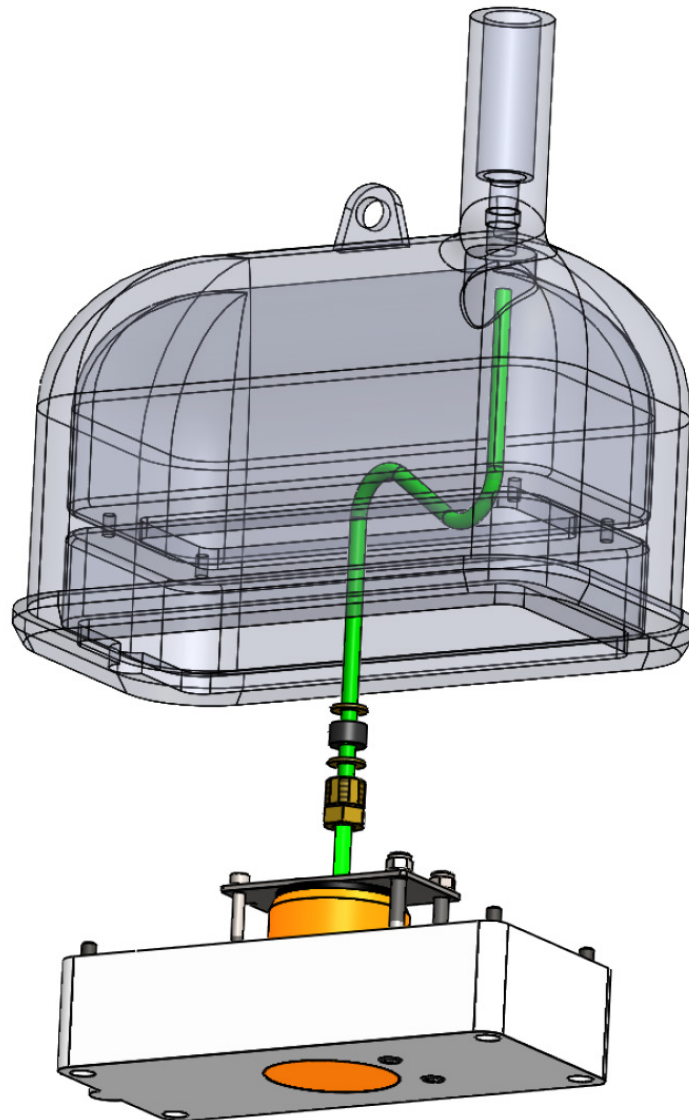


# SKIPPER

## Installation manual DL2SDR-SB DL2 Doppler Speed log sensor DOLOG 2X replacement



**SKIPPER** Electronics AS  
Enebakkveien 150  
P. O. Box 151, Manglerud  
0612 Oslo, Norway  
[www.skipper.no](http://www.skipper.no)  
E-mail: [support@skipper.no](mailto:support@skipper.no)

Document no: DM-D102  
Rev: 02  
Date: 2021.03.16

# TABLE OF CONTENTS

<b><u>Introduction</u></b>	<b><u>2</u></b>
<b><u>Prepare speed log replacement</u></b>	<b><u>3</u></b>
<b><u>Installing sensor adaptor kit</u></b>	<b><u>5</u></b>
<b><u>Remove old dolog sensor</u></b>	<b><u>6</u></b>
<b><u>Prepare sensor for installation</u></b>	<b><u>7</u></b>
<b><u>Install sensor into dolog tank</u></b>	<b><u>8</u></b>
<b><u>Connect sensor cable</u></b>	<b><u>9</u></b>

- This revision of manual is valid for Rev 2 of KIT-DOLOG-T1-SA with improved grounding contact between the sensor and the sea water. (Through Screw M10x140, ZOA-01215, Item 12)

## INTRODUCTION

This document describes how to install a SKIPPER DL2 100mm sensor into an existing DOLOG 2X (DOLOG 21/22/23) tank.

The Rev 01 of KIT-DOLOG-M1-SA is a plastic adaptor.

The sensor replacement is recommended to be performed in dry dock. It is possible to replace the sensor with vessel afloat.

The replacement will require new DL2 Operator unit, transceiver unit, junction box and sensor. For DL2 Operator unit and Transceiver unit installation instruction, please see DL2 installation manual.

This procedure will mainly cover replacement of DOLOG sensor.

