



GEA Farm Technologies

Irrigation Pump PTO pumps

Instruction Manual / Installation Instructions
(Original instructions)

2015-9015-001
01-2012

GEA Farm Technologies - The right choice.

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1 Preface

1.1 Information on the instructions

The manufacturer reserves the right to make changes due to technical developments in the data and images given 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 specialist terminology are explained in more detail in the "Appendix".

This manual is supplied with the product.

- They should be kept close at hand and remain with the equipment even if the equipment is sold.
- This manual is not subject to an amendment service. The most recent version at any time can be obtained through the technical dealer or directly from the manufacturer.
- They are designed modular and are only in relation to the mentioned product.

More information on the product and components associated with the product may also be given in the corresponding documents and manuals. This applies especially for safety information!

Pictograms used



This pictogram indicates information that will be helpful towards a better understanding of the working processes.



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		
Unter Umständen sind nicht alle angegebenen Sprachen verfügbar.					

1.2 Manufacturer's Address

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

 +1 819 477 - 7444

 +1 819 477 - 5565

 geahoule@geagroup.com

 www.gea-farmtechnologies.com

1.3 Customer service

Authorized Technical Dealer

If necessary, please contact your nearest authorized technical 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-farmtechnologies.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-farmtechnologies.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 Inc. 4591 boul. St-Joseph Drummondville, Qc, J2A 0C6	
Product category:	Irrigation Pump	
Name / Model:	Irrigation Pump	
The named product is in conformity with the requirements of the following European directives: 2006/42/EC Machinery Directive		
Conformity with the requirements of these directives is testified by complete adherence to the following standards:		
<ul style="list-style-type: none"> • Harmonized European standards <ul style="list-style-type: none"> EN 809 (2009-06) Pumps and pump units for fluids - general safety requirements EN 953 (2009-07) Safety of machinery Guards EN 1037 (2008-11) 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 (2009-10) Machine safety, basic terms, general design guidelines. Part 1: Basic terminology, methods EN 12100-2 (2009-10) Machine safety, basic terms, general design guidelines. Part 2: Technical guidelines and specifications EN ISO 14121-1 (2007-12) Safety of machinery - Risk assessment - Part 1: Principles EN ISO 14121-2 (2007-12) 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 		
Attention! We would point out that commissioning is not permitted until it has been established that the machine/system in which this product is installed meets the conditions of the directives on which they are based.		
Person responsible for compiling the relevant technical documents:	Josef Schröer GEA Farm Technologies GmbH Siemensstraße 25-27 D-59199 Bönen ☎ +49 (0) 2383 / 93-70	
Bönen, 01.01.2012		Reinhard Frenser (Head of Research and Development)
The undersigned is acting by virtue of power of attorney from the management of: GEA Farm Technologies Canada Inc. / Division GEA Houle Inc., 4591 boul. St-Joseph, Drummondville, Qc, J2A 0C6		
This declaration certifies compliance with the guidelines indicated, but does not establish any guarantee in the sense of paragraphs 443, 444 BGB.		

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 "Authorized 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 and after careful selection of the harmonized standards and other technical specifications to be complied with 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 allowing to evacuate toxic gases in each structure surrounding the 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 and 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: Description - Technical Data.
- a product meeting the local rules and regulations.

2.2 Explanation of the Safety Symbols Used

The safety symbols draw attention to the importance of the adjacent text.

They are based on ISO 3864-2 and ANSI535.6.

Safety Symbols and Signalling Words

**DANGER!**

Signals an **IMMINENTLY** hazardous situation which **WILL** result in serious injuries or death if not avoided.

**WARNING!**

Signals a **HAZARDOUS** situation that **CAN** result in serious injuries or death if not avoided.

**CAUTION!**

Signals a **POTENTIALLY** hazardous situation which **CAN** result in injuries if not avoided.

**ATTENTION!**

"N.B." signals important information concerning **POTENTIAL** risks associated to this product or to 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, the manure produces heavy toxic gases such as hydrogen sulphide (H₂S), carbon dioxide (CO₂), methane (CH₄) and ammonia (NH₃). It is **MANDATORY** to 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.

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.
- To perform work in confined spaces, read and follow the SAFETY PROCEDURES IN CONFINED SPACES available in the websites listed above. Never enter into hazardous area such as a manure pit, a reservoir, etc. Do not allow anyone in those areas.
- 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 certified 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 - Safety Devices. Read and follow the instructions of the safety labels set on this product and make sure the safety labels are legible.
- When this product is powered by an electric source, turn off the electric source and secure with a padlock before servicing or adjusting this product or its equipment. Make sure the front panel is closed properly to set the lock. Electric work and electric maintenance is only carried out by a qualified electrician.
- Beware of potential fire hazards such as those caused by welding, cutting, grinding, etc. Welding work is only carried out by a qualified welder.
- 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: Description - Technical Data.
- When this product is powered by a tractor, always turn off the engine of the tractor and apply the hand brake before connecting or disconnecting devices such as a PTO, a tow bar, hydraulic hoses, pneumatic hoses, etc.

2.4 Personnel Qualifications

The manufacturer intends to determine the difference between **TRAINED PERSONNEL** and **QUALIFIED PERSONNEL**.

Trained Personnel

The operator was trained by the manufacturer or its 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:

- Transport
- Installation
- Initial Commissioning
- Operating
- Operating Faults
- Maintenance
- Decommissioning

2.5 Safety 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 a perfect working condition and remain in place at all times. Replace when damaged, worn or defective. Refer to the part number for the appropriate part.



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

(part no. 2018-4701-630)



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

(part no. 2010-7600-960)

2.5.2 Safety Labels

The labels set onto this product inform the user on 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 be legible at all times. Replace when damaged. Refer to the part number for the appropriate label.



Danger! - Toxic gases (American Model)

Manure produces toxic gases that can cause loss of consciousness, asphyxia or death in few seconds.
(part no. 2099-4720-010)



Danger! (American Model)

ROTATING DRIVELINE! KEEP AWAY!
(part no. 2099-4720-020)

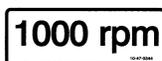


WARNING! (American Model)

Always stop the equipment before servicing and maintenance.
Never adjust the equipment while it is running.
Keep all shields and guards in place.
Keep hands and loose clothing away from moving parts.
Make sure everyone is clear from moving parts before starting the equipment.
Refer to the instruction manual for operating and maintenance instructions.
(part no. 2099-4721-020)



Read the instruction manual for safety information.
(part no. 2099-4725-100) (European Model)



1000 RPM

(part no. 2010-4703-440)



Grease point
(part no. 2099-4701-240)



Drain after use
(part no. 2010-4701-590)



Refer to Section: Appendix

3 Description

3.1 Product Applications

This GEA Houle product and its equipment are exclusively designed for agricultural purposes only, namely:

- to evacuate water or liquid manure of a maximum consistency of 1/4" [6 mm]. Refer to Section: Appendix - Consistency Test;
- to pump well agitated liquid manure;
- to transfer liquids from a reception pit to a main storage with a high head pressure;
- to pump long distances;
- to feed a drag hose system;
- to feed an irrigation pivot;
- to force feed another pump;
- to be fed by a pump;
- to operate in a frost-free environment;
- to be towed only in a field (not designed to be towed on public roads).

Any applications not listed in the intended purposes 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

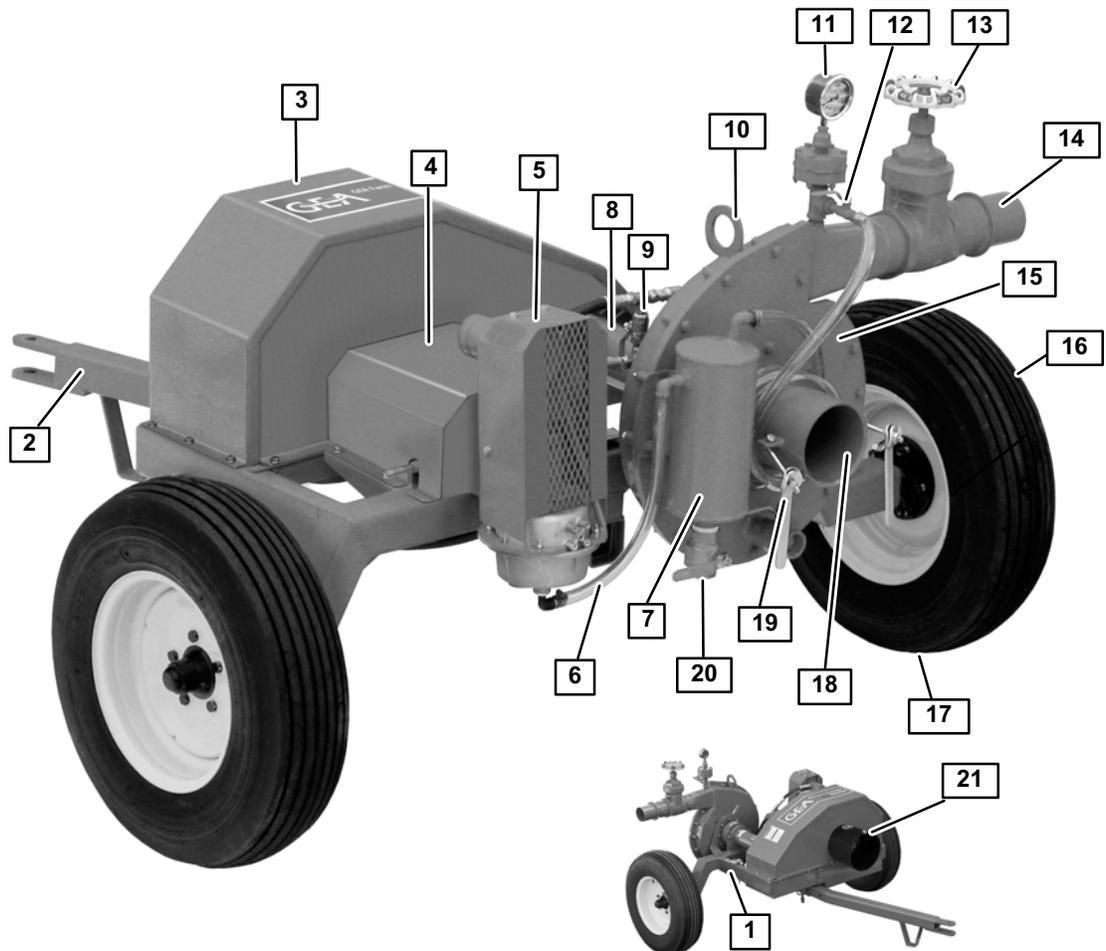
For safety reasons, do not carry out any unauthorized modification to this product! Any modification must be approved by the manufacturer in writing prior to the change otherwise the warranty will be voided.

3.3 Functional Description

The irrigation pump is designed to be towed by a farm tractor on agricultural fields only. It is not designed to be towed on hillsides or on public roads. The irrigation pump is used to transfer liquid from a reception pit to a main storage, to feed an irrigation pivot or a drag hose system. The pump can be installed on a trailer or fixed onto a stationary unit. This product is designed to transfer liquid at high head pressure.

3.4 Main View

3.4.1 Irrigation Pump



Legend:			
1	Main frame	2	Tow bar
3	Guard of the pulleys and the belts	4	Guard of the jackshaft
5	Hydraulic primer pump	6	Translucent hose
7	Primer pump collector	8	Bearing housing
9	Ball valve of the hydraulic hose	10	Lifting ring
11	Pressure gauge	12	Ball valve of the impeller housing
13	Gate valve	14	Discharge pipe
15	Impeller housing	16	Wheels
17	Drain of the impeller housing	18	Intake pipe
19	Locking handles	20	Drain of the primer pump collector
21	PTO guard		

3.4.2 Irrigation Pump

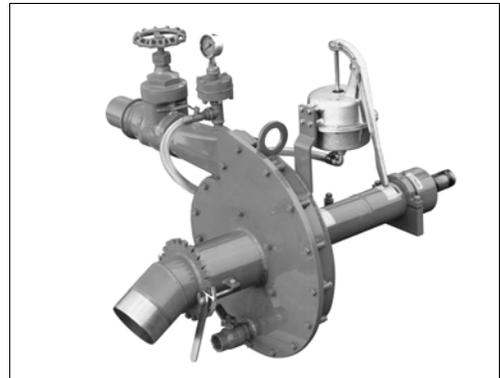
Trailer Model:

The pump is installed onto a trailer and towed by a tractor. The PTO of the tractor is used to operate the pump.



Stationary Model:

The pump needs to be installed on a solid base (not included) and coupled to a diesel engine. The owner must ensure that the engine, the pulleys and the belts meet all specifications provided in this manual. Refer to Section: Description - Technical Data - Irrigation Pump Specifications.



3.4.3 Primer Pump

Manual

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



Hydraulic (optional)

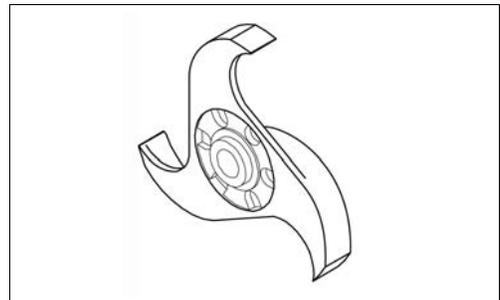
The hydraulic primer pump is used to hydraulically prime the irrigation pump allowing manure to reach the pump.



3.4.4 Impeller Blades

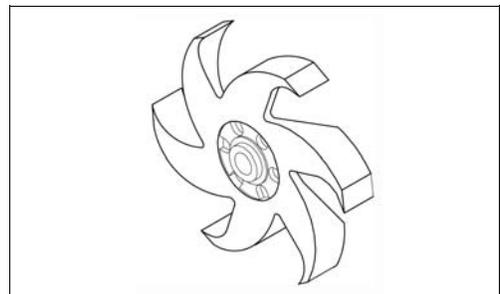
3 Blades

A 3-blade impeller delivers more head pressure but less volume.

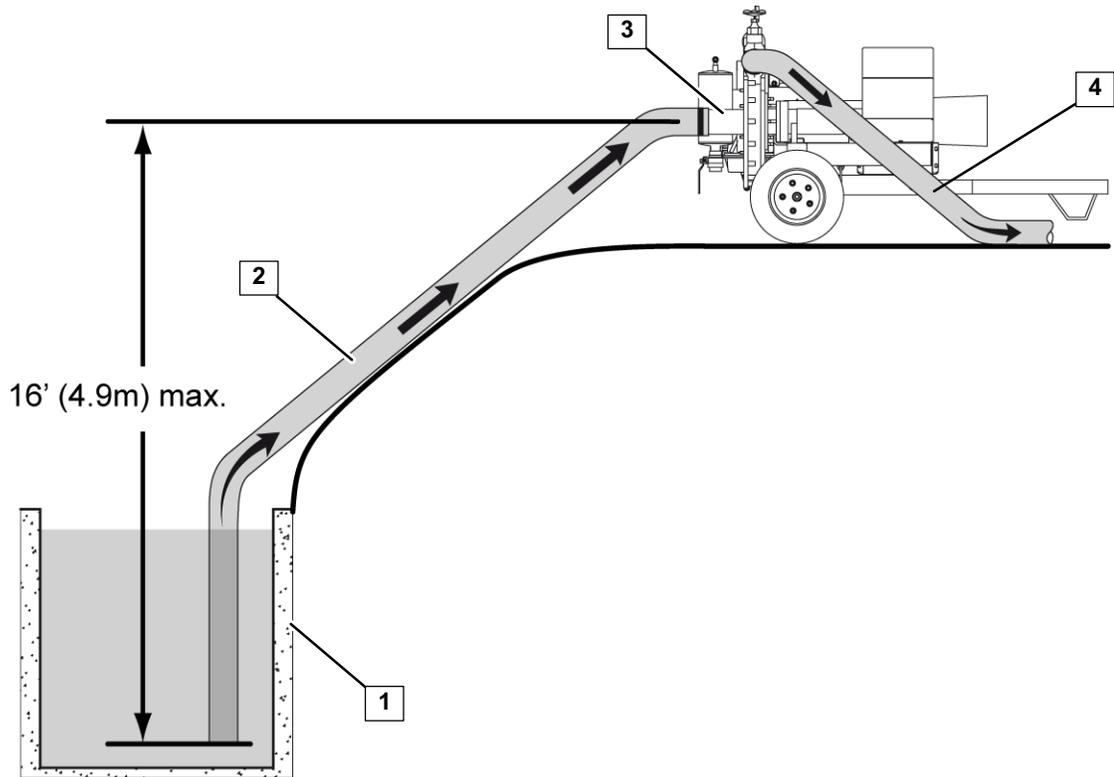


6 Blades (optional)

A 6-blade impeller delivers more volume but less head pressure.



