



# LDW 194 JMTI LDW 245 JMTI/A

Installation - Use-maintenance

 **LOMBARDINI**  
**Marine**

This manual has been specially designed to provide you with all the necessary information to keep your engine perfectly efficient for many years.

Please read it carefully and follow precisely any described installation and maintenance operations.

Lombardini Marine service network shall, in any case, be at your complete disposal for any clarifications or advice.

LOMBARDINI MARINE

### Oil level check

Prescribed lube:

#### **Total quartz SAE 10W40**

Quartz Diesel 7000 10W40  
Activa Diesel 7000 10W40

### Reduction-reversing gear oil filling

Prescribed lube:

#### **Total SAE 15W40 (API CG4/ACEA E2)**

Total Rubia 4400 15W40

### Coolant replenishing

Prescribed coolant:

**50% Total antifreeze  
50% Water**

## Index

CHARACTERISTICS	Pag.	6
OVERALL DIMENSION	Pag.	7
IDENTIFICATION	Pag.	9
INSTALLATION	Pag.	16
MAIN CIRCUITS	Pag.	33
USE	Pag.	35
MAINTENANCE	Pag.	54
STORAGE	Pag.	88
SERVICE	Pag.	91
WARRANTY CLAUSES	Pag.	94



Prior to starting read and follow instructions. Failure to do so will make warranty void.

Accessory set supplied with the engine

Request if not to supply



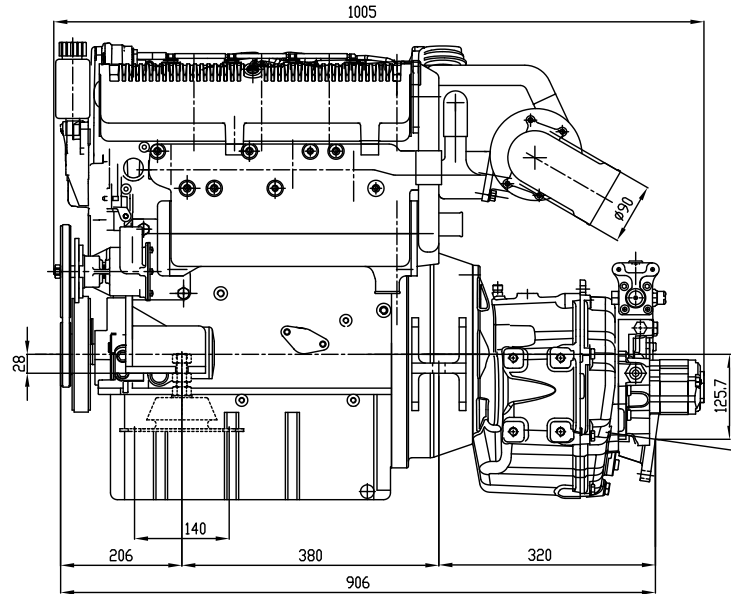
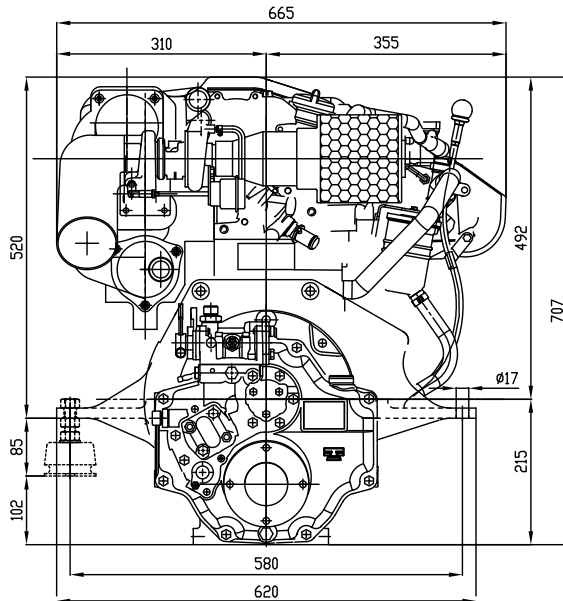
## Characteristics

		<b>194</b>	<b>245</b>
Cylinders	N.	4	5
Bore	mm	82.0	82.0
Stroke	mm	90.4	90.4
Displacement	cm <sup>3</sup>	1910	2387
R.P.M.		3900	4200
Extreme power	kw/cv	132.3/180	176.4/240
Engine oil quantity	l	5.5	7.0
Reduction/reversing gear oil quantity	l	2.6*	2.6*
Dry weight with reversing gear	Kg	284*	315*
Cooling system capacity	l	7.5	8.5
Max. Installation inclination	$\alpha$	10°	10°
Max. Running inclination	$\beta$	20°	20°

