Pulstar p100/150 water cooled laser & Flyer 3D System Quick Start Guide

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Important Note: See the Flyer 3D Marking Head and Pulstar p100/150 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 p100/150 Laser Operation Manuals.

Unpacking:

Attention: For complete details, refer to the Getting Started (System Inventory and Mounting) Sections in the Pulstar p100/150 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**

Fig 1. Lifting the **Marking Head** correctly by holding in the middle.

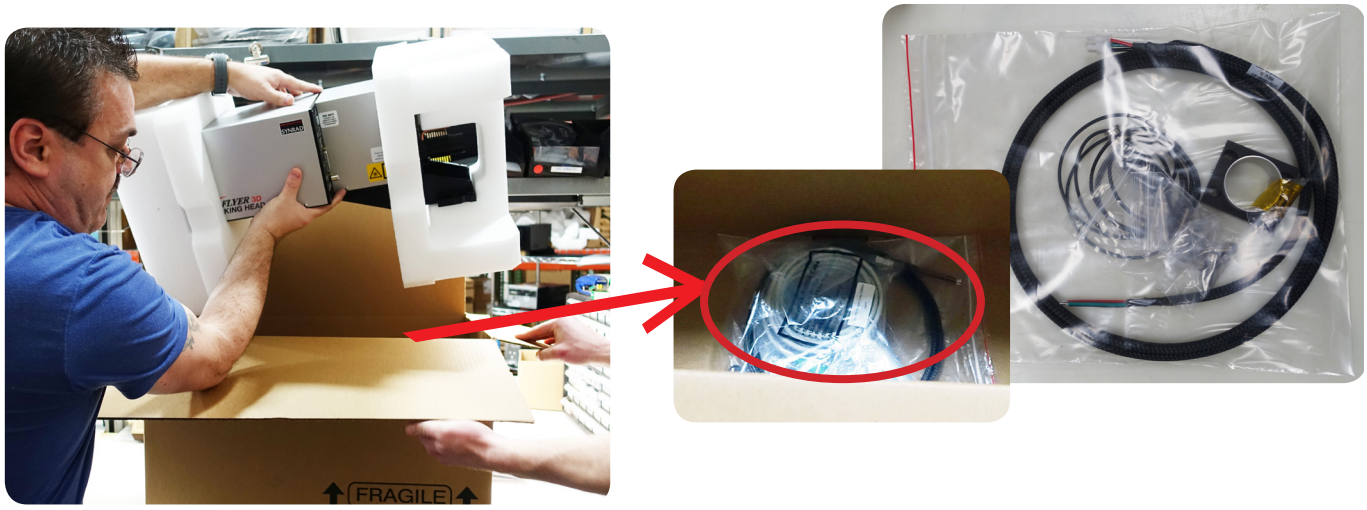
Caution

Fig 2. Avoid mis-alignment risk. **Do not** use housing fitting or fan (as shown) or anything on the side to lift.