3.5 Typical Installation



Legend:			
1	Manure storage	2	Suction hose
3	Irrigation pump (trailer model)	4	Evacuation hose

3.6 Technical Data



ATTENTION!

Use components that can withstand the pressure generated by the pump. Refer to the pump specifications indicated in this Section.

3.6.1 Geometric Data

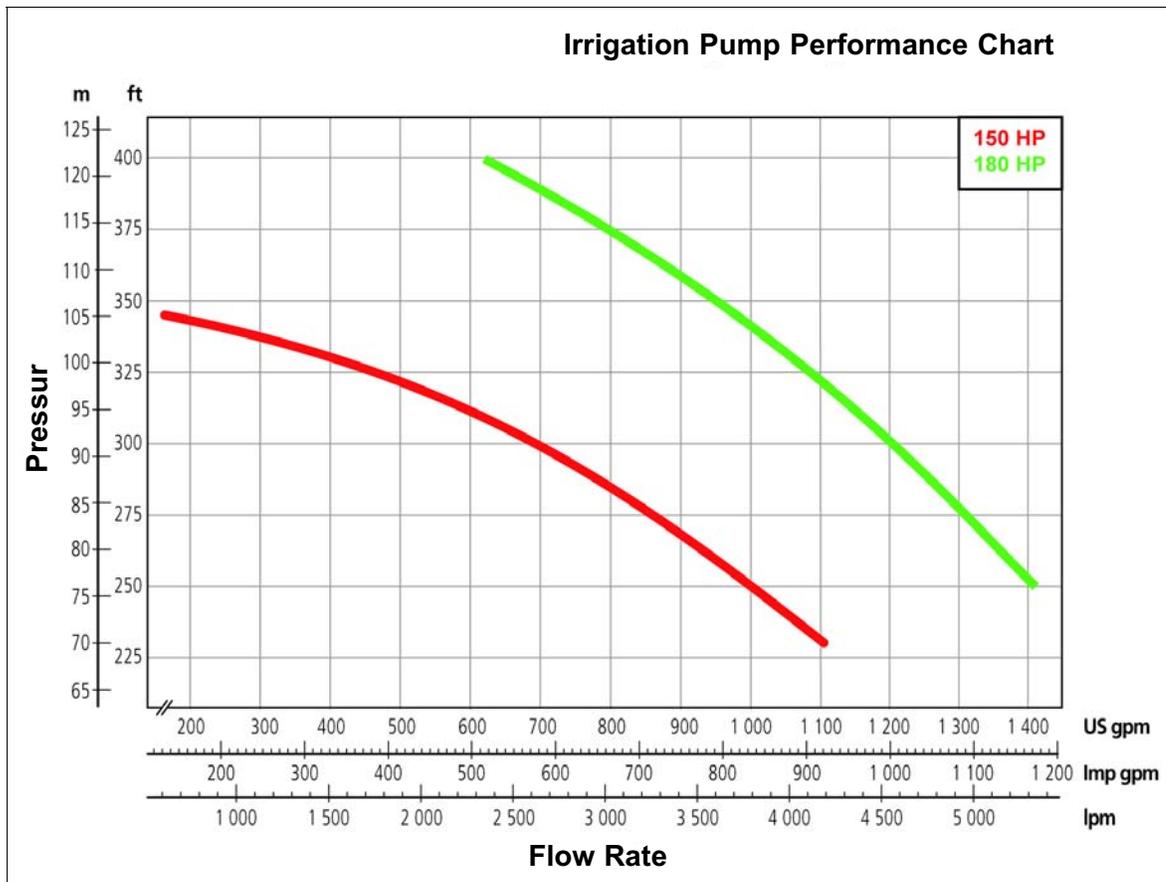
Irrigation Pump		
Model	Trailer	Stationary
Impeller Model	3 blades / 6 blades	3 blades / 6 blades
Impeller Diameter	14" [356 mm] 14 1/4" [362 mm] 14 1/2" [368 mm]	14" [356 mm] 14 1/4" [362 mm] 14 1/2" [368 mm]
Pump		
Length	82"	-
Height	54"	-
Width	81"	-
Weight	1045 lb [475 kg]	436 lb [198 kg]

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]

3.6.2 Tire

Model	Ply	Pressure		Dimensions [inches / mm]		Weight [without the rim]	
		psi	bar	Diameter	Width	Lb	Kg
760/15	6	40	2.75	29.3 / 744	8.0 / 203	20	9

3.6.3 Performance Data



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.

Pump Model	Trailer	Stationary
Impeller Model	3 blades / 6 blades	3 blades / 6 blades
Maximum Manure Consistency	1/4" [6 mm]	
Maximum Elevation *	16' [4.88 m] when pumping water	
Operating Temperature	5°C [41°F] minimum	
Maximum Towing Speed	8 km/h [5 mph]	
Output Pressure **	110 to 150 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.

3.6.4 Irrigation Pump Specifications

Irrigation Pump Model	Trailer					
Impeller Model	3 blades			6 blades		
Pulley Ratio	2.337		2.65	2.337		
Belts	5V800		5V850	5V800		
Impeller Diameter	14" [356 mm]	14 1/4" [362 mm]	14 1/2" [368 mm]	14 1/2" [368 mm]	14" [356 mm]	15" [381 mm]
Minimum Power Required	110 to 134 hp	135 to 149 hp	150 hp or more	180 hp or more	150 hp or more	180 hp or more
Impeller RPM	2337		2650	2150		
PTO RPM Required	1000 RPM only					
Splines	1 3/8" [35 mm] - 6 splines or 1 3/4" [44 mm] - 20 splines					
Default Pump Setup	Clockwise					

Irrigation Pump Model	Stationary				
Impeller	3 blades			6 blades	
Impeller Diameter	14" [356 mm]	14 1/4" [362 mm]	14 1/2" [368 mm]	14" [356 mm]	15" [381 mm]
Minimum Power Required	110 to 134 hp	135 to 149 hp	150 hp or more	150 hp or more	180 hp or more
Impeller RPM	2337 RPM			2150 RPM	
Diameter Shaft	2 1/8" [54 mm]				
Default Pump Setup**	Counterclockwise				

** The configuration of the stationary model can be exchanged to a clockwise setup. Consult to your authorized dealer.

3.6.5 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)

3.6.6 Lubricant Specifications

Lubricant Type	Brands / Specifications	Purpose
Biodegradable Oil	Use this brand (or equivalent): <ul style="list-style-type: none"> PPG Chemil Chemlube Agri-eco 1000 	<ul style="list-style-type: none"> To spray onto 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 To lubricate the ball bearings of the jack shaft.
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.
Silicone	Use this brand (or equivalent): <ul style="list-style-type: none"> Red High temp Loctite silicone 	<ul style="list-style-type: none"> To seal the impeller housing.

4 Transport

4.1 Special Personnel Qualifications Required for Transport

Handling can be performed by a certified forklift operator only.



Read the Section: Safety - Personnel Qualifications.

4.2 Safety Instructions for Transport



WARNING!

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



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!

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 when lifting this product. The product will be unbalanced.



ATTENTION!

Use only the tools listed in this instruction manual to handle this product. Make sure they are in good working condition.



Read the Section: Safety.

4.3 Lifting and Moving



WARNING!

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



ATTENTION!

Use only the tools listed in this instruction manual to handle this product. Make sure they are in good working condition.

4.3.1 Special Tools

	Description	Purpose
	Forklift truck	To lift accessories.
	Chain	To lift the irrigation pump.
	Boom truck or crane	To lift the irrigation pump.

4.3.2 Trailer



CAUTION!

Never travel on hillsides with this product.



CAUTION!

Do not tow this product on public roads.



CAUTION!

Do not tow this product at speeds exceeding 5 mph [8 km/h].



ATTENTION!

To lift this product, use a lifting device with a minimum lifting capacity of 1500 lb [750 kg].

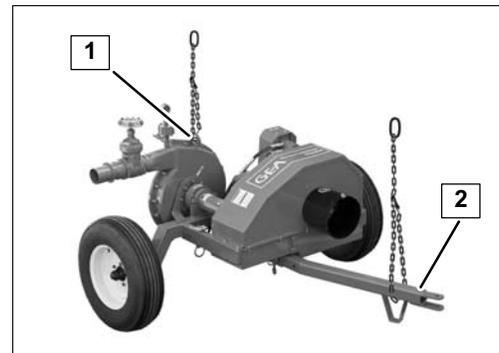


ATTENTION!

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

Using Safety Chains

- When the tow bar is set, attach the safety chain to the the lifting ring (1) and to the tow bar (2) to handle the pump.
- When the tow bar is not installed, Attach a safety chain to the lifting ring (1) to move the pump to the assembly area.



4.3.3 Stationary Model



ATTENTION!

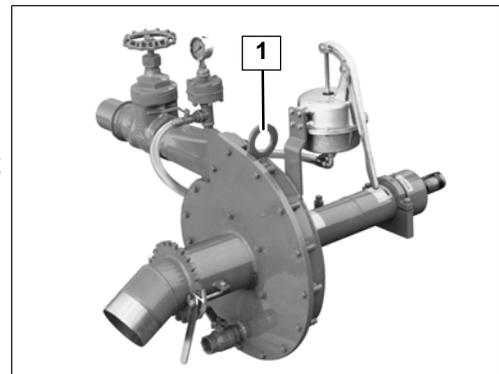
To lift this product only, use a lifting device with a minimum lifting capacity of 436 lb [198 kg].



ATTENTION!

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

- Attach a safety chain to the lifting ring (1). Move the pump to the assembly area. Be careful, the lifting ring is only designed to lift the pump itself. Do not use the lifting ring to lift the pump with additional parts.



5 Installation

5.1 Special Personnel Qualifications Required for Installation

Installation work can be performed by a specially qualified personnel in accordance with the safety instructions.



Read the Section: Safety - Personnel Qualifications.

5.2 Safety Instructions for Installation



WARNING!

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



CAUTION!

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



CAUTION!

Beware of sharp edges: they can cause injuries.



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



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!

Use only the tools listed in this instruction manual to handle this product. Make sure they are in good working condition.



ATTENTION!

Do not use damaged and/or defective parts.



NOTE!

To move this product to the desired area, refer to Section: Transport.



Read the Section: Safety.

5.3 Assembly Preparations



ATTENTION!

Use only the tools listed in this instruction manual to handle this product. Make sure they are in good working condition.



ATTENTION!

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

Special Tools

	Description	Purpose
	Forklift truck	To lift the equipment
	Chain hoist	To lift the pump
	Safety chains	To lift the pump
	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 PTO driveline meeting the local regulations when applicable.
- A diesel engine or a tractor meeting the local regulations with the minimum power requirements indicated in the Section: Description - Technical Data.
- A base frame to anchor the stationary pump model. To ensure a safe and secure assembly, refer to Section: Safety.
- An evacuation hose and components meeting the pump performance. To choose the adequate type of hose and fittings to install the evacuation line, refer to Section: Description - Performance Data.

5.4 Environmental Prerequisite

- This product must be installed in a frost-free environment.

5.5 Irrigation Pump Assembly (Trailer Model)



WARNING!

Keep the safety devices in place.



CAUTION!

Beware of sharp edges: they can cause injuries.



ATTENTION!

Use components that can withstand the pressure generated by the pump. Refer to Section: Description - Technical Data.



ATTENTION!

This arrow indicates the direction of rotation of the impeller. To find the label position, refer to Section: Appendix - Label Position.



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



Read the Section: Safety.



ATTENTION!

To lift this product, use a lifting device with a minimum lifting capacity of 1500 lb [750 kg].

5.5.1 Tow Bar Installation

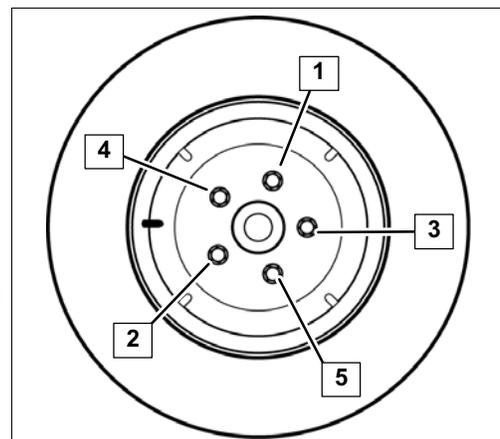
- Insert and secure the tow bar of the irrigation pump onto the draw bar of the tractor using the locking pin.

5.5.2 Wheels Assembly



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

- Lift the irrigation pump. Refer to Section: Transport - Lifting.
- Position the wheel on the hub.
- Bolt the wheels using the hardware provided.
- Follow the sequence illustrated above.



5.5.3 Primer Pump Assembly (Manual Pump)

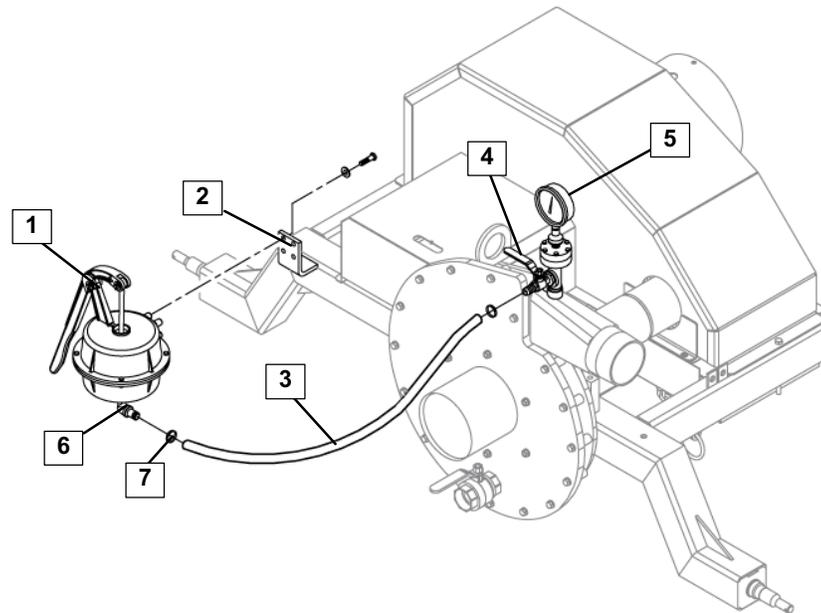


NOTE!

