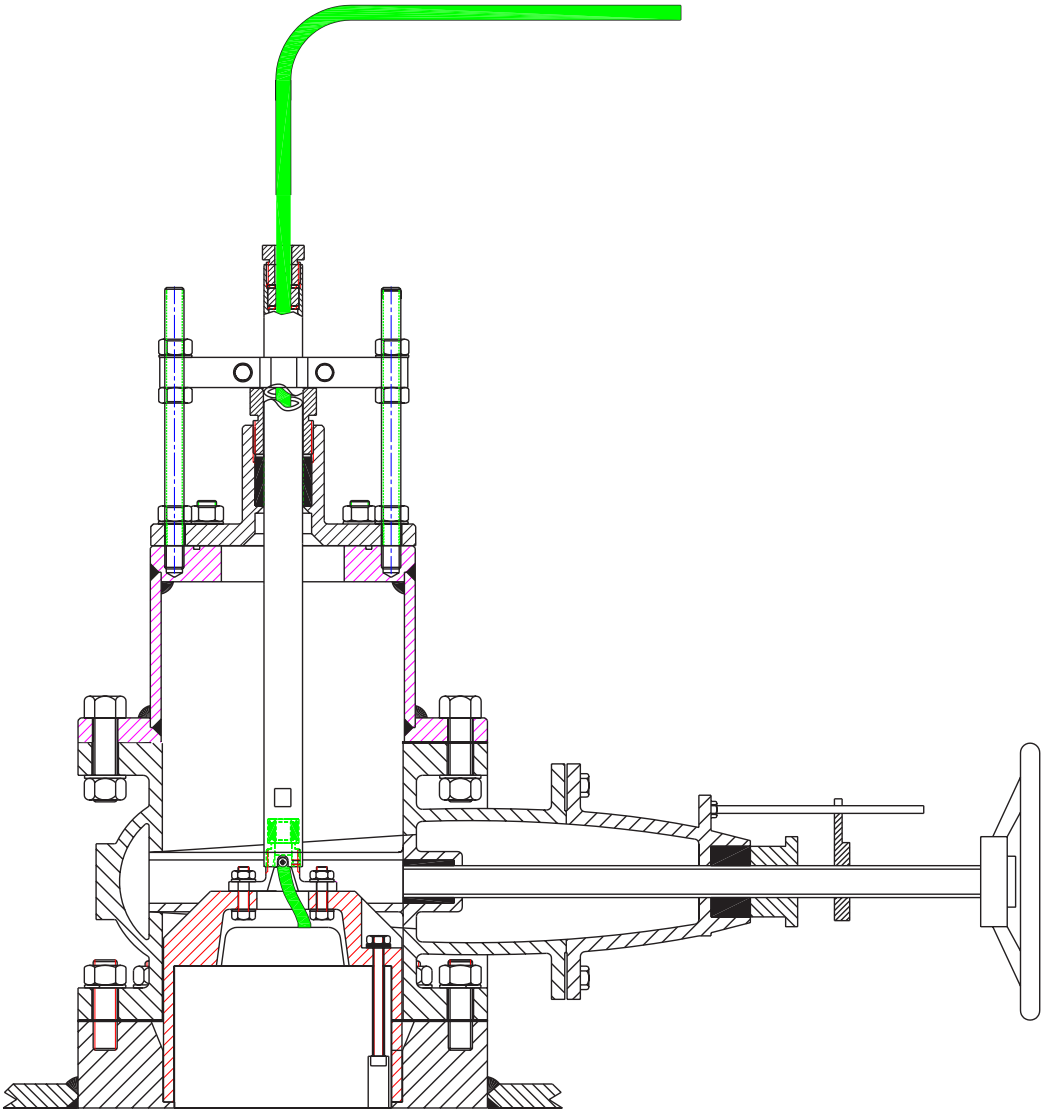
SKIPPER

Single Bottom Sea Valve

SB-200
Operation and Installation Manual



SKIPPER Electronics AS
Enebakkveien 150
P. O. Box 151, Manglerud
0612 Oslo, Norway
www.skipper.no

Telephone: +47 23 30 22 70
Telefax: +47 23 30 22 71
E-mail: support@skipper.no
Co. reg. no: NO-965378847-MVA

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Contents

SKIPPER SB (Single Bottom) Sea Valve 200 mm

1. Installation

The 200 mm SKIPPER SB-200 Sea Valve is used for installation of:
1. Echo Sounder transducer type ETN024G or ETN038G (24 and 38 kHz).

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.

The SKIPPER SB-200 Sea Valve 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 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”.

The Echo Sounder arrangement is not allowed fitted inside machinery spaces of category A as defined in SOLAS 1974 regulation II-2/3.19

Important

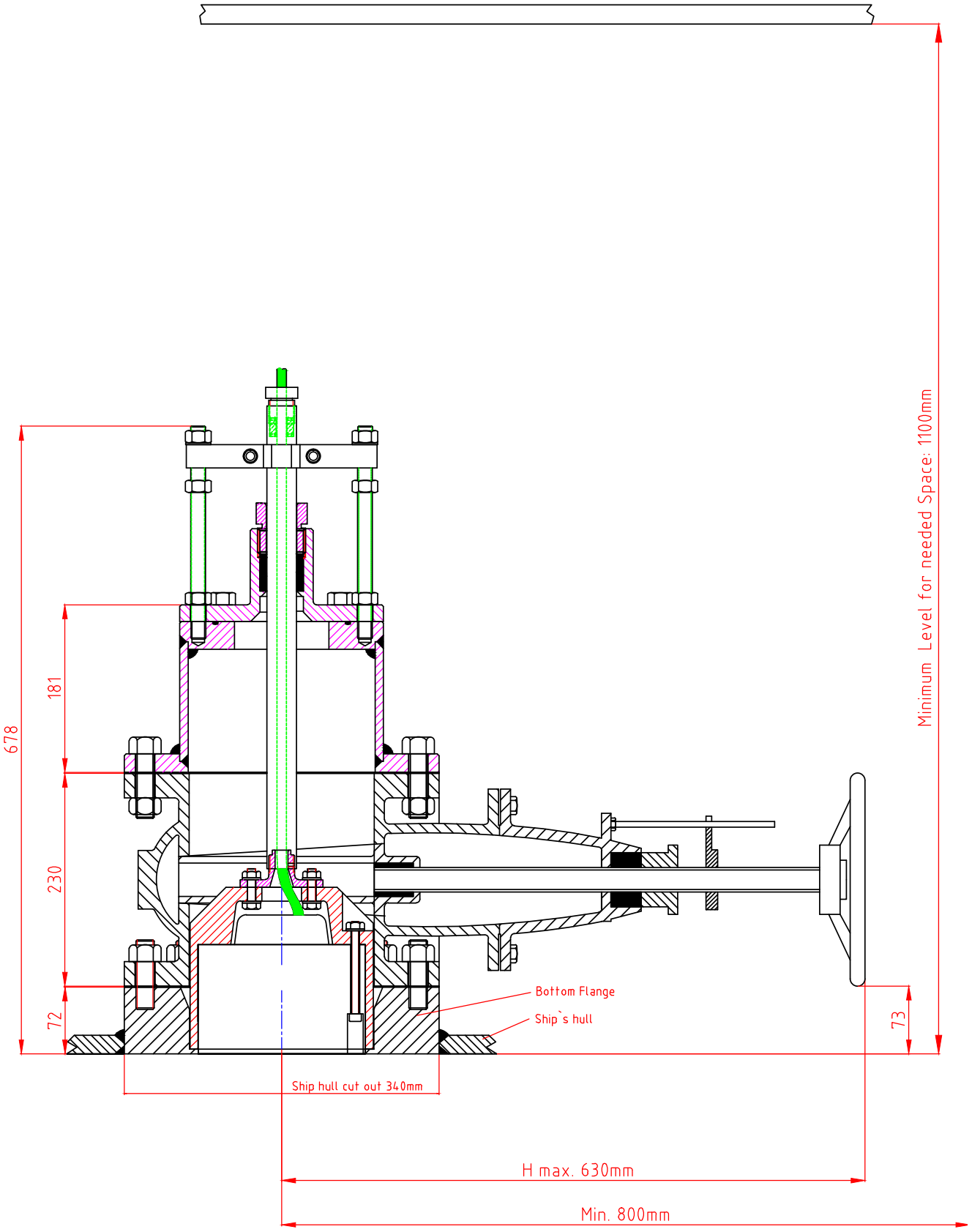
”Sensors for Speed Log and Echo Sounder are delivered with a fixed cable. Attention must be taken to allow easy replacement/pulling of new cable during maintenance”.

