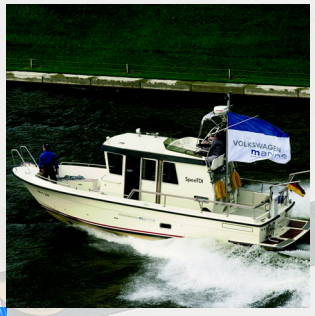
Installation description EB06

Design and function

Boat engines from VOLKSWAGEN Marine

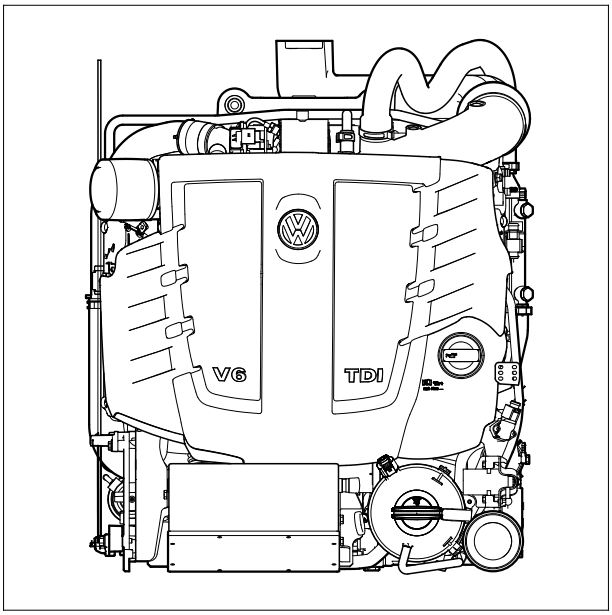


TDI 225-6
TDI 265-6

VOLKSWAGEN marine
SUPERIOR TECHNOLOGY

Foreword

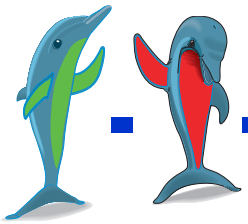
This installation description explains the procedure for installing all 6 cylinder VOLKSWAGEN Marine boat engines.



EB6-0009

General

- Products, that are lot listed in this installation description but which are nevertheless required, should only be sourced from specialist suppliers.
- The professional installation of this engine and its component parts is very important to make sure all components function correctly together in a fault-free manner.
  Therefore all work must be carried out with the utmost care.



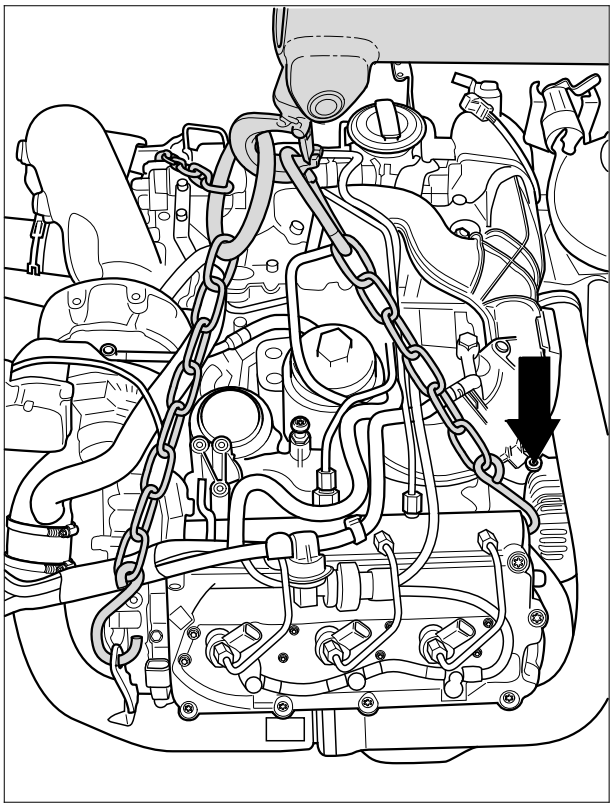
This installation manual includes the design and functioning of new developments!
The contents will not be updated.

Please see the relevant KD literature for the latest testing, adjustment and repair instructions!

Contents

Installation instructions

- To lift the VOLKSWAGEN Marine boat engine out of its transport container, the three suspension chains or belts must be inserted in the suspension eyes provided (see figure). An engine hoist and suitable suspension device should be used.
- When installing or removing the VOLKSWAGEN Marine boat engine, the suspension eyes provided on the engine (see figure) are to be used.



EB6-0002

Note:

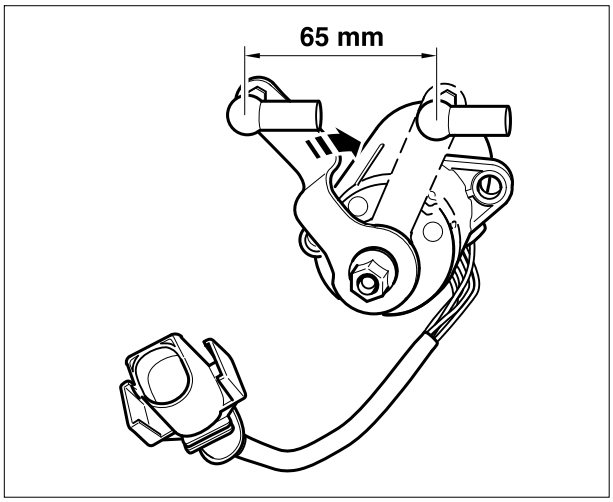
When removing the VOLKSWAGEN Marine boat engine from the transport container, make sure that the positioning device for the design cover (see **-arrow-**) is not damaged by the suspension chains or belts thus creating a risk of breakage. Properly attach the suspension chains or belts to the engine in order to avoid the risk of damage.

- Choose the engine installation location and compartment so that engine maintenance work may be easily carried out.
- Make sure that when installing or removing the engine, there is sufficient free space.

Qualified specialists of the VOLKSWAGEN Marine team are at your disposal if you have specific questions or require technical information relating to the installation of the VOLKSWAGEN Marine boat engine.

Adjustment of the throttle bowden cable on the sender for throttle lever position

Adjust the throttle bowden cable so that there is a difference of 65 mm between idling and full throttle positions (see figure).



EB5-0097

Note

To achieve full engine output, the setting of the throttle lever position sender must be strictly observed. After the engine has been started, the value of of the throttle lever position (pedal position sender) can be indicated from 1 - 101% by means of the multifunction display enabling you to control engine performance. Instructions on the operation of the multifunction display are provided in the "Additional operating manual of the multifunction display".

Retrofitting of a reverse gear unit to the Volkswagen Marine boat engine

- When retrofitting a reverse gear unit, various details must be observed and components exchanged. Please contact your VOLKSWAGEN Marine dealer for advice.
- For connection of a gearbox neutral position switch (engine with reverse gear unit) see page 12.

Operating an engine with a reverse gear unit

- Observe the instructions in your instruction manual!

Propeller model drive

- When selecting a propeller, ensure that the engine can attain the nominal rotation speed in all operating modes.

Operation with battery isolating diodes

- Operation with battery isolating diodes is not permitted.
- Always use a battery isolation relay. If in doubt, please contact your nearest VOLKSWAGEN Marine dealer.

Connection of a hot water boiler

- If you wish to install a hot water boiler, please contact your nearest VOLKSWAGEN Marine dealer.

If you do not observe the installation guidelines, your VOLKSWAGEN Marine boat engine may be damaged.

Exhaust system

Introduction

VOLKSWAGEN Marine boat engines are operated using wet exhaust systems.

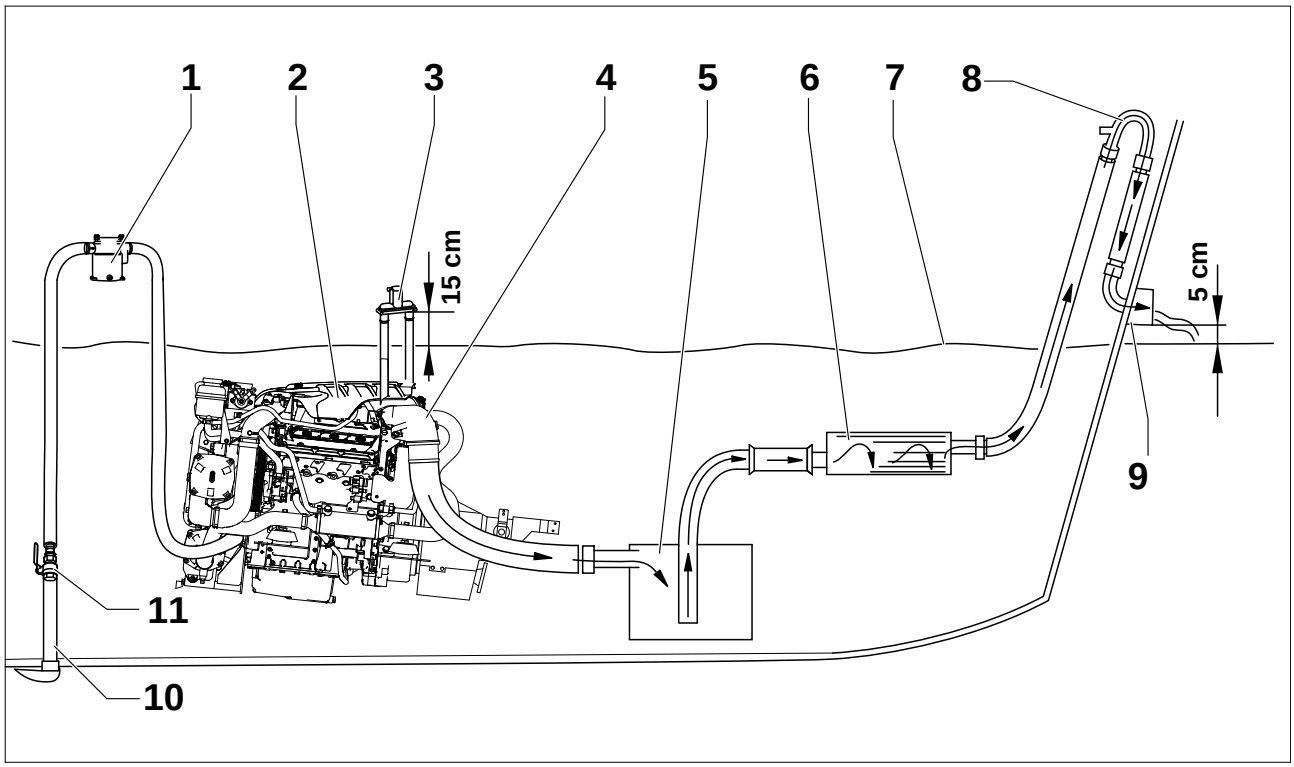
After the exhaust gas collector or turbocharger, the exhaust flow is diverted by the exhaust pipe connection. See water / freshwater is sprayed into the exhaust gas within this exhaust pipe connection.

Note

The water collector (item 5. in the figure) should be dimensioned so that it can accept the total amount of seawater / freshwater that can flow back.

The seawater / freshwater mixes with the exhaust gases, cooling them considerably so that in the remainder of the exhaust system, connection hoses made from rubber and PVC parts, capable of withstanding temperatures up to at least 200 °C, can be used.

Overview of the exhaust system installation



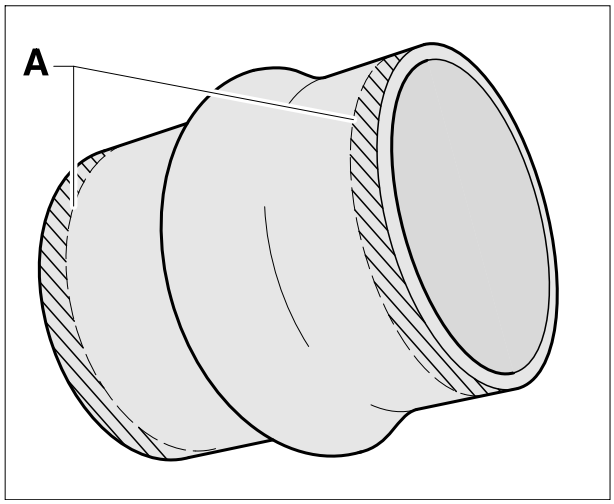
EB6-0022

Legend

1. Seawater / freshwater filter
2. Engine
3. Ventilation unit (fit at least 15 cm above the water line)
4. Exhaust pipe
5. Water collector
6. Silencer
7. Water line
8. Swan-neck throat (the lower edge of the exhaust gas pipe at the transom outlet must be at least 5 cm above the water line)
9. Transom outlet
10. Intake cap
11. Sea water / fresh water valve

Note

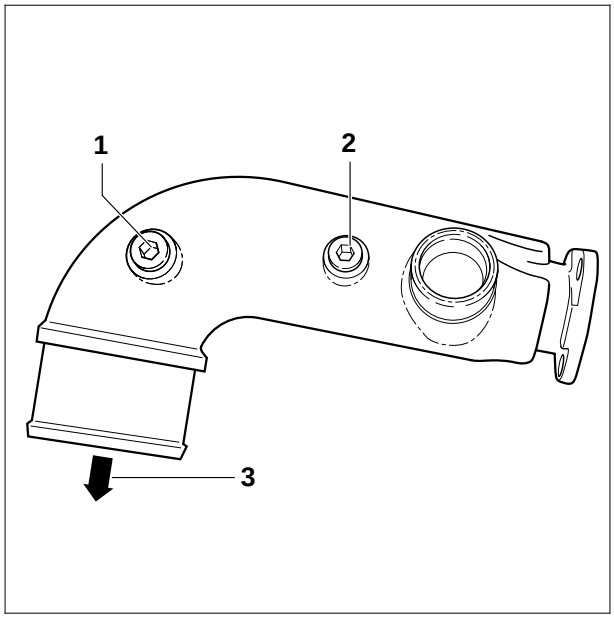
- The complete exhaust system should be installed with as few pipe bends as possible.
- A minimum pipe cross section* of 100 mm must be maintained.
- Hose connectionsshould always be secured with double hose clips.
- Hose connections and rubber sleeves must be temperature-resistant.



EB5-0005

The exhaust system should not be made too long, to ensure that the correct maximum value for the exhaust gas counter pressure is not exceeded.

