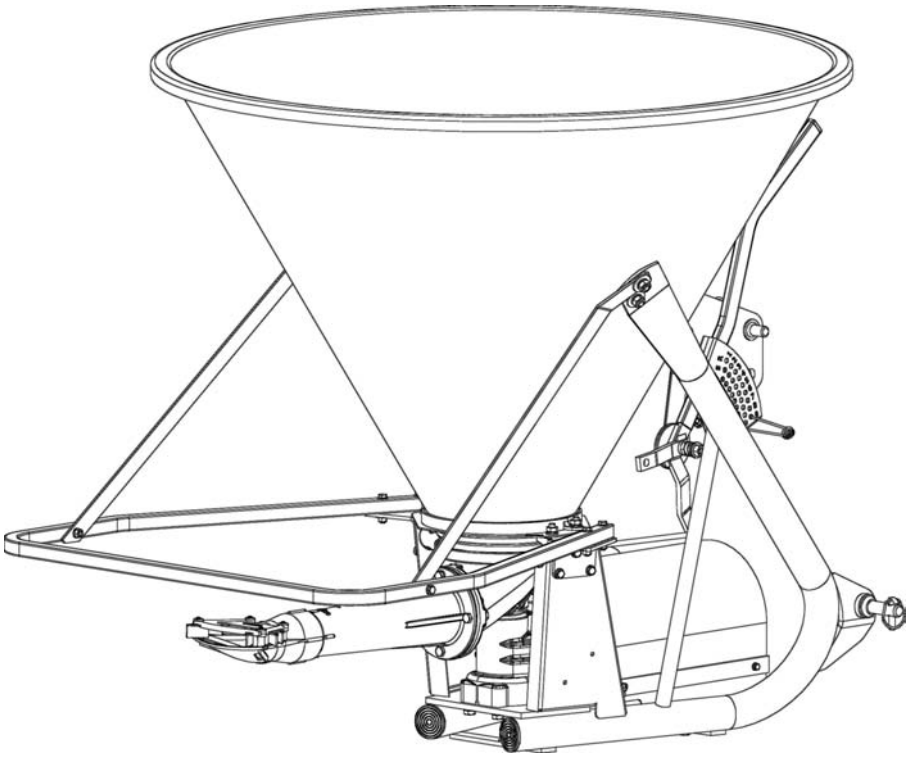
ROTOMEC

Operator's Manual

TURBO HOP

Pendular Spreader

301-300, 301-400



The operator's manual is a technical service guide and must always accompany the machine.

SAFETY

Take note! This safety alert symbol found throughout this manual is used to call your attention to instructions involving your personal safety and the safety of others. Failure to follow these instructions can result in injury or death.

This symbol means:
ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

Signal Words

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The appropriate signal words for each have been selected using the following guidelines:

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

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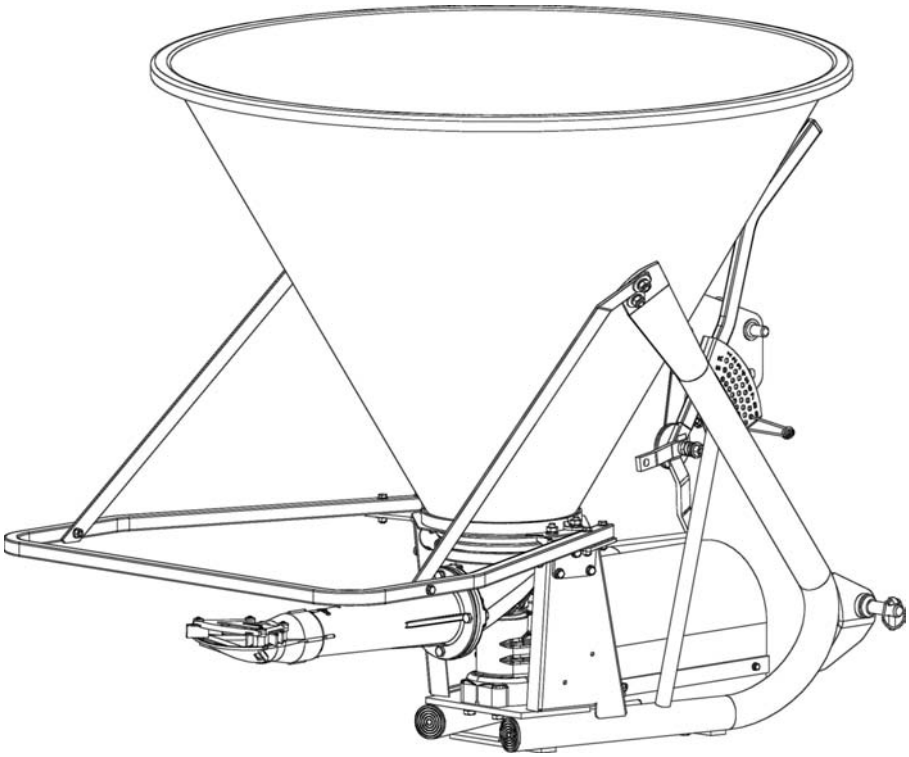

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1 - GENERAL INFORMATION

Thank you and congratulations for having chosen our implement. Your new pendular spreader is a technologically advanced machine constructed of high quality, sturdy components that will fulfil your working expectations. Read this manual carefully. It will instruct you on how to operate and service your implement safely and correctly. Failure to do so could result in personal injury and/or in equipment damage.

1.01 - General

The implement described in this manual is to be used with tractors with PTO at 540 rpm and clockwise rotation.

CAUTION: Always ensure that the coupling of the implement with the tractor is done at the same PTO speed and direction of rotation. Do not operate this implement at a PTO speed or direction of rotation other than that shown on the implement. Serious damage can occur to the machine and/or the operator.

CAUTION: Unless otherwise specified, all hardware is metric. Use only metric tools on metric hardware. Other tools that do not fit properly can slip and cause injury.

CAUTION: Right hand and left hand sides of the implement are determined by facing in the direction the implement will travel when going forward (see fig. 2).

1.02 - Warranty Information

Carefully read the Warranty section[1], detailing coverage and limitations of this warranty. **Warranty** is provided for customers who operate and maintain their equipment as described in this manual. Warranty registration is accomplished by the dealer by completing and forwarding the **Warranty Registration** form to the Company, along with a copy of the dealer's invoice. It is in your best interest to insure that this has been done.

Warranty does not cover the following:
1. Cleaning, transporting, mailing and service call charges.
2. Normal wear items such as; bearings, drivelines, shear pins, bronze slide, etc.

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[1] See Chapter 8 - Warranty.

3. Depreciation or damage caused by normal wear, accidents, improper maintenance, improper protection or improper use.
4. The use of non-original spare parts and accessories.

Your Authorised Company Dealer has genuine parts in stock. Only these approved replacement parts should be used.
This limited warranty covers defective material and workmanship. The cost of normal maintenance or repairs for accidents or improper use and related labour will be borne by the owner.

1.03 - Model and Serial Number ID

Attached to the frame is an ID plate showing the model and the serial number. Record your implement model and serial number in the space provided below. Your dealer needs this information to give you prompt, efficient service when you order parts.

2 - SAFETY PRECAUTIONS

Safety is the primary concern in the design and manufacture of our products. Unfortunately our efforts to provide safe equipment can be wiped out by a single careless act of an operator.
In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
It is the operator's responsibility to read and understand all safety and operating instructions in the manual and to follow these.
Allow only properly trained personnel to operate the fertiliser spreader. Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operation, to acquaint yourself with the machines. It is the spreader owner's responsibility, if this machine is used by any person other than yourself, is loaned or rented, to make certain that the operator, prior to operating, reads and understands the Operator's Manuals and is instructed in safe and proper use.

2.01 - Preparation

1. Before operating equipment read and understand the Operator's Manual and the safety signs **(see fig. 2)**.
2. Thoroughly inspect the implement before initial operation to assure that all packaging materials, i.e., wires, bands, and tape have been removed.
3. Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining and/or repairing the implement.
4. Operate the fertiliser spreader only with a tractor equipped with an approved Roll-Over-Protective-System (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor.
5. Clear area of stones, branches or other debris that might be thrown, causing injury or damage.
6. Operate only in daylight or good artificial light.
7. Ensure fertiliser spreader is properly mounted, adjusted and in good operating condition.
8. Ensure that all safety shielding and safety signs are properly installed and in good condition.
9. Chemicals may cause eye, skin or breathing problems. Always wear a face mask, gloves and goggles when filling hopper.
10. Before loading the fertiliser in the hopper read carefully the instructions printed on the fertiliser canvas bag concerning the precautions to be taken in case of toxicity or

corrosivity of the product. Before loading switch off the engine and remove the ignition key.
11. Load hopper with product only after the spreader has been properly attached to the tractor.

2.02 - Starting and Stopping

1. Be sure that no one is near the machine prior to engaging or while the machine is working.
2. Be sure the tractor is in "Neutral" before starting engine.
3. The operating power is supplied from tractor PTO. Refer to your tractor manual for PTO engagement and disengagement instructions. Always operate PTO at 540 rpm. Know how to stop the tractor and machine quickly in case of an emergency.
4. When engaging PTO, the engine rpm should always be low. Once engaged and ready to start operating, raise PTO speed to 540 rpm and maintain throughout operation.
5. Check the tractor master shield over the PTO stub shaft. Make sure it is in good condition and fastened securely to the tractor. Purchase a new shield if old shield is damaged or missing.
6. After striking an obstacle, disengage the PTO, shut the tractor down and thoroughly inspect for damage before restarting.
7. To park the vehicle safely, stop vehicle on a level surface (not on a slope), disengage PTO, engage the parking brake, stop the engine, remove the key, and wait for engine and all moving parts to stop before leaving the operator's seat.
8. Stay clear of rotating drivelines. Entanglement in rotating driveline can cause serious injury or death. Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before getting near it.

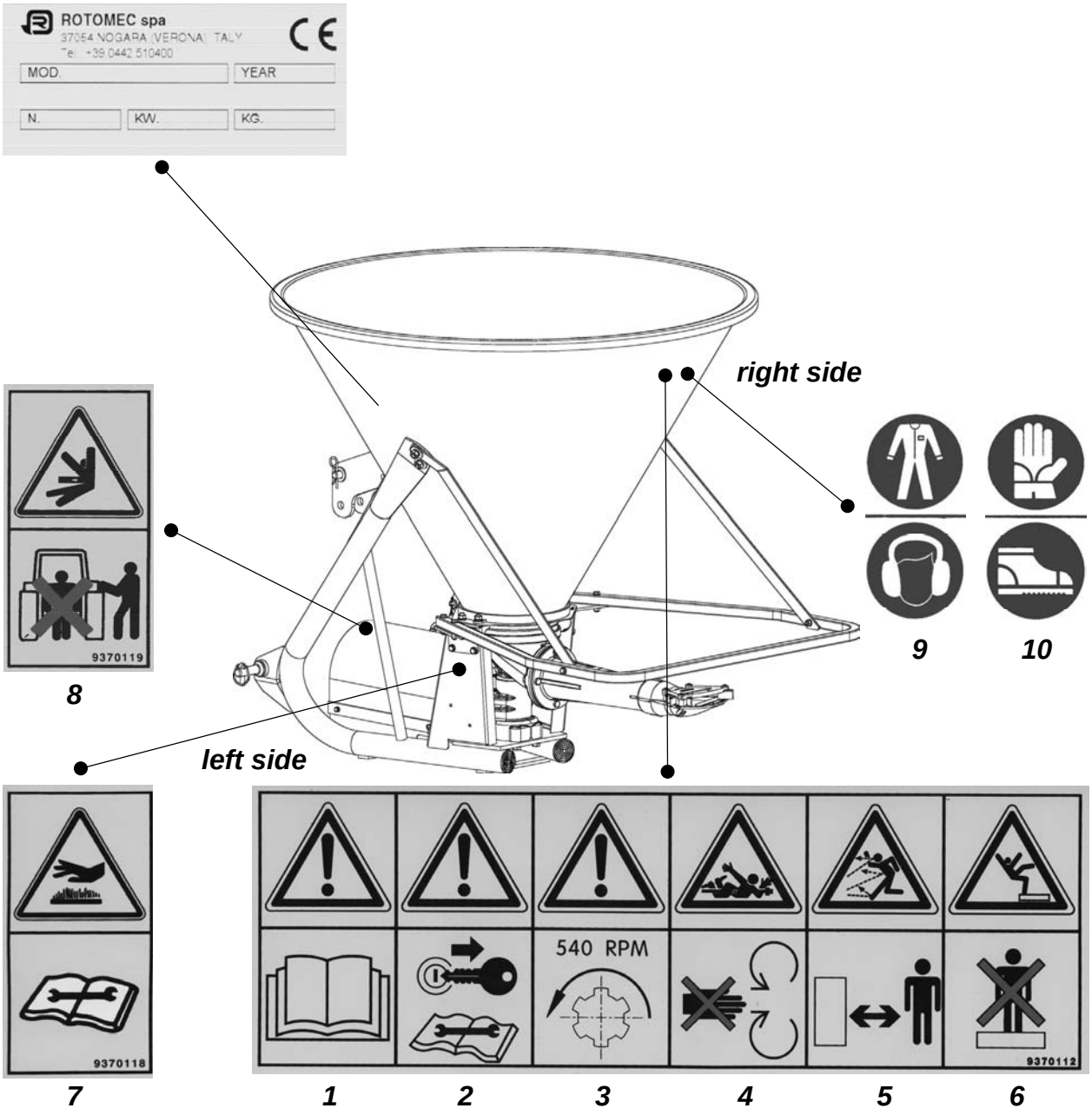
2.03 - Messages and Signs

1. Read and adhere to all safety and operating decals on this machine **(see fig. 2)**.
2. Before dismounting tractor: Stop engine, set brake and remove the key of unattended equipment.
3. Keep away from rotating parts and driveline.
4. Keep guards and shields in place and in good condition.
5. Do not use with bystanders in area.
6. Allow no riders on tractor or fertiliser spreader.
7. Allow moving parts to stop before repair.
8. Securely support fertiliser spreader before working underneath.

