FAA32051－R.3404.A

作成承認印	配布許可印
ニコン カメラ CS推進部 GM	計画課 M

Nikon F5

REPAIR MANUAL

Nikon | NIKON CORPORATION
Tokyo, Japan

Printed in Japan June 1996

DISASSEMBLE

1.DISASSEMBLING REAR BODY AND FRONT BODY UNIT

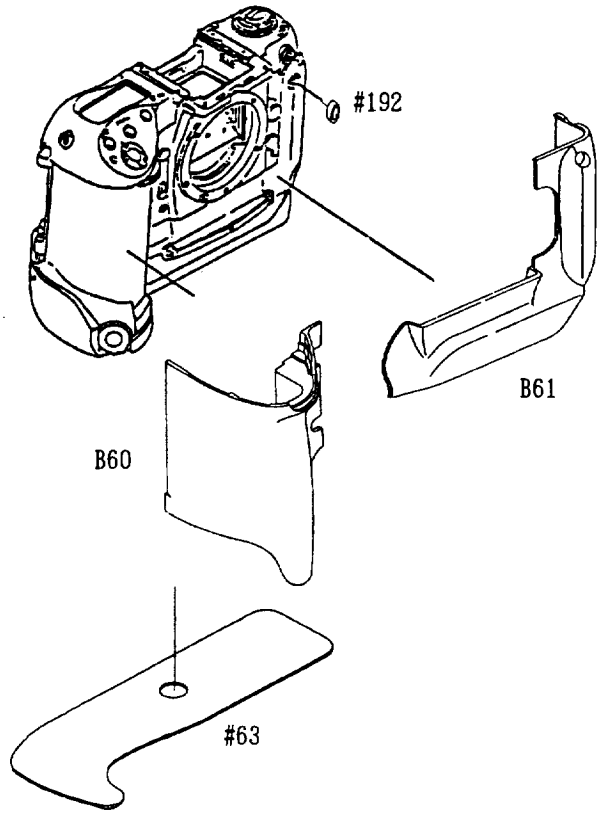
2.DISAASEMBLING REAR BODY

3.DISASEEMBLING FRONT BODY

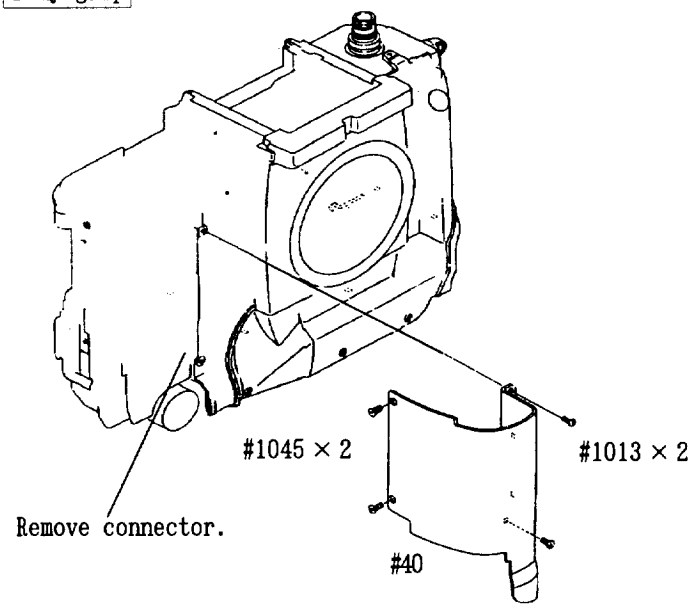
DISASSEMBLE

1. Disassembling rear body and front body units.

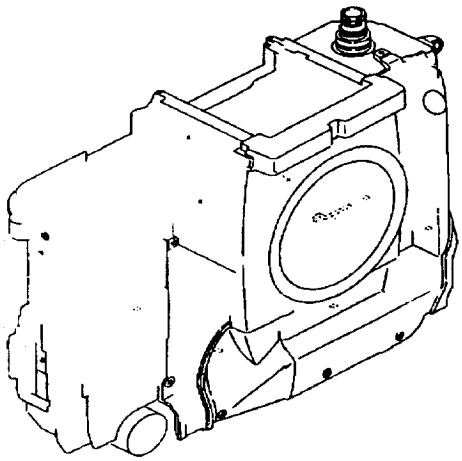
Rubber armored external body

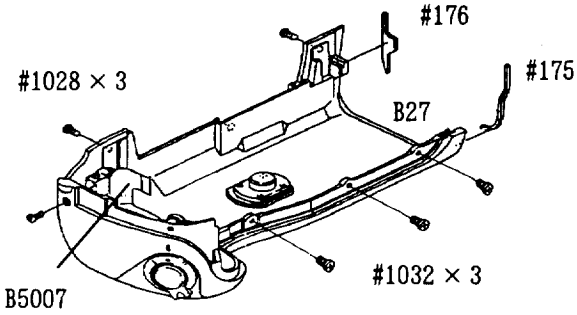


Body grip

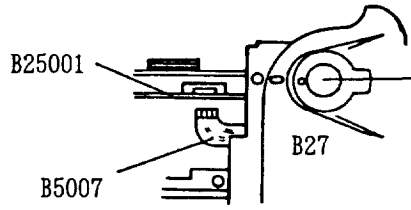


Bottom cover

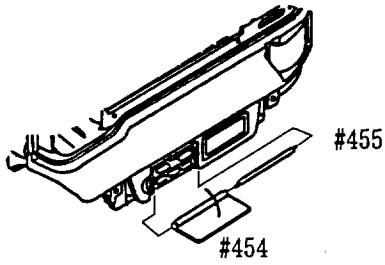




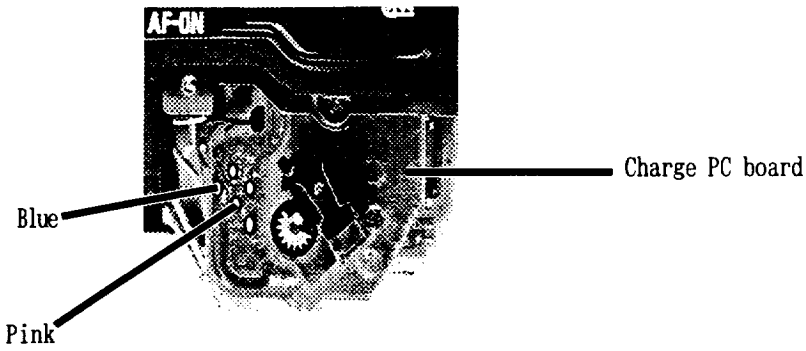
・Remove bottom cover FPC (B5007) from connector.

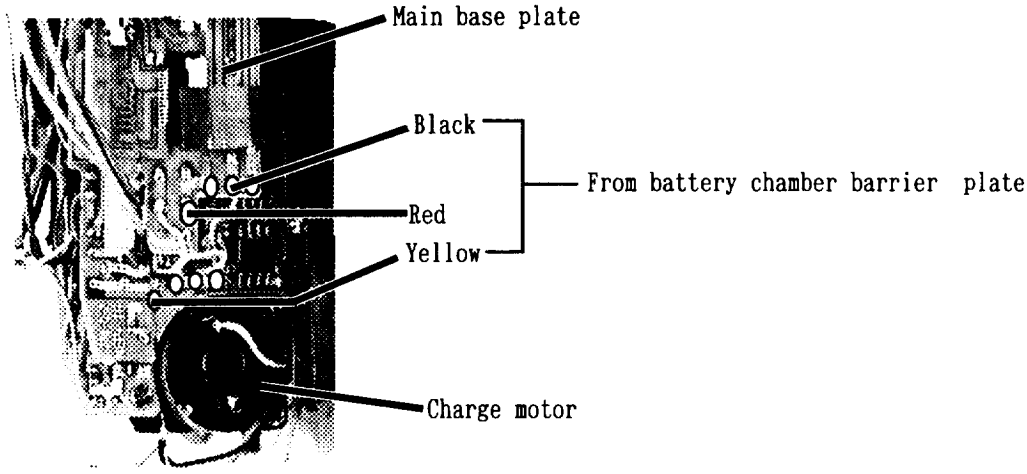


Bottom cover FPC

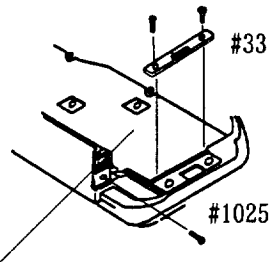


Battery chamber barrier plate

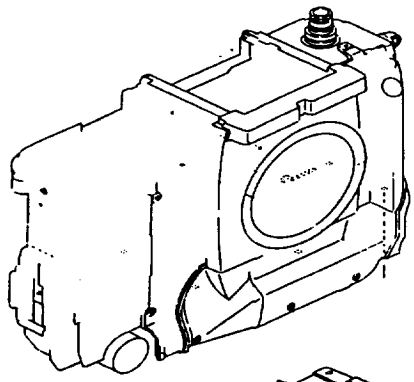


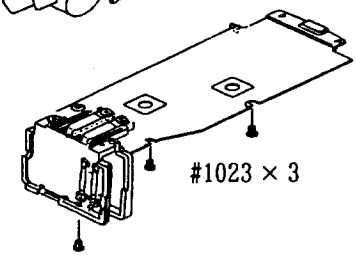


#1043 × 2

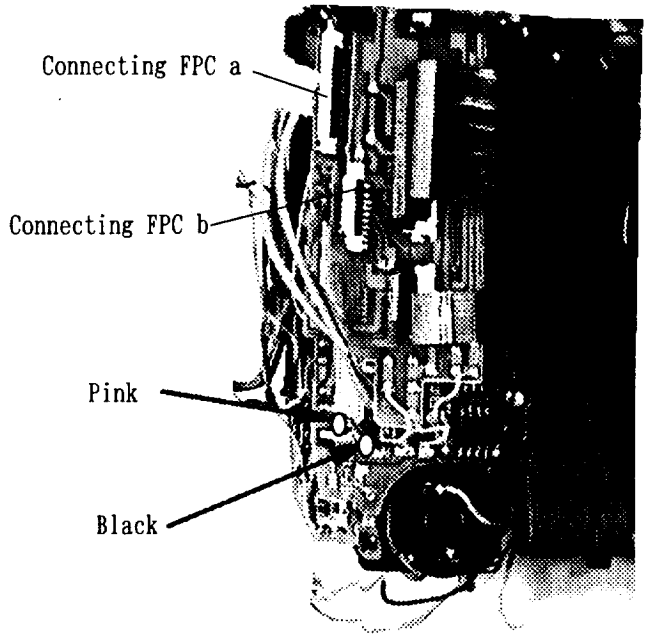


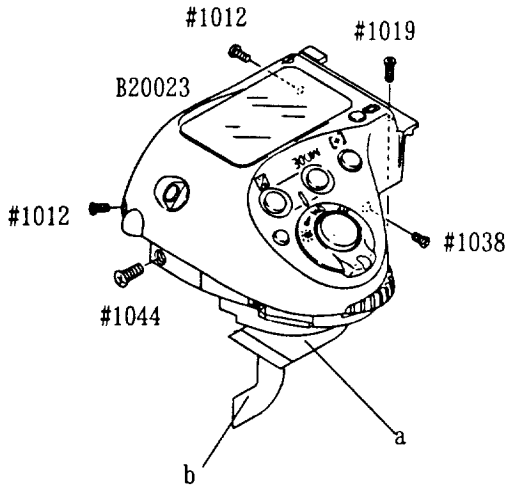
Battery chamber barrier plate



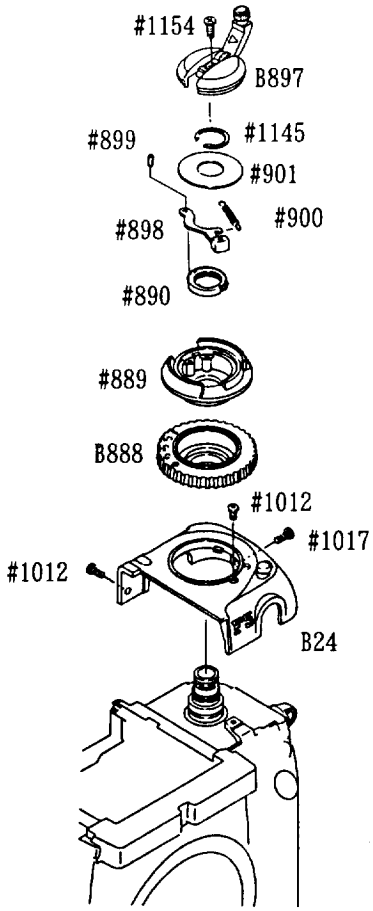


Top cover on film advance side

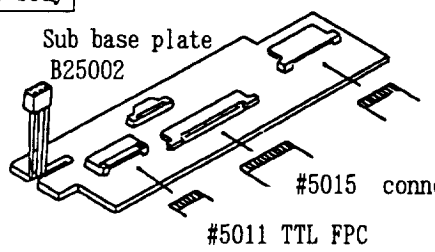


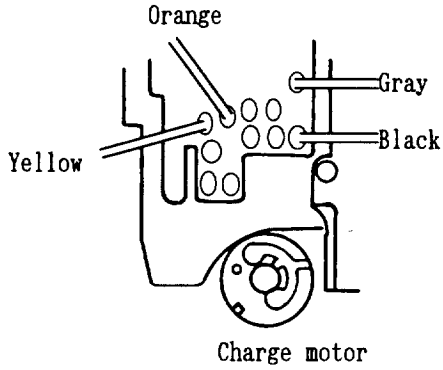


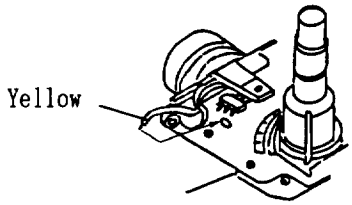
Top cover on film rewind side

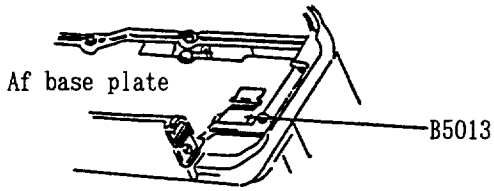


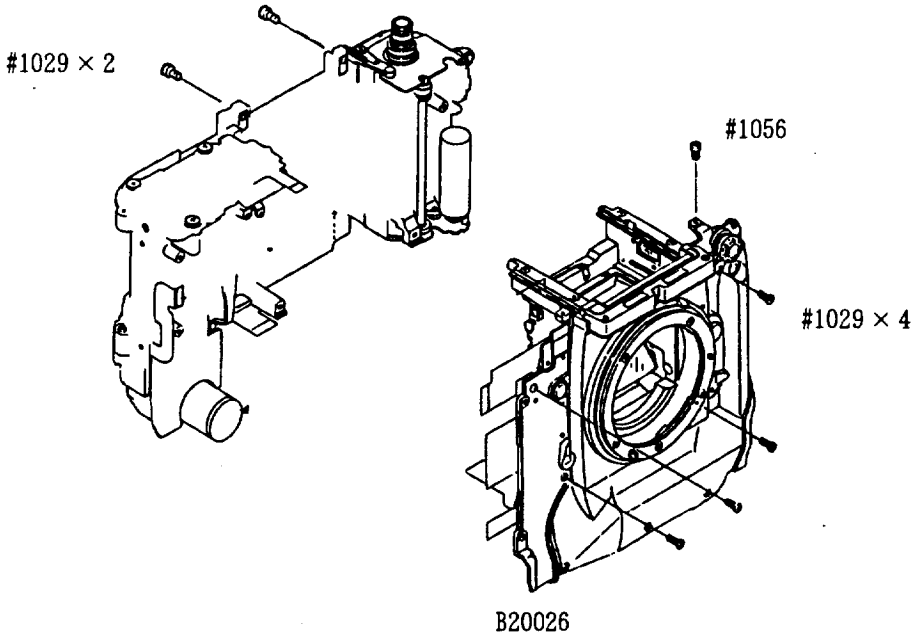
Front body


Sub base plate
B25002
#5012 FD contact FPC
#5015 connection FPC
#5011 TTL FPC


Orange
Gray
Black
Yellow
Charge motor

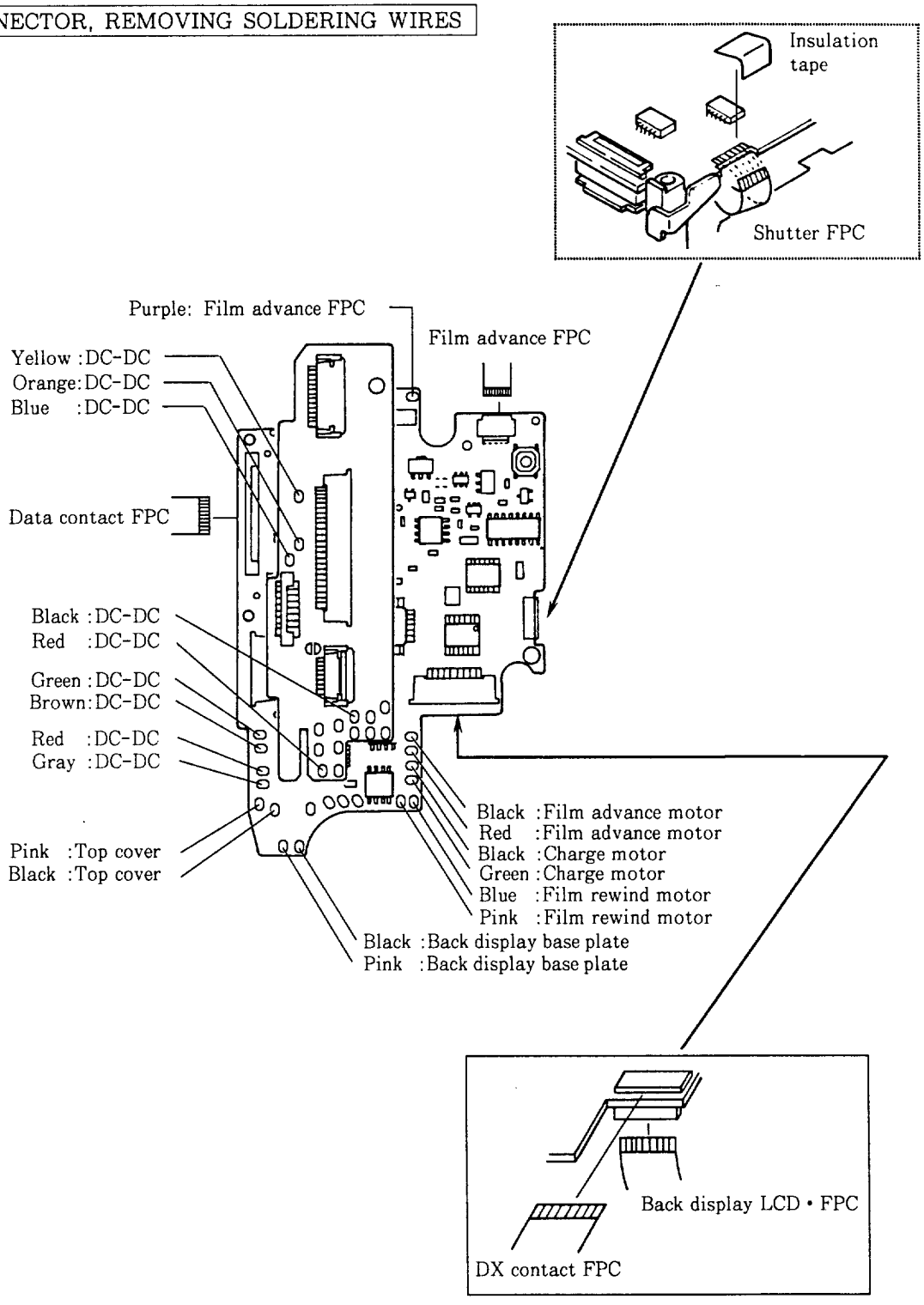

Yellow
Film advance M base plate


Af base plate
B5013

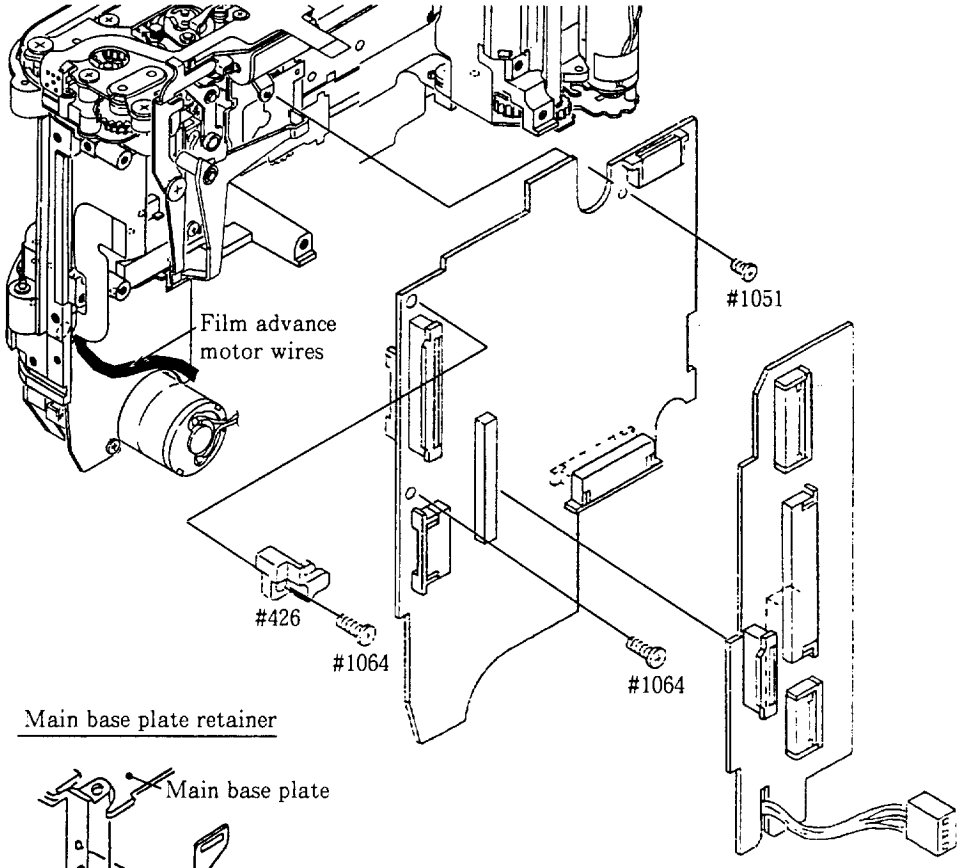

#1029 × 2
#1056
#1029 × 4
B20026

2. DISASSEMBLING REAR BODY

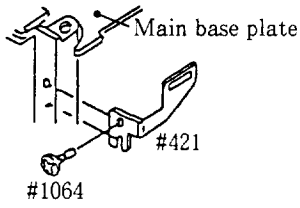
CONNECTOR, REMOVING SOLDERING WIRES



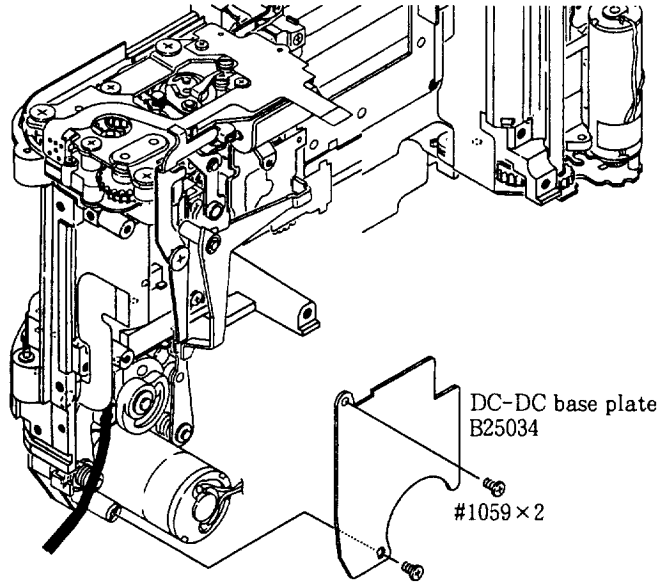
MAIN BASE PLATE



Main base plate retainer

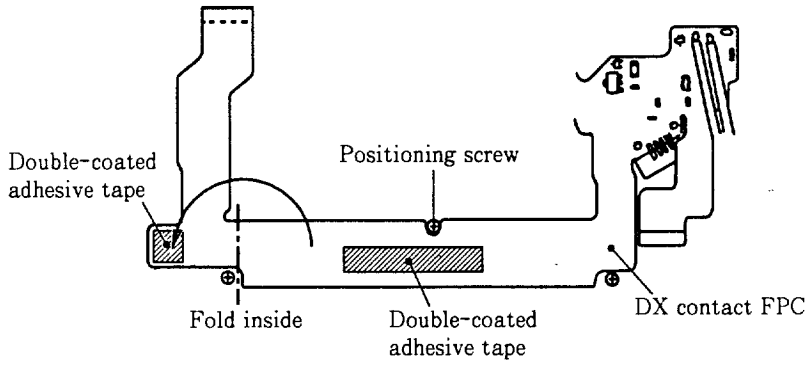


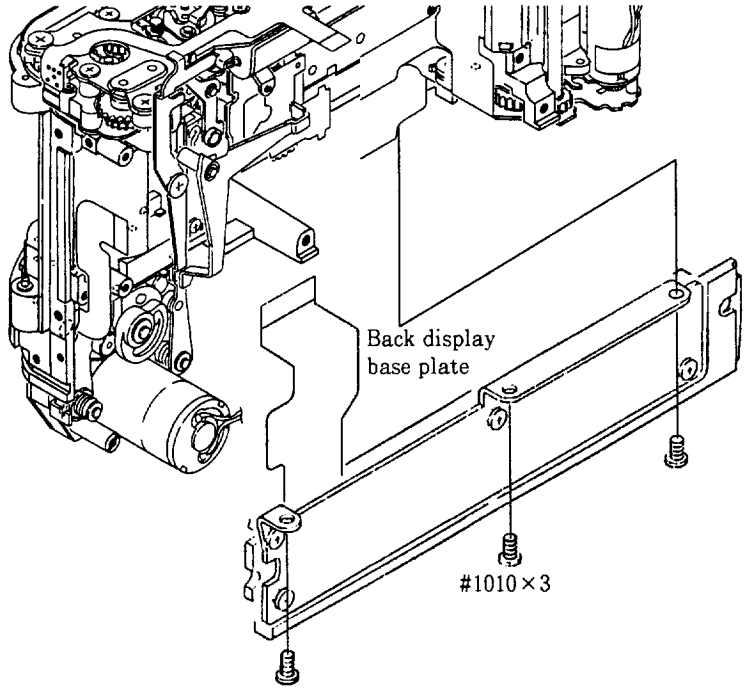
DC-DC BASE PLATE



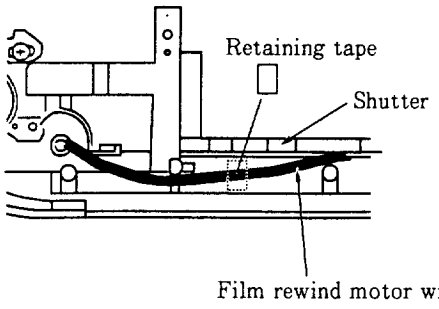
BACK DISPLAY BASE PLATE

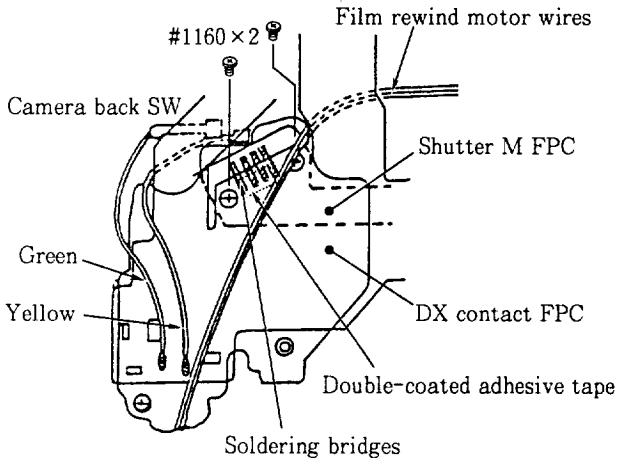
● Lift up the DX contact FPC in the direction of the arrow.



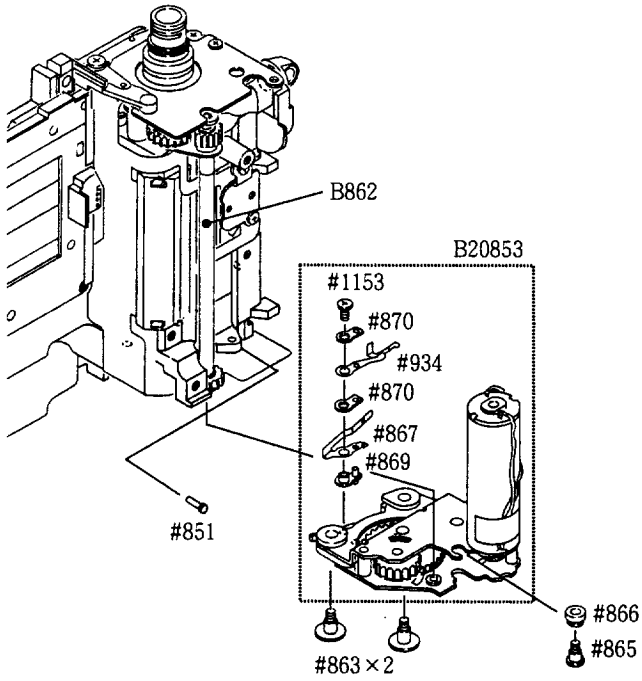


FILM REWIND BASE PLATE

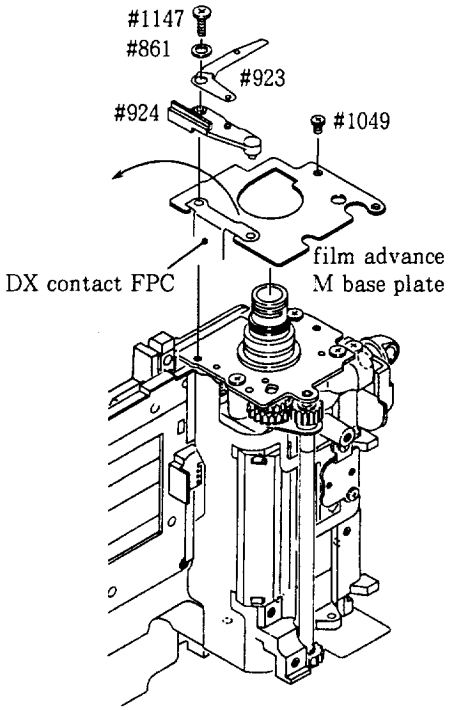




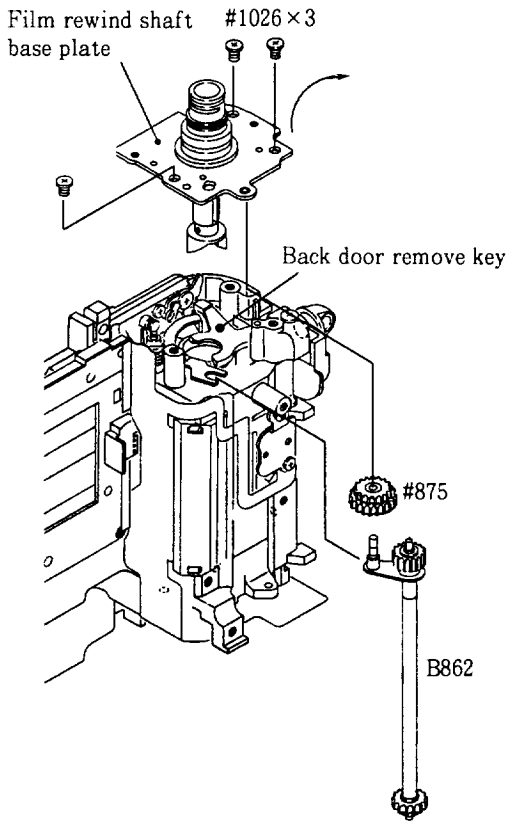
1. Remove cords-retaining tape.
2. Remove FPC retaining screws #1160×2.
3. Remove four soldered bridges.
4. Remove camera back switch cords (yellow, green).
5. Peel off shutter MFPC from the film rewind base plate.
6. When you remove the film rewind base plate by unfastening screws #865, #863 ×2, the film rewind vertical shaft and camera back switch pin #851 also come off at the same time.



FILM REWIND SHAFT BASE PLATE



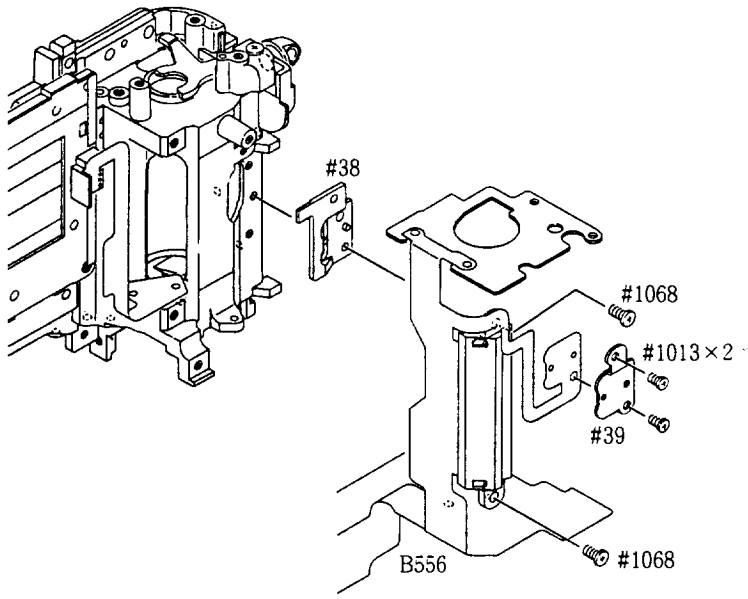
- Slide the film advance M base plate sideways in the direction of the arrow, while watching out for the soldered bridge on the DX contact FPC and the film advance M base plate.



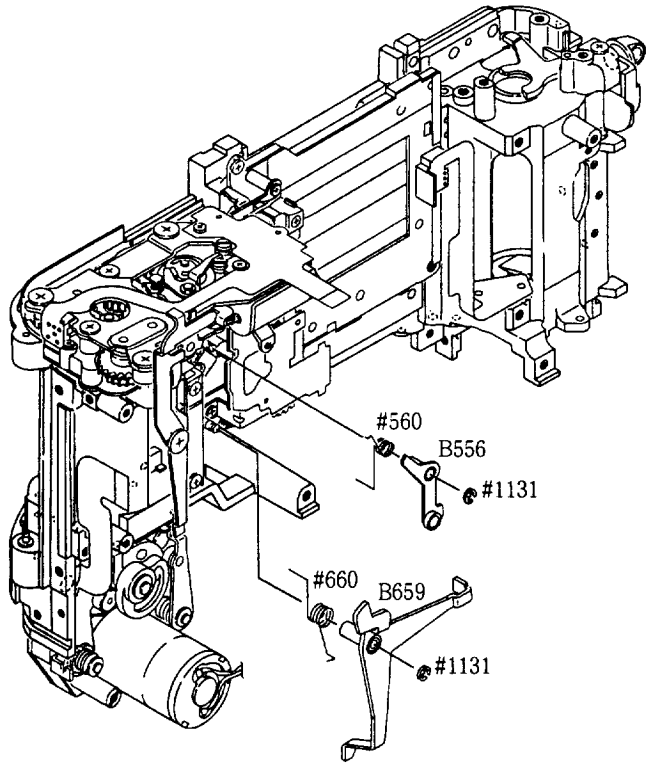
- Remove the film rewind shaft base plate by tilting it in the direction of the arrow while lifting the plate up and also sliding the camera back hooking key upward.

Note: As the film rewind vertical shaft does not come off when the film rewind shaft base plate is removed, do not try to remove it forcefully.

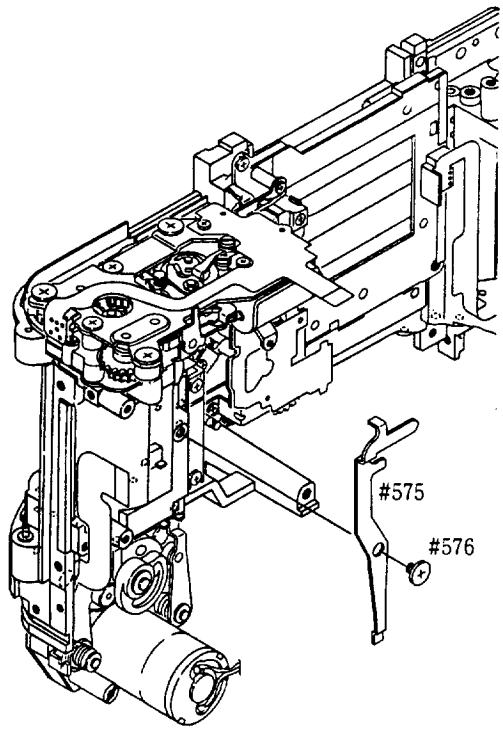
DX CONTACT FPC



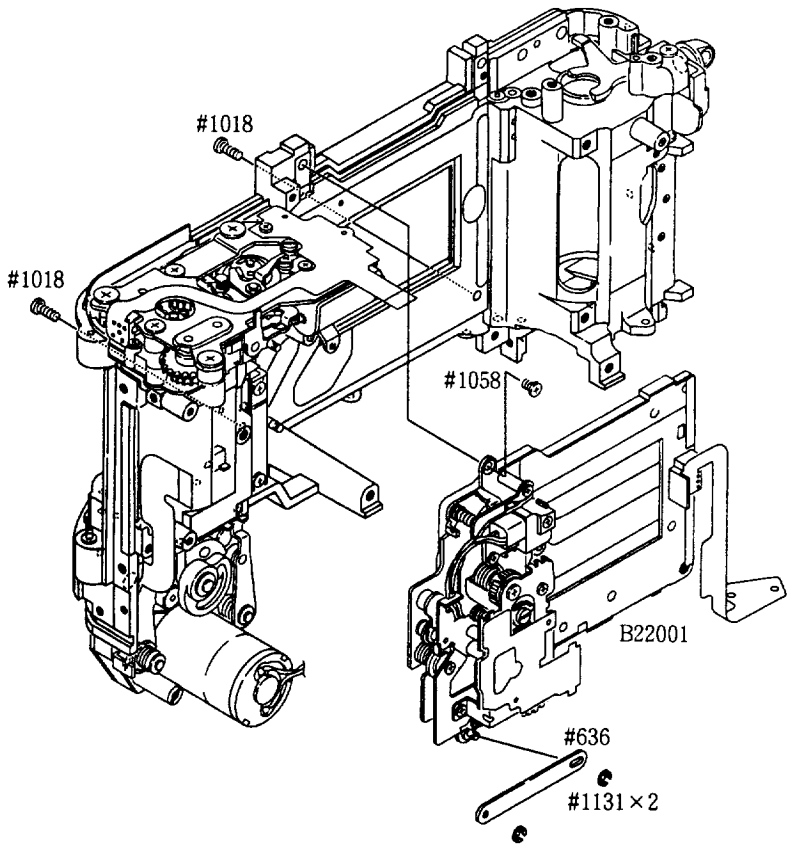
CHARGE LARGE LEVER, FILM ADVANCE RELEASE LEVER



