

INSTALLATION DRAWING LIST


REV.	DWG. NUMBER	TITLE	REV.	DWG. NUMBER	TITLE	REV.	DWG. NUMBER	TITLE	REV.	DWG. NUMBER	TITLE
P&ID'S			SYSTEM ACCEPTANCE TEST PROCEDURES			ELECTRICAL DRAWINGS			MECHANICAL DRAWINGS		
2	V049-0-001	LEGEND/STATION DIAGRAMS (3 SHTS.)	1	V049-2-110	PORTABLE SOFT WALL CLEANROOMS	0	V049-4-091	80K PUMP RESERVOIR-SHORT LEFT (3 SHTS.)	4	V049-5-012	PIPING ARR'T, PLAN CORNER STA. WA (4 SHTS.)
2	V049-0-002	BEAM SPLITTER CHAMBER ALL BUT CORNER VERTEX ARMS	0	V049-2-111	SMALL VALVES	1	V049-4-092	80K PUMP RESERVOIR-LONG LEFT (3 SHTS.)	3	V049-5-013	PIPING ARR'T, ELEVATION, CORNER STA, WA
3	V049-0-003	BEAM SPLITTER CHAMBER CORNER VERTEX ARMS	1	V049-2-112	BAKEOUT SYSTEM BLANKETS AND CARTS	0	V049-4-093	80K PUMP RESERVOIR-LONG RIGHT (3 SHTS.)	4	V049-5-014	PIPING ARR'T, SECTIONS, CORNER STA, WA
3	V049-0-004	HORIZONTAL ACCESS MODULE				4	V049-4-094	80K PUMP RESERVOIR SUPPT, ASSY, SHORT (2 SHTS.)	3	V049-5-017	PIPING ARR'T, PLAN, RIGHT MID STA, WA (4 SHTS.)
2	V049-0-005	112cm & 122cm GATE VALVES				3	V049-2-113	CORNER STATIONS	4	V049-4-095	80K PUMP RESERVOIR SUPPT, ASSY, LONG (2 SHTS.)
6	V049-0-006	80K CRYOPUMP	3	V049-2-114	MID STATIONS	1	V049-4-096	72 1/4" ID FLANGE DETAIL (GROOVED)	3	V049-5-019	PIPING ARR'T, SECTIONS, RIGHT MID STA, WA
2	V049-0-007	CHAMBER PRESSURIZATION SYSTEM CARTS	3	V049-2-115	END STATIONS	1	V049-4-097	60 1/2" ID FLANGE DETAIL (FLAT FACED)	3	V049-5-021	PIPING ARR'T, RIGHT END STA, WA (2 SHTS.)
5	V049-0-010	WA LEFT END STATION				2	V049-4-098	60 1/2" ID FLANGE DETAIL (FLAT/SLOTTED)	3	V049-5-022	PIPING ARR'T, ELEVATION, RIGHT END STA, WA
5	V049-0-011	WA LEFT MID STATION				0	V049-4-099	72 1/4" ID FLANGE DETAIL (FLAT/SLOTTED)	3	V049-5-023	PIPING ARR'T, SECTIONS, RIGHT END STA, WA
5	V049-0-012	WA LEFT BEAM MANIFOLD				1	V049-4-101	BSC OVERALL ASSY.	3	V049-5-026	PIPING ARR'T, PLAN, LEFT MID STA, WA (4 SHTS.)
5	V049-0-013	WA VERTEX SECTION				4	V049-3-001	ELECTRICAL DRAWING LIST (2 SHTS.)	3	V049-4-106	25 L/S ANNULUS TUBING-44' G.V. TYPE III
5	V049-0-014	WA DIAGONAL SECTION				3	V049-4-107	25 L/S ION PUMP VALVE SUPPORT (2 SHTS.)	3	V049-5-028	PIPING ARR'T, SECTIONS, LEFT MID STA, WA
5	V049-0-015	WA RIGHT BEAM MANIFOLD				4	V049-4-002	HORIZONTAL ACCESS MODULE (HAM)	3	V049-4-108	25 L/S ANNULUS TUBING 48' G.V. TYPE I
5	V049-0-016	WA RIGHT MID STATION				3	V049-4-109	ANNULUS TUBING & ION PUMP ASSY. 44' G.V.	3	V049-5-031	PIPING ARR'T, ELEVATION, LEFT END STA, WA
5	V049-0-017	WA RIGHT END STATION				3	V049-4-003	BSC SHELL WELDMENT/MACHINING (4 SHEETS)	3	V049-4-110	25 L/S ANNULUS TUBING 48' G.V. TYPE II
3	V049-0-018	WA CORNER STATION MECHANICAL ROOM				3	V049-4-004	80K CRYOPUMP, LONG LEFT HAND (2 SHEETS)	0	V049-5-033	OVERALL FLANGE ARR'T, CORNER STA, WA