- TDI 225-6 at 165 kW = max. 350 mbar
- TDI 265-6 at 195 kW = max. 350 mbar



EB6-0001

This value should not be exceeded.

Legend

1. Screw plug for seawater / fresh water extraction and connection of the temperature sensor (optional)
2. Screw plug for exhaust gas extraction
3. Exhaust gas outlet

Unit mounting / engine mounting

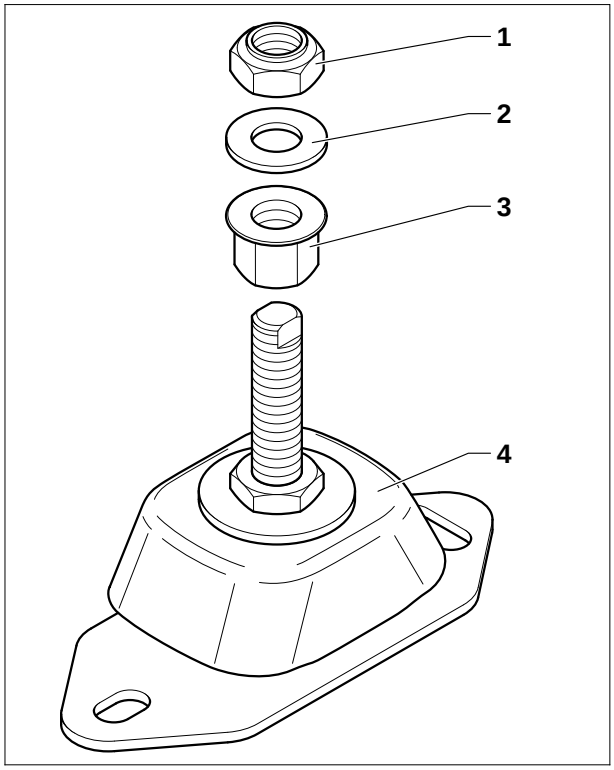
Instructions for installation of the unit mounting

- Do not tension the unit mounting when fitting it. To do so may result in severe vibration and damage.
- After installation and alignment of the engine, ensure that no residual tensions exist in the drive train and the unit mountings.
- Only use original VOLKSWAGEN Marine unit mountings.
- The securing screws for the unit mounting on the hull of the boat must be provided with washers.

Procedure

Centre and incline the engine to the appropriate height using the height adjuster (see item 3.in the figure) on the unit mounting. Ideally, centring will be in the middle of the height adjustment range.

After aligning the engine, uniformly tighten the securing nuts (see figure, item 1) on the unit mountings to a torque of 105 ± 5 Nm.



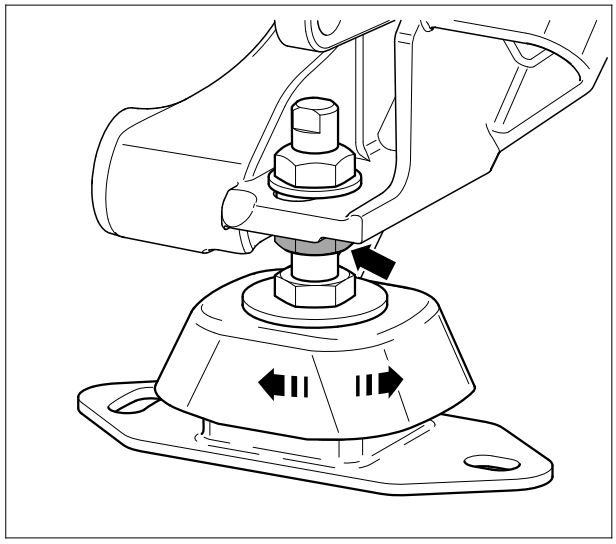
EB6-0015

Legend

1. Securing nut: 105 ± 5 Nm
2. Washer
3. Height adjuster
4. Unit mounting with base plate

To prevent sideways turning or twisting during tightening, the height adjuster - arrow- of the unit mounting / engine mounting must be held (turned in the opposite direction) with a suitable tool (e.g. an open-ended spanner).

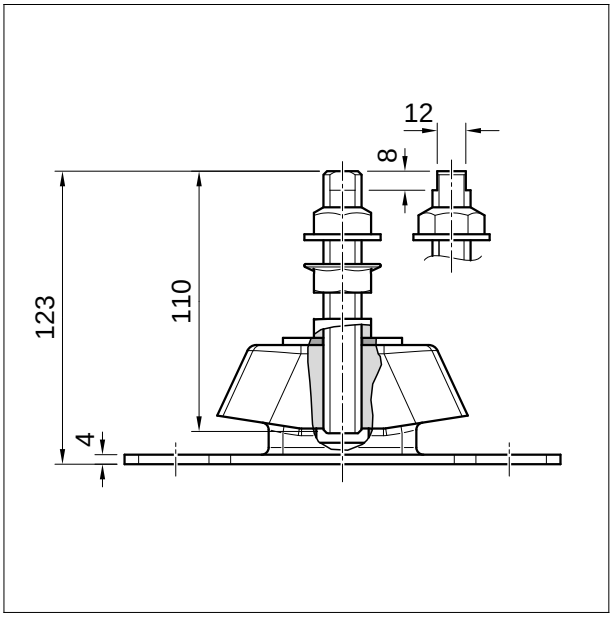
To secure the base plate to the boat's hull, use securing screws with suitable washers.



EB6-0021

Unit mounting dimensions

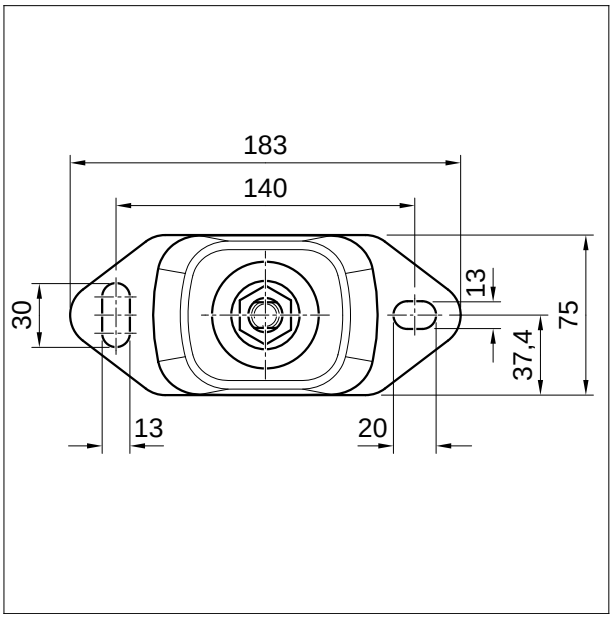
Side view



EB6-0016

Unit mounting dimensions

Plan view



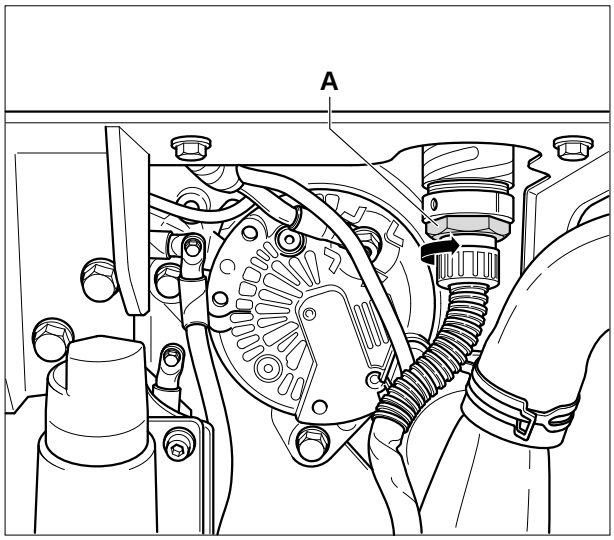
EB6-0017

Connections to the engine

Screw in the multiway connector -A- to the engine central electrical system and the starter unit / relay box in the direction indicated by the arrow until the end ratchet connection is felt and the plug is securely connected.

Note

Use the wiring harness tool, T 01906, to loosen and tighten the multiway connector.

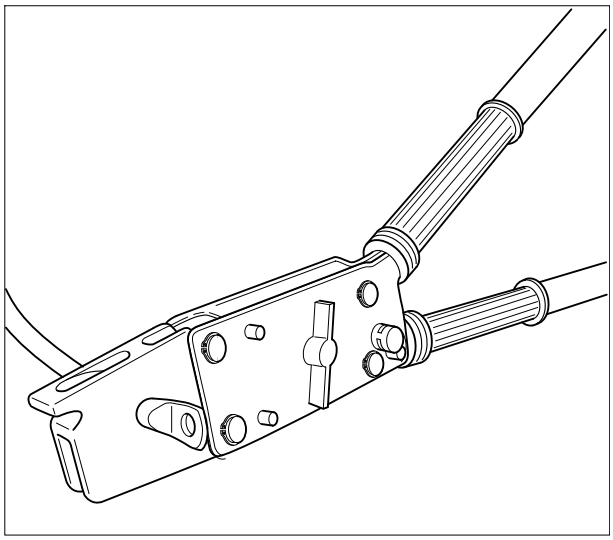


EB6-0032

Battery connection

Assemble the battery positive and earth cables for power supply to the engine with suitable 8 mm ring terminals.

The cable cross section should be at least 35 mm^2 for a cable length of up to 4 meters. If a cable length of longer than 4 meters is required, increase the cable cross section to at least 50 mm^2.

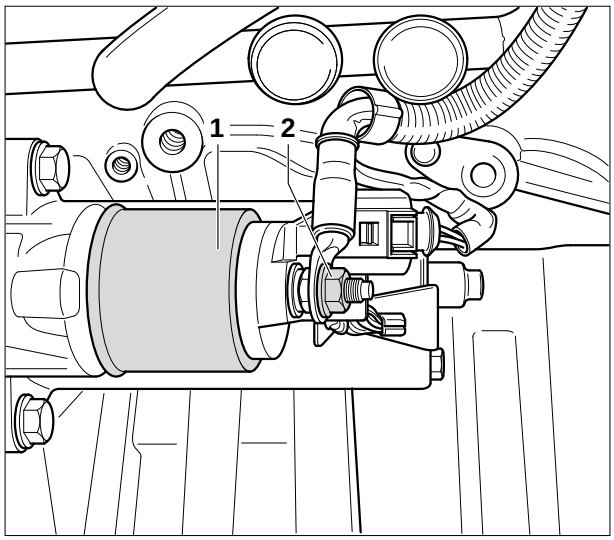


EB5-0013

When fitting the ring terminals to the cable ends (35 mm^2) of the battery connection cables, ensure these are correctly fitted with a crimp connection.

Battery positive cable

Connect the battery positive cable from the battery to the starter -1- (terminal 30) -2-.



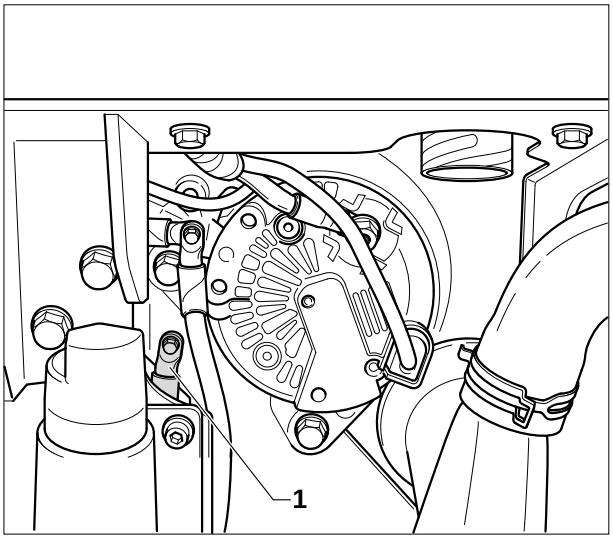
EB6-0024

Battery earth cable

Connect the battery earth cable to the engine earth connection -1- alongside the alternator.

Note

Ensure that the cables are connected in a secure, clean and tight manner.



EB6-0025

Electrical system

Safety precautions

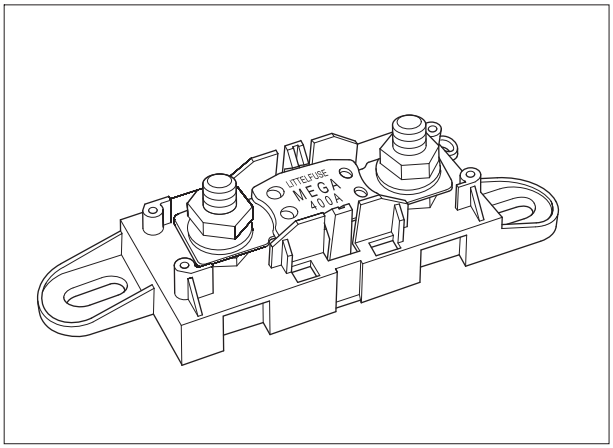
- VOLKSWAGEN Marine recommends the installation of a flat fuse (400 A), immediately prior to the battery connection -see figure-, in the positive cable.

  Part number fuse holder: 4B3 937 505A

- Additionally a battery master switch should be installed in the supply line to enable breaking of the main circuit in cases of danger and when working on the engine.

  Part number battery master switch:

  2Y1 911 011 bzw. 2Y1 911 011A



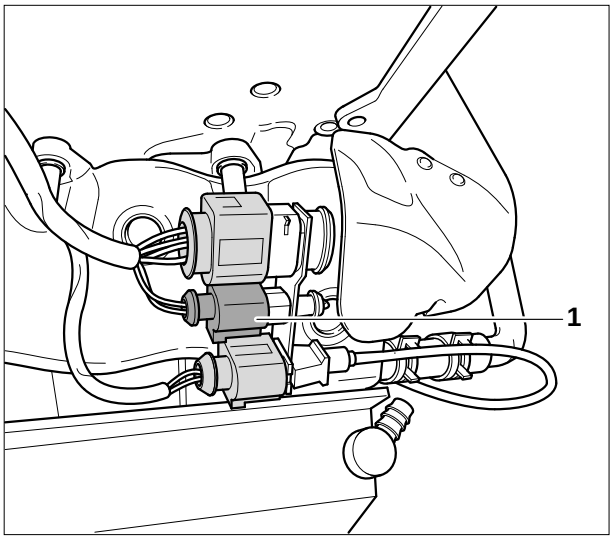
EB6-0041

Connection of a gearbox neutral position switch (engine with reverse gear unit)

If you ordered your VOLKSWAGENMarine Boat motor complete with reverse gear unit, then this connection is already fitted in the factory.

