

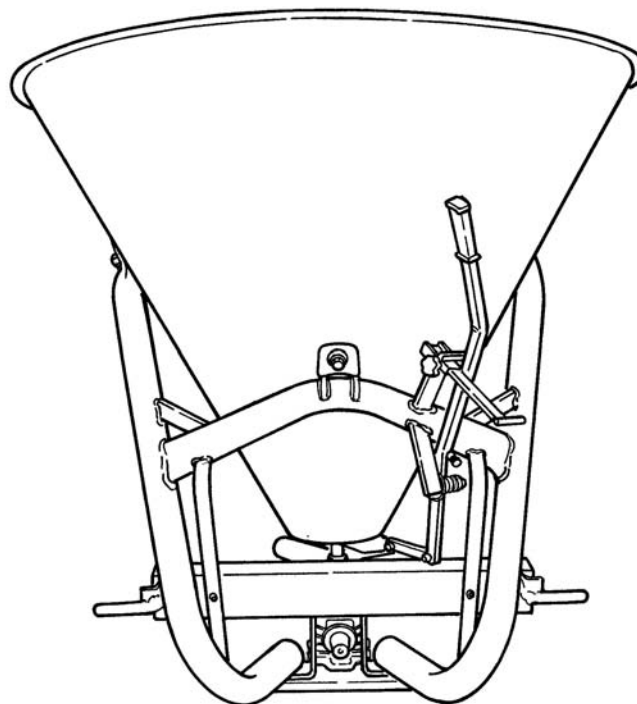
# **BEFCO<sup>®</sup>**

## **Operator's Manual**

### **HOP**

**Fertilizer Spreader**

**203, 206, 209, 212**



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

**Manual 960-116B**

**September 2017**

# 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 fertilizer 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 fertilizer spreader safely and correctly. Failure to do so could result in personal injury and/or 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<sup>1</sup>, 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, etc.

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<sup>1</sup> 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 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 hopper 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.

<b>BEFCO</b>	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
<b>MODEL:</b>	
<b>SERIAL:</b>	
<b>VERSION:</b>	

