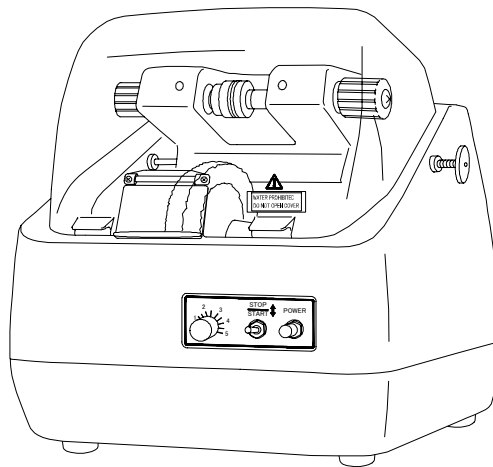


# Dia

## AUTO POLISHER AP-2

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### Operation Manual



Please be sure to read this manual carefully before using the instrument and keep it handy for ready reference.

DIA OPTICAL CO.

# IMPORTANT INFORMATION

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## <PURPOSE OF THIS MANUAL>

- The purpose of this manual is to provide the customer with necessary and important information of the instrument related with its unpacking & installation, operating procedures, and preventive maintenance for safer and efficient use of the instrument.

## <LIMITED WARRANTY>

- DIA OPTICAL CO. will not be liable for any damage or injury arising from an individual's failure to follow the instructions contained in this manual and to pay generally required attentions and / or cautions.
- DIA OPTICAL CO. will not be liable for any damages or consequential damages, including, without limitation thereof, damages or other costs resulting from any abuse, misuse, misapplication of the instrument and its components supplied by DIA OPTICAL CO.

## <OTHER IMPORTANT INFORMATION>

- When operating or servicing the instrument, take extreme caution on the generally required safety rules as well as on those described in this manual.
- To prevent occurrence of an accident, do not attempt to carry out operation and maintenance / inspection in any method or procedures not described in this manual and also do not use the instrument for any unapproved purpose.
- This manual is copyrighted and all rights are reserved. The drawings and technical references, including this manual, may not, in whole or part, be copied, photocopied, or reproduced to any electronic medium or machine-readable form without prior written consent from DIA OPTICAL CO.

## <INQUIRY AND REPAIR SERVICE>

- If you have questions, require further information, or place an order for spare parts, contact with our service representative or your authorized distributor.

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# 1: SAFETY



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This section describes the safety precautions to secure safety when unpacking & installing, operating, or servicing the instrument.

Persons who handle the instrument must strictly observe the following safety precautions to use the instrument safely.

## 1.1 MEANINGS OF SIGNAL WORDS




The following signal words are used in this manual so that the instrument is operated safely. Therefore, their definitions must be completely understood before reading the body of this manual.

	<b>WARNING</b>	Indicates a possible hazard which may result in death or serious injury.
	<b>CAUTION</b>	Indicates a possible hazard which may result in personal injury.

	<b>DON'T</b>	Indicates an operation prohibited to perform. If not observed, the user may be injured or the instrument may be damaged.
	<b>DO</b>	Indicates an operation forced to perform. If not observed, the user may be injured or the instrument may be damaged.

**NOTE** Used to emphasize essential information.

## 1.2 SAFETY PRECAUTIONS

	<b>WARNING</b>	
		Properly plug in the power plug to the depth of the outlet (115 Va.c. or 230 Va.c. ) specified on the rating label of the instrument. Also, be sure to take earthing. (If not observed, it may cause an electric shock.)
		When replacing a fuse, use only the fuse of specified rating and type printed on the fuse holder. Also, turn OFF the main switch, and pull out the power plug in advance.

**WARNING**

Do not put any ignitable solvent or agent such as paint thinner, alcohol, etc. near or on top of the instrument.  
(There is a risk of a fire if it is spilt or evaporates, touching the parts inside the instrument.)



Do not use the instrument for any other purposes not originally intended (polishing of eyeglass lens).

**DO NOT TOUCH**

When polishing a lens, always close the dust cover. Also, never directly touch the rotating buffing wheel with hand.

**PULL OUT  
POWER PLUG**

When some abnormality (abnormal smell) has occurred to the instrument during its operation, turn OFF the main switch of the instrument and pull out the power plug or switch OFF the power breaker. (Continuing operation without taking any remedy may cause a failure of the instrument, an electric shock, or a fire.)



Pull out the power plug from the outlet if the instrument is relocated or not going to be used for a long time or the buffing wheel is inspected or replaced.

**DO NOT  
DISASSEMBL**

Never disassemble and/or modify the instrument. Instead, ask our service representative for repair.  
(Unauthorized repair and/or modification will lead to an electric shock or a fire.)

**DO NOT WASH**

Do not wipe with a wet rag or wash with water.  
(If not observed, it will cause an electric shock or damage the instrument.)

**CAUTION**

Place the instrument only at a stable position where it can be operated smoothly and keep proper footing and balance at all times. (If not observed, the instrument may fall or drop, resulting in personal injury.)



Do not place the instrument where it may be exposed to direct sunlight, high humidity, temperature extremes, or dew depositions. (If not observed, it may cause an instrument failure or malfunction, an electric shock, or a fire.)

