

BEFCO[®]

Operator's Manual

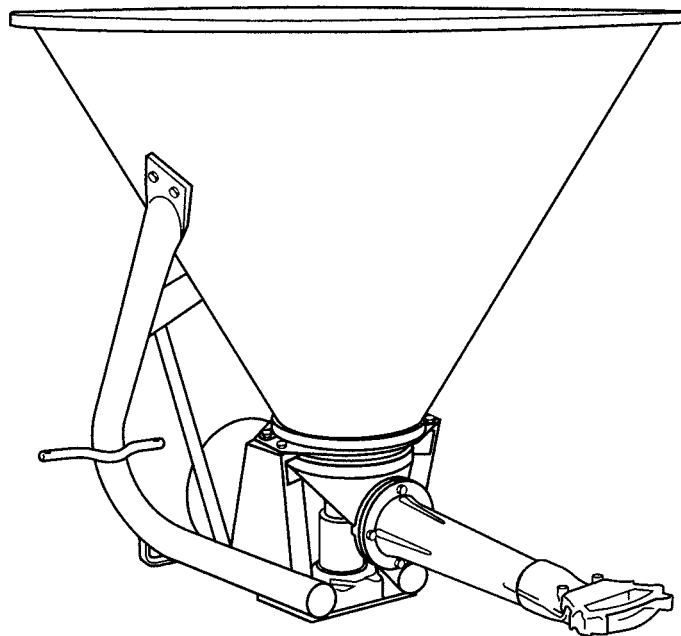
TURBO-HOP

Pendular Spreaders

301-350

303-600, 303-800, 303-999

(serial #304099 & below)



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

Manual 960-135B

April 2016

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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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 fulfill 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 section¹, 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.

¹ See Chapter 8 - Warranty.

2. Normal wear items such as belts, blades, bearings, drivelines, shear pins, slip clutches, etc.
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 Authorized 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 labor 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.

BEFCO	1781 S. Wesleyan Blvd. – P.O. Box 6036 Rocky Mount, N.C. 27802 – U.S.A. Tel: 1.252.977.9920 Fax: 1.252.977.9718
MODEL:	
SERIAL:	
VERSION:	

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 fertilizer 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 fertilizer 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 fertilizer 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 fertilizer in the hopper read carefully the instructions printed on the fertilizer 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.

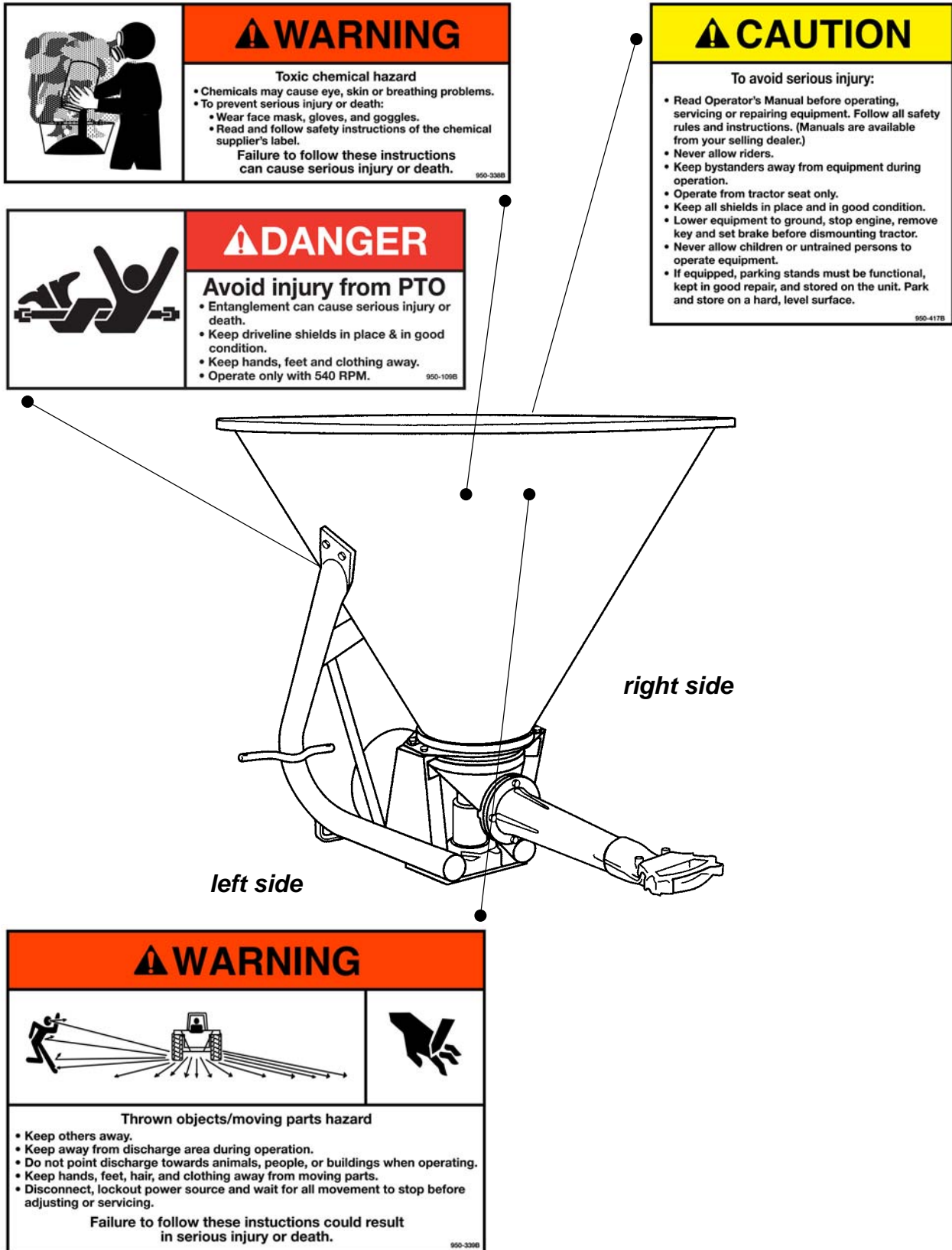
2.03 - Messages and Signs



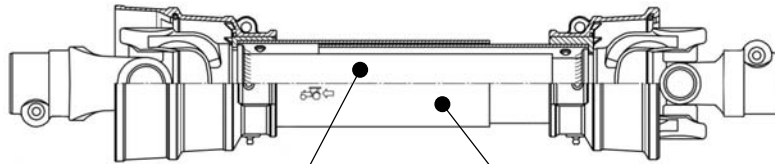
1. Read and adhere to all safety and operating decals on this machine (**see fig. 2**).
2. Before dismounting tractor: Stop engine, set brake and remove the key of unattended equipment.
3. Keep away from rotating parts and driveline.
4. Keep guards and shields in place and in good condition.
5. Do not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



Safety decals - driveline; replace immediately if damaged.



placed on outer tube



placed on outer shield

3 - OPERATION

The fertilizer 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 47' 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 minimize 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, fiberglass 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 yards 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 periodically². 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 minimize 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 traveling 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 maneuvers 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 fertilizer in the hopper read carefully the instructions printed on the fertilizer 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.

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 authorized 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 Checklist³ 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.

To assemble the pendular spreader **model 301-350** proceed as follows:

1. Place hopper over the frame and gearbox making sure the three holes line up with those of the frame.
2. Slip the Ø18 fender washer over the M12x35 carriage bolt and insert them through the hopper and frame. Make sure the rounded head of the bolt is facing the inside of the hopper. Secure the bolt with a Ø12 flat washer, a Ø12 lock washer and a M12 nut.
3. Slide the spout ring over the discharge chute, secure them to the gearbox making sure to use the M10x35 bolt on the top hole and the M10x40 bolts, Ø10 lock washers and M10 nuts on the remaining holes.
Note: The M10x35 bolt does not require a nut on the other side as it screws directly into the gearbox housing.
4. Replace the gearbox plug with the dipstick.
5. Place opening lever over the rod support and secure it with the M8x25 bolt and M8 nut.
6. Insert gauge pin through the desired hole on the graded scale.
7. Install the shock joint side of the driveline to the spreader and secure it with the Ø10x60 and the Ø6x60 roll pins. 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**⁴ 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.
8. Place the flywheel protection cover over the driveline and secure it to spreader frame using the M8x20 bolts, the Ø8 flat washers, the Ø8 lock washers and the M8 elastic stop nuts.
9. Tighten all hardware securely.

³ See Chapter 7 - Pre-Delivery Checklist.

⁴ See Section 4.03 - Driveline, for instructions on how to determine correct driveline length and procedures for shortening the driveline.

To assemble the pendular spreader **models 303-600, 303-800 and 303-999** proceed as follows:

1. Place hopper over the frame and gearbox making sure the four holes line up with those of the frame.
2. Slip the Ø18 fender washer over the M12x50 carriage bolts and insert them through the hopper and frame. Make sure the rounded head of the bolt is facing the inside of the hopper. Secure the bolt with a Ø12 flat washer, a Ø12 lock washer and a M12 nut.
3. Slide the spout ring over the discharge chute, secure them to the gearbox making sure to use the M10x35 bolt on the top hole and the M10x40 bolts, Ø10 lock washers and M10 nuts on the remaining holes.
Note: The M10x35 bolt does not require a nut on the other side as it screws directly into the gearbox housing.
4. Replace the gearbox plug with the dipstick.
5. Place opening lever over the rod support and secure it with the M8x25 bolt and M8 nut.
6. Insert gauge pin through the desired hole on the graded scale.
7. Install the shock joint side of the driveline to the spreader and secure it with the Ø10x60 and the Ø6x60 roll pins. 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 4.03⁵** 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.
8. Assemble the left and right attachment plates to the flywheel protection cover using the M6x20 bolts and Ø6 flat washers then secure them with the Ø6 fender washers and M6 elastic stop nuts.
9. Place the frame reinforcement tube over the welded brackets on the bottom of the spreader frame. Align the holes on the flywheel protection assembly over the holes on the frame reinforcement tube then secure both parts to the welded brackets on the spreader frame using the M8x55 bolts, the Ø8 fender washers on one side and the Ø8 fender washers and M8 elastic stop nuts on the other side.
10. On spreader models 303-800 and 303-999, place the hopper extension with the decals facing to the back of the unit over the hopper.
11. Using a drill with a 7 mm. bit, drill holes on the edge of the hopper frame corresponding to the existing holes on the hopper extension.
12. Secure the hopper extension to the hopper by inserting the M6x35 bolts and the Ø6 fender washers through the top of the holes and securing them using the Ø6 washers and the M6 elastic stop nuts.
13. 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.

⁵ See Section 4.03 - Driveline, for instructions on how to determine correct driveline length and procedures for shortening the driveline.

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 tight⁶.
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.



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 this model implement with tractors in the correct power range⁷ with PTO speed of 540 rpm that turns clockwise and category 1 three point hitch. Never use with tractors over 60 HP.



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.



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 implement to the tractor do the following:

Back the tractor up to the implement in order to slip the tractor hitch arms over the hitch pins bolted to the frame. **Turn off the tractor engine and engage the park brake.** Secure the two tractor hitch arms to the implement with lynch pins. Tighten the tractor arms side movement with either the sway chains or blocks to limit side swing.

Connect the top link, locking it in place with the top hitch pin. Adjust it so the implement is as near parallel to the ground as possible with spout at a distance of 28 to 32 inches above the ground level.

⁶ See Table 1, page 29.

⁷ See Table 2, page 29.

Be sure each end of the driveline is connected securely with the locking pin on the tractor end and 2 roll pins on the implement end. 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.

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

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.



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.

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 approximately 30 inches from the ground and with the spreader as parallel to the ground as possible. Place the gauge pin in the desired hole position (**see fig. 5**)⁸. 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 open the gates by lowering the lever until it stops against the pin. Close off the gates with the lever after finishing spreading.



