INC
JAA33451-R.3517.A

作成承認印	配布許可印
	

AF-S ED Nikkor 300 f/4D IF

REPAIR MANUAL

Nikon | NIKON CORPORATION
Tokyo, Japan

Printed in Japan October 2000

Specifications

1 . Main specifications

Focal length:	300mm
Maximum aperture:	1 : 4
Lens construction:	10 elements in 6 groups (ED glass G2, G5)
Picture angle:	8 °10'
Distance scale:	∞ ~ 1.45m
Focusing:	G6 ~ G8 Moving type
Aperture scale:	4, 5.6, 8, 11, 16, 22, 32
Diaphragm:	Fully automatic (Minimum aperture lock is possible.)
Mount:	Nikon F mount
Tripod socket:	Removable, rotary type
Hood:	Built-in
Dimension:	90mm (dia) × 230.5mm (longest)
Weight:	Approx. 1,440g

2 . Function

Operation outline

AF: Automatic focus FA: Focus aid AE: Automatic exposure

Camera body \ Lens	AF	FA	AE
F5, F4, F100, F90, F90X, F80, F70D, PRONEA 600 i, PRONEA S, D1	○	○	○
AF Cameras except the above cameras (except F3AF)	×	○	○
Others except AF	×	×	○
F3AF	×	×	×

※ F3AF is not usable.

Focus mode

MF: Manual focus AF: Automatic focus FA: Focus aid

Camera body \ Focus mode		Lens mode: M	Lens mode: M／A
F5, F4, F100, F90, F90X, F80, F70D, PRONEA 600 i, PRONEA S, D1	C	MF photographing (FA is available.)	Prior MF/AF photographing
	S		
	M	MF photographing (FA is available.)	
AF Cameras except the above cameras (except F3AF)	C	MF photographing (FA is available.)	MF photographing (FA is available.)
	S		
	M		
Others except AF		MF photographing	

MF photographing: The MF ring is rotated manually.

Prior MF/AF photographing: AF is actuated by lightly pressing the shutter release button. AF mode is changed to MF mode by rotating the MF ring manually while AF is actuated.MF mode is changed to AF mode by returning the shutter release button, and then AF is actuated by pressing the button lightly.

Selectors and switches

The following three focus modes are changed by the selector slide switch.

M : Manual focus mode
M/A : Prior manual/automatic focus mode

The following three ranges of the allowable focus ate changed by the switch.

∞ ～ 1.45m
∞ ～ 3m

3 . Mount contacts

Contact	Contact Name	Application
A	Vcc	Power terminal of the lens CPU circuit
B	R/W1	Lens special lead/light terminal
C	CLOCK	Input of clock
D	DATA	Command input/data input and out put
E	Hot line · Pulse	Relative distance pulse output
F	Power supply for heavy load	Power supply for heavy load such as motor
G	GND for heavy load	GND for heavy load such as motor
H	Hot line · Pulse	Relative distance pulse output
I	Teleconverter CLOCK	Communication with teleconverter
J	Teleconverter DATA	Communication with teleconverter
Mount		Signal GND

＊ The contacts are arranged in the order of A ～ J counterclockwise as viewed behind the lens (mount side).

4 . Accessories

Front cap

· Lens cap	77mm	(JAD00801)

Rear cap

· Lens rear cap	LF-1	(JAD50101)

Filter

· 77mm screwing filter NC, etc.		(FTA60101, etc.)

Teleconverter

· Special teleconverter	TC-14E	(JAA90851)
	TC-20E	(JAA90951)
· Teleconverter	TC-14BS	(JAA90302)
	TC-301S	(JAA90203)

Case

· Semi-soft case	CL-M2	(JAE21201)

Not mountable products

※Because of the interference of the lens mount contact part

· Automatic extension ring	PK-1	(20FA33P1)
	PK-11	(FPW00702)
	PK-11A	(FPW00703)
· K ring	K1	(20FA32K)
· Automatic ring for bellows	BR-4	(FPW00401)

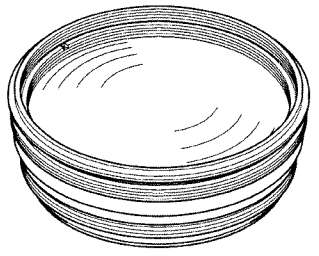
DISASSEMBLING

1 . APPARANCEE

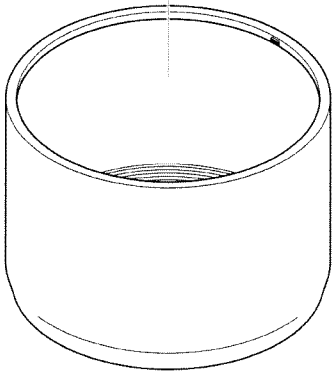
Notes: The AF-S300/4D (JAA33451) does not have a lens design frequency and so each lens group can be replased.

1st LENS GROUP, HOOD, 2nd LENS GROUP

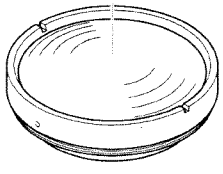
・Remove the tripod socket prior to disassembly.



1st lens group



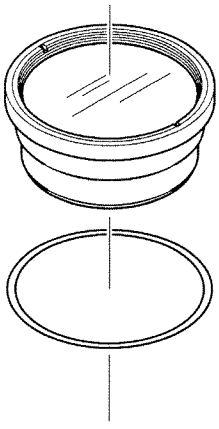
B81



2ndt lens group

#227×2

3rd LENS GROUP



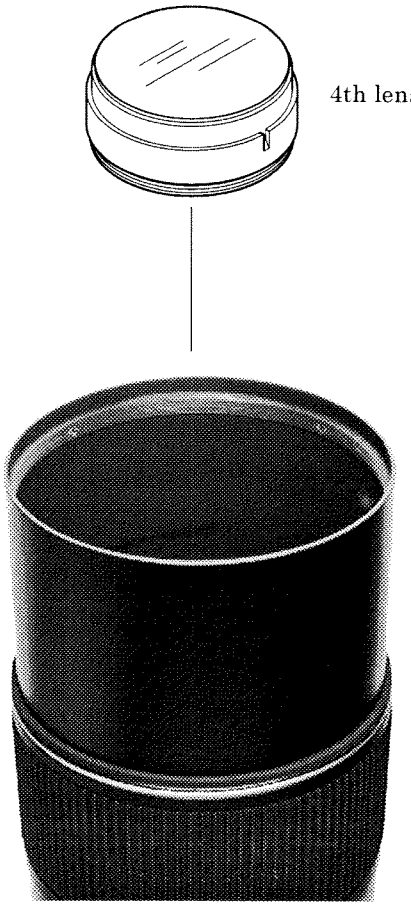
3rd lens group

#126

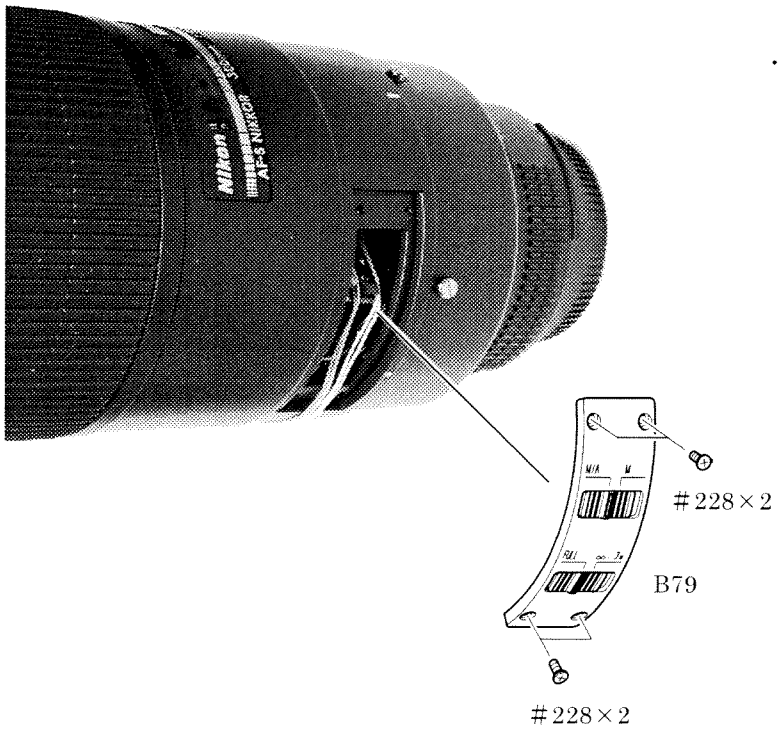
- Rotate the focus ring to the infinity side and set the end of the assistance tool of wrench (J11296) to the notch of the frame for the 3rd lens group to attach it. Then, rotate the screw ring in the arrow direction to fix it.

Notes: Be sure to fix the frame for the 3rd lens group since the roller and the roller groove deform.

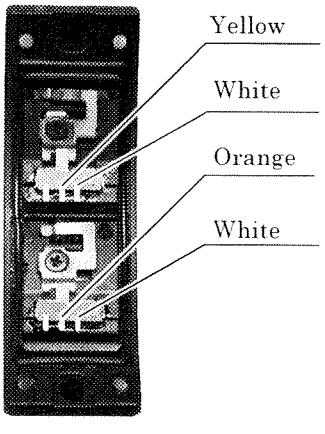
4th LENS GROUP



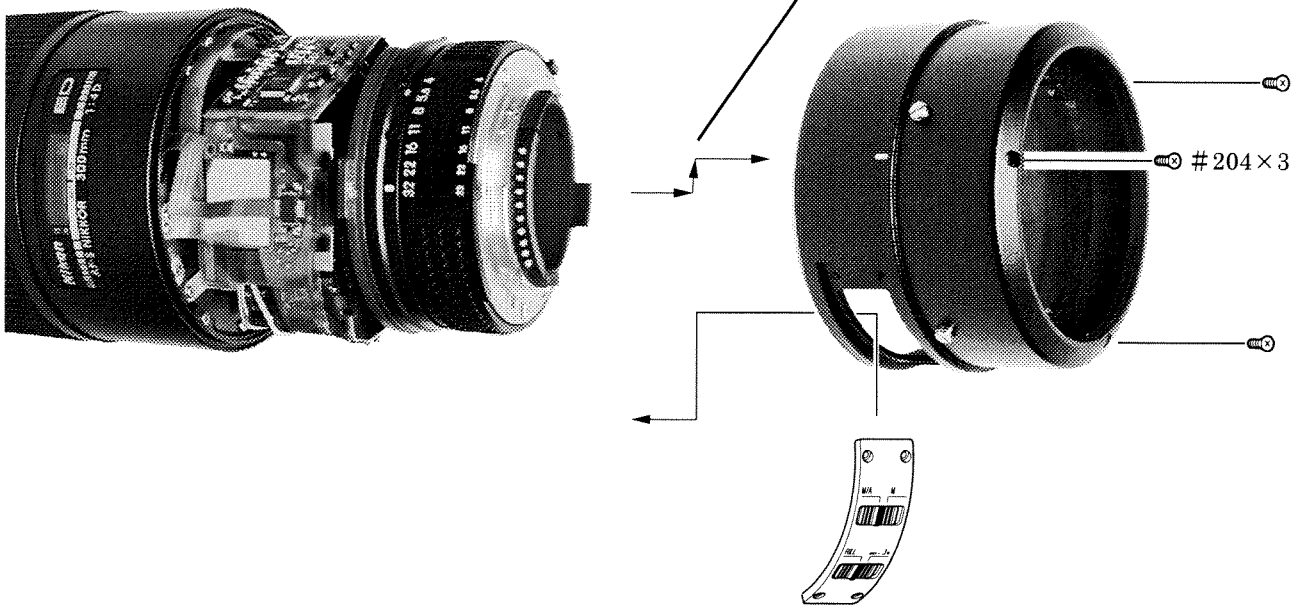
CHANGE-OVER SWITCH UNIT



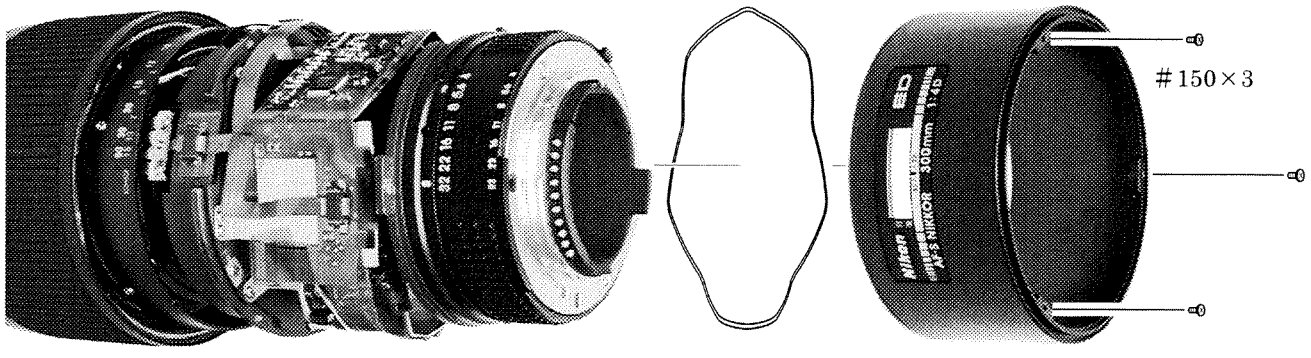
・When not replacing the switch, it is not necessary to remove the wires.



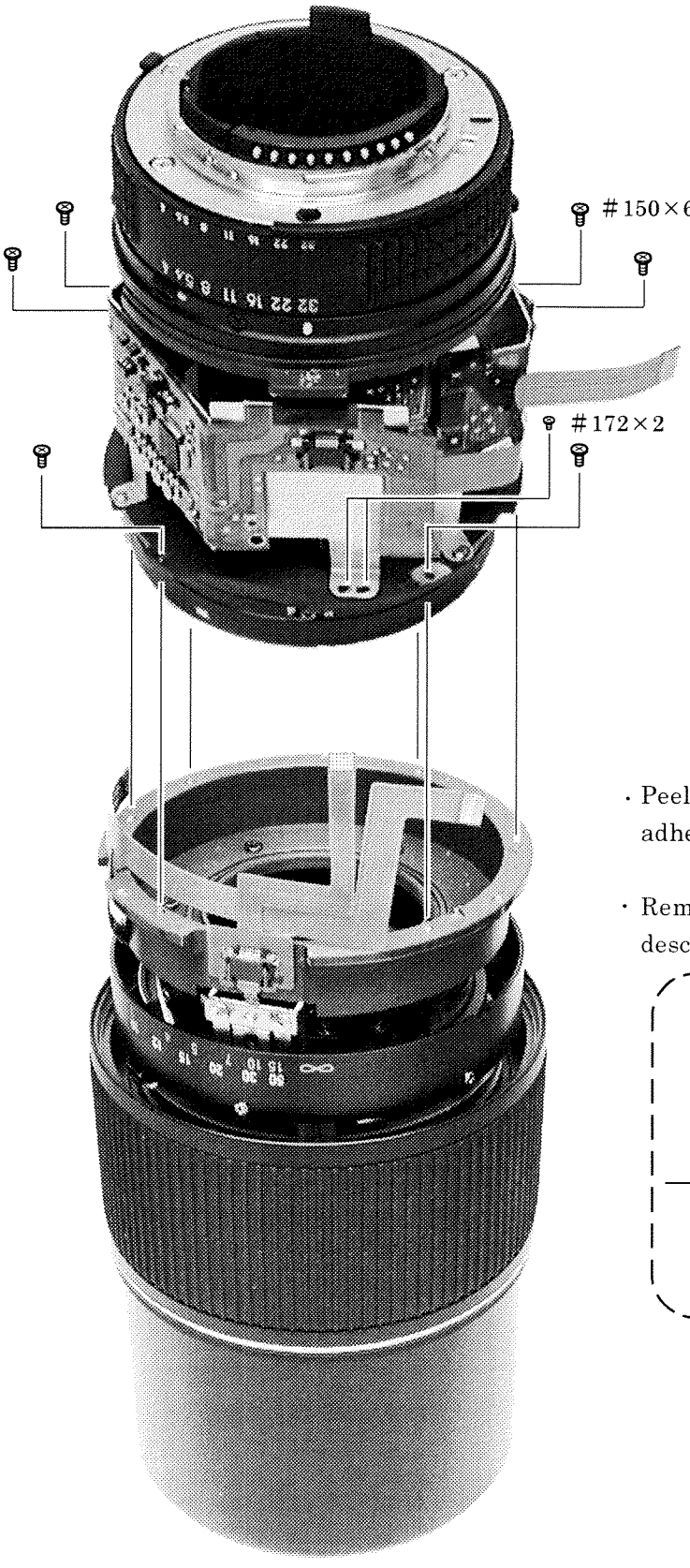
TRIPOD RING



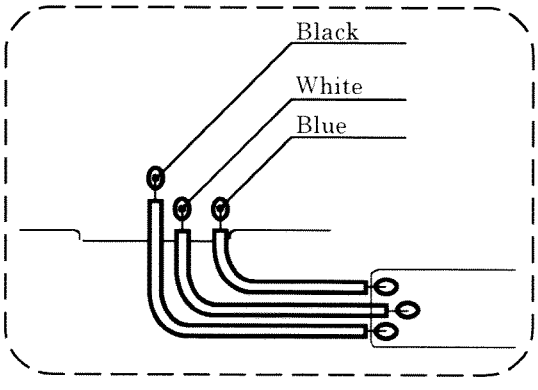
INDEX RING



SEPARATION REAR GROUP AND FRONT GROUP

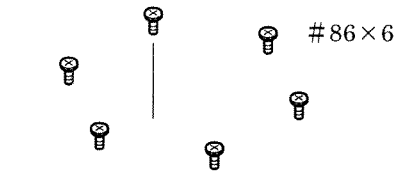


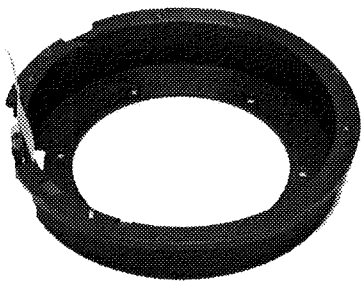
- Peel off the FPC attached by the both-sided adhesive tape when separating them.
- Remove the three connectors and wirings described below.