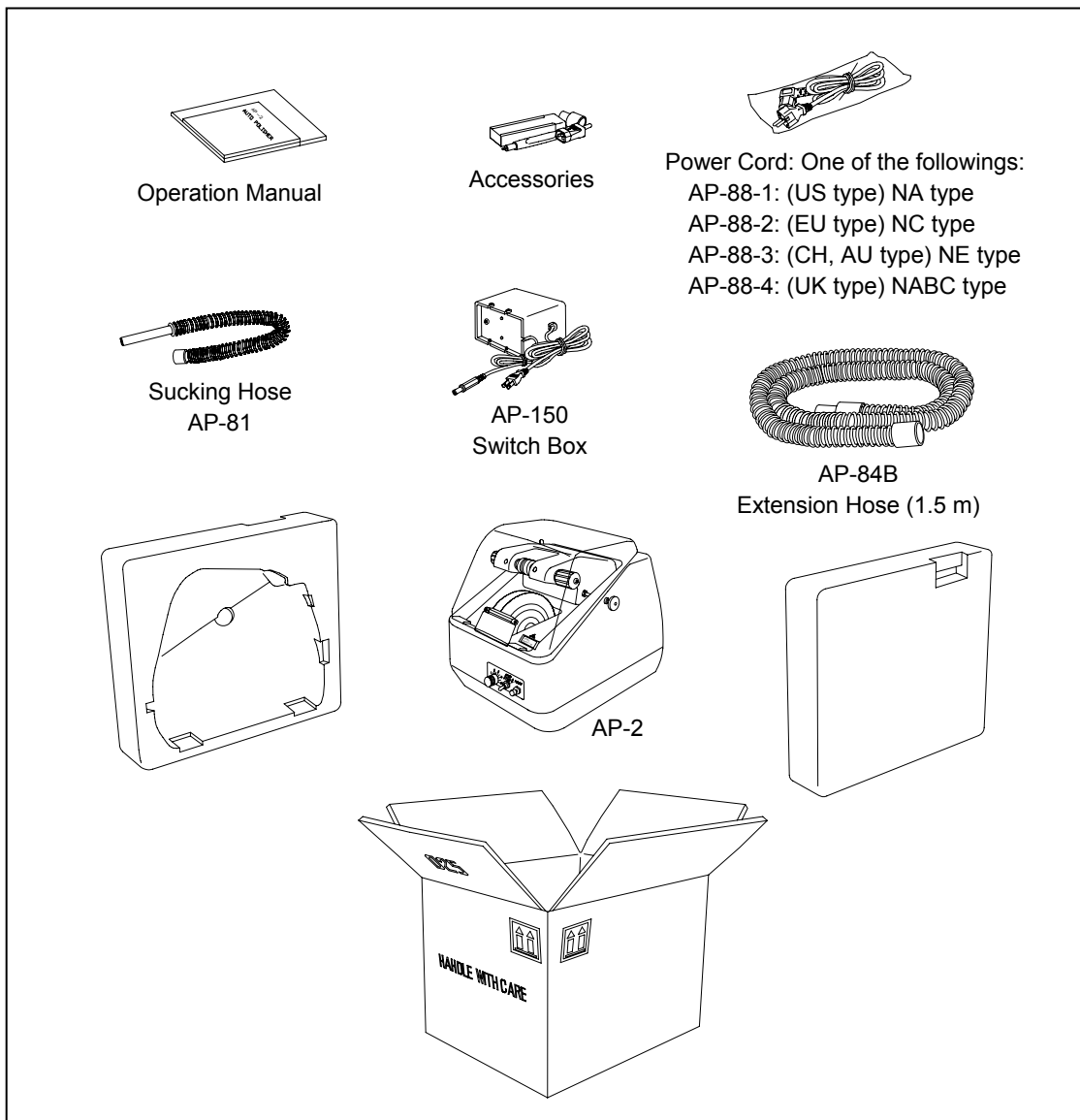


Do not put anything near the outlet so that the power cord can be easily pulled out at any time.  
(If not observed, the power plug cannot be pulled out in case of an emergency.)

