

CLARKE®

PUMP



PETROL DRIVEN WATER PUMP

MODEL NO: PW80A

PART NO: 7140671

OPERATION & MAINTENANCE INSTRUCTIONS

CE

ORIGINAL INSTRUCTIONS

GC0520 - ISS2

INTRODUCTION

Thank you for purchasing this CLARKE water pump.

Before attempting to use the pump, please read this manual thoroughly and follow the instructions carefully. In doing so you will ensure the safety of yourself and that of others around you, and you can look forward to the pump giving you long and satisfactory service.

GUARANTEE

This CLARKE product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt as proof of purchase.

This guarantee is invalid if the product is found to have been abused or tampered with in any way, or not used for the purpose for which it was intended.

Faulty goods should be returned to their place of purchase, no product can be returned to us without prior permission.

This guarantee does not effect your statutory rights.

ENVIRONMENTAL RECYCLING POLICY

If disposing of this product or any damaged components, do not dispose of with general waste. This product contains valuable raw materials. Metal products should be taken to your local civic amenity site for recycling of metal products.

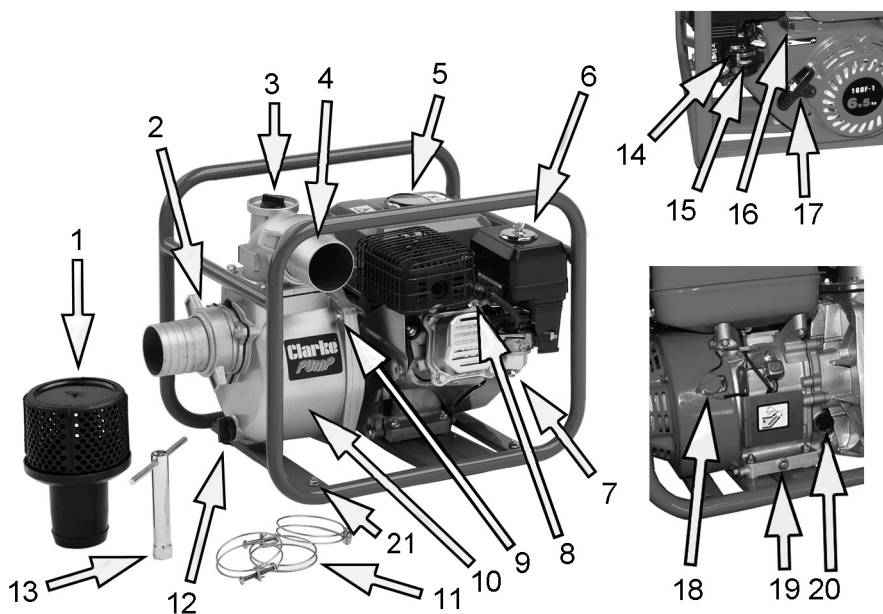
SAFETY PRECAUTIONS



CAUTION: As with all machinery, there are certain hazards involved with the operation and use of this water pump. Exercising caution will reduce the risk of personal injury.

1. ALWAYS observe all safety precautions for the handling of fuel.
2. Thoroughly familiarise yourself with this unit & its operation, and follow all instructions in this manual.
3. ALWAYS ensure that the pump is properly positioned where necessary to prevent it from moving during operation, and that the immediate area surrounding the pump is kept clear.
4. ALWAYS ensure the unit cannot be started inadvertently by using the ON/OFF switch whenever carrying out maintenance or making adjustments.
5. ALWAYS use the strainer connected to the suction hose to prevent stones and other solids from being drawn up, which could cause severe damage to the pump.
6. ALWAYS keep the machine itself dry and well clear of water discharge
7. ALWAYS use only replacement parts supplied by the manufacturer. The use of non-standard parts could be hazardous.
8. ALWAYS use at least 1ft (30cm) of flexible hose to make pipe connections to the pump. Rigid piping may put stress on the pump, causing damage. If rigid piping is used, it should be supported so as to eliminate stress.
9. NEVER refuel the engine whilst it is running, and allow the engine to cool sufficiently before refuelling.
10. NEVER use for pumping petrol (or other flammable liquids), or corrosive chemicals. These pumps are designed to pump water only.
11. NEVER operate an engine driven unit in an explosive atmosphere, near combustible materials, or where there is insufficient ventilation.
12. NEVER allow children to use this pump.
13. NEVER run the pump dry. Always fill the pump with water before starting.
14. NEVER attempt any major repairs to this product unless you are qualified.
15. NEVER direct the discharge flow towards another person.
16. NEVER over-tighten drain or filler plugs. Excessive force may damage the threads or the pump body.
17. NEVER direct the water discharge towards electrical wiring or equipment.

