

DAVEY

DAVEY Firefighter®

Engine Driven Pumps

Models:

5148YEV, 5150HD, 5150P, 5155H, 5155H/NPT, 5155H3, 5155HFRN,
5155HV, 5165H, 5165HE, 5165HQ, 5170YE, 5190HRS2, 5113HE,
5248Y, 5250P, 5255H, 5255H/NPT, 5265H, 5265H/NPT, 5265H23W,
5265H3, 5265HE, 5265HV, 5270YE, 5290HE, 5290HRS2, 5290HRS2NPT,
5210HZE/HP, 5210YE/HP, 5213HE

Installation and Operating Instructions



ATTENTION: Please refer to the Davey website for any product information updates by scanning this QR code, or visit: www.bit.ly/DFPFFIOI.



Please pass on these instructions & the accompanying engine manufacturer's instructions on to the operator of this equipment.

DAVEY Firefighter®

Congratulations on your purchase of a high quality, Davey Firefighter pump. All components have been designed and manufactured to give trouble free, reliable operation.

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1. INSTALLATION

1.1 Pump location

For most efficient operation, site the Firefighter pump as close to the water source as practical. It is essential for the correct function of the engine that it be located on a horizontal surface. If allowed to run at an inclination, the oil lubrication system of the engine may not operate correctly. Subsequent engine failure would not be covered by the manufacturer's guarantee, refer to section 5.1.

The pump should be positioned in a well-drained location to avoid possible property damage by leaking hose fittings, pump seals, spilled engine fuel etc.

1.2 Suction pipe

A reinforced, or non-collapsible hose should be used for the pump suction. The minimum suction pipe size should be 38mm (1½") I.D. for petrol Firefighter models up to 200cc and diesel Firefighter models up to 320cc. Larger models should use 50mm (2") I.D. suction pipe size. A strainer should always be fitted to the bottom of the suction pipe. The strainer should be kept out of sand, mud etc..., to avoid particles being drawn into the pump and causing damage by abrasion. Always locate the pump so that the rise of suction pipe from the water to pump is even with no humps, or hollows where air may be trapped. All pipe connections must be air tight for best priming and operation. Check that washers in nuts and tails, or quick connectors are in good order.

Air tight suction: In permanent installations this is something usually achieved once and forgotten about. The use of correctly applied thread tape is usually the key. In portable pumps, it is something more frequently encountered, so attention to some simple rules will make it easier to achieve:

- Always keep rubber gaskets in good condition, especially important on hose tails and quick connectors;
- Where gaskets must seal on the face of the inlet, ensure the mounting face is flat and not damaged;
- Make sure suction hoses do not have holes or splits. Just because water does not escape from the hole does not mean it won't allow air into the hose when priming.

Evacuate the air: Even the most powerful pump will experience problems trying to evacuate the air from itself and its suction line if it has nowhere for the air to go. To help clear the air and properly prime the pump:

- Make sure the Firefighter pump has an open discharge to atmosphere nearby to allow the evacuation of the air. Use one of the outlets equipped with a ball valve if possible;
- Isolate the rest of the discharge pipework until the Firefighter pump is properly primed. This is especially important in self-priming installations where the Firefighter pump may regularly be needed to pump water through a long discharge

line. Once it is clear the Firefighter pump has established prime the outlet to atmosphere can be shut and the major discharge line opened.

Note: Failure to isolate the major discharge line during priming may result in a "false" prime, or failure to prime at all. This may result in closed head operations – see above notes;

- For Firefighter pumps, it is very important they run at full speed during the priming operation. Failure to run at full speed may result in failure to prime etc.

Allow up to 3 minutes for long or deep suction. If the Firefighter pump fails to prime, then it may be due to the Firefighter pump flap valve not seating properly, an air leak in the suction pipe or fittings, a blocked suction pipe air locking (as above), or the bottom end of the pipe embedded in mud.

These steps are where mistakes are commonly made. Failure to correctly establish prime can result in unsatisfactory pump performance, and in some cases the Firefighter pump will run in a closed (or "dead") head circumstance. Closed head operation can result in the remaining water in the pump being heated to dangerously high temperatures.

1.3 Delivery pipe

Care should be taken on correct selection of pipe pressure rating as single stage (yellow) Firefighter pumps can deliver pressures up to 650kPa (93psi). Two stage (red) Firefighter Plus pumps are capable of pressures up to 1,135kPa (165psi).

1.4 Pump priming

Firefighter models with 3-way outlets: use a top discharge port as a priming port as shown in **figure 1.1**.

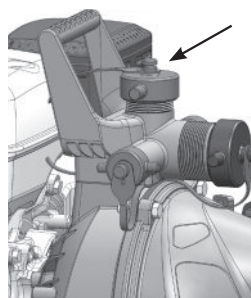


Figure 1.1

Firefighter models with 4-way outlets: have a bayonet style fitment, with a safety release mechanism.

- To insert the priming plug, ensure the handles on the plug are in line with the engine shaft, or pointing towards the engine as shown in **figure 1.2**.

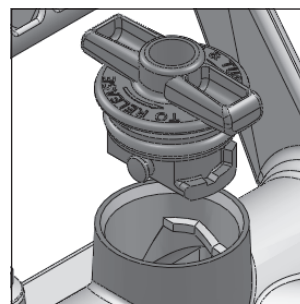


Figure 1.2

- Insert the plug and then rotate ¼ turn clockwise as shown in **figure 1.3**.

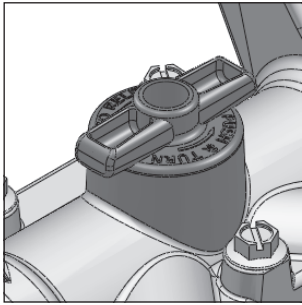


Figure 1.3

- Once the pump is pressurized the plug will pop up slightly engaging the security latch (**figure 1.4**), thus preventing accidental removal. While the plugs can be removed under pressure, the operator must intentionally push the plug in and then, whilst still holding the plug in, twist counter-clockwise on the plug. It is possible to abort plug removal part way through the process.

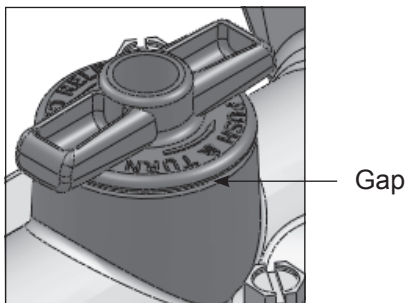


Figure 1.4

1.5 Drain plug

The drain plug fitment is like the priming plug. However, to insert the drain plug the plug handles start in the vertical position as shown in **figure 1.5**.



Figure 1.5

Keep the plug and it's surround free from sand and grit. Occasionally apply a suitable silicon-based rubber grease (petroleum-based greases are not acceptable) to the o-ring. The Firefighter pump drain plug is identical in operation. Both plugs are available with a 1/4" BSP tapping to facilitate the fitment of pressure gauges or automatic drain valves etc.

2. PUMP WARNINGS



ATTENTION: The Firefighter pump may contain hot liquid under pressure. The Firefighter pump body should always be full of water when operating and must not be allowed to run dry for extended periods.



IMPORTANT: Check that there is water flow through Firefighter pump when running, as insufficient flow can cause damage, not covered by warranty. If a Firefighter pump has been allowed to run at closed (or "dead") head, do not open any valves of priming plugs until the pump casing has cooled.

When transporting your Firefighter pump, water from the casing may leak back past the priming flap. Before attempting to self-prime the Firefighter pump you may need to check that the casing is still full of water.



ATTENTION: In the event of fire damage to the Viton elastomers ("rubber"), consult your Davey dealer regarding safe handling of burnt Viton components. Burnt Viton emits a dangerous acid, which can cause serious health effects.

3. CARE AND MAINTENANCE

3.1 Pump and pipework

Run the pump every week or so during the fire season to ensure it and associated pipework and fittings are in good working order. This will also help turnover the fuel and make sure the lubricating oil is circulated around the engine. Ensure the water source is free of leaves and sticks etc. which may block inlet strainers and obstruct the water flow to the pump.

Check for pipe leaks and the correct operation of all valves connecting the Firefighter pump to the water source and on the discharges. Air leaks on the suction line are the number one cause of pump problems. Make sure all rubber gaskets and seals are in good order.

3.2 Pump operation

High performance can be obtained from a Firefighter pump if the engine speed is increased. However, we do not recommend the Firefighter pump be operated over 3,600rpm for extended periods, as this may overload the engine and reduce its working life. Operating the engine at full throttle for extended periods will shorten engine life and may result in premature failure. For operations such as irrigation or dam and tank filling, the throttle should be closed to around 3/4 maximum. This should correspond to around 3,000rpm. The exception to this is the diesel models 5148Y, 5248YEV and 5210YE/HP. These models are continuously rated to 3,600rpm.

Note: special consideration applies to 5150P and 5250P models. See section 4.7.

3.3 Removal of impeller

Single impeller models:

Pump impeller is screwed clockwise onto the engine shaft. The impeller assembly is fixed together by a setscrew. It can be disassembled in two halves by removing the setscrew. This practice allows the impeller to be cleaned without disrupting the mechanical seal and potentially creating additional service replacements.

Alternatively, the entire impeller assembly can be removed. To remove the entire impeller assembly, unscrew locking setscrew, or impeller/s anti-clockwise using a socket in eye of impeller. If difficult to remove, lock engine crankshaft at recoil starter end.

Twin impeller models:

Second stage pump impeller is screwed clockwise onto the engine shaft. The complete impellers' assembly is fixed together by a single setscrew. The impellers can be disassembled in two halves by:

- unscrew locking setscrew;
- remove first impeller front and rear
- remove diffusers; and
- remove second impeller's front half.

This practice allows the impellers to be cleaned without disrupting the mechanical seal and potentially creating additional service replacements.

Alternatively, the entire impeller assemblies can be removed. To remove the entire impeller assembly:

- unscrew locking setscrew;
- remove first impeller front and rear
- remove diffusers; and
- remove second impeller anti-clockwise using a socket in eye of impeller. If difficult to remove, lock engine crankshaft at recoil starter end.

3.4 Avoiding pump damage



IMPORTANT: Pumping water containing sand, dirt or other abrasive materials will result in accelerated pump wear and seal failure. Damage of this kind is not covered by warranty. Pumping water containing chemicals, or high concentrations of salt may damage Firefighter pump components. If the Firefighter pump is used for this kind of service, life will be extended by always washing thoroughly with clean water after use. However, Davey cannot accept responsibility for damage caused by chemicals, salt or corrosive fluids. Pumping hydrocarbon-based liquids, even in diluted form, is likely to cause damage to internal components and such failure is not covered by warranty. Davey ensure their Firefighter pumps and the engines fitted to them are matched. This is confirmed by engine manufacturers by programs such as the Honda's engine matching test and approvals program.

