

Prepared by:-	M.Davies	Approved by:-		Date: 03/08/16
REV NO:-	1			
ECO:-				

USE AND APPLICATIONS

The HPR 37 tonne and 50 tonne capacity kits have been designed and developed in conjunction with Construction vehicle operators and manufacturers to provide a safe and reliable method of removal and installation of pins and bushes.

The HPR systems incorporate a light-weight aluminium hollow bore hydraulic cylinders and accessories providing a labour saving, in-situ method of pin & bush replacement for the service centres and users of heavy plant construction vehicles.



Recommended Pump Options

AHP1120



HP212



Kit Contents: HPR-1

HHA372 Hollow Bore Cylinder – 37 tonne capacity -51mm Stroke

Quantity: 1 Adaptor base plate

Quantity: 2 Stackable 'C' Sleeve 115mm inside Diameter

Quantity: 1 Reducer adaptor 115mm to 95mm Diameter.

Quantity: 1 M36 threaded pull rod 10.9 grade.

Quantity: 1 Threaded Adaptor M36 Female to M24 Male.

Quantity: 1 Threaded Adaptor M36 Female to M30 Male.

Kit Contents: HPR-2

HHA504 Hollow Bore Cylinder – 52 tonne capacity -105mm Stroke

Quantity: 1 Adaptor base plate

Quantity: 2 Stackable 'C' Sleeve 115mm inside Diameter

Quantity: 2 Stackable 'C' Sleeve 175mm inside Diameter

Quantity: 1 Reducer adaptor 115mm to 95mm Diameter.

Quantity: 1 M48 threaded pull rod 8.8 grade.

Quantity: 1 Threaded Adaptor M48 Female to M30 Male.

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Typical Application Set-Up.- Pin Removal



HPR-1 37 tonne kit in use on a Volvo



HPR-2 50 tonne kit in use on link pin removal.

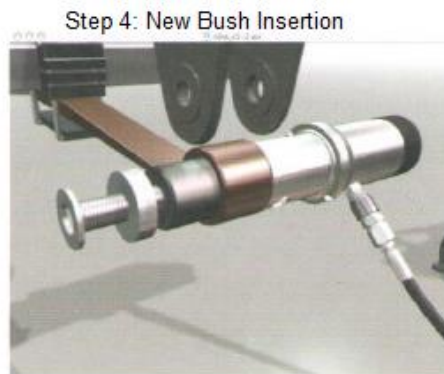
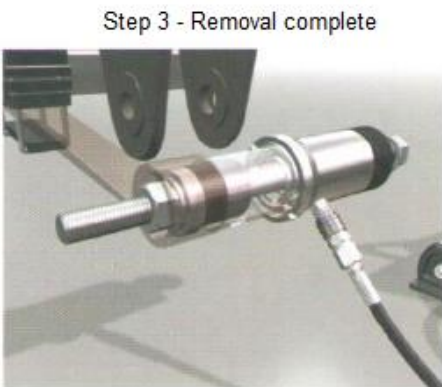
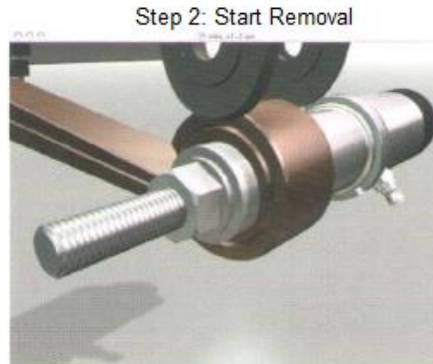
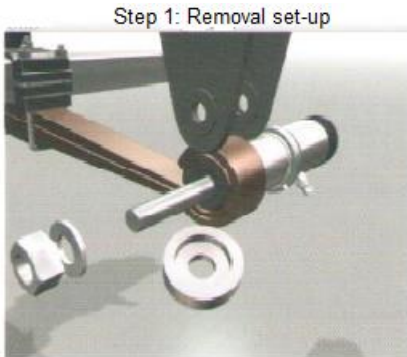
General Instructions:

