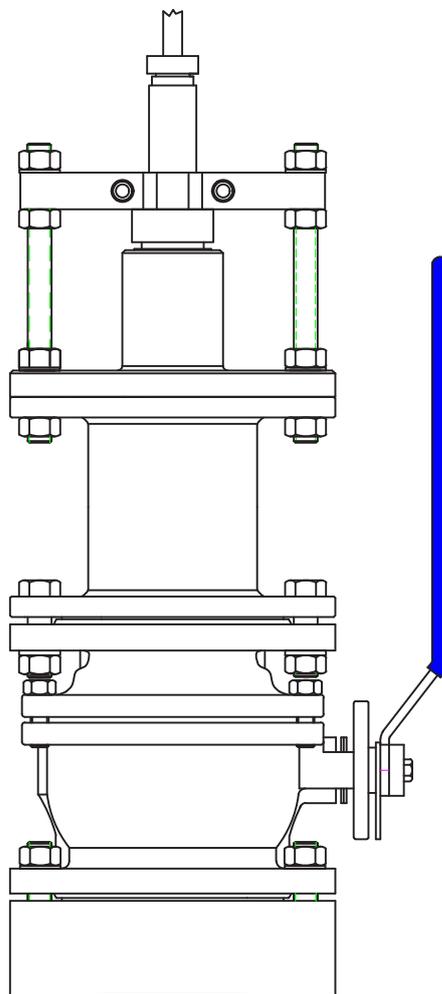




Single Bottom Sea Valve SB-100-SB Operation and Installation Manual



SKIPPER Electronics AS
Enebakkveien 150
P. O. Box 151, Manglerud
0612 Oslo
Norway

Telephone: +47 23 30 22 70
E-mail: support@skipper.no
Co. reg. no: NO-965378847-MVA
www.skipper.no

Document no: **DM-BSB100-SB**
Rev 1349A
Date: 2019-04-24

Weitergabe sowie vervielfältigung dieser unterlage, verwertung und mitteilung ihres inhaltes nicht gestattet, soweit nicht ausdrücklich zugestanden. Zuwiderhandlungen verpflichten zu schadenersatz.

Toute communication ou reproduction de ce document, toute exploitation ou communication de ou son contenu sont interdites, sauf autorisation expresse. Tout manquement à cette règle est illicite et expose son auteur au versement de dommages et intérêts.

Copying of this document, and giving it to others and the use or communication of contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages.

Sin nuestra expresa autorización, queda terminantemente prohibida la reproducción total o parcial de este documento, así como su uso indebido y/o su exhibición o comunicación a terceros. De los infractores Se exigirá el correspondiente resarcimiento de daños y perjuicios.

Contents

1. INSTALLATION	4
2. SPACE CONSIDERATIONS.....	6
3. WELDING THE BOTTOM FLANGE.....	7
4. SEA VALVE ASSEMBLY (ORIENTATION NOT NECESSARY)	8
5. ASSEMBLING OF EXTENSION TUBE AND SENSOR.....	9
6. SENSOR INSTALLATION	10
7. CLAMP UNIT MOUNTING.....	11
8. FINAL ASSEMBLY	14
9. SENSOR REMOVAL.....	15
10. RE-INSTALLATION.....	16
11. DB-100 SENSORS	17
12. 100 MM SINGLE BOTTOM BALL VALVE	18
13. MAINTENANCE	19

SKIPPER SB (Single Bottom) Sea Valve 100 mm

1. Installation

The SKIPPER SB Sea Valve 100 mm is used for installation of:SKIPPER speed log sensors and Echo sounder transducers fitted with adaptor for XB-100-XX .

Caution!

Be aware that the Sea Valve contains high precision parts and therefore proper handling when mounting is essential for the final result.

When handling the Sea Valve, all lifting devices must be attached on the outside of the valve. It is very important to not insert any chains, wire, rope or any other device into the valve chamber. This to avoid damaging and any kind of pollution of the Sea Valve.

Caution must be taken when mounting seavalves that all parts are aligned correctly, and that the inside is clean. DO NOT use liquid sealants, and DO NOT paint the inside of a valve.

The SKIPPER SB Sea Valve 100 mm is delivered partly assembled for transport. The parts necessary for final assembly will be found packed in a box delivered with the Sea Valve. First of all, it must be decided where the Sea Valve should be installed. Normally, this will be in the fore part of the ship, in the centerline, or as close to the centerline as possible. Optimal system operation is achieved by fitting the transducer/sensor as deep as possible on the hull.

- The active surface of the sensor must be installed with front face a maximum of +/-1 degree to the ships horizontal plane. (Speed Logs).
- The active surface of the transducer must be installed with front face a maximum of +/-7 degree to the ships horizontal plane. (Echo Sounder).

Do not mount transducers close to the bow thruster propeller outlets, or aft of other hull installations (outlets, vents or other protruding details) who may create aeration or turbulence.

It is necessary to select a part of the hull that is submerged and free from turbulence and aeration under all load and speed conditions, and to avoid positions where air is trapped in heavy weather.

If a flat, horizontal section is not available for transducer fitting, the shipyard must construct a suitable bed. Welding seams in this area should be smoothed and rounded off, in order not to create turbulence or aeration at speed.

Protect the active element of the transducer/sensors during transport and installation, and **do not paint the surface.**

The Sea Valve should be placed in a service accessible place, large enough for installation and disassembly of the sensor unit. See drawing: "Space considerations".

Important

”Sensors for Speed Log and Echo Sounder are delivered with a fixed cable. Attention must be taken to allow easy replacement/pulling of new cable during maintenance”.

SKIPPER Electronics AS will recommend installation positions if GA-drawings (General arrangements), lines drawings and frame drawings are made available for study.

