

Tank gauge for dip type sensor	B000050	11/18	1

This manual is related to the following product

- A2C59514082 VLB LevelFuel 12/24V 52 1/1 S LT EU DL r
- A2C60002887 VLW Level Fuel 12V 52 DL tc C Manitou
- A2C60001053 MODULE FUEL E-F 240-33 12/24 VLB
- A2C60001050 VLB_Fuel 12/24V_52_1/1_S_LT_EU_DL_wo_C
- A2C60001052 MODULE FUEL E-F 10-180 12/24 VLB
- A2C59514094 VLB LevelFuel 12/24V 52 F S LT US DL rb
- A2C59514184 VLW LevelFuel 12/24V 52 1/1 S LT EU DL r
- A2C59514080 VLB LevelFuel 12/24V 52 1/1 S DT A DL tc
- A2C60001056 MODULE FUEL 0-1/1 10-180 12/24 VLW
- A2C60001058 MODULE FUEL E-F 240-33 12/24 VLW
- A2C59514190 VLW LevelFuel 12/24V 52 F S LT US DL rw
- A2C59514088 VLB LevelFuel 12/24V 52 F S DT A DL rb A
- A2C59514192 VLW LevelFw 12/24V 52 1/1 S LT EU DL rw
- A2C60001055 MODULE FUEL E-F 90-0 12/24 VLB
- A2C59514891 VLB Fuel 52 12+24 1/1 S LT EU DL rb C
- A2C59514182 VLW LevelFuel 12/24V 52 1/1 S DT A DL rw
- A2C59514183 VLW LevelFuel 12/24V 52 1/1 S DT A DL tc
- A2C59514189 VLW LevelFuel 12/24V 52 F S DT A DL tc A
- A2C59514083 VLB LevelFuel 12/24V 52 1/1 S LT EU DL t
- A2C59514084 VLB LevelFuel 12/24V 52 1/1 S LT EU DL t
- A2C59514091 VLB LevelFuel 12/24V 52 F S LT EU DL rb
- A2C59514093 VLB LevelFuel 12/24V 52 F S LT EU DL tb
- A2C59514185 VLW LevelFuel 12/24V 52 1/1 S LT EU DL t
- A2C59514193 VLW LevelFw 12/24V 52 F S LT EU DL rw A
- A2C59514916 VLW FUEL 12+24V 52 1/1 S LT EU DL rc C
- A2C59514096 VLB LevelFuel 12/24V 52 F S LT US DL tb
- A2C59514081 VLB LevelFuel 12/24V 52 1/1 S DT A DL tb
- A2C59514188 VLW LevelFuel 12/24V 52 F S DT A DL rw A
- A2C60001051 VLB_Fuel 12/24V_52_1/1_S_DT_A_DL_wo_C
- A2C60001057 VLW_Fuel 12/24V_52_1/1_S_DT_A_DL_wo_C
- A2C60001060 MODULE FUEL E-F 90-0 12/24 VLW
- A2C59514085 VLB LevelFuel 12/24V 52 F S 090 DL rb A
- A2C59514186 VLW LevelFuel 12/24V 52 F S 090 DL rw A
- A2C60001054 MODULE FUEL E-F 0-90 12/24 VLB

Tank gauge for dip type sensor	B000050	11/18 GB	2
--------------------------------	---------	-------------	---



Safety information

- The product was developed, manufactured and inspected according to the basic safety requirements of EC Guidelines and state-of-the-art technology.
- The instrument is designed for use in grounded vehicles and machines as well as in pleasure boats, including non-classified commercial shipping.
- Use our product only as intended. Use of the product for reasons other than its intended use may lead to personal injury, property damage or environmental damage. Before installation, check the vehicle documentation for vehicle type and any possible special features!
- Use the assembly plan to learn the location of the fuel/hydraulic/ compressed air and electrical lines!
- Note possible modifications to the vehicle, which must be considered during installation!
- To prevent personal injury, property damage or environmental damage, basic knowledge of motor vehicle/shipbuilding electronics and mechanics is required.
- Make sure that the engine cannot start unintentionally during installation!
- Modifications or manipulations to VDO products can affect safety. Consequently, you may not modify or manipulate the product!
- When removing/installing seats, covers, etc., ensure that lines are not damaged and plug-in connections are not loosened!
- Note all data from other installed instruments with volatile electronic memories.