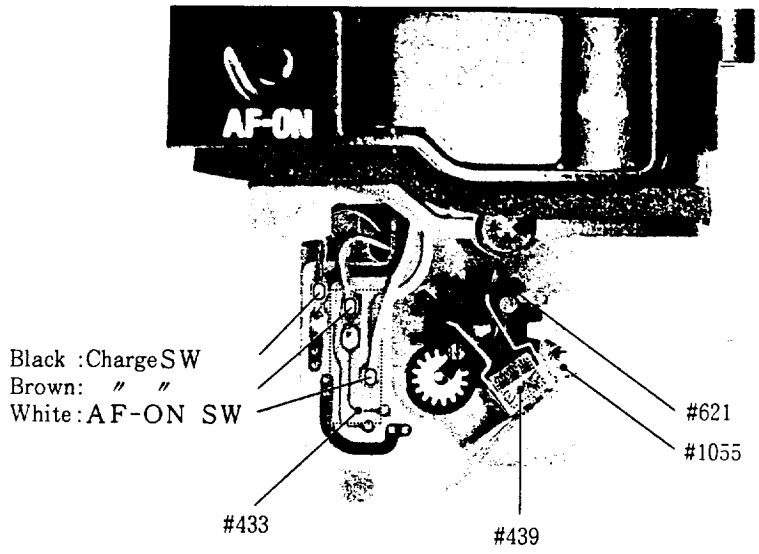
R1 RELAY LEVER

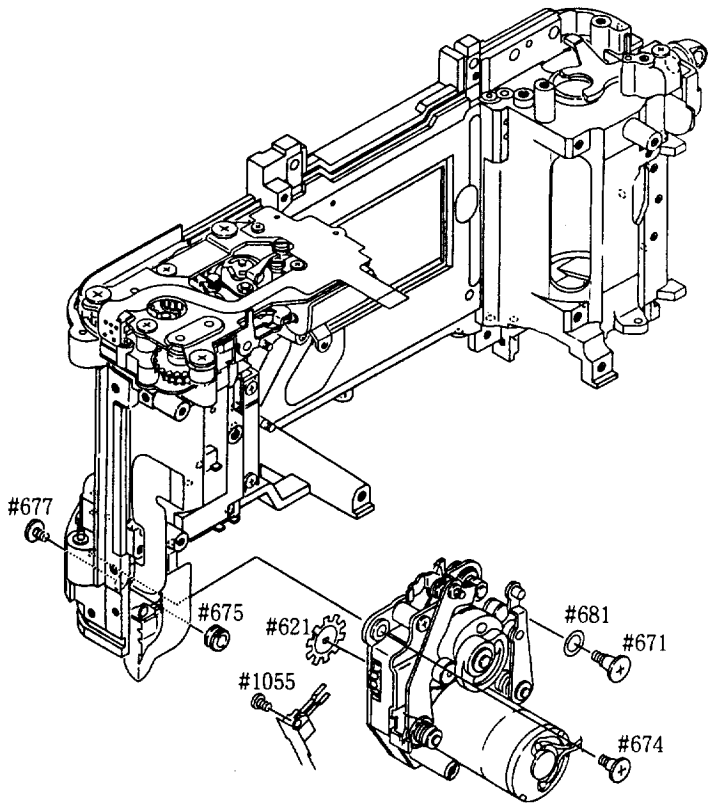


SHUTTER

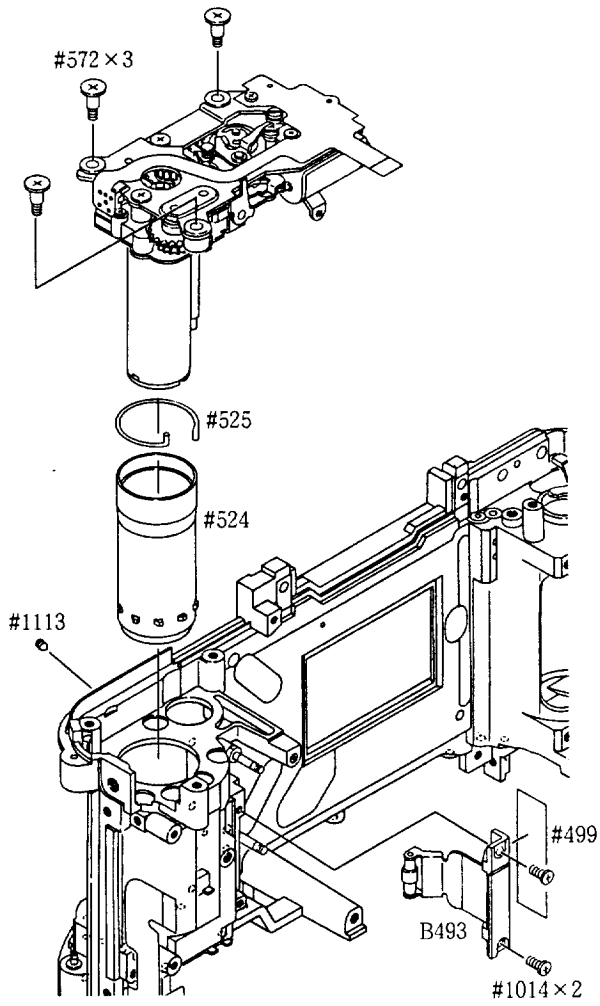


CHARGE BASE PLATE GROUP

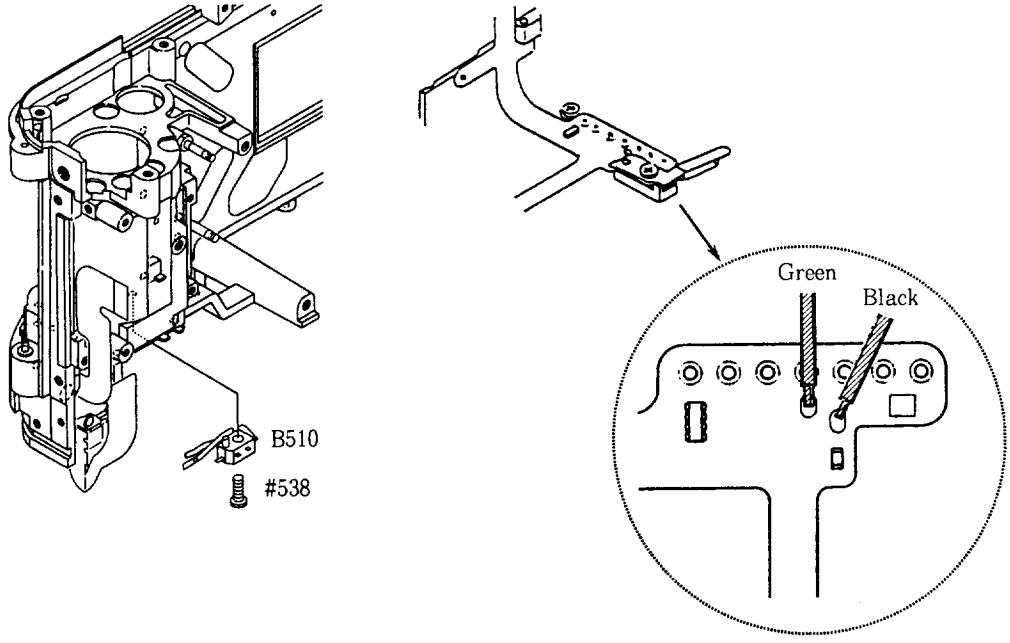




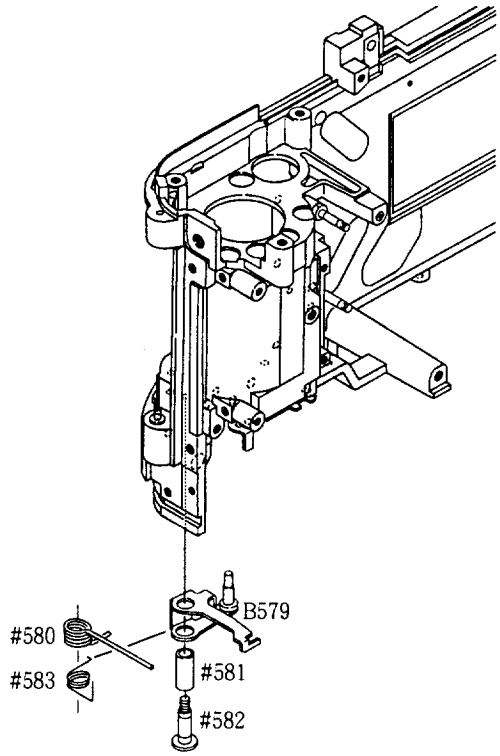
FILM ADVANCE BASE PLATE, EL ROLLER



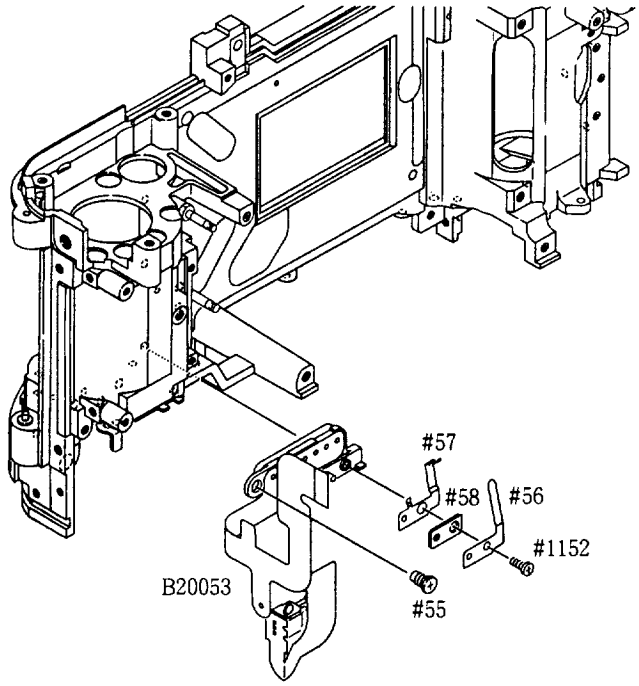
R1 SWITCH



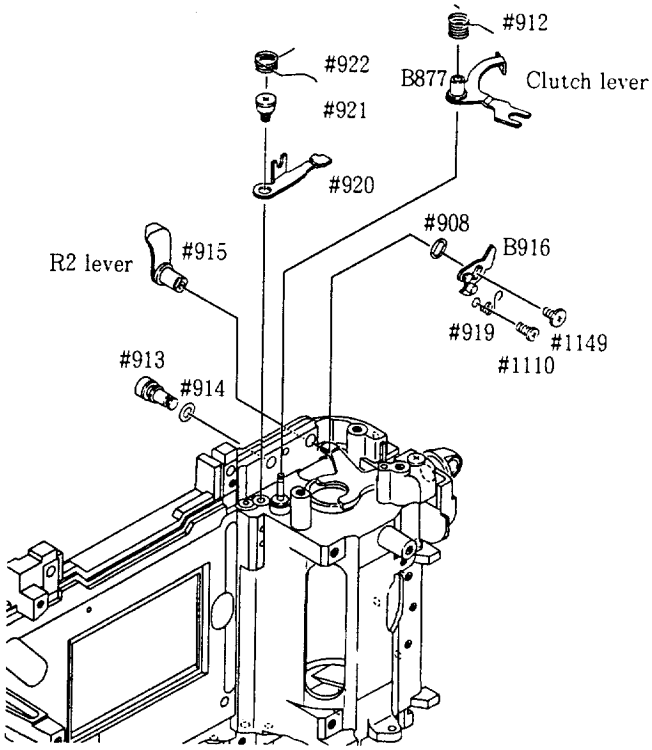
R1 LEVER GROUP



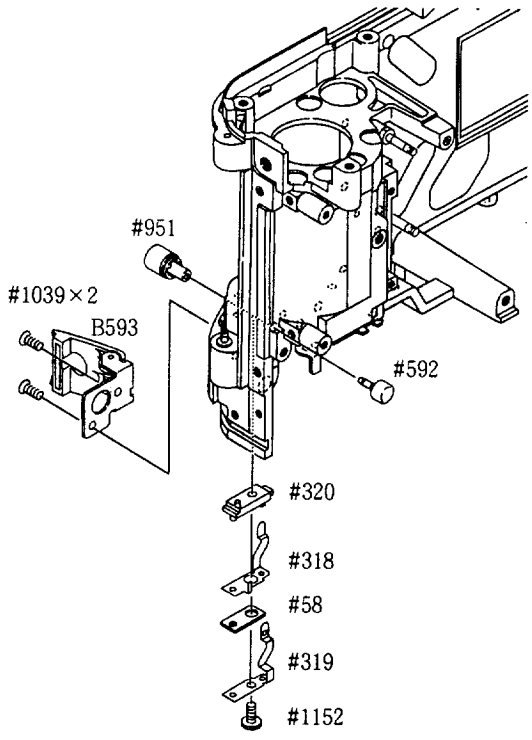
DATA CONTACT UNIT, F DETECT SWITCH



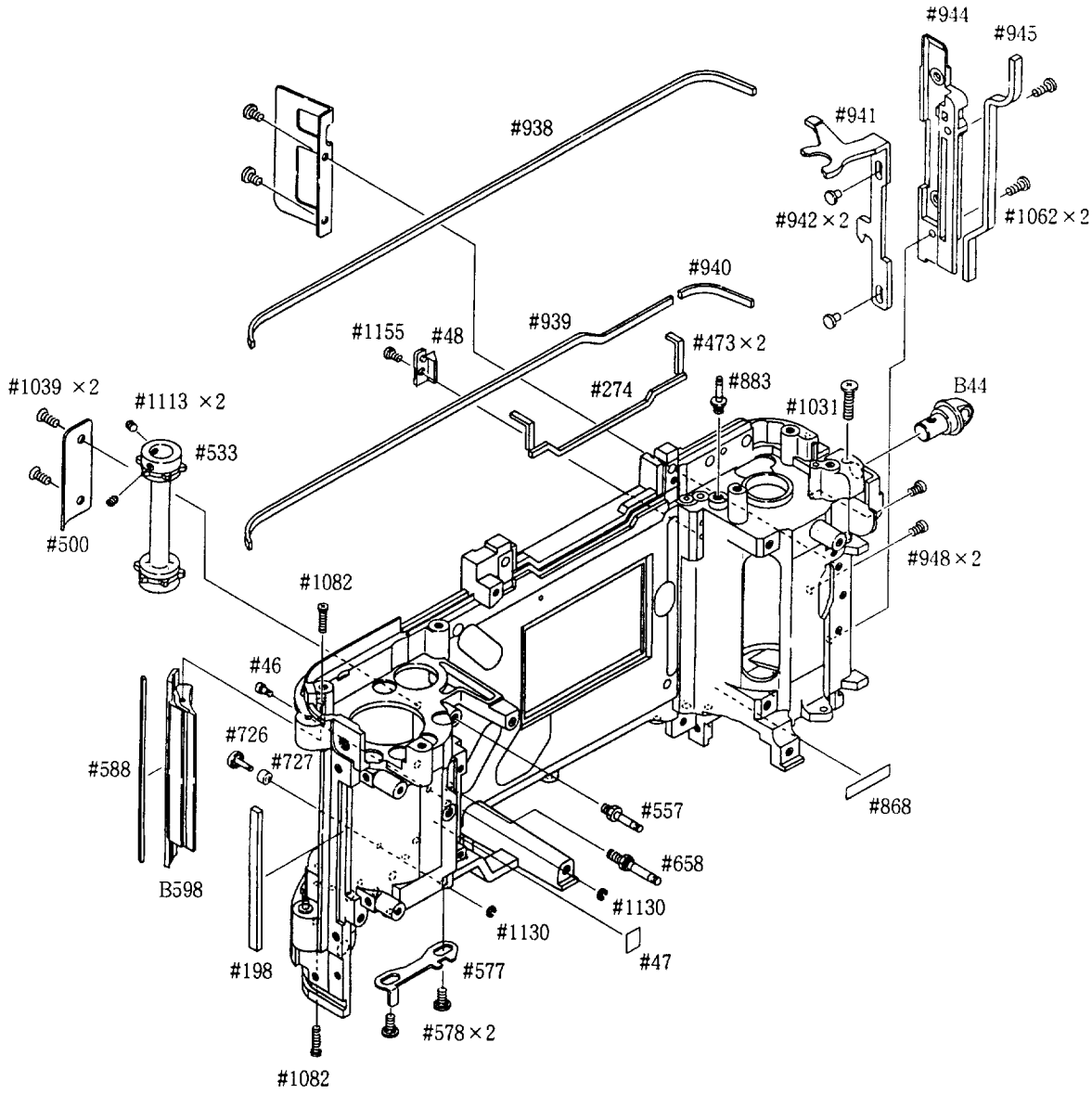
R2 LEVER, CLUTCH LEVER



R1 BUTTON COVER BASE PLATE、AF-S SWITCH

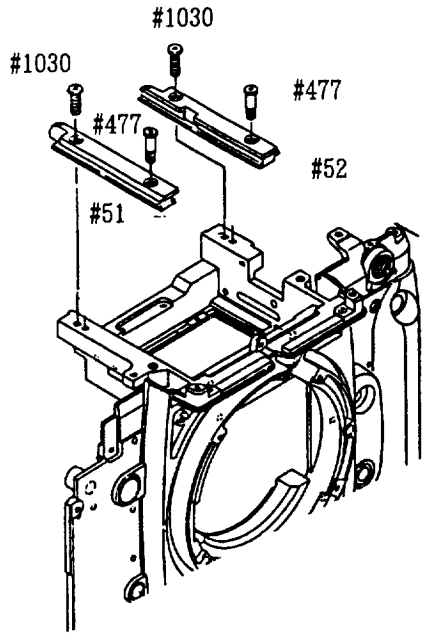


SMALL PARTS OF REAR BODY

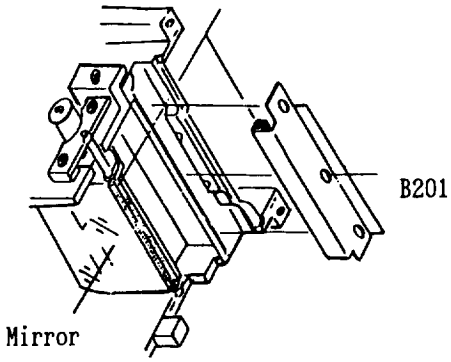


3. Disassembling front body

Removing FD rail

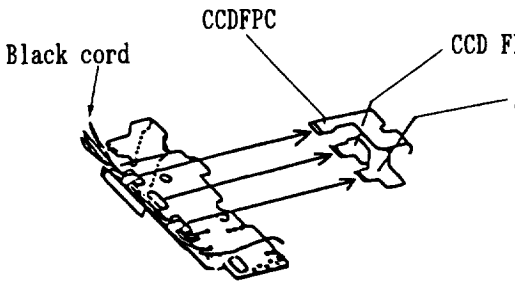


Removing light baffle plate at the rear of the main mirror.

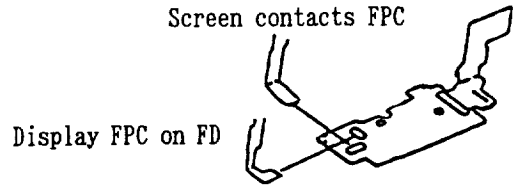


Removing connectors on AF base plate

Connectors (3 locations)



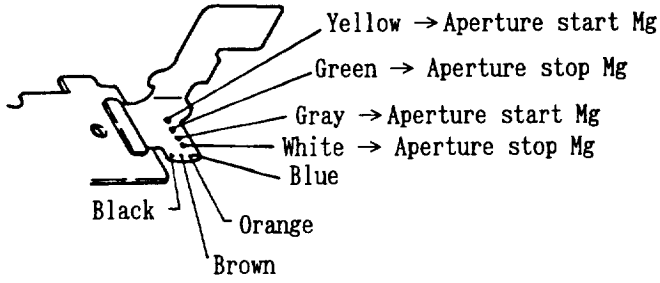
・Divide a black cord from the AF base plate.



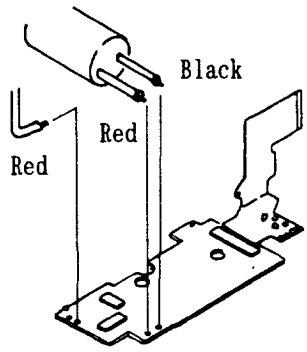
Connectors (2 locations)

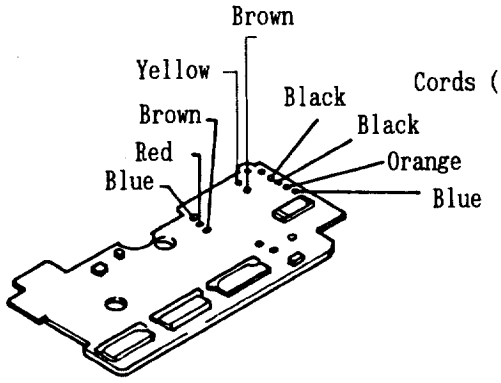
Removing cords on AF base plate

Cords (8 locations)



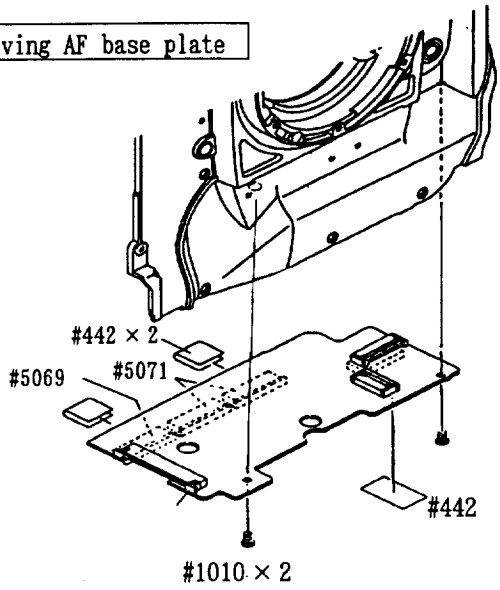
Cords (3 locations)





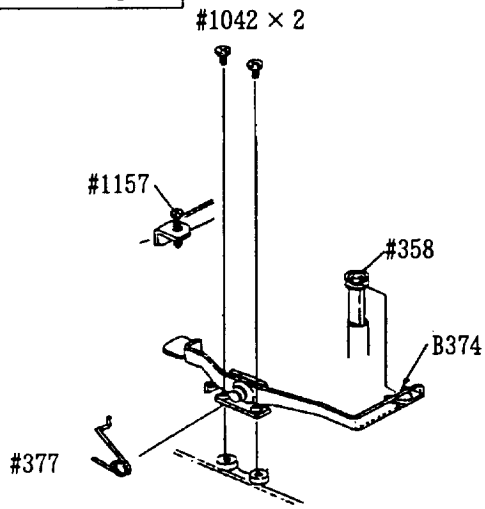
Cords (9 locations)

Removing AF base plate



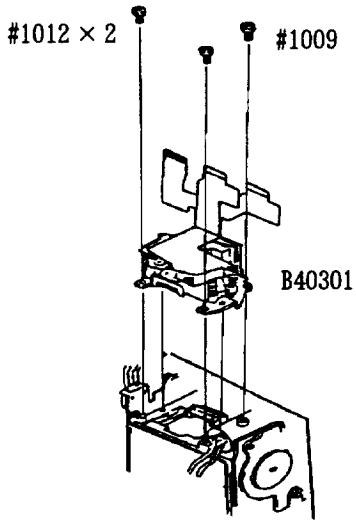
Screw : #1010 × 2

Lens release base plate



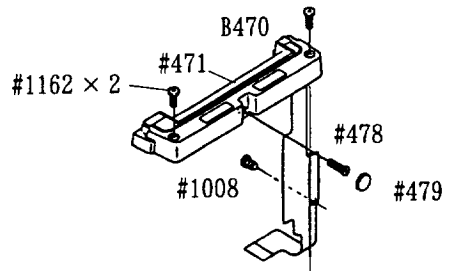
・Removing spring #377.
・Removing spring #1042 × 2

Removing AP4 unit

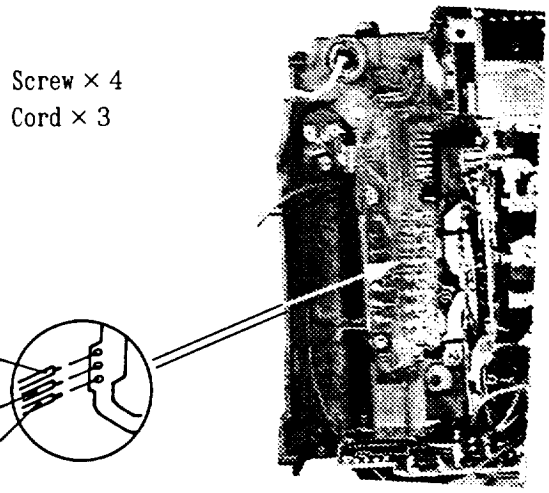


・Remove screws #1010x2, #1009x1.
・AP4 can be detached as a unit.

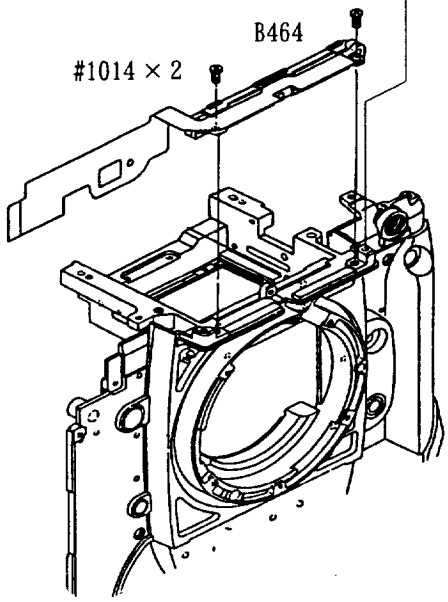
Removing front side display mold

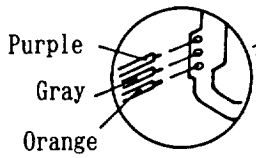


Screw × 4
Cord × 3

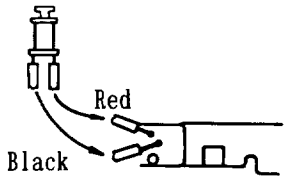


FD contact mold

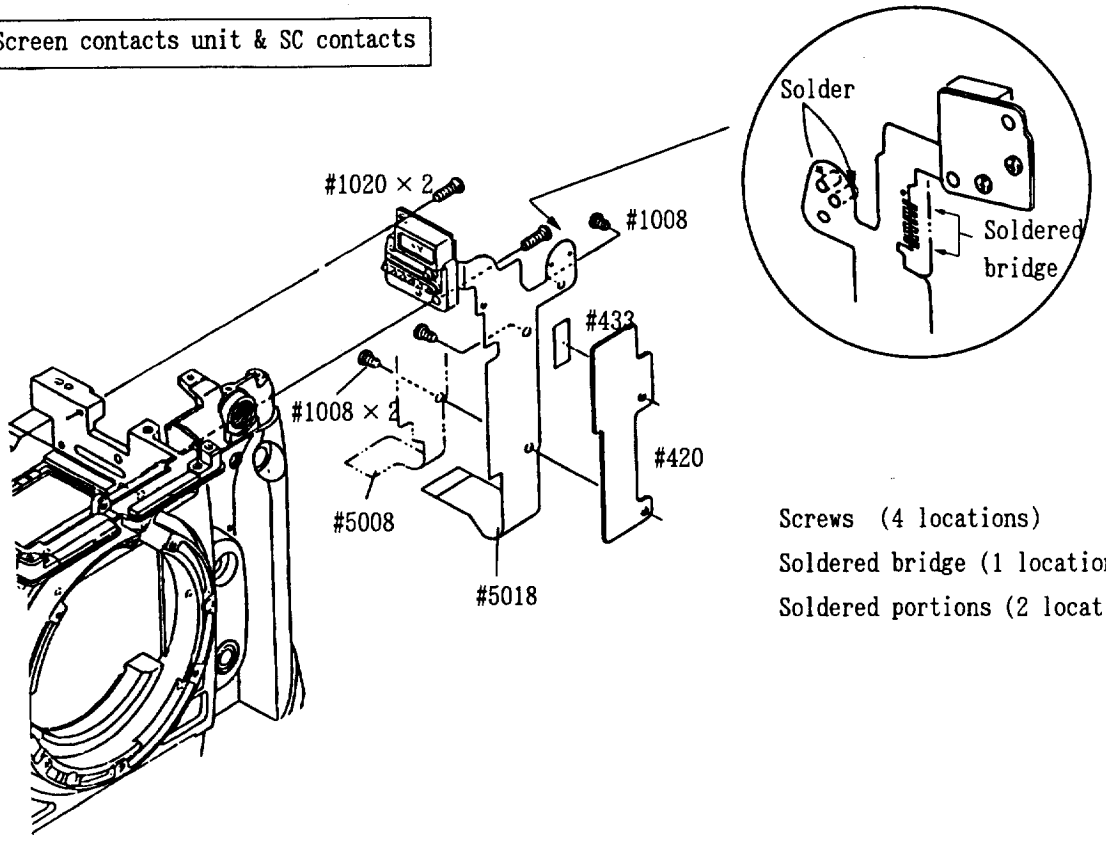




Screw × 3
Cord × 2

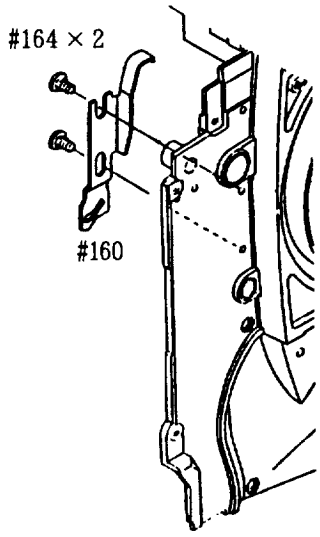


Screen contacts unit & SC contacts



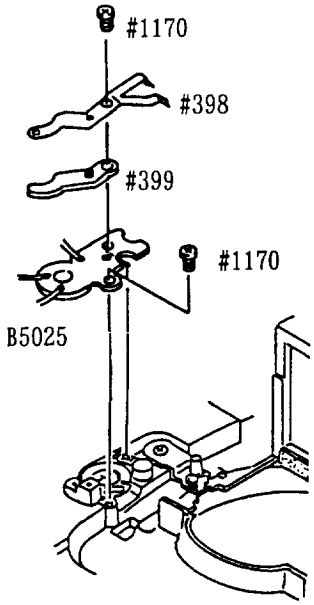
Screws (4 locations)
Soldered bridge (1 location)
Soldered portions (2 locations)

Manual MUP guide plate



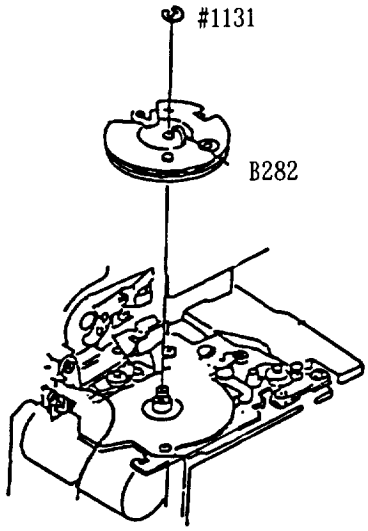
Screw × 2

Removing lens release switch

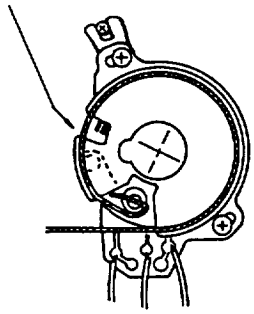


Removing f-fo pulley

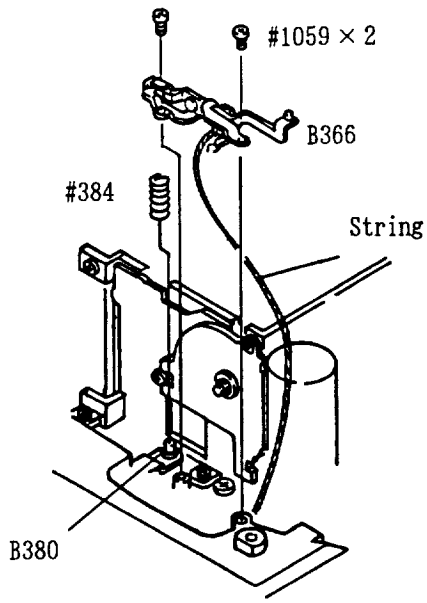
①Remove C clip #1131



②Remove a pulley string from the groove.



Lens release button collar spring

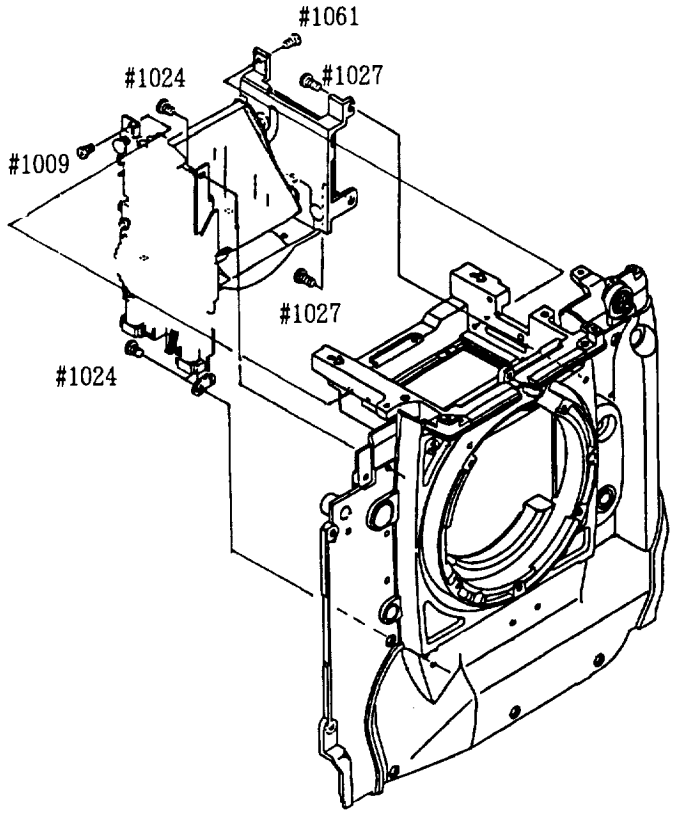


Screws × 2

Spring × 1

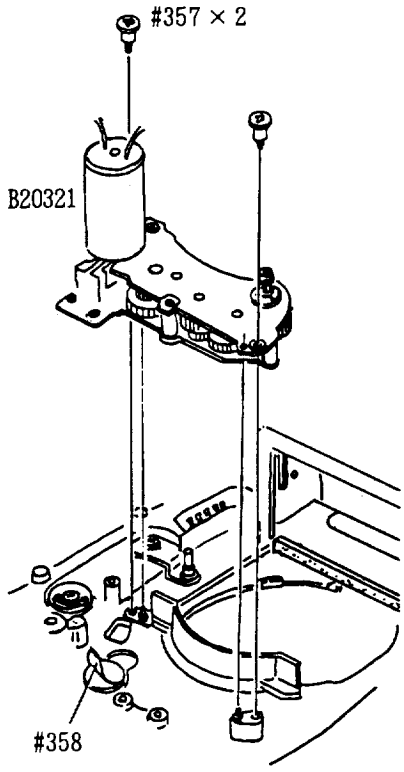
Divide string from part #289.

Removing mirror box unit



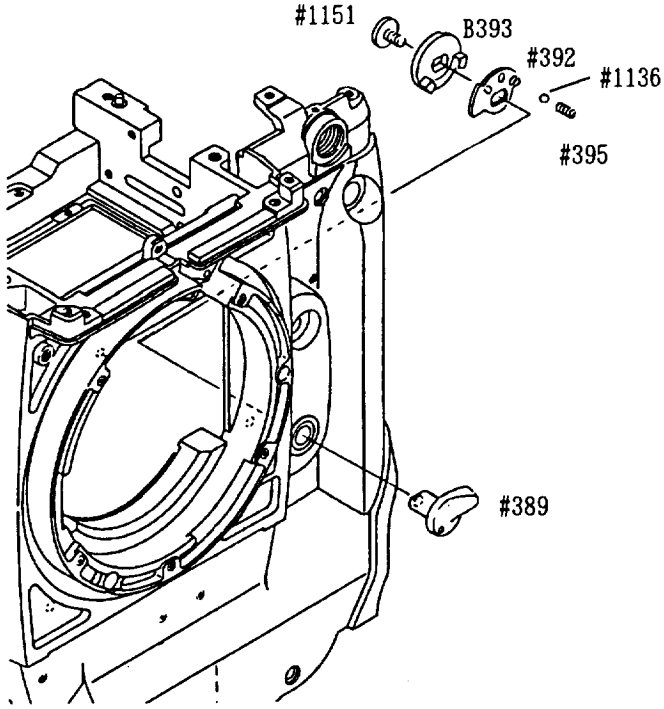
Screw × 6

Removing AF driving base plate



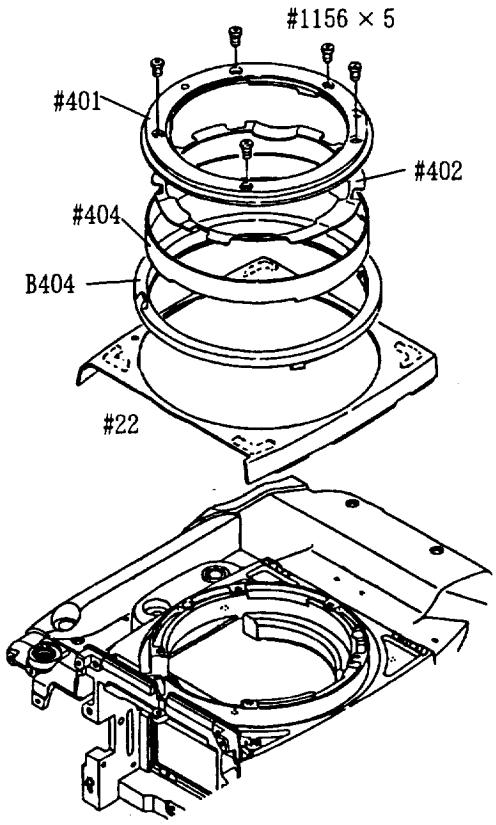
Screws × 2
As there is double coated adhesive tape #358 under the base plate, lift the plate up bit by bit.

Removing AF mode switching lever



Screw × 1
Take care that ball bearing and spring come off.

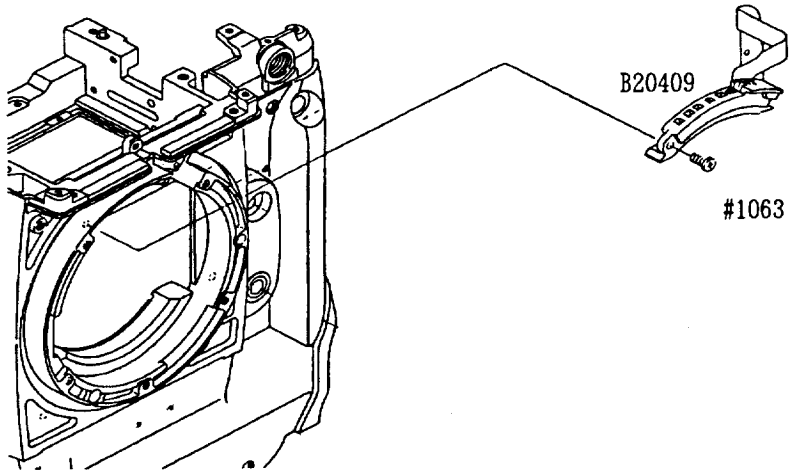
Removing bayonet unit



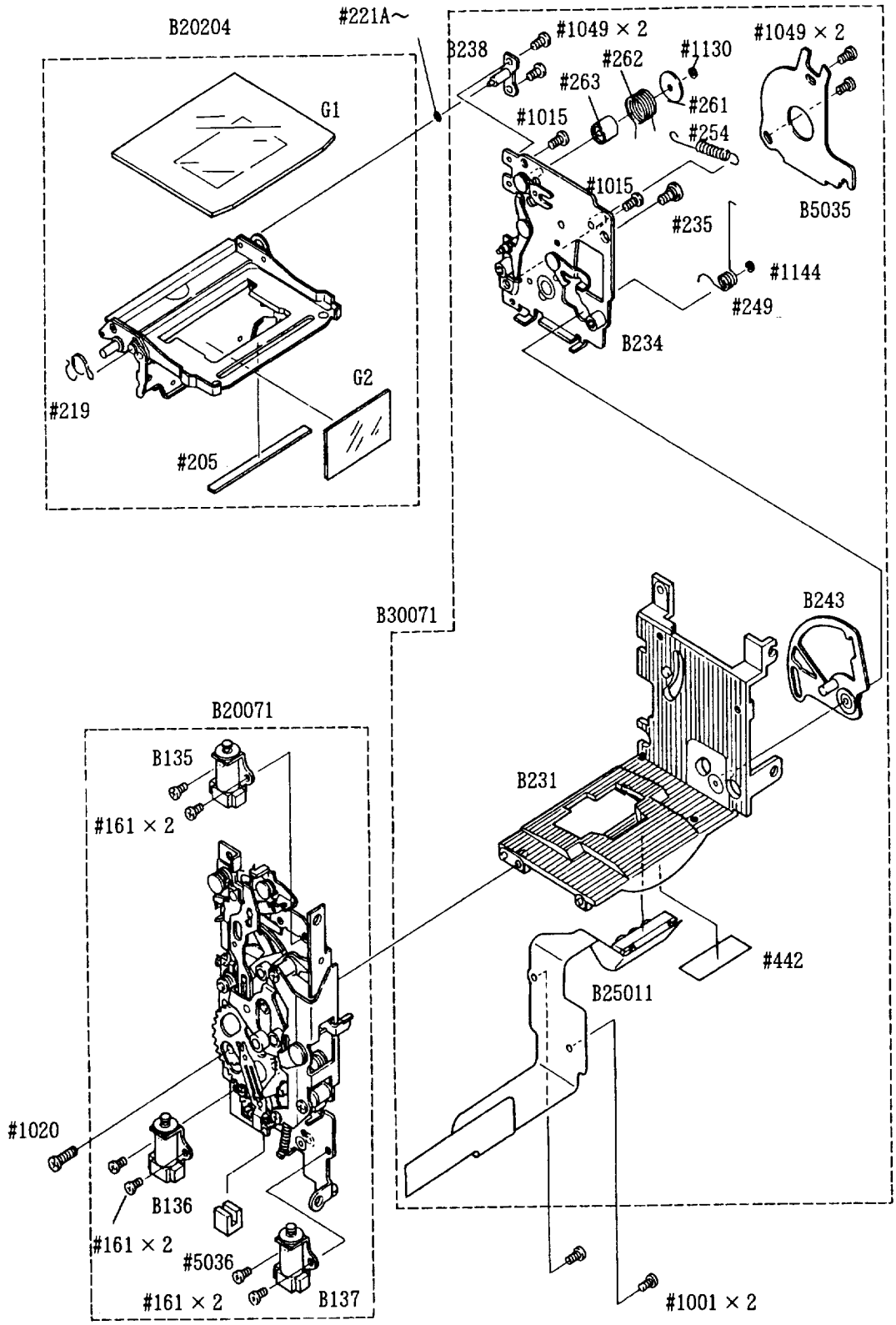
Screw × 5

AF lens contact

Screw × 1



Removing I base plate



ASSENBLING/ADJUSTMENT

1. REAR BODY

2. FRONT BODY

3. MOUNTING FRONT PLATE ON REAR BODY

△1x1

△2x1 Change page

サービス 計画課 M

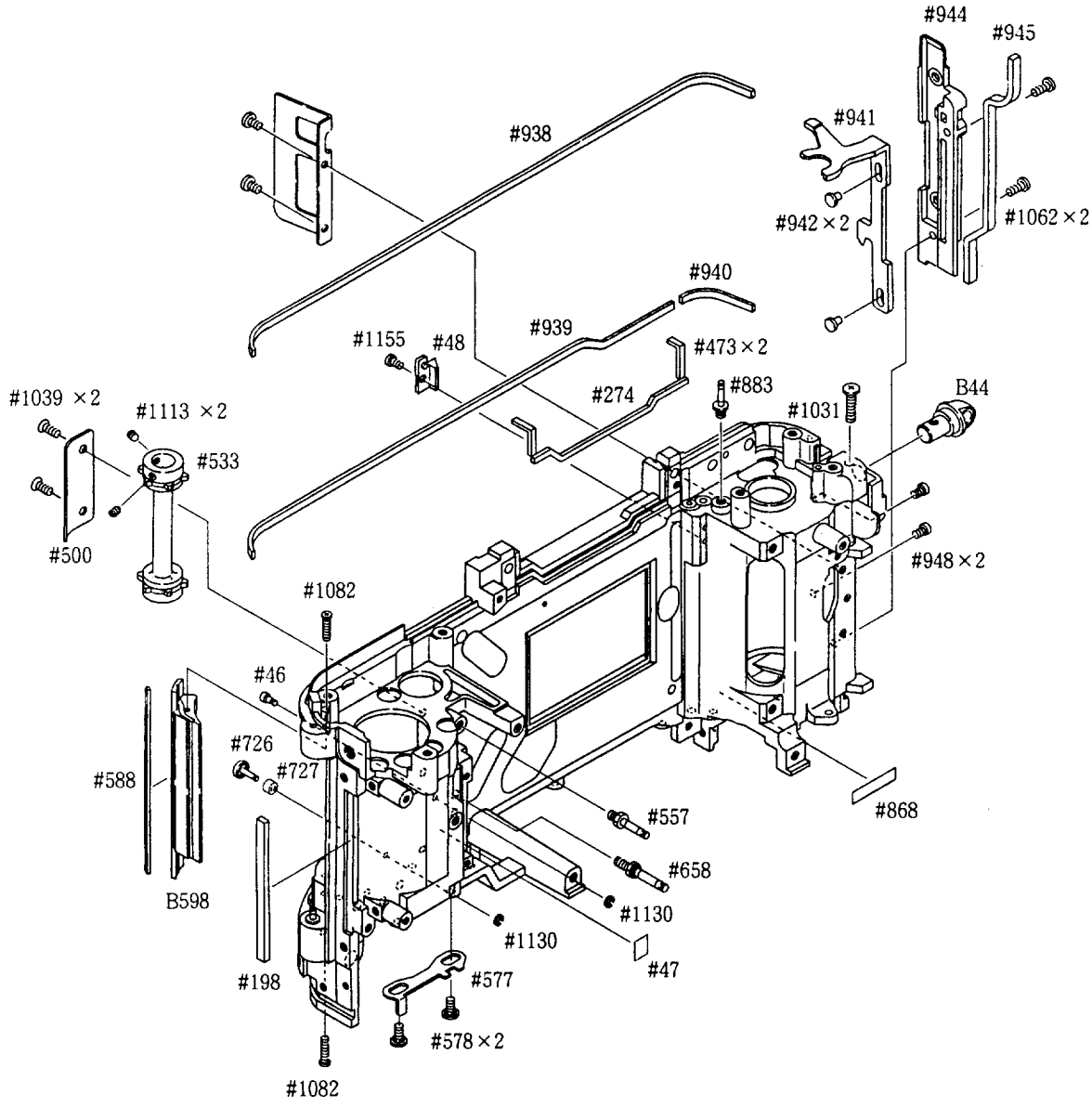
1998. 3. 18

1999. 3. 23

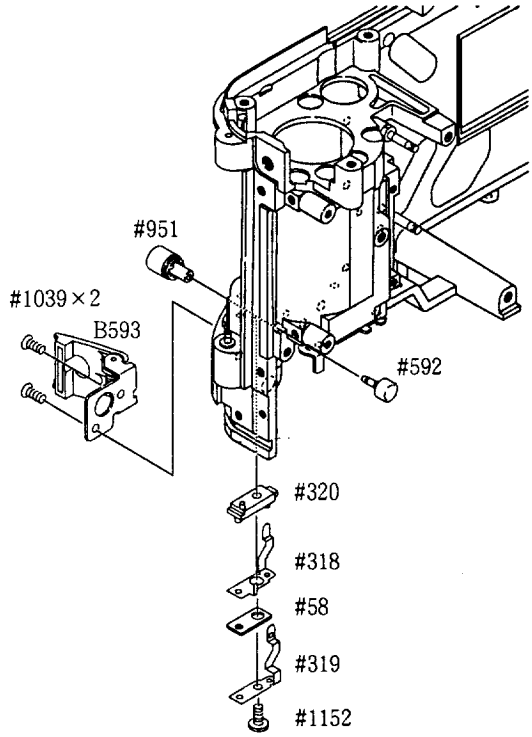
ASSEMBLING／ADJUSTMENT

1. REAR BODY

SMALL PARTS OF REAR BODY

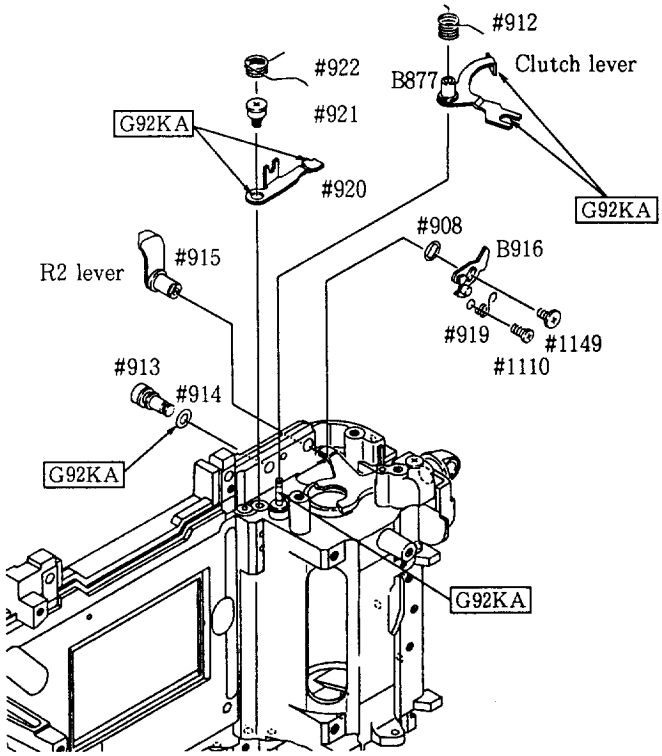


R 1 BUTTON COVER BASE PLATE, AF-S SWITCH

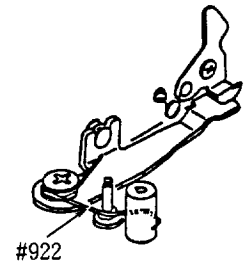


● Make sure that the AF-S switch is turned ON or OFF by pushing the AF-S button.

