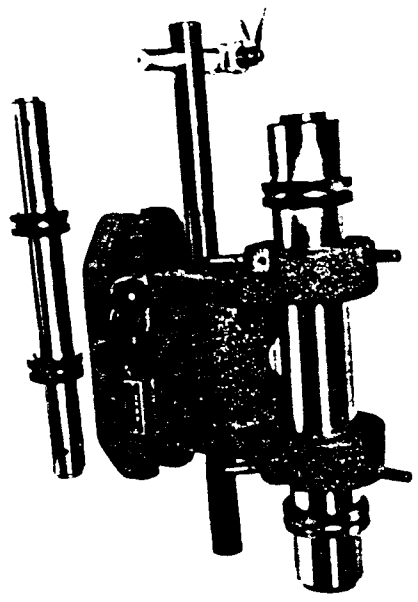


# 550-002 ENDMILL SHARPENING UNIT



**Standard Accessories**

- Spindles (A, B) 2 pieces
  - Bushes (A, B, C, D) 4 pieces
- Upon unpacking, check it no one of the accessories is missing.

**Operation and Maintenance**

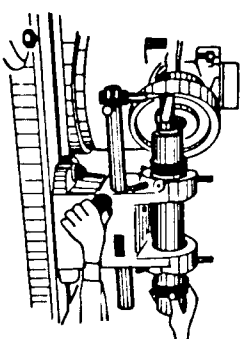
This device has been fully adjusted and has undergone a rigorous inspection before it leaves our factory. Remove the protective oil prior to use. After completion of operations, clean thoroughly, removing all dirt, metal chips, cutting oil, etc. If it will be out of service for long, apply protective oil and store in an appropriate place. Rusting is very harmful, resulting in the reduced precision of the equipment.

This unit can supply the sharpening needs of any shop. The spindles and bushes supplied will cover the full range of endmills from 3/16" to 1-1/4". As well as endmills, when fitted with a jig, this unit will sharpen side cutters, metal saws, plane cutters and similar tools. Set the sharpening unit on a tool grinding machine bed. It is not necessary for it to be strictly parallel to the grinding wheel, so setting is simple. Grinding is performed by moving the spindle from right to left and back again. Choose a spindle and bush combination that suits the endmill shank diameter.

**Stock No. & Dimensions**

Stock No.	Grinding capability		Outer diameter of cutter	Spindle A L x Dia.	Spindle B L x Dia.	Axial movement of spindle	Weight kg/Lb
	Diameter of shank of endmill						
550-002	3/16, 3/8, 1/2, 5/8, 3/4,		300	279.5 x 44.45	228.5 x 23.813	100	6.0
	7/8, 1, 1-1/4		1181	11.0 x 1.75	9.0 x 0.94	3.94	13.2

Unit: mm/in.



Working states  
Fig 1

Dimensions of the interchangeable bushes.

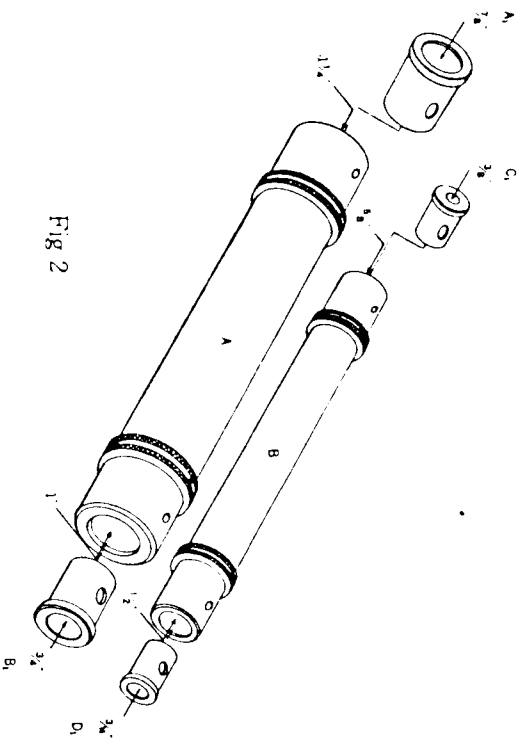


Fig 2

Diameters of Exchangeable Bushes			Unit: inches	
Type	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	D <sub>1</sub>
Inner diameter	7/8	3/4	3/8	3/16
Outer diameter	1-1/4	1	5/8	1/2

Inner diameters of spindles **03** and diameters outer of bushes **04** which are combined with spindles are shown in the following figure. With this combination 10 steps of blank diameters of the endmill can be obtained.