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

1. Remove the marking head from the box.

2. Retrieve the components from the box.



3. Remove and retain the marking head foam.

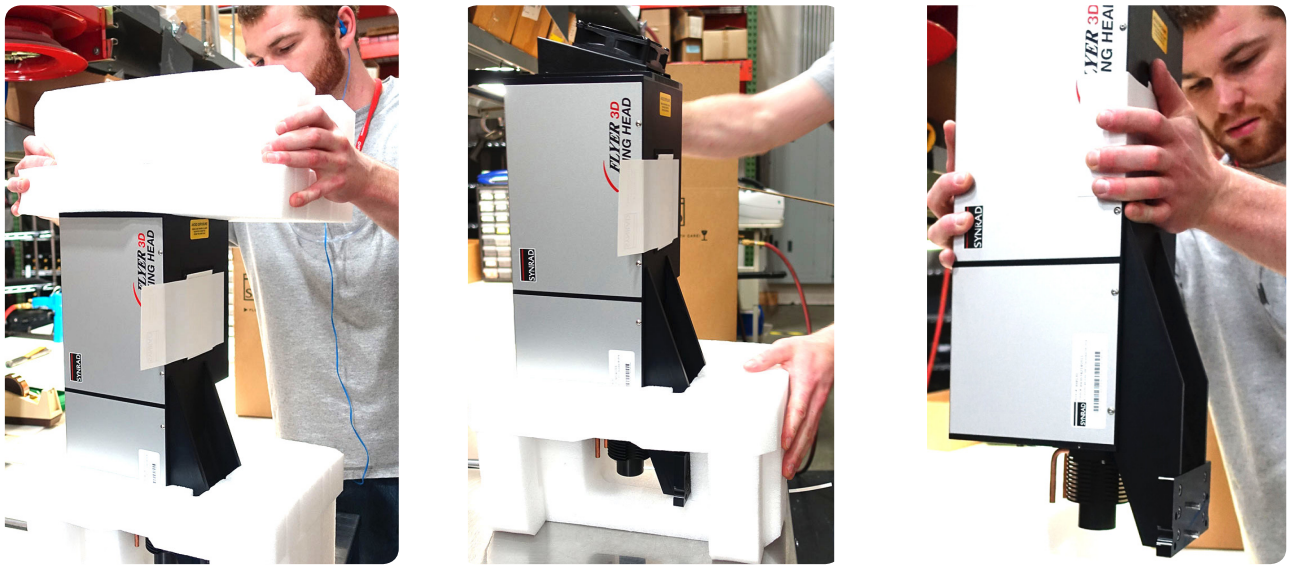


Fig 3. Wne removing the **Marking Head** from the foam, don't forget to look at the bottom of the **Marking Head** box for the components i.e. clamp and tube.

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Unpacking:

Attention: **Carefully lift the foam caps, one of them has the wire** harness that will be damaged if pulled.

