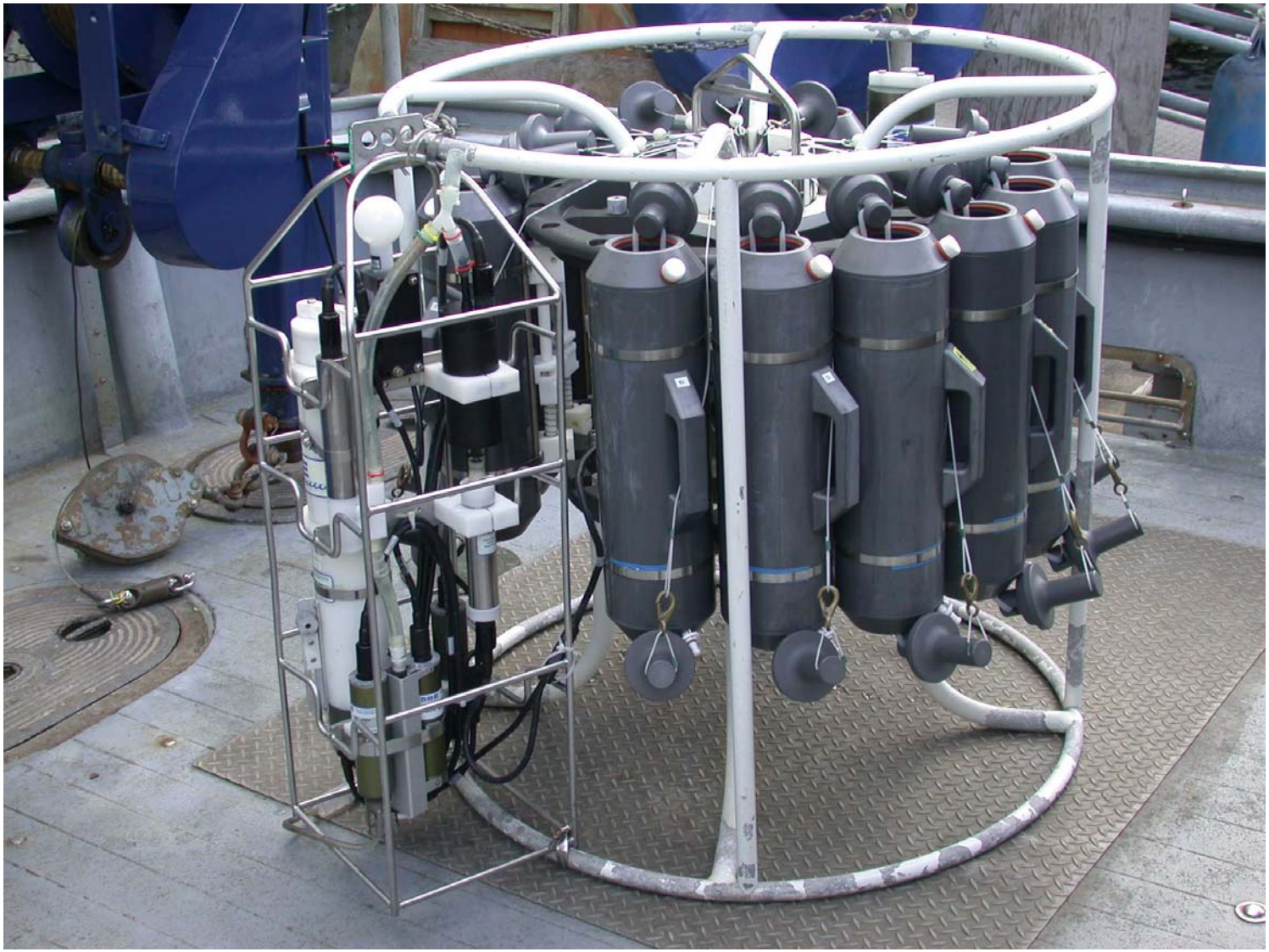
Seabird SBE-25 CTD

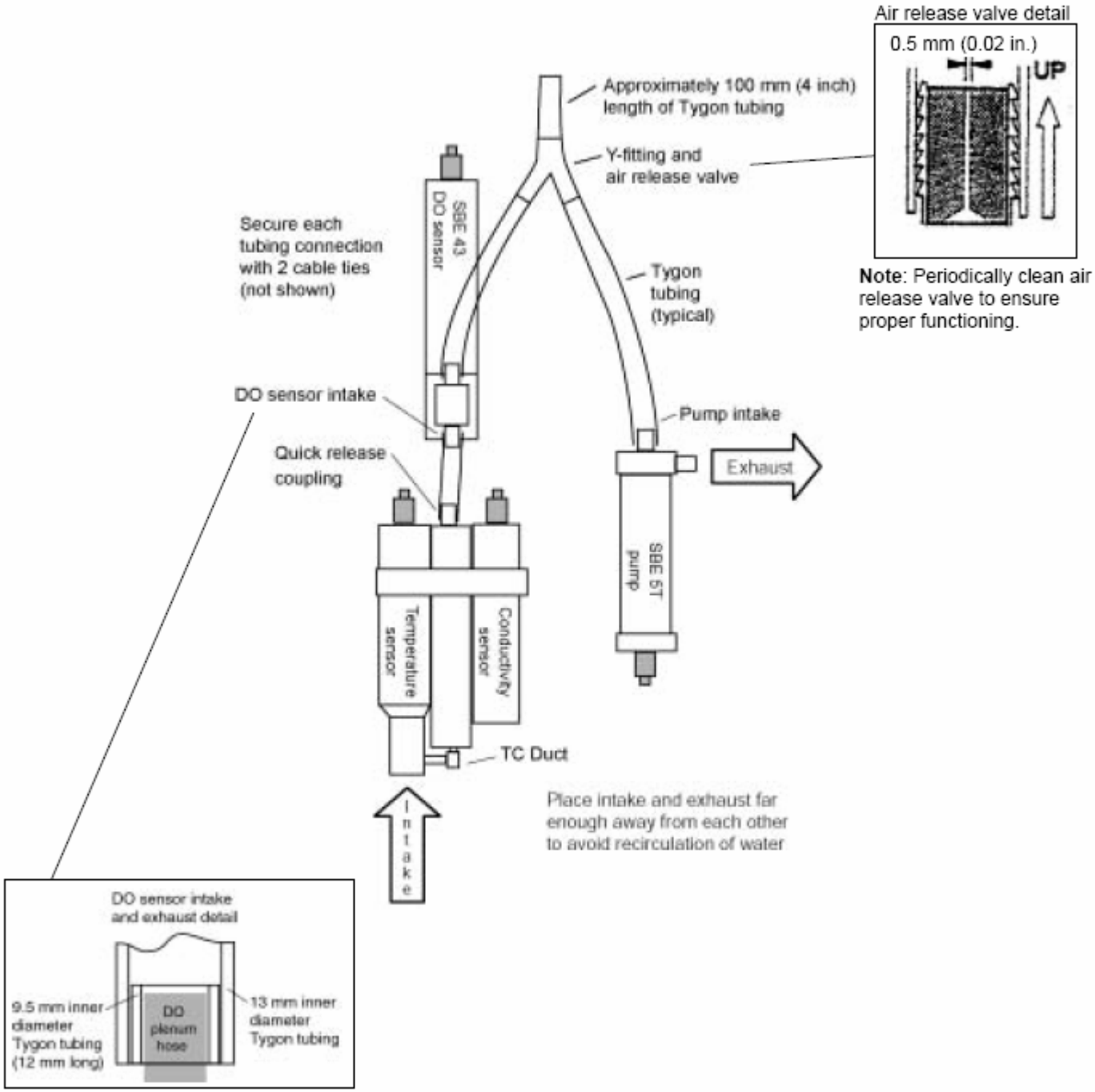


Gettin’ Hectic on Elliott Bay

SBE
CTD1
196591
SBE
SBE

SEA-BIRD