## 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.

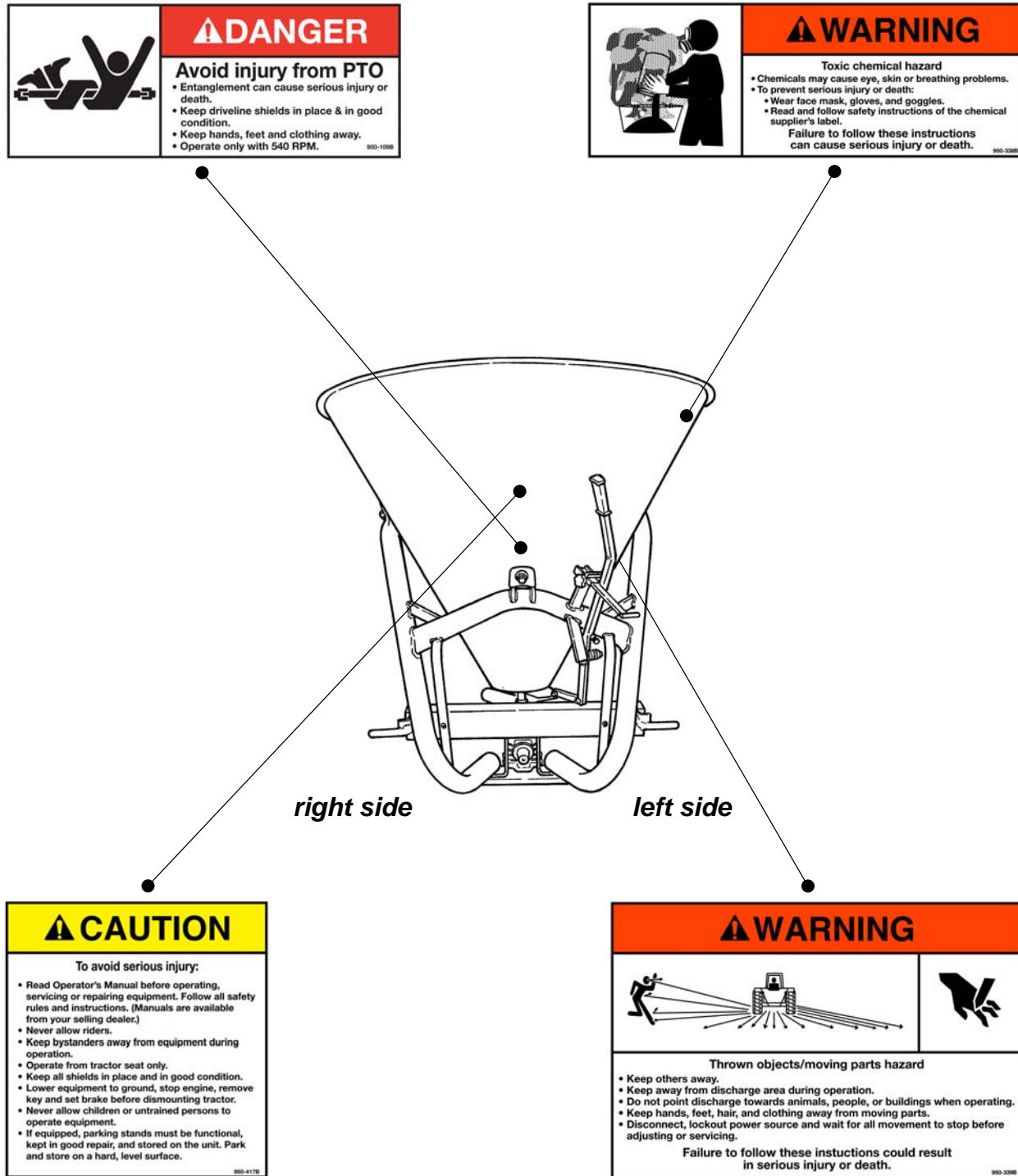
## 2.03 - Messages and Signs



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.

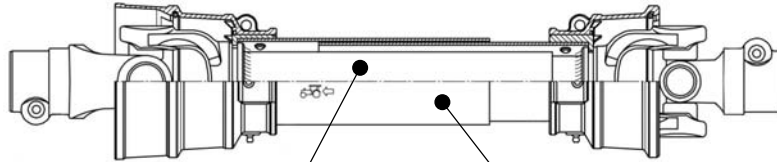
Additional warning and operating decals are available at no extra charge. Please specify model and serial number when ordering.

**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 versatile and ideal for granular or powdered fertilizers, seed and sand. It may also be used as a salt spreader for snow or ice covered roads during winter months. Our spreaders are designed for tractors from 16 to 50 PTO HP with a category 1 three point hitch. The 209 and 212 series are also cat. 1 quick hitch compatible.

Spreaders can be used for broadcast spreading or may be used to spread prevalently to the left or to the right with a simple adjustment.

The wide range of hopper capacities and numerous spread adjustments make our fertilizer spreaders ideal for use on farms, athletic fields, municipalities and many other commercial or residential applications.

### 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 50 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. Operators 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. Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.
17. 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.
18. 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.
19. Inspect the entire machine periodically<sup>2</sup>. Look for loose fasteners, worn or broken parts, and leaky or loose fittings.
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.

### 3.02 - Set Up

**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

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<sup>2</sup> See Chapter 4 - Maintenance.

customer is aware of all safety aspects and operational procedures for the spreader. He must also fill out the Pre-Delivery Checklist<sup>3</sup> prior to delivering the spreader.



