NOTES:

1. EACH PUMPOUT PORT LOCATION HAS BOTH POWER & CONTROL PLUG-IN CONNECTIONS.
2. ALL VACUUM GAUGES TO BE BAKED OUT AT 250 C DURING PUMPDOWN, USING A REMOVABLE BLANKET TYPE HEATER. ALL VACUUM SECTIONS SHALL ALSO BE BAKED OUT AT 150 C DURING PUMPDOWN USING A REMOVABLE BLANKET TYPE HEATER. SEE DWG. V049-0-043 FOR BAKEOUT SYSTEM.
3. DIMENSIONS IN ( ) ARE IN MILLIMETERS.
4. BEAM MANIFOLD DIMENSIONS INDICATE INSIDE DIAMETERS.
5. BEAM MANIFOLD FLANGE ANNULUS ION PUMP DETAILS LATER.
6. ALSO ON 10" BLIND, PROVIDE 3" LONG 2 1/2" NOZZLE WITH 1 1/2" x 2 1/2" REDUCING FLANGE AND BLIND FOR RGA CONNECTION.

PI 624A · PT 624A · PE 624A · PI 624B · PT 624B · PE 624B · PI 614A · PT 614A · PE 614A · PI 614B · PT 614B · PE 614B · PI 680A · PT 680A · PE 680A · PI 680B · PT 680B · PE 680B · T4 · I/G

1 1/2" AVHV · 2 1/2" AVHV · 686 · 75 L/S DWG. V049-0-001 DETAIL F

1 1/2"(38) · 1 1/2" (38)

BEAM TUBE BY OTHERS · LEFT BEAM MANIFOLD BY PSI

1 1/2"-PV- -T3 · XV 669 · 44" (1118) · 24"(610) MIN. REMOVABLE SECTION · 1 1/2" x 3/4" · LGV4 DWG. V049-0-005 DETAIL A TYP. 2 PLCS

TO LEFT MID JOINT (V049-0-021) · 48" (1220)

10" (254) · PUMPOUT PORT

80K CRYOPUMP (LONG) LCP1 (SEE DWG. V049-0-006)

10" (254) · HV 648 · DWG. V049-0-001 DETAIL C TYP. 3 PLCS · PUMPOUT PORT · NOTE 6 · 3/8" VSOV · 5/8" VSOO

1 1/2"-PV- -T3 · XV 659 · 72" x 44" (1829 x 1118) · 1 1/2" x 3/4" · LGV3

1 1/2"(38) · B-9 · BE-6 · B-1 · BE-1 · B-1 · 3/4" x 1 1/2" · 72" x 48" (1829 x 1220) · 48" (1220) · TO VERTEX SECTION (V049-0-023)

2 1/2"-PV- -T3

10" (254) · HV 647 · PUMPOUT PORT · SN 606 · 10" CF BLIND REMOVED FOR TURBO PUMP CART CONNECTION (TYP.) · 5/8" VSOV · TURBO PUMP CART LTC1 DWG. V049-0-041 · SN 607 · 2 1/2" CF BLIND REMOVED FOR TURBO PUMP CART CONNECTION (TYP.)

6" (152) · HV 646 · PUMPOUT PORT · SN 608 · 6" CF BLIND REMOVED FOR ROUGH PUMP CART CONNECTION (TYP.) · 5/8" VSOV · ROUGH PUMP CART LRC1 DWG. V049-0-040 · SN 609 · 2 1/2" CF BLIND REMOVED FOR ROUGH PUMP CART CONNECTION (TYP.)

TO LN2 CONTROL VALVE LV-600	INSTRUMENT AIR SUPPLY	TURBO HEADER	COOLING WATER SUPPLY	COOLING WATER RETURN	INSTRUMENT AIR SUPPLY	COOLING WATER SUPPLY	COOLING WATER RETURN	INSTRUMENT AIR SUPPLY	COOLING WATER SUPPLY	COOLING WATER RETURN	
1/2" BVU	1/2" BVU		1/2" BVU	1/2" BVU	1/2" BVU	1/2" BVU	1/2" BVU	1/2" BVU	1/2" BVU	1/2" BVU	
1/2"-IA- -C2	1/2"-IA-653-C2	2 1/2"-PV-655-T3	1/2"-CVS-656-C2	1/2"-CVR-657-C2	1/2"-IA-658-C2	2 1/2"-PV-660-T3	1/2"-CVS-661-C2	1/2"-CVR-662-C2	1/2"-IA-663-C2	6"-PV-664-T3	1/2"-CVS-667-C2	1/2"-CVR-668-C2
1 1/2"-CA-654-T5											

MAIN ROUGHING HEADER #2	6"-PV-602-T3	6"-PV-602-T3 → ROUGHING HEADER #2 TO MECHANICAL ROOM (V049-0-026)
TURBO HEADER #2	4"-PV-604-T3	4"-PV-604-T3 → TURBO HEADER #2 TO MECHANICAL ROOM (V049-0-026)
CLASS 100 AIR	4"-CA-605-T5	4"-CA-605-T5 → CLASS 100 AIR FROM VERTEX SECTION (V049-0-023)
INSTRUMENT AIR	1"-IA-606-C2	1"-IA-606-C2 → INSTRUMENT AIR FROM VERTEX SECTION (V049-0-023)
COOLING WATER SUPPLY	1"-CVS-607-C2	1"-CVS-607-C2 → COOLING WATER SUPPLY FROM VERTEX SECTION (V049-0-023)
COOLING WATER RETURN	1"-CVR-608-C2	1"-CVR-608-C2 → COOLING WATER RETURN TO VERTEX SECTION (V049-0-023)

LIGO D961086-01-V

REFERENCE DRAWINGS

DWG. NO.	DESCRIPTION
V049-0-041	P & ID TURBO PUMP CART
V049-0-040	P & ID ROUGHING PUMP CART
V049-0-023	P & ID VERTEX SECTION
V049-0-021	P & ID LEFT & RIGHT MID JOINTS
V049-0-006	P & ID 80K CRYOPUMP
V049-0-001	P & ID LEGEND

EQUIP. THIS DWG.

LGV3	LTC1
LGV4	LRC1
LCP1	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
FRACTIONAL ±
ANGULAR/MACH ±0°-30' BEND ±0°
TWO PLACE DECIMAL ± .01
THREE PLACE DECIMAL ± .005
FINISHED SURFACE RMS
BREAK CORNERS .04 MAX.
REMOVE ALL BURRS

DO NOT SCALE THIS DRAWING

USED ON

NEXT ASS'Y

REV	DESCRIPTION					CHKD	DRVN	DATE	DEC#
1	ISSUE FOR FDR	REB	TS	RT	SM	DMcV	RJV	04.26.96	0134
0	ISSUE FOR DESIGN	REB	TS	RT	SM	DMcV	RJV	01.03.96	0031

ISSUE DESCRIPTION

PROCESS SYSTEMS INTERNATIONAL, INC.
20 WALKUP DR. WESTBOROUGH, MASSACHUSETTS 01581 USA

PIPING & INSTRUMENTATION DIAGRAM
LIGO VACUUM EQUIPMENT
LOUISIANA SITE
LEFT BEAM MANIFOLD

CAD FILE	SIZE	DWG. NO.	REV.
V0490022	D	V049-0-022	1
SCALE: NONE		SHEET 1 OF 1	

DCN 1495 - 04.96