

OPERATION AND MAINTENANCE MANUAL

HOSE REEL

*complete with hydraulic
motor with automatic
end-of-winding
stop*



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1. MARKING AND IDENTIFICATION DATA

Below is a reproduction of the marking featured on the equipment.

Macchina tipo - Machine type - Machine type - Maschine typ	ASPO AVVOLGITUBO
Versione - Version - Version - Ausführung	ASPO AVVOLGITUBO ZINCATO D.1200X1400/1I d.220
Nr. Di serie - Nr. de serie - Serial Nr. - Serien Nr.	998800002570_C.O.24/00512
Motore idraulico - Moteur hydraulique - Hydraulic engine - Hydraulischer Motor	1 X MP250CU
Gir/min. - Tours/min. - Rouds/min. - Upm/min.	9/10 RPM
Peso kg. - Poids kg. - Weight kg. - Gewicht kg.	235
Anno di fabbricazione - Année de construction - Year of construction - Baujahr	2024



ATTENTION!

Do not remove, tamper with or make the "EC" marking on the equipment illegible.

2. PREAMBLE

This operation, instruction and maintenance manual aims at providing the necessary information for the correct use of the equipment, guaranteeing superior safety levels.

We invite everyone appointed for the operation, maintenance and disposal of the equipment to read this manual carefully before performing any tasks on it.

3. GENERAL FEATURES

3.1 Signs and symbols

The following symbols are used in this manual. They identify and allow you to recognise the type of hazard:

Paragraphs preceded by this symbol contain highly important safety information and advice. Failure to comply may lead to:



- *danger to people's safety;*
- *loss of contractual rights;*
- *release of the manufacturer's liability.*



This symbol indicates actions which must under no circumstances be carried out!

Danger of damage to the equipment or personal injury.



GENERAL DANGER

Danger for the health and safety of the people involved.



The product complies with the requirements set by the new directives introduced for the protection of the environment and it must be disposed of appropriately at the end of its life cycle.



Equipment for internal use only

3.2 Definitions

Below are some definitions to clarify and identify unequivocally the terms used throughout this manual:

TERM	DEFINITION
Operator, user	person in charge of installation, operation, maintenance and cleaning.
Danger	source of possible injuries or health damages
Hazardous situation	any situation in which an <i>Operator</i> is exposed to one or more <i>Dangers</i>
Risk	combination of probability and gravity of possible injuries or health damage in a <i>Hazardous situation</i>
Danger zone	any zone inside and/or in proximity to the machine in which the presence of a person constitutes a <i>Risk</i> for the safety and health of the said person
Person at risk	any person situated completely or partially in a <i>Danger zone</i>
Protections	safety measures that consist in the use of specific technical means (Guards and Safety Devices) to protect <i>Operators</i> against <i>Dangers</i>
Guard	an element of a machine used specifically to provide <i>Protection</i> by means of a physical barrier; depending on how it is built, it may be referred to as a hood, cover, screen, door, casing, segregation, etc.
Safety device	a device (other than a <i>Guard</i>) that eliminates or reduces the risk; it may be used alone or in association with a <i>Guard</i>
Foreseen use	use of the machine in compliance with the information provided in the operating instructions
Reasonably foreseeable incorrect use	use of the machine other than that indicated in the operating instructions, yet which may derive from easily foreseeable human behaviour.
Customer	the person who purchased the machine and/or who manages it and uses it regularly (for example: company, entrepreneur, firm.)
Skilled personnel	operators who, based on their professional training, experience, knowledge of relevant regulations and accident prevention regulations, are in a position to assess the work they have been assigned and recognise and avoid possible dangers (e.g.: engineer, electrician)

3.3 Liability

The update of the operation, instruction and maintenance manual corresponds to the date indicated on the cover.

The operating instructions herein take into account the experience and know-how accrued by up until the date of update.



The manufacturer will not be held in any way liable for damage and malfunctioning caused by: incorrect use, failure to observe the instructions provided herein, repairs not performed professionally and parts replacements with spare parts other than those specified herein (the assembly and use of non-genuine spare parts and accessories could adversely affect the operation of the equipment), unauthorised modifications or interventions, lack of maintenance, power supply failures, improper machine use.

Please note that the diagrams and graphs shown in this manual are not to scale. They are included to supplement the information provided and only act to support them, but they are not aimed at providing a detailed representation of the piece of equipment supplied.



4. TECHNICAL DATA

4.1 Characteristics of the equipment

The characteristics of the equipment are as follows:

Total weight [kg]	approximately 235 kg (with hose empty)
Dimensions (L x H x W) [mm]	1850 x 1200 x 1540

4.2 Operating characteristics


	Speed of rotation [rpm]	10
	Winding capacity [m]	650 (Ø 3 ½") 500 (Ø 4") – 300 (Ø 5")
	List of the various parts featured	Hot galvanised frame MP - series 4 hydraulic motor Quick release hydraulic valve End-of-winding linkage Hydraulic pipes and fittings

4.3 Material worked

This piece of equipment was built for:

- the transfer of large quantities of water for irrigation;
- the transfer of liquid manure for farming activities.

4.4 Conditions of use

	The environmental conditions for the correct operation of this piece of equipment are as follows:	
	ambient temperature	between -10°C and +50°C
	relative humidity	normally present in the surrounding air
	altitude	up to 1,000 m above sea level



ATTENTION!

The work environment around the equipment must be kept clean and free of any material which could interfere with its normal operation.

The equipment must be situated in an area with an illuminance level of at least 200 Lux, to allow the performance of tasks with simple visual requirements.

4.5 Clearances and positioning

You must provide for a suitable space around the equipment and under all circumstances a clearance of at least 150 cm at the front, where the hose is wound/unwound, and on the the side, where the hydraulic motor is fitted.

The equipment must be fitted on a self-propelled vehicle, onto solid anchor points designed to withstand its weight. Correct installation is with the hose reel axis placed horizontally and in a stable manner to avoid falling or vibrations.



ATTENTION!

Do not place any objects on top of the equipment during use and/or when it is not in operation.