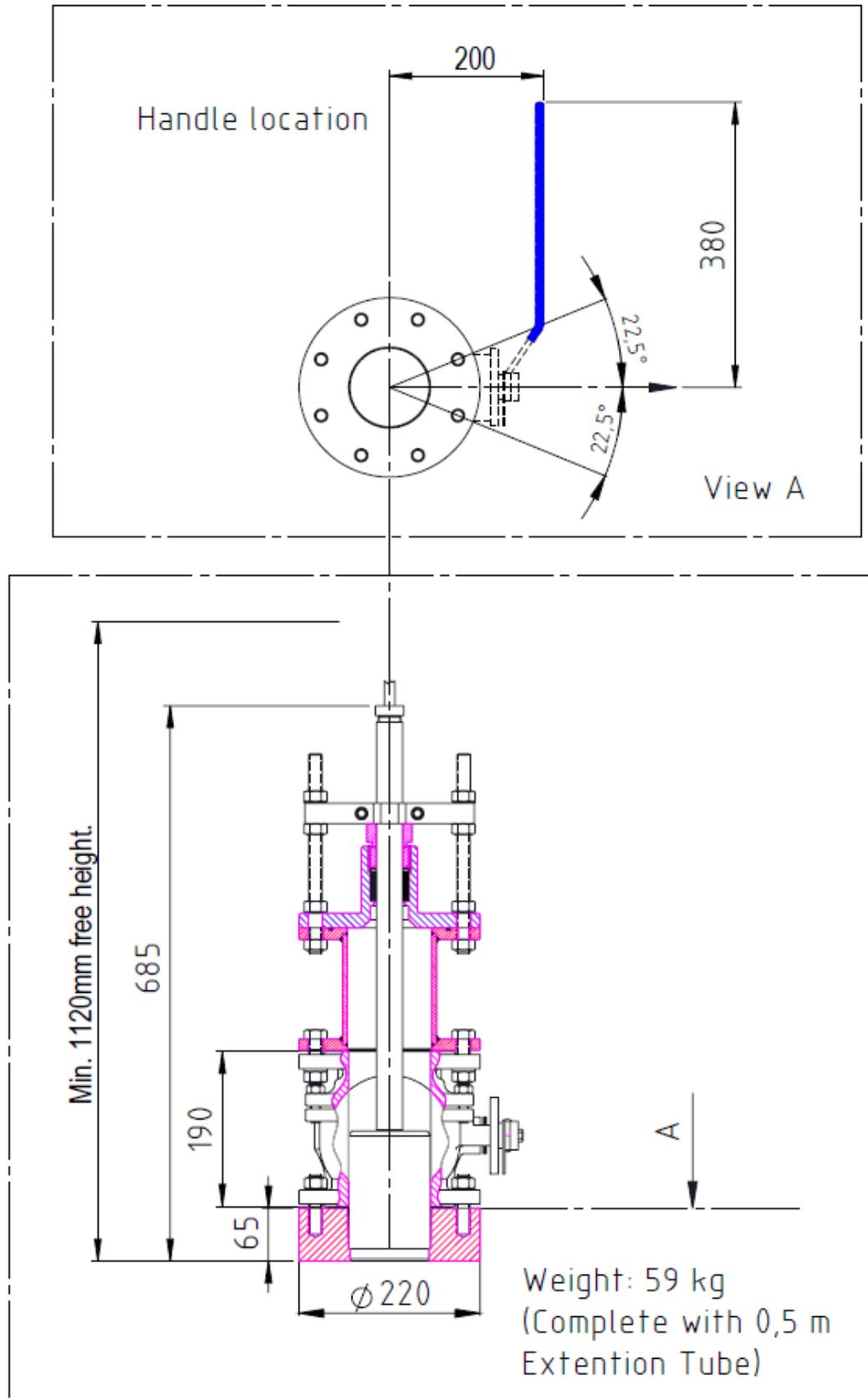
Condition.

The welding to hull structures and structural support of the items may be subject to separate approval by classification societies for each installation on board a ship.

Note: All “Item (X)” references on the following pages, can be found on drawing 100 mm Single Bottom Ball Valve.

2. Space considerations

The Sea Valve should be placed in a service accessible place large enough for installation and disassembly of the sensor unit.



3. Welding the bottom flange

- When the position has been decided, a 220 mm hole is cut in the hull.
- The bottom flange, Item (1), is welded into the hull. Standard welding practice, methods and procedures should be observed, but may vary. (See welding notes).

Attention:

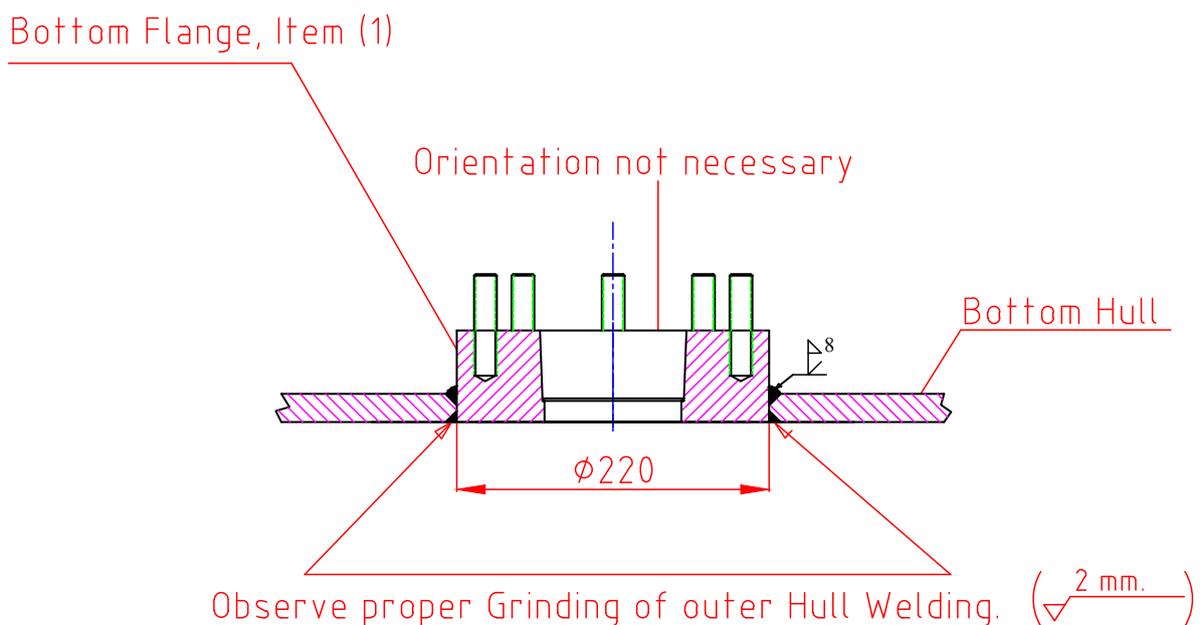
The bottom flange is a part of the Sea Valve that is machined with high accuracy and it should be protected after mounting to avoid damage to the bottom flange surfaces. This to avoid leakage. If the valve is pre-mounted, be sure to protect the valve from being polluted by welding debris.

WELDING NOTES!

All bottom parts and flanges for welding are precisely machined parts. During welding of these parts to the ship's hull plates, careful attention must be paid to avoid construction strain on the bottom parts and flanges.

- Let parts cool down during welding.
- Over heating may change fit and form and result in non-conformity with intended sensor/transducer.
- Welding to thick hull steel plates will exert high stress on bottom parts and flanges.
- Especially care must be taken during welding of stainless steel flanges.
- Work must be performed by a qualified and certified welder.

Welding the bottom flange in ship's hull.



