

StarWeld Performance Training Checklist

Training Content	Completed
<u>Overview of System:</u>	
1. Review basic architecture of system	_____
2. Review product manuals	_____
<u>Maintenance Review:</u>	
1. Show position of air filter and demonstrate removal/replacement	_____
2. Demonstrate filter calibration routine	_____
3. Show position of water filter and demonstrate:	_____
- Opening of water tank	_____
- Removal of water filter	_____
- Adding of de-ionized water/checking water level	_____
- Draining of water	_____
4. Show position of protection glass and demonstrate cleaning/removal/replacement	_____
5. Show position of laser rail and resonator and demonstrate lamp change:	_____
- Draining of water from resonator cavity	_____
- Show how to disconnect power cables to cavity	_____
- Show how to open cavity	_____
- Show how to remove/replace lamp	_____
- Show how to close cavity and reconnect power cables	_____
- Show how to refill water tank and top off	_____
6. Show position of heat exchanger fins and demonstrate inspection/cleaning	_____
<u>Components Review:</u>	
1. Describe laser rail components:	_____
- Gold cavity, YAG rod, flash lamp	_____
- Front and rear mirrors	_____
- Safety shutters	_____
- Dust protectors	_____
- Beam corner optics	_____
2. Describe Electronics components:	_____
- Main controller board	_____
- I/O board	_____
- Display controller board	_____
- Exhaust turbine	_____
3. Describe cooling system:	_____
- Explain water pump, flow meter, level meter, over temperature interlock, heat exchanger and diode light on controller board	_____
<u>Training Content</u>	Completed
4. Remove bottom plate and describe working chamber:	_____
- Shutter switch	_____
- Joy sticks	_____
- Light dimmer switch	_____
- Fixed argon gas nozzle	_____
- Flexible argon gas nozzles	_____
- Halogen lamps	_____
- Protection glass	_____

- Indicate where laser beam projects from (11 degree angle)
 - Door interlocks
 - Hand hole interlocks
5. Describe front panel controls
- Explain LED's and each button
6. Describe rear panel connections:
- Main power input connection
 - Foot switch (laser pulse) connection
 - Foot switch (multipurpose) connection
 - Argon gas connection fitting
 - Main air connection fitting
 - Foot switch air connection fitting
 - Foot switch P connection
7. Describe standard (and/or multipurpose) footswitch
- Demonstrate dual switch control for gas/laser pulse

Laser Operation:

1. Show power supply setting switch, explain setting parameters
2. Demonstrate mounting/installation of microscope
3. Demonstrate filling of water tank
4. Demonstrate how to power on laser (key switch/emergency shutoff)
5. Review Laser display:

<i>First Row</i>	<i>Second Row</i>	<i>Fourth Row</i>
- Voltage	- Memory location	- Energy calculations
- Pulse width	- Parameter description	- Interlock messages
- Pulse frequency	<i>Third Row</i>	
- Focus diameter	- Laser ON time in hours/minutes	
- Pulse shape		
6. Review Joystick operation:
 - Demonstrate increasing/decreasing of values
7. Review Key Pad programming:
 - Setting parameters
 - Recalling stored program parameters
 - Storing program parameters
 - Naming memory locations

Training Content	Completed
Review Key Pad programming (continued): <ul style="list-style-type: none"> - Service Menu including; <ul style="list-style-type: none"> - Setting fan speed - Setting fan off time - New filter calibration - Printout language (with printer option only) - Get pulse Count - Pulse shape programming <ul style="list-style-type: none"> - build simple pulse shape program showing XY control of parameters 	<hr/>
8. Demonstrate adjustment of microscope: <ul style="list-style-type: none"> - Eyepiece focusing - Beam and crosshair alignment procedure with 220V, 1.0ms, 0 Hz, 0 spot size 	<hr/>
9. Demonstrate final testing: <ul style="list-style-type: none"> - Demonstrate checking of beam for physical spot size of 8-10 mm, clarity 	<hr/>

and shape using 270V, 3 ms, 0 Hz, 0 spot size parameter settings

Laser Techniques:

1. Discuss and demonstrate how parameter changes affect weld size, depth, quality:
 - Show and review Parameter Change and Effects slides (training presentation)
 - On laser, vary voltage and review changes to weld
 - On laser, vary pulse width and review changes to weld
 - On laser, vary frequency and review changes to weld
 - On laser, vary spot size and review changes to weld
 - On laser, vary combinations and review changes to weld
2. Discuss and demonstrate how welding angles affect weld quality:
 - Show Welding Angles slide (training presentation)
 - On laser, demonstrate welding at various angles while adding wire
 - On laser, demonstrate welding at various angles without adding wire

Practical Welding Examples:

1. Review slides from training presentation on Welding Examples:

<ul style="list-style-type: none">- Re-tipping- Earring post replacement- Chain repair- Porosity repair- Building prongs	<ul style="list-style-type: none">- Ring sizing- Seam welding- Pave bead replacement- Filigree work & fine wire- Channel rebuilding
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