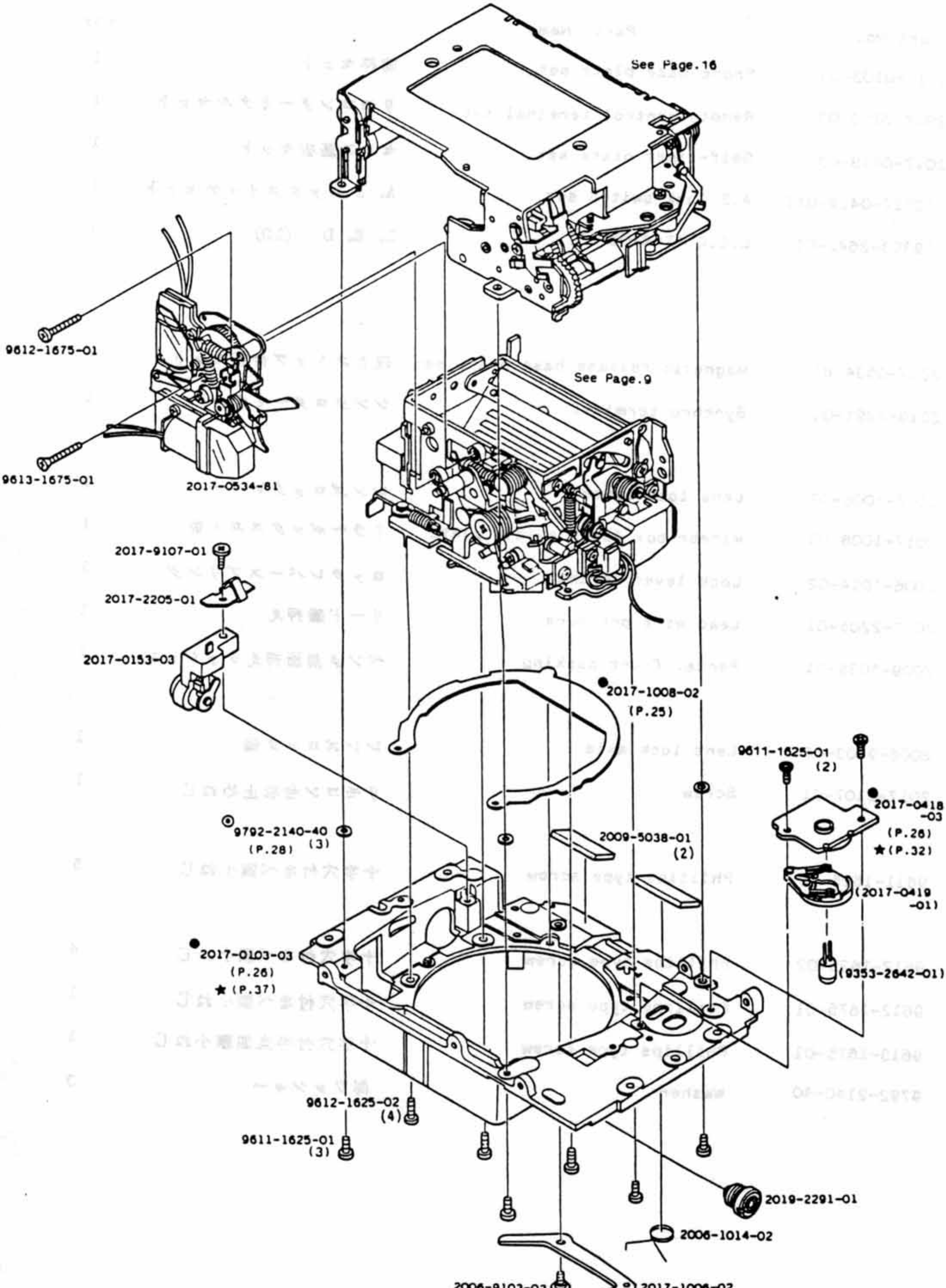


Concerning non AE lock model, refer to the page shown by ★.
AEロック機能なしモデルは、★マークのページを参照して下さい。

Part No.	Part Name		Qty
2017-0163-01	Aperture coupling ring set	連結リングセット	1
2017-0175-01	Lens lock button set	レンズロック釦セット	1
2017-0422-01	AV resistor set	AV基板セット	1
2017-0432-01	MD lever set	MDレバーセット	1
2017-0576-01	In-finder base plate set	インファインダー台板セット	1
(2017-5814-02)	In-finder mirror	絞り表示平面鏡	1
(2009-5870-01)	In-finder lens	絞りインファインダーレンズ	1
2017-1005-32	Fornt cover	前カバー	1
2017-1010-01	Bayonet lens mount	バヨネット座板	1
2017-1010-81	Bayonet lens mount (-0.1mm)	バヨネット座板 (−0.1mm)	
2006-1011-05	Bayonet spring	バヨネットスプリング	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	Some
2005-1063-81	Adjustment washer-C t=0.1mm	調整ワッシャーC	Some
2017-1064-02	Aperture coupling ring spring	連結リングスプリング	1
2017-2585-01	PV button	PV釦	1
2017-4344-02	MD lever reture spring	MDレバー戻しスプリング	1
2009-5080-01	In-finder mask	絞りインファインダーマスク	1
2017-9120-02	Screw	MDレバーストッパー軸	1
9611-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9611-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9611-2040-04	Phiolips type screw	十字穴付なべ頭小ねじ	4
9612-1630-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1635-07	Phillips type screw	十字穴付なべ頭小ねじ	3

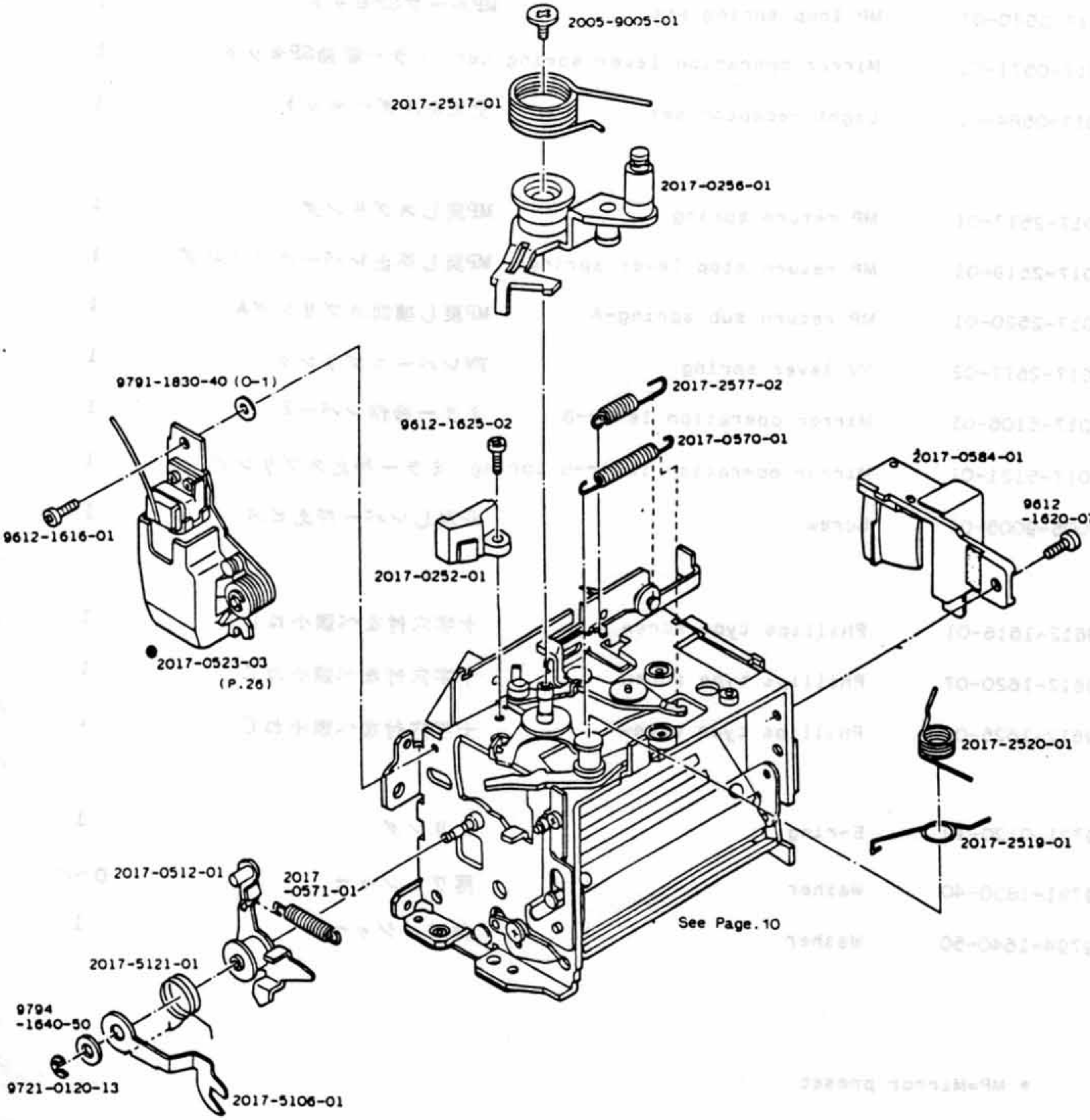

2017-5011-02
2017-5016-02 (2)
2006-5039-01 (2)
2017-5017-01
2017-0818-01
2017-9106-02 (3)
9765-1740-07 (2)
9762-1740-07
9762-1740-07
(P.25)
2017-5015-02
(P.25)
2017-5014-04
(P.32)
2017-5034-01
2017-5018-03
(P.32)
2017-0550-01
(2017-5032-02)
2017-0510-01
(2017-5031-01)
2017-5013-01
(3)
2024-5805-02
2017-0542-02
(P.32)

Part No.	Part Name		Qty
2017-0510-01	Fresnel lens holder set	焦点板ホルダーセット	1
(2017-5031-01)	Packing A	防塵モルトプレンA	1
(2017-5032-02)	Packing B	防塵モルトプレンB	1
2017-0542-02	Penta. holder set	ペンタホルダーセット	1
2017-0550-01	Penta. receiver set	ペンタ受けセット	1
2017-0818-01	Penta. prism set	ペンタプリズムセット	1
2017-5011-02	Penta. isolation sheet	ペンタ絶縁シート	1
2017-5013-01	Fresnel lens holder spring	焦点板ホルダースプリング	3
2017-5014-04	Penta. pressure (Left side)	ペンタ押え（左）	1
2017-5015-02	Penta. pressure (Right side)	ペンタ押え（右）	1.
2017-5016-02	Penta. pressre spring	ペンタ押えスプリング	2
2017-5017-01	Penta. pressure plate	ペンタ押え板	1
2017-5018-03	L.E.D diffusion plate	LED 拡散板	1
2017-5034-01	Dustproof sheet	防塵シート	1
2006-5039-01	Tape (15mmX9mm)	ペンタ押え板接着テープ	2
2024-5805-02	Fresnel lens	焦点板	1
2017-9106-02	Screw	焦点板調整ねじ	3
9762-1740-07	Tap tite screw	十字穴付なべ頭小ねじ	2
9765-1740-07	Tap tite screw	十字穴付皿頭小ねじ	2



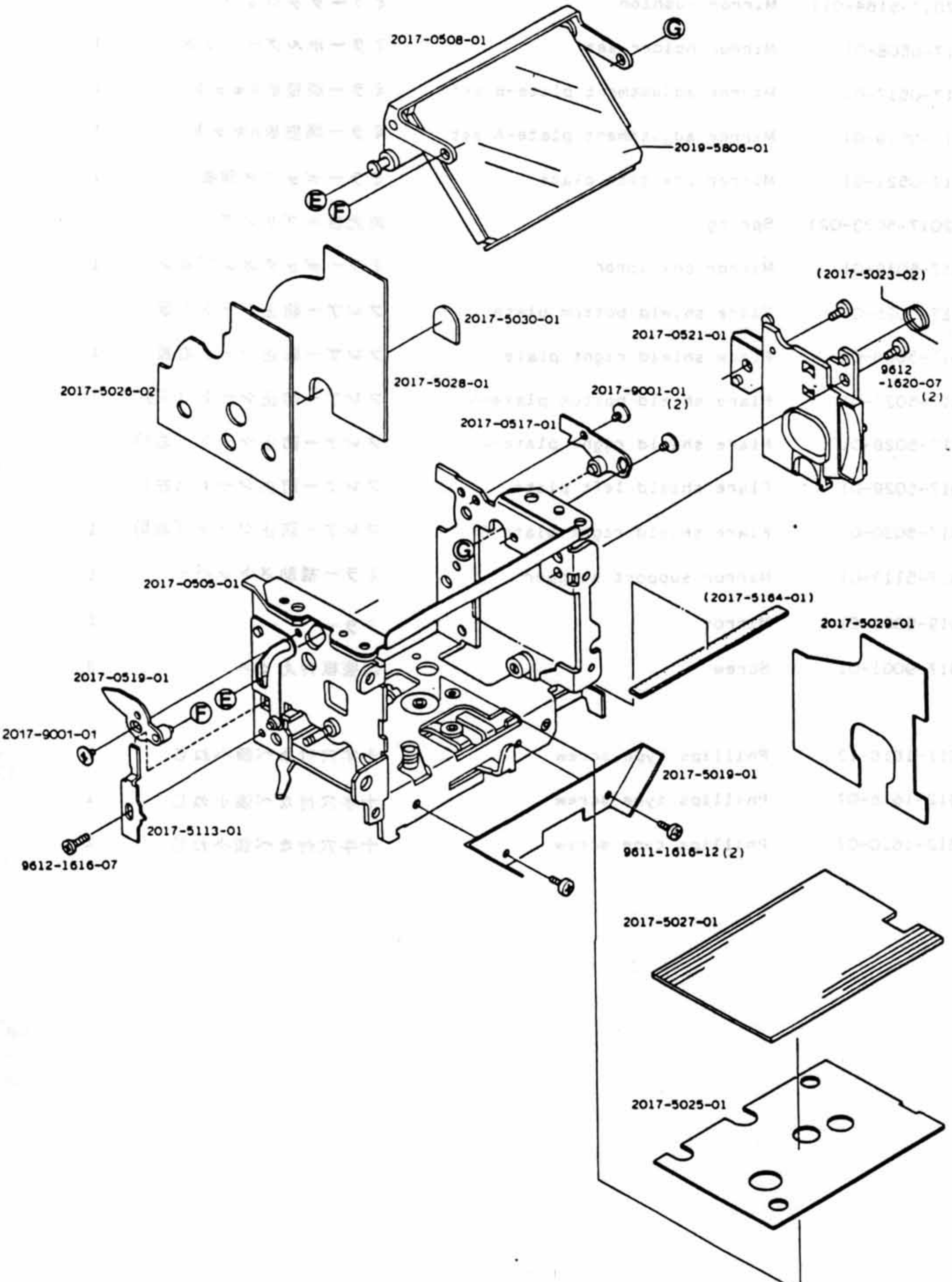
Concerning non AE lock model, refer to the page shown by ★.

Part No.	Part Name		Qty
2017-0103-03	Front base plate set	前枠セット	1
2017-0153-03	Remote control terminal set	リモコンターミナルセット	1
2017-0418-03	Self-timer plate set	セルフ基板セット	1
(2017-0419-01)	A.E lock switch set	A. Eロックスイッチセット	1
(9353-2642-01)	L.E.D (TLR108:LD)	L. E. D (LD)	1
2017-0534-81	Magnetic release base plate set	絞りストップ台板セット	1
2019-2291-01	Synchro terminal	シンクロターミナル	1
2017-1006-02	Lens lock lever	レンズロックレバー	1
2017-1008-02	Mirror box light shield plate	ミラーボックス遮光板	1
2006-1014-02	Lock lever spring	ロックレバースプリング	1
2017-2205-01	Lead wire pressure	リード線押え	1
2009-5038-01	Penta. front packing	ペンタ前面押えクッション	2
2006-9103-03	Lens lock axis	レンズロック軸	1
2017-9107-01	Screw	リモコン台板止めねじ	1
9611-1625-01	Phillips type screw	十字穴付なべ頭小ねじ	5
9612-1625-02	Phillips type screw	十字穴付なべ頭小ねじ	4
9612-1675-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9613-1675-01	Phillips type screw	十字穴付半丸皿頭小ねじ	1
9792-2140-40	Washer	薄ワッシャー	3

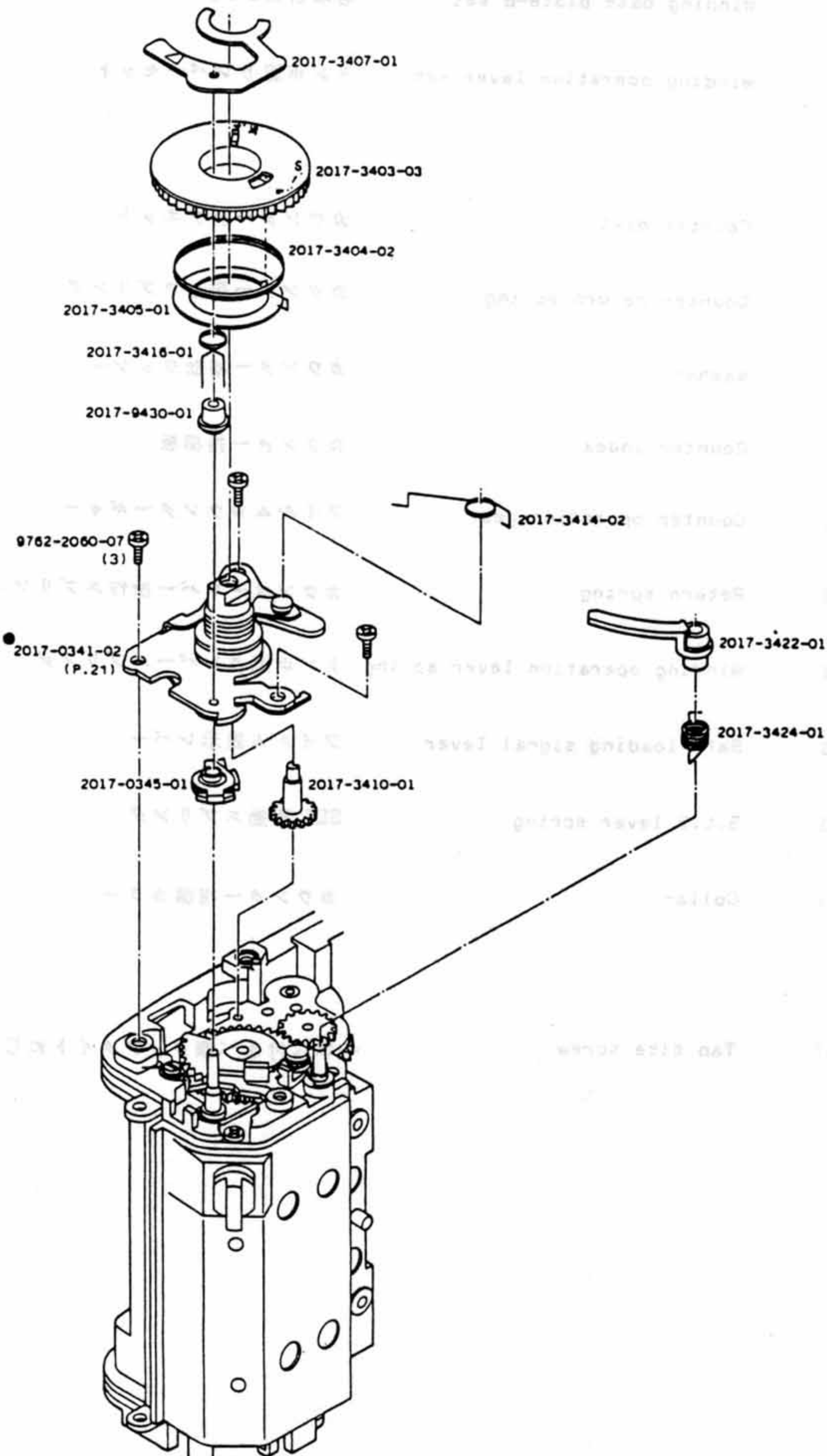

2005-9005-01
2017-2517-01
2017-0256-01
9791-1830-40 (O-1)
9612-1616-01
2017-0523-03
(P.26)
2017-2577-02
9612-1625-02
2017-0570-01
2017-0584-01
9612
-1620-07
2017-0252-01
2017-2520-01
2017-2519-01
2017-0512-01
2017
-0571-01
See Page.10
2017-5121-01
9794
-1640-50
9721-0120-13
2017-5106-01

Part No.	Part Name		Qty
2017-0252-01	MP return stopper set	MP戻しストッパーセット	1
2017-0256-01	MP return lever set	MP戻しレバーセット	1
2017-0512-01	Mirror operation lever set	ミラー駆動レバーセット	1
2017-0523-03	Mirror magnet set	ミラーマグネットセット	1
2017-0570-01	MP loop spring set	MPループSPセット	1
2017-0571-01	Mirror operation lever spring set	ミラー駆動SPセット	1
2017-0584-01	Light receptor set	受光ホルダーセット	1
2017-2517-01	MP return spring	MP戻しスプリング	1
2017-2519-01	MP return stop lever spring	MP戻し係止レバースプリング	1
2017-2520-01	MP return sub spring-A	MP戻し補助スプリングA	1
2017-2577-02	PV lever spring	PVレバースプリング	1
2017-5106-01	Mirror operation lever-B	ミラー操作レバーB	1
2017-5121-01	Mirror operation lever-B spring	ミラー押えスプリング	1
2005-9005-01	Screw	MP戻しレバー押えビス	1
9612-1616-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1625-02	Phillips type screw	十字穴付なべ頭小ねじ	1
9721-0120-13	E-ring	Eリング	1
9791-1830-40	Washer	薄ワッシャー	0~1
9794-1640-50	Washer	薄ワッシャー	1

* MP=Mirror preset

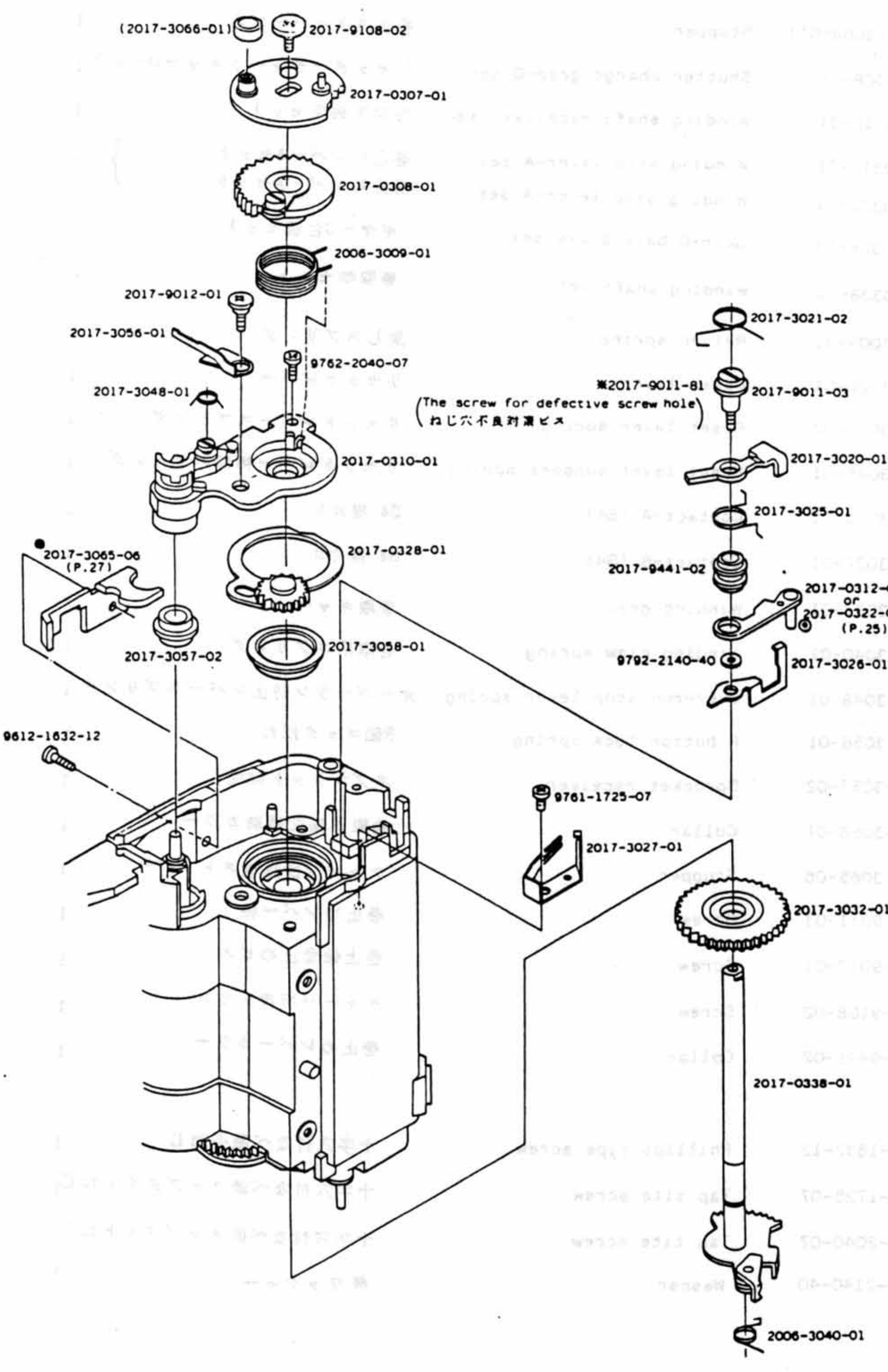

2017-0508-01
2019-5806-01
(2017-5023-02)
2017-0521-01
9612
-1620-07
(2)
2017-5030-01
2017-5026-02
2017-5028-01
2017-9001-01
(2)
2017-0517-01
2017-0505-01
(2017-5164-01)
2017-5029-01
2017-0519-01
2017-9001-01
2017-5019-01
2017-5113-01
9612-1616-07
9611-1616-12 (2)
2017-5027-01
2017-5025-01

Part No.	Part Name		Qty
2017-0505-01	Mirror box set	ミラーボックスセット	1
(2017-5164-01)	Mirror cushion	ミラークッション	1
2017-0508-01	Mirror holder set	ミラーホルダーセット	1
2017-0517-01	Mirror adjustment plate-B set	ミラー調整板Bセット	1
2017-0519-01	Mirror adjustment plate-A set	ミラー調整板Aセット	1
2017-0521-01	Mirror box side plate	ミラーボックス側板	1
(2017-5023-02)	Spring	遮光板スプリング	1
2017-5019-01	Mirror box apron	ミラーボックスエプロン	1
2017-5025-01	Flare shield bottom plate	フレアー防止シート下板	1
2017-5026-02	Flare shield right plate	フレアー防止シート右板	1
2017-5027-01	Flare shield bottom plate-A	フレアー防止シート（下）	1
2017-5028-01	Flare shield right plate-A	フレアー防止シート（右A）	1
2017-5029-01	Flare shield left plate	フレアー防止シート（左）	
2017-5030-01	Flare shield right plate-B	フレアー防止シート（右B）	1
2017-5113-01	Mirror support stopper	ミラー補助ストッパー	1
2019-5806-01	Mirror	ミラー	1
2017-9001-01	Screw	調整板押えビス	3
9611-1616-12	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1616-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	2

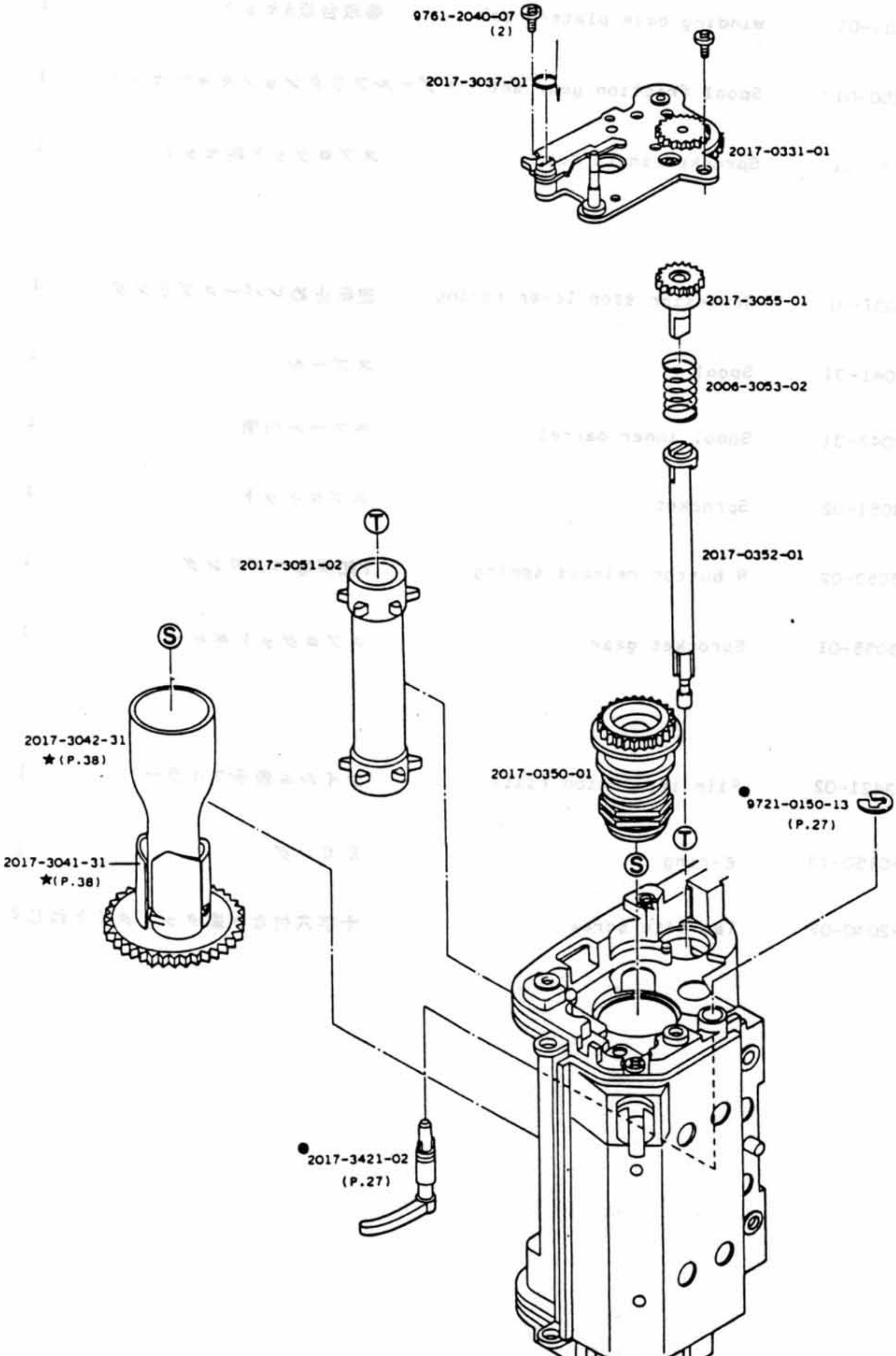


2017-3407-01
S
2017-3403-03
2017-3404-02
2017-3405-01
2017-3416-01
2017-9430-01
2017-3414-02
9762-2060-07
(3)
2017-0341-02
(P.21)
2017-3422-01
2017-3424-01
2017-0345-01
2017-3410-01

Part No.	Part Name		Qty
2017-0341-02	Winding base plate-B set	巻取台板Bセット	1
2017-0345-01	Winding operation lever set	トンボ返りレバーセット	1
2017-3403-03	Counter dial	カウンターラチェット	1
2017-3404-02	Counter return spring	カウンター戻しスプリング	1
2017-3405-01	Washer	カウンター補助ワッシャー	1
2017-3407-01	Counter index	カウンター指標板	1
2017-3410-01	Counter operation gear	フイルムカウンターギャー	1
2017-3414-02	Return spring	カウンターレバー操作スプリング	1
2017-3416-01	Winding operation lever spring	トンボ返りレバースプリング	1
2017-3422-01	Safe loading signal lever	フイルム表示レバー	1
2017-3424-01	S.L.S lever spring	SLS 駆動スプリング	1
2017-9430-01	Collar	カウンター指標カラー	1
9762-2060-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	3

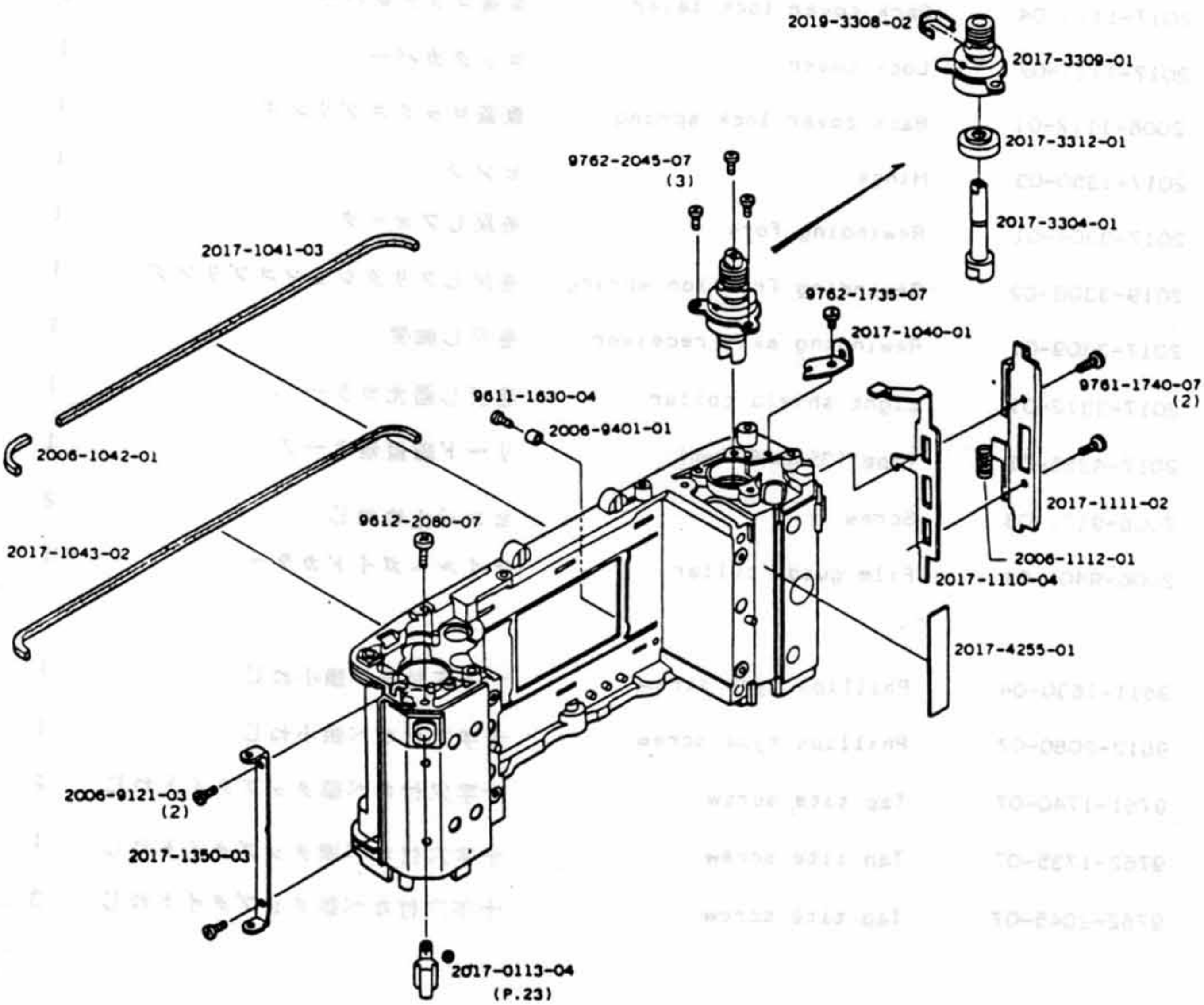

(2017-3066-01)
2017-9108-02
2017-0307-01
2017-0308-01
2006-3009-01
2017-9012-01
2017-3056-01
9762-2040-07
2017-3048-01
2017-0310-01
2017-3065-06
(P.27)
2017-0328-01
2017-3057-02
2017-3058-01
9612-1632-12
2017-3021-02
※2017-9011-81
2017-9011-03
(The screw for defective screw hole
ねじ穴不良対策ビス)
2017-3020-01
2017-3025-01
2017-9441-02
2017-0312-01
or
2017-0322-01
(P.25)
9792-2140-40
2017-3026-01
9761-1725-07
2017-3027-01
2017-3032-01
2017-0338-01
2006-3040-01

Part No.	Part Name		Qty
2017-0307-01	Charge operation plate set	チャージ操作板セット	1
(2017-3066-01)	Stopper	巻上ストッパーゴム	1
2017-0308-01	Shutter charge gear-D set	シャッターチャージギャーDセット	1
2017-0310-01	Winding shaft receiver set	巻取下軸受セット	1
2017-0312-01	Winding stop lever-A set	巻止めレバーAセット	1
2017-0322-01	Winding stop lever-A set	巻止めレバーAセット	
2017-0328-01	Gear-C base plate set	ギヤーC台板セット	1
2017-0338-01	Winding shaft set	巻取軸セット	1
2006-3009-01	Return spring	戻しスプリング	1
2017-3020-01	Reset lever	リセットレバー	1
2017-3021-02	Reset lever spring	リセットレバースプリング	1
2017-3025-01	Reset lever support spring	リセットレバー補助スプリング	1
2017-3026-01	Contact-A (S4)	S4 接片A	1
2017-3027-01	Contact-B (S4)	S4 接片B	1
2017-3032-01	Winding gear	巻取ギャー	1
2006-3040-01	Winding claw spring	巻取爪スプリング	1
2017-3048-01	Over-run stop lever spring	オーバーラン防止レバースプリング	1
2017-3056-01	R button lock spring	R釦ロックばね	1
2017-3057-02	Sprocket receiver	スプロケット軸受	1
2017-3058-01	Collar	巻取下軸受補助カラー	1
2017-3065-06	Stopper	チャージ操作板ストッパー	1
2017-9011-03	Screw	巻止めレバー軸	1
2017-9012-01	Screw	巻上軸受止めビス	1
2017-9108-02	Screw	チャージ板押えビス	1
2017-9441-02	Collar	巻止めレバーカラー	1
9612-1632-12	Phillips type screw	十字穴付なべ頭小ねじ	1
9761-1725-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9762-2040-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9792-2140-40	Washer	薄ワッシャー	1



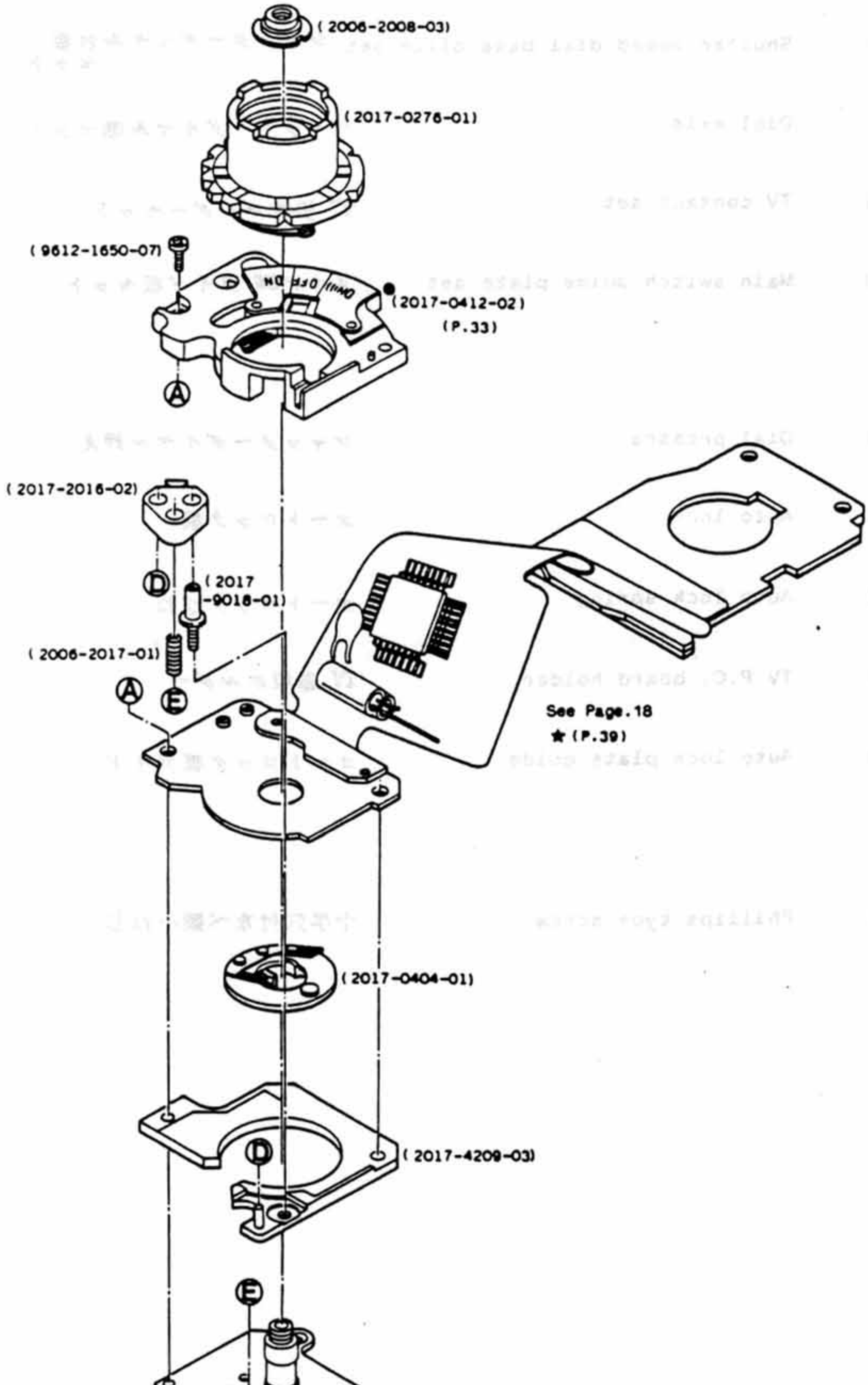
Concerning non AE lock model, refer to the page shown by ★.
AEロック機能なしモデルは、★マークのページを参照して下さい。

Part No.	Part Name		Qty
2017-0331-01	Winding base plate-A set	巻取台板Aセット	1
2017-0350-01	Spool friction gear set	スプールフリクションギャーセット	1
2017-0352-01	Sprocket shaft set	スプロケット軸セット	1
2017-3037-01	Reversion stop lever spring	逆転止めレバースプリング	1
2017-3041-31	Spool	スプール	1
2017-3042-31	Spool inner barrel	スプール内筒	1
2017-3051-02	Sprocket	スプロケット	1
2006-3053-02	R button release spring	R釦解除スプリング	1
2017-3055-01	Sprocket gear	スプロケットギャー	1
2017-3421-02	Film indication filler	フイルム表示フイラー	1
9721-0150-13	E-ring	Eリング	1
9761-2040-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2


2019-3308-02
2017-3309-01
2017-3312-01
9762-2045-07
(3)
2017-3304-01
2017-1041-03
9762-1735-07
2017-1040-01
9761-1740-07
(2)
9611-1630-04
2006-9401-01
2006-1042-01
2017-1111-02
9612-2080-07
2017-1043-02
2006-1112-01
2017-1110-04
2017-4255-01
2006-9121-03
(2)
2017-1350-03
2017-0113-04
(P.23)

Part No.	Part Name		Qty
2017-0113-04	Strap hanger set	吊環セット	1
2017-1040-01	Top cover set plate	上カバー止め板	1
2017-1041-03	Light shield packing-A	遮光パッキンA	1
2006-1042-01	Light shield packing-B	遮光パッキンB	1
2017-1043-02	Light shield packing-C	遮光パッキンC	1
2017-1110-04	Back cover lock lever	裏蓋ロックレバー	1
2017-1111-02	Lock cover	ロックカバー	1
2006-1112-01	Back cover lock spring	裏蓋ロックスプリング	1
2017-1350-03	Hinge	ヒンジ	1
2017-3304-01	Rewinding fork	巻戻しフォーク	1
2019-3308-02	Rewinding friction spring	巻戻しフリクションスプリング	1
2017-3309-01	Rewinding axis receiver	巻戻し軸受	1
2017-3312-01	Light shield collar	巻戻し遮光カラー .	1
2017-4255-01	Tape (35mmX6.7mm)	リード線接着テープ	1
2006-9121-03	Screw	ヒンジ止めねじ	2
2006-9401-01	Film guide collar	フイルムガイドカラー	1
9611-1630-04	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-2080-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9761-1740-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2
9762-1735-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9762-2045-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	3

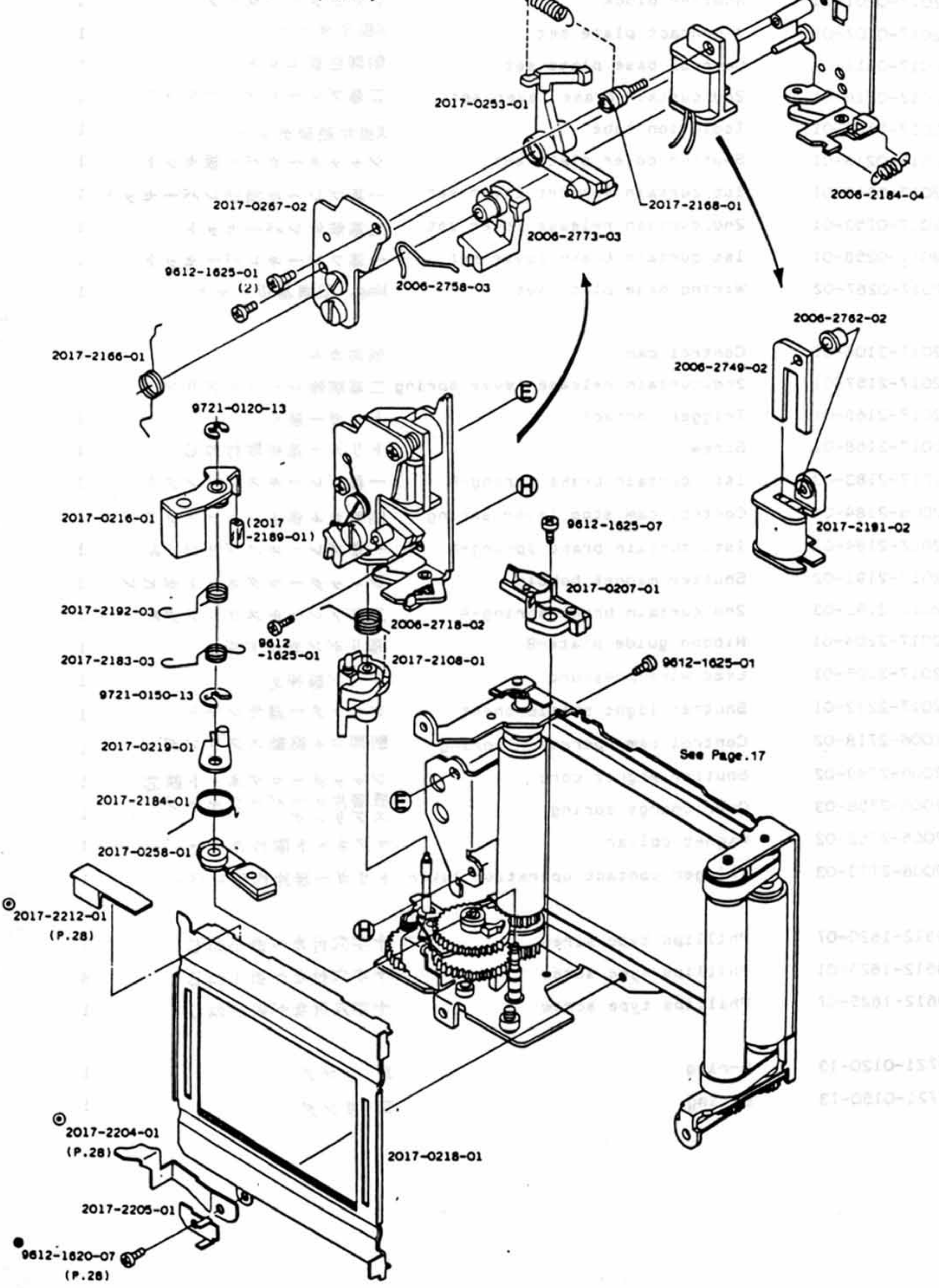
Assy. Part No. ●2017-0401-35
(P.29-P.33)



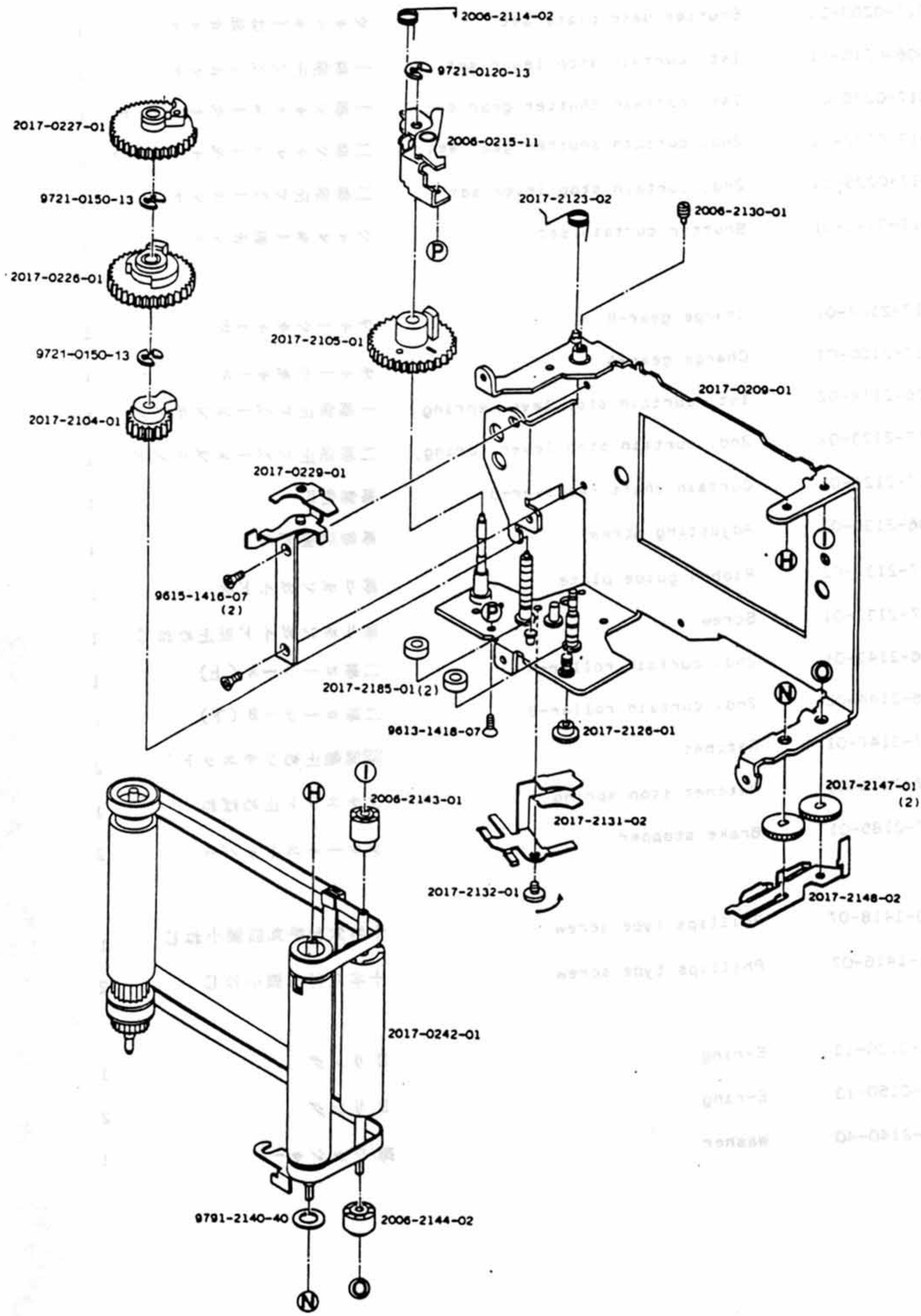
Concerning non AE lock model, refer to the page shown by ★.
AEロック機能なしモデルは、★マークのページを参照して下さい。

Part No.	Part Name		Qty
2017-0401-35	Flexible P.C. board set	フレキシブル基板セット	1
(2017-0274-01)	Shutter speed dial base plate set	シャッターダイヤル台板セット	1
(2017-0276-01)	Dial axis	シャッターダイヤル軸セット	1
(2017-0404-01)	TV contact set	TV 接片ホルダーセット	1
(2017-0412-02)	Main switch guide plate set	メインSW ガイド板セット	1
(2006-2008-03)	Dial pressre	シャッターダイヤル押え	1
(2017-2016-02)	Auto lock	オートロック板	1
(2006-2017-01)	Auto lock spring	オートロックばね	1
(2017-4209-03)	TV P.C. board holder	TV 基板ホルダー	1
(2017-9018-01)	Auto lock plate guide	オートロック板ガイド	1
(9612-1650-07)	Phillips type screw	十字穴付なべ頭小ねじ	1

Assy. Part No.2017-0201-01
(P.28)

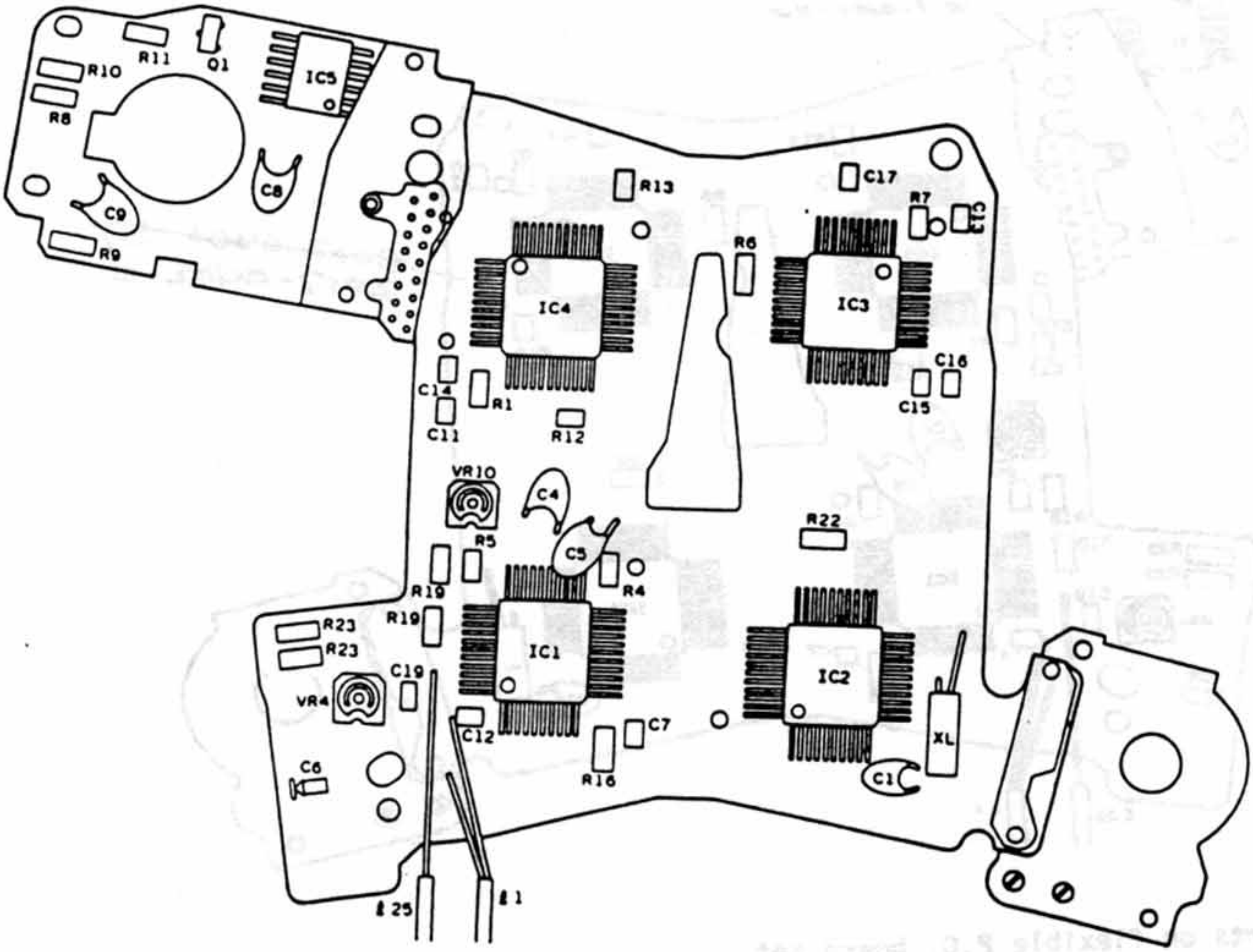


Part No.	Part Name		Qty
2017-0201-01	Shutter block	シャッターブロック	1
2017-0207-01	X contact plate set	X接片セット	1
2017-0211-01	Control base plate set	制御台板セット	1
2017-0216-01	2nd.curtain brake lever set	二幕ブレーキレバーセット	1
(2017-2189-01)	Isolation tube	X接片絶縁チューブ	1
2017-0218-01	Shutter cover plate set	シャッターカバー板セット	1
2017-0219-01	1st.curtain support lever set	一幕ブレーキ補助レバーセット	1
2017-0253-01	2nd.curtain release lever set	二幕解除レバーセット	1
2017-0258-01	1st.curtain brake lever set	一幕ブレーキレバーセット	1
2017-0267-02	Wiring base plate set	Mag. 配線基板セット	1
2017-2108-01	Control cam	制御カム	1
2017-2157-01	2nd.curtain release lever spring	二幕解除レバースプリング	1
2017-2166-01	Trigger contact	トリガー接片	1
2017-2168-01	Screw	トリガー基板取付ねじ	1
2017-2183-03	1st. curtain brake spring-B	一幕ブレーキスプリングB	1
2006-2184-04	Control cam stop lever spring	制御カム係止レバースプリング	1
2017-2184-01	1st. curtain brake spring-A	一幕ブレーキスプリングA	1
2017-2191-02	Shutter magnet bobbin	シャッターマグネットボビン	1
2017-2192-03	2nd.curtain brake spring-A	二幕ブレーキスプリングA	1
2017-2204-01	Ribbon guide plate-B	幕リボンガイド板B	1
2017-2205-01	Lead wire pressure	リード線押え	1
2017-2212-01	Shutter light shield sheet	シャッター遮光シート	1
2006-2718-02	Control cam operation spring	制御カム駆動スプリング	1
2006-2749-02	Shutter magnet core	シャッターマグネット鉄芯	1
2006-2758-03	Over charge spring	吸着片オーバーチャージスプリング	1
2006-2762-02	Magnet collar	マグネット取付カラー	1
2006-2773-03	Trigger contact operation lever	トリガー接片作動レバー	1
9612-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1625-01	Phillips type screw	十字穴付なべ頭小ねじ	4
9612-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9721-0120-13	E-ring	E リング	1
9721-0150-13	E-ring	E リング	1



2006-2114-02
9721-0120-13
2017-0227-01
2006-0215-11
9721-0150-13
2017-2123-02
2006-2130-01
P
2017-0226-01
2017-2105-01
9721-0150-13
2017-0209-01
2017-2104-01
2017-0229-01
H
I
9615-1416-07
(2)
P
2017-2185-01 (2)
O
N
9613-1418-07
2017-2126-01
H
I
2006-2143-01
2017-2131-02
2017-2147-01
(2)
2017-2132-01
2017-2148-02
2017-0242-01
9791-2140-40
2006-2144-02
N
O

Part No.	Part Name		Qty
2017-0209-01	Shutter base plate set	シャッター台板セット	1
2006-0215-11	1st. curtain stop lever set	一幕係止レバーセット	1
2017-0226-01	1st. curtain shutter gear set	一幕シャッターギャーセット	1
2017-0227-01	2nd. curtain shutter gear set	二幕シャッターギャーセット	1
2017-0229-01	2nd. curtain stop lever set	二幕係止レバーセット	1
2017-0242-01	Shutter curtain set	シャッター幕セット	1
2017-2104-01	Charge gear-B	チャージギャーB	1
2017-2105-01	Charge gear-A	チャージギャーA	1
2006-2114-02	1st. curtain stop lever spring	一幕係止レバースプリング	1
2017-2123-02	2nd. curtain stop lever spring	二幕係止レバースプリング	1
2017-2126-01	Curtain shaft receiver-B	幕軸受B	1
2006-2130-01	Adjusting screw	幕軸調整ビス	1
2017-2131-02	Ribbon guide plate	幕リボンガイド板	1
2017-2132-01	Screw	幕リボンガイド板止めねじ	1
2006-2143-01	2nd. curtain roller-A	二幕ローラーA（上）	1
2006-2144-02	2nd. curtain roller-B	二幕ローラーB（下）	1
2017-2147-01	Ratchet	SP筒軸止めラチエット	2
2017-2148-02	Ratchet stop spring	ラチエット止めばね	1
2C17-2185-01	Brake stopper	ブレーキストッパー	2
9613-1418-07	Phillips type screw	十字穴付半丸皿頭小ねじ	1
9615-1416-07	Phillips type screw	十字穴付皿頭小ねじ	2
9721-0120-13	E-ring	Eリング	1
9721-0150-13	E-ring	Eリング	2
9791-2140-40	Washer	薄ワッシャー	1



■ Electrical parts on flexible P.C. board set

- Flexible P.C. board set with AE lock circuit, 5 types (2017-0401-81, 2017-0401-32,2017-0401-33,2017-0401-34,2017-0401-35) had been assembled, however, other parts than IC3 on 0401-81 are common parts.
- 0401-81 is not a service part, use IC3 (2017-4303-32) when replacing.

■ For the other type flexible P.C. board set,refer to page 30.

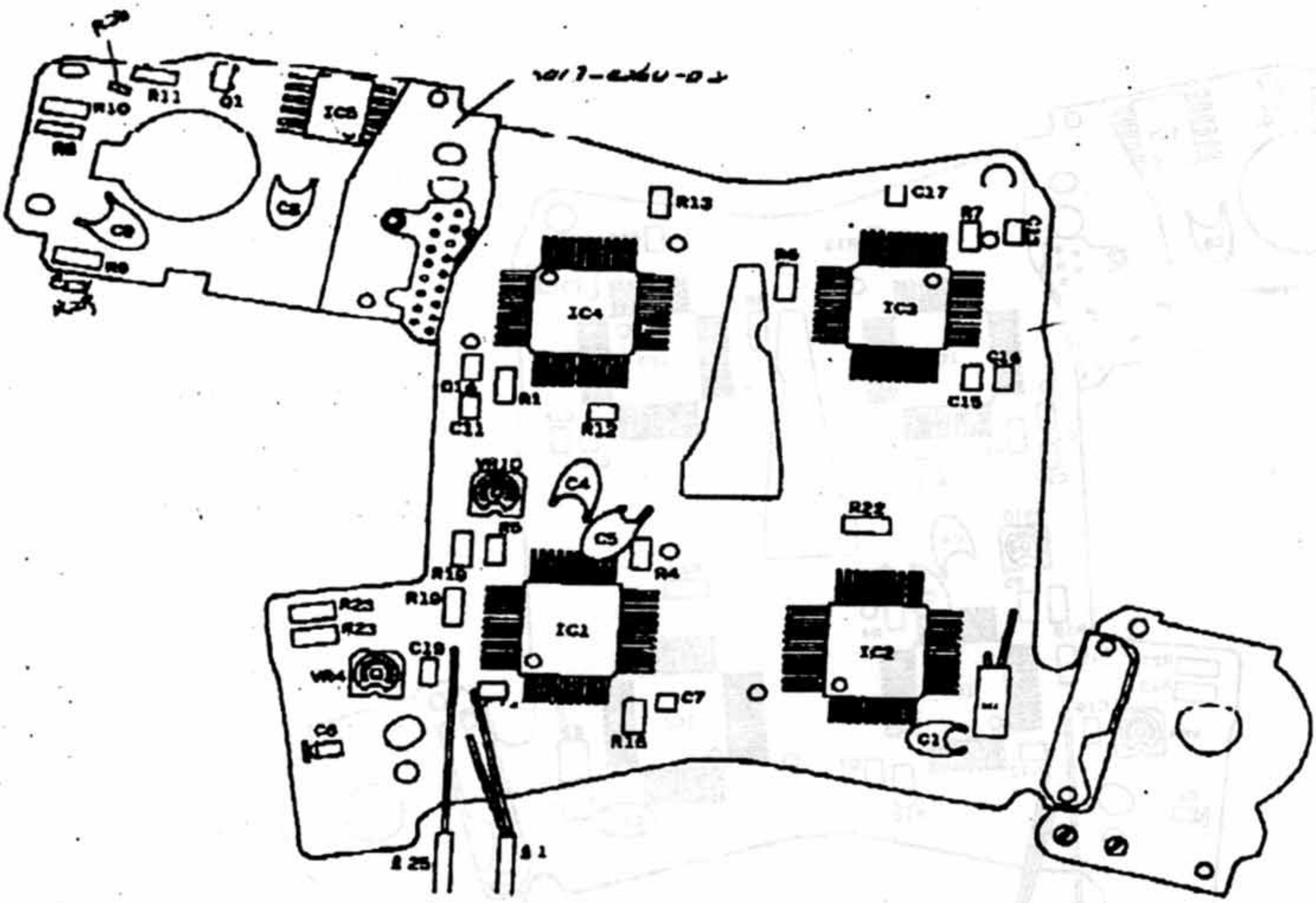
■ フレキシブル基板搭載の電気部品について

- AEロック回路付フレキシブル基板セットは、5種類（2017−0401−81,2017−0401−32, 2017−0401−33, 2017−0401−34,2017−0401−35）有りますが、0401−81のIC3以外全て共通です。
- 0401−81のIC3は、部品供給しておりませんので交換時は、右表のIC3（2017−4303−32）に交換して下さい。

■ 他の種類のフレキシブル基板については、page 30 を参照して下さい。

X-700 (Black model)

CODE No. 2017-200



■ Electrical parts on flexible P.C. board set

- Flexible P.C. board set with AE lock circuit, 5 types (2017-0401-81, 2017-0401-32, 2017-0401-33, 2017-0401-34, 2017-0401-35) had been assembled, however, other parts than IC3 on 0401-81 are common parts.
- 0401-81 is not a service part, use IC3 (2017-4303-32) when replacing.

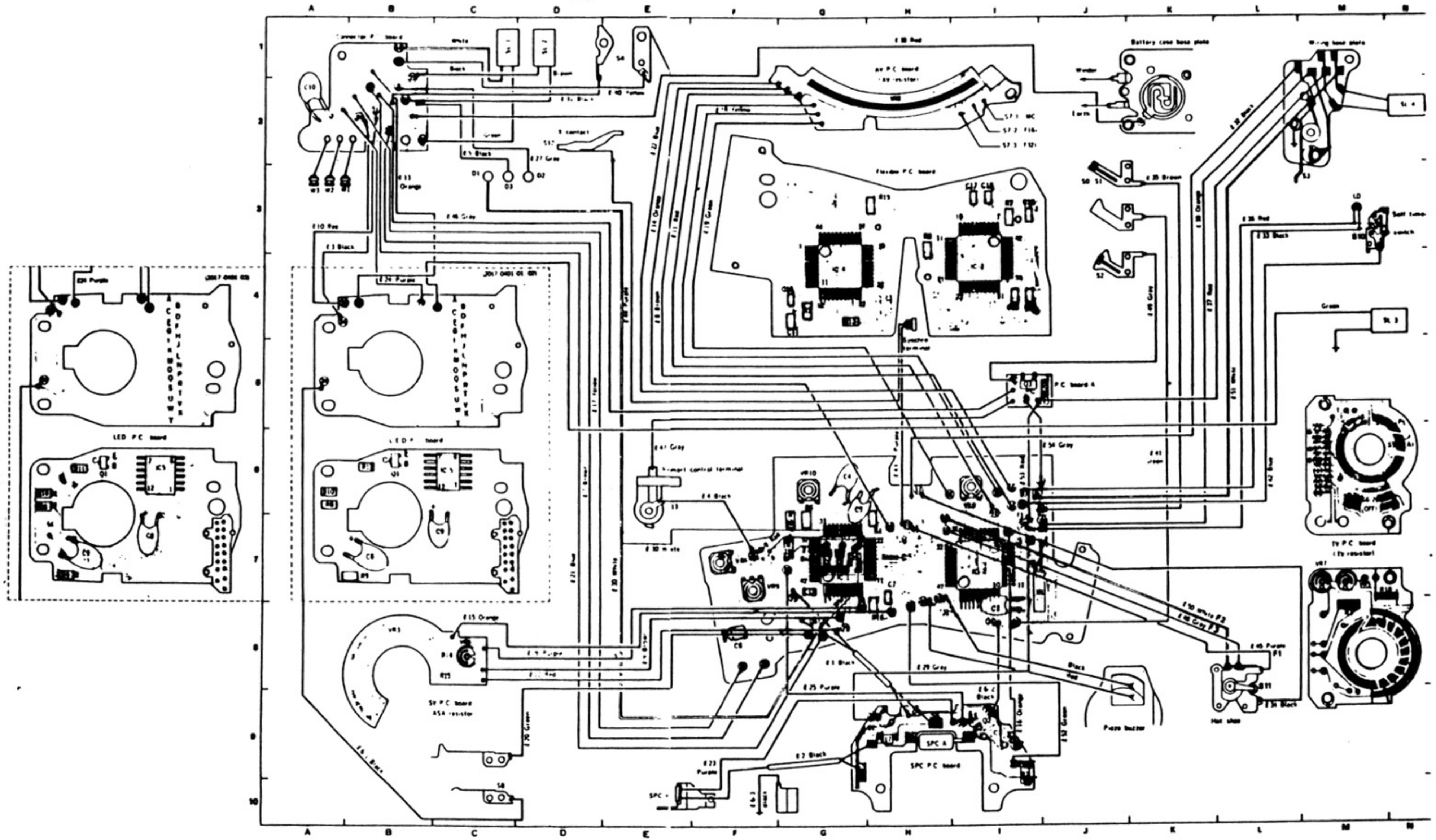
■ For the other type flexible P.C. board set, refer to page 30.

