

It is hard to imagine running a modern golf course without the internal combustion engine, yet it is less than fifty years ago since the first greensmowers were introduced and even less time for the ride-on triples. Roland Taylor investigates...

New for old



I remember a greenkeeper telling me that he started in the profession working with his three brothers for their father on a course in Scotland. Each of the sons had a push Certes and was expected to cut six greens before he had breakfast. Anyone who has experienced pushing a multi-bladed mower will know just how hard this is, and I am sure that the introduction of power was a great relief for many. The introduction of petrol and diesel engines not only made the task easier, it also saved considerable time and money. Certainly petrol engines had been on mowers since the beginning

of the century, but these were often heavy cumbersome beasts so one suspects there was a reluctance to put any of them on those hallowed greens. In all probability, no manufacturer considered it a viable proposition to include a powered multi-bladed greens mower in their range. Even in the 1920's, records show that in general there was very little engine-powered equipment being used on courses. The capital outlay involved may have been a major contributing factor in these cases.

One problem was the size and weight of an engine in relationship to

its output. The advent of new materials such as aluminium and advancements in engine technology saw the introduction of lightweight units. These were easier to start and more reliable at punching out greater horsepower for their size. Designers of grass cutting and turf care equipment welcomed them and they were soon included in their new introductions. Diesel engines took longer to reach the stage of diminished dimensions and the ability to recover quickly when placed under load. Technology soon found the answers and the small diesel unit was born. This type of unit is now

New for old

common place on most courses.

Unfortunately storm clouds were on the horizon for engine manufacturers and users, as scientists started talking about greenhouse affects and ozone layers. Legislators took up the theme especially in the United States. It was back to the drawing board for engine manufacturers as stringent reduction levels of pollutants especially carbon monoxide (CO₂) from the combustion engine were scheduled for introduction. Whilst very little legislation on this subject has occurred here in the UK to-date, it is only a matter of time before we will see some something on the statutory books. However, the new engines we find on equipment today



are compliant with USA regulations on air pollution as well as meeting noise level constraints.

The engine is such a vital component, its performance, as well as being environmental friendly, is critical to the efficiency of any piece of equipment. For this reason it needs to be carefully monitored. A engine never lasts forever and whilst it may start well over time, wear and tear will take its toll - output levels drop, more fuel and oil is consumed and emission and noise levels increase. In addition the chances of breakdowns are escalated.

Where an engine is showing signs of deterioration or becoming problematic there are three choices available; a repair, short engine block or a new engine.

Repair

This is usually the first course of action. The fault may be easily rectified, but it may be the first symptoms of trouble ahead so it should be taken seriously and obviously the repairer should be able to advise. In the case of serious overhaul being required there are two alternatives available. If the machine is showing signs of other problems relating to drives or cutting systems this would be the time to consider a complete replacement.

Short engine (Short block)

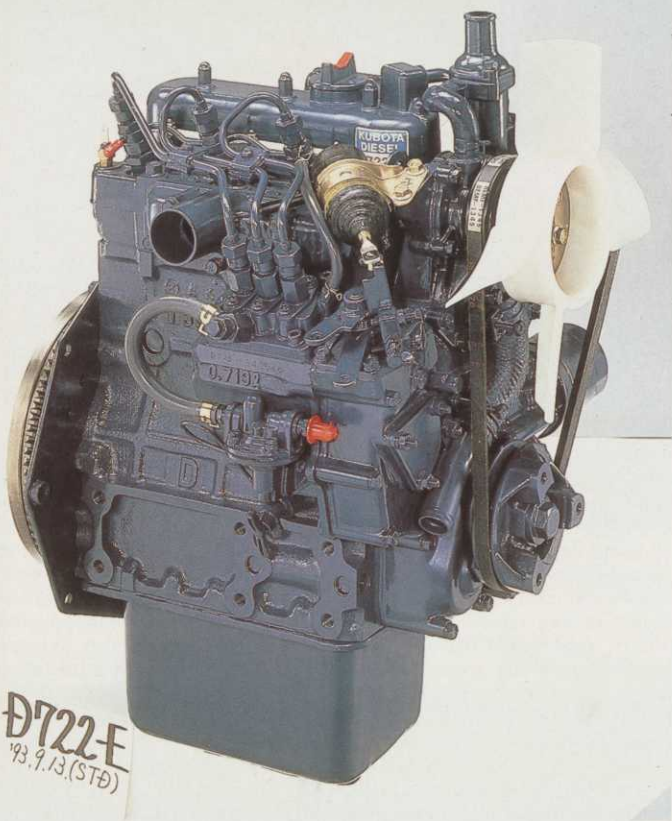
This is available from some manufacturers and can be a less expensive way of acquiring what amounts to a

new engine. The unit consists of a new cylinder block including valves, head and pistons. In fact it is taken off the assembly line before all the components such as flywheels carburettor and electrics are fitted. Not only will it have warranty cover, it will also be the latest version. The only drawback to this choice is the labour rate a service engineer will charge as this could escalate the price bringing it into the new engine category. If the work is done in-house, this could be a cost effective alternative and is certainly an avenue worth investigating.

New engine

The advantage here is that the unit should be bang up-to-date and carry a full warranty period. This replacement situation also offers another course of action and that is to fit an alternative power source i.e. diesel instead of petrol. Before going down this route the rest of the machine needs checking out to ensure all the other components are in good working order. Where a change in the make of engine is being considered then it is important to check what, if any, modifications to mountings or drives will need to be made to accommodate the new power unit. The engine supplier will be able to advise, generally there are kits available.

Whatever course of action is taken any engine needs to be regularly and well maintained. In the pressurised world we live in it is easy to forget the





little things that through neglect suddenly and unexpectedly turn into a large problem. These can often be avoided by what amounts to a quick and simple routine such as checking the oil level every time the engine is used, or cleaning dried grass and accumulated dirt from cooling areas such as fins and radiators.

Combustion pollution is very much an issue at present maintenance plays an important part in keeping emission levels low. A worn unit will burn oil whilst a badly adjusted carburettor will drastically increase the amounts of poisonous gases being pumped into the atmosphere. It will also increase the running costs, not just in the fuel and oil it consumes, but also in the time a particular job takes to be carried out. We have all had the experience of using a new piece of equipment and discovered how much easier and faster it is.

Engine technology has come a long way over the last two decades with the introduction of:

- virtually trouble-free electronic ignition
- increased output from smaller more compact units
- reductions in fuel and oil consumption
- lower emissions and reduced noise and levels

The race is on to find alternative sources of fuel and already we have

seen the use of electric power on golf course equipment. Green diesel made from natural products is also available, although there is not very much evidence of it being taken up here in the UK. On a lighter note, cooking oil is being used in diesels in the USA - the only drawback is that a trail of fumes smelling like 'french fries' is left in the vehicle's wake!

Engines are also now becoming available that have been specifically designed to run on Liquid Propane Gas or natural gas. At present these are mainly being fitted on stationary standby units such as generators, but it will not be long before there will be models suitable for mobile equipment. These should not be confused with the petrol engine Calor gas conversion kits that have been on the market for many years.

From time to time, we see in the press details of power cells and this is an area that is being explored especially by automobile manufacturers. There is plenty going on behind the scenes in the quest for environmentally friendly fuels.

However, regardless of what manufacturer incorporate into their engines, at the end of the day it is the user who has the ultimate responsibility to ensure they are maintained correctly. It also makes sense that by looking after an engine it will give the optimum performance and is less likely to break down.


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