Parts No. & Pa No. & parts names

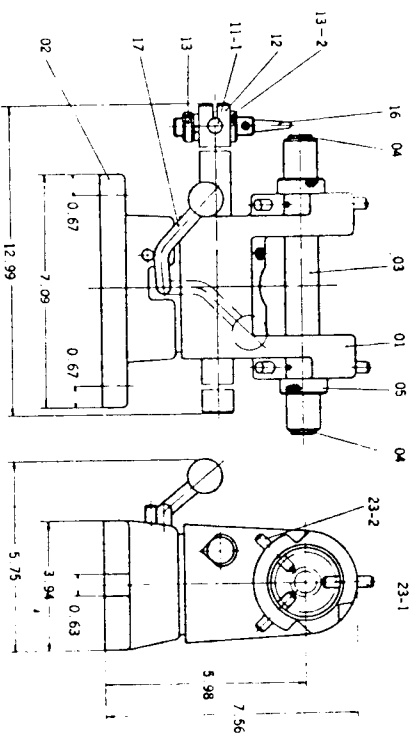


Fig 3

Unit: inches

Parts No.	Names of parts
ESU-01	Body
ESU-02	Stand
ESU-03	Spindle (A)
ESU-04	Spindle bush (A)
ESU-05	Positioning collar (A)
ESU-06	Spindle (B)
ESU-07	Spindle Bush (B)
ESU-08	Positioning collar (B)
ESU-11-1	Positioning shaft
ESU-12	Center shaft
ESU-13	Micro adjusting device
ESU-16	Carrier plate (A)
ESU-17	Handle
ESU-23-1	Spindle adjusting shaft (A)
ESU-23-2	Spindle adjusting shaft (B)

### Operating Instruction and Function of Each Unit

#### Mounting method of spindle.

The spindle is supported at three points. The spindle adjusting shaft **23-2** has positioning holes so as to adjust for suiting to the outer diameter of the spindle. The spindle is placed on two adjusting shaft **B** and pressed by an adjusting shaft **A 23-1** from the upper side. A steel ball is embedded on the top of an adjusting shaft so as to turn the spindle smoothly.

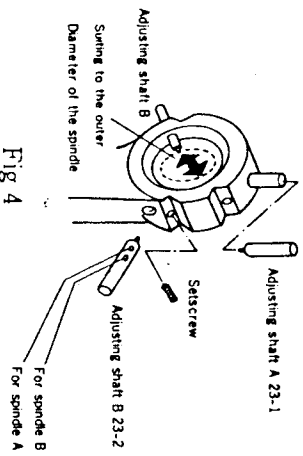


Fig 4

#### Mounting method of endmill

An endmill is held by choosing a hole on the spindle or further the bush suitable for a shank. As the bush has a pass through hole, an endmill can be fastened directly by a setscrew from a screw hole of the spindle.

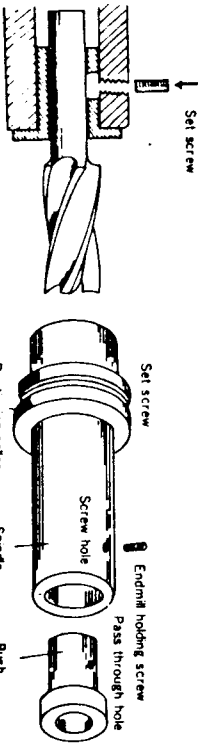


Fig 5

Fig 6

#### Contact procedure to grindstone

Putting the handle on the left, the spring between the body and the base extends, and the body tilts, so the end mill contacts with a grindstone and grinding is done. Reversely putting on the right the spring contracts, and the body stands vertically, so the endmill leaves from a grindstone.