Note

When retrofitting a reverse gear unit, connect the connection wire from the neutral switch of the reverse gear unit to connector -1- on the engine.



EB6-0026

Instrumentation

VOLKSWAGEN Marine offers two instrumentation options for your boat:

1. Supplied as standard is an instrumentation set with the following components:

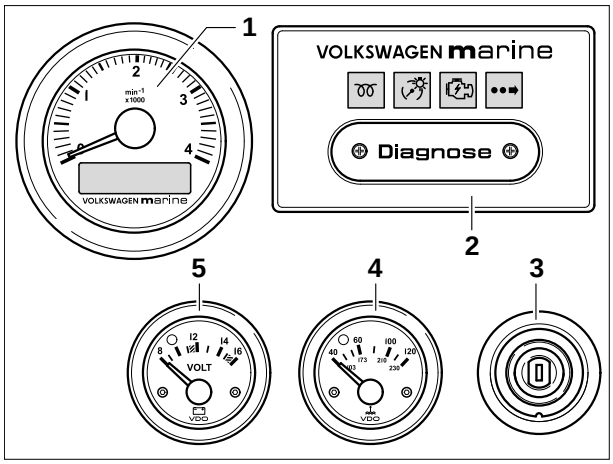
   Item 1 = rev. counter

   Item 2 = Control unit

   Item 3 = Ignition lock

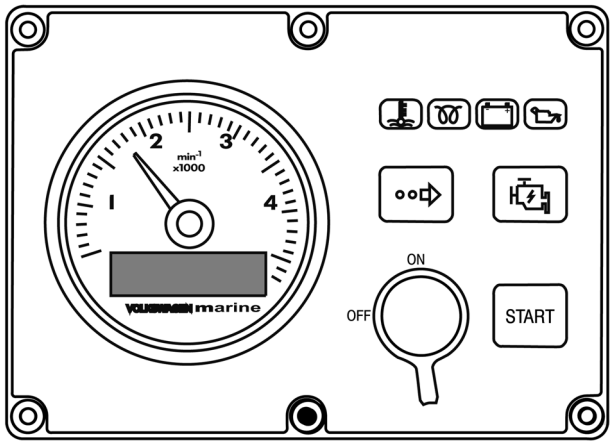
   Item 4 = Water temperature indicator

   Item 5 = Voltmeter



EB6-0038

2. You can also select a VOLKSWAGEN Marine instrumentation set (see fig.), e. g. the new standard instrumentation set (optional) with a multifunction display that provides a comprehensive function set.



EB4-0059

Note

If you require flybridge instrumentation, please contact your nearest VOLKSWAGEN Marine dealer.

Main wiring harness (instrumentation)

Connection cables are available from VOLKSWAGEN Marine in different lengths (see figure) and should be connected to the multiway connector of the engine electrical system (see figure on page 15).

The other end of the connection cable is connected to the rear side of the VOLKSWAGEN Marine instrument panel or a customized instrumentation set.

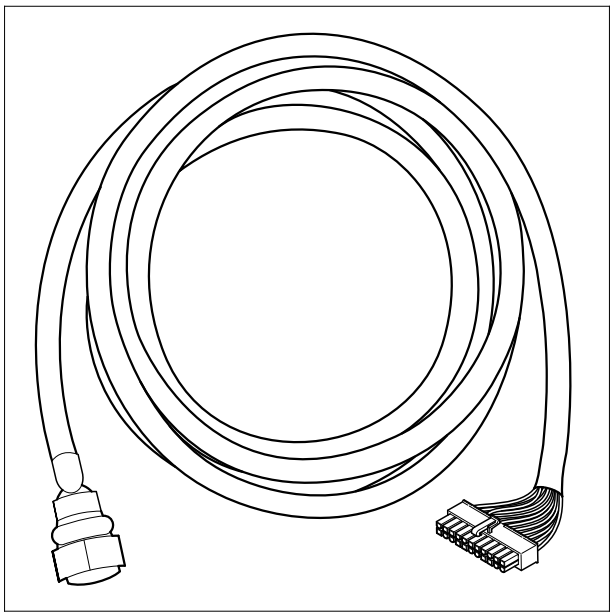
Cables are available in various lengths:

Part number: 065.971.689C = 6,50 m

Part number: 065.971.689 = 8 m

Part number: 065.971.689A = 12 m

Part number: 065.971.689B = 16 m



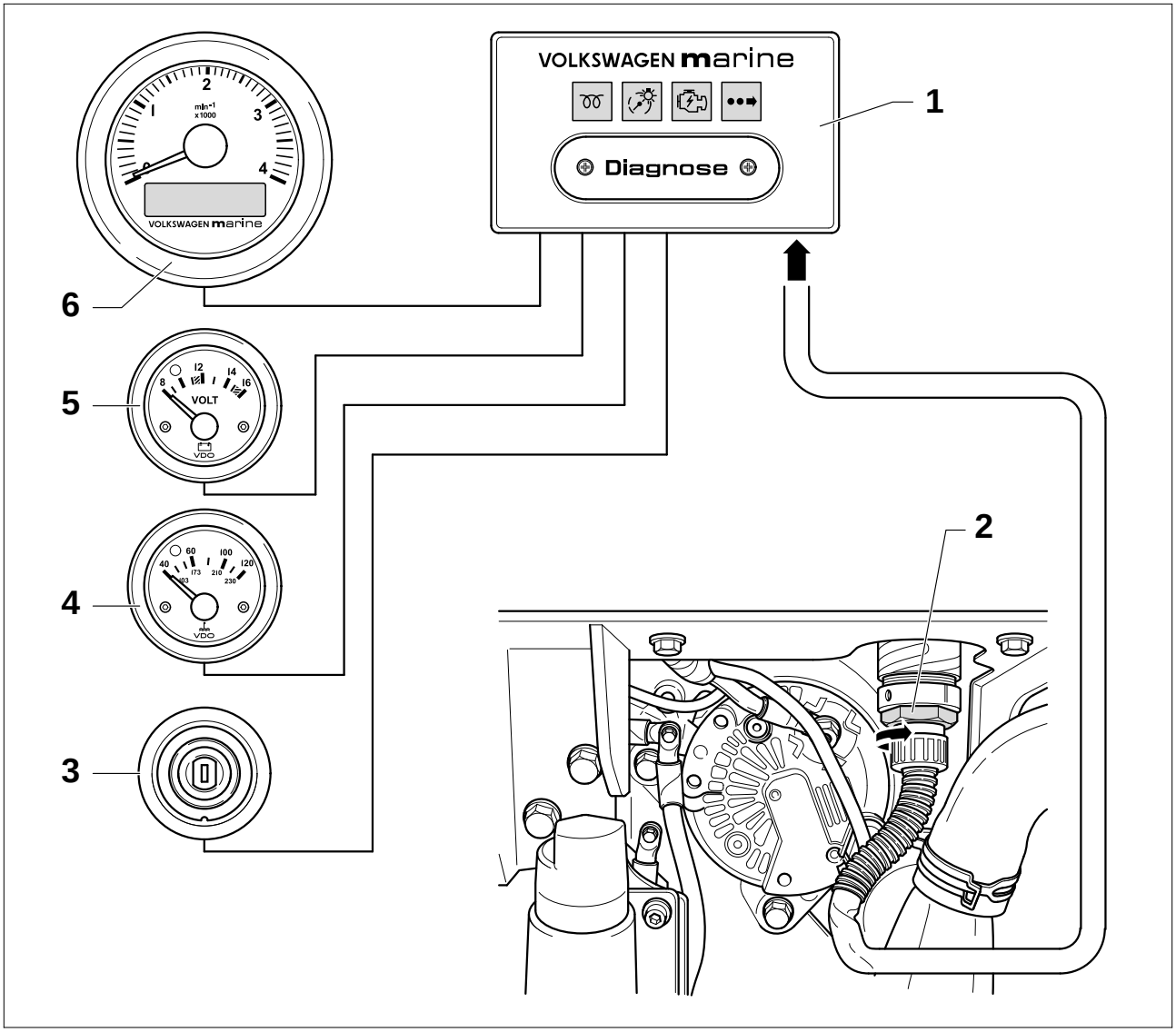
EB5-0107

Overview of instrumentation installation

The round cut-outs for the round instruments can be found on page 40.

An installation template to be used as a cut-out for fitting the control unit (customized instrumentation set, can be found on page 41.

The different connection alternatives for customized instrumentation are described from page 16.



EB6-0035

Legend

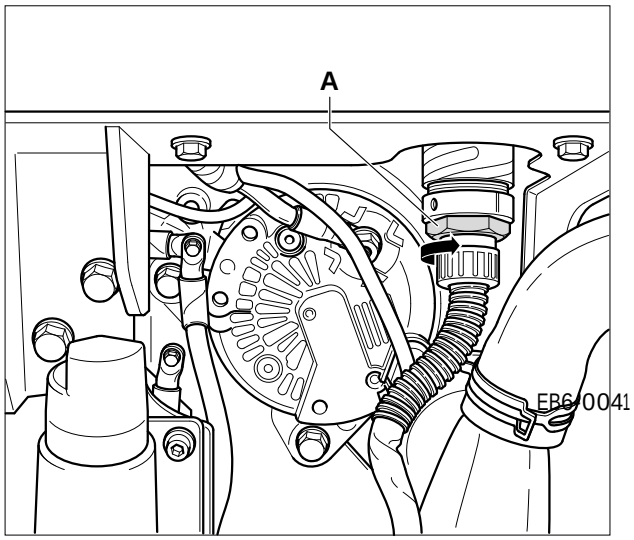
1. Control unit (connections, see page 16)
2. Connector to the central electrical system
3. Ignition lock
4. Water temperature indicator
5. Voltmeter
6. Rev. counter with multifunction display.

Engine connector

Connect the multiway connector of the main wiring harness to the central electrical system (connection -A-).

Note

Use the wiring harness tool, T 01906, to loosen and tighten the multiway connector.



EB6-0032

Installing the instrument panel

An installation template for fitting the control unit (customized instrumentation set), can be found on page 41.

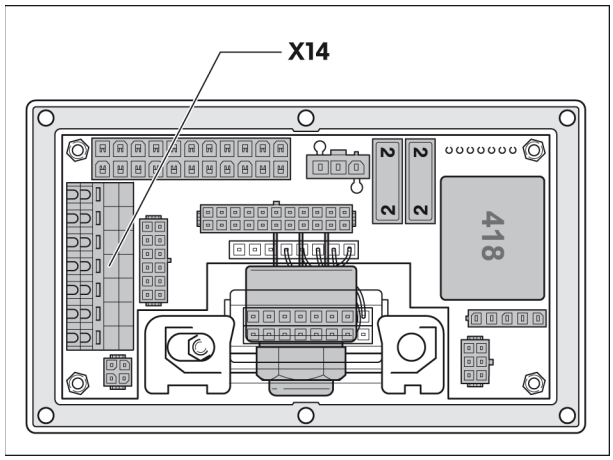
Navigation instrumens

To be able to use the advanced functions of the multifunction display in their entirety, the Volkswagen Marine instrumentation must be connected to a navigation instrument with a NMEA interface (e. g. GPS-receiver, LOG or similar).

* see also protocol NMEA 0183

Note

To configure the multifunction display please read the additional instruction manual for the multifunction display in the main instruction manual.



EA2-0023

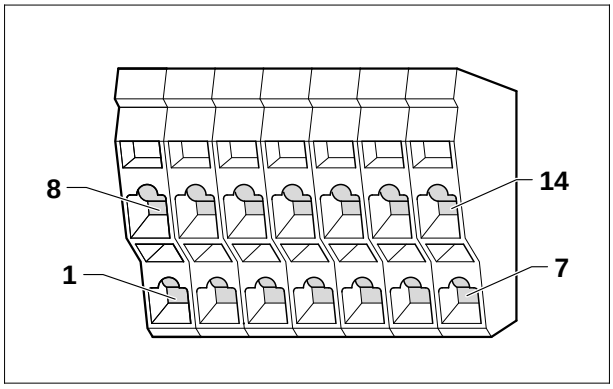
Connection alternatives for the terminal strip (X14) of the control unit

Navigation unit:

- X14-1 = Connection NMEA-A

  X14-2 = Connection NMEA-B

  (see figures EB6-0041 und EB6-0036 on the



EB6-0036

Voltage supply for external units:

- X14-5 = terminal 31 (earth)
- X14-6 = terminal 31 (earth)
- X14-8 = terminal 15 (ignition on)
- X14-9 = terminal 30 (permanent positive)

Instrument illumination for external units:

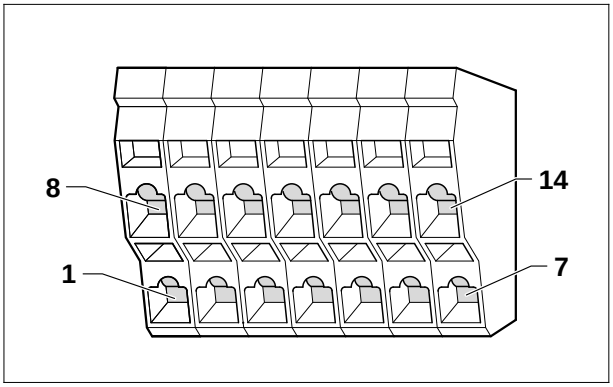
- X14-8 = terminal 15 (ignition on)
- X14-3 = instrument illumination (negative switchable and dimmable)

Start enable:

- X14-10 = neutral from gearbox (from engine)
- X14-11 = neutral to central electrical system (engine enable)
- X14-12 = neutral from flybridge (leading to second helm stand)

Connection of battery isolation relay or units which should only receive power when the engine is on:

- X14-7 = D+ for isolation relay (receives power only when the engine is running)



