p250 Flyer 3D™ System Quick Start Guide

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Important Note: See the Flyer 3D Marking Head and Pulstar p250 Laser Operators Manual for complete installation details and instructions. A PDF version is available Online at: http://www.synrad.com/Manuals/manuals_laser.htm.

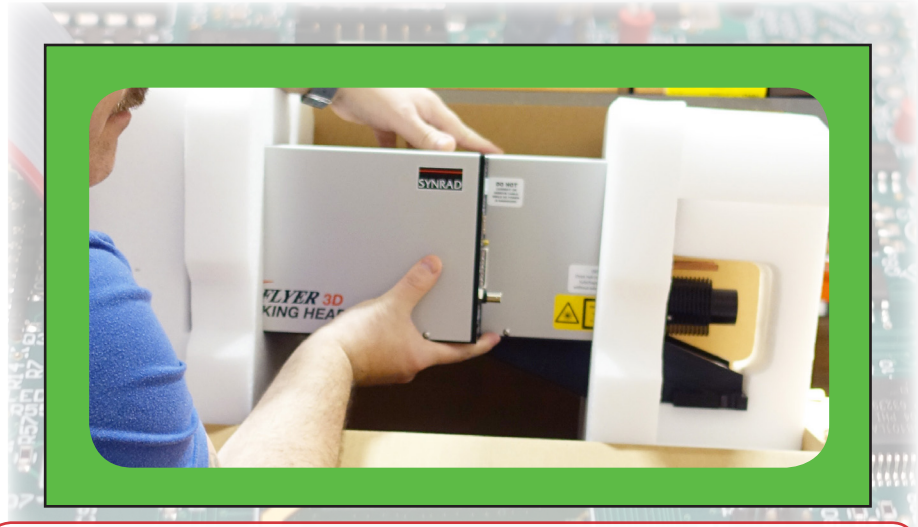
Read all Danger, Warning, Caution terms, symbols, and instructions located in the (Laser Safety Hazard information) sections in the Flyer 3D Marking Head and Pulstar p250 Laser Operation Manuals.

Marking Head Unpacking:

Attention: For complete details, refer to the Getting Started (System Inventory and Mounting) Sections in the Pulstar p250 and Flyer 3D Marking Head Operator's Manual.

1. Lift the Flyer 3D Marking Head out of the box only by the middle; ***do not use housing, coolant fittings, or anything else on the sides to lift the laser.***

Correct



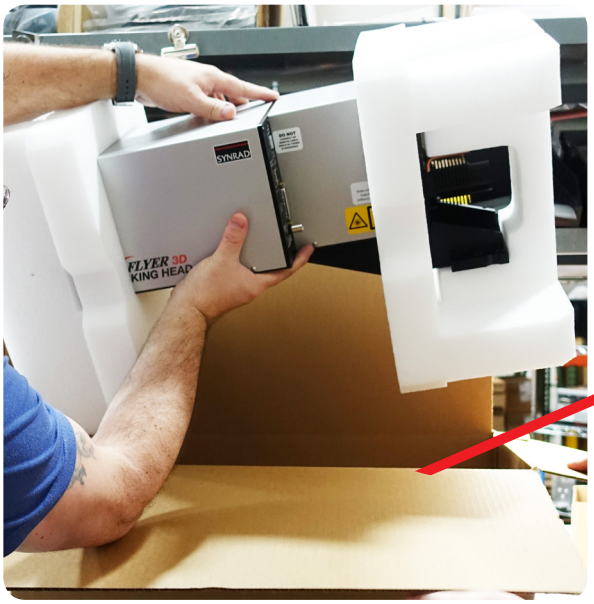
1.1 Lifting the Marking Head correctly by holding in the middle.