Additional warning and operating decals are available at no extra charge. Please specify model and serial number when ordering.

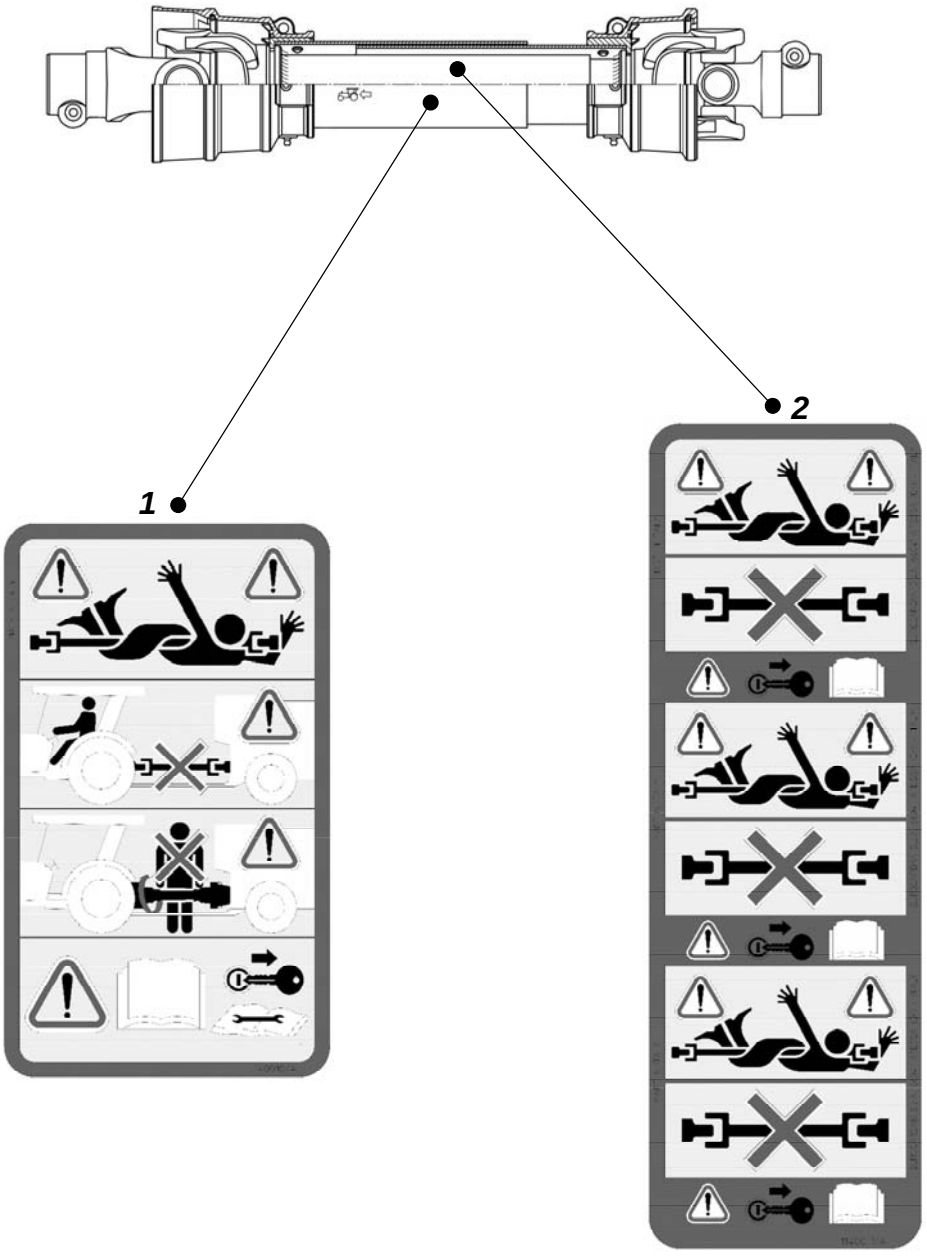
Fig. 2 - Safety decals; replace immediately if damaged.

1. ***Read this manual carefully.***
2. ***Before maintenance operations, disengage PTO and shut tractor down.***
3. ***540 rpm PTO only.***
4. ***Keep away from rotating driveline.***
5. ***Keep away, objects can be thrown.***
6. ***Never allow passengers.***
7. ***Beware, hot surfaces.***
8. ***Do not stand between tractor and implement when tractor is in gear.***
9. ***Wear protective clothing; snug fit work suit and earplugs or earmuffs.***
10. ***Wear protective clothing; safety shoes and gloves.***



Safety decals - driveline; replace immediately if damaged.

1. ***Danger: Rotating driveline, contact can cause death. Keep away! Do not operate without:***
   - ***All driveline guards, tractor and equipment shields in place.***
   - ***Driveline securely attached at both ends.***
   - ***Driveline guards that turn freely on driveline.***
2. ***Danger: Guard missing, do not operate.***



3 - OPERATION

The fertiliser spreader is an extremely versatile and accurate machine, ideal for spreading not only granular or powdered material but also for spreading materials containing a humidity percentage of up to 30 percent.
Pendular spreaders can spread up to a width of 14 meters and are designed for 20 to 60 HP tractors.
By rotating the spout 90 degrees left or right, the spreader will send material only in that direction, allowing the operator to spread material only on desired spots and minimise wasted material. The pendular spreader is also particularly suited for spreading corrosive material since components that come in contact with these are made of either stainless steel or polyethylene.

3.01 - Operational Safety

CAUTION: Our spreaders are designed considering safety as the most important target and are the safest available in today's market. Unfortunately, human carelessness can override the safety features built into our machines. Injury prevention and work safety, aside from the features on our spreaders, are very much due to the responsible use of the equipment. It must always be operated prudently following with great care, the safety instructions laid out in this manual.

1. The use of this equipment is subject to certain hazards which cannot be prevented by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using.
2. Do not operate the tractor and spreader when you are tired, sick or when using medication.
3. This spreader is designed for use only on tractors with 540 rpm power take off.
4. Only properly trained people should operate this machine.
5. Accidents are most likely to occur with machines that are loaned or rented to someone who has not read the Operator's Manual and is not familiar with a spreader.
6. Always stop the tractor, set brake, shut off the tractor engine, remove the ignition key, and allow spreader moving parts to come to a complete stop before dismounting tractor. Never leave equipment unattended with the tractor running.
7. Never place hands or feet into hopper with tractor engine running or before you are sure all motion has stopped. Stay clear of all moving parts.

8. Never allow any person inside the hopper for any reason. Serious injury or death can result from someone becoming entangled in the agitator.
9. Do not allow riders on the spreader or tractor at any time. There is no safe place for riders.
10. Never allow anyone within 100 meters of the spreader while the PTO is engaged. Product thrown from the spreader can cause serious injury or death.
11. Before backing up, look behind carefully.
12. Install and secure all guards and shields before starting or operating.
13. Keep hands, feet, hair and clothing away from moving parts.
14. Never operate tractor and spreader under trees with low hanging limbs. Operator can be knocked off the tractor and then run over.
15. Stop spreader immediately upon striking an obstruction. Turn engine off, remove key, inspect and repair any damage before resuming operation.
16. Inspect the entire machine periodically[2]. Look for loose fasteners, worn or broken parts, and leaky or loose fittings.
17. Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.
18. Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground and when operating close to ditches or fences. Be careful when turning sharp corners.
19. Reduce speed on slopes and sharp turns to minimise tipping or loss of control. Be careful when changing directions on slopes. Do not start or stop suddenly on slopes. Avoid operation on steep slopes.
20. Pass diagonally through sharp dips and avoid sharp drops to prevent "hanging up" tractor and spreader.
21. Avoid sudden starts and stops while travelling up or downhill.
22. Always operate down slopes; never across the face. Avoid operation on steep slopes. Slow down on sharp turns and slopes to prevent tipping and/or loss of control.
23. All remote control devices (cables, ropes, rods, flexible lines, etc.) should be positioned in a way to prevent manoeuvres which could lead to accidents or damages.
24. Chemicals may cause eye, skin or breathing problems. Always wear a face mask, gloves and goggles when filling hopper.
25. Before loading the fertiliser in the hopper read carefully the instructions printed on the fertiliser canvas bag concerning the precautions to be taken in case of toxicity or corrosivity of the product. Before loading switch off the engine and remove the ignition key.
26. Load hopper with product only after the spreader has been properly attached to the tractor.
27. Use only the driveline supplied with the spreader. Do not use it if it is missing any shield or safety protection. Frequently check the driveline and ensure it is in good operating condition. Immediately replace broken or damaged shields or protections.

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[2] See Chapter 4 - Maintenance.

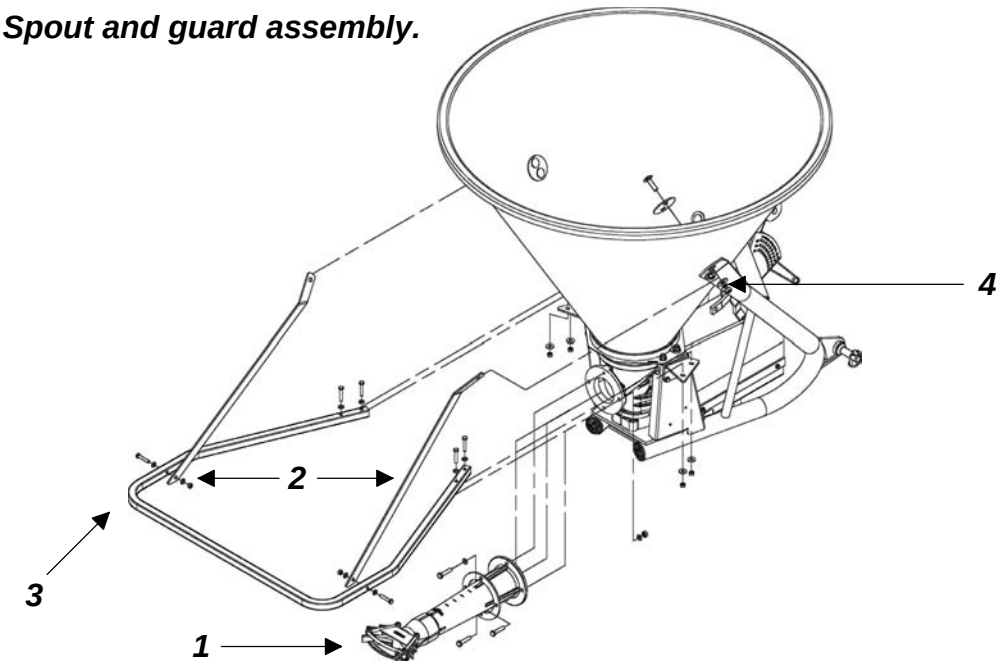
3.02 - Set Up and Assembly

Notice to dealer: Pre-Delivery set up and service including lubrication are the responsibility of the authorised dealer. It is up to him to assure that the machine is in perfect condition and ready to be used. It is his responsibility to ensure that the customer is aware of all safety aspects and operational procedures for the spreader. He must also fill out the Pre-Delivery Checklist[3] prior to delivering the spreader.

CAUTION: Stand clear of bands when cutting as they could be under sufficient tension to cause them to fly loose. Take care in removing bands and wire, as they often have extremely sharp edges and cut very easily.

Note: All hardware needed for assembly will be found in the crate and the hardware bag of the machine. Assembly will be easier if all parts are loosely assembled before tightening the hardware.

Fig. 3 - Spout and guard assembly.



To assemble the pendular spreader proceed as follows:

1. Slide the spout ring over the discharge chute and secure them to the gearbox using the M10x45 bolts, Ø10 lock washers and M10 nuts **(see #1, fig. 3)**. Note: The M10x45 bolt on the top hole does not require a nut on the other side as it screws directly into the gearbox housing.
2. Attach the left and right protection attachment plates **(see #2, fig. 3)** to the "U" shaped protection **(see #3, fig. 3)** using the M8x45 bolts, Ø8 washers and M8 nuts. Make sure to assemble the plates with the bent ends facing upwards and outwards.

[3] See Chapter 7 - Pre-Delivery Checklist.

