

Maxi-Pump

Maxi-Pump

Instruction Manual / Installation Instructions / Owners Manual
(Original instructions)

2014-9015-001
09-2012

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1 Preface

1.1 Information on the instructions

The manufacturer reserves the right to make changes in the data due to technical developments and to the illustrations provided in this manual.

Reproductions, translations and copies of any kind, even of extracts, require written authorization from the manufacturer.

Abbreviations, units, specialist terms, special names or terminology are explained in detail in Section: Appendix.

This manual is supplied with the product.

- This manual should be kept close at hand and remain with the equipment even when the equipment is sold.
- This manual is not subject to an amendment service. The most recent version can be obtained through the authorized dealer or directly from the manufacturer.

Pictograms used



The pictogram shown indicates information that will be helpful toward a better understanding of the working processes.



The pictogram indicates a special tool required for installation.



This symbol indicates another document or Section to refer to.

All manuals have a reference number. The 4 middle digits specify the language of the instruction manual:

	Language		Language		Language
-9000-	German	-9013-	Dutch	-9032-	Serbian
-9001-	English (Great Britain)	-9015-	English (America)	-9034-	Slovakian
-9002-	French (France)	-9016-	Polish	-9035-	Chinese
-9003-	Italian	-9018-	Japanese	-9038-	Portuguese (Brazil)
-9004-	Romanian	-9021-	Danish	-9036-	Lithuanian
-9005-	Spanish	-9022-	Hungarian	-9039-	French (Canada)
-9007-	Swedish	-9023-	Czech	-9040-	Latvian
-9008-	Norwegian	-9024-	Finnish	-9041-	Estonian
-9009-	Russian	-9025-	Croatian	-9043-	Spanish (North America)
-9010-	Greek	-9027-	Bulgarian		
-9012-	Turkish	-9029-	Slovene		
The instruction manuals may not be available in all the listed languages.					

1.2 Manufacturer's address

GEA Farm Technologies Canada Inc. / Division GEA Houle
4591 boul. St-Joseph
Drummondville, Qc, J2A 0C6

 +1 819 477 - 7444

 +1 819 477 - 5565

 geahoule@gea.com

@ www.gea-farmtechnologies.com

1.3 Customer services

Authorized Dealer

If necessary, please contact your nearest authorized dealer.

There is a comprehensive dealer Internet search function on our website at the following address:

www.gea-farmtechnologies.com

European Contact Information:

GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen

 +49 (0) 2383 / 93-70

 +49 (0) 2383 / 93-80

 contact@gea.com

@ www.gea-farmtechnologies.com

US Contact Information:

GEA Farm Technologies, Inc.
1880 Country Farm Dr.
Naperville, IL 60563

 +1 630 369 - 8100

 +1 630 369 - 9875

 contact_us@gea.com

@ www.gea-farmtechnologies.com

1.4 Declaration of conformity

Declaration of conformity in accordance with the machinery directive:
2006/42/EC - Annex: II A

Manufacturer:	GEA Farm Technologies Canada Inc. / Division GEA Houle 4591 boul. St-Joseph Drummondville, Qc, J2A 0C6																		
Product description:	Pump																		
Type of product:	Maxi-Pump																		
<p>The named product is in conformity with the requirements of the following European directives: 2006/42/EC Machinery Directive</p> <p>Conformity with the requirements of these directives is testified by complete adherence to the following standards:</p> <ul style="list-style-type: none"> • Harmonized European standards <table border="0"> <tr> <td>EN 894-2 (2008-12)</td> <td>Safety of machinery Ergonomics requirements for the design of displays and control actuators - Part 2: Displays</td> </tr> <tr> <td>EN 1037+A1 (2008-06)</td> <td>Safety of machinery Avoidance of unexpected start-up</td> </tr> <tr> <td>EN 4254-1 (2010-01)</td> <td>Agricultural Machinery - safety General requirements</td> </tr> <tr> <td>EN 4413 (1999-08)</td> <td>Hydraulic fluid power General rules relating to systems</td> </tr> <tr> <td>EN 12100-1 (2004-01)</td> <td>Machine safety, basic terms, general design guidelines. Part 1: Basic terminology, methods</td> </tr> <tr> <td>EN 12100-2 (2004-01)</td> <td>Machine safety, basic terms, general design guidelines. Part 2: Technical guidelines and specifications</td> </tr> <tr> <td>EN ISO 14121-1 (2007-11)</td> <td>Safety of machinery - Risk assessment - Part 1: Principles</td> </tr> <tr> <td>EN ISO 14121-2 (2008-02)</td> <td>Safety of machinery - Risk assessment - Part 2: Practical guidance and examples of methods</td> </tr> <tr> <td>NF X 08-003-1 (2006-07)</td> <td>Graphic and pictographic symbols - colors and safety signs</td> </tr> </table> 		EN 894-2 (2008-12)	Safety of machinery Ergonomics requirements for the design of displays and control actuators - Part 2: Displays	EN 1037+A1 (2008-06)	Safety of machinery Avoidance of unexpected start-up	EN 4254-1 (2010-01)	Agricultural Machinery - safety General requirements	EN 4413 (1999-08)	Hydraulic fluid power General rules relating to systems	EN 12100-1 (2004-01)	Machine safety, basic terms, general design guidelines. Part 1: Basic terminology, methods	EN 12100-2 (2004-01)	Machine safety, basic terms, general design guidelines. Part 2: Technical guidelines and specifications	EN ISO 14121-1 (2007-11)	Safety of machinery - Risk assessment - Part 1: Principles	EN ISO 14121-2 (2008-02)	Safety of machinery - Risk assessment - Part 2: Practical guidance and examples of methods	NF X 08-003-1 (2006-07)	Graphic and pictographic symbols - colors and safety signs
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Person responsible for compiling the relevant technical documents:	<p>Josef Schröer GEA Farm Technologies GmbH Siemensstraße 25-27 D-59199 Bönen ☎ +49 (0) 2383 / 93-70</p>																		
Drummondville, 01. September. 2012	<p> Yann Desrochers (Head of Research and Development)</p>																		
<p>The undersigned is acting by virtue of power of attorney from the management of: GEA Farm Technologies Canada Inc. / Division GEA Houle, 4591 boul. St-Joseph, Drummondville, Qc, J2A 0C6</p>																			
<p>This declaration certifies compliance with the guidelines indicated, but does not establish any guarantee in the sense of paragraphs 443, 444 of the BGB. This declaration of conformity becomes invalid if design changes are made which affect the technical data given in the instructions and the correct use of the product, thereby significantly altering the machine!</p>																			

1.5 GEA Farm Technologies Canada Inc. / Division GEA Houle - General Equipment Warranty



Important notice!

THIS GENERAL WARRANTY APPLIES TO ALL EQUIPMENT SOLD UNDER THE GEA HOULE TRADEMARK.

1.5.1 Limited Warranty

GEA Farm Technologies Canada Inc. / Division GEA Houle (hereinafter referred to as "the Company") warrants to the original buyer and end user (hereinafter referred to as the "Purchaser") that the parts of all equipment sold under the Company trademark are free from defects in material or workmanship for a period of twelve (12) months from the date of delivery of the equipment to the Purchaser. This written warranty takes precedence over any other written warranty included in previous versions of the Company's manuals. Any equipment used for commercial usage, commercial lease on one or more farms is warranted for a reduced period of thirty (30) days only.

Components from third-party manufacturers that are not built by the Company, and which are accessory to the equipment sold under the Company trademark (including, without limitation, the motors and tires), are subject to such third-party manufacturers' specific warranty coverage.

THIS WARRANTY EXTENDS ONLY TO THE PURCHASER AND DOES NOT APPLY IN THE EVENT THAT THE EQUIPMENT IS SOLD OR OTHERWISE TRANSFERRED.

1.5.2 Condition of the Limited Warranty

The Company, through its GEA authorized dealers only (hereinafter referred to as "Dealer", reserves the right to either repair or replace all parts deemed defective under the following conditions:

1. That the equipment is installed, operated and maintained in accordance with the Company directives;
2. That the Purchaser uses the equipment in accordance with specific instructions, under normal conditions, for the sole purpose for which the equipment was designed;
3. That the Purchaser notifies in writing his Authorized Dealer or the Company (whichever the case may be) of any defect of the equipment. In either case the notification must be made within the twelve (12) months following the date of the delivery to the Purchaser;
4. The Purchaser or the Authorized Dealer must keep the defective parts or equipment for inspection by the Company and return such defective parts or equipment prepaid to the Company, if requested;

5. That the Purchaser does not modify the equipment, nor attempts to repair any equipment or parts without proper authorization from the Company;
6. Depending on the nature of the equipment involved and whether it is fixed or transportable, the Company will repair or replace the defective parts of the equipment free of charge where installed, or at the business place of the Authorized Dealer or the Company, at its sole discretion.

1.5.3 Extent of Limited Warranty

This limited warranty DOES NOT cover:

- Defects caused by negligence of the Purchaser in the maintenance of the equipment, improper use resulting from failure to adhere strictly to the Company's manuals or non-compliance with prescribed maintenance instructions provided by the Company (including, without limitation, lack of lubrication of the equipment), as well as damages arising from non-conforming installation of the equipment, or ambient temperature or conditions of storage of the equipment that do not comply with the Company's recommendations (including, without limitation, any damages resulting from storage or operation of the equipment at a temperature equal or below (5°C/41°F));
- Damages to equipment due to normal wear and tear or to external causes, including issues of power or inadequate electrical conditions (including, without limitation, inadequate tension (neutral/ground), abnormal mechanical or environmental conditions (including, without limitation, damages caused by fire, lightning, flood or other natural disaster), damages caused by the use of sand litter or other abrasive or inadequate material (including, without limitation, damages caused by solids in the manure, such as stone, wood, iron, concrete, and strings), as well as damages caused by ice or frozen manure blocking the evacuation line of the equipment or the introduction of such solids in the equipment;
- Freight and shipping associated with repair or replacement of equipment under this limited warranty, as well as all costs relating to removal or replacement of any equipment that is welded or affixed permanently to the ground or a building (including, without limitation, labour costs, and costs related to concrete or excavation);
- Claims arising from repairs or replacements made by the Purchaser without the prior written consent of the Company. The Purchaser shall not remove or alter any safety device, guard, or warning sign.

If the Purchaser fails to comply with any of its obligations referred to in this paragraph, the Purchaser agrees to save the Company and the Authorized Dealer harmless in respect of any liability or obligation incurred by the Company or the Authorized Dealer resulting from such failure of the Purchaser.

1.5.4 Warranty Limitations and Exclusion

NO WARRANTY, ORAL OR WRITTEN, EXPRESS OR IMPLIED, OTHER THAN THE ABOVE WARRANTY IS PROVIDED IN RESPECT OF THE EQUIPMENT SOLD.

Some states (or jurisdictions) do not allow the exclusion of implied warranties so it is possible that this limitation may not apply.

THE COMPANY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY, ADAPTABILITY OR OF PERFORMANCE, PROVIDED THAT SUCH EXCLUSION OF LIABILITY COMPLIES WITH THE LAWS HAVING APPLICABLE REGULATORY JURISDICTION.

THE LIABILITY OF THE COMPANY AND ITS AUTHORIZED DEALERS UNDER THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PARTS UP TO THE CONTRACT VALUE FOR THE PURCHASED EQUIPMENT. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL, PUNITIVE OR EXEMPLARY DAMAGES IN ANY KIND OR CHARACTER, INCLUDING INDIRECT COSTS, LOSS OF PRODUCTION, LOSS OF REVENUES OR PROFITS, AND OTHER DISBURSEMENTS WHICH MAY OCCUR.

Some states (or jurisdictions) do not allow the exclusion or limitation of incidental or consequential damages and so it is possible that these limitations or exclusions may not apply.

1.5.5 General Statements

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY BY JURISDICTION.

THE DEALER IS NOT AUTHORIZED TO MAKE ANY ADDITIONAL REPRESENTATIONS OR PROMISES THAT DIFFER IN ANY WAY FROM THE TERM OF THIS LIMITED WARRANTY, OR MODIFY THE PROVISIONS, DURATION AND CONDITIONS OF THIS LIMITED WARRANTY. NO WAIVER OR MODIFICATION OF THIS LIMITED WARRANTY IS VALID UNLESS AGREED TO IN WRITING AND SIGNED BY THE AUTHORIZED REPRESENTATIVES OF THE COMPANY.

IN THE EVENT OF ANY CONFLICT BETWEEN THE ENGLISH LANGUAGE VERSION AND ANY OTHER TRANSLATED VERSION OF THIS LIMITED WARRANTY (WITH THE EXCEPTION OF THE FRENCH LANGUAGE VERSION) THE ENGLISH VERSION SHALL PREVAIL.

2 Safety

2.1 Owner's obligation of care

This product is designed and constructed while taking into account a potential risk analysis, a selection of harmonized standards and other technical specifications to be complied with in order to guarantee a maximum level of safety.

Safety is achieved when the safety instructions are followed. It is part of the owner's obligation of care to implement these safety measures and make sure they are carried out at all times.

In particular, the owner must ensure that:

- everyone working in confined spaces read the SAFETY PROCEDURES IN CONFINED SPACES applicable in the country of operation. Refer to the websites listed in Section: Safety - Basic Safety Instructions;
- everyone working with or performing activities in connection with this product, including himself, read the instructions contained in this instruction manual and follow those instructions;
- everyone is regularly instructed on relevant matters.

The owner must ensure a safe environment by providing:

- this instruction manual with this product;
- a visible sign "DANGER! TOXIC GASES" posted at eye level at the entrance of each toxic gas area;
- adequate ventilation to evacuate toxic gases in each structure surrounding a main storage. Refer to the local rules and regulations on proper ventilation;
- a safety fence surrounding each manure storage, service pit and danger area. Refer to the local requirements;
- a padlock on each electric source feeding this product or its equipment to secure the product when performing maintenance. A caution label is set onto the electric panel "CAUTION! Lock before maintenance or adjustment work". A removable caution sign "Maintenance in progress" must be affixed on the panel when applicable;
- an equipotential bond for electric protection when this product or its equipment is powered by an electric source. All electric conductive parts and the installation's protective earth conductor must be connected to the equipotential bond;
- adequate lighting in all areas where activities in connection with this product are performed. A minimum of 200 lux is required to ensure visibility of the equipment, the controls and the safety labels;
- all required personal safety gear such as hearing, eye, feet protection, etc. in all areas where activities in connection with this product are performed;
- supervision for inexperienced personnel working or performing activities in connection with this product;
- the tools listed in this manual to perform activities in connection with this product;

- an adequate installation of the product in order to use it only for the sole purpose for which it was designed;
- new parts to replace defective, worn or damaged parts on this product;
- appropriate devices such as motor, engine, hydraulic unit, etc. to safely operate this product. To meet the technical requirements, refer to Section: Technical Data - Performance Data;
- a product meeting the local rules and regulations.

2.2 Explanation of the safety symbols used

Safety symbols draw attention to the importance of the adjacent text.
The design of the warnings is based on ISO 3864-2 and ANSI535.6.

Safety symbols and key words

**DANGER!**

The indication "Danger" signals immediate danger to life or health of personnel.
Death or serious injury will result if the danger is not avoided.

**WARNING!**

The indication "Warning" signals danger to life or health of personnel.
Death or serious injury may result if the danger is not avoided.

**CAUTION!**

The indication "Caution" signals dangerous situations.
Death or serious injury may result if the danger is not avoided.

**Attention!**

The indication "Attention" signals important information on risks for the product or the environment.

2.3 Basic safety instructions

2.3.1 Safety Procedures in Confined Spaces

**DANGER!**

Manure produces toxic gases that can lead to death in seconds. When agitated, manure produces heavy toxic gases such as hydrogen sulphide (H₂S), carbon dioxide (CO₂), methane (CH₄) and ammonia (NH₃). Before performing work in confined spaces, it is MANDATORY to read and follow the Safety Procedures concerning Confined Spaces available in the websites listed below. These safety procedures explain the risks related to manure and how to safely access confined spaces such as a manure pit, a reservoir, etc.