Caution

1.2 Avoid mis-alignment risk! ***Do not use*** housing fitting or fan (as shown) or any thing on the side to lift.

2. Locate the shipping ***components for the Marking Head*** at the bottom of the box ***under*** the Marking Head.

2.1 Remove the marking head from the box.



2.2 Retrieve the components from the bottom of the box.

3. *Don't forget to* **save all shipping container(s) and inserts** for use when shipping or relocating either the laser or the marking head to another location. Packaging is specially designed to protect your laser.

3.1 Remove and retain the marking head foam.

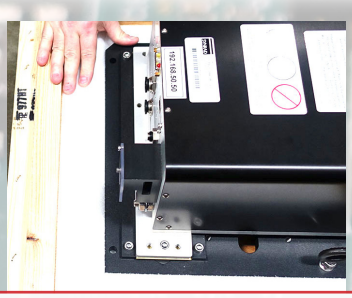
Laser Unpacking:

4. *Unpack the laser referring to the following figures.*

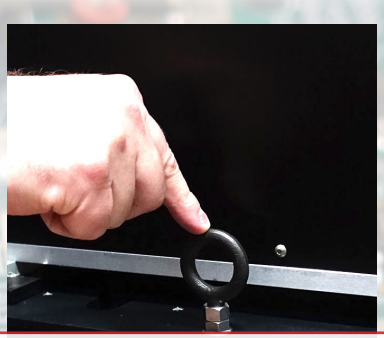
4.1 Cut the strap.

4.2 Remove the lid.

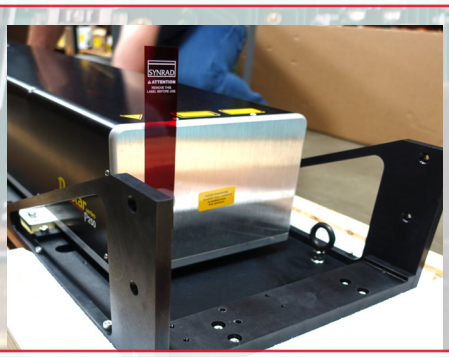
4.3 Locate your laser's components.

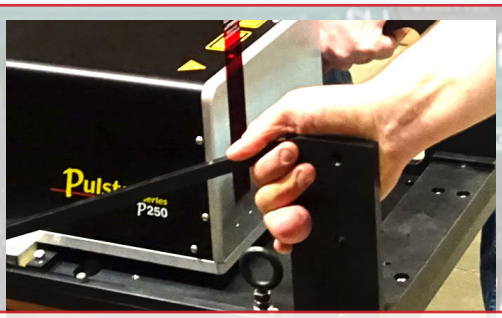


4.4 Unseat the laser from the foam insert before lifting it out of the crate.



4.5 The loop may be used to lift the laser out of it's crate.





4.6 The loop/rail sidebars can also be used to unseat the laser from the foam before lifting it out of the crate.

4.7 Hand position options for using the loop and the base for lifting the laser.

5. When lifting the Pulstar p250 Laser off of the pallet, have at least two personnel, one at each end.

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5.1 Place the laser on a cart for re-locating to another room.

5.2 Moving the laser to its final location.

Attention: **Remove** the red self-adhesive film when ready to mount the **marking head**.
Note: For further details, please refer to the Getting Started (System Inventory and Mounting) Sections in the Pulstar p250 Laser and Flyer 3D Marking Head Operator's Manual.

Important Note: ***Caution! Packing the laser incorrectly can damage the laser!***

Keep All Foam and Packaging, you will need to re-use it when moving your laser. Refer to this guide and the Getting Started/Technical Reference chapters in the laser's Operation Manual when re-packaging for shipping and/or relocation.

Caution! When packing the laser for relocation or shipment, nothing can be on the sides of the laser at any time as damage will occur. The skin on the sides of the laser is fragile! All box components must be stowed under the laser.

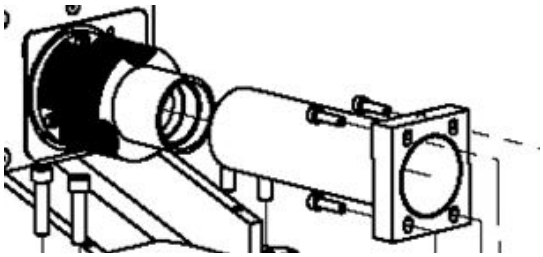
The fittings will be damaged in shipping if not re-packaged as shown above.