4. Sea Valve Assembly (Orientation not necessary).

Step 1

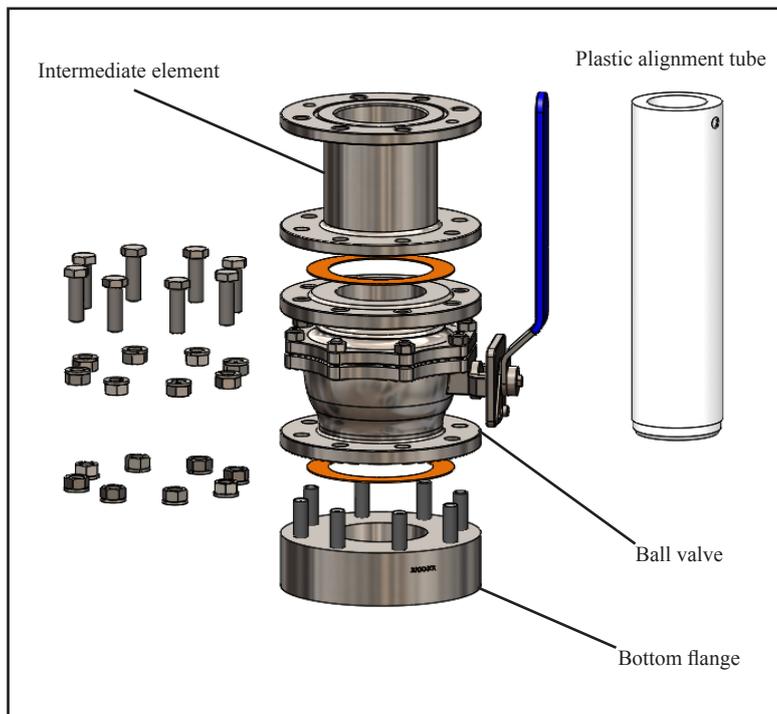
- Place 1.5 mm gasket, on top of Bottom Flange.
- Then place the Ball Valve element on top of the Bottom Flange. The 16 mm nuts and washers should be mounted, **not** tightened.
- Place a 1.5 mm gasket on top of the Ball Valve element.
- Mount the intermediate element on top of the Ball Valve element. The track for o-ring to be upwards.
- All 8 nuts and washers should be mounted, **not** tightened.

Step 2

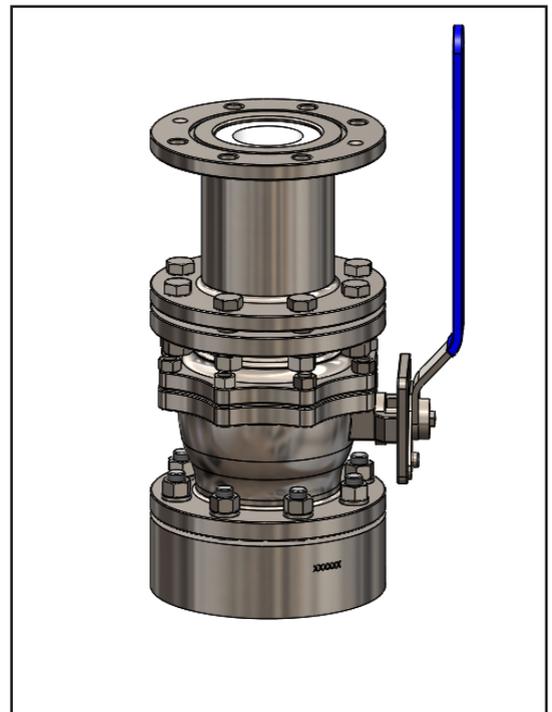
- Place the plastic alignment tube, all the way, into the sea valve.
- Tighten 8 nuts ball valve to bottom flange.
- Tighten 8 nuts Intermediate element to ball valve.
- Remove the plastic alignment tool.

Caution must be taken when mounting seawalves that all parts are aligned correctly, and that the inside is clean. DO NOT use liquid sealants, and DO NOT paint the inside of a valve.

