

OFL-15 SERIES

OFL-15A

OFL-15 5002

FIBER POLISHER

(UNIVERSAL TYPE PROGRAMMABLE)

INSTRUCTION MANUAL



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INSTRUCTION MANUAL

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Preface

This manual has been prepared to provide the information necessary to allow the user to operate the OFL-15A Universal Polisher correctly and fully utilize its functions. Before using the OFL-15A, be sure to read this instruction manual thoroughly.

Keep the manual at a place for future reference.

Note

The ferrules that can be used on the standard polishing fixture attached to the polisher are only those meeting the following requirements:

- Ferrule material Zirconia
- Ferrule outer diameter ϕ 2.5mm

Please contact SII for optional fixtures and consumables if you wish to polish other types of ferrules with a different outer diameter, or ferrules that require another style of polishing such as PC polishing.

Note



The polishing film and polishing fluid are selected especially for the processes performed on the OFL-15A. If you use any other polishing film or fluid, SII cannot guarantee that the polishing specifications will be met.

Before using the OFL-15A, be sure to read "Safety precautions" and "Precautions for use" carefully for proper operation.

Safety precautions

This manual shows the following symbols for proper and safe operation of the OFL-15A and for prevention of damage to the equipment.

These symbols have the following meanings. Read the description carefully and be sure to observe such description indicated with these symbols.

 Warning	Improper handling with negligence of this precaution may result in death or serious injury.
 Caution	Improper handling with negligence of this precaution may result in injury or only material damage.

Examples of symbols



 **Symbol refers to caution (including danger and warning).**

Example in the left shows "**Warning or precaution**" for safety.



 **Symbol refers to prohibition.**

Example in the left shows "**No disassembly**".



 **Symbol refers to forced action or instruction.**

Example in the left shows "**Unplug the power cable from the outlet**".



ELECTRIC SHOCK

Indicates situations where lethal injury and/or equipment damage will occur if safety precautions are not taken.

Turn OFF the power to the machine before servicing.

Not doing so may result in electric shock.



Warning



Never touch or gain access to the rotating part, the arm or the fiber holder with your hand or finger during operation. Otherwise, you may be injured.



Do not touch the operation panel or the switch with wet hand or do not connect/disconnect the power cable with wet hand. Otherwise, you may get electric shock.



Be sure to use the specified voltage and connect the grounding terminal (Class 3 grounding or greater). Otherwise, fire, electric shock, accident or failure may occur.



Turn off the power and unplug the cable from the outlet for the following cases. Otherwise, electric shock, fire or accident may occur.

- When the polishing disk is replaced.
- When a fuse is replaced.
- When abnormality of the OFL-15A such as smoke or abnormal noise is detected.



Caution

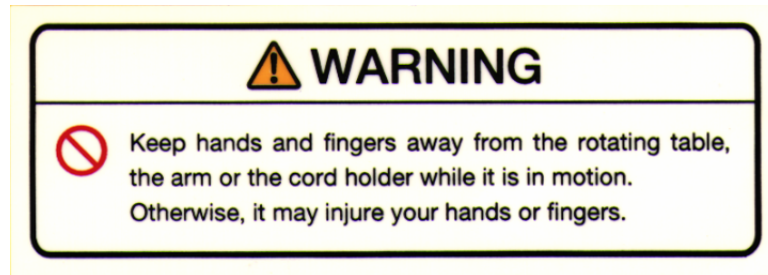


Never perform the following actions. Otherwise, fire, electric shock, accident or failure may occur.

- Do not place an object on the OFL-15A.
- Do not leave the OFL-15A outdoors or at the place where it is exposed to water.
- Do not give impact to the OFL-15A or drop the OFL-15A.
- The OFL-15A is heavy. Make sure to use it on a rigid table.
- Do not place an object on the power cable. Do not twist or pull the cable strongly.

Warning label

The OFL-15A has a warning label at the position shown below. Be sure to observe the warning/notice on the warning label.



Precautions for use

Pay attention to the following points for operation of the OFL-15A.

- Do not use the OFL-15A to polish items other than ferrules and optical connector plugs provided by SG.
- Do not disassemble or modify the OFL-15A with the way not specified in this manual. Otherwise, accident or failure may occur.
- If you get the polishing fluid on your skin or in your eyes, rinse thoroughly with water as quickly as possible.
- Make sure the area where the polishing fluid is being used is well ventilated.
- If the polishing fluid gets on your clothes, they should be washed thoroughly.
- After using the polishing fluid, seal the container and store it in a place that is between 0 °C and 50 °C (between 32 °F and 122 °F).
- SG does not assume any responsibility for products manufactured with the OFL-15A.

Chapter 1 User notes

This chapter describes the delivered parts, part details and operation procedure.

Section 1.1 describes check on the delivered parts.

Section 1.2 describes the items to prepared other than the OFL-15A and its accessory parts.

Section 1.3 describes part names of the OFL-15A and their functions.

Section 1.4 describes the protection cover.

Section 1.5 describes the operation display.

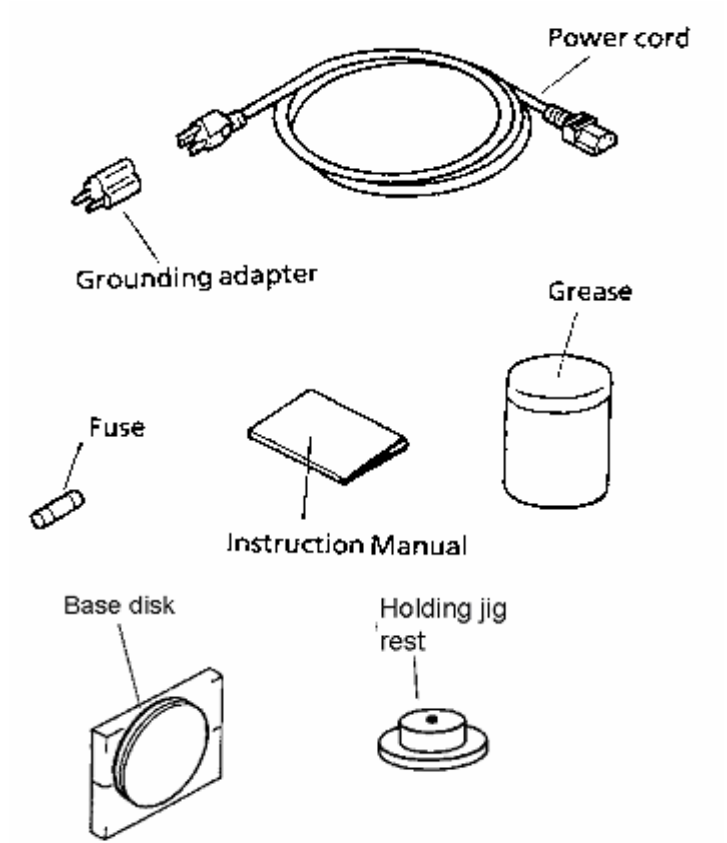
Section 1.6 describes the standard operation procedure to polish the ferrules with a program on the OFL-15A.

1.1 Check on delivered items

Make sure that all accessory parts are present before using the OFL-15A.

No	Part	Part code	Qty	Remarks
1	Machine	OFL-15 5002	1	-----
2	Base disk	KMD100110	1	-----
3	Power cord	KKo100420	1	
4	Fuse	KMo100310	1	250V,2.5A
5	Instruction manual	API-54E1-01	1	-----
6	Holding jig rest	Kjo100600	1	-----
7	Grease	Kjo101200	1	-----
8	Maintenance manual	APM-39E-02	1	(There is no picture showing.)

*The listed quantity is the quantity included in the OFL-15A package.
See Standard Consumable Parts and standard polishing jig and disk on pages 1-4 for the quantities included in an additional order set.



Base disk is mounted on the polisher body

Accessories of polisher and some of custom made parts

(Standard consumables)

The following products are available as standard consumables.

Part	Part code	Qty.	Remarks (Count and quantity are only guideline.)
Polishing film (adhesive removal)	KJWZM00A01	100 sheets	Change after every 2 uses
Polishing film (grinding)	KJW100230	10 sheets	Change after every 18 uses
Polishing film (polishing)	KJW100440	10 sheets	Change after every 10 uses
Polishing film (finishing)	KJW101500	100 sheets	Change after every 2 uses
Cleaning sheet	KJW101601	10 sheets	Change after every 50 uses
Rubber Pad (adhesive removal) (finishing)	KLP101540	1 piece	Change after 1 year
Rubber Pad (grinding, polishing)	KLP101510	1 piece	Change after 1 year
Rubber Pad (cleaning)	KLP101520	1 piece	Change after 1 year

(Standard polishing jig and disk)

Part	Part code	Qty.	Remarks
Holding jig (V-groove type)	KKJ101101	1 piece	For 12 pieces
Holding jig (Hole type)	KKJ101701	1 piece	For 24 pieces
Polishing disk	KMD100100	1 piece	For UPC,Adpc,SPC,PC polishing

1.2 Items to be prepared by user

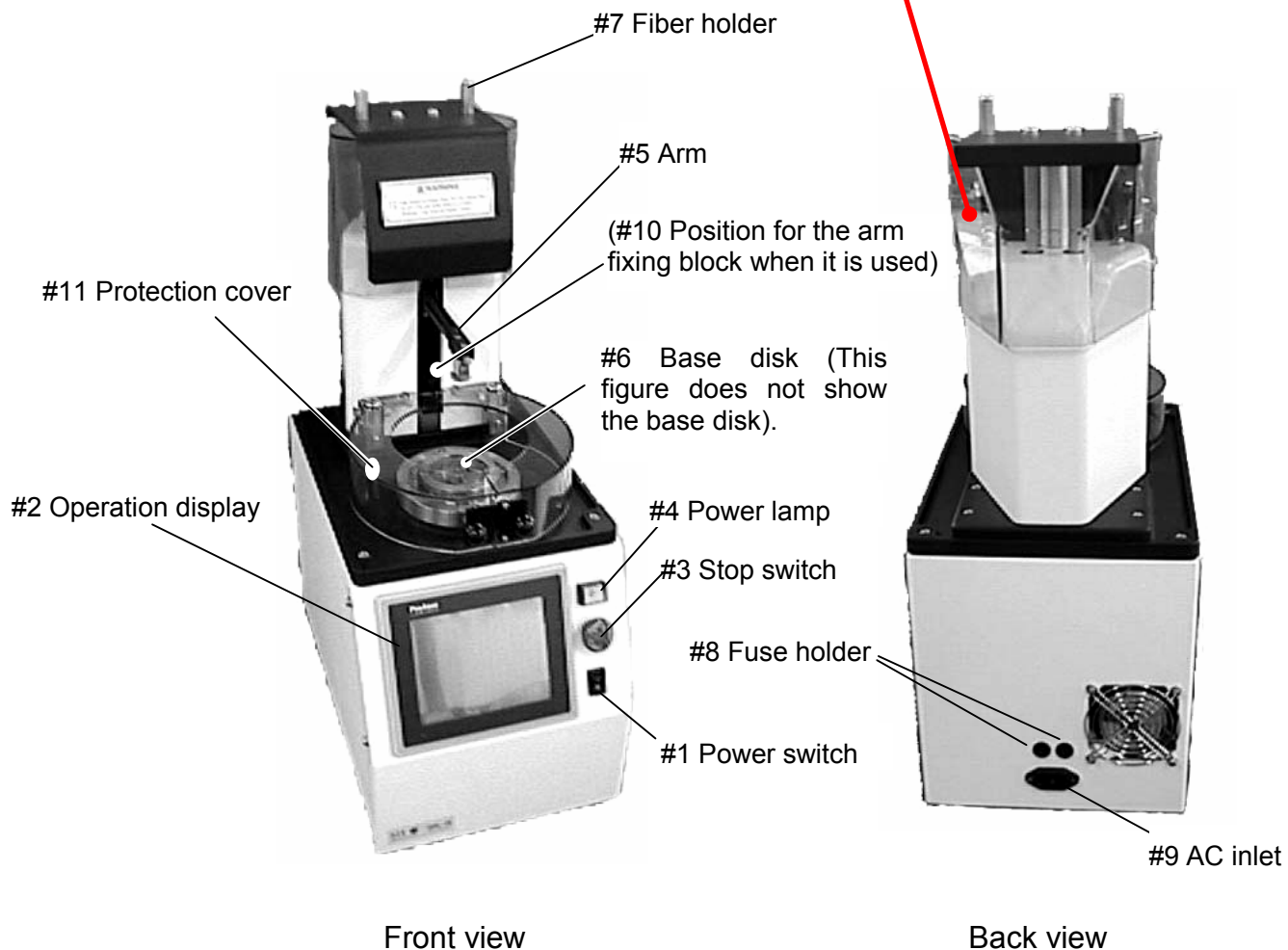
In addition to the main polisher and its accessories, please prepare the following items:

- ① Cleaning paper (Recommended paper: Dusper, Ozu Corporation)
- ② Ethyl alcohol
- ③ Distilled Water
- ④ Container for cleaning Three 3 liter containers for cleaning process
- ⑤ Holding jig and tool
- ⑥ Polishing disk
- ⑦ Consumable Rubber Pad Polishing film ect.

1.3 Part names

This section explains the part names of the OFL-15A and their functions.

⑫ OFL-15A does not have this cover



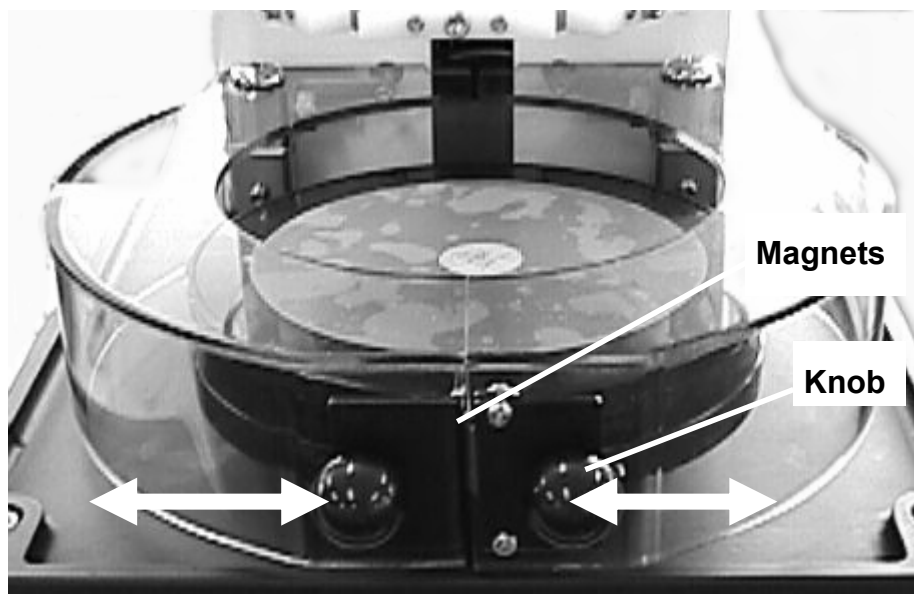
#10 is only used OFL-15A .

The above figure shows the condition before setting the base disk and polishing disk.

#1 Power switch	Switches the power ON/OFF.
#2 Operation display	The polishing process and the conditions are set on this display. Manual operation such as start/stop of grinding, rotation of the polishing disk, upward/downward movement of the arm, etc. is also enabled on this display.
#3 Stop switch	Press this switch to stop the polishing operation immediately.
#4 Power lamp	Lights when the power is supplied.
#5 Arm	The polishing jig is mounted.
#6 Base disk	The polishing disk, the rubber disk and various polishing films are set on this disk. Using the amount of the rubber disk set, convex spherical polishing is performed.
#7 Fiber holder	The fiber cable is placed.
#8 Fuse holder	Holds a 2.5 A fuse.
#9 AC inlet	AC inlet for connection to the power cable.
#10 Position for the arm fixing block when it is used.	
#11 Protection cover	When the cover is open, the polishing machine dose not work if the switch is turned on.

