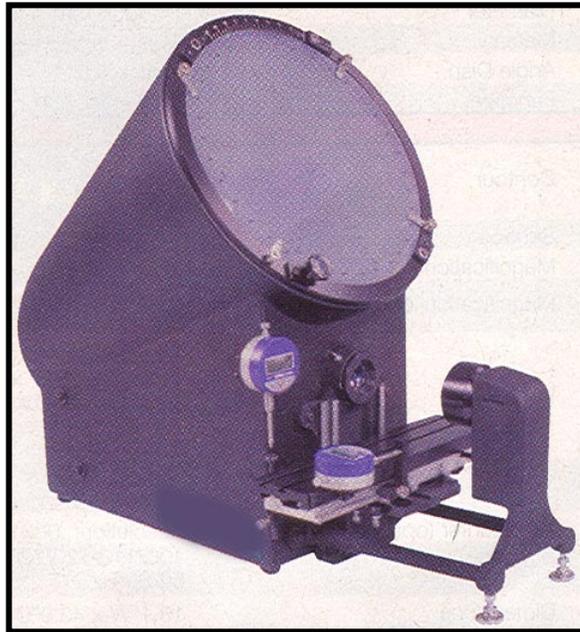


12 Inch Bench Model Optical Comparator

Model number: OC12 WDIGIN



Set-up and Operator's Manual



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SETUP

The comparator is shipped fully assembled. It is ready to use after unpacking and installing the glass screen included.

1. Remove the comparator from the shipping container. The glass screen is packed in a separate box. Place the comparator on a bench and remove the packing materials.
2. Refer to Figure 1. Remove the glass screen from its protective packaging and install on the front of the comparator case. Loosen the two lower roller brackets on the screen ring and allow the rollers to drop downwards against the screen ring. *(A hole has been provided in the glass screen to allow for a small L-Key to be inserted, to help guide the screen in to place. Be careful not to scratch or chip the glass when using an L-Key in this hole.)* Insert the top edge of the glass screen under the vernier scale attached to the top of the screen ring. Slide the glass screen upwards, butting up against the top rollers. The bottom of the glass screen will now have enough clearance to allow lowering of the entire glass screen gently into place, sitting flush within the screen ring. The glass screen should ride directly on all 4 rollers and should not drag or grind against the outside reticle ring. Therefore readjust the two lower roller brackets so that they lift the glass screen slightly above the reticle ring. Tighten the screws that hold the bottom roller brackets in place. Then adjust the top roller brackets so that they are against the top of the glass screen and tighten the screws that hold the top roller brackets in place.
3. If using drop indicators with lug backs on the "X" and "Y" axis, attach them to their respective mounts. There is a bracket on the left-hand side of the case for mounting the "Y" axis drop indicator. A sliding "Y" stop post is provided to zero out the indicator. Another bracket is screwed into the front left-hand side of the top table (measuring stage). This is where the "X" axis drop indicator is mounted. A sliding "X" axis stop is provided to zero out the indicator. The "X" axis stop is mounted in the front T-slot of the table base. The "X" axis stopped can be positioned by loosening the lock screw and slid to the left or right. Take care to place the indicator shaft parallel to the line of travel.
4. Plug the comparator into a properly grounded 110 V AC receptacle. Turn on the profile lamp and surface lamp, with the switches on the side of the comparator case. Turn the lamps off when not using the comparator. This will extend the life of the lamps.
NOTE: The alignment of the profile lamp should be checked when the machine is first unpacked, as handling during shipment could cause misalignment. (See Profile Lamp Adjustment Procedure section)

Overlay Measurements

Overlay charts can be made of any clear, transparent material. Insert the overlay underneath the spring clips. The overlay should be flush against the glass screen.

Glass Reticle Screen

Do not use acetone or aggressive solvents to clean the glass screen. Clean screen with a mild soap and water solution. Wipe clean using lint free cloth.

Internal Glass Mirror

The internal rear mirror is constructed of glass. The mirror is accessed by removing the front glass reticle screen and reaching into the back of the case. The mirror can carry a heavy coat of dust without reducing light reflection significantly. If cleaning is necessary, wipe the glass lightly with alcohol or a mild glass cleaner using a soft lint free cloth.

Rear Mirror Adjustment

The mirror has been set at the factory to provide consistent magnification of the projected image at any point on the screen. Resetting the mirror should be necessary only if the unit has been bumped or if the mirror mount has come loose.

The mirror is attached to the case by four socket head screws. The screw heads are accessible at the outside rear of the case; two heads on either side.