						3	V049-4-005	80K CRYOPUMP, SHORT RIGHT (2 SHEETS)	5	V049-4-117	80K SHORT-SHIELD ASSY. RH/LH (3 SHTS.)
			3	V049-4-006	80K CRYOPUMP, LONG RIGHT HAND (2 SHEETS)	3	V049-4-118	80K LONG-VERTICAL WELDMENT LH (2 SHTS.)	0	V049-5-036	OVERALL FLANGE ARR'T, TYPICAL END STA, WA & LA
			3	V049-4-007	80K CRYOPUMP, SHORT LEFT HAND (2 SHEETS)	2	V049-4-119	80K LONG-VESSEL WELDMENT RH (2 SHTS.)	0	V049-5-037	CLEAN ROOM WITH BSC ASSY.
			3	V049-4-010	ROUGHING PUMP CART ARRANGEMENTS	2	V049-4-120	80K SHORT-VESSEL WELDMENT LH (2 SHTS.)	0	V049-5-050	SURVEY-BENCHMARKS-CORNER STA, WA
			3	V049-4-011	TURBO PUMP CART ARRANGEMENTS	3	V049-4-121	80K SHORT VESSEL WELDMENT RH (2 SHTS.)	0	V049-5-051	SURVEY-BENCHMARKS- MID STA, WA & LA
DRAWING TREE/BOM STRUCTURE									PSI ADAPTER & SPOOL DETAIL DRAWINGS		
3	V049-0-100	GENERAL PROJECT (SHT. 1 OF 3)	1	V049-4-012	BASE EXTENSION-TURBO PUMP CART	1	V049-4-122	75L ION PUMP SUPPORT	3	V049-4-A1	ADAPTER
3	V049-0-100	WASHINGTON SITE (SHT. 2 OF 3)	4	V049-4-014	COVER, BSC TYPE I	1	V049-4-123	HAM 75L ION PUMP SUPPORT	3	V049-4-A3	ADAPTER
3	V049-0-100	LOUISIANA SITE (SHT. 3 OF 3)	3	V049-4-017	44 1/4" I.D. FLANGE DETAIL (GROOVED)	0	V049-4-124	BELLOWS 1" DIA. TIE-ROD ASSY.	8	V049-4-A4	60" HAM END COVER, GROOVED, TYPE A4
APPLICABLE SPECIFICATIONS									3	V049-4-A6	ADAPTER
4	V049-1-101	ANCHOR BOLT INSTALLATION PROCEDURE	2	V049-4-018	48 1/4" I.D. FLANGE DETAIL (GROOVED)	4	V049-4-127	84 1/4" ID ACCESS COVER-HAM	3	V049-4-A7A	ADAPTER
2	V049-2-014	LEAK CHECK PROCEDURE	4	V049-4-019	60 1/2" I.D. BSC FLANGE DETAIL (GROOVED)	3	V049-4-128	HAM SHELL WELDMENT ASSY. 'D' (3 SHTS.)	3	V049-4-A7B	ADAPTER
3	V049-2-015	CLEANING PROCEDURE	2	V049-4-020	72 1/4" I.D. FLANGE DETAIL (GROOVED)	0	V049-4-129	HAM ANNULUS FLEX HOSE	2	V049-4-A11	BSC END COVER, 60", TYPE A11
4	V049-2-021	INSTALLATION/COMMISSIONING SPEC.	3	V049-4-021	84 1/4" I.D. FLANGE DETAIL (GROOVED)	1	V049-4-132	44 5/8" ID FLANGE DETAIL (GROOVED)	3	V049-4-A12	ADAPTER
2	V049-2-022	ELECTRICAL AND INSTRUMENT CONSTRUCTION SPEC.	5	V049-4-022	104 1/2" I.D. FLANGE DETAIL (GROOVED)	4	V049-4-133	BSC CLEAN ROOM ASSY-STYLE 1 & 3	3	V049-4-A13	ADAPTER
1	V049-2-023	PROJECT SAFETY PLAN	4	V049-4-023	BSC SUPPRT ASSY.	4	V049-4-134	BSC CLEAN ROOM WELDMENT STYLE 1 & 3	5	V049-4-A14	ADAPTER
