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MANX

Instruction book

674111-GB-98/4



EU Declaration of Conformity

Manufacturer,

HARDI INTERNATIONAL A/S
Helgeshøj Allé
DK 2630 Taastrup
DENMARK

Importer,

declare that the following product;

.....
.....

Adhere extra shipping package labels to inside cover.

A. was manufactured in conformity with the provisions in the COUNCIL DIRECTIVE of 14 June 1989 on mutual approximation of the laws of the Member States on the safety of machines (89/392/EEC as amended by directives 91/368/EEC and 93/368/EEC) with special reference to Annex 1 of the Directive on essential safety and health requirements in relation to the construction and manufacture of machines.

B. was manufactured in conformity with the standards current at that time that implements a harmonised standard in accordance with Article 5 (2) and other relevant standards.

Taastrup 1.4.98

Erik Holst
Managing Director
HARDI INTERNATIONAL A/S

Operator safety

Watch for this symbol . It means WARNING, CAUTION, NOTE. Your safety is involved so be alert!

Note the following recommended precautions and safe operating practices.

-  Read and understand this instruction book before using the equipment. It is equally important that other operators of this equipment read and understand the book.
-  Local law may demand that the operator be certified to use spray equipment. Adhere to the law.
-  Pressure test with clean water prior to filling with chemicals.
-  Wear protective clothing.
-  Rinse and wash equipment after use and before servicing.
-  Depressurize equipment after use and before servicing.
-  Never service or repair the equipment whilst it is operating.
-  Disconnect electrical power before servicing.
-  Always replace all safety devices or shields immediately after servicing.
-  If an arc welder is used on the equipment or anything connected to the equipment, disconnect power leads before welding. Remove all inflammable or explosive material from the area.
-  Do not eat, drink or smoke whilst spraying or working with contaminated equipment.
-  Wash and change clothes after spraying.
-  Wash tools if they have become contaminated.
-  In case of poisoning, seek doctor or ambulance. Remember to identify chemicals used.
-  Keep children away from the equipment.
-  Do not attempt to enter the tank.
-  If any portion of the instruction book remains unclear after reading it, contact your HARDI dealer for further explanation before using the equipment.



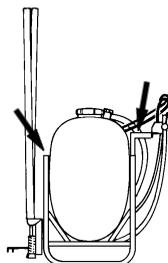


We congratulate you for choosing a HARDI plant protection product. The reliability and efficiency of this product depend on your care. The first step is to carefully **read and pay attention** to this instruction book. It contains essential information for the efficient use and long life of this quality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

As the instruction book covers all MANX models, please pay attention to the paragraphs dealing with precisely your model. This book is to be read in conjunction with the "Spray Technique" book.

Lifting points

When loading or unloading the sprayer from a truck or lorry with a crane, use the lifting points as shown.



Description

The HARDI MANX tractor mounted sprayers are designed for the application of pesticides and liquid fertilizers in parks, gardens and amenity areas. They consist of a pump, frame with tank of 300, 400, 600 or 800 litre capacity, BK operating unit, frame mounted 6, 8 or 10 metre SB booms with TRIPLET SNAP-FIT, 15 litre clean water tank, transmission shaft and calibration kit.

The design of the diaphragm pump is simple, with easily accessible diaphragms and valves that ensures liquid does not come in contact with the vital parts of the pump.

The tank, made of impact-proof and chemical resistant polyethylene, has a purposeful design with no sharp edges for easy cleaning and efficient agitation. A suction filter is located at the top of the tank. This facilitates filter inspection even if the tank is filled with spray liquid. To ensure safe operation, the drain valve is also located at the top of the tank.

The BK 180 K operating unit consists of; pressure agitator, safety valve, on/off function, pressure filter with pressure gauge, distribution valves with pressure equalization device, an extra valve for a lance or spray gun and HARDI-MATIC. A constant volume per hectare of the liquid at varying speed in the same gear is ensured with HARDI-MATIC.

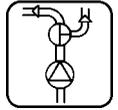
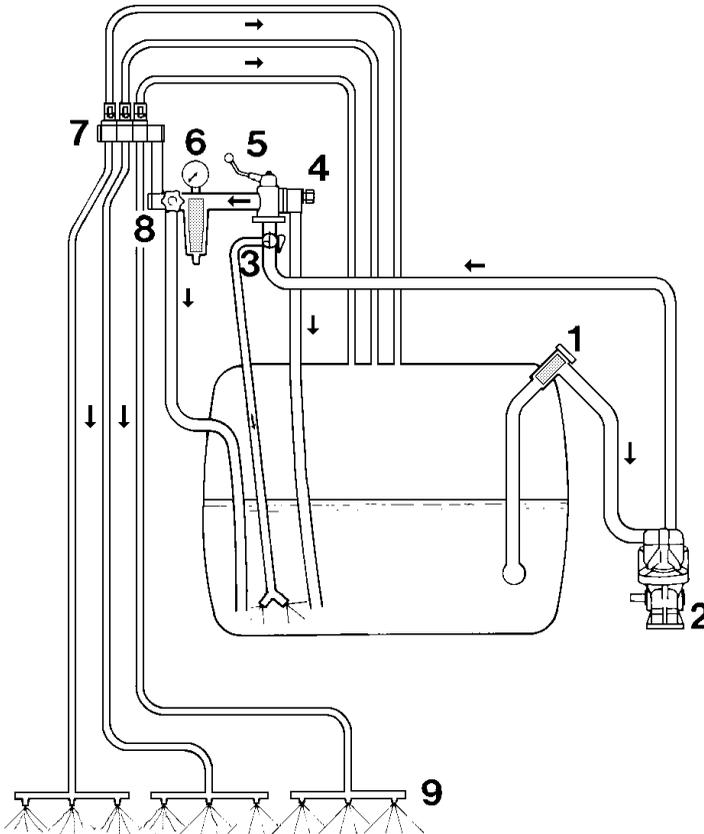
The SB boom is bolted to the tank frame and is fitted with spring loaded breakaways at the pivots. The TRIPLET nozzle holders allow for quick nozzle selection.

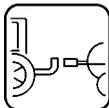
Identification plates

An identification plate fitted on the frame and pump is to indicate model, serial number and country of origin. If ordering spare parts, inform your dealer of these so the right model and version are described.

Function diagram BK operating unit

- | | |
|----------------------------|--|
| 1. Suction filter | 6. Pressure filter with pressure gauge |
| 2. Pump | 7. Distribution valve with pressure equalization |
| 3. Pressure agitator valve | 8. HARDI-MATIC |
| 4. Safety valve | 9. Sprayer boom |
| 5. On/off valve | |





Connecting the sprayer

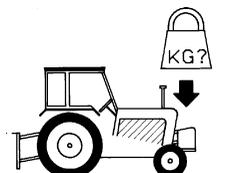
The sprayer is designed for three point suspension and is equipped with 22 mm pivots (category I). 28 mm (category II) pivots are fitted on the 800 litre models.



WARNING: Note the weight of the sprayer.

General recommendations are as follows:

- Add ballast to front of tractor.
- Increase tyre pressure (see tractor instruction book).
- Be careful when filling/lifting the sprayer for the first time.
- Ensure the operating unit and tractor do not touch.
- Travel at slower speeds when driving with a full tank. (The tractor braking effect will be reduced.)



Transmission shaft

Operator safety

To avoid accidents and personal injuries, note the following recommended precautions and safe operation practices.



Always STOP ENGINE before attaching the transmission shaft to tractor P.T.O. - most tractor P.T.O. shafts can be rotated by hand to facilitate spline alignment, when engine is stopped.

When attaching the shaft, make sure that the snap lock is FULLY ENGAGED - push and pull shaft until it locks.



WARNING: ROTATING TRANSMISSION SHAFTS WITHOUT PROTECTION GUARDS ARE FATAL

Always keep protection guards and chains intact and make sure that it covers all rotating parts, including cross journals at each end of the shaft. Do not use without protection guard.

Do not touch or stand on the transmission shaft when it is rotating - safety distance: 1.5 metre.

Prevent protection guards from rotating by attaching the chains allowing sufficient slack for turns.

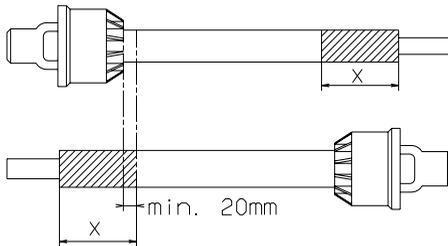
Make sure that protection guards around tractor P.T.O. and implement shaft is intact.

Always STOP ENGINE and remove the ignition key before carrying out maintenance or repairs to the transmission shaft or implement.

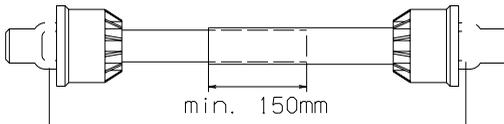
Installation of transmission shaft

Initial installation of the shaft is done as follows:

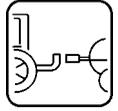
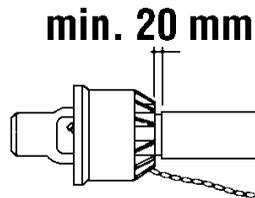
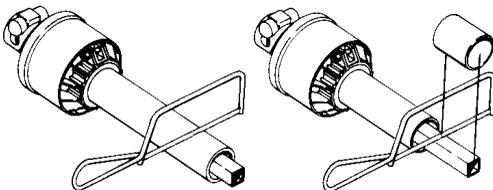
1. Attach sprayer to tractor and set sprayer in the position with **shortest** distance between the tractor and sprayer pump P.T.O. shafts.
2. Stop engine and remove ignition key.
3. If transmission shaft must be shortened, the shaft is pulled apart. Fit the two shaft parts at tractor and sprayer pump and measure how much it is necessary to shorten the shaft. Mark the protection guards.

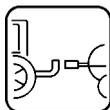


Note: The shaft must always have a minimum overlap 150 mm.



4. The two parts are shortened equally. Use a saw, and file the profiles afterwards to remove burrs.
5. Grease the profiles, and assemble male and female parts again.



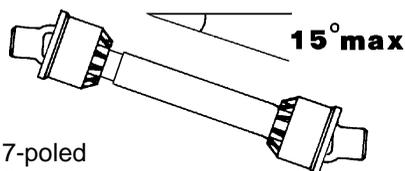
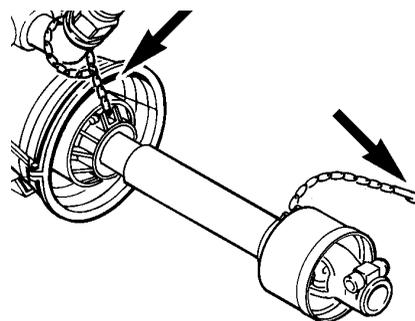


6. Fit the shaft to tractor and sprayer pump.

Note: Female part towards tractor. Fit the chains to prevent the protection guards to rotate with the shaft.

7. To ensure long life of the transmission shaft, try to avoid working angles greater than 15°.

8. Transmission shafts with cone must be fitted by tightening the Allen screw to a torque of 40 Nm. Check again after 2 minutes use.



Rear lights (if fitted)

Connect plug for rear lights to tractors 7-poled socket and check that rear lights, stop lights and turning indicators function properly.

The wiring is in ISO accordance. See section on Technical specifications.



Roadworthiness

When driving on public roads and other areas where the highway code applies, or areas where there are special rules and regulations for marking and lights on implements, you should observe these and equip implements accordingly.



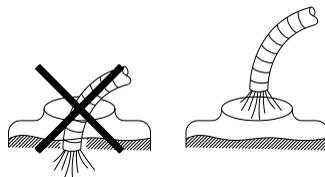
Operating instructions

Filling the main tank

Water is filled into the tank by removing the tank lid located at right hand side of sprayer tank. It is recommended to use as clean water as possible for spraying purposes. Always fill water through the strainer basket to prevent foreign particles from entering the tank. An overhead tank can be used in order to obtain high filling capacity.

WARNING: Do not let the filling hose enter the tank. Keep it outside the tank, pointing towards the filling hole.

