Lagoon Agi-Pompe

PTO Pump

Instruction Manual / Installation Instructions
(Original instructions)

2010-9015-015
04-2015

engineering for a better world

GEA Farm Technologies

Contents

1 Preface

This is a GEA product. GEA is the manufacturer of the Houle product line. This product was formerly known under HOULE trademark.

1.1 About this manual

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 terminology are explained in detail in section Appendix.

This manual is supplied with the product.

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

Pictograms used

This pictogram indicates information that will be helpful toward 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 (United Kingdom)	-9015-	English (North American)	-9034-	Slovak
-9002-	French (France)	-9016-	Polish	-9035-	Chinese
-9003-	Italian	-9018-	Japanese	-9036-	Lithuanian
-9004-	Romanian	-9021-	Danish	-9038-	Portuguese (Brazil)
-9005-	Spanish (Spain)	-9022-	Hungarian	-9039-	French (Canada)
-9007-	Swedish	-9023-	Czech	-9040-	Latvian
-9008-	Norwegian	-9024-	Finnish	-9041-	Estonian
-9009-	Russian	-9025-	Croatian	-9043-	Spanish (Central America)
-9010-	Greek	-9027-	Bulgarian		
-9012-	Turkish	-9029-	Slovenian		
The instruction manuals may not be available in all the listed languages.					

1.2 Manufacturer's address

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

☎ +1 819 477 - 7444
🖷 +1 819 477 - 5565
✉ geahoule@gea.com
@ www.gea-farmtechnologies.com

1.3 Customer service

Dealer

If necessary, please contact your nearest 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

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Naperville, IL 60563

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@ www.gea-farmtechnologies.com

1.4 Declaration of conformity

Manufacturer:	**GEA Farm Technologies Canada Inc. / Division GEA Houle** **4591 boul. St-Joseph** **Drummondville, Qc, J2A 0C6**
Product description:	**Lagoon Agi-Pompe**
Type of product:	**PTO 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:

- Harmonized European standards

EN 809+A1 (2009-12)	Pumps and pump units for liquids - Common safety requirements
EN 894-2+A1 (2008-12)	Safety of machinery - Ergonomics requirements for the design of displays and control actuators Part 2: Displays
EN 953+A1 (2009-05)	Safety of machinery - Guards General requirements for the design and construction of fixed and movable guards
EN ISO 4254-1 (2010-01)	Agricultural Machinery - safety Part 1: General requirements
ISO 4413 (1999-08)	Hydraulic fluid power General rules relating to systems
EN ISO 12100-1 (2004-01)	Safety of machinery - Basic concepts, general principles for design Part 1: Basic terminology, methodology
EN ISO 12100-2 (2004-01)	Safety of machinery - Basic concepts, general principles for design Part 2: Technical principles
EN ISO 14121-1 (2007-11)	Safety of machinery - Risk assessment Part 1: Principles
ISO/TR 14121-2 (2008-02)	Safety of machinery - Risk assessment Part 2: Practical guidance and examples of methods
NF X 08-003-1 (2006-07)	Graphical symbols - Safety colours and visual safety signs Part 1: Design principles

Person responsible for compiling the relevant technical documents:

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☏ +49 (0) 2383 / 93-70

Drummondville, 01 April 2015

Yann Desrochers
(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, 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.
This declaration of conformity becomes invalid if design changes are made which affect the technical data given in the instructions and the correct use of the product, thereby significantly altering the machine!

1.5 GEA Farm Technologies Canada Inc. / Division GEA Houle - general equipment warranty

☞ **Important notice!**
THIS GENERAL WARRANTY APPLIES TO ALL EQUIPMENT SOLD UNDER THE GEA HOULE TRADEMARK.

1.5.1 Limited warranty

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

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

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

1.5.2 Condition of the limited warranty

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

1. That the equipment is installed, operated and maintained in accordance with the Company directives;
2. That the Purchaser uses the equipment in accordance with specific instructions, under normal conditions, for the sole purpose for which the equipment was designed;
3. That the Purchaser notifies in writing his 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 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 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, 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, labor 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 Dealer harmless in respect of any liability or obligation incurred by the Company or the 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 DEALERS UNDER THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PARTS UP TO THE CONTRACT VALUE FOR THE PURCHASED EQUIPMENT. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL, PUNITIVE OR EXEMPLARY DAMAGES IN ANY KIND OR CHARACTER, INCLUDING INDIRECT COSTS, LOSS OF PRODUCTION, LOSS OF REVENUES OR PROFITS, AND OTHER DISBURSEMENTS WHICH MAY OCCUR.

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

1.5.5 General statements

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

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

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

2 Safety

2.1 Owner's obligation of care

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

This product is designed for agricultural purposes only and is not intended for use on public roads.

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 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 equipment will not be towed on public road. If the equipment needs to be towed on public road, the owner must adapt the equipment in accordance with local towing safety regulations.

The owner must ensure a safe environment by providing:

- this instruction manual with this product;
- 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 for the sole purpose for which it was designed;
- new parts to replace any defective, worn or damaged parts on this product;
- appropriate devices such as motor, engine, hydraulic unit, etc. to safely operate this product. To meet the technical requirements, refer to section Technical data;
- a product meeting the local rules and regulations.

2.2 Explanation of safety symbols

Safety symbols draw attention to the importance of the adjacent text.

The design of the warnings is based on ISO 3864-2 and ANSI535.6.

Safety symbols and key words

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

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

Caution!
The indication ”Caution” signals dangerous situations.
Minor or moderate injury may result if the danger is not avoided.

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

2.3 Basic safety instructions

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

2.4 Personnel 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:

- Handling and assembly
- Initial commissioning
- Operating
- Troubleshooting
- Maintenance
- Decommissioning

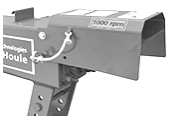
2.5 Protective devices

2.5.1 Protective safety parts

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

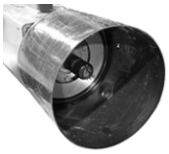
Those parts must be in perfect working condition and remain in place at all times.

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



Protective guard for power take off driveline

(Part No. 2010-7606-910) American



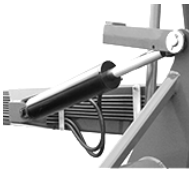
Protective guard for power take off driveline

(Part No. 2018-4701-630) European

Safety cap

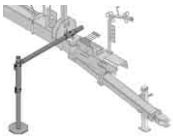
(Part No. 2010-7704-670) 6" model

(Part No. 2010-7712-650) 8" model



Cylinder lock

(Part No. 2010-7620-000)



Stabilizing leg

(Part No. 2010-7612-440)

2.5.2 Safety labels

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

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

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

Refer to section Appendix - Label position.

3 Description (overview)

3.1 Product applications

The Lagoon Agi-Pompe is exclusively designed to:

- Agitate and transfer liquid manure stored in a lagoon.
  - Maximum agitation consistency is 1½" (38 mm)
  - Maximum transfer consistency is ¾" (19 mm)

Functional description

The Lagoon Agi-Pompe is used to homogenize liquid manure in lagoons. The Lagoon Agi-Pompe agitates and transfers liquid manure from a lagoon to a manure spreader or to a manure irrigation pump system.

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

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

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

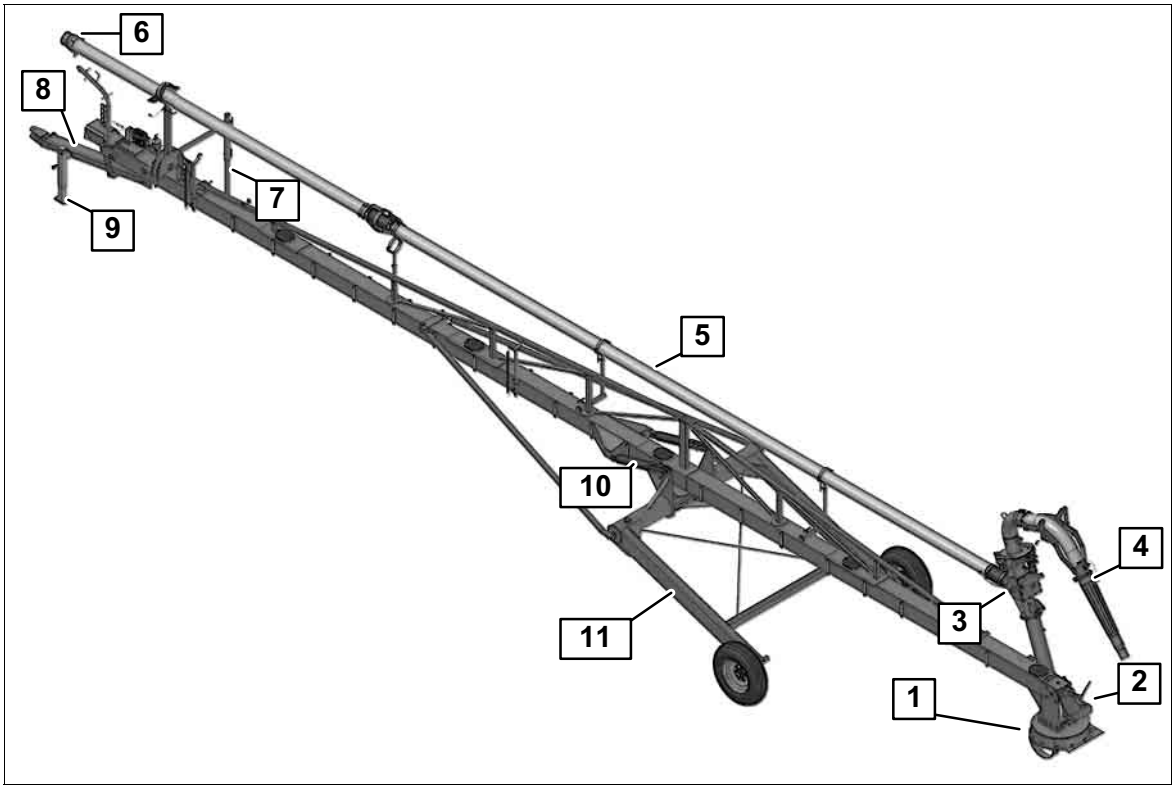
3.2 Changes to the product

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.

4 Main view

4.1 Lagoon Agi-Pompe



* Reinforcement truss available in option;

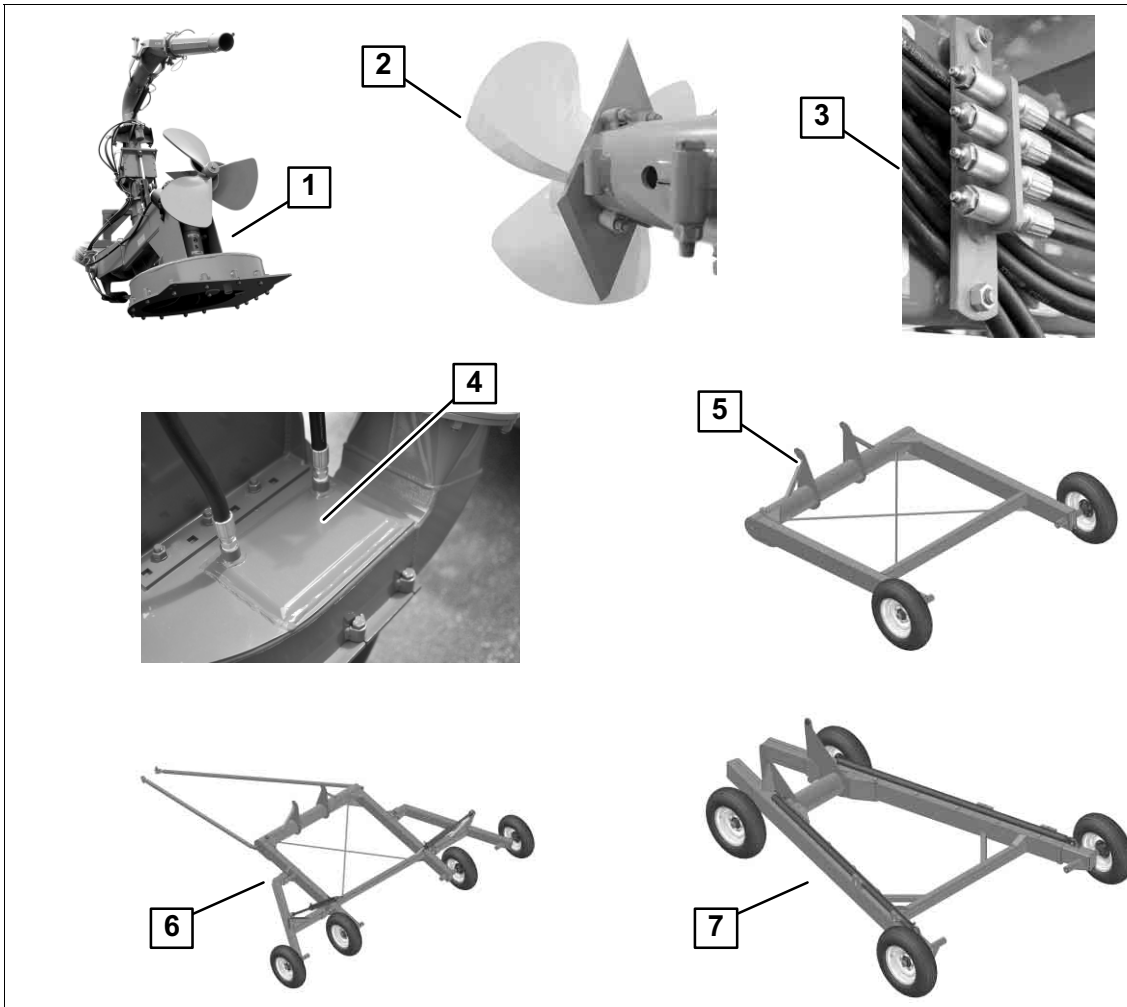
Draw bar 3 ft longer available in option;

8" aluminum discharge with 8" rotative directional valve and 8" auxiliary pipe available in option;

6" or 8" discharge pump with directional valve installed 3 ft forward available in option.

Legend:			
1	Impeller	7	Stabilizing leg
2	Propeller	8	Draw bar
3	Directional valve	9	Jack
4	Agitation nozzle	10	Cylinder lock
5	Auxiliary pipe	11	Undercarriage
6	Safety cap		

4.1.1 Options



Legend:			
1	Articulated housing	5	Heavy-duty undercarriage
2	Knife kit on propeller	6	Heavy-duty undercarriage with articulated stabilizer wheels
3	Remote grease line kit		
4	Oil cooler	7	Multipurpose undercarriage

5 Technical data

5.1 Geometric data

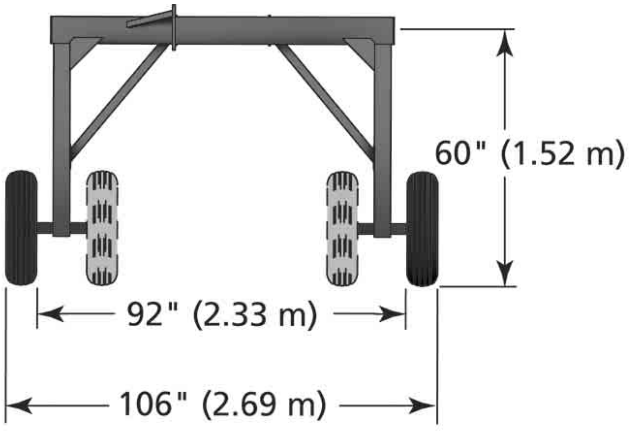
Lagoon Agi-Pompe					
Pump length	32' (9,8 m)	42' (12,8 m)	52' (15,9 m)	62' (18,9 m)	72' (22 m)
Pump height	109" (2,77 m)				
Pump width	See undercarriage				
Pump weight	2545 lbs (1155 kg)	2990 lbs (1355 kg)	3815 lbs (1730 kg)	4700 lbs (2130 kg)	5115 lbs (2320 kg)
Pump center of gravity	Lifting point location				
Impeller diameter	17" (430 mm), 20" (508 mm), 25" (635 mm), 26" (660 mm)				
Propeller diameter	20" (508 mm), 24" (610 mm)				

5.2 Hydraulic hoses

I.D.	¼"	½"	¾"
O.D.	0.58"	0.86"	1.10"
Quantity of braids	2	2	2
Service pressure	400 bar (5800 psi)	276 bar (4000 psi)	207 bar (3000 psi)

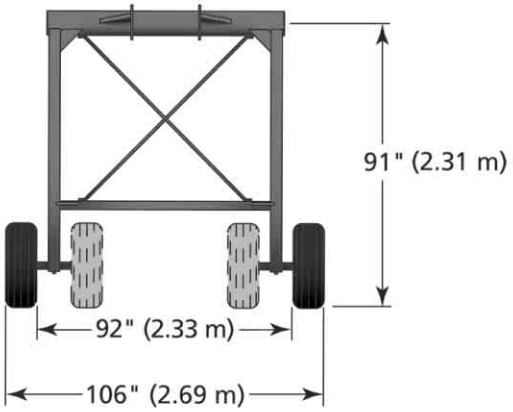
5.3 Undercarriage

Standard undercarriage



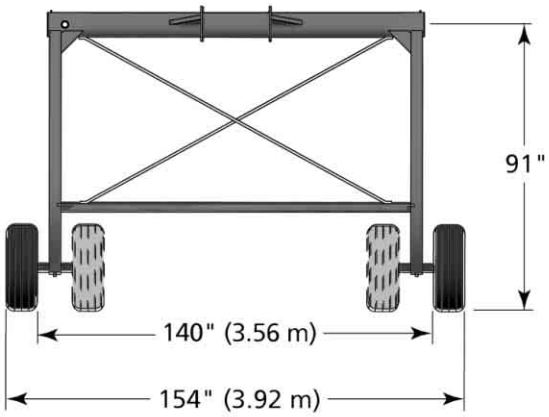
Height	60" (1,52 m)
Width (overall)	106" (2,69 m)
Weight	485 lbs (220 kg)

Heavy-duty undercarriage



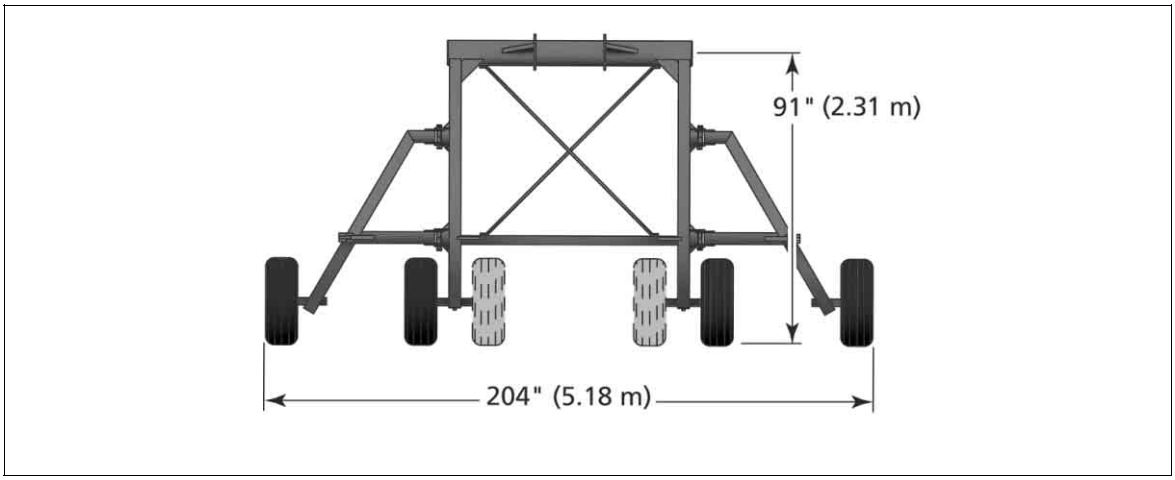
Height	91" (2,31 m)
Width (overall)	106" (2,69 m)
Weight	1080 lbs (490 kg)