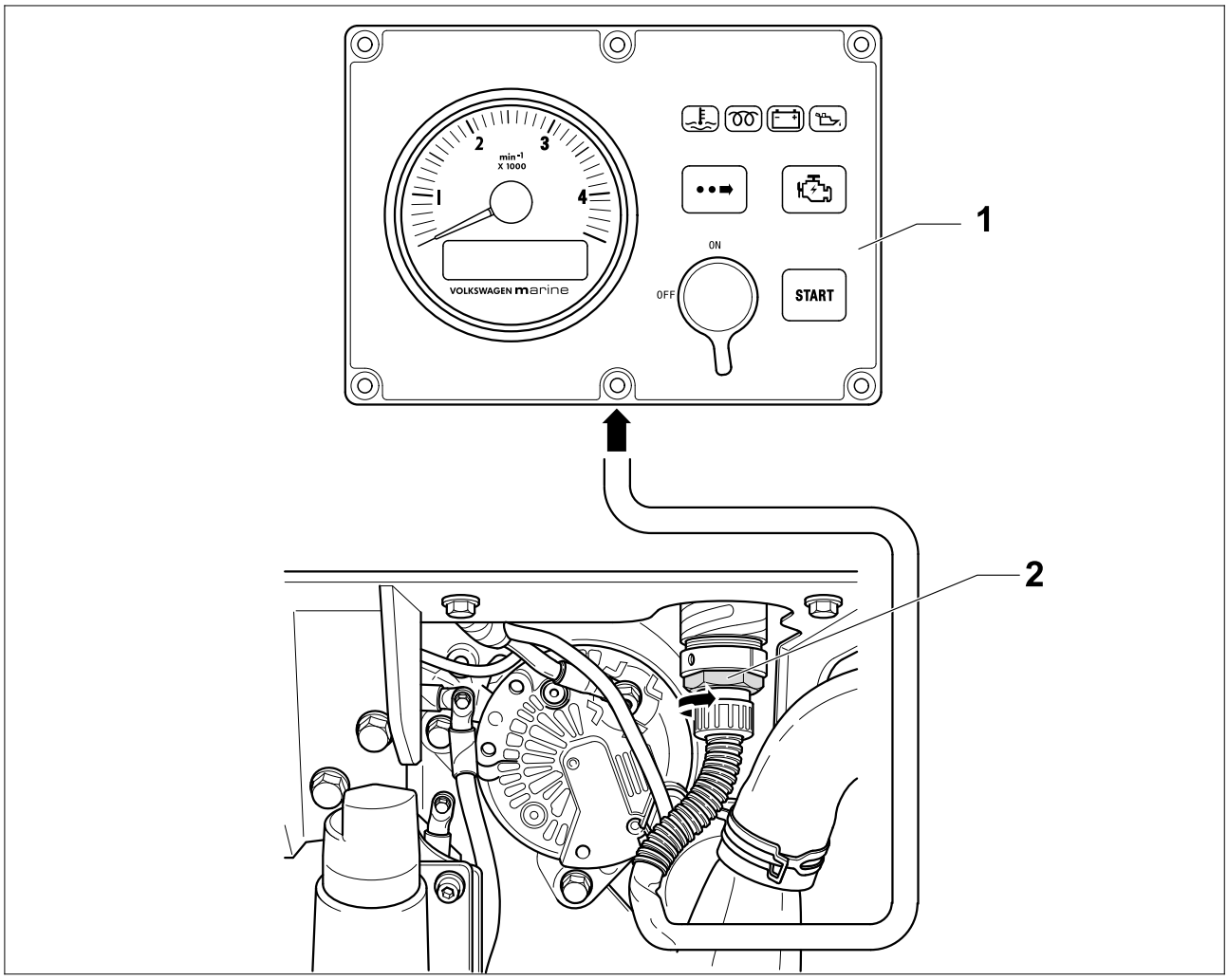
EB6-0036

For further connections (e. g. for a flybridge), please contact your nearest VOLKSWAGEN Marine dealer.

Overview of standard instrumentation installation (optional

An installation template to be used as a cut-out for fitting the instrumentation, can be found on page 41.

The different connection alternatives for standard instrumentation are described from page 16.



EB6-0047

Legend

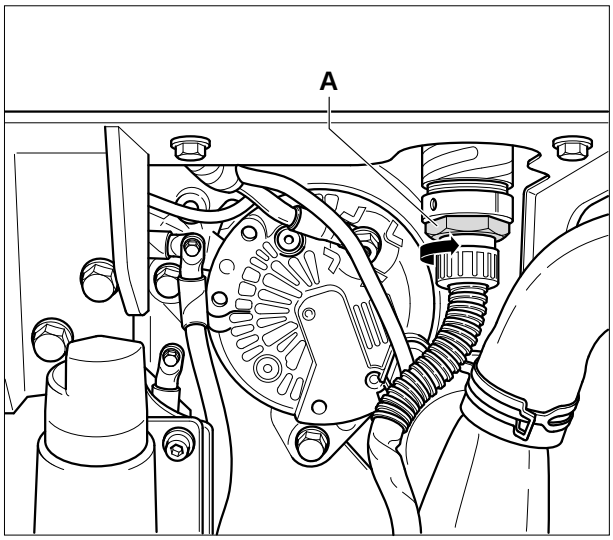
1. Instrument panel
2. Connector to the engine central electrical system (connection see page 19)

Engine connector

Connect the multiway connector of the main wiring harness to the central electrical system (connection -A-).

Note

Use the wiring harness tool, T 01906, to loosen and tighten the multiway connector.



EB6-0032

Installing the instrument panel

An installation template for fitting the standard instrumentation, can be found on page 41.

Navigation instruments

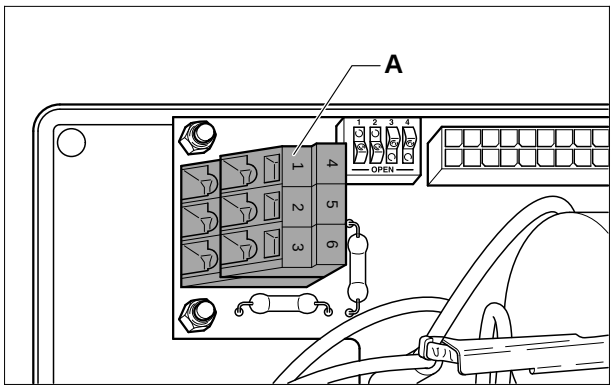
To be able to use the advanced functions of the multifunction display in their entirety, the Volkswagen Marine instrumentation must be connected to a navigation instrument with a NMEA interface (e. g. GPS-receiver, LOG or similar).

* *see also protocol NMEA 0183*

Note

To configure the multifunction display please read the additional instruction manual for the multifunction display in the main instruction manual.

Terminal strip -A- for the navigation instrument on the rear side of the instrument panel



EB5-0109

- Terminal 5 = NMEA-B
- Terminal 6 = NMEA-A

Connection variants

Reverse gear unit with simple instrumentation:

Place a bridge between terminals 1 + 2 of the terminal strip.

Reverse gear unit with flybridge instrumentation:

Place a bridge between terminals 2 +3 of the terminal strip.

Z-drive with simple instrumentation:

Connect the throttle between terminals 1 + 2 of the terminal strip.

Z-drive with flybridge instrumentation:

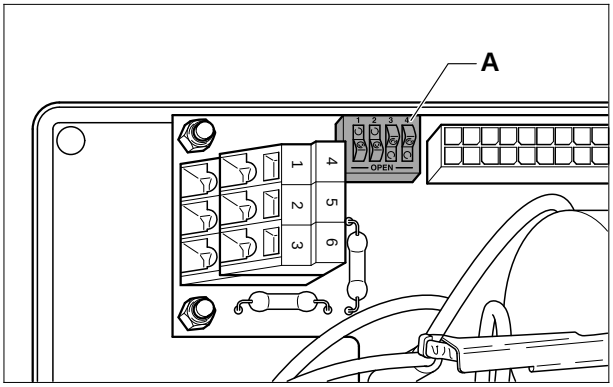
Connect the throttle between terminals 2 +3 of the terminal strip for the flybridge instrumentation.

DIP switch on the rear side of the instrument panel:

Change the DIP switches -A- between "On" and "Off" positions to make the following settings:

1. Lighting	bright/dark
2. Lighting	on/off
3. Switch*	off position
not used	off position

**Note*:
Switch in "Off" position for 4 + 5 cylinder engines / in "On" position for 6 cylinder engines.



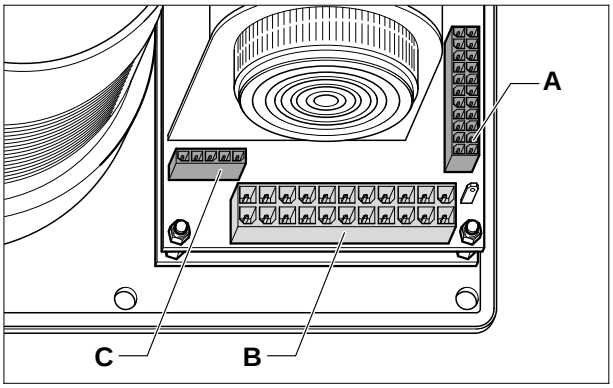
EB5-0110

Further connections on the rear side of the switch on the rear side of the instrument panel

-A- 22 pole terminal strip for the flybridge

-B- 22 pole terminal strip for the central electrical system

-C- 5 pole diagnosis terminal strip

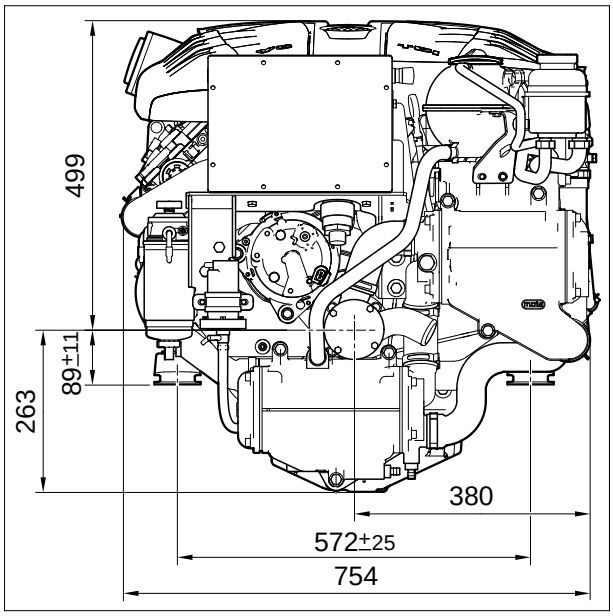


EB5-0111

Engine installation dimensions

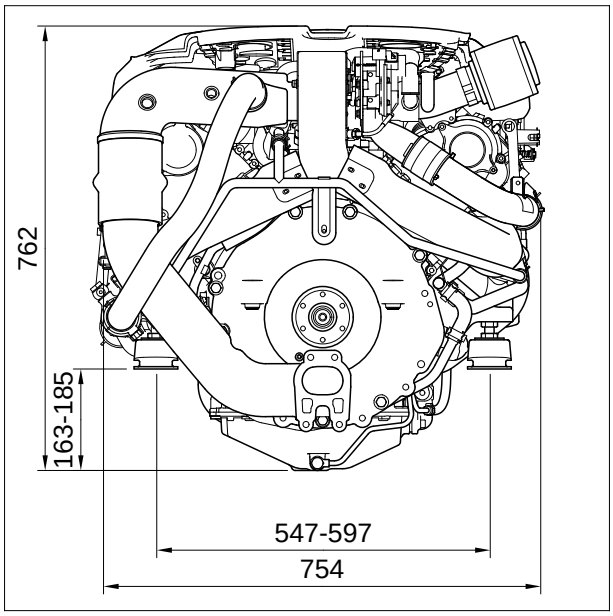
Installation dimensions for the 6 cylinder TDI VOLKSWAGEN Marine boat engine

Front view



EB6-0011

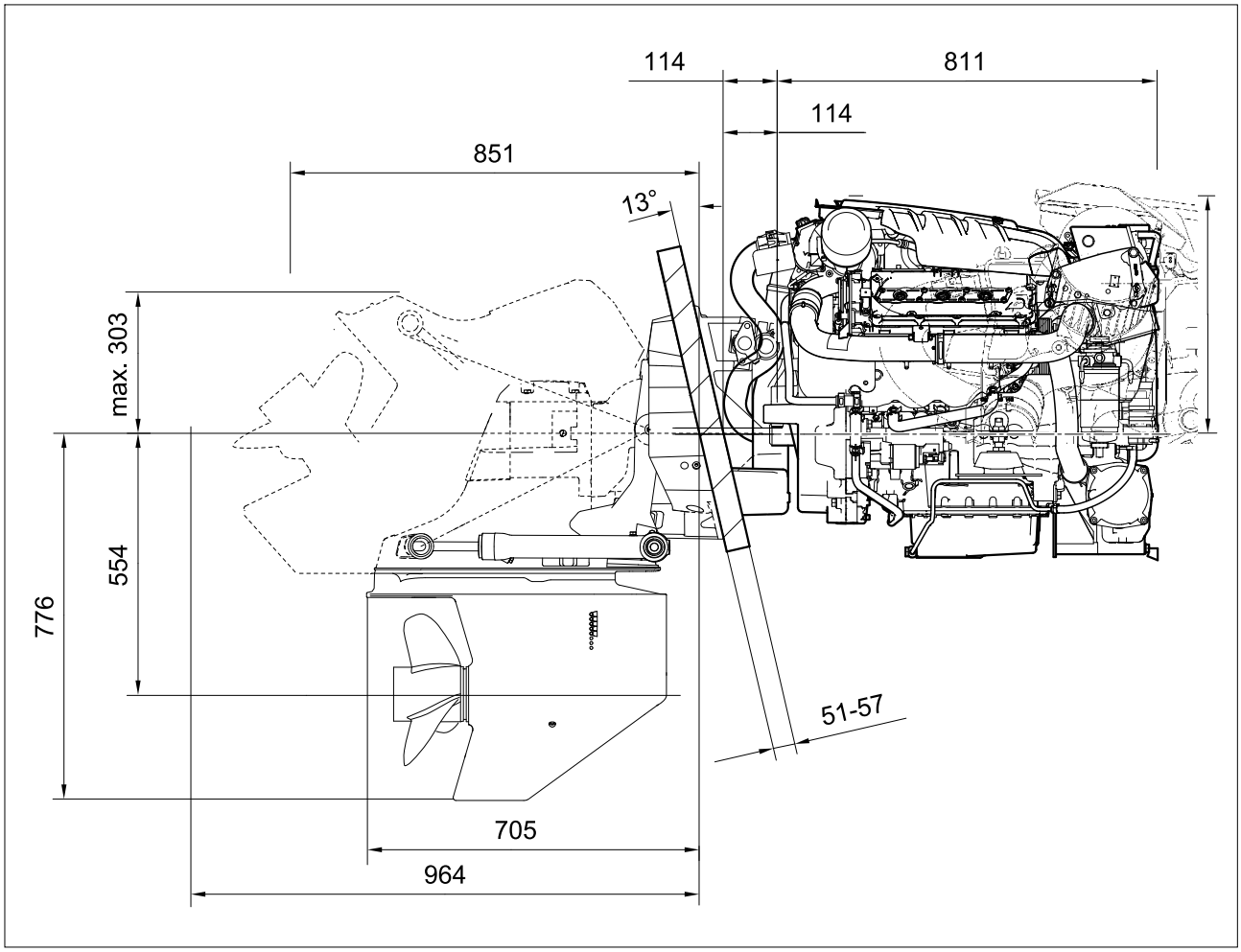
Rear view



EB6-0005

The following Z-drives can be used with VOLKSWAGEN Marine boat engines:

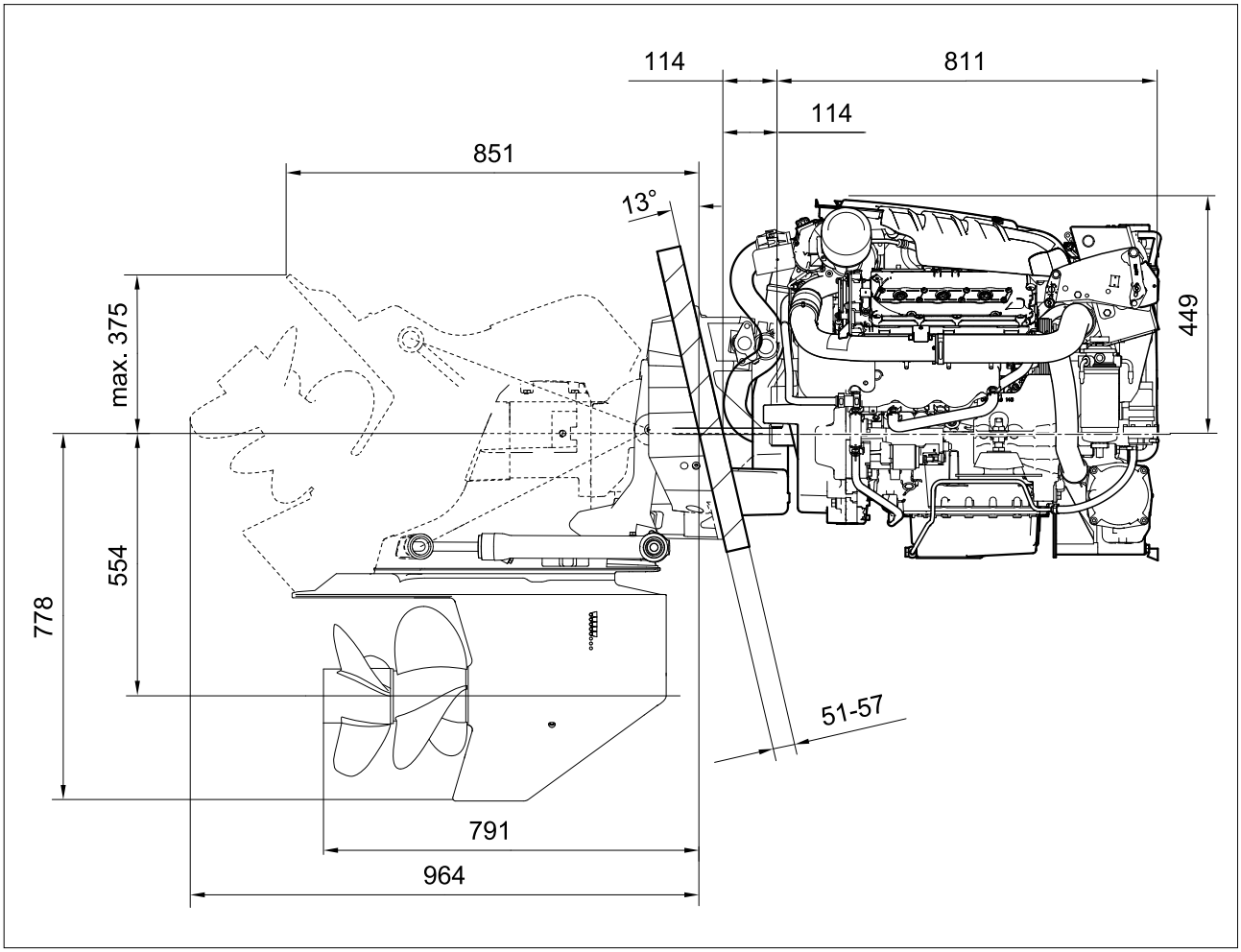
6 cylinder TDI VOLKSWAGEN Marine boat engine with Mercruiser Bravo One



EB6-0043

Engine with Z-drive dimensions

6 cylinder TDI VOLKSWAGEN Marine boat engine with Mercruiser Bravo Three

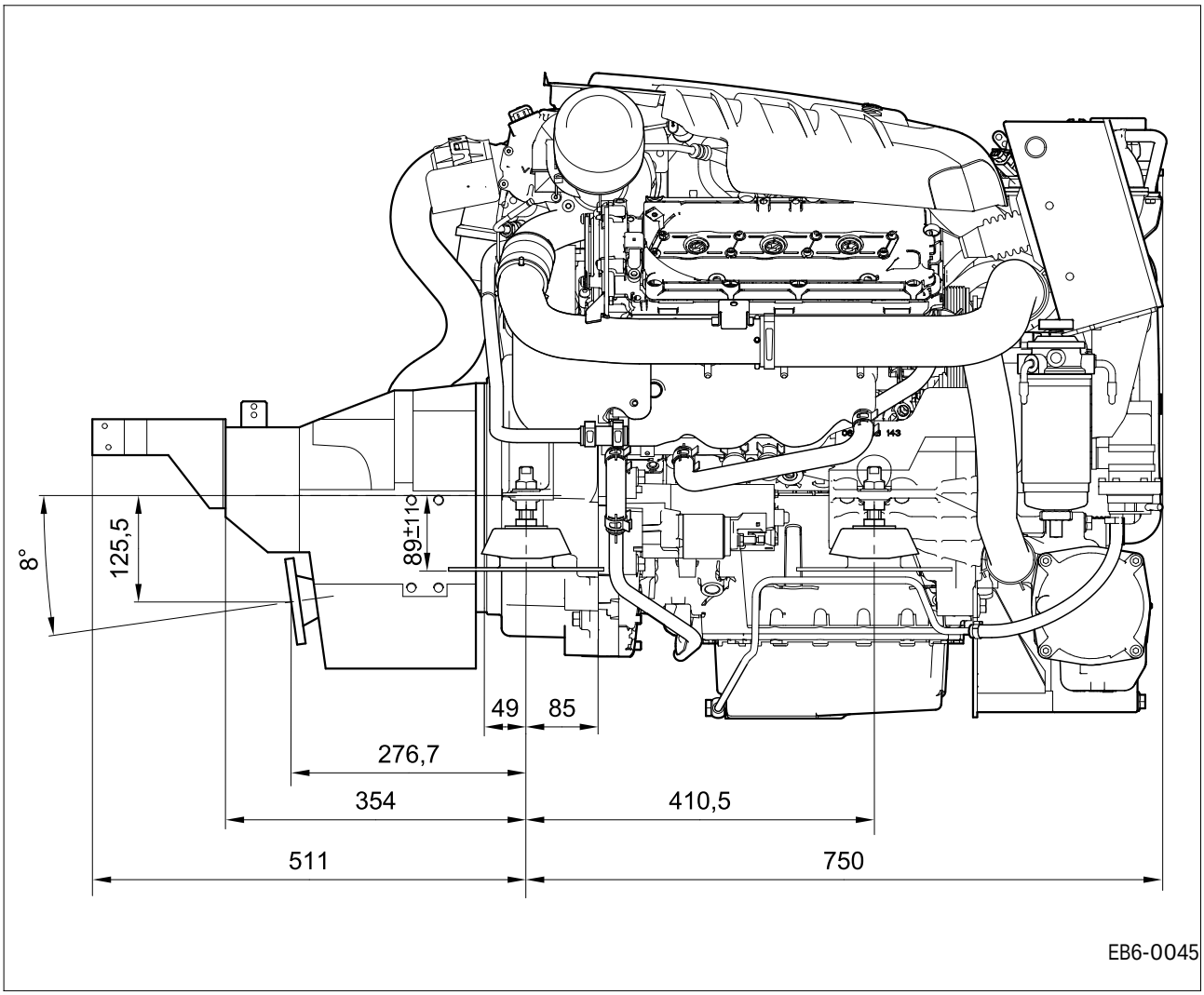


EB6-0044

Engine with reverse gear unit dimensions

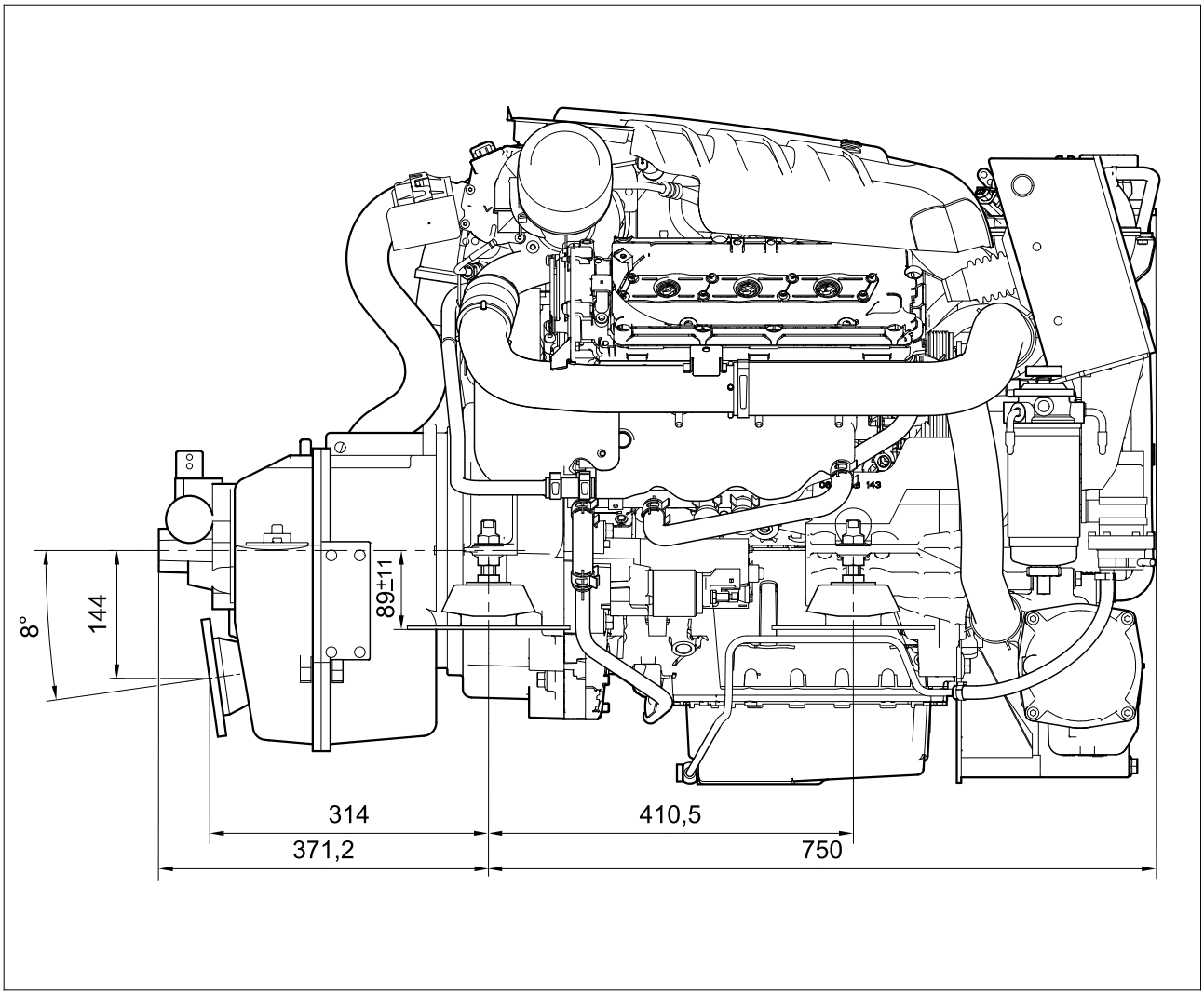
The following reverse gear units can be used with VOLKSWAGEN Marine boat engines:

6 cylinder TDI VOLKSWAGEN Marine boat engine with reverse gear unit ZF 45A hydraulic 8°



Engine with reverse gear unit dimensions

6 cylinder TDI VOLKSWAGEN Marine
boat engine with reverse gear unit
ZF 63A hydraulic 8°



EB6-0046

Introduction

To maintain the engine free from aggressive media such as salt water, Volkswagen Marine boat engines have a twin-circuit cooling system.

Engine cooling circuit

The internal engine cooling circuit is a closed system and is mixed with antifreeze (G12/G12+).

The seawater /freshwater circuit, also called the secondary circuit, is an open circuit in which the seawater / freshwater is sucked in and, after flowing through the main heat exchanger, fed back to the outside again via the exhaust system.

Sea water / fresh water circuit

Seawater / freshwater is sucked in through an intake cap in the boat's hull, downstream of which there is a seawater / freshwater valve.
The seawater / freshwater filter filters dirt and impurities from the entering seawater / freshwater.