\* With TM 485 A reversing gear box

## Overall dimensions

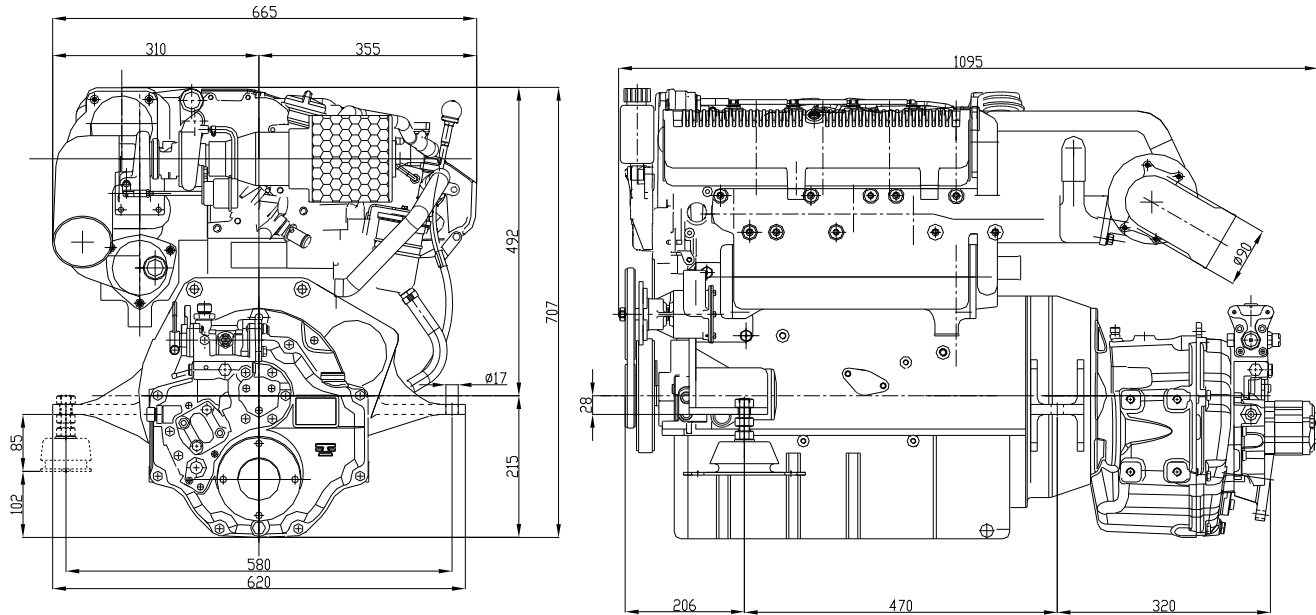
# LDW 194 JMTI



With TM 485 A reversing gear box

## Overall dimensions

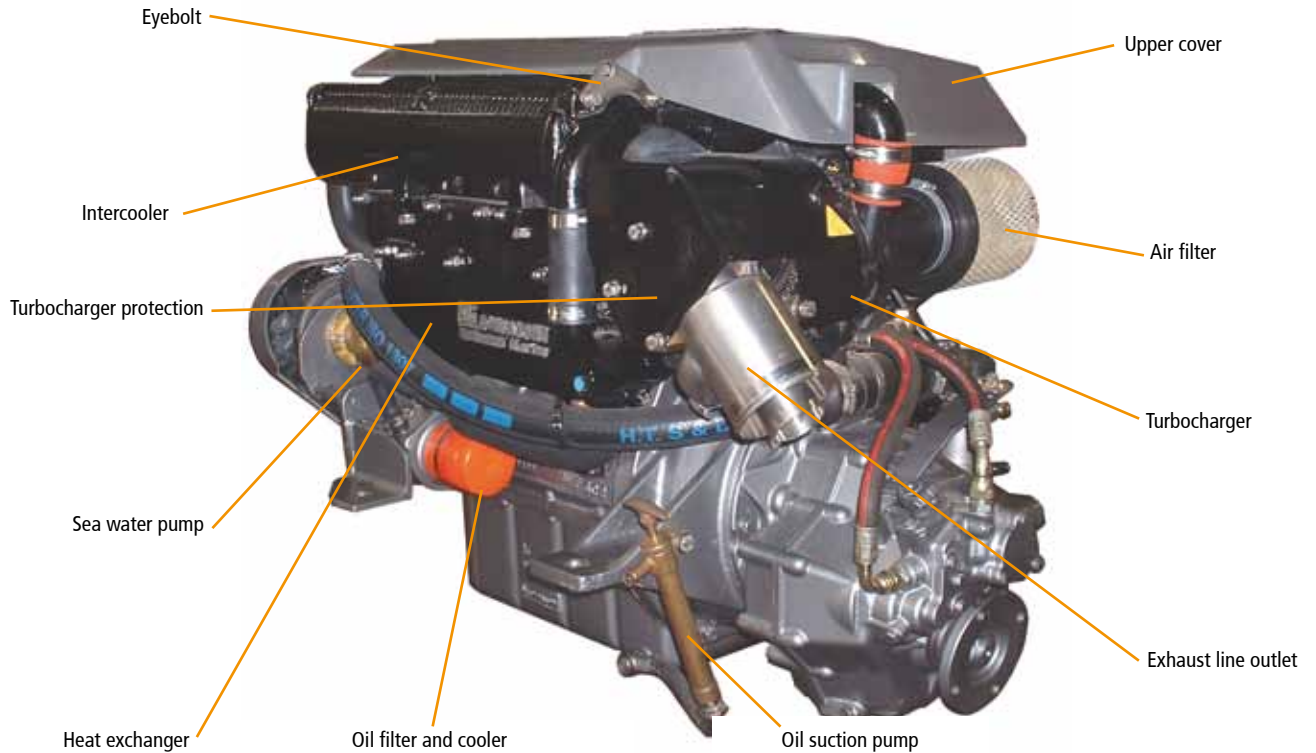
# LDW 245 JMTI/A



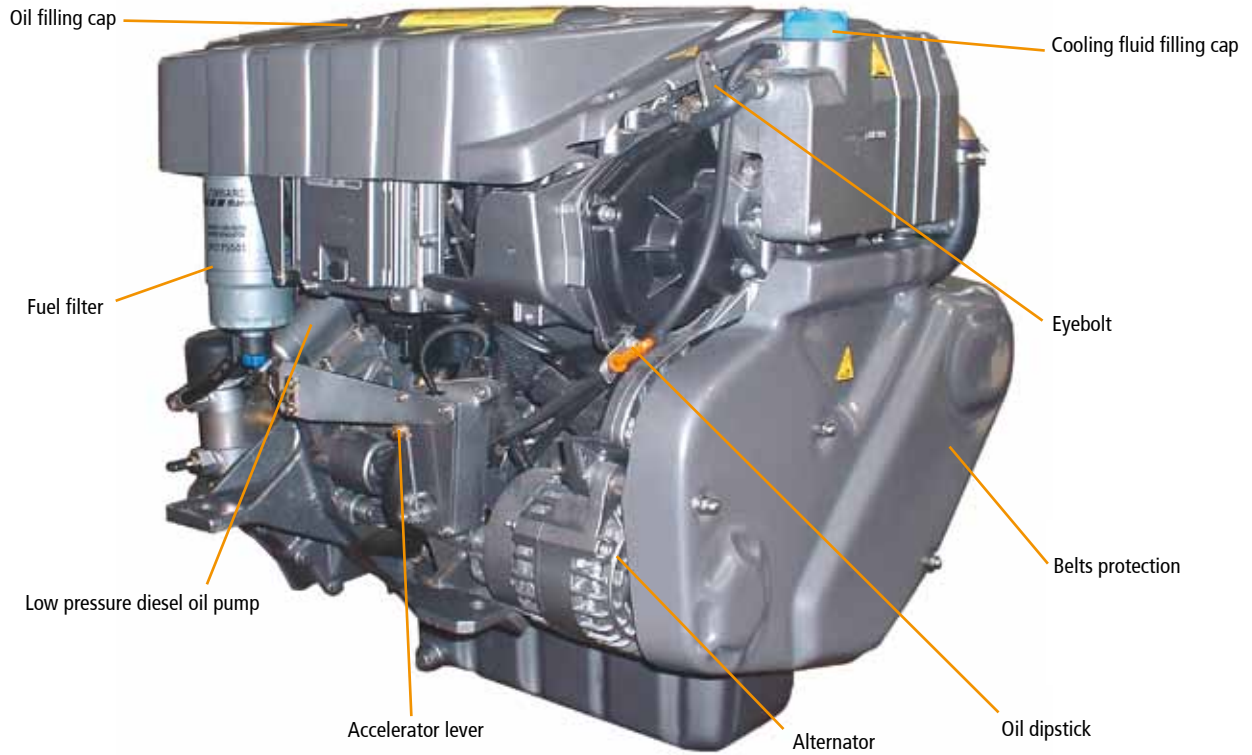
With TM 485 A reversing gear box



## Identification



## Identification



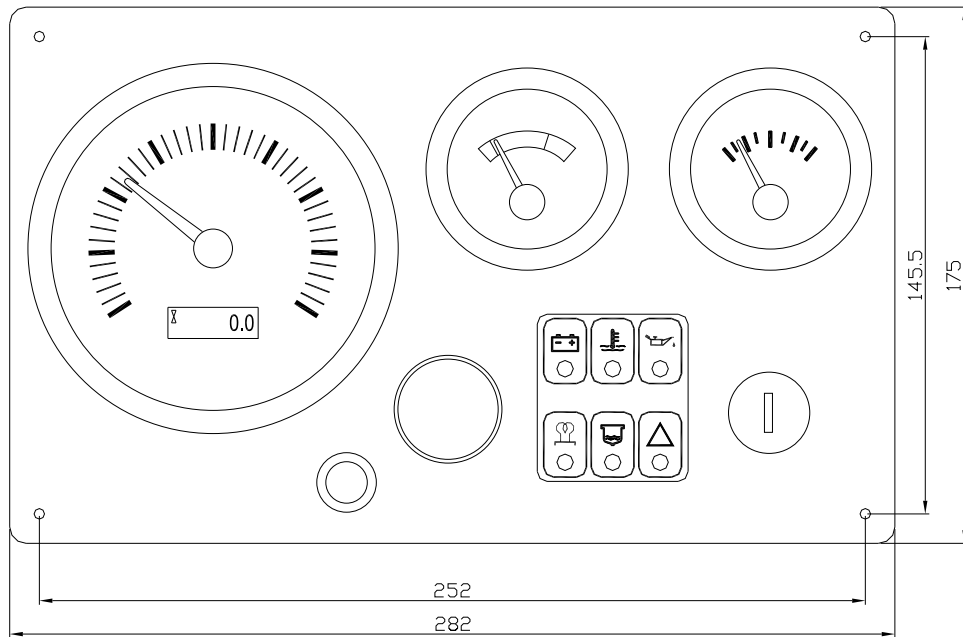
# Identification

## De Luxe maxi panel



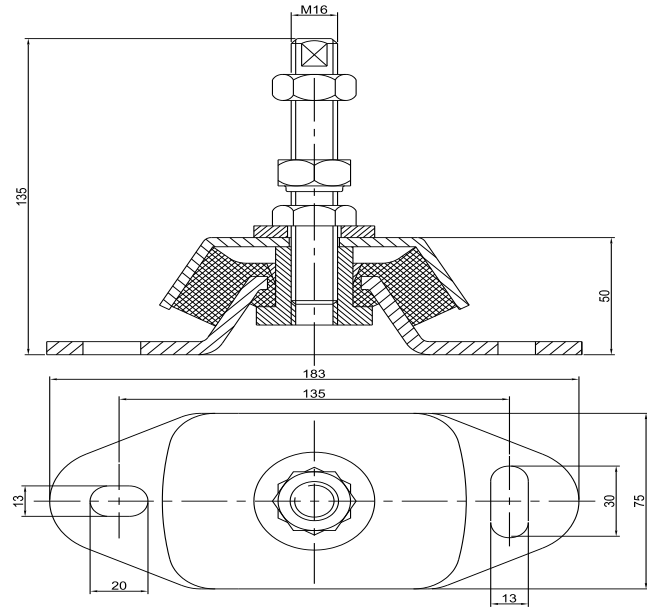
# Identification

## De Luxe maxi panel



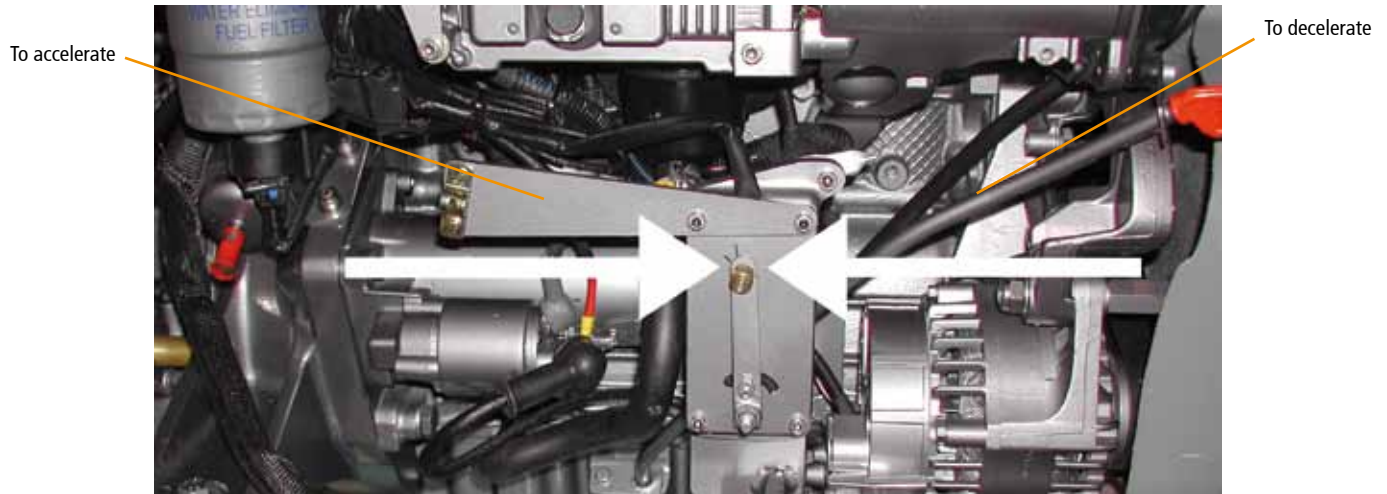
## Identification

### Vibration mounts



## Identification

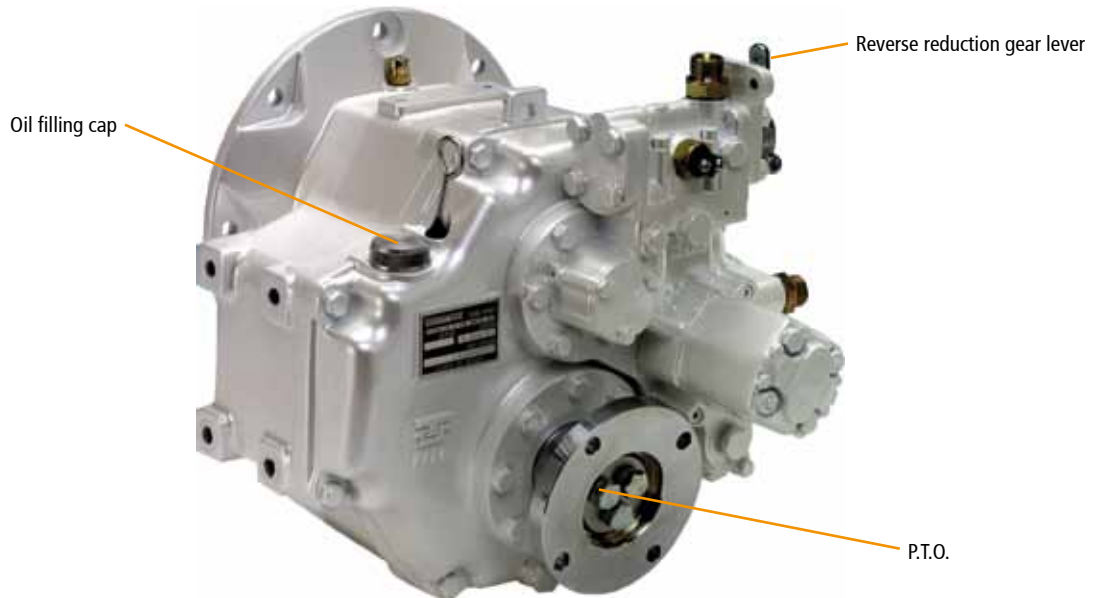
### Accelerator lever



Predisposed for C3 cable

## Identification

### Reduction reversing gear technodrive TM 485 A



# Installation



When you design the engine room, observe accessibility necessary for maintenance and repairs on the engine.