3. Secure the protection **(see #3, fig. 3)** to the spreader frame using the M8x45 bolts, Ø8 washers on top and the Ø8 fender washers and M8 nuts on the bottom.
4. Remove the M12 nuts that secure the back of the hopper to the frame **(see #4, fig. 3)** and slide protection attachment plates **(see #2, fig. 3)** into the M12 bolts. Once in position secure the protection attachment plates to the frame with the M12 nuts.

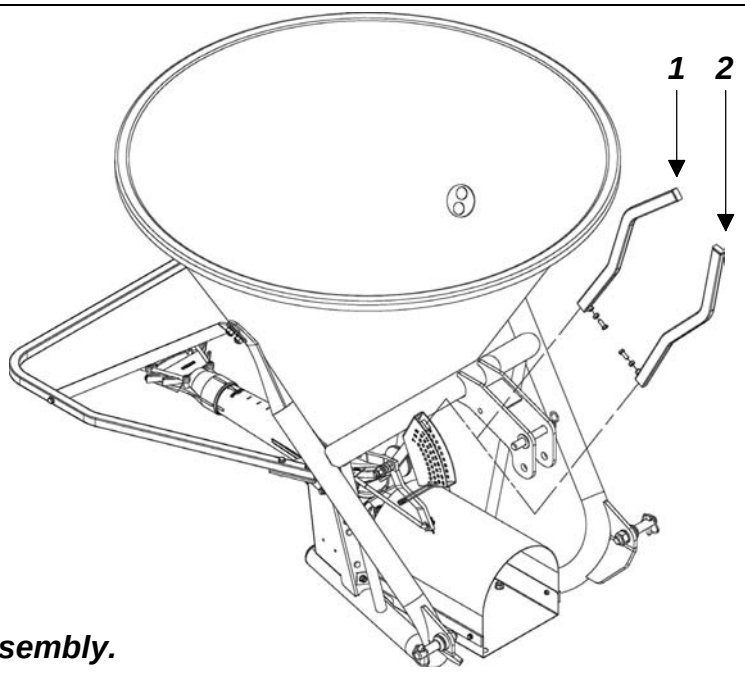


Fig. 4 - Lever assembly.

5. Place the opening lever over the lever bracket and secure it with the M8x20 bolt and M8 jam nut. Models 301-300 and 301-400 are designed to be category 1 quick hitch compatible. Note: When using the spreader with a quick hitch, place the opening lever in position 1 **(see #1, fig. 4)** on the lever bracket. This will allow for the lever to open and close properly without interference with the quick hitch. Place the opening lever in position 2 **(see #2, fig. 4)** on tractors not equipped with a quick hitch in order to facilitate reaching the lever from the tractor seat.
6. Tighten all hardware securely.

3.03 - Pre-Operational Check

Check each of the following, carefully, prior to engaging the equipment:
1. Thoroughly read and understand your operator's manual.
2. The oil in the gearbox.
3. The driveline cross and bearings have been greased.
4. No wrappings or foreign objects are around the machine or driveline.
5. All hardware is tight[4].
6. The tractor, to ensure correct direction of PTO and rpm speed.
7. All safety shields and guards are in place and tightly attached.
8. No people or animals are in the work area.

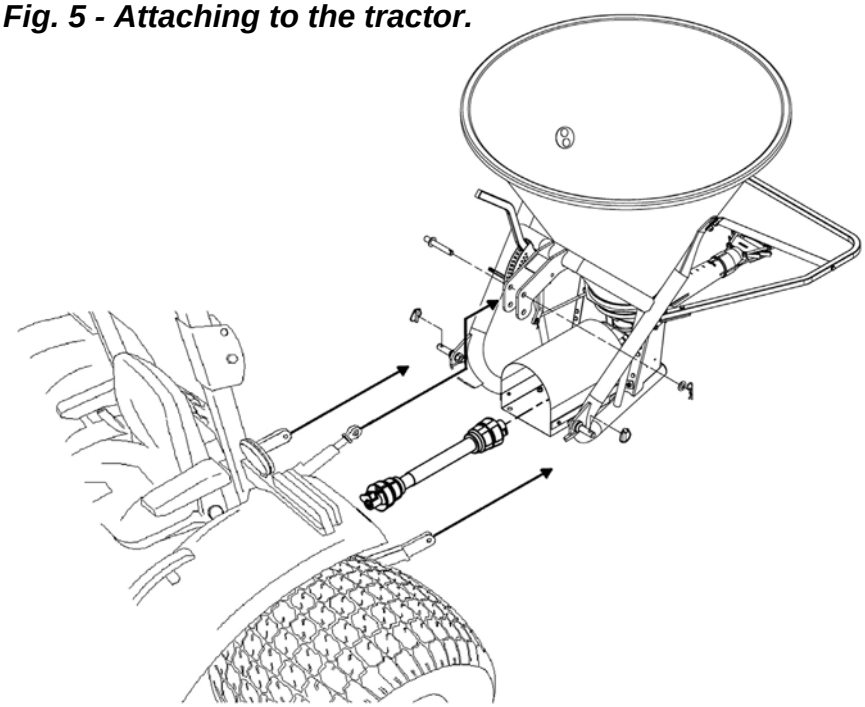
[4] Refer to Table 1 - Torque Specifications, page 36.

DANGER: Shut off the tractor and remove the key before making adjustments, servicing or cleaning the machine.

3.04 - Attaching to the Tractor

Only use pendular spreaders with tractors in the correct power range[5] with PTO speed of 540 rpm that turns clockwise and category 1 three point hitch or category 1 quick hitch. Never use with tractors over 60 HP.

Fig. 5 - Attaching to the tractor.



WARNING: Never attempt to attach the implement to the tractor or make adjustments to it without first turning the tractor off.

CAUTION: Check the tractor PTO rpm to ensure it is set at 540 rpm and turns clockwise.

[5] Refer to Table 2 - Technical Features, page 36.

CAUTION: Be sure the tractor tire pressure is correct. It is important to strictly follow the safety guidelines and instructions laid out in the tractor manual.

To attach the pendular spreader to the tractor proceed as follows **(see fig. 5)**:

1. Back the tractor to the spreader until the draft links align with the hitch pins.
2. Stop engine, engage parking brakes and remove key before dismounting tractor.
3. Secure the draft links to the hitch pins and secure them in place with lynch pins.
4. Attach top link to the top hitch of the spreader using the hitch pin and secure it with the cotter pin.
5. Adjust the tractor sway chains/bars to centre the spreader behind the tractor and control the side sway.
6. Ensure the spreader is levelled by adjusting both the draft links and the top link.
7. Install the shock joint side of the driveline to the spreader. Be sure each end of the driveline is connected securely with the locking pin. Connect the driveline shielding chains to the tractor and to the implement to prevent the protective shielding from rotating during operation. If it was necessary to remove the PTO shielding to do any of the above operations, do not forget to replace it. Ensure that the driveline has at least 2" from bottoming out in its shortest working position and has the minimum 6" overlap in its longest working position. Refer to **Section 4.03**[6] of this manual if it is determined that the driveline is too long and needs to be shortened. Contact your local dealer if it is determined that the driveline is too short for your tractor.

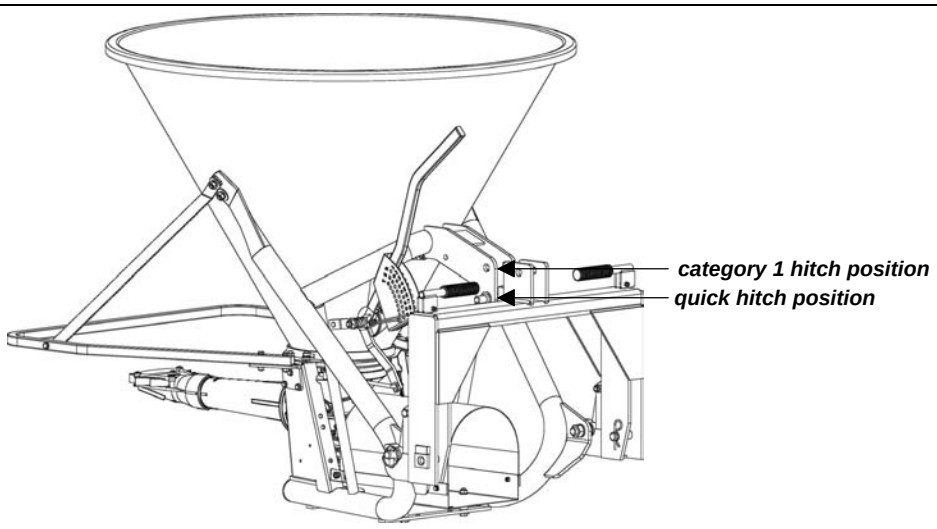


Fig. 6 - Attaching the spreader using a quick hitch.

Models 301-300 and 301-400 are designed to be category 1 quick hitch compatible **(see fig. 6)**.

[6] See Section 4.03 - Driveline, for instructions on how to determine correct driveline length and procedures for shortening the driveline.

3.05 - Start Up

CAUTION: Load hopper with product only after the spreader has been properly attached to the tractor.

WARNING: Chemicals may cause eye, skin or breathing problems. Always wear a face mask, gloves and goggles when filling hopper. Refer to chemical manufacturer's label for specific safety information.

Before starting to use, never forget that the **operator is responsible** for the following:

1. Safe and correct driving of the tractor and spreader.
2. To learn precise, safe operating procedures for both the tractor and the spreader.
3. To ensure all maintenance and lubrication has been performed on the spreader.
4. To have read and understood all safety aspects for the spreader in the Operator's Manual.
5. To have read and understood all safety decals on the spreader.
6. Checking the tractor tires for the proper pressure in accordance with the tractor Operator's Manual.
7. **Checking that all shields are on the machine and securely in place.**
8. Making sure the proper attire is worn. Avoiding loose fitting clothing which can become entangled. Wearing sturdy, tough-soled work shoes and protective equipment for eyes, hands, ears and head. Never operate tractor or implements in bare feet, sandals or sneakers.
9. Ensuring proper lighting is available, sunlight or good artificial lighting.

WARNING: Use a tractor with a cab and appropriate filters on the ventilation system or wear a breathing mask capable of filtering toxic powders to prevent inhalation of product.

Prior to start working do the following:

1. Make sure there are no obstructions.
2. Run machine under a no-load condition for a short while to assure that everything is functioning properly.
3. Adjust all settings for the desired quantity distribution and spread pattern.
4. Shift the transmission to a slow speed gear and start forward, increase the ground speed by shifting upward until the desired speed is obtained. Do not use in reverse unless absolutely necessary and only after careful observation of the area behind the spreader.

3.06 - Operating Techniques

WARNING: Before adjusting the spreader or filling the hopper, be sure the tractor PTO is not engaged, the tractor is shut off, and the key is removed from the tractor ignition.

WARNING: Before engaging the PTO, be sure no persons or animals are behind or beside the spreader.

DANGER: Never allow anyone within 100 meters of the spreader while the PTO is engaged. Product thrown from the spreader can cause serious injury or death.

DANGER: Never allow any person inside the hopper for any reason. Serious injury or death can result from someone becoming entangled in the agitator.

The material delivery is controlled by a lever that opens the orifices in the hopper bottom. The lever has up to 27 positions that it can be locked into depending on the desired output. To ensure a constant output of product always keep the following factors into account.

The quantity of material distributed per acre depends on the following factors:
1. Tractor ground speed.
2. Unit weight and size of the material to be spread.
3. Spreading width.
4. Position of the lever connected to the hopper gates.

The working speed depends on ground conditions. Only a test run will enable you to gauge the optimal working speed for your conditions.

Spread adjustment
Fill the hopper with the desired material to be spread. Be sure the gates are in the closed position. Raise the spreader with the tractor lift arms until the pendular spout is 75 cm. from the ground and with the spreader as parallel to the ground as possible **(see fig. 7)**. Place the gauge pin in the desired hole position **(see fig. 23)**[7]. Do not open the gates at this time.
Engage the engine PTO. The spreader is designed to run at 540 rpm at the PTO. Lower or greater PTO speed will change the discharge pattern. Start the tractor forward and

[7] See Section 3.16 - Spreading Charts.

open the gates by lowering the lever until it stops against the pin. Close off the gates with the lever after finishing spreading.