Heavy-duty XL undercarriage



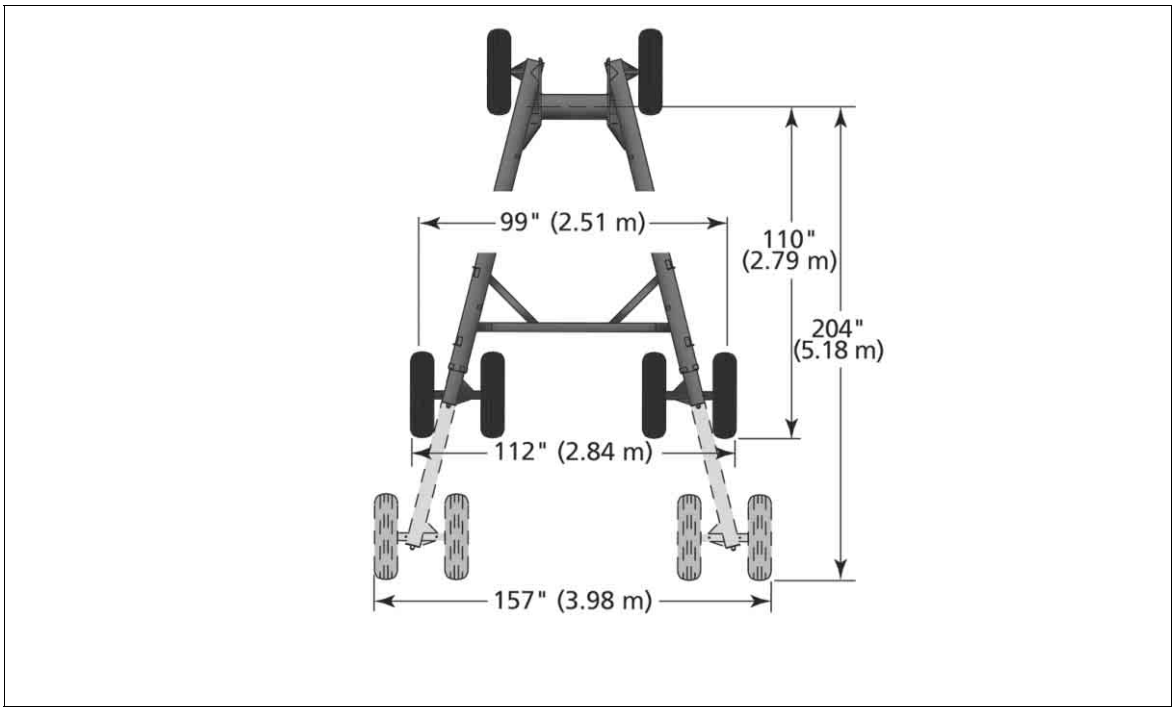
Height	91" (2,31 m)
Width (overall)	154" (3,91 m)
Weight	1265 lbs (575 kg)

Articulated stabilizer wheels undercarriage



Height	91" (2,31 m)
Width (overall)	204" (5,18 m)
Weight	1600 lbs (725 kg)

Multipurpose undercarriage



Height	204" (5,18 m)
Width (overall)	157" (3,98 m)
Weight	1850 lbs (840 kg)

5.4 Tire

Tire model	Ply	Pressure	Tire dimensions (inches/mm)	Weight (tire without rim)
16.5L X 16.1	8	26 psi (1.8 bar)	**Diameter 30.3/770 Width 10.7/272**	31 lbs (14 kg)

5.5 Tractor specifications

Minimum tractor power	80 HP	160 HP
PTO RPM required	540 RPM	1000 RPM

5.6 Performance data

	Lagoon Agi-Pompe length				
	32' (9,8 m)	**42' (12,8 m)**	**52' (15,9 m)**	**62' (18,9 m)**	**72' (22 m)**
Maximum effective depth	14' (4,3 m) slope of 2 to 1	18' (5,5 m) slope of 2 to 1	22' (6,7 m) slope of 2 to 1	20' (6,1 m) slope of 3 to 1	22' (6,7 m) slope of 3 to 1
Maximum manure consistency for agitation	1½" (38 mm)				
Maximum manure consistency for transfer	¾" (19 mm)				
Operating temperature	5°C (41°F) minimum				

5.7 Bolt torque chart

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)

5.8 Lubricant specifications

Lubricant type	Brands / Specifications	Purpose
Biodegradable oil	Use this brand (or equivalent): ● PPG Chemil Chemlube Agri-eco 1000	● To spray on the equipment
Synthetic grease for ball bearing intensive use	Use this brand (or equivalent): ● TRC #880 Crown and Chassis	● To grease the universal joints of the PTO ● To lubricate the ball bearings of the gearbox ● To lubricate the ball bearings of the jack shaft
All-purpose grease	Use this brand (or equivalent): ● EP2 mineral grease	● To lubricate the equipment ● To seal the gearbox chambers
Silicone	Use this brand (or equivalent): ● Red High temp Loctite silicone	● To seal the impeller housing
Gearbox oil	● SAE 80W90	● To fill the gearbox

6 Handling and assembly

6.1 Special personnel qualification required for handling

Handling must be performed by a qualified forklift operator and/or qualified overhead crane or hoist operator.

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

Refer to section Safety - Personnel qualifications.

6.2 Safety instructions for handling and assembly

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

Caution!
Sharp edges may cause injuries.

Read the section Safety.

6.3 Preparation

6.3.1 Handling tools

Attention!
To lift the equipment, use a lifting device with a minimum capacity of: 5500 lbs (2500 kg).

	Description	Purpose
	Forklift truck	To lift the pump, the undercarriage and accessories
	Safety chains	To lift the undercarriage

6.3.2 Installation tools

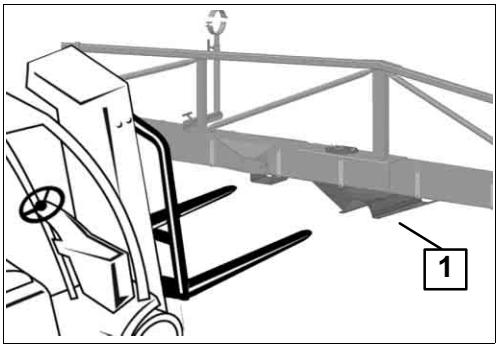
	Description	Purpose
	Wrench set	To tighten bolts
	Ratchet tool set	To tighten bolts
	Torque wrench	To tighten bolts at specified torque

6.4 Packing material disposal

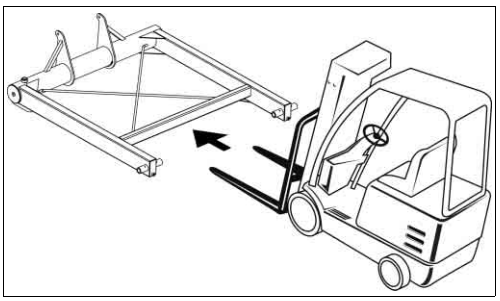
Handle the packing material properly and dispose according to your local rules and regulations on waste disposal. Please refer to your local resources for any questions. Recycle if possible.

6.5 Handling the product and accessories

- To lift the pump, insert a fork of a forklift truck in the axle collar (1) under the beam and insert the other fork of the forklift truck in the channel welded under the beam.



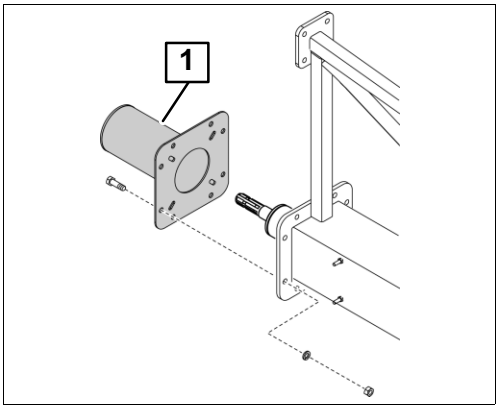
- To lift the pump, in the case of a split frame, insert the forks of a forklift truck in the channels welded on the beam of each section.
- To lift the undercarriage frame, use a forklift truck.



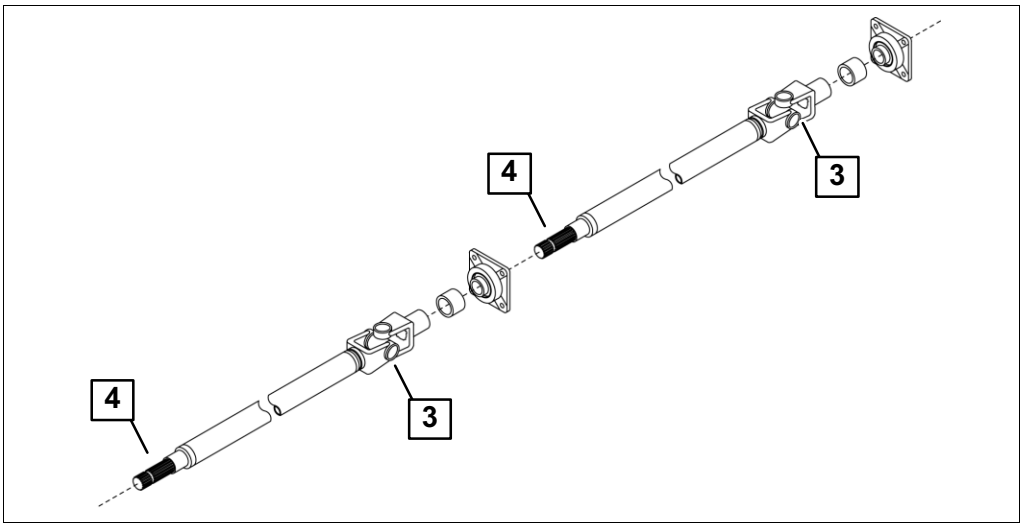
6.6 Lagoon Agi-Pompe assembly

Lagoon Agi-Pompe split version

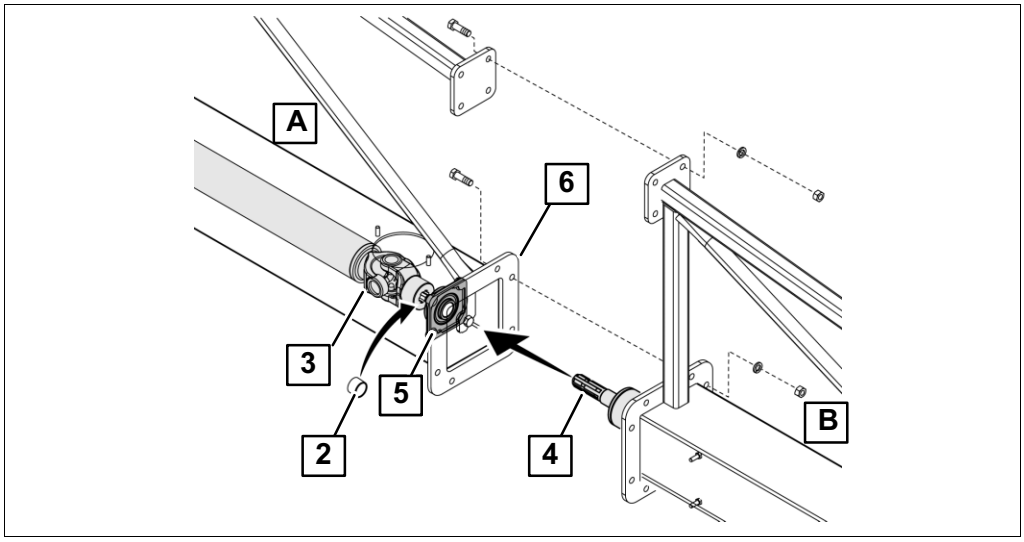
- Remove driving shaft protective device (1);



- Place the front pump section (A) on skids;
- Using a crane, lift the rear pump section (B) and align it for assembly;
- Remove top covers to get access to the drive shaft, bearing and universal joints (3);
- Before assembling, make sure universal joints (3) are in the same position on both pump sections. If needed, rotate the shaft (4);

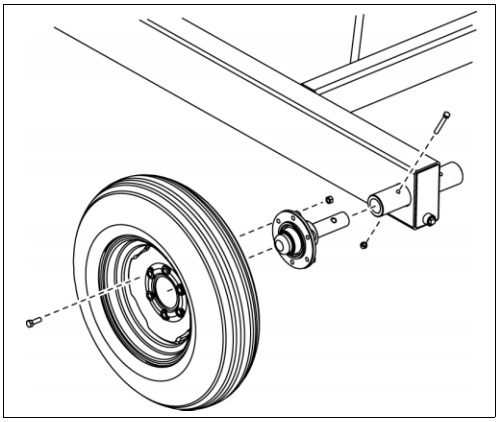


- Apply silicone all over the flange (6);
- Using the crane, carefully move and align the pump section to insert the driving shaft (4) through the bearing (5);
- Place the sleeve (2) over the drive shaft end (4), between the bearing (5) and the universal joint (3). (Note: the sleeve is attached to the universal joint for shipping purpose);
- Insert the drive shaft end (4) through the universal joint (3). Do not lock yet;
- Bolt sections using provided hardware. Torque;
- Secure the universal joint with an Allen key;
- Connect hydraulic hoses on the frame side.

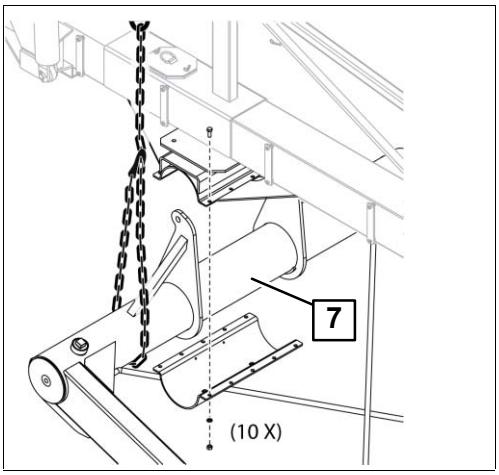


Standard, heavy-duty and heavy-duty XL undercarriages

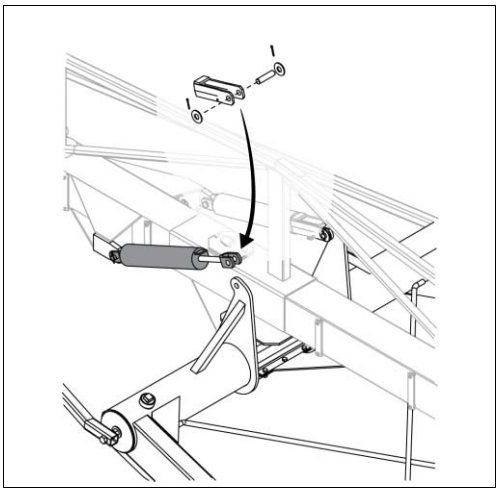
- Fix the hubs to the undercarriage frame, then install the wheels;

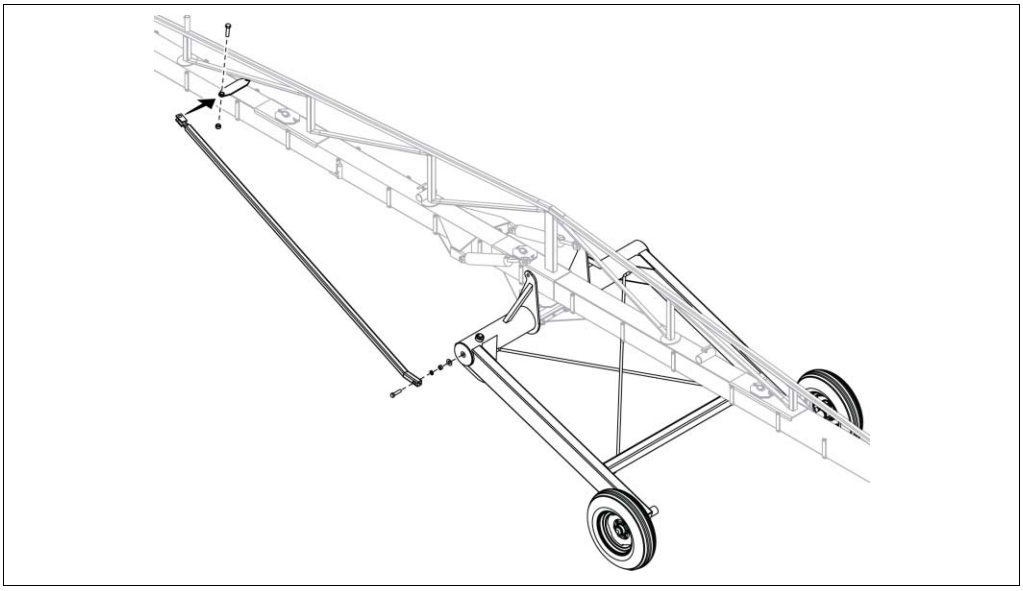


- Once the undercarriage is assembled, lift the pump over the undercarriage;
- Using a brush, apply all purpose grease over the pivot section (7);
- Lift the undercarriage to align it with the axle collar, then bolt both collars together using provided hardware. Torque;



- Install the cylinder(s) and the cylinder lock(s) as illustrated hereafter;

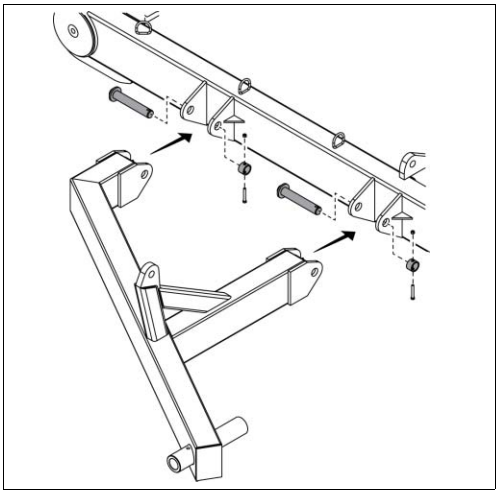




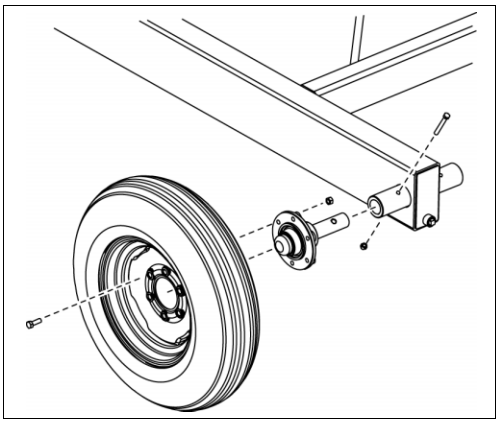
- Install the tension arms on both sides of the pump (HD and HD XL undercarriages).