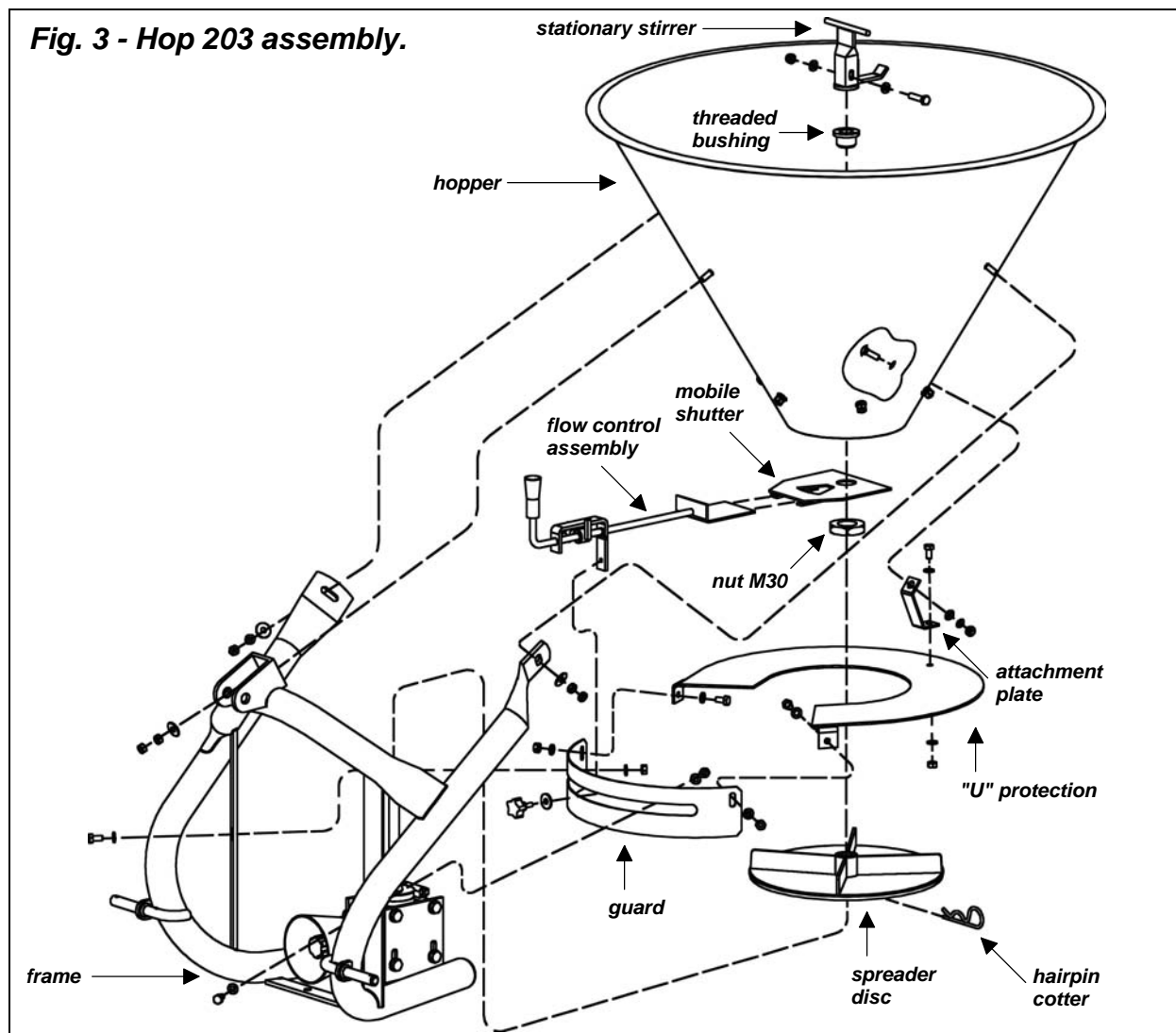
**CAUTION: Stand clear of bands when cutting as they could be under sufficient tension to cause them to fly loose. Take care in removing bands and wire, as they often have extremely sharp edges and cut very easy.**

### 3.03 - Assembly Instructions for Hop 203

NOTE: Assembly will be easier if all parts are loosely assembled before tightening the hardware. All hardware needed for assembly will be found in the hardware bag or on the machine.

Each unit is shipped with the following components:		
	203-120 Qty.	203-220 Qty.
1. Frame assembly	1	1
2. Hopper	1	1
3. "U" Protection (rear protection)	1	1
4. Driveline	1	1
5. Component bag (as follows):		
a. Spreader disc	1	1
b. Mobile shutter	1	1
c. Stationary stirrer	1	1
d. Guard (front protection)	1	1
e. Flow control assembly	1	1
f. Hardware bag (as follows):		
Attachment plate (001-4338)	1	1
Threaded bushing (501-622B)	1	1
Bolt CR M08-1.25x20 C4.6 Z (008-4289)	1	-
Bolt CR M08-1.25x25 C4.6 Z (501-663B)	3	-
Bolt CR M08-1.25x35 C4.6 Z (001-4619)	-	3
Bolt HH M08-1.25x16 C8.8 Z F (004-6454)	1	1
Bolt HH M08-1.25x20 C8.8 Z F (001-5012)	2	2
Bolt HH M08-1.25x25 C8.8 Z F (009-1446)	2	2
Nut HH M30-2.00 C6 Z TN (501-651B)	1	1
Nut HH M08-1.25 C6 Z TK (000-1806)	10	10
Nut HH M08-1.25 C6 Z MD (004-6545)	2	1
Washer flat Ø8 (001-5230)	7	6
Washer lock Ø8 (000-3144)	1	-
Washer fender Ø8 (001-4514)	7	7
Hairpin cotter Ø5 (004-1291)	1	1

<sup>3</sup> See Chapter 7 - Pre-Delivery Checklist.



