ProStand™

Video Cutterhead Setup Stand

Setup and Operation Manual

Before operating ProStand, read this manual thoroughly. Retain manual for future reference.

Accurate

TECHNOLOGY INC.

Linear Digital Measuring Systems

Warranty

Accurate Technology, Inc., warrants ProStand™ against defective parts and workmanship for one year, commencing from the date of original purchase. Upon notification of a defect, Accurate Technology, Inc. shall have the option to repair or replace any defective part. Such services shall be the customer's sole and exclusive remedy. Expenses incidental to repair, maintenance, or replacement under warranty, including those for labor and material, shall be borne by Accurate Technology, Inc.

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Accurate Technology, Inc., shall not be liable for any special, incidental, or consequential damages. Accurate Technology, Inc., shall not be liable for loss, damage or expense directly or indirectly arising from the customer's use of or inability to use the equipment, either separately or in combination with other equipment, or for personal injury, loss, or destruction of other property, or from any other cause.

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Principle of Operation

ProStand uses a camera and a 35x microscope to locate the points of interest on a cutterhead. Because the scope does not physically touch the cutterhead, common problems with deflection errors or ambiguity of the exact point being measured are avoided.

Proper focus of the microscope is critical to successful operation of the ProStand. The scope has a small range over which an object will remain in focus. The scope should be focused on the plane perpendicular to the scope and passing through the center of the cutter shaft. Thus, the maximum radius at any point on the knife contour can be reliably determined. Measurements are taken after rotating the cutterhead until the cutterhead comes into focus.

Tools Required

SAE Hex wrench set
Flat-blade screwdriver
Adjustable Wrench

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Setting Up ProStand

1. Locate all ProStand components and a cutterhead which will be measured using ProStand.
2. Locate a place for the ProStand table assembly. ProStand may be bolted to a table surface using the same bolts used for shipment.
3. Adjust the V-block spacing (left to right) to fit your cutterhead shaft. To do this, remove the V-blocks, loosen the V-block spacers, then adjust them (left to right) to the appropriate position. Re-attach the V-blocks. **Note**: Some grinding shafts have a 30mm diameter bearing on one end and a 62mm on the other. These shafts are accommodated by inserting the included spacer block under one of the V-blocks.
4. Install the supplied handles on the radial/axial adjustments using a flat blade screwdriver.
5. Attach the camera pole to the base of the ProStand with the bolt provided. It is recommended that the bolt is only hand tightened at this point; adjustment will be necessary.
6. Adjust the table (using radial adjustment) until the back edge of the table is approximately 10mm from the camera pole.
7. Rotate the camera pole until the center of the scope is directly above the edge of the cutterhead shaft. Fully tighten the camera pole to the table.
8. Place the monitor in a convenient location which is free of moisture. **Do not plug into a power outlet yet.** Route the cable from the monitor to the camera on the ProStand. **Note:** Care should be taken when routing the cable. Do not put unnecessary strain on the cable or connectors. Do not place the cable next to fluorescent lights, as interference may result. Do not use staples to support the cable, as damage may occur.
9. Plug the cable into the connector port labeled "MONITOR" on the camera. Plug the other end into the CA1 port on the monitor.
10. Plug the monitor's power cord into an outlet.
11. Remove the lens cover on the scope.
12. Turn on the power to the monitor (there are power switches on both the front and the rear of the monitor). Press the Q/A button on the front of the monitor. Press the 1 button on the monitor.