# 2: UNPACKING & INSTALLATION

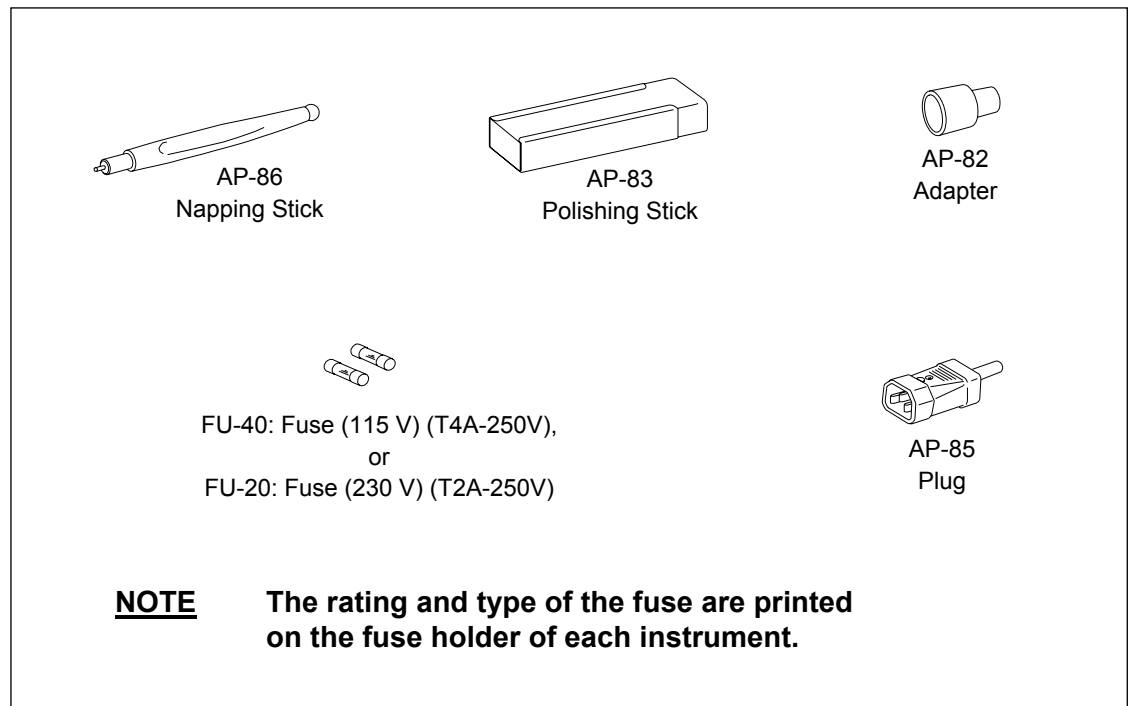
## 2.1 UNPACKING CARTON

- (1) Open the cardboard carton and take out the accessories and the operation manual.
- (2) Take out the instrument with packing materials from the cardboard carton and place the instrument on a stable workbench.
- (3) Verify that all the items are included in the carton and there is no damage to them (See the figure below and Section 2.2.)



## 2.2 STANDARD ACCESSORIES

Item Code	Item Name	Quantity
AP-81	Sucking Hose	1
AP-82	Adapter	1
AP-83	Polishing Stick	1
AP-84B	Extension Hose (1.5 m)	1
AP-85	Plug	1
AP-86	Napping Stick	1
AP-150	Switch Box	1
FU-40 FU-20	Fuse (115 V) (T4A-250V), or Fuse (230 V) (T2A-250V) (Contained in fuse holder of instrument)	1 (in use) 1 (Spare)




- The accessories on the table above are attached to this instrument.
- Please note that the items on the table above are for the standard specifications, and the accessories including options may differ more or less.

# 3: BASIC INFORMATION OF INSTRUMENT

This section provides the general information of the instrument, including the purpose and specifications of the instrument, and the names and functions of its major components.

## 3.1 PURPOSE OF INSTRUMENT

The auto polisher AP-2 is an instrument that automatically polishes the edge of eyeglass lenses.

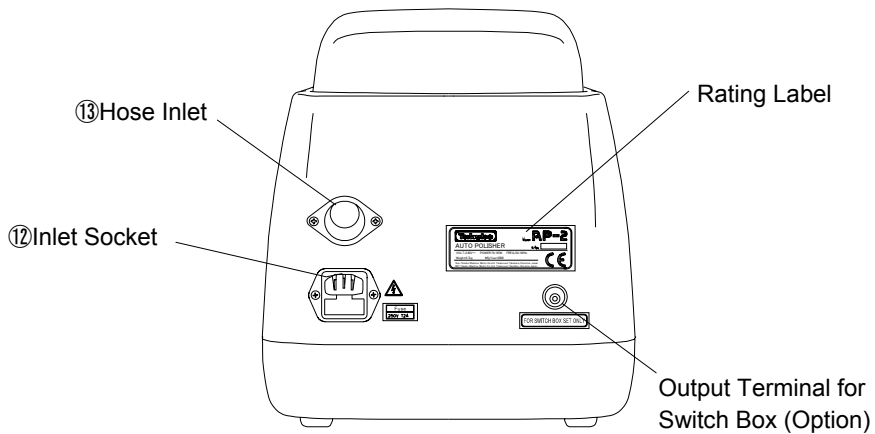
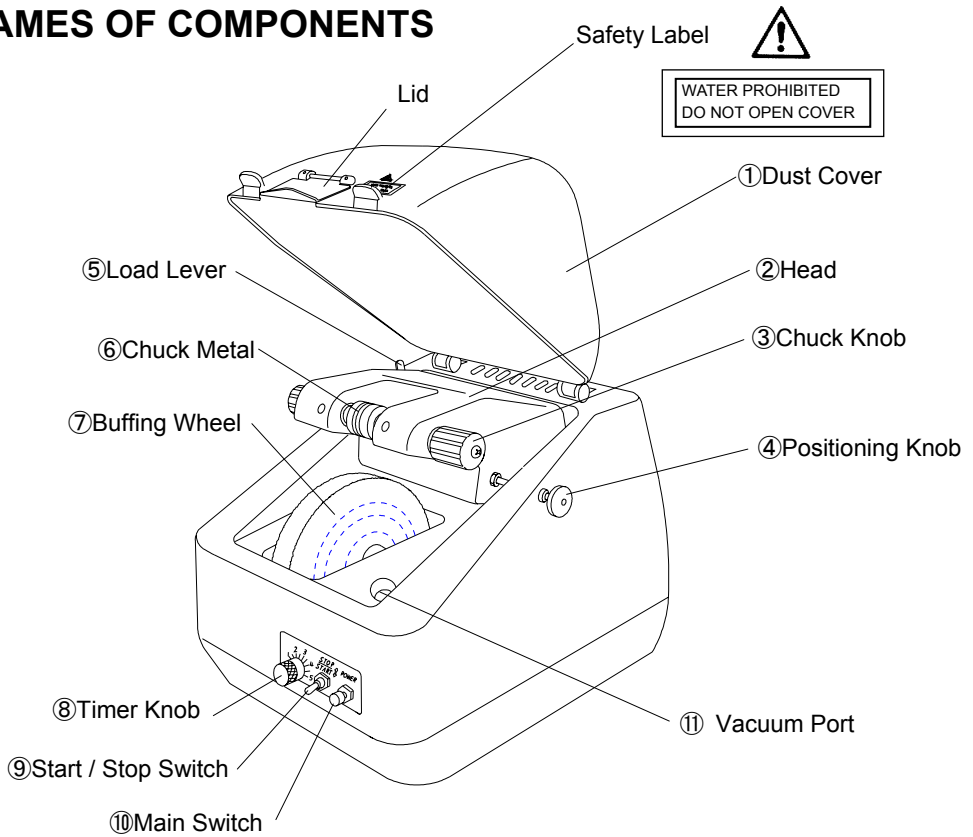
	<p><b>CAUTION</b></p> <p><b>Do not use the instrument for any other purposes not intended (polishing eyeglass lenses).</b></p> <p><b>If this is not observed, the instrument may be damaged or an unexpected accident may arise.</b></p>
---	--