Heavy-duty undercarriage with articulated stabilizer wheels (optional)

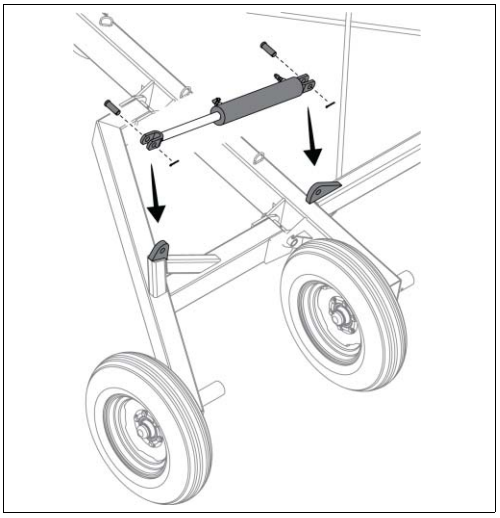
- Install both side stabilizer wheel frames on the undercarriage as illustrated hereafter;



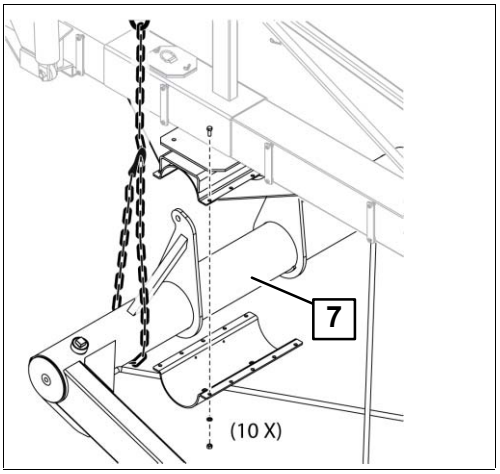
- Fix the hubs to the undercarriage frame, then install the wheels;

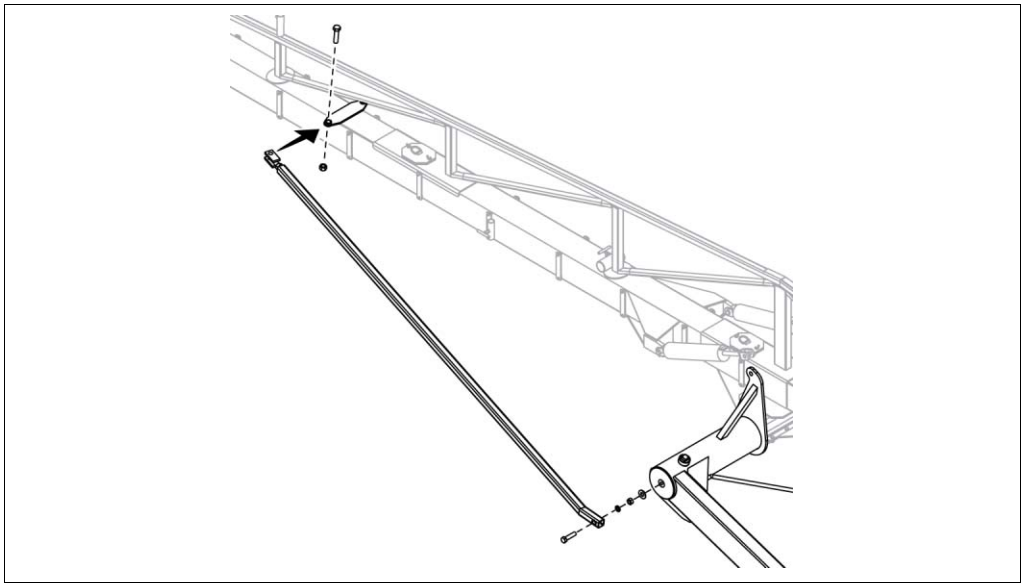


- Install the cylinder from the side stabilizer wheel frame to the undercarriage frame on both sides. Connect the hydraulic hoses to the cylinders;

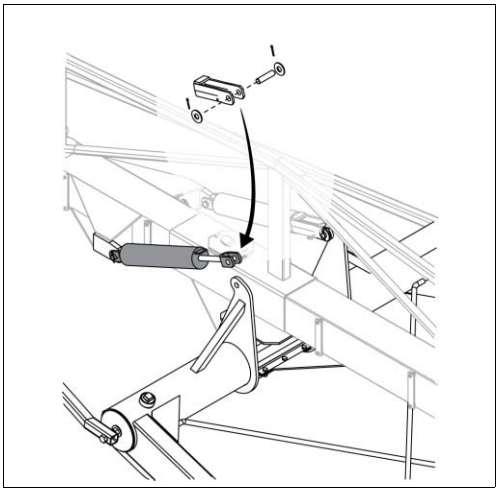


- Once the undercarriage is assembled, lift the pump over the undercarriage;
- Using a brush, apply all purpose grease over the pivot section (7);
- Lift the undercarriage to align it with the axle collar, then bolt both collars together using provided hardware. Torque;

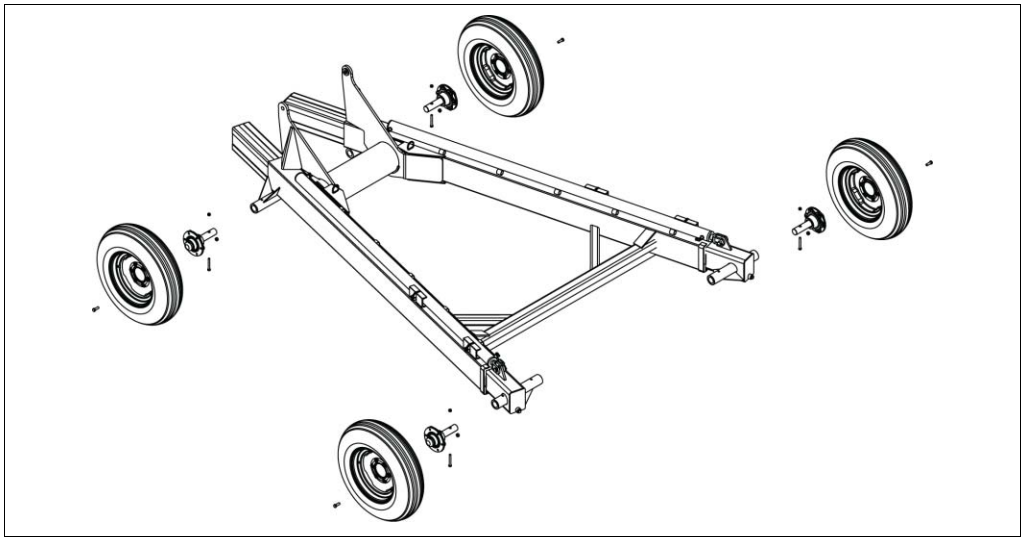




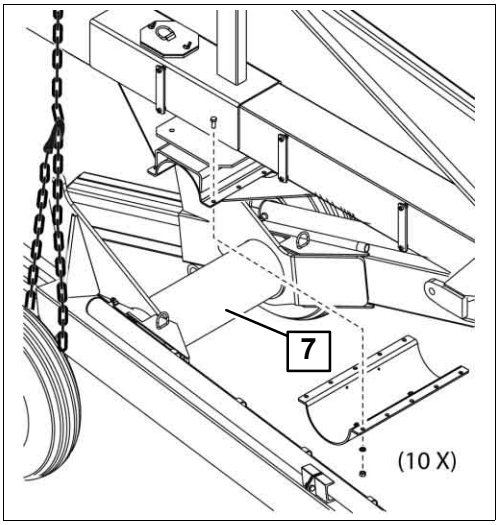
- Install the tension arms on both sides of the pump as illustrated above;
- Install the cylinder(s) and the lock cylinder(s) as illustrated hereafter.



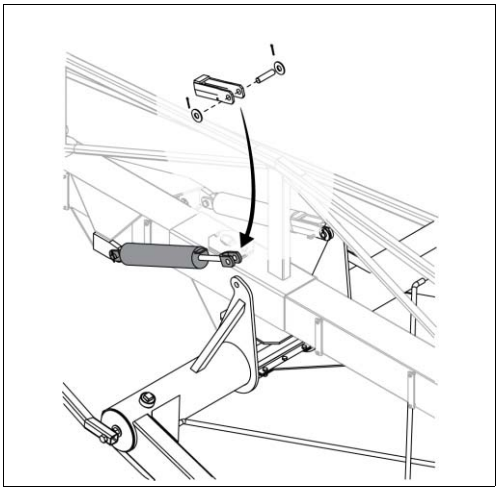
Multipurpose undercarriage (optional)



- Fix the hubs to the undercarriage frame, then install the wheels;
- Once the undercarriage is assembled, lift the pump over the undercarriage;
- Using a brush, apply all purpose grease over the pivot section (7);
- Lift the undercarriage to align it with the axle collar, then bolt both collars together using provided hardware. Torque;

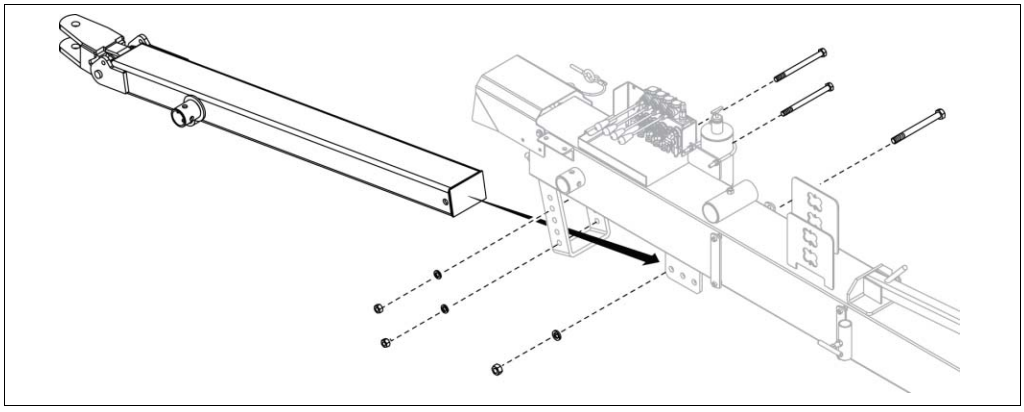


- Install the cylinder(s) and the lock cylinder(s) as illustrated hereafter.



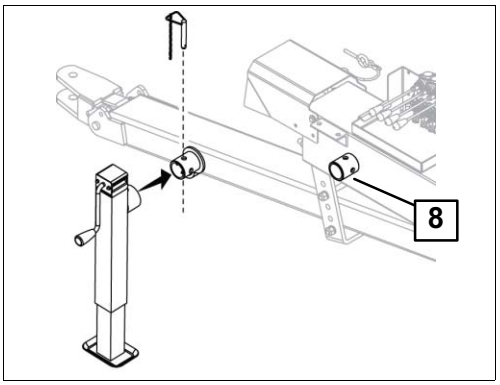
Draw bar

- Install the draw bar on the pump using provided hardware.



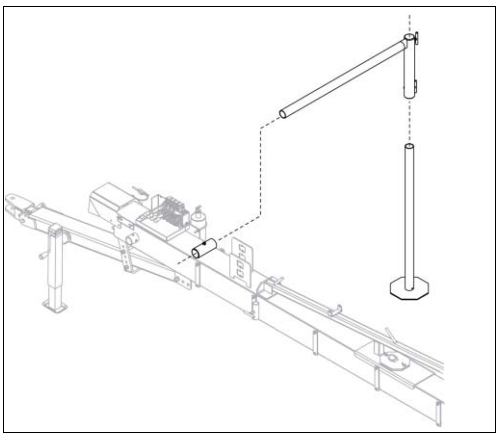
Jack

- Install the jack using provided hardware;
- When the pump is connected to the tractor, install the jack to the transportation support (8).



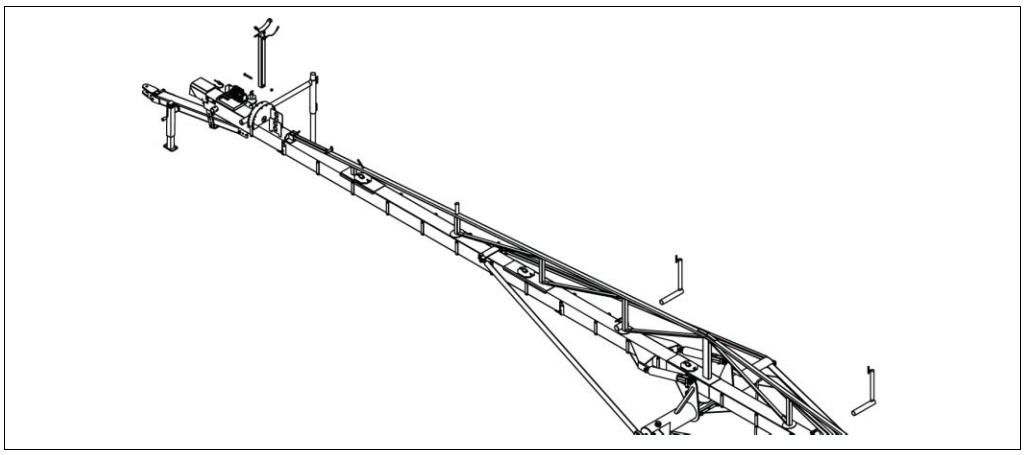
Stabilizing leg (on Lagoon Agi-Pompe with standard, heavy-duty and heavy-duty XL undercarriages only)

- Install the stabilizing leg as illustrated hereafter.

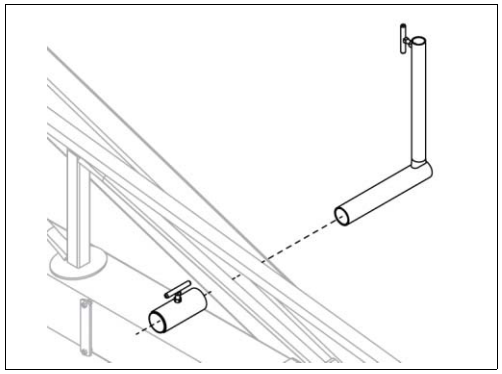


- At this point, the Lagoon Agi-Pompe can stand safely on the ground by adjusting the jack and the stabilizing leg adequately.

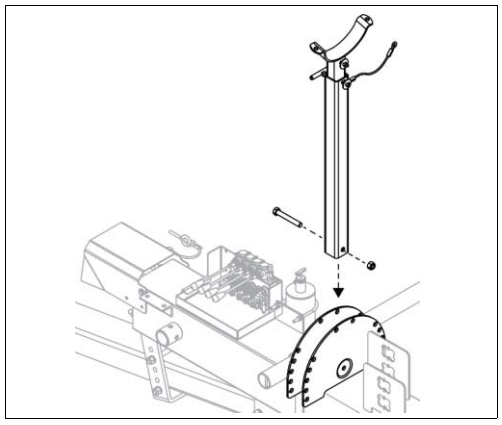
Auxiliary pipe supports



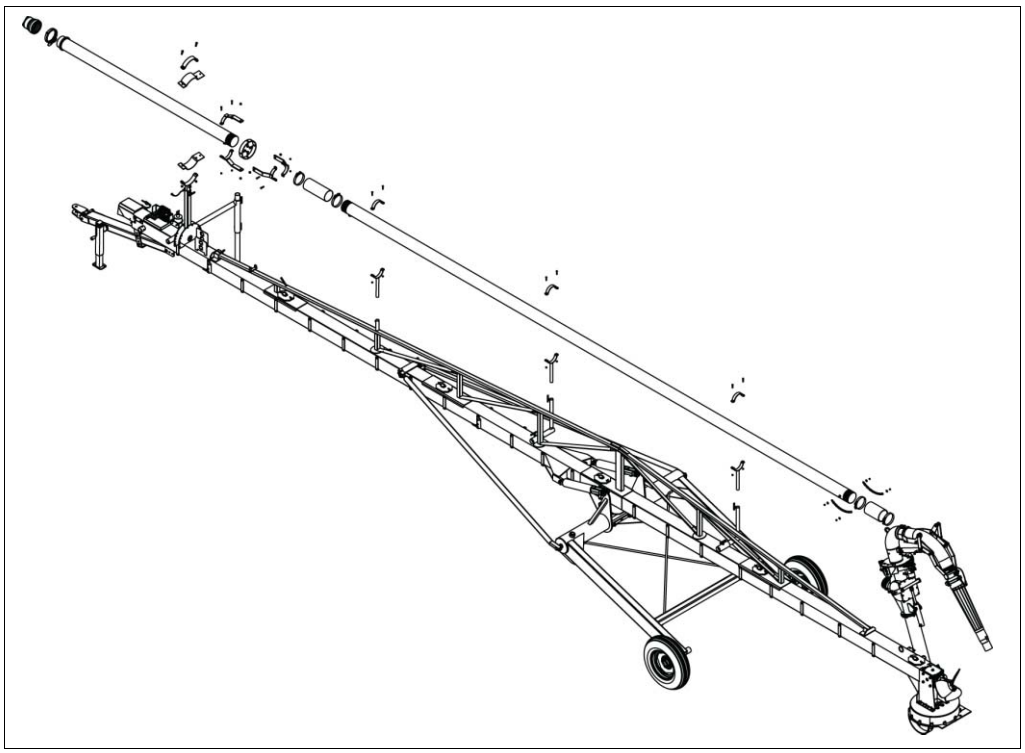
- Install the auxiliary pipe support as illustrated hereafter.



- Install the pivoting support as illustrated hereafter.