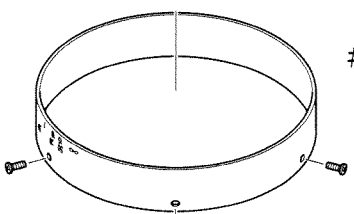
2. FRONT GROUP

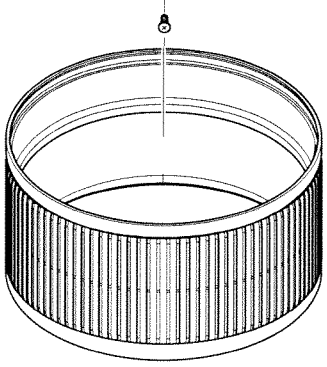
CONNECTION RING, FOCUS INDEX RING, MF RING



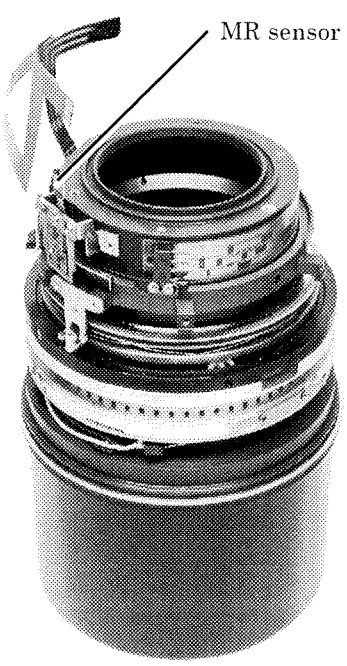


Connection ring





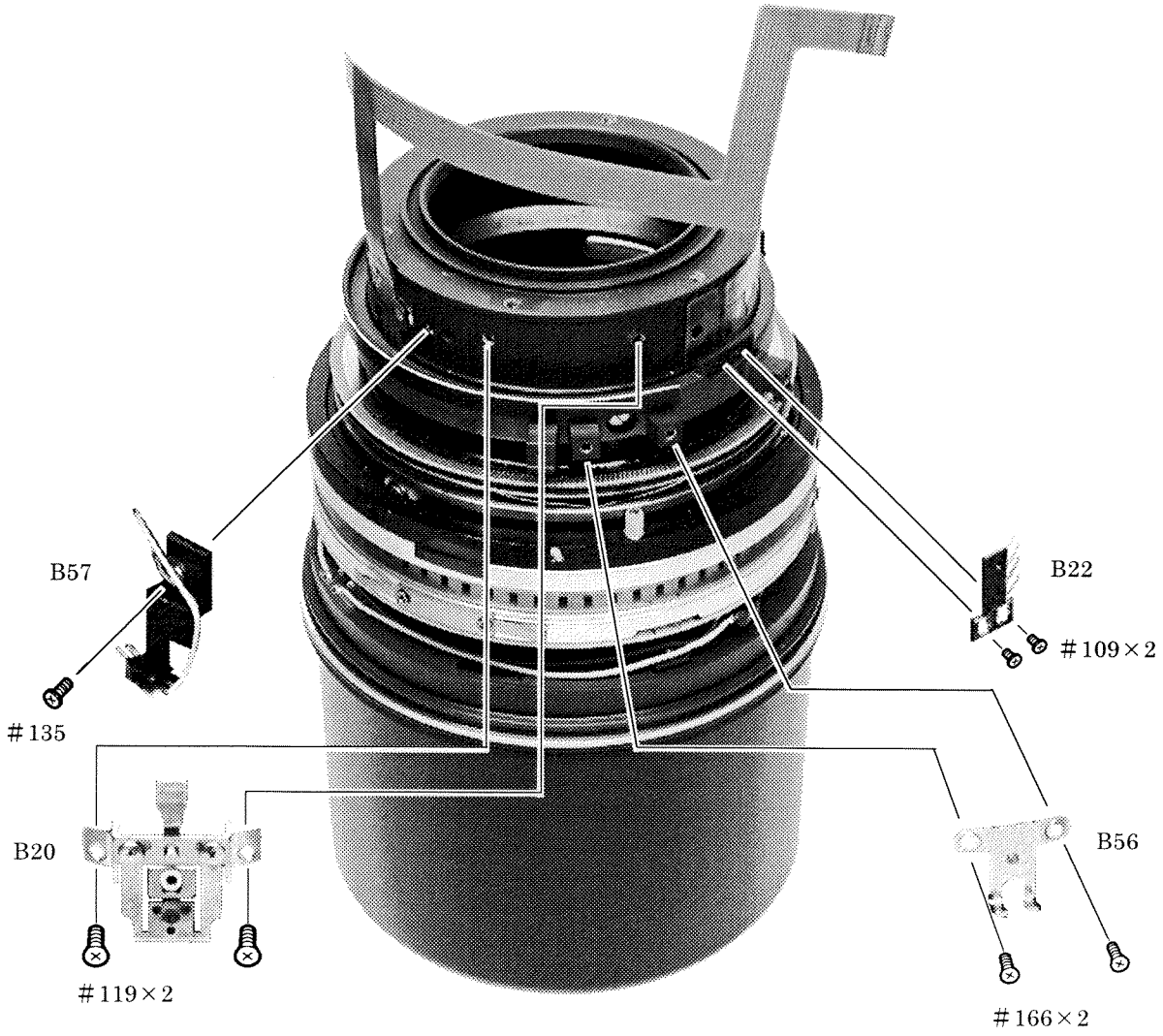
MF ring

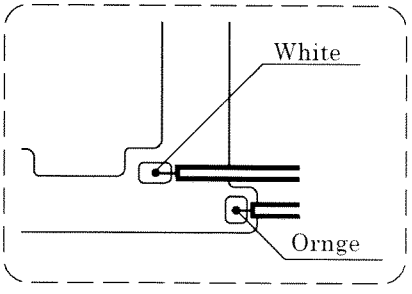


・Remove the MR sensor FPC from the connector.

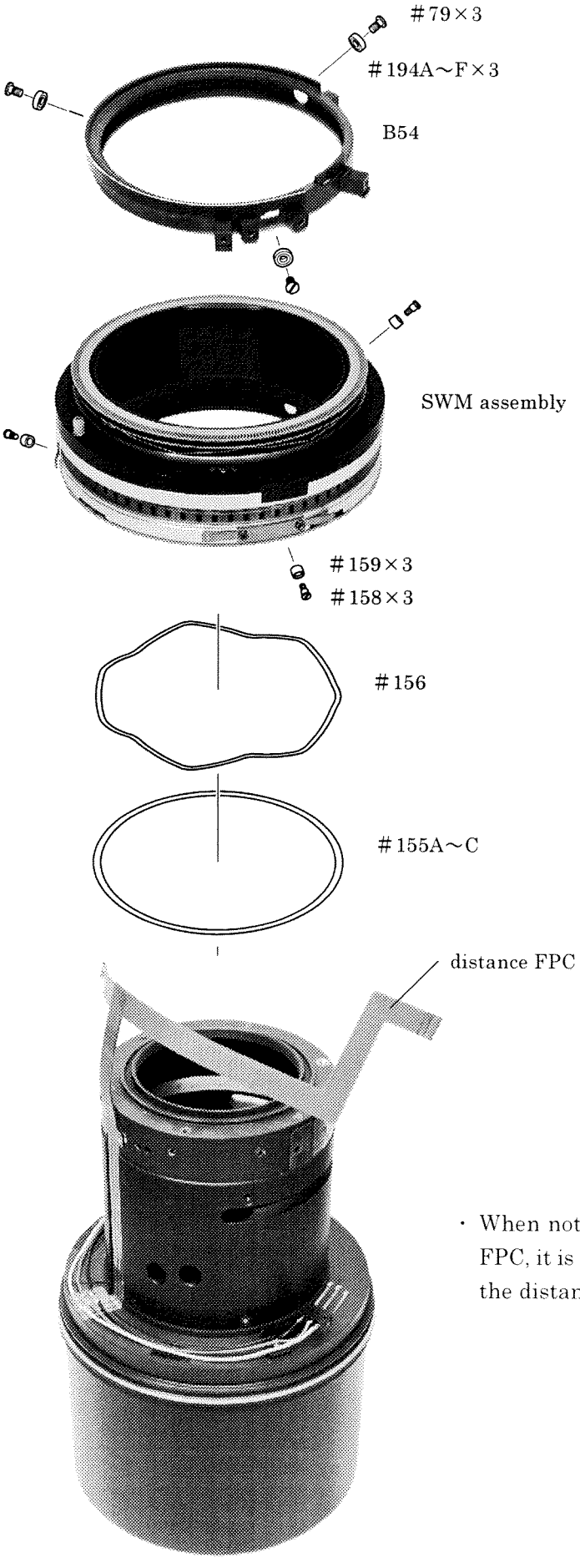
Notes: Due to a cause to damage the magnetic data, do not place any magnet near the magnetic tape. Do not set anything magnetic to touch the magnetic tape either.

MR HEAD, M/A BRUSH, DISTANCE ENCODER BRUSH, COUPLING PIN



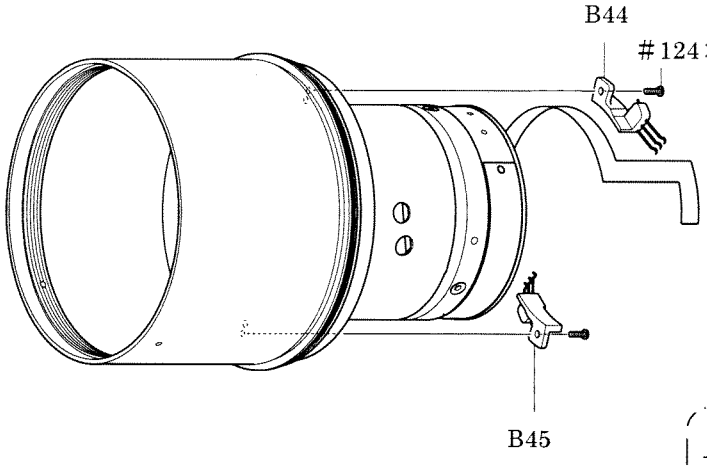


MR ENCODER, SWM ASSEMBLY

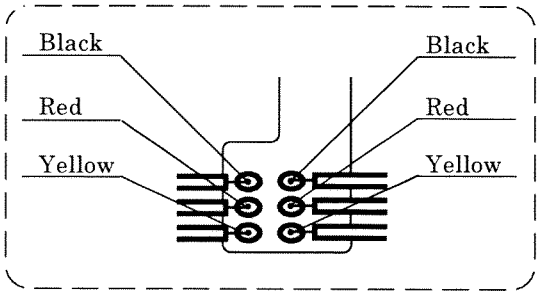


・ When not replacing the distance FPC, it is not necessary to remove the distance FPC.

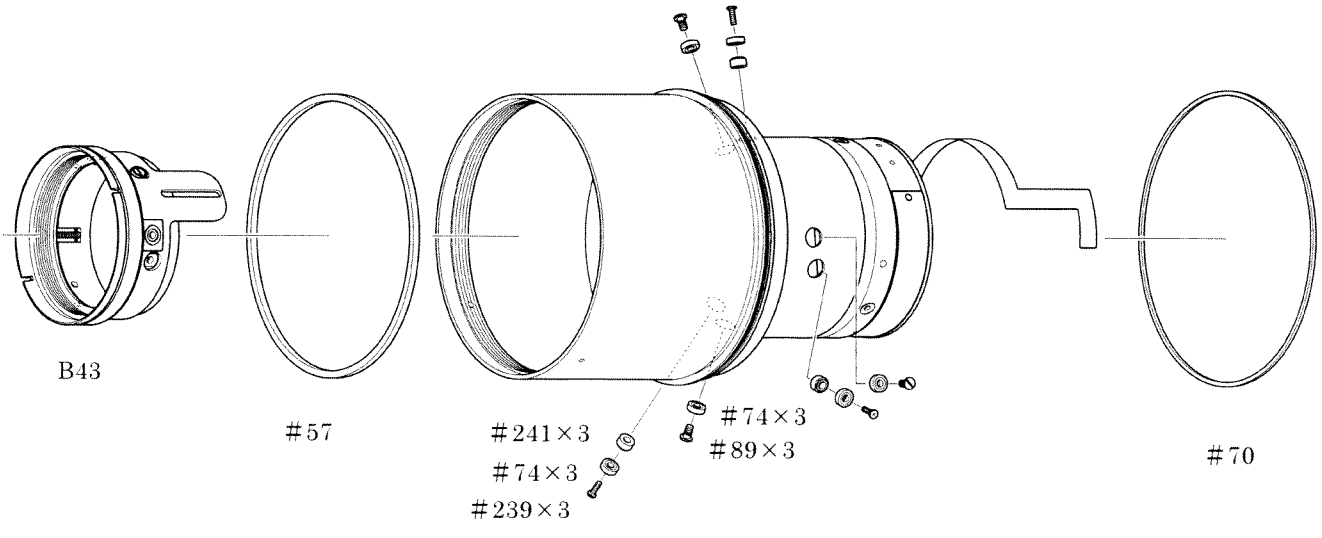
POWER BRUSH



・When not replacing the connection FPC, it is not necessary to remove the connection FPC.

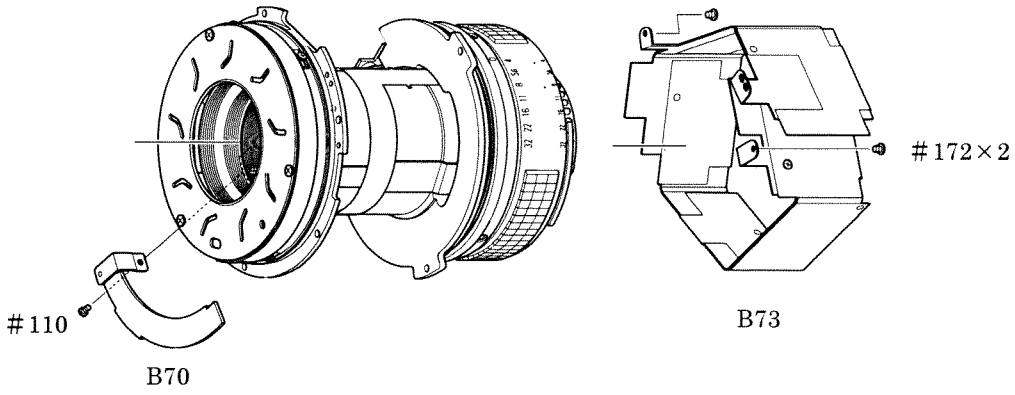


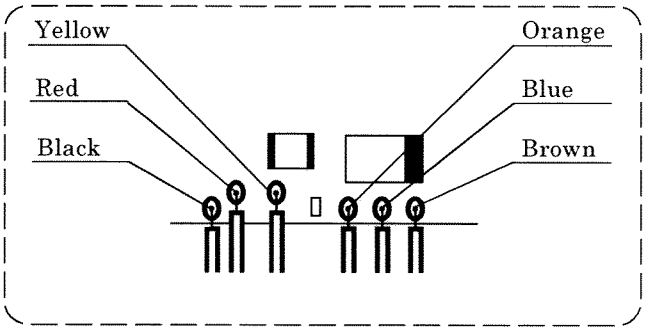
FRAME FOR 3rd LENS GROUP, GOLD RING, RUBBER RING



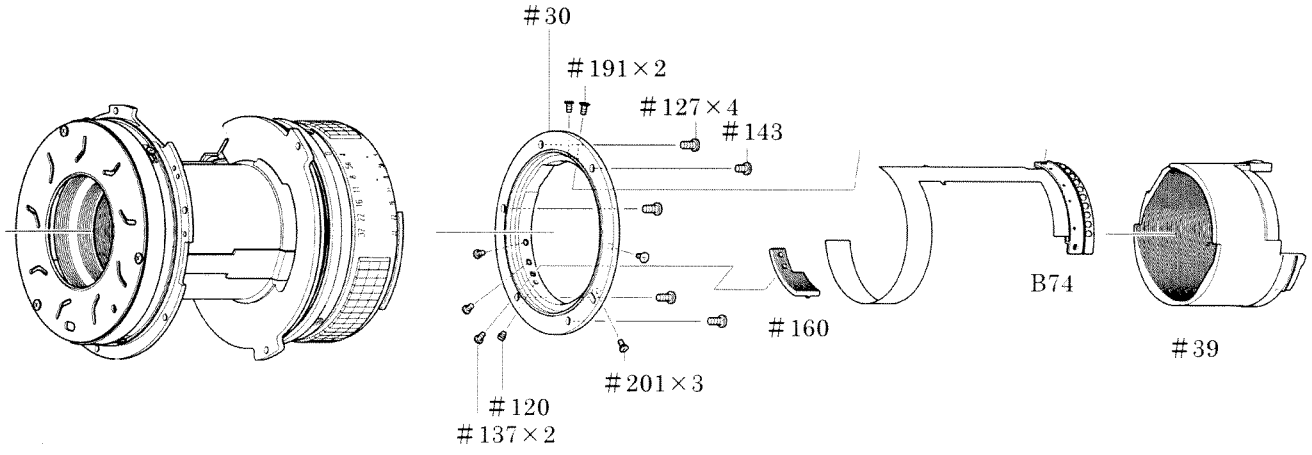
3. REAR GROUP

MAIN FPC, DC-DC CONVERTER

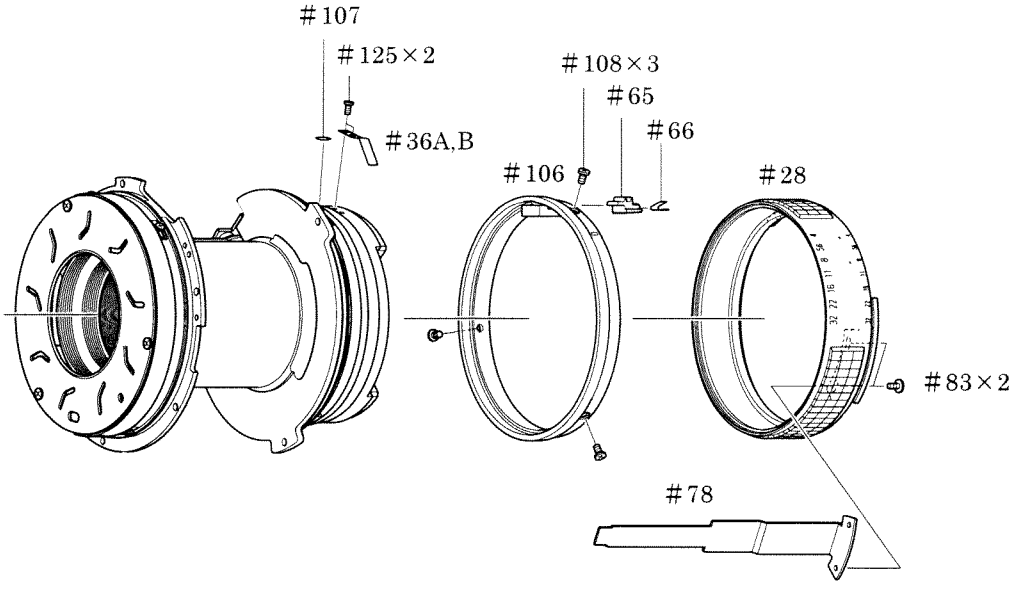




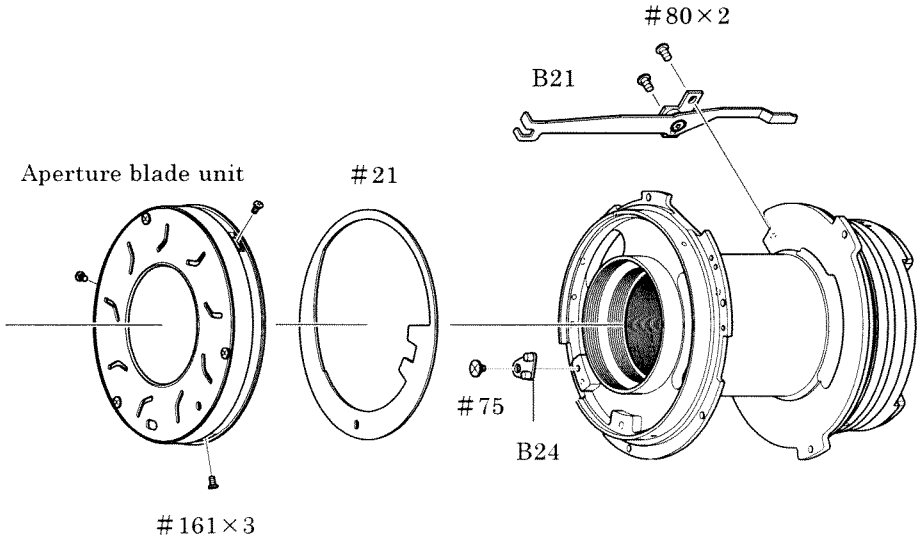
θ 3 PIECE, CONTACT FPC, REAR COVER RING, BAYONET MOUNT



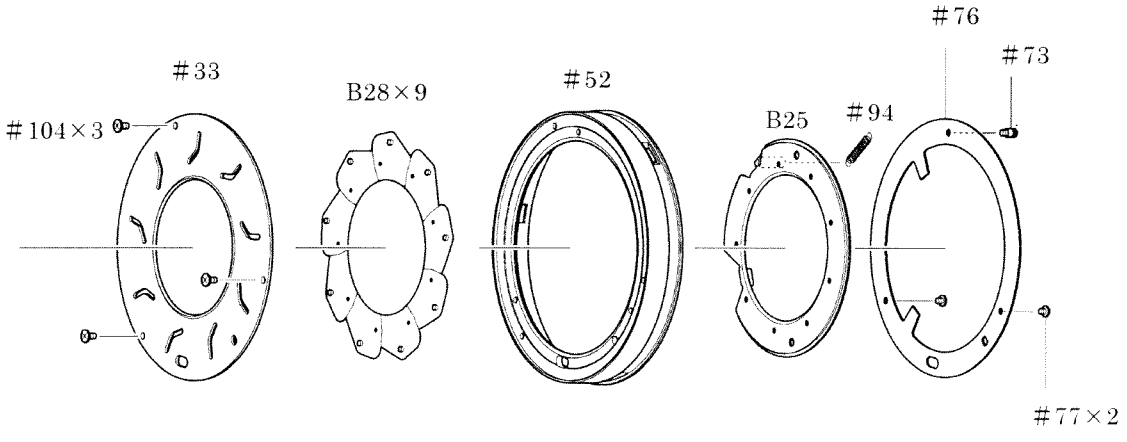
APERTURE RING, COUPLING KEY, EE LOCK RING



