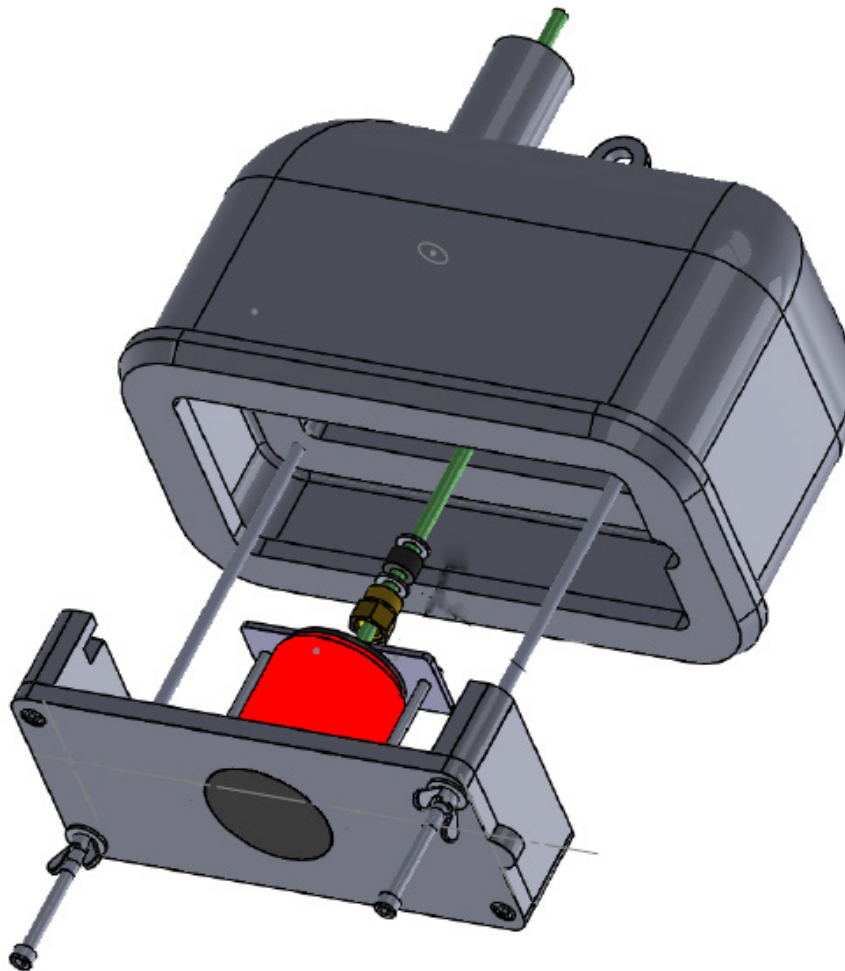


# SKIPPER

## Installation manual DL850S27D-SB DL850 Doppler Speed log sensor DOLOG 2X replacement



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# TABLE OF CONTENTS

<b><u>Introduction</u></b>	<b>3</b>
<b><u>Prepare speed log replacement</u></b>	<b>4</b>
<b><u>Install of sensor adaptor kit</u></b>	<b>5</b>
<b><u>Remove old dolog sensor</u></b>	<b>6</b>
<b><u>Prepare sensor for installation</u></b>	<b>7</b>
<b><u>Install DL850 sensor in dolog tank</u></b>	<b>8</b>
<b><u>Drawings</u></b>	<b>9</b>

# INTRODUCTION

This document describes how to install a SKIPPER DL850 100mm sensor into an existing DOLOG 2X (DOLOG 21/22/23) tank.

The sensor replacement is recommended to be performed in dry dock. It is possible to replace the sensor with vessel afloat. This procedure includes the diver procedures.

The replacement will require new DL850 Operator unit, transceiver unit and sensor. For Operator unit and Transceiver unit installation instruction, please see respective manuals.

This procedure will mainly cover replacement of DOLOG sensor.

DL850S27D-SB consist of:

- DL850S27-SB Sensor DL850 270kHz
- KIT-DOLOG-M1-SA Kit DOLOG 2X

Tools needed for this upgrade are :

- allen key 8 mm
- 1/2" Extension tool min 250 mm.
- 1/2" Ratchet

A tool kit is available to help remove old DOLOG sensor and install the new DL850S27D-SB sensor. The parts are described in "Drawings" section in the end of this manual. This tool kit is sold separatly.

# PREPARE SPEED LOG REPLACEMENT

The DOLOG speed log to be replaced consist of the following main parts:

1: Operator Unit.

