LIGO-E950008-00-B

FACSIMILE MESSAGE

CBI
1501 North Division Street
Plainfield, Illinois 60544-8929

Fax No. is: 815 439 6010
Verify No. is: 815 439 6000

Page 1 of 5

January 5, 1995

To: Larry Jones
LIGO Project Caltech Pasadena, California

Fax No. (818)304-9834

From: M. L. Tellalian Phone (815)439-6517

Plainfield Engineering - PAE

RE: Baffle Cleaning and Support Attachment
LIGO Design & Qualification Test - Caltech Contract C146

Larry,

Baffle Cleaning

Attached is the baffle cleaning procedure CL5QT for the QT baffles. The baffles have been washed with Merichem, rinsed, and steam cleaned. Solvent cleaning will be done tomorrow.

Support Installation

The kicker support angles were attached to the beam tube last week with the exception of the two kickers at the north end. These kickers will not be attached until the north head is attached to allow the use of the Dimetrics Gold Track II for the root pass. The two kickers at the north end under the beam tube were fit and welded to the base plates today. The kickers at the south end will be welded to the base plate tomorrow if time permits. Fitting the kickers to the base plates has turned out to be more difficult than expected.

Give me a call if you have any questions.

Regards,

Marty Tellalian

M. L. Tellalian
Plainfield Engineering

		IDENTIFICATION CL5QT			
TITLE	QT BAFFLE CLEANING PROCEDURE	REFERENCE NO. 930212		SHT 1 OF 4	
		OFFICE RDE		REVISION	
PRODUCT	LIGO BEAM TUBE MODULES QUALIFICATION TEST CALIFORNIA INSTITUTE OF TECHNOLOGY	MADE BY WLR	CHKD BY SWP	MADE BY	CHKD BY
		DATE 1/5/95	DATE 1/5/95	DATE	DATE

1.0 SCOPE:

1.1 This procedure covers the final cleaning of QT baffle assemblies. The surface of each of the baffle assemblies will be washed with Mirachem 500, pressure rinsed with deionized water, steam cleaned, washed with isopropyl alcohol, and rinsed with isopropyl alcohol. The baffles will be cleaned inside a shallow inclined basin that will repeatedly submerge the baffle as the basin is rotated.

2.0 PERSONNEL CLOTHING REQUIREMENTS:

2.1 Personnel handling baffle assemblies after the final cleaning procedure must wear clean room style clothing (coveralls, hair caps and gloves) to minimize contamination of the baffle assembly after cleaning. When isopropyl alcohol is in use, see the Material Safety Data Sheet (MSDS) for the appropriate protective equipment (PPE).

3.0 EQUIPMENT AND MATERIALS TO BE USED WITH THIS PROCEDURE:

3.1 Equipment:

- Blacklight Inspection equipment and materials . See Procedure BI1N.
- A 90 gph steam generator.
- The special steam spraying apparatus for spraying steam on the baffle assemblies.
- A 300 gallon polyethylene water storage tank and a water pump (5.3 gpm at 100 psi) to pressure rinse the beam tube with deionized water.
- Fire extinguishers suitable for use with flammable solvents. Use carbon dioxide, dry chemical powder or appropriate foam.
- An air safety meter.
- Flexible air conduit for venting alcohol vapors from the cleaning area to the paint spray booth ventilating system.
- A shallow cleaning basin. One of the 52" diameter by 6" deep aluminum covers used to cover the ends of the beam tubes during the beam tube cleaning operations will be used as the cleaning basin.
- Two spill containment boxes.
- Clean empty containers to collect and store spent alcohol.
- Full face respirators for alcohol vapors.

		IDENTIFICATION CL5QT			
TITLE QT BAFFLE CLEANING PROCEDURE		REFERENCE NO. 930212		SHT 2 OF 4	
		OFFICE RDE		REVISION	
PRODUCT LIGO BEAM TUBE MODULES QUALIFICATION TEST CALIFORNIA INSTITUTE OF TECHNOLOGY		MADE BY WLR	CHKD BY SWP	MADE BY	CHKD BY
		DATE 1/5/95	DATE 1/5/95	DATE	DATE

3.2 Materials:

- Liquid Mirachem 500 cleaner. (5 gallons)
- 2-Propanol (Isopropyl Alcohol, 99.5+%, A.C.S. reagent, ≥ 0.001% evaporated residue) for alcohol wash and rinse. (5 gallons each). The 2-Propanal used when cleaning the beam tube is acceptable for use.
- Deionized water for the steam cleaning operation (30 gallons)
- Fuel oil for the steam cleaner.
- Clean polyethylene and duct tape to seal the baffle assemblies after cleaning is complete.
- "No Smoking" signs and warning tape.

4.0 PRECLEANING OPERATIONS/Initial Set Up:

4.1 Thoroughly clean the shallow cleaning basin.

4.2 Place the cleaning basin over the two spill containers. Support the basin on the 6' diameter vent port located at the center and an outside edge such that the basin is inclined approximately 13 degrees.