3.5 Storage



IMPORTANT: The Firefighter pump should be drained of water and normal engine storage procedure should be followed. (Run the engine until fuel is exhausted, drain and fill sump with fresh oil). The Firefighter pump should be stored in a dry place. Before starting pump after storage, it should be checked to make sure that it is free to rotate by pulling engine starter recoil with ignition off. Ensure water is drained from the Firefighter if being stored in freezing conditions.

3.6 Fuel: petrol

Modern petrol engines very seldom actually have starting or running problems due to fuel vaporizing. The usual fuel related problem is due to old fuel. Most people are unaware that petrol has a limited life. It loses its volatility, or put simply, it goes "stale". This may mean that if you have a petrol driven pump unit fully fueled and ready to go in September, by December it may not start. There are some important procedures to follow to ensure your petrol engine is ready to start and operates correctly:

- Change your fuel every two months. While in perfect conditions the shelf life should be at least three months, are you prepared to take the chance? Changing the fuel over can be by usage or by draining the fuel from the engine. It also applies to fuel you have stored, even in approved containers;
- Use a fuel stabiliser to extend the storage life of the fuel. Honda offers fuel additives, or stabilisers which dramatically extend the shelf life of petrol. These additives must be added at the time of purchase of the fuel. They will NOT renew already stale fuel.

3.7 Fuel: diesel

While diesel fuel has a longer shelf life, it is still limited. BP Australia recommends that under normal storage conditions, diesel fuel can be expected to stay in a useable condition for:

- 12 months or longer at an ambient of 20°C;
- 6-12 months at an ambient temperature higher than 30°C.

Keeping stored diesel fuel at lower temperatures in containers free of air and water, and out of contact with zinc or copper (or alloys including them) can help extend the storage time. The main problem is the settling of sediments and gums, which in the case of small diesel engines can be a very serious issue and can cause major harm to the engine. Another very important thing to remember with diesel fuel is cleanliness. Dirt in the fuel can do serious damage to the fuel injection pumps, and in prolonged situations can lead to complete engine failure. Correct fuel filtration on the engine's fuel tank is absolutely critical.

3.8 Engine Oil

The use of good quality, correctly rated engine oil is very important to the long-term dependability of your engine, especially when you need it most. Check the manufacturer's recommendations for the correct grade of oil and stick to their recommendations. Do not use a synthetic, multi-grade motor vehicle oil in your small engine, it simply is the wrong oil for this type of engine.

Diesel engines require specific oils designed for diesel, and the diesel engine on your Firefighter pump will need a different oil to that used for truck or motor vehicle engines. Honda and Yanmar offer their own branded specialty oils to suit their engines best, but no matter who makes the oil, use the right grades and stick to trusted brands. Davey include a label with every engine to advise of the correct oil to use, which are:

- Honda: SAE 10W-30 mineral oil. For extreme conditions alternate oil grade may be appropriate – check manual; and
- Yanmar: MONOGRADE SAE 30, API- CC or CD mineral oil. For extreme temperatures SAE 40 may be necessary.

Running the engine regularly will help ensure the oil is distributed around the engine, thus providing the best lubrication and longer engine life.

3.9 Air cleaners

In a fire emergency you need every ounce of performance from your pump unit to be available, and poorly maintained air cleaners won't help you. Adequate clean air flowing into the engine at the right speed and temperature is vital for efficient combustion:

- Follow the engine manufacturers' schedule and instructions for the correct maintenance of the air cleaner;
- Ensure your engine has access to ample clean fresh air;
- Be careful changing the air cleaner from the engine manufacturers original equipment as these are specially designed for each engine.

3.10 Engine cooling

The temperature at which an engine operates has a dramatic effect on the power it can deliver. The higher the ambient or surrounding heat and the more radiant heat the engine is exposed to, the lower the performance. The effects of radiant heat should not be underestimated:

- Protect the engine from radiant heat. Install the engine in a flame proof enclosure which has some degree of insulating characteristic. Materials such as fiber cement sheeting, autoclaved aerated concrete, or even concrete bricks provide good

fire resistance and thermal insulation. Any enclosure must allow for adequate flow of clean air, while at the same time protecting the pump unit from radiant heat. Make sure the exhaust is correctly routed out of the enclosure;

- Add a mist spray, or sprays around the pump enclosure. It will protect the area from embers and aid cooling;
- Make sure the enclosure is easily accessible for engine fueling and pump servicing.

3.11 General engine maintenance

Sometimes it's the little things that lead to problems, but they are often easy to see if you know what to look for:

- **Fuel lines:** Check to ensure there is no water in the carburetor bowl. Make sure any fuel lines have not degraded over time;
- **Recoil starters:** Ensure they work smoothly. Check the recoil rope for any signs of wear, if uncertain, replace them;
- **Service schedules:** Small engines are often not treated as well as they deserve, oil changes are the most common item neglected.

4. MODEL VARIANTS

4.1 Roll frames

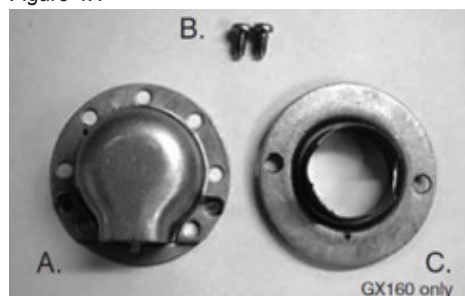
Many Firefighter pumps are factory fitted with a roll frames. Other models have roll frames available as an optional extra. For replacement, or optional roll frames, contact your local Davey representative, or Davey by using the contact details at the back of this manual.

4.2 Muffler deflector

Davey Firefighter pumps using the Honda GX160 and GX200 engines, include an engine muffler deflector. Please follow these instructions when fitting:

- Take product out of box and make sure all relevant parts are in the box, or in the bag containing the Installation & Operating Instructions. The correct parts as shown in **figure 4.1**, for fitting the exhaust deflector are:
 - > 1 x deflector (A);
 - > 2 x self-tapping screws (B);
 - > 1 x muffler guide (GX160 engine only) (C).

Figure 4.1



- Use a number 2 Phillips head screw driver. Before trying to fit the guide and deflector, use one of the screws to tap the threads in the black muffler heat shield. The heat shield doesn't come with the holes pre-tapped, so it's easier to tap the holes prior to fitting the muffler guide and deflector.
NOTE: a certain amount of force will be needed to tap the thread in the shield. Be careful that you don't apply too much force and end up bending the heat shield;

Figure 4.2



- GX160 only: After the holes are tapped into heat shield, place the muffler guide and deflector onto the shield in the correct position. Ensure it doesn't interfere with your application;

Figure 4.3



- When the correct position of the deflector is found you can then proceed to screw the screws in and the procedure is completed.

Figure 4.4



4.3 Viton seal options

Available on selected models, identified by a sticker (when fitted), have been supplied with Viton seals and elastomers. This is to provide the pump with superior resistance to common agricultural chemicals. These pumps should still be flushed out with clean water after use.



ATTENTION: In the event of fire damage to the Viton elastomers (rubber), consult your Davey dealer regarding safe handling of burnt Viton components. Burnt Viton emits a dangerous acid, which can cause serious health effects.

4.4 Fuel stop solenoid (Yanmar diesel)

Available on selected Yanmar diesel engines, the option must be fitted during product manufacture. Controlled via a key switch, the solenoid starts and stops the flow of fuel to the engine, to start and stop the Firefighter pump. This allows the Firefighter pump to be installed on a tray-back vehicle, with the convenience of being controlled from inside the cabin of the vehicle.

The switch has three positions:

- off (O);
- ignition (I); and
- crank (II).

In the ignition position, battery power is supplied to the solenoid and the crank position starts the engine. To stop the engine, turn the switch to the off position.

4.5 Electric start options

Battery recommendations:

Brand	Model	Minimum size
Honda	GX200	18 amp hour
Honda	GX270 & GX390	30 amp hour
Yanmar	L60AE & L70AE	24-36 amp hour
Yanmar	L100AE	36-45 amp hour

Battery cables: should be of ample size to accommodate the starting current of the engine and discharge rates of the battery. Both cables should be of the same cross-section size. Cables should be of enough length to ensure engine vibrations are not transferred to the battery terminals.

Installation: Honda and engines come with a starter switch installed. The switch on a Yanmar engine is not connected, but only requires to be plugged into the 4-pin coupler located below the starter on the engine.

- The eye connector should be connected to earth ($\perp$);
- The green bullet end connector is to operate the fuel shut off solenoid;
- There is a red bullet connector attached to a lead which terminates at the fuel shut off solenoid, just above the throttle. This red bullet connector should be inserted into the green bullet end connector and should not be attached to any other terminal;
- The key switch should be mounted on a firm point, free from engine vibration;

- Place the battery in a holder with a flat base. Ensure the battery cannot tip or fall over;
- Connect the positive lead to the positive terminal on the starter solenoid;
- Connect the negative lead to an engine mounting bolt, frame bolt or other good engine ground connection;
- When connecting the leads to the battery, connect the positive lead to the positive post FIRST;
- Tighten the connector firmly. Grease smeared over the battery terminals will help prevent corrosion;
- Connect the negative lead to the negative battery post.

4.6 GX390UT2 regulator/rectifier fitting instructions

Some new GX390UT2 engines now come with several optional parts to enable you to adapt your engine to better suit your application.



When a battery is fitted, to start the engine, the regulator/rectifier is required to charge the battery while the engine is running. The Wiring Harness is required to connect the regulator/rectifier to the engine. The wiring harness is designed so it can only be connected to the engine one way. The wiring harness has a 6-pin connector, a 2-pin connector and two single wires, one Black and one White. The 6-pin connector plugs directly into the Regulator/Rectifier - Ensure that it "clicks" into the retaining clip. The 2-pin connector plugs into the white, 2-pin plug on the engine. Again, ensure that it "clicks" into the retaining clip. The black wire plugs into the black wire on the engine. The white wire plugs into the white wire on the engine. Make sure to push them in firmly.



IMPORTANT NOTES

The regulator/rectifier will get hot during operation, so avoid placing it anywhere where it may represent a burn or fire hazard. The regulator/rectifier requires a good "Earth" connection, so remove any paint, or surface treatment under the mounting points before bolting it on. The regulator/rectifier may be adversely affected by vibration, so it should not be attached to the Firefighter. Attach it to the Roll Frame, or similar. For any further information or fitting advice, please contact your nearest Authorised Honda Dealer.

