

# PUMP MODELS

## 364/464

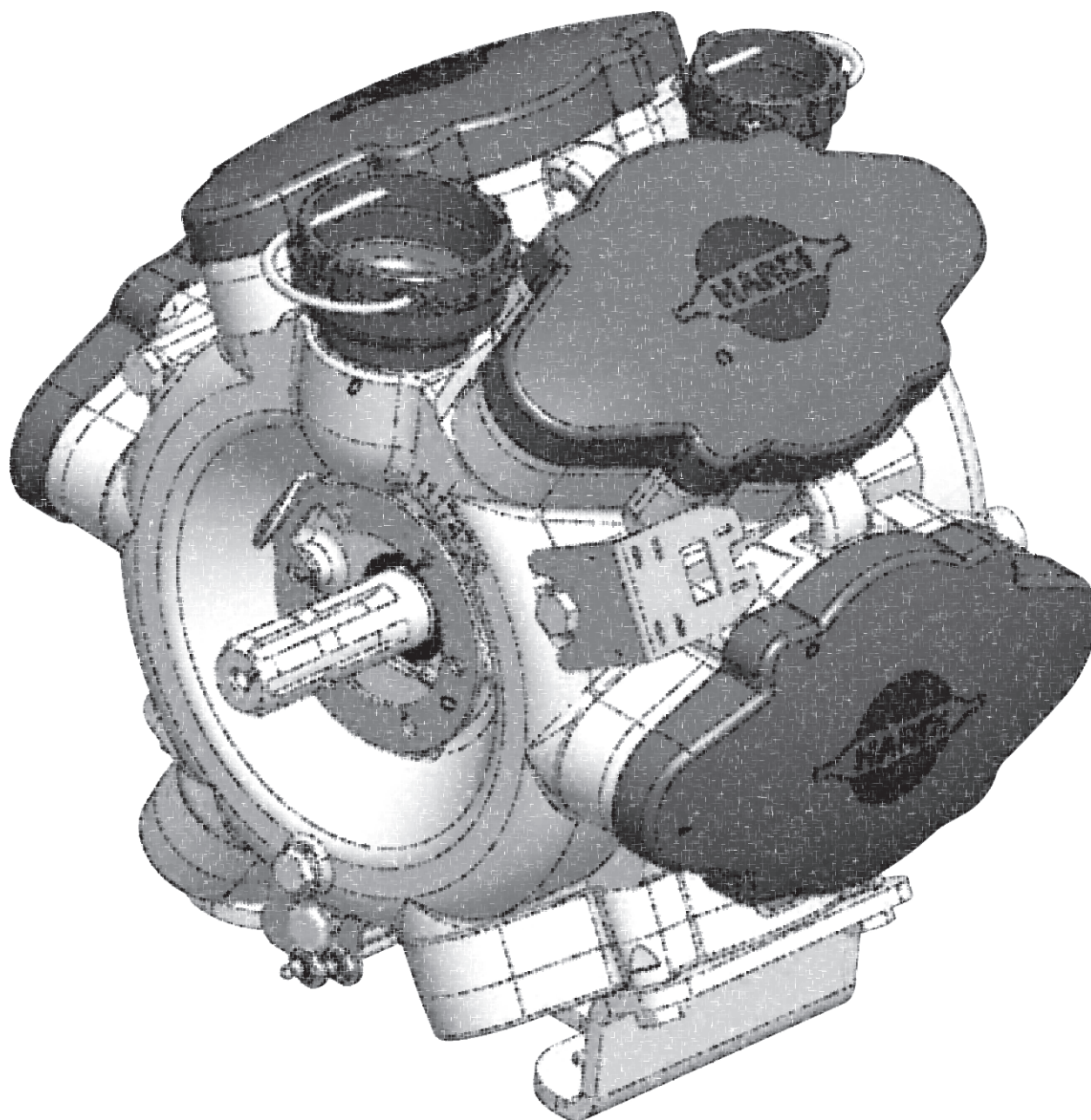


Original

### Instruction amendment

67040100-100 - Version 1.00

GB - 10.2014





We congratulate you for choosing a HARDI plant protection product. The reliability and efficiency of this product depend upon your care. The first step is to carefully read and pay attention to this instruction book. It contains essential information for the efficient use and long life of this quality product.