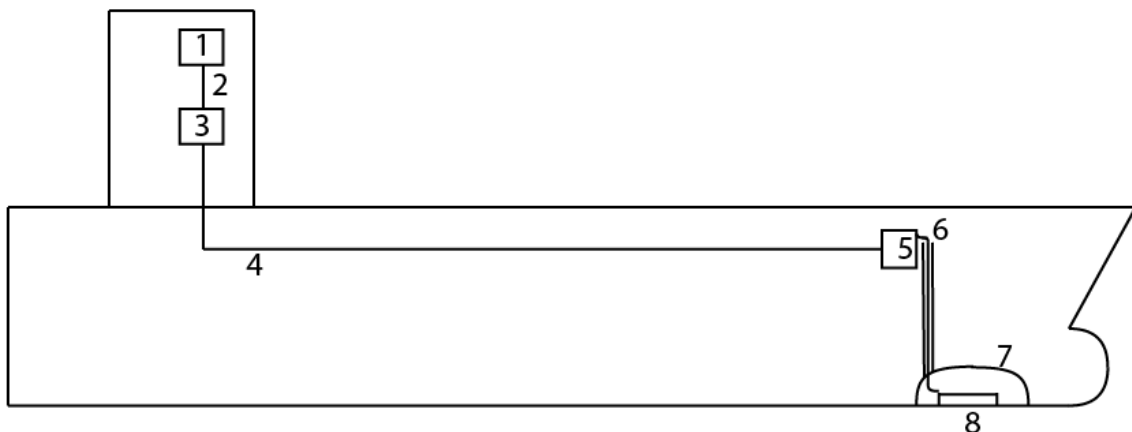
DL2SDR-SA consist of:

- DL2SDR-ZB Sensor DL2. 40m cable with sealed cable end
- KIT-DOLOG-M1-SA Kit DOLOG 2X
- KIT-DOLOG-T1-SA. Kit Mounting tools DOLOG 2X

# PREPARE SPEED LOG REPLACEMENT

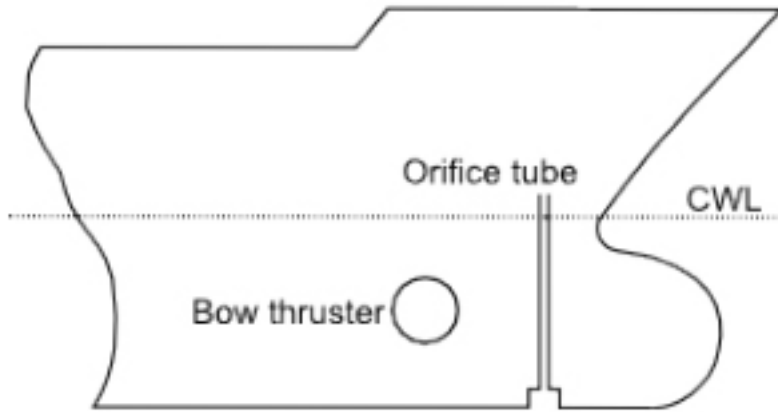
The DOLOG speed log to be replaced consist of the following main parts:

- 1: Operator Unit.  
To be replaced by SKIPPER2 Operator unit
- 2: Cable from operator unit to Electronic unit.  
To be replaced by ethernet cable
- 3: Electronic unit  
To be replaced by DL2 Electronic unit JB70D2-SA
- 4: Cable Electronic unit to terminal box.  
May be reused for DL2
- 5: Terminal box.  
To be replaced by JB12 terminal box.
- 6: Sensor cable  
To be replaced by DL2 sensor cable
- 7: DOLOG tank  
To be reused for installation of DL2SDR-SA sensor.
- 8: DOLOG sensor  
To be replaced by DL2SDR-SA sensor