Increasing the distance between the mirror and lens will result in a larger screen image. Decreasing the distance results in a smaller image.

If the magnification appears inconsistent on the screen, check the image size of a gauge pin in each quadrant of the glass screen (i.e. the 1,2,3, and 9 o'clock positions). If the image size is not the same, loosen the screws slightly and tilt the mirror. After tightening the screws, recheck for size.

Measuring Stage Adjustments

All components of the measuring stage that move have dovetailed joints with gibs. The gibs can be adjusted to take up slop in the movement by tightening the socket set screws, which press against the gibs. Do not overtighten the setscrews, as it will cause binding of the joint.

MAINTENANCE

Dovetails, Rack and Pinions

The X, Y, and Z axes utilize dovetail movements as bearing ways, and rack and pinion as a drive. If they appear dirty, wipe them clean with a rag and a light oil as a solvent. When dry, apply a lightweight grease.

Lamp Replacement – General Information

The profile and surface lamps have a fixed life and should be turned off when not in use. If a lamp burns out, unplug the unit off before replacing the lamp.

The lamps are very hot when lit, so make sure the unit is shut off for 5 minutes before you touch a lamp. Oil from your fingers can get on the lamp surface and shorten the life of the lamp. Therefore use a clean tissue or cloth to handle the lamp.

Profile Lamp Replacement

Unplug the power to the comparator. Leave comparator unplugged for at least 5 minutes to allow bulb to cool off. To gain access to the profile lamp, the condensing lens must be removed by loosening the thumbscrew located on the right of the lamp housing, and removing the lens. Then remove the 2 socket head cap screws that hold the lamp housing cover on. Lift the cover off of the 2 locating pins and you can now replace the profile lamp. Be sure to replace the lamp with a 12V 20W halogen bulb only. Using a different size bulb will cause the unit to overheat and possibly cause injury. Once the lamp must be seated properly in the socket, no other adjustments will be required. Replace the lamp housing cover and condensing lens.

Surface Illumination Lamp Replacement

Unplug the power to the comparator. Leave comparator unplugged for at least 5 minutes to allow bulb to cool off. To gain access to the surface lamp, the front glass reticle screen needs to be removed from the face of the comparator. The lamp socket is attached to the bottom of the beamsplitter mounting box, and is held in place by an L shaped bracket. The bracket is attached with a thumbscrew to the back of the beamsplitter mounting box. Loosen the thumbscrew, slide the L shaped bracket to one side and allow the lamp socket to drop downwards, away from the beamsplitter mount. Remove the lamp from the socket assembly. Install the new lamp in the socket and reinstall the lamp/socket assembly. The lamp must be seated properly in the beamsplitter box but will require no other adjustment.