1	V049-2-029	PROJECT Q.A. PLAN	4	V049-4-025	BSC ANNULUS PIPING	3	V049-4-135	BSC CLEAN ROOM ASSY. STYLE 2	3	V049-4-A15	ADAPTER
5	V049-2-037	PIPING DESIGN AND MATERIAL SPECIFICATION	1	V049-4-028	72 1/4" I.D. FLANGE DETAIL (FLAT FACED)	2	V049-4-136	CLEAN ROOM ASSY.- HAM	3	V049-4-A16	ADAPTER
1	V049-2-059	SPEC FOR SMALL VACUUM VALVES	1	V049-4-029	48 1/4" I.D. FLANGE DETAIL (FLAT FACED)	2	V049-4-137	CLEAN ROOM STRUCTURE WELDMENT - HAM	3	V049-4-A17	ADAPTER
2	V049-2-060	SPEC FOR CLEAN QUATER TURN VALVES	5	V049-4-031	60 1/2" I.D. HAM FLANGE DETAIL (GROOVED/SLOTTED)	3	V049-4-138	BSC CLEAN ROOM WELDMENT	3	V049-4-A18	ADAPTER
0	V049-2-070	WELDING PROCEDURES	3	V049-4-032	60 1/2" I.D. HAM FLANGE DETAIL (FLAT FACED)	0	V049-4-140	80K LONG-LEG ASSY.	4	V049-4-A19	ADAPTER
2	V049-2-071	WELDING PROCEDURES	1	V049-4-033	44" GATE VALVE SUPPORT FRAME	0	V049-4-141	80K SHORT-LEG ASSY.	3	V049-4-BE2	SPOOL
2	V049-2-072	WELDING PROCEDURES	1	V049-4-034	48" GATE VALVE SUPPORT FRAME	2	V049-4-142	16 1/2" OD CONFLAT REDUCING FLANGES	4	V049-4-BE3	SPOOL
0	V049-2-073	WELDING PROCEDURES	2	V049-4-036	BSC INTERNAL PLATFORM DETAILS	0	V049-4-144	60 1/2" ID FLANGE DETAIL BE-3A (FLAT FACED)	6	V049-4-BE4	SPOOL
0	V049-2-074	MATERIAL/WELDING REPAIR SCHEDULE	5	V049-4-040	HAM TIE ROD ASSY.	0	V049-4-145	LN2 TANK BASE TEMPLATE	4	V049-4-BE5	SPOOL
0	V049-2-116	ISOLATABLE SECTION BAKEOUT PROCEDURE	2	V049-4-041	104 1/2" I.D. FLANGE DETAIL (FLAT FACED)	1	V049-4-146	80K HEAD/NOZZLE ASSY.	5	V049-4-BE6	SPOOL
0	V049-2-118	CLEAN ROOM ACTIVITIES	1	V049-4-042	44 5/8" I.D. FLANGE DETAIL (FLAT FACED)	1	V049-4-147	80K HEAD/NOZZLE ASSY.	4	V049-4-B1	SPOOL
1	V049-2-119	CONTAMINATION CONTROL PLAN	2	V049-4-043	PIPE BRIDGE-CORNER STATION	0	V049-4-148	80K SHIELD SUPPORT LUG	4	V049-4-B2A	SPOOL
0	V049-2-120	RAW MATERIAL HANDLING PROCEDURE	1	V049-4-045	BSC RGA/AUX. TURBO CONN. ASSY.	0	V049-4-158	BELLOWS 1 1/4" DIA. TIE-ROD ASSY.	5	V049-4-B2B	SPOOL
1	V049-2-123	SPEC. COMPONENT PACKING, HANDLING, & SHIPPING	2	V049-4-046	BSC RGA/AUX TURBO/GAUGE PAIR ASSY.	0	V049-4-159	LIFTING LUG	4	V049-4-B3A	SPOOL
0	V049-2-124	CONTROL OF NON-COMFORMANCE	1	V049-4-047	44 5/8" ID x 80" OD FLANGE DETAIL (FLAT FACED)	0	V049-4-161	80K PUMP 2" JACKETED LINE	4	V049-4-B3B	SPOOL