Mounting:

6. Remove the protective aperture film.

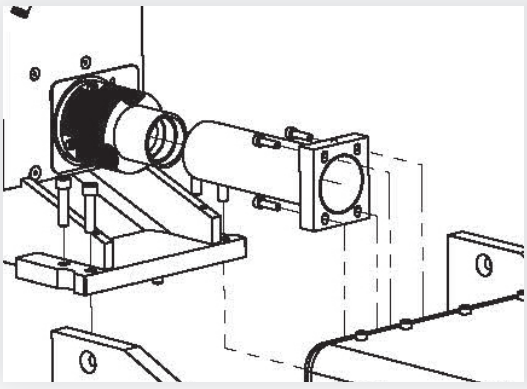
6.1 Aperture film.

7. Locate the **Mounting Hardware** Mounting Hardware Kit **) Marking Head Safety tube**, **clamp** and **Allen screws**.



7.1 Slide the tube onto the marking head, then slide the clamp onto the tube.

8. Before mounting the marking head, slide the tube & the clamp onto the marking head as shown in Fig 17 (don't tighten the Allen screws until after the marking head is mounted to the rail).
9. Mount the **marking head** on to the rail using the (4) mounting screws provided in the kit.



9.1 Once the marking head is mounted to the rail, tighten all (4) Allen screws securing the clamp to the laser.

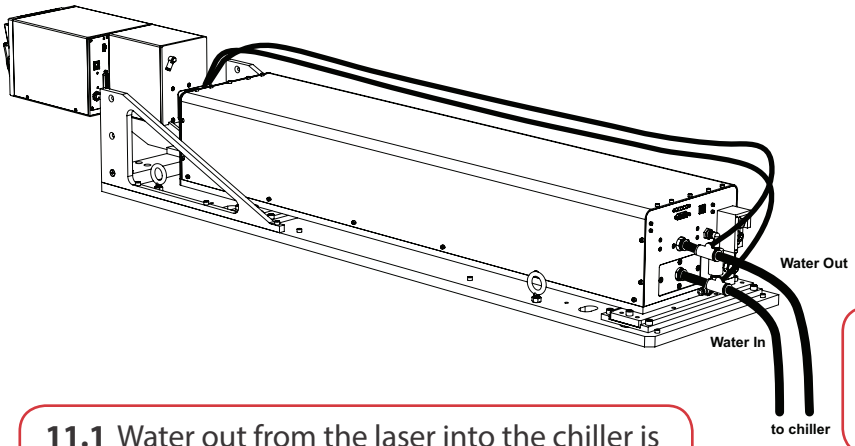
Cooling:

Note: For further details, please see the Getting Started (Cooling Connections, Cooling Tubing Connections) in the Pulstar p250 Laser Operator's Manual. Also see the Flyer 3D connections in the following sections for Facilities/Utilities (Air Drop or Gas Purge), Quick Start Plug Note, and Ethernet Port.

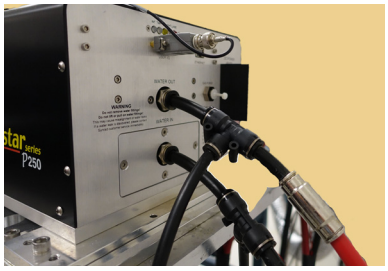
10. Locate the Factory-installed cooling fittings are for 12 mm polyethylene tubing included in the **Ship Kit** (12 mm Cooling Tubing ).

Note: Use distilled water as the coolant. If glycol is necessary, add no more than 10% by volume.

11. Set coolant temperature between 18–22 °C. If condensation occurs, increase coolant temperature a few degrees at a time, up to a maximum of 28 °C.