1.4 Protection cover

- Protection covers are provided with this machine to prevent operator from touching the moving parts.
- Open the covers with the knob. Each covers are fixed with magnets when they are closed.
- When the cover is open, the machine does not operate if the switch is turned on.
- Do not pinch your fingers when you open or close the covers.
- Do not force the cover open.
- if the cover is damaged, stop using the machine and contact your dealer. Take care not to cut your hand on the damaged cover.
- When the machine operates abnormally, for example, the machine operates with the covers open, stop using the machine and contact your dealer.



The above figure shows the Protection covers.

1.5 Explanation of operation display

This section explains the screen of the OFL-15A operation.

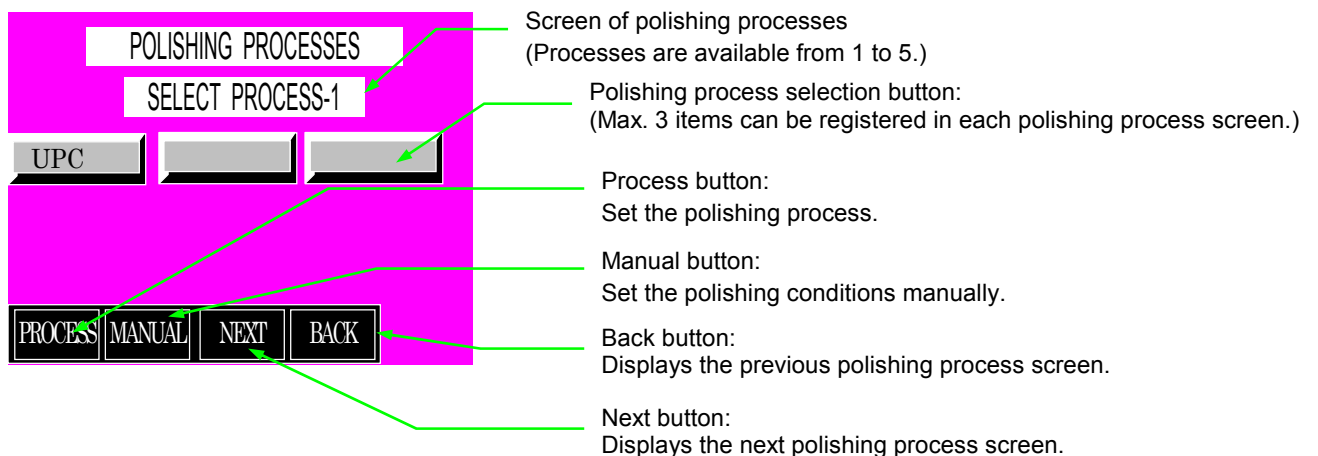
(LCD of OFL-15A is not color.)

● Start screen

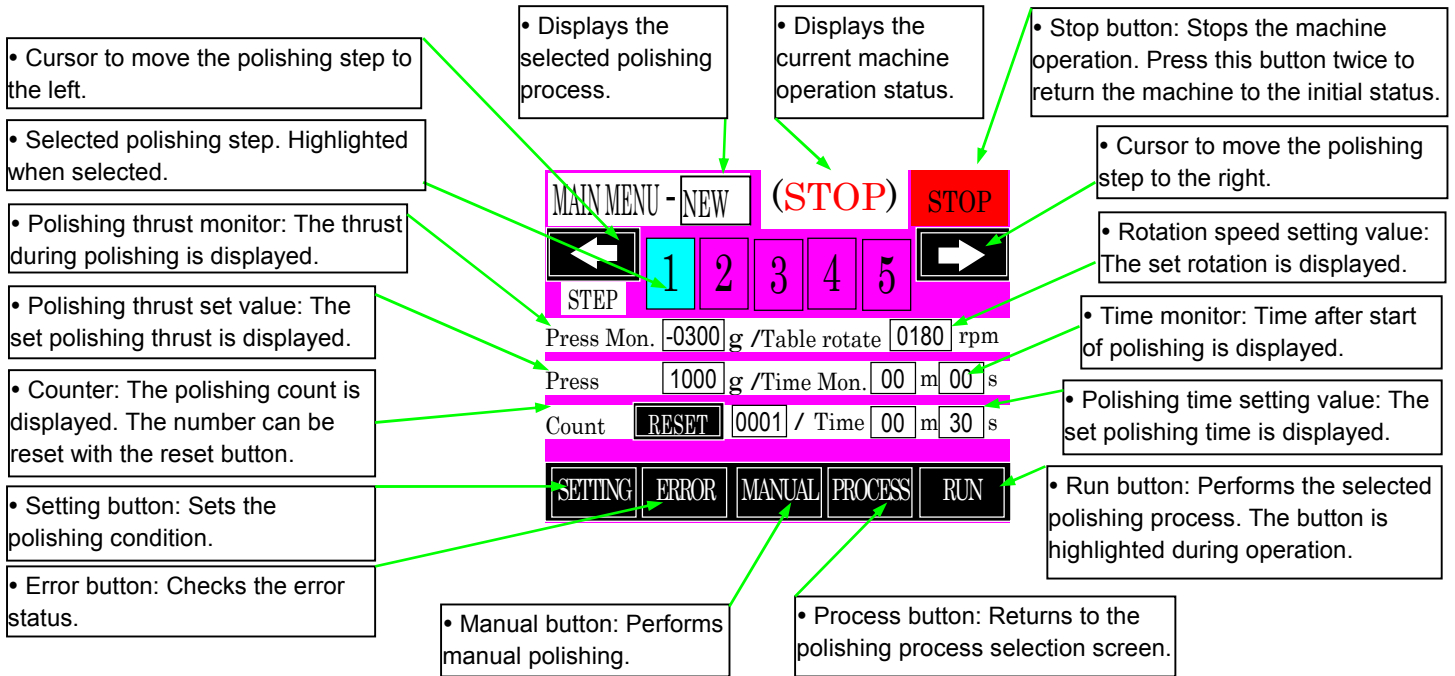
(The start screen in the lower right changes to the polishing process selection screen in approx. 3 seconds.)



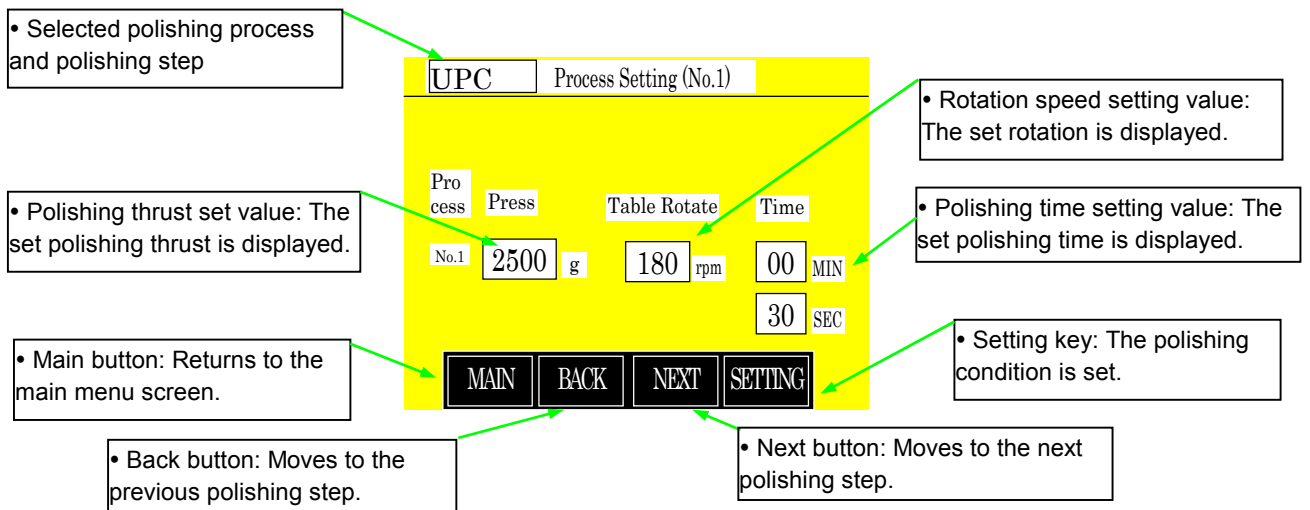
● Polishing process selection screen



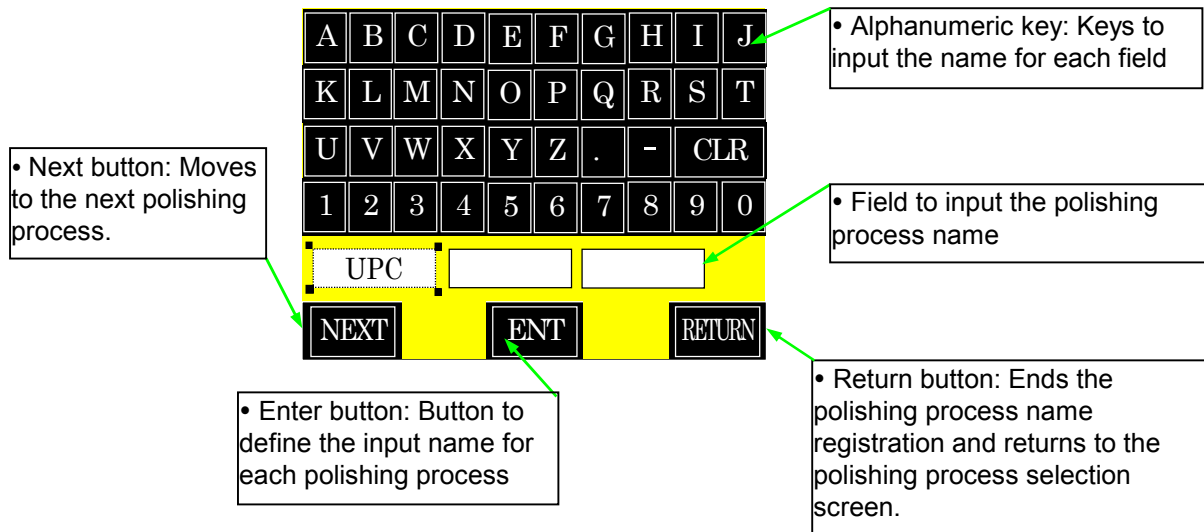
● Main menu screen



● Setting check screen

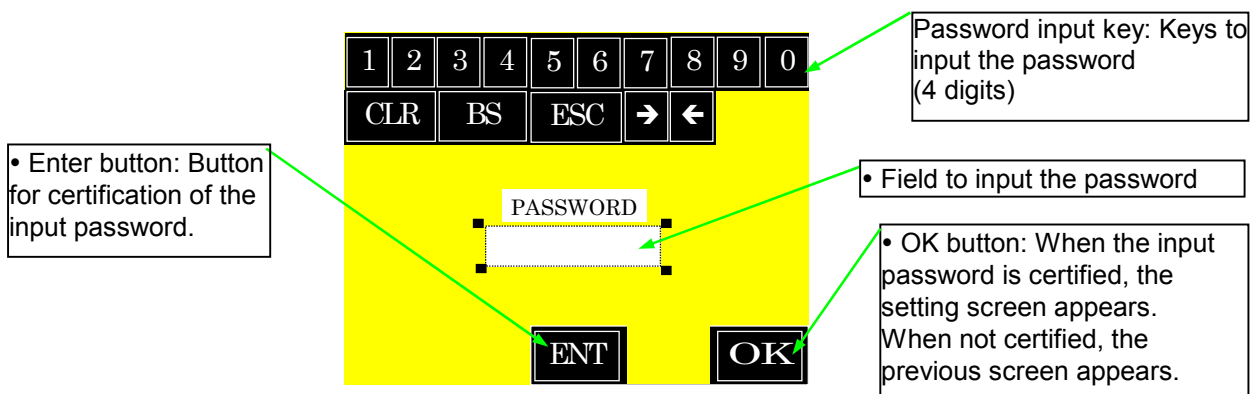


● Polishing process name registration screen



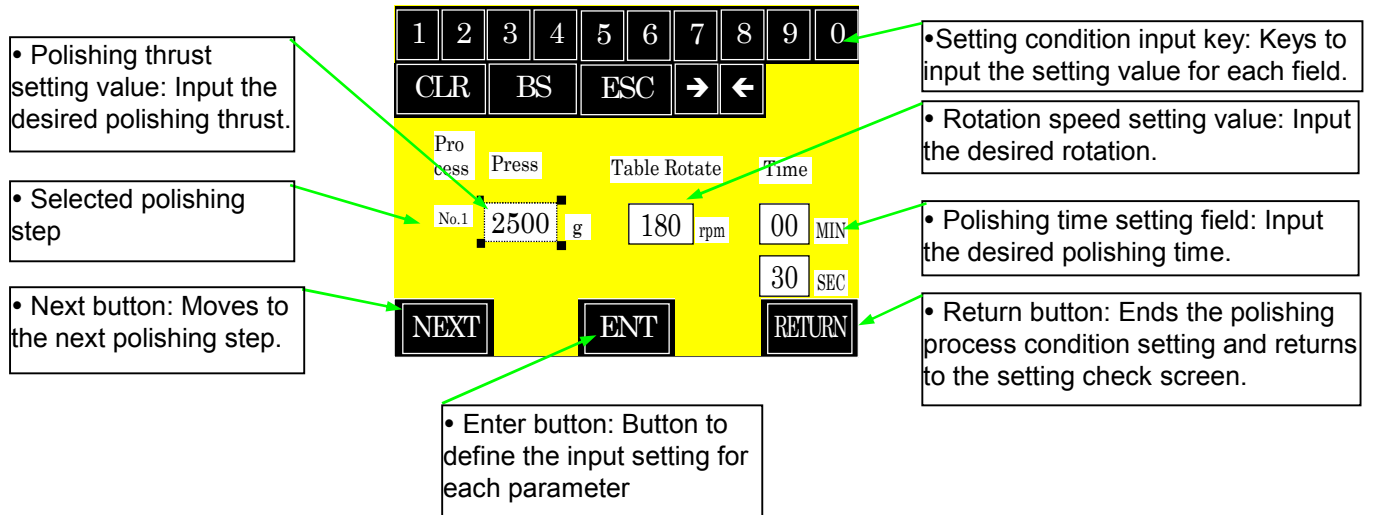
● Password input screen

Password must be input to register or change the conditions.
 (The initial password at the shipment is "1111".)

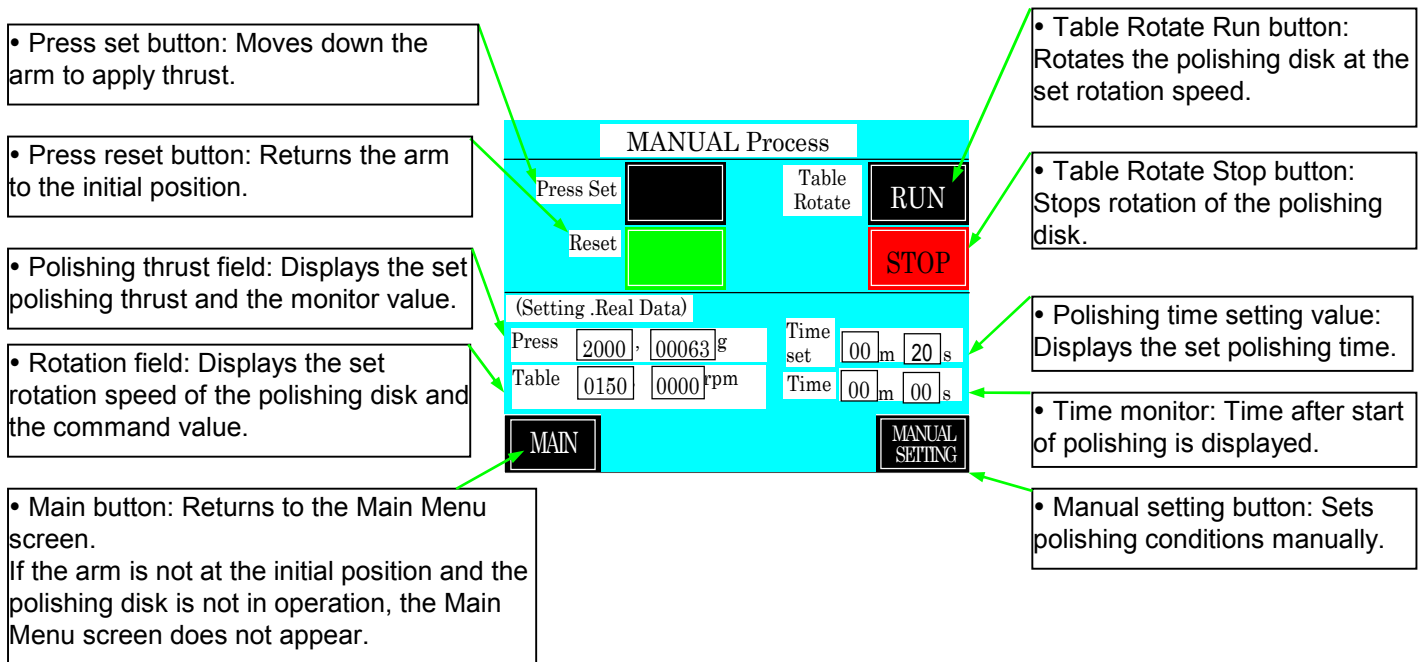


● Polishing process condition setting screen

Input is enabled when the parameter input field for registration/change of the condition is pressed.



