

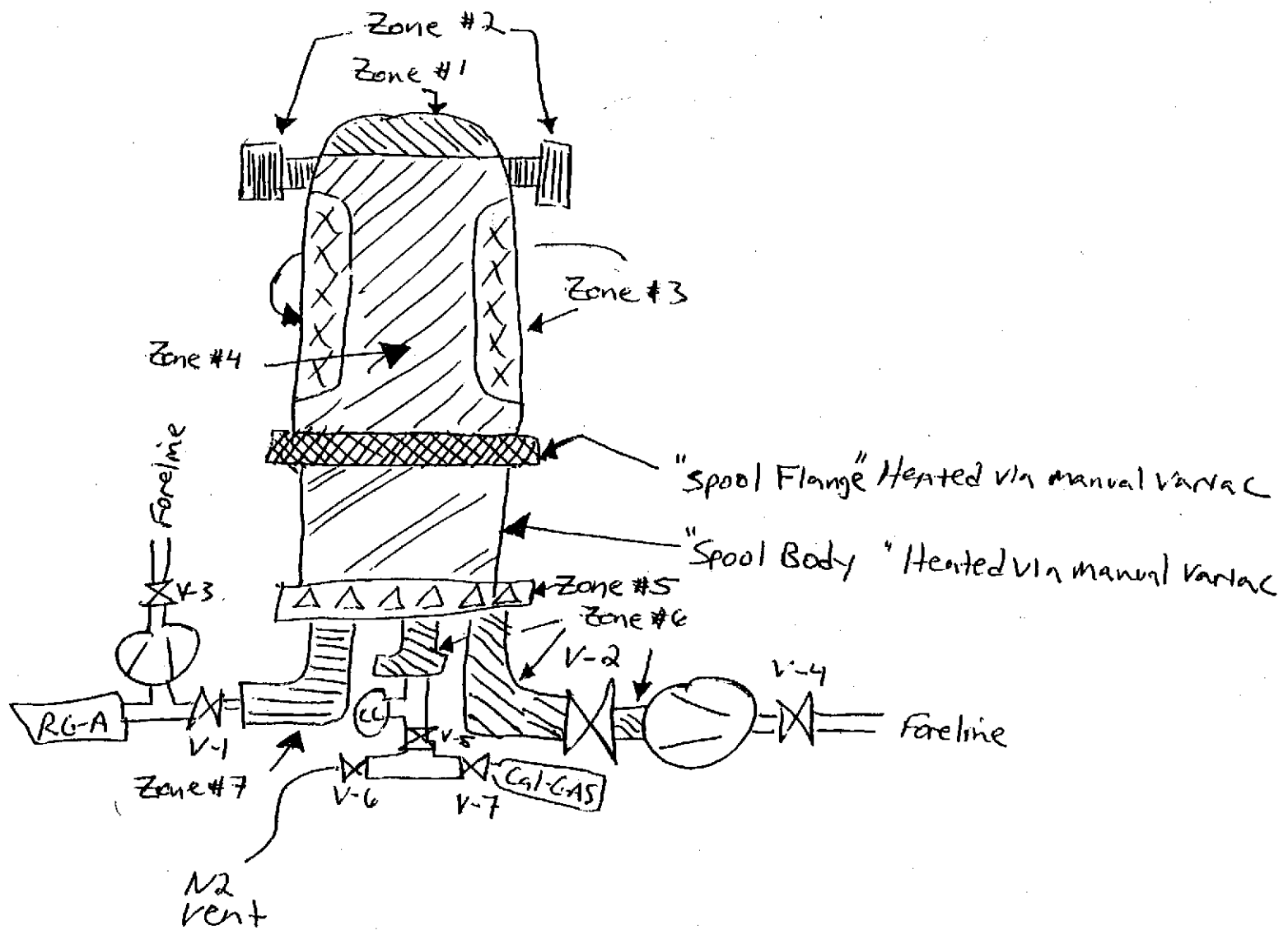
Summary of LHO Vacuum Bake Oven A RGA Data Generation

The individual parts which comprise a "load" are cleaned as per LIGO-E960022 or as allowed by waiver(s) and loaded into the bake oven. The oven is then pumped down through the main pump "arm" (through V-2, RGA arm is valved off at this point). A heating profile is programmed and baking of the system begins. A typical "heating profile" consists of ramping up to material type soak temperature, soaking for approximately 48 hours, ramping down to approximately 70C, soaking and then ramping down to near room temperature. While soaking at 70C, an RGA background scan is taken. V-1 is then opened and V-2 closed. Enough time is allowed for the system to come into pressure equilibrium and then an elevated load temperature RGA scan is taken. V-1 is then closed and V-2 opened. Following this elevated temperature scan, the load is ramped down to near room temperature and the baking portion of the process is complete. Throughout the baking, temperature data is taken to verify the actual temperatures in the various "heat zones" of the bake oven system.

Once at near room temperature, another RGA background (V-1 closed) scan is taken. Next, V-1 and the cal-gas are opened and V-2 closed. After a 30 minute pressure equilibration time, a "calibration" scan is taken. The calculated pressure of Argon (constituent of the "mixed" calibration gas) is determined using the leak rate of Argon and the pump speed of the RGA arm port as seen by the oven chamber and compared (ratio) to the maximum amp value measured for Argon in the calibration scan. This "torr/amp" ratio becomes the Calibration Factor for the given load, converting measured current to pressure.

Finally, the cal-gas is valved out and enough time is allotted to allow all traces of it to be pumped away. A "post-bake" scan is then taken. Approval of the post-bake scan is a collective "pass/fail" determination made by either Dennis Coyne (CalTech) or Stan Whitcomb (CalTech). The data collected during the "elevated temperature scan" is entered into a spreadsheet which then calculates what the outgassing rates of AMUs 41, 43, 53, 55 and 57 ought to be at room temperature. These calculations are used to determine the room temperature outgassing rates when the signals are below the RGA's sensitivity (noise floor).

Refer to the LHO Vacuum Bake Oven A logbook for the actual ordered events of the load # of interest.