Location	Administrated by	Web Site
In Canada	Canadian Centre for Occupational Health and Safety	www.ccohs.ca
In USA	Occupational Safety and Health Administration	www.osha.gov
In European Union	European Agency for Safety and Health at Work	www.europe.osha.eu.int

2.3.2 Safety Instructions

- Read and follow the instructions of this instruction manual before performing activities in connection with this product. Keep the instruction manual with this product allowing anyone to refer to it at any time.
- Only trained personnel can operate this product to ensure safe operating methods. Make sure the personnel performing activities in connection with this product have the skills when special qualifications are required. Read the Section: Safety - Personnel Qualifications.
- Always wear personal safety gear such as hearing, eye, feet protection, etc. when performing activities in connection with this product. Inspect the personal gear and replace if worn and/or defective.
- Make sure the environment is safe through all steps listed in this manual. Always be familiar with the environment surrounding the working area. Locate the elements that can be dangerous in order to avoid them. Beware of leaks and spills such as grease, oil, water, etc. which can make a surface slippery causing injuries.
- No one stands near this product unless they are performing instructions included in this manual. When near this product, keep body parts such as hands, feet, hair as well as clothing away from dangerous parts such as rotating parts, articulated parts, sharp edges, etc.
- Use this product only when in perfect working condition and for the sole purpose for which it was designed. Do not use damaged, worn or defective parts on this product, replace immediately to avoid serious damages and injuries.
- Use only the tools listed in this manual to perform activities in connection with this product in order to avoid injuries.
- Do not stand underneath suspended loads when handling this product or parts: there is a potential risks of fall, damage and/or loss of stability. Handling can only be performed by a qualified forklift operator.
- Never remove the safety devices such as guards, covers, chains, labels, etc. from this product to ensure safety unless otherwise indicated in this instruction manual. Refer to Section: Safety - Protective Devices. Read and follow the instructions of the safety labels set on this product and make sure the safety labels are legible.
- The devices supplied by the owner to operate this product such as a motor, an engine, a hydraulic unit, etc. must meet the technical requirements indicated in Section: Technical Data.

2.4 Personnel qualification

The manufacturer intends to determine the difference between Trained Personnel and Qualified Personnel.

Trained Personnel

The operator was trained by the manufacturer or it's legal representative to follow all safety rules, cleaning method, general maintenance as well as the operating methods.

It is the operator's responsibility to inform the farm workers of those rules, maintenance and methods.

Qualified Personnel

Qualified personnel refers to those having obtained the academic knowledge of a specific field of work.

This personnel has followed a training and subsequently obtained a certification, diploma or any other official document provided by a recognized academic facility in the country of study.

An equivalence may be required when operating in other countries.

The special qualifications required in the following activities will be specified in each section when applicable:

- Handling and Installation
- Starting for the First Time
- Operating
- Operating Faults
- Maintenance
- Shut-down

2.5 Protective devices

2.5.1 Protective Safety Parts

This product is equipped with safety parts protecting the user against dangerous elements.

Those parts must be in perfect working condition and remain in place at all times.

Replace if damaged, worn and/or defective. Refer to the part number for the appropriate part.



Safety guard for power take-off driveline (American Model shown)

(part no. 2014-1401-690)



Safety guard for power take-off driveline (European Model shown)

(part no. 2010-7600-960)

2.5.2 Safety Labels

The labels affixed on this product inform the user of the potential dangers, the prohibited manoeuvres, the proper procedures and applications when performing activities in connection with this product.

The labels must remain in place and legible at all times.

Replace when damaged. Refer to the part number for the appropriate label.



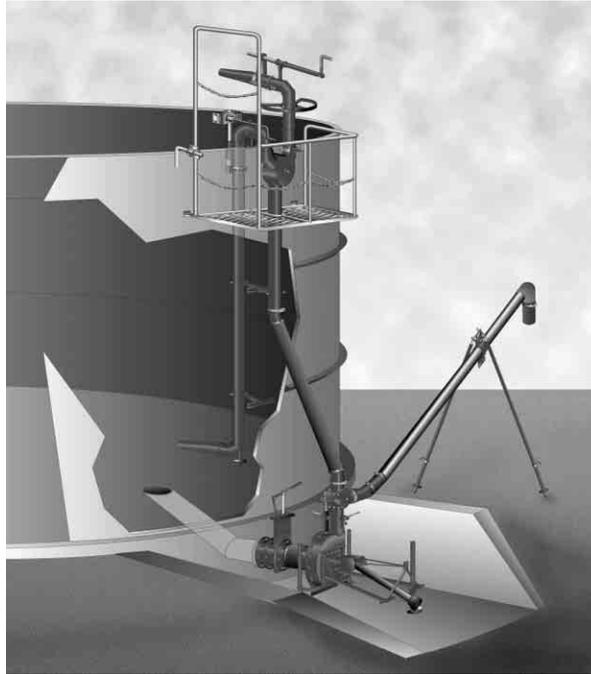
Refer to Section: Appendix

3 Description (Overview)

3.1 Product Applications

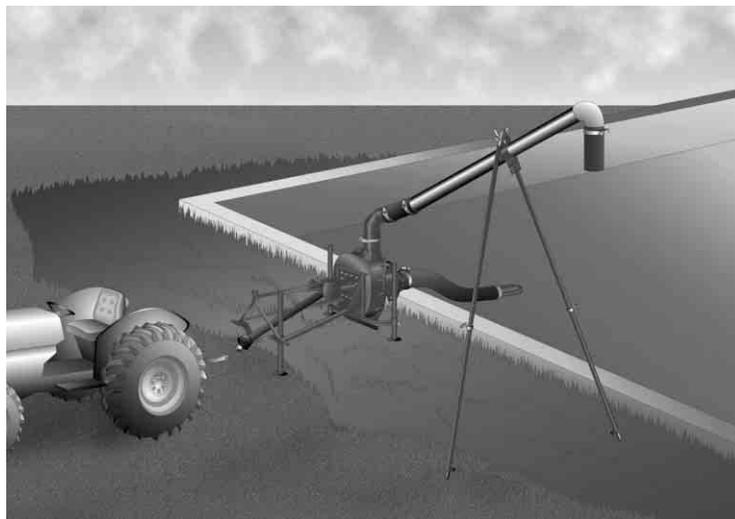
Maxi-Pump with Side Mounted Agitation Kit

The pump is designed to agitate and transfer liquid manure of a maximum consistency of 1" (25 mm) and containing a limited amount of chopped bedding.



Maxi-Pump for Solid Manure Platform

The pump is designed to siphon water or liquid manure of a maximum consistency of 1/4" (6 mm).



This GEA Houle product and its equipment are designed for agricultural purposes only. Any applications not listed above are considered as improper use and will void the warranty!

The manufacturer is not liable for any resulting damages due to improper use of this product. The user carries the risk. Proper use also includes reading and following the instructions of this instruction manual.

- Original GEA Houle parts and accessories are specially designed for GEA Houle products and equipment.
- The manufacturer expressly points out that only original parts and original accessories supplied by GEA Houle are adapted, tested and authorized to be used with this product or equipment. Do not use other supplier's parts or equipment with GEA Houle product unless otherwise approved in writing by GEA Houle.
- The manufacturer does not accept any liability toward injured people or animals or damaged products and equipment caused by the use of other manufacturers products.

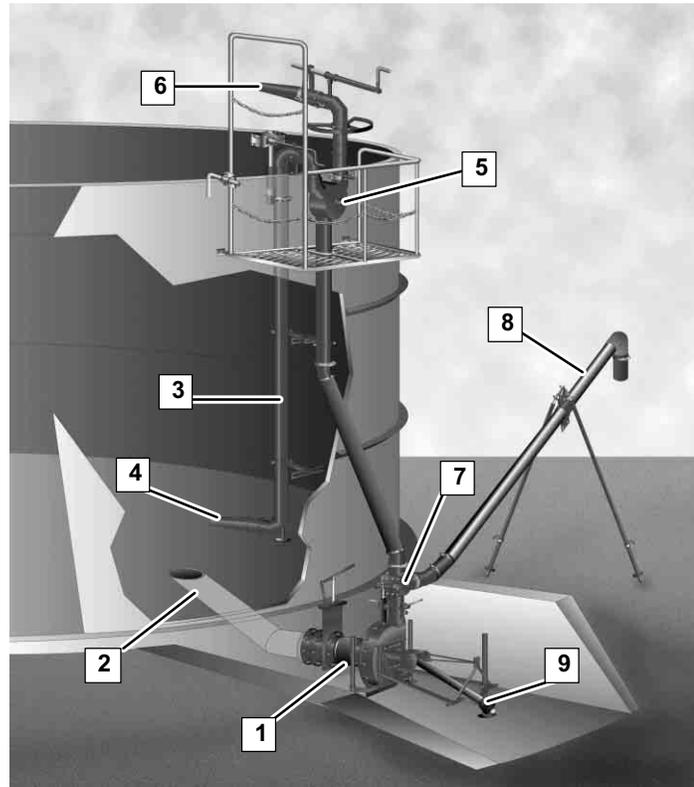
3.2 Modification Made to this Product

For safety reasons, do not carry out any unauthorized modification to this product!

Any modification must be approved by the manufacturer in writing prior to the change otherwise the warranty will be voided.

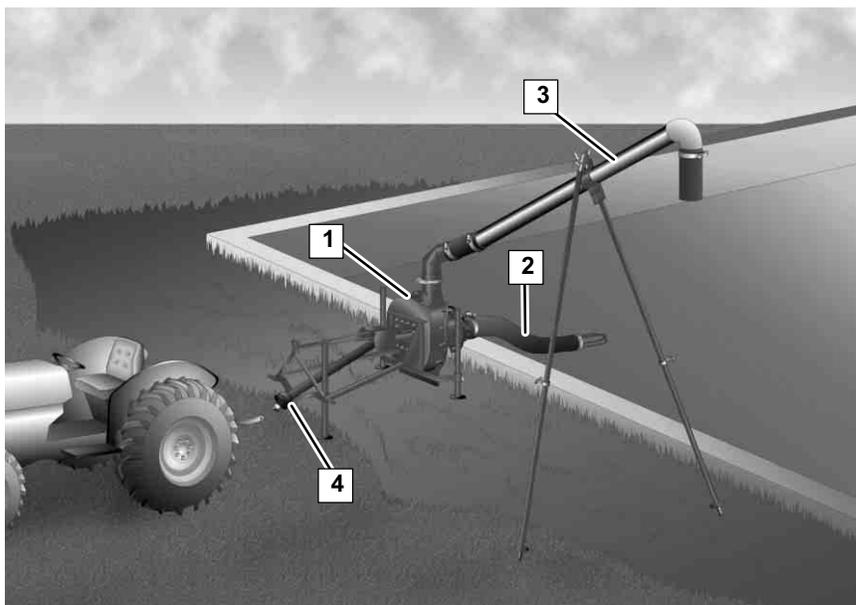
3.3 Main View

3.3.1 28" Maxi-Pump on 3-point hitch (540 RPM) (Side Mounted Agitation Kit)



Legend:			
1	Maxi-Pump	2	Suction Pipe
3	Agitation Pipe	4	Bottom Nozzle
5	Rotative Valve	6	Surface Nozzle
7	Directional Valve	8	Loading Pipe
9	PTO		

3.3.2 20" Maxi-Pump on 3-point Hitch or on Trailer (540 or 1000 RPM) (for Solid Manure Platform)



Legend:			
1	Maxi-Pump	2	Suction Hose
3	Loading Pipe	4	PTO

3.4 Options

3.4.1 Manual Primer Pump

The manual primer pump is used to manually prime the centrifugal pump allowing manure to reach the pump.



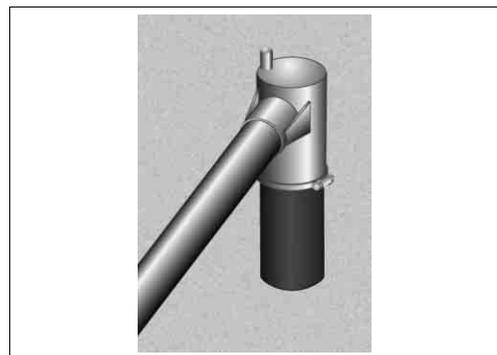
3.4.2 Hydraulic Primer Pump

The hydraulic primer pump is used to hydraulically prime the centrifugal pump allowing manure to reach the pump.



3.4.3 Low Pressure Discharge Elbow

The low pressure discharge elbow is used to decrease pressure when loading liquid manure in the spreader.



4 Technical Data

4.1 Geometric Data

Maxi-Pump and Side Mounted Agitation Kit	
Impeller Diameter	28" [711 mm]
Pump	
Length	74.585" [1,89 m]
Height	64.375" max. [1,63 m max.] 39.375" min. [1 m min.]
Width	45.839" [1,16 m]
Weight (without piping)	525 lb [238 kg]

Maxi-Pump for Solid Manure Platform		
	Trailer	3-point hitch
Impeller Diameter	20" [508 mm] or 28" [711 mm]	20" [508 mm] or 28" [711 mm]
Pump		
Length	80.5" [2,04 m]	74.585" [1,89 m]
Height	45" [1,14 m]	64.375" max. [1,63 m max.] 39.375" min. [1 m min.]
Width	64.5" [1,64 m]	45.839" [1,16 m]
Weight	525 lb [238 kg]	637 lb [289 kg]

Hydraulic Hoses	
I.D. inside diameter	1/2" [13 mm]
O.D. outside diameter	0.86" [22 mm]
Number of Braids	2
Service Pressure	276 bar [4000 psi]

4.2 Performance Data



Note!

The manure consistency, the elevation of the field and the length of the pipe affect the performance of the pump. Consult your authorized dealer for more information.

4.2.1 Maxi-Pump with Side Mounted Agitation Kit

Maximum Manure Consistency	1" [25 mm]
Maximum Elevation *	15' [4,5 m] when pumping water
Operating Temperature	5°C [41°F] (minimum)
Maximum Towing Speed	8 km/h [5 mph]
Output Pressure **	17 psi

* Maximum elevation between the intake pipe and the inlet of the suction hose.

** Pressure obtained at the output of the pump without an evacuation hose.

4.2.2 Maxi-Pump for Solid Manure Platform

Maximum Manure Consistency	¼" [6,5 mm]
Operating Temperature	5°C [41°F] (minimum)
Maximum Towing Speed	8 km/h [5 mph]

4.3 Pump Specifications

4.3.1 Maxi-Pump with Side Mounted Agitation Kit

Impeller Model	6 blades
Impeller Diameter	28" [711 mm]
Minimum Power Required	85 hp min.
Impeller RPM	540
PTO RPM Required	540 RPM only
Pump Shaft 6 Splines	Ø = 1 3/8" [35 mm]

4.3.2 Maxi-Pump for Solid Manure Platform

Impeller Model	6 blades	
Impeller Diameter	20" [508 mm]	28" [711 mm]
Minimum Power Required	40 hp min.	
Impeller RPM	540 or 1000	540
PTO RPM Required	540 or 1000	
Pump Shaft 6 Splines 20 Splines	Ø = 1 3/8" [35 mm] (540 RPM) Ø = 1 3/4" [44 mm] (1000 RPM)	

4.4 Tire Specifications

Model	Ply	Pressure		Dimensions (" / mm)		Weight (without rim)	
		psi	bar	Diameter	Width	Lb	Kg
760/15	6	40	2.75	29.3 / 744	8.0 / 203	20	9

4.5 Bolt Torque Chart

 **NOTE!**
Refer to the bolt torque chart unless otherwise specified in this manual.

Bolt	Mat.	Bolt Diameter									
		1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
SAE 2 	LCS	8Nm (6ft-lb)	16Nm (12ft-lb)	27Nm (20ft-lb)	44Nm (32ft-lb)	64Nm (47ft-lb)	94Nm (69ft-lb)	130Nm (96ft-lb)	210Nm (155ft-lb)	279Nm (206ft-lb)	420Nm (310ft-lb)
SAE 5 	MCS HT	14Nm (10ft-lb)	26Nm (19ft-lb)	45Nm (33ft-lb)	73Nm (54ft-lb)	106Nm (78ft-lb)	155Nm (114ft-lb)	209Nm (154ft-lb)	349Nm (257ft-lb)	518Nm (382ft-lb)	796Nm (587ft-lb)
SAE 8 	MCAS	19Nm (14ft-lb)	39Nm (29ft-lb)	64Nm (47ft-lb)	106Nm (78ft-lb)	161Nm (119ft-lb)	229Nm (169ft-lb)	312Nm (230ft-lb)	515Nm (380ft-lb)	814Nm (600ft-lb)	949Nm (700ft-lb)
Socket Head Cap Screw	AS HT	22Nm (16ft-lb)	45Nm (33ft-lb)	73Nm (54ft-lb)	114Nm (84ft-lb)	170Nm (125ft-lb)	244Nm (180ft-lb)	339Nm (250ft-lb)	542Nm (400ft-lb)	868Nm (640ft-lb)	1315Nm (970ft-lb)

4.6 Lubricant Specifications

Lubricant Type	Brands / Specifications	Purpose
Biodegradable Oil	Use this brand (or equivalent): <ul style="list-style-type: none"> PPG Chemfil Chemlube Agri-eco 1000 	<ul style="list-style-type: none"> To spray on the equipment.
Synthetic Grease for Ball Bearing Intensive Use	Use this brand (or equivalent): <ul style="list-style-type: none"> TRC #880 Crown and Chassis 	<ul style="list-style-type: none"> To grease the universal joints of the PTO. To lubricate the ball bearings of the bearing housing
All-Purpose Grease	Use this brand (or equivalent): <ul style="list-style-type: none"> EP2 mineral grease 	<ul style="list-style-type: none"> To lubricate the equipment. To seal the bearing housing chambers.

