

Water Lubricated
Stern Shaft Seal

ManeCraft EY

Fitting & Operating Instructions



DEEP SEA SEALS

MARINE SEALS

IM-EY (ManeCraft)

ManeCraft

Introduction

Congratulations on your purchase of Deep Sea Seals' ManeCraft **water lubricated stern shaft seal**.

This seal is designed to provide you with many years of untroubled operation. Please read these fitting instructions carefully before attempting to fit the seal.

You should keep this booklet in a safe place together with the compression gauge and follow the maintenance routines listed that are designed to enhance the operating effectiveness of your ManeCraft seal.

Please read this book carefully before attempting to fit the seal yourself

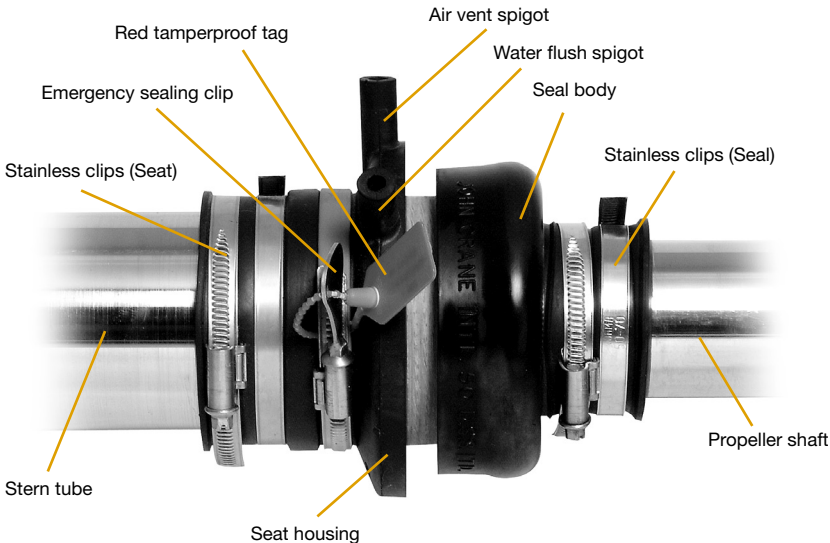
You should have:

- 1 x Seat housing (Including) Emergency Sealing Clip & Tag).
- 2 x Stainless clips (Seat).
- 1 x Body (Including high speed insert if fitted).
- 2 x Stainless clips (Seat).
- 1 x Warranty card (USA Only).
- 1 x Compression gauge.
- 1 x Vent plug.
- 2 x Connectors for water flush/air vent.
- 2 x Bulkhead stickers.

You will need:

- 7mm socket spanner or screwdriver.
- 6mm (1/4") bore braided clear hose, of sufficient length to run from the seal to the water supply and vent line.
- Stainless clips for the 6mm hose.

Fitting Instructions



1. Check that the seal set matches the propeller shaft and stern tube diameters, and is suitable for the shaft speed and bearing spacing of your boat. (See selection guide and chart in the ManeCraft Sales Data Sheet).

Example: Sterntube 76mm, shaft 55mm, speed up to 1550rpm, therefore set size = No.14.

Fitting Instructions

2. Remove ALL of the old gland packing completely, **REMOVE ALL TRACES OF GREASE AND OIL FROM THE AREA OF THE SEAL AND SHAFT**. Use a spirit cleaner if necessary.

3. Slide the seat and seal, with the stainless clips onto the shaft, using a small quantity of water as a lubricant if necessary.



DO NOT USE OIL OR GREASE

4. **Fitting the seat to the sterntube**

Push the seat over the O/D of the sterntube and press home to a minimum of 32mm (1 1/4"). One of the two identical spigots must be positioned at top dead centre for the air vent. Tighten the stainless clips supplied with the seat ensuring the screw heads on the two clips are 180° apart. **DO NOT TIGHTEN THE EMERGENCY CLIP**, this has already been set at the factory. Check that the shaft is in the centre of the hole in the seat ring and using the compression gauge ensure that the seat is fitted 90° to the shaft.