**LHO VACUUM BAKE OVEN A:
CONTENTS LOAD #53**

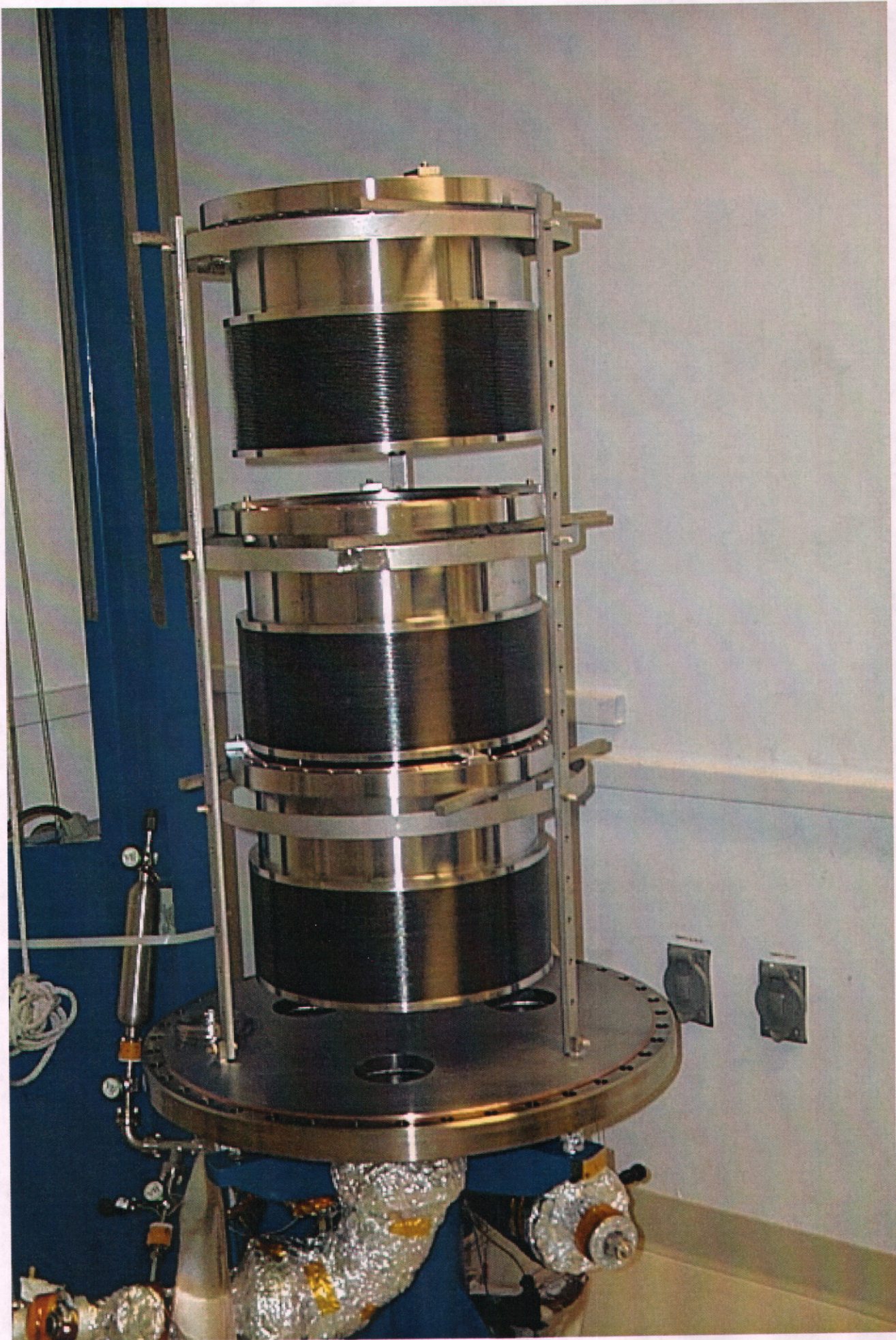
B.S.C. BELLOW SERIAL NUMBER-051

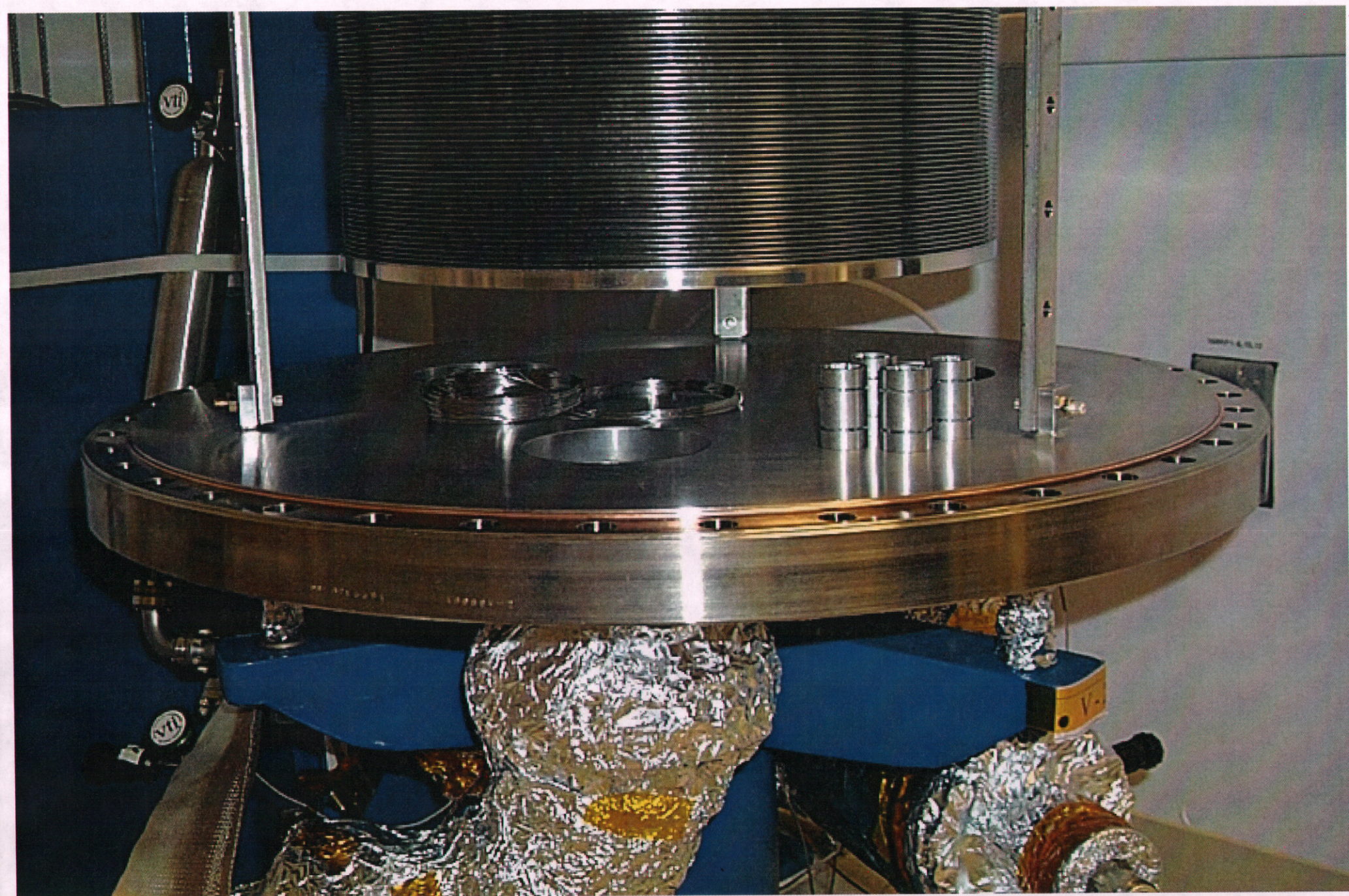
B.S.C. BELLOW SERIAL NUMBER-057

B.S.C. BELLOW SERIAL NUMBER-061

SAFETY WIRE SERIAL NUMBER N/A

E.T.M. TELESCOPE PIVOT HINGES SERIAL NUMBER





LIGO PROCESS TRAVELER

DCC Number: E99179-00-X
 Date Prepared: 8/24/99

Originator	Cognizant Engineer	Ext./Phone#	Project	Account Number
Betsy Weaver	Janeen Hazel-Romie	(626) 395-8445	SUS	5F518

Dwg/Part Number	Rev	Part Description	Serial Number	Qty
		Stainless Steel Wire for tying OSEM cables to the LOS structures		~30 feet

Used In (next higher assembly):

Vendor Name	PO/Contract Number
	P

Data Package, Receiving/Inspection Remarks:

Inspection Required Y/N	Visual Damage Y/N	Comments	Name/Initials	Date Comp.

Process Flow:

#	Operation	Start Date	Work Area	Instructions	Name/Initials	Date Comp.
1	Clean & Vacuum Bake per LIGO Vacuum Prep. Form		LHO	Clean as Class A Hardware as per E960022.	B. Rivera <i>B. RIVERA</i>	8/24/99
2	Control Point		NA	NA		
3	Wrap & Tag vacuum clean parts per E960022-A		LHO	VBO Load# <u>53</u> Scan# <u>082499C. RLA</u> <i>BCW 9/14/99</i>	B. Rivera	
4			LHO	Note: Copy this traveler and give to the DCC	NA	

END: Go to Traveler associated with next higher assembly processing

N.B.: A copy of this traveler must be submitted to the DCC each time the original is shipped with the associated part(s) and when the traveler has been completed.

LIGO PROCESS TRAVELER

DCC Number: E99179-00-X

