

| | | | | |
|---------------|-------------|---------------|----------------|----------------|
| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 30/10/12 |
| REV NO:- | 002 | | | |
| ECO:- | 3946 | | | |

Hi-Force HPP series pumps are designed to operate high pressure hydraulic cylinders and tools with a maximum working pressure of 700Bar. These instructions cover all HPP2 series models. Refer to nameplate on pump for model identification.

Common models and uses are given below:

| MODEL | HYDRAULIC CONNECTIONS |
|----------------------------------|--|
| HPP21012 HPP21014 HPP21016 | No control valve fitted. Pump (P) and tank (T) connections for single and double acting cylinders controlled by remote mounted valves |
| HPP21022 HPP21024 HPP21026 | 2 way valve for operating single acting cylinders and tools requiring advance and retract but no "hold" function. For example crimpers and cutters. |
| HPP21032 HPP21034 HPP21036 | 3 way valve for operating single acting cylinders requiring advance, retract and central load hold position. For example simple lifting operations. |
| HPP21042 HPP21044 HPP21046 | 4 way valve for operating double acting cylinders requiring advance, retract and central load hold position. For example lifting and positioning requiring more control. |

SAFETY

READ THIS MANUAL BEFORE OPERATING THE PUMP

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN SERIOUS BODILY INJURY

- Ensure that all equipment connected to the pump is in good condition and is all rated for 700 bar operating pressure.
- Always stand the pump on a stable level surface during operation.
- Never invert the pump or lay it on its side either in use, transport or in storage.
- Inspect hoses regularly for damage and wear. Do not use hoses that are frayed, abraded or leaking.
- Never move the pump by pulling the hoses.
- Do not work with hoses sharply bent or kinked.
- Do not handle hoses that are pressurised. Oil escaping under pressure can penetrate the skin causing serious injury. If oil is injected under the skin see a doctor immediately.
- Never pressurise uncoupled couplers.
- Always use eye, ear and hand protective equipment when using this pump and associated equipment.
- Beware of hot surfaces on the engine.
- Engine exhaust fumes are poisonous. Do not use the pump indoors.

Stop the engine when carrying out maintenance or adjustments (except pressure relief valve adjustments). For details on engine operation refer to engine manufacturer's instructions.

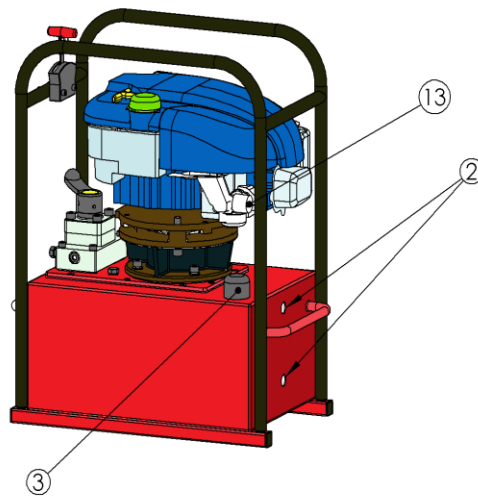
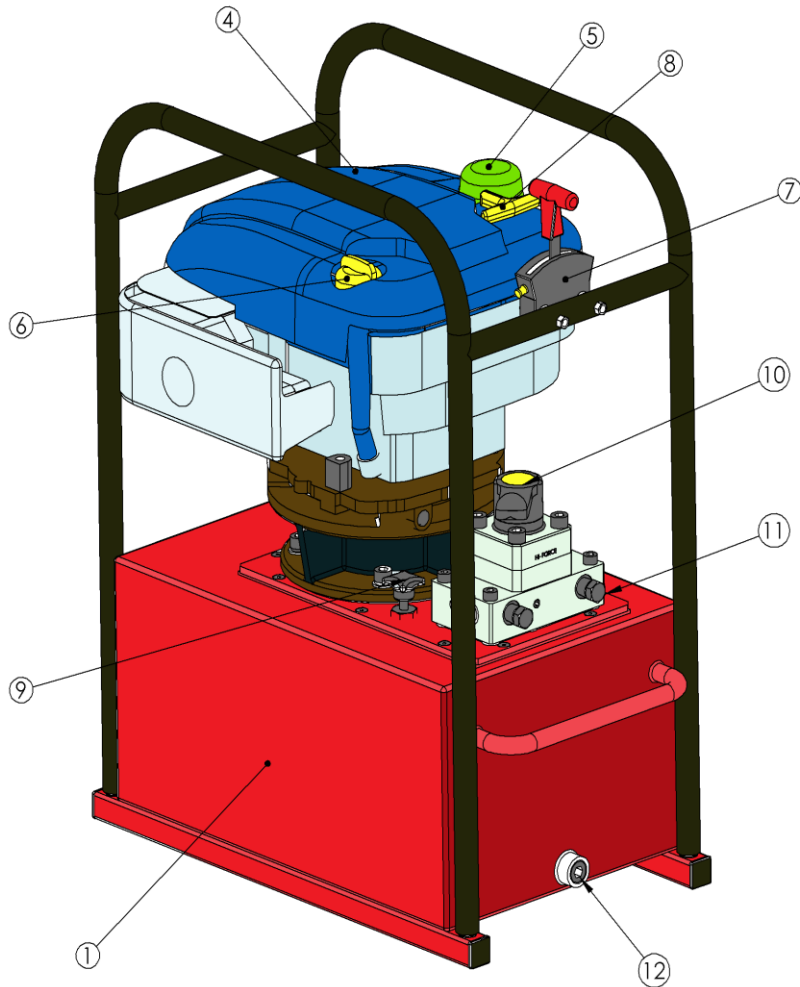
| | | | | |
|---------------|-------------|---------------|----------------|----------------|
| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 30/10/12 |
| REV NO:- | 002 | | | |
| ECO:- | 3946 | | | |