■ フレキシブル基板搭載の電気部品について

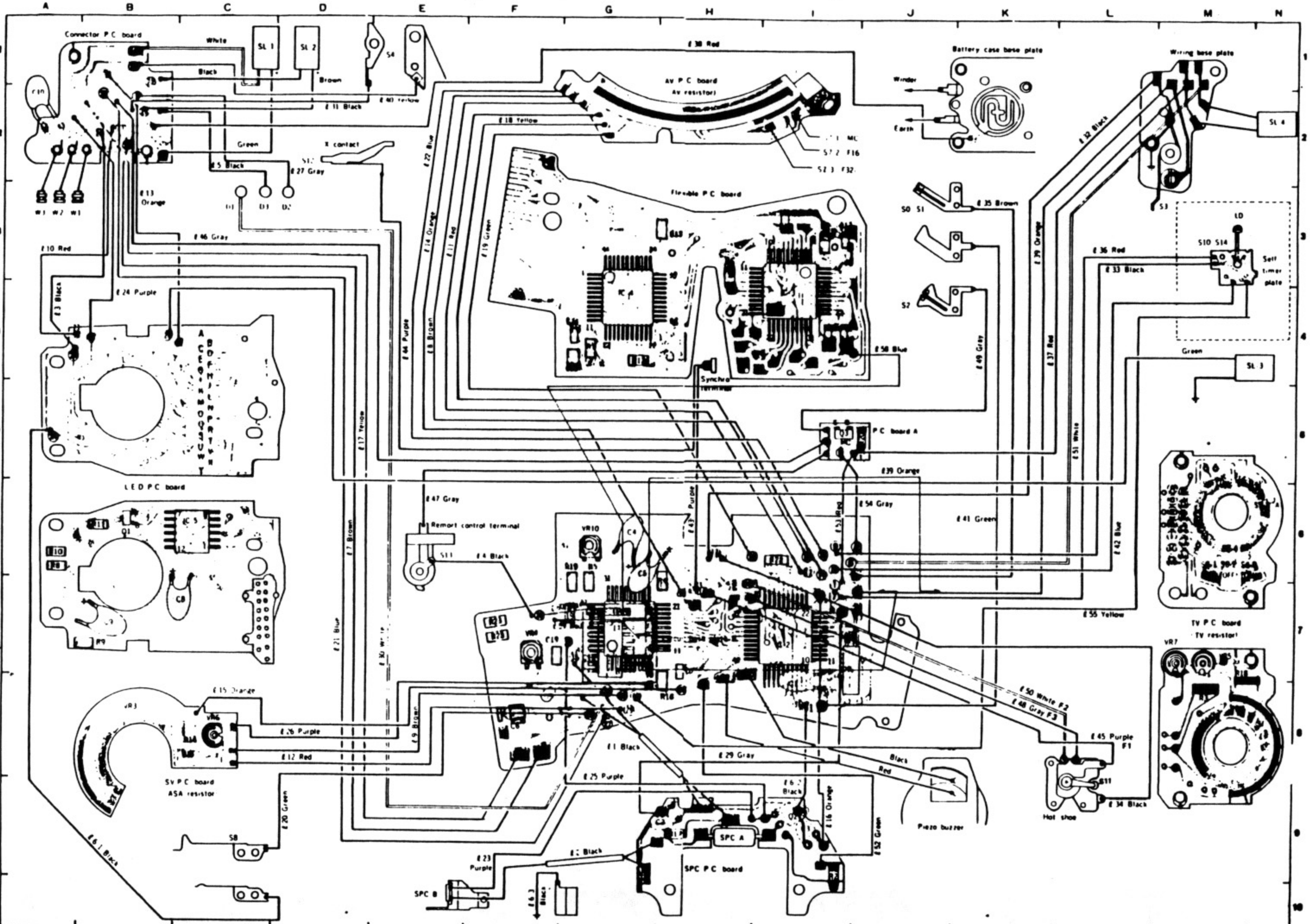
- AEロック回路付フレキシブル基板セットは、5種類（2017−0401−81, 2017−0401−32, 2017−0401−33, 2017−0401−34, 2017−0401−35）有りますが、0401−81のIC3以外全て共通です。
- 0401−81のIC3は、部品供給しておりませんので交換時は、右表のIC3（2017−4303−32）に交換して下さい。

■ 他の種類のフレキシブル基板については、page 30 を参照して下さい。

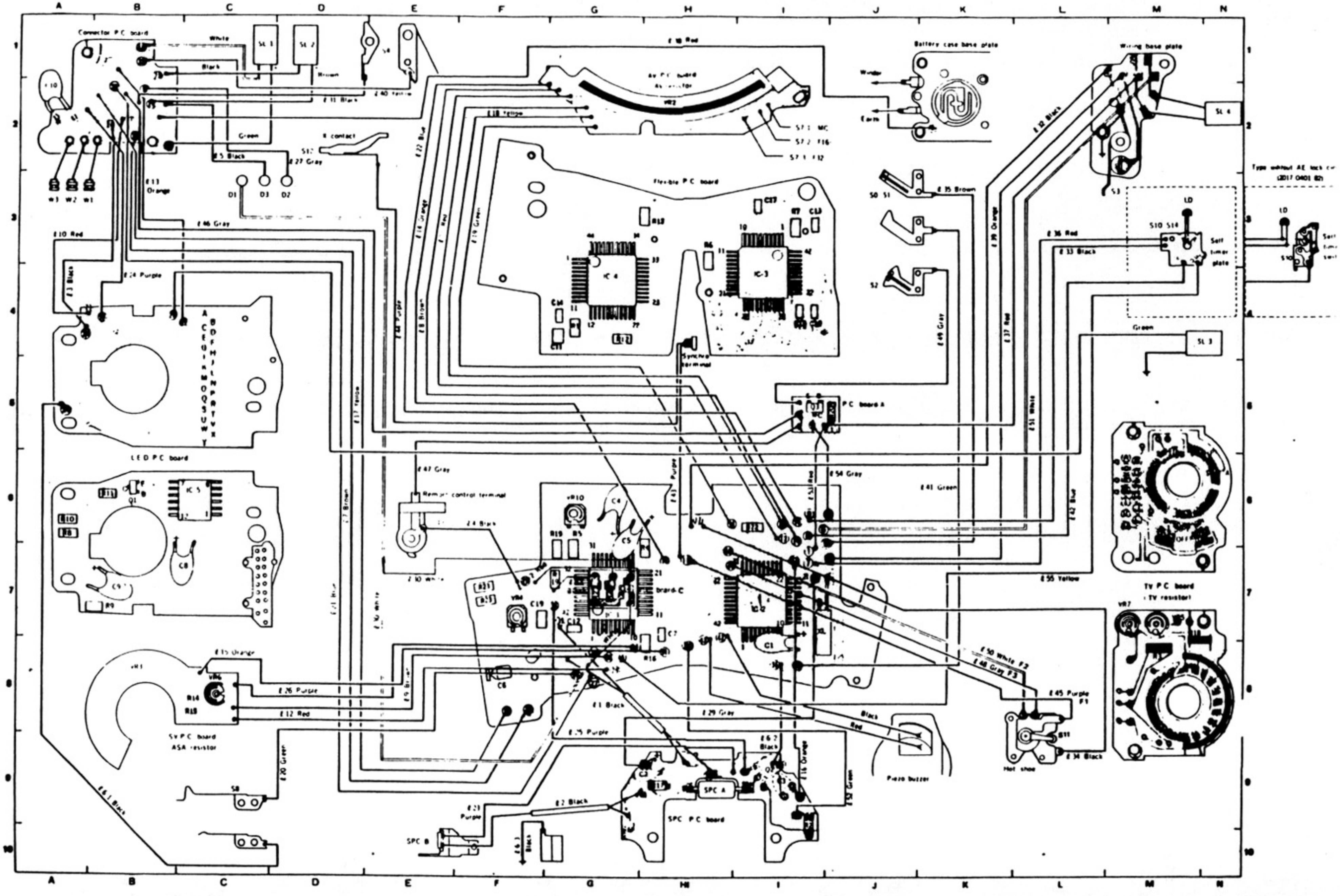
A X-700 CODE No.2017 (2017-0401-01, 2017-0401-02, 2017-0401-03)



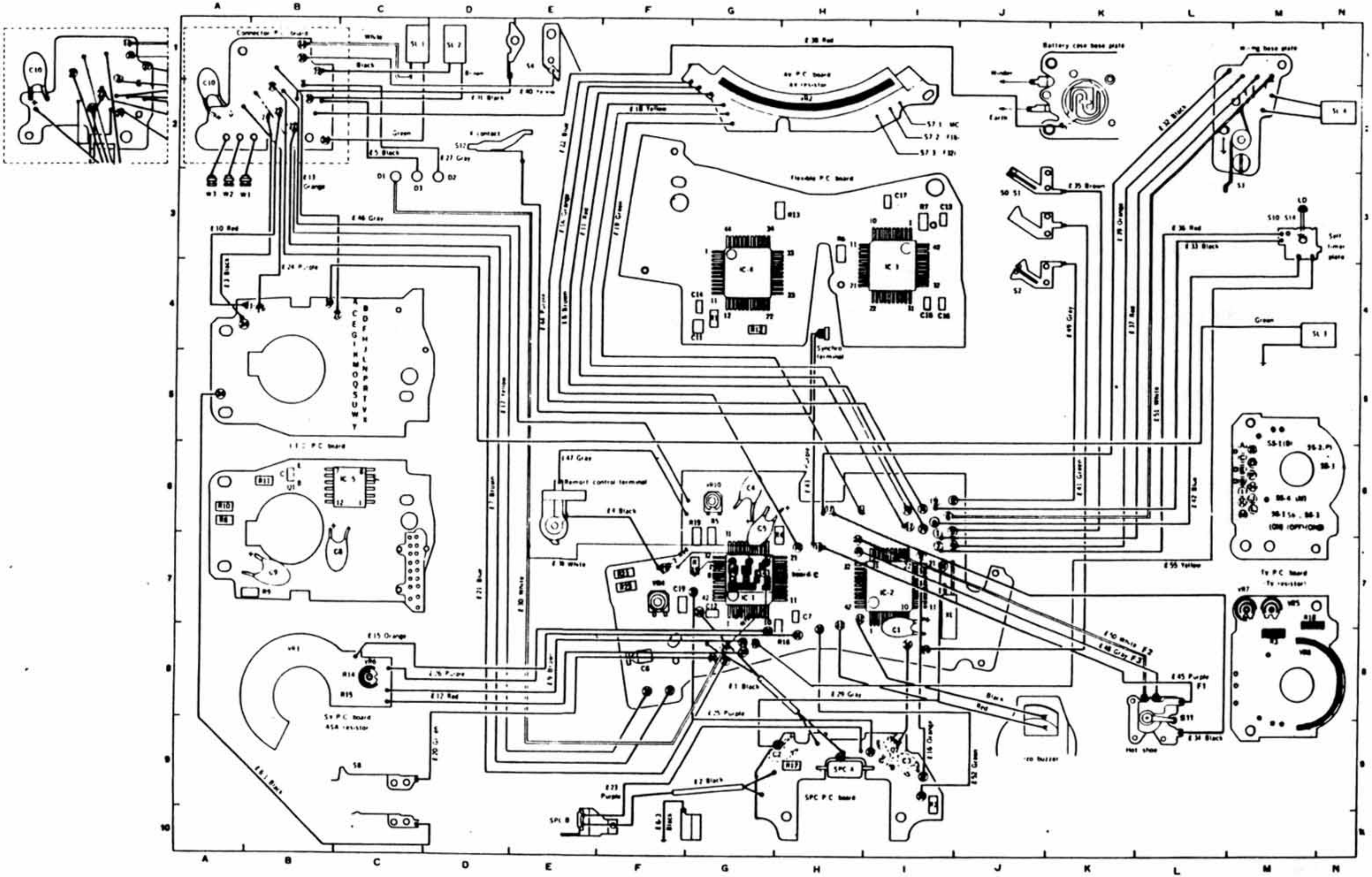
B X-700 CODE No.2017 (2017-0401-81)



C X-700 CODE No.2017 (2017.0401.32, 2017.0401.33, 2017.0401.82)



D X-700 CODE No.2017 (2017-0401-34, 2017-0401-35)



Assy. Part No. 2017-0401-35   Assy. Part Name Flexible P.C board set
フレキシブル基板セット

Symbol	Part No.	Com	Part Name	Typ.	Qty.
IC1	2017-4301-01		IC	M51885P	1
IC2	2017-4302-01			M51886P	1
IC3	2017-4303-32			M51889P	1
IC4	2017-4304-01			HA16526	1
IC5	2017-4305-01			BA6128	1
Q1	9363-1032-01	Q2,Q3	Transistor	2SA1162S(O,Y,G)	1
XL	9373-4161-01		Crystal resonator	KF38G	1
R1	9422-2046-62		Fixed resistor	1/8W 200KΩ	1
R4	9422-9106-62			1/8W 91Ω	1
R5	9432-5626-61			1/8W 5.6KΩ	1
	9432-6226-61			1/8W 6.2KΩ	
	9432-6826-61			1/8W 6.8KΩ	
	9432-7526-61			1/8W 7.5KΩ	
R6	9422-3916-62			1/8W 390Ω	1
R7	9432-2068-61			1/8W 20MΩ	1
R8	9422-3616-62			1/8W 360KΩ	1
R9 R10 R11	9422-1026-62			1/8W 1KΩ	3
R12	9432-2026-61			1/8W 2KΩ	1
	9432-2426-61			1/8W 2.4KΩ	
	9432-2726-61			1/8W 2.7KΩ	
	9432-3026-61			1/8W 3KΩ	
	9432-3926-61			1/8W 3.9KΩ	
R13	9432-3357-61			1/8W 3.3MΩ	1
R16	9432-5126-61			1/8W 5.1KΩ	1
R19	9422-2736-62			1/8W 27KΩ	1 or 2
	9422-3036-62			1/8W 30KΩ	
	9422-3336-62			1/8W 33KΩ	
	9422-3636-62			1/8W 36KΩ	
	9422-3936-62			1/8W 39KΩ	
	9422-4336-62			1/8W 43KΩ	
	9422-4736-62			1/8W 47KΩ	
	9422-5636-62			1/8W 56KΩ	
	9422-6836-62			1/8W 68KΩ	
	9422-1046-62			1/8W 100KΩ	
	9422-1546-62			1/8W 150KΩ	
R22	9432-1226-61			1/8W 1.2KΩ	1
	9432-3926-61			1/8W 3.9KΩ	
	9432-7526-61			1/8W 7.5KΩ	
R23	9432-2436-62			1/8W 24KΩ	0 or 1
	9432-2736-62			1/8W 27KΩ	
	9432-3336-62			1/8W 33KΩ	
	9432-3936-62			1/8W 39KΩ	
	9432-5136-62			1/8W 51KΩ	
	9432-6836-62			1/8W 68KΩ	
	9432-1046-62			1/8W 100KΩ	
	9432-2046-62			1/8W 200KΩ	
VR4	9472-2239-63		Variable resistor	EVM14G 22KΩ	1
VR10	9472-3329-63			EVM 3.3KΩ	1
C1	9535-1555-36		Condenser	202 1.5μF/35V	1
C4	9533-3355-63			DN 3.3μF/16V	1
C5	9535-4745-36			202 0.47μF/35V	1
C6	9534-6845-61			CS81E 0.68μF/20V	1
C7	9564-3324-61			CM21WR 3300PF/25V	1
C8	9531-1575-61			202 150μF/3.15V	1
C9	9531-1075-63			DN 100μF/3.15V	1
C11	9565-4738-64			CM22YU 0.047μF/50V	1
C12	9565-0200-61			GR40CK 2PF/50V	1
C13 C14	9565-1234-61			GR40W5R 0.012μF/50V	2
C15 C16	9564-3005-62			CM21CH 30PF/25V	2
C17	9564-1025-61			CM21WR 1000PF/25V	1
C19	9564-1514-62			CM21SL 150PF/25V	1
ℓ1	2017-4401-C2		Lead wire Black	Junfuron cord ℓ=33	1
ℓ25	9391-0507-07		Lead wire Purple	ø0.05/7 ℓ=45	1

■Lead wires list (2017-0401-81)

Symbol	Parts No.	Color	Type		Qty
ℓ1	2017-4401-02	Black		ℓ=33	1
ℓ2	2017-4402-02	Black		ℓ=90	1
ℓ3	9391-0507-00	Black	φ0.05/7	ℓ=80	1
ℓ4	9391-0507-00	Black	φ0.05/7	ℓ=70	1
ℓ5	9391-0807-00	Black	φ0.08/7	ℓ=40	1
ℓ6-1	9391-0507-00	Black	φ0.05/7	ℓ=30	1
ℓ6-2, ℓ6-3	9391-0507-00	Black	φ0.05/7	ℓ=25	2
ℓ7	9391-0807-01	Brown	φ0.08/7	ℓ=105	1
ℓ8	9391-0507-01	Brown	φ0.05/7	ℓ=70	1
ℓ9	9391-0807-01	Brown	φ0.08/7	ℓ=25	1
ℓ10	9391-0507-02	Red	φ0.05/7	ℓ=90	1
ℓ11	9391-0507-02	Red	φ0.05/7	ℓ=65	1
ℓ12	9391-0807-02	Red	φ0.08/7	ℓ=25	1
ℓ13	9391-0507-03	Orange	φ0.05/7	ℓ=90	1
ℓ14	9391-0507-03	Orange	φ0.05/7	ℓ=55	1
ℓ15	9391-0807-03	Orange	φ0.08/7	ℓ=45	1
ℓ16	9391-0507-03	Orange	φ0.05/7	ℓ=35	1
ℓ17	9391-0807-04	Yellow	φ0.08/7	ℓ=115	1
ℓ18	9391-0507-04	Yellow	φ0.05/7	ℓ=65	1
ℓ19	9391-0507-05	Green	φ0.05/7	ℓ=60	1
ℓ20	9391-0507-05	Green	φ0.05/7	ℓ=25	1
ℓ21	9391-0507-06	Blue	φ0.05/7	ℓ=120	1
ℓ22	9391-0507-06	Blue	φ0.05/7	ℓ=65	1
ℓ23	9391-0807-07	Purple	φ0.08/7	ℓ=95	1
ℓ24	9391-0507-07	Purple	φ0.05/7	ℓ=85	1
ℓ25	9391-0507-07	Purple	φ0.05/7	ℓ=45	1
ℓ26	9391-0807-07	Purple	φ0.08/7	ℓ=30	1
ℓ27	9391-0807-08	Gray	φ0.08/7	ℓ=50	1
ℓ29	9391-0507-08	Gray	φ0.05/7	ℓ=50	1
ℓ30	9391-0807-09	White	φ0.08/7	ℓ=145	1
ℓ31	9391-0807-00	Black	φ0.08/7	ℓ=155	1
ℓ32	9391-0807-00	Black	φ0.08/7	ℓ=65	1
ℓ33	9391-0807-00	Black	φ0.08/7	ℓ=45	1
ℓ34	9391-0807-00	Black	φ0.08/7	ℓ=45	1
ℓ35	9391-0807-01	Brown	φ0.08/7	ℓ=25	1
ℓ36	9391-0807-02	Red	φ0.08/7	ℓ=75	1
ℓ37	9391-0807-02	Red	φ0.08/7	ℓ=35	1
ℓ38	9391-0807-02	Red	φ0.08/7	ℓ=25	1
ℓ39	9391-0807-03	Orange	φ0.08/7	ℓ=85	1
ℓ40	9191-0807-04	Yellow	φ0.08/7	ℓ=150	1
ℓ41	9391-0807-05	Green	φ0.08/7	ℓ=40	1
ℓ42	9391-0807-06	Blue	φ0.08/7	ℓ=45	1
ℓ43	9391-0807-07	Purple	φ0.08/7	ℓ=105	1
ℓ44	9391-0807-07	Purple	φ0.08/7	ℓ=65	1
ℓ45	9391-0807-07	Purple	φ0.08/7	ℓ=50	1
ℓ46	9391-0807-08	Gray	φ0.08/7	ℓ=140	1
ℓ47	9391-0807-08	Gray	φ0.08/7	ℓ=75	1
ℓ48	9391-0807-08	Gray	φ0.08/7	ℓ=55	1
ℓ49	9391-0807-08	Gray	φ0.08/7	ℓ=60	1
ℓ50	9391-0807-09	White	φ0.08/7	ℓ=55	1
ℓ51	9391-0807-09	White	φ0.08/7	ℓ=30	1
ℓ52	9391-0507-05	Green	φ0.05/7	ℓ=35	1
ℓ53	9391-0507-02	Red	φ0.05/7	ℓ=25	1
ℓ54	9391-0507-08	Gray	φ0.05/7	ℓ=25	1
ℓ55	9391-0807-04	Yellow	φ0.08/7	ℓ=80	1
ℓ57	9391-0807-04	Yellow	φ0.08/7	ℓ=55	1
ℓ58	9391-0807-06	Blue	φ0.08/7	ℓ=65	1
ℓ59	9391-0807-02	Red	φ0.08/7	ℓ=25	1
ℓ60	9391-0807-00	Black	φ0.08/7	ℓ=10	1

■ℓ1 (2017-4401-02) and ℓ2 (2017-4402-02) are supplied with specified length above as service part.
Other lead wires than ℓ1 and ℓ2 are supplied with meter (m) each.

■ℓ1 (2017−4401−02)、ℓ2 (2017−4402−02) は、上記指定の長さで供給します。 それ以外は、1m単位で供給します。

■Lead wires list (2017-0401-32,2017-0401-33,*2017-0401-82)

*2017-0401-82, whose flexible P.C. board has non AE lock circuit, has the same wirings except ℓ55 since it has a common printed wiring.(ℓ55 is unnecessary.)

*2017－0401－82は、AEロック回路の無いフレキシブル基板ですが、フレキのパターンが共通な為ℓ55以外配線は、全て同じです。（ℓ55は配線しない。）

Symbol	Parts No.	Color	Type		Qty
ℓ1	2017-4401-02	Black		ℓ=33	1
ℓ2	2017-4402-02	Black		ℓ=90	1
ℓ3	9391-0507-00	Black	φ0.05/7	ℓ=80	1
ℓ4	9391-0507-00	Black	φ0.05/7	ℓ=70	1
ℓ5	9391-0807-00	Black	φ0.08/7	ℓ=40	1
ℓ6-1	9391-0507-00	Black	φ0.05/7	ℓ=30	1
ℓ6-2, ℓ6-3	9391-0507-00	Black	φ0.05/7	ℓ=25	2
ℓ7	9391-0807-01	Brown	φ0.08/7	ℓ=105	1
ℓ8	9391-0507-01	Brown	φ0.05/7	ℓ=70	1
ℓ9	9391-0807-01	Brown	φ0.08/7	ℓ=25	1
ℓ10	9391-0507-02	Red	φ0.05/7	ℓ=90	1
ℓ11	9391-0507-02	Red	φ0.05/7	ℓ=65	1
ℓ12-, ℓ1.	9391-0807-02	Red	φ0.08/7	ℓ=[illegible]	2
ℓ13	9391-0507-03	Orange	φ0.05/7	ℓ=90	1
ℓ14	9391-0507-03	Orange	φ0.05/7	ℓ=55	1
ℓ15	9391-0807-03	Orange	φ0.08/7	ℓ=45	1
ℓ16	9391-0507-03	Orange	φ0.05/7	ℓ=35	1
ℓ17	9391-0807-04	Yellow	φ0.08/7	ℓ=115	1
ℓ18	9391-0507-04	Yellow	φ0.05/7	ℓ=65	1
ℓ19	9391-0507-05	Green	φ0.05/7	ℓ=60	1
ℓ20	9391-0507-05	Green	φ0.05/7	ℓ=25	1
ℓ21	9391-0507-06	Blue	φ0.05/7	ℓ=120	1
ℓ22	9391-0507-06	Blue	φ0.05/7	ℓ=65	1
ℓ23	9391-0807-07	Purple	φ0.08/7	ℓ=95	1
ℓ24	9391-0507-07	Purple	φ0.05/7	ℓ=85	1
ℓ25	9391-0507-07	Purple	φ0.05/7	ℓ=45	1
ℓ26	9391-0807-07	Purple	φ0.08/7	ℓ=30	1
ℓ27	9391-0807-08	Gray	φ0.08/7	ℓ=50	1
ℓ29	9391-0507-08	Gray	φ0.05/7	ℓ=50	1
ℓ30	9391-0807-09	White	φ0.08/7	ℓ=145	1
ℓ31	9391-0807-00	Black	φ0.08/7	ℓ=155	1
ℓ32	9391-0807-00	Black	φ0.08/7	ℓ=65	1
ℓ33	9391-0807-00	Black	φ0.08/7	ℓ=45	1
ℓ34	9391-0807-00	Black	φ0.08/7	ℓ=45	1
ℓ35	9391-0807-01	Brown	φ0.08/7	ℓ=25	1
ℓ36	9391-0807-02	Red	φ0.08/7	ℓ=75	1
ℓ37	9391-0807-02	Red	φ0.08/7	ℓ=35	1
ℓ38	9391-0807-02	Red	φ0.08/7	ℓ=25	1
ℓ39	9391-0807-03	Orange	φ0.08/7	ℓ=40	1
ℓ40	9391-0807-04	Yellow	φ0.08/7	ℓ=150	1
ℓ41	9391-0807-05	Green	φ0.08/7	ℓ=40	1
ℓ42	9391-0807-06	Blue	φ0.08/7	ℓ=45	1
ℓ43	9391-0807-07	Purple	φ0.08/7	ℓ=105	1
ℓ44	9391-0807-07	Purple	φ0.08/7	ℓ=65	1
ℓ45	9391-0807-07	Purple	φ0.08/7	ℓ=50	1
ℓ46	9391-0807-08	Gray	φ0.08/7	ℓ=140	1
ℓ47	9391-0807-08	Gray	φ0.08/7	ℓ=75	1
ℓ48	9391-0807-08	Gray	φ0.08/7	ℓ=55	1
ℓ49	9391-0807-08	Gray	φ0.08/7	ℓ=60	1
ℓ50	9391-0807-09	White	φ0.08/7	ℓ=55	1
ℓ51	9391-0807-09	White	φ0.08/7	ℓ=30	1
ℓ52	9391-0507-05	Green	φ0.05/7	ℓ=35	1
ℓ53	9391-0507-02	Red	φ0.05/7	ℓ=25	1
ℓ54	9391-0507-08	Gray	φ0.05/7	ℓ=25	1
ℓ55	9391-0807-04	Yellow	φ0.08/7	ℓ=80	1
ℓ62	9391-0807-09	White	φ0.08/7	ℓ=25	1
ℓ63	9391-0807-00	Black	φ0.08/7	ℓ=25	1

■ℓ1 (2017-4401-02) and ℓ2(2017-4402-02) are supplied with specified length above as service part.
Other lead wires than ℓ1 and ℓ2 are supplied with meter (m) each.

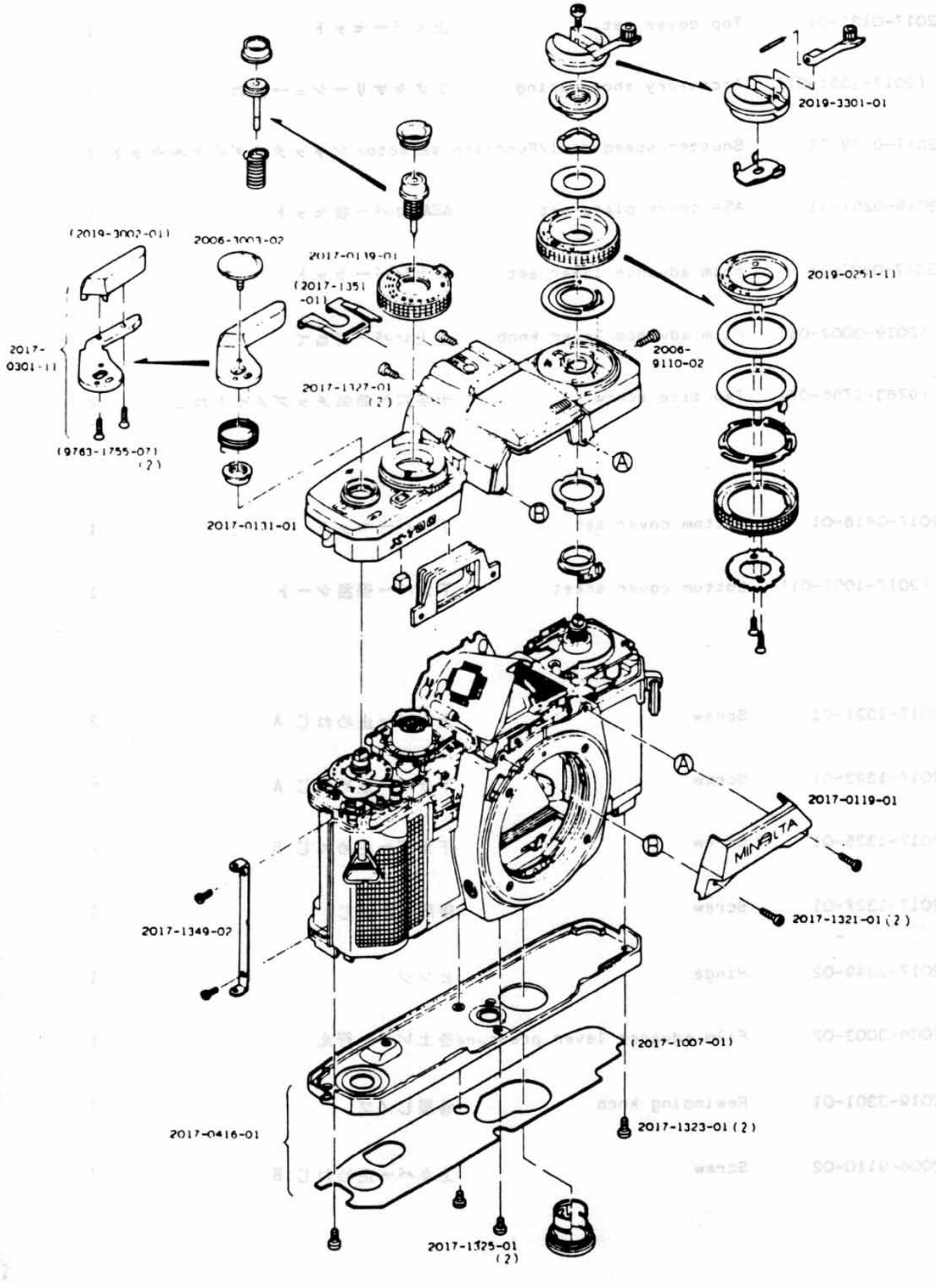
■ℓ1 (2017－4401－02)、ℓ2 (2017－4402－02) は、上記指定の長さで供給します。 それ以外は、1m単位で供給します。

■ Lead wires list (2017-0401-34,2017-0401-35)

Symbol	Parts No.	Color	Type	Qty
ℓ1	2017-4401-02	Black	ℓ=33	1
ℓ2	2017-4402-02	Black	ℓ=90	1
ℓ3	9391-0507-00	Black	φ0.05/7 ℓ=80	1
ℓ4	9391-0507-00	Black	φ0.05/7 ℓ=70	1
ℓ5	9391-0807-00	Black	φ0.08/7 ℓ=40	1
ℓ6-1	9391-0507-00	Black	φ0.05/7 ℓ=30	1
ℓ6-2, ℓ6-3	9391-0507-00	Black	φ0.05/7 ℓ=25	2
ℓ7	9391-0807-01	Brown	φ0.08/7 ℓ=105	1
ℓ8	9391-0507-01	Brown	φ0.05/7 ℓ=70	1
ℓ9	9391-0807-01	Brown	φ0.08/7 ℓ=25	1
ℓ10	9391-0507-02	Red	φ0.05/7 ℓ=90	1
ℓ11	9391-0507-02	Red	φ0.05/7 ℓ=65	1
ℓ12-2 ℓ12	9391-0807-02	Red	φ0.08/7 ℓ=25	2
ℓ13	9391-0507-03	Orange	φ0.05/7 ℓ=90	1
ℓ14	9391-0507-03	Orange	φ0.05/7 ℓ=55	1
ℓ15	9391-0807-03	Orange	φ0.08/7 ℓ=45	1
ℓ16	9391-0507-03	Orange	φ0.05/7 ℓ=35	1
ℓ17	9391-0807-04	Yellow	φ0.08/7 ℓ=115	1
ℓ18	9391-0507-04	Yellow	φ0.05/7 ℓ=65	1
ℓ19	9391-0507-05	Green	φ0.05/7 ℓ=60	1
ℓ20	9391-0507-05	Green	φ0.05/7 ℓ=25	1
ℓ21	9391-0507-06	Blue	φ0.05/7 ℓ=120	1
ℓ22	9391-0507-06	Blue	φ0.05/7 ℓ=65	1
ℓ23	9391-0807-07	Purple	φ0.08/7 ℓ=95	1
ℓ24	9391-0507-07	Purple	φ0.05/7 ℓ=85	1
ℓ25	9391-0507-07	Purple	φ0.05/7 ℓ=45	1
ℓ26	9391-0807-07	Purple	φ0.08/7 ℓ=30	1
ℓ27	9391-0807-08	Gray	φ0.08/7 ℓ=50	1
ℓ29	9391-0507-08	Gray	φ0.05/7 ℓ=50	1
ℓ30	9391-0807-09	White	φ0.08/7 ℓ=145	1
ℓ31	9391-0807-00	Black	φ0.08/7 ℓ=155	1
ℓ32	9391-0807-00	Black	φ0.08/7 ℓ=65	1
ℓ33	9391-0807-00	Black	φ0.08/7 ℓ=45	1
ℓ34	9391-0807-00	Black	φ0.08/7 ℓ=45	1
ℓ35	9391-0807-01	Brown	φ0.08/7 ℓ=25	1
ℓ36	9391-0807-02	Red	φ0.08/7 ℓ=75	1
ℓ37	9391-0807-02	Red	φ0.08/7 ℓ=35	1
ℓ38	9391-0807-02	Red	φ0.08/7 ℓ=25	1
ℓ39	9391-0807-03	Orange	φ0.08/7 ℓ=40	1
ℓ40	9391-0807-04	Yellow	φ0.08/7 ℓ=150	1
ℓ41	9391-0807-05	Green	φ0.08/7 ℓ=40	1
ℓ42	9391-0807-06	Blue	φ0.08/7 ℓ=45	1
ℓ43	9391-0807-07	Purple	φ0.08/7 ℓ=105	1
ℓ44	9391-0807-07	Purple	φ0.08/7 ℓ=65	1
ℓ45	9391-0807-07	Purple	φ0.08/7 ℓ=50	1
ℓ46	9391-0807-08	Gray	φ0.08/7 ℓ=140	1
ℓ47	9391-0807-08	Gray	φ0.08/7 ℓ=50	1
ℓ48	9391-0807-08	Gray	φ0.08/7 ℓ=55	1
ℓ49	9391-0807-08	Gray	φ0.08/7 ℓ=35	1
ℓ50	9391-0807-09	White	φ0.08/7 ℓ=55	1
ℓ51	9391-0807-09	White	φ0.08/7 ℓ=30	1
ℓ52	9391-0507-05	Green	φ0.05/7 ℓ=35	1
ℓ55	9391-0807-04	Yellow	φ0.08/7 ℓ=80	1
ℓ62	9391-0807-09	White	φ0.08/7 ℓ=25	1
ℓ63	9391-0807-00	Black	φ0.08/7 ℓ=25	1

■ℓ1 (2017-4401-02) and ℓ2(2017-4402-02) are supplied with specified length above as service part.
Other lead wires than ℓ1 and ℓ2 are supplied with meter (m) each.

■ℓ1 (2017−4401−02) 、ℓ2 (2017−4402−02) は、上記指定の長さで供給します。 それ以外は、1m単位で供給します。



2019-3301-01
(2019-3002-01)
2006-3003-02
2017-0139-01
(2017-1351-01)
2019-0251-11
2006-9110-02
2017-0301-11
2017-1327-01 (2)
(9763-1755-07) (2)
A
B
2017-0131-01
2017-0119-01
MINOLTA
2017-1321-01 (2)
2017-1349-02
(2017-1007-01)
2017-1323-01 (2)
2017-0416-01
2017-1325-01 (2)

Part No.	Part Name		Qty
2017-0119-01	Front top cover set	上部正面カバーセット	1
2017-0131-01	Top cover set	上カバーセット	1
(2017-1351-01)	Accessory shoe spring	アクセサリーシューばね	1
2017-0139-01	Shutter speed dial/Function selector	シャッターダイヤルセット	1
2019-0251-11	ASA cover plate set	ASA カバー板セット	1
2017-0301-11	Film advance lever set	巻上レバーセット	1
(2019-3002-01)	Film advance lever knob	巻上レバー指当て	1
(9763-1755-07)	Tap tite screw	十字穴付皿頭タップタイトねじ	2
2017-0416-01	Bottom cover set	下カバーセット	1
(2017-1007-01)	Bottom cover sheet	下カバー保護シート	1
2017-1321-01	Screw	上カバー止めねじ A	2
2017-1323-01	Screw	下カバー止めねじ A	2
2017-1325-01	Screw	下カバー止めねじ B	2
2017-1327-01	Screw	接眼止めねじ	2
2017-1349-02	Hinge	ヒンジ	1
2006-3003-02	Film advance lever pressure	巻上レバー押え	1
2019-3301-01	Rewinding knob	巻戻しノブ	1
2006-9110-02	Screw	上カバー止めねじ B	1

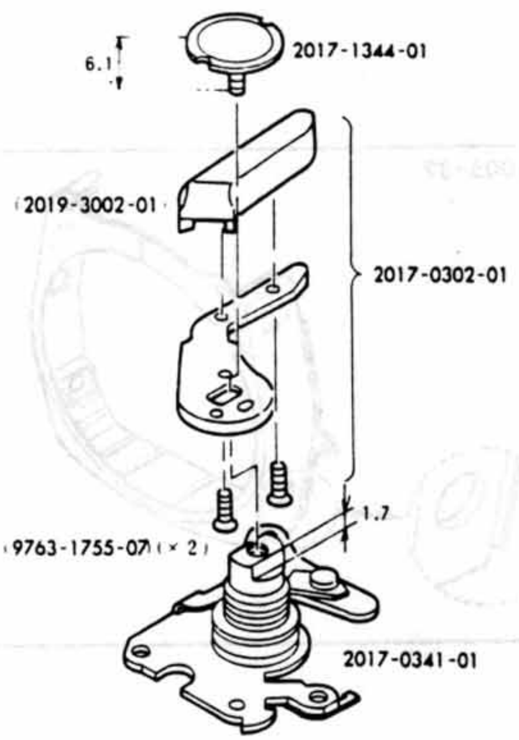
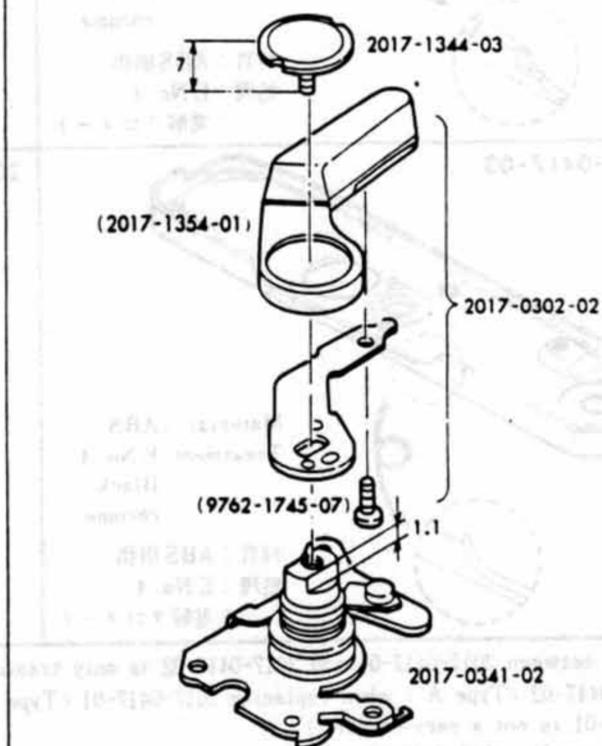
Modification of the concerning the ● or ◉ marked parts are mentioned in P. 1～P. 20. Carefully read explanations 1～4 beforehand.

このページ以降はP. 1～P. 20で●印，又は◉印のついている部品の変更内容等について記載しています。枠内1～4をよく理解の上で利用して下さい。

1. This type of modification is classified into Type A～B according to the frequency of modification. The differences are shown in a following diagram.
2. When the modification of a part also involves the modification of other parts, the related parts are listed in a column below the first in the diagram.
3. When there are related parts, one part cannot be replaced individually unless otherwise noted. It must be replaced as a set with the other related parts.
4. For those of previous type which cannot be supplied, an (×) mark is attached to the part No. If it is necessary to replace (×)-marked parts, replace them with those of another type (as a set if related parts are available).

1. 変更の回数によってType A～Bに分け，各タイプごとの違いを表の形式で記載しています。
2. その部品単独の変更でなく，関連する変更部品がある場合は表の縦の列で関連変更部品（使用可能な部品の組合わせ）を示しています。
3. 関連変更部品がある場合，注釈のない限りその部品単独では交換できません。関連部品とセットであれば他のタイプに交換は可能です。
4. 旧タイプの部品で供給できない部品には，部品番号の後に（×）の印をつけてあります。（×）印の部品で交換の必要がある場合は他のタイプに（関連部品があればセットで）交換して下さい。

■ Film advance lever / 巻上レバー

Type A	Type B
	

• 2017-0341-02 (Type B) can be used instead of 2017-0341-01 (Type A), however, converse using is not allowed.

• 2017-0341-02 (Type B) は，2017-0341-01(Type A) の代りに使用可能，逆は不可。

2017-0302	Film advance lever set	巻上レバーセット
2017-0341	Winding base plate B set	巻取台板Bセット
2017-1344	Film advance lever pressure	巻上レバー押え
2017-1354 / 2019-3002	Film advance lever knob	巻上レバー指当
9762-1745-07	Tap tite screw	十字穴付なべ頭タップタイトねじ
9763-1755-07	Tap tite screw	十字穴付半丸皿頭タップタイトねじ

■ Bottom cover / 下カバー

Type A

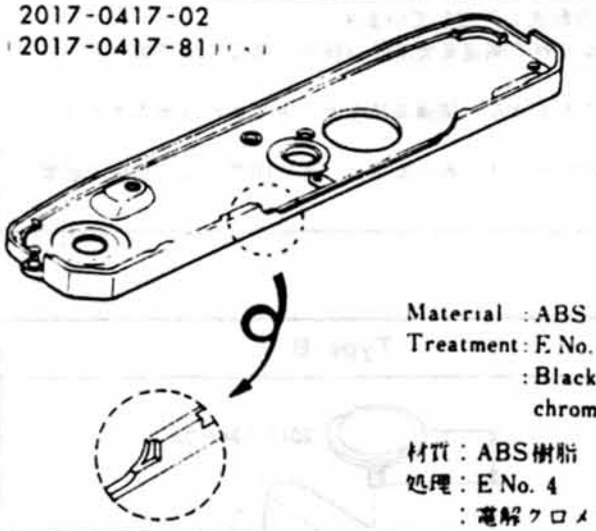
2017-0417-01

Material : ABS
Treatment : E No. 4

材質 : ABS樹脂
処理 : E No. 4

Type A'

2017-0417-02
(2017-0417-81)

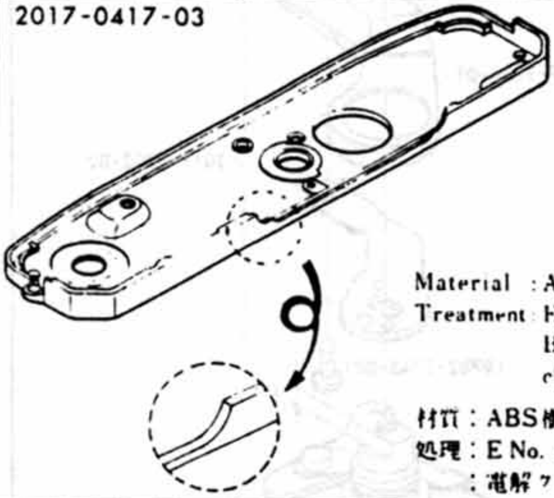


Material : ABS
Treatment : E No. 4
: Black chrome

材質 : ABS樹脂
処理 : E No. 4
: 電解クロメート

Type B

2017-0417-03

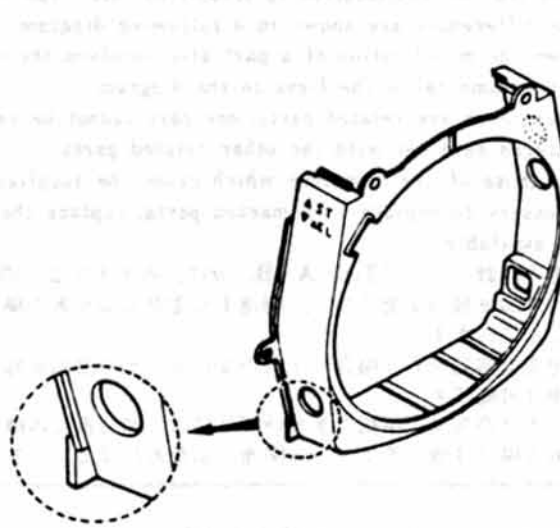


Material : ABS
Treatment : E No. 4
Black chrome

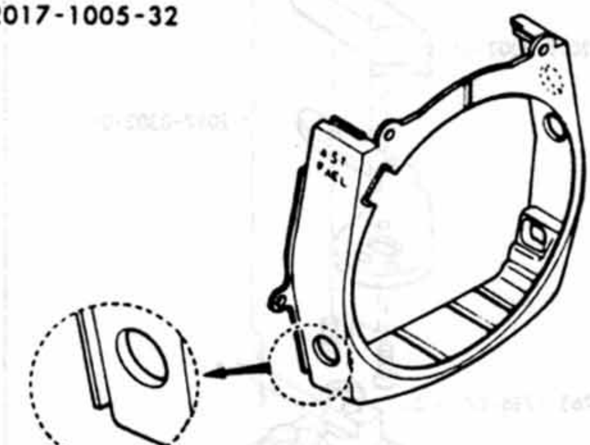
材質 : ABS樹脂
処理 : E No. 4
: 電解クロメート

■ Front cover / 前カバー

2017-1005-31



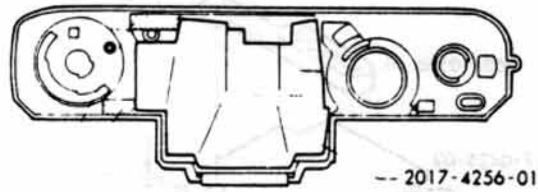
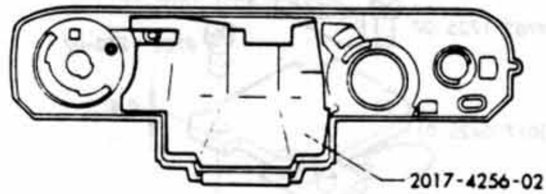
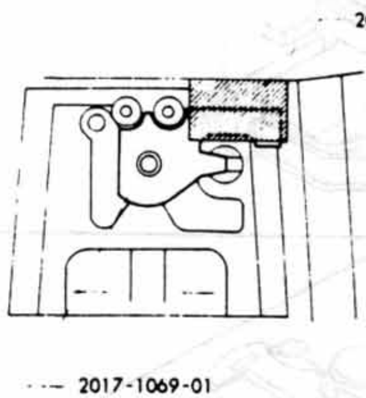
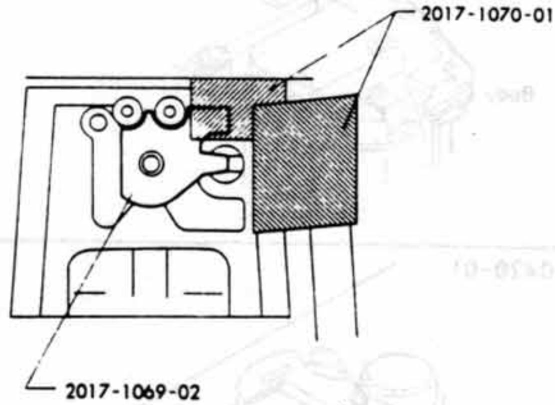
2017-1005-32



- Difference between 2017-0417-01 and 2017-0417-02 is only treatment.
- Use 2017-0417-02 (Type A') when replacing 2017-0417-01 (Type A). (2017-0417-01 is not a service part.)
- New type part No. 2017-0417-02 is given since temporary part 2017-0417-81 (Type A') became a regular part, ordering of this part should be as 2017-0417-02.
- 2017-0417-01と2017-0417-02の違いは処理のみです
- 2017-0417-01 (Type A) 交換時は2017-0417-02 (Type A') に交換して下さい。(2017-0417-01は部品供給致しません)
- 2017-0417-81 (Type A') は、臨時部品扱いでしたが正規部品となったため2017-0417-02と部番のみ変更しました 部品注文時は2017-0417-02で行なって下さい。

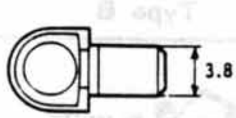
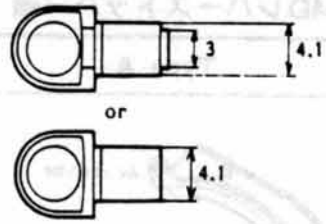
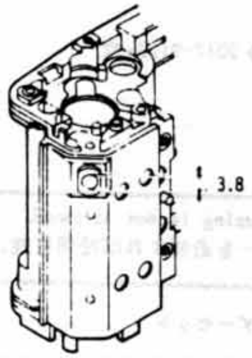
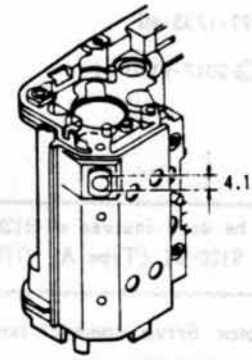
2017-0417	Bottom cover set	下カバーセット
2017-1005	Front cover	前カバー

■ Top cover / 上カバー

Type A	Type B
2017-0132-01 (Black model) 2017-0131-01 (Chrome model)  	2017-0132-01 (Black model) 2017-0131-01 (Chrome model) 
 	

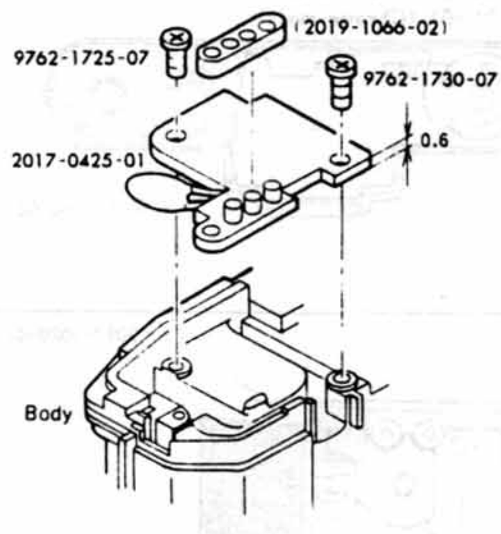
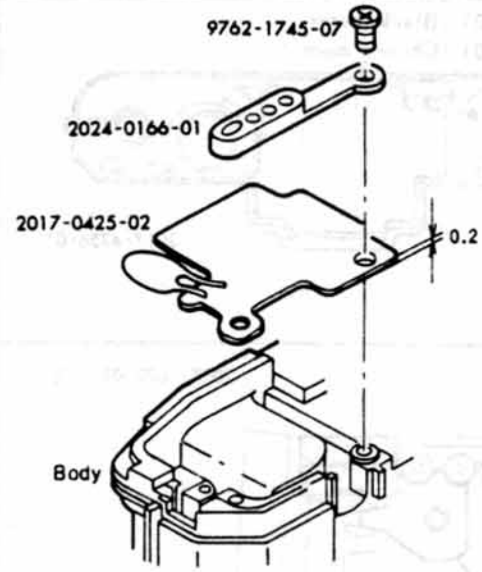
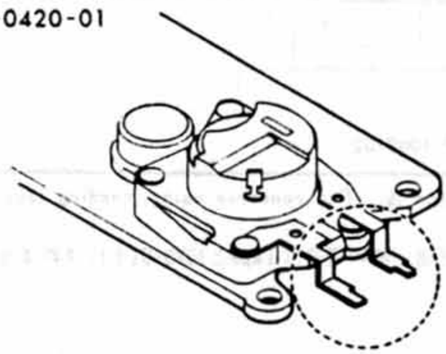
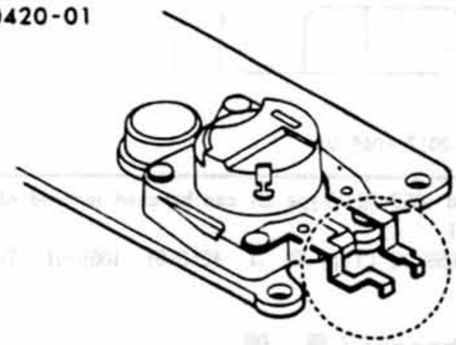
- 4256-02 and 1069-02 (Type B) can be used instead of 4256-01, 1069-01 (Type A). For converse using, needing tape and 1070-01.
- 4256-02, 1069-02 (Type B) は, 4256-01, 1069-01 (Type A) の代りに使用可能, 逆の場合はTapeと1070-01を付ければ使用可能

■ Strap hanger / 吊　環

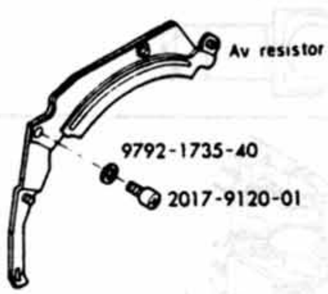
Type A	Type B
2017-0113-01  	2017-0113-04 
Body  	Body 

2017-0113	Strap hanger set	吊環セット
2017-0131	Top cover set for 2017-100	
2017-0132	Top cover set for 2017-200	
2017-1069	Contact isolation sheet	コンタクト接片絶縁シート
2017-1070	Contact isolation tape	コンタクト接点絶縁テープ
2017-4256	Top cover isolation sheet	上カバー絶縁シート

■ Connector P.C. board / 中継基板　■ Battery case base plate / 電池ケース台板

Type A	Type B
	
2017-0420-01 	2024-0420-01 

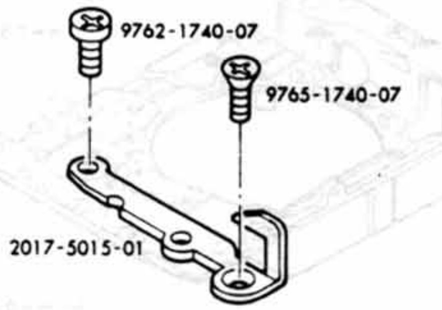
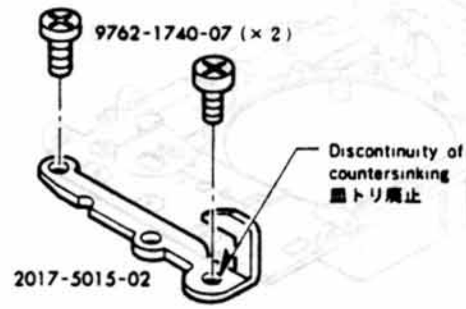
■ Screw / MDレバーストッパー軸

Type A	Type B
	

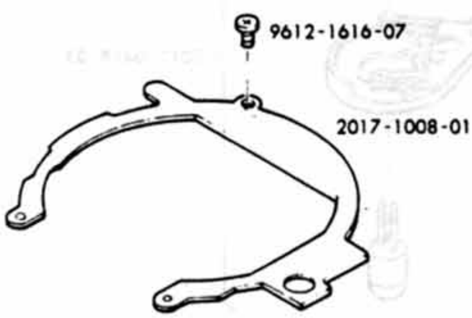
- 9120-20 (Type B) can be used instead of 9120-01 (Type A), however, converse using is not allowed.
- 9120-02 (Type B) は、9120-01 (Type A) の代りに使用可能。逆の場合はワッシャーを追加すれば使用可能。

2024-0166	Motor drive connect holder set	モータードライブ接点ホルダーセット
2017-0420 / 2024-0420	Battery case base plate set	電池ケース台板セット
2017-0425	Connector P.C. board set	中継基板セット
2019-1066	Motor drive connect holder	モータードライブ接点ホルダー
2017-9120	Screw	MDレバーストッパー軸
9762- · · ·	Tape tite screw	十字穴付なべ頭タップタイトねじ
9792-1735-40	Washer	薄ワッシャー

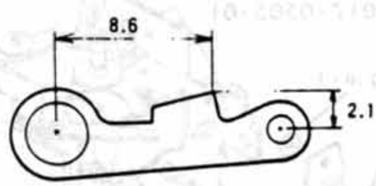
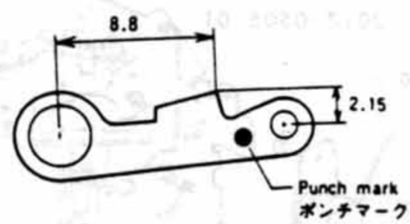
■ Penta pressure (Right side) / ペンタ押え (右)

Type A	Type B
	

■ Mirror box light shield plate / ミラーボックス遮光板

Type A	Type B
	

■ Winding stop lever-A / 巻止めレバーA

Type A	Type B
2017-0312-01 	2017-0322-01 

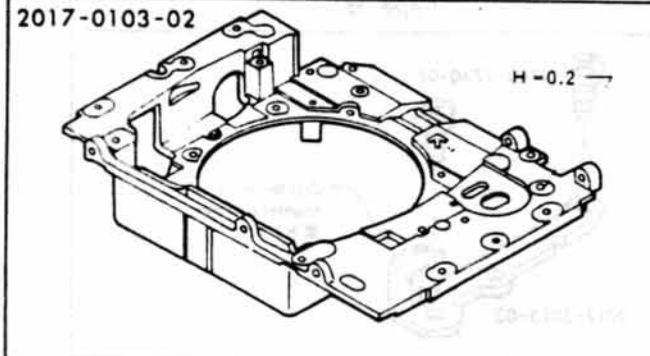
- Use one of parts above properly depending upon winding operation lever timing.
- トンボ返りレバーのタイミングにより使い分けて下さい。

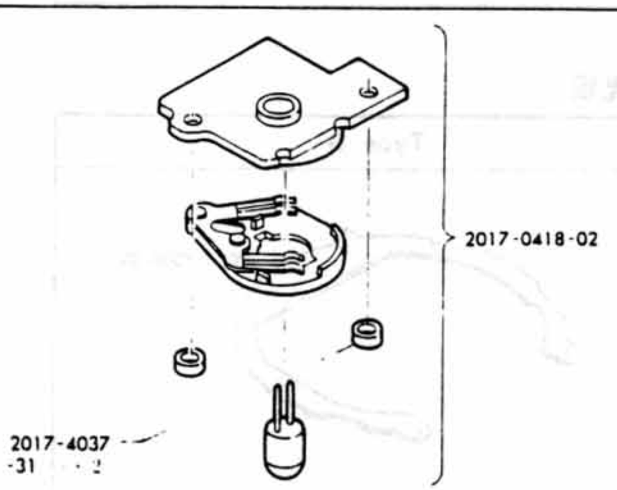
2017-0312 2017-0322	Winding stop lever-A set	巻止めレバーAセット
2017-1008	Mirror box light shield plate	ミラーボックス遮光板
2017-5015	Penta. pressure (Right side)	ペンタ押え (右)
9612-1616-07	Phillips type screw	十字穴付なべ頭小ねじ
9762-1740-07	Tap tite screw	十字穴付なべ頭タップタイトねじ
9765-1740-07	Tap tite screw	十字穴付皿頭タップタイトねじ

■ Front base plate / 前　枠

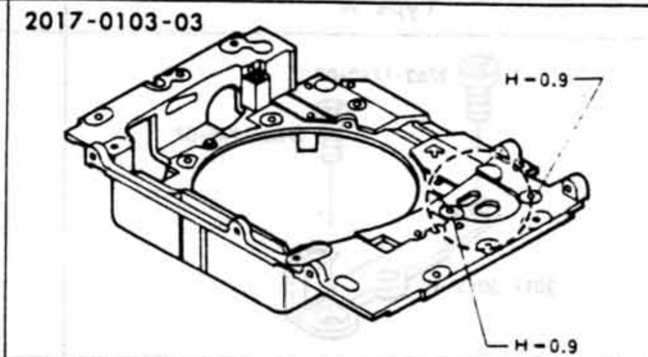
Type A	Type B

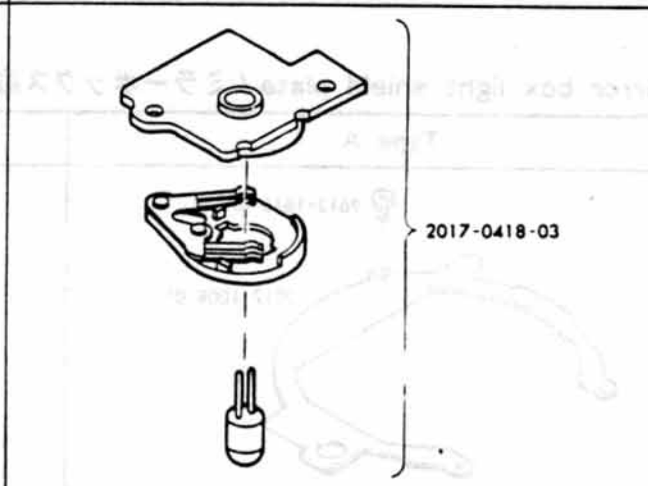
Type A





Type B



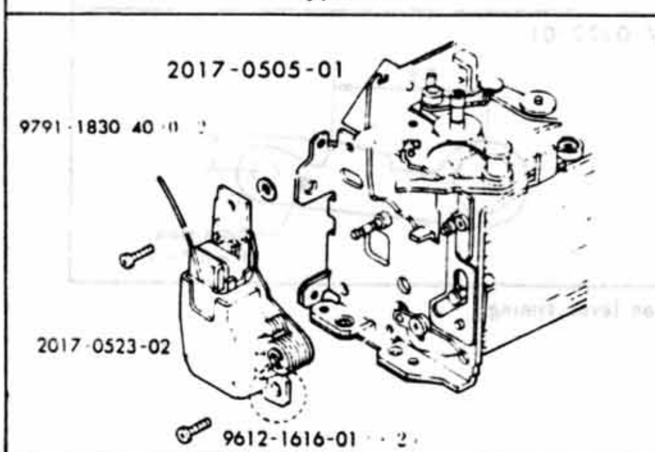


- For 2017-0103-02, use 2017-4037-31. For 2017-0103-03, no needing 2017-4037-31.
- 2017-0103-02には2017-4037-31を取付けて下さい　2017-0103-03には2017-4037-31は不要

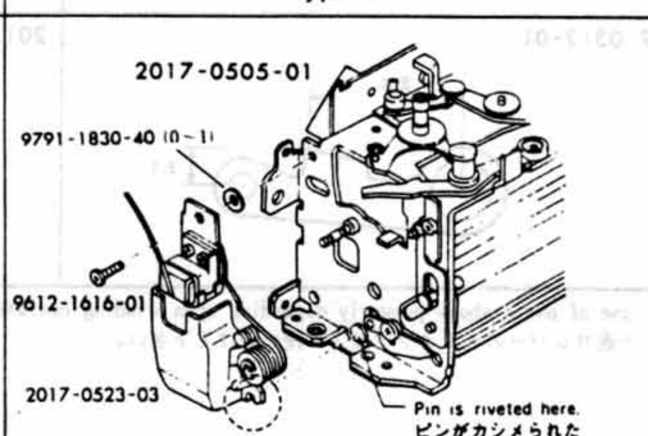
■ Mirror magnet / ミラーマグネット

Type A	Type B

Type A



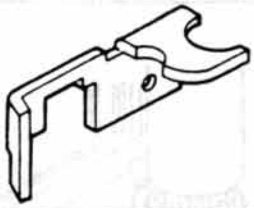
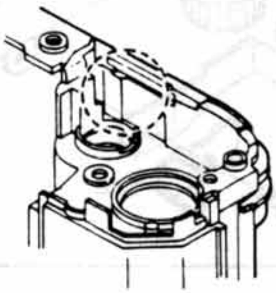
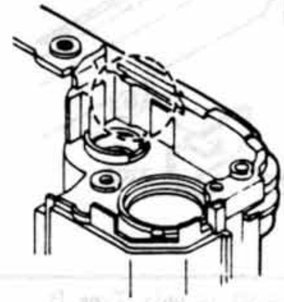
Type B



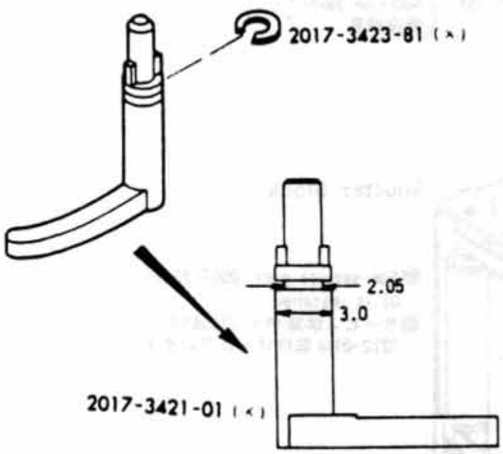
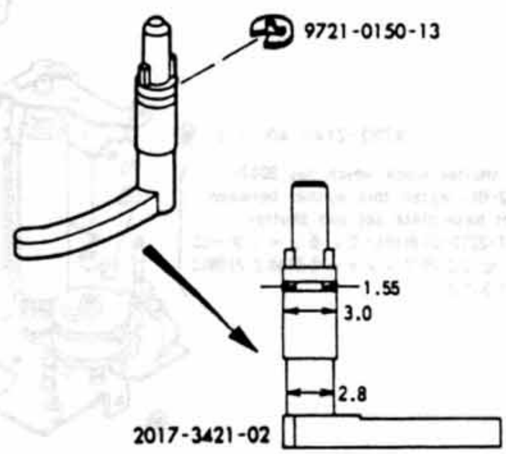
- For mirror box with pin riveted, use Type B mirror magnet (2017-0523-03).
- For mirror box without pin, either (2017-0523-02 or 2017-0523-03) will do.
- ピン付きのミラーボックスにはミラーマグネットはType B (2017-0523-03) を使用して下さい。
- ピン無しのミラーボックスにはミラーマグネットはType A, Type B (2017-0523-02又は2017-0523-03) どちらを使用しても良い

2017-0103	Front base plate set	前枠セット
2017-0418	Self-timer plate set	セルフ基板セット
2017-0505	Mirror box set	ミラーボックスセット
2017-0523	Mirror magnet set	ミラーマグネットセット
2017-4037	Washer	ワッシャー
9612-1616-01	Phillips type screw	十字穴付なべ頭小ねじ
9791-1830-40	Washer	薄ワッシャー

■ Stopper / チャージ操作板ストッパー

Type A	Type B
2017-3065-02 	2017-3065-06 
Body 	Body 

■ Film indication filler / フィルム表示フィラー

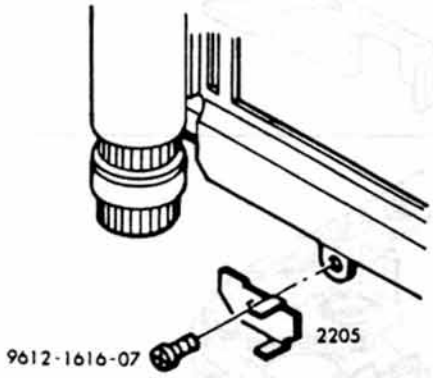
Type A	Type B
	

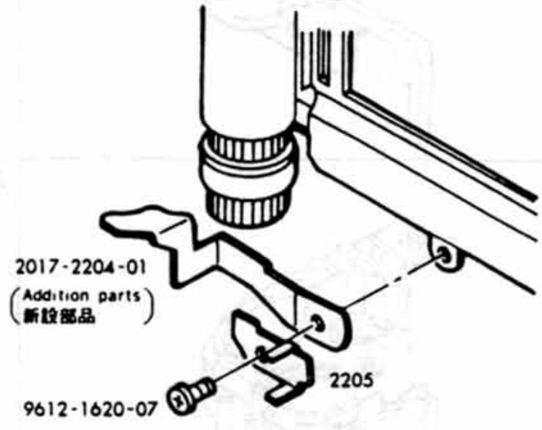
- Use Type B when replacing Type A. (Type A is not a service part.)
- Type A交換時はType Bに交換して下さい。(Type Aは部品供給致しません)

2017-3065	Stopper	チャージ操作板ストッパー
2017-3421	Film indication filler	フィルム表示フィラー
2017-3423	C-ring	Cリング
9721-0150-13	E-ring	Eリング

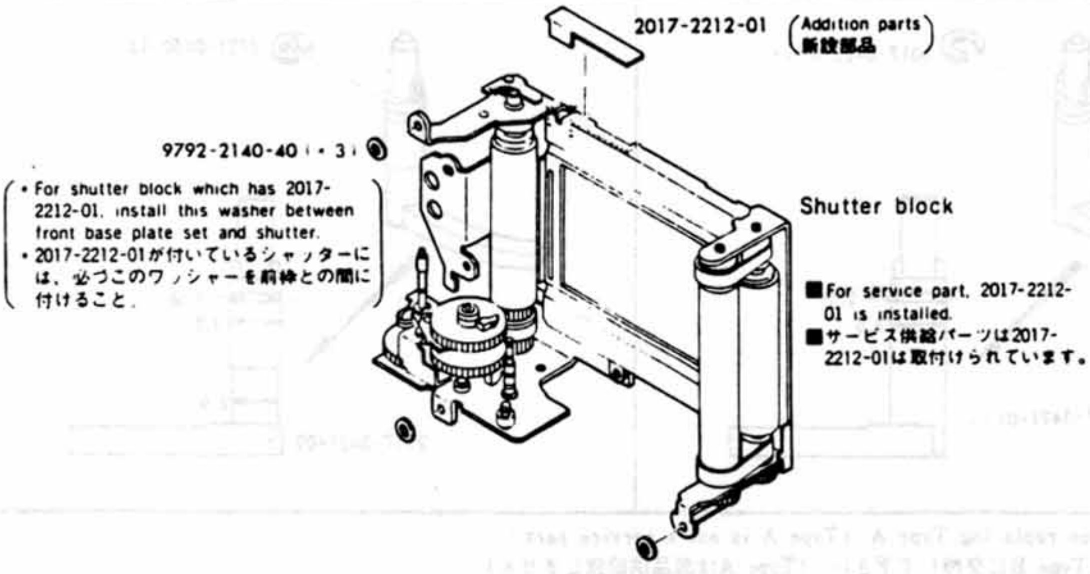
■ Shutter / シャッター

Type A	Type B
2017-0201-01	2017-0201-01



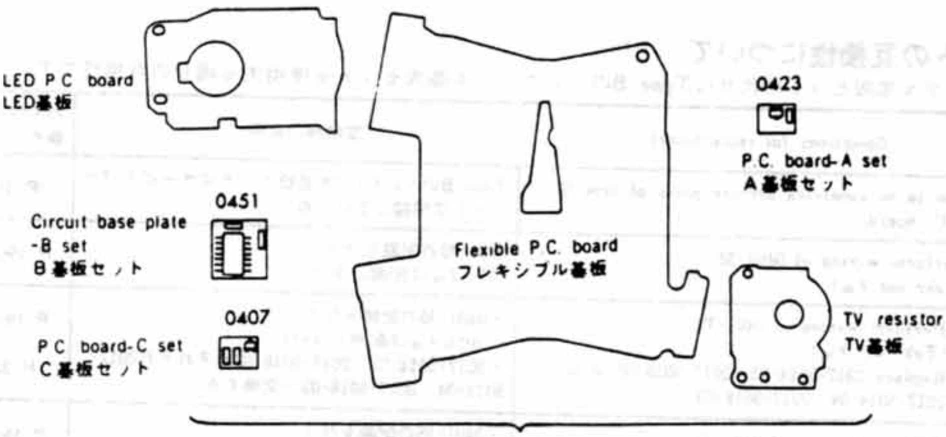


- Service part of 2017-0201 is only Type B.
- サービス供給パーツ（2017-0201）はType Bとなります



2017-0201	Shutter block	シャッターブロック
2017-2204	Ribbon guide plate-B	裏リボンガイド板B
2017-2212	Shutter light shield sheet	シャッター遮光シート
9612-1616-07 / 9612-1620-07	Phillips type screw	十字穴付なべ頭小ねじ
9792-2140-40	Washer	薄ワッシャー

■ Modification records and details of flexible P.C. board set
■ フレキシブル基板セットの変更経歴及び変更内容



0401 Flexible P.C. board set
(• LED P.C. board, Tv resistor for flexible P.C. board set are not service parts
• フレキシブル基板セット内のLED基板、Tv基板は部品供給しておりません)

■ Modification record
■ 変更経歴

生産時期		Flexible P.C. board set フレキシブル基板セット	P.C. board-A set A基板セット	Circuit base plate-B set B基板セット	P.C. board-C set C基板セット
'81/6	Without AE lock AEロック無	2017-0401-01	★2017-0423-02		★2017-0407-01
'81/6～'81/9		★2017-0401-02			
'81/9～'81/12		2017-0401-03			
'81/12		2017-0401-82			
'82/1～'82/2	With AE lock AEロック付	2017-0401-81		★2017-0451-81	
'82/2～'82/3		★2017-0401-32			★2017-0407-01
'82/3～'82/4		2017-0401-33			
'82/6～'82/7		2017-0401-34			
'82/7～		★2017-0401-35			

■ Service parts
• Mark (★) shows service parts
………When replacing 0401-01, 0401-03 or 0401-82, use 0401-02.
………When replacing 0401-81, use 0401-32.
………When replacing 0401-33 or 0401-34, use 0401-35.