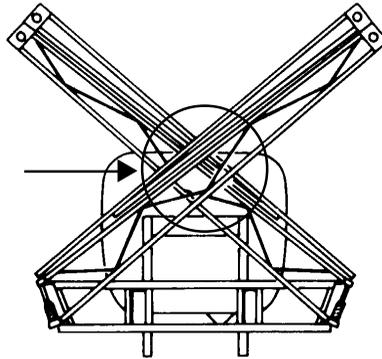
If the hose is lead into the tank and the water pressure drops at the water supply plant, chemicals may be siphoned back and contaminate the water supply lines, plant and well.



Operation of the boom

Remove boom transport lock pin(s).
When unfolding (or folding) the initial force to release the spring loaded breakaways will be higher than the actual unfolding/folding.

CAUTION: The breakaways must be correctly tensioned and lubricated.
(see section on Boom breakaway)
Replace boom transport lock pin(s) when driving with folded boom.



Boom height

Correct boom height is very important in order to achieve the most optimal spray pattern. (See Spray Technique book).

Small adjustments of the boom height can usually be made with the 3-point suspension from the tractor - raising or lowering the sprayer.

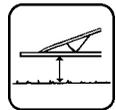
On grounds where greater adjustments are needed the boom height can be changed manually by removing the 4 bolts holding the boom to the frame.

Note: This is best done by 2 persons or with a mechanical hoist.

Pulsation damper

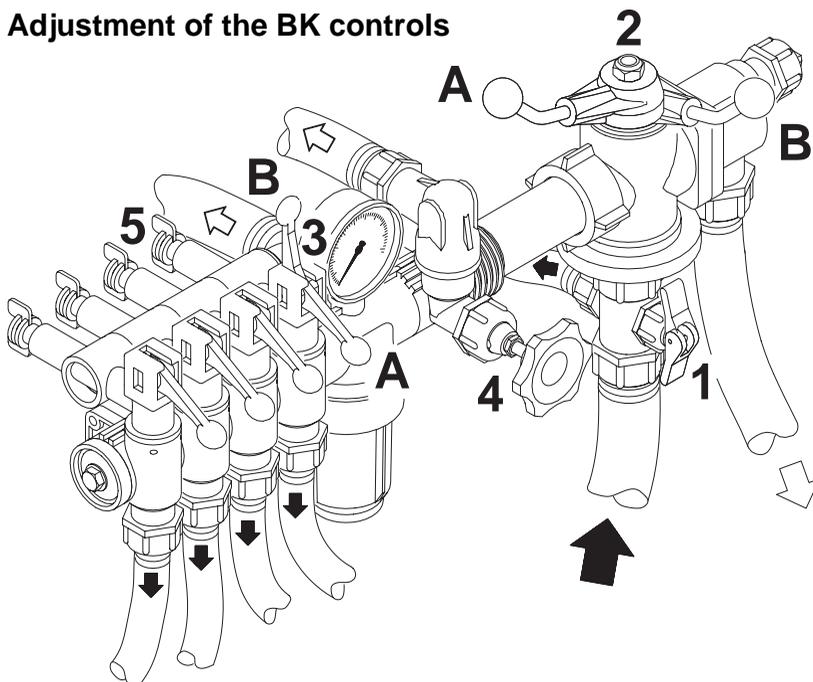
The air pressure in the pulsation damper is pre-set at the factory to 2 bar. This covers spray working pressures between 3 and 15 bar. When using spray pressures outside this range, the air pressure should be adjusted as shown in the diagram. The diagram is also embossed on the damper.

	
bar	bar
15 - 3	0 - 1
3 - 15	1 - 3





Adjustment of the BK controls



1. Choose the correct nozzle. Make sure that all nozzles are the same type and capacity. See "Spray Technique" book.
2. Open or close lever **1** depending on whether pressure agitation is required. (Remember pressure agitation takes 5% to 10% of pump output).
3. Turn main ON/OFF handle **2** to ON position **A**.
4. Set all hand levers **3** on the distribution valve to ON position **A**.
5. Turn the HARDI-MATIC valve **4** anti-clockwise to its extreme position.
6. Put the tractor in neutral and adjust the P.T.O. thereby the number of revolutions of the pump corresponding to the intended travelling speed.
Note: The P.T.O. revolutions must be kept between 300-600 r/min.
7. Adjust the HARDI-MATIC valve **4** so that the pressure gauge indicates the recommended pressure.

ADJUSTMENT OF PRESSURE EQUALIZATION:

8. Place the first lever **3** on the distribution valve in OFF position **B**.
9. Turn the adjusting screw **5** until the pressure gauge again shows the same pressure.
10. Adjust the other sections of the distribution valve in the same way. Hereafter adjustment of pressure equalization will only be needed if you change to nozzles of other capacities.

11. Operating the control unit while driving:

To stop the liquid flow to the boom turn the ON/OFF handle **2** to OFF position **B**. This returns the pump output to the tank through the return system. The diaphragm anti-drip valves ensure instantaneous closing of all nozzles.

To stop the liquid flow to one or more boom sections, turn lever **3** of the distribution valve to OFF position **B** for the section to be closed.

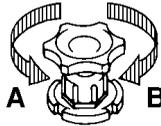
The pressure equalization ensures that the pressure does not rise in the sections which are to remain open.



Drain valve operation

To open : **A**

To close : **B**



Spray Technique - see separate book.

Optional Extras - see separate books.



Maintenance

In order to derive full benefit from the sprayer for many years the following few but important rules should be kept:



Cleaning the Sprayer

Guidelines

Read the whole label of the chemical. Take note of any particular instructions regarding recommended protective clothing, deactivating agents, etc. Read the detergent and deactivating agent labels. If cleaning procedures are given, follow them closely.

Be familiar with local legislation regarding disposal of pesticides washings, mandatory decontamination methods, etc. Contact the appropriate body, e.g. Dept of Agriculture.

Pesticide washings can usually be sprayed out on a soakaway. This is an area of ground that is not used for cropping. You must avoid seepage or run-off of residues into streams, water courses, ditches, wells, springs, etc. The washings from the cleaning area must not enter sewers. Drainage must lead to a soakaway.

Cleaning starts with the calibration, as a well calibrated sprayer will ensure the minimal amount of remaining spray liquid.

It is good practice to clean the sprayer immediately after use thereby rendering the sprayer safe and ready for the next pesticide application. This also prolongs the life of the components.

It is sometimes necessary to leave spray liquid in the tank for short periods, e.g. overnight, or until the weather becomes suitable for spraying again. Unauthorized persons and animals must not have access to the sprayer under these circumstances.

If the product applied is corrosive, it is recommended to coat all metal parts of the sprayer before and after use with a suitable rust inhibitor.

Remember: Clean sprayers are safe sprayers.
Clean sprayers are ready for action.
Clean sprayers can not be damaged by pesticides and their solvents.

Cleaning

1. Dilute remaining spray liquid in the tank with at least 10 parts water and spray the liquid out in the field you have just sprayed.

Note: It is advisable to increase the forward speed (double if possible) and reduce the pressure. For S4110 nozzles, pressure may be reduced to 1.5 bar.

2. Select and use the appropriate protective clothing. Select detergent suitable for cleaning and suitable deactivating agents if necessary.
3. Rinse and clean sprayer and tractor externally. Use detergent if necessary.
4. Remove tank and suction filters and clean. Be careful not to damage the mesh. Replace suction filter top. Replace filters when the sprayer is completely clean.
5. With the pump running, rinse the inside of the tank. Remember the tank roof. Rinse and operate all components and any equipment that has been in contact with the chemical.

Before opening the distribution valves and spraying the liquid out, decide whether this should be done in the field again or on the soakaway.

6. After spraying the liquid out, stop the pump and fill at least 1/5 of the tank with clean water. Note that some chemicals require the tank to be completely filled. Add appropriate detergent and/or deactivating agent, e.g. Washing soda or Triple ammonia.

Note: If a cleaning procedure is given on the chemical label, follow it closely.

7. Start the pump and operate all controls enabling the liquid to come in contact with all the components. Leave the distribution valves until last. Some detergents and deactivating agents work best if left in the tank for a short period. Check the label.
8. Drain the tank and let pump run dry. Rinse inside of tank, again letting the pump run dry.
9. Stop the pump. If the pesticides used have a tendency to block nozzles and filters, remove and clean them now.
10. Replace all the filters and nozzles and store the sprayer. If, from previous experiences, it is noted that the solvents in the pesticide are particularly aggressive, store the sprayer with the tank lid open.

Note: If the sprayer is cleaned with a high pressure cleaner we recommend lubrication of the entire machine.

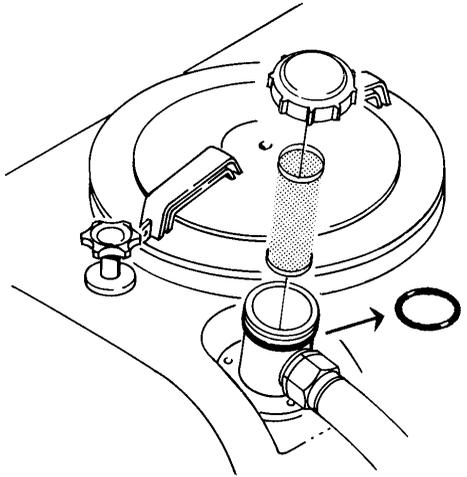




Filters

Clean filters ensure :

- Sprayer components such as valves, diaphragms and operating unit are not hindered or damaged during operation.
- Nozzle blockages do not occur whilst spraying.
- Long life of pump. A blocked suction filter will result in pump cavitation.



Suction filter

The main filter protecting sprayer components is the suction filter at the top of the tank. Check it regularly. Ensure the O-ring on filter housing is in good condition and lubricated.

BK Pressure filter / In Line Filters (if fitted)

The BK operating unit has a built-in pressure filter. Unscrew the filter bowl to inspect and clean the filter.

The boom may be equipped with In Line Filters. Unscrew the filter bowl to inspect and clean the filter.

Lubrication

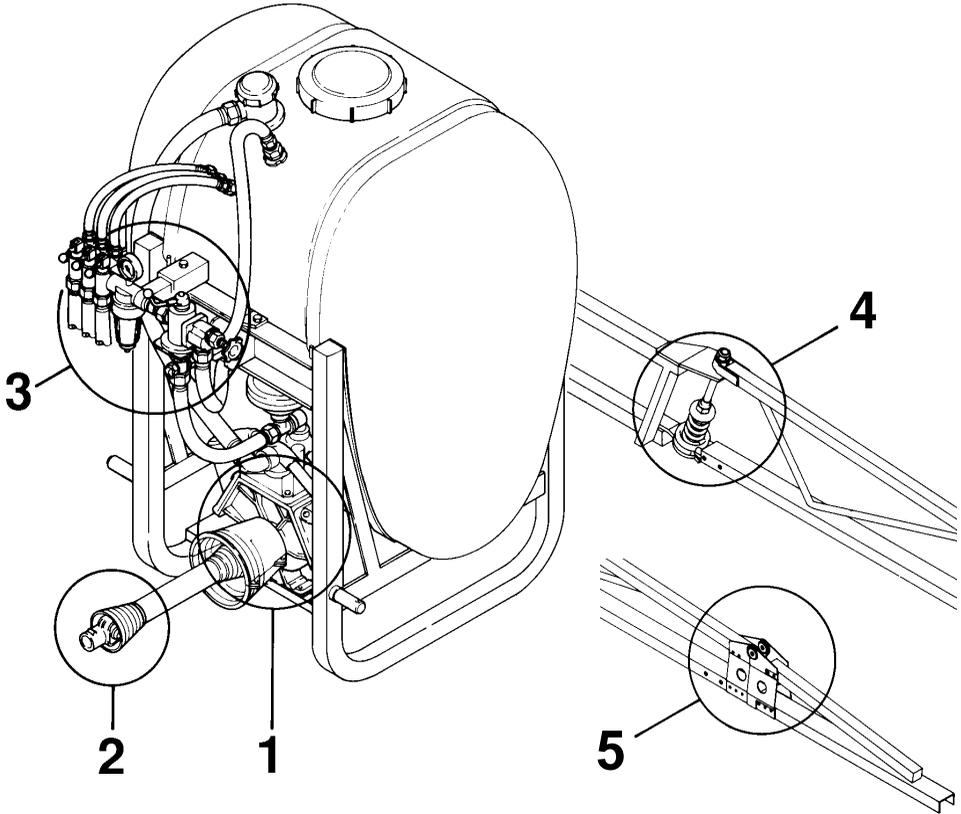
Recommended lubrication is shown in following tables. Use ball bearing grease (lithium grease No.2)

