

# Storing, Mounting, Operating & Maintenance Manual

(Original Instructions)

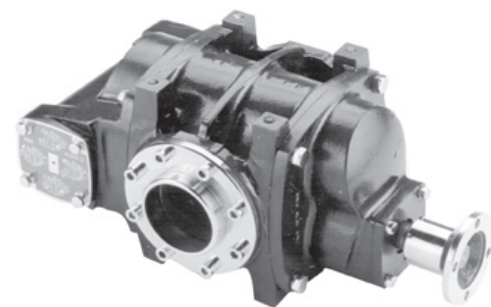
**DRUM**

## PLUTO SERIES CARGO PUMPS

### Models

PLUTO 3

PLUTO 4



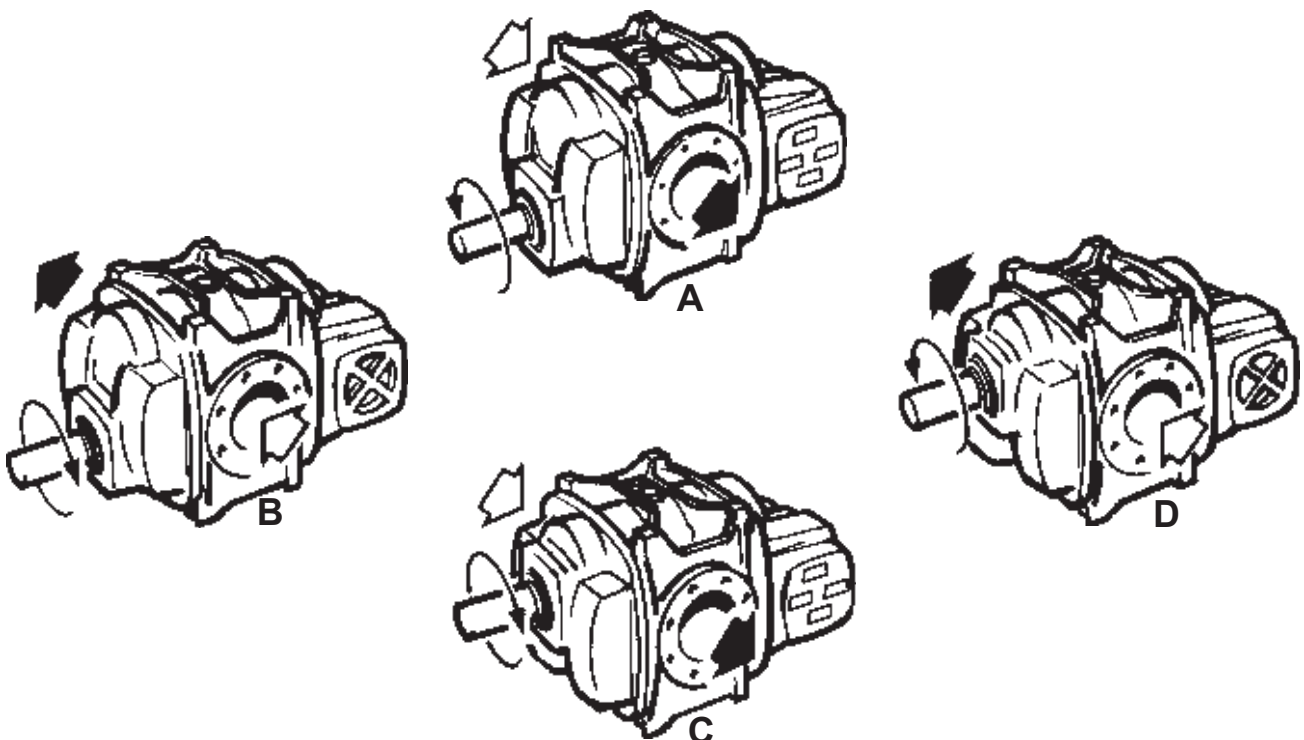
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September 2013

## STORING

- 1 Store in a dry and heated building.
- 2 Handle carefully and keep ports plugged to prevent ingress of dirt.
- 3 Rotate pump shaft occasionally to prevent seals sticking.