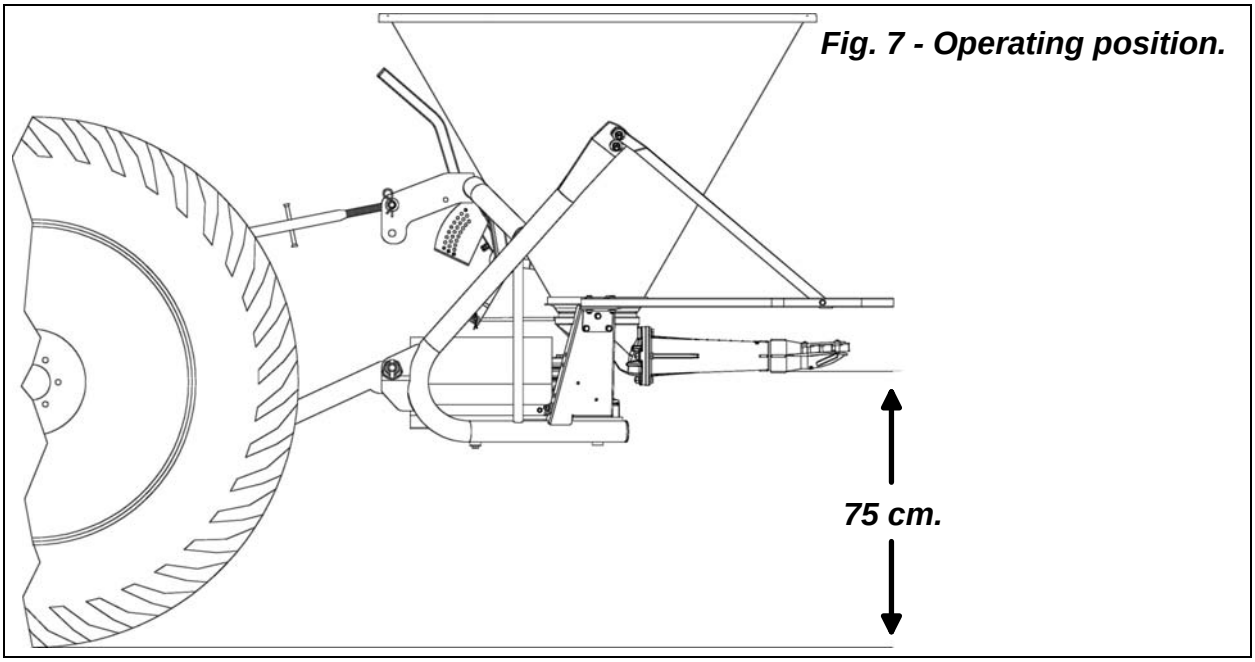


Fig. 7 - Operating position.

Spreading width

Our pendular spreaders are designed to spread a variety of different materials and therefore the spread width will vary greatly depending on the type of material you are trying to spread. With the standard spout mounted, the spreader will spread powdered materials between 5 meters and 6 meters (17' and 20') and granular materials between 12 meters and 14 meters (39' and 47') **(see fig. 8)**.

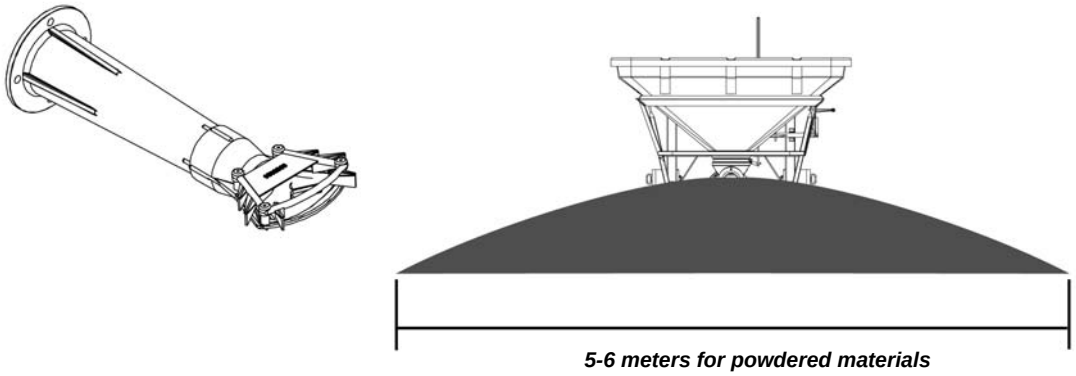


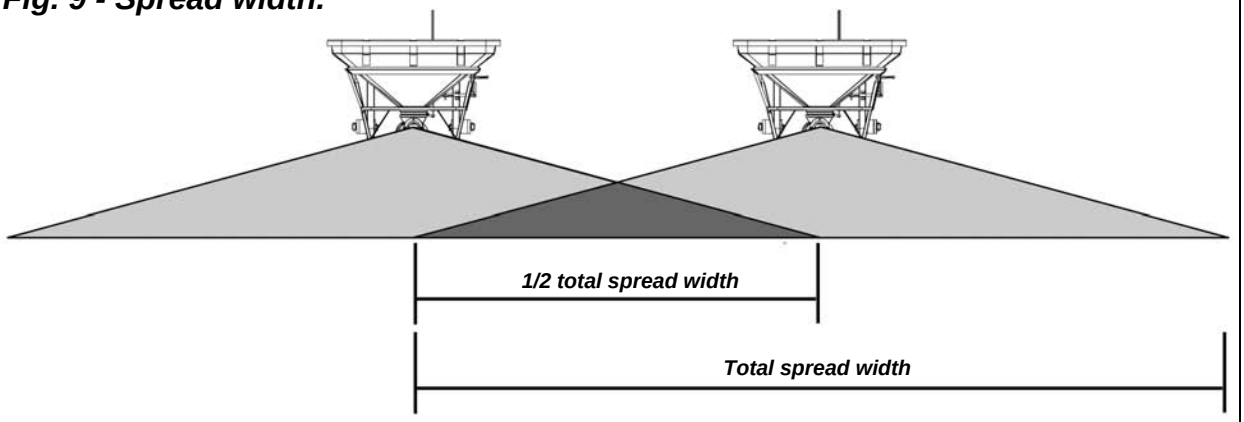
Fig. 8 - Spread width with standard spout.

Only a test run will enable you to determine the actual spreading width of the material you are trying to spread.

Field spread pattern

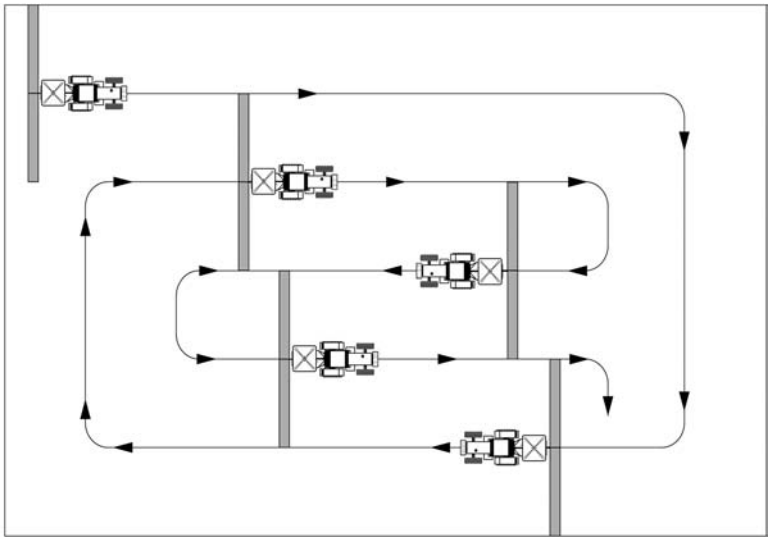
The amount of material distributed by the pendular spreaders will always be greater directly behind the unit and will gradually decrease farther away from the spreader. To obtain a uniform spread throughout the field, the operator will need to maintain parallel travel patterns on the field making sure to maintain a distance from the previous pass that is equal to ½ of the total spreading width **(see fig. 9)**.

Fig. 9 - Spread width.



When spreading over a field, position the tractor in a corner at a distance equal to ½ of the total spread width away from the edge of the field. Spread first around the perimeter of the field. After covering the perimeter, drive the tractor in parallel patterns up and down the field at a distance equal to ½ of the total spread width from the previous pass until the field has been completely covered **(see fig. 10)**.

Fig. 10 - Spread pattern.

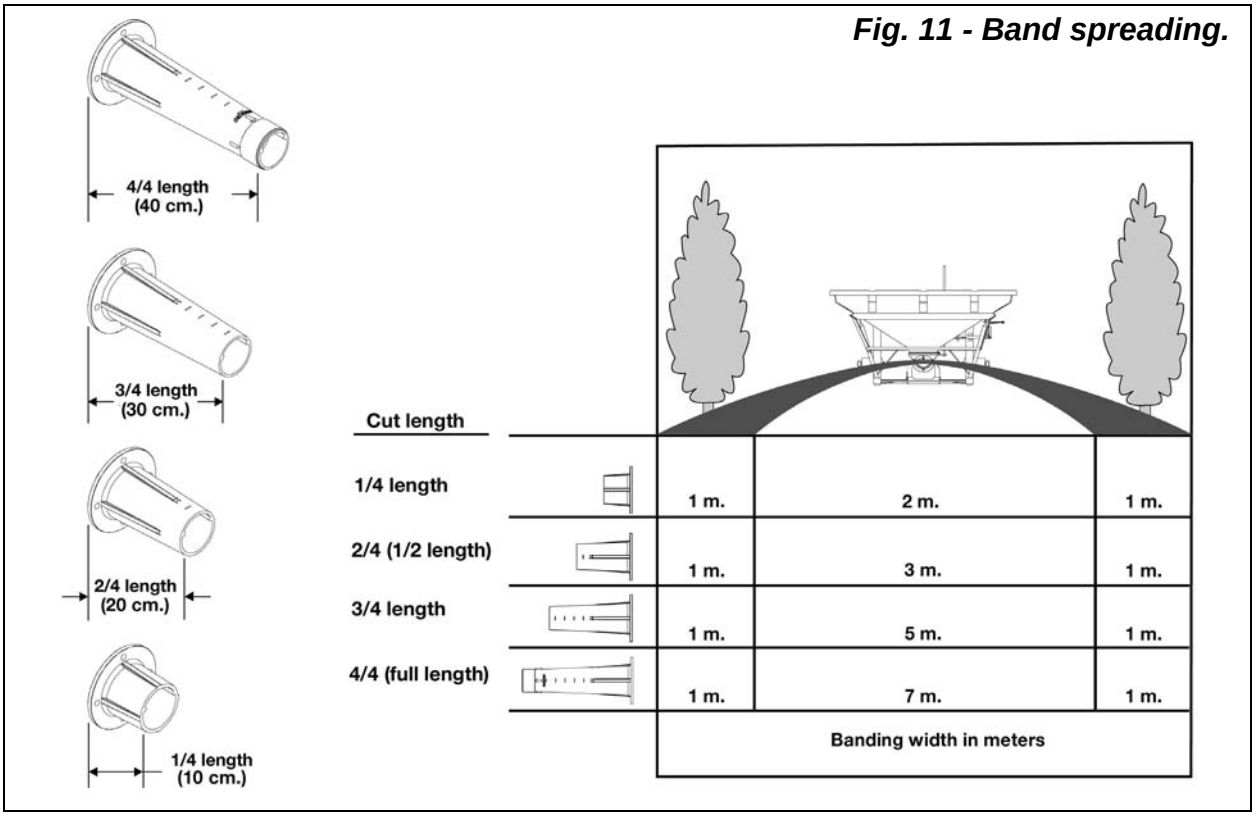


Band spreading

Spreading in bands is when the spreader only distributes material off to the sides and none in the middle. By unscrewing the spread deflector from the end of the spout, the

spreader will now spread material only to the sides. The standard spout may need to be cut to obtain the desired banding width. In its original length the spreading spout will leave a band of approximately 7 meters (23') and drop the material in rows roughly 1 meter (3') wide. The spout can be cut in small increments if the desired width needs to be reduced. At ¼ of its' original length the spreader spout will leave a band in the middle of approximately 2 meters (6,5') and still drop material in rows roughly 1 meter (3') wide **(see fig. 11)**.

Fig. 11 - Band spreading.



3.07 - Uneven Terrain

WARNING: Be careful of roll-over when operating tractor and spreader over uneven ground.

The following precautions should always be observed when working on uneven terrain:

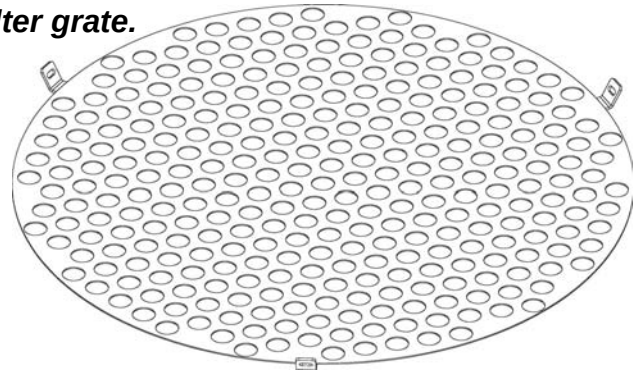
1. In extremely uneven terrain rear wheel weights, front tractor weights, and/or tire ballast should be used to improve stability.
2. Observe the type of terrain and develop a safe working pattern.
3. Whenever traction or stability is doubtful, first test drive over the terrain.

4. Operate the implement up and down steep slopes, not across slopes, to prevent the tractor from tipping. Avoid sudden stops and starts, slow down before changing directions on a slope.
5. Pass diagonally through sharp dips and avoid sharp drops to prevent hanging up the tractor and implement.
6. Slow down on sharp turns and slopes to prevent tipping or loss of control.
7. Watch for holes, roots or other hidden objects. Do not use near the edge of a gully, ditch or stream bank.