5 Handling and Installation

5.1 Special Personnel Qualifications Required for Handling and Installation

Handling must be performed by a qualified forklift operator.

Installation work must be performed by trained personnel in accordance with the safety instructions.

Welding work must be performed by a qualified welder.



Read the Section: Safety - Personnel Qualifications.

5.2 Safety Instructions for Handling and Installation



WARNING!

Do not stand under suspended loads. Falling loads can cause fatal injuries!



WARNING!

Be careful when working on the deck. A fall could happen and cause serious injuries.



CAUTION!

Wear protective boots, eye gear and gloves for all steps included in this Section.



ATTENTION!

Beware when lifting this product. The product will be unbalanced.



ATTENTION!

Ensure each lifting ring of this product is in reliable condition to avoid an accidental fall causing damages and injuries.



ATTENTION!

Always keep this product on a flat and level surface. An uneven surface could unbalance the product resulting in damages and/or injuries.



ATTENTION!

Beware of potential fire hazards such as those caused by welding, cutting, grinding, etc.



Read the Section: Safety.

5.3 Handling and Installing the Product and Accessories

5.3.1 Special Tools

	Description	Purpose
	Forklift truck	To lift accessories.
	Safety chain	To lift components.
	Crane	To lift components.
	Hoist	To lift components.
	Wrench set	To tighten bolts and anchor bolts
	Ratchet tool set	To tighten bolts and anchor bolts
	Torque wrench	To tighten bolts and anchor bolts at the specified torque

Items Provided by the Owner:

- A ladder to reach the deck for the Maxi-Pump and Side Mounted Agitation Kit.
- A PTO driveline meeting local regulations, if applicable.
- A tractor of appropriate size to match the pump specification.

5.4 Handling and Installing the Maxi-Pump with Side Mounted Agitation Kit

- This product must be installed in a frost-free environment. For the period during which freezing point temperature is reached, the agitation system must be removed from the pit to prevent damage to the equipment.

**ATTENTION!**

To lift this product, use a lifting device with a minimum lifting capacity of 525 lb [250 kg].

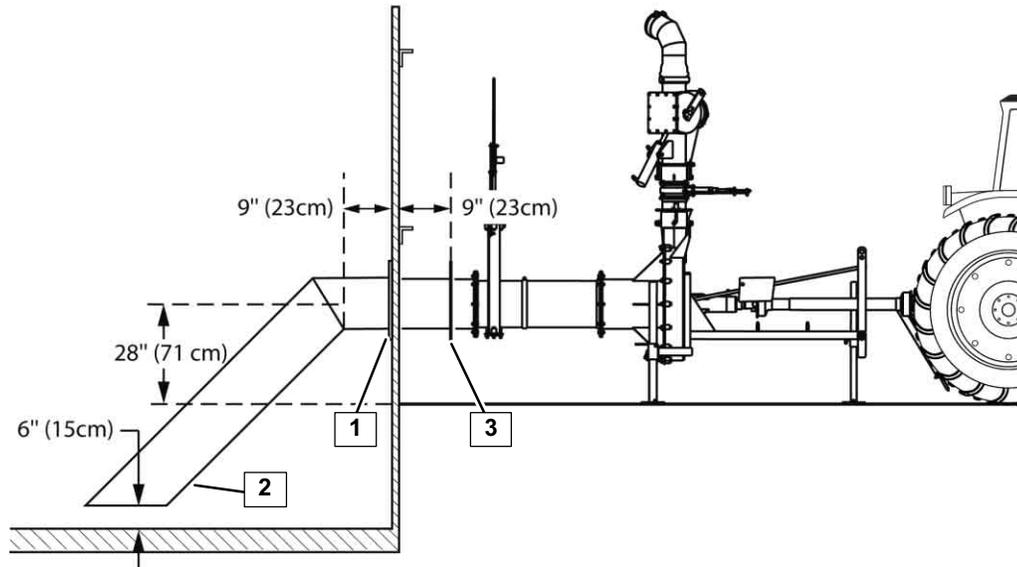


To tighten the bolts adequately, refer to Section: Technical Data - Bolt Torque Chart.

**Note!**

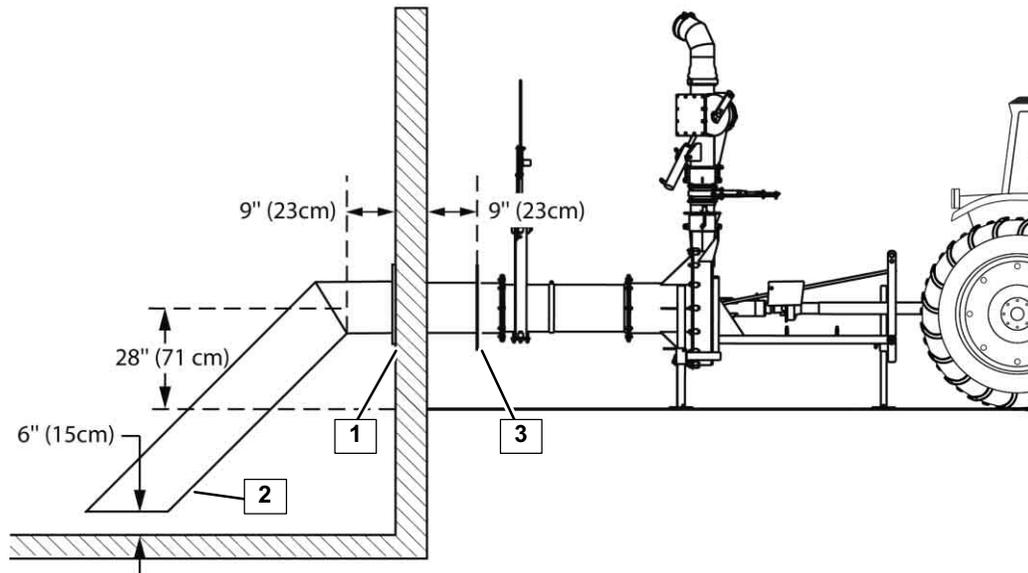
There are two ways to install the suction pipe: through the wall or through the floor. Refer to the appropriate installation steps below. There are several installation configurations.

5.4.1 Suction Pipe Installation - through the wall of a steel reservoir



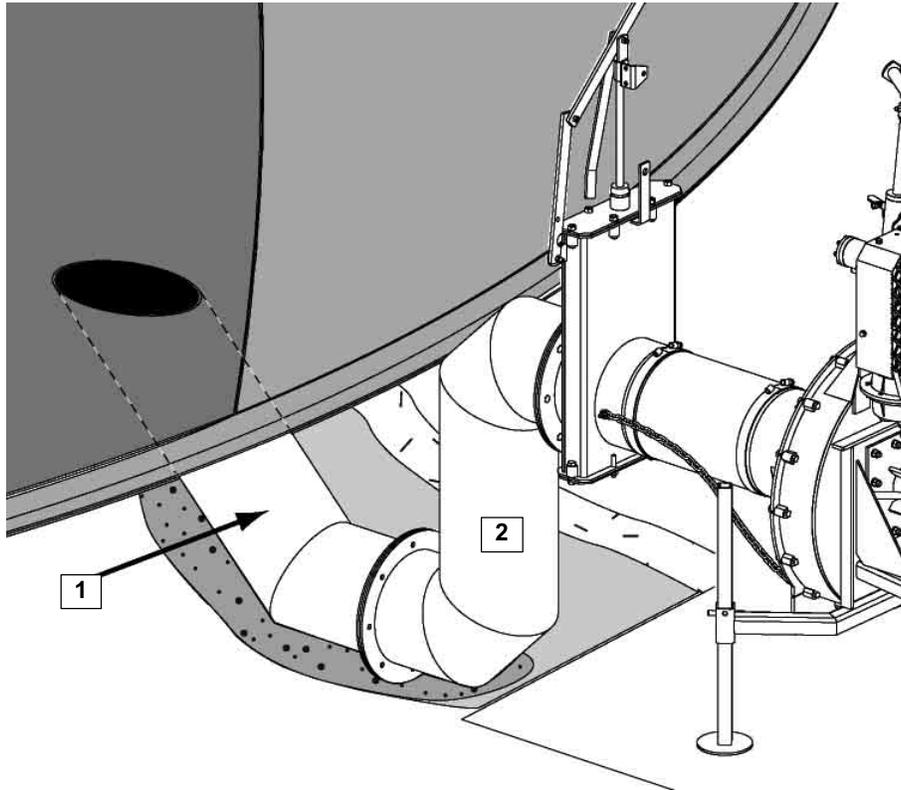
- Remove the loose ring (1) from the suction pipe (2) to use it as a template.
- Position the loose ring (1) on the wall making sure the center of the ring is located at 28" (71 cm) from the ground (outside of the reservoir). Once positioned, draw the inside diameter on the wall.
- Using a plasma cutting machine, cut the wall by following the line previously drawn.
- Place the loose ring (1) on the suction pipe (2).
- From the inside of the reservoir, insert the suction pipe (2) through the wall and slide the pipe to have 9" (23 cm) left outside the reservoir.
- Level the pipe and hold it in place. Make sure the pipe opening is located at 6" (15 cm) from the bottom of the reservoir.
- Slide the loose ring (1) to lean it against the wall and spot weld the ring on the suction pipe (2).
- Weld the ring to the pipe and let it cool to room temperature.
- Drill the reservoir wall through the loose ring holes.
- Pull the suction pipe to clean the ring and the wall.
- Generously apply silicone all over the ring surface and place the suction pipe for the ring to lean against the wall.
- Fix the ring to the wall using bolts and nuts without tightening.
- Let the silicone dry for 24 hours.
- Torque all bolts using typical cross pattern method.
- Weld the external ring (3) to the end of the pipe (outside of the reservoir).

5.4.2 Suction Pipe Installation - through the wall of a concrete reservoir



- Install a concrete form having the same diameter as the suction pipe outside diameter. The center of the form must be located at 28" (71 cm) from the ground (outside of the reservoir)
- Pour the concrete.
- Once concrete is dry, remove the form.
- From the inside of the reservoir, insert the suction pipe (2) through the wall and slide the pipe to have 9" (23 cm) left outside the reservoir.
- Place the loose ring (1) on the suction pipe (2).
- Level the pipe and hold it in place. Make sure the pipe opening is located at 6" (15 cm) from the bottom of the reservoir.
- Slide the loose ring (1) to lean it against the wall.
- Weld the ring to the pipe.
- Generously apply silicone all over the ring surface and place the suction pipe for the ring to lean against the wall.
- Let the silicone dry for 24 hours.
- Fix the ring to the wall using anchor bolts.
- Weld the external ring (3) to the end of the pipe (outside of the reservoir).

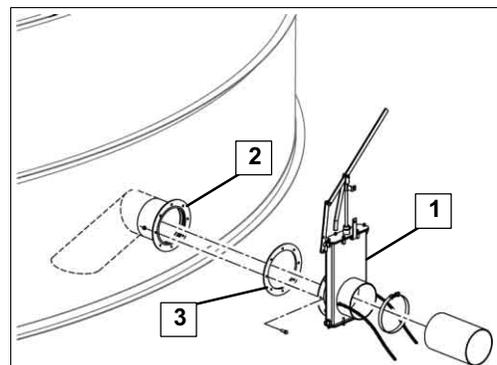
5.4.3 Suction Pipe Installation - through concrete floor



- Install the pipe through the concrete forms used to pour the concrete. The opening of the suction pipe must be positioned even with the bottom of the reservoir.
- Pour the concrete.
- Assemble the "S" shape 12" intake pipe (2) with the suction pipe (1). Place a seal between the two flanges and bolt both flanges together once the Maxi-Pump is located higher than the suction pipe (1).

5.4.4 12" Gate Valve Installation

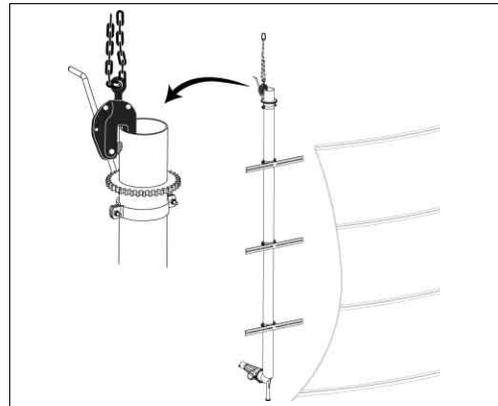
- Bolt the 12" gate valve (1) on the suction pipe flange (2) by placing the seal (3) between the two flanges.



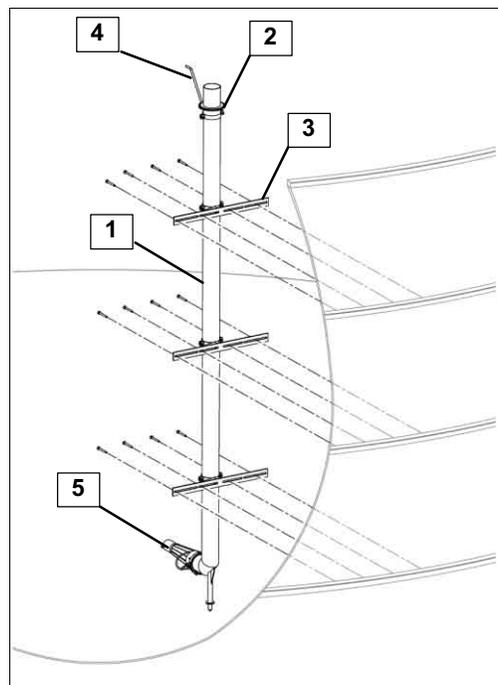
5.4.5 Side Mounted Agitation Kit Handling and Installation

Step 1: Agitation Pipe Installation

- Assemble the bottom nozzle with the agitation pipe using the circle lock clamp. Secure the nozzle by fixing the safety cable to the elbow.
- Using a crane and a lifting clamp, lift the pipe that will be installed in the reservoir.