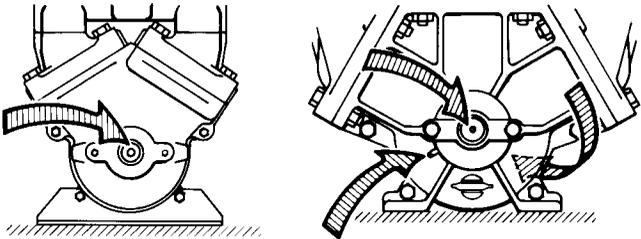
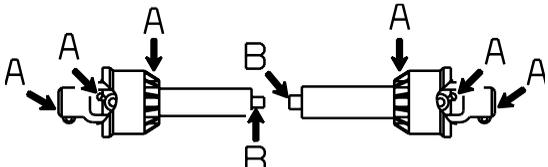
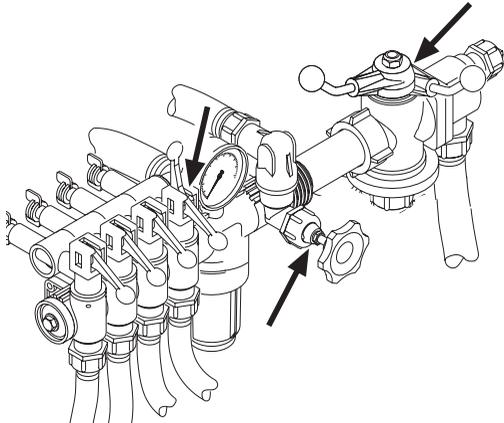
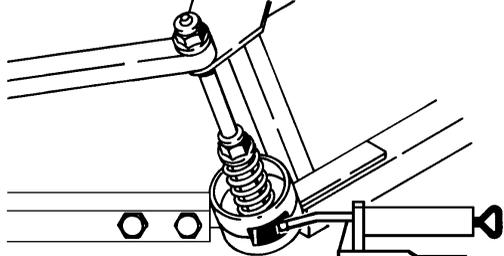
Note: If the sprayers are cleaned with a high pressure cleaner or it has been used to spray fertilizer, we recommend lubrication of the entire machine.

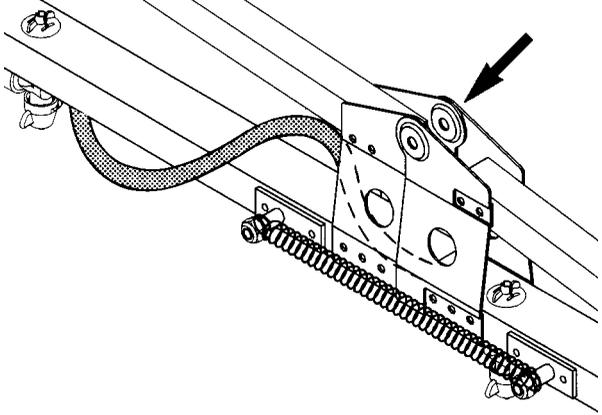


-  **5** Position on sprayer
-  Oil
-  Grease

-  Operation hours
-  Page to find more information
-  Winter protection/
off-season storage



POS.					
1		X	40		14
2 A B		X X	12 40		4
3	X		20		7 15
4		X	40		13

POS.					
5		X	40		13



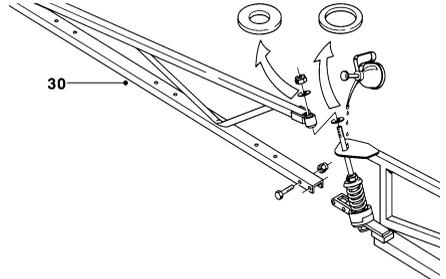
Re-adjustment of the boom

After having used the sprayer for some days the boom should be adjusted as follows:

Boom breakaway

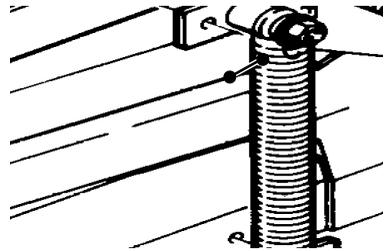
The function of the breakaway is to prevent or reduce boom damage if it should strike an object or the ground. If it is over-tight, it will not function. If it is too loose, it will yawn (forward and back movement) under spraying.

Lubricate coupling before adjusting spring tension. Slacken nut **A** to decrease breakaway resistance. Do not overtighten; better loose than over-tight. Minor adjustments in the field may be necessary. Ensure also channel bolts **B** are tight.



Outer section

The hinge should be firm. If tight it is difficult to fold. To adjust, tighten or loosen nuts **C**.



Changing of valves and diaphragms

Valves

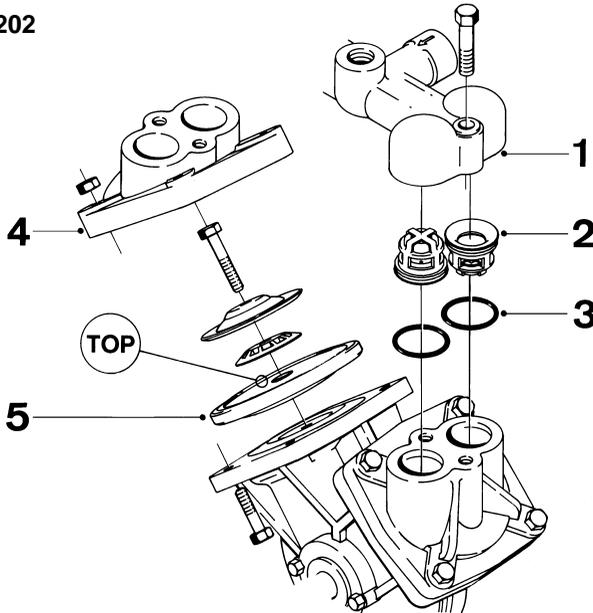
Remove valve cover (1). Before changing the valves (2) **Note** the orientation of the valves so that they are replaced correctly.

It is recommended to use new gaskets (3) when changing or checking the valves.

Diaphragms

Remove the diaphragm cover (4) after having dismantled the valve cover. The diaphragm (5) may then be changed. If fluids have reached the crankcase, re-grease the pump thoroughly. Check also the drain hole at the bottom of the pump is not blocked.

Model 1202



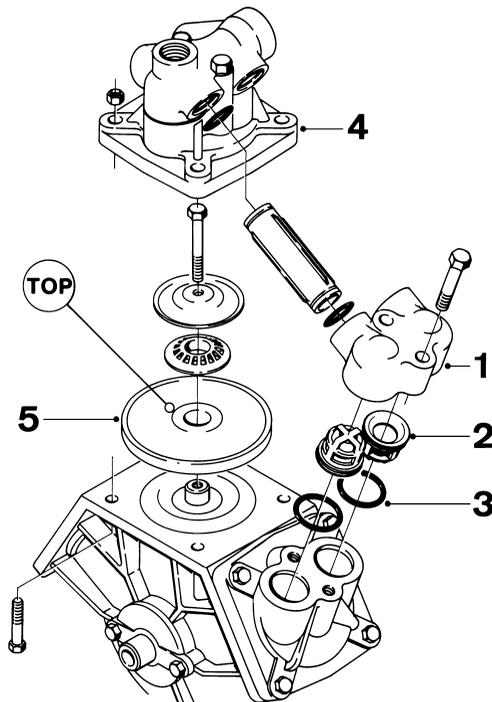
Pump Model	Valve cover Nm	Diaphragm cover Nm	Diaphragm bolt Nm
1202	70	70	60
1302	60	70	60

1 Nm = 0.74 ft-lb





Model 1302

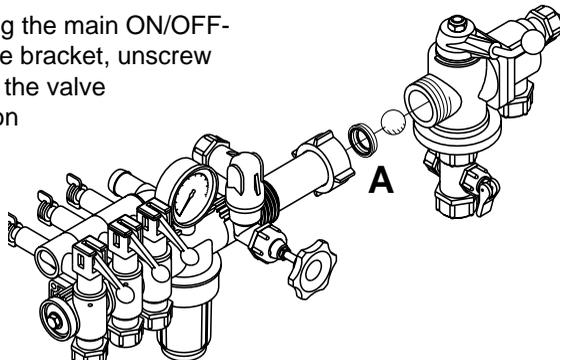


Changing the ball seat in operating unit

If the main ON/OFF valve does not seal properly (dripping nozzles when main ON/OFF valve is closed), the ball and seat should be checked.

Remove the 2 bolts fixing the main ON/OFF-pressure valve unit to the bracket, unscrew the union nut **A** and pull the valve away from the distribution valves.

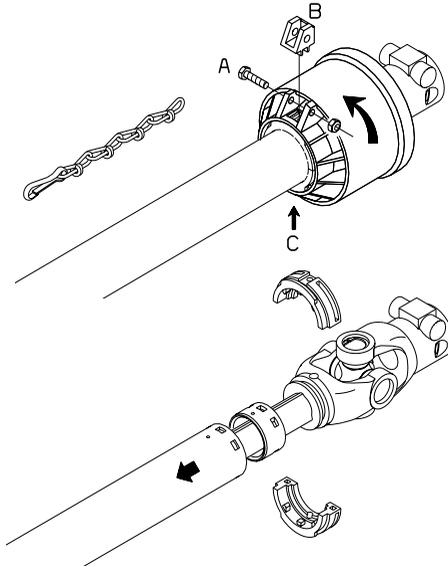
Check the ball for sharp edges and scratches, and check the ball seat for cracks and wear - replace if necessary.



Replacement of transmission shaft protection guards

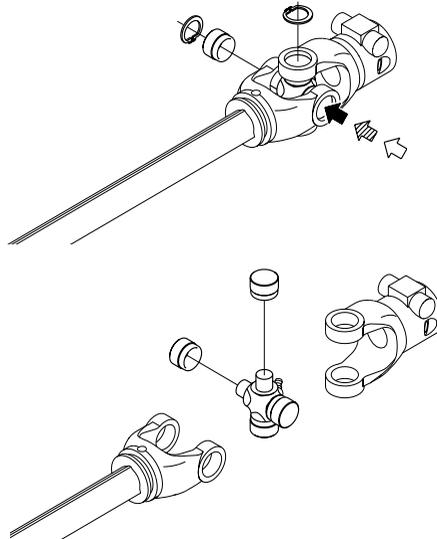
The replacement of defective protection guards is easy to do.

1. Remove bolt **A**, lock **B** and grease nipple **C**. Twist universal cross cover 1/4 turn and pull it backwards.
2. Remove the synthetic bearings and protection tube.
- 2a. Remove inner bush from protection tube.
3. Assemble again in reverse order, using new parts where necessary. Remember to fit chains again.
4. Grease bearings.
Use only genuine HARDI spare parts to service the transmission shaft.



Replacement of transmission shaft cross journals.

1. Remove protection guard as described previously.
2. Remove Seeger circlip rings
3. Press the cross journal sideways - use hammer and mandrel if necessary.
4. Remove needle bearing cups and cross journal can now be removed.
5. Carefully remove needle bearing cups from new cross journal and install it in reverse order. Before fitting the needle bearing cups again, check that needles are placed correctly. Avoid dust and dirt in the new bearings.



