

Title: SPECIFICATION FOR ACCEPTANCE TEST PROCEDURE FOR ROUGHING SYSTEM

ACCEPTANCE TEST PROCEDURE FOR ROUGHING PUMP SYSTEMS

LIGO VACUUM EQUIPMENT

Hanford, Washington and Livingston, Louisiana

JOB NO. V59049

PREPARED BY:

SM

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0	SM 5/1/96	RES 5/2/96	INITIAL RELEASE PER DED 0157 FOR FDR
REV LTR	BY-DATE	APPD. DATE	DESCRIPTION OF CHANGE

PROCESS SYSTEMS INTERNATIONAL, INC.				SPECIFICATION		
INITIAL APPROVALS	PREPARED	DATE	Approved	DATE	Number: V049-2-104 A MGO-E960171-00-V	Rev. 0
	SM	5/1/96	RES	5/2/96		

1.0 PURPOSE

The purpose of this Acceptance Test Procedure (ATP) is to define the overall plan for acceptance testing of this piece of equipment in order to demonstrate that it meets the requirements of the LIGO Vacuum Equipment Specification, LIGO-E940002-02-V, Revision 2, dated August 31, 1995.

2.0 GENERAL

- 2.1 The plan will apply to the main roughing pump systems for the corner stations.
- 2.2 Tests will be performed by PSI personnel, and will be witnessed and/ or the results reviewed and the equipment accepted by an agent designated by LIGO.

3.0 REFERENCE DOCUMENTS

The following documents shall be used in conjunction with this one for performing the ATP:

EDP200/EH2600 Roughing pumps Operating Manuals

4.0 RESPONSIBILITY

It shall be the responsibility of the project engineer assigned to this component or subsystem to ensure that all procedures required by this acceptance test procedure are performed, and that a person from LIGO designated as the witnessing agent, and who has signoff authority, shall sign the data sheet /test certification attached to this procedure, verifying that the procedures have been performed. The data sheet shall also be signed by the project engineer or by someone designated by the PSI project manager. Any test listed in the data sheet which is not applicable to this component or subsystem shall be noted by writing "N/A" in the appropriate space. Any deviations from the test procedures or parameters shall be noted on this data sheet.

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5.0 FACTORY TEST

5.1 Procedure

5.1.1 Speed Test

The Main Roughing system's individual vacuum pumps will be atmospheric air speed tested by EHVI at the point of manufacture in the U.K. A test certificate is provided with each pump.

The minimum required pumping speed at 1 Torr is 236 l/s, at 0.1 Torr is 472 l/s. The roughing pump set must be capable of evacuating a volume of 200 cubic meters from atmosphere to 1 Torr in 4 hours or less.

The Main Roughing Pumps are designed for continuous duty service at full load and will pump down a 2000 cubic meter volume from atmosphere to 1 Torr without overheating.

5.1.2 Functional Test

Main Roughing system functional tests will be done at EHVI's Grand Island, N.Y. facility

Besides the manufacturer's standard operating and safety features the following additional feature has been incorporated

a. Gate valve at inlet to Roots blower EH2600 fails close on lost of power or on shut down of EDP200.

6.0 FIELD TEST

6.1 Procedure

The main roughing pump equipment will have already been accepted by LIGO at the point of manufacture as part of the beam tube deliverables, and will have been used for beam tube pumpdown service.

After installation of the roughing system into the building, a functional checkout will be carried out prior to use, to determine operating status and mechanical condition of the pumping systems.

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LIGO VACUUM EQUIPMENT ACCEPTANCE TEST DATA/TEST VERIFICATION

Equip. Tag _____ S/N _____

Type of Test	ATP Para.	ATP Req'ment/ Actual Data	Comments	LIGO Witness Sign./date	PSI Sign./date
Visual Inspection					
Labeling Verification		Grand Isle N.Y. PSI witness			
Bakeout		N/A			
Leak rate		Standard factory test			
Factory Endurance Test		N/A			
Factory Speed Test		Test in U.K Certificate supplied			
Functional Test		Grand Isle N.Y. PSI witness			
RGA Test		N/A			
Particle Count		N/A			
Ultimate Pressure Test		Standard Factory Test. U.K.			

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