

LIGO - E940013 - 00 - B

CBI Facsimile Cover Sheet

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Date: February 16, 1994

**Pages including this
cover page: Four (4)**

Comments:

Larry, this should do it. Here are pages 1, 3 and 4⁷ of revision 0 dated 2/16/94 of coupon alternate cleaning procedure CLCOUPAO. I have incorporated the last few comments that both of us generated this morning.

Please replace these three pages in the procedure version that I faxed to you yesterday. I will also send a hard copy by regular mail. The other two alternate coupon cleaning procedures should follow today/tomorrow.

Regards,



Chuck Sherlock
Houston Corporate Welding

cc: Marty Tellalian - Plainfield CBITS - NOE
Ken Fiessas - CBILCH



DOC. ID CLCOUPA0
REV. NO. 0
CONTRACT 930212

TITLE CLEANING OF PLAIN COUPONS
BY ALTERNATE METHOD #0
FOR SURFACE ANALYSIS AND OUTGASSING TEST
CALTECH

PAGE NO. 1 OF 7

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	BY DATE	
						STANDARD	REV. NO.
						PREPARED CNS	02-16-94
						REVISED	
						AUTHORIZED	
						REFERENCED	
						STANDARD	

1.0 SCOPE:

This alternate coupon cleaning procedure covers both the initial hydrocarbon contamination of the plate material and the cleaning of fifty (50) coupons cut from that plate material in areas that contain no old or new marker dye marks. One (1) 0.115" x 1" x 18" coupon will be used for post clean laser cutting by others into ten (10) or more 0.115" x 1 cm x 1 cm coupons for surface analysis by the XPS, SIMS and Auger methods. Eight (8) of these will be hydrocarbon contaminated and two (2) will be uncontaminated. Forty eight (48) 0.115" x 1" x 18" coupons will be used for the hydrogen outgassing test. The extra one (1) 0.115" x 1" x 18" coupon will have a thermocouple attached for determining the typical maximum coupon temperature during steam cleaning. This same coupon with the thermocouple attached will be used in each of the alternate coupon cleaning procedures investigated.

2.0 PERSONNEL:

Experienced personnel shall perform and supervise all cleaning performed in accordance with this alternate procedure.

3.0 REFERENCES:

- 3.1 California Institute of Technology Technical Specification Number 1100004 for Beam Tube Modules and Number 1100007 for Type 304L Stainless Steel Vacuum Products.
- 3.2 ASTM Designation A 380 Standard Practice for Cleaning and Descaling Stainless Steel Parts, Equipment and Systems (as a guide).
- 3.3 Package and ship per Caltech instructions (see step 5.18 of this procedure).



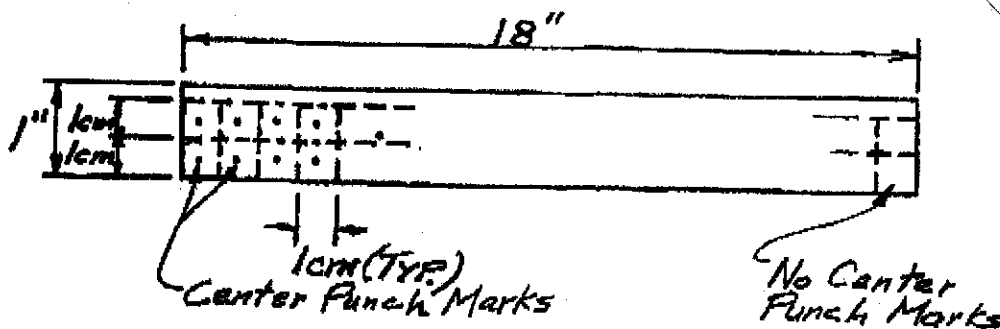
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5.0 PROCEDURE:

- 5.1 Before shearing the coupons from the Caltech supplied sheets of heat treated 304L stainless steel, center punch mark the surface which is to be hydrocarbon contaminated at a minimum of fifty (50) locations. For forty nine (49) coupons, these locations shall be slightly off-center toward the end to be contaminated of the anticipated sheared position of each of these coupons. For the fiftieth coupon, also center punch mark the anticipated location of the eight (8) 1cm x 1cm contaminated surface analysis coupons in the 1" x 18" coupon being shipped to MIT.
- 5.2 Brush motor oil across the anticipated shear lines on the steel sheet surface in a pattern that will ultimately result in an oil residue coating of approximately one half of the surface on the center punched side of each of the forty nine (49) 1" x 18" hydrogen outgassing coupons. It should cover half of the surface of the fiftieth (50th) coupon on the end with the center punch mark from which eight (8) contaminated 0.115" x 1 cm x 1 cm surface analysis coupons will be laser cut. Two (2) 0.115" x 1 cm x 1 cm coupons will be laser cut from the other uncontaminated end. See the laser cutting sketch below.



- 5.3 Wipe the excess motor oil from the surface of the sheet steel with clean clothes or paper towels until it feels dry to the touch.



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- 5.4 Shear the coupons from areas of the steel sheet having no old or new marker dye marks following the layout instructions.
- 5.5 Adjacent to the steam jenny, place two (2) vinyl polyester recovery containment pallet systems. One to catch and retain the used condensed steam liquid and the other to serve as a draining and drying rack for the coupons. The use of the second recovery system will prevent the draining and drying rack pallet grids from becoming contaminated with the condensed steam run-off and, in turn, possibly contaminating the cleaned coupons. This is in a protected area.
- 5.6 Turn on the steam cleaner heating coils.
- 5.7 Spray water from the steam cleaner spray nozzle into the sanitary sewer drain until it reaches the boiling point (turns to steam).
- 5.8 With the steam cleaner sprayer held only a few inches away, thoroughly spray the four pallet grids of the two vinyl polyester recovery containment systems to remove any dirt or other contaminants from their surface. Remove the two pallet grids from one of the recovery containment systems.
- 5.9 Attach a thermocouple to the surface of one of the 1" x 18" hydrogen outgassing coupons approximately in the middle of the 18" length on the side opposite from the center punch mark.
- 5.10 Steam clean the tongs to be used in the next step.
- 5.11 To steam clean the coupons, hold each coupon by the uncontaminated end with the set of tongs cleaned in the previous step. For the coupon that is to be laser cut for surface analysis coupons, hold it by the end away from the center punch mark. When spraying with the steam cleaner, let the coupon hang down from the tongs over the recovery containment system from which the pallet grids were removed. With the steam cleaner sprayer held only a few inches away, thoroughly spray all the surfaces of the coupon for a minimum of fifteen (15) seconds to a maximum of twenty (20) seconds. Also monitor the thermocouple reading during the steam cleaning of that coupon and record the maximum coupon surface temperature noted.



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- 5.18.5 Wrap coupons with at least two (2) layers of film so outside edges do not come in direct contact with the coupons. Accomplish this by rolling the film around the short dimension of the coupon(s). Then fold the outer edges of the film to the middle.
- 5.18.6 Secure the film around the bundle with two (2) or more electrical tie wraps.
- 5.18.7 Label each bundle with the date wrapped, the identification of the cleaning procedure used to clean the coupons and the maximum coupon surface temperature noted during cleaning.
- 5.18.8 Pack the wrapped 0.115" x 1" x 18" hydrogen outgassing coupon bundles in a separate corrugated box. Add filler packing material as necessary for protection against possible shipping damage.
- 5.18.9 Label this box and ship these hydrogen outgassing coupons via Airborne, Federal Express or UPS to:

California Institute of Technology
Attention: Larry K. Jones 102 - 33
Pasadena, CA 91125

- 5.18.10 In a second corrugated box pack the single coupon for laser cutting into surface analysis coupons. Add filler packing material as necessary for protection against possible shipping damage.

- 5.18.11 Label this box and ship this coupon via Airborne, Federal Express or UPS to:

Attention: Rainer Weiss
Room 20B145
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18 Vassar Street
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