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 13. 200 mm Single Bottom Sea Valve on page 20.

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 340 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:

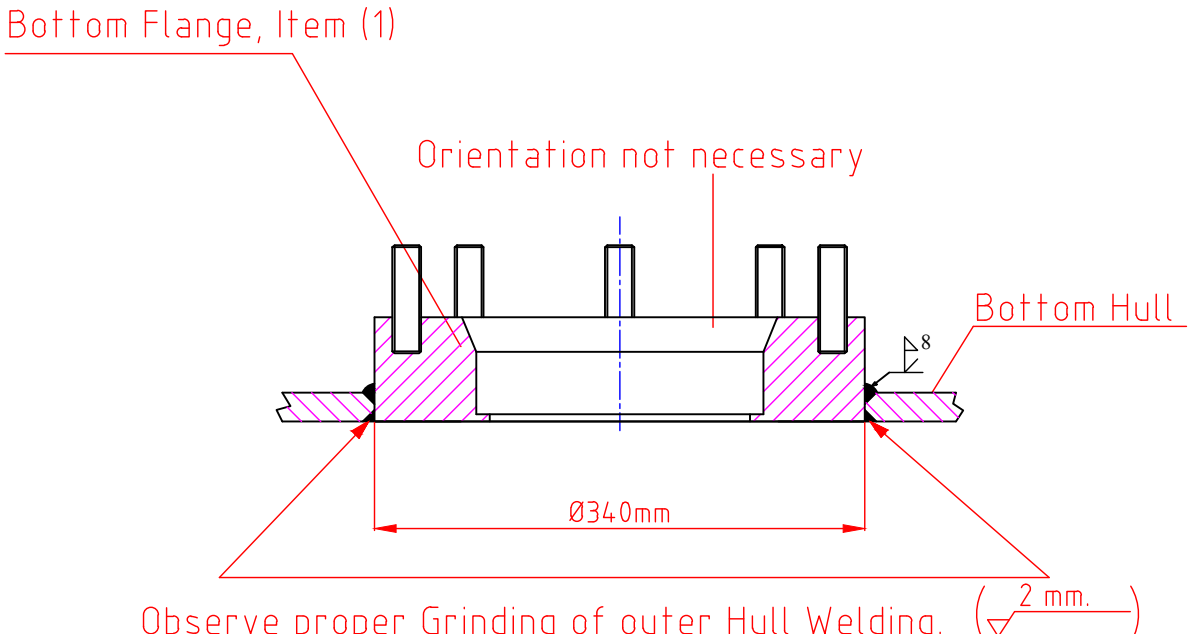
The Bottom Flange is a part of the Sea Valve that is machined with high accuracy and it should be protected after mounting to avoid damage to the bottom flange surfaces. This to avoid leakage. If the valve is pre-mounted, be sure to protect the valve from being polluted by welding debris.

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.

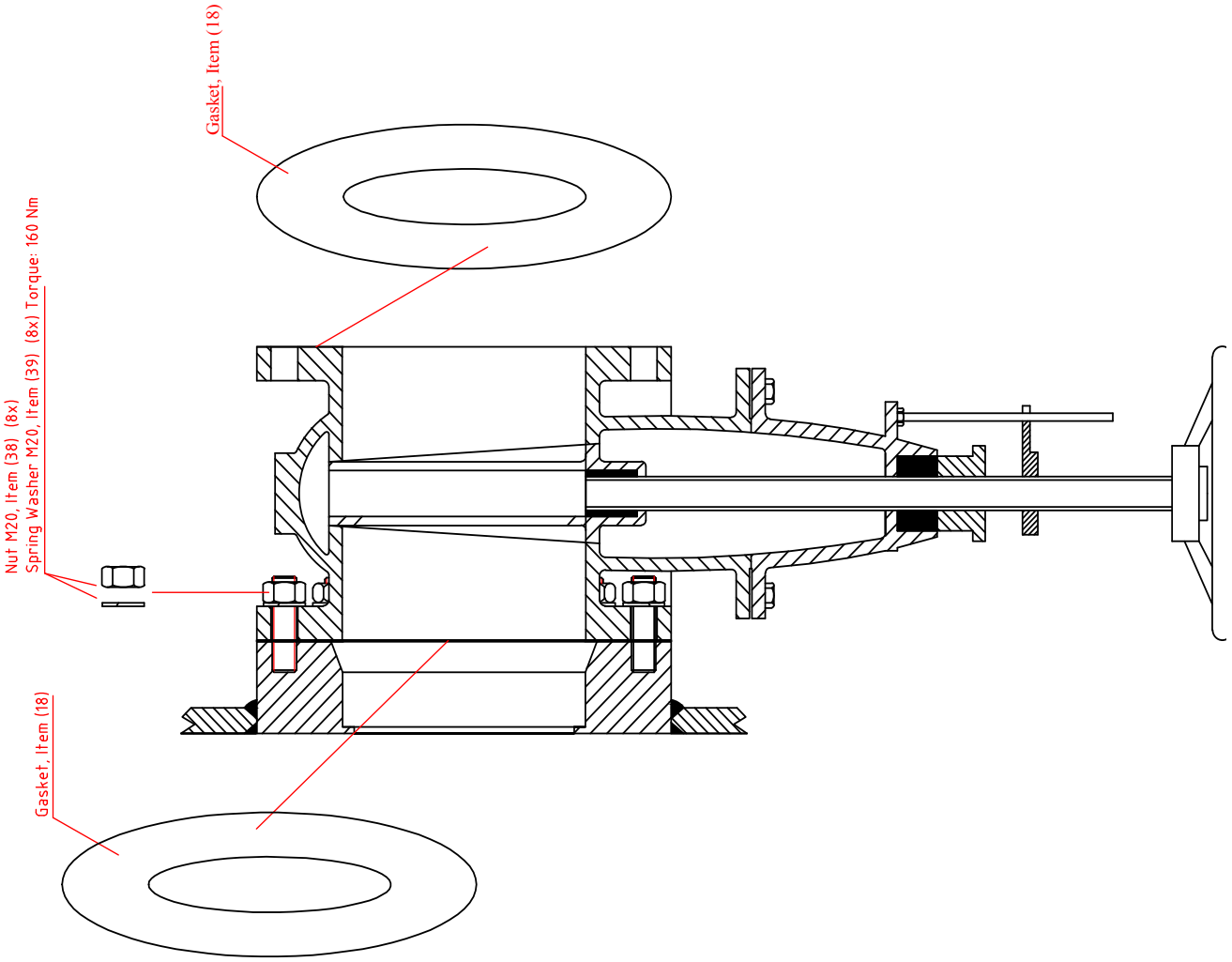
- **Let parts cool down during welding.**
- **Over heating may change fit and form and result in non-conformity with intended sensor/ transducer.**
- **Welding to thick hull steel plates will exert high stress on bottom parts and flanges.**
- **Especially care must be taken during welding of stainless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

Welding the bottom flange to ship's hull.