Safety during installation:

- During installation, ensure that the product's components do not affect or limit vehicle functions. Avoid damaging these components!
- Only install undamaged parts in a vehicle!
- During installation, ensure that the product does not impair the field of vision and that it cannot impact the driver's or passenger's head!
- A specialized technician should install the product. If you install the product yourself, wear appropriate work clothing. Do not wear loose clothing, as it may get caught in moving parts. Protect long hair with a hair net.
- When working on the on-board electronics, do not wear metallic or conductive jewelry such as necklaces, bracelets, rings, etc.
- If work on a running engine is required, exercise extreme caution. Wear only appropriate work clothing as you are at risk of personal injury, resulting from being crushed or burned.
- Before beginning, disconnect the negative terminal on the battery, otherwise you risk a short circuit. If the vehicle is supplied by auxiliary batteries, you must also disconnect the negative terminals on these batteries! Short circuits can cause fires, battery explosions and damages to other electronic systems. Please note that when you disconnect the battery, all volatile electronic memories lose their input values and must be reprogrammed.
- If working on gasoline boat motors, let the motor compartment fan run before beginning work.
- Pay attention to how lines and cable harnesses are laid so that you do not drill or saw through them!
- Do not install the product in the mechanical and electrical airbag area!
- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- When working underneath the vehicle, secure it according to the specifications from the vehicle manufacturer.

No smoking! No open fire or lights!

- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 65 mm.
- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Debur edges. Follow the safety instructions of the tool manufacturer.
- Use only insulated tools, if work is necessary on live parts.
- Use only the multimeter or diode test lamps provided, to measure voltages and currents in the vehicle/machine or boat. Use of conventional test lamps can cause damage to control units or other electronic systems.
- The electrical indicator outputs and cables connected to them must be protected from direct contact and damage. The cables in use must have sufficient insulation and electric strength and the contact points must be safe from touch.
- Use appropriate measures to also protect the electrically conductive parts on the connected consumer from direct contact. Laying metallic, uninsulated cables and contacts is prohibited.

Safety after installation:

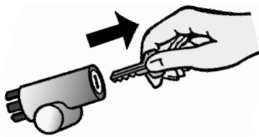
- Connect the ground cable tightly to the negative terminal of the battery.
- Reenter/reprogram the volatile electronic memory values.
- Check all functions.
- Use only clean water to clean the components. Note the Ingress Protection (IP) ratings (IEC 60529).

Electrical connection:

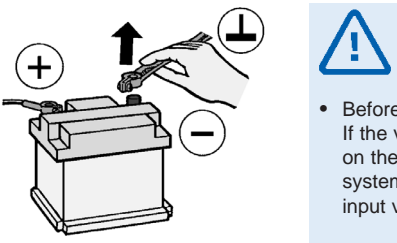
- Note cable cross-sectional area!
- Reducing the cable cross-sectional area leads to higher current density, which can cause the cable cross-sectional area in question to heat up!
- When installing electrical cables, use the provided cable ducts and harnesses; however, do not run cables parallel to ignition cables or to cables that lead to large electricity consumers.
- Fasten cables with cable ties or adhesive tape. Do not run cables over moving parts. Do not attach cables to the steering column!
- Ensure that cables are not subject to tensile, compressive or shearing forces.
- If cables are run through drill holes, protect them using rubber sleeves or the like.
- Use only one cable stripper to strip the cable. Adjust the stripper so that stranded wires are not damaged or separated.
- Use only a soft soldering process or commercially available crimp connector to solder new cable connections!
- Make crimp connections with cable crimping pliers only. Follow the safety instructions of the tool manufacturer.
- Insulate exposed stranded wires to prevent short circuits.
- Caution: Risk of short circuit if junctions are faulty or cables are damaged.
- Short circuits in the vehicle network can cause fires, battery explosions and damages to other electronic systems. Consequently, all power supply cable connections must be provided with weldable connectors and be sufficiently insulated.
- Ensure ground connections are sound.
- Faulty connections can cause short circuits. Only connect cables according to the electrical wiring diagram.
- If operating the instrument on power supply units, note that the power supply unit must be stabilized and it must comply with the following standard: DIN EN 61000, Parts 6-1 to 6-4.

