

Engine Installation

1 General review. In the early days, the Sadler 25 was fitted with the Petter Mini 6, being a single cylinder 6 bhp diesel engine, marinised from its original application as an industrial power unit. This was an economical installation, noisy, but reasonably reliable. It was the standard unit from 1974 through to about 1979. From then onwards a number of different engines were used, being BMW 7hp and then in due course a Honda power unit and then the Yanmar GM10.

The Sadler 32 was initially fitted with the Watermota Seapanther 30hp 4 cylinder water cooled engine. This was a widely used power unit at the time and a very successful marinisation of what was a commercial vehicle engine. More than adequate power was available, but there was very little space around the unit for maintenance purposes. It was the standard installation from 1979 through to 1982, when Sadlers fitted the Bukh 20hp which has been an ideal engine for the boat. In 1986 the Bukh 20 was superceded by the Volvo 2002, being the same unit that went into the Sadler 29.

From 1981, the Bukh engine was the standard installation in the 26 (started 1982), the 29 (started 1981) and the 34 (started 1983). The Bukh 10hp went into the 26 and the Bukh 20hp was installed in the 29 and 34. This was of course an ideal unit for the 29, but slightly low on power for what was required in the 34. However, from about 1985, the 34 had the slightly larger Bukh engine being the 24hp and this additional 20% made all the difference.

In about 1986, Sadler changed over from Bukh to Volvo, as did most of the UK boat builders and from then onwards the 26 had the Volvo 2001, the 29 the 2002 and the 34 the 2003. This latter unit at 28hp was perfect for the boat, giving the extra 4hp that was required.

As time progressed (about 1992/93) the Volvo engines were improved to become 2010, 2020 and 2030 respectively for the 26, 29 and 34. There was a small improvement in power output, but the important advances were freshwater cooling on all three engines and additional cylinders to give improved smoothness of operating. The 2010 is a downgraded 2020 and thus has two cylinders and is a very good engine for the 26, but expensive.

2 Bukh equipment and accessories. The Bukh range of engines are relatively slow revving (compared with modern diesel marine engines), have a large flywheel, giving smooth running and have proved very reliable in service. Mainly to do with price and discounting to the boat builders, Bukh was heavily eclipsed by Volvo in 1986 and was not evident in the market place from 1986 to about 1993. Bukh are now much more in evidence and are based at Wimborne in Dorset. Contact is Al Pearson (telephone 01202 668840).

It appears that the accessory requiring frequent replacement is the exhaust bend which is replaced by some boat owners every two years or so. In fact, they buy two at once! I am led to believe by Bukh that they have made some modifications to the design and certainly replacements purchased now should last considerably longer.

One of the commonest complaints is starting difficulty, once the engine begins to lose compression as it gets older. Cold starting can be dramatically improved by fitting the "cold start" accessory. It comes with fitting instructions and most owners will manage it themselves. We have had some success fitting these units and owners have been pleased at the extent to which the cold starting has improved. In some cases I have come across Sadler 34s with Bukh engines connected to a calorifier so as to produce hot water in the boat from the cooling water emitting from the engine. It certainly seems to work, but salt water is passing through the calorifier which will inevitably lead to corrosion as time progresses. What is available now is a heat exchanger which can be fitted to the Bukh 24, thus converting the engine to freshwater cooling. This modification will generally require a qualified engineer to complete the work.

3 Stern glands. A fair number of different types and makes have been fitted over the years, and an interesting article was written in Practical Boat Owner April 1998, which reviews the various options. Until about 1981, that fitted to the Sadler 32 and 25 was generally a standard "stuffing box" arrangement, with gland packing material and with greasing attachment integral with the stuffing box. This was either a screw cup in the case of the Sadler 25 or a grease reservoir with a

screw type plunger. During 1981 to 1982, a different arrangement was fitted being two metal mating surfaces and lubrication fed onto these surfaces from a remote oil reservoir (situated within the engine box). This lubrication was completely automatic since oil dripped through to the gland only as it was required. The arrangement has neoprene rings to prevent water ingress and it is virtually maintenance free. However, signs of trouble are indicated by salt water getting into the oil reservoir. When this happens, it will be because of failure of one or more of the neoprene rings. This is the time to remove the old seal and replace with a Volvo (more later).

During the middle 80s, Sadlers began to fit the Deep Sea Seal, which was also widely fitted by other boat builders. Water was prevented from coming in by the seal of two accurately machined mating surfaces. One surface was stationary and connected to the stern tube and the other surface was moving and connected to the prop shaft. These two surfaces are contained within rubber bellows which again require no maintenance. However, on first launching the boat at the beginning of each season, the bellows should be "tweaked", so as to allow water to lubricate the two surfaces. From then onwards, it requires no further treatment during the season. These Deep Sea Seals can give good service for five to ten years, according to the manufacturers.