To assemble the spreader do the following (**see fig. 3**):

1. Attach spreader disc to output shaft of gearbox securing it with the hairpin cotter.
2. Install the guard, with scale label facing up, to the brackets on the spreader frame. Attach using two M8x25 hex head bolts, four Ø8 flat washers and two M8 nuts. Ensure that the guard is centered on the frame before tightening hardware.
3. Insert threaded bushing through hopper bottom. Attach mobile shutter to threaded bushing and secure with M30 nut.
4. Slide hopper onto the output shaft of the gearbox. Secure hopper to frame using three M8x25 carriage bolts for model 203-120 or three M8x35 carriage bolts for model 203-220, three Ø8 fender washers and six M8 hex nuts.
5. Install the stationary stirrer using M8x35 hex bolt, two Ø8 flat washers, and one M8 elastic stop nut that are already loosely attached to the stirrer.
6. Install the "U" protection to the guard using two M8x20 hex head bolts, four Ø8 fender washers and two M8 hex nuts. Install attachment plate on the protection using one M8x16 hex head bolt, two Ø8 flat washers and secure with M8 hex nut, then install it to the hopper using M8x20 carriage bolt on model 203-120 or M8x25

on model 203-220, on model 203-220 use bolt already installed on hopper and secure with Ø8 flat washer, Ø8 lock washer and a M8 hex nut.

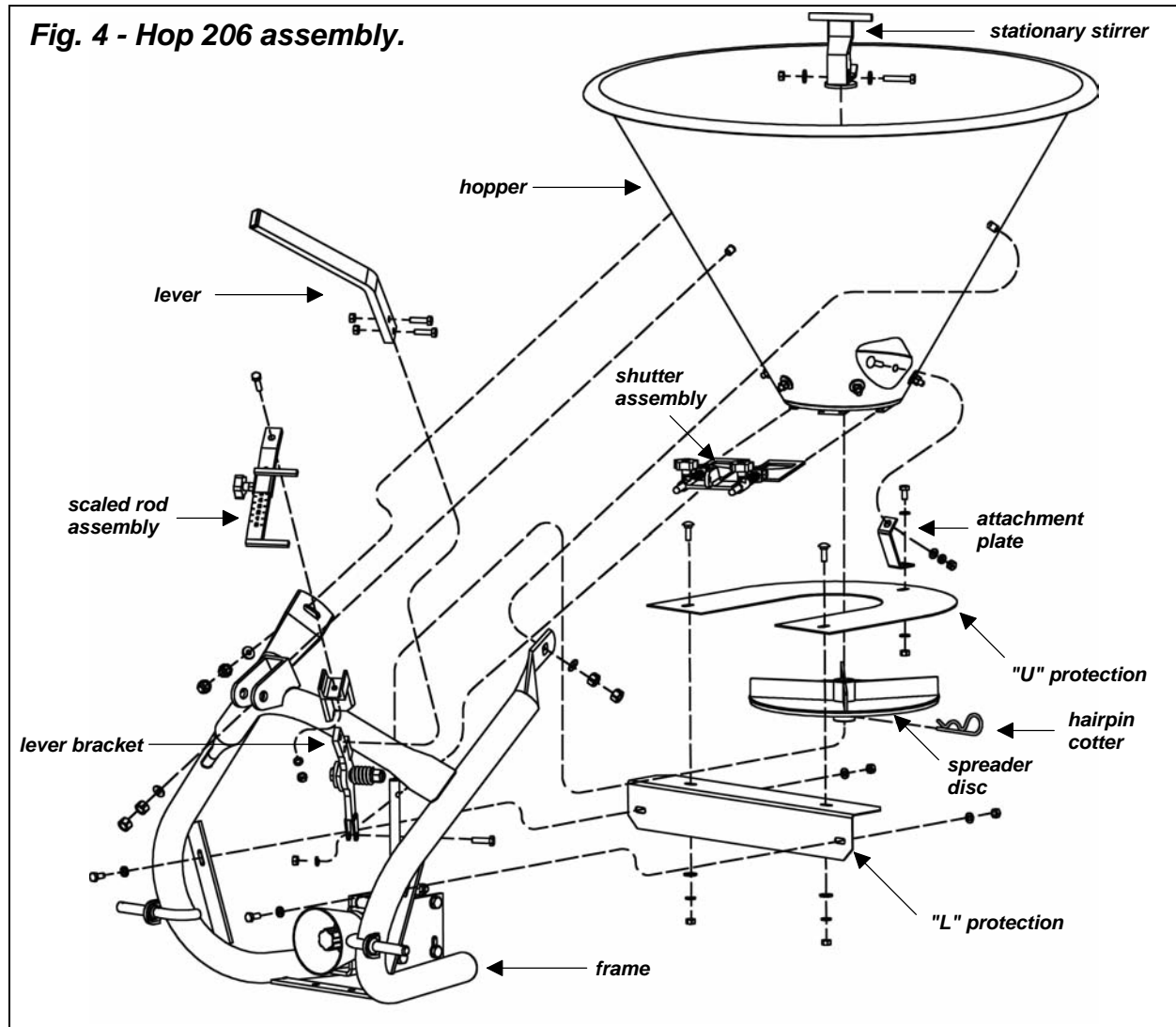
7. Install flow control assembly into slot in mobile shutter at the bottom of the hopper. Secure location of the flow control assembly by tightening the two knobs.
8. Tighten all hardware.
9. Install driveline and ensure it has at least 2" from bottoming out in its shortest working position and has the minimum 6" overlap in its longest working position<sup>4</sup>.