Notes on Surface Illumination

Figure 1

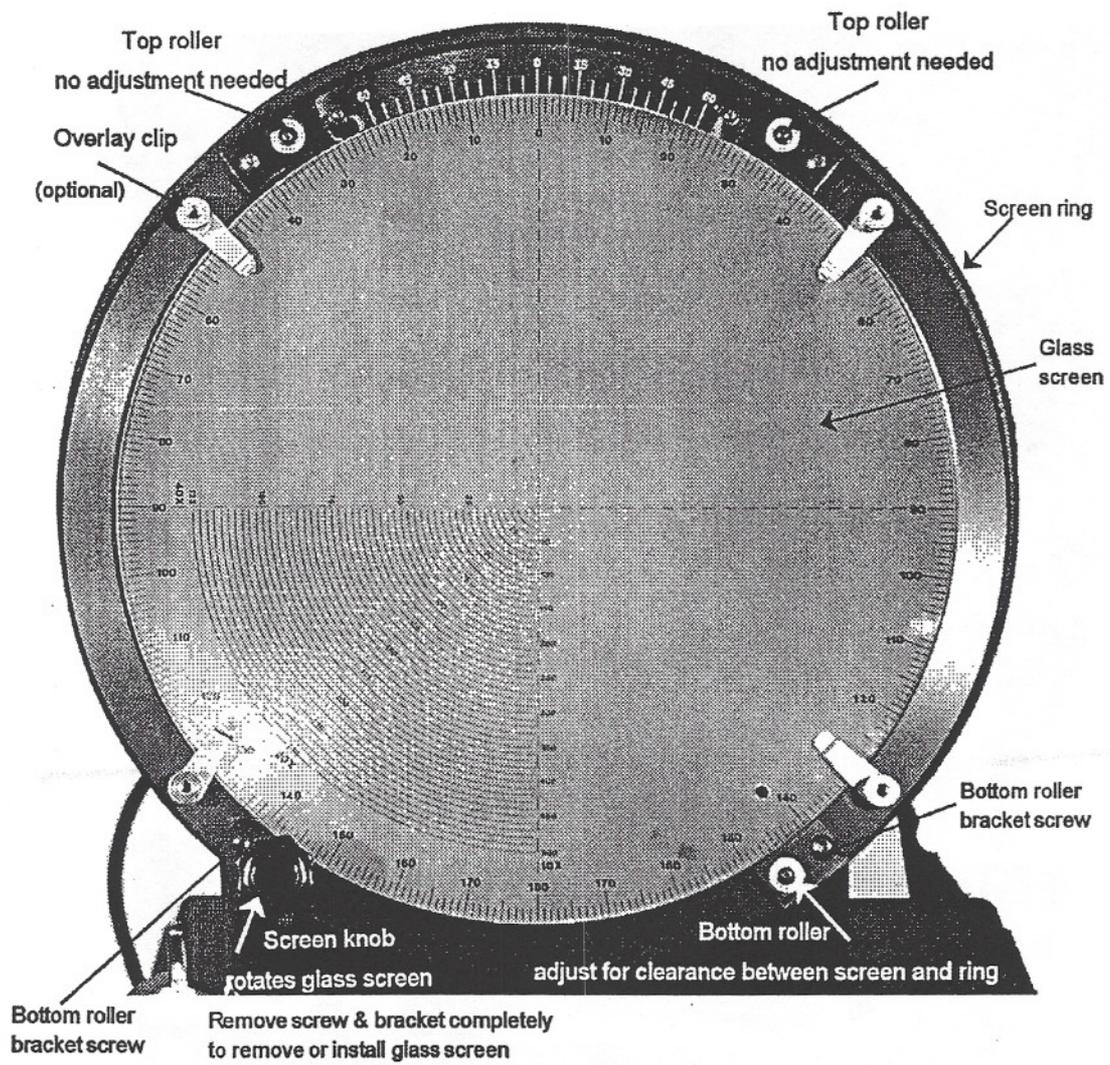


Figure 3