Make sure the hoses are properly secured with the collars.



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



- Bolt the primer pump (1) onto the bracket (2) located on the frame of the trailer using the hardware installed on the primer pump.
- Connect the translucent hose (3) onto the fitting (4) of the ball valve located under the pressure gauge (5).
- Measure the translucent hose to fit onto the fitting (6) located under the primer pump.
- Cut the hose and install onto the (6) fitting located under the primer pump.
- Secure the hose using the collars (7).

5.5.4 Primer Pump Assembly (Optional Hydraulic Pump)

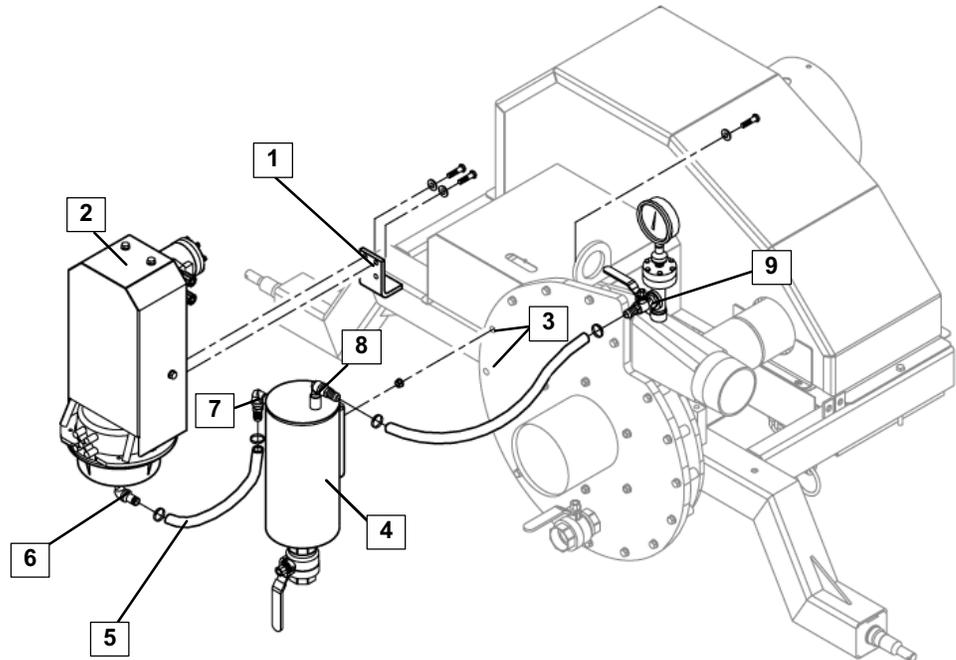


NOTE!

Make sure the hoses are properly secured with the collars.



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



- Bolt the primer pump (2) onto the bracket (1) located on the frame of the trailer using the hardware installed on the primer pump.
- Remove and discard the two bolts (3) on the cover of the impeller housing.
- Bolt the collector (4) onto the impeller housing using the bolts and the washers supplied with the collector.
- Fit the translucent hose (5) onto the fitting (6) located under the primer pump.
- Measure and cut the hose to fit onto the fitting (7) located to the side of the collector (4).
- Connect the remaining hose to the fitting (8) located on top of the collector.
- Connect the hose to the ball valve (9) located under the pressure gauge.

5.5.5 Reinforced Suction Hose and Adaptor Installation



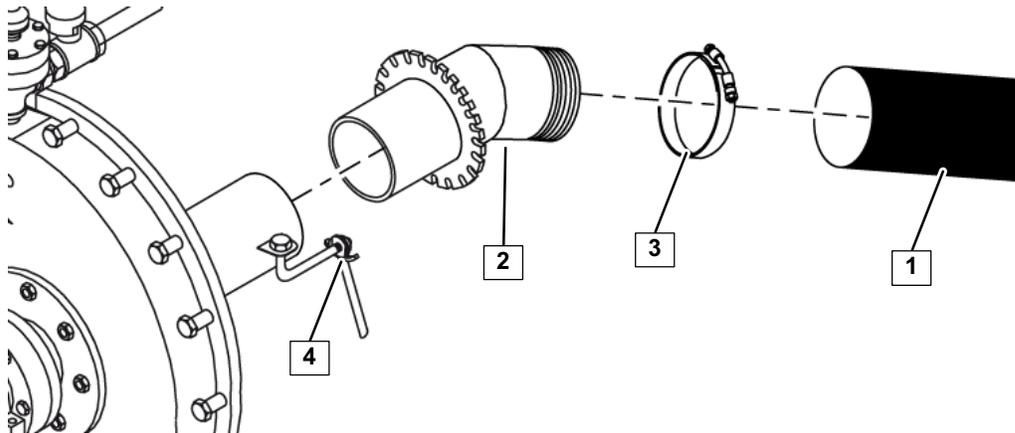
NOTE!

The suction hose cannot exceed 16' [4.88 m] in elevation.



NOTE!

Make sure the hoses are properly secured with the collars.



- Assemble the reinforced suction hose (1) with the suction hose adaptor (2) using a collar (3).
- Fasten the collar to hold firmly the hose in place.
- Make sure the O-ring is well seated onto the adaptor (2) and secure the assembly with the locking handles (4).

5.5.6 Belt Drive Installation

The belt drive of the trailer model is installed at the factory. The tension on the belts is set to allow a deflection of 1/2" [13 mm] when applying a pressure of 12 lb [5 kg] midway between the pulleys.



Read the Section: Safety.

5.6 Irrigation Pump Assembly (Stationary Model)



ATTENTION!

To lift this product only, use a lifting device with a minimum lifting capacity of 436 lb [198 kg].

5.6.1 Primer Pump Assembly (Manual Pump)

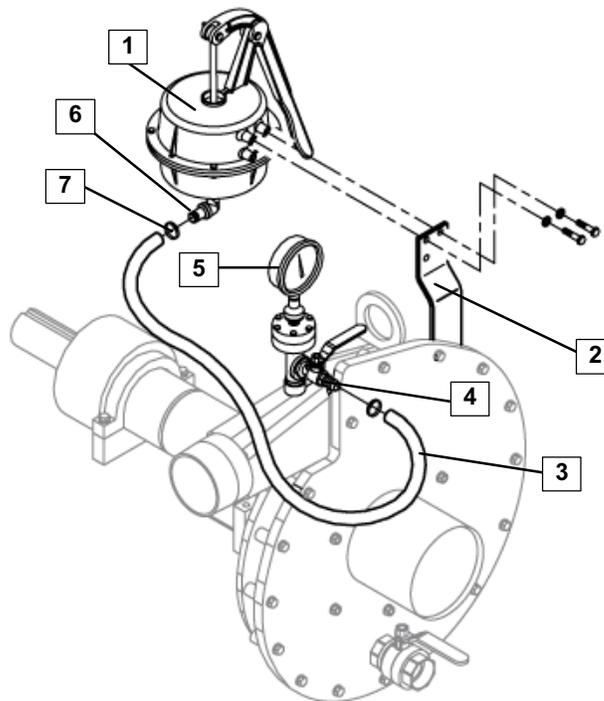


NOTE!

Make sure the hoses are properly secured with the collars.



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



- To bolt the primer pump (1) onto the bracket (2) of the impeller housing, use the bracket hardware.
- Connect the translucent hose (3) onto the fitting (4) of the ball valve located under the pressure gauge (5).
- Measure the hose in order to fit onto the fitting (6) located under the primer pump.
- Cut the hose and install onto the fitting.
- Secure the hoses with the collars (7).

5.6.2 Primer Pump Assembly (Optional Hydraulic Pump)

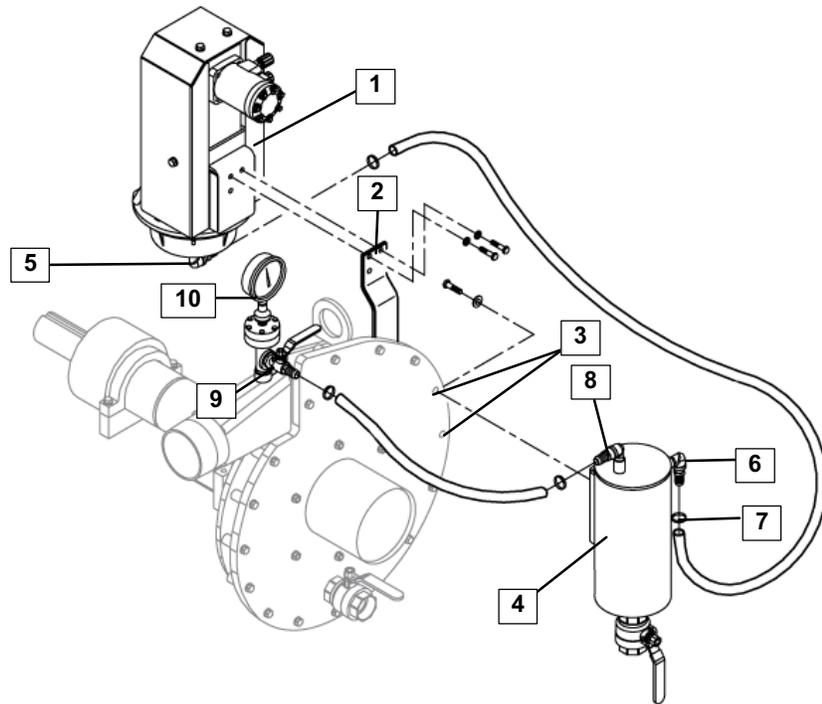


NOTE!

Make sure the hoses are properly secured with the collars.



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



- To bolt the primer pump (1) onto the bracket (2) of the trailer, use the bolts on the bracket.
- Remove and discard the two bolts and washers (3) of the impeller housing.
- Bolt the collector (4) onto the impeller housing using the bolts and the washers supplied with the collector.
- Connect the translucent hose onto the fitting (5) of the primer pump.
- Cut the translucent hose in order to fit onto the fitting (6) located to the side of the collector.
- Secure the hose using the collars (7).
- Connect the remaining hose onto the fitting located (8) on top of the collector.
- Connect the other end of the hose onto the ball valve (9) located under the pressure gauge (10).

5.6.3 Belt Drive Installation

Consider the technical specifications of the irrigation pump to choose the proper drive. Refer to Section: Description - Technical Data.

Refer to the instruction manual of the manufacturer of the pulleys and the belts before connecting the belts and pulleys to the irrigation pump.

5.6.4 Diesel Engine Installation

Consider the technical specifications of the irrigation pump to choose the proper direct drive diesel engine. Refer to Section: Description - Technical Data. In addition, refer to the instruction manual of the manufacturer before connecting the diesel engine to the irrigation pump.

5.6.5 Bracket Welding



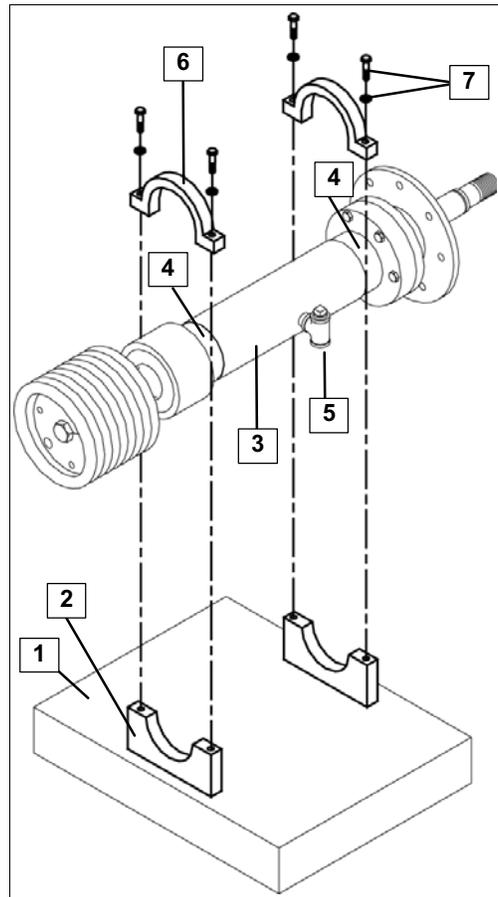
ATTENTION!

Welding must be performed by a qualified welder.



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

- Position the irrigation pump onto the base frame (1).
- Position the bottom brackets (2) under the bearing housing (3) making sure both ends (4) are supported. The bearing housing must be level and the air vent (5) oriented toward the ground as illustrated.
- Mark the position of the bottom brackets.
- Remove the bearing housing.
- Position the brackets (2) on the marking and weld them in place.
- Install the bearing housing (3) on the bottom brackets (2).
- Install the top brackets (6) over the bearing housing.
- Secure the assembly using the hardware (7) provided.
- Torque to 78 ft-lb [106 Nm].



5.6.6 Reinforced Suction Hose and Adaptor Installation



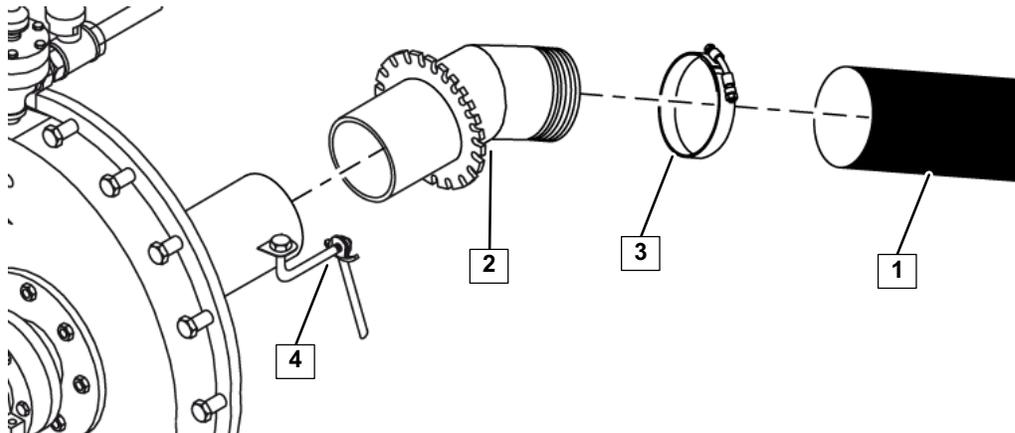
NOTE!

The suction hose cannot exceed 16' [4.88 m] in elevation.



NOTE!

Make sure the hoses are properly secured with the collars.



- Assemble the reinforced suction hose (1) with the suction hose adaptor (2) using a collar (3).
- Fasten the collar to hold firmly the hose in place.
- Make sure the O-ring is well seated onto the adaptor (2) and secure the assembly with the locking handles (4).

5.7 Storage Conditions



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!

Risk of corrosion!

Place the product in a storehouse after cleaning to protect it against the elements and prevent premature corrosion.

5.8 Packing Material Disposal

Handle the packing material properly and dispose according to your local rules and regulations on waste disposal. Please refer to your local resources for any questions. Recycle if possible.

6 Initial Commissioning

6.1 Special Personnel Qualifications Required for Initial Commissioning

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



Read the Section: Safety - Personnel Qualifications.

