BASIC TECHNIQUES

Pump Performance

A pump's performance depends mainly on the total height through which it is required to pump the liquid. That is the vertical distance from the lowest point in the pump / hose configuration to the highest. In general, the higher you need to pump the water, the less liquid the pump will move in a given time.

Diaphragm pumps are self priming, once you are ready, simply start the engine and set the control to position 2 and let the pump get on with its work.

If it fails to pump any water, stop the engine and inspect all hoses for kinks, damage and secure connection to the pump. Check that the filter cage has not become buried in mud and that the pump's MAX HEAD (see chart) has not been exceeded.

MAX HEAD (lift) Total	Max delivery
18 M (70 ft)	22,500ltr/hr (5,000 gal/hr)

If no fault can be found, contact your local HSS Hire Shop for advice.

Keep an eye on the pump while it is working. In particular, make sure the inlet filter cage remains in the water at all times. Clean the inlet filter cage from time to time.

When the water level has reduced to the depth required, switch the engine OFF (see finishing off), lift the suction hose out of the liquid and wash off any dirt or debris.

EQUIPMENT CARE

Never push the equipment beyond its design limits. If it will not do what you want with reasonable ease or within the time required, assume you have the wrong size or type of pump for the job. Ask at your local HSS Hire Shop for advice.

Keep the equipment clean. You will find this less of a chore if you clean up regularly rather than wait until the end of the hire.

When not in use, store the equipment somewhere clean, dry and safe from thieves. **And where it will be protected from frost at all times.**

Never use the equipment to pump anything other than water. In particular, never use it to pump mud or sludge nor to pump dangerous or corrosive liquids.

Handle hoses with care. Never run them over sharp edges or anywhere else that exposes them to the risk of damage.

Keep the engine upright at all times. If it should get tipped over, mop up oil and fuel spillage's and contact your local HSS Hire Shop for advice.

Regularly check the fuel level and top up as required using the correct fuel, DERV.

Check the engine oil level daily. Let the engine cool, stand it on level ground, withdraw the dip stick and wipe clean. Now, replace the dip stick, withdraw it a second time and verify that the oil level is between Min and Max. Top up as required.

FINISHING OFF

To switch the pump's engine OFF, with the engines control in position 2 pull the control out then turn and hold in position 3 and wait for the engine to die.

Remove any dirt, vegetation etc, that may be clogging the filter cage.

Finally, **disconnect the hoses, drain them of any remaining water and coil them neatly ready for return** to your local HSS Hire Shop.

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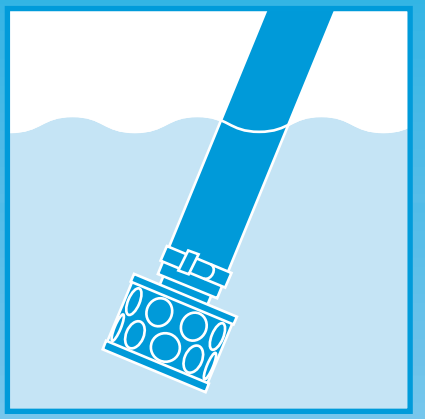
Group Office: 25 Willow Lane, Mitcham, Surrey CR4 4TS

Operating & Safety Guide 740

HSS Hire Shops



3" Diesel Diaphragm Pumps

Diesel-driven, heavy-duty, self-priming, diaphragm site pump. Ideal for pumping water from trenches, pools and ponds.

Code 48337

GENERAL SAFETY

For advice on the safety and suitability of this equipment contact your local HSS Hire Shop.

This equipment has been designed to be used by an able bodied adult. If you suffer from either a temporary or permanent disability, you must seek expert advice before using this equipment.

Keep children, animals and bystanders away from the work area.

Never use this equipment if you are ill, feeling tired, or under the influence of alcohol or drugs.

This equipment should only be used by a competent person who has read and understood these instructions.

This equipment generates potentially harmful noise levels. To comply with health and safety at work regulations, **ear defenders must be worn** by everyone in the vicinity.

Wear practical, protective clothing, gloves and footwear. Avoid loose garments and jewellery that could get in the way of the work, tie back long hair.

Exhaust Danger

NEVER operate diesel engines indoors or in a confined space.

The exhaust contains gases that can Kill.

Take care when working around areas of deep water. Always have someone with you, who can summon help if needed. If you must work alone, make sure you tell someone where you are, what you are doing and how long you expect the job to take. Where necessary, wear a life jacket.

Never carry lift or pull the equipment by its hoses.

Check the equipment before use. If it shows signs of damage or excessive wear, return it.

Take care where you lay hoses. Avoid running them where there is a risk of someone tripping over them.

Fuel Safety

NEVER refuel while the engine is hot or running.

NEVER smoke or allow naked lights into the area while refuelling.

NEVER inhale fuel vapour.

ALWAYS mop up spillages as quickly as possible, and change your clothes if you get fuel on yourself.

ALWAYS store fuel in a purpose-made sealed container, in a cool, safe place well away from the work area.

Always switch OFF the equipment when not in use.

Engines, especially the exhausts, get very hot so switch OFF and allow to cool before touching them.

Keep flammable materials well away from the engine and exhaust.

Never leave the engine running and unattended.

GETTING STARTED

Connect the rigid suction hose (fitted with a filter cage) **to the pump's inlet port and the lay-flat discharge hose to the pump's outlet port. Each hose end is fitted with a screw connector. When fitting, ensure the '0' ring is present, as this provides an air-tight seal.**

Check that the filter cage is securely fixed to the end of the suction hose, then lower it into the water. Suspend the hose from a rope if necessary to raise the filter cage off the bottom. If this is impractical, place the filter cage in a bucket and secure the hose to the handle using string.

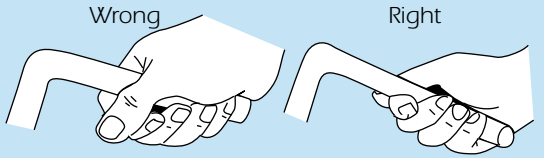
Run the discharge hose to a convenient drain or other suitable discharge point, making sure it is free from kinks and sharp turns that could impede the flow of water.

Set the engines control to ON, there are 2 options (see diagram). **Pull the control out then turn to position 1 if starting from cold, position 2 if the engine is warm.**

Insert the starting handle and gently turn until resistance is felt.

Rule of Thumb

There's a right way and a wrong way to hold a diesel engine's starter handle. The wrong grip could break your thumb if the handle kicks when the engine fires.



Hold open the decompression lever and slowly turn the engine over with the starter handle until the fuel injector clicks.

If you now turn the starter handle more rapidly and release the decompression lever, the engine should fire.

Remove the starting handle and replace in its holder.

Once the engine has warmed up, set the engine control to position 2.

3" Diesel Diaphragm Pump