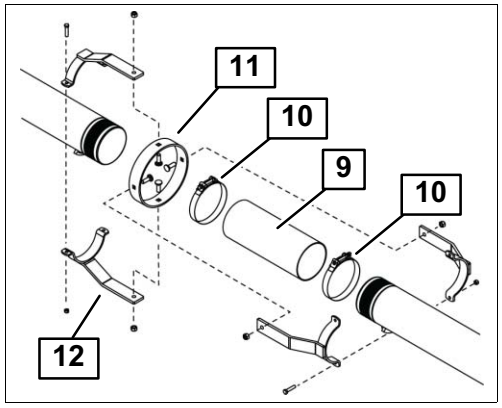


Auxiliary pipe

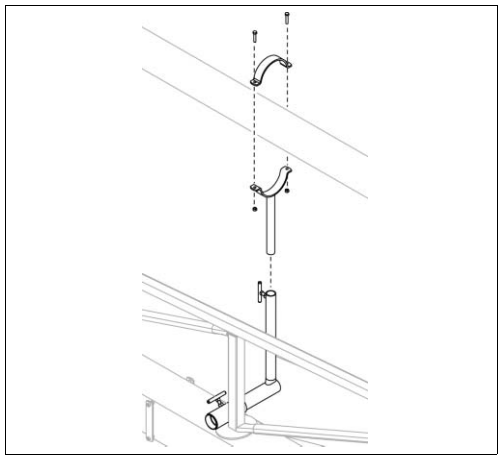


Hinged joint

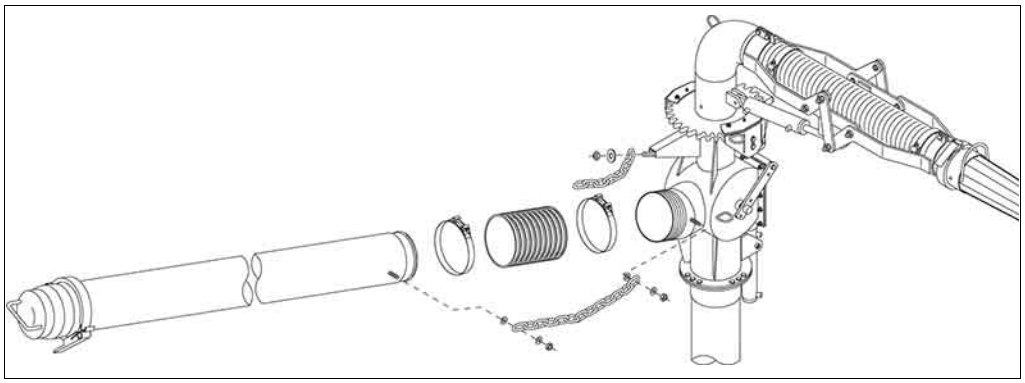
- Connect the flexible hose (9) to the fixed auxiliary pipe using clamps (10);
- Install the hinged support (11) and tighten the half clamp supports (12) on the pipe;



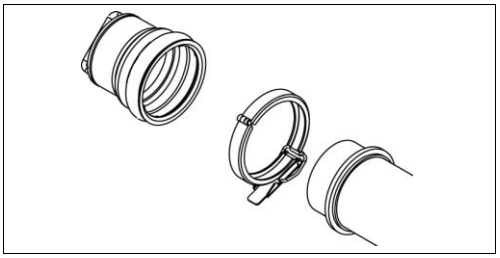
- Install the auxiliary pipe on the supports as illustrated hereafter;



- Install the auxiliary pipe on the directional valve using two collars and a hose;
- Install the safety chains between the auxiliary pipe and the directional valve tight enough to make sure it retains the pipe;

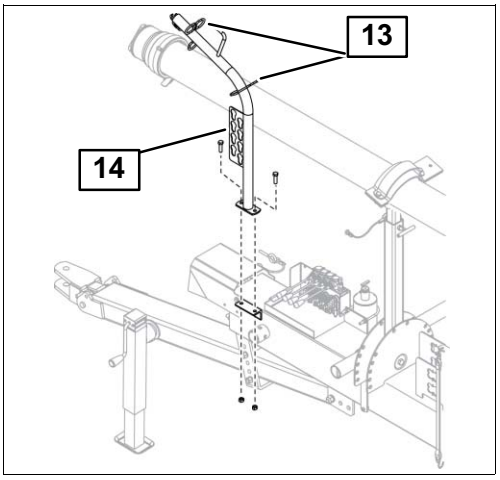


- Install the safety cap on the auxiliary pipe end using a circle lock.



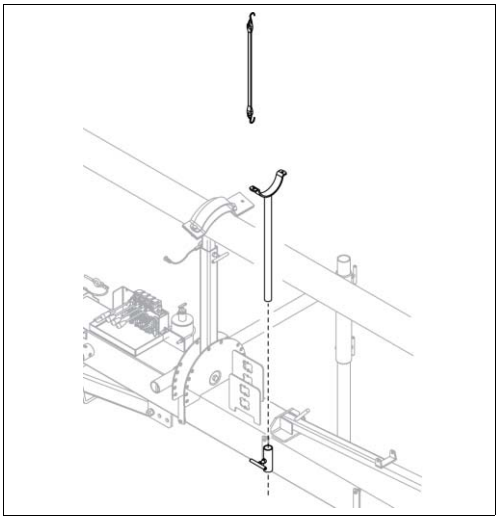
Hydraulic hoses support

- Install the support;
- Insert the hydraulic hoses in the rings (13);
- Install the hydraulic connectors in the support (14).



Loading pipe supports

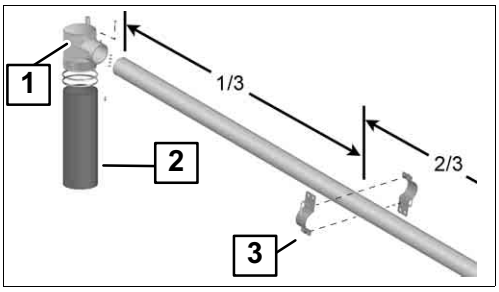
- Install the loading pipe supports as illustrated hereafter.



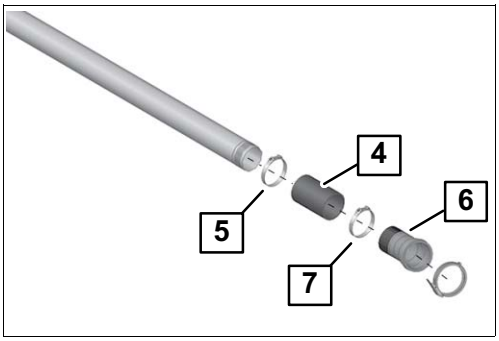
6.7 Loading pipe assembly

Loading pipe on tripod

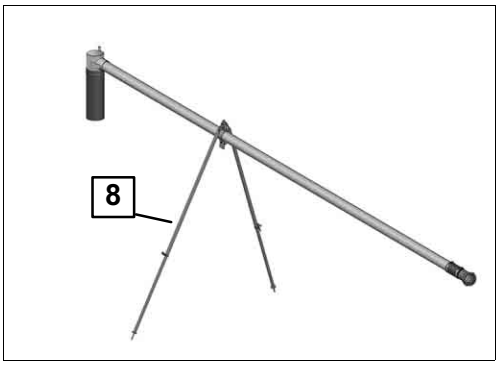
- Install the elbow (1) on the loading pipe end using provided hardware;
- Install the hose (2) using clamps;
- From the elbow, find the location equals to ⅓ of the loading pipe total length and install the clamp for tripod (3);



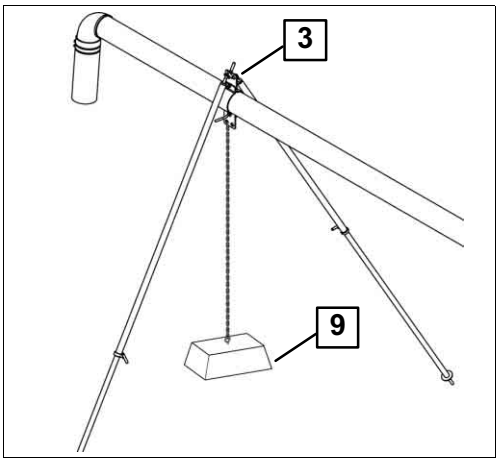
- At the other end of the loading pipe, install the hose (4) using a clamp (5);
- Install the adaptor (6) using a clamp (7);



- Install the tripod (8) to hold the loading pipe;

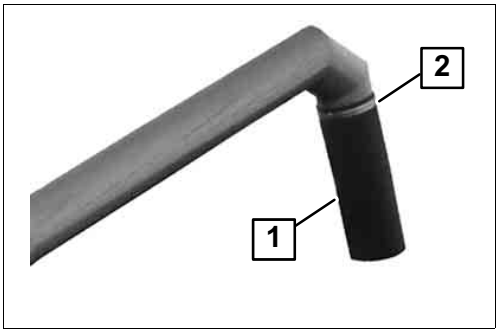


- If the tripod is used, hang a weight (9) to the clamp for tripod (3) to prevent the pipe from lifting.

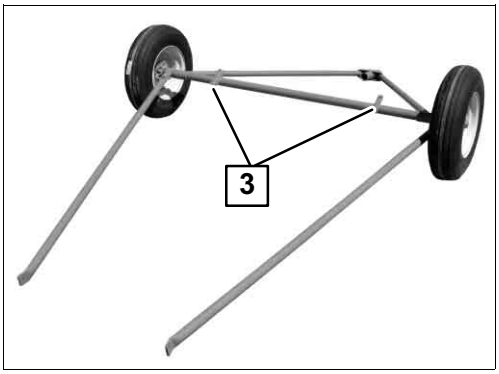


Loading pipe on wheels

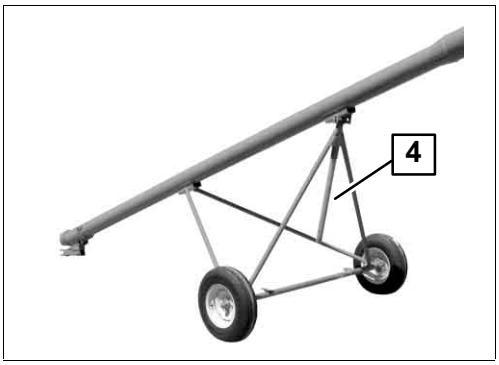
- Assemble both loading pipe sections using the rubber gasket, the nuts and bolts provided;
- Install the hose (1) using clamps (2);



- Install the wheels using provided hardware;
- Unfold the frame;
- Make sure the basket supports (3) are facing up;

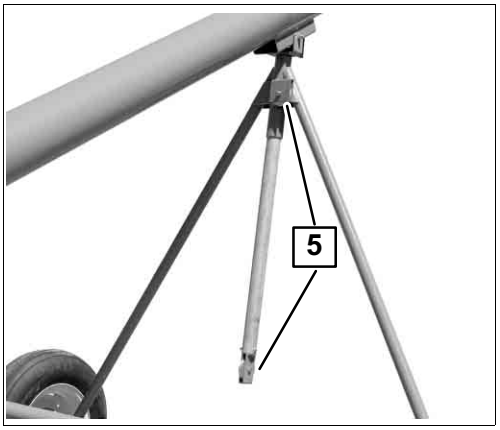


- Install the lifting tube (4) through the triangle support;
- Fix the support on wheels to the loading pipe using provided hardware;

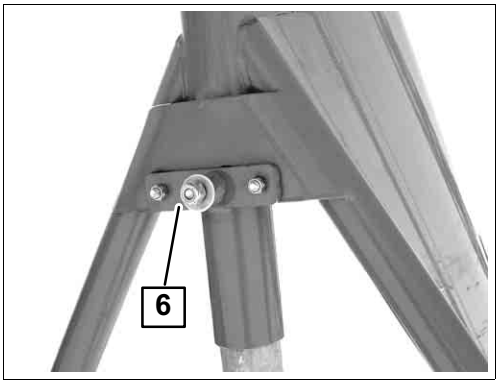


For a standard support on wheels, perform the following steps:

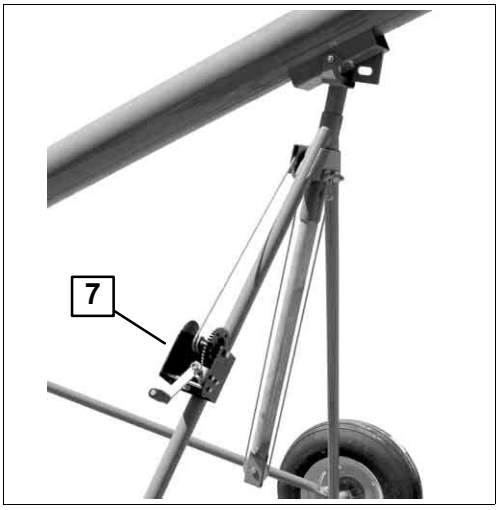
- Install the pulleys (5) on the lifting tube;



- Install the mounting plate (6) for cable;



- Assemble the winch handle;
- Install the winch (7) at the desired height;
- Firmly attach one end of the cable to the cable mounting plate;
- Run the other end of the cable through the pulleys then wind the cable on the winch;
- Operate the lifting mechanism to make sure it works properly;



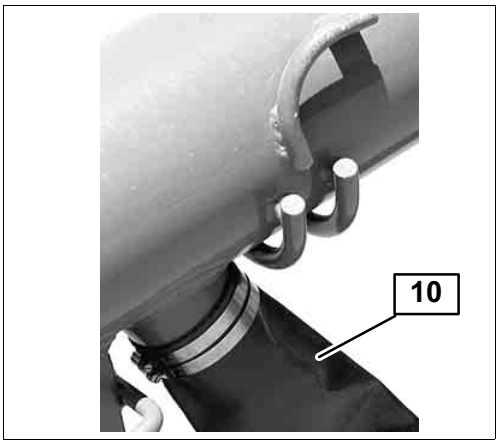
For a support on wheels equipped with the hydraulic cylinder option, perform the following steps:

- Assemble the hydraulic cylinder (8);
- Connect the hydraulic hoses to the tractor;
- Operate the lifting mechanism to make sure it works properly;

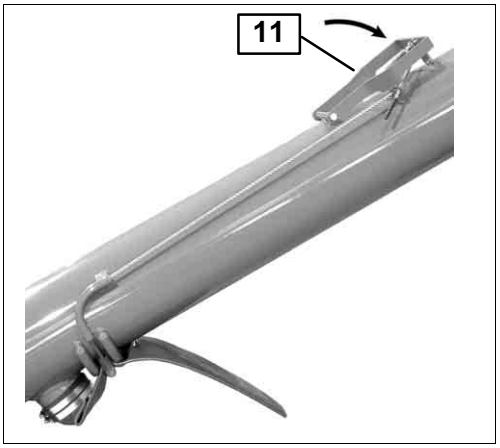
Perform the following steps for both types of support on wheels:

- Fix the basket (9) on the basket supports;

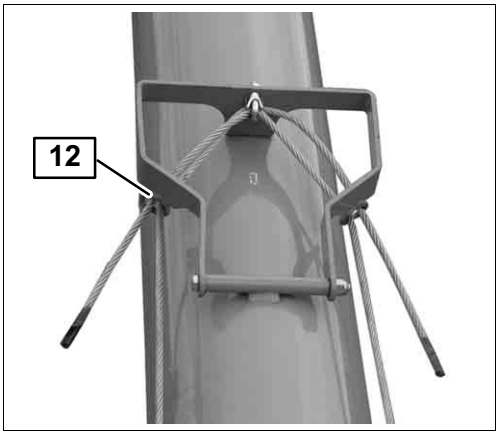
- Install the hose (10) on the drain outlet using clamps;



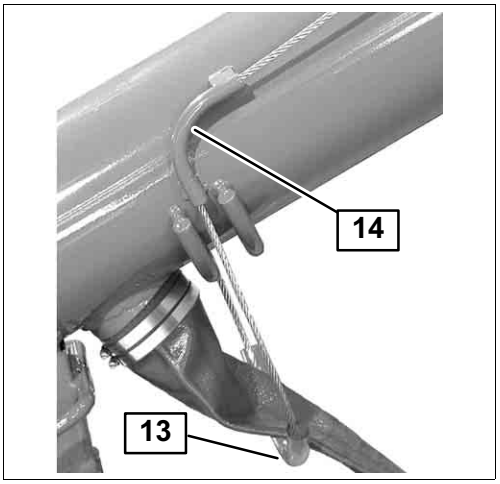
- Assemble the drain handle (11) in closed position;



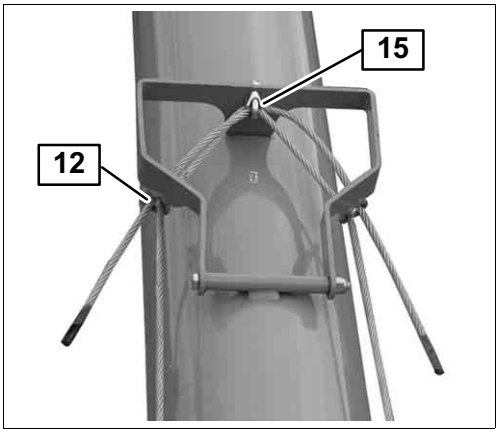
- Make sure the cable eyelets (12) on the handle are facing down;



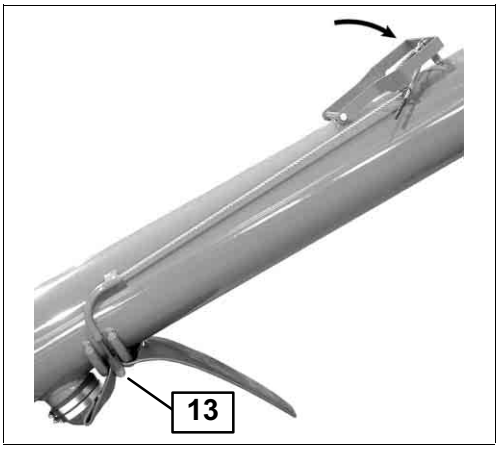
- Slide the clear hose (13) halfway on the steel cable;
- Slide the cable ends in the cable guides (14) on each side of the loading pipe;



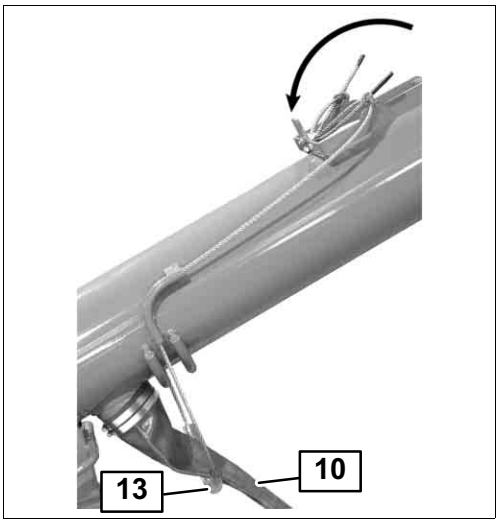
- In order to adjust the tension of the cable, set the handle in closed position;
- Run the cable ends through the cable eyelets (12);
- Attach both cable ends together using the cable clamp (15);



- Adjust both cable ends evenly so that the clear hose (13) touches the 8" pipe;
- Tighten the cable clamp;



- Move the handle in open position;
- Run the hose (10) over the clear hose (13);
- Operate the handle a few times to make sure it works properly.



7 Initial commissioning

7.1 Special personnel qualification required for initial commissioning

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

Read the section Safety - Personnel qualifications.