## MOUNTING

- 1 This pump is built with fine clearances. Drum will not accept responsibility for any damage caused by foreign bodies entering the pump. It is essential a fine mesh filter is fitted on the suction side of the pump. If reverse flow valve is fitted, filter is also required on other side of the pump. Drum can supply a filter for both machines.
- 2 The pump should be mounted with its shaft as near to a horizontal plane as possible but can be inverted or side mounted if required (support by both sets of feet in this case).
- 3 The angle and length of the propshaft must be kept to an absolute minimum; where these cannot be avoided the propshaft should be balanced. (Maximum angle of propshaft under any conditions approx. 12 degrees).
- 4 The centre line of power take-off shaft must be parallel with the centre line of the pump.
- 5 When bolting the pipework to the pump (reverse flow valve) care should be taken to prevent distortion of the body by misalignment.
- 6 Adequate support should be given to the reverse flow valve, if fitted.
- 7 Should water enter the pump, oil should be flushed through immediately to prevent rusting.
- 8 The length of the suction pipe should be kept to an absolute minimum and the bore should be as large as the pump branches. The delivery pipework and hose should ideally be the same bore as the pump branches. This is a very high capacity pump, therefore to ensure full output, we recommend the pump is mounted on the trailer portion of articulated road tankers to give good suction conditions. (Drum can supply a suitable hydraulic drive system for this purpose).
- 9 Ensure that the relief valve and spring are fitted in the suction side of the pump.  
(See Diagram below for orientations of different drive options).  
See Service Instructions for details of how to interchange relief valve and blanking plate.



**PUMP ROTATION - FLOW DIRECTION**

- 10 Check with Drum regarding the required pump drive speed and engine speed. (Drum can supply a suitable PTO or hydraulic drive system for most standard types of vehicles to suit different ratios).
- 11 Relief valve setting 85psi (6Kp/cm<sup>2</sup>). (Alternative spring settings are available on request). Please note 2 stage relief valve fitted as standard therefore pressure drops by approx. 25psi (1.75Kp/cm<sup>2</sup>) when on full bypass thereby reducing hose pressure and horsepower absorbed.

## OPERATION

- 1 This pump is of internal bearing design and therefore must not be used to handle corrosive or abrasive products.
- 2 Check with Drum on products to be handled (external bearing pumps can be offered with various types of seal for a wide range of liquids).
- 3 Pluto 3 & 4 are suitable for handling viscosities up to 10,000 seconds RI (2,500 c.St.). For higher viscosities contact Drum.
- 4 Consult Drum for correct pump speed when handling viscous products.
- 5 Thoroughly flush out under pressure pump after discharging liquids with thermo setting properties (otherwise serious damage can occur when the pump is next started).
- 6 When handling viscous products and Drums reverse flow valve is employed, start with valve in neutral position then gradually move handle to increase flow. (This will reduce stock load on drive system).
- 7 If reverse flow valve is used infrequently, rotate once a day to prevent sticking.
- 8 For optimum discharge rate, start with slow drive speed and gradually increase until pump starts to become noisy then reduce speed slightly until noise disappears.
- 9 To clear pump lines, increase speed or pump **just prior** to the compartment becoming empty. (Revvng the pump after it starts to pull air will not clear the lines). Do not run the pump at this elevated speed for more than approximately 60 seconds.
- 10 Do not run the pump dry.
- 11 This pump must not be run on full bypass for more than 3 minutes.