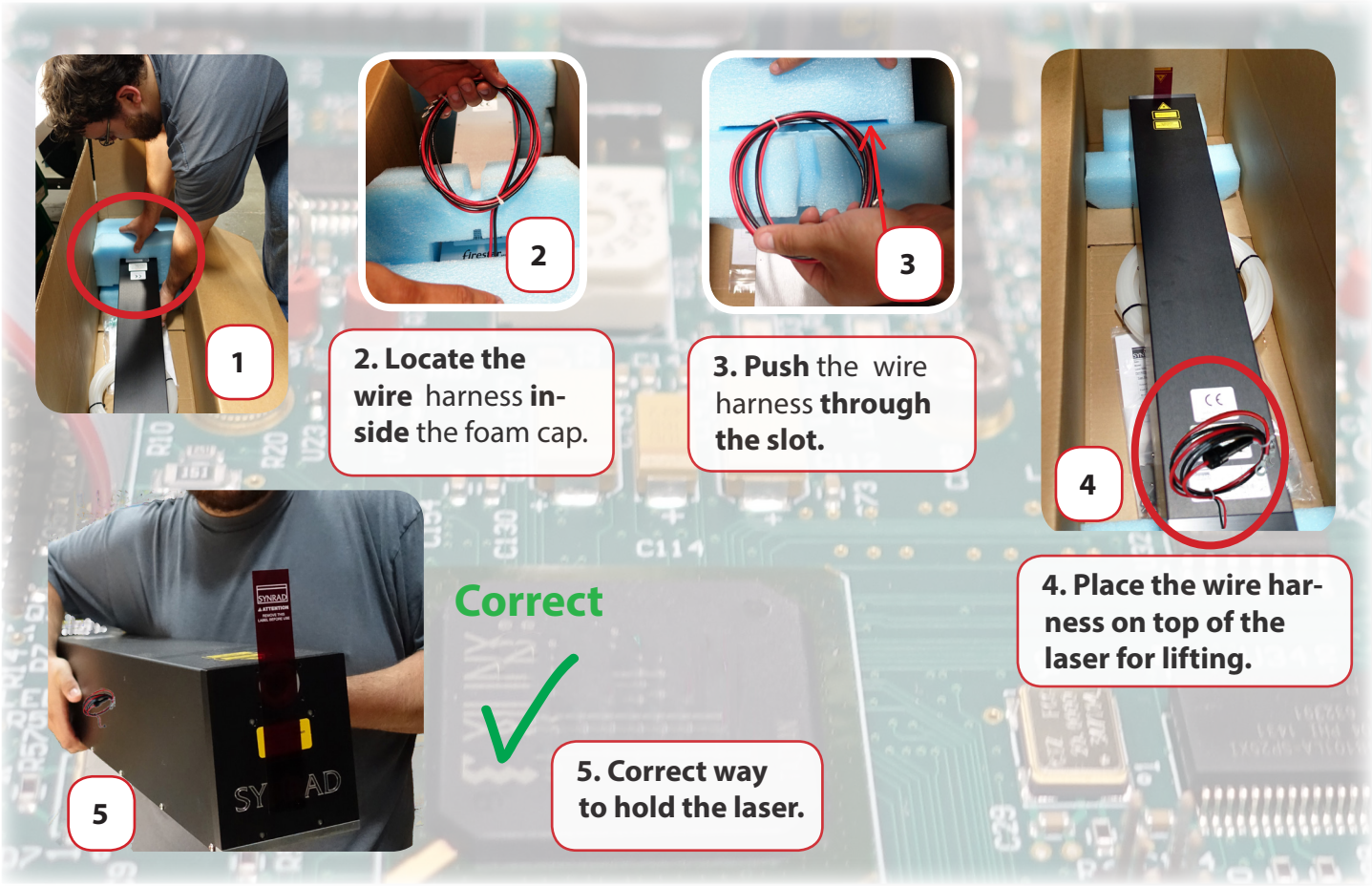

Fig 5. **Unseat the wire harness** from the foam by **sliding the harness out of the notch before removing the foam cap,** as shown in steps 1-3 above. Lay the wire harness across the **top** of the laser prior to *lifting* the laser out of the box, see steps 4-5 above.

Important Note: *Caution! Unpacking the wire harness 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 Manulal 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 contents must be stowed under the laser.

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Mounting the Laser to the Rail:

Attention: For further details, please refer to the Getting Started (System Inventory and Mounting) Sections in the Pulstar p100/150 Laser and Flyer 3D Marking Head Operator's Manual.