7.2 Safety instructions for initial commissioning

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

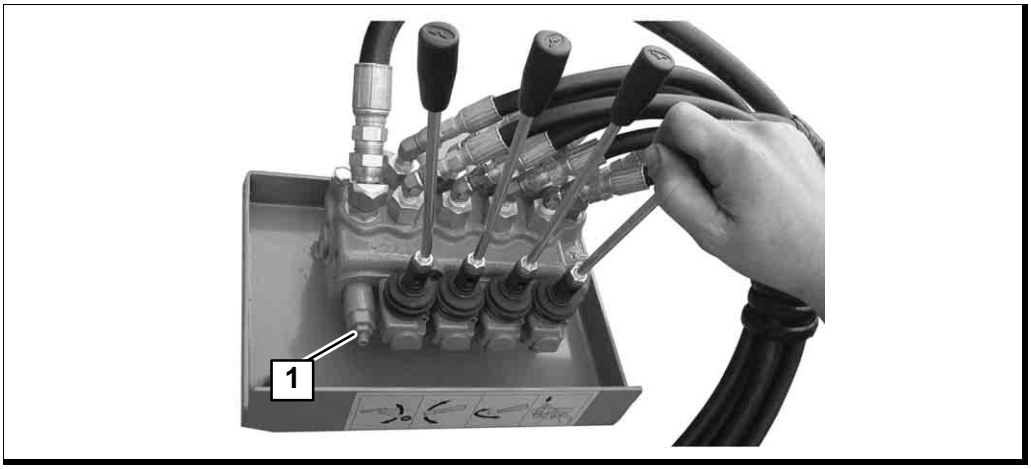
Warning!
PTO driveline must always be activated when the pump is immersed in manure/water. Running the pump out of manure/water may result in damage.

Caution!
Unexpected movements may happen if tractor hydraulic connections are mixed up.

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

7.3 Hydraulic control valve setup

7.3.1 Relief valve



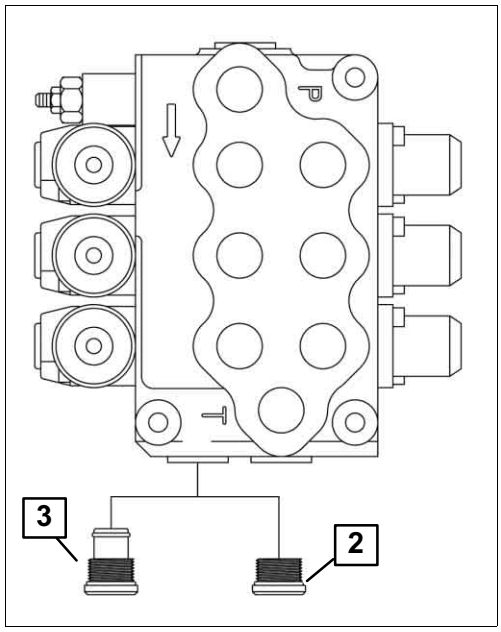
The relief valve (1) on PTO pumps is preset to 1500 PSI by the manufacturer of the valve. If hydraulic pressure is not sufficient to operate one or many pump functions, adjust the relief valve (1) by screwing the nut gradually until the pump operates properly.

7.3.2 Power steering control valve

Attention!
Since tractors can be equipped with an open or a closed hydraulic system, the control valve must be set with the appropriate plug to avoid overheating/damaging hydraulic components. Contact your tractor dealer.

Use the appropriate plug in order to match the tractor hydraulic system:

- The standard plug (2) is required for tractor equipped with an open hydraulic system.
- The beyond plug (3) is required for tractor equipped with a closed hydraulic system also called load sensing in some cases.



Note!
A new equipment always comes with two plugs, a standard plug installed on the valve and a beyond plug supplied separately. Make sure to install the appropriate plug.

Plug change

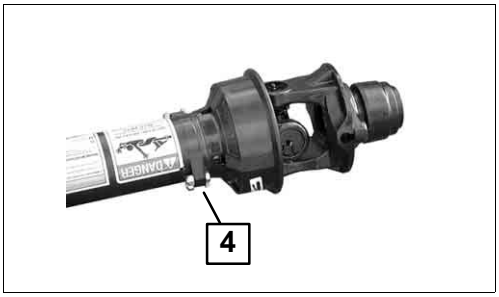
Attention!
Oil leak will occur when changing the plug.

Note!
Make sure the undercarriage and the tractor wheels are perfectly aligned before adjusting the control valve.

- Apply Teflon tape on the threads of the beyond plug (3). Do not apply Teflon tape on the tip of the plug.
- Unscrew the standard plug (2) and replace immediately by the beyond plug (3).

7.4 Spare safety shear bolts

- Remove and save the extra safety shear bolts (4).



Shear bolts replacement

Tractor PTO	Part No.	Dimensions	Gr.	Quantity
1⅜" - 6 splines	2010-7505-710	⅜"-16NC x 1	8	2
1⅜" - 21 splines	2010-7505-720	⅜"-16NC x 1	2	2
1¾" - 20 splines	2010-7505-720	⅜"-16NC x 1	2	2

7.5 Initial commissioning checklist

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

☞ **Note!**
Additional information necessary to complete the checklist can be found in this instruction manual.

General	DONE	N/A
The owner received the instruction manual from the dealer and commits to read it.		
The owner is instructed by the dealer on how to operate and maintain the product.		
The Lagoon Agi-Pompe is connected to the tractor and secured with safety chains.		
The safety labels are installed.		
The lubrication points are lubricated.		
The oil levels are adequate.		
All bolts are torqued.		
All drains are closed.		
All connections are secured.		
A visual inspection is performed to ensure there are no leaks, signs of distortion or defective parts.		
The relief valve and the beyond plug are properly adjusted.		
The undercarriage wheel nuts are tightened to correct torque.		
The undercarriage tires are inflated at appropriate pressure.		
The tractor draw bar is adjusted to minimum length while respecting the PTO limitations.		
The pump impeller matches the tractor RPM.		
The PTO shaft is installed.		
The propeller knife kit is adjusted.		
The owner is instructed on the PTO driveline instructions.		
The spare safety shear bolts are removed from the PTO guards.		
The equipment/component provided by the owner comply with the specifications contained in section Technical data.		

Options	DONE	N/A
The owner is instructed on how to operate the articulated housing.		
The owner is instructed on how to operate and adjust the options of the system.		

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

Dealer's signature: _____

Owner's signature: _____

Date: _____

7.6 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 section: Description - Technical data - Bolt torque chart;
- the product works perfectly.

7.7 Handing over to the owner

Hand over warranty registration form

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

8 Operating

8.1 Special personnel qualification required for operation

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

Read the section Safety - Personnel qualifications.

8.2 Safety instructions for operation

Danger!
Beware of electrical power lines!
Operating the equipment near electrical power lines may result in fatal injuries or death. Make sure the equipment is operated in a secure environment. Refer to local electrical supplier regarding electrical safety.

Caution!
The operator must be installed beside the pump to activate hydraulic controls.

Attention!
To operate the equipment safely, the tractor operating the equipment must meet the tractor specifications given. Refer to the Technical data - Tractor specifications section.

- The equipment must always be attached to the tractor draw bar to prevent the PTO from separation.
- Be careful when positioning the pump in the pit. Move the tractor backward at low speed.
- Never leave the pump in operation without the supervision of a qualified operator.
- The tractor must be immobilized with parking brakes or wheel chocks to keep it from entering in manure storage.
- During operation, it is strictly forbidden to stand in the working area.

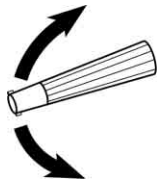
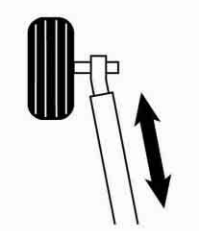
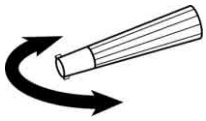
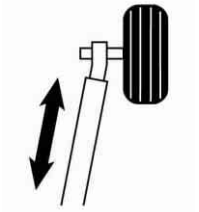
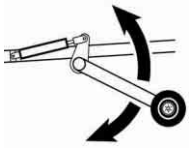
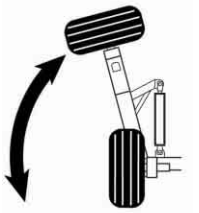
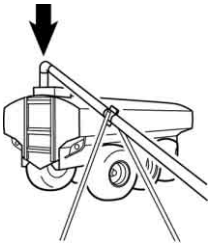
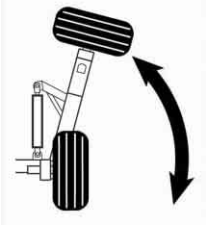
Read the section Safety.

8.3 Checks before operating

- The safety devices such as guards, covers, chains, labels, etc. remain in place to ensure safety;
- Lubricants such as grease, oil, etc. are at appropriate level. To locate the grease points, refer to section Appendix - Label position;
- The product is in perfect condition. There is no visible damage;
- Only authorized personnel are in the working area of the equipment;
- No unnecessary object or material is located in the working area of the equipment.

8.4 Description of controls

8.4.1 Hydraulic control

1	Agitation nozzle up/down	5	Telescopic leg (left side)
			
2	Agitation nozzle rotation	6	Telescopic leg (right side)
			
3	Articulated undercarriage	7	Articulated stabilizer wheel (left)
			
4	Directional valve agitation / loading	8	Articulated stabilizer wheel (right)
			

8.5 Connecting the Lagoon Agi-Pompe

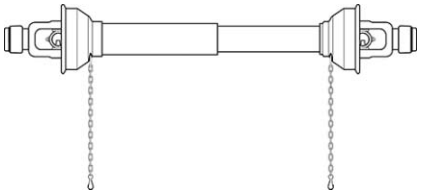
8.5.1 Draw bar connection

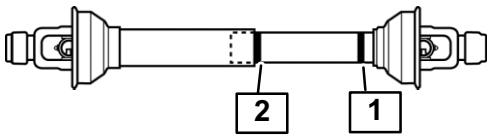
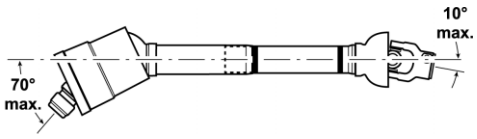
- Insert the tractor draw bar in the Lagoon Agi-Pompe hitch;
- Insert a 1" hitch pin through the draw bar to lock it in place;
- Order the part No. 2018-3802-420 (1" hitch pin) if needed;
- Secure the pin using a cotter pin.

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

8.5.2 PTO driveline connection

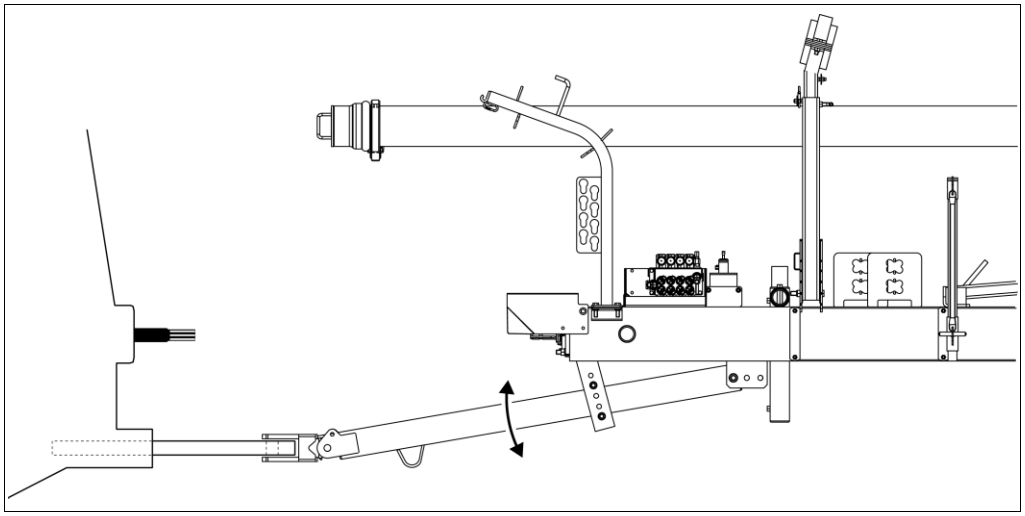
Danger!
There is a risk of being crushed between moving and stationary parts. It is strictly forbidden to stand in the danger zone. Turn off the tractor and apply the hand brake before connecting or disconnecting the PTO driveline.

Safety chains (European model only)	
Safety chains must be in place at all times to prevent the driveline guards from rotating. Replace if damaged.	
Make sure the safety chains do not restrict the driveline movement when operating or transporting the equipment.	
Never use the safety chains to secure the PTO when disconnected from the tractor.	

Maximum extension and retraction	
While operating the pump, never exceed the maximum point indicated by the adhesive tapes on the male guard.	
The minimum retraction indicator (1) must never disappear underneath the female guard.	
The maximum extension indicator (2) must never be completely visible.	
Maximum angle of PTO joints	
Constant velocity PTO driveline One PTO joint must be set at a maximum of 70º angle. The other PTO joint must be set at a maximum of 10º angle. **Standard PTO driveline** Both PTO joints must be set at the same angle (maximum 15º).	 
Joints must always be directed toward the same side of the driveline.	

8.5.3 Draw bar adjustment

Before connecting the PTO, make sure to comply with the maximum angle of PTO joints as stated above. The draw bar can be adjusted up and down to observe the maximum angle of PTO joints.



8.5.4 Component connection

Caution!
Connect the hydraulic hoses properly to ensure safe operation. Refer to section Appendix - Hydraulic diagrams.

Connect the Lagoon Agi-Pompe hydraulic hoses to the tractor. Double check all connections for safety purpose.

Connect the electrical outlet of the Lagoon Agi-Pompe to the tractor, if applicable.

8.6 Moving the Lagoon Agi-Pompe

Caution!
The hitch, tires, wheels, hubs and axles of the pump are designed for agricultural use only. They are not approved to be towed at any speed above 25 mph (40 km/h).

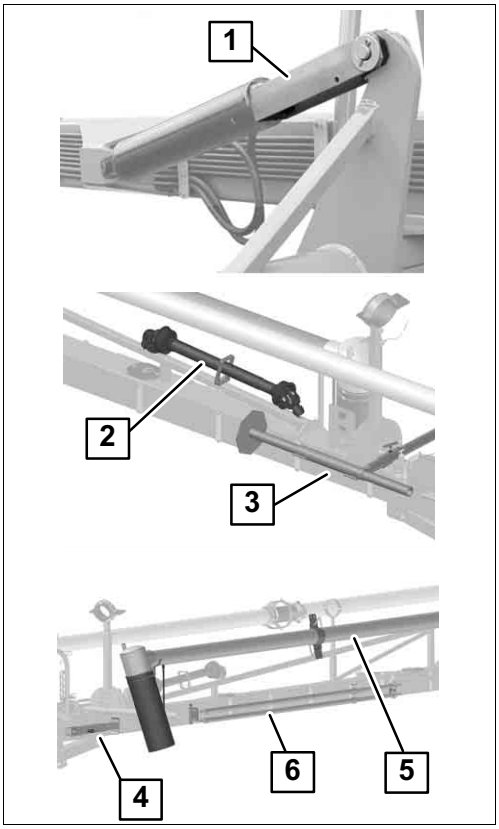
Caution!
The equipment has no braking system nor signal lights. It is designed to be towed strictly on the field by a farm tractor.

If the equipment needs to be towed on public road, the owner must adapt the equipment in accordance with local towing safety regulations.

For long distance transportation, use a truck or truck and trailer approved for public roads.

8.6.1 Basic preparation steps before moving the pump

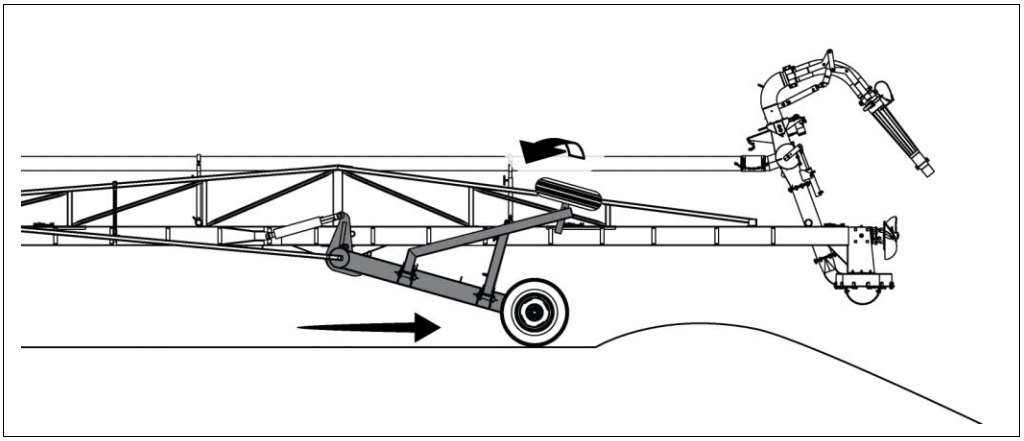
- Make sure the undercarriage cylinder(s) is/are in locked position (1).
- Disconnect the PTO (2) and install it on the pump frame.
- Retract the stabilizing leg (3) (if applicable).
- Install the jack on transportation support (4).
- Install the loading pipe (5) and tripod (6) in their supports (if applicable).
- Retract the stabilizer wheels if the articulated stabilizer wheels undercarriage is used.
- Retract the telescopic legs if the multipurpose undercarriage is used.



8.6.2 Moving the Lagoon Agi-Pompe with articulated stabilizer wheels undercarriage

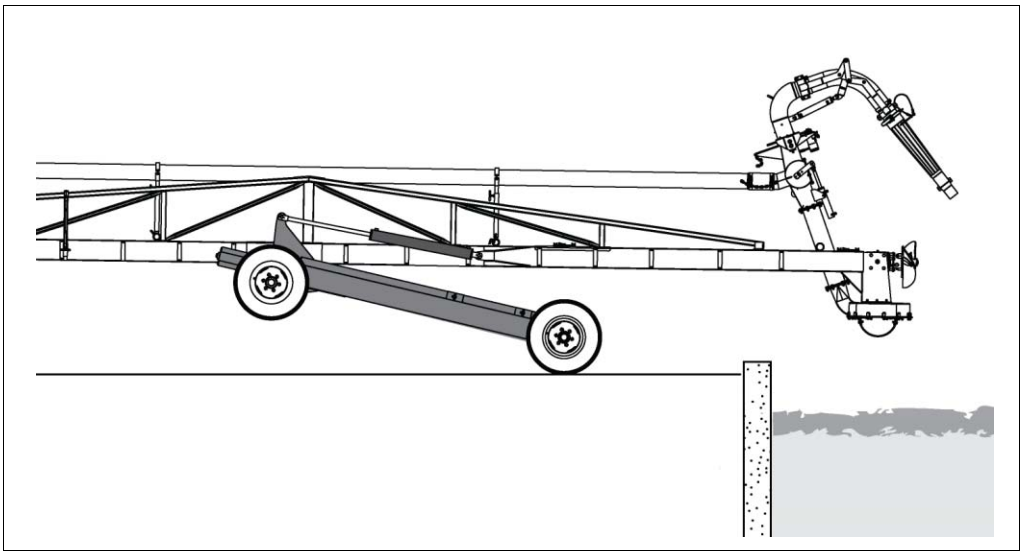
Danger!
Always lift the stabilizer wheels while moving the pump.

Before moving, perform steps in section: Basic preparation steps before moving the pump.



8.6.3 Moving the Lagoon Agi-Pompe with multipurpose undercarriage

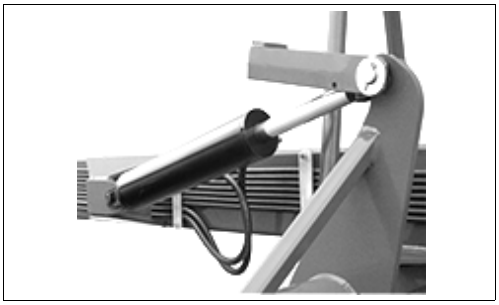
Before moving, perform steps in section: Basic preparation steps before moving the pump.