The original instruction book is approved and published in English. All other languages are translations of the original. In the event of any conflicts, inaccuracies or deviations between the English original and other languages the English version shall prevail.

Illustrations, technical information and data in this book are to the best of our belief correct at the time of printing. As it is HARDI INTERNATIONAL A/S policy permanently to improve our products, we reserve the right to make changes in design, features, accessories, specifications and maintenance instructions at any time and without notice.

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As this instruction book covers more models and features or equipment, which are available in certain countries only, please pay attention to paragraphs dealing with precisely your model.

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## 6 - Maintenance

### Lubrication

#### General Info

Always store lubricants clean, dry and cool - preferably at a constant temperature - to avoid contamination from dirt and condensed water. Keep oil filling jugs, hoppers and grease guns clean, and clean the lubricating points thoroughly before lubricating. Avoid skin contact with oil products for longer periods.

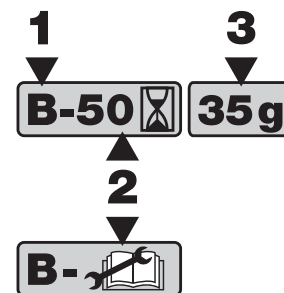
Always follow the quality and quantity recommendations. If no quantity is recommended, feed the lubricator until new grease becomes visible.

#### Pictograms in lubrication & oiling plans designate:




1. Lubricant to be used (see "Recommended lubricants" below).
2. Recommended intervals. Shown in hours or with a symbol for occasional maintenance.
3. Amount to be used. Only shown if an amount is specified.



ATTENTION! If the sprayer has been cleaned with a high pressure washer, lubrication of the entire machine is recommended.



#### Recommended lubricants

What to Lubricate?	Lubricant Type	Factory Use	Recommended Alternatives
 <b>A</b> BALL BEARINGS and PUMP	Lithium based grease Consistency NLGI grade 2 Viscosity (@40°C) > 460 cSt	SHELL Gadus S3 V550L 1 Hardi pump grease cartridge (400g): Item no. 28164600	MOBIL grease XHP 462 TOTAL Multis Complex SHD 460
 <b>D</b> BOLTS	Anti-corrosive wax	PAVA PV 700	TECTYL 506 WD
 <b>D</b> VALVES and SEALS (O-RINGS)	NSF 51, NSF 61 silicone compound	DOW CORNING MOLYKOTE 111 Compound	

#### Grease Gun Calibration

Before lubricating the sprayer, you must calibrate your grease gun to ensure that the correct amount of grease is applied to each lubrication point. The correct amount of grease applied will prolong the lifetime of the sprayer.

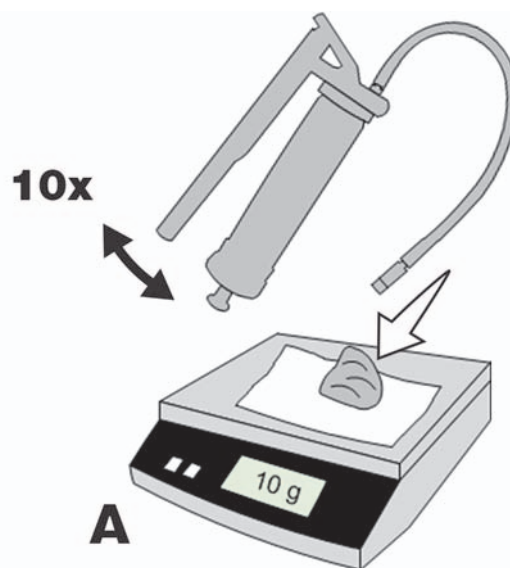
#### Calibration example

1. Insert the correct grease cartridge in your grease gun.
2. Apply grease onto a tissue or a piece of paper. Complete 10 full strokes of the grease gun.
3. Place the paper with grease on a scale.
4. If your grease pile weighs for example 10 grams (A), then 1 stroke equals 1 gram of grease.