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

⁸ See Section 3.16 - Spreading Charts.



DANGER: Never allow anyone within 100 yards 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.

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 is a simple bolt-on accessory available for pendular spreader models 303-600, 303-800 & 303-999 and is ideal for filtering clots and foreign objects from the material being spread (**Part #AZ6-303**).

3.09 - Optional Agitator Extension

The agitator extension accessory available for all pendular spreader models is best suited when powdered or high humidity fertilizer 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. (Part #AZ1-301 for model 301-350 or part #AZ7-303 for models 303-600, 303-800, 303-999).

3.10 - Optional Sand & Salt Spout

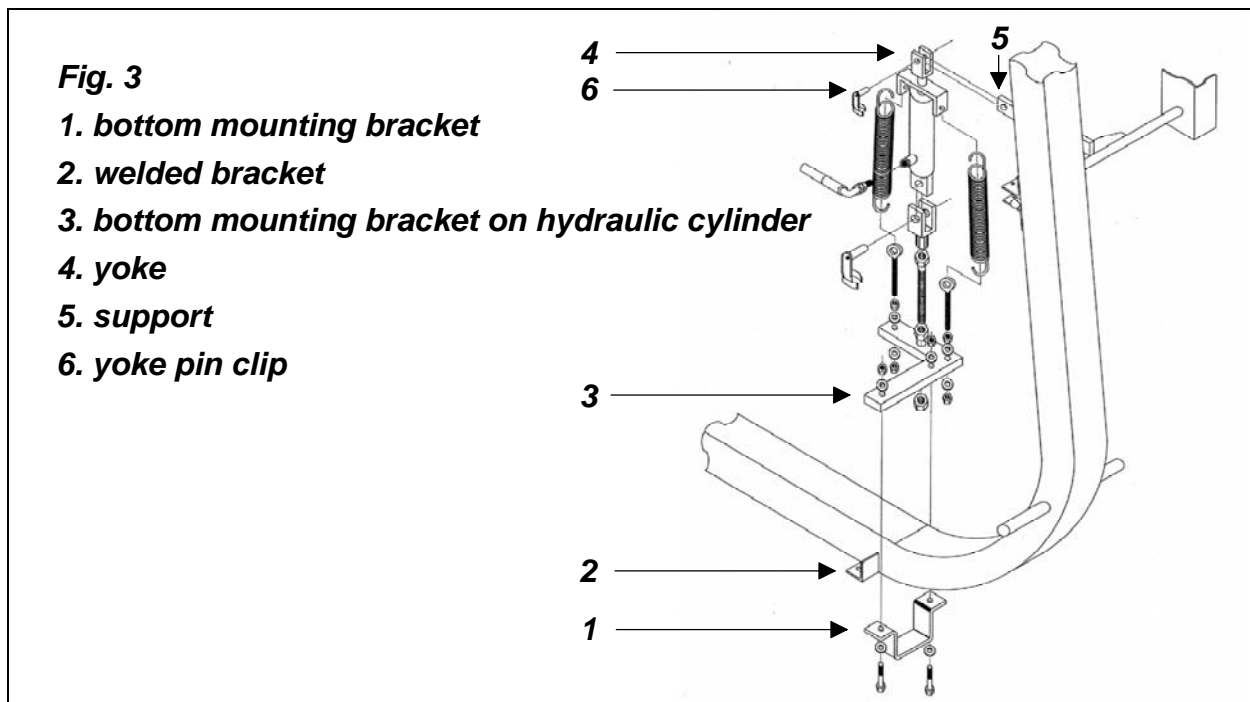
The sand & salt spout is available for all pendular spreader models and is used to cut the spread width in half. To assemble standard spout must be removed and sand & salt spout is bolted on in its place (Part #AZ2-300).

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 fertilizer or peat. The rubber insert provides a high viscosity surface that lets humid material flow through the spout better (Part #AZ4-300).

3.12 - Optional Hydraulic Gate Control

The hydraulic gate control available for pendular spreader models 303-600, 303-800 & 303-999 allows operator to control the opening and closing of the gate using the tractors hydraulic system (Part #AZ3-303).





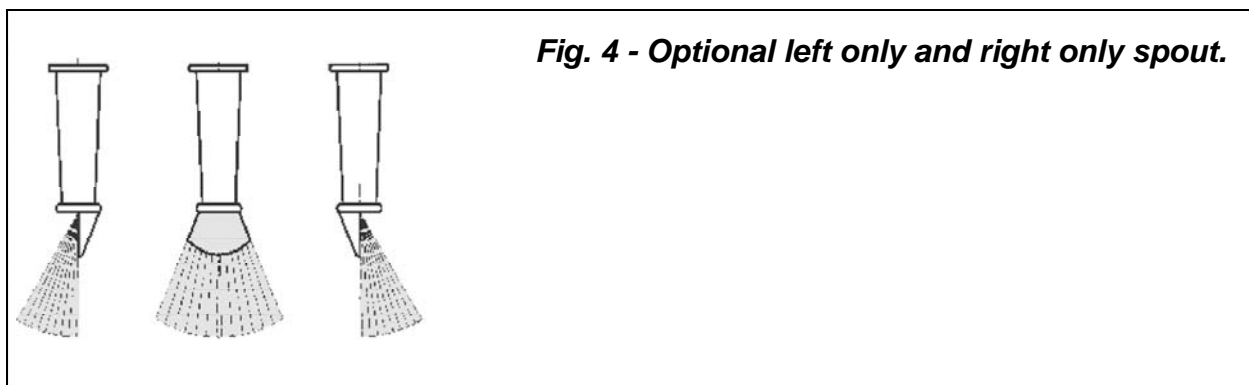
WARNING: High pressure hydraulic oil leaks can penetrate skin resulting in injury, gangrene or death. Be sure to relieve any hydraulic oil pressure before disconnecting any lines or pipes between spreader and tractor hydraulic system. Check for oil leaks using a cardboard, never use hands.

To assemble the hydraulic gate control proceed as follows:

1. With spreader removed from the tractor and on stable ground, position the hydraulic gate control assembly on the right side of the spreader.
2. Remove from the hydraulic gate control assembly, the bottom mounting bracket (**see #1, fig. 3**), bolts, washers and nuts.
3. Position the bottom mounting bracket (**see #1, fig. 3**) in front of the welded bracket on the bottom of the frame (**see #2, fig. 3**) and assemble using provided hardware to bottom mounting bracket on hydraulic cylinder (**see #3, fig. 3**). Loosely assemble hardware.
4. Connect yoke (**see #4, fig. 3**) to support (**see #5, fig. 3**) using the yoke pin clip (**see #6, fig. 3**).
5. Tighten all hardware securely and position hydraulic hoses in a safe route towards the tractor.

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. 4**) improves accuracy when spreading in either direction. To assemble, unscrew the standard spread deflector and screw in the Left/Right directional attachment. Fits all models of pendular spreaders (**Part #AZ8-300**).



3.14 - Optional Locking Nut for Spout

The galvanized locking nut available for the spout is ideal when operator often has to change the spreading direction on the spout. This accessory allows user to adjust the

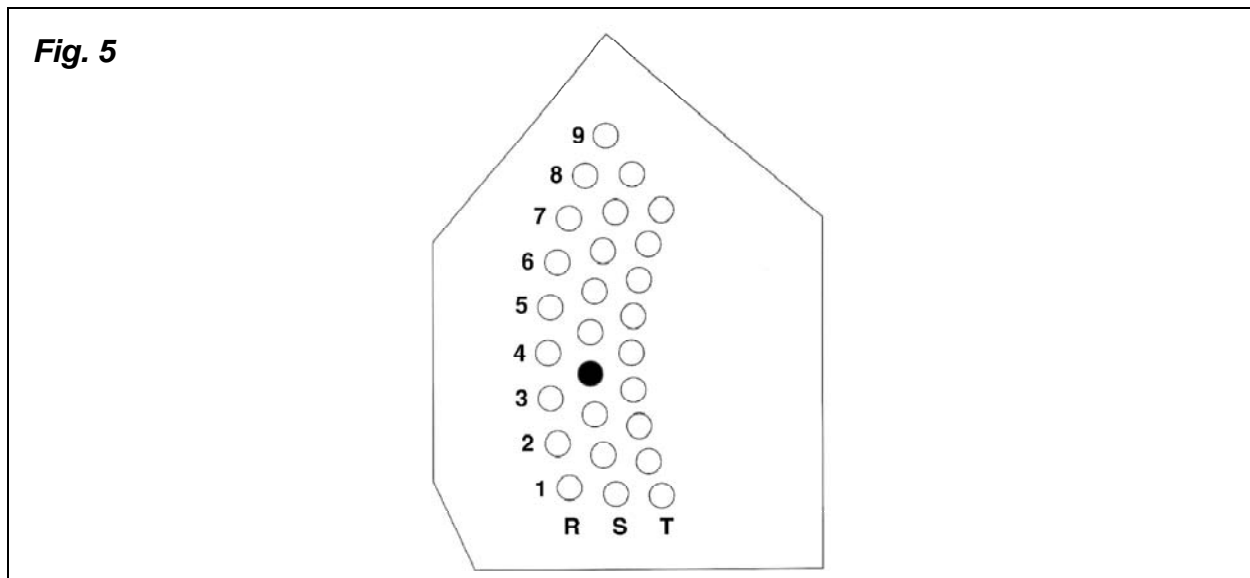
spout to spread in the desired direction and to be held in place with the help of the locking nut. To assemble, unscrew the spread deflector, screw in the locking nut, screw the spout to desired position and use locking nut to tighten. Fits all models of pendular spreaders (**Part #001-4984**).

3.15 - Optional Hopper Cover

The hopper cover is available for all models. 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. (**Part #009-9724 for model 301-350, part #009-9725 for model 303-600, part #009-9726 for model 303-800, part #009-9727 for model 303-999**).

3.16 - Spreading Charts

The graded scale comprises three lines of holes marked with letters R, S, T (**see fig. 5**). Each line consists of 9 holes, which are out of line with the holes of the previous line by half a diameter. This system allows simple but effective adjustment with 27 different fertilizer quantity settings. 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".