3.08 - Optional Filter Grate

The filter grate **(see fig. 12)** is a simple bolt-on accessory, ideal for filtering clots and foreign objects from the material being spread.

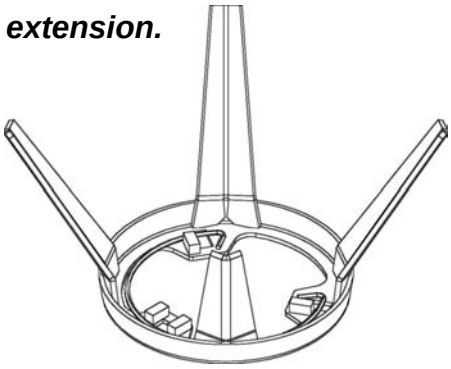
Fig. 12 - Optional filter grate.



3.09 - Optional Agitator Extension

The agitator extension **(see fig. 13)** is an accessory useful when powdered or high humidity fertiliser is being spread. This type of material has a tendency to bridge in the hopper. The agitator extension is assembled on the existing agitator using the supplied spring. Important: Heavy clods such as compacted salt must be broken up before being used in the spreader.

Fig. 13 - Optional agitator extension.



3.10 - Optional Short Spout

The short spout **(see fig. 14)** is used to cut the spread width in half. To assemble, remove the standard spout that is bolted to the spreader and assemble the short spout in its place.

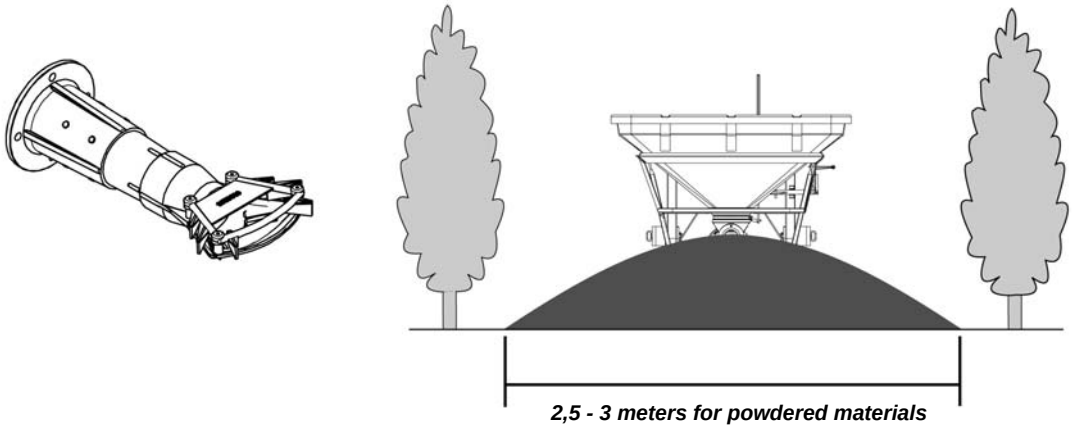


Fig. 14 - Spread width with optional short spout.

3.11 - Optional Rubber Insert

The rubber insert is available for all pendular spreader models and is used when spreading high moisture product such as damp fertiliser or peat. The rubber insert provides a high viscosity surface that lets humid material flow through the spout better.

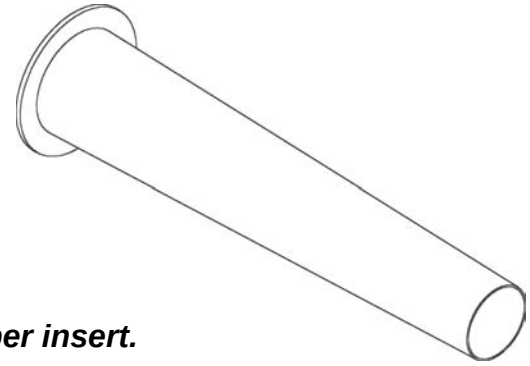


Fig. 15 - Optional rubber insert.

3.12 - Optional Hydraulic Gate Control

The hydraulic gate control allows the operator to control the opening and closing of the gate using the tractors hydraulic system. Two hydraulic remotes are required on the tractor to operate the spreader.

WARNING: High pressure hydraulic oil leaks can penetrate skin resulting in injury, gangrene or death. Be sure to relieve any hydraulic oil pressure before disconnecting any lines or pipes between spreader and tractor hydraulic system. Check for oil leaks using a cardboard, never use hands.

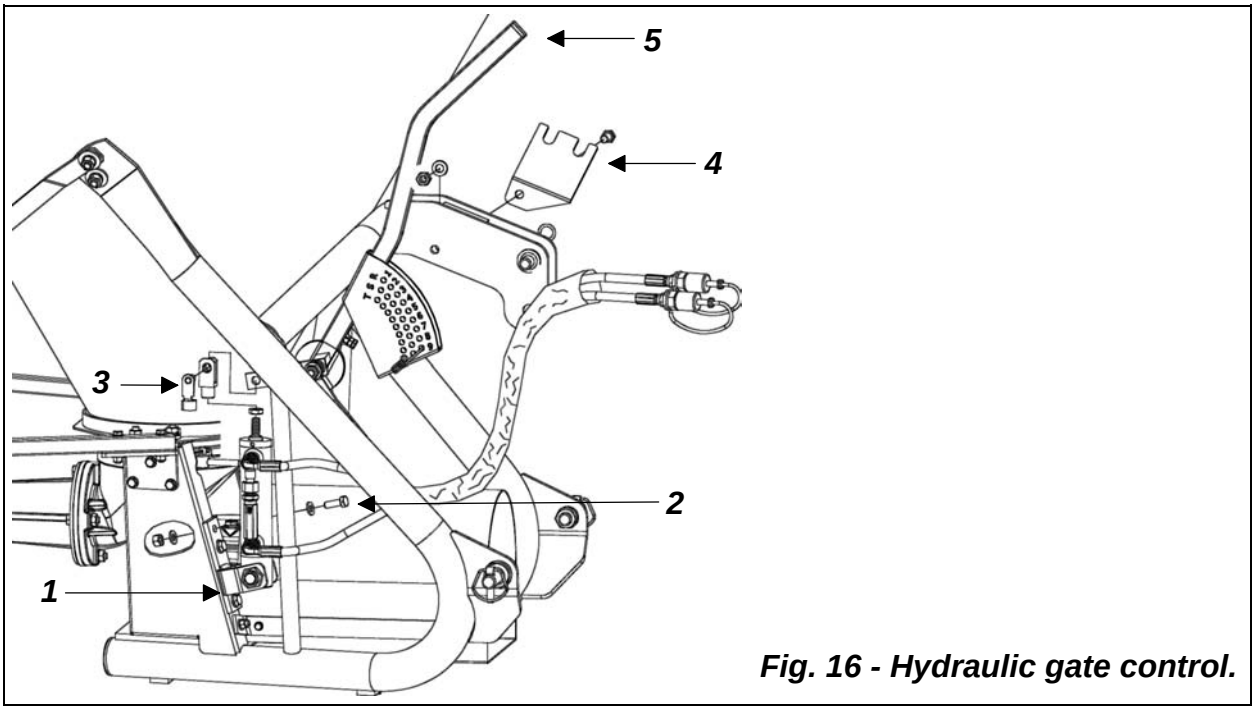


Fig. 16 - Hydraulic gate control.

The hydraulic gate control is designed to be assembled to the right hand side of the pendular spreader. To assemble, proceed as follows:

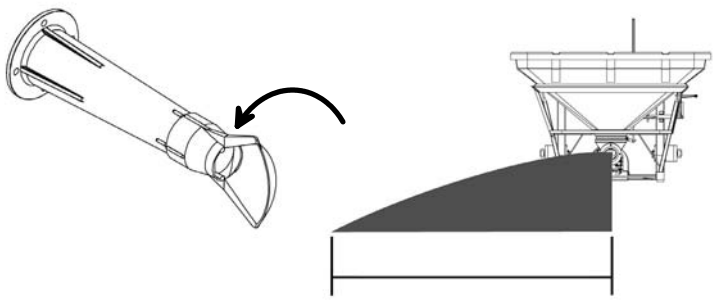
1. With the spreader unhooked from the tractor and positioned on stable ground, line up the three holes on the cylinder bracket to the holes on the side plate by the gearbox **(see #1, fig. 16)** and secure it with the M10x30 bolts, the Ø10 washers and M10 nuts **(see #2, fig. 16)**.
2. Remove the fixing pin that is assembled to the top cylinder yoke **(see #3, fig. 16)**. Line up the hole on the top cylinder yoke with the hole on the opening lever bracket that is on the spreader. Slide the fixing pin through the holes and secure it on the yoke.
3. Secure the hydraulic hose retainer plate with the slots facing outwards to the left of the top hitch bracket and secure it with the M12x30 bolt, the Ø12 washer and M12 lock nut **(see #4, fig. 16)**.
4. Remove the opening lever **(see #5, fig. 16)** from the frame as it will not function with the hydraulic remote gate control assembled.
5. Position hydraulic hoses in a safe route towards the tractor and place the remotes on the hose retainer bracket.
6. Tighten all hardware securely.

CAUTION: Hydraulic pressure relief valve is pre-set at 508 psi (35 bar) and should not be replaced with one that has a higher pressure. Increasing the pressure can result in damage to the equipment.

3.13 - Optional Left/Right Directional Attachment

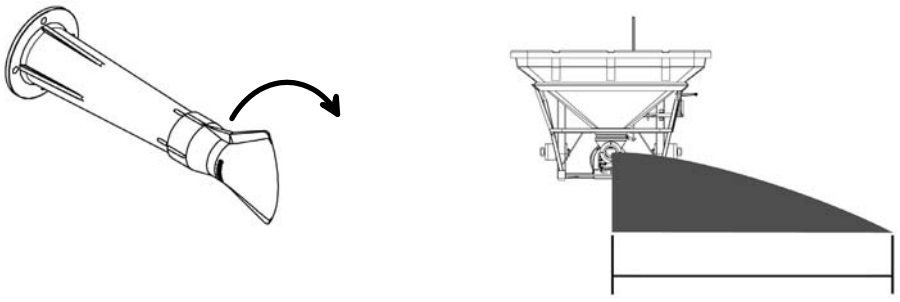
Although the standard spread deflector can be adjusted to spread only to the left or only to the right, the optional directional attachment **(see fig. 17-20)** improves accuracy when spreading in either direction. To assemble, unscrew the standard spread deflector and screw in the left/right directional attachment.

Fig. 17 - Optional directional attachment turned left on standard spout.



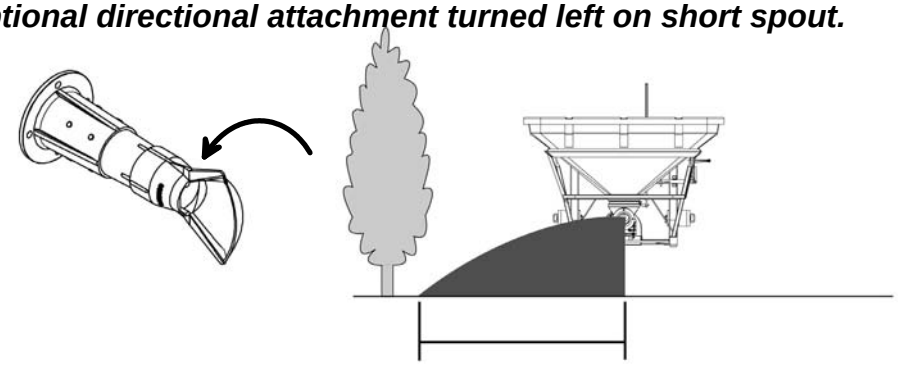
2,5 - 3 meters for powdered materials
6 - 8 meters for granular materials

Fig. 18 - Optional directional attachment turned right on standard spout.



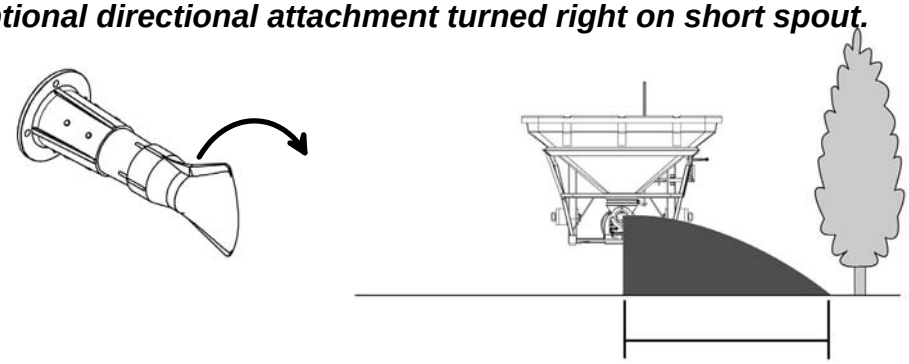
2,5 - 3 meters for powdered materials
6 - 8 meters for granular materials

Fig. 19 - Optional directional attachment turned left on short spout.



1,2 - 1,5 meters for powdered materials
3 - 4 meters for granular materials

Fig. 20 - Optional directional attachment turned right on short spout.