ATTENTION!

It is strictly forbidden to remove the fixed protections covering the moving rotating parts.

ATTENTION!



Installation of the equipment onto the self-propelled vehicle must be made using suitable load handling systems and with the connection to the hydraulic supply disconnected.



ATTENTION!

The equipment must be kept away from sources of heat and corrosive substances.

4.6 Operation, maintenance and support

Maintenance of the equipment can be delegated to the skilled personnel of or to other members of staff, provided the maintenance and intervention instructions provided in this operating, instruction and maintenance manual are followed.

4.7 Storage conditions

The equipment and its components must be stored and protected against humidity, in a non-aggressive place at ambient temperatures of between -10 and +55°C.

5. GENERAL DESCRIPTION

The hose reel is a piece of equipment intended for attachment solely to a self-propelled vehicle for irrigation and liquid manure transportation. The piece of equipment consists of a metallic frame base onto which a reel with a horizontal axis is fitted, fitted with side panels. A plastic hose is normally wound onto the reel, and it can be wound/unwound and carries irrigation water and/or liquid manure to the distribution system.

The equipment is fitted with a hydraulic motor to allow the reel to revolve in a clockwise or anti-clockwise direction and allow the hose unwinding and rewinding operations. The hydraulic motor is powered by the fluid from the hydraulic system used to drive the self-propelled vehicle, by means of flexible hydraulic hoses.

Appropriate quick release devices ensure connection of the hydraulic motor to the self-propelled vehicle system and a control unit, fitted inside the cab of the self-propelled vehicle, allows the user to invert the direction of rotation of the reel. The entire piece of equipment is operated by the operator on the control unit.

When the hose has been fully wound, a mechanical lever system is activated by the hose itself and leads to the hydraulic motor and hose reel stopping.



This piece of equipment is suitable solely for carrying irrigation water and/or liquid manure from the procurement point to the distribution point. Any other use is to be considered incorrect.

therefore not be held in any way liable for any damage deriving from usage of the equipment that differs from that envisaged.



ATTENTION!

This piece of equipment is envisaged for external use only. Positioning it in potentially explosive environments is not considered a lawful external use.

5.1 Signs on the equipment

Suitable safety signs are affixed to the equipment regarding the dangers and safety measures to implement, in addition to the operating conditions (speed of rotation [rpm]).



ATTENTION!

Do not remove or make the safety, danger and obligation signs on the equipment illegible.

6. GENERAL PRECAUTIONS

Read the following warnings carefully since they provide important information about the safety of installation and operation:

- ☑ the equipment must be attached to the self-propelled farming vehicle in a safe and secure way, by means of at least three anchor points, positioned with its axis horizontal and in a stable and secure way;
- ☑ installation must be performed in accordance with the instructions provided herein. Incorrect installation could cause property damage or harm persons and/or animals.
- ☑ before connecting the equipment to the self-propelled vehicle hydraulic system via the quick release valves, you must check that the data on the equipment data plate match those of the vehicle's hydraulic drive circuit;
- ☑ in the event of incompatibility between the hydraulic circuit connection valves on the vehicle and on the equipment, do not perform any modifications to adapt them. Avoid using adapters and/or extension cords;
- ☑ connect the equipment supply hoses to the self-propelled vehicle hydraulic system outlets, observing the direction of rotation correspondence;
- ☑ do not use the equipment if it is broken, not in perfect working order, or if it is missing some of its safety components and fixed protections. A piece of equipment in perfect working order and complete with all its components makes for safe usage;
- ☑ keep the work area clean and well lit and do not operate the equipment in explosive atmospheres, for instance in the presence of flammable liquids, gases or powders;
- ☑ if you decide not to use the equipment for a prolonged period of time, disconnect it from the vehicle hydraulic circuit.



It will not be held in any way liable for damage deriving from installation and use of the equipment that does not comply with the above.

7. COMMISSIONING THE EQUIPMENT AND CONTROL

7.1 Commissioning

Before using the equipment, proceed as follows:

- ☞ check that the equipment is positioned correctly and stably connected to the self-propelled vehicle, at the anchor points (1). Make sure the bolts are fastened tightly;
- ☞ check that the adjustable supports (2) have been adjusted and secured with the safety pins;
- ☞ check that all parts of the equipment are intact and in perfect working order, checking manually whether the moving parts are free to move (3, 4, 5 and 8)
- ☞ check that the self-propelled vehicle is turned off and then proceed by connecting the hydraulic motor (6) of the equipment to the hydraulic system of the self-propelled vehicle using flexible hoses (9);
- ☞ start the hydraulic motor, using the control unit situated in the control cab of the vehicle, and make sure there are no bleeds or motor fluid leaks;
- ☞ perform one or two equipment operating tests, using the controls on the control unit, checking movement and the direction of rotation of the reel (4);
- ☞ if everything is working properly, proceed and use the equipment;
- ☞ when you have finished using the equipment, turn off the self-propelled vehicle and disconnect the equipment from the vehicle hydraulic system at the quick release valves.



ATTENTION!

Do not start the equipment before you have performed the initial check to avoid damage and dangers for the operators and for the equipment itself.