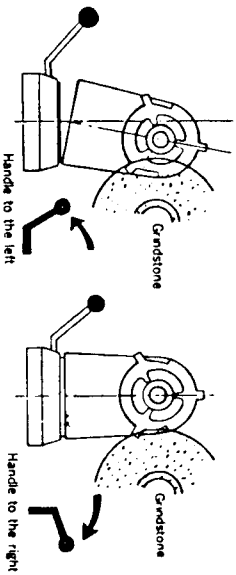


Fig 7

#### Applying carrier plate.

Carrier plate **16** is placed to contact with the groove of the endmill from the under side as shown in the figure. In this way only by shifting the spindle in the thrust direction, the endmill turns the spindle automatically even in the case of the twisted groove. Furthermore by raising the carrier plate with micro collars **13** the contact face between the article to be grinded and the grindstone is shifted, so relieving is done. With 1 scale of the micro the height of carrier plate is changed by about 0.001".

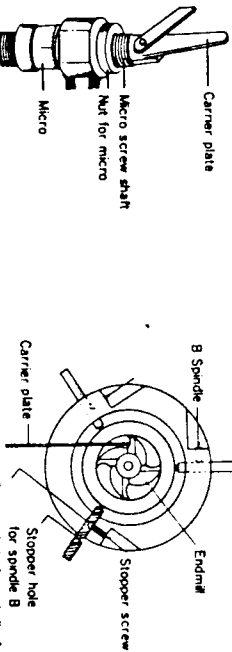


Fig 8

Fig 9

**Adjusting movement of spindle in thrust direction**

The movement of the spindle is determined by shifting positioning collars 05 on the both ends. Collars are fastened with setscrews a.

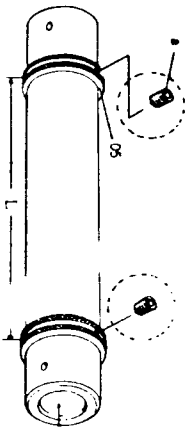
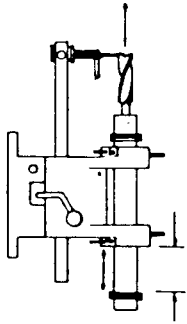
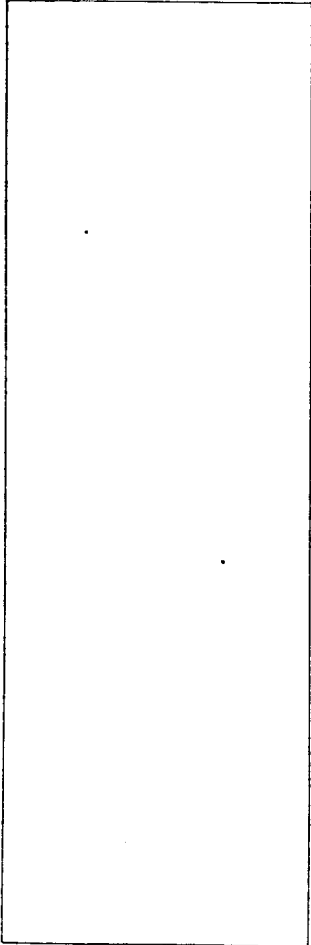


Fig 10



Movement of spindle in thrust direction.