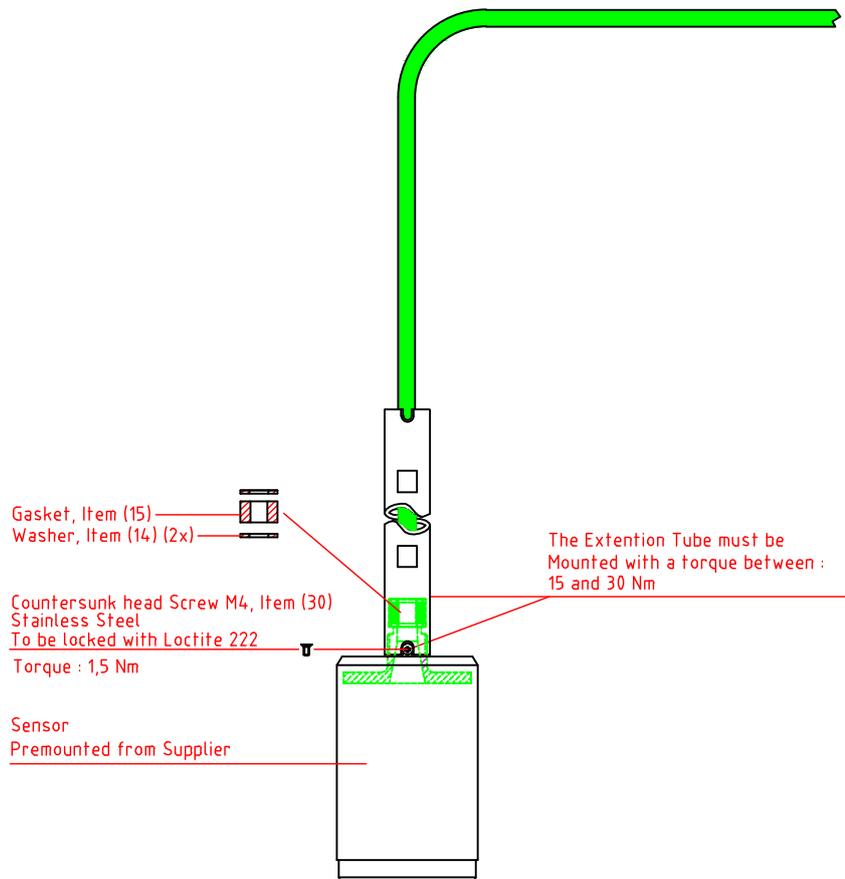
Step 1



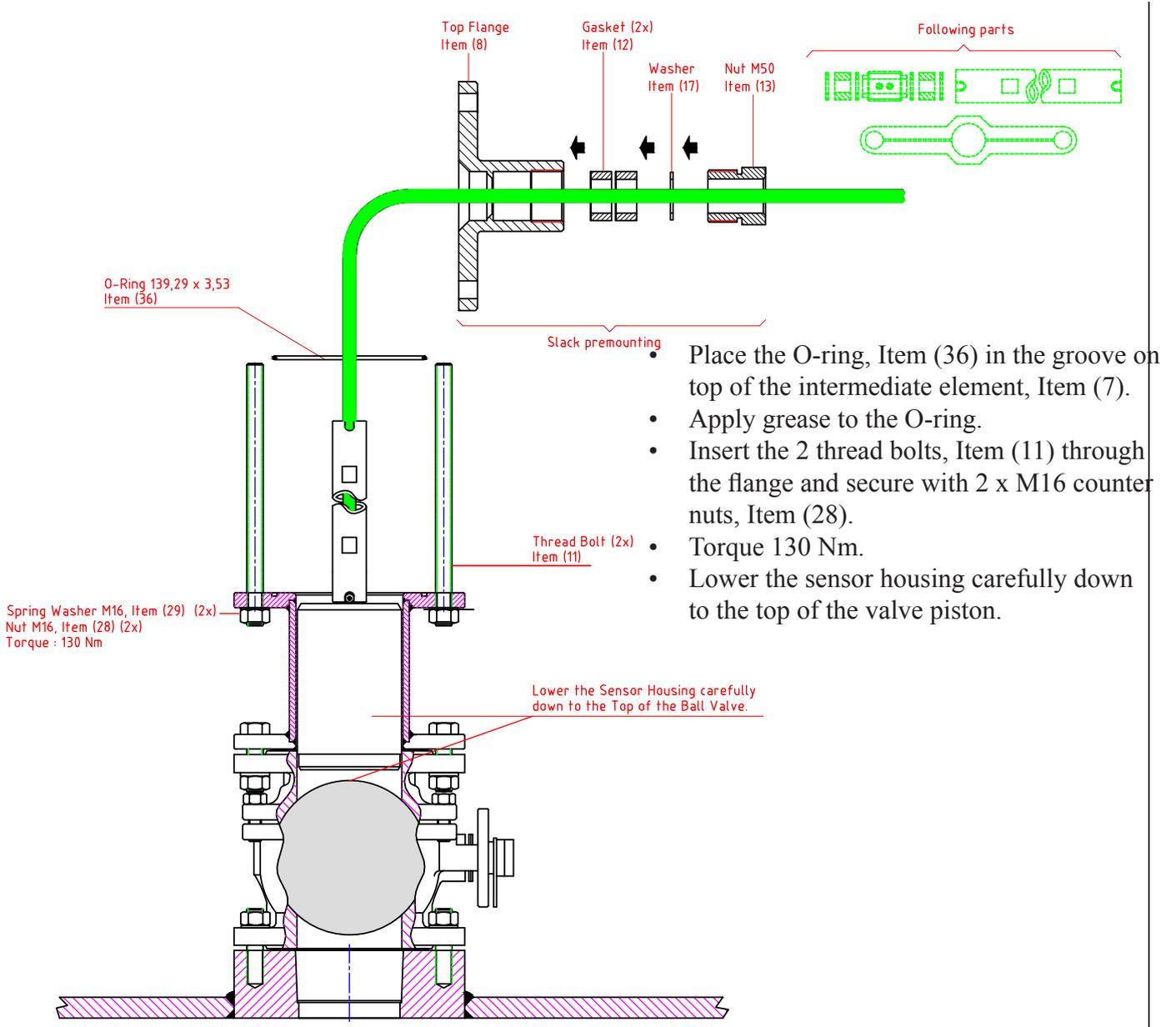
Step 2



5. Assembling of Extension Tube and Sensor



6. Sensor installation



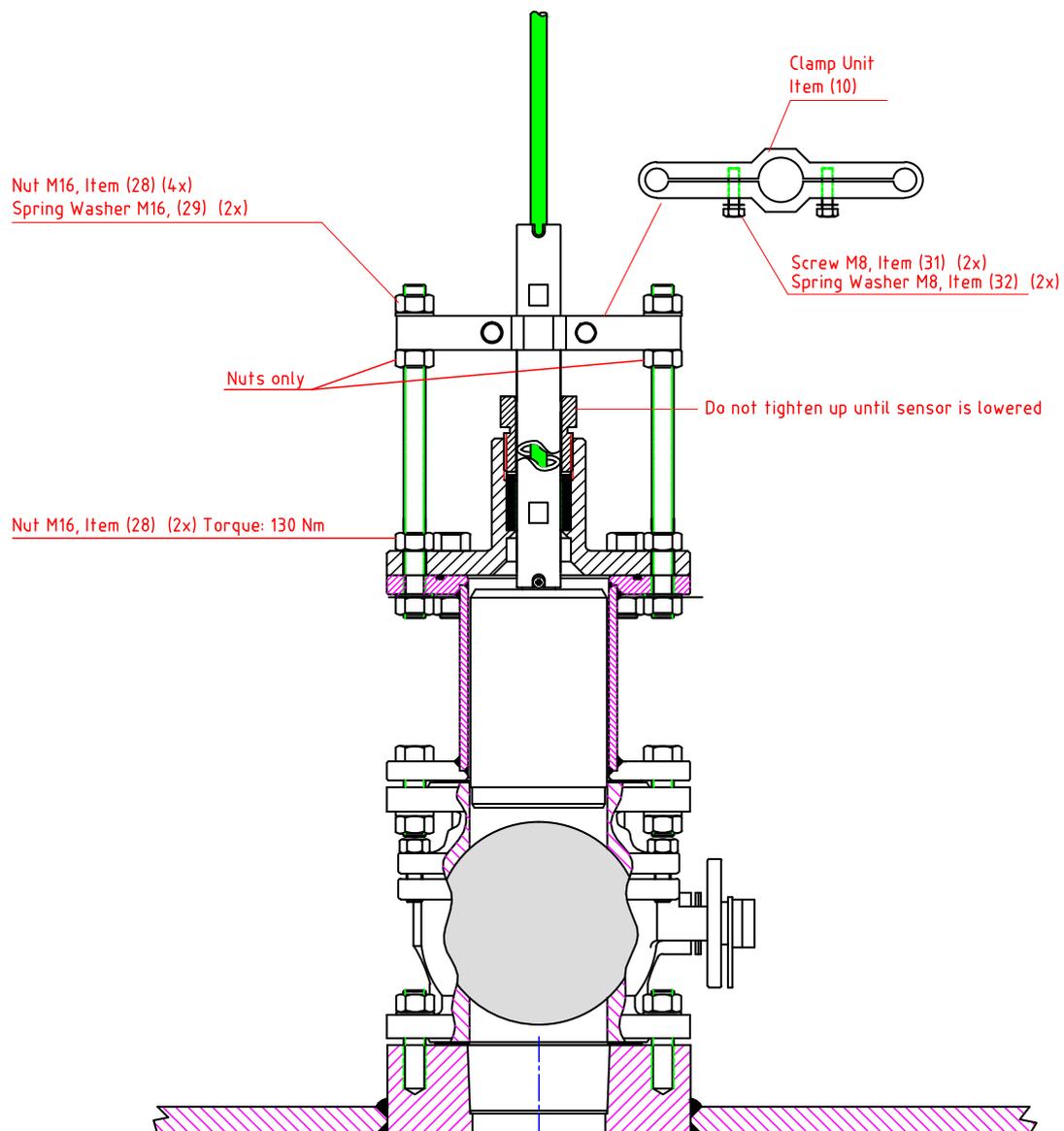
- Place the O-ring, Item (36) in the groove on top of the intermediate element, Item (7).
- Apply grease to the O-ring.
- Insert the 2 thread bolts, Item (11) through the flange and secure with 2 x M16 counter nuts, Item (28).
- Torque 130 Nm.
- Lower the sensor housing carefully down to the top of the valve piston.

7. Clamp Unit mounting

Mount Top Flange, Item (8). Secure with 8 washers, Item (29) and nuts, Item (28). Torque: 130 Nm.

Mount in following order:

- 2 x gasket, Item (12).
- Washer, Item (17).
- Nut M50, Item (13).
- 2 x M16 nuts, Item (28).
- Clamp Unit, Item (10).
- 2 x M16 nuts, Item (28) with spring washer, Item (29).



- Open Sea Valve, lower sensor unit and Extension Tube. (See figure 7.2 next page)
- Rotate the Extension Tube to align the sensor to point forward (ahead), (only needed for Speed Logs. See figure 7.3 next page). Use the flattened area on the Extension Tube to find correct direction.

- Open Ball Valve piston, lower sensor unit.
- Tighten up the 2 x screw M8, Item (31).