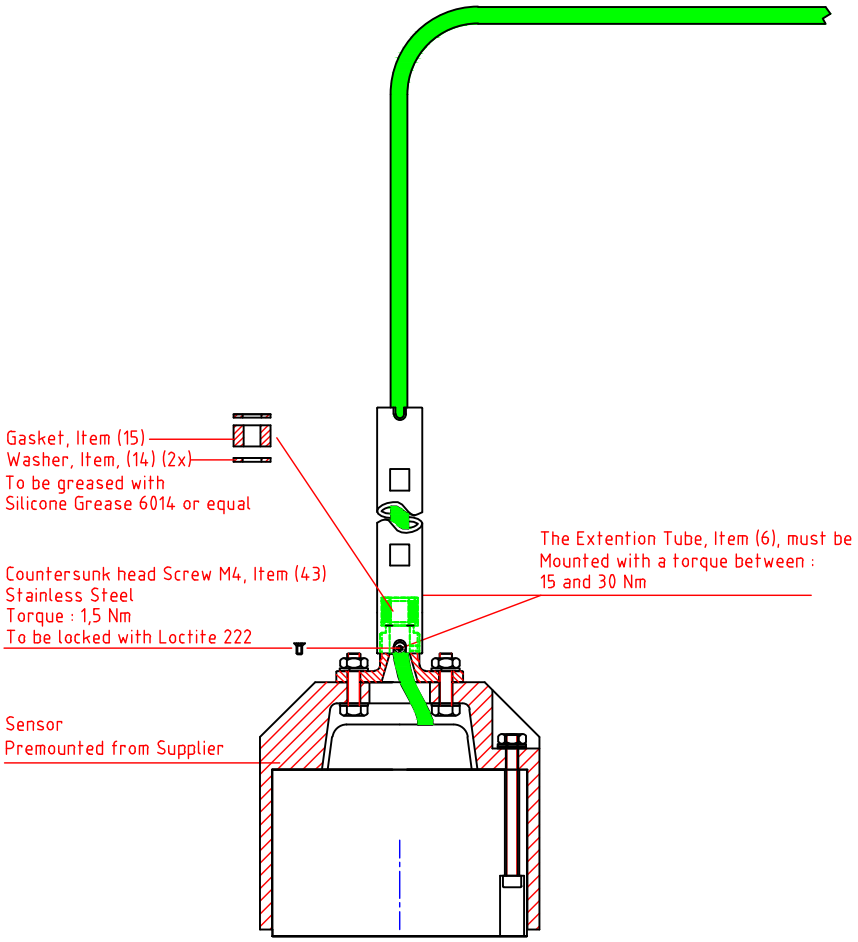


4. Sea Valve assembly

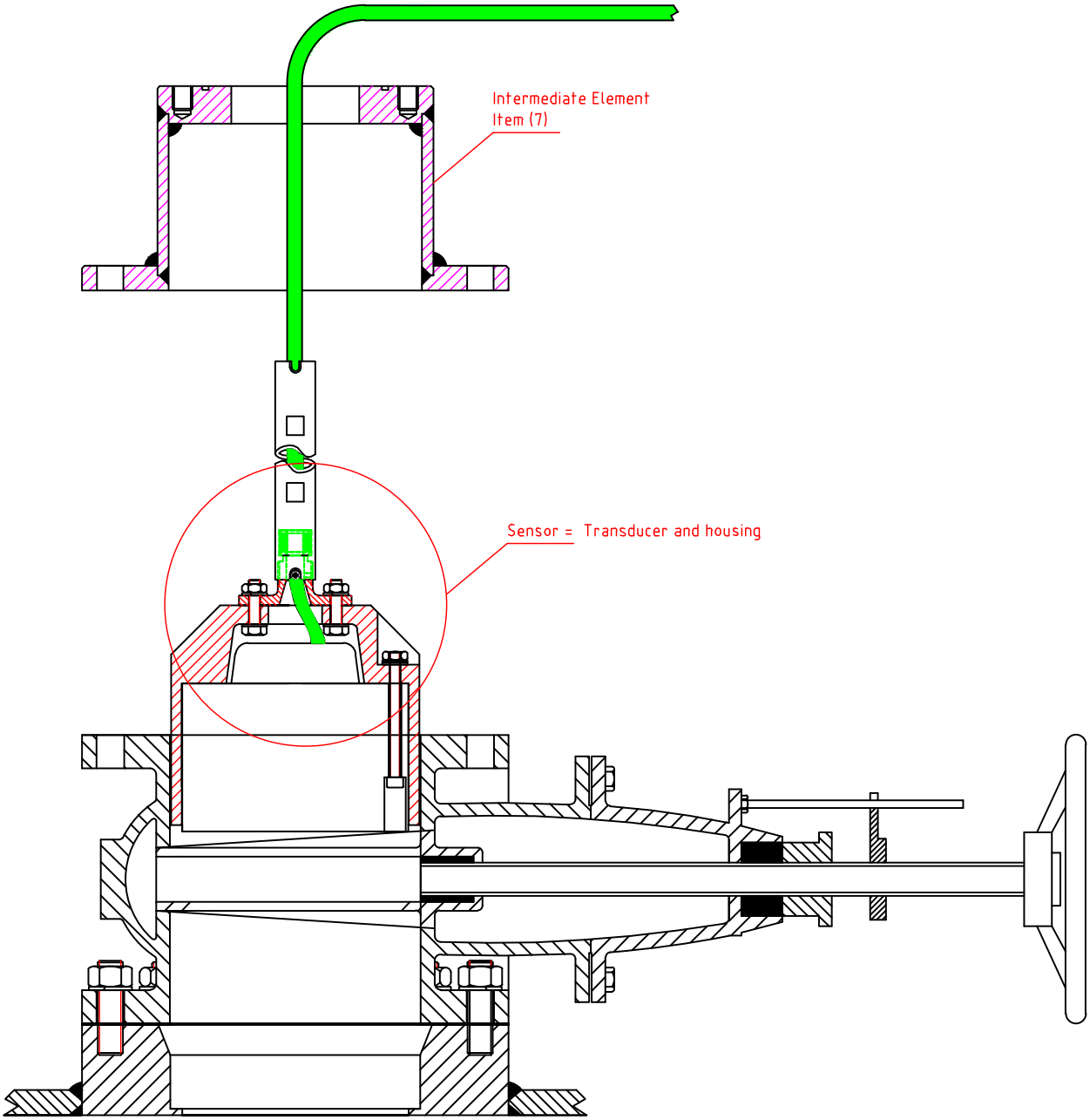
- Place the 1.5 mm Klingersil gasket, Item (18) on top of the Bottom Flange, Item (1).
- Then place the Gate Valve element, Item (42) on top of the Bottom Flange. The 20 mm nuts and washers should be mounted and tightened. (Align parts before tighten nuts).
- Place a 1.5 mm Klingersil gasket on top of the Gate Valve element, Item (42).