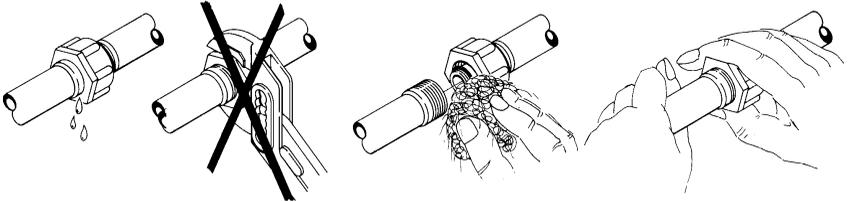
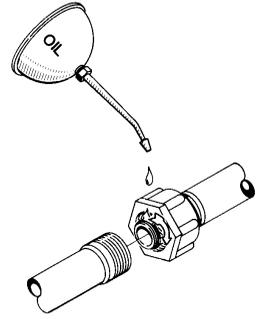


Nozzle tubes and fittings

Poor seals are usually caused by:

- . Missing O-rings or gaskets
- . Damaged or incorrectly seated O-rings
- . Dry or deformed O-rings or gaskets
- . Foreign bodies

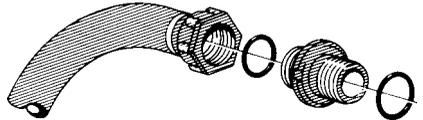
Therefore, in case of leaks: **DO NOT** over-tighten. Disassemble, check condition and position of O-ring or gasket, clean lubricate and reassemble.



For **radial** connections only hand tighten them.

The O-ring to be lubricated **ALL THE WAY ROUND** before fitting on to the nozzle tube.

For **axial** connections, a little mechanical leverage may be used.



Off-season storage

When the spraying season is over you should devote some extra time to the sprayer before it is stored.

Hoses

Check that none of the hoses are caught or have sharp bends.

A leaky hose can give an annoying delay in the middle of the spraying job. Therefore check all the hoses and change if there is any doubt about the durability.

Paint

Some chemicals are very hard on paints. It is therefore well advised to remove rust, if any, and then touch up the paint.

Tank

Check that no chemical residues are left from the last spraying. Chemical residues must not be left in the tank for a long time. It will reduce the life of the tank. See Cleaning the sprayer.

Transmission shaft

Check that the transmission shaft fulfils its security purpose, e.g. that shields and protective tubes are intact.

Anti-freeze precaution

If the sprayer is not stored in a frost- proof place you should take the following precautions: Put at least 10 litres of 33% anti-freeze mixture in the tank and let the pump run a few minutes so that the entire system including spray hose are filled. Remove the glycerine filled pressure gauge and store it frost free in vertical position.

The anti-freeze solution also hinders the O-rings and gaskets from drying out.





Operational problems

In cases where breakdowns have occurred the same factors always seem to come into play:

- Minor leaks on the suction side of the pump will reduce the pump capacity or stop the suction completely.
- A clogged suction filter will hinder or prevent suction so that the pump does not operate satisfactorily.
- Clogged up pressure filters will result in increasing pressure at the pressure gauge but lower pressure at the nozzles.
- Foreign bodies stuck in the pump valves with the result that these cannot close tightly against the valve seat. This reduces pump efficiency.
- Poorly reassembled pumps, especially diaphragm covers will allow the pump to suck air resulting in reduced or no capacity.

Therefore **ALWAYS** check:

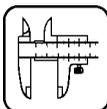
1. Suction, pressure and nozzle filters are clean.
2. Hoses for leaks and cracks, paying particular attention to suction hoses.
3. Gaskets and O-rings are present and in good condition.
4. Pressure gauge is in good working order. Correct dosage depends on it.
5. Operating unit functions properly. Use clean water to check.



Fault	Probable cause	Control / remedy
Liquid system		
No spray from boom when turned on.	Air leak on suction.	Check if red suction lid/O-ring are sealing. Check suction tube and fittings. Check tightness of pump diaphragm and valve covers.
	Air in system.	Fill suction hose with water for initial prime.
	Suction/pressure filters clogged.	Clean filters. Check yellow suction pipe is not obstructed or placed too near the tank bottom.
Lack of pressure.	Incorrect assembly.	Agitation nozzles not fitted. Too little distance between yellow suction pipe and tank bottom.
	Pump valves blocked or worn.	Check for obstructions and wear.
	Defect pressure gauge.	Check for dirt at inlet of gauge.
Pressure dropping.	Filters clogging.	Clean all filters. Fill with cleaner water. If using powders, make sure agitation is on.
	Nozzles worn.	Check flow rate and replace nozzles if it exceeds 10%.
	Tank is airtight.	Check vent is clear.
	Sucking air towards end of tank load.	Excessive agitation, turn off. Returns inside tank need relocation.

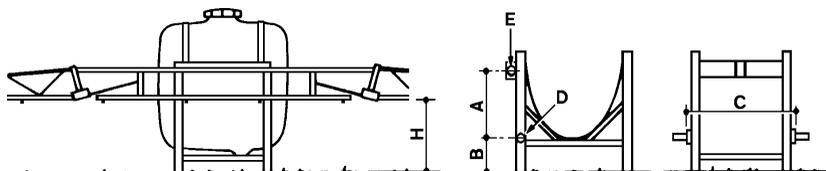


Fault	Probable cause	Control / remedy
Pressure increasing	Pressure filters beginning to clog.	Clean all filters.
	Agitation nozzles clogged.	Check by turning agitation off/on.
Formation of foam.	Air is being sucked into system.	Check tightness / gaskets / O-rings of all fittings on suction side.
	Excessive liquid agitation.	Turn agitation off. Reduce pump r/min.
		Ensure returns inside tank are present.
		Use foam damping additive.
Liquid leaks from bottom of pump.	Damaged diaphragm.	Replace. See Changing of valves and diaphragms.



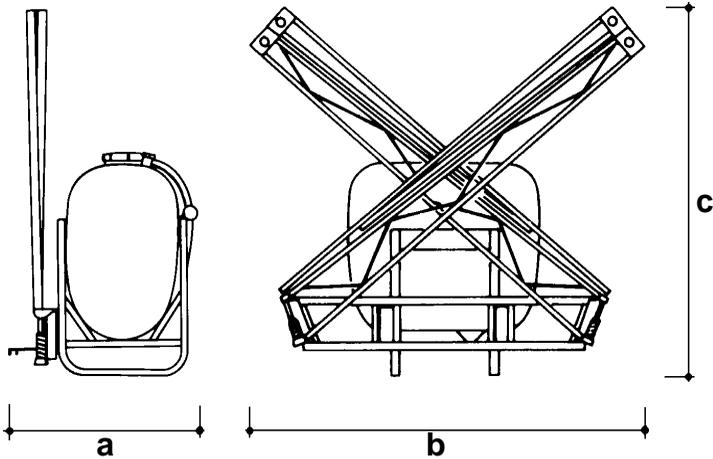
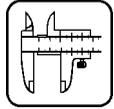
Technical specifications

Measure and weights



Tank size l	Boom height		A mm	B mm	C mm	D ø mm	E ø mm
	Min. H mm	Max. H mm					
300	145	545	490	229	625	22	26
400	131	531	476	229	645	22	26
600	95	575	589	235	645	22	26
800	140	620	634	230	825	28	26

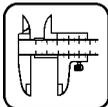
Tank size l	Spraying width m	Pump model	Measure a x b x c cm	Weight kg
300	6	1202	140 x 190 x 170	145
400	8	1202	140 x 190 x 210	166
600	10	1302	140 x 190 x 210	197
800	10	1302	140 x 190 x 210	223



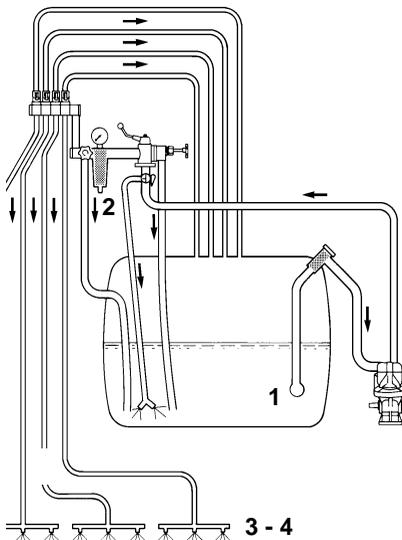
Power consumption and capacity

1202/9.0		r/min									
		300		400		500		540		600	
bar	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	
0	56	0,91	72	1,28	93	1,52	99	1,63	112	1,79	
5	40	1,11	53	1,36	66	1,60	71	1,71	79	1,86	
10	38	1,38	52	1,74	64	1,79	69	1,87	77	2,07	
15	37	1,60	50	1,97	62	2,32	67	2,48	75	2,76	
Rotation per min.	r/min	Capacity				l/min	Suction height			0,0 m	
Power consumption	kW	Max. pressure				15bar	Weight			24,0 kg	

1302/9.0		r/min									
		300		400		500		540		600	
bar	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	
0	63	0,90	84	1,19	103	1,51	114	1,61	125	1,80	
5	58	0,94	79	1,29	96	1,61	105	1,75	116	1,93	
10	56	1,30	76	1,80	94	2,30	101	2,48	111	2,72	
15	55	1,80	74	2,22	93	2,92	99	3,18	109	3,54	
Rotation per min.	r/min	Capacity				l/min	Suction height			0,0 m	
Power consumption	kW	Max. pressure				15bar	Weight			35,0 kg	



Filters and nozzles



Pos.	Mesh/ colour	Description/ nozzle
1	30	Suction filter
2	50	Pressure filter
3	50 blue	Nozzle 4110-20
4	50 blue	Nozzle 4110-24
	50 blue	Nozzle 4110-36

Temperature and pressure ranges

Operating temperature range: 20 to 40° C.

Operating pressure for safety valve: 15 bar

Electrical connections

Rear lights

Position	Wire colour
1. LHS direction indicator	Yellow
2. Free	Blue
3. Frame	White
4. RHS direction indicator	Green
5. RHS rear position lamp	Brown
6. Stop lamps	Red
7. LHS rear position lamp	Black

Materials and recycling

Tank	HDPE
Hoses	PVC
Valves	mainly glass-filled PA.
Fittings	PA

Disposal of the sprayer

When the equipment has completed its working life, it must be thoroughly cleaned. The tank, hose and synthetic fittings can be incinerated at an authorized disposal plant. The metallic parts can be scrapped. Always follow local legislation regarding disposal.