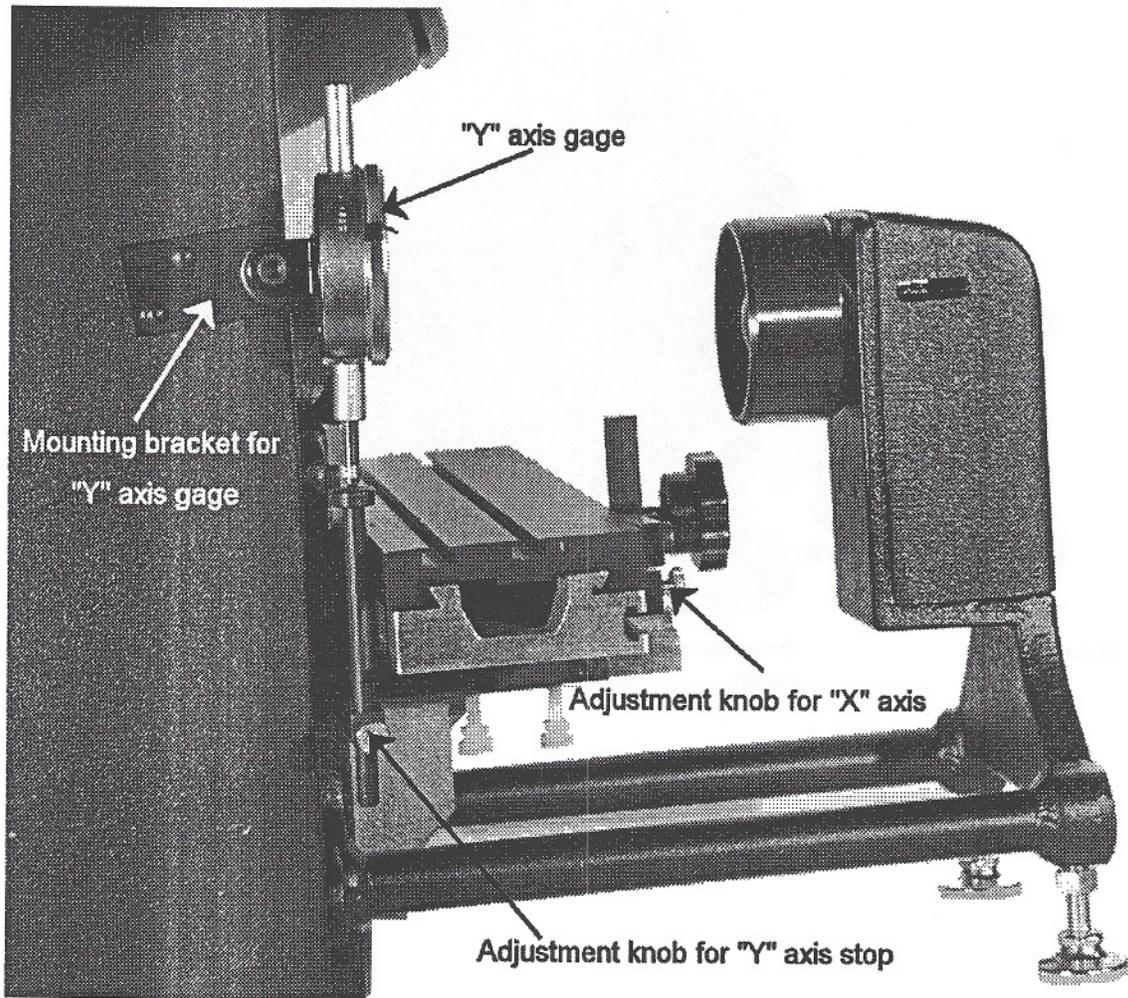


Figure 5

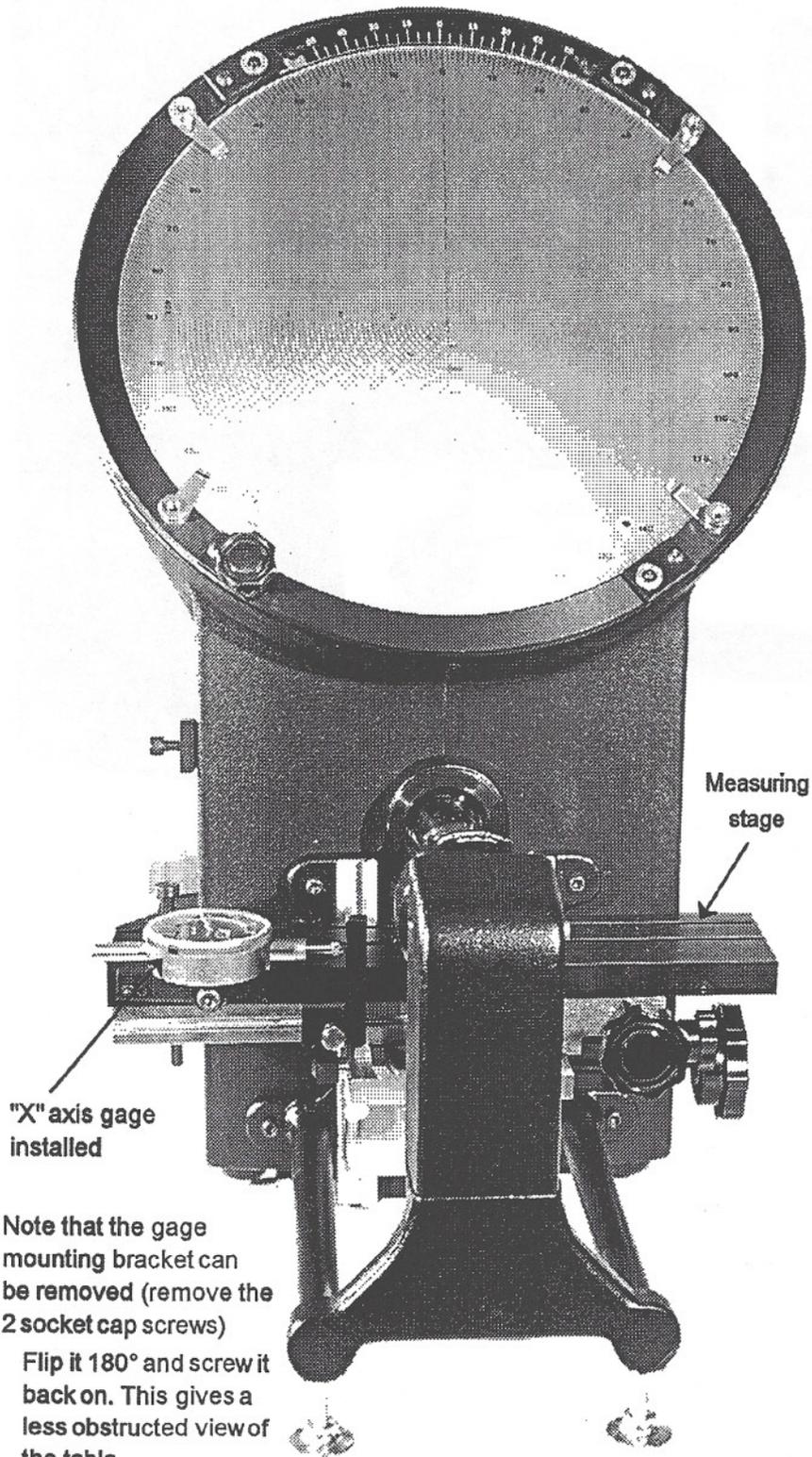