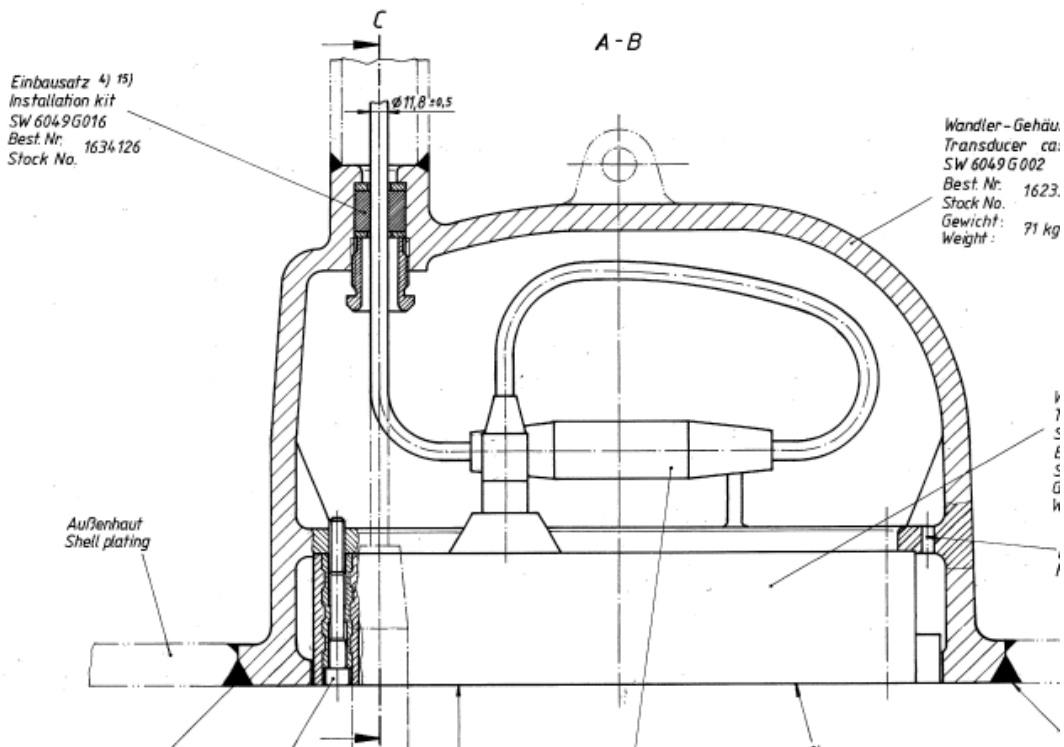


The sensor cable pipe (orifice tube) on the housing is part of the ship hull and has to reach above waterline (CWL=Construction water line.)

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.