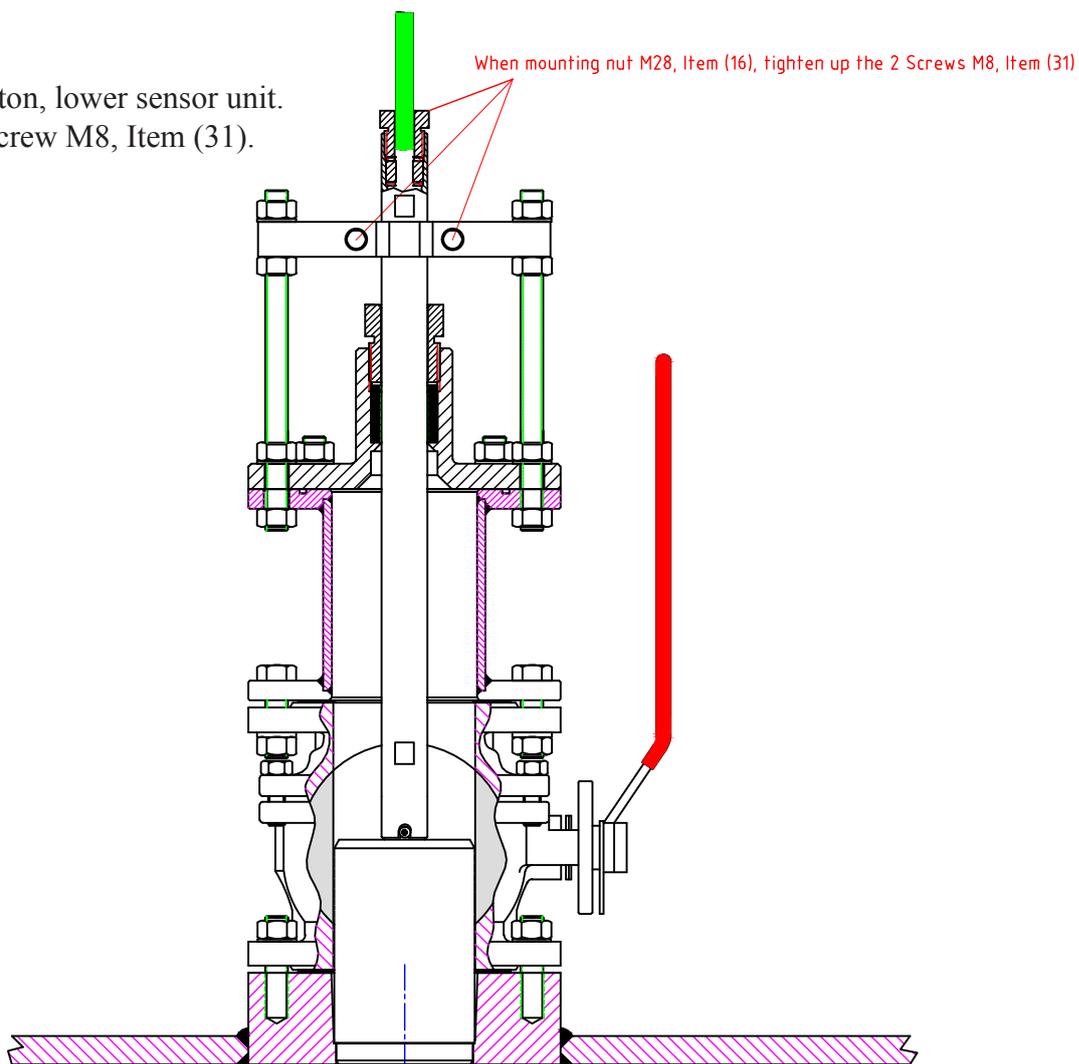


Figure 7.2 Lowering the sensor

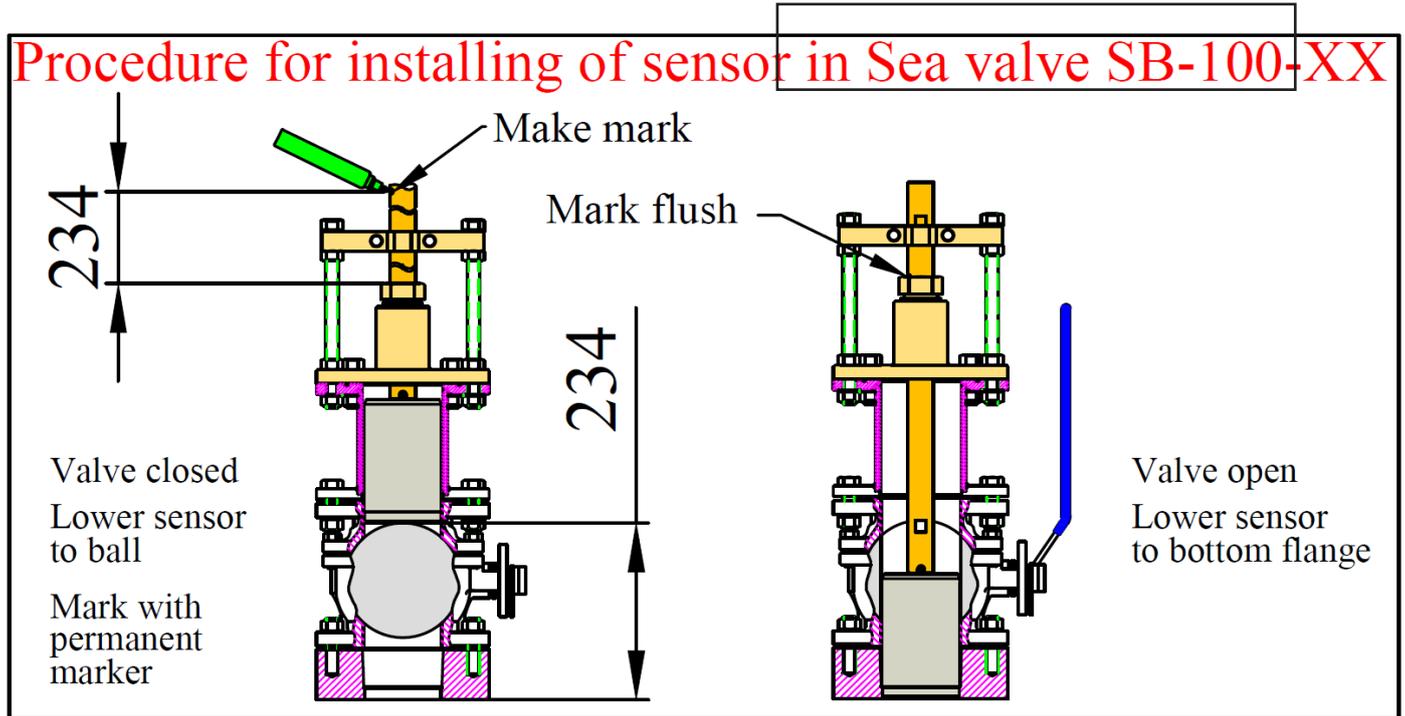
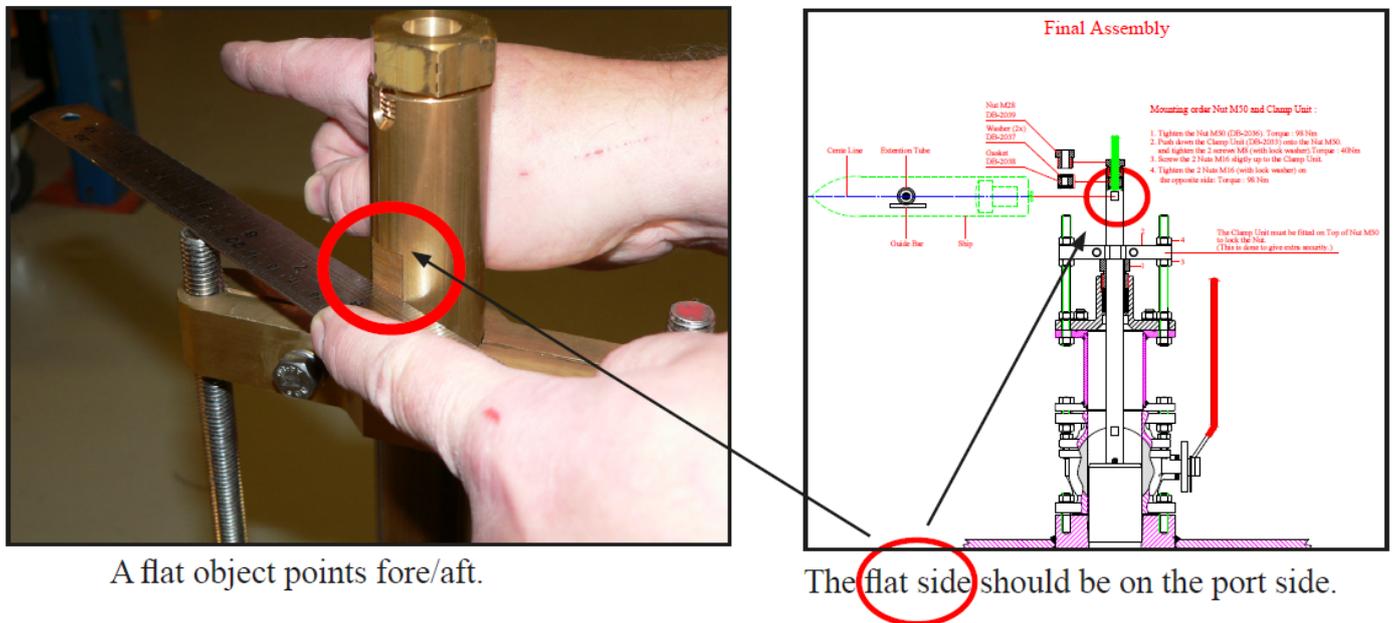