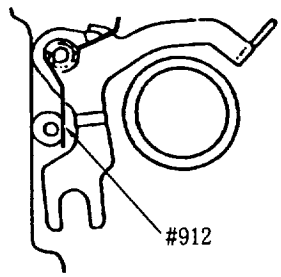
R2 LEVER, CLUTCH LEVER



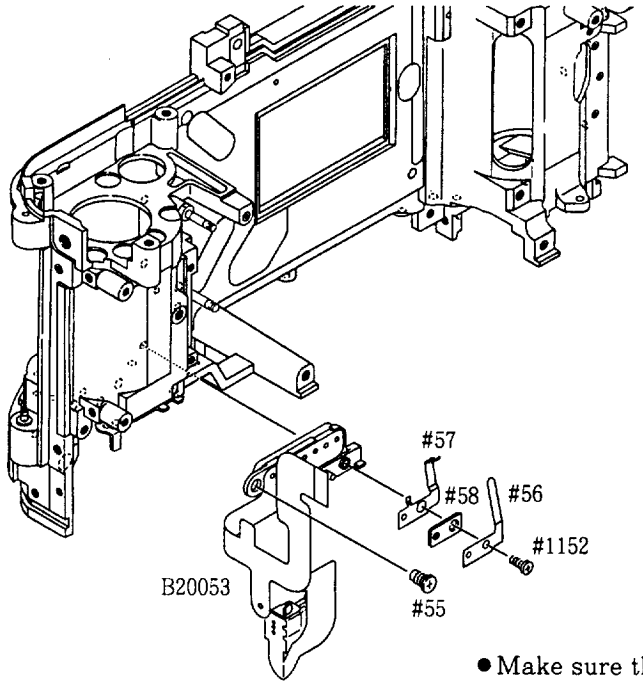
Hooking position of spring #922



Hooking position of spring #912

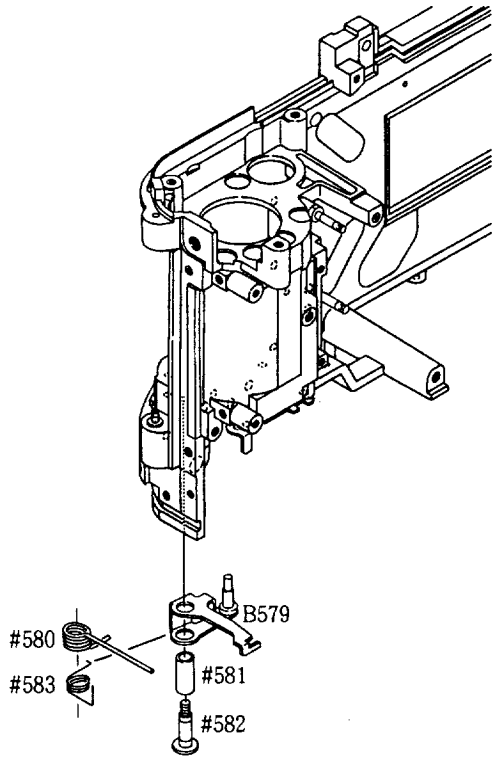


DATA CONTACT UNIT, FILM DETECT SW

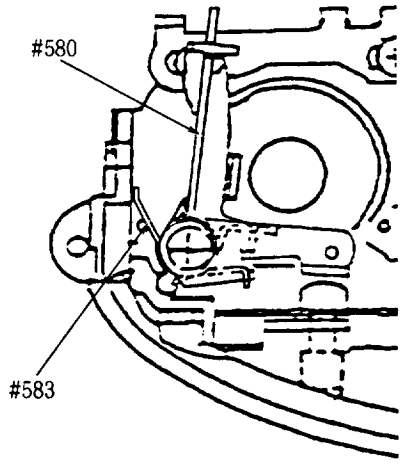


- Make sure that the F detection switch is turned ON or OFF by pushing the F detection pin.

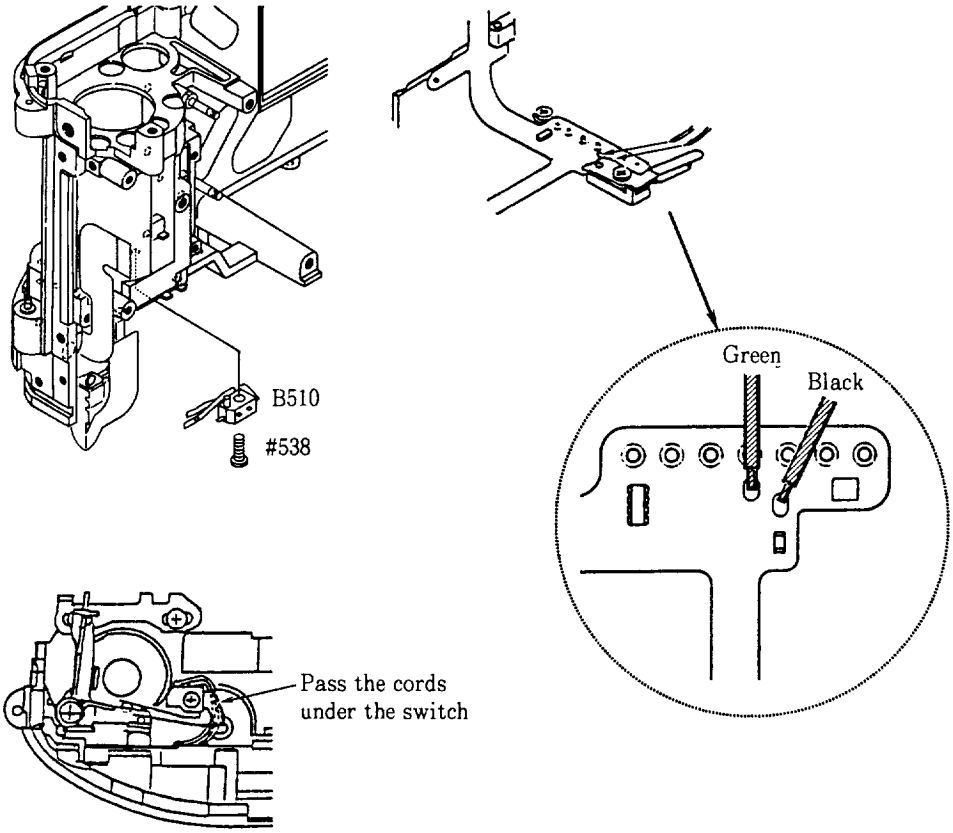
R 1 LEVER



Hooking position of spring #580,#583

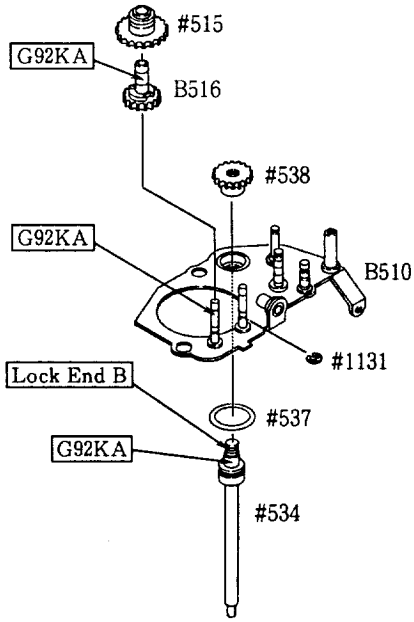


R1 SWITCH

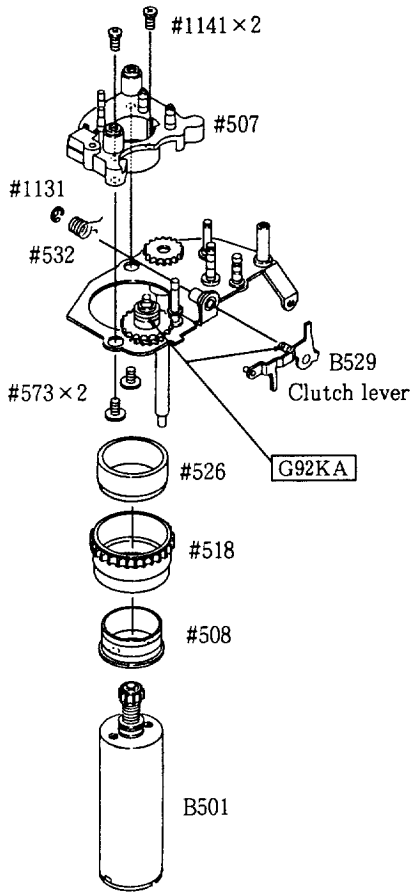


FILM ADVANCE BASE PLATE

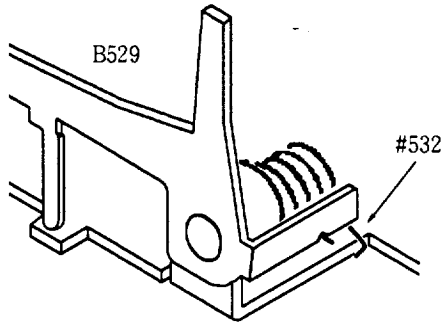
● Sprocket shaft・F gear



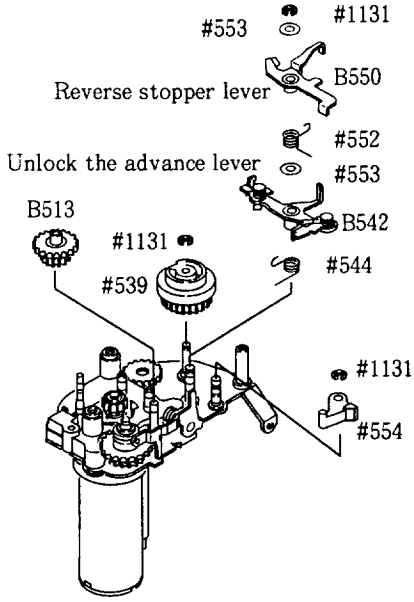
● CLUTCH LEVER, FILM ADVANCE MOTOR



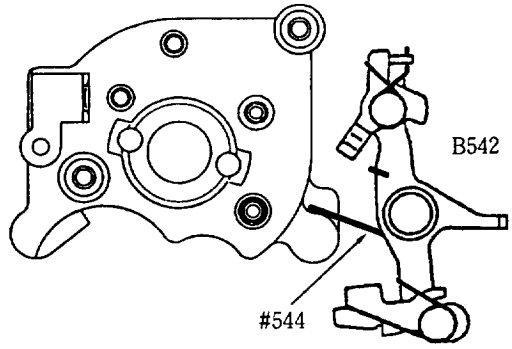
Hooking position of spring #532



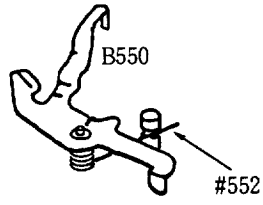
● UNLOCK THE ADVANCE LEVER・F GEAR



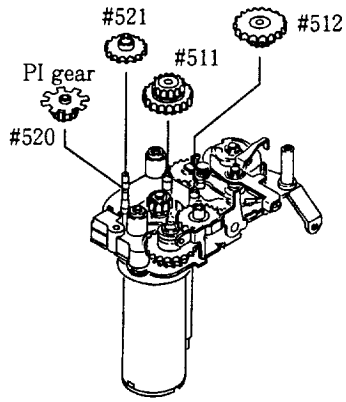
Hooking position of spring #544



Hooking position of spring #552

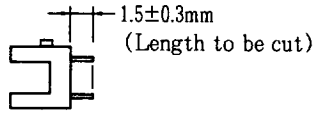


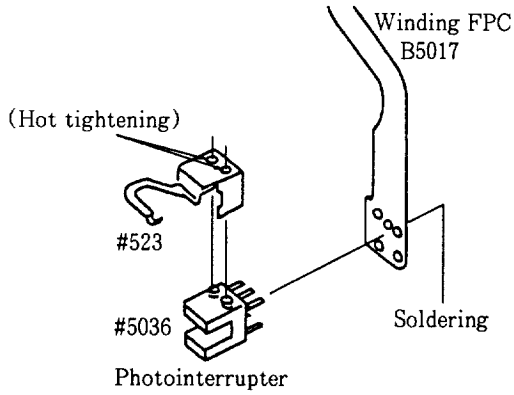
● PI GEAR, F GEAR

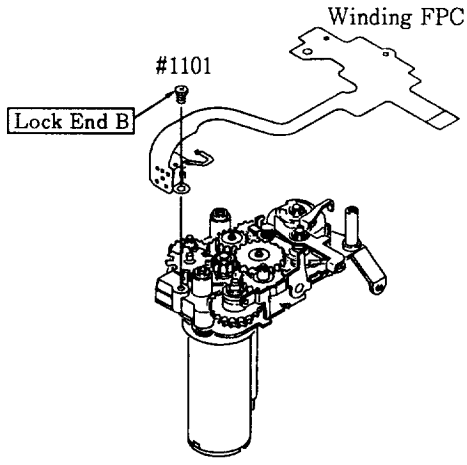


● Apply slight grease G92KA to each gear and gear shaft.

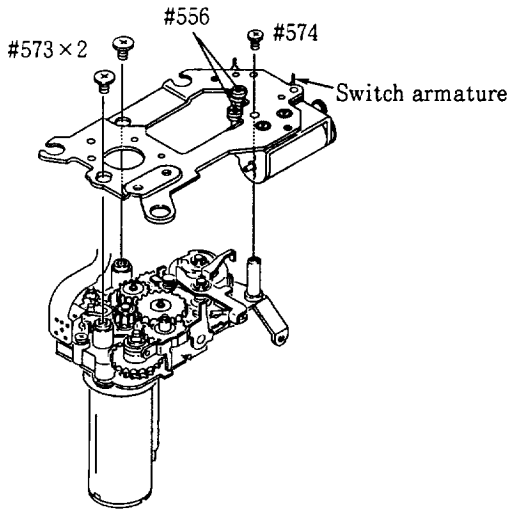
● WINDING FPC・PHOTOINTERRUPTER







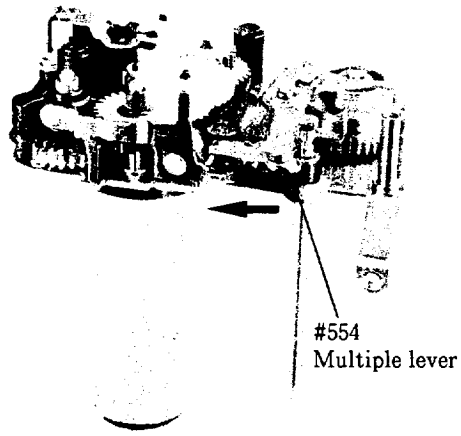
● FILM ADVANCE UPPER BASE UNIT

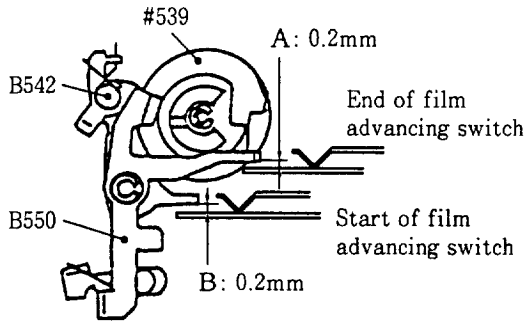


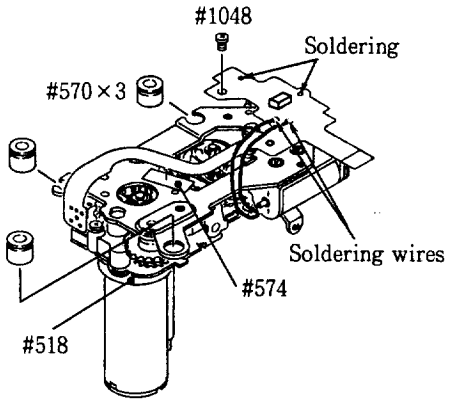
1. Unlock the film advance lever B542 and the reverse stopper lever B550 from the film advance gear #539.
2. Turn the multiple lever #554 in the arrow mark direction.
3. Mount the film advance base plate B509 with #573 (2 screws) and #574 (screw) as checking the connection of the solenoid shaft and multiple lever #554 and the switch armature positions.
4. Make sure that the clearance between the switch armatures A and B is aprox. 0.2mm when the film advance gear #539 is such a position as illustrated and that the switches are turned OFF when B542 and B550 are put in the concave of the #539 cam.

※ Use #556 for adjusting the clearance.

5. Attach the film advance FPC as aligning it with the switch armature.



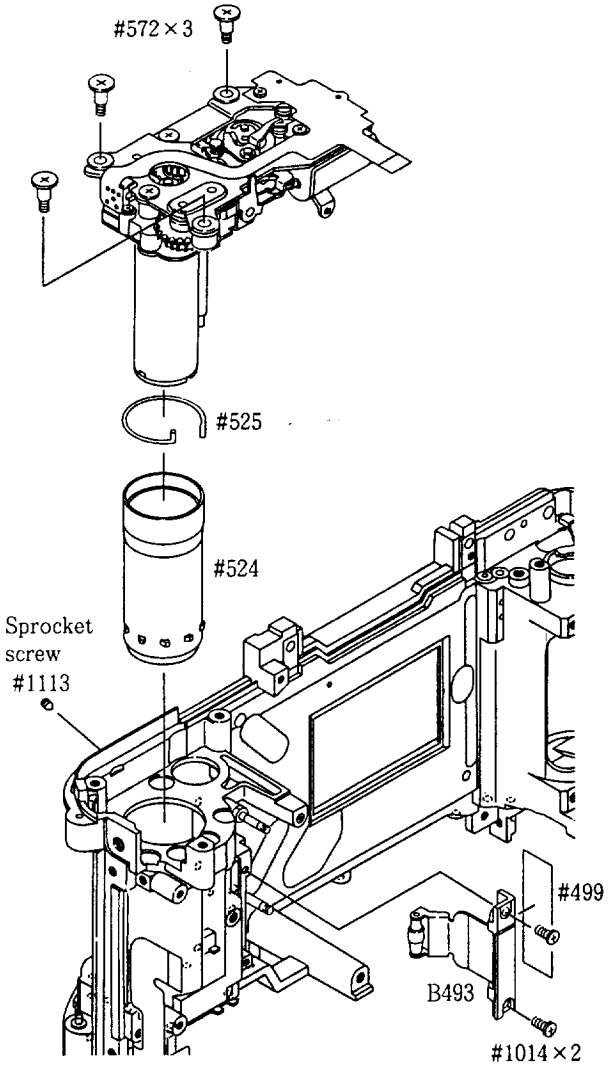




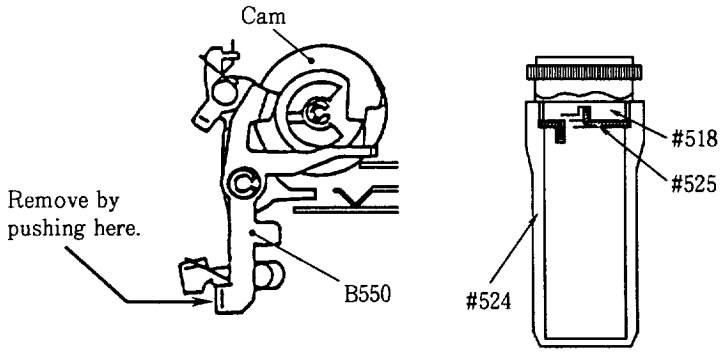
✱Operation check

1. Check the operation of the spool gear #518 by turning it normally and reversely.
2. Make sure that there is no abnormal sound at the electric current 120mA or less when adding the constant-voltage power supply 12V to the motor wire.
3. Set the 3 floating rubbers #570.

● FILM ADVANCE BASE PLATE, EL ROLLER

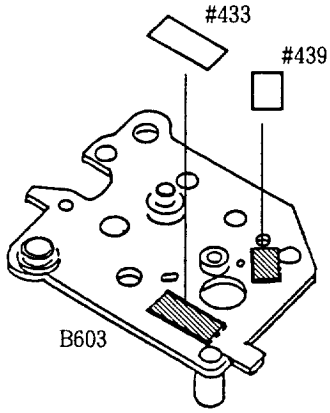


1. Straighten the motor wire by loosening two or three times.
2. Align the curve of #525 with the concave of #518 and then set them to the film advance base plate.
3. Apply G92KA to the step of the sprocket shaft.
4. Pass the motor wire through the bearing, and set the sprocket shaft to the sprocket and the spool to the bearing.
5. Make sure that each component is set securely and then tighten #572 (3 screws).
6. Tighten the sprocket screw #1113 on the sprocket shaft temporarily as removing the claw from the cam by pushing B550.

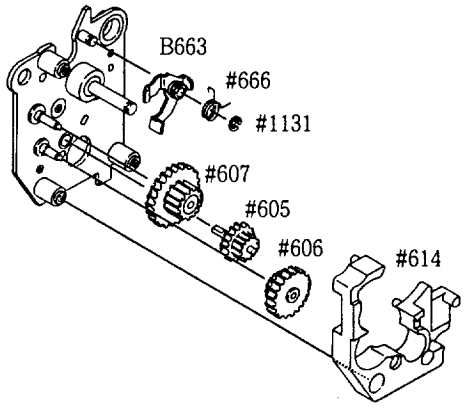


CHARGE BASE PLATE

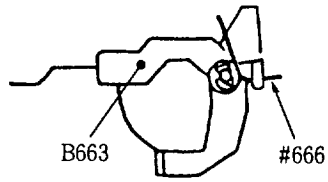
● CHARGE SW, SET LEVER, CHARGE GEAR



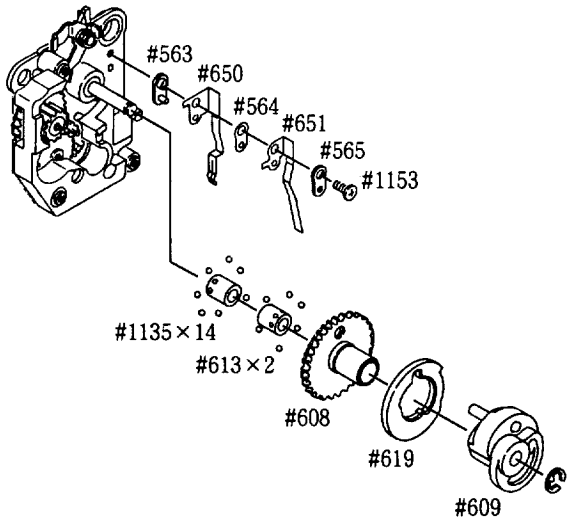
● Apply slight grease G92KA to each gear and gear shaft.



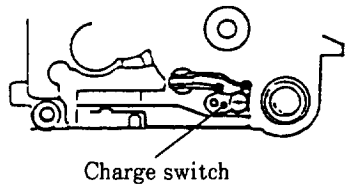
Hooking position of spring#666



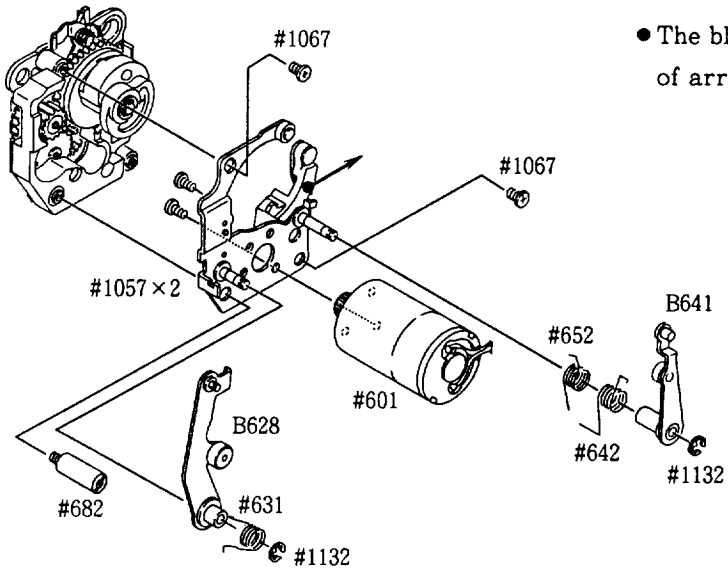
● Apply G92KA to the cam surfaces and gear teeth.



Mounting position of charge switch and arrange wires.

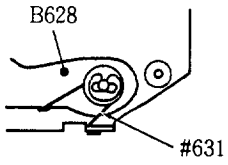


● CHARGE BASE PLATE 2, CHARGE LEVER

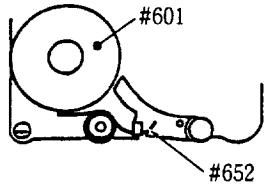


● The black dot lever in the direction of arrow when assembling.

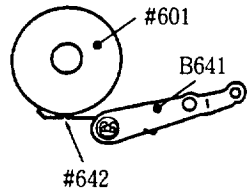
Hooking position of spring #631



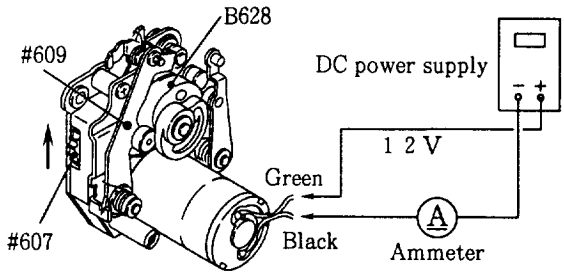
Hooking position of spring #652

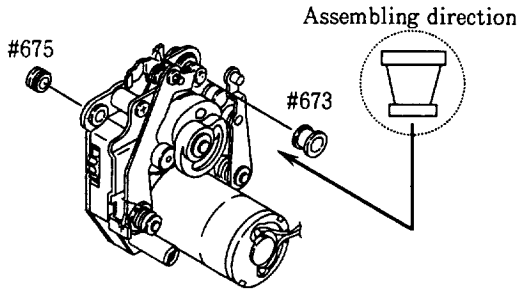


Hooking position of spring #642



● OPERATION CHECK, FLOATING RUBBER





1. Check the operation of the charge gear #607 by turning it in the arrow mark direction.
2. Make sure that there is no abnormal sound at the electric current 12mA or less when adding the constant-voltage power supply 12V to the motor wire.

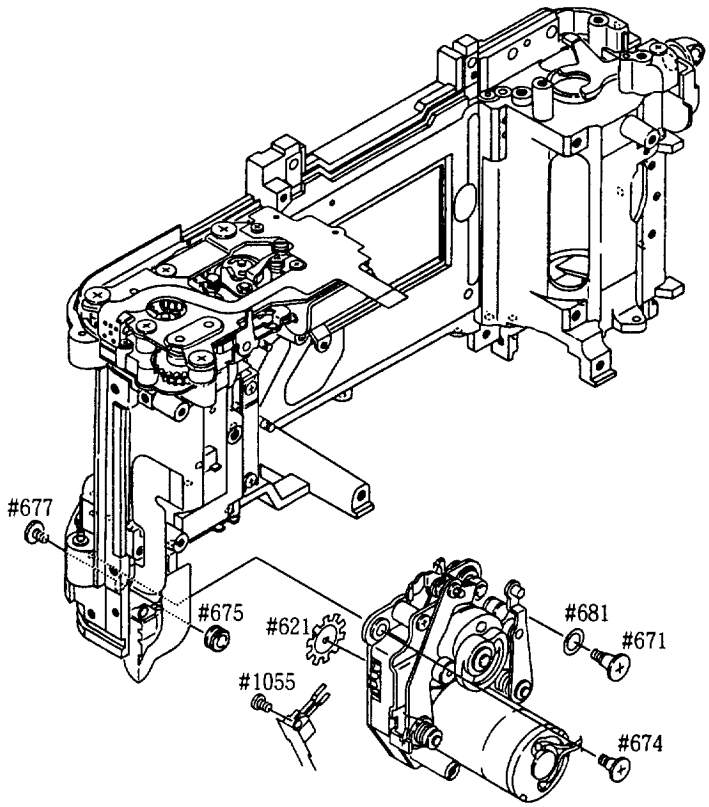
CAUTION : Carry out wiring as illustrated. Be careful not to reverse the polarity.

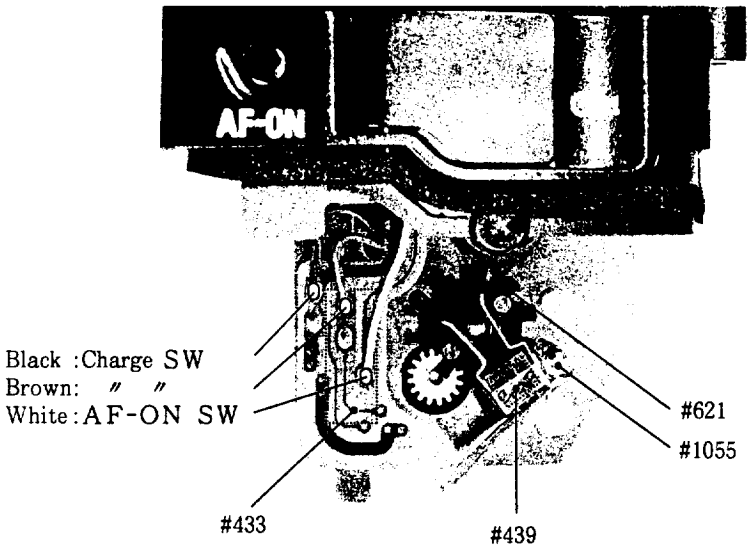
3. Check the operation of the charge switch.

※ Connect a multitester to the brown and black wires of the charge switch. Make sure that the switch is turned OFF when the S charge lever B628 is put in the concave of the charge gear cam #609 by turning the charge gear 3 #607.

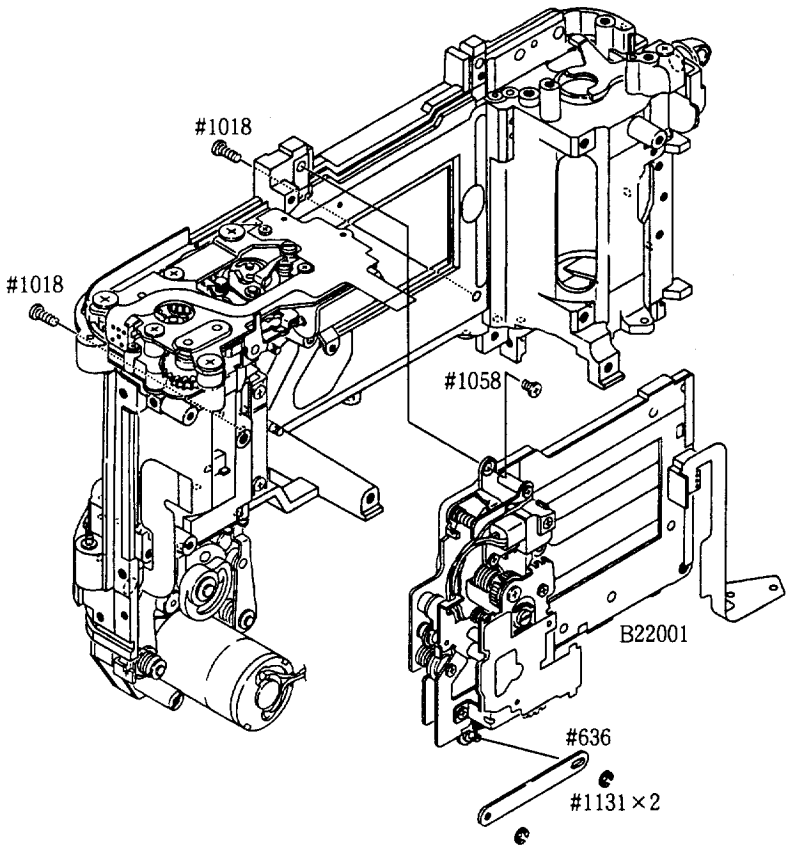
4. Set the floating rubbers #673 and #675.

● CHARGE BASE PLATE GROUP

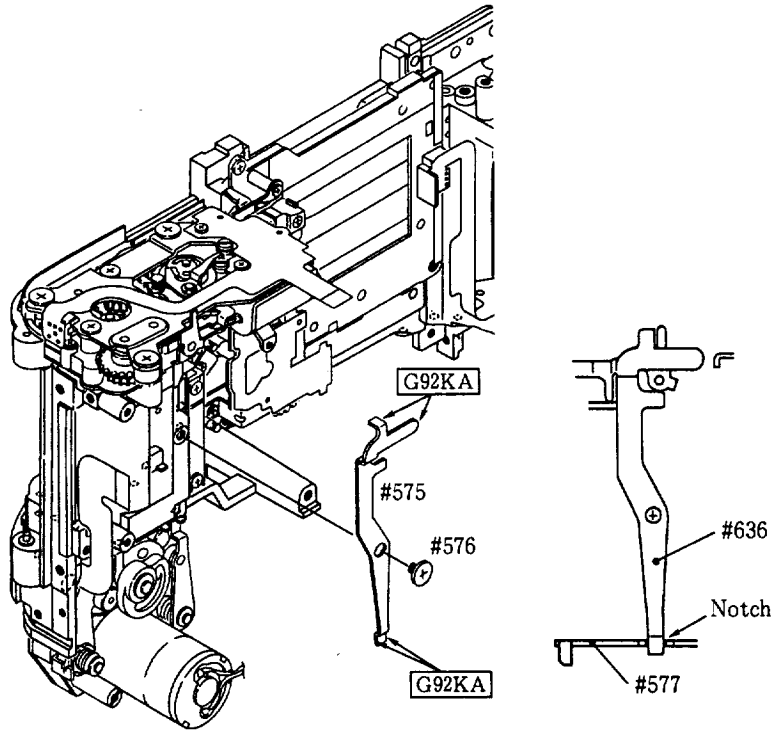




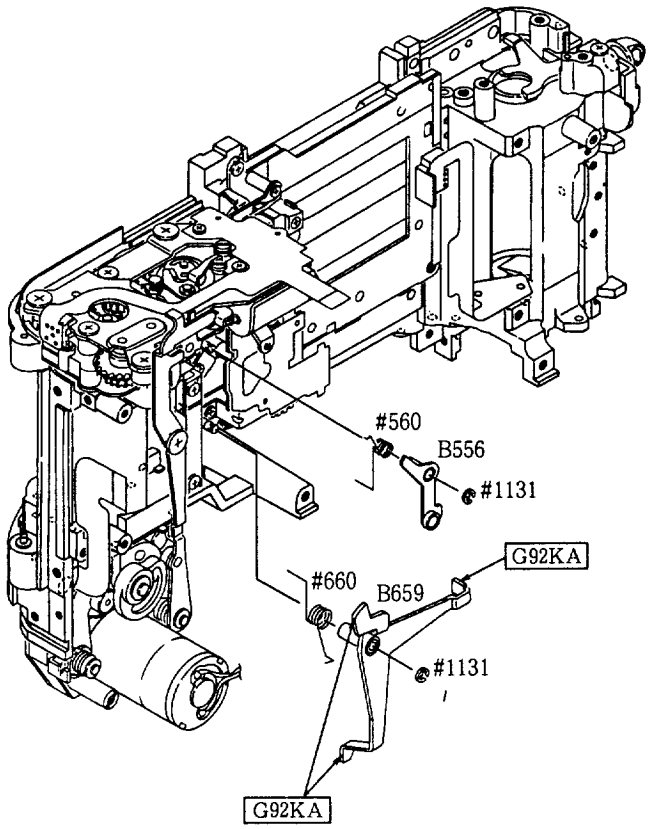
SHUTTER



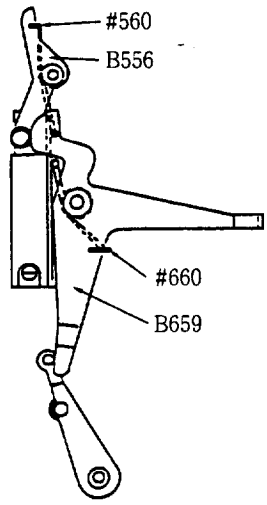
R1 RELAY LEVER



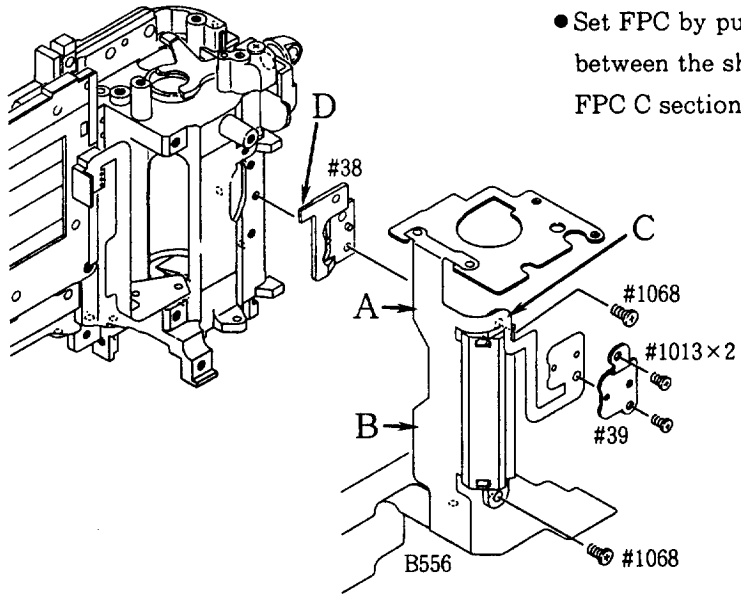
CHARGE LARGE LEVER, FILM ADVANCE RELEASE LEVER



Mounting position

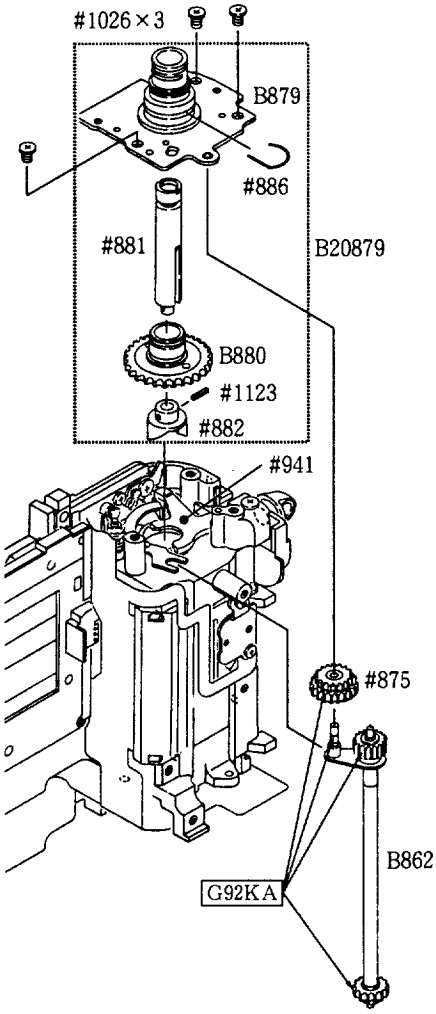


DX CONTACT FPC

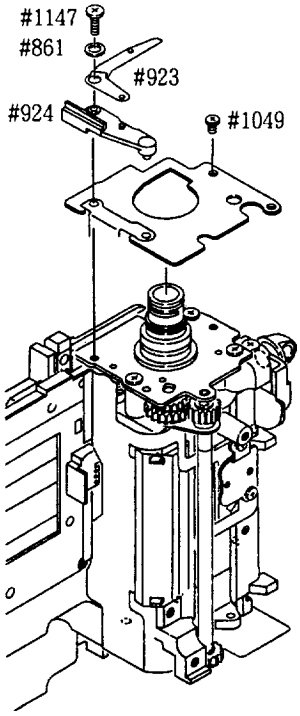


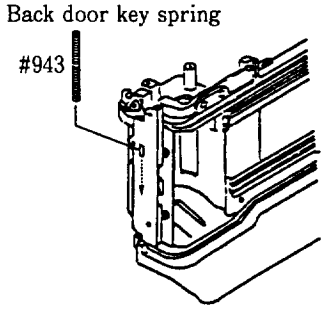
- Set FPC by putting the FPC A and B sections between the shutter and die casting and the FPC C section under the D section.

FILM REWIND SHAFT BASE PLATE

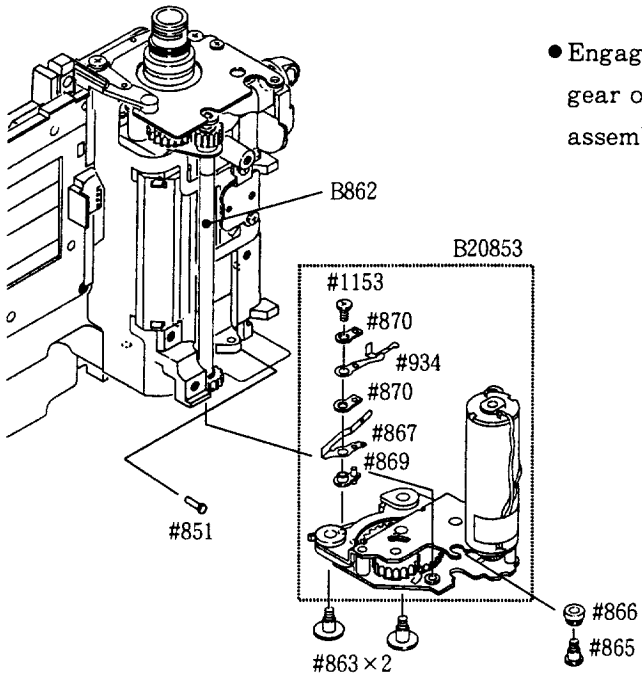


- Insert the shaft end of the film rewind shaft base plate while the back door hinge #941 is lifted and align the film rewind vertical shaft assembly B862 with the end of the clutch lever shaft #883. Set the unit in this way.

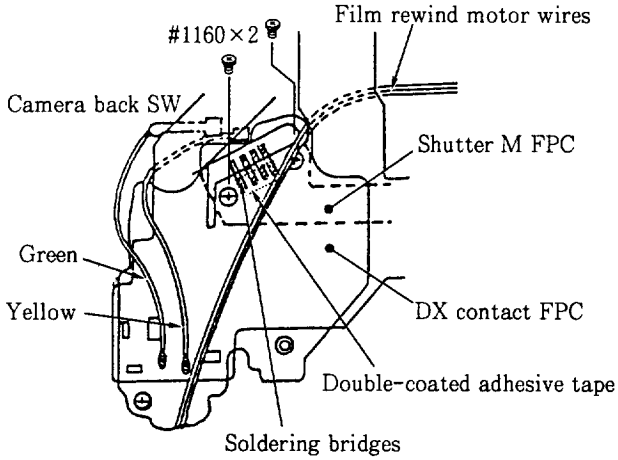


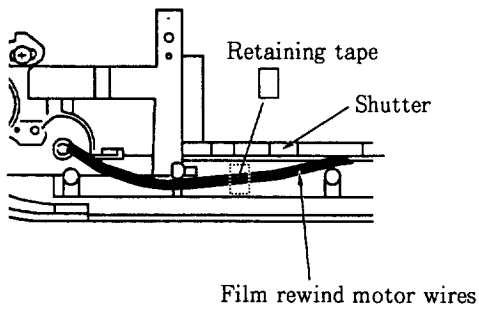


FILM REWIND BASE PLATE

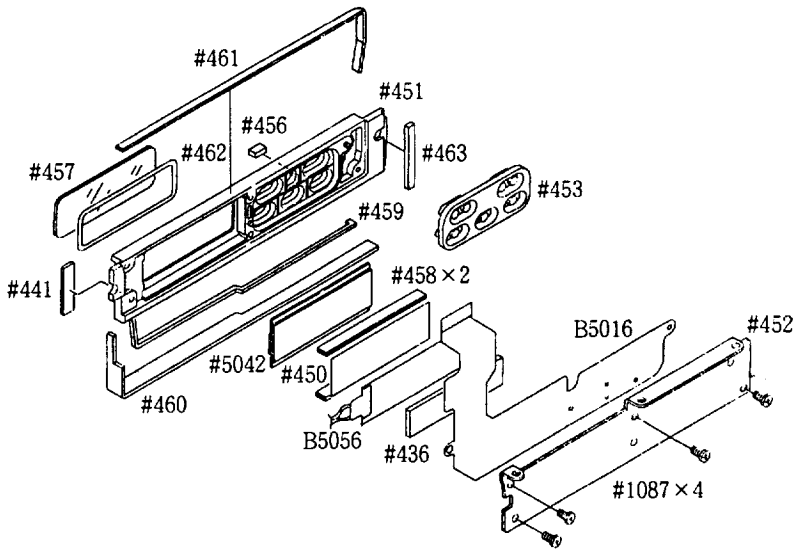


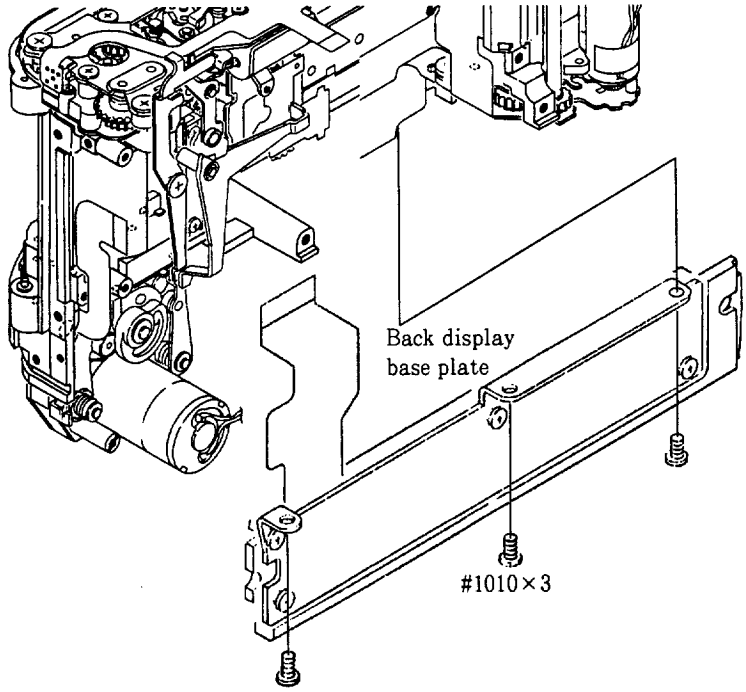
- Engage the film rewind base plate with the gear of the film rewind vertical shaft assembly. Set the unit in this way.