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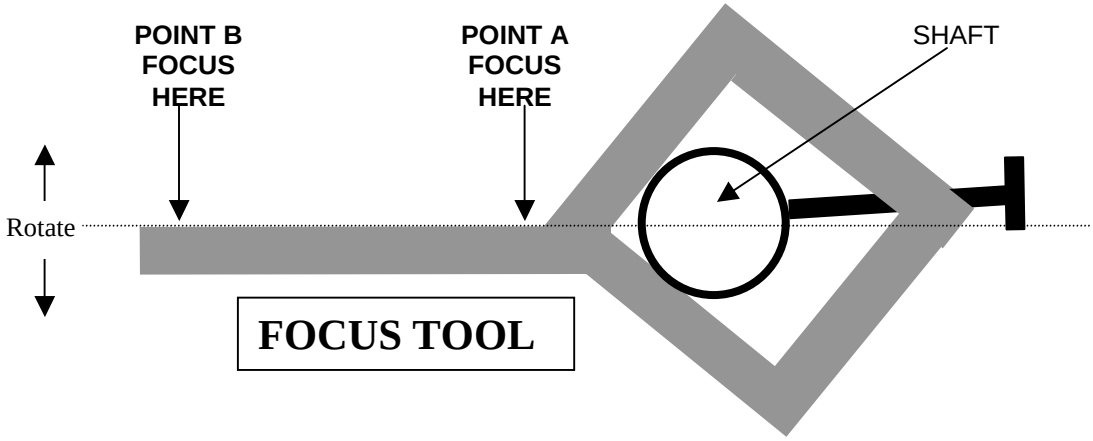
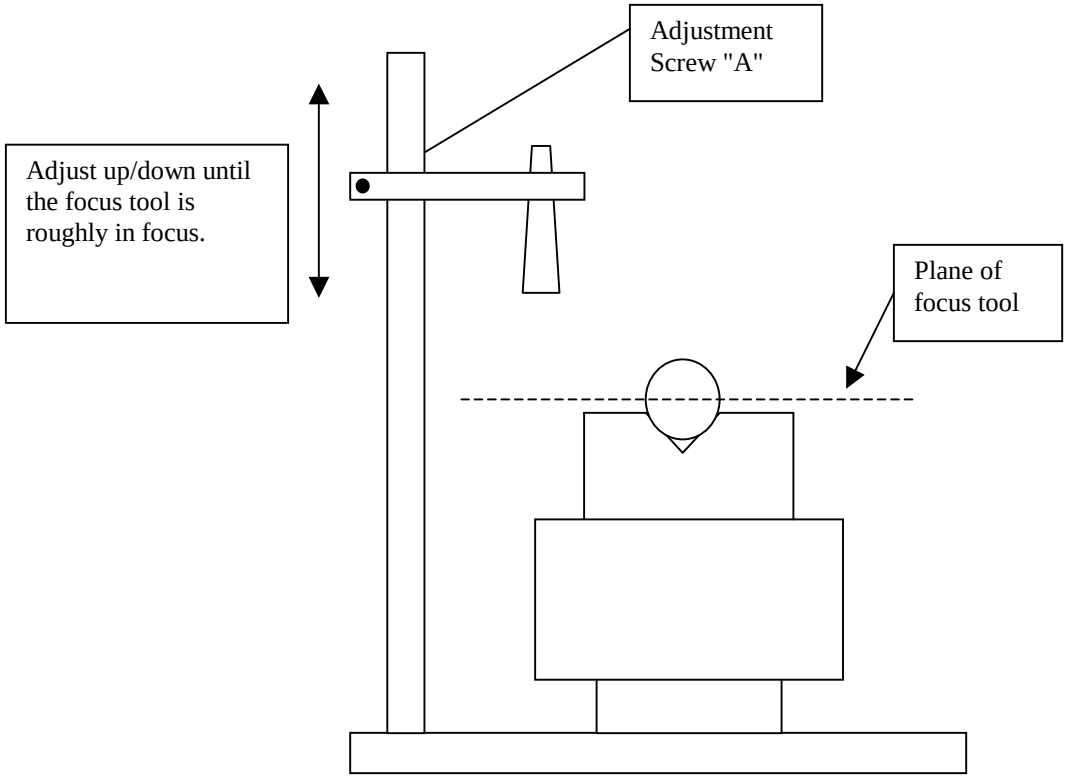
13. Install the focus tool onto the grinding shaft (see figure below). Rotate the focus tool on the shaft until the **FOCUS HERE** plane (shown with dotted line) is parallel with the surface of the ProStand table.



14. Loosen adjustment screw "A" and move the scope assembly up and down on the pole until the focus tool is roughly in focus on the monitor.



