



Motorised Shoring Pump (MG.MPUMP)



Important Notes

All excavation work must be thoroughly planned before work commences on site to identify hazards and assess risk.

These instructions form guidance for the Motorised Shoring Pump. Non-standard applications should be approved by a suitably qualified engineer.

Ensure all personnel engaged in excavation operations are properly briefed and adequately supervised by a competent person.

Certain elements are colour coded on the equipment. If the user has difficulty distinguishing colours, they should contact their supervisor.

THIS USER GUIDE IS NOT CONTROLLED WHEN PRINTED



A Motorised Shoring Pump video animation is available to [watch now](#) on our YouTube channel.

**IF IN ANY DOUBT SEEK FURTHER ADVICE:
ON FREEPHONE - 0800 000 345**



Certification Number 14419
ISO 9001 • ISO 14001 • ISO 45001

Rev	Date	Comments	Initial
1.6	24/03/23	CE/UKCA update	DSW



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Common Signs and Meanings

Safety Note: It is recommended that the appropriate Personal Protective Equipment (PPE) is used when operating this equipment







Prohibition Signs

	Do not smoke
	No naked flames

Warning Signs

	General warning
	Crushing of hands
	Highly flammable

Mandatory Signs

	Use eye protection
	Use hearing protection
	Wear protective gloves
	Wear head protection
	Wear protective footwear
	Use a funnel
	Read user guide

Introduction

Motorised pumps are intended for use with larger double acting (expanding and retracting) equipment such as hydraulic braces and struts where large fluid volumes are involved. They are also ideal for the installation of multiple braces where the quick release hose connections speed up the installation process. These pumps are powered by a small petrol engine which drives the hydraulic fluid pump. **Note:** this equipment should only be in the temperature range -20°C to +40°C unless otherwise stated.

Fuel and Fluids specification

Shoring Fluid

Shoring fluid concentrate is supplied in 5 litre containers marked "Houghto Safe SF 25 B". COSHH datasheets are available on request. (see safety notes below)

Filling the Shoring Fluid Tank

Open the container, remove the shoring fluid reservoir filler cap and carefully pour shoring fluid concentrate into the tank. Motorised pumps have a 40 litres reservoir capacity and this should be filled using a mixture of shoring fluid concentrate and clean water. The concentrate to water ratio is dependent on the outside temperature range. (see table below)

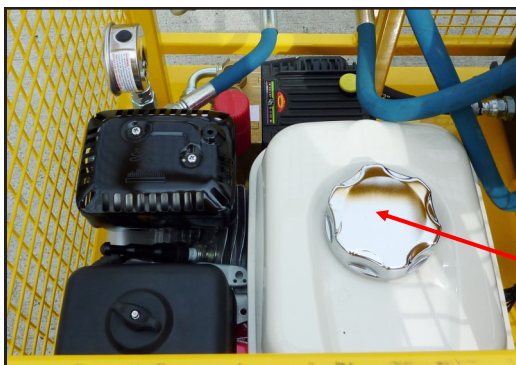
Safety Notes: Wear gloves - wash off any shoring fluid that comes into contact with the skin.
If shoring fluid gets into the eyes, wash thoroughly with water and seek medical advice.
Pressure injection - seek medical advice even if the injury appears minor.

Temperature Range	Ratio (Shoring Fluid / Clean Water)
Greater than 0°C	1:3
Between 0°C and -10°C	1:1
Lower than -10°C	Neat Shoring Fluid

Unit Weights	
Empty	138kg approx
Full	158kg approx

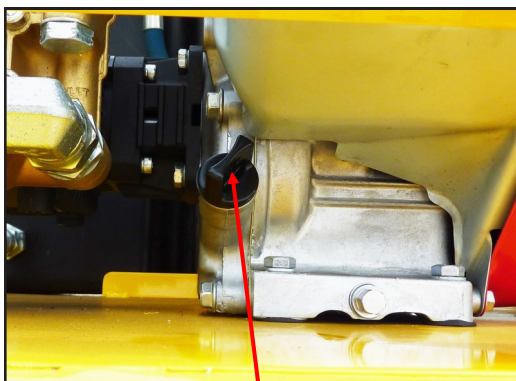
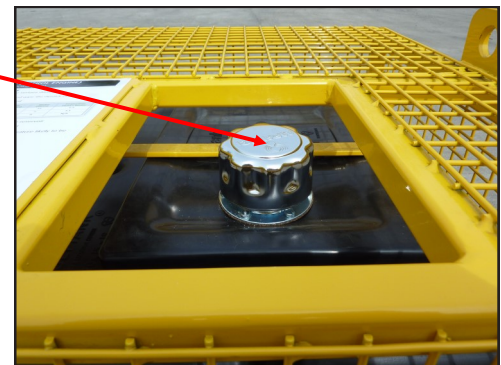
Maximum Delivery Pressure	
Flow (ram out)	1500 Psi (103 bar)
Return (ram in)	3000 Psi (207 bar)