Also ensure that whole engine can be removed without damaging the structure of the boat.

Maintenance which requires accessibility:

Engine and gearbox oil draining and refilling;

Engine coolant draining and refilling;

Oil filter exchange;

Fuel filters exchange;

Air filter exchange;

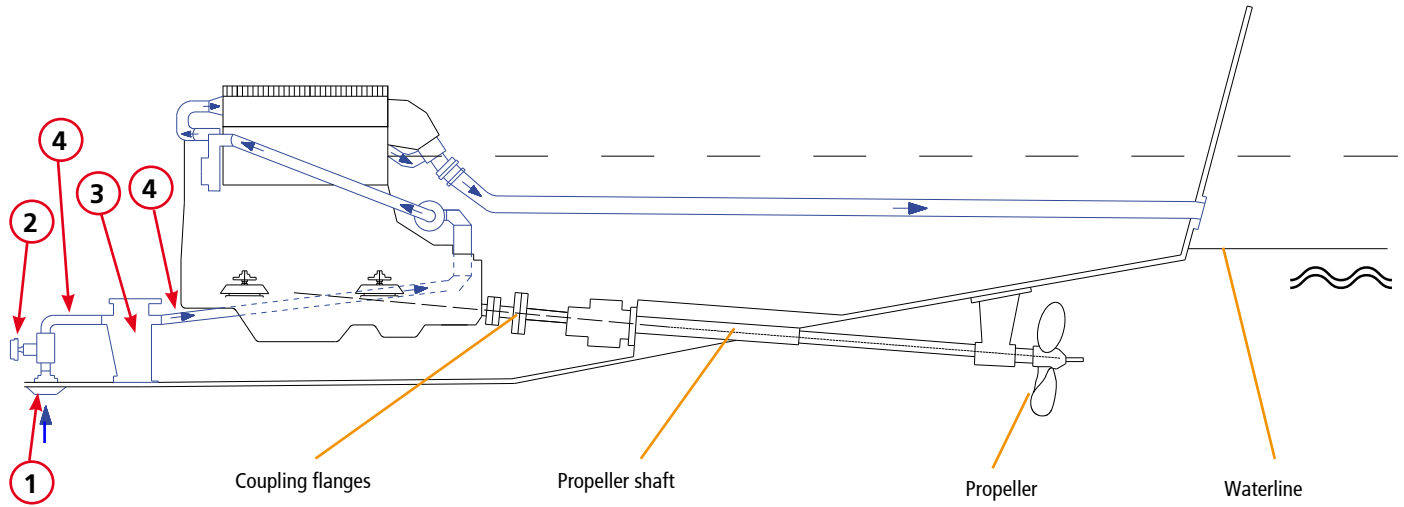
Belts check and replacement;

Hoses check and replacement;

Raw water pump impeller replacement;

Strainer cleaning.

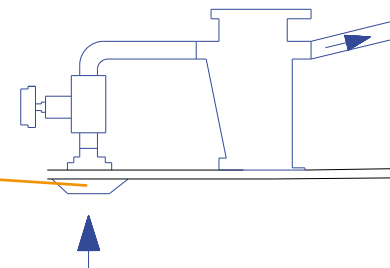
# Raw water system



1 Sea cock



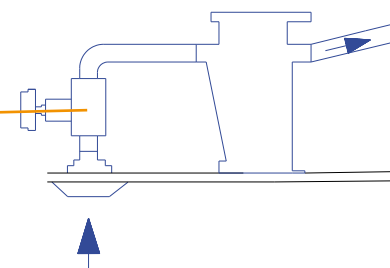
Ø min. 1" 1/2 (38.1 mm)



2 Water intake valve



Ø min. 1" 1/4 (31.75 mm)

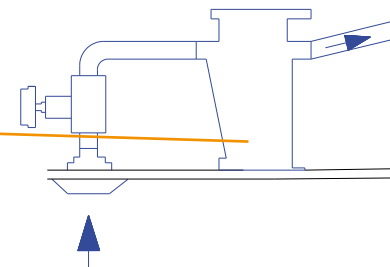


3 Raw water strainer

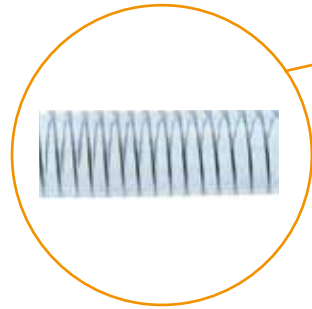


min. 110 l/min

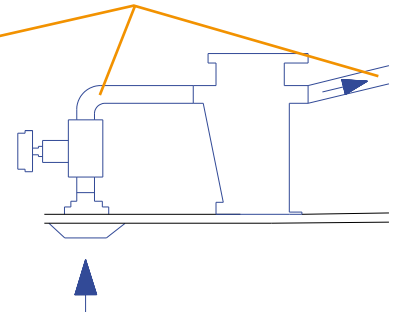
Ø min. 1" 1/4 (31.75 mm)



4 Suction hose



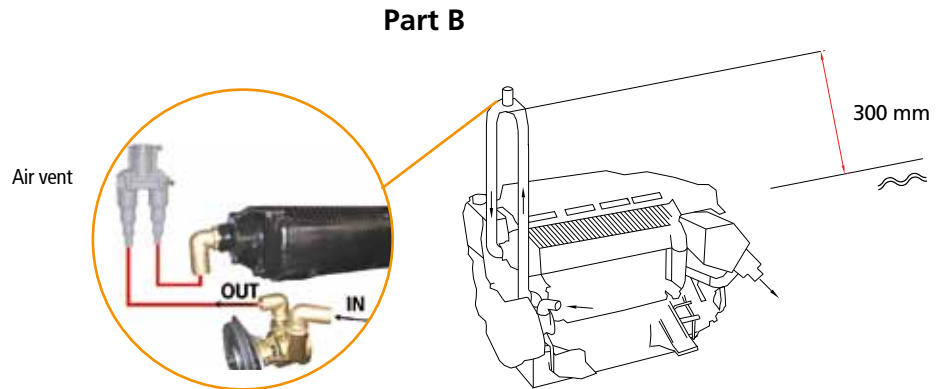
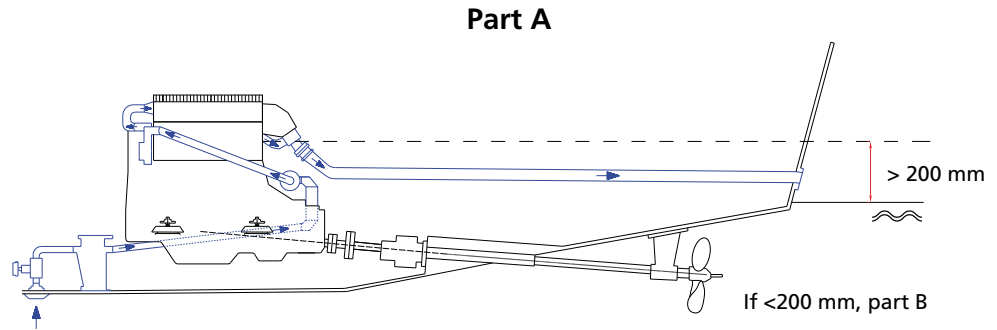
Ø<sub>i</sub> 30.0 mm