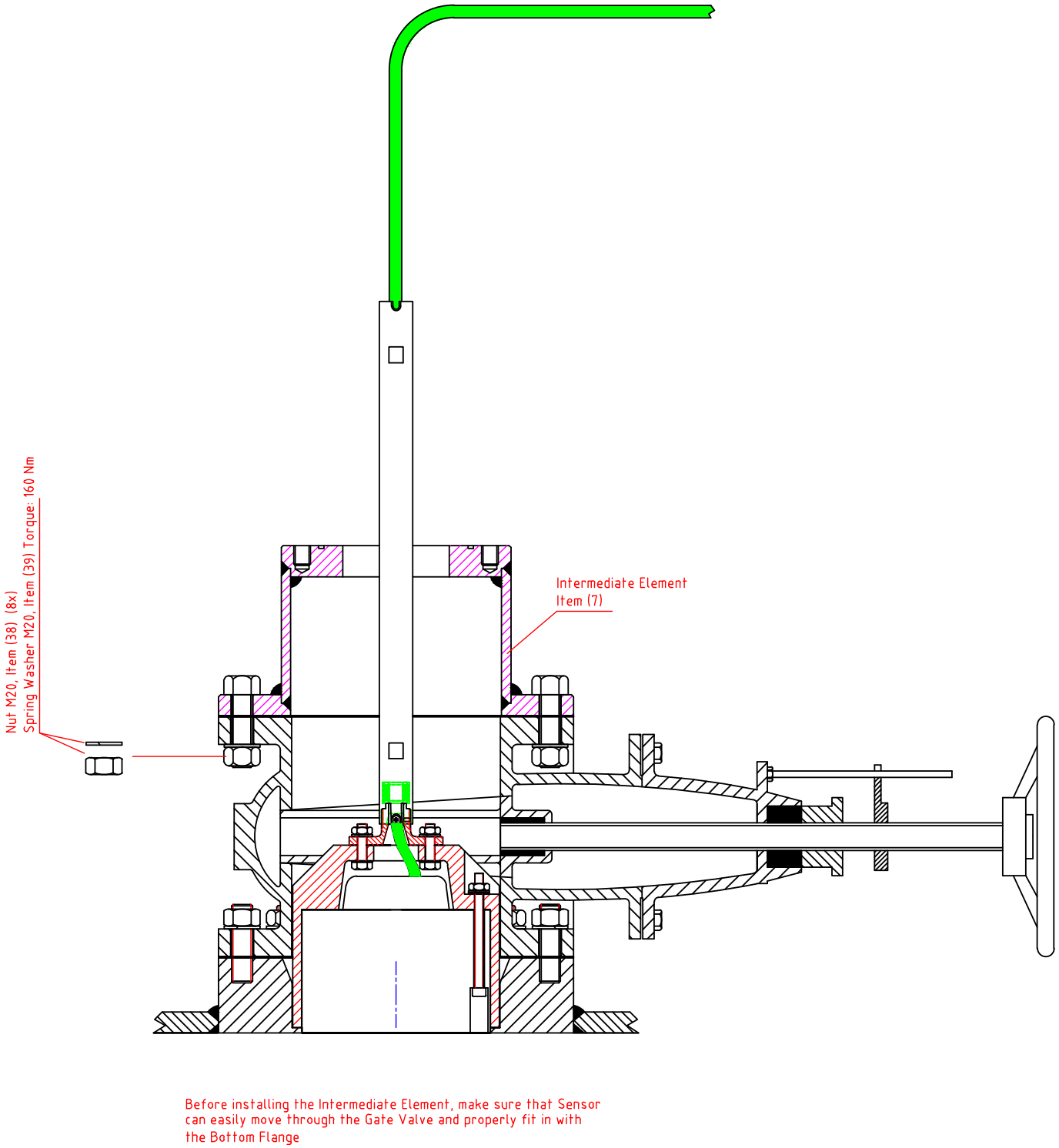
5. Assembling of Extension Tube and Sensor



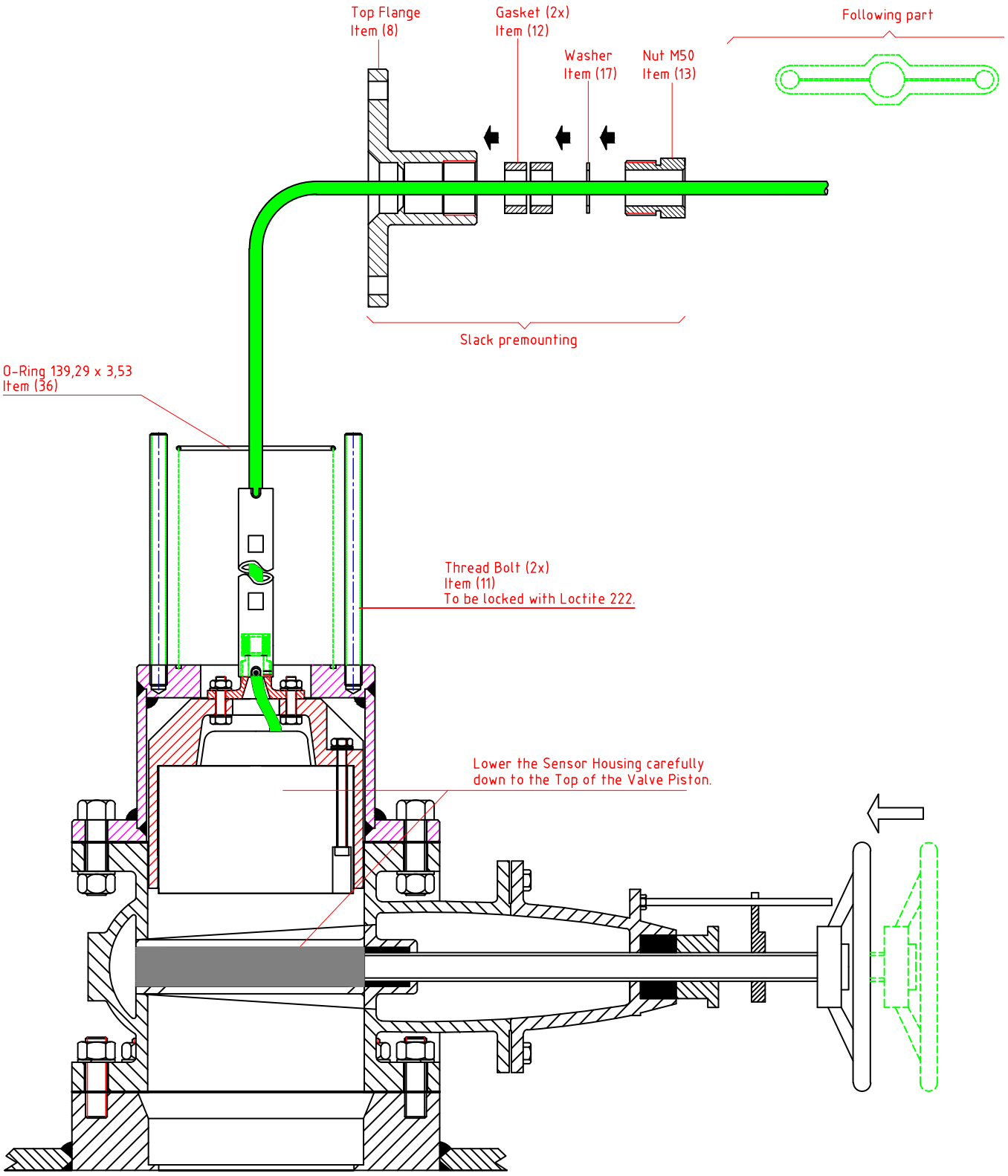
6. Sensor and Intermediate Element installation



- Mount the intermediate element, Item (7) on top of the Gate Valve element.
- All 8 nuts, Item (38) and washers, Item (39) should be mounted, and tightened. (Align parts before tighten nuts).