When calibrated you can count how many strokes to complete, when lubricating the different grease points on the sprayer according to the specifications.

#### Alternative method

1. Count the strokes, until you have 10 grams of grease piled up on the scale (A).
2. Now you can figure out how many strokes to use for applying a certain amount of grease to a lubrication point.



### Greasing the Pump

The pump is greased as follows:

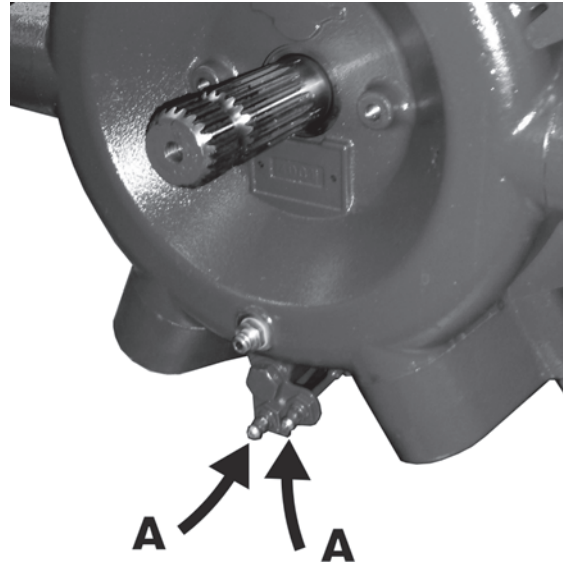
- Factory greased:  
300 g grease into each lubrication point (A).
- Normal operation:  
MUST be greased every 50 hours with 30 g grease into each lubrication point (A).
- After disassembling the pump (diaphragm renewal, etc.):  
MUST be greased with 200 g grease into each lubrication point (A).



ATTENTION! In order to avoid excessive wear it is important to use a recommended lubricant! See "Recommended lubricants" on page 4.



ATTENTION! The pump MUST be stopped during greasing!



### Service and Maintenance Intervals

#### 50 Hours Service - Greasing the Pump

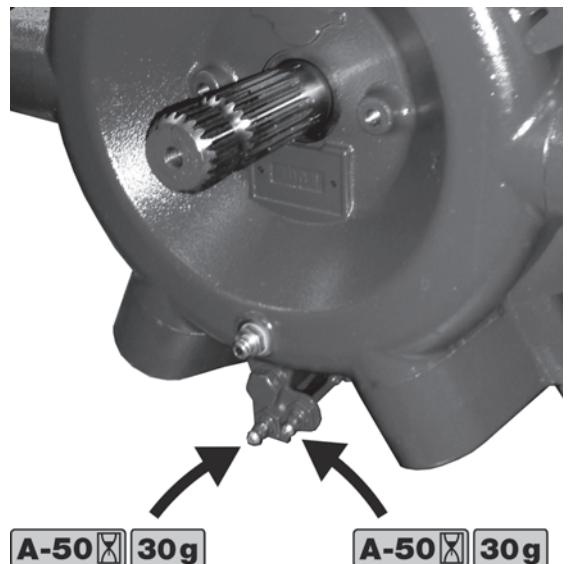
When operating the pump, it MUST be greased every 50 hours with 30 gram grease into each lubrication point.



ATTENTION! In order to avoid excessive wear it is important to use a recommended lubricant! See "Recommended lubricants" on page 4.



ATTENTION! The pump MUST be stopped during greasing!