### 3.04 - Assembly Instructions for Hop 206

NOTE: Assembly will be easier if all parts are loosely assembled before tightening the hardware. All hardware needed for assembly will be found in the hardware bag or on the machine.

Each unit is shipped with the following components:		
	206-121 Qty.	206-221 Qty.
1. Frame assembly	1	1
2. Hopper	1	1
3. "U" Protection (rear protection)	1	1
4. Driveline	1	1
5. Component bag (as follows):		
a. Spreader disc	1	1
b. Shutter assembly	1	1
c. Stationary stirrer	1	1
d. "L" Protection (front protection)	1	1
e. Scaled rod assembly	1	1
f. Lever		
g. Hardware bag (as follows):		
Attachment plate (001-4338)	1	-
Attachment plate (001-4635)	-	1
Bolt CR M08-1.25x20 C4.6 Z (008-4289)	3	2
Bolt CR M08-1.25x25 C4.6 Z (501-663B)	3	-
Bolt CR M08-1.25x35 C4.6 Z (001-4619)	-	3
Bolt HH M08-1.25x16 C8.8 Z F (004-6454)	1	1
Bolt HH M08-1.25x20 C8.8 Z F (001-5012)	2	2
Nut HH M08-1.25 C6 Z MD (004-6545)	6	5
Nut HH M08-1.25 C6 Z TK (000-1806)	6	6
Washer lock Ø8 (000-3144)	3	2
Washer flat Ø8 (001-5230)	7	6
Washer fender Ø8 (001-4514)	3	3
Washer fender Ø10 (003-0157)	2	2
Hairpin cotter Ø5 (004-1291)	1	1

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



To assemble the spreader do the following (**see fig. 4**):

1. Attach spreader disc to the output shaft of the gearbox using hairpin cotter.
2. Locate scaled rod assembly in hardware bag. Install scaled rod to main frame using M8x30 hex bolt, Ø8 lock washer, M8 hex nut that are already installed on the scaled rod assembly.
3. Install the "L" protection onto spreader frame using two M8x20 hex bolts, four Ø8 flat washers, and two M8 hex nuts.
4. Slide hopper onto the output shaft of the gearbox. Secure hopper to frame using three M8x25 carriage bolts on model 206-121 or M8x35 on model 206-221, three Ø8 fender washers, and six M8 hex nuts.
5. Install the stationary stirrer using M8x45 hex bolts, two Ø8 flat washers and one M8 elastic stop nut that are already bolted to the stirrer.
6. Install the "U" protection using two M8x20 carriage bolts, two Ø10 fender washers, two Ø8 lock washers and secure with two M8 hex nuts. Install attachment plate on the "U" protection using one M8x16 hex bolt, two Ø8 flat washers and secure with M8 hex nut, then install it to the hopper using M8x20 carriage bolt on model 206-121