7. Top flange installation

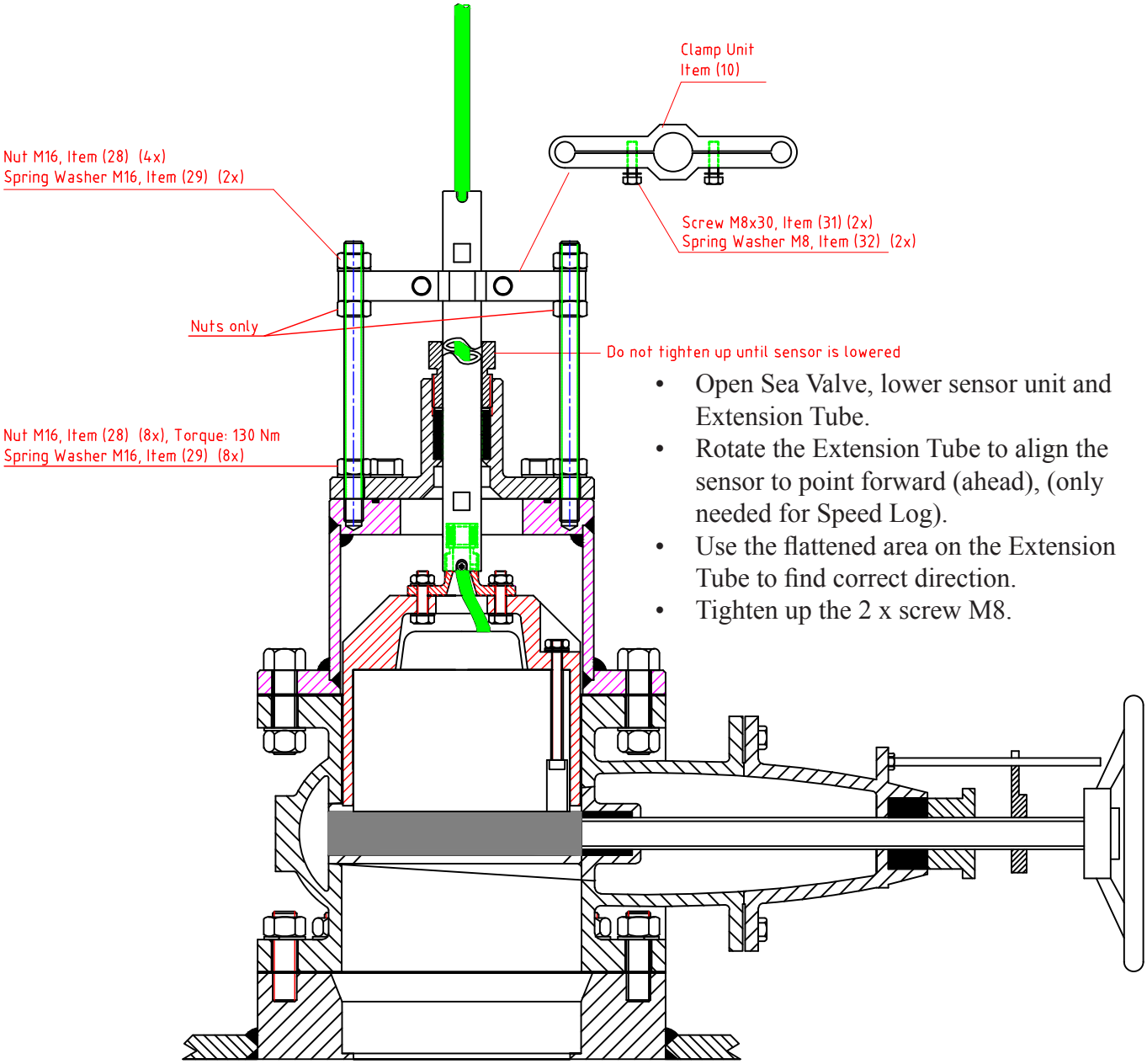


- Place the O-ring, Item (36) in the groove on top of the intermediate element. Apply grease to the O-ring.
- Insert the 2 Thread bolts, Item (11) through the flange and secure with 2 x M16 counternuts. Torque 130 Nm.

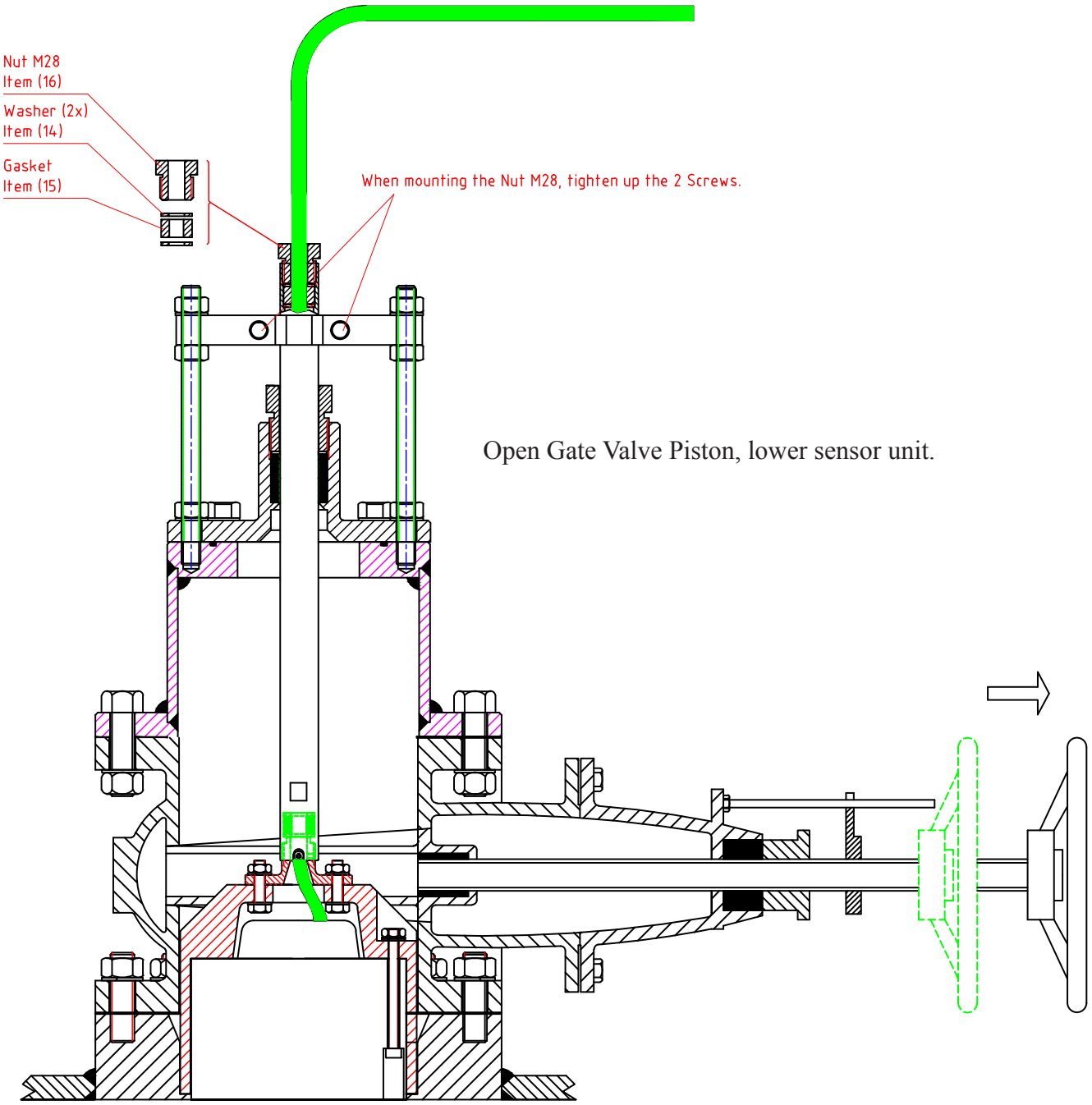
Mount Top Flange, Item (8). Secure with 8 each washers and nuts. Torque: 130 Nm.

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).