ELECTRONICS

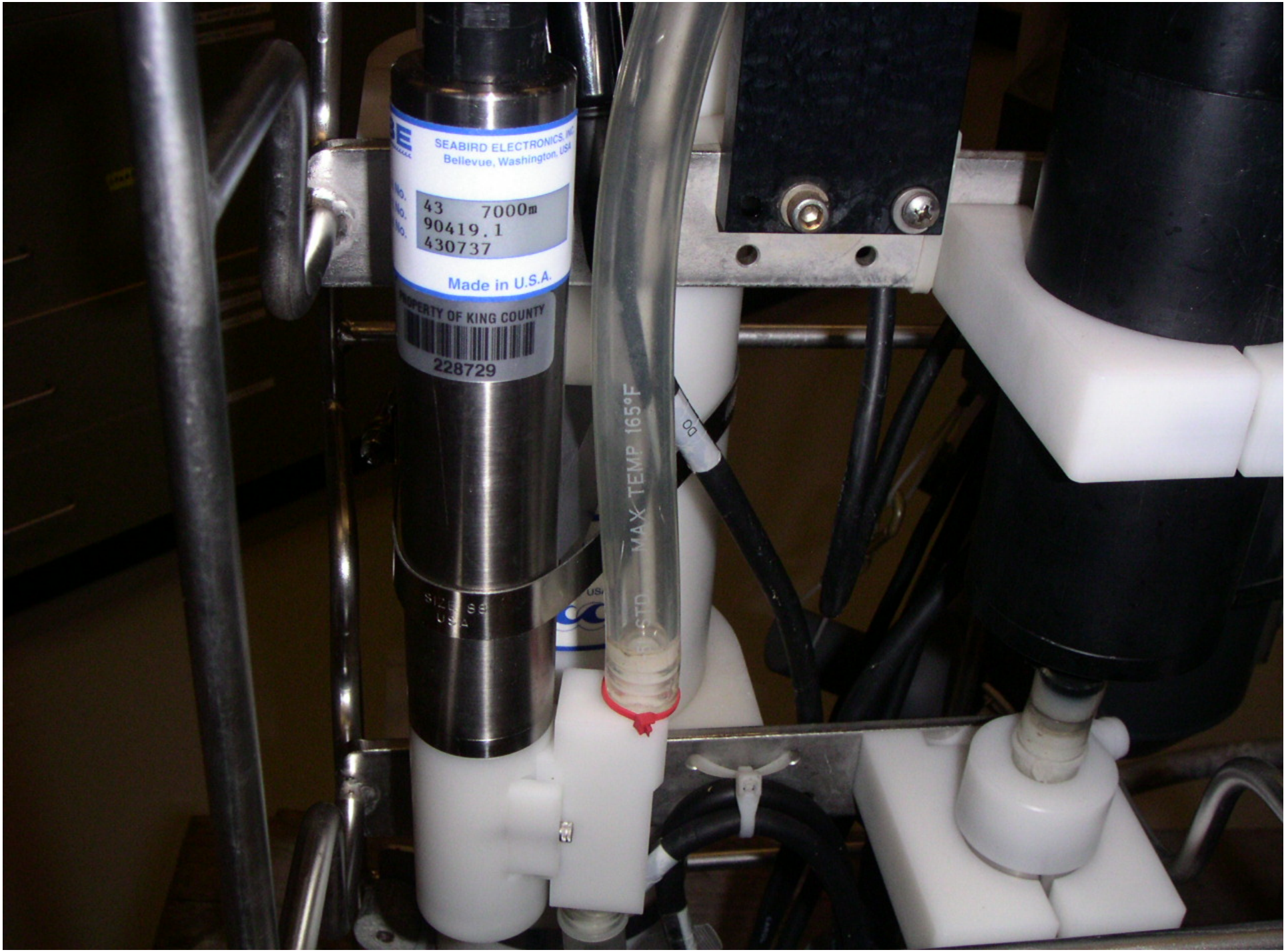
OceanTest Equipment, Inc.
OceanTest Equipment, Inc.
OceanTest Equipment, Inc.
FORT LAUDERDALE, FLORIDA, USA
10