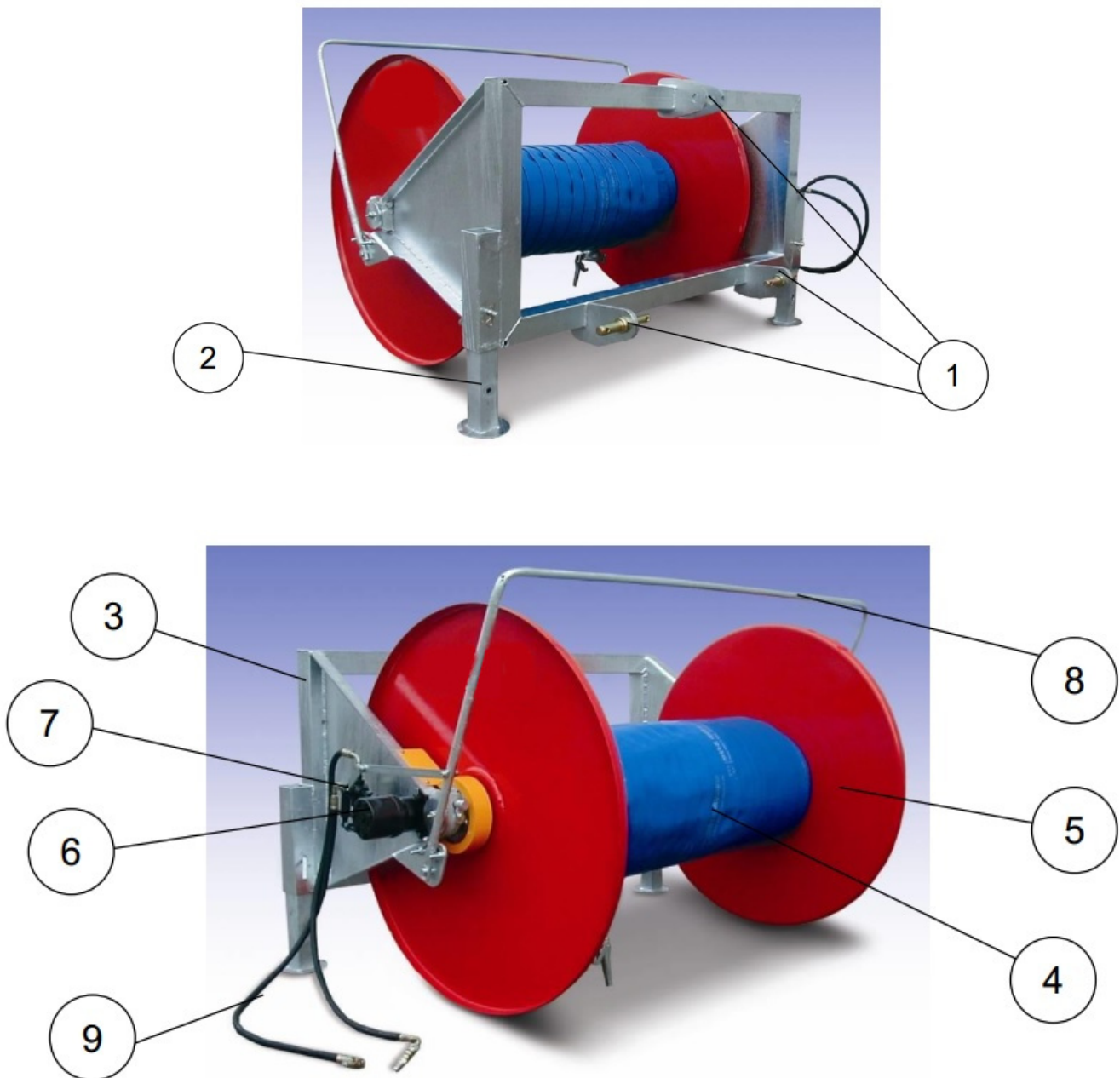


Fig. 2 – Hose reel with hydraulic motor and automatic stop: 3) basic frame, 4) winding reel, 5) side containment panels, 6) hydraulic motor, 7) direction of rotation adjustment valve, 8) stop device and 9) connection hoses to the hydraulic drive circuit.

If you have finished using the equipment and need to separate it from the self-propelled vehicle, first of all lower and secure the adjustable supports, disconnect the equipment from the vehicle itself by releasing the connections on the support points and move the equipment using suitable lifting systems.

7.2 Control

To adjust the speed of rotation and the hose winding torque, use the pedal controls (accelerator) on the self-propelled vehicle.



ATTENTION!

The equipment hydraulic motor must only be adjusted by skilled personnel.

Do not under any circumstances adjust the controls without proper

authorisation.

8. OPERATING THE EQUIPMENT

8.1 Foreseen use

This piece of equipment is intended solely for carrying irrigation water and liquid manure from the procurement point to the distribution point. The equipment is designed to wind/unwind the connection hose between the two points specified, the characteristics of which are described in point 4.



Correct use of the equipment includes observing all the operating conditions and routine maintenance operations.

Anyone operating in the operating area of the equipment must provide total co-operation in:

- checking whether any other people or animals who may be knocked or hit by the equipment are present in the operating area of the equipment, within a radius of at least 3 metres;
- checking whether any critical operating situations are created in the operating area, which could lead to risks of a certain degree of seriousness;
- taking steps in the event of an emergency, only and solely according to their competence and to the responsibilities defined in the company procedures.



Make use



ATTENTION!

sure there are no persons or animals around the equipment during within a radius of 3 metres.

The equipment is a device powered by pressurised fluid (hydraulic oil) and entails the observance of the following behaviour:

- do not wind/unwind the irrigation hose when it contains pressurised water;



ATTENTION!

Do not attempt to rewind/unwind the hose onto the reel when it contains pressurised fluid.

- do not puncture pressurised hoses;
- only use motor oil from the self-propelled vehicle to operate the equipment;
- do not pull on the supply hoses or other pressurised hoses featured;
- do not loosen any screws or connections featured on the equipment;
- do not remove the fixed or mobile protections featured;
- wear the personal safety protection devices specified below (the pictograms are affixed to the side containment panel) to avoid damage from projected parts or contact with hazardous substances (liquid manure and organic substances);



1)



2)



3)



4)



5)

1) Gloves – 2) Shoes – 3) Work overalls – 4) Goggles – 5) Mask

- do not leave the equipment exposed to corrosive agents;
- do not allow children or people with reduced physical, sensory or mental capabilities, or lack of experience and instruction to use the equipment;



It will not be held in any way liable for any damage deriving from equipment use by children or people with reduced capabilities, lack of experience and instruction.

- do not use the equipment to power other devices, other than the issuing devices;
- in the event of a failure and/or malfunctioning equipment, turn it off and do not tamper with it; contact the manufacturer for any repairs.