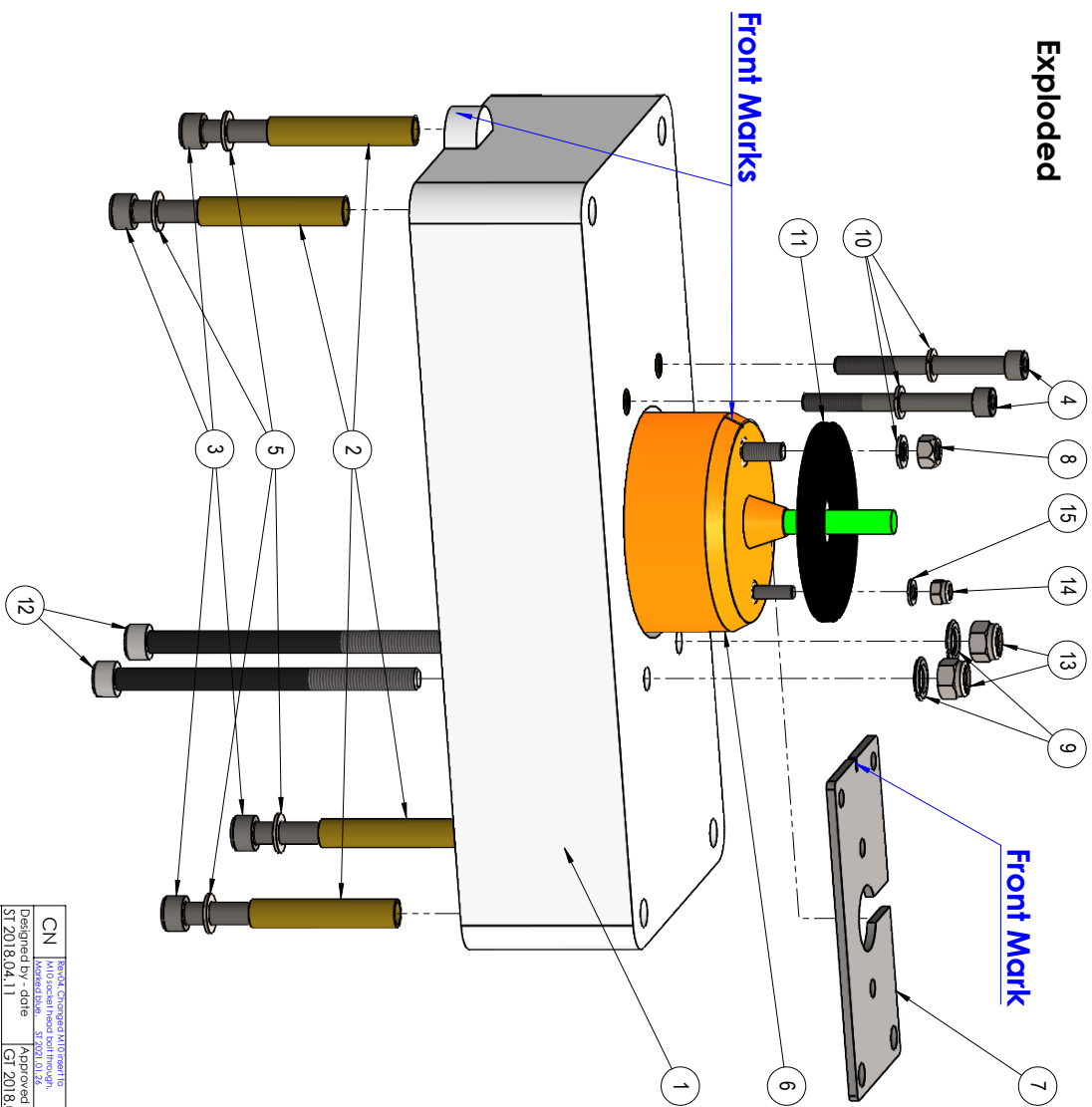


The pipe has a watertight gasket in both ends.



# INSTALLING SENSOR ADAPTOR KIT

Install the sensor into the DOLOG adaptor as described in drawing.  
Sensor forward (ahead) mark to be correctly positioned.



POS.	PART NUMBER	DESCRIPTION	QTY.
1	TC-2067	Adaptor plate for DOLOG	1
2	TC-2068	Insert OD13mm ID11mm L67,5mm	4
3	ZOA-01229	Screw M10x80 mm DIN912 A4	4
4	ZOA-01242	Screw, Allan key M8x80, DIN912, A4	2
5	ZOA-01228	Washer M10, DIN 9021, Steel	4
6	DL2S / DL850S27	Sensor	1
7	TC-2065	Bar DOLOG for DL850S27	1
8	ZOA-01011	Lock Nut M8 80 DIN 985 St Steel A4	1
9	ZOA-01071	Spring washer M10 DIN127B A4	2
10	ZOA-01070	Split washer M8 DIN127 A4	3
11	ZOA-01081	Rubber gasket for DL 850S27T	1
12	ZOA-01215	Bolt M10 x 140 Hex-socket head, DIN912 A4, ISO 4762	2
13	ZOA-01257	M10 Nut / Lock nut	2
14	ZOA-01143	Lock nut M6 DIN985 A4	1
15	ZOA-01013	Locking washer M6	1

CN <small>Insert OD13mm ID11mm L67,5mm M10 socket head bolt through. Material: Steel. ST 2018.04.11</small>		Approved by: - date GI 2018.04.11	
All sharp edges to be broke or deburred		Material N/A	
Name Mounting of DOLOG			
Divwg. no. TC-2067		Revision 04	
Gen. tolerance ISO2768m		Edition date 2021.01.26	
Fur. production		Scale 1:1	
Sheet 3 of 5		Revision 04	