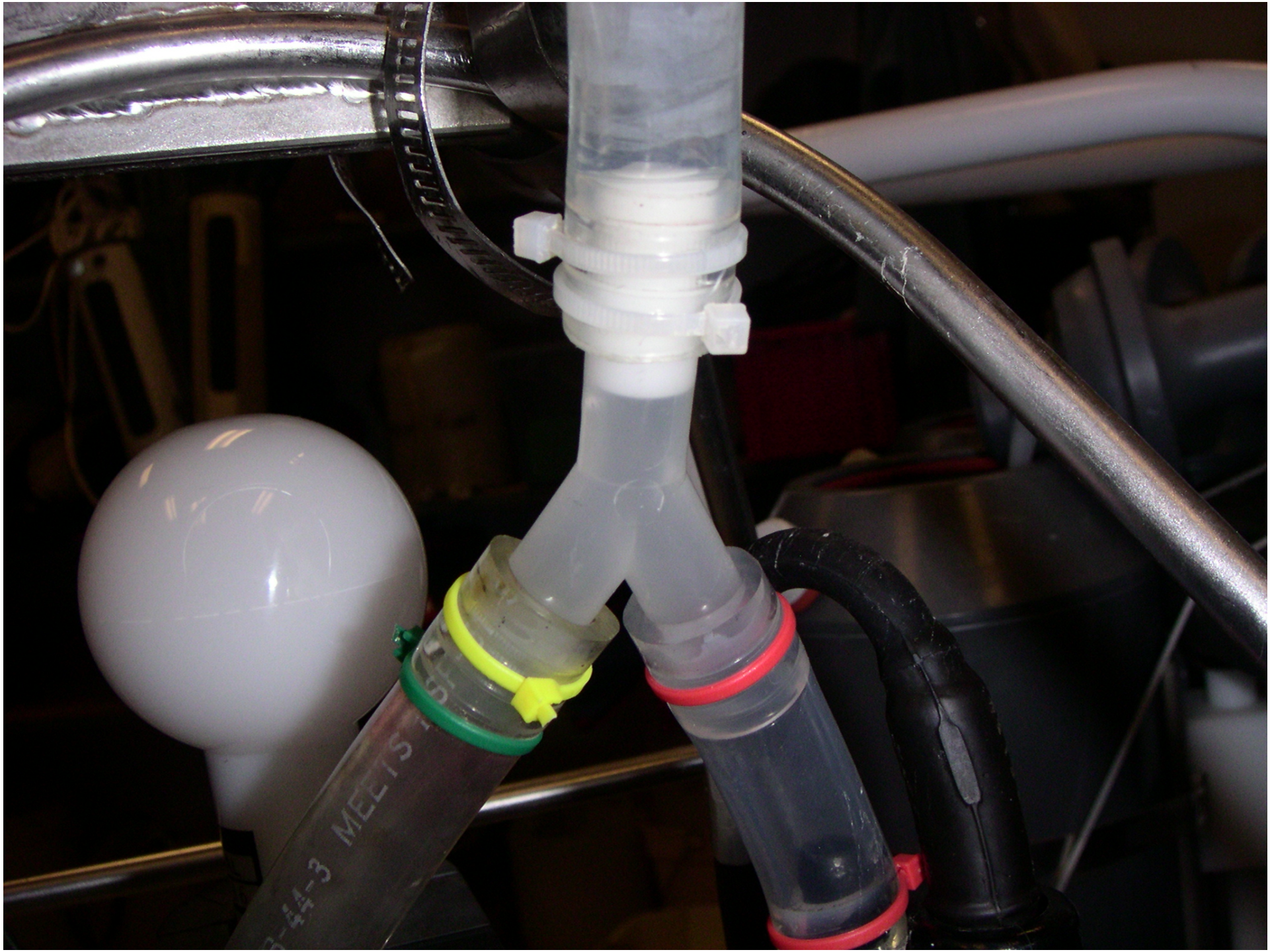


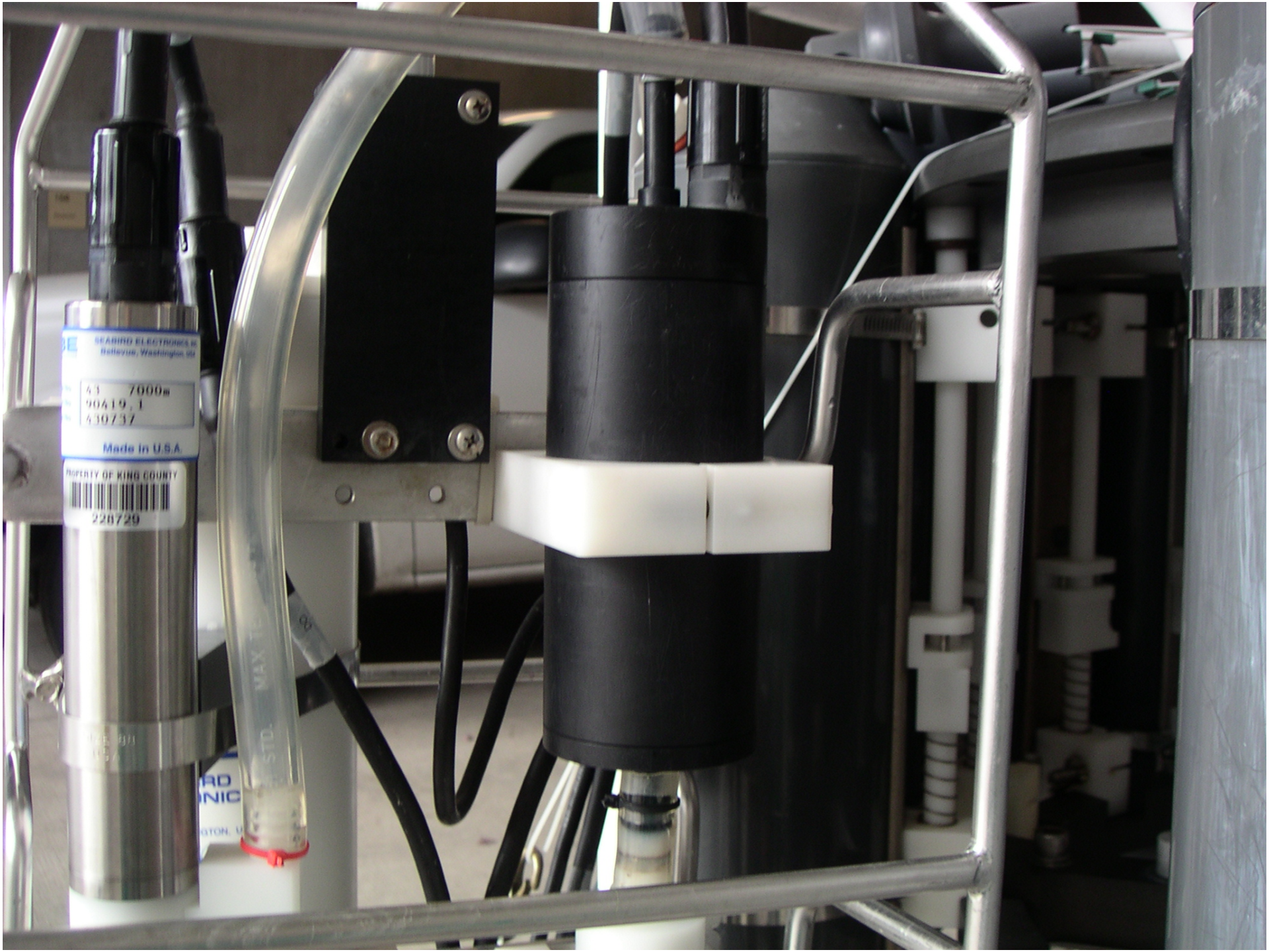
Note: Periodically clean air release valve to ensure proper functioning.