Special Instructions (Handling/Packaging Constraints, Remarks, etc.) or Notes:

DATE	NAME	DESCRIPTION

L53

E990142-00-X

LIGO PROCESS TRAVELER

DCC Number: E98-00-X

Date Prepared: 8-20-99

Originator B RIVERA		Cognizant Engineer MIKE FINE		Ext./Phone# 622-395-3307	Project LIGO	Account Number 50311
Dwg/Part Number D972122	Rev	Part Description BSC BELLOWSS	Serial Number 51, 57, 62		Qty 3	
Used In (next higher assembly):		BSC TOP ASSEMBLY				
Vendor Name SENIOR FLEXONICS				PO/Contract Number P PC 299000		

Data Package, Receiving/Inspection Remarks:

Inspection Required Y/N	Visual Damage Y/N	Comments	Name/Initials	Date Comp.
YES	NO	NOTICED GREY "SMUDGES" AROUND OUTSIDE OF BELLOWSS ATTEMPTED TO REMOVE WITH SOLVENTS DOES NOT COME OFF OK. <i>[Signature]</i>	B. RIVERA	8-20-99

Process Flow:

#	Operation	Start Date	Work Area	Instructions	Name/Initials	Date Comp.
1	Clean & Vacuum Bake per LIGO Vacuum Prep. Form		CITLHO	per E960022-A	B. RIVERA	8-24-99
2	Control Point		NA	Review/approve RGA scan #082499C.RCA	<i>[Signature]</i>	9/14/99
3	Wrap & Tag vacuum clean parts per E960022-A	8-24-99	CITLHO	1 per package	B. RIVERA	8-25-99
4			CIT	Note: Copy this traveler and give to the DCC		

END: Go to Traveler associated with next higher assembly processing

N.B.: A copy of this traveler must be submitted to the DCC each time the original is shipped with the associated part(s) and when the traveler has been completed.

LIGO PROCESS TRAVELER

DCC Number: E98 -00-X

Special Instructions (Handling/Packaging Constraints, Remarks, etc.) or Notes:

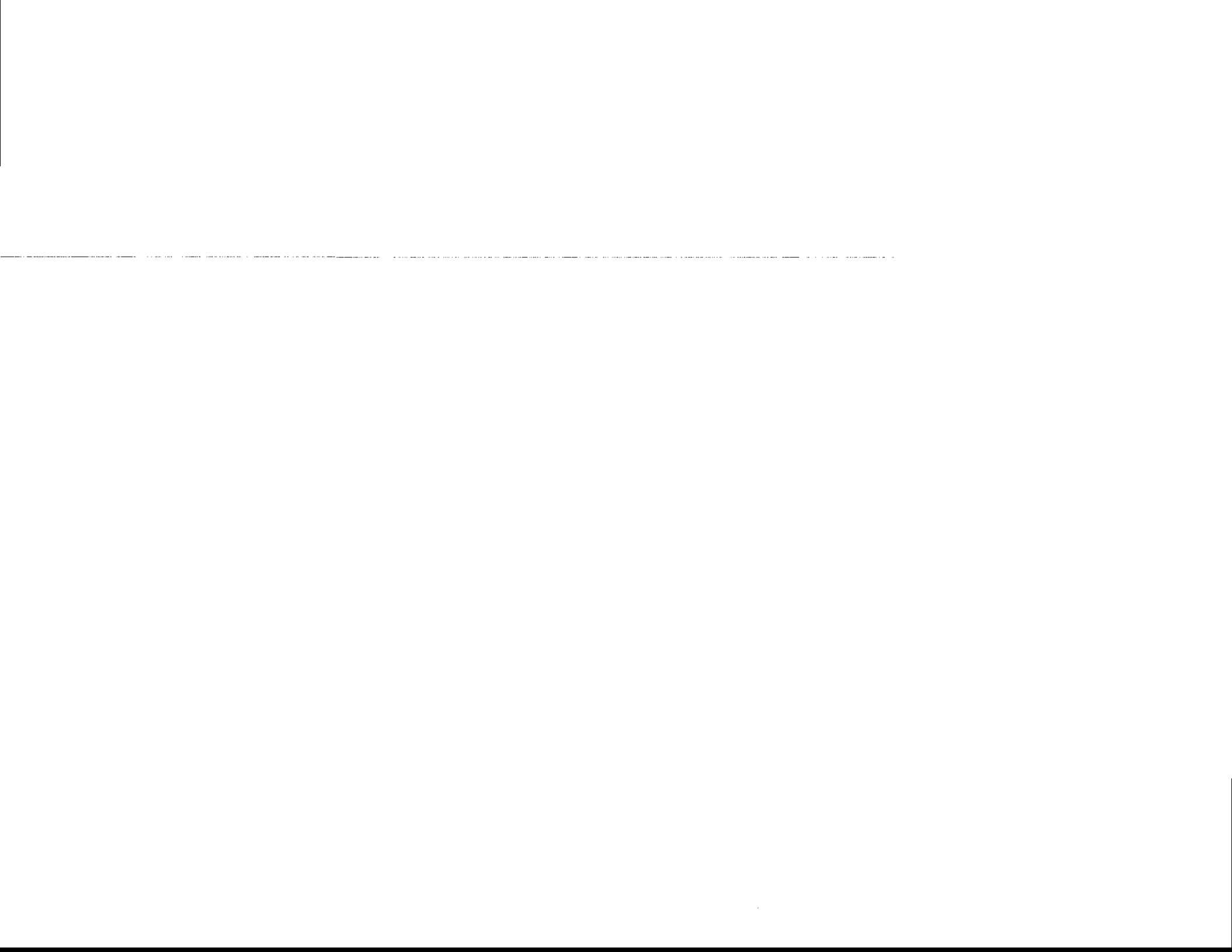
(3 LAYERS)

BELLOWS SAT. DAY WRAPPED IN UHV FOIL BEFORE BEING WRAPPED IN ALUMINUM BARRIER 13-2 NE RA 8-23-99

JOHN WORDEN HAS UNWRAPPED INSPECTED AND "MASSAGED" INNER BELLOW KNIFE EDGES

WITH AN ARKANSAS STONE TO PREVENT LEAKS. BARRIER 9-1-99 HANDLING THE PARTS WITH GLOVED

HANDS VERBALLY OK'D BY DENNIS COYNE TO BE RE-BACKED AS A U.H.V. CLEAN PART



LIGO PROCESS TRAVELER

DCC Number: E990279-01-X

Date Prepared: 7/8/99

Originator		Cognizant Engineer			Ext./Phone#		Project		Account Number			
Michael Smith		Michael Smith			2062		COS		SF515			
Dwg/Part Number	Rev	Part Description	Serial Number	Qty	VBO Load 40	VBO Load 41	VBO Load 43	VBO Load 46	VBO Load 48	VBO Load 50	VBO Load 52	VBO Load 54
		Beam Dump Assemblies, WBSC2										
D980087	A	"glass retaining bracket, top left, cavity BD"	012-013	2			2				2	
D980088	A	"glass retaining bracket, top right, cavity BD"	012-013	2			2				2	
D980092	A	"glass plate 1, cavity BD"		2								
D980093	A	"glass plate 2, cavity BD"		2								
D980289	B	"glass mounting plate1, cavity BD"	012-013	2		2						
D980292	B	"glass mounting plate2, cavity BD"	010-011	2		2	2					
D980296	A	"glass retaining bracket, bottom left, cavity BD"	012-013	2			2				2	
D980297	A	"glass retaining bracket, bottom right cavity BD"	012-013	2			2				2	
D980348	B	"side plate, cavity BD"	025-028	4		4						
D980378	B	"Stiffener Block, cavity BD"	013-014	2		2						
D980685	A	"clamp, plate beam dump"		8								
D990028	A	Beam Dump Flex Hinge Tongue	011-014	4				4				
D990029	B	Beam Dump Flex Hinge Clevis	015-017, 019	4				4		1 (019)		
D990030	A	Beam Dump Flex Hinge Tee	013-016	4			3	4				
D990031	A	Beam Dump Flex Hinge Saddle	013-015, 010	4			4	3	1			
D990032	A	Beam Dump Flex Hinge Attach	014-017	4			4	4				
D990033	A	Beam Dump Flex Hinge Adapter	018, 015, 011	4		3						
D990140	D	Beam Dump Housing Plate	009, 010	2		2						
D990149	C	"Cavity Beam Dump, Mounting Bracket Angle "	010, 012, 014, 015	4			4	4				

N.B.: A copy of this traveler must be submitted to the DCC each time the original is shipped with the associated part(s) and when the traveler has been completed.

LIGO PROCESS TRAVELER

DCC Number: **E990279-01-X**

Dwg/Part Number	Rev	Part Description	Serial Number	Qty	VBO Load 40	VBO Load 41	VBO Load 43	VBO Load 45	VBO Load 48	VBO Load 50	VBO Load 52	VBO Load 54
D990150	B	"Cavity Beam Dump, Mounting Bracket Gusset "	013, 014, 016, 017	4			4		4			
D990151	B	"Cavity Beam Dump, Mounting Bracket Backplate 1"	009, 015, 019 016	4			4		4			
D990152	C	"Cavity Beam Dump, Mounting Bracket Backplate 2"	016, 017 010, 012	4			4		4			
D990198	B	Beam Dump Flex Hinge H_tube	008, 011, 006	4								3
D990199	A	Beam Dump Flex Hinge Low Strap	012, 014, 016, 017	4				4				
D990200	A	Beam Dump Flex Hinge Backup	007, 008, 025, 027, 035, 036 019, 032	8			8		8			
D990201	A	Beam Dump Flex Hinge Cap	030, 032, 038, 035, 018, 028, 031, 037	8			8	8				
D990202	B	Beam Dump Flex Hinge Top Strap	011-014	4			4	4				
D990207	B	"rail, plate beam dump"	015-018	4			3		4			
D990218	B	"glass, plate beam dump"		2								
D990222	A	Beam Dump Housing Tube 2KBSAR3		0								
D990223	C	Beam Dump Housing Tube 2KFM		0								