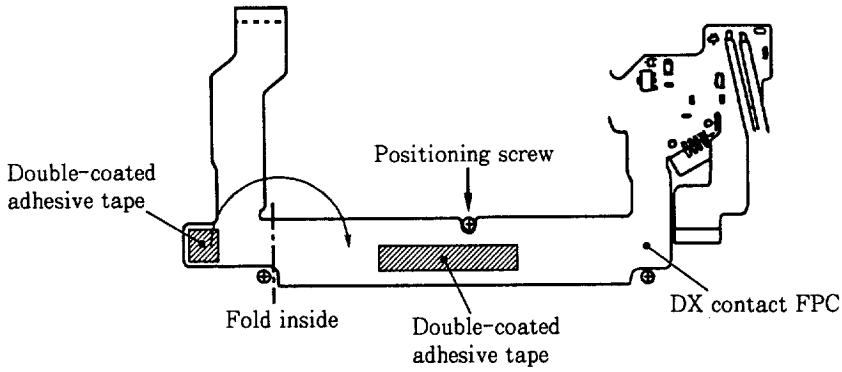




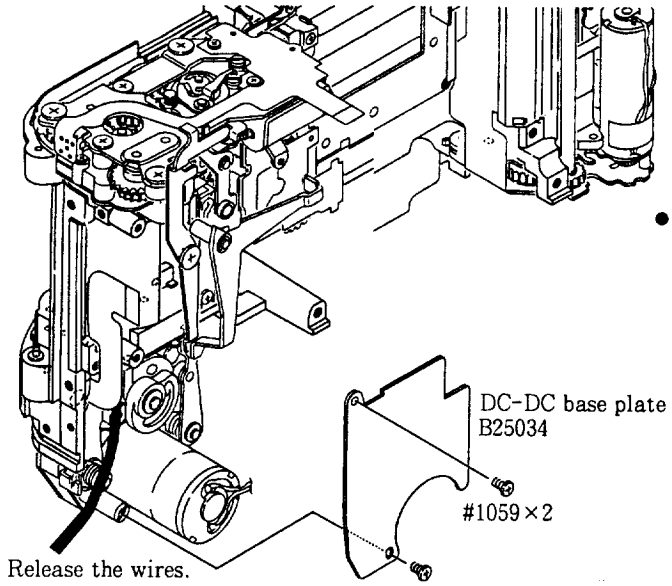
BACK DISPLAY BASE PLATE





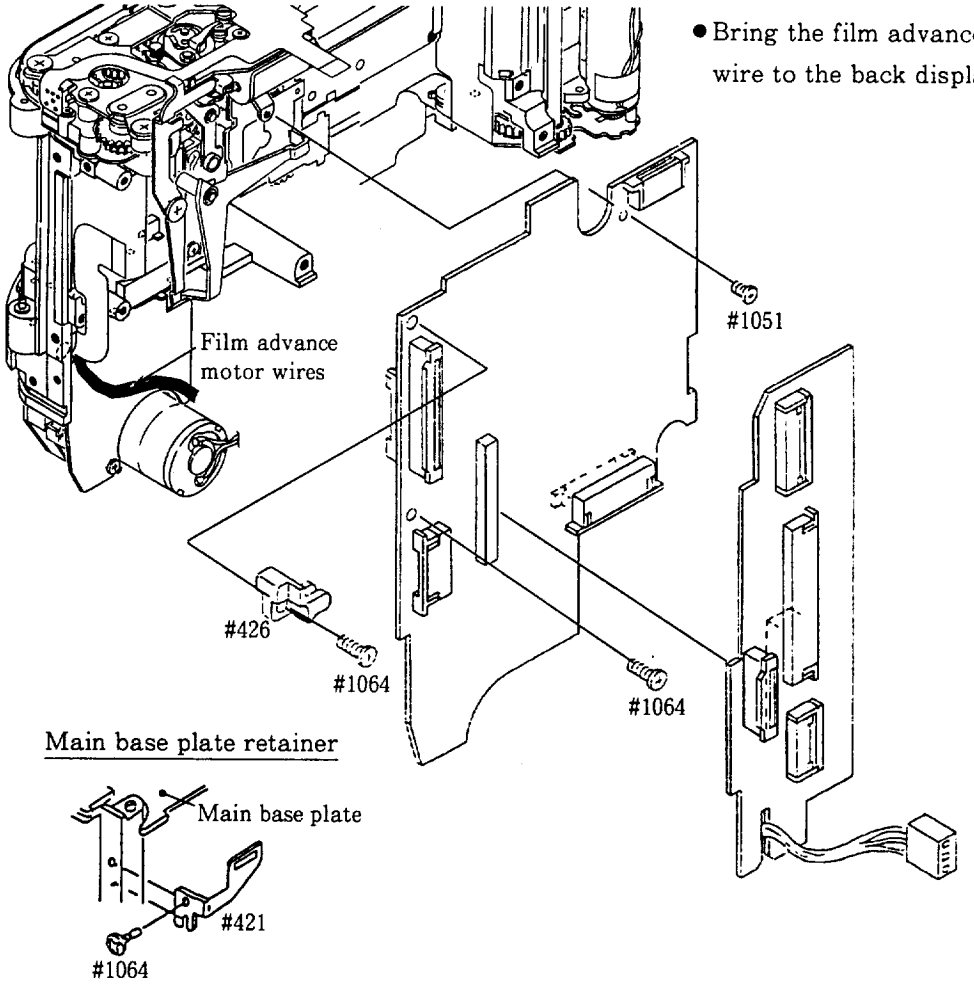


DC-DC BASE PLATE



● Release the film advance motor wires outside before setting the DC-DC base plate.

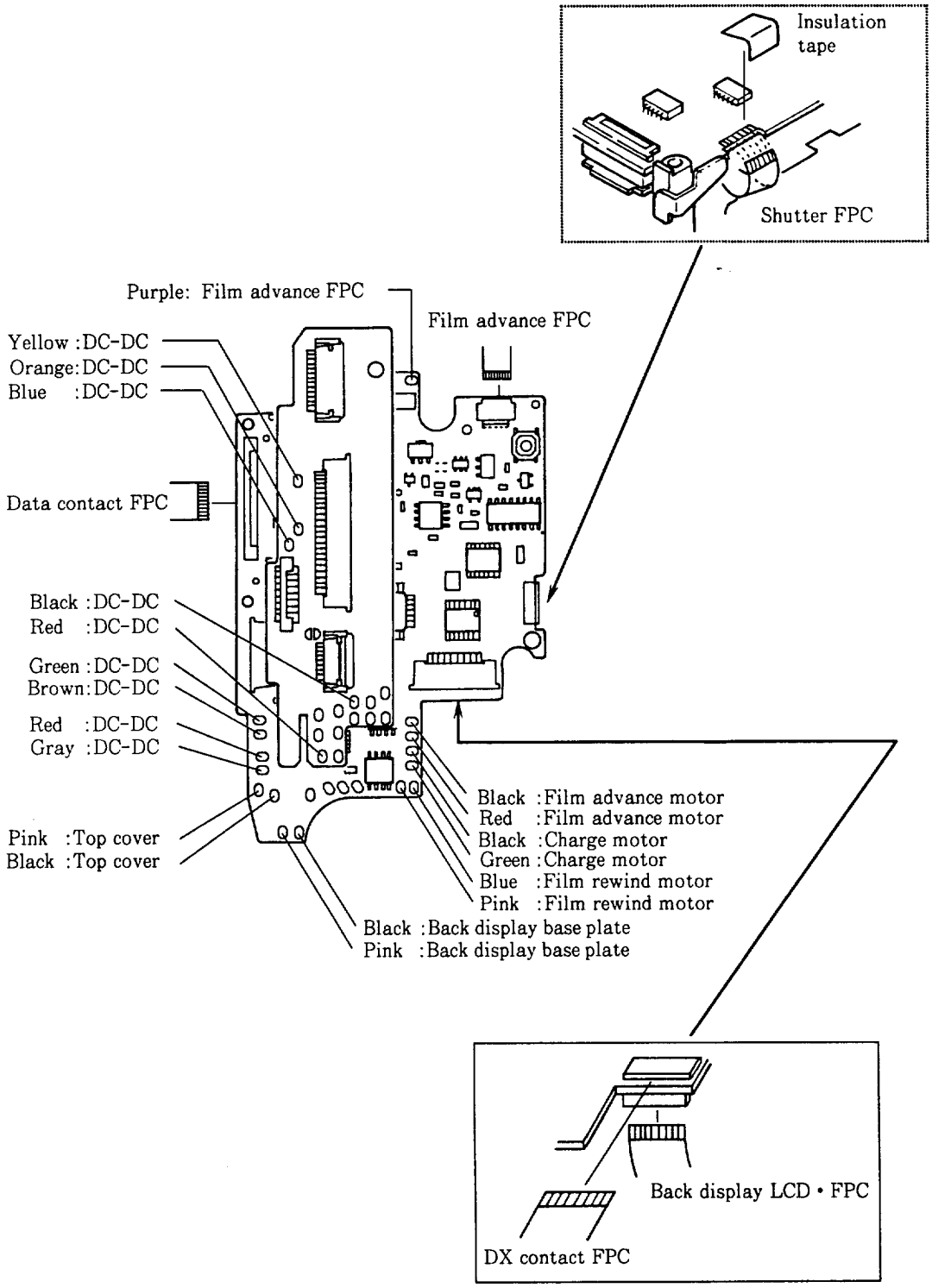
MAIN BASE PLATE



● Bring the film advance motor wire to the back display unit.

Main base plate retainer

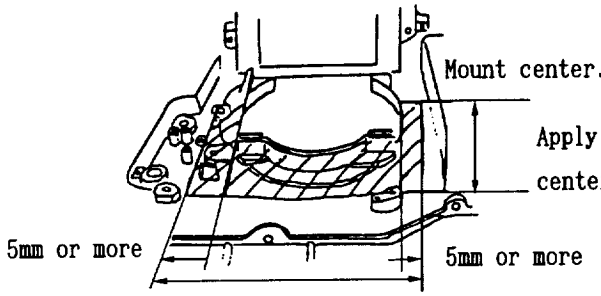
CONNECTOR, SOLDERING WIRES



2. Front body

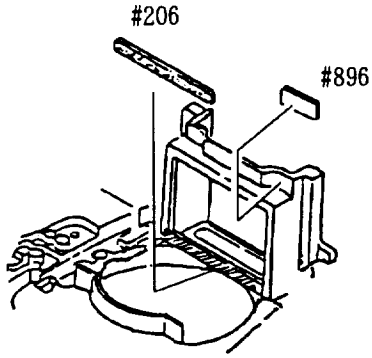
Application of the oil barrier for the front plate.

* Apply the barrier to the hatching section.

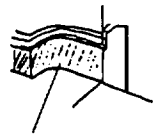


Sponge attachment

* Main mirror cushion sponge (#206) Attach to the hatching section.

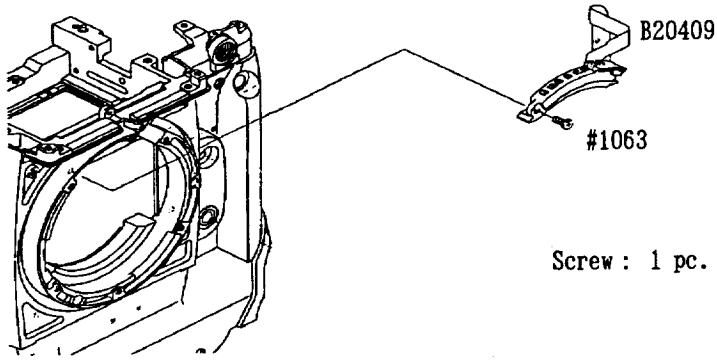


* Intervention rubber (#896)



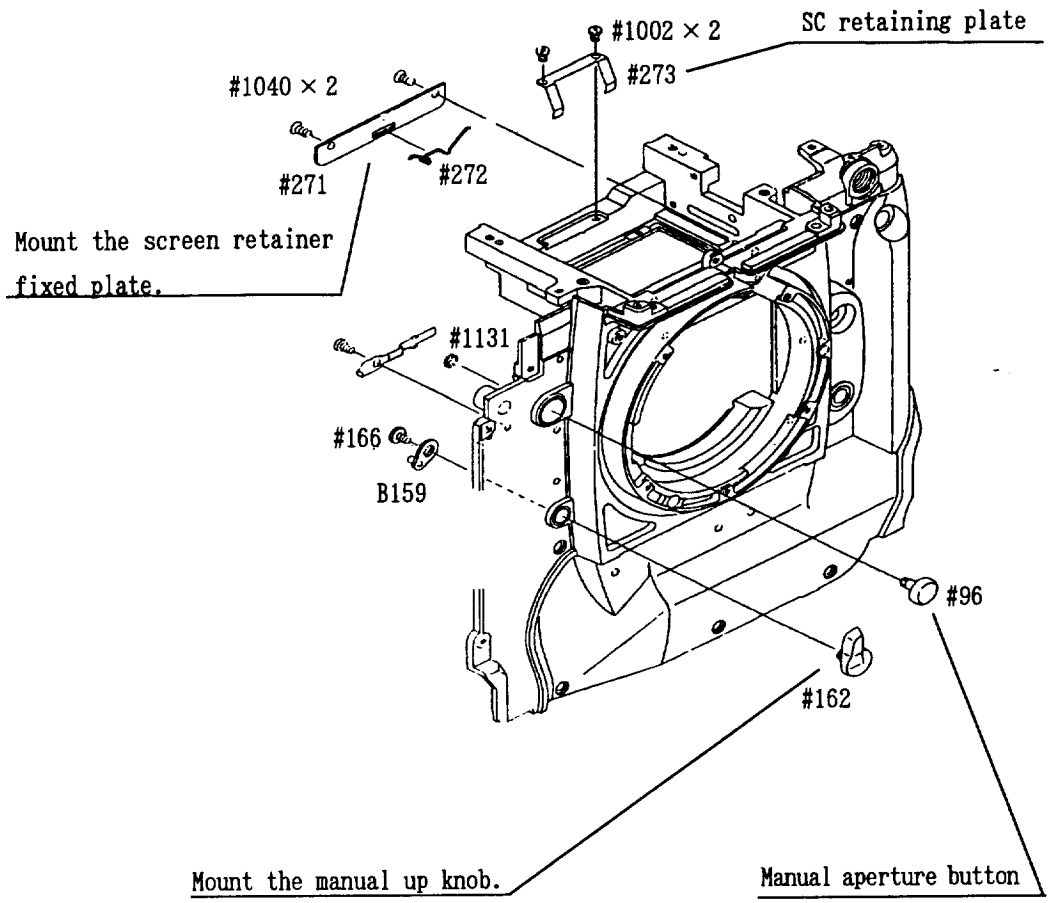
#896 attaching position
Attach to the hatching section.

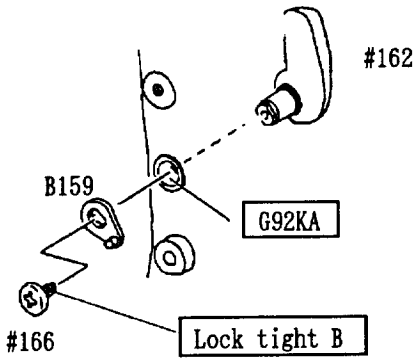
AF lens contact

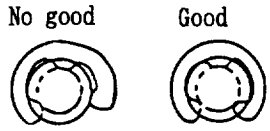


Screw : 1 pc. (#1063)

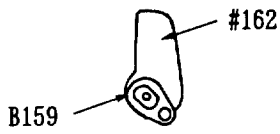
Mounting the levers for the left front plate





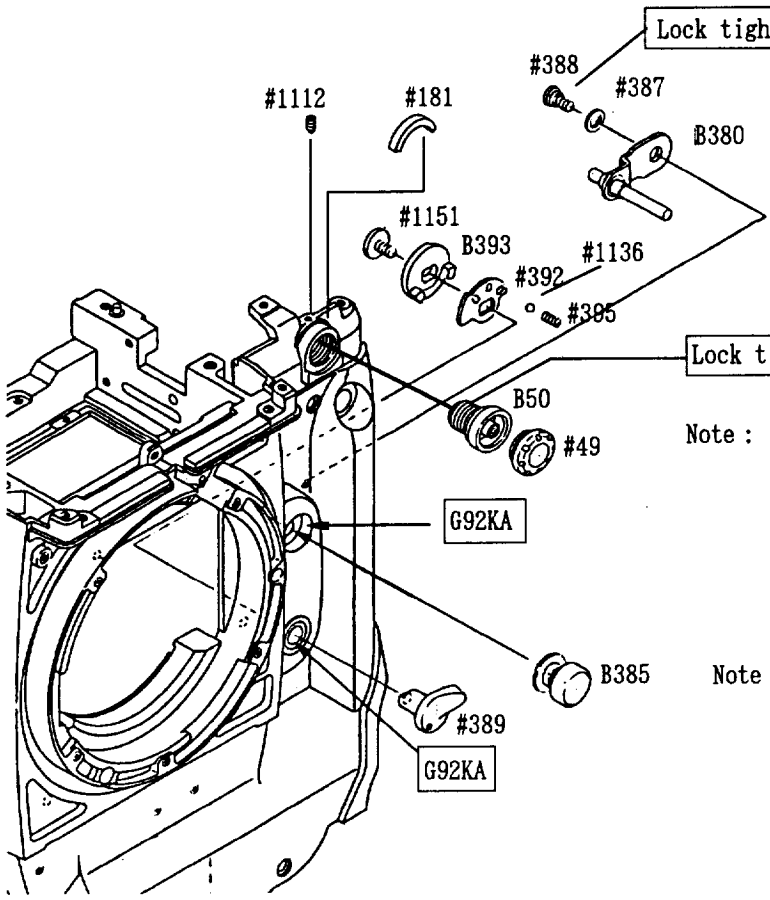


Be careful for mounting the C clip.



B159 mounting direction : As viewed from the B159 side.

Mounting the levers for the right front plate



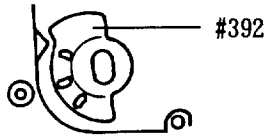
Note : Apply to the middle of the screw portion.

Note : Apply the oil to the inside diameter of the front plate main body before mounting the part.

Mounting the AF mode change-over section (#389)

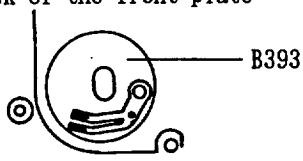
1. Insert the AF mode spring (#395) and ball (#1136) to the specified position.
2. Insert the AF mode lever (#389) to the front plate at the C position.
3. Set the AF mode rotary plate (#392) to the position as illustrated.

Back of the front plate

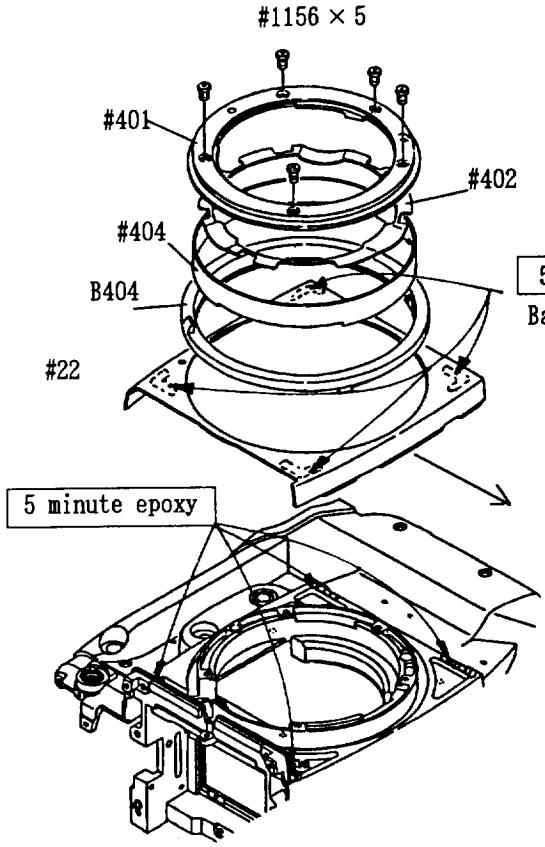


4. Set the AF mode cam (B393) as illustrated below and then fix it with a screw (#1151) .

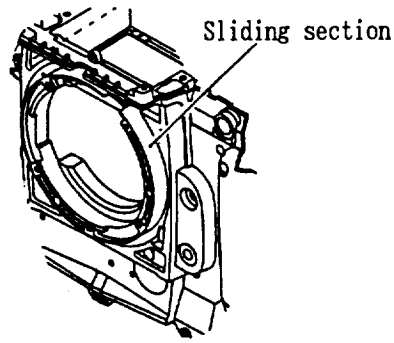
Back of the front plate



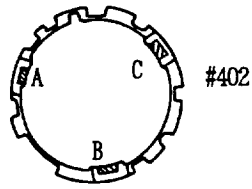
Bayonet



・Draw the apron (#22) upward as illustrated and fix it at 4 places with adhesive.
・Apply graphite (4B) to the front plate sliding section.



・Apply a little oil to the hatching section (as illustrated below) of the bayonet spring (#402) .

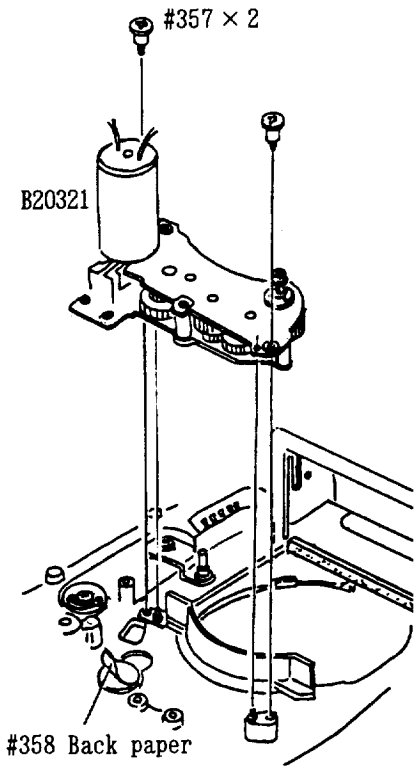


Pass the bayonet spring through the aperture coupling ring (B404) as illustrated below.

F-FO Cord passing hole

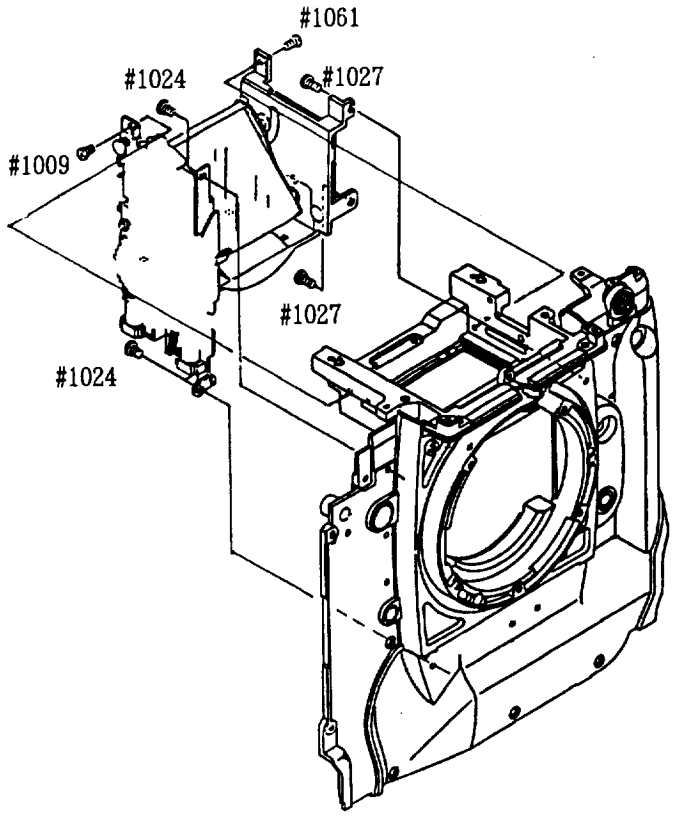
Note : After mounting the bayonet, check the operation of the aperture coupling ring (B404) . (Make sure that the rotation is smooth.)

Mounting the AF drive unit



Adhere #358 (double-sided tape) and mount B20321 (AF drive base plate) with two screws.

Mounting the mirror box unit (I base plate/L base plate assembly)



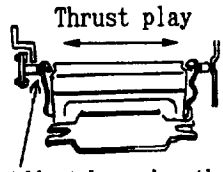
Screw : 6 pcs.

Note 1 : Draw the mirror box unit upward and remove the play.

Mirror unit

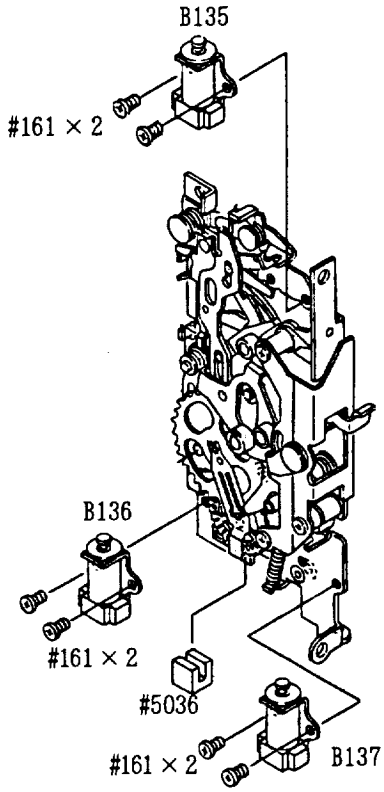
Note 2 : Check the mirror thrust play as illustrated below.

Standard : 0.05～0.15㎜

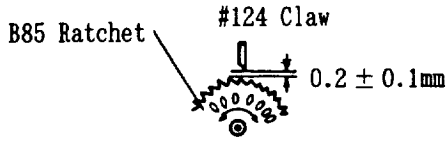


Adjust by using the washer.

I base plate

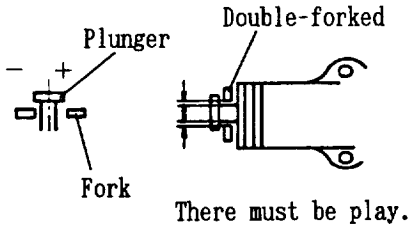


Note 1 : The clearance between B85 and #124 must be 0.2 ± 0.1mm for the ratchet B85 must not contact with #124 (claw) when rotating it.



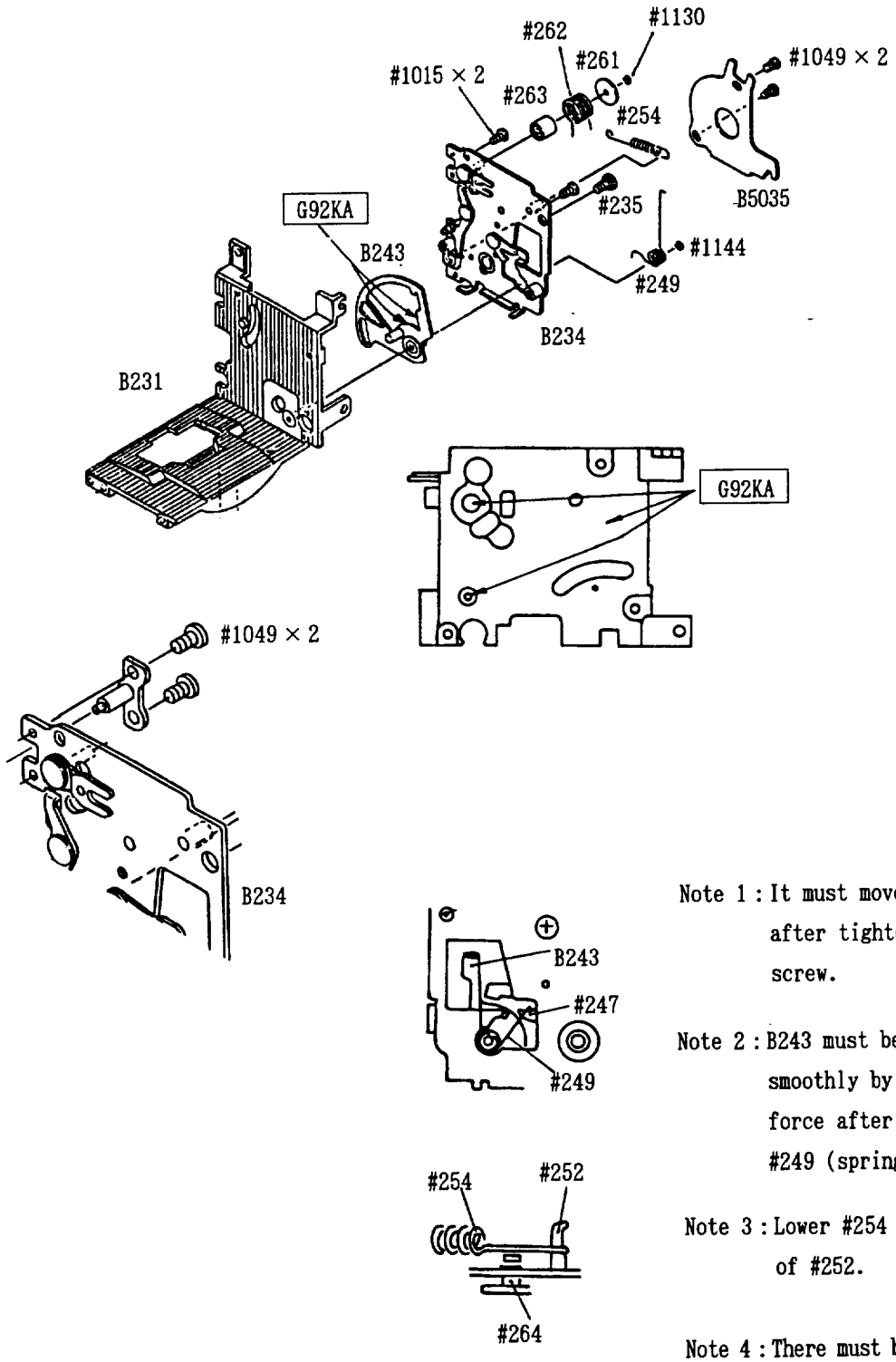
・Check by inserting the gauge into the clearance between B85 and #124.

Note 3 : When mounting the release/aperture stop/aperture start solenoids, there must be play as illustrated below.



There must be play.

L base plate



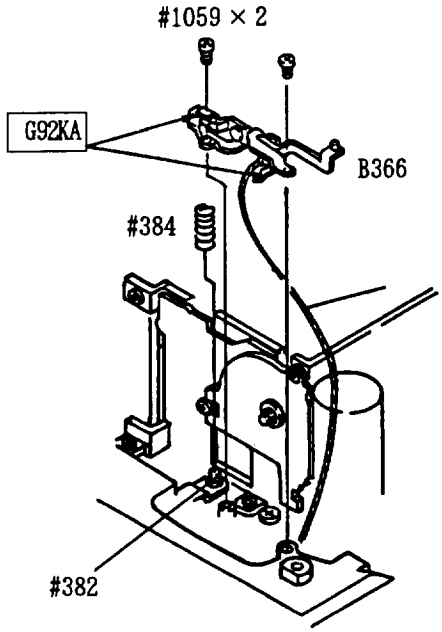
Note 1 : It must move smoothly after tightening the screw.

Note 2 : B243 must be moved smoothly by the spring force after applying #249 (spring) .

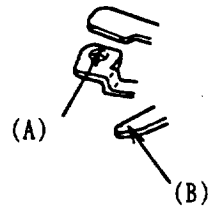
Note 3 : Lower #254 to the step of #252.

Note 4 : There must be no contact between #254 and #264.

Mounting the lens release button spring



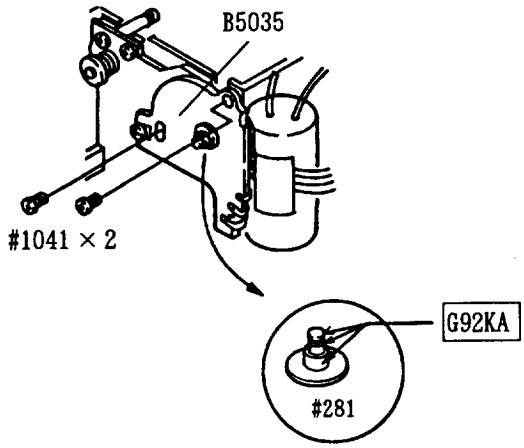
1. Apply the oil to the (A) inside diameter and the (B) R section entirely.



2. Pass the cord as illustrated below.

3. Insert #384 (lens release button spring) ant then fix it with #1059 (screws) .

f-fo section



Enlarged view

Fix B5035 (f-fo pattern) with #1041 (2 screws) .

f-fo base plate, f-fo pully

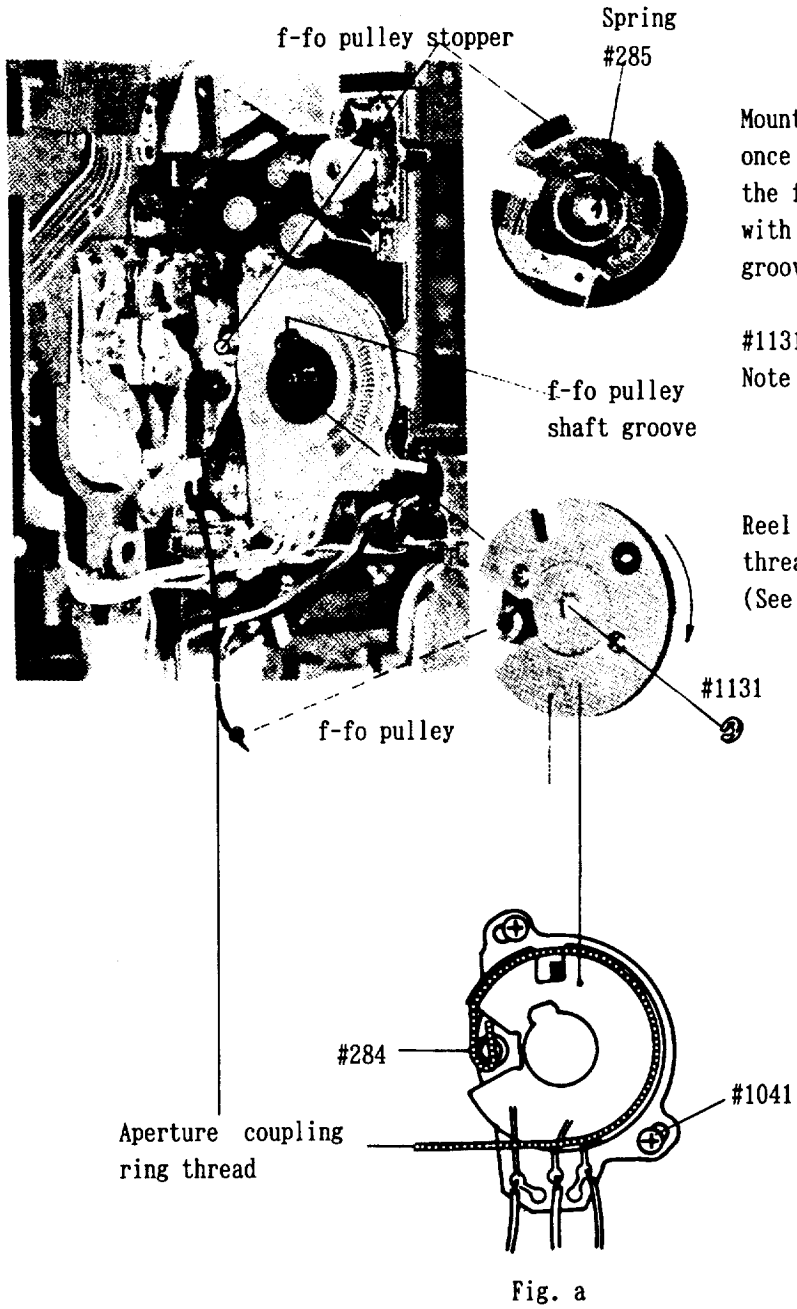


Fig. a

Mount by rotating the pulley once clockwise while aligning the f-fo pulley spring (#285) with the f-fo pulley shaft groove.

↓

#1131

Note : Do not damage the plastic mold shaft of the f-fo pulley.

↓

Reel aperture coupling ring thread in the #284 groove. (See figure a)

Note :

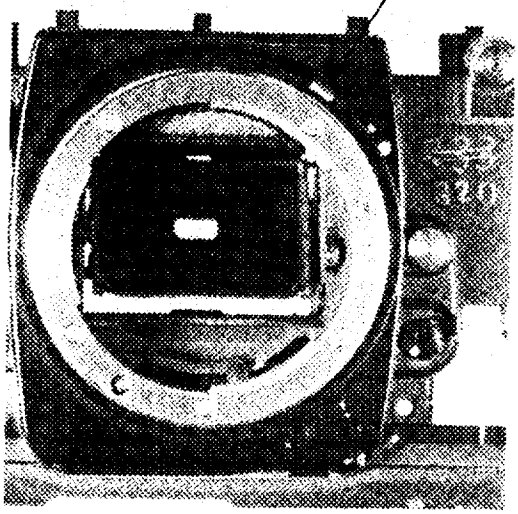
① Thread knot should not be pushed out from the surface of the f-fo base plate.

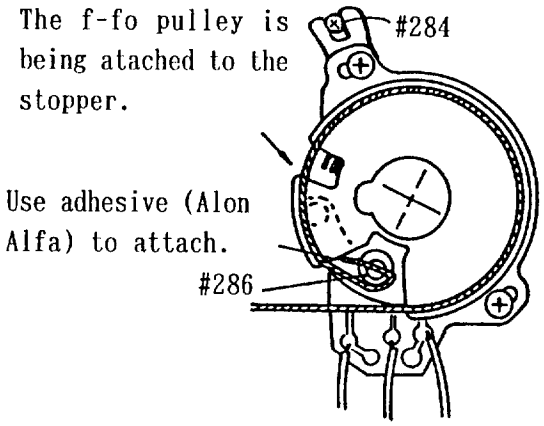
② Aperture coupling ring thread should be hooked in the roller on the AF mode selector base plate.

③ Aperture coupling ring thread should not be bent.

Adjustment of f-fo pulley stop position

Aperture coupling ring is attached to the stopper.





Adjust by rotating #286 so that the aperture coupling ring and the f-fo pulley come into contact with the stopper simultaneously.

Adjustment of the f-fo base plate position

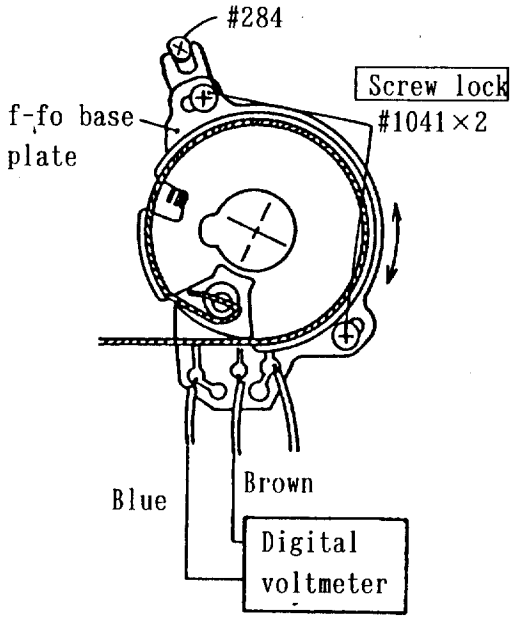


Fig. a

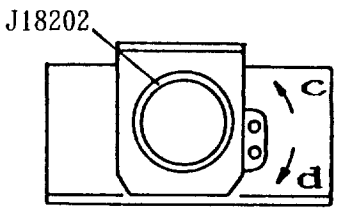


Fig. b

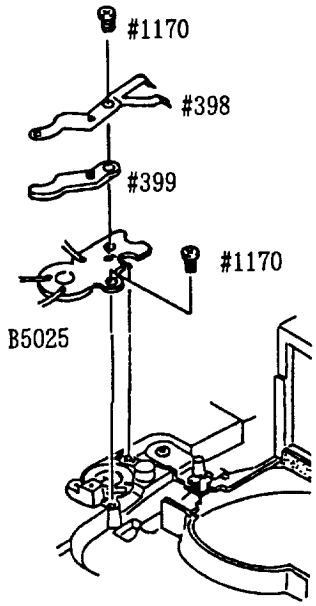
① Mount the f-fo tool lens (J18202) on the body.
② Set the digital voltmeter(atthe resistance measuring range)as shown in Fig. a.
③ Adjust by rotating the f-fo base plate so that each resistance value can be measuredwhen the f-fo tool lens (J18202)is moved aside as shown in Fig. b.
Resistance value is #284 to 110Ω△or under when the tool lens is moved in the direction indicated by arrow c.
Resistance value is 2Ω △or under when moved in the direction indicated by arrow d.
④ Fasten screws(#1041×2)and spread screw lock (#350)on them.

計画課 M

Change page △×2

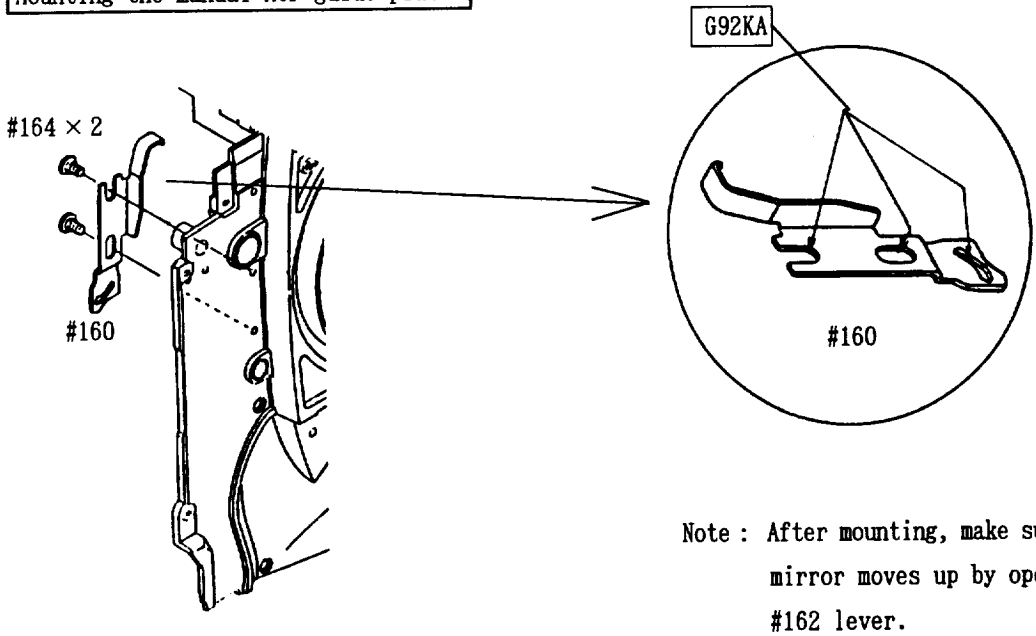
Mar.10.1997

Mounting the lens release switch base plate

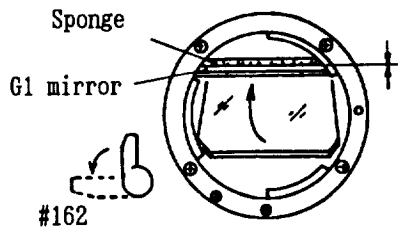


Fix B5052 (lens release switch base plate) with #1170 (screw) and then fix #399 (lens release collar) and #398 (lens release switch) with #1170 (screw) .

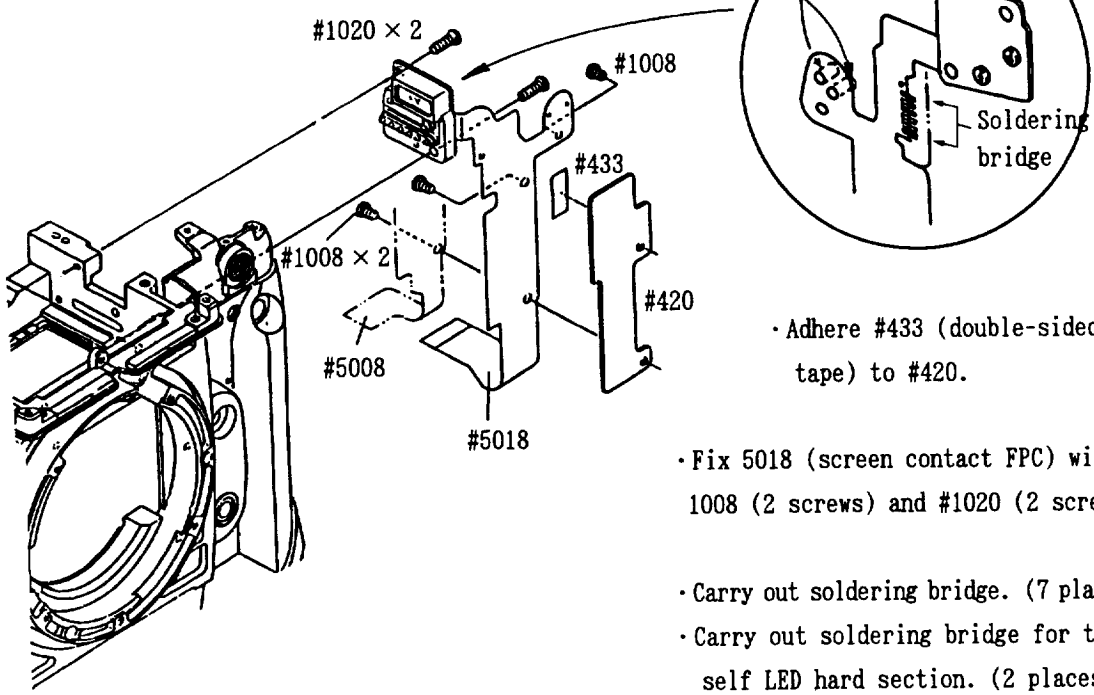
Mounting the manual MUP guide plate



Note : After mounting, make sure that the mirror moves up by operating the #162 lever.



Screen contact & SC contact

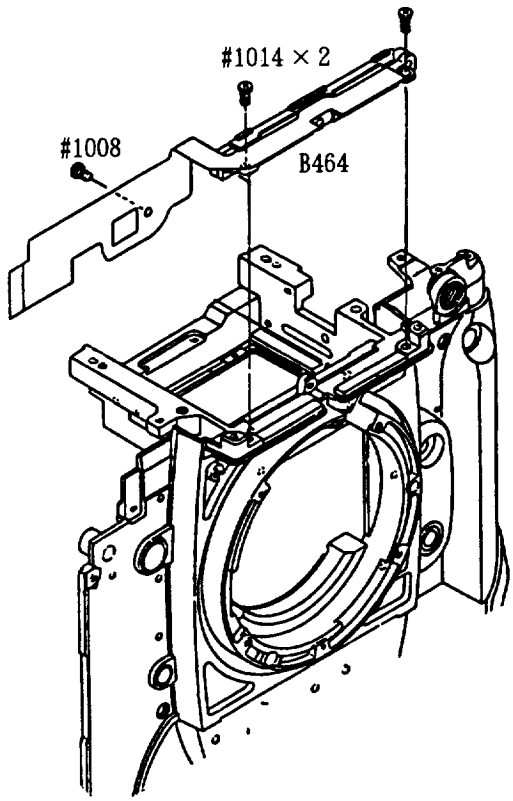


・Adhere #433 (double-sided tape) to #420.