APERTURE BLADE UNIT, SEESAW LEVER



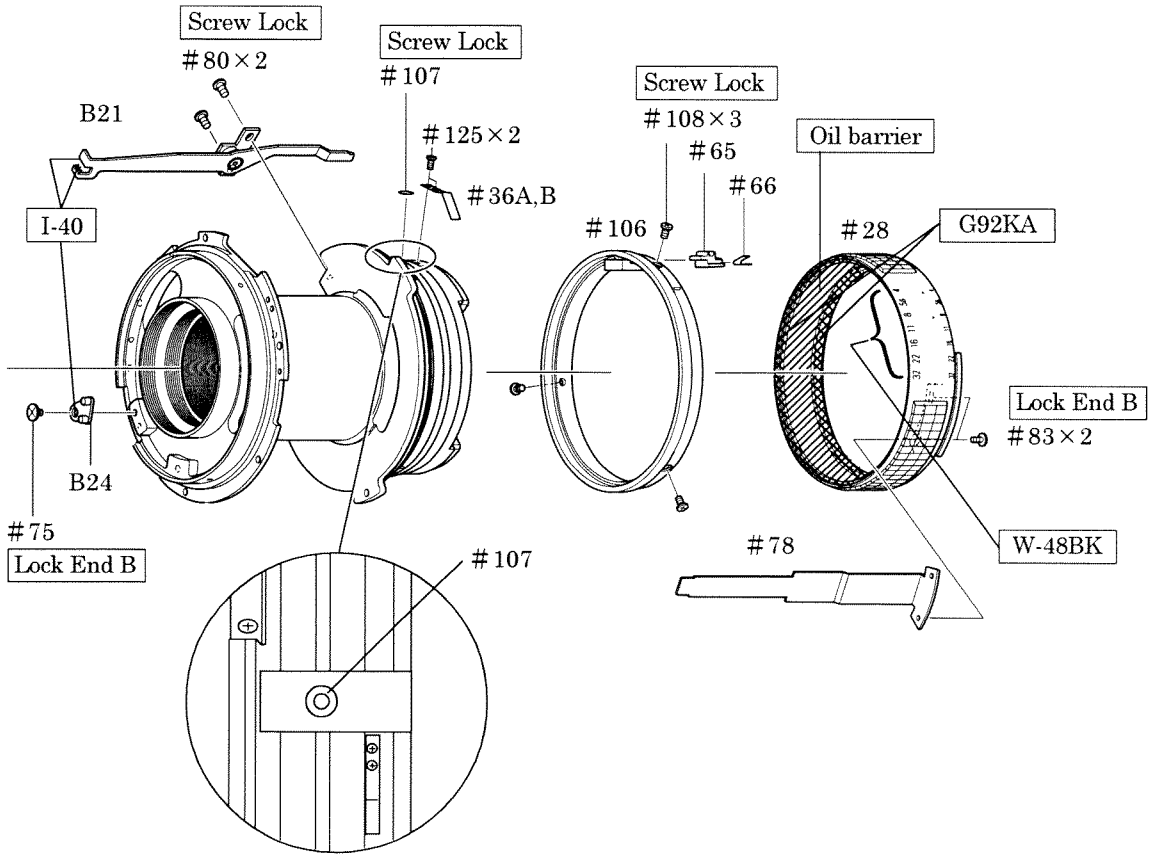
APERTURE BLADE



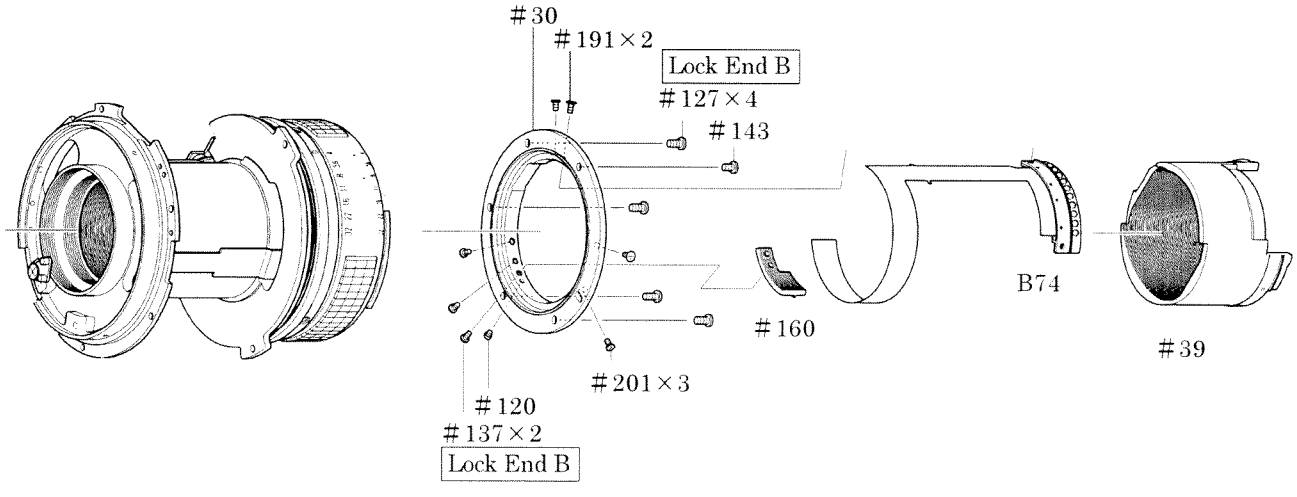
ASSEMBLING/ADJUSTMENT

1 . REAR GROUP

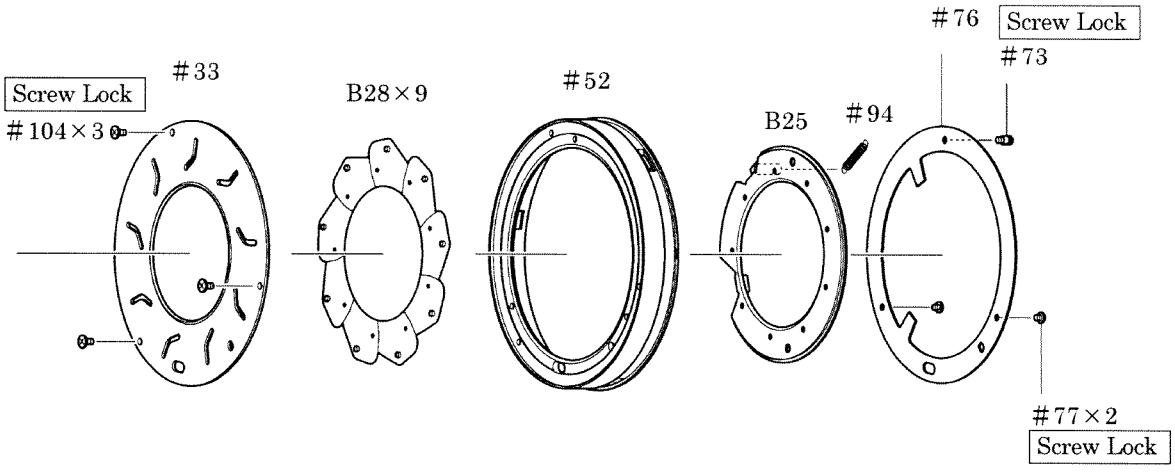
SEESAW LEVER, EE LOCK RING, COUPLING KEY, APERTURE RING



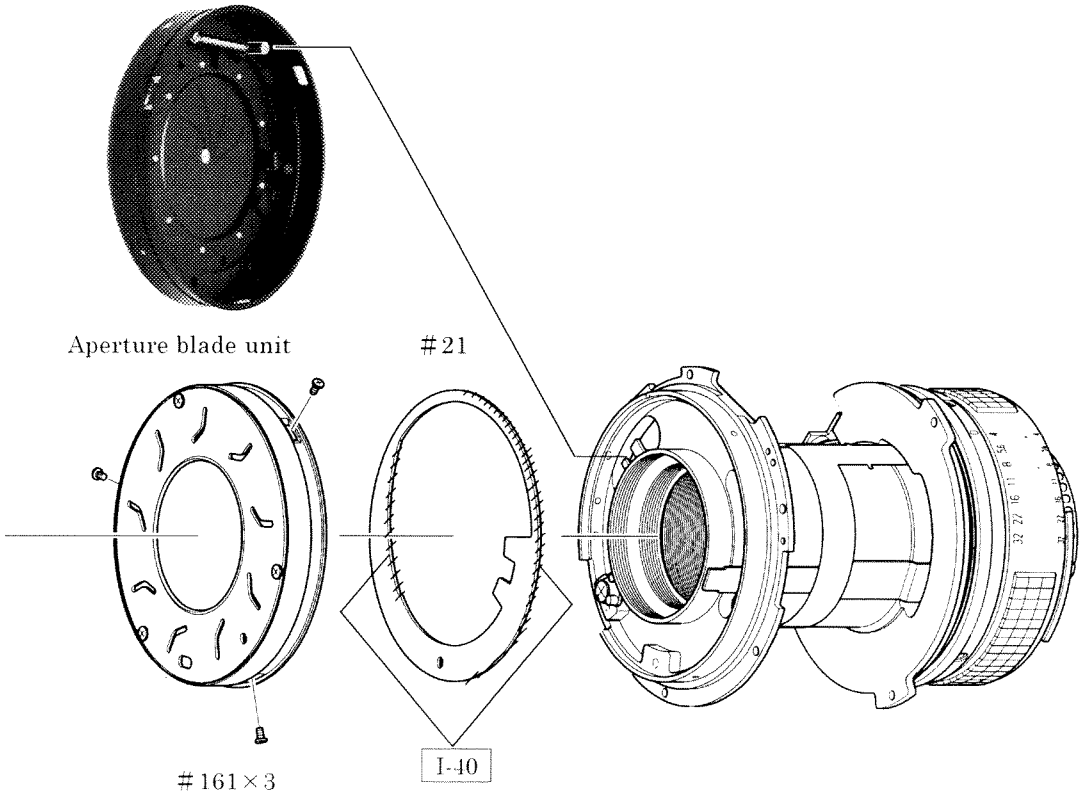
BAYONET MOUNT, REAR COVER RING, CONTACT FPC, θ 3 PIECE



APERTURE BLADE



APERTURE BLADE UNIT

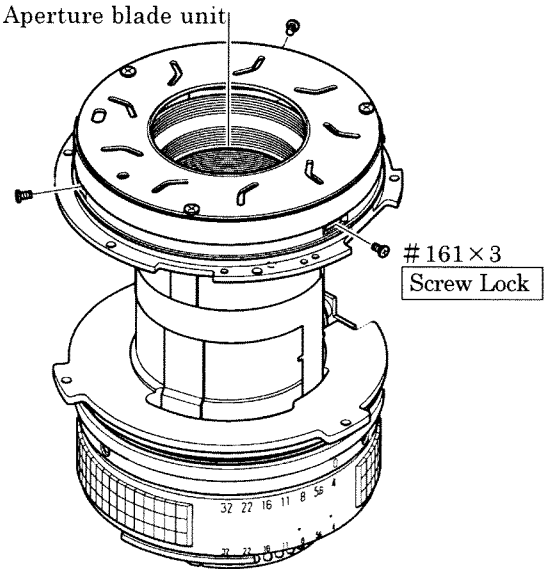


APERTURE DIAMETER ADJUSTMENT

①Adjust the diameter by loosening the screws #161×3 and moving the aperture blade. As a standard, set the maximum aperture (f/4) the same as the inside diameter of the arrow rack #33. (The inside diameter of the arrow #33 is almost the same as the reference inscribed circle diameter.)

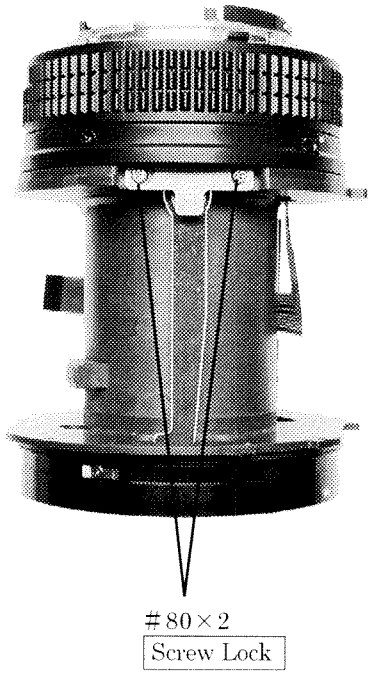
- The aperture diameter must be within the allowable range even if moving the aperture ring back and forth.
- The aperture diameter must be within the allowable range when the aperture lever is flipped by the finger and when it is not so.

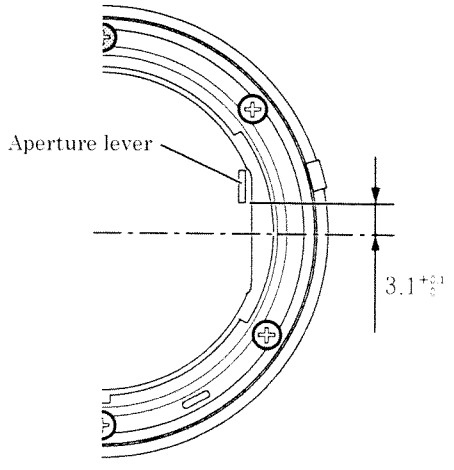
②After adjustment, fix the screws #161×3 with screw lock.



Aperture setting	Inscribed circle diameter (mm)	Allowable range (mm)
4	32.00	30.97～33.10
5.6	22.89	20.39～25.69
8	16.07	14.32～18.04
11	11.30	9.69～13.18
16	7.97	6.83～9.29
22	5.65	4.85～6.59
32	3.98	3.41～4.64

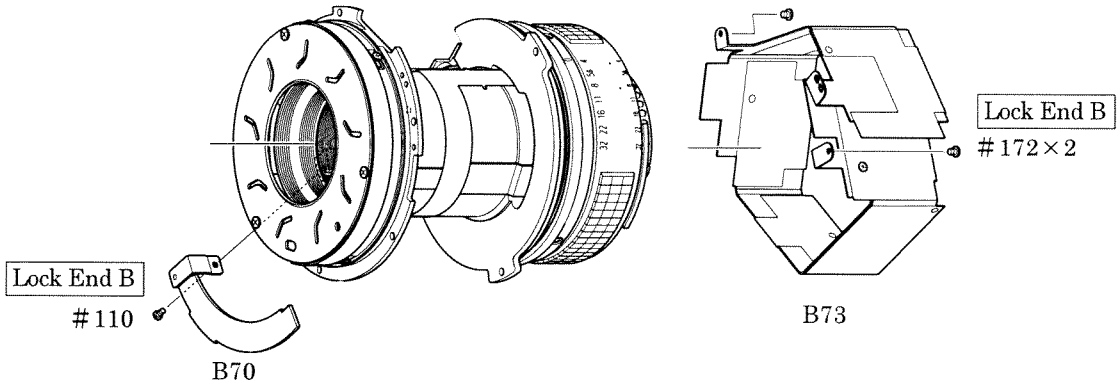
APERTURE LEVER POSITION ADJUSTMENT

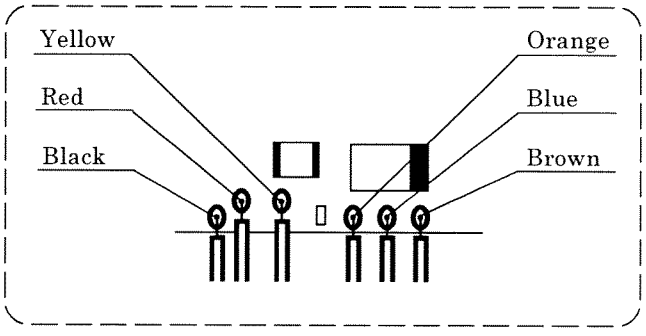




Adjust the position by loosening the screws #80×2. The aperture lever position must be within $3.1^{+0.1}_{0}$ to obtain the proper maximum aperture diameter. After adjustment, fix the screws #80×2 with screw lock.

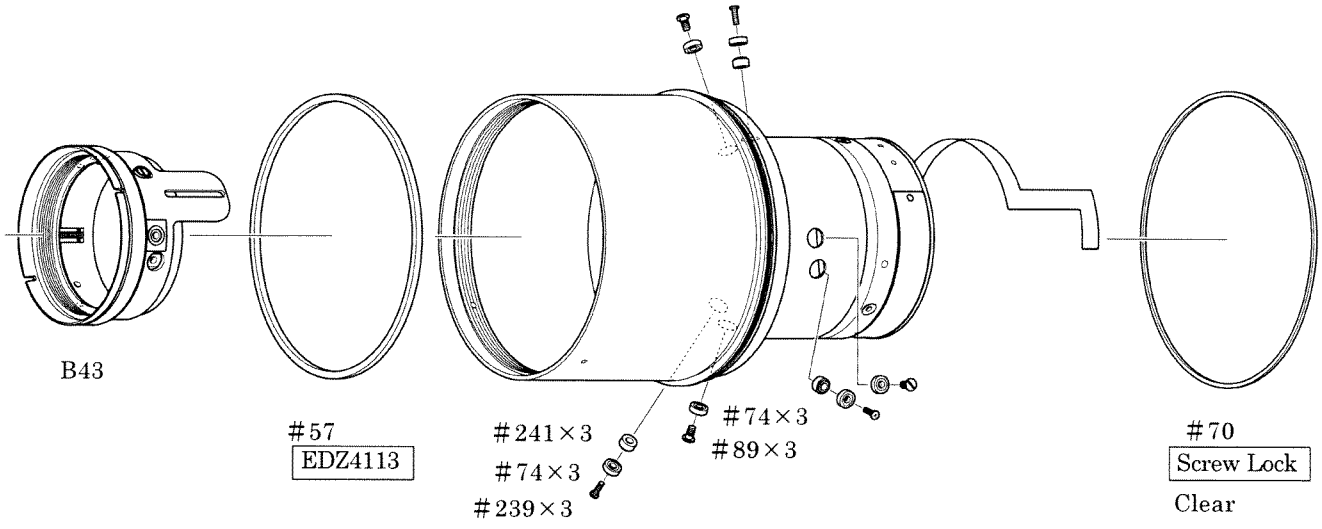
DC-DC CONVERTER, MAIN FPC



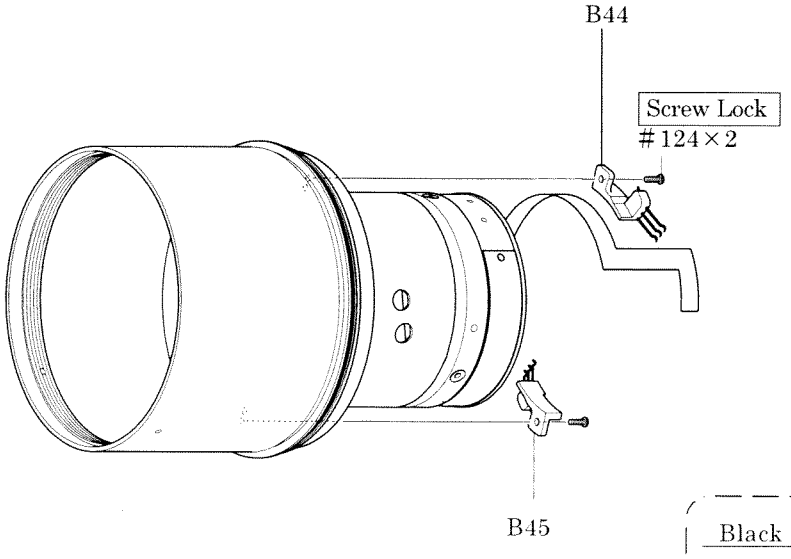


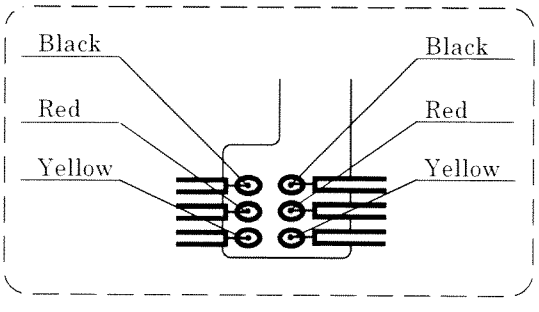
2 . FRONT GROUP

FRAME FOR 3rd LENS GROUP, GOLD RING, RUBBER RING

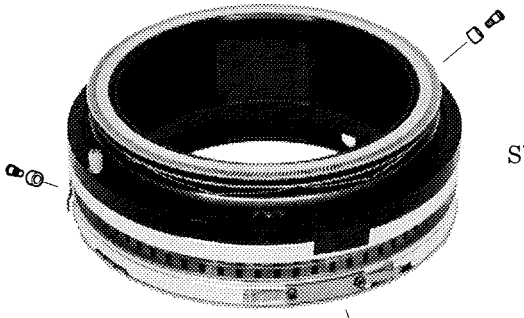


POWER BRUSH



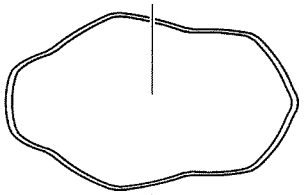


SWM ASSEMBLY

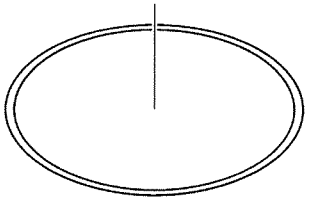


SWM assembly

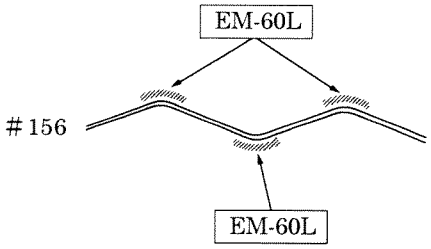
#159×3
#158×3 Lock End B



#156

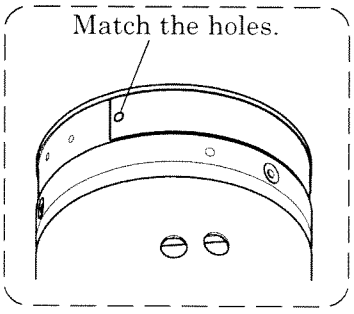


#155A～C



Distance FPC

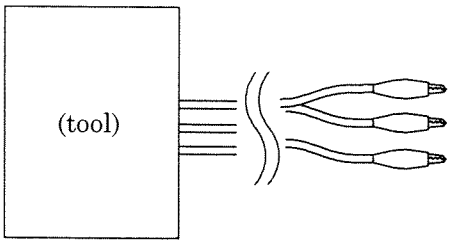
・The position where the absolute distance FPC should be attached