To be replaced by SKIPPER DL850 Operator unit

2: Cable from operator unit to Electronic unit.

May be reused for DL850

3: Electronic unit

May be replaced by a terminal box for DL850 communication.

4: Cable Electronic unit to terminal box.

May be reused for DL850

5: Terminal box.

To be replaced by DL850 Transceiver unit (24VDC and/or115/220V AC requirement)

6: Sensor cable

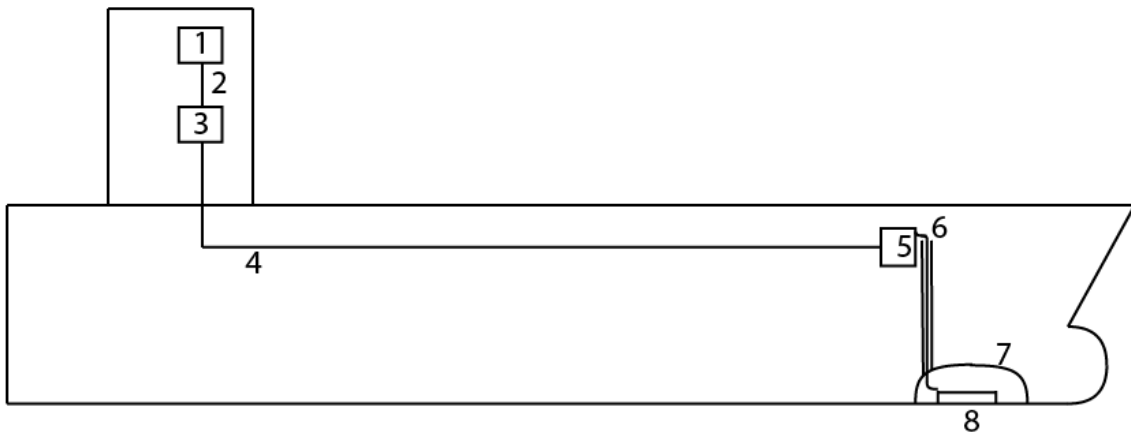
To be replaced by DL850 sensor with 40m cable