4.7 Remote start Firefighter models

For further information specific to remote start models, please see section 7.

4.8 Bare shaft models

Power requirements

Davey bare shaft models are designed to be direct coupled to an electric motor or engine, or can be belt driven. Some power losses will occur through the coupling or belts and pulleys, and these losses should be taken into account when choosing the prime mover to power your pump. The greatest power is required when the pump is pumping the greatest volume of water. The power output of the prime mover should be 15% more than the maximum required by the pump for the speed selected (refer to published performance curves). This 15% extra power is to allow for power transmission losses, less chance of overloading, and wear and tear over years of operation.

Mounting of pump to prime mover

The pump and motor or engine should be mounted on a substantial common base which is non-flexible. Some adjustment should be possible to the position of the pump in relation to the prime mover for alignment purposes.

Direct coupling

It is essential for direct coupling a pump and motor (or engine) that the two drive shafts be exactly aligned. It may be necessary to pack under the feet of either pump or motor. Do not have the two shafts touching; minimum clearance of 2mm must be provided. A two-piece coupling with resilient joiner drive is recommended. The use of a rigid sleeve type coupling is not desirable.

Belt and pulley driving

The use of slide rails to mount the motor allows easy adjustment of the belt tensions. Pump speed greater than the motor is possible by sizing the pulley fitted to the pump smaller than that on the motor. In any case pump speed must not exceed 4250rpm. A double A section pulley drive is recommended. Overtightening of belts will result in bearing failure at the pump or motor.

5. ENGINE WARNINGS



IMPORTANT: The Firefighter pump is fitted with a quality engine which requires oil in the sump. Read ALL instructions to avoid equipment failure which may not be covered by guarantee.

- Fill sump with oil and Firefighter pump with water before starting;
- Check oil levels and maintain oil quality regularly;
- Operation at high altitudes, high temperatures and/or humidity, will reduce engine performance;
- Engine manufacturer's instructions must be followed to ensure safe operation of the Firefighter pump and to void possible engine damage, or reduced engine life;
- We are obliged to inform you that the Firefighter pump is not to be used by children, or infirm persons and must not be used as a toy by children;
- In certain conditions or operation, the sound level of some models of Firefighter pump can exceed 85dB(a) at 1metre.



ATTENTION: Exhaust from this engine is both poisonous and hot. Ensure the exhaust is directed away from people, animals and any flammable materials.

5.1 Petrol engines

- Fill sump with oil to correct level before starting the four-stroke engine;
- Petrol engines require unleaded petrol in the fuel tank.

The Honda engines fitted to Firefighter pumps have an automatic oil level cut-out which will stop the engine and/or prevent starting when oil level is low and/or when engine is tilted.



IN EMERGENCY CIRCUMSTANCES ONLY, OIL LEVEL CUT-OUT MAY BE DISABLED AS FOLLOWS:

- **Disconnect yellow lead to starting switch at "bullet" junction.**

IMPORTANT: WARRANTY FROM THE ENGINE MANUFACTURER MAY BE JEOPARDISED BY SUCH ACTIONS.

5.2 Diesel engines

Yanmar diesel engines do not have low oil protection.

6. BE PREPARED

Your Firefighter pump and pipework is an important part of fire protection, but so are the other things you must do to be ready. Davey recommends you work through your fire plan and make sure it's able to work under a realistic assessment of the worst possible situation. Fire only really understands the worst possible situation. Here's a checklist for your Firefighter pump and equipment.

6.1 Practice

Make sure you and all your team are competent in the use of the equipment:

Can they start and correctly operate your Firefighter pump?

- Can they operate the hoses correctly?
- Do they have a clear understanding of risks and what to do to ensure safety?
- Can each person in your team operate alone, or do you have a plan for single and multiple team members?

Run drills. Practice and make sure everyone understands the fire plan and their part in that plan.

7. REMOTE START FIREFIGHTER MODELS

Your system's mobile phone number:

WARNING: Keep secure!

(Applicable to Davey remote start Firefighter models only.)

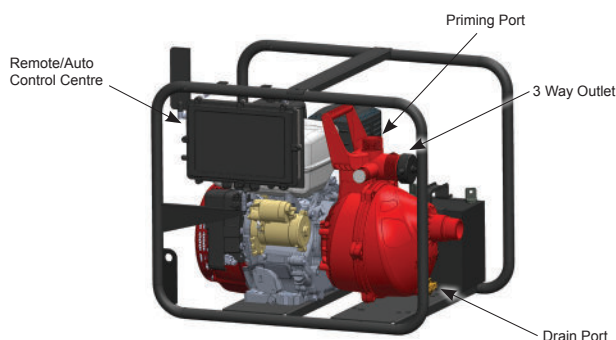


Figure 7.1

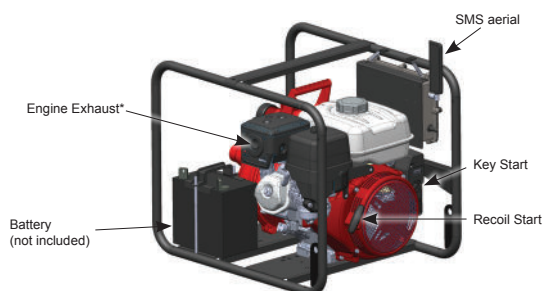


Figure 7.2

Prior to use the pump requires correct preparation:

7.1 Battery:

This is not included, though battery leads are included. The battery required is a 12V lawn mower style battery, below are some acceptable options.

	Length	Width	Height (not including terminals)
Marshall PowerRider	196	128	184
Century EverRide	196	128	156

The black battery lead should be connected to the negative terminal (-ve) on the battery. Only once ready, including after all necessary external wiring connections are complete (refer section 7.8), should the red lead be connected to the positive terminal (+ve) on the battery.

During daily usage, the battery will be recharged. If you only intend to use the pump unit occasionally or in an emergency, you should add a trickle charge system to the battery.

For areas away from mains electricity this charger should be a solar powered unit.

A 40W trickle charger with solar control should be used as a minimum. The pump should still be run for an entire fuel tank every 3 weeks, to ensure the battery is kept fully charged and that petrol doesn't go stale.



CAUTION: Ensure that the battery terminals are only connected to the correct battery leads and do not touch the battery retention brackets or any other part of the frame or pump unit.

7.2 Aerial:

The aerial must be connected to the port on the side of the remote/auto controller.

7.3 Compliance:

This product is designed and tested to all applicable Australian standards including AS/CA S042.1:2015, AS/CA S042.4:2015, AS/NZS 2772.2:2011 and AS/NZS CISPR 22:2009 + A1:2010.

7.4 RF Exposure:

Your device contains a transmitter and a receiver. When it is on, it receives and transmits RF energy. When you communicate with your device, the system handling your connection controls the power level at which your device transmits. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Australian Communications & Media Authority (refer to AS/NZS 2772.2:2011). To comply with limits this equipment should be installed and operated with minimum distance 20 cm between the radiator & your body. The supplied antenna ensures compliance with the required limits.

7.5 External Antenna:

Any external antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operated in conjunction with any other antenna or transmitter. Please consult the health and safety guide of the chosen antenna for specific body separation guidelines as a greater distance of separation may be required for high-gain antennas. The maximum allowable antenna gain for this device in order to meet required limits when operated at least 20 cm from all persons is as below: -

WCDMA	20dBi
B1 (1922.5MHz)	18.1dBi
B3 (1784.3MHz)	16.3dBi
B5 (848.3MHz)	7.0dBi
B7 (2535MHz)	19.4dBi
B28 (746.5MHz)	6.2dBi

7.6 Rubber feet or mounts:

These are not fitted but included in the plastic bag containing this Installation and Operating Instructions. Fit these to the four corners of the carry frame through the holes provided.

7.7 Operation options:

Your Davey 5190HRS2 and 5290HRS2 pump unit is designed to allow for a variety of start and stopping options. These options are prioritised according to importance for protection, e.g. fire protection takes priority over tank filling etc.

Manual Control: This includes manual use of the key starter or recoil starter. This is the top level of control and allows you to manually start and stop the pump at any time, allowing for the following:

- 1) The key must be in the "on" position to allow for recoil starting.
- 2) The key must be turned to the "off" position to manually stop the pump

SMS start / stop: A command to start or stop the pump will override all other sensor inputs. Settings to stop the pump after a pre-set period or on a scheduled time setting (commands "timer", "delay" or "sch" – SMS Control Commands) will not override Fire Sensor or Emergency Switch running.

Sensor Start or Sensor Start/Stop Options include fire sensors, emergency button, pressure switch shut down, float shut down or on/off switching. These sensors are connected via the appropriate terminal on the Remote/Auto Control Centre which is mounted on the pumpset carry frame.

7.8 Auto/Remote Control Centre with Cover Removed

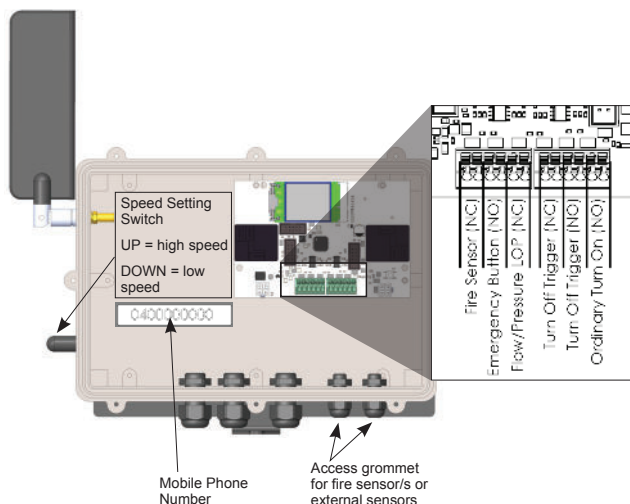


Figure 7.3



NOTE: To allow for automatic or remote starting (e.g. by SMS) the keystart must be left in the “ON” position. Operation via SMS is only possible where your pump Remote/ Auto Control Centre is within reception range.



WARNING: Always disconnect battery from engine prior to working on pump, engine, or controller. Turning the key start switch to “OFF” may allow a remote start signal to enable engine “cranking”, but not starting.

The black battery lead should be connected to the negative terminal (-ve) on the battery. Only once ready, including after all necessary external wiring connections are complete, should the red lead be connected to the positive terminal (+ve) on the battery.