6.2 Safety Instructions for Initial Commissioning



WARNING!

READ INSTRUCTIONS FIRST!

Do not operate or service without first reading and understanding this instruction manual to prevent serious or fatal injuries. If the manual is lost or destroyed, contact an authorized dealer or the manufacturer for replacement.



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



WARNING!

Keep the safety devices in place.



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.



CAUTION!

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



ATTENTION!

Use components that can withstand the pressure generated by the pump. Refer to Section: Description - Technical Data.



NOTE!

Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.



Read the Section: Safety.

6.3 Checks Before Initial Commissioning

The owner must make sure that:

- everyone working with or performing activities in connection with this product, including himself, read the instructions contained in this instruction manual; everyone follows those instructions as well as the safety instructions and that only trained personnel can operate this product to ensure safe operating methods;
- everyone read and follow the SAFETY PROCEDURES IN CONFINED SPACES available in the websites listed in Section: Safety. Never enter or allow anyone to enter into a hazardous area such as a manure pit, a reservoir, etc.;
- this product is in perfect working condition and used for the sole purpose for which it was designed. There are no damaged, worn or defective parts. The assembly of the product was completed by following the instructions in the Section: Installation;
- 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, etc as well as clothing away from dangerous parts such as rotating parts, articulated parts, sharp edges, etc.;
- only authorized personnel are permitted in the initial commissioning area;
- unnecessary object or equipment are removed from the initial commissioning area;
- 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 locate the grease points, refer to Section Appendix: Label Position;
- all parts to be connected such as the draw bar, the PTO, the hydraulic and air connector, etc. are secured;
- all bolts are tight. Refer to: Description -Technical Data -Bolt Torque Chart.

6.4 First Start (Trailer Model)



CAUTION!

Do not start this product until all initial commissioning checks are completed.



CAUTION!

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



CAUTION!

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



CAUTION!

Keep body parts and clothing away from moving parts.



NOTE!

Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.

Follow the steps below to correctly test the equipment for the initial commissioning. Refer to the sections indicated for each step.

Steps:

- **Install the Suction Hose and the Evacuation Hose**



Refer to Section: Operation - Operating the Product (Trailer Model).

- **Connect the PTO**



To connect the PTO, refer to Section: Operation - Operating the Product (Trailer Model) - PTO Connection.

- **Prime the Pump (when applicable)**



To prime the pump, refer to Section: Operation - Operating the Product (Trailer Model) - Priming.

- **Pump**



To pump, refer to Section: Operation - Operating the Product (Trailer Model) - Pumping.

6.5 First Start (Stationary Model)



CAUTION!

Do not start this product until all initial commissioning checks are completed.



CAUTION!

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



CAUTION!

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



CAUTION!

Keep body parts and clothing away from moving parts.



NOTE!

Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.

Follow the steps below to correctly test the equipment for the initial commissioning. Refer to the sections indicated for each step.

Steps:

- **Prime the Pump (when applicable)**



To prime the pump, refer to Section: Operation - Operating the Product (Stationary Model) - Priming.

- **Pump**



To pump, refer to Section: Operation - Operating the Product (Stationary Model) - Pumping.

6.6 Checks After Initial Commissioning

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: Description - Technical Data - Bolt Torque Chart;
- the product is efficient.

6.7 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 Houle Inc. to validate the warranty.

7 Operation

7.1 Special Personnel Qualifications Required for Operation

Operation must be performed by qualified personnel in accordance with the safety instructions.

7.2 Safety Instructions for Operation



WARNING!

READ INSTRUCTIONS FIRST!

Do not operate or service without first reading and understanding this instruction manual to prevent serious or fatal injuries. If the manual is lost or destroyed, contact an authorized dealer or the manufacturer for replacement.



WARNING!

Keep the safety devices in place.



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.



CAUTION!

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



ATTENTION!

Use components that can withstand the pressure generated by the pump. Refer to Section: Description - Technical Data.



Read the Section: Safety.

7.3 Checks Before Operation

- Everyone working with or performing activities in connection with this product, read the instructions contained in this instruction manual. Everyone follows those instructions as well as the safety instructions. Only trained personnel can operate this product to ensure safe operating methods;
- Everyone read and follow the SAFETY PROCEDURES IN CONFINED SPACES available in the websites listed in Section: -Safety. Never enter or allow anyone to enter into a hazardous area such as a manure pit, a reservoir, etc.;
- This product is in perfect working condition and used for the sole purpose for which it was designed. There are no damaged, worn or defective parts. The assembly of the product was done by following the instructions in the Section: Installation;
- 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, etc as well as clothing away from dangerous parts such as rotating parts, articulated parts, sharp edges, etc;
- Only authorized personnel are permitted in the operating area;
- Unnecessary object or equipment are removed from the operating area;
- 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: Description -Technical Data - Bolt Torque Chart.
- Everyone is familiar with the operating environment.

7.4 Operating the Product (Trailer Model)



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



WARNING!

Keep the safety devices in place.



CAUTION!

Do not tow this product at speeds exceeding 5 mph [8 km/h].



CAUTION!

Never travel on hillsides with this product.



CAUTION!

Do not tow this product on public roads.



ATTENTION!

Turn off the tractor and apply the hand brake before connecting or disconnecting the tow bar of this product to the draw bar of the tractor.



NOTE!

Before priming the pump, make sure the manure is homogenized and that the consistency is appropriate. Refer to Section: Appendix - Consistency Test.



NOTE!

To move this product to the desired area, refer to Section: Transport.

7.4.1 Moving the Pump



CAUTION!

Do not tow this product at speeds exceeding 5 mph [8 km/h].



CAUTION!

Never travel on hillsides with this product.



CAUTION!

Do not tow this product on public roads.

- Secure the tow bar of the irrigation pump onto the draw bar of the tractor using the locking pin.
- Move the irrigation pump to the desired area.
- Immobilize the tractor using the hand brake.
- Turn off the engine of the tractor.

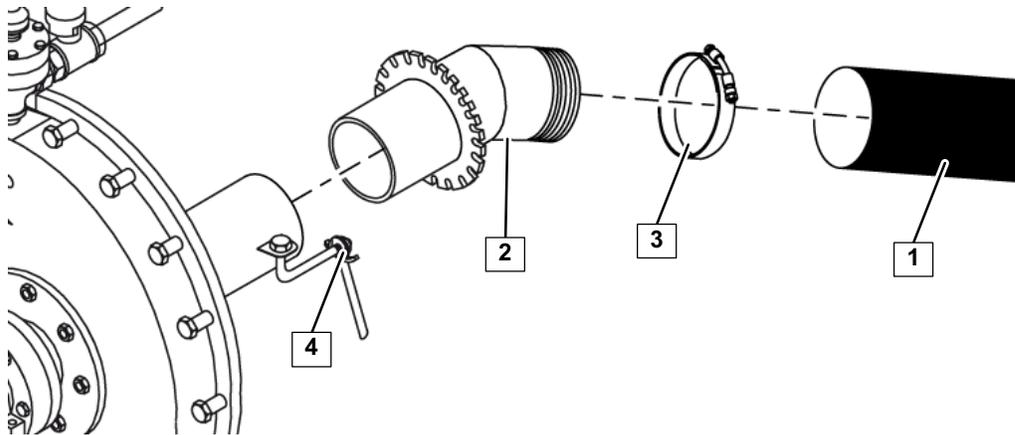
7.4.2 Reinforced Suction Hose and Adaptor Installation



NOTE!

Never exceed 16' [4.87 m] of elevation.

Refer to Section: Description - Typical Installation



- Assemble the reinforced suction hose (1) with the suction hose adaptor (2) using a collar (3).
- Fasten the collar to hold firmly the hose in place.
- Make sure the O-ring is well seated onto the adaptor (2) and secure the assembly with the locking handles (4).
- Place the inlet of the hose into the liquid.

7.4.3 Evacuation Hose and Adaptor Installation

- Adapt the evacuation line according to the desired discharge flow rate and the equipment used.

7.4.4 PTO Connection



WARNING!
 ROTATING DRIVELINE! KEEP AWAY!



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



WARNING!
 Keep the safety devices in place.



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



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



Refer to the following instructions when the PTO driveline is supplied by GEA Houle otherwise refer to the PTO driveline instruction manual and follow the manufacturer's recommendations.

European PTO Driveline Model

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

American PTO Driveline Model

Maximum Extension and Retraction	
<ul style="list-style-type: none"> Always keep the edge of the female guard between the indicators while operating the pump. 	
<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. 	

Maximum Angle of the PTO joints	
<p>Constant velocity PTO driveline</p> <ul style="list-style-type: none"> One PTO joint must be set at a maximum angle of 70°. The other PTO joint must be set at a maximum angle of 15°. <p>Standard PTO driveline</p> <ul style="list-style-type: none"> Both PTO joints must be set at the same angle (maximum 15°). 	
<ul style="list-style-type: none"> The joints must be directed toward the same side of the driveline. 	
Lubrication	
<ul style="list-style-type: none"> For universal joints, use a high quality grease formulated for intensive use. Refer to Section: Maintenance - Lubricant Specifications. 	



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

7.4.5 Priming (when applicable)

Manual Primer Pump



CAUTION!

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



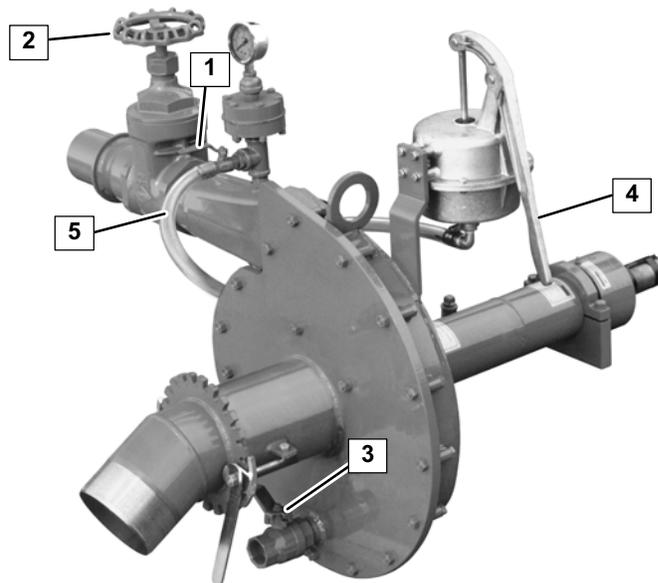
NOTE!

Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.



NOTE!

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



* Stationary model illustrated. Priming components are identical for the trailer model.

- Open the ball valve (1) of the discharge pipe.
- Close the gate valve (2) of the discharge pipe.
- Close the drain valve (3) located on the cover of the impeller housing.
- Manually activate the lever (4) of the primer pump up and down until the manure reaches the translucent hose (5).
- Close the ball valve (1) of the discharge pipe.

Hydraulic Primer Pump (optional)



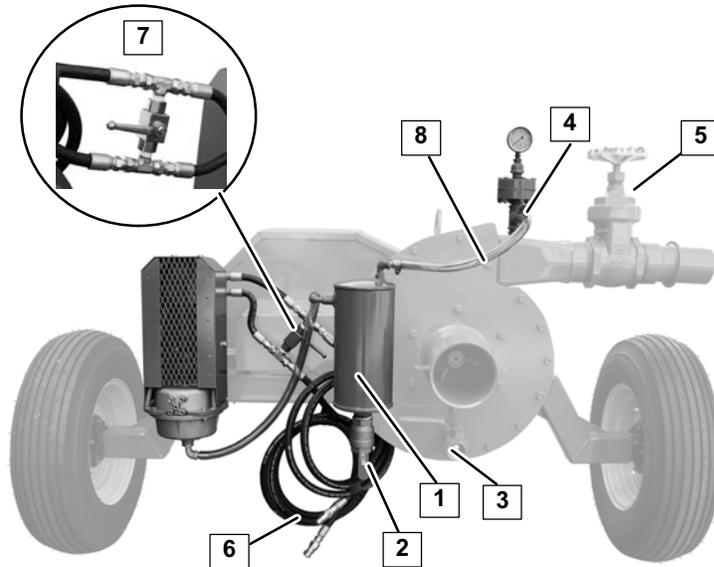
CAUTION!

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



CAUTION!

Connect the hydraulic hoses properly to ensure safe operation. Refer to Section: Appendix - Hydraulic Diagram.



- Place a container under the hydraulic primer pump collector (1).
- Open the drain valve (2) located under the hydraulic primer pump collector (1) to drain the reservoir.
- Close the drain valve (2).
- Dispose of the liquid.
- Close the drain valve (3) located on the cover of the impeller housing.
- Open the ball valve (4) of the discharge pipe.
- Close the gate valve (5) of the discharge pipe.
- Connect the hydraulic hoses (6) of the primer pump to the tractor.
- Start the tractor.
- Engage the hydraulic function of the tractor.
- Slowly close the ball valve (7) of the hydraulic hoses to prime. If the hydraulic primer pump does not start, inverse the outlets of the tractor.
- When the manure reaches the translucent hose (8), open the ball valve (7) of the hydraulic hoses to stop the primer pump.
- Close the ball valve (4) of the discharge pipe.
- Disengage the hydraulic functions of the tractor.

7.4.6 Pumping



CAUTION!

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



NOTE!

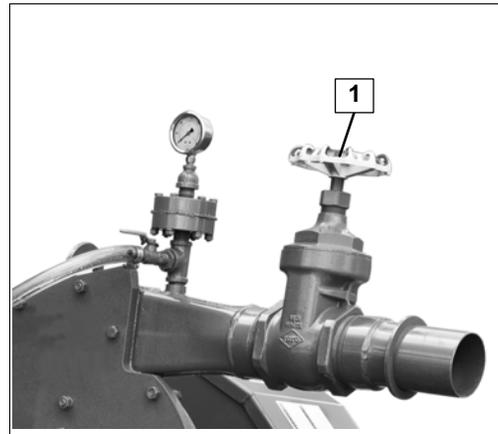
Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.



NOTE!

Make sure all drains are closed before pumping.

- Open the gate valve (1) of the discharge pipe.
- Engage the PTO to the minimum RPM.
- Gradually increase the RPM until the desired transfer rate is reached. Do not exceed the pump capacity. Refer to Section: Description - Performance Data.
- Disengage the PTO the stop the liquid transfer.



7.5 Operating the Product (Stationary Model)



CAUTION!

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



NOTE!

Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.



NOTE!

Refer to the instruction manual of the manufacturer of the diesel engine.



Refer to Section: Installation - Stationary Model.

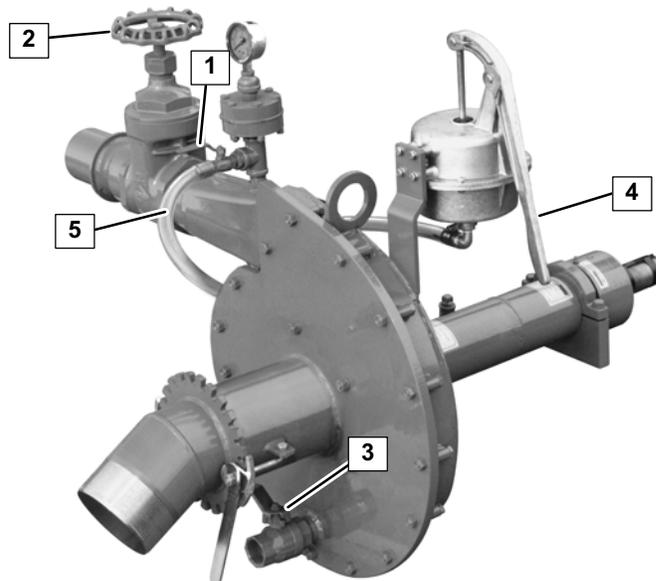
7.5.1 Priming (when applicable)

Manual Primer Pump



NOTE!

Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.



- Open the ball valve (1) of the discharge pipe.
- Close the gate valve (2) of the discharge pipe.
- Close the drain valve (3) located under the impeller.
- Manually activate the lever (4) of the primer pump up and down until the manure reaches the translucent hose (5).
- Close the ball valve (1) of the discharge pipe.

Hydraulic Primer Pump (optional)



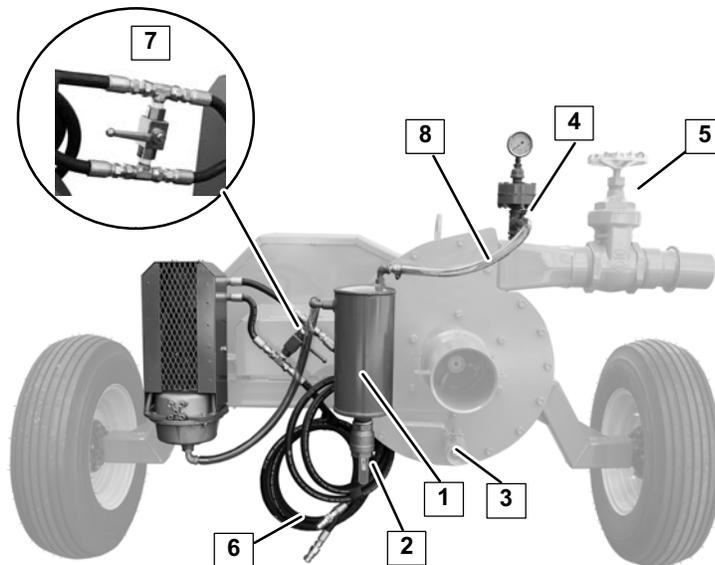
CAUTION!

Connect the hydraulic hoses properly to ensure safe operation. Refer to Section: Appendix - Hydraulic Diagram.



NOTE!

Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.



* Trailer model illustrated. Priming components are identical for the stationary model.

- Place a container under the hydraulic primer pump collector (1).
- Open the drain valve (2) located under the hydraulic primer pump collector (1) to drain the reservoir.
- Close the drain valve (2).
- Dispose of the liquid.
- Close the drain valve (3) located on the cover of the impeller housing.
- Open the ball valve of the discharge pipe (4).
- Close the gate valve (5) of the discharge pipe.
- Connect the hydraulic hoses (6) of the primer pump to the tractor.
- Start the tractor.
- Engage the hydraulic function of the tractor.
- Slowly close the ball valve (7) of the hydraulic hoses to prime. If the hydraulic primer pump does not start, inverse the outlets of the tractor.
- When the manure reaches the translucent hose (8), open the ball valve (7) of the hydraulic hoses to stop the primer pump.
- Close the ball valve (4) of the discharge pipe.
- Disengage the hydraulic functions of the tractor.

7.5.2 Pumping



CAUTION!

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



NOTE!

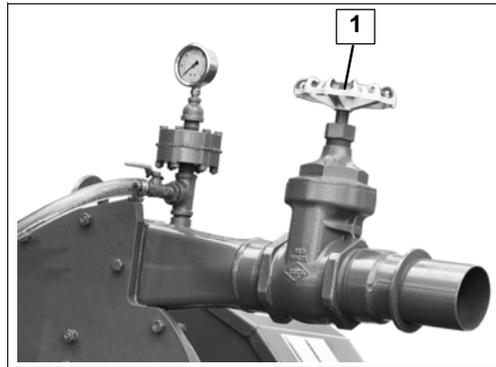
Before operating the pump, make sure the manure is homogenized and the consistency is appropriate. Refer to Section: Appendix - Consistency Test.



NOTE!

Make sure all drains are closed before pumping.

- Open the gate valve (1) of the discharge pipe.
- Engage the diesel engine to pump.



8 Operating Faults

Contact your authorized dealer.

8.1 Special Personnel Qualifications Required for Troubleshooting

Troubleshooting can be performed by qualified 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 the safety devices in place.



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.



CAUTION!

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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



ATTENTION!

Turn off the tractor and apply the hand brake before connecting or disconnecting the tow bar of this product to the draw bar of the tractor.



Read the Section: Safety.

8.3 Troubleshooting Possible Faults

Symptom	Possible cause	Remedy
The irrigation pump does not pump properly or loses its prime.	The liquid manure is too thick.	Refer to Section: Appendix - Consistency Test.
	The irrigation pump suction hose is not air tight.	Check the suction hose, the adaptor and the seal for any air infiltration.
	The pump is not primed.	Set the ball valves properly to prime the pump. Refer to Section: Operation - Trailer Model or Stationary Model - Priming.
	There is an obstruction in the suction hose.	Remove the obstruction from the suction hose.
	There is an obstruction in the evacuation hose.	Remove the obstruction from the evacuation hose.
	The elevation of the suction hose exceeds the permissible height.	Reposition the pump allowing the suction hose to reach the permissible height. Refer to Section: Description - Typical Installation.
	There is an obstruction in the impeller intake.	Contact your authorized dealer.
	Inappropriate configuration of the pumping system.	
The hydraulic primer pump is not operational	The ball valve of the hydraulic circuit is open.	Close the ball valve of the hydraulic circuit.

9 Maintenance

Please contact your authorized dealer.

9.1 Special Personnel Qualifications Required for Maintenance Work

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

Advanced maintenance must be performed by qualified personnel in accordance with the safety instructions.



Read the Section: Safety - Personnel Qualifications.

9.2 Safety Instructions for Maintenance



WARNING!

READ INSTRUCTIONS FIRST!

Do not operate or service without first reading and understanding this instruction manual to prevent serious or fatal injuries. If the manual is lost or destroyed, contact an authorized dealer or the manufacturer for replacement.



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.



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.



CAUTION!

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



CAUTION!

Beware of sharp edges: they can cause injuries.



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



ATTENTION!

Use only the tools listed in this instruction manual to handle this product. Make sure they are in good working condition.



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 damages and/or injuries.



ATTENTION!

Turn off the tractor and apply the hand brake before connecting or disconnecting the tow bar of this product to the draw bar of the tractor.



NOTE!

To move this product to the desired area, refer to Section: Transport.



Read the Section: Safety.

9.3 Checks Before Maintenance

- Everyone working with or performing activities in connection with this product read the instructions contained in this instruction manual. Everyone follows those instructions as well as the safety instructions. Only qualified personnel can carry out maintenance work on this product and its equipment.
- Everyone read and follow the SAFETY PROCEDURES IN CONFINED SPACES available in the websites listed in Section : Safety. Never enter or allow anyone to enter into a hazardous area such as a manure pit, a reservoir, etc.
- The electric source is turned off and secured with a padlock before servicing this product and its equipment. Electric work and electric maintenance is carried out by an electrician only.
- All power sources from the product and all related equipment such as PTO, housing, etc. are disconnected and secured to avoid activation.
- Everyone is aware of potential fire hazards such as those caused by welding, cutting, grinding, etc. Welding work is carried out by a welder only.
- Unnecessary object or equipment are removed from the maintenance area. All necessary tools and products are within reach. There are suitable hoists and load suspension devices available on site to handle large parts.
- Everyone uses new parts to replace any defective, worn or damaged parts.
- There are containers within reach to collect all substances potentially harmful such as oils, coolants, cleaning and disinfecting agents, etc. Beware of leaks and spills such as grease, oil, water, etc. they can make a surface slippery causing injuries.
- All components have cooled to room temperature.

9.4 Schedule Maintenance Responsibilities

9.4.1 GEA Houle Maintenance Schedule

Interval	Description	Action
Before each use	Drain the collector of the hydraulic primer pump	Qualified personnel
	Check the tow bar locking pin and the safety chain	
	Check the air pressure of the tires	
	Grease the ball bearings of the bearing housing	
	Fill the grease chamber of the bearing housing	
After each use	Drain the collector of the hydraulic primer pump	
	Clean the equipment	
	Grease the ball bearings of the bearing housing	
Every 4 hours of use	Grease the ball bearings of the bearing housing	
	Fill the grease chamber of the bearing housing	
	Grease the ball bearings of the jackshaft	
After the first 30 hours of use	Check the tension of the belts	
	Torque the bolts of the pulleys	
Every 200 hours of use	Clean the equipment	
	Adjust the tension of the belts	
	Torque the bolts of the pulleys	
	Inspect the pump	

9.4.2 Maintenance Schedule of Other Manufacturer's Product

Tractor

Maintenance must be performed according to the manufacturer's recommendations.

For example, the hydraulic oil of the tractor is used to activate the primer pump. The oil must be dust free and clear of water. Neglecting the tractor maintenance schedule can damage the pump.

PTO

Maintenance must be performed according to the manufacturer's recommendations.

Diesel Engine

Maintenance must be performed according to the manufacturer's recommendations.

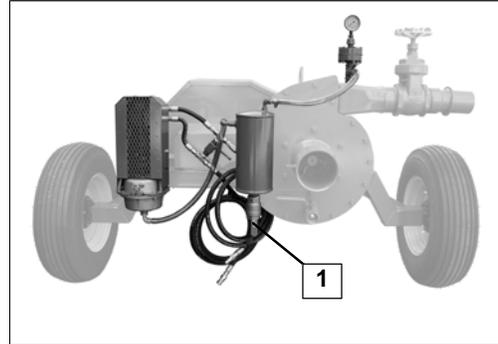
Pulleys and Belts

Maintenance must be performed according to the manufacturer's recommendations.

9.5 Before Each Use

9.5.1 Drain the Collector of the Hydraulic Primer Pump

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



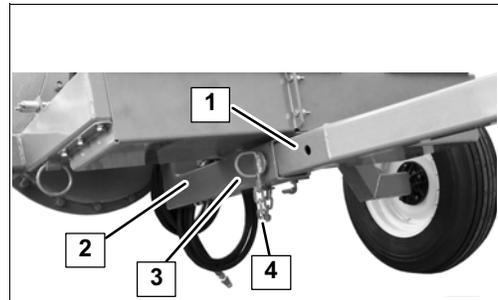
9.5.2 Check the Tow Bar Locking Pin and the Safety Chain



CAUTION!

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

- Make sure the tow bar (1) is well inserted into the frame (2) of the irrigation pump and secured with the locking pin (3).
- Inspect the safety chain (4) and the locking pin (3) for damages and/or signs of wear such as rust, etc. Replace if necessary.



9.5.3 Check the Air Pressure of the Tires



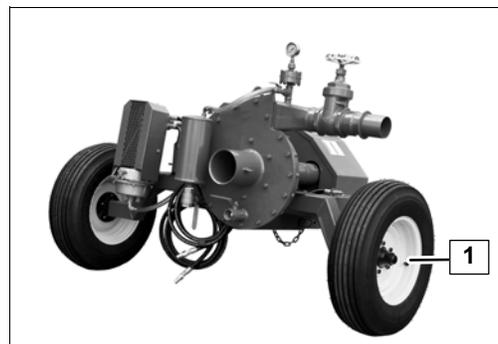
CAUTION!

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



Refer to Section: Description - Technical Data.

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



9.5.4 Grease the Ball Bearings



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



CAUTION!

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



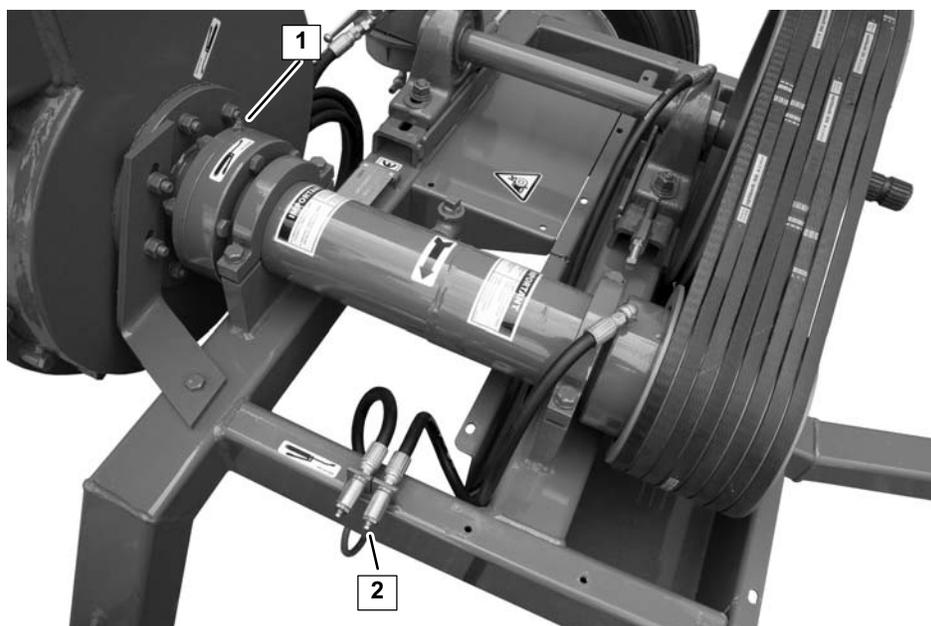
ATTENTION!

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



NOTE!

Use *TRC #880 Crown and Chassis grease*.



- Turn off the power source feeding the irrigation pump.
- Using a grease gun, add grease into the grease fitting (1) located on the ball bearing next to the impeller.
- Grease the other ball bearing through the grease line (2) located on the frame of the irrigation pump.

9.5.5 Fill the Grease Chamber



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



CAUTION!

Keep body parts and clothing away from moving parts.



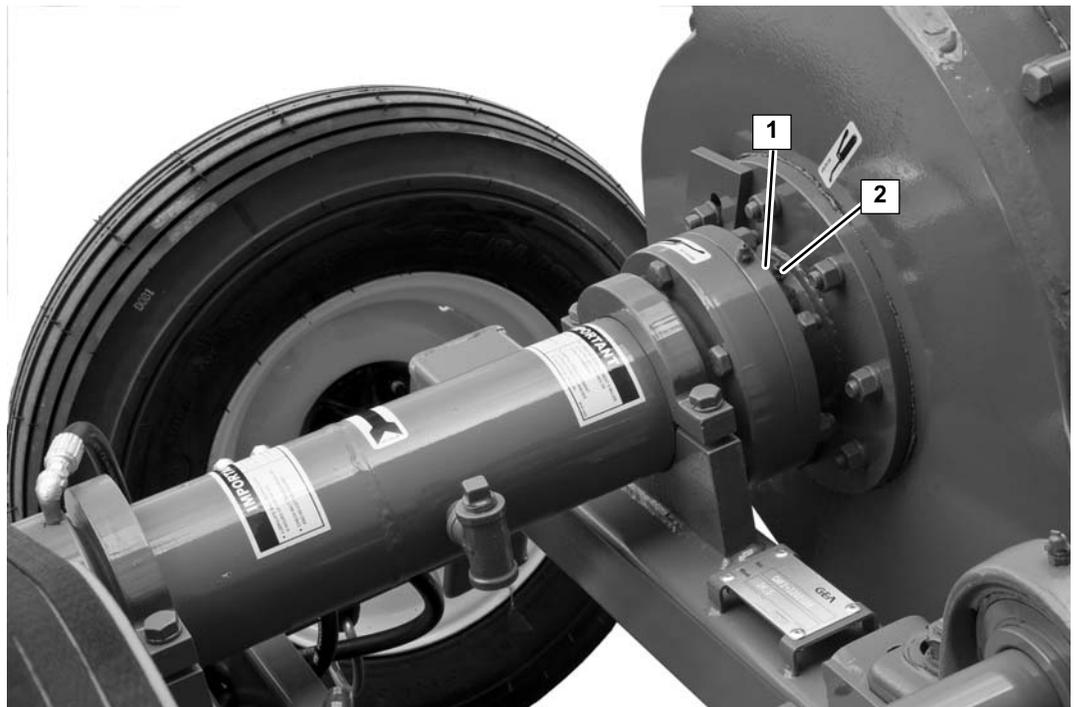
ATTENTION!