■ For modification details of flexible P.C. board set which has non AE lock circuit, refer to page 38.

■ Others
• Description for circuit base plate-B set……Refer to page 34.

■ サービス供給パーツについて
• ★印パーツのみ供給………0401-01, 0401-03, 0401-82を交換する場合は, 0401-02に交換して下さい。
………0401-81を交換する場合は, 0401-32に交換して下さい。
………0401-33, 0401-34を交換する場合は, 0401-35に交換して下さい。

■ AEロック回路無しのフレキシブル基板の変更内容は, Page 38を参照して下さい。

■ その他
• B基板についての説明……………Page 34参照

■ Interchangeability of flexible P.C. board set

• 2017-0401-01, -02, -03, -82 (Type A) • 2017-0401-81 (Type B) • 2017-0401-32 (Type C) • 2017-0401-33 (Type D) • 2017-0401-34, -35 (Type E)

※ A→B shows the interchangeability when using Type B flexible P.C. board set instead of Type A flexible P.C. board set.

■ フレキシブル基板セットの互換性について

※ A→BとはType Aのフレキシブル基板セットの代りにType Bのフレキシブル基板セットを使用する場合の互換性です。

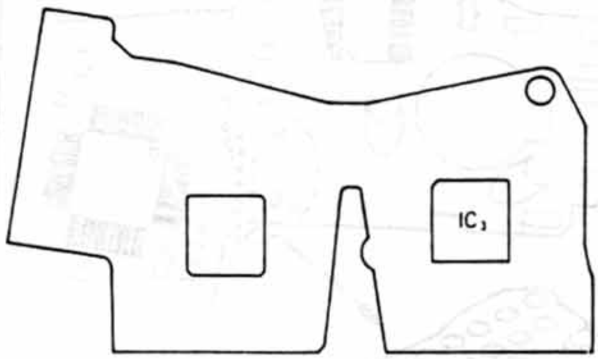
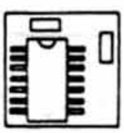
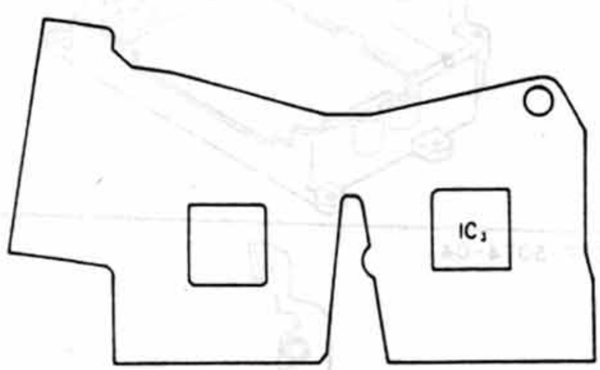
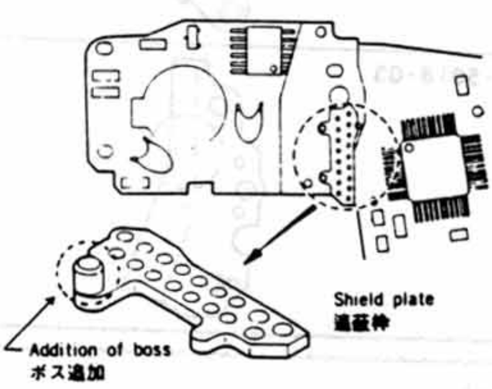
Type	Interchangeability 互換性	Conditions for replacement	交換時の条件	Refering page 参考ページ
※ A → B	NO 無	Due to no supplying service parts of type B P.C. board.	Type Bのフレキシブル基板セットはサービスパーツとして供給しないため	P. 31
A → C	YES 有	Perform wiring of 0401-32. (Take out ℓ_{34})	0401-32の配線を行う (但しℓ_{34}は配線しない)	P. 19-2
A → D	YES 有	• Perform wiring of 0401-33. (Take out ℓ_{34}) • Replace 2017-5014-03, 2017-5018-02 with 2017-5014-04, 2017-5018-03.	• 0401-33の配線を行う (但しℓ_{34}は配線しない) • 2017-5014-03, 2017-5018-02をそれぞれ2017-5014-04, 2017-5018-03へ交換する	P. 19-2 P. 32
A → E	YES 有	• Perform wiring of 0401-33. (Take out ℓ_{34}) • Replace 2017-5014-03, 2017-5018-02 with 2017-5014-04, 2017-5018-03. • Abandonment of P.C. board-A set (2017-0423-02).	• 0401-35の配線を行う (但しℓ_{34}は配線しない) • 2017-5014-03, 2017-5018-02をそれぞれ2017-5014-04, 2017-5018-03へ交換する • A基板セット (2017-0423-02) を廃止する	P. 19-3 P. 32 P. 33
B → A	NO 無	Due to no functioning for AE lock with type A.	Type AにはAEロック機能がないため	—
B → C	YES 有	Abandonment of circuit base plate-B set (2017-0451-81).	B基板セット (2017-0451-81) を廃止する	P. 31
B → D	YES 有	• Abandonment of circuit base plate-B set (2017-0451-81). • Replace 2017-5014-03, 2017-5018-02 with 2017-5014-04, 2017-5018-03.	• B基板セット (2017-0451-81) を廃止する • 2017-5014-03, 2017-5018-02をそれぞれ2017-5014-04, 2017-5018-03へ交換する	P. 31 P. 32
B → E	YES 有	• Abandonment of circuit base plate-B set (2017-0451-81). • Abandonment of P.C. board-A set (2017-0423-02). • Replace 2017-5014-03, 2017-5018-02 with 2017-5014-04, 2017-5018-03.	• B基板セット (2017-0451-81) を廃止する • A基板セット (2017-0423-02) を廃止する • 2017-5014-03, 2017-5018-02をそれぞれ2017-5014-04, 2017-5018-03へ交換する	P. 31 P. 33 P. 32
C → A, B	NO 無	• Due to no functioning for AE lock with Type A. • Due to no supplying service parts of Type B.	• Type AにはAEロック機能がないため • Type Bはサービスパーツとして供給しないため	P. 31
C → D	YES 有	Replace 2017-5014-03, 2017-5018-02 with 2017-5014-04, 2017-5018-03.	• 2017-5014-03, 2017-5018-02をそれぞれ2017-5014-04, 2017-5018-03へ交換する	P. 32
C → E	YES 有	• Abandonment of P.C. board-A set (2017-0423-02). • Replace 2017-5014-03, 2017-5018-02 with 2017-5014-04, 2017-5018-03.	• A基板セット (2017-0423-02) を廃止する • 2017-5014-03, 2017-5018-02をそれぞれ2017-5014-04, 2017-5018-03へ交換する	P. 33 P. 32
D → A, B	NO 無	• Due to no functioning for AE lock with Type A. • Due to no supplying service parts of Type B.	• Type AにはAEロック機能がないため • Type Bはサービス用パーツとして供給しないため	P. 31
D → C	YES 有	Replace 2017-5014-04, 2017-5018-03 with 2017-5014-03, 2017-5018-02.	2017-5014-04, 2017-5018-03をそれぞれ2017-5014-03, 2017-5018-02へ交換する	P. 32
D → E	YES 有	Abandonment of P.C. board-A set (2017-0423-02).	A基板セット (2017-0423-02) を廃止する	P. 33
E → A, B	NO 無	• Due to no functioning for AE lock with Type A. • Due to no supplying service parts of Type B.	• Type AにはAEロック機能がないため • Type Bはサービスパーツとして供給しないため	P. 31
E → C	YES 有	Replace 2017-5014-04, 2017-5018-03 with 2017-5014-03, 2017-5018-02.	2017-5014-04, 2017-5018-03をそれぞれ2017-5014-03, 2017-5018-02へ交換する	P. 32
E → D	YES 有	Abandonment of P.C. board-A set (2017-0423-02).	A基板セット (2017-0423-02) を取付ける	P. 33

■ Types, modification details of flexible P.C. board set (with AE lock)

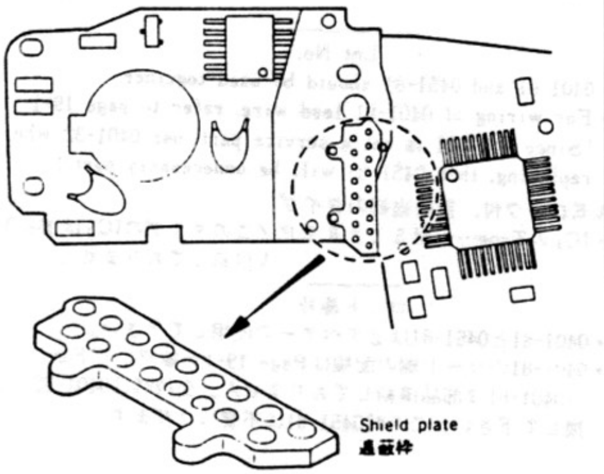
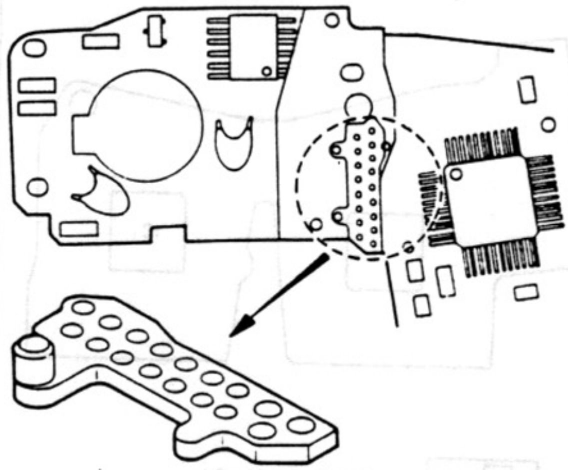
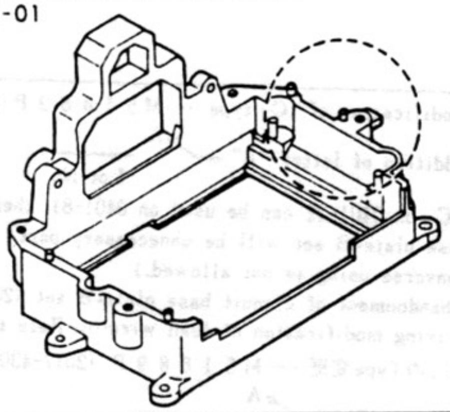
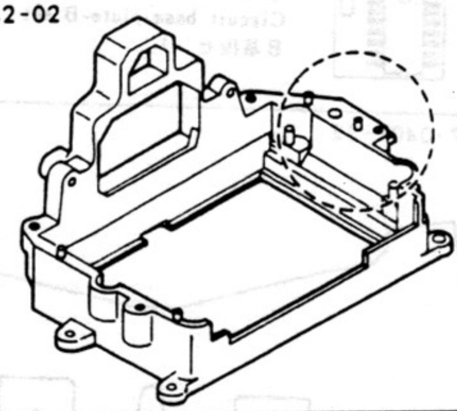
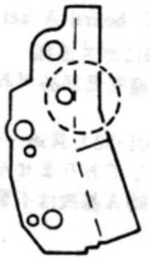
• For X-700 with AE lock, one of 5 types flexible P.C. board set is employed.

■ AEロック付フレキシブル基板の種類，変更内容

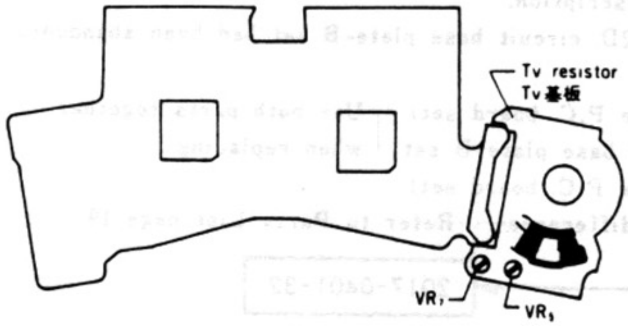
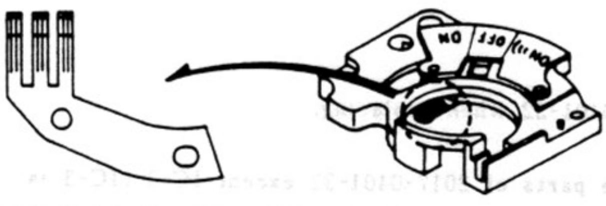
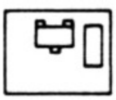
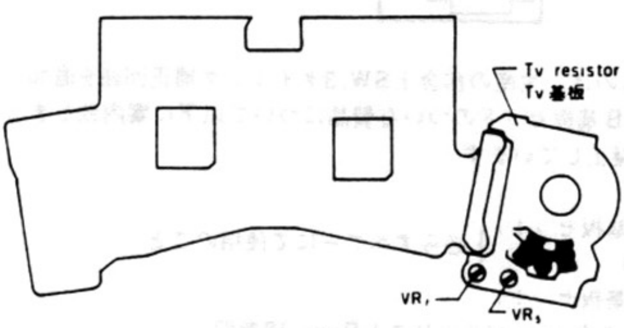
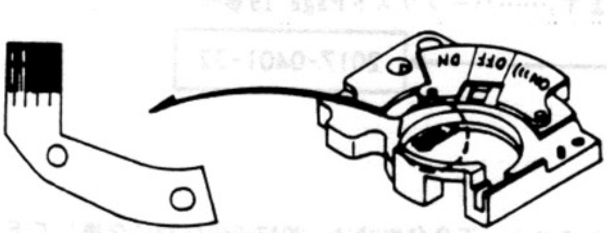
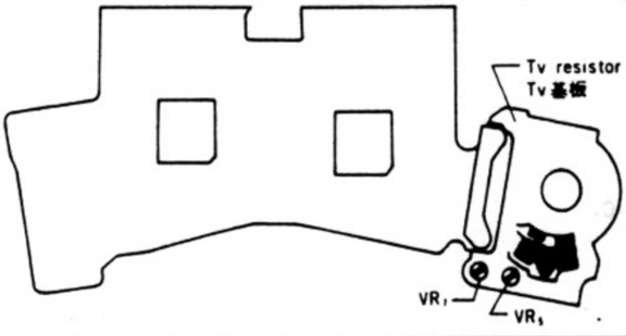
• AEロック付のX-700には少しづつ異なった5種類のフレキシブル基板が使用されています。

Types	Remarks
2017-0401-81 (×)   2017-0451-81 Circuit base plate-B set B基板セット	■**Initial mass production (with AE lock)** • Type of IC_3……M 5 1 8 8 9 P (not for service part) Lot No. • 0401-81 and 0451-81 should be used together. • For wiring of 0401-81 lead wire, refer to page 19-1. (Since 0401-81 is not a service part, use 0401-32 when replacing, then 0451-81 will be unnecessary part.) ■**A.Eロック付，量産当初のタイプ** • IC_3のType……M 5 1 8 8 9 P (このタイプのIC_3は部品供給しておりません) ロット番号 • 0401-81と0451-81は必ずペアーで使用して下さい。 • 0401-81のリード線の配線はPage 19-1を参照して下さい。(0401-81は部品供給しておりません。交換時は0401-32に交換して下さい。この時0451-81は不要になります)
2017-0401-32 	• Modification of IC_3 type……M 5 1 8 8 9 P (2017-4303-32) Addition of letter "A". → A Lot No. (IC_3 on 0401-32 can be used on 0401-81, then circuit base plate-B set will be unnecessary part. However, converse using is not allowed.) • Abandonment of circuit base plate-B set (2017-0451-81) • Wiring modification of lead wire……Refe to page 19-2. • IC_3のType変更……M 5 1 8 8 9 P (2017-4303-32) A文字追加 → A ロット番号 (0401-32搭載のIC_3を0401-81に使用可。その際B基板は不要，逆は不可) • B基板 (2017-0451-81) 廃止 • リード線の配線変更……Page 19-2参照
2017-0401-33 (×) 	• Addition of boss on shield plate on LED P.C. board. • Related parts modification according to shield plate modification……Refer to next page. (0401-33 is not a service part, use 0401-35 when replacing, then P.C. board-A set will be unnecessary.) • LED基板内の遮蔽枠にボス追加 • 遮蔽枠変更により関連変更部品があります。……………次ページ参照 • リード線の配線は0401-32と共通……Page 19-2参照 (0401-33は部品供給しておりません。交換時は0401-35に交換して下さい。この時A基板は不要になります。)

■Table below shows related parts according to flexible P.C. board modification (0401-32⇒0401-33).
■Interchangeability·········Interchangeable with related parts used together.
·········0542-02 can be used instead of 0542-01, however, converse using is not allowed.
·········5014-04 can be used instead of 5014-03, however, converse using is not allowed.
■2011-0401-33 is not a service part, use 2017-0401-35 when replacing.
■下表はフレキシブル基板セット変更（0401-32⇒0401-33）による関連変更部品を示しています。
■互換性·········0542-02は、0542-01の代りに使用可能、逆は不可。
·········5014-04は、5014-03の代りに使用可能、逆は不可。
■2017-0401-33は部品供給しておりませんので、交換時は2017-0401-35を使用して下さい。

2017-0401-32 	2017-0401-33 (×) 
2017-0542-01 	2017-0542-02 
2017-5014-03 	2017-5014-04 
2017-5018-02 	2017-5018-03 

2017-0401	Flexible P.C. board set	フレキシブル基板セット
2017-0542	Penta. holder set	ペンタホルダーセット
2017-5014	Penta. pressure (left side)	ペンタ押え板（右）
2017-5018	LED diffusion plate	LED拡散板

Types	Remarks
2017-0401-33 (×)   (2017-0412-01) Main SW guide plate set メインSWガイド板セット	• 0401-33 is not a service part, use. 0401-35 when replacing, then P.C. board-A set (2017-0423-02) will be unnecessary. • 0401-33は部品供給しておりません。 交換時は0401-35に交換して下さい。 この時、A基板（0423-02）は不要になります。
 2017-0423-02 P.C. board-A set A基板セット	
2017-0401-34 (×)   2017-0412-02 Main SW guide plate set メインSWガイド板セット	• Abandonment of P.C. board-A set (0423-02). • Printed wiring modification on Tv resistor (addition of carbon resist film……7 KΩ) • Modification of main SW. guide plate set (no interchangeability) • Wiring modification of lead wire……Refer to page 19-3. (0401-34 is not a service part, use 0401-35 when replacing.) • A基板セット（0423-02）廃止 • Tv基板パターン変更（印刷抵抗7 KΩ追加） • メインSWガイド板セット変更（互換性無） • リード線の配線変更……Page 19-3参照 (0401-34は部品供給しておりません。交換時は0401-35に交換して下さい)
2017-0401-35 	• Modification of VR_5 (interchangeable) 1.3KΩ → 2.6KΩ • VR_5の抵抗値変更（互換性有） 1.3KΩ → 2.6KΩ

■ Circuit base plate-B set

■Initial mass production of X-700 (with AE lock), secret Nos. 1L-2C, has SW.3 timing correction circuit on circuit base palet-B set for temporary use. For the production which has circuit base plate-B set, read the following description.

For the production whose secret No. is after 2D, circuit base plate-B set had been abandoned.

■Interchangeability

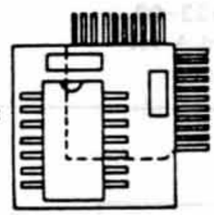
- Temporary parts ······ 2017-0401-81 (flexible P.C. board set) } Use both parts together
  2017-0451-81 (circuit base plate-B set) } when replacing
- Regular part ············ 2017-0401-32 (flexible P.C. board set)
  Interchangeable, however, wiring is slightly difference······Refer to Parts List page 19.

2017-0401-81
2017-0451-81
(Use both parts together) ⟷ 2017-0401-32

■Service parts

- 2017-0401-81 is not a service part, use 2017-0401-32 when replacing.
  2017-0451-81 is a service part.
- Electrical parts on 2017-0401-81 are the same parts of 2017-0401-32 except IC-3 (IC-3 is not a service part).
  When replacing individual element, refer to Service Manual P.18.
- Installing method of circuit base plate-B set.
  Stick it on IC-1 using double-faced tape.

Circuit base plate-B set
(2017-0451-81)



■ B基板について

■AEロック付X-700の生産当初(Body密番1L~2C)のものは、生産の都合上SW.3タイミング補正回路を追加したB基板セット（暫定部品）がついています。このB基板セットのついた製品について以下に案内致します。尚、Body密番2D以降のものは、B基板セットは廃止しています。

■互換性について

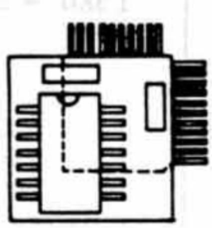
- 暫定用部品·········2017-0401-81（フレキシブル基板セット）} 必らずペアーにて使用のこと
  ·········2017-0451-81（B基板セット）
- 正規部品············2017-0401-32（フレキシブル基板セット）
  相互に互換性有り　但し各々配線方法が一部異なります。······パーツリストPage 19参照

2017-0401-81
2017-0451-81
（ペアーにて使用のこと） ⟷ 2017-0401-32

■修理用部品について

- 2017-0401-81についてはサービスでの部品供給は致しません。不良発生時は、2017-0401-32に交換して下さい。尚、2017-0451-81については部品供給します。
- 2017-0401-81に搭載している電装部品はIC-3（このIC-3は部品供給致しません）をのぞいて2017-0401-32と同じです。素子を単品交換する場合はサービスマニュアルP.18を参照して下さい。
- B基板取付方法
  IC-1の上に両面テープにて貼付ける。

B基板セット
（2017-0451-81）

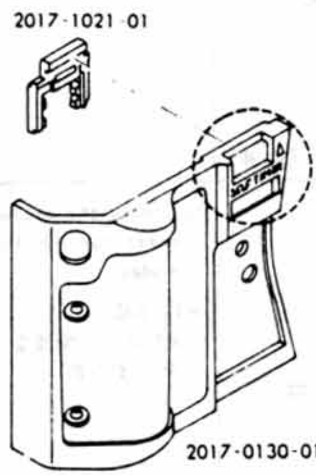
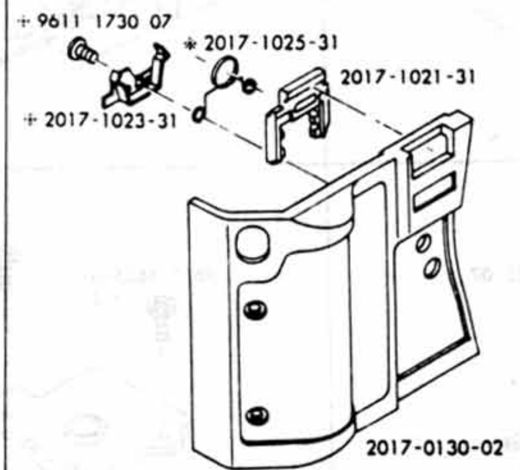
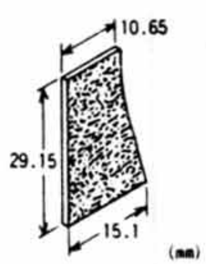
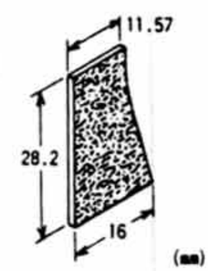
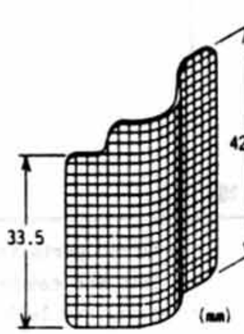
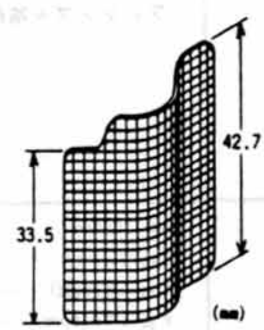


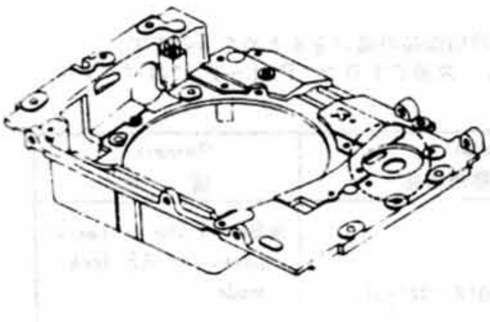
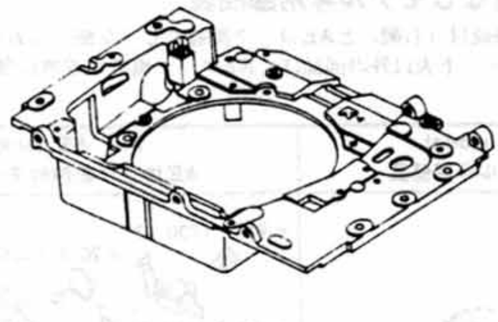
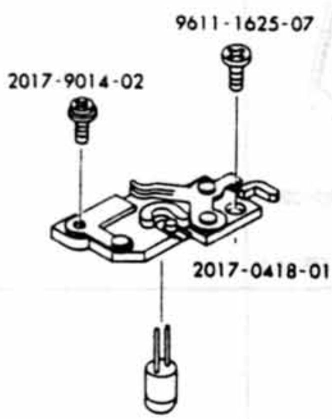
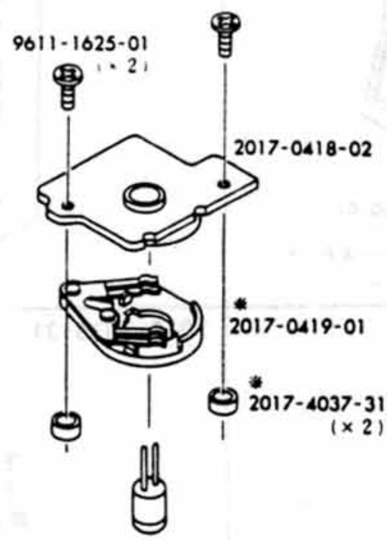
■ Exclusive parts List for X-700 (without AE lock)

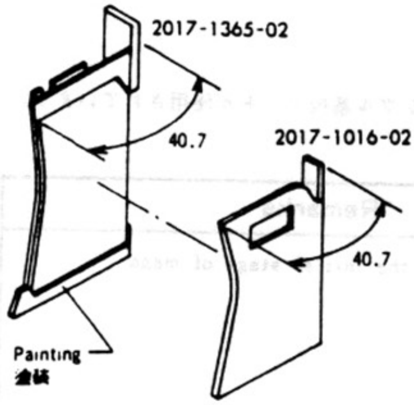
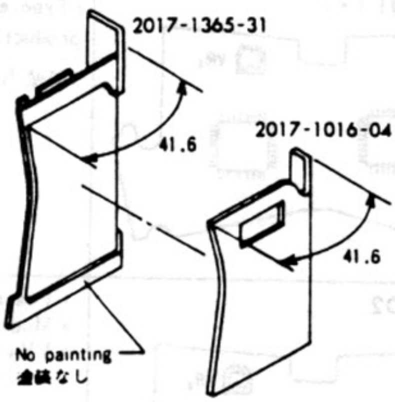
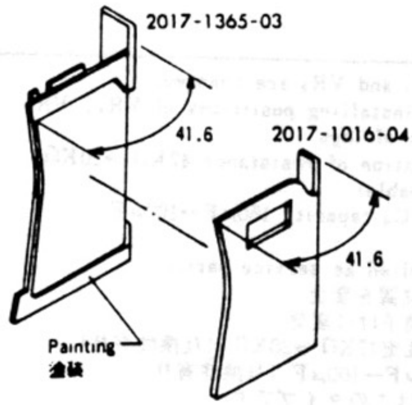
- Table below shows the parts difference between AE lock and non AE lock models.
- No interchangeability between each ones, however, other parts than table below are common parts regardless AE lock employment, so use Parts List P. 1～P. 17.

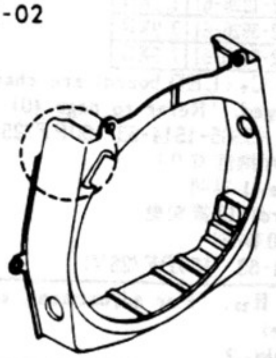
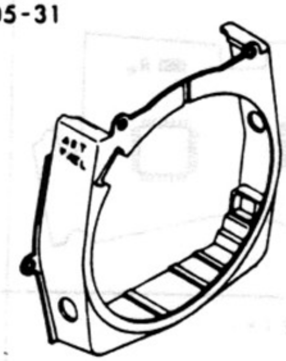
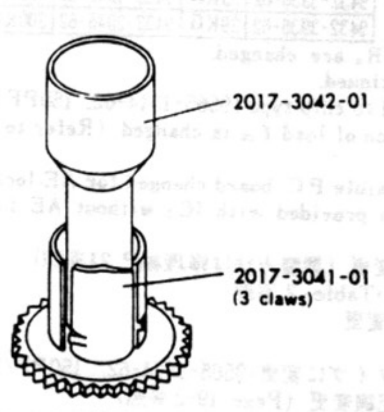
■ X-700 AEロック機能なしモデル専用部品表

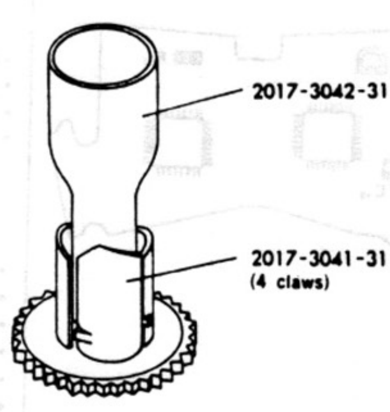
- 以下の内容は、AEロック機能付（右欄）とAEロック機能なし（左欄）における使用部品の違いをまとめたものです。
- 各部品の互換性はありません　下表以外の部品は、AEロック機能の有無に関係なく共通ですので、P.1～P.17のパーツリストを利用下さい

For non AE lock model AEロック機能なしモデル専用部品	For AE lock model AEロック機能付モデル専用部品	Remarks 備　考
 2017-0130…Side cover-A set サイドカバーAセット 2017-1021…Self-timer lever セルフレバー	 (P. 4)	※Shows the exclusive parts for AE lock model. ※印部品…… AEロック機能なしモデルは不要
2017-1015-01  Right side leather 右貼皮	2017-1015-31  (P. 4)	
2017-1024-03  Grip leather グリップ貼皮	2017-1024-31  (P. 4)	

For non AE lock model AEロック機能なしモデル専用部品	For AE lock model AEロック機能付モデル専用部品	Remarks 備　考
2017-0103-01  Front base plate set　前枠セット	2017-0103-02  (P. 8)	
 2017-0418……Self-timer switch set セルフスイッチホルダーセット 2017-9014……Screw セルフSW. ホルダー止めビス 9611-1625-07…Phillips type screw 十字穴付なべ頭小ねじ	 (P. 8)	※Shows the exclusive parts for AE lock model. ※印部品…… AEロック機能なしモデルは不要
2017-0401-02 Flexible P.C. board set フレキシブル基板セット (Refer to page 39) (Page 39参照)	2017-0401-32 Flexible P.C. board set フレキシブル基板セット (P. 18)	
Lead wires ℓ_{29} (Grey) ………… ℓ = 30 mm ℓ_{33} (Black) ………… ℓ = 55 mm (Refer to Page 40) (Page 40参照)	Lead wires ℓ_{29} (Grey) ……… ℓ = 50 mm ℓ_{33} (Black) ……… ℓ = 45 mm ℓ_{55} (Yellow) …… ℓ = 80 mm (P. 19)	• Other parts than left are common parts for both type cameras. • 記載以外は両モデル共通

<table>
<tr><th>For non AE lock model
AEロック機能なしモデル専用部品</th><th>For AE lock model
AEロック機能付モデル専用部品</th><th>Remarks
備　考</th></tr>
<tr><td>
</td><td rowspan="2">
</td><td rowspan="2">• For AE lock model, 1365-02 and 1016-02, 1365-03 and 1016-04 should be used together. Other combinations are not allowed.
• AEロック機能なしモデルの1365-02と1016-02及び1365-03と1016-04はペアーで使用する事.</td></tr>
<tr><td>

2017-1016……Left side leather 左貼皮
2017-1365……Side cover-B サイドカバーB</td></tr>
<tr><td colspan="2">(P. 4)</td><td></td></tr>
<tr><td>2017-1005-02

Front cover 前カバー</td><td>2017-1005-31

(P. 6)</td><td></td></tr>
<tr><td>

2017-3041……Spool スプール
2017-3042……Spool inner barrel スプール内筒</td><td>

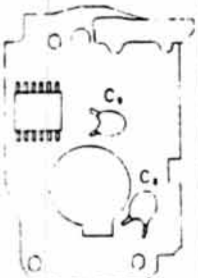
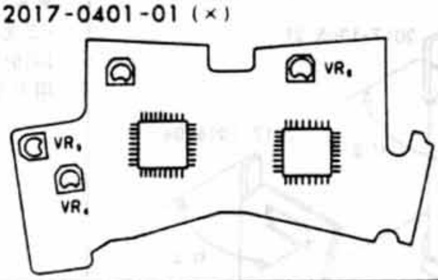
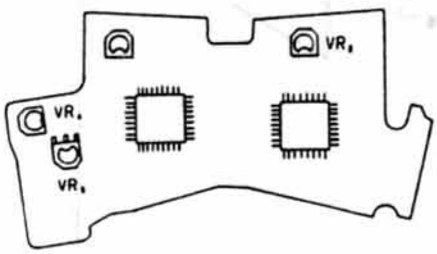
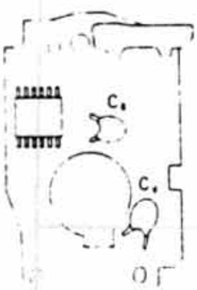
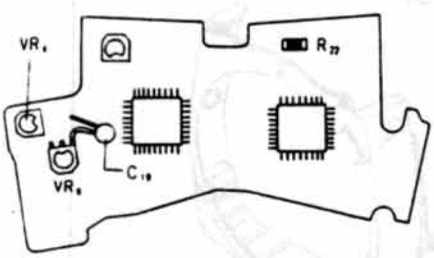
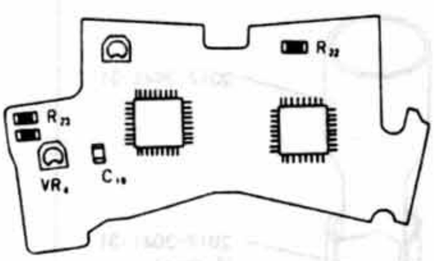
(P. 13)</td><td></td></tr>
</table>

■ Types of flexible P.C. board set, and details of modifications

- For 2017 without AE lock, 4 types of flexible P.C. boards, which are different in part position as shown below, are used. (Interchangeable)
- Elements other than R_{22}, R_{23}, C_{19} are common. (Refer to page 39)

■フレキシブル基板セットの種類，変更内容

- AEロックの無い2017には下表のように部品の配置が少しずつ異った，4種類のフレキシブル基板セットが使用されています。(互換性あり)
- R_{22}，R_{23}，C_{19}以外の各素子は共通です (P.39参照)

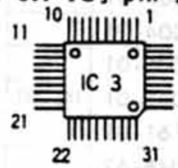
<table>
<tr><th colspan="2">Type</th><th>Remarks</th></tr>
<tr>
<td rowspan="2">LED board

</td>
<td>2017-0401-01 (×)

</td>
<td>(Type available at the initial stage of mass production)
(量産当初のタイプ)</td>
</tr>
<tr>
<td>2017-0401-02

</td>
<td>• Positions of VR_4 and VR_9 are changed.
• Modification of installing posittions of VR_4, VR_9.
• VR_9……Addition of legs
……Modification of resistance 47KΩ→20KΩ (replaceable)
• Modification of C_9 capacity 150μF→100μF (replaceable)
(This type is supplied as service part.)
• VR_4，VR_9取付位置を変更
• VR_9……リード端子付に変更
……抵抗値変更47KΩ→20KΩ (互換性有り)
• C_9容量変更 150μF→100μF (互換性有り)
(サービス供給部品はこのタイプです)</td>
</tr>
<tr>
<td rowspan="2">LED board

</td>
<td>2017-0401-03 (×)

</td>
<td>• VR_8 is change to R_{22}. (R_{22} can be replaced with VR_8)
Table-1
Types of R_{22}
<table>
<tr><td>9432-1226-61</td><td>1.2KΩ</td></tr>
<tr><td>9432-3926-61</td><td>3.9KΩ</td></tr>
<tr><td>9432-7526-61</td><td>7.5KΩ</td></tr>
</table>
• Positions of C_8 and C_9 (LED board) are changed.
……Wiring is changed. (Refer to page 40)
• C_{19} is newly added. (9565-1514-63 150PF/25V)
• VR_8をR_{22}に変更 (互換性有り)
• R_{22}の種類……Table-1参照
• C_8，C_9 (LED board) 位置変更
• 配線の変更 (page 40参照)
• C_{19}新設 (9565-1514-63, 150PF/25V)</td>
</tr>
<tr>
<td>2017-0401-82 (×)

</td>
<td>• VR_9 is changed to R_{23}. (For adjustment, see page 21 of Repair Guide)
Table-2
Types of R_{23}
<table>
<tr><td>9432-2436-62</td><td>24KΩ</td><td>9432-5136-62</td><td>51KΩ</td></tr>
<tr><td>9432-2736-62</td><td>27KΩ</td><td>9432-6836-62</td><td>68KΩ</td></tr>
<tr><td>9432-3336-62</td><td>33KΩ</td><td>9432-1046-62</td><td>100KΩ</td></tr>
<tr><td>9432-3936-62</td><td>39KΩ</td><td>9432-2046-62</td><td>200KΩ</td></tr>
</table>
• Position of VR_4 are changed.
• C_{18} is discontinued.
• C_{19} is changed to chip type (9565-1514-62, 150PF/25V)
• Wiring position of lead ℓ_{29} is changed. (Refer to P. 19-2)
(This is a flexible P.C. board changed for AE lock circuit and is provided with IC_3 without AE lock circuit.)
• VR_9をR_{23}に変更 (調整方法は修理編P.21参照)
• R_{23}の種類……Table-2参照
• VR_4取付位置変更
• C_{18}廃止
• C_{19}をチップタイプに変更(9565-1514-62, 150PF/25V)
• リード線ℓ_{29}配線変更 (Page 19-2参照)
(この基板セットはAEロック回路用に変更されたフレキシブル基板にAEロック回路の無いIC_3を取付けたものです)</td>
</tr>
</table>

■ Flexible P.C. board set for without AE lock

- There are 4 types of flexible P.C. board set without AE lock (2017-0401-01, 2017-0401-02, 2017-0401-03, 2017-0401-82), but only 2017-0401-02 on this page is supplied as a service part.
- For other types, refer to page 38.

■ Interchangeability of IC_3 between 2017-4303-01 (non AE lock model) and 2017-4303-32 (AE lock model)

- 2017-4303-32 can be used instead of 2017-4303-01, however, cut off IC_3 pin 10 and 11 to avoid contacting with printed wiring on flexible P.C. board.
- 2017-4303-01 cannot be used instead of 2017-4303-32.

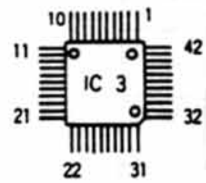


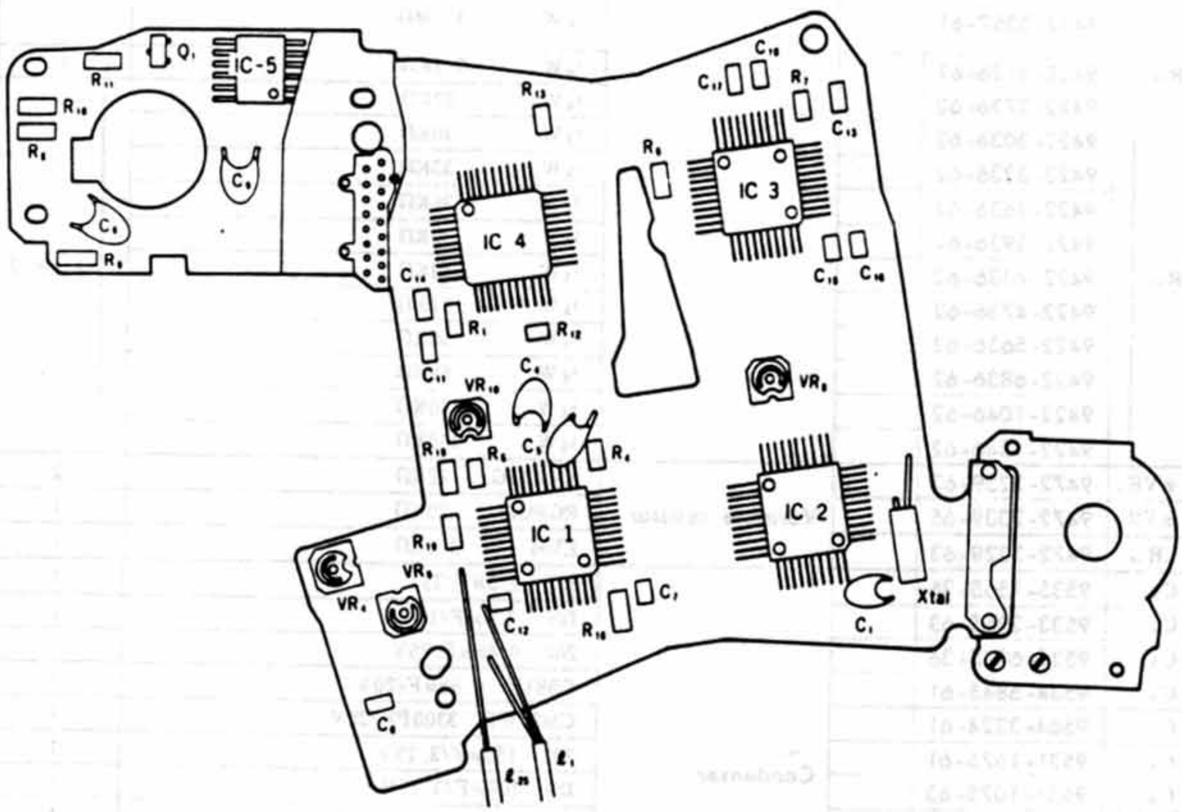
■ AEロック回路無しフレキシブル基板について

- AEロック回路無しのフレキシブル基板セットは4種類（2017-0401-01, 2017-0401-02, 2017-0401-03, 2017-0401-82）ありますが，サービス供給部品はこのページの2017-0401-02のみです．
- 他の種類については，Page 38参照

■ AEロック回路無しIC_3（2017-4303-01）とAEロック回路付IC_3（2017-4303-32）の互換性について

- 2017-4303-32は2017-4303-01の代りに使用可能　但しIC_3のピン番号10と11を切断すること．（パターンに接触しないようにするため）
- 2017-4303-32の代りに2017-4303-01は使用不可





Assy. Part No. 2017-0401-02

Assy. Part Name: Flexible P.C. board set.

フレキシブル基板セット

Elements other than ※-marked are common to those with AE lock circuit.

※印以外の素子はAEロック回路付と共通です

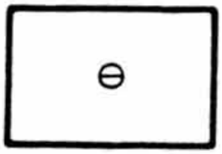
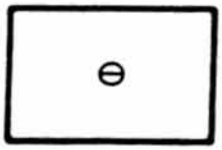
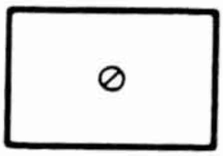
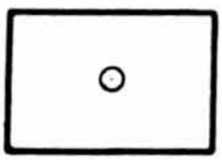
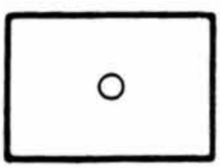
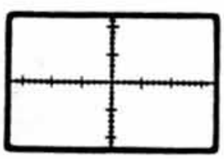
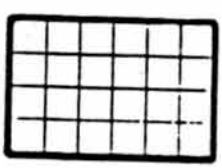
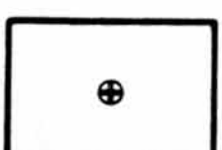
Symbol	Part No.	Com	Part Name	Typ.	Qty.
IC_1	2017-4301-01		IC	M51885P	1
IC_2	2017-4302-01			M51886P	1
※IC_3	2017-4303-01			M51887P	1
IC_4	2017-4304-01			HA16526	1
IC_5	2017-4305-01			BA6128	1
Q_1	9363-1032-01	02, 03	Transistor	2SA1162S (O, Y, G)	1
X tal	9373-4161-01		Crystal resonator	KF38G	1
R_1	9422-2046-62		Fixed resistor	1/8 W 200KΩ	1
R_2	9422-9106-62			1/8 W 91Ω	1
R	9432-5626-61			1/8 W 5.6KΩ	1
	9432-6226-61			1/8 W 6.2KΩ	
	9432-6826-61			1/8 W 6.8KΩ	
	9432-7526-61			1/8 W 7.5KΩ	
R_6	9422-3916-62			1/8 W 390Ω	1
R_7	9432-2068-61			1/8 W 20MΩ	1
R_8	9422-3616-62			1/8 W 360Ω	1
R_9 R_{10} R_{11}	9422-1026-62			1/8 W 1KΩ	3
R_{12}	9432-2026-61			1/8 W 2KΩ	1
	9432-2426-61			1/8 W 2.4KΩ	
	9432-2726-61			1/8 W 2.7KΩ	
	9432-3026-61			1/8 W 3KΩ	
	9432-3926-61			1/8 W 3.9KΩ	
	9432-3357-61			1/8 W 3.3MΩ	1
R_{18}	9432-5126-61			1/8 W 5.1KΩ	1
R_{19}	9422-2736-62			1/8 W 27KΩ	1 or 2
	9422-3036-62			1/8 W 30KΩ	
	9422-3336-62			1/8 W 33KΩ	
	9422-3636-62			1/8 W 36KΩ	
	9422-3936-62			1/8 W 39KΩ	
	9422-4336-62			1/8 W 43KΩ	
	9422-4736-62			1/8 W 47KΩ	
	9422-5636-62			1/8 W 56KΩ	
	9422-6836-62			1/8 W 68KΩ	
	9422-1046-62			1/8 W 100KΩ	
	9422-1546-62			1/8 W 150KΩ	
VR_7 ※VR_8	9472-2239-63		Variable resistor	EVM14G 22KΩ	2
※VR_9	9472-2039-65			RGP044 20KΩ	1
VR_{10}	9472-3329-63			EVM 3.3KΩ	1
C_3	9535-1555-36		Condenser	202 1.5μF/35V	1
C_4	9533-3355-63			DN 3.3μF/16V	1
※C_5	9535-6845-36			202 0.68μF/35V	1
C_6	9534-6845-61			CS81E 0.68μF/20V	1
C_7	9564-3324-61			CM21WR 3300PF/25V	1
C_8	9531-1575-61			202 150μF/3.15V	1
C_9	9531-1075-63			DN 100μF/3.15V	1
C_{11}	9565-4738-64			CM22YU 0.047μF/50V	1
C_{12}	9565-0200-61			GR40CK 2PF/50V	1
C_{13} C_{14} ※C_{18}	9565-1234-61			GR40W5R 0.012μF/50V	3
C_{15} C_{16}	9564-3005-62			CM21CH 30PF/25V	2
C_{17}	9564-1025-61			CM21WR 1000PF/25V	1
ℓ_1	2017-4401-02		Lead wire Black	Junfuron cord ℓ = 33	1
ℓ_2	9391-0507-07		Lead wire Purple	φ0.05/7 wires ℓ = 45	1

■Lead wires list (2017-0401-01,2017-0401-02,2017-0401-03)

Symbol	Parts No.	Color	Type	Qty
ℓ1	2017-4401-02	Black	ℓ=33	1
ℓ2	2017-4402-02	Black	ℓ=90	1
ℓ3	9391-0507-00	Black	φ0.05/7 ℓ=80	1
ℓ4	9391-0507-00	Black	φ0.05/7 ℓ=70	1
ℓ5	9391-0807-00	Black	φ0.08/7 ℓ=40	1
ℓ6-1	9391-0507-00	Black	φ0.05/7 ℓ=30	1
ℓ6-2, ℓ6-3	9391-0507-00	Black	φ0.05/7 ℓ=25	2
ℓ7	9391-0807-01	Brown	φ0.08/7 ℓ=105	1
ℓ8	9391-0507-01	Brown	φ0.05/7 ℓ=70	1
ℓ9	9391-0807-01	Brown	φ0.08/7 ℓ=25	1
ℓ10	9391-0507-02	Red	φ0.05/7 ℓ=90	1
ℓ11	9391-0507-02	Red	φ0.05/7 ℓ=65	1
ℓ12-2 ℓ12	9391-0807-02	Red	φ0.08/7 ℓ=25	2
ℓ13	9391-0507-03	Orange	φ0.05/7 ℓ=90	1
ℓ14	9391-0507-03	Orange	φ0.05/7 ℓ=55	1
ℓ15	9391-0807-03	Orange	φ0.08/7 ℓ=45	1
ℓ16	9391-0507-03	Orange	φ0.05/7 ℓ=35	1
ℓ17	9391-0807-04	Yellow	φ0.08/7 ℓ=115	1
ℓ18	9391-0507-04	Yellow	φ0.05/7 ℓ=65	1
ℓ19	9391-0507-05	Green	φ0.05/7 ℓ=60	1
ℓ20	9391-0507-05	Green	φ0.05/7 ℓ=25	1
ℓ21	9391-0507-06	Blue	φ0.05/7 ℓ=120	1
ℓ22	9391-0507-06	Blue	φ0.05/7 ℓ=65	1
ℓ23	9391-0807-07	Purple	φ0.08/7 ℓ=95	1
ℓ24	9391-0507-07	Purple	φ0.05/7 ℓ=85	1
ℓ25	9391-0507-07	Purple	φ0.05/7 ℓ=45	1
ℓ26	9391-0807-07	Purple	φ0.08/7 ℓ=30	1
ℓ27	9391-0807-08	Gray	φ0.08/7 ℓ=50	1
ℓ29	9391-0507-08	Gray	φ0.05/7 ℓ=30	1
ℓ30	9391-0807-09	White	φ0.08/7 ℓ=145	1
ℓ31	9391-0807-00	Black	φ0.08/7 ℓ=155	1
ℓ32	9391-0807-00	Black	φ0.08/7 ℓ=65	1
ℓ33	9391-0807-00	Black	φ0.08/7 ℓ=55	1
ℓ34	9391-0807-00	Black	φ0.08/7 ℓ=45	1
ℓ35	9391-0807-01	Brown	φ0.08/7 ℓ=25	1
ℓ36	9391-0807-02	Red	φ0.08/7 ℓ=75	1
ℓ37	9391-0807-02	Red	φ0.08/7 ℓ=35	1
ℓ38	9391-0807-02	Red	φ0.08/7 ℓ=25	1
ℓ39	9391-0807-03	Orange	φ0.08/7 ℓ=40	1
ℓ40	9391-0807-04	Yellow	φ0.08/7 ℓ=150	1
ℓ41	9391-0807-05	Green	φ0.08/7 ℓ=40	1
ℓ42	9391-0807-06	Blue	φ0.08/7 ℓ=45	1
ℓ43	9391-0807-07	Purple	φ0.08/7 ℓ=105	1
ℓ44	9391-0807-07	Purple	φ0.08/7 ℓ=65	1
ℓ45	9391-0807-07	Purple	φ0.08/7 ℓ=50	1
ℓ46	9391-0807-08	Gray	φ0.08/7 ℓ=140	1
ℓ47	9391-0807-08	Gray	φ0.08/7 ℓ=75	1
ℓ48	9391-0807-08	Gray	φ0.08/7 ℓ=55	1
ℓ49	9391-0807-08	Gray	φ0.08/7 ℓ=60	1
ℓ50	9391-0807-09	White	φ0.08/7 ℓ=55	1
ℓ51	9391-0807-09	White	φ0.08/7 ℓ=30	1
ℓ52	9391-0507-05	Green	φ0.05/7 ℓ=35	1
ℓ53	9391-0507-02	Red	φ0.05/7 ℓ=25	1
ℓ54	9391-0507-08	Gray	φ0.05/7 ℓ=25	1
ℓ55	9391-0807-04	Yellow	φ0.08/7 ℓ=80	1
ℓ62	9391-0807-09	White	φ0.08/7 ℓ=25	1
ℓ63	9391-0807-00	Black	φ0.08/7 ℓ=25	1

■ℓ1 (2017-4401-02) and ℓ2(2017-4402-02) are supplied with specified length above as service part.
Other lead wires than ℓ1 and ℓ2 are supplied with meter (m) each.

■ℓ1 (2017－4401－02) 、ℓ2 (2017－4402－02) は、上記指定の長さで供給します。 それ以外は、1m単位で供給します。

	Part No.	Part Name	
	2017-5851-01	Focusing screen Type P1	焦点板 P1型
	2017-5852-02	Focusing screen Type P2	焦点板 P2型
	2017-5853-01	Focusing screen Type Pd	焦点板 Pd型
	2017-5854-01	Focusing screen Type M	焦点板 M型
	2017-5855-01	Focusing screen Type G	焦点板 G型
	2017-5856-02	Focusing screen Type S	焦点板 S型
	2017-5857-01	Focusing screen Type L	焦点板 L型
	2017-5858-02	Focusing screen Type H	焦点板 H型

REPAIR

■ The contents of this manual are mainly related to the assembly and adjustment procedures for the 2017.

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

■ Description of symbols

- G : Grease used & part greased
- O : Oil used & part oiled
- B : Adhesive used & part adhered
- T : Tool used & tool number

■ Assembly and adjustment procedures

Adjustment and checks to be made

1 Body, winding unit

2 Shutter operation

3 Shutter speed

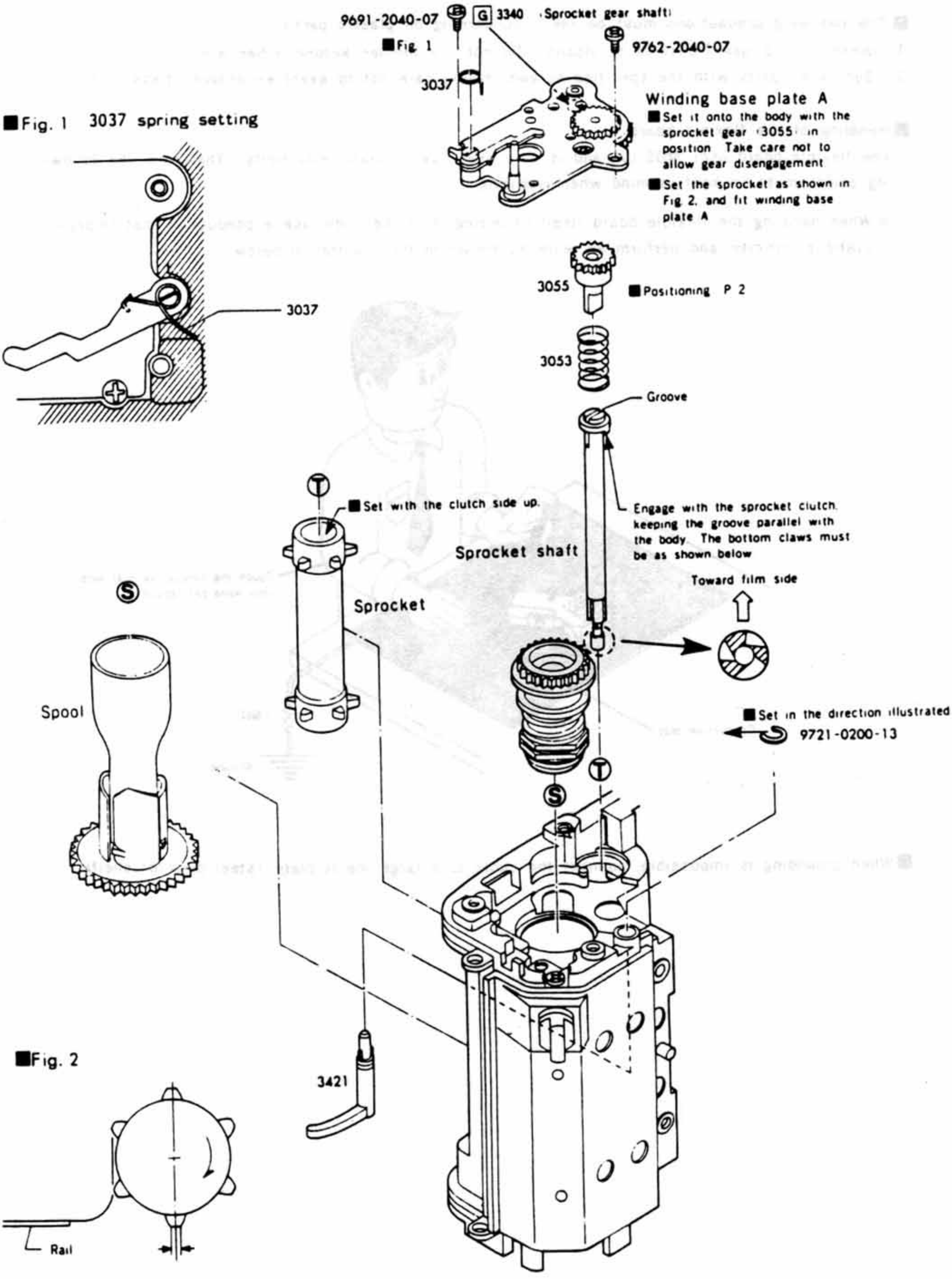
4 Auto exposure

5 LED indication

6 Viewfinder, focusing

[1] Spool, sprocket, winding base plate A

■Fig. 1 3037 spring setting



■Fig. 2

Precautions

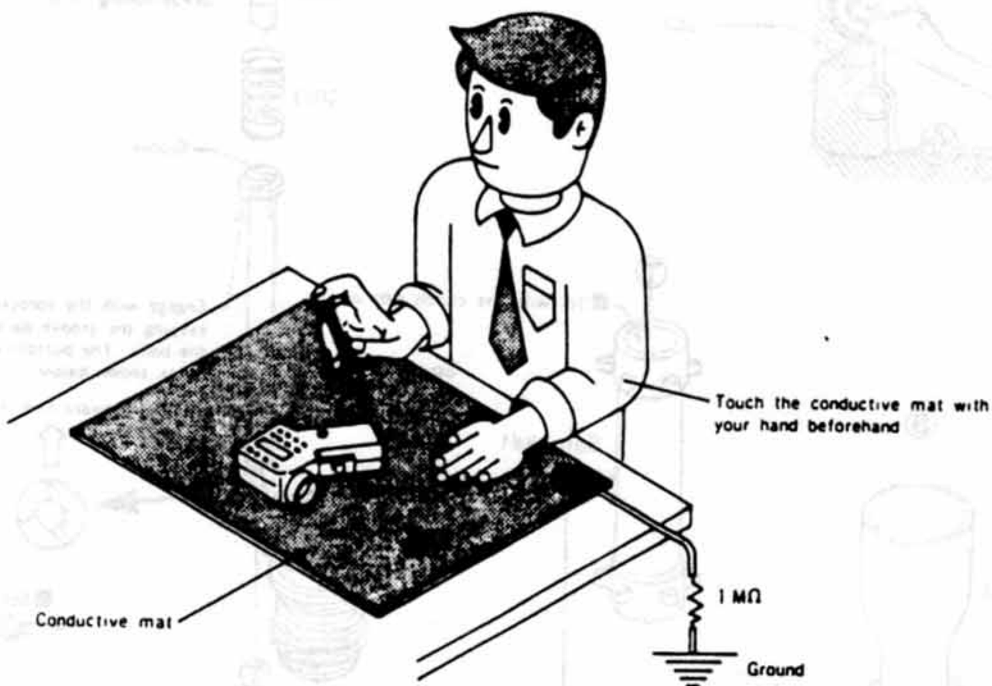
The following precautions must be taken concerning all plastic parts.

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

Handling of the flexible board

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

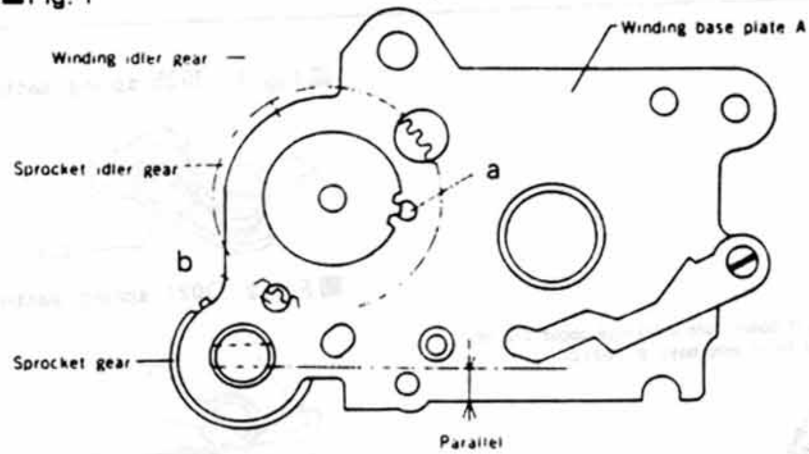
- When handling the flexible board itself or wiring it to the body, use a conduction mat to prevent static electricity, and perform all work as shown in the illustration below.



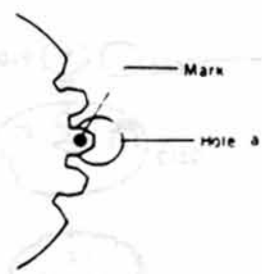
When grounding is impossible, connect the cable to a large metal plate (steel desk or shelf).