Filler Points



Shoring fluid reservoir filler cap

Petrol tank filler cap

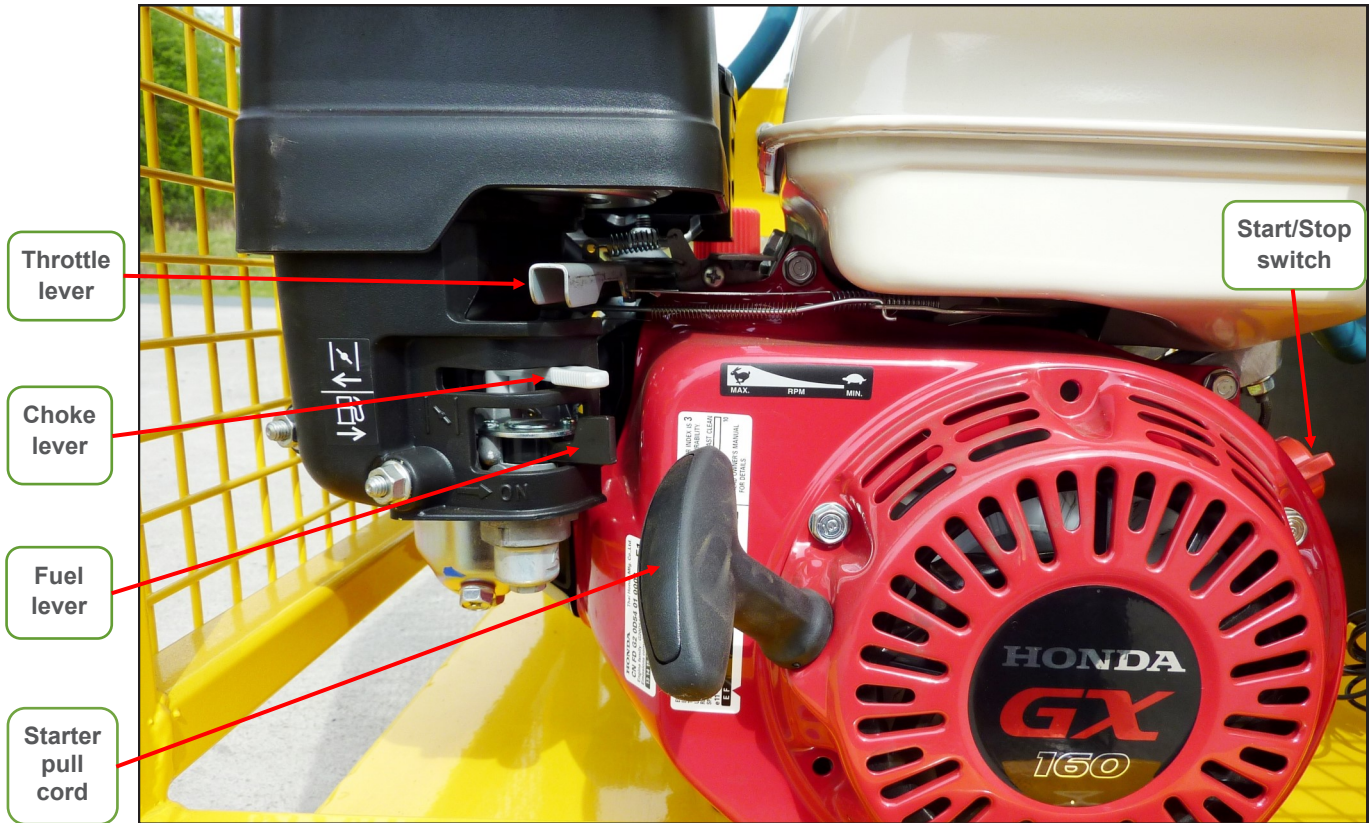


Engine Oil filler cap and dipstick

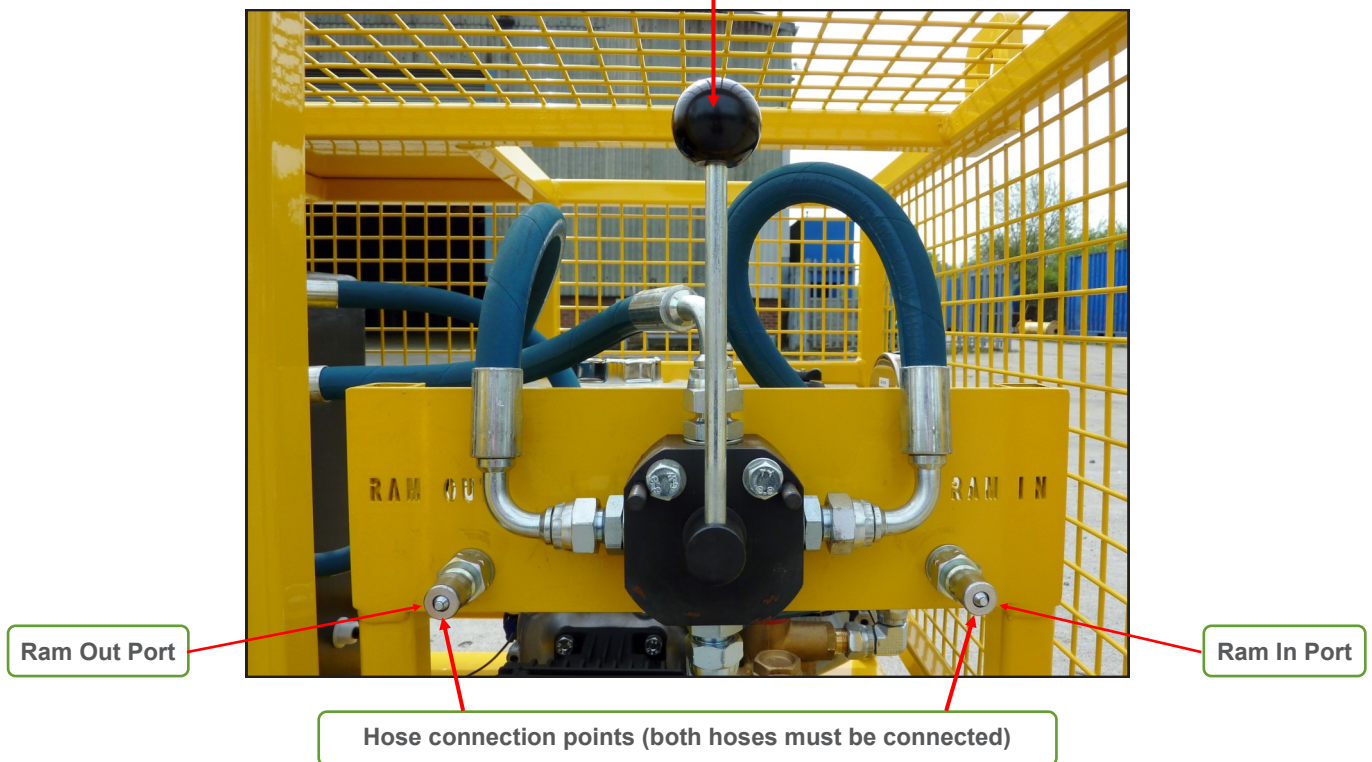


Shoring Fluid level indicator (circled red)

Identification of Levers and Controls



'Flow Direction Valve' (shown in neutral at 12 O'clock position)
Move to the **left** for **RAM OUT**
Move to the **right** for **RAM IN**



Operating Instructions

Safety Notes

- Do not operate the engine in a confined space - always ensure adequate ventilation.
- Be aware that engine components will become hot during use.
- Exercise extreme care when handling petrol.
- Do not smoke when refilling the petrol tank.
- Do not overfill the petrol tank.
- Do not manually lift the motorised pump unit.
- Only use shoring fluid supplied by Groundforce.

Perform the following actions daily and before use:

Running the engine with insufficient oil can cause serious damage.

Perform the following actions before use:

- Ensure that the engine is stopped and the unit is on level ground.
- Remove the oil filler cap (located through the lower side cut-out access opening) and wipe the dipstick clean.
- Insert the dipstick into the filler neck (do not screw in).
- If the level is low, fill to the top of the neck with SAE 10W 30 oil.