● Manual screen



● Manual condition check screen

The screenshot shows the 'MANUAL Process Setting' screen. It features a yellow background with several data fields and navigation buttons. The fields are: 'Process Press' with a value of '2500 g', 'Table Rotate' with a value of '180 rpm', and 'Time' with values of '00 MIN' and '30 SEC'. At the bottom, there are three buttons: 'MAIN', 'MANUAL', and 'SETTING'. Green arrows point from callout boxes to these elements.

- Polishing thrust setting value: The set polishing thrust is displayed.
- Main button: Returns to the Main Menu screen.
- Manual button: Returns to the manual screen.
- Rotation speed setting value: The set rotation is displayed.
- Polishing time set value: The set polishing time is displayed.
- Setting button: The polishing condition is displayed.

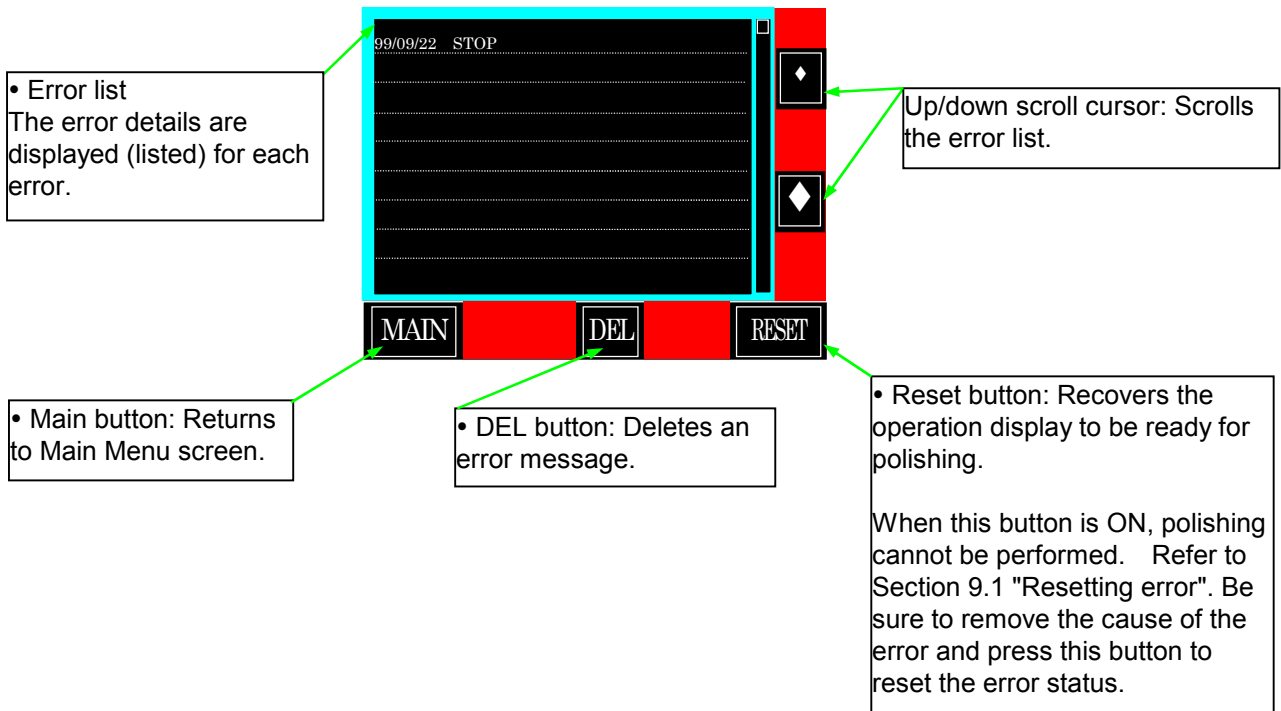
● Manual condition setting screen

Press the parameter input field for registration/change of the condition to be ready for input.

The screenshot shows the 'Manual condition setting' screen. It features a yellow background with a numeric keypad at the top, followed by function keys (CLR, BS, ESC, →, ←). Below are the same data fields as in the previous screen: 'Process Press' (2500 g), 'Table Rotate' (180 rpm), and 'Time' (00 MIN, 30 SEC). At the bottom, there are 'ENT' and 'RETURN' buttons. Green arrows point from callout boxes to these elements.

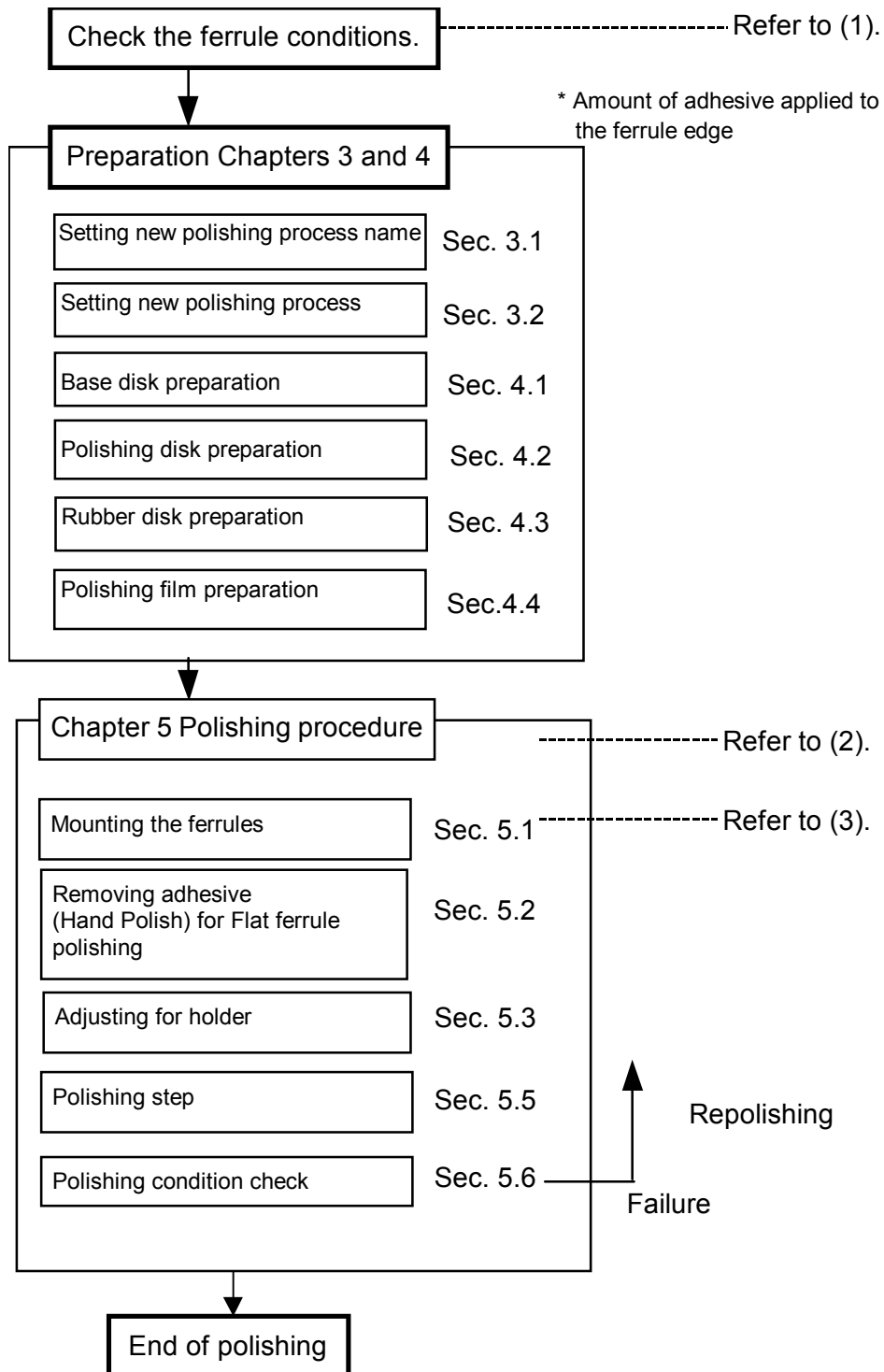
- Polishing thrust setting value: Input the desired polishing thrust.
- Enter button: Button to define the input setting for each parameter.
- Setting condition input key: Keys to input the setting value for each field.
- Rotation speed setting value: Input the desired rotation.
- Polishing time setting field: Input the desired polishing time.
- Return button: Manual setting registration button for each parameter.

● Error screen



1.6 Procedure of programmed polishing

This section describes the standard procedure for programmed polishing of ferrules using the OFL-15A. Refer to the description in the following pages.



(1) It is best to use only a small amount of adhesive on the tip of the ferrule. If too much is used, it may take longer than the standard 30 seconds of manual polishing for removing the adhesive. (for Flat ferrule)
Adhesive removal step for predome ferrule use machine.

(2) The polishing film, polishing fluid, and polishing conditions used in each of the polishing steps are listed below. Refer to the details for each of the polishing steps in the corresponding sections.

Polishing step and Machine rotation number	Polishing film and rubber pad	Polishing fluid	Thrust (Std.)	Polishing time (Std.)	Polishing film life (guideline)
Adhesive removal Rotation number 220 rpm	Pebble grey color (KJWZM00A01) Ruber pad KLP101540	Distilled Water+ Ethyl alcohol	500g	1.0 min.	2 times (max. 48 ferrules)
Grinding Rotation number 280 rpm	Red color (KJW100230) Rubber pad KLP101510	Distilled Water	4400g	0.5 min.	18 times (max. 432 ferrules)
Polishing Rotation number 240 rpm	Purple color (KJW100440) Rubber pad KLP101510	Distilled Water+ Ethyl alcohol	3800g	1 min.	10 times (max. 240 ferrules)
Finishing Rotation number 220 rpm	Clear color (KJW101500) Rubber pad KLP101540	Distilled Water	3800g	2 min.	2 times (max. 48 ferrules)
Cleaning Rotation number 220 rpm	Brown color Rubber pad KLP101520	Distilled Water	600g	20sec	50 times (max.1200 ferrules)

*The polishing thrust (pressure) varies according to the number of ferrules mounted on the holding jig. Refer to Section 3.1 Setting polishing process when setting the thrust.

(3) Mount the ferrules in the holding jig evenly according to the procedure. If the ferrules are mounted incorrectly, the ferrules can slip and the tips of the ferrules may not be polished thoroughly. When mounting less than 12 or 24 ferrules on the holding jig, make sure that they are arranged in a balanced pattern, according to the procedure. An unbalanced arrangement of ferrules on the holding jig may cause the ferrules to be polished unevenly.

Chapter 2 Installation

This chapter describes the environmental conditions for installation of the OFL-15A, precautions for unpacking and return of the arm to the home position.

2.1 Installation environment

The environment conditions for installation of the OFL-15A are as follows:

2.1.1 Operation environment

Use the OFL-15A within the range of temperature and humidity shown below:

Temperature:	10 - 40°C
Relative humidity:	15 - 85%RH (no condensation)
Storage temperature:	0 - 50°C

Do not install the OFL-15A at the following places:

- Where the machine is exposed to the direct sunlight
- Where there is excessive changes in temperature
- Where there is frequent mechanical vibration
- Where the machine is exposed to dust
- Where the area is poorly ventilated

2.1.2 Power supply

The power supply conditions for the OFL-15A is as follows:

Power voltage(single phase +/- 10%)	AC220-240V
Power frequency	50/60 Hz +/- 5%
Power consumption	80 W



Warning

Be sure to connect the grounding terminal from the power plug.
Otherwise, electric shock, fire or accident may occur.

2.1.3 Precautions for unpacking

When unpacking the OFL-15A, pay attention to the following points.



Warning

Do not take the OFL-15A out of the package alone.
Otherwise, you may be injured.



Caution

Do not hold the arm when taking the OFL-15A out of the package.
Otherwise, malfunction may occur.

2.1.4 Installation space

Fig. 2-1 shows the installation space for the OFL-15A.

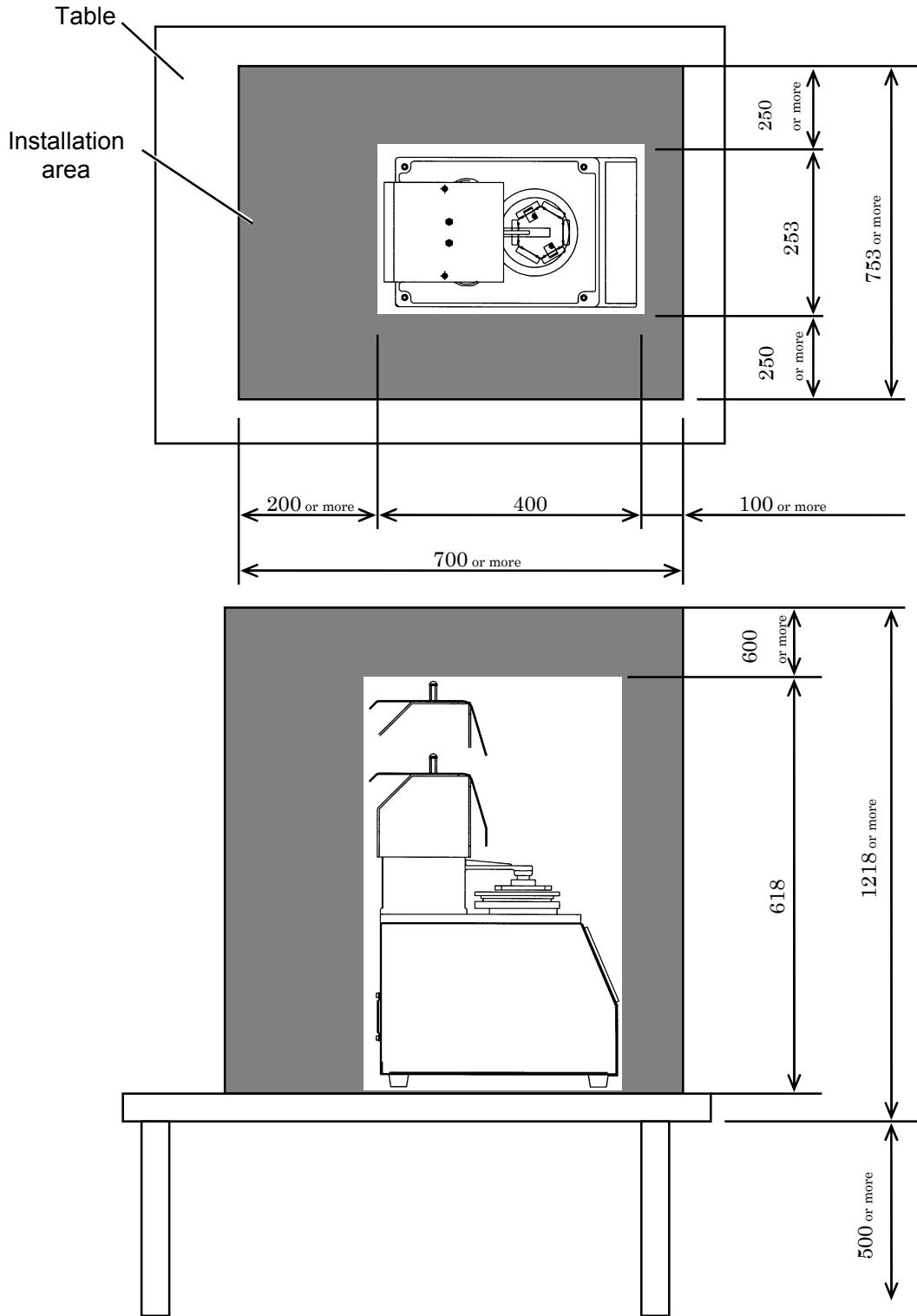
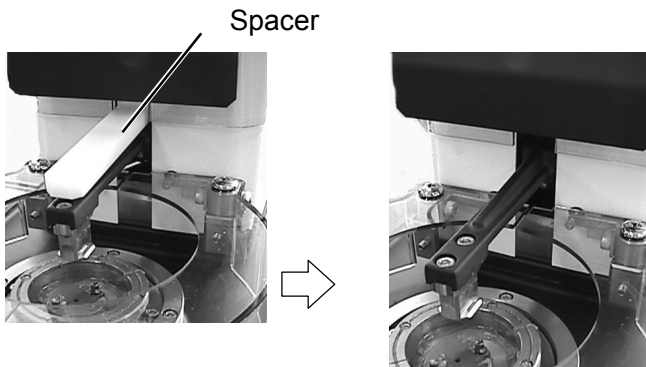


Fig. 2-1 Installation space

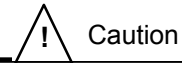
2.2 Return of arm to home position

The OFL-15A has its arm position lowered when shipped from the factory.