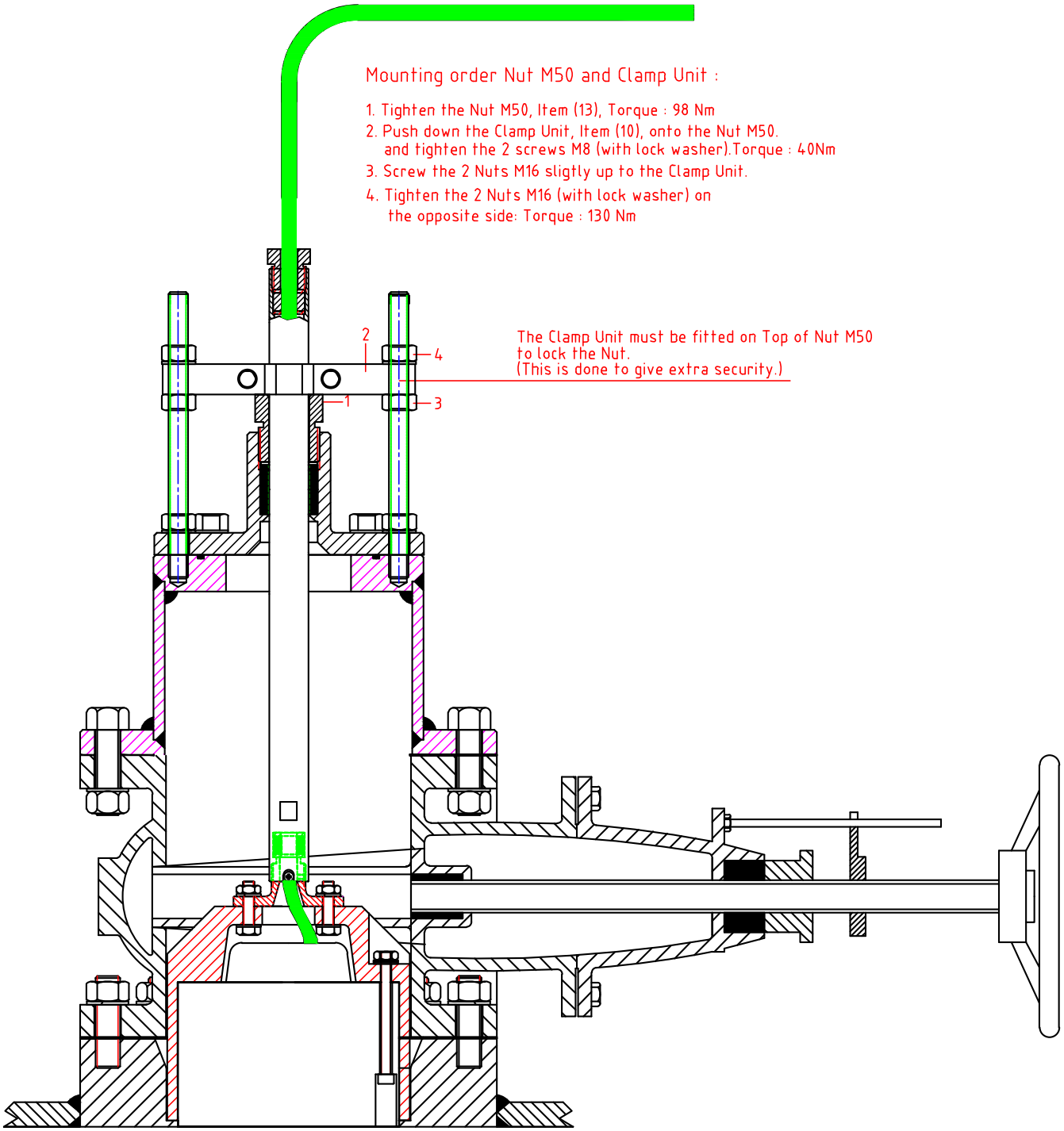


- Open Sea Valve, lower sensor unit and Extension Tube.
- Rotate the Extension Tube to align the sensor to point forward (ahead), (only needed for Speed Log).
- Use the flattened area on the Extension Tube to find correct direction.
- Tighten up the 2 x screw M8.



Open Gate Valve Piston, lower sensor unit.

8. Final assembly



Protect sensor!

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

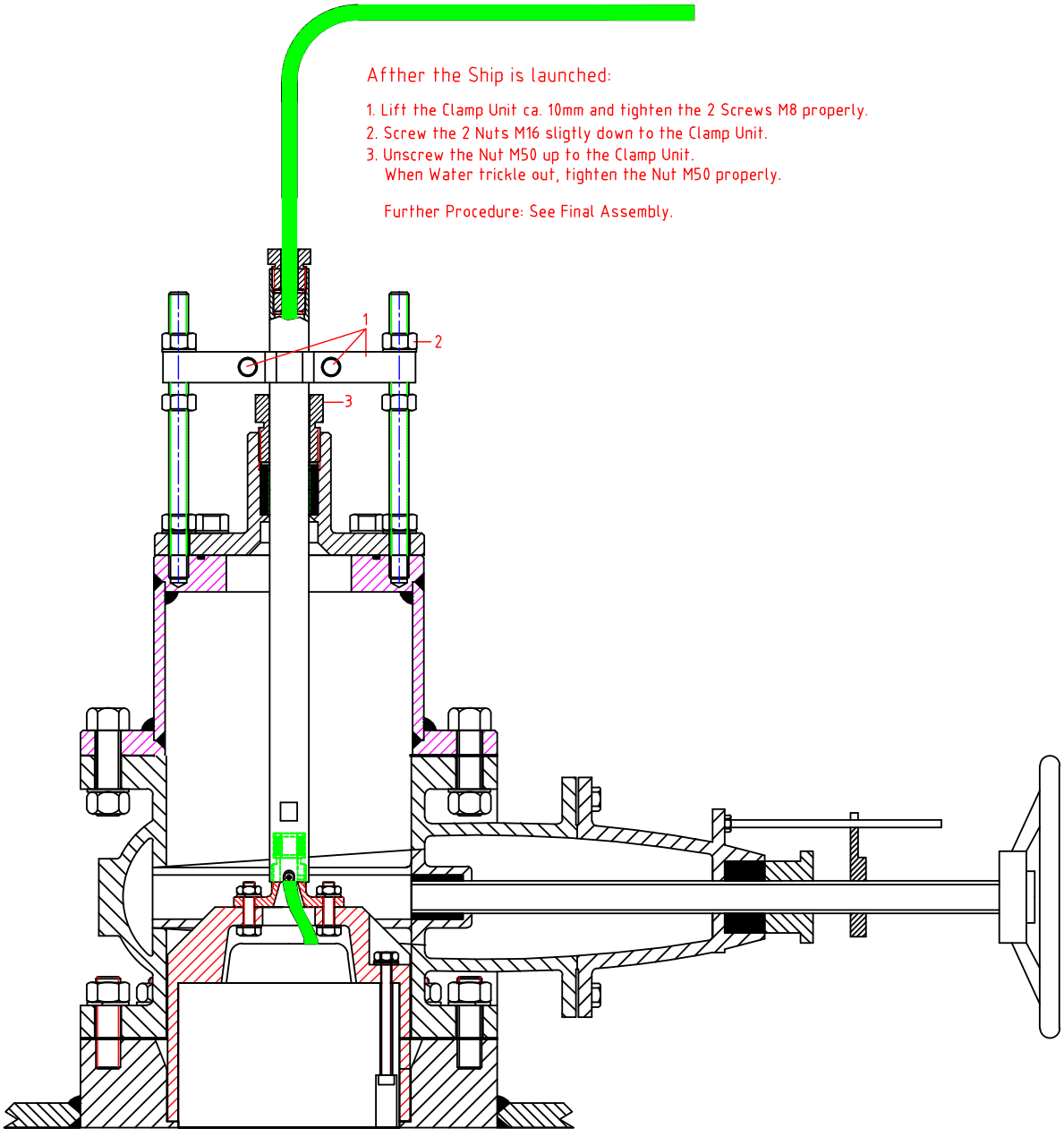
Check that the transducer/sensor housing, when fully inserted, is flush with the lower surface of the bottom flange.