1. Check the engine oil level
2. Check the fuel level (use clean unleaded petrol only) **Note:** Any filling should be done when the engine is cold using a suitable fuel rated funnel or container with a detachable filling pipe. Take care to avoid spillages when the engine is hot.
3. Check the shoring fluid level. **Note:** When retracting equipment, there is more fluid volume due to the ratio between full bore and annulus. More fluid is expelled than is pumped in therefore the user must be vigilant to ensure the fluid reservoir capacity is not exceeded. The pump will not start if the reservoir falls below 1/4 full)
4. Inspect for any physical damage to the engine and pump unit.
5. Slowly extend the starting cord and examine it for fraying. (do not attempt to start the engine if it is badly worn)
5. Check for any physical damage to the cage, including lifting eyes and anchorage points:
 - a) Check the attachment of the cover frame to the base. (all four locking bolts and retaining clips must be in place and fully tightened)
 - b) The lifting eyes on top of the cage must be in good condition with no cracking, significant wear or deformation
 - c) **Do not** lift the unit if any of the items in point 5 are in doubt

Engine start-up (refer to images on page 3)

1. Ensure the 'Flow Direction Valve' is in neutral with the lever at the 12 O' clock position
2. Turn the Start/Stop switch to the **ON** position
3. Turn the fuel supply switch to the **ON** position by sliding the lever to the right
4. Turn the choke **on** by sliding the lever to the left
5. Set throttle lever to approximately **50%**
6. Pull the cord to start the engine
7. Turn the choke **off** by sliding the lever to the right once the engine is running
8. Allow the engine to warm up before operating the pump

Note: If the engine will not start, consult the troubleshooting guide on the following page

Engine shut-down

1. Ensure the 'Flow Direction Valve' is in neutral with the lever at the central position
2. Ensure the throttle is set to minimum by sliding the lever fully to the right
3. Turn the Start/Stop switch to the **OFF** position to shut-down the engine

Troubleshooting Guide

Problem	Possible Cause	Possible Solution
The engine will not start	The Start/Stop switch is in the OFF position	Turn the Start/Stop switch to the ON position
	The 'Flow Direction Valve' is not in the vertical position	Ensure the 'Flow Direction Valve' is in the vertical position.
	The Fuel Valve is in the OFF position	Ensure the Fuel Valve is in the ON position
	Not enough fuel in the tank	Top up as necessary with clean petrol
	Not enough oil in the engine (low oil level cut-out has switched)	Top up as necessary
	The engine is flooded (strong petrol smell)	Close the choke and try again

Pump Operation - (Ram Extension)

Note: Regularly check the shoring fluid reservoir for adequate supply – the engine will cut-out if the fluid level in the reservoir falls below 1/4 full.

1. Connect one end of each of the hoses provided to **both** outlet ports on the pump.
2. Take the hose which is connected to the 'Ram Out' coupling on the pump and connect the opposite end to the 'Expand' coupling on the hydraulic ram.

Note: Consult the relevant Struts or Braces User Guide for hydraulic hose connection and Lock-Off Valve details.

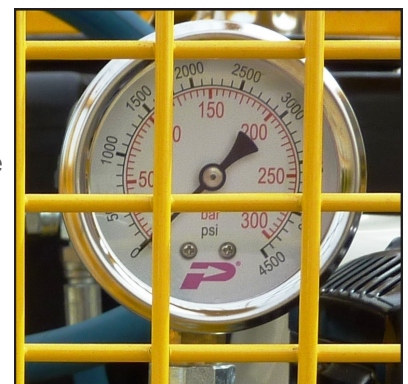
3. Take the hose which is connected to the 'Ram In' coupling on the pump and connect the opposite end to the 'Retract' coupling on the hydraulic ram.

Note: Both hoses must be properly connected for the ram to move

4. Open the Lock-Off valve on the hydraulic ram using the tool provided. Approximately 2 turns anti-clockwise from the closed position.
5. Fully open the engine throttle and move the 'Flow Direction Valve' to the left to expand the ram unit.

Note: If the ram fails to move, or moves in the wrong direction, swap the hose connections on the pump and repeat 5 above.

6. Continue pressurising the ram, observing the pressure gauge; the relief valve will limit the pressure to approximately 1500 Psi (~100bar[#]).
7. Close the Lock-Off valve on the ram by turning clockwise - Do not tighten with excessive force.
8. Move the 'Flow Direction Valve' into the neutral (central) position and throttle the engine back to idle.
9. Disconnect both hoses from the ram unit couplings.
10. Repeat for any other ram units.
11. Turn the Start/Stop switch to the **OFF** position.