Sprocket gear positioning procedure

■Fig. 1



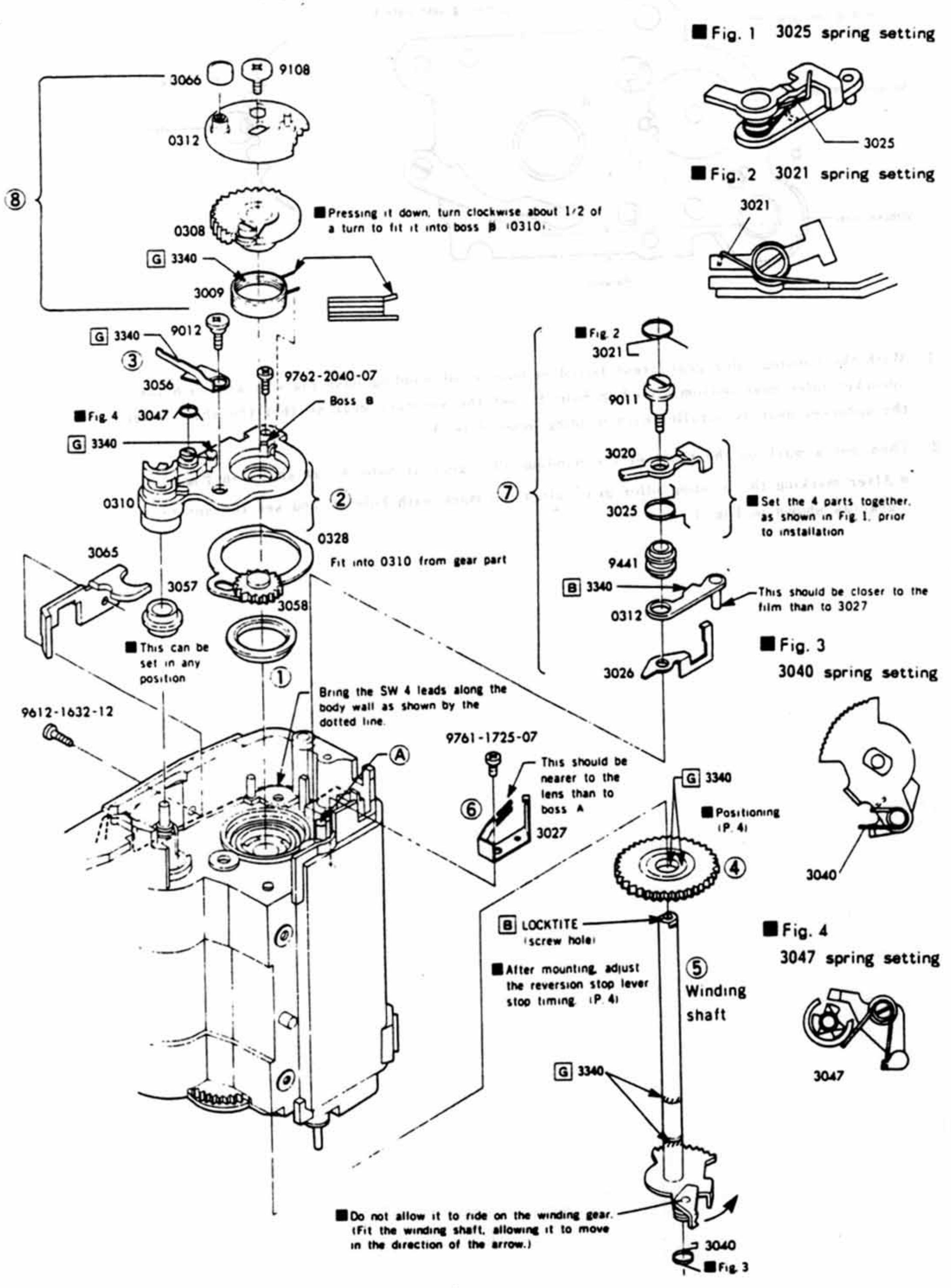
■Fig. 2



1. With the winding idler gear crest fitted in hole a of winding base plate A and with the sprocket idler gear bottom fitted in hole b, set the sprocket gear so that the shaft under the sprocket gear is parallel with winding base plate A.

2. Then, put a mark on the tooth of the winding idler gear at hole a, as shown in Fig. 2.
   - After marking the winding idler gear, align the mark with hole a and set the sprocket gear as shown in Fig. 1.

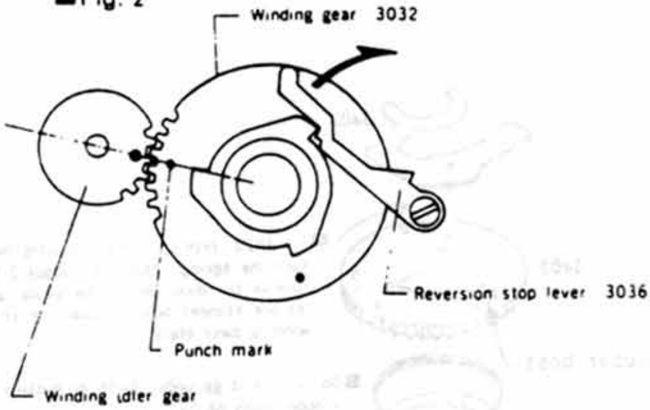
2 Winding shaft



Winding gear positioning procedure

■Fig. 1 Winding idler gear position

■Fig. 2

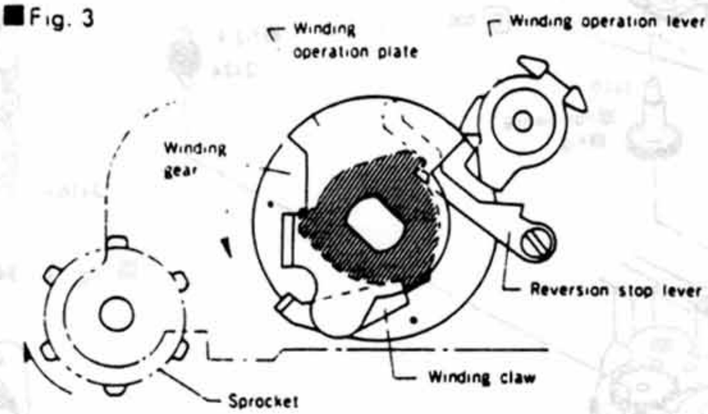


1. Make sure that the winding idler gear is positioned as shown in Fig. 1.
2. Allow 3036 to move in the direction of the arrow, then set the winding gear so that the punch mark of the winding gear is aligned with the mark of the winding idler gear. Fig. 2

Reversion stop lever stop timing adjustment

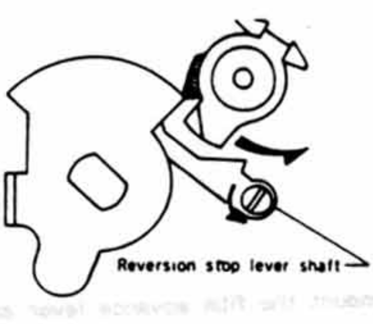
1. Position the winding operation plate as shown in Fig. 3, and temporarily set the winding operation lever.
2. With the winding claw and reversion stop lever fitted into the winding gear as shown in Fig. 3, press the winding operation plate in the direction of arrow B while applying a load to the sprocket in the direction of arrow A so that the winding claw is set securely onto the winding gear.

■Fig. 3



3. Applying a load to the sprocket and winding operation plate as shown by A and B, turn the reversion stop lever shaft until the winding operation lever is disengaged from the winding operation plate. (Fig. 4

■Fig. 4



3 Winding base plate B

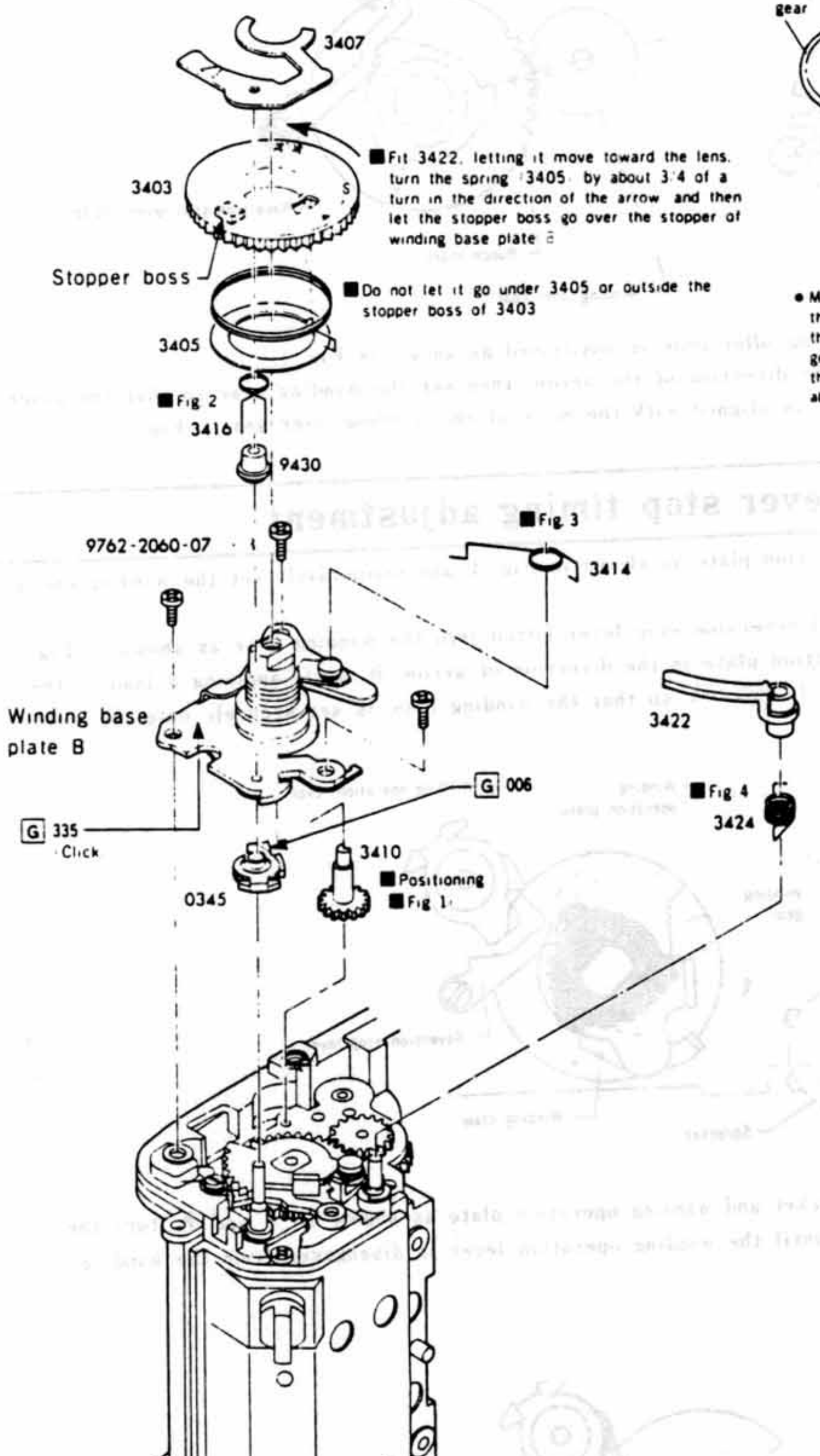
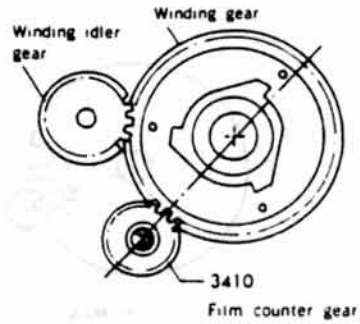


Fig. 1



- Make sure that the punch mark of the winding gear is correctly facing the center of the winding idler gear, and then set 3410 so that the V groove is positioned as shown above.

Fig. 2 3416 spring setting

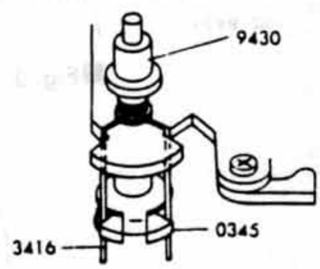


Fig. 3 3414 spring setting

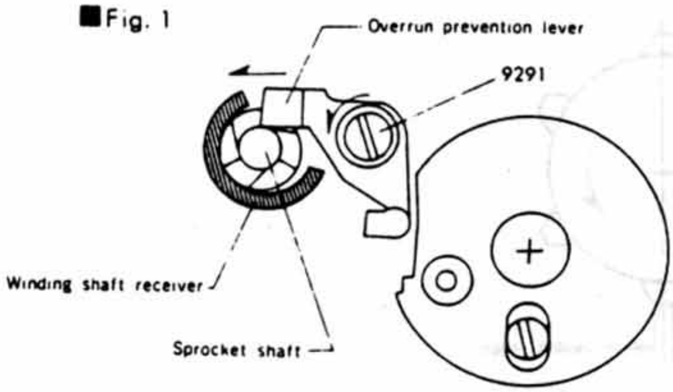
Fig. 4 3424 spring setting

After completion of the assembly work, mount the film advance lever and carry out the adjustments and checks on P. 6, 7.

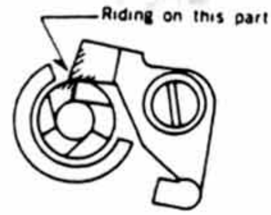
■ Overrun eccentric pin adjustment

1. After winding, hold the film advance lever and turn the eccentric pin (9291) counterclockwise until the sprocket shaft (3052) touches the winding shaft receiver. (Fig. 1)
2. Return the winding lever slightly, and then wind it again to set it in the condition shown in Fig. 2.

■Fig. 1

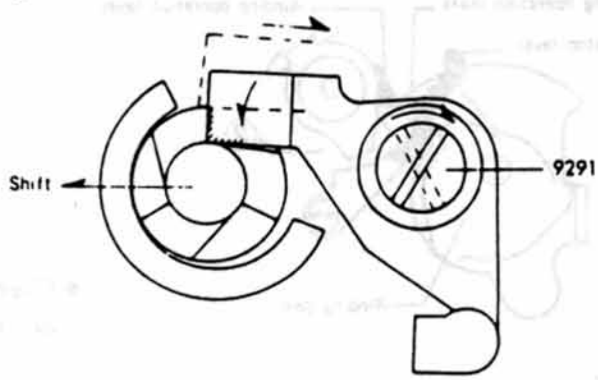


■Fig. 2



3. Then, shift the sprocket shaft by finger toward the body center to set it in the condition shown in Fig. 3, and slowly turn the eccentric pin (9291) clockwise until the overrun prevention lever is engaged with the ratchet of the sprocket shaft.

■Fig. 3



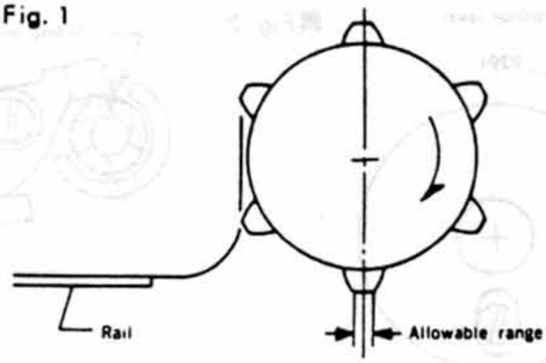
• **Checking adjustment**: During the winding lever operation, the end of the overrun prevention lever should not be caught by the sprocket claw. After winding is completed, the lever should be engaged with the claw.

Winding mechanism check

1 Position of sprocket claws

After winding, hold the winding lever and return the sprocket in the direction of the arrow, as shown in Fig. 1. The sprocket claw positions should then be as illustrated.

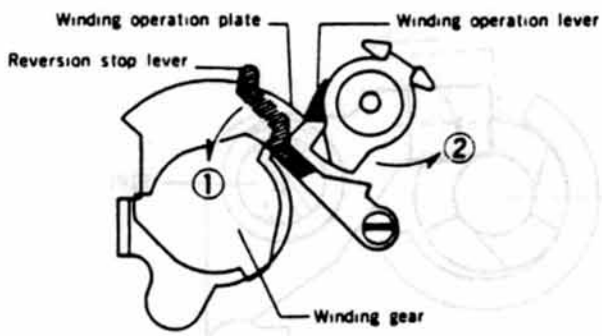
■Fig. 1



2 Reversion stop lever timing

Slowly turn the film advance lever while applying a load to the sprocket. The winding operation lever should disengage from the winding operation plate after (or at the same time) the reversion stop lever begins to engage with the claw of the winding gear.

■Fig. 2

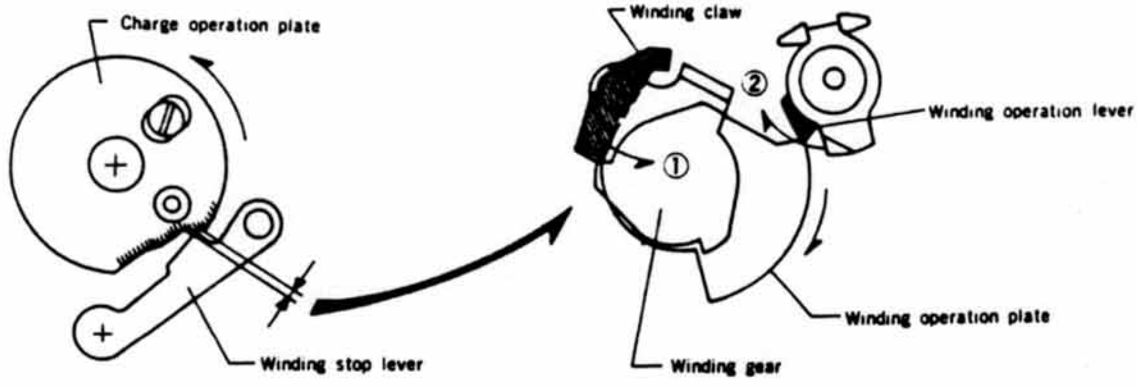


● Check through the clearance of the strap hanger screw.

3 Winding operation lever timing

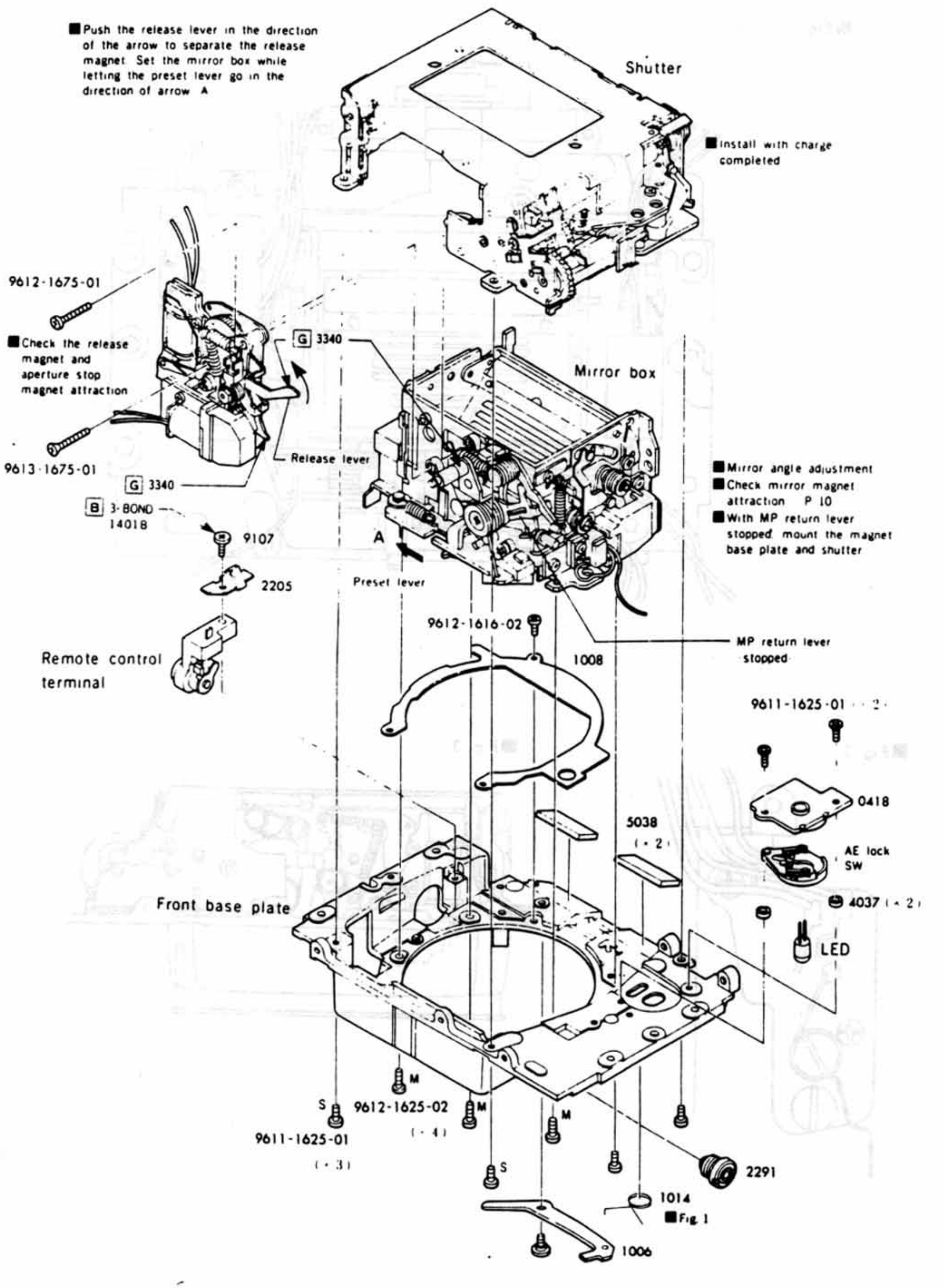
After winding, slowly return the film advance lever. The winding stop lever should enter the 1st stop position of the charge operation plate. Before it enters the 2nd stop position, ① the winding claw should engage with the winding gear claw and ② the winding operation lever should disengage from the winding operation plate. A reversal in the timing of ① and ② is also allowable.

■Fig. 3



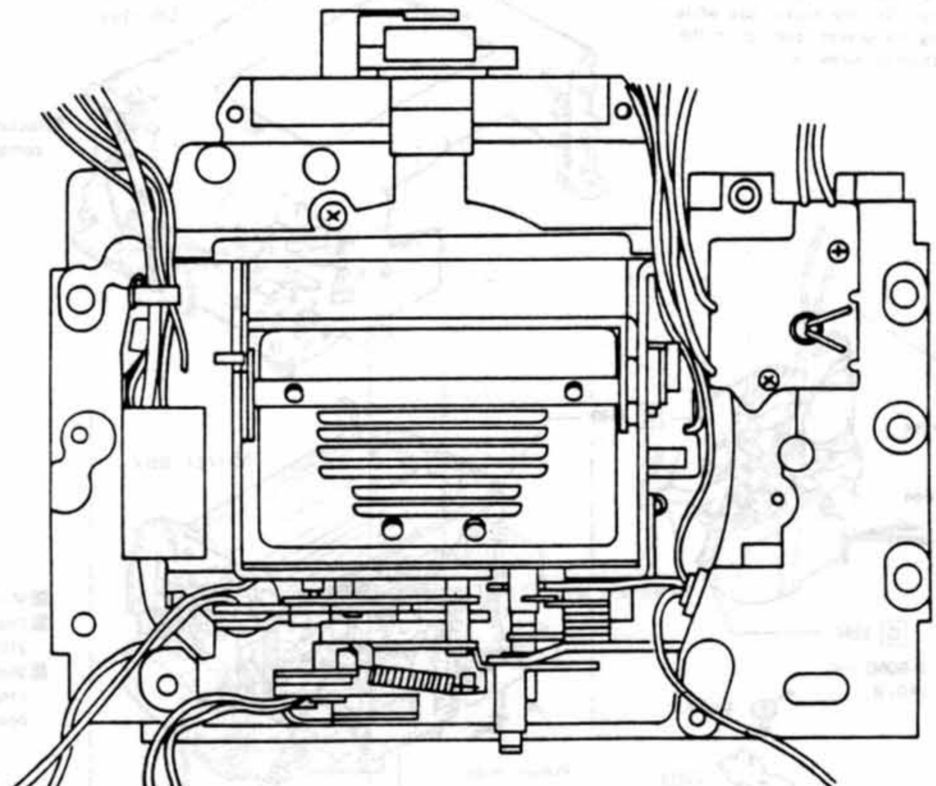
4 Front base plate block assembly-1

■Refer to the arrangement of the lead wires on the next page.

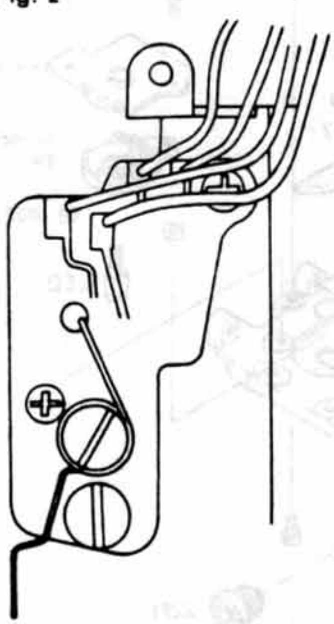


■ Arragement of front base plate lead wires

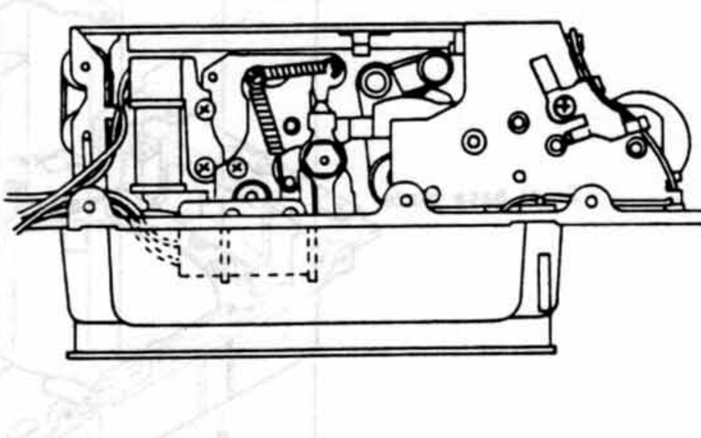
■Fig. 1



■Fig. 2



■Fig. 3



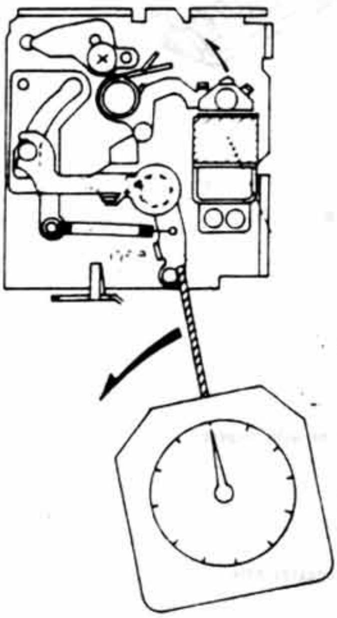
■ Magnet attraction check

■Measuring instruments : Constant voltage D.C power supply Model 521B, E-1, E-2
: Dial tension gauge (500g, 300g)

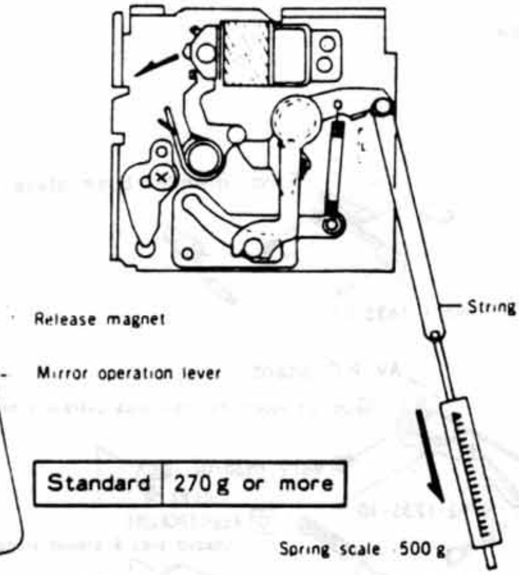
■Checking procedure

1 Mirror magnet

■Fig. 1 Attraction

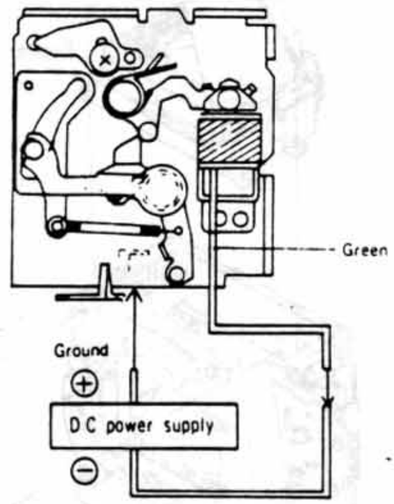


■Fig. 2 Attraction



Standard	270g or more

■Fig. 3 Separation voltage

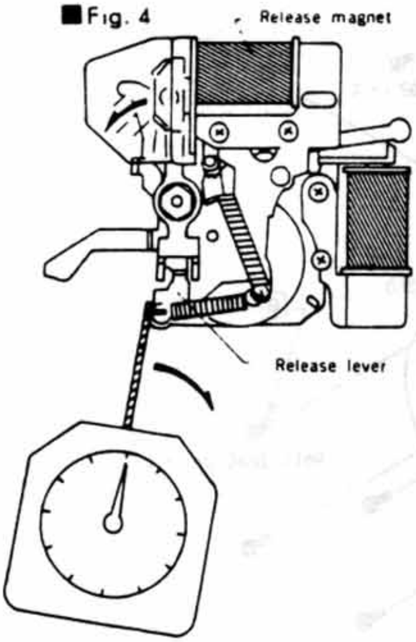


Standard	Separates at 1.8V or less

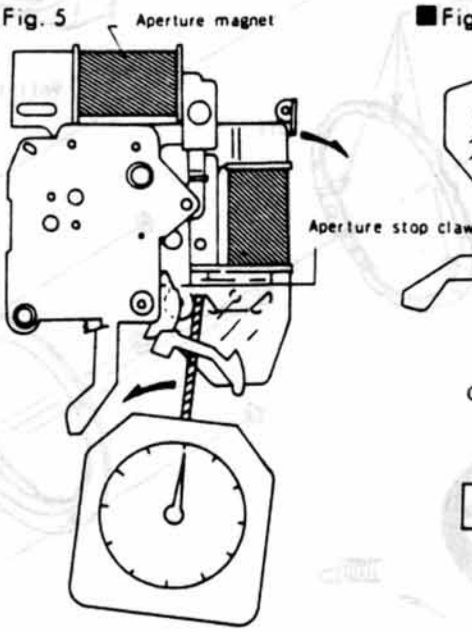
- Attraction check···As shown in Fig. 1, set a tension gauge to the pin of the mirror operation lever, and then check the value when the contact piece separates. (If a tension gauge of less than 300g is not available, a spring scale of about 500g can be used as shown in Fig. 2.)
- Separation voltage check···As shown in Fig. 3, connect to a D.C power supply and check to see if the contact piece separates at 1.8V or less.

2 Release magnet, aperture magnet

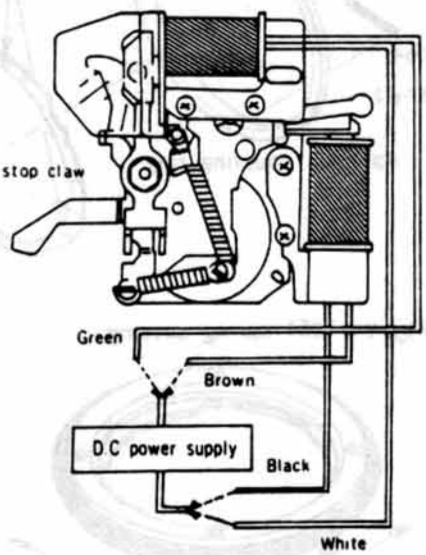
■Fig. 4



■Fig. 5



■Fig. 6



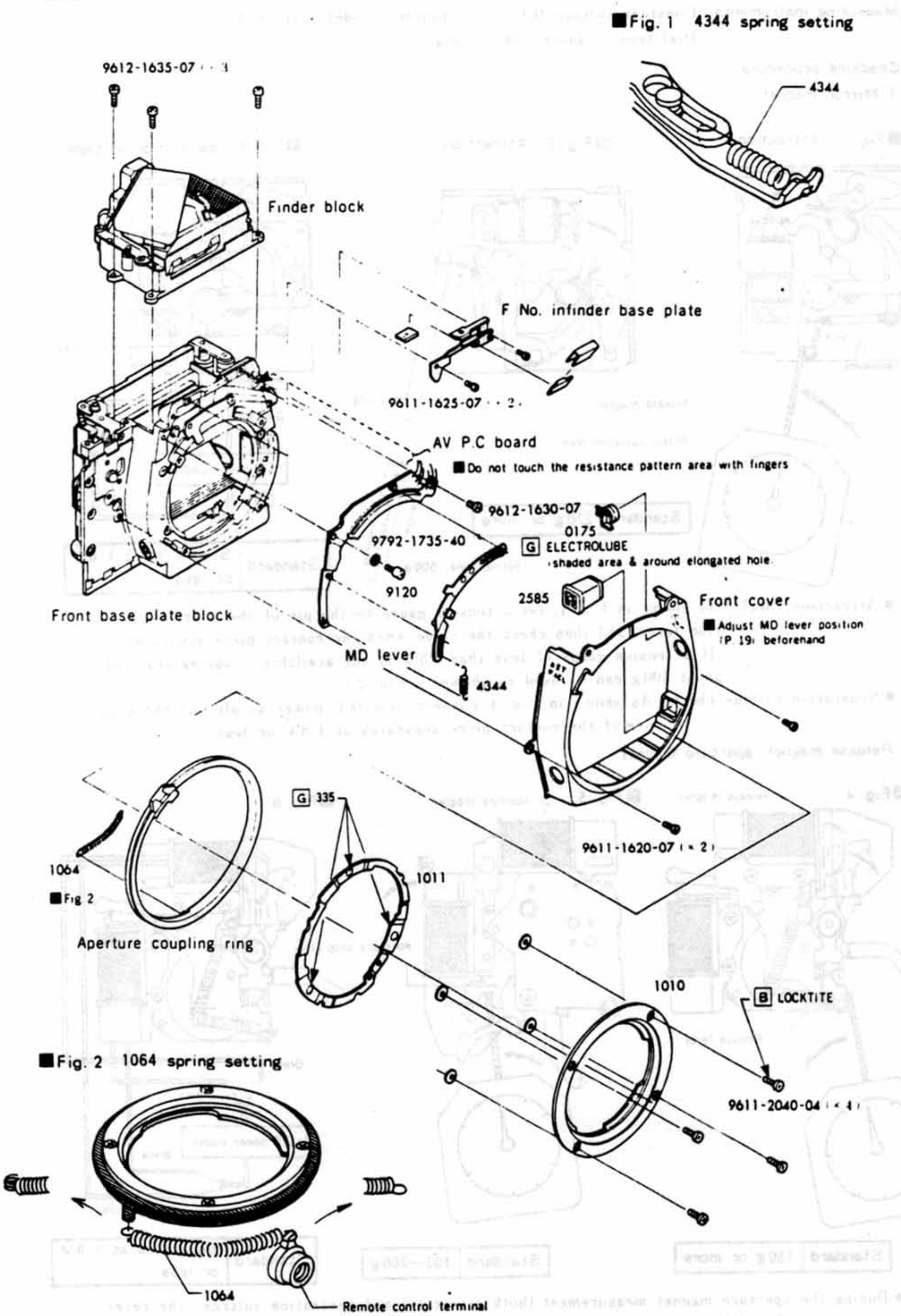
Standard	150g or more

Standard	100~200g

Standard	Separates at 1.8V or less

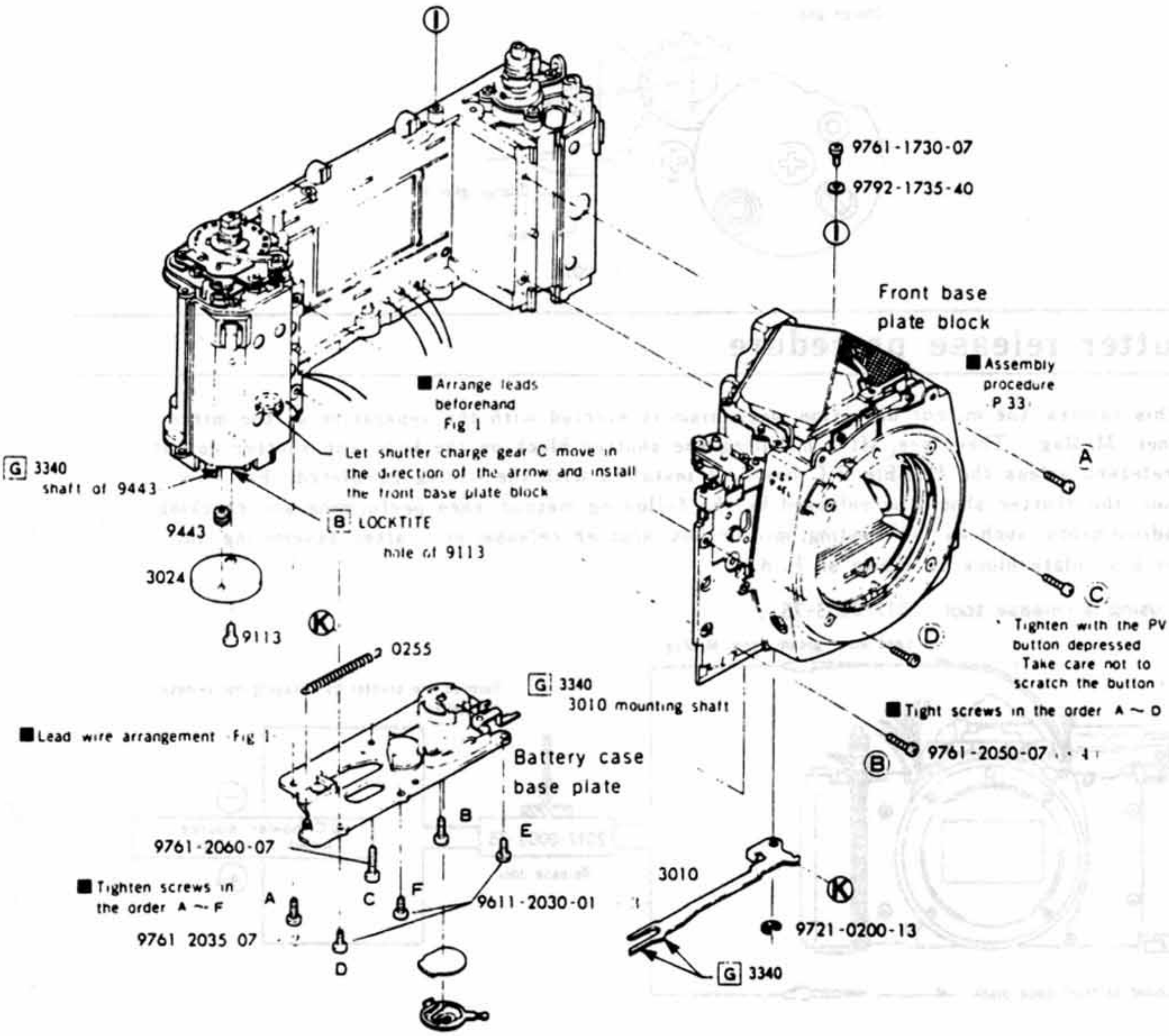
- During the aperture magnet measurement (both attraction and separation voltage), the release magnet should be separated.

5 Front base plate block assembly-2

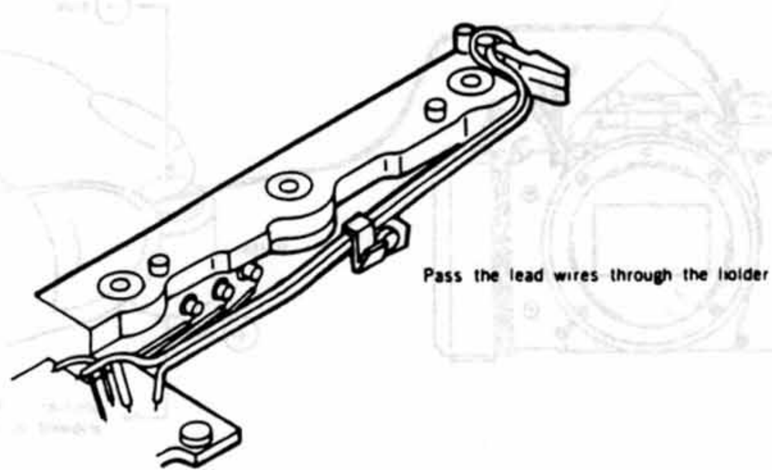


6 Front base plate block assembly

■After completion of assembly, perform the shutter gear position and shutter charge adjustments.



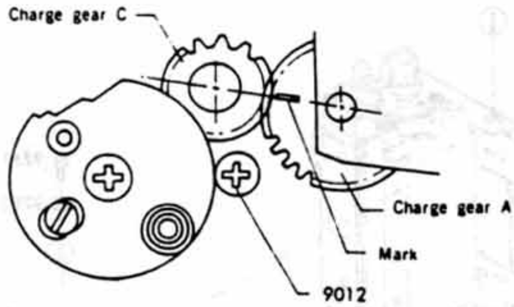
■Fig. 1 SW. 4 lead wire arrangement



Shutter gear position adjustment

1. Engage the gears so that the mark of charge gear A faces the center of charge gear C, and tighten 9012. The gear engagement clearance should be 0.1～0.2 mm.

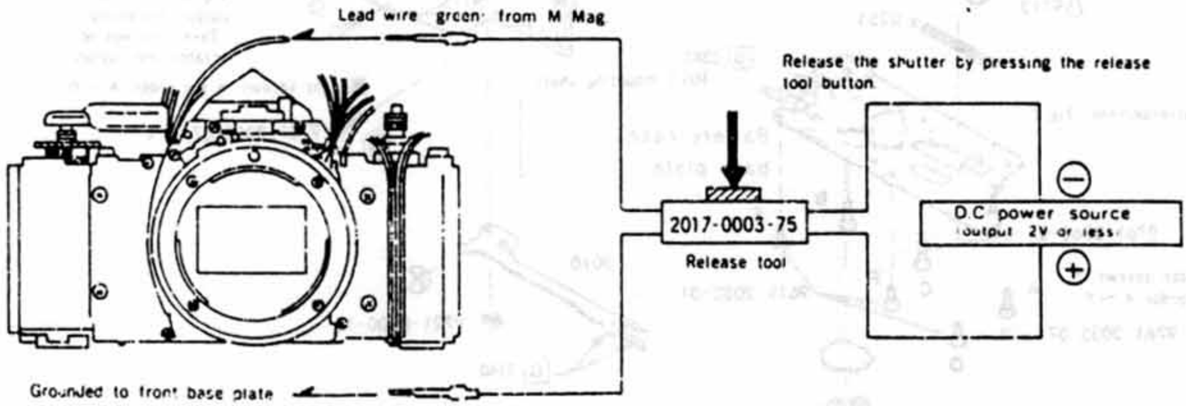
■Fig. 1



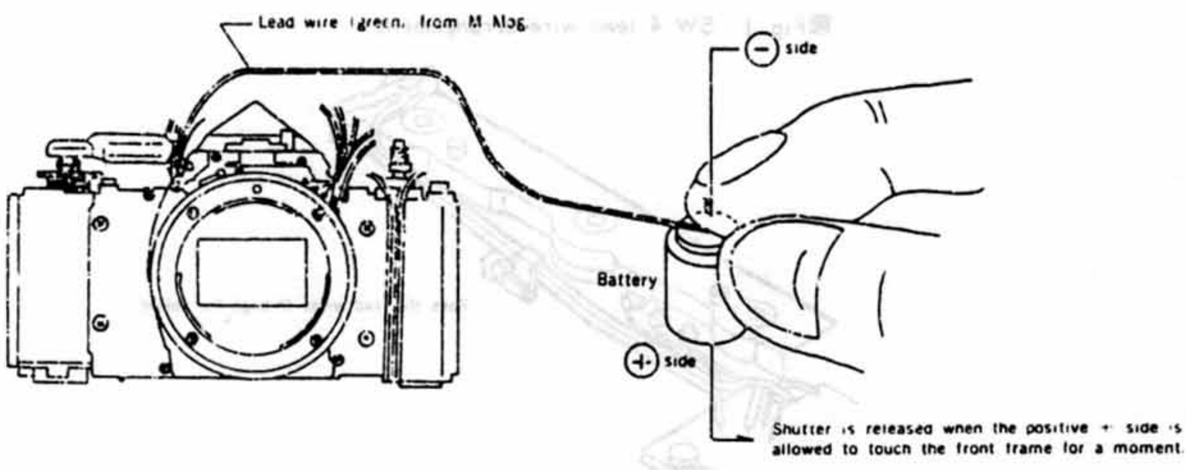
Shutter release procedure

■In this camera, the mirror operation mechanism is started with the separation of the mirror magnet (M Mag). Therefore, after mounting the shutter block on the body, the shutter cannot be released unless the flexible P.C board is installed with the wiring completed. For this reason, the shutter should be released by the following method when performing any checking or adjustments, such as for winding, mirror box, shutter release, etc., after assembling the front base plate block as shown on P. 8.

[1] By using a release tool (2017-0003-75)



[2] By using a battery

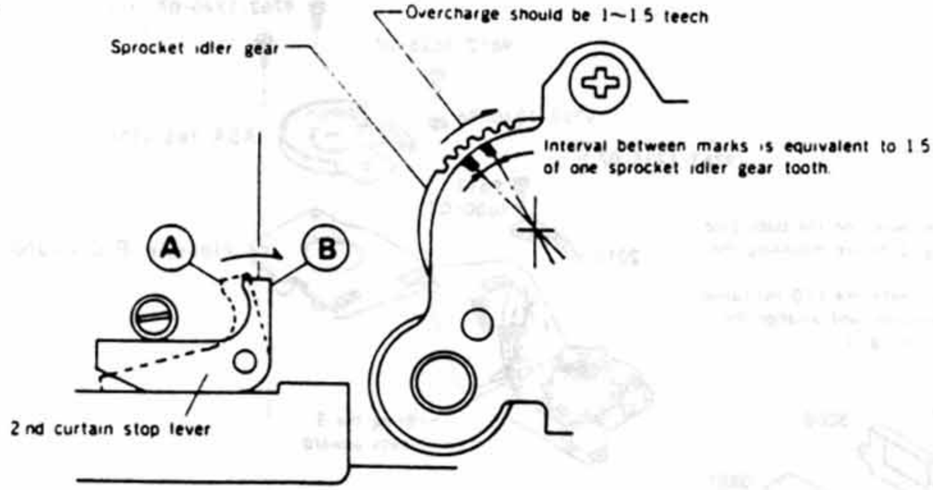


■Caution: In both methods [1] and [2], supply power until the completion of shutter operation. (Otherwise the shutter tester may fail to give a correct indication.)

Shutter charge adjustment

1. Slowly turn the film advance lever and check the over-charge from the time the 2nd curtain is stopped (the 2nd curtain stop lever moves from A to B, as shown below) until the film advance lever stops by checking the movement of the sprocket idler gear.

■Fig. 1

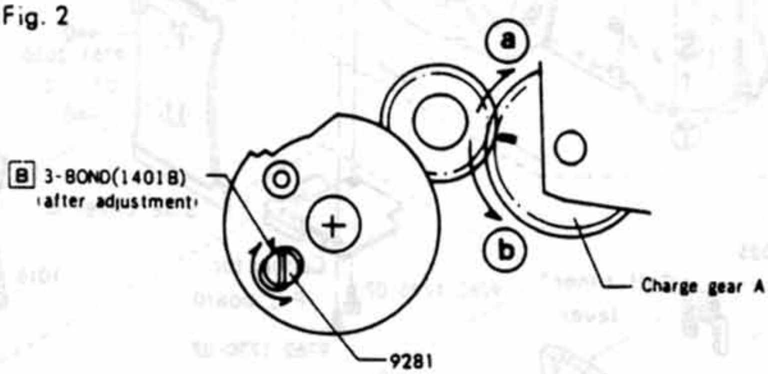


Caution: If the winding operation is not smooth, or if the overcharge exceeds two teeth, immediately stop winding and adjust.

■**Adjustment procedure**

- Overcharge is less than 1 tooth······Turn the eccentric pin (9281) counterclockwise.
- Overcharge is over 1.5 teeth ·········Turn the eccentric pin (9281) clockwise.

■Fig. 2

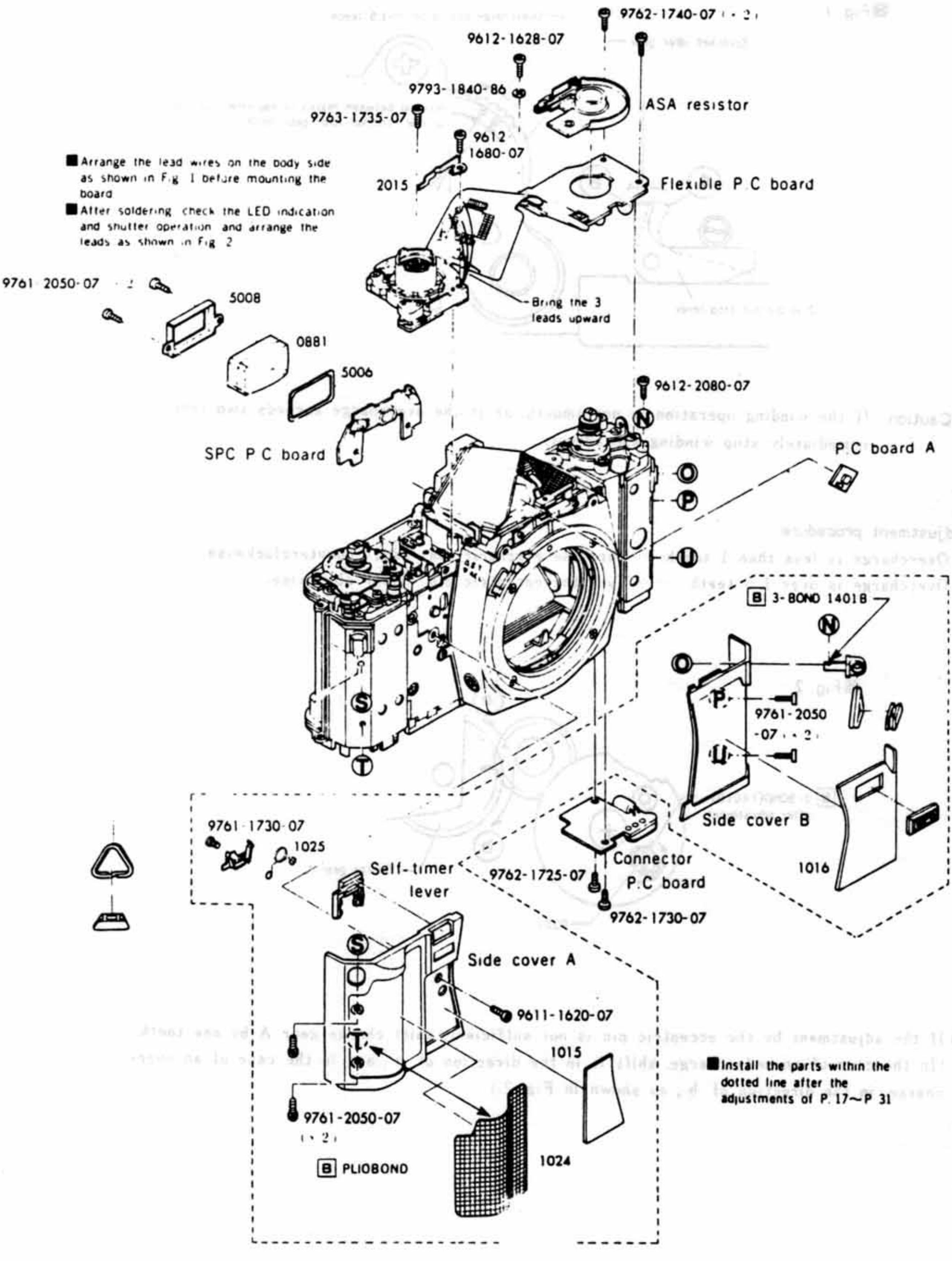


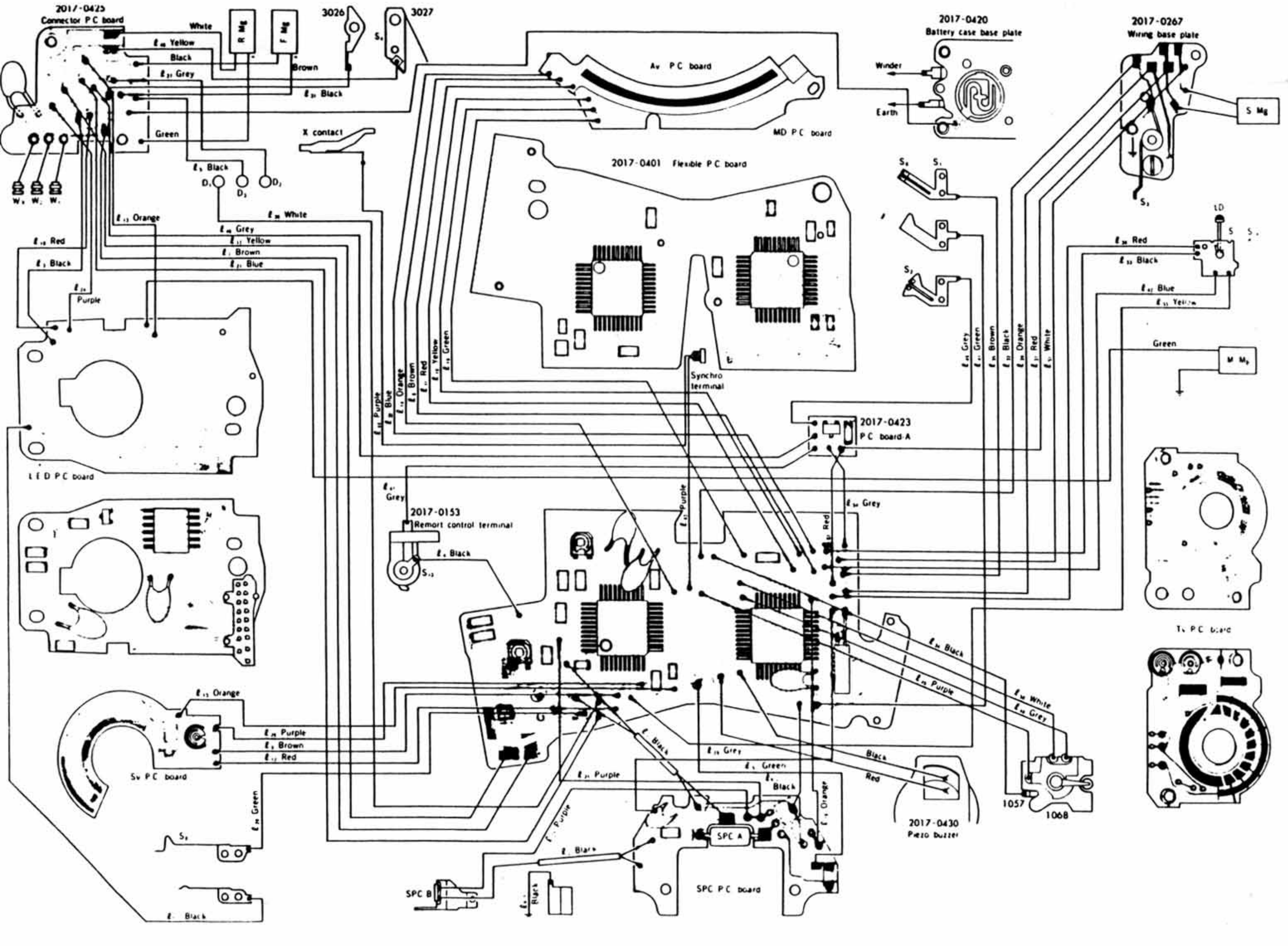
- If the adjustment by the eccentric pin is not sufficient, shift charge gear A by one tooth. (In the case of an undercharge, shift it in the direction of a, and in the case of an over-charge, in the direction of b, as shown in Fig. 2.)

7 Flexible P.C board installation

■ After installing the flexible P.C board and soldering the lead wires, carry out the adjustment of P. 17~31.

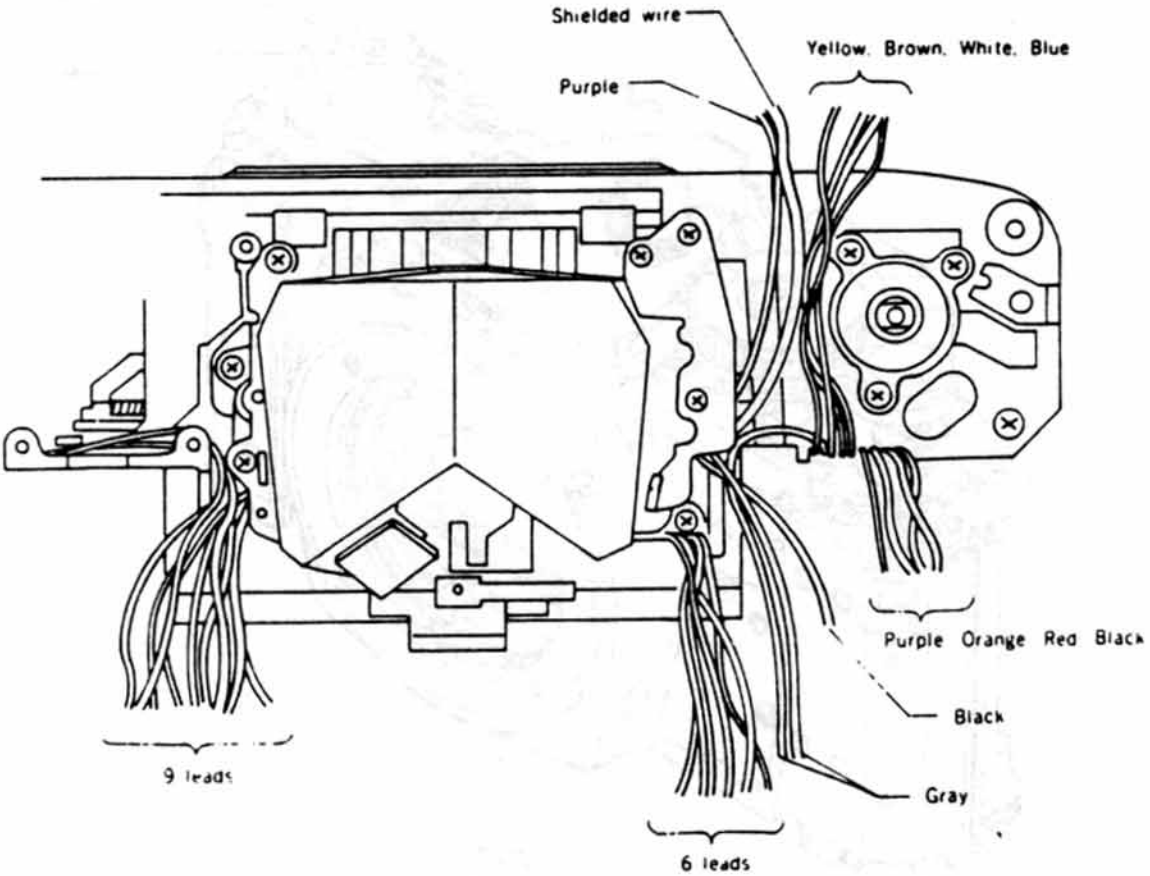
■ If the shutter block has been disassembled, adjust it before mounting the circuit board.



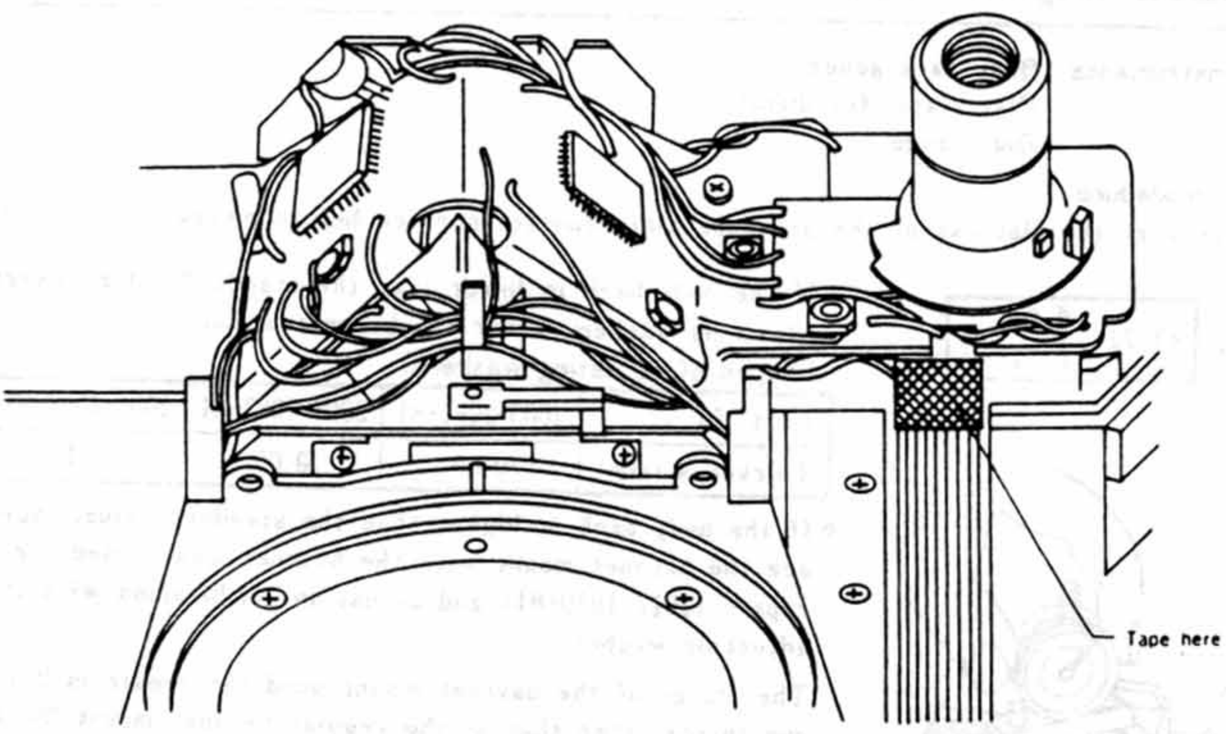


2017-0425
Connector P C board
2017-0420
Battery case base plate
2017-0267
Wiring base plate
Av P C board
MD P C board
2017-0401 Flexible P C board
X contact
Winder
Earth
S Mg
R Mg
F Mg
M Mg
3026
3027
Synchro terminal
2017-0423
P C board-A
2017-0153
Remort control terminal
L E D P C board
Sv P C board
SPC P C board
SPC A
SPC B
2017-0430
Piezo buzzer
1057
1068
Tv P C board
White
Yellow
Black
Grey
Brown
Green
Orange
Red
Blue
Purple

■Fig. 1

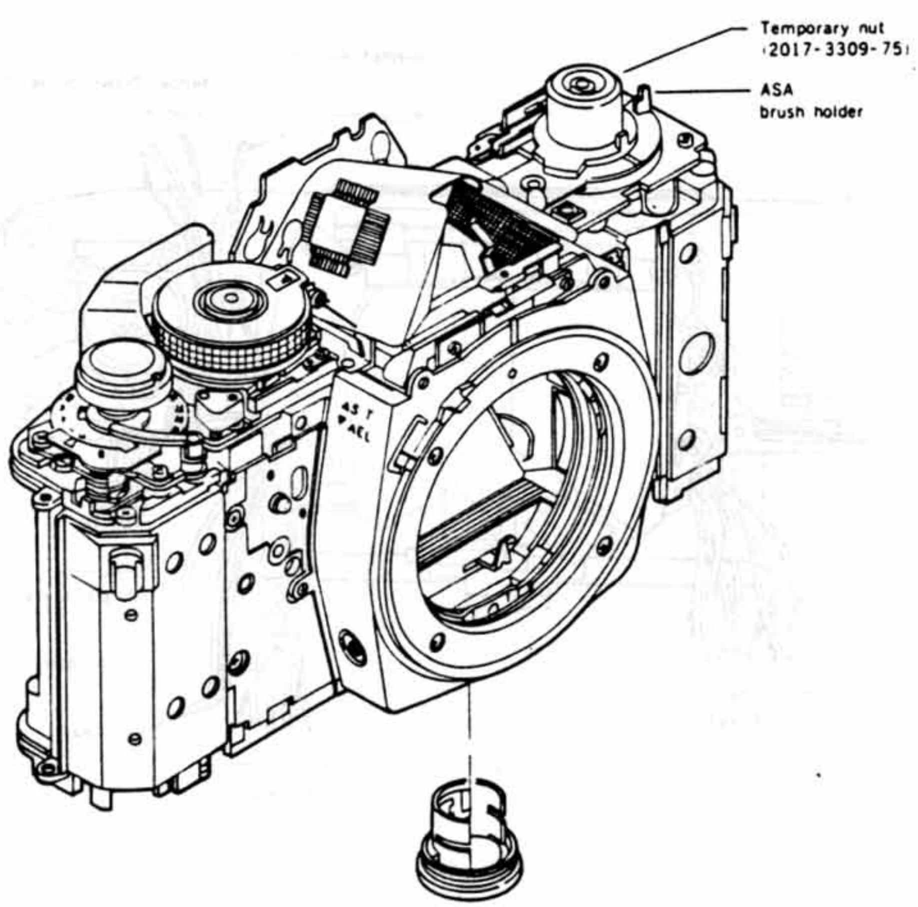

Shielded wire
Yellow. Brown. White. Blue
Purple
Purple Orange Red Black
Black
Gray
9 leads
6 leads

■Fig. 2


Tape here

Preparation for adjustments

Put the camera into the condition shown below before starting adjustment.



Body back adjustment

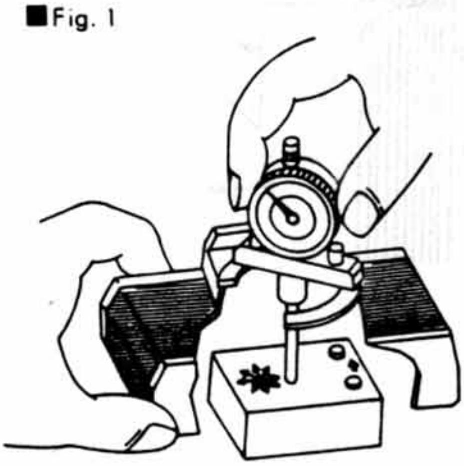
Measuring instruments : Body back gauge
: Flat plate (for 2005)
: Dial gauge

Adjustment procedure

Check and correct the flatness of the pressure plate contact surface before measuring the body back.

[Standard] $43.72\ ^{+0.01}_{-0.02}$ mm

Fig. 1



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

[Types of adjusting washers]

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

- If the body back is higher than the standard value, replace the bayonet mount with the bayonet mount used for repair (2017-1010-81) and adjust in combination with the adjusting washers.

  The flange of the bayonet mount used for repair is 0.1 mm thinner than that of the regular bayonet mount (2017-1010-01).

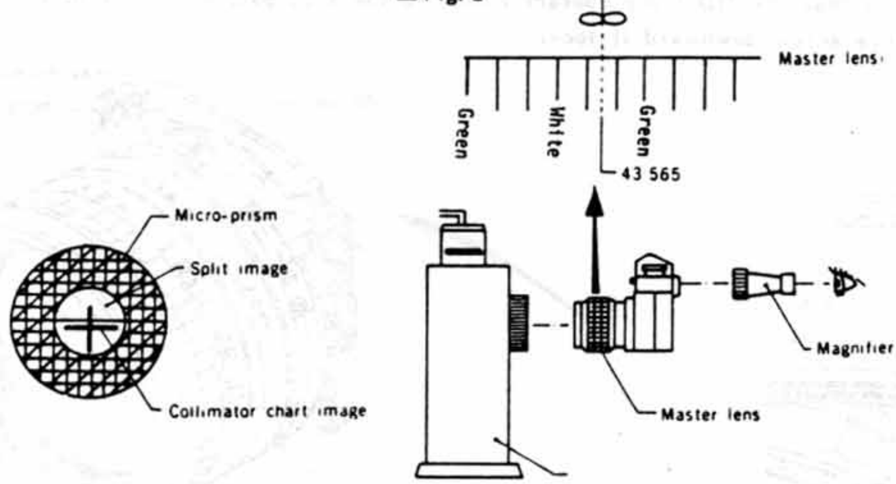
■ Viewfinder back adjustment

■ **Measuring instruments** : 1000 mm collimator Model RC-1000 I, II, III
: Master lens for 051 finder back adjustment (054-5202-79)
: Magnifier

■ **Adjustment procedure**

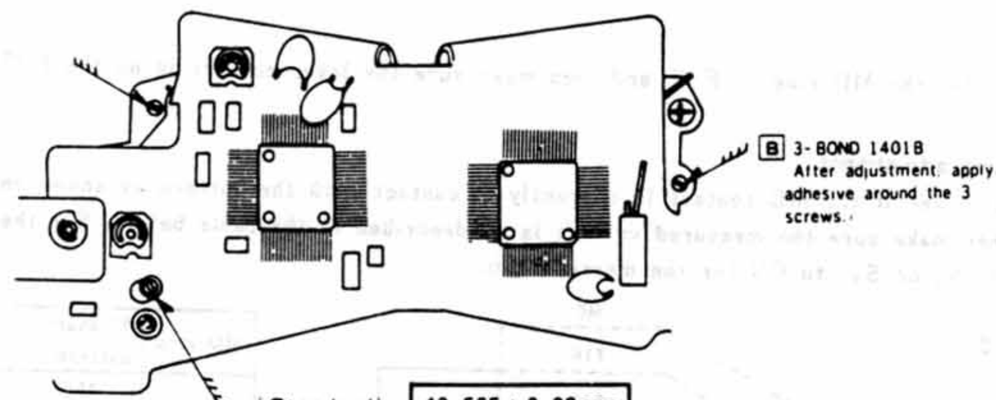
1. Set the camera so that the chart image is as shown in Fig. 1, and set the scale of the master lens to 43.565.

■ Fig. 2



2. Make sure that the scale of the master lens is positioned as shown in Fig. 2, and move the 3 adjusting screws of Fig. 3 up and down uniformly to adjust the vertical line of the chart image.