- or M8x25 on model 206-221, on model 206-221 use bolt already installed on hopper and secure with Ø8 flat washer, Ø8 lock washer and a M8 hex nut.
7. Install shutter assembly found in the hardware bag by sliding shutters into the slots at bottom of the hopper, then assemble it to the lever bracket, which is already installed on the frame using M8x30 hex bolt, Ø8 lock washer and M8 hex nut.
  8. Install lever to lever bracket using one M8x20 hex bolt which is shipped installed on the lever. Secure bolt with M8 hex nut.
  9. Tighten all hardware.
  10. Install driveline and ensure it has at least 2" from bottoming out in its shortest working position and has the minimum 6" overlap in its longest working position<sup>5</sup>.

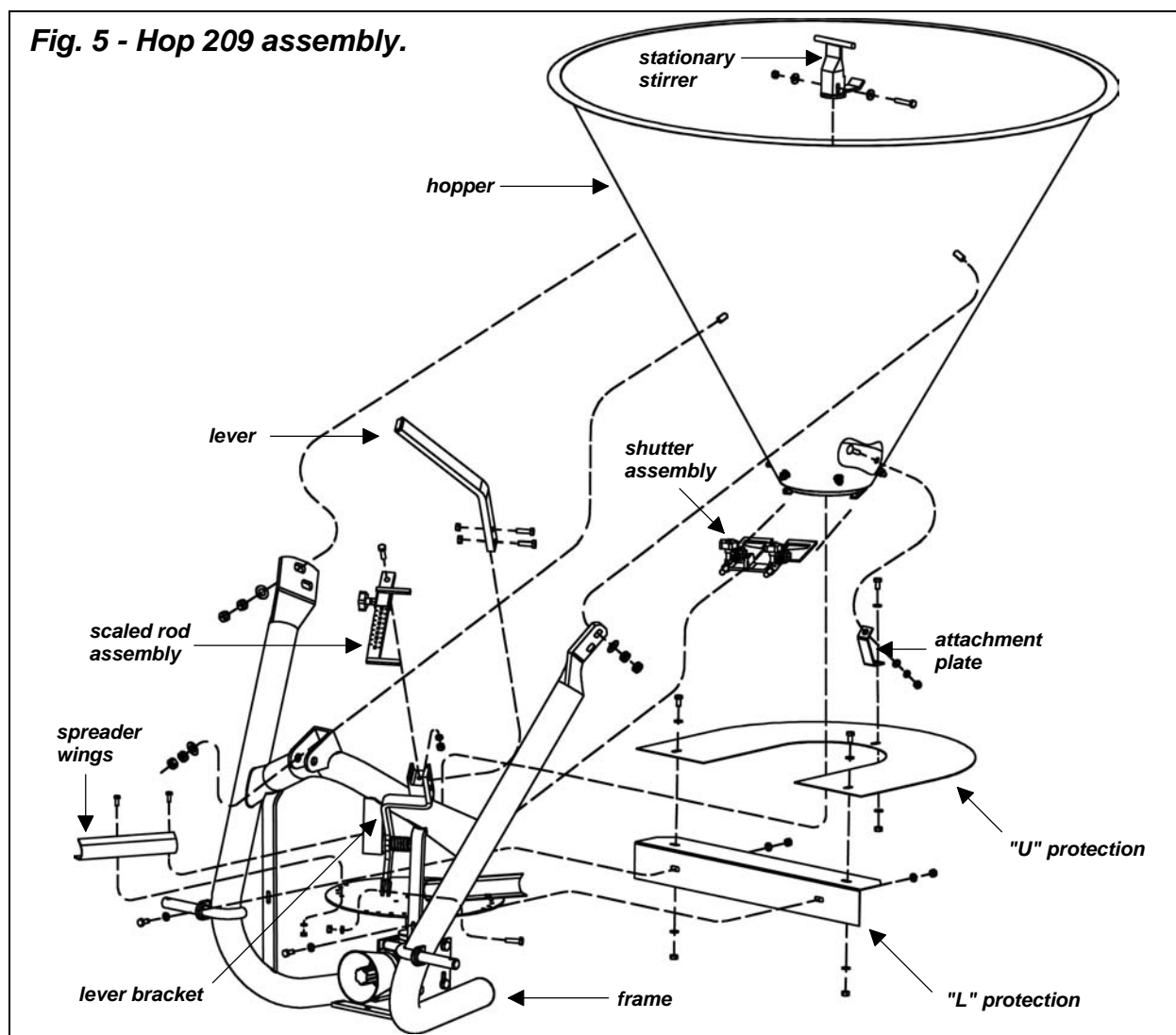
### 3.05 - Assembly Instructions for Hop 209 and 212

NOTE: Assembly will be easier if all parts are loosely assembled before tightening the hardware. All hardware needed for assembly will be found in the hardware bag or on the machine.

