Pre-Installation Guide

Introduction

This guide specifies the requirements for the environment in which the *Vanguard 2000* laser system will be installed. Any work needed to meet these requirements should be completed prior to the arrival of the system. This guide also includes instructions for unpacking the *Vanguard 2000* laser system and moving it to the installation area.

This guide is intended to supplement, not replace, the information contained in the *Vanguard 2000* user's manual. This guide serves only to help you get the system uncrated without damaging it and move to the installation area. The user's manual contains all the information required for installing the system.

The system arrives in two wooden crates, a large one and a smaller one. The large one contains the *Vanguard 2000* laser head, the *Model J40* power supply, the accessory kit and the optional laptop personal computer/controller. The small crate contains the chiller and mounting rack.

The laser head and its cover/tray are located in the upper section of the crate; the lower section contains the power supply and optional laptop personal computer. A single fiber-optic cable covered with a green foam sheath is permanently attached to the power supply and laser head, and it is fed though a slot between the two sections. It is therefore necessary to be careful and thoughtful when moving one or both units. Following these instructions will help prevent any accidental damage to these units or to the fiber cable.

Laser Environment Requirements

Electrical power required:

Power Supply	100–240 Vac ±10%, 15 A, 50/60 Hz, 1 phase
Chiller	100, 115, 230 Vac (selectable), 50/60 Hz, 1 phase

Heat generated: typically 500 W (1.7 kBTU) of heat per hour.

Room Temperature: 22 ±2.0°C (71 ±3°F)

Refer to Table 3-2 at the end of Chapter 3 for outline dimensions of the various components.

Unpacking the Laser Head and Power Supply

Equipment Needed

- claw hammer
- ½ in. or 13 mm wrench,
- a large, wheeled cart capable of carrying the laser head, power supply, chiller, rack and accessories to the installation area. The entire system weighs approximately 90 kg (200 lb).

Procedure

This procedure explains how to:

- remove the laser head cover, the laser head, power supply and optional pc from the large shipping crate,
- remove the chiller and rack from the small crate,
- get everything onto a wheeled cart, and
- safely move everything to the installation site.

Note

Save all the shipping crates and boxes in the event the laser head and/or other system components need to be returned to the factory. *They must be returned in these containers*.

1. Verify the ShockWatch and TiltWatch indicators attached to the side of the crate show that the system was neither dropped nor tilted. If the system is undamaged, continue with Step 2.

   If either has occurred, the corresponding indicator will appear red. If either indicator is red, call your Spectra-Physics representative immediately and **do not open the crate until a Spectra-Physics representative is present.** You may also be required to contact your shipper.

Caution!

Because of their weight, removing the laser head, power supply and chiller from the crates requires at least two people; do not attempt it alone.

2. Referring to Figure 1, with a claw hammer or similar tool, remove the 6 metal spring clamps from around the top perimeter of the crate.
   a. Slide the claw under each clamp on the side of the crate and, placing your hand over the clamp to keep it from springing away and hitting someone or getting lost, pull up on the spring until it releases from the edge of the plank. Remove the clamp and set it aside.
   b. After all 6 clamps are removed, lift off the top of the crate and set it aside.
3. In the same manner, remove the 5 springs from the end panel, then remove the panel. Set it aside.

This exposes the power supply in the lower chamber.