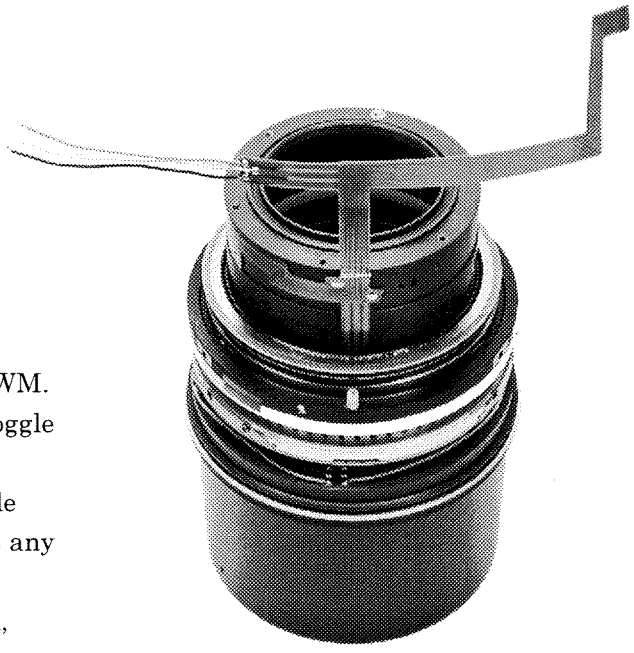


CHECK THE SWM ASSEMBLY

Using the hand-made tool for SWM's rotative motion which is described in the page T2 in the repair manual for AF-S300/2.8D (JAA 33351), check the SWM's operation mode.

①Connect the hand-made tool with the lead wire of the connection FPC.



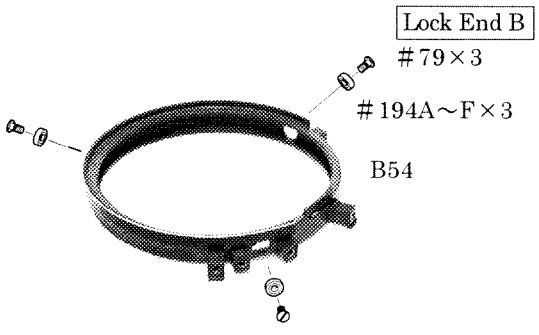


②Turn on the switch in order to rotate the SWM. Change over the rotating direction by the toggle switch.

③Alter the SWM's rotation speed by a variable resistance, and then check whether there is any irregular operation mode or not.

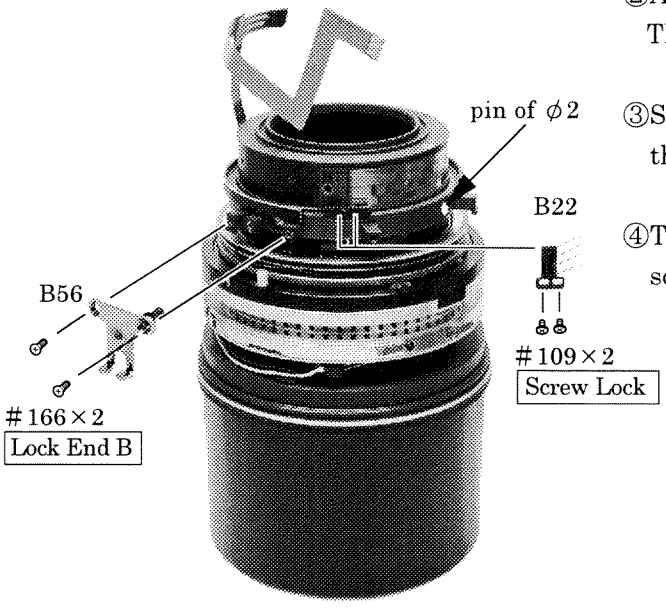
④Just in case of discovery of any malfunction, replace the washer #155A～C to adjust.
(Refer to the page L17.)

MR ENCODER



<Reference>
The #194B (1K118-713) roller is the standard part.

COUPLING PIN, DISTANCE ENCODER BRUSH

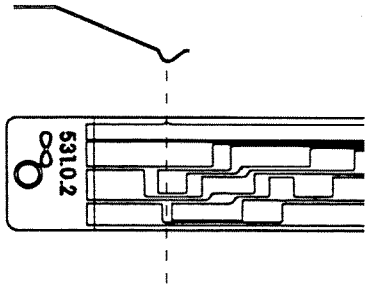


①Using a drill or so, insert the pin of φ2 at the position designated in the left photo.

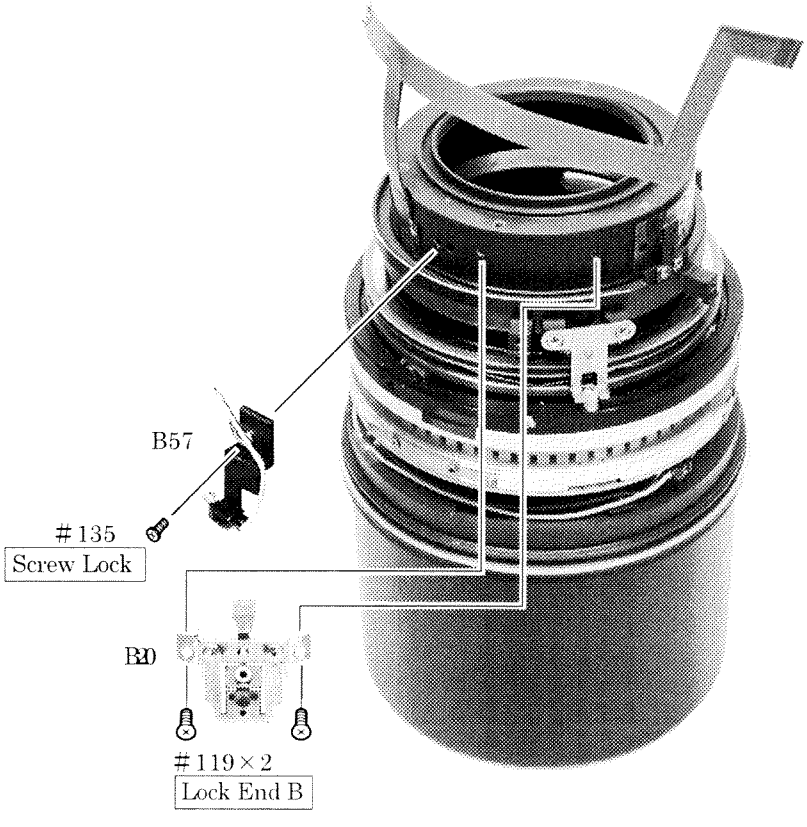
②Attach the distance information encoder brush B22. Then, fix the screw tentatively.

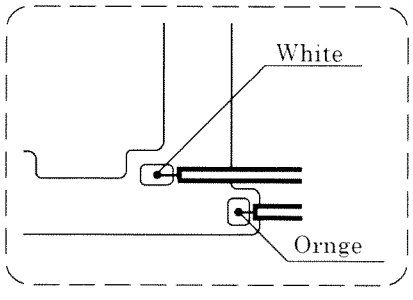
③Set the brush point to the position where contacts the line as shown in the figure below.

④Tighten 2 pieces of the screw #109 and then fix the screws by the Screw Lock.

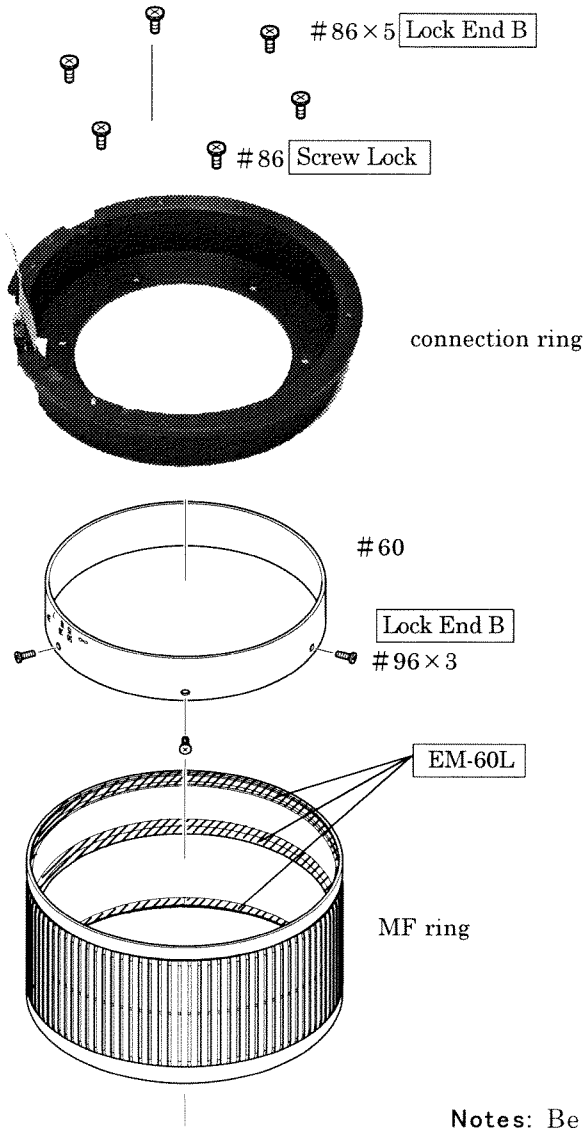


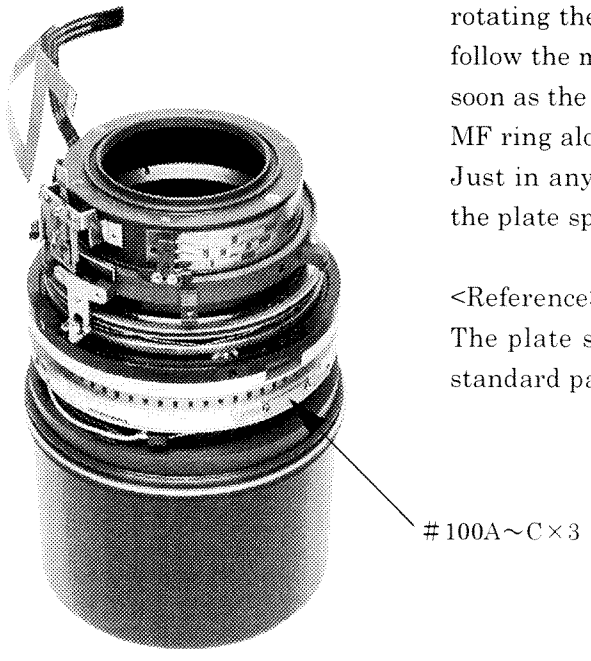
M/A BRUSH, MR HEAD





MF RING, FOCUS INDEX RING, CONNECTION RING





Notes: Be sure that when mounting and rotating the MF ring, the focus index should follow the motion the MF ring makes, and as soon as the focus index touches the limit, the MF ring alone should rotate.
Just in any irregular rotation case, replace the plate spring #100A～C×3 to adjust.

<Reference>
The plate spring #100A (1K241-280) is the standard part.

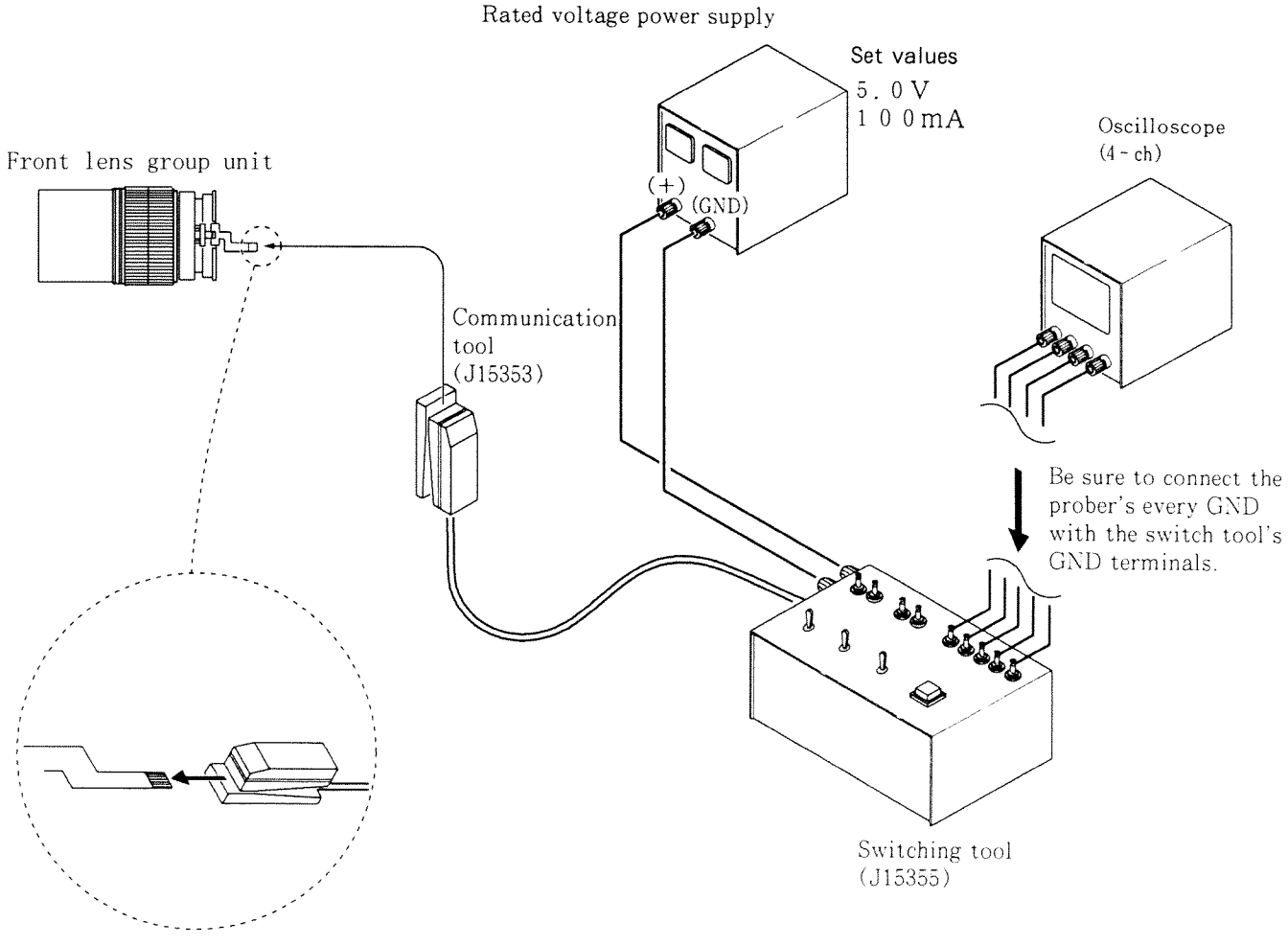
INSPECTION AND ADJUSTMENT FOR THE WAVEFORM OUTPUT FROM MR ENCODER

・In case of replacing the MR tape or the MR head, be sure to conduct adjustment.

1. Equipment and tools to be required
   - ・Rated voltage power supply for single output : Q'ty 1 With 5.0 V and 100 mA, applicable for the switch tool
   - ・Oscilloscope : 1
   - ・Communications tool J15352 : 1
   - ・Switch tool J15355 : 1

Notes: In case of any trouble in conduction between the communications tool and the relay FPC, there may be corrosion or oxidation on the contact surface of relay FPC.
In this accord, be sure to polish the contact surface prior to getting connected with the communications tool.

2. Preparation of the lens applicable for measurement
   - ・As shown in the figure below, connect the rated voltage power supply with the measuring tool and the communications tool.



3. How to conduct inspection and adjustment

①Turn off the switch tool's switch 1 and 2. Then, turn the switch 3 on.

② Check whether or not both current and voltage from the connected rated voltage power supply are set values.

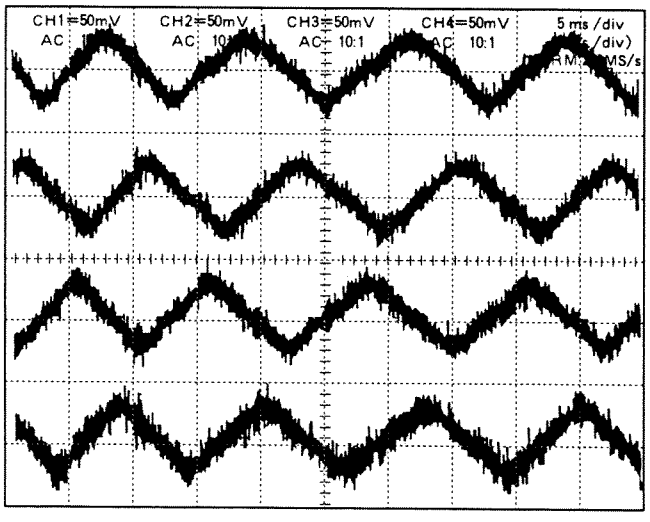
If they are to meet the set values, turn the main switch on.

③ Set the oscilloscope.

Then, drive the focus ring.

④ Stop the waveform from the oscilloscope by 'START / STOP' key and check it.

Notes: Since the shape of waveform varies according to the driving speed of focus ring, particularly and properly set Time / Div.



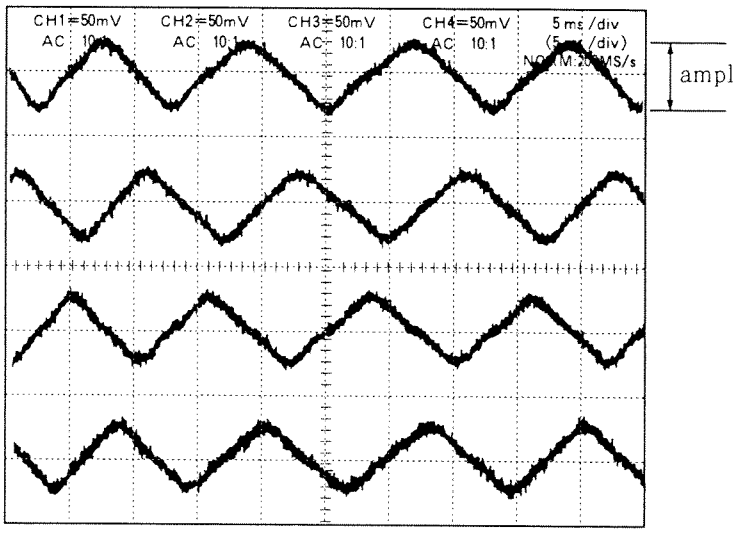
● Setting of oscilloscope

V／Div (CH 1)	: 5 0 mV
V／Div (CH 2)	: 5 0 mV
V／Div (CH 3)	: 5 0 mV
V／Div (CH 4)	: 5 0 mV
Coupling	: AC
Time／Div	: 5 ms (reference)

⑤ In the case of detecting any wider waveform noise, use the filter function.