# 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.

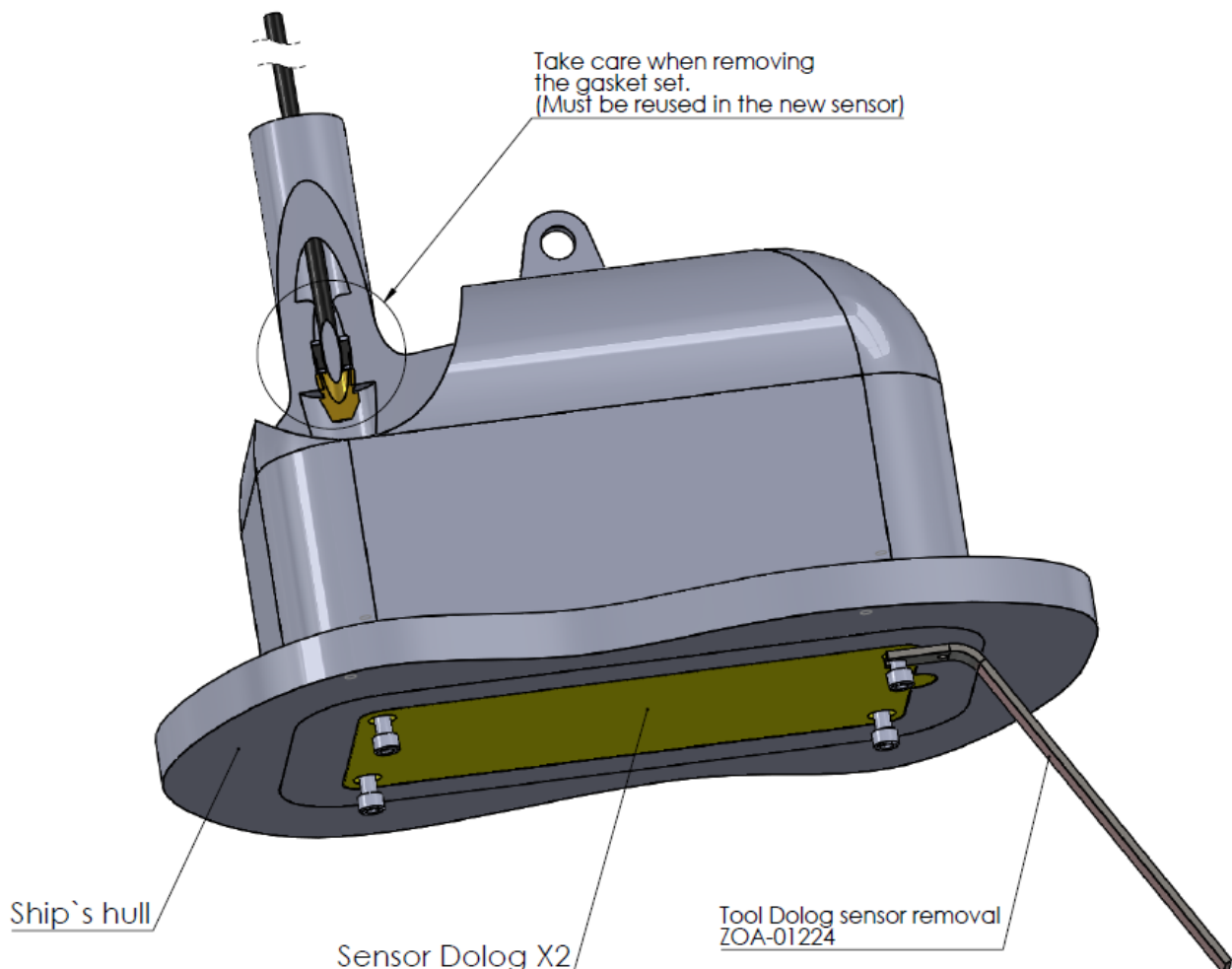
- Threads in tank
- Threads in sensor

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 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