Figure 7.3 Forward position of speed log sensor



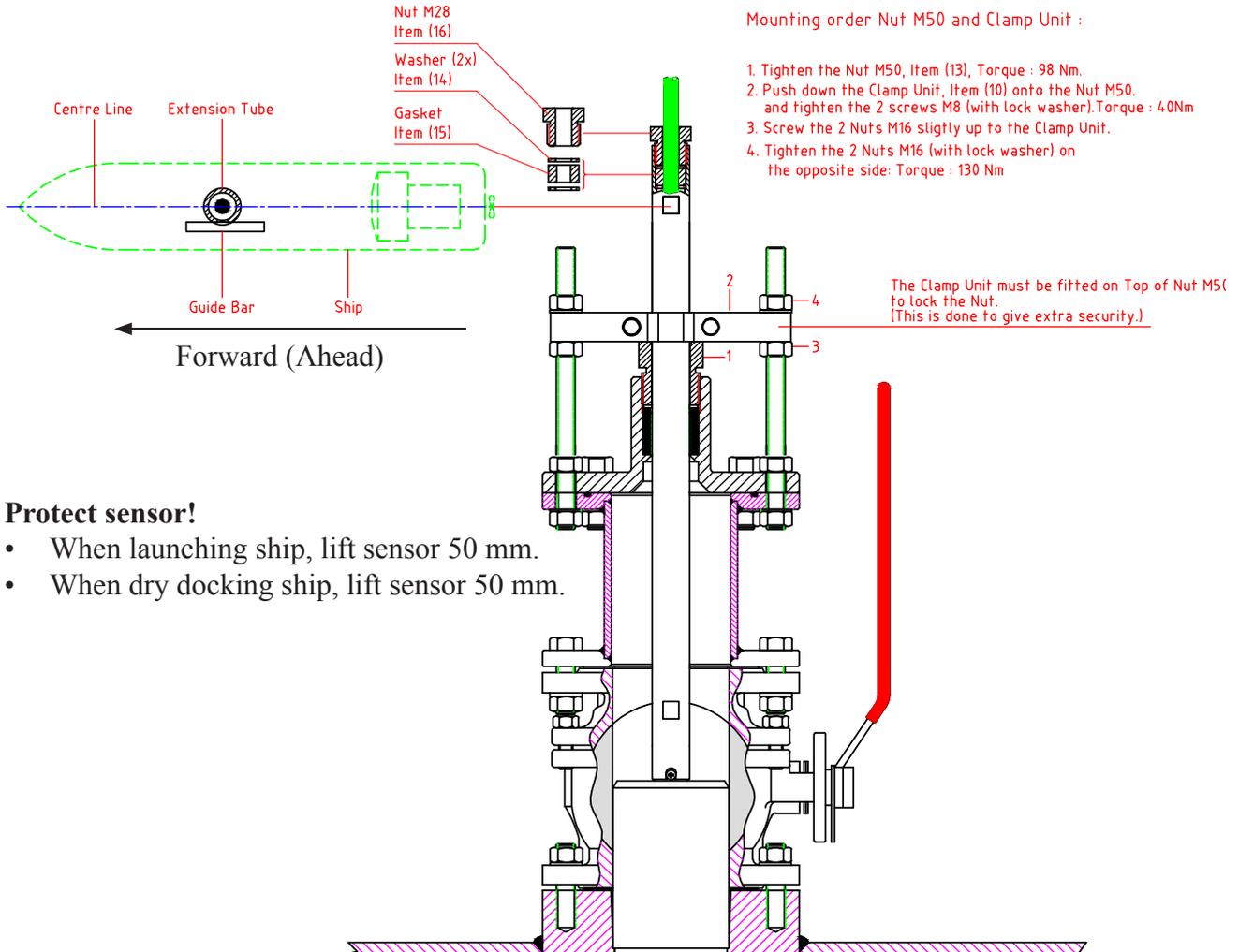
A flat object points fore/aft.

The flat side should be on the port side.

8. Final assembly

After the ship is afloat, it is necessary to let the air out of the Sea Valve:

- Loosen the nut M50, let the air out and tighten nut again.