LIGO PROCESS TRAVELER

DCC Number: **E990279-01-X**

Dwg/Part Number	Rev	Part Description	Serial Number	Qty	VBO Load 40	VBO Load 41	VBO Load 43	VBO Load 46	VBO Load 48	VBO Load 50	VBO Load 52	VBO Load 54
D990225	D	"Beam Dump Housing Tube 4KITMHR3, 4KITMHR4"		0								
D990236	B	"backplate_offset, plate beam dump"		0								
D990240	B	"backplate, plate beam dump"		0								
D990252	B	"Beam Dump Housing Tube ITMAR1,2KRMHR3"		2								
D990253	A	Extension Tube	004, 005	2			1		1(004)			1(005)
D990335	A	"Beam Dump Flex Hinge H_tube, 2KITMXAR4 "		0								
D990336	A	"Beam Dump Flex Hinge H_tube, 2KITMYAR4"		0								
WFV-10		#10 X 0.31 THK FLAT VENTED WASHER		32								40
93615A355		#10-24 X 0.75 LOW HD SCS		24	24							
92196A245		#10-24 X 0.75 SHCS		8	8							
WFV-06		#6 X 0.016 THK FLAT VENTED WASHER		8								40
92196A144		#6-32 X .25 SHCS		8	8							
WFV-08		#8 FLAT VENTED WASHER		68	48							20
92185A194		#8-32 X .50 SHCS		68	68							
91500A194		#8-32 X .500 FHPS		36	36							
91944A450		0.406ID X 0.88OD X 0.25 THK SPHER WASH		16	16							
92141A029		1/4 FLAT WASHER		32	32							
N-2520-A		1/4-20 HEX NUT		16	16							
93615A410		1/4-20 X .500 LOW HEAD SOCKET SCREW		16	16							
92196A540		1/4-20 X 0.75 SHCS		48	48							
92196A542		1/4-20 X 1.00 SHCS		32	32							
C-2016-NA		"1/4-20 X 1.00 SHCS, AG/SS"		40	20							20
92196A544		1/4-20 X 1.25 SHCS		16	16							
C-2820-NA		"1/4-28 X 1.25 SHCS, AG/SS"		24	24							
91950A031		3/8 X 0.063 FLAT WASHER		6	6							
WFV-38		3/8 X 0.032 THK FLAT VENTED WASHER		42	42							
94804A320		3/8-16 HEX NUT		8	8							

LIGO PROCESS TRAVELER

DCC Number: **E990279-01-X**
 Date Prepared: **7/8/99**

Dwg/Part Number	Rev	Part Description	Serial Number	Qty	VBO Load 40	VBO Load 41	VBO Load 43	VBO Load 46	VBO Load 48	VBO Load 50	VBO Load 52
N-3816-A		"3/8-16 HEX NUT, AG/SS"		4	4						
TOP-1616-NA		3/8-16 X 1.00 SOCKT SET SCRW-OVL PT AG/SS		8	8						
90585A626		3/8-16 X 1.25 FLT HD CAP SCREW		8	8						
92186A626		3/8-16 X 1.25 HEX HD SCREW		16	16						
C-1620-NA		"3/8-16 X 1.25 SHCS, AG/SS"		8	8						
92186A630		3/8-16 X 1.75 HEX HD SCREW		4	4						
92196A630		3/8-16 X 1.75 SHCS		12	12						
92186A999		3/8-16 X 7.00 HEX HD SCREW		16	16						
099-966-12-20x		BERYLLIUM-CU GND STRP		8	8						
6032-400		Flex Pivot		8							4

Used In (next higher assembly): **D990230, BSC Beam dump Installation, top assembly**

Data Package, Receiving/Inspection Remarks:

Inspection Required Y/N	Visual Damage Y/N	Comments	Name/Initials	Date Comp.
y		Inspect for breakage during shipment		

Process Flow:

#	Operation	Start Date	Work Area	Instructions	Name/Initials	Date Comp.
1	Control Point	NA	NA		NA	NA
2	Clean	6/18	LHO	per LIGO-E960022, as applicable	B. Weaver	
3	Vacuum Bake	SEE NEXT PAGE	LHO	per LIGO-E960022	K. Ryan	SEE NEXT PAGE
4	Wrap and Bag		LHO	per LIGO-E960022	B. Weaver	

N.B.: A copy of this traveler must be submitted to the DCC each time the original is shipped with the associated part(s) and when the traveler has been completed.

LIGO PROCESS TRAVELER

DCC Number: **E990279-01-X**

Date Prepared: **7/8/99**

#	Operation	Start Date	Work Area	Instructions	Name/ Initials	Date Comp.												
5	Control Point	6-24-99 6-28-99 07-06-99 07-20-99	LHO	Review/approve RGA: VBO Load# <u>40</u> scan # <u>0602899C.RCA</u> VBO Load# <u>41</u> scan # <u>070299C.RCA</u> VBO Load# <u>43</u> scan # <u>REFLECTED</u> VBO Load# <u>46</u> scan # <u>072699C.RCA</u> VBO Load# <u>48</u> scan # <u>080399C.RCA</u> VBO Load# <u>50</u> scan # <u>081699C.RCA</u> VBO Load# <u>52</u> scan # <u>082099C.RCA</u> Note: attach RGA scan(s) to this traveler. <u>VBO LOAD # 54</u>	K. Ryan <i>SCW</i> <i>SCW</i> <i>SCW</i> <i>SCW</i>	 7/28/99 8/10/99 8/10/99 9/14/99												
	Box for shipment to LHO			Ship in LIGO-provided container <i>VBO Load # 53 scan # 081499C.RCA</i> <i>VBO Load # 61 scan # 101899C.RCA</i> <i>Com Scan # 083099C.RCA</i> <i>DCoigne 10/18/99</i>														
				<table border="1"> <thead> <tr> <th>No.</th> <th>Qty per package</th> <th>Part</th> </tr> </thead> <tbody> <tr> <td>ALL</td> <td></td> <td>BEAM DUMP PARTS</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(see also qty. for each shipping destination below)</p>	No.	Qty per package	Part	ALL		BEAM DUMP PARTS								
No.	Qty per package	Part																
ALL		BEAM DUMP PARTS																
7	Ship																	
		<table border="1"> <thead> <tr> <th rowspan="2">No.</th> <th colspan="3">Ship Qty.</th> <th rowspan="2">Part Description</th> </tr> <tr> <th>LHO</th> <th>LLO</th> <th>Other</th> </tr> </thead> <tbody> <tr> <td></td> <td>all</td> <td></td> <td></td> <td>beam dump parts</td> </tr> </tbody> </table>		No.	Ship Qty.			Part Description	LHO	LLO	Other		all			beam dump parts		
No.	Ship Qty.				Part Description													
	LHO	LLO	Other															
	all			beam dump parts														
		LHO:	Attn: Betsy Weaver, COS LIGO Hanford Observatory (LHO) Specific Purpose: beam dump BSC8															
		LLO:	Attn: Jonathan Hain LIGO Livingston Observatory (LLO) Specific Purpose: beam dump BSC8															
		<p>N.B.: A copy of this traveler must be submitted to the DCC each time the original is shipped with the LIGO instrument on observatory (LHO or LLO) as been completed.</p>																