Fire sensors: (Davey part number 402939). These must be connected in series. The looped wiring is connected to the Fire Sensor (NC) terminal and the adjacent “GND” terminal inside the Remote/Auto Control Centre. The bridging wire included must be removed if the fire sensors are installed.

The wire used to connect the sensors should be suitable for extra low voltage usage in the outside. Wiring such as is used for automatic irrigation control valves is ideally suited. Sizes 7/0.30 or 7/0.43 are more than sufficient for the purpose. These should be protected from damage as an open circuit (e.g. broken or cut wire) will result in automatic pump start.

Sensors should be mounted on the edges of the building or the property to be protected every 10 to 20 metres. The connecting wire must be in one continuous loop.

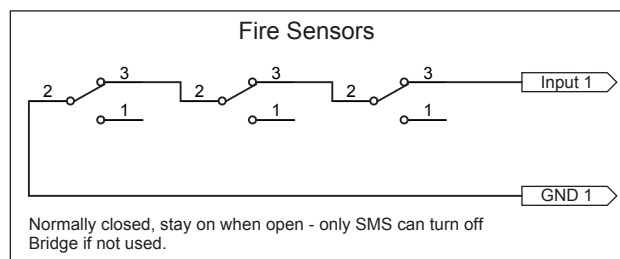


Figure 7.4

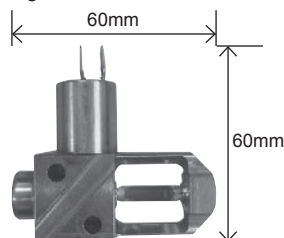


Figure 7.5

Once the pump is started via Fire Sensor it can only be stopped via manual stopping (Turn the key to “off”) or an SMS command to “stop” or the pump has run out of fuel / oil alert shut down.

Emergency Switch or Button: These are used for localised remote starting via a normally open push button or switch. This is not an “on/off” switch, only an “on” switch.

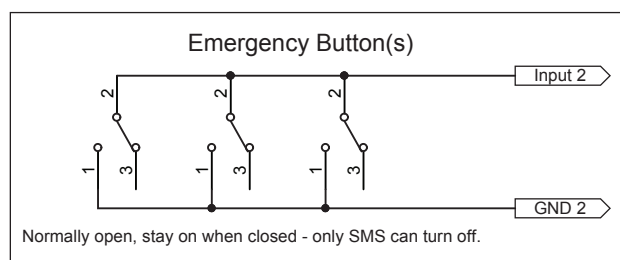


Figure 7.6

Once the pump is started via Emergency Switch or Button it can only be stopped via manual stopping (Turn the key to “off”) or and SMS command to “stop” or the pump has run out of fuel / oil alert shut down.

Flow/Pressure LOP Switch: This function allows for a flow or pressure switch to be connected to detect correct operation and shut down in the event of closed head (flow switch option only) or loss of prime (no flow or no pressure dependant on sensor used).

This option works best with a basic flow switch, as the initiation time delay of 4 minutes is built in allowing for a pump to gain prime (manual or SMS). Once the pump is running LOP is also tied to a shut down in the event of no flow after 30 seconds.

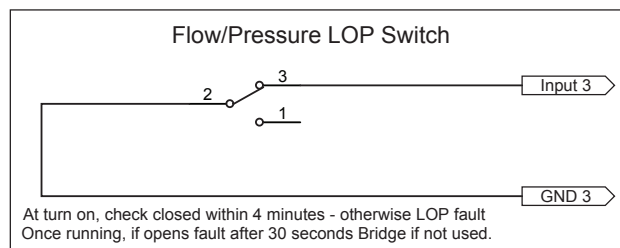


Figure 7.7

Pressure Switch Turn-off (Tank or Shut Head): This is an excellent option for tank filling and can be best used in conjunction with a scheduled start. The pump will run unless the contacts open, such as in a pressure switch when the pump attains closed head. There is no delay once the contacts open, apart from any inbuilt ramp down settings. This way the sensor can be used with a flow switch for LOP as well as a pressure switch for tank filling.

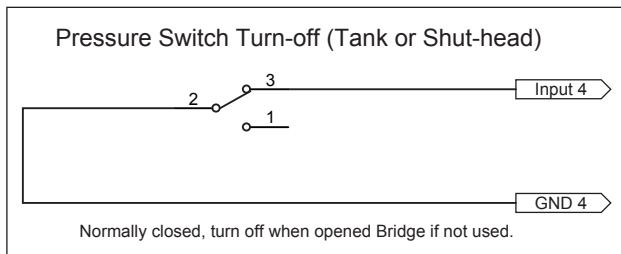


Figure 7.8

Float Turn-off: Similar to the above sensor option except the circuit is a normally open circuit which will initiate a shut down when the circuit is closed.

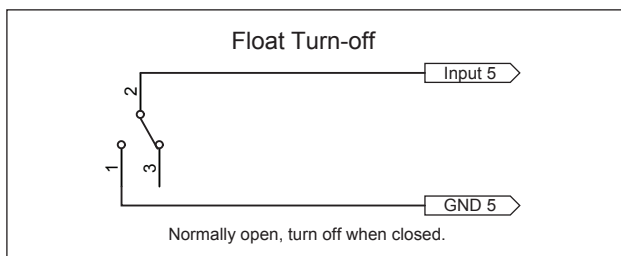


Figure 7.9

Ordinary Turn on Switch: This sensor option allows for an on/off switch or the use of a classic pressure switch to turn the pump on and off. This option can be used in conjunction with the Flow/Pressure LOP, Pressure Switch Turn-off or Float Turn-off. These other options will be prioritised over the Ordinary Turn Off Switch, e.g. if the pressure switch contacts connected to the Ordinary Turn on Switch connection terminals is closed, but the flow switch connected to the Flow/Pressure LOP Switch is open and the (4 minutes initial start or 30 second once primed) timer has elapsed the pump will shut down due to loss of prime/closed head.

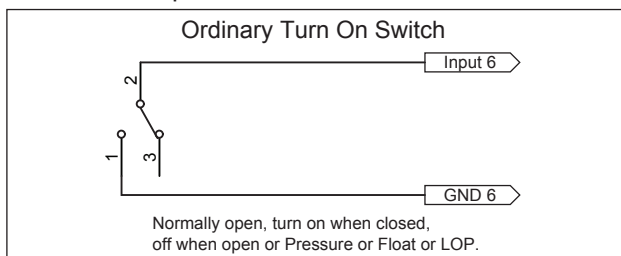


Figure 7.10

7.9 Engine speed and stopping:

Since the Davey 5190HRS2 & 5290HRS2 can be used for fire protection as well as water transfer, the speed setting switch will be overridden if a start is initiated by Fire Sensors or Emergency Buttons(s). The pump will always run at high speed if start is initiated by Fire Sensors or Emergency Buttons(s) regardless of the position of the speed setting switch.



NOTE: Davey recommend turning the speed setting toggle to low speed for at least 15 seconds prior to switching off at the key.



NOTE: For all SMS stop or timer stop events, should the engine be operating in high speed mode it will always drop to low speed for 15 seconds prior to shut down.

7.10 SMS Control:



NOTE: The phone number for the SIM fitted to your new 5190HRS2 or 5290HRS2 is listed at the start of this chapter of this Installation and Operating Instruction and it is also affixed on the inside of the Remote/ Auto Control Centre. Treat this number as confidential and ONLY supply to people who you wish to allow access to operate your pump!

7.11 Set-up:

In Australia, the controller is equipped with a SIM card ready to accept your commands. Firstly, you will need to activate your SIM card and to establish an account. This is done online. You can use your credit card to establish a monthly charge for SMS access following the initial set-up usage. Establishing your account will also facilitate automatic downloading of any software upgrades for your 5190HRS2, or 5290HRS2. To set-up:

- User registration
<https://my.daveywater.com/#/register> (Figure 7.11):

Figure 7.11

- > All fields in the form (up to the checkboxes) are mandatory;
- > Passwords are to be 8 characters and must include a number;
- > The checkbox with blue type is mandatory;
- > The other checkboxes are by user choice;
- > Once details are filled in, click “REGISTER”, this will take you to the login screen (ie <https://my.daveywater.com/#/login>).
- Register your SIM against your account (Figure 7.12):

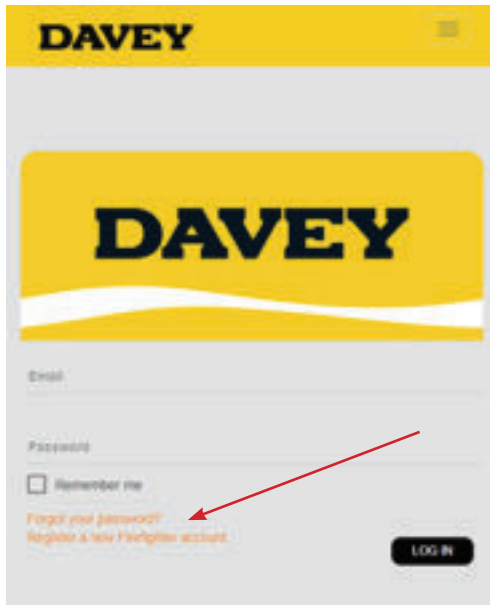


Figure 7.12

- > Once a user is registered, the user can login. Use the email address and password from the user registration procedure;
- > If you forget your password, simply click the “Forgot your password” link to reset;
- > Click on the “REMOTE START FIREFIGHTER” thumbnail (Figure 7.13);

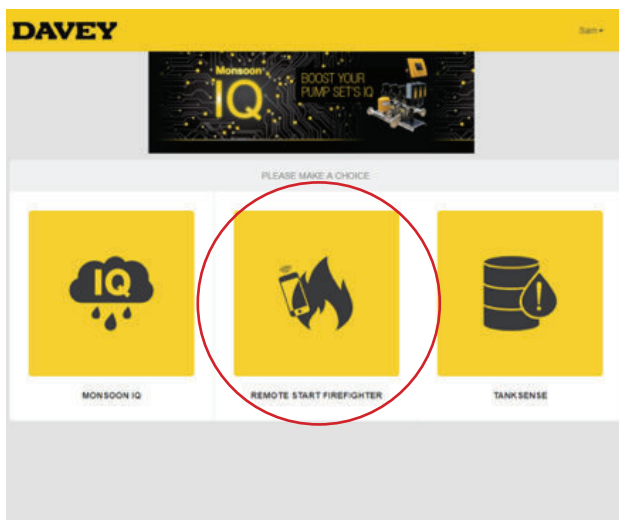


Figure 7.13

- > Click “REGISTER PUMP” (Figure 7.14);

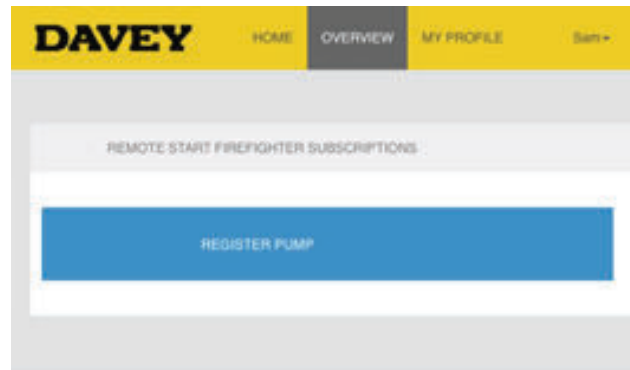


Figure 7.14

- > Activate the remote start Firefighter pump (Figure 7.15) by logging the phone number (of the pump). To locate SIM card number, refer to start of section 7 of this booklet;

Figure 7.15

- > You will also need to log the name of your pump (for example “workshop fire pump”, or Digital RSFF), place of purchase, primary application, and country of use;
- > Once all fields are filled in, click “REGISTER PUMP”;
- > Upon successful registration of account and pump SIM card, you’ll see Figure 7.16;
- > The green colour indicates an active subscription. The first 3 months usage is free.