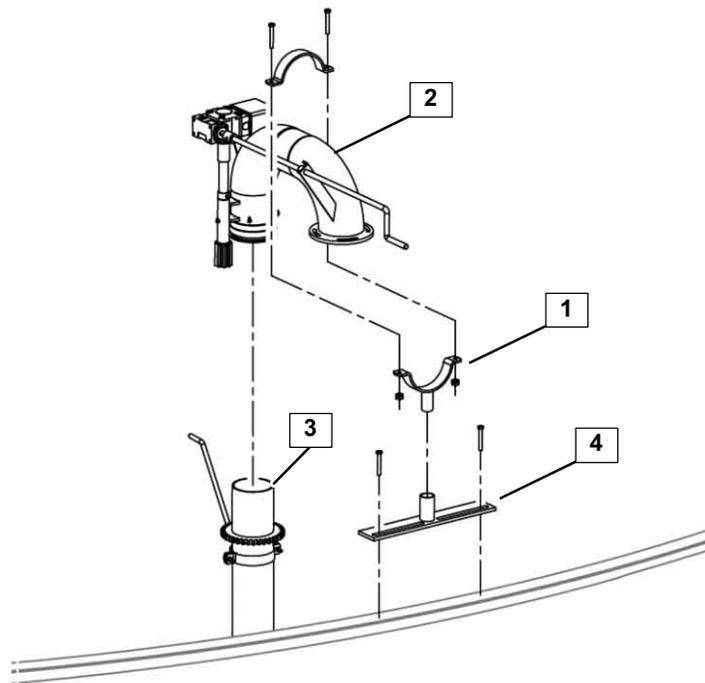


- Measure the reservoir internal depth.
- Cut the agitation pipe (1) 2" (51 mm) shorter than the measure taken at the previous step (from the tip of spike to the top of pipe). Using a grinder, remove sharp edges.
- Weld the sprocket (2) at 7" (178 mm) from the top of the agitation pipe.
- Install the pipe vertically in the reservoir using an appropriate lifting system.
- Assemble and position three supports (3) on the agitation pipe. Install two spacers between half collars and fix it using bolts and nuts.



- Fix the supports on the reservoir wall making sure the pipe pivots easily. In the case of an installation in a steel reservoir, the supports must be installed at the junction of the steel plates. Do not drill through the reservoir needlessly, use the existing bolts. In the case of an installation in a concrete reservoir, drill anchor holes centered in the support slots and install anchor bolts to fix the supports to the reservoir.
- Install the indicator rod (4) on the agitation pipe by positioning it in the same direction as the bottom nozzle (5).

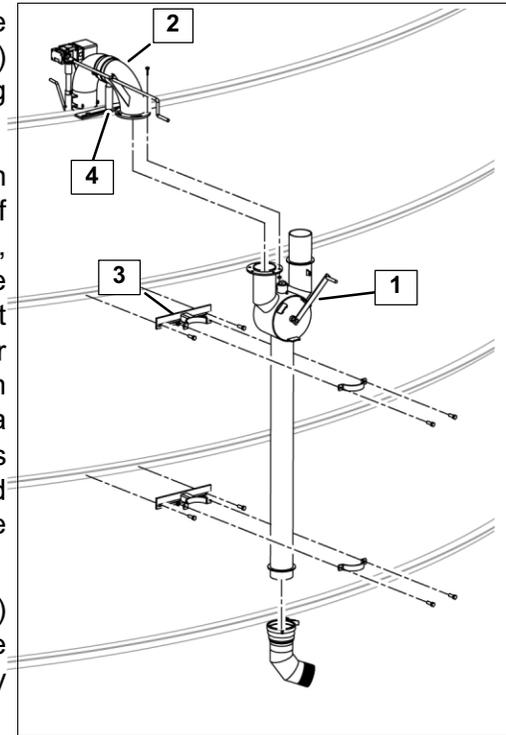
Step 2: 180° Elbow Installation



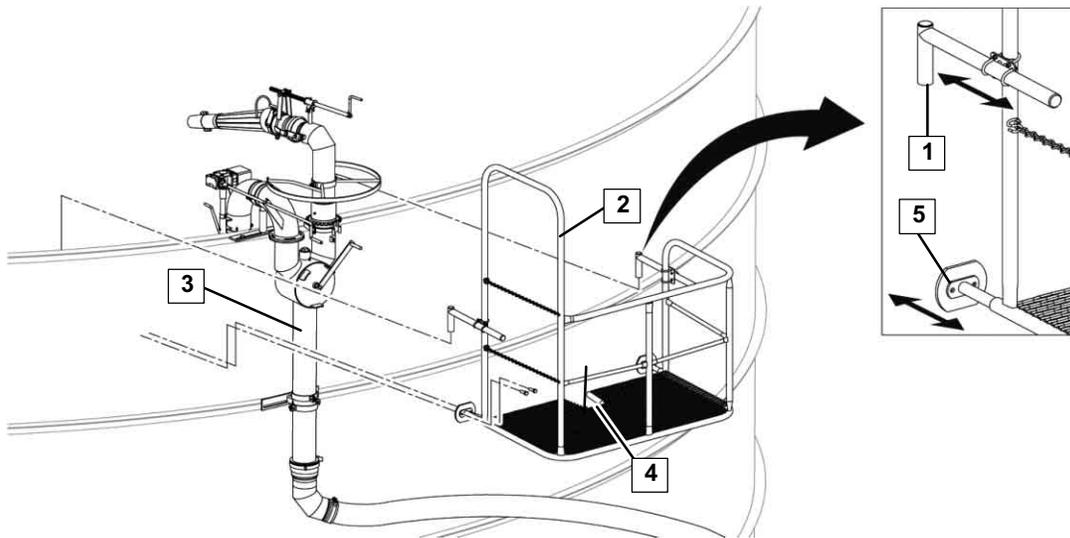
- Assemble the support (1) on the 180° elbow (2). The support base (4) is not welded to allow final adjustment on site.
- Using an appropriate lifting device, install the 180° elbow (2) on the agitation pipe (3) in such a way that the support base (4) rests on the edge of the reservoir.
- Drill anchor holes centered in the support slots and install anchor bolts (for concrete pit) or regular bolts (for steel reservoir) to fix the support to the reservoir.

Step 3: Rotative Valve Installation

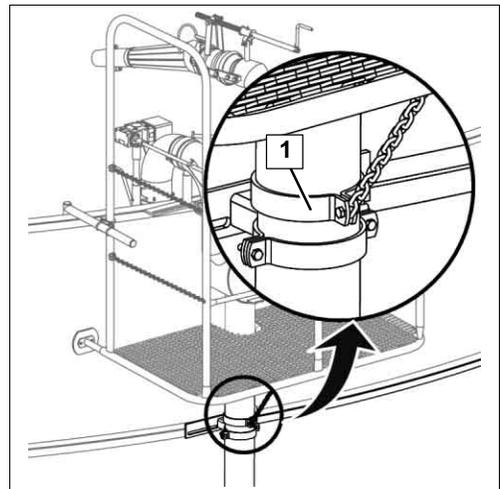
- Install the o-ring on the lip of the flange and bolt the rotative valve (1) on the 180° elbow (2) by supporting it vertically.
- Assemble and fix two supports (3) on the rotative valve (1). In the case of an installation in a steel reservoir, the supports must be installed at the junction of the steel plates. Do not drill through the reservoir needlessly, use the existing bolts. In the case of an installation in a concrete reservoir, drill anchor holes centered in the support slots and install anchor bolts to fix the supports (3) to the reservoir.
- Weld the support mobile part (4) when the rotative valve (1) and the agitation pipe are correctly assembled and positioned.

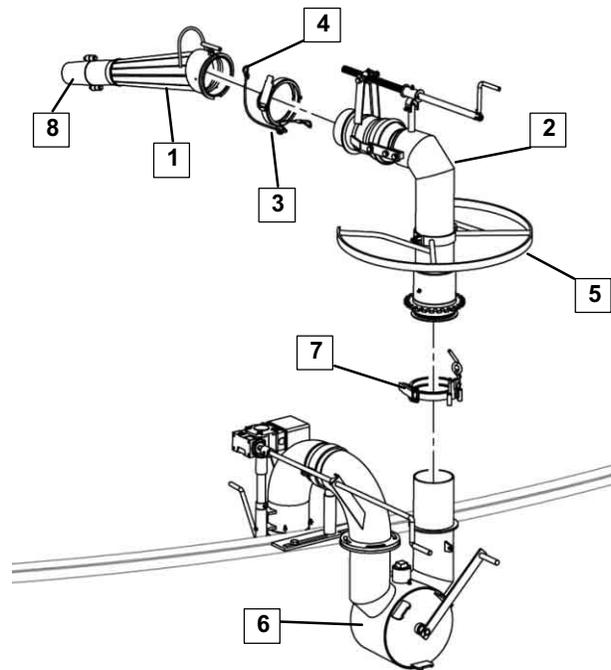


Step 4: Deck Installation



- Make sure the fixing parts (1) and the fixing plates (5) are correctly installed on the deck (2).
- Using a lifting device, position the deck (2) on the edge of the reservoir by placing the deck opening (4) around the rotative valve pipe (3).
- Adjust the fixing parts (1) for the deck (2) to be levelled, making sure the fixing plates (5) located at the bottom of the deck lean on the reservoir.
- Drill holes to bolt fixing plates (5).
- Assemble a collar (1) on the rotative valve pipe to fix the chain through the deck floor. Make sure the chain is snugged tight between the deck and the collar.

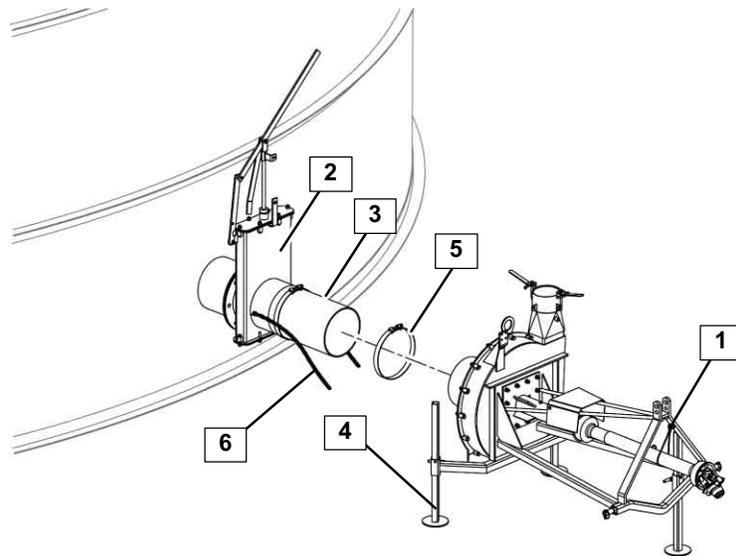
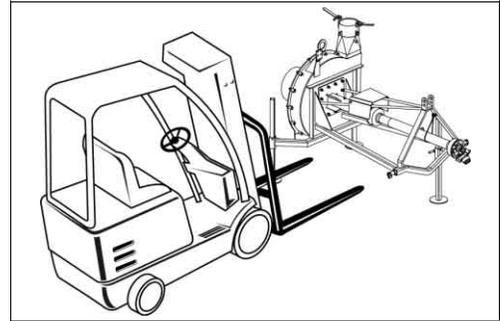


Step 5: Surface Nozzle Installation

- Assemble the surface nozzle (1) with the 90° elbow (2) using the circle lock clamp (3). To ease installation, apply all-purpose grease on the seal located inside the nozzle. Secure the nozzle by fixing the safety cable (4) to the elbow.
- Install the nozzle tip reducer (8) at the end of the surface agitation nozzle (1) to increase the pressure, if required.
- Install the steering wheel (5) on the elbow using a half collar and hardware. Place the open part of the wheel (5) in the surface agitation nozzle (1) direction.
- Using a lifting device, install the surface nozzle 90° elbow (2) on the rotative valve (6). To ease installation, apply all-purpose grease on the seal located inside the elbow.
- Lock the pipe using the circle lock clamp (with locking pin) (7).

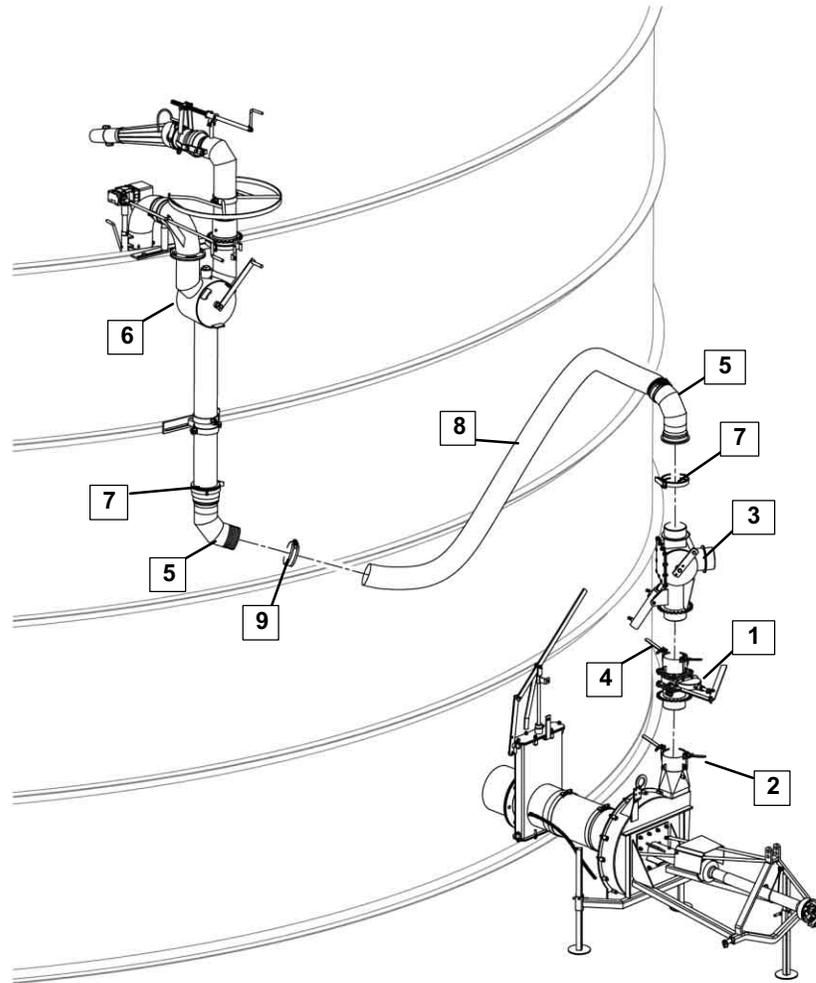
5.4.6 Maxi-Pump Handling and Installation

- Using a forklift truck, place and align the Maxi-Pump (1) near the 12" valve (2) to be able to assemble it with the hose (3).



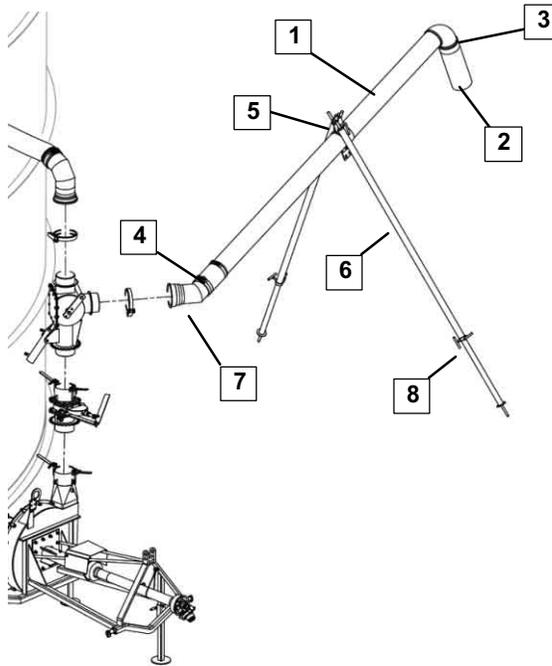
- Adjust the Maxi-Pump height using the three adjustable legs (4).
- Install the 12" hose (3) between the two openings using the two collars (5).
- Attach the safety chains (6) between the gate valve (2) and the Maxi-Pump (1) frame. The safety chains (6) must be installed tight enough to prevent the hose (3) from being disconnected accidentally.

5.4.7 Flexible Hose Installation

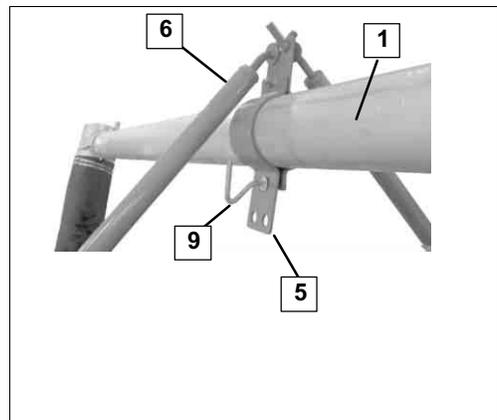


- Place the o-ring against the notched disc of the gate valve (1). Install the 6" gate valve (1) on the pump discharge and secure with the two locking handles (2).
- Place the o-ring against the notched disc of the directional valve (3). Install the directional valve (3) over the 6" gate valve (1) and secure with the two locking handles (4).
- Fix an elbow (5) on the rotative valve (6) bottom pipe and another one on the top of the directional valve (3) using circle lock clamps (7).
- Cut the flexible hose (8) two feet longer than the length that separates the two elbows (5) installed at the previous step.
- Install the flexible hose (8) between the rotative valve (6) and the directional valve (3) elbows using collars (9).

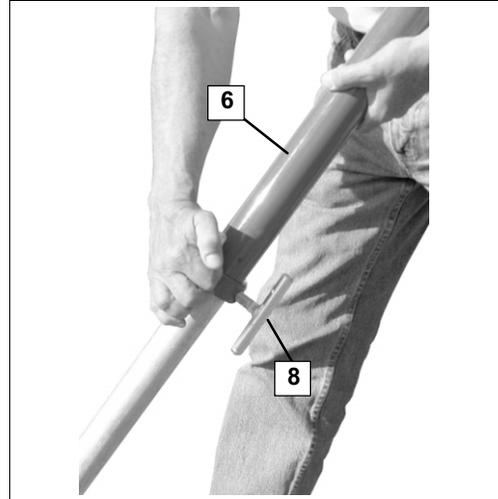
5.4.8 Loading Pipe Assembly



- Assemble the loading pipe (1) on a flat ground.
- Install the discharge hose (2) at the end of the top elbow (3) and fix it using a collar.
- Install the hose (4) at the bottom end of the loading pipe (1) using a collar.
- Install the elbow (7) to the hose (4) using a collar.
- Fix two half collars (5) on the loading pipe (1). Position the half collars (5) at 8' (2.45 m) from the top end of the pipe.
- Tighten the locking handle (9) of the half collars to avoid loading pipe (1) swivelling.
- Install the support legs (6) by inserting the hooks of the legs in the half collars (5) top holes to hang the loading pipe (1).



- Adjust the loading pipe height using tightening handles (8) on support legs (6).
- Adjust the distance between the legs to its minimum making sure the legs touches the collar.
- Drive the legs' spike in the ground.



- Fix the elbow (7) to the directional valve using a circle lock clamp. (see previous page)

5.5 Handling and Assembling the Maxi-Pump for Solid Manure Platform



ATTENTION!

To lift this product, use a lifting device with a minimum lifting capacity of 650 lb [300 kg].



ATTENTION!

Beware when lifting this product. The product will be unbalanced.



To tighten the bolts adequately, refer to Section: Technical Data - Bolt Torque Chart.

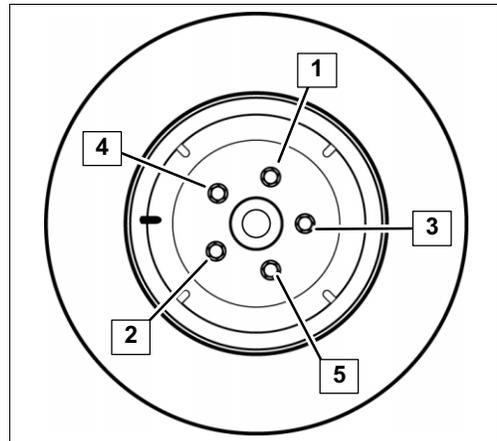
5.5.1 Wheels Assembly (Maxi-Pump on trailer)



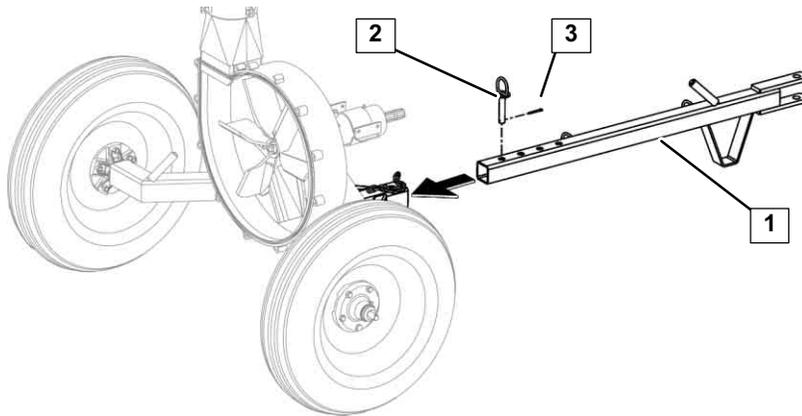
ATTENTION!

Make sure to tight wheel nuts to a torque of 122 N/m (90 lb/ft).

- Lift the centrifugal pump.
- Position the wheel on the hub.
- Bolt the wheels using the hardware provided.
- Follow the sequence illustrated beside.

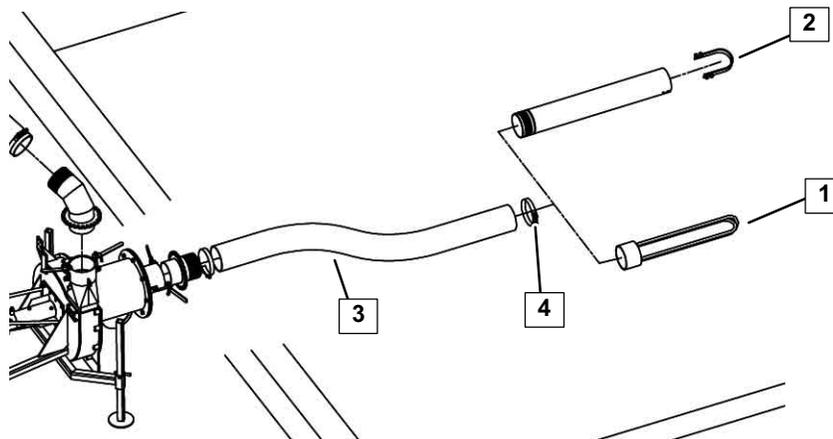


5.5.2 Tow Bar Assembly (Maxi-Pump on trailer)



- Install the tow bar (1) as shown on the drawing above.
- Insert the pin for tow bar (2) to lock it in place.
- Insert the cotter pin (3) to secure the tow bar.

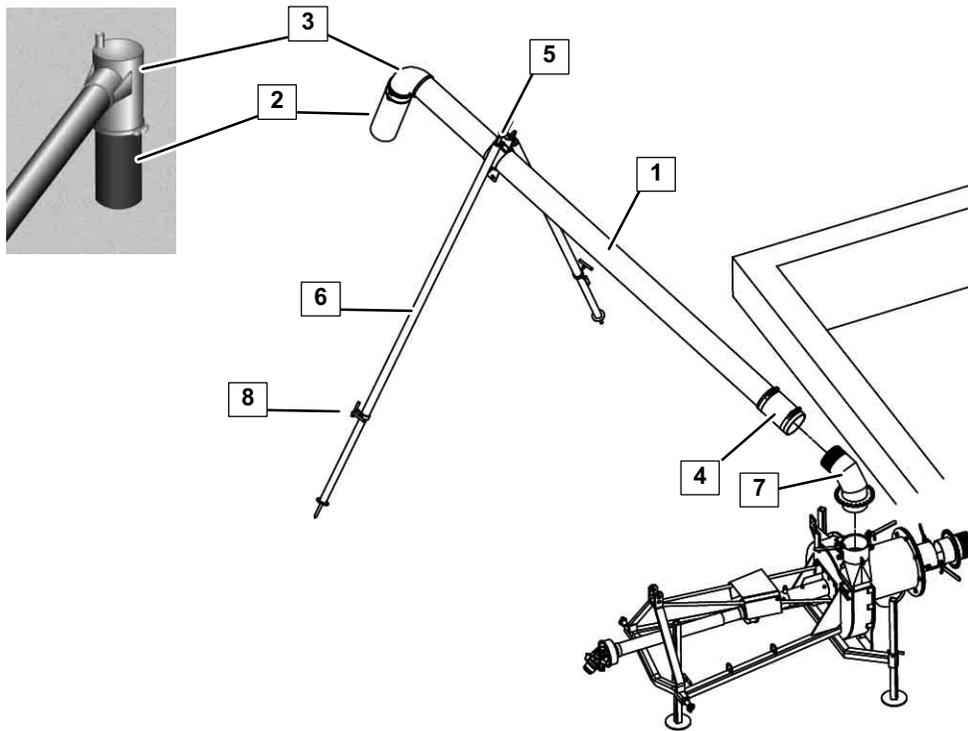
5.5.3 Suction Hose Assembly



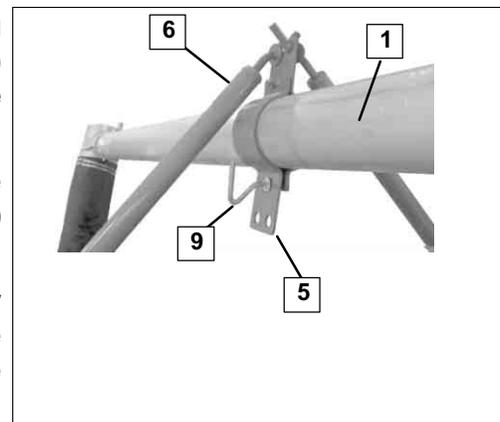
There are two types of suction hoses: one with an aluminum pipe ending (2); one with a grid ending (1).

- Install the suction pipe ending (1 or 2) at the end of the hose (3) and fix it with a collar (4).

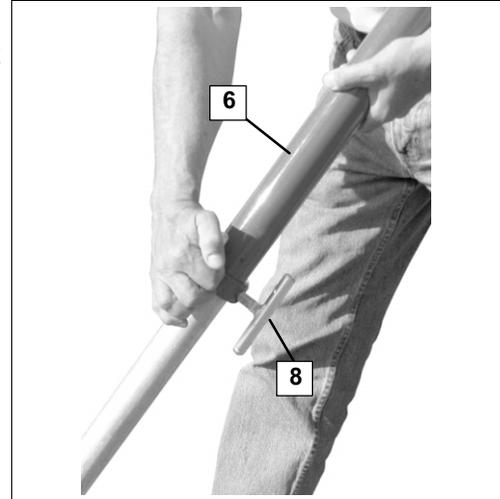
5.5.4 Loading Pipe Assembly



- Assemble the loading pipe (1) on a flat ground.
- Install the discharge hose (2) at the end of the top elbow (3) and fix it using a collar.
- Install the hose (4) at the bottom end of the loading pipe (1) using a collar.
- Install the elbow (7) to the hose (4) using a collar.
- Fix two half collars (5) on the loading pipe (1). Position the half collars (5) at 8' (2.45 m) from the top end of the pipe.
- Tighten the locking handle (9) of the half collars to avoid loading pipe (1) swivelling.
- Install the support legs (6) by inserting the hooks of the legs in the half collars (5) top holes to hang the loading pipe (1).

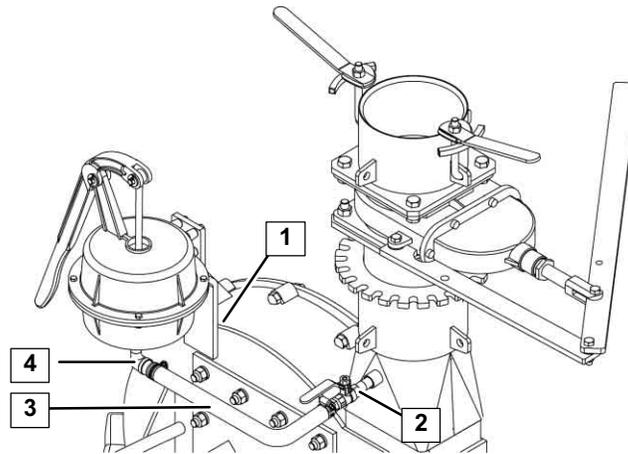


- Adjust the loading pipe height using tightening handles (8) on support legs (6).
- Adjust the distance between the legs to its minimum making sure the legs touches the collar.
- Drive the legs' spike in the ground.



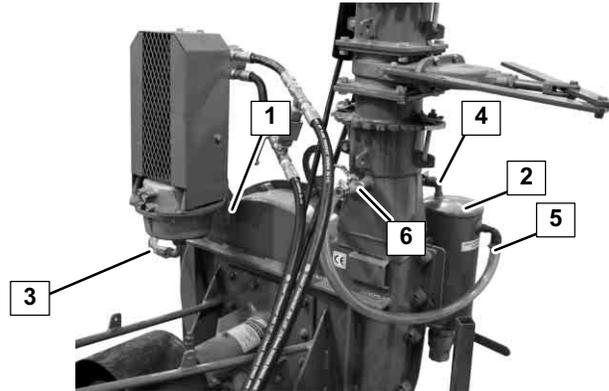
5.6 Primer Pump Installation

5.6.1 Manual Primer Pump Installation



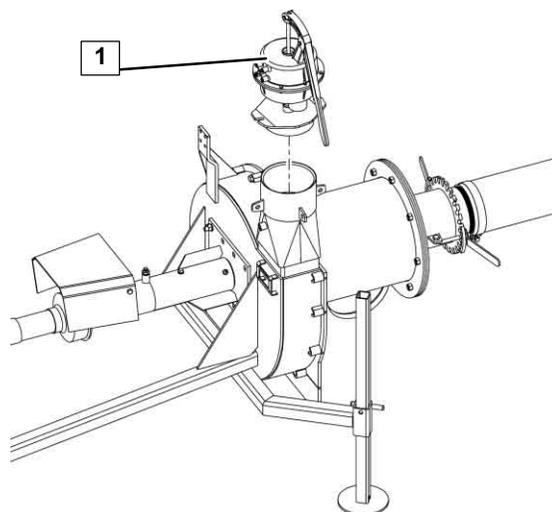
- Bolt the primer pump on the bracket (1) located on the Maxi-Pump frame using the hardware provided with the primer pump.
- Connect the translucent hose to the fitting of the ball valve (2) located on the pump discharge.
- Cut the translucent hose (3) to reach the fitting located under the primer pump (4).
- Install the hose on the fitting.
- Secure the hose using collars.

5.6.2 Hydraulic Primer Pump Installation



- Bolt the primer pump on the bracket (1) located on the Maxi-Pump frame using the hardware provided with the primer pump.
- Bolt the collector (2) to the impeller housing using the bolts and washers supplied with the collector.
- Install the translucent hose on the fitting located under the primer pump (3).
- Cut the hose to reach the fitting located on the top of the collector (4).
- Connect the remaining hose to the fitting located on the side of the collector (5).
- Connect the hose to the ball valve located under the pressure gage (6).

5.6.3 Manual Primer Pump Installation (Maxi-Pump for Solid Manure Platform only)



- Install the manual primer pump (1) as shown on the drawing above.
- Using quick clamps and bent bolts, fix the manual primer pump in place.



6 Starting for the first time

6.1 Special Qualifications Required for Initial Commissioning

Initial commissioning must be performed by trained personnel in accordance with the safety instructions.



Read the Section: Safety - Personnel Qualifications.

6.2 Initial Commissioning Checklist

This checklist must be completed by the dealer and the customer to validate that the product is assembled and/or installed according to the manufacturer's instructions and safe for use.



NOTE!

Additional information necessary to complete the checklist can be found in this instruction manual specially in the Advanced Maintenance section.