After installation of the OFL-15A, return the arm to its home position.
(Spacer is not attached OFL-15A)



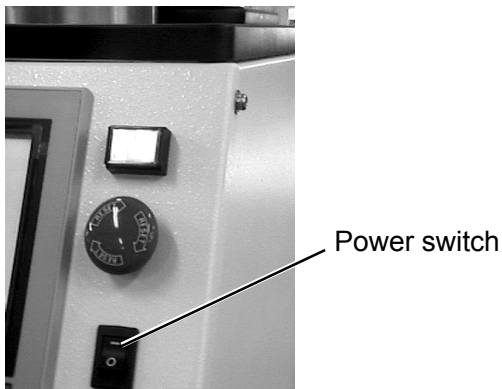
Step 1 Remove the spacer protecting the arm of the polisher.



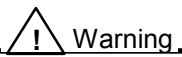
Caution

If you carry the OFL-15A, Insert the Spacer on the arm or fix the arm by tape.

Otherwise, OFL-15A's Load Sensor may be damaged.



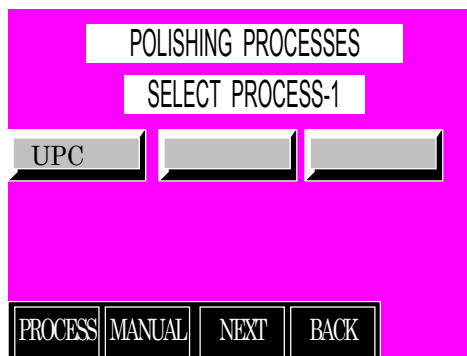
Step 2 Insert the power cable into the AC inlet at the back of the polisher and turn on the power switch.



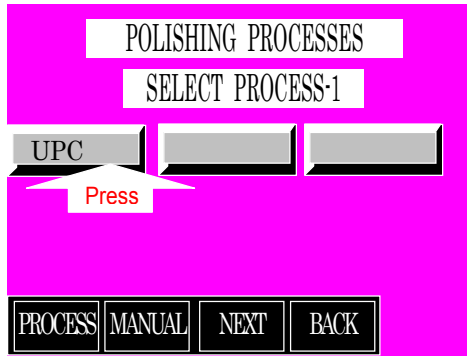
Warning

Be sure to connect the grounding terminal from the power plug.

Otherwise, electric shock, fire or accident may occur.

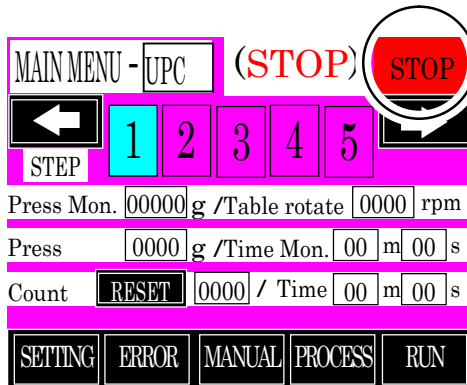


Wait for the screen in the left to appear on the operation display.



Step 3 Press the "UPC button" shown in the left.

For details of the operation display, refer to Section 1.4 "Explanation of operation display"



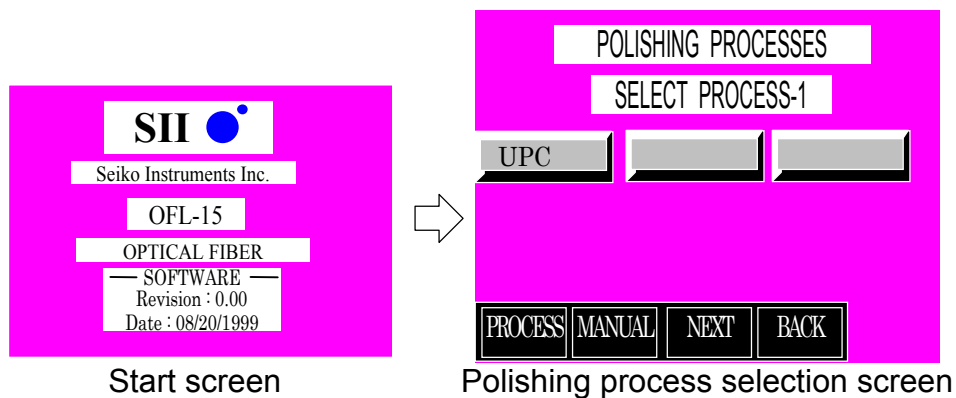
Step 4 Press the "Stop button" shown in the left immediately.

The arm automatically returns to the home position. When the arm stops, press the power switch to turn off the power. If the error message " STOP " appears on the error display screen, refer to Chapter 9 " troubleshooting " .

Chapter 3 Setting polishing process

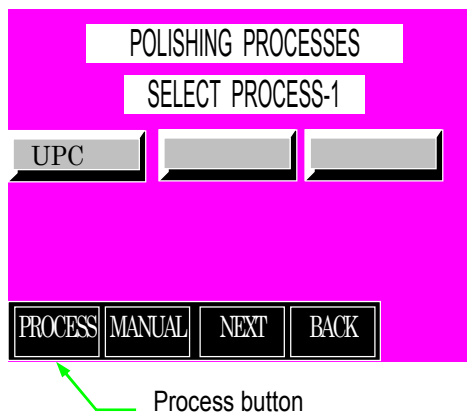
The UPC polishing process has been pre-installed on the OFL-15A polisher. In addition to the pre-installed polishing process, 14 polishing processes can be registered. To change the process or to register a new polishing process, please read this chapter.

When the power is supplied, the start screen appears for 3 seconds and the polishing process selection screen then appears.

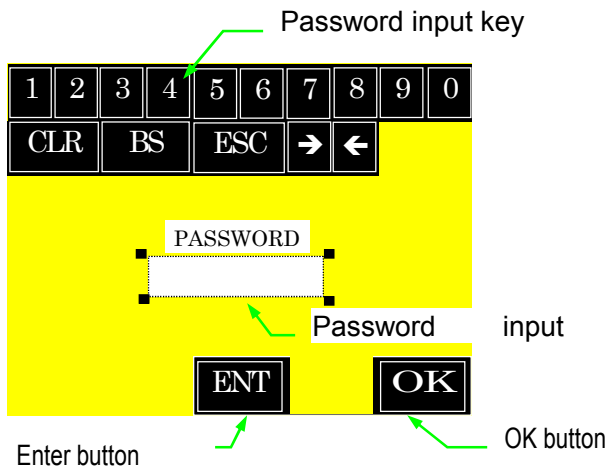


3.1 Registration of new polishing process name

The polishing process name can be registered.

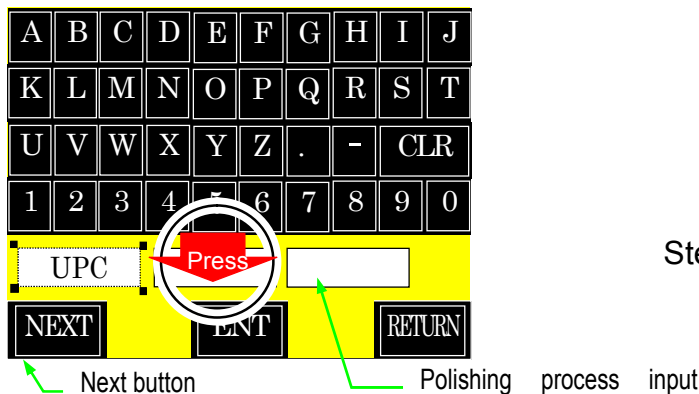
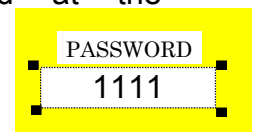


Step 1 Register the polishing process name. Press the "Process button" on the polishing process selection screen.

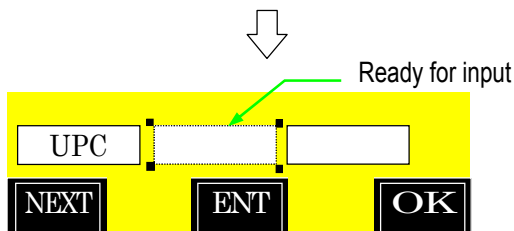


Step 2 Press the password input keys to input the password. Press the "Enter button". Press the "OK button" and the screen to set the polishing process name appears.

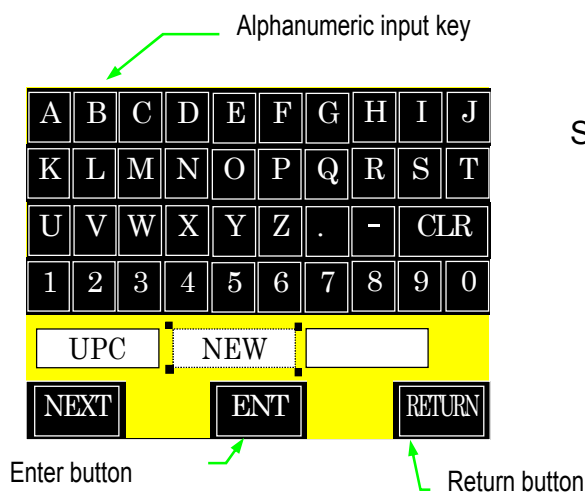
- If the password certification is not successful, the screen returns to the polishing process setting screen.
- The initial password at the shipment is "1111".



Step 3 Keep pressing the "Next button" until the blank polishing process name input field appears. When a blank input field appears, press the desired input field to be ready for input.



- When the frame of the input field shows a broken line as shown in the left, it is ready for input.

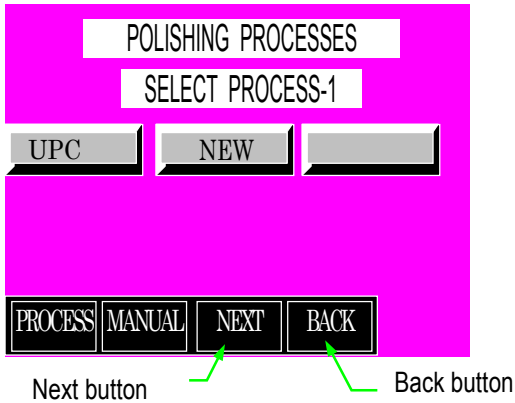


Step 4 Press the alphanumeric keys to input the polishing process name. Press the "Enter button" to define the name. Press the "Return button" to return to the polishing process selection screen.

Maximum 5 characters may be input for the polishing process name using the alphanumeric letters, dot and hyphen.

3.2 Registration of new polishing process

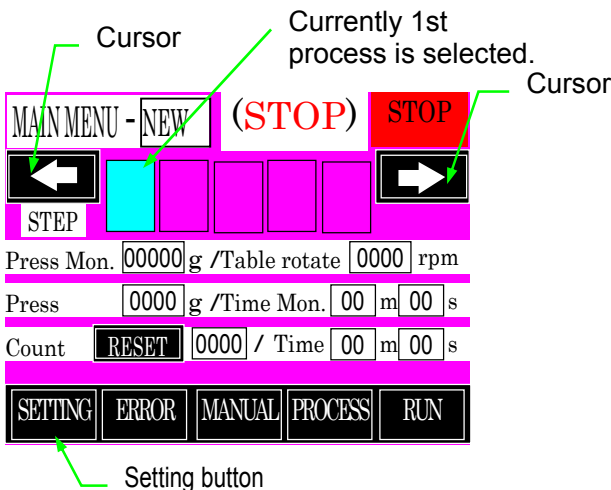
In the polishing process, "polishing thrust, rotation speed and polishing time" can be registered for each process.



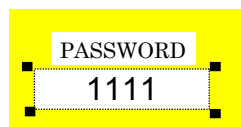
Step 1 Use the "Next button" or the "Back button" on the polishing process selection screen to find the screen with the button of the named process.



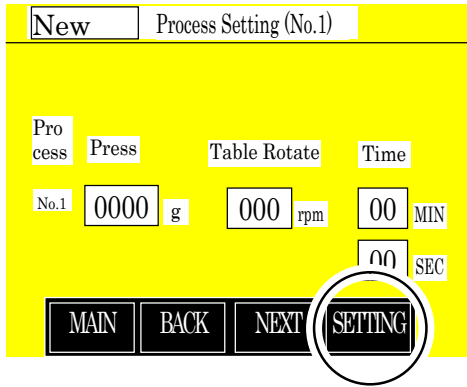
Step 2 Press the button of the named process.



Step 3 Set the conditions for each polishing process. Move the cursor to the desired step on the screen and press the "Setting button" to bring up the setting check screen.

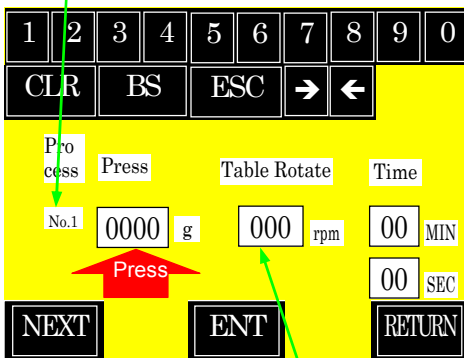


Step 4 Input the password as shown in Step 2 in Section 3.1.



Step 5 When the setting check screen appears, press the "Setting button".

The selected process is displayed.

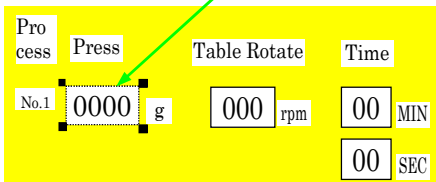


Step 6 When the screen in the left is displayed, set the parameters (load, rotation, and polishing time (min. sec.)) of the polishing process. Press the parameter input field surrounded by the frame to be ready for input.

