Dolan Jenner

Fiber-Lite®

HIGH INTENSITY FIBER OPTIC ILLUMINATORS

INSTRUCTION MANUAL

for Models 180 & 170-D Illuminators

Your purchase of the Dolan-Jenner Fiber-Optic Illumination System will provide you with many years of service in a large variety of applications which require high intensity, yet cool illumination. Please read the following instructions to ensure that maximum performance is obtained from your system.

Model 180 and 170-D Illuminators are readily interchangeable within the systems. The exceptions are with System 181, 181A and 181B which require the Model 180 Illuminator for the support of the self-supporting fiber optic light pipes EEG 2823, EEG 3922 and BG 2820. In addition the Model 180 has the lowest noise and vibration characteristics that can be incorporated into any unit, which makes it especially suitable for high magnification stereo-microscope usage.

Fiber-Lite Illuminators achieve maximum reliability and lamp life due to certain design considerations incorporating air flow parameters that result in long lamp life and cool housing temperatures as well as component reliability.

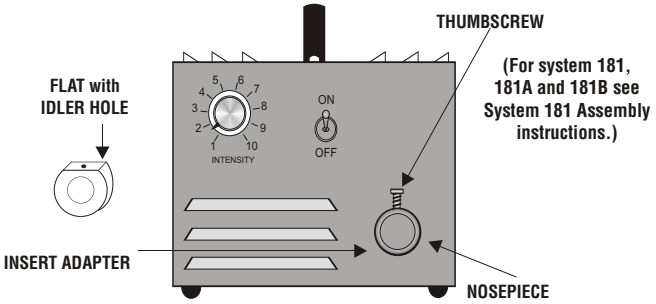
ADAPTERS (SX TYPE)

The Adapters fit into the Illuminator nosepiece with the flat area facing up. The idler hole on the flat area is off center, and the shortest dimension faces the illuminator when inserted.

The SX 5, 6, & 7 adapters are made with an idler which provides quick disconnect features that require only a few turns of the thumbscrew on the Illuminator nosepiece to attach or disengage the fiber optic light pipe.

SYSTEM 181 ASSEMBLY INSTRUCTIONS

Due to the self-supporting features of the fiber optic light pipes (BG 2820, EEG 2823, EEG 3922) it is necessary to remove the thumbscrew on the Illuminator and replace it with a 7/64 socket head cap screw provided. The SX-11 adapter is then inserted as above followed by the fiber optic pipe with the flat surface facing up. . Then insert the fiber optic pipe with the flat surface facing up. Use an Allen Wrench to sufficiently secure the fiber optic so that there is no rotation.



FIBER OPTIC LIGHT PIPE INSERTION

Insert the Fiber Optic Light Pipe into the adapter and tighten the thumbscrew to secure the fiber optic in the Illuminator.

MOUNTING STANDS

For some applications a mounting stand is required to secure the fiber optic gooseneck in an operating position. The EEG 3736 fiber optic has a hole in the transition to accept the securing knob on the MS-7 Mounting stand. The MS-8 Mounting stand requires that a portion of the gooseneck be clamped directly.

LENSES

The LH755 lens is threaded on the fiber optic light pipe after the locking nut. The LH759 lens is quickly attached or removed from the fiber optic with a turn of the thumbscrew. Both lenses are capable of focusing the light to provide higher levels of illumination and obtaining focused light spot diameters of .16" (.4cm) to 2.87" (7.3cm).

ANNULAR ILLUMINATION SYSTEMS

Annular Illumination Systems provide 360 degrees oblique crosslighting for detail delineation and a crisp visual or photographic image at working distances of 1.5" (3.8 cm) to 9.5" (24.1 cm). As is the case with most non-self-supporting fiber optics and especially with this system, a capability for electronic flash photography is acquired by simply approximating the fiber optic to the flash source. This system has numerous adapters for attaching the fiber optic to various models and makes of microscopes. These adapters necessarily vary and a separate instruction sheet is provided for each.

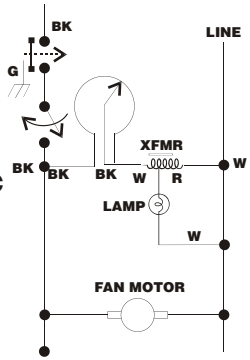
A WORD ABOUT FIBER OPTIC LIGHT PIPES

The light pipe contains a bundle of individual glass fibers about the size of a human hair. Each fiber consists of a central optical glass core and is cladded with a different refractive index which allows for the transmission of light through total internal reflection, a phenomenon in which light rays are reflected at the core/clad interface and travel to the distant end of the fiber by a zigzag path of successive reflections. To assure maximum light input/output each fiber bundle has an optical polish at each termination.

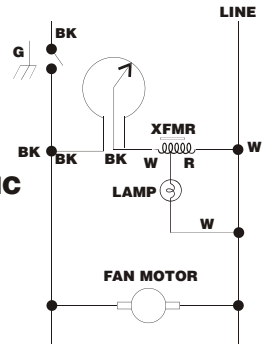
These bundles are then constructed in a protective sheathing to limit a bend radius which, if exceeded, could cause the fibers to fracture. The fiber optic light pipe should be treated as a laboratory instrument and considerate, common sense usage will assure an unlimited lifetime. Avoid sudden forceful pressures on bends and excessive configurations that strain the flexibility of the fiber optic.

Periodically the ends of the fiber optic and lenses should be cleaned with a lens cleaner and lens paper.

SCHEMATIC 180



SCHEMATIC 170 - D



CHANGING THE ILLUMINATOR LAMP

Should the need arise to replace the EKE type lamp the following procedure should be used:

1. Unplug the illuminator from the wall socket.

2. Wait until the illuminator nosepiece is cool to touch.

3. Raise the cover of the illuminator.

4. Pull up on the EKE lamp to remove it from the lamp holder.

5. Remove the lamp from the socket.

6. Replace with a new EKE lamp.

CAUTION: *Do not touch either the inner quartz lamp envelope or the lamp pins with your fingers. This will result in a significant shortening of lamp life. Handle the EKE lamp only by the dichroic reflector when attaching the lamp socket.*

7. Reinsert the lamp holder.

8. Close cover.

9. Insert plug in wall socket and, if necessary, check the alignment of the lamp.

10. The lamp holder is precision aligned at the factory on the angle for optimum lamp input into the fiber optic. Occasionally there are dimensional variations of replacement lamps that may result in a reduction of illumination. The reduction is apparent when illuminating a piece of white paper at a distance of three inches with an unlensed fiber optic. Should there be visible a central area of less intensity than the periphery, the lamp should be aligned. This condition is due to the physical positioning of the quartz envelope within the reflector and can be eliminated by the following:

ALIGNMENT:

1. Illuminate a piece of paper with the distal end of the fiber optic about 3" away. Do not use a lens. Check for a darker central area.

2. Place the illuminator on its side and loosen the two lamp holder adjustment screws on the base. With the screws loose, rotate the lamp holder until the darker central area changes to a brighter intensity than the periphery.

3. Secure the screws at the best position obtainable.