How to set the filter function in the employment case of Yokogawa-manufactured DL1540

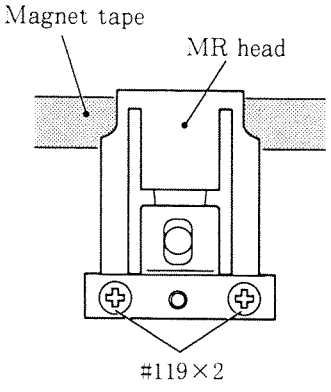
1. Press the filter button.
2. Select 'Smooth' in the menu on PC screen.



Criteria : The amplitude of every pulse ／ waveform should be more than 40 mV.

Precaution : Check the waveform by letting the focus ring to travel from the infinity-end position to the nearest distance and vice versa.

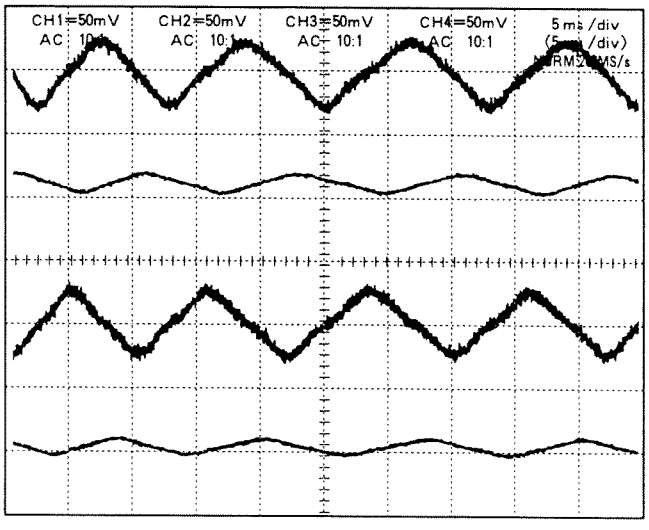
⑥In the case of smaller amplitude, for adjustment, loosen two pieces of the screw #119 and then shift the MR head position as shown in the right figure.



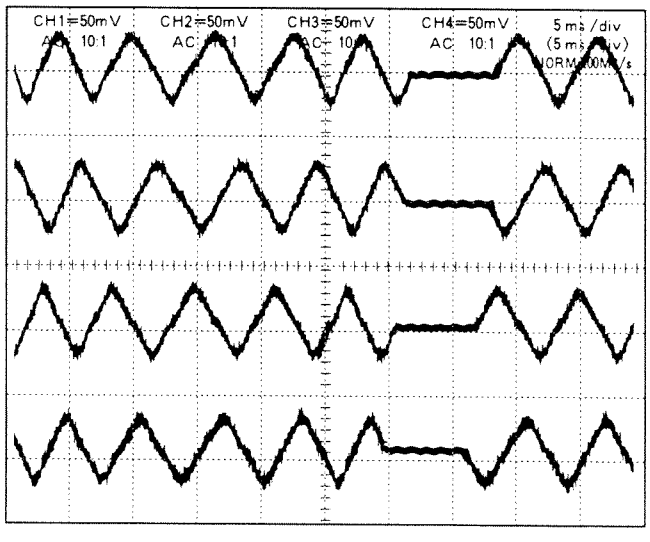
Precaution: Due to a cause to damage the magnetic data, during adjustment, avoid that the magnet tape and the MR head touch the magnetism-maintained driver bit.

《Reference》

・In case the amplitude of either 'CH 1 and 3 phases' or 'CH 2 and 4 phases' combination seems smaller, either of the two screws may loosen.
Then, check the screws.
Or, in case the both screws are enough tightened, the MR head may be troubled.
Then, be sure to replace the MR head unit B20 and adjust it again.

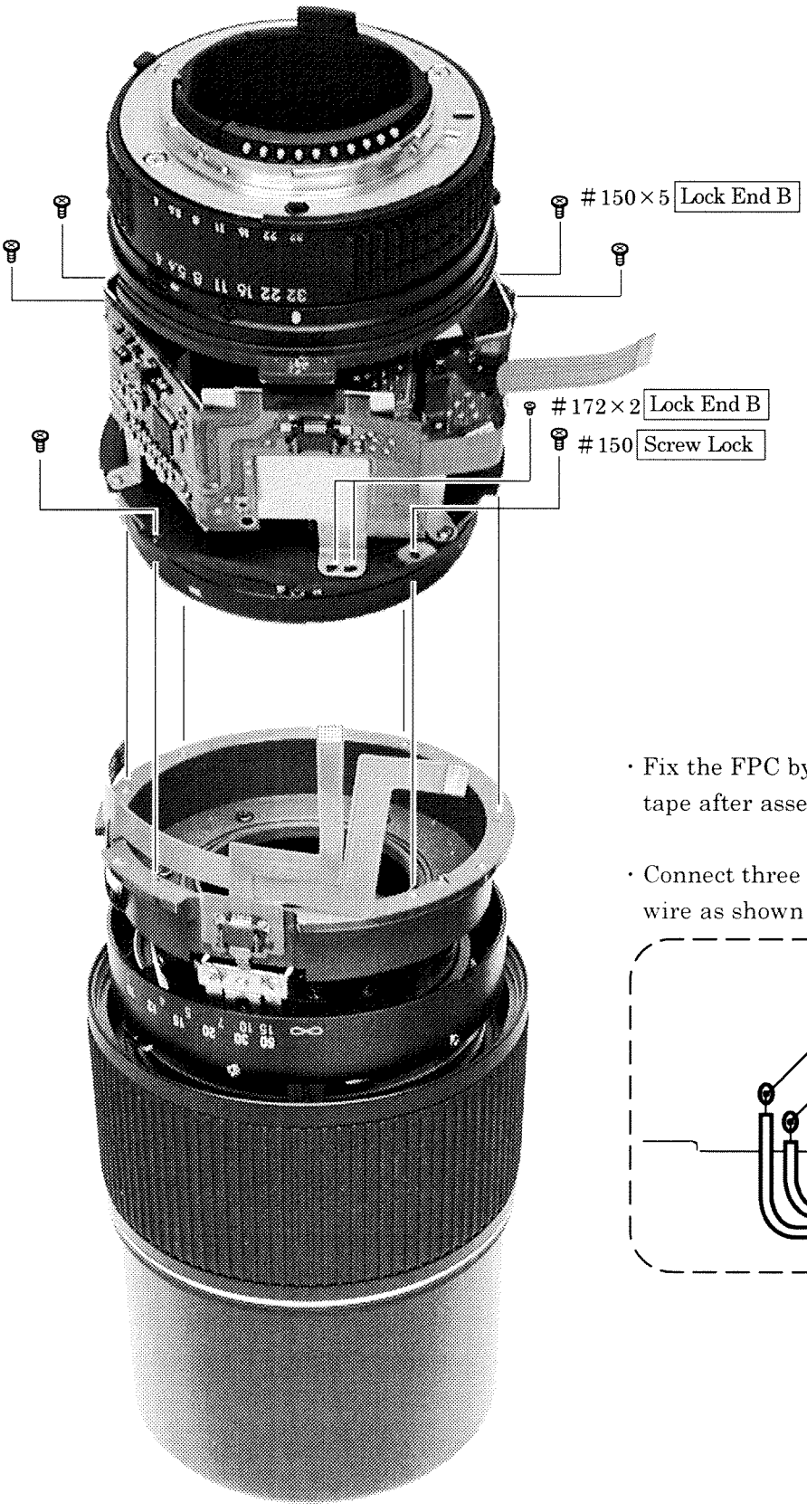


・In case of a presence of partial drop in the amplitude between the infinity and the closest distance, the magnetic data in magnetic tape may be damaged.
Then, replace the magnetic tape and adjust it again.

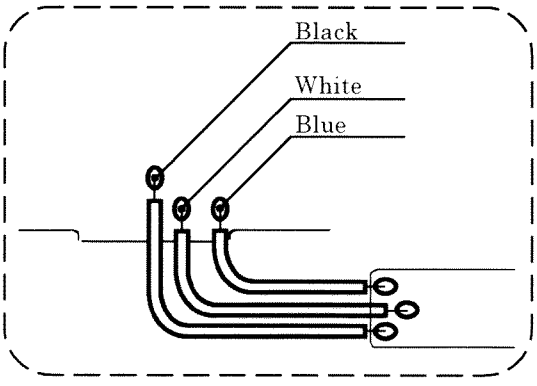


⑦Turn the rated voltage power supply off.

MOUNTING THE REAR GROUP ON THE FRONT GROUP

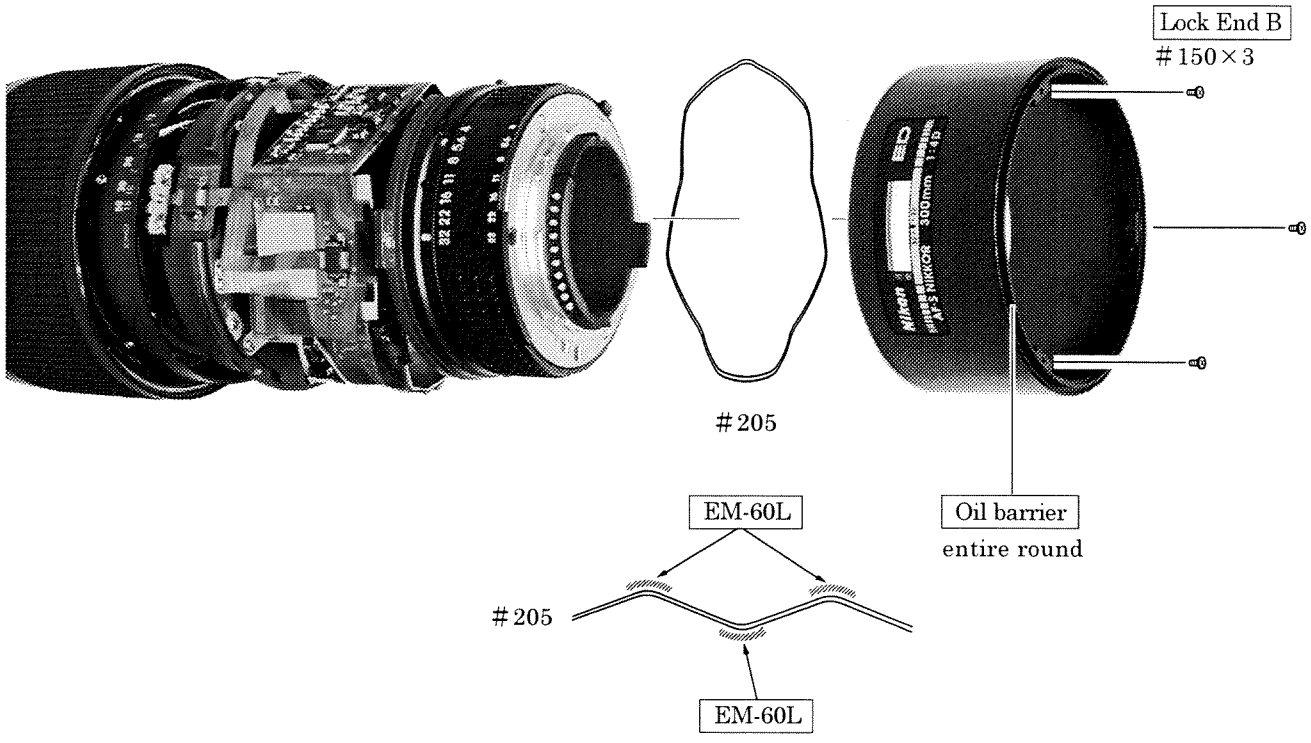


- Fix the FPC by the both-sided adhesive tape after assembling them.
- Connect three connectors and solder each wire as shown below.

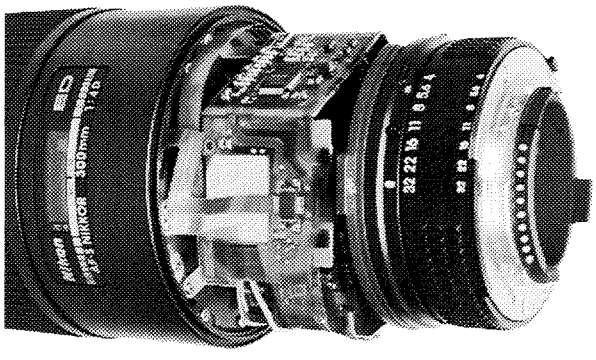


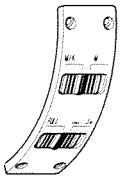
3. APPARANCEE

INDEX RING

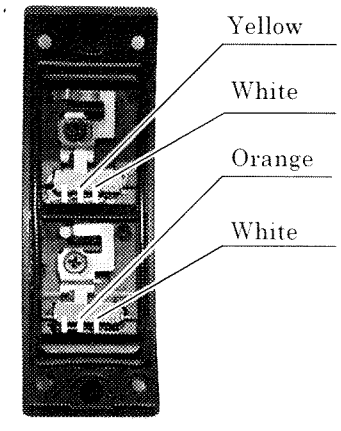


WIRING OF CHANGE-OVER SWITCH





・Arrange the following codes when replacing the switch.



PREPARATION FOR ADJUSTMENT OF THE MAIN FPC

・In case of replacing the main FPC, the SWM unit, the MR encoder or the MR head, be sure to adjust the following items due to a necessity on the operation.

1. Items to adjust
   ・Pulse from the MR encoder

   ・Scanning speed checked from the driving frequency

   ・Oscillation circuit

   ・Motor control

2. Necessary equipment
   ・Single output rated voltage power supply : 1 to 3 unit(s)
   For contact A to mount : 5.0 to 5.5 100 mA
   For contact F to contact G : 6.0 V 3.0 A
   In case of utilizing double output power supplies : 5.0 V 2.0 A

   ・Multiple output rated voltage power supply : 1 unit for H8 D/A converter (for FV converter)
   In case of using the double output power sources : ±15.0 V 300 mA
   In case of using the triple output power sources : ±15.0 V 300 mA
   + 5.0 V 2.0 A

   ・H8 D/A converter J15334 (as F/V converter) : 1 unit for adjusting the scanning speed

   ・Oscilloscope : 1 unit for adjusting the pulse from the MR encoder, and for adjusting the scanning speed

   ・Frequency counter : 1 unit for adjusting the scanning speed, and for adjusting the oscillation circuit

   ・Communications tool J15353

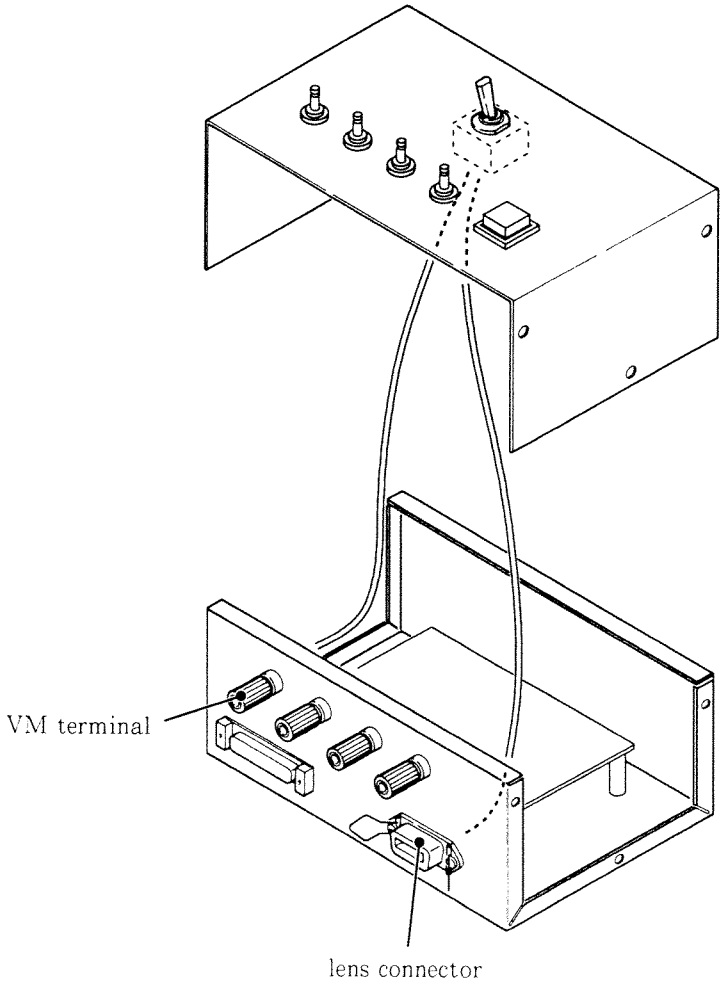
   ・Switching tool J15355

   〈For your reference〉
   Only 1 unit of the single output rated voltage power source is possible to supply current from the power source needed for adjustment.
   Then, its voltage value should be fixed to 5.0 V.

Notes: In case of the presence of any defective conduction mode between the communications tool and the main FPC, corrosion or oxidation mode on the main FPC contact surface shall be conceivable.
Then, polish the contact surface and connect.

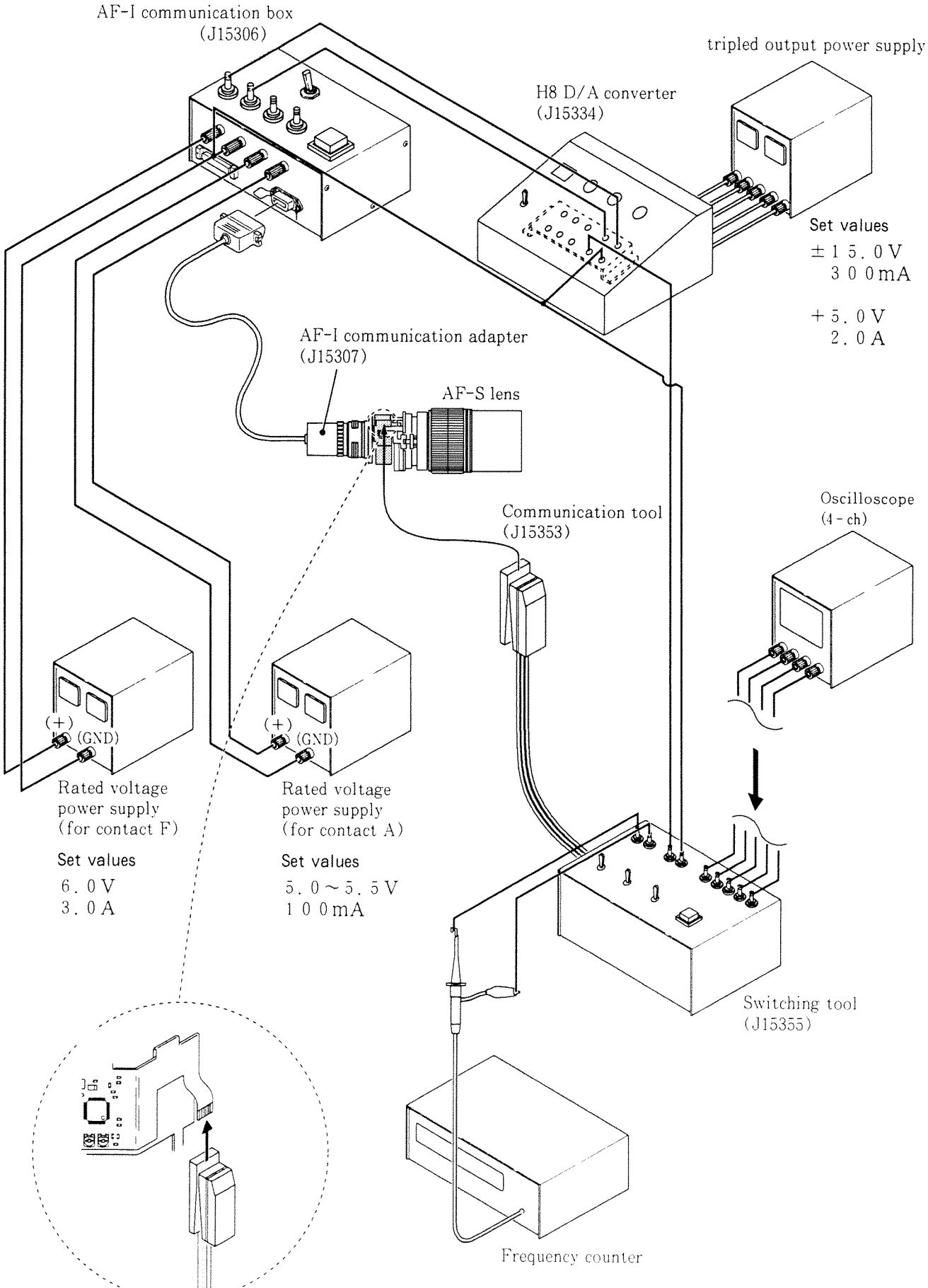
3. Preparation of the measuring lens

- As shown in the figure in the next page, arrange the connections between the rated voltage power supply, the measuring tools and the communication tool.
- Arrange the connections with the AF-S lens inspection system.
  In case the DC-DC converter is already connected in the AF-I communications box, the rated voltage power supply for contact A is not necessary.
- In case of measuring this AF-S lens, the AF-I communications box needs to be remodeled as shown in the figure below.