1	V049-2-128	VISUAL INSPECTION PROCEDURE	3	V049-4-052	VESSEL SUPPORT (HAM)	0	V049-4-163	GATE VALVE FIN CLAMP	4	V049-4-B4	SPOOL
0	V049-2-130	BLACK LIGHT TEST PROCEDURE	1	V049-4-053	EXPANSION JOINT (HAM)	2	V049-4-164	25 L/S ANNULUS TUBING-44' G.V. TYPE I	5	V049-4-B5A	SPOOL
1	V049-2-131	SITE PIPING CLEANING PROCEDURE	5	V049-4-054	HAM ANNULUS PIPING	2	V049-4-165	ANNULUS TUBING & ION PUMP ASSY. 48" G.V.	6	V049-4-B6	SPOOL
0	V049-2-132	SITE VACUUM SURFACE RE-CLEANING PROCEDURE	2	V049-4-055	60 1/2" ID RING DETAIL REDUCING UNION	2	V049-4-166	25 L/S ANNULUS TUBING-44' G.V. TYPE II	5	V049-4-B7	SPOOL
0	V049-2-137	RGA CALIBRATION	1	V049-4-056	30 1/2" ID x 68 1/4" OD FLANGE DETAIL (FLAT FACED)	1	V049-4-168	ASSEMBLY BACK TO AIR CART, 50 CFM	3	V049-4-B8	SPOOL
2	V049-2-139	STRUCTURAL CARBON STEEL FABRICATION AND PAINTING	3	V049-4-057	30 1/2" ID x 68 1/4" OD FLANGE DETAIL (GROOVED)	1	V049-4-175	ASSEMBLY BACK TO AIR CART, 200 CFM	5	V049-4-B9	SPOOL
3	V049-2-144	SOFTWALL CLEAN ROOM PANELS - HAM	1	V049-4-058	44 5/8" ID x 60 1/2" ID FLANGE DETAIL	1	V049-4-176	14KW REGEN HEATER ASSY.			
3	V049-2-145	SOFTWALL CLEAN ROOM PANELS - BSC	4	V049-4-059	SHIPPING COVER WITH FILTER UNITS	1	V049-4-177	28KW REGEN HEATER ASSY.			
1	V049-2-157	PORTABLE SOFTWALL CLEAN ROOMS	4	V049-4-060	44 1/4" ID FLANGE DETAIL (GROOVED/SLOTTED)	0	V049-4-194	12" OD CONFLAT BLANK x 2 3/4" OD CONFLAT			
1	V049-2-163	THERMAL INSULATION-PIPING	2	V049-4-061	3/4" OD ELBOW x 2 3/4" CF. FLG. ANNULUS CONN.	0	V049-4-195	12" OD CONFLAT BLANK x 25 KF			
1	V049-2-164	80K PUMP RELIEF VALVE SPEC.	1	V049-4-064	60 1/2" ID x 68 1/2" OD BE-3A FLANGE (FLAT)	0	V049-4-196	8" OD CONFLAT BLANK x 25 KF			
0	V049-2-168	CONFLAT FLANGE ASSEMBLY PROCEDURE	2	V049-4-066	60 1/2" ID x 72 1/4" OD OFFSET FLANGE (BE3A)	0	V049-4-197	10" OD TUBE BELLOWS-TURBO PUMP			
1	V049-2-169	O-RING INSTALLATION AND FLANGE ASSEMBLY PROCEDURE	3	V049-4-067	61.31" ID x 72 1/4" OD BE-3A FLANGE (GROOVED)	2	V049-4-199	BSC SHIPPING SKID (MANUAL DWG. D SIZE)			
1	V049-2-174	COMPONENT ALIGNMENT PROCEDURE	2	V049-4-068	48 1/4" ID x 60 1/2" ID OFFSET FLANGE	0	V049-4-203	BSC-ANNULUS TUBE SUPPORT			
0	V049-2-175	VACUUM PUMP FIELD INSTALLATION PROCEDURE	1	V049-4-070	48.81 ID x 68 1/4" OD FLANGE DETAIL (FLAT FACED)	0	V049-4-204	BSC AIR FILTER ASSY.			