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



NOTE!

Use *EP2* mineral grease.

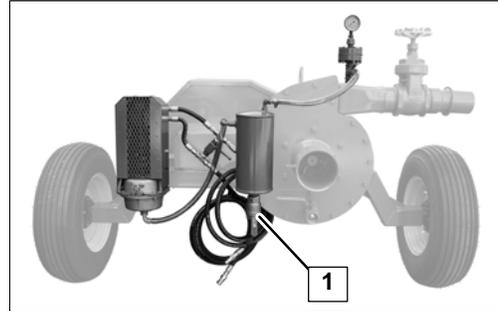


- Turn off the power source feeding the irrigation pump.
- Using a grease gun, add grease into the two grease fittings on the bearing housing next to the impeller.
- Start by adding grease into the fitting next to the ball bearing (1), then into the fitting next to the impeller (2).

9.6 After Each Use

9.6.1 Drain the Collector of the Hydraulic Primer Pump

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



9.6.2 Clean the Equipment



CAUTION!

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



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.



ATTENTION!

Do not wash this product near an electric source.



NOTE!

Keep labels legible.



NOTE!

Use biodegradable oil.

Refer to Section: Description - Technical Data - Lubricant Specifications.

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



9.6.3 Grease the Ball Bearings



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



CAUTION!

Keep body parts and clothing away from moving parts.



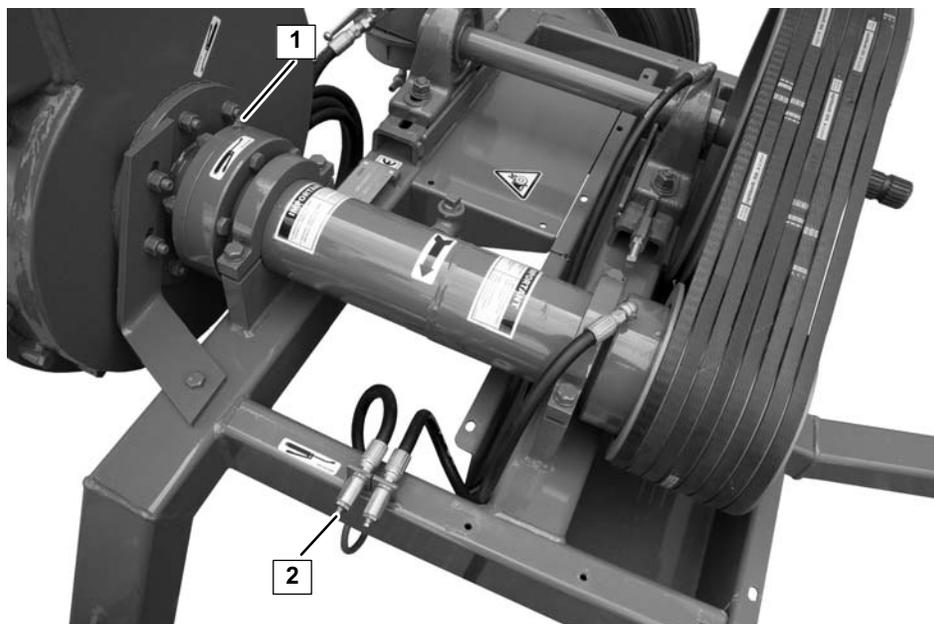
ATTENTION!

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



NOTE!

Use *TRC #880 Crown and Chassis* grease.



- Turn off the power source feeding the irrigation pump.
- Using a grease gun, add grease into the grease fitting (1) located on the ball bearing next to the impeller.
- Grease the other ball bearing through the grease line (2) located on the frame of the irrigation pump.

9.6.4 Fill the Grease Chamber



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



CAUTION!

Keep body parts and clothing away from moving parts.



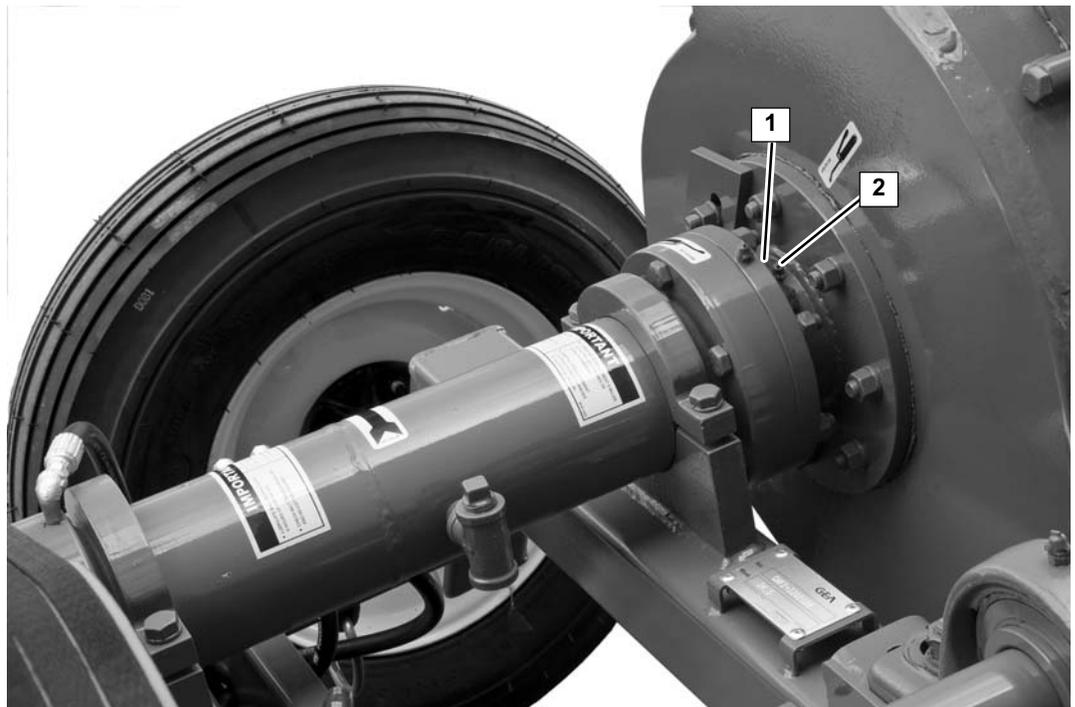
ATTENTION!

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



NOTE!

Use *EP2* mineral grease.



- Turn off the power source feeding the irrigation pump.
- Using a grease gun, add grease into the two grease fittings on the bearing housing next to the impeller.
- Start by adding grease into the fitting next to the ball bearing (1), then into the fitting next to the impeller (2).

9.7 Every 4 Hours of Use

9.7.1 Grease the Ball Bearings



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



CAUTION!

Keep body parts and clothing away from moving parts.



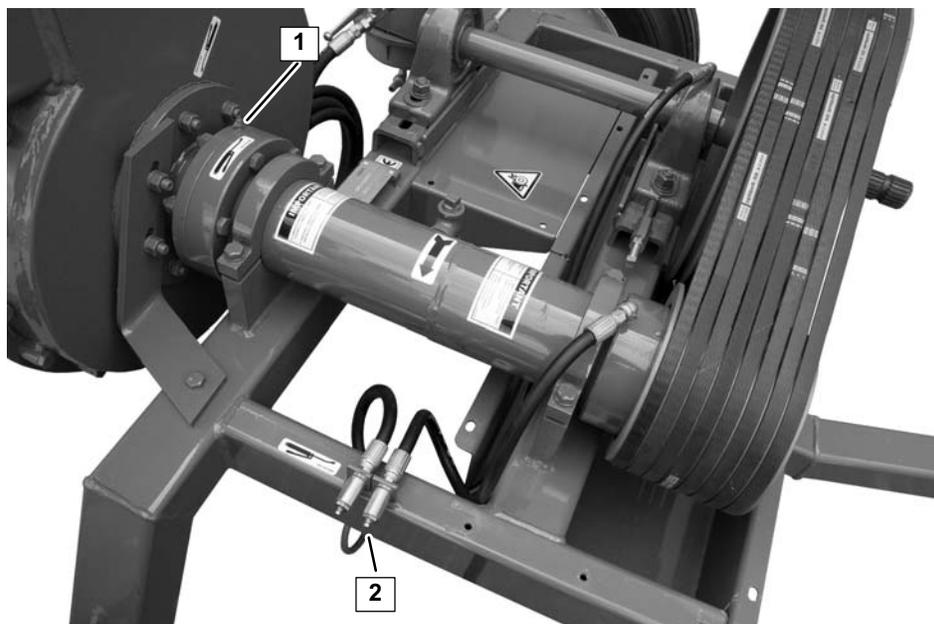
ATTENTION!

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



NOTE!

Use *TRC #880 Crown and Chassis* grease.



- Turn off the power source feeding the irrigation pump.
- Using a grease gun, add grease into the grease fitting (1) located on the ball bearing next to the impeller.
- Grease the other ball bearing through the grease line (2) located on the frame of the irrigation pump.

9.7.2 Fill the Grease Chamber



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



CAUTION!

Keep body parts and clothing away from moving parts.



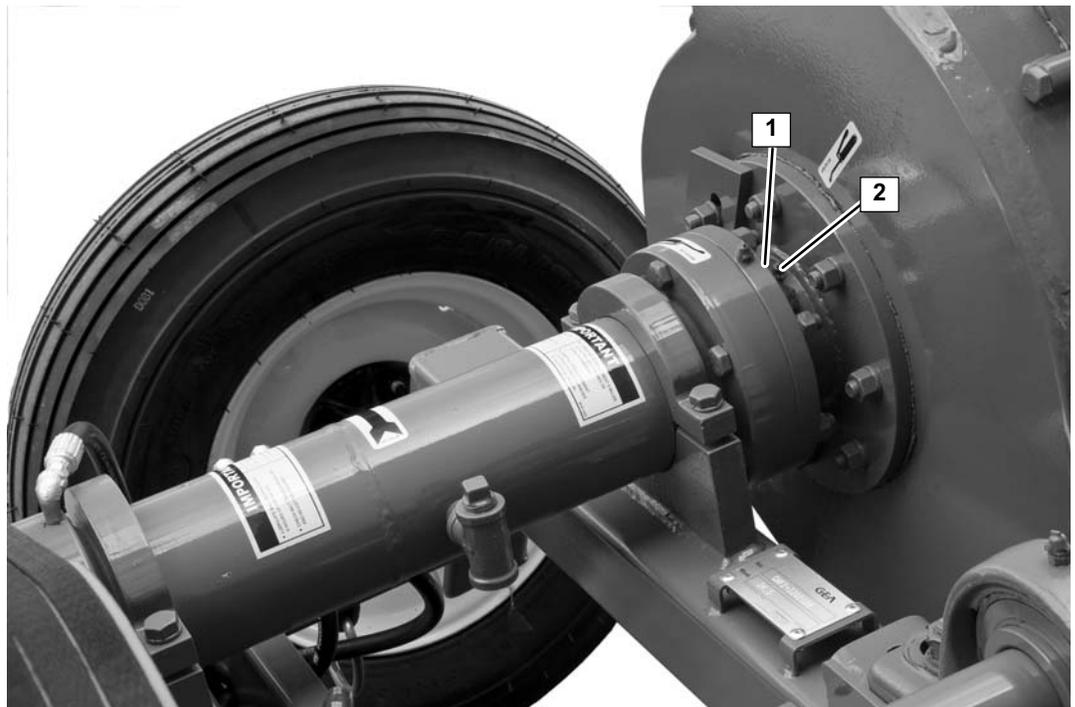
ATTENTION!

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



NOTE!

Use *EP2* mineral grease.



- Turn off the power source feeding the irrigation pump.
- Using a grease gun, add grease into the two grease fittings of the bearing housing next to the impeller.
- Start by adding grease into the fitting next to the ball bearing (15), then into the fitting next to the impeller (16).

9.7.3 Grease the Ball Bearings of the Jackshaft



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



CAUTION!

Keep body parts and clothing away from moving parts.



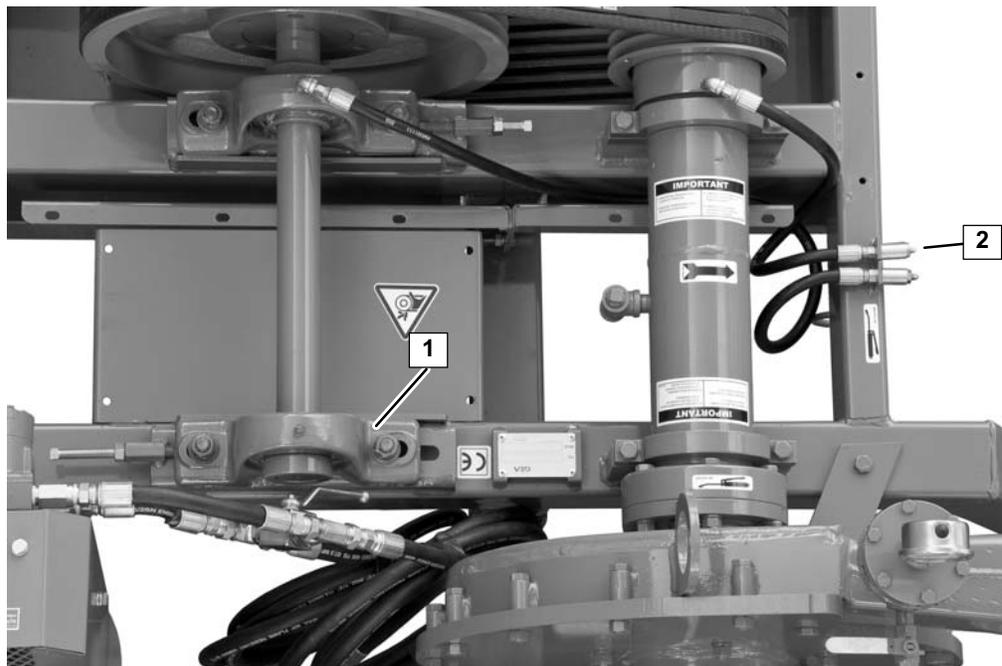
ATTENTION!

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



NOTE!

Use *TRC #880 Crown and Chassis* grease.



- Disconnect the PTO from the irrigation pump.
- Using a grease gun, add grease into the grease fitting (1) located near the impeller.
- Grease the other ball bearing through the grease line (2) located on the frame of the irrigation pump.

