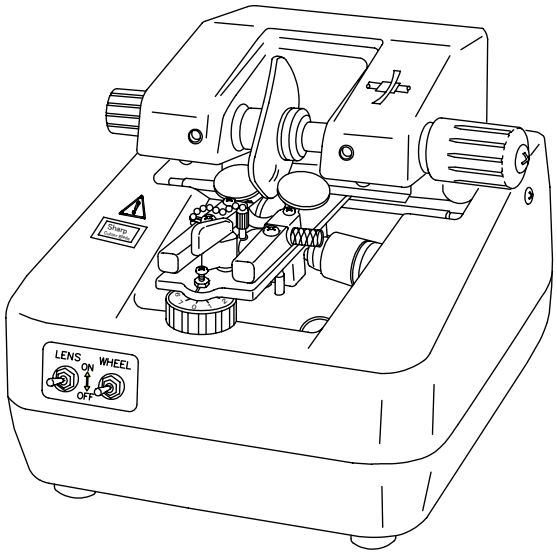
Dia

AUTOGROOVER
AG-5 (Version EX)

Instruction Manual



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

Original Instructions

DIA OPTICAL CO.

IMPORTANT INFORMATION

<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>

- Manufacturer 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.
- Manufacturer 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 the manufacturer.

<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.
-

<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.

TABLE OF CONTENTS

1: SAFETY

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.

WARNING	Indicates a possible hazard which may result in death or serious injury if not avoided.
CAUTION	Indicates a possible hazard which may result in personal injury.

DON'T	Indicates an operation prohibited to perform. If not observed, personal injury may occur or the instrument may be damaged.
DO	Indicates an operation forced to perform. If not observed, personal injury may occur or the instrument may be damaged.

NOTE Used to emphasize essential information.

1.2 SAFETY PRECAUTIONS

WARNING

DO NOT TOUCH

Be sure to ground the power plug of the instrument.
(If not observed, it may cause an electric shock.)

Plug in the power plug to the 230 Va.c outlet (in the EU territories and other major countries) or 120 Va.c. outlet (in some other countries) according to the rating plate affixed at the rear of the instrument and properly plug it in to the depth.

WARNING

Do not put many loads on one electric outlet.
(A fire may occur due to abnormal heat generation by overload.)

Do not damage or work on the power cord, squeeze or crush it with heavy objects, or bundle it.
(Damage of the power cord may result in an electric shock or a fire.)

Pull out the power plug from the outlet if the instrument is not going to be used for a long time.

Place the instrument only at a stable position where it can be operated in good condition 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.)

Keep the work place neat and clean and furnish sufficient lighting (**300 lux or more** at working area and **500 lux or more** at scale reading zone of the instrument).
(A cluttered and /or dark work place may cause an injury.)

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 purposes other than intended use (grooving the edge of eyeglass lenses).
(Otherwise, an instrument failure or injury may result.)

Take sufficient caution on an unexpected startup of the instrument. Also, always verify that all the switches are OFF before plugging in the power plug to the outlet. Besides, do not touch the switches carelessly.

When some abnormality (abnormal smell) has occurred to the instrument during its operation, stop it and pull out its 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.)

WARNING

Stop the instrument whenever abnormal noise or vibration has occurred.
(In such cases, ask us for repair.)

PULL OUT POWER PLUG.

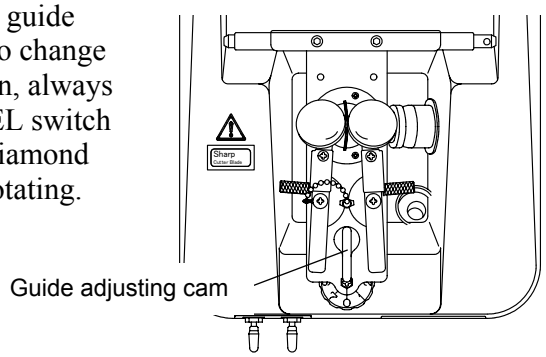
Pull out the power plug whenever setting the guide plate.

Wear protection glasses and protection gloves whenever grooving a lens.

DO NOT TOUCH

Never touch the rotating diamond cutter blade.

Before adjusting the guide adjusting cam. etc. to change the grooving position, always turn OFF the WHEEL switch and verify that the diamond cutter has stopped rotating.

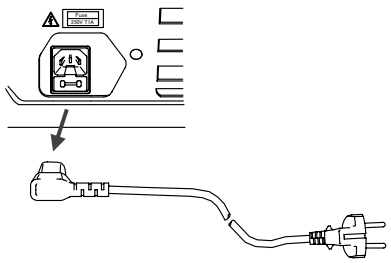


DO NOT TOUCH

When dressing the diamond cutter blade, wear protection glasses and protection gloves and never touch the cutter blade rotating at high speed.

PULL OUT POWER PLUG.

Pull out the power plug from the outlet or the power cord from the inlet socket of the instrument whenever moving the position of the instrument or performing inspection, replacement, or other service work.



DO NOT DISASSEMBL

Never disassemble and / or modify the instrument.
Instead, contact our service representative.
(Unauthorized repair and / or modification may result an electric shock or a fire.)

DO NOT WASH

Never wash the instrument with running water.
(If not observed, it may cause an electric shock or an instrument failure.)

⚠WARNING

Wear protection gloves for lubrication.
When lubrication oil has adhered to your hand or finger, wash it with soap and water. When oil has entered to your eyes, wash it with running water and consult an ophthalmologist if necessary. Also, when disposing oil or a rug with oil adhered, observe the relevant law or act of the nation or bylaw or regulation of the district where the instrument is being used.

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.)

1.3 NOISE LEVEL

The noise level emitted from the instrument while it grooves an eyeglass lens (measured at 1 m in front of the instrument and 1.6 m above the floor level) is as follows.

Equivalent continuous A-weighted sound pressure level: Below 70 dB

1.4 DANGER ZONES AND ACCESS TO DANGER ZONES

(a) Danger Zones (See Safety Information Drawing on next page.)

This instrument has the following danger zones.

Danger Zone①: Diamond cutter section

- **Cutting by the cutter blade rotating at high speed and injury of eyes by flying refuse while grooving is performed**

Danger Zone②: Diamond cutter section (when the guide plate is raised)

- **Cutting by the cutter blade rotating at high speed and injury of eyes by flying refuse while the cutter blade is dressed.**
- **Cutting by the cutter blade when setting the guide plate or when performing service work (inspection and parts replacement).**

(b) Access to the danger zones

Access to Danger zone①:

- Wear protection gloves and protection glasses while grooving is performed, and do not touch the cutter blade carelessly nor look at grooving at close position.

