

OXE 125/150/175/200 HP

USER MANUAL

**“THE OXE POWER HEAD IS A WELL PROVEN DIESEL
ENGINE INHERENTLY MORE EFFICIENT THAN GASOLINE
ENGINES CONTRIBUTING TO LOW FUEL CONSUMPTION”**



INTRODUCTION



Publication No: ODM1005/F

Overview

Operating

Maintenance

Technical data



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OVERVIEW

ABOUT THIS MANUAL

This manual provides you with the information you need to know about starting, operating and maintaining your OXE Diesel engine.

Read this manual carefully and learn how to operate your outboard properly. Always contact your dealer if you have any questions.

Using and attending the engine properly will preserve its qualities for a long operating life. Follow the instructions in this manual on operating this engine and carry out inspections as described on a regular basis.

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SAFETY INFORMATION

Safety and operating information that is practiced, along with good common sense, can help prevent personal injury and product damage.

Symbols and signs



DANGER

This indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

This indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

This indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE! Important information

Rotating parts



DANGER

Rotating parts can cause cuts, mutilation or strangulation.

Hands, feet, hair, jewelry, clothing, PFD-straps, etc. can become entangled with internal rotating parts of the engine or exposed moving parts.

Do not remove or replace the top cover with the engine running.

Hot parts



DANGER

During and after operation, engine parts could be hot enough to cause burns. Do not touch any parts under the top cover until the engine has cooled off.

Electric parts



DANGER

Do not touch any electrical parts while starting the engine. They can cause shock or electrocution.

Engine shut-off switch and cord



DANGER

The purpose of a lanyard stop switch is to stop the engine when the operator moves far enough away from the operator's position to activate the switch.

Attach the engine shut-off cord so that the engine stops if the operator falls overboard or leaves the helm.

When activating the engine shut-off switch the engine will stop immediately, but the boat will continue to coast for some distance depending on velocity and degree of any turn at shut down.

Engine exhaust emissions



WARNING

Inhaling engine exhaust gases can result in carbon monoxide poisoning, which can lead to unconsciousness, brain damages, or death. Avoid exposure to carbon monoxide gas.

Stay clear from exhaust areas when the engine is running. Keep the boat well ventilated.

MODIFICATIONS



WARNING

Do not attempt to modify the outboard. Modifications may reduce safety and reliability, and render the outboard unsafe or illegal to use.

Accessories

Genuine OXE Marine parts and accessories have been specifically designed and tested for OXE outboards.

Some accessories, not manufactured or sold by OXE Marine, may not be designed to be safely used with OXE outboards or OXE outboard operating system. Acquire and read the Installation, Operation, Maintenance and Accessories manuals for all selected accessories.

SAFE BOATING

Boater's responsibilities

It is always the operator (driver) that is responsible for the correct and safe operation of the boat and the safety of its occupants and general public. We strongly recommended that each operator reads and understands the entire manual before operating the outboard.

Be sure that at least one additional person onboard is instructed in the basics of starting and operating the outboard and boat handling in case the driver is unable to operate the boat.

Boat horse power capacity


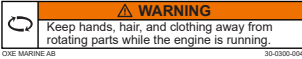
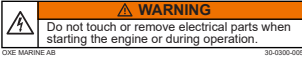
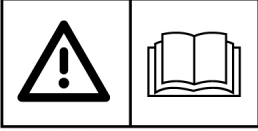
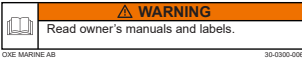
Exceeding the boat's maximum power rating can cause serious injury or death. Any overpowering of the boat can affect boat control and flotation characteristics or break the transom.

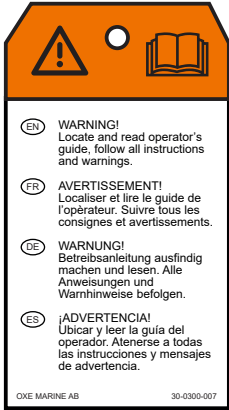
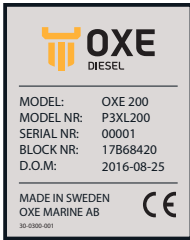
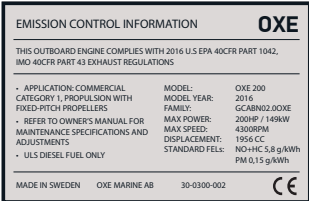
Do not install an outboard that exceeds the boat's maximum power and weight rating.

Boat performance capacity

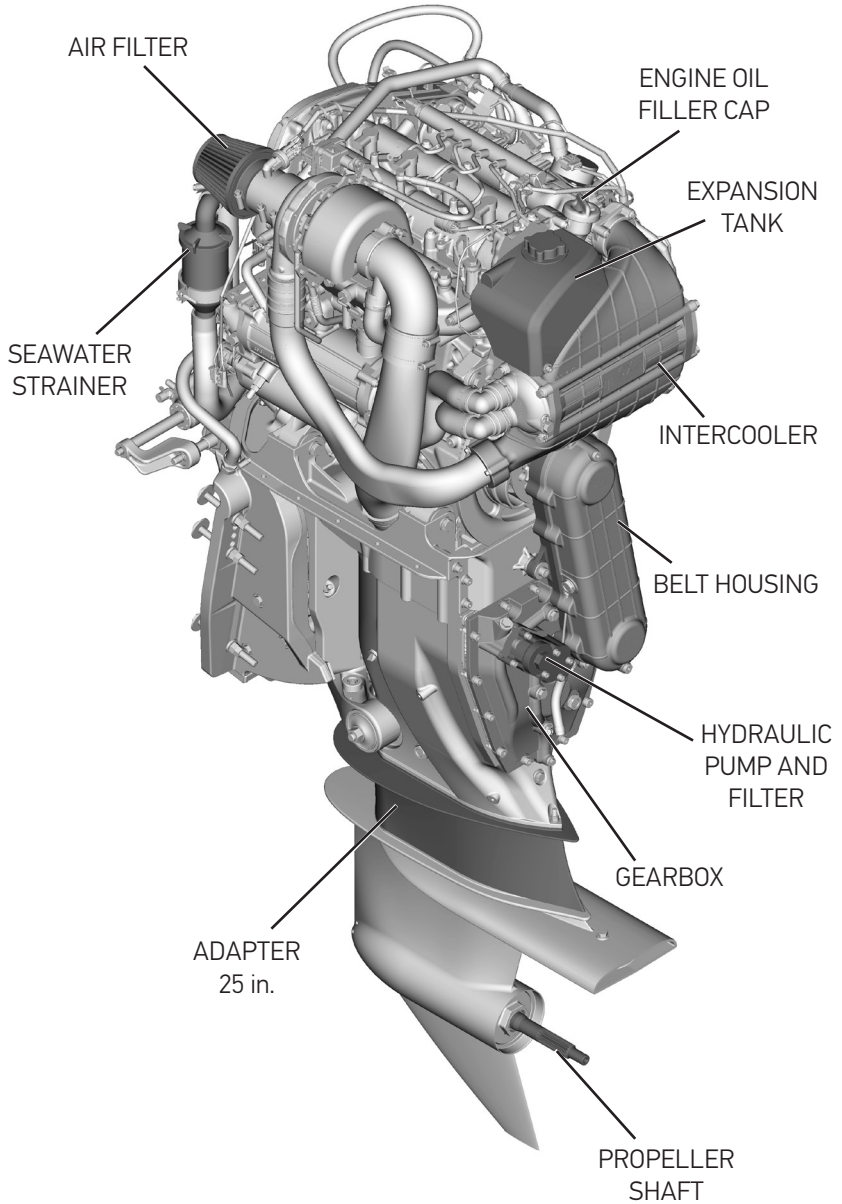
Do not overpower or overload your boat. Most boats will carry a required capacity plate indicating the maximum acceptable power and load as determined by the manufacturer. If in doubt, contact your dealer or the boat manufacturer.

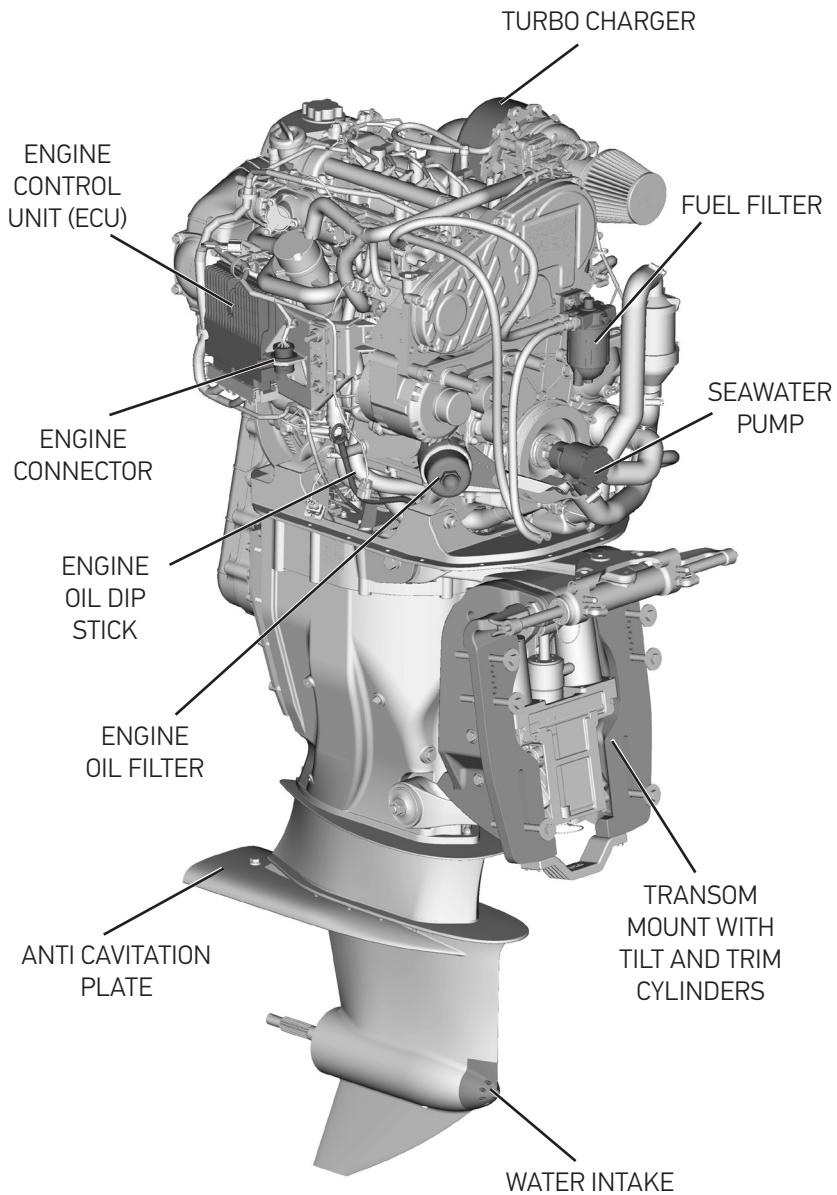
WARNING AND INFORMATION LABELS

Label	Information	Location
<p>Heat warning label</p>  <p style="text-align: center; font-size: small;">30-0300-003</p>	<p>Warning for hot surfaces, which could result in burns.</p>	<ol style="list-style-type: none"> 1. Placed on the turbo pressure pipe. 2. Placed on the lower part of the intercooler, near the primary belt housing.
<p>Rotation warning label</p>  <p style="font-size: x-small; margin-top: 0;">OXE MARINE AB 30-0300-004</p>	<p>Warning for rotating parts.</p>	<ol style="list-style-type: none"> 1. Placed on the lower timing belt cover, on engine front. 2. Placed next to the upper belt housing.
<p>Electrical warning label</p>  <p style="font-size: x-small; margin-top: 0;">OXE MARINE AB 30-0300-002</p>	<p>Warning for electrical hazards.</p>	<p>Placed on the ECU-bracket.</p>
<p>Read manual label 1</p>  <p style="font-size: x-small; margin-top: 0;">OXE MARINE AB 30-0300-009</p>	<p>A reminder of the importance to read manuals prior to the initial use of equipment or machinery. The manual contains information needed for proper operation, maintenance and care.</p>	<p>Placed on the upper cowling, next to the trim and tilt button.</p>
<p>Read manual label 2</p>  <p style="font-size: x-small; margin-top: 0;">OXE MARINE AB 30-0300-006</p>		<p>Placed on top of the timing belt cover.</p>

Label	Information	Location
<p>Read manual label 3</p> 	<p>A reminder of the importance to read manuals prior to the initial use of equipment or machinery. The manual contains information needed for proper operation, maintenance and care.</p>	<p>Hanging underneath the cowl, near the engine connector.</p>
<p>Identification label</p> 		<ol style="list-style-type: none"> 1. Placed on the starboard side of the engine, just below the middle cowling. 2. Placed on page 2 in the Service Book.
<p>Emission label</p> 		<p>Placed on the timig belt cover of the engine's block.</p>

MAIN COMPONENTS



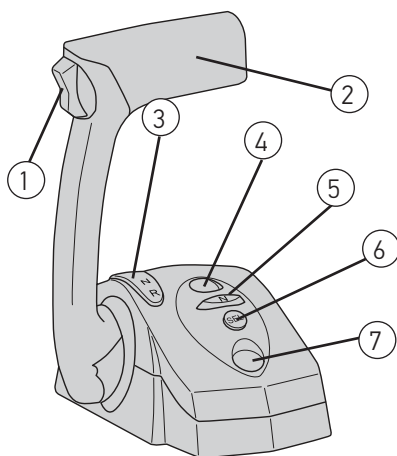


INSTRUMENTATION

For instruments and gauges, refer to corresponding **Display manual**.

CONTROL HEAD

The control head engages both gear shifting and acceleration. Depending on single installation or multi installation of outboards, the boat is equipped with a single or twin shift control head. This description comprises a single shift control head only. Also refer to **Single Control Head Manual** or **Twin Control Head Manual**.



1. Engine trim control
2. Control lever
3. Lever position indicator
4. Control lamp
5. Neutral button
6. SEL button
7. Indicator lamp

CONTROL HEAD OPERATION



WARNING

Be very cautious when first engaging the gears to establish that **FORWARD** is truly forward and **REVERSE** is truly reverse. A quick in-and-out of the gear test is recommended. Ensure that the boat is clear of all obstacles around the boat before conducting this test.

Control lamp

The control lamp (4) has a steady light indicating that the control head is active.