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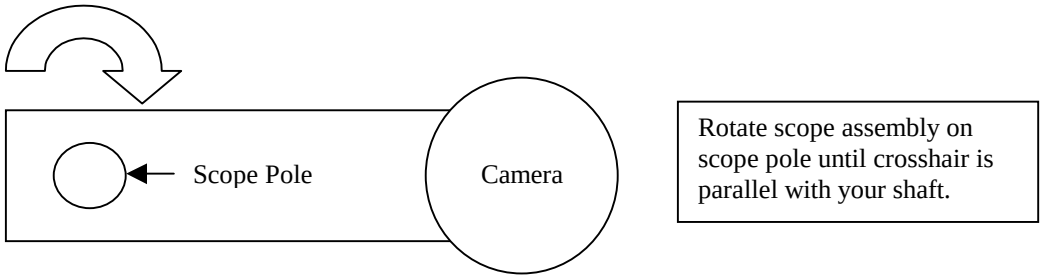
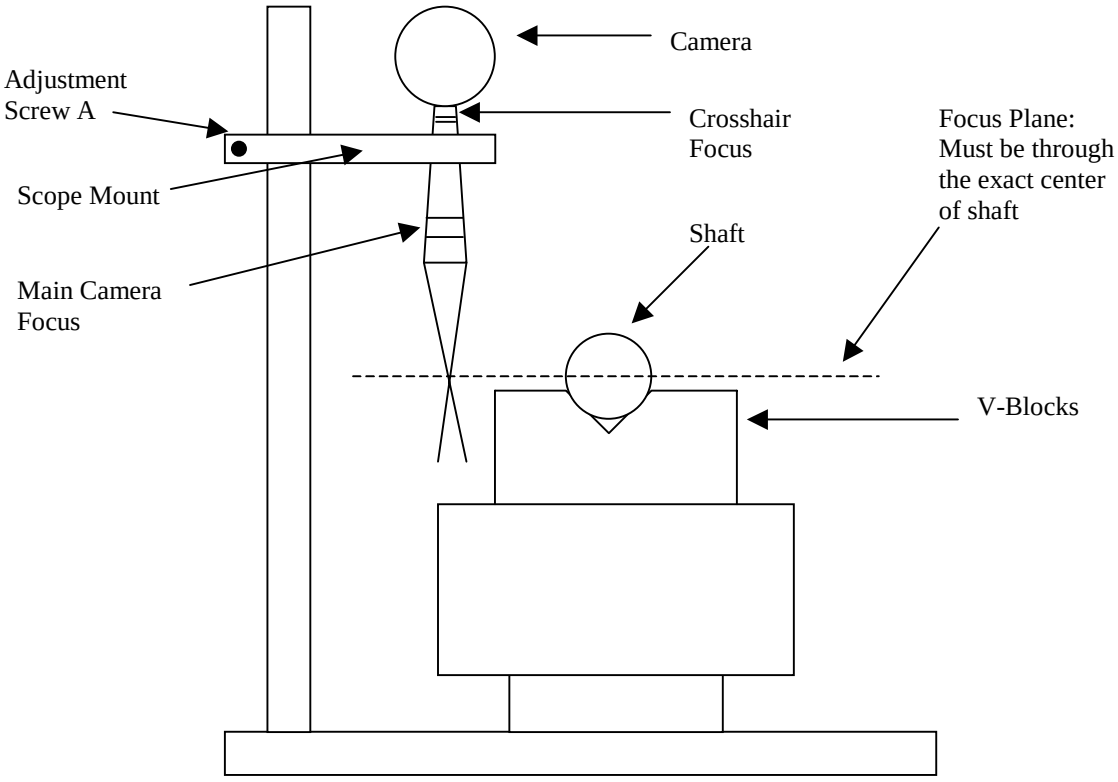
15. Adjust the scope mount's left to right position so the crosshair is parallel to the cutterhead shaft. Tighten the adjustment screw.



16. Adjust the *Main Camera Focus* to focus on Point A of the focus tool. Now move the table (radial direction) so that Point B is under the scope. Gently rotate the cutterhead shaft/focus tool assembly to bring Point B into focus. Move the table back toward Point A. Re-adjust *Main Camera Focus*. Move back to Point B. Rotate the cutterhead shaft/focus tool assembly to bring Point B back into focus (if necessary). Repeat this procedure until the tool does not need to be rotated to remain in focus. This process verifies that the scope will read the correct radius values. Mark the scope's position so that it is easy to return to the correct focus (or place a piece of tape on the scope so it cannot be moved inadvertently). Remove focus tool from shaft. **(Note: Once this adjustment is made, the focus should not be changed and this adjustment should not be repeated unless a different size shaft is used.)**



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17. Focus the crosshairs on the monitor using the crosshair focus adjustment on the scope. After adjusting the crosshair focus to the best view, verify the crosshairs are straight up and down on the monitor. If any part of the line is "fuzzy" or light, loosen the camera mounting screws and rotate the camera (very slightly) on the scope. When the entire vertical line is dark and clear on the monitor, stop camera rotation and tighten any loosened screws. Re-adjust the crosshair focus if needed.
18. If you are still getting a poor image, try adjusting nearby light sources, as too much/too little light may be reflected by the table and into the scope. If there is too little light (entire image is dark), try adding a focused light nearby (like a small spotlight). If there is too much light, try dimming the light by holding a piece of cardboard above the scope. If this solves the problem, mount the cardboard to the scope mount to block the excess light. Some dark colored cardboard placed on the ProStand stage may also prevent extra light from reflecting into the scope. Placement of the entire ProStand may also remedy any light source problems.
19. Adjust the table so the crosshairs are on the shaft edge. Move the table from right to left along the shaft. If the crosshairs do not stay on the edge of the shaft, adjust the V-block positions accordingly. Repeat this procedure until the edge of the shaft remains on the crosshairs over the full table travel.
20. With the crosshairs still on the edge of the shaft, use the + and - keys to set the RADIUS of the shaft into the corresponding display. Press the ON/OFF and MODE keys at the same time to LOCK the calibration into the display. (Be sure to enter the **radius** of the shaft, instead of the diameter.)

ProStand Operation

1. Place the cutter to be measured onto the ProStand. Line up the crosshairs to the edge of the cutterhead. Press the "0" key on the Axial display. Move the table to view the item of interest on the knife. Read the dimensions on the displays and log if necessary. (In order to achieve the most consistent measurements, always approach the edge or feature on the cutterhead from the same direction. For the best possible accuracy, the same approach should be used when setting zero points on the displays.)
2. Once the features of a knife have been measured, the individual knives in a cutterhead may be compared to one another. This is accomplished by ROTATING THE CUTTERHEAD until the next knife is in focus. **Note:** Do not adjust the scope to bring the knife into focus. By rotating the cutterhead to bring the knife edge into focus, measurement accuracy is retained.

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