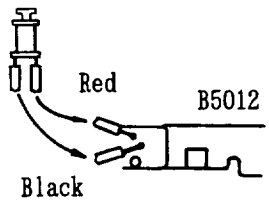
・Fix 5018 (screen contact FPC) with 1008 (2 screws) and #1020 (2 screws)

・Carry out soldering bridge. (7 places)
・Carry out soldering bridge for the self LED hard section. (2 places)

FD contact mold

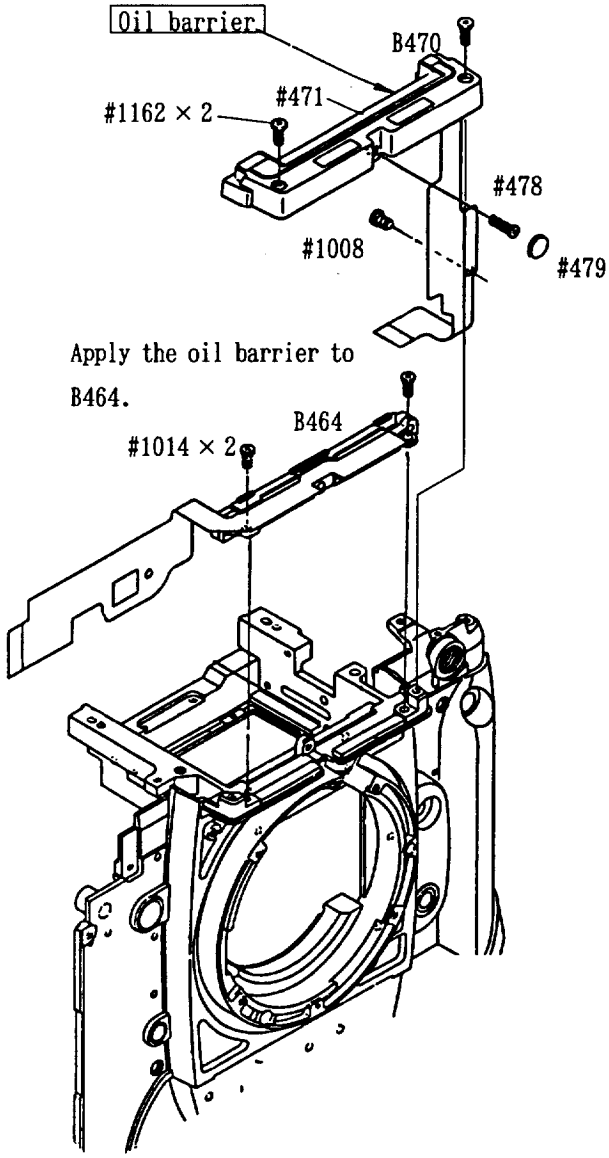


Mount B464 (FD contact mold) with #1008 (screw) and #1014 (screw) .



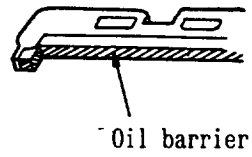
Carry out soldering as illustrated above.

Mounting the front display mold

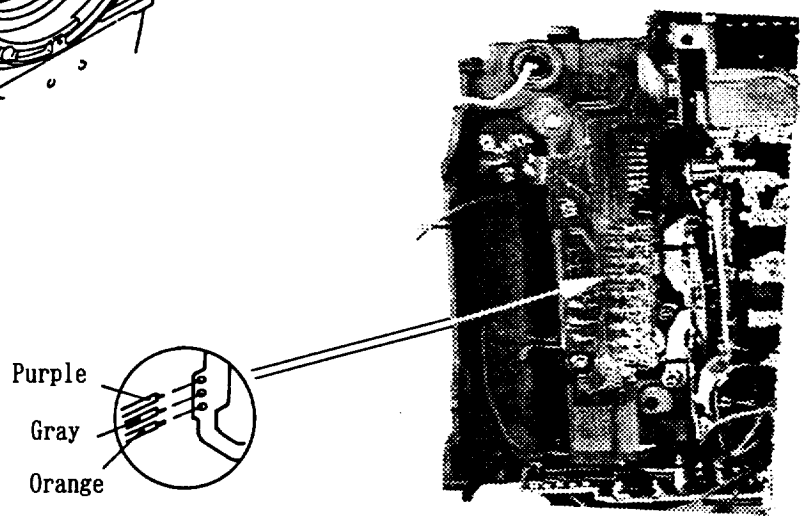


・Fix the front display mold with #1162 (2 screws) and #1008 (screw) .

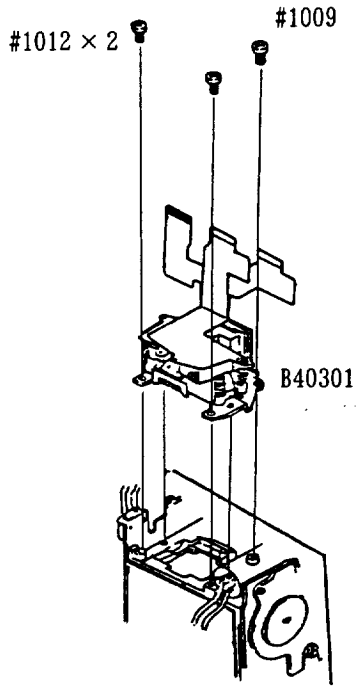
・Apply the oil barrier to the hatching section as illustrated below.



・Solder the 3 wires.

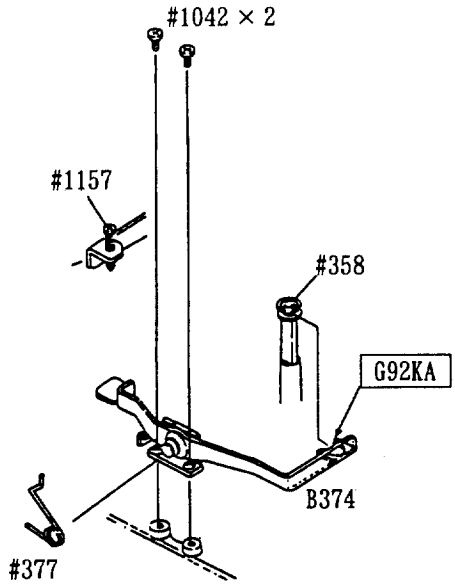


Mounting the AP4 unit

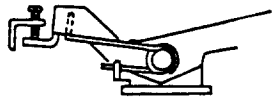


Mount the AP4 unit with #1010 (2 screws) and #1009 (screw) .

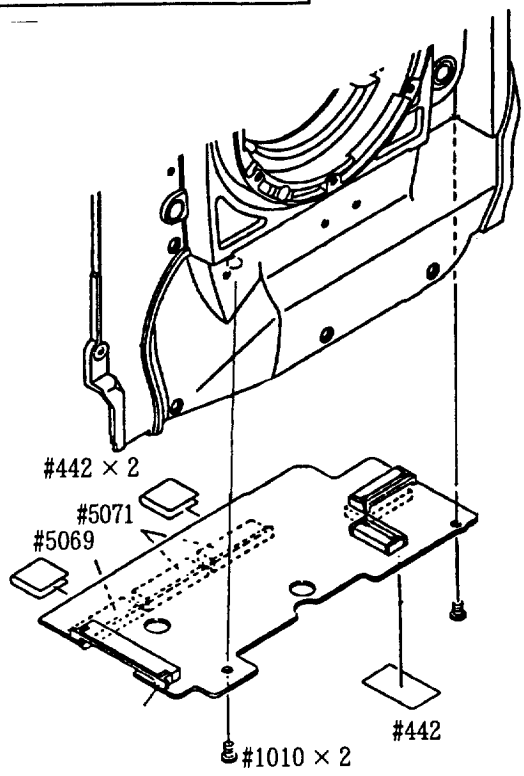
Mounting the lens release base plate



- Insert #358 into the U groove of B374 (lens release base plate) and set the base plate so that #1157 may be on the lever.
- Set the spring as illustrated below.



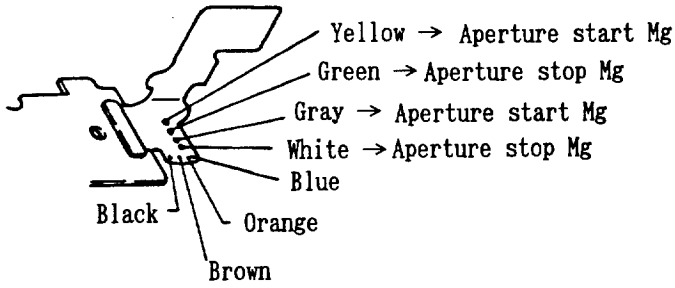
Mounting the AF base plate



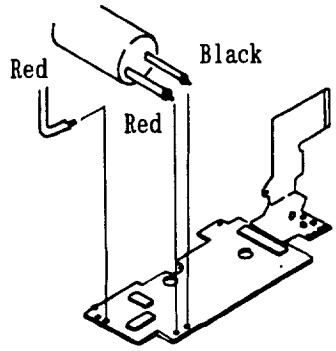
Screw : 2 pcs.

AF base plate

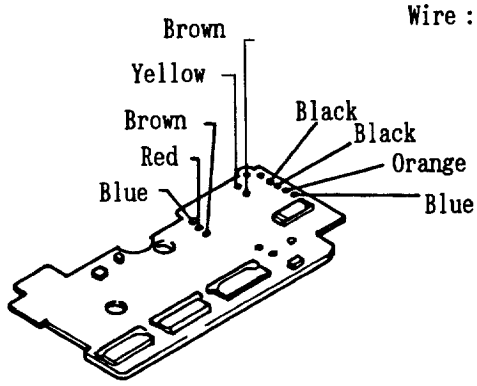
Wire : 8 places



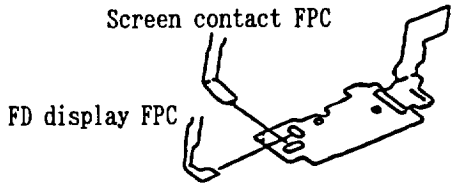
Wire : 3 places



Wire : 9 places

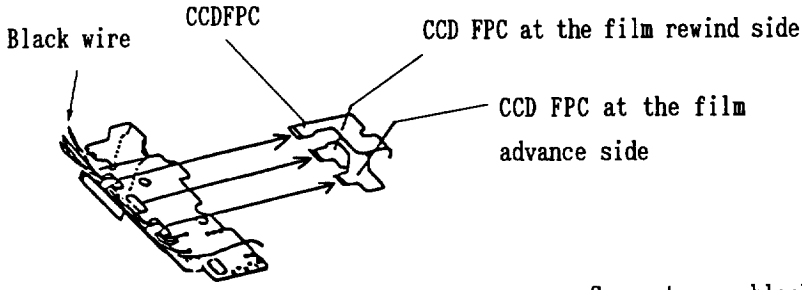


Mounting the AF base plate connector



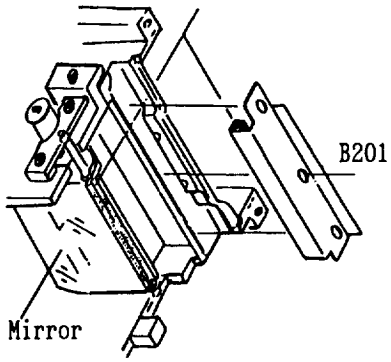
Connector : 2 places

Connector : 3 places

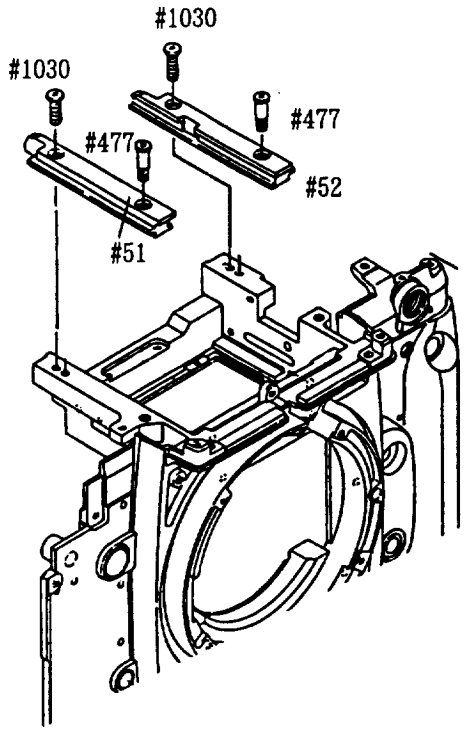


・Separate one black wire from the AF base plate.

Mounting the main mirror rear light baffle plate



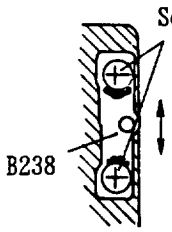
Mounting the FD rail



- Mount #51 with #1030 (screw) and #477 (screw) .
- Mount #52 with #1030 (screw) and #477 (screw) .

Adjustment (by 45°) of the main/sub mirrors

Adjustment (by 45°) of the main mirror



Left and right misalignment adjustment : Adjust by moving B238 up and down.

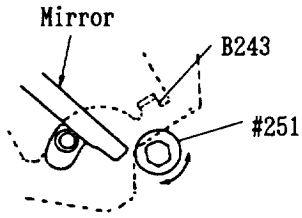
Tools)

- J18037 Optical flat
- J18038
- Vertical collimator
- Hexagonal wrench

Standard)

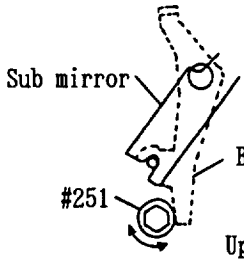
Left and right misalignment : 0 ± 18′

Up and down misalignment : 0 ± 5



Up and down misalignment adjustment : Adjust by turning #251.

Adjustment (by 45°) of the sub mirror



Up and down misalignment adjustment : Adjust by turning #251.

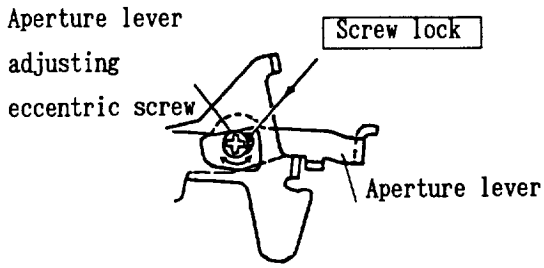
Tools)

- J18268 Sub mirror 47.75 ° adjusting tool
- Vertical collimator

Standard)

Up and down misalignment : 5 ± 5 ′

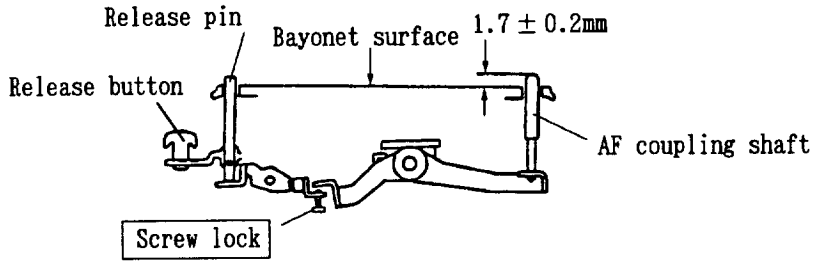
Adjustment of the aperture lever height



Standard)
$3.4\ ^{+0.1}_{-0.05}$

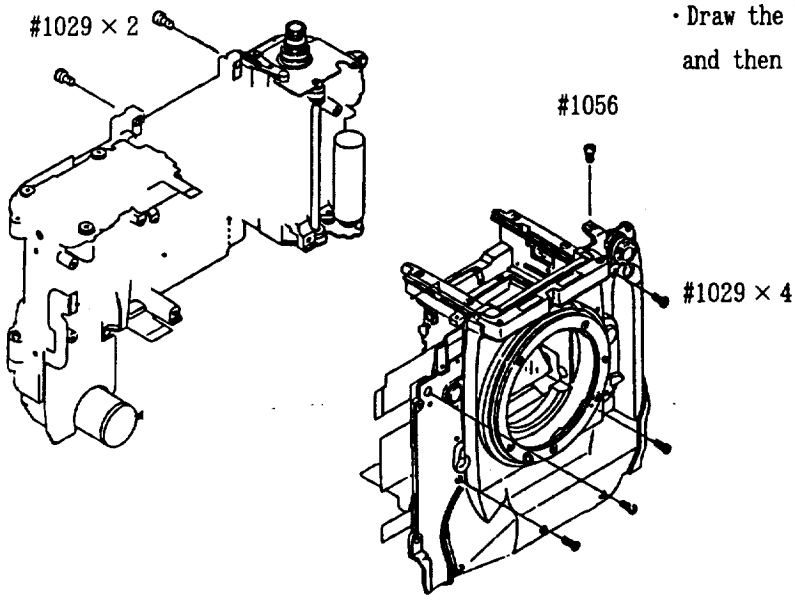
Adjustment of the AF coupling shaft height

Adjust the height with #1038 (screw) so that the AF coupling shaft may be protruded from the bayonet surface when the release button is free under AF-C or AF-S.
Standard : 1.7 ± 0.2mm

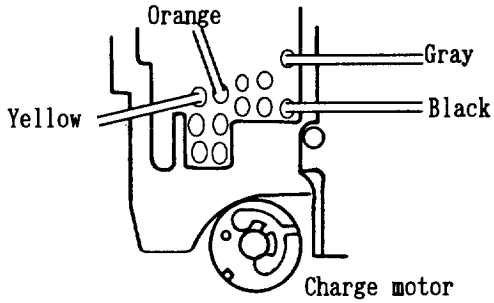


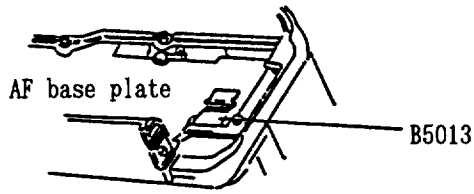
3. MOUNTING FRONT PLATE ON REAR BODY

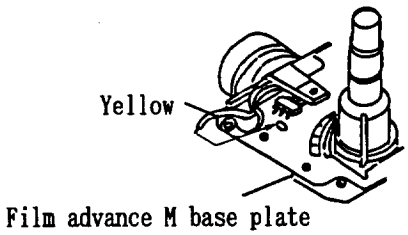
Front body

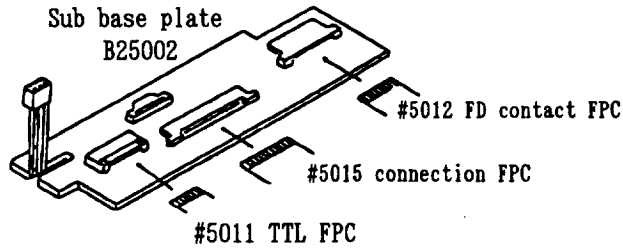


・Draw the body to the film rewind side and then tighten the screws.

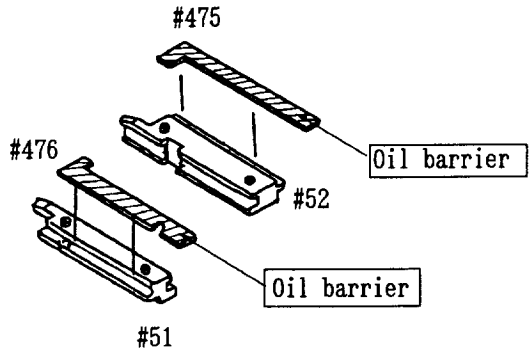




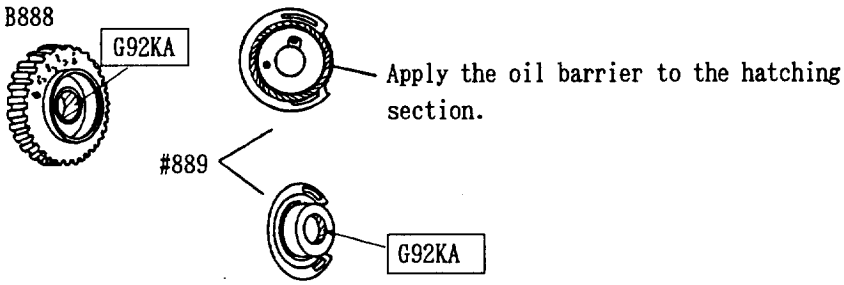


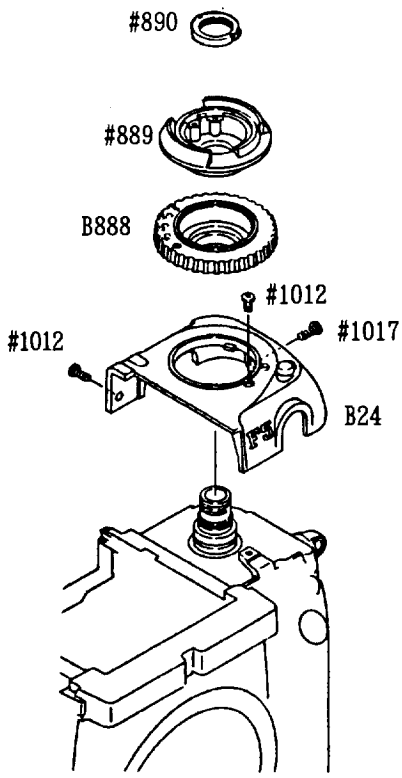


Finder rail sponge

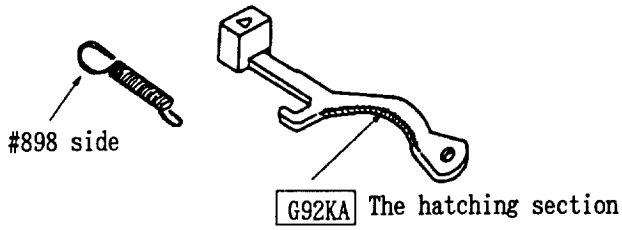


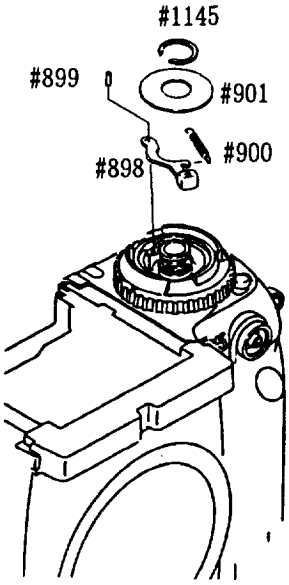
Top cover (Rewind side) unit



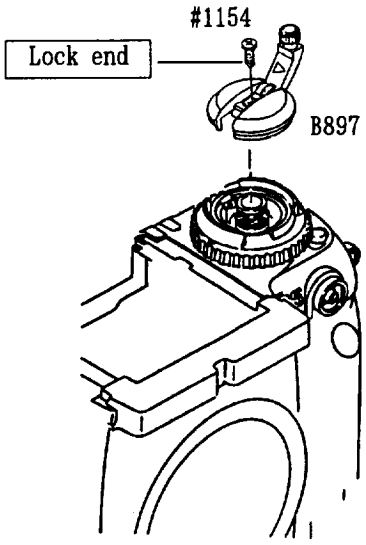


Rewind lock lever

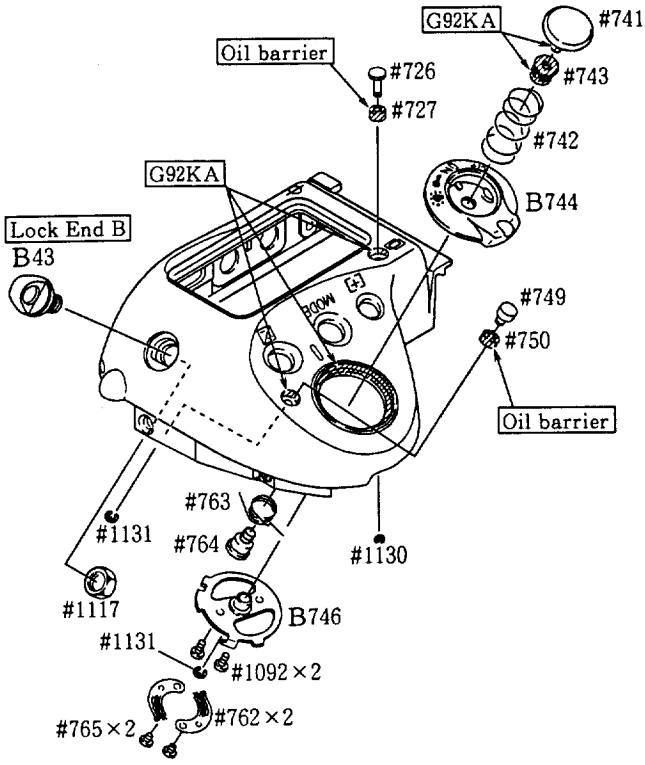


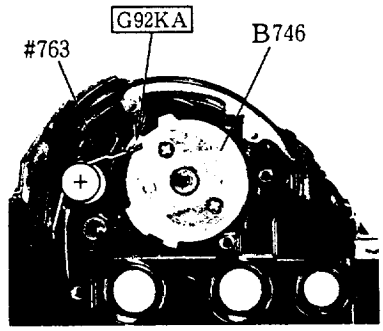


Rewind knob

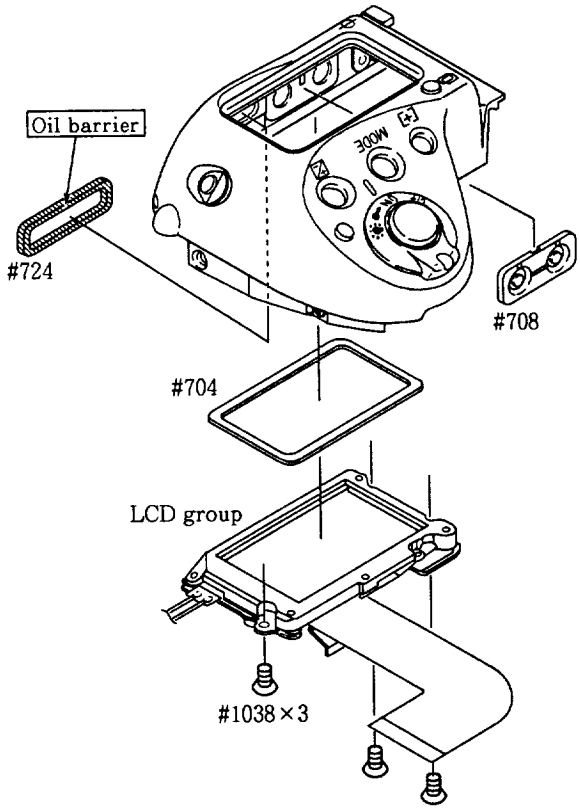


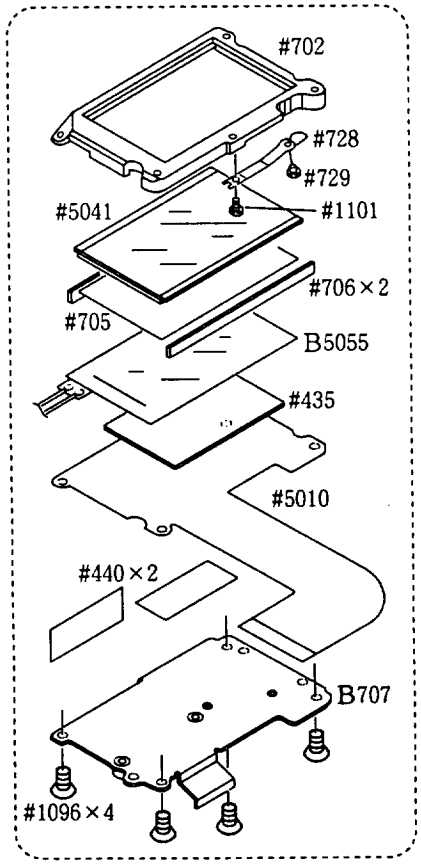
RELEASE BUTTON, ON-OFF RING, EYELET



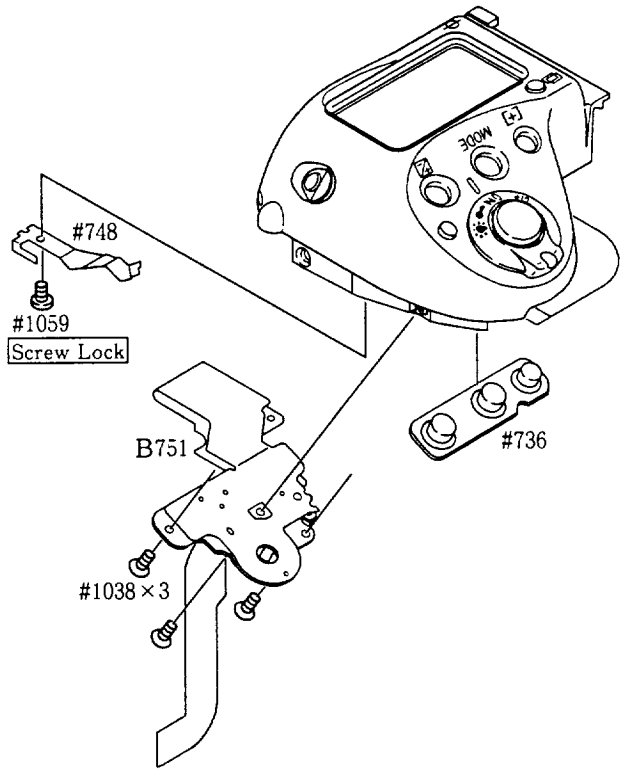


LCD GROUP

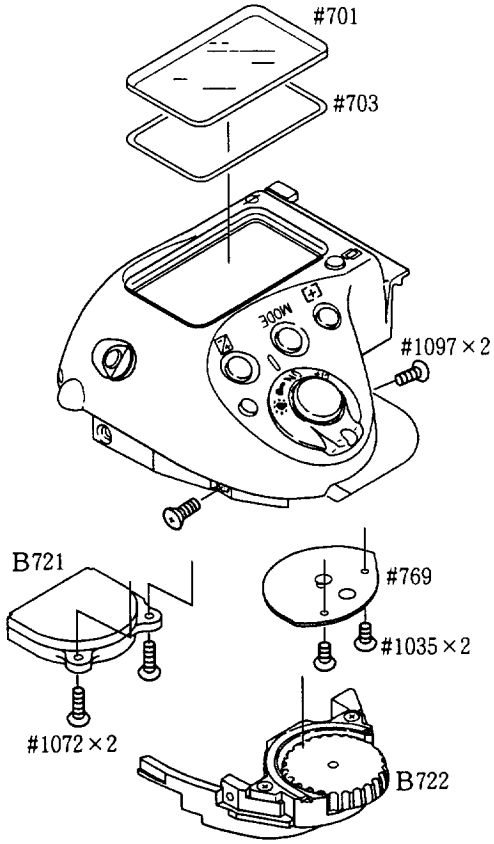




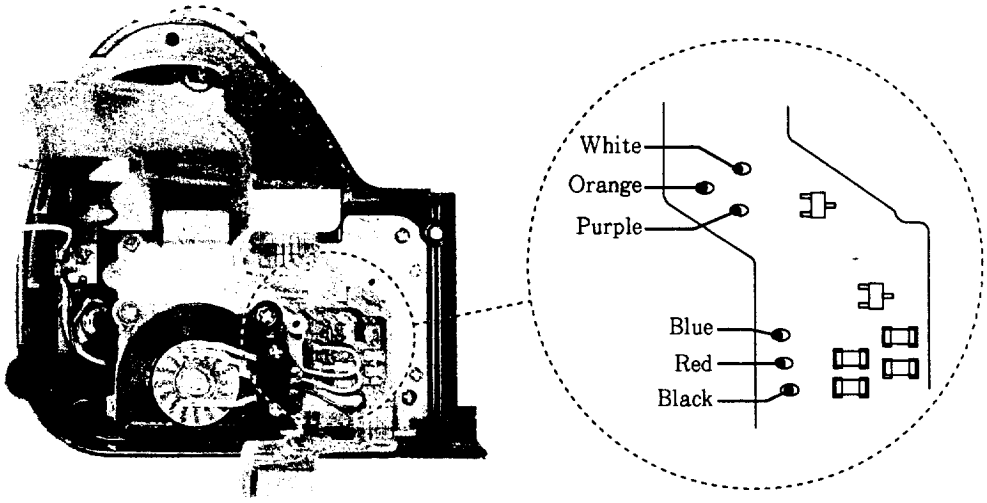
RELEASE SWITCH BASE PLATE UNIT

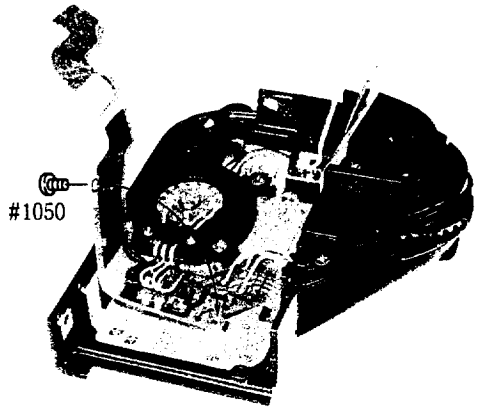


COMAND DIAL UNIT

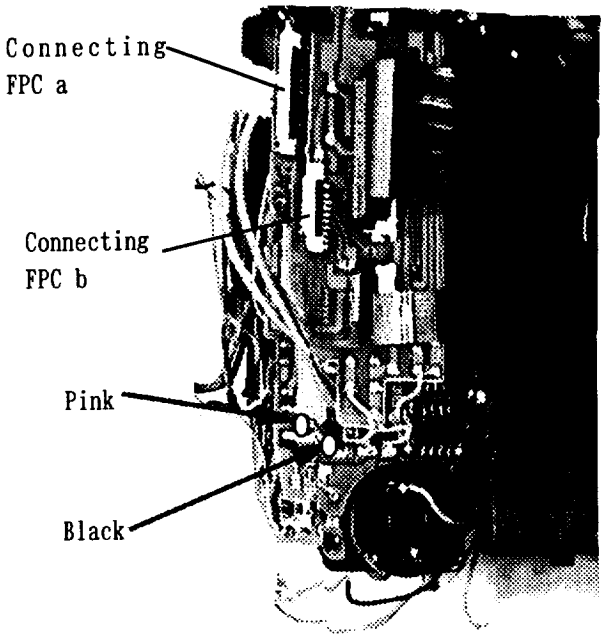


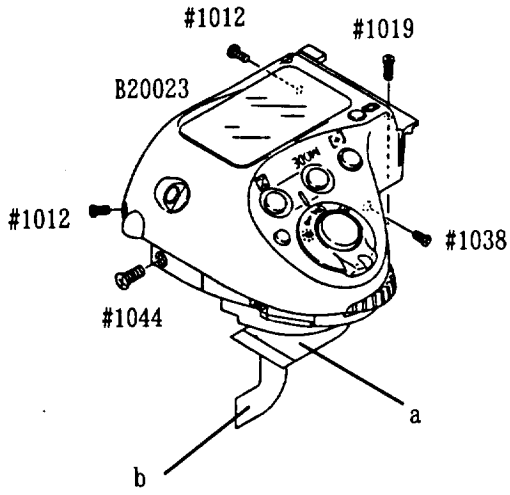
SOLDERING WIRES



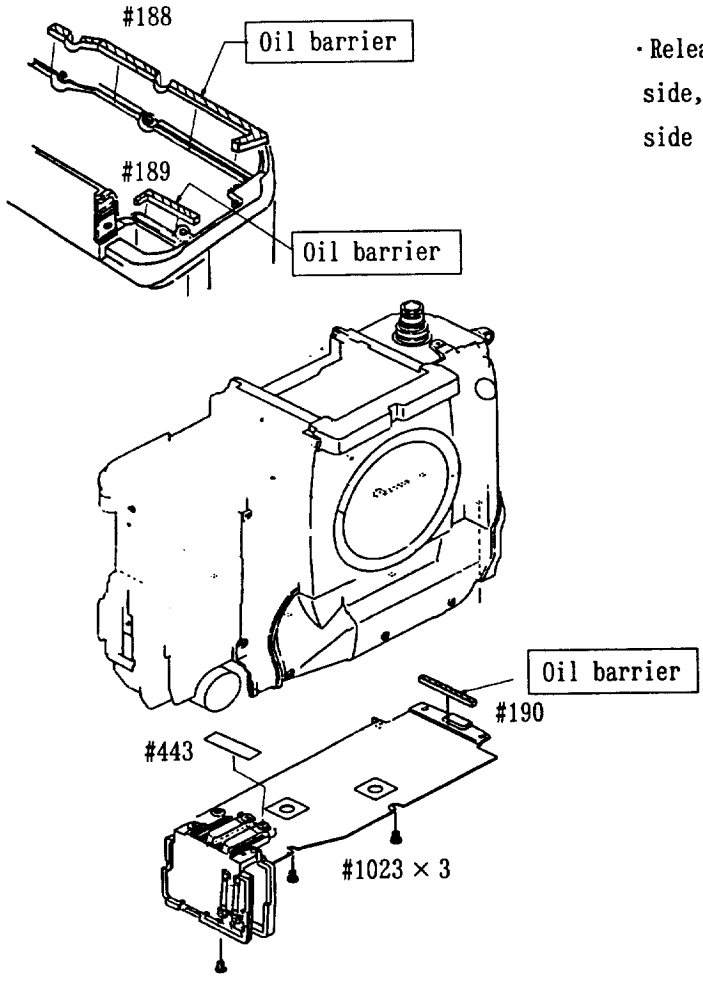


Film advance upper cover



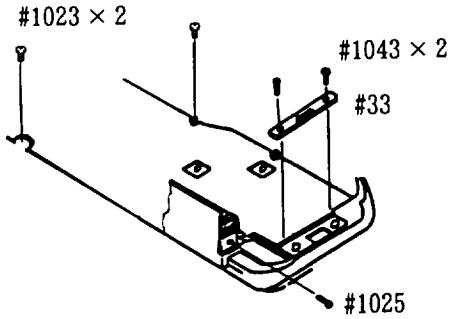


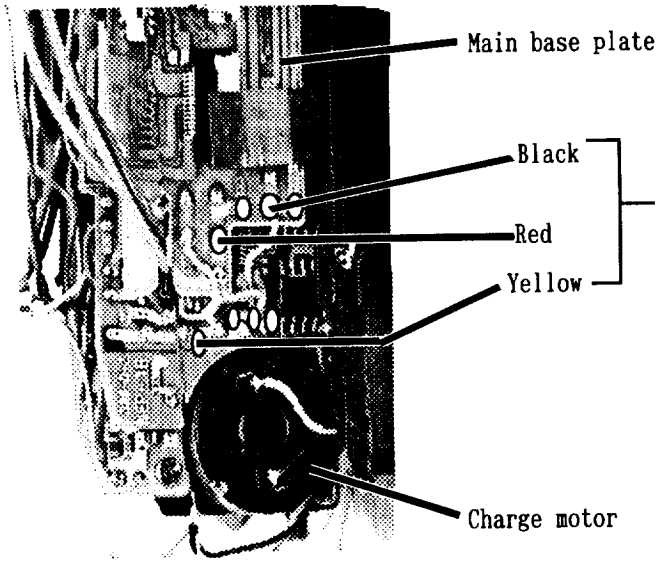
Battery chamber partition plate

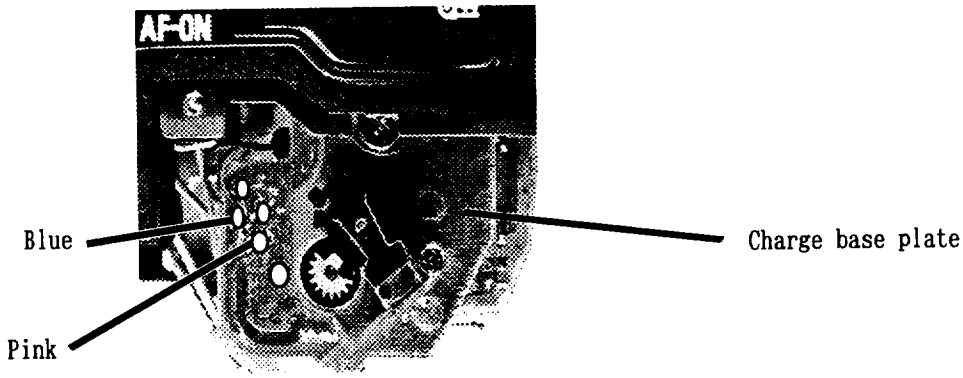


・Release the wires to the main base plate side, and draw this unit to the back side and then mount it.

Battery chamber partition plate







AF precision inspection and adjustment

For communicating with PC, employ both the camera communication tool J15328 and the 10-pin connector communication tool J15328-1.

Check and adjust the precision of all the fourteen AF sensors.

1. AF precision adjustment
2. YAW/PITCH inspection and adjustment
3. LARK adjustment

The following description is the outline about adjustment of each unit.

1. AF precision adjustment

   Adjust all the units related to AF in turn.

2. YAW/PITCH inspection and adjustment

   Position the AF sensor by using the YAW/PITCH tool (J15230).

3. LARK adjustment

   Adjust the AF precision for each AF sensor.

   The following new tools are necessary.

   AF distance measuring chart (J18237)

   AF adjusting lens (J18266)

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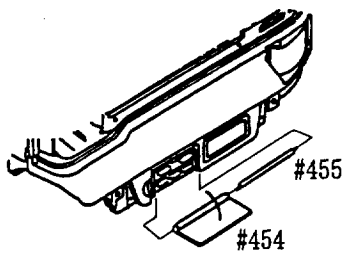
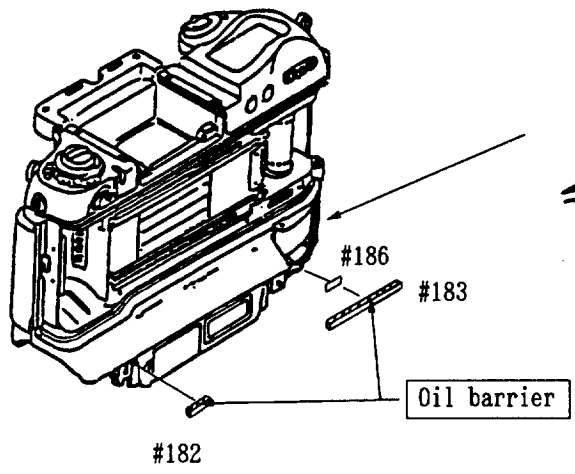
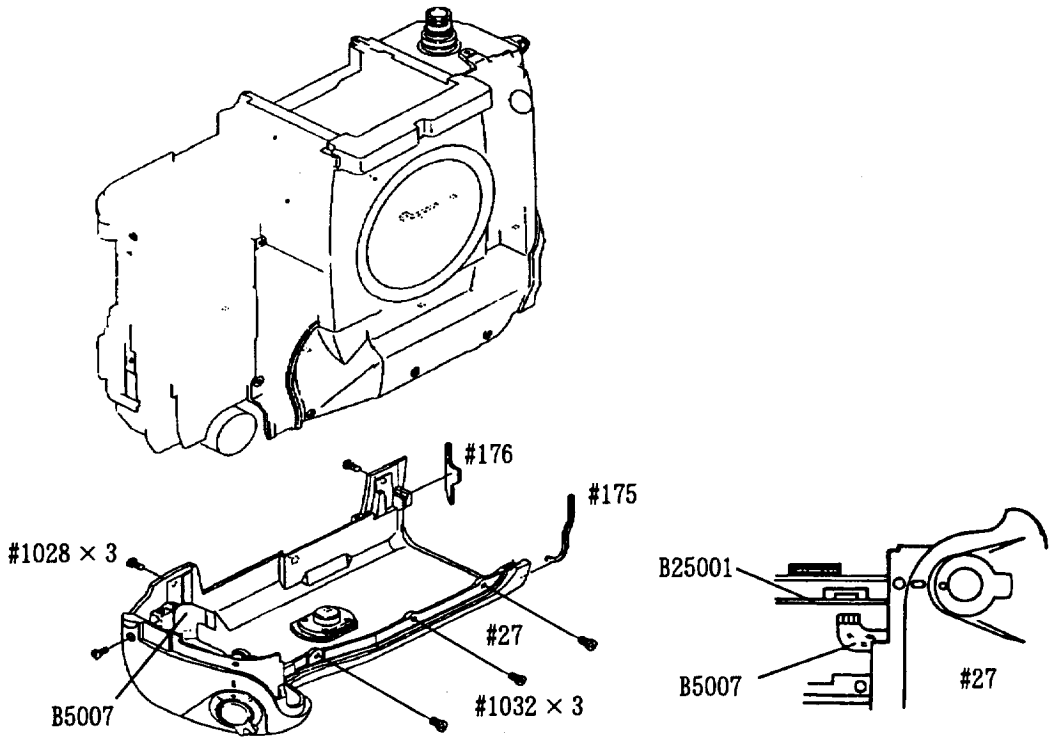
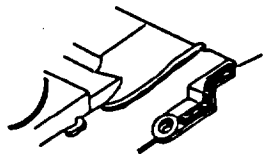
Bottom cover



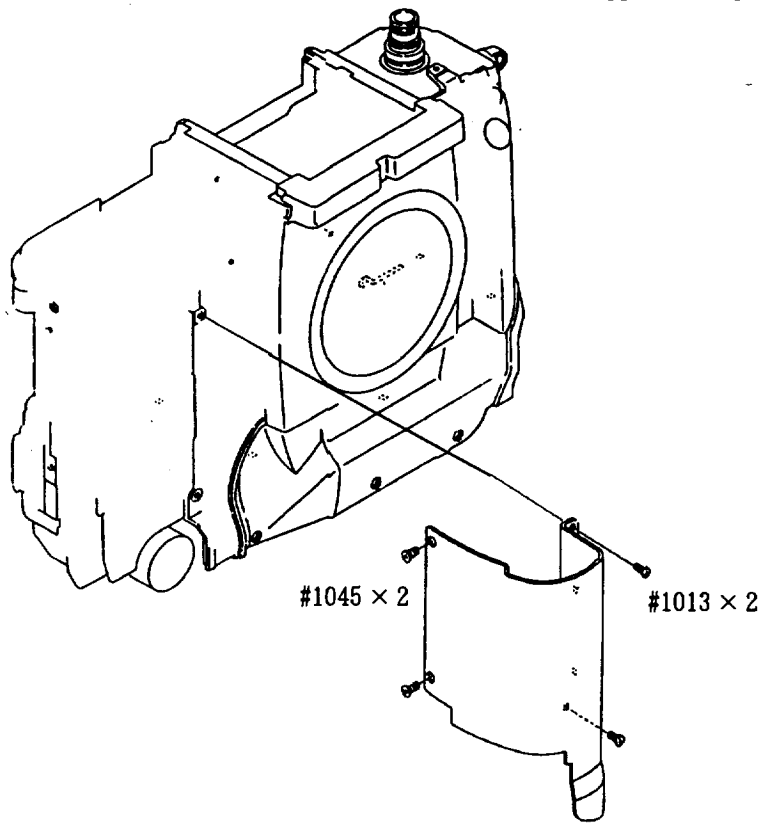




Grip



・Connect the connector to the power supply base plate.