OVERVIEW



1	Inlet Strainer	11	Hose Securing Clips
2	Inlet Adaptor/locking ring with O-ring	12	Suction Chamber Drain Plug
3	Water Filler Plug	13	Spark Plug Spanner
4	Outlet Adaptor/locking ring with O-ring	14	Fuel Shut-off Valve
5	Fuel Filler Cap	15	Choke Lever
6	Air Filter Housing	16	Throttle Lever
7	Carburetor Drain Plug	17	Starter Recoil
8	Spark Plug	18	ON/OFF Switch
9	Suction Chamber Bolt	19	Oil Drain Plug
10	Inlet or Suction Chamber	20	Oil Filler and Dipstick
		21	Rubber feet/fixings

The PW80A petrol driven pump is designed for pumping clean water, or water containing small solids in suspension. The pump is fitted with an open impeller. The suction strainer supplied must always be used to ensure that large stones or other objects cannot be drawn up, as this would cause severe damage to the pump.

BEFORE USE

The pump is supplied with four rubber feet. Use the retaining nuts to secure these to the base of the frame.

Stand the pump on a firm foundation as near to the water source as possible.

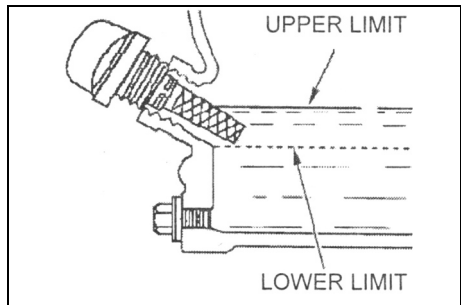
Ensure there is adequate drainage for the discharged water and that there is no danger of damage to property as a result of water being discharged.

ADDING OIL

This pump is supplied without engine oil or fuel. Use any engine oil of SAE 15-40 rating unless operating at very high or low ambient temperatures.

Fill the engine crankcase with oil as follows:

1. Remove the filler plug/dipstick.
2. Fill with oil until visible inside.
3. Check the level by inserting the dipstick back into the filler neck and checking the level is within the indicated range. If correct replace the dipstick/filler cap.



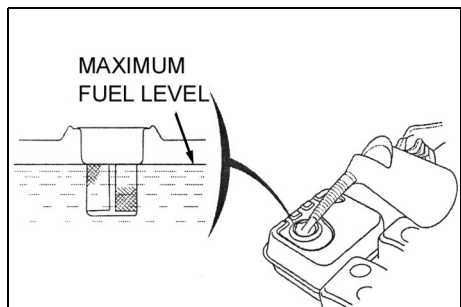
NOTE: The pump is fitted with a low oil sensor which will stop the engine if the oil level drops below the safe level to avoid internal damage. Refer to troubleshooting section.



**WARNING: WIPE UP ANY SPILT FUEL BEFORE RUNNING THE PUMP.
ALLOW THE ENGINE TO COOL DOWN BEFORE REFUELLING**

ADDING FUEL

- Use unleaded petrol.
1. Open the fuel cap and top up as required. Located within the fuel tank is a filter. Check this filter periodically and remove any contaminants which may have accumulated. Do not fill above the fuel filter shoulder.
 2. After refuelling, tighten the fuel filler cap securely.



GENERAL USE OF THE PUMP

1. Connect the suction and discharge hoses to the pump housing using the hose clamps and gaskets supplied to achieve an airtight seal. There must be no damage of any kind to the hoses which must be well protected and supported.

NOTE: Hoses or pipes should be supported independently and not have their weight carried by the pump.

IMPORTANT: An air leak in the suction line will prevent priming, and reduce the capacity of the pump.

2. Pay particular attention to the following:
 - Always ensure the hose adaptor gasket is in place and correctly fitted.
 - Always use a flexible hose at the pump body connection of at least 1ft (300 mm).
 - Keep all pipes/hoses as short and straight as possible and avoid sharp bends.
 - If a flexible hose must be laid across a roadway, protect it with planking.
 - Ensure there is adequate drainage for the water being discharged.