■ Fig. 3

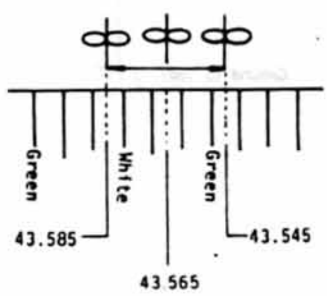


[Standard] 43.565 ± 0.02 mm

- If the microprism is partially obscure, adjust the vertical balance by using the screws, taking care not to deflect the vertical line of the chart image.

3. When the helicoid of the master lens is turned to adjust the focus after operating the shutter several times, the scale position of the master lens should be as follows:

■ Fig. 4 Allowable range



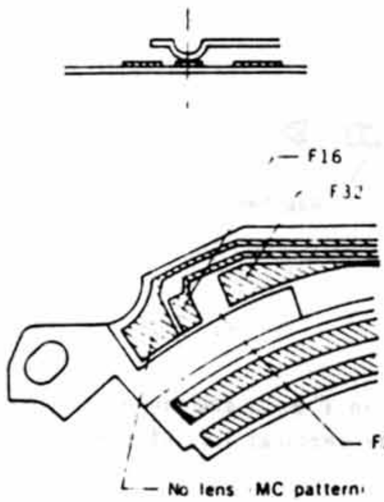
MD lever position adjustment

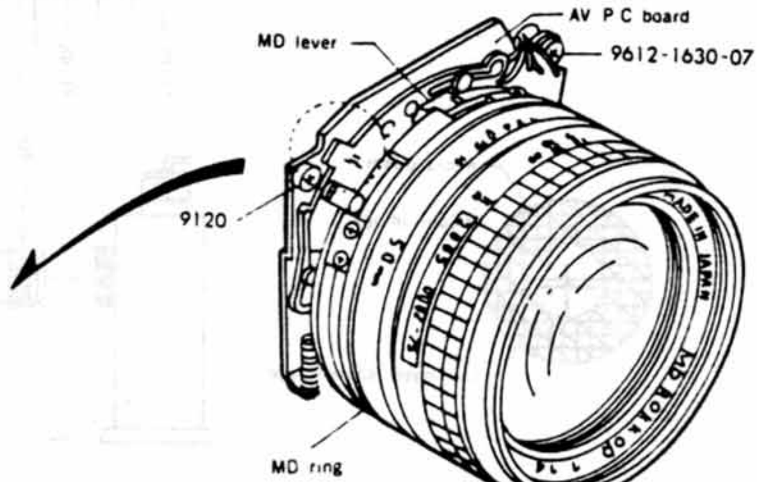
■ **Measuring instruments** : Master lens for A-auto (2005-0002-75)
: Digital multimeter (Type 2508, 3476, 2507)

■ **Adjustment procedure**

1. Mount the master lens onto the body and set the MD ring to F 16.
2. Loosen the setscrew (9612-1630-07, 9120) of the AV P.C board and adjust by moving the AV P.C board so that the MD lever contact comes to the F 16 pattern center of the AV P.C board. (Move screw downward if loose)

■ Fig. 1



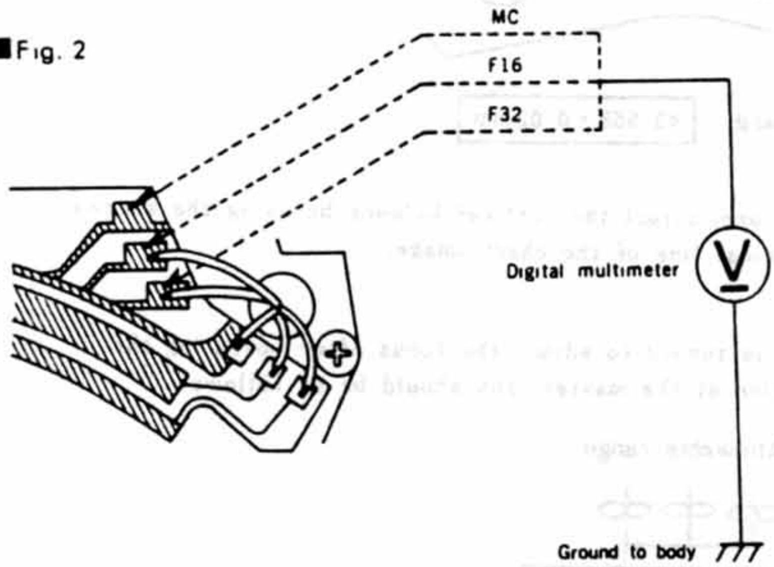


3. Set the MD ring to F 32, and then make sure the lever contact is on the F 32 pattern.

■ **Checking adjustment**

Check to see if the MD contact is correctly in contact with the pattern as shown in Fig. 2, and then make sure the measured voltage is as described in the table below. Set the metering switch (S_1 or S_0) to ON for the measurement.

■ Fig. 2



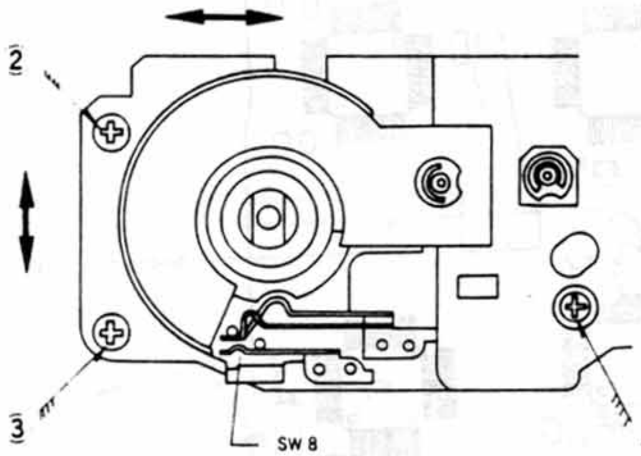
MD ring	Measuring pattern	Voltage (mV)
No lens	MC	0
	F 16	About 800
	F 32	
F 16	MC	About 800
	F 16	0
	F 32	About 800
F 32	MC	About 800
	F 16	
	F 32	0

LED position adjustment

Adjustment procedure

1. Loosen the 3 screws of the LED P.C board and adjust by moving the LED P.C board so that the LEDs (M to *) are clearly seen without shading (the letter "P" in particular). Then, tighten screw 1 and check before tigtening screws 2 and 3.
(Turn S_8 ON with pincettes so that the * LED lights up.)

Fig. 1

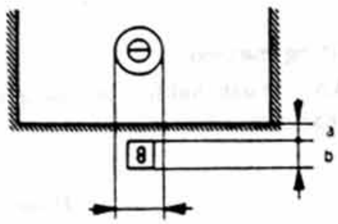


F No. infinder adjustment

[Standard]

Frame position	Height	0 a ~ b
	Width	Within microprism
Aperture value	Should be within frame; adjust letter should be invisible at F5.6.	

Fig. 2



Adjustment procedure

1. Check for deflection, as shown in Fig. 3, and adjust by bending (shifting) the aperture mirror holder and infinder mask in the directions A ~ F shown in Fig. 4.

Fig. 3
(Normal position is shown by thick lines.)

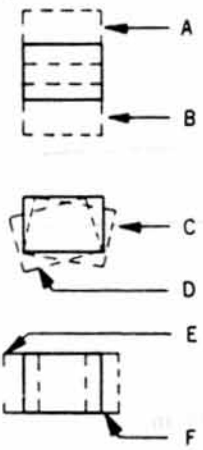
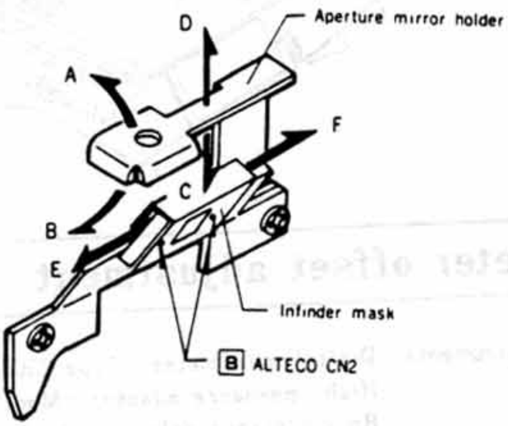


Fig. 4

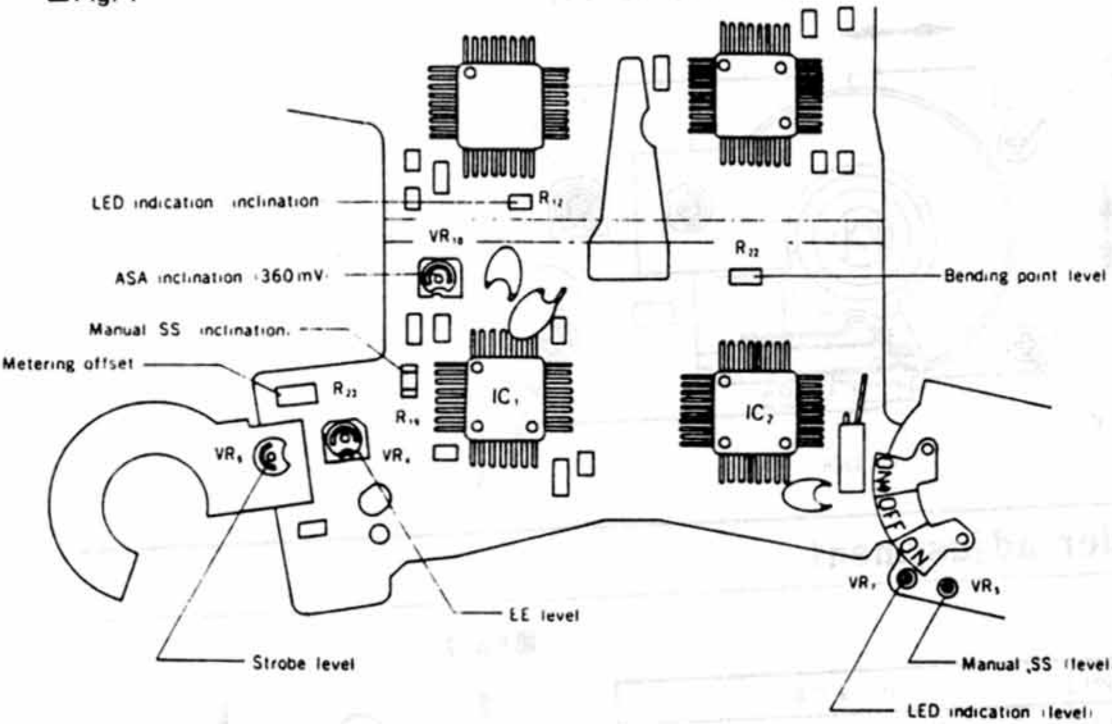


• If the infinder mask is shifted, apply ALTECO CN-2 to it later.

Exposure adjustment

Resistor positions and adjustments

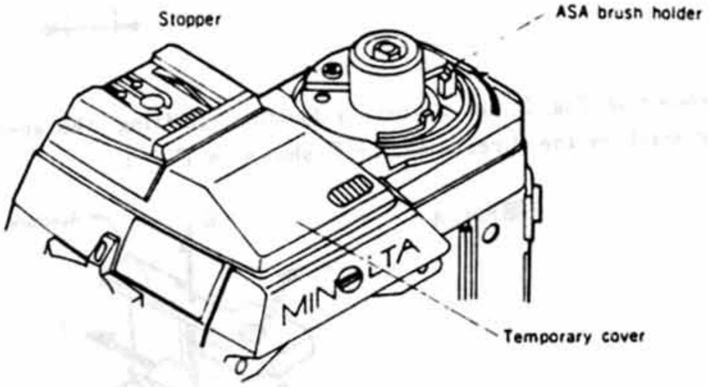
Fig. 1



ASA 100 setting method

Rotate the ASA brush holder in the direction of the arrow until ASA 100 is at the position of the temporary cover stopper.

Fig. 2



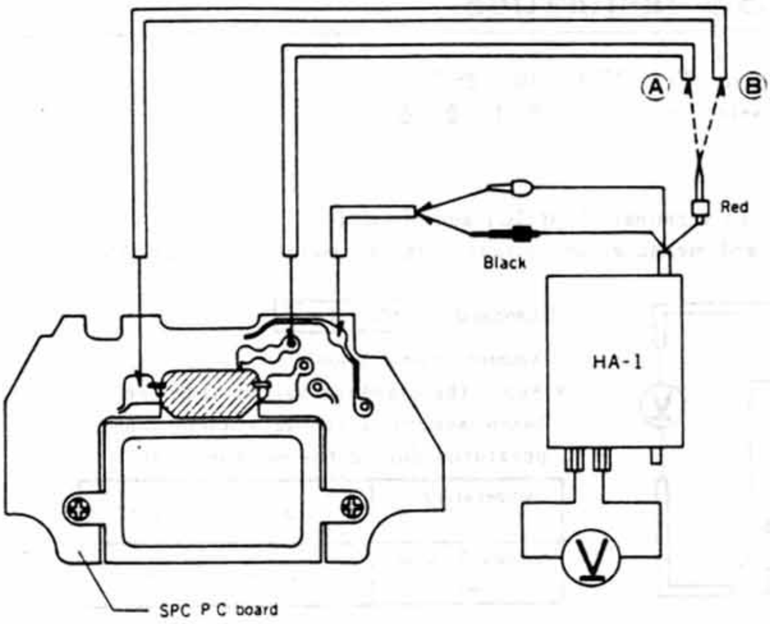
1 Light-meter offset adjustment

Measuring instruments: Digital multimeter (Type 2508, 3476, 2507)
: High impedance adaptor (Model HA-1)
: Rp resistance selector (Model RS-Ⅰ, Ⅱ, Ⅲ, Ⅳ)

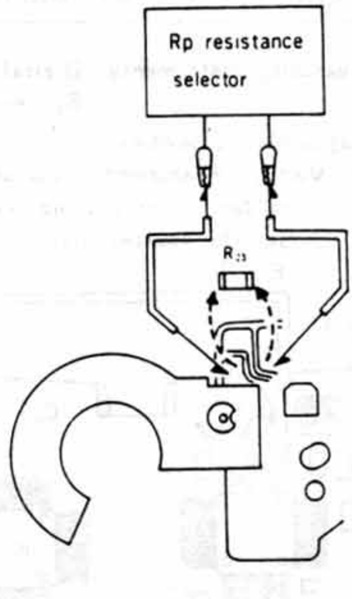
Adjusting procedure

1. Solder the 3 leads for measurement, and connect the measuring instruments as shown in Fig. 1 (P. 22). (Make a zero adjustment of the high impedance adaptor.)
2. Turn ON the metering switch and measure the voltage at Ⓐ of Fig. 1. Next, check if the voltage at Ⓑ is the voltage at Ⓐ $\boxed{\pm 2\,\text{mV.}}$ If not, make the adjustment in the following.

■Fig. 1



■Fig. 2

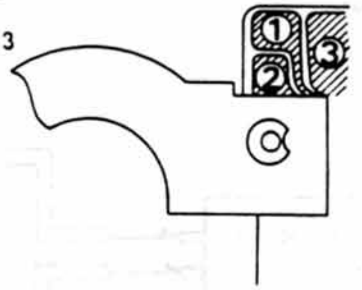


3. As in Fig. 2, remove R_{23} (sometimes not provided), solder the 2 leads for measurement to the part, and connect them to the Rp resistance selector.
(R_{23} is provided between ① and ③ or ② and ③ of Fig. 3.)
4. Turn the dial of Rp resistance selector so that the voltage at Ⓑ of Fig. 1 equals the voltage at Ⓐ, and then select the R_{23} whose resistance is most approximate to the resistance from among those mentioned in the table below.
   - Attach the selected R_{23} to the side measured by the Rp resistance selector.
   - If the voltage between ② and ③ of Fig. 3 is too high, even with the dial position at ∞, measure it between ① and ③. (Conversely, if the voltage is too low between ① and ③, measure it between ② and ③.)

Types of R_{23}

Part No.	Resistance	Part No.	Resistance
9432-2436-62	24KΩ	9432-5136-62	51KΩ
9432-2736-62	27KΩ	9432-6836-62	68KΩ
9432-3336-62	33KΩ	9432-1046-62	100KΩ
9432-3936-62	39KΩ	9432-2046-62	200KΩ

■Fig. 3



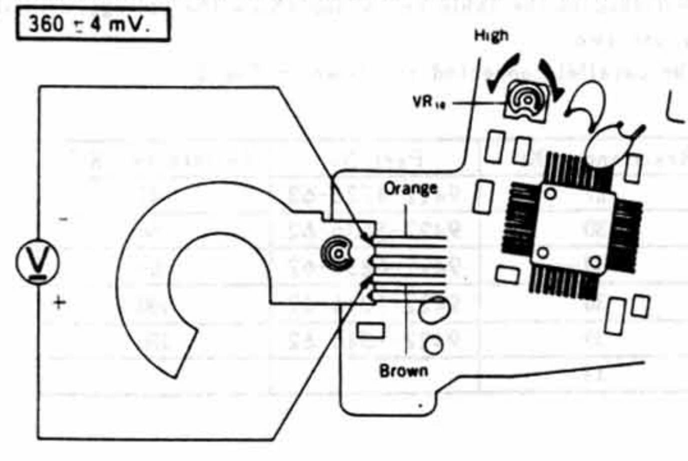
2 Adjustment of ASA inclination

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

■Adjustment procedure

1. Set the metering switch to ON and adjust by turning VR_{10} so that the voltage at the point in Fig. 3 is $\boxed{360 \pm 4\ \text{mV.}}$

■Fig. 4



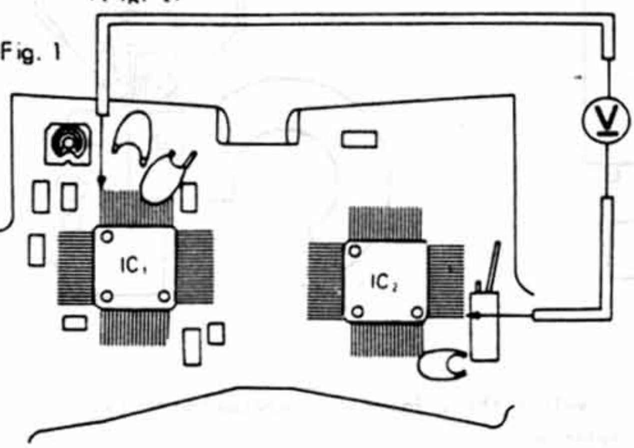
3 Adjustment of manual SS inclination

■Measuring instruments: Digital multimeter (Type 2508, 3407, 2507)
: Rp resistance selector Model RS-Ⅰ, Ⅱ, Ⅲ, Ⅳ

■Adjustment procedure

1. Voltage measurement and standard
   ① Solder the measuring lead wires to terminal ㉛ of IC_1 and ⑪ of IC_2.
   ② Set the shutter dial to 1 (sec.) and measure the voltage with the metering switch ON. (Fig. 1)

■Fig. 1



〔Standard〕 **360 ± 4 mV**

…Ambient temp. should be 25 ± 2.5°C.

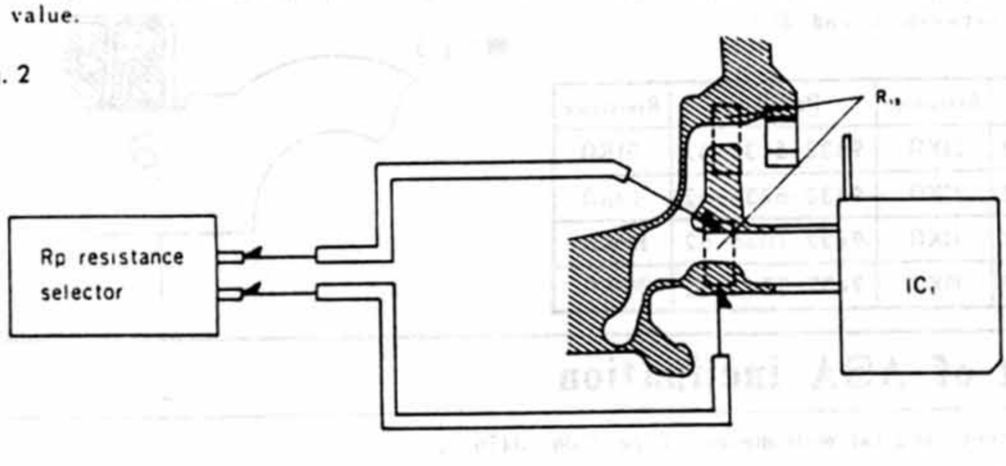
● Apply the standard values mentioned below according to the ambient temperatures during the measurement.

Temperature (°C)	20 ± 2.5	25 ± 2.5	30 ± 2.5
Standard value (mV)	354 ± 4	360 ± 4	366 ± 4

   ③ If the voltage is outside the standard value, adjust it according to the following procedure.

2. Adjustment
   ① Remove R_{19} (if there are two, remove only one) and solder the measuring lead wires.
   ② Connect the Rp resistance selector and, while measuring the voltage as described in section 1, turn the Rp resistance selector so that the voltage becomes the standard value.

■Fig. 2



● If the voltage is not at the standard value with the selected resistance, choose a resistance closer to those mentioned in the table below and check the voltage with it.

● If one R_{19} is not enough, use two.
In this case, they must be parallel-connected as shown in Fig. 2.

〔Types of R_{19}〕

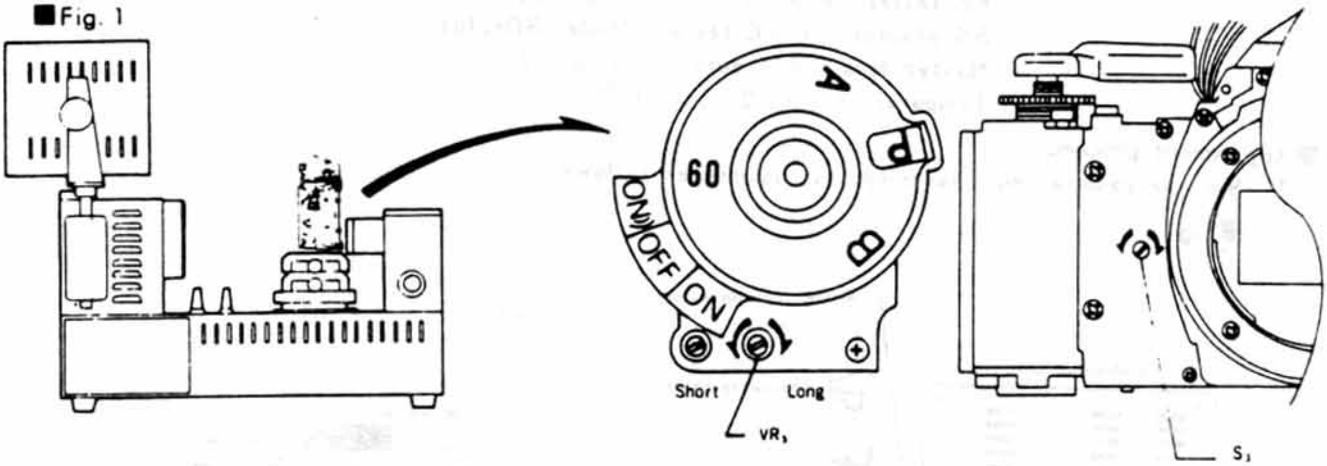
Part No.	Resistance (KΩ)	Part No.	Resistance (KΩ)
9422-2736-62	27	9422-4736-62	47
9422-3036-62	30	9422-5636-62	56
9422-3336-62	33	9422-6836-62	68
9422-3936-62	36	9422-1046-62	100
9422-3936-62	39	9422-1546-62	150
9422-4336-62	43		

4 Manual SS adjustment

■ Measuring instruments : Shutter tester (Model S-2101, FS-1DMN)

■ Adjustment procedure

■ Fig. 1



1. Shutter speed adjustment and check (see the table below)

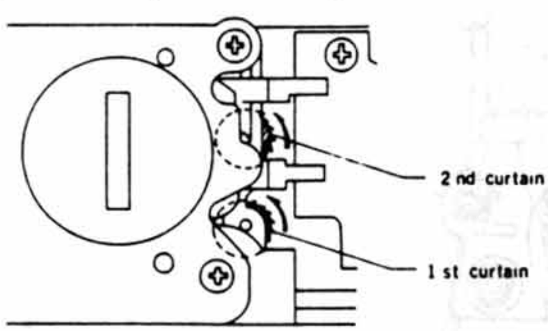
Step	Item	Part adjusted	Adjustment (check)	Remarks
1	1/1000 curtain speed check	--	(Both 1 st & 2 nd curtains are within 13 ms.)	If it is more than 13 ms or less than 10 ms, adjust the 2 nd curtain speed.
2	1/60 adjustment	VR	15.6 ms	If it is shorter than 15.6 ms at step 3., check the full opening of the curtain.
3	1 sec. check	---	(812~1231 ms)	If it is not within 812~1231 ms, recheck 1/60 at 12.7~19.2 ms.
4	1/1000 adjustment	S_1 eccentric pin	0.98 ms	----------
5	1/500 check	--	(1.48~2.58 ms)	If it is not within 1.48~2.58 ms, recheck 1/1000 at 0.74~1.29 ms.
6	X time lag		(Range A: 0.4 ms or more) (Range B: 2.4 ms or more)	Check it with SS 1/60 and if it is defective, perform the adjustment on P. 38.

- When the exposure unevenness at steps 2 ~ 5 is over 0.3 EV in both B-A and B-C ranges, and over 0.4 EV in the A-C range, adjust the curtain speed as follows.
- For the shutter speed standard, refer to the inspection standard.

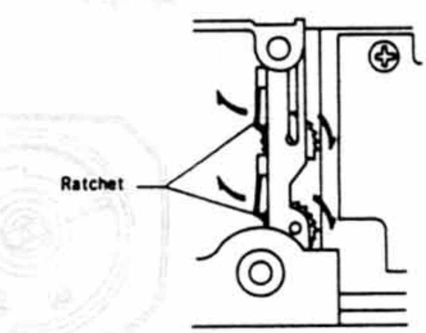
2. Curtain speed adjustment

Adjust by turning the ratchet so that the 1 st and 2 nd curtain speeds are $\boxed{11+0.3\,ms}$ at 1/1000.

■ Fig. 2 (Increasing the curtain speed)



■ Fig. 3 (decreasing the curtain speed)



- Remove the battery case base plate to reliese the ratchet and let it return. (Do not return it completely)
- Return it sufficiently and adjust by slowly increasing the curtain speed.

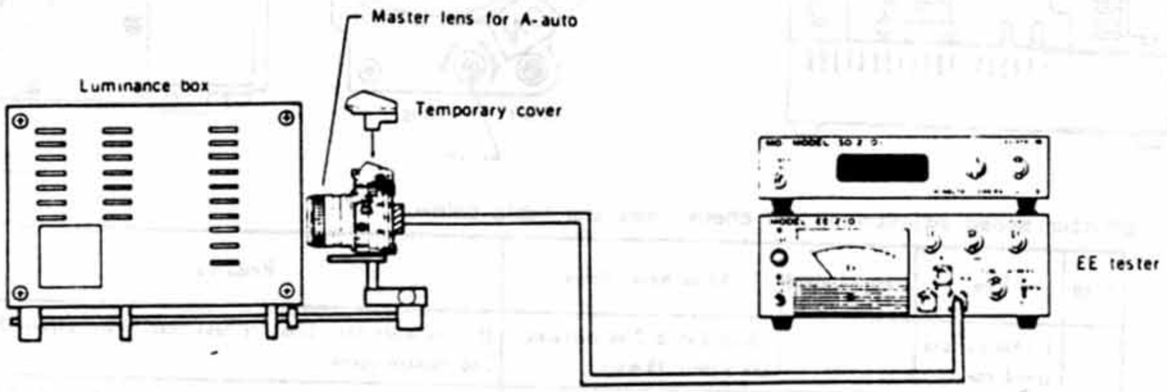
5 A-auto level adjustment

Measuring instruments : Luminance box (Model L-2101, L-222, L-223)
: EE tester (Model EE-2101, EE-2111)
: SS adaptor for EE tester (Model SD-2101)
: Master lens for A-auto (2005-0002-75)
: Temporary cover (2017-1301-75)

Adjustment procedure

1. Set the camera and measuring instruments as follows.

Fig. 1

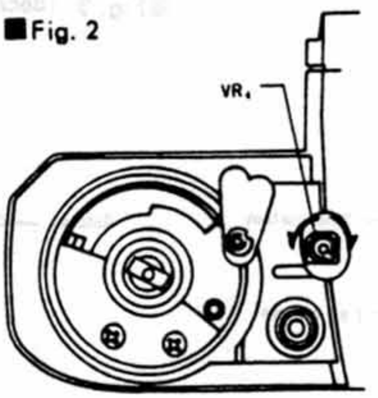


- **Luminance box**
  K value: 1.2
  Luminance: EV 5, 11, 15
- **Camera**
  Shutter dial: A
  ASA: 100
  MD ring: Free
- **EE tester**
  K value dial: 1.2
  ASA dial: 100
- **SD-2101**
  Aperture switch: F 5.6
  Luminance switch: Same as luminance box.

2. Adjust and check as follows:

Step	Luminance	Shutter speed adjustment	EE level allowable range	Part adjusted
1	EV 11	15.6 ms	——	VR_4 (Fig. 2)
2	EV 15	——	±0.4 EV	(Check only)
3	EV 5	——	±0.4 EV	(Check only)

Fig. 2



- If it cannot be adjusted by VR_4, or if the EE level exceeds the allowable range, check to see if the manual shutter speed is correctly adjusted.

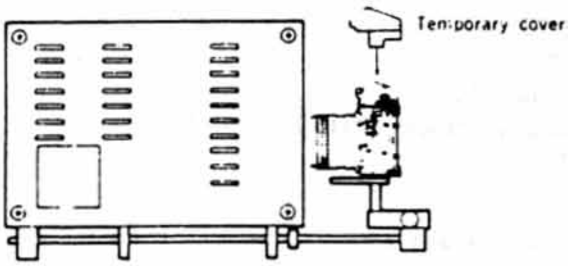
6 LED indication adjustment

■ **Measuring instruments** : Luminance box Model L-2101, L-222, L-223
: Temporary cover 2017-1301-75
: Master lens for S-auto 2005-0061-75

■ **Adjustment procedure**

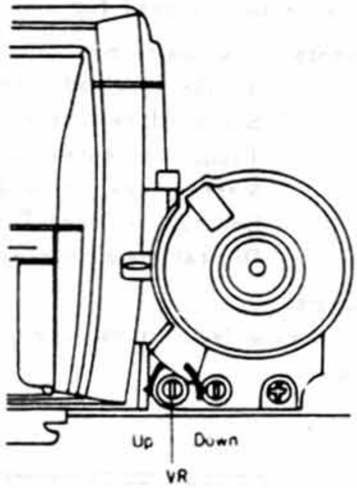
1. Adjust by turning VR₂ as described in the table below according to the type of luminance box.

■ Fig. 1

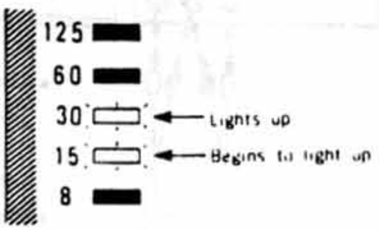


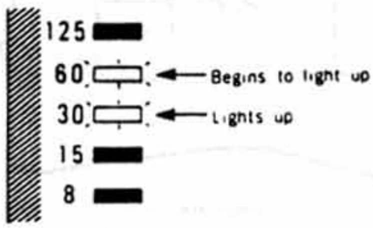
- Camera
  Shutter dial : A
  ASA : 100

■ Fig. 2



L-2101			L-222, L-223	
Luminance	Aperture	K value	Luminance (setting button)	Aperture
EV 10-1/3	F 5.6	1.2	EV 10.3 (C-1···S-SIZE)	F 5.6

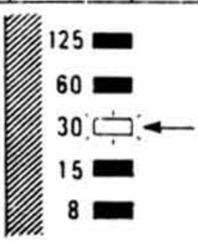




L-2101	L-222, L-223
Turn VR₂ so that only the LED of 30 lights up, and slowly turn VR₂ until the LED of 15 begins to light up.	Turn VR₂ so that only the LED of 30 lights up, and slowly turn VR₂ counterclockwise until the LED of 60 begins to light up.

2. Checking adjustment 1

L-2101		L-222, L-223	
Luminance	Aperture	Luminance	Aperture
EV 10	F 5.6	EV 11	F 8



Only the LED of 30 should light up.

2 Other luminance···L-2101, L-222, L-223

Luminance	Aperture	Allowable LED-ON range (±1 EV)					
EV 5	F 4	4	□	□	■	■	■
		2	■	□	□	□	■
		1	■	■	■	□	□
EV 14	F 5.6	1000	□	□	■	■	■
		500	■	□	□	□	■
		250	■	■	■	□	□

- Deflected toward high speed side at EV 14
  ···Replace the resistor (R_{12}) with one of larger resistance.
- Deflected toward low speed side at EV 14
  ···Replace the resistor (R_{12}) with one of smaller resistance.

7 Strobe level adjustment

A Adjustment by luminance box (Model L-2101)

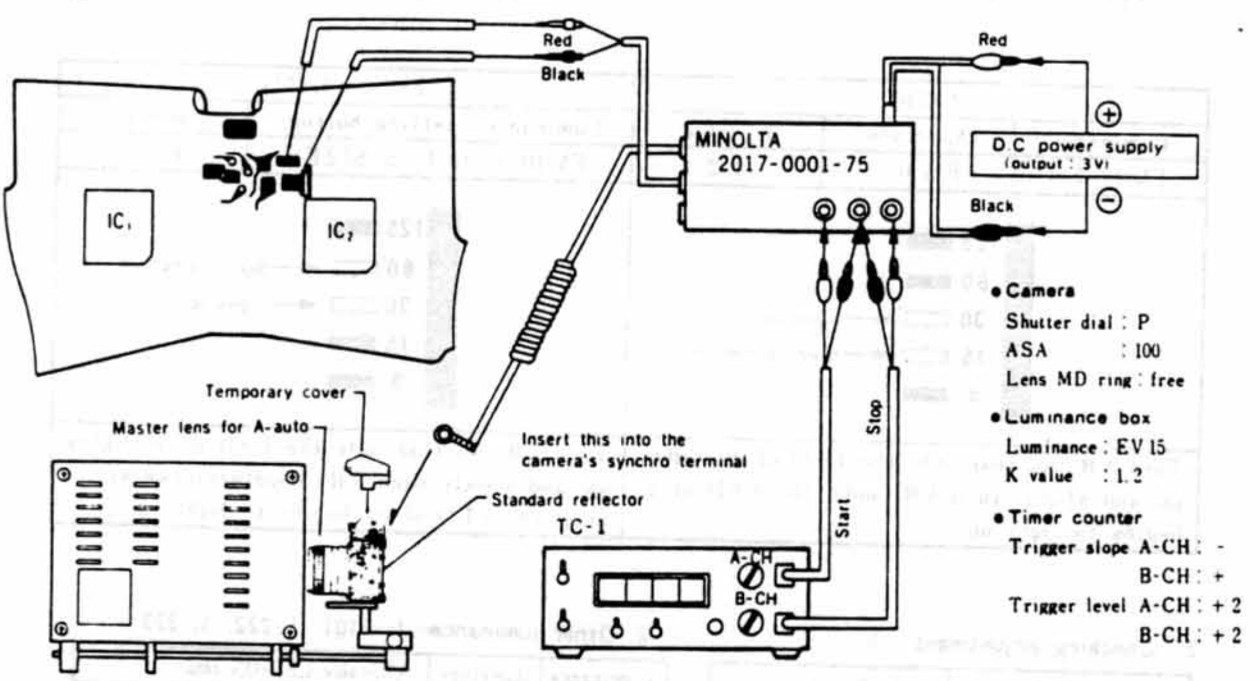
- The Model L-2101 luminance should be used. However, ones with color temperatures ranging from 2600K to 3000K (measured value of the Minolta color meter) at EV 15 can also be used.
- Luminance boxes with long-wavelength cut filters and lamps with cold mirrors cannot be used because of measuring errors.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

■Measuring instruments: Luminance box (Model L-2101)
: Strobe level adjuster (2017-0001-75)
: Standard reflector (2017-0002-75)
: Temporary cover (2017-1301-75)
: Master lens for A-auto (2005-0002-75)
: Constant voltage D.C power supply (Model 524B E-1, E-2)
: Digital time counter (Model TC-1)

■Adjustment procedure

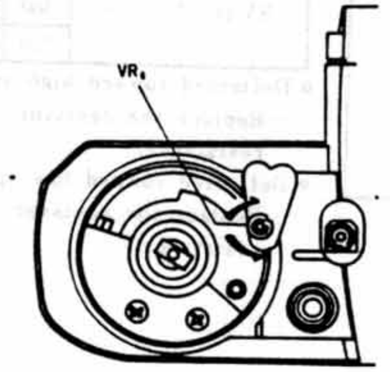
1. Solder the measuring lead wires (2 wires) to the camera and connect the measuring instruments as follows:

■Fig. 1



2. With the shutter released, adjust by turning VR_6 so that the indication of the time counter is $\boxed{0.63 \pm 0.1\text{ ms.}}$

■Fig. 2



Ⓑ Adjustment by strobo tester (Model ST-Ⅲ)

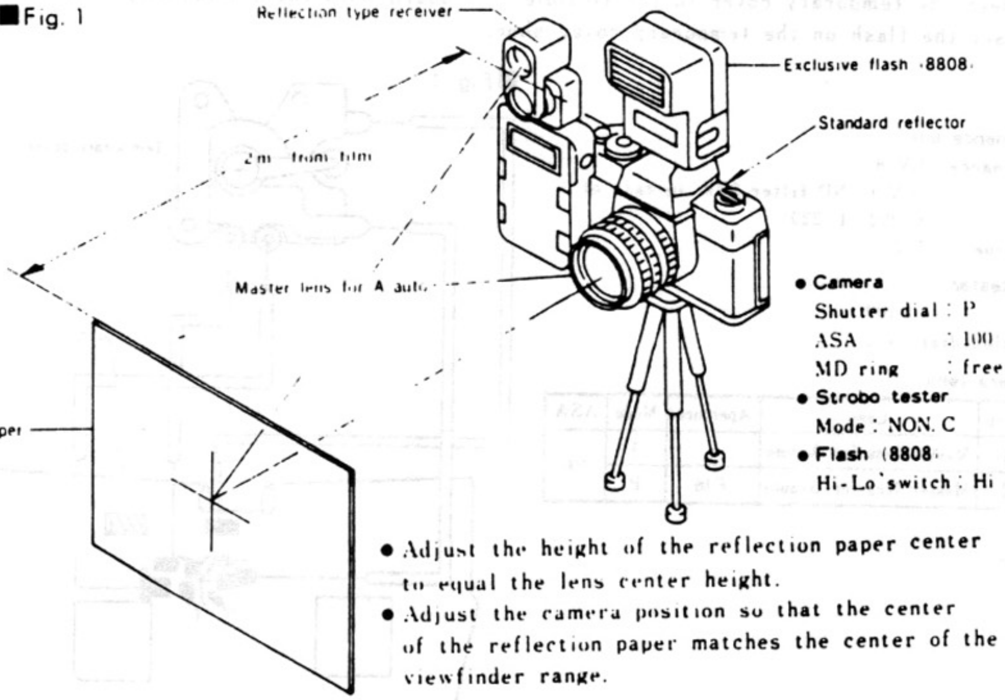
Model ST-1 and Ⅱ cannot be used because non-cord adjustment is impossible.

■Measuring instruments: Strobo tester Model ST-Ⅲ
: Standard reflector (2017-0002-75)
: Master lens for A-auto (2005-0002-75)
: Temporary cover (2013-1301-75)
: Reflection paper (1.3m × 2m) ···used for adjustment of Minolta AEF series.
: Exclusive flash (AEF 280PX···Code No. 8808)

■Preparations

Connect the temporary cover to the body with the lead wires as shown in Fig. 1 on the next page. Set the measuring instruments as shown below.

■Fig. 1



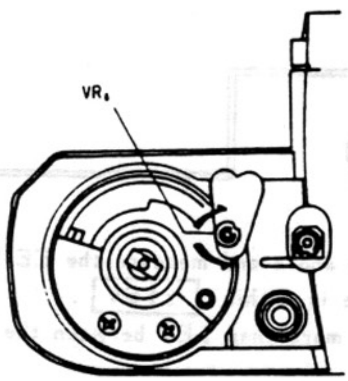
● Adjust the height of the reflection paper center to equal the lens center height.

● Adjust the camera position so that the center of the reflection paper matches the center of the viewfinder range.

■Adjustment 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 reflaction 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 $\boxed{\text{F 5.6} \pm \text{0.5EV}}$, adjust by turning VR_6. (Fig. 2)

■Fig. 2



About the standard reflector:

● Do not stain the reflector by touching it with the hand, etc., or correct measurement will not be possible.

● When the reflection surface is exposed to light, a color change occurs causing changes in the reflection factor. It must be replaced with a new one about once a year. The reflection paper can be replaced; reflection paper is available for this purpose. When placing an order, specify reflection paper for 2017-0002-75.

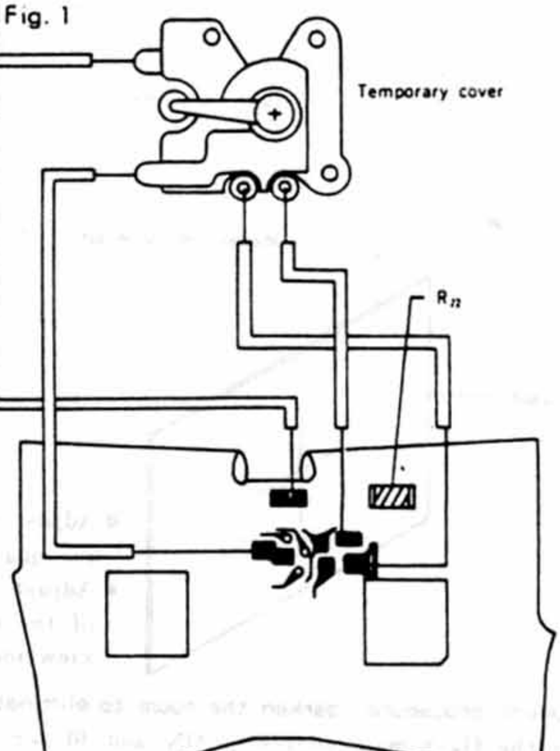
8 Bending point level adjustment

■ **Measuring instruments**: Luminance box (Model L-2101, L-222, L-223)
: EE tester (Model EE-2101, EE-2111)
: Master lens for A-auto (2005-0002-75)
: Master lens for S-auto (2005-0001-75)
: Temporary cover (2017-1301-75)
: Exclusive flash (AEF 280PX···Code No. 8808)

■ **Adjustment procedure**

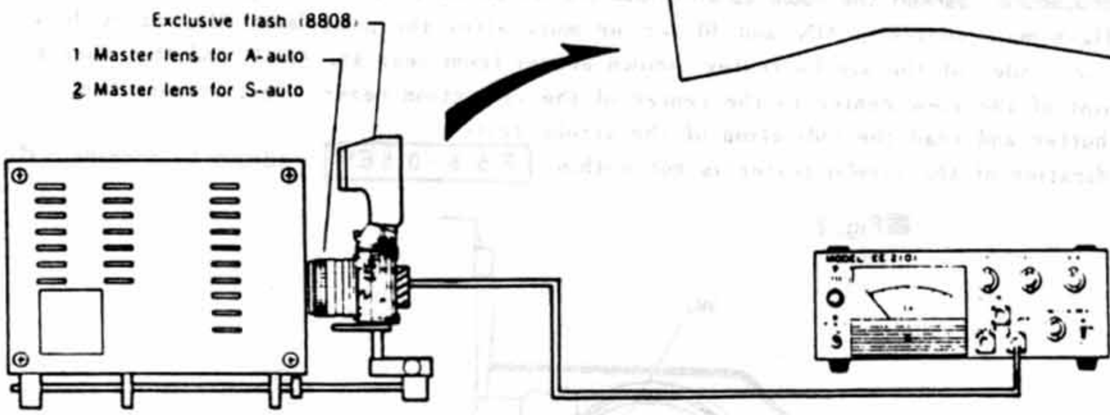
1. Connect the temporary cover to the flexible P.C board with the 4 measuring lead wires, and set the flash on the temporary cover shoe.

■ Fig. 1



- **Luminance box**
  Luminance: EV 8
  (EV 9 + ND filter 50% in case of L-222, L-223)
  K value: 1.2
- **EE tester**
  ASA: 400
  K value dial: 1.2
- **Camera lens**

Step	Lens	Aperture	Mode	ASA
1)	Master lens for A-auto	—	A	100
2)	Master lens for S-auto	F16	P	



2. Set the camera lens as shown above and measure the EE level in A and P modes. Check to see if the EE level difference is within $\boxed{\pm 1\,EV}$.
3. If the EE level difference is more than 1 EV between the A and P modes, replace R_{22} and adjust.

(Type of R_{22})

Part No.	Resistance
9432-1226-61	1.2 KΩ
9432-3926-61	3.9 KΩ
9432-7526-61	7.5 KΩ

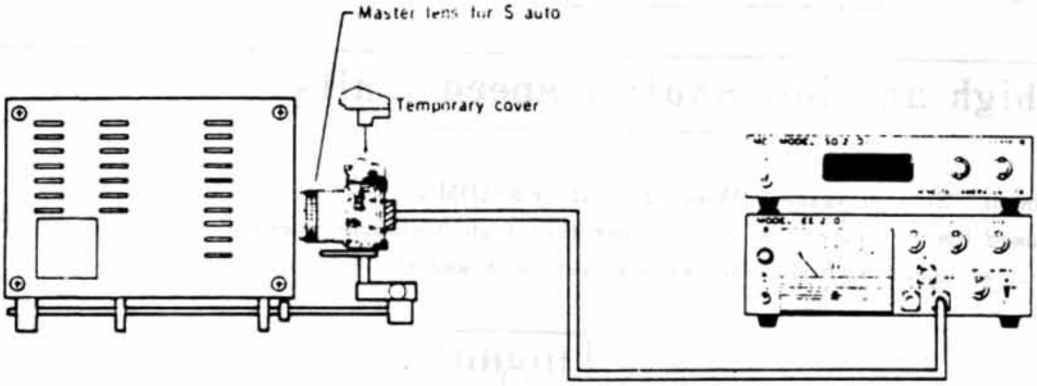
■ Checking A and P modes

■ Measuring instruments : Luminance box Model L-2101, L-222, L-223
: EE tester Model EE-2101, EE-2111
: SS adaptor for EE tester Model SD-2101
: Master lens for S-auto 2005-0001-75
: Temporary cover 2017-1301-75

■ Preparations

Set the camera and measuring instruments as follows:

■ Fig. 1



■ Checking procedure

1 **A mode**···Check LED indication and EE level as shown in Table 1.

Table-1 (Shutter dial : A, ASA : 100)

Luminance	Aperture	Allowable range of LED-ON						Allowable range of EE level
EV 5	F 4	4	□	□	■	■	■	0 ±0.8 EV
		2	■	□	□	□	■	
		1	■	■	■	□	□	
EV 11	F 8	60	□	□	■	■	■	
		30	■	□	□	□	■	
		15	■	■	■	□	□	
EV 14	F 5.6	1000	□	□	■	■	■	
		500	■	□	□	□	■	
		250	■	■	■	□	□	

2 **P mode**···Check LED Indication, shutter speed, and EE level as shown in Table 2.

Table-2 (Shutter dial : P, ASA : 100, Aperture : F 16)

Luminance	SD-2101 aperture switch	Allowable LED ON and relative SS		Allowable range of EE level
		LED ON	Allowable range of shutter speed	
EV 15	F 8	1000, 500	0.58 ~ 3.28 ms	0 ±0.8 EV
		500	0.82 ~ 4.65 ms	
		500, 250	1.16 ~ 6.57 ms	
※ EV 10	F 2.8	250, 125	2.32 ~ 13.1 ms	
		125	3.28 ~ 18.6 ms	
		125, 60	4.65 ~ 26.2 ms	
EV 5	——	30	——	——
		30, 15		
		15		
		15, 8		
		8		

※ EV 11 + ND filter (50%) must be used in case of luminance box L-222, L-223.

Checking release lock voltage and LED OFF voltage

Measuring instruments : Constant voltage D.C power supply (Model 524B, E-1, E-2)
: Digital multimeter (Model 2508, 3476, 2507)

Checking procedure

Connect D.C voltage to the camera. (+ ··· to battery case contact, − ··· ground to battery case base plate)

(1) Release lock voltage

Standard	2.10 ± 0.15 V

(2) LED OFF voltage

Standard	2.40 ± 0.15 V

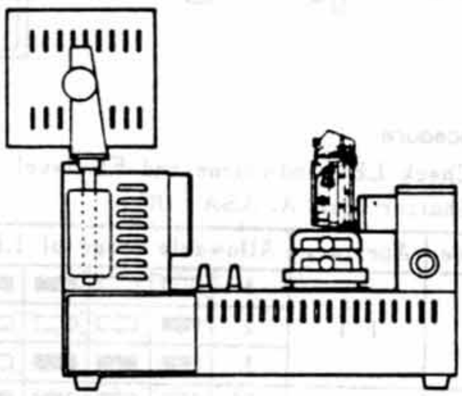
Checking high and low shutter speed limits

Measuring instrument : Shutter tester (Model S-2101, FS-1DMN)

1 High shutter speed limit (shutter speeds in other than high luminance operation in A and P modes)

- Check the shutter speed with the shutter dial set to A and P.

Standard	0.69～1.38 ms

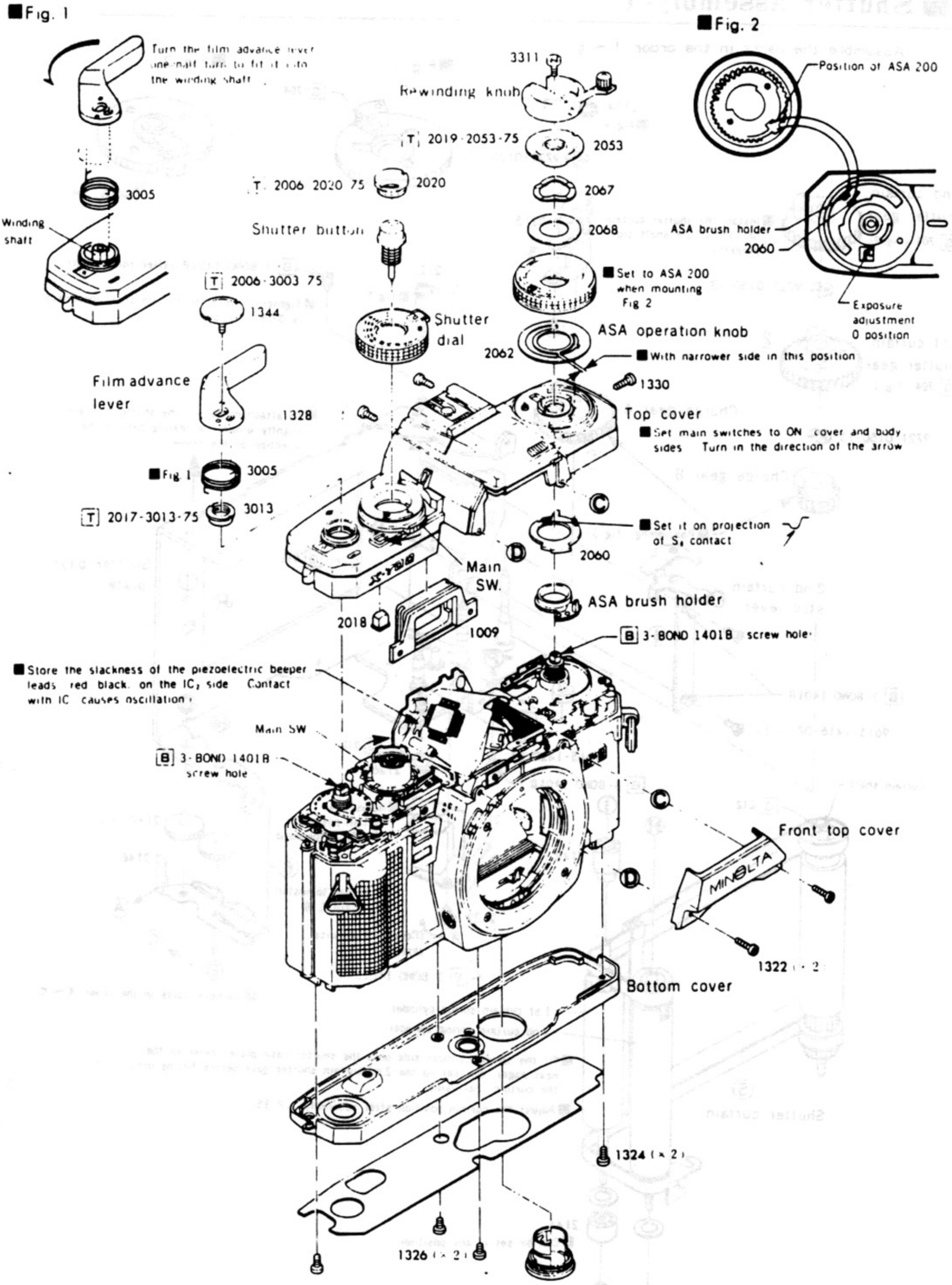


2 Low shutter speed limit (shutter speeds in other than low luminance operation in A and P modes)

- Set the shutter dial to A and P, and then check the exposure time with light to the receiver interrupted.

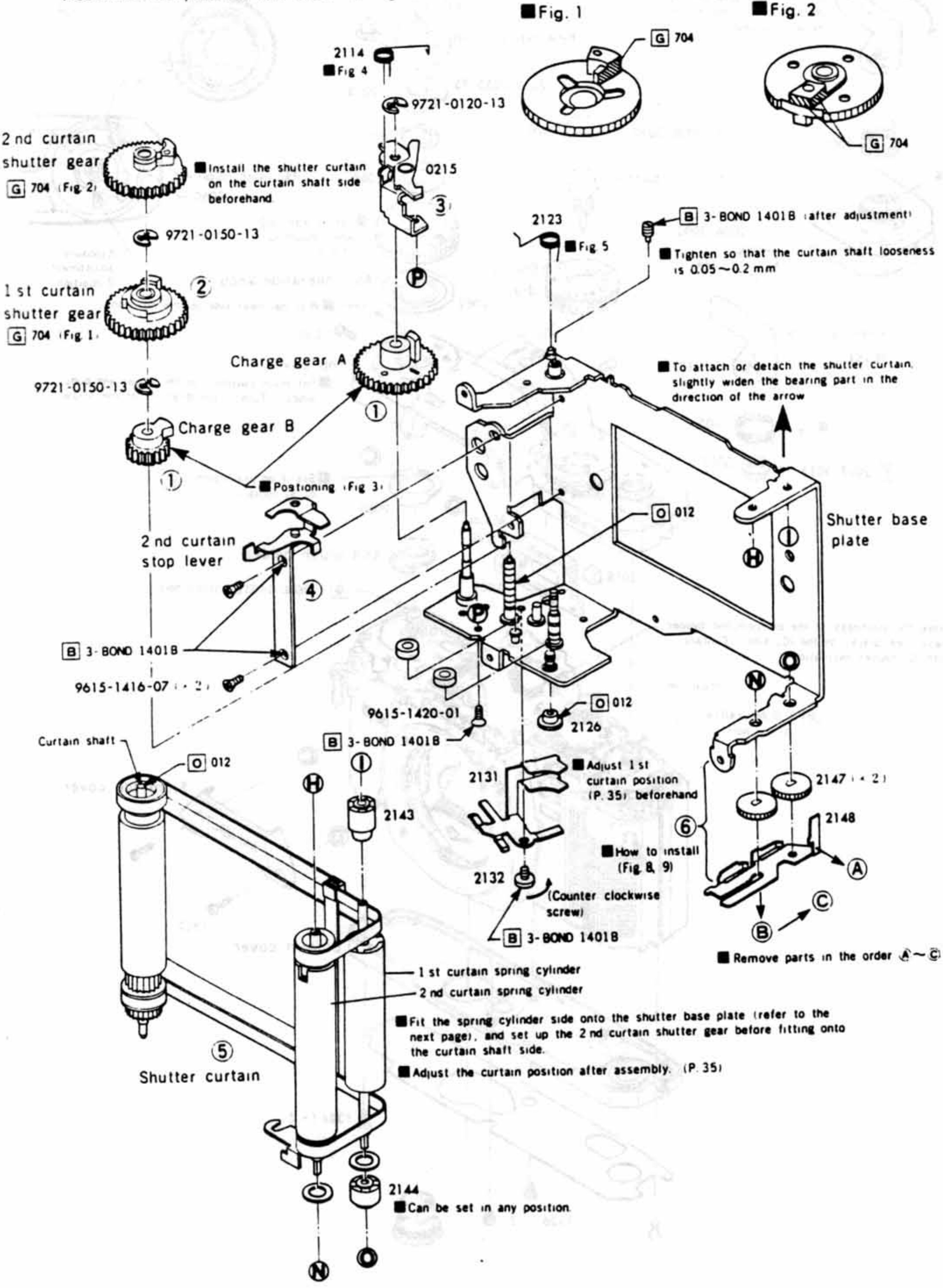
Standard	within 5 sec.

8 External parts (completion)

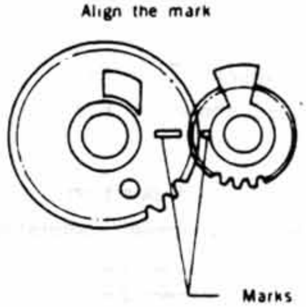


■ Shutter assembly-I

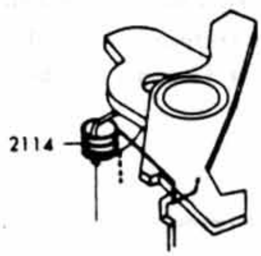
Assemble the parts in the order 1 ~ 6



■Fig. 3 Charge gear positioning



■Fig. 4 2114 spring setting

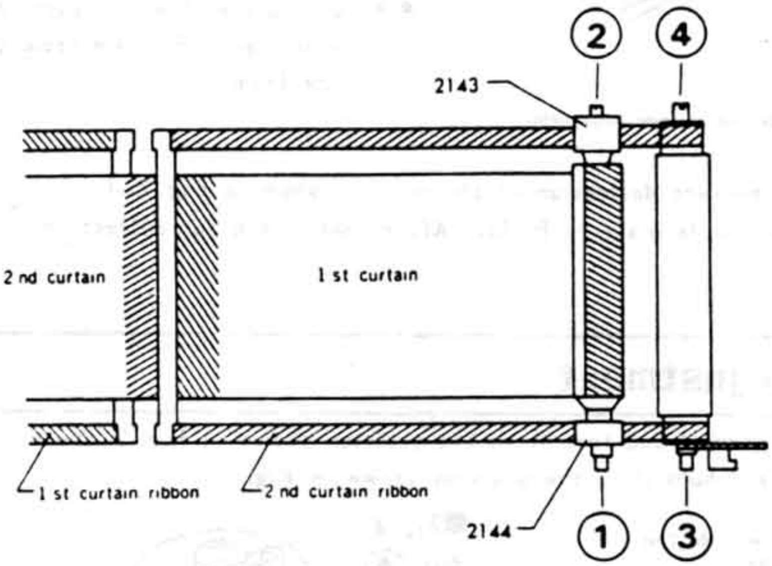


■Fig. 5 2123 spring setting

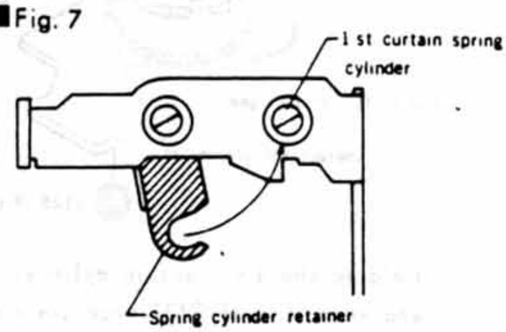
■ Shutter curtain mounting procedure (SP cylinder side)

1. Arrange the shutter curtains as shown in Fig. 1 and fit them in the holes of the shutter base plate in the order 1 – 4. When fitting in 4, slightly widen the bearing part of the shutter base plate.

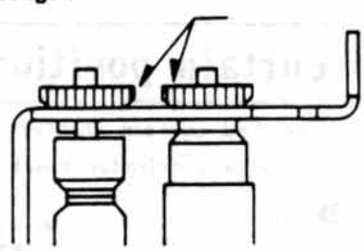
■Fig. 6



■Fig. 7

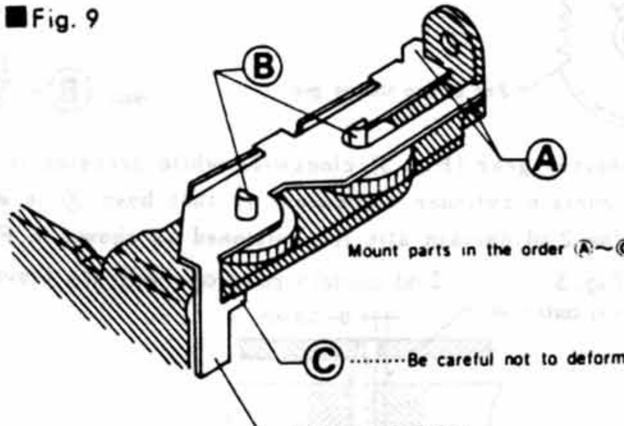


■Fig. 8



2. Fit the curtain spring retainer into the 1st curtain spring cylinder by turning it in the direction of the arrow shown in Fig. 5.
3. Set the ratchet in the correct position (Fig. 8), and attach the ratchet stop spring. (Fig. 9)

■Fig. 9

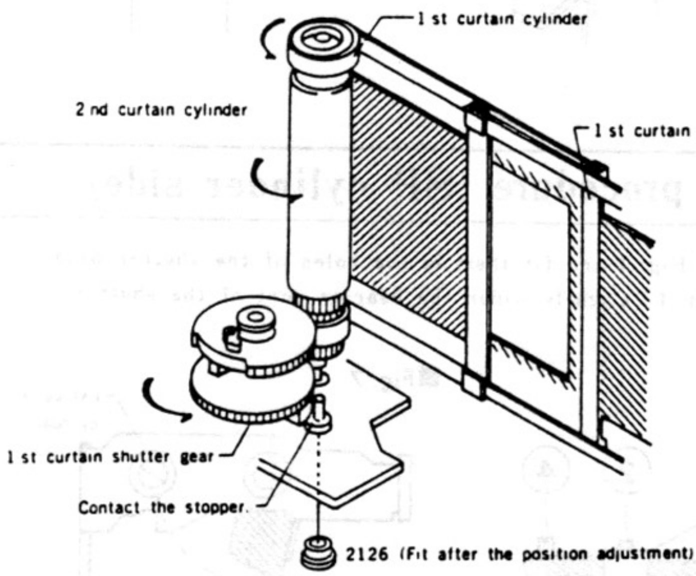


4. Charge the curtain spring by 6 turns for the 1st curtain and 4 times for the 2nd curtain.

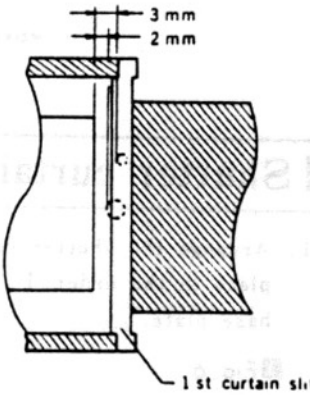
1st curtain position adjustment

1. Turn the 2 nd curtain cylinder to stop the 2 nd curtain halfway. (Fig. 1)
2. Turn the 1 st curtain shutter gear counterclockwise until it touches the stopper. Then turn the 1 st curtain cylinder counterclockwise to position the 1 st curtain slit as shown in Fig. 2.

■Fig. 1



■Fig. 2 1 st curtain position (with its travel completed)



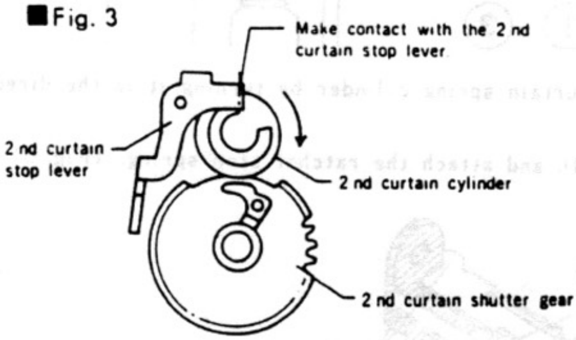
- Adjust so that the 1 st curtain slit is positioned 2.5~3 mm from the picture frame.

3. Holding the 1 st curtain cylinder to prevent deflection of the position show in Fig. 2, fit 2126 and stop it with 2131 (curtain ribbon guide plate……P. 33). After that, check for deflection of the position (Fig. 2)

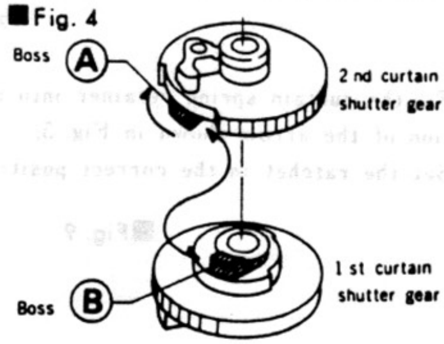
2nd curtain position adjustment

1. Shift the 2 nd curtain shutter gear upward and turn it to the position shown in Fig. 3. Turn the 2 nd curtain cylinder clockwise and hold it in the position shown in Fig. 3.

■Fig. 3

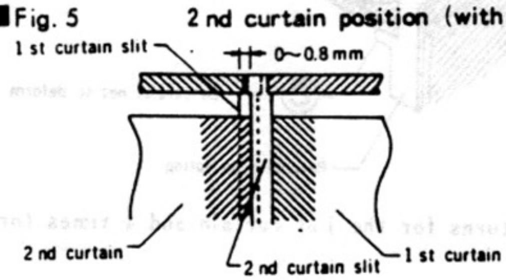


■Fig. 4



2. Turn the 2 nd curtain shutter gear (Fig. 3) clockwise while pressing it down (slightly applying a force to the 2 nd curtain cylinder clockwise) so that boss Ⓐ is engaged with boss Ⓑ.
3. Check to be sure that the 2 nd curtain slit is positioned as shown in Fig. 5.

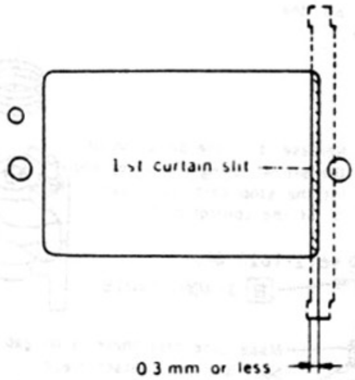
■Fig. 5 2 nd curtain position (with its travel completed)



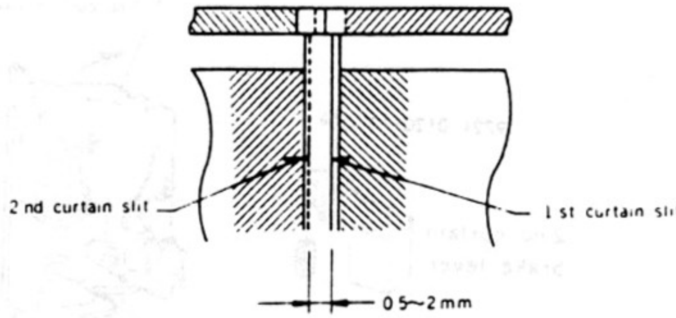
■ Checking curtain stop position (with winding completed)

1 1st curtain stop position

■Fig. 1 Slit remaining in picture frame



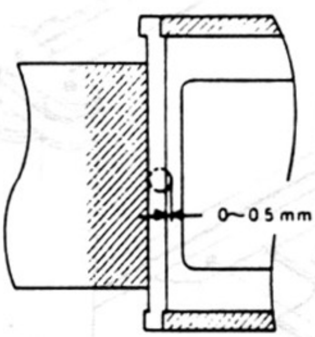
■Fig. 2 (Overlaping of the curtains)



2 2nd curtain stop position

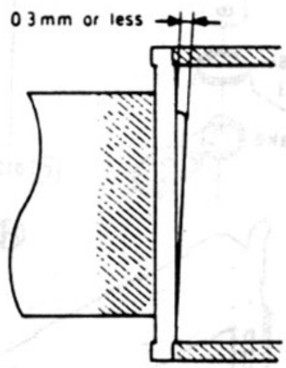
(check while letting the 1st curtain travel.)