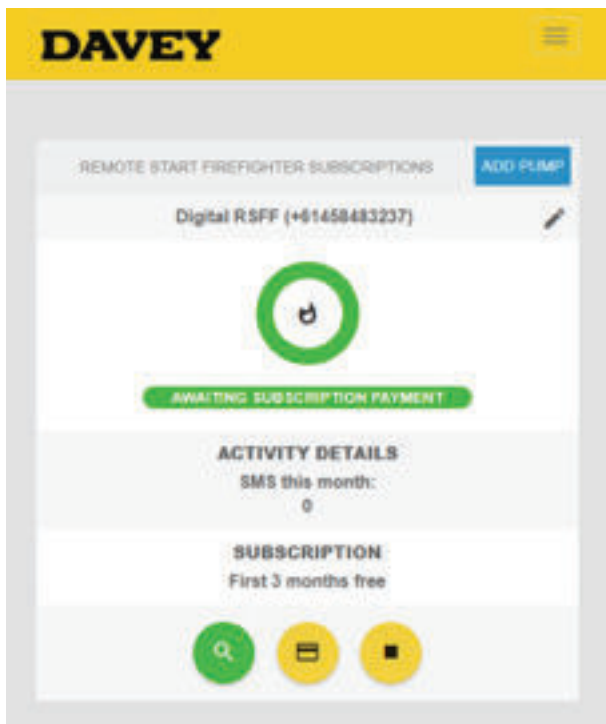


Figure 7.16

- Paying your subscription:
 - > When the subscription becomes due (after the initial 3-month free subscription) an email will be sent to the user and the green bar will turn red in colour;
 - > Once the subscription has expired, the SIM will no longer work. Paying the annual renewal will allow the SIM to be reconnected;
 - > For convenience, the user can choose to enter credit card details straightaway allowing an automated credit card payment once due;
 - > To make a payment, or renew a subscription, click the “CARD” symbol (Figure 7.17);

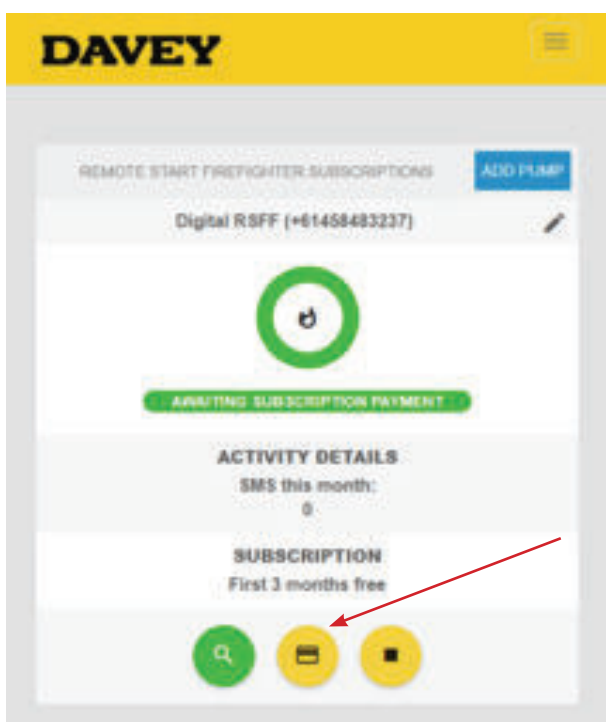


Figure 7.17

- > To stop reoccurring subscription payments, click the square to the right (Figure 7.18).

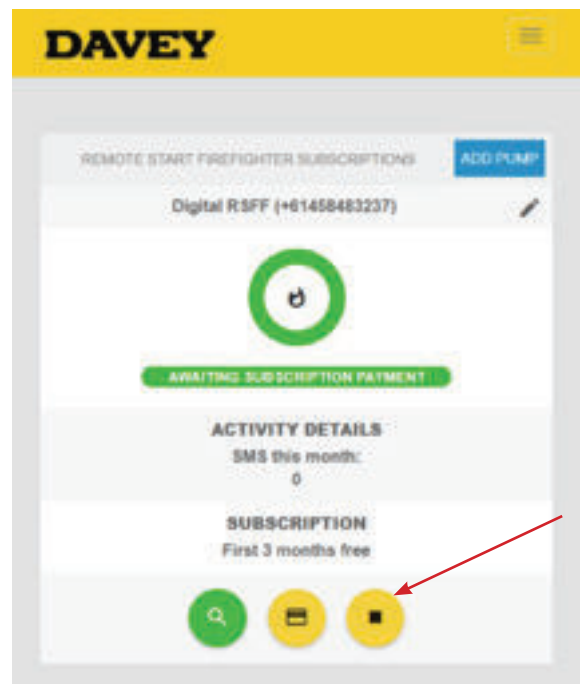


Figure 7.18

- Linking mobile devices:
 - > Up to 3 mobile devices can be linked to your remote start Firefighter pump;
 - > Simply by sending a text command “Register” from each device, to the SIM card of the remote start Firefighter pump.

Tips and troubleshooting remote start Firefighter pump:

Section	Issue	Resolution
User registration	Registration button not clickable	Either a field is not filled in; or that email address has been registered previously. Please check email address and all data is correct.
Login	Login not working	Check you are using the email address you registered with, and check you are using the password you made on registration as well. If you have forgotten your password, please use Forgot Password function to reset it.
Registering	I didn't get a SIM card	The SIM is pre-installed in the control box of the remote start Firefighter pump – there is no need for the end user to install it.
	I didn't get a SIM card number	The number of the SIM is affixed inside the control box of the remote start Firefighter pump. A copy of the same number is affixed to the quick reference guide supplied with the pump.
Post-registration	My pump is not starting, stopping or doing anything, but I am registered	Make sure your subscription is active, and that you have registered both your account AND the pump SIM card. Make sure your pump is within phone range where it is installed.
Pump setup	My pump isn't responding to my text message?	You must "Register" each phone (up to three per remote start controller) that is allowed to connect to the controller. Make sure you have performed the "Register" step in set-up by sending a valid "Register" text message to the remote start controller from each of your mobile devices that you want to have access with.



NOTE: The SIM card in the control centre will not operate in another device. Failure to establish an account promptly will result in SMS disconnection. This will happen a limited time after you first send a SMS to the pump controller if you do not register.

7.12 Control Commands:

SMS control is achieved by sending one of the following SMS commands to the number

Register – Adds your phone number to the list of registered numbers. You must be registered to use any of the following commands.

Start – Starts the pump and cancels any previous timer or delay commands.

Stop – Stops the pump and cancels any previous timer or delay commands.

Timer <hh>:<mm> – Starts the pump and runs for X minutes up to 24:00 hrs. E.g. If you SMS 'Timer 1:10' the pump will run for 1 hour 10 minutes.

Delay <hh>:<mm> + Timer <hh>:<mm> Delays the starting of the pump for up to 24:00 hours and will then run the pump for the Timer setting. E.g. If you SMS 'Delay 8:00' at 10am the pump will confirm the delayed start "8 hours" or 6pm that evening. If you then send an SMS 'Timer 1:20' the pump will send back a confirmation "The pump will run for 1 hour(s) and 20 minute(s) after 8:00 delay".

Note: Timer and Delay functions must be set in correct order to provide a Delay time before the pump start then a run Time.

sch <hh>:<mm>,<hh>:<mm> – Schedule the pump to start at hh:mm and stop at hh:mm. This will repeat every day at the same local (network) time. If the pump start conditions are not met, it will resume the next day. To disable the scheduler, eliminate the start and stop time (E.g. sch)

Status – Reports the status of the pump and controller. This will send you a message back to explain if pump is running, in standby etc:

Fire:on – if fire sensor is triggered

Fire:off – if fire sensor is not triggered

Emergency:on – if the emergency switch is on

Emergency:off – if the emergency switch is off

Flow:on – if flow sensor is triggered

Flow:off – if flow sensor is not triggered

Press:on – if pressure sensor is triggered

Press:off – if pressure sensor is not triggered

Float:on – if float sensor is triggered

Float:off – if float sensor is not triggered

Engine:on – if the engine is running

Engine:off – if the engine is stopped

Speed sw:L – if the manual speed switch is set on low speed

Speed sw:H – if the manual speed switch is set on high speed

Coverage: xxx% – Mobile phone signal strength at remote/auto control unit

Batt: xx.xx: Battery Voltage

Temp:xx.xC

List – Lists all phone numbers registered to the pump.

Remove – Removes your phone number from the list of registered numbers. This can only be initiated by the registered phone number so secure the pump's phone number carefully.

Reset – Resets the controller. This may take up to 1 minute.

Help – Lists commands – sends an SMS back to the phone calling with a list of all commands.

Help <command> – Send more detail about a particular command to the user, e.g. if "help delay" command is sent a reply will be sent: "Delay H:M - Delays "Timer" command execution for H hours and M minutes. E.g. Delay 1:30".

7.13 SMS Feedback:

In addition to the above commands all registered phone numbers will receive advice in the event of the pump responding to any input or command to action (i.e. start or stop). This means all users are aware if a pump is responding to an input or a command.

E.g. should a remote switch start or fire sensor start event occur, then a SMS will be sent to all registered phone numbers.



WARNING: Pump can only be stopped with SMS command or manual shutdown when start initiated by Fire Sensors or Emergency Button(s).