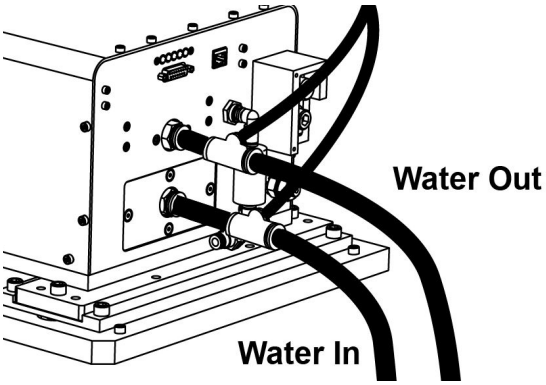


11.1 Water out from the laser into the chiller is seen in red.



11.2 Top port is for water out from Laser to chiller. See the bottom port for water in from the chiller.

11.3 Exploded view of the Pulstar p250 laser cooling connections.



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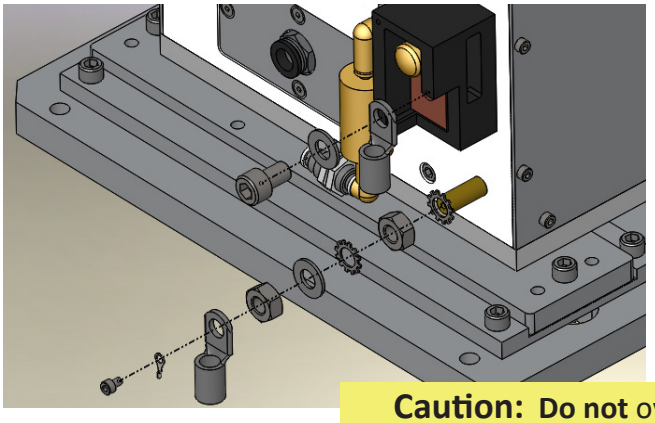
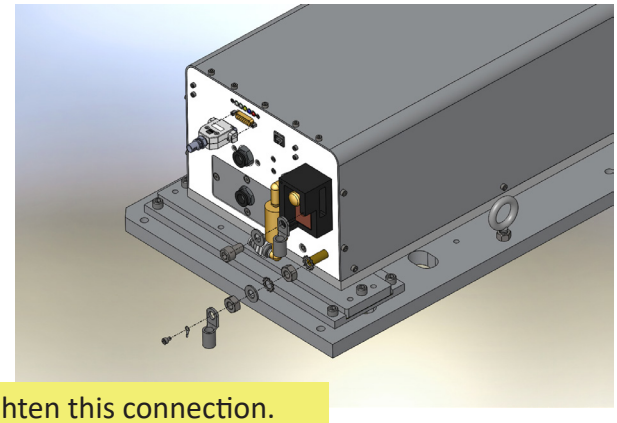
Electrical:

Note: For further details, please see the Getting Started (Connecting-DC power supply connections) section in the Pulstar p250 Laser Operator's Manual and Getting Started (Connecting-DC power cable) section in the 3D Marking Head Operator's Manual.

Attention: Use the **Quick Start Plug *only*** for initial testing or when troubleshooting. ***Remove DC power* before installing or removing the Quick Start Plug**. Please refer to the Getting Started (Connecting-laser connections & the following Quick Start Plug) sections in the Pulstar p250 Operator's Manual.





Caution: Do not over tighten this connection.