- Connect the toggle switch with the somewhere between the VM terminal and the 1 pin, or the contact F, on lens connector.
  Then, perform wiring.

- In order to set the lens driving mode selector switch to M/A, do not short both white and orange lead wires which are to be soldered at the change-over switch.


AF-I communication box
(J15306)
tripled output power supply
H8 D/A converter
(J15334)
Set values
±15.0V
300mA
+5.0V
2.0A
AF-I communication adapter
(J15307)
AF-S lens
Communication tool
(J15353)
Oscilloscope
(4-ch)
(+)
(GND)
Rated voltage
power supply
(for contact F)
Set values
6.0V
3.0A
(+)
(GND)
Rated voltage
power supply
(for contact A)
Set values
5.0～5.5V
100mA
Switching tool
(J15355)
Frequency counter

PULSE ADJUSTMENT FOR THE MR ENCODER

・In case of replacing the MR encoder or the MR head, be sure to adjust the pulse.

How to adjust

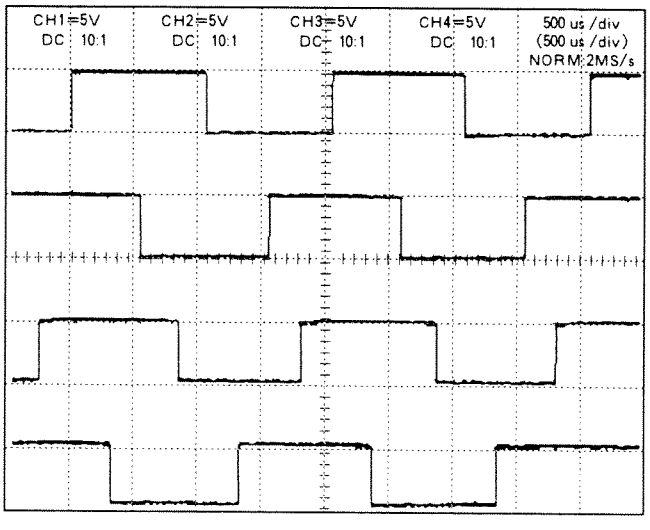
①On the switching tool, turn on the switch 1, turn off the switch 2, and turn on the switch 3.

②Check whether the arranged numerical value for connecting each current and voltage is adequate or not.
Then, turn on the rated voltage power supply each for the contact A and the contact F.

③Select the item of "The main FPC adjustment" from the menu in the AF-S tele lens inspection program.
Then, set the mode ready for the adjustment.

④Turn on the remodeled switch on the AF-I communications box.
Then, the lens automatically starts the scanning operation.

⑤Stop the pulse from the oscilloscope by operating 'START / STOP' key.
Then, the quantity of width between H and L should be two to three blocks.

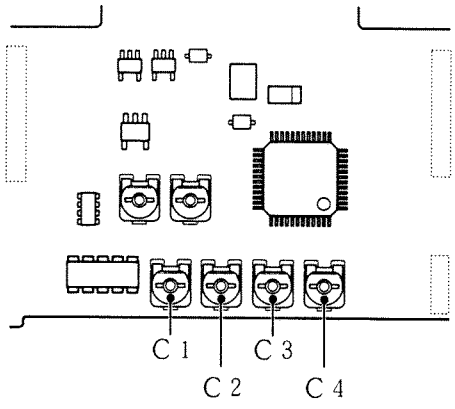


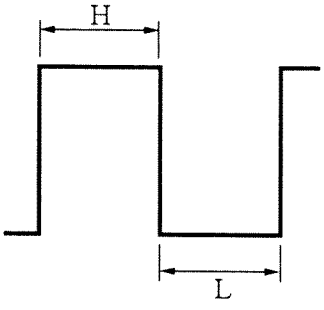
● Setting of oscilloscope

V／Div (CH 1)	: 5 V
V／Div (CH 2)	: 5 V
V／Div (CH 3)	: 5 V
V／Div (CH 4)	: 5 V
Coupling	: DC
Time／Div	: 500 μ sec
Trigger Mode	: AUTO
Trigger Coupling	: DC
Trigger Source	: CH 1
Trigger position	: − 4 div
Trigger Type	: ⌐↑
Trigger Level	: 2.5 V

Adjust the ratio between H and L in each CH 1 to CH 4 by VR, variable resistor.

Standard H : L = 9 : 10 ~ 10 : 9



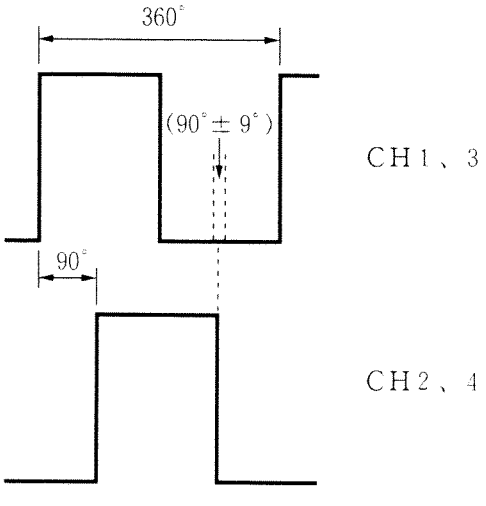


CH 1 : VR for C 1
to
CH 4 : VR for C 4
In the case of longer H : Drive the VR clockwise.
In the case of longer L : Drive the VR anticlockwise.
Notes: In the impossible case of adjusting it by the VR, replace the MR encoder or the MR head.

After adjusting the width ratio between H and L, as shown in the figure below, check that CH 1 goes horizontally 90-degree earlier than CH2.
Besides, confirm that this phenomenon also applies for the case between CH 3 and CH 4.

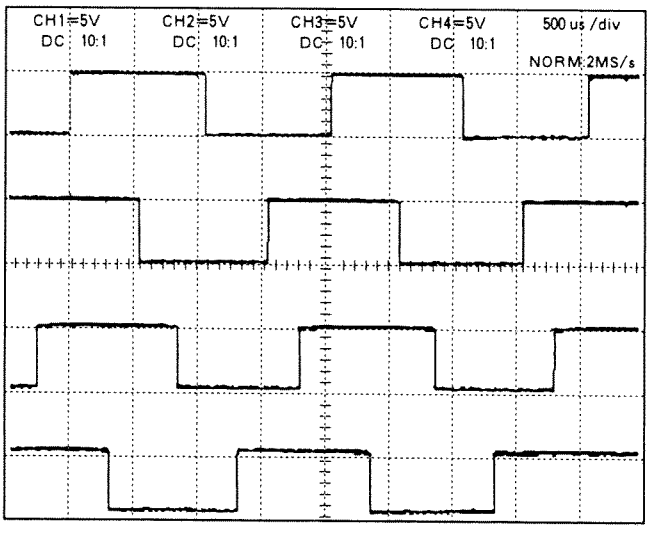
Standard within 90° ± 9°

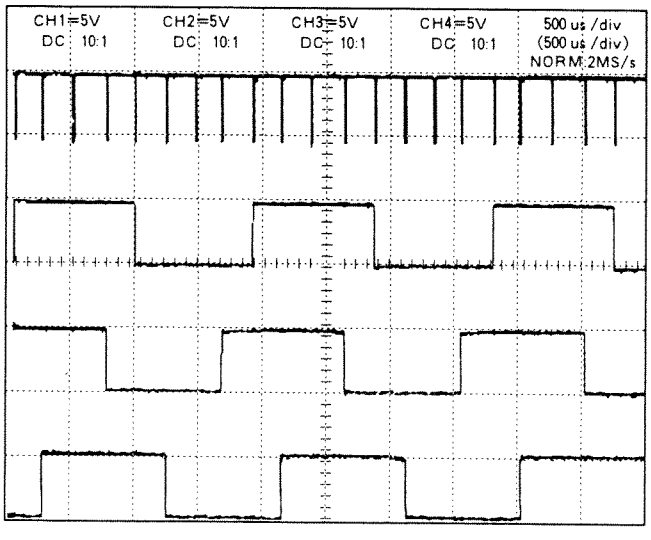
Notes: In case the focus index ring drives from the closest position to the infinity, the CH 2 and 4 horizontally advance in 90° against the CH 1 and 3.
Besides, just in the out-of-standard case, replace the MR encoder or the MR head.



⑧Press the switch 4 of switching tool.

⑨Stop the oscilloscope CH1's pulse by operating the 'START / STOP' key and then check there are equal intervals among them.





● Setting of oscilloscope

Change only the Trigger Mode to SGL[S].

⑩Turn off the remodeled switch on the AF-I communications box.
Then, escape from the adjustment-available mode in the AF-S tele lens inspection program.

⑪ Turn off the arranged voltage power supply.

ADJUSTMENT FOR SCANNING SPEED/ INSPECTION FOR DRIVING FREQUENCY

・This adjustment is made for calculating the adjusted frequency value for the oscillation circuit adjustment.
In this accord, be sure to adjust it when replacing either the main FPC, the SWM unit, the MR encoder or the MR head.

①For how to connect the rated voltage power supply with the measuring tools, follow the same procedures with 'Pulse adjustment for the MR encoder'.

②Check whether or not both current and voltage from the rated voltage power supply are the same with the set values.

③Set the switch of the H8 D/A converter in accordance with the conditions below, and then turn on the triple output power source.
Rotary switch : Frequency, UP, 10 KHz, 20 m sec., 2K
Toggle switch : Open
INA : Connect INA with the terminal H on AF-I communications box.
INB : Connect INB with the terminal E on AF-I communications box.
GND : Connect GND with both the AF-I communications box' terminal GND and the switching tool's terminal GND.
D/A : Connect the D/A with the terminal ~~#~~ on switching tool.
D/A △1 (Revise)

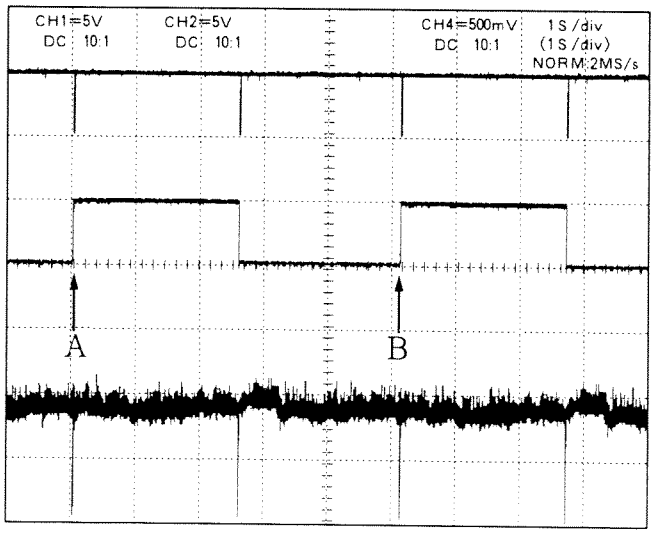
④On the switching tool, turn on the switch 1 and turn off the switch 2 and 3.

⑤Turn on the arranged voltage power supply for the contact A and the contact F.
Notes: In case the ampere meter index widely swings, immediately turn off the power supply.
This mode shows the dangerous and critical condition caused by the circuit in short condition.

⑥Select the item of "Main FPC adjustment" in the AF-S tele lens inspection program menu.
Then, set the mode ready for adjustment.

⑦Turn on the remodeled switch on the AF-I communications box.
Then, the lens automatically starts the scanning operation.

⑧Using the oscilloscope, measure both the scanning time CH2 and D/A output CH4 from the



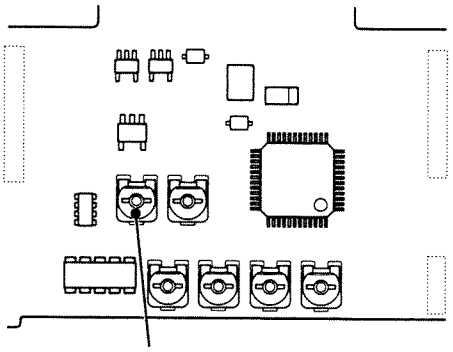
● Setting of oscilloscope

V／Div (CH 1)	: 5 V
V／Div (CH 2)	: 5 V
V／Div (CH 3)	: OFF
V／Div (CH 4)	: 500 mV
Coupling	: DC
Time／Div	: 1 sec
Trigger Mode	: NORMAL
Trigger Coupling	: DC
Trigger Source	: CH 1
Trigger position	: − 4 div
Trigger Type	: ⌐
Trigger Level	: 2.5 V

⑨Using the VR 52, adjust the scanning speed which is created between the pulse A and B in the oscilloscope CH2.

The numerical value of scanning speed : 5．2 ± 0．5sec（10 ± 1rpm）

〔Main FPC〕



VR 5 2 （Adjusting the scanning speed）

⑩Check whether there is any irregular scanning mode in the oscilloscope CH4's pulse or not.
The pulse to be checked : Whole pulse except the one(s) dropping around to 0 V.
Referable value : The difference between max. and min. should be less than 1 V.
Notes: In case of any conspicuous difference(s) among the pulses, there is a possibility of any mechanical failure in the MR encoder or the MR head.

⑪After adjusting the scanning speed, take a record of the driving frequency which is a measured value on the frequency counter.
In case there is a HOLD function on the frequency counter, to hold the displayed measured value shall be recommendable for your further convenience.

⑫After turning off the remodeled switch in the AF-I communications box, escape from the adjustment-available mode in the AF-S tele lens inspection program.

⑬Turn off the switch 1 on switching tool.

⑭Select the item of "Check for driving frequency" from the AF-S tele lens inspection program menu.

⑮Follow the instructions on PC screen and check the temperature coefficient.
Then, input the driving frequency value which was recorded in the column above.
Accordingly, both the high and low frequency values from the adjusted frequency range are displayed.
Notes: While displaying the inspection program, adjust the oscillation circuit.

⑯Turn off the triple output power supply of the H8 D/A converter.

ADJUSTMENT FOR THE OSCILLATION CIRCUIT

・This adjustment is made for the frequency which drives the SWM.
Be sure to perform after adjusting the scanning speed.

Notes: Continuously adjust the oscillation circuit after adjusting the scanning speed.

①For how to connect the rated voltage power supply with the measuring tools, follow the same procedures with 'Adjustment for scanning speed'.

②On the switching tool, turn off the switch 1, turn on the switch 2 and turn off the switch 3.

③Check whether each current and voltage value from the connecting voltage power supply is set-up value or not.
Then, turn on the rated voltage power supply for the contact A and the contact F.

Notes: In case the ampere meter index widely swings, immediately turn off the power supply. This mode shows the risky and critical condition caused by the circuit in short condition.

④Turn on the remodeled switch in the AF-I communications box.

⑤For checking the driving frequency, select the item of "2. Adjustment of oscillation circuit" in the displayed adjusted frequency value on PC screen, and then set the mode ready for adjustment.

⑥Check whether the displayed value on the frequency counter is around 124 KHz or not.

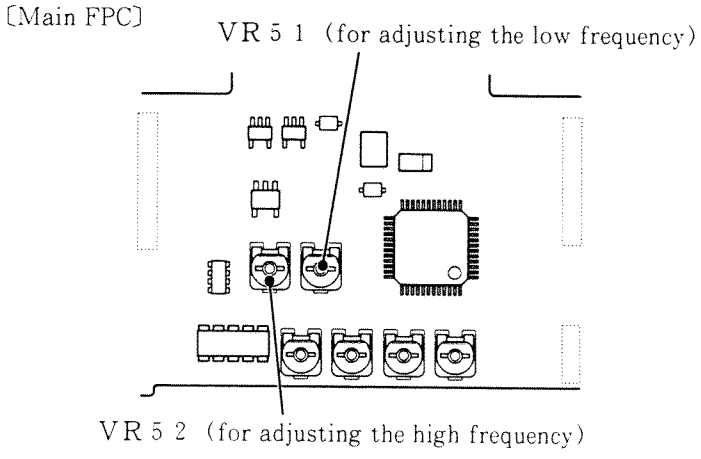
Notes: In any irregular value mode case on the display, reconfirm each arrangement mode for the rated voltage power supply and for each switch, and then go to the inspection mode again. In case what is displayed still shows any irregularity even after doing the procedures above, once again try the processes from ⑬ in the former page, L 33.

⑦Turn off the switch 2 on the switching tool.
Check the displayed value on the frequency counter is around 108 KHz.

⑧Check the both high and low frequency values from the adjusted frequency range on PC screen.

⑨ Turn on the switch 2 on the switching tool. Then, using the semi-fixed resistor VR 52, adjust the high frequency-sided frequency value.

⑩ Turn off the switch 2 on the switching tool.
Then, using the semi-fixed resistor VR 51, adjust the low frequency-sided frequency value.



⑪Turn off the remodeled switch in the AF-I communications box.
Then, escape from the adjustment-available mode in the AF-S tele lens inspection program.

⑫Turn off the rated voltage power supply for the contact F and the contact A.

WRITE DATA IN EEPROM

・When replacing the main FPC, it is necessary to write the fixed value data in EEPROM.
This lens doe not have the aberration compensation data.

【Follow the procedures below for writing the fixed value】

① Connect everything with each other for the inspection system for AF-S lens.
It is possible to conduct adjustment as the oscillation circuit is connected for adjustment.
Then, do not use the switch tool, the H8 D/A converter and so.

② Select 'READING AND REWRITING THE EEPROM DATA' from the menu items of the inspection programme for AF-S tele lens.

③ Write the fixed value.

ADJUSTMENT FOR MOTOR CONTROL

・In order to further optimize the SWM's initial driving, this adjustment should be conducted.
Accordingly, after adjusting the oscillation circuit, be sure to conduct the adjustment.

Notes: During adjustment, be sure to keep the lens flat.
In the case of replacing the main FPC, if not writing the fixed value in EEPROM, the adjustment cannot be done normally.
In this accord, be sure to write the data prior to the regular adjustment.

①Connect everything with each other as the inspection system for the AF-S lens.
Although it is possible to conduct adjustment in the already arranged connection for adjusting the oscillation circuit, some of equipment such as the switch tool, the H8 D/A converter or so are not necessary then for its operation.

②Ensure that each set value is actually applied to both current and voltage for the rated voltage power supply.
Then, turn on the rated voltage power supply for both contacts A and F.

Notes: In case the current meter's hand widely swings, due to electrically short condition in the circuit, be sure to immediately turn off the power supply.

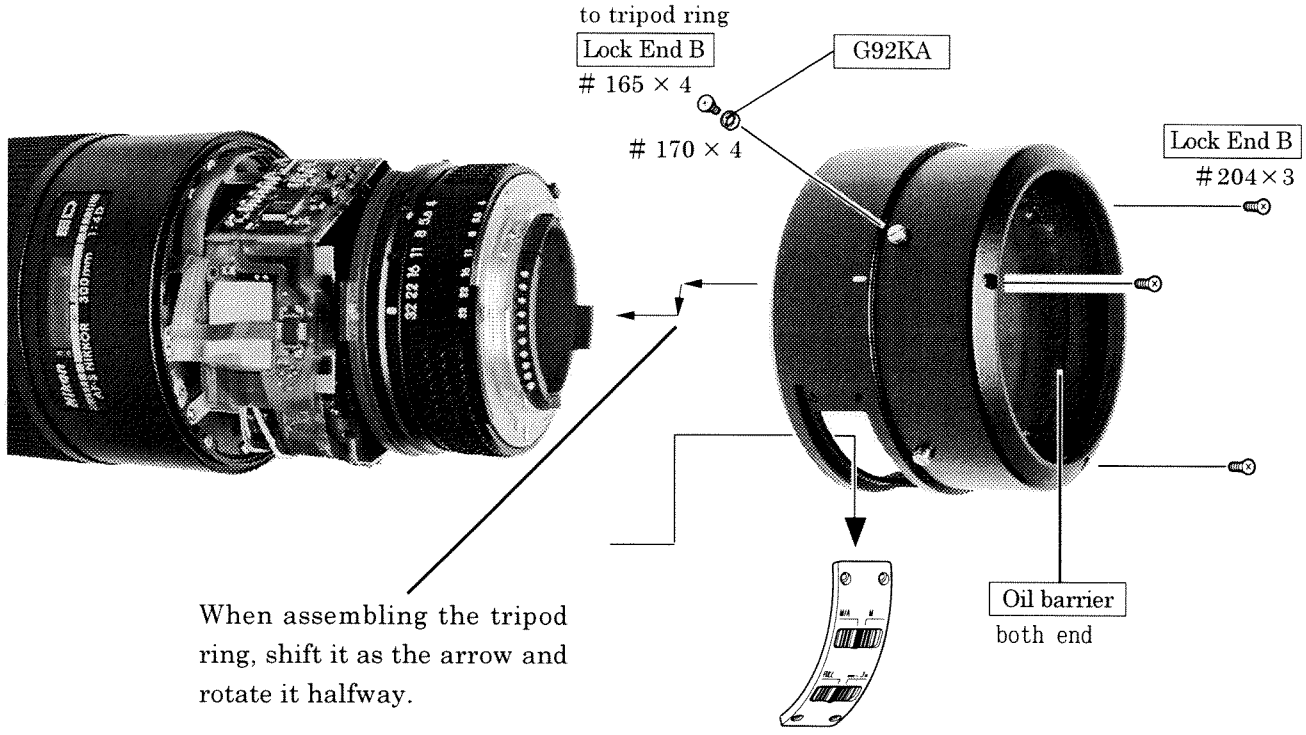
③Select 'ADJUSTMENT FOR MOTOR CONTROL' from the menu items in the inspection programme for AF-S tele lens, and then conduct adjustment.