9.8 After the First 30 Hours of Use

9.8.1 Check the Tension of the Belts



CAUTION!

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



CAUTION!

Keep body parts and clothing away from moving parts.

Stationary Model



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



NOTE!

Refer to the instruction manual of the manufacturer of the belts and pulleys to adjust the tension.

Trailer Model

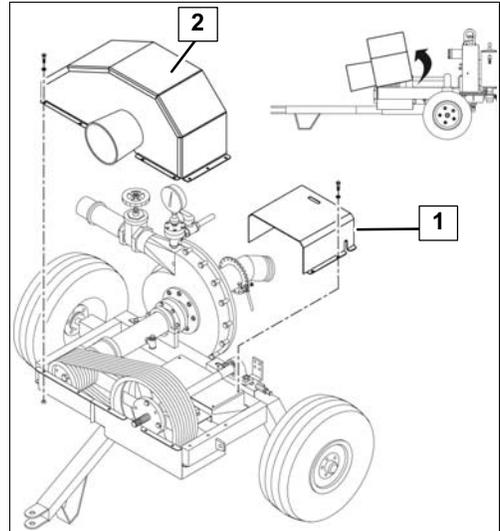


WARNING!
ROTATING DRIVELINE! KEEP AWAY!

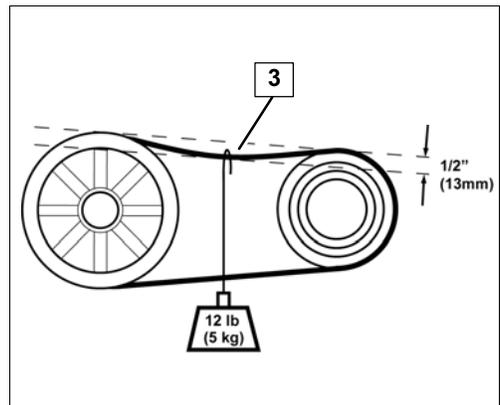


Turn off the tractor and apply the hand brake before connecting or disconnecting the PTO driveline.

- Disconnect the PTO from the irrigation pump.
- Unbolt the guard protecting the jack shaft (1).
- Unbolt the guard protecting the belts and the pulleys (2).



- Apply pressure on each belt. Position a 12 lb [5 kg] weight midway (3) between the pulleys. The belts must allow a deflection of 1/2" [13 mm].
- Proceed with the adjustment of the belts if they deflect more than 1/2" [13 mm]. Refer to Section: Maintenance - Advance Maintenance - Adjust the Tension of the Belts.



9.8.2 Torque the Bolts of the Pulleys



CAUTION!

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



CAUTION!

Keep body parts and clothing away from moving parts.

Stationary Model



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



NOTE!

Refer to the instruction manual of the manufacturer of the pulleys to set the torque.

Trailer Model



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



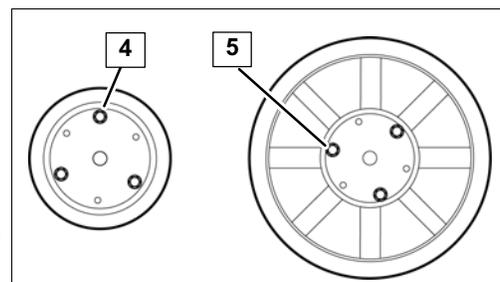
ATTENTION!

Tighten the bolts evenly and progressively. Never allow the sheave to be drawn in contact with the flange of the bushing; it can result in damages to the hub.



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

- Disconnect the PTO from the irrigation pump.
- Using a torque wrench, torque the bolts of the small pulley to 60 ft-lb [81 N/m].
- Torque the bolts of the large pulley to 135 ft-lb [183 N/m].



9.9 Every 200 Hours of Use

9.9.1 Clean the Equipment



CAUTION!

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



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!

Keep labels legible.



NOTE!

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

- Pressure wash this product and its equipment.
- Spread a film of oil on all moving parts to protect from corrosion.



9.9.2 Check the Tension of the Belts



CAUTION!

- Wear protective boots, eye gear and gloves for all steps included in this Section.
- Keep body parts and clothing away from moving parts.

Stationary Model



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



NOTE!

Refer to the instruction manual of the manufacturer of the belts and pulleys to adjust the tension.

Trailer Model



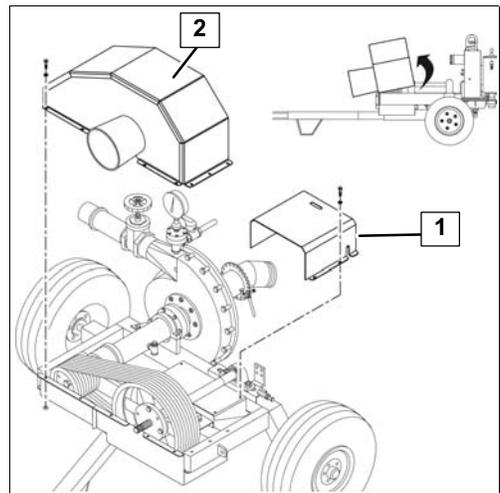
WARNING!

ROTATING DRIVELINE! KEEP AWAY!

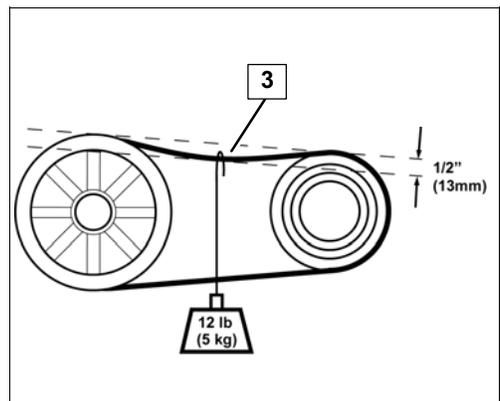


Turn off the tractor and apply the hand brake before connecting or disconnecting the PTO driveline.

- Disconnect the PTO from the irrigation pump.
- Unbolt the guard protecting the jack shaft (1).
- Unbolt the guard protecting the belts and the pulleys (2).



- Apply pressure on each belt. Position a 12 lb [5 kg] weight midway (3) between the pulleys. The belts must allow a deflection of 1/2" [13 mm].
- Proceed with the adjustment of the belts if they deflect more than 1/2" [13 mm]. Refer to Section: Maintenance - Advance Maintenance - Adjust the Belts Tension.



9.9.3 Torque the Bolts of the Pulleys



CAUTION!

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



CAUTION!

Keep body parts and clothing away from moving parts.

Stationary Model



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



NOTE!

Refer to the instruction manual of the manufacturer of the pulleys to set the torque.

Trailer Model



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



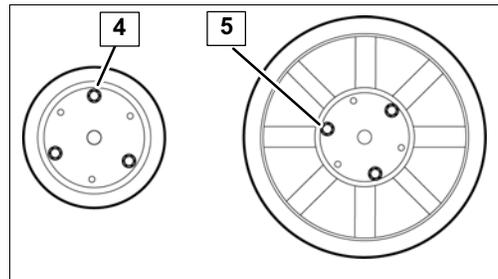
ATTENTION!

Tighten the bolts evenly and progressively. Never allow the sheave to be drawn in contact with the flange of the bushing; it can result in damages to the hub.



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

- Disconnect the PTO from the irrigation pump.
- Using a torque wrench, torque the bolts of the small pulley to 60 ft-lb [81 N/m].
- Torque the bolts of the large pulley to 135 ft-lb [183 N/m].



9.9.4 Inspect the Pump



CAUTION!

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

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

10 Advanced Maintenance

Please contact your authorized dealer.

10.1 Special Personnel Qualifications Required for Advanced Maintenance Work

Advanced maintenance must be performed by qualified personnel in accordance with the safety instructions.



Read the Section: Safety - Personnel Qualifications.

10.2 Safety Instructions for Advanced Maintenance

**WARNING!****READ INSTRUCTIONS FIRST!**

Do not operate or service without first reading and understanding this instruction manual to prevent serious or fatal injuries. If the manual is lost or destroyed, contact an authorized dealer or the manufacturer for replacement.

**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.

**CAUTION!**

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.

**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.

**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!**

Use only the tools listed in this instruction manual to handle this product. Make sure they are in good working condition.

Advanced Maintenance

Checks Before Advanced Maintenance

**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 damages and/or injuries.

**ATTENTION!**

Turn off the tractor and apply the hand brake before connecting or disconnecting the tow bar of this product to the draw bar of the tractor.

**NOTE!**

To move this product to the desired area, refer to Section: Transport.



Read the Section: Safety.

10.3 Checks Before Advanced Maintenance

- Everyone working with or performing activities in connection with this product read the instructions contained in this instruction manual. Everyone follows those instructions as well as the safety instructions. Only qualified personnel can carry out maintenance work on this product and its equipment.
- Everyone read and follow the SAFETY PROCEDURES IN CONFINED SPACES available in the websites listed in Section : Safety. Never enter or allow anyone to enter into a hazardous area such as a manure pit, a reservoir, etc.
- The electric source is turned off and secured with a padlock before servicing this product and its equipment. Electric work and electric maintenance is carried out by an electrician only.
- All power sources from the product and all related equipment such as PTO, housing, etc. are disconnected and secured to avoid activation.
- Everyone is aware of potential fire hazards such as those caused by welding, cutting, grinding, etc. Welding work is carried out by a welder only.
- Unnecessary object or equipment are removed from the maintenance area. All necessary tools and products are within reach. There are suitable hoists and load suspension devices available on site to handle large parts.
- Everyone uses new parts to replace any defective, worn or damaged parts.
- There are containers within reach to collect all substances potentially harmful such as oils, coolants, cleaning and disinfecting agents, etc. Beware of leaks and spills such as grease, oil, water, etc. they can make a surface slippery causing injuries.
- All components have cooled to room temperature.

10.4 Adjust the Tension of the Belts

Stationary Model



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



NOTE!

Refer to the instruction manual of the manufacturer of the belts and the pulleys to adjust the tension.

Trailer Model



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Keep body parts and clothing away from moving parts.



CAUTION!

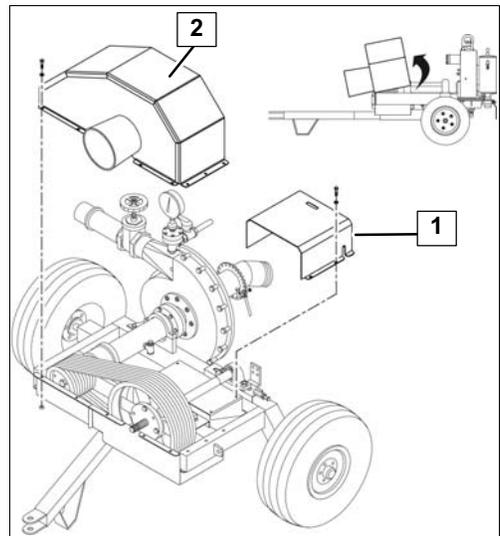
Wear protective boots, eye gear and gloves for all steps included in this Section.



ATTENTION!

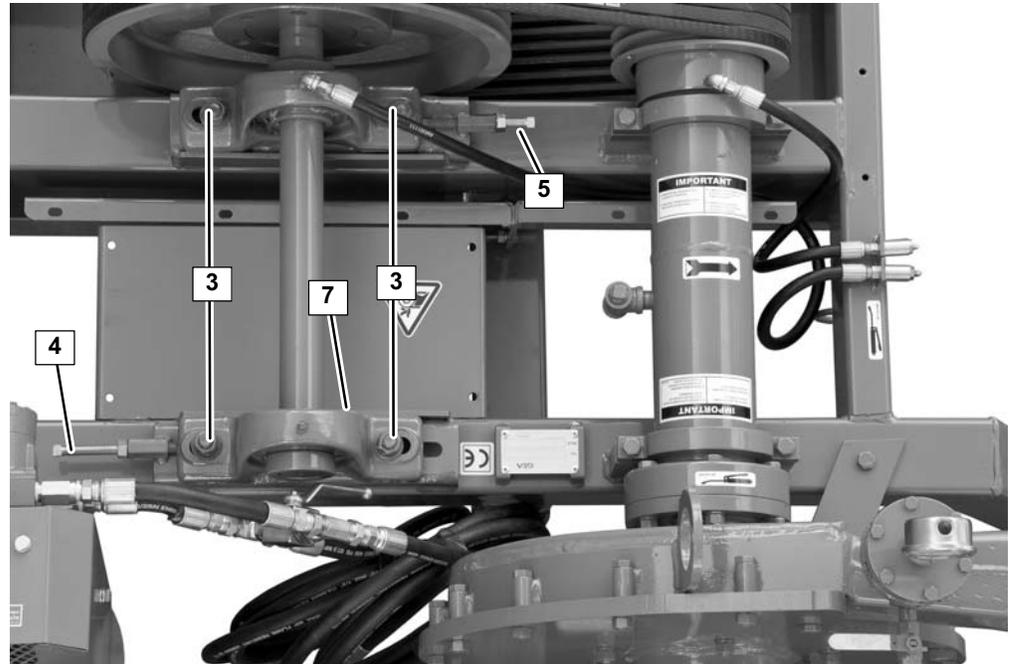
Use only the tools listed in this instruction manual to handle this product. Make sure they are in good working condition.

- Disconnect the PTO from the irrigation pump.
- Unbolt the guard protecting the jack shaft (1) and the guard protecting the belts and the pulleys (2).

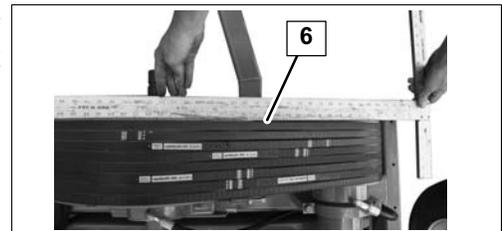


Advanced Maintenance

Checks Before Advanced Maintenance

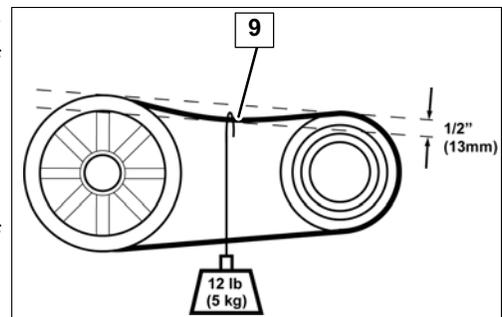


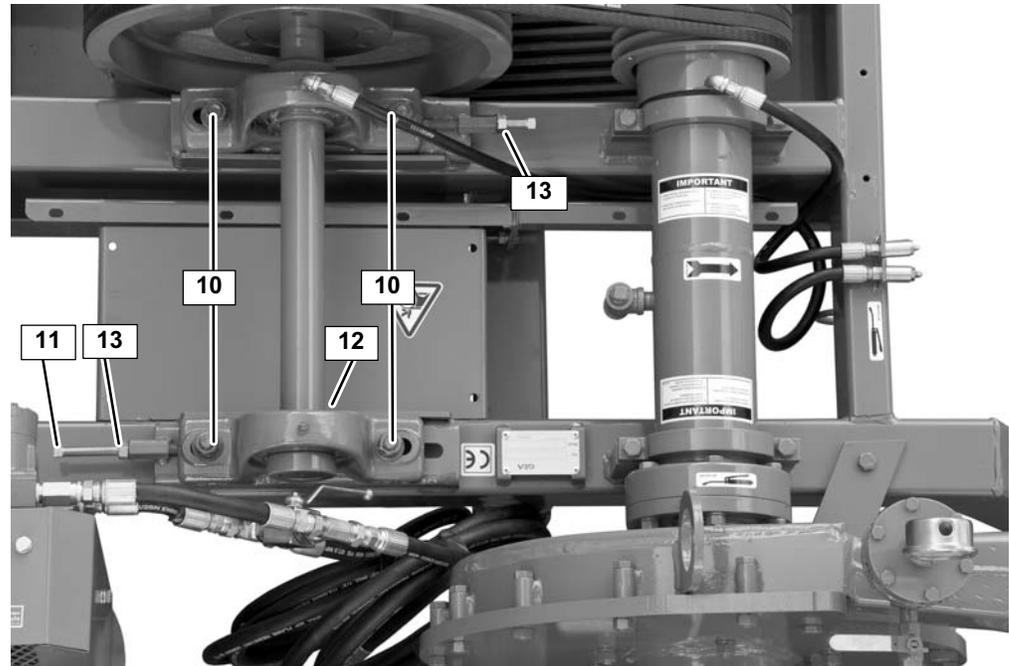
- Loosen the 4 bolts (3) on the sliding brackets holding the ball bearings of the jack shaft.
- Loosen the adjustment bolt (4).
- Slowly bolt a few turns the adjustment bolt (5) located next to the pulley to increase the tension on the belts.
- To reduce the tension on the belts, unbolt the same adjustment bolt.
- Check if the pulleys are perfectly parallel. Place a 4 ft ruler (6) against the side of the pulleys and check the alignment.