Access to Danger zone ②:

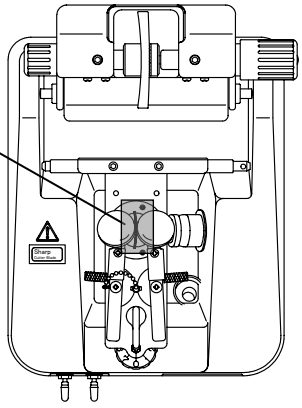
- Wear protection gloves and protection glasses while the cutter blade is dressed, and do not touch the cutter blade carelessly nor look at dressing at close position.
- Pull out the power plug from the wall outlet or the power cord from the inlet socket of the instrument before setting the guide plate or when performing service work (inspection and parts replacement).

Safety Information Drawing (Danger Zones and Safety Label Positions)

Danger Zone ①

Diamond Cutter Blade:

<Danger>
Cutting by the cutter blade rotating at high speed and injury of eyes by flying refuse

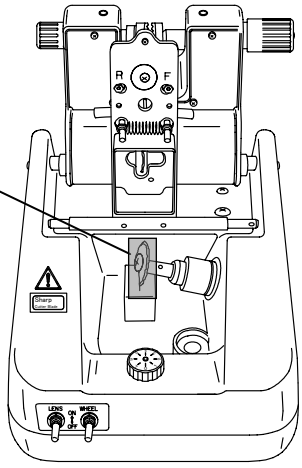


Top View

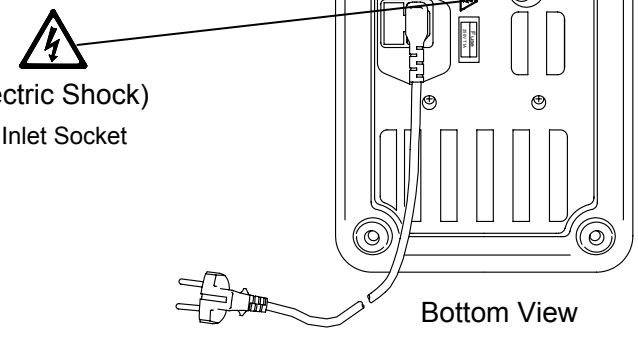
Danger Zone ②

Diamond Cutter Blade:
(when guide plate is raised)

<Danger>
Cutting by the cutter blade rotating at high speed and injury of eyes by flying refuse



Front View (with raised guide plate)



(Electric Shock)
At Inlet Socket

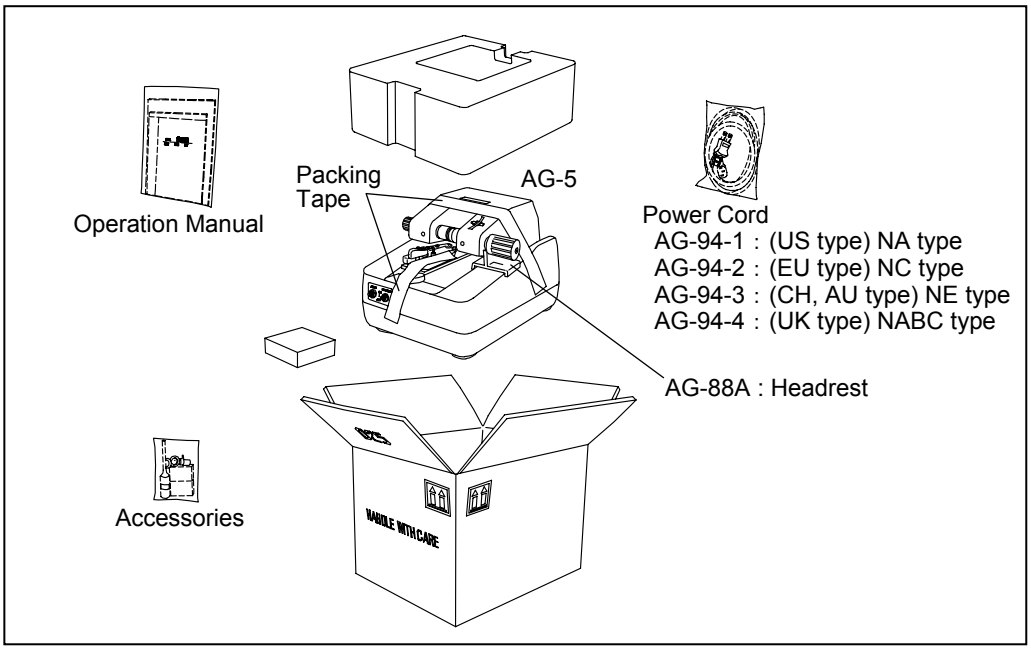
Bottom View

2: UNPACKING & INSTALLATION

2.1 UNPACKING CARTON

⚠ CAUTION **Pay special attention when handling this instrument since it is a precision instrument. Carton weight: 3.5 kg (Instrument weight: 2.7 kg)**

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



2.2 STANDARD ACCESSORIES

Item Code	Item Name	Quantity
AG-04	Sponge	2
AG-36	Chuck Rubber - Small	2
AG-85	Syringe	1
AG-3B	Drain Cock (attached to the instrument)	1
FU-05 or FU-10	Fuse（T0.5A 250V）or（T1A 250V）(Contained in fuse holder of instrument.)	1 (in use) 1 (Spare)

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

2.3 INSTALLATION

Install the instrument by following the instructions in this section.

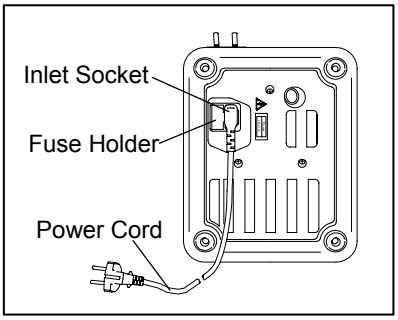
2.3.1 Environmental Conditions for Installation

The place for installing the instrument must maintain the following environmental conditions.

Item	Conditions
Place for Installation	Indoor (Avoid direct sunlight)
Altitude	Max. 2000 m
Ambient Temperature	41°F – 104°F (5°C – 40°C)
Max. Relative Humidity	50% at 104°F (40°C)
Power supply	<In EU territories and other major nations:> 230 V a.c. ± 10%, 50/60Hz ± 1%, 57/55 W <In some other nations:> 120 V a.c. ± 10%, 50/60Hz ± 1%, 57/55 W
Min. working space	800 mm (Front), 200 mm (Rear), 200 mm (Sides)

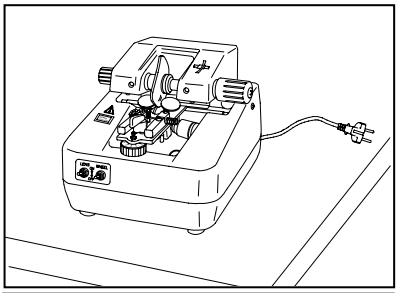
2.3.2 Installation Procedures

(1) Insert the power cord into the inlet socket at the bottom of the instrument.

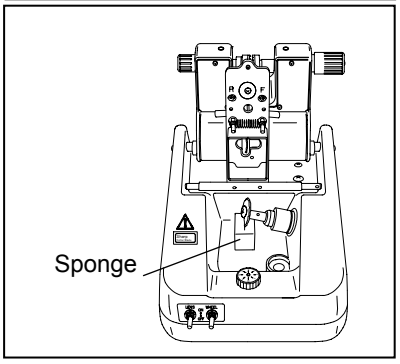


(2) Remove the packing tape and the headrest from the instrument and raise the head vertically.

(3) Insert the power plug into the wall outlet.



(4) Soak the sponge with plenty of water until water slightly oozes out from it.



WARNING **Be sure to ground the power plug of the instrument. If not, an electric shock or a fire may occur.**

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 and operating switches.

3.1 PURPOSE OF INSTRUMENT

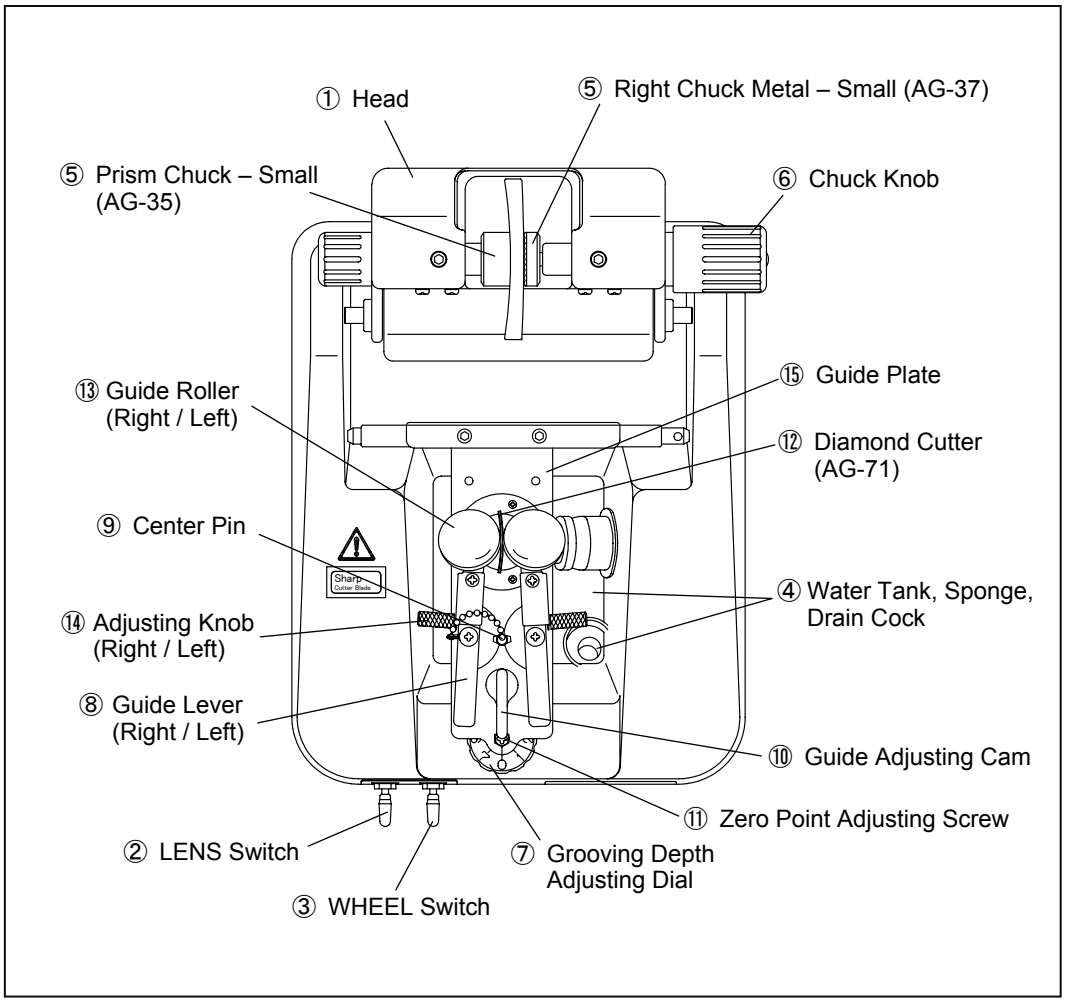
The AG-5 automatic lens groover is an instrument that automatically grooves the edge of an eyeglass lens. The grooving positions for the center grooving, the outer grooving, and the inner grooving can be easily set.

WARNING **Do not use the instrument for any purposes other than intended use (grooving the edge of eyeglass lenses).**
Otherwise, an instrument failure or injury may result.

3.2 SPECIFICATIONS OF INSTRUMENT

Item	Specifications
Grooving depth	0 - 0.7 mm
Grooving width	0.6 mm
Lens edge thickness	1.5 - 11.0 mm
Lens diameter	24 - 70 mm
Time required for grooving	Approx. 40 sec/rev
utside dimension	170 (W) × 210 (D) × 150 (H) mm
Weight	2.7 kg
Rated power supply	<In EU territories and other major nations:> 230 Va.c. ± 10%, 50 / 60 Hz ± 1% <In some other nations:> 120 V a.c. ± 10%, 50 / 60 Hz ± 1%
Rated power consumption	57 W / 50 Hz, 55 W / 60 Hz
Rating time of continuous operation	10 min
Cutter speed (Periph. speed)	610 m/min
Cutter diameter	Φ25 mm
Protection class	I
Installation category (Over-voltage category)	II
Pollution degree	2

3.3 NAMES OF COMPONENTS



3.4 FUNCTIONS OF COMPONENTS

① Head

Raise the head vertically when setting or detaching a lens and when the instrument is stopped. The head can lightly slide right and left. Clean the slide shaft and sometimes apply oil to it. (See Section 5.3 for cleaning and lubrication.)

② LENS Switch

The lens chucked at the head starts rotating when switched ON.

③ WHEEL Switch

The diamond cutter rotates when switched ON.

⚠ CAUTION **Do not switch ON the WHEEL switch until a lens is set. Otherwise, water splashes. Also, never touch the diamond cutter rotating at high speed.**

⚠ CAUTION **Before adjusting the guide adjusting cam. etc. to change the grooving position, always turn OFF the WHEEL switch and verify that the diamond cutter has stopped rotating.**

④ Water Tank, Sponge, Drain Cock

〈Water Tank〉

Water is always necessary when grooving a lens. Water is supplied to the cutter with the sponge. Supply water before the water tank dries. Proper water level is approximately 5mm. Use the attached sponge to supply water.

⚠ CAUTION **Before supplying water into the water tank, be sure to switch OFF the LENS switch and the WHEEL switch and pull out the power plug from the wall outlet.**

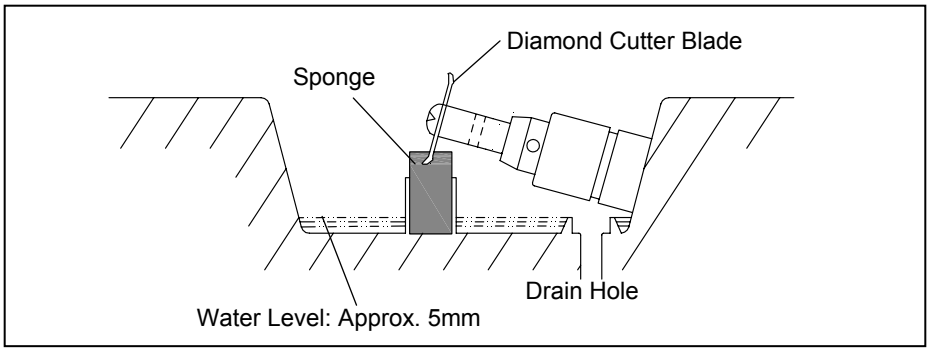
⚠ CAUTION **Do not supply water too much. If water enters the bearing portion of the cutter, it may be damaged, generating louder noise. Also, drain all the remaining water inside the water tank whenever moving the installation position of the instrument.**

〈Sponge〉

Water is not successfully supplied to the cutter when the sponge is very dirty. In such cases, take the sponge out of its case and rub and wash it in water. Also, when replacing the sponge with new one, soak sufficient water to it in water beforehand. Before operating the instrument, confirm that the sponge is sufficiently moistened.

〈Drain Cock〉

The drain cock is attached to prevent water inside the water tank from leaking from its drain hole when the instrument is waggled, hence the water is kept at the proper level (5 mm). In order to drain water at the end of operation, or for cleaning or other reasons, pull out the drain cock and tilt the instrument toward the drain hole.



⑤ Prism Chuck – Small, Right Chuck Metal – Small
Chuck a lens with its outer periphery surface faced to the right. Chuck the center of a lens. The small prism chuck is used for stable chucking. The small chuck rubber is of an insertion type.

⑥ Chuck Knob
Used to set and detach a lens. Do not tighten by a strength more than necessary so as not to break a lens. Instead, tighten it by the strength by which no slip occurs (Proper torque: 20 –30 N.cm).

⑦ Grooving Depth Adjusting Dial
Determines the grooving depth to a lens. 1 scale corresponds to 0.1 mm. The maximum grooving depth is 0.7 mm. (Standard setting: Scale 5)

⑧ Guide Levers (Right and Left)
The guide rollers open to hold a lens when the guide levers (right and left) are gripped inward. The guide rollers guide the rotating lens (See Item⑬.). The method to groove a lens (Center grooving, Outer grooving, or Inner grooving) is determined by the set position of the coil spring furnished on the rear side of the guide plate.

⑨ Center Pin
Insert the center pin to the hole on the guide plate when performing the center grooving. Do not insert it too strongly because it may be damaged as it is made of plastic. Pull out the center pin when performing the inner or outer grooving.

⑩ Guide Adjusting Cam
Used for the positioning of a lens when performing the inner or outer grooving. Turn the lever clockwise (to the right) for the outer grooving and counterclockwise (to the left) for the inner grooving. Set the lever to its center position for the center grooving. (See Sections 4.2.2 and 4.2.3 for its operation method.)

⑪ Zero Point Adjusting Screw
Adjusts the zero point of the grooving depth into a lens.
(See Section 5.5 for the adjustment procedures.)

⑫ Diamond Cutter
Grooves the edge of a lens.

⚠ CAUTION **Take caution not to bend or drop the cutter blade since it is very thin and precise. (See Sections 5.2 and 5.3 for the dressing and the replacement of the diamond cutter, respectively.)**

⑬ Guide Rollers
Narrows and Guides a lens to be grooved to the grooving position.

⑭ Adjusting Knobs (Right and Left)
Makes fine adjustment of the grooving position for the center grooving.

⑮ Guide Plate
Incorporates the lens narrowing mechanism, the grooving position setting mechanism, the grooving depth setting mechanism, etc.

4: LENS GROOVING PROCEDURE

4.1 PREPARATION BEFORE GROOVING

■ Confirm the following points before grooving the edge of an eyeglass lens.