General	DONE	N/A
The owner received the instruction manual from the dealer and commits to read it.		
The owner is instructed by the dealer on how to operate and maintain the product.		
The safety guards and safety labels are installed.		
The lubrication points are lubricated.		
All bolts and anchor bolts are torqued.		
All connections are secured.		
A visual inspection is performed to ensure there are no leaks, signs of distortion or defect parts.		



NOTE!

The dealer and the owner must fill the warranty registration form when the checklist is completed.

Dealer's signature: _____

Owner's signature: _____

Date: _____



6.3 First Start



CAUTION!

Do not start this product until the initial commissioning checklist is completed.

The first start steps intend to test the product in order to validate its functionality and efficiency before handing it over to the customer. Therefore, the authorized dealer along with the customer must operate the product as well as the operating elements. Follow the steps in Section: Operating.

6.4 Checks After Initial Commissioning



NOTE!

The initial commissioning of this product can reduce the tractor hydraulic oil level. Follow the recommendations of the tractor manufacturer to ensure proper hydraulic oil level.

The owner must make sure that:

- there are no damaged, worn, defective parts or signs of distortion;
- the safety devices such as guards, covers, chains, etc. are in perfect working condition and remain in place to ensure safety;
- the lubricants such as grease, oil, etc. are at an appropriate level;
- there are no leaks;
- all bolts are tight. Refer to: Technical Data - Bolt Torque Chart;
- the product is efficient.
- tires are inflated to appropriate pressure;

6.5 Handing Over to the Customer

Hand over warranty registration form

The warranty registration form must be completed and signed by the customer and the authorized dealer. The warranty registration form must be returned to GEA Farm Technologies Canada Inc. / Division GEA Houle to validate the warranty.

7 Operating

7.1 Special Qualifications Required for Operating

Operating must be performed by trained personnel in accordance with the safety instructions.



Read the Section: Safety - Personnel Qualifications.

7.2 Safety Instructions for Operating



WARNING!

Keep safety devices in place.



WARNING!

Be careful when working on the deck. A fall could happen and cause serious injuries.



CAUTION!

No one stands near this product unless they are performing instructions included in this Section.



CAUTION!

Keep body parts and clothing away from moving parts.



Read the Section: Safety.

7.3 Checks Before Operating

- The safety devices such as guards, covers, chains, labels, etc. remain in place to ensure safety;
- Lubricants such as grease, oil, etc. are at an appropriate level. To find the grease points, refer to Section Appendix: Label Position;
- All parts to be connected such as draw bar, PTO, hydraulic and air connectors, etc. are secured;
- All bolts are tight. Refer to: Technical Data - Bolt Torque Chart.

7.4 Connecting the Maxi-Pump

Step 1: Hitching the pump (3-Point Hitch or Tow Bar)

3-point Hitch Connection



Note!

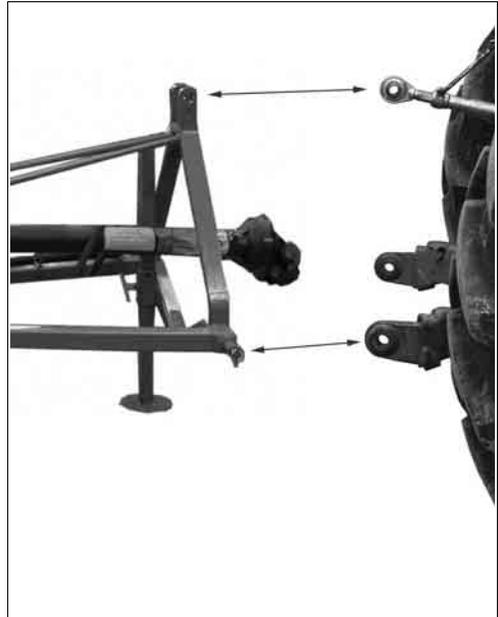
Not applicable to trailer model. Refer to Tow Bar Connection below.



CAUTION!

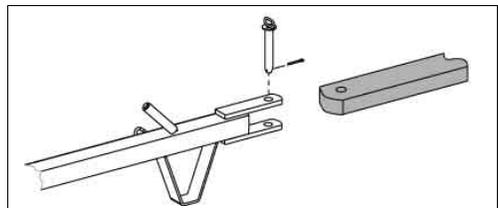
Before installing the pins connecting the equipment to the tractor, make sure the tractor is turned off and the parking brake is properly activated to ensure immobilization.

- Remove the pins from the agitator 3-point hitch.
- Back up the tractor to allow connection with the agitator.
- Turn off the tractor and immobilize it using the tractor parking brake.
- Using pins and safety cotter pins, attach the agitator 3-point hitch to the tractor.
- Hook up the hydraulic hoses of the agitator to the tractor.
- Install the PTO driveline.
- European model: install the safety chains to prevent the guard's power take-off from rotating.



Tow Bar Connection

- Insert the tractor tow bar in the Maxi-Pump hitch.
- Insert the pin through the tow bar to lock it in place. Secure the pin using a cotter pin.



Refer to tractor operating instructions and make sure the chains are attached according to your current local regulations.

Step2: PTO Driveline Connection



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



Turn off the tractor and apply the hand brake before connecting or disconnecting the PTO driveline.



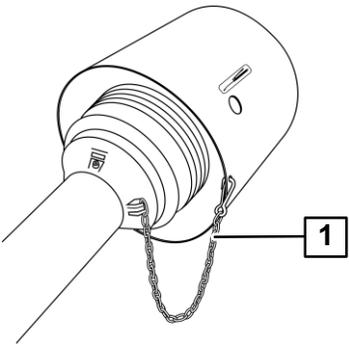
NOTE!

Refer to the PTO driveline instruction manual and follow the manufacturer's recommendations.



Refer to the following instructions when the PTO driveline is supplied by GEA Farm Technologies Canada Inc. / Division GEA Houle.

European PTO Driveline Model

PTO Safety Chains	
<ul style="list-style-type: none">• The safety chains (1) must remain in place at all times to prevent the driveline guard from rotating.	
<ul style="list-style-type: none">• Make sure the safety chains do not restrict the driveline movement when operating or transporting the spreader.	
<ul style="list-style-type: none">• Replace damaged chain.	

American PTO Driveline Model

<p>PTO Driveline Instruction (American model only)</p>	
<p>Maximum Extension and Retraction</p>	
<ul style="list-style-type: none"> Always keep the edge of the female guard between the indicators while operating. 	
<ul style="list-style-type: none"> The minimum retraction indicator (2) must never disappear underneath the female guard. 	
<ul style="list-style-type: none"> The maximum extension indicator (3) must never be completely visible. 	
<p>PTO Driveline Instruction (American model only)</p>	
<p>Maximum Angle of the PTO joints</p>	
<p>Constant velocity PTO driveline</p> <ul style="list-style-type: none"> One PTO joint must be set at a maximum of 70° angle. The other PTO joint must be set at a maximum of 15° angle . 	
<p>Standard PTO driveline</p> <ul style="list-style-type: none"> Both PTO joints must be set at the same angle. (The maximum 15° angle). 	
<ul style="list-style-type: none"> The angle of the joints must be directed toward the same side of the driveline. 	
<p>Lubrication</p> <ul style="list-style-type: none"> For universal joints, use a high quality grease formulated for intensive use. Follow the instructions of the PTO manufacturer for proper lubrication. 	



Refer to the instruction manual of the tractor to operate the PTO.

7.5 Maxi-Pump and Side Mounted Agitation Kit

Before operating the pump, make sure the connecting steps have been performed. Refer to Section: Operating - Connecting the Maxi-Pump.

Step 1: Priming (if applicable)



Note!

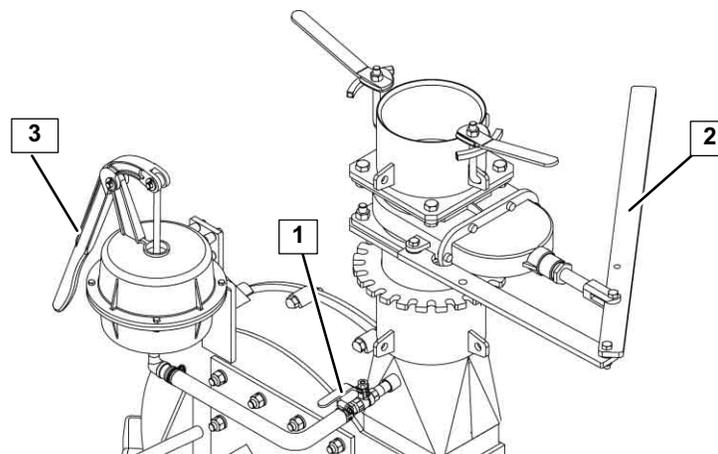
It is recommended that the Maxi-Pump and Side Mounted Agitation Kit be run constantly alternately in transfer and agitation modes to maintain prime whenever level in storage tank is below top of Maxi-Pump intake.



Note!

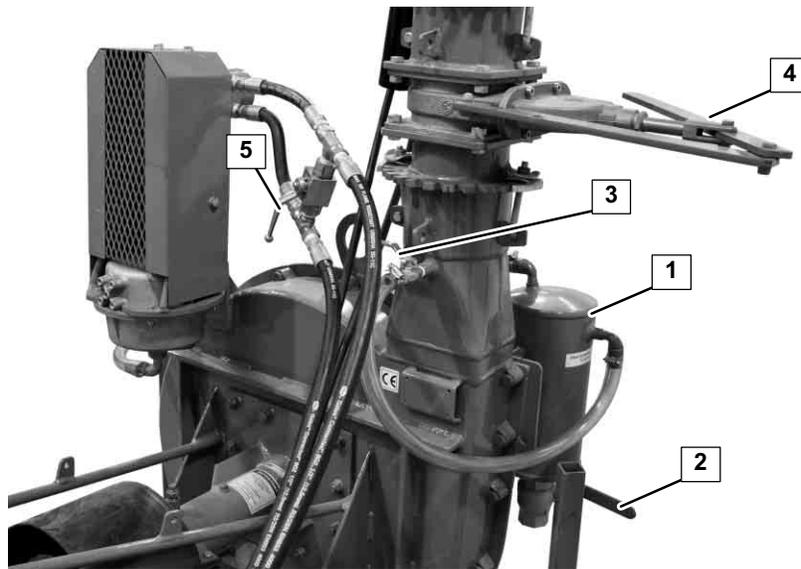
Since there are two primer pump models for this equipment, follow the appropriate instructions listed below.

Manual Primer Pump



- Open the ball valve (1).
- Close the gate valve (2) of the discharge pipe by pushing on the lever.
- Close the drain valve located on the impeller housing.
- Manually activate the lever (3) of the primer pump up and down until the manure reaches the translucent hose.
- Close the ball valve (1).

Hydraulic Primer Pump

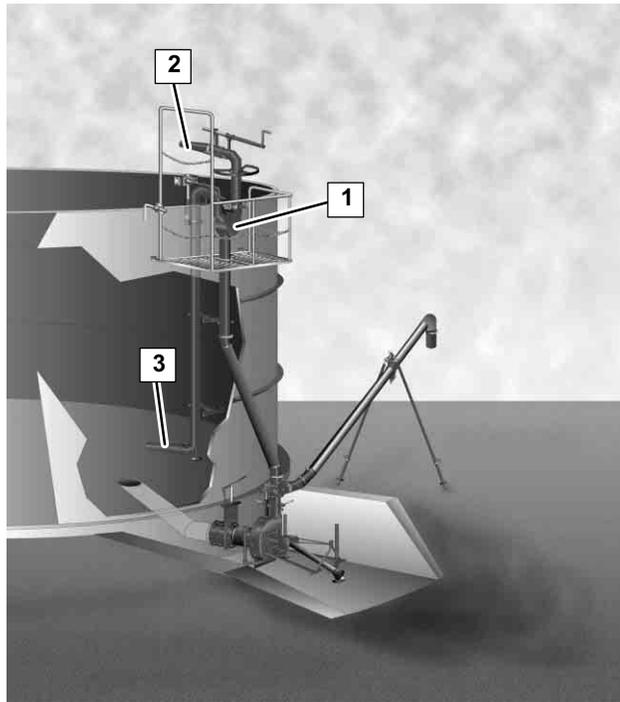


NOTE!

Drain the collector of the hydraulic primer pump before and after each use.

- Place a container under the collector (1) and drain it by opening the drain valve (2). Close when drained.
- Close the drain valve located on the impeller housing.
- Open the ball valve (3).
- Close the gate valve (4) of the discharge pipe by pushing on the lever.
- Connect the hydraulic hoses of the primer pump to the tractor.
- Start the tractor and engage the hydraulic function corresponding to the primer pump.
- Slowly close the ball valve (5) to gradually activate the hydraulic motor. Use the ball valve to adjust the hydraulic motor speed.
- When the manure reaches the translucent hose, open the ball valve (5) of the hydraulic hoses to stop the primer pump.
- Close the ball valve (3).
- Disengage the hydraulic functions of the tractor.
- Empty the manure collector reservoir using the valve (2) located under the reservoir.

Step 2: Agitating the Manure

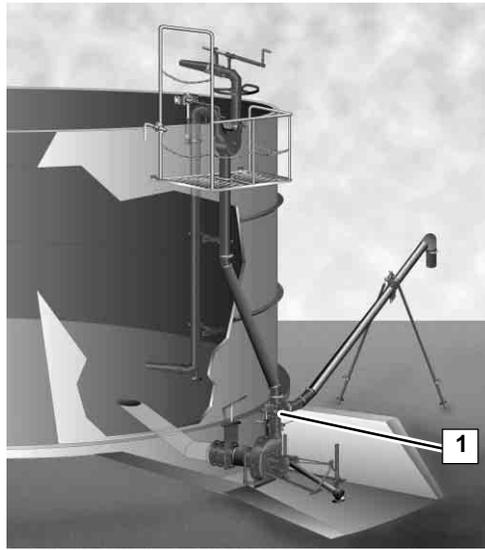


WARNING!

Always connect the pump to the 3-point hitch of the tractor before operating.

- Open the gate valve located under the directional valve.
- Activate the directional valve in agitation mode.
- Open the 12" gate valve.
- Start the PTO at minimum speed, then increase gradually RPM until 540 to begin liquid agitation.
- Position the rotative valve lever (1) in order to use the surface nozzle (2) to mix solid parts of the manure. Change the nozzle direction using steering wheel and handle.
- When the manure is sufficiently mixed, position the rotative valve lever (1) in order to use the bottom nozzle (3). Rotate gradually using the handle.
- Agitate all the reservoir content until it is homogenized prior to begin the transfer.
- A reducer tip may be installed at the end of the surface nozzle to increase pressure.

Step 3: Transferring the Manure



WARNING!

The liquid manure contained inside the reservoir creates a pressure that force-feed the pump. As the pressure facilitates / forces the pump transfer, it is **MANDATORY** to start transferring at minimum RPM to prevent turbulence in the loading pipe. Increase RPM gradually afterward.



Note!

Begin the transfer at minimum RPM when manure level is higher than loading pipe height.



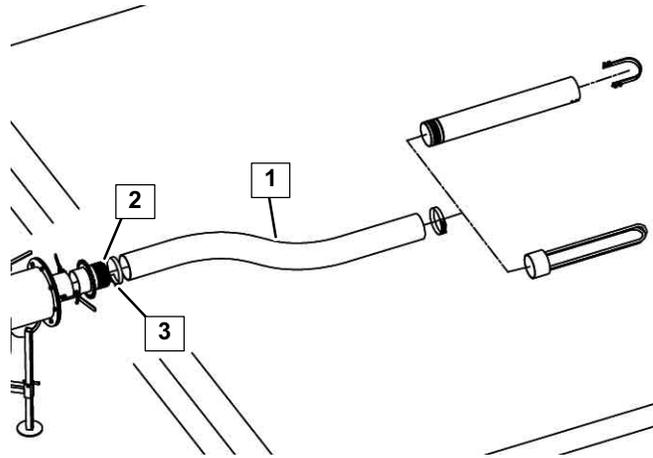
Note!