PTO 540 rpm		Spread Table in Lbs./Acre																											
Type of fertilizer	Spread width ft.	Work speed m.p.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	39	3.7				32	52	73	93	130	166	203	259	316	371	435	500	564	623	682	741	842	942	1044	1077	1110	1144	1156	1178
		5				24	38	54	70	97	124	153	194	236	277	327	375	422	467	511	556	632	707	783	807	832	858	867	883
		6.2				20	31	44	55	79	100	122	155	189	222	261	300	338	374	409	444	505	566	626	646	666	686	694	698
		7.5				16	26	37	46	65	83	102	129	158	186	218	250	282	311	341	370	421	471	522	538	555	572	578	589
		8.7				13	22	31	41	56	71	87	111	136	160	186	214	241	267	292	318	361	403	447	461	476	490	495	505
Superphosphate	39	3.7				18	37	57	77	109	143	175	225	273	323	380	439	496	567	641	712	792	874	955	1014	1074	1133	1151	1169
		5				13	28	43	57	81	107	131	169	204	242	285	329	372	426	480	532	594	656	716	760	806	850	863	876
		6.2				11	22	34	46	65	86	105	135	164	194	228	263	298	341	385	426	476	525	573	608	644	680	691	701
		7.5				9	19	29	38	54	71	87	112	137	161	190	219	248	284	320	356	396	437	477	507	537	567	575	584
		8.7				8	16	24	32	46	62	75	96	117	138	163	188	212	244	275	305	339	375	410	435	460	485	493	501
Ammonium Nitrate	39	3.7				50	82	114	146	194	241	289	360	432	503	582	662	741	853	965	1078	1137	1196	1255	1292	1329	1367	1378	1388
		5				37	62	86	109	145	180	217	270	324	377	436	496	556	640	724	808	852	897	941	969	997	1024	1033	1041
		6.2				30	49	69	87	117	145	173	216	259	302	349	397	444	512	579	646	682	717	753	775	798	820	826	833
		7.5				25	41	57	73	97	120	145	180	216	252	291	331	370	426	483	539	568	598	628	646	665	683	689	694
		8.7				21	35	49	62	83	103	124	154	185	216	249	284	318	366	414	462	487	512	538	554	569	585	591	595
Calcium Nitrate	33	3.7							70	102	136	170	219	268	318	378	439	500	566	630	696	776	857	937	1030	1121	1213	1249	1280
		5							53	76	102	127	164	201	237	284	329	375	424	472	522	583	642	703	772	840	910	937	960
		6.2							42	61	81	101	132	161	190	227	263	300	339	378	418	466	514	562	617	673	724	749	768
		7.5							35	51	68	85	110	134	159	189	219	250	283	315	348	388	428	468	515	560	607	625	640
		8.7							29	44	58	72	94	115	136	162	188	214	243	270	298	333	367	401	442	480	520	535	549
Ammonium Sulfate	23	3.7				59	111	162	214	287	360	434	553	671	790	917	1046	1172	1329	1486	1643	1829	2013	2198	2222	2243	2266	2293	2306
		5				44	83	121	161	215	270	325	415	503	592	688	784	880	997	1114	1232	1371	1510	1648	1666	1682	1700	1719	1730
		6.2				36	66	97	128	172	216	260	332	402	474	550	627	703	798	891	986	1097	1208	1319	1333	1345	1361	1376	1384
		7.5				29	55	81	107	144	180	217	277	335	395	459	523	586	665	743	822	915	1006	1099	1111	1121	1133	1146	1153
		8.7				25	47	70	92	123	154	186	237	287	338	393	448	502	570	637	704	783	863	942	952	961	972	982	989
Magnesium Potassium Sulfate	36	3.7				25	50	77	102	145	189	232	291	348	407	464	519	576	657	739	819	923	1028	1131	1184	1237	1289	1326	1338
		5				19	37	57	77	108	142	173	218	261	304	348	389	432	492	554	615	691	771	848	888	927	967	995	1004
		6.2				15	30	46	61	87	113	138	175	209	244	278	311	345	394	443	492	553	617	679	710	742	774	796	803
		7.5				12	25	38	51	72	95	116	145	174	203	232	260	288	328	369	410	461	514	566	592	618	645	663	669
		8.7				11	21	33	44	62	81	99	125	149	174	199	222	246	281	317	351	395	440	484	508	530	552	568	574

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 grade five bolts unless otherwise specified, i.e. shear bolts⁹.

⁹ Refer to Table 1 - Torque Specifications, for head identification marking, page 29.

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. Unauthorized 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.

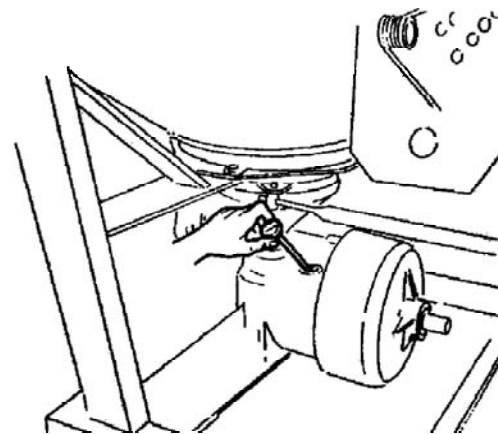
4.02 - Service

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. 6**). (Use SAE 90W lubricant).

Fig. 6 - Gearbox

Use dipstick to check oil in gearbox every 8 hours.

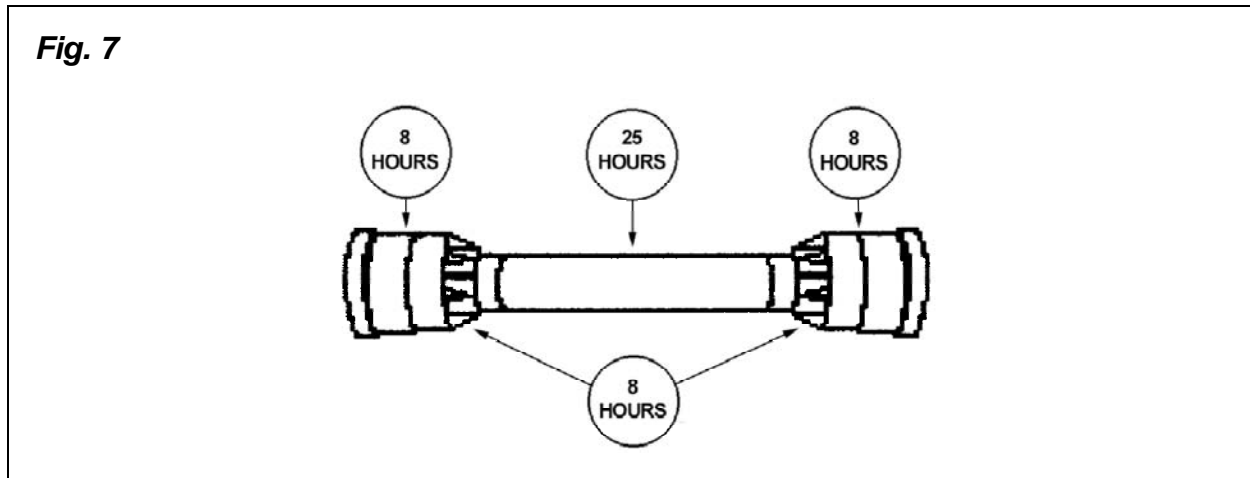


After each use:

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 fertilizer. This will help prevent the caustic chemicals in the salt and fertilizer from destroying 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. 7**).
6. Grease the telescoping inner and outer tubes (**see fig. 7**).

IMPORTANT: Periodically check the bronze slide (514-505R) 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.



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 setup and when connecting to a different tractor.

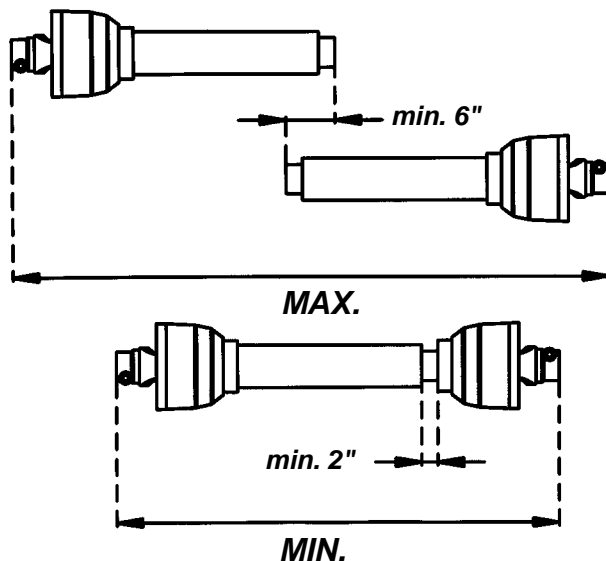
In the collapsed position the driveline should be approximately 2" from bottoming out to prevent possible damage to the tractor or implement. When the driveline is in the maximum extended position, the ideal minimum overlap of the two halves should be approximately 6" (**see fig. 8**).

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 2" 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 6" 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.
8. **IMPORTANT:** Secure the driveline to the gearbox shaft with the two roll pins provided.

Fig. 8



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

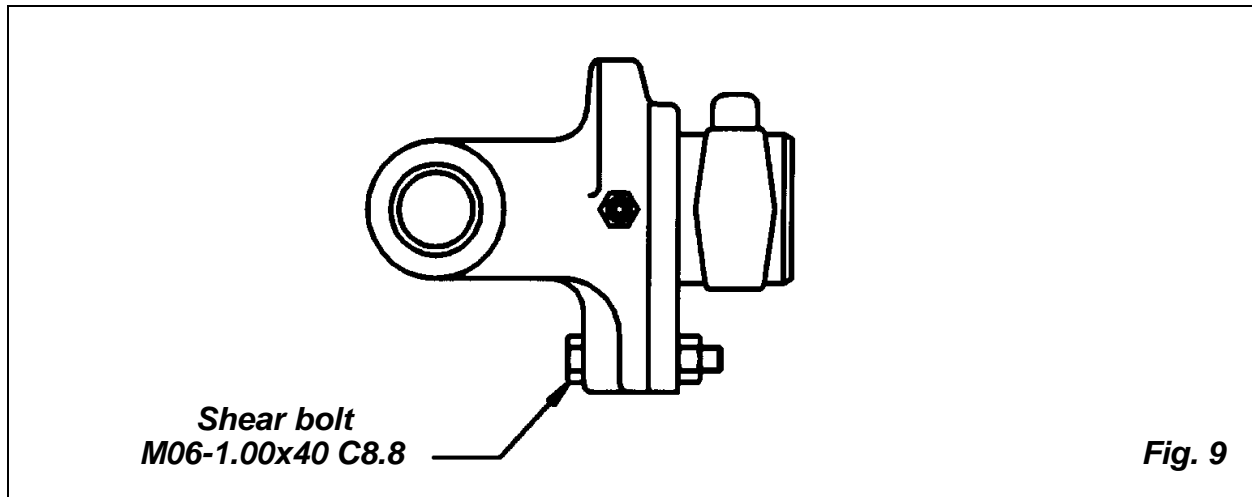


CAUTION: Always work with the driveline as straight as possible. This will prolong its life and that of its components. It is advised not to work at an angle greater than 15 degrees.

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.



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 M06-1.00x40 C8.8 with another having the identical characteristic of the original (see fig. 9).**

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 traveling 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							Inch (SAE) treaded bolts head marking								
	Class 5.8		Class 8.8		Class 10.9			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 Fertilizer Spreader, for tractors up to 60 HP, PTO 540 rpm, 3 point hitch cat. 1						
Model	HP	Hopper capacity cu. ft.	Carrying weight lbs.	Weight lbs.	Loading height	Spreading width ft.
301-350	20-60	12.4	792	250	43"	17-47
303-600	20-60	22.5	1168	321	38"	17-47
303-800	20-60	34.7	1808	339	43"	17-47
303-999	20-60	42.4	2205	343	47"	17-47

5 - REPAIR PROCEDURES



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

If cracks and scorings have occurred on the machine:

1. Brush them using a wire brush and touch up with primer and paint.
2. Store the implement on wooden boards.

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
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 Maintenance¹⁰.
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. Do not permit children to play on or around the stored unit.
10. Do not park or store equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.
11. Make sure all parked machines are on a hard, level surface, and engage all safety devices.

¹⁰ 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 28-32 inches above the ground level.
Product not flowing to pendular arm.	Wet product.	Use dry product only or optional rubber insert.
	Powdered product.	Use optional agitator.
PTO shaft turning but not the pendular arm.	Roll pin missing or sheared.	Replace roll pin.
	Cam broken or worn.	Replace cam.
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 28-32 inches 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

BEFCO's responsibility will be limited to substitution of the acknowledged defective merchandise to the same place of delivery as the previous one was supplied.

1. LIMITED WARRANTY

BEFCO, Inc. herein referred to as the Company, warrants its machines and related accessories, hereafter referred to as the Machine, to be free from defects in material and workmanship, for a period of twelve (12) months from the date of invoice to the first registered owner; this limited warranty does not apply to common wear items and excludes belts, shear pins, oil, grease, tires, tubes, hydraulic hoses, knives and PTO shafts.

Labor will be reimbursed at \$40.00 per hour based on BEFCO's time schedule.

Cost of transport to the servicing dealer is the responsibility of the customer.

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

2. DISCLAIMER OF ALL OTHER WARRANTIES AND REMEDIES

Neither the Company nor any company affiliated with the Company makes any warranties, representations or promises, expressed or implied, as to the quality, performance or application of its products other than those set forth herein and does not make any implied warranty of merchantability or fitness.