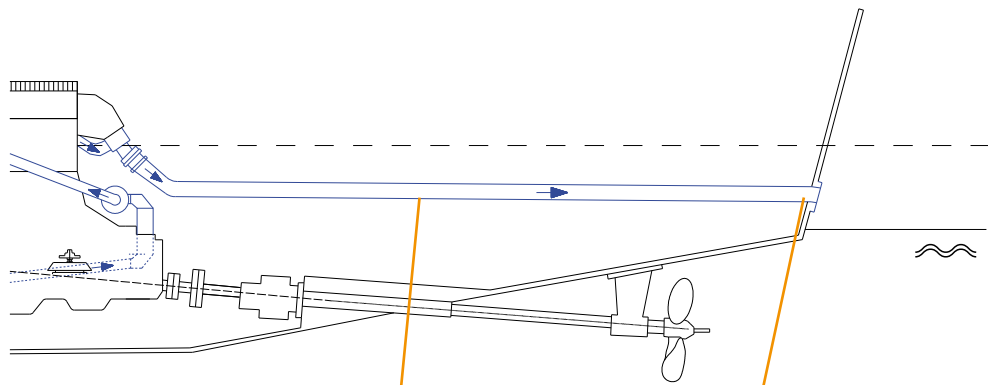


Use a semiflexible hose with steel core and smooth internal surface

## Layout beneath the water line

If sea water outlet is at height of less than 200 mm from the water line, fit an air vent system.





Exhaust line must be linear and descending.

Exhaust hose



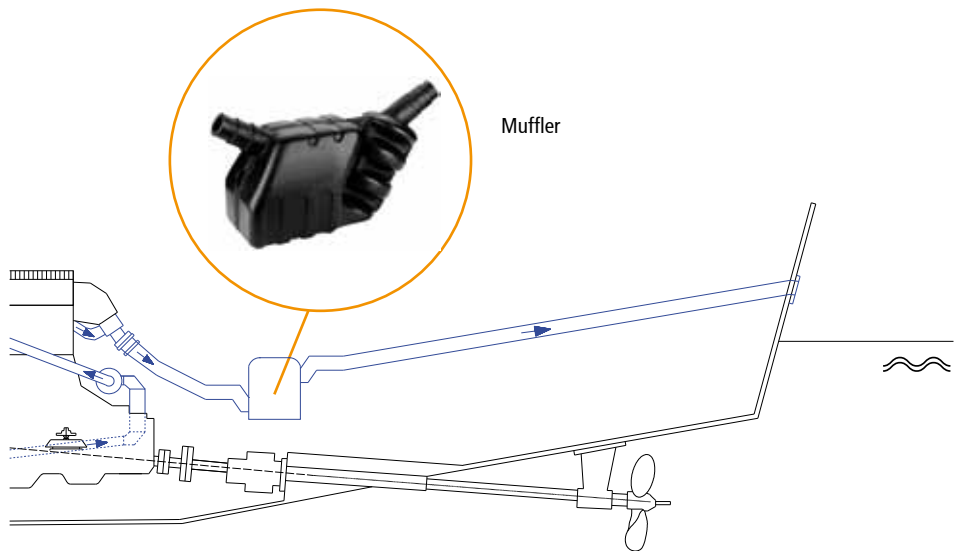
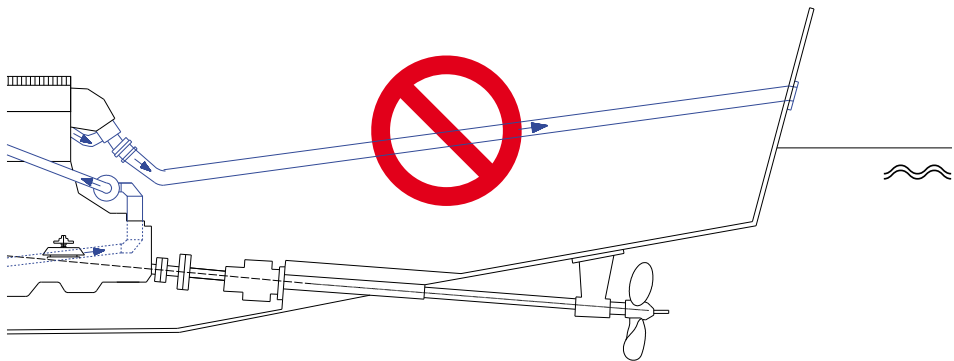
Ø, 90 mm

Non return valve

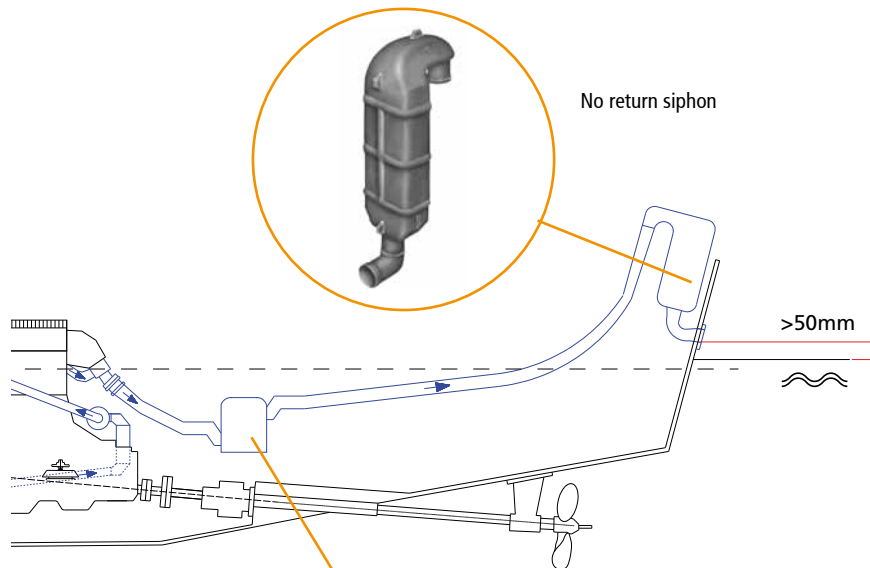


1 engine installed - suggested  
2 engines installed - mandatory

Muffler must hold a large volume of water included between the muffler and the exhaust exit.



If the exhaust line is ascending and the sea water exit from the engine is under the waterline, install a muffler and a non-return siphon.



No return siphon

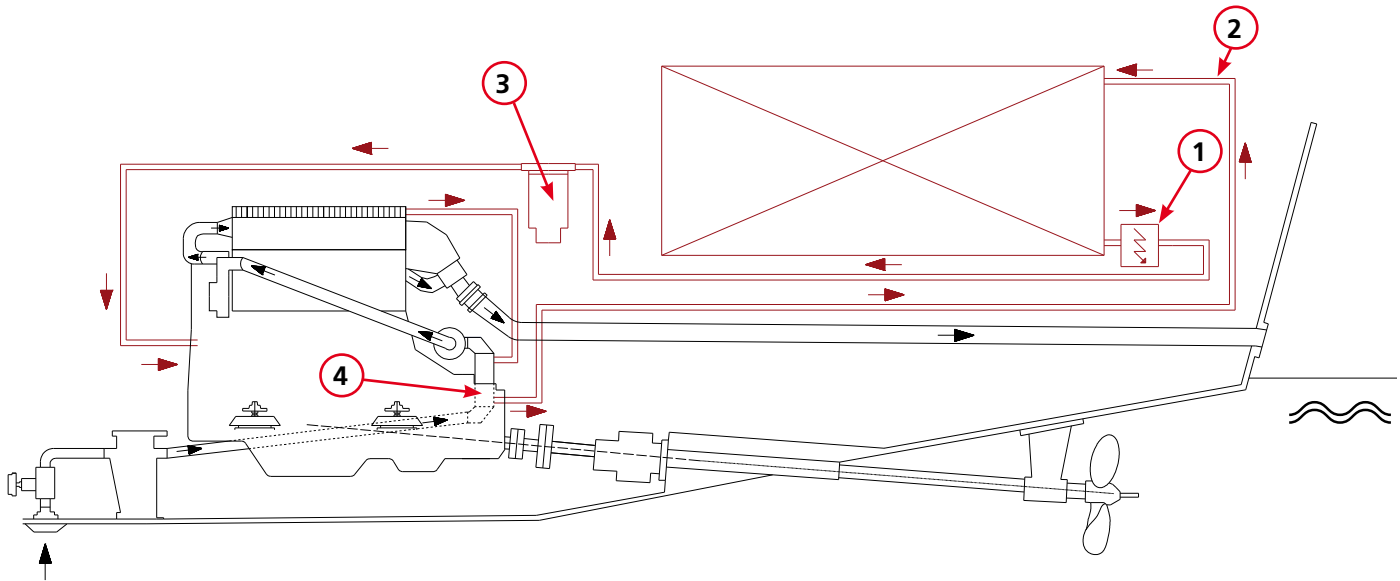
Muffler must hold a large volume of water included between the muffler and the exhaust exit.