WARNING

A fast flashing light indicates a non-critical fault which may cause the boat speed to be reduced. The system will continue to operate.

Indicator dimming feature

When the control head is active, pressing the **SEL** button (6) repeatedly will cycle through the available indicator brightness levels.

Neutral indicator lamp

The neutral indicator lamp (7) has four states:

- Fast flashing in combination with lamp (4) indicates a critical fault which may result in limited or no system performance.

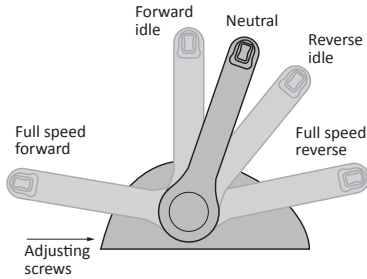


DANGER

Call for assistance, use another controlling device in an emergency.

- Steady light: engine is in neutral
- Slow flashing (0.5 s on, 0.5 s off): Neutral Throttle Warmup is engaged.
- Very slow flashing (1 s on, 1 s off): Trolling mode is engaged.

Control head range



Forward	idle to 100% of max engine rpm
Reverse	idle to 50% of max engine rpm
NTW	idle to 50% of max engine rpm
TM forward	idle to 20% of max engine speed
TM reverse	idle to 20% of max engine rpm
LSC forward	idle rpm
LSC reverse	idle rpm

Neutral Throttle Warmup

Neutral Throttle Warmup (NTW) allows to control the engine throttle without gear engagement, in order to warm up the engine at a higher rpm.

NOTE! Maximum rpm is limited to 2400 rpm.

A slow flashing neutral indicator lamp **(7)** shows that NTW is engaged.

Engaging NTW

Move the control lever **(2)** to the Neutral position. The neutral indicator lamp **(7)** will have a steady light.

Press the **N** button **(5)**. The neutral indicator lamp **(7)** flashes to indicate that NTW is engaged.

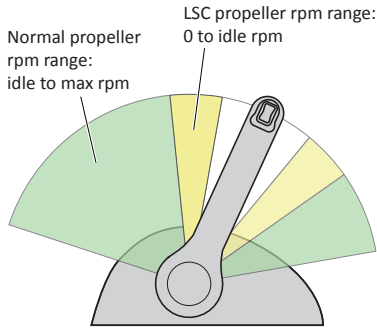
It is now possible to increase throttle and the engine will stay in neutral.

Disengaging Neutral Throttle Warmup

Return the lever **(2)** to the Neutral position.

Press the **N** button **(5)**. The lamp **(7)** will have a steady light. The engine and transmission will now respond normally to lever commands.

Low Speed Control

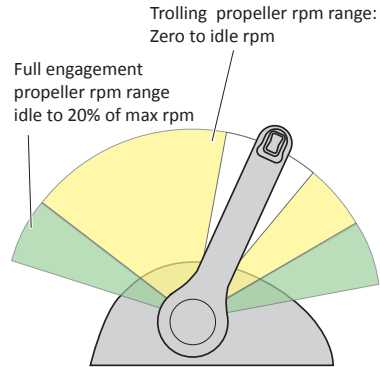


Low Speed Control (LSC) enables unprecedented control while mooring and low speed maneuvering. LSC incorporates an electro-hydraulically operated clutch that ensures smooth shifting between neutral, forward and reverse.

The sensor controlled propeller speed allows for seamless control from zero to maximum rpm. The boat is fully operable even below 3-4 knots.

Trolling Mode

When engaging Trolling Mode (TM) the full throttle range represents 20% of normal throttle range. This enables a higher resolution of the throttle maneuvering thus giving the operator a more precise control in demanding situations.



A very slow flashing (one second on, one second off) neutral indicator lamp **(7)** indicates that TM is engaged.

Engaging Trolling Mode

Move the control lever **(2)** to forward idle or reverse idle positions.

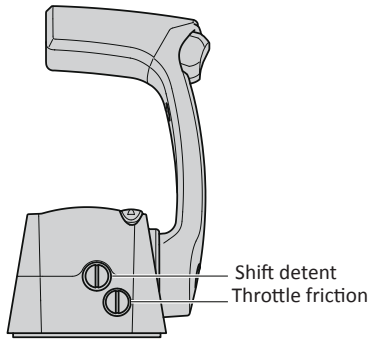
Press the **N** button **(5)**. The lamp **(7)** will flash slowly to indicate that TM is engaged.

Disengaging Trolling Mode

Move the control lever **(2)** to forward idle or reverse idle position.

Press the **N** button **(5)**. The flashing lamp **(7)** will go out to indicate that TM is disengaged.

Adjustable lever feel



The friction drag on the lever and the force required to move in and out of the shift detents can be set according to operator preference.

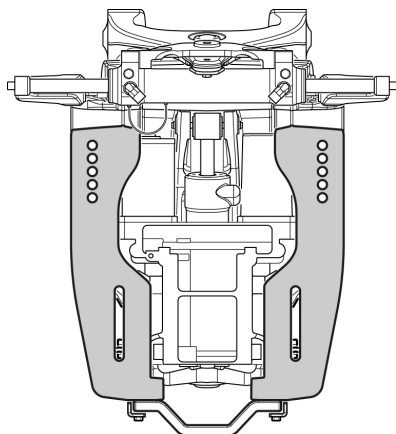
Turn the throttle friction screw clockwise to increase the friction on the lever, counter-clockwise to reduce the friction.

The shift detents are ment to prevent accidental gear engagement. Bear that in mind when you make adjustments. Turn the shift detent screw clockwise to increase, counter-clockwise to decrease force.

OUTBOARD INSTALLATION

The information presented in this section is intended as reference only. For more detailed information, refer to ***Installation Manual***.

Safe and proper mounting depends on experience and the specific boat and outboard combination. Therefore we strongly recommend that your local dealer install the outboard and related accessories to ensure proper installation and good performance.



Bolt pattern

WARNING

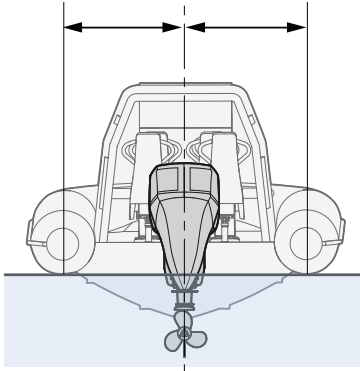
Exceeding the boat's maximum power rating can cause serious injury or death. Overpowering the boat can affect boat control and flotation characteristics or break the transom. Do not install an outboard that exceeds the boat's maximum power rating.

Improper mounting of the outboard can result in hazardous conditions such as poor handling or loss of control. Your dealer or other person experienced in proper rigging should mount the outboard.

Use mounting hardware to secure only the outboard to the boat. Do not use outboard mounting hardware to attach accessories.

MOUNTING THE OUTBOARD

The outboard should be mounted in such a way that the boat is well balanced. Otherwise it could be difficult to steer. Mount the outboard on the centerline (keel line) of the boat.

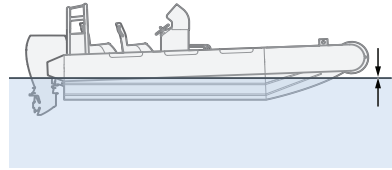


Mounting height

The mounting height of the outboard affects its efficiency and reliability. A mounting that is too high might lead to propeller ventilation, which will reduce propulsion due to excessive propeller slip. There is also a risk of overheating the outboard due to the water intakes of the cooling system may not get enough water supply.

If the outboard mounting is too low, the water resistance will increase and thereby reduce the efficiency and performance of the outboard. In general, the outboard should be mounted so that the anti-cavitation plate is in alignment with the bottom of the boat.

The optimum mounting height is determined by the boat/outboard combination in addition to the required use. Test runs at different heights can be of assistance when choosing the optimum mounting height. For further information, please contact the manufacturer.



CAUTION

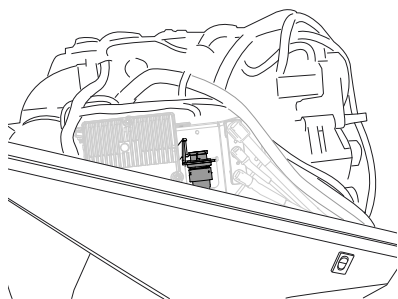
Check the carrying capacity of the boat, at rest and with maximum load, during water testing.

Check that the static water level on the outboard rig is low enough to prevent water from entering the powerhead when water rising due to waves when the outboard is not running.

Incorrect engine height can create air born water spray while the boat is cruising. If the outboard is operated continuously in the presence of airborne water spray, enough water could enter the engine through the intake opening on the cowling and cause severe engine damage.

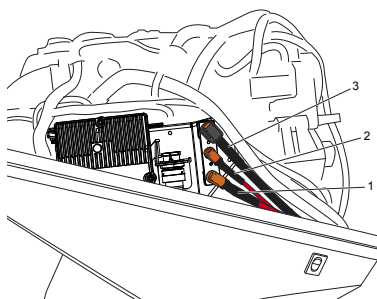
Eliminate the cause of airborne water spray.

Engine connector



Connect the helm harness to the engine harness. Refer to ***Installation Manual***.

Connecting the battery



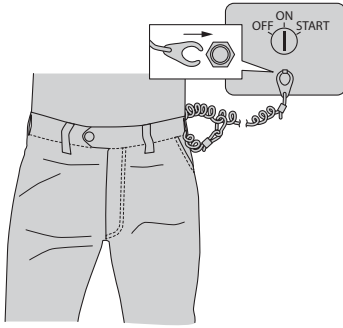
CAUTION

Make sure the main switch is OFF before working on the battery connections.

1. Connect the largest cable, black, (black connector) **(1)** to the upper end pin connector. Make sure it "clicks"!
2. Connect the smaller red cable (red connector) **(2)** to the center pin connector. Make sure it "clicks"!
3. Connect the larger red cable (red connector) **(3)** to the lower end pin connector. Make sure it "clicks"!

Also read the ***Installation Manual***, section ***Power cable Installation Process*** to learn more details about connecting power to the outboard.

Engine kill-cord



One clip must be attached to the engine shut-off switch, the other to a secure place on the operator's floating device or wrist. If the operator falls overboard or moves far enough away from the operator's position the -kill cord will stop the engine, thereby prevent the boat from running away under power.

BREAKING IN THE ENGINE

The OXE Diesel outboard, as well as all new engines, needs a period of breaking in. This is to allow mating surfaces of moving parts to wear in evenly. Correct break-in will help to ensure proper performance and a prolonged engine life. Most diesel engines notice an increase in performance and reduction in fuel consumption after 150 hours of breaking in time.



CAUTION

Failure in following the break-in procedure can result in severe engine damage or reduced engine life.

NOTE! Run the outboard in water and in gear with a propeller installed as follows.

Break in procedure

The OXE Diesel outboard needs break-in time before being operating to its full potential. This is due to the design characteristics of the unit.

Follow the recommendations below:

0-5hrs: Use varied load and rpm but do not load the engine above 50% throttle and keep maximum rpm below 2500. Do not stay at one load and rpm configuration for more than 30 minutes at a time.

The gear should be shifted a minimum of ten (10) times during the first five (5) hours

5-10hrs: Use varied load and rpm but do not load the engine above 60% throttle and keep maximum rpm below 2850. Do not stay at one load and rpm configuration for more than 30 minutes at a time.

The gear should be shifted a minimum of ten (10) times during the additional five (5) hours.

10-30hrs: Use varied load and rpm but do not load the engine above 80% throttle and keep maximum rpm below 3000. Do not stay at one load and rpm configuration for more than 30 minutes at a time.

The gear should be shifted a minimum of twenty (20) times during the additional twenty (20) hours

30-50hrs: Use varied load and rpm, the engine can be used up to 100% throttle and full rpm. Do not stay at one load and rpm configuration for more than 30 minutes at a time.

The gear should be shifted a minimum of twenty (20) times during the additional twenty (20) hours

Do an oil and filter change according to ***Maintenance schedule, Maintenance after 50 h.***

Use oil and filter as specified in the Engine Technical Manual.

NOTE! When the initial oil change is done, small metal particles may be found in the break-in oil. Do not be alarmed. This is typical during break-in and will decrease as you run the outboard.

OPERATING

BEFORE START-UP



WARNING

Risk of accidents! Items in the pre-operation checks not working properly, should always be inspected and repaired before operating the outboard.

Checking the fuel level

- Check the fuel level. Fill up if necessary.
- Ensure that there are no fuel leaks or fumes.
- Check the fuel line connections to ensure they are tight.
- Check the water in the fuel filter. Drain off the water if necessary.

Filling fuel

1. Remove the fuel tank cap.
2. Carefully fill the fuel tank with diesel.
3. Securely close the cap after filling the tank. Wipe up any spilled fuel.

NOTE! If necessary, refer to ***Evacuating air from fuel system.***

Controls

- Check the throttle, shift, and steering for proper operation before starting the engine.
- The controls should work smoothly, without binding or unusual free play.
- Look for loose or damaged connections.
- Check that the main cable and the connector are in good condition.
- Check that the gear is in neutral.

Outboard

- Check the outboard and the outboard mounting.
- Check for loose or damaged fasteners.
- Check the propeller blades for damage.
- Check that the battery cables and connections are in good condition.
- Check fitting of the top cowling.

NOTE! Check the water surrounding the boat for leakage of engine or hydraulic oil!!

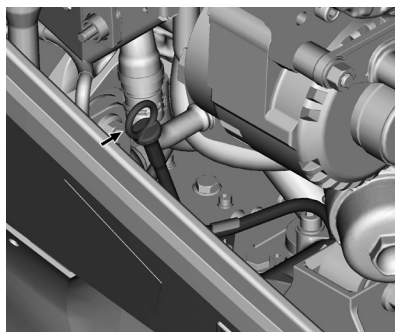
Check engine oil, hydraulic oil and belt oils



CAUTION

Ensure that the outboard is in vertical position when checking engine oil level, gear oil level and upper and lower belt oil level.

Check engine oil



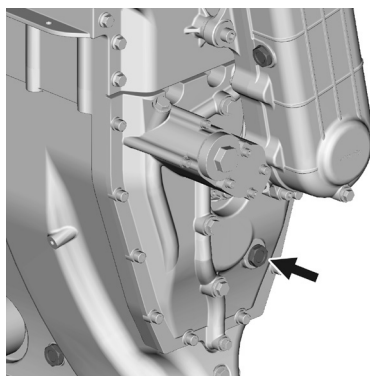
1. Remove the engine oil dipstick and wipe it clean.
2. Completely insert the dipstick and remove it again.