Pictorial symbols



Description



Pressure



Function



Cleaning



Connection



Lubrication



Warning



Winter storage



Operating



Operational problems



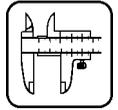
Service/adjustment

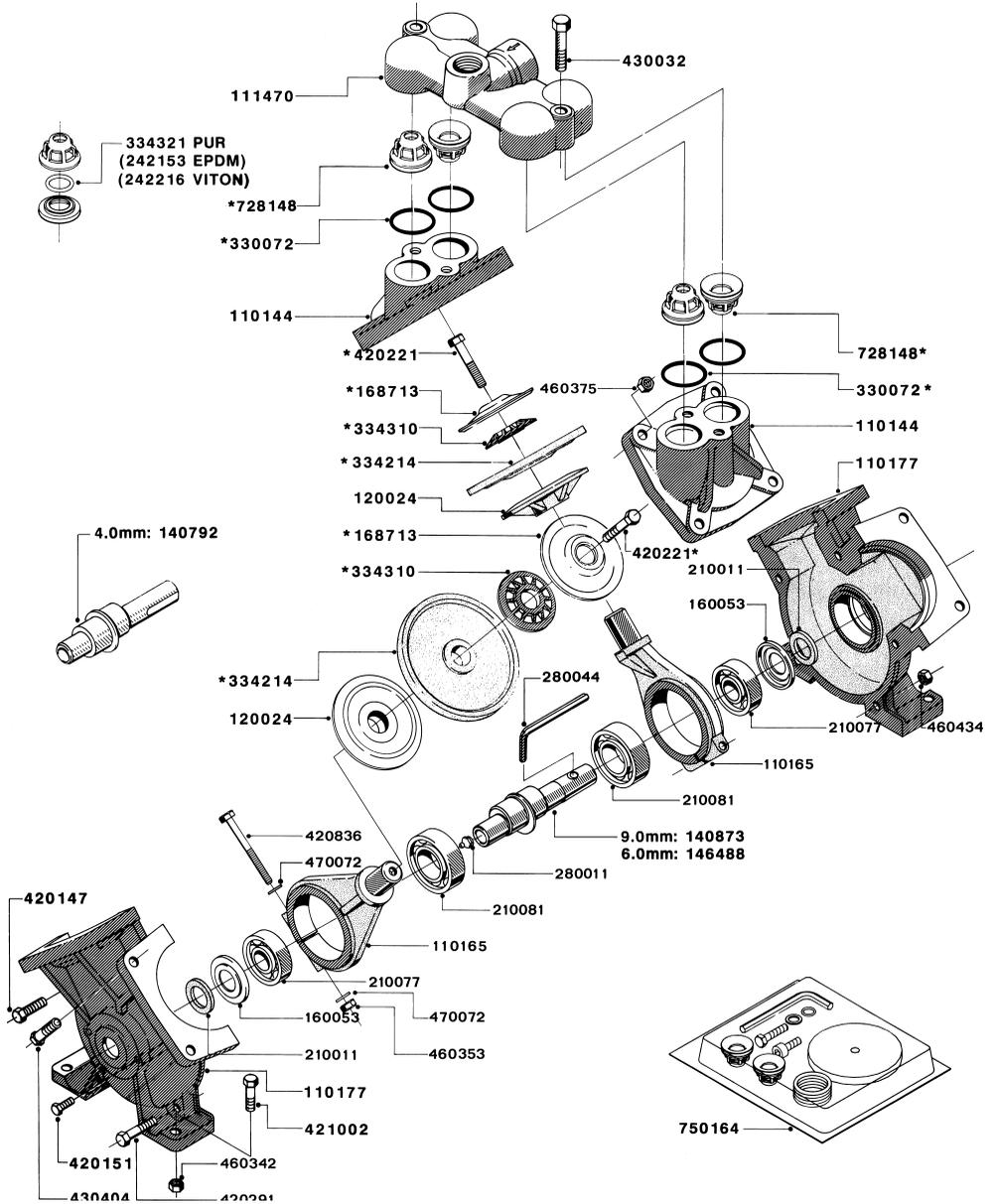


Technical specifications



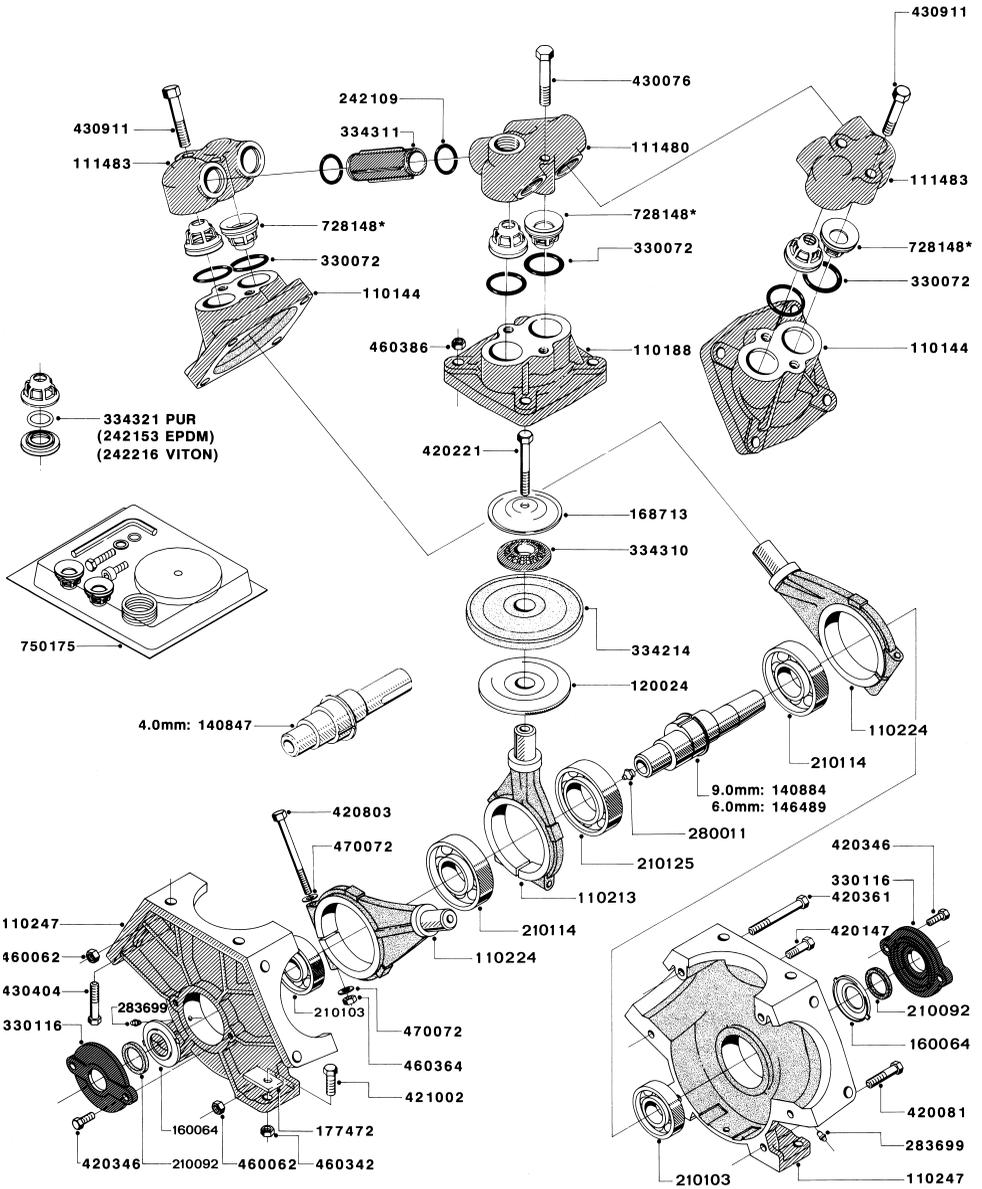
Liquid flow





A10 30-9-93

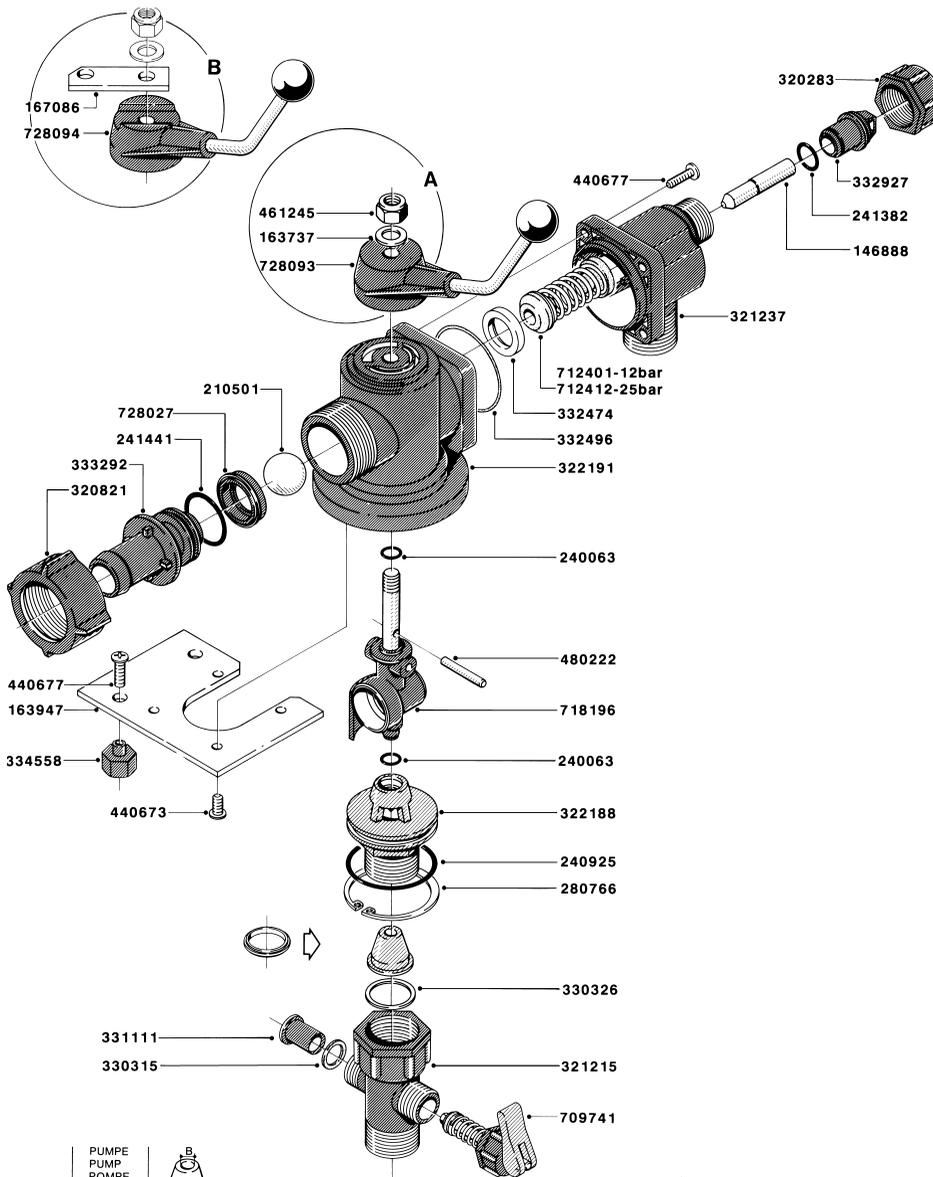
1202/foot



1303/foot

4-1-93

A12

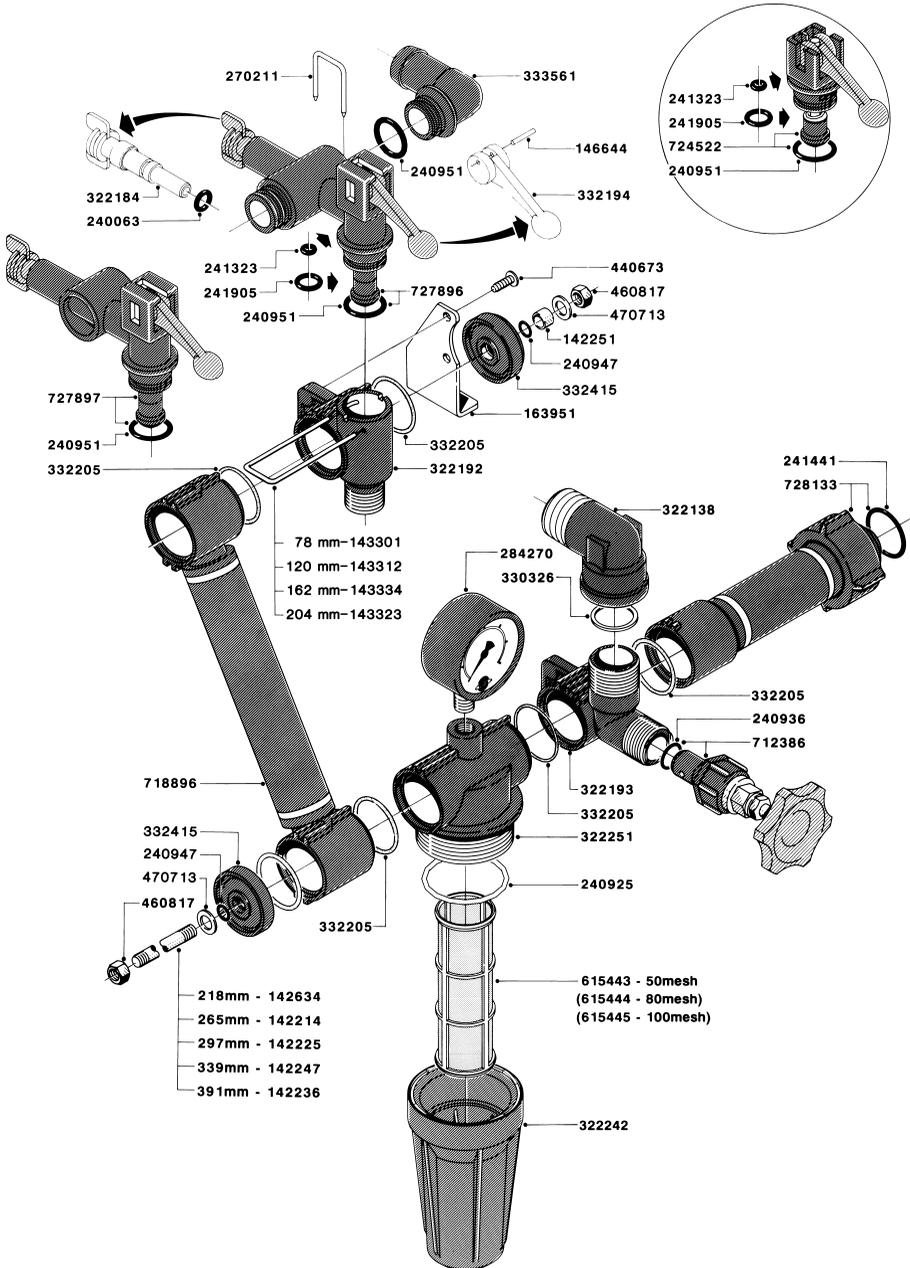


PUMPE PUMP POMPE BOMBA	B	B mm	FARVE	COLOUR	COULEUR	FARBE	COLOR
600	333314	5,2	BLÅ	BLUE	BLEU	BLAU	AZUL
1202	333325	7,3	RØD	RED	ROUGE	ROT	ROJO
1302	333336	10,0	HVID	WHITE	BLANC	WEISS	BLANCO
361 HT	333347	9,6	ORANGE	ORANGE	ORANGE	ORANGE	ANARANJADO
361	333351	12,5	SORT	BLACK	NOIR	SCHWARZ	NEGRO
320 HT	333362	6	GRØN	GREEN	VERT	GRÜN	VERDE
462							145305

B9

30-9-93

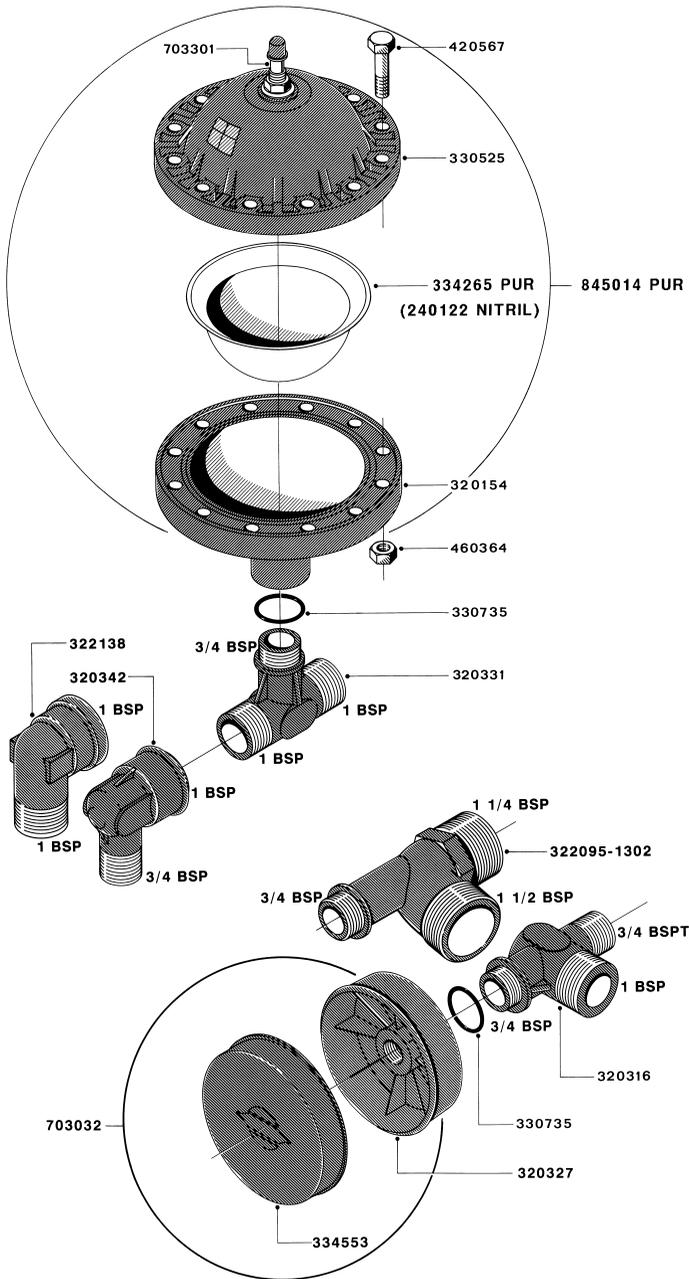
Unit BK 180K (92)



Distributor BK 180K

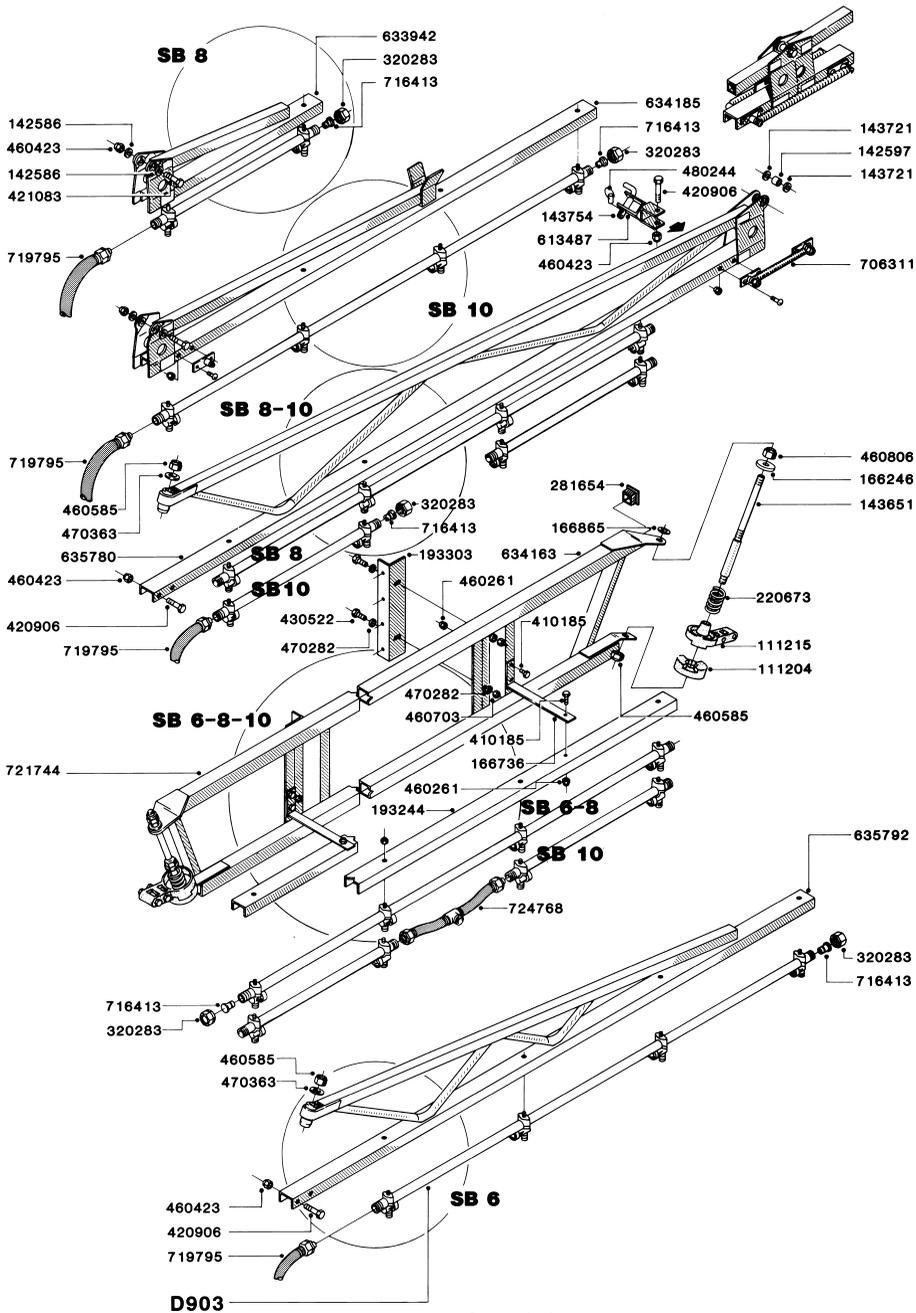
24-1094

B13



B300 18-2-91

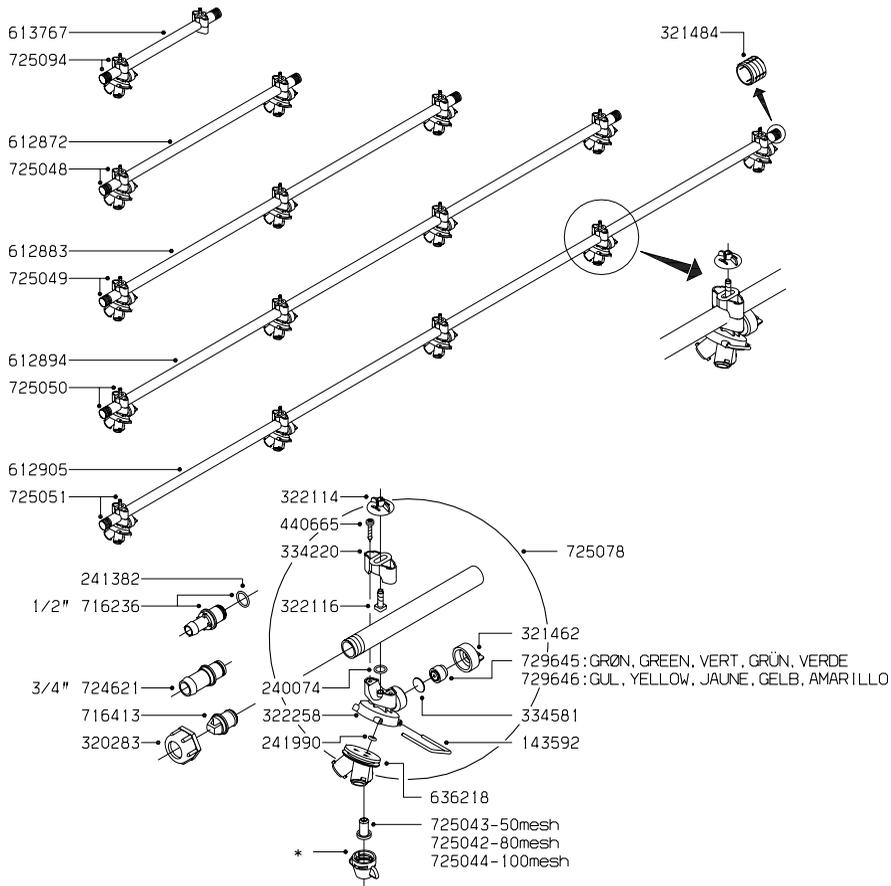
Damper HJ73



SB 6/8/10 m

18-2-91

D2

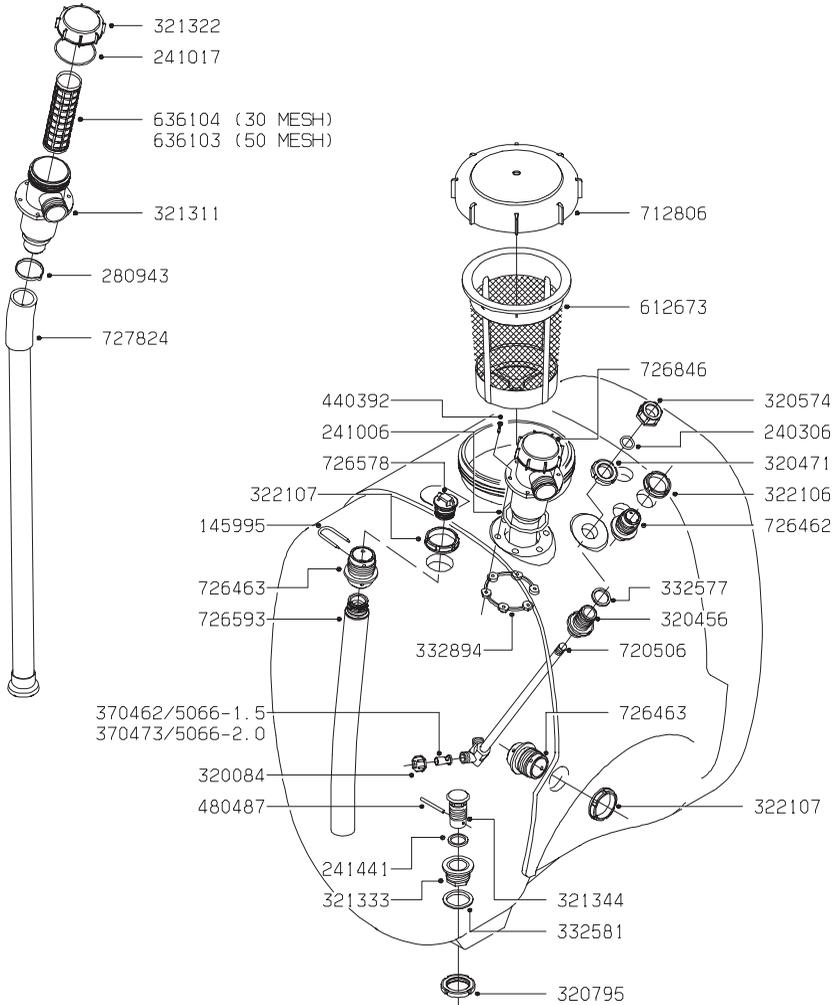
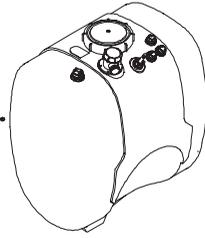