1,2 - 1,5 meters for powdered materials
3 - 4 meters for granular materials

3.14 - Optional Locking Nut for Spout

The galvanised locking nut **(see fig. 21)** available for the spout is ideal when the operator often has to change the spreading direction on the spout. This accessory allows user to adjust the spout to spread in the desired direction and to be held in place with the help of the locking nut. To assemble, unscrew the spread deflector, screw in the locking nut, screw the spout to desired position and use locking nut to tighten.

Fig. 21 - Optional locking nut.

3.15 - Optional Hopper Cover

The hopper cover is available for all models **(see fig. 22)**. This heavy duty cover helps to keep moisture out of the material being spread. Cover also prevents powdered material from being blown over the top of the hopper before being spread.

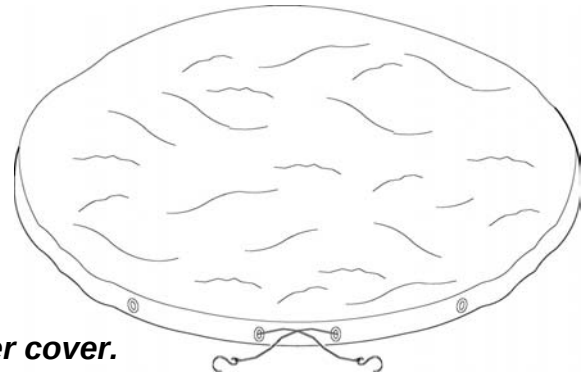


Fig. 22 - Optional hopper cover.

Spreader model	Hopper cover needed
301-300	009-9722
301-400	009-9723

3.16 - Spreading Charts

The graded scale located on the side of the spreader allows the operator to predetermine the desired opening of the distribution unit. There are three lines of holes marked with letters R, S, T **(see fig. 23)**. Each line has 9 holes, which are offset by 4 mm. from one another for a total of 27 different opening positions. This system offers a quick and accurate adjustment of the distribution unit. The spread tables in the following pages will help you determine what setting to use according to the type of product you are spreading. The figure below illustrates the hole selection for "4S".

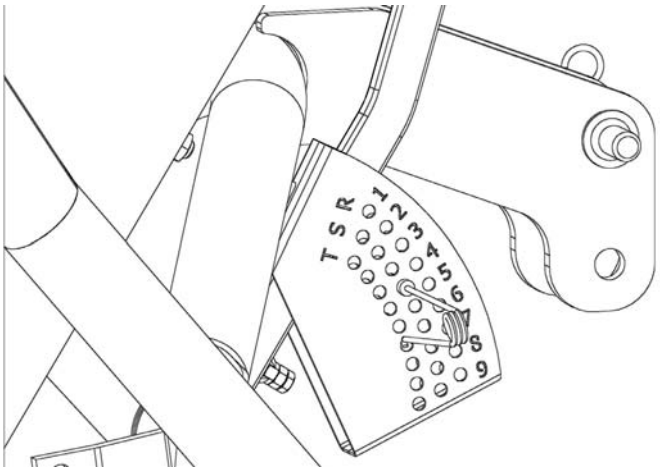


Fig. 23 - Spread adjustments.

PTO 540 rpm	Spread Table in Kg./ha																														
Type of fertiliser	Spread width m.	Work speed km/h	LEVER POSITION																												
			1R	1S	1T	2R	2S	2T	3R	3S	3T	4R	4S	4T	5R	5S	5T	6R	6S	6T	7R	7S	7T	8R	8S	8T	9R	9S	9T
Complex 12.12.12	12	6				36	58	82	104	146	186	228	290	354	416	488	560	632	698	764	830	944	1056	1170	1207	1244	1282	1296	1320
		8				27	43	61	78	109	139	171	217	265	311	366	420	473	523	573	623	708	792	878	905	933	962	972	990
		10				22	35	49	62	88	112	137	174	212	249	293	336	379	419	458	498	566	634	702	724	746	769	778	782
		12				18	29	41	52	73	93	114	145	177	208	244	280	316	349	382	415	472	528	585	603	622	641	648	660
		14				15	25	35	46	63	80	98	124	152	179	209	240	270	299	327	356	405	452	501	517	533	549	555	566
Superphosphate	12	6				20	42	64	86	122	160	196	252	306	362	426	492	556	636	718	798	888	980	1070	1136	1204	1270	1290	1310
		8				15	31	48	64	91	120	147	189	229	271	319	369	417	477	538	596	666	735	803	852	903	953	967	982
		10				12	25	38	51	73	96	118	151	184	217	256	295	334	382	431	478	534	588	642	682	722	762	774	786
		12				10	21	32	43	61	80	98	126	153	181	213	246	278	318	359	399	444	490	535	568	602	635	645	655
		14				9	18	27	36	52	69	84	108	131	155	183	211	238	273	308	342	380	420	459	487	516	544	553	561
Ammonium Nitrate	12	6				56	92	128	164	218	270	324	404	484	564	652	742	830	956	1082	1208	1274	1340	1407	1448	1490	1532	1544	1556
		8				42	69	96	122	163	202	243	303	363	423	489	556	623	717	811	906	955	1005	1055	1086	1117	1148	1158	1167
		10				34	55	77	98	131	162	194	242	290	338	391	445	498	574	649	724	764	804	844	869	894	919	926	934
		12				28	46	64	82	109	135	162	202	242	282	326	371	415	478	541	604	637	670	704	724	745	766	772	778
		14				24	39	55	70	93	116	139	173	207	242	279	318	356	410	464	518	546	574	603	621	638	656	662	667
Calcium Nitrate	10	6							78	114	152	190	246	300	356	424	492	560	634	706	780	870	960	1050	1154	1256	1360	1400	1435
		8							59	85	114	142	184	225	266	318	369	420	475	529	585	653	720	788	865	942	1020	1050	1076
		10							47	68	91	113	148	180	213	254	295	336	380	424	468	522	576	630	692	754	812	840	861
		12							39	57	76	95	123	150	178	212	246	280	317	353	390	435	480	525	577	628	680	700	717
		14							33	49	65	81	105	129	152	182	211	240	272	303	334	373	411	450	495	538	583	600	615
Ammonium Sulphate	7	6				66	124	182	240	322	404	486	620	752	886	1028	1172	1314	1490	1666	1842	2050	2256	2464	2490	2514	2540	2570	2585
		8				49	93	136	180	241	303	364	465	564	664	771	879	986	1117	1249	1381	1537	1692	1847	1867	1885	1905	1927	1939
		10				40	74	109	144	193	242	291	372	451	531	617	703	788	894	999	1105	1230	1354	1478	1494	1508	1525	1542	1551
		12				33	62	91	120	161	202	243	310	376	443	514	586	657	745	833	921	1025	1128	1232	1245	1257	1270	1285	1292
		14				28	53	78	103	138	173	208	266	322	379	440	502	563	639	714	789	878	967	1056	1067	1077	1089	1101	1108
Magnesium Potassium Sulphate	11	6				28	56	86	114	162	212	260	326	390	456	520	582	646	736	828	918	1034	1152	1268	1327	1386	1445	1486	1500
		8				21	42	64	86	121	159	194	244	292	341	390	436	484	552	621	689	775	864	951	995	1039	1084	1115	1125
		10				17	34	52	68	97	127	155	196	234	273	312	349	387	442	497	551	620	691	761	796	832	867	892	900
		12				14	28	43	57	81	106	130	163	195	228	260	291	323	368	414	459	517	576	634	663	693	723	743	750
		14				12	24	37	49	69	91	111	140	167	195	223	249	276	315	355	393	443	493	543	569	594	619	637	643

PTO 540 rpm	Spread Table in Kg./ha																														
Type of fertiliser	Spread width m.	Work speed km/h	LEVER POSITION																												
			1R	1S	1T	2R	2S	2T	3R	3S	3T	4R	4S	4T	5R	5S	5T	6R	6S	6T	7R	7S	7T	8R	8S	8T	9R	9S	9T
Potassium Chloride Granular	10	6				26	62	100	136	192	250	306	380	456	530	626	724	820	932	1044	1156	1238	1318	1400	1466	1534	1600	1660	1680
		8				19	46	75	101	144	187	229	285	342	397	469	543	615	699	783	866	928	988	1050	1099	1150	1200	1245	1260
		10				16	37	60	81	115	150	183	228	274	318	376	434	492	559	624	693	743	791	840	880	920	960	996	1008
		12				13	31	50	68	96	125	153	190	228	265	313	362	410	466	522	578	619	659	700	733	767	800	830	840
		14				11	27	43	58	82	107	130	163	195	227	268	310	351	399	447	495	531	565	600	628	657	686	711	720
Urea	10	6				38	64	90	116	170	222	278	336	396	456	530	606	680	768	858	946	1030	1116	1200	1234	1266	1300	1320	1335
		8				28	48	67	87	127	166	206	252	297	341	397	454	510	576	643	709	772	837	900	925	949	975	990	1001
		10				23	38	54	69	102	133	165	200	238	273	318	364	408	461	515	567	618	670	720	740	759	780	792	801
		12				19	32	45	58	85	111	138	168	196	228	265	303	340	384	429	473	515	558	600	617	633	650	660	667
		14				16	27	39	50	73	95	118	144	170	195	227	260	291	329	368	405	441	478	514	529	543	557	566	572
Calcium Cyanamide	9	6				68	124	178	234	316	396	478	596	714	832	966	1098	1232	1346	1462	1576	1650	1726	1800	1834	1866	1900	1925	1940
		8				51	93	133	175	237	297	358	447	535	624	724	822	924	1009	1096	1182	1237	1294	1350	1375	1399	1425	1444	1455
		10				41	74	107	140	190	238	286	358	428	499	580	659	739	808	877	946	990	1036	1080	1100	1120	1140	1155	1164
		12				34	62	89	117	158	198	239	298	357	416	483	549	616	673	731	788	825	863	900	917	933	950	962	970
		14				29	53	76	100	135	170	204	255	305	357	414	471	528	577	626	675	707	740	771	786	800	814	825	831
Granulated Thomas	14	6				32	64	94	126	182	238	294	362	432	500	598	696	794	882	970	1058	1182	1304	1428	1502	1576	1650	1692	1714
		8				24	48	70	94	136	178	220	271	324	375	448	522	596	661	727	793	886	978	1071	1128	1182	1237	1269	1285
		10				19	38	56	76	109	143	176	217	259	300	359	418	476	529	582	634	709	782	857	901	946	989	1015	1028
		12				16	32	47	63	91	119	147	181	216	250	299	348	397	441	485	529	591	652	717	751	788	825	846	857
		14				14	27	40	54	78	102	126	155	185	214	256	298	340	378	416	453	507	559	612	644	675	707	725	735
Powdered Thomas	6	6				50	122	194	266	538	808	1080	1528	1976	2424	2696	2966	3238	3586	3934	4282	4680	5080	5478	5578	5630			
		8				38	92	145	200	403	606	809	1146	1482	1817	2022	2224	2428	2689	2950	3211	3510	3810	4108	4183	4222			
		10				30	73	116	160	323	485	647	917	1186	1454	1618	1780	1942	2152	2360	2569	2808	3048	3287	3347	3378			
		12				25	61	97	133	269	404	540	764	988	1212	1348	1483	1619	1793	1967	2141	2340	2540	2739	2789	2815			
		14				21	52	83	114	231	346	462	655	847	1038	1155	1271	1387	1537	1686	1835	2006	2177	2348	2391	2413			

PTO 540 rpm	Spread Table in Kg./ha																													
Type of seed	Spread width m.	Work speed km/h	LEVER POSITION																											
			1R	1S	1T	2R	2S	2T	3R	3S	3T	4R	4S	4T	5R	5S	5T	6R	6S	6T	7R	7S	7T	8R	8S	8T	9R	9S	9T
Clover	8	6	8	26	44	62	100	140	178	244	308	374	440	506															
		8	6	19	33	46	75	105	133	183	231	280	330	379															
		10	5	16	26	37	60	84	107	146	185	224	264	304															
		12	4	13	22	31	50	70	89	122	154	187	220	253															
		14	3	11	19	26	43	60	76	105	132	160	188	217															
Grass	8	6	8	22	36	52	84	116	148	202	258	312	368	422															
		8	6	16	28	39	63	87	111	151	193	234	276	316															
		10	5	13	23	31	50	70	89	121	155	187	221	253															
		12	4	11	19	26	42	58	74	101	129	156	184	211															
		14	3	9	16	22	36	50	63	87	110	134	158	181															
Lucerne	8	6	10	26	42	58	94	128	164	232	298	366	448	526															
		8	8	19	31	43	70	96	123	174	223	274	334	394															
		10	6	16	25	35	56	77	98	139	179	220	267	316															
		12	5	13	21	29	47	64	82	116	149	183	223	263															
		14	4	11	18	25	40	55	70	99	128	157	191	225															
Wheat	12	6				16	46	78	108	156	202	250	316	384	450	528	606	684	776	866									
		8				12	34	58	81	117	151	187	237	288	337	396	454	513	582	649									
		10				10	27	47	65	94	121	150	190	230	270	317	364	410	466	520									
		12				8	23	39	54	78	101	125	158	192	225	264	303	342	388	433									
		14				7	20	33	46	67	86	107	135	164	193	226	260	293	332	371									
Barley	12	6				12	30	48	66	94	124	152	196	240	284	346	408	470	536	600									
		8				9	22	36	49	70	93	114	147	180	213	259	306	352	402	450									
		10				7	18	29	40	56	74	91	118	144	170	207	245	282	321	360									
		12				6	15	24	33	47	62	76	98	120	142	173	204	235	268	300									
		14				5	13	20	28	40	53	65	84	102	122	148	175	201	229	257									
Oats	12	6				12	24	38	50	68	88	106	142	178	214	254	292	332	392	450									
		8				9	18	28	37	51	66	79	106	133	160	190	219	249	294	337									
		10				7	14	23	30	41	53	64	85	107	128	152	175	199	235	270									
		12				6	12	19	25	34	44	53	71	89	107	127	146	166	196	225									
		14				5	10	16	21	29	38	45	61	76	92	108	125	143	168	193									

4 - MAINTENANCE

DANGER: Stop engine, lock parking brake and remove key before performing any service or maintenance.
Always use personal protection devices, such as a breathing mask capable of filtering toxic powders, safety glasses and gloves, when performing maintenance. Refer to chemical manufacturer's label for specific safety information.
Keep fingers out of slots to prevent injury.