## 3.2 SPECIFICATIONS OF INSTRUMENT

Item	Specifications
Buffing wheel speed	19.7 m/min
Buffing wheel size	φ115 mm (Max. dia.) × 10 mm (Thickness)
Lens material or kind	CR-39, High index, Polycarbonate
Outside dimensions	214 (W) × 270 (D) × 240 (H) mm
Weight	6.7 kg
Rated power supply	<p>&lt;In EU territories, Russia, and other nations:&gt; 230 Va.c. ±10 %, 50 Hz / 60 Hz</p> <p>&lt;In U.S.A., and some other nations:&gt; 115 Va.c. ±10 %, 50 Hz / 60 Hz, or</p> <p><b>NOTE</b> See the rating label at the back of the instrument for the actual power source specifications.</p>
Rated power consumption	85 W / 50 Hz, 75 W / 60 Hz
Timer setting range	0-4 min.
Working conditions	
Place for installation	Indoor (Avoid direct sunlight.)
Altitude	Max. 2000 m
Ambient temperature	41°F-104°F (5°C-40°C)
Relative humidity	Max. 50% at 104°F (40°C)
Overvoltage Category	II
Pollution Degree	2
Noise Level	Below 70 dB(A)



#### 3.3 NAMES OF COMPONENTS



**NOTE** This instrument has 50Hz and 60Hz specifications. Use the instrument after confirming that the frequency of the power supply matches the one printed on the power rating label of the instrument.

#### 3.4 FUNCTIONS OF COMPONENTS

- ① **Dust Cover**  
Close this dust cover when pushing the polishing stick onto the buffing wheel or polishing a lens.
- ② **Head**  
Furnished with chuck metals, the chuck knob, and the positioning knob, etc. and moves right and left, and up and down for polishing a lens.
- ③ **Chuck Knob**  
Chucks a lens by turning this knob.
- ④ **Positioning Knob**  
Moves the head right and left by turning this knob to determine the polishing position for a lens.
- ⑤ **Load Lever**  
Adjust the loading weight for polishing a lens. HIGH, LOW, or EXTRA LIGHT can be selected depending on the material and kind of a lens to be polished.
- ⑥ **Chuck Metal**  
Chucks a lens with the right and left chuck metals.
- ⑦ **Buffing Wheel**  
Rotates at a high speed and polishes a lens. Also, prior to polishing, polish is put on its circumference.
- ⑧ **Timer Knob**  
Sets the polishing time. One scale corresponds to approximately 48 seconds.
- ⑨ **Start/Stop Switch**  
When pushed down, the head lowers, starting polishing automatically. After polishing is complete, the head automatically rises and stops and also the buffing wheel stops rotating. To interrupt polishing halfway, push up the switch.
- ⑩ **Main Switch**  
When pressed, the buffing wheel starts rotating. To stop the rotation of the buffing wheel, push the Start/Stop switch⑨ upward.
- ⑪ **Vacuum Port**  
Used to connect the sucking hose (a standard accessory) to vacuum polish particles when cleaning the inside of the instrument and surroundings of the buffing wheel.
- ⑫ **Inlet Socket**  
This is the socket to connect the power cord.
- ⑬ **Hose Inlet**  
This is the port to connect the extension hose of a vacuum cleaner when using this instrument with a vacuum cleaner.
- ⑭ **Output Terminal for Switch Box (Option)**  
Connect the signal cable of the switch box (Option) when using this instrument with a vacuum cleaner.

# 4: POLISHING PROCEDURE



**CAUTION**

Always close the dust cover whenever using this instrument.  
Also, never directly touch the rotating buffing wheel with bare hand.

After connecting the power cord of the instrument, polish a lens according to the following procedures.