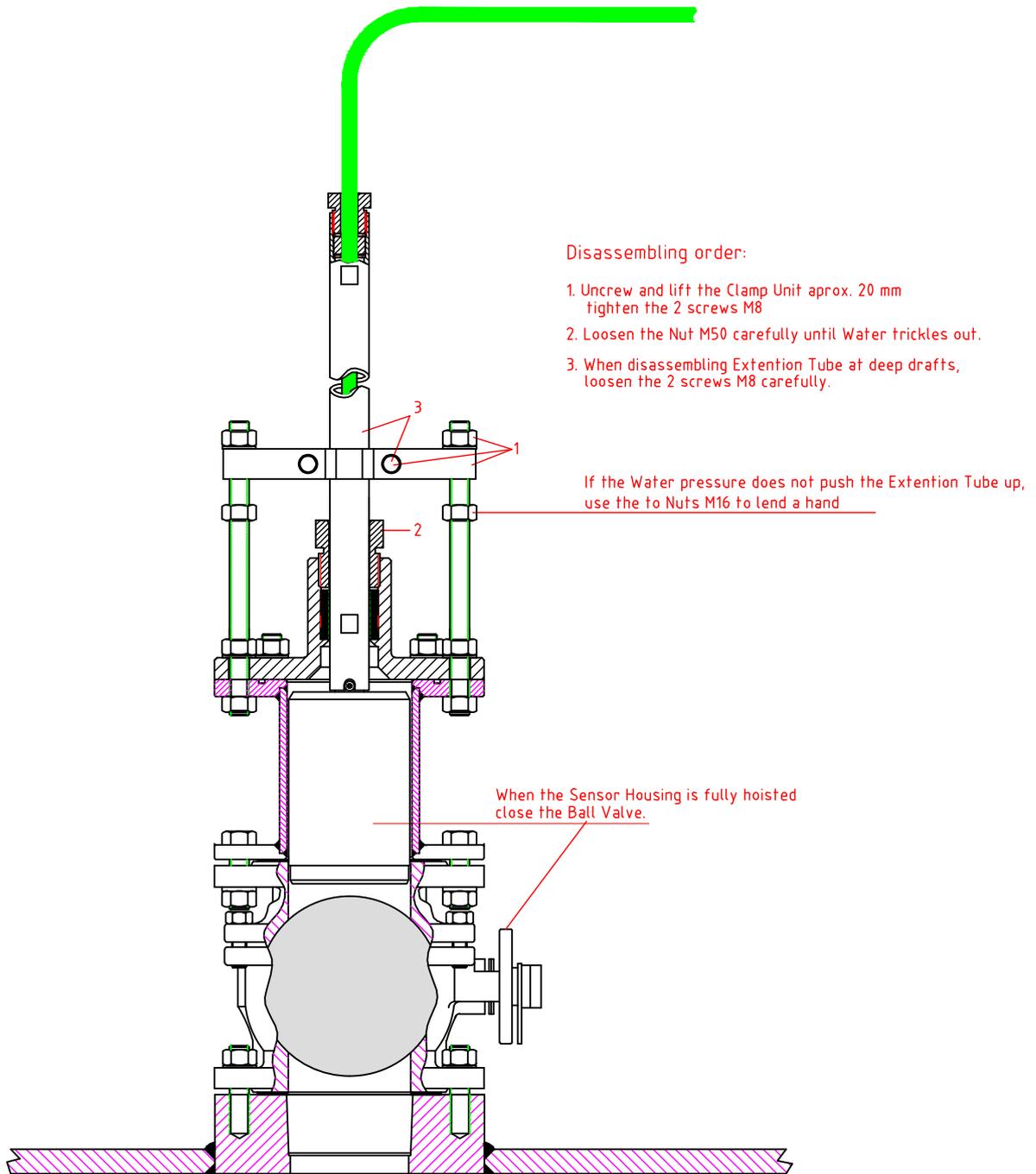


Protect sensor!

- When launching ship, lift sensor 50 mm.
- When dry docking ship, lift sensor 50 mm.

Check that the transducer sensor housing, when fully inserted, is flush with the lower surface of the bottom flange.

9. Sensor removal

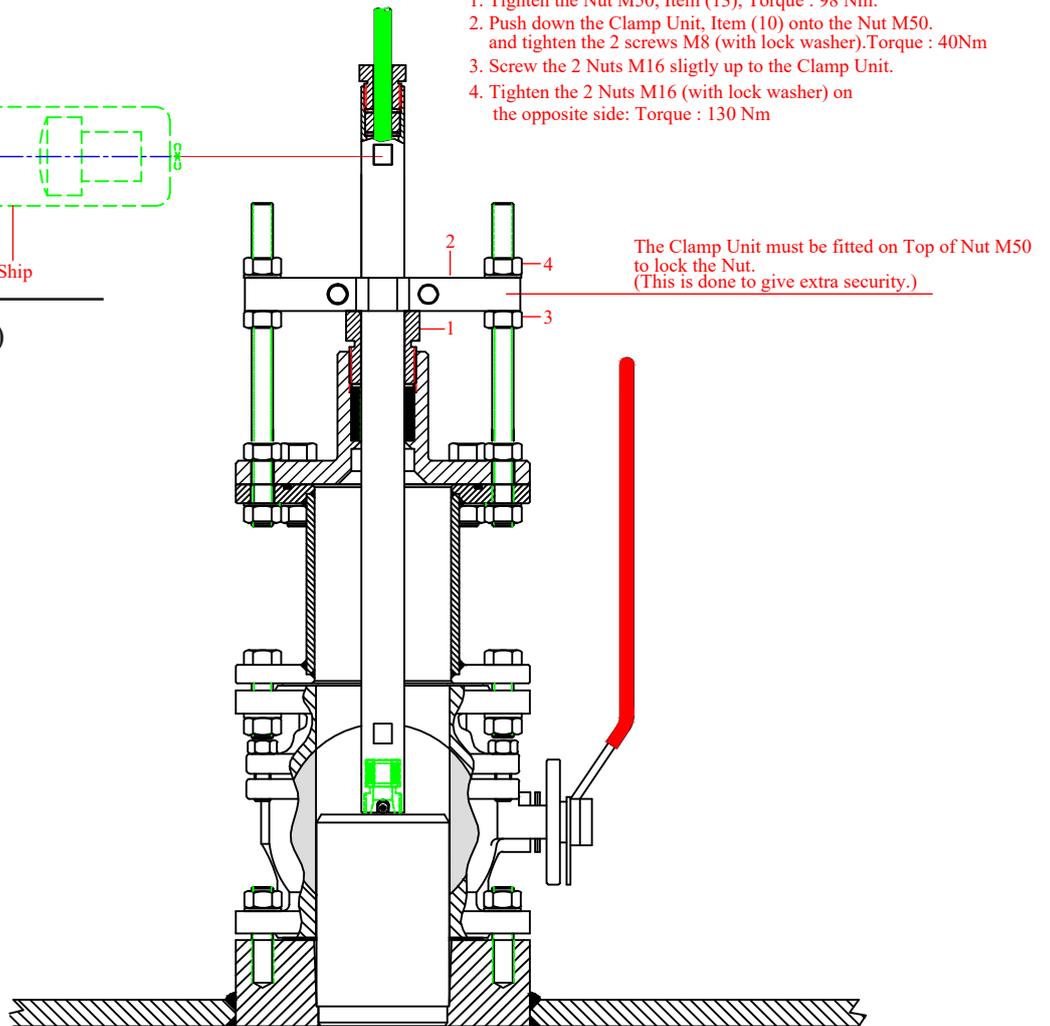
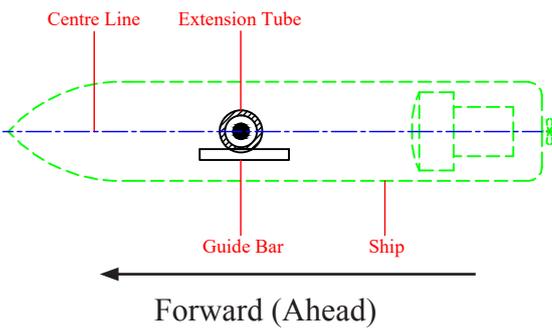


10. Re-installation

Same procedure as first-time mounting.

