



# INSTRUCTION MANUAL

**KITE**

Left & Right Hand Micromanipulators



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## ABOUT THIS MANUAL

The following symbols are used in this guide:

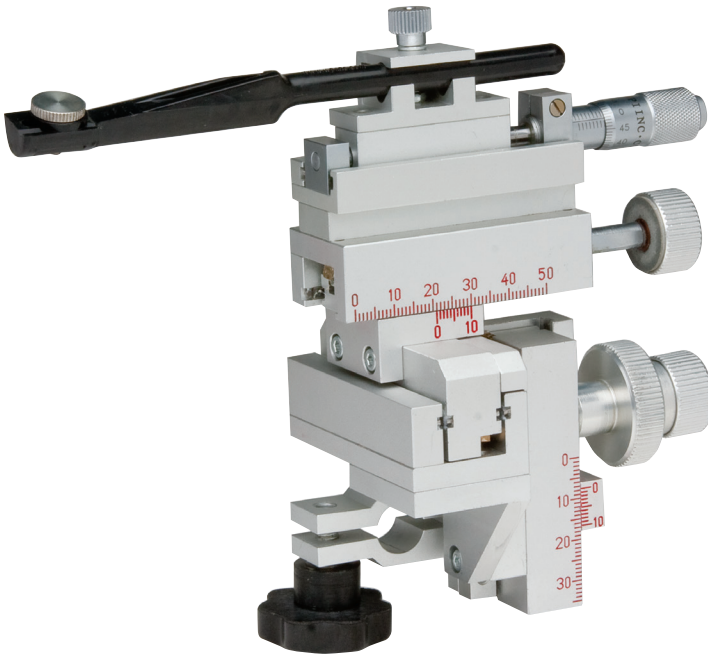


This symbol indicates a CAUTION. Cautions warn against actions that can cause damage to equipment. Please read these carefully.



This symbol indicates a WARNING. Warnings alert you to actions that can cause personal injury or pose a physical threat. Please read these carefully.

NOTES and TIPS contain helpful information.



*Fig. 1—KITE Micromanipulator*

## INTRODUCTION

The micromanipulator you have just bought is a precision instrument. It has been calibrated at the factory and is ready to be used. As with any delicate mechanical device it needs your care and attention for long term accurate performance. The following are some helpful hints to make this possible.

When handling a micromanipulator, put it down gently; dropping it even a short distance can be damaging to the general alignment and adjustment. When not in

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use, adjust the three (X-Y-Z) guide surfaces in such a way that they are not exposed and cover the manipulator with a plastic bag. Dirt is your biggest enemy. If not in use for a prolonged time, occasionally work the three surfaces repeatedly back and forth to keep the grease pliable. Never oil the guide surfaces and under normal use you should not have to apply grease for many years.

Depending on the angle of application and the weight carried on any one guide-way, you may experience some drift. This can be easily corrected. Follow the procedure on the following pages to tighten the drag on the coarse manual slides.

## Unpacking

Upon receipt of this instrument, make a thorough inspection of the contents and check for possible damage. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed damage should be reported at once to the carrier and an inspection requested. Please read the section entitled "Claims and Returns" on page 7 of this manual. Please contact WPI Customer Service if any parts are missing at 941.371.1003 or [customerservice@wpiinc.com](mailto:customerservice@wpiinc.com).

**Returns:** Do not return any goods to WPI without obtaining prior approval (RMA # required) and instructions from WPI's Returns Department. Goods returned (unauthorized) by collect freight may be refused. If a return shipment is necessary, use the original container, if possible. If the original container is not available, use a suitable substitute that is rigid and of adequate size. Wrap the instrument in paper or plastic surrounded with at least 100mm (four inches) of shock absorbing material. For further details, please read the section entitled "Claims and Returns" on page 7 of this manual.

## INSTRUMENT DESCRIPTION

### Installing the Tilt Base

The TB-1 Tilting Base is installed as follows: Remove the ring clamp by removing the two screws with the allen wrench provided with the KITE. Attach the manipulator to the tilting base by using the two screws provided with the KITE. Only two screws are required as two holes are used with a right-handed manipulator and the other two holes in the tilting base are used for the left-handed version.

## OPERATING INSTRUCTIONS SLIDE

### Tightening Procedure

Figure 2 shows a side view of the KITE-L manual micromanipulator, with its three axes of coarse movement labeled "A", "B", and "C". Over time, the friction components of these movements may become worn, thereby reducing the drag which can result in unwanted spontaneous movement, commonly referred to as drift. The following instructions describe how to tighten each axis movement to eliminate drift.

**Tools required:** T-handle adjustment tool (supplied), jeweler's screwdriver, pliers, and a piece of rubber or other material for protecting control knobs A, B, and C when grasped firmly with the pliers.

**Procedure:** For axes controlled by knobs A and C: Grasp the knurled knob housing with the pliers, being careful to protect the knob by covering it with a cloth or piece of rubber. While holding the knob housing securely, loosen the large locking screw (shown in Figure 3) in the back of the knob with the adjustment tool.

Hold the slide from traversing and rotate the knurled knob housing clockwise. This will tighten the movement. When the required drag has been achieved, hold the knurled knob and tighten the large locking screw, being careful not to further rotate the knurled knob.

It may take several attempts to get the correct tension. Be careful not to overtighten the knurled knob; doing so can damage the compressible parts which provide the friction to eliminate drift.

For the axis controlled by knob B: First remove the large locking screw holding knurled knob C in place. Next remove knurled knob C by unscrewing it counter-clockwise. Locate the small set screw labeled D in Figure 3. Loosen this screw. While holding knurled knob B rotate the collar D clockwise to tighten the movement.