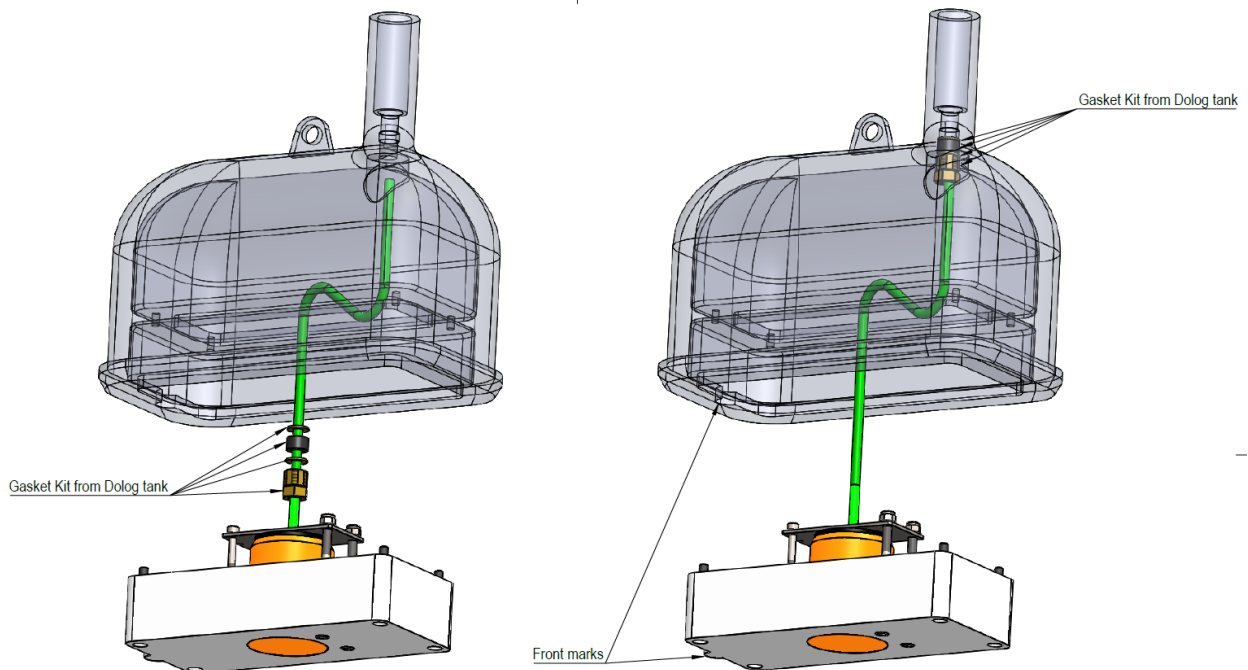
Install the 36 mm nut and gasket onto the 40 m cable of new DL2SDR-SA sensor.

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

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

To avoid salt water to penetrate into cable during diving operation the cable end is sealed. Fasten the rope to new DL2SDR-SA sensor cable end.

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



## INSTALL SENSOR INTO DOLOG TANK

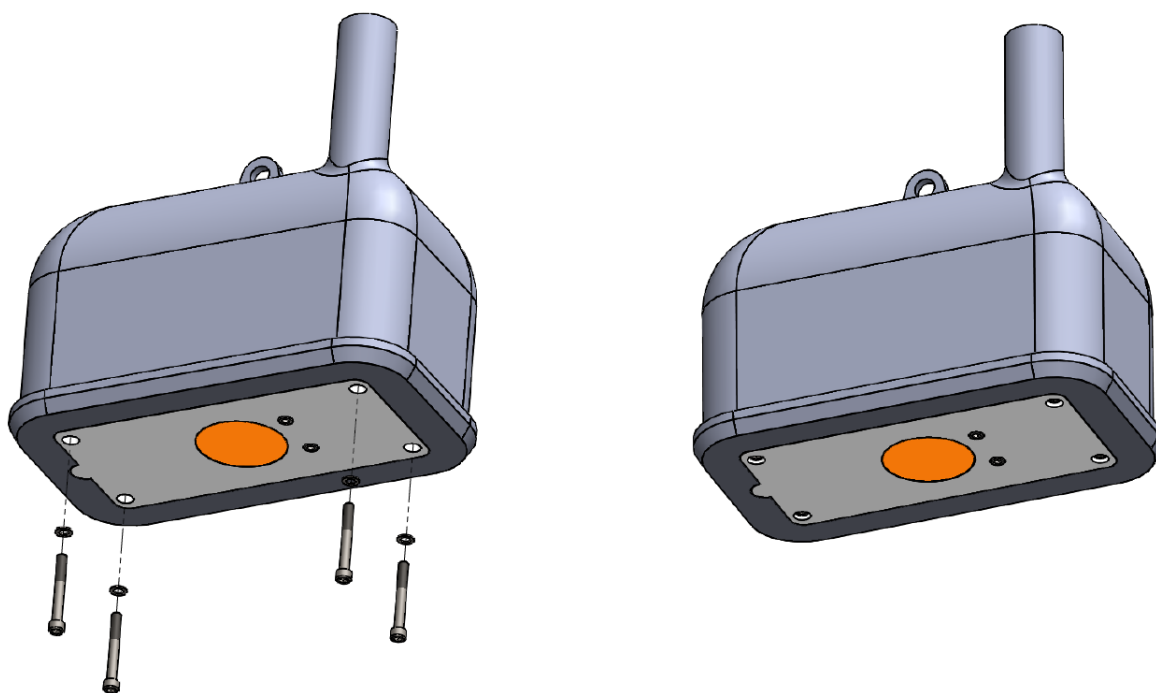
Lift the sensor into the dolog tank Fsten with 4 x screw M10x80.