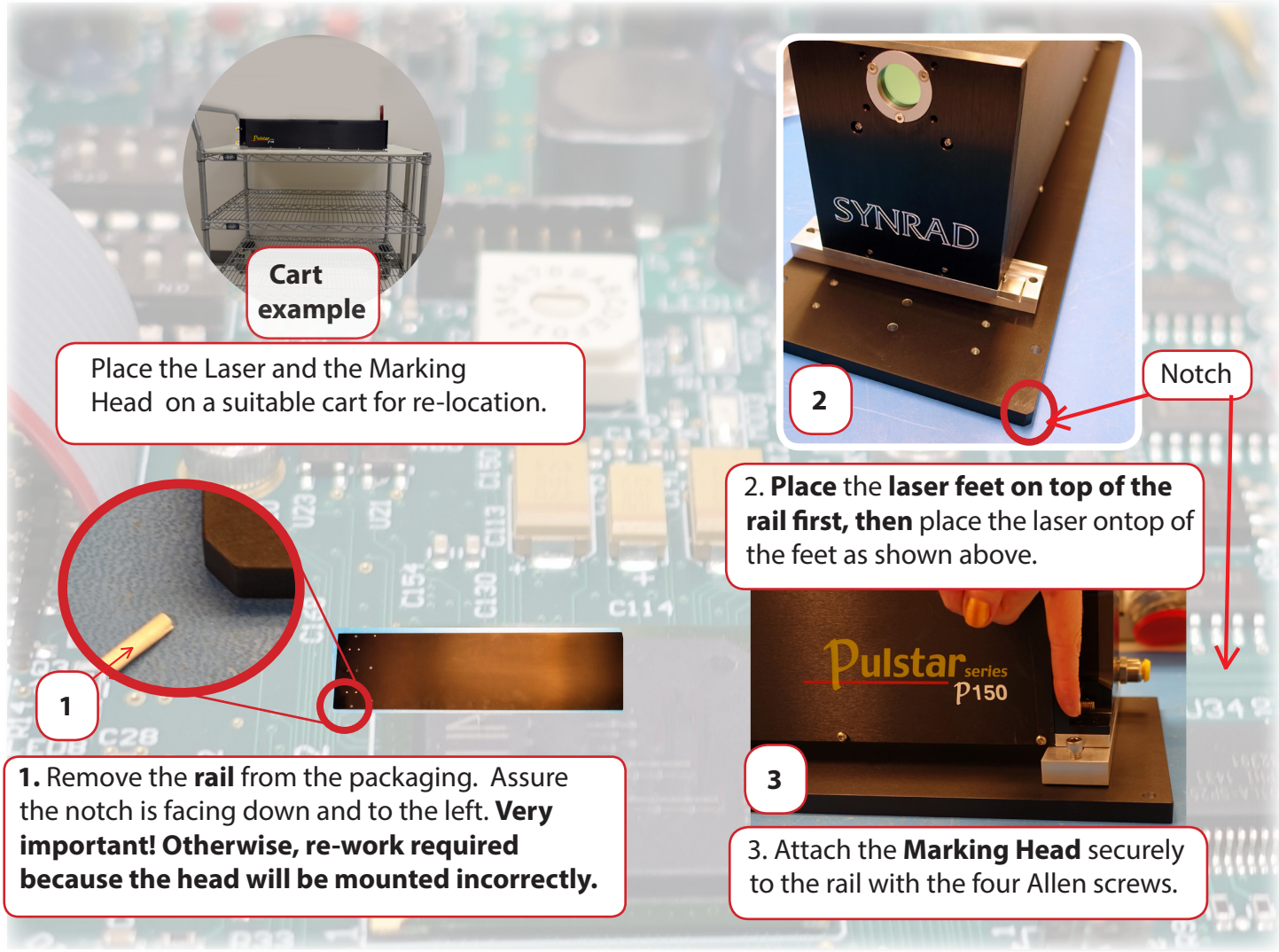

Fig 6. Place the Laser feet on the rail first, then place the Laser ontop of the feet as shown. Affix the mounting feet to the rail using the four Allen screws located in the mounting hardware kit.

4. Locate the **Mounting Hardware Kit** (Mounting Hardware Kit) Marking Head Safety tube, clamp, and Allen screws, and the Laser mounting feet.
5. When attaching the Laser to the rail, ***make sure the notch is as shown in the figure above before going on to the next step***.

Mounting the Marking Head to the Rail Continued:

Attention: Remove the laser aperture self-adhesive film before mounting to the rail. Don't tighten the Allen screws on the clamp till the laser is mounted to the rail.