Aeration of the seawater / freshwater circuit using a ventilation unit

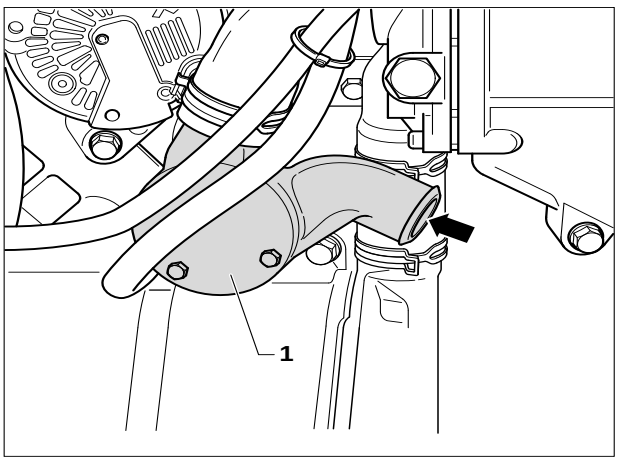
To prevent entry of seawater / freshwater into the exhaust system via the intake side of the seawater / freshwater circuit, a ventilation unit only has to be fitted if the engine is installed beneath the water line; (see figure on page 6, item number 3.; Overview of the exhaust system installation).

Explanation

If the cooling system is beneath the water line, then filling of the exhaust system with water may occur, if the boat remains stationary for some time. This is because the seawater / freshwater pump is not 100 % watertight and causes a siphon / suction effect in the coolant circuit. If this occurs, close the seawater / freshwater valve.

Connection for seawater/freshwater

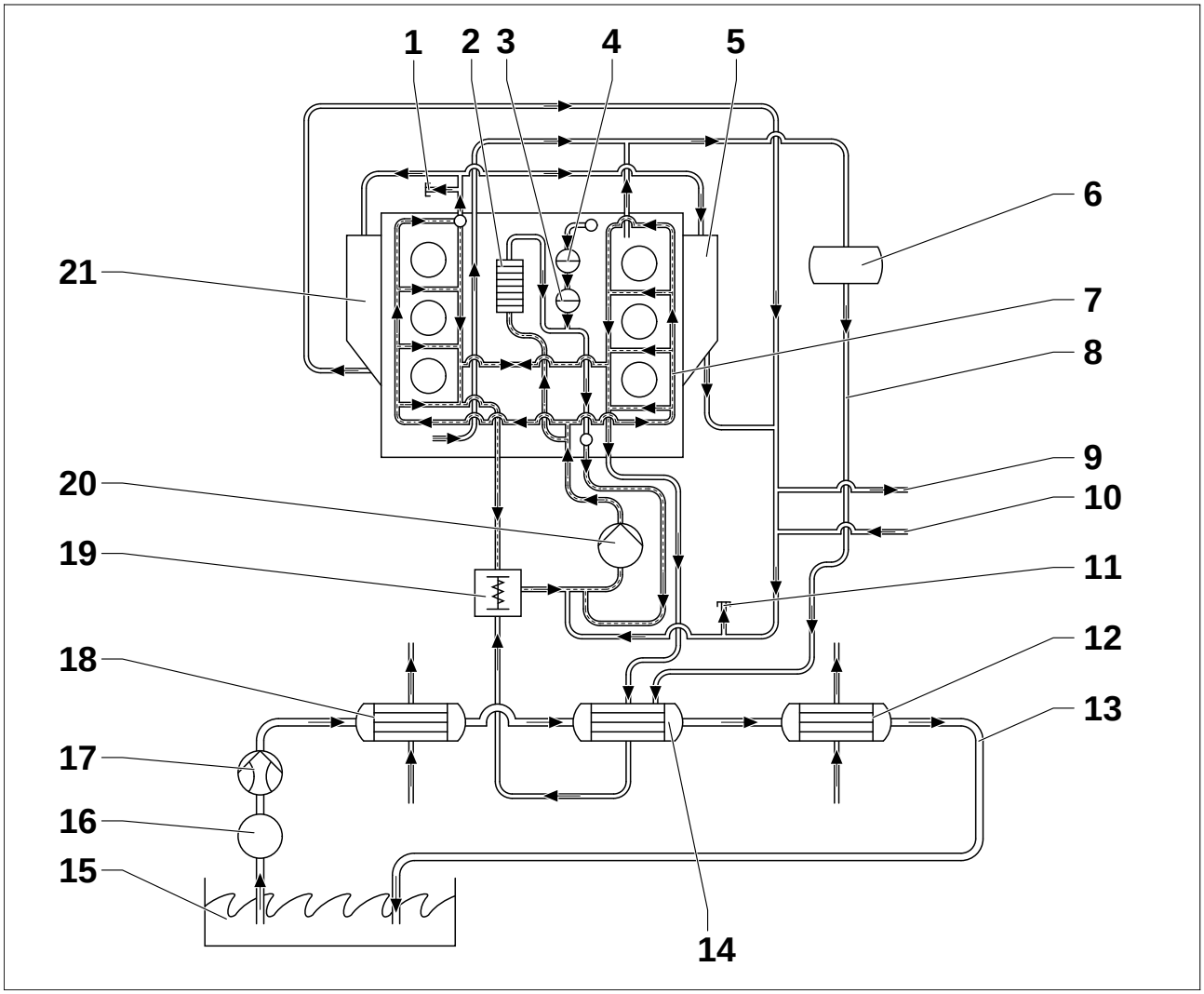
Connect the seawater / freshwater hose -arrowed- to the seawater / freshwater pump -1-.



EB6-0029

Cooling system

Cooling circuit

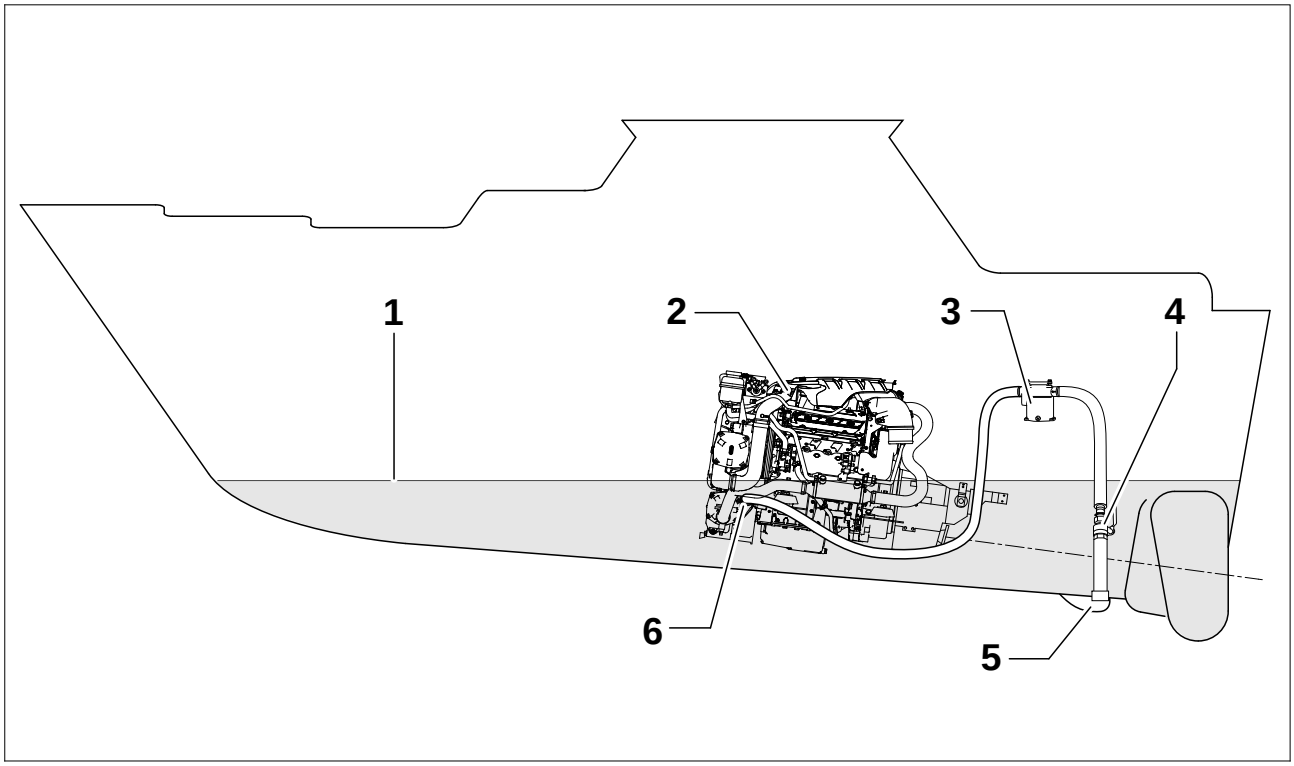


EB6-0018

Legend

1. Engine ventilation position
2. Oil cooler
3. Temperature switch 112 °C
4. Temperature dual sender
5. Left cylinder bank exhaust manifold
6. Coolant expansion tank
7. Engine
8. External engine cooling circuit
9. External heating supply connection
10. External heating return connection
11. Ventilation position
12. Servo / gearbox oil cooler
13. Sea water / fresh water cooling circuit
14. Main heat exchanger
15. Sea water / fresh water
16. Sea water / fresh water filter
17. Sea water / fresh water pump
18. Intercooler
19. Thermostat 70 °C
20. Engine-side coolant pump
21. Right cylinder bank exhaust manifold

Overview of seawater / freshwater cooling installation



EB6-0019

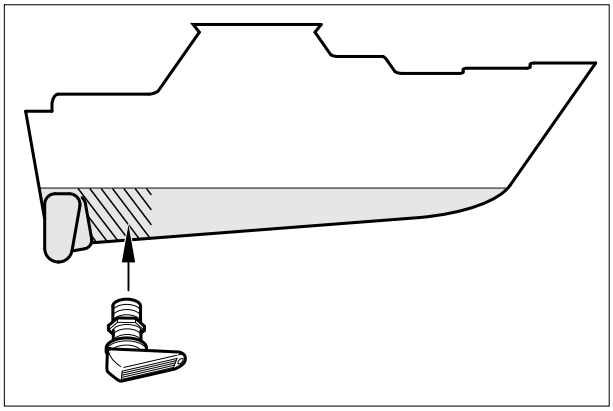
Legend

1. Water line
2. Engine
3. Sea water / fresh water filter
4. Sea water / fresh water valve
5. Intake cap
6. Seawater / freshwater connection to the seawater / freshwater pump

Cooling system

Intake cap advice

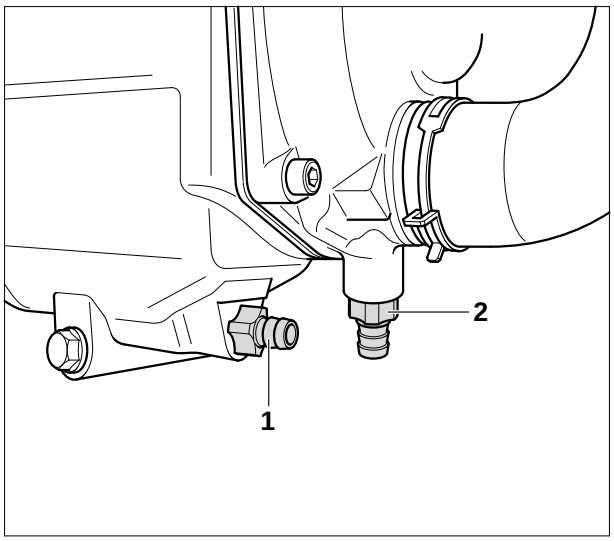
- For motor boats, the sloping side of the intake mesh must point forwards. The fitting location of the intake cap should be as far as possible in the part of the boat shown hatched.
  In this case, the speed of the boat pushes the water inwards.



EB5-0017

General

- Seawater / freshwater flows through the seawater / freshwater pump and then the main heat exchanger after first flowing through the seawater / freshwater filter.
- The intake hose from the seawater / freshwater filter to the seawater / freshwater pump must have a diameter of at least 45 mm. The hose should be as short as possible.
- In the main heat exchanger and the intercooler, the seawater / freshwater takes heat from the coolant circuit and thus provides additional engine cooling.
- Prior to over-wintering, the seawater / freshwater must be drained via the drainage screws -1- and -2-.



EB6-0033

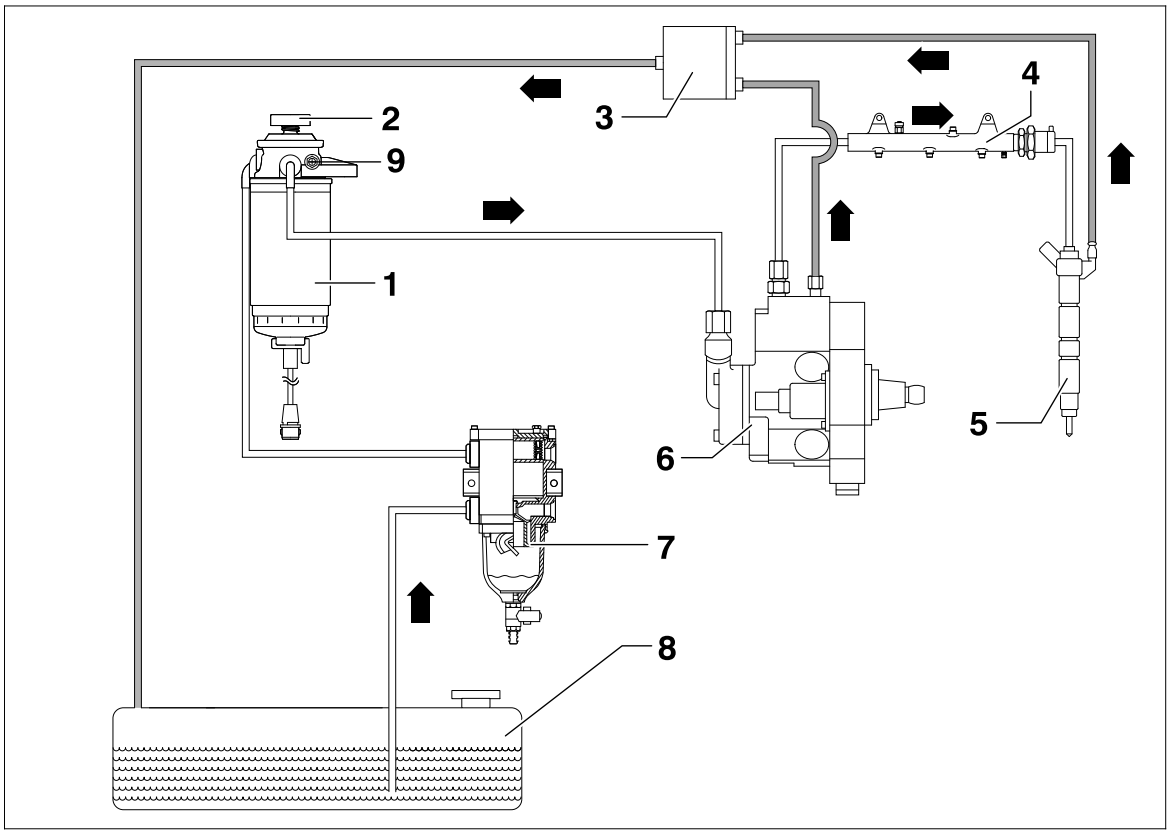
The measures required for over-wintering the VOLKSWAGEN Marine boat engine are described in your VOLKSWAGEN Marine boat engine instruction manual.