8.2 Reasonably foreseeable incorrect use

Any equipment use that differs fully or in part from the use specified herein is considered incorrect.

During normal equipment operation, no other types of functions not expressly contemplated herein are permitted, so they should therefore be considered incorrect and may lead to risks for the safety of persons and property.

It will not be held liable for the damage derived from incorrect equipment use: the risk is under the Customer's sole responsibility.

For instance, here are some examples of possible incorrect behaviour, which is strictly forbidden:



- unstable and unsafe positioning of the equipment due to incorrect connection to the self-propelled vehicle;
- use of the equipment not assembled perfectly and/or with missing or tampered with parts, without protections;
- use of the non-genuine and/or unforeseen spare parts;
- tampering with and variations to the hydraulic circuits of the equipment and/or adjustment devices (valve);
- covering the equipment with clothing or other materials;
- use of unforeseen hoses;
- use of fluids to carry not expressly envisaged;
- use of other types of fluids for the hydraulic motor;
- replacement of the adjustment valve with another without device;
- uninstallation of the linkage for the automatic end-of-winding stop;
- transporting people, animals or property;
- dragging or towing of other vehicles;
- insertion of the equipment in a more complex installation intended for similar purposes or for purposes different from those envisaged.



WARNING

Do not remove or make the safety, danger and obligation signs on the equipment illegible.

Do not operate the equipment for purposes other than those envisaged in paragraph 4.

9. MAINTENANCE AND CLEANING



All the maintenance and cleaning operations must only be performed after you have made sure the equipment is disconnected from the self-propelled vehicle hydraulic system.

9.1 Routine cleaning and maintenance

Throughout the day and in any event every time you use the equipment after a prolonged period out of use, perform a series of empty operating cycles, operating it from the control unit, to check it is in perfect working order.

9.2 Extraordinary maintenance

To avoid any build-up of dust or other substances on the moving parts, on a regular basis (once a month) check the functioning and seal of all pressurised parts.



ATTENTION!

These operations must only be carried out by correctly informed and trained personnel.



ATTENTION!

*Never soak the equipment in water or other liquids.
Never use tools or sharp or abrasive objects for cleaning.*

9.3 Troubleshooting

SYMPTOM	CAUSE	SOLUTIONS
The hose reel is not rotating	<ol style="list-style-type: none"> the equipment has been incorrectly connected the control unit is not in operation hydraulic system fault 	<ol style="list-style-type: none"> check that the power supply hoses have been properly connected turn on the control unit repair or replace the broken part
The direction of reel rotation is incorrect.	<ol style="list-style-type: none"> the equipment has been incorrectly connected control unit faulty 	<ol style="list-style-type: none"> check you made the proper connections and correct the situation if necessary. repair or replace the broken part
The speed of reel rotation is too low	<ol style="list-style-type: none"> inadequate pressure fault in the hydraulic system and/or hydraulic motor clogged supply hoses presence of an obstacle hindering rotation 	<ol style="list-style-type: none"> adjust the operating pressure on the vehicle controls repair or replace the broken part eliminate any obstructions and/or kinks in the supply hoses remove any obstacles hindering rotation
There are leaks or unforeseen pressurised oil bleeds	<ol style="list-style-type: none"> operating pressure too high pressurised hoses detaching fault in the hydraulic system 	<ol style="list-style-type: none"> adjust the operating pressure on the vehicle controls connect the hoses properly repair or replace the broken part

10. SUPPORT REQUESTS AND SPARE PARTS

For any explanations regarding the use and maintenance contained in this manual, as well as for any additional information and to order spare parts, customers may contact:

11. DISPOSAL

At the end of its life cycle, the equipment should be taken to an appropriate differentiated waste disposal centre.

Suitable differentiated waste disposal for the subsequent sending of the decommissioned equipment for recycling, processing and eco-compatible disposal contribute towards avoiding

possible negative effects on the environment and on health, and it encourages the re-use and/or recycling of materials used to make the equipment.

It is therefore advisable to differentiate the processing of its component parts, by separating the materials according to the following scheme:

METAL PARTS

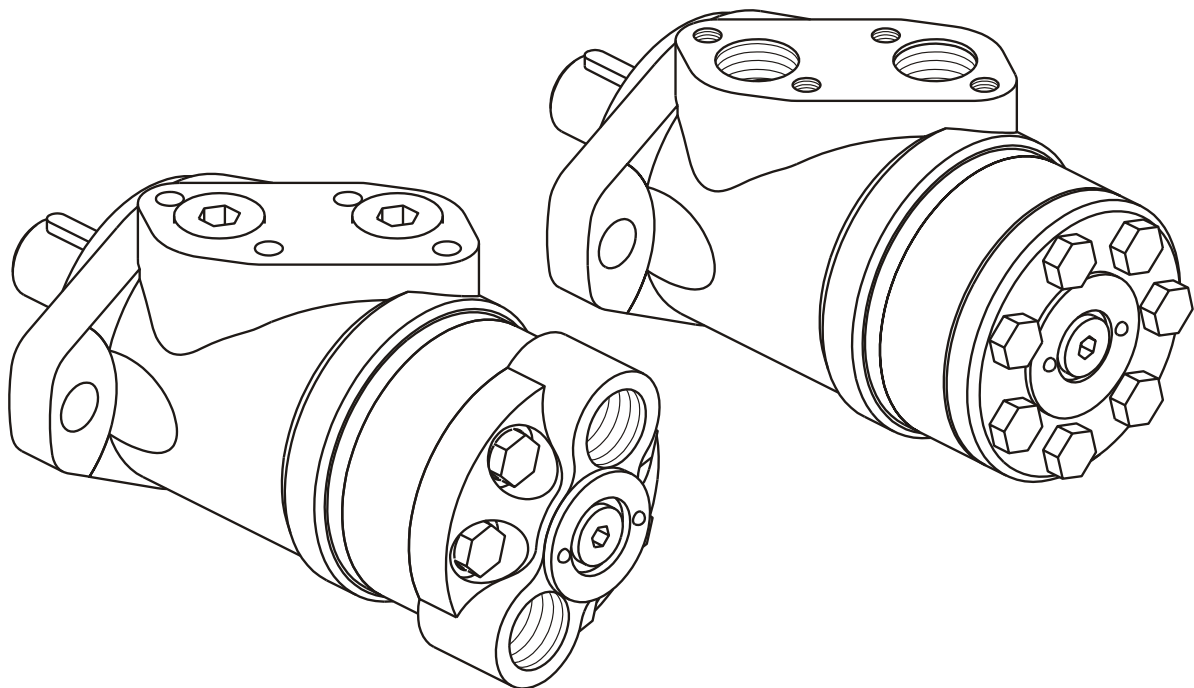
Appropriate separation of metal parts allows their subsequent recycling or depositing in a dedicated storage area;