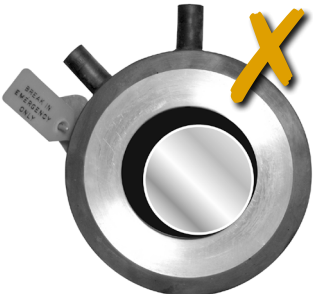
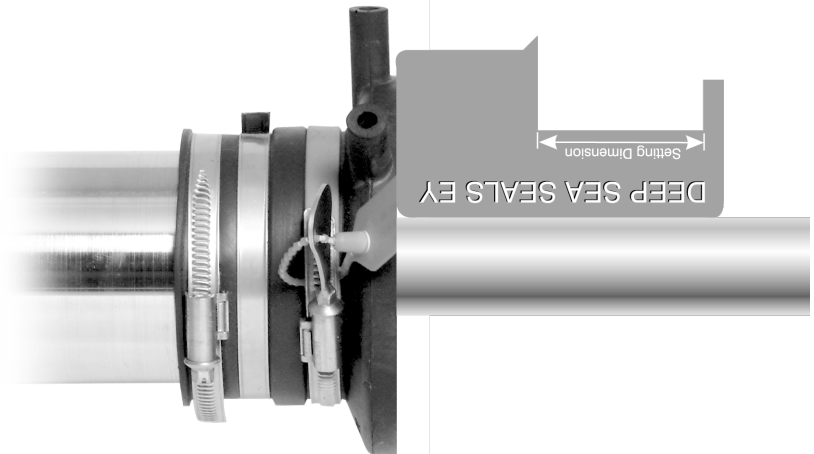


5. Check that the shaft is central to the sterntube ± 1 mm, this ensures that the engine is correctly aligned and that the seal will run concentric to the shaft.

Correct shaft alignment is **VERY IMPORTANT** to the functioning of the seal and general stern gear arrangement.



THE SEAL MUST NOT BE USED AS A BEARING TO SUPPORT THE SHAFT.

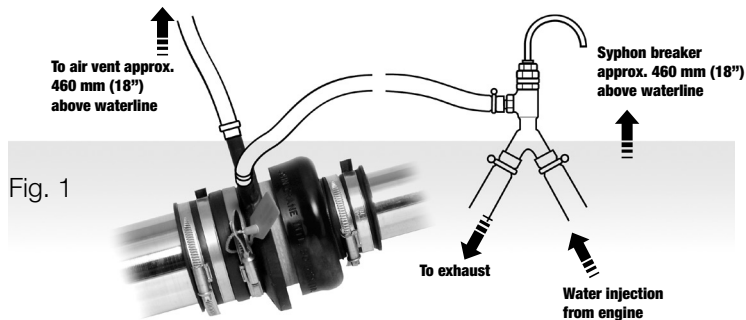


Fitting Instructions

6. Coolant

 **THE SEAL MUST NOT RUN DRY.** It depends on water for lubrication.

Under no circumstances should your seal be allowed to run dry. The seal requires a water supply and the angled spigot should be connected with a water feed hose from a suitable point on the engine from which a pressurised raw water flow can be obtained; ideally



between the sea water pump and the exhaust injection outlet. If an anti-syphon vent is fitted to the engine cooling system the seal connection must be fitted upstream or prior to the water going to that device. Alternatively, if no anti-syphon vent exists the seal connection can be fitted directly into the overboard discharge line of the engine cooling system.

Please remember that the connection to the seal must not be taken from any point between the seacock and the engine cooling pump. This may introduce a suction which could be potentially hazardous to engine performance. If the vessel is on a tidal mooring then a vent line must be fitted to avoid air entrapment in the seal.

For high speed craft (12-25 knots) - the water flush should be a positive pressurised feed, and in a typical installation the water feed is taken from just before the injection point of the exhaust system.

 **IF THE ENGINE IS BELOW THE WATER LINE, FIT A SYPHON BREAKER,** see Fig. 1.

For displacement hulls (Up to 12 knots i.e. yachts) - A typical water flush would be provided from a hull scoop, many vessels already have these fittings available and it is a matter of tapping into the supply with a suitable hose, ensuring that the hose is tightly secured to the hull fitting and connecting the other end to the seal angled spigot connector, see Fig 2.

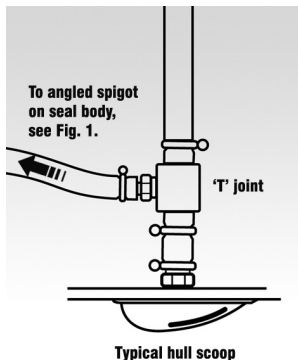


Fig. 2

Fitting Instructions

7. Connecting the vent line

Measure a length of hose required from 460 mm (18”) ABOVE the water line (see Fig. 1) down to the seal. Connect the vent line to the vertical spigot on the seat assembly using the straight barbed connector supplied and secure with stainless clips.