NOTE! Be sure to completely insert the dipstick into the dipstick guide.

3. Check that the engine oil level is between the upper and the lower mark on the dipstick. If below the lower mark, fill up with engine oil.

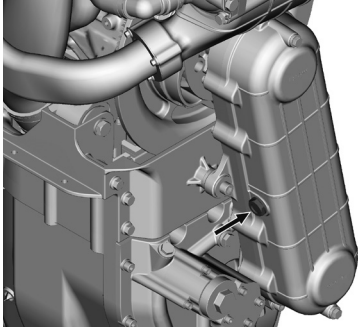
4. Wait a few minutes until the oil has run down. If oil level is above dipstick upper mark drain appropriate amount of oil. Excess oil level can cause reduced performance and oil leakage.
5. Check for oil leaks.

Check hydraulic oil



1. Visually check oil quality. If the oil looks milky and foamy, water has entered the housing. Check for leakage and replace the oil.
2. Check that the oil is in level with the sightglass.
3. Fill up if necessary.

Check upper belt oil quality

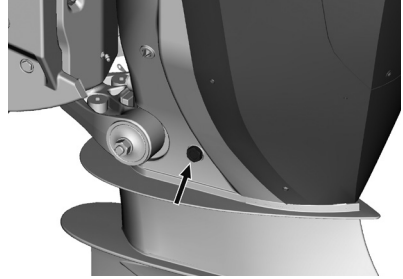


1. Visually check oil quality.
NOTE! The oil can be purple or blue in color due to pigmentation from the belt.

If the oil looks milky and foamy, water has entered the housing.

Please contact your local OXE-dealer or OXE-servicecenter immediately.

Check lower belt oil quality

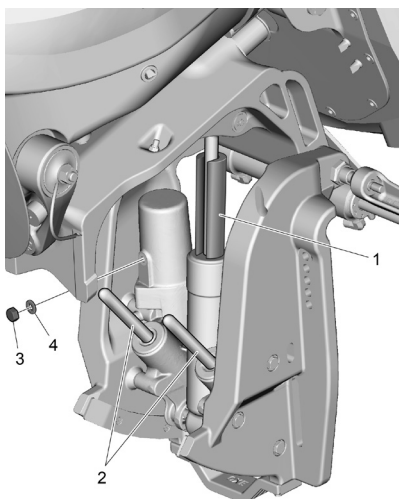


1. Visually check oil quality.
NOTE! The oil can be purple or blue in color due to pigmentation from the belt.

If the oil looks milky and foamy, water has entered the lower housing.

Please contact your local OXE-dealer or OXE-servicecenter immediately.

Check fluid level in power trim and tilt unit



1. Tilt up the outboard completely and support the tilt cylinder with a transom saver **(1)**.

WARNING

Make sure to support the outboard with the transom tilt saver. Otherwise the outboard can fall down accidentally if the power tilt and trim unit loses pressure.

WARNING

Ensure that the trim and tilt rods **(2)** are fully extended when the plug is removed. Otherwise the fluid can spray from the reservoir due to internal pressure.

2. Remove the filling plug **(3)** and seal **(4)**. Check the fluid level in the reservoir.

NOTE! If the fluid is correctly levelled, only a small amount of fluid should come out of the filling hole when the plug is removed.

3. If necessary, fill up with fluid of recommended type until it comes out of the filling hole.

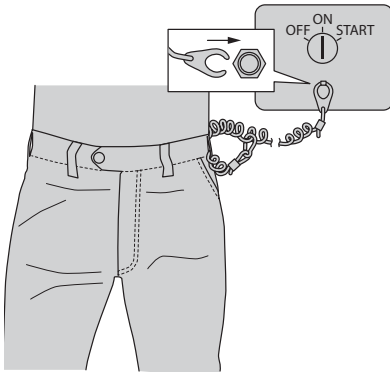
STARTING THE OUTBOARD

WARNING

Before starting the engine, make sure that the boat is tightly moored and that you can steer clear of any obstructions. Be sure that there are no obstacles in the water near the boat.

Prestart checks

- Check that the engine ignition switch stops the engine.
- Confirm that removing the clip from the engine shut-off switch stops the engine.
- Confirm that the engine cannot be started with the clip removed from the engine ignition switch.



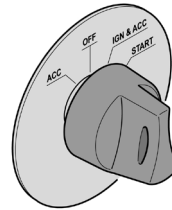
1. Attach the engine kill-cord to your clothes/floating device or your wrist. Then install the other clip on the engine ignition switch.

WARNING

Attach the engine kill-cord in a secure way to your clothes/floating device or wrist while operating the boat.

Prevent the kill-cord from entangling with nearby objects and do not attach the cord to clothing that could tear loose.

Avoid accidental or unintended activation of the ignition switch. Unexpected loss of forward motion can cause people and obstacles being thrown forward. Loss of power also leads to poor directional control.



2. Turn the ignition key to **IGN&ACC**.
3. Turn the key to **START** and hold it there for a maximum of 5 seconds. In cold weather, below +10 Celsius degrees, let the ignition be on for 5 seconds before turning to start.
4. Immediately after the engine starts, release the key in order to return to the **IGN&ACC** position.

CAUTION

Never turn the ignition key to start while the engine is running.

Do not let the starter turn for more than 5 seconds. If the starter is turned continuously for more than 5 seconds, the battery may be discharged and the engine will not start again. There is also a risk of damaging the starter.

If the engine does not start after 5 seconds of cranking, return the key to ON and wait for 10 seconds before cranking the engine again.

Ensure there is a new battery fitted before starting. If the engine does not start, ensure there is enough voltage in the battery. Voltage should not drop below 10V when cranking.

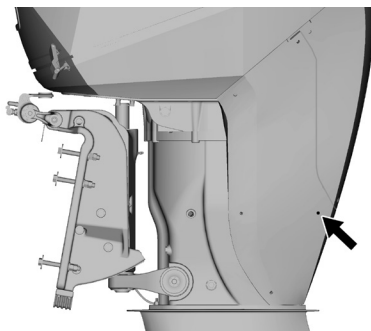
Warming up the engine

1. Allow the engine to idle for 3 minutes to warm up, otherwise there is a risk of shortening the engines life.
2. Ensure that no oil-pressure warning is lit on the engine display after the engine has started.
3. Check for a steady flow of water from the tell-tale. If not, **see step 4-6**, next page.

WARNING

Stop the engine immediately if an oil-pressure warning is lit on the engine display and the buzzer sounds. Risk for severe engine damage! Check the oil level and fill up if necessary. If no cause for the low oil pressure warning can be found, contact your dealer or the manufacturer.

When the engine is running, a continuous flow of water from the tell-tale shows that the sea-water pump is pumping water through the cooling passages. Stop the engine immediately if no water is flowing from the tell-tale. Risk for overheating or serious damage to the engine!



Tell-tale

NOTE! It takes approx 10 sec after start for the water to flow from the tell-tale.

4. Check if the sea-water inlet or outlet is blocked. Clean if necessary.
5. Restart the engine.
If the fault still remains may indicate a water pump failure or a blockage in the cooling system.
6. Check the sea water pump impeller and change if broken or worn. This may cause the engine to overheat.

NOTE! If the impeller in the water pump is damaged due to running without water, the impeller has to be replaced.

 **WARNING**

If the failure remains, have the outboard checked by an authorized technician. Operating the engine while overheated will cause engine damage.

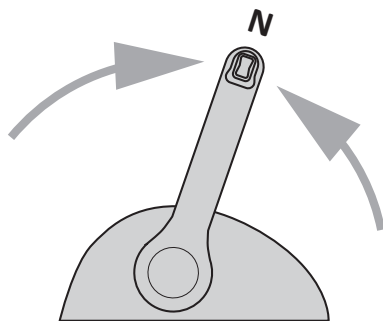
Shifting

 **WARNING**

Before shifting, make sure that there are no obstacles near the boat.

 **CAUTION**

Warm up the engine before shifting gear.



4. Place control lever in **N** (neutral) in order to activate shifting and traction. Refer to corresponding **Control Head Manual**.

Stopping the engine

Let the engine cool off for a few minutes at idle or low speed before stopping the engine. Stopping the engine immediately after operating at high speed is not recommended.

1. Turn the key to **OFF**.
2. Remove the key if leaving the boat unattended.

NOTE! The engine can also be stopped by pulling the cord and removing the clip from the engine shut-off switch, then turning the ignition key to off-position.

POWER TRIM OPERATION

The OXE Diesel outboard is equipped with a hydraulic trim system, with which you can change the angle of the drive in relation to the transom. The trim angle of the outboard is part of the determination of the boat's bow position. A correct trim angle improves fuel economy and reduce engine strain. The trim angle depends on a combination of boat, engine, and propeller.

The trim angle is also affected by other variables such as the load in the boat, sea conditions, and running speed.

With most boats, operating around the middle of the trim range will give satisfactory results. In order to take full advantage of the trimming capability there maybe times when you choose to trim the outboard all the way in (down) or out (up).



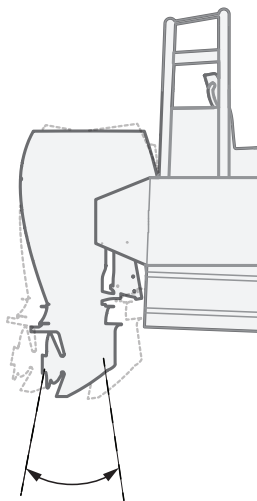
DANGER

Avoid over-trimming (trim-up or trim-down) the drive system as this can affect the steering of the boat severely.

Each boat has its own unique characteristics and will be affected in different ways by the factors involved, only general advice is given here on how to get the best trimming angle for your boat.

Get to know the power trim, make test runs at slower speeds and at various trim positions to see

the effect of trimming. Note the time it takes for the boat to plane, watch the speed readings and the ride action of the boat.



Trim operating angle



CAUTION

If the boat begins to feel unstable or is harder to steer, slow down and /or readjust the trim angle.

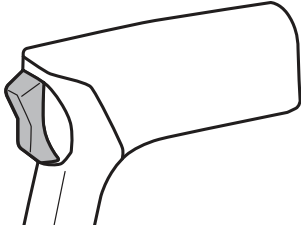
Adjusting the trim angle



WARNING

Make sure that the boat's occupants are clear of the outboard when adjusting the trim angle. Body parts can be crushed between the outboard and the clamp bracket when the motor is trimmed or tilted.

Adjust the outboard trim angle using the power trim and tilt switch.

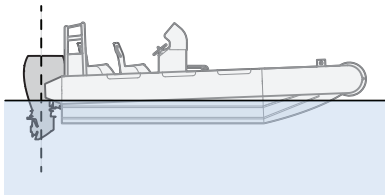


Power trim and tilt switch on single lever

- To raise the bow (trim-out), press the switch **UP** (up).
- To lower the bow (trim-in), press the switch **DN** (down).

Make test runs with the trim set in different angles. When the boat feels well-balanced, easy to steer and pleasant to operate, then the optimal trim angle for the boat is achieved.

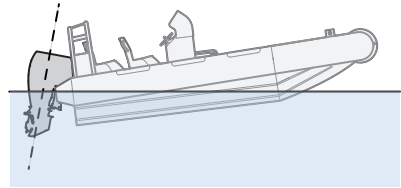
Adjusting the boat trim



A bow-up attitude results in less drag, greater stability and efficiency when the boat is on plane. With the bow up, the boat can have a tendency to steer to one side or the other, requiring compensational steering adjustments. To help

offset this effect, the trim tab can be adjusted. It is easier to accelerate from a standing start onto plane when the bow of the boat is down.

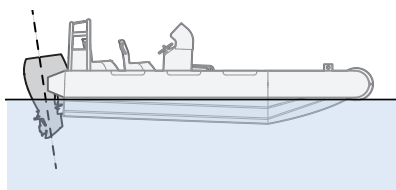
Bow up



Too much trim-out or up can:

- Lift the bow higher out of the water.
- Generally increase top speed.
- Increase clearance over submerged objects or a shallow bottom.
- In excess, can cause boat porpoising (bouncing) or propeller ventilation.
- Cause engine overheating if any cooling water intake are above the waterline.

Bow down



Too much trim-in or down can:

- Lower the bow.
- Result in quicker planing off, especially with a heavy load or a stern heavy boat.
- In excess, can lower the bow of some boats to a point where they begin to plow with their bow in the water while on plane. This can result in an unexpected turn in either direction (called bow steering or oversteering) if any turn is attempted, or if a significant wave is encountered.

NOTE! Depending on type of boat, the outboard trim angle might have little effect on the trim of the boat during operation.

POWER TILT OPERATION

If the outboard is shut off for a longer period or if the boat is moored in shallow water, the outboard should be tilted up. This is to protect the propeller and lower housing from damage by collision with obstructions, and also to reduce salt corrosion.

WARNING

Make sure that the boat's occupants are clear of the outboard when adjusting the tilt angle. Body parts can be crushed between the outboard and the clamp bracket when the outboard is trimmed or tilted.

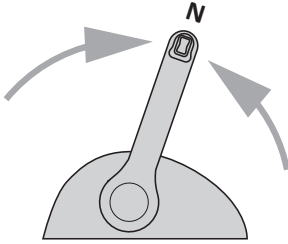
CAUTION

Never tilt the outboard while the engine is running. This could result in severe engine and PTT-unit damage.

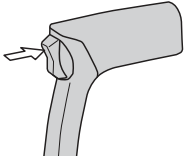
CAUTION

Make sure all the water intake holes stay submerged at all times. Risk for severe damage from overheating!

Procedure for tilting up

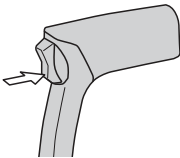


1. Place the control head lever in neutral position.



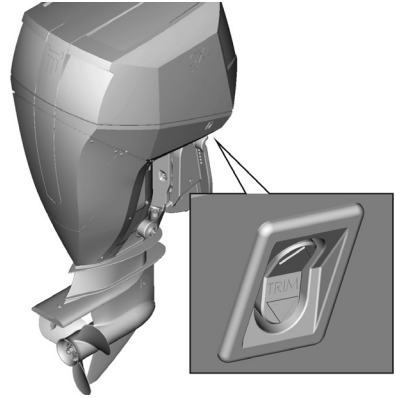
2. Press the power trim and tilt switch **UP** until the outboard has tilted up completely.

Procedure for tilting down



1. With the control head lever in neutral position, press the power trim and tilt switch **DN** to lower the outboard to the desired position.

Power trim and tilt switch on engine cowling



Trim and tilt switch on cowling

The power trim and tilt switch is located on the starboard side of the bottom engine cowling. Pressing the switch up trims the outboard up to a certain position and then tilts it up. Pressing the switch down trims the outboard down and tilts it down to a certain position. When the switch is released the outboard will stop and stay in its current position.

WARNING

Only use the power trim and tilt switch located on the engine cowling when the boat is at complete stop with the engine shut off.

Attempting to use the switch while the boat is moving increase the risk of falling overboard, distracting operator or collision with other boats or obstacles.

MAINTENANCE

OUTBOARD CARE

It is important that your outboard receive the periodic inspections and maintenance listed in the ***Maintenance Schedule***, in order to keep the outboard in best condition.

NOTE! If periodic inspections and maintenance are not followed as described, the manufacturer's warranty coverage will not apply.

OWNERS RESPONSIBILITY

The owner is required to have routine engine maintenance performed to maintain emission levels within prescribed standards.

The owner is not to modify the engine in any manner that would alter the power output or allow emissions levels to exceed their predetermined factory specifications.

TRANSPORTING THE OUTBOARD



DANGER

Never get under the lowered outboard while it's tilted, even if a support bar is used. Severe injury could occur if the outboard accidentally falls down.

When transporting the the boat on a trailer, the outboard should be positioned in normal running position. If the road clearance is insufficient in this position, the outboard may be transported in tilt position using a support device such as a transom saver bar. Consult your dealer for further details.

Additional clearance may be required for railroad crossings, driveways and trailer bouncing. Refer to your local dealer for recommendations.



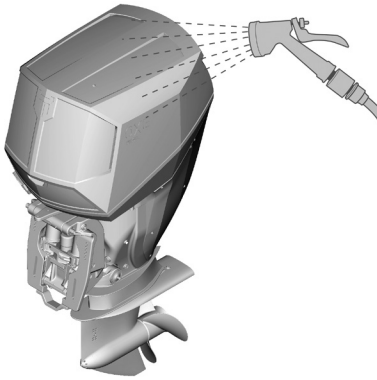
CAUTION

Do not rely on the power trim/tilt system to maintain proper ground clearance for transportation with a trailer. The power trim/tilt system is not intended to support the outboard under these conditions.

CLEANING THE OUTBOARD

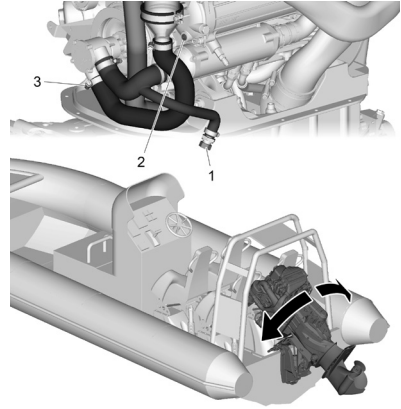
After operating in demanding conditions, flush the cooling seawater passages with fresh water to prevent them from becoming corroded or blocked by build-up of salt. **Refer to *Flushing the power unit*.**

We also strongly recommend to increase cleaning intervals of seawater strainer and water intake when operating in muddy or turbid water.



1. Flush the outside of the outboard with fresh water and, if possible, flush the power head under the cowling.

2. Drain the cooling seawater completely out of the engine.



3. Open connection **(1)** and place a container beneath.
4. Unscrew the plug on the side of the heat exchanger **(2)**.
5. Undo the hose on the seawater pump **(3)** and drain the seawater.
6. Tilt the outboard to a 45° angle to drain as much as possible of the seawater out of the system.
7. When in this position, steer the outboard fully to starboard and port. Repeat if necessary.

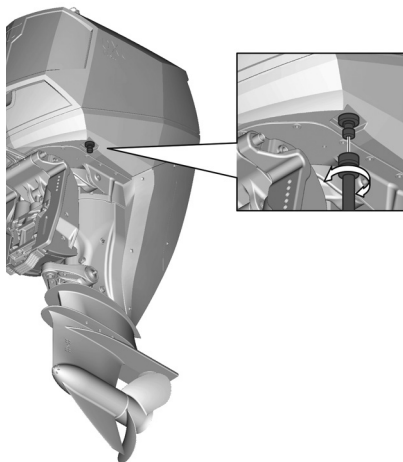
Flushing the power unit

Perform this procedure right after operation to achieve the best result.



WARNING

Do not perform this procedure while the engine is running. The water pump may be damaged and severe damage from overheating can result.



Bottom cowling water fitting

1. After shutting down the engine, unscrew the cap from the fitting on the bottom cowling.
2. Screw a garden hose adapter onto a garden hose, which is connected to a fresh water supply. Then connect it to the fitting on the bottom cowling.

3. With the engine off, turn on the water flush through the cooling passages for about 15 minutes. Turn off the water and disconnect the garden hose adapter from the garden hose connector.
4. Remove the adapter from the fitting on the bottom cowling. Replace the cap and tighten securely.



WARNING

Do not leave the garden hose connector on the bottom cowling fitting or let the hose hang free during normal operation. Water will leak out of the connector instead of cooling the engine, which can cause serious overheating. Replace the cap after flushing the engine.

NOTE! When flushing the engine with the boat in the water, tilting the outboard until it is completely out of the water will achieve better results.

STORING THE OUTBOARD

When storing your OXE Diesel outboard for a longer period of time (2 months or more), some important procedures must be performed in order to prevent excessive damage.

NOTE! We strongly recommend to have the outboard serviced and winterized by your authorised dealer before storing.



CAUTION

To prevent oil from the sump entering a cylinder, keep the outboard in upright position when transporting and during storage. Do not store or transport the outboard on its side.

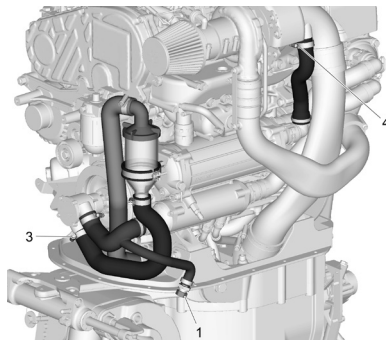
To prevent freezing damage, the seawater system must be drained and the freshwater system coolant must have sufficient antifreeze protection, see **Check coolant level and mixture**. Also refer to **Workshop Manual**.

To prevent any damage such as corrosion build-up, which could lead to permanent engine failure. It is required to apply fogging oil (engine conservation oil) in the tail-pipe of the turbo charger to prevent the vanes inside the turbo charger from sticking.

Store the outboard in a dry, well ventilated place. Protect from sunlight.

Winterization of the outboard

When storing an engine for a prolonged period of time or in sub-zero temperatures several important procedures should be performed to prevent engine issues.



1. Open connection **(1)** and place a container beneath.
2. Open the lower connection for the seawater on the belt housing and place a container beneath.
3. Remove all necessary engine components to get satisfactory access for applying fogging oil on the vanes inside the turbocharger by spraying through the turbine wings in a circular motion. After successfully applying the fogging oil on the vanes, in reverse order, assemble the engine components to the engine.

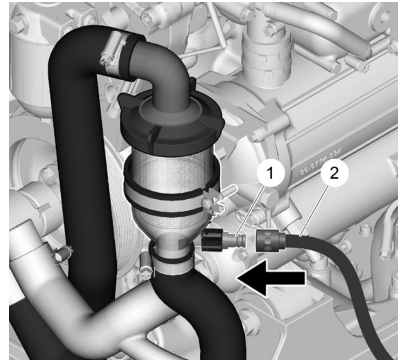
4. Open connection **(4)** and fill with coolant fluid of sufficient grade temperature-wise until it exits from connection **(1)**.
5. Undo the hose on the seawater pump **(3)** and drain the seawater.

An alternative solution is to run the outboard with the water-intake point in the front of the lower housing lowered into a coolant fluid mixture of sufficient grade.



Run the outboard until the entire sea-water part of the system is filled with coolant fluid and thus protected from freezing and corrosion.

Another alternative is to connect a rubber hose **(2)** to the seawater strainer connector **(1)**. Insert the other end of the hose into a container filled with cooling fluid mixture. Run the outboard until the entire sea-water part of the system is filled with coolant fluid and thus protected from freezing and corrosion.



CHECKING AND OTHER MAINTENANCE

Check air intake system

It is of great importance that the intake system is intact. Broken and leaking pipes can drastically shorten the life of the engine.

Check the system regularly.

- Check hoses for fissures and damage. Replace, if necessary.
- Ensure that all hose clips and clamps are tightened and fit easily.
- Check the air filter
- Check the filter insert for holes or cracks.
- Check for dampness.
- If damaged or otherwise blocked, replace the air filter.

Check air filter

- Check, replace if necessary, tubes and hoses if leaking.
- Check joints and clamps.
- Check exhaust manifold.
- Start the outboard and check for exhaust leaks.

Check engine for oil leakage

- Check seals and gaskets.
- Check engine oil filter

Check drive belts

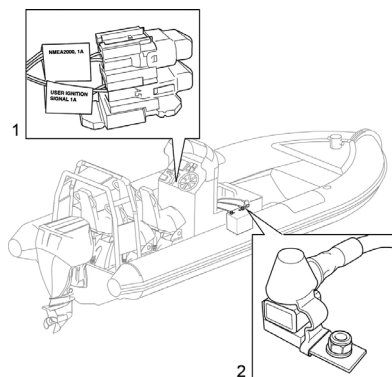
- Check alternator drive belt for wear or damage.
- Check function of alternator drive belt tensioner.

Check battery

- Remove corrosion from the battery connections and check that the cable connections are tightened.
- Lubricate the battery terminals with grease.

Check electric system

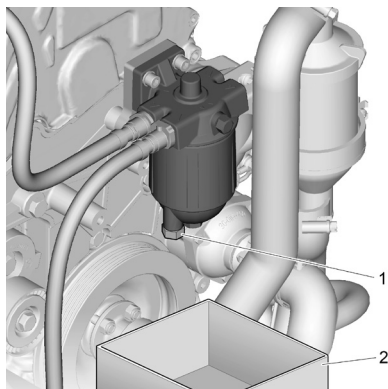
- Check connections on the outboard.
- Remove corrosion from access points, contacts and fuses. Lubricate with grease.
- Check fuses. Ensure spare fuses aboard.



1. a) **NMEA2000**, ATO 1A fuse, used only in **single engine application**. In multi-engine applications fused external supply must be used to the NMEA2000 bus (3A).
b) **User ignition signal**, ATO 1A, used only for ignition control of peripheral equipment externally powered.
2. Use a 100 A fuse on the power supply, control (thinner red cable).

NOTE! No fuse on the common power supply.

Check fuel system



Fuel filter and water separator



WARNING

Discard oil and fluids according to local environmental legislation.

- Check the fuel filter water separator. Drain if necessary, **refer to Drain the fuel filter.**
- Bleed the fuel system and check hoses and connectors for leakage.



WARNING

Turn off the engine immediately in case of leakage.

Evacuating air from fuel system

NOTE! In order for the diesel fuel system to work properly, the fuel lines must be full of fuel and contain no air. If air gets into the fuel lines, it will be necessary to evacuate the air from the system to eliminate the air before operating the outboard.

Air could have entered the system in any of the following ways:

- The engine ran out of fuel.
- The fuel lines have damaged/leaking joints.
- The filter was removed for service or replacement.
- The fuel lines were removed or disconnected for servicing.
- The fuel pump was removed for servicing.
- The fuel pre-filter water drain cock was opened while the engine was running.

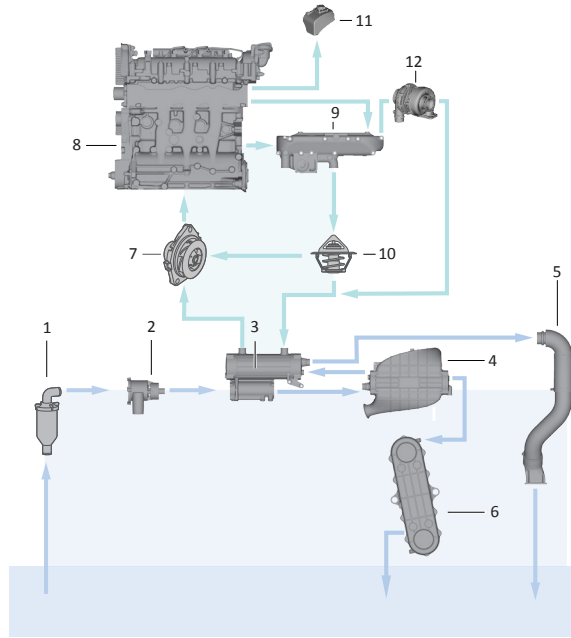
If one or more of the above occurred, air has entered the fuel system and you will need to evacuate the air from the system prior to operating the outboard.

1. Turn the ignition key **ON**. The fuel pump will run for 20 seconds.

NOTE! Do not turn the ignition key to **START**. This could damage the injection pump.

2. Repeat three times until the pump is filled with fuel and no more air is left.

Check cooling system

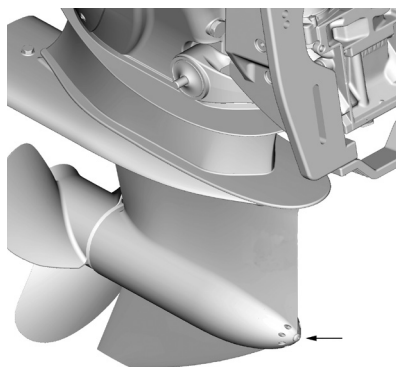


1. Seawater strainer
2. Seawater pump
3. Heat exchanger and hydraulic oil cooler
4. Intercooler
5. Exhaust pipe
6. Belt housing cooler
7. Engine water pump
8. Engine
9. Exhaust manifold
10. Thermostat
11. Expansion tank
12. Turbocharger

Check the system regularly.

- Check hoses for fissures and damage. Replace, if necessary.
- Check that the water intake is not blocked. Clean, if necessary.
- Check the seawater filter. Clean if necessary.
- Check coolant level and mixture. Fill up, if necessary.
- Check that the telltale is not blocked. Clean daily with a pipe cleaner or similar.
- Check hydraulic oil cooler water outlet for clogging. Clean with pipe cleaner or similar.

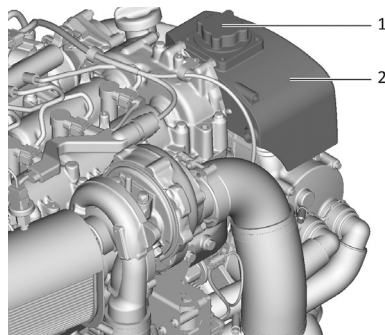
Check water intake



Water intake

Make sure that the sea water intakes are not clogged by seaweed or obstacles. Clean if necessary.

Check coolant level and mixture



Expansion tank

1. Check the cooling level, 4 cm below the filler neck edge. **(2)**.

The cooling system of the engine is to be filled with a mixture of distilled water and antifreeze based on ethylene glycol and/or anticorrosion additive, see **Recommended fluids and grease**.

Coolant must be added at the **filler cap (1) only**.

Do not add cold coolant to a warm engine.

NOTE! Ensure that the mixing ratio “water-antifreeze” is preserved.

Check power trim and tilt system

WARNING

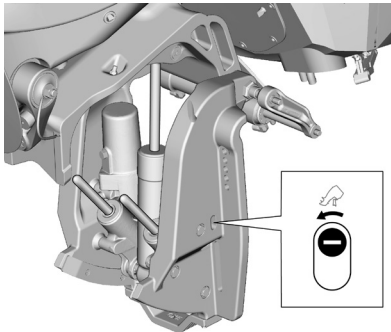
Never get under the lower unit while it is tilted. Risk for severe injury if the outboard accidentally falls!

Make sure no person is under the outboard before performing this test. Risk of crushing injuries between outboard and clamp bracket if the outboard is trimmed or tilted.

1. Check the power trim and tilt unit for any signs of oil leaks.
2. Operate each of the power trim and tilt switches on the remote control and lower cowling to check that all switches work.

NOTE! The ignition key must be in **IGN&ACC** position.

3. Tilt up the outboard and check that the tilt rod and trim rods are extended completely.



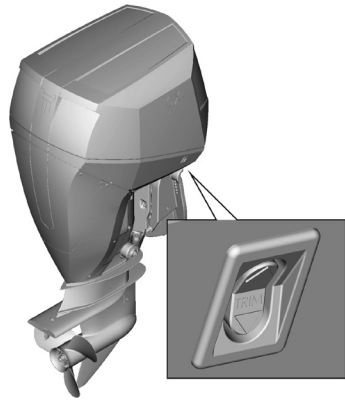
Tilt and trim rods, manual valve

4. Check that the tilt rod and trim rods are free from corrosion or other flaws.
5. Activate the tilt-down switch until the rods have retracted completely into the cylinders.

CAUTION!

The outboard can be belowered by carefully turning manual valve, should the electric system fail.

Ensure that the manual valve is tightened before starting the outboard.



Tilt and trim switch on cowling

6. Activate the trim-up switch until the tilt rod is fully extended.
7. Tilt the outboard down. Check that the tilt rod and trim rods operate smoothly.

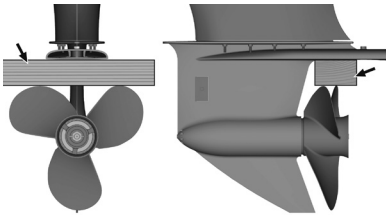
NOTE! Consult your dealer if any operation is abnormal.

Check propeller



WARNING

You could be seriously injured if the engine accidentally starts when you are near the propeller. Before inspecting, removing, or installing the propeller, place the shift control in neutral, turn the key to OFF and remove the key. Remove the clip from the engine shut-off switch. Disconnect the battery main switch.

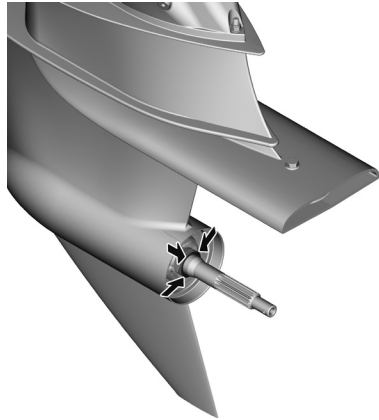


Loosen or tighten the propeller nut

Do not use your hand to hold the propeller when loosening or tightening the propeller nut. Put a wooden block between the anti-cavitation plate and the propeller to prevent the propeller from turning.

Propeller checkpoints

- Check each of the propeller blades for erosion or other damage.
- Check the propeller shaft for damage.
- Check the splines for wear or damage.
- Check for obstacles tangled around the propeller shaft.



Propeller shaft oil seals

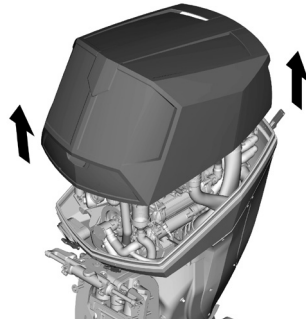
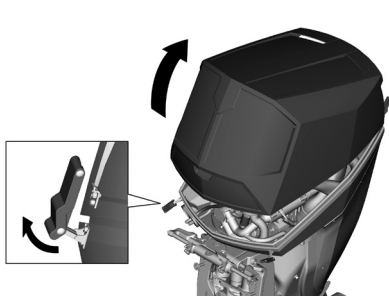
- Check the propeller shaft oil seals for leakage. Replace if necessary.

Check the top cowling



Make sure that the top cowling is securely closed and that there are no gaps. A loose or improperly fitted cover could allow water to enter the engine.

Check the fitting of the top cowling. Reinstall if the fit is not complete. Contact your dealer/manufacturer if it is still loose.

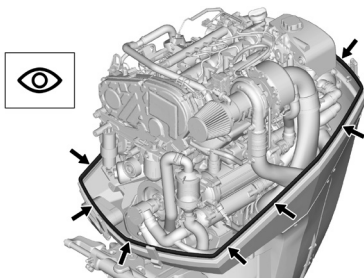


Check cowling sealing

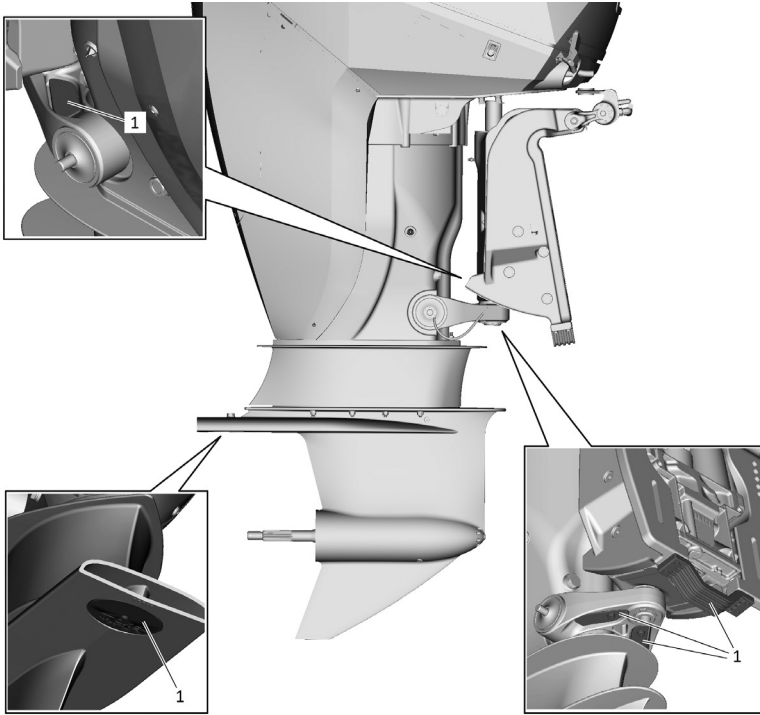
Check that the sealing is not dry, broken or worn, as this will allow water to enter the engine.

Check painted surfaces

Check the outboard for scratches, nicks, or flaking paint. Areas with damaged paint surfaces are more likely to corrode. Clean and paint the areas if necessary.



Inspect anodes



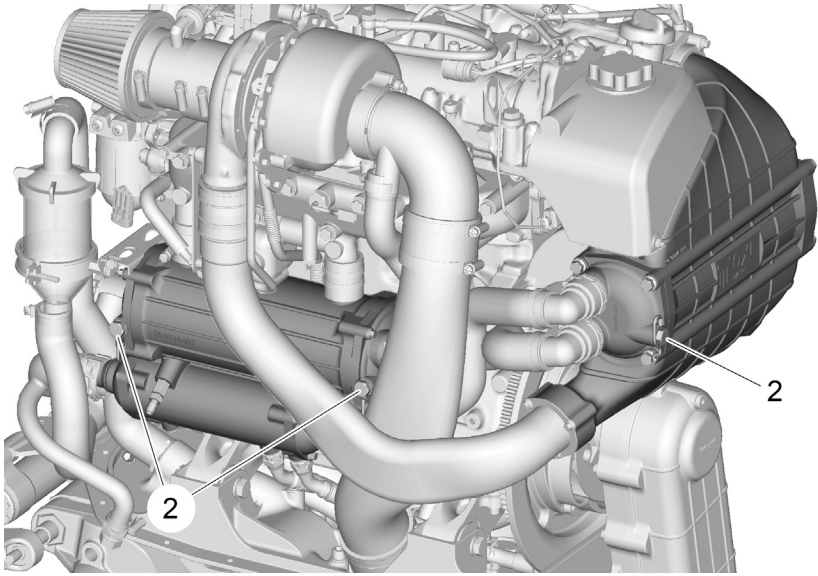
Anodes on the rig

The OXE Diesel outboard is protected from corrosion by sacrificial anodes. Inspect the external anodes **(1)** periodically and remove scale from the surface. Replace at service intervals or when anodes are reduced to 2/3 their original size.



CAUTION

Do not paint anodes as it would make them ineffective.



Anodes under the cowling

The heat exchanger and the intercooler are located under the cowling. Both units are equipped with sacrificial anodes to protect from corrosion.

Inspect the anodes **(2)** periodically and remove scale from the surface.

Replace at service intervals or when anodes are reduced to 2/3 of their original size.



CAUTION

Ensure that anodes and threads are clean before mounting.

CHANGE FLUIDS AND FILTERS

Prevention of environmental damage

Engine or hydraulic oil and filter elements / cartridges, fuel / fuel filter

Dispose of used oil according to local environmental legislation.

Take strict precautions to ensure that no oil or Diesel fuel contaminate soil or drainages.



CAUTION

Risk of contamination of drinking water.

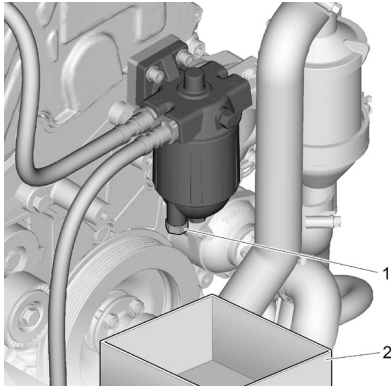
Filter elements are classed as dangerous waste and must be treated as such.

Coolant

Treat undiluted corrosion protection agents and / or antifreeze as hazardous waste.

When disposing of used coolant, the environmental legislation issued by the relevant local authorities must be adhered to.

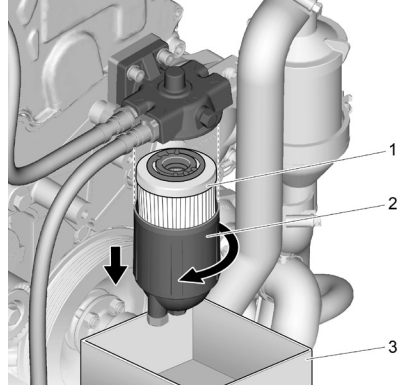
Drain the fuel filter



1. Apply a suitable container **(2)** in order to collect the fuel-water mixture that drains from the fuel filter.
2. Loosen the draining screw **(1)** and release the fuel-water mixture into the container. Tighten the draining screw **(1)**.

NOTE! Also drain the fuel prefilter in boat!

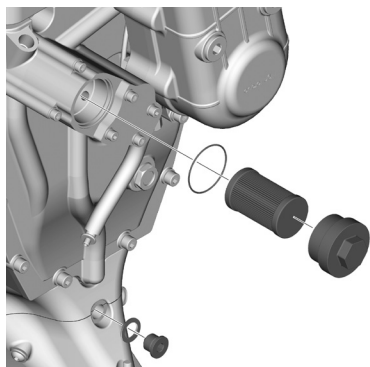
Replace fuel filter element



1. Apply a suitable container **(3)** in order to collect the fuel-water mixture that drains from the fuel filter.
2. Unscrew the fuel filter bowl **(2)**.
3. Remove the filter element **(1)**.
4. Insert a **new** filter element **(1)** and reinstall the fuel filter bowl. Tighten by hand.

NOTE! Also replace fuel prefilter element in boat!

Replace hydraulic oil and filter

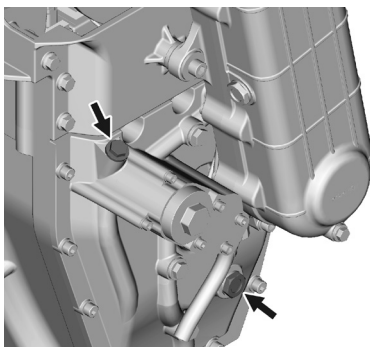


WARNING

The hydraulic oil filter is pressurised. Before removing it the pressure must be released.

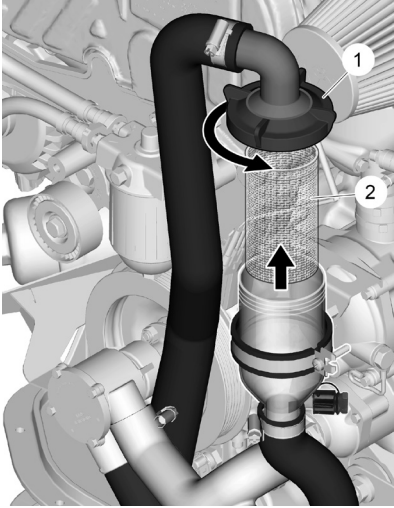
1. Turn the ignition ON and shift gear a couple of times from forward to backward.
2. Tilt the outboard in order to minimize any oil spill. Remove the oil plug and washer. Drain the oil into a suitable container.
3. Carefully clean the area around the hydraulic oil filter with pressurised air.
4. Remove the filter cap. Have a cloth nearby to collect the oil in the filter.
5. Install a **new** filter and reinstall the filter cap. Tightening torque **70 Nm (51.2 ft-lb)**.
6. Clean and reinstall the oil plug. Install a **new** gasket. Tightening torque **30 Nm (6.6 ft-lb)**.

Refill hydraulic oil



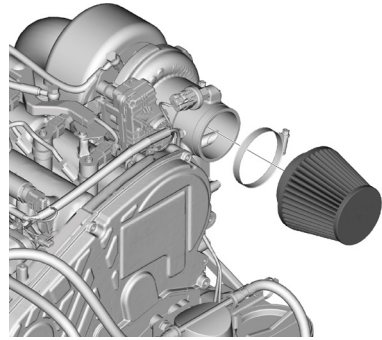
1. Unscrew the oil filling plug.
2. Use an oil filling device to fill up hydraulic oil through the oil filler pipe.
3. Wipe clean.
4. Check the hydraulic oil level through the sight glass.
5. Fill up if necessary.

Clean seawater strainer



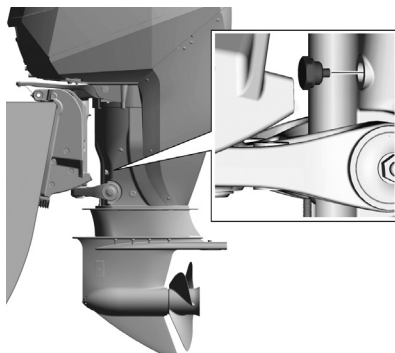
1. Remove the lid.
2. Pull out the strainer.
3. Clean the strainer, reinstall and close the strainer lid.

Replace air filter



1. Remove the clamp holding the filter.
2. Pull off the air filter.
3. Fit a new air filter.
4. Reinstall the clamp.

Change engine oil



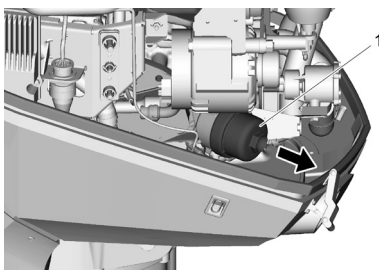
1. Remove the oil draining plug and washer.
2. Drain the engine oil into a suitable container.
3. Fit a **NEW** washer and tighten the oil draining plug to **9 Nm (6.6 ft-lb)**.

Replace engine oil filter

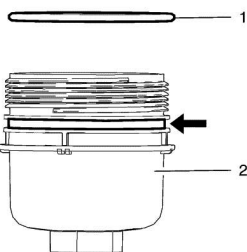
1. Place a suitable container below the oil filter.

NOTE! Use a 6-point socket to remove the oil filter cap.

2. Remove the oil filter cap (1).



3. Remove and discard the oil filter cartridge.
4. Remove the seal ring (1).

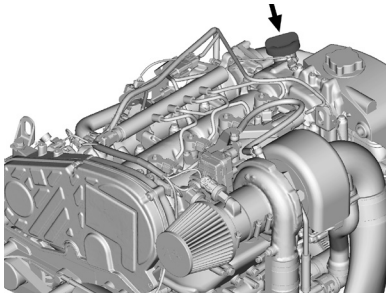


! CAUTION

Lubricant must be applied to the threads of the oil filter cap prior to installation. Failure to lubricate the oil filter cap threads can hinder later removal and cause possible oil filter cap damage.

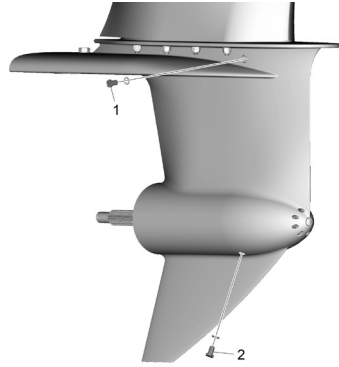
5. Install the **NEW** seal ring (1) with clean engine oil to the oil filter cap (2).

Filling up engine oil



1. Fill up the engine oil through the oil filler neck.
2. Check engine oil level. Refer to section **OPERATION**.
3. Close the filling cap and wipe clean.

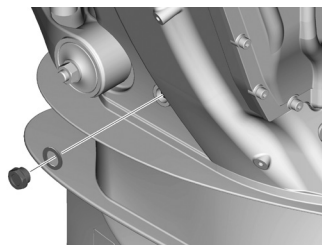
Change lower belt oil



1. Remove the magnetic plug and washer **(1)** above the anti-cavitation plate.
2. Remove the magnetic plug and washer **(2)** under the propeller shaft housing. Drain the oil into a suitable container.
3. Check drained oil quality: The oil should be red to dark red. If the oil looks milky and foamy, water has entered the lower housing. Check for leakage!

NOTE! Clean the magnetic oil plugs. Install **new** seals.

4. Reinstall and tighten oil plug **(2)** to **9 Nm (6.6 ft-lb)**.



5. Remove the sight glass and washer. Fill up with Hydraulic oil until the oil comes out at the upper oil plug **(1)**. Refer to **Recommended fluids and grease**.
6. Clean the sightglass. Install a **new** seal. Tighten to **16 Nm (11.8 ft-lb)**.

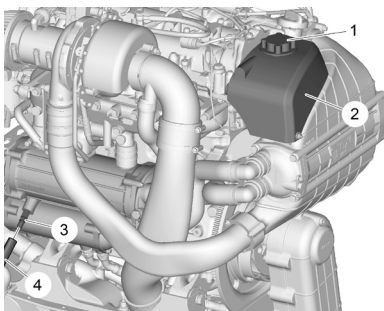


1. Alternatively, use an oil filling device and fill up the oil through the oil plug hole **(2)** until oil comes out at **oil plug hole (1)**.

NOTE! Clean the magnetic oil plugs. Install **new** seals.

2. Remove the filling hose and tighten oil plug **(2)** and **(1)** to **9 Nm (6.6 ft-lb)**.

Change coolant



1. Remove the cap **(1)** of the expansion tank **(2)**.
2. Fit a hose **(4)** to the coolant drain adapter **(3)**.
3. Drain the coolant/water mixture into a suitable container.
4. Remove the hose **(4)** from the drain adapter.
5. Fill up with coolant/water-mixture at the expansion tank cap up to 4 cm below filling neck. Refer to **Recommended fluids and grease**.

The cooling system of the engine is to be filled with a mixture of distilled water and antifreeze based on ethylene glycol and/or anticorrosion additive.



WARNING!

Use only approved fluids, lubricants etc. see **Recommended fluids and grease**. Otherwise the manufacturer's warranty will become null and void.

Coolant must be added at the **filler cap only**.

NOTE! Do not add cold coolant to a warm engine.

Ensure that the mixing ratio "water-antifreeze" is preserved.

6. Slowly fill up with coolant via filler neck on expansion tank until fluid level has reached just above the divider in expansion tank.
7. Let engine run at a speed of 2,000 rpm for approx. 15 min.
8. Switch off engine, carefully turn the cap to relieve pressure.



DANGER!

Do NOT open cap until pressure is released. Risk of scalding and burning injuries!

9. Top up to 4 cm below filling neck.
10. Before the next engine start-up (with the engine cold) check the coolant level and top up if necessary.

11. Repeat this procedure until no more coolant can be added.



DANGER!

If, in an exceptional case, the coolant level has to be checked in an engine that has reached operating temperature, first carefully turn the cap (large cap) with safety valve to the first stop, let off pressure, then open carefully.

NOTE! Do not open the cooling system when the engine is at operating temperature. This causes a pressure loss in the cooling system.

If the cooling system has been opened when the engine is at operating temperature this can lead to the alarm **pressure in the expansion tank** when the engine is then put into operation and to a reduction in the engine output.

Coolant pressure in the expansion tank is only built up again when the engine has cooled down.

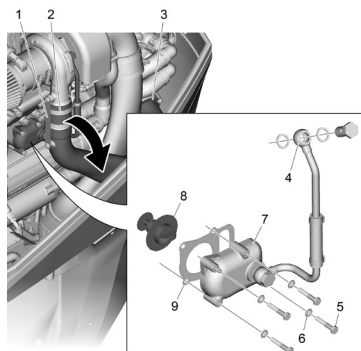
The cooling system must therefore only be filled up when the engine is cold.



WARNING!

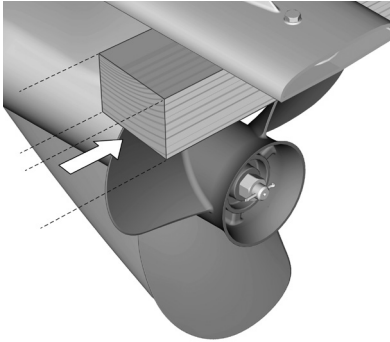
When the cover is opened with working valves, there is a danger that it is not properly sealed when closed again. The required overpressure is no longer set up in the cooling system. Premature simmering and loss of coolant result. To avoid damage to the engine, this cover should as a general rule only be opened in exceptional cases and then replaced by a new one.

Replace thermostat



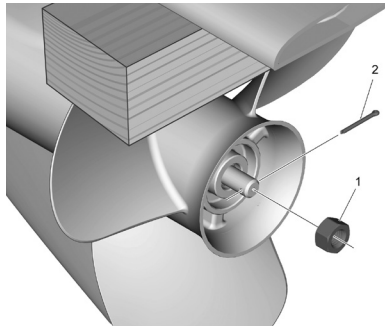
1. Remove the pressure pipe retainer **(1)** and the clamp **(2)**.
 2. Remove the Pressure pipe intercooler retainer **(3)**.
 3. Loosen the pressure pipe assembly.
 4. Remove the turbo water out pipe **(4)**.
 5. Loosen screws **(5)**, washers **(6)**, and thermostat housing lid **(7)**.
 6. Remove thermostat **(8)** and gasket **(9)**.
 7. Clean thermostat housing.
 8. Install a **new** thermostat.
- NOTE!** Install a **new** gasket.
9. Reinstall the thermostat housing lid with 4 screws and washers.
 10. Fill up according to **Filling coolant**.

REPLACE PROPELLER

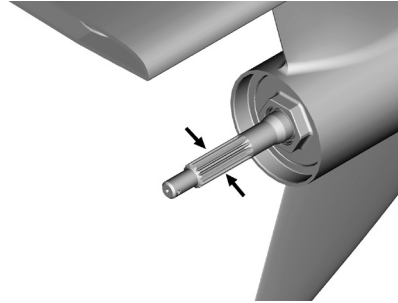


WARNING

Do not use any body parts to hold the propeller when loosening or tightening the propeller nut.



1. Straighten the cotter pin (2) and pull it out using a pair of pliers.
2. Remove the propeller nut (1).
3. Remove the propeller and propeller washer.



4. Apply marine grease according to table **Recommended fluids and grease** to the propeller shaft.
5. Install the propeller washer and propeller on the propeller shaft.

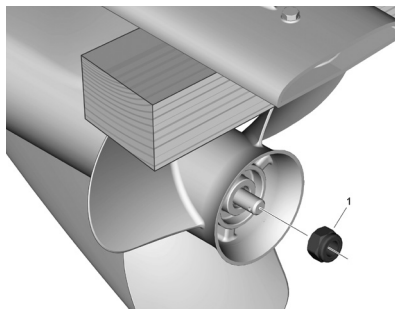
NOTE! Be sure to install the propeller washer before installing the propeller, otherwise the lower case and propeller boss could be damaged.

CAUTION

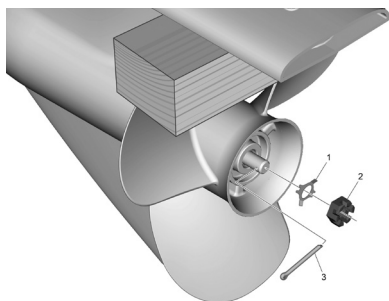
Be sure to use a new cotter pin and bend the ends over securely. Otherwise the propeller could come off during operation and be lost.

NOTE! We recommend using a new hub kit when mounting a propeller. Contact your OXE Diesel dealer or propeller manufacturer!

NOTE! Some outboards are equipped with a Nyloc locking nut (1) and do not have a cotter pin. Do **NOT** reuse a Nyloc locking nut!



NOTE! Some models use a retainer (1) and a castelated nut (2) combined with a cotter pin (3).



6. Tighten the propeller nut to the specified torque.

Propeller nut tightening torque: 75.0 Nm (55.6 ft-lb).

7. Align the propeller nut with the propeller shaft hole. Insert a new cotter pin in the hole and bend the cotter pin ends.

NOTE! Do not reuse the cotter pin installed. Otherwise the propeller can come off during operation.

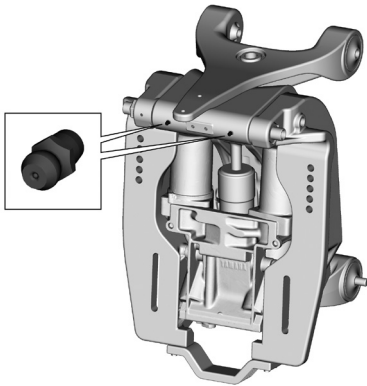
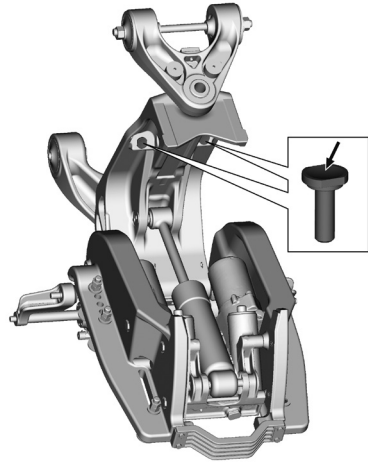
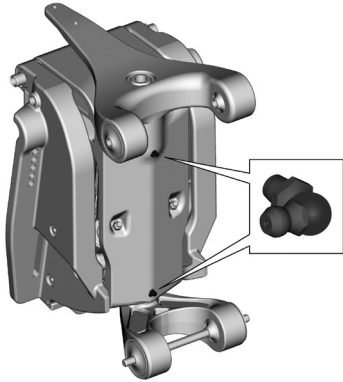
NOTE! If the propeller nut does not align with the propeller shaft hole after tightening to the specified torque, tighten the nut further to align it with the hole.

Ensure that the propeller is undamaged and rotates freely of the lower housing.

NOTE! Always have an extra propeller including necessary tools on board.