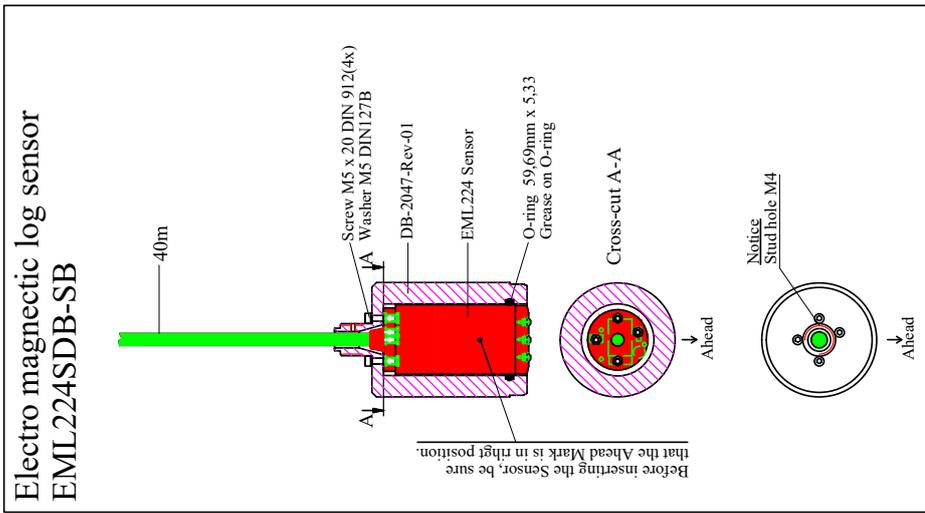
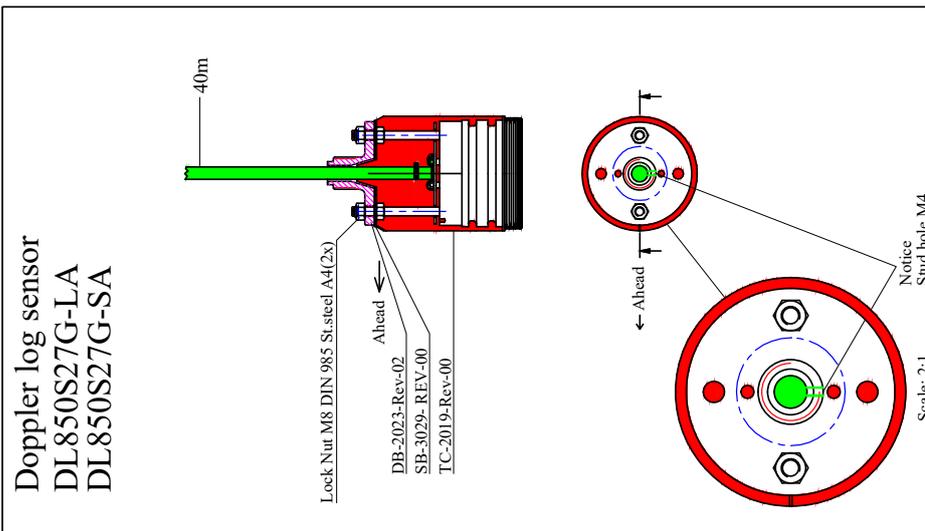
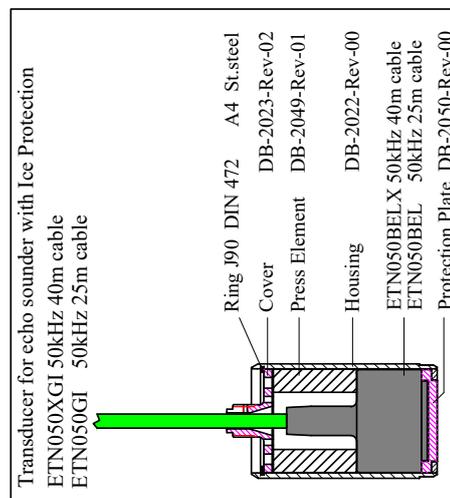
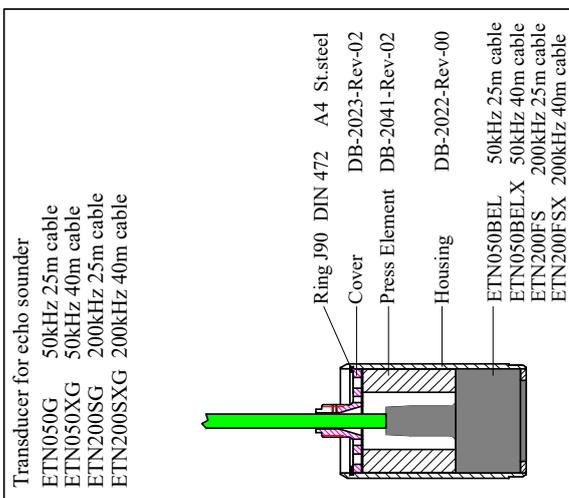
Mounting order Nut M50 and Clamp Unit :

1. Tighten the Nut M50, Item (13), Torque : 98 Nm.
2. Push down the Clamp Unit, Item (10) onto the Nut M50. and tighten the 2 screws M8 (with lock washer). Torque : 40Nm
3. Screw the 2 Nuts M16 slightly up to the Clamp Unit.
4. Tighten the 2 Nuts M16 (with lock washer) on the opposite side: Torque : 130 Nm



11. DB-100 Sensors

All units premounted by Skipper Electronics



Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No/Reference
Designed by A.Harre	Checked by VF	Approved by - date GT-20061222	Date 30.11.2009
File name		Scale	
DB-100-Sensors		Edition	
SKIPPER Electronics A/S		Sheet	
DB-2046-Rev-03		1/1	

13. Maintenance

There are two areas to consider maintenance:

1: Speed log performance may be effected by growth, shell, etc on sensor head.
Sensors may need carefully cleaned for growth to regain performance.

2: Sea valves consist of moving mechanical parts.
Greasing of mechanical parts may be considered to ensure operation and avoid corrosion.
Sea valves installed in wet areas (ballast tank etc) should be regularly inspected and greased.

Maintenance Tasks for inactive sensors

(If the system is to be off / and the vessel static for over 6 months (cold water), 3 months warm water).

When closing the vessel.

- Turn off unit at power, both Display and transceiver.
- Mark the alignment of the sensor on the gate valve and sensor flange/pole.
- Lift the sensor into the gate valve and close the valve.
- Grease the valves external moving parts

When restarting

- Heat the areas containing display, to allow condensation to evaporate.
- Lift and inspect the sensor head (or send diver). Carefully clean away growth.
- Redeploy the sensor taking care with alignment.
- Start the system.
- On first test, check alignment (Head Err in the calibration screen).

Dry docking in temperatures below freezing point

If vessel is to be dry docked in temperatures below freezing point water remained inside sea valve may cause damage to sea valve or sensor/transducer.