Pin Removal

- 1) Remove all retaining screws and covers from the pins to be removed.
- 2) Select the most suitable 'C' Sleeve to give sufficient clearance around the pin and ensure it is fully supported around its entire base.
- 3) Select the correct size adaptor or direct fit of the threaded rod to engage fully in the threaded hole of the pin to be removed, (e.g: M24, M30, M36 or M48.)
- 4) Complete the set-up as shown in the above pictures. Note: Piston of cylinder should be fully retracted.
- 5) Align the assembly centrally and tighten by hand.
- 6) Check alignment.
- 7) Apply a small pressure from the pumping unit to the assembly.
- 8) Re-check alignment. Apply full pressure and remove the Pin

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Typical Application Set-Up.- Bush Removal



General Instructions: **Bush Removal/Insertion**

Note: Due to the enormous variation in bush sizes on heavy plant vehicles, removal and insertion dollies are not provided as standard with the HPR kits. Suitable dollies should be manufactured to suit the required size of bush to be removed (material specifications available on request) and the following procedure followed.

- 1) After removal of the pin as described above.
- 2) Select the rod size which is the largest size to the hole in the bush to be removed.
- 3) Select the pull sleeve that clears the outside diameter of the bush and reacts against the largest area possible on the machine frame.
- 4) Select the required manufactured dolly for the bush. This may require some machining to size, dependant on the bush diameter to be removed.
- 5) Set-up as shown in pictures above. Note: Piston of cylinder should be fully retracted.
- 6) Align the assembly centrally and tighten by hand.
- 7) Check alignment.
- 8) Apply a small pressure from the pumping unit to the assembly.
- 9) Re-check alignment. Apply full pressure and remove the Bush.
- 10) To insert the new bush reverse the above procedure.

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IMPORTANT SAFETY INSTRUCTIONS

Important Note: It is the responsibility of the purchaser to ensure that operators of this equipment are properly trained in its safe use and have access to **Hi-Force Operating and Safety Instructions**.

No modification and/or additions may be made to the equipment without the written permission of the manufacturer.

- 1) Keep these instructions and other applicable Hi-Force manuals during the life of the equipment and make sure they are available for all personnel that install, use and maintain the equipment
- 2) Before commencing work with this equipment, the operator should:-
 - Ensure that the pump and cylinder and all components of the kit are clean, dirt free and in good condition.
 - Check all external surfaces for mechanical damage and/or oil leaks. If either is present do not use the equipment and have it serviced.
 - Wear all personal protective equipment recommended by his/her company/employer and should wear safety glasses/visor at all times.
- 3) Read all relevant operating and safety instructions provided with the kit prior to use. Hi-Force Limited cannot be held responsible for any personal injury or machine damages that can occur if these instructions are not followed.
- 4) Never allow unauthorized personnel to use the equipment
- 5) Ensure that the maximum rated loads for the pull rods provided are never exceeded. These loads are:
M36 rod: Maximum applied load 52 ton (10.9 grade material)
M48 rod: Maximum applied load 71 ton (8.8 grade material)
- 6) Never tamper with the safety valve setting in the hydraulic Pump.
- 7) Ensure rod threads are clean and free from dirt at all times. Never use rods that are bent or have damaged threads
- 8) Ensure cylinder, rod, adaptors, Pin and/or bush, are aligned as - accurately as possible before applying loads.
- 9) Never stand in line with application when applying force to the equipment.
- 10) Ensure no unauthorized personnel stay within the risk area whilst the equipment is in use.
- 11) Never leave the working area with the equipment loaded.
- 12) Always use a genuine Hi-Force power sources to operate the equipment.
- 13) Maintenance should be made by an authorized Hi-Force service workshop
- 14) Pressure & load gauges can be provided as optional extras on request.

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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 Aberdeen
Aberdeen
United Kingdom
Tel: +44 1224 973 512
Email: aberdeen@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 5525 4203
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 S.r.l.
Milan
Italy
Tel: +39 0253 031 088
Email: italy@hi-force.com

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www.hi-force.com