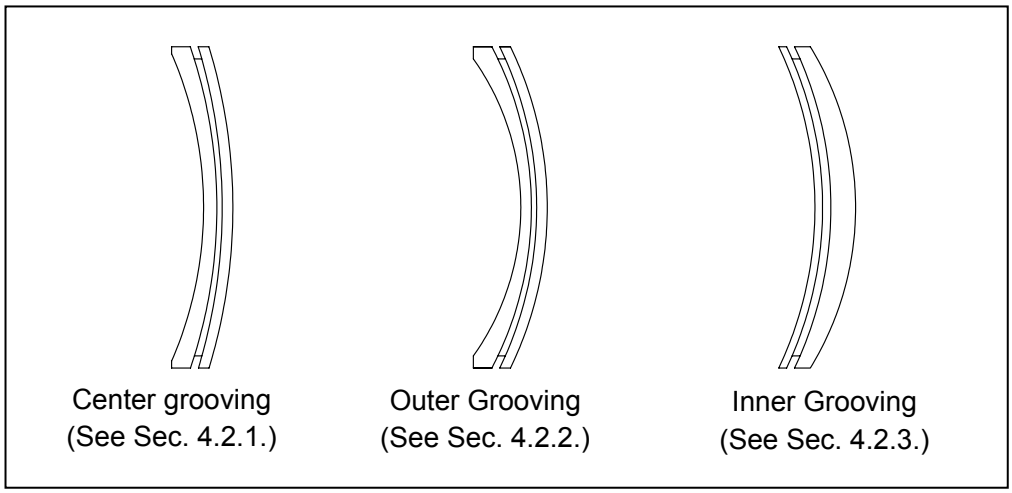
(1) Cleaning of the instrument is complete. (See Section 5.1.)

(2) Water is supplied to the water tank (Standard water level: 5 mm) (See Section 3.4 ④.)

(3) The sponge in the water tank is not dirty and soaked with plenty of water.

4.2 GROOVING METHODS (STANDARD GROOVING)

The following three methods are available for grooving the edge of an eyeglass lens. Select a suitable method as necessary.



WARNING **When grooving a lens, be sure to observe the safety precautions in Section 1 “SAFETY”.**

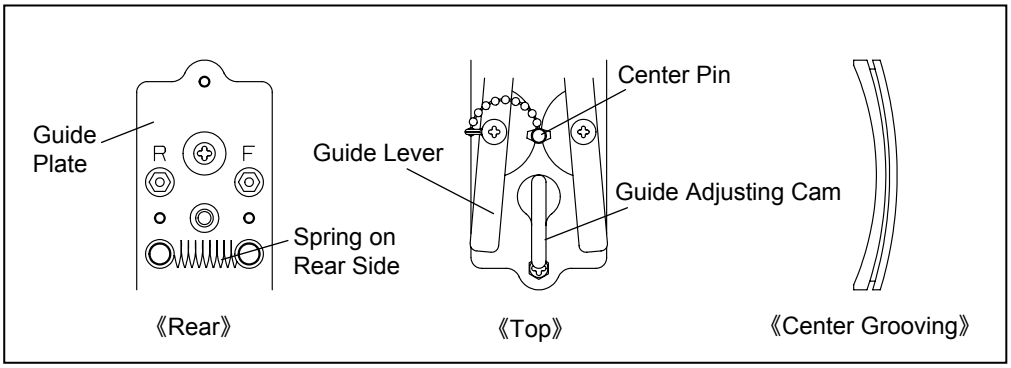
WARNING **When abnormality (abnormal smell or sound) has occurred, pull out the power plug and ask our service representative for repair.**

4.2.1 Center Grooving

■ Setting the guide plate

⚠ CAUTION **Pull out the power plug whenever setting the guide plate.**

(1) Set the spring on the rear side of the guide plate to the position “C” as shown in the figure below.
(2) Lightly insert the center pin into the center base hole.
(Do not insert the center pin too strongly.)
(3) Set the position of the guide adjusting cam to the center.



■ Confirming the grooving position
(1) Chuck the center part of a lens.
(2) Grip the guide levers to open the guide rollers, and lower the lens (on the head) slowly.
(3) Set the grooving depth adjusting dial to “1-2”.
(4) Switch ON the LENS switch only and confirm the grooving position by the line put on the thin portion of a lens.
(5) If the line is too close to the outer or inner periphery surface of the lens, switch OFF the LENS switch and adjust the grooving position with the adjusting knobs, moving the guide roller positions.

NOTE **See Section 4.5 " Grooving Position Setting" when making a fine adjustment of the grooving position furtheremore.**

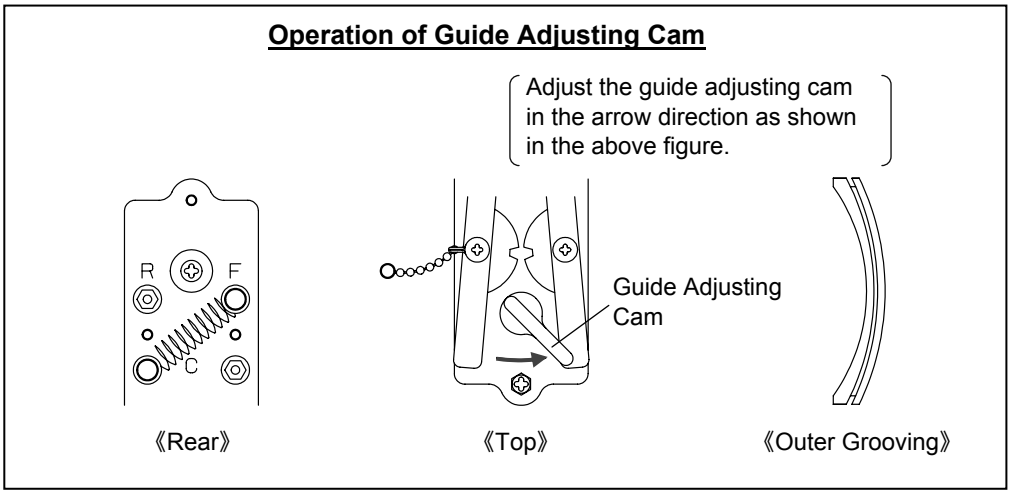
■ Grooving a lens
(1) Set the grooving depth adjusting dial back to zero (0) after confirming the grooving position
(2) Switch ON the WHEEL switch and the LENS switch, and then set the grooving depth adjusting dial to Scale 5 (Standard setting).
- Grooving will start.

4.2.2 Outer Grooving

■ Setting the guide plate

CAUTION **Pull out the power plug whenever setting the guide plate.**

(1) Set the spring on the rear side of the guide plate to the position “F” as shown in the figure below.
(2) Remove the center pin from the center base.
(3) Turn the guide adjusting cam in the arrow (right) direction as shown in the figure below to determine the position of a lens.