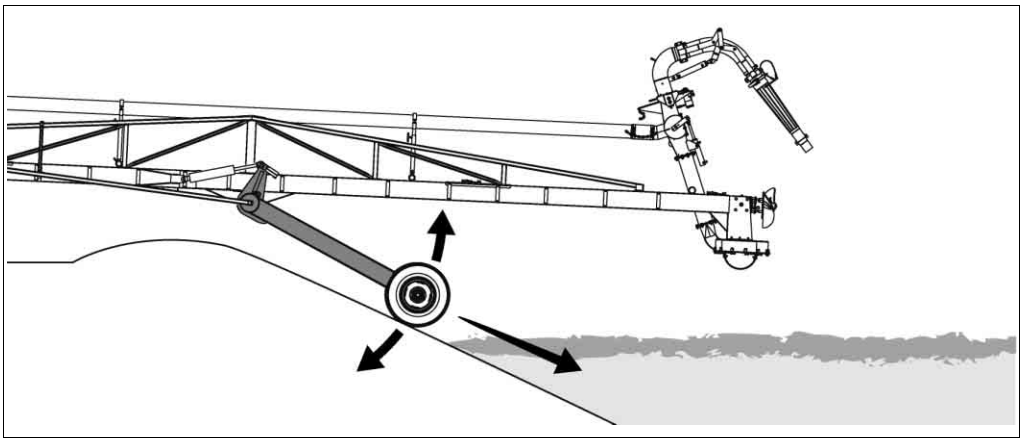


8.7 Positioning the pump

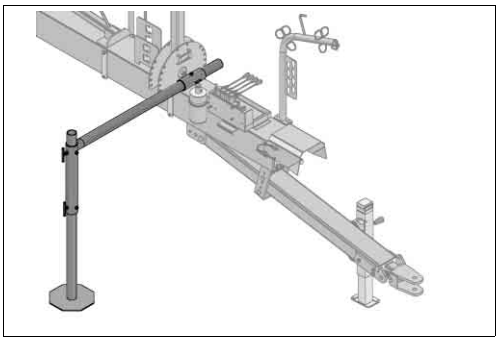
8.7.1 In a lagoon

- Make sure the undercarriage cylinder(s) is/are in unlocked position;



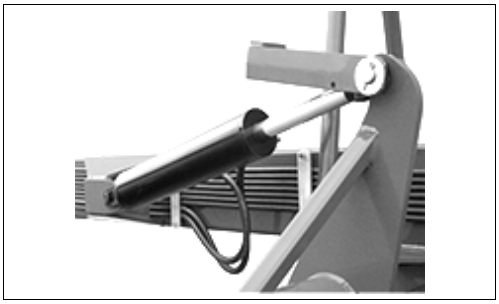


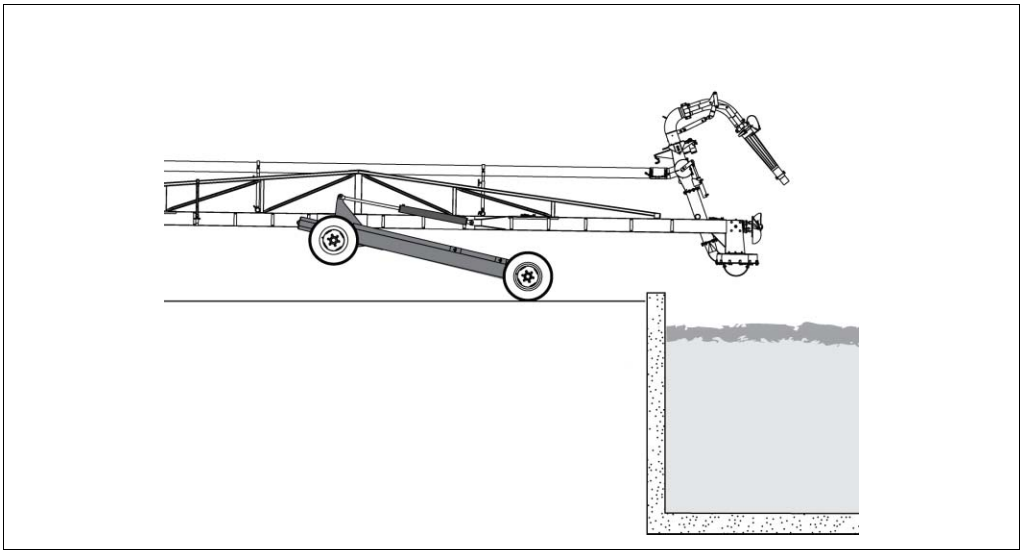
- Connect the PTO;
- Lower the stabilizer wheels (if applicable);
- Move the pump backward into the lagoon;
- Lower the impeller into the manure until the propeller is fully immersed making sure the agitation nozzle is out of liquid;
- Once the pump is positioned, apply tractor safety brakes;
- Secure the pump with the stabilizing leg as illustrated hereafter (if applicable).



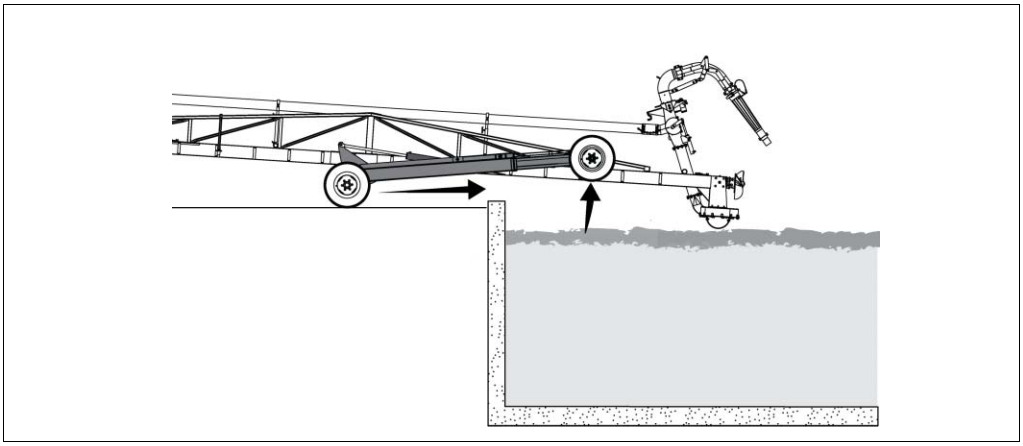
8.7.2 In a concrete reservoir (using the multipurpose undercarriage only)

- Make sure the undercarriage cylinder(s) is/are in unlocked position;

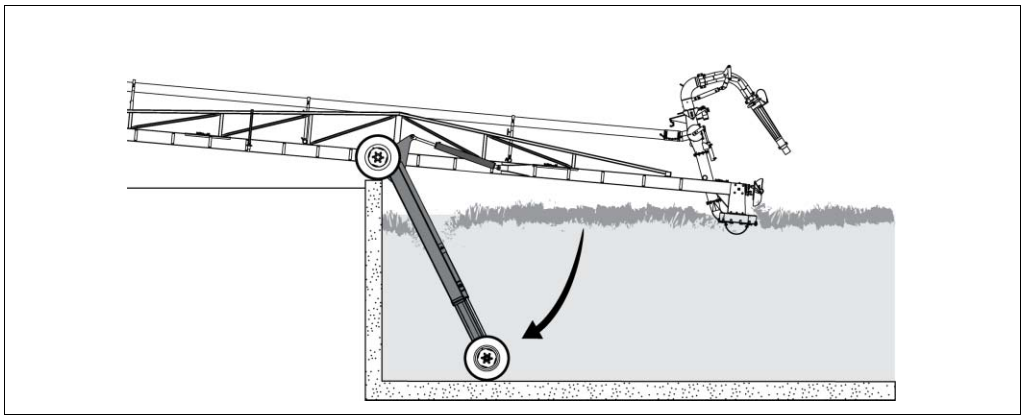




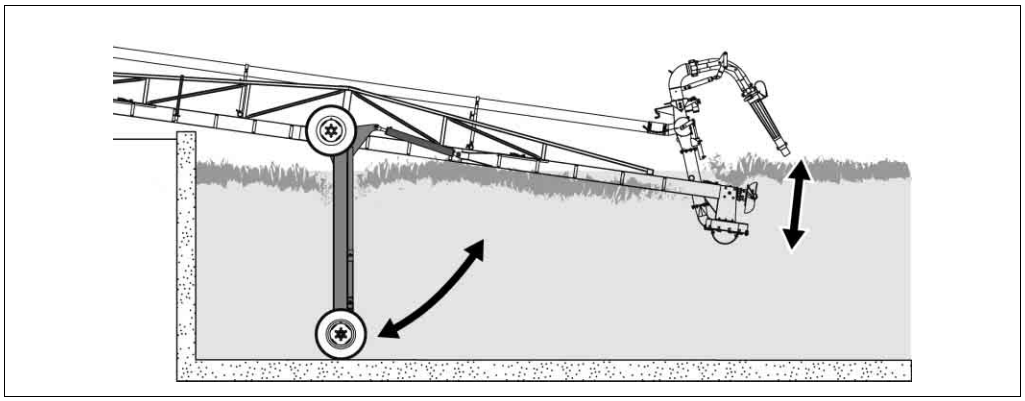
- Connect the PTO;
- Swivel the undercarriage for the front wheels to touch the ground;
- Move the pump backward until the front wheels touch the wall;



- Swivel the undercarriage in vertical position;



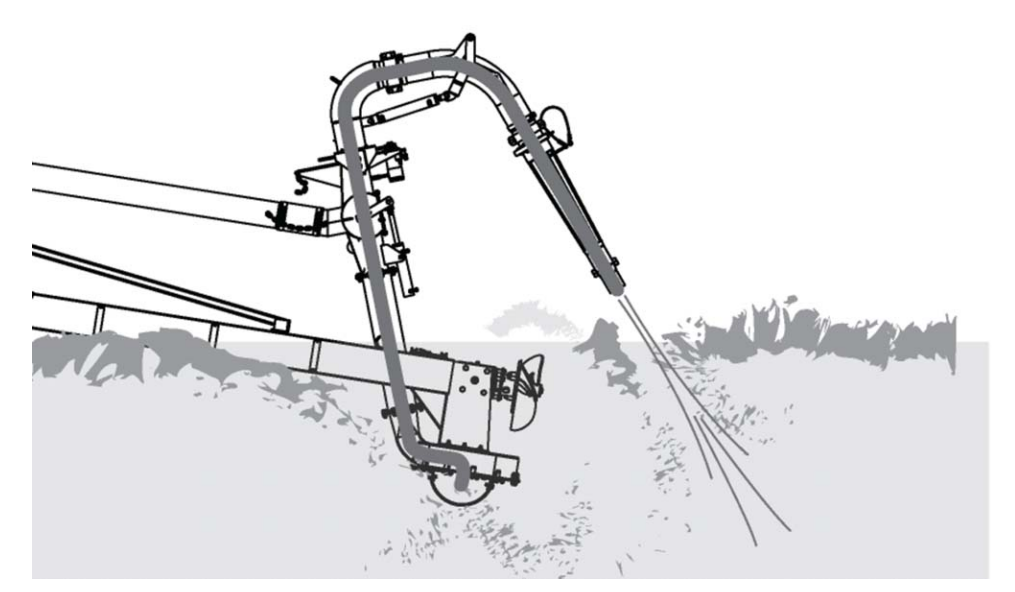
- Extend the telescopic legs until they touch the bottom of the pit;



- Move the pump backward;
- Lower the impeller into the manure until the propeller is fully immersed making sure the agitation nozzle is out of liquid;
- Once the pump is positioned, apply tractor safety brakes.

8.8 Agitation mode

- Set the valve in agitation mode;
- Point the nozzle in the desired position;
- Start the PTO driveshaft at low RPM to start agitation then increase RPM progressively;
- Once manure is homogenized, decrease RPM before switching to transfer mode;
- The articulated housing option makes manure homogenization faster (not illustrated).

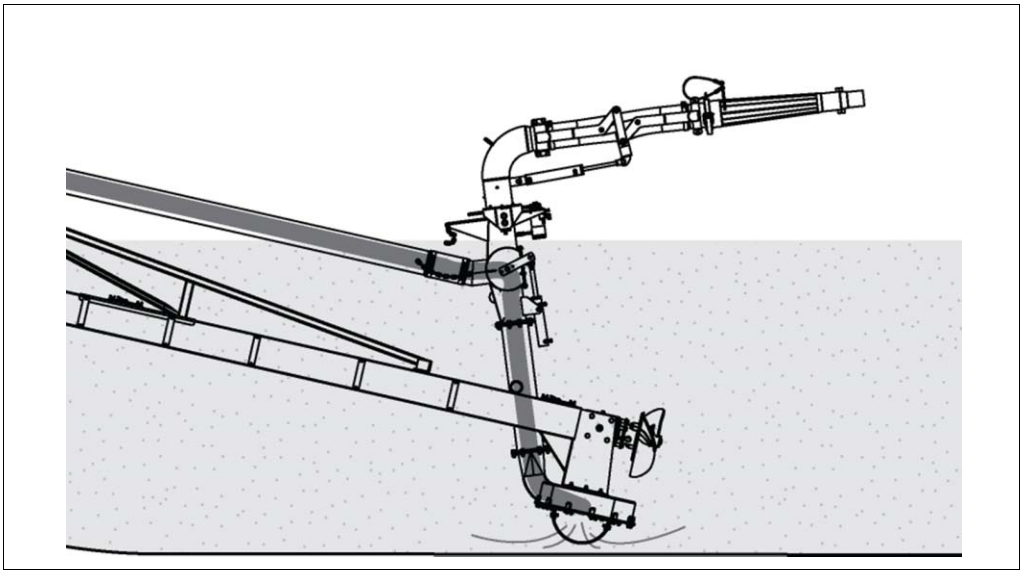


8.9 Transfer mode

Danger!
Never unlock a circle lock cap under pressure!
Unlocking a circle lock cap under pressure could cause serious injuries to anyone standing near the cap. Compressed air inside the pump auxiliary pipe would propel the cap with force.
Before removing the auxiliary pipe cap, stop the tractor PTO. Actuate the directional valve a few times in order to relieve pressure from the auxiliary pipe.

- Install the loading pipe;
- Make sure the tripod legs do not interfere with the spreader when the spreader is moving backward;
- The spreader fill opening must be aligned with the loading pipe;

- Set the valve in transfer mode;
- At low RPM, start transfer then increase RPM progressively;
- Toward the end of the transfer, decrease RPM before stopping the PTO;
- The articulated loading pipe option makes manure transfer easier since the pipe is mobile (up, down, left, right), which allows a faster alignment of the loading pipe with the spreader fill opening.



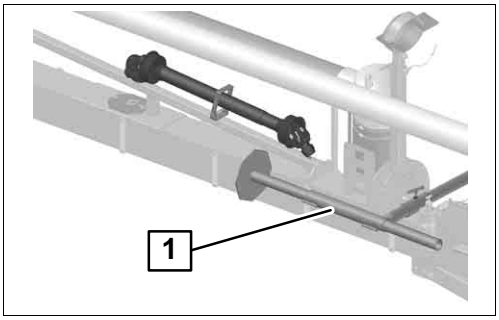
8.10 Removing the pump

From a lagoon

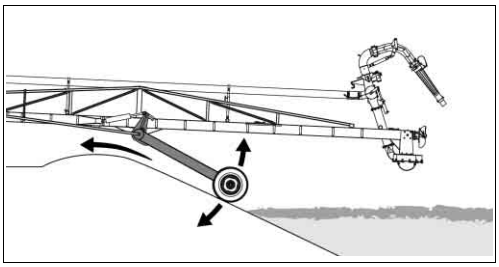
- Stop the PTO;
- Remove the loading pipe;

- Install the cap back on the auxiliary pipe making sure the circle lock is properly installed;

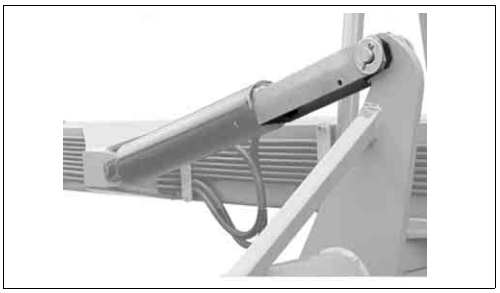
- Retract the stabilizing leg (1) (if applicable);



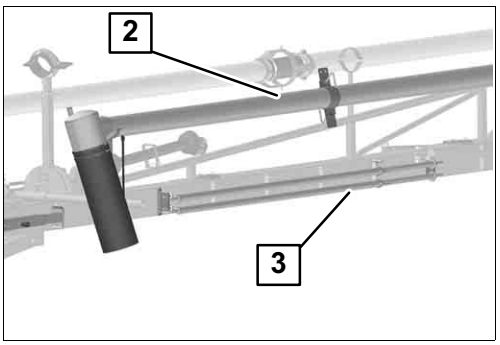
- Raise the impeller out of manure;
- Remove tractor safety brakes;
- Move the pump forward;



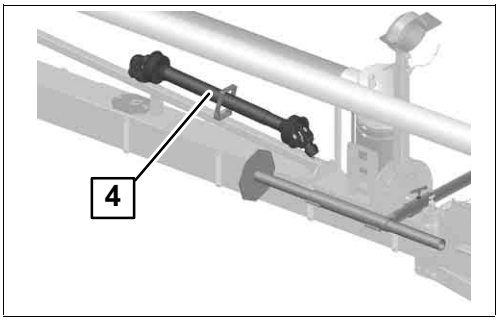
- Make sure the undercarriage cylinder(s) is/are in locked position;



- Install the loading pipe (2) on its supports and hold it using rubber straps with hooks;
- Install the tripod (3) in its supports;



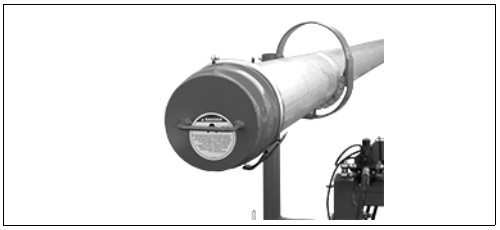
- Install the PTO (4) on transportation support.