## 6 - Maintenance

### Occasional Maintenance

#### Lifting and Removing the Pump

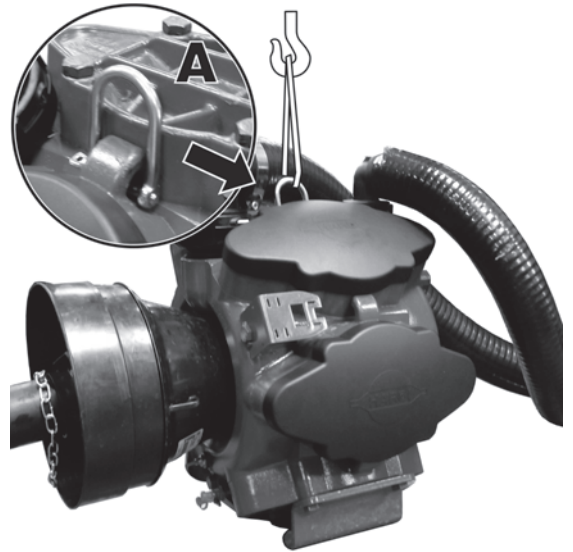
When lifting and removing the pump, use a shackle fitted to the built-in lifting eye located between the heads (A).



**WARNING!** To avoid damages in case of a free-falling pump, use lifting gear and a steel shackle with at least 3.5 tonnes max. tensile strength.

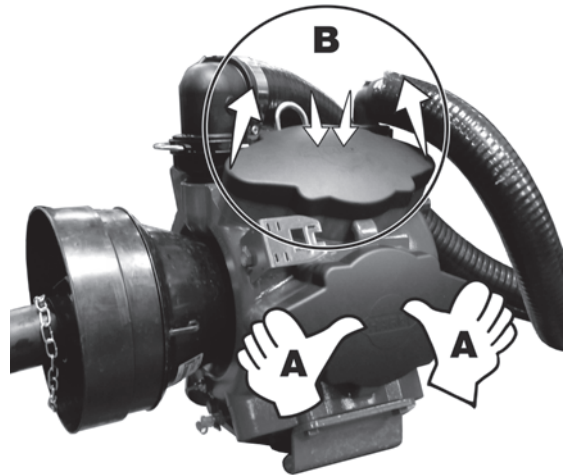


**NOTE!** Pump weight is approximately 75 kg.



#### Pump Valves and Diaphragms Renewal

1. Lift off the plastic covers (C) with your hands (A) by pulling with the finger tips while pushing with the thumbs in the centre, as shown in (B).



#### Valves

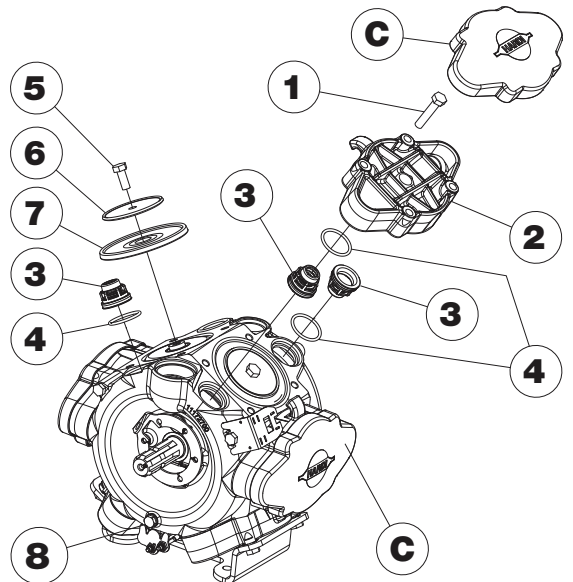
2. Loosen the 4 head bolts (1).
3. Remove the head (2).
4. Change the valves (3) - note their orientation, so that they are replaced correctly!



**ATTENTION!** It is recommended to use new gaskets (4), when changing or checking the valves.

#### Diaphragms

5. Loosen the diaphragm bolt (5).
6. Remove the diaphragm washer (6).
7. The diaphragm (7) may then be changed.
8. Check that the drain hole (8) at the bottom of the pump is not blocked.