Tank gauge for dip type sensor	B000050	11/18 GB	3
--------------------------------	----------------	--------------------	---

Procedures for installing VDO Viewline instruments

1 

Before beginning, turn off the ignition and remove the ignition key. If necessary, remove the main circuit switch.

2 

Disconnect the negative terminal on the battery. Make sure the battery cannot unintentionally restart.

- Before beginning, disconnect the negative terminal on the battery, otherwise you risk a short circuit. If the vehicle is supplied by auxiliary batteries, you must also disconnect the negative terminals on these batteries! Short circuits can cause fires, battery explosions and damages to other electronic systems. Please note that when you disconnect the battery, all volatile electronic memories lose their input values and must be reprogrammed.

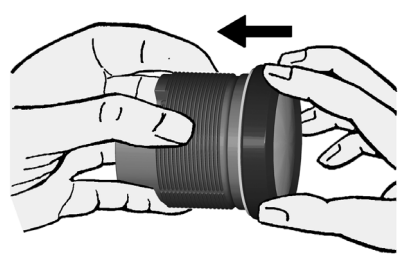
3 

If installing the instrument near a magnetic compass, note the magnetic safe distance to the compass.

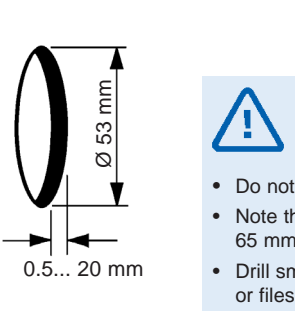
4 

The following rings may be installed as alternatives to the supplied front ring:

Front ring, flat; black	A2C5318604001
Front ring, flat; white	A2C5318602201
Front ring, flat; chrome	A2C5318602301
Front ring, triangular; black	A2C5318602401
Front ring, triangular; white	A2C5318602501
Front ring, triangular; chrome	A2C5318602601
Front ring, round; black	A2C5318602701
Front ring, round; white	A2C5318602801
Front ring, round; chrome	A2C5318602901

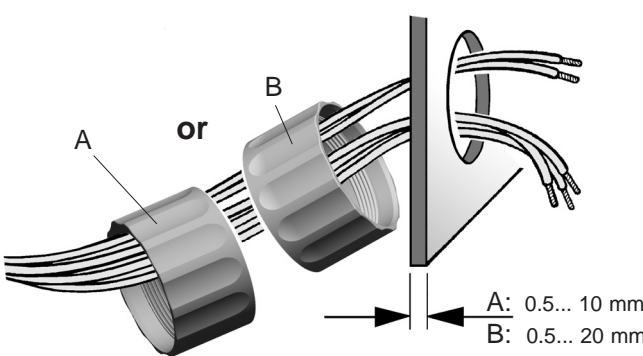
5 

Place the new front ring on the instrument and press it on until it is flush with the instrument glass.

6 

Conventional assembly. (Instrument is put into the drill hole from the front).
The panel width may be within a range of 0.5 to 20 mm.
The drill hole must have a diameter of 53 mm.

- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 65 mm.
- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Deburr edges. Follow the safety instructions of the tool manufacturer.

7 

For 52 mm instruments, the fastening nut can be mounted at position A or B. This allows you to realize various clamping heights.

Version A
Clamping height 0.5 – 10 mm

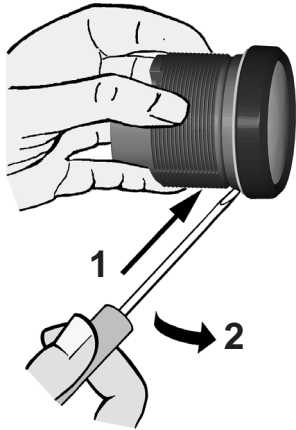
Version B
Clamping height 0.5 – 20 mm

A: 0.5... 10 mm
B: 0.5... 20 mm

B000050

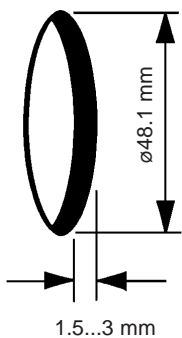
Tank gauge for dip type sensor	B000050	11/18 GB	4
--------------------------------	---------	-------------	---

8



If the instrument is mounted flush (i.e., from the back so that the instrument glass and the panel form one plane), the front ring must be removed. Press the instrument glass with both thumbs, while at the same time pressing the front ring forward from the instrument with both index fingers. Note the use of a tool in the adjacent figure.