The only remedies the purchaser has in connection with the breach, or performance of any warranty on the Company's Machine are those set forth herein. In no event will the dealer, the Company, or any company affiliated with the Company, be liable for:

- a. Injuries or damages of any kind or nature, direct, consequential or contingent to person or property.
- b. Any expenses incurred by the owner to repair, replace or rework any allegedly defective item.
- c. Any loss, cost, forfeiture or damages (including loss of profits; loss of crops; loss because of delay in field operations; any expenses or loss incurred for labor, supplies, substitute machine rental; liabilities of the owner to its customers or third persons; and all other consequential damages, losses, liabilities or damages for any other reasons) whether direct or indirect, and whether or not resulting from or contributed to by the default or negligence of the Company, its agents, employees and subcontractors which might be claimed as a result of the use or failure of the equipment delivered.

The Company's liability based on this limited warranty or any other applicable laws shall be limited to replacement or refund of the purchase price of the product.

The limited warranty extended herein gives you specific rights and you may also have other rights which vary from state to state. Neither the dealer nor the Company personnel has the authority to make any representation or to modify the terms and limitations of this warranty in any way.

Other than the limited warranty extended hereby there is no other expressed warranty in connection with the design, safety or use of any of the Company's products except as to title. All implied warranties are expressly disclaimed pursuant to the terms of this warranty.

3. CUSTOM WORK

If the Machine is used for commercial purposes such as custom work, the period warranted for the Machine is limited to six (6) months from the date of delivery to the first registered owner and does not cover any labor charges incurred.

4. RENTAL

If the Machine is used for rental purposes the period warranted for the Machine is limited to thirty (30) days from the date of delivery to the first registered owner and does not cover any labor charges incurred.

5. REGISTRATION

In order to qualify for coverage on this limited warranty, the product and name of the original purchaser must be registered with the Company by a completed Machine Pre-Delivery Checklist and Warranty Registration along with a copy of the dealer's invoice to the first registered owner to the Company within fourteen (14) days after the date of delivery to the original purchaser.

6. WARRANTY SERVICE

Warranty Service must be performed by a dealer authorized by BEFCO. If the warranty service requested is approved, the owner shall pay only for labor beyond the rate allowed, for overtime labor, and for any mileage charge for transporting the equipment to and from the dealer's shop. It is assumed that the dealer has the appropriate general and special tools to service the machine. Time required for replacement of knives, oil, grease and to remove excessive dirt from the Machine is not subject to reimbursement by the Company. The owner is required to clean the Machine before presenting it to the dealer for service work. The Machine must be delivered within thirty (30) days after failure date by the owner to the dealer to be eligible for warranty consideration.

7. UNAPPROVED SERVICE OR MODIFICATION

All obligations of the Company under this limited warranty shall be terminated if:

- a. Proper service and operation instructions as outlined in the Operator's Manual and on the instruction sticker on the Machine, are not followed.
- b. The Machine is modified or altered in any way not approved by the Company.
- c. The Company does not receive a copy of the dealer's invoice to the first registered owner within fourteen (14) days from the date of delivery.
- d. The Company has not been paid in full, by the dealer, for the Machine.

8. ACCIDENTS AND NORMAL MAINTENANCE

This limited warranty covers defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accidents, improper maintenance, improper protection or improper use. The costs of normal maintenance or repairs for accidents or improper use, and related labor will be borne by the owner.

9. REPLACEMENT PARTS

BEFCO, Inc. warrants replacement parts to be free from defect in material and workmanship for a period of thirty (30) days from the date of delivery to the original purchaser.

WARRANTY REGISTRATION

BEFCO, Inc.
P.O. Box 6036
Rocky Mount, NC 27802-6036

Tel: (252) 977.9920 - Fax: (252) 977.9718

Dealer _____ Acct. # _____	Retail Customer _____
Street _____ Country _____	Street _____
Town _____ State _____ Zip _____	Town _____ State _____ Zip _____
Date of delivery _____ Invoice # _____	Phone _____
Model # _____ Serial # _____	
<p>Pre-Delivery Checklist:</p> <p><input type="checkbox"/> Oil in gearbox.</p> <p><input type="checkbox"/> Greased fittings.</p> <p><input type="checkbox"/> Safety guards in place.</p> <p><input type="checkbox"/> All hardware tight.</p> <p><input type="checkbox"/> Bolts torqued correctly.</p> <p><input type="checkbox"/> Attached unit to tractor. Yes/No.</p> <p><input type="checkbox"/> Field adjusted. Yes/No.</p> <p><input type="checkbox"/> Test run. Dry/Infield.</p> <p><input type="checkbox"/> Safety decals.</p> <p><input type="checkbox"/> Operator's Manual.</p> <p>The machine described above, has been prepared for delivery according to the Pre-Delivery Checklist and the Customer has been instructed in its care and operation and the condition of warranty.</p>	<p>Tractor make: _____</p> <p>Model: _____; HP _____</p> <p>Type of operation: Private homeowner, Landscaping, Commercial maintenance, Golf Course, Municipality, Turf Farm, others: _____</p> <p>Approximate number of acres machine will be used on annually: _____</p> <p>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 the Company.</p>
Inspected by: _____	
Date: _____	Date: _____
Dealer's Signature: _____	Customer's Signature: _____

This registration along with a copy of the invoice must be sent to BEFCO, Inc. within 14 days of date of purchase.

Sender:

Fold here

*Place stamp
here*

BEFCO, Inc.