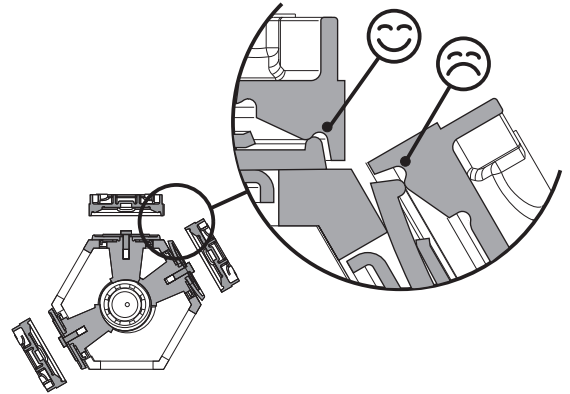
9. Apply a small amount of pump grease on the underside of the diaphragms (between diaphragm and conrod washer).
10. Reassemble the pump with the following torque setting.
  - Diaphragm head bolts (1): 90 Nm.
  - Diaphragm bolt (5): 90 Nm.
11. Refit the plastic covers (C).



NOTE! The diaphragm bolt on 1000 r.p.m. pumps must be secured with locking compound.



ATTENTION! Before tightening the 4 bolts for the head (2), the diaphragm must be positioned between centre and top to ensure correct sealing between diaphragm pump housing and diaphragm cover. Turn the crank shaft if necessary.



### Re-lubrication after assembly

After disassembling the pump (diaphragm renewal, etc.) the pump **MUST** be lubricated with 200 g grease into each lubrication point.

Hardi pump grease cartridge (400g): Item no. 28164600

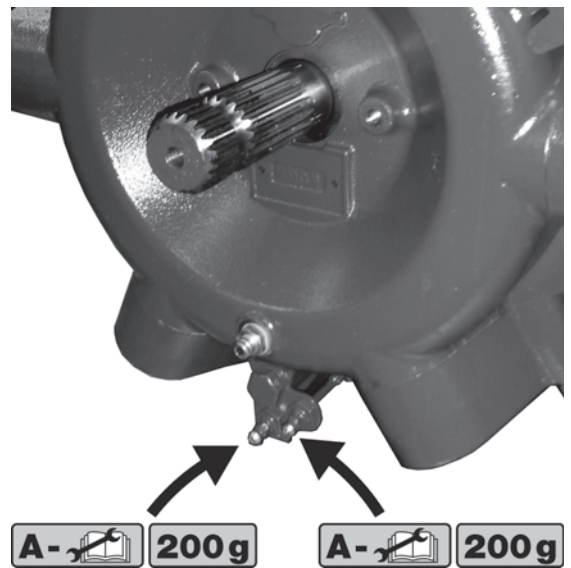
### Overhaul Kit

Pump model: 364 and 464.

Diaphragm pump overhaul kit (valves, seals, diaphragms etc.) can be ordered. Detect the pump model - the overhaul kit can be ordered by your local dealer.

Model 364: Item no. 75585900.

Model 464: Item no. 75586000.



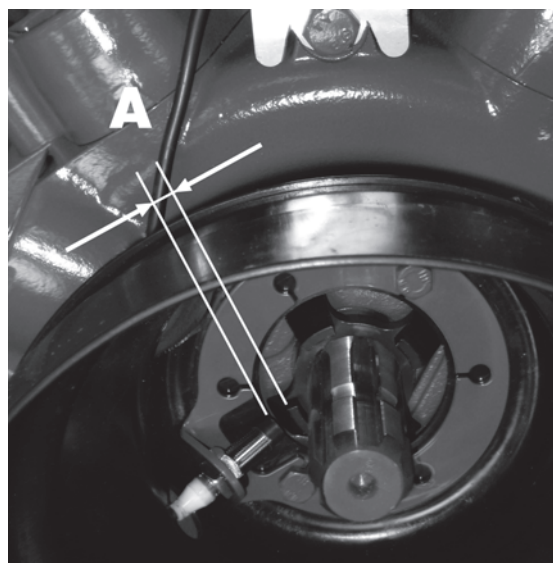
## 6 - Maintenance

### R.P.M. Transducer for Pump

The R.P.M. transducer is located at the inner side of the P.T.O. shield. The sensor is an inductive type that requires metallic protrusions to pass by it to trigger a signal.