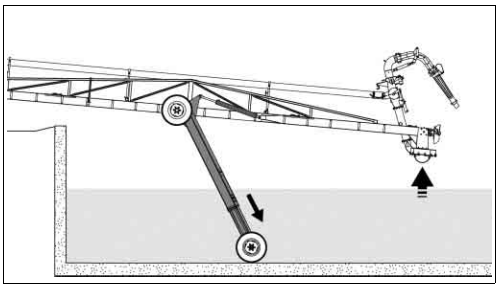
From a concrete reservoir

- Stop the PTO;
- Remove the loading pipe;

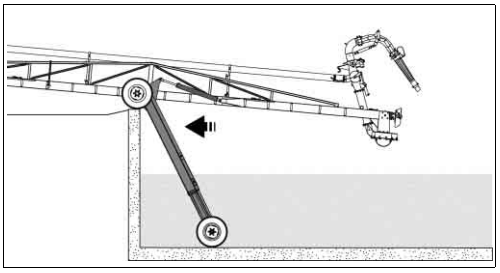
- Install the cap back on the auxiliary pipe making sure the circle lock is properly installed;



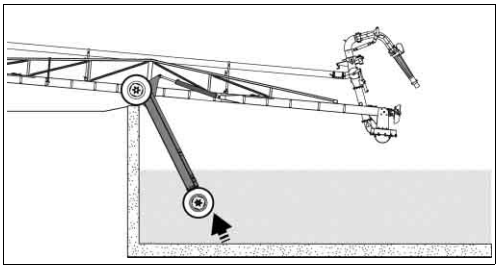
- Raise the impeller out of manure;
- Remove tractor safety brakes;



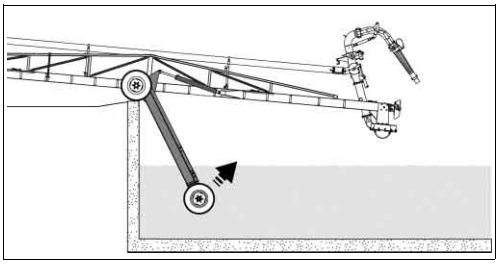
- Move the pump forward until the front wheels touch the wall;



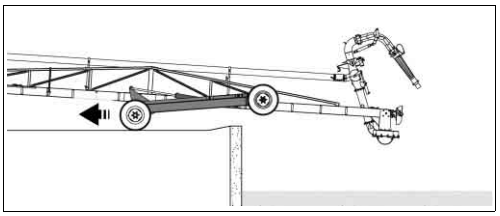
- Retract the telescopic legs;



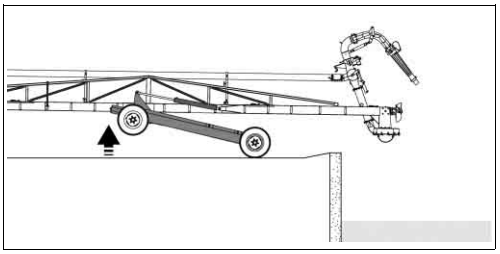
- Swivel the undercarriage legs up;



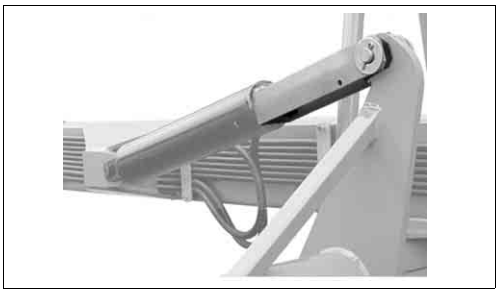
- Move the pump forward;



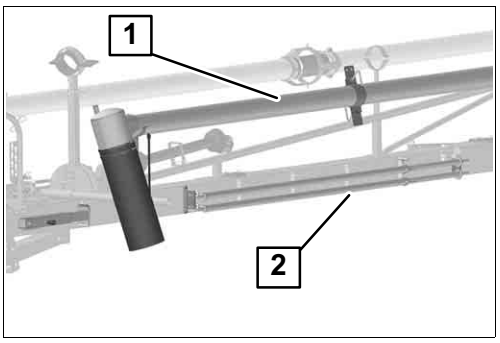
- Swivel the undercarriage for the rear wheels to touch the ground;



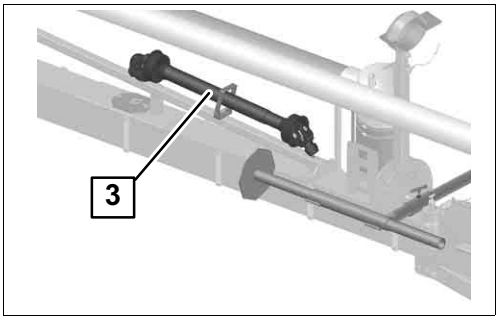
- Make sure the undercarriage cylinder(s) is/are in locked position;



- Install the loading pipe (1) on its supports and hold it using rubber straps with hooks;
- Install the tripod (2) in its supports;



- Install the PTO (3) on transportation support.



9 Troubleshooting

9.1 Special personnel qualification required for troubleshooting

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

Read the section Safety - Personnel qualifications.

9.2 Safety instructions for troubleshooting

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.

Read the section Safety.

9.3 Troubleshooting possible faults

Symptom	Possible cause	Solution
Pump is not pumping properly or not at all.	Manure too thick.	Refer to section Appendix - Consistency test.
	Obstruction in the impeller intake.	Lift the pump and clear the obstruction.
	Obstruction in the auxiliary pipe or nozzle.	Lift the pump and clear the obstruction.
	Foreign material in the directional valve.	Remove cover and clean out.
	Broken PTO shear bolts.	Replace PTO shear bolts.
	Worn out impeller/housing.	Replace part.
	PTO driveline has a defective joint or is disconnected.	Inspect the driveline.
	Broken shaft in driveline.	Replace.
Manure liquid leaks out nozzle and/or auxiliary pipe.	Worn rubber coated door of directional valve.	Replace.
Hydraulic system overheats or erratic operation.	Wrong connection.	Read instruction and consult tractor manual.
Long straw not chopped.	Knife kit not cutting.	Adjust knife kit and propeller. Refer to section Maintenance - Adjust propeller knife kit.
Vibration in the driveline.	Foreign material wrapped on propeller.	Remove foreign material.
	The PTO joints are out of alignment.	Refer to section Operating - PTO driveline connection.
Hydraulic articulations elements do not work.	Tractor hydraulic oil level too low.	Check hydraulic oil level.
	Hydraulic quick connector is defective.	Replace.
Tractor RPM meter unstable or too high to reach performance.	Tractor size too small.	Need a bigger tractor.
	Manure too thick.	Refer to section Appendix - Consistency test.

10 Maintenance

10.1 Special personnel qualification required for maintenance work

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

Read the section Safety - Personnel qualifications.

10.2 Safety instructions for maintenance

Danger!
There is a risk of being crushed between moving and stationary parts. It is strictly forbidden to stand in the danger zone. Turn off the tractor and apply the hand brake before lubricating, cleaning or servicing the equipment.

Warning!
Always remove the equipment from the lagoon/reservoir before servicing.

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.

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

Read the section Safety.

10.3 Scheduled maintenance responsibilities

10.3.1 GEA Farm Technologies Canada Inc. / division GEA Houle maintenance schedule

Task	After the first 75 hours of operation	Before each working day	After each working day	Every 5 hours of operation	Every 10 hours of operation	Every 75 hours of operation	If needed	Action by
Visual inspection		X						Trained personnel
Grease the PTO driveline				X				
Check oil level in oil tank				X				
Grease driving shaft bearings			X		X			
Grease swivel hitch			X		X			
Grease the gearbox			X		X			
Grease undercarriage pivot points			X					
Grease the directional valve			X					
Grease the agitation nozzle			X					
Change oil in gearbox	X					X		
Clean the equipment			X					
Adjust propeller knife kit							X	

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

10.4 Visual inspection

Before each working day

Inspect the Lagoon Agi-Pompe to find any defective part or sign of abnormal wear (loose bolts, clamps, wear on impeller).

10.5 Grease the PTO driveline

Note!
Use specified grease or equivalent TRC 880 Crown and Chassis® grade 0 (2010-4300-790).

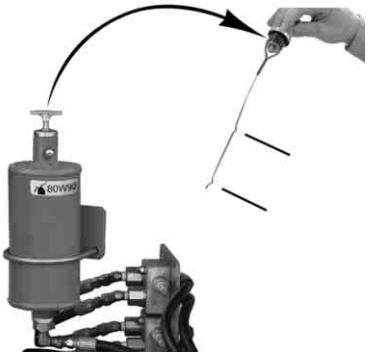
Every 5 hours of operation

- Grease the sliding part and all greasing points of the power take off.

10.6 Check oil level in oil tank

Every 5 hours of operation

- Make sure the oil in the oil tank is at proper level;
- Add SAE 80W90 gear oil if necessary.



10.7 Grease driving shaft bearings

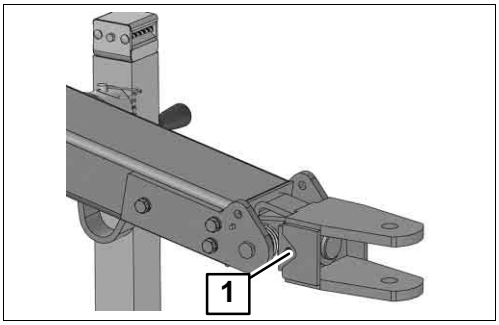
After each working day and every 10 hours of operation

- Remove the cover;
- Use specified grease or equivalent TRC 880 Crown and Chassis® grade 0 (2010-4300-790);
- Replace the cover;
- Repeat this procedure for each driving shaft cover.

10.8 Grease swivel hitch

After each working day and every 10 hours of operation

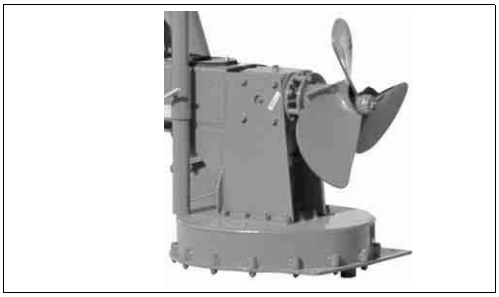
- Add grease in the hitch grease fitting (1);
- Use all-purpose grease.



10.9 Grease the gearbox

After each working day and every 10 hours of operation

- Grease all points where a grease gun label is affixed;
- Use all-purpose grease.



10.10 Grease undercarriage pivot points

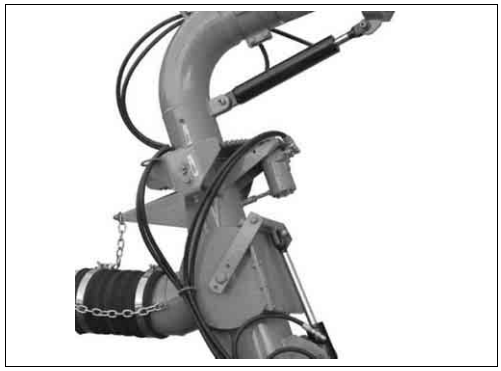
After each working day

- Add grease in the undercarriage grease fitting (1);
- Use all-purpose grease.

10.11 Grease the directional valve

After each working day

- Grease all points where a grease gun label is affixed;
- Use all-purpose grease.



10.12 Grease the agitation nozzle

After each working day

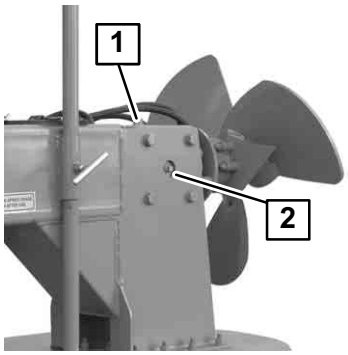
- Grease all points where a grease gun label is affixed;
- Use all-purpose grease.

10.13 Change oil in gearbox

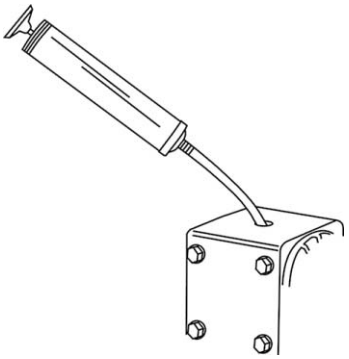
After the first 75 hours of operation and every 75 hours of operation

Note!
Use SAE 80W90 gearbox oil.

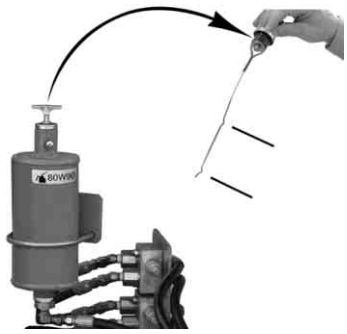
- Unscrew the oil filling plug (1) located on the top of the pump gearbox;
- Place a container under the pump to collect the used oil;
- Remove the magnetic plug (2) located on the side of the gearbox;



- Using a siphon, completely remove the oil out of the gearbox;
- Clean and reinstall the magnetic plug (2);
- Fill up the gearbox using SAE 80W90 gear oil;
- Fill up the oil tank and hose until the oil goes out by the filling plug (1);
- Screw the filling plug (1) back on;



- Using the dipstick, make sure the oil tank is at proper level;
- Add SAE 80W90 gear oil if necessary.



Attention!
After an oil change, it is mandatory to check the oil level after a few minutes of transfer or agitation.
Add oil if necessary.

Note!
Wipe out any oil spill. Safely dispose of used oil by following local and/or state regulations concerning the proper handling of dangerous goods.

10.14 Clean the equipment

After each working day

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

- Pressure wash the entire equipment;
- Open all drains on the pump.

10.15 Adjust propeller knife kit

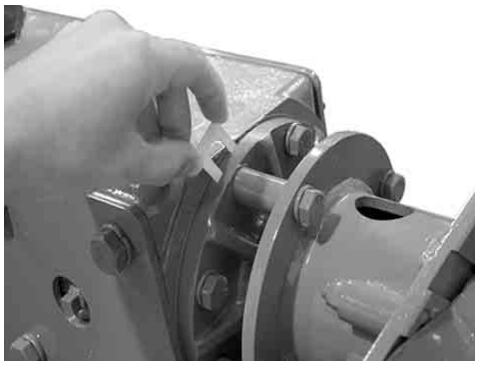
If needed

Warning!
Turn off the tractor, apply parking brake and remove the PTO driveline before adjusting the propeller knife kit.

Caution!
Always wear safety gloves when adjusting the propeller knife. The sharp edges of the knife kit may result in injuries. To avoid risk of injuries, always hold the propeller by the back edge which is not sharp.

CORRECT	INCORRECT
	

- Loosen the holding bolts on the tube;
- Using shims, slide the tube until the propeller knife slightly touches the propeller blades;
- Tighten the holding bolts. Refer to the section Technical data - Bolt torque chart;



- Check the knife kit adjustment;

- Using safety gloves, hold firmly the back edge of the propeller making sure hands are free of sharp edges;
- Rotate the propeller manually to check if the knife kit touches equally against the propeller;
- If the knife kit adjustment is not balanced, repeat the knife kit adjustment above.

11 Decommissioning

11.1 Special personnel qualification required for decommissioning

Decommissioning may only be performed by qualified personnel in accordance with the safety instructions.

Read the section Safety - Personnel qualifications.

11.2 Safety instructions for decommissioning

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

Read the section Safety.

11.3 Temporary decommissioning

Storage

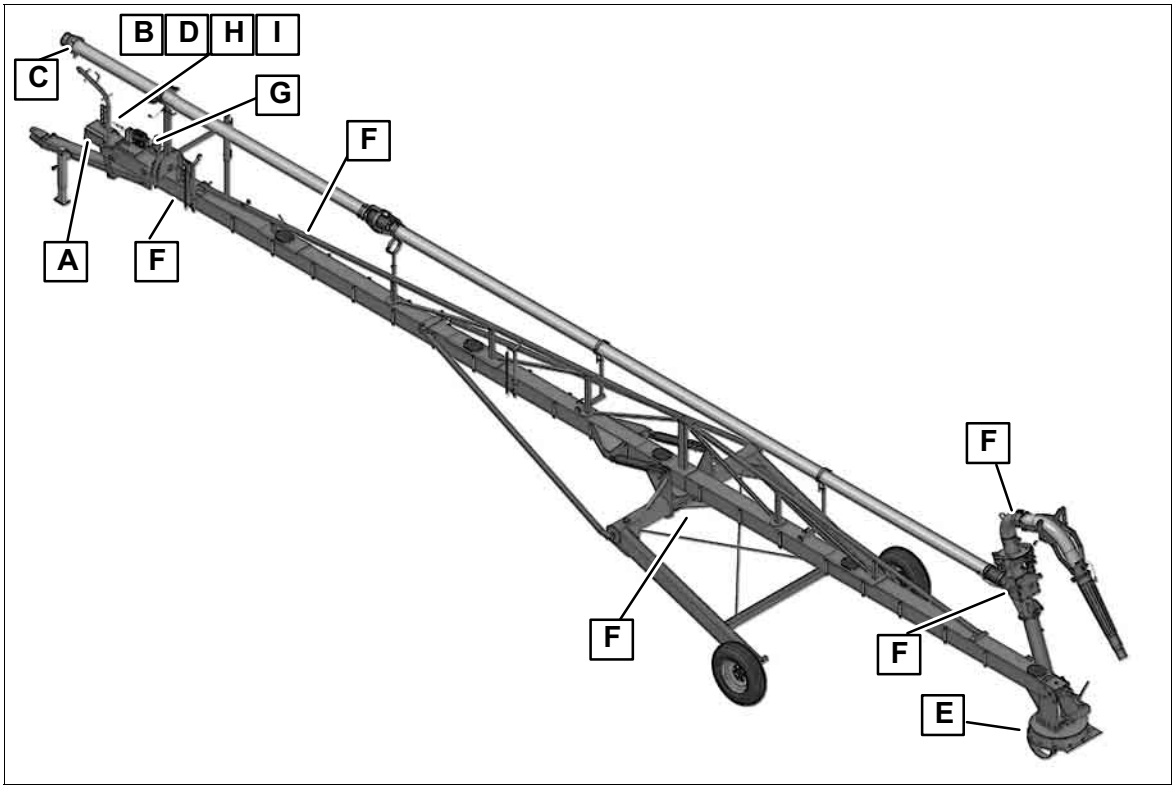
- To store the equipment, place it on a horizontal, flat and firm surface. Install wheel chocks to prevent the equipment from moving.
- Make sure the maintenance schedule, that can be found in section Maintenance, has been followed.
- Once the equipment is lubricated and cleaned, spray a thin layer of biodegradable oil on the equipment.

