



SEA-BIRD ELECTRONICS, INC.

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DATE	SYM	REVISION RECORD	AUTH	DR	CHK
11.02	A	Change qty of SS Bolts	CB	MJ	
3/2003	B	Change multiple quantities of parts	CB	KLP	
12/29/03	C	Add 31138, remove 30185	CB	KLP	
4/9/2004	D	Remove 30174, Fix Qty 30176 & desc of 30447	CB	KLP	

SBE P/N 50273

SBE 16plus / 19plus Standard Hardware Spares Kit

KIT CONTENTS

SBE P/N	Manufacturer P/N	Primary SBE Application	Qty Supplied
30145	Mach screw, 6-32 x 1/2 PH SS	Battery endplate	3
30163	Mach screw, 8-32 x 1 PH SS	Seacat magnetic switch	2
30176	Mach screw, 10-24 x 3/4 PH SS	Ti Battery Endcap, threaded ring	3
30242	Washer, #6 flat, SS	With Battery endplate to top post screws	3
30249	Washer, #10, Flat, SS	Used with 30176, Battery Endcap threaded ring hardware	3
30414	Washer, #12 int. tooth	(3) with battery post screws	3
30447	Bolt, 1/4-20 x 1-1/4 HEX Ti	Battery endcaps to lift eye	2
30633	Washer, 1/4" Split Ring Lock, Ti	Used with 30875, Connector Guard bolts	2
30875	Bolt, 1/4-20 x 5/8, Hex, Ti	Securing bolts for connector guard to sensor Endcap	2
30919	Screw, 6-32 x 3/8 FH Slotted, Ti	Exhaust duct (top of cell) to cell guard	2
30954	Screw, 4-40 x 3/16 PH SS	Securing screw for PCB retainer rod	1
31066	Screw, 8-32 x 3/4 Socket, Ti	(4) secure cell to Endcap, (2) secure TC duct to Endcap	2
31089	Screw, 10-32 x 1/2 FH, Philips, Ti	Secure back side (conn.Guard) Housing-Endcap	1
31090	Screw, 10-32 x 5/8, Philips, Ti	Secure Cell Guard to Housing	2
31118	Screw, 10-32 x 3/8, Philips, Ti	Secure Cell Guard to Sensor Endcap	2
31119	Screw, 6-32 x 5/8 Truss Head	Secure Bulkhead retainer to bulkhead bottom plate	2
31138	Mach Screw, 1/4-20 X 3/4 HEX HD SS	(4+) Used on cages	4
31225	Bolt, 1/4-20 x 1-1/4 HEX Ti, Heat Treat	Mount CTD to cage	2

APPLICATIONS:

Universal Internal Hardware:

SBE P/N	Part Description	Primary Application	QTY Required
30145	Mach screw, 6-32 x 1/2 PH SS	Battery endplate, Al Cell tray to housing	3
30242	Washer, #6 flat, SS	With Battery endplate to top post screws	3
30414	Washer, #12 int. tooth	(3) battery post screws	3
30954	Screw, 4-40 x 3/16 PH SS	Securing screw for PCB retainer rod	1
31119	Screw, 6-32 x 5/8 Truss Head	Secure Bulkhead retainer to bulkhead bottom plate	2

Sea-Bird Electronics Procedure

PROCEDURE NUMBER: 67103

TITLE: SBE16+/19+ Standard Hardware Spares Kit

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Universal External Hardware:

SBE P/N	Part Description	Primary Application	QTY Required
30163	Mach screw, 8-32 x 1 PH SS	Seacat magnetic switch	2
30633	Washer, 1/4" Split Ring Lock, Ti	Used with 30875, Connector Guard bolts	2
30875	Bolt, 1/4-20 x 5/8, Hex, Ti	bolts for connector guard to sensor Endcap	2
30919	Screw, 6-32 x 3/8 FH Slotted, Ti	Exhaust duct (top of cell) to cell guard	2
31066	Screw, 8-32 x 3/4 Socket, Ti	(4) secure cell to Endcap, (2) TC duct to Endcap	6
31089	Screw, 10-32 x 1/2 FH, Philips, Ti	Secure back side (conn.Guard) Housing-Endcap	1
31090	Screw, 10-32 x 5/8, Philips, Ti	Secure Cell Guard to Housing	2
31118	Screw, 10-32 x 3/8, Philips, Ti	Secure Cell Guard to Sensor Endcap	2
31138	Mach Screw, 1/4-20 X 3/4 HEX HD SS	(4+) Used on cages	4
31225	Bolt, 1/4-20 x 1-1/4 HEX Ti	Secure Seacat sensor Endcap to cage bar	2

Titanium Housings:

SBE P/N	Part Description	Primary Application	QTY Required
30176	Mach screw, 10-24 x 3/4 PH SS	Ti Battery Endcap, threaded ring, outer holes	3
30249	Washer, #10, Flat, SS	with 30176, Battery Endcap threaded ring hardware	3
30447	Bolt, 1/4-20 x 1-1/4 HEX Ti	Battery Endcap to lift eye	2

Plastic Housings:

SBE P/N	Part Description	Primary Application	QTY Required
30447	Bolt, 1/4-20 x 1-1/4 Hex, Ti	(2) Lift eye to Plastic Endcap	2

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Instructions For Hardware Lubrication & Loctite

LUBRICANT TYPES

A. Never-Seez Blue Moly

1. Molybdenum Disulfide grease.
2. Used as lubricant for threaded parts. Blue Moly will prevent metals from bonding to each other.
3. Use is especially imperative on soft metals such as Al, and sharper metals, such as Ti.

B. DC-4

1. Heavy Silicon based Lubricant, used to displace salt water in threaded holes.
2. Application is imperative for any moored applications. Also, for any equipment that will spend long periods of time submerged.

C. Parker Super-O

1. Thick silicon-based lubricant for use on all O-Ring surfaces. O-Ring Lube insures that the O-Ring will not crack due to dryness or abrasion.
2. O-Ring lube should be applied in a thin layer to all O-Rings, face surfaces, or seating grooves under all circumstances.

D. Loctite 222 (purple) and Loctite 242 (blue)

1. A Hardening agent, used to keep a screw from working itself loose.
2. All internal hardware into metal must receive Loctite.
3. For all internal hardware into metal, screw size \leq 8-32, use purple Loctite (222).
4. For all internal hardware into metal, screw size $>$ 8-32, use blue Loctite (242).

APPLICATIONS

A. All Al and SS external Hardware, screwed into Plastic Parts

1. Fill all holes with DC-4.
2. Celcon is self-lubricating. Therefore, there is no need for Blue Moly, when screwing into Plastic.

B. Titanium external Hardware, screwed into Ti Parts

1. Do not fill any holes with DC-4. DC-4 has a tendency to wash the blue Moly off of the hardware, and there is no danger of titanium corroding in salt water.
2. Coat all screws thoroughly with Blue Moly.

C. All internal hardware into metals, Delrin, or PVC

1. Use Loctite 222 on all hardware.
2. A thin layer is sufficient. Sea-Bird recommends placing screws on a tissue, and using a small drop on the lower half of the threads only.
3. Be aware that for some procedures, you may need to assemble first, then later remove screws one at a time and apply the Loctite.

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