7: DOLOG tank

To be reused for installation of DL850 sensor with DOLOG adaptor

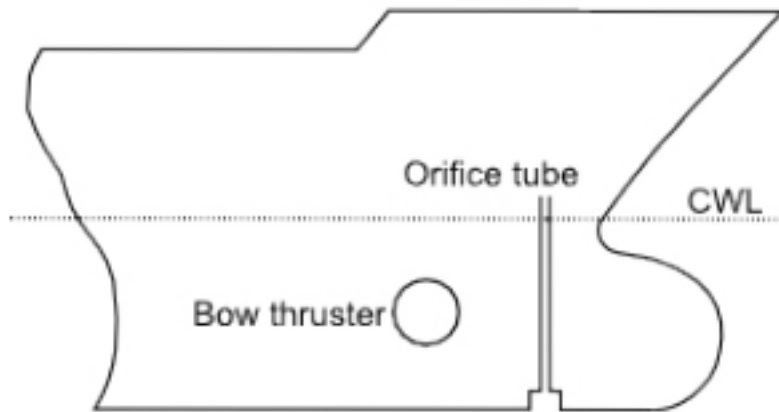
8: DOLOG sensor

To be replaced by DL850 sensor with 40m cable

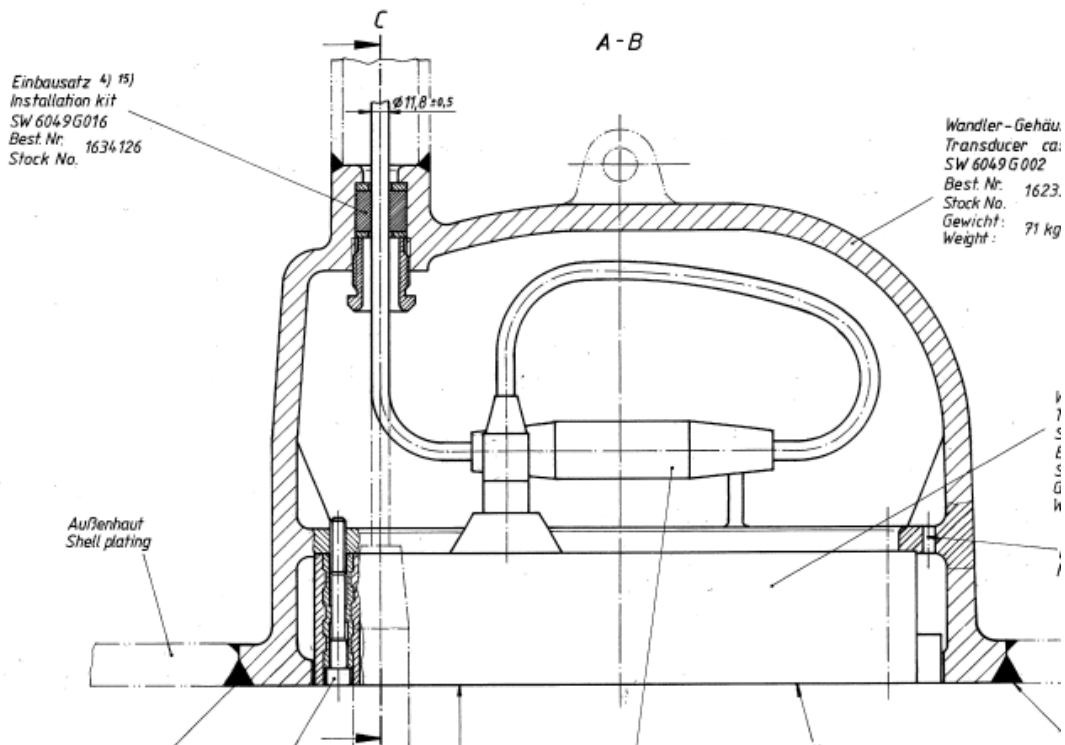


The sensor cable pipe (orifice tube) on the housing is part of the ship hull and has to reach above waterline (CWL=Construction water line.)

If sensor is replaced by diver in water this construction will enable water to come into the orifice tube construction but will stop at the level of water line.