LUBRICATING AND GREASING

Power trim and tilt unit



2. Fill the seatings with grease for smoother tilt operation. Use grease according to ***Recommended fluids and grease.***

1. Use a grease gun and fill up with recommended grease until the grease comes out at the joints or ends of shaft. Refer to ***Recommended fluids and grease.***

MAINTENANCE SCHEDULE

DAILY CHECK-UP

Checklist						
Check daily	Check	Fill up	Clean	Change/ replace	Replace if necessary	Refer to
Before start-up						
– Seawater strainer	X		if necessary			Clean Seawater strainer
– Fluid levels	X					Check engine oil
– Water separator, fuel filter	Drain					Drain the fuel filter
Start engine						
– Alternator loading	X					Read 13 V+ on engine display, refer to Display Manual
– Telltale not blocked	X		Daily with a pipe cleaner			Warming up the engine Drain and fill points

INSPECTION PRIOR TO EACH SERVICE EVENT

Checklist						
Inspection prior to each service event	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Starting and warming up engine						
- Water/oil/fuel leakage	X					
- Power trim, function and leakage	X					
- No DTCs are triggered	X					Diagnostic Tool Manual
- Unusual engine/ transmission sounds	X					
Restart engine						
- Oil pressure	X					Display manual
- Oil leakage	X					

1. Check all units within the cooling system, fuel system and lubrication system for leakage.
2. Check gaskets, connection and hoses for damage and/or leakage.

MAINTENANCE AFTER 50 HOURS

Checklist						
After 50 hours	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Condition of rubber hoses, pipes, connections and clamps (leakage, wear, aging)						Outboard overview
– Coolant hoses	X				X	
– Hydraulic hoses	X				X	
– Fuel hoses	X				X	
– Exhaust hoses	X				X	
Cables, connectors, cable glands (wear, ageing)	X		X		X	Electrical componenets
Display/gauges (function, wear, ageing)	X				X	Display Manual
Controlhead (function, wear, ageing)	X				X	Controlhead Manual
Emergency stop switch - check function	X				X	Dash board
Fasteners (nuts, bolts, zip-ties etc)	X				X	
Water pick up nose cone , check for debris	X		X		X	Outboard overview
Seawater strainer , pipes, connections, and clamps (leakage, wear, ageing)	X		X		X	Outboard overview
Seawater pump (leakage, wear)	X				X	Outboard overview
– impeller	X				X	
– gasket	X				X	

Checklist

After 50 hours	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Alternator drive belt (wear, ageing)	X				X	Outboard overview
Alternator belt tensioner (function, wear, condition)	X				X	Outboard overview
Coolant level and mixture	X	X			X	
Thermostat	X				X	Outboard overview
Intercooler (wear, condition)	X		X		X	Outboard overview
Power trim and tilt unit (PTT-unit) , leakage, function, wear, ageing	X				X	Outboard overview
– Fluid level	X	X				
Engine oil and filter		X		X		
Fuel filter - secondary (on engine)	X		X		X	
Fuel filter - primary (in vessel)	X		X		X	Customer specific, not included in Service kit. Please order separately.
Air filter	X				X	Outboard overview
Turbo charger (function, wear, condition)	X		X		X	Outboard overview

Checklist

After 50 hours	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Heat exchanger (wear, condition)	X		X		X	Outboard overview
Crank case ventilation Check hoses and clamps for wear or damage.	X		X		X	Outboard overview For oil separator replacement, see Workshop Manual
Flex coupling, rubber rollers	X				X	Maintenance Manual
Upper belt oil				X		Outboard overview
– Magnetic plug			X		X	
– Magnetic plug seal				X		
– Shaft seals	X				X	
Upper belt tension	X					
Gear box						Maintenance Manual
– Hydraulic oil and filter				X		
– O-ring, filter housing				X		
– Magnetic oil plug			X		X	
– Magnetic oil plug seal				X		
Lower belt oil				X		Maintenance Manual

Checklist

After 50 hours	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
– Magnetic oil plug			X		X	
– Magnetic oil plug seal				X		
Lower housing , wear and condition of						Maintenance Manual
– gears	X				X	
– bearings	X				X	
– gaskets and seals	X				X	
– spline	X				X	
– skeg	X				X	
Propeller shaft oil seal (leakage, wear, condition)	X				X	Maintenance Manual
Lower belt tension	X					
Anodes (wear, condition)	X				X	
Paint and cowling (wear, condition)	X		X			

MAINTENANCE AFTER 200 HOURS

Checklist						
Every 200 hours or once a year	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Condition of rubber hoses, pipes, connections and clamps (leakage, wear, aging)						Outboard overview
– Coolant hoses	X				X	
– Hydraulic hoses	X				X	
– Fuel hoses	X				X	
– Exhaust hoses	X				X	
Fasteners , (nuts, bolts, zip-ties etc)	X				X	
Water pick up nose cone , check for debris	X		X		X	Outboard overview
Seawater strainer , pipes, connections, and clamps (leakage, wear, ageing)	X		X		X	
Seawater pump (leakage, wear)	X				X	Outboard overview
– impeller				X		
– gasket				X		
Alternator drive belt (wear, ageing)	X				X	
Alternator belt tensioner (function, wear, condition)	X				X	
Coolant level and mixture	X	X			X	

Checklist

Every 200 hours or once a year	Check	Fill up	Clean	Change/Replace	Replace if necessary	Refer to
Thermostat	X				X	
Intercooler (wear, condition)	X		X		X	
Power trim and tilt unit (PTT-unit), leakage, function, wear, ageing	X				X	
– Fluid level	X	X				
Engine oil and filter		X		X		
Fuel filter - secondary (on engine)	X			X		
Fuel filter - primary (in vessel)	X			X		Customer specific, not included in service kit. Please order separately.
Air filter				X		
Turbo charger (function, wear, condition)	X		X		X	
Heat exchanger (wear, condition)	X		X		X	
Crank case ventilation Check hoses and clamps for wear or damage.	X		X			For oil separator replacement, see Workshop Manual
Flex coupling , rubber rollers	X				X	

Checklist

Every 200 hours or once a year	Check	Fill up	Clean	Change/Replace	Replace if necessary	Refer to
Upper belt housing, wear and condition	X		X		X	Maintenance Manual
– gears	X		X		X	
– pulleys	X		X		X	
– bearings	X		X		X	
– gaskets and seals	X		X		X	
– spline	X		X		X	
– engine adapter shaft	X		X		X	
Upper belt replacement					X	Maintenance Manual
Upper belt oil				X		
– Magnetic plug			X		X	
– Magnetic plug seal				X		
– Shaft seals	X				X	
Upper belt tension	X				X	Maintenance Manual
Gearbox housing (wear, condition)	X				X	Outboard overview
– gears	X				X	
– pulleys	X				X	
– bearings	X				X	
– gaskets and seals	X				X	
– spline	X				X	

Checklist

Every 200 hours or once a year	Check	Fill up	Clean	Change/Replace	Replace if necessary	Refer to
Gear box						Maintenance Manual
– Hydraulic oil and filter				X		
– O-ring, filter housing				X		
– Magnetic oil plug			X		X	
– Magnetic oil plug seal				X		
Lower belt oil				X		
– Magnetic oil plug			X		X	
– Magnetic oil plug seal				X		
Lower belt replacement					X	
Lower housing, wear and condition of						
– gears	X		X		X	
– bearings	X		X		X	
– gaskets and seals	X		X		X	
– spline	X		X		X	
– skeg	X		X		X	

Checklist						
Every 200 hours or once a year	Check	Fill up	Clean	Change/Replace	Replace if necessary	Refer to
Propeller shaft oil seal (leakage, wear, condition)	X		X		X	Maintenance Manual
Lower belt tension	X				X	Refer to Each 800h or once every 3rd year minimum
Anodes (wear, condition)				X		
Paint and cowling (wear, condition)	X		X			

MAINTENANCE AFTER 800 HOURS

Checklist						
Each 800 h or every 3rd year minimum	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Condition of rubber hoses, pipes, connections and clamps (leakage, wear, aging)						Outboard overview
- Coolant hoses	X		X		X	
- Hydraulic hoses	X		X		X	
- Fuel hoses	X		X		X	
- Exhaust hoses	X		X		X	
Cables, connectors, cable glands (wear, ageing)	X		X		X	Electrical componenets
Display/gauges (function, wear, ageing)	X				X	Display Manual
Controlhead (function, wear, ageing)	X				X	Controlhead Manual
Emergency stop switch - check function	X				X	Dash board
Fasteners (nuts, bolts, zip-ties etc)	X				X	
Water pick up nose cone , check for debris	X		X		X	Outboard overview
Seawater strainer , pipes, connections, and clamps (leakage, wear, ageing)	X		X		X	
Seawater pump (leakage, wear)	X				X	Maintenance Manual
- impeller				X		
- gasket				X		

Checklist

Each 800 h or every 3rd year minimum	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Timing belt , tensioner and idler pulleys (function, wear, condition)	X				X	Maintenance Manual
Alternator drive belt wear and aging	X			X		Maintenance Manual
Coolant level and mixture	X	X		X		
Thermostat				X		Maintenance Manual
Intercooler (wear, condition)	X		X		X	
Power trim and tilt unit (PTT-unit) , leakage, function, wear, ageing	X				X	
Engine oil and filter		X		X		Maintenance Manual
Fuel filter - secondary (on engine)				X		
Fuel filter - primary (in vessel)				X		Customer specific, not included. Please order separately.
Air filter				X		Maintenance Manual
Turbo charger (function, wear, condition)	X		X		X	Maintenance Manual
Heat exchanger (wear, condition)	X		X		X	

Checklist

Each 800 h or every 3rd year minimum	Check	Fill up	Clean	Change/Replace	Replace if necessary	Refer to
Crank case ventilation Check hoses and clamps for wear or damage.	X		X		X	For oil separator replacement, see Workshop Manual
Flex coupling, rubber rollers	X				X	Maintenance Manual
Upper belt replacement				X		Maintenance Manual
Upper belt housing, wear and condition	X		X		X	Maintenance Manual
– gears	X		X		X	
– pulleys	X		X		X	
– bearings	X		X		X	
– gaskets and seals	X		X		X	
– spline	X		X		X	
– engine adapter shaft	X		X		X	
Upper belt oil				X		Maintenance Manual
– Magnetic plug			X		X	
– Magnetic plug seal				X		
– Shaft seals	X				X	
– Fluid level	X	X				
Upper belt tension	X					Maintenance Manual

Checklist

Each 800 h or every 3rd year minimum	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Gearbox housing (wear, condition)	X		X			Maintenance Manual
– gears	X		X		X	
– pulleys	X		X		X	
– bearings	X		X		X	
– gaskets and seals	X		X		X	
– spline	X		X		X	
Gear box					X	Maintenance Manual
– Hydraulic oil and filter				X		
– O-ring, filter housing				X		
– Magnetic oil plug			X		X	
– Magnetic oil plug seal				X		
Lower belt replacement				X		Maintenance Manual
Lower belt oil				X		
– Magnetic oil plug			X		X	
– Magnetic oil plug seal				X		
Lower housing, wear and condition of						
– gears	X		X		X	
– bearings	X		X		X	
– gaskets and seals	X		X		X	
– spline	X		X		X	
– skeg	X		X		X	

Checklist

Each 800 h or every 3rd year minimum	Check	Fill up	Clean	Change/ Replace	Replace if necessary	Refer to
Propeller shaft oil seal (leakage, wear, condition)	X				X	Maintenance Manual
Lower belt tension	X					Maintenance Manual
Anodes. (wear, condition)				X		
Paint and cowling (wear, condition)	X		X			

FAULT CODE TABLES

This table gives you a description of the fault codes of the ECU.

The columns

Dg Hst fault = NIRA internal fault code.

SPN = Suspect Parameter Number.

FMI = Failure Mode Identifier.

Description = Gives a short description of the fault.

Some codes will appear differently in the OXE Diagnostic tool than what is shown in the display.

If codes are checked thru the diagnostic tool, then the 6-digit codes in the display is shown in a different way according to list below.

OXE ENGINE FAULT CODES

SPN	FMI	Description	Dg Hst Fault	Dg OBD History		
			Internal fault code	Column 1 high byte	Column 2 middle byte	Column 3 low byte
97	31	Water in fuel is detected	179	0	0	97
100	1	Engine oil pressure is low	150	0	0	100
100	3	Engine oil pressure voltage high	8	0	0	100
100	4	Engine oil pressure voltage low	9	0	0	100
102	0	Intake manifold air pressure is too high	139	0	0	102
102	3	Intake manifold air pressure voltage high	4	0	0	102
102	4	Intake manifold air pressure voltage low	5	0	0	102
105	3	Intake manifold air temp voltage high	92	0	0	105
105	4	Intake manifold air temp voltage low	93	0	0	105
107	0	Air filter diff pressure high	198	0	0	107

SPN	FMI	Description	Dg Hst Fault	Dg OBD History		
			Internal fault code	Column 1 high byte	Column 2 middle byte	Column 3 low byte
107	3	Air filter diff pressure voltage high	12	0	0	107
107	4	Air filter diff pressure voltage low	13	0	0	107
108	3	Barometric pressure voltage high	106	0	0	108
108	4	Barometric pressure voltage low	107	0	0	108
110	0	Engine coolant temp high	188	0	0	110
110	3	Engine coolant temp voltage high	94	0	0	110
110	4	Engine coolant temp voltage low	95	0	0	110
127	0	Gearbox oil pressure high	174	0	0	127
127	1	Gearbox oil pressure low	175	0	0	127
127	3	Gearbox oil pressure voltage high	30	0	0	127
127	4	Gearbox oil pressure voltage low	31	0	0	127
157	0	Fuel rail pressure high	137	0	0	157
157	3	Fuel rail pressure voltage high	0	0	0	157
157	4	Fuel rail pressure voltage low	1	0	0	157
157	14	Fuel rail pressure Ctrl error	138	0	0	157
158	3	Battery or key switch voltage high	116	0	0	158
158	4	Battery or key switch voltage low	117	0	0	158
173	0	Exhaust gas temp high	194	0	0	173
173	3	Exhaust gas temp voltage high	102	0	0	173
173	4	Exhaust gas temp voltage low	103	0	0	173
175	0	Engine oil temp high	190	0	0	175