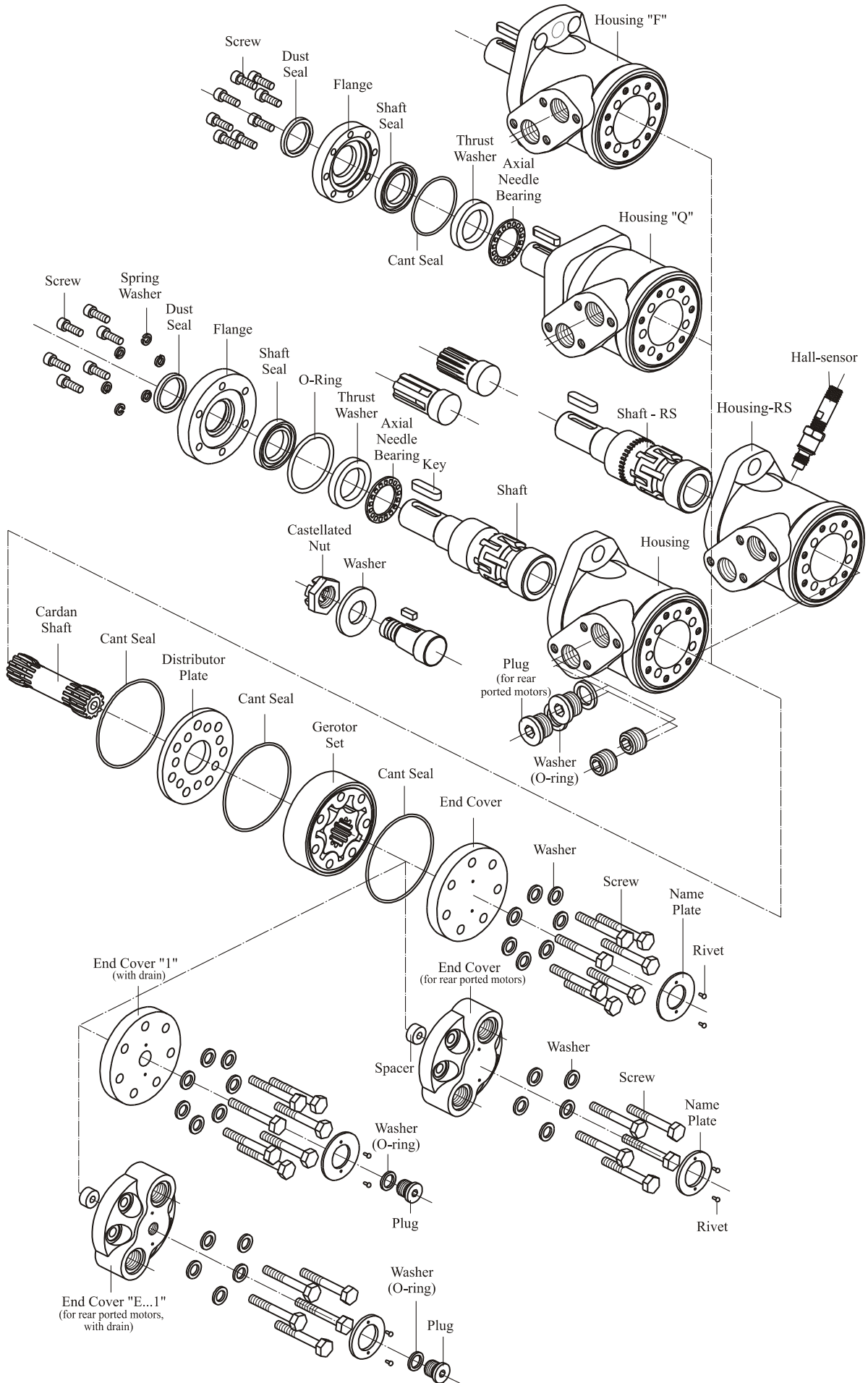
PLASTIC MATERIAL AND PAPER

Plastic material and paper must be collected in dedicated containers and disposed of in accordance with the applicable environmental safety and protection standards.

SERVICE MANUAL

Hydraulic Motors type MP- series 4 and MLHP...E





Instructions in this manual are for MP-series 4 and MLHP...E motors.

Cleanliness is extremely important when repairing these motors. Work in clean area!

Before disassembly, drain oil from motor.

Remove castellated nut, washer and key when used. For motors with drain unscrew drain plug and remove washer (O-ring).

Although not all drawings show the motor in disassembly devise (vise), we recommend that you keep motor clamped during disassembly.