Each unit is shipped with the following components:				
	209-121 Qty.	209-421 Qty.	212-121 Qty.	212-421 Qty.
1. Frame assembly	1	1	1	1
2. Hopper	1	1	1	1
3. "U" Protection (rear protection)	1	1	1	1
4. Driveline	1	1	1	1
5. Component bag (as follows):				
a. Spreader wings	4	4	4	4
b. Shutter assembly	1	1	1	1
c. Stationary stirrer	1	1	1	1
d. "L" Protection (front protection)	1	1	1	1
e. Scaled rod assembly	1	1	1	1
f. Lever				
g. Hardware bag (as follows):				
Attachment plate (001-4338)	1	-	1	-
Attachment plate (001-4339)	-	1	-	1
Bolt CR M12-1.75x30 C4.6 Z (005-1073)	3	-	5	-
Bolt CR M12-1.75x40 C8.8 Z (004-4115)	-	3	-	5
Bolt CR M08-1.25x20 C4.6 Z (008-4289)	1	-	1	-
Bolt HH M08-1.25x16 C8.8 Z F (004-6454)	3	3	3	3
Bolt HH M08-1.25x20 C8.8 Z F (001-5012)	2	2	2	2
Bolt HH M06-1.00x16 C8.8 Z F (003-6319)	8	-	8	-
Bolt HH M06-1.00x16 C8.8 SS F (001-4320)	-	8	-	8
Nut HH M12-1.75 C6 Z MD (000-1106)	6	6	10	10
Nut HH M08-1.25 C6 Z MD (004-6545)	6	5	6	5
Nut HH M06-1.00 C6 Z TK (501-603B)	8	-	8	-
Nut HH M06-1.00 C6 SS TK (001-4322)	-	8	-	8
Washer lock Ø6 (004-6536)	8	-	8	-
Washer lock Ø6 SS (001-4321)	-	8	-	8
Washer lock Ø8 (000-3144)	1	-	1	-
Washer flat Ø8 (001-5230)	11	10	11	10
Washer flat Ø14 (009-1435)	3	3	5	5