*		FARVE	COLOUR	COULEUR	FARBE	COLOR
371469	S4110-08	VIOLET	VIOLET	VIOLET	VIOLETT	VIOLETA
371470	S4110-10	BRUN	BROWN	BRUN	BRAUN	MARRON
371471	S4110-12	GUL	YELLOW	JAUNE	GELB	AMARILLO
371472	S4110-14	ORANGE	ORANGE	ORANGE	ORANGE	ANARANJADO
371473	S4110-16	RØD	RED	ROUGE	ROT	ROJO
371474	S4110-18	HVID	WHITE	BLANC	WEISS	BLANCO
371475	S4110-20	GRØN	GREEN	VERT	GRÜN	VERDE
371476	S4110-24	TURKIS	TURQUOISE BLUE	BLEU TURQUOISE	TÜRKİS	AZUL TURQUOI
371477	S4110-30	BLÅ	BLUE	BLEU	BLAU	AZUL
371478	S4110-36	GRÅ	GREY	GRIS	GRAU	GRIS
371479	S4110-44	ELFENBEN	IVORY	IVOIRE	ELFENBEIN	MARFIL

D904

Boom tube TRIPLET SNAP FIT

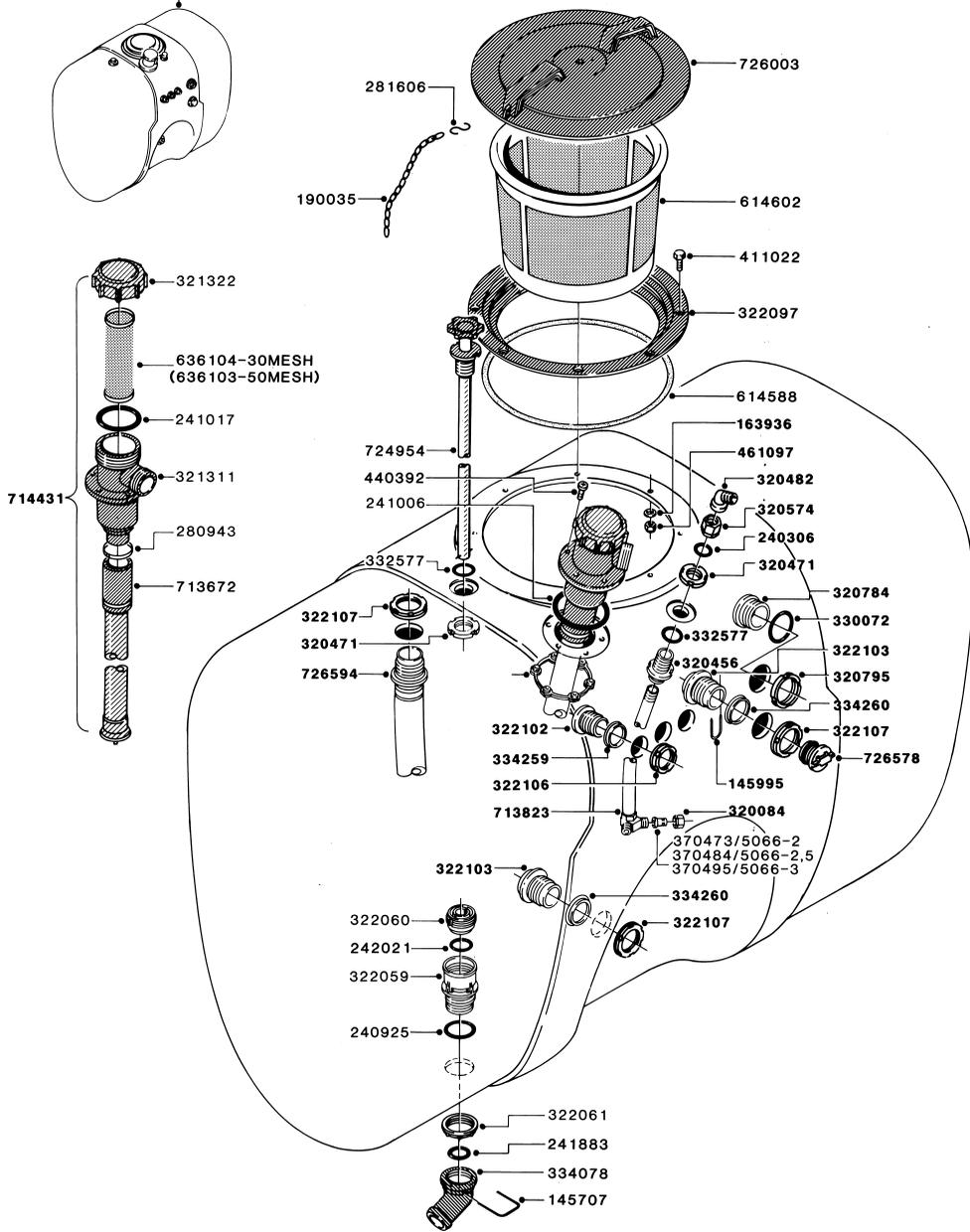
NK300 - 726872
 NK400 - 726866



NK 300/400

E5

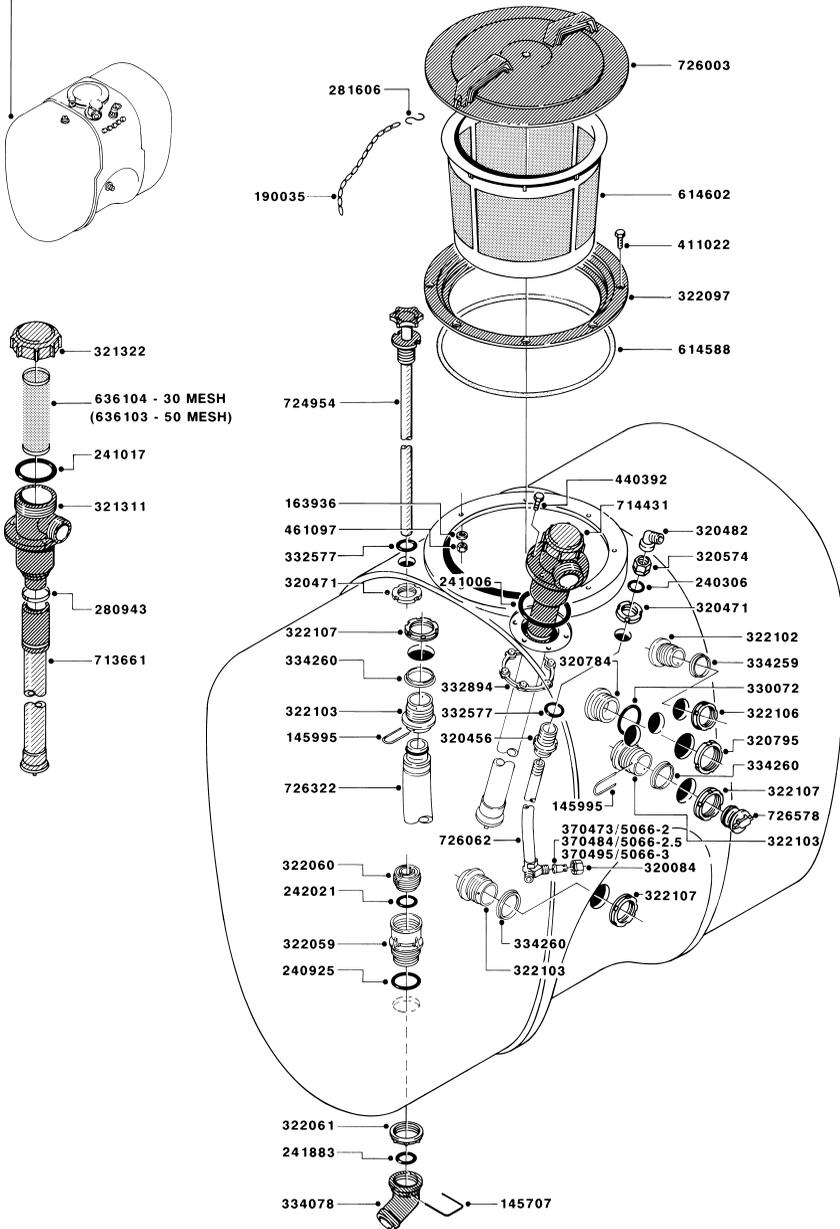
FØR, BEFORE, AVANT, VOR, ANTES 1.8.88 716214
 EFTER, AFTER, APRES, NACH, DESPUES 1.8.88 725915



E6 2-9-92

NK 800

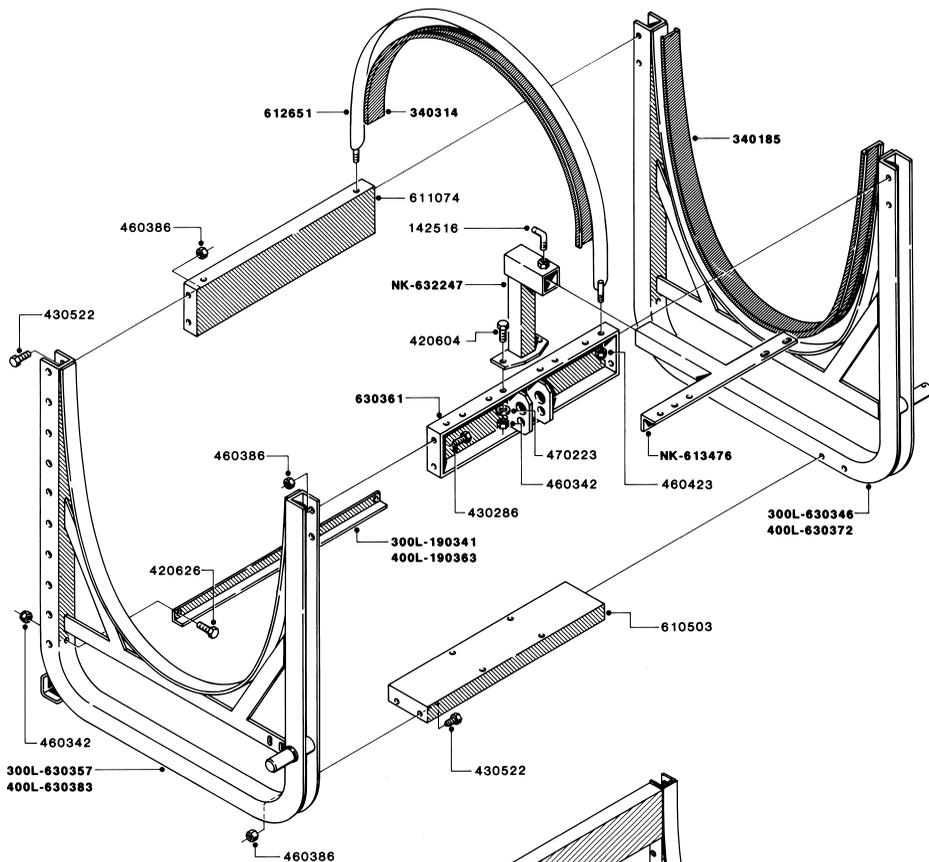
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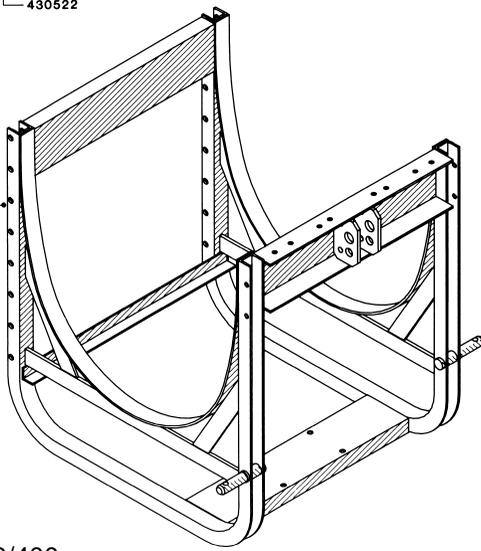
NK/LX 600