## MAINTENANCE

- 1 As the product lubricates the bearings and synchronising gears no routine maintenance is required.
- 2 Should the pump become noisy during normal operation, it is essential it is immediately removed from service and the reasons investigated.  
**(If the pump is still within 6 months warranty period, however, it is essential the pump is not stripped or even partially stripped as this will invalidate the warranty).**

## Contact Us

### Americas

Gardner Denver, Inc.  
Industrial Products Group - Americas  
1800 Gardner Expressway  
Quincy, IL. 62305  
Toll Free: 1-800-682-9868  
Phone: 217-222-5400  
Fax: 217-221-8780

**email: [mobilesolutions@gardnerdenver.com](mailto:mobilesolutions@gardnerdenver.com)**

### France

Gardner Denver France SA  
Division Compresseurs  
42, rue du Montmurier, BP 604  
38070 Saint-Quentin-Fallavier, France  
Phone: +33 (0)474941673  
Fax: +33 (0)474941689

**email: [contact.lyon@gardnerdenver.com](mailto:contact.lyon@gardnerdenver.com)**

### UK Sales & Service

Gardner Denver UK Ltd  
PO Box 468  
Cross Lane, Tong  
Bradford, West Yorkshire  
United Kingdom  
BD4 0SU  
Phone: +44 (0)1274 683131  
Fax: +44 (0)1274 651006

**email: [sales.uk@gardnerdenver.com](mailto:sales.uk@gardnerdenver.com)**

### Australia

Gardner Denver Ind. Australia Pty Ltd  
30 Bearing Road  
Seven Hills  
New South Wales  
2147 Australia  
Phone: +61 2 96207000  
Fax: +61 2 96207955

**email: [hermant.malik@gardnerdenver.com](mailto:hermant.malik@gardnerdenver.com)**

### Germany

Gardner Denver Deutschland GmbH  
Am Dorn 14  
48308 Senden  
Germany  
Phone: +49 (0)253634840  
Fax: +49 (0)25363484010

**email: [info.de@gardnerdenver.com](mailto:info.de@gardnerdenver.com)**

### Spain

Gardner Denver Iberica S.L.  
Calle Primavera, 20  
Poligono Industrial Las Monjas  
28850 Torrejon de Ardoz  
Madrid, Spain  
Phone: +34 (0)916560056  
Fax: +34 (0)916770496

**email: [aurelio.fernandez@gardnerdenver.com](mailto:aurelio.fernandez@gardnerdenver.com)**

### Belgium

Gardner Denver Belgium N.V.  
Luithagen 7A  
Haven 200  
B-2030 Antwerpen  
Belgium  
Phone: +32 (0)3 5415040  
Fax: +32 (0)3 5416509

**email: [info.be@gardnerdenver.com](mailto:info.be@gardnerdenver.com)**

### Netherlands

Gardner Denver Nederland BV  
Barwoutswaarder 3B  
3449 He Woerden  
The Netherlands  
Phone: +31 (0)348410150  
Fax: +31 (0)348418079

**email: [sales.nl@gardnerdenver.com](mailto:sales.nl@gardnerdenver.com)**

### Rest of the World

Gardner Denver Ltd  
PO Box 178  
Springmill Street  
Bradford, West Yorkshire  
United Kingdom  
BD5 7YH  
Phone: +44 (0)1274 718100  
Fax: +44 (0)1274 655272

**email: [gdtransportsales@gardnerdenver.com](mailto:gdtransportsales@gardnerdenver.com)**

For additional information, contact your local representative or

The logo for Gardner Denver, featuring the word "Gardner" in a large, bold, black sans-serif font above the word "Denver" in a similar font. A thick red horizontal line is positioned between the two words.

**Gardner Denver Ltd**  
PO Box 178,  
Springmill Street,  
Bradford,  
West Yorkshire, UK  
BD5 7YH

**Tel: +44 (0)1274 718100**

**Fax: +44 (0)1274 655272**

**Email: [gdtransportsales@gardnerdenver.com](mailto:gdtransportsales@gardnerdenver.com)**

**Web: [www.gd-transport.com](http://www.gd-transport.com)**