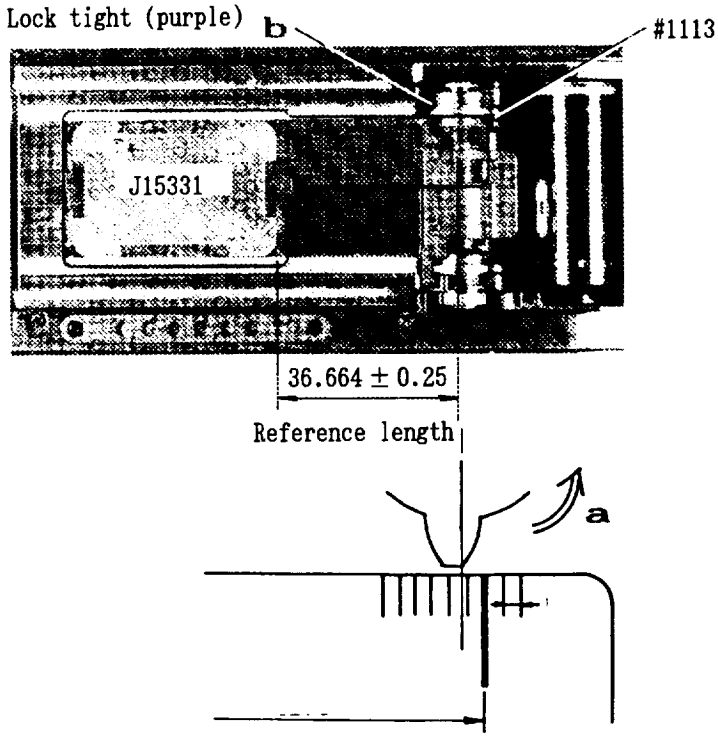
Adjustment of film sprocket cogwheel positioning

1) Set the body to the film advance completion state.

2) Unfasten the film sprocket serew #1113 × 1.

3) Set the film sprocket cogwheel positioning tool J15331 on the aperture surface.

4) Fasten the film sprocket screw #1113 temmporarily after aligning the right end of the film sprocket cogwheel to thee position 36.664. Adjust it further so that the right end of the film sprocket cogwheel will be within the range of 36.664 ± 0.25 when moving the film sprocket in the direction indicated by arrow "a" .



5) Mount the film sprocket screw #1113 with lock tight (purple) in the left film sprocket screw hole (indcated by arrow "b") .

6) Check to see the film sprocket cogwheel position by repeating fil advance operation sevral times.

Refer to the display of the personal computer for the details of AE/AF precision inspection and adjustment.

AE precision inspection and adjustment

⚠In the aim of communicatiing with PC, use the camera communication tool J15328. Select a combination of the body and finder in the following menu for AE precision inspection and adjustment.

1. Inspection and adjustment of Multi Photomic Finder DP-30 and F5 body
2. Inspection and adjustment of Photomic Action Finder DA-30 and F5 body
3. Inspection and adjustment of only Multi Photomic Finder DP-30 (Use a tool body.)
4. Inspection and adjustment of only Photomic Action Finder DA-30 (Use a tool body.)
5. Inspection and adjustment of only the body
6. Inspection and adjustment of each unit

The following description is the outline about inspection and adjustment of each unit.

1. Positioning precision inspection and adjustment of Multi Photomic Finder DP-30
   Position the AE CCD by using the AE CCD positioning tool (J15328-2) mounted on the finder.

2. Aperture metering precision inspection and adjustment of Multi Photomic Finder DP-30
   Adjust the AE CCD aperture metering output.

3. Aperture metering precision inspection and adjustment of Photomic Action Finder DA-30
   Adjust the aperture metering output of the AE SPD mounted on the finder.

4. Spot aperture metering(body side)precision inspection and adjustment
   Adjust the aperture metering output of the AF sensor's CCD.
5. Aperture precision inspection and adjustment
   Adjust the drive timing of the aperture magnet.
6. M8000 precision inspection and adjustment
   Adjust the precision of the 1/8000 shutter. (The 1/4000 shutter can be adjusted by a tester.)

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⚠×1 Change page

7. Adjust the precision of the shutter monitor sensor.

8. TTL precision inspection and adjustment
   1) ·Inspection and adjustment of monitor flash
      Adjust the gamma ray value and level value when the monitor flashes.
   2) ·Main flash inspection
      Adjust the gamma ray value and level value when the main flash occurs.

9. Battery check voltage adjustment
   Adjust the battery check voltage

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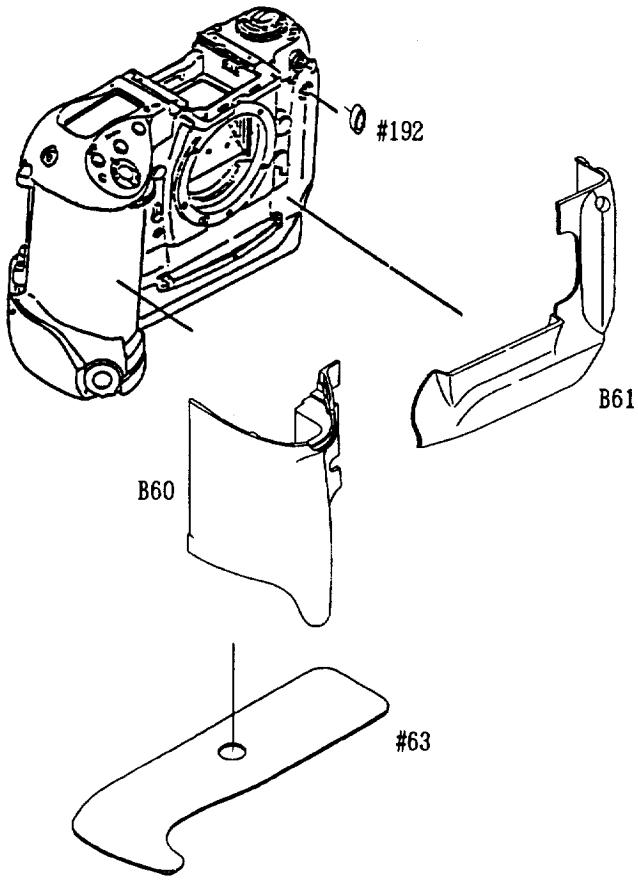
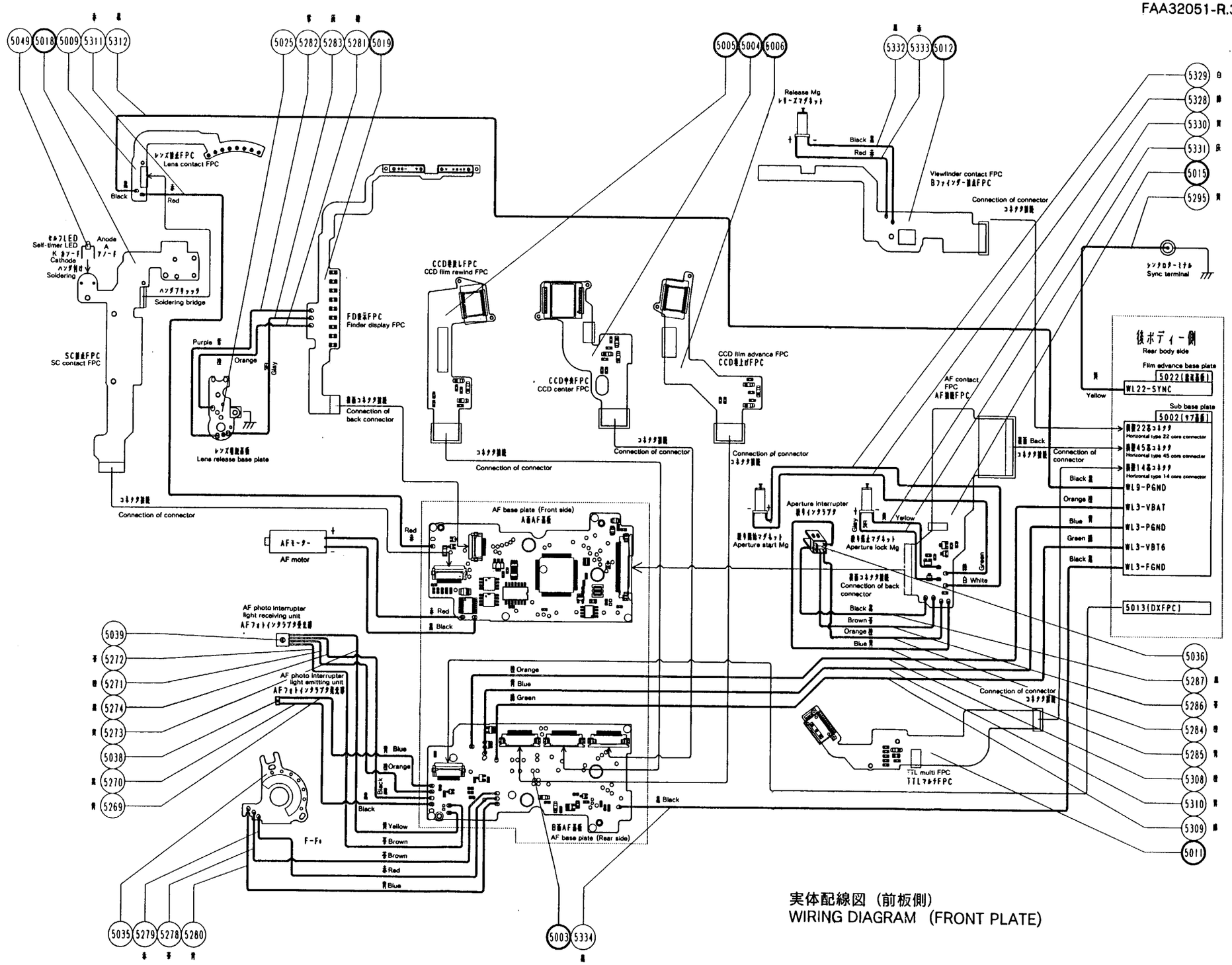
Rubbers



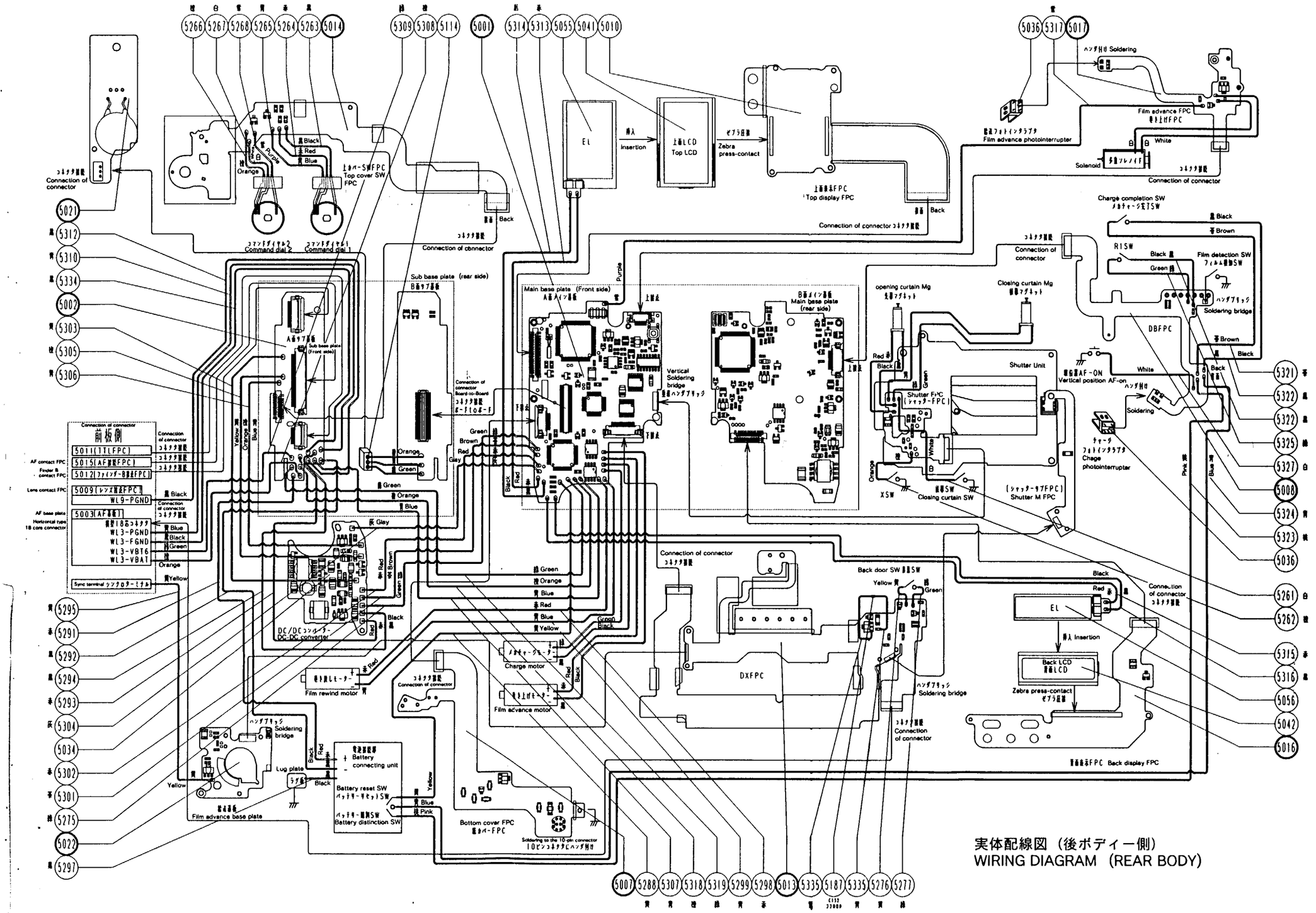
Any certain adjustment item(s) to be required when replacing the parts listed below.

Items of adjustment / Parts replaced	Start from the temperature detection voltage	AE accuracy	Aperture control	M1／8000 and monitor	TTL accuracy	BC voltage	AF accuracy
Shutter unit				○	○		
Main PCB unit	○	○	○	○	○	○	○
AF bace plate unit		○					○
TTL SPD unit					○		
Sub base plate unit							
DC-DC base plate unit						○	
Front body unit	○	○	○		○		○

ELECTRIC CIRCUIT



実体配線図（前板側）
WIRING DIAGRAM (FRONT PLATE)

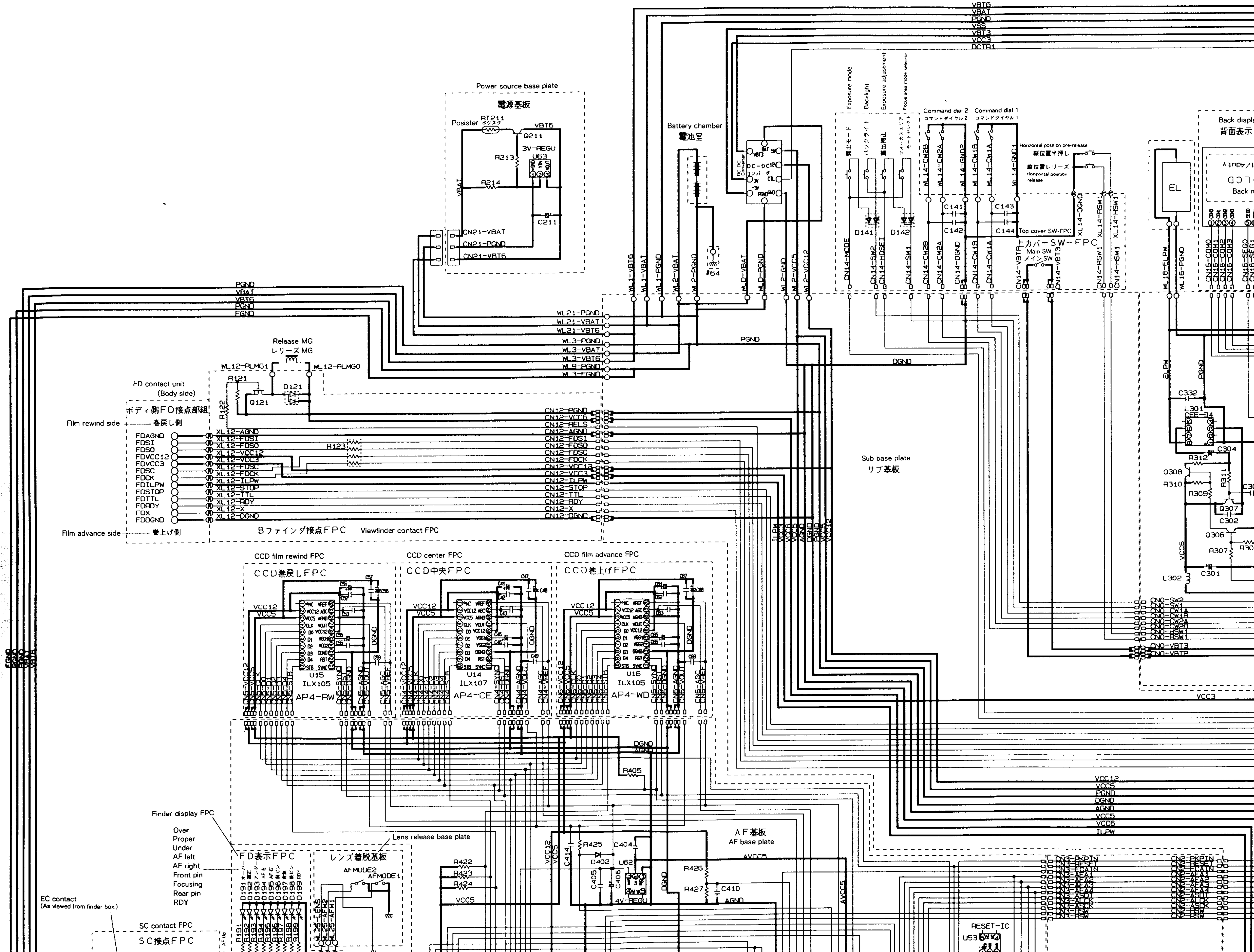


実体配線図（後ボディー側）
WIRING DIAGRAM (REAR BODY)

PLEASE NOTE CIRCUIT DIAGRAM E3 – F5 HAS BEEN BROKEN INTO 6 PARTS FOR SCANNING READABILITY.

THE FOLLOWING MAP DESCRIBES THE DIVISIONS

TOP LEFT – PAGE 89	TOP RIGHT – PAGE 90
MID LEFT – PAGE 91	MID RIGHT – PAGE 92
LOW LEFT – PAGE 93	LOW RIGHT – PAGE 94



Power source base plate
電源基板
Posister
RT211
VBT6
Q211
3V-REGU
U63
R213
R214
C211
CN21-VBAT
CN21-PGND
CN21-VBT6
Battery chamber
電池室
DC-DC Converter
Exposure mode
Backlight
Exposure adjustment
Focus area mode selector
露出モード
バックライト
露出補正
Command dial 2
コマンドダイヤル2
Command dial 1
コマンドダイヤル1
Horizontal position pre-release
縦位置半押し
縦位置レリーズ
Horizontal position release
D141
D142
C141
C142
C143
C144
Top cover SW-FPC
上カバーSW-FPC
Main SW
メインSW
Back display
背面表示
EL
VBT6
VBAT
PGND
VSS
VBT3
VCC3
DCTB1
PGND
DGND
Release MG
レリーズMG
WL12-RLMG1
WL12-RLMG0
R121
D121
Q121
R122
R123
FD contact unit
(Body side)
ボディ側FD接点部組
Film rewind side
巻戻し側
Film advance side
巻上げ側
FDAGND
FDSI
FDSO
FDVCC12
FDVCC3
FDSC
FDCK
FDILPW
FDSTOP
FDTTL
FDRDY
FDX
FDDGND
Bファインダ接点FPC
Viewfinder contact FPC
Sub base plate
サブ基板
CCD film rewind FPC
CCD巻戻しFPC
CCD center FPC
CCD中央FPC
CCD film advance FPC
CCD巻上げFPC
U15
ILX105
AP4-RW
U14
ILX107
AP4-CE
U16
ILX105
AP4-WD
VCC12
VCC5
DGND
AGND
R405
C332
L301
C304
R312
Q308
R310
R309
R311
Q307
C302
Q306
R307
L302
C301
VCC3
Finder display FPC
Over
Proper
Under
AF left
AF right
Front pin
Focusing
Rear pin
RDY
FD表示FPC
Lens release base plate
レンズ着脱基板
AFMODE2
AFMODE1
R422
R423
R424
VCC5
R425
C404
D402
U62
C405
C406
4V-REGU
R426
R427
C410
AVCC5
AGND
AF基板
AF base plate
EC contact
(As viewed from finder box.)
SC contact FPC
SC接点FPC
RESET-IC
U53

FAA32051-R.3404.A

VBT6
VBAT
PGND
VSS
VBT3
VCC3
DCTR1

Lock button
ロックボタン
BKT set/release
BKT 設定/解除
Custom
カスタム
Sync mode
シンクロモード

EL

TOP LCD-FPC
上面LCD-FPC

Focus start
フォーカスタート
Double lock
ダブルロック
Multiple
多重
Top monitor LCD
上面モニターLCD

CN16-RCBK
CN16-SW1
CN16-TSCS
CN16-SW2
CN16-SYNC
WL10-ELPW
WL10-PGND

CN10-FOCUS
CN10-DLOCK
CN10-DGND
CN10-SEG63 … CN10-SEG0
CN10-COM3 … CN10-COM0
CN10-TAJU
CN10-SW1

D161
D162

注意
R324は部品を搭載しない。
(パターンのみ)
Note :
R324 is not equipped with a part.
(Only pattern)

WL1-DCTR1
WL1-VCC3
WL1-VBT3
WL1-VSS
WL1-VBAT
WL1-VBT6
WL1-PGND

WL2-BATSW2
バッテリーリセットSW
Battery reset SW
R348

D301
S1
プレビュー
Preview
D302
U51
RESET-IC
R319
C308
C309
C310
Q310
R320
C311
R316
R318
R317
R315
R314
U65
X1
4.19MHz
RT301
C305
R313
C306
C307
X2
32KHz
U1
DS-MCU
Main base plate
メイン基板
DGND
VBT3
VBTP
VCC3
VBAT
VSS(-3V)
VCC5
VCC12

R322
R323
C312
Q313
Q314
R324
C313
M52964FP
U11
Accessory I/F
アクセサリ I/F
C315
C314
R326
C316
D303
VBAT (バッテリーチェック)
Battery check

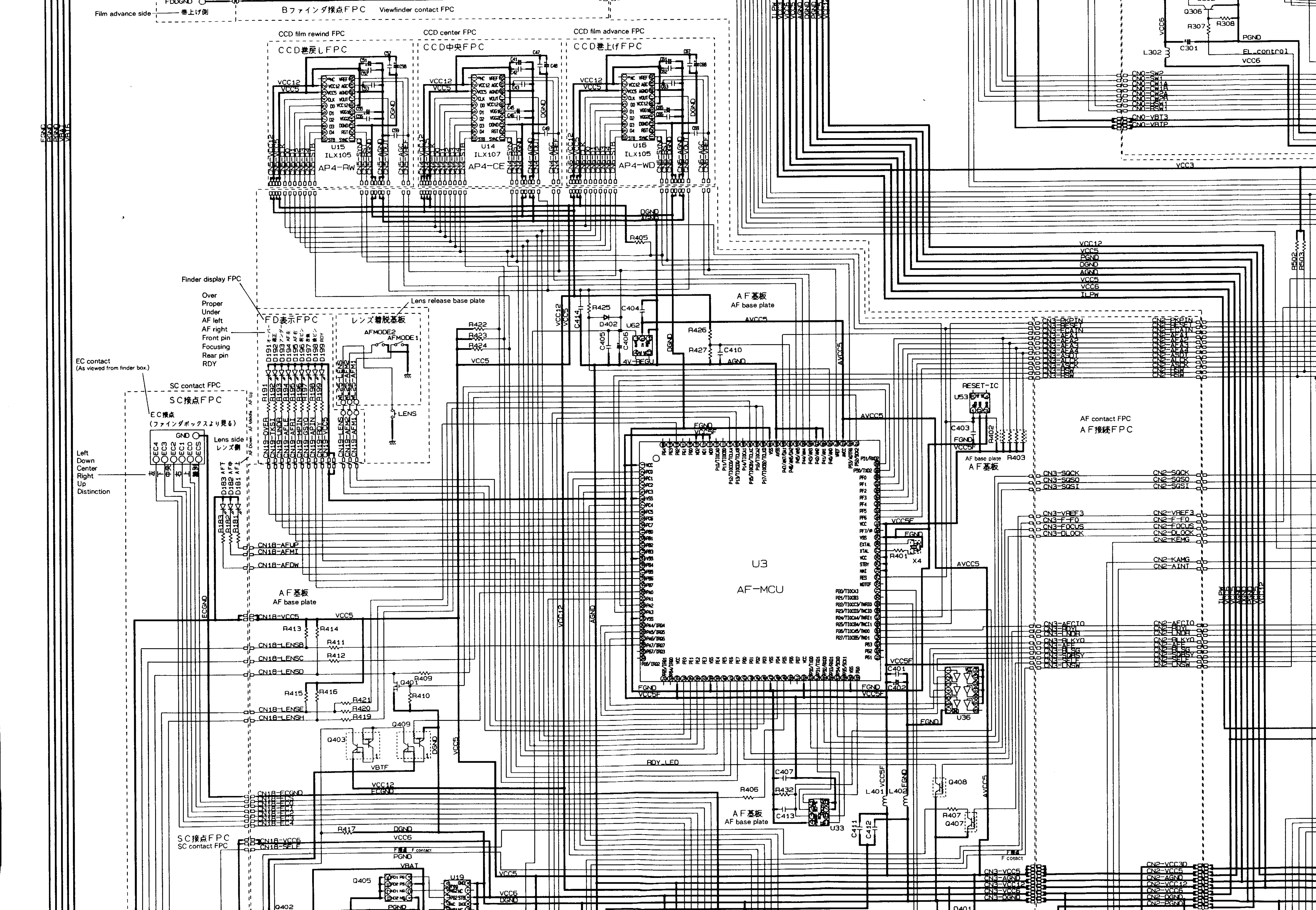
底カバーFPC
Bottom cover FPC
CN7-VBT6
CN7-VCC5
CN7-RMA
CN7-ATX1
CN7-IO10
CN7-RMH
CN7-ARX1
CN7-PGND
CN7-RSW2
CN7-RSW2
CN7-DGND
D71
D72
F77
F73
F74
F75
F72
F76
F71
10-pin connector (As viewed from the outside of camera.)
10ピンコネクタ (カメラ外観より見る)
Index position
指標位置
WL1-DGND

Q326
Q325
Q327
R347
R327

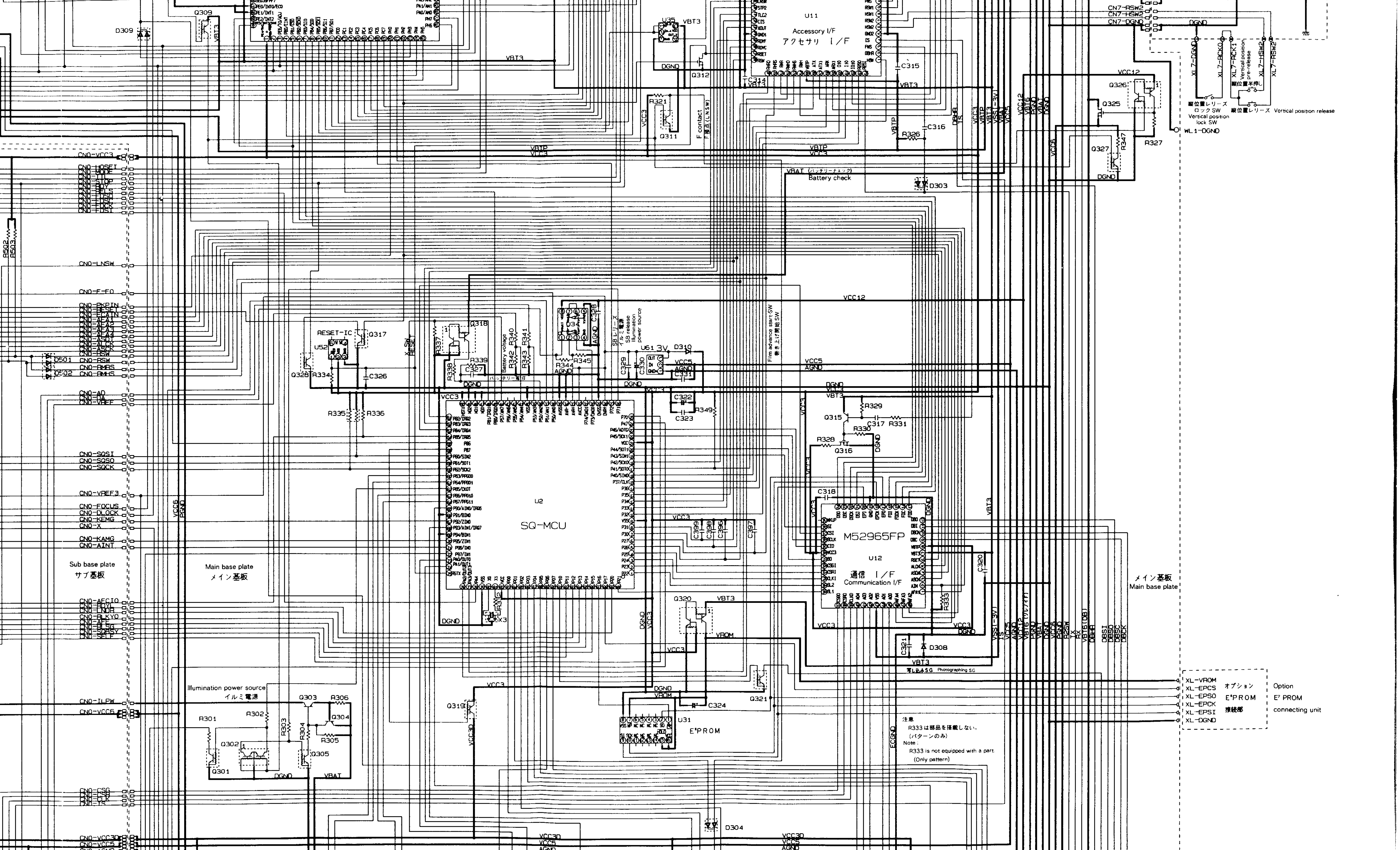
XL7-DGND
XL7-ACK1
XL7-HSW2
XL7-RSW2
縦位置レリーズ ロックSW
Vertical position lock SW
縦位置レリーズ
Vertical position release
縦位置半押し
Vertical position pre-release

CN0-VCC3
CN0-LOSET
CN0-LNSW
CN0-F-F0
CN0-RXPIN
CN0-RCSET
CN0-TCAIN
CN0-ALA2
CN0-ALA1
CN0-ALA0
CN0-ASDAT
CN0-ASCLK
CN0-RSW
CN0-RMBS
CN0-RMHS
D501
D502
R502
R503

RESET-IC
Q317
U52
Q318
Q320
R334
C326
R337
R338
R339
C327
R340
R342
R343
R341
Battery voltage
バッテリー電圧
C328
C329
C330
U61 3V
D310
C331
VCC5
AGND
SB release
Illumination power source
SBレリーズ イルミ電源
Film advance start SW
巻き上げ開始SW
R344
R345
U35
Q312
R321
Q311
F contact
F接点(LNSW)
VCC12
DGND
PGND
AGND
VBTP
VCC3
VBT3
VBAT
VSS(-3V)
VCC5
VCC12
DGND
PGND
VBAT
VBT6
VBTP
VCC3
VBT3
VSS(-3V)
VBAT
VCC5
VCC12
DGND
PGND
VBAT
VBT6



Film advance side
巻上げ側
Bファインダ接点FPC
Viewfinder contact FPC
CCD film rewind FPC
CCD巻戻しFPC
CCD center FPC
CCD中央FPC
CCD film advance FPC
CCD巻上げFPC
U15
ILX105
AP4-RW
U14
ILX107
AP4-CE
U16
ILX105
AP4-WD
Finder display FPC
FD表示FPC
Over
Proper
Under
AF left
AF right
Front pin
Focusing
Rear pin
RDY
Lens release base plate
レンズ着脱基板
AFMODE2
AFMODE1
LENS
EC contact
(As viewed from finder box.)
SC contact FPC
SC接点FPC
EC接点
(ファインダボックスより見る)
Left
Down
Center
Right
Up
Distinction
Lens side
レンズ側
AF基板
AF base plate
U3
AF-MCU
RESET-IC
AF contact FPC
AF接続FPC
U36
U33
U19
F contact



Accessory I/F
アクセサリ I/F
U11
SQ-MCU
U2
M52965FP
U12
通信 I/F
Communication I/F
RESET-IC
E²PROM
U31
Sub base plate
サブ基板
Main base plate
メイン基板
メイン基板
Main base plate
Illumination power source
イルミ電源
Battery check
F contact
Film advance start-SW
Vertical position release lock SW
Vertical position pre-release
Vertical position release
XL-VROM
XL-EPCS
XL-EPSO
XL-EPCK
XL-EPSI
XL-DGND
オプション
E²PROM
接続部
Option
E² PROM
connecting unit
注意
R333は部品を搭載しない。
(パターンのみ)
Note :
R333 is not equipped with a part.
(Only pattern)
Photographing SG

U3
AF-MCU

AF基板
AF base plate

SC接点FPC
SC contact FPC

AF base plate
AF基板

AF photo interrupter
AF フォトインタラプタ

AF モーター
AF motor

予備
spare

レンズ接点FPC
Lens contact FPC

レンズ接点部組
Lens contact unit

給送基板
Film advance base plate

Film advance mode 給送モード

DX-FPC

シンクロターミナル
Sync terminal

注意
R431, C413, C414はパターンのみ。
Note :
Only pattern for R431,C413 and C414.