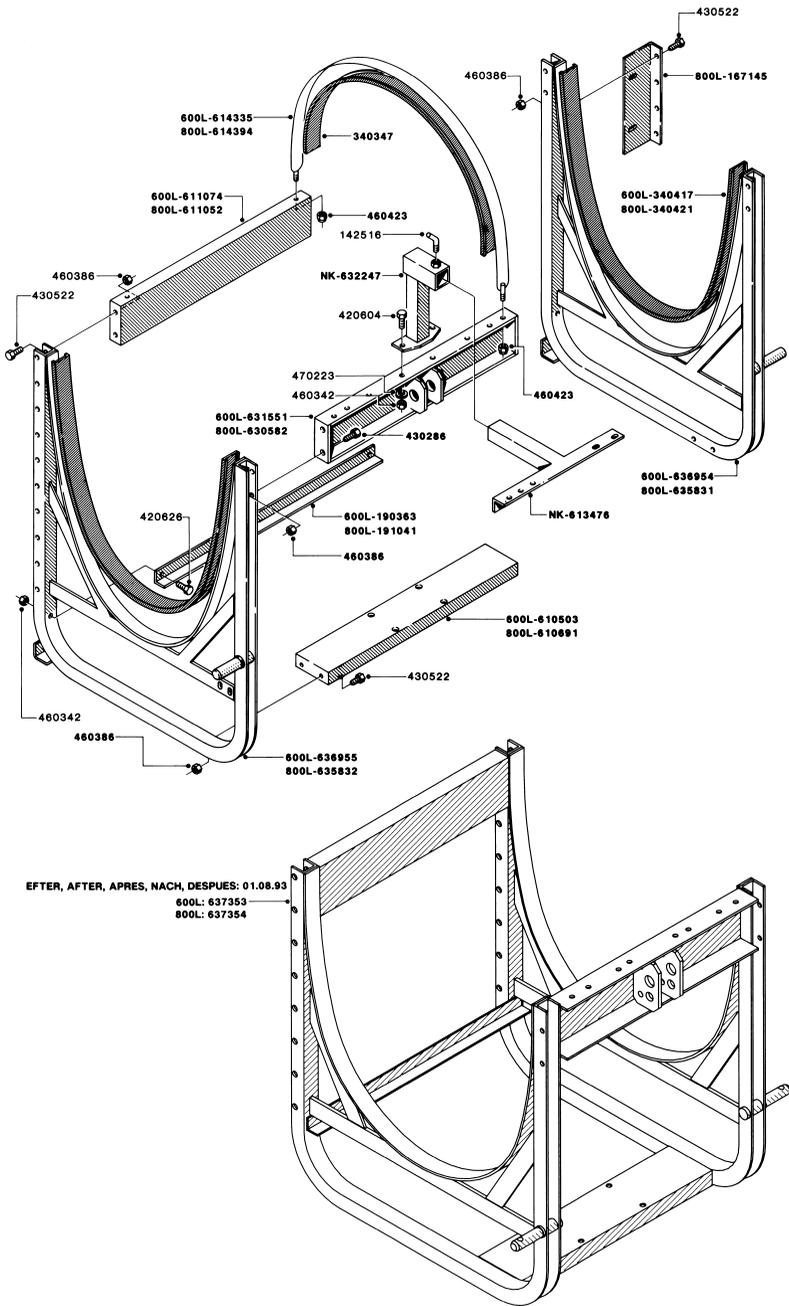
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E7



EFTER, AFTER, APRES, NACH, DESPUES: 01.08.93
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 400L: 637352

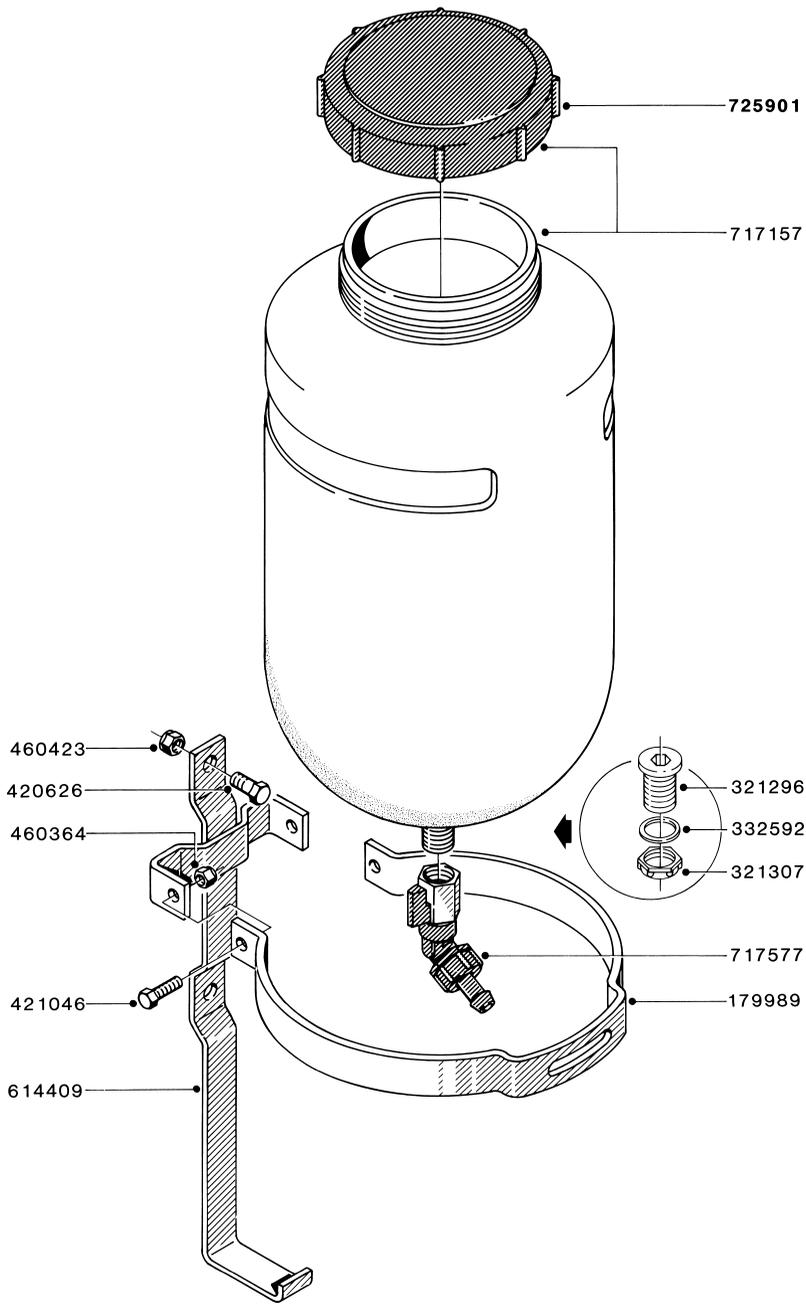




E103

24-10-94

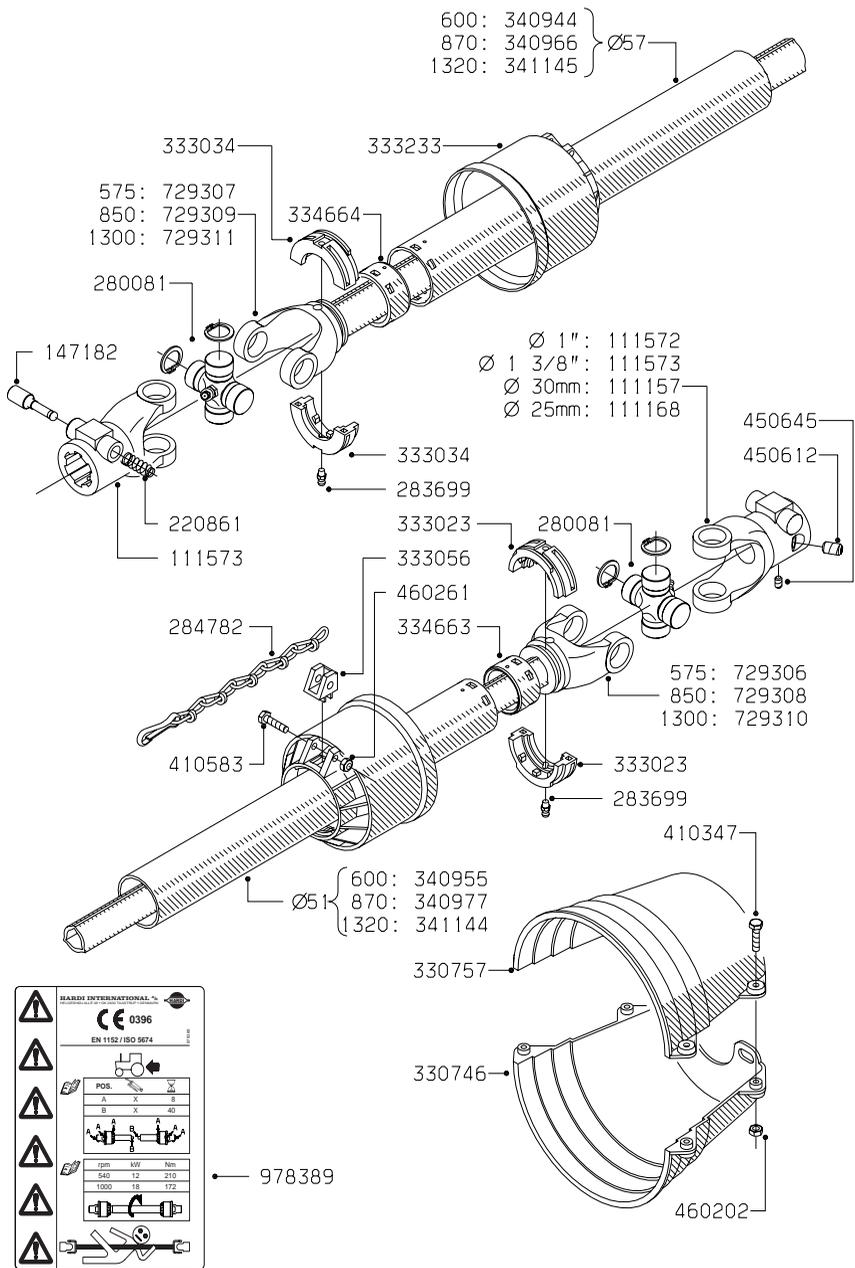
NL/NK 600/800



15 l Clean water tank

18-2-91

K107



Shaft (94)

1-3-95

K604