Special Instructions (Handling/Packaging Constraints, Remarks, etc.) or Notes:

Attention: Betsy Weaver, Jonathan Kern, hold cleaned and baked parts for COS assembly

LIGO PROCESS TRAVELER

DCC Number: **E990279-01-X**

Date Prepared: **7/8/99**

ACTION ITEMS:

Table 1:

DATE	NAME	DESCRIPTION
7/20	B. Weaver	S/N 012-013 of parts D980087, D980088, D980296, and D980297 were sent back to Spacecraft Spec. for rework, as we found that they had not been manufactured completely.
7/15	B. Weaver	V60 load #43 - Rejected due to bad scan. Dennis Coyne sent all parts from this load (plus some) to be electropolished or etched for better cleaning.
7/23	B. Weaver	Parts received back from polishing/etching companies. - Rechecked as per Dennis C.'s email (attached).
8/5/99	B. Weaver	Clavis D990029 s/n-019 was sent out for modification as per DCN#: E990273-B / D990029-B. Rec. back - 8/4.
9/10/99	B. Weaver	D980348 s/n 027 & 028 Sent to Brockman Mfg. for rework - holes made into slots to compensate for low clearance.
10/11/99	B. Weaver	Giving D980348 s/n 027 & 028 to B. Rivera for vacuum rework.

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Table 1:

DATE	NAME	DESCRIPTION

Dennis Coyne, 12:12 PM 7/22/99 -0700, Re: cleaning

X-POP3-Rcpt: bweaver@apex
Date: Thu, 22 Jul 1999 12:12:31 -0700
From: Dennis Coyne <coyne@ligo.caltech.edu>
Organization: Caltech/LIGO
X-Mailer: Mozilla 3.01Gold (Win95; I)
To: Betsy Weaver <weaver_b@ligo.caltech.edu>
CC: Stan Whitcomb <stan@acrux.ligo.caltech.edu>,
Mike Smith <smith@acrux.ligo.caltech.edu>,
Bartie Rivera <rivera_b@ligo-wa.caltech.edu>
Subject: Re: cleaning

VBO LOAD 48

Betsy,

You should clean as follows (E960022-05 except since the parts are too large to ultrasonically clean, I've tailored the cleaning):

- 1) clean with Liquinox first (solution per E960022-05) and using a rubbing/scrubbing action (i.e. not just rinsing the liquinox over the surfaces). All holes must be cleaned with a brush (stainless steel, phosphor-bronze preferred, but nylon is acceptable). It is ESSENTIAL that the liquinox NOT dry before being rinsed with DI water.
- 2) Thoroughly rinse with DI water. All surfaces and holes must be rinsed THOROUGHLY.
- 3) Rinse & rub (with gloved hand only) all surfaces with either methanol or isopropal alcohol. Squirt the solvent into all holes.
- 4) Blow dry with clean, filtered air or N2, or allow to dry on a clean bench. Do not leave exposed for longer than about 15 minutes, before covering with UHV foil.

With regard to cleaning the lens, please see Stan for a confirmation, but I believe the rule that we operate under is that if all surfaces are polished, then an optics cleaning and wetting test is adequate and no baking is required. However, if the sides of the optic are not polished (as I suspect is the case for the ETM optics), then it should be cleaned and baked and re-cleaned. However, please confirm this with Stan and he may grant a waiver if he examines the surface condition of the optics.

Dennis

Betsy Weaver wrote:

- >
- > Hi Dennis-
- >
- > Two cleaning questions for you:
- >
- > 1. We just received the aluminum load (COS) from the etching company.
- > How should we clean them here, before baking them? (They are

Dennis Coyne, 12:12 PM 7/22/99 -0700, Re: cleaning

- > obviously too large to put in the ultrasonic cleaner...)
- >
- > 2. Mike has one large and two small lenses that are going to be
- > used in the ETM Telescope Assembly. If they wet well during cleaning,
- > do they really need to be baked? A while ago, Stan told me that the
- > small steering mirrors for IO and COS did not need to be baked, as the oven
- > would just make them dirtier, because they wetted so well during cleaning.
- > Is this the same for the lenses? If they do need to be baked, can I put
- > them in
- > the next load with the one Large Optic?
- >
- > Thanks-
- > Betsy

—
Dennis Coyne (Detector Installation Manager)
LIGO Laboratory, Caltech, Physics Department
626.395.2034 @CIT / 225.686.3168 @Livingston / 509.372.8166 @Hanford
cell 626.695.8350

**LHO VACUUM BAKE OVEN A LOAD #53
ELEVATED TEMPERATURE BACKGROUND**

SCAN

V-1 Closed

**No Elevated Temperature Background Data
Available**

**LHO VACUUM BAKE OVEN A LOAD #53
ELEVATED TEMPERATURE SCAN**

V-1 Open, Cal-Gas and V-2 Closed, 70°C

No Elevated Temperature Data Available

LHO Bake Oven A Load # 53

1st Order Desorption Outgassing Rate Estimates using $Q_{low} = SP_{low} = SP_{high} [e^{-(E_s/kT_{high})}] / [e^{-(E_s/kT_{low})}]$

