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Model 7300 Laser Diode Module Assembly/Installation Procedure

I. Purpose:

This section describes the steps necessary for assembling and installing the Model 7300 Laser Diode Module for Micro Pulse Lidar (MPL). It provides a general description of the device such as controls and connections.

II. Cautions and Hazards:

- There are no hazards.

III. Requirements:

- 5/64 Allen-head screwdriver
- Clean environment

IV. Procedure:

A. Mounting Laser Head:

1. The laser head mounting should be flat and aluminum. Non-aluminum material has larger temperature changes and may cause differential expansion, resulting in misalignment of the laser head.
2. The laser head can be mounted on any surface. No external heatsinks are necessary, as long as there is free convection around the laser head. See Figures 1 and 2 in attachments for mounting hole locations.
3. The laser head has two connections located on the rear surface. The SMA connector delivers RF power to the Q-switch. The locking FC connector is used to attach the laser head to the optical fiber.

WARNING: Improper clamping and thermal insulation may cause distortion, possibly detuning and damaging the laser head.

B. Mounting Frequency Doubler:

1. See Figure 3 in attachment.
2. Turn off the laser diode module.
3. Use a 5/64 Allen head screwdriver to remove the four screws holding the shutter assembly to the laser head.

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4. Attach the frequency doubler module using a .050 straight shaft (not a ball driver). Allen-head screwdriver inserted through each of the four screw holes located in the four corners of the doubler face.
5. Attach the shutter assembly to the frequency doubler.
6. Install the heater controller card in the Model 7300.
7. Connect heater controller to the doubler.

NOTE: Reverse the procedure to return to operation in the infrared. Be sure to replace the shutter assembly for safety as well as protecting the laser head from dust contamination.

C. Assembling the Module:

1. Connect the power cord and plug in the Model 7300 Laser Diode Module.
2. Remove the metal beam attenuator (cap) from one end of the fiber-optic cable by unscrewing the FC connector nut and pulling it out straight and away from the glass fiber end. (You will be pulling against the warning label.)
3. Carefully center, then slide the cable into the fiber-optic connector on the back panel of the laser diode module. Secure it with the retaining nut.

WARNING: Do not over-tighten. Tightening with finger is sufficient.

4. Following the procedure above, remove the beam attenuator from the other end of the fiber-optic cable. Carefully screw the cable onto the laser head and tighten with finger.

NOTE: The fiber cable has keyed FC connectors that must be properly inserted into the laser head for full engagement of the connector.

5. If you are using the Model 7960 Laser Head, connect the RF driver output of the laser diode module to the Q-switch input of the laser head using the RF cable included with the system.

NOTE: The RF cable has a BNC connector on the end for connection to the laser diode module and an SMA connector on the other end for attaching to the laser head.

6. If you are using the frequency doubler, attach it as described above (see "B. Mounting Frequency Doubler")

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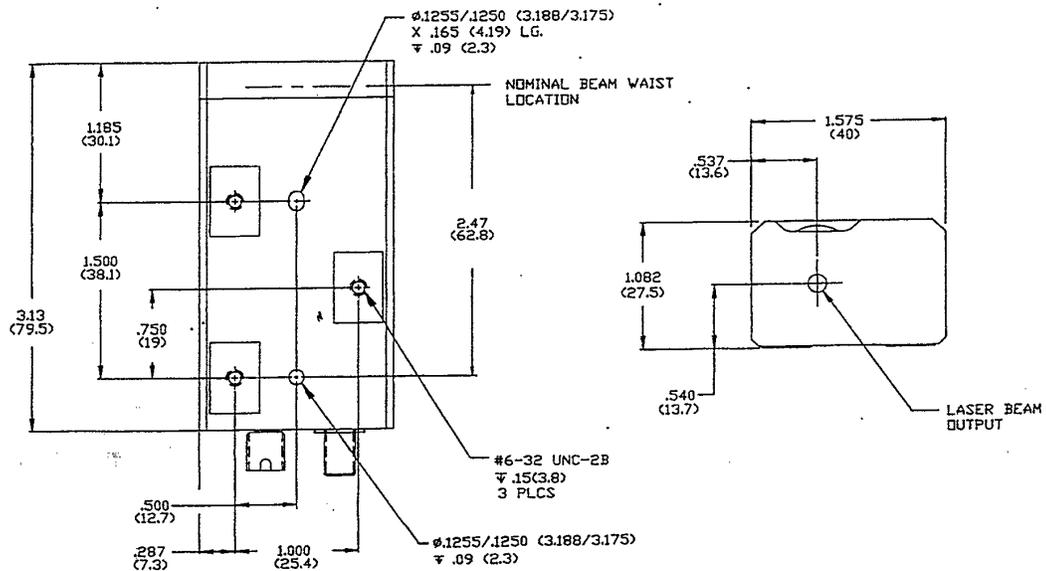
7. If you are using the remote control, attach its cable to the female connector (J1) on the front panel of the Model 7300.
8. If you are using the user system interface, attach a suitable cable (not supplied) from the 37-pin D-connector (J7) on the back panel of the Model 7300 to your system.