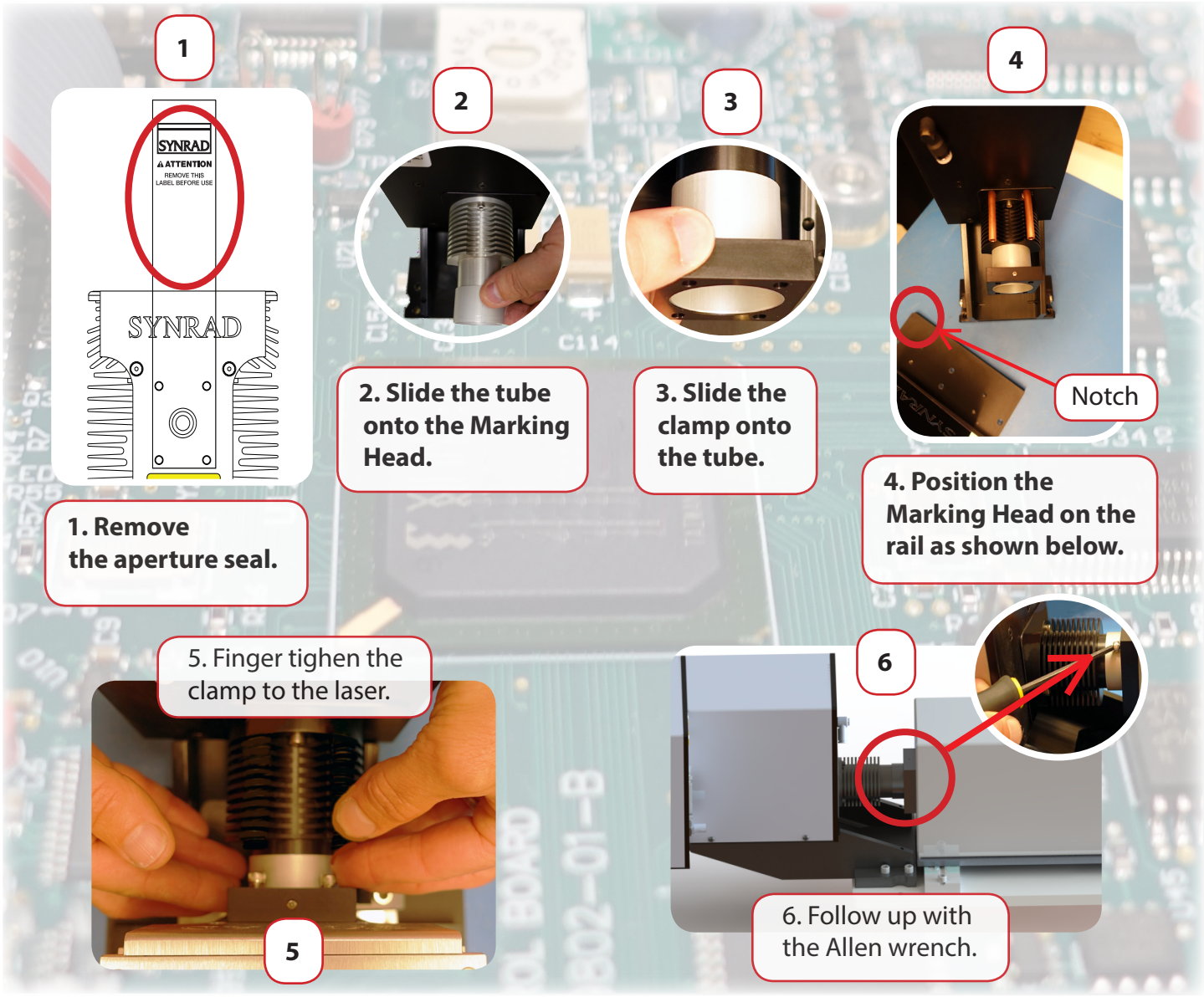

Fig 7. Finger tighten the clamp to the **Laser** first (see #5 above), then follow with an Allen Wrench as seen in #6 above for all four Allen screws **after** the laser is firmly mounted to the rail with all four Allen screws.

6. **Before** mounting the Marking Head to the rail, assure the **aperture seal is removed**, slide the **tube onto the Marking Head first,** then put the **clamp** onto the **tube** as shown in the figure above **(don't tighten the clamp's Allen screws affixing the tube to the laser until after the laser is mounted to the rail).**

Cooling:

Attention: For further details, please see the Getting Started (Cooling Connections, Cooling Tubing Connections) in the Pulstar p100/150 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.

7. Locate the **Ship Kit (** 12 mm Cooling Tubing **)** Cooling fittings and 1/2 inch polyethylene tubing.

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

8. 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.

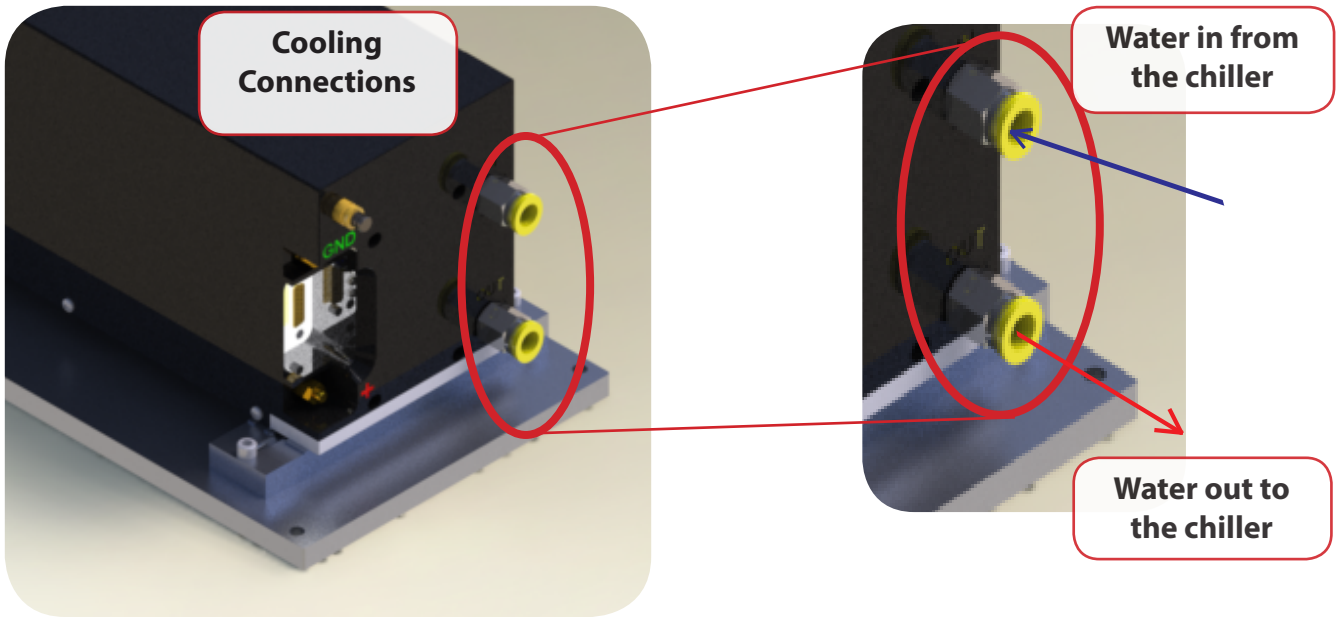

Fig 8. ***Bottom*** port is for water out *from* **Laser** to chiller. See the top port for water *in* from the chiller.

Electrical:

Attention: For further details, please see the Getting Started (Connecting-DC power supply connections) section in the Pulstar p100/150 Laser Operator's Manual and Getting Started (Connecting-DC power cable) section in the 3D Marking Head Operator's Manual.

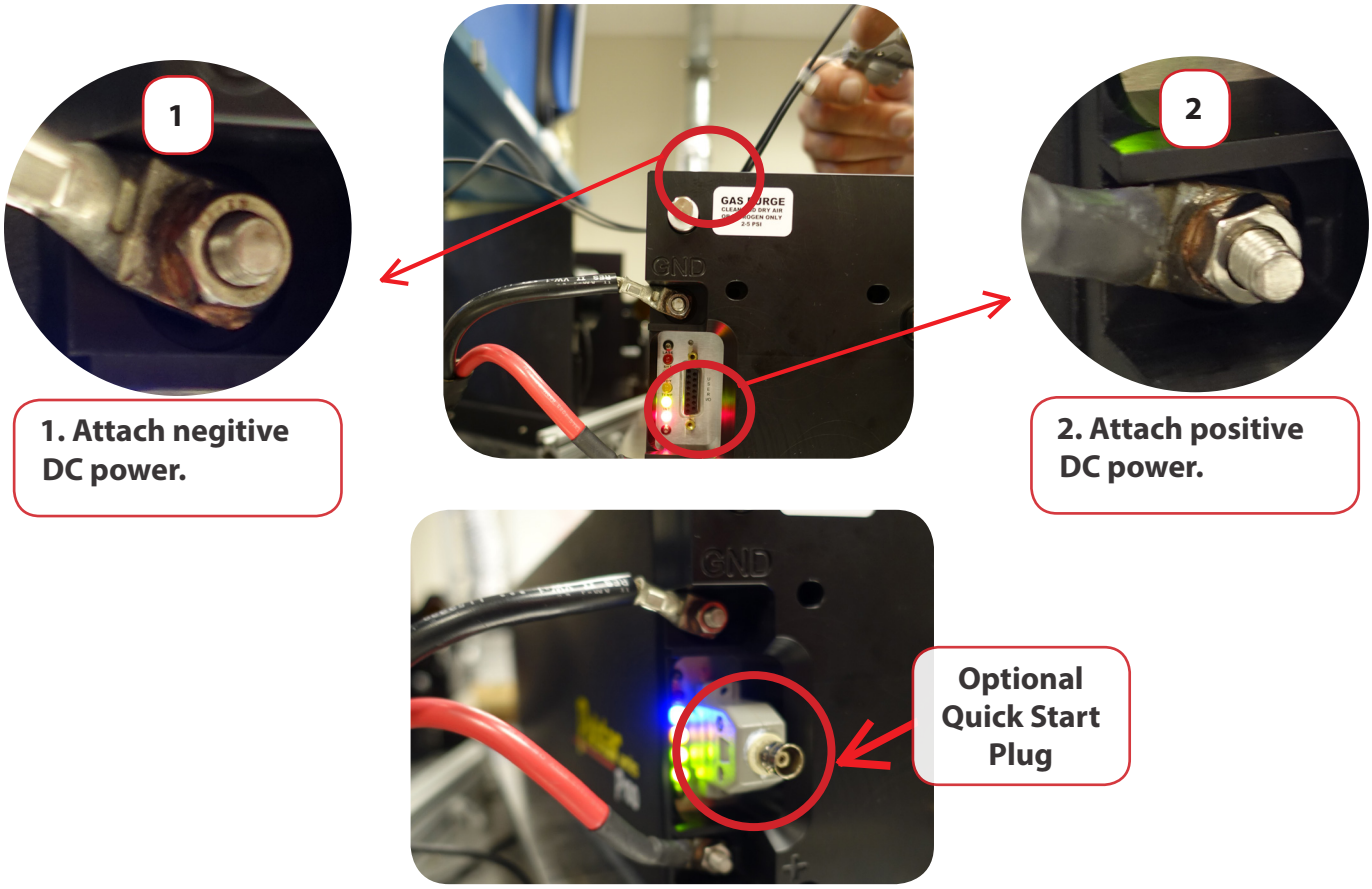

Fig 9. **Laser** DC Power connection locations (note quick start plug is optional).

Warning: 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 p150 Operator's Manual.

9. Connect the Laser VDC power cables to +,- connectors on the power supply.
10. Negative (**black**) DC power cable – tighten the M10 bolt fastening the black cable to the laser's GND terminal.
11. Positive (**red**) DC power cable – carefully tighten the M10 bolt fastening the red cable to the laser's 48 VDC Power terminal.

Warning: **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.

12. Connect the **Marking Head's DC power, Ethernet** (RJ-45) and **BNC** (Laser Control) communications interface. (see the figure below). The ferrite bead, located at the end of the cable, should be connected to the FLyer 3D as shown in figure 10.

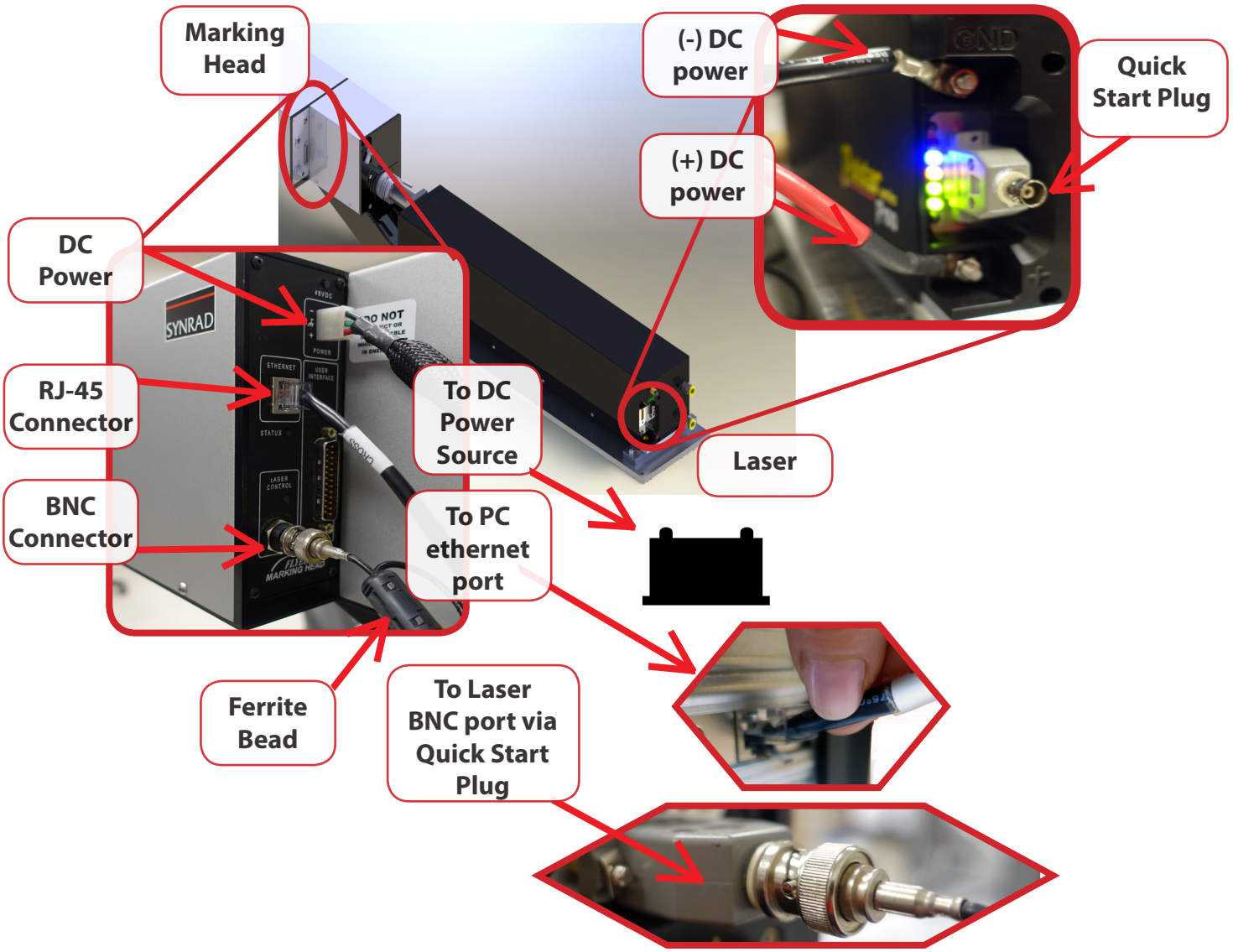

Fig 10. **Marking Head** connections and **final control and electrical configuration**.