

Title: **FABRICATION PLAN FOR HORIZONTAL ACCESS MODULES (HAM)**

**FABRICATION PLAN
FOR
HORIZONTAL ACCESS MODULES (HAM)
LIGO VACUUM EQUIPMENT**

**Hanford, Washington
and
Livingston, Louisiana**

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Information contained in this specification and its attachments is proprietary in nature and shall be kept confidential. It shall be used only as required to respond to the specification requirements, and shall not be disclosed to any other party.

Ø	PF	5/1/96	REB	5/2/96	ISSUED PER DFO 0161 FOR PDR
REV LTR.	BY-DATE	APPD. DATE	DESCRIPTION OF CHANGE		

PROCESS SYSTEMS INTERNATIONAL, INC.					SPECIFICATION	
INITIAL APPROVALS	PREPARED	DATE	APPROVED	DATE	Number A V049-2-081	Rev. Ø
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FABRICATION PLAN FOR HORIZONTAL ACCESS MODULES (HAM)

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1.0 PURPOSE

The purpose of this procedure is to define design guidelines, specifications, and procedures to enable PSI to specify, purchase, inspect, fabricate, test and ship the HAM per LIGO requirements.

2.0 GENERAL

All Horizontal Access Modules (HAM) shall be fabricated per this fabrication plan. Each fabrication process shall be controlled via a written procedure. A "first article" approach will be used to validate all fabrication processes prior to release of the full vessel lot.

All vessels will be fabricated in accordance with the Quality Plan. Key points in the fabrication process shall be verified to ensure consistent results.

All vacuum equipment shall be fabricated in accordance with LIGO Project Contract PC175730 dated September 12, 1995, and subsequent change orders.

3.0 RESPONSIBILITY

The Manufacturing Department is responsible for the execution of this procedure, with input and monitoring by the Project Engineer, the Quality Assurance Department, and the Project Manager.

4.0 FABRICATION PLAN

4.1 A first article approach will be used to start the HAM manufacturing cycle to validate the manufacturing procedures and technique prior to the full production release.

4.2 The HAM chambers will be fabricated using an outside manufacturing shop. PSI will perform vessel cleaning, leak checking, bakeout and preparation for shipment.

4.3 The HAM will be fabricated and tested per documents listed in Attachment I "Fabrication Documents".

4.4 The HAM will be fabricated and tested per Attachment 2 HAM Fabrication Flow Chart.

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ATTACHMENT 1

HAM FABRICATION DOCUMENTS

1.	Spec. For HAM Fabrication	V049-2-078
2.	HAM Quality Plan	V049-2-087
3.	Bill of Material	V049-4-002
4.	Flanges	V049-2-040 & V049-2-042
5.	Heads	V049-2-039
6.	Raw Material Handling Procedure	V049-2-120
7.	Weld Data Sheet Spec.	V049-2-084
8.	Weld Procedures	V049-2-070, V049-2-071, V049-2-072, V049-2-073
9.	Weld Repair Procedure	V049-2-074
10.	Cleaning Procedures	V049-2-015
11.	Painting Procedures	V049-2-077
12.	Stress Relief Procedures	V049-2-046
13.	Bakeout Procedure	V049-2-019
14.	Leak Test Procedure	V049-2-014
15.	Components Shop Conditioning/Testing Plan	V049-2-047
16.	Dimensional Verification Procedure	V049-2-121
17.	Component Packaging, Handling, and Shipping Procedure	V049-2-123
18.	PSI Drawings	
	HAM Assembly	V049-4-002
	Vessel Supports	V049-4-052
	60" Expansion Joint	V049-4-053
	Bellows Tie Rod Assembly	V049-4-040
	84 1/4" ID Flange (Grooved)	V049-4-021
	60 1/2" ID Flange (FF)	V049-4-032
	60 1/2" ID Flange (Grooved)	V049-4-031

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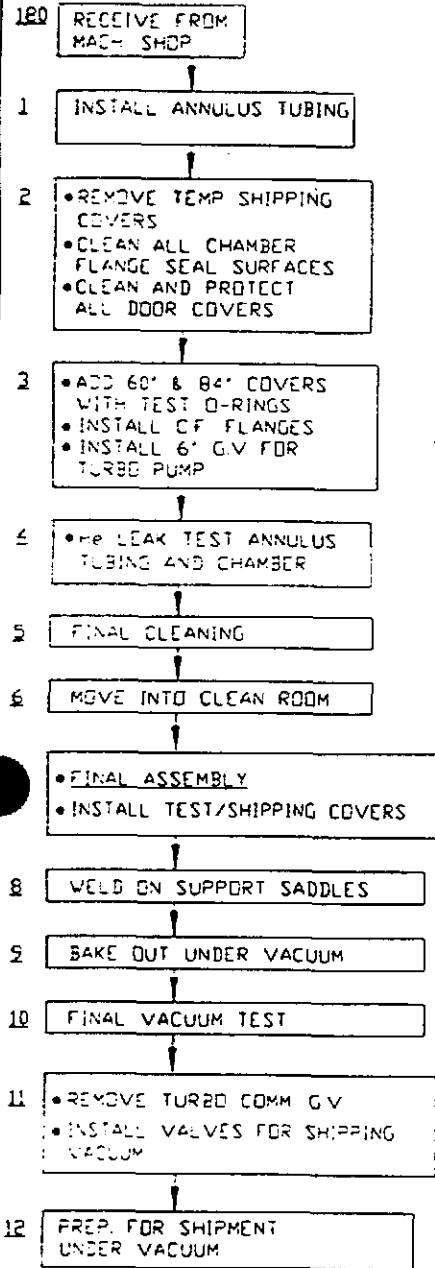
LEGEND

NUMBERS=PSI MANUFACTURING ACTIVITY
LETTERS=MACHINE SHOP ACTIVITY (VENDOR)

HAM FABRICATION
PROCESS DIAGRAM

SHT 2 OF 2

REF. DWG. V049-4-002 (5 SHTS)
REF. DWG. V049-4-021, 052, 053



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ATTACHMENT 3

HAM FABRICATION PRIORITY LIST

WHAM1	(CS)
WHAM22	(CS)
WHAM11	(CS)
WHAM10	(CS)
WHAM7	(CS)
WHAM8	(CS)
WHAM9	(CS)
WHAM2	(CS)
WHAM3	
WHAM6	(CS)
WHAM5	(CS)
WHAM4	(CS)
WHAM13	(Spare)
LHAM1	(CS)
LHAM2	(CS)
LHAM3	(CS)
LHAM6	(CS)
LHAM5	(CS)
LHAM4	(CS)

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