チップジャンパ
Chip jumper

Sub base plate
サブ基板

TTLマルチFPC
TTL multi FPC

M52925FP
U13

PC3
PS5732LA-A

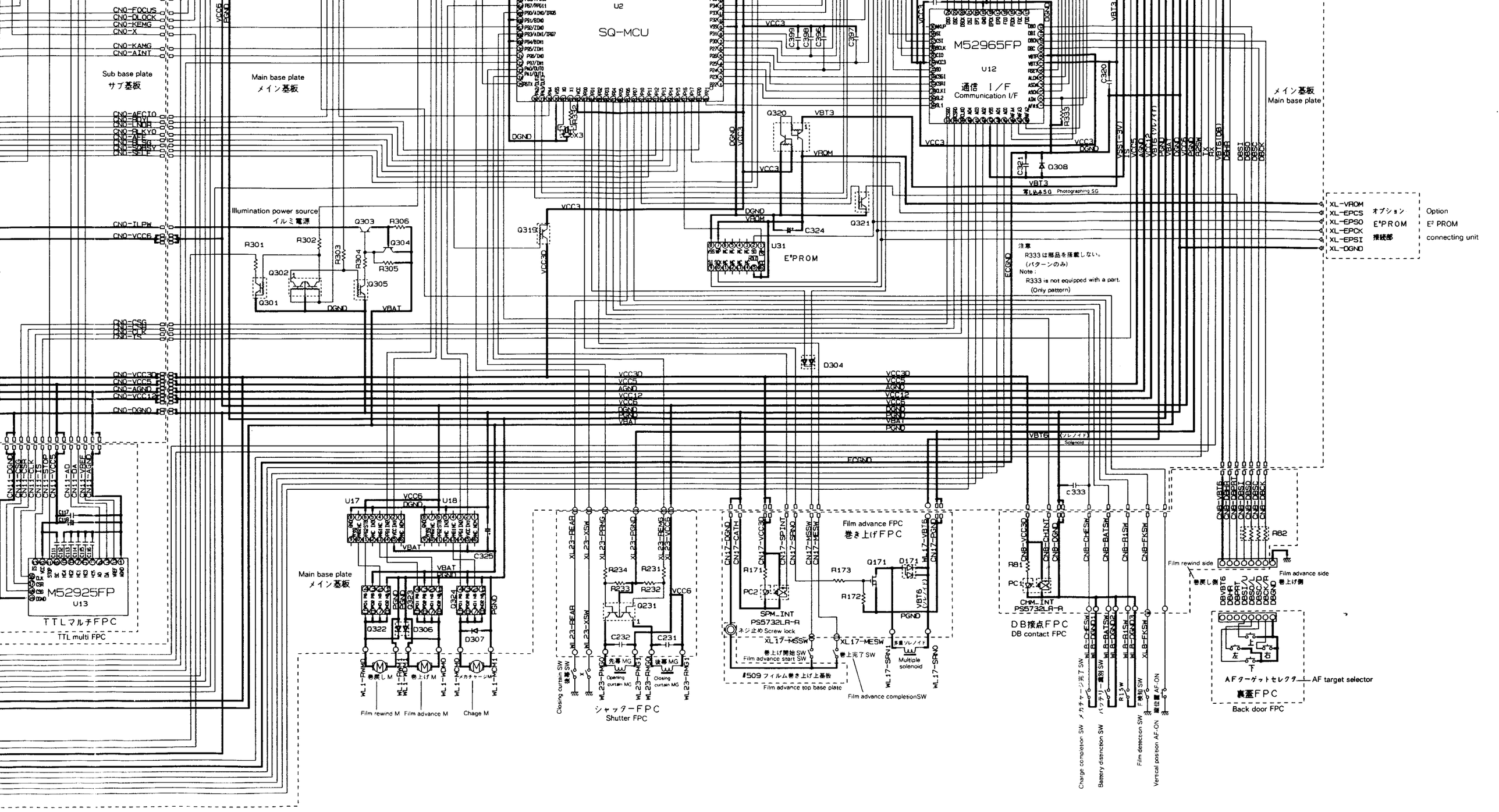
絞り開始MG
Aperture start MG

絞り停止MG
Aperture lock MG

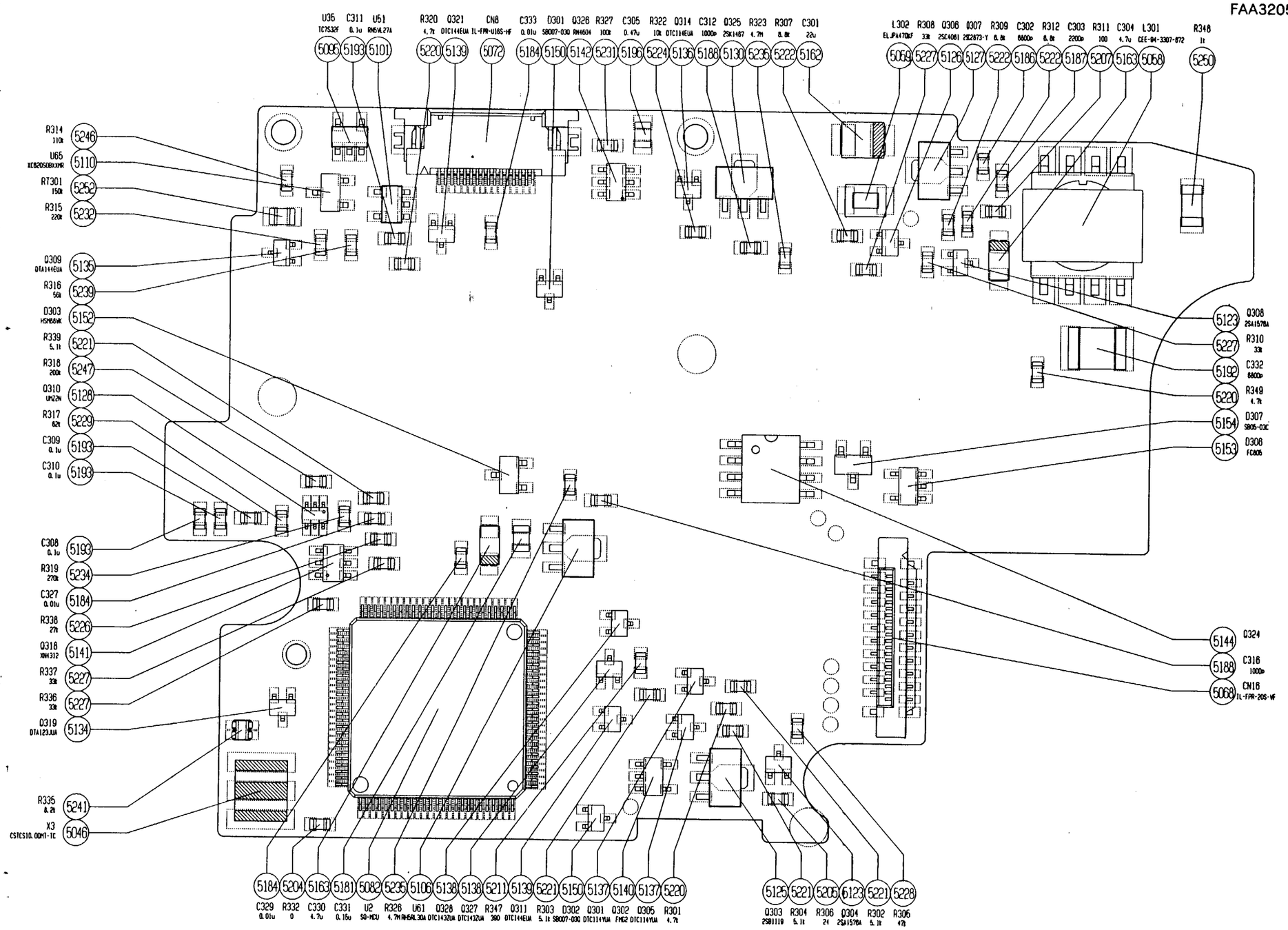
絞りINT
Aperture INT

PC4 Shutter sub FPC
シャッターサブFPC

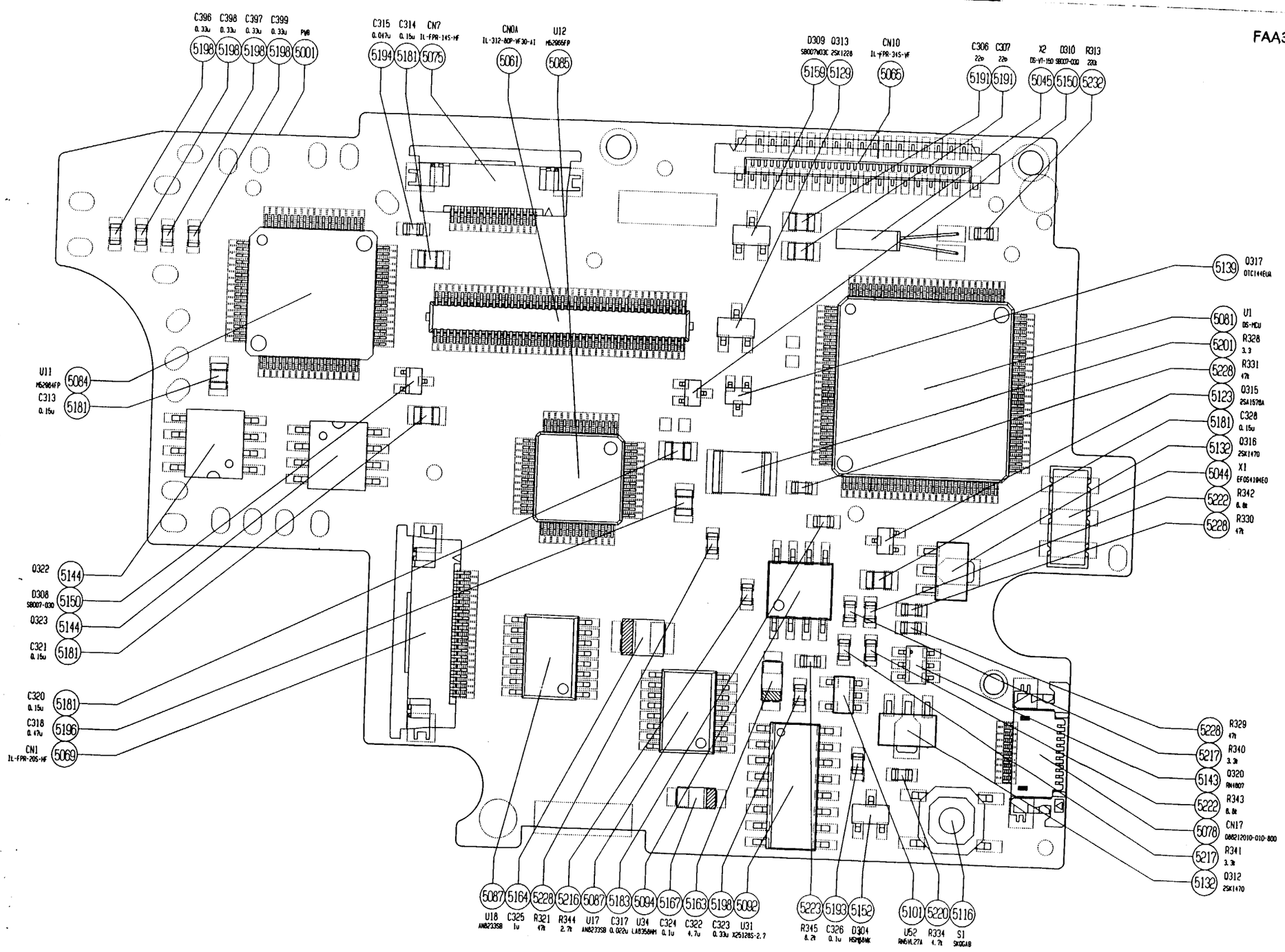
裏蓋SW
Back door SW



回 路 図
CIRCUIT DIAGRAM

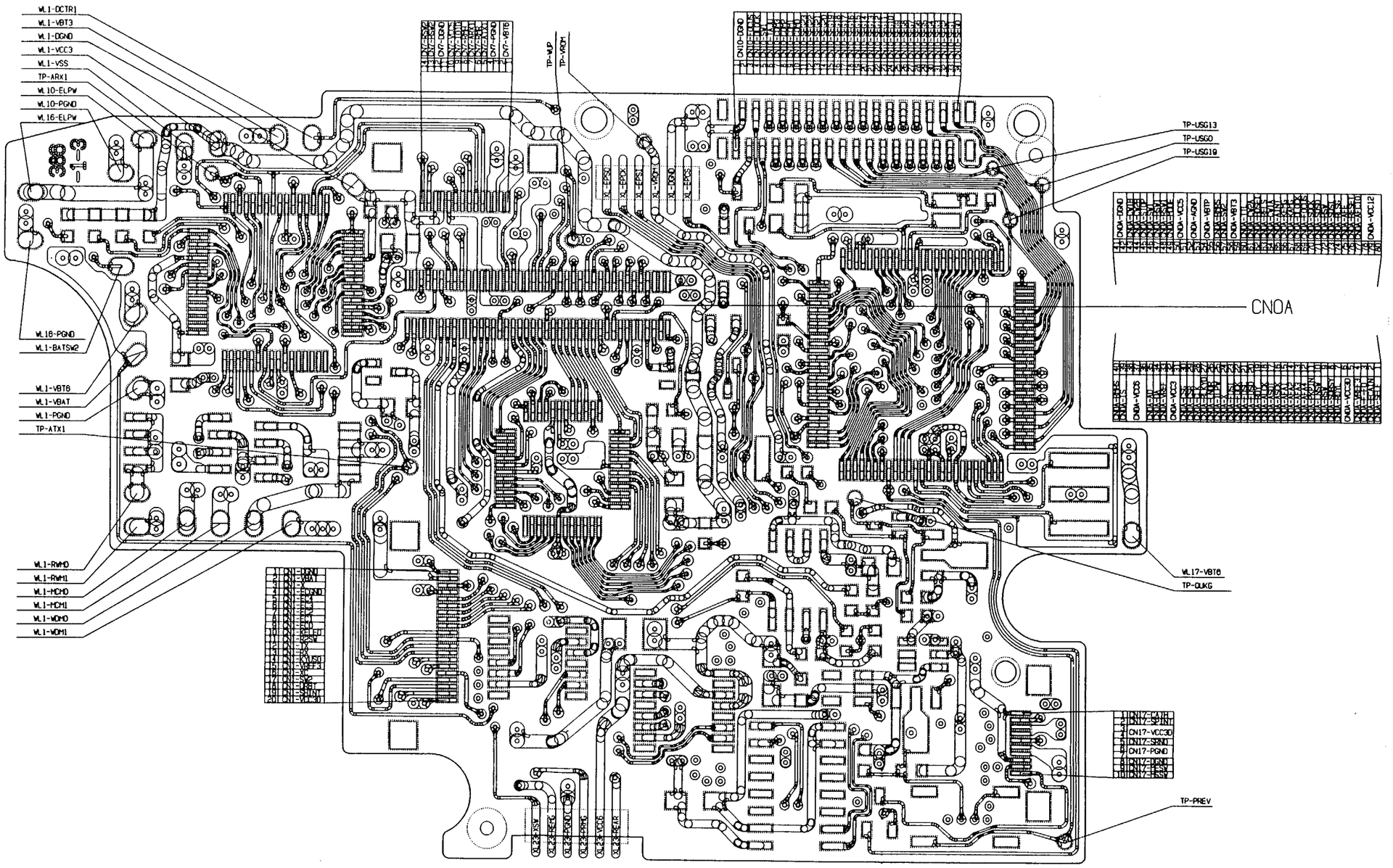


メイン基板
MAIN BASE PLATE

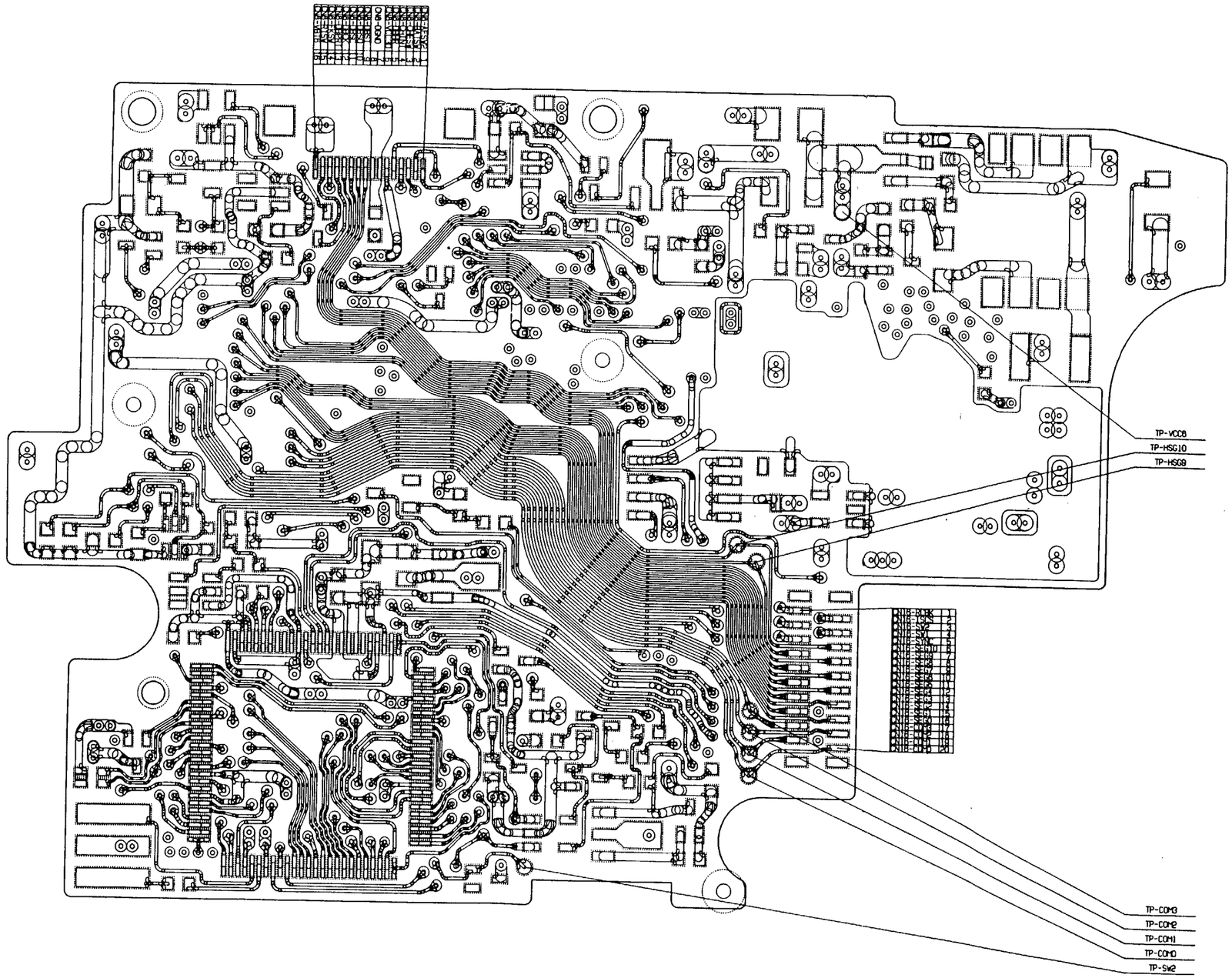


メイン基板
MAIN BASE PLATE

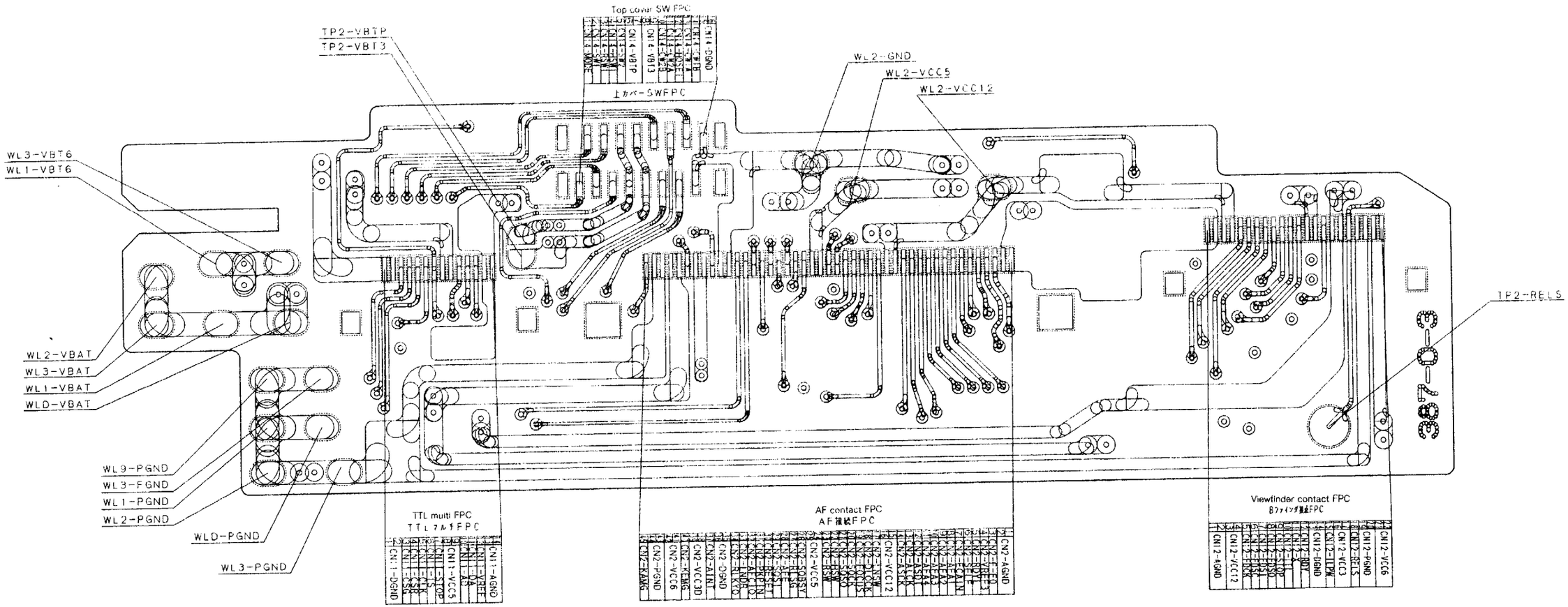
FAA32051-R.3404.A



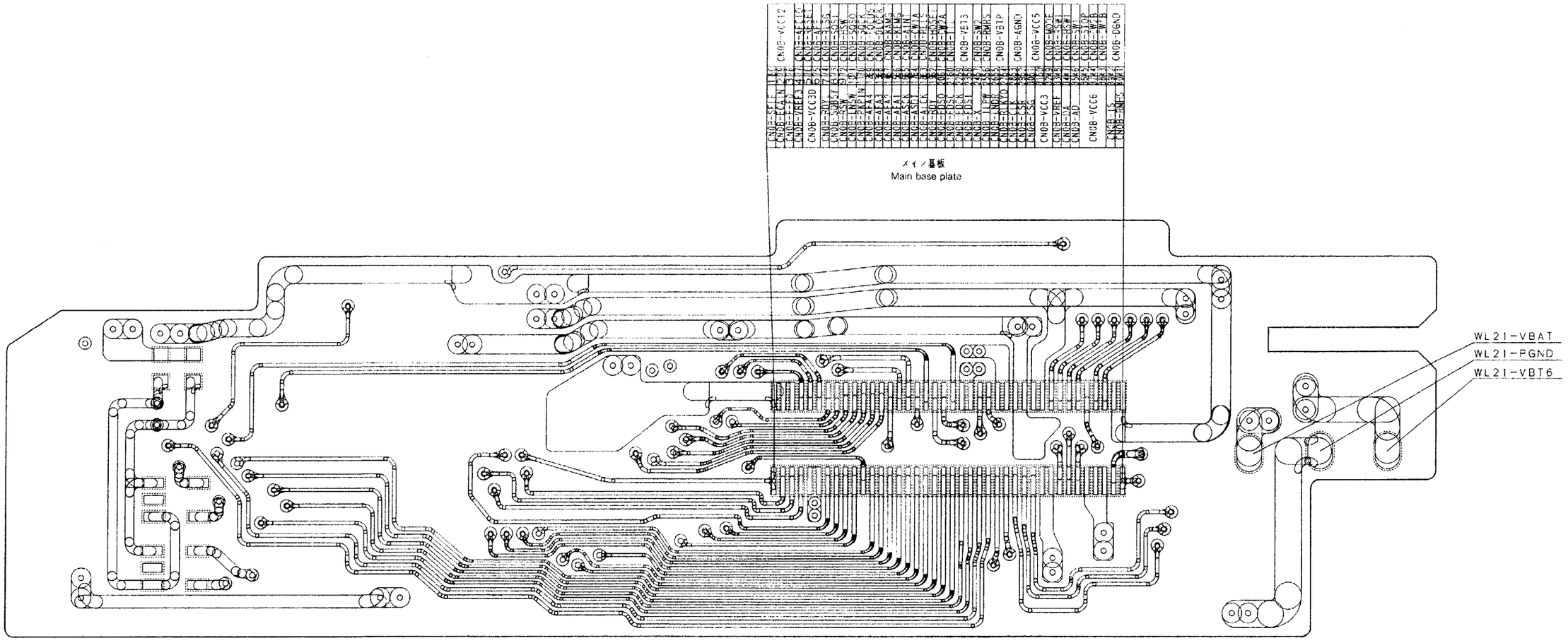
メイン基板
MAIN BASE PLATE



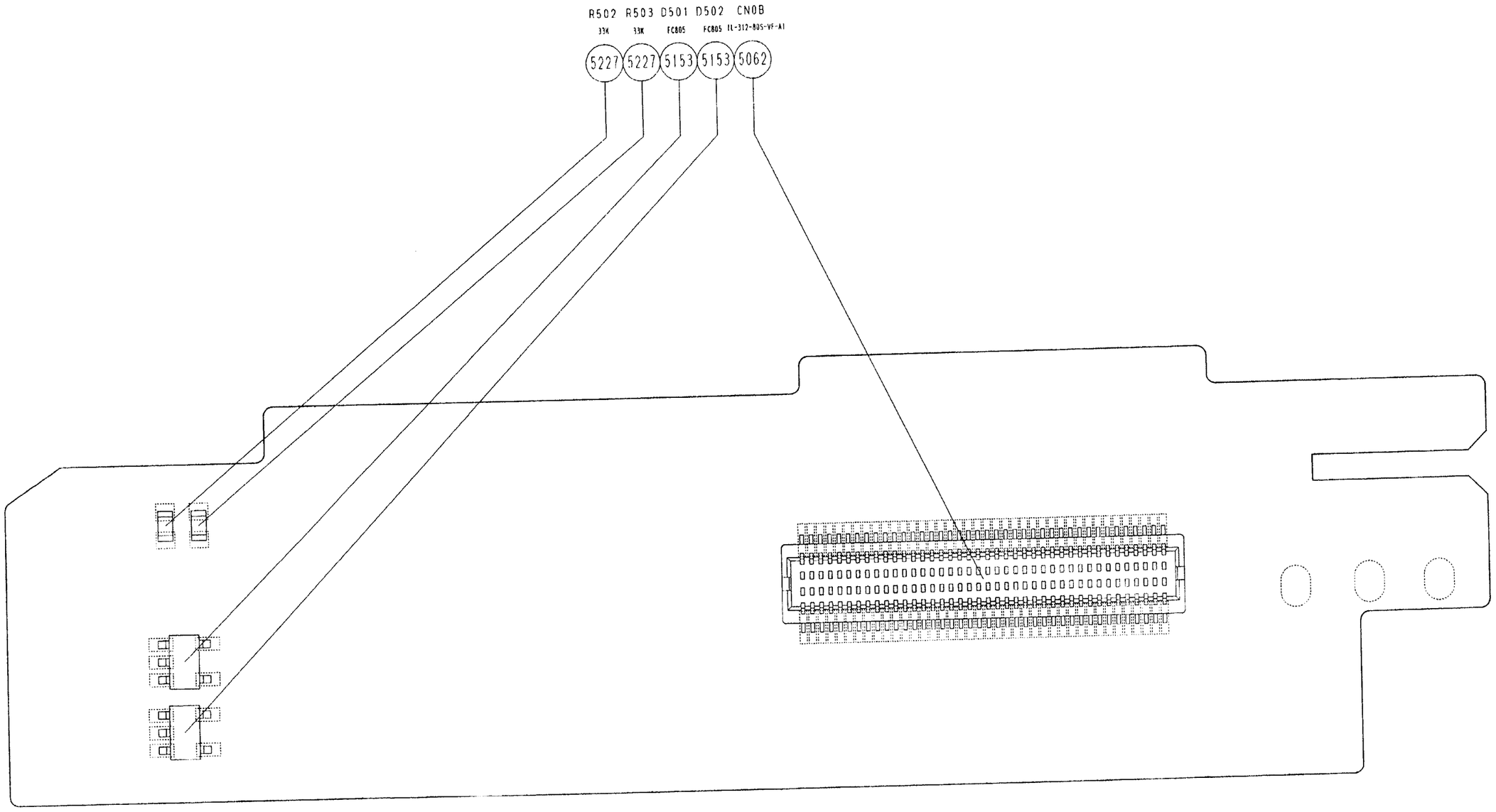
メイン基板
MAIN BASE PLATE



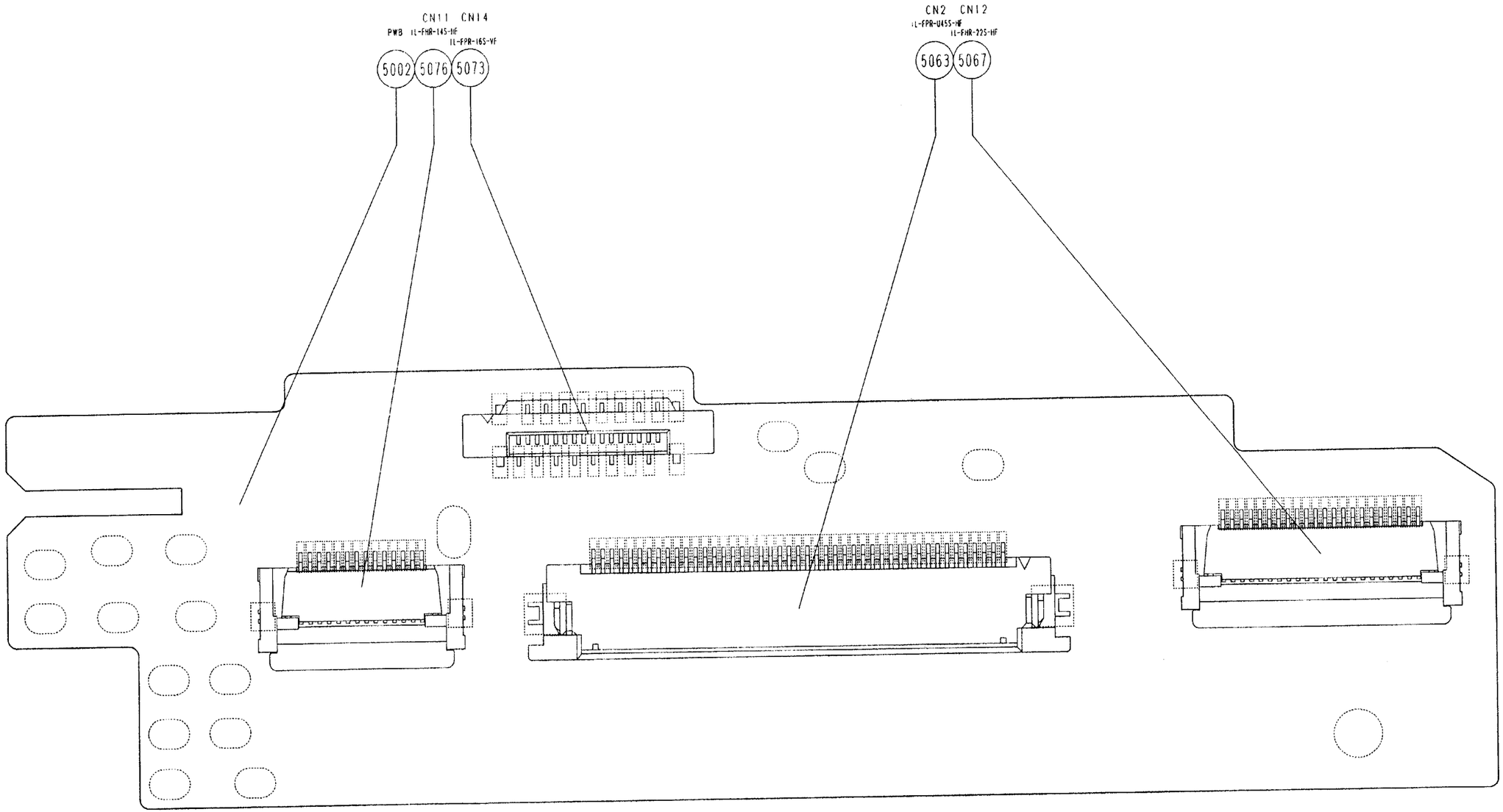
サブ基板
SUB BASE PLATE



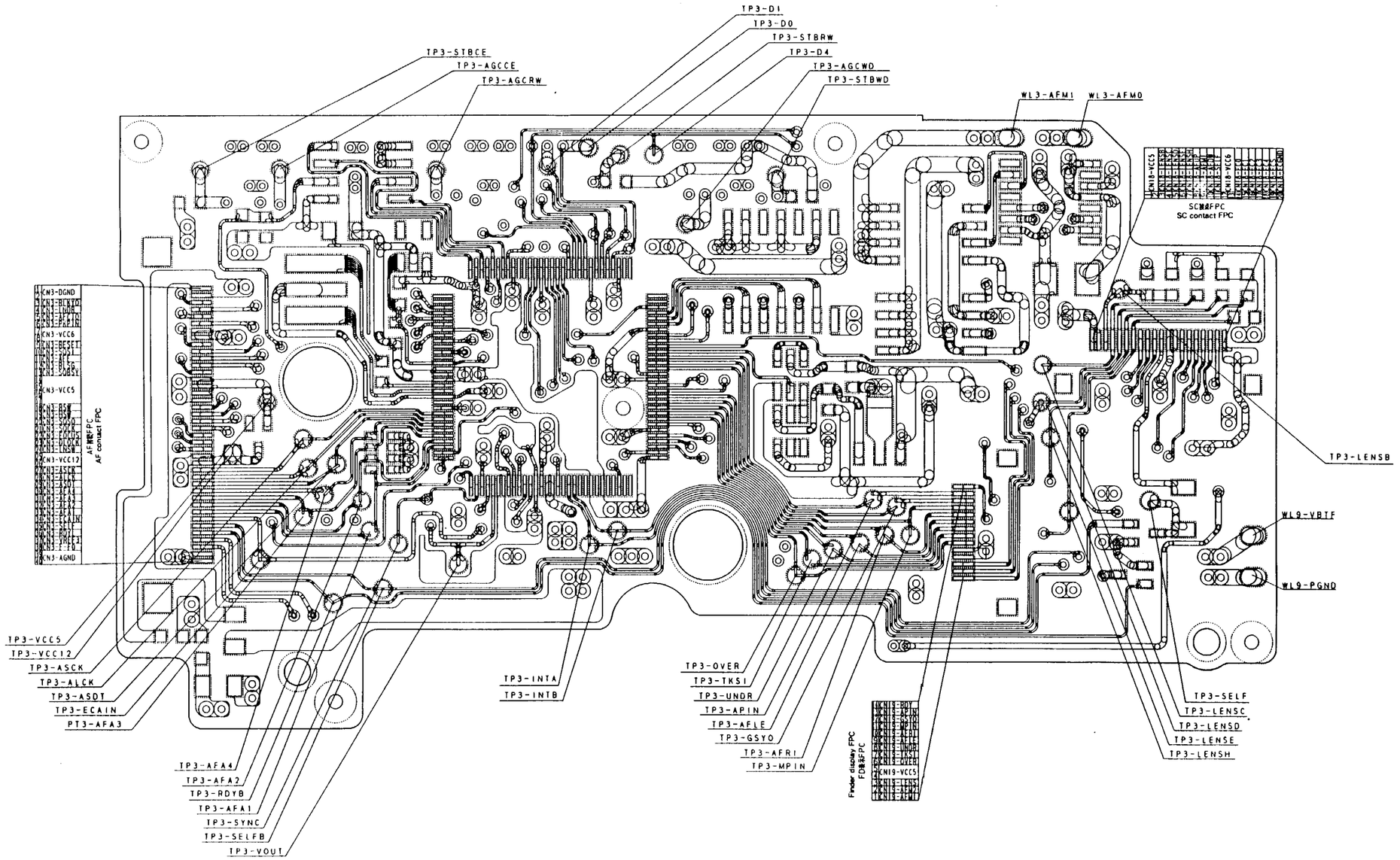
サブ基板
SUB BASE PLATE



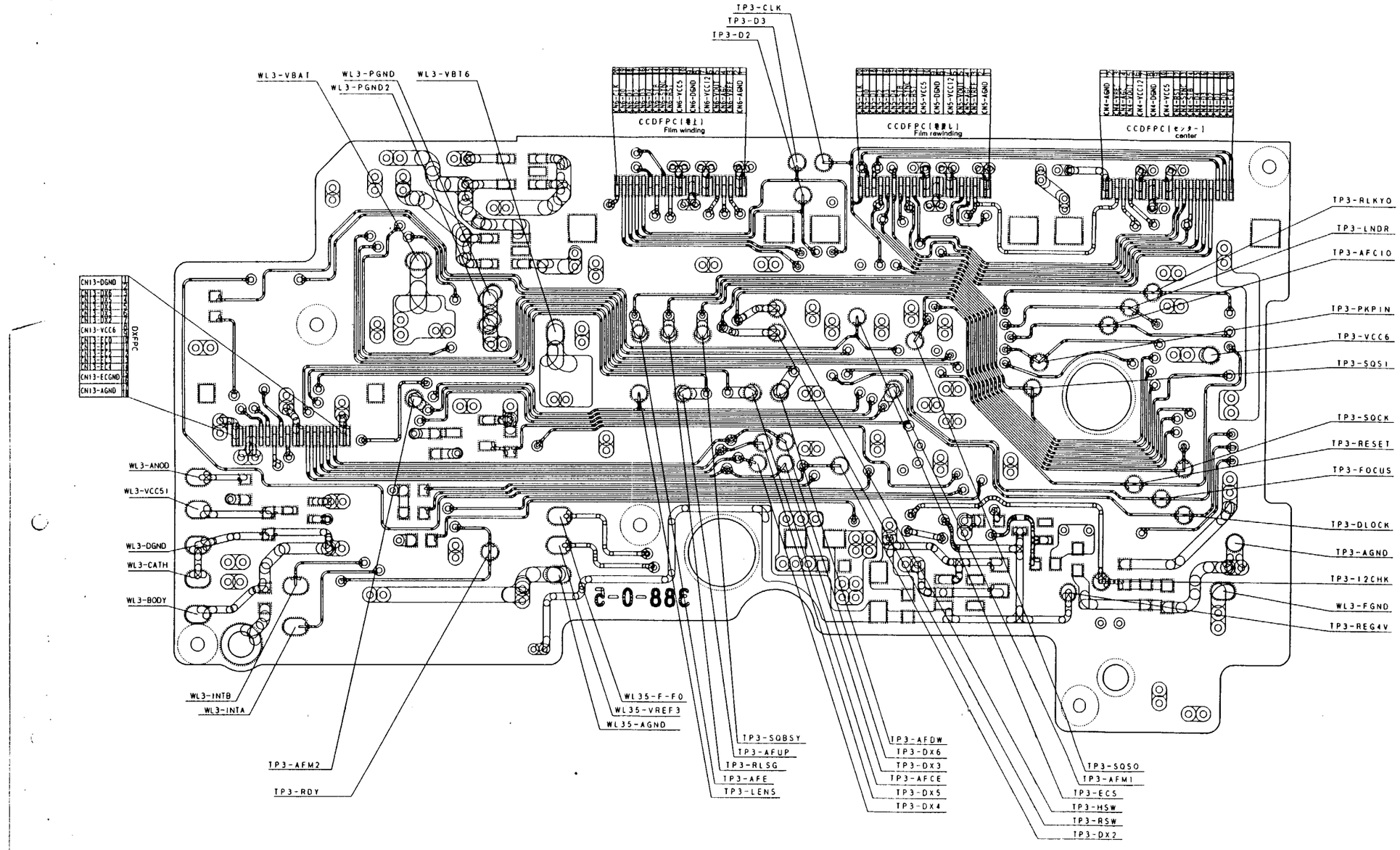
サブ基板
SUB BASE PLATE



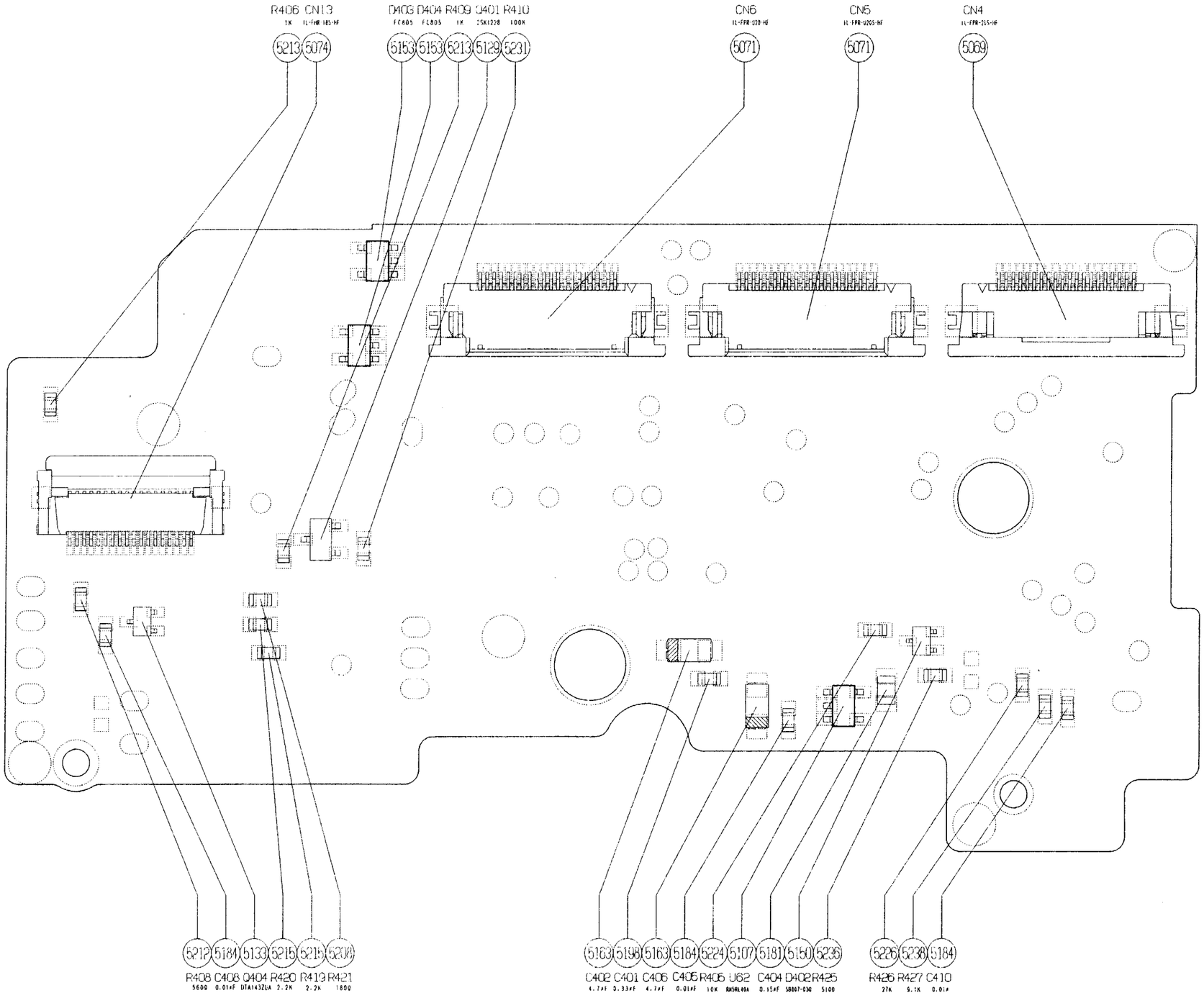
サブ基板
SUB BASE PLATE



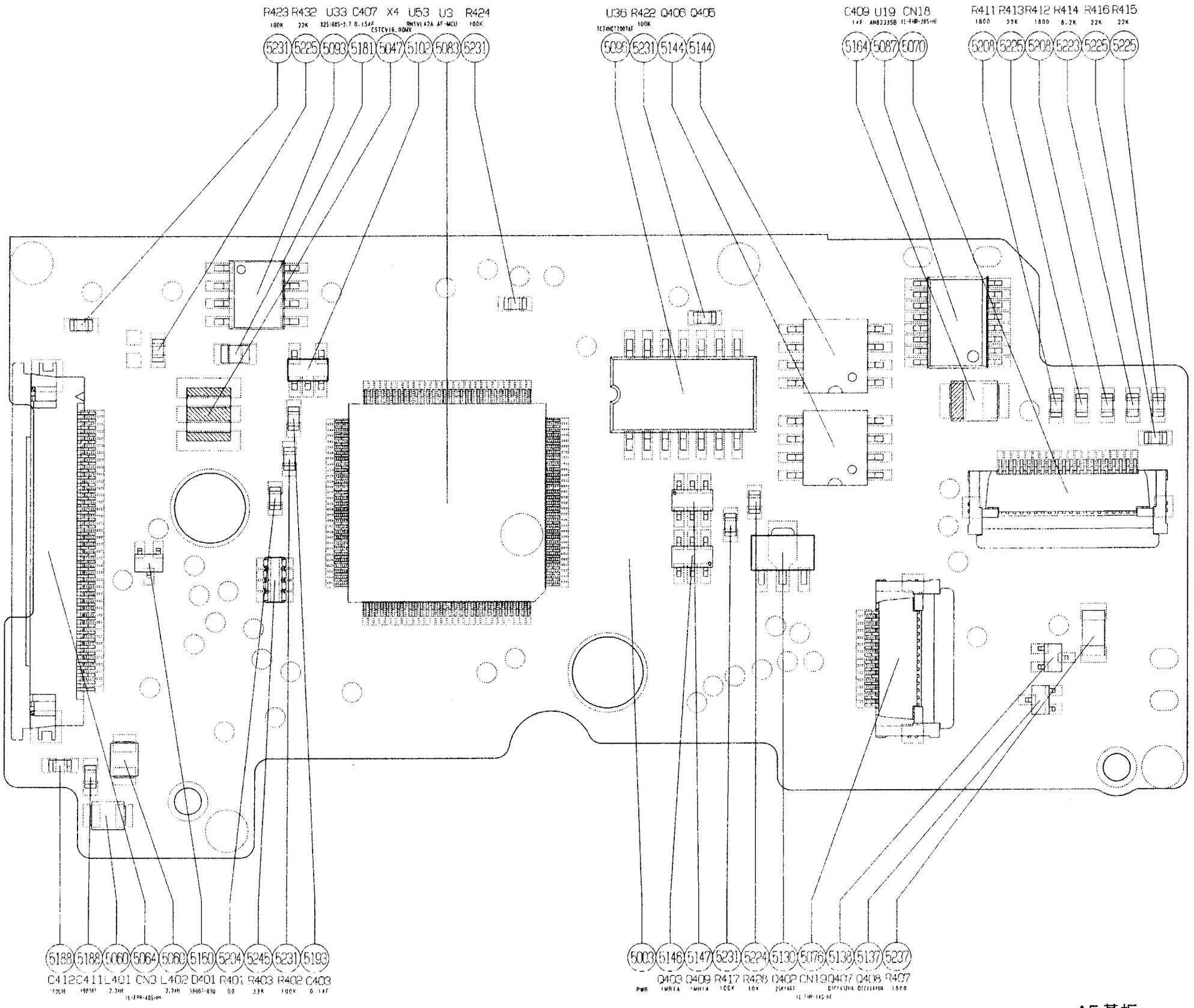
AF基板
AF BASE PLATE



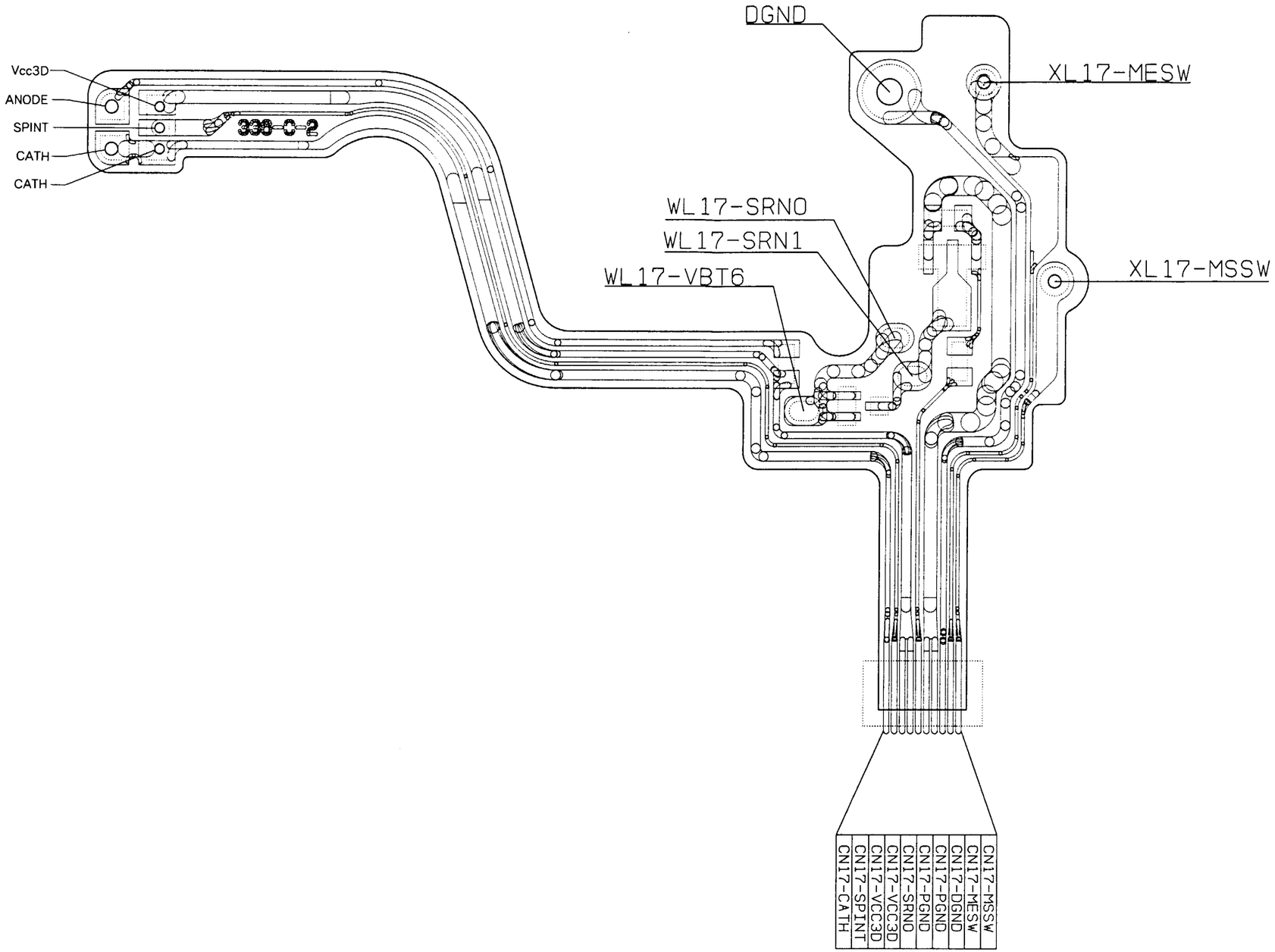
AF 基板
AF BASE PLATE



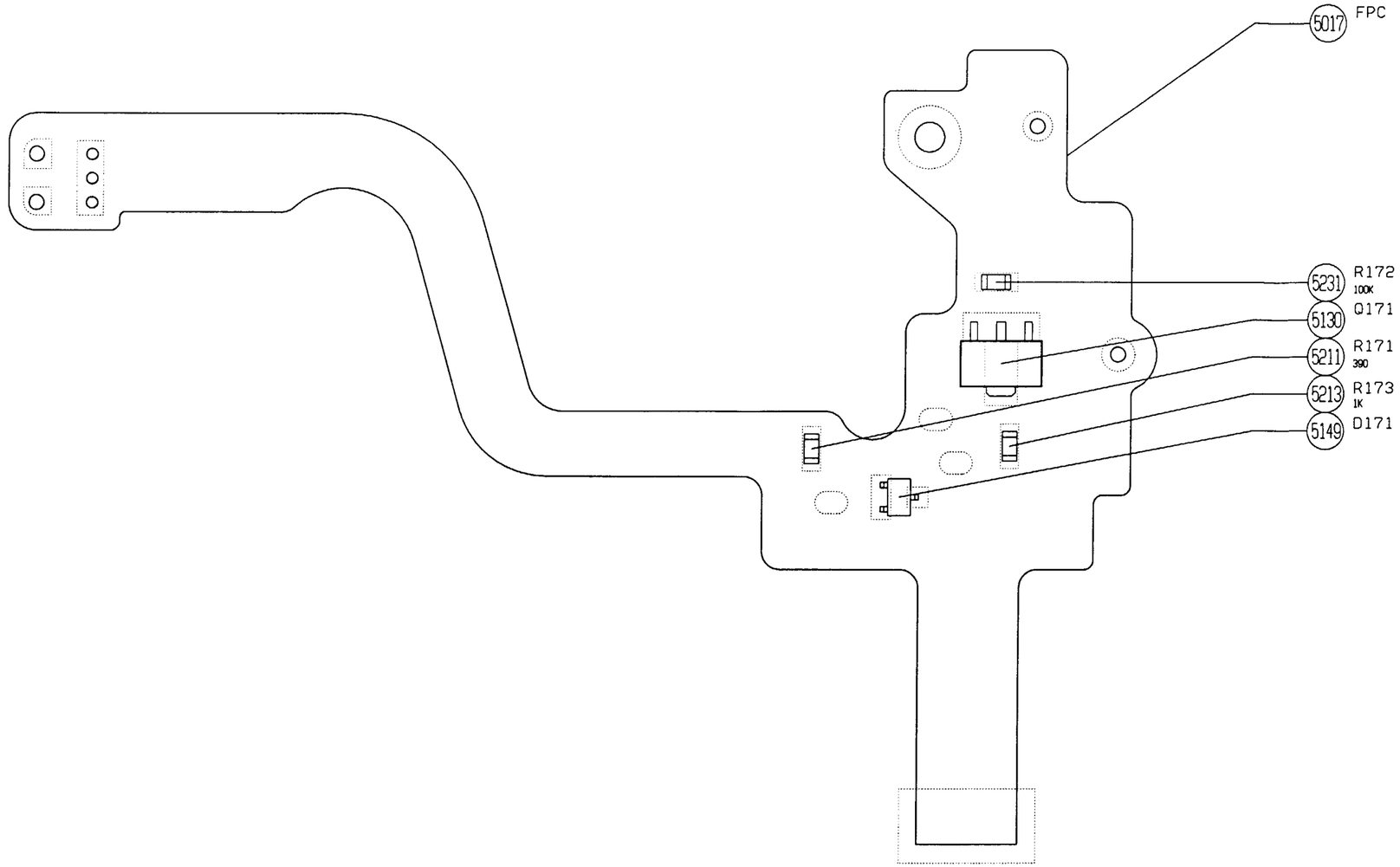
AF 基板
AF BASE PLATE



AF 基板
AF BASE PLATE

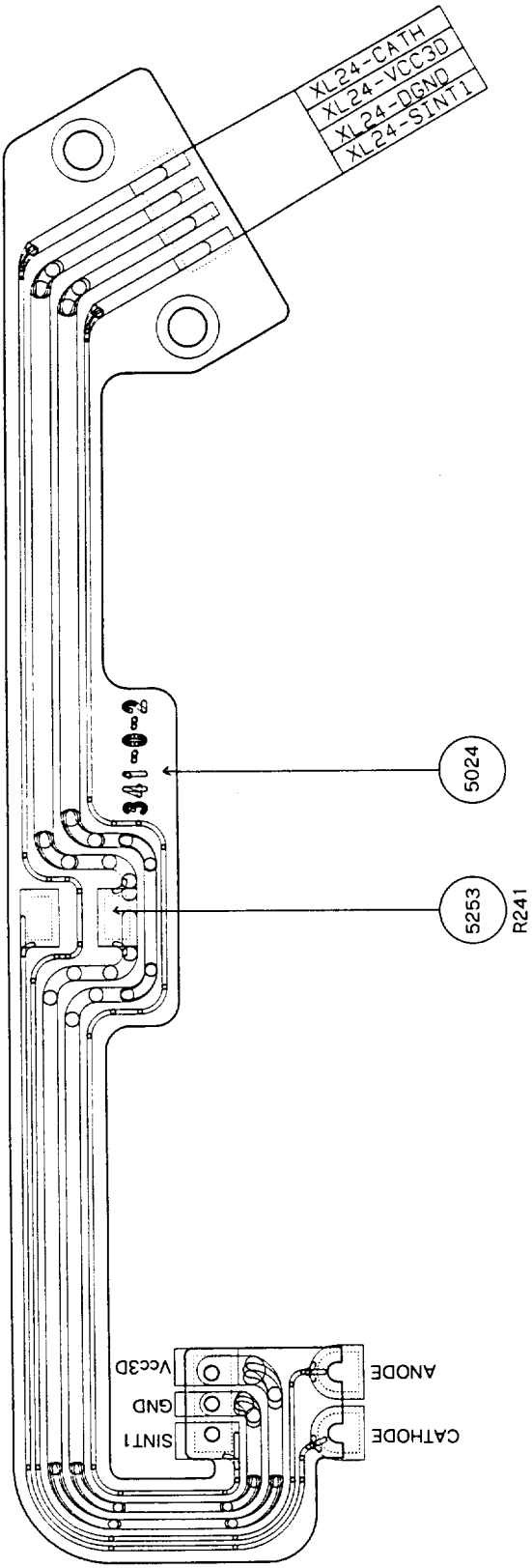


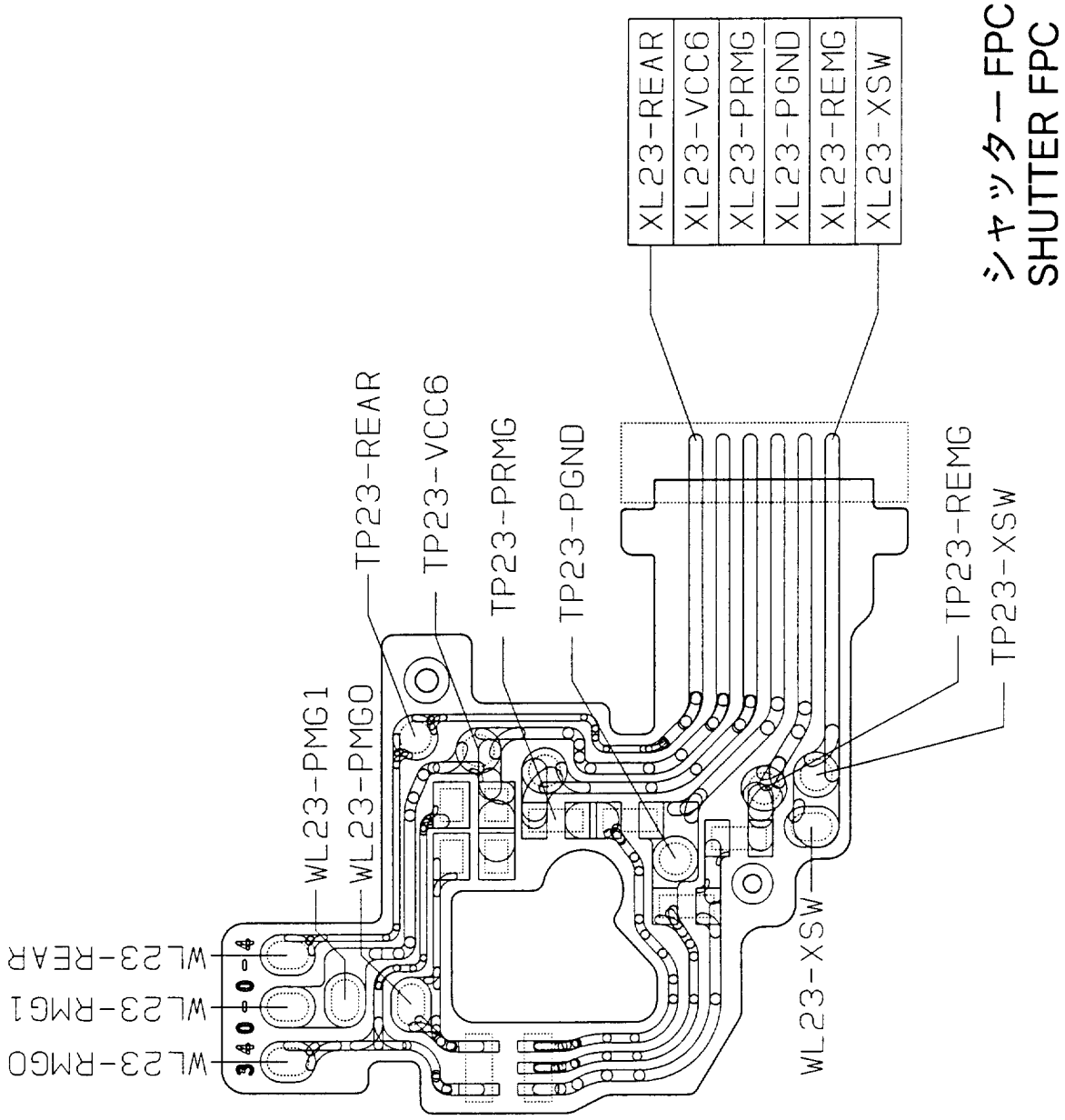
巻上げ FPC
FILM ADVANCE FPC UNIT



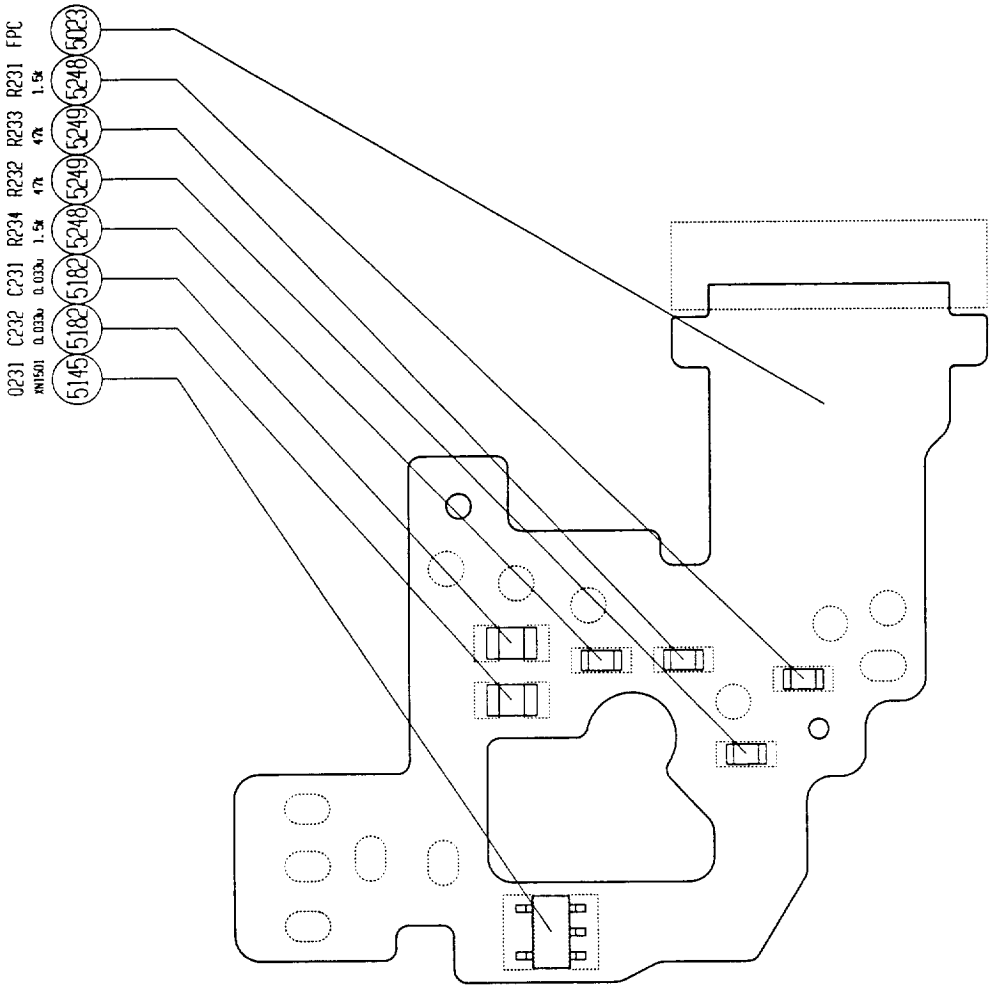
巻上げ FPC
FILM ADVANCE FPC UNIT

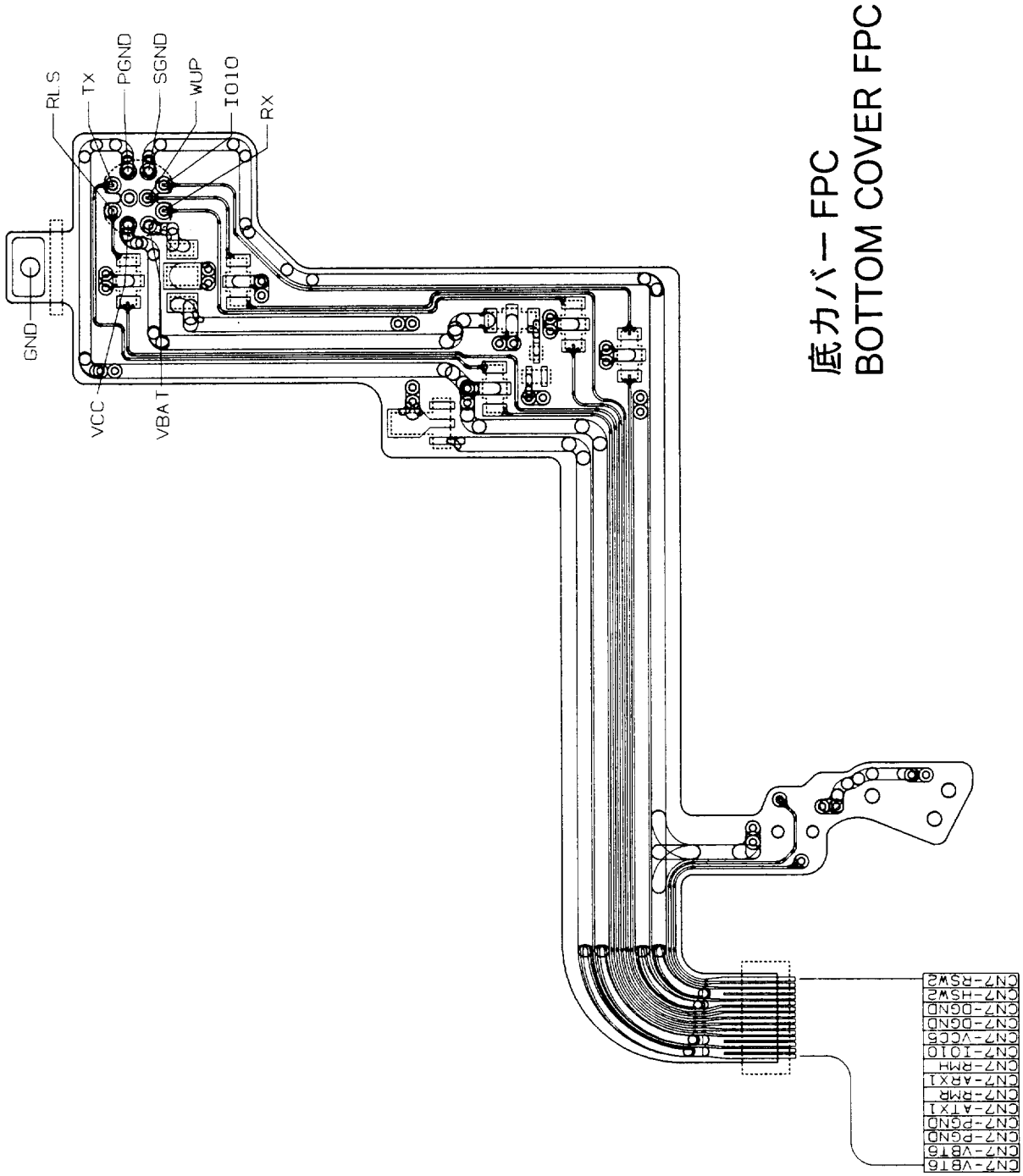
シャッターM FPC
SHUTTER M FPC



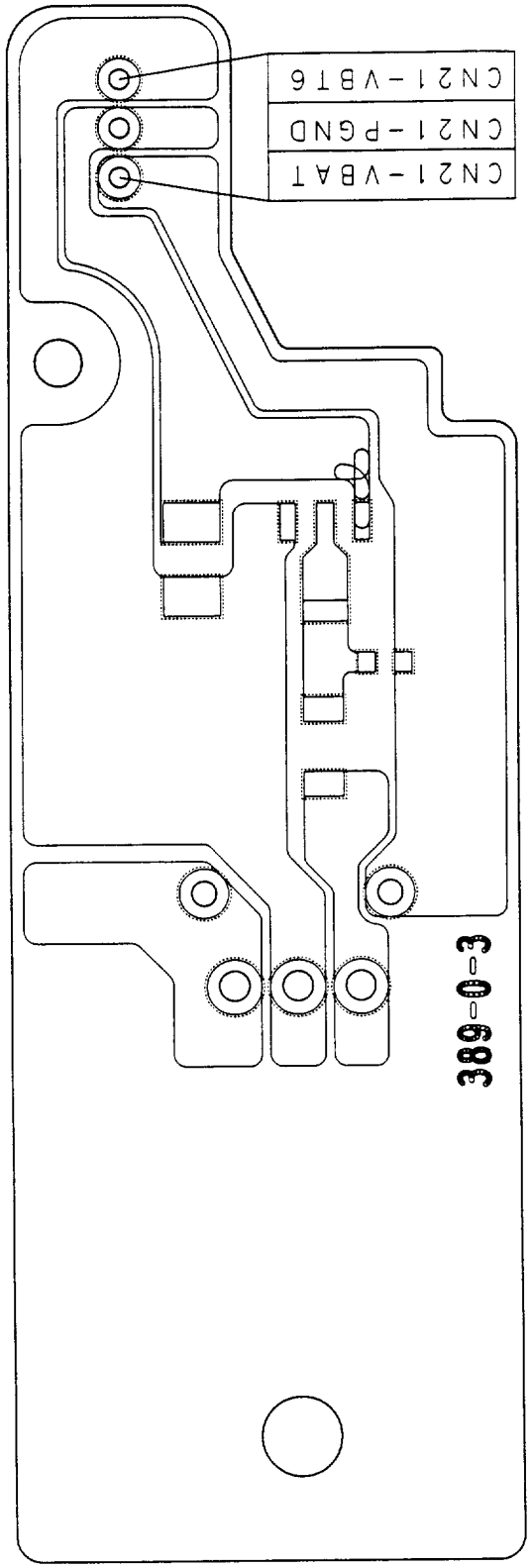

シャッターFPC
SHUTTER FPC
XL23-REAR
XL23-VCC6
XL23-PRMG
XL23-PGND
XL23-REMG
XL23-XSW
TP23-REAR
TP23-VCC6
TP23-PRMG
TP23-PGND
TP23-REMG
TP23-XSW
WL23-PMG1
WL23-PMG0
WL23-XSW
WL23-REAR
WL23-RMG1
WL23-RMG0
3404-4

シャッターFPC
SHUTTER FPC

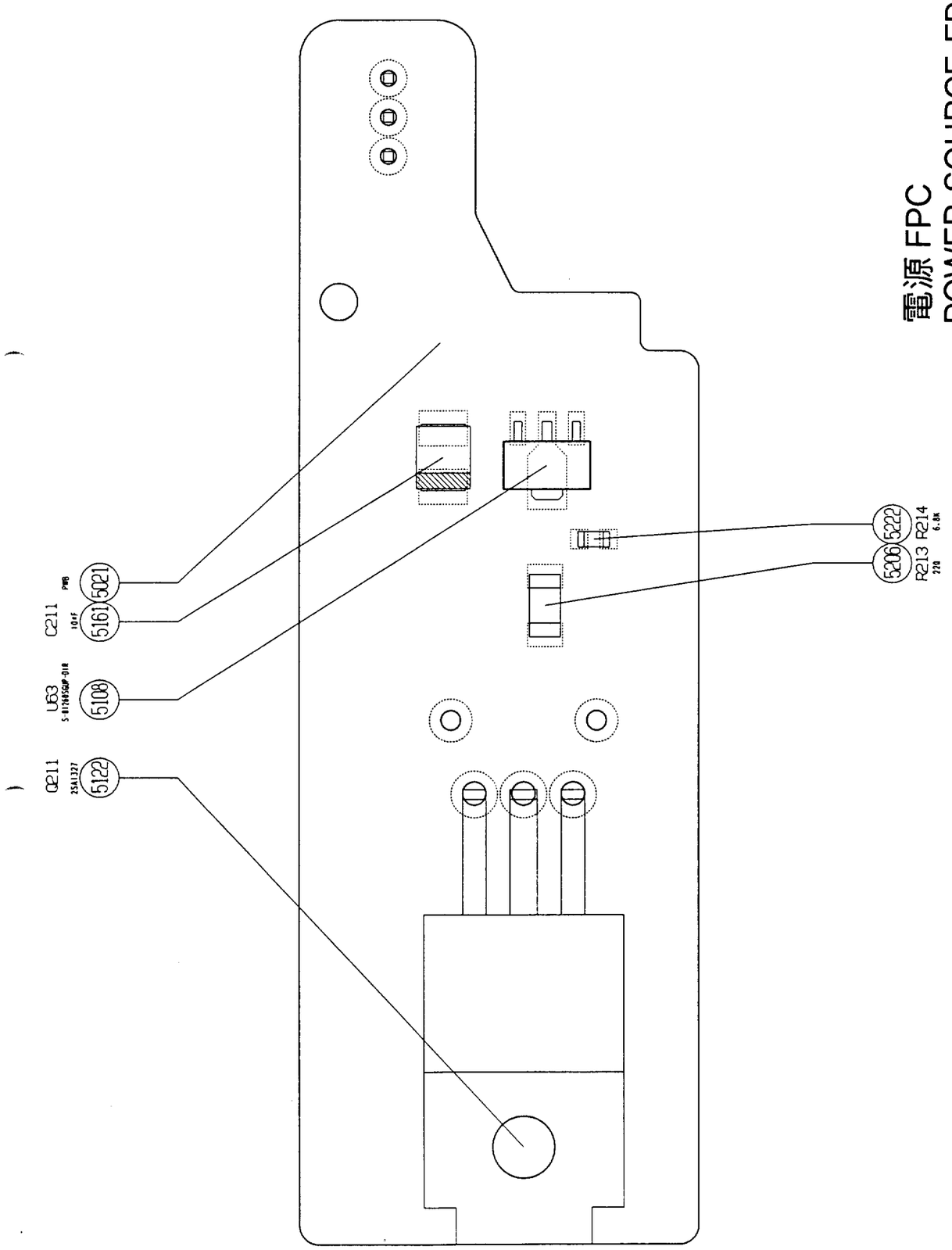



底カバー FPC
BOTTOM COVER FPC
RLS
TX
PGND
SGND
WUP
IO1O
RX
GND
VCC
VBAT
CN7-RSW2
CN7-HSW2
CN7-DGND
CN7-DGND
CN7-VCC5
CN7-IO1O
CN7-RMH
CN7-ARXI
CN7-RMR
CN7-ATXI
CN7-PGND
CN7-PGND
CN7-VBT6
CN7-VBT6

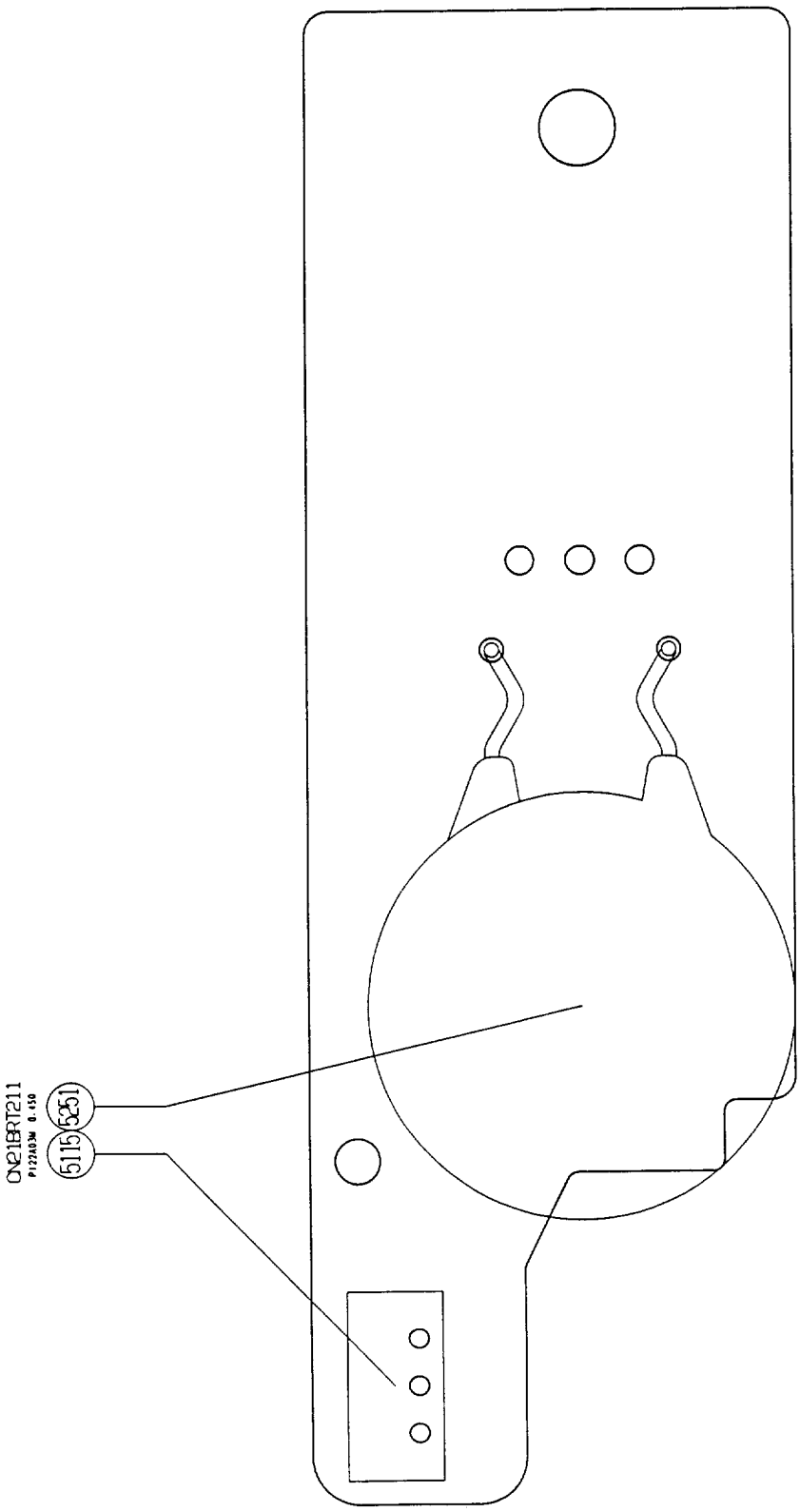
電源 FPC
POWER SOURCE FPC



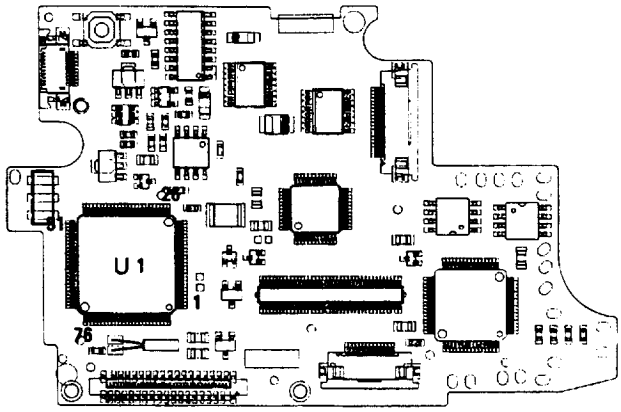
電源 FPC
POWER SOURCE FPC



電源 FPC
POWER SOURCE FPC



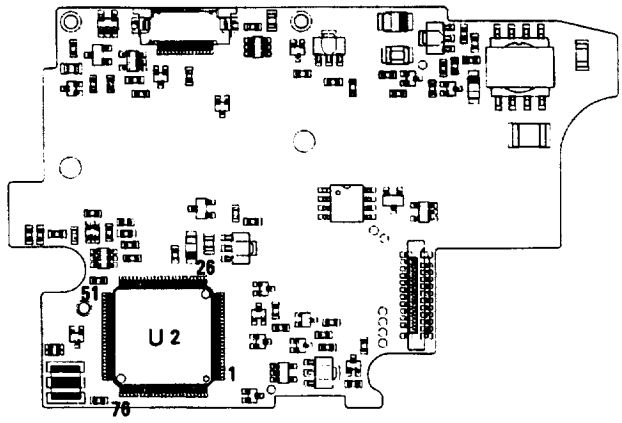
U1
DS-MCU



Pin No.	Name	Commected point	Function
1	PE4／RMC	VCC 3	VCC3 monitor
2	PE5／PWM	Scan1	Scan-driving L output side
3	PE6／TO／ADJ	Scan2	Scan-driving L output side
4	PB0	M52964 LNSL	Wake F contact discriminate
5	PB1／CS0	M52965 DSC out	SQ-MCU communication output
6	PB2／SCK0	M52965 DSCK	SIO 0 SQ-MCU communication
7	PB3／SI0	M52965 DSI	
8	PB4／SO0	M52965 DSO	
9	PB5／SCK1	M52964 SBCK	SB communication
10	PB6／SI1	M52964 SBSI	
11	PB7／SO1	M52964 SBSO	
12	PC0	M52964 RSR	LNSL latch reset
13	PC1	SQ-MCU TTL_START	SB communication
14	PC2	DC－DC	DC-DC control H: ON
15	PC3	M52964 TLC1	H: TTL Sync.ON
16	PC4	M52964 TTLR	L: TTL50 μ A source ON
17	PC5	M52964 TTLS	L: TTLSB install
18	PC6	SQ-MCU SB_RELEASE	SB release sequence =L
19	PC7	MAIN_SW	Main SW
20	PH0	AF_MCU PIKAPINN	Require AF illuminater
21	PH1	WSTART_SW	Film winding start SW
22	PH2		System reset output H: reset
23	PH3	AF start button SW	Focus start
24	PH4	CW1A	Command dial1
25	PH5	CW1B	Command dial1
26	PH6	CW2A	Command dial2
27	PH7	CW2B	Command dial2
28	PA0／AN0	M52964 SBPL	H: TTL clamp ON
29	PA1／AN1	M52964 SBTR	H: RDY receiving direction
30	PA2／AN2	Sync.mode ,Camera back SW	Upper:SCAN1 Lower:SCAN2
31	PA3／AN3	ISO ,Custom	
32	PA4／AN4	Lock button ,BKT set control	
33	PA5／AN5	Preview	
34	PA6／AN6	Exp. compenstion, Back light	
35	PA7／AN7	F area mode ,Exposure mode	
36	RST	Reset	
37	EXTAL	4.19MHz	
38	XTAL		
39	Vss	GND	
40		N.C.	
41		GND	
42	AVref	VBAT3	A／D power supply
43	AVss	GND	
44	VL	VL	LCD power supply

Pin No.	Name	Connected point	Function
45	VLC3	(VL)	LCD power supply
46	VLC2	1／3 Vdd	
47	VLC1	2／3 Vdd	
48	COM0	COM0	common
49	COM1	COM1	
50	COM2	COM2	
51	COM3	COM3	
52	SEG0	SEG0 Top side	
53	SEG1	↓	
54	SEG2	↓	
55	SEG3	↓	
56	SEG4	↓	
57	SEG5	↓	
58	SEG6	↓	
59	SEG7	↓	
60	SEG8	↓	
61	SEG9	↓	
62	SEG10	↓	
63	SEG11	↓	
64	SEG12	↓	
65	SEG13	↓	
66	SEG14	↓	
67	SEG15	SEG15	
68	SEG16／PD0	SEG16	Top side LCD segment
69	SEG17／PD1	SEG17	
70	SEG18／PD2	SEG18	
71	SEG19／PD3	SEG19	
72	SEG20／PD4	N.C.	
73	SEG21／PD5	N.C.	
74	SEG22／PD6	N.C.	
75	SEG23／PD7	Q309	VCC6 control
76	SEG24／PF0	SEG20	Top side LCD segment
77	SEG25／PF1	SEG21	
78	SEG26／PF2	SEG22	
79	SEG27／PF3	SEG23	
80	SEG28／PF4	SEG0 Rear side	Rear side LCD segment
81	SEG29／PF5	SEG1 LCD	
82	SEG30／PF6	SEG2 ↓	
83	SEG31／PF7	SEG3	
84	SEG32／PG0	SEG4	
85	SEG33／PG1	SEG5	
86	SEG34／PG2	SEG6	
87	Vdd	Vdd	Power source
88	NC	Vdd	
89	Vss	Vss	
90	TX	32KHz	32KHz
91	TEX		
92	SEG35／PG3	SEG7	Rear side LCD segment
93	SEG36／PG4	SEG8	
94	SEG37／PG5	SEG9	
95	SEG38／PG6	SEG10	
96	SEG39／PG7	N.C.	Not in use
97	PER0／INT0／EC0	GND	
98	PE1／INT1	GND	
99	PE2／INT2	M52964 WUP	Wake up input
100	PE3／INT3／NMI	M52965 DSC	SQ-MCU communication input

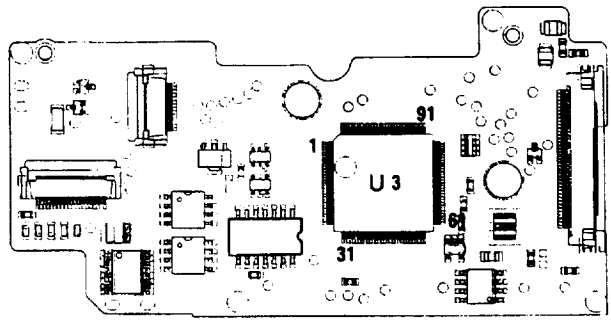
U2
SQ-MCU



Pin No.	Name	Connected point	Function
1	P22	M52965	SL2
2	P23	M52965	CSGI (M52925)
3	P24	M52965	CLKI (M52925)
4	P25	M52965	CSRI (M52925)
5	P26	M52964	RMHS
6	P27	M52964	RMRS
7	P30	M52964	HSW (Pre-release SW sig.)
8	P31	M52964	RSW (Release SW sig.)
9	VSS		DGND
10	P32	M52964	R2S0 (R2SW)
11	P33	M52964	Xout
12	P34	M52964	CIS
13	P35	M52964	RDYC
14	P36	M52964	I10
15	P37/CLK	M52964	O10
16	P40/SIN0	M52964	ARX
17	P41/SOT0	M52964	ATX
18	P42/SCK0	M52964	TLC2
19	P43/SIN1	M52965	SI (Clock SIO in)
20	P44/SOT1	M52965	SO (Clock SIO out)
21	VCC		VCC3
22	P45/SCK1	M52965	SCLK (Clock SIO CLK)
23	P46/ADTG	M52965	CI0 (Clock SIO CIO)
24	P47	LED drv Tr	Warning LED
25	P70	LED drv Tr	Self-timer LED
26	P71	IL MOS	Illuminator power supply
27	P72		SB Release
28	DVR+		+3 V
29	DVSS		AGND
30	P73/DA00	M52925 Buffer	M52925 D/A
31	P74/DA01		
32	AVCC		+3 V
33	AVR+		+3 V
34	AVR−		AGND
35	AVSS		AGND
36	P50/AN0		F-F0
37	P51/AN1		Film advance mode
38	P52/AN2		Voltage for battery
39	P53/AN3	M52925 Buffer	TTL control monitor (M52925)
40	VSS		DGND
41	P54/AN4	M52925 Buffer	Temperature detection
42	P55/AN5		
43	P56/AN6		
44	P57/AN7		AGND

Pin No.	Name	Connected point	Function
45	P80／IRQ0	DS-MCU	TTL control start
46	P81／IRQ1	XSW	X contact
47	MD0		VCC 3
48	MD1		VCC 3
49	MD2		DGND
50	HSTX		VCC 3
51	P82／IRQ2	M52964	RDYF
52	P83／IRQ3	M52964	STP2
53	P84／IRQ4	M52965	CSI (Clock SIO CSI)
54	P85／IRQ5	AF-MCU	AF-CIO
55	P86	EL control	EL control
56	P87		interrupter ON／OFF
57	P60／SIN2	AF-MCU	SQ_SI (Clocl SIO)
58	P61／SOT2	AF-MCU	SQ_SO (Clock SIO)
59	P62／SCK2	AF-MCU	SQ_CK (Clock SIO)
60	P63／PPG00	SPM0、RW_M0	Spool motor 0、Film rewind M0
61	P64／PPG01	SPM1、RW_M1	Spool motor 1、Film rewind M1
62	P65／CKOT	triac	Xout for triac
63	P66／PPG10	SHM0	Shutter monitor 0
64	P67／PPG11	SHM1	Shutter monitor 1
65	P90／AIN0／IRQ6	SH_INT	SHM interrupter
66	P91／BIN0		DGND
67	P92／ZIN0		Aperture lock MG
68	P93／AIN1／IRQ7	SPM_INT	SPM interrupter
69	P94／BIN1		DGND
70	P95／ZIN1		Aperture control start MG
71	P96／IN0	AP_INT	Aperture interrupter