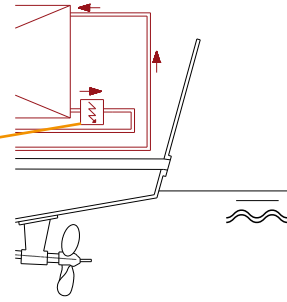
Muffler



## Diesel system



1 Shut off solenoid

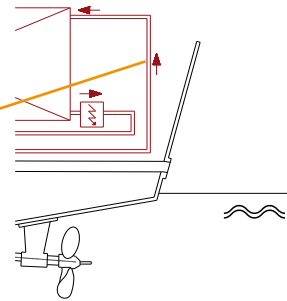


Min. 200 l/h

Suggested

Ø, 10 mm

2 Fuel hose

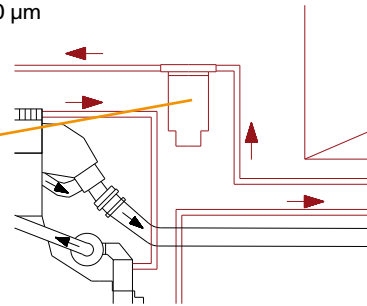


A1 Class

3 Water separator prefilter



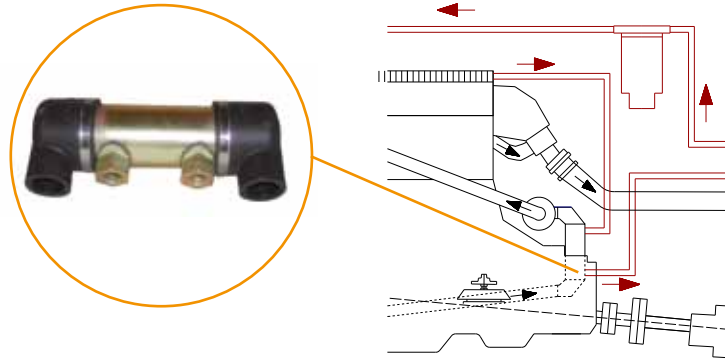
30-40 µm



Montatory

Fit a warning lamp in order inform in case of water presence in the fuel.

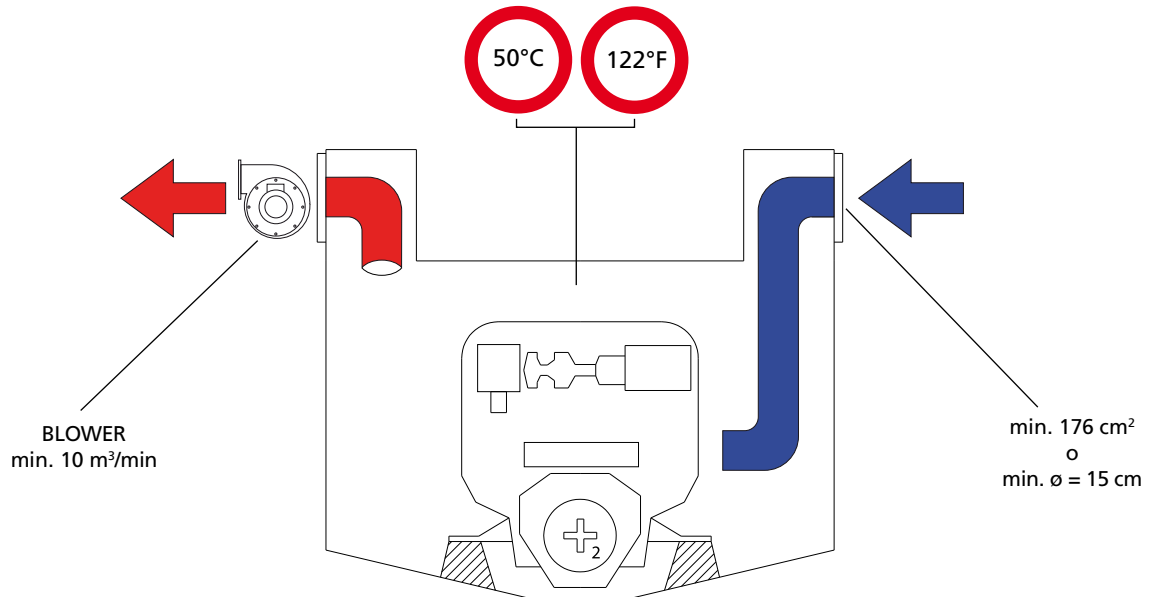
**4** Diesel cooler



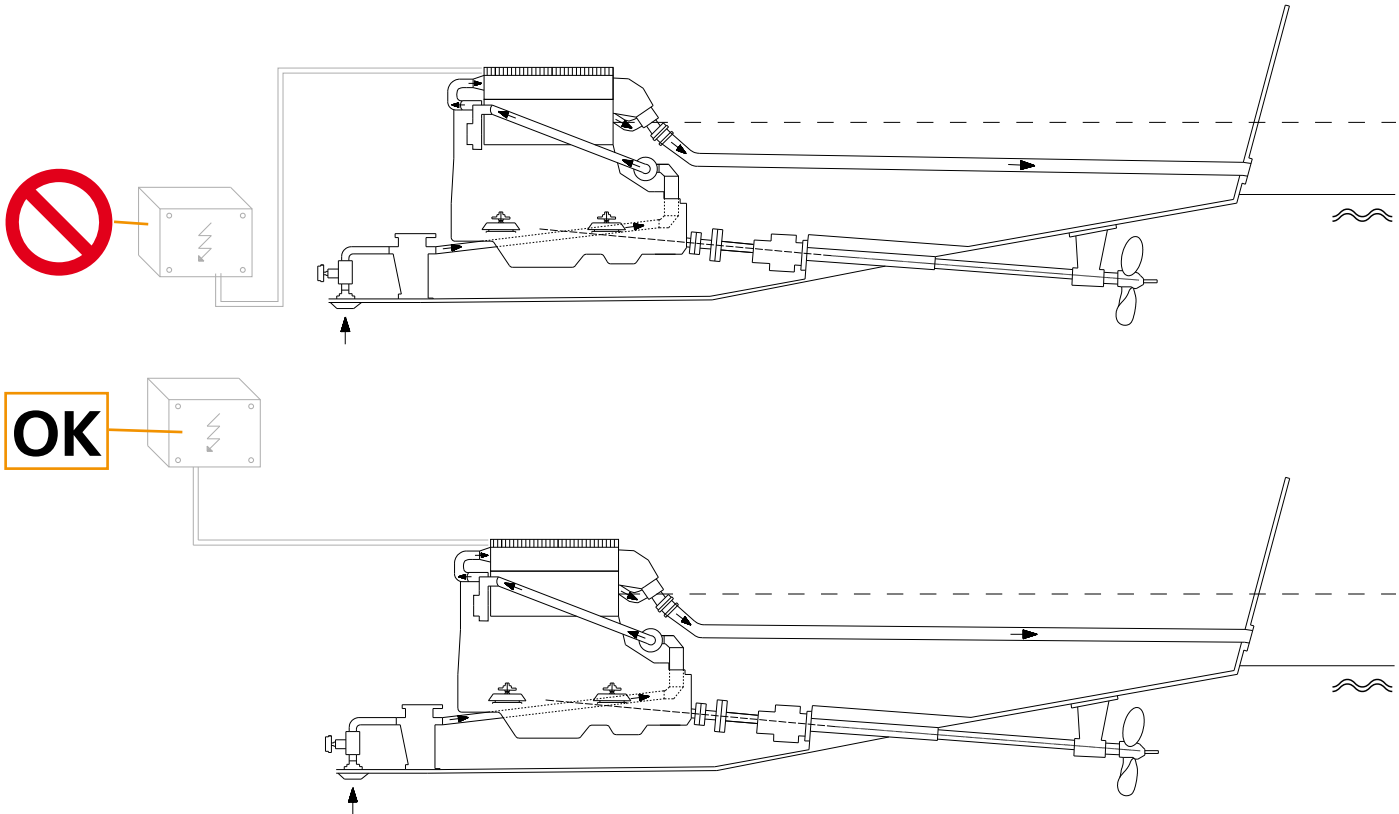
Use diesel clean and without presence of water