Introduction

The fuel system comprises a number of components. These components (fuel tank, circulation prefilter with water separator etc.) must be impeccably clean and should be fitted with extreme care.

Dirt and impurities could cause incorrect engine operation. After installing the fuel system, check for leaks, to ensure optimum protection against fire risk.

Functional description of the fuel system



EB6-0020

Legend

1. Fine fuel filter with water monitor
2. Manual pump
3. Pressure maintenance valve
4. High pressure accumulator (rail)
5. Piezo injector
6. High pressure pump with valve for fuel dosing (N290)
7. Circulation prefilter with water separator
8. Fuel tank
9. Bleed screw

Please observe the instructions on the following page!

Fuel system

Engine fuel system overview

The fuel system is divided into 3 pressure areas:

1 - Supply and return pressure

2 - Return pressure between injectors and pressure maintenance valve

3 - High pressure

In the fuel supply, fuel is taken from the mechanical gear pump from the fuel tank via the fuel fine filter to the high pressure pump. Here the high fuel pressure required for injection is created and supplied to the high pressure accumulator (rail).

From the high pressure accumulator, the fuel is transported to the injectors, from where it is injected into the combustion chamber.

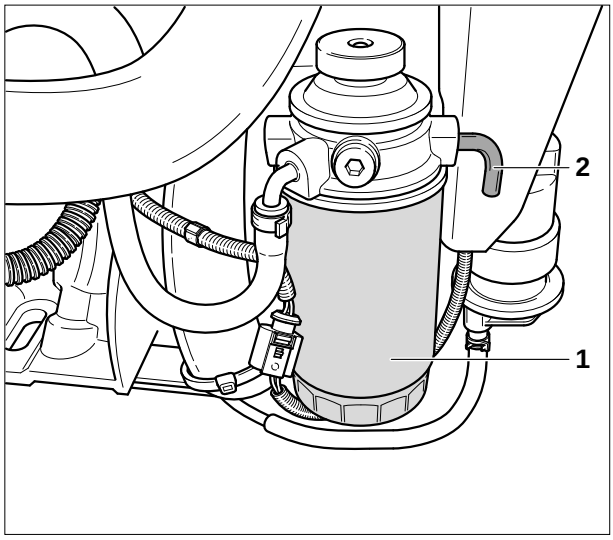
The pressure maintenance valve maintains the return pressure of the injectors at 10 bar. This pressure is required for the correct functioning of the piezo-injectors.

Requirements:

- The compartment containing the fuel system must be sufficiently ventilated. Fuel tank and filler cap must have an earth connection to the battery (for steel boats to the hull).
- When arranging the components, ensure that there is sufficient clearance for any future maintenance and repair work.
- A fuel return line is to be routed from the fuel tank to the fuel fine filter. The line cross section must be at least 8 mm.
- A fuel return line is to be routed to the fuel tank. The line cross section must be at least 8 mm.

Connection for the fuel supply line

Connect the fuel supply line to connection -2- of the fuel fine filter -1-.



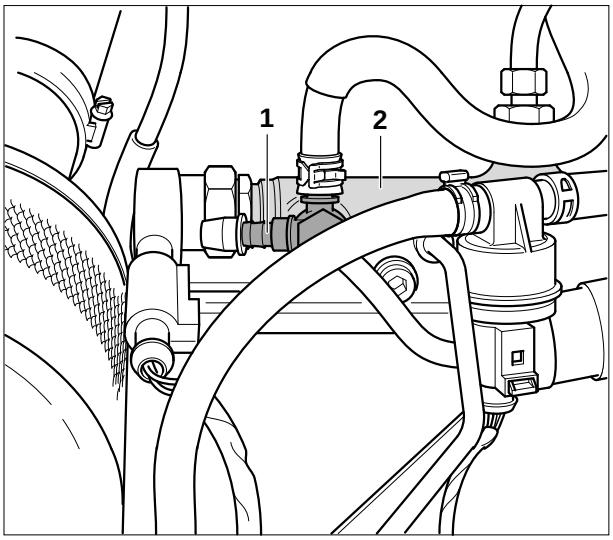
EB6-0023

Bleeding the fuel line of the boat

The fuel line must be properly bled before the engine is put into operation.
Open the bleed screw **-9-** (see figure EB6-0020 on page 31) and work the hand pump until fuel comes out of the bleed screw port.
Then close the bleed screw.

Connection for the fuel return line

Connect the fuel return line to connection -1- on the high pressure accumulator (rail) (cylinder bank 2) -2-.



EB6-0027

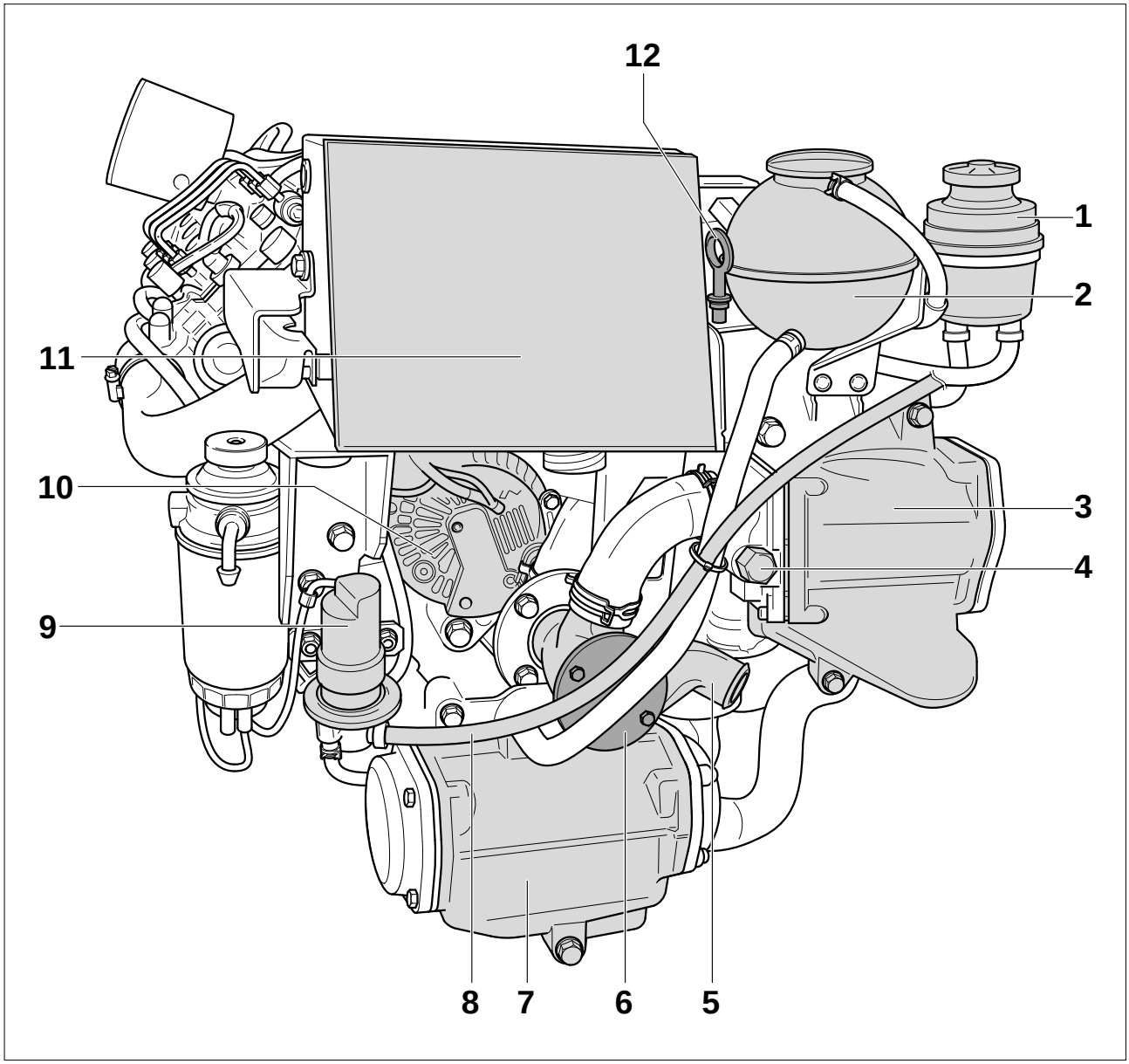
Engine compartment ventilation

Introduction

- The engine must be supplied with air (oxygen), to ensure optimum fuel combustion.
- The engine must be sufficiently ventilated to ensure that the temperature can be maintained at an optimum value, that is as low as possible.
  ($\Delta T_{max.}$ above ambient temperature: 10 °C to 15 °C).

- To ensure optimum engine compartment ventilation, the air inlet should be placed where the sucked-in air is as clean as possible and where the engine's own exhaust gases cannot be sucked in.
- Water must not be able to enter either the air inlet or the air outlet.
- The hydraulic cross section for the air inlet must be at least 200 cm^2.
- If other equipment that requires oxygen for its operation (e.g. an auxiliary heater) is located in the engine compartment, then this must also be considered when dimensioning the air inlet.

Front view



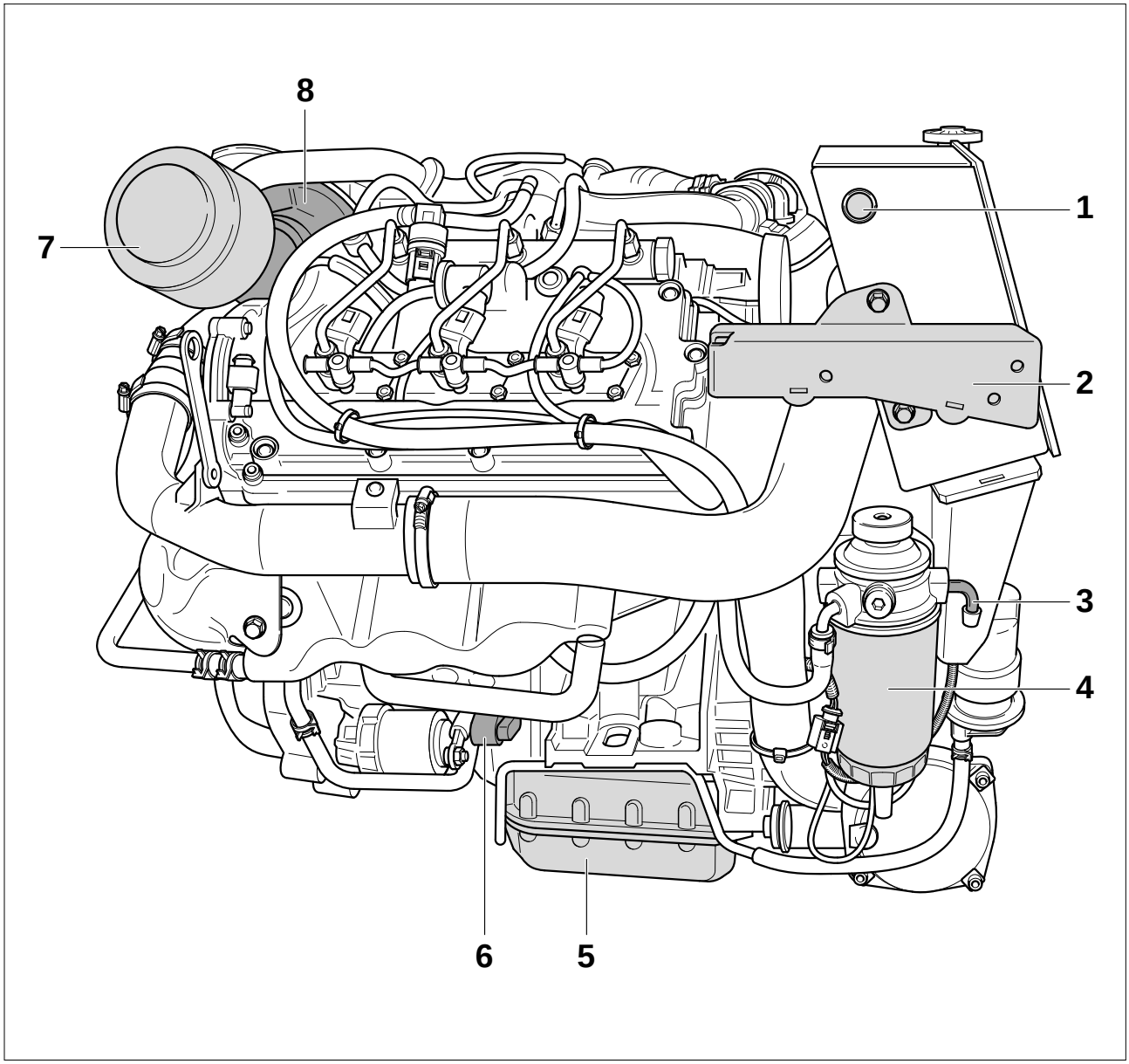
EB6-0030

Legend

1. Hydraulic oil reservoir
2. Coolant expansion tank
3. Intercooler
4. Sacrificial anode
5. Connection for seawater/freshwater
6. Sea water / fresh water pump
7. Main heat exchanger
8. Engine oil drainage hose
9. Oil extraction pump
10. Alternator
11. Central electrical system
12. Dipstick