■Fig. 3 (Deflection from reference hole)



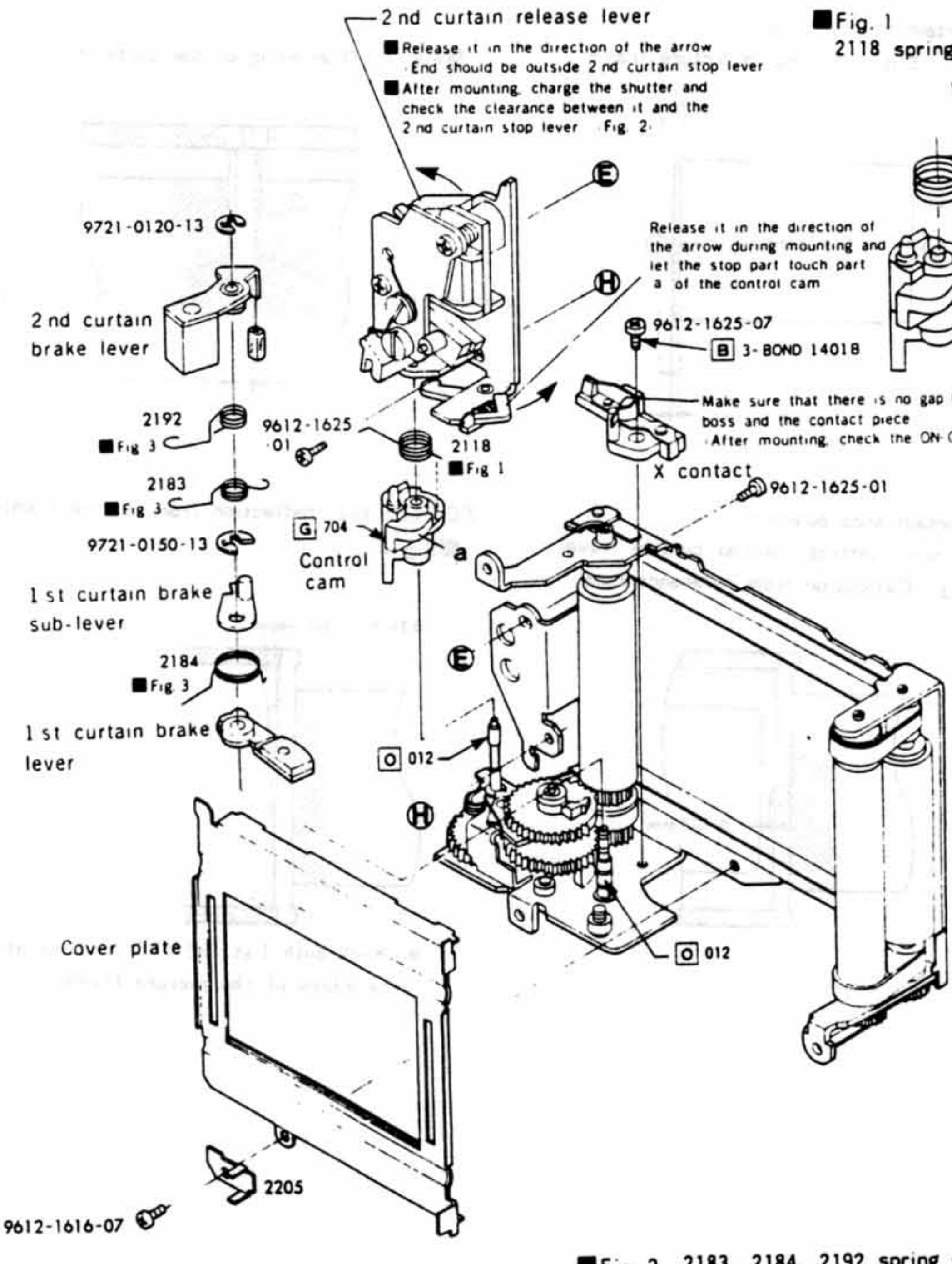
3 Curtain tilt (deflection from picture frame)

■Fig. 4

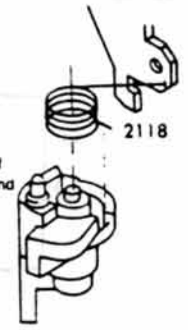


- Check both 1st and 2nd curtains at the edges of the picture frame.

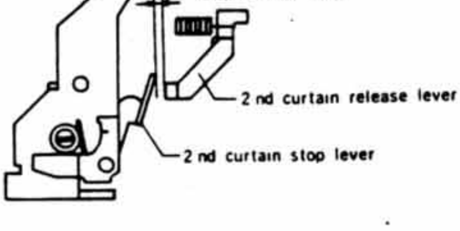
■ Shutter assembly-Ⅱ



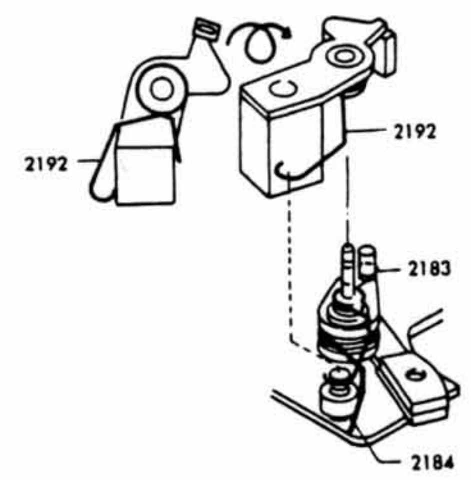
■ Fig. 1 2118 spring setting



■ Fig. 2



■ Fig. 3 2183, 2184, 2192 spring setting



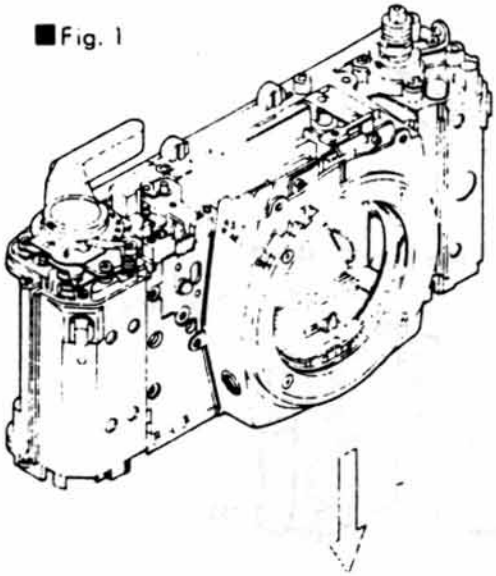
Shutter block adjustment

Measuring instruments : Camera standard tester Model ST-5101
: Shutter tester Model S-2101, FS-1DMN4

Preparations

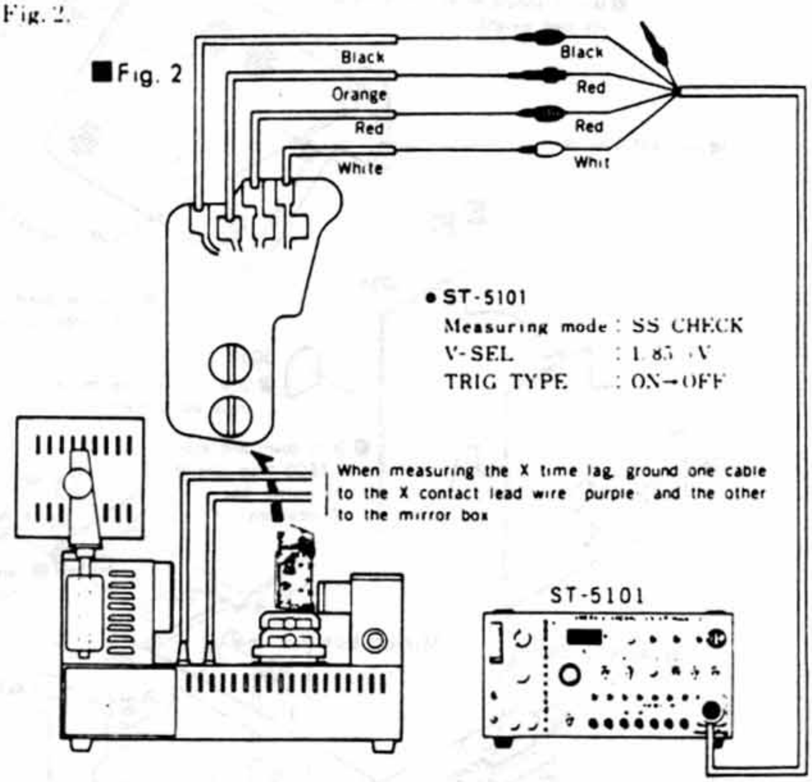
1. Mount the shutter onto the front base plate block and install it onto the body (as shown in Fig. 1).
2. Connect the tester as shown in Fig. 2.

Fig. 1



Operate the shutter as described on P. 13

Fig. 2



Adjustment procedure

1 Curtain speed adjustment

1. Set the SS-SEL of ST-5101 to 1000 and adjust by turning the curtain spring cylinder shaft so that both curtain speeds are $\boxed{11 \pm 0.3\,\text{ms}}$. (Fig. 3)
   - When the curtain is not open, shift SS-SEL to 60 and make a rough adjustment beforehand so that both curtain speeds are about 12 ms, and then adjust again with the SS-SEL set to 1000.

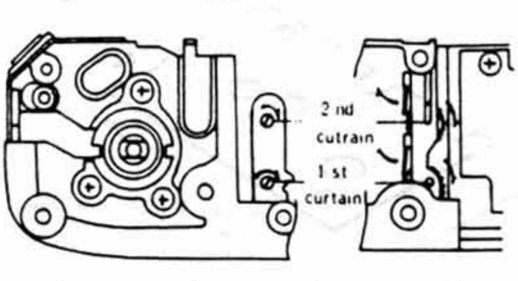
2 Shutter speed adjustment

1. With the SS-SEL set to 1000, release the shutter and adjust by turning the S_1 eccentric pin so that the shutter tester indicates $\boxed{0.98\,\text{ms}}$. (Fig. 4)

3 X time lag adjustment

1. Connect the synchro cord of the shutter tester to the camera. (Fig. 2)
2. With the SS-SEL set to 60, release the shutter and check to be sure that the speed is $\boxed{\text{0.4 ms or more in range A and 2.4 ms or more in range B}}$.
   To make the adjustment, bend the end of the X contact.

Fig. 3



● Increasing the curtain speed

● Decreasing the curtain speed

Fig. 4

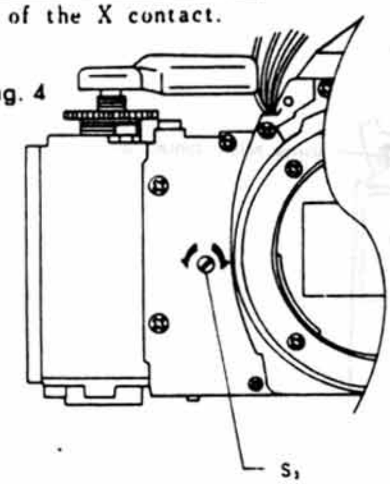
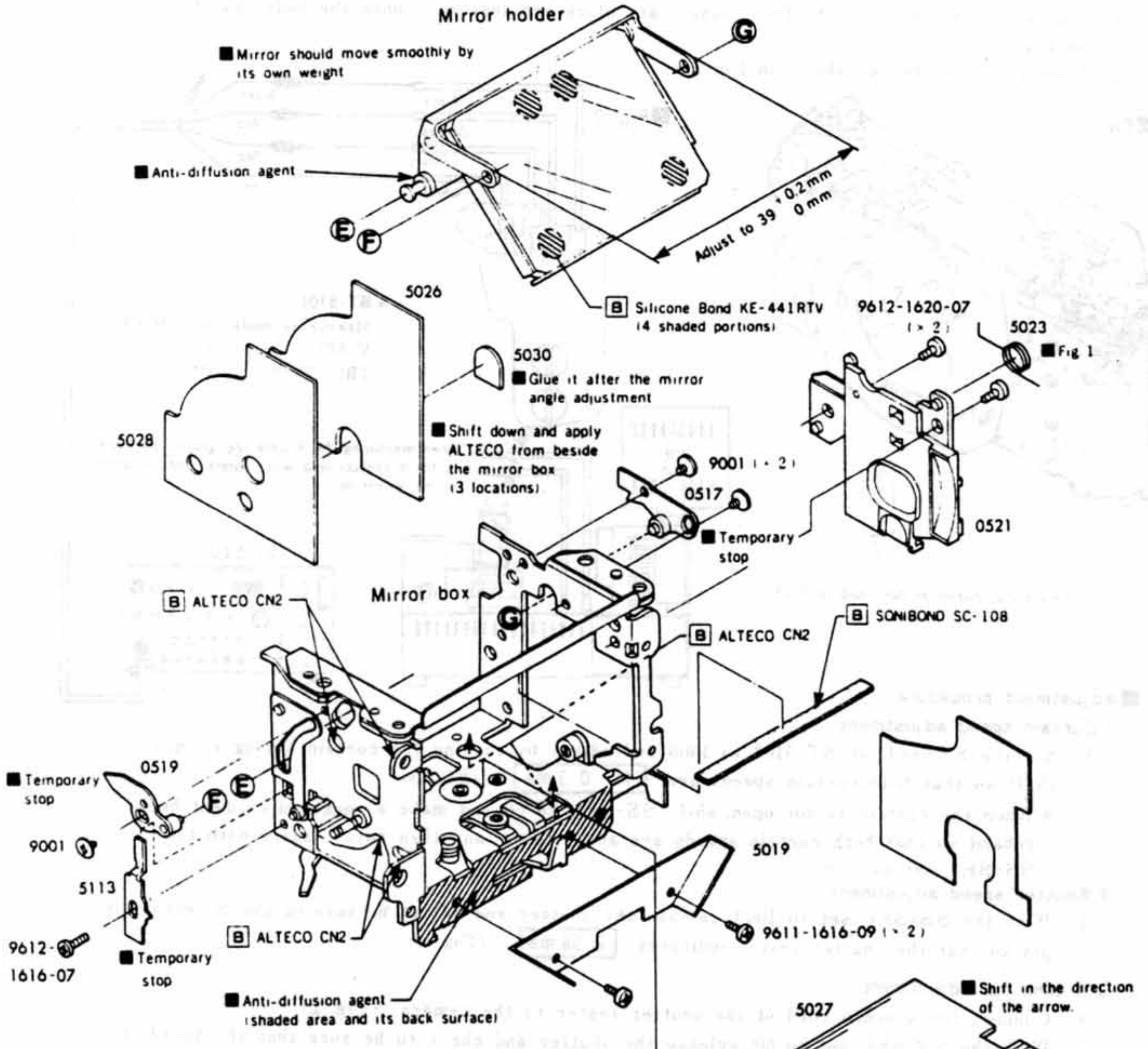


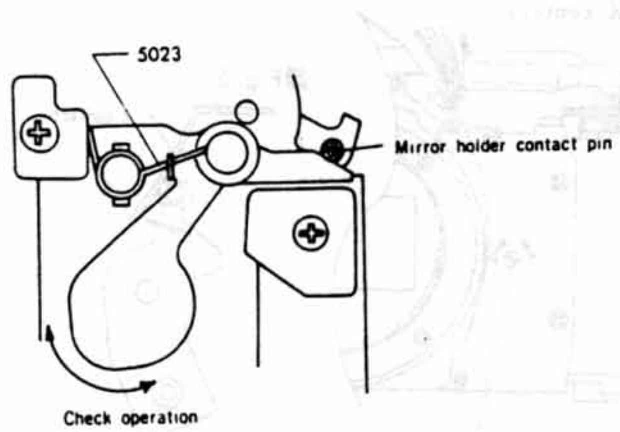
Fig. 5

■ Mirror box assembly- I

• Dilute one part of anti-diffusion agent (FC-721) with ten parts of solvent (FC-77).



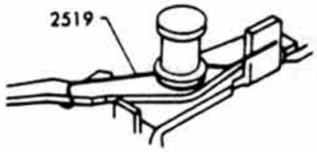
■ Fig. 1 5023 spring setting



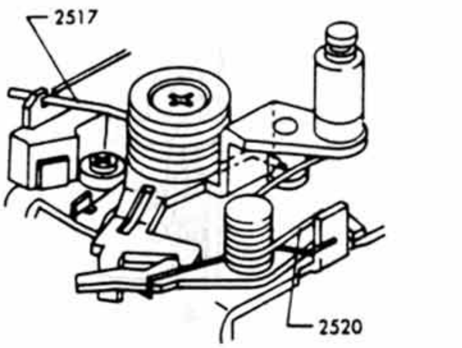
Mirror box assembly-Ⅱ

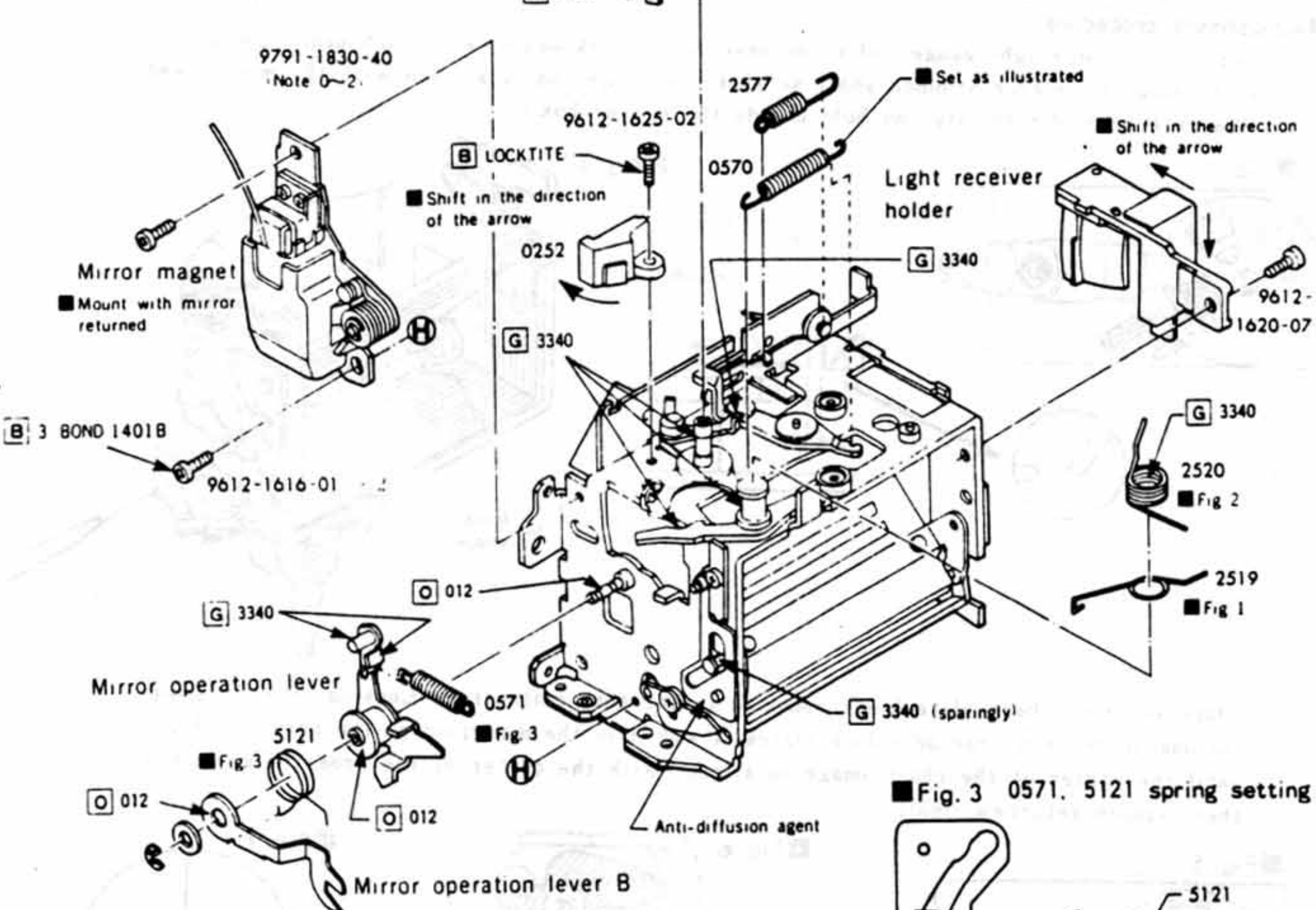
■After the completion of assembly, adjust the mirror angle as described on the next page.

■Fig. 1 2519 spring setting

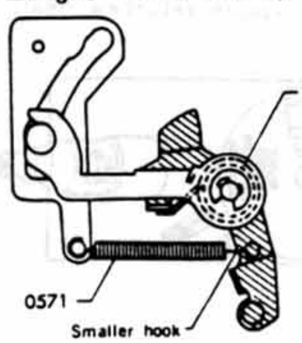


■Fig. 2 2517, 2520 spring setting





■Fig. 3 0571, 5121 spring setting



Note: Regarding the washers under mirror magnet, two washers or one washer or no washer are used depending on the attraction of magent.

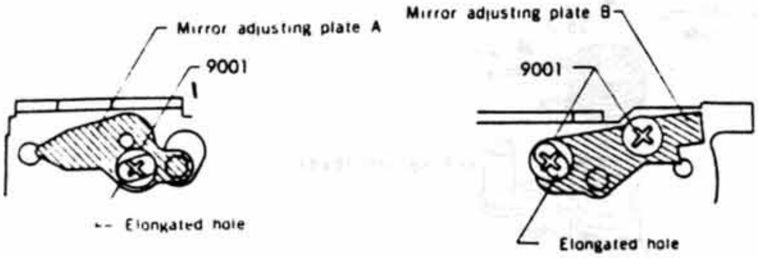
Mirror angle adjustment

Measuring instrument: Mirror angle adjuster (Model MA-Ⅲ, Ⅱ)

Prepations

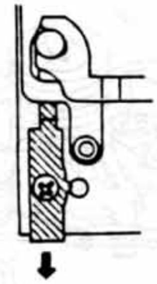
1. Mount the mirror box on the fornt base plate.
2. Loosen the setscrew (9001) of mirror adjusting plate A and B, position them as shown in Fig. 1, and then slightly tighten 9001. Completely shift the mirror sub-stopper down as shown in Fig. 2.
3. Set the front base plate block onto the mirror angle adjuster.

Fig. 1



• Position 9001 at the center of the elongated hole for both mirror adjusting plates A and B

Fig. 2



Adjustment procedure

1. Set the mirror height gauge and front base plate block opposite to each other and adjust by turning the mirror stopper shaft so that the gauge end is aligned with the mirror end. (Insert a screwdriver into the hole beside the mirror box.)

Fig. 3

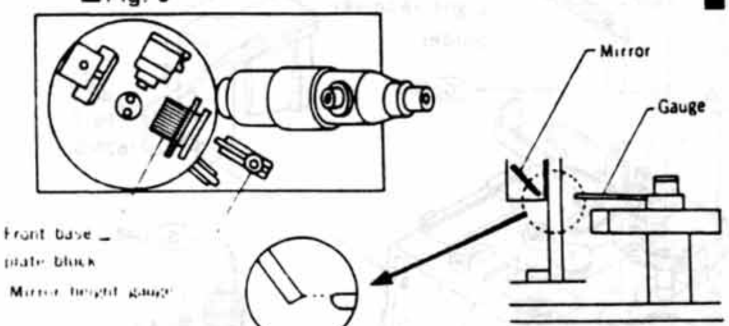
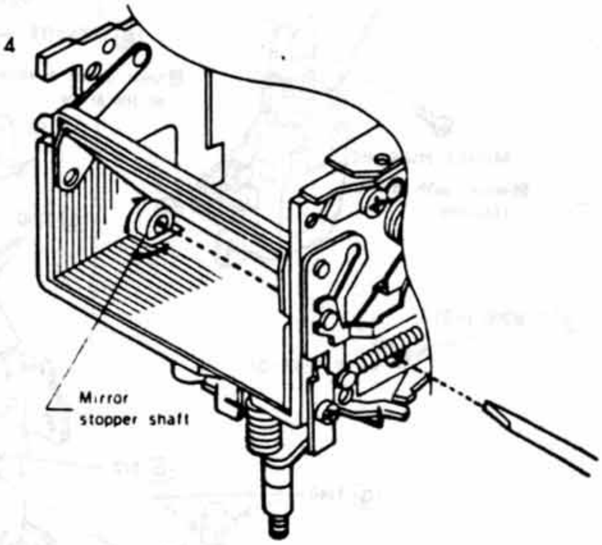


Fig. 4



2. Place the front base plate block opposite to the auto collimator. Looking into the auto collimator, move mirror adjusting plates A and B in the direction of the arrow in Fig. 6 until the center of the chart image is aligned with the center of the cross (Fig. 7), and then tighten setscrew (9001).

Fig. 5

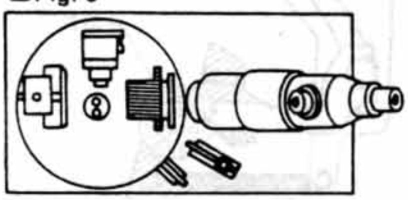


Fig. 6

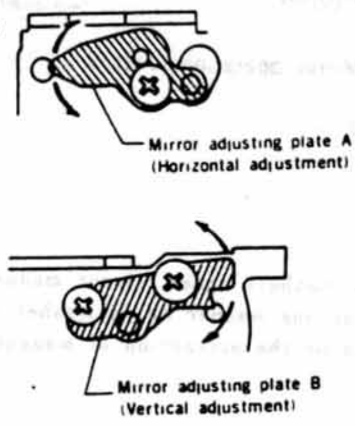
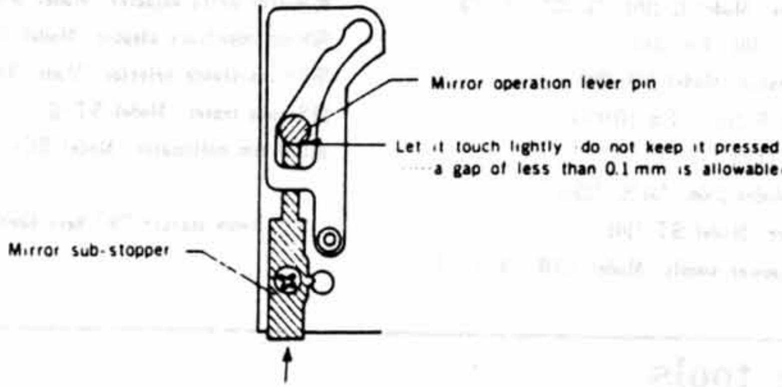


Fig. 7

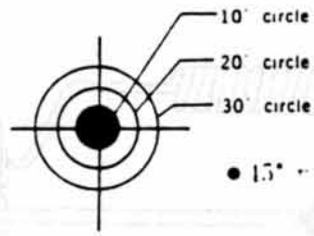
3. Push up the mirror sub-stopper until its end lightly touches the mirror operation lever pin, and then tighten the setscrew.

■Fig. 8



4. Operate the mirror several times and make sure that the chart image is within the standard $\boxed{45° \pm 10'}$

■Fig. 9



● 45° ±10'···10' circle must be in touch with the cross (vertically and horizontally).

● If it is not within the standard 45° ±10', perform adjustments 1~3 again.

5. After completing the adjustment, apply screw-lock (3-BOND 1101B) to the screw head of mirror adjusting plates A, B, and the mirror sub-stopper, and adhere the flare prevention sheet B (5030···P. 39)

Measuring instruments

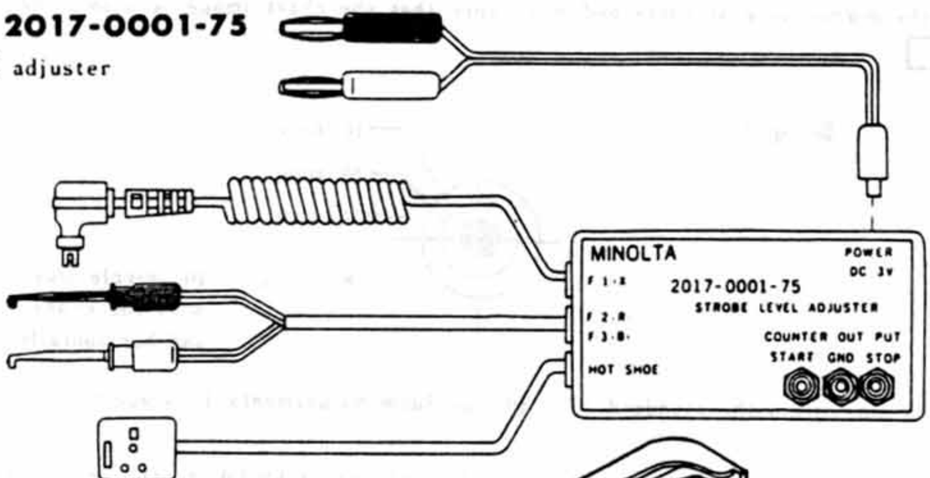
- Standard luminance box Model L-2101, *L-222, *L-223
- EE tester Model EE-2101, EE-2111
- SS adaptor for EE tester Model SD-2101
- Shutter tester Model S-2101, *FS-1DMN4
- Time counter Model TC-1
- Digital multimeter Model 2508, *3476, *2507
- Camera standard tester Model ST-5101
- Constant voltage DC power supply Model 524B, *E-1, *E-2
- Mirror angle adjuster Model MA-III, *II
- High impedance adaptor Model HA-1
- Rp resistance selector Model RS-IV, *III, *II, *I
- Strobo tester Model ST-III
- 1000 mm collimator Model RC-1000 III, *II, *I

(Items marked "※" have been discontinued)

Exclusive tools

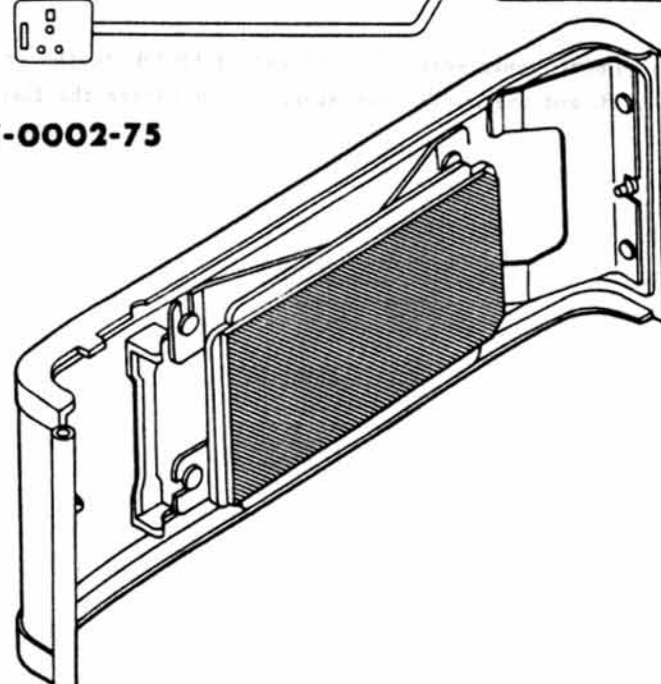
Tool No. 2017-0001-75

Strobe level adjuster



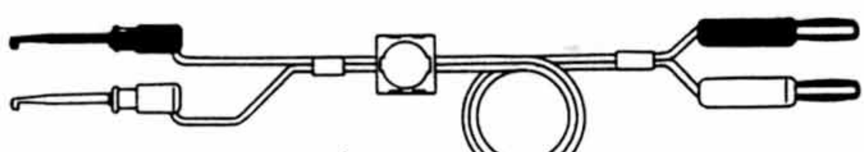
Tool No. 2017-0002-75

Standard reflector



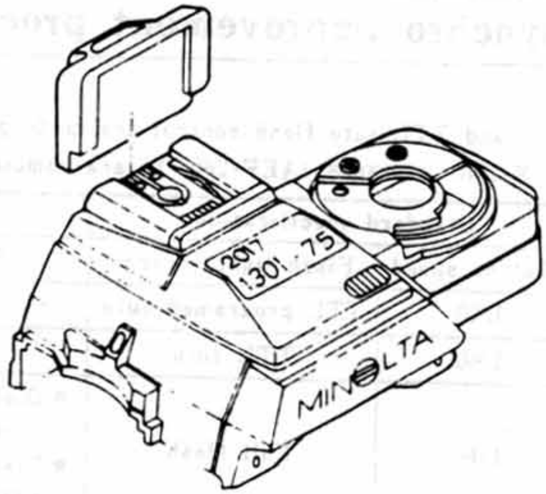
Tool No. 2017-0003-75

Release tool



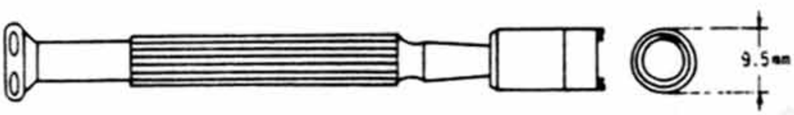
Tool No. 2017-1301-75

Temporary cover



Tool No. 2017-3013-75

Top cover nut wrench



Tool No. 2017-3309-75

Temporary nut

Tools used in common

Tool No. 2005-0001-75
Master lens for S-auto

Tool No. 2005-0002-75
Master lens for A-auto

Tool No. 054-5202-79
Master lens for 054 finder back adjustment

Tool No. 2006-2020-75
Shutter button pressure spanner

Tool No. 2019-2053-75
ASA dial nut spanner

Tool No. 2006-3003-75
Winding lever pressure spanner

Body back gage

Flat plate (for 2005)

Dial gauge

Reflection paper
(1.3m × 2m)
(Seamless paper #22 Supprior make)

Dial tension gauge
(500g, 300g)

Sub materials

Grease

- #3340
- #335
- #704
- #006

Oil

- #012

Anti-diffusion agent

- FC-721

(Dilute with solvent FC-77 by 1 : 10)

Adhesives

- 3-BOND 1101B
- PLIOBOND
- Silicon-bond KE-441RTV
- ALTECO CN2
- LOCTITE
- SONIBOND SC-108

Cleaner

- FLONSOLVE

Slow synchro improvement procedure

Purpose

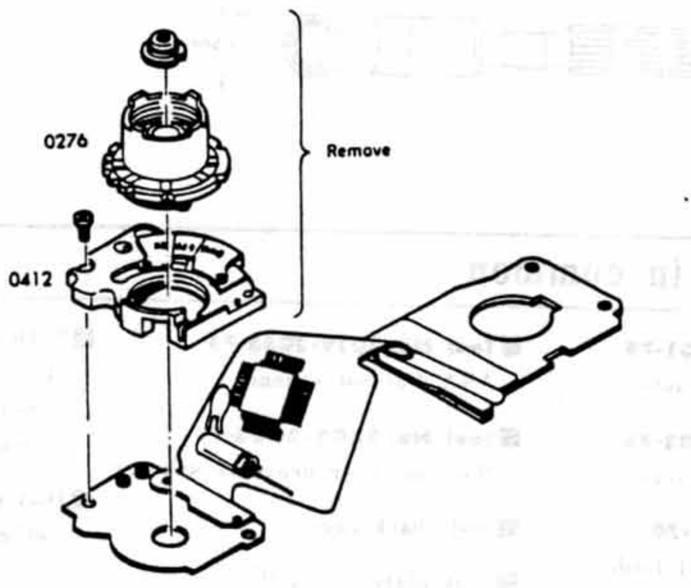
Slow synchro and TTL auto flash control are made possible for flash photography in M mode, when 2017 (X-700) and 8808 (AEF-280PX) are combined.

Mode	Standard specification		Improved specifications	
	Shutter speed	Flash light control	Shutter speed	Flash light control
P	1/60	TTL programed auto	1/60	TTL programed auto
A	1/60	TTL auto	1/60	TTL auto
M	1/60	Full flash	• Dial position 1~60 …set position speed • Dial position 125~1000…1/60	TTL auto

Improvement procedure

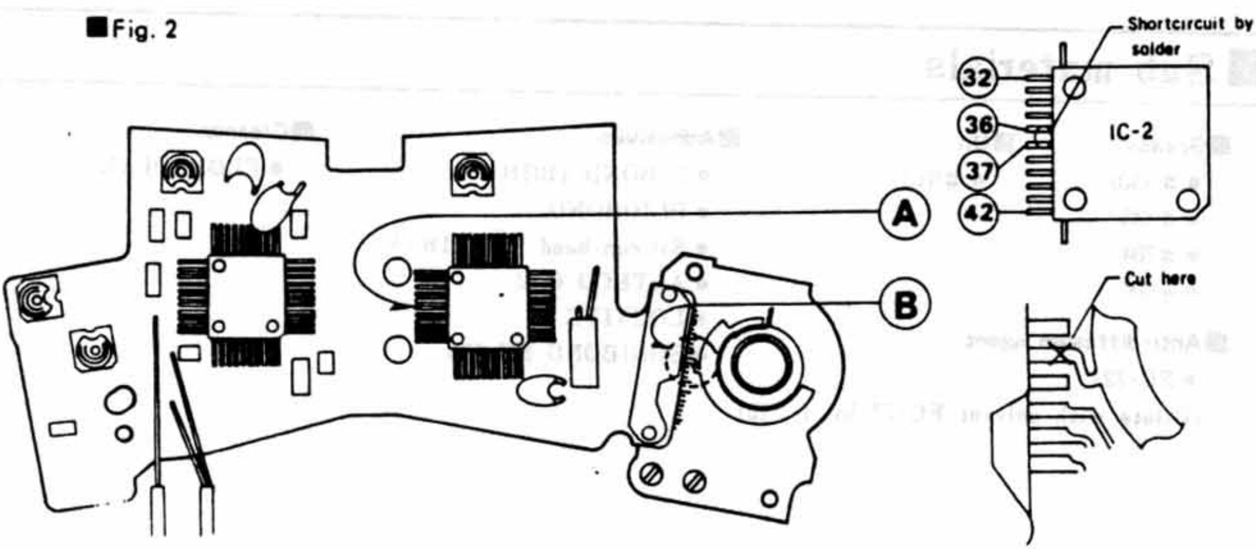
1. Remove the top cover, shutter dial shaft (0276) and main switch guide (0412).

Fig. 1



2. Shortcircuit between the terminals of IC-2 ㊱ and ㊲ on the flexible circuit board by solder Ⓐ of Fig. 2), and cut off pattern Ⓑ of Fig. 2 by using a cutter.

Fig. 2



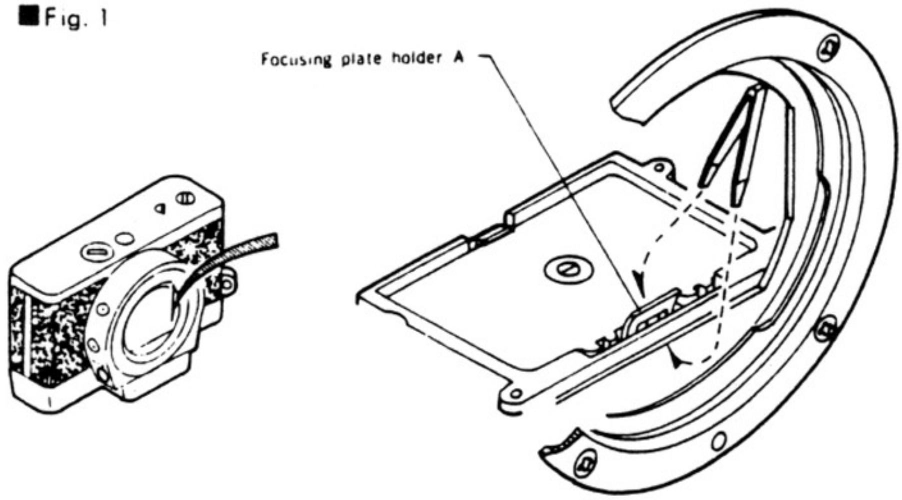
Focusing plate replacement procedure

For view finder cleaning without camera disassembly or focusing plate replacement follow the procedure given below.

Removal

Insert the tweezers between the focusing plate and focusing plate holder A.
Slightly tilt the tweezers to raise the focusing plate for removal.

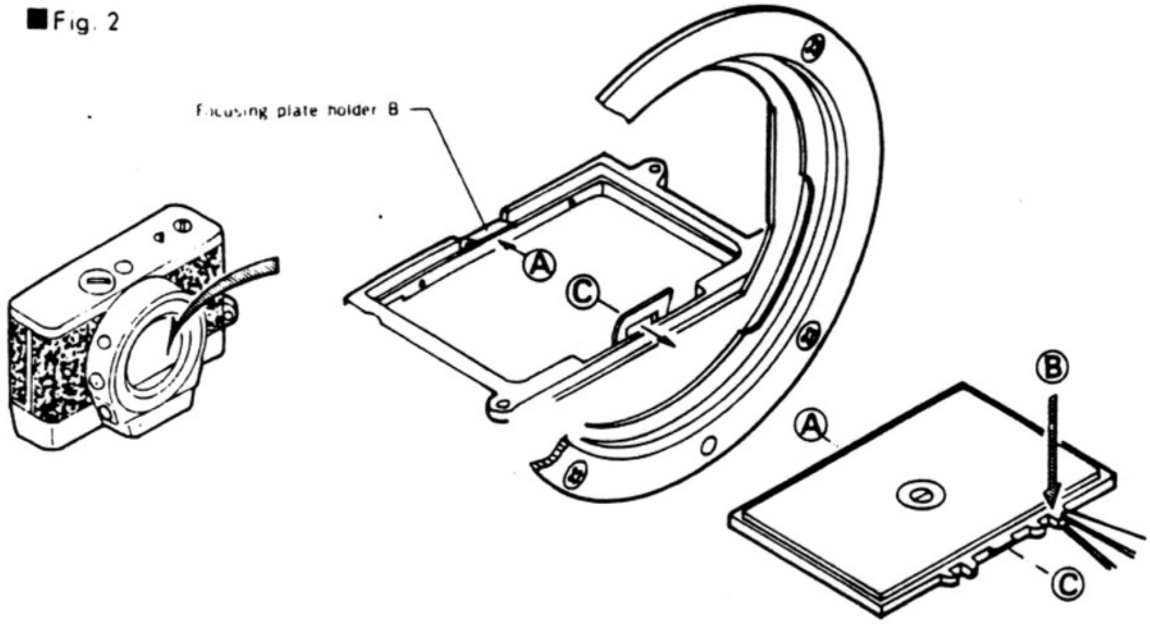
Fig. 1



Mounting

Hold the focusing plate as illustrated; fit part A onto the bend of focusing plate holder B; press down arrow-marked part B ; and insert projection C into the hold of focusing plate holder A.

Fig. 2

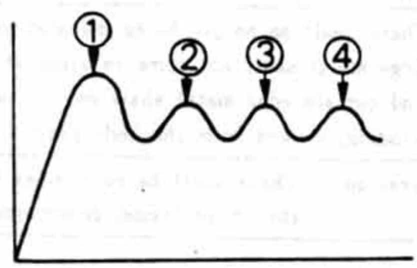


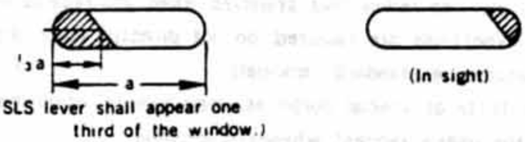
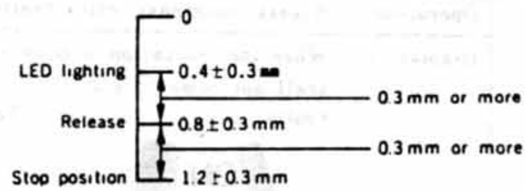
Mounting check

After mounting the focusing plate, check that the view finder back and EE level are correctly positioned.

Inspection Standard

1. This standard specifies uniform performance levels for servicing in order to guarantee our product's quality to customers. Each item is detailed so that you can follow this standard when you receive inquiries from users or are asked for checks.
2. When delivery or acceptance inspections are required, do not directly apply this standard to the performance measurements, but refer to the corresponding standard (manual).
3. Some users, because of their taste or special purposes, may require adjustment of this standard. In this case, perform the adjustment according to the user's request whenever possible.

Check Item	Checkpoint	Description
Main switch		Operation……Squeak, roughness, click feeling.
		Display………When the indication window is viewed from above, the nearby character shall not come in sight. Faulty Faulty 
		Beeper………A beeper shall sound when the touch switch is turned ON, any LED 30 ~▼ inside the finder lighting up, in "ON)))" position.
Winding	Winding lever	Operation……There shall be no uneven action, roughness, sticking or contact, etc.
		Play…………Shall be less than 0.7 mm at the tip of the lever.
	Spool	Operation……An even and smooth idle rotation shall enable the film to rewind securely.
		Spool torque…200 to 300 g (②, ③, ④ as shown in the figure below). 
	Sprocket	Operation……Slip, no-load rotation with the rewind button depressed.
Rewinding	Rewind button	Operation……Lock, unlock (To be reset at the first half of rewinding), touch or contact.
		Lock position…Should be above, the bottom cover. Unlock position…Should be below the bottom cover surface.
	Rewind handle	Operation……There shall be no uneven heavy movement, touch or contact, etc. ……Effective spring action.
Film counter	Counter dial	Feed…………The counter dial shall be 1 when the rear lid is closed and the film is wound twice. There shall be no contact, skip, etc.
		Return………There shall be no contact, etc., and the counter dial shall return to S.
		Index deviation…Shall be within the range as illustrated below: 

Check Item	Checkpoint	Description
SLS		Operation……SLS shall not come in sight in case of no film loaded. ……SLS shall come in sight as illustrated below in case of a film loaded: Counter……1 Counter……36+2 
Shutter	Shutter button	Operation……There shall be no roughness, contact, shock, etc., and the shutter button shall return to the original position.
		Stroke…… 
	Speed dial	Operation……There shall be no squeak, roughness, etc., and the dial shall rotate smoothly. Click feeling.
		Index deviation…The center of speed and mode letters is level with the upper or lower line of the index. 
		Lock …………Dial shall be locked securely in A and P positions. …………Lock button shall not squeak and be pressed in smoothly.
	Shutter curtain	● There shall be no pin holes, surplus adhesives, etc. ● Edge metal shall not come in sight at the shutter wound and released. ● 2nd curtain edge metal shall not be in sight more than 0.5mm on the way of winding, viewed from the body rear.
		Operation……There shall be no contact between 1st and 2nd curtains, bounds inside the image frame, protrusion of the curtain, abnormal sound, etc.

Shutter speed

Dial position	1000	500	250	125	60	30	15	8	4	2	1
Reference value (ms)	0.98	1.95	3.91	7.81	15.6	31.3	62.5	125	250	500	1000
Standard	±0.5 EV	±0.4 EV	±0.3EV								
Tolerance (ms)	0.69 ~ 1.38	1.47 ~ 2.57	3.17 ~ 4.81	6.33 ~ 9.61	12.6 ~ 19.2	25.4 ~ 38.5	50.6 ~ 76.9	101 ~ 154	203 ~ 307	405 ~ 615	810 ~ 1230

● Curtain speed…Shall be within 13ms (travelling time for 32mm) for both 1st and 2nd curtains.

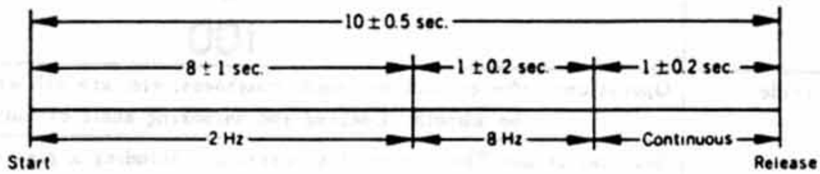
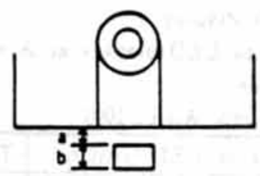
● Fluctuation…The difference between the maximum and minimum values in the center of the image plane (B range) shall be within 0.4EV.

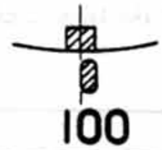
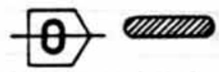
● Uneveness of exposure…The difference of the exposure time between both ends (A, C ranges) and the image plane center (B range) shall be within 0.3EV, and the difference between A and C ranges shall be within 0.4EV.

Synchro

X delay time

Shutter speed	Item	Tolerance
1/60	X contact delay time……………………………A range	Over 0.4ms
	From X contact ON to 2nd curtain start…B range	Over 2.4ms

Check Item	Checkpoint	Description
Self-timer	Lever	Operation······There shall be no roughness, squeak, etc. Click feeling.
	Timer function	● Setting the lever to "OFF" after starting shall stop operation. ● With main SW. in ON))) position, the pulsating beeper shall sound. ● ON/OFF cycle of the lamp (LED) and beeper shall satisfy the following time chart: 
Finder	View	Inclination of image, coincidence, fading on one side.
	Diaphragm display	Diaphragm display shall be within the frame, and the adjacent character shall not be in sight at F5.6. Display frame position···As illustrated.  Height··· 0 < a ≦ b Right & Left···Within micro prism width
	LED display	At normal shooting···Mode display LED lights up within the range as illustrated, and the speed display LED shall indicate a proper shutter speed in any case.  **NOTES**: With MD lens installed, P lights up at MIN. diaphragm setting. : P flashes at settings other than MIN. diaphragm, with other than MD lens or MD lens installed.
		At electric flash shooting··· ① When AEF-280PX (8808) is installed; ● 60 LED shall flash for each mode, when the flash is charged. ● Mode display shall not disappear at P mode. (For A, M modes, mode display shall disappear when the flash is charged. ● 60 LED, when dimmed at A and P modes, shall flash one second at 8 Hz immediately after shooting. ② When X series electric flashes other than the 8808 are installed; ● For each mode, 60 LED shall flash when the flash is charged, and mode display shall disappear.
		Others······ ● The display shall light up for 15 seconds after the metering switch (S_0 or S_1) is ON. The display, however, shall disappear when the metering switch is OFF in 15 seconds after it is turned ON. ● Immediately the self-timer operates and is released, the display shall disappear. ● More than the 3 shutter speed display LEDs shall not light up. ● High luminance alarm (▲) and low luminance alarm (▼) shall flash independently. (Shall not light up simultaneously with "1000" or "1" LED)

Check Item	Checkpoint	Description
Auto exposure	ASA dial	Operation……There shall be no touch or contact, roughness, etc., and the dial shall rotate smoothly, and shall engage with the lock groove securely.
		Dial deviation…The center of the index shall fall on the dial scale including a play. 
	Override	Operation……No contact or touch, roughness, etc. are allowed, and the rotation shall be smooth. Locking and unlocking shall be sure.
		Dial deviation…The center of a character including a play shall fall on the index. 
		Alarm LED…LED (＊) inside the finder shall flash in case of movement over ±0.5 step. (Be ware of +0.5 step position in particular.)

1 Auto exposure and tolerance of LED display

1. LED display at M mode…Conforms to LED display at A mode as shown in Table 1 below:
2. EE level and LED display at A mode.

Table-1 (Lens : Master lens for S-auto, ASA : 100)

Luminance	Diaphragm	Tolerance of LED lighting						Tolerance of EE level
EV 5	F 4	4	☼	☼	▬	▬	▬	0 ±0.8EV
		2	▬	☼	☼	☼	▬	
		1	▬	▬	▬	☼	☼	
EV 11	F 8	60	☼	☼	▬	▬	▬	
		30	▬	☼	☼	☼	▬	
		15	▬	▬	▬	☼	☼	
EV 14	F 5.6	1000	☼	☼	▬	▬	▬	
		500	▬	☼	☼	☼	▬	
		250	▬	▬	▬	☼	☼	

3. EE level, LED display and shutter speed at P mode.

……Check the following, also using SS adaptor (Model SD-2101) for EE tester.

Table-2 (Lens : Master lens for S-auto, ASA : 100, diaphragm : F 16)

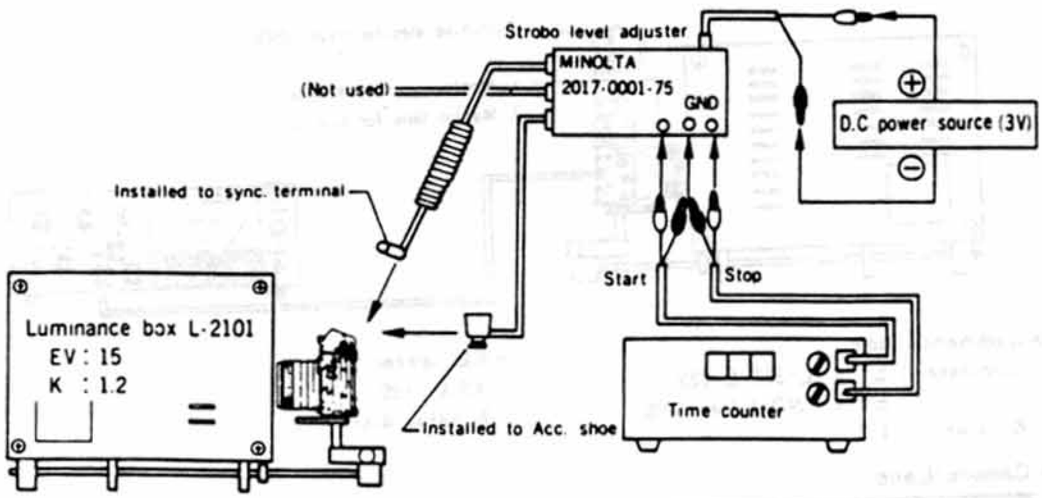
Luminance	SD-2101 diaphragm changing SW.	Tolerance lighting LED and SS for lighting position		Tolerance of EE level
		Lighting LED	Allowable range of shutter speed	
EV 15	F 8	1000, 500	0.69~3.28 ms	0 ±0.8EV
		500	0.82~4.65 ms	
		500, 250	1.16~6.57 ms	
※ EV 10	F 2.8	250, 125	2.32~13.1 ms	
		125	3.28~18.6 ms	
		125, 60	4.65~26.2 ms	
EV 5	—	30	Not specified	
		30, 15		
		15		
		15, 8		
		8		

※EV 10 : In case the luminance box is L-222 and L-223, EV 11+ND filter is used. (50%)

Check Item	Checkpoint	Description
Auto exposure	[2] Electric flash dimmer performance	

1. Check by a luminance box (When the luminance box is other than L-2101, check in the following No. 2 methods.)

- **Standard**···The time counter display shall be within the range of $\boxed{0.36 \text{ to } 1.1\,\text{ms}}$.
  (± 0.8 EV for 0.63 ms reference value)
- **Checking procedures**···Set up a camera and measuring instruments as illustrated below to observe the time counter display when the shutter is released.

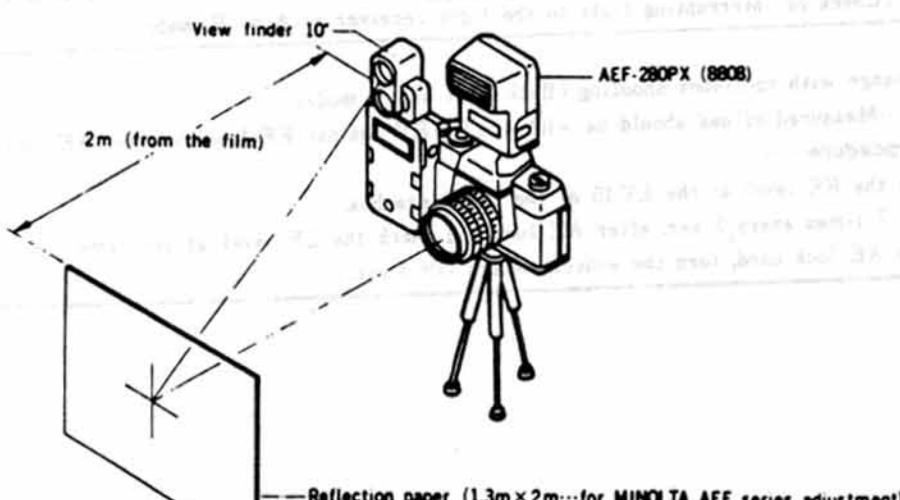


- **Camera**
  : Installation master lens for A-auto
  : Standard reflecting plate (2017-0002-75) installation
  Shutter dial : P
  ASA : 100
- **Time counter (TC-1)**
  TRIG. slope A-CH : ⊖
  B-CH : ⊕
  TRIG. level A-CH : + 2
  B-CH : + 2

---

2. Checking by strobo tester (Model ST-Ⅲ)

- **Standard**···Strobo tester display shall be within the range of $\boxed{F\,5.6 \pm 0.8\,\text{EV}}$.
- **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 lights up to observe the display of the electric flash.

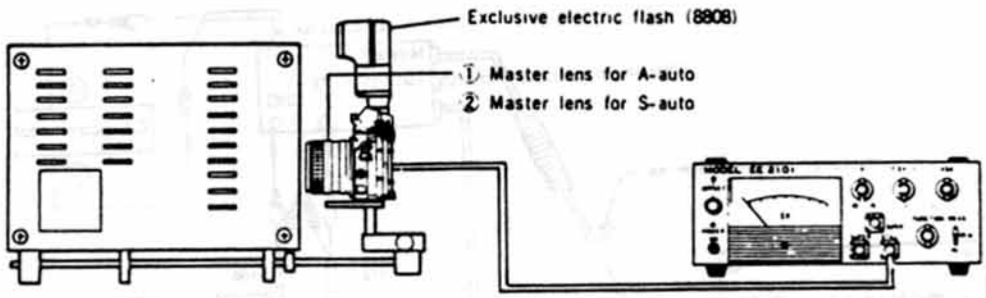


- **Camera**
  : Installation master lens for A-auto
  : Standard reflector (2017-0002-75) installation
  Shutter dial : P
  ASA : 100
- **Strobo tester**
  MODE : NON. C
- **Electric flash**
  Hi-Low changing SW : Hi

Check Item	Checkpoint	Description
Auto exposure		

3 Electric flash program performance

- **Standard**···EE level difference at A and P modes shall be within $\boxed{\text{1 EV}}$ under the following conditions:
- **Checking procedures**: Install an exclusive electric flash (8808) to a camera and release the shutter after the electric flash charging completes to check EE level difference at A and P modes.



- **Luminance box**
  Luminance: EV 8 (L-222/L-223:
  EV 9 + ND filter 50%)
  K value : 1.2
- **EE tester**
  ASA : 400
  K value dial : 1.2
- **Camera/Lens**

Sequence	Lens	Diaphragm	Mode	ASA
1	Master lens for A-auto	—	A	100
2	Master lens for S-auto	F 16	P	

4 High/Low speed limit

1. High-speed limit:
   The exposure time shall be within $\boxed{\text{0.69 to 1.38 ms}}$ at high-luminance interlocking at A and P modes. (Check by the shutter tester at A or P mode.)
2. Low-speed limit:
   The exposure time shall be within $\boxed{\text{5 seconds}}$ at low-luminance interlocking at A and P modes. (Check by interrupting light to the light receiver at A or P mode.)

5 AE lock

Exposure change with continuos shooting (Both of A and P mode)

- **Standard**···Measured values should be within ±0.6 EV against EE level without AE lock.
- **Check procedure**······
  1. Check the EE level at the EV 15 of the luminance box.
  2. Shoot 7 times every 5 sec. after AE lock and check the EE level at the same time.
     (When AE lock used, turn the sencer switch ON first.)

Check Item	Checkpoint	Description
Focus	Mirror	Angle············45° ± 10′
		Operation······There shall be no play, two-step movement, improper timing, bounds within the image plane, etc.
		Inclination ··· Shall be within 0.4 mm for the light shield plate in the up position.
		SPC-B shutter···Shall be open when the mirror is up. (Check with B.)
	Body back (Pressure plate back)	$43.72^{+0.01}_{-0.02}$ mm (from the pressure plate margin to the lens mounting surface)
	Finder back	43.565 ± 0.025 mm
Others	MD, MC levers	Operation······There shall exist no roughness, contact or touch, abnormal sound, etc.
	Lens removal and installation	Check removal and installation torque (light or heavy), lock, unlock, play.
	Back cover	Opening and closing···Back cover shall float spontaneously when the rewind knob is pulled up. There shall be no remarkable play when back cover is closed.
	Pressure plate	There shall be no distortion, protrusion, concave, foreign matter attachments, etc.
	Battery chamber	Contact ······ There shall be no abrasion, corrosion, stains, etc.
	Compatibility with accessories	● Interchangeability with Multi-Function Back (8744) ···With 8744 installed, continuous shooting and camera control functions by 8744 shall be performed. ● Interchangeability with Motor Drive 1 (8740) and Auto Winder G (8731-200) ···With 8740 and 8743 installed, check the functions.
Voltage regulations, etc.		● Release lock voltage·············2.10 ± 0.15 V ● LED light-off voltage ·············2.40 ± 0.15 V ● Current drain at LED lighting (at light measuring) ···12 mA or less ● Leak current at main SW. ON ·············10 μA or less ● Leak current at main SW. OFF ·············2 μA or less

TROUBLE-SHOOTING

1. Use of Trouble-shooting

This trouble-shooting chart describes symptoms and causes of troubles found on the camera side.

(Even when trouble is found on the camera side, its cause is not always attributable to the malfunction of the camera in relation to the exchangeable lens, winder, motor drive and exclusive flash. Therefore, use this trouble-shooting chart upon confirmation of trouble on the camera after checking combined performance with the accessories according to claim contents.)

2. Description

1. This Trouble Shooting Chart is classified mainly into PART I and PART II, which can be used properly depending your desire.

PART I

- Provides you with significant points of troubles (symptoms, causes), including contents for PART II.

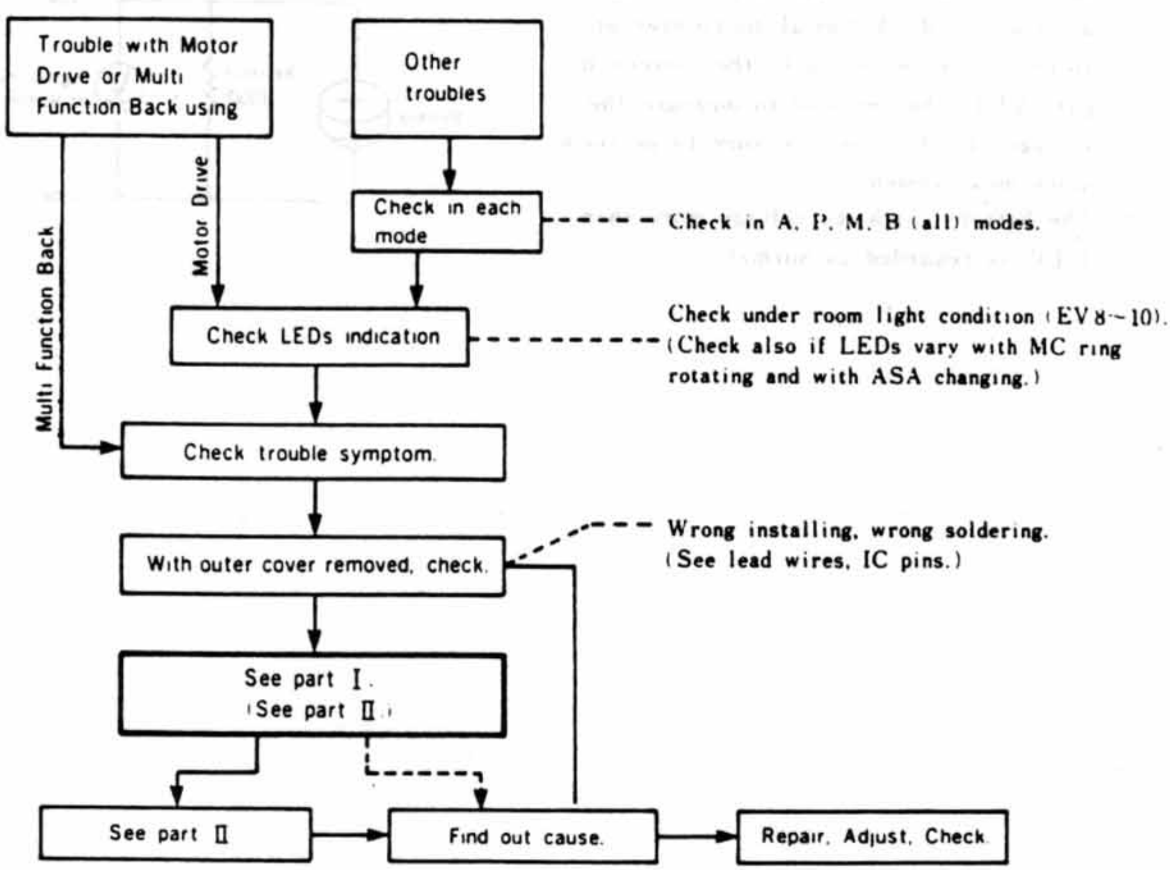
PART II

- Provides you with detailed trouble causes, including proper measures, adjustments, 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 case only. Trouble due to a plurality of causes should be checked collectively on the basis of the causes listed in this chart.

3. Repair Procedure

(With no LEDs lighting, first see next page to check battery power.)



● **In case that trouble symptom is not re-occurred.**

In case that trouble symptom is not re-occurred when checking trouble with about 50-shutter-releasing before repair. ········

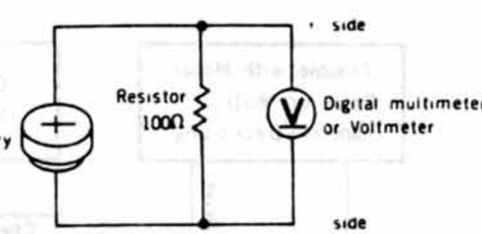
Find out cause against trouble symptom, which was pointed out by user, following PART I, and check related parts.

4. Servicing Precautions

1. Check voltage using degital multi meter (but not necessarily when input impedance is more than 10MΩ).
2. Use circuit tester whose voltage is 3V or less to check circuit connection.
3. Trouble is most unlikely to occur in electronic parts, such as ICs, diodes, transistors, resistors, and capacitors. 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 switching patterns, special care should be taken so that the patterns out-side switch operation are free from flaws. 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 a constant-voltage regulated power supply is used).
8. The ideal temperature range for the soldering iron tip is 290°C to 310°C. If the temperature is higher, however, perform soldering quickly. Also, be sure to clean the tip when soldering.

5. Battery Capacity Check

1. A 100Ω resistor is paralleled with the battery at normal temperature (25 ± 2.5°C), as illustrated. A digital multimeter or voltmeter is connected to the battery in parallel to the resistor to measure the voltage. In this case, be sure to perform quick measurement.
2. The battery, with its voltage more than 1.4V, is regarded as normal.



INDEX

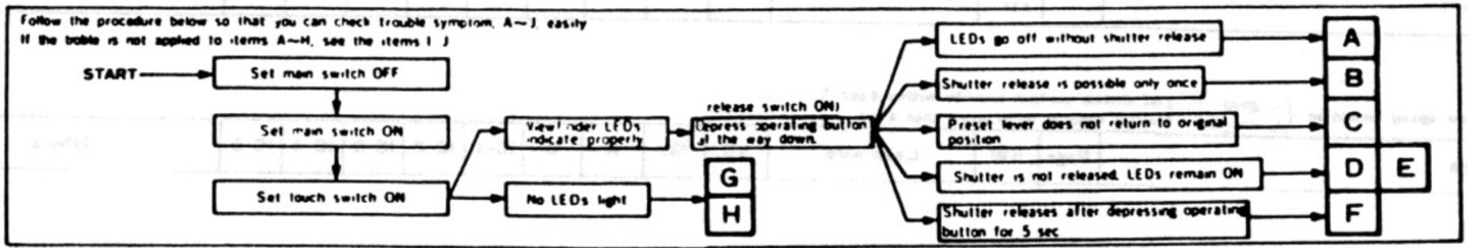
For light leakage, refer to P. 36～P. 37.

Ⅲ Trouble-shooting chart PART Ⅰ

1. Shutter is not released.

ABBREVIATIONS	
Flex P.C. board	Flexible P.C. board
P.W.	Printed Wiring

OTHER
For the symbols after page 1.
P.W. (1•2)……, Joint A B……
(or A, B……) meaning symbols on Wiring Schematic Diagram



(Note) Mark "•" for SW, Lead Wire, C in the following table indicates they are short-circuited with GND.

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
	① Shutter is not released in any mode.													
A	• Viewfinder LEDs light up properly with touch switch (S_3) ON • With release switch (S_2) ON LEDs go off, and light up properly again with touch switch ON after changing main switch (S_4) ON→OFF→ON. • (Incl. "Mirror stays up".)	9	3	39(Orange)		3					7			Shutter mechanical failure (See P. 12)
B	• Shutter is released only once each time changing main switch (S_4) ON→OFF→ON • Viewfinder LEDs light up properly with touch switch (S_3) ON when winding up completely, but go off when releasing shutter.	9	4	17, 10(Yellow)			13				3			
C	• By release switch (S_2) ON, preset lever travels, but not return to original position. • Viewfinder LEDs light up properly with touch switch (S_3) ON, and go off with release switch (S_2) ON. But they light up properly with touch switch ON after touch switch OFF	9		SL-3(Green)		3		9			33		2, 11	Joint R: disconnection
D	• Shutter can be released by remote control switch (S_{13}). • Viewfinder LEDs light up properly with touch switch ON, but remain ON even with release switch ON.	10	2	41(Green) 49(Grey)										
E	• Shutter is not released neither by release switch (S_2) ON nor by remote control switch (S_{13}) even with main swich (S_4) changing ON→OFF→ON • Viewfinder LEDs light up properly with touch switch ON, but do not go off even with release switch.	10	4	•17, •40(Yellow) 53(Red), 54(Grey)			20				2			• Shutter mechanical failure (See P. 12) • Q_1: defect • Shortcircuit between connector P.C. board P.W. ③ and ④ • Flex P.W. ③ and top cover
F	• Shutter is released when keeping operating button depressed for about 5 sec. • Viewfinder LEDs light up when keeping operating button depressed for 2~3 sec.	10									38, 39			XL
	② Shutter is not released and no viewfinder LEDs light up in any mode.													
G	Excessive current flows using D.C. power supply. (Battery drains sharply.)	11		•BZ, •36, •37, •38 •53, •12-2, •10, •59 (Red)					36, 37					
H	Power is not supplied using D.C. power supply.	11	6	38, 10(Red) 3(Black)							37		1	• Battery chamber: contact failure • Joint V, Y, (I), J: disconnection
	③ Others.													
I	• Shutter is not released continuously. (Needing 2~5 sec. for next shutter releasing) • Viewfinder LEDs are normal.	11											12	
J	• Shutter is not released by remote control switch (S_{13}). (Normal operation with operating button depressing) • Viewfinder LEDs are normal.	11	13	4(Black) 47(Grey)										

2. Shutter is released when returning film advance lever.

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	Shutter is released when returning film advance lever.	14	· 2 · 13	· 17, · 49 (Grey)										● Remote control terminal shortcircuit ● W, P W shortcircuit with GND

3. Shutter operation failure L Low speed limitation (L: good ······ 2nd shutter curtain travels within 4 sec. / L: no good Shutter remains open more than 4 sec.)