1. For rear ported motors only! Unscrew the plugs using S10 Allen head spanner and remove the washers.

2. Place the motor in disassembly devise with output shaft down.

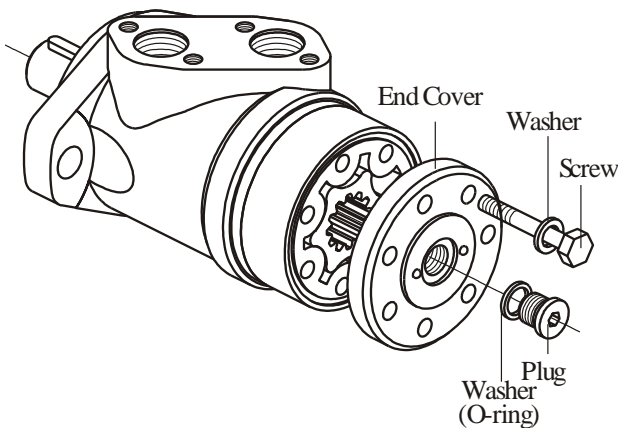


Fig.1

3. Unscrew screws using S13 torque wrench. Remove washers (see Figure 1).

4. Remove end cover.

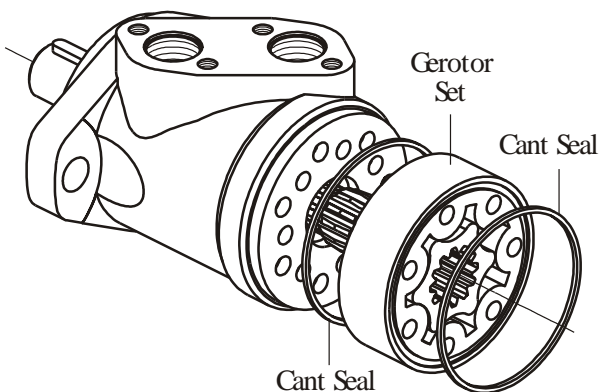


Fig.2

5. Remove the gerotor set carefully to prevent dropping of rotor from stator. Do not dismount!

Remove Cant seals from gerotor set grooves (see Figure 2).

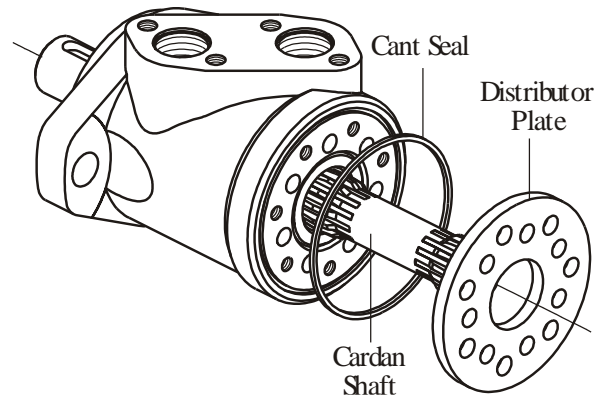


Fig.3

6. Remove cardan shaft (see Figure 3).

7. Remove distributor plate.

8. Remove Cant seal from housing.

Reposition motor in disassembly devise with shaft upward.

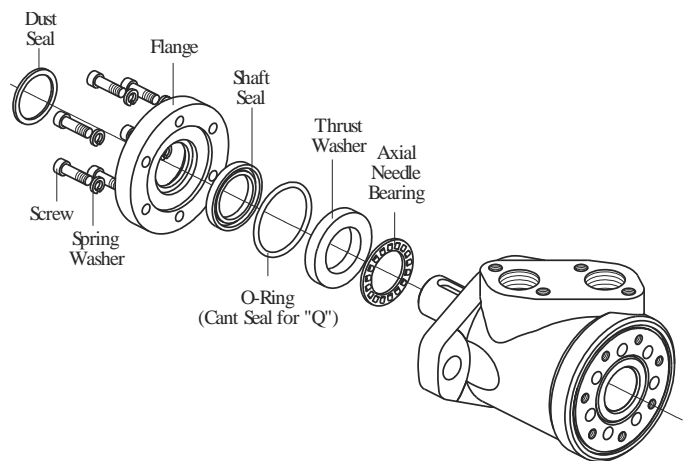


Fig.4

9. Unscrew screws using S6(5) Allen wrench (see Figure 4)

For "Q"-flange only: The screws (8 psc.) are assembled with Loctite to hold them in place. A higher torque is required to break screws loose.

10. Remove flange from housing. Dust seal and Shaft seal will come out with flange.

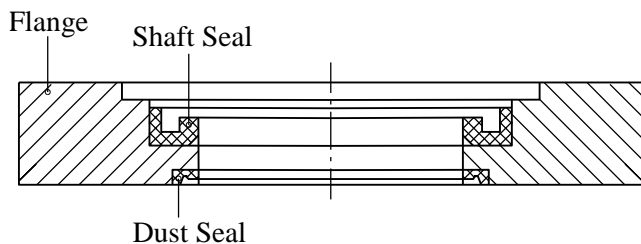


Fig.5

11. Remove with small screwdriver Dust seal and Shaft seal from flange (see Figure 5). Work from outer side for both seals.

Note: Some motors may have Quad-ring in place of the Shaft seal.

12. Remove shaft from housing.

13. Remove thrust washer and needle bearing from shaft (see Fig.6).

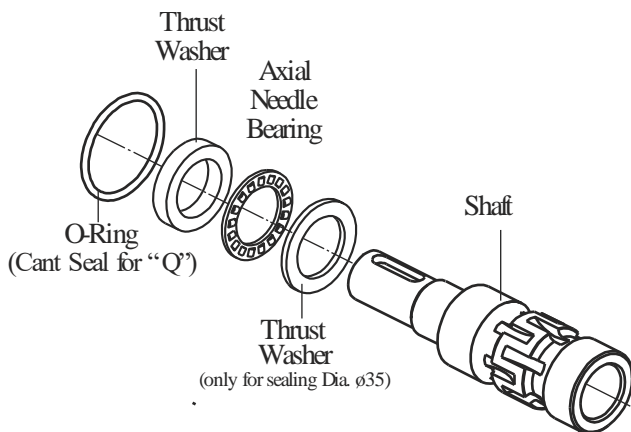


Fig.6

14. Remove O-ring from outer diameter of thrust washer.

Note: If not necessary do not dismount check valves!

1. CLEANING:

Wash all parts (except seals) in a weak solvent on carbon base and then degrease.

2. MEASURING AND REPLACEMENT:

Measure all parts and compare actual dimensions with the nominal ones given in the technical documentation. Replace any parts with scratches or burrs that could cause leakage or damage with new ones. Use new seals when reassembling motor.