Warranty Department

P.O. Box 6036

Rocky Mount, NC 27802-6036

Cut along this line



BEFCO®

Parts Manual

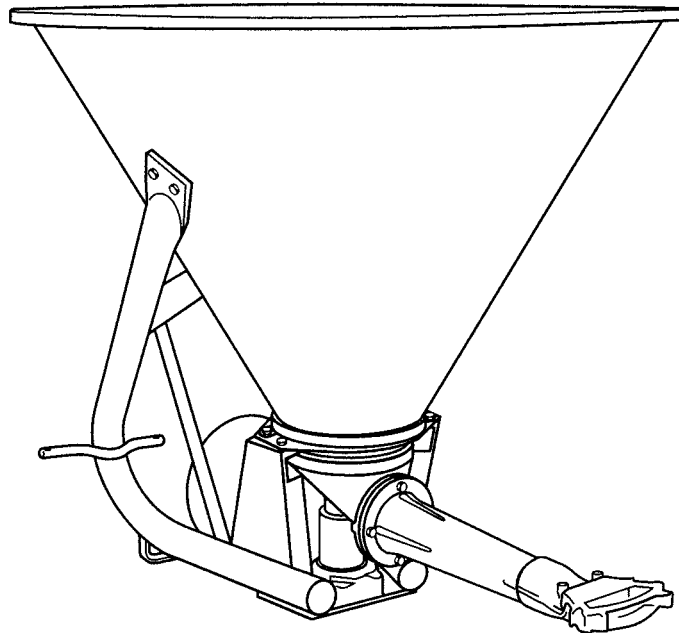
TURBO-HOP

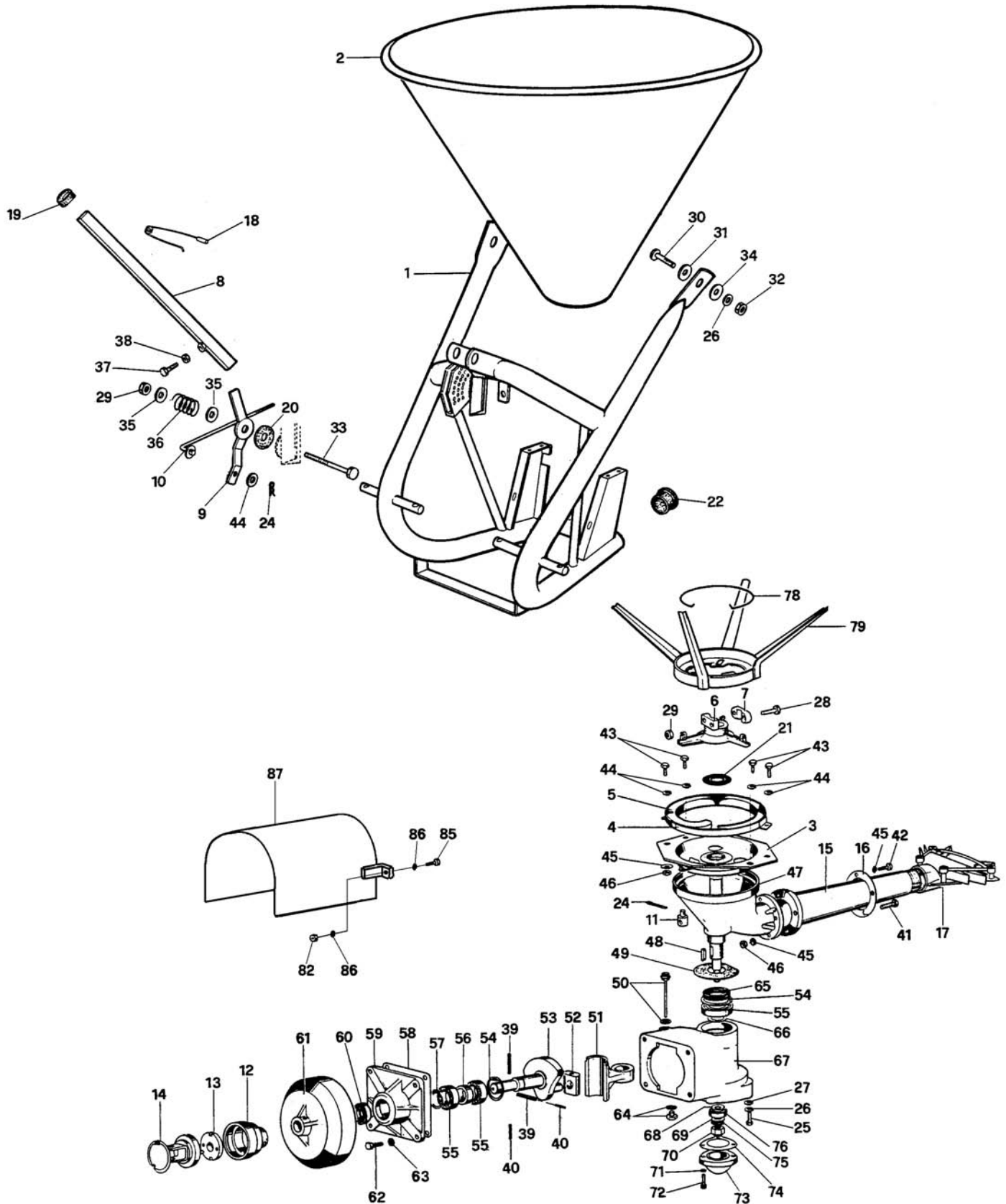
Pendular Spreaders

301-350

303-600, 303-800, 303-999

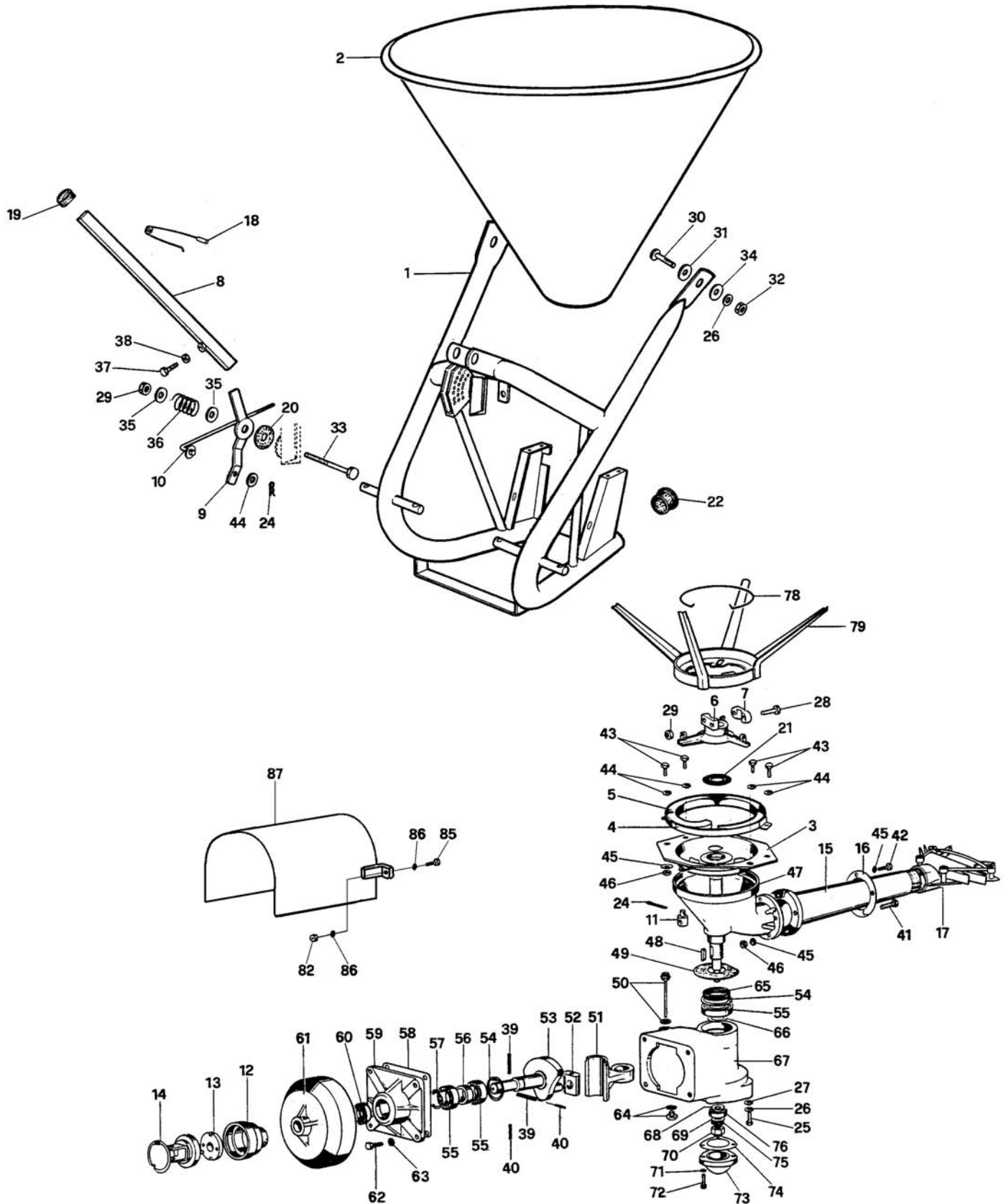
(serial #304099 & below)





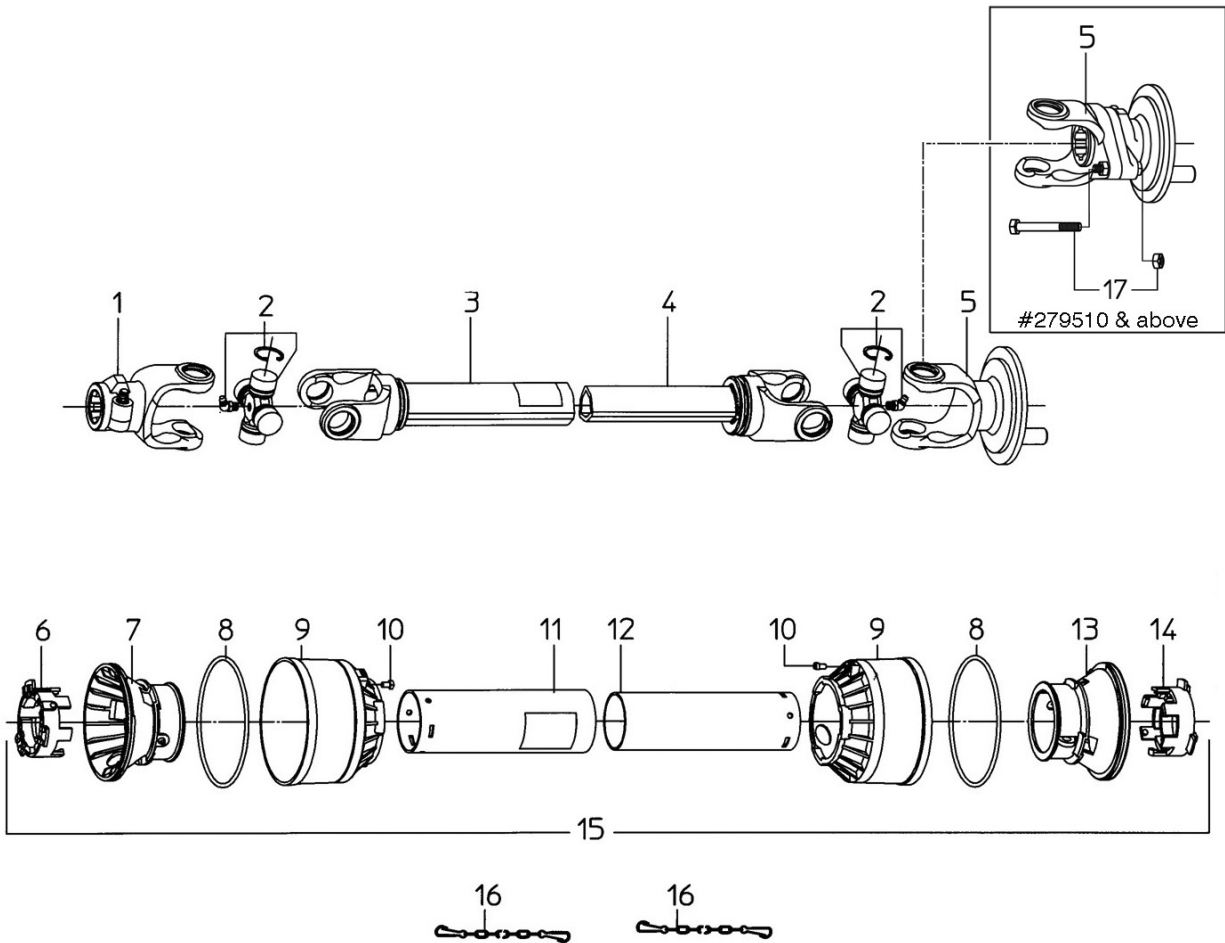
Ref.	Part #	Description	Qty.
1	370-209R	Frame 301-350	1
2	580-019R	Hopper 301-350	1
3	627-030R	Distributing unit	1
4	394-005R	Ring	1
5	190-758R	Gasket	1
6	415-005R	Agitator	1
7	415-205R	Bracket	1
8	373-010R	Lever	1
9	373-205R	Rod support	1
10	373-461R	Rod	1
11	354-027R	Pawl	1
12	416-005R	Housing, shock absorber	1
13	588-005R	Shock absorber	1
14	000-1154	Snap ring, inner Ø80	1
15	582-005R	Spout	1
16	368-415R	Spout ring	1
17	582-206R	Spread deflector	1
18	611-705R	Spring stop	1
19	001-4391	Rubber cap	1
20	583-822R	Washer flat nylon Ø13	1
21	583-871R	Washer flat nylon Ø31	1
22	583-037R	Plastic cap round	2
24	006-7217	Cotter pin Ø3x35 N	2
25	001-5255	Bolt HH M12-1.75x30 C8.8 Z F	2
26	000-1077	Washer lock Ø12 Z	5
27	000-2265	Washer flat Ø12 W	2
28	019-2236	Bolt HH M12-1.75x70 C8.8 Z P	2
29	001-3345	Nut ES M12-1.75 Z TK	3
30	000-8511	Bolt CR M12-1.75x35 C8.8 Z	3
31	201-116R	Washer fender Ø18 N	3
32	000-1106	Nut HH M12-1.75 C6 Z MD	3
33	000-7128	Bolt HH M12-1.75x80 C8.8 Z F	1
34	007-6106	Washer fender Ø12 Z	3
35	009-1435	Washer flat Ø14 W	2
36	610-143R	Spring	1
37	009-1446	Bolt HH M08-1.25x25 C8.8 Z F	1
38	000-1806	Nut HH M08-1.25 C6 Z TK	1
39	503-093B	Roll pin Ø10x60	2
40	004-6521	Roll pin Ø6x60	2
41	003-8614	Bolt HH M10-1.50x40 C8.8 Z F	3
42	009-1281	Bolt HH M10-1.50x35 C8.8 Z F	1
43	003-3176	Bolt HH M10-1.50x25 C8.8 Z F	4
44	000-2034	Washer flat Ø10 W	5
45	000-1280	Washer lock Ø10 Z	4
46	009-0150	Nut HH M10-1.50 C6 MD Z	4
47	510-505R	Housing ¹¹	1
48	258-103R	Key 12x8x36	1
49	583-890R	Washer special	1

¹¹ Housing 510-505R is no longer available. It is interchangeable with new housing 009-5224 provided the following is also ordered (qty 1) 009-5222 shaft, (qty 1) 009-5193 yoke, (qty 1) 009-5230 shim, (qty 1) 009-5231 snap ring.