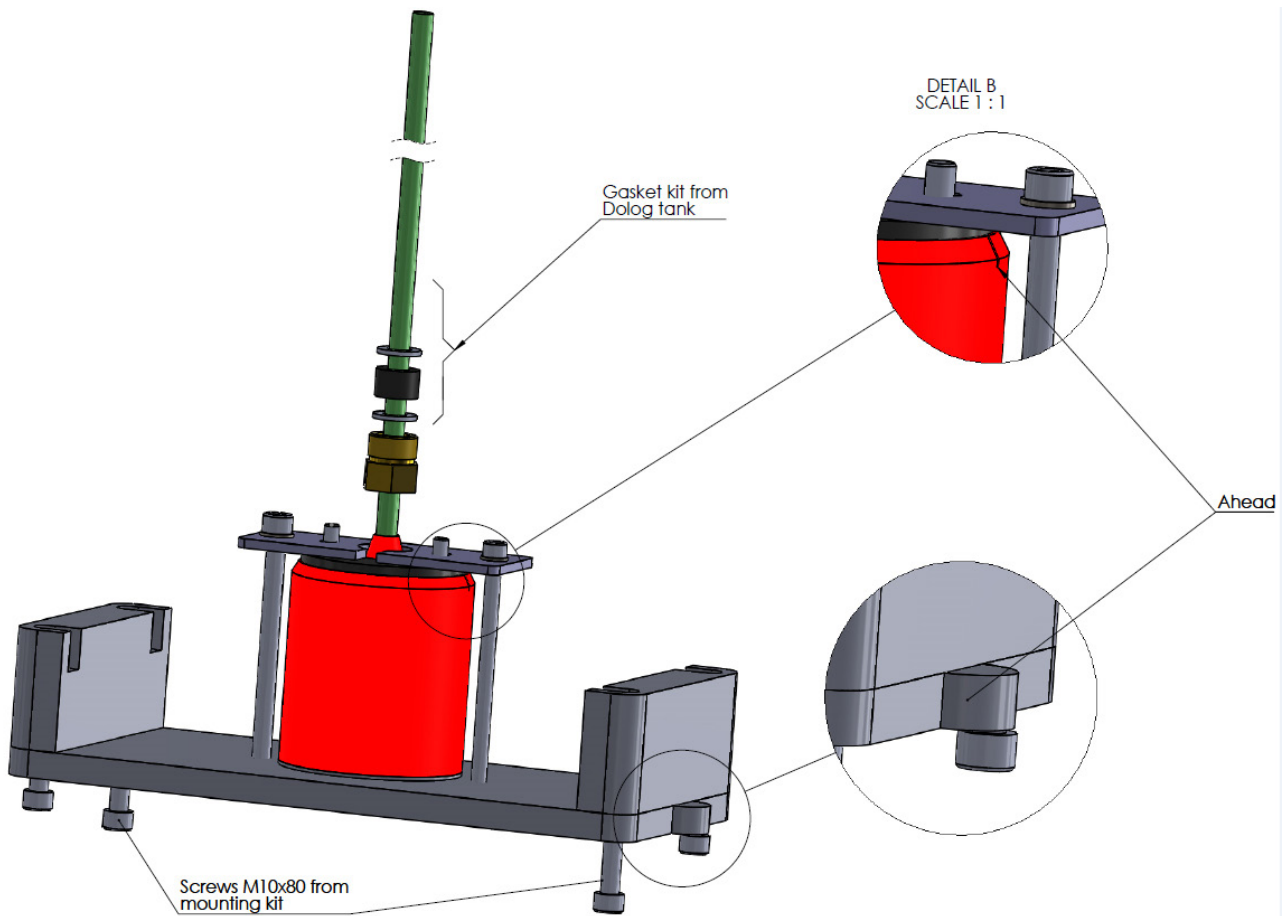


The pipe has a watertight gasket in both ends.



# INSTALLING SENSOR ADAPTOR KIT

Install the sensor into the DOLOG adaptor as described in drawing.  
Sensor forward (ahead) mark to be correctly positioned.  
(The gasket, washers and 36 mm nut from DOLOG will not be available before old DOLOG sensor cable is removed)



## REMOVE OLD DOLOG SENSOR

Before old DOLOG is removed please prepare DOLOG sensor cable to be removed.

- Cable end unscrewed from terminal box.
- A long rope fastened to cable end. This rope will be used for pulling up the new DL850 sensor cable later.

Unscrew the 4 screws with a 8mm Allen key.

There are 2 levels of threads.