Parameter input field

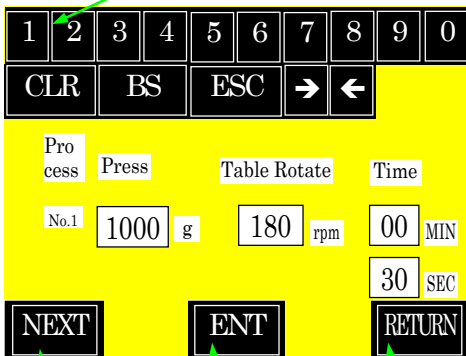


Ready for input



Step 7 When the field is ready for input, press the setting condition input keys to input the setting condition. Press the "Enter button" to define the condition. When all parameters of the polishing process are input, press the "Next button" to move to the next process. (Press the "Return button" to return to the setting check screen.)

setting condition input key

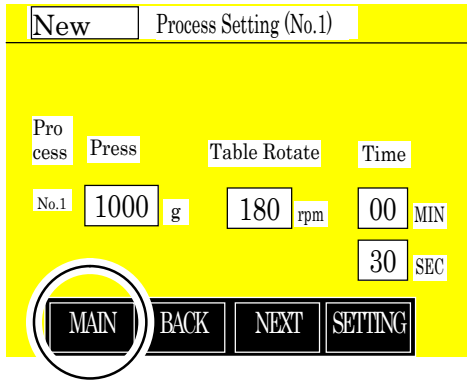


Return button

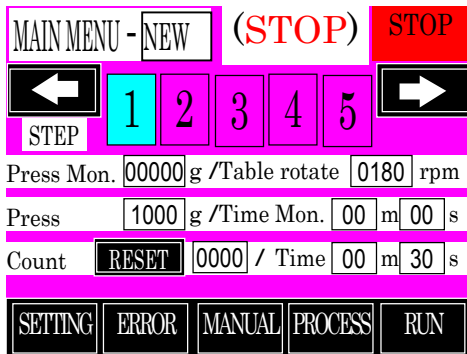
Enter button

Next button

If the next parameter input field is pressed without pressing the "Enter button", the parameter is not registered. If the polishing time is not set, the process is not registered.



Step 8 Check the setting conditions on the setting check screen. When it is OK, press the "Main button" to return to the polishing process selection screen.

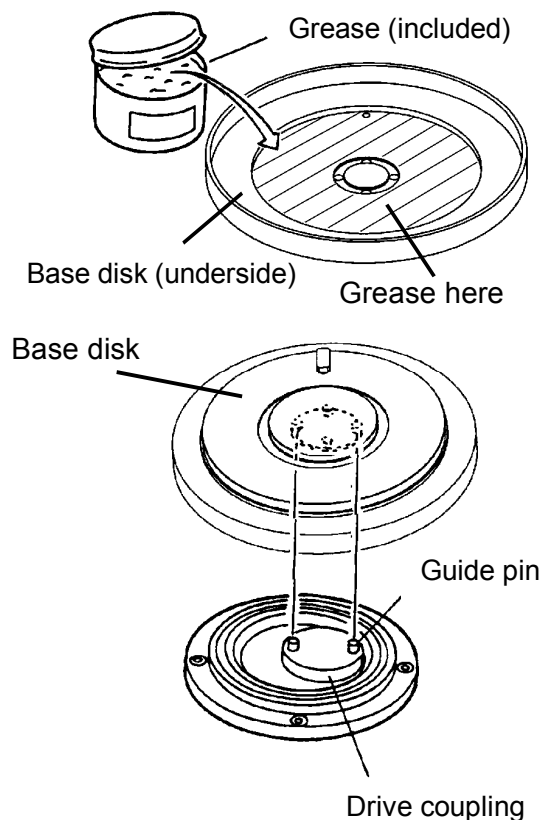


Now, the polishing process registration is complete. To change the process, start from Step 2 and change the desired part.

Chapter 4 Polishing preparation

In this chapter, all the preparations prior to starting polishing are explained.

4.1 Base disk preparation



Step 1 Disconnect the power cord from the outlet.

Step 2 Apply grease included with the product to the underside of the base disk. Also apply grease to the center hole of the underside.

Step 3 Attach the disk to the drive coupling, fitting the guide pins on the drive coupling into the holes.

Note

Make sure that the pins go into the holes of the disk and are securely fixed.

Note

Do not use the disk without applying grease to prevent the machine from being worn out. Apply grease to the disk before it dissipates. It is recommended that you should apply grease once a month.

Grease : Identity COSMO WIDE GREAE WR No.2

Manufacture's COSMO OIL CO. LTD.

Protective gloves For highly sensitive skin only.

Eye protection None in normal use.

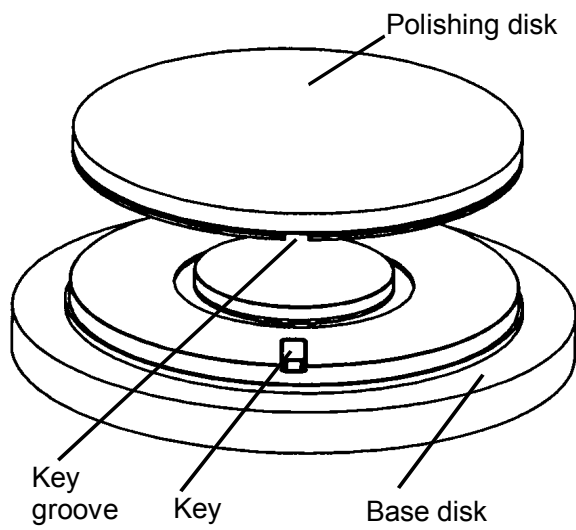
First aid measures

Skin; Wash with soap and water.

Splashes in eyes ; Wash with cool running water for at least 15 minutes. Seek medical advice at once.

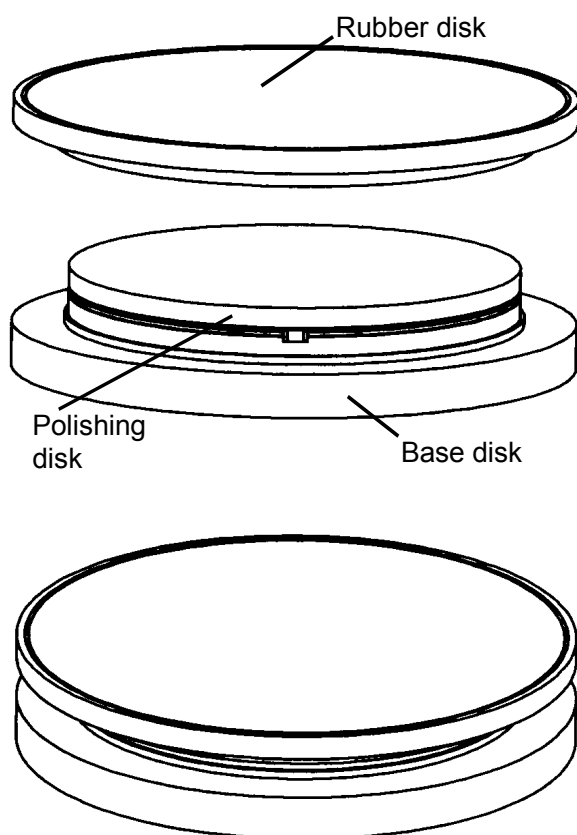
Ingestion ; Rinse mouth with water, then seek medical advice at once.

4.2 Polishing disk preparation



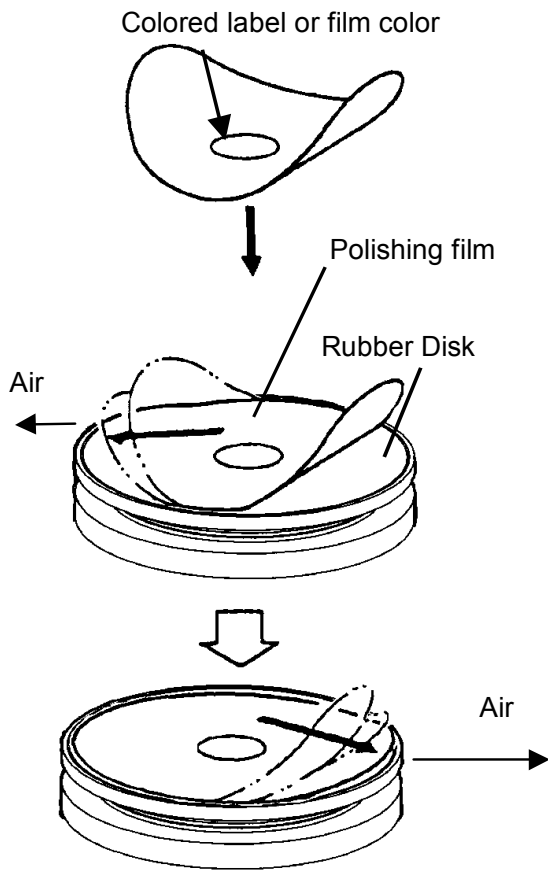
Step 1 Align the base disk key with the key groove of the polishing disk and install them on the base disk.

4.3 Rubber disk preparation



Step 1 Insert the rubber disk into the polishing disk set on the base disk.

4.4 Polishing film preparation



Step 1 Clean the rubber disk surface using cleaning paper and ethyl alcohol. Be sure to remove all dirt and other foreign matter.

Step 2 Place the polishing film in the center of the rubber disk and spread it from the center outward with your hand to squeeze out all of the air (Pay attention to the color of the polishing film or the label.).

Note

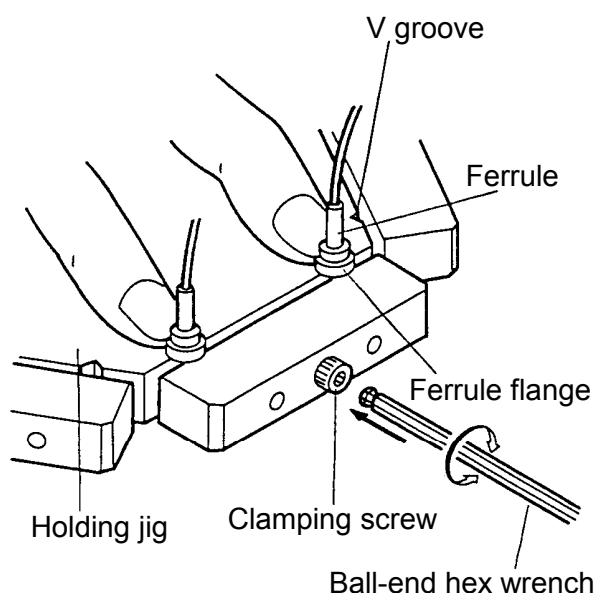
Adhesive removal	Pebble grey color
Grinding film	Red color
Polishing film	purple color
Finishing film	Clear color
Buffing sheet	Light brown color

Chapter 5 Polishing procedure

When all of the polishing preparations up to Chapter 4 have been made, ferrule polishing can be started.

5.1 Mounting the ferrules

V-groove type



Step 1 Put the holding jig onto the setup stand, fitting the hole in the holding jig onto the pin on the setup stand.

Step 2 Mount the ferrules on the 6 sides (12) referring to the figure in the following page.

Step 3 Loosen the clamping screws on the holding jig, turning about 3 turns using the ball-end hex wrench.

Step 4 Place the ferrules into the V-grooves in the holding jig. Insert 2 ferrules into the grooves. Press the flange of the ferrule with your finger and tighten the clamping screw with the ball-end hex wrench.

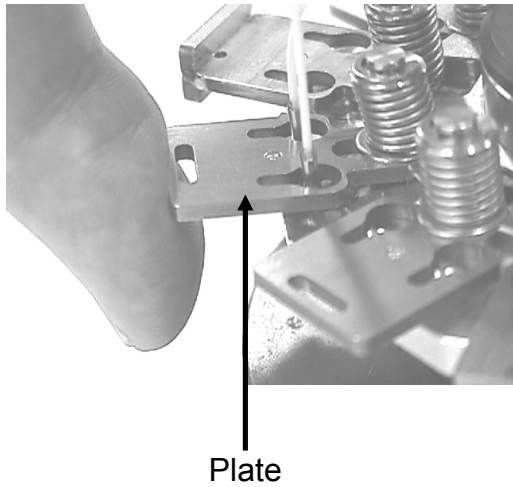
Note

To tighten the clamping screws with the appropriate tightness, tighten finger tight, then use the ball-end hex wrench to tighten one quarter turn more.

Note

After mounting, make sure that the ferrule flange is in close contact with the holding jig.

Hole type holding jig



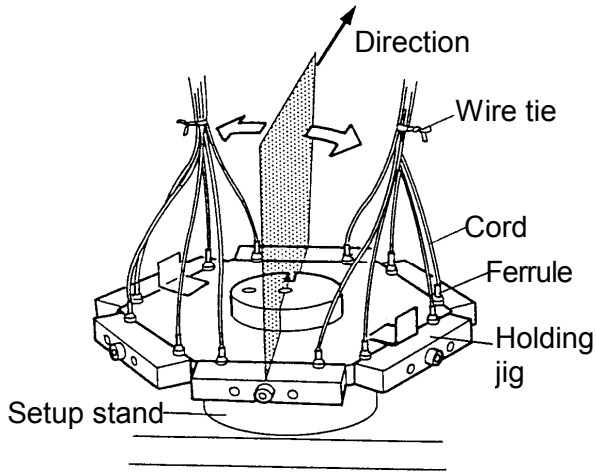
Step 1 Put the holding jig onto the setup stand, fitting the hole in the holding jig onto the pin on the setup stand.

Step 2 Mount the ferrules in the holes referring to the figure in the following page.

Step 3 Insert the ferrules into the holes in the holding jig. Press the flange of the ferrule with the plate.

Note

After mounting, make sure that the ferrule flange is in close contact with the holding jig.

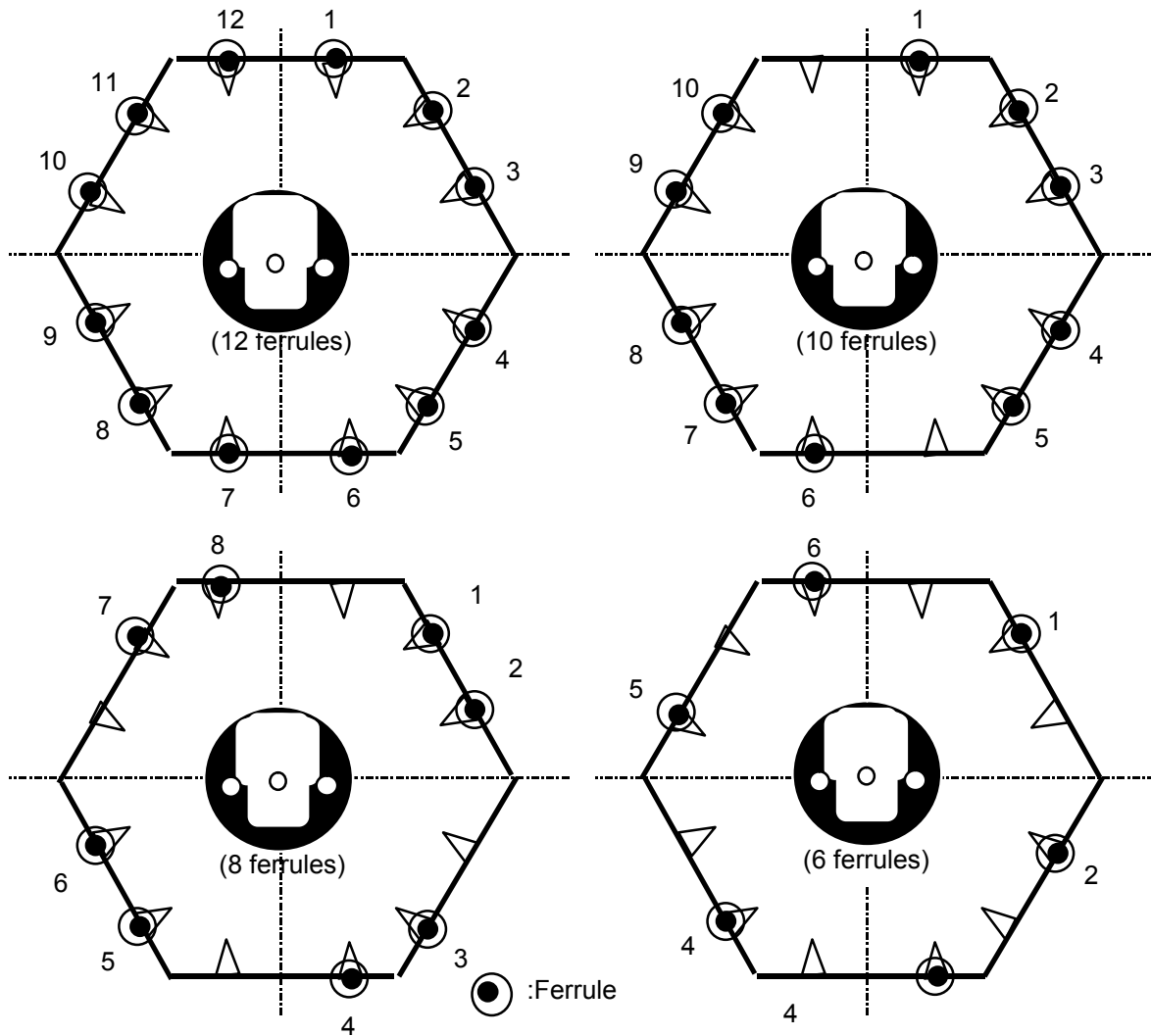


Separate the ferrule cord into two bundles to improve setting of the holding jig as shown in the left figure, one on each half of the holding jig, and tie each bundle with a wire tie.