3. LUBRICATION:

Lubricate all seal parts, which should be reassembled with light film of petroleum jelly.

Seal Kits:

- SK41 5127 0487 for MP(F)...-series 4
- SK41 5127 0667 for MPQ...-series 4
- SK41 5127 0001 for MP(F)...D-series 4;
and MP(F)...N...D-series 3
- SK41 5127 0109 for MPQ...D-series 4;
and MPQ...N...D-series 3
- SK41 5127 0010 for MP(F)...U-series 4
- SK41 5127 0118 for MPQ...U- series 4
- SK41 5138 6050 for MP(F)...B-series 3

- SK41 5122 2273 for MLHP(F)...E;
and MLHP(F)...N...D
- SK41 5128 0009 for MLHP(F)...UE
- SK41 5131 8100 for MLHP(F)...D (ø35 sealing dia.)
- SK41 5122 2417 for MLHPQ(M)...E
and MLHPQ(M)...N...D
- SK41 5128 0441 for MLHPQ(M)...UE

1. Lubricate output shaft with hydraulic oil.

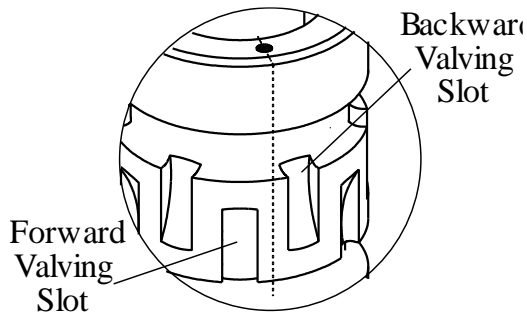


Fig.7

2. On the bottom of the shaft mark a Timing dot placed between forward and backward valving slots as shown on Figure 7.

3. Lubricate lightly all internal housing surfaces with hydraulic oil. Mount shaft in housing.

4. Place the motor in reassembly device with output shaft up.

5. Install needle bearing, then thrust washer on the shaft (see Fig.6).

6. Place lubricated O-ring 48x2 round thrust washer (Cant seal 47,35x1,68x1,68 for "Q"-flange).

Place flange on clean soft surface. Lubricate shaft seal and dust seal with light film of clean petroleum jelly (Shell Retinax Grease HDX2).

7. Place shaft seal in Flange and firmly push with Seal driver (see Fig.8).

8. Install dust seal in flange. Carefully press dust seal into place.

Lips of shaft seal and dust seal must face outward.

Important: Check seal condition after installing in housing. If damaged, cut or improperly installed, replace with new ones.

9. Install the spigot flange incl. assembled seals on shaft. Prevent the seals and shaft against damages.

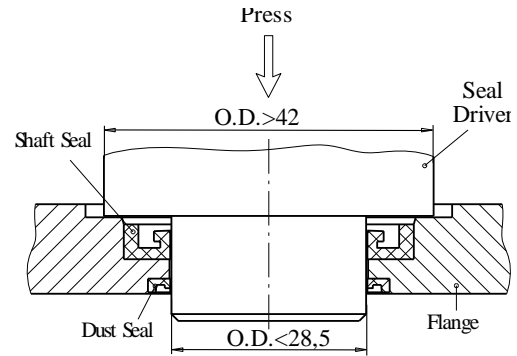


Fig.8

9. Install the spigot flange incl. assembled seals on shaft. Prevent the seals and shaft against damages.

10. Install in the flange 6 screws with washers and alternately torque them to 6÷8 Nm (10÷12 Nm for "U" versions).

For MPQ and MLHPQ(M) only: Before mounting the screws (8 pcs.) apply 2 or 3 drops of LOCTITE 638 at top of thread of each of holes in housing.

11. Reposition motor in reassembly device with shaft down.

12. Lubricate and install cant seal in housing seal groove (see Fig.3).

Timing Procedure

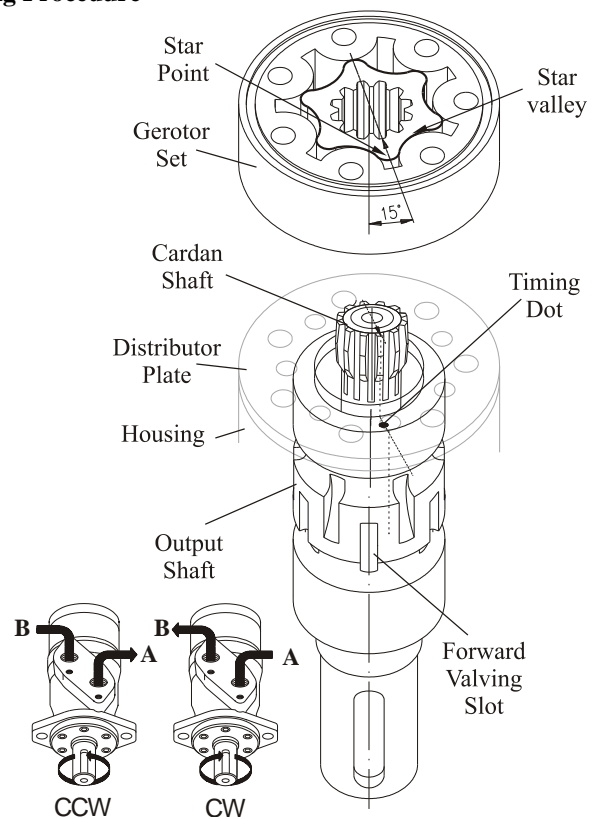


Fig.9

13. Install cardan shaft into splines of output shaft.

14. Use marker to mark one cardan shaft tooth. Align this tooth with shaft timing dot.

15. Install distributor plate on housing.

16. Lubricate cant seals (2 pcs.) and place them in seal grooves of both stator sides.

17. Place gerotor set on distributor plate and align any star point with marked tooth on cardan shaft. Stepped bolt holes are facing with smallest diameter to the distributor plate (see Fig.9)

Reverse Rotation:

Reverse rotation is obtained by aligning any star valley with marked tooth on cardan shaft (see Fig 9).