# Extraction and ventilation engine room - Belüftung/ Entlüftung des Maschinenraums

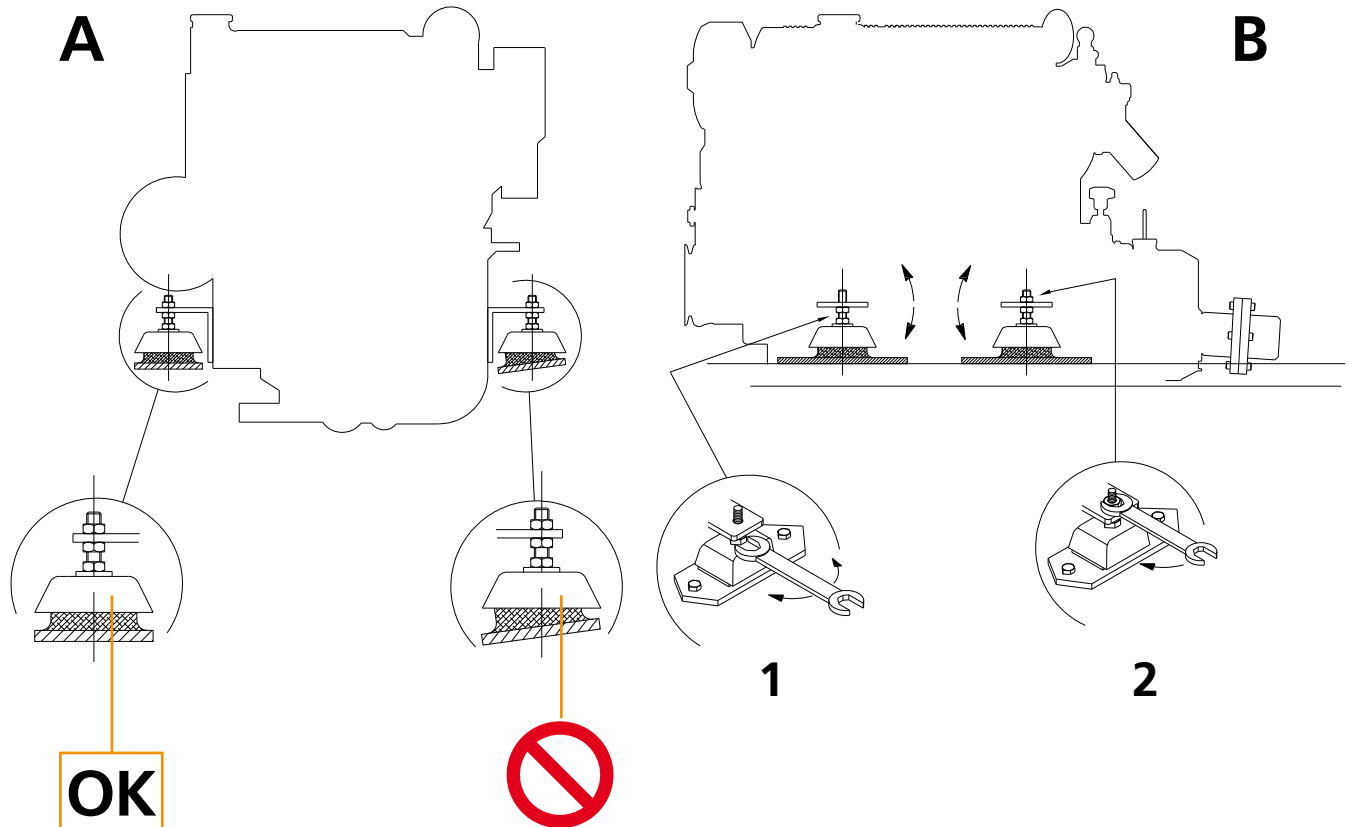
Mandatory



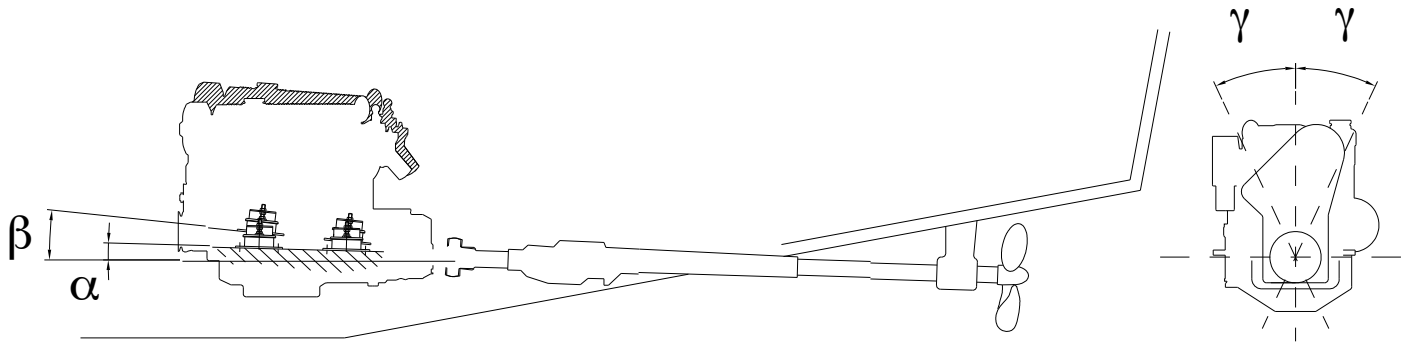
## Wiring box positioning - Positionierung des Anschlusskastens



## Vibration mounts



## Maximum inclinations permitted



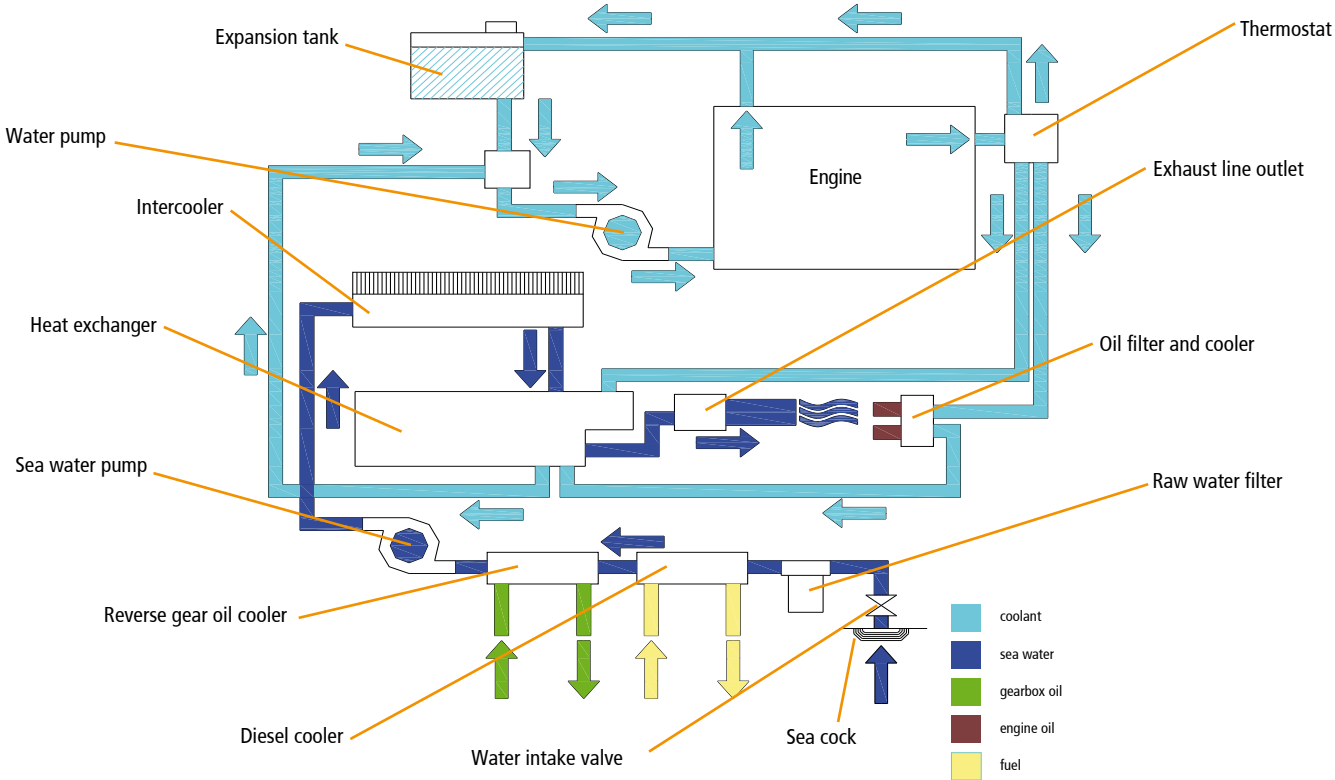
Engine	$\alpha$ Maximum installation tilt	$\beta$ Maximum running tilt	$\gamma$ Maximum side tilt
<b>LDW 194 JMTI</b>	10°	20°	20°
<b>LDW 245 JMTI/A</b>	10°	20°	20°

