

Introduction

This handpiece illumination system is a highly regulated constant voltage device designed to be permanently installed into the dental delivery unit. The system consists of a wall transformer to reduce input power to low voltage, a power pack to provide regulated operating voltages for the handpiece illumination and a delivery unit tubing for connection of a handpiece. Since a fair level of familiarity with dental delivery unit mechanics is required for installation, it is recommended that a qualified service technician be employed for this purpose.

Tubing Installation

Handpiece light source tubings are available in various styles and colors to be compatible with dental unit colors and desired handpiece connections. Be certain that the style of tubing is appropriate for the particular application. It is most important to choose a light source tubing from available ISO-C or ISO-5H type handpiece configurations.

Replace the entire existing handpiece tubings with the appropriate light source end connection configuration. During replacement, take care not to cut or shorten the electrical wires. The supplied length of wire must be retained. After replacement is completed, install the 1/8x1/8x1/16 plastic tee and air sensing tube assemblies into the drive-air lines at an appropriate position on each tubing not more than 12" from the desired location of the power pack.

Choose one of the tee air sensing tubes. If this particular tubing is for handpiece illumination position #1, plug the tee air tube onto the power pack barbed fitting "TUBING 1" as shown in the diagram. Another illumination tubing may be installed for "TUBING 2".

Attach the tubing wires to the power pack terminals corresponding to the tee air tube connection. The polarity of all wire connections should follow the diagram. The white (wht) wire is positive and the black (blk) wire is negative. Attach the wall transformer wires to the power pack terminals as shown in the diagram. Polarity is not important here since the power pack electronics automatically compensates for reverse polarity. Plug the wall transformer into an outlet of appropriate voltage. The wall transformer supplied is rated at 5.0VDC. **Do not use any transformer other than the one supplied.**

Setting Lamp Voltage Adjust Controls

Generally, each brand ISO-C handpiece or ISO-B 5H lamp module will have an exact operating voltage specification that must be precisely set using a digital multi-meter (DMM). The two voltage adjustment controls are located near the terminal strip of the power pack and are turned by using a 5/64" mini-screwdriver. The operating voltage of the lamp must now be set to the value recommended by the manufacturer.

IMPORTANT: Higher voltage set levels seriously affect the life of the lamp. **NEVER USE THESE CONTROLS TO ADJUST LAMP INTENSITY.**

Turn the voltage set control fully DOWN (CCW). Gain access to the lamp connections and attach a digital multi-meter (DMM) capable of measuring 3.00 to 4.20 volts DC. Activate the handpiece line, which should turn on the lamp. SLOWLY turn the appropriate voltage set control up (CW) until the meter reads the voltage recommended.

Note: The set voltage for any halogen style lamp module purchased from or supplied by Kinetic Instruments Inc. is 3.35 volts.

Repeat this procedure for any other power pack positions that are being utilized.

If direct attachment of the DMM to the lamp is mechanically difficult, then connection can be made at the power pack. This method MUST compensate for the electrical resistance of the tubing wires. Attach the DMM directly to the appropriate power pack terminal strip connections. With the lamp operating, set the voltage 0.25 HIGHER than specified if using tubing supplied by Kinetic Instruments Inc. For other brand tubings, set the voltage **AT THE SPECIFIED VOLTAGE.**

LED Illumination Devices

Various products exist that employ LEDs (Light Emitting Diodes) to produce effective handpiece illumination output. Generally, LEDs are powered best by constant current power supplies. However, the manufacturers in the dental industry have recognized the abundance of constant voltage power supplies and have specified their LED devices in terms of voltage to be compatible with the majority of equipment. When using LED illumination devices, set the power pack voltage to the recommended level specified.