9

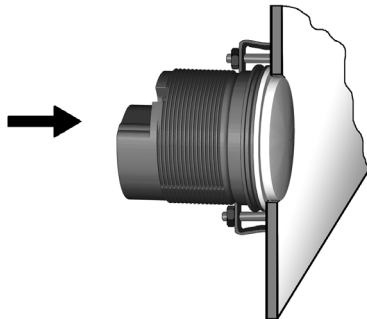


- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 65 mm.
- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Deburr edges. Follow the safety instructions of the tool manufacturer.

Flush assembly

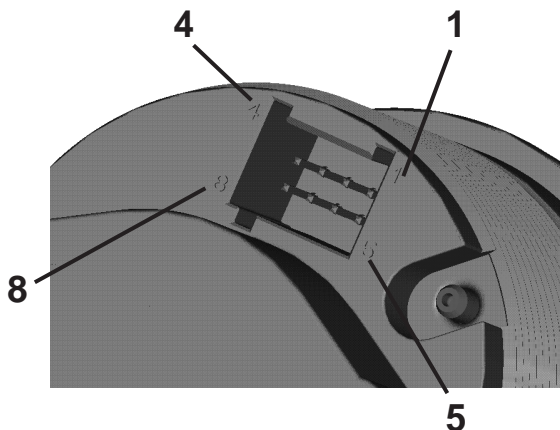
The recommended panel thickness is 1.5 to 3 mm. The drill hole must have a diameter of 48.1 mm. Ensure that the installation location is level and has no sharp edges.

10



Place the flush mount seal A2C53215640 on the instrument glass. Put the instrument into the drill hole from the back. Adjust the instrument so that the gauge is level and fasten it to the stud bolts on the rear side of the panel, using the flush mount fixing bracket A2C59510864.

11



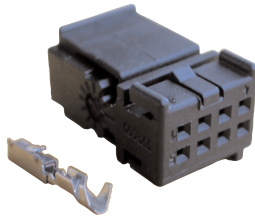
Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

- | | |
|--|--------------|
| Pin 1 - Term. 15 - ignition plus 12/24 V | Red |
| Pin 2 - Term. 31 - ground | Black |
| Pin 3 - signal ground | Blue/black |
| Pin 4 - Term. 30 - steady power | Brown |
| Pin 5 - sensor signal | Green |
| Pin 6 - Term. 58 - lighting | Blue/red |
| Pin 7 - warning LED ground | Yellow/Black |
| Pin 8 - warning LED plus | Yellow/red |

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Tank gauge for dip type sensor	B000050	11/18	5

12



Connector set, 8-pin - A2C59510850

Use the following connector to connect the instrument: Connector set, 8-pin - A2C59510850

The connector set is designed for a cable cross-section of 0.25 - 0.5 mm².

For other cross-sections, please use contacts made by Tyco.

Single contacts: Tyco No. 1355718-1 for 0.14 – 0.22 mm²

Tyco No. 963729-1 for 0.5 – 0.75 mm²

Strip: Tyco No. 1355717-1 for 0.14 – 0.22 mm²

Tyco No. 963715-1 for 0.5 – 0.75 mm²

Create a crimp connection using the contacts and the corresponding cables. Follow the instructions of the hand pliers manufacturer.

Use the following for this:

Hand pliers Tyco No. 539635-1

And the tool Tyco No. 539682-2 for these hand pliers

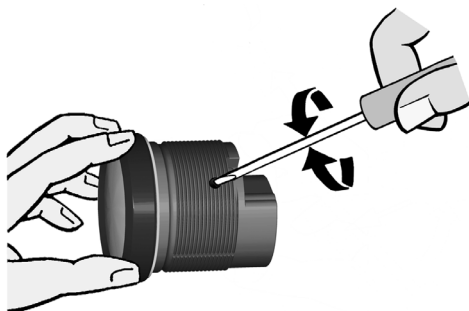
Pay special attention to whether the crimp barrel clutches all individual wires in the cable, otherwise you risk a short circuit!