## Vibration mounts

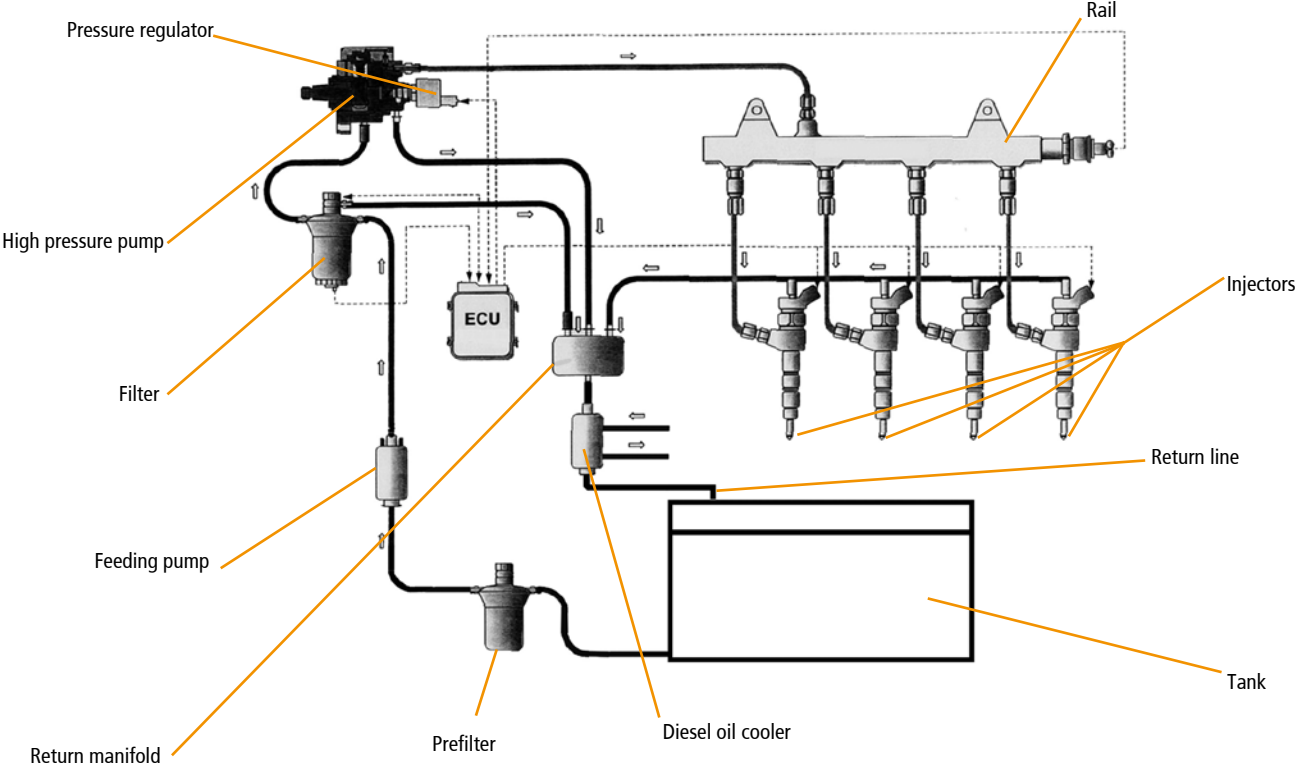
Use those recommended by Lombardini Marine only. Wrong fitting of the vibration-damping mounts causes considerable engine vibrations and sets a limit to their duration. Nut 1 in fig. B makes it possible to adjust the engine at the right inclination to the axis. The upper lock nut 2 should then be firmly tightened. (see page 30).



# Main circuits



# Main circuits



**Use**



Carry out these operations while engine is off

Carry out these operations while engine is cold

## Before starting

Fill crankcase with oil



Remove oil filler cap.



Prescribed lube:

**Total Quartz SAE 10W40**

Quartz Diesel 7000 10W40  
Activa Diesel 7000 10W40

Pour the oil in and reassemble oil cap.



## Before starting

## Oil level check



Remove dipstick.



Make sure that it is at maximum line, if not, add oil. Do not overfill.

To check oil level, wipe off dipstick with absorbent cloth or towel and check level.



Reassemble dipstick.



Oil level above the upper threshold may cause seriously damage to the engine

## Before starting

## Reduction-reversing gear oil filling

Remove oil filler cap.



Prescribed lube:

**TOTAL SAE 15W40  
(API CG4/ACEA E2)**

Total Rubia 4400 15W40

Pour the oil in and reassemble oil cap.





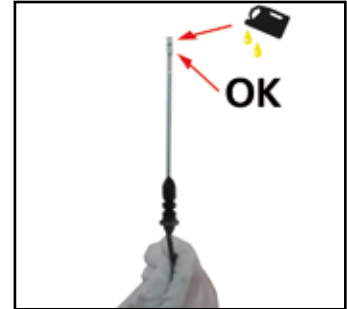
## Before starting

## Oil level check

Remove dipstick.



Check that level is at max.



Reassemble dipstick.



## Before starting

## Water drain from fuel prefilter

Remove cap and let water drain from filter bottom.



## Before starting

## Coolant replenishing

Prescribed coolant:

**50% Total antifreeze**  
**50% Water**

Remove cap and pour liquid into heat exchanger.



Fill until level mark.

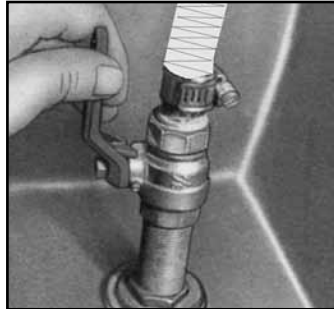


Put heat exchanger cap back.



## Starting

Open the cock for seawater intake.



Intake pipes should be watertight, otherwise the pump could get damaged.

Do not use sprays to make starting easier.

Turn the key to the first click. The dashboard switches on.



Start engine after about 10".



Key always in on (first) position when engine is running.



## After starting

## Check seawater outlet check

If no water comes out of the exhaust pipe, bring the engine to 1800-2000 rpm to make pump priming easier.

Warm up as per sheet:

Temperature

Duration

< -20°C

10'

-20°C ÷ 0°C

8'

0°C ÷ 5°C

6'

> 5°C

5'

Do not warm up the engine at idle speed. Keep the engine at 1300÷1500 RPM.

Check that there are no oil, fuel or water leakages.

**After starting**

**Driving positions**

Forward



Neutral



Reverse



**After starting**

**Before stopping**

At idle speed for a few minutes.



## Stopping

Key "0" position.



Remove the key from the switch.



Lower the cap of the switch.



## After stopping

Drain sea water from the pump (temperature below 32°F)

Detach the suction line from the sea water pump.

Remove the screws and the protection belts .



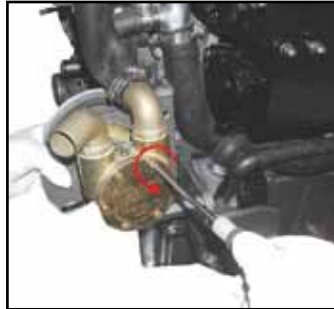
Unscrew the 3 bolts which fix the raw water pump.



Rotate 90° the pump group.



Remove screws and pump cover.



Unscrew the zinc and let the water drain .



Reassemble the zinc.



Reassemble gasket, cap and screws.



Screw the 3 bolts which fix the raw water pump.



Reassemble the protection belts.



## **Run-in**

**During first 125 hours do not exceed 70% of maximum rated power**

**Maintenance**



Carry out these operations while engine is off

Carry out these operations while engine is cold

Every 10 hours



**h 10**

Sump oil level check

Remove dipstick.



Make sure the oil is at the maximum.



If level is under the minimum, fill up.



Remove oil filler cap.



Pour the oil in and reassemble oil cap.



Prescribed lube:

**Total Quartz SAE 10W40**

Quartz Diesel 7000 10W40  
Activa Diesel 7000 10W40

Clean, fit in and remove dipstick.



Check that level is at max.



Reassemble dipstick



Every 10 hours



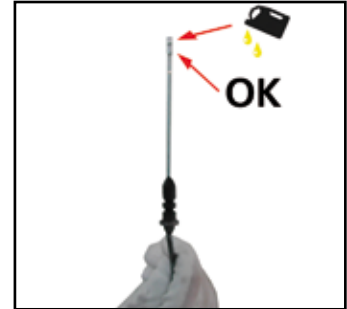
**h 10**

How to check reduction-reversing gear oil level

Remove dipstick.



If level is under the minimum, fill up.



Remove oil filler cap.



Pour the oil in and reassemble oil cap.



Prescribed lube:

**TOTAL SAE 15W40  
(API CG4/ACEA E2)**

Total Rubia 4400 15W40

Clean, fit in and remove dipstick.



Check that level is at max.



Reassemble dipstick.



Every 10 hours



**h 10**

Coolant level check

Remove the expansion tank cap.



If level is below reference mark, fill up and put the cap on.



Prescribed coolant:

**50% Total antifreeze  
50% Water**

After the first 50 working hours

End of the run in period

See the scheduled maintenance booklet



Every 250 hours or 1 year



**h 250 1** Year

Sump oil replacement

Remove oil using the hand pump.



Remove oil filler cap.



Pour the oil in and reassemble oil cap.



Make sure oil is at maximum level .



Take the used oil to the appropriate collection site.

Prescribed lube:

**Total Quartz SAE 10W40**

Quartz Diesel 7000 10W40  
Activa Diesel 7000 10W40



Every 250 hours or 1 year



**h 250 1** Year

## Oil filter replacement

Remove the filter and take it to the appropriate collection site.