When the required drag has been achieved, tighten the set screw being careful not to further rotate the collar. Replace knob C and the large locking screw that holds it in place. Adjust knob C to achieve the proper drag as described above for knob A, then tighten the large locking screw while holding knob C in place. Tools required: T-handle adjustment tool (supplied), jeweler's screwdriver, pliers, and a piece of rubber or other material for protecting control knobs A, B, and C when grasped firmly with the pliers.

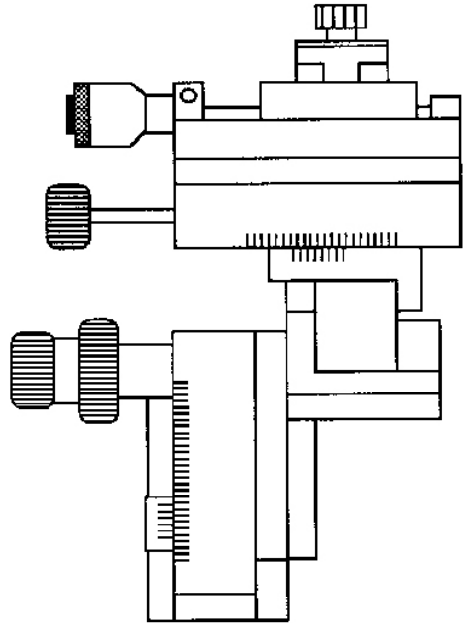


Fig. 2—Side view

Procedure: For axes controlled by knobs A and C: Grasp the knurled knob housing with the pliers, being careful to protect the knob by covering it with a cloth or piece of rubber. While holding the knob housing securely, loosen the large locking screw (shown in Figure 3) in the back of the knob with the adjustment tool.

Hold the slide from traversing and rotate the knurled knob housing clockwise. This will tighten the movement. When the required drag has been achieved, hold the knurled knob and tighten the large locking screw, being careful not to further rotate the knurled knob.

It may take several attempts to get the correct tension. Be careful not to overtighten the knurled knob; doing so can damage the compressible parts which provide the friction to eliminate drift.

For the axis controlled by knob B: First remove the large locking screw holding knurled knob C in place. Next remove knurled knob C by unscrewing it counter-clockwise. Locate the small set screw labeled D in Figure 4. Loosen this screw. While holding knurled knob B rotate the collar D clockwise to tighten the movement.

When the required drag has been achieved, tighten the set screw being careful not to further rotate the collar. Replace knob C and the large locking screw that holds it in place. Adjust knob C to achieve the proper drag as described above for knob A, then tighten the large locking screw while holding knob C in place.

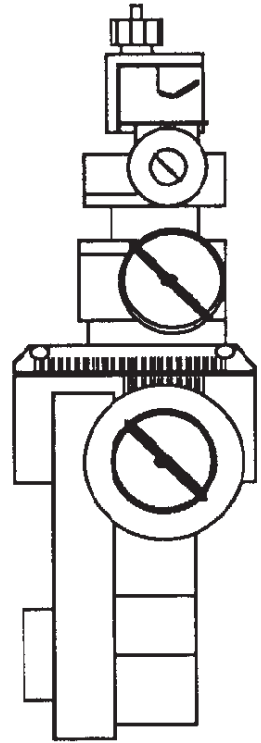


Fig. 3—Large Locking Screw

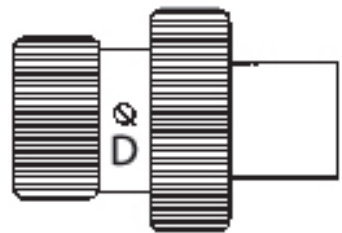


Fig. 4—Small Set Screw



## ACCESSORIES

Part Number	Description
<b>M3301EH</b>	Replacement Electrode Holder (14 cm long)
<b>M-3</b>	80° Tilting Base, M6 x 1mm screw
<b>15873</b>	Optional Angled Electrode Holder (13 cm long)
<b>5464</b>	5-lb Weight for Tilting Base Shipping weight: 7 lb. (3 kg)
<b>500475</b>	Ball Joint, 7 cm long, for Ø 8 mm Holder
<b>500476</b>	Ball Joint, 4 cm long, for Ø 4 mm Holder
<b>M4C</b>	Microscope Stage Adapter

A variety of magnetic stands are also available from WPI.

## SPECIFICATIONS

This unit conforms to the following specifications:

	TRAVEL RANGE	RESOLUTION
X-axis Fine	10 mm	0.01 mm
X-axis	35 mm	0.1 mm
Y-axis	20 mm	0.1 mm
Z-axis	20 mm	0.1 mm
SHIPPING WEIGHT	3 lbs (1.4 kg)	



## WARRANTY

WPI (World Precision Instruments) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of one year\* from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

## Claims and Returns

Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within ten (10) days after receipt of shipment. Claims for lost shipments must be made within thirty (30) days of receipt of invoice or other notification of shipment. Please save damaged or pilfered cartons until claim is settled. In some instances, photographic documentation may be required. Some items are time-sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container

Do not return any goods to us without obtaining prior approval and instructions from our Returns Department. Goods returned (unauthorized) by collect freight may be refused. Goods accepted for restocking will be exchanged or credited to your WPI account. Goods returned which were ordered by customers in error are subject to a 25% restocking charge. Equipment which was built as a special order cannot be returned.

## Repairs

Contact our Customer Service Department for assistance in the repair of apparatus. Do not return goods until instructions have been received. Returned items must be securely packed to prevent further damage in transit. The Customer is responsible for paying shipping expenses, including adequate insurance on all items returned for repairs. Identification of the item(s) by model number, name, as well as complete description of the difficulties experienced should be written on the repair purchase order and on a tag attached to the item.

*\* Electrodes, batteries and other consumable parts are warranted for 30 days only from the date on which the customer receives these items.*



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