The 2 x threaded bolts M10x400 and wing nuts included in the KIT-DOLOG-T1-SA kit may be used to lift the sensor into the dolog tank.

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

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.





## CONNECT SENSOR CABLE

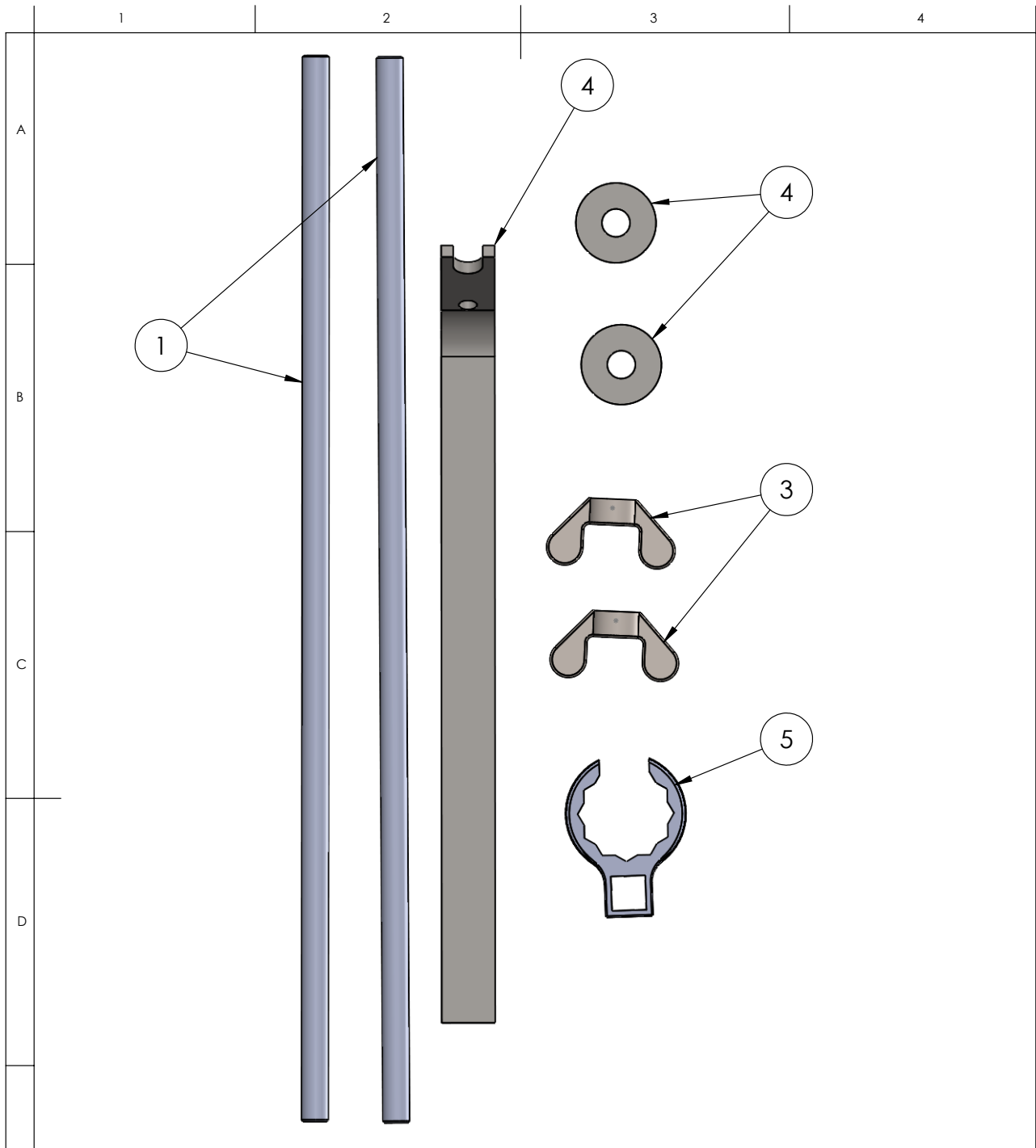
DL2SDR-SA speed log sensors are supplied with a water tight cable end to avoid water intrusion into cable when/if replaced by diver.



The following parts are supplied:

- Parts to prepare connector end after diving operation is finished. (The original cable end is supplied as a reference)





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				
Gen. tolerance ISO2768m					Eur. projection	Scale 1:2	Edition date 2015.02.06	Sheet 1 of 1	