550-002

# ENDMILL SHARPENING UNIT

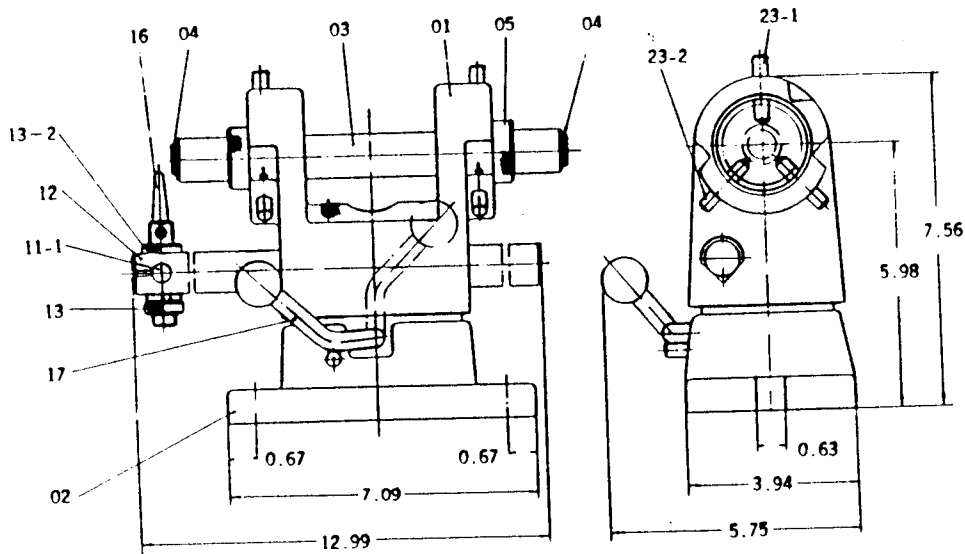


Fig 3

Unit : inches

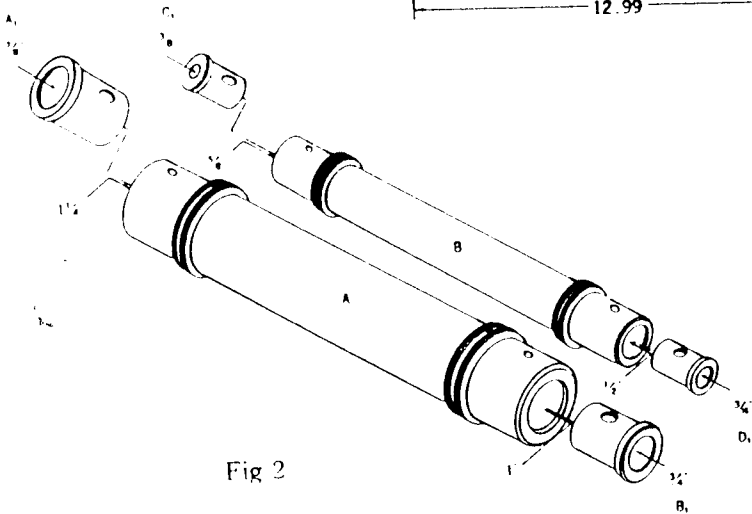


Fig 2

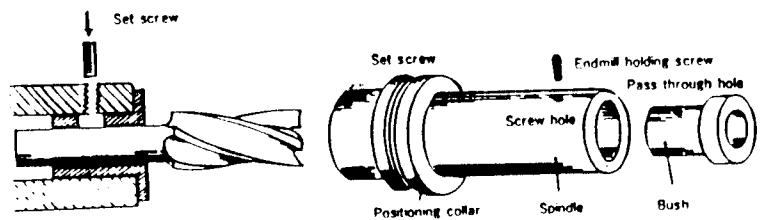


Fig 5

Fig 6

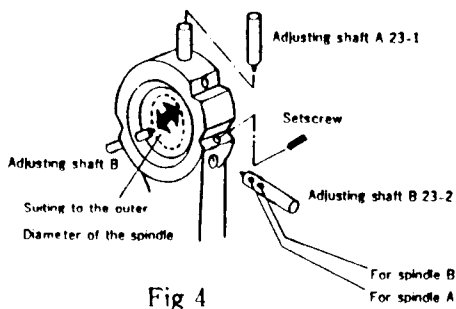


Fig 4

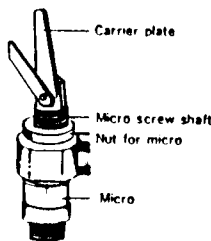


Fig 8

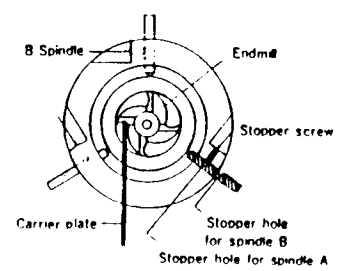


Fig 9

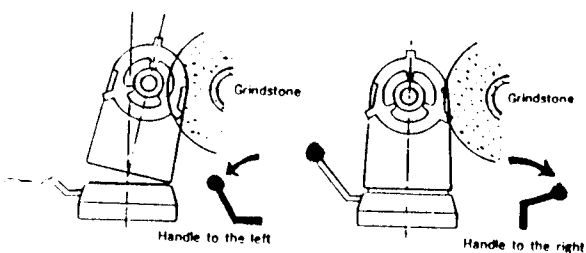


Fig 7

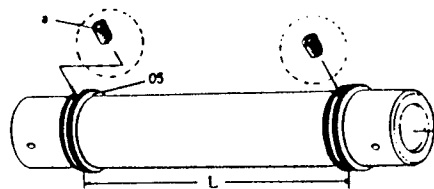


Fig 10