Number of units in bake load	Pump Speed (L/sec)	AMU	RGA background current (amps)	RGA current (amps) @ T_{high}	Calibration Factor <i>CF</i> (torr/amps)	T_{high} (K)	T_{low} (K)	Es/k	Extrapolated outgassing rate (torr*L/sec) @ T_{low}
1	5	41	No Data	No Data	2.00E+07	No Data	No Data	13000	No Data
1	5	43	No Data	No Data	2.00E+07	No Data	No Data	8000	No Data
1	5	53	No Data	No Data	2.00E+07	No Data	No Data	13000	No Data
1	5	55	No Data	No Data	2.00E+07	No Data	No Data	15000	No Data
1	5	57	No Data	No Data	2.00E+07	No Data	No Data	15000	No Data

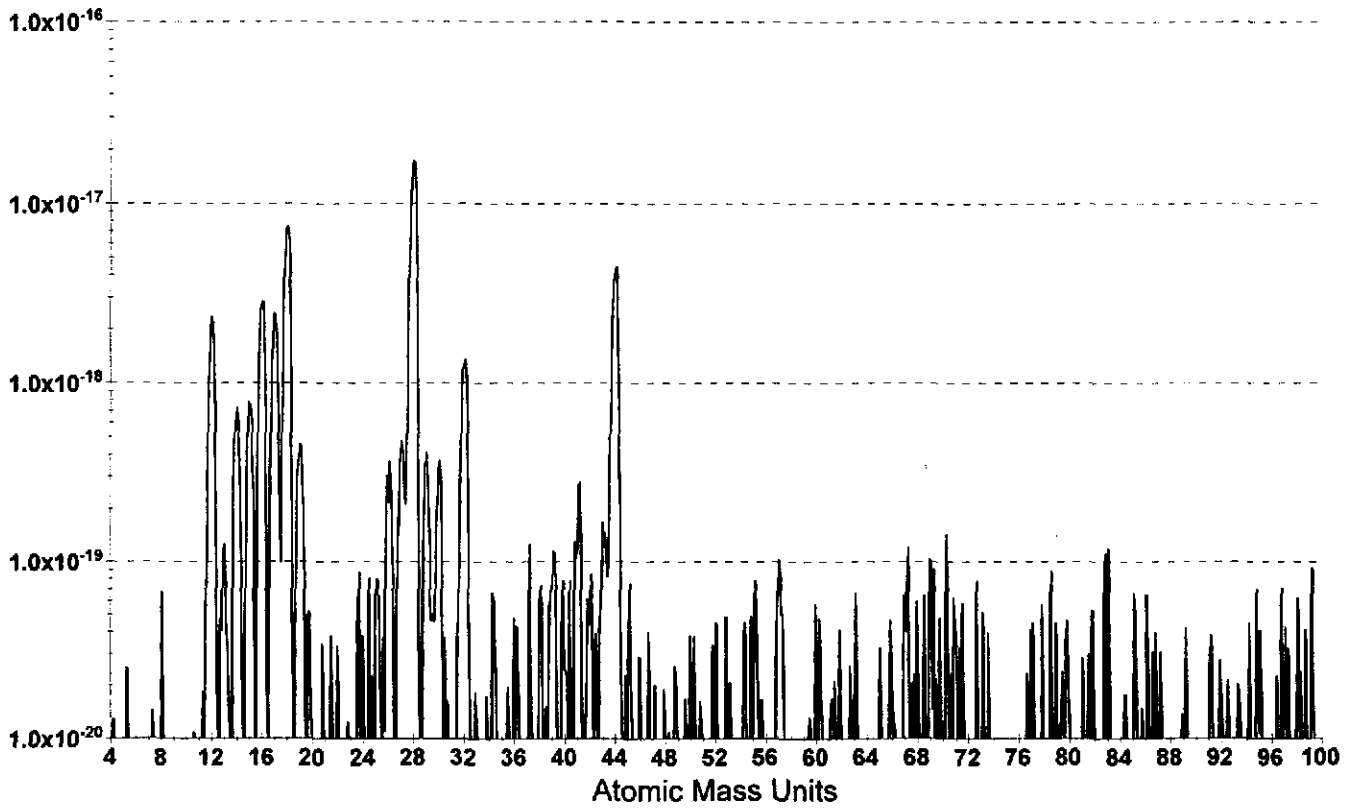
LHO Vacuum Bake Oven A Load #53 RGA Background