IDENTIFICATION OF COMPONENTS

Refer to diagrams on following page:-

1. Oil reservoir
2. Hydraulic Oil level gauge
3. Oil filler breather cap
4. Engine
5. Petrol filler cap
6. Engine oil filler cap
7. Throttle
8. Start pull cord
9. Adjustable pressure relief valve
10. Hydraulic directional control vale – if fitted (type will vary)
11. Hydraulic service connections
12. Hydraulic oil drain plug

| | | | | |
|---------------|-------------|---------------|----------------|----------------|
| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 30/10/12 |
| REV NO:- | 002 | | | |
| ECO:- | 3946 | | | |



| | | | | |
|---------------|-------------|---------------|----------------|----------------|
| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 30/10/12 |
| REV NO:- | 002 | | | |
| ECO:- | 3946 | | | |

PREPARING THE PUMP FOR FIRST USE

1. Immediately after unpacking, examine the pump for signs of transit damage and if found contact the shipping company.
2. Establish the oil level in the oil reservoir using the level gauge on the end of the tank. Depending on the shipping method used, the reservoir may either be supplied full or empty. If the reservoir is empty it must be correctly filled before use. Remove the temporary transit plate which is fitted in the position of the filler breather cap (3) by undoing the 3 screws. Fit the filler breather cap (packed separately) using the 3 screws which held the transit plate.
3. To fill the reservoir: Remove the filler cap (3) and fill the tank with clean HFO46 oil to the upper level indicator (2).
4. Check the engine oil level by means of the dipstick located under the engine oil filler cap (6). Top up as necessary.
5. Fill fuel tank with unleaded petrol (gasoline) via filler cap 5.
6. Remove hexagon headed plugs and make hydraulic connections to service ports (11) these ports have a 3/8" NPT female thread and the corresponding male connections should be wrapped with PTFE tape or other suitable sealant.

START UP AND STOPPING OF PUMP

1. Ensure the lever of the hydraulic directional control valve (10) is in the neutral position. This is fully anticlockwise for models with 2 way valve (HPP21022, HPP21024, HPP21026,) and the central position for models with 3 or 4 way valves (HPP21032, HPP21034, HPP20136, HPP21042, HPP21044, HPP21046) Where valves are remotely mounted, ensure these are adjusted such that pressure will not build up during the starting operation.
2. Move the throttle lever (7) to the "start" position. Pump the priming bulb (13) three times.
3. Pull the starting cord (8) slowly until resistance is felt. Then pull cord rapidly to overcome compression and start the engine. Repeat if required.
4. Allow engine to warm up until running smoothly and adjust the throttle lever to the "run" band.