7.14 Removal of Impeller:



WARNING: Before working on the engine or pump ensure the battery is disconnected from the engine and the key switch is in the "OFF" position. This pump has both automatic and remote start capabilities which will allow the engine to "crank" or turn over, though not actually start, even if the key switch has been turned to the "OFF" position. Disconnect the red coloured lead from the positive (+ve) terminal first.

Single impeller models:

Pump impeller is screwed clockwise onto the engine shaft. The impeller assembly is fixed together by a setscrew. It can be disassembled in two halves by removing the setscrew. This practice allows the impeller to be cleaned without disrupting the mechanical seal and potentially creating additional service replacements.

Alternatively, the entire impeller assembly can be removed. To remove the entire impeller assembly, unscrew locking setscrew, or impeller/s anti-clockwise using a socket in eye of impeller. If difficult to remove, lock engine crankshaft at recoil starter end.

Twin impeller models:

Second stage pump impeller is screwed clockwise onto the engine shaft. The complete impellers' assembly is fixed together by a single setscrew. The impellers can be disassembled in two halves by:

- unscrew locking setscrew;
- remove first impeller front and rear
- remove diffusers; and
- remove second impeller's front half.

This practice allows the impellers to be cleaned without disrupting the mechanical seal and potentially creating additional service replacements.

Alternatively, the entire impeller assemblies can be removed. To remove the entire impeller assembly:

- unscrew locking setscrew;
- remove first impeller front and rear
- remove diffusers; and
- remove second impeller anti-clockwise using a socket in eye of impeller. If difficult to remove, lock engine crankshaft at recoil starter end.

8. TECHNICAL SPECIFICATIONS

8.1 Weights and dimensions

Model	5148YEV	5150HD	5150P	5155H	5155H/NPT	5155H3	5155HFRN
Weight (kg)	39	25	8	25	23	25	33
Inlet	1½" BSP M	1½" BSP M	1½" BSP M	1½" BSP M	1½" NPT M	1½" BSP M	2" BSP M
Outlet	4-way 1½"/1"/1"/1½" BSP M	3-way 1"/1½"/1" BSP M	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" NPT M	3-way 1"/1½"/1" BSP M	4-way 1½"/1"/1"/1½" BSP M
LxWxH (mm)	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545
Engine	L48N6	GP160	N/A	GX160	GX160	GX160	GX160

Model	5155HV	5165H	5165HE	5165HQ	5170YE	5190HRS2	5113HE
Weight (kg)	25	26	29	26	61	34	53
Inlet	1½" BSP M	1½" BSP M	1½" BSP M	2" BSP M	1½" BSP M	2" BSP M	2" BSP M
Outlet	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" BSP M	3-way 1"/1½"/1" BSP M	4-way 1½"/1"/1"/1½" BSP M	3-way 1"/2"/1" BSP M	3-way 1"/2"/1" BSP M
LxWxH (mm)	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545
Engine	GX160	GX200	GX200	GX200	L70N5	iGX270	GX390

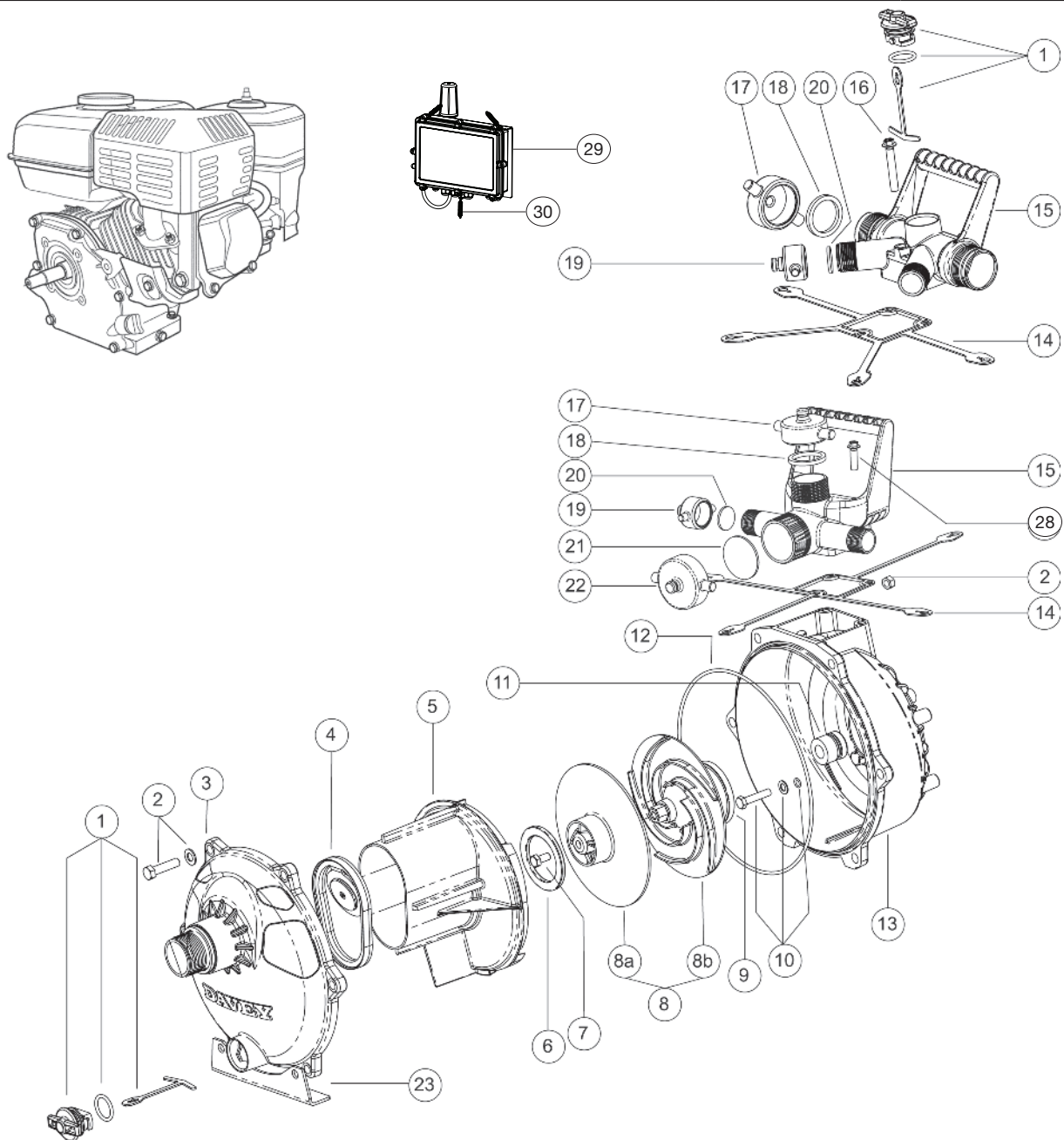
Model	5248Y	5250P	5255H	5255H/NPT	5265H	5265H/NPT	5265H23W
Weight (kg)	36	10	28	27	28	26	28
Inlet	1½" BSP M	1½" BSP M	1½" BSP M	1½" NPT M	1½" BSP M	1½" NPT M	2" BSP M
Outlet	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" NPT M	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" NPT M	3-way 1"/2"/1" BSP M
LxWxH (mm)	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545
Engine	L48N6	N/A	GX160	GX160	GX200	GX200	GX200

Model	5265H3	5265HE	5265HV	5270YE	5290HE	5290HRS2	5290HRS2NPT
Weight (kg)	26	31	26	62	49	38	38
Inlet	1½" BSP M	1½" BSP M	1½" BSP M	1½" BSP M	2" BSP M	2" BSP M	2" NPT M
Outlet	3-way 1"/1½"/1" BSP M	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" BSP M	4-way 1½"/1"/1"/1½" BSP M	3-way 1"/2"/1" BSP M	3-way 1"/2"/1" BSP M	3-way 1"/2"/1" NPT M
LxWxH (mm)	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545	675x520x545
Engine	GX200	GX200	GX200	L70N5	GX270	iGX270	iGX270

Model	5210HZE/HP	5210YE/HP	5213HE
Weight (kg)	78	79	57
Inlet	2" BSP M	2" BSP M	2" BSP M
Outlet	3-way 1"/2"/1" BSP M	3-way 1"/2"/1" BSP M	3-way 1"/2"/1" BSP M
LxWxH (mm)	675x520x545	675x520x545	675x520x545
Engine	1B40	L100N6	GX390

8.2 Spare parts exploded diagram - single impeller

Honda GX160, Single Impeller, (Three Way Discharge)	5155H	(5155H3)
Honda GX200, Single Impeller, (Electric Start)	5165H	(5165HE)
Honda GX200, Single Impeller, Three Way Discharge	5165H3	5165HQ
Yanmar L70N, Single Impeller, Diesel, (Electric Start)	5170Y	(5170YE)
Honda GX160, Single Impeller, NPT (Three Way Discharge)		5155H/NPT
Honda GX270, Single Impeller, (Electric Start)	5190H	(5190HE)
Honda GX270, Single Impeller Remote Start		5190HRS
Yanmar L100N, Single Impeller, Diesel, Electric Start		5110YE
Honda GX390, Single Impeller, (Electric Start)	5113H	(5113HE)



8.3 Spare parts listing – single impeller

Notes: A. 2 required for 4 way outlet, 1 only for three way outlet.