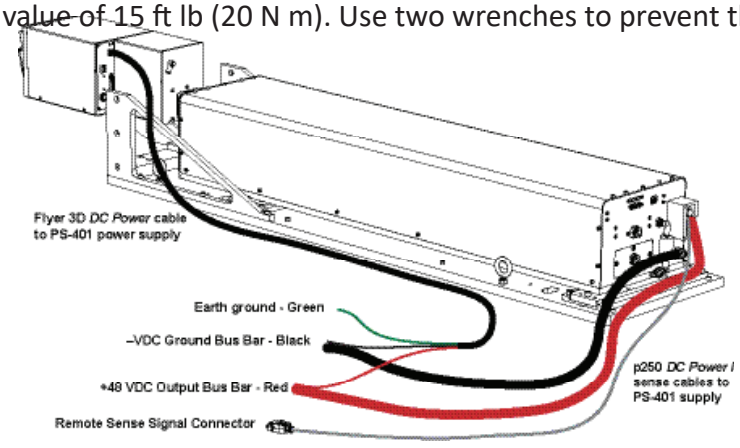
12.1 DC Power connection locations (note quick start plug is optional).

12. Positive (**red**) DC power cable – carefully tighten the M10 bolt fastening the red cable to the laser's 48 VDC Power terminal to a maximum torque value of 5.5 ft lb (7.4 N m).

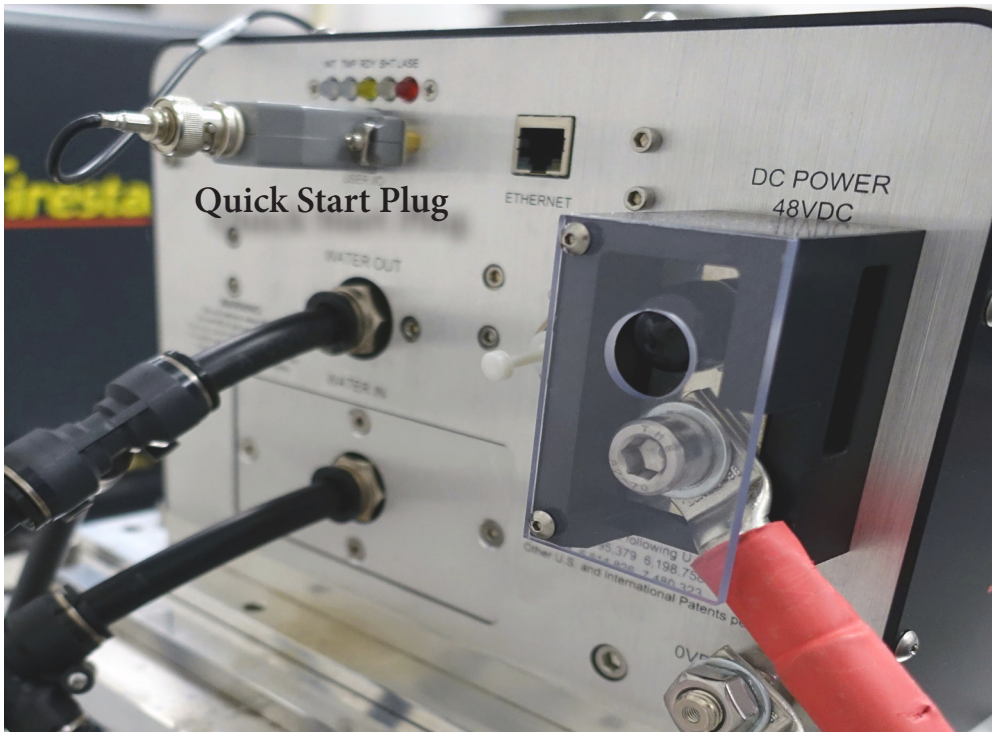
13. Negative (**black**) DC power cable – tighten the M10 bolt fastening the black cable to the laser's GND terminal to a maximum torque value of 15 ft lb (20 N m). Use two wrenches to prevent the GND stud from rotating.

14. Connect Laser and Marking Head power cables to +,- connectors on the power supply.

15. Positive (red) DC power cable – carefully tighten the M10 bolt fastening the red cable to the laser's 48 VDC Power terminal to a **maximum torque value of 5.5 ft lb (7.4 N m). N**egative (**black**) DC power cable – tighten the M10 bolt fastening the black cable to the laser's GND terminal to a maximum torque value of 15 ft lb (20 N m). Use two wrenches to prevent the GND stud from rotating.



