

**Title :** Longbow Advanced (Level 3)

**Code:** L300/1/2/LC

**Subject:** Longbow Laser

**Attendees:** Maximum of 2

**Duration:**5 days

**Aims:** The aim of the level 3 training is to provide the attendees with knowledge of how to troubleshoot in-depth laser issues and change out key optical components used within the *CAPRIS* wire marking systems.

**Location:** The course is delivered at our facilities in Fort Worth, TX, or Bridgend, UK.

<b>Objectives</b> <b>The learner will be able to:</b>	<b>Assessment criteria</b> <b>The learner has achieved this objective because they can:</b>
1. Demonstrate health and safety procedures associated with the system..	1. Understand Laser radiation and associated hazards. 2. Know the different types of laser classification associated with the system. 3. Understand the lasers potential biological effects ( particularly on the skin and eyes). 4. Select the right laser safety goggles and protective equipment depending on the laser classification. 5. Perform interlock override and emergency stop procedures.
2. Demonstrate Longbow Level 2 adjustment procedures.  <i>Note: This is a refresher of the Level 2 adjustment procedures.</i>	1. Use the IR viewer and visualizer to see and check beam shape and location. 2. Use the IR tool. 3. Clean laser head optics. 4. Adjust 2 $\omega$ and 3 $\omega$ units to peak power. 5. Adjust Cavity mirror. 6. Adjust Feedback mirror . 7. Recover laser from misadjustment. 8. Go over schematics. 9. Go over laser theory. 10.Troubleshoot the laser head using the

<b>Objectives</b> <b>The learner will be able to:</b>	<b>Assessment criteria</b> <b>The learner has achieved this objective because they can:</b>
	start up algorithm.
3. Demonstrate the ability to change out key optical components.	1. Replace the $2\omega$ . 2. Replace the $3\omega$ . 3. Set the Telescope Base. 4. Replace the Pockel Cell. 5. Dismantle and rebuild the Pump Chamber. 6. Replace the Temperature Control Board. 7. Replace or Balance the Waveplate.
4. Demonstrate the ability to optimise the laser output after component replacement.	1. Correctly use the maintenance tools. 2. Adjust the optics to optimise the laser output.

Note<sup>1</sup>: We advise customers that personnel attending this course have successfully completed Longbow Intermediate training (Level 2) and have had a minimum of 6 months experience using the techniques acquired.

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