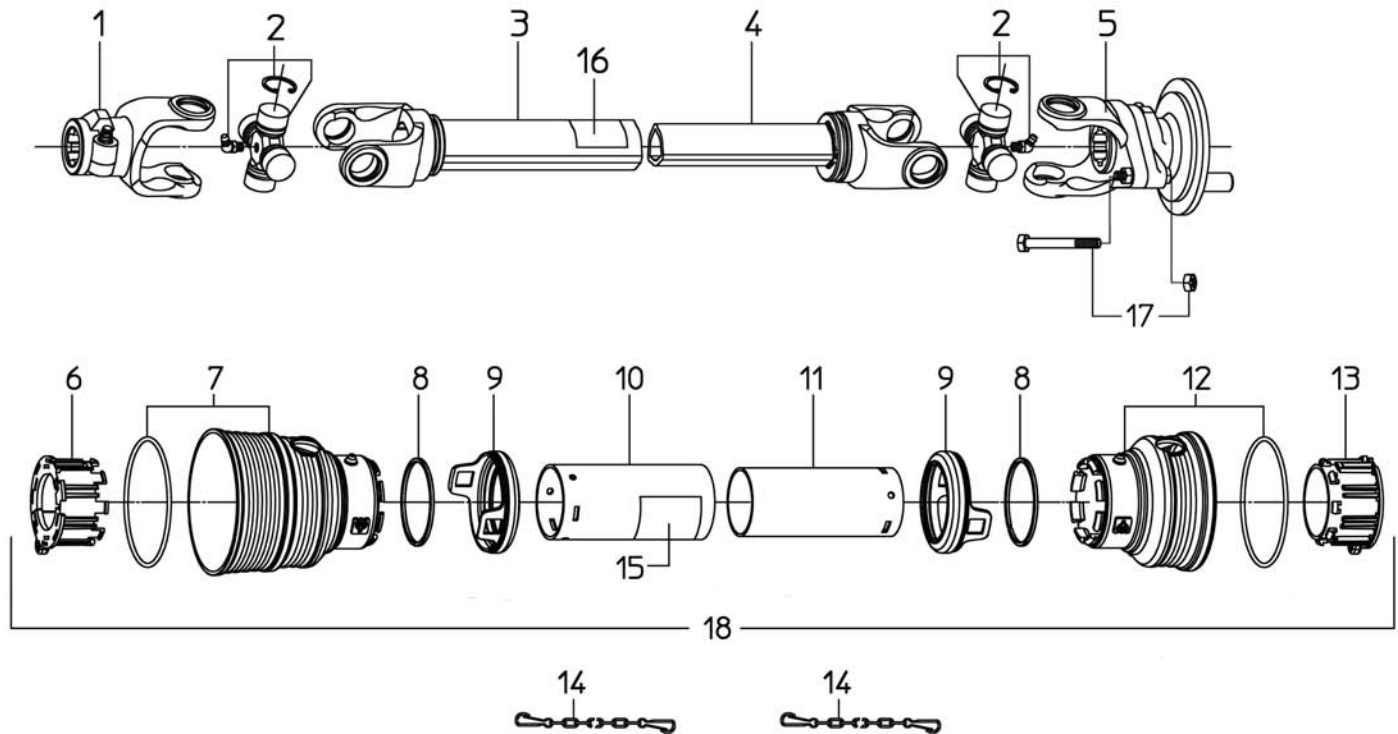


Ref.	Part #	Description	Qty.
50	583-364R	Dipstick with washer	1
51	412-005R	Yoke	1
52	514-505R	Bronze slide	1
53	310-505R	Shaft	1
54	002-5329	Snap ring, inner Ø72	2
55	002-5332	Bearing 6207	3
56	351-006R	Spacer	1
57	004-2122	Snap ring, outer Ø35	1
58	570-510R	Gasket	1
59	411-305R	Cover, gearbox housing	1
60	000-2295	Oil seal 35.62.10	1
61	413-005R	Flywheel	1
62	000-1278	Bolt HH M10-1.50x30 C8.8 Z F	4
63	003-5060	Washer external lock Ø10 Z	4
64	261-677R	Plug with washer	1
65	275-559R	Oil seal 44.72.10	1
66	351-007R	Spacer	1
67	411-005R	Housing, gearbox	1
68	351-005R	Spacer	1
69	203-020R	Washer flat Ø20 Z	1
70	213-120R	Nut ES M20-1.50 Z TK	1
71	202-306R	Washer lock Ø6 N	3
72	228-062R	Bolt SC M06-1.00x16 C8.8 Z F	3
73	411-330R	Cover lower, gearbox housing	1
74	570-505R	Gasket	1
75	200-021R	Washer external lock Ø20 Z	1
76	000-6627	Bearing 6205	1
78	611-715R	Spring, powder agitator (option)	1
79	393-820R	Powder agitator (option)	1
82	009-1384	Nut ES M08-1.25 Z TK	2
85	001-5012	Bolt HH M08-1.25x20 C8.8 Z F	2
86	001-5230	Washer flat Ø8 W	4
87	001-4987	Protection, flywheel	1
	623-002R	Gearbox, complete ¹²	-
	950-109B	Decal "DANGER - Avoid injury from PTO"	1
	950-338B	Decal "WARNING - Toxic chemical hazard"	1
	950-339B	Decal "WARNING - Thrown objects, moving parts hazard"	1
	950-417B	Decal "CAUTION - To avoid serious injury"	1
	950-104B	Decal "B" logo	1
	950-381B	Decal "BEFCO INC" address	1
	950-391B	Decal "301"	1
	950-388B	Decal "350"	1
	960-135B	Operator's & Parts Manual Turbo-Hop Pendular Spreaders 301, 303 #304099 & below	1

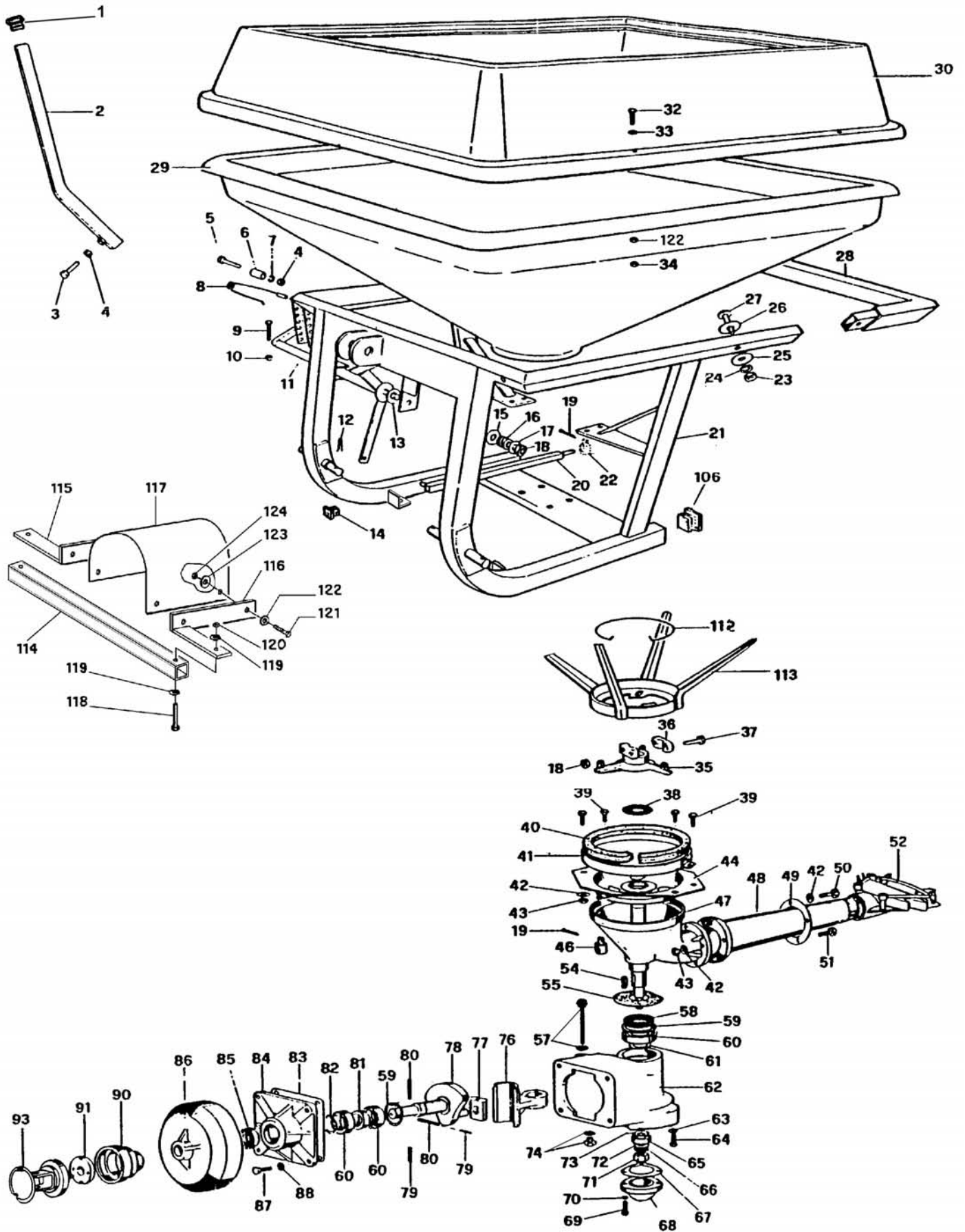
¹² Gearbox 623-002R is interchangeable with new gearbox 050-0692 provided the following is also ordered (qty 1) 1411080C.



Ref.	Part #	Description	Qty.
1	1021010C	Yoke (tractor end)	1
2	1001005C	Cross and bearing	2
3	1941049C	Outer tube w/yoke; #289468 & below	1
4	1951051C	Inner tube w/yoke; #289468 & below	1
5	352-005R	Yoke assembly (implement end); #279509 & below	1
	1481080C	Yoke assembly w/shear bolt (implement end); #279510 to #304099	1
6	1781210C	Locking ring, outer tube; #289468 & below	1
7	1784201C	Rigid cone, outer tube; #289468 & below	1
8	1213233C	Stiffening ring; #289468 & below	2
9	1784203C	Standard cone; #289468 & below	2
10	1784212C	Pin for stop rotation; #289468 & below	2
11	1773047C	Shield, outer tube; #289468 & below	1
12	1872047C	Shield, inner tube; #289468 & below	1
13	1784202C	Rigid cone, inner tube; #289468 & below	1
14	1781211C	Locking ring, inner tube; #289468 & below	1
15	90SS1047C	Shield, complete; #289468 & below	1
16	1006065C	Chain, anti-rotation	2
17	000-509E	Shear bolt M06-1.00x40 C8.8 N P & nut PT M06-1.00; #279510 & above	1
	950-463B	Decal "DANGER - Rotating driveline, keep away" outer shield	1
	950-464B	Decal "DANGER - Guard missing, do not operate" outer tube	1
	948-006B	Driveline, complete; #279509 & below	-
	050-0493	Driveline, complete w/shear bolt; #279510 to #304099	-



Ref.	Part #	Description	Qty.
1	1021010C	Yoke (tractor end)	1
2	1001005C	Cross and bearing	2
3	1941035NC	Outer tube w/yoke; #289469 to #304099	1
4	1951036NC	Inner tube w/yoke; #289469 to #304099	1
5	1481080C	Yoke assembly w/shear bolt (implement end); #279510 to #304099	1
6	1781710C	Locking ring, outer tube; #289469 & above	1
7	1781703C	Standard cone; #289469 & above	1
8	1211735C	Safety ring; #289469 & above	2
9	1881709C	Safety sleeve; #289469 & above	2
10	1773032C	Shield, outer tube; #289469 to #304099	1
11	1872032C	Shield, inner tube; #289469 to #304099	1
12	1781702C	Short cone; #289469 & above	1
13	1781711C	Locking ring, inner tube; #289469 & above	1
14	1006065C	Chain, anti-rotation	2
15	950-463B	Decal "DANGER - Rotating driveline, keep away" outer shield	1
16	950-464B	Decal "DANGER - Guard missing, do not operate" outer tube	1
17	000-509E	Shear bolt M06-1.00x40 C8.8 N P & nut PT M06-1.00	1
18	96SC1032C	Shield, complete; #289469 to #304099	1
	050-0493	Driveline, complete w/shear bolt; #279510 to #304099	-



303-600, 303-800, 303-999 SERIAL #304099 & BELOW

Ref.	Part #	Description	Qty.
1	001-4391	Rubber cap	1
2	373-015R	Lever	1
3	009-1446	Bolt HH M08-1.25x25 C8.8 Z F	1
4	000-1806	Nut HH M08-1.25 C6 Z TK	3
5	009-1455	Bolt HH M08-1.25x45 C8.8 Z F	2
6	351-035R	Spacer	2
7	000-3144	Washer lock Ø8 Z	2
8	611-705R	Spring stop	1
9	502-397B	Bolt HH M06-1.00x45 C8.8 Z F	1
10	005-0165	Nut ES M06-1.00 Z TK	1
11	373-207R	Support	1
12	001-8266	Lynch pin Ø11x45	1
13	583-822R	Washer flat nylon Ø13	1
14	583-053R	Plug #303763 & below	1
15	201-916R	Washer flat Ø13 N	1
16	610-143R	Spring	1
17	201-013R	Washer fender Ø14 N	1
18	001-3345	Nut ES M12-1.75 Z TK	1
19	006-7217	Cotter pin Ø3x35 N	1
20	373-407R	Tie rod #303763 & below	1
	009-5100	Tie rod #303764 & above	1
21	370-215R	Frame; 303-600, 800, 999 #303763 & below ¹³	1
	009-5000	Frame; 303-600, 800, 999 #303764 & above	1
22	354-027R	Pawl	1
23	000-1106	Nut HH M12-1.75 C6 Z MD	4
24	000-1077	Washer lock Ø12 Z	4
25	002-2265	Washer flat Ø12 Z	4
26	201-116R	Washer fender Ø18 Z	4
27	229-337R	Bolt CR M12-1.75x65 C8.8 Z	4
28	377-306R	Rear frame section	1
29	580-406R	Hopper 303 ¹⁴	1
30	581-412R	Extension 303-800	1
	581-414R	Extension 303-999	1
32	001-6726	Bolt HH M06-1.00x35 C8.8 Z P	12
33	001-1215	Washer fender Ø6 Z	12
34	005-0165	Nut ES M06-1.00 Z TK	12
35	415-005R	Agitator	1
36	415-205R	Bracket	1
37	019-2236	Bolt HH M12-1.75x70 C8.8 Z P	2
38	583-871R	Washer flat nylon Ø31	1
39	003-3176	Bolt HH M10-1.50x25 C8.8 Z F	4
40	190-758R	Gasket	1
41	394-005R	Ring	1
42	003-5060	Washer external lock Ø10 Z	4
43	001-5360	Nut HH M10-1.50 C6 N MD	7
44	627-030R	Distributing unit	1