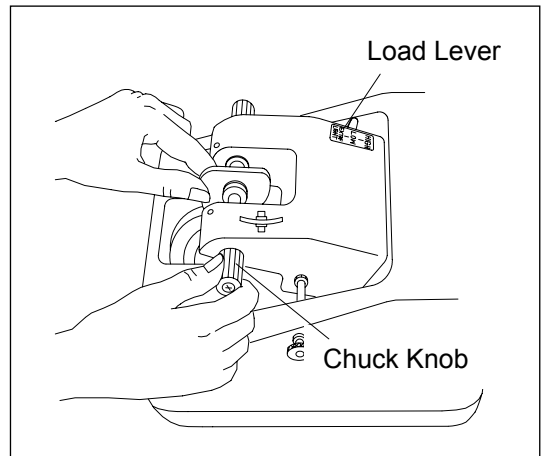
## ■ Set a lens to polish.

- (1) Open the dust cover and chuck the center of a lens with its convex side faced to the right.



**CAUTION**

Do not tighten the chuck knob excessively to prevent breakage of a lens.



**NOTE** When there is a possibility of a lens being damaged, apply a protection tape on both sides of the lens.

## ■ Set the load lever.

- (1) Set the load lever as follows according to the material and thickness of the lens to be polished.

Load lever position	Material	Lens edge thickness.
HIGH	CR-39, High index	4 mm or more
LOW	CR-39, High index	2 – 4 mm
	Polycarbonate	Thick lens
EXTRA LIGHT	CR-39, High index	2 mm or less
	Polycarbonate	Thin lens



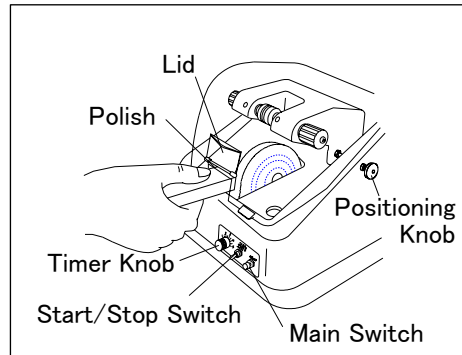
**CAUTION**

Set the load lever to a lighter position for a polycarbonate lens. Never set it to “HIGH”.

## 4: Polishing Procedure

### ■ Put polish onto the buffing wheel.

- (1) Press the main switch ON after closing the dust cover.
  - The buffing wheel starts rotating and the vacuum cleaner turns ON.
- (2) Press the polishing stick through the lid against the buffing wheel strongly for several seconds.  
(If the polishing particles adhered on the surface of the buffing wheel are insufficient, it takes time for the mirror finish.)



### ■ Set the polishing time.

- (1) Set the polishing time by turning the timer knob. (1 scale: approx. 48 sec.)  
Set as follows depending on the material of a lens to be polished.

Material	Standard set position
CR-39	Scale 2-4
High index	Scale 3-5
Polycarbonate	Scale 2-3



**CAUTION** When polishing a polycarbonate lens, set the polishing time shorter. Then, polish it again, confirming the finish condition of the lens edge.

### ■ Start polishing.

- (1) Confirm the dust cover is closed.
- (2) Correctly position the lens against the buffing wheel by turning the positioning knob. (The position of a lens can be moved while polishing is performed.)
- (3) Push down the Start/Stop switch to set it ON.
  - The chuck shaft starts rotating and the head lowers.
  - The head rises and stops automatically after polishing is complete according to set time of the timer.

**NOTE** To interrupt polishing halfway, push up the Start/Stop switch. Then, the head rises and stops and also the chuck shaft stops rotating.

**NOTE** When the circumference of the buffing wheel stiffens due to solidified polish particles, nap the buffing wheel with the napping stick.

### ■ Complete polishing.

- (1) Open the dust cover.
  - (2) Remove the polished lens by turning the chuck knob.  
(When polishing another lens, start with the step "■ Set a lens to polish." in this section.)
  - (3) Clean the instrument. (See "■ Cleaning the instrument" in Section 5.)
  - (4) Close the dust cover.
-

# 5: MAINTENANCE

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Perform the maintenance of this instrument according to the following descriptions.

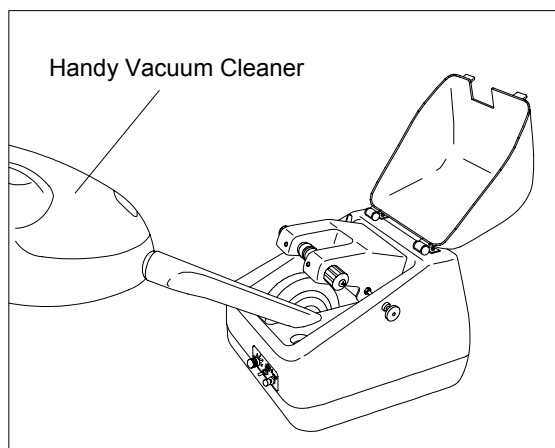
## ■ Cleaning the instrument (Daily)



**CAUTION** Do not wipe the instrument with a wet rag or wash it with water.

When the inside of the instrument becomes dirty with the polish particles and thread craps, vacuum them with a handy vacuum cleaner or the like. Remove the buffing wheel as necessary (referring to “(a) Replacing the buffing wheel” below), and vacuum the inside in the same manner.

(See Section 6.5 for the cleaning of the instrument when it is used with a vacuum cleaner.