1	V049-2-178	SPEC. PREFABRICATED VACUUM AND CL 100 AIR PIPING	0	V049-4-071	48.81 ID x 80 OD FLANGE DETAIL (FLAT FACED)	0	V049-4-206	HAM ANNULUS TUBING SHIPPING SUPPORT			
0	V049-2-186	PROC FOR RGA FIELD CALIBRATION	2	V049-4-072	PS-1 PIPE SUPPORT TEE POST (LN2 PIPING)	0	V049-4-302	BSC TEST/SHIP ASSY (TWO DOORS)			
0	V049-2-200	PROC. FOR MOVING CLEAN ROOMS	3	V049-4-073	PS-2 PIPE SUPPORT	0	V049-4-303	BSC TEST/SHIP ASSY (THREE DOORS)			
			2	V049-4-074	PS-3 PIPE SUPPORT TEE POST	0	V049-4-304	BSC TEST/SHIP ASSY (NO DOORS)			
			3	V049-4-075	PS-4 PIPE/ELECTRICAL SUPPORT	0	V049-4-305	BSC TEST/SHIP ASSY (ONE DOOR)			
			0	V049-4-076	PS-5 PIPE SUPPORT @ 80K LONG PUMP	4	V049-5-001	EQUIPMENT ARR'T. PLAN, CORNER STA. WA (SHT 1 OF 2)			
			3	V049-4-077	75 L/S ION PUMP/MANIFOLDS	4	V049-5-001	EQUIPMENT ARR'T. ELEVATION, (SHT. 2 OF 2)			
			2	V049-4-078	25 L/S ION PUMP/MANIFOLDS	1	V049-5-002	EQUIPMENT ARR'T. ISO, CORNER STA, WA			
			1	V049-4-079	48 1/4" ID x 68 1/4" OD FLANGE DETAIL	4	V049-5-004	EQUIPMENT ARR'T. RIGHT MID STA., WA			
			1	V049-4-080	SHIPPING COVER ASSY.- WITHOUT FILTER ASSY.	4	V049-5-005	EQUIPMENT ARR'T. RIGHT END STA, WA			
			1	V049-4-081	48 1/4" ID FLANGE DETAIL (GROOVED/SLOTTED)	4	V049-5-006	EQUIPMENT ARR'T. LEFT MID STA, WA			
			1	V049-4-082	PS-6 PIPE SUPPORTS @ BACKING PUMPS	4	V049-5-007	EQUIPMENT ARR'T. LEFT END STA, WA			
			0	V049-4-087	60 1/2" ID x 80" OD FLANGE DETAIL (FLAT FACED)	1	V049-5-010	EQUIPMENT ARR'T. ISO, RIGHT MID STA, WA			
			2	V049-4-090	80K PUMP RESERVOIR-SHORT RIGHT (3 SHTS.)	1	V049-5-011	EQUIPMENT ARR'T. ISO, RIGHT END STA, WA			

* = DRAWINGS ADDED/REVISED SINCE MARCH 1997

JAN 06 1998

DWG. NO.	DESCRIPTION	DWG. NO.	DESCRIPTION

REV	DESCRIPTION	REV	DESCRIPTION
8	REISSUED FOR FDR UPDATE/ CONSTRUCTION	7	REISSUED FOR FDR UPDATE/ CONSTRUCTION
7	REISSUED FOR FDR UPDATE/ CONSTRUCTION	6	REISSUED FOR FDR UPDATE/ CONSTRUCTION
6	REISSUED FOR FDR UPDATE/ CONSTRUCTION	5	REISSUED FOR FDR UPDATE/ CONSTRUCTION
5	REISSUED FOR FDR UPDATE/ CONSTRUCTION	4	REISSUED FOR FDR UPDATE/ CONSTRUCTION
4	REISSUED FOR FDR UPDATE/ CONSTRUCTION	3	REISSUED FOR FDR UPDATE/ CONSTRUCTION

 PROCESS SYSTEMS INTERNATIONAL INC. 20 WALKUP DR. WESTBOROUGH, MASSACHUSETTS 01581 USA											
INSTALLATION DOCUMENT LIST WASHINGTON SITE LIGO VACUUM EQUIPMENT											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV.</th> <th>DWG. NUMBER</th> <th>TITLE</th> <th>DATE</th> <th>BY</th> </tr> <tr> <td>REC</td> <td>REC</td> <td>12/31/97</td> <td>0587</td> <td></td> </tr> <tr> <td></td></tr></table>	REV.	DWG. NUMBER	TITLE	DATE	BY	REC	REC	12/31/97	0587		
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