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. PROVIDE CF BLIND WITH 25 OF SEAL-OFF FITTING.

HAM 12 WHAM12 (SEE DWG. V049-0-004) — 60" x 30" (1524 x 762) — MODE CLEANER TUBE — 60" x 30" (1524 x 762) — HAM 11 WHAM11 (SEE DWG. V049-0-004) — HAM 10 WHAM10 (SEE DWG. V049-0-004) — 60" (1524) — BSC CHAMBER WBSC4 (SEE DWG. V049-0-002) — 60" (1524) — HAM 9 WHAM9 (SEE DWG. V049-0-004) — HAM 8 WHAM8 (SEE DWG. V049-0-004) — 60" x 30" (1524 x 762) — MODE CLEANER TUBE — 60" x 30" (1524 x 762) — HAM 7 WHAM7 (SEE DWG. V049-0-004)

(356) 14" — GVHV 14" — DWG. V049-0-001 DETAIL E TYP. 2 PLCS — 167 — AVUV 1 1/2" — 1 1/2" (38) — 2500 L/S WIP7

(356) 14" — GVHV 14" — 168 — AVUV 1 1/2" — 1 1/2" (38) — 2500 L/S WIP8

TO LEFT BEAM MANIFOLD (V049-0-012) — 48" (1220) — EV 139 — WGV3 — DWG. V049-0-005 DETAIL B TYP. 2 PLCS — SEE DWG. V049-0-005

TO LEFT BEAM MANIFOLD (V049-0-012) — 1 1/2"-PV-1163-T3 — 1 1/2"-PV-1165-T3

60" x 48" (1524 x 1220) — 6" (152) — HV 160 — PUMPOUT PORT — 6" CF BLIND REMOVED FOR ROUGH PUMP CART CONNECTION (TYP.) SEE NOTE 6 — 250F VSTV — SH 117 — ROUGH PUMP CART VRC1 DWG. V049-0-040 — FLEX SUPPLIED W/ROUGH CART (ENDS ARE ISO100) — SH 118 — ADAPTER ISO100 x 6" O.D. CF

60" x 48" (1524 x 1220) — 10" (254) — HV 174 — DWG. V049-0-001 DETAIL C TYP. 2 PLCS — PUMPOUT PORT — 10" CF BLIND REMOVED FOR TURBO PUMP CART CONNECTION (TYP.) SEE NOTE 6 — 250F VSTV — SH 115 — TURBO PUMP CART VTC1 DWG. V049-0-041 — FLEX SUPPLIED W/ TURBO CART (ENDS ARE NW40) — SH 116 — ADAPTER NW40 x 4 1/2" O.D. CF — 4 1/2" CF BLIND REMOVED FOR TURBO PUMP CART CONNECTION (TYP.)

EV 149 — WGV4 — SEE DWG. V049-0-005 — 48" (1220) — TO RIGHT BEAM MANIFOLD (V049-0-015) — 1 1/2"-PV-1167-T3 — 1 1/2"-PV-1168-T3

BACK TO AIR CONTROL CART DWG. V049-0-007 — 1/2" AVUV — PROVIDE KF BLIND (2) PLCS

HAN AIR SHOWER CONNECTION — 2" BVCA — INSTRUMENT AIR SUPPLY — 1/2" BVU — COOLING WATER SUPPLY — 1/2" BVU — COOLING WATER RETURN — 1/2" BVU — ISO LF100 BLANK REMOVED FOR ROUGH PUMP CART CONNECTION (TYP.) — BSC AIR SHOWER CONN. — 2" BVCA — HAN AIR SHOWER CONNECTION — 2" BVCA

ROUGHING HEADER #2 TO LEFT BEAM MANIFOLD (V049-0-012)
TURBO HEADER #2 TO LEFT BEAM MANIFOLD (V049-0-012)
CLASS 100 AIR FROM LEFT BEAM MANIFOLD (V049-0-012)
INSTRUMENT AIR FROM LEFT BEAM MANIFOLD (V049-0-012)
COOLING WATER SUPPLY FROM LEFT BEAM MANIFOLD (V049-0-012)
COOLING WATER RETURN TO LEFT BEAM MANIFOLD (V049-0-012)

2"-CA-141-T5 — 1/2"-IA-142-C2 — 1/2"-CVS-145-C2 — 1/2"-CVR-146-C2 — 1/2"-IA-147-C2 — 4"-PV-148-T3 — 1/2"-CVS-150-C2 — 1/2"-CVR-151-C2 — 2"-CA-152-T5 — 1/2"T — 2 1/2"-PV-144-T3 — 2"-CA-1166-T5 — 2"-CA-149-T5

6"-PV-154-T3 — MAIN ROUGHING HEADER #2
AVHV — AVHV
4"-PV-155-T3 — TURBO HEADER #2
1/2"T
4"-CA-137-T5 — CLASS 100 AIR
4"-CA-180-T5
1"-IA-138-C2 — INSTRUMENT AIR
1"-CVS-139-C2 — COOLING WATER SUPPLY
1"-CVR-140-C2 — COOLING WATER RETURN

CLASS 100 AIR TO RIGHT BEAM MANIFOLD (V049-0-015)

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REFERENCE DRAWINGS

DWG. NO.	DESCRIPTION
V049-0-040	P & ID MAIN ROUGHING PUMP CART
V049-0-015	P & ID RIGHT BEAM MANIFOLD
V049-0-012	P & ID LEFT BEAM MANIFOLD
V049-0-004	P & ID HORIZONTAL ACCESS MODULE
V049-0-002	P & ID BEAM SPLITTER CHAMBER
V049-0-001	P & ID LEGEND
V049-0-041	P & ID TURBO PUMP CART

EQUIP. THIS DWG.

VHAM7	VIP7
VHAM8	VIP8
VHAM9	VTC1
VHAM10	VRC1
VHAM11	VGV3
VHAM13	VGV4
VBSC4	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
FRACTIONAL ±
ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ± .01
THREE PLACE DECIMAL ± .005
FINISHED SURFACE RMS
BREAK CORNERS ON
REMOVE ALL BURRS

DO NOT SCALE THIS DRAWING
USED ON
NEXT ASSY

REV	DESCRIPTION					CHKD	DRWN	DATE	DES
5	REISSUED FOR FDR UPDATE				SM	DMcV	RJV	6/11/97	0499
4	REVISED				SM	DMcV	RJV	02.14.97	0435
3	REVISED				SM	DMcV	RJV	01.03.97	0394
2	ISSUE FOR FDR UPDATE		TS	RT	SM	DMcV	RJV	10.25.96	0309
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
P1	PRELIMINARY DESIGN UPDATE	REB					KY	09.26.95	0003

ISSUE DESCRIPTION

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

PIPING & INSTRUMENTATION DIAGRAM
LIGO VACUUM EQUIPMENT
WASHINGTON SITE
DIAGONAL SECTION

CAD FILE	SIZE	DWG. NO.	REV.
V0490014	D	V049-0-014	5
SCALE NONE		SHEET 1 OF 1	

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