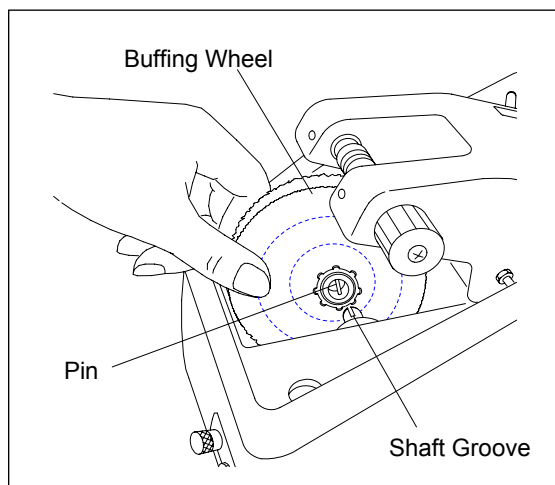
## ■ Replacing, repairing, and napping the buffing wheel (As necessary)



**CAUTION** Pull out the power plug from the outlet before replacing or repairing the buffing wheel.

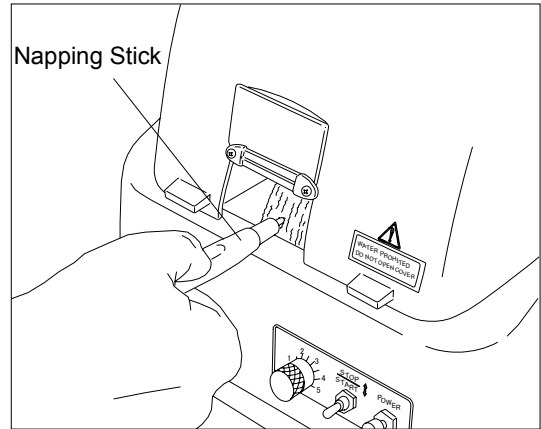
(a) Replacing the buffing wheel  
Pull the buffing wheel to the left to remove it. In order to install the buffing wheel, match the pin of the buffing wheel to the groove of its shaft and insert it to the depth.

(b) Repairing the buffing wheel  
Cut the threads protruding from the buffing wheel with scissors.



### (c) Napping the buffing wheel

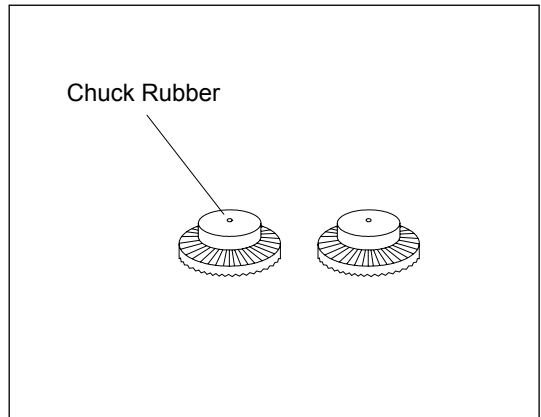
The circumferential surface of the buffing wheel stiffens due to the solidified polish particles while the instrument is used. In such a case, press ON the Main switch, insert the napping stick from the lid, and slide it right and left on the buffing wheel, engaging its tip to the wheel by 2 to 3 mm.



### ■ Washing the chuck rubber (Daily)

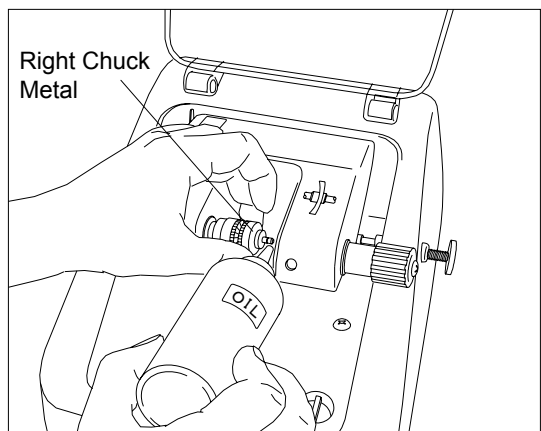
When dust such as polish particles, etc. is adhered to the chuck rubber, the coated surface of a lens will be scratched.

To prevent such a damage of a lens, remove the chuck rubber and wash it sometimes.



### ■ Lubrication (As necessary)

When the right chuck metal does not rotate smoothly, pull it off to the left and apply grease or oil to it.



## 5: Maintenance

---

### ■ Replacing the fuse (As necessary)

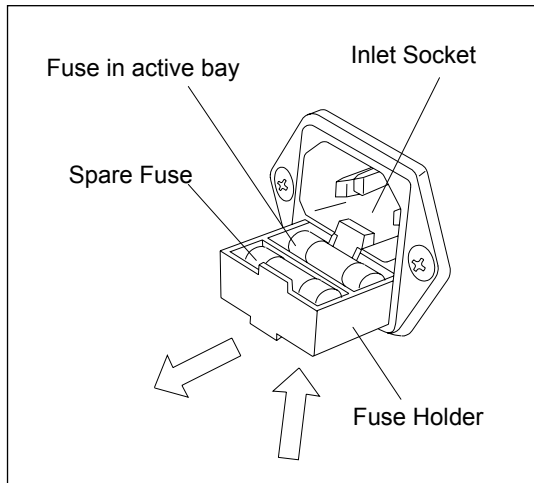


#### CAUTION

**Before replacing a fuse, pull out the power cord from the outlet.**

**Use only a fuse of specified rating and type (FU-40:T4A-250V or FU-20:T2A-250V) printed on the fuse holder of the delivered instrument.**

- (1) Before working, pull out the power plug of the power cord from the outlet, and also remove the power cord from the inlet socket at the rear side of the instrument.
- (2) Pull out the fuse holder from the inlet socket.
- (3) Push the active fuse upward from the bottom of the fuse holder.
- (4) Push up the spare fuse in the same manner and put it in the active bay of the fuse holder.
- (5) Push the fuse holder into the inlet socket, and restore the power cord.