Engine components list

View of starter side

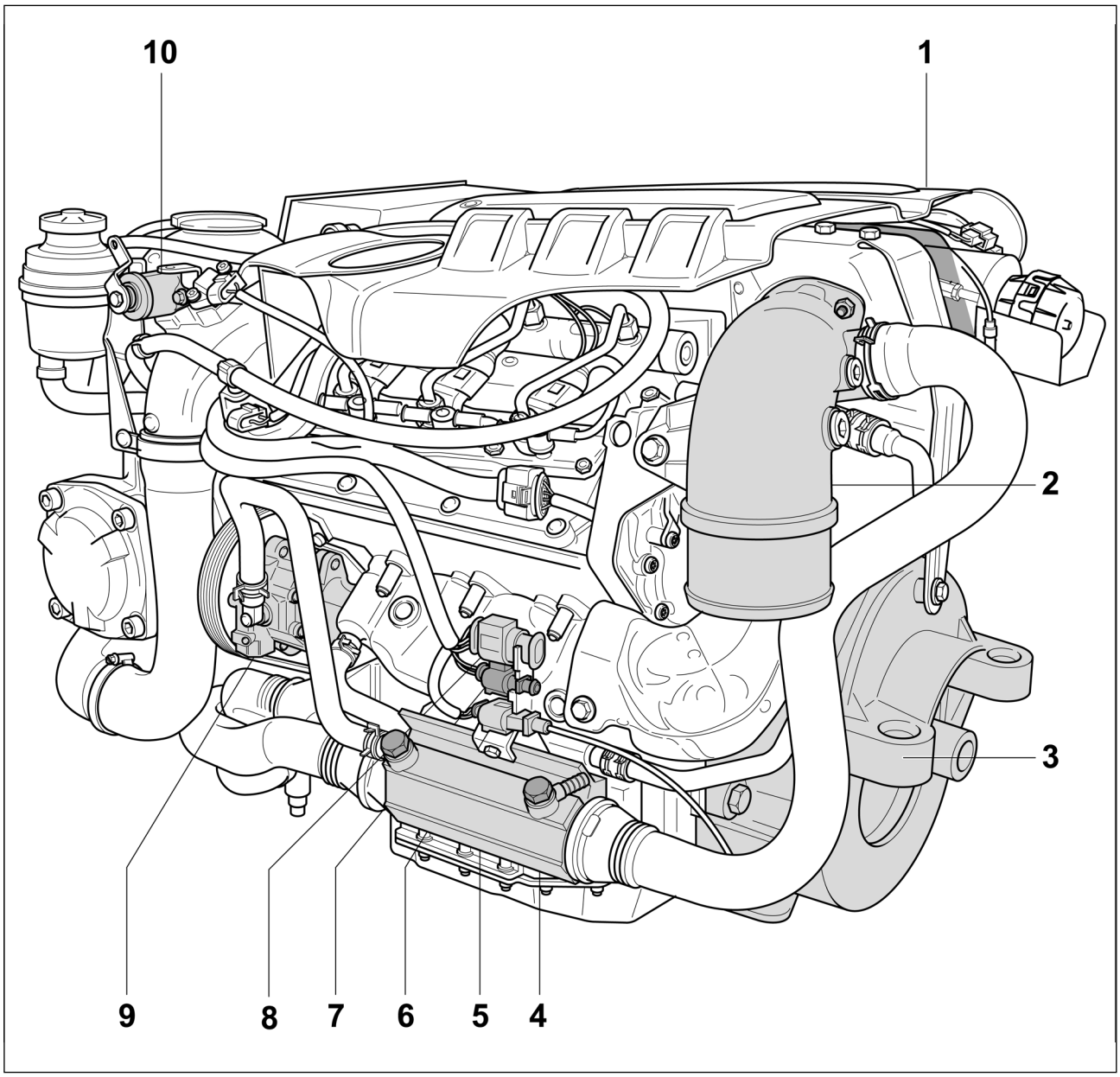


EB6-0031

Legend

1. Button for oil extractor pump
2. Housing for central electrical system and shifting bracket (Mercruiser shifting bracket)
3. Connection for the fuel supply line
4. Fine fuel filter with water monitor
5. Oil sump
6. Starter
7. Air filter element
8. Turbocharger

View of gearbox side



EB6-0042

Legend

1. Cover
2. Exhaust pipe connection
3. Transmission bell housing
4. Hydraulic connection
5. Servo / gearbox oil cooler
6. Speed sender connection
7. Gearbox neutral switch connection
8. Optional accessory connection (e. g. boiler kit)
9. Hydraulic pump
10. Throttle lever position sender

Technical Data

Engine description

Engine code TDI 225-6		BSP
Engine code TDI 265-6		CEZ
Cubic capacity cm^3		2967
Bore/stroke	mm	83/91.4
Compression ratio		19.5:1
Ignition sequence		3-6-1-4-2-5

Power output
(as per ISO 3046 with marine control unit)

TDI 225-6	at 4200 rpm	kW 165
TDI 265-6	at 4200 rpm	kW 195

Charge air pressure
(at rated power output and under standardized operating conditions)

TDI 225-6	at 4200 rpm	bar	1.25
TDI 265-6	at 4200 rpm	bar	1.50

Weight

TDI 225-6	kg	approx. 330
TDI 265-6	kg	approx. 330

Maximum inclination during operation

15° in all directions

30° for short periods

Permissible engine operating data

Permissible engine temperature

Maximum permissible temperature in the oil sump	°C (°F)	135 (275)

Permissible coolant temperature

Maximum permissible temperature at the outlet from the engine during continuous operation	°C (°F)	105 (221)

Engine electrical equipment

12 V alternator	A	180
Starter 12 V	kW	2.0
Battery 12 V	A (Ah)	420 (88) minimum capacity

Diameters / Line cross sections

Exhaust system	Ø 100 mm
Intake hose for sea water / freshwater	Ø 45 mm
Fuel lines	Ø 8 mm
Battery connection cable	35 mm^2

Cooling system

Twin circuit cooling system (overpressure system with separate expansion tank and overpressure valve) and seawater / freshwater circuit with impeller pump.

Overpressure valve

Opens at	bar (overpressure)	1.4 -1.6

Thermostat

Starts opening at	°C (°F)	70 (158)

Coolant

Use a mixture of 60% water and 40% G12/G12+ antifreeze (colour lilac) as per TL VW 774D.

Fuel

Fuel	diesel	as per DIN EN 590
Required minimum cetane number		CN ≥ 51

Oil supply

Engine oil quality

Oil type VW Longlife, oil specification

VW 504 00/507 00 (5W30) (see also instruction manual information)

Oil pressure

At 2000 rpm and 80 °C (176 °F) engine oil temperature (overpressure) at least 2.0

Oil consumption

(maximum permitted)	l/10 h	0.05 - 0.1

Filling quantities

Coolant circuit	ltr.	approx. 9
Oil circuit		
Including filter change	ltr.	6.0
Volume difference between min. and max. markings on the dipstick	ltr.	approx. 1.3

Installation dimensions for customized

Circular cut-out for round instruments in mm:

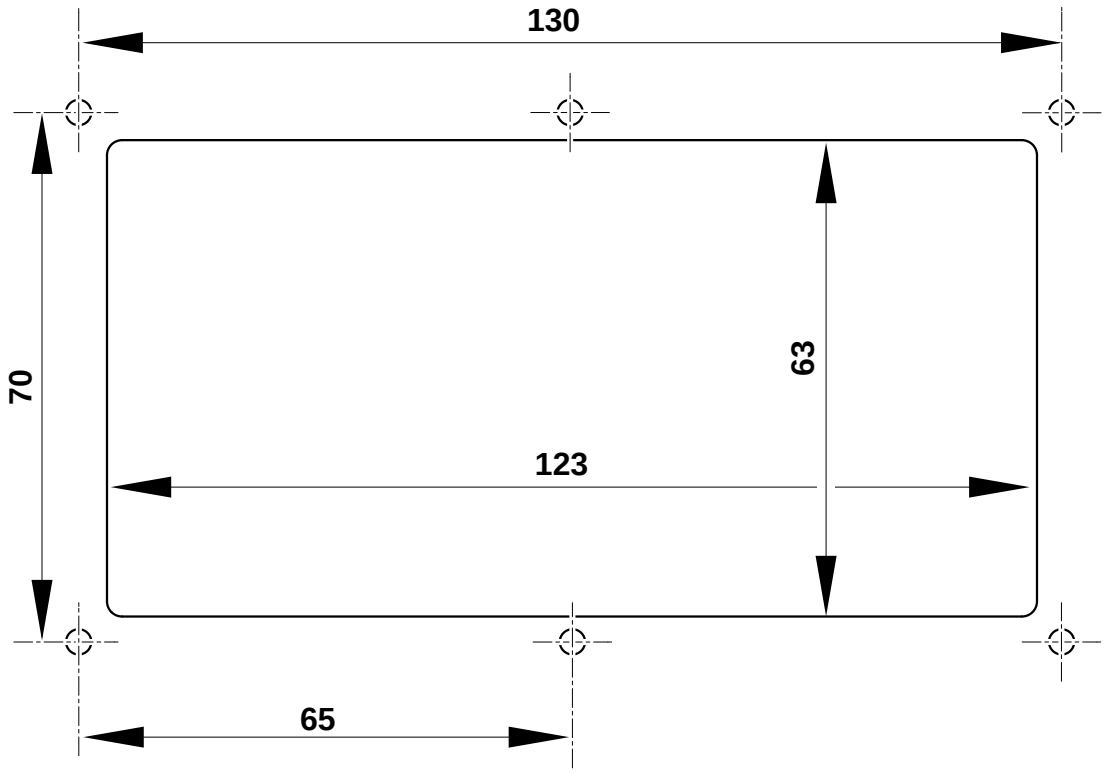
Rev. counter Ø 85

Voltmeter Ø 52

Water temperature indicator Ø 52

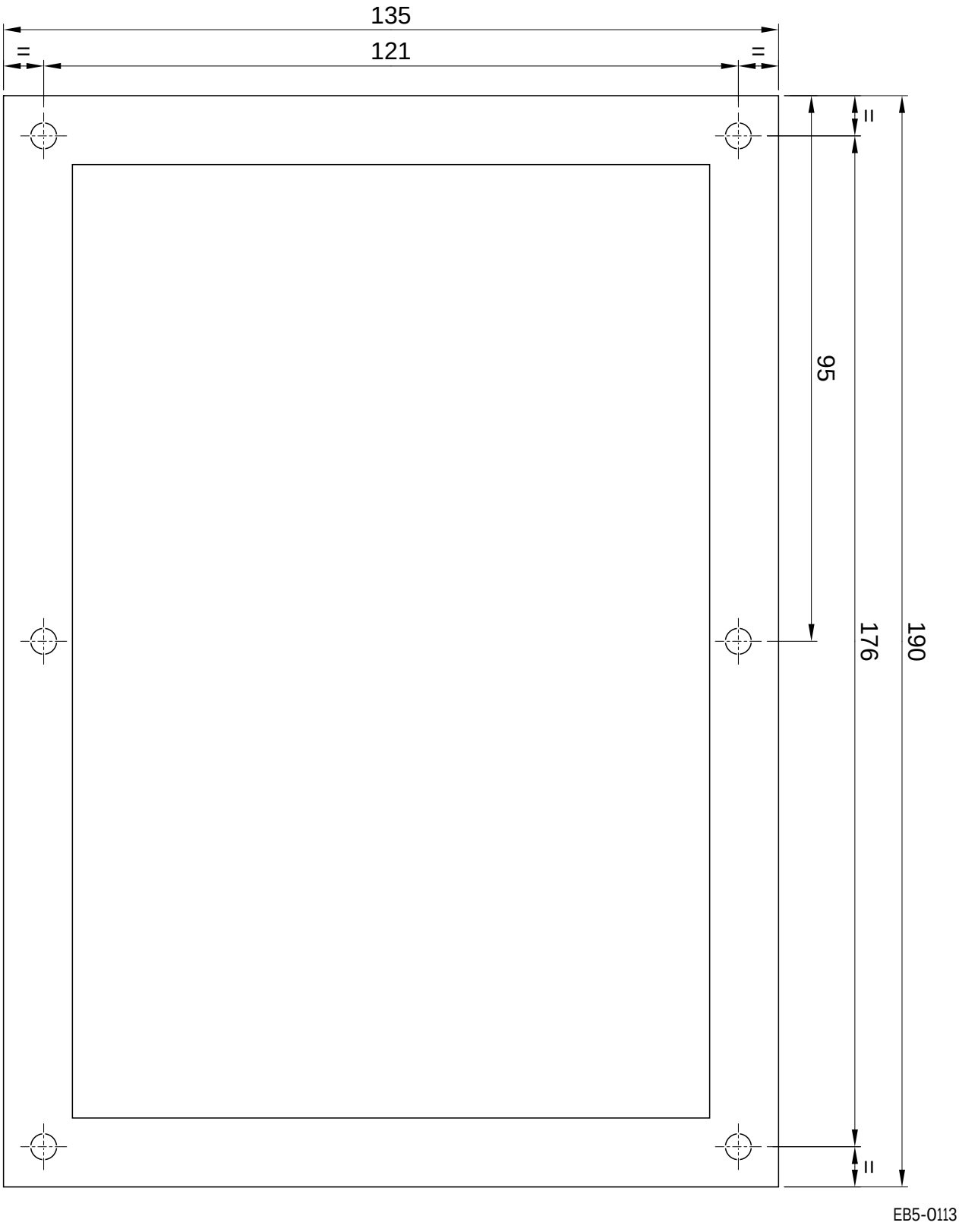
Ignition lock Ø 26

Installation template for the control unit



EB6-0037

Installation template for standard instrumentation



Installation description EB06

Copy date 11/07

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❀ This paper was produced from wood pulp bleached without chlorine.

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