11.4 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



A	US  2099-4720-010	**B**	US  2099-4720-020
C	US  2099-4721-070	**D**	US  2099-4721-020 EU  2099-4725-100
E	US  2010-4701-590 EU  2099-4725-400	**F**	US / EU  2003-4701-240
G	US / EU  2099-4725-310	**H**	US / EU  2010-4703-430
I	US / EU  2010-4703-440		

US=American label / EU=European label

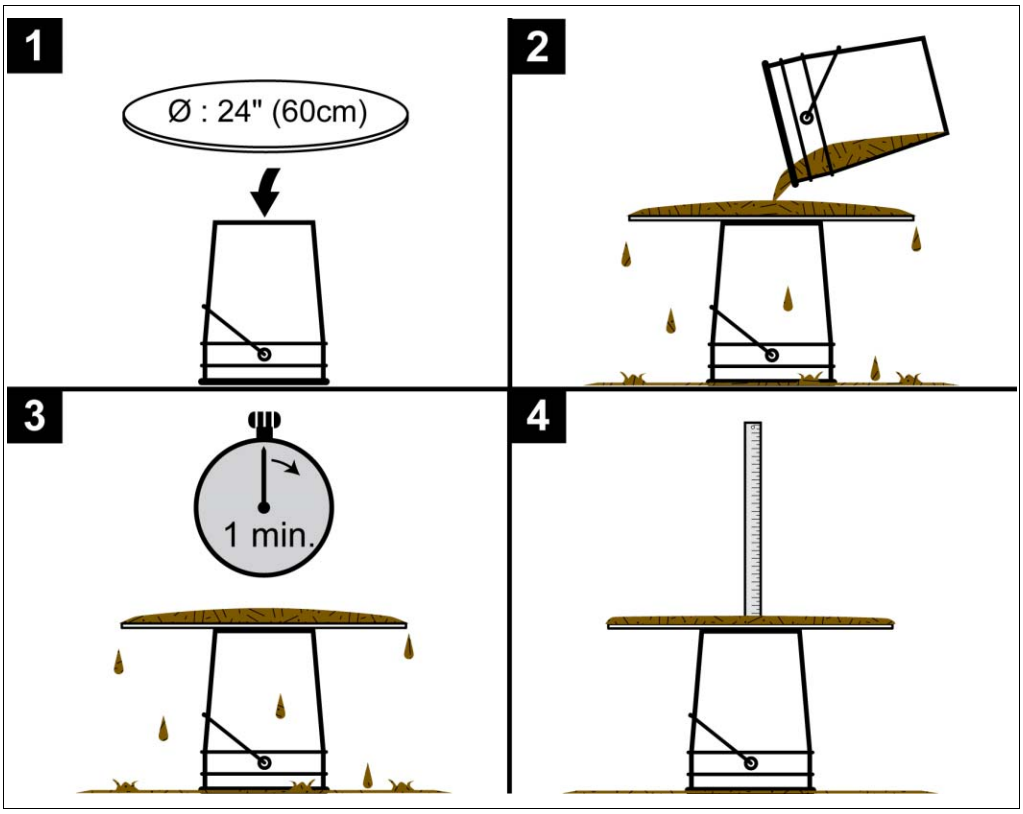
12.2 Abbreviations

Terms	Explanation	Terms	Explanation
@	at	Ø	diameter
EC	European Community	CW	clockwise
CCW	counterclockwise	fax	facsimile
I.D.	inside diameter	Inc.	Incorporated
NC	national coarse	O.D.	outside diameter
PTO	power take off	PVC	polyvinyl chloride
QC	Quebec	SAE	Society of Automotive Engineers
USA	United States of America	WWW	World Wide Web

Units	Explanation	Units	Explanation
A	ampere	kg	kilogram
AC	alternative current	kPa	kilopascal
cm	centimeter	kW	kilowatt
°	degree	km/h	kilometres per hour
°C	degree Celsius	lpm	liter per minute
°F	degree Fahrenheit	lb	pound
DC	direct current	m	meter
ft	foot	min	minute
ft-lb	foot-pound	mph	miles per hour
gal	gallon	mm	millimeter
gpm	gallons per minute	NM	newton meter
HP	horsepower	psi	pounds per square inch
hr	hour	RPM	revolutions per minute
Hz	hertz	s	second
in.	inch	v	volt

12.3 Consistency test

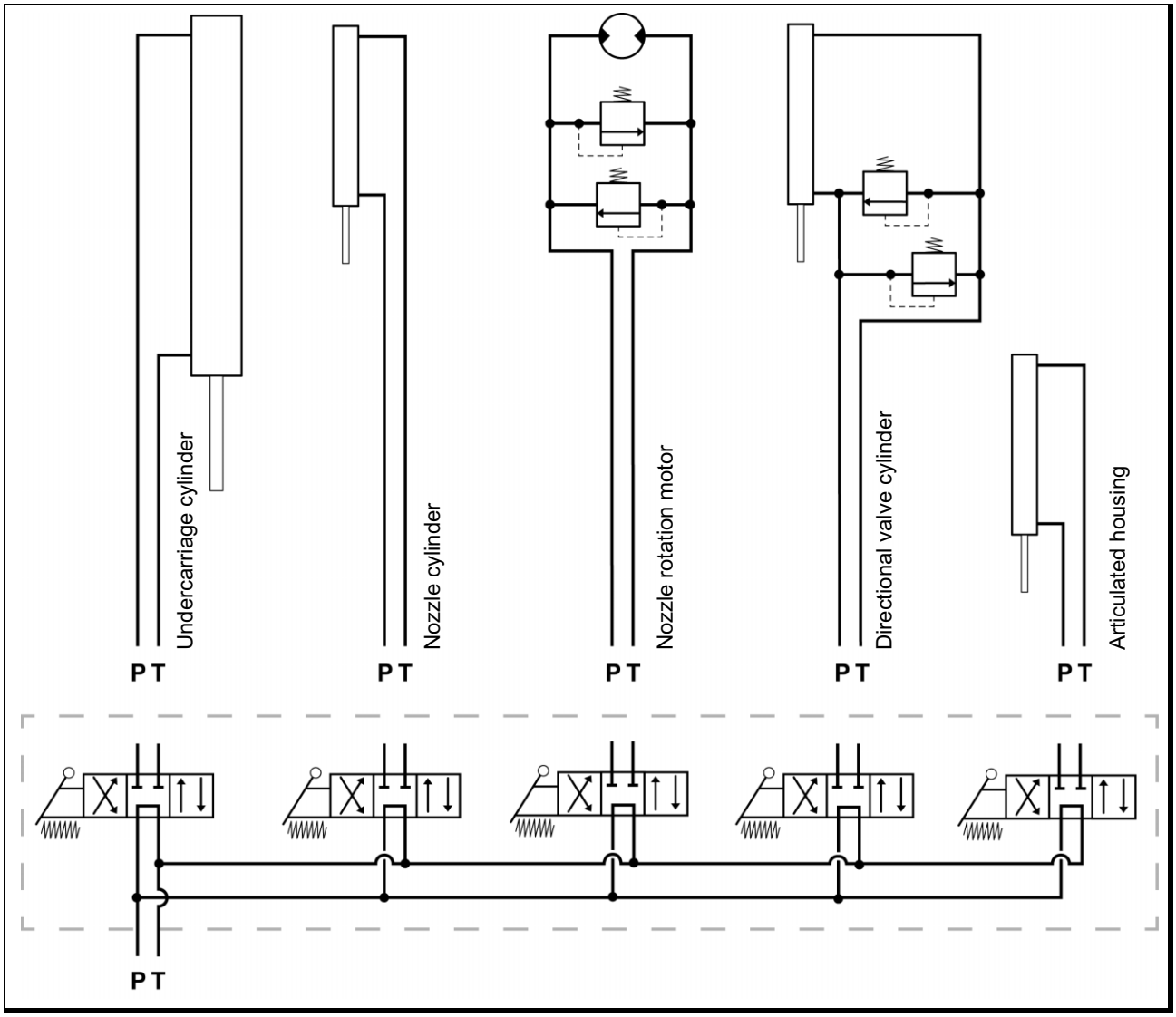
GEA Houle determined the following method to verify if the viscosity of the liquid manure is suitable for this product.



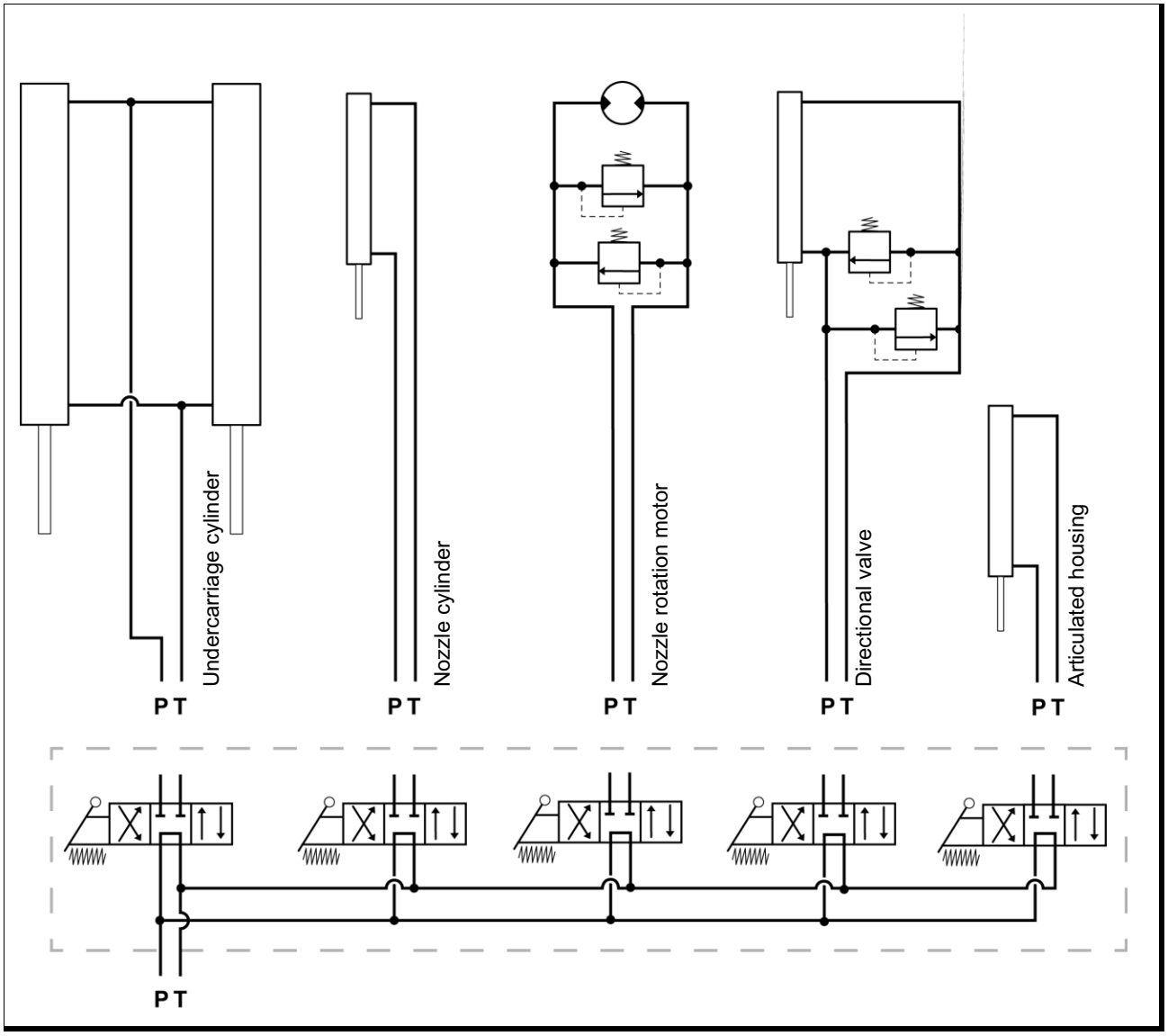
1. Set a pail on a level surface and install a 24” [60cm] round plate at the center of the pail.
2. Fill a second pail with homogenized liquid manure and slowly pour it in the center of the plate until it overflows all around the plate. Remain close to the plate when pouring the liquid manure.
3. Wait for one minute.
4. Measure the thickness of the liquid manure at the center of the plate.

12.4 Hydraulic diagrams

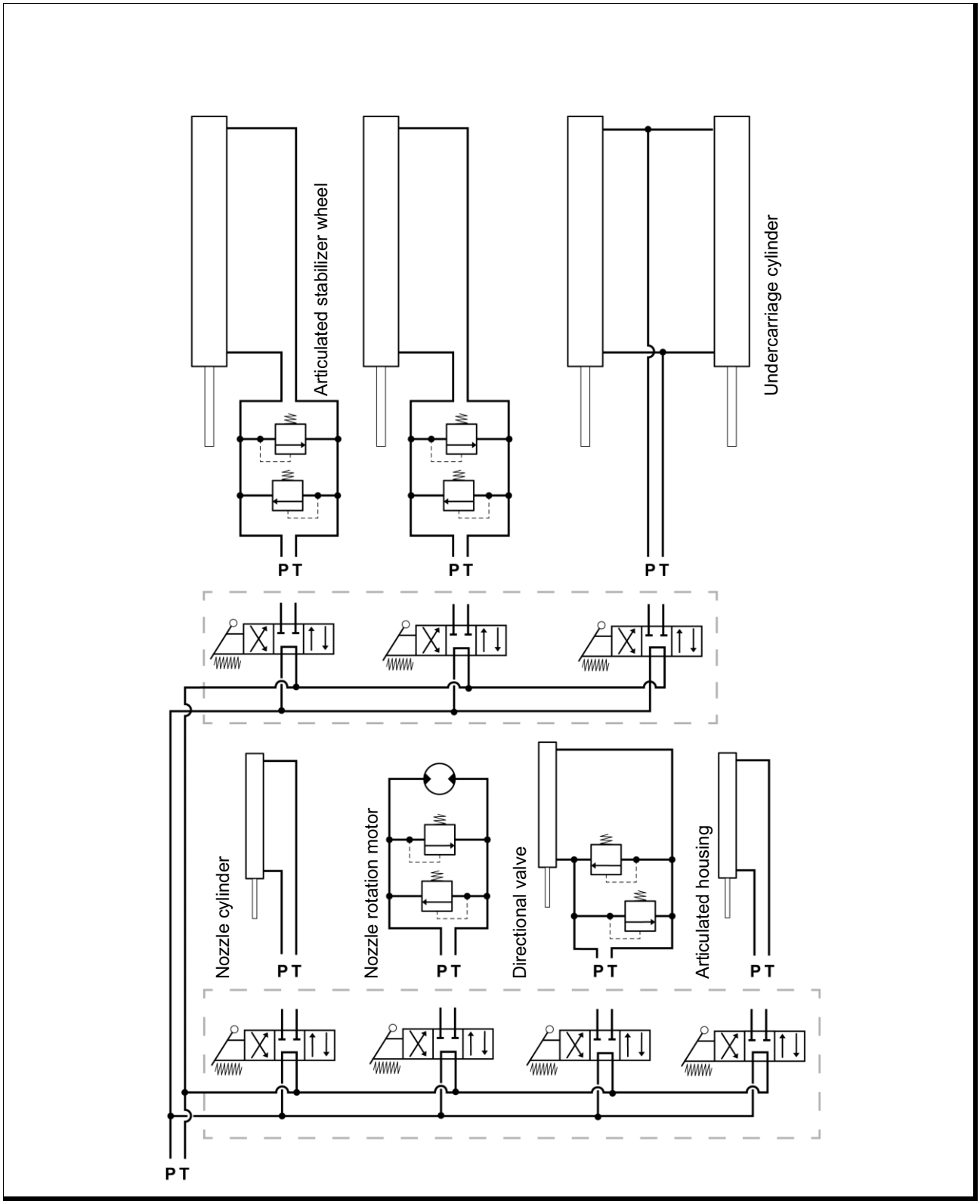
12.4.1 Hydraulic diagram of a Lagoon Agi-Pompe with standard undercarriage



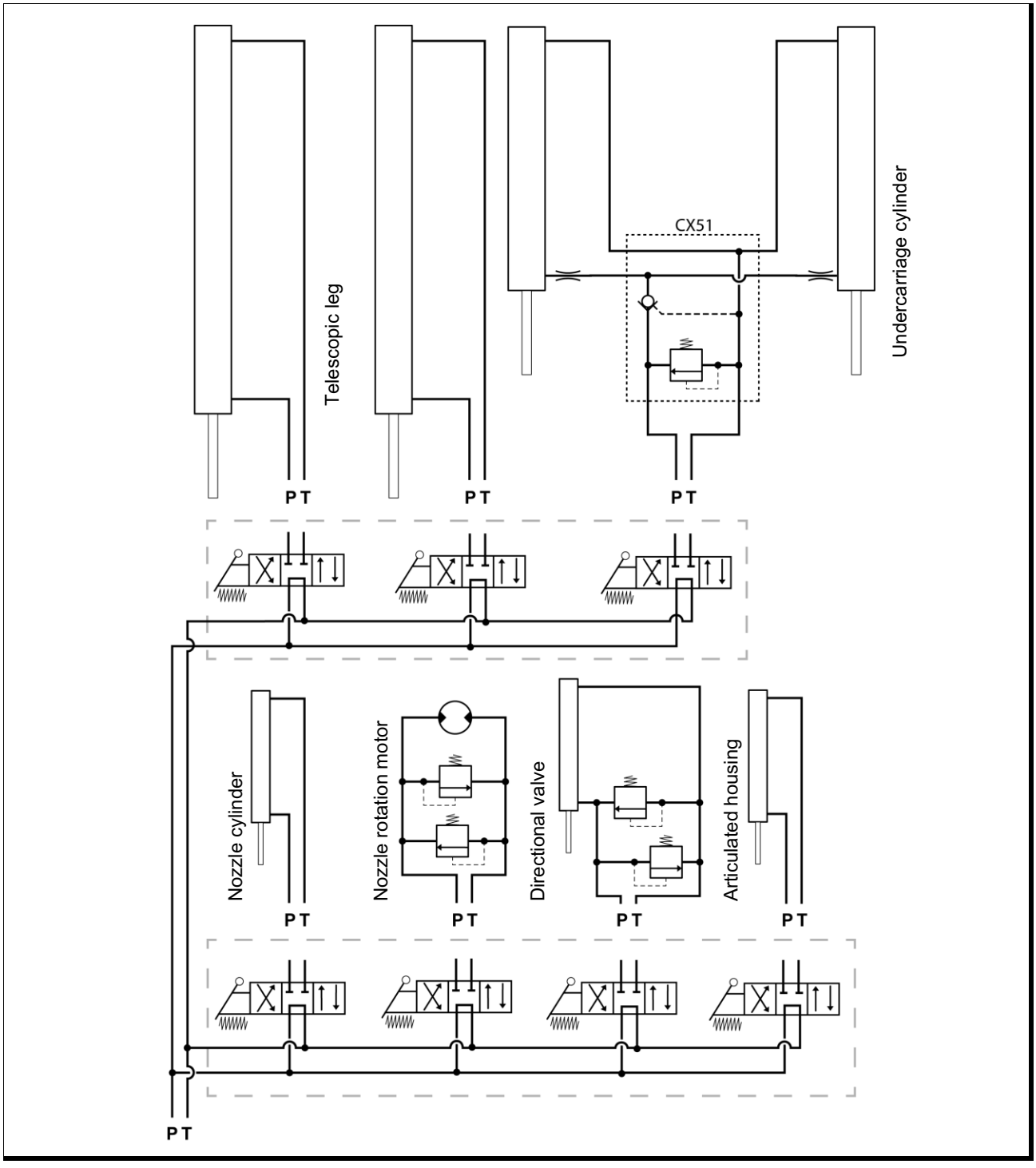
12.4.2 Hydraulic diagram of a Lagoon Agi-Pompe with heavy-duty undercarriage



12.4.3 Hydraulic diagram of a Lagoon Agi-Pompe with articulated stabilizer wheels undercarriage



12.4.4 Hydraulic diagram of a Lagoon Agi-Pompe with multipurpose undercarriage



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