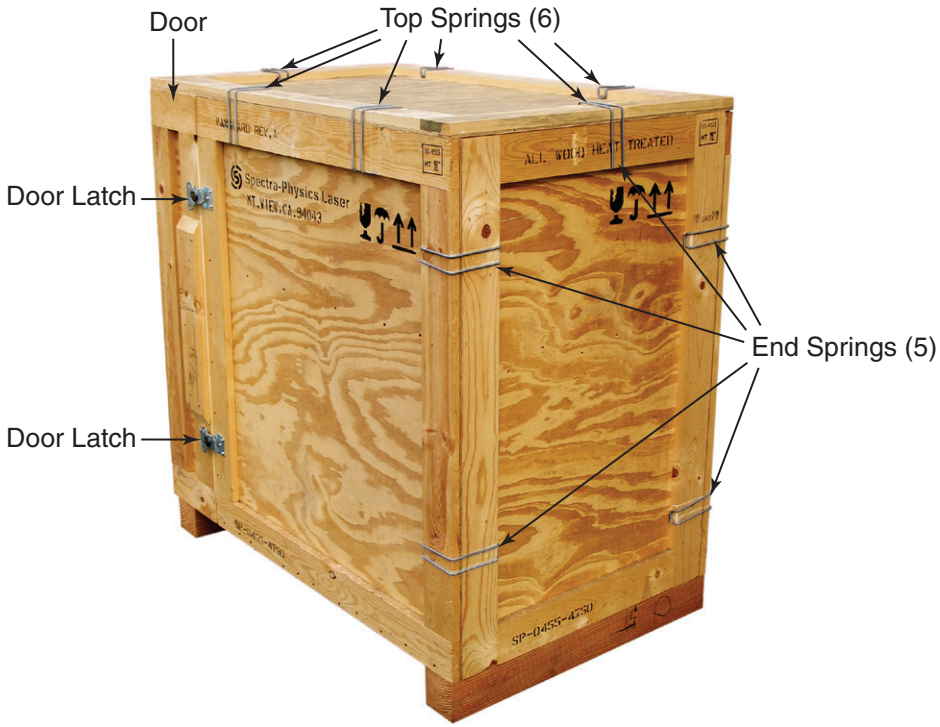

Figure 1: Location of the springs on the large carte.

Figure 2: Opened shipping crate showing the cover and laser head.

4. Referring to Figure 2, unfasten the two black restraining straps from the laser head cover/tray (the item on the left) and remove the cover and tray. For now, leave the wrapping on the cover for protection and set it in a safe place, out of the way.
5. Referring to Figure 2, unfasten the laser head restraining straps, then remove the two wooden clamps that hold the laser head in place. *Do not attempt to move the laser head itself at this time.*

6. The fiber-optic cable connecting the laser head to the power supply is protected by a green foam sheath that is held in place by several Velcro® strips. Unfasten the Velcro strips to free the fiber-optic cable. *Handle the fiber-optic cable gently.*

Warning!

The fiber-optic cable is delicate and is permanently attached to the laser head and to the power supply in the lower chamber. When moving the cable, be careful to not exceed the 6 in. (15 cm) minimum bend radius. Exceeding this limit can fracture and/or break the fiber bundle inside.

7. Loop the fiber-optic cable out of the way by draping it out of the crate.
8. Have two people remove the laser head from the crate and carefully place it on the cart. Leave the wrapping on the laser head for protection. Be sure to leave room for the power supply, chiller and accessory kit. The latter can be placed on top of the power supply if necessary.
9. Unfasten the rest of the Velcro strips that hold the fiber-optic cable in place and safely move it aside.
10. Slide the box containing the power supply from the lower compartment of the crate (Figure 3), again, being careful when handling the fiber-optic cable.
11. Remove the accessory kit from the top of the power supply box and place it on the cart.