**Pressure gauge
(Psi on outer scale)**

[#] 1 bar = 100 kPa



Pump Operation - (Ram Retraction)

Note: Regularly check the shoring fluid level in the reservoir to prevent overspill - a drain tap is located on the side of the reservoir.

1. Connect one end of each of the hoses provided to **both** outlet ports on the pump.
2. Take the hose which is connected to the 'Ram Out' coupling on the pump and connect the opposite end to the 'Expand' coupling on the hydraulic ram.
3. Take the hose which is connected to the 'Ram In' coupling on the pump and connect the opposite end to the 'Retract' coupling on the hydraulic ram.
4. Open the Lock-Off valve on the hydraulic ram using the tool provided. Approximately 1¹/₄ turns anti-clockwise from the closed position.
5. Fully open the engine throttle and move the 'Flow Direction Valve' to the right to expand the ram unit.

Note: If the ram fails to move, or moves in the wrong direction, swap the hose connections on the pump and repeat 5 above.

6. Continue retracting the ram sufficiently to enable the equipment to be removed. Up to 3000 Psi (~207bar) is available for retraction. **Note:** the pump/pressure gauge will drop to zero if this pressure is reached.
7. Move the 'Flow Direction Valve' into the neutral 12 O'clock position and throttle the engine back to idle.
8. Disconnect both hoses from the ram unit couplings.
9. Repeat for any other ram units.
10. Turn the Start/Stop switch to the **OFF** position.

Note: Waste fluids should be disposed of safely with due regard to local regulations



Do	Do Not
<ul style="list-style-type: none"> ✓ Read and understand this user guide ✓ Visually check all safety critical parts as listed below prior to each use and replace if necessary: <ul style="list-style-type: none"> • Lifting eyes • Hydraulic couplings • Lifting equipment (e.g. chains and slings) ✓ Site on level, firm ground ✓ Prepare a lifting plan and use appropriately certified lifting equipment ✓ Use only red lifting points for chain attachment ✓ Ensure adequate ventilation for exhaust fumes ✓ Only use this equipment in temperature range – 20°C to +40°C ✓ Keep the unit upright at all times ✓ Connect both hoses to both units ✓ Ensure hydraulic hoses are routed away from the cage and not allowed to sit on top of the cage at any time ✓ Operate the engine at full throttle whilst pumping ✓ Regularly check all fluid levels ✓ Throttle back or turn off the engine between pumping operations ✓ Switch off the petrol tap at the end of each shift ✓ Mix shoring fluid depending on the lowest ambient temperature ✓ Monitor the shoring fluid level gauge ✓ Only use shoring fluid supplied by Groundforce ✓ Only use clean water for shoring fluid dilution ✓ Only use engine oil supplied by Groundforce ✓ Wear appropriate PPE when operating the pump ✓ Ensure only clean unleaded petrol is used ✓ All fuel/oil spillages to be dealt with adequately before restarting tine pump ✓ Store all equipment in a safe manner when not in use or when ready for collection/transportation. Ensure equipment stability and protection from damage, away from site activity 	<ul style="list-style-type: none"> ✗ Manually lift the unit ✗ Stand or stack objects on top of the pump ✗ Lift the unit without ensuring that all four cage anchorage bolts are in place ✗ Use excessive force on any of the controls ✗ Operate the engine in confined spaces ✗ Operate the motorised shoring pump from within the excavation ✗ Operate the engine without oil ✗ Exceed the equipment installation pressure ✗ Over-rev the engine ✗ Allow the unit to run out of fuel or shoring fluid ✗ Mix fluid types or grades ✗ Force the couplings off under pressure ✗ Do not use this equipment in areas with a high fire risk, e.g. refineries ✗ Operate in hazardous environments ✗ Remove the cage guard ✗ Smoke whilst filling the petrol tank ✗ Attempt any repairs or maintenance - contact Groundforce



Appreciation of Excavation Safety

The theoretical safety course is mapped to both EUSR and the National Occupational Standards and introduces the learner to the basics of working around excavations. Designed as an awareness course, particular emphasis is provided to key aspects of managing and/or overseeing excavation work. Visit the course page for more details.

The one day course can accommodate up to 20 delegates per day

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