9. Airing

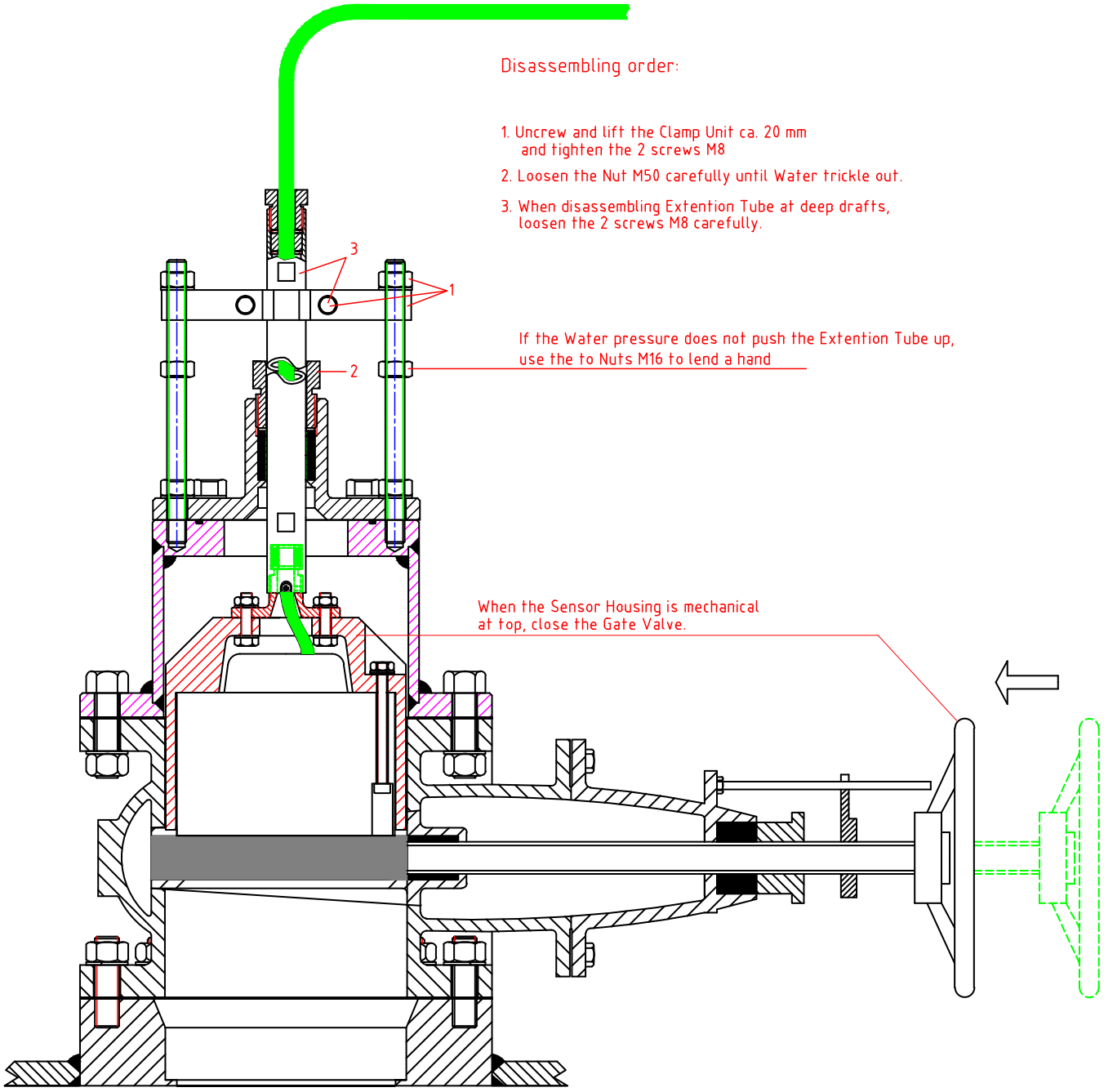
Let the compressed air out of the Sea Valve

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.