4.01 - Maintenance Safety

1. Good maintenance is your responsibility.
2. Keep service area clean and dry. Be sure electrical outlets and tools are properly grounded. Use adequate light for the job at hand.
3. Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
4. Make no repair or adjustments with the tractor engine running. Before working on the machine, disengage the PTO, shut off the engine, set the brakes, and remove the ignition key.
5. Be certain all moving parts on attachment have come to a complete stop before attempting to perform maintenance.
6. Never work under equipment unless it is blocked securely.
7. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance.
8. Never trust the tractor hydraulics alone to support the machine. Before repairing or adjusting the machine, it should be lowered and allowed to rest on a stand.
9. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
10. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.
11. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
12. Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.
13. After servicing, be sure all tools, parts and service equipment are removed.
14. Never replace hex bolts with less than class 8.8 (or grade 5) bolts unless otherwise specified, i.e. shear bolts[8].

[8] Refer to Table 1 - Torque Specifications, for head identification marking, page 36.

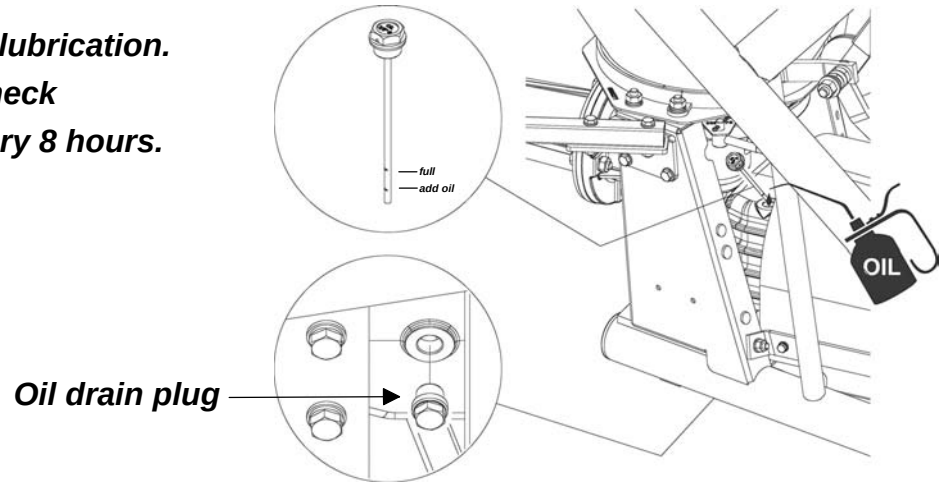
15. Where replacement parts are necessary for periodic maintenance and servicing, genuine replacement parts must be used to restore your equipment to original specifications. The company will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
16. Unauthorised modifications to the machine may impair the function and/or safety of the machine and reduce its life. If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.

4.02 - Service

Before beginning work:

1. Apply a thick layer of grease to all exposed moving parts.
2. Apply a film of biodegradable oil in crevices and corners in order to keep corrosive material from rusting areas that are difficult to clean.
3. Every 8 hours check the gearbox oil level with dipstick **(see fig. 24)**. (Use SAE 90W lubricant).

Fig. 24 - Gearbox lubrication. Use dipstick to check oil in gearbox every 8 hours.



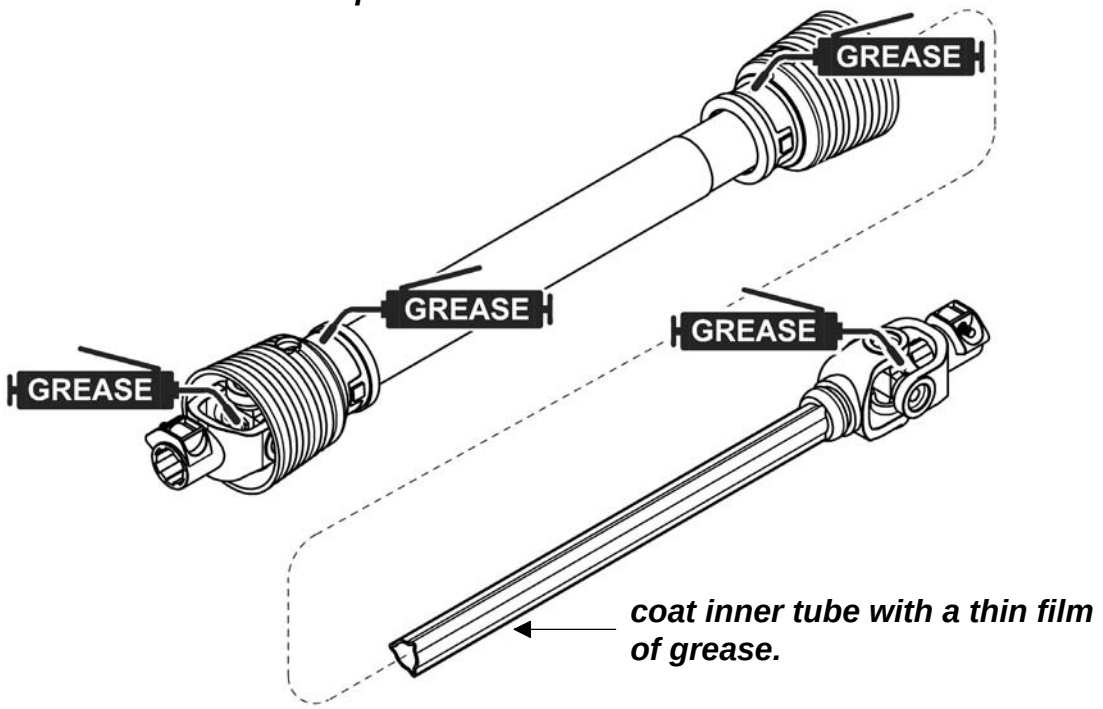
After each use:

1. Be sure to thoroughly wash the machine without using excessive pressure especially on the moving parts. It is particularly important to wash the implement after using salt or fertiliser. This will help prevent the caustic chemicals in the salt and fertiliser from damaging the metal of the machine.
2. Carefully dry the machine.
3. Apply a thick layer of grease to all exposed moving parts.
4. Apply a film of biodegradable oil in crevices and corners.
5. Grease the driveline cross and bearing and shielding **(see fig. 25)**.
6. Grease the telescoping inner and outer tubes **(see fig. 25)**.

IMPORTANT: Periodically check the bronze slide (part number 0095190) inside the gearbox. This is the heart of the machine and its condition will determine how the spreader runs. When the flywheel is turned by hand, there should be no

jerking movement. The flywheel and the spout should move as one. If there are stops and starts, this may be an indication of wear on the bronze slide and it should be replaced immediately. Failure to do so can create problems to other parts of the spreader.

Fig. 25 - Driveline lubrication points.



4.03 - Driveline

DANGER: Only use the original driveline supplied with this machine and always with safety shielding installed and working properly. Carefully read and file away the driveline operator's manual supplied by the manufacturer. The following does not substitute the information found in the driveline manual.

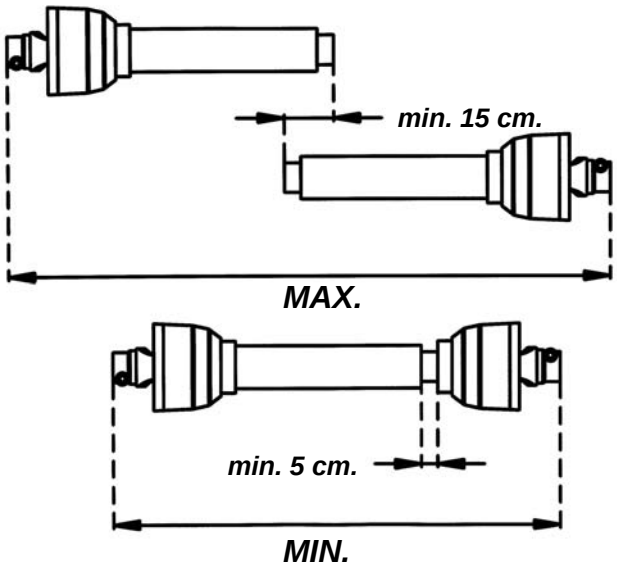
IMPORTANT: Always check driveline length during initial set-up and when connecting to a different tractor.

In the collapsed position the driveline should be approximately 5 cm. from bottoming out to prevent possible damage to the tractor or implement. When the driveline is in the maximum extended position, the ideal minimum overlap of the two halves should be approximately 15 cm. **(see fig. 26)**.

If determined that the driveline is too long, follow these procedures to adjust the length:

1. Separate the two driveline halves. Connect one half to the tractor PTO and the other half to the spreader.
2. Raise and lower the spreader with the three point hitch to find the position where the driveline is shortest. Hold the halves' shafts side by side and mark the desired length on the outer female tube guard leaving a 5 cm. gap between the end of the guard tube and bell guard.
3. Cut off both guard tubes the same amount as marked in step 2.
4. Shorten both drive tubes the same amount as guard tubes.
5. De-burr and clean filings from drive tubes and apply grease to outside of inner telescoping tube.
6. Reassemble the driveline halves and connect to tractor and implement. Raise and lower implement again to be sure driveline does not bottom out in its shortest position and has a minimum overlap of 15 cm. in the longest position.
7. Install both driveline safety chains. One should be hooked in a hole on the outer driveline yoke shield and to the tractor to restrict outer shield rotation. The second one should be hooked in a hole on the inner driveline yoke shield and to the implement to restrict inner shield rotation.

Fig. 26



If the driveline has less than minimum overlap, do not use and contact your Authorised Company Dealer.

CAUTION: Always work with the driveline as straight as possible. This will prolong its life and that of its components. It is advised not to work at an angle greater than 15 degrees.

4.04 - Safety Shear Bolt

CAUTION: When this machine is equipped with a shear bolt driveline, for the protection of the PTO and gearbox, never replace the shear bolt with anything harder than a class 8.8 bolt. All warranties will be void if a bolt harder than a class 8.8 is used.

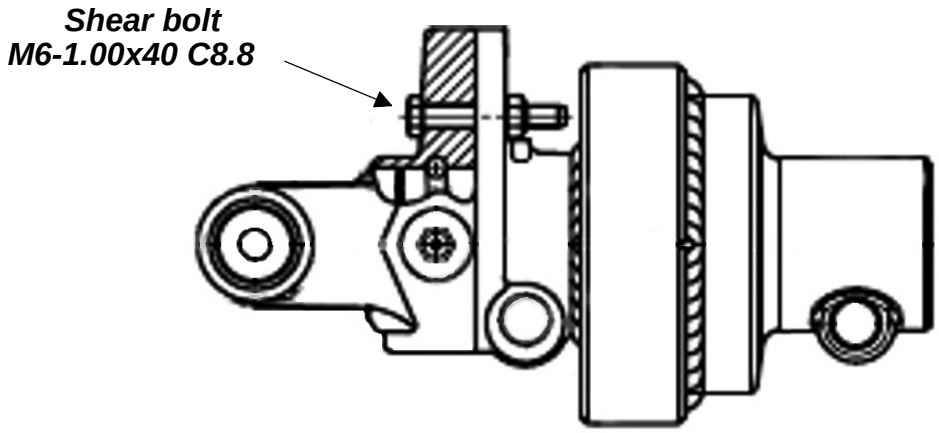


Fig. 27

In the case of a shear bolt breaking (the operator will notice that the spreader will stop even though the tractor PTO is still engaged), disengage the PTO, stop and turn off the tractor. **Replace the broken shear bolt M6-1.00x40 C8.8 with another having the identical characteristic of the original (see fig. 27).**
Substituting different shear bolts other than those indicated by the manufacturer can render the safety inoperable.

4.05 - Transport

CAUTION: Do not tow tractor and spreader behind other vehicles. Use a properly equipped trailer with heavy tie-downs for towing operations.