④Turn off the rated voltage power supply for both contacts A and F.

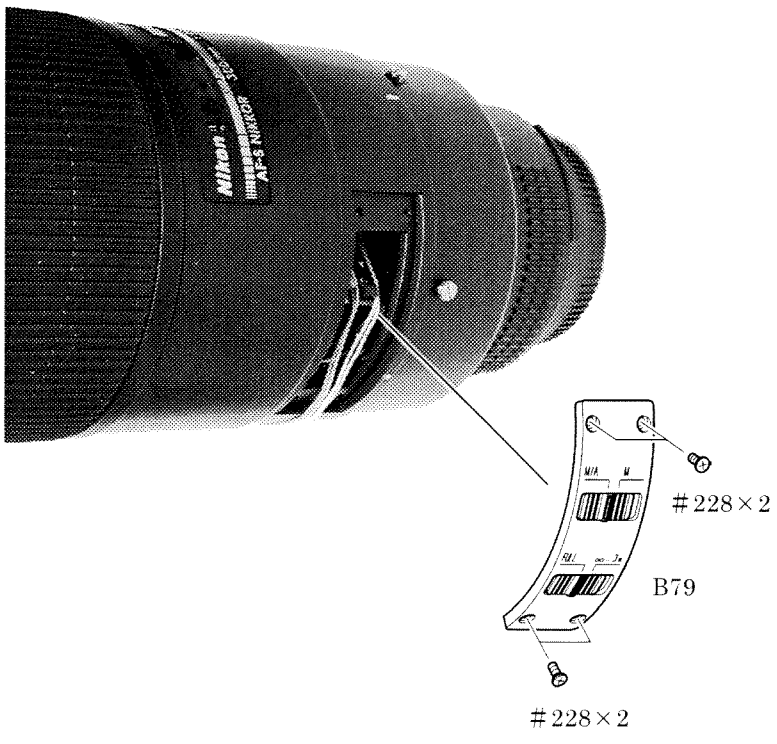
HOW TO MANAGE AFTER ADJUSTING THE MAIN FPC

・Remove the communication tool, and then apply a tape TA-0001 on the FPC communications contact for protection.

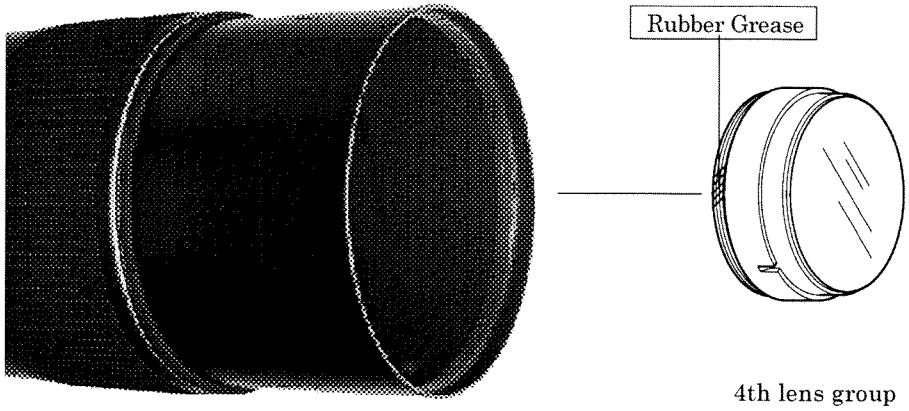
TRIPOD RING



CHANGE-OVER SWITCH UNIT

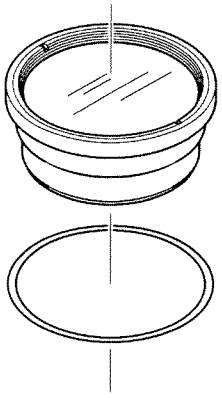


4th LENS GROUP



4th lens group

3rd LENS GROUP



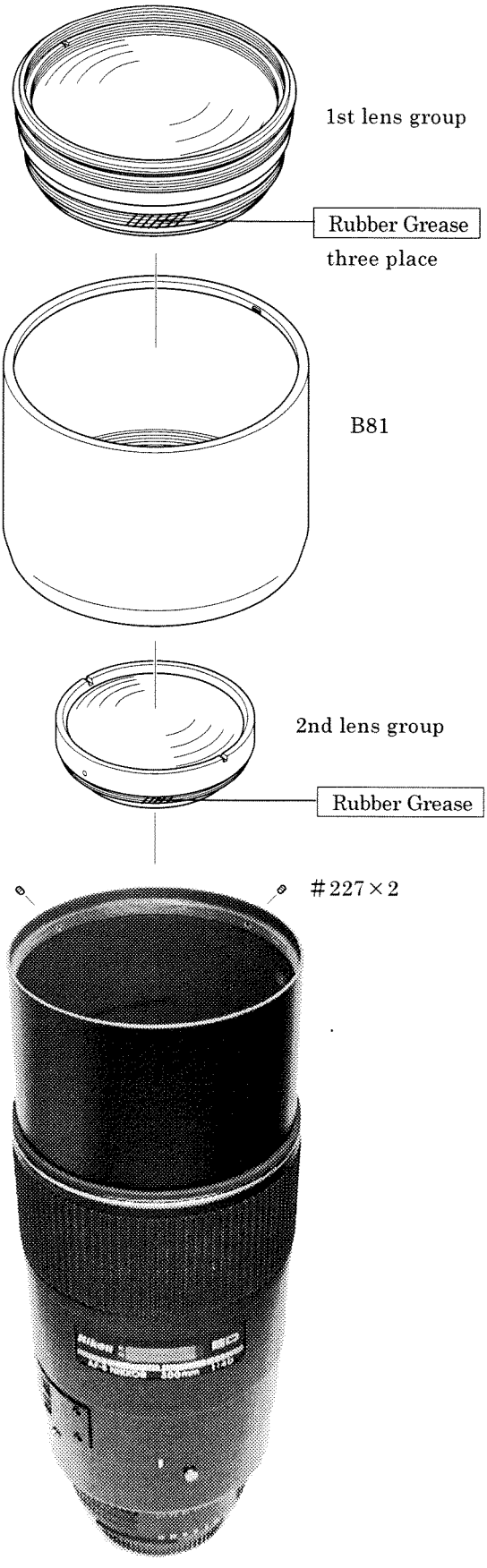
3rd lens group

#126

Rotate the focus ring to the infinity side and set the end of the assistance tool of wrench (J11296) to the notch of the frame for the 3rd lens group to attach it. Then, rotate the screw ring in the arrow direction to fix it.

Notes: Be sure to fix the frame for the 3rd lens group since the roller and the roller groove deform.

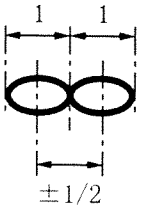
2nd LENS GROUP, HOOD, 1st LENS GROUP



ADJUSTMENT AND CHECK FOR F.F.D. (BACK FOCAS), "∞" ALIGNMENT

1. Align the "∞" mark on focus ring to index. Set aperture to full aperture.
2. Read the M.B.f value and check if it is within the standards.
3. When the M.B.f value is out of standard, remove the 1st, 2nd and 3rd lens groups and then adjust the difference between the standard and the read value by using the washer #126 of the 3rd lens group.
   When the difference is positive: Thicken the washer.
   When the difference is negative: Thin the washer.
   (Refer to L37 page)

   Standard : 0±0. 25mm

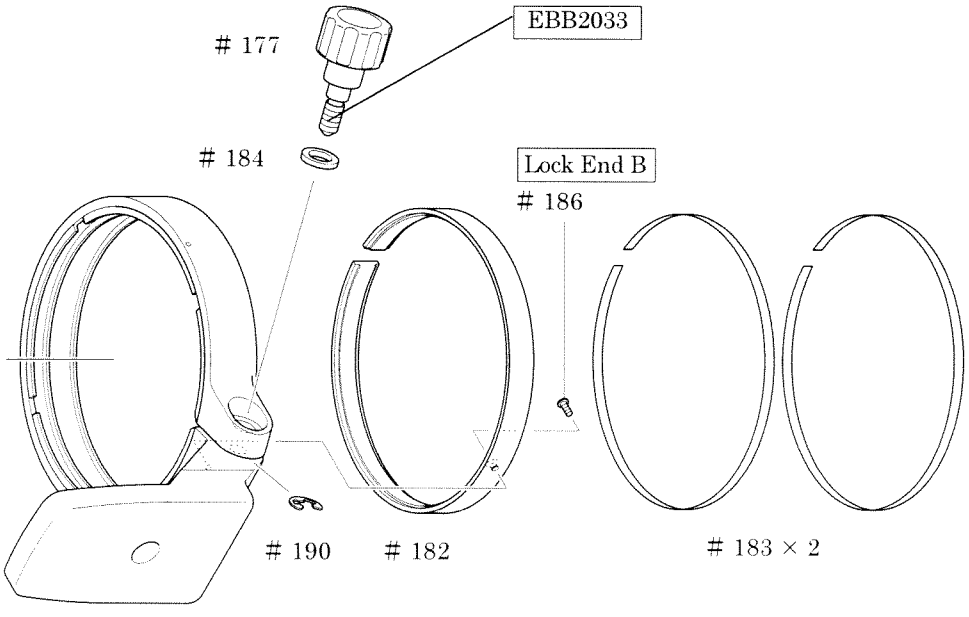


4. When the M.B.f value is within the standard, check the "∞" alignment with acollimater.

   Standard : ±1/2 of "∞"

・If the F.F.D adjustment isimpossible, adjust the "∞" alignment in the same way.

TRIPOD SOCKET



LENS OPERATION CHECK

Refer to the page L38 to L47 in the repair manual for AF-S 80-200/2.8D (JAA76551) and check the operational conditions.
In addition, what is displayed on PC screen is slightly different from the statements in check list. The followings are the tolerances for standards.

(2) Image of "operation of MR encoder"

```
TYPE OF LENS : AF-S NIKKOR 300mm/4D                CPU VERSION : 1.01.00
OPERATION OF MR ENCODER

POSITION WHEN CHECK BEGINS.   [PULSE (S)] ----------------------       -8
POSITION WHEN CHECK IS ENDED. [PULSE (S)] ----------------------        0
PULSE NUMBER DIFFERENCE BEFORE / AFTER CHECK. [PULSE (S)] -----        8
STANDARD FOR DIFFERENCE IN THE NUMBER : FROM   -10   TO   10 [PULSE (S)]
                                                              IN STANDARD.
**********************************************************
THE  TOTAL  NUMBER  OF  PULSE (S)  AT INSPECTION [PULSE (S)] --    8568
STANDARD  FOR  THE NUMBER : FROM   8373   TO   8763 [PULSE (S)]
                                                              IN STANDARD.




PUSH ESC KEY TO RETURN TO MENU
```

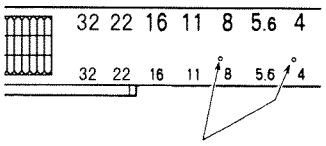
(4) Image of "lens servo time"

```
TYPE OF LENS : AF-S NIKKOR 300mm/4D                CPU VERSION : 1.01.00
INSPECTION OF LENS SERVO TIME.

------------------------------------------------------------------------
    SERVO AMOUNT.                    STANDARD.
1.  [Df1]                        40ms OR LESS
2.  [Df2]                        50ms OR LESS
3.  [Df3]                        65ms OR LESS
4.  [Df4]                        80ms OR LESS
5.  [Df5]                       100ms OR LESS
6.  [Df6]                       115ms OR LESS
------------------------------------------------------------------------
7.  DRIVE TO INFINITY.
8.  DRIVE TO CLOSE.


SELECT A NUMBER
PUSH ESC KEY TO MENU
```

MOUNTING THE COUPLING CLAW



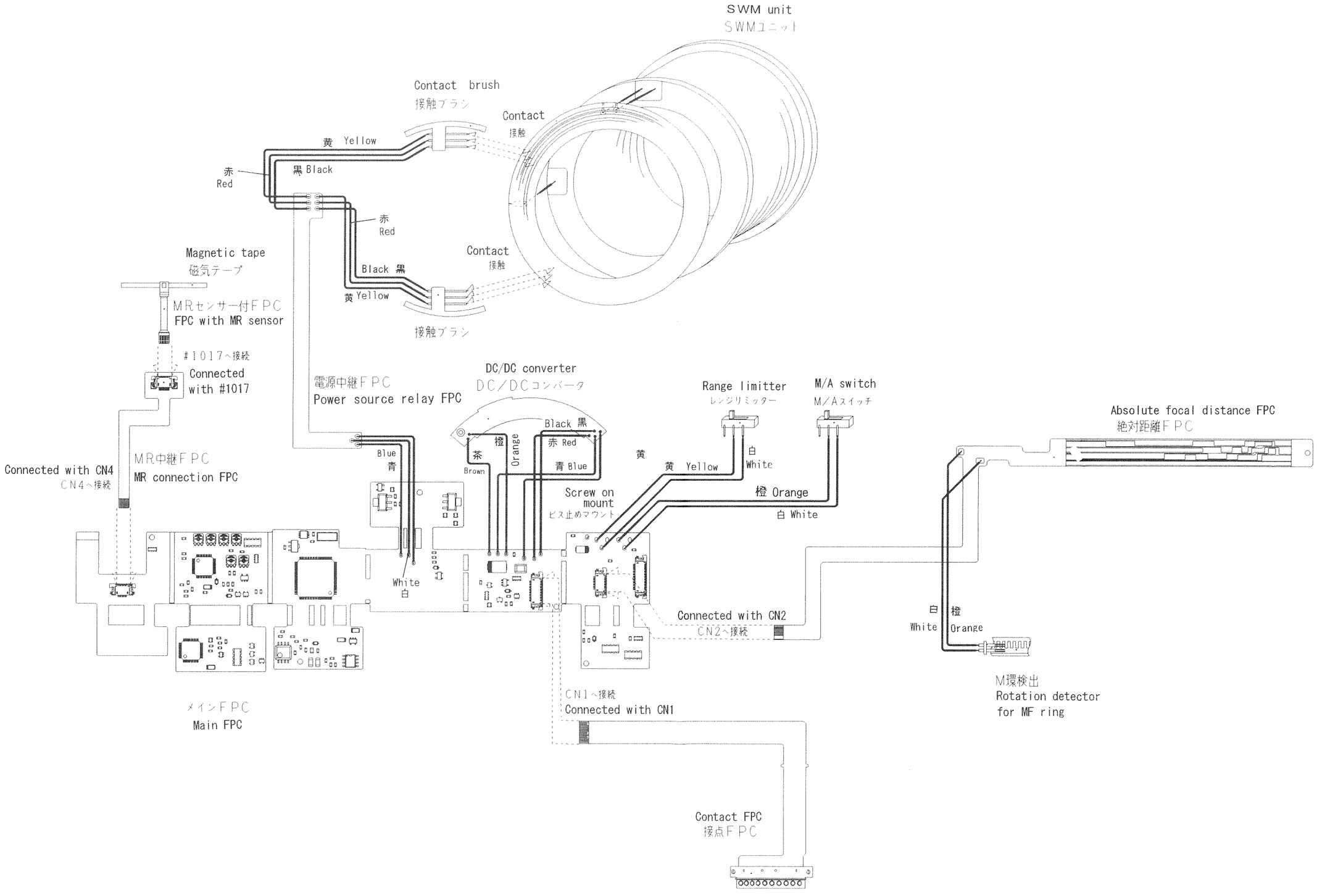
Use these two concaves

①Remove the aperture ring #28.
②Make holes (ϕ1.1) at the two concaves the aperture ring.
③Mount the coupling claw.

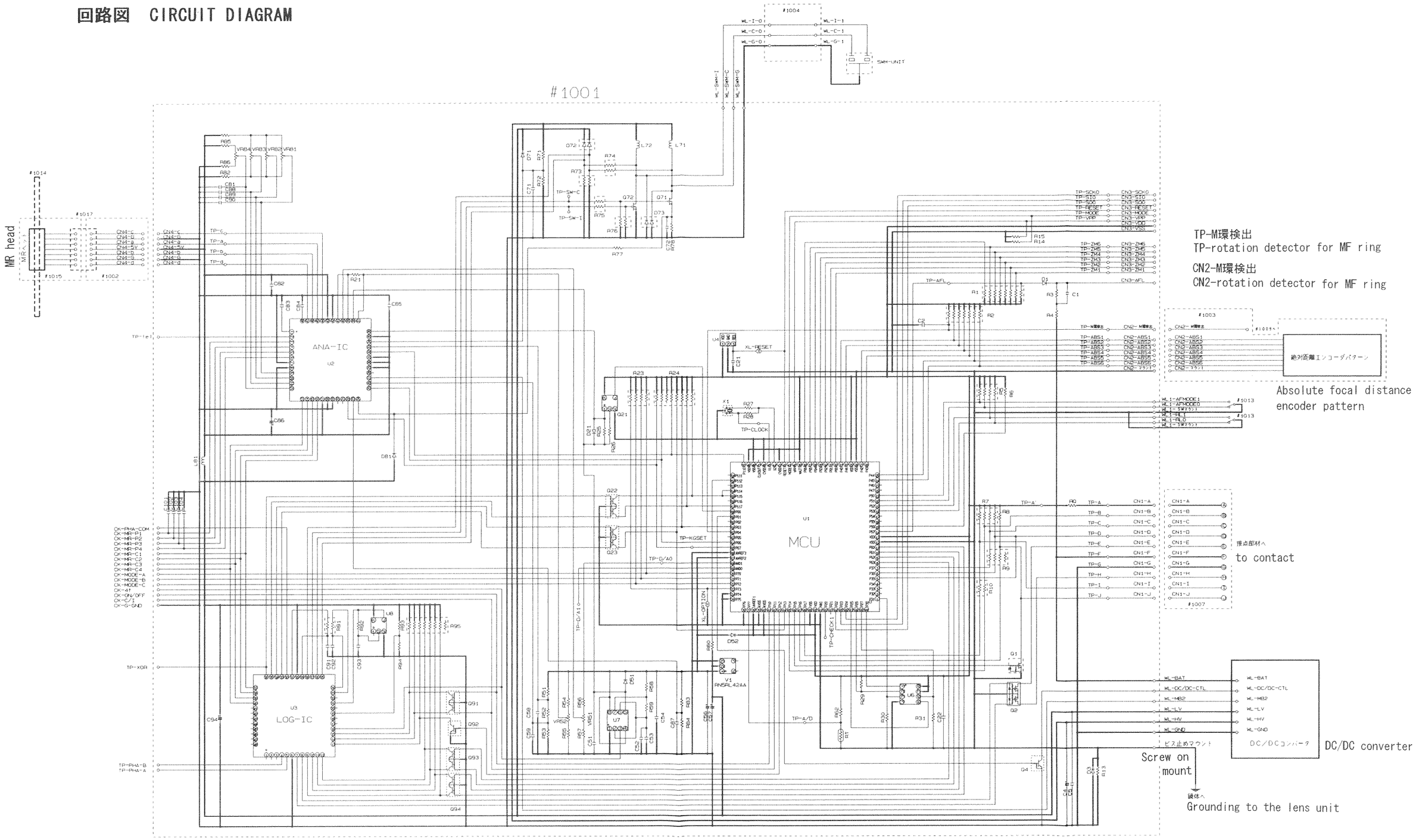
Coupling claw	1K406-029 ×1
Screw	1K010-002-1×2

④Assemble the components.