V-1 Closed, Room Temp

Amps

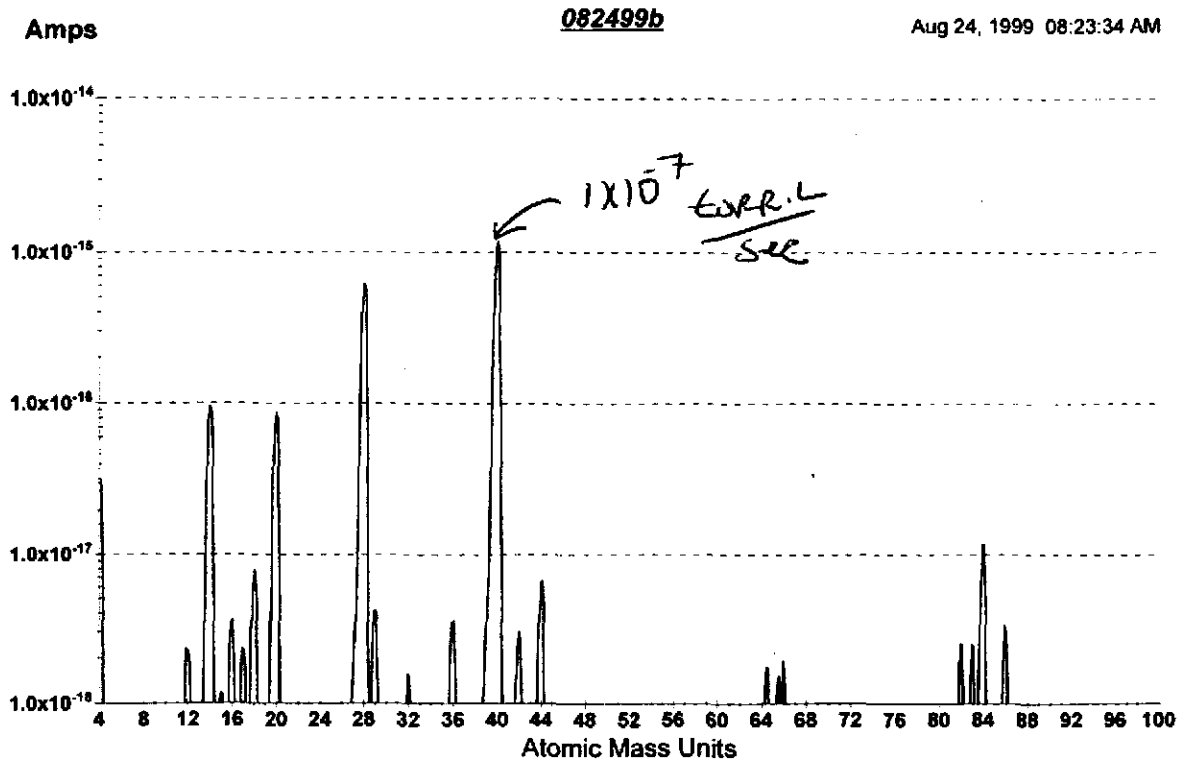
082499a

Aug 24, 1999 07:43:04 AM



LHO Vacuum Bake Oven A Load #53 Calibration

V-1 and cal-gas open, V-2 closed in pressure equilibrium at room temperature



CF defined as $P_{(\text{calc})} / I_{(\text{meas})}$

$$P_{\text{calc}(40)} = (\text{leak rate}) / (\text{pump speed}) = (1.1\text{E-}7 \text{ torr} \cdot \text{L}/\text{sec})(0.86) / (5 \text{ L}/\text{sec}) = 1.8\text{E-}8 \text{ torr}$$

$$I_{(\text{meas})} = 1\text{E-}15 \text{ amps}$$

$$\text{CF} = (1.8\text{E-}8 \text{ torr}) / (1\text{E-}15 \text{ amps}) = 2\text{E}7 \text{ torr}/\text{amps}$$

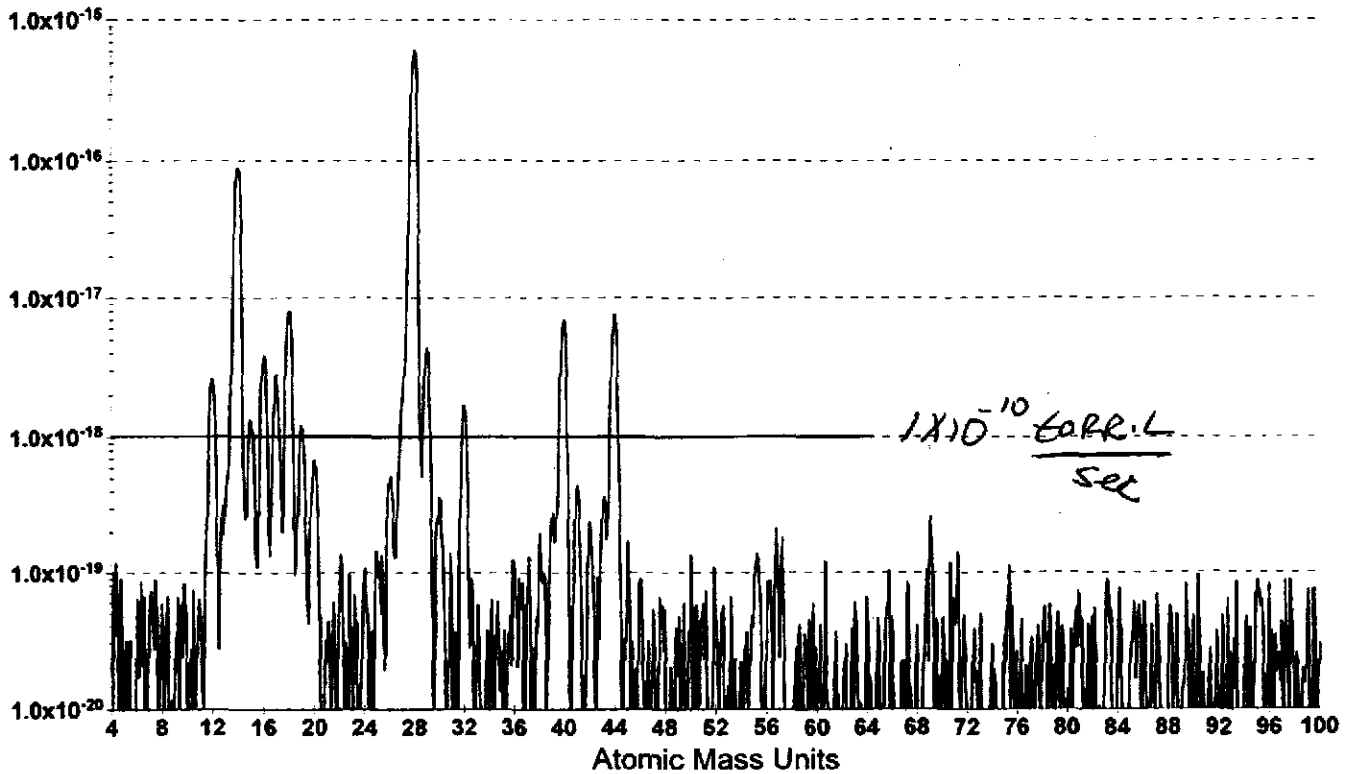
LHO Vacuum Bake Oven A Load #53 Post-Bake Scan Room Temp

V-1 Open, Cal-Gas and V-2 Closed

Amps

082499c

Aug 24, 1999 10:29:23 AM



X-POP3-Rcpt: brivera@apex
X-Sender: stan@127.0.0.1
X-Mailer: QUALCOMM Windows Eudora Light Version 3.0.5 (32)
Date: Wed, 01 Sep 1999 09:30:32 -0700
To: "Bartie J. Rivera" <rivera_b@ligo-wa.caltech.edu>
From: Stan Whitcomb <stan@ligo.caltech.edu>
Subject: Re: e-mail approval for previous scan

Bartie,

I approve tha scan for load 53.

stan

At 08:41 AM 9/1/99 -0700, you wrote:

>
>Hello Stan,
>
>Can I get you to e-mail me an approval for load
>53 (bsc bellows). You had approved them over the
>phone but the traveler has not been signed and they
>are about to be installed and I wanted to attach the
>approval to the back of the traveler. I will re-fax the
>scans to you at LLO.
>
>Thanks
>Bartie
>
>