15.1 p250 DC power sense cables from Laser & Marking Head to power sup ply.



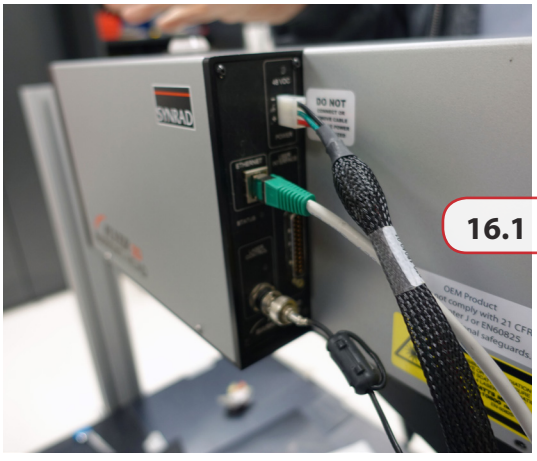
15.2 DC Power connection back panel.

Attention: The **Quick Start Plug** bypasses the laser's safety interlock function potentially exposing personnel to hazardous ***invisible*** infrared laser radiation.

Control Connections:

Note: Configure the Flyer 3D per the 3D Marking Head Operator's Manual. See the (Getting Started section) for the following Ethernet configuration.

16. Connect the **Marking Head power, Ethernet** & BNC (**Laser Control**) cabling



16.1 Marking Head connections.

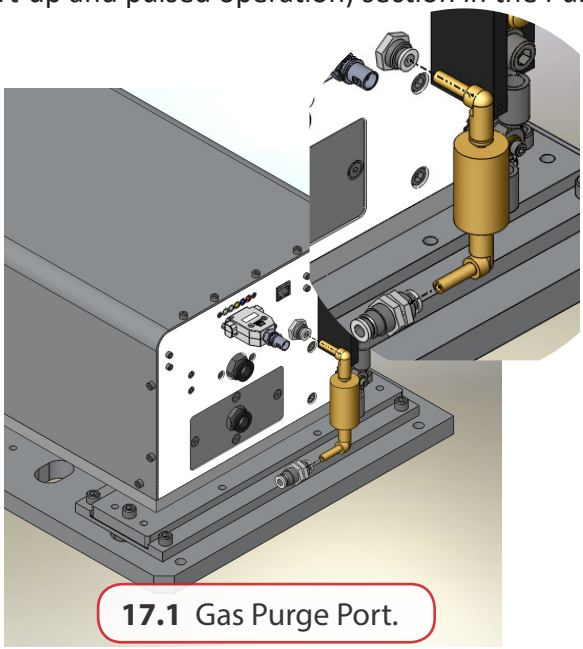
Facilities/Utilities (Air Drop or Gas Purge Port):

Note: Refer to the Gas Purge Getting Started (Connecting & Gas Purge Port-located in other connections) Section(s) in the Pulstar p250 Laser Operator's Manual. Also see Getting Started-Connecting (Gas Purge port) section in the 3D Marking Head Operator's Manual for details.

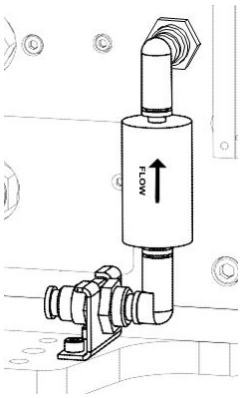
Attention: ! Use dry nitrogen or clean, dry filtered air to reduce the risk of condensation damage. **Do not** use argon as a purge gas.

17. Set a flow rate of 30–60 Standard Cubic Feet per Hour (SCFH) at a pressure between 2–5 PSI.

Note: Refer to the (Operation-Initial start-up) section in the Flyer3D Marking Head Operator's Manual & (Operation- start-up and pulsed operation) section in the Pulstar p250 Laser Operator's Manual.



17.1 Gas Purge Port.



17.2 Gas Purge Port exploded views.