18. Rotate gerotor set to line up with bolt holes.

19. Carefully place end cover on gerotor set.

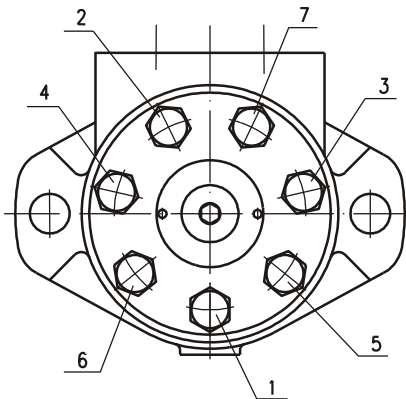


Fig.10

20. Install screws and washers in end cover. Tighten screws with 3÷3,5 daNm torque (4÷4,5 daNm for “U” versions) using a S13 torque wrench in sequence as shown in Fig.10.

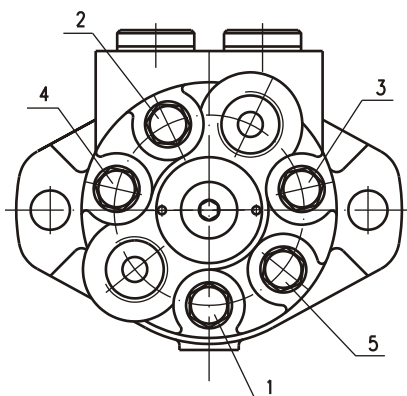


Fig.10A

21. For rear ported motors only: Install washer (O-ring for MLHP...7,8) on plug Tighten plug with S10 Allen wrench with torque 3,0÷3,5 daNm. Make shore that End cover is orientated as shown on Figure 10A!

22. Install washer (O-ring for MLHP...4,5,7,8) on drain plug. Tighten plug with S6 Allen wrench with torque 2,0 ÷ 2,5 daNm

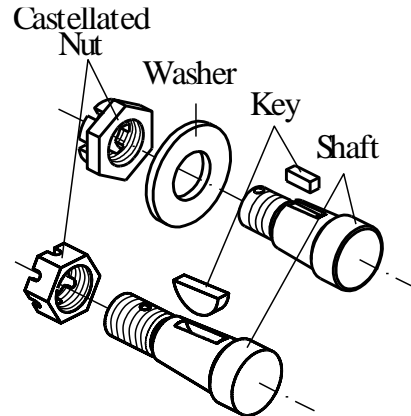


Fig.11

23. Install key in shaft key groove. For cone shafts install washer and screw castellated nut. (see Fig.11).

Disassembly and reassembly of MP(MLHP)...N...(with Needle Bearings):

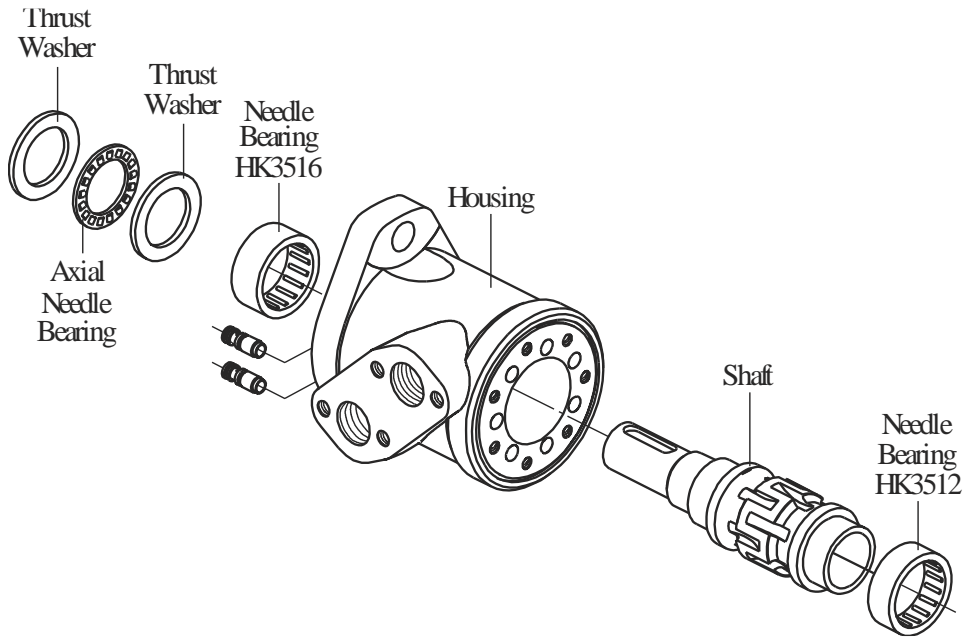


Fig.12

These motors are the same as the standard motors with 2 pcs. Needle bearings. Follow the same disassembly and reassemble procedures as for the standard motor.

The Needle bearing HK3516 knock out with Shaft. The Needle bearing HK3512 knock out with plastic hammer and soft bushing.

Assemble the Needle bearing HK3516 in the Housing at a depth of $9,4 \pm 0,15$ mm from the spigot flange joint. Grease the shaft journals and assemble in the housing. Assemble the Needle bearing HK3512 in the Housing at max. depth of 0,1 mm.

Clearance must be: - between shaft and bearings- $0,010 \pm 0,003$ mm;

- between bearings and motor housing at diameter $\varnothing 42$ - $0,017 \pm 0,003$ mm

Note: It is recommended to avoid disassembling the shaft and needle bearings away from the motor housing if it is not necessary.

Disassembly and reassemble of MP(MLHP)W...

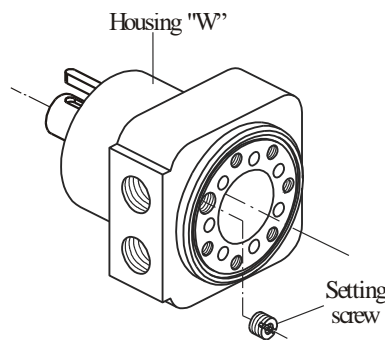


Fig.13



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