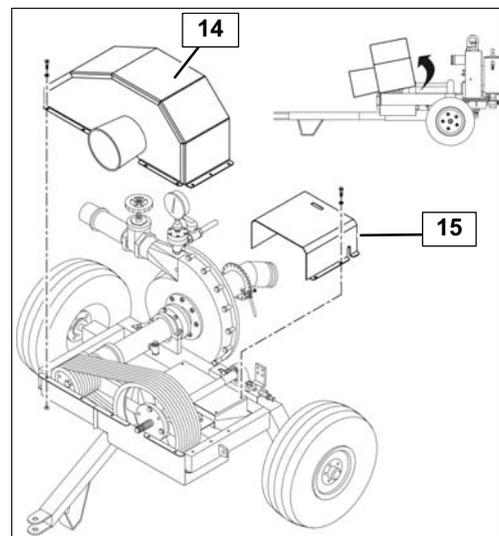
- Gently tap on the bearing (7) with a rubber hammer to align the pulleys on the ruler.
- If the pulleys do not align, loosen the adjustment bolt (4). Repeat this step until the pulleys are perfectly aligned.

- When the pulleys are perfectly aligned, apply 12 lb [5 kg] of pressure on each belt. Apply the pressure midway (9) between the pulleys. The belts must deflect roughly 1/2" [13 mm]. Repeat the adjustment of the belts if they deflect more or less than 1/2" [13 mm].





- When the pulleys are aligned, secure the four bolts (10) of the sliding brackets.
- Slightly bolt the adjustment bolt (11) to hold the jack shaft (12) in place.
- Lock the two adjustment bolts by tightening slightly the corresponding nut (13).
- Bolt the guard (14) protecting the belts and the pulleys.
- Bolt the guard (15) protecting the jack shaft.



11 Decommissioning

11.1 Safety Instructions for Decommissioning



WARNING!

ROTATING DRIVELINE! KEEP AWAY!



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



CAUTION!

Always turn off the power source feeding this product. Secure with a locking device to avoid accidental activation.



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.



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!

Turn off the tractor and apply the hand brake before connecting or disconnecting the tow bar of this product to the draw bar of the tractor.



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.



NOTE!

Keep labels legible.



Read the Section: Safety.

11.2 Temporary Decommissioning

11.2.1 Cleaning



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!

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 [30cm] from the surface to be cleaned.



ATTENTION!

Do not wash this product near an electric source.



NOTE!

Refer to Section: Description - Technical Data - Lubricant Specifications.



NOTE!

To move this product to the desired area, refer to Section: Transport.

- Use eye wear gear for protection.
- Activate the hand brake of the tractor and turn off the engine. If applicable.
- Disconnect the PTO. If applicable.
- Remove the evacuation hose and the suction hose.
- Open all drains.
- 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 irrigation pump to protect from corrosion.



11.2.2 Storing



ATTENTION!
Risk of corrosion!



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

- Place in a storehouse after cleaning the product.

Grease the PTO Driveline



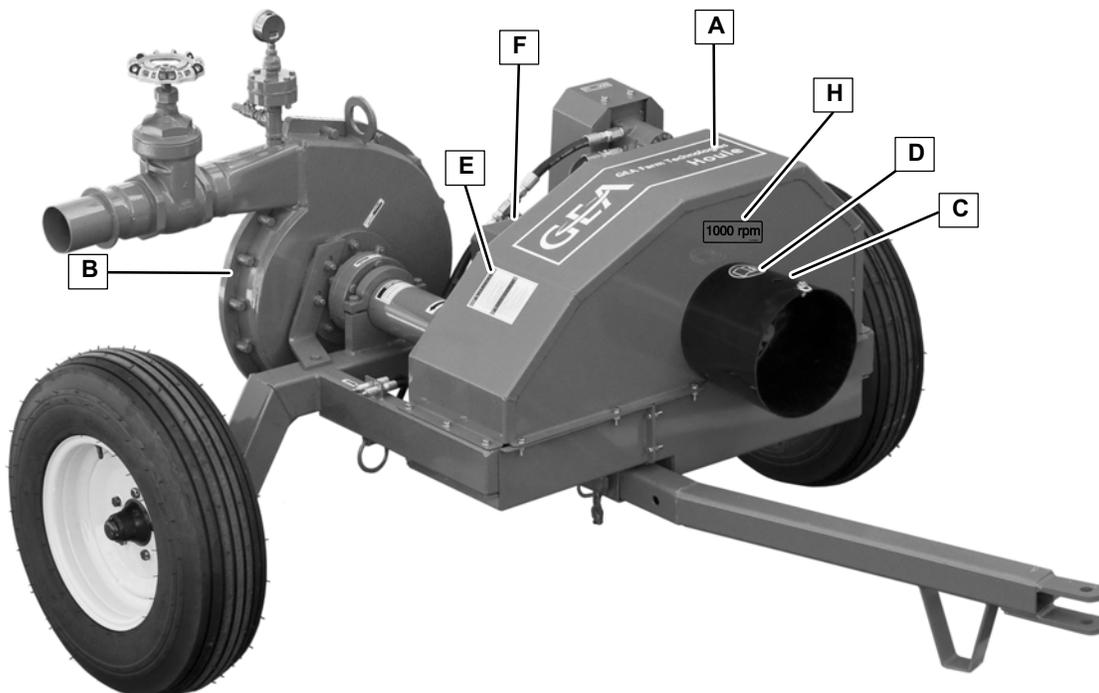
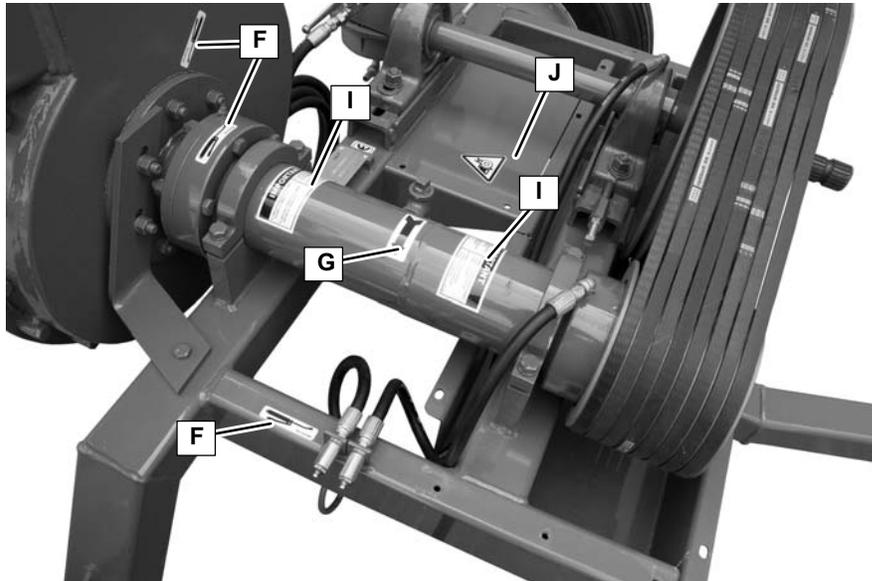
NOTE!
Refer to the PTO driveline instruction manual and follow the manufacturer's recommendations.

11.3 Final Decommissioning/Disposal

After final decommissioning, handle all components properly and dispose of them in accordance with your valid local rules and regulations on waste disposal. Recycle if possible.

12 Appendix

12.1 Label Position

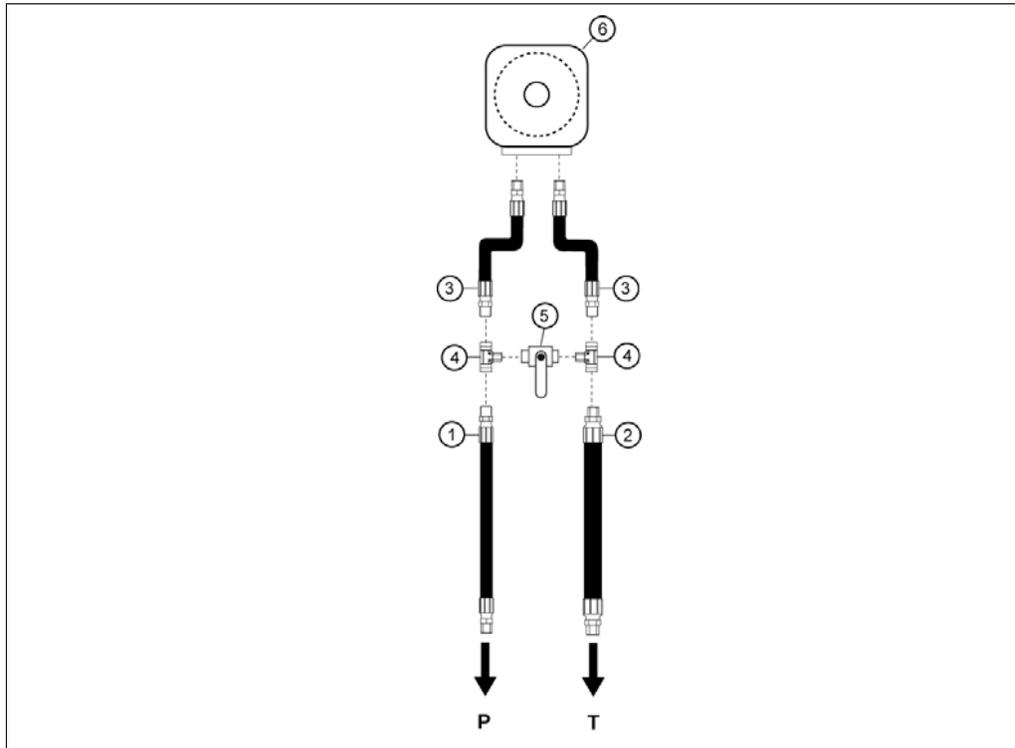


US = American stickers / EU = European stickers

<p>A</p>	<p>US + EU</p>  <p>2010-4703-660</p>	<p>B</p>	<p>US</p>  <p>2010-4701-590</p>	<p>C</p>	<p>US</p>  <p>2099-4720-020</p>
<p>D</p>	<p>US</p>  <p>2099-4725-100</p>	<p>E</p>	<p>US</p>  <p>2099-4721-020</p>	<p>F</p>	<p>US + EU</p>  <p>2099-4701-240</p>
<p>G</p>	<p>US + EU</p>  <p>2007-4700-390</p>	<p>H</p>	<p>US + EU</p>  <p>2010-4703-440</p>	<p>I</p>	<p>US + EU</p>  <p>2099-4724-020</p>
<p>J</p>	<p>US + EU</p>  <p>2099-4725-110</p>				

12.2 Hydraulic Diagrams

12.2.1 Optional Hydraulic Primer Pump



LEGEND:	
1	Hydraulic Hose Assembly (1/2" x 8") fitting.
2	Hydraulic Hose Assembly (3/4" x 8") fitting.
3	Hydraulic Hose Assembly (1/2" x 8") fitting.
4	Hydraulic Tee .375" x .375" x .375".
5	Ball Valve 1/2 NPT.
6	Hydraulic Motor of Primer Pump.

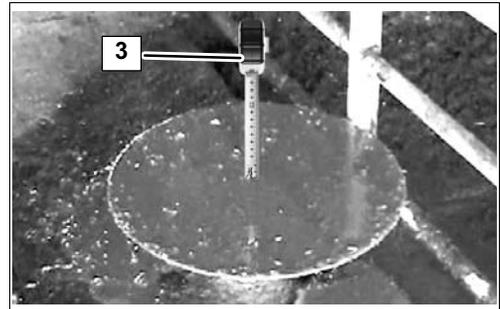
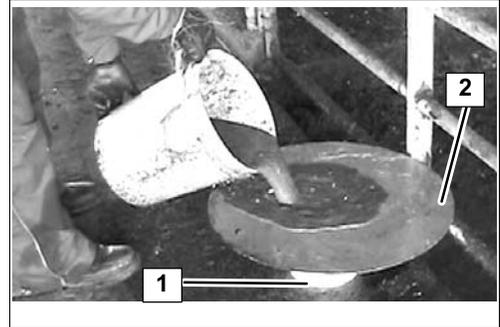
12.3 Abbreviations

Units	Explanation	Units	Explanation
A	Amperage (electric current)	kW	kilowatt
@	at	km/h	kilometres per hour
CE / EC	European Union	LPM	litres per minute
cm	centimetres	lb	pounds
°	degree angle	m	metre
°C	degree centigrade/ Celsius (temperature)	min	minute
CW	clockwise	mph	miles per hour
CCW	counterclockwise	mm	millimetres
°F	degree Fahrenheit (temperature)	N/m	Newton metre
fax	facsimile	NC	national coarse thread
' / ft	Feet (= 305 mm)	O.D.	outside diameter
ft-lb	foot-pound	PTO	power take-off
gal.	gallon	PVC	polyvinyl chloride
GPM	gallons per minute	psi	pounds per square inch (pressure)
Hp	horsepower	QC	Quebec (Qc)
hrs	hours	RPM	revolutions per minute
Hz	Hertz	SAE	Society of Automotive Engineers
I.D.	inside diameter	us/ USA	United States of America
Inc.	Incorporated	V	volt (voltage)
" / in	inch (= 25.4 mm)	VDC	volts of direct current
kg	kilograms	VAC	volts of alternative current
kPa	kilo Pascal	www	world wide web

12.4 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 centre of the disc until it overflows. Remain close to the disc when pouring the slurry.
- Using a measuring tape (3), measure the thickness of the slurry at the centre of the disc after 1 minute of rest.
- The measure must be equal to or less than the consistency indicated in Section: Description - Technical Data.



NOTE!

Adding water into the manure storage will reduce the consistency of the slurry.

GEA Farm Technologies

The right choice.



GEA Farm Technologies Canada Inc. / Division GEA Houle Inc.

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