Note

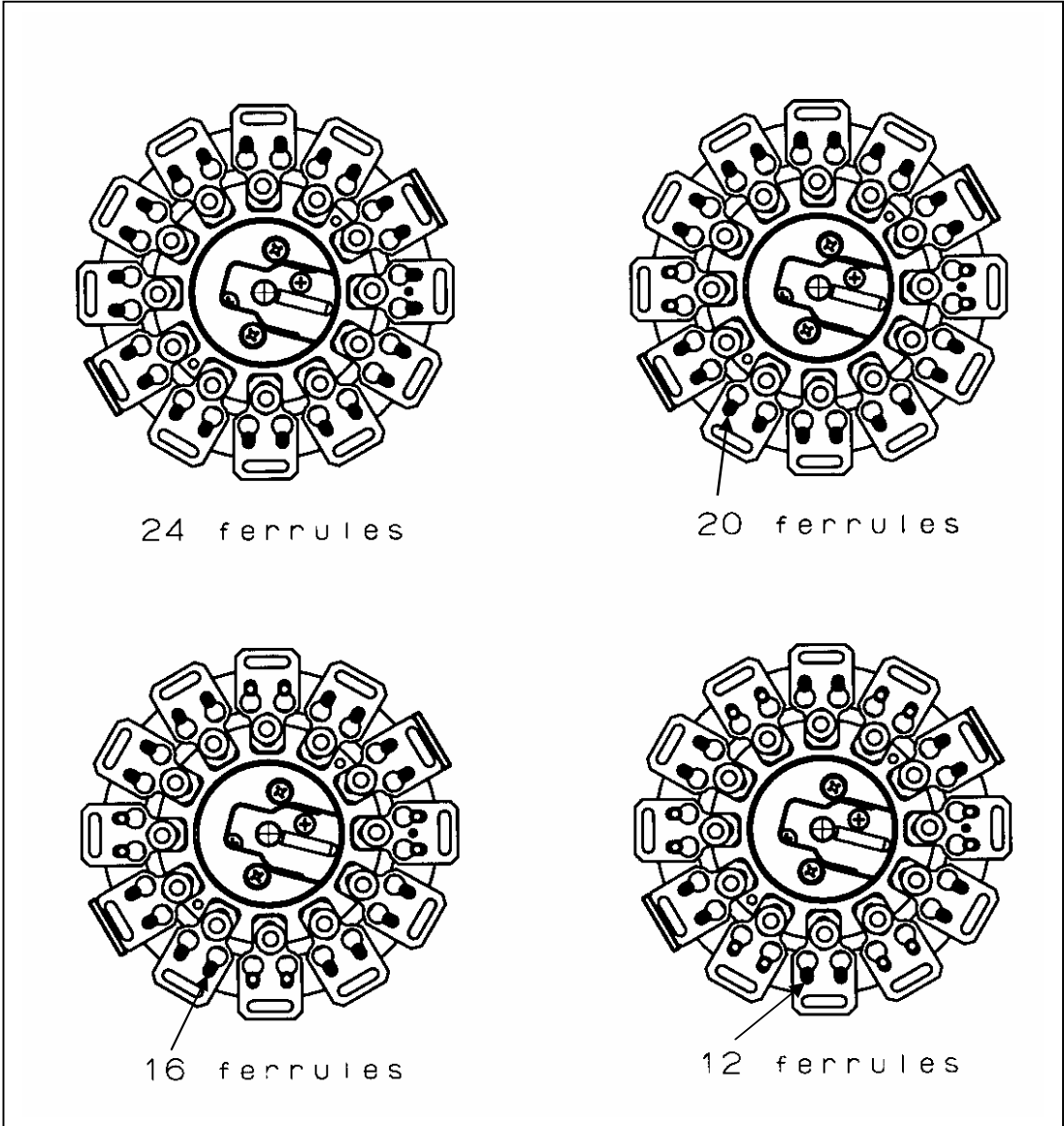
If you have less than three ferrules to polish, use dummy or unusable ferrules so there are at least three ferrules mounted in the holding fixture. This is so that the ferrules will get polished at an equal quality level.

V-groove type holding jig

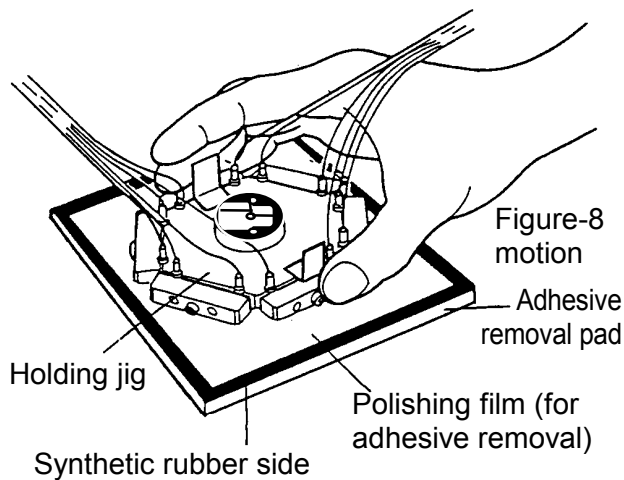


Balanced ferrule arrangements

24 ferrules hole type holding jig



5.2 Removing adhesive (hand polishing for Flat ferrule polishing)



Step 1 Clean the surface of the synthetic rubber side of the adhesive removal pad with ethyl alcohol. Make sure all dirt and other foreign matter is removed.

Step 2 Place a new piece of polishing film for removal of adhesive onto the rubber side of the adhesive removal pad.

Step 3 Take the holding jig with the ferrules mounted in it and rub the tips of the ferrules against the polishing film for removal of adhesive using a figure-8 motion. Rub for about 10 seconds using only the weight of the holding jig, then for about 20 seconds with about 1 to 2 kg of hand pressure.

Step 4 Clean the tips of the ferrules with cleaning paper. Make sure that there is no adhesive remaining on the tips of the ferrules. Use a new piece of polishing film for removal of adhesive every time this polishing step is done.

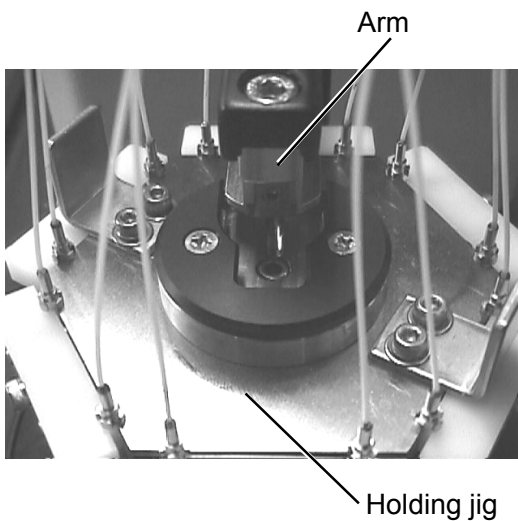
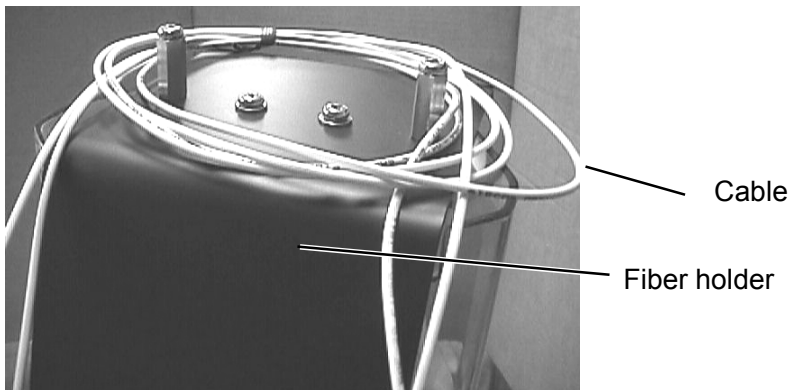
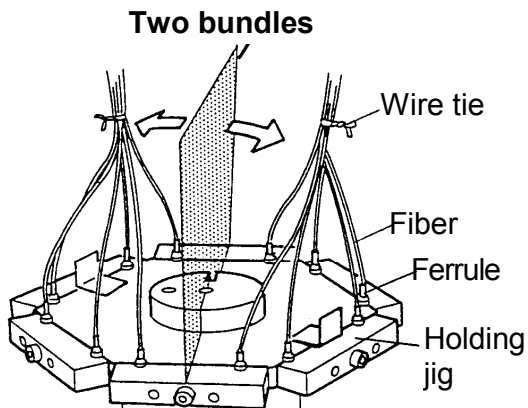
Note

If the ferrules are mounted incorrectly, the ferrule can slip and the tip of the ferrule may not be polished correctly.

5.3 Adjusting fiber holder

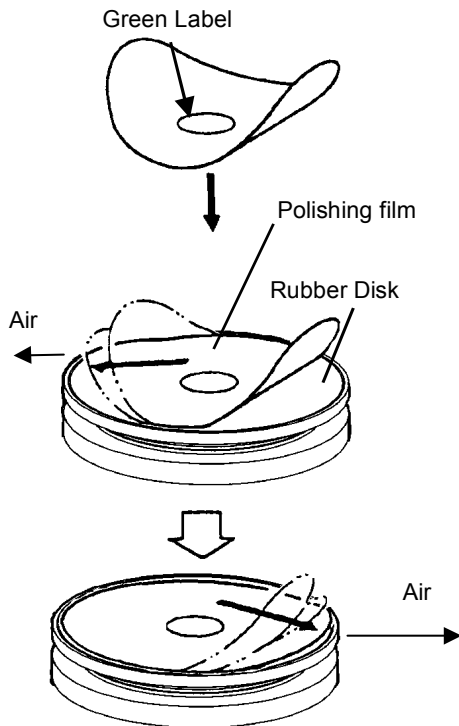
This section describes how to adjust the height of the fiber holder. This adjustment is done when mounting the holding jig onto the polishing unit. Refer to Sections 5.4 and 5.5.

Step 1 Hang the fibers (which have been tied into two bundles) on the spool at the end of the fiber holder to prevent interference with polishing due to loosening



Step 2 Mount the holding jig onto the arm as described in Step 3 of Sections 5.5. (For details refer to Section 5.5 Mounting the Holding Jig.)

5.4 Polishing step



Step 1 Place the each film for Polishing step on the rubber disk. (Green label film is another type.)

Note

Make sure that the polisher is not in operation. Place the film carefully.

Step 2 Evenly wet the polishing film with about 2.5 ml of each fluid with the squeezable dropper bottle.

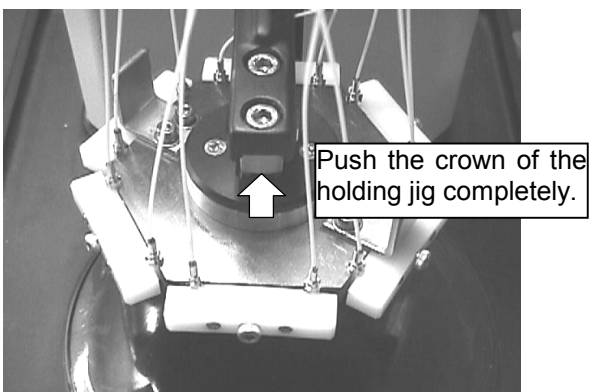
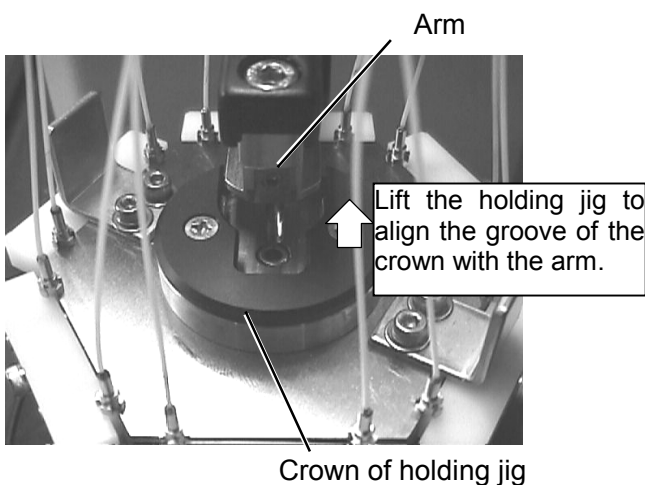
Note

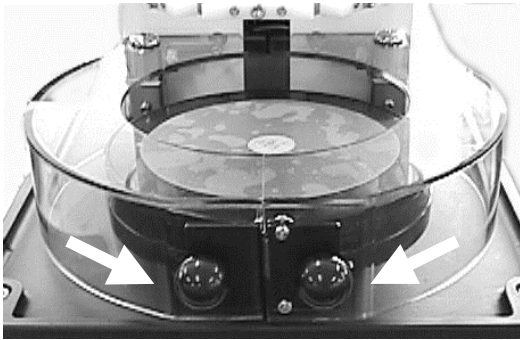
When you apply fluid, use the squeezable dropper bottle to avoid spilling fluid on the operation panel.

Step 3 Set the holding jig on the arm of the polisher.

Note

Be careful not to apply undue force on the arm when mounting the holding jig on the arm. The load cell for detection of the load may be damaged.

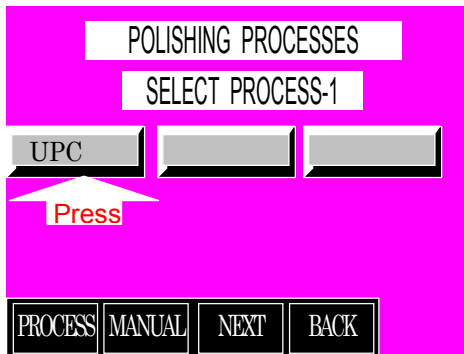




Step 4 Close the protection covers.

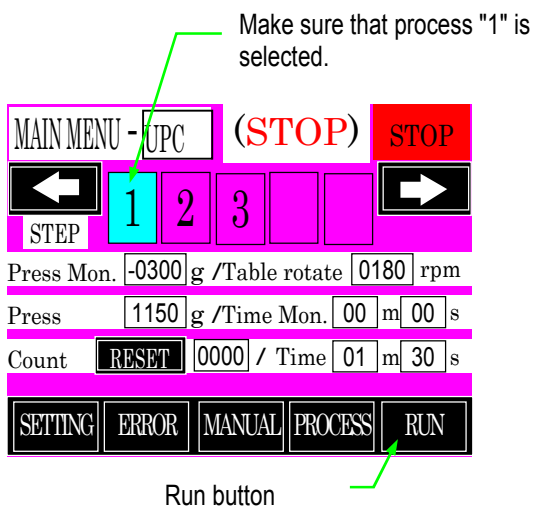
Note

To stop the polishing process, press the "Stop button" on the display. The machine stops when the process is completed.