Air vent line

The seal vent MUST be used if the vessel is likely to dry out frequently, or if an air lock is likely to be formed within the seal. This is usually due to a combination of a high degree of rake angle of the stern tube and/or frequent hull planing. The spigot for both the air vent and water flush are supplied bored through. If the air vent is not deemed necessary, the spigot MUST be closed using the plug supplied and fixed in position with a compatible adhesive with chloroprene.

REMEMBER, THE VENT LINE IS CONNECTED TO THE VERTICAL SPIGOT AND THE WATER FLUSH IS CONNECTED TO THE ANGLED SPIGOT.

8. The red emergency clip

The red emergency clip is already supplied in position and at the correct tightness with the tamperproof tag connected. The clip may be repositioned by sliding it around the body.

 **THE RED CLIP IS ONLY TO BE USED ONCE. AFTER USE - REPLACE THE COMPLETE SEAL ASSEMBLY.**

9. The red tamperproof tag

The red tag is designed to prohibit use of the emergency seal unless required:

Follow this procedure in the unlikely event of major seal damage:

Please ensure all your crew and guests are aware of this emergency procedure.

- Stop the shaft from rotating.
- Break off the red tag.
- Tighten the emergency clip until the water ingress can be stemmed or stopped.
- Call for assistance.

 **UNDER NO CIRCUMSTANCES SHOULD THE SHAFT BE ROTATED WHILST THIS EMERGENCY CLIP IS TIGHT.**

10. Make sure that the seal face and seat surfaces are clean and free from dirt or grit. Ease the seal body down the shaft until the seal face just touches the phosphor bronze seat. Use water as a lubricant if necessary.

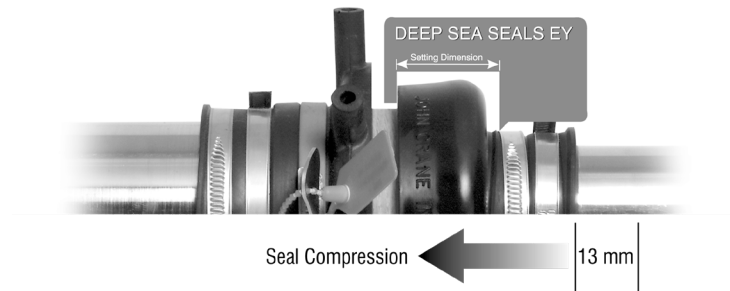
 **DO NOT USE OIL OR GREASE.**

Fitting Instructions

11. Mark the shaft at the forward end of the seal neck and then compress the seal a further 13mm (1/2") from the mark on the shaft. Lightly tighten the stainless clips as shown using the compression gauge supplied check that the seal is evenly compressed by rotating the shaft slowly by hand. It is very important that the seal is evenly compressed as an uneven compression may bring uneven pressures onto the seat housing and greatly impair the performance and life of your seal.

Once you have ensured that the seal is evenly compressed, then you can tighten the stainless clips down sufficiently to compress the rubber neck onto the shaft ensuring the screw heads on the two clips are 180° apart.

You will notice that the neck of the seal distorts considerably during this process, this is entirely normal and shows that the seal is sufficiently tight around the shaft.



NOTE

Check that nothing is likely to touch the seal whilst it is running and that nothing is likely to fall onto the seal in rough weather. Ideally a guard should be placed around the seal to protect it from loose gear falling onto it.

Your seal in service

Your seal will normally provide thousands of hours of trouble free service. However, if run in a very sandy or dirty environment, this can result in accelerated wear and reduced operational life. To obtain the maximum life from your seal, always follow the steps listed below:

- Make regular visual checks of the seal after 50 hours, then 100 hours or 3 months and thereafter 200 hours or every 6 months. In addition, make sure that the seal and shaft are unobstructed prior to sailing and check the seal for leaks together with all other underwater fittings before leaving the boat unattended for any length of time.
- Before getting underway, ensure that the seal is not leaking and that it is free to rotate.
- During lay up periods or when the boat has been out of the water, bleed air from the seal after refloating the boat. This is easily done by gently parting the seal face from the seat until water spills into the bilge.

Worldwide Service

If you have any doubts on installing this seal, please consult your local marine engineers or your dealer who will be able to offer advice. If you require any further help or assistance please telephone our customer support department at Industrial Rubber Ltd. listed below.



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