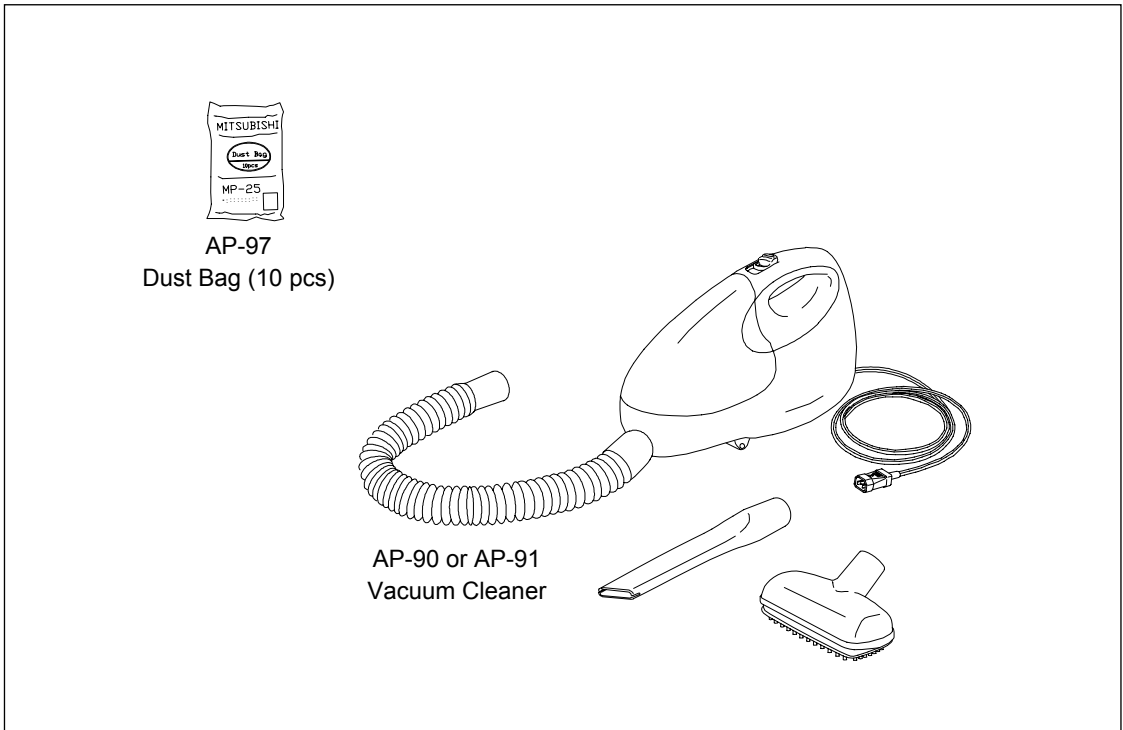
# 6: USING WITH A VACUUM CLEANER

This instrument can be used with a vacuum cleaner (**Option**).

This section contains the option parts list when a vacuum cleaner is purchased from us, the explanation of the switch box, the cable connections, and the usage of the instrument.

## 6.1 OPTION PARTS LIST

Item Code	Item Name	Quantity
AP-90 AP-91	<In U.S.A., and some other nations:> Vacuum cleaner (115V), or <In EU territories, and other nations:> Vacuum cleaner (230V)	1
AP-97	Dust Bag (10 pcs)	1



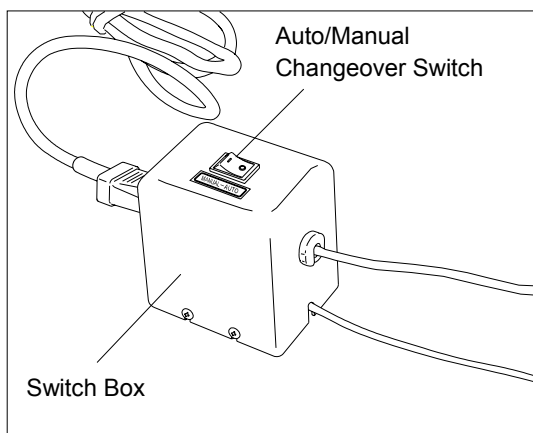
## 6: Using with a Vacuum Cleaner

### 6.2 EXPLANATION OF SWITCH BOX

The switch box, connected between a vacuum cleaner and the power outlet, turns ON/OFF the vacuum cleaner interlocked with the operating condition of the Auto Polisher AP-2 or turns ON the vacuum cleaner independently by the switching of the Auto/Manual changeover switch.