① Shutter stays open.

	Mode				Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	A	P	M	B	(L: no good) Viewfinder LEDs are normal.	14		· 51 (White)				· 11	21		20			Printed wiring disconnection between IC-1 ② and IC-3 ⑤
B	A	P	M	B	(L: no good) ● Only "M" lights up for mode indication. ● "△" blinks for metered shutter speed.	14								16				Joint Ⓔ disconnection
C	A	P	M	B	(Shutter stays open unless touch switch (S_4) OFF (finger off operating button.) ● Viewfinder LEDs are normal.	14	· 3	· 39 (Orange) 58 (Blue)			24, 25							IC-6 ⑪ : disconnection
D	A	P	M	—	(L: good) Viewfinder LEDs are normal.	15						4, 5 · 6	17	30				
E	A	P	M	—	(L: good) (Shutter operates almost normal when LED shows 1/15~1/1000 sec.)	15						5, 6						
F	A	P			(Or slow shutter speed) (L: good) Under-range LED "▽" blinks in any mode, or slower shutter speed indicates in P mode.	15		· 8, · 9 (Brown) 25 (Purple) 15 (Orange) 52, · 52 (Green) 3 (Black) 22, · 22 (Blue)	2, 10 4, 9		2, 17	12	8, 3, 4 6, 39, 40					● Q_1 or SPC-A cold soldering ● AV resistor VR_1 contact failure
G	A	P	—	—	(L: good) Under-range LED "▽" blinks in P, M, B modes (Normal in A mode)	16						2						
H	A	P	—	—	(L: good) Under-range LED "▽" blinks in P mode (Normal in A, M, B mode).	16		· 29 (Grey)						17				
I	A	P	—	—	(L: good) Viewfinder LEDs are normal.	16						5						
J	A	P	—	—	(L: good) ● Shutter stays open with AE locked. ● Viewfinder LEDs are normal.	16		29 (Grey) 4-2 (Black)				2		19				
K	—	P	—	—	(Shutter stays open occasionary or slower shutter speed.) Viewfinder LEDs are normal.	16												SL-2: excessive over-charge
L	—	—	M	—	(L: good) Over-range LED "△" blinks in any mode.	16							31, 33					Joint Ⓕ disconnection
M	—	—	M	—	(AE is slightly over in A, P modes) (L: good) ● Under-range LED "▽" blinks, or slow shutter speed indicates in A, M, B mode. ● Viewfinder LEDs indicate slower shutter speed in P mode.	16												Joint Ⓖ disconnection
N	—	—	M	—	(L: good) Viewfinder LEDs are normal.	16			1					11				● TV brush (VR_1) contact failure Joint Ⓗ disconnection
O	—	—	M	—	(Shutter stays open at one of shutter speed settings.) (L: good). Viewfinder LEDs are normal.	17			1									● TV resistor (VR_1) dirt ● TV brush deformation

	Mode				Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
② Shutter curtains travel in high speed, or without slit.																		
	Mode				Travel without slit:													
A	A	P	M	B	No viewfinder LEDs light up in any mode.	17		• 53(Red)				• 7			5		5, 8	Joint U, W, X: disconnection
B	A	P	M	B	(Sometimes with slit) Over-range LED "△" blinks and mode indicator "M" lights up in any mode.	17							16	37				
C	A	P	M	B	(Sometimes with slit) Viewfinder LEDs other than mode indicator do not light up.	17									36			
D	A	P	M	B	Viewfinder LEDs are normal.	17	6	51(White) 37(Red)	1	4			18, 11 19, 20	18				• Shutter under-charge • 1 of shutter curtain stopper defect • TV P.C board defect • TV contact not contact failure
E	A	P	M	B	(In A, P, M modes, for 1/30-1 sec. shutter operates approx. 20 ms slower.) Viewfinder LEDs are normal.	18		59(Red) 57(Yellow) 39(Orange) 60(Black)					12					IC-6⑦, ⑨, ⑪, ⑬: disconnection
					Travel in high speed:													
F	A	P	M	—	Viewfinder LEDs are normal.	18						6	15					
G	A	P	—	—	Over-range LED "△" blinks or LEDs show faster shutter speed in any mode.	18		9(Brown) 12, • 12(Red) 14(Orange) 1, 2(Black)	3				5					• ASA contact (VR₁): contact failure • SPC A, B: shortcircuit with GND
H	A	P	—	—	• Under-range LED "▽" blinks, or LEDs show slower shutter speed in A, M, B modes • In P mode LEDs show slower shutter speed.	18		8(Brown) • 14, • 15(Orange)	3									ASA contact (VR₁): contact failure
I	A	—	—	—	Mode indicator "M" lights up in A mode.	19	5-3											Joint Ⓒ: disconnection
J	A	—	—	—	Viewfinder LEDs are normal.	19								4				
K	—	P	—	—	Under-range LED "▽" blinks only in P mode.	19								3				
L	—	P	—	—	Mode indicator "M" lights up in P mode.	19	5-2											Joint Ⓓ: disconnection
M	—	—	M	—	• Under-range LED "▽" blinks in any mode. • Full aperture in P mode.	19			5				30					Joint Ⓛ: disconnection
N	—	—	M	—	Over-range LED "△" blinks in any mode.	19			7									
O	—	—	—	B	(Or 1 sec. shutter opening occasionary) Viewfinder LEDs are normal.	19	5-1								4			Joint Ⓐ: disconnection
③ Others																		
	Mode																	
A	—	—	M	—	(Partly shutter speed failure.) Viewfinder LEDs are normal.	19			1									• TV (VR₁) brush deformation • TV (VR₁) resistor failure (rate of resistor)
B	—	—	M	—	• Shutter speed 1/1000 and 1/500 sec. become 1 sec., and 1-1/250 sec. become 1/1000 sec. • Viewfinder LEDs are normal. (AE is over in A mode. Normal in P mode.)	20												TV (VR₁) contact holder set: wrong installing
C	—	—	M	—	• Shutter speed becomes slower under bright conditions, faster under low light condition. • Viewfinder LEDs are normal. • (AE is over in A, P modes.)	20							28	41				
④ Auto exposure error in A, P modes.																		
	Mode																	
A	A	P	—	—	AE over	20		15(Orange)	4, 9		23, 19		2, 7	42	30			Refer to "Full aperture in A, P modes".
B	A	P	—	—	AE under	20			4, 9		5		1, 27 29	9				Refer to "Full aperture in A, P modes".

4. Diaphragm stop operation failure

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	• Full aperture in A, P, M, B modes. • Viewfinder LEDs are normal	21		SL-1(Green, White) 24, •24(Purple)		1, 2		10 •10		5	35		10, 3	• IC-5. defect • Joint S. disconnection
B	• Full aperture in P mode. • Viewfinder LEDs are normal.	21		16(Orange)				3		23				
C	• F-stop does not function in P mode. • Viewfinder LEDs are normal. • Full aperture under dark conditions (about EV 7 or less). • Stop down to min. aperture under bright conditions (about EV 7 or more).	22		SL-2(Black, Brown) 13, •13(Orange) 62(Black)		2		8 •3		25, 27 33	27, 33		9, 4	• F stop slow SP (5)(27) disengagement • Printed wiring on SPC P.C. board disconnection • Joint T disconnection
D	• Smaller aperture (about 2 EV) in P mode. • Viewfinder LEDs are normal.	22								28	29			
E	• F-stop functions in A mode. • Mode indicator "A" lights up in P mode.	22												Shortcircuit between A and P mode P.W. on TV P.C. board

5. Self-timer operation failure

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	Self-timer does not operate. (Self-timer does not delay shutter release.)	23	10	42(Blue)							17			Self-timer plate: screw looseness
B	Self-timer operates always.	23	•10	•42(Blue)										
C	Self-timer operates without LED blinking.	23		33(Black) 36(Red)			4		24, 25		15			Self-timer LED: defect or cold soldering
D	Self-timer LED remains ON with main switch (S_4) ON.	23		•33(Black)										C_6-R and R_1: shortcircuit

6. AE lock failure

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	Unlocked	23	14	55(Yellow)							11			
B	AE remains locked.	23	•14	•55(Yellow)										
C	With AE locked (S_{14} ON), shutter stays open in A, P modes.	25		6-2(Black) 29(Grey)				2		19				
D	With AE locked (S_{14} ON), viewfinder LEDs indication is held and shutter speed varies according to light condition.	25								34	10			

7. Piezo buzzer failure

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	No beeping for slow-shutter-speed warning, for self-timer.	24		•BZ(Black) BZ(Red)							8			Joint ⑥: disconnection
B	No beeping for slow-shutter-speed warning. (Normal for self-timer).	24									9	34		

8. Shutter lock failure

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	Viewfinder LEDs remain ON with 2.4 V, and OFF with 2.05 V.	24							22		19			
B	Shutter lock does not operate with 2.05 V/locks with 1.4 V.	24							23		18			

9. Viewfinder LED indication failure

(In case that other troubles (Shutter is not released. Shutter stays open. Shutter curtains travel in high speed, or without slit. F-stop operates improperly.) are accompanied refer to the related pages.)

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
① No lighting LED.														
A	No LEDs light.	25										9		Insufficient battery power
B	• No LEDs light with touch switch (S_4) ON. • LEDs light up with release switch (S_2) ON after shutter release.	25	0, 1	35(Brown)							42			
C	• LEDs for metered SS do not light up. • Mode indication and exposure-adjustment LED (+/−) indication are normal.	25					11				41	23		
D	Mode indicators (A, M) do not light up.	25					9							
E	No LEDs light with touch switch of MD-1 ON.	25		7 (Brown)										W_1: contact failure
F	One of LEDs does not light up.	26	8	6-1(Black) 20(Green)			10					1~8, 30 35~44		Joints A~Q: disconnection
② LEDs remain lighting.														
A	LEDs remain ON with main switch (S_4) ON.	26	• 0 • 1	• 7, • 35(Brown)										
B	• LEDs remain ON after touch switch (S_4) is ON. • LEDs remain ON for 15 sec. after shutter release.	26					7	13						
C	Exposure-adjustment LED (+/−) remains blinking with exposure-adjustment controller in "0" position.	26	• 8	• 20(Green)										
③ With AEF 280PX used.														
A	Mode indicator "P" does not light up. "60" LED (as FDC) does not blink, and flash fires fully in flash P mode.	27		• 48, 48(Grey)										F_3: contact failure
B	Mode indicator "P" does not light up in flash P mode.	27								28		29		
C	With flash fully charged, X-sync shutter speed does not change to 1/60 sec. automatically. (Metered SS LED remains ON. Flash fires with slower shutter speed than 1/60 sec.)	27		• 50, 50(White)						35	25	28		F_3: contact failure
④ Others.														
A	Viewfinder LEDs light up with touch switch (S_4) ON, even with main switch (S_4) OFF.	27	6											
B	• Over-range LED "△" blinks in A, P, M, B modes. • Mode indication is normal.	27			7							15		Joint M: disconnection
C	Viewfinder LEDs show about 1/2 EV slower shutter speed.	27		• 23, • 25(Purple)										
Q	• Under-range LED "△" blinks in A, M, B modes. • LEDs show 1/4~1/8 shutter speeds in P mode.	28		22(Blue)										
E	• Under-range LED "▽" blinks in A, M, B modes. • Normal in P mode.	28								8		13		
F	Mode indicator "M" lights up, operating as A mode with A mode setting.	28										25		
G	• Under-range LED "▽" blinks in P mode. • LEDs light properly or show slower shutter speed (about 1 EV) in A, M, B modes.	28								6		14		
H	Mode indicator "M" lights up, operating as P mode with P mode setting.	28										27		
I	Mode indicator "P" remains ON, not blinking, with setting other than minimum aperture in P mode.	28	7-1	19(Green)								24		
J	Mode indicator "P" blinks with minimum aperture setting in P mode.	28												
K	• Mode indicator "P" remains ON, not blinking, with setting other than minimum aperture. • Exposure-adjustment LED (+/−) does not light up. • Metered SS LED does not change properly with ASA, aperture changing.	28									14	28		

10. Operation failure using exclusive flash unit (AEF 280PX)

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	● Flash does not fire. ● Shutter stays open.	29	11, 12	43, 44, 45(Purple)										● Hot shoe contact failure ● Sync terminal defect
B	● Flash does not fire. ● Shutter stays open. ● Mode indicator and "60" LED (as FDC) blinks at 2 Hz with flash charged completely.	29		32, 34(Black)										
C	Shutter operates without slit even though flash fires with "60" LED (as FDC) blinking.	29							14					
D	Always flash fires fully without blinking "60" LED (as FDC). (Time counter does not indicate normally, long when checking strobe level.)	29		2(Black) 23, 26, • 26(Purple)	6			• 7	9					SPC-B defect
E	● Always flash fires fully without blinking "60" LED (as FDC). ● Aperture stops down to minimum, without mode indicator "P" lighting in flash P mode.	30		48, • 48(Grey)						31				F_2: contact failure
F	Flash firing is extremely in short time. (Time counter indicates short.)	30					16 • 14	7	10, 11	40				SPC-B: shortcircuit
G	"60" LED does not blink with flash fully charged. (Shutter speed does not change to 1/60 sec. automatically.)	30		56, • 56(White)						35	25	28		F_1: contact failure
H	● Always full aperture in flash P mode. ● Viewfinder LEDs are normal.	30			8	2	22		35	20, 39				SL-2: insufficient attraction
I	● Aperture cannot be controlled properly in flash P mode. ● Viewfinder LEDs are normal.	30	7-2 7-3	11, • 11(Red) 18, • 18(Yellow)						12, 13				
J	● "60" LED (as FDC) does not blink. ● Always full aperture in flash P mode.	31								39				
K	Flash firing is not controlled correctly.	31		6-3(Black)										SPC-B shutter: operation failure
L	Flash fires but with slow sync in A, P, M modes.	31								38				
M	Flash firing is controlled automatically, blinking "60" LED (as FDC) in M mode.	31												Joint Ⓕ: disconnection
N	Mode indicator "P" does not indicate in flash P mode.	31								28		29		
O	Flash unit is not charged.	31	• 12	• 43, 44, 45(Purple)										● Hot shoe parts: shortcircuit ● Top cover no isolation sheet ● F_1 and F_2: shortcircuit ● Sync terminal shortcircuit

11. Operation failure using Motor Drive 1 (MD-1).

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	Shutter is not released by MD-1.	32		68(Grey)										W_1: contact failure
B	No LEDs light when using MD-1.	32		7(Brown)							1			● W_2: contact failure ● W_2 pin: riveting failure
C	Winding is impossible by MD-1.	32		• 21, 21(Blue)							12			● Winder contact shortcircuit with GND ● W_3: contact failure

12. Operation failure using Multi Function Back (MFB).

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	Data is not imprinted.	32		30, • 30, 62, • 62(White) 12-2(Red)			• 27 28				28			Q_1: defect or disconnection
B	Shutter is not released by MFB	32		21, 65(Grey)										
C	Shutter is released when returning film advance lever, with MFB using.	33												f_H (Grey) and f_L (Black): wrong soldering
D	Data is imprinted after 2nd shutter curtain travels completely.	33												f_m (Blue) and f_m (White): wrong soldering
E	Data is imprinted by changing main switch ON→OFF→ON slowly.	33												Circuit misoperation (Needing P.C. board C)

13. Leak current trouble.

	Symptom	Page	SW	Lead wire	VR	SL	R	C	IC-1	IC-2	IC-3	IC-4	IC-5	Others
A	● Battery drains sharply (Excessive leak current) ● Camera operation is normal	34						8, 9 10						

2 Trouble-shooting chart PART Ⅱ

■ Description of Trouble-Shooting Chart PART Ⅱ

Check items	Cause	Measures	Part position	Adjustment

※1 Checking method similar to conventional YES-NO system. Easy to find significant cause.

※1 Normally, mentioned in the order of high frequency. Thick letters show the cause which needs special care.

Description of general repairing methods other than cold-soldering/shortcircuit with lead wire.

- Against cold-soldering, absorb previous solder first, re-solder then.

※2 Defective parts positions are showed (coordinate) on Wiring Schematic Diagram.

※3 Description of required items of adjustment or checking after measures are taken.

※1 ● Flex P.W. number and joint part symbol, for voltage check, are the same as that on the Wiring Schematic Diagram.

● Voltage should be checked after winding up completely, with body connected to GND and metering switch (S_0 or S_1) turned ON.

※2 Find the part position by coordinate on the Wiring Schematic Diagram-D even though 4 Wiring Schematic Diagrams, A~D, are available.
(For the Wiring Schematic Diagram other than -D, symbol Ⓐ, Ⓑ, or Ⓒ is described.)

※3 By numbers and symbols, find out the relevant adjustment items using the following table, perform the adjustment and checking referring Service Manual Repair Guide.

■ Items for adjustment, checking after defective parts repaired

- When replacing flex P.C. board set, perform the marked (○) adjustment/checking in the A column.
- When replacing shutter block, perform the marked (○) adjustment/checking in the B column.

Number } Symbol on adjustment column in the Trouble-Shooting Chart			Items for adjustment, checking	Page on Repair Guide
A	B	Number		
			Body, winding unit	
		1	Sprocket gear positioning	2
		2	Winding gear positioning	4
		3	Film counter operation gear positioning	5
		4	Reversion stop lever stop timing adjustment	4
		5	Overrun eccentric pin adjustment	6
		6	Sprocket claw position check	7
		7	Reversion stop lever timing check	7
		8	Winding operation lever timing check	7
			Shutter operation	
		9	Shutter gear position adjustment	13
		10	Shutter charge adjustment	13
		11	Shutter curtain position check	35, 36
		12	Mirror magnet attraction check	10
		13	Release lock voltage check	31
		14	Synchro X time lag	38
			Shutter speed	
		15	Curtain speed adjustment	24, 38
		16	Manual SS adjustment	24, 38
			Auto exposure	
		17	Metering offset adjustment	22
		18	ASA inclination adjustment	22
		19	A-auto level adjustment	25
		20	Aperture magnet, release magnet attraction check	10
		21	Check of A mode and P mode (EE, SS)	30
		22	Check of limits at high and low shutter speeds	31
		23	Strobe level adjustment (strobe auto)	27
		24	Bending point level adjustment (strobe auto)	29
			LED indication	
		25	MD lever position adjustment	19
	○	26	LED position adjustment	20
		27	LED indication adjustment	26
		28	LED OFF-voltage check	31
			Viewfinder, focusing	
	○	29	Body back adjustment	17
	○	30	Finder back adjustment	18
		31	Mirror angle adjustment	41
		32	F No. infinder adjustment	20

1. Shutter is not released.

① Shutter is not released in any mode.

A. Viewfinder LEDs light up properly with touch switch (S_0) ON. With release switch (S_2) ON LEDs go off, and light up properly again with touch switch ON after changing main switch (S_6) ON→OFF→ON. (Incl. "Mirror stays up".)

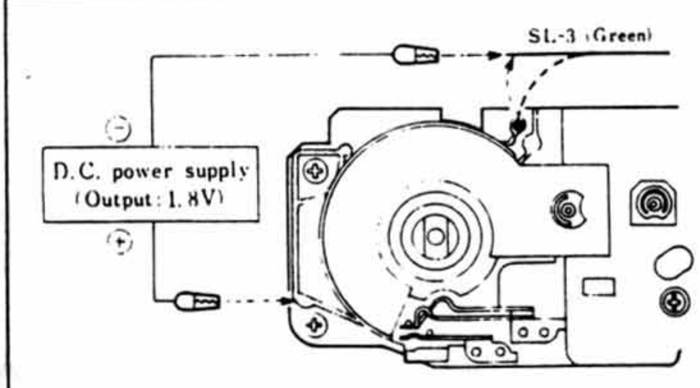
Check items	Cause	Measures	Part position	Adjustment
	Mechanical trouble	See P. 12		
These causes are not applied to body whose circuit base plate B has IC-6.	S_1: contact failure	Clean S_1, or replace wiring base plate set (0267) and trigger contact (2166)	M-3	16, 19, 27
		Replace shutter block.		B
	ℓ_{39} (Orange): disconnection		K-3	
	IC-3⑦: disconnection			

B. Shutter is released only once each time changing main switch (S_4) ON→OFF→ON. Viewfinder LEDs light up properly with touch switch (S_0) ON when winding up completely, but go off when releasing shutter.

Check items	Cause	Measures	Part position	Adjustment
	S_4: contact failure	Clean adjust S_4 bending. Adjust winding stop lever-A set (0312) operation.	E-1	
	ℓ_{17} (Yellow), ℓ_{40} (Yellow): disconnection		E-2	
	R_{13}: disconnection (By depressing operating button quickly, shutter may be released.)		H-3	
	IC-3③: disconnection			

C. By release switch (S_2) ON, preset lever travels, but not return to original position. Viewfinder LEDs light up properly with touch switch (S_0) ON, and go off with release switch (S_2) ON. But they light up properly with touch switch ON after touch switch OFF.

Check items	Cause	Measures	Part position	Adjustment
Shutter is released when connecting lead wire (Green) of SL-3 with body (GND) by battery. See figure below. Yes →	C_9: cold soldering or shortcircuit or defect	Replace C_9 or re-solder	B-7	
	Joint R: disconnection			
	IC-5② or ⑪: disconnection			
	IC-3⑬: disconnection			
	IC-5: defect	Replace IC-5		
No →	SL-3 (0523): dirt or defect	Clean attraction surface or replace mirror magnet set (0523).	N-4	20
	Lead wire (Green) of SL-3 (0523): disconnection	Re-solder or connect lead wire	M-4	
		Replace SL-3 (0523)		20



Disconnect SL-3 lead wire (Green), connect it to ⊖ end of DC power supply (output: 1.8 V).
Shutter releasing, when contacting + end of DC power supply to GND as shown in left figure after winding completion, means "YES".

D. Shutter can be released by remote control switch (S_{13}). Viewfinder LEDs light up properly with touch switch ON, but remain ON even with release switch ON.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{41} (Green): disconnection		K-6	
	ℓ_{49} (Grey): disconnection		K-4	
	S_2: contact failure (See P. 38)	Replace shutter dial base plate set (0274).	J-4	

E. Shutter is not released neither by release switch (S_2) ON nor by remote control switch (S_{13}) even with main swich (S_4) changing ON→OFF→ON. Viewfinder LEDs light up properly with touch switch ON, but do not go off even with release switch.

Check items	Cause	Measures	Part position	Adjustment
Check voltage of flex P.W. ㉝ (ℓ_{17} (Yellow)). Winding completely …1.5V or more After shutter release …0V — No →	Mechanical trouble	See P. 12		
	S_4: remains ON. (See P. 38)	Adjust operation of winding stop lever A set (0312), bending of contact or so.	E-1	
	ℓ_{17} (Yellow), ℓ_{40} (Yellow) and GND: shortcircuit		D-5 E-2	
	Lead wire (White) of SL-1 and ℓ_{17} (Yellow) shortcircuit	Re-solder or replace connecting P.C. board (0425).	D-5	
	Flex P.W㉝ and top cover: shortcircuit (With top cover removed, camera operates normally.)	Re-solder or stick isolation tape.		
Yes →	IC-3②: disconnection			
Only for body with P.C. board A employed.	ℓ_{53} (Red): disconnection		©I-6	
	ℓ_{54} (Grey): disconnection		©J-6	
	Q_3: cold soldering or defect		©I-5	
	R_{20}: cold soldering or defect		©J-5	

F. Shutter is released when keeping operating button depressed for about 5 sec. Viewfinder LEDs light up when keeping operating button depressed for 2～3 sec.

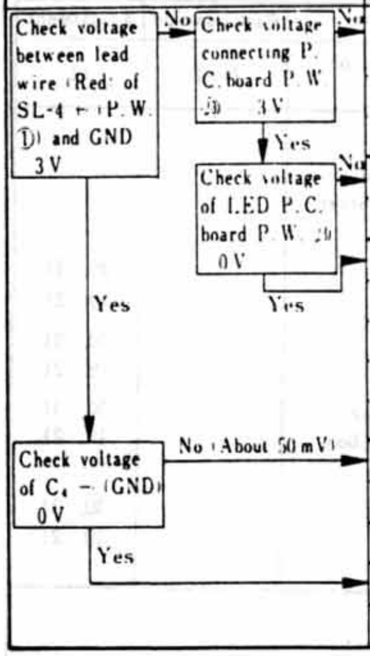
Check items	Cause	Measures	Part position	Adjustment
	XL legs: cold soldering or shortcircuit		I-7	
	XL: defect	Replace XL.	I-7	
	IC-3㊳ or ㊴: disconnection			

② Shutter is not released and no viewfinder LEDs light up in any mode.

G. Excessive current flows using DC power supply. (Battery drains sharply.)

Check items	Cause	Measures	Part position	Adjustment
Excessive current flows with S_6 ON. (Normal in OFF position)	Shortcircuit between GND and lead wire (Red) of BZ		J-8	
	Shortcircuit between GND and ℓ_{36} (Red)		L-3	
	Shortcircuit between GND and ℓ_{37} (Red)		K-4	
	Shortcircuit between GND and ℓ_{38} (Red)		H-1	
	Shortcircuit between GND and ℓ_{53} (Red)		Ⓒ I-6	
	Shortcircuit between GND and ℓ_{10} (Red)		A-3	
Excessive current flows with S_8 ON. (Normal with S_6 ON)	Shortcircuit between GND and $\ell_{12\text{-}2}$ (Red)		G-7	
	Shortcircuit between GND and ℓ_{59} (Red)		Ⓑ G-7	
	IC-1 ㊱ and ㊲: disconnection			

H. Power is not supplied using DC power supply.



Check items	Cause	Measures	Part position	Adjustment
	Contact failure in battery chamber	Clean contact or replace. Battery case base plate set.		
	ℓ_{38} (Red): disconnection		H-1	
	ℓ_{10} (Red): disconnection			
	S_6: contact failure (See P. 39)	Clean and adjust S_6.	M-6	
	Joint Y: disconnection			
	Joint ①: disconnection			
	Joint ⑪: disconnection			
	ℓ_3 (Black): disconnection		A-4	
	Joint Ⓥ: disconnection			
	IC-5 ①: disconnection			
	IC-3 ㉗: disconnection			

③ Others.

I. Shutter is not released continuously. (Needing 2~5 sec. for next shutter releasing). Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	IC-5 ⑫: disconnection			

J. Shutter is not released by remote control switch (S_{13}). (Normal operation with operating button depressing). Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	S_{13}: contact failure (See P. 40)	Clean or replace S_{13}.	F-6	
	ℓ_{47} (Grey): disconnection		E-6	
	ℓ_4 (Black): disconnection		F-6	

■ Shutter mechanism failure (Shutter is not released)

A. When returning film advance lever after winding completion, shutter curtains also return to original position (uncharged position).

Check items	Cause	Measures	Part position	Adjustment
	Under-charge	Adjust shutter charging		10
	Winding shaft (0338): riveting looseness	Replace winding shaft		

B. Shutter curtain does not travel completely (metal part is visible).

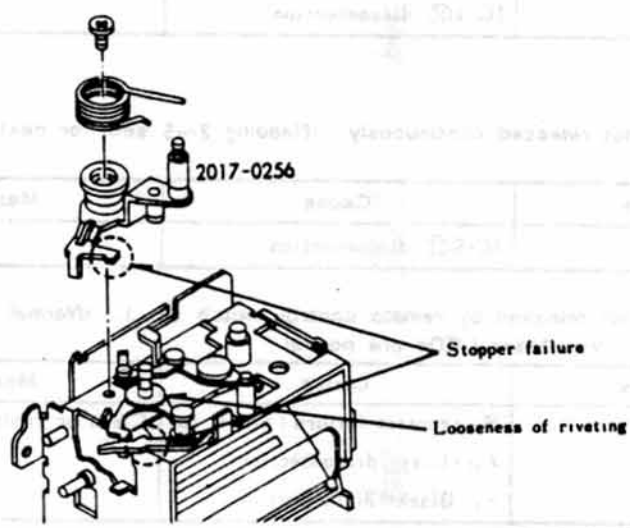
Check items	Cause	Measures	Part position	Adjustment
Shutter curtains cannot be travelled completely (Next winding is possible after 2nd curtain pushed. Yes →	2nd shutter curtain cannot be travelled completely.	See ※1 on next page.		
No →	Ribbon: disengagement	See ※2 on next page.		
	Ribbon: catching	See ※2 on next page.		
	1st shutter curtain brake: defect	Replace shutter block		B

C. Charge coupler does not return with winding completion.

Check items	Cause	Measures	Part position	Adjustment
	Winding operation lever set operation failure.	See ※3 on next page.		7, 8

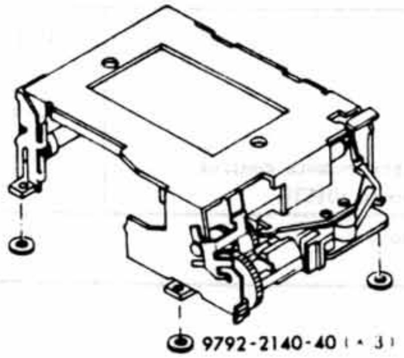
D. Others

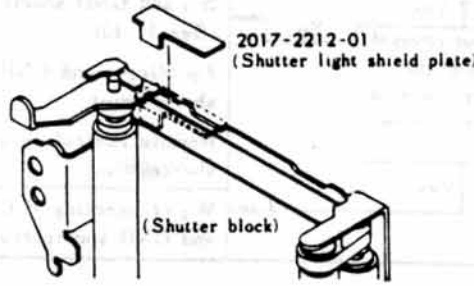
Check items	Cause	Measures	Part position	Adjustment
Mirror stays up.	SL-3: insufficient attraction	Clean attraction surface, or replace SL-3.	N-4	12
	Charge lever (3010): bending	Adjust or replace.		
	Charge lever: disengagement from charge lever roller (9443).	Adjust or replace charge lever, or charge lever roller.		
	Mirror holder set: riveting pin is out of position.	Replace mirror holder.		30, 31 19, 21
	Mirror holder: foreign part in it.	Remove foreign part.		30, 31 19, 21
	MP return lever set (0256): stopping failure (See figure below)	Adjust 0256 looseness, or replace 0256, or mirror box set.		30, 31 19, 21
	MP return lever: looseness of riveted shaft (See figure below)	Replace mirror box set.		30, 31 19, 21



※1. **2nd curtain does not travel completely.**

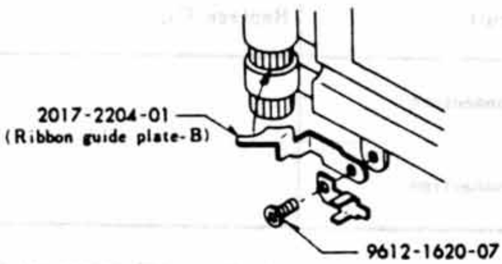
- Use 3 washers (t=0.2mm) between front base plate and shutter block installing position to prevent the catching of MP return lever shaft and shutter cover plate.
- Stick the shutter light shield plate as illustrated because there is possibility of light leakage when using washers.





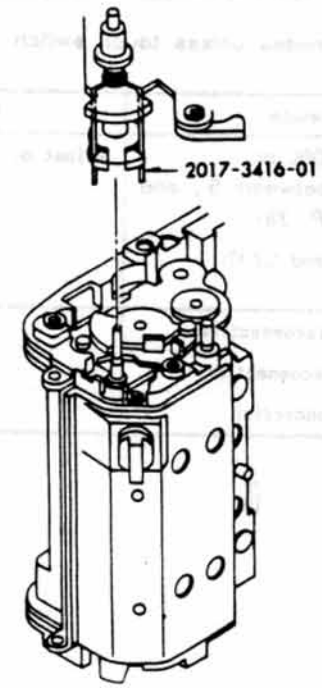
※2. **Disengagement or catching of shutter ribbon.**

- Replace with new shutter block, however, repair as following method for minor trouble.
- Use ribbon guide plate-B to prevent the 1st curtain catching with 2nd curtaun shutter gear.



※3. **Measures against operation failure of winding operation lever.**

- Clean the winding operation lever and the holder.
- Adjust the spring (3416) shape or replace it.



2. Shutter is released when returning film advance lever.

A. Shutter is released when returning film advance lever.

Check items	Cause	Measures	Part position	Adjustment
Shutter is not released when returning film advance lever with ℓ_{49} (Grey) on flex disconnected. → No	ℓ_{49} (Grey) and GND: shortcircuit		K-4	
	S_2 and GND: shortcircuit (See P. 38)	Replace shutter dial base plate set (0274).		
Yes ↓ Shutter is not released when returning film advance lever flex with ℓ_{47} (Grey) on disconnected. → No	S_{13} and GND: shortcircuit (See P. 40)		E-6	
	ℓ_{47} (Grey) and GND: shortcircuit		E-6	
	Remote control terminal: shortcircuit	Replace remote control terminal (0153).		
Yes →	W_2 (connecting P.C. board) and GND: shortcircuit	Re-solder.		

3. Shutter operation failure.

① Shutter stays open.

A. Shutter stays open in A. P. M. B modes. (L: no good) Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
Check battery consumption. While metering (with S_8 ON) About 21.5 mA →	ℓ_{51} (White) and GND: shortcircuit		L-5	
	C_{11}: shortcircuit	Replace C_{11}.	G-4	
While metering (with S_8 ON) About 9～13.5 mA (normal) →	IC-1 ㉑: disconnection			
	IC-3 ⑳: disconnection			

B. Shutter stays open in A. P. M. B modes. (L: no good) Only "M" lights up for mode indication. "△" blinks for metered shutter speed.

Check items	Cause	Measures	Part position	Adjustment
	Joint E: disconnection			
	IC-2 ⑯: disconnection			

C. Shutter stays open in A. P. M. B modes unless touch switch (S_8) OFF: finger off operating button. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	S_3 remains ON, or shortcircuit between S_3 and GND. (See P. 38)	Adjust or replace S_3.	M-3	16, 19
	ℓ_{39} (Orange) and GND: shortcircuit		K-3	
Only for body with circuit base plate B employed.	R_{24} or R_{25}: disconnection		Ⓑ G-7	
	ℓ_{58} (Blue): disconnection			
	IC-6 ⑪: disconnection			

D. Shutter stays open in A, P, M modes. (L: good) Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
Check voltage of C_5 + 0.9~1.35 V with S_2 ON (normal) → Yes	C_4 or C_5: disconnection or defect	Re-solder or replace.	G-6	19, 27
	C_6: shortcircuit	Replace C_6.	F-8	19, 27
	IC-1 ⑰: disconnection			
→ No	IC-2 ㉚: disconnection			

E. Shutter stays open in A, P, M modes. (L: good) (But shutter operates almost normal when LED shows 1/15~1/1000 sec.) Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	C_6: defect	Replace C_6.	F-8	19, 27
	C_5: defect	Replace C_5.	G-6	19, 27

F. Shutter stays open or slow shutter speed in A, P modes. (L: good) Under-range LED "▽" blinks in any mode, or slower shutter speed indicates in P mode.

Check items	Cause	Measures	Part position	Adjustment
Check voltage of C_4 + → 0.05 V or less	VR_{10}: disconnection or contact failure	Re-solder or replace VR_{10}.	G-6	18, 19, 27
	ℓ_8 (Brown) and GND: shortcircuit		E-4	
	ℓ_9 (Brown) and GND: shortcircuit		E-8	
	IC-1 ⑧: shortcircuit			
→ 0.05~0.12 V	VR_4: disconnection or contact failure	Re-solder or replace VR_4.	F-7	19, 27
	IC-1 ③ or ④: disconnection			
→ 2.0 V or more	IC-1 ⑥: disconnection			
→ 0.12~2.0 V: Check voltage of Q_2 collector About 55 mV → No	ℓ_{25} (Purple): disconnection		G-8	
	ℓ_{32} (Green): disconnection or shortcircuit with GND		J-9	
	Q_2: disconnection of emitter or collector	Re-solder.	I-9	
	Q_2 and GND: shortcircuit	Re-solder.	I-9	
	Q_2: defect	Replace	I-9	
	R_2: defect or disconnection	Re-solder or replace.	I-9	
	IC-1 ㊴: disconnection			
→ Yes	AV (VR_2): contact failure or shortcircuit with GND.	Clean AV (VR_2), re-solder, or adjust.	H-2	19, 27
	ℓ_{15} (Orange): disconnection		C-8	
	ℓ_1 (Black): disconnection		G-8	
	SPC-A: cathode disconnection or defect	Re-solder or replace.	H-9	19, 27
	SPC-A: shortcircuit between anode and cathode	Re-solder.	H-9	
	ℓ_{22} (Blue): disconnection or shortcircuit with GND		E-2	
	R_{17}: disconnection		H-9	
	C_{12}: shortcircuit	Replace C_{12}.	G-7	
	IC-1 ㊵: disconnection			

G. Shutter stays open in A, P modes. (L: good) Under-range LED "▽" blinks in P, M, B modes (Normal in A mode).

Check items	Cause	Measures	Part position	Adjustment
	C_2 (+): shortcircuit with GND	Re-solder.	H-9	

H. Shutter stays open in A, P modes (L: good). Under-range LED "▽" blinks in P mode (Normal in A, M, B modes).

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{29} (Grey): shortcircuit with GND.		H-8	
	IC-2 ⑰: disconnection			

I. Shutter stays open in A, P modes (L: good). Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	C_5 legs: shortcircuit	Re-solder or adjust.	G-6	

J. Shutter stays open with AE locked in A, P modes. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{29} (Grey): disconnection		H-8	
	C_2: disconnection		H-9	
	$\ell_{6\text{-}2}$ (Black): disconnection		I-9	
	IC-2 ⑲: disconnection			

K. Shutter stays open occasionary or slower shutter speed in P mode. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	SL-2: excessive over-charge	Replace magnetic release base plate (0534)	D-1	20

L. Shutter stays open in "M" mode. Over-range LED "△" blinks in any mode.

Check items	Cause	Measures	Part position	Adjustment
Check voltage of IC-1 ⑩ → About 1.8 V	Joint Ⓑ: disconnection			
Check voltage of IC-1 ⑩ → 2.5 V or more	IC-1 ㉛: disconnection			
Check voltage of IC-1 ⑩ → 0.2 V or less	IC-1 ㉝: disconnection			

M. Shutter stays open in M mode. (AE is slightly over in A, P modes). Under-range LED "▽" blinks, or slow shutter speed indicates in A, M, B modes. Viewfinder LEDs indicate slower shutter speed in P mode.

Check items	Cause	Measures	Part position	Adjustment
	Joint Ⓒ: disconnection			

N. Shutter stays open in M mode. (L: good) Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	TV contact (VR_1): contact failure.	Clean and adjust contact.	M-7	16, 19
	Joint Ⓗ: disconnection			
	IC-2 ⑪: disconnection			

O. Shutter stays open at one of shutter speed settings in M mode. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	TV (VR₁): dirt on surface	Clean.	M-7	16, 19
	TV contact: deformation	Adjust contact benidng.	M-7	16, 19

② Shutter curtains travel in high speed, or without slit.

A. Shutter curtains travel without slit in A, P, M, B modes. No viewfinder LEDs light up in any mode.

Check items	Cause	Measures	Part position	Adjustment
Power is not supplied with S_6 ON.	Joint U: disconnection Joint W: disconnection Joint X: disconnection IC-5 ⑤: disconnection IC-5 ⑧: disconnection IC-3 ⑤: disconnection			
About 80 mA flows with S_6 ON.	C- and top cover (GND): shortcircuit	Check top cover isolation sheet, re-solder.	H-7	23
About 8 mA flows with S_6 OFF.	ℓ_{33} (Red) and GND: shortcircuit		B 1-6	

B. Shutter curtains travel without slit in A, P, M, B modes. Sometimes with slit. Over-range LED "△" blinks and mode indicator "M" lights up in any mode.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 [illegible]: disconnection IC-1 ⑮: disconnection			

C. Shutter curtains travel without slit in A, P, M, B modes. Sometimes with slit. Viewfinder LEDs other than mode indicator do not light up.

Check items	Cause	Measures	Part position	Adjustment
	IC-3 ⑥: disconnection			

D. Shutter curtains travel without slit in A, P, M, B modes. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
Shutter stays open when releasing with flex P.W. 6 (White) shortcircuited with GND. → No	2nd curtain stopper failure	Replace shutter or 2nd curtain stop lever set (0229).		B
	Shutter under-charge	Adjust amount of shutter charge.		10
	SL-4: dirt on attraction surface or defect	Clean shutter magnet, or replace shutter.	N-2	B
	ℓ_{37} (Red): disconnection		K-4	
	ℓ_{31} (White): disconnection		L-5	
Yes ↓ Check voltage of IC-2 ⑪ at 1/30 shutter dial setting. About 1.2V → No	S_6: contact failure	Clean or adjust contact bending.		
	TV contact: contact failure	Clean or adjust contact bending.	M-7	16, 19
	TV P.C. board: defect	Replace flex P.C. board set (0401)	M-7	A
Yes →	IC-1 ⑪, ⑬, ⑮, ⑳: disconnection IC-2 ⑯: disconnection IC-3 ㉓, ㉔: disconnection			

E. Shutter curtains travel without slit in A, P, M, B modes. (In A, P, M modes, for 1/30-1 sec shutter approx. 20ms slower.) Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
Only for body with circuit base plate B employed.	IC-1⑫: disconnection			
	ℓ_{59} (Red): disconnection		Ⓑ G-7	
	ℓ_{57} (Yellow): disconnection		Ⓑ H-7	
	ℓ_{39} (Orange): disconnection		K-7	
	ℓ_{60} (Black): disconnection		Ⓑ G-7	
	IC-6⑦: disconnection			
	IC-6⑨: disconnection			
	IC-6⑫: disconnection			
	IC-6⑭: disconnection			

F. Shutter curtains travel in high speed in A, P, M modes. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	C_6: disconnection or defect	Re-solder or replace.	F-8	19, 21
	IC-1⑮: disconnection			

G. Shutter curtains travel in high speed in A, P modes. Over-range LED "△" blinks or LEDs show faster shutter speed in any mode.

Check items	Cause	Measures	Part position	Adjustment
Check voltage of IC-1⑥ → About 2.8 V	ASA contact (VR_2): contact failure	Clean or adjust contact.	B-8	19, 21, 27
	ℓ_9 (Brown): disconnection		E-8	
	ℓ_{12} (Red): disconnection		D-8	
	ℓ_{12} (Red) and GND: shortcircuit (There is a possibility of LED "▽" blinking.)		D-8	
	IC-1⑤: disconnection			
Check voltage of IC-1⑥ → About 1.4-2.0 V	ℓ_{14} (Orange): disconnection		E-8	
	ℓ_1 (Black) and GND: shortcircuit		G-8	
	ℓ_2 (Black) and GND: shortcircuit		G-9	
	Cathode of SPC-A and GND: shortcircuit		H-9	
	Cathode of SPC-B and GND: shortcircuit		E-10	
	SPC-B and SPC-B cover: shortcircuit		E-10	

H. Shutter curtains travel in high speed in A, P modes. Under-range LED "▽" blinks, or LEDs show slower shutter speed in A, M, B modes. In P mode LEDs show slower shutter speed.

Check items	Cause	Measures	Part position	Adjustment
	ASA contact (VR_2): contact failure	Clean or adjust ASA contact.	B-8	19, 21, 27
	ℓ_4 (Brown): disconnection		E-4	
	ℓ_{14} (Orange) and GND: shortcircuit		E-3	
	ℓ_{15} (Orange) and GND: shortcircuit		C-8	

I. Shutter curtains travel in high speed in A mode. Mode indicator "M" lights up in A mode.

Check items	Cause	Measures	Part position	Adjustment
	S_{5-1}: contact failure (See P. 38)	Clean or adjust contact.	N-6	
	Joint Ⓒ: disconnection			

J. Shutter curtains travel in high speed in A mode. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	IC-2④: disconnection			

K. Shutter curtains travel in high speed in P mode. Under-range LED "▽" blinks only in P mode.

Check items	Cause	Measures	Part position	Adjustment
	IC-2③: disconnection			

L. Shutter curtains travel in high speed in P mode. Mode indicator "M" lights up in P mode.

Check items	Cause	Measures	Part position	Adjustment
	S_{5-2}: contact failure (See P. 38)	Clean or adjust contact.	M-6	
	Joint Ⓓ: disconnection			

M. Shutter curtains travel in high speed in M mode. Under-range LED "▽" blinks in any mode. (Full aperture in P mode.)

Check items	Cause	Measures	Part position	Adjustment
	VR_3: disconnection (contact failure)	Re-solder, clean or replace flex P.C. board set (0401).	M-7	A
	Joint Ⓛ: disconnection			
	IC-1㉚: disconnection			

N. Shutter curtains travel in high speed in M mode. Over-range LED "△" blinks in any mode.

Check items	Cause	Measures	Part position	Adjustment
	VR_7: the both ends are short-circuited.	Re-solder.		27

O. Shutter curtains travel in high speed (or 1 sec. shutter opening occasionary) in B mode. Viewfinder LEDs are normal.

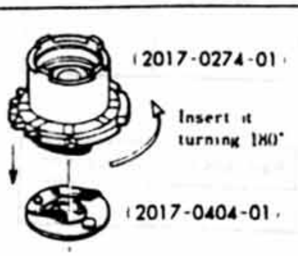
Check items	Cause	Measures	Part position	Adjustment
	S_{5-1}: contact failure (See P. 38)	Clean or adjust contact.	M-6	
	Joint Ⓐ: disconnection			
	IC-3④: disconnection			

③ Others.

A. Partly shutter speed failure in M mode. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	TV contact (VR-1): deformation	Adjust contact or replace TV contact holder set (0404).	M-7	16, 19, 27
	TV resistor (resistor value: defect	Replace flex P.C. board set (0401).	M-7	A

B. Shutter speed 1/1000 and 1/500 sec. become 1 sec., and 1-250 sec. become 1/1000 sec. in M mode.
Viewfinder LEDs are normal. (AE is over in A mode. Nomal in P mode.)

Check items	Cause	Measures	Part position	Adjustment
	TV contact holder set (0404) : wrong installing	See left figure.		16, 19, 27

C. Shutter speed becomes slower under bright conditions, faster under low light condition in M mode.
Viewfinder LEDs are normal. (AE is over in A, P modes.)

Check items	Cause	Measures	Part position	Adjustment
	IC-1㉖: disconnection			
	IC-2㊶: disconnection			

③ Auto exposure error in A, P modes.

A. AE over in A, P modes.

Check items	Cause	Measures	Part position	Adjustment
	Adjustment failure	Readjust following "Repair Guide" P. 21~P. 25.		
	ℓ_{15} (Orange): disconnection		C-8	
	VR_4: disconnection		F-7	19, 27
	VR_9 by IC-1②: disconnection		Ⓐ F-7	
	VR_9: contact failure	Clean or replace VR_9.	Ⓐ F-7	17, 19, 27
	R_{23}: disconnection		F-7	
	R_{19}: disconnection		G-7	
	IC-1②: disconnection			
	IC-1⑦: disconnection			
	IC-2㊷: disconnection			
	IC-3㉚: disconnection			
	Others: See "Shutter stays open in A, P modes".			

B. AE under in A, P modes.

Check items	Cause	Measures	Part position	Adjustment
	Adjustment failure	Readjust following "Repair Guide" P. 21~P. 25.		
	VR_4: the both ends are short-circuited.	Re-solder or replace VR_4.	F-7	19, 27
	VR_9 (IC-1① side): disconnection		Ⓐ F-7	17, 19, 27
	R_5: disconnection		G-6	
	IC-1①: disconnection			
	IC-1㉗: disconnection			
	IC-1㉙: disconnection			
	IC-2⑨: disconnection			
	Others: See "Shutter curtains travel in high speed".			

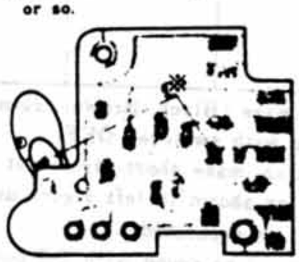
4. Diaphragm stop operation failure.

A. Full aperture in A, P, M, B modes. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
Check voltage of C_{10} + 3.0 V — Yes → Only preset lever operates by shortcircuit between C_{10} + and GND. — No	SL-1: defect (See P. 41)	Replace magnetic release base plate (0534).	C-1	20
	SL-1: lead wire (Green or White) disconnection	Connect lead wire or magnetic release base plate (0534).	C-1	
		Replace magnetic release base plate (0534).		20
	C_{10}: disconnection		A-2	
Operates slightly	SL-2: dirt on attraction surface.	Clean attraction surface.	D-1	20
	SL-2: insufficient attraction.	Replace magnetic release base plate (0534)	D-1	20
Check voltage of C_{10}: No → Check voltage of LED P.C. board P.W.⑲ (ℓ_{24} (Purple)) 2.8 V — Yes	ℓ_{24} (Purple): disconnection		B-4	
No	C_{10}: shortcircuit	Re-solder, or replace connecting P.C. board (0425).	A-2	
	ℓ_{24} (Purple) and GND: shortcircuit		B-4	
	IC-5 ⑩: disconnection			
	IC-5: defect	Replace IC-5.		
Only preset lever operates: Yes → Check voltage of IC-2⑤ About 2.8 V — Yes	IC-5 ③: defect			
	Joint S: disconnection			
	IC-3 ㉟: disconnection			
No	IC-2 ⑤: disconnection			

See figure below.

※ Short-circuit using tweezers or so.

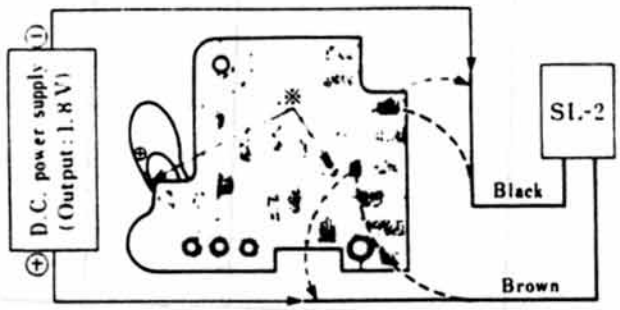


B. Full aperture in P mode. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{16} (Orange): disconnection		I-9	
	C_3-(–): disconnection		I-9	
	IC-2 ㉓: disconnection			

C. F-stop does not function in P mode. Viewfinder LEDs are normal. Full aperture under dark conditions (about EV 7 or less). Stop down to min. aperture under bright conditions (about EV 7 or more).

Check items	Cause	Measures	Part position	Adjustment
Check if SL-2 is separated by applying 1.8 V after SL-1 separation. (No →) See figure below.	SL-2: lead wire (Brown or Black) disconnection	Connect lead wire.	D-1	
		Replace magnetic release base plate (0534).	D-1	20
	SL-2: defect (See P.41)	Replace magnetic release base plate (0534).	D-1	20
Yes ↓	Aperture stop claw spring: disengagement	Connect spring (5137)		
Check if SL-2 is separated by shortcircuit between IC-5 ⑨ and GND after SL-1 separation. (No →)	ℓ_{13} (Orange): disconnection		B-3	
	ℓ_{13} (Orange) and GND: shortcircuit		B-3	
	C_8: disconnection		C-7	
Yes ↓	IC-5 ⑨: disconnection			
Check voltage of C_3 0 V (No →)	$\ell_{6\text{-}2}$ (Black): disconnection		I-9	
	P.W. on SPC P.C. board: disconnection	Connect P.W.	H-9	
		Replace SPC P.C. board (0436).	H-9	17, 18, 19 21, 27
Yes: Decreasing voltage from 1V little by little. (→)	C_3+ and GND: shortcircuit		I-9	
	Joint T: disconnection			
	IC-2 ㉕: disconnection			
	IC-2 ㉗: disconnection			
	IC-2 ㉝: disconnection			
	IC-5 ④: disconnection			
	IC-3 ㉗: disconnection			
	IC-3 ㉝: disconnection			

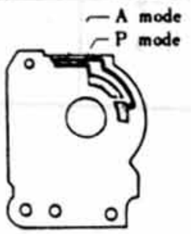


1. Disconnect SL-2 lead wire (Black, Brown), connect it to DC power supply with switched OFF.
2. After winding completion, make short-circuit at marked (※) positions as shown in left figure using tweezers so that SL-1 is separated.
3. When you could hear clicking sound with DC power supply switched ON, SL-2 should be separated.

D. Smaller aperture (about 2 EV) in P mode. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 ㉖: disconnection			
	IC-3 ㉙: disconnection			

E. F-stop functions in A mode. Mode indicator "A" lights up in P mode.

Check items	Cause	Measures	Part position	Adjustment
	A and P modes printed wirings (on TV P.C. board): shortcircuit.	Re-solder.	M-7	21

5. Self-timer operation failure.

A. Self-timer does not operate. (Self-timer does not delay shutter release.)

Check items	Cause	Measures	Part position	Adjustment
Check if self-timer operates by shutter releasing after shortcircuit between flex P.W. 8 · ℓ_{42} (Blue) and GND. — No	ℓ_{42} (Blue): disconnection		L-6	
	S_{10}: contact failure (See P. 39)	Clean or adjust contact.	M-3	
	Self-timer plate screw: looseness.	Tighten screw.	M-3	
Yes	IC-3⑰: disconnection			

B. Self-timer operates always.

Check items	Cause	Measures	Part position	Adjustment
	S_{10}: remains ON (See P. 39)	Re-solder or adjust contact.	M-3	
	ℓ_{42} (Blue) and GND: shortcircuit		L-6	

C. Self-timer operates without LED blinking.

Check items	Cause	Measures	Part position	Adjustment
Self LED lights up by shortcircuit between flex P.W. 9 · ℓ_{33} (Black) and GND. — No	Self LED: cold soldering or defect	Re-solder, or replace LED.		
	ℓ_{33} (Black) or ℓ_{36} (Red): disconnection		L-3	
Yes	R_4: disconnection		H-7	
	IC-1㉔: disconnection			
	IC-1㉕: disconnection			
	IC-3⑮: disconnection			

D. Self-timer LED remains ON with main switch (S_4) ON.

Check items	Cause	Measures	Part position	Adjustment
	C_5 + and R_4: shortcircuit	Adjust bending of C_5 legs, or re-solder.	G-6	
	ℓ_{33} (Black) and GND: shortcircuit		L-3	

6. AE lock failure.

A. Unlocked.

Check items	Cause	Measures	Part position	Adjustment
	S_{14}: contact failure (See P. 40)	Clean or adjust contact.	M-3	
	ℓ_{55} (Yellow): disconnection		L-7	
	IC-3⑪: disconnection			

B. AE remains locked.

Check items	Cause	Measures	Part position	Adjustment
	S_{14} remains ON, or shortcircuit between S_{14} and GND. (See P. 40)	Re-solder or adjust contact.	M-3	
	ℓ_{55} (Yellow) and GND: shortcircuit		L-7	

C. With AE locked (S_{14} ON), shutter stays open in A, P modes.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{6-2} (Black): disconnection		I-9	
	ℓ_{29} (Grey): disconnection		H-8	
	C_2: disconnection		H-9	
	IC-2 ⑲: disconnection			

D. With AE locked (S_{14} ON), viewfinder LEDs indication is held and shutter speed varies according to light condition.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 ㉞: disconnection			
	IC-3 ⑩: disconnection			

7. Piezo buzzer failure

A. No beeping for slow-shutter-speed warning, for self-timer.

Check items	Cause	Measures	Part position	Adjustment
	Black lead wire on buzzer: disconnection or shortcircuit with GND.		J-8	
	Red lead wire on buzzer: disconnection		J-8	
	Joint Ⓚ: disconnection			
	IC-3 ⑧: disconnection			

B. No beeping for slow-shutter-speed warning. (Normal for self-timer)

Check items	Cause	Measures	Part position	Adjustment
	IC-3 ⑨: disconnection			
	IC-4 ㉞: disconnection			

8. Shutter lock failure.

A. Viewfinder LEDs remain ON with 2.4 V, and OFF with 2.05 V.

Check items	Cause	Measures	Part position	Adjustment
	IC-1 ㉒: disconnection			
	IC-3 ⑲: disconnection			

B. Shutter lock does not operate with 2.05 V/locks with 1.4 V.

Check items	Cause	Measures	Part position	Adjustment
	IC-1 ㉓: disconnection			
	IC-3 ⑱: disconnection			

9. Viewfinder LED indication failure.

In case that other troubles (Shutter is not released. Shutter stays open. Shutter curtains travel in high speed, or without slit. F-stop operates improperly.) are accompanied refer to the related pages.

① No lighting LED.

A. No LEDs light.

Check items	Cause	Measures	Part position	Adjustment
	Insufficient battery voltage	Replace batteries		
	IC-4(9): disconnection			

B. No LEDs light with touch switch (S_0) ON. LEDs light up with release switch (S_2) ON after shutter release.

Check items	Cause	Measures	Part position	Adjustment
	S_0: contact failure	Replace shutter release button (0281).	J-3	
	ℓ_{35} (Brown): disconnection		K-3	
	IC-3(42): disconnection			

C. LEDs for metered SS do not light up. Mode indication and exposure-adjustment LED (+/-) indication are normal.

Check items	Cause	Measures	Part position	Adjustment
	R_{11}: disconnection		B-6	
	IC-3(41): disconnection			
	IC-4(23): disconnection			

D. Mode indicators (A, M) do not light up.

Check items	Cause	Measures	Part position	Adjustment
	R_9: disconnection		B-7	

E. No LEDs light with touch switch of MD-1 ON.

Check items	Cause	Measures	Part position	Adjustment
	W_1: contact failure	Clean W_1 contact, or replace connecting P.C. board.	A-3	
	ℓ_7 (Brown): disconnection		D-6	

F. One of LEDs does not light up.

No lighting LED	Cause			Measures	Part position	Adjustment
	Joint	Pin No. of IC-4	Other			
▽	A Disconnection	⑧ Disconnection				
1	B	⑦				
1/2	C	⑥				
1/4	D	⑤				
1/8	E	④				
1/15	F	③				
1/30	G	②				
1/60	H	①				
1/125	I	㊹				
1/250	J	㊸				
1/500	K	㊷				
1/1000	L	㊶				
△	M	㊴				
P	N	㊳	R_8: disconnection		A-6	
A	O	㊲				
M	P	㊱				
+/−	Q	㉟	S_8: contact failure (See P. 39)	Clean and adjust contact bending.	C-9	
		㉚	ℓ_{6-1} (Black): disconnection		B-9	
			ℓ_{20} (Green): disconnection		D-9	
			R_{10}: disconnection		A-6	

② LEDs remain lighting.

A. LEDs remain ON with main switch (S_1) ON.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_7 (Brown) and GND: shortcircuit		D-6	
	ℓ_{35} (Brown) and GND: shortcircuit		K-3	
	S_0 and GND: shortcircuit	Replace shutter release button (0281).	J-3	
	S_1 and GND: shortcircuit (See P. 38)	Repalce shutter speed dial base plate (0274).	J-3	

B. LEDs remain ON after touch switch (S_0) is ON. LEDs remain ON for 15 sec. after shutter release.

Check items	Cause	Measures	Part position	Adjustment
(LED lighting may not be held for 15 sec.)	C_{13}: disconnection		I-3	
	R_7: disconnection		I-3	

C. Exposure-adjustment LED (+/−) remains blinking with exposure-adjustment controller in "0" position.

Check items	Cause	Measures	Part position	Adjustment
	S_8: remains ON (See P. 39)	Bend contact to adjust.	C-9	
	ℓ_{20} (Green) and GND: shortcircuit		D-9	

③ With AEF 280PX used.

A. Mode indicator "P" does not light up, "60" LED (as FDC) does not blink, and flash fires fully in flash P mode.

Check items	Cause	Measures	Part position	Adjustment
	F_3: contact failure	Clean F_3.		
	ℓ_{48} (Grey) disconnection or shortcircuit with GND		K-8	

B. Mode indicator "P" does not light up in flash P mode.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 ㉘: disconnection			
	IC-4 ㉙: disconnection			

C. With flash fully charged, X-sync shutter speed does not change to 1/60 sec. automatically. (Metered SS LED remains ON. Flash fires with slower shutter speed than 1/60 sec.)

Check items	Cause	Measures	Part position	Adjustment
	F_2: contact failure	Clean F_2.		
	ℓ_{50} (White) disconnection, or shortcircuit with GND.		K-8	
	IC-2 ㉟: disconnection			
	IC-3 ㉕: disconnection			
	IC-4 ㉘: disconnection			

④ Others.

A. Viewfinder LEDs light up with touch switch (S_6) ON, even with main switch (S_1) OFF.

Check items	Cause	Measures	Part position	Adjustment
	S_6: remains ON (bending of contact). (See P. 39)	Adjust contact bending.	M-6	

B. Over-range LED "△" blinks in A, P, M, B modes. Mode indication is normal.

Check items	Cause	Measures	Part position	Adjustment
	VR_7: contact failrue	Clean or Adjust contact bending.	M-7	27
		Replace flex P.C. board set (0401).		A
	Joint M: disconnection			
	IC-4 ⑮: disconnection			

C. Viewfinder LEDs show about 1/2 EV slower shutter speed.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{23} (Purple) and GND: shortcircuit		F-9	
	ℓ_{25} (Purple) and GND: shortcircuit		G-8	

D. Under-range LED "▽" blinks in A, M, B modes. LEDs show 1/4~1/8 shutter speeds in P mode.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{22} (Blue): disconnection		E-2	

E. Under-range LED "▽" blinks in A, M, B modes. Normal in P mode.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 (8): disconnection			
	IC-4 (13): disconnection			

F. Mode indicator "M" lights up, operating as A mode with A mode setting.

Check items	Cause	Measures	Part position	Adjustment
	IC-4 (25): disconnection			

G. Under-range LED "▽" blinks in P mode. LEDs light properly or show slower shutter speed (about 1 EV) in A, M, B modes.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 (6): disconnection			
	IC-4 (11): disconnection			

H. Mode indicator "M" lights up, operating as P mode with P mode setting.

Check items	Cause	Measures	Part position	Adjustment
	IC-4 (27): disconnection			

I. Mode indicator "P" remains ON, not blinking, with setting other than minimum aperture in P mode.

Check items	Cause	Measures	Part position	Adjustment
	S_7: contact failure (See P. 39)	Clean or adjust contact.		25
	ℓ_{19} (Green): disconnection		F-3	
	IC-4 (29): disconnection			

J. Mode indicator "P" blinks with minimum aperture setting in P mode.

Check items	Cause	Measures	Part position	Adjustment
	S_7: remains ON, or shortcircuit with GND. (See P. 39)	Adjust contact bendning or MD lever position.	I-2	25
	ℓ_{19} (Brown) and GND: shortcircuit		F-3	

K. Mode indicator "P" remains ON, not blinking, with setting other tan minimum aperture. Exposure-adjustment LED (+/-) does not light up. Metered SS LED does not change properly with ASA, aperture changing.

Check items	Cause	Measures	Part position	Adjustment
	IC-3 (14): disconnection			
	IC-4 (26): disconnection			

10. Operation failure using exclusive flash unit (AEF 280 PX)

A. Flash does not fire. Shutter stays open. LEDs light properly.

Check items	Cause	Measures	Part position	Adjustment
Flash does not fire using neither sync terminal nor hot shoe	Sync terminal: cold soldering	Re-solder.		14
	ℓ_{44} (Purple): disconnection		E-4	14
	S_{12}: defect (See P. 40)	Clean S_{12}, adjust contact bendning	D-2	14
		Replace shutter (or X-contact plate 0207).		B
Flash does not fire using sync terminal	Sync terminal: cold soldering	Re-solder.	H-4	14
	Sync terminal: defect	Replace sync terminal (2291).	H-4	14
Flash does not fire using hot shoe → Check if signal (X-contact ON) is given on flex P.W. 36. (See P 40 for S_{12} check) → Yes	Hot shoe (F_1): contact failrue	Clean F_1.		
	S_{11}: cannot be ON. (See P. 40)	Clean or adjust S_{11}.	L-8	
	ℓ_{45} (Purple): disconnection		L-8	
→ No	ℓ_{43} (Purple): disconnection		H-6	

B. Flash does not fire. Shutter stays open. Mode indicator and "60" LED (as FDC) blinks at 2 Hz with flash charged completely.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{32} (Black): disconnection		L-2	
	ℓ_{34} (Black): disconnection		L-9	

C. Shutter operates without slit even though flash fires with "60" LED (as FDC) blinking.

Check items	Cause	Measures	Part position	Adjustment
	IC-1 (13): disconnection			

D. Always flash fires fully without blinking "60" LED (as FDC). (Time counter does not indicate normally long when checking strobe level.

Check items	Cause	Measures	Part position	Adjustment
	VR_4: contact failure	Adjust contact bending, or replace ASA resistor set (0249).	C-8	23
	ℓ_2 (Black): disconnection		G-9	
	SPC-B: defect	Replace light receptor (0584).	E-10	23
	ℓ_{26} (Purple): disconnection or shortcircuit with GND.		D-8	
	ℓ_{23} (Purple): disconnection		F-9	
	C_7: shortcircuit		H-7	
	C_7: defect	Replace C_7.	H-7	23
	IC-1 (9): disconnection			

E. Always flash fires fully without blinking "60" LED (as FDC). Aperture stops down to minimum, without mode indicator "P" lighting in flash P mode.