Electrical connection:

- Note cable cross-sectional area!
- Reducing the cable cross-sectional area leads to higher current density, which can cause the cable cross-sectional area in question to heat up!
- When installing electrical cables, use the provided cable ducts and harnesses; however, do not run cables parallel to ignition cables or to cables that lead to large electricity consumers.
- Fasten cables with cable ties or adhesive tape. Do not run cables over moving parts. Do not attach cables to the steering column!
- Ensure that cables are not subject to tensile, compressive or shearing forces.
- If cables are run through drill holes, protect them using rubber sleeves or the like.
- Use only one cable stripper to strip the cable. Adjust the stripper so that stranded wires are not damaged or separated.
- Use only a soft soldering process or commercially available crimp connector to solder new cable connections!
- Make crimp connections with cable crimping pliers only. Follow the safety instructions of the tool manufacturer.
- Insulate exposed stranded wires to prevent short circuits.
- Caution: Risk of short circuit if junctions are faulty or cables are damaged.
- Short circuits in the vehicle network can cause fires, battery explosions and damages to other electronic systems. Consequently, all power supply cable connections must be provided with weldable connectors and sufficiently insulated.
- Ensure ground connections are sound.
- Faulty connections can cause short circuits. Only connect cables according to the electrical wiring diagram.
- If operating the instrument on power supply units, note that the power supply unit must be stabilized and it must comply with the following standard: DIN EN 61000, Parts 6-1 to 6-4.

13



The gauge must be calibrated to the connected immersion tube sensor. Adjust the setting with an insulated screwdriver when the tank is **empty**. Rotate the potentiometer until the gauge reads empty (0 or E).

The potentiometer's setting range is between 60 and 90Ω.

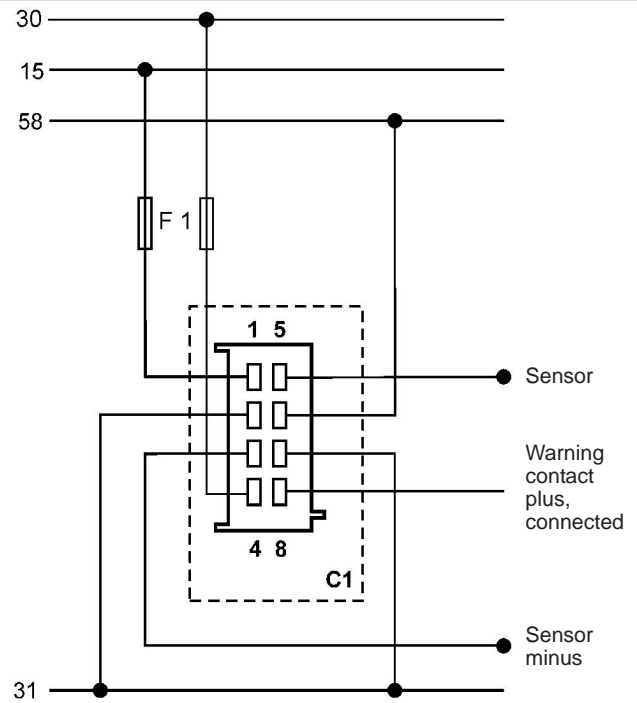
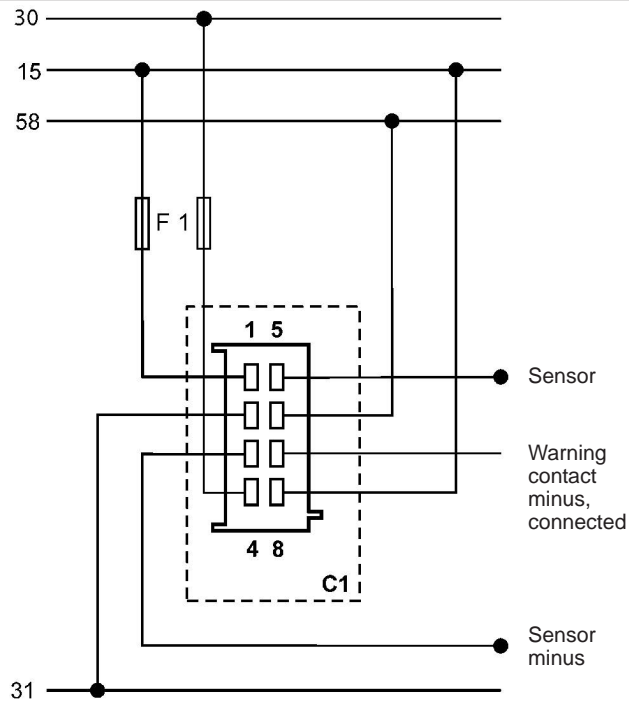