72	P97／IN1	SHT_MONI	Shutter monitor
73	PA0／OUT0		Opening-curtainMG
74	PA1／OUT1		Closing-curtain MG
75	RSTX	DS-MCU	RESET
76	PA2／OUT2	M52964	RMHO
77	PA3／OUT3	M52964	RMRO
78	PA4		Release MG
79	VSS		DGND
80	X0		Xtal
81	X1		Xtal
82	VCC		VCC 3
83	P00		Solenoid
84	P01		Film winding start SW
85	P02		Film adv. completion SW
86	P03		Mech charge completion
87	P04		Battery identify
88	P05		R 1 SW
89	P06		Closing-curtain SW
90	P07		Film detection SW
91	P10		Imprint sig
92	P11	AF-MCU	SQ_BUSY
93	P12	AF-MCU	Lens_drv_sg
94	P13	AF-MCU	Release accept
95	P14	AF-MCU	AF_E
96	P15	AF-MCU	RLS_SG
97	P16	EEPROM1	CS1 EEPROM
98	P17	EEPROM2	CS2 EEPROM
99	P20	LED	RDY LED
100	P21	M52965	SL1

U3
AF－MCU



Pin No.	Name	Connected point	Function
1	VCC		VCC 5
2	PC0／A0	DX2	DX2
3	PC1／A1	DX3	DX3
4	PC2／A2	DX4	DX4
5	PC3／A3	DX5	DX5
6	VSS		DGND
7	PC4／A4	DX6	DX6
8	PC5／A5	FD LED	＋(Over)
9	PC6／A6	FD LED	○(Proper)
10	PC7／A7	FD LED	－(Under)
11	PB0／A8	FD LED	▼ Left
12	PB1／A9	FD LED	▼ Right
13	PB2／A10	FD LED	Up
14	PB3／A11	FD LED	Center
15	VSS		DGND
16	PB4／A12	FD LED	Down
17	PB5／A13	FD LED	Front focus
18	PB6／A14	FD LED	● In-focus
19	PB7／A15	FD LED	Reae focus
20	PA0／A16	F contact	FPWR C (F contact power control)
21	PA1／A17	INT control	INT C (Interrupter control)
22	PA2／A18	M52964 (out)	RSW (Release SW sig)
23	PA3／A19	M52964 (out)	HSW (Pre-release SW sig)
24	VSS		DGND
25	PA4／A20／IRQ4		SQ BUSY SQ-MCU
26	PA5／A21／IRQ5	SQ-MCU	RLS SG (Release sig)
27	PA6／A22／IRQ6	SQ-MCU	AF E (AF accept)
28	PA7／A23／IRQ7	B contact	RW1 INT B contact
29	P67／IRQ3／CS7		N.C
30	P66／IRQ2／CS6		N.C
31	P65／IRQ1		N.C
32	P64／IRQ0		N.C
33	VCC		VCC 5
34	PE0／D0	CCD	CCD D0
35	PE1／D1	CCD	CCD D1
36	PE2／D2	CCD	CCD D2
37	PE3／D3	CCD	CCD D3
38	VSS		DGND
39	PE4／D4	CCD	CCD D4
40	PE5／D5	CCD	CCD STB-R
41	PE6／D6	CCD	CCD STB-C
42	PE7／D7	CCD	CCD STB-L
43	PD0／D8		Double lock SW
44	PD1／D9		Focus start SW
45	PD2／D10		Lens release SW
46	PD3／D11		AF-MODE SW2
47	VSS		DGND
48	PD4／D12		AF-MODE SW1
49	PD5／D13	EC contact	EC Detection
50	PD6／D14		Trigger for spot metering (Horizontal)
51	PD7／D15		Trigger for spot metering (Vertical)
52	VCC		VCC 5
53	P30／TXD0	SQ-MCU	SQ SI

Pin No.	Name	Connected point	Function
54	P31／TXD1	EEPROM	EEPROM SI
55	P32／RXD0	SQ-MCU	SQ-SO
56	P33／RXD1	EEPROM	EEPROM SO
57	P34／SCK0	SQ-MCU	SQ CLK SO
58	P35／SCK1	EEPROM	EEPROM CLK
59	VSS		DGND
60	P60／DREQ0／CS4	EEPROM	EEPROM CS
61	P61／TEND1／CS5		BHR Trigger output
62	P62／DREQ1		THR Trigger output
63	P63／TEND1	SQ-MCU	release accept
64	P27／P07／TICOB5／TMO1	SQ-MCU	Lens DRV sg
65	P26／P06／TIOCA5／TMO0	SQ-MCU	AF CIO
66	P25／P05／TIOCB4／TMCI1	DS-MCU	AF Illuminator
67	P24／P04／TIOCA4／TMRI1	CCD	CCD CLK
68	P23／P03／TIOCD3／TMCI0	EEPROM	EEPROM WP
69	P22／P02／TIOCC3／TMRI0	MDIC INT1	PWM LO → HI break
70	P21／PO1／TIOCB3		N.C
71	P20／PO0／TIOCA3	MDIC INT2	PWM LO → HI break
72	WDT0VF WDT OUT		
73	RES	DS-MCU	RESET
74	NMI		VCC 5
75	STBY		VCC 5
76	VCC		VCC 5
77	XTAL		X'TAL
78	EXTAL		X'TAL
79	VSS		DGND
80	PF7／clock 20MHz	N.C	
81	VCC	VCC 5	
82	PF6／AS	ASCK	M52965
83	PF5／RD	ALCK	M52965
84	PF4／HWR	ASDA	M52965
85	PF3／LWR	AFA4	M52965
86	PF2／WAIT／BREQ0	AFA3	M52965
87	PF1／BACK	AFA2	M52965
88	PF0／BREQ	AFA1	M52965
89	P50／TXD2	L SO (D contact)	D contact Nch Mos
90	P51／RXD2	L SI (D contact)	D contact
91	P52／SCK2	L CK (C contact)	
92	P53／ADTRG	SYNC	CCD
93	AVCC	VCC 5	
94	VREF	+4V	
95	P40／AN0	CCD-L／R (shard)	CCD
96	P41／AN1	AGND	
97	P42／AN2	AGND	
98	P43／AN3	AGC-L	CCD
99	P44／AN4	AGC-C	CCD
100	P45／AN5	AGC-R	CCD
101	P46／AN6／DA0	Vcc12V monitor(A／D)	Vcc 12V monitor
102	P47／AN7／DA1	AIN for EC	M52965
103	AVSS	AGND	
104	VSS	DGND	
105	P17／PO15／TIOCB2／TCLKD	B contact	
106	P16／PO14／TIOCA2	N.C	
107	P15／PO13／TIOCB1／TCLKC	H contact	
108	P14／PO12／TIOCA1	N.C	
109	P13／PO11／TIOCD0／TCLKB	Interrupter	
110	P12／PO10／TIOCC0／TCLKA	Interrupter	
111	P11／PO9／TIOCB0／DACK1	CHF & CHR Trigger	
112	P10／PO8／TIOCA0／DACK0	CVF & CVR Trigger	
113	MD0	VCC 5	
114	MD1	VCC 5	
115	MD2	DGND	
116	PG0／CAS／OE	LHF &LHR Trigger	
117	PG1／CS3	LVF &LVR Trigger	
118	PG2／CS2	R／W2 OUT	E contact
119	PG3／CS1	RHF &RHR Trigger	
120	PG4／CS0	RVF &RVR Trigger	

Inspection standard

Inspection item	Standard	Remarks
Exposure accuracy	1/8000 ～ 1/4000 : ±0.75EV (1/4000) ～ 1/2000 : ±0.5EV (1/2000) ～ 30" : ±0.4EV Difference : 0.3EV	Shutter tester (EF-8000)
AE－A accuracy (Centre Weight)	EV15 F8 (1/500) : ±0.5TV EV12 F5.6 (1/125) : ±0.5TV EV 6 F2.8 (1/8) : ±0.5TV Difference : 0.3TV	
AE－S accuracy (Centre Weight)	EV15 1/500 (F8) : ±0.5AV EV12 1/125 (f5.6) : ±0.5AV EV 6 1/8 (f2.8) : ±0.5AV Difference : 0.5AV	
Shutter accuracy	1/8000 ～ (1/4000) : ±0.65TV 1/4000 ～ (1/2000) : ±0.35TV 1/2000 ～ 30" : ±0.2TV 1/250 : $+0.2_{-0.1}$TV X1/250 : 4.14ms $^{+0.2}_{-0.1}$ TV X1/300 : 3.48ms $^{+0.2}_{-0.1}$ TV Difference : 1/8000～(1/4000) : 0.45TV 1/4000～(1/2000) : 0.3TV 1/2000～30" : 0.2TV	
Shutter curtain speed (1/8000)	2.43±0.08ms (21mm Slit)	
Aperture control accuracy	LV12 (ISO100)、1/125 F5.6 : ±0.3AV Other aperture : ±0.5AV Difference F5.6 : ±0.3AV Other aperture : ±0.5AV	
AF adjustment accuracy	Yaw : 0±4 mrad Pitch : 0±4 mrad Group de-focus : 0±60μm Block de-focus : 0±90μm	Personal computer and other dedicated tools
Height of aperture lever	$3.4^{+0.1}_{-0.05}$mm	J18004
Main mirror 45°	Vertical : ±5′ Horizontal : ±18′ Distortion : ±6′	J18037・J18038 Collimator・Hexagonal key
Sub mirror47.75°	Vertical : −5±5′ Distortion : 8′	J18268 Collimator・Hexagonal key

Inspection item	Standard	Remarks
M. B. F	Standard : 46.67±0.02mm Parallel : 0.02mm	J 1 8 0 0 1 Dial gauge
Frame (1) Size (2) Frame position (3) Frame-to-frame space	 Width : 24 $^{-0.8}_{-0.8}$ mm／Depth : 36 $^{+0.8}_{-0.8}$ mm Vertical difference : 0．4 mm Horizontal difference Cs : 0．4±0．5 mm Other : 0．4±0．2 mm Cs : 2±1．0 mm Other : 2±0．5 mm	Vernier calipers ISO 100 Film
Battery check voltage (1) First level (2) Second level 	 Alkaline Dropping : 9．4±0.3V Recovering : 10．0±0.3V Ni-MN Dropping : 11．2±0.3V Recovering : 11．7±0.3V Alkaline Dropping : 9．0±0.3V Recovering : 10．0±0.3V Ni-MN Dropping : 11．0±0.3V Recovering : 11．7±0.3V	Use a DC regulated power supply with no resistor.
Current consumption Main SW OFF Main SW ON 〃 〃	 60 μA (Pre-release timer OFF) 60 μA (Pre-release timer ON) 250 mA (Illuminator・EL-ON) 300 mA	

TOOLS

1．TOOLS FOR F5

TOOL No.	NAME
J15328	カメラ通信工具 CAMERA COMMUNICATION TOOL
J15328－1	10ピンコネクター通信工具 10 PIN CONECTOR COMMUNICATION TOOL
J15328－2	AE用CCD位置出し工具 AE CCD POSITION ADJUSTMENT TOOL
J15331	スプロケット歯位置出し工具 SPROCKET TEETH PLACING DAUGE
J18266	AF調整用Zレンズ AF TESTING LENS
J18268	ミラー45度出し工具 MIRROR ANGLE ADJUSTMENT TOOL
J18273	マルチカム1300AFチャート AF ADJUSTMENT CHART
J18275A	点検・調整ソフト　NEC　5.0インチ INSPECTING & ADJUSTMENT F.D. FOR NEC PC 5.0'
J18275B	点検・調整ソフト　NEC　3.5インチ INSPECTING & ADJUSTMENT F.D. FOR NEC PC 3.5'
J18275C	点検・調整ソフト　IBM　5.0インチ INSPECTING & ADJUSTMENT F.D. FOR IBM PC 5.0'
J18275D	点検・調整ソフト　IBM　3.5インチ INSPECTING & ADJUSTMENT F.D. FOR IBM PC 3.5'