■ Grooving a lens

(1) Chuck the center of a lens.
(2) Open the left guide lever based on the portion where the lens edge is thin, lightly fit the outer periphery surface of the lens to the right guide roller, and lower the lens (on the head) slowly.
(The right guide roller works as a fixed roller.)
(3) Then, groove a lens in the manner same as in Section 4.2.1.” Edge Center Grooving".
If the line put in “Confirming the grooving position” is too close to the outer or inner periphery surface of the lens, adjust the grooving position with the guide adjusting cam.

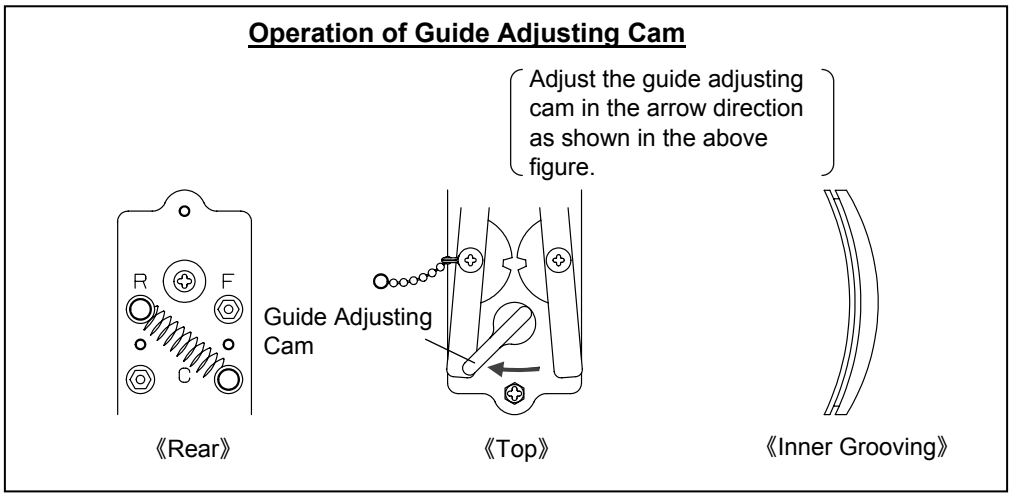
NOTE **Performing outer grooving to a oblong, angular lens with narrower height may cause a displacement of groove at a corner. In such a case, perfrom center grooving instead.**

4.2.3 Inner Grooving

■ Setting the guide plate

CAUTION **Pull out the power plug whenever setting the guide plate.**

(1) Set the spring on the rear side of the guide plate to the position “R” as shown in the figure below.
(2) Remove the center pin from the center base.
(3) Turn the guide adjusting cam in the arrow (left) direction as shown in the figure below to determine the position of a lens.



■ Grooving a lens

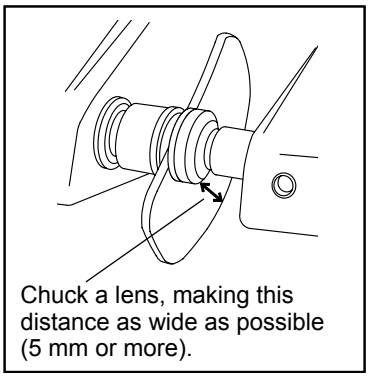
(1) Chuck the center of a lens.
(2) Open the right guide lever based on the portion where the lens edge is thin, lightly fit the inner periphery surface of the lens to the left guide roller, and lower the lens (on the head) slowly.
(The left guide roller works as a fixed roller.)
(3) Then, groove a lens in the manner same as in Section 4.2.1.” Edge Center Grooving".
If the line put in “Confirming the grooving position” is too close to the outer or inner periphery surface of the lens, adjust the grooving position with the guide adjusting cam.

4.3 OTHER GROOVING METHODS (FOR SPECIAL LENS)

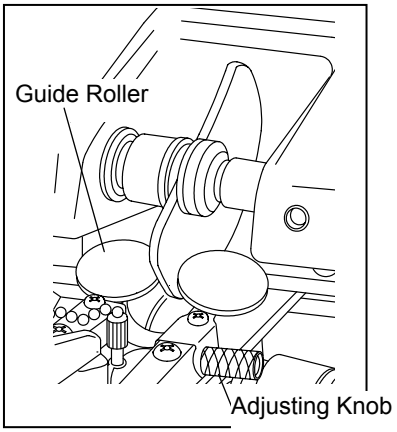
4.3.1 Grooving a Low Height Lens (Height: 24 mm or less)

■ Grooving a lens

(1) Chuck a lens horizontally, sliding it down with its thin edge faced to the front as shown in Fig. 1.
(2) Grip the lens with the guide rollers and adjust the adjusting knobs (right and left) of the guide levers so that the cutter blade comes to the center of the lens edge. (See Fig. 2.)
(3) At first, switch ON the WHEEL switch to rotate the diamond cutter.
(4) Set the scale of the grooving depth adjusting dial to "3-4".
(5) Switch ON the LENS switch temporarily to groove a lens and siwtch it OFF after the lens has made a half turn.
(6) Set the grooving depth adjusting dial back to "0" and switch OFF the WHEEL switch.
(7) Raise the head to its original position, slide the lens downward with its grooved portion faced up and chuck it again. At this time, keep the distance of 5 mm or more as shown in Fig. 1.
(8) Grip the lens with the guide rollers and groove the lens in the manner same as in the former teps (3), (4), and (5). This time, perform grooving, rotating the lens until grooving sound is not heard any more, and then switch OFF the LENS switch.
(9) Return the grooving depth adjusting dial to "0" and then switch OFF the WHEEL switch.



〈Fig.1〉



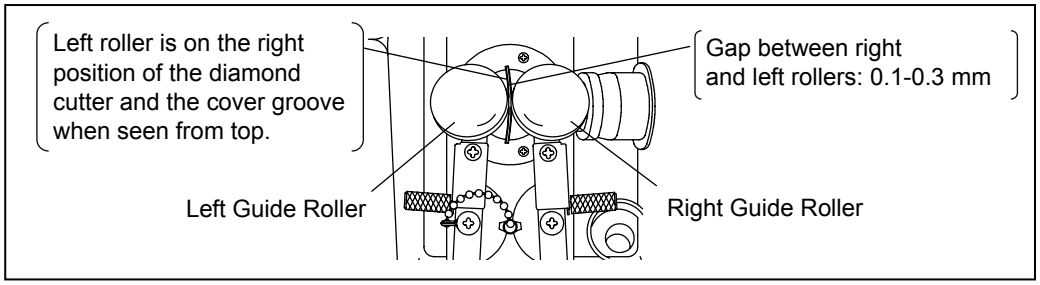
〈Fig.2〉

4.3.2 Grooving a Lens with Thin Edge

Machine a shallow groove in case of a lens with thin edge. Also, in case when the final edge of a lens is expected to be less than 1.5 mm, place a purchase order for the lens, specifying its thickness beforehand.