After the introduction of Volvo engines into the range of Sadler yachts, it was not surprising that they began to use the Volvo seal. This appears to be the best option, is economical to buy and fairly easy for an engineer to fit. The design of this seal comprises a rubber boot fastened to the forward end of the stern tube, the forward end of which contains a neoprene ring seal, which wraps around the prop shaft. As for the deep sea seal, when the boat is launched at the beginning of each season, the front end of the boot should be distorted by hand sufficiently to allow a little water to pass through. Once this has happened, the lubrication is automatic from then onwards. It is essential however, to carry out this attention every spring.

As time progresses and it becomes necessary to replace the existing shaft seal, the most economic method is to remove the existing unit and replace with a Volvo seal. Cost is less than £100, being rather less than most of the alternatives. With a shaft size of one inch, you will be able to fit a 25mm Volvo seal. The neoprene ring will stretch the required 0.004 inches diameter (difference between 1" and 25mm), but check this with Volvo, before fitting.

4 Cathodic protection. All Sadlers would have been fitted with a shaft anode as standard when the boat was new. However, I do come across a fair number of Sadlers that have no hull anode (particularly the older ones). There is a general consensus of opinion that a hull anode should be fitted and wired to the engine and the cooling water inlet seacock. Whether this wiring should extend to the remainder of the seacocks in the boat is a debatable matter. I find varying opinions as regards how far to go with wiring to the hull anode and suggest that you speak to your local engineer to get his view, before extending the cathodic protection system beyond the engine and inlet seacock.

5 Fuel system. The older boats (such as 25 and 32) all had steel fuel tanks, which by 1981 had generally become stainless steel. Certainly the 26, 29 and 34 all had steel fuel tanks from the first boats. The switch to Vetus plastic tanks took place about 1989 for economy reasons, but the change was entirely practical - less likelihood of defects leading to leaks and also an ability to see how much fuel is in the tank, without the need for a gauge.

Plastic hose was used for fuel lines up until the late 80s and this was certainly an undesirable practice. As the plastic ages, it becomes hard and brittle and it is always criticised by surveyors when surveying boats for sale. A very worthwhile improvement is to get this changed by an engineer to modern diesel flexible hose (which is expensive, but ideal), or alternatively change to copper or steel tubing. This will require the appropriate connections and fittings.

6 Exhaust. The standard exhaust hose does degrade over the years and begins to disintegrate inside. This leads to restrictions for both the exhaust and the cooling water and in due course to over-heating. If in doubt, strip out the old exhaust hose and fit new which is easily done by the average boat owner. At the same time, check the security of the skin fitting at the outboard end of the exhaust hose.

7 Engine mounts and alignment. Condition of engine mounts and particularly security of adjustment studs and nuts should be checked every year and alignment checked. I recommend

that the alignment be checked by a qualified engineer at least every two to three years, since misalignment is the commonest cause of cutlass bearing premature wear. An informative article has recently appeared in Sailing Today June '98 issue which covers the whole subject of alignment and how to deal with it. Also an article by Pat Manley in Practical Boat Owner April 1998 is helpful and interesting.

The 'P' bracket should cause no trouble unless there has been impact damage or perhaps rope around the prop. Should the 'P' bracket become loosened, it is a troublesome and expensive job for most of the Sadlers (£600 to £800). Expensive though it may be, damage to the 'P' bracket certainly needs rectifying, since water ingress will create long term difficulties, which will certainly be picked up by any future survey.

8 Water pump. Fundamental to the health of your engine is an adequate supply of cooling water and this is totally dependant upon the free flow of water through the inlet seacock (and its integral filter) and drawn up through the sea water pump. Regular checking of the impeller is vital and care should be taken to remove this during the winter for checking and possible replacement. It is not an expensive item and a spare should always be carried. It is recommended that you familiarise yourself with removal and replacement of the water pump impellor since this is the most likely problem you will have to deal with at sea. There is a conversion kit advertised in the yachting press, which will make the inspection and maintenance of the water pump rather easier.

9 Engine options. The most popular choice of engine as an alternative to the Bukh and Volvo has been the Yanmar and this is increasingly evident in secondhand boats that have had engine changes. This is a modestly priced engine, which appears to be the most popular choice, where owners replace the old Bukh or possibly Volvo. It is one of the lowest cost engine installations, but does have sea water cooling, rather than freshwater, which precludes the use of a calorifier hot water system.

10 Conclusion. The above notes comprise a mixture of ideas and experiences gleaned over particularly the last five years in dealing with a fair number of secondhand boats. It is hoped that this will bring about an active interest in examining the health of your engine, but it should be stressed that there is a strong case for consulting your local engineer to get his opinion, before replacing accessories or changing the installation.

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