Waterlock NLPH

1 Introduction

The Vetus exhaust system components are especially suitable for use in **water-injected** exhaust systems.

The maximum continuous operating temperature of the plastic components of the exhaust systems is 70 degrees C (158 degrees F).

- Fit a temperature alarm to warn of excessively hot exhaust system temperature.
- If the quantity of injected coolant water is reduced to in order to lower back-pressure in the exhaust system, check that there is still sufficient water injected when the engine is ticking-over. This will prevent excess temperatures in the exhaust system.
- Excess temperature can also be the consequence of insufficient mixing of coolant water with the exhaust gasses.
  In general, good mixing is obtained by a virtually vertically installed exhaust injection bend.
  Poor mixing can also occur with an engine on tick-over; especially when the coolant water injection bend is installed virtually horizontally.
  If necessary, take action. For example; by fitting a water vortex or a water splitter in the exhaust pipe, to improve the mixing of coolant water with the exhaust gasses.

With water-injected exhaust systems, fit a hose of suitable quality.

This hose must be reinforced, resistant to exhaust gasses, high temperatures (100 degrees C, 212 degrees F) and oil. Easy flexibility is essential for installation, while the hose must not collapse when heated.

Vetus exhaust hose fulfils all the above requirements.

Warning

If water enters the engine from the waterlock into the exhaust system (for example: under sail when the ship rolls or pitches heavily) this will lead to irreparable damage to the engine.

Too much water in the waterlock can effect engine starting; drain off this water first. Too much water in the waterlock can be also caused by repeated starting attempts while the engine refuses to start.

2 Installation

2.1 Installing waterlock NLPH

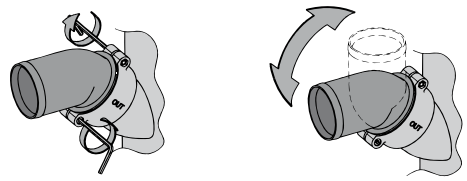
Instal the waterlock as horizontal as possible.

The waterlock 'IN'-connection must always remain below the level of the exhaust injection bend! Position the waterlock **'back-to-front'** alongside the engine when there is insufficient space behind the engine.

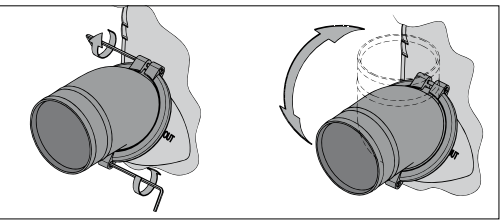
2.2 Hose connections

In order to achieve the ideal connection between the hoses and the waterlock, both hose connections turn through 360 degrees.

NLPH40
NLPH45
NLPH50

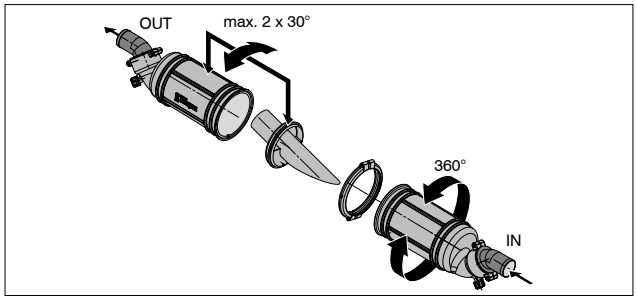


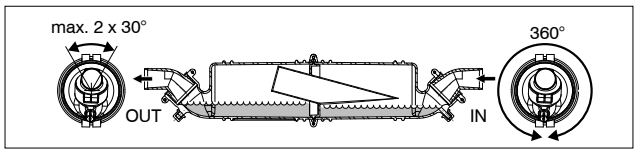
NLPH60
NLPH75
NLPH90



Loosen the bolts before turning the hose connections!
Tighten the hose connections to a torque of 1 Nm (0.74 ft-lb, 142 oz-in).

The 2 halves of the housing can also be turned relative to each other.



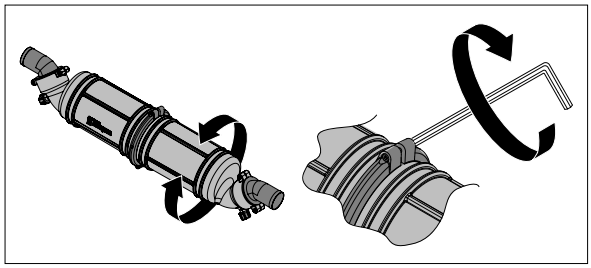


For a proper working it is essential that the OUT half of the housing and the inner part placed within this are in the relative positions as shown in the illustration. A deviation of maximum 30° to either side is permitted. The IN half of the housing may be placed in any position.

Note

Make sure that IN and OUT are not interchanged with each other while fitting!

GENERAL Marine SERVICES
156 Beaumont Street · Westhaven · Auckland · New Zealand
Sales Ph +64 9 309 0048 · sales@generalmarine.co.nz
Service Ph +64 9 368 0938 · service@generalmarine.co.nz
www.generalmarine.co.nz



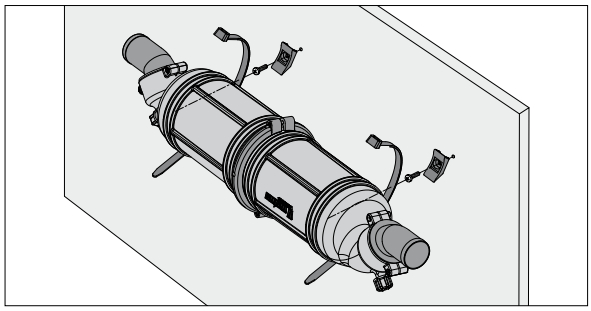
The two halves can be turned relative to each other as follows:

1 Unscrew the clamp
2 Turn the half of the housing to the desired position
3 Tighten the clamp sufficiently using a torque of 0.3 Nm (0.22 ft-lb, 42 oz-in).

During operation, the waterlock will contain water. Its weight will thus increase considerably, so fit the waterlock with the ty-raps® supplied. The waterlock has slots in which the ty-raps® should be fitted.

2.3 Installing the transom exhaust connection

Fit the transom exhaust connection at such a position that with the ship fully laden, the outlet is still at least 5 cm (2") above the waterline.



2.4 Exhaust pipe

In order to ensure the proper drainage of the coolant water injected into the exhaust pipe, the pipe must be installed with a slope downward over its whole length from the water injection point to the waterlock.

During operation, the exhaust pipe will contain water. This will increase its weight considerably, so support the exhaust pipe properly.

The exhaust pipe from waterlock to transom connection must be installed in such a way that:

- The highest point in the exhaust pipe should not be more than 150 cm (5 ft) above the underside of the waterlock.

- The length of the section between the waterlock and the highest point, should not exceed 300 cm (10 ft).

2.5 Fitting the hose

To ease the fitting of the hose to the hose connector, use only water and/or soap, NOT grease or products containing oil.

Fit each hose connection with 2 stainless steel 12 mm (1/2") wide hose clamps.

2.6 Sensor for temperature alarm

A sensor for a temperature alarm can be fitted in the exhaust pipe.

3 Installation Examples

Exhaust systems with a waterlock type NLPH, goose neck type NLPG and a transom connection are shown on page 15.

Entry of water from the aft is almost completely prevented by the extra height difference in the goose neck.

When the engine is stopped, any water which is still in the exhaust pipe (between the highest point in the exhaust system and the exhaust silencer) will run back to the exhaust silencer.

To reduce the amount of this water as much as possible, the goose neck should be fitted directly above the exhaust silencer, if possible (see drawings 1 and 3).

When the goose neck is fitted directly to the transom (drawings 2 and 4), the maximum length of the exhaust pipe, between exhaust silencer and the highest point, should be taken into account.

3.1 Prevention of syphoning (drawings 3 & 4)

If the water injection point 'C' is below, or less than 15 cm (6") above the waterline (also when the ship heels under sail), there is a risk that when the engine is stopped, the coolant water will enter the engine due to syphoning. This syphoning can be prevented in two ways:

① By creating an air vent system in the coolant water hose between engine block and water injection point 'C', by fitting an air vent with air vent pipe, for example.

The air vent pipe can be connected to its own hull outlet (H) or to the connection on the gooseneck intended for this, type NLPG (G). See the manual for the NLPG, no. 030428.01 (Only NLPH40, 45, 50).

② By fitting an air vent (with valve) in the coolant water hose between the engine block and water injection point 'C'.

4 Maintenance

- Check all hose connections for gas and water leaks regularly.
- Before the winter lay-up, drain the waterlock. The waterlock has two drain plugs for this purpose.