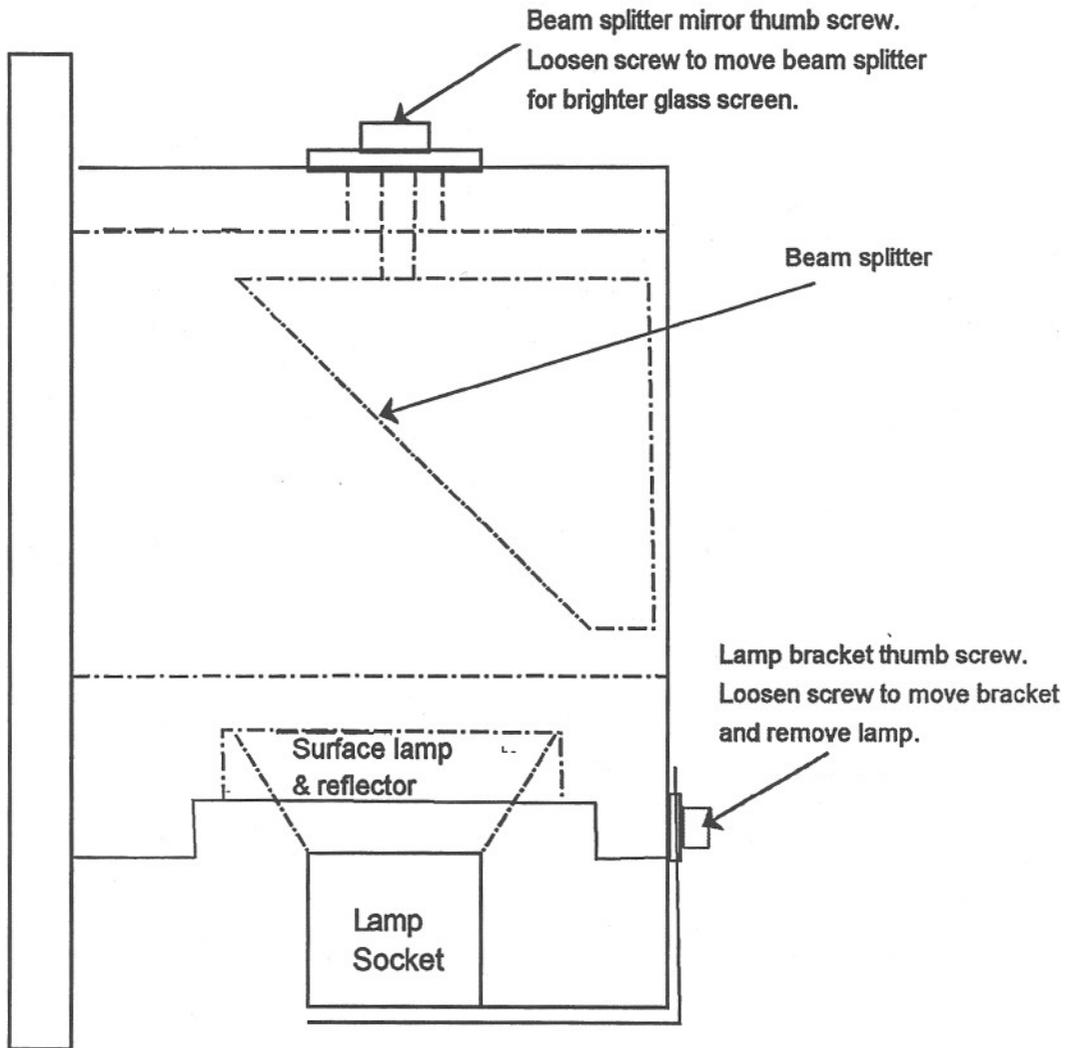


Figure 7



Beam Splitter Mounting Box