Be ready to close the directional valve fast when the pump is used with a high manure level.

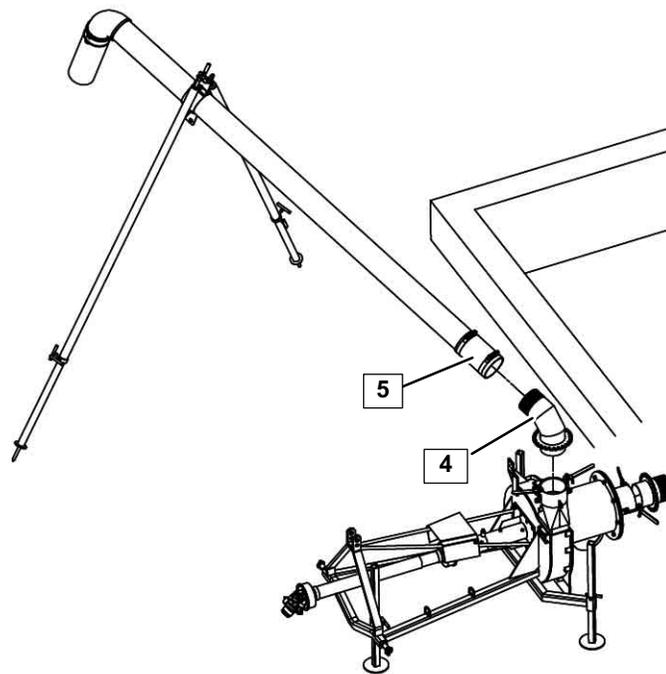
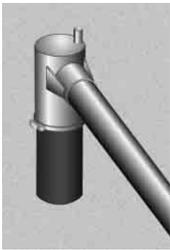
- When manure is homogenized, gradually decrease PTO RPM, then activate the directional valve (1) to begin manure transfer.
- Gradually increase RPM until 540 in order to transfer manure at full gpm.
- Before the spreader is full, gradually decrease PTO RPM to minimum.
- Stop the pump or activate the directional valve (1) to continue agitating the reservoir content.
- In order to prevent any spillage or manure flow back when handling is over, always position the directional valve in agitation mode, close the bronze gate valve and the 12" gate valve.

7.6 Maxi-Pump for Solid Manure Platform

Step 1: Installing Suction Pipe and Loading Pipe



- Insert the hose (1) on the ribbed end of the straight adaptor(2) and fix it with a collar (3).



- Fix the elbow (4) to the Maxi-Pump using handles.
- Fix the hose (5) to the elbow (4) using a collar.

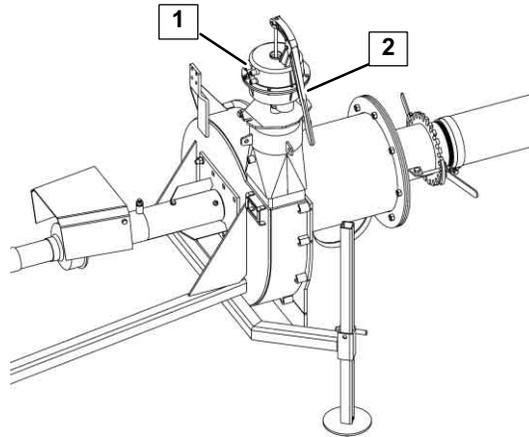
Step 2: Priming



Note!

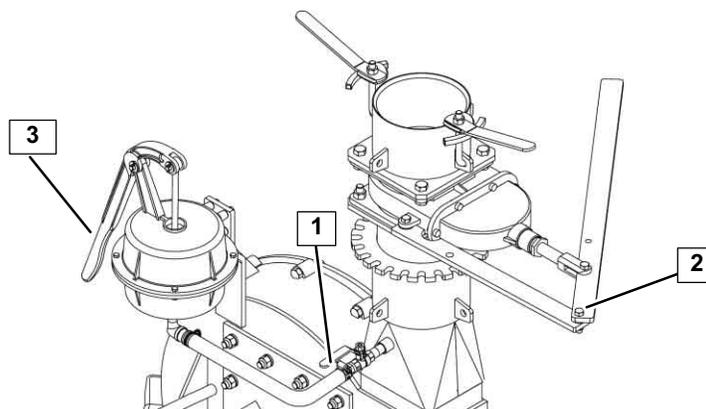
Since there are three primer pump models for this equipment, follow the appropriate instructions listed below.

Manual Primer Pump (mounted on discharge cap)



- Install the suction hose. Make sure it is air tight.
- Install the manual primer pump (1) as shown on the drawing above. Use the quick clamp to lock it in place.
- Manually activate the lever (2) up and down until the impeller housing is filled with liquid.
- Remove the manual primer pump to install the loading pipe.

Manual Primer Pump (with 6" brass gate valve)



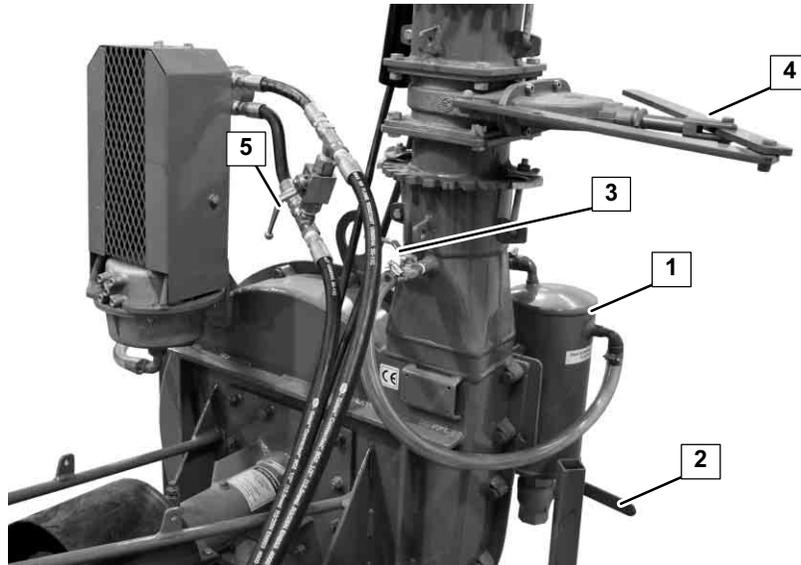
- Install the suction hose. Make sure it is air tight.
- Open the ball valve (1).
- Close the gate valve (2) by pushing on the lever.
- Close the drain valve located on the cover of the impeller housing.
- Manually activate the lever (3) up and down until the manure reaches the translucent hose.
- Close the ball valve (1) of the discharge pipe.
- Open the gate valve (2) when ready to transfer.

Hydraulic Primer Pump



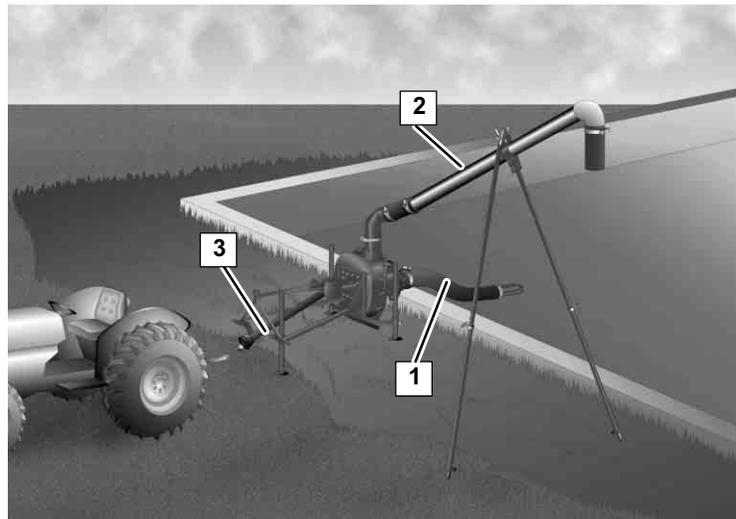
NOTE!

Drain the collector of the hydraulic primer pump before and after each use.



- Install the suction hose. Make sure it is air tight.
- Place a container under the collector (1) and drain it by opening the drain valve (2). Close when drained.
- Close the drain valve located on the impeller housing.
- Open the ball valve (3).
- Close the gate valve (4) by pushing on the lever.
- Connect the hydraulic hoses of the primer pump to the tractor.
- Start the tractor and engage the hydraulic function corresponding to the primer pump.
- Slowly close the ball valve (5) to gradually activate the hydraulic motor. Use the ball valve to adjust the hydraulic motor speed.
- When the manure reaches the translucent hose, open the ball valve (5) of the hydraulic hoses to stop the primer pump.
- Close the ball valve (3).
- Disengage the hydraulic functions of the tractor.
- Empty the manure collector reservoir using the valve (2) located under the reservoir.
- Open the gate valve (4) when ready to transfer

Step 3: Transferring the Water or Liquid Manure



- Make sure the pump is primed. Refer to section: Operating - Maxi-Pump for Solid Manure Platform - Step 2: Priming.
- Start the PTO (3) to transfer the liquid.

8 Operating faults

8.1 Special Qualifications Required for Troubleshooting

Troubleshooting must be performed by trained personnel in accordance with the safety instructions.



Read the Section: Safety - Personnel Qualifications.

8.2 Safety Instructions for Troubleshooting



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



Turn off the tractor and apply the hand brake before connecting or disconnecting the PTO driveline.



WARNING!

HYDRAULIC LINE UNDER PRESSURE!

Do not use your fingers to check for leaks. Fluids can penetrate skin and cause serious or fatal injuries. Hold a piece of cardboard to check for leaks.



WARNING!

Keep safety devices in place.



CAUTION!

Keep body parts and clothing away from moving parts.



CAUTION!

Wear protective boots, eye gear and gloves for all steps included in this Section.



Read the Section: Safety.

Operating faults

Troubleshooting possible faults

8.3 Troubleshooting possible faults

Fault	Possible cause	Solution
Pump is not pumping properly or not at all.	Shear bolt breakage on PTO	Replace shear bolt
	Hard object or build-up in pump / directional valve	Clear the obstruction
	Manure too thick	Check consistency. Refer to Section: Appendix - Consistency Test
Pumps slowly, little pressure/volume	Manure too thick	Check consistency. Refer to Section: Appendix - Consistency Test
	Worn impeller and/or housing	Replace
Manure leakage at connections	Faulty seals	Replace seals
	Seals improperly installed	Reinstall seals
Pump loses prime when liquid level is below pump intake	Air leaking into system	Check for air leaks in system
		Re-prime if equipped



NOTE!

For any other faults, please contact your authorized dealer.

9 Maintenance

9.1 Special Qualifications Required for Maintenance Work

Maintenance work must be performed by trained personnel in accordance with the safety instructions.

Welding work must be performed by a qualified welder.



Read the Section: Safety - Personnel Qualifications.

9.2 Safety Instructions for Maintenance



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



Turn off the tractor and apply the hand brake before connecting or disconnecting the PTO driveline.



CAUTION!

Wear protective boots, eye gear and gloves for all steps included in this Section.



CAUTION!

Beware of sharp edges: they can cause injuries.



ATTENTION!

Do not use damaged and/or defective parts as replacement parts.



ATTENTION!

Always keep this product on a flat and level surface. An uneven surface could unbalance the product resulting in injuries and/or damages.



NOTE!

Have within reach containers to collect all substances potentially harmful such as oils, coolants, cleaning and disinfecting agents, etc.



Read the Section: Safety.

9.3 Schedule Maintenance Responsibilities

9.3.1 GEA Farm Technologies Canada Inc. / Division GEA Houle Maintenance Schedule

Task	Before Each Use	After Each Use	Every 4 Hours of Use	Every 200 Hours of Use	Action by
Grease rotative valve lubrication points	X				Trained personnel
Grease 180° elbow lubrication points	X				
Grease surface nozzle lubrication points	X				
Check air pressure of the tires	X				
Drain the collector of the hydraulic primer pump	X	X			
Grease the ball bearings of the bearing housing	X	X	X		
Fill the grease chamber	X		X		
Clean the equipment		X		X	
Grease the PTO joints			X		
Check oil level in oil reservoir (1000 RPM only)			X		
Inspect the pump				X	
Drain Maxi-Pump and rotative valve				X	
Grease all lubrication points				X	
Change oil in oil reservoir (1000 RPM only)				X	



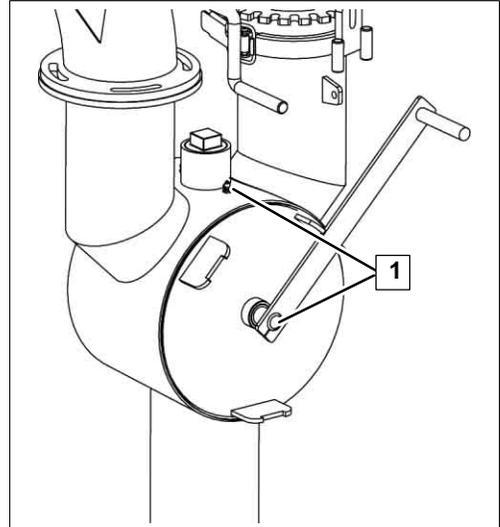
ATTENTION!

When operating this GEA Houle product using other manufacturer's components and/or products such as a PTO, a tractor, a motor, a pump, etc., ALWAYS perform maintenance of the component and/or product as recommended by its manufacturer.

9.4 Grease Rotative Valve Lubrication Points

Before each use

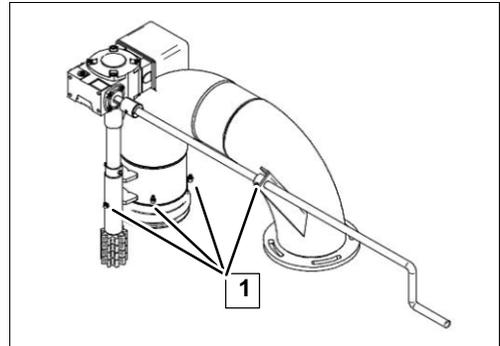
- Using a grease gun, grease the four lubrication points (1) of the rotative valve.



9.5 Grease 180° Elbow Lubrication Points

Before each use

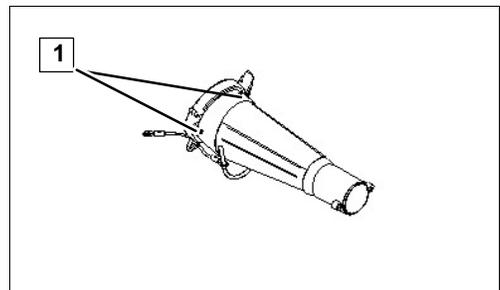
- Using a grease gun, grease the five lubrication points (1) of the 180° elbow.



9.6 Grease Surface Nozzle Lubrication Points

Before each use

- Using a grease gun, grease the three lubrication points (1) of the surface nozzle.



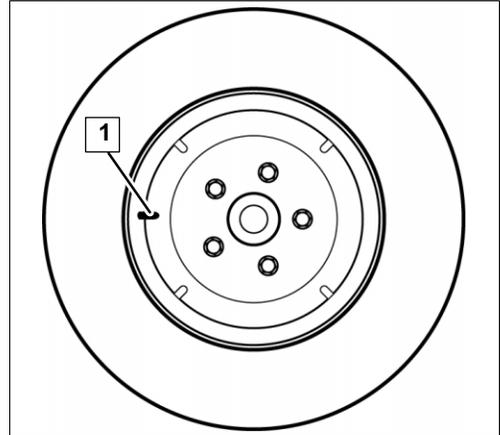
Maintenance

Drain the Collector of the Hydraulic Primer Pump (optional)

9.7 Check Air Pressure of the Tires (optional)

Before each use

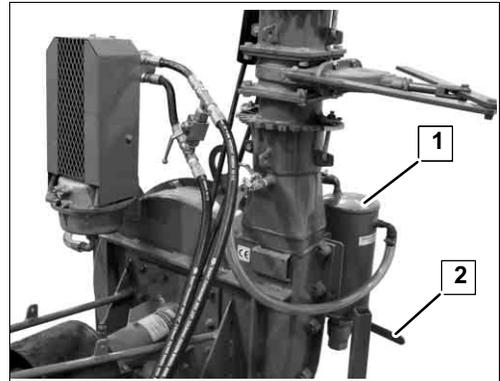
- Using a pressure gauge, check the air pressure inside each tire (1).