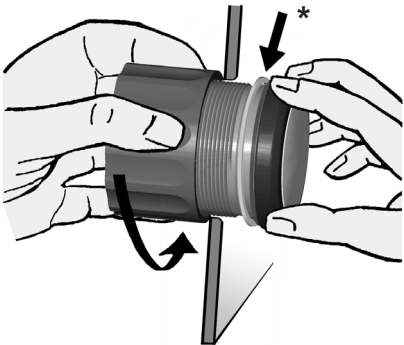
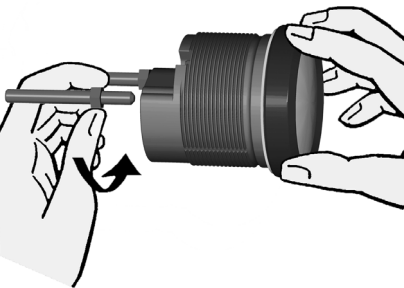
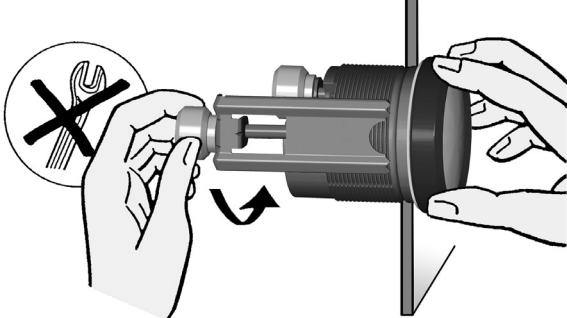
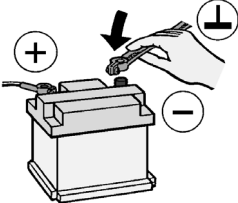

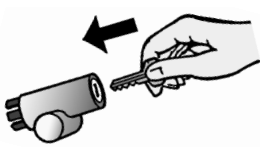
Tank gauge for dip type sensor	B000050	11/18 GB	6
--------------------------------	---------	-------------	---

- 14** Designations in the wiring diagram:
- 30 - terminal 30 - steady power
 - 15 - terminal 15 - connected (ignition) plus 12/24 V
 - 58 - terminal 58 - lighting

You must comply with the wiring diagram.

- 31 - terminal 31 - ground
- F1 - fuse 5A quick-response
- C1 - 8-pin MQS connector