4.4 REFERENCE POSITION OF GUIDE ROLLERS

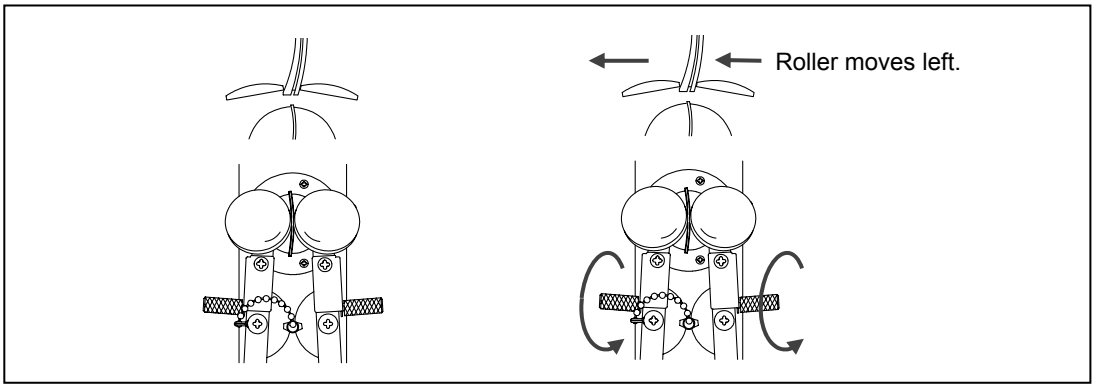
When the guide rollers are adjusted for the edge center grooving, return them to their reference positions specified below after grooving is complete.



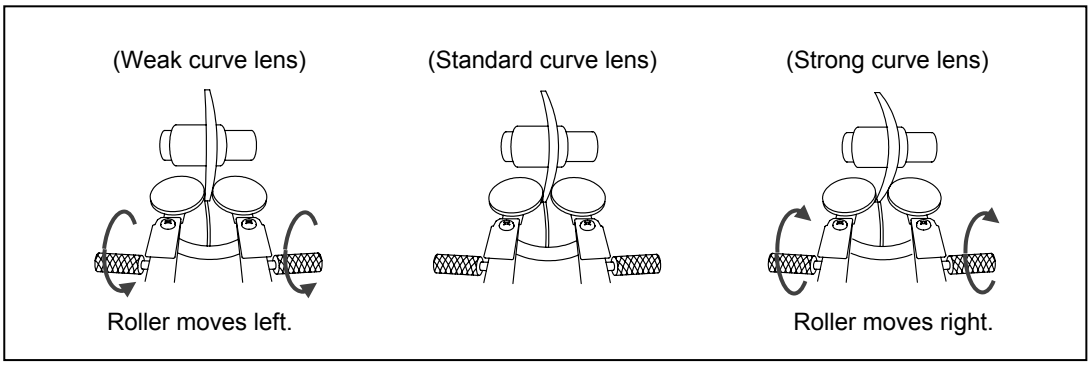
4.5 GROOVING POSITION SETTING

4.5.1 Method to Move Grooving Position toward Outer Periphery Surface

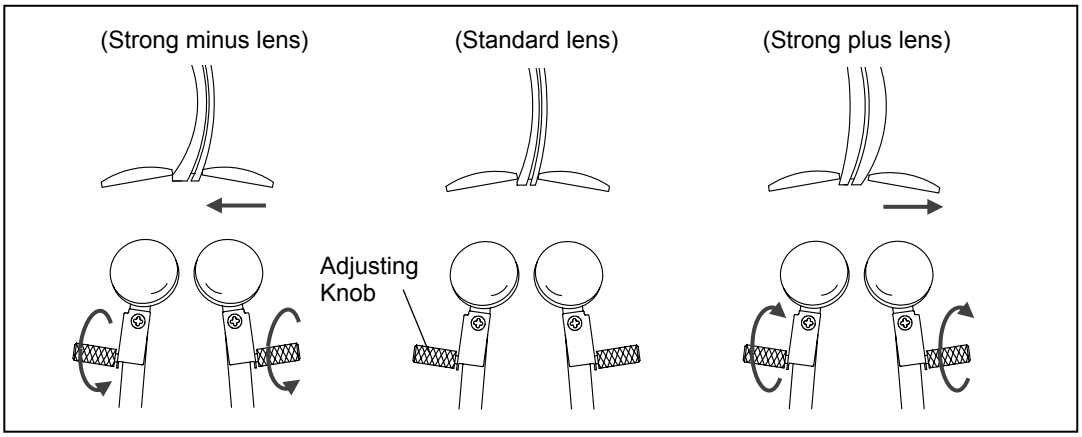
- Turn the right and left adjusting knobs to your side as shown when you want to move the grooving position of a lens toward the outer periphery surface. (Grooving position moves 0.5 mm by one turning of the adjusting knob.)
- Return the guide rollers to their original positions after grooving is complete.



4.5.2 Method to Follow Lens Curve



4.5.3 Method to Match Lens Kind



5: MAINTENANCE

This section describes the maintenance work such as cleaning, lubrication, adjustment, and parts replacement necessary for this instrument.

WARNING **When servicing the instrument, be sure to observe the safety precautions in Section 1 "SAFETY".**

WARNING **Before servicing the instrument, be sure to pull out the power plug from the wall outlet.**

5.1 CLEANING OF INSTRUMENT (DAILY)

CAUTION **Never wash the instrument with running water. If not observed, it may cause an electric shock or an instrument failure.**

(1) Refuse on the guide plate (around the cutter cover)
After using the instrument, lightly rub with a brush wet with water and wipe clean with squeezed cloth.
(2) Refuse inside the water tank
After using the instrument, pull out the drain cock and drain water from the drain port by tilting the instrument, then wipe with squeezed cloth several times.
(3) Sponge
Remove the sponge from the sponge case and wash out dirt, rubbing in water.

5.2 DRESSING OF DIAMOND CUTTER (AS NECESSARY)

Operating sound becomes louder and grooving does not complete by one rotation of a lens when the grooving efficiency of the diamond cutter becomes poor. In such a case, dress the diamond cutter blade in the following procedures.