Check items	Cause	Measures	Part position	Adjustment
	F_3: contact failure	Clean F_3.		
	ℓ_{48} (Grey): disconnection or shortcircuit with GND		K-8	
	IC-2 31: disconnection			

F. Flash firing is extremely in short time. (Time counter indicates short.)

Check items	Cause	Measures	Part position	Adjustment
	C_7: disconnection		H-7	23
	SPC-B: shortcircuit	Replace light receptor set (0584).	E-10	23
	R_{16}: disconnection		H-8	
	R_{14}: the both ends are shortcircuited.	Re-solder.	C-8	
	IC-1 10: disconnection			
	IC-1 11: disconnection			
	IC-2 40: disconnection			

G. "60" LED does not blink with flash fully charged. (Shutter speed does not change to 1/60 sec. automatically.)

Check items	Cause	Measures	Part position	Adjustment
Check if flash is fired with faster than 1/125 of metered SS indication in A and P modes. → No firing.	F_2: contact failure	Clean F_2.		
	ℓ_{50} (White): disconnection or shortcircuit with GND.		K-8	
	IC-2 35: disconnection			
	IC-3 25: disconnection			
→ Fired	IC-4 28: disconnection			

H. Always full aperture in flash P mode. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
Full aperture in P mode also.	SL-2: insufficient attraction	Replace magnetic release base plate (0534).	D-1	20
	R_{22} (VR_8 on previous type flex board): disconnection		I-6	24
	IC-1 35: disconnection			
	IC-2 20: disconnection			

I. Aperture cannot be controlled properly in flash P mode. Viewfinder LEDs are normal.

Check items	Cause	Measures	Part position	Adjustment
	MD lever: irregular position			25
	S_{7-3}, S_{7-2}: contact failure (See P.40)	Clean and adjust contact.	I-2	25
	ℓ_{11} (Red): disconnection or shortcircuit with GND.		E-3	
	ℓ_{16} (Yellow): disconnection or shortcircuit with GND.		F-2	
	IC-2 12: disconnection			
	IC-2 13: disconnection			

J. "60" LED (as FDC) does not blink. Always full aperture in flash P mode.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 ⑲ : disconnection			

K. Flash firing is not controlled correctly.

Check items	Cause	Measures	Part position	Adjustment
	SPC-B: shutter operation failure	Adjust operation, or replace mirror box side plate (0521).		23
	SPC-B shutter: bouncing	Replace light receptor set (0584).		23
	ℓ_{6-3} (Black): disconnection		F-10	

L. Flash fires but with slow sync in A, P, M modes.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 ⑱ : disconnection			

M. Flash firing is controlled automatically, blinking "60" LED (as FDC) in M mode.

Check items	Cause	Measures	Part position	Adjustment
	Joint Ⓕ : disconnection			

N. Mode indicator "P" does not indicate in flash P mode.

Check items	Cause	Measures	Part position	Adjustment
	IC-2 ㉘ : disconnection			
	IC-4 ㉙ : disconnection			

O. Flash unit is not charged.

Check items	Cause	Measures	Part position	Adjustment
Sync terminal is short-circuited even though lead wire of hot shoe on top cover → No	Related hot shoe connection: shortcircuit			
	Top cover: isolation sheet is disengaged.	Install top cover isolation sheet (4256).		14
	F_1 and F_3: shortcircuit	Re-solder.		
Yes	Sync terminal: shortcircuit	Replace sync terminal (2291).	H-4	14
	S_{12}: shortcircuit (See P. 40)	Adjust X-contact bending, or replace X contact plate (0207)		14
		Replace shutter.		B
	ℓ_{43} (Purple) and GND: shortcircuit		H-6	
	ℓ_{44} (Purple) and GND: shortcircuit		E-4	
	ℓ_{45} (Purple) and GND: shortcircuit		L-8	

11. Operation failure using Motor Drive 1 (MD-1).

A. Shutter is not released by MD-1.

Check items	Cause	Measures	Part position	Adjustment
	W_2: contact or riveting failure	Clean W_2, or replace connecting P.C. board (0425).	A-3	
	ℓ_{44} (Grey): disconnection		C-3	

B. No LEDs light when using MD-1.

Check items	Cause	Measures	Part position	Adjustment
	W_1: contact/riveting failure	Clean W_1, or replace connecting P.C. board (0425).	A-3	
	ℓ_7 (Brown): disconnection		D-6	
	IC-3 ①: disconnection			

C. Winding is impossible by MD-1.

Check items	Cause	Measures	Part position	Adjustment
LED (Pilot Light) of MD-1 remains ON. — Yes	Winder signal pin and riveted part of battery case GND: shortcircuit	Replace battery case base plate (0420).	K-1	
	Winder signal pin and ℓ_{31} (Black): shortcircuit		D-2	
No	W_3: contact/riveting failure	Clean W_3, or replace connecting P.C. board (0425).	A-3	
	ℓ_{21} (Blue): disconnection, or shortcircuit with GND.		D-7	
	IC-3 ⑫: disconnection			

12. Operation failure using Multi Function Back (MFB).

A. Data is not imprinted.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{30} (White): disconnection, or shortcircuit with GND.		E-7	
	IC-3 ㉘: disconnection			
Only for body with P.C. board C employed.	ℓ_{62} (White): disconnection, or shortcircuit with GND.		G-7	
	ℓ_{12-2} (Red): disconnection		G-7	
	Q_4: disconnection or defect	Re-solder or replace.	G-7	
	R_{27}: shortcircuit		G-7	
	R_{26}: disconnection		G-7	

B. Shutter is not released by MFB.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{27} (Grey): disconnection		D-2	
	ℓ_{46} (Grey): disconnection		D-2	

C. Shutter is released when returning film advance lever, with MFB using.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{27} (Grey) and ℓ_{1} (Black): Wrong soldering	Re-solder.	C-2 D-2	

D. Data is imprinted after 2nd shutter curtain travels completely.

Check items	Cause	Measures	Part position	Adjustment
	ℓ_{21} (Blue) and ℓ_{30} (White) on flex board: wrong soldering	Re-solder.	D-7 E-7	

E. Data is imprinted by changing main switch ON→OFF→ON slowly.

Check items	Cause	Measures	Part position	Adjustment
	Electrical circuit: misoperation	Employ P.C. board C (0407).	H-7	

13. Leak current trouble.

Against troubles that camera works properly but battery power drains sharply, first check leak current as procedure on next page to judge camera condition.

A. Battery drains sharply. (Excessive leak current) Camera operation is normal.

Check items	Cause	Measures	Part position	Adjustment
With disconnection of ℓ_{24} (Purple) by connecting P.C. board, leakage becomes normal. → Yes	C_{10}: polarity is wrongly connected.	Re-install C_{10} correctly.	A-2	
	C_{10}: defect.	Replace connecting P.C board (0425).	A-2	
No ↓ With disconnection of ℓ_{13} (Orange) by connecting P.C. board, leakage becomes normal. → Yes	C_8: polarity is wrongly connected.	Re-install C_8 correctly.	C-7	
	C_8: defect.	Replace C_8.	C-7	
No ↓ With disconnection of green lead wire of SL-3 by connecting P.C. board, leakage becomes normal. → Yes	C_9: Polarity is wrongly connected.	Re-install C_9 correctly.	B-7	
	C_9: defect	Replace C_9.	B-7	
No →	IC-5: defect	Replace IC-5.		
		Replace flex P.C board set (0401)		A

- In case that camera does not work properly, find out cause according to defective symptoms other than current leakage.
- When checking current leakage, make sure that viewfinder LEDs should not be ON with touch switch OFF.

■ Checking procedure of leak current amount.

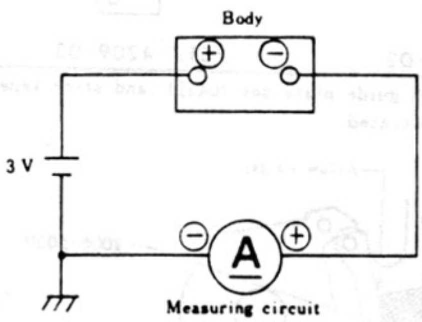
■ Standard

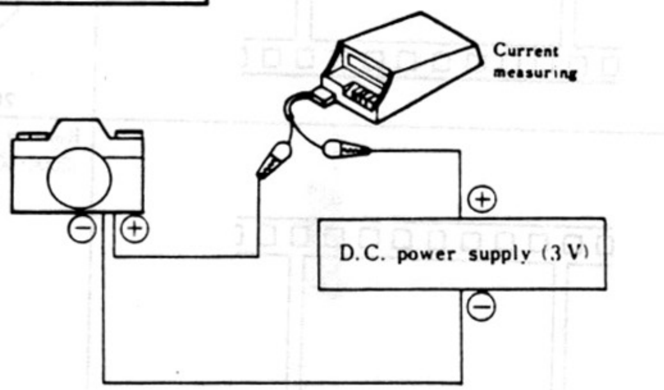
Main SW. (S_6)	Tolerance
ON	$10\mu A$ or less
OFF	$2\mu A$ or less

■ Checking methods

Ⓐ When using Ampere meter (pico-or micro-ampere meter)

Leave touch switch OFF.

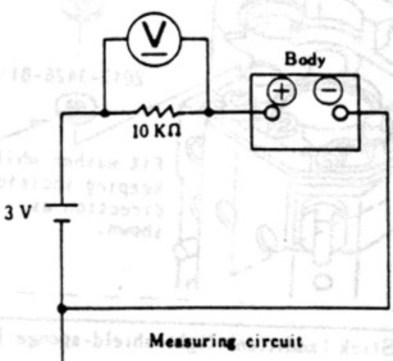


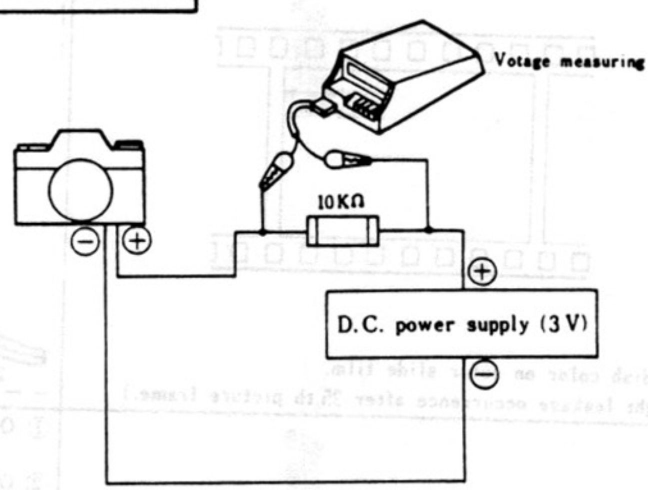


Ⓑ When using volt-meter

1. Connect camera and measuring instruments as shown in figure. Employ resistor (10KΩ) whose rating is within ±10%.
   Caution: Camera cannot be operated under condition shown below.

Leave touch switch OFF.





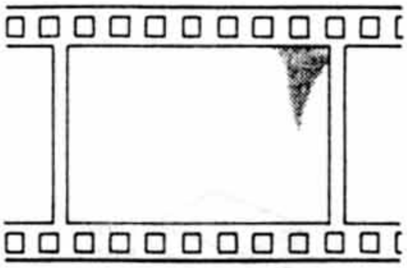
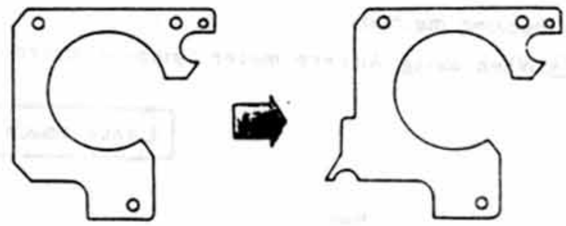
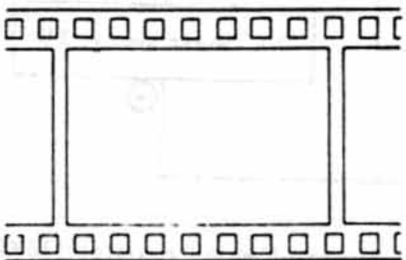
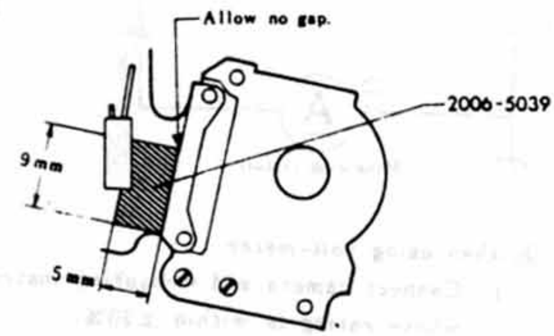
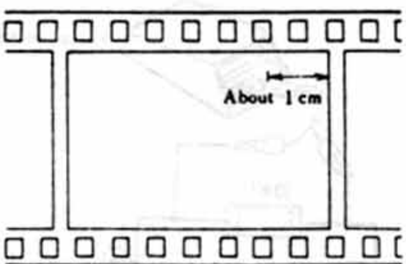
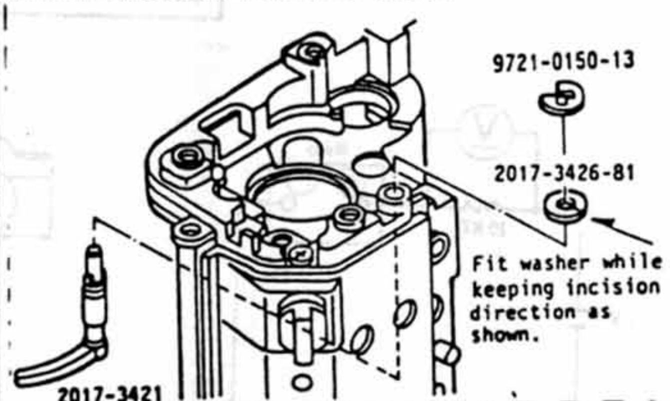
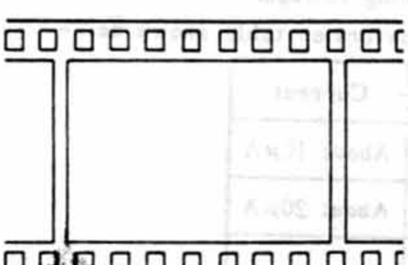
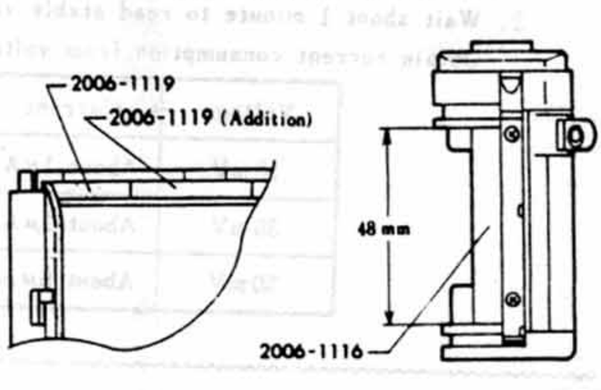
2. Wait about 1 minute to read stable value when checking voltage.
   Obtain current consumption from voltage above by conversion table shown below.

Voltage →	Current	Voltage →	Current
10 mV	About $1\mu A$	100 mV	About $10\mu A$
30 mV	About $3\mu A$	200 mV	About $20\mu A$
50 mV	About $5\mu A$		

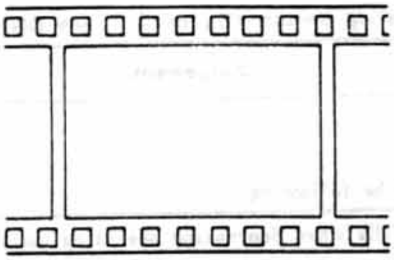
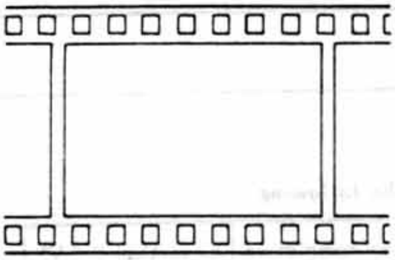
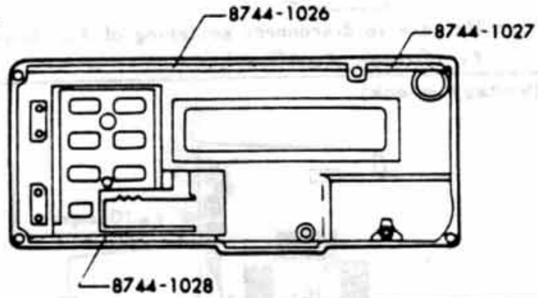
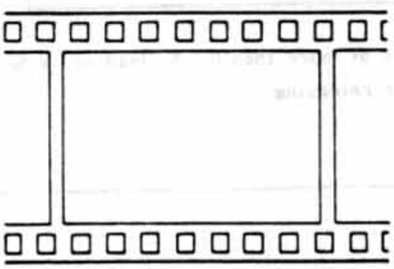
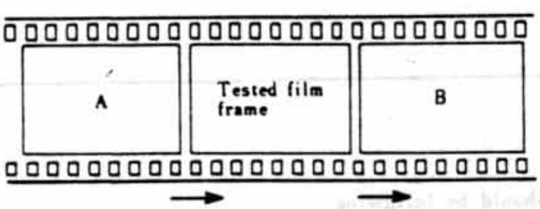
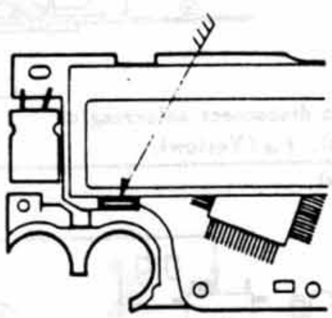
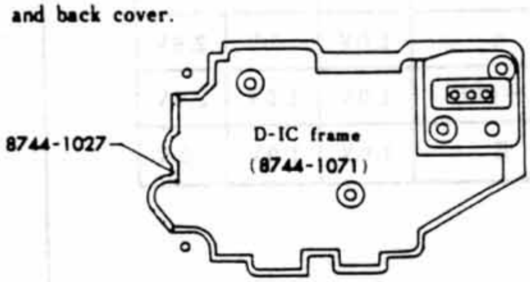
If touch switch is switched ON wrongly, operate main switch (S_6) ON→OFF→ON.

14. Light leakage

A. Light leakage in camera parts.

Symptoms	Measures
	Replace Tv P.C. board holder (2017-4209) with 2017-4209-03. 
	Remove main switch guide plate set (0412), and stick tape (2006-5039) as illustrated. 
 • Reddish color on color slide film. (Light leakage occurrence after 25 th picture frame.)	Make an incision with washer(2017-3426-81), and fit it on film indication filler(2017-3421). 
	① On back cover···Stick (addition) light-shield-sponge B (2017-1117). ② On body············Cut back-cover-light-shield-plate (2006-1116) to 48 mm, and stick it. 

B. Light leakage in Multi Function Back.

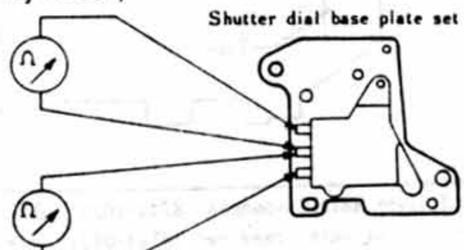
Symptoms	Measures
	Check if tape (reverse side of flex P.C. board joint part) on LED P.C. board, is out of position. 
	Check if light shield sponges (8744-1026, 1027, 1028) of reverse side of outer case set (8744-0121), are out of position. 
	Light leakage left occurs without battery chamber cover set (8744-0125) used.
With light leakage test performed, film is exposed on the both frames, previous and next frames to tested frames, as illustrated. (For actual use, light leakage, A and B, may appear on single frame.)  	Measures against light leakage B (①, ②) ① Cut light shield sponge (2006-1116) to make 7 mm length, and stick it on the hole shown by arrow. 
Measures against light leakage A Cut light shield sponge (8744-1027) to make 28 mm length, and stick it in clearance between D-IC frame and back cover.  	② Cut light shield sponge (8744-1027) to make 8 mm lenth, and stick it between battery chamber cover set claws. 

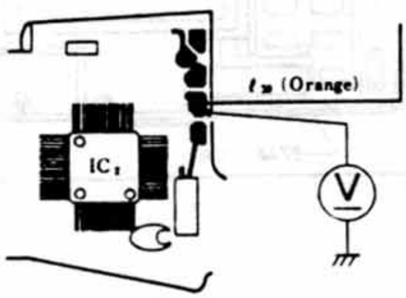
3 Checking procedure of switches, magnets.

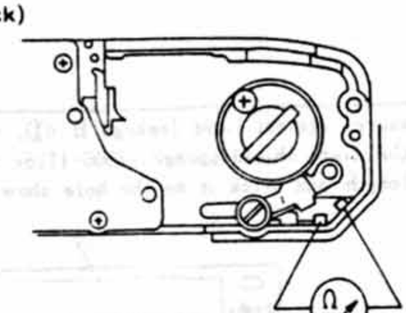
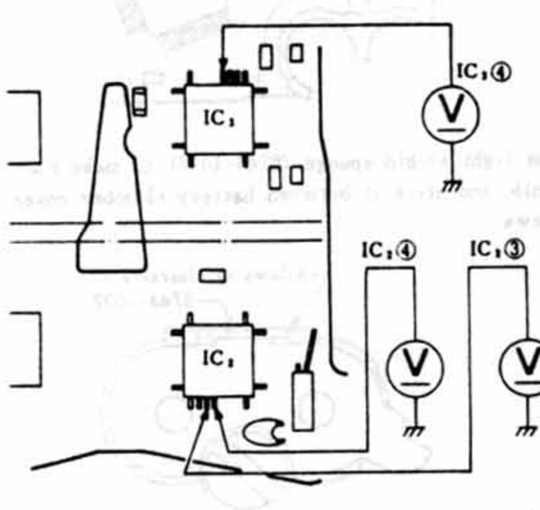
1. Switch.

- Conditions to obtain following voltages: − end is connected with GND.

Main switch (S_8) and metering switch (S_6 or S_7) are ON position.

<table>
<tr><th></th><th>Checking procedure</th><th>Judgement</th></tr>
<tr><td>S_1 · S_2</td><td>(Conductivity check)


Note: Be sure to disconnect soldering of ℓ_{35} (Brown), ℓ_{41} (Green), ℓ_{40} (Grey).</td><td>Should be following
<table><tr><td>S_1</td><td>ON when depressing operating button slightly</td></tr><tr><td>S_2</td><td>ON when depressing operating button all the way down</td></tr></table></td></tr>
<tr><td>S_3</td><td>(Voltage check)


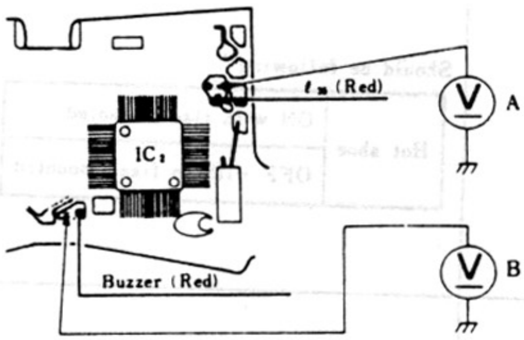
Note: ℓ_{39} (Orange) should be free from disconnection, cold soldering.</td><td>Should be following
<table><tr><td>Winding completion</td><td>Less than 0.5 V*</td></tr><tr><td>Shutter released</td><td>About 2.9 V</td></tr></table>
※In case of more than 0.5 V, leading to no shutter releasing.</td></tr>
<tr><td>S_4</td><td>(Conductivity check)

Note: Be sure to disconnect soldering of ℓ_{31} (Black), ℓ_{40} (Yellow).</td><td>Should be following
<table><tr><td>Winding completion</td><td>OFF</td></tr><tr><td>Shutter released</td><td>ON</td></tr></table></td></tr>
<tr><td>S_5</td><td>(Voltage check)

</td><td>Should be following
<table><tr><th>Mode/shutter speed selector</th><th>$IC_2$③ (S_{5-2})</th><th>$IC_2$④ (S_{5-3})</th><th>$IC_3$④ (S_{5-1})</th></tr><tr><td>P</td><td>0 V</td><td>1.0 V</td><td>2.9 V</td></tr><tr><td>A</td><td>1.0 V</td><td>0 V</td><td>2.9 V</td></tr><tr><td>1 ~ 1000</td><td>1.0 V</td><td>1.0 V</td><td>2.9 V</td></tr><tr><td>B</td><td>1.0 V</td><td>1.0 V</td><td>0 V</td></tr></table></td></tr>
</table>

	Checking procedure	Judgement

S_6

Checking procedure

(Voltage check)



Note: Make sure that flex P.W., joint part Ⓘ, Ⓙ, Ⓚ are normal.

Judgement

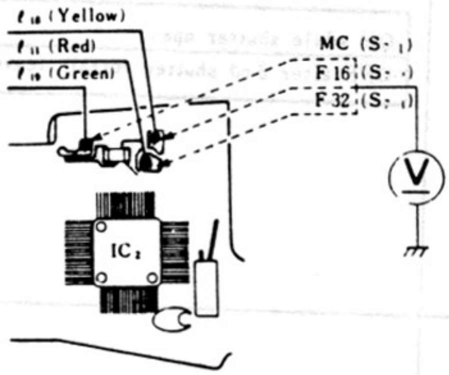
Should be following

	S_{6-1} (ON)	S_{6-2} (OFF)	S_{6-3} (ON)
A	3 V	0 V	3 V
B	0 V	0 V	3 V

S_7

Checking procedure

(Voltage check)



Note: ℓ_{16} (Yellow), ℓ_{11} (Red), ℓ_{19} (Green) should be free from disconnection, cold soldering.

Judgement

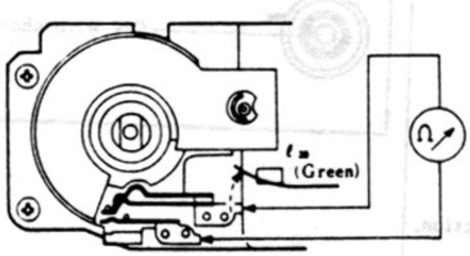
Should be following

Aperture set	Voltage	
Without lens	MC	0
	F16	About 800 mV
	F32	
F16	MC	About 800 mV
	F16	0
	F32	About 800 mV
F32	MC	About 800 mV
	F16	
	F32	0

S_8

Checking procedure

(Conductivity check)



Note: Be sure to disconnect soldering of ℓ_{20} (Green).

Judgement

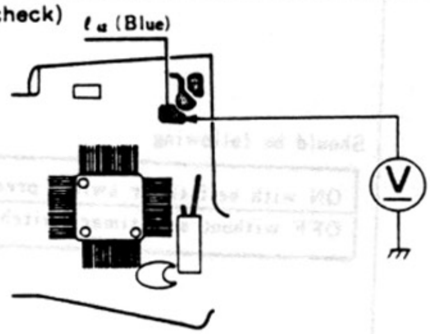
Should be following

Exposure-adjustment control	OFF at "0"
	ON at other than "0" position

S_{10}

Checking procedure

(Voltage check)

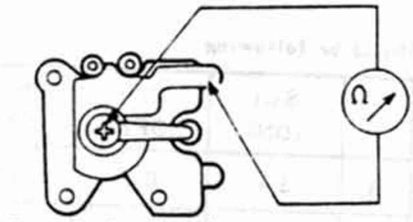
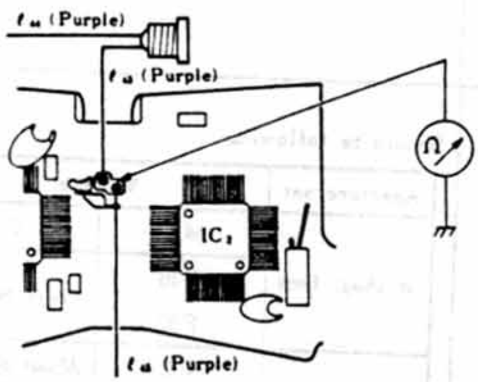
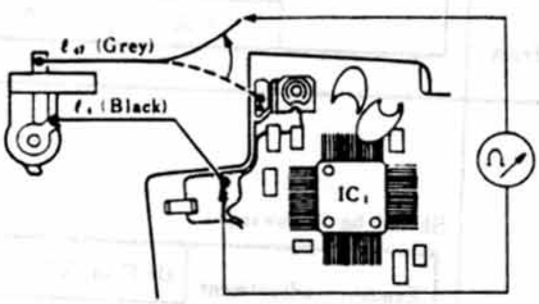
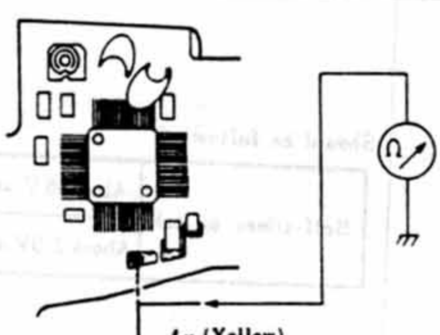


Note: ℓ_{42} (Blue) should be free from disconnection, cold sodlering.

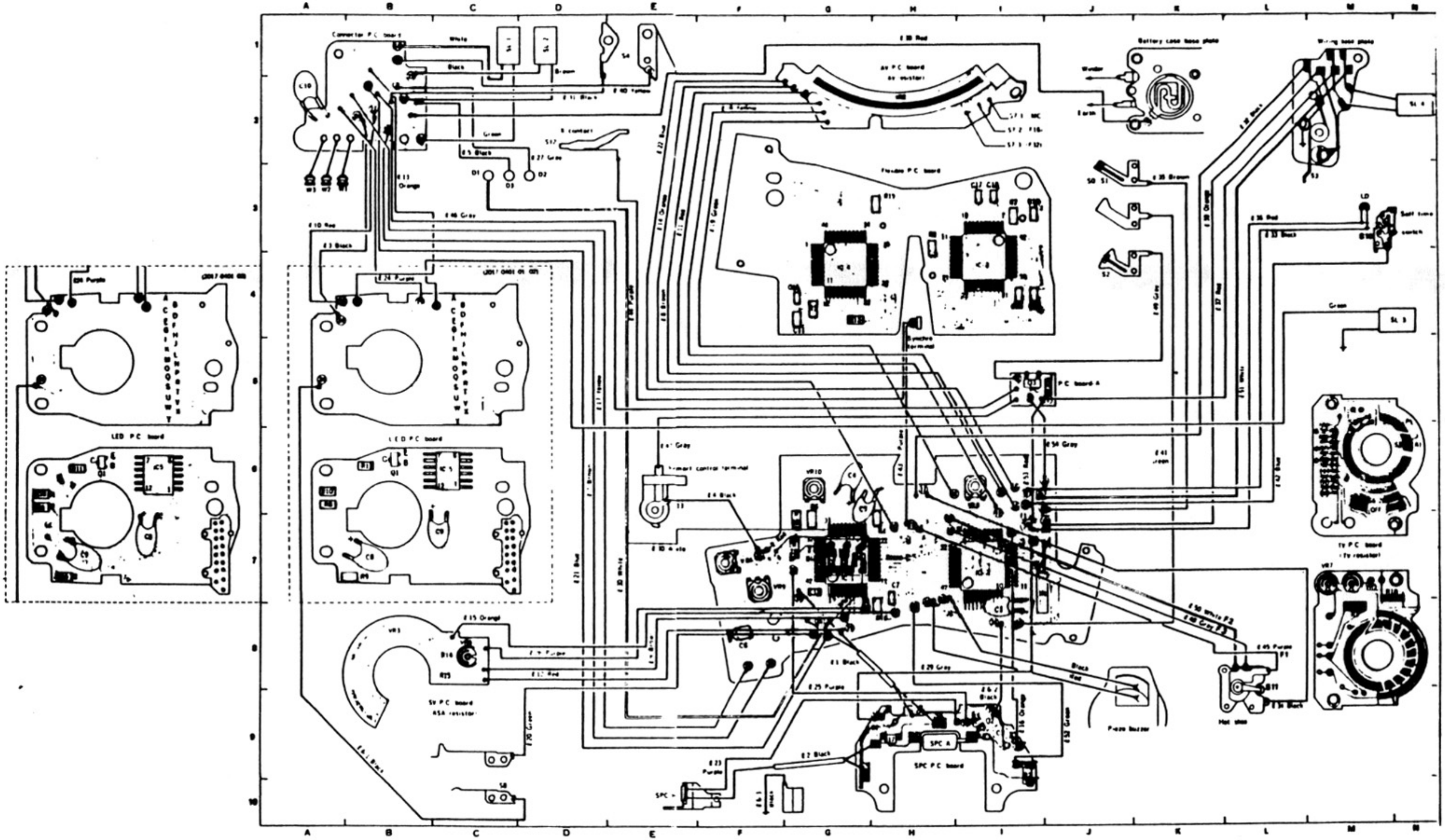
Judgement

Should be following

Self-timer switch	About 0 V at ON position
	About 2.9V at OFF psoition

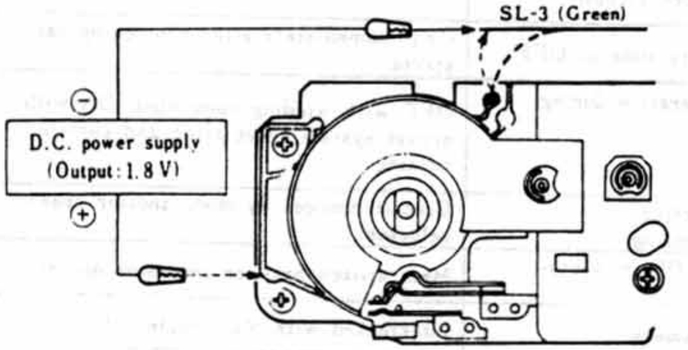
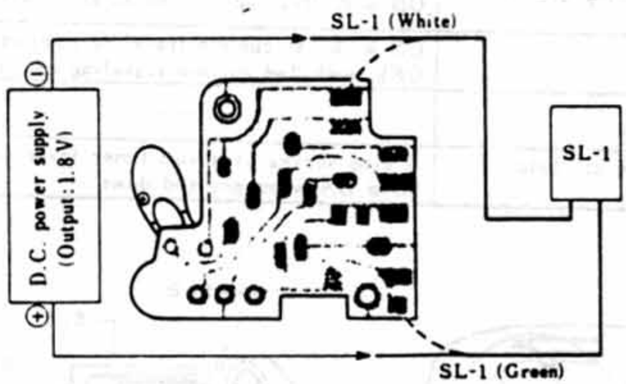
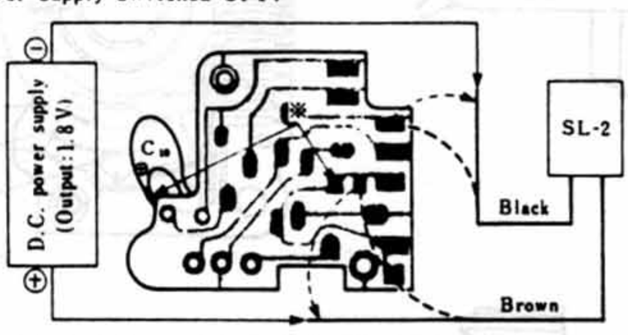
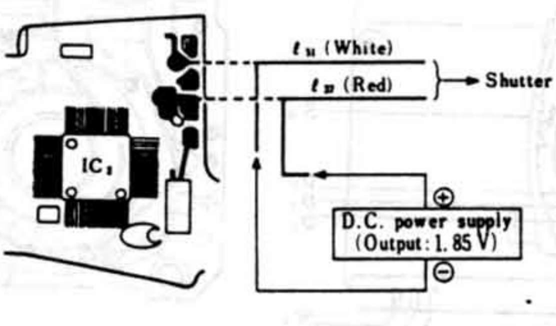
	Checking procedure	Judgement
S_{11}	(Conductivity check)  Reverse side of hot shoe	Should be following <table><tr><td rowspan="2">Hot shoe</td><td>ON with flash mounted</td></tr><tr><td>OFF with no flash mounted</td></tr></table>
S_{12}	(Conductivity check)  Note: ℓ_{43}, ℓ_{44} (Purple) should be free from disconnection, cold soldering.	Should be following <table><tr><td>ON while shutter open</td></tr><tr><td>OFF after 2 nd shutter curtain teavel</td></tr></table>
S_{13}	(Conductivity check)  Note: Be sure to disconnect soldering of ℓ_{47} (Grey). : ℓ_{47} (Grey), ℓ_4 (Black) should be free from disconnection, cold soldering.	Should be following 
S_{14}	(Conductivity check)  Note: Be sure to disconnect solering of ℓ_{55} (Yellow). : ℓ_{55} (Yellow) should be free from disconnection, cold soldering.	Should be following <table><tr><td>ON with self-timer switch pressed down</td></tr><tr><td>OFF without self-timer switch pressing</td></tr></table>

A X-700 CODE No.2017 (2017-0401-01, 2017-0401-02, 2017-0401-03)



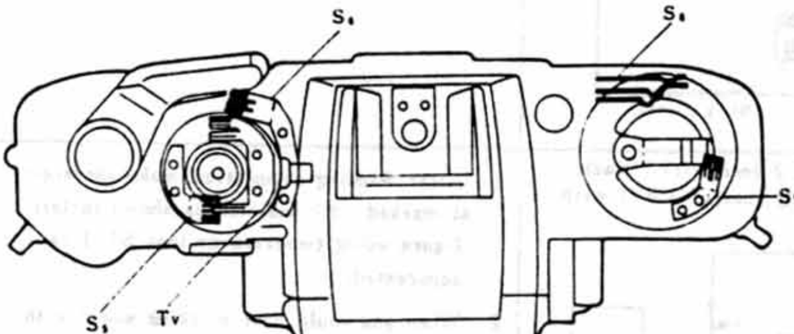
2. Magnet.

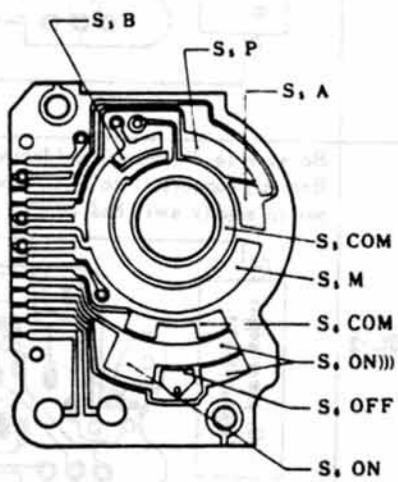
- Replace magnet with new one in case that state of camera is out of description in Judgement column even though lead wires, magnet coil, attraction surface have no problem.

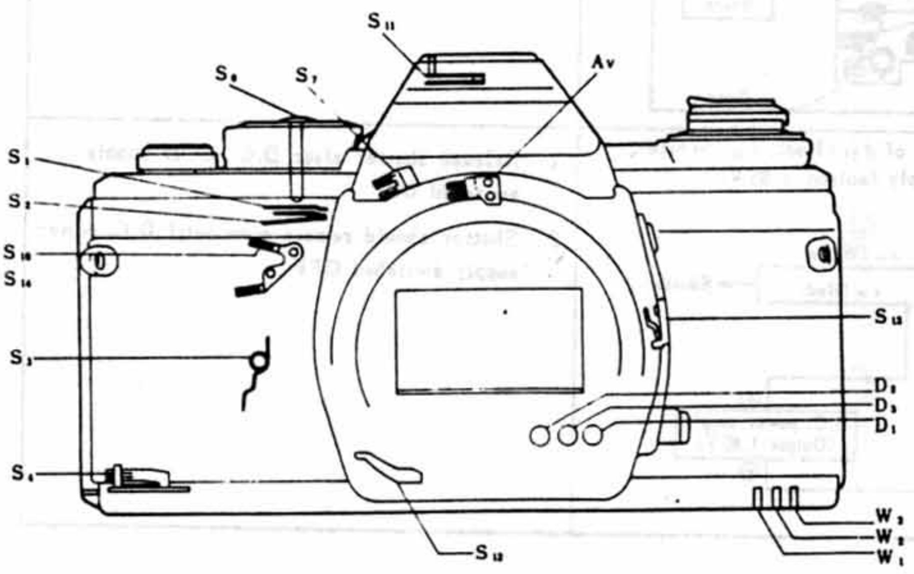
	Checking procedure	Judgement
SL-3	Disconnect SL-3 lead wire (Green), connect it to − end of D.C. power supply (output: 1.8 V). 	Shutter releasing, when contacting + end of D.C power supply to GND as shown in left figure after winding completion, means O.K.
SL-1	Be sure to disconnect soldering of SL-1 lead wire (White, Green), connect it to D.C. power supply (output: 1.8 V) with power supply switched OFF. 	Preset lever should operate with D.C. power supply switched ON after winding completion.
SL-2	Be sure to disconnect soldering of SL-2 lead wire (Black, Brown), connect it to D.C. power supply (output: 1.8V) with power supply switched OFF. 	1. After winding completion, make short-circuit at marked (※) position as shown in left figure using tweezers so that SL-1 is separeated. 2. When you could hear clicking sound with D.C. power supply switched ON, SL-2 should be separated.
SL-4	Be sure to disconnect solderings of ℓ_{37} (Red), ℓ_{51} (White), connect those to D.C. power supply (output: 1.85 V). 	1. Release shutter after D.C. power supply switched ON. 2. Shutter should remain open until D.C. power supply switched OFF.

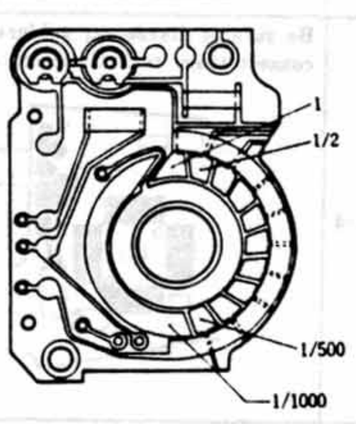
4 Switches function

Symbol	Name of switch	Function	Operating condition
S_0	Sensor switch (Touch switch)	Turns on the metering calculation circuit and indicates the shutter speed in viewfinder.	ON when shutter buton is touched with finger.
S_1	Metering swich	Same as S_0.	ON when shutter button is depressed.
S_2	Release switch	Starts the operation of each circuit.	
S_3	Trigger switch	Starts counting of exposure time at OFF.	OFF immediately after shutter operation starts.
S_4	Reset switch	• Prevention of faulty operation during winding. • Circuit resetting. • Motor drive control.	OFF with winding completed; ON with preset system reset after 2nd curtain running.
S_5	Mode switch	• A, M, P, B mode selecting. • M, A, P LED ON selecting.	Circuit changes by mode/shutter speed selector.
S_6	Main switch	Circuit power ON/OFF; ON + piezo-beeper power supply.	Main switch position indicator operation.
S_7	MD switch	Delivers MD signal to camera.	Interlocked with MD coupler of MD lens.
S_8	+/− indication switch	Delivers exposure adjustment signal.	ON with exposure adjustment control.
S_{10}	Self switch	Makes self-timer circuit ready for operation.	ON with self lever raised.
S_{11}	Electric shock prevention switch	Electric shock prevention during use of synchro terminal.	ON with flash unit fitted on acc. shoe.
S_{12}	X contact	Flash operation.	ON with 1st curtain traveling completed; OFF with 2nd curtain traveling completed.
S_{13}	Remote control switch	Same as S_2.	—
S_{14}	AE lock switch	Aperture level and indication are held in A and P modes.	It also serves as a self-timer lever and turns ON when pressed down.









5 IC Pin Voltages (Measured value)

Measuring conditions: Value in bellow shows actual measured Voltage(V),with 3V power supply, at f:5.6 with 50/F 1.4 lens used,under the normal room condition.
(Disital multi-meter (Type 2508) nsed.)

F means no voltage that can't be measured.(Indicated values flucturate.)

	Winding completed	During metering	Shutter released
IC-1 1	0	0.05	0.05
2	0	0.06	0.06
3	F	1.1	1.1
4	F	1.2	1.2
5	F	1.25	1.25
6	F	0.9	0.9
7	F	0.9	0.9
8	0	0.16	0.16
9	F	1.1	1.1
10	F	2.9	2.9
11	2.8	2.8	2.8
12	0	0.01	2.9
13	F	0.07	0.07
14	0	0.01	0

	Winding completed	During metering	Shutter released
IC-1 15	F	2.9	2.9
16	0	0.01	0.01
17	F	1.26	1.26
18	3.0	3.0	3.0
19	0	2.9	2.9
20	0	0.02	0.02
21	0	0.02	0.02
22	3.0	3.0	3.0
23	3.0	2.9	2.9
24	1.7	1.6	1.6
25	0	0.01	0.01
26	F	0.65	0.65
27	F	0.8	0.8
28	F	0.6	0.6

	Winding completed	During metering	Shutter released
IC-1 29	0	0.1	0.1
30	F	0.9	0.9
31	F	1.38	1.38
32	0	0.16	0.16
33	0	0.19	0.19
34	F	0.7	0.7
35	F	1.0	1.0
36	0	2.9	2.9
37	0	0.01	0.01
38	0	0.03	0.03
39	0	0.07	0.07
40	0	0.07	0.07
41	0	0.07	0.07
42	0	0.93	0.93

	Winding completed	During metering	Shutter released
IC-2 1	F	F	F
2	F	1.1	0.9
3	F	1.0	0.9
4	0	0.01	0
5	3.0	2.9	3.0
6	F	1.4	1.4
7	F	1.4	1.4
8	F	1.25	1.25
9	0	2.9	2.9
10	0	2.9	2.9
11	F	1.4	1.4
12	F	F	F
13	F	F	F
14	F	1.1	1.2

	Winding completed	During metering	Shutter released
IC-2 15	F	1.1	1.25
16	0	0	0
17	F	1.2	1.25
18	F	1.3	1.3
19	F	1.25	1.25
20	F	1.0	1.0
21	F	1.0	1.0
22	F	1.4	1.4
23	F	1.4	1.4
24	0	2.9	2.9
25	0	0	0
26	0.8	0.8	0.8
27	0.8	0.8	0.8
28	F	0.6	0.6

	Winding completed	During metering	Shutter released
IC-2 29	F	0.6	0.6
30	1.2	1.2	1.2
31	0	0	0
32	F	0.6	0.6
33	1.1	1.1	1.1
34	F	0.6 0 with AE locked	0.6
35	0	0.02	0.02
36	F	0.6	0.6
37	0.01	0.01	0.01
38	F	2.9	2.9
39	0	0.01	0
40	F	0.07	0.05
41	F	0.65	0.65
42	2.7	2.7	2.7

Winding completed···S_4 OFF During metering···S_0 or S_1 ON Shutter released···S_1, S_2 and S_4 ON

	Winding completed	During metering	Shutter released
IC-3 1	2.85	2.85	3.0
2	2.7	2.7	0
3	2.2	2.2	0
4	0	2.94	2.94
5	0	2.94	2.94
6	0	2.93	2.93
7	0	0	2.7
8	F	F	F
9	F	F	F
10	0	0.6 0 with AE locked	0.6
11	F	2.93 0 with AE locked	0
12	0.1	0.1	0.1
13	0	0.6	0.6
14	0	F	F

	Winding completed	During metering	Shutter released
IC-3 15	0	0	0
16	3.0	3.0	3.0
17	0	3.0	3.0
18	2.9	2.9	2.9
19	3.0	3.0	3.0
20	0	0.6	0.6
21	0	0	0
22	2.9	2.9	2.9
23	2.9	2.9	2.9
24	0	0	0
25	0	0.02	0.02
26	0.8	0.8	0.8
27	0.8	0.8	0.8
28	1.0	1.0	1.0

	Winding completed	During metering	Shutter released
IC-3 29	0.7	0.7	0.7
30	F	1.3	1.3
31	F	1.3	1.3
32	F	F	F
33	0	0	0
34	2.93	2.93	2.93
35	0	0	0
36	0	0	0
37	3.0	3.0	3.0
38	1.0	1.0	1.0
39	1.3	1.3	1.3
40	3.0	3.0	3.0
41	0.2	0.2	0.2
42	0.45	0.45	0.45

	Winding completed	During metering	Shutter released
IC-4 1	F		
2	F		
3	F	LED ON 0.05	LED ON 0.05
4	F		
5	F	LED OFF 1.5	LED OFF 1.5
6	F		
7	F		
8	F	LED OFF1.5 LED blink1.3	LED OFF1.5 LED blink1.3
9	0	2.9	2.9
10	0	0	0
11	F	F	F
12	F	F	F
13	F	1.1	1.25
14	F	1.3	1.4
15	0	1.0	1.0

	Winding completed	During metering	Shutter released
IC-4 16	0	0	0
17	F	F	F
18	F	F	F
19	0	0	0.04
20	F	1.0	1.0
21	F	1.0	1.0
22	F	0	0
23	F	0.2	0.2
24	0	0	0
25	0	0	0
26	0	F	F
27	0.8	0.8	0.8
28	0	0	0
29	F	0.6	0.6
30	F	F	F

	Winding completed	During metering	Shutter released
IC-4 31	0	0.6	0.6
32	F	0.7	0.7
33	0	0	0.6
34	3.0	2.93	3.0
35	LED OFF 1.5	LED OFF 1.5	LED OFF 1.5
36	F	1.5	1.5
37	F	0.05	0.05
38	F	1.5	1.5
39	F	LED OFF1.5 LED blink1.3	LED OFF1.5 LED blink1.3
40	F		1.5
41	F		
42	F	LED ON 0.05	LED ON 0.05
43	F	LED OFF 1.5	LED OFF 1.5
44	F		

Winding completed…S_4 OFF During metering…S_0 or S_1 ON Shutter released…S_1, S_2 and S_4 ON

		Winding completed	During metering	Shutter released
IC-5	1	0	0	0
	2	0	0	0
	3	0	0	0
	4	0	0	0

		Winding completed	During metering	Shutter released
IC-5	5	3.0	2.3	2.3
	6	3.0	2.3	2.3
	7	3.0	2.3	2.3
	8	0	2.9	2.9

		Winding completed	During metering	Shutter released
IC-5	9	3.0	3.0	3.0
	10	3.0	3.0	3.0
	11	3.0	3.0	3.0
	12	3.0	3.0	3.0

		Winding completed	During metering	Shutter released
IC-6	1	0	0	0
	2	0	0	0
	3	0	0	0
	4	0	0	0
	5	0	2.9	2.9
	6	0	2.9	2.9
	7	0	0	0

		Winding completed	During metering	Shutter released
IC-6	8	F	2.9	2.5
	9	0	0	2.9
	10	0	2.9	2.9
	11	0.5	1.3	1.3
	12	0	0	2.8
	13	0	2.9	2.9
	14	0	2.9	2.9

Winding completed···S_4 OFF During metering···S_6 or S_1 ON Shutter released···S_1, S_2 and S_4 ON

• NOs, in the table below denote lead wire soldered points (① to ㊺).

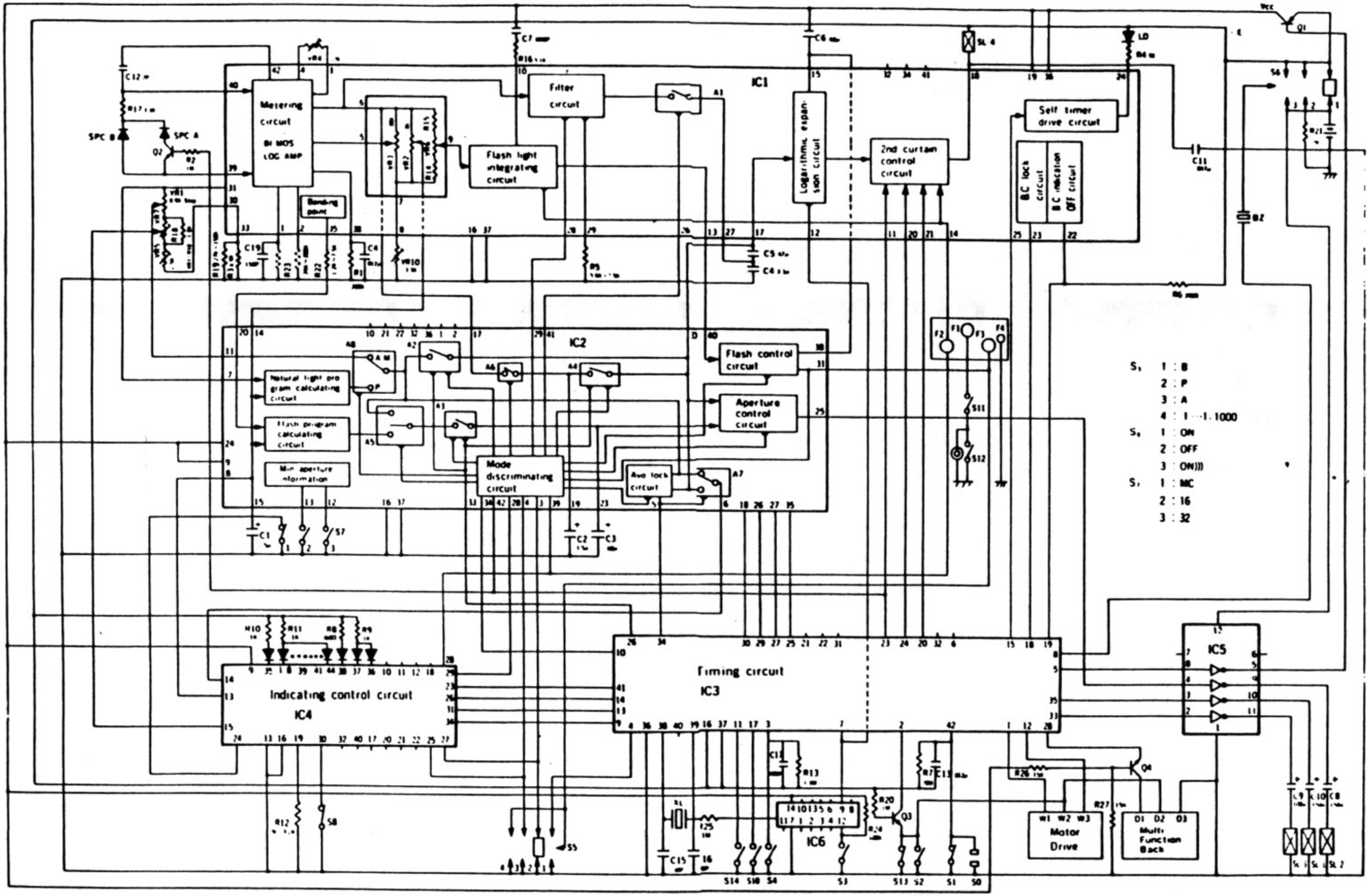
No.	Connected to	Lead color	IC pin's No.	No.	Connected to	Lead color	IC pin's No.	No.	Connected to	Lead color	IC pin's No.
①	SL-4 +, R_{20}	Red	3-⑰	⑱	F_1 terminal	Purple		㉟	C_2 ∓	Gray	2-⑲
②	Q_3 Collector	Gray	③-②	⑲	C_{10}→SL-1 −	Purple	5-⑩	㊱	SPC P.C board ∓	Black	GND
③	D_4, S_{11}, S_7, Q_1 emitter	Gray	Q_3→3-②	⑳	SL-3 −	Green	C_9→5-⑪	㊲	C_3 +	Orange	2-㉓
④	S_1 +	Orange	1-⑫, 3-⑦	㉑	S_{11}	Black	GND	㊳	R_2 (TV memory)	Green	1-⑩, 2-㊷, 3-㉒
⑤	S_1 ∓	Brown	3-㊷	㉒	SL-2 −	Orange Black	C_8→5-⑨	㊴	R_{11}, SPC A, B cathode	Shielded wire	1-㊵
⑥	SL-4 −, C_{11}	White	1-⑱	㉓	Battery +	Red	⑤-⑬	㊵	F_2 terminal	white	1-⑭, 2-㊴
⑦	Self-timer LED +	Red	3-㉝	㉔	SL-1, SL-2, S_8, S_9, D_3	Black	5-⑫ IC GND	㊶	F_3 terminal	Gray	2-㉛
⑧	S_{10} +	Blue	3-⑰	㉕	S_8 ∓	Green	4-㉚	㊷	BZ −	Black	3-⑧
⑨	Self-timer LED −	Black	R_{27}→1-㉙	㉖	D_1 terminal	White	3-㉙	㊸	BZ +	Red	S_4 Power source
⑩	S_1, S_2 GND	Green	2-⑯	㉗	W_3, D_2 terminal	Blue	3-⑫	㊹	SL-1 −	White	C_{10}→5-⑩
⑪	S_{7-1} (MC)	Green	4-㉔	㉘	VR_1 (SV) +	Brown	1-⑥, 2-⑰	㊺	S_{14} +	Yellow	3-⑪
⑫	S_{7-3} (F32)	Red	2-⑫	㉙	VR_1 (SV) common	Red	1-⑤				
⑬	S_{7-2} (F16)	Yellow	2-⑬	㉚	VR_4 common	Purple	1-⑨				
⑭	VR_2 (AV) +	Brown	1-⑥, 2-⑰	㉛	VR_1 (SV) −	Orange	1-⑦				
⑮	VR_2 (AV) common	Blue	2-⑩	㉜	W_1 terminal	Brown	3-①				
⑯	VR_2 (AV) −	Orange	1-⑦	㉝	S_9 +	Yellow	3-③				
⑰	GND	Black		㉞	Q_2 emitter SPC-B anode	Purple	1-㊴				

• Symbol (A~Y, Ⓐ~Ⓜ) in the table below shows joint part (A~Y, Ⓐ~Ⓜ).

Symbol	Connected to	IC pin's No.	Symbol	Connected to	IC pin's No.
A	LED ▽	IC-4⑧	Ⓐ	S_{5-1}	IC-3④
B	LED 1	IC-4⑦	Ⓑ	VR-1	IC-1㉛
C	LED 2	IC-4⑥	Ⓒ	S_{5-3}	IC-2④, IC-4㉕
D	LED 4	C-4⑤	Ⓓ	S_{5-2}	IC-2③, IC-4㉗
E	LED 8	IC-4④	Ⓔ	GND	IC-2⑯
F	LED 15	IC-4③	Ⓕ	F_3	IC-2㉛
G	LED 30	IC-4②	Ⓖ	R_3	IC-1㉝
H	LED 60	IC-4①	Ⓗ	VR-1	IC-2⑪
I	LED 125	IC-4㊹	Ⓘ	S_4→Y	—
J	LED 250	IC-4㊸	Ⓙ	S_4→X	—
K	LED 500	IC-4㊷	Ⓚ	S_{6-3}→BZ	—
L	LED 1000	IC-4㊶	Ⓛ	VR_5	IC-1㉚
M	LED △	IC-4㊴	Ⓜ	VR_7	IC-4⑮
N	LED P	IC-4㊳			
O	LED A	IC-4㊲			
P	LED M	IC-4㊱			
Q	LED +/−	IC-4㉟			
R	SL-3	IC-3㉝→IC-5②			
S	SL-1	IC-3㉟→IC-5③			
T	SL-2	IC-2㉕→IC-5④			
U	Q_1 base	IC-3⑤→IC-5⑧			
V	GND	—			
W	Vcc (from collector of Q_1)	IC-1⑲㊳, IC-2⑨㉔, IC-4⑨			
X	+E (from S_4)	IC-3㊲			
Y	Battery	—			

X-700 (CODE No. 2017) Circuit Diagram

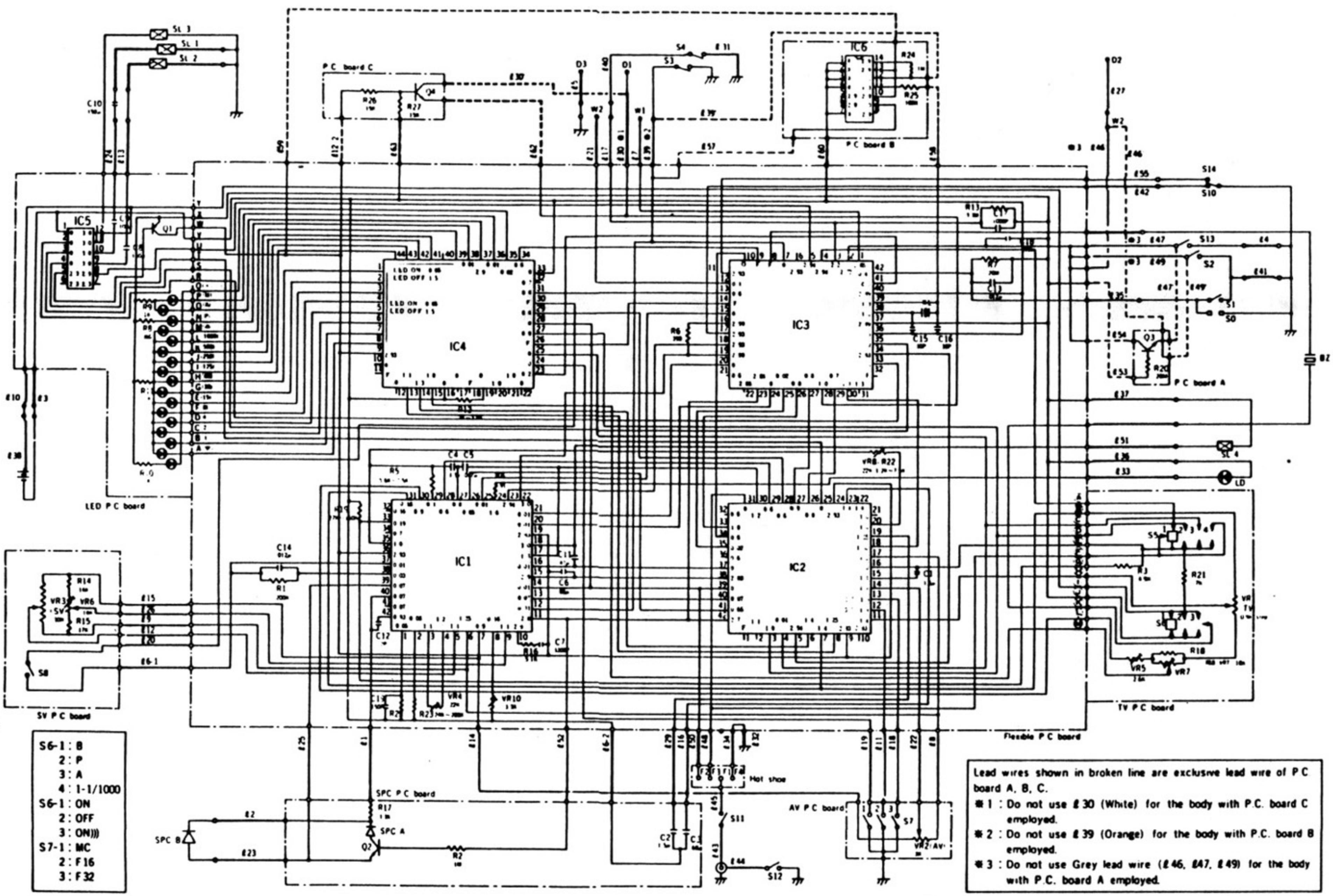
(With AE Lock Circuit, P.C board B and P.C board C)



Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function
IC 1	Metering calculation control	SL[illegible]	Aperture magnet	VR[illegible]	AE level adjustment	W[illegible]	MD-1 metering signal	C[illegible]	Current stabilization	C[illegible]	Aperture magnet control	C[illegible]	Current stabilization	R[illegible]	Indication adjustment
IC 2	Mode discriminator program calculation	SL[illegible]	Mirror magnet	VR[illegible]	Manual SS level adjustment	W[illegible]	MD-1 release signal	C[illegible]	AV memory	C[illegible]	Mirror magnet control	C[illegible]	LC oscillation 1	R[illegible]	M TV adjustment
IC 3	Timing control	SL[illegible]	Shutter magnet	VR[illegible]	Flash input adjustment	W[illegible]	MD-1 winding signal	C[illegible]	Aperture filter	C[illegible]	Release magnet control	C[illegible]	LC oscillation 2	R[illegible]	Bonding point adjustment
IC 4	Indication	VR[illegible]	Manual Tv setting	VR[illegible]	Indication level adjustment	D[illegible]	Date imprint signal	C[illegible]	TV memory	C[illegible]	Current stabilization	C[illegible]	Current stabilization	R[illegible]	Offset adjustment
IC 5	Magnet power control	VR[illegible]	Av setting			D[illegible]	Release signal	C[illegible]	Natural light expansion	C[illegible]	Current stabilization	C[illegible]	Current stabilization		
SL.	Release magnet	VR[illegible]	SV setting	VR[illegible]	30mV adjustment	C.	Current stabilization	C[illegible]	Flash expansion	C[illegible]	Current stabilization	R[illegible]	Discharging	XL	LC oscillator (timing)

■ X-700 (CODE No. 2017) Substantial Circuit Diagram

(Numerals in IC show actual measured voltage (V) with 3V power supply in A mode, at f 5.6 with 50mm f 1.4 lens used while metering (S6, S0, S1 ON) under the normal room light conditions (EV8-EV9). Also F shows unstable voltage.)



S6-1 : B
2 : P
3 : A
4 : 1-1/1000
S6-1 : ON
2 : OFF
3 : ON)))
S7-1 : MC
2 : F16
3 : F32

Lead wires shown in broken line are exclusive lead wire of P.C. board A, B, C.

✱1 : Do not use ℓ30 (White) for the body with P.C. board C employed.

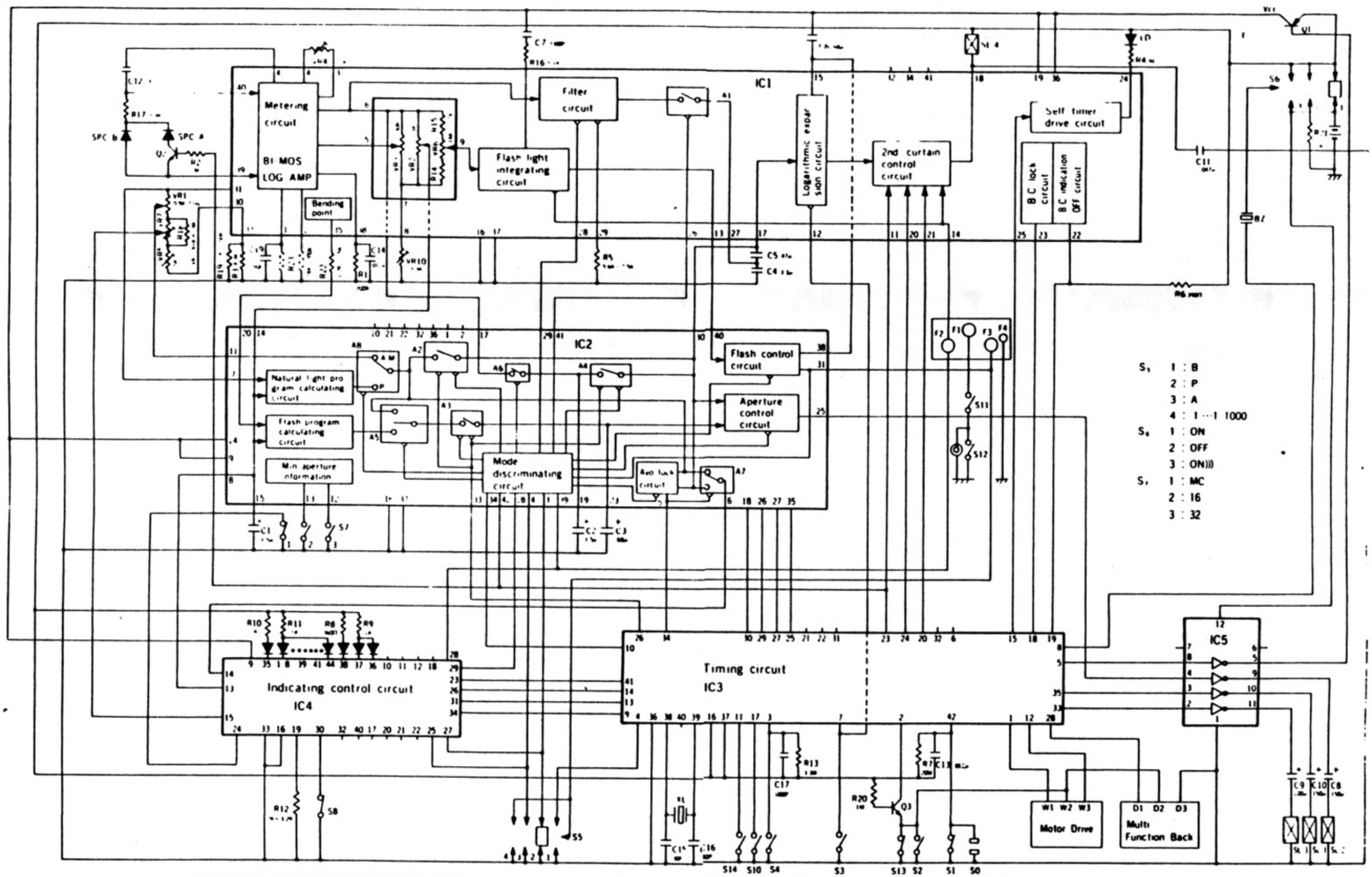
✱2 : Do not use ℓ39 (Orange) for the body with P.C. board B employed.

✱3 : Do not use Grey lead wire (ℓ46, ℓ47, ℓ49) for the body with P.C. board A employed.

Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function
IC-1	Metering, calculation control	SL_1	Aperture magnet	VR_4	AE level adjustment	W_1	MD-1 metering signal	C_2	Circuit stabilization	C_8	Aperture magnet control	C_{14}	Circuit stabilization	R_{13}	Indication adjustment
IC-2	Mode discriminator, program calculation	SL_2	Mirror magnet	VR_5	Manual SS level adjustment	W_2	MD-1 release signal	C_3	AV memory	C_9	Mirror magnet control	C_{15}	LC oscillation 1	R_{19}	M.TV adjustment
IC-3	Timing control	SL_3	Shutter magnet	VR_6	Flash input adjustment	W_3	MD-1 winding signal	C_4	Aperture filter	C_{10}	Release magnet control	C_{16}	LC oscillation 2	R_{20}	Bending point adjustment
IC-4	Indication	VR_1	Manual Tv setting	VR_7	Indication level adjustment	D_1	Date imprint signal	C_5	TV memory	C_{11}	Circuit stabilization	C_{17}	Circuit stabilization	R_{22}	Offset adjustment
IC-5	Magnet, power control	VR_2	AV setting			D_2	Release signal	C_6	Natural light expansion	C_{12}	Circuit stabilization	C_{18}	Circuit stabilization		
SL_4	Release magnet	VR_3	SV setting	VR_{10}	300mV adjustment	C_1	Circuit stabilization	C_7	Flash expansion	C_{13}	Circuit stabilization	R_5	Discharging	XL	LC oscillator (timing)

X-700 (CODE No. 2017) Circuit Diagram

(With AE Lock Circuit)



Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function	Name	Function
IC 1	Metering calculation control	SL	Aperture magnet	VR	AE level adjustment	W_1	MD-1 metering signal	C_2	Circuit stabilization	C_8	Aperture magnet control	C_{14}	Circuit stabilization	R	Indication adjustment
IC 2	Mode discriminator program calculation	SL	Mirror magnet	VR	Manual SS level adjustment	W_2	MD-1 release signal	C_3	AV memory	C_9	Mirror magnet control	C_{15}	LC oscillation 1	R	M TV adjustment
IC 3	Timing control	SL	Shutter magnet	VR	Flash spot adjustment	W_3	MD-1 winding signal	C_4	Aperture filter	C_{10}	Release magnet control	C_{16}	LC oscillation 2	R	Bending point adjustment
IC 4	Indication	VR	Manual Tv setting	VR	Indication level adjustment	D_1	Date imprint signal	C_5	TV memory	C_{11}	Circuit stabilization	C_{17}	Circuit stabilization	R	Offset adjustment
IC	Magnet power control	VR	AV setting			D_2	Release signal	C_6	Natural light expansion	C_{12}	Circuit stabilization	C_{18}	Circuit stabilization		
SL	Release magnet	VR	SV setting	VR_{10}	[illegible] adjustment	C_1	Circuit stabilization	C_7	Flash expansion	C_{13}	Circuit stabilization	R_5	Discharging	XL	LC oscillator timing