B. Viton seal kit contains the elastomers from items 1, 4, 10, 11, 12, 14, 17 & 22.

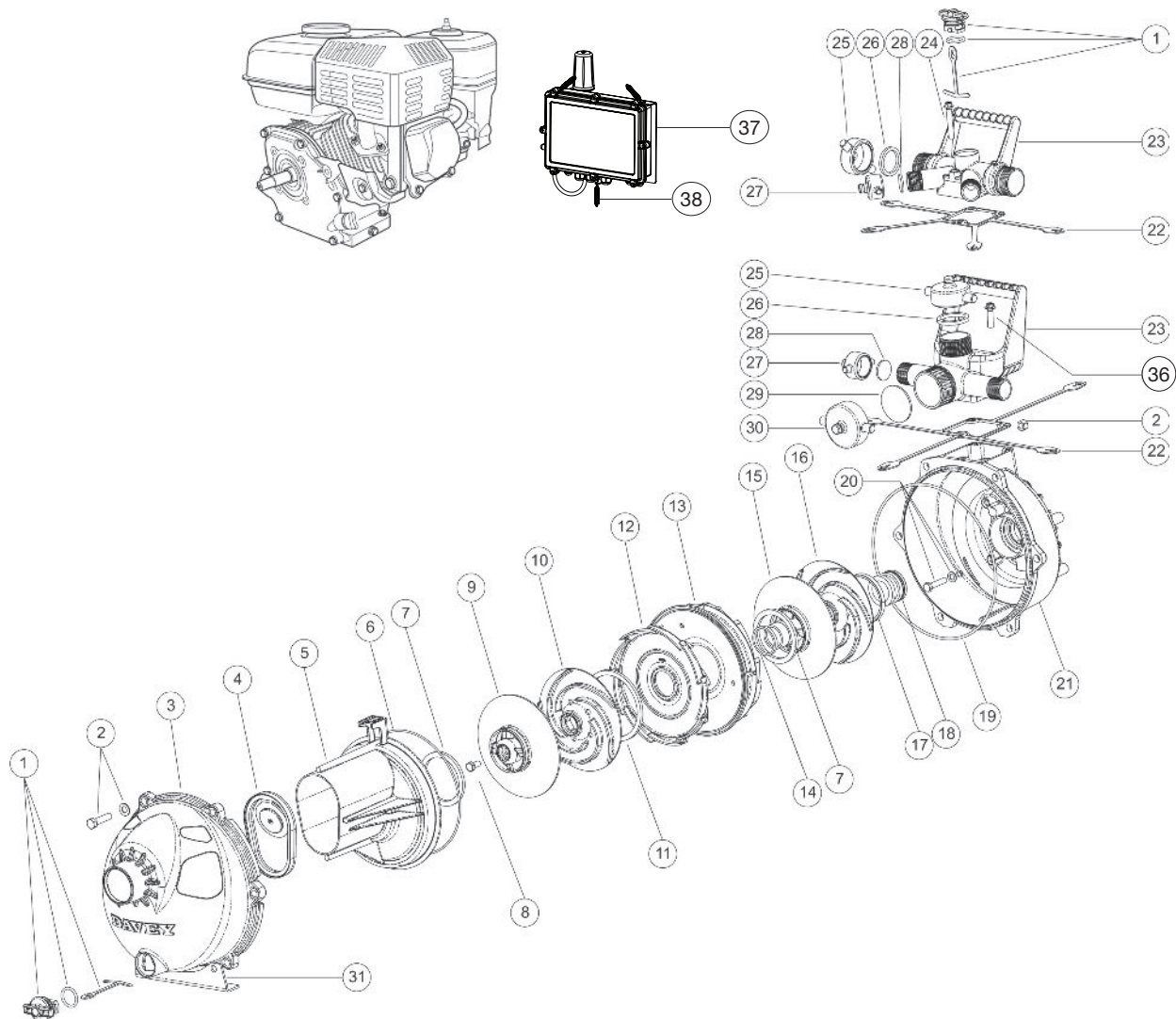
C. The STD seal kit consists of items 6, 7, 9, 10, 11, 12.

D. Tapped priming plug used when installing a pressure gauge.

ITEM	NOTES	DESCRIPTION	QTY REQ'D	PART NO.
1		Priming/Drain Plug & O-ring Assy	2	32162
2		Kit - Bolt & nut (pk 6)	1	32163
3		Casing Assy - Yellow 2" BSPT - HQ models & models fitted with GX270, GX390 & L100N engines	1	14395-2SPY
3		Casing - Yellow 1.5" BSPT All other models not specified	1	13040SPY
3		Casing Assy - Yellow 2" NPT - US HQ models & US models fitted with GX270, GX390 & L100N engines	1	14395-1P
3		Casing - Yellow 1.5" NPT All other US models not specified	1	14395-1
4		Flap Valve Assy	1	13081-3SP
4		Flap Valve Assy - Viton	1	32182SP
5		Diffuser coverplate - models fitted with GX270, GX390, L100N engines	1	13454
5		Diffuser coverplate All other models not specified	1	13158SP
6		Neckring - models fitted with GX270, GX390, L100N engines	1	13452M
6		Neckring All other models not specified	1	13044
7		Screw - Impeller (pk 4)	1	13367*4
8		Impeller Assy - 1 stage 3/4" - models fitted with L70N engines	1	13447
8		Impeller Assy - 1 stage 1" - models fitted with GX270, GX390 engines	1	13416
8		Impeller Assy - 1 stage 35mm 5110YE only	1	13416-1
8		Impeller Assy - 1 stage 5/8" All other models not specified	1	13446
8a		Impeller front - 1st stage Not suited to models fitted with GX270, GX390, L100N engines	1	13043SP
8b		Impeller back 1 stage 5/8" incl screw - models fitted with GP160, GX160, GX200, L48N and L70N engines	1	13394SP
8b		Impeller back 1 stage 3/4" incl screw -models with L70N engine only	1	13394-1SP
9		Neckring balance	1	13366
10		Kit - Bolt, Washer, Oring (pk4)	1	31327*4
11		Seal - Mechanical 35mm (Type 2100) - models fitted with L70N engine only	1	48816
11		Seal - Mechanical 3/4" - models fitted L100N engine only	1	48803SP
11		Seal - Mechanical 33mm (Type 2100) - models fitted with GX270, GX390 engines only	1	48779
11		Seal - Mechanical 5/8" (Type 6) All other models not specified	1	48801SP
12		O-ring - Casing	1	43063
13		Casing - Rear - 35mm - models fitted with L100N engines	1	13039-3MSPY
13		Casing - Rear 3/4" yellow - models fitted with L70N engines only	1	13039-2MSPY
13		Casing - Rear yellow - models fitted with GX270 and GX390 engines only	1	13039-1MSPY
13		Casing - Rear yellow 5/8" All other models not specified	1	13039MSPY
14		Gasket - Discharge 3 way	1	13539
14		Gasket - Discharge 4 way	1	13099
15		Outlet 3 way 2" BSPT - models fitted with GX270, GX390, L100N engines	1	13497SPY
15		Outlet 3 way 1.5" BSPT - models fitted with GX160 and GX200 engines with 3-way discharge	1	13497-1SPY
15		4 way discharge - yellow BSPT - other models fitted with GX160 and GX200 engines & bareshaft models	1	13077SPY
15		4 way discharge (no handle) - yellow BSPT - models fitted with L70N engines only	1	13077-2SPY
15		Outlet 3 way 1.5" NPT - models fitted with GX160 and GX200 engines with 3-way discharge	1	13498
16		Screw - Outlet (pk3) 4 way discharge	1	9615-10*3
16 & 28	E	Discharge Screw Kit (Tapped Casings)	1	33004
17	A	Cap assy - Blank 1.5" BSP (includes 13490 gasket)	2	32164
18	A	Gasket - 1 1/2" cap	2	13490
19		Cap assy - Blank 1" BSP (includes 13489 gasket)	2	32165
20		Gasket - 1" cap	2	13489
21		Gasket - 2" cap	1	13540
22		Cap - 2" BSP	1	13541
23		Bracket - Front Case yellow - models fitted with GX270, GX390 engines	1	13425
28		Screw - Handle (pk3) 3 way discharge	1	32257
29		PCB Remote Start FF 5190HRS-0	1	402944SP
29		PCB Remote Start FF 5190HRS-1, 5190HRS2	1	403283SP
30		Spring - Control Box Remote Start FF	1	15724
	B	Viton seal kit - 5 series All other models - Not illustrated	1	32184
	B	Viton seal kit - 5/8" 1 stage 3 way H3 & HQ models only - Not illust.	1	32244
	B	Viton seal kit - 3/4" 1 st 4 way outlet 5170Y/YE only - Not illustrated	1	32236
	B	Viton seal kit - 35mm 1 st 3 way - models fitted with L100N engines - Not illustrated	1	32247
	B	Viton seal kit - 33mm 1st 3 way - models fitted with GX270, GX390 engines - Not illust.	1	32212
	C	Seal Kit - models fitted with L100N engines (1 stage)	1	32330
	C	Seal Kit - models fitted with GX160 and GX200 engines (1 stage)	1	32332
	C	Seal Kit - models fitted with L70N engines (1 stage)	1	32329
	C	Seal Kit - models fitted with GX270 and GX390 engines (1 stage) 5 Series	1	32331
		Buffer kit	1	32373
		Disc - Location - models fitted with GX270 and GX390 engines - Not illust.	1	12625-1
	D	Plug drilled & tapped (5 series) Not illustrated	1	13553SP
		O-ring - Priming plug pk 6	1	42999*6

8.4 Spare parts exploded diagram - twin impeller

Yanmar L48N, Twin Impeller, Diesel			5248Y
Honda GX160, Twin Impeller (Three Way Discharge)		5255H	(5255HQ)
Honda GX200, Twin Impeller, (Electric Start), *(Three Way Discharge)	5265H	(5265HE)	*(5265HQ)
Yanmar L70N, Twin Impeller, Diesel, (Electric Start)		5270Y	(5270YE)
Honda GX160, Twin Impeller, NPT (Three Way Discharge)			5255H/NPT
Honda GX200, Twin Impeller, NPT (Three Way Discharge)			5265H/NPT
Honda GX270, Twin Impeller, NPT, Remote Start			5290HRS2/NPT
Honda GX270, Twin Impeller, Electric Start (Three Way Discharge)		5290HE	(5290HEQ)
Honda GX270, Twin Impeller, Remote Start	5290HRS-0	5290HRS-1	5290HRS2
Briggs & Stratton Vanguard, Twin Impeller, Electric Start			5210BE
Yanmar L100N, Twin Impeller, Diesel, Electric Start, (High Pressure), *(Hatz Motor)	5210YE	(5210YE/HP)	*(5210HZE/ HP)
Honda GX390, Twin Impeller, (Electric Start),		5213H	(5213HE)



8.5 Spare parts listing – twin impeller

Notes: A. Included in neck & balance ring kt.

B. Non hexagonal style impeller NLA. If replacing a non hexagonal style impeller then part 16 will also need to be replaced.