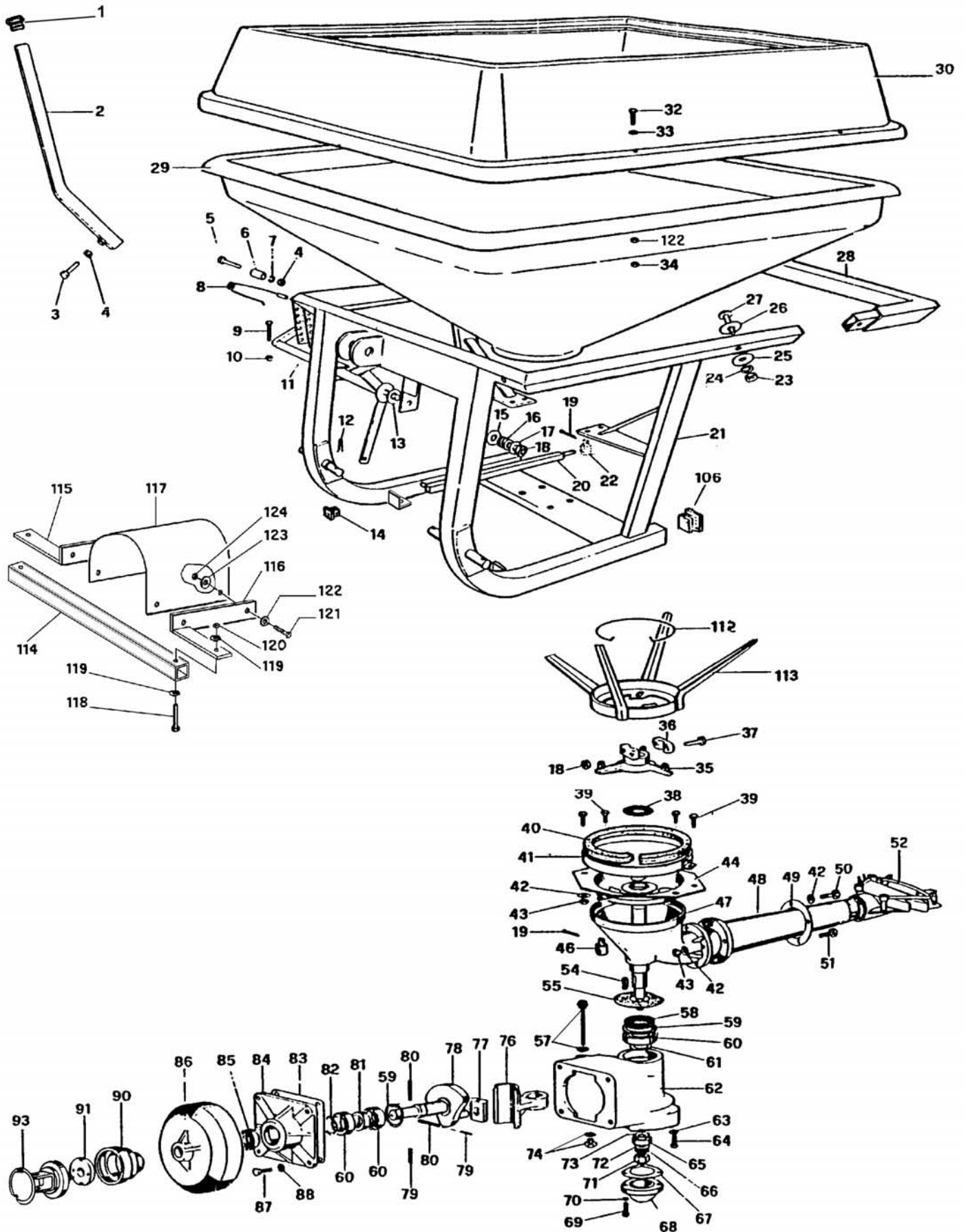
¹³ Frame 370-215 is interchangeable with new frame 009-5000 provided the following parts are also ordered: (qty 1) 009-5100 + (qty 1) 009-5040 + (qty 1) 019-5120 + (qty 1) 029-5120 + (qty 1) 009-5125 + (qty 1) 009-5130 + (qty 1) 009-5135 + (qty 2) 009-5050 + (qty 1) 006-3061.

¹⁴ Fiberglass hoppers are no longer available. Units with serial #293592 & above are equipped with a polyethylene hopper and extensions which are interchangeable with previous fiberglass versions.

303-600, 303-800, 303-999 SERIAL #304099 & BELOW

Ref.	Part #	Description	Qty.
46	354-027R	Pawl	1
47	510-505R	Housing ¹⁵	1
48	582-005R	Spout	1
49	368-415R	Spout ring	1
50	009-1281	Bolt HH M10-1.50x35 C8.8 Z F	1
51	003-8614	Bolt HH M10-1.50x40 C8.8 Z F	3
52	582-206R	Spread deflector	1
54	258-103R	Key 12x8x36	1
55	583-890R	Washer special	1
57	583-364R	Dipstick with washer	1
58	275-559R	Oil seal	1
59	002-5329	Snap ring, inner Ø72	2
60	002-5332	Bearing 6207	3
61	351-007R	Spacer	1
62	411-005R	Housing, gearbox	1
63	000-1077	Washer lock Ø12 Z	4
64	001-5255	Bolt HH M12-1.75x30 C8.8 Z F	4
65	000-6627	Bearing 6205	1
66	200-021R	Washer external lock Ø20 Z	1
67	570-505R	Gasket	1
68	411-330R	Cover lower, gearbox housing	1
69	228-062R	Bolt SC M06-1.00x16 C8.8 Z F	3
70	202-306R	Washer lock Ø6 N	3
71	213-120R	Nut ES M20-1.50 Z TK	1
72	203-020R	Washer flat Ø20 Z	1
73	351-005R	Spacer	1
74	261-677R	Plug with washer	1
76	412-005R	Yoke	1
77	514-505R	Bronze slide	1
78	310-505R	Shaft	1
79	004-6521	Roll pin Ø6x60	2
80	503-093B	Roll pin Ø10x60	2
81	351-006R	Spacer	1
82	004-2122	Snap ring, outer Ø35	1
83	570-510R	Gasket	1
84	411-305R	Cover, gearbox housing	1
85	000-2295	Oil seal	1
86	413-005R	Flywheel	1
87	000-1278	Bolt HH M10-1.50x30 C8.8 Z F	4
88	003-5060	Washer external lock Ø10 Z	4
90	416-005R	Housing, shock absorber	1
91	588-005R	Shock absorber	1
93	000-1154	Snap ring, inner Ø80	1
106	583-068R	Plastic cap square	1
112	611-715R	Spring, powder agitator (option)	1
113	393-815R	Powder agitator (option)	1
114	503-975B	Reinforcement, frame; #303763 & below	1
	009-5040	Reinforcement, frame; #303764 & above	1

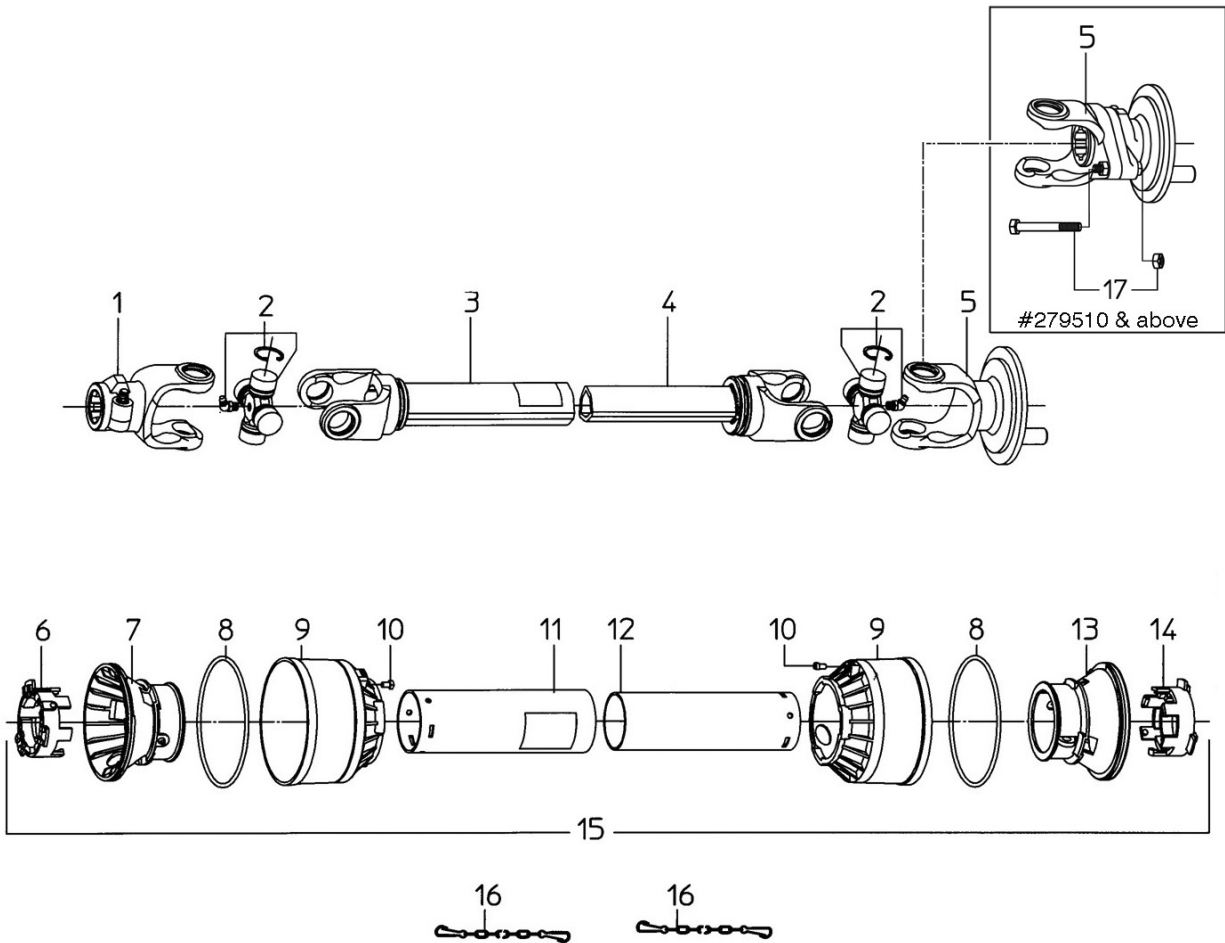
¹⁵ Housing 510-505R is no longer available. It is interchangeable with new housing 009-5224 provided the following is also ordered (qty 1) 009-5222 shaft, (qty 1) 009-5193 yoke, (qty 1) 009-5230 shim, (qty 1) 009-5231 snap ring.