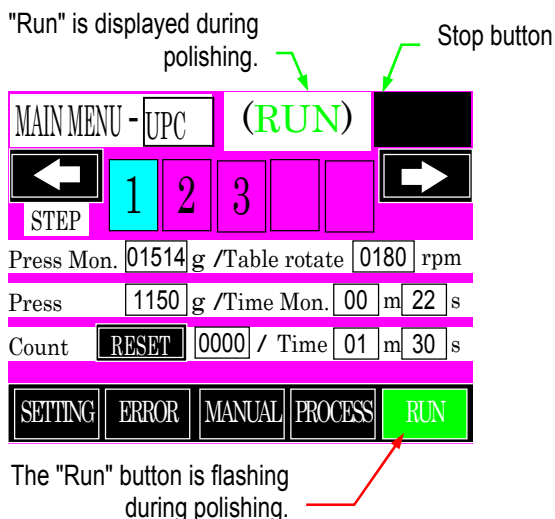
Step 5 Select the "Polishing process selection screen" on the operation display. Press the (ex.UPC) polishing process.

Refer to 1.5 "Explanation of operation display for operation display and refer to Chapter 3 "Setting polishing process" for setting the program polishing.



Step 6 Make sure that the polishing process is "1". Press the "Run button" and the arm starts downward movement. When the specified thrust is applied, the polishing disk starts slowly for polishing.

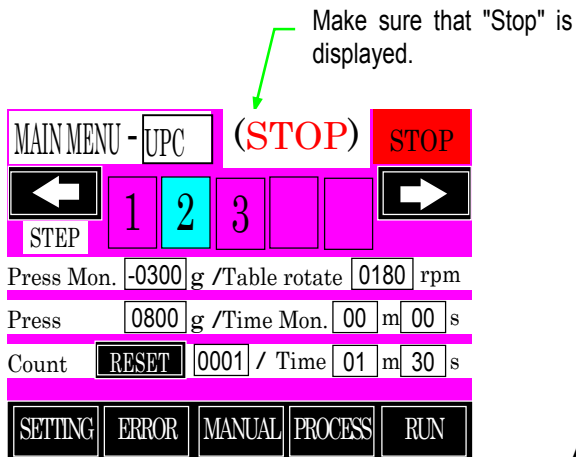
During polishing, "Run" is displayed and the "Run button" is flashing. The polishing thrust and the time are also displayed on the monitor.



The monitor shows a minus figure due to the weight of the polishing jig before polishing. This is not a malfunction.

Note

Press the "Stop switch" at the front of the polisher to immediately stop the machine due to a failure. Upward/downward movement of the arm and rotation of the disk stop and polishing is interrupted.



Step 7 When the set time elapses, polishing is completed. The polishing disk automatically stops and the arm moves upward. After completion of the process, "Stop" is displayed on the status display. Make sure that "Stop" is displayed and remove the holding jig.

After finishing step, not necessary to remove the holding jig. Go to cleaning polishing step.



Step 8 Clean the holding jig and the ferrule under running water. After cleaning the ferrules, remove polishing grits and water to clean paper.

Step 9 Go to next polishing step.

This illustration shows running distilled water being used

————— Note —————

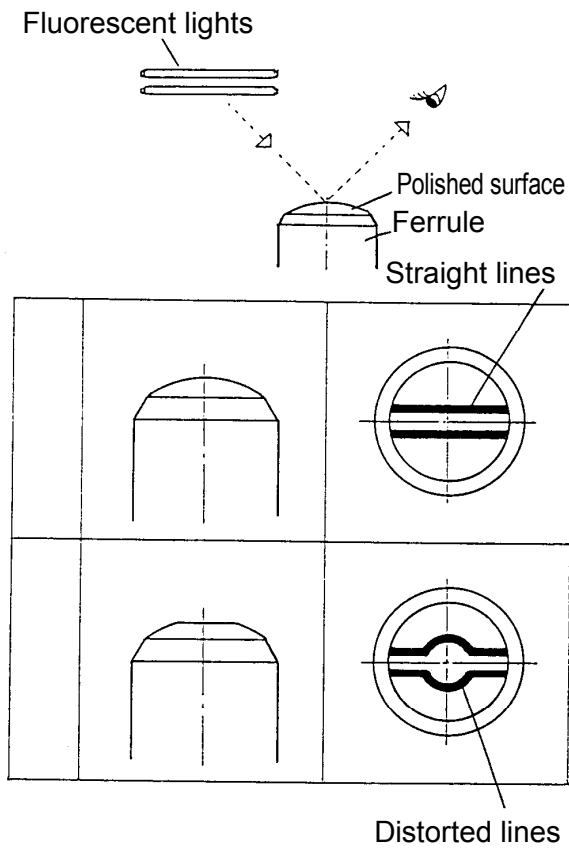
After cleaning, carefully wipe or blow the holding jig dry.

————— Note —————

Do not touch the operation panel with wet hands.

Step 9 Clean the tips of the ferrules and the holding jig with cleaning paper.

Step 10 (Only after grinding) After cleaning the tips, check the surface of each ferrule tip.



Note

Do not take the ferrules out of the holding jig.

If the reflection of two fluorescent light tubes is parallel, the positioning is satisfactory. If the reflection is not parallel, make sure that the ferrule flange

Step 11 Clean the surface of the polishing film with cleaning paper and distilled water.

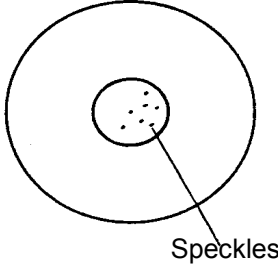
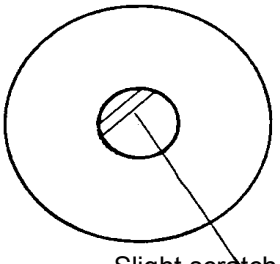
(Cleaning sheet is not necessary to clean the surface with cleaning paper.)

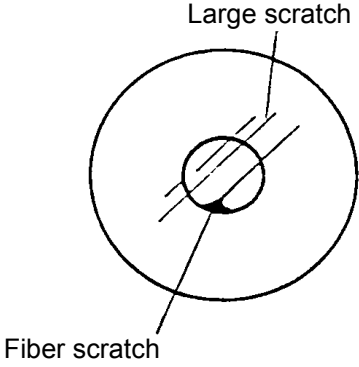
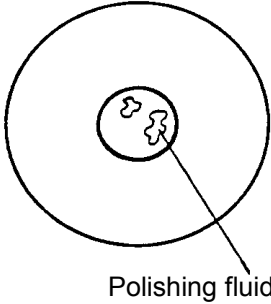
5.6 Polishing condition check

Check the condition of the ferrule tips after polishing.
 If there was a deep scratch caused in the fiber during the adhesive removal step, satisfactory polishing cannot be obtained. In this case, repolish.

Note

When repolishing ferrules that have an unsatisfactory polished condition, polish from the grinding step to the finishing step to obtain consistent polished quality.

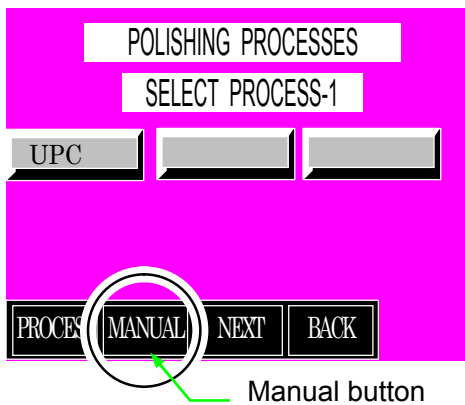
(1) Speckles	(2) Slight scratch
	
<ul style="list-style-type: none"> • Repolish using the polishing and finishing steps. • Occurs near the end of the life of the polishing film. • Occurs when the ferrule mounting in the holding jig is poor. 	<ul style="list-style-type: none"> • Repolish using the finishing steps. • Occurs when there is insufficient cleaning between polishing steps.

(3) Fiber scratch or large scratch	(4) Polishing fluid remaining
 <p>The diagram shows a circular cross-section of a fiber. Inside, there is a smaller circle representing the core. Several diagonal lines cross through the core and the surrounding cladding, representing scratches. A label 'Large scratch' points to a prominent diagonal line, and another label 'Fiber scratch' points to a smaller diagonal line.</p>	 <p>The diagram shows a circular cross-section of a fiber with a central core. The core area is filled with a cloud-like, irregular shape representing polishing fluid. A label 'Polishing fluid' points to this central area.</p>
<ul style="list-style-type: none"> • Repolish, using the grinding, polishing, and finishing steps. • Scratch was made during the adhesive removal step (manual polishing). • Make sure you correctly follow the procedure for adhesive removal (Refer to Section 5.2.). 	<ul style="list-style-type: none"> • Clean the tip of the ferrule. If you cannot remove the polishing fluid, do the buffing step again or do from the finishing step .

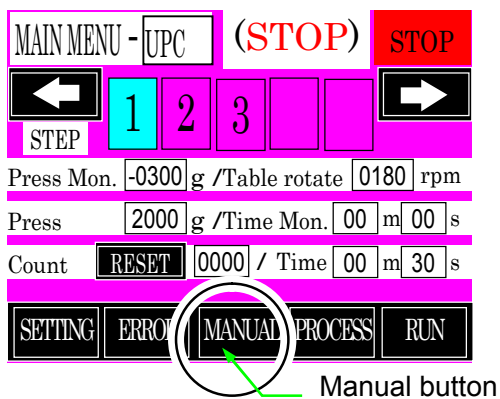
Chapter 6 Setting manual polishing

The OFL-15A polisher allows manual upward/downward movement of the arm, thrust application, and rotation of the polishing disk (within the set polishing time). Please read this section for manual polishing.

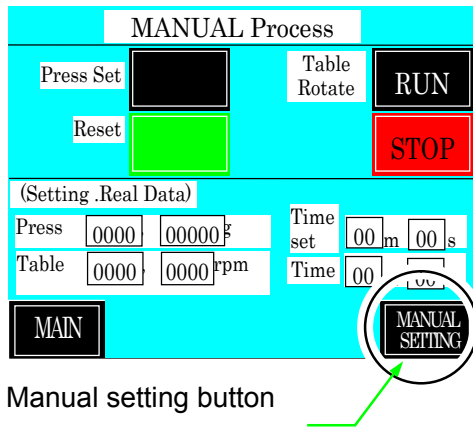
6.1 Setting manual polishing conditions



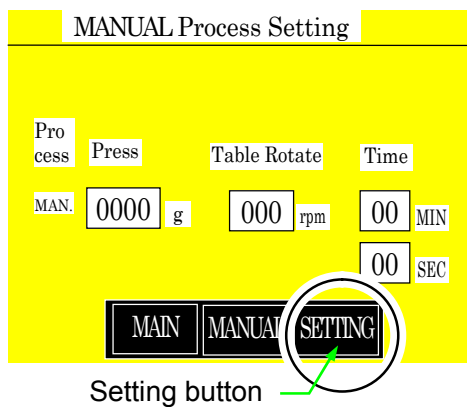
Step 1 Bring up the manual polishing screen. Press the "Manual button" on the polishing process selection screen.



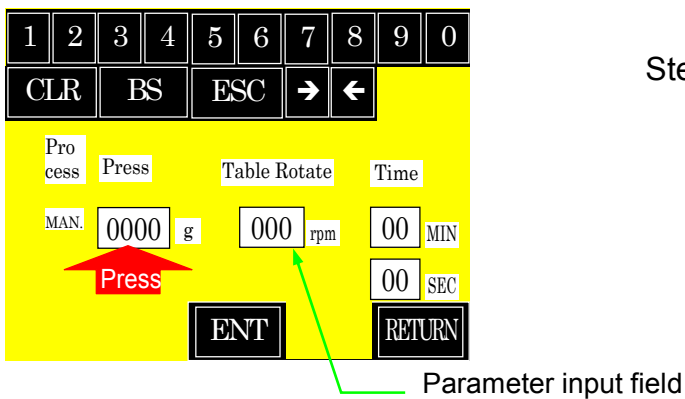
To enter the manual screen, the "Manual button" on the Main Menu screen may be pressed.



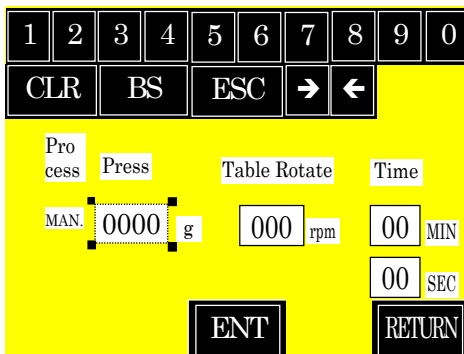
Step 2 When the manual screen in the left appears, press the "Manual Setting button" to go to the manual polishing condition check screen.



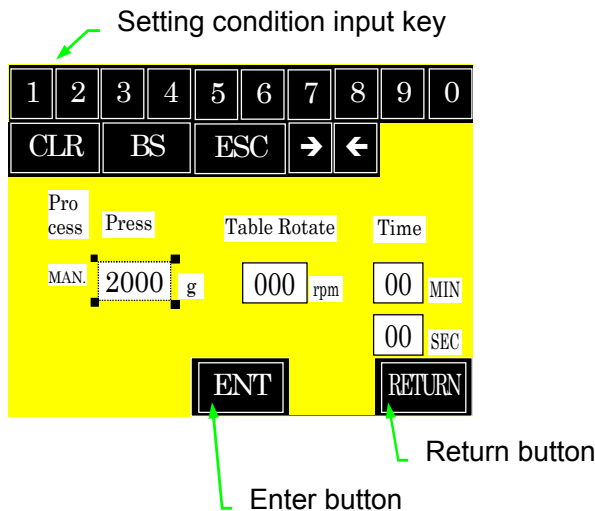
Step 3 Set the polishing conditions. Press the "Setting button".



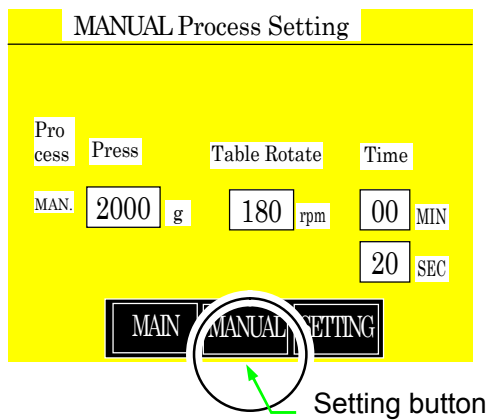
Step 4 When the left screen appears, set the parameter conditions. Press the input field surrounded by the frame on the screen for parameters (load, rotation, polishing time (min, sec)) to be ready for input.



When the frame of the input field shows a broken line as shown in the left, it is ready for input.



Step 5 When the field is ready for input, press the setting condition input keys to input the setting condition. Press the "Enter button" to define the condition. When all parameters of the polishing process are input, press the "Return button" to return to the manual polishing condition check screen.



If the next parameter input field is pressed without pressing the "Enter button", the parameter is not registered. If the polishing time is not set, the process is not registered.

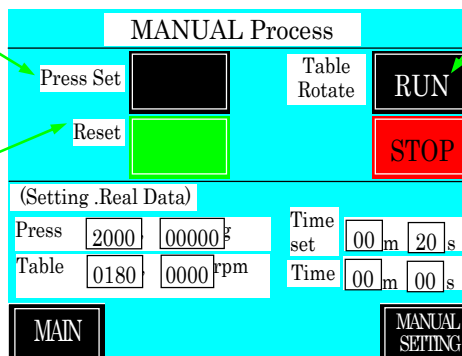
Step 6 Check the conditions set on the manual polishing condition check screen. If they are acceptable, press the "Manual button" to return to the manual screen.

Step 7 Use the buttons below to perform manual polishing.