Replace with original Lombardini Marine filter type.



Reassemble the filter.



Every 250 hours or 1 year



**h 250 1** Year

## Diesel filter replacement

Detach the lower connector.



Den Sensor des Wasserbscheiders abschrauben.



Remove the filter and take it to the appropriate collection site.



Replace with original Lombardini Marine filter type.



Reassemble the filter.



Install the water level sensor.



Connect the lower connector.



Every 250 hours or 1 year



**h 250 1** Year

Visual check of sea water pump belt

Remove the screws and the protection belts.



Check the belt.

The belt must be in good condition, without abrasions or fraying, otherwise change it.



Replace the belt, if worn.

Loosen the 3 bolts which fix the raw water pump.



Push toward the internal side of the engine the group.



Remove the belt and dispose of it in accordance with applicable laws.



Replace by a Lombardini Marine genuine belt.



Reassemble the belt.



Press on the belt (approx. 10 kg).



If flexure is over 1 cm., stretch the belt.

Push strongly the group toward the external side of the engine.



Screw the 3 bolts which fix the raw water pump.



Reassemble the protection belts



Every 250 hours or 1 year



**h 250 1** Year

Check the sea water pump impeller

Remove the screws and the protection belts.



Unscrew the 3 bolts which fix the raw water pump.



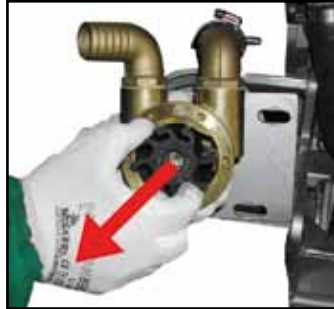
Rotate 90° the pump group.



Remove screws and pump cover.



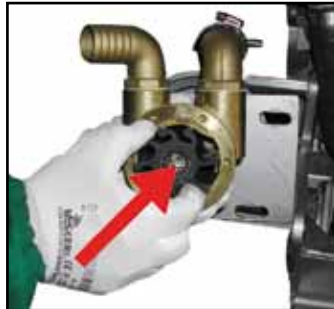
If the impeller is worn, dispose of it in accordance with applicable laws.



Replace with Lombardini Marine genuine parts.



Reassemble impeller.





Reassemble gasket, cap and screws.



Screw the 3 bolts which fix the raw water pump.



Reassemble the protection belts.



Every 250 hours or 1 year



**h 250 1** Year

## Air filter replacement

Remove the filter and take it to the appropriate collection site.



Replace with original Lombardini Marine filter type.



Assemble the new filter.



Every 250 hours or 1 year



**h 250 1** Year

Lubrication of wastegate control lever.

Apply grease resistant to high temperature (1000°C) on the pivot pin of wastegate.



Grease suggested.

**TOTAL  
SPECIS CU**

Every 250 hours or 3 months



**h 250 3** Month

Check the zinc anodes

Loosen plug and see if worn out



If the plug is worn, dispose of it in accordance with applicable laws.

Replace with Lombardini Marine genuine plug.



Put plug back.



Every 250 hours or 1 year



**h 250 1** Year

Check cooling circuit sleeves

Squeeze hoses to check for wear.



Replace hoses if worn out.

Loosen hose clamps.



Remove and throw hose away.



Replace with original Lombardini Marine hose.



Fit hose and clamps back in place.



Every 250 hours or 1 year



**h 250 1** Year

Visual check of alternator belt

Remove the screws and the protection belts.



Check the belt.



The belt must be in good condition, without abrasions or fraying, otherwise change it.

Replace the belt, if worn.

Loosen the tightening belt.  
\*\*



Remove the belt and dispose of it in accordance with applicable laws.



Replace by a Lombardini Marine genuine belt.



Reassemble the belt.  
\*\*



Loosen the tightening belt.  
\*\*





Reassemble the protection



## **\*\* LDW 245 JMTI/A**

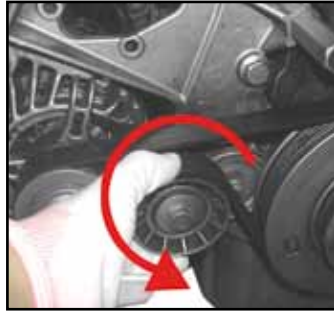
Loosen the upper bolt of the tightening belt.



Loosen the lower bolt of the tightening belt.



Rotate the belt tightening pulley.



Rotate the belt tightening pulley.



Tighten the upper bolt of the tightening belt.



Tighten the upper bolt of the tightening belt.



Every 250 hours or 1 year



**h 250 1** Year

How to replace reduction-reversing gear oil level

Remove cap and drain oil.



Reassemble oil drain cap.



Remove oil filler cap.



Prescribed lube:

**TOTAL SAE 15W40  
(API CG4/ACEA E2)**

Total Rubia 4400 15W40

Pour the oil in and reassemble oil cap.



Check that level is at max.



Every 500 hours or 2 years



**h 500 2** Years

## Coolant replacement

Loosen hose clamp on engine oil cooler.



Detach the clamp from the exchanger and let the cooling liquid drain.



Fit sleeves and clamps back in place.



Prescribed coolant.

**50% Total antifreeze  
50% Water**

Remove cap and pour liquid into the tank.



Fill until level mark.



Put tank cap back.



Every 500 hours or 2 years



**h 500 2** Years

Clean exchanger and intercooler tube bundles

Every 1000 hours or 3 years



**h 1000 3** Years

Timing belt replacement

Contact authorized service centers



## Storage

1 ÷ 6 months

Sea water drainage from the pump. See page 50

Oil sump and oil filter replacement. See page 63

Fuel filter replacement. See page 66

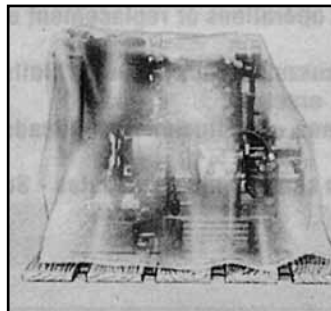
Storage.

Close suction and delivery outlets with tape.

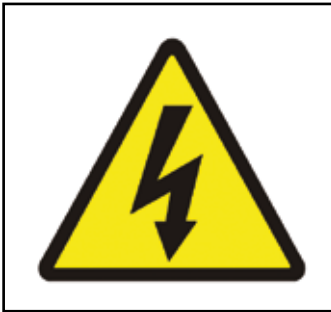




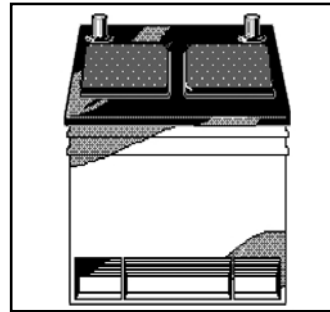
Wrap engine with plastic and put it on a wood base.



**If storage exceeds 6 months, please contact Lombardini Marine authorized service centers**



Battery not supplied



Ground rubber mounted engines

Never disconnect the battery while the engine is running

**In case of damage to the electrical system, contact authorized service centers**

**Service**

For spare parts and after sale assistance contact authorized Lombardini Marine service centers.  
Tel. No. appears on service booklet and telephone directory.



Where it's possible and in the if the user can't reach the authorized service, the personnel of service will assist you on place

**For any spare parts order please specify following details:**

Engine type and serial number



# Warranty clauses

## WARRANTY CLAUSES

The engines manufactured by Lombardini Marine are covered by a 24-months warranty beginning on the date of delivery to the first user in accordance with European Directive 1999/44/EEC and for at most 36 months from date of delivery to the manufacturer or shipyard; of the two alternatives, that which occurs first shall apply.

In the case of special applications requiring major alterations to the cooling, lubrication, supercharging and-filtering circuits, the special warranty clauses agreed in writing shall apply or the general clauses indicated above in the event of an application approval test certificate being produced, issued by the Technical Department of Lombardini Marine.

Within the above time-frame, Lombardini Marine undertakes to make any repairs under warranty, either directly or through authorized workshops.

The obligations of Lombardini Marine, as indicated in European Directive 1999/44/EEC, shall not be valid in the following cases:

- Engines not installed and used in conformity with the instructions of Lombardini Marine shown in the operator's and maintenance booklet;
- Seals affixed by Lombardini Marine tampered with;
- Engines repaired, dismantled or modified by workshops not authorized by Lombardini Marine;
- Fitting of not-original Lombardini Marine spare parts;
- Injection Systems damaged by unsuitable or polluted fuel.

Upon expiry of the 24-months period from the date of delivery of the engine to the first user, without Lombardini Marine or its authorized workshops having received notification of any faults, Lombardini Marine shall consider itself exempted from all liability or obligations, as set forth in European Directive 1999/44/EEC.

This warranty, effective from 23/3/2002, cancels and replaces all other previous warranties and any amendments made to it shall be made in writing.

## ATTENTION

For any law's effect, the engine is not made to be installed by end-user, therefore, possible conformity defects caused from installation, will not be recognized if the installation is not made by workshop or authorized Lombardini Marine shipyard.

Lombardini Marine can modify data reported in this issue at any time.



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Lombardini Marine is a division of:  **LOMBARDINI**<sup>®</sup>  
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