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

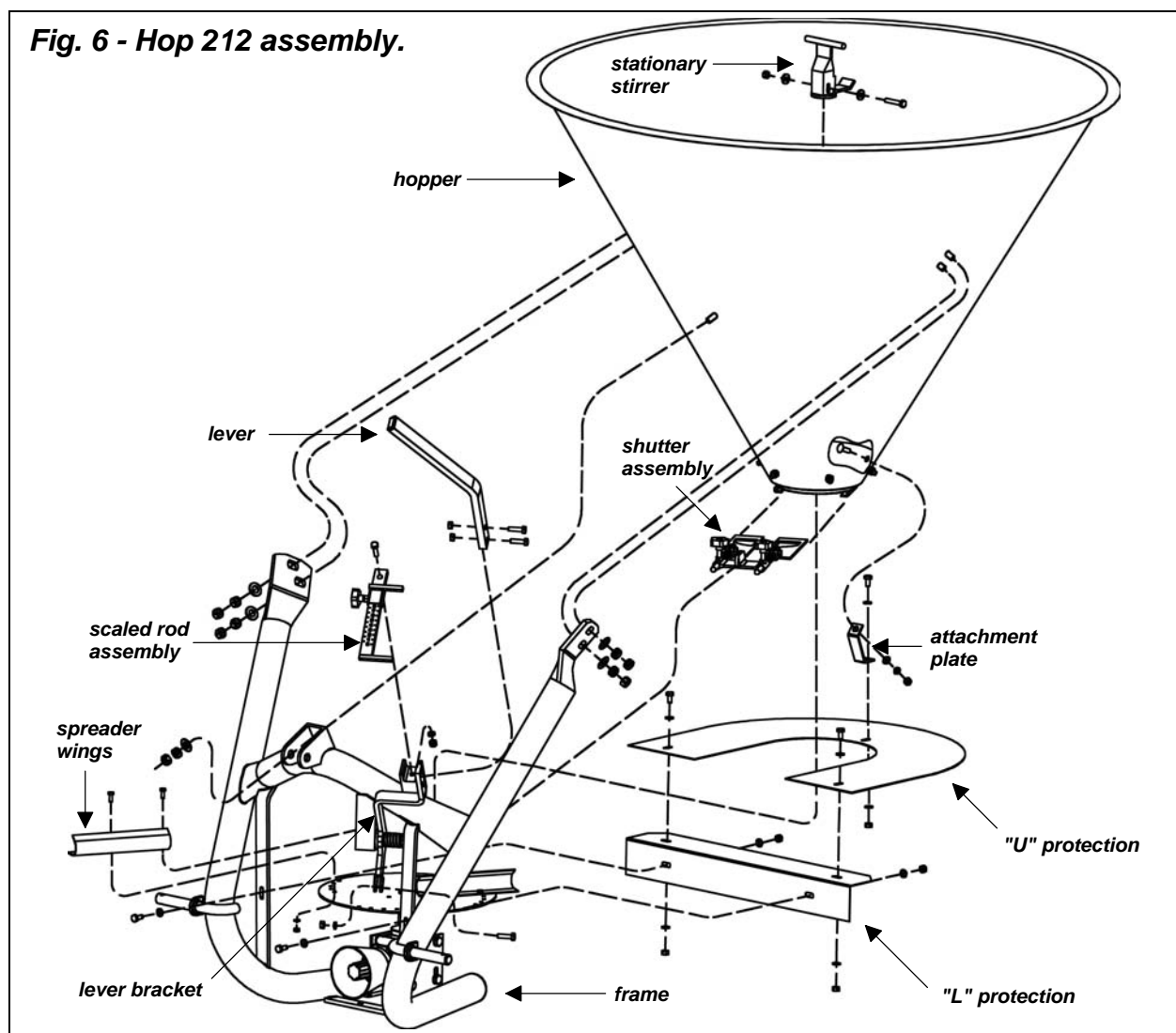




To assemble the spreader do the following (see fig. 5 for Hop 209 and fig. 6 for Hop 212):

1. Attach four spreader wings to the spreader disc with eight M6x16 hex bolts, Ø6 lock washers and M6 hex nuts.
2. Locate scaled rod assembly in hardware bag. Install scaled rod to main frame using M8x30 hex bolt, Ø8 lock washer and M8 hex nut that are already installed on the scaled rod assembly.
3. Install the "L" protection on spreader frame using two M8x20 hex bolts, four Ø8 flat washers and two M8 hex nuts.
4. Slide hopper onto the output shaft of the gearbox.
5. Secure hopper to frame using three M12x30 carriage bolts on model 209-121 or M12x40 on models 209-221 & 209-421, three Ø14 flat washers, and six M12 hex nuts. Install five M12x30 carriage bolts on model 212-121 or M12x40 on model 212-421, five Ø14 flat washers and ten M12 hex nuts.
6. Install stationary stirrer using M8x45 bolt, two Ø8 flat washers and M8 elastic stop nut that are already bolted to the stirrer.

7. Install the "U" protection using three M8x16 hex bolts, six Ø8 flat washers, one Ø8 lock washer and three M8 hex nuts. Install M8x20 carriage bolt on models 209-121 & 212-121 or M8x25 on models 209-221, 209-421 & 212-421 through hopper and into attachment plate. On models 209-221, 209-421 & 212-421 use bolt already installed on hopper.
8. Install shutter assembly, found in hardware bag, by sliding shutters into the slots at the bottom of the hopper then assemble it to the lever bracket, which is already installed on the frame, using M8x30 hex bolt, Ø8 lock washer and M8 hex nut.
9. Install lever to lever bracket using two M8x25 hex bolts and two M8 hex nuts which are already installed on the lever.
10. Tighten all hardware.
11. Install driveline and ensure it has at least 2" from bottoming out in its shortest working position and has the minimum 6" overlap in its longest working position<sup>6</sup>.



<sup>6</sup> See Section 4.03 - Driveline, for instructions on how to determine correct driