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O-RING SEALS

ADVICE & TIPS FOR GUARDING AGAINST LEAKS ON UNDERWATER HOUSINGS

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Tel: 0845 658 8805

O-RING SEALS: ADVICE & TIPS FOR GUARDING AGAINST LEAKS

No seal - no water-tight enclosure!

O-rings seals play a critical role in any water-tight enclosure. As such, their care, inspection and renewal is of utmost importance in underwater equipment.

By following the relatively simple procedure for the care of the main accessible seals, during film changes or between dives, you will have the best chance of keeping your internal equipment dry.

Cleaning and inspection

Carefully remove the seal - ideally, using a plastic O-ring removing tool (or the corner of a credit card if without the correct tool).

Check the casing seal contact points for any signs of damage. Clean the area with a lint free cloth and check again. Any visible signs of scratching or surface pitting could be serious and may require expert inspection.

Check the seal for large or hard pieces of debris, (if present wash in warm soapy water) and rinse clean.

Wipe seal clean with lint free cloth and inspect for any signs of damage, cuts, abrasions, crazing, or flattening.

If you have any doubt at all, file under 'waste bin' and replace the seal.

Re-greasing of the seals

This procedure is possibly the most varied part of O-ring maintenance - mainly due to the different types of O-ring material used and their specific grease requirements (see the notes on grease). Greasing provides a critical function in the way many O-ring sealing systems work (the grease does not form a seal, but allows the O-ring to move against it's seat to form the seal).

Use only enough lubricant to make the seal look wet, (as excess will tend to hold debris).

Re-check the seat then carefully replace the seal onto its seat without rolling or stretching the seal, as either could lead to a leak.

Then close up the unit as soon as possible – to minimise the risk of air-borne debris getting in the seal area.

Please note: Some silicone seal applications do not require greasing – so please check your equipment instructions if you are in any doubt.

O-ring seal renewal

Seals (and the lubricating grease) have a finite life and as such, will require replacement after a period of time (even if the equipment is not used). Seals tend to "flatten" and grease is washed away, or contaminated with salt and debris. We would recommend getting the equipment serviced regularly (every 18 months to 2 years maximum).

If equipment has been unused for a period of time (or it's service history is unknown) - it would be wise to have it checked and serviced before taking it underwater.

Notes on O-ring grease/lubricant

O-ring greases come in several different types – the most common being; refined mineral grease (including petroleum jelly), silicone grease and fluorosilicone grease.

The main criteria for the selection of the correct grease, is that it needs to be compatible with the materials that are used to make the O-rings and housing.

O-ring materials include nitrile (NBR), silicone, PTFE and neoprene. Nitrile seals are very wide ranging in composite and hardness, silicone seals may well be coloured (but also come in black) and other materials may well be difficult to identify.

Please note: silicone grease must NOT be used on silicone seals, as it may cause swelling of the seal and premature failure (fluorosilicone grease is specified for silicone seals).

Using the right grease for the right seal is a must and unless you are learned in the art of seals and greases, take great care. For this reason, we would recommend sticking to the housing manufacturers preferred lubricant.

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