9.8 Drain the Collector of the Hydraulic Primer Pump (optional)

Before and after each use

- Place a container under the hydraulic primer pump collector (1).
- Open the drain valve (2) of the collector.
- Drain the reservoir.
- Close the drain valve (2) of the collector.
- Dispose of the liquid properly.



9.9 Fill the Grease Chamber / Grease the Ball Bearings (Seals) of the Bearing Housing**WARNING!****ROTATING DRIVELINE! KEEP AWAY!**

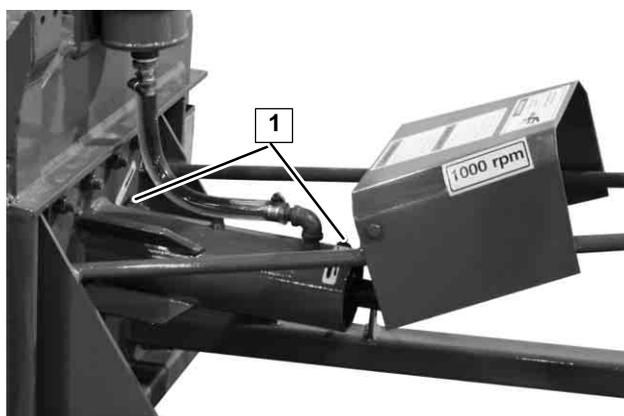
Turn off the tractor and apply the hand brake before connecting or disconnecting the PTO driveline.

**ATTENTION!**

Wait until all components have cooled to room temperature before maintenance work.

**NOTE!**

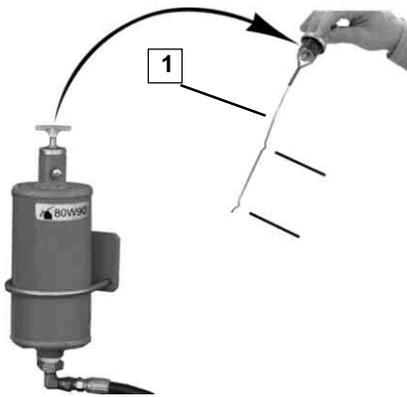
Use EP2 mineral grease.

Before and after each use - every 4 hours of use

*North American version illustrated

- Turn off the power source feeding the centrifugal pump.
- Using a grease gun, add grease into the two grease fittings (1) on the bearing housing.

9.10 Check / Change Oil in Oil Reservoir Maintenance (1000 RPM only)



Every 4 hours of use

- Check oil level in oil reservoir using the gauge provided (1).
- Add oil if needed.

Every 200 hours of use

- Change oil in oil reservoir.
- Drain oil in the reservoir.
- Fill the reservoir with new oil.

9.11 Clean the Equipment



ATTENTION!

Use tap water to clean this product. Do not exceed 2000 psi 105 [bar] when using a pressure washer and keep the nozzle at a distance of 1 ft [30 cm] from the surface to be cleaned.



ATTENTION!

Do not wash this product near an electric source.



NOTE!

Keep labels legible.



NOTE!

Use biodegradable oil.
Refer to Section: Technical Data - Lubricant Specifications.

After each use - every 200 hours of use

- Clean the entire product with a pressure washer.
- Spray a film of oil on all moving parts to protect against corrosion.



9.12 Grease the PTO Joints



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



Turn off the tractor and apply the hand brake before connecting or disconnecting the PTO driveline.



CAUTION!

Wear protective boots, eye gear and gloves for all steps included in this Section.



ATTENTION!

Wait until all components have cooled to room temperature before maintenance work.



NOTE!

Use TRC / 880 Crown and Chassis grease.

Every 4 hours of use



- Grease the joints and the sliding part of the PTO. Each joint has 5 grease points.

9.13 Inspect the Pump

Every 200 hours of use

- Visually inspect this product for premature wear such as distortion, unusual lubricant leaks, rust, etc.

10 Shut-down

10.1 Safety Instructions for Decommissioning



CAUTION!

Wear protective boots, eye gear and gloves for all steps included in this Section.



ATTENTION!

Always keep this product on a flat and level surface. An uneven surface could unbalance the product resulting in damages and/or injuries.



ATTENTION!

Keep all hose couplings clear of dirt and sand when disconnected from the tractor. Always hook them on their supports.



NOTE!

Use biodegradable oil.



Read the Section: Safety.

10.2 Decommission

Step 1: Cleaning



CAUTION!

Beware of potential falls: always walk on the nonslip band installed on the product.



ATTENTION!

Use tap water to clean this product. Do not exceed 2000 psi [105 bar] when using a pressure washer and keep the nozzle at a distance of 1ft [30cm] from the surface to be cleaned.



NOTE!

Refer to Section: Technical Data - Lubricant Specifications.

- Pressure wash the entire product and equipment.
- Pressure wash the inside of the pump intake and discharge opening.
- Spray a thin layer of biodegradable oil on the centrifugal pump to protect from corrosion.



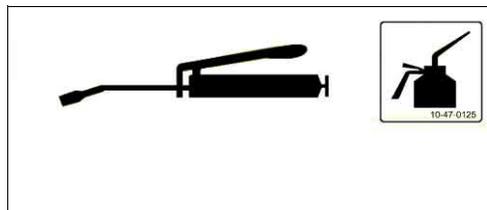
Step 2: Lubricate



NOTE!

Refer to Section: Technical Data - Lubricant Specifications.

- Grease parts labeled with;
- Grease the PTO driveline.
- Spray the entire product with a thin layer of biodegradable lubricant to protect from corrosion.



Step 3: Store



NOTE!

Refer to the PTO driveline instruction manual and follow the manufacturer's recommendations.

- Place the product in a storehouse after cleaning to protect it against the elements and prevent premature corrosion;
- Turn off the tractor engine;

11 Appendix

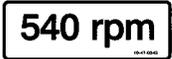
11.1 Abbreviations

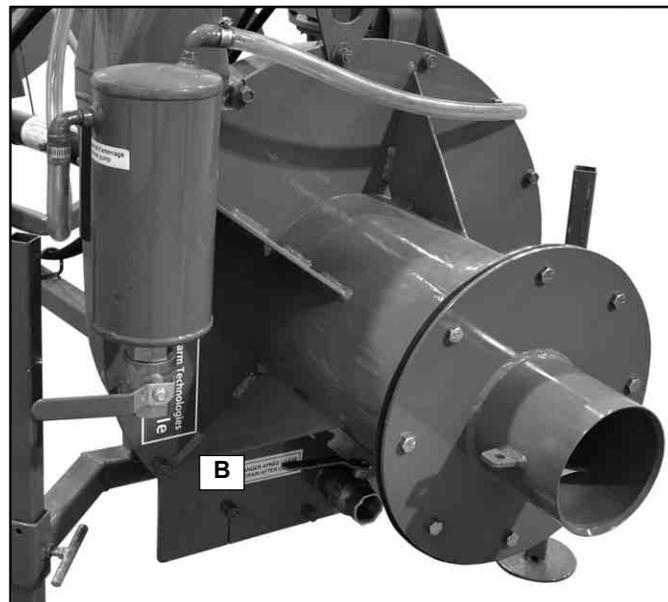
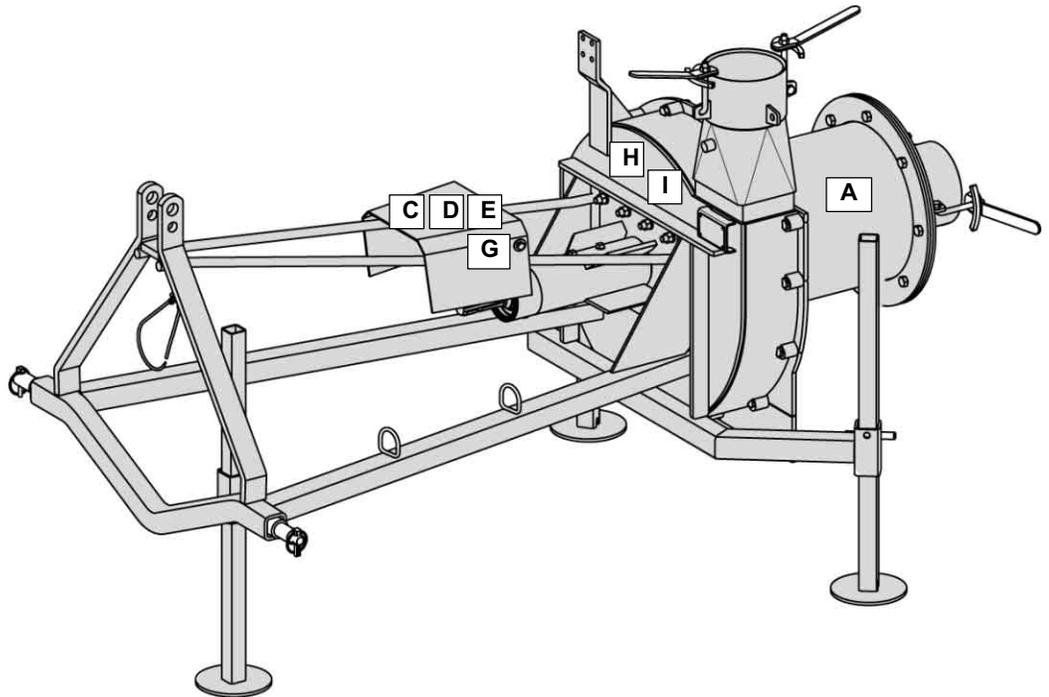
Terms	Explanation	Terms	Explanation
@	at	Ø	Diameter
CE / EC	European Union	CW	clockwise
CCW	counterclockwise	fax	facsimile
I.D.	inside diameter	Inc.	Incorporated
NC	national coarse thread	O.D.	outside diameter
PTO	power take-off	PVC	polyvinyl chloride
QC / qc	Quebec	SAE	Society of Automotive Engineers
Us / USA	United States of America	www	world wide web

Units	Explanation	Units	Explanation
A	Amperage (electrical current)	kW	kilowatt
bar	bar pressure	km/h	kilometres per hour
cm	centimeters	LPM	liters per minute
°	degree angle	lb	pounds
°C	degree centigrade/ Celsius (temperature)	m	meter
°F	degree Fahrenheit (temperature)	min	minute
' / ft	Feet	mph	miles per hour
ft-lb	foot-pound	mm	millimeters
gal.	gallon	N/m	Newton metre
GPM	gallons per minute	psi	pounds per square inch (pressure)
Hp	horsepower	RPM	revolutions per minute
hrs	hours	s	second
Hz	Hertz	V	volt (voltage)
" / in	inch (= 25.4 mm)	VDC	volts of direct current
kg	kilograms	VAC	volts of alternative current
kPa	kilo Pascal		

11.2 Label Position

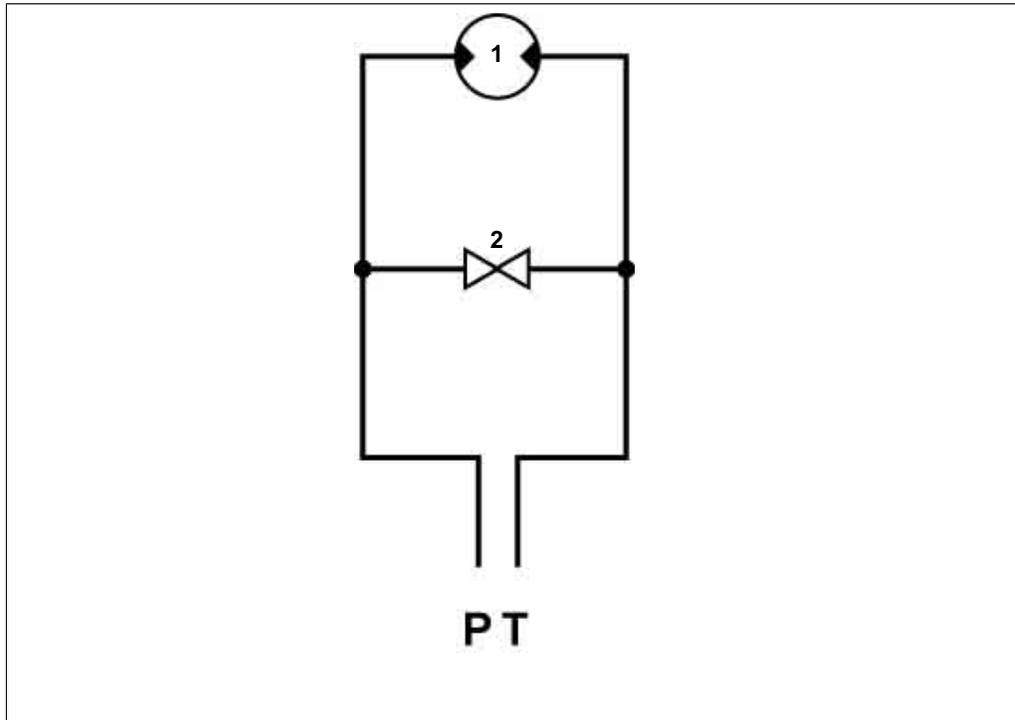
US = American stickers / EU = European stickers

A	<p>US + EU</p>  <p>2010-4703-660</p>
B	<p>US</p>  <p>2010-4701-590</p>
C	<p>US</p>  <p>2099-4720-020</p>
D	<p>EU</p>  <p>2099-4725-100</p>
E	<p>US</p>  <p>2099-4721-020</p>
F	<p>US + EU</p>  <p>2099-4701-240</p>
G	<p>US + EU</p>  <p>2099-4720-010</p>
H	<p>US + EU</p>  <p>2010-4703-430</p>
I	<p>EU</p>  <p>2094-7251-200</p>



11.3 Hydraulic Diagrams

11.3.1 Hydraulic Primer Pump Option

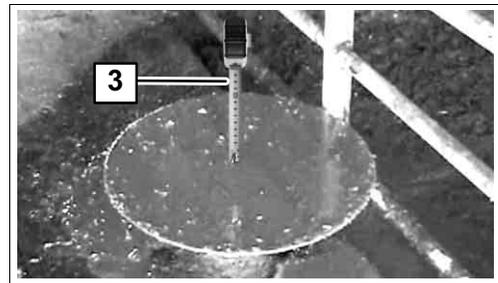
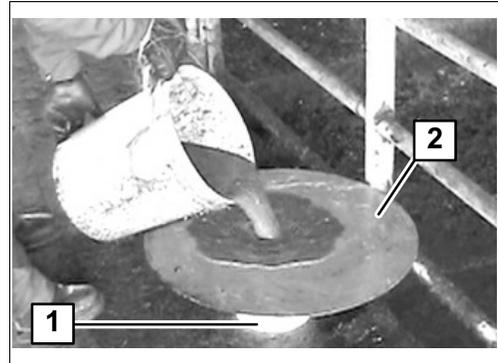


1	Hydraulic motor	2	Ball valve
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11.4 Consistency Test

GEA Houle determined the following method to verify if the viscosity of the slurry is suitable for this product.

- Agitate the manure until it is perfectly homogenized.
- Set a pail (1) on a level surface.
- Set a 24" [60cm] disc (2) over the pail.
- Slowly pour slurry in the center of the disc until it overflows all around the disk. Remain close to the disc when pouring the slurry.
- After one minute of rest, use a measuring tape (3) to measure the thickness of the slurry at the center of the disc.
- The measure must be equal to or less than the consistency indicated in Section: Technical Data.





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GEA Farm Technologies Canada Inc. / Division GEA Houle

4591 boul. St-Joseph, Drummondville, Qc, J2A 0C6
☎ +1 819 477 - 7444, 📠 +1 819 477 - 5565
www.gea.com / www.gea-farmtechnologies.com