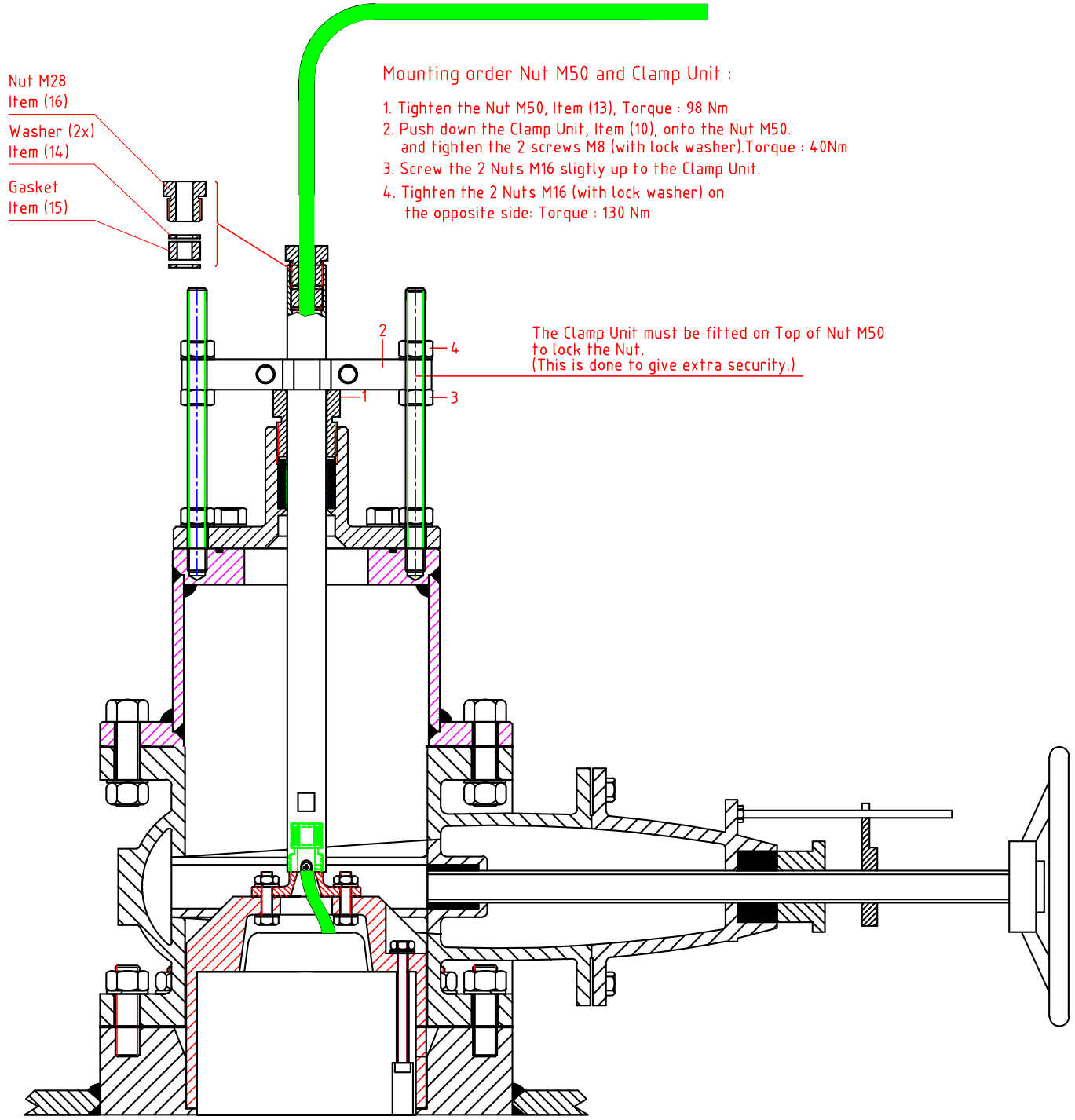


10. Sensor removal

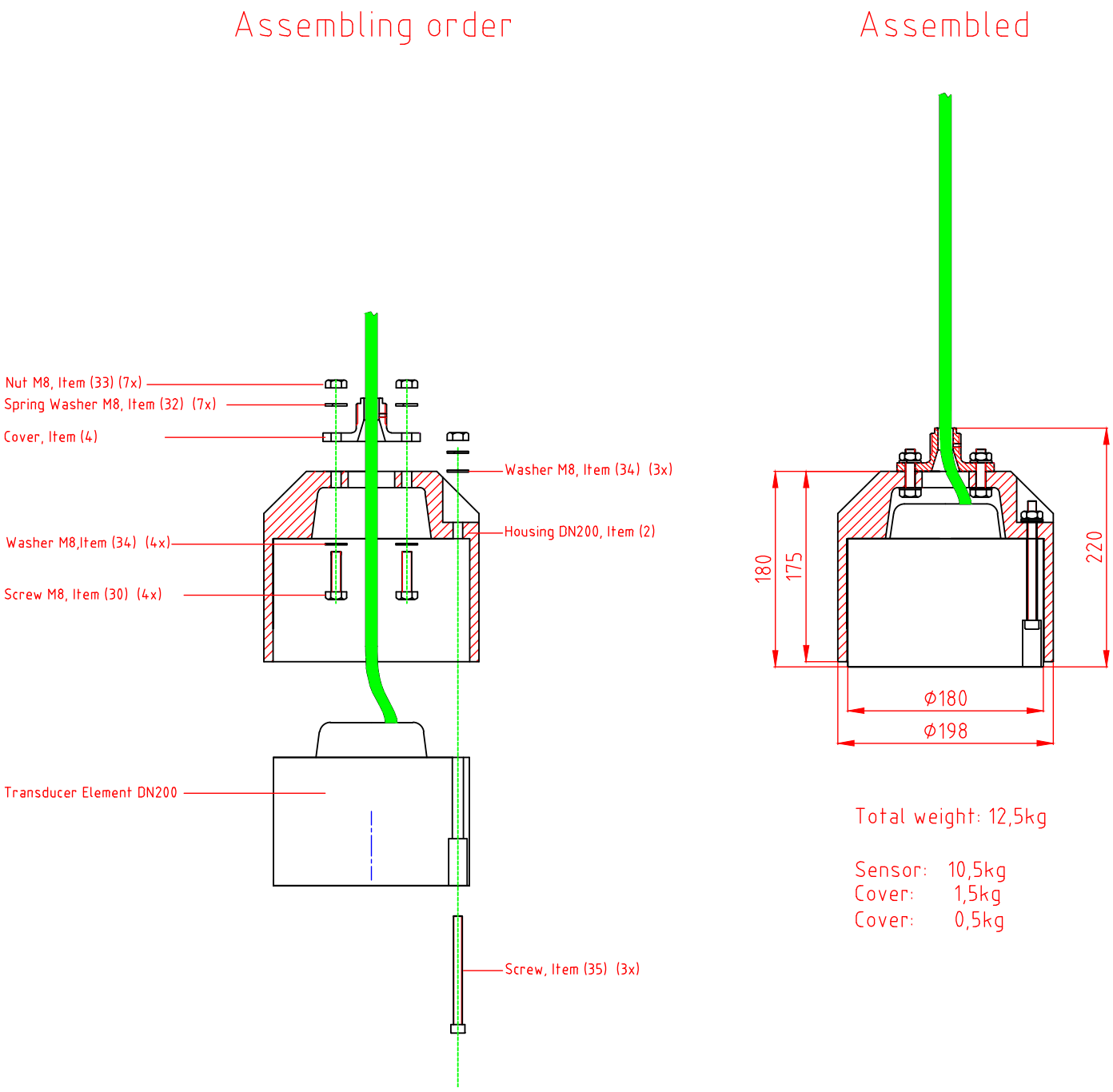


11. Re-installation

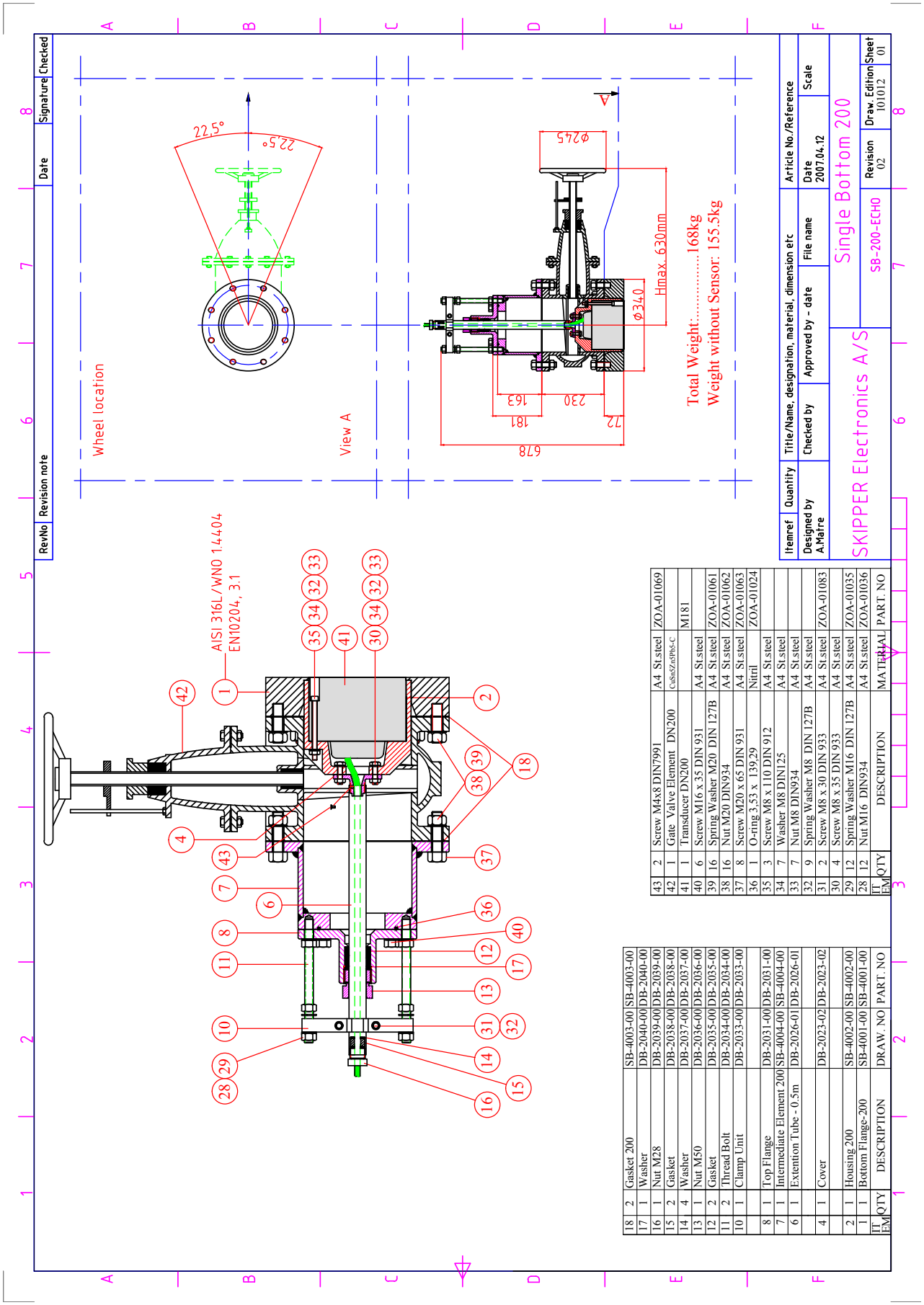
Same procedure as first-time mounting.



12. Pre-mounted units



13. 200 mm Single Bottom Sea Valve



ITEM	QTY	DESCRIPTION	MATERIAL	PART. NO
43	2	Screw M4x8 DIN7991	A4 St.steel	ZOA-01069
42	1	Gate Valve Element DN200	CuSnZn5Pb5-C	
41	1	Transducer DN200		M181
40	6	Screw M16 x 35 DIN 931	A4 St.steel	
39	16	Spring Washer M20 DIN 127B	A4 St.steel	ZOA-01061
38	16	Nut M20 DIN934	A4 St.steel	ZOA-01062
37	8	Screw M20 x 65 DIN 931	A4 St.steel	ZOA-01063
36	1	O-ring 3,53 x 139,29	Nitril	ZOA-01024
35	3	Screw M8 x 110 DIN 912	A4 St.steel	
34	7	Washer M8 DIN125	A4 St.steel	
33	7	Nut M8 DIN934	A4 St.steel	
32	9	Spring Washer M8 DIN 127B	A4 St.steel	
31	2	Screw M8 x 30 DIN 933	A4 St.steel	ZOA-01083
30	4	Screw M8 x 35 DIN 933	A4 St.steel	
29	12	Spring Washer M16 DIN 127B	A4 St.steel	ZOA-01035
28	12	Nut M16 DIN934	A4 St.steel	ZOA-01036

ITEM	QTY	DESCRIPTION	DRAW. NO	PART. NO
18	2	Gasket 200	SB-4003-00	SB-4003-00
17	1	Washer	DB-2040-00	DB-2040-00
16	1	Nut M28	DB-2039-00	DB-2039-00
15	2	Gasket	DB-2038-00	DB-2038-00
14	4	Washer	DB-2037-00	DB-2037-00
13	1	Nut M50	DB-2036-00	DB-2036-00
12	2	Gasket	DB-2035-00	DB-2035-00
11	2	Thread Bolt	DB-2034-00	DB-2034-00
10	1	Clamp Unit	DB-2033-00	DB-2033-00
8	1	Top Flange	DB-2031-00	DB-2031-00
7	1	Intermediate Element 200	SB-4004-00	SB-4004-00
6	1	Extention Tube - 0.5m	DB-2026-01	DB-2026-01
4	1	Cover	DB-2023-02	DB-2023-02
2	1	Housing 200	SB-4002-00	SB-4002-00
1	1	Bottom Flange-200	SB-4001-00	SB-4001-00