C. 2 required for 4 way outlet, 1 only for three way outlet.

D. Consists of items 6, 7, 11, 14, 17, 19

E. Viton seal kit contains the elastomers from items 1, 4, 6, 18, 19, 20, 22, 25 & 26.

F. The STD seal kit consists of items 4, 6, 7, 11, 14, 17, 18, 19 & 20.

G. Tapped Casings manufactured from Julian Date Code 18110 onwards.

ITEM	NOTES	DESCRIPTION	QTY REQ'D	PART NO.
1		Priming/Drain Plug & O-ring Assy	2	32162
2		Kit - Bolt & nut (pk 6)	1	32163
3		Casing - Front 1.5" BSP 2 stage 5248Y, 5255H, 5265H, 5270Y	1	13525-1SP
3		Casing - Front 2" BSP 2 stage All other models not specified	1	13525-2SP
3		Front casing red, 1 1/2" NPT	1	14396-3PR
4		Flap Valve Assy	1	13081-3SP
5		Coverplate	1	13386
6	A	O-ring - Coverplate	1	400144
7		Neckring	2	14057
8		Screw - Impeller (pk 4)	1	13367*4
8		Screw - Impeller Long 5/8" shaft only after 06181	1	402563
9		Impeller top - 1st stage - models fitted with GX270 engines and 5210BE	1	13381-2SP
9		Impeller top - 1st stage All other models not specified	1	13381-10SP
10	B	Impeller bottom - 1st stage - models fitted with GX270 engines and 5210BE	1	13380-2SP
10	B	Impeller bottom - 1st stage - models fitted with GX390 engines and 5210YE models	1	13380-10SP
10		Impeller bottom - 1st stage All other models not specified	1	13533-1SP
11		Neckring	1	14056
12		Diffuser 1st stage	1	13383SP
13		Diffuser 2nd stage	1	13382
14		Neckring - Inner stage	1	13476
15		Impeller top - 2nd stage - models fitted with GX270 engines and 5210BE	1	13379-1
15		Impeller top - 2nd stage All other models not specified	1	13379
16		Impeller bottom - 2nd stage Yanmar 5248Y, 5270Y & 5270YE only	1	13535-1SP
16		Impeller bottom - 2nd stage 5290B & 5290H only	1	13376-4SP
16		Impeller bottom - 2nd stage 5210YE only	1	13376-5SP
16		Impeller bottom - 2nd stage 5210HZE/HP	1	13376-7SP
16		Impeller bottom - 2nd stage 5210YE/HP	1	13376-6SP
16		Impeller bottom - 2nd stage - models fitted with GX390 engines	1	13376-3SP
16		Impeller bottom - 2nd stage 5290/10BE & 5290HE/HR models	1	13376-9SP
16		Impeller bottom - 2nd stage All other models not specified	1	13535SP
17		Neckring balance 2nd stage	1	13366
18		Seal - Mechanical 3/4" 5248Y & models fitted with L70N engines	1	48803SP
18		Seal - Mechanical 33mm (Type 2100) - 5210BE and models fitted with GX270, or GX390 engines	1	48779
18		Seal - Mechanical 35mm (Type 2100) - models fitted L100N engines	1	48816
18		Seal - Mechanical 5/8" (Type 6) All other models not specified	1	48801SP
19	A	O-ring - Casing	1	43063
20		Kit - Bolt, Washer, Oring (pk4)	1	31327*4
21		Casing - Rear 3/4" (Yanmar) - 5248Y and L70N engines	1	13039-2MSPR
21		Casing - Rear - 5210BE and models fitted with GX270, or GX390 engines	1	13039-1MSPR
21		Casing - Rear 35mm - models fitted with L100N engines	1	13039-3MSPR
21		Casing - Rear 5210HZE/HP only	1	13039-4MSPR
21		Casing - Rear 5/8" All other models not specified	1	13039MSPR
22		Gasket - Discharge 3 way	1	13539
22		Gasket - Discharge 4 way	1	13099
23		4 way discharge 5248Y, 5250P, 5255H, 5260/65B, 5265H/HE	1	13077SPR
23		4 way discharge - models fitted with L70N engines	1	14394-2SPR
23		3 way discharge 2" BSPT - All models fitted with GX270, GX390, L100N engines (excl HEQ)	1	13497SPR
23		3 way discharge 1.5" BSPT HQ & HEQ models	1	13497-1SPR
23		3-way discharge, red, 1.5" NPT	1	13498PR
24		Screw - Outlet (pk3)	1	9615-10*3
24 & 36	G	Discharge Screw Kit (Tapped Casings)	1	33004
25	C	Cap assy - Blank 1.5" BSP (includes 13490 gasket)	2	32164

ITEM	NOTES	DESCRIPTION	QTY REQ'D	PART NO.
26	C	Gasket - 1 1/2" cap	2	13490
27		Cap assy - Blank 1" BSP (includes 13489 gasket)	2	32165
28		Gasket - 1" cap	2	13489
29		Gasket - 2" cap - models fitted with GX270, GX390, L100N engines excl HEQ	1	13540
30		Cap - 2" BSP - models fitted with GX270, GX390, L100N engines excl HEQ	1	13541
31		Bracket - Front Case 5 series - models fitted with GX270, or GX390 engines	1	13425PR
36		Screw - Handle (pk3)	1	32257
37		PCB Remote Start FF 5290HRS-0	1	402944SP
37		PCB Remote Start FF 5290HRS-1, 5290HRS2	1	403283SP
38		Spring - Control Box Remote Start FF	1	15724
		Restrictor - 5248Y 1st Stage Impeller	1	15313SP
		Restrictor - 5248Y 2nd Stage Impeller	1	15314SP
	D	Neck & balance ring kit Not Illustrated	1	32249
	E	Viton seal kit - 5/8 seal 3 way outlet Not Illustrated - 5265H/HE only	1	32245
	E	Viton seal kit - 33mm seal 3 way outlet Not Illustrated - models fitted with GX270, GX390 engines	1	32246
	E	Viton seal kit - 35mm seal 3 way outlet Not Illustrated - models fitted with L100N engines	1	32248
	E	Viton seal kit - 3/4 seal 4 way outlet Not Illustrated - 5248Y, 5270Y/YE	1	32235
	E	Viton seal kit - 5/8 seal 4 way outlet Not Illustrated - all other models	1	32185
	F	Seal Kit - 2 stage 5 series - models fitted with GP160, GX160 and GX270 engines	1	32338
	F	Seal Kit - 5248Y and 2 stage models fitted with L70N engines	1	32335
	F	Seal Kit - 5110BE and models fitted with GX270, or GX390 engines	1	32337
	F	Seal Kit - models fitted with L100N engines (2 stage)	1	32336
		Plug drilled & tapped (5 series)	1	13553SP
		Disc - Location	1	12625-1
		Buffer kit	1	32373
		O-ring - Priming plug pk 6	1	42999*6

9. WARRANTY STATEMENT

9.1 Honda engine warranty

TYPE	MODEL	PRIVATE	COMMERCIAL
General Purpose Engines	GX, GXV, GD & GXH	3 years	3 years
	GP	1 year	1 year

THIS WARRANTY WILL NOT APPLY TO:

- Any part that has been subject to misuse, negligence, accidental damage, improper or inadequate maintenance, or improper storage.
- Repair rendered necessary or arising from the use of other than genuine HONDA parts.
- Normal maintenance items including but not limited to adjustment and cleaning of carburettor, fuel strainer, oil & air filter, cables, intake valves, exhaust valves and serviceable bearings.
- Normal replacements of service items including but not limited to spark plugs, air & oil filters and serviceable bearings.
- Deterioration of any item due to normal use, fair wear and exposure unless due to a defect in material or workmanship.
- Any work or adjustment performed by persons other than authorised HONDA franchise/dealers or damage resulting there from.
- Any damage that results from operating methods other than those indicated in the owners manual, or use beyond the limitations or specifications as published by HONDA.
- HONDA engines used for racing or competition.
- HONDA products modified from original HONDA specifications.
- For details on HONDA limited warranty refer to www.honda.com.au/poweredbyhonda

9.2 Davey pump warranty

Davey Water Products Pty Ltd (Davey) warrants all products sold will be (under normal use and service) free of defects in material and workmanship for a minimum period of one (1) year from the date of original purchase by the customer as marked on the invoice, for specific warranty periods for all Davey products visit daveywater.com.

This warranty does not cover normal wear and tear or apply to a product that has:

- been subject to misuse, neglect, negligence, damage or accident
- been used, operated or maintained other than in accordance with Davey's instructions
- not been installed in accordance with the Installation Instructions or by suitably qualified personnel
- been modified or altered from original specifications or in any way not approved by Davey
- had repairs attempted or made by other than Davey or its authorised dealers
- been subject to abnormal conditions such as incorrect voltage supply, lightning or high voltage spikes, or damages from electrolytic action, cavitation, sand, corrosive, saline or abrasive liquids,

The Davey warranty does not cover replacement of any product consumables or defects in products and components that have been supplied to Davey by third parties (however Davey will provide reasonable assistance to obtain the benefit of any third-party warranty).

To make a warranty claim:

- If the product is suspected of being defective, stop using it and contact the original place of purchase. Alternatively, phone Davey Customer Service or send a letter to Davey as per the contact details below
- Provide evidence or proof of date of original purchase
- If requested, return the product and/or provide further information with respect to the claim. Returning the product to the place of purchase is at your cost and is your responsibility.
- The warranty claim will be assessed by Davey on the basis of their product knowledge and reasonable judgement and will be accepted if:
 - o a relevant defect is found
 - o the warranty claim is made during the relevant warranty period; and
 - o none of the excluded conditions listed above apply
- The customer will be notified of the warranty decision in writing and if found to be invalid the customer must organise collection of the product at their expense or authorise its disposal.

If the claim is found to be valid Davey will, at its option, repair or replace the product free of charge.

The Davey warranty is in addition to rights provided by local consumer law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

For any internet connected products the consumer is responsible for ensuring a stable internet connection. In the event of a network failure the consumer will need to address the concern with the service provider. Use of an App is not a substitute for the User's own vigilance in ensuring the product is working to expectation. Use of a Smart Product App is at the User's own risk. To the fullest extent permitted by law Davey disclaims any warranties regarding the accuracy, completeness or reliability of App data. Davey is not responsible for any direct or indirect loss, damage or costs to the User arising from its reliance on internet connectivity. The User indemnifies Davey against any claims or legal actions from them or others relying on internet connectivity or App data may bring in this regard.

Products presented for repair may be replaced by refurbished products of the same type rather than being repaired. Refurbished parts may be used to repair the products. The repair of your products may result in the loss of any user-generated data. Please ensure that you have made a copy of any data saved on your products.

To the fullest extent permitted by law or statute, Davey shall not be liable for any loss of profits or any consequential, indirect or special loss, damage or injury of any kind whatsoever arising directly or indirectly from Davey products. This limitation does not apply to any liability of Davey for failure to comply with a consumer guarantee applicable to your Davey product under local laws and does not affect any rights or remedies that may be available to you under local laws.

For a complete list of Davey Dealers visit our website (daveywater.com) or call:

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* A Quick Reference Guide is included with the product when purchased new, for detailed instructions please visit daveywater.com, scan the QR code on the Quick Reference Guide / Davey product label (if applicable) or contact your local Davey Office.

NOTES

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