Tank gauge for dip type sensor	B000050	11/18 GB	7																																							
<p>15</p> 	<p>Align the instrument and hand-tighten the fastening nut. Ensure that the nut is not tightened with a torque greater than 400 Ncm.</p> <p>* Make sure the seal lays flat between the panel and the front ring.</p>																																									
<p>16</p> 	<p>If you would like to omit the fastening nut, you may use the part set A2C59510854 as an alternative. This is recommended if the installation location is subject to vibratory loads. Screw the stud bolts into the provided drill holes in the enclosure. Max. stud bolt torque is 1.5 Nm.</p>																																									
<p>17</p> 	<p>Place the bracket on the stud bolt and hand-tighten the knurled nut.</p> <p>* Make sure the seal lays flat between the panel and the front ring (see Fig. 14).</p>																																									
<p>18</p> 	<p>Reconnect the battery after inspecting the connection.</p> <div style="border: 1px solid black; padding: 5px; background-color: #e0f0ff;">  <ul style="list-style-type: none"> Please note that when you disconnect the battery, all volatile electronic memories lose their input values and must be reprogrammed. </div>																																									
<p>19</p> 	<p>If necessary, replace the main circuit switch. Turn on the ignition and conduct a functional test. Reprogram any other instruments that may have lost their saved settings.</p>																																									
<p>20 Important: Clean the instrument glass and front frame with water only. Do not use chemical agents.</p>																																										
<p>21 Accessories / Spare parts</p> <table border="0"> <tr> <td>Bush contacts 0.25 – 0.5 mm²</td> <td>A2C59510846</td> </tr> <tr> <td>Bush housing, 8-pin</td> <td>A2C59510847</td> </tr> <tr> <td>Bracket assembly mounting set</td> <td>A2C59510854</td> </tr> <tr> <td>Flush mount fixing bracket</td> <td>A2C59510864</td> </tr> <tr> <td>Adapter Cable</td> <td>A2C59512947</td> </tr> <tr> <td>Make Point Switch</td> <td>A2C59510886</td> </tr> </table>	Bush contacts 0.25 – 0.5 mm ²	A2C59510846	Bush housing, 8-pin	A2C59510847	Bracket assembly mounting set	A2C59510854	Flush mount fixing bracket	A2C59510864	Adapter Cable	A2C59512947	Make Point Switch	A2C59510886	<table border="0"> <tr> <td>Flush mount seal</td> <td>A2C5321564001</td> </tr> <tr> <td>Fastening nut</td> <td>A2C5300739801</td> </tr> <tr> <td>Front ring, flat; black</td> <td>A2C5318604001</td> </tr> <tr> <td>Front ring, flat; white</td> <td>A2C5318602201</td> </tr> <tr> <td>Front ring, flat; chrome</td> <td>A2C5318602301</td> </tr> <tr> <td>Front ring, triangular; black</td> <td>A2C5318602401</td> </tr> <tr> <td>Front ring, triangular; white</td> <td>A2C5318602501</td> </tr> <tr> <td>Front ring, triangular; chrome</td> <td>A2C5318602601</td> </tr> <tr> <td>Front ring, round; black</td> <td>A2C5318602701</td> </tr> <tr> <td>Front ring, round; white</td> <td>A2C5318602801</td> </tr> <tr> <td>Front ring, round; chrome</td> <td>A2C5318602901</td> </tr> <tr> <td>Warning point control</td> <td>A2C5951088601</td> </tr> <tr> <td>Protective connector cap, 8-pin</td> <td>A2C5332466401</td> </tr> <tr> <td>Spinlock nut 52mm</td> <td>A2C5205947101</td> </tr> </table>	Flush mount seal	A2C5321564001	Fastening nut	A2C5300739801	Front ring, flat; black	A2C5318604001	Front ring, flat; white	A2C5318602201	Front ring, flat; chrome	A2C5318602301	Front ring, triangular; black	A2C5318602401	Front ring, triangular; white	A2C5318602501	Front ring, triangular; chrome	A2C5318602601	Front ring, round; black	A2C5318602701	Front ring, round; white	A2C5318602801	Front ring, round; chrome	A2C5318602901	Warning point control	A2C5951088601	Protective connector cap, 8-pin	A2C5332466401	Spinlock nut 52mm	A2C5205947101	
Bush contacts 0.25 – 0.5 mm ²	A2C59510846																																									
Bush housing, 8-pin	A2C59510847																																									
Bracket assembly mounting set	A2C59510854																																									
Flush mount fixing bracket	A2C59510864																																									
Adapter Cable	A2C59512947																																									
Make Point Switch	A2C59510886																																									
Flush mount seal	A2C5321564001																																									
Fastening nut	A2C5300739801																																									
Front ring, flat; black	A2C5318604001																																									
Front ring, flat; white	A2C5318602201																																									
Front ring, flat; chrome	A2C5318602301																																									
Front ring, triangular; black	A2C5318602401																																									
Front ring, triangular; white	A2C5318602501																																									
Front ring, triangular; chrome	A2C5318602601																																									
Front ring, round; black	A2C5318602701																																									
Front ring, round; white	A2C5318602801																																									
Front ring, round; chrome	A2C5318602901																																									
Warning point control	A2C5951088601																																									
Protective connector cap, 8-pin	A2C5332466401																																									
Spinlock nut 52mm	A2C5205947101																																									