ELECTRONICS, INC.
Washington, USA
6800m
Made in U.S.A.
SBE
Model No.
Part No.
Serial No.
90270.1
042417

SBE
SEABIRD ELECTRONICS, INC.
Bellevue, Washington, USA
Model No. 29-500 335m
Part No. 90096.5
Serial No. 290421
Made in U.S.A.
PROPERTY OF KING COUNTY
197456


SEABIRD ELECTRONICS, INC.
Bellevue, Washington, USA
43 7000m
90419.1
430737
Made in U.S.A.
PROPERTY OF KING COUNTY
228729
MAX TEMP 165°F

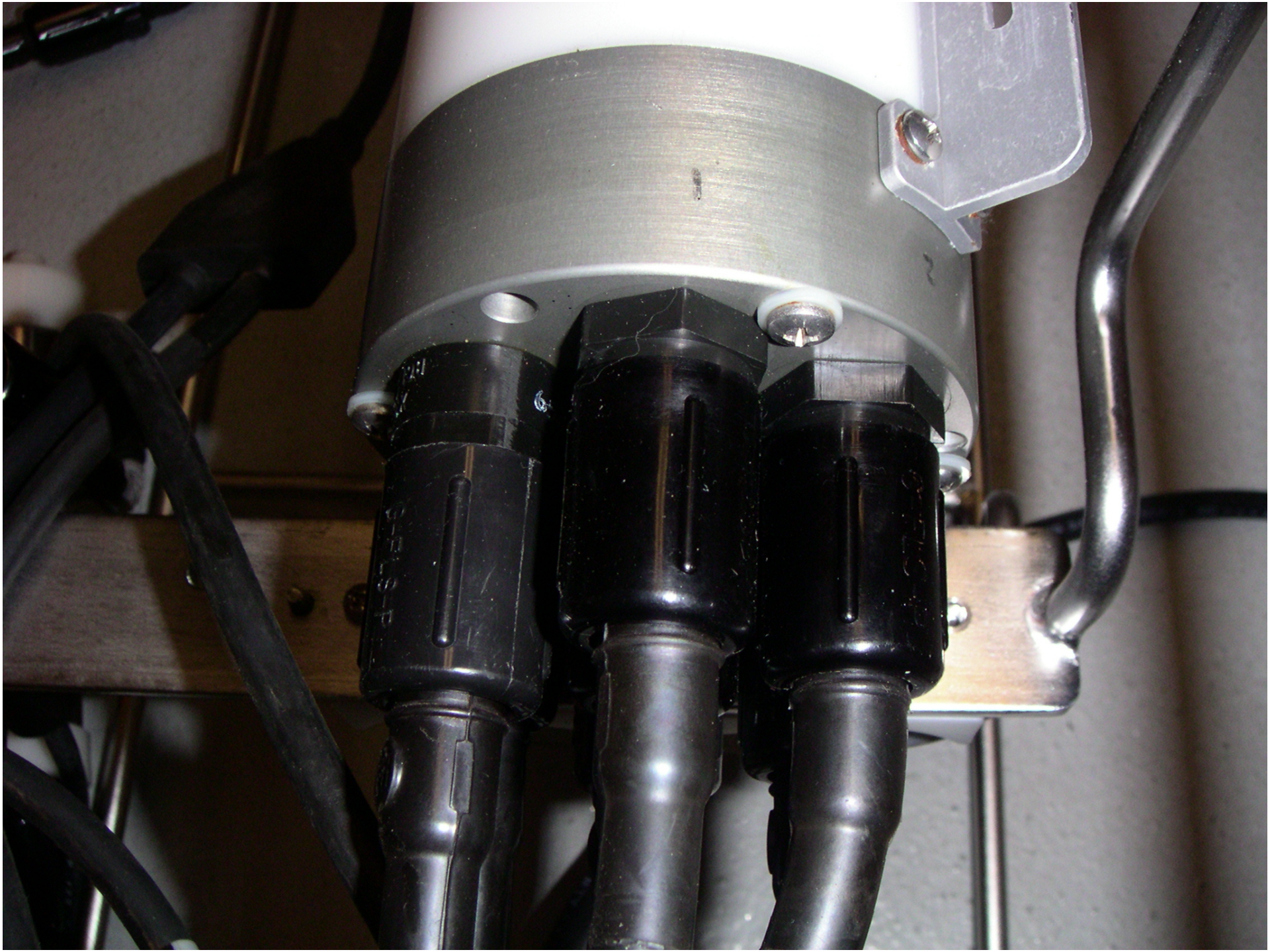


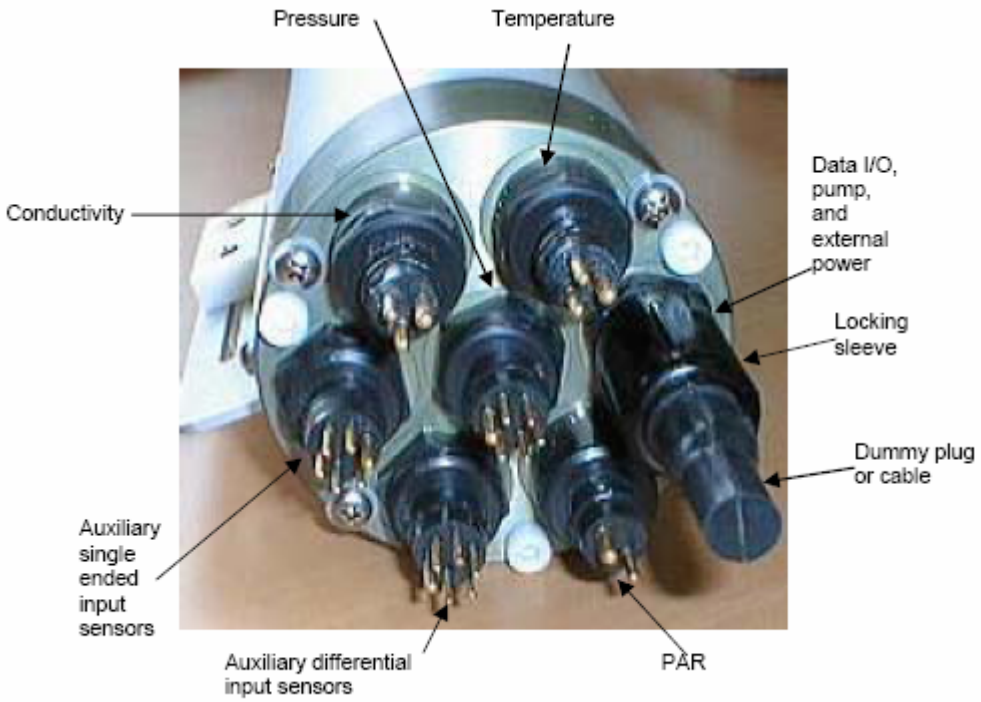

SEABIRD ELECTRONICS
Bellevue, Washington
43 7000m
90419.1
430737
Made in U.S.A.
PROPERTY OF KING COUNTY
228729

SBE
Model No.
Part No.
Serial No.

WETLABS
LI-COR
SPHER
SPQA
WET Labs
Job No.
9807014
Serial No.
WS3S-422P
Oregon, USA (541) 929-5650
DWG 32516

SBE
Made in U.S.A.




Pressure
Temperature
Conductivity
Data I/O, pump, and external power
Locking sleeve
Dummy plug or cable
Auxiliary single ended input sensors
Auxiliary differential input sensors
PAR

SEA-BIRD ELECTRONICS, INC.

1808 136th Place N.E., Bellevue, Washington, 98005 USA

Phone: (425) 643 - 9866 Fax (425) 643 - 9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 2782
CALIBRATION DATE: 30-May-03

SBE3 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPRATURE SCALE

ITS-90 COEFFICIENTS

g = 4.33692991e-003
h = 6.40090229e-004
i = 2.22882489e-005
j = 2.08619093e-006
f0 = 1000.0

ITS-68 COEFFICIENTS

a = 3.68120831e-003
b = 6.00027823e-004
c = 1.56836504e-005
d = 2.08768440e-006
f0 = 2885.357

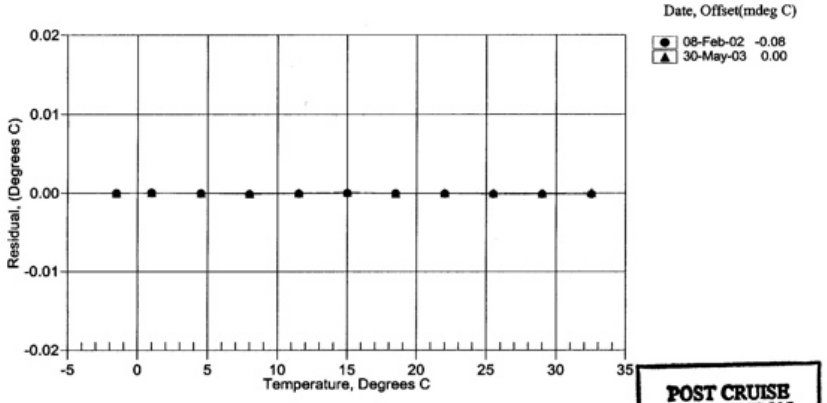
BATH TEMP (ITS-90)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.4997	2885.357	-1.4997	-0.00000
1.0003	3051.674	1.0003	0.00002
4.5003	3296.010	4.5003	-0.00001
8.0003	3554.102	8.0002	-0.00006
11.5003	3826.330	11.5003	-0.00000
15.0003	4113.052	15.0004	0.00010
18.5003	4414.594	18.5003	-0.00003
22.0003	4731.327	22.0003	-0.00001
25.5003	5063.563	25.5003	-0.00001
29.0003	5411.615	29.0003	-0.00003
32.5003	5775.796	32.5003	0.00003