CAUTION **When dressing the diamond cutter blade, wear protection glasses and protection gloves and never touch the cutter blade rotating at high speed.**

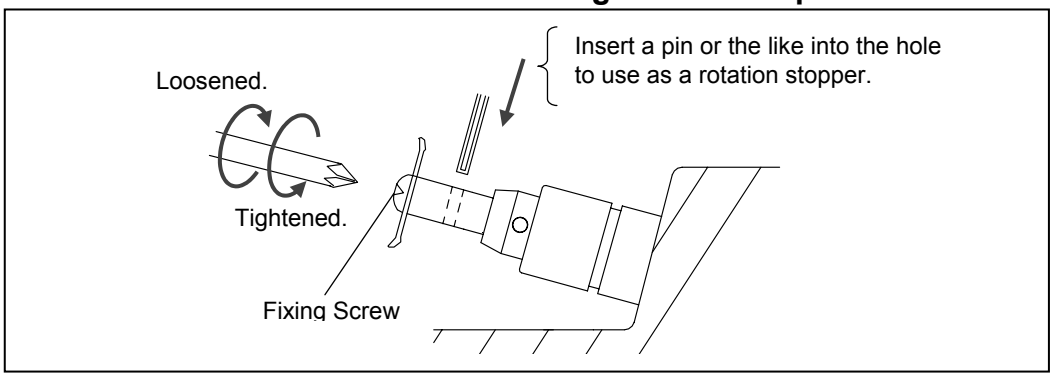
(1) Raise the guide plate.
(2) Rotate the cutter blade by switching ON the WHEEL switch.
(3) Press the dressing stick (#400) soaked with sufficient moisture onto the cutter blade for a few seconds a couple of times.

5.3 REPLACEMENT OF DIAMOND CUTTER (AS NECESSARY)

Replace the diamond cutter in the following procedures when grooving performance has become worse or the diamond layer of the cutter blade has worn out.

(1) Lift the guide plate and lean it backward.
(2) Remove the fixing screw of the cutter blade. (See the figure below.)
(3) Replace the cutter blade with new one.
(4) Tighten the fixing screw of the cutter blade. (**Tightening Torque: 70 N.cm**)
(5) Make the zero point adjustment of the lens grooving depth.
(See "5.5 Adjustment of Zero Point Adjusting Screw".)

⚠ CAUTION **The diamond cutter is manufactured very thin and highly accurate. Therefore, take sufficient caution when handling it not to drop or bend it.**



5.4 CLEANING / LUBRICATION OF HEAD SLIDE SHAFT (WEEKLY)

〈Cleaning〉
The head is a structure to slide right and left. Daily wipe dirt and dust off the slide shaft with a clean, dry cloth.

〈Lubrication〉
Wear protection gloves and apply one of the following lubricants when the movement of the head becomes rough.

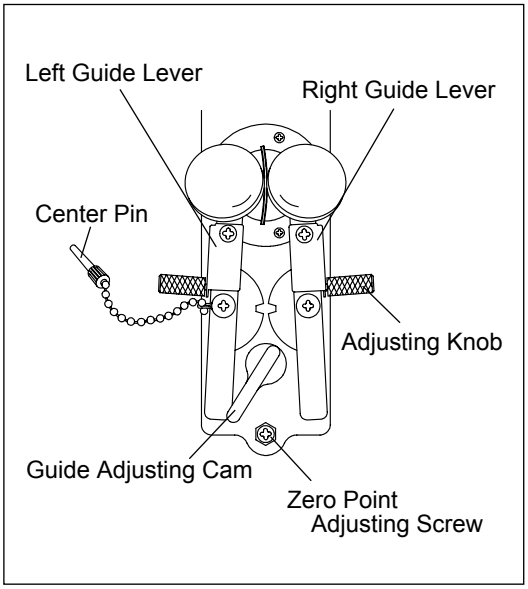
Manufacturer	MOBIL	ESSO	SHELL
Oil name	DTE OIL Heavy Medium	Terreso 68	Turbo Oil T 68

⚠ CAUTION **Use only the spcified lubricant. When lubricant has adhered to your hand or finger, wash it with soap and water. When oil has entered to your eyes, wash it with running water and consult an ophthalmologist if necessary. Also, when disposing oil or a rug with oil adhered, observe the relevant law or act of the nation or bylaw or regulation of the district where the instrument is being used.**

5.5 ADJUSTMENT OF ZERO POINT ADJUSTING SCREW (AS NECESSARY)

The lens grooving depth is adjusted with the zero point adjusting screw.
Adjust this adjusting screw in the following procedures when the grooving depth is insufficient even with the dial set at Scale 7 due to the wear of the diamond cutter.

(1) Set the grooving depth adjusting dial to zero (0).
(2) Place a lens on to the cutter cover and switch ON the WHEEL switch.
(3) Then, adjust the height of the cutter with the zero point adjusting screw to the level where the rotating cutter slightly touch the lens.

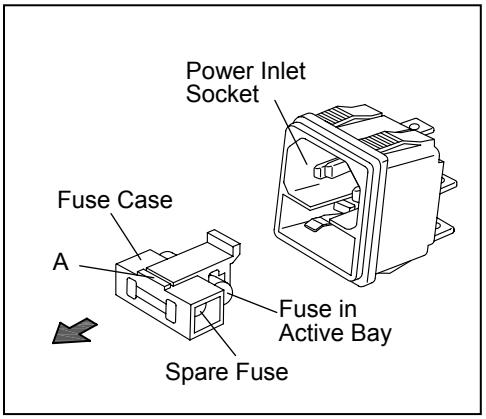


5.6 REPLACEMENT OF FUSE (AS NECESSARY)

⚠ CAUTION **Before working, always turn OFF the power switch of the instrument and pull out the power plug from the wall outlet.**

⚠ CAUTION **Use either one of the fuses (T1A-250V)or (T0.5A-250V) only specified at the fuse rating label of the delivered instrument. If this is not observed, the instrument may be damaged.**

1) Pull out the fuse case in the arrow direction from the power inlet socket, holding Portion A with pliers.
2) Remove the fuse from the active bay of the fuse case.
3) Remove the spare fuse and set it into the active bay of the hose case.
4) Push the fuse case into the power inlet socket.



NOTE **Prepare a spare fuse as soon as possible if it is used.**

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

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