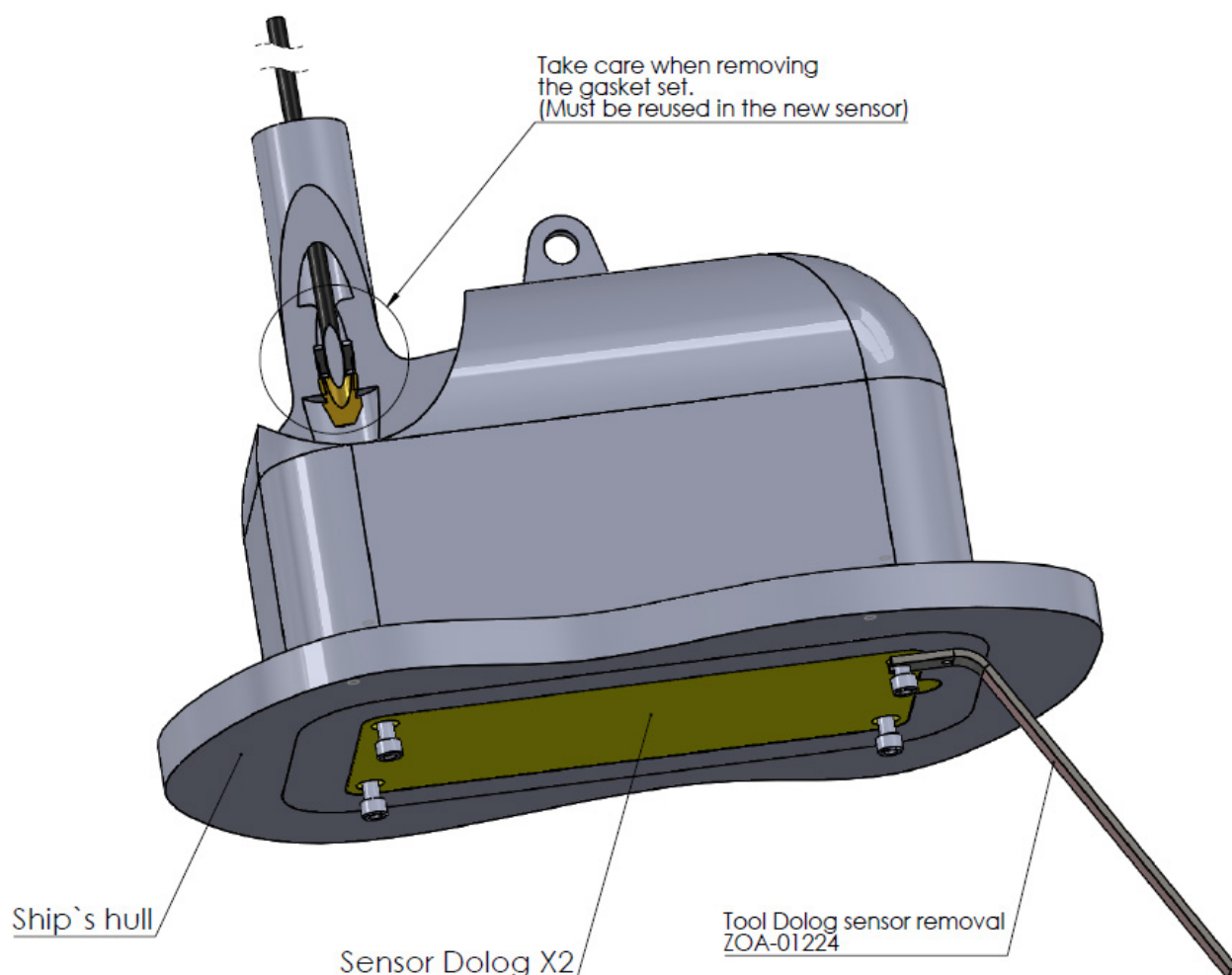
- Threads in tank
- Threads in sensor

Do only unscrew the tank threads so the screw hang in sensor as described in below picture

The sensor is now loose but most probably stuck. To force the sensor out of tank use the removal tool or similar. When loosened, disconnect cable plug.

Use a crow foot 36 mm, 1/2 inch extension and ratchet to unscrew 36 mm nut inside tank. Store the 36mm nut and