5.0 WASH WITH LIQUID MIRACHEM 500 AND PRESSURE RINSE

5.1 Loosely wire the baffle assembly ends together such that they will fit inside the cleaning basin.

5.2 Cover the cleaning basin with clean polyethylene to contain the Mirachem 500 cleaning solution.

5.3 Pour the Mirachem 500 liquid into the inclined cleaning basin. Use 7.5 gallons of Mirachem 500.

5.4 Tilt and roll the cleaning basin containing the baffle assembly for 30 minutes at roll rate of one third (1/3) of a turn per minute. Cover the baffle assemblies with Mirachem 500. Use a tilting action so that a washing and rinse will take place.

5.5 Stop rolling the cleaning basin and baffle assembly after 30 minutes. Remove the polyethylene cover. Position the cleaning basin with the baffle assembly into a nearly vertical postion for rinsing with pressurized water.

5.6 Pressure rinse the cleaning basin and baffle assemby with 30 gallons of deionized water. Use the 300 gallon water storage tank, water pump and steam spraying apparatus to apply the rinse water.

6.0 STEAM CLEAN WITH DEIONIZED WATER

6.1 Steam clean the baffle assemblies per procedure CL1QT. Steam clean the baffle assemblies with steam from deionized water

6.2 Allow the baffle assemblies to dry.

		IDENTIFICATION CL5QT			
TITLE	QT BAFFLE CLEANING PROCEDURE	REFERENCE NO. 930212		SHT 3 OF 4	
		OFFICE RDE		REVISION	
PRODUCT	LIGO BEAM TUBE MODULES QUALIFICATION TEST CALIFORNIA INSTITUTE OF TECHNOLOGY	MADE BY WLR	CHKD BY SWP	MADE BY	CHKD BY
		DATE 1/5/95	DATE 1/5/95	DATE	DATE

7.0 SPECIAL SAFETY PROVISIONS FOR THE ALCOHOL WASH AND RINSE OPERATIONS

7.1 Rope off the cleaning area and place warning signs. Place warning tape and signs at doors and other accesses into the test area.

7.2 Re-position the cleaning basin over the two spill containers. Support the basin on the 6' diameter vent port located at the center and an outside edge such that the basin is inclined approximately 13 degrees. Position the spill containers to handle spillage from the cleaning basin and baffle assemblies.

7.3 Re-cover the cleaning basin with clean polyethylene to contain the isopropyl alcohol.

7.4 Turn on blower to the paint hood and open the butterfly valve to vent through the hood before starting the alcohol wash.

7.6 Place the air safety meter in the cleaning area and sample the air from the time the alcohol is poured into the cleaning basin and baffle assembly until the alcohol has been drained and vented. If at any time during the alcohol cleaning process the LEL reading becomes greater than 10% of the LEL - clear the area of all non essential personnel and determine the source of the vapor or liquid leakage.

7.7 Place fire extinguishers (dry chemical powder or carbon dioxide) near cleaning basin.

8.0 ALCOHOL WASH AND RINSE

8.1 Pour the isopropyl alcohol directly into the inclined cleaning basin. Use about 5 gallons of isopropyl alcohol. Pour the alcohol into the cleaning basin as quickly as possible to minimize the amount of vapor that escapes during the pouring operation.

8.2 Tilt and roll the cleaning basin and baffle assembly for 30 minutes at the rolling rate of one third (1/3) of a turn per minute. Monitor the LEL reading during this operation.

8.3 Drain the isopropyl alcohol from cleaning basin into a clean covered storage container.

8.4 Again pour isopropyl alcohol directly into the cleaning basin. Use about 5 gallons of isopropyl alcohol. Pour the alcohol into the cleaning basin as quickly as possible to minimize the amount of vapor that escapes during the pouring operation.

8.5 Tilt and roll the cleaning basin and baffle assembly for 30 minutes at the rolling rate of one third (1/3) of a turn per minute. Monitor the LEL reading during thisoperation.

8.6 Drain the isopropyl alcohol from cleaning basin into a clean covered storage container.

		IDENTIFICATION CL5QT			
TITLE	QT BAFFLE CLEANING PROCEDURE	REFERENCE NO. 930212		SHT 4 OF 4	
		OFFICE RDE		REVISION	
PRODUCT	LIGO BEAM TUBE MODULES QUALIFICATION TEST CALIFORNIA INSTITUTE OF TECHNOLOGY	MADE BY WLR	CHKD BY SWP	MADE BY	CHKD BY
		DATE 1/5/95	DATE 1/5/95	DATE	DATE

9.0 BLACKLIGHT INSPECT AND PACKAGING BAFFLE ASSEMBLIES

9.1 Remove the wire holding the baffles together. Blacklight inspect per procedure ID No. BI1N.

9.2 Wrap the clean baffle assemby in clean polyethylene attached with clean wire or plastic fasteners. If the baffles are not to be immediately installed, apply an additional wrap of polyethylene wrap and seal the second wrap with tape.

10.0 DOCUMENTATION

10.1 Document as outlined in procedure LIGO CPQT and other referenced procedures.

10.2 Other details may be recorded on the assembly cleaning check list and cleaning log.