303-600, 303-800, 303-999 SERIAL #304099 & BELOW

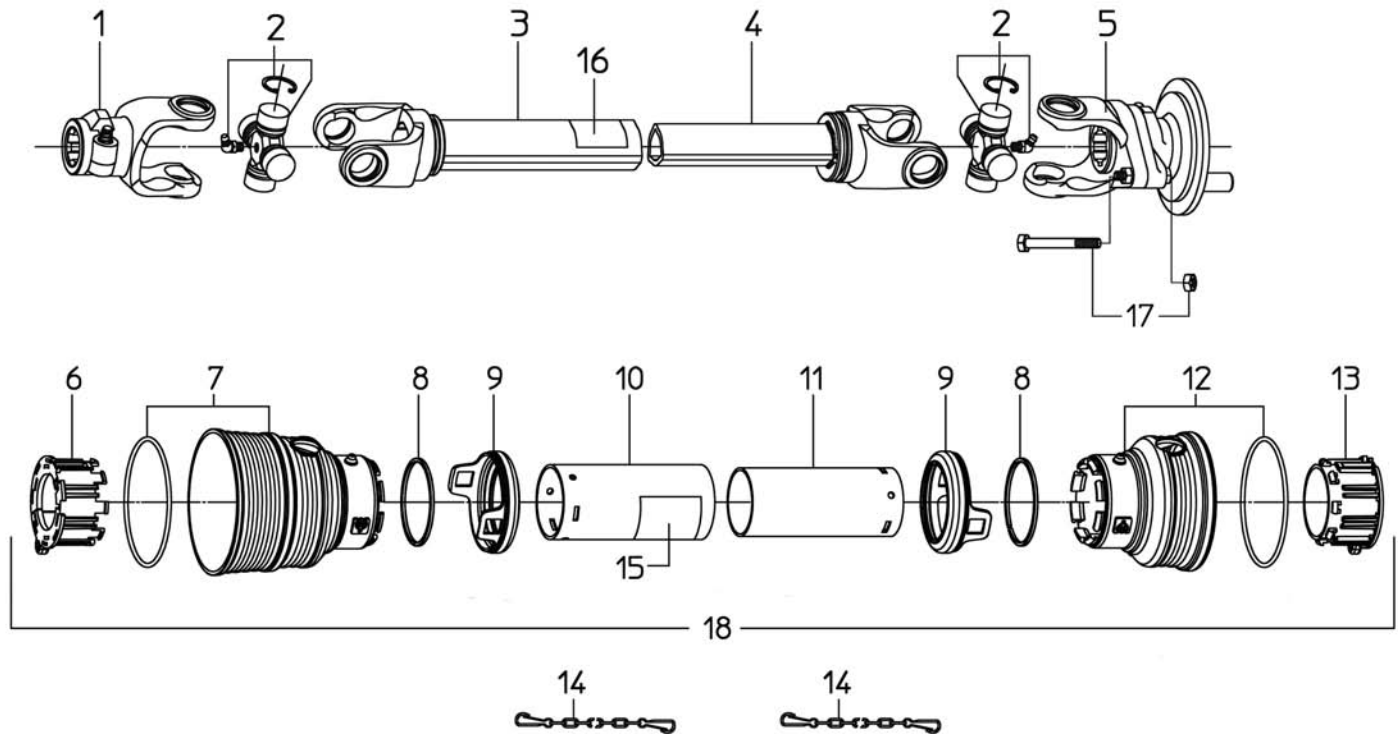
Ref.	Part #	Description	Qty.
115	503-976B	Protection attachment plate, right; #303763 & below	1
	019-5120	Protection attachment plate, right; #303764 & above	1
116	503-977B	Protection attachment plate, left; #303763 & below	1
	029-5120	Protection attachment plate, left; #303764 & above	1
117	503-978B	Protection, flywheel; #303763 & below	1
	009-5125	Upper protection, flywheel; #303764 & above	1
	009-5130	Lower protection, flywheel (not shown); #303764 & above	1
	009-5135	Lower protection, driveline (not shown); #303764 & above	1
118	001-6566	Bolt HH M08-1.25x55 C8.8 Z P	2
119	001-4514	Washer fender Ø8 Z	4
120	009-1384	Nut ES M08-1.25 Z TK	2
121	001-4857	Bolt HH M06-1.00x20 C8.8 Z F	4
122	005-0166	Washer flat Ø6 Z; 303-600	4
	005-0166	Washer flat Ø6 Z; 303-800, 303-999	16
123	001-1209	Washer fender Ø6 Z	4
124	005-0165	NUT ES M06-1.00 Z TK	4
	623-002R	Gearbox, complete; #304099 & below ¹⁶	-
	950-109B	Decal "DANGER - Avoid injury from PTO"	1
	950-338B	Decal "WARNING - Toxic chemical hazard"	1
	950-339B	Decal "WARNING - Thrown objects, moving parts hazard"	1
	950-417B	Decal "CAUTION - To avoid serious injury"	1
	950-104B	Decal "B" logo	1
	950-392B	Decal "303"	1
	950-394B	Decal "600"	1
	950-822B	Decal "800"	1
	950-393B	Decal "999"	1
	960-135B	Operator's & Parts Manual Turbo-Hop Pendular Spreaders 301, 303 #304099 & below	-

¹⁶ Gearbox 623-002R is interchangeable with new gearbox 050-0692 provided the following is also ordered (qty 1) 1411080C.

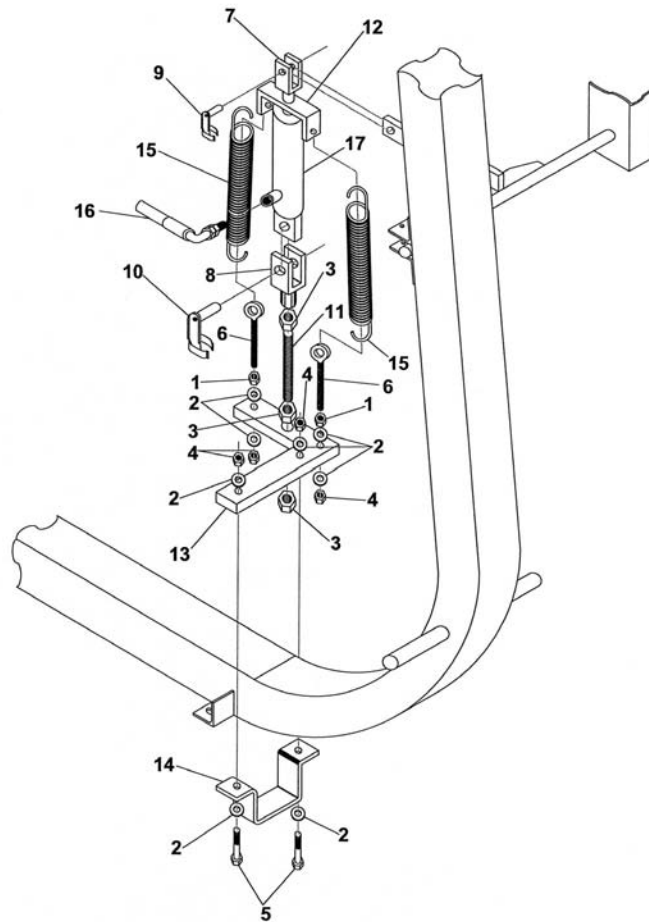


Ref.	Part #	Description	Qty.
1	1021010C	Yoke (tractor end)	1
2	1001005C	Cross and bearing	2
3	1941069C	Outer tube w/yoke; #286189 & below	1
4	1951071C	Inner tube w/yoke; #286189 & below	1
5	352-005R	Yoke assembly (implement end); #279509 & below	1
	1481080C	Yoke assembly w/shear bolt (implement end); #279510 to #304099	1
6	1781210C	Locking ring, outer tube; #286189 & below	1
7	1784201C	Rigid cone, outer tube; #286189 & below	1
8	1213233C	Stiffening ring; #286189 & below	2
9	1784203C	Standard cone; #286189 & below	2
10	1784212C	Pin for stop rotation; #286189 & below	2
11	1773067C	Shield, outer tube; #286189 & below	1
12	1872067C	Shield, inner tube; #286189 & below	1
13	1784202C	Rigid cone, inner tube; #286189 & below	1
14	1781211C	Locking ring, inner tube; #286189 & below	1
15	90SS1067C	Shield, complete; #286189 & below	1
16	1006065C	Chain, anti-rotation	2
17	000-509E	Shear bolt M06-1.00x40 C8.8 N P & nut PT M06-1.00; #279510 & above	1
	950-463B	Decal "DANGER - Rotating driveline, keep away" outer shield	1
	950-464B	Decal "DANGER - Guard missing, do not operate" outer tube	1
	948-007B	Driveline complete; #279509 & below	-
	050-0494	Driveline complete w/shear bolt; #279510 to #304099	-

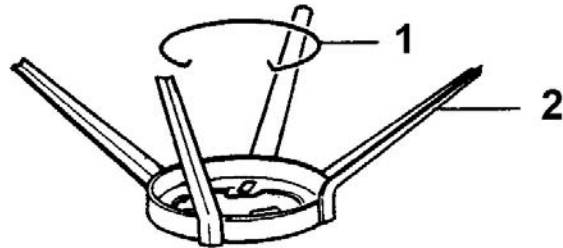
303-600, 303-800, 303-999; SERIAL #286190 TO #304099



Ref.	Part #	Description	Qty.
1	1021010C	Yoke (tractor end)	1
2	1001005C	Cross and bearing	2
3	1941045NC	Outer tube w/yoke; #286190 to #304099	1
4	1951046NC	Inner tube w/yoke; #286190 to #304099	1
5	1481080C	Yoke assembly w/shear bolt (implement end); #279510 to #304099	1
6	1781710C	Locking ring, outer tube; #286190 & above	1
7	1781703C	Standard cone; #286190 & above	1
8	1211735C	Safety ring; #286190 & above	2
9	1881709C	Safety sleeve; #286190 & above	2
10	1773042C	Shield, outer tube; #286190 to #304099	1
11	1872042C	Shield, inner tube; #286190 to #304099	1
12	1781702C	Short cone; #286190 & above	1
13	1781711C	Locking ring, inner tube; #286190 & above	1
14	1006065C	Chain, anti-rotation	2
15	950-463B	Decal "DANGER - Rotating driveline, keep away" outer shield	1
16	950-464B	Decal "DANGER - Guard missing, do not operate" outer tube	1
17	000-509E	Shear bolt M06-1.00x40 C8.8 N P & nut PT M06-1.00	1
18	96SC1042C	Shield, complete; #286190 to #304099	1
	050-0494	Driveline complete w/shear bolt; #279510 to #304099	-



Ref.	Part #	Description	Qty.
1	000-1279	Nut HH M10-1.50 C6 TK Z	2
2	000-2034	Washer flat Ø10 W	8
3	000-3124	Nut HH M16-2.00 C6 Z MD	3
4	001-4106	Nut ES M10-1.50 Z TK	4
5	002-6329	Bolt HH M10-1.50x45 C8.8 Z F	2
6	263-709R	Threaded eyebolt	2
7	264-057R	Yoke Ø12	1
8	264-089R	Yoke Ø16	1
9	264-546R	Yoke pin clip Ø12	1
10	264-559R	Yoke pin clip Ø16	1
11	265-032R	Threaded rod M16x110	1
12	366-042R	Top mounting bracket, hydraulic cylinder	1
13	366-044R	Bottom mounting bracket, hydraulic cylinder	1
14	366-207R	Bottom mounting bracket	1
15	610-444R	Spring	2
16	652-055R	Hydraulic hose	1
17	653-405R	Hydraulic cylinder	1
	950-408B	Decal "WARNING - High pressure hydraulic oil leaks"	1
	AZ3-303	Hydraulic gate control, complete 303	-



Ref.	Part #	Description	Qty.
1	611-715R	Spring, powder agitator	1
2	393-820R	Powder agitator; 301-350	1
	393-815R	Powder agitator; 303-600, 303-800, 303-999	1
	AZ1-301	Agitator, complete; 301-350	-
	AZ7-303	Agitator, complete; 303-600, 303-800, 303-999	-

Use only original spare parts

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