gaskets (if yet removed) in a safe place for reuse on SKIPPER sensor.

Pull out cable and bring cable with rope to a dry place. The rope is now going all the way from top of tank pipe, through pipe and tank and to the dry place.



# PREPARE SENSOR FOR INSTALLATION

Install the 36 mm nut and gasket onto the 40 m cable of new DL850 sensor.

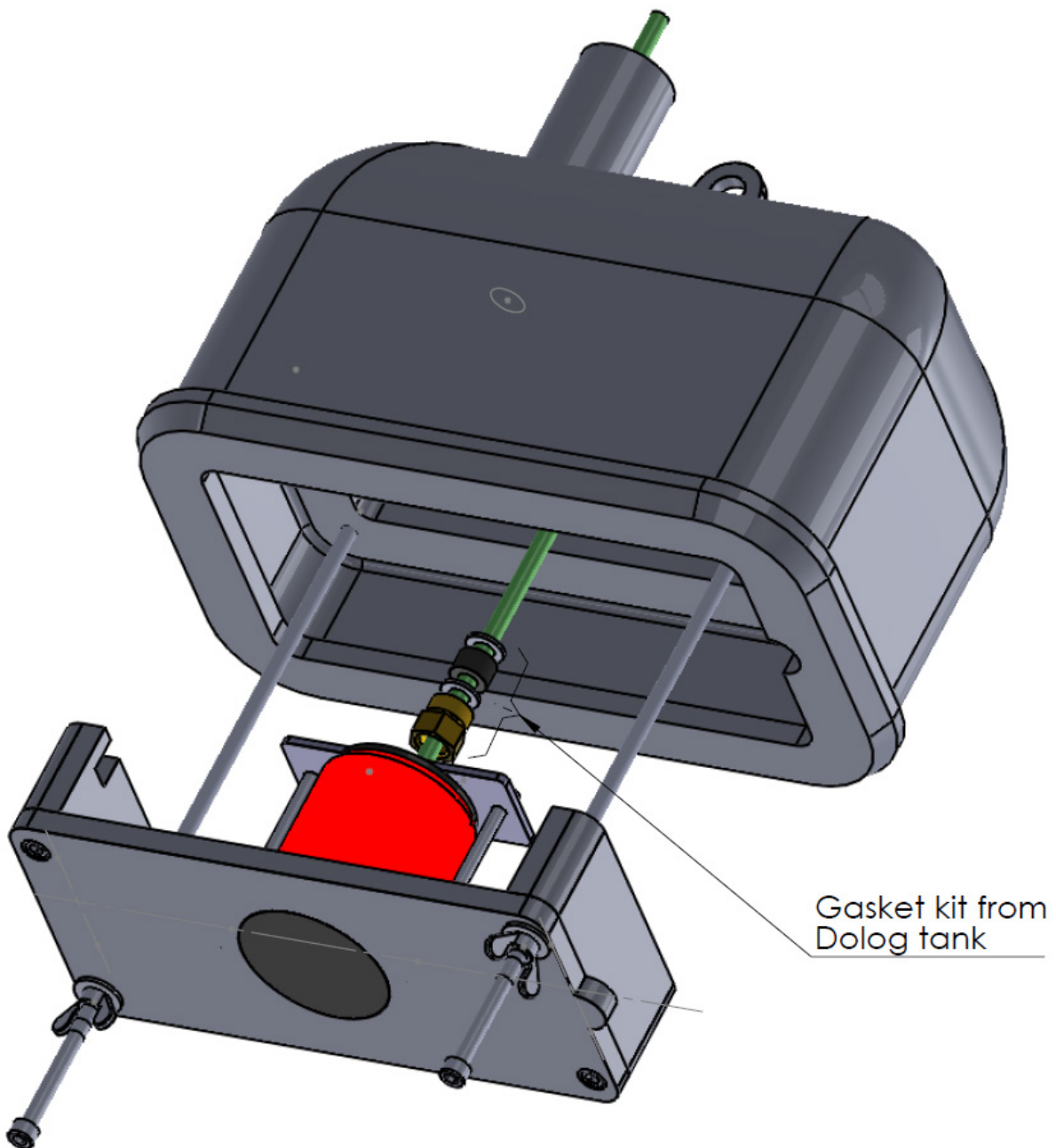
**NOTE** If installed by diver with vessel afloat:

The sensor cable is now going to be lowered into salt water.

Avoid water from penetrating into cable end during diving operation.

To avoid salt water to penetrate into cable and cause corrosion, please cover the cable end with screen.

Fasten the rope to new DL850 sensor cable end.





## INSTALL DL850 SENSOR IN DOLOG TANK

The new DL850 sensor adaptor is preinstalled with 2 x M10x80 mm screws. The two holes not preinstalled will be used during installation.

Install the 400 mm threaded bolts into tank in the position of the two holes.

Mount adaptor plate with new sensor onto the threaded bolts. Secure with 2 x wing nuts and washers.

The new sensor cable may now be pulled up the tank pipe. Fasten gasket and 36 mm nut.

Raise the complete sensor with help of the 2 x wing nuts. When in upper position fasten the 2 preinstalled M10x80 mm screws.

NOTE: When sensor is raised and secured with 2 x Screws M10 x 80 mm.

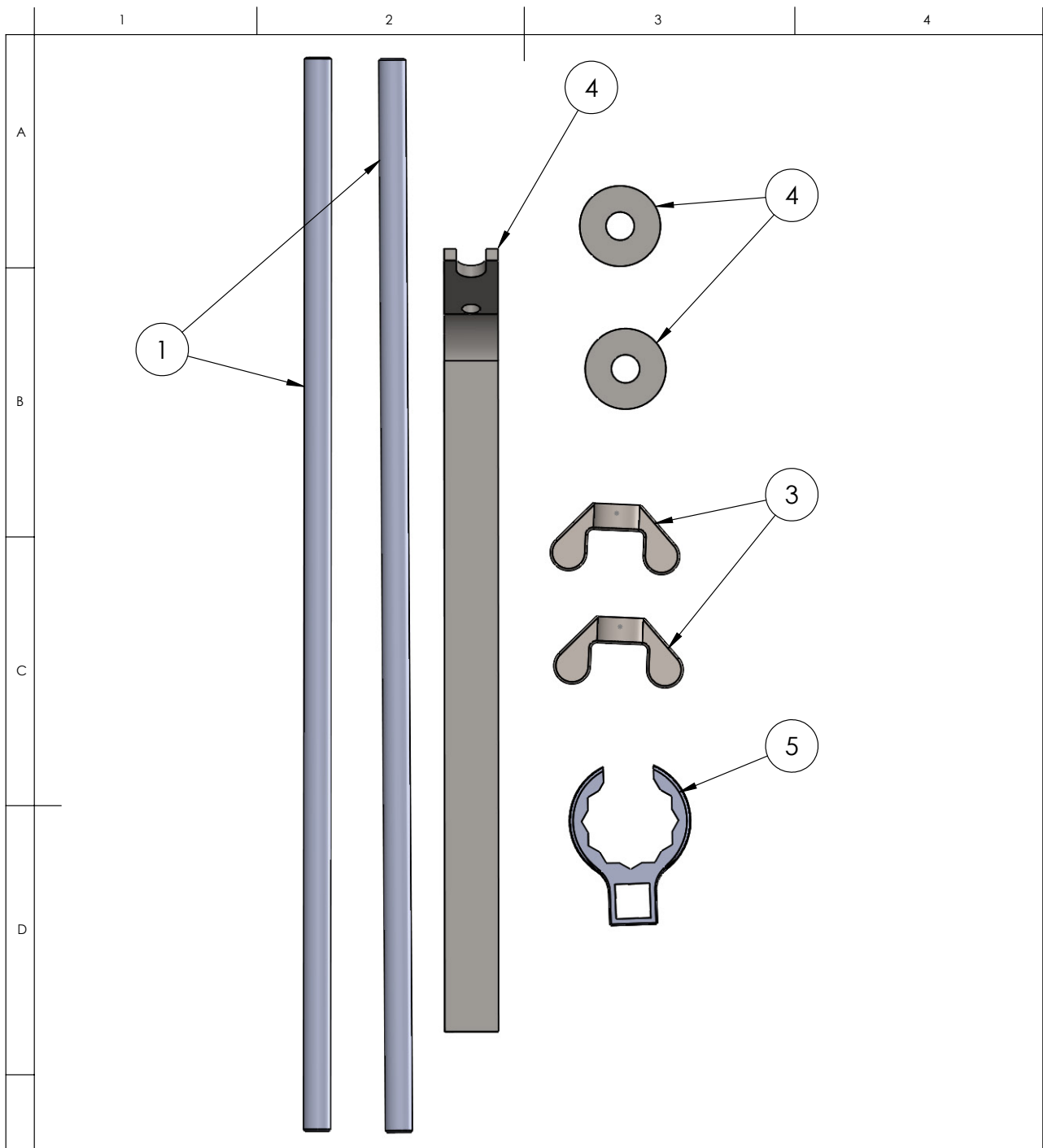
Remove the 2 x 400 mm threaded bolts. Fasten the next 2 x M10x80 mm screws were threaded bolts are removed.



# DRAWINGS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TC-2062	Adapter plate for Dolog replacement 100 mm sensor	1
2	ZOA-01218	Circ clips 7 mm DIN6799 A2	2
3	ZOA-01071	Spring washer M10 DIN127B A4	1
4	ZOA-01070	Spring washer M8 DIN127B A4	1
5	ZOA-01081	Gasket DL270 Tank-201008	1
6	ZOA-01219	Screw M10 x 130 DIN912 A4	1
7	ZOA-01220	Screw M8 x 130 DIN912 A4	1
8	TC-2063	Screw special M10x 80 Dolog replacement	2
9	TC-2061	Bar Dolog replacement	1
10	ZOA-0129	Screw M10 x80 DIN912 St.steel A4	2

CN	xx.xx.xx Date	Designed by - date A.M. 2015.02.09	Checked by G.T	Approved by - date G.T 2015.02.10	Material XXX	Name
Kit for Dolog 2X						
Dwg. no.		KIT-DOLOG-MI-SA		Revision		00
Gen. reference		ISO2768m		Scale		1:1
For protection				Edition date		YYYY.MM.DD
				Scale		X:X
				Sheet		X of X



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	ZOA-01225	Thread bolt M10 x 400mm	2
3	ZOA-01226	Wing nut M10 DIN315 4 EZ CR3+	2
4	ZOA-01224	Tool Dolog sensor removal	1
4	ZOA-01228	Washer M10 DIN9021 steel	2
5	ZOA-01227	Crow foot 36 mm	1

F	CN	xx-xxx xx Date							
	Designed by - date	Checked by	Approved by - date	Material					
	ST 2015.02.06	GT	G.T 2015.02.10	<b>As parts</b>					
				Name Kit Mounting tools Dolog 2X					
Drwg. no. KIT-DOLOG-T1-SA					Revision 00				
Gen. tolerance ISO2768m				Eur. projection ⌀		Scale 1:2	Edition date 2015.02.06	Sheet 1 of 1	

**19 Gehäusewerkstoff:** GS - C 25 DIN 9745.  
Material of casing: C = 0.23%, Mn 0.5 bis 0.6%,  
C = 0.23%, Si 0.3 bis 0.6 %

**20 Zulieferer:** Gerni Lloyd  
Approved: 13.07.77 - 18.99

**21 Zulieferer:** Gerni Lloyd  
Part No.: SW 6049 G002  
Nippel: K1 J Ryo  
DET. NORSE VERTIAS  
NK24 JUN 1985  
22 JUN 1985  
Related to casing SW 6049 G002.