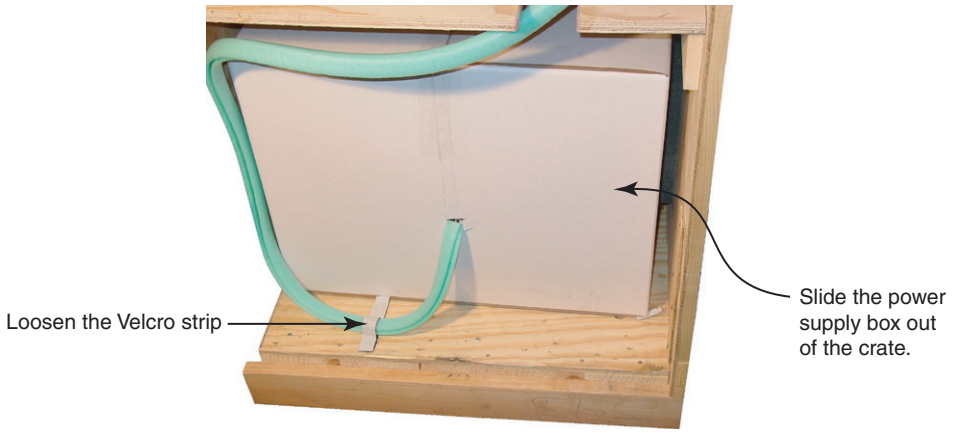

Figure 3: The Power Supply Box in the Crate

12. Open the power supply box.

    Note that the box has a slit in it to allow the fiber-optic cable to connect to the power supply inside. Inside this box is another box with power supply inside. Additional cardboard packaging is used to protect the fiber-optic cable. This inner box also allows the cable to pass through it to the power supply.
13. Open the inner box and remove the foam packing and the single, slotted cardboard panel (Figure 4).

Velcro is the trademark of the Velcro Corporation.

Figure 4: Looking inside the inner power supply box.

14. Remove the single, slotted cardboard panel from the outer box as well (Figure 5).

Figure 5: Removing the slotted end panel from the outer box.

15. Remove the cardboard spacers from around the power supply. Then have two people lift the power supply out of the box while guiding the fiber-optic cable through the slits in the two boxes, and place the power supply on the cart.

Warning!

When removing the power supply from the box, *do not lift it by the fiber-optic cable connector on the rear panel. Instead, use the handles on the front panel and support it from underneath.*

16. Carefully wrap the fiber-optic cable over the laser head and power supply.
17. If the optional pc/controller was ordered, open the narrow door and remove the unit from the lower chamber and place it on the cart. To release the clamps, turn the handles on the two latches and disengage the latch.
18. Referring to the small crate shown in Figure 6, turn the latch handles to release the clamps, then lift off the top cover. The rack is fastened to the top of the chiller box as shown in Figure 7.

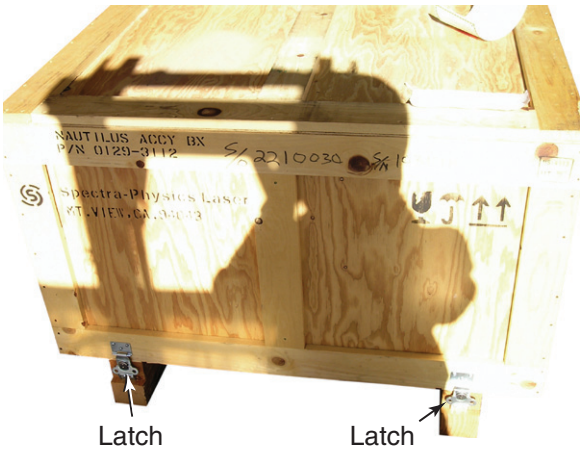

Figure 6: The chiller and rack crate, 2 latches on each side.

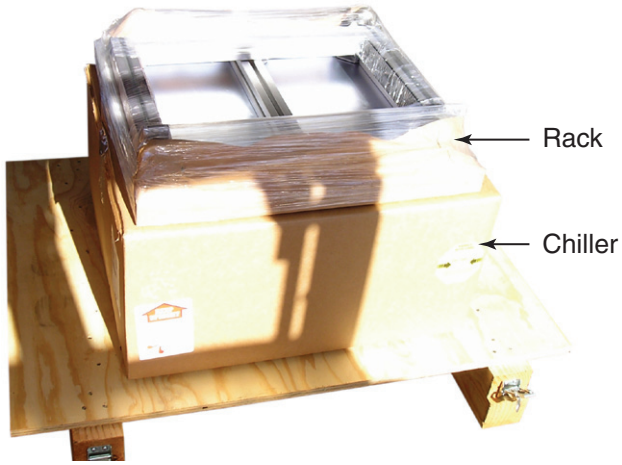

Figure 7: The Chiller and Rack

19. Place the chiller and rack on the cart.
20. Carefully move the cart with the system to the installation area.