#### Function of Auto/Manual Changeover Switch

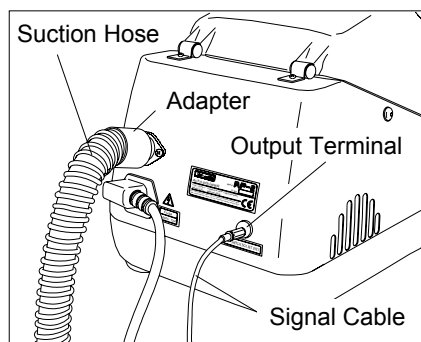
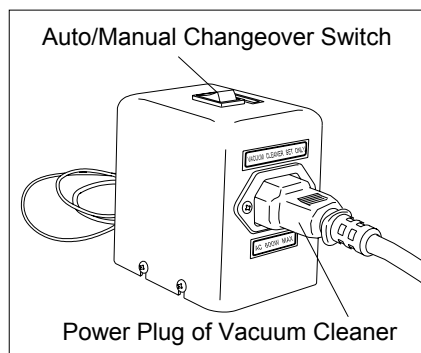
AUTO	Turns ON/OFF the vacuum cleaner interlocked with ON/OFF condition of Main switch of the instrument.
MANUAL	Turns ON the vacuum cleaner, regardless of ON/OFF condition of Main switch of the instrument.



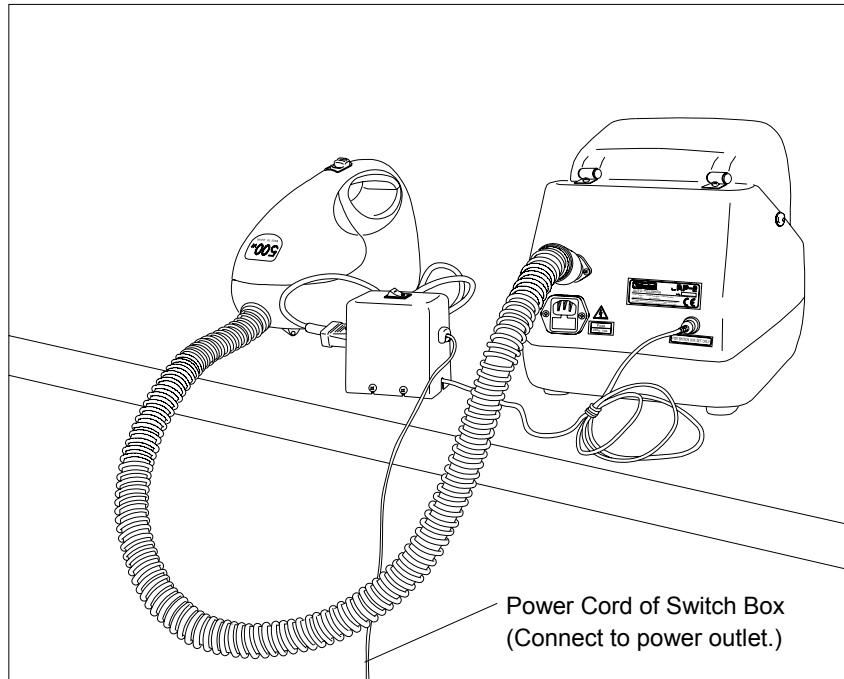
### 6.3 CABLE CONNECTIONS

Connect the auto polisher, a vacuum cleaner and the switch box in the following procedures.

- (1) Set the power plug of a vacuum cleaner to the outlet of the switch box.
- (2) Set the Auto/Manual changeover switch of the switch box to "AUTO".
- (3) Set the adapter (a standard accessory) to the suction hose of the vacuum cleaner, and then set it to the hose inlet of the instrument.
- (4) Set the signal cable plug to the output terminal for the switch box of the instrument.



- (5) Set the power plug of the switch box to the power outlet.



### 6.4 USAGE OF INSTRUMENT

#### When polishing a lens:

Set the Auto/Manual changeover switch of the switch box to "AUTO." and use this instrument in the procedure written in Section 4 in this manual.

- The vacuum cleaner turns ON/OFF interlocked with the ON/OFF condition of Main switch of the instrument.

**NOTE**      **Use the vacuum cleaner in the weak vacuum mode.**

#### When cleaning the instrument:

Set the Auto/Manual changeover switch of the switch box to "MANUAL." and clean the inside of the instrument in the procedure written in Section 6.5 on the following page.

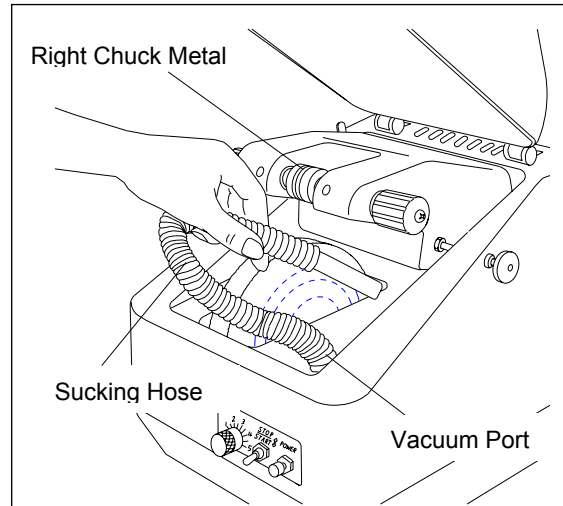
- The vacuum cleaner turns ON independently.

### 6.5 CLEANING THE INSTRUMENT (DAILY)



**CAUTION** Do not wipe the instrument with a wet rag or wash it with water.

When the inside of the instrument becomes dirty with the polish particles and thread craps, insert the sucking hose to the vacuum port and set the Auto/Manual changeover switch of the switch box to “MANUAL”, and then vacuum the inside of the instrument.





## 6: Using with a Vacuum Cleaner

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Specifications, etc. may be altered without prior notices for the improvement of the instrument.

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**DIA OPTICAL CO.**

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