実体配線図　WIRING



回路図　CIRCUIT DIAGRAM



(注) R3・R4・R28・R94
C1・C52・C83・C84は未実装の事。

AF-S300/4D EEPROM

1999-10-05

Address	Contents	CPU			Others
		1.02.01			
0	optional set value	0			
1	unused	−			
2	data for manufacturing processes	−			
3	value for control and adjust for motor	−			
4	data for controlling the lens	0			
5	〃	0			
6	〃	71			
7	〃	250			
8	〃	1			
9	〃	1			
10	〃	1			
11	〃	1			
12	〃	0			
13	unused	−			
|	|	|			
26	unused	−			
27	checksum data	−			
28	data for controlling the lens	−			
|	|	|			
127	data for controlling the lens	−			

・ Each 'value' explained here means the fixed value and the default value.
Of them, there are some changes according to the lens operational condition(s).

・ The sign of 「−」 in the table above means a value which changes in accordance with the lens operational condition(s).

TOOL

1. General purpose tool

Tool No.	Name	Remarks
J 1 5 3 0 6	AF-I Communication box	The tool used for AF-I is used again
J 1 5 3 0 7	AF-I Communication adapter	The tool used for AF-I is used again
J 1 5 3 3 4	H8 D/A converter (F/V converter)	For adjusting the scanning speed
J 1 5 3 5 2	Communication tool	Used for inspection and adjustment for output from the MR encoder
J 1 5 3 5 3	Communication tool	For adjusting the Main FPC
J 1 5 3 5 5	Switching tool	For adjusting the Main FPC

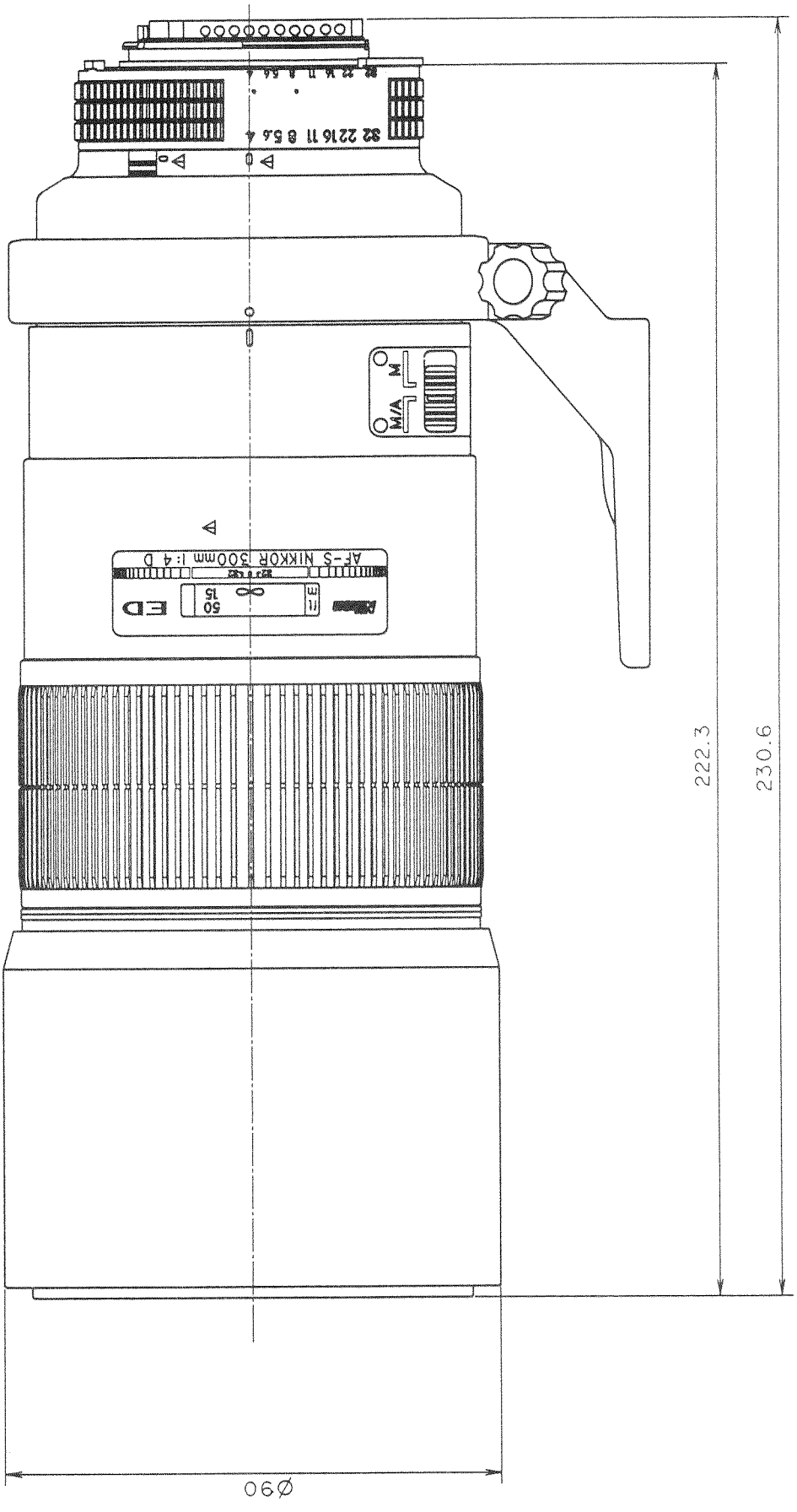
2. Special tool

Tool No.	Name	Remarks
J 1 8 3 2 3 A	Inspection and adjustment software for AF-S Tele lens	NEC 5 inch
J 1 8 3 2 3 B	Inspection and adjustment software for AF-S Tele lens	NEC 3.5 inch
J 1 8 3 2 3 C	Inspection and adjustment software for AF-S Tele lens	IBM 5 inch
J 1 8 3 2 3 D	Inspection and adjustment software for AF-S Tele lens	IBM 3.5 inch
J 1 1 2 6 7	Wrench for 2nd lens group	
J 1 1 2 6 8	Wrench for 3rd lens group	
J 1 1 2 6 9	Assistance tool for wrench for 3rd lens group	
J 1 1 2 7 0	Wrench for 4th lens group	

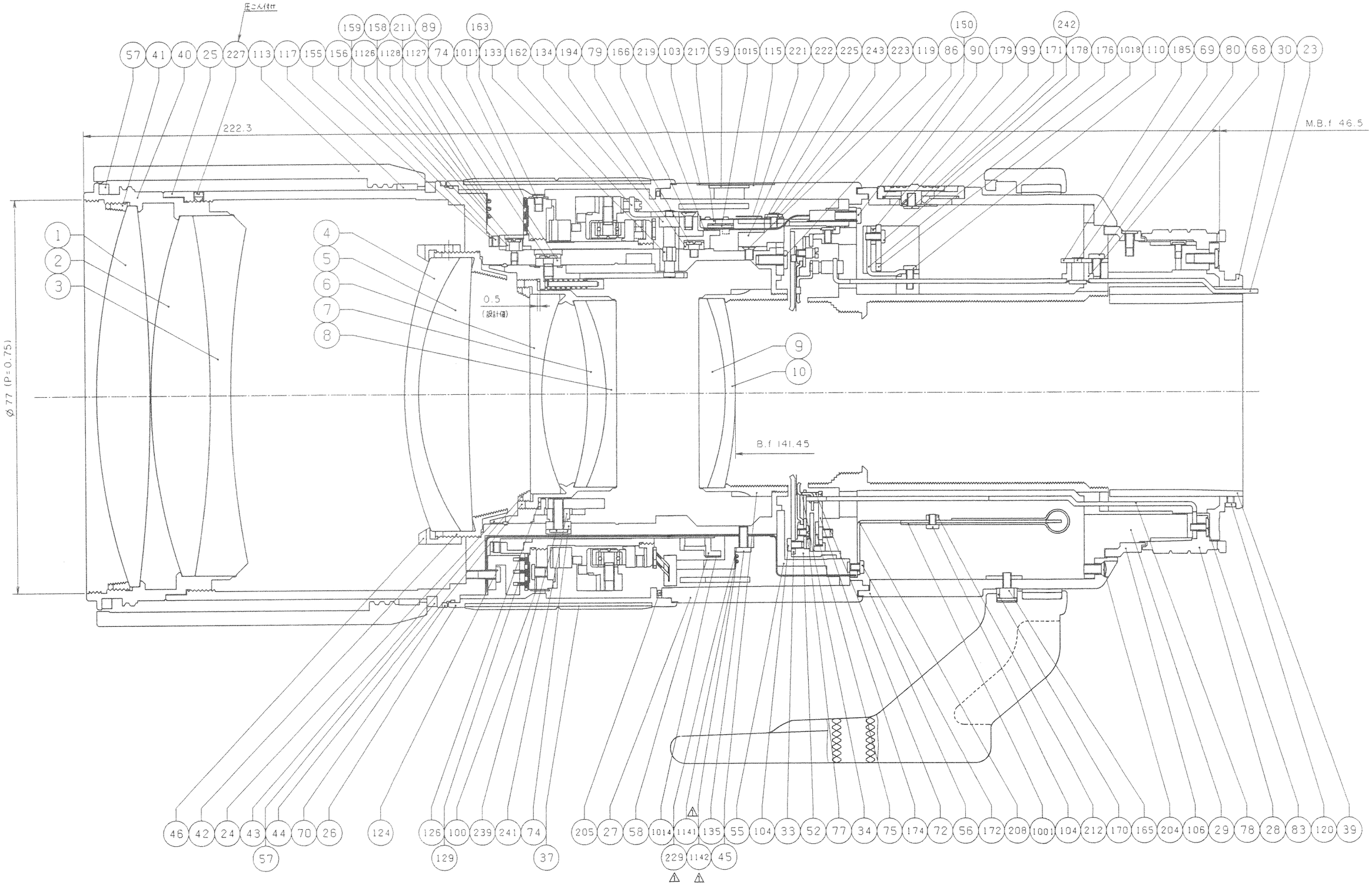
3. Hand-made tool

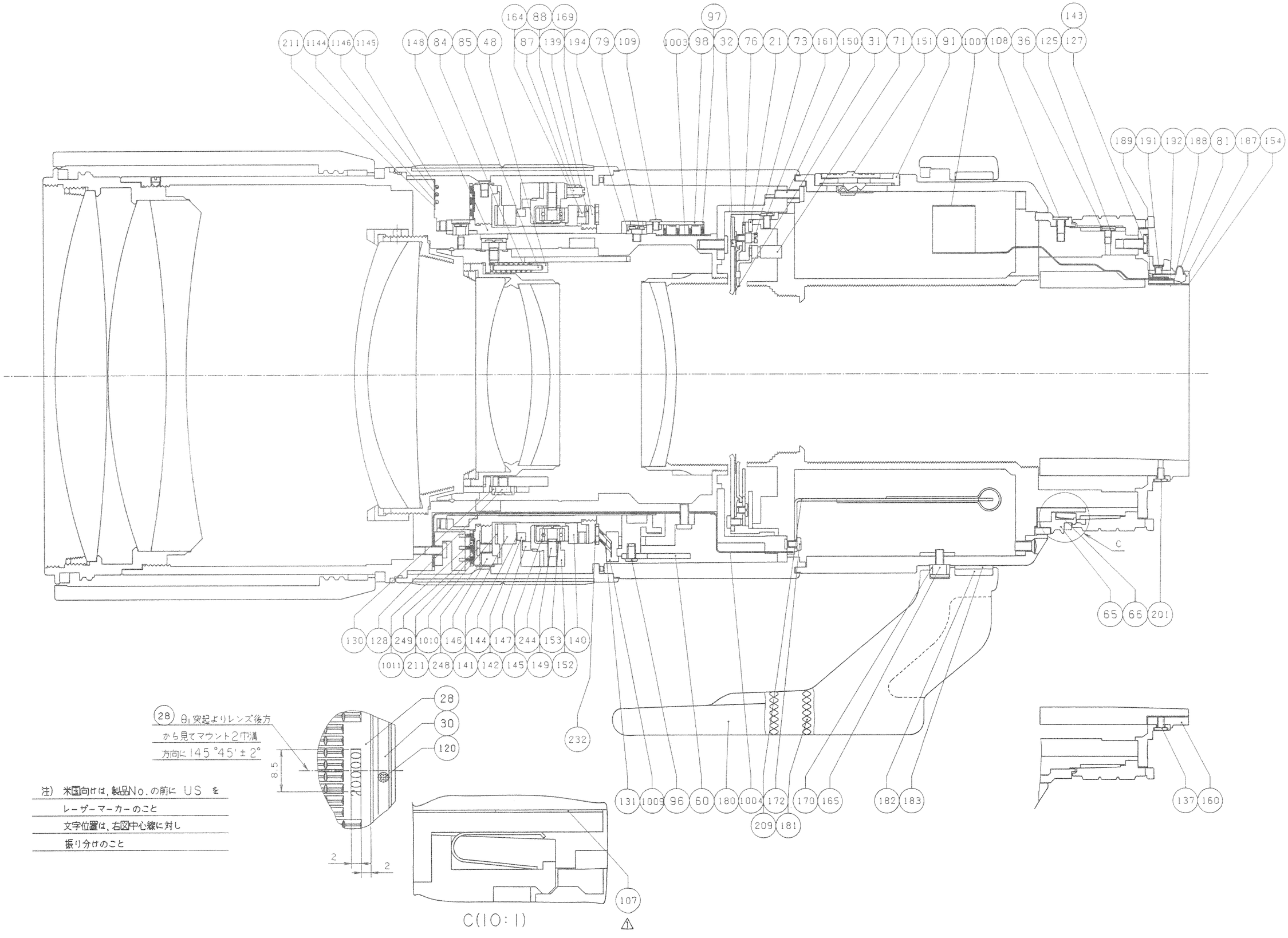
	Name	Remarks
Tool	SWM rotation actuating tool	The tool used for AF-S 300mm / 2.8 is used again

外観図 Sketch drawings

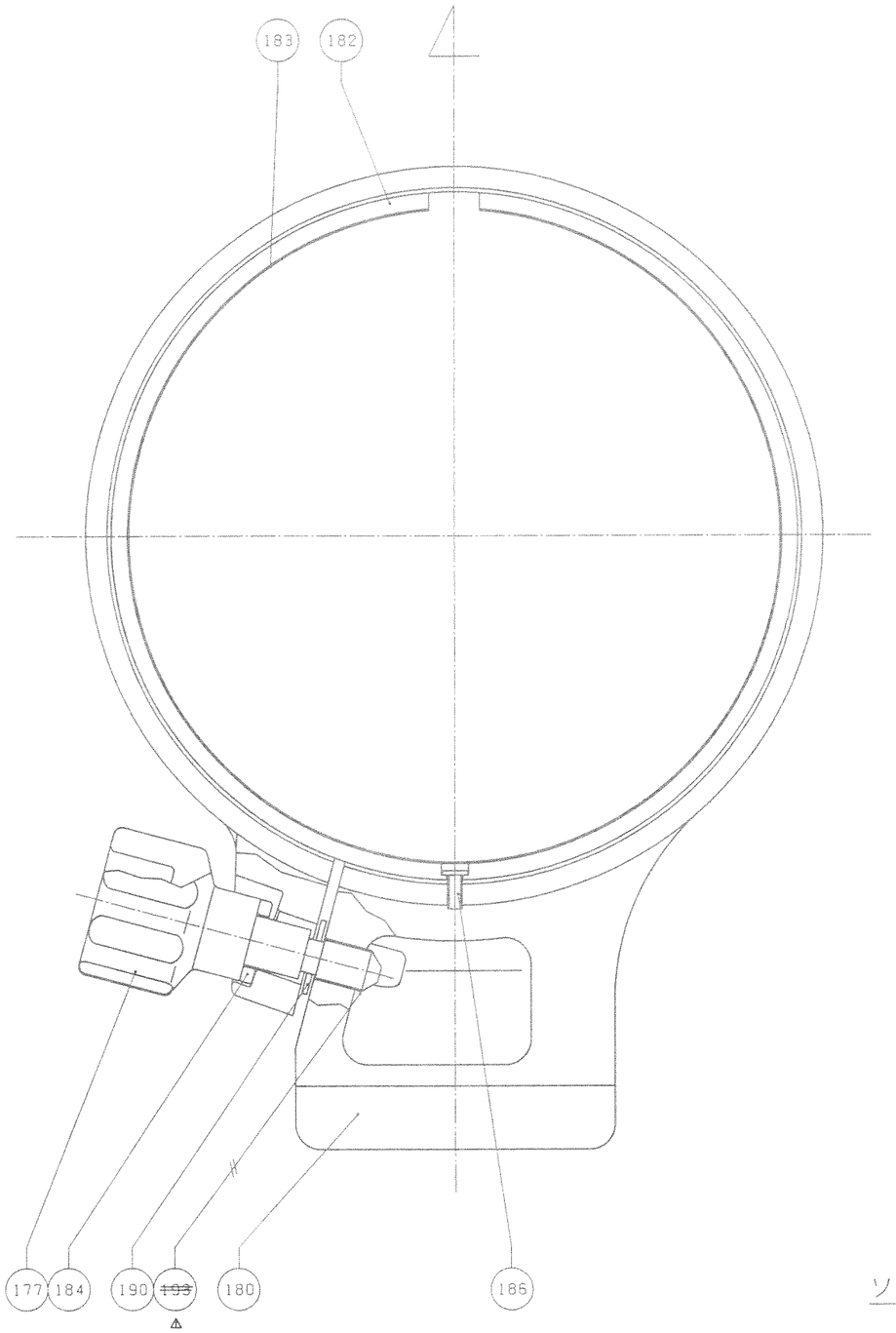


組立図 Structure of the Lens

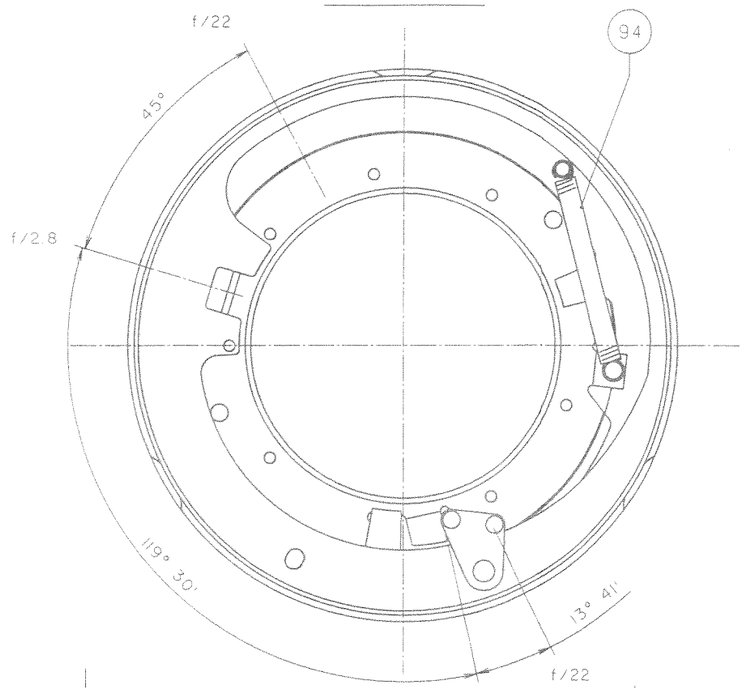


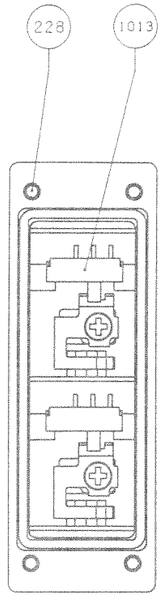


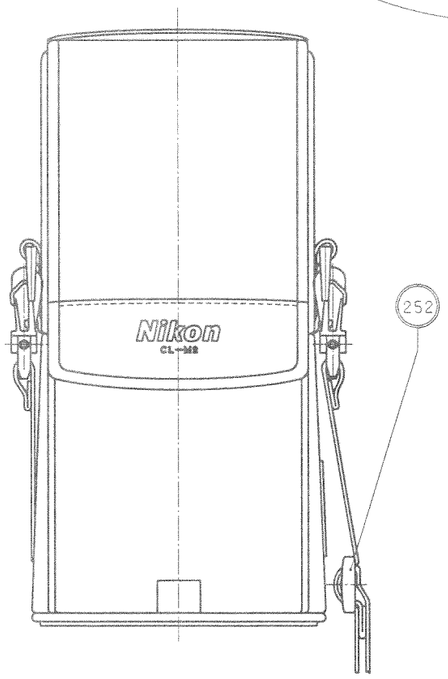
注) 米国向けは、製品No.の前に US を
レーザーマーカーのこと
文字位置は、右図中心線に対し
振り分けのこと



絞り部後方より







ソフトケース,ストラップは尺度0.5:1