

OUTBOARD ENGINE MAINTENANCE

These notes were originally prepared by John Benge, Shrimper 433 (*Grace of St Just*) in 2003 as a general guide to the range of tasks required to keep two-stroke outboards in good running order. They have been updated by Keith Thatcher, Shrimper 144 (*Winkle*) (November 2009) and now also include specific requirements for four-stroke engines.

It should be remembered that these notes are merely a guide. Specific servicing requirements for your particular make and model will be contained in the manufacturer's handbook supplied with the engine.

During the Season

1. Routinely check propeller for damage
2. Check the cooling water outlet for good flow each time the engine is started. At best, poor flow could be a sign of a fouled water inlet (weed etc.), but might also indicate a damaged water pump impeller or even corrosion in the internal water passages. Do not run if cooling water circulation is poor as the engine will overheat, resulting in serious damage to the powerhead.
3. Try not to leave the outboard sitting on its bracket in the water for any longer than necessary. When removing, try to drain all water out of the unit and dry off before placing in a locker or other stowage. If stowed lying down, keep the cylinder head at a higher level than the drive leg. Two-stroke engines may be stowed in most positions, but for stowage of four-stroke outboards see information under *Annual Maintenance - Four-Stroke* below.
4. When stopping engine, either before stowage or if the boat is to be left unused for a while, shut the fuel off or disconnect the fuel hose and run to stop.
5. Larger outboards are generally too heavy and/or large to fit into the aft locker and are often left in the well all season. Those parts in contact with the water (leg, gearbox and propeller) should be suitably treated to prevent marine fouling, but be careful not to block the cooling water intake holes or to paint the anode. Remember that most outboards are made from aluminium alloy, so the antifouling used must be compatible with this material.
6. Finally, if your engine is fitted with a safety cut-out, always carry a spare lanyard.

Annual Maintenance – Two strokes

Outboard manufacturers see routine maintenance in two parts – a service schedule with tasks at specific numbers of hours use (generally every 100 hours or once a season, whichever comes first) plus additional tasks if the outboard is to be stored. The major consideration when preparing an outboard for storage (inactive for two months or longer) is to protect it from rust, corrosion and damage caused by freezing of trapped water.

With most Shrimper engines rarely exceeding 100 hours use per season, winter storage is usually the time when most annual servicing is carried out. The following notes have

prepared on the assumption that winter storage and annual maintenance tasks will be combined.

Before carrying out any work on the outboard it is essential to disconnect the spark plug lead to prevent accidentally starting.

1. Flush out all cooling passages with fresh water, either by using a hose and flushing muffs or by running in a fresh water tank. If run in a tank, check for good flow from the cooling water outlet to ensure that fresh water is circulating correctly. Be careful to allow water passages to fully drain before laying the engine down.
2. Change water pump impeller. It is not always necessary to replace the impeller on every annual service, but most manufacturers suggest replacement every two or three seasons or after a specified number of hours use. Remember that, for most makes, running an engine out of water for even a few seconds can do irreparable damage to the impeller. It is a critical part of the engine, so if in doubt, replace it. The cost is far less than a new engine.
3. Remove and clean the water thermostat, if fitted and check for operation in hot water.
4. Change the final drive gearbox oil.
5. Remove propeller & check for damage. Check for shaft oil seal leakage. Coat splines and shaft with water resistant grease before replacing the propeller.
6. Check the Anode. Most outboard engines have an anode fitted on the drive leg. Renew if more than 50% expended.
7. Check spark plug(s). If in good condition, clean and set to correct gap. Replace plug(s) if the electrode is worn or if the insulator is rough, cracked, broken, blistered or fouled. Keep all electrics clean and dry. Occasionally coat them with WD40. With the plug removed inject a small quantity of 2 stroke oil through the plug hole and rotate engine a few times to distribute around the cylinder. Replace the plug.
8. Check starting cord. Whilst the plug is removed, pull the starting cord to its fullest extent and check for wear. Replacing the cord is a job for your dealer (unless you are very brave, foolish, or both!), but finding out now might help prevent failure later in the season – usually at the least opportune moment.
9. Grease all throttle and gear shift linkages.
10. Grease swivel and tilt mechanisms and bracket clamp screws. We don't use the tilt on a Shrimper, but keeping it clean and well maintained will help prevent corrosion. Remove engine trim adjust bar, clean and grease before replacing.
11. Wash down all external painted surfaces with fresh water and dry off. Touch in paint chips.
12. Check fuel line & connections for leaks. Replace any suspect parts.
13. Be aware that the use of petrol/oil mixtures which have been left stored over the winter can cause problems, so it is best to renew.

Annual Maintenance - Four-Stroke

The servicing procedure shown above is relevant to any outboard, whether it be a two-stroke or four-stroke, but there are a number of additional maintenance tasks specific to four-stroke engines that must be carried out during the annual maintenance.

1. Engine oil. As with all engines of this type, a four-stroke outboard has a wet sump. The oil level needs to be checked regularly during the season and the oil changed as part of the annual service/winter storage procedure. The owner's handbook should show you how.
2. Check spark plug(s). If in good condition, clean and set to correct gap. Replace plug(s) if the electrode is worn or if the insulator is rough, cracked, broken, blistered or fouled. Keep all electrics clean and dry. Occasionally coat them with WD40. With the plug removed inject a small quantity of engine oil through the plug hole and rotate engine a few times to distribute around the cylinder. Replace the plug.
3. Storage. Because of their wet sump, four-stroke outboards must only be stored and stowed in specific (generally two) positions. For most makes, including Mariner, Mercury and Tohatsu, this is upright or lying on the steering handle, i.e port side down. Other makes may be different, particularly the Honda 5, that can only be stored upright or starboard side down. Owners need to check their handbook for the correct positions as to lay their engine down the wrong way could result in oil leaking from the sump.