#### Adjustment

1. Adjust air gap (A) to 4 mm (+/-0.5 mm). Use a feeler gauge or similar tool.
2. After adjustment then spin up the shaft. Verify air gap variation less than +/-0.5 mm. Check this at the entire circumference.
3. Verify transducer function:
  - HC 5500:  
Correct fitting is indicated by continuous flashing from transducer, when the shaft rotates.
  - HC 6500/ISOBUS VT:  
Monitor the menu [4.5.4.9.6 PTO pump frequency].



## 7 - Fault finding

### Operational Problems

#### Pump

FAULT	PROBABLE CAUSE	CONTROL/REMEDY
Liquid leaks from bottom of the pump.	Damaged diaphragm.	Replace diaphragm. See relevant section.
Grease leaks from the bottom of the pump.	Grease used has too low viscosity.	Change to recommended grease type.
Grease leaks from the shaft grease seals.	Grease used has too low viscosity. Bearings worn/too high friction.	Change to recommended grease type. Replace pump bearings and grease seals.
Lack of pressure.	Pump valves are blocked or defect. Plugged filters in fluid system.	Check for obstructions or if needed replace valves. Clean filters.
Vibrations in system and unpleasant noise from the pump.	Pump valves are blocked or defect. Air is being sucked into system.	Check for obstructions or if needed replace valves. Check for leaks, pinholes in suction hoses, tightness/ gaskets/ o-rings of all fittings on the suction side.
Lack of flow/capacity.	Internal wear on conrod and conrod ring. Pump valves are blocked or defect.	Poor greasing. Replace parts as needed and observe proper grease quality and intervals. Check for obstructions or if needed replace valves.
Extreme internal erosion on diaphragm covers and housing.	Too high vacuum caused by plugged suction filter or excessive pump rpm. Lack of internal cleaning.	Replace affected pump parts. Clean suction filter and observe max. pump rpm. Use recommended cleaning procedures and add ex. cleaning agents.
Short diaphragm lifetime.	Lack of conservation of the fluid system during storage. Over speeding of the pump.	Always use a proper mixture of antifreeze during storage. Observe max. pump rpm.




## 8 - Technical specifications

### Specifications

#### Pump Model 464/5.5


HARDI		HARDI INTERNATIONAL A/S TAASTRUP DENMARK	
Type 464/5.5		r/min.max. 1100	
No.			
r/min.	l/min.	bar	kW
1000	293	0	3.1
1000	245	max.15	8.70

#### Pump Model 464/6.5

HARDI				HARDI INTERNATIONAL A/S TAASTRUP DENMARK	
Type 464/6.5		 r/min.max. 1100			
No.					
r/min.	l/min.	bar		kW	
1000	349	0		3.2	
1000	298	max.15		10.3	


9761400

#### Pump Model 464/10.0

HARDI		HARDI INTERNATIONAL A/S TAASTRUP DENMARK	
Type 464/10		 r/min.max. 700	
No.			
r/min.	l/min.	bar	kW
540	280	0	1.8
540	259	max.15	8.3

9761500

#### Pump Model 464/12.0

HARDI		HARDI INTERNATIONAL A/S TAASTRUP DENMARK	
Type 464/12		 r/min.max. 600	
No.			
r/min.	l/min.	bar	kW
540	334	0	2.2
540	310	max.15	9.7

9761600

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**Spare parts**

To see updated spare part information the website [www.agroparts.com](http://www.agroparts.com) can be visited. Here all parts information can be accessed when free registration has been made.



**HARDI INTERNATIONAL A/S**

Helgeshøj Allé 38 - DK 2630 Taastrup - DENMARK

