



IDENTIFICATION			
FPPUMPPORT			
LIGO-ES50052-06-B			
REFERENCE NO.		SHT 1 OF 3	
930212			
OFFICE		REVISION	
COH		6	
MADE BY	CHKD BY	MADE BY	CHKD BY
RWP	BGG	RAJ	KSD
DATE	DATE	DATE	DATE
1/25/94	1/31/94	2/17/97	2/18/97

TITLE	FITTING/PURGE PROCEDURE FOR PUMP PORT ATTACHMENT WELDS
PRODUCT	LIGO BEAM TUBE MODULES CALIFORNIA INSTITUTE OF TECHNOLOGY

1.0 PURPOSE:

This procedure is to be used for the fitting / purging and welding of the pump port fittings to the stiffened spiral welded tube. It is to be used in conjunction with WPS-ER308L/PORT and WPS-ER308L/Manual.

2.0 LIST OF EQUIPMENT:

- 2.1 Pump port external purging device.
- 2.2 Pump port internal jack/purge device
- 2.3 Pump port flange purge cap.
- 2.4 Plasma cutting machine.

3.0 PUMP PORT REINFORCING RING:

- 3.1 Verifying the layout location of pump port and reinforcing ring as shown on the applicable contract drawing. Insure that the ring does not cross the spiral weld.
- 3.2 Install internal jack/purge device inside the tube at the appropriate location and apply outward pressure with the screw jack.
- 3.3 Fit reinforcing ring and tack using WPS-ER308L/Manual.
- 3.4 Weld the reinforcing ring to the beam tube per WPS-ER308L/Manual.
- 3.5 Visual inspect reinforcing ring to tube weld using procedure VI-8X.

4.0 CUTTING HOLE

- 4.1 Verify that the internal jack/purge device is installed in the tube at the appropriate location with outward pressure applied. This device will contain the burning doss.

APPROVED

[Signature] 3/17/92

CBI DATE

[Signature] 5/2/92

DATE



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- 4.2 The tube shall be rotated so the pump port location is at the top of the tube.
- 4.3 Plasma cut the hole and clean/prepare the tube shell edges.

***** Caution *****
Pump port flange must be protected to prevent damage to the conflat seal during all fitting and welding operation.

5.0 FITTING:

- 5.1 Verify that the internal jack / purge device is installed with outward pressure applied.
- 5.2 Fit the pump port in place. Verify that the rotation of the bolt holes are in accordance with the applicable contract drawing.
- 5.3 Tack pump port to tube with WPS-ER308L/Manual without filler material on the outside of the joint. Back purge with hand held purge using 100% argon.
- 5.4 If required, use WPS-ER308L/REPAIR to fill any gaps over 0.010" and record length on a repair check list. No gap shall exceed 0.010" prior to welding the pump port to tube.
- 5.5 Tacks shall be spaced as needed for alignment and fit up .

6.0 WELDING:

- 6.1 Install the pump port flange purge cap and purge with 100% argon.
- 6.2 Weld outside of pump port to tube using a two pass technique as described in WPS-ER308L/PORT. The first pass is welded without filler material. The second pass is welded with filler material.



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- 6.3 Maintain purge with 100% argon with the oxygen level below 1%.
- 6.4 Perform a visual inspection of the outside of the weld joint. The outside of the port must have a smooth contour with no linear indications.
- 6.5 Remove the pump port flange purge cap and install the outside purge device.
- 6.6 Weld the inside pass of the pump port without filler material per WPS-ER308L/PORT.
- 6.7 Perform a visual inspection of the inside of the weld joint using procedure VI-8X. Grind edge of tube shell flush with pump port pipe.
- 6.8 If required, make repairs to inside weld using WPS-ER308L/REPAIR.

7.0 FINAL INSPECTION:

- 7.1 Perform a visual inspection of pump port welds. If there are to be any welded repairs, purge the appropriate side and repair using WPS-ER308L/REPAIR.
- 7.2 Remove external purge device and internal jack / purge device from the tube.
- 7.3 Install the temporary blind flange on the pump port flange. This temporary blind flange protects the conflat seal.