Before transporting:
1. Always select a safe ground speed that is appropriate for the terrain.
2. Beware of traffic on public roads. Install a SMV (Slow Moving Vehicle) sign when travelling on roads or streets.
3. Reduce ground speed when turning and take care that the spreader does not strike obstacles such as trees, fences or buildings.

TABLE 1 - TORQUE SPECIFICATIONS

Metric (ISO) treaded bolts head marking		**Class 5.8**		**Class 8.8**		**Class 10.9**		**Inch (SAE) treaded bolts head marking**		**Grade 2**		**Grade 5**		**Grade 8**	
Bolt size mm	**Thread mm**	**N.m**	**ft-lb**	**N.m**	**ft-lb**	**N.m**	**ft-lb**	**Bolt size inch**	**Thread inch tpi**	**N.m**	**ft-lb**	**N.m**	**ft-lb**	**N.m**	**ft-lb**
M5	**0.8**	4	3	6	4	9	7	**1/4"**	**20**	7	5	11	8	16	12
M6	**1**	6	4	10	7	15	11	**1/4"**	**28**	8	6	13	10	19	14
M8	**1.25**	16	12	25	18	36	27	**5/16"**	**18**	15	11	24	17	33	25
M8	**1**	17	13	26	19	38	28	**5/16"**	**24**	17	13	26	19	37	27
M10	**1.5**	31	23	48	35	71	52	**3/8"**	**16**	27	20	42	31	59	44
M10	**1.25**	33	24	51	38	75	55	**3/8"**	**24**	31	23	47	35	67	49
M10	**1**	35	26	53	39	78	58	**7/16"**	**14**	43	32	67	49	95	70
M12	**1.75**	54	40	84	62	123	91	**7/16"**	**20**	48	36	75	55	106	78
M12	**1.5**	56	41	87	64	128	94	**1/2"**	**13**	66	48	102	75	144	106
M12	**1.25**	59	44	90	66	133	98	**1/2"**	**20**	75	55	115	85	163	120
M14	**2**	84	62	133	98	195	144	**9/16"**	**12**	95	70	147	109	208	154
M14	**1.5**	94	69	142	105	209	154	**9/16"**	**18**	106	79	164	121	232	171
M16	**2**	131	97	206	152	302	223	**5/8"**	**11**	132	97	203	150	287	212
M16	**1.5**	141	104	218	161	320	236	**5/8"**	**18**	149	110	230	170	325	240
M18	**2.5**	181	133	295	218	421	310	**3/4"**	**10**	233	172	361	266	509	376
M18	**2**	196	145	311	229	443	327	**3/4"**	**16**	261	192	403	297	569	420
M18	**1.5**	203	150	327	241	465	343	**7/8"**	**9**	226	167	582	430	822	606
M20	**2.5**	256	189	415	306	592	437	**7/8"**	**14**	249	184	642	473	906	668
M20	**1.5**	288	212	454	335	646	476	**1"**	**8**	339	250	873	644	1232	909
M22	**2.5**	344	254	567	418	807	595	**1"**	**12**	371	273	955	704	1348	995
M22	**1.5**	381	281	613	452	873	644	**1-1/8"**	**7**	480	354	1077	794	1746	1288
M24	**3**	444	327	714	526	1017	750	**1-1/8"**	**12**	539	397	1208	891	1958	1445
M24	**2**	488	360	769	567	1095	808	**1-1/4"**	**7**	677	500	1519	1120	2463	1817
M27	**3**	656	484	1050	774	1496	1103	**1-1/4"**	**12**	750	553	1682	1241	2728	2012
M27	**2**	719	530	1119	825	1594	1176	**1-3/8"**	**6**	888	655	1992	1469	3230	2382
M30	**3.5**	906	668	1420	1047	2033	1499	**1-3/8"**	**12**	1011	746	2268	1673	3677	2712
M30	**2**	1000	738	1600	1180	2250	1659	**1-1/2"**	**6**	1179	869	2643	1949	4286	3161
M36	**4**	1534	1131	2482	1830	3535	2607	**1-1/2"**	**12**	1326	978	2974	2194	4823	3557
When using lock washers with nuts, increase torque values by 5%.															

TABLE 2 - TURBO HOP - TECHNICAL FEATURES

Pendular Spreader, for tractors up to 60 HP, PTO 540 rpm, 3 point hitch cat. 1.								
Model	**HP**	**Hopper capacity Lt.**	**Carrying weight Kg.**	**Weight Kg.**	**Overall width cm.**	**Overall length cm.**	**Loading height cm.**	**Spreading width m.**
301-300	20-60	255	260	115	112	145	112	5-14
301-400	20-60	360	370	120	125	145	122	5-14

5 - REPAIR PROCEDURES

CAUTION: All repair procedures must be done by authorised dealerships. It is not recommended that untrained individuals perform any repair work.

If cracks and scorings have occurred on the machine, brush them using a wire brush and touch up with primer and paint.

5.01 - Suggested Spare Parts

It is suggested that the following spare parts be kept on hand for the spreader at all times to prevent a minor problem from delaying work:

Description	Quantity
Deflector	1
Spout	1
Bronze slide	1

5.02 - Storage

After seasonal use it is important to perform the following for prolonged storage:

1. Empty hopper of product before unhooking it from the tractor.
2. Wash and dry the spreader carefully.
3. Inspect the spreader and replace worn or damaged parts. If corrosive material has eaten under the paint, clean off the area with a wire brush and touch up with primer and paint.
4. Tighten all hardware.
5. Grease or oil all areas indicated under Maintenance[9].
6. Apply a thick layer of grease to all exposed moving parts.
7. Apply a film of biodegradable oil in crevices and corners.
8. Cover the spreader from the elements in order to have it in perfect condition for the start of the next season.
9. Make sure all parked machines are on a hard, level surface, and engage all safety devices.
10. Do not permit children to play on or around the stored unit.

Note: The machine demolition operations should be carried out in compliance with all federal, state and local environment protection laws.

[9] See Chapter 4 - Maintenance.

6 - TROUBLESHOOTING

WARNING: Be sure tractor engine is off, parking brake is locked, and key is removed before making any adjustments.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Non uniform spread pattern.	Wrong gate opening.	Adjust gate opening.
	Spreader or pendular arm not positioned correctly.	Adjust spreader parallel to the ground with spout 75 cm. above the ground level.
	Bronze slide worn inside gearbox.	Replace bronze slide.
Product not flowing to pendular arm.	Wet product.	Use dry product only or optional rubber insert.
	Powdered product.	Use optional agitator.
Narrow spread width.	Incorrect PTO speed.	Increase PTO speed to 540 PTO rpm.
	Pendular spout at wrong angle or wrong height.	Adjust spreader parallel to the ground with spout 75 cm. above the ground level.

7 - PRE-DELIVERY CHECKLIST

To the dealer: Inspect the machine thoroughly after assembly to assure it is functioning properly before delivering it to the customer. The following checklist is a reminder of points to cover. Check off each item as it is found satisfactory or after proper adjustment is made.

- ☐ Gearbox oil level.
- ☐ Guards and shield properly fastened.
- ☐ Lubrication of grease fittings.
- ☐ All hardware properly tightened.
- ☐ All decals properly located and readable **(see fig. 2)**.
- ☐ Overall condition (touch up scratches, clean and polish).
- ☐ Test run, check for excessive vibration or overheating of bearings.
- ☐ Operator's Manual.

Review the Operator's Manual with the customer. Explain the following:

- ☐ Warranty.
- ☐ Safe operation and service.
- ☐ Correct machine installation and operation.
- ☐ Daily and periodic lubrication, maintenance and inspections.
- ☐ Troubleshooting.
- ☐ Operational procedures and storage.
- ☐ Parts and service.
- ☐ Fill out the Pre-Delivery Checklist and Warranty Registration form.
- ☐ Give customer the Operator's Manual and encourage the customer to read the manual carefully.

IMPORTANT: Warranty is not valid unless Pre-Delivery Checklist and Warranty Registration form in Operator's Manual is completed in detail and mailed to the Company.

Model Number: _____ Serial Number: _____

Delivery Date: _____ Dealer's Signature: _____

8 - WARRANTY

The Company warrants its machine from defects in material and workmanship. The machines are warranted from the invoice date for the following periods.

1. **24 months** for private use.
2. **12 months** for commercial, contractual and public use.
3. **30 days** for loan or rental.

This warranty is valid only if the Warranty Registration Form is properly completed and sent to the Company within 14 days of delivery along with copy of the invoice.

This warranty is valid only if the machine is paid for in full.

The warranty coverage shall not be transferable from the first owner to any subsequent owner.

This document is the only warranty for this machine, any other promises, express or implied other than those set forth herein are not applicable.

The customer can not request any special provisions or changes to this warranty covering additional responsibilities or liability from the Company.

The Company determines whether the warranty covers the substitution or the repairing of the machine or parts.

The customer is responsible, in all cases, for expenses of lubricants, transportation, any custom duties and applicable taxes.

The substitution or the repair of parts under warranty do not extend the length of said warranty.

This limited warranty does not apply to and excludes drivelines and driveline related safety devices (shear pin yokes, shear pins, slip clutches, clutch discs), tires, belts, blades and other wear items.

At no time will the responsibility of the Company surpass the original purchase price of the machine. The purchaser agrees, not to have any rights to any compensation from the Company, including but not limited to, any eventual damages or accidents, loss of profit, loss of sales, injuries or damages of any kind or nature, or other accidents or losses which could result.

If during the period covered by this warranty, the machine fails to perform due to material or workmanship defects, the purchaser is to immediately make the Company aware of this defect. It is the Company's right to determine if the machine is to have parts replaced, repaired or the machine returned.

The Company will not accept any returned items without prior express written authorisation.

This warranty does not cover cost of labour for the replacement of parts.

Misuse or use of this machine other than ways outlined in the operator's manual or literature invalidates this warranty.

All obligations of the Company under this limited warranty shall be terminated if original parts of this machine have been modified or altered in any way, the machine has been repaired by unauthorised dealers, or when unauthorised spare parts have been used.

The Company reserves the right to modify or update machines without the obligation of modifying or updating previously sold machines.
Venue: Any judgements will be decided by the Verona Court.

EC Declaration of Conformity

according to Directive 2006/42/EC

We

ROTOMEC spa
Via Molino di Sopra, 56
37054 Nogara (Verona), Italy

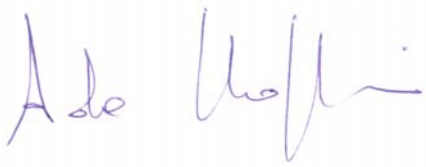
declare under our sole responsibility, that the product:

Pendular Spreader

Model _____ Serial Nr. _____

to which this declaration relates corresponds to the relevant basic safety and health requirements of the Directive 2006/42/EC.
For the relevant implementation of the safety and health requirements mentioned in the Directives, the following standards were consulted: EN 14017; EN 4254-1.

National and International Requirements: ISO 11684.



Ada B. Figna
Chief Executive Officer Nogara, _____

Determination of sound power level:
While working the spreader does not overcome the acoustic pressure of 80 dB.

WARRANTY REGISTRATION

ROTOMEC spa
Via Molino di Sopra, 56
37054 Nogara (Verona) - Italy **Tel.: +39-0442-510400 - Fax: +39-0442-510038**

Dealer Acct. #	Retail Customer
Street Country	Street
Town State Zip	Town State Zip
Date of delivery Invoice #	Phone
Model # Serial #	Date
Pre-Delivery Checklist: ☐ Oil in gearbox. ☐ Greased fittings. ☐ Safety guards in place. ☐ All hardware tight. ☐ Bolts torqued correctly. ☐ Attached unit to tractor. Yes/No. ☐ Field adjusted. Yes/No. ☐ Test run. Dry/Infield. ☐ Safety decals. ☐ Operator's Manual. The machine described above, has been prepared for delivery according to the Pre-Delivery Check List and the Customer has been instructed in its care and operation and the condition of warranty.	Tractor make: _____ Model: _____; HP _____ Type of operation: Schools Maintenance, Landscaper, Commercial Maintenance, Golf Course, Municipality, Turf Farm, Others: _____ _____ Approximate number of acres the machine will be used on annually: _____ I hereby acknowledge that: I have received and accepted delivery of the machine described. The equipment was checked thoroughly for loose or missing parts and has been adjusted in accordance with the Pre-Delivery Checklist. I have read and understand the nature and extent of the warranty and understand clearly that there were and are no other representations of warranties either expressed or implied, made by anyone. I have been advised on proper operation, maintenance and lubrication procedure of this equipment. I have been instructed on and do understand the application, limitation and capacities this equipment was designed and recommended for, all as described in the Operator's Manual and literature published by Rotomec.
Inspected by: _____	
Date: _____	Date: _____
Dealer's Signature: _____	Customer's Signature: _____

This registration along with a copy of the invoice must be sent to Rotomec spa within 14 days of date of purchase.

Sender:

Fold here

Place stamp here

ROTOMEC spa
Via Molino di Sopra, 56
37054 Nogara (VR)
ITALY

Cut along this line

Use only original spare parts

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Rotomec 301-300, 301-400 (UK).lwp
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