Refer to Section 1.5 "Explanation of operation display".

- Press set button: Moves downward and pressurizes the arm.

- Press reset button: Returns the arm to the initial position.



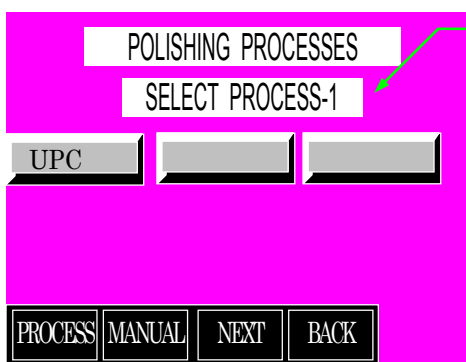
- Table Rotate Run button: Rotates the polishing disk at the set rotation speed.

- Table Rotate Stop button: Stops rotation of the polishing disk.

Chapter 7 Changing password

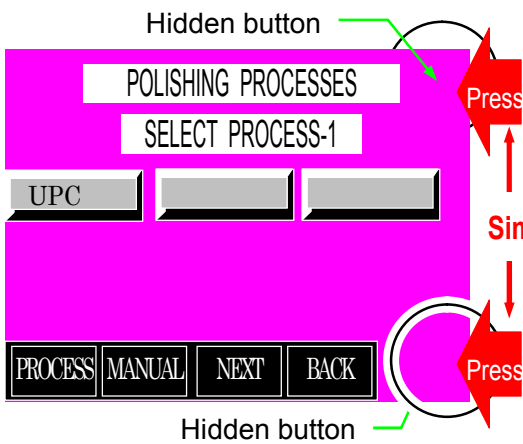
The password used to set or change the polishing process and the polishing process name can be changed in the OFL-15A polisher to prevent free change of the settings. If you want to change the password, please read this section.

7.1 Changing password



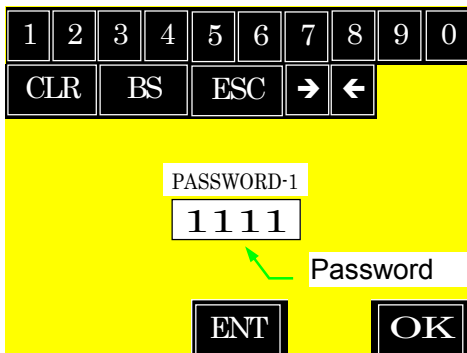
Process - 1 screen

Step 1 Bring up the Process - 1 screen of the polishing process selection screen.



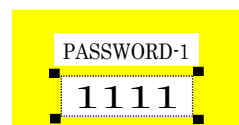
Step 2 Press the two hidden buttons on the screen simultaneously.

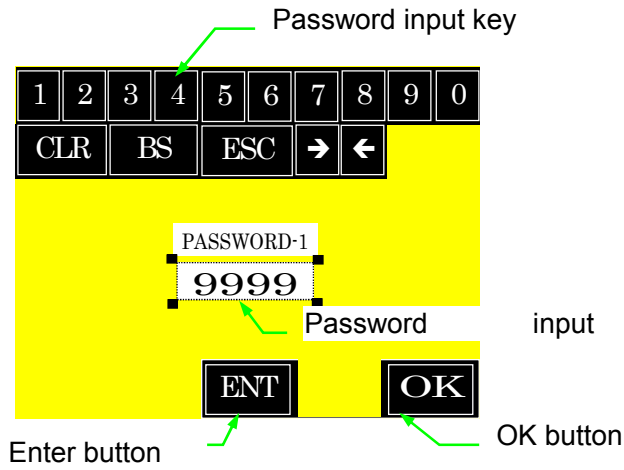
Only Process - 1 screen allows pressing the "hidden buttons" for changing the password.



Step 3 Press the password input field to be ready for changing the password.

- The indicated number is the currently set password.
- When the frame of the input field shows a broken line, it is ready for input.





Step 4 Use the password input keys to input the new password. Press the "Enter button" to define the password and press the "OK button" to end the password change. Then, the screen returns to the polishing process selection screen.

- The password cannot be changed without pressing the "Enter button".
- 4 digit of numerals can be set as a password.

Chapter 8 Maintenance

To ensure that the machine will function correctly, the following maintenance operations must be carried out after completion of polishing operations.

Arm mounting part on the holding jig, sliding parts and bearings may run out of lubrication or cause wear. It is recommended that regular inspection (overhaul) should be performed once a year.

8.1 Cleaning after polishing

- After polishing, or when stopping polishing for a period of time, clean the OFL-15A as well as all of the polishing films carefully with distilled water. Also make sure that no waterdrops remain on the operation panel.
- When the OFL-15A won't be used for a long time, ultrasonically clean the holding jig in ethyl alcohol, then oil the holding jig and keep it in a vinyl envelope.

8.2 Changing the polishing film

- Replace the polishing film referring to the standard lifetime in Section 1.1.
- The lifetime of the polishing film is a guideline.

Chapter 9 Troubleshooting

This section describes a list of anticipated problems during machine operation. If a problem develops, refer to the appropriate section to find what is out of the ordinary, and solve the problem. If the problem cannot be solved, please contact SII.

9.1 Resetting error

If an error has occurred, rotation of the disk and the arm operation stop. The polishing process is interrupted. The error message appears on the error display screen as shown below.

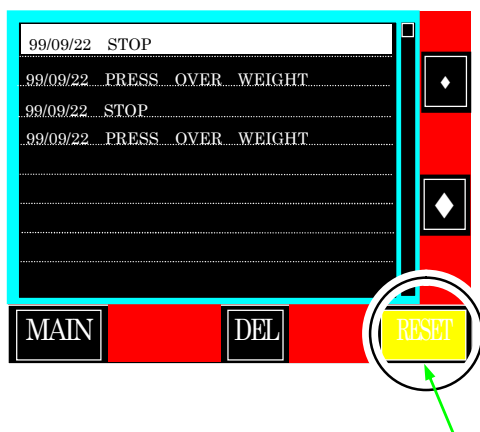


The highlighted error message is displayed at the top line of the screen.

Until the error is reset, the machine does not accept the command for the program polishing and the manual polishing.

<Resetting error>

To reset the error, refer to Table 9-1 "Errors and troubleshooting". Remove the cause of the error and reset the error in the following procedure.



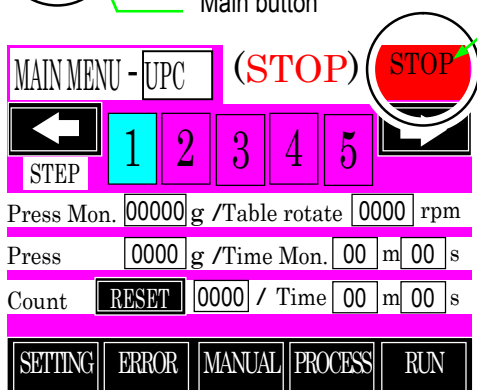
Step 1 Remove the cause of the error.

Step 2 Press the "Reset button" as shown in the left.



Main button

Stop button



Step 3 When the illuminating "Reset button" has gone off as shown in the left, press the "Main button" to go to the Main Menu screen.

Step 4 Press the "Stop button" twice quickly in the left.

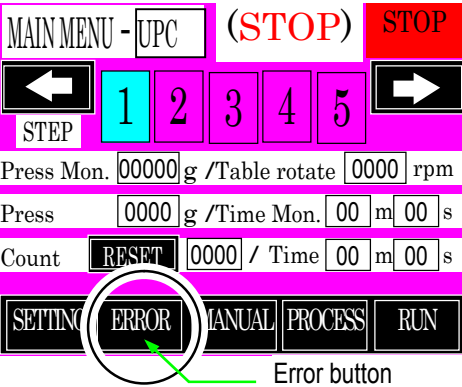
The arm automatically returns to the home position. When the arm stops, the initial status of the interrupted process is recovered.

Message	Error	Troubleshooting
STOP	The stop switch was pressed.	Remove the cause of the stop. After solving the problem, turn the stop switch knob clockwise for resetting.
	The protection cover was opened while the polisher was in motion.	Close the protection covers.
PRESS OVER WEIGHT	Overload of 3.5 kgf or more occurred on the pressure sensor (load cell).	Make sure that there is no excessive load on the arm from other sources.
PRESS MOTOR ERROR	Overload occurred on the thrust motor.	If foreign matter is present or caught at the arm or in the groove at the bottom of the arm, carefully remove it.
TABLE MOTOR ERROR	Overload occurred on the disk rotation motor.	If foreign matter is present or caught at the rotating part of the disk, carefully remove it.
LOAD UP ERROR	The upward movement command for the thrust motor is effective during operation after the specified time (180 seconds).	Contact SII.
LOAD DOWN ERROR	The downward movement command for the thrust motor is effective during operation after the specified time (180 seconds).	Contact SII.
LOAD PRESS ERROR	While the thrust command is issued from the thrust motor, the specified time (10 seconds) has elapsed.	If the polishing disk or the polishing disk is not set, set it referring to Chapters 4 and 5.
SEQ BATTERY LOW	The battery of the programmable controller has become low.	Contact SII.
SEQ POWER DOWN	Power failure of the programmable controller	Contact SII.
SEQ CPU ERROR	CPU failure of the programmable controller	Contact SII.

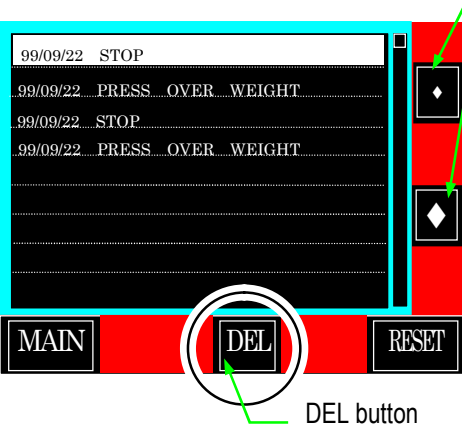
Table 9-1 Errors and troubleshooting

<Deleting error message>

After solving the error, the error message can be deleted.



Step 1 Press the "Error button" on the Main Menu screen to bring up the error display screen.



Step 2 Press the up/down scroll buttons to select the error message to be deleted. Press the "DEL button" to delete the error message.

9.2 Other troubleshooting

Table 9-2 "Other troubleshooting" shows anticipated errors and troubleshooting procedures other than the ones indicated by the error messages.

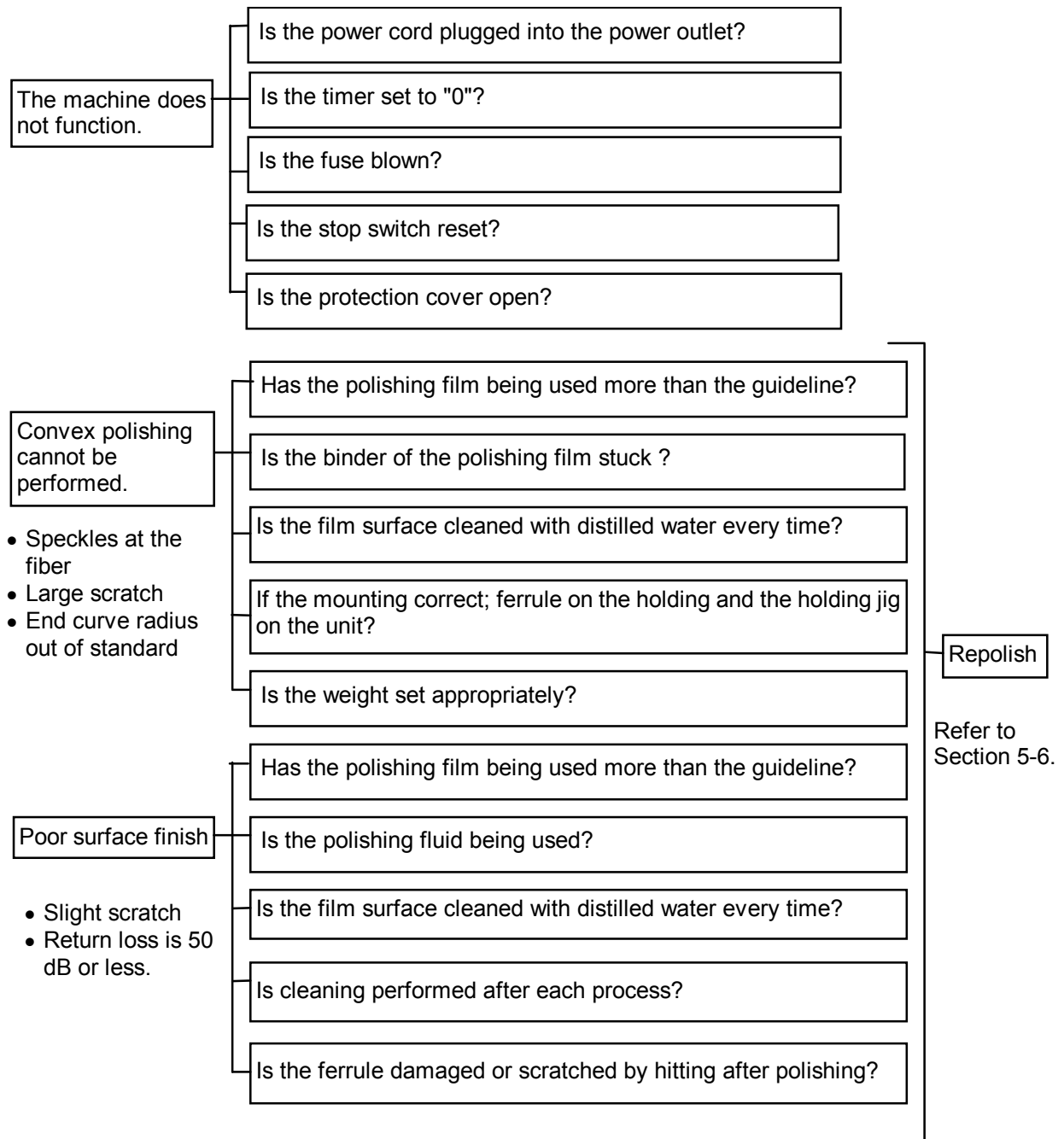


Table 9-2 Other troubleshooting

Appendix Standard polishing efficiency and specifications

Standard polishing efficiency (UPC-R20 convex surface polishing) :
Standard polishing time (excluding adhesive removal and
cleaning step)

Grinding	0.5 minutes
Polishing	1.0 minutes
Finishing	2.0 minutes
Polishing process	3 steps (excluding adhesive removal and cleaning step)
Return loss	50 dB or more
End curve radius	10 to 25 mm
End curve offset	50 μm or less
Fiber under-cut	0.1 μm or less

General specifications:

Applicable Standards	Machinery Directives Annex-I, EN ISO12100-1, EN ISO12100-2, EN1050, EN954-1, EN60204-1, EN294 Other
Sound level	48.5dB
Power supply	230 V AC 50/60 Hz, 80 W
Physical dimensions	240 (W) x 390 (D) x 588 (H) mm (excluding the protrusion)
Weight(main body)	Approximately 24 kg
Polishing pressure setting(Excluding the weight of the holding jig)	300 to 7,000 g (Unit: gram)
Polishing disk rotation speed	100 to 280 rpm (Unit: rpm)
Time setting	0 through 99 min. 59 sec. (Unit: seconds)

Operating environmental specifications:

Operating temperature	10°C to 40°C (no condensation)
Relative humidity	15% to 85%
Overvoltage category	category III according to IEC60664-1
Pollution degree	degree 3 according to IEC60664-1

Storage and Shipment

Temperature

The machine can be stored or shipped at temperatures between $-25\sim+55^{\circ}\text{C}$ and $-25\sim+70^{\circ}\text{C}$ less than 24 hours. Protect the machine from temperature extremes that may cause condensation within it.

Vibration

Operating: 0.2 G 5 to 10 Hz 4 min.
Powered-off: 0.5 G 5 to 100 Hz 20min.

Acceptable impact

Drop of 50 mm piece at one side
(powered-off)

Circuit diagram