To stop the pump, move the throttle lever (7) to the "stop" position.

| | | | | |
|---------------|-------------|---------------|----------------|----------------|
| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 30/10/12 |
| REV NO:- | 002 | | | |
| ECO:- | 3946 | | | |

OPERATION OF PUMP

Hi-Force does not necessarily know what equipment this pump will power. Read and understand the appropriate operating instructions relating to the equipment in use.

1. With all hydraulic connections made and engine running, operate the directional control valve (10) if fitted to control the cylinders or tools in use.

For pumps with 2 way valves: Turning the lever full clockwise will supply oil to the service port and advance the cylinder. Turning the lever anticlockwise will retract the cylinder.

For pumps with 3 way valves: Mid position is the load hold position. Moving the lever so that it is above the service port (anti-clockwise) will supply oil to the port and advance the cylinder. Moving the lever away from the service port will connect the service port to tank and retract the cylinder.

For pumps with 4 way valves: Mid position is the load hold position. Moving the lever so that it is above either service port will supply oil to that port and connect the opposite port to tank.

2. The pump is fitted with an adjustable pressure relief valve (9) to restrict the output pressure to any desired value up to the maximum working pressure of the pump. To increase the relief valve setting turn the control knob clockwise. To decrease the relief valve setting turn the control knob anticlockwise. Leaving the pump running for extended periods with the relief valve operating will cause the oil to overheat.
3. Ensure that the oil level does not fall below the minimum level as shown by the lower indicator (2)

MAINTENANCE

- Inspect the pump for damage after each use.
- Change the oil every 500 working hours using Hi-Force HFO46 oil.
- Regularly check engine oil level and top up as required with oil as specified by engine manufacturer. Refer to manufacturers manual. DO NOT use hydraulic oil.
- Have the pump serviced regularly by a Hi-Force authorised repair centre.

| | | | | |
|---------------|-------------|---------------|----------------|----------------|
| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 30/10/12 |
| REV NO:- | 002 | | | |
| ECO:- | 3946 | | | |

NOTE(S):-

| | | | | |
|---------------|-------------|---------------|----------------|----------------|
| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 30/10/12 |
| REV NO:- | 002 | | | |
| ECO:- | 3946 | | | |

NOTE(S):-

| | | | | |
|---------------|-------------|---------------|----------------|----------------|
| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 30/10/12 |
| REV NO:- | 002 | | | |
| ECO:- | 3946 | | | |

UK Head Office:

**Hi-Force Limited
Prospect Way
Daventry
Northamptonshire
NN11 8PL
United Kingdom**

Tel: + 44 1327 301000**Fax: + 44 1327 706555****Email: daventry@hi-force.com****Hi-Force Regional Offices:**

| | |
|--|---|
| Hi-Force Australia Pty. Ltd Rockingham Australia Tel: +61 8 9591 1288 Email: australia@hi-force.com | Hi-Force Caspian Baku Azerbaijan Tel: +994 12 447 4100 Email: baku@hi-force.com |
| Hi-Force Hydraulics (Asia) S.B Selangor Malaysia Tel: +603 5569 4209 Email: malaysia@hi-force.com | Hi-Force Nederland BV Strijen Netherlands Tel: +31 78 6745488 Email: holland@hi-force.com |
| Hi-Force Hydraulics (Pty) Ltd Midrand South Africa Tel: +27 11 314 0555 Email: south.africa@hi-force.com | Hi-Force FZCO Dubai United Arab Emirates Tel: +971 4 815 0600 Email: dubai@hi-force.com |
| Hi-Force Hydraulics Abu Dhabi United Arab Emirates Tel: +971 2 551 3100 Email: abu.dhabi@hi-force.com | Hi-Force Hydraulic Equipment (Shanghai) Ltd. Co. Shanghai, China Tel: +86 21 6697 3010 Email: china@hi-force.com |

GLOBAL BRAND. LOCAL SERVICE.**www.hi-force.com**