**22**

**23 Gehört zum Wandler SW 6049 G001.  
Related to transducer SW 6049 G001.**

**24 Vor Wandler-Einbau festlegen.  
Before installing transducer, measure the length.**

**25 Ausführung durch KAE.  
Execution by KAE.**

**26 Ausführung durch Bauwert.  
Execution by shipyard.**

**27 Zurechnen des Kabelendes in den Verteilertasten  
SW 6049 G002.  
Assigning the cable in the distribution bar  
SW 6049 G002**

**28 Die Strahlfläche darf nicht gestrichen werden.  
Transducer face must not be painted.**

**29 Gehäusemaße  
Dimensions of casing**

**30 Anzugsmoment = 50 Nm  
Tightening torque = 50 Nm**

**31 Liefer Bauwert  
Supplied by shipyard**

**32 Liefer KAE  
Supplied by KAE**

**33 Die Lichtheite des Wandler-Gehäuses muß flüchtig mit der  
Bodenplatte bzw. Verteilertaste sein.  
The lower edge of the transducer casing must all around be flush  
with the bottom plating or taring**

**34 Das Gehäuse ist vor dem Einschweißen auf 80°C - 120°C vorzuwärmen.  
Casing must be preheated to 80°C - 120°C before welding.**

**35 Vor dem Auslösen Wandler-Gehäuse-Einbau (Tank) und Kabelschutzrohr  
auf Dringerei, check the insulation prüfen.  
Before unpacking check transducer casing installation tank and  
insulation tube for water-tightness, check cable with connector for  
insulation.**

**Einbau und Messung nach Blatt 2  
For installation and measurement, see sheet 2**

**29) Strahlfläche des Wandlers muß parallel  
zur CWL liegen.  
Ausstrahlend zur Fahrmanövrung 0 bis 65°  
Kipwinkel um die Längsachse ± 0,5°  
Transducer face must be parallel  
to CWL.  
The deviation:  
Angle of attack relative to sailing  
direction 0 to 65°  
flaring angle about longitudinal  
axis 0 to 0,5°  
20) Weitere Angaben siehe  
SW 6049 G002 B2 3j  
SW 6049 G002 B2 3j**

**21) Falls erforderlich:  
Kabelschutzrohr zerlegbar durchgehend  
von Verteilertaste bis Wandler-  
einbaukasten (siehe Zeichnung)  
If necessary:  
Protective pipe for cable (capable of being dismantled)  
all the way from cable gland to distribution box  
electr. and mech. protection**

**22) Oberhalb der Wasserlinie  
wasserdichte Kabeldurchführung 1) 2)  
Water-tight cable gland  
SW 7155 G 007  
Stock No. 7145912  
Best. Nr. 7145912  
Pressure tight for 0,2 MPa (2 bar) pressure**

**23) Abflusshöhe 1) 5)  
Seamless tube  
Ø 35 x 1,0 DIN 2448 - S1.35**

**24) Wandler-Gehäuse 1) 4) 5) 2j  
SW 6049 G001  
Best. Nr. 1723463  
Gewicht: 10 kg**

**25) Wandler-Gehäuse 1) 4) 5) 2j  
SW 6049 G002  
Best. Nr. 1723383  
Gewicht: 71 kg**

**26) Wandler-Gehäuse 1) 4) 5) 2j  
SW 6049 G003  
Best. Nr. 1723384  
Gewicht: 25 kg**

**27) Zylinderschraube 4) 2)  
Hex socket head screw  
M 10 x 25  
(DIN 912 - M10)  
Best. Nr. 1724460  
Stock No. 1724460**

**28) Schweißnaht 2) 1) 4)  
To be welded**

**29) Schweißen 2) 1) 4)  
To be welded**

**30) Schweißen 2) 1) 4)  
To be welded**

**31) Schweißen 2) 1) 4)  
To be welded**

**32) Schweißen 2) 1) 4)  
To be welded**

**33) Schweißen 2) 1) 4)  
To be welded**

**34) Schweißen 2) 1) 4)  
To be welded**

**35) Schweißen 2) 1) 4)  
To be welded**

Reproduktionsmaßstab  
REPRODUCTION SCALE  
0

1:1

SW 6049 0 000 E21 DE1