V. References:

1. Spectra-Physics Lasers, Inc. (1994). Model 7300 Laser Systems: Instruction Manual. MAN(MPL)-013.000.

VI. Attachments:

1. Figure 1: Model 7960 Q-switched Laser Head "S Cavity"



2. Figure 2: Model 7960 Q-Switched Laser Head "E Cavity"

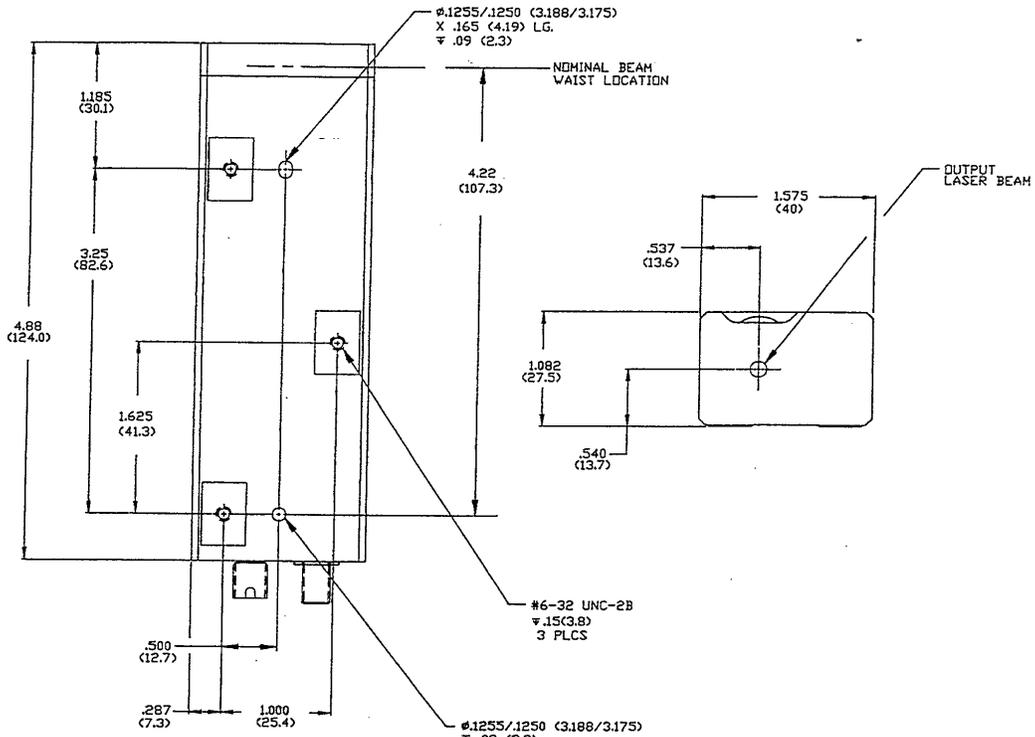


FIGURE 3-4: Model 7960 Q-switched Laser Head "E Cavity"

3. Figure 3: Model 7960 Frequency Doubler attached to a model 7960 Q-Switched Laser Head.