Temperature ITS-90 = $1/\{g + h[ln(f_0/f)] + i[ln^2(f_0/f)] + j[ln^3(f_0/f)]\} - 273.15$ (°C)

Temperature ITS-68 = $1/\{a + b[ln(f_0/f)] + c[ln^2(f_0/f)] + d[ln^3(f_0/f)]\} - 273.15$ (°C)

Following the recommendation of JPOTS: T_{68} is assumed to be 1.00024 * T_{90} (-2 to 35 °C)

Residual = instrument temperature - bath temperature



POST CRUISE CALIBRATION

SEA-BIRD ELECTRONICS, INC.

1808 136th Place N.E., Bellevue, Washington, 98005 USA

Phone: (425) 643 - 9866 Fax (425) 643 - 9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 2440
CALIBRATION DATE: 12-Jun-03

SBE4 CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Seimens/meter

GHIJ COEFFICIENTS

```
g = -1.01312997e+001
h =  1.51422460e+000
i =  4.51172228e-004
j =  4.63443337e-005
CPcor = -9.5700e-008 (nominal)
CTcor =  3.2500e-006 (nominal)
```

ABCDM COEFFICIENTS

```
a =  3.35410971e-004
b =  1.51445639e+000
c = -1.01314637e+001
d = -8.48566310e-005
m =  3.4
CPcor = -9.5700e-008 (nominal)
```

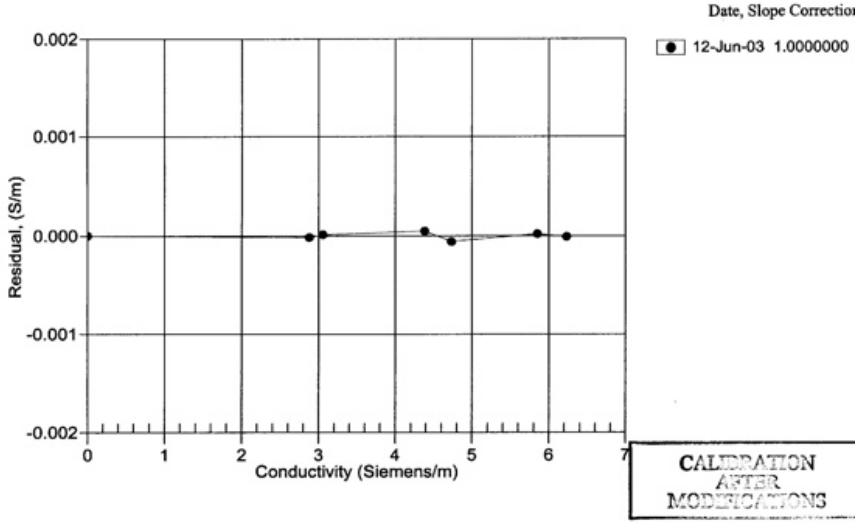
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (kHz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
0.0000	0.0000	0.00000	2.58539	0.00000	0.00000
-1.0003	35.8158	2.87742	5.06304	2.87740	-0.00002
0.9997	35.8161	3.05310	5.17594	3.05311	0.00001
14.9997	35.8170	4.38110	5.96018	4.38115	0.00005
18.4997	35.8177	4.73657	6.15301	4.73652	-0.00006
28.9997	35.8140	5.84696	6.71977	5.84698	0.00002
32.4997	35.8062	6.22868	6.90376	6.22867	-0.00001

Conductivity = $(g + hf^2 + if^3 + jf^4) / 10(1 + \delta t + \varepsilon p)$ Siemens/meter

Conductivity = $(af^m + bf^2 + c + dt) / [10 (1 + \varepsilon p)$ Siemens/meter

t = temperature[°C)]; p = pressure[decibars]; δ = CTcor; ε = CPcor;

Residual = (instrument conductivity - bath conductivity) using g, h, i, j coefficients



CALIBRATION AFTER MODIFICATIONS

Sea-Bird Electronics, Inc.
1808 136th Place NE, Bellevue, Washington 98005 USA
Website: http://www.seabird.com

FAX: (425) 643-9954
Tel: (425) 643-9866
Email: seabird@seabird.com

SBE S/N 290362 11 March 2003

Pressure calibration: PAINE 211-75-710-02 500 psia S/N 187671

Temperature Compensation (TC) value = 412

Straight Line Fit:

Pressure(psia) = M * N + B (N = Binary output)

M = -0.06920 B = 266.97

Quadratic Fit:

Pressure(psia) = A0 + A1 * N + A2 * N * N (N = binary output)