SPN	FMI	Description	Dg Hst Fault	Dg OBD History		
			Internal fault code	Column 1 high byte	Column 2 middle byte	Column 3 low byte
175	3	Engine oil temp voltage high	98	0	0	175
175	4	Engine oil temp voltage low	99	0	0	175
1136	0	ECU temp high	189	0	4	112
1136	3	ECU temp voltage high	108	0	4	112
1136	4	ECU temp voltage low	109	0	4	112
2629	3	Compressor outlet temp voltage high	100	0	10	69
2629	4	Compressor outlet temp voltage low	101	0	10	69
2795	14	VGT Ctrl error	142	0	10	235
3509	3	ECU 5V sensor supply 1 voltage high	112	0	13	181
3509	4	ECU 5V sensor supply 1 voltage low	113	0	13	181
3510	3	ECU 5V sensor supply 2 voltage high	114	0	13	182
3510	4	ECU 5V sensor supply 2 voltage low	115	0	13	182
521104	31	Ctrlhead communication timeout	200	7	243	144
521105	6	PSU Glow Plug Module - Current high	201	7	243	145
521106	6	PSU Trim/Tilt - Current above normal	202	7	243	146
521107	31	Actuator feedback message not received	203	7	243	147
521108	14	Engine speed Ctrl error	204	7	243	148
521109	14	Gear position error Fwd or Rev	159	7	243	149
521110	14	Gear position error N	160	7	243	150
521112	31	VGT LMSP or UMSP check failed Power Up	141	7	243	152

SPN	FMI	Description	Dg Hst Fault	Dg OBD History		
			Internal fault code	Column 1 high byte	Column 2 middle byte	Column 3 low byte
521114	31	VGT LMSP or UMSP check fail Idle	143	7	243	154
521118	6	Start motor circuit current high (SWSUP1)	110	7	243	158
521120	31	Engine has stalled				
521124	6	Fuel pump current high	69	7	243	164
521125	31	Swirl Valve Electrical fault	169	7	243	165
521126	31	Trolling Valve Electrical Fault	167	7	243	166
521127	31	Fwd or rev gear solenoid electrical fault	164	7	243	167
521128	31	VGT control electrical fault	163	7	243	168
521129	6	12V actuators current too high (SWSUP2)	111	7	243	169
521130	6	Fuel rail pressure valve current too high	68	7	243	170
521132	3	Trim angle voltage high	26	7	243	172
521132	4	Trim angle voltage low	27	7	243	172
521133	31	Glow Plug or Module Error	191	7	243	173
521135	31	Glow Module Com Error	193	7	243	175

OXE CONTROL HEAD FAULT CODES

SPN	FMI	Description	
521344	2	Control head 0 port lever pot failure	**
521345	2	Control head 1 port lever pot failure	**
521360	2	Control head 0 port lever pot mismatch	**
521361	2	Control head 1 port lever pot mismatch	**
521440	2	Control head 0 stbd lever pot failure	**
521441	2	Control head 1 stbd lever pot failure	**
521456	2	Control head 0 stbd lever pot mismatch	**
521457	2	Control head 1 stbd lever pot mismatch	**
521504	13	Control head 0 invalid configuration	*
521505	13	Control head 1 invalid configuration	*
521520	13	Control head 0 invalid calibration	*
521521	13	Control head 1 invalid calibration	*
521536	31	Control head 0 duplicate instance	*
521537	31	Control head 1 duplicate instance	*
521552	31	Control head 0 take command button fault.	**
521553	31	Control head 1 take command button fault.	**
521568	31	Control head 0 sync button fault.	**
521569	31	Control head 1 sync button fault.	**
521584	31	Control head 0 port neutral button fault.	**
521585	31	Control head 1 port neutral button fault.	**
521600	31	Control head 0 stbd neutral button fault.	**
521601	31	Control head 1 stbd neutral button fault.	**
521616	31	Control head 0 multiple controllers selected.	*
521617	31	Control head 1 multiple controllers selected.	*

* Calibration possible

** Require control replacement or hardware repair

NOTE!

Controlhead 1, only if installed in a Dual station application where 2 controlheads are installed.

Controlhead 0 refers to MAIN STATION.

Controlhead 1 refers to SECOND STATION.

TROUBLE SHOOTING

Refer to *Workshop Manual*.

TECHNICAL DATA

OXE125/150/175/200 HP

Application	Specification	
	Metric	US units
Engine type	Diesel, L4	
Displacement	1956 cc	122 cu in
Intake	VGT turbocharged, intercooled	
Max. power at engine speed 4100 RPM	92/110/129/147 kW	125/150/175/200 HP
Max. engine torque at engine speed at 2500 rpm	376/380/380/415 Nm	510/515/515/563 lb ft
Fuel	Diesel	
Dry weight	350 kg	772 lbs
Wet weight	358 kg	789 lbs
Alternator output	130 A	
Rig length	25" or 33"	
Cooling	Closed cooling circuit, heat exchanger/seawater	
Starting	Electric	
Shift	Electro-hydraulic	
Clutch	Hydraulic multi-friction plate	
Gear ratios	High speed - 1.73:1 High speed torque - 2.17:1	
Dimensions, L x H x W 25" leg 33" leg	994 x 1880 x 678 mm 994 x 2083 x 678 mm	39 x 74 x 27 in 39 x 82 x 27 in

RECOMMENDED FLUIDS AND GREASE

Fluid	Quality	Quantity	
		Metric	US units
Fuel	EN 590 (with national environmental and cold weather standards) ASTM D 975 No. 1 and No. 2 JIS KK 2204 NATO Code F54 and F75	-	-
Engine oil	OXE Engine Oil or 5w-30 dexos2 API SM/CF GM-LL-A025/ B025 ACEA A3/B4 ²⁾	5.5 liters ¹⁾³⁾ 7.0 liters ¹⁾⁴⁾	5.8 quarts ¹⁾³⁾ 7.4 quarts ¹⁾⁴⁾
Gear box oil	OXE Gearbox Oil or Fully Synthetic Dual Clutch Transmission Fluid - DCT	2.0 liters ¹⁾	2.1 quarts
Coolant	OXE Coolant or GM Long-Life Coolant - Specification B040 1065/ Distilled water (30/70)	7.5 liters	7.9 quarts
Grease	OXE Grease or DIN 51502:KP2.5K-20 ISO 6743: ISO-L-XBCEB2.5	-	-
Power trim and tilt unit PTT	OXE PTT Oil or ATF Dexron II	0.5-0.7 liters	0.52-0.73 quarts
Upper belt oil	OXE Belt Transmission Oil or Fully Synthetic Transmission Fluid - ATF / Dexron HP	0.33 liters	0.34 quarts
Lower belt oil	OXE Belt Transmission Oil or Fully Synthetic Transmission Fluid - ATF / Dexron HP	2 liters	2.1 quarts

¹⁾ Refer to **Workshop Manual**

²⁾ For cold climate, select viscosity according to table **OXE Engine oil Viscosity**.

³⁾ Volumes for engines 125 and 150 HP

⁴⁾ Volumes for engines 175 and 200 HP

NOTE! The fuel must meet national and international standards.

NOTE! Only use fuel, lubricants etc. in accordance with OXE Marine AB regulations. Otherwise the manufacturer's liability for defects will not apply!

DIESEL FUEL

The composition of the fuel is vital for operation of the OXE outboard, its service life, and emissions. To meet the performance specified and to run the boat cleanly and quietly, it is important that fuel as recommended in table **Recommended fluids and grease** is used.

If national emission regulations permit OXE Diesel engines can be operated on commercially available diesel fuels with less than 0.05% sulfur content.

Fuel sulfur content	≤0.05% (≤500 ppm)	>0.05% - 0.5% (>500-5000ppm ²⁾)
Engine oil change intervals	200 h or one year	100 h or one year ¹⁾

¹⁾ If the sulfur content is higher than 0.05%, the intervals between engine oil changes should be halved or determined by frequent oil sampling.

²⁾ If the sulfur content is higher than 0.1% an engine lubrication oil with suitable TBN shall be used.

NOTE! Do not use fuel with more than 0.5% sulfur content!

Using fuel with high sulfur content will increase the outboard's emission levels and cause excessive wear and shorter life time.

Large differences in composition occur in local fuel specification. This can result in higher fuel consumption, higher emissions and less power output.

Avoiding fuel flow restrictions

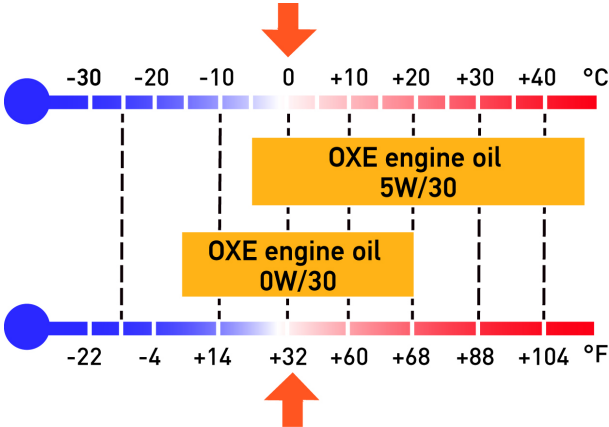
WARNING

Adding additional components to the fuel supply system such as filters, valves, fittings, etc. may restrict the fuel flow. This could cause engine stalling at low speed, and/or a lean fuel condition at high RPM, that could cause engine damage.

ENGINE OIL VISCOSITY

Select viscosity according to table.

The temperature values refer to stable ambient temperatures.



EMISSION CONTROL SYSTEM WARRANTY STATEMENT

MARINE ENGINES

This Emission Control System Warranty Statement applies only to engines sold for use in USA that are in conformity with US EPA Model Year 2020 regulations.

GENERAL STATEMENT

To retain the dependability, noise and exhaust emission control originally built into all OXE Outboard engines, it is essential that the engines are installed according to the OXE Marine installation instructions and receive periodic maintenance according to the maintenance instructions.

MANUFACTURER'S WARRANTY COVERAGE

OXE Marine warrants to the original owner, and to each subsequent owner, of a new diesel engine that the emission control system of your engine:

1. Was designed, built and equipped so as to conform at the time of sale with all applicable regulations of the U.S. Environmental Protection Agency.

2. Is free from defects in material and workmanship which will cause such engine to fail to conform with applicable regulations for a warranty period in hours and years of engine operation listed below, whichever occurs first.
 - OXE Diesel, marine compression ignition engine categorized as commercial engines: 10 years or 10000 hours of engine operation.

The warranty period shall begin:

1. On the date the machine or vessel first is delivered to the first retail purchaser or:
2. If the machine or vessel is placed in service for demonstration purposes prior to sale at retail, on the date the engine is first placed in service. Maximum demonstration period 50h.

The emission control systems of your new OXE Diesel engine were designed, built and tested using genuine parts, and the engine is certified as being in conformity with US Federal emission control regulations. Accordingly, it is recommended that any replacement parts used for maintenance, repair or replacement of emission

control systems be OXE Marine parts. The owner may elect to have maintenance, replacement or repair of the emission control components and systems certified by US Environmental Protection agency performed by any repair establishment or individual and may elect to use parts other than OXE Marine parts for such maintenance, replacement or repair without invalidating this warranty: the cost of such services or parts, however, will not be covered under the warranty.

Use of replacement parts which are not of equivalent quality may impair the effectiveness of emission control systems. If other than OXE Marine parts are used for maintenance, the owner should obtain assurance that such parts are warranted by their manufacturer to be equivalent to genuine OXE Marine parts. However, the use of other than OXE Marine replacement parts does not invalidate the warranty on other components unless such parts cause damage to warranted parts.

Repairs and service covered by the warranty will be performed by an authorized OXE Diesel distributor or dealer with no charge for parts or labor, including diagnosis, using OXE Marine parts for any part of the emission control system covered by the warranty and found defective.

The emissions control parts covered by this Emission Control System Warranty are listed under *What is covered by the emission warranty.*

You are responsible for the performance of all scheduled maintenance or repairs on your new OXE Diesel Outboard.

OXE Marine may deny a warranty claim if your failure to perform maintenance resulted in the failure of a warranted part. Receipts covering the performance of regular maintenance should be retained in the event questions arise concerning maintenance. The receipts should be transferred to each subsequent owner of the machine or vessel with the emission warranted engine.

For OXE Diesel Outboard engines in accordance with United States Environmental Protection Agency 40 CFR parts 1042.

What is not covered by the emission control system warranty

This warranty does not cover:

1. Malfunctions in any part caused by any of the following: misuse, abuse, improper adjustments, modifications, alteration, tampering, disconnection, improper or inadequate maintenance, improper installation and/ or rigging or use of fuels not recommended for the engine as described in the User's Manual (Publ. No. ODM1005).
2. Damage resulting from accident, acts of nature or other events beyond the control of OXE Marine.
3. The replacement of expendable maintenance items such as exhaust system, filters, hoses, belts, oil, thermostat, and coolant made in connection with scheduled maintenance services once these parts have been replaced.
4. Add on parts or modified items which are not approved by OXE Marine.
5. Consequential damage as loss of time, inconvenience, loss of use of machine or vessel, engine or commercial loss.
6. Any machine or vessel on which the hour record has been altered so the actual usage cannot be readily determined.
7. Damage resulting from rust or corrosion.
8. Damage caused from cooling system blockage by foreign material or from sand or debris deterioration of water pump.
9. Cosmetic or paint changes due to exposure to the elements.
10. Product is or has been used for racing at any point, even by a prior owner.
11. Marine engines operated outside the United States or Canada.

What is covered by the emission control system warranty

The following is a list of items that are considered a part of the Emission Control Systems and are covered by the Emission Warranty when installed as original equipment by OXE Marine on engines which were built to conform to Environmental Protection Agency regulations

IMPORTANT! This may not include expendable maintenance items. Emission related parts requiring scheduled maintenance are warranted until their first scheduled replacement point for that part.

1. Fuel Metering System
 - Fuel injection system
2. Air Induction System
 - Intake manifold
 - Turbocharger/Supercharger
3. Closed Crankcase Ventilation System
 - Oil mist separator/filter
4. Miscellaneous Items Used in Above Systems
 - Vacuum, temperature, and time sensitive valves and switches

- Electronic control units, sensors, solenoids, and wiring harnesses
- Hoses, belts, connectors, assemblies, clamps, fittings, tubing, sealing gaskets or devices, and mounting hardware
- Pulleys, belts and idlers
- Emission Control Information Labels

CUSTOMER ASSISTANCE

OXE Marine wishes to help assure that the Emission Control Systems Warranty is properly administered. In the event that you do not receive the warranty service to which you believe you are entitled under the Emission Control Systems Warranty, you should contact OXE Marine at the address below for assistance. If you need additional assistance or information concerning the Emission Control System Warranty, contact:

OXE Marine AB

After Sales Support
Hortensiagatan 6
SE-256 68 Helsingborg, Sweden

Email:
info@oxemarine.com



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