

**Roland Taylor examines the role of the pump and how to get the most out of one.**

**M**ention pumps and very likely your first thoughts are of a unit for moving water, but there are a few other applications around the average golf course where some form of pump is used.

For example most courses have equipment that has a hydrostatic drive, a pump (motor) is an integral part of this system. Then there is the engine with its fuel and oil pumps and the sprayer includes one as does the irrigation system. Somewhere tucked away in the machinery shed is probably a portable unit that is hauled out for those emergencies. Each of these has its own specific requirements and maintenance.

#### **Water pumps**

The choice is enormous so unless you know exactly what you are looking for, technical advice needs to be sought. This is usually available at most outdoor specialist dealers or hire outlets, but before making contact it is worth putting together some details as to exactly what is required.

#### **Type of fluids**

One of the first questions that needs addressing is the type of fluids that are going to be moved. If it's only water then it's straight forward, but there may be some solids involved and this fact has to be taken into consideration. It is necessary to be specific at this stage otherwise you could finish up with a problem, considerable frustration and loss of time.

#### **Flow rate**

Having arrived at the answer it is time to determine how much water is needed to be moved – the flow rate. Where a pump is feeding an irrigation system or ornamental pools the figure for the required rate of flow should be fairly easy to determine. In situations where it is for use as a standby to take excess water out, it could be more difficult to determine the capacity required. For this type of situation it is better to go for a higher flow rate than is necessary.

#### **Total head**

You will need to know what the head conditions are. This is the vertical distance that liquid is to be drawn from to the point where it flows out. Say, you were lifting water from a well with a 10ft suction head and delivering it to a 20ft outlet head the total head would be 30ft. This figure would also have to include an allowance for pipe friction.

#### **Siting**

Siting of the pump is important. In the case of a portable unit there are a number of factors that require taking into account. How easy is the unit to transport, what is the overall weight and dimensions and can one person handle it? Where it will be sited will determine the lengths of hose required and also suction lift and head delivery distances.

If the pump is to be a permanent fixture then it will require some form of housing. A purpose-built, well ventilated and dry chamber is recommended. In the case of a petrol or diesel powered unit considerations need to be given as to the removal of the exhaust gases.

Power source is another important factor. An electric model may be ideal on paper, but if

# Plump for PUMPS

the mains supply has to be put in to run it then the installation could become too expensive. In the case of petrol or diesel engine an ample supply of fuel and oil needs to be readily on hand and easily accessible.

#### **Fittings**

The correct diameter hoses should be used and kept as short as possible with no sharp bends.

Where a pump is sited above the inlet water level a foot valve and strainer will be required on the suction hose – this is to retain the prime. In the case where it is below the intake water level only a strainer will be required gravity will do the rest.

#### **Maintenance**

Once operational the pump should be checked each day. In the case of an engine powered unit the fuel will require replenishing. An inspection of the engine's oil level and its air filter will also be necessary. Engines are now available with a system that automatically switches the unit off when the oil level drops to a critical point. These are an ideal safety feature where a pump is being run for long periods out on the course. The priming of water levels in the pump might also need attention.

If there is any doubt especially regarding an installation then expert advice should be sought.

#### **Hydrostatic transmissions**

A pump is an integral part of this system and to keep the unit running satisfactorily requires some care and attention.

Hydraulic oil works at a high temperature so it requires cooling as do the components that come in direct contact with it. The surface area of the motor (pump) in the system has been increased by the introduction of fins. Cooling air is drawn through these by a fan. It is therefore important that the channels between these fins are kept clean and clear of any debris such as dried grass clipping. Any restriction to the air flow will cause the unit to start to heat up and become less effective. If this situation is allowed to continue

unchecked then the system will finally breakdown and expensive damage will occur. It is also important to recognise that these hydrostatic units are built to very fine tolerances so they should only be repaired under very clean conditions, by a specialist. Care should also be taken to ensure that no impurities such as dirt or water are allowed to enter the system and contaminate it this will result in serious damage.

#### **Oil and fuel pumps**

These will require very little attention. In the case of oil the correct level must be maintained so the pump works efficiently and lubricates all the components. A daily check should be carried out and fresh oil added if necessary.

#### **Sprayers**

Roller vane pumps have been fitted for a long time and are usually found on less expensive sprayers. With the advent of the use of iron compounds and changes in chemicals roller vane and rotary pumps should be avoided if possible. The main reason is that these types of pumps work on very fine tolerances and the abrasive nature of iron can damage the rollers. It also gets into the walls of the chamber and rust sets in very quickly. An application of vegetable oil after every use will help to prolong the life of the pump.

While a diaphragm pump is more expensive it is a better proposition. If you decide to go for one of these or a piston model, then make sure it will deliver at least 1000 litres of spray per hectare.

There is plenty of advice available from sprayer manufacturers and suppliers so it is worth consulting them to ensure a unit you buy does all you require.

A pump is one of those items often taken for granted until it goes wrong. This often happens at a most inconvenient time so to reduce the possibility of this occurring it makes sense to carry out regular checks to ensure everything is maintained correctly and operating satisfactorily. You should then have many years of trouble free liquid movement around your course.