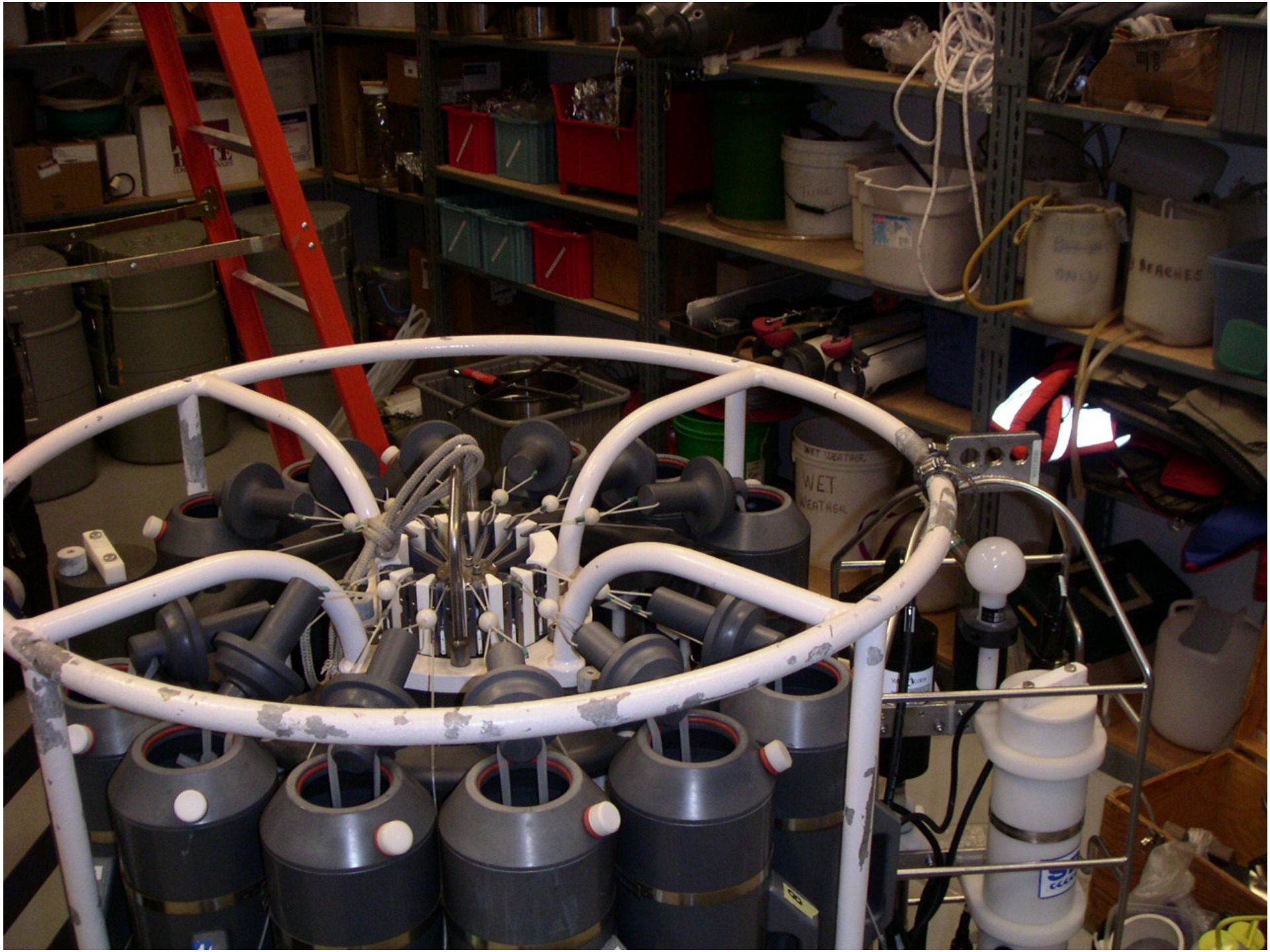
A0 = 266.51252 A1 = -6.922776e-002 A2 = 7.838387e-008

		Straight Line Fit		Quadratic Fit	
Pressure (psi)	Output (N)	error, psi	error, %FS	error, psi	error, %FS
14.54	3655.98	-0.569	-0.11	-0.070	-0.01
99.67	2421.89	-0.304	-0.06	-0.362	-0.07
199.67	972.00	0.037	0.01	-0.370	-0.07
299.67	-475.00	0.174	0.03	-0.252	-0.05
399.65	-1918.67	0.091	0.02	-0.028	-0.01
499.64	-3354.00	-0.568	-0.11	-0.057	-0.01
399.65	-1922.00	0.323	0.06	0.206	0.04
299.66	-483.06	0.735	0.15	0.310	0.06
199.66	963.00	0.663	0.13	0.256	0.05
99.67	2413.00	0.309	0.06	0.248	0.05
14.50	3653.00	-0.323	-0.06	0.175	0.03

Output binary values are averages of 101 samples taken at 2 Hz.

SEASOFT Versions 3.3M and higher will prompt for A0, A1, and A2

SEASOFT Versions 3.3L and lower will prompt for M and B


WET
WEATHER

SEA-BIRD
ELECTRONICS