Instantaneous shut off pressure, applied when a vehicle runs across an unprotected hose, will cause "hydraulic shock", which can damage the pump and/or the hose).

3. Attach the suction strainer to the end of suction hose using a further hose clamp to prevent large stones etc, from being drawn up which could cause severe damage. Keep the strainer clean. If it is likely to clog with dirt or debris, proceed by either:
 - Preparing a bed of stones on which to rest the strainer.
 - Tying the strainer so that it stays off the bottom of the pit, pond or excavation.
 - Tie the strainer inside a basket or bucket.
4. Remove the filler plug on top of the pump case and prime the pump with water, leaving no air gap. Remember the pump is self-priming only when the pump is filled. It will prime and re-prime itself without refilling. Refilling is necessary only if the pump has been drained or if the water has been lost. Never allow the pump to run dry.
5. If the discharge line runs vertically more than 30ft it is advisable to install a check valve in the discharge line near the pump to stop destructive water hammer when the pump is shut down. If a check valve is installed, it may

also be necessary to vent the top of the pump so that air can be expelled during automatic re-priming.

Properly fuelled and lubricated your pump will run without further attention.

OPERATION



WARNING: WHEN THE ENGINE IS RUNNING THE EXHAUST MUFFLER IS VERY HOT. TAKE CARE TO AVOID BURNS. NEVER RUN THE ENGINE IN AN ENCLOSED SPACE - ENSURE THERE IS ADEQUATE VENTILATION.

Ensure the site and pump are prepared as detailed on page 6, then proceed as follows:

PRIMING & CONTROL

1. Open the fuel shut-off valve and pull the starter recoil rope slowly two or three times to allow fuel to reach the carburettor.
2. To start a cold engine, set the choke lever to the closed position, but if the engine is already warm the choke should be in the open position.
3. Set the throttle about one third open and turn the engine switch to ON.
4. Pull the starter recoil rope firmly until the engine starts. Do not snatch at the starter rope and allow it to retract slowly after each pull.
5. Once the engine starts to warm up, gradually return the choke to the open position and use the engine throttle to gradually increase engine speed.

STARTING

After starting the engine, control the output by adjusting the engine speed.

NOTE: With a suction lift of 5 to 10ft, the pump should begin discharging liquid in less than a minute. A lift of 25ft (at sea level) should require not more than 2 minutes for initial prime. To further reduce priming time the engine speed may be increased, after the engine is properly run in. If pumping does not start within this time, shut off the engine and check carefully to find the problem. (See TROUBLESHOOTING on page 10).

NOTE: Filling the suction pipe with water will speed up the priming process, and it is recommended that a non-return valve be fitted to the end of the suction pipe.

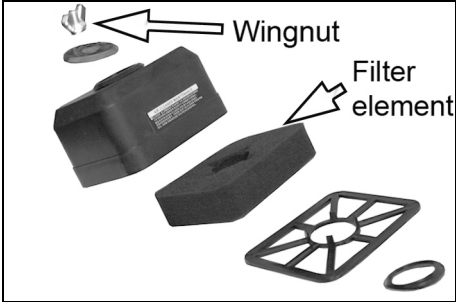
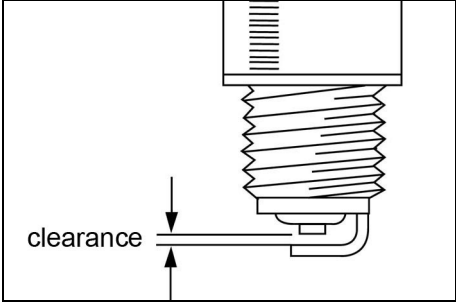
On higher vertical lifts, a higher engine speed is necessary but on shallow lifts or when there is little water to pump, preserve fuel and engine wear by reducing engine speed.

In the event of blockages, where debris has entered the suction chamber, this can be opened and cleaned out by removing the bolts (9) shown in the layout on page 4.

SHUTTING DOWN

1. Gradually reduce engine speed to minimum using the throttle lever.
2. Stop the engine by switching OFF the ignition switch.
3. Close the fuel valve.

MAINTANANCE

1. Always maintain the pump in a clean condition, checking regularly for loose bolts etc.
2. Clean the air filter once every 50 hours of use (or more often in unusually dusty conditions) as follows. Clean the foam filter element with domestic detergents and clean the mesh element by knocking against a solid object or blow out any dust with a high pressure air jet. Never operate the pump without the air cleaner installed as this would cause premature wear to the engine.
3. Replace the spark plug after the first month or every 50 hours of use. Check when installing that the spark plug has the correct clearance by measuring with a feeler gauge and adjusting the side electrode as required.
 - Clearance should be 0.70-0.80mm.
 - The recommended spark plug for the PW80A pump is LD F7RTC.

CHANGING THE OIL

The oil in the engine should be changed after the first 20 hours use and thereafter every 6 months or 100 running hours. Remove the dipstick and drain plug and then drain the oil. Re-fill and check the level as described on page 5.



CAUTION: PROLONGED EXPOSURE TO USED OIL IS HARMFUL. ALWAYS WASH YOUR HANDS THOROUGHLY AFTER HANDLING USED OIL.

ENVIRONMENTAL PROTECTION

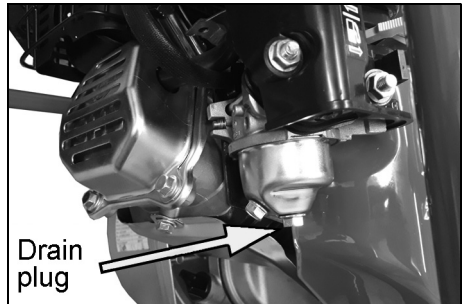
One of the most damaging sources of pollution is oil. Do not throw away used oil with domestic refuse or flush down a sink or drain. Collect old oil in a leak-proof container and take it to your local waste disposal site.

STORAGE & HANDLING

After use, drain the pump body whenever there is danger of freezing. If the pump has been used with contaminated or salty water it should be thoroughly flushed with clean water following use, both inside and out and drained before replacing the drain plug. Always transport the pump with the fuel cock turned off and keep the unit level to prevent any fuel from spilling.

If the pump is not to be used for some time it should be flushed thoroughly with clean water and drained completely before storing in a clean dry environment. Additionally, it should be prepared as follows:

1. Drain the fuel tank and carburettor completely by opening the drain plug in the carburettor float chamber and draining all remaining fuel into a suitable container ensuring the fuel shut-off valve is open.
2. Remove the spark plug, and pour 2-3 teaspoons of light oil into the cylinder through the spark plug hole.
3. Pull the starter recoil rope slowly 2 or 3 times so that the oil is deposited on the cylinder walls and replace the spark plug.

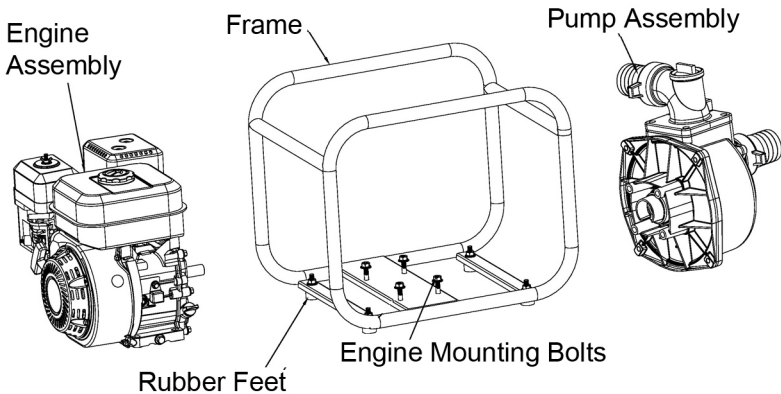


TROUBLESHOOTING

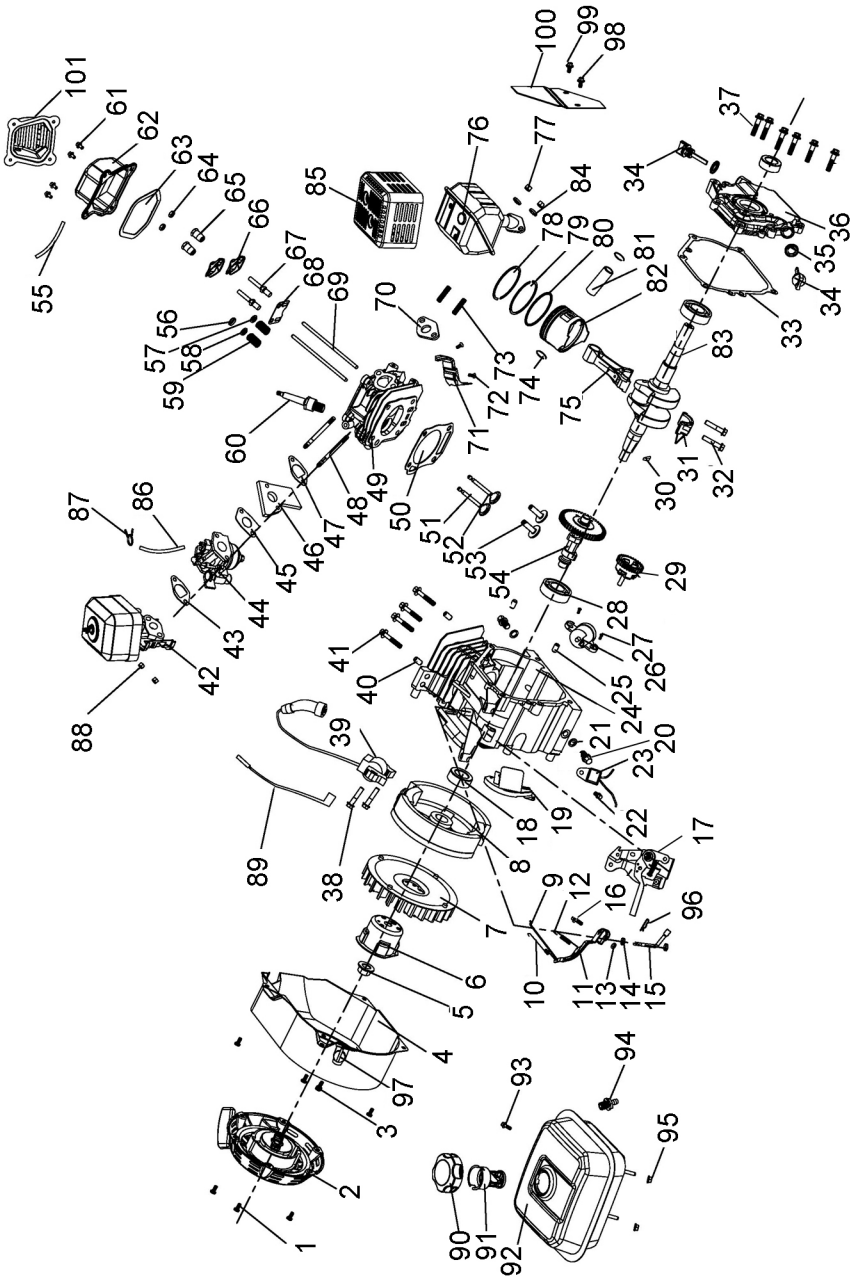
Problem	Cause	Solution
Engine fails to start	Lack of fuel in the tank	Fill the tank as necessary
	No fuel reaching the carburetor	Fuel valve is closed.
	Engine switch is in the Off position	Set the engine switch to the On position.
	Lack of spark at the spark plug.	Check that the spark plug wire is securely attached to the plug head. With the switch in the ON position, hold the spark plug side electrode against the engine and pull the starter cord to observe the spark. If a spark is present but the engine still cannot start consult your dealer for help.
Engine stops and will not restart.	Lack of oil in engine causing 'Low Oil Protection' sensor to stop engine from running.	Fill the oil sump as necessary (see page 5)
Pump fails to prime	Priming chamber not filled correctly.	Fill priming chamber leaving no air gap.
	Air leaks through the suction line joints (damaged hose, broken hose clamps, broken / ill-fitting gasket).	Carry out repairs as necessary. Check/repair connections as required.
	Blocked inlet hose.	Clean strainer & ensure it is not submerged in mud or sediment etc. Ensure there are no kinks in the delivery hose.
	Engine speed too low.	Increase engine speed.
	Damaged impeller.	Renew the impeller after dismantling the pump.
	Air leaks through damaged seal.	Renew seal.

Problem	Cause	Solution
Low output from pump	Engine speed too low.	Increase the engine speed.
	Impeller clogged	Clean the strainer and ensure it is not submerged in mud or sediment etc.
	Suction or delivery line obstructed.	Clear any obstruction and ensure there are no kinks in the delivery line.
	High friction losses in the suction line.	Avoid unnecessary curves, restrictions or valves.
	Suction lift too high	Set the pump as close as possible to the level of the liquid being pumped.
	Congested material inside pump.	Dismantle the pump and clean out.
	Damaged impeller	Dismantle the pump and renew the impeller.

COMPONENT PARTS - GENERAL



ENGINE COMPONENTS DIAGRAM



ENGINE COMPONENTS LIST

No	DESCRIPTION
1	Flange bolt M6 x 8
2	Recoil starter
3	Flange bolt M6 x 12
4	Fan cover
5	Flywheel nut M14 x1.5
6	Starting cup
7	Fan
8	Flywheel
9	Governor pull rod
10	Small governor spring
11	Governor arm
12	Water pump governor spring
13	Flange nut M6
14	Gasket 6
15	Governor lever
16	Square bolt M6x21
17	Water pump governing base
18	Oil seal
19	Flywheel side cover
20	Drain plug
21	Drain plug gasket
22	Flange bolt M6 x12
23	On/off switch
24	Crankcase
25	Crankcase pin
26	Oil sensor
27	Flange bolt M6 x12
28	Bearing 6205
29	Governor gear

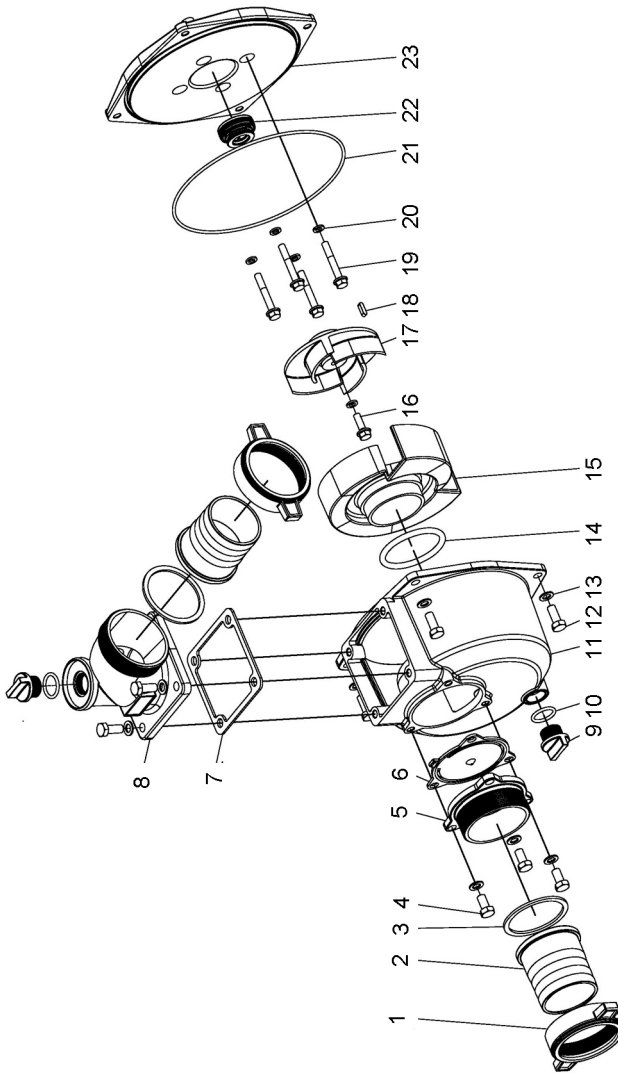
No	DESCRIPTION
30	Flywheel key
31	Connecting rod lever
32	Connecting rod bolt
33	Crankcase gasket
34	Dipstick
35	Dipstick gasket
36	Low crankcase cover
37	Flange bolt M8x33
38	Flange bolt M6x25
39	High tension lead assembly
40	Cylinder head pin 8 x16
41	Flange bolt M8x55
42	Air cleaner
43	Air cleaner gasket
44	Carburetor assembly
45	Carburetor gasket
46	Carburetor insulator
47	Carburetor insulator gasket
48	Carburetor stud bolt M6 x113
49	Cylinder head
50	Cylinder head gasket
51	Inlet valve
52	Exhaust valve
53	Valve lifter
54	Camshaft
55	Breather tube
56	Exhaust valve hat
57	Exhaust valve spring retainer
58	Inlet valve spring retainer

ENGINE COMPONENTS LIST (CONT)

No	DESCRIPTION
59	Valve spring
60	Spark plug
61	Flange bolt M6 x12
62	Cylinder head cover
63	Cylinder head cover gasket
64	Rocker nut
65	Rocker adjusting nut
66	Rocker arm
67	Rocker bolt
68	Push rod guide frame
69	Push rod
70	Exhaust gasket
71	Exhaust cover
72	Flange bolt M6x8
73	Stud bolt
74	Circlip
75	Connecting rod
76	Muffler
77	Nut M8
78	Top compression ring
79	Second compression ring
80	Oil ring
81	Gudgeon pin
82	Piston
83	Crankshaft
84	Spring washer
85	Muffler cover
86	Fuel pipe
87	Circlip

No	DESCRIPTION
88	Nut M6
89	Low tension lead
90	Fuel filler cap
91	Fuel filter
92	Fuel tank
93	Flange bolt M6 x 25
94	Fuel outlet /gasket
95	Nut M6
96	Circlip
97	Flameout switch
98	Flange bolt M8 x16
99	Flange bolt M6 x12
100	Exhaust pipe guard
101	Cylinder head cover guard

PUMP COMPONENTS DIAGRAM



PUMP COMPONENTS LIST

No	Description
1	Pipe joint gland nut
2	Pipe joint
3	Pipe joint gasket
4	Bolt M10 x 20
5	Water inlet flange
6	Check valve
7	Outlet flange gasket
8	Discharge water joint
9	Drain screw
10	O-type sealing ring-1
11	Pump casing
12	Bolt M10 x 25

No	Description
13	Small gasket
14	O-type sealing ring-1
15	Guide flow cover
16	Bolt M8 x 25
17	Pump impeller
18	Flat key 5 x 18
19	Bolt M8 x 55
20	M8 bolt gasket
21	O-type sealing ring-3
22	Water seal
23	Pump base

SPECIFICATIONS

Item	Spec
Engine Model	PT170F
Engine Type	4-stroke OHV single cylinder with forced air cooling
Motor HP	6.0 HP (4.6kw)
Rotational velocity	3600 rpm
Fuel tank Capacity	3.6 L
Oil Capacity	0.6 L
Fuel consumption	0.86 l/h (1.5 hours on full tank)
Guaranteed sound power	106 LWA dB
Sound power level	103.2 dB
Sound pressure level	90.2 dB
Uncertainty factor	2.7 dB
Outlet size	3" (80 mm)
Max Water Flow	1100 L/m (66m ³ /h)
Max Head	28 m
Max Suction	7 m
Pressure (measured)	0.25 MPa / 2.5 bar
Length (mm)	500
Width (mm)	365
Height (mm)	415
Weight	24 kg

DECLARATION OF CONFORMITY



Clarke[®]
INTERNATIONAL

Hemndill Street, Epping, Essex CM16 4LG

DECLARATION OF CONFORMITY

This is an important document and should be retained.

Product Description: 3" Inch Petrol Water Pump
Model number(s): PW80A
Serial / batch Number: 7140671
Date of Issue: 30/04/2020
(Noise Conformity)
Notified Body: N/a

Technical Documentation Holder: A.R. Pond
Clarke International
2a Shrubland Road
London E10 7RB
UK

Conformity Assessment Procedure: to 2000/14/EC Annex V
Manufacturer: Clarke International
Noise Related Value: 4.0 kW
Measured Sound Power Level: 104 dB
Guaranteed Sound Power Level: 106 dB

DECLARATION OF CONFORMITY



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DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following directive(s):

- 2014/30/EU *Electromagnetic Compatibility Directive.*
- 2006/42/EC *Machinery Directive.*
- 2011/65/EU *Restriction of Hazardous substances.*
- 2000/14/EC *Noise Emissions Directive, (amended by 2005/88/EC).*
- 2016/1628 *Regulation (EU), Emission of Gaseous Particulates (with amendments).*

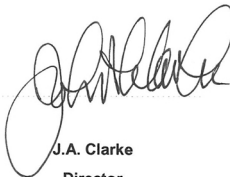
The following standards have been applied to the product(s):

EN 809+A1:2009, EN 55012:2007+A1:2009, EN61000-6-1:2007, EN ISO 12100:2010.

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned directive(s) has been compiled and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2017

Signed:



J.A. Clarke
Director

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