Crystallite pack - Replacing The Umbilical

This topic describes how to completely change the data cable and hose in the **Crystallite** pack.

It is quite possible to replace the data cable in the **Crystallite** without changing the complete umbilical, but if the hose has become crushed due to over-tightening of the umbilical clamp, then you may find that the data cable is not moving freely in the hose. In this case, a complete replacement is probably a good idea.

Supplied parts

Umbilical hose c/w data cable, pre-fitted with RJ11 connectors
Two cable ties
Two sets of 5mm bolts, penny washers and 5mm nuts

Removing the umbilical assembly

The chest module assembly was historically held onto the vest by six flange-head rivets. This can make replacing of the umbilical assembly a little problematic.

As of January 2014, a slight change has been made to the assembly of the vest, so that two 5mm bolts, along with 255mm diameter ‘penny’ washers, are used to secure the bottom half of the chest plate (the black base of the module).

First the two lower rivets, either side of the hose must be removed. Use a 5mm drill to carefully drill the heads off the rivets. With cutters or pliers, remove the ends of the two rivets from the black plate.

Remove the cover of the chest module and gently unplug the data cable from the PCB (printed circuit board). It is easy to reach the locking prong under the plug. Also clip off the the two cable ties that help secure the hose in the webbing sleeve, keeping a note of how they were originally placed.

Dismantle the umbilical clamp. Then open the phaser and unplug the data cable from the main phaser PCB.

Note: If the umbilical has been pulled right out of the phaser then the black RJ11 data cable connector on the PCB may have been pulled free of the PCB, which will deform the contacts and inhibit proper connection to the vest. In this case, the PCB should be returned to **LaserVenture** for replacement of the connector. We do not recommend attempted replacement of this connector by those unskilled with working on printed circuit boards

At this point you should be able to slide the old umbilical (hose + data cable) out of the webbing sleeve.

Fitting the new umbilical assembly

Positioning the locking prong of the RJ11 plug below you and holding the hose with it curving downwards towards you, slide the data cable back in the hose so that the plug is

right up against the hose. You can then insert the hose (c/w plug) into the webbing sleeve and gently push the assembly through the sleeve until the plug starts to show through the cutout in the black backing plate.

Gently grasp the plug and ease about 5cm of cable through the hose so that it is ready for insertion in the chest PCB. Slide the hose a little further into the sleeve so that about ½ cm of hose is visible. Gently pull the RJ11 plug through a few centimetres so that there is free cable at each end of the hose.

Place the cable ties supplied in position and cinch them tight.
Place a penny washer on each of the two 5mm bolts, pass through the vest and chest plate and then fit an tighten the nuts provided.

Refitting the clamp

Now refit the umbilical clamp, taking care to follow the instructions in the **Clamp Advisory** pdf - January 2013, available on our download page at >

http://www.laserventure.com/downloads-page.htm

When tightening the clamp, you may need to slide the webbing sleeve along the hose in order to reduce the amount of hose that shows to no more than 4 cm. If too much hose protrudes, then if it is inserted into the phaser shell too far (or at the wrong angle), then the end of the hose can touch or damage the 470 uF capacitor that lies under the PCB, below the LCD display.

Note! - When the clamp is tight, check that the data cable will slide back and forth in the hose.

At this stage you can plug the data cable connector back into the chest PCB and refit the cover, first gently pulling any spare cable back towards the phaser end of the umbilical, leaving just a small loop by the connector on the chest PCB.

The phaser can then be closed again in the conventional way

This document is also available on our downloads page at >

http://www.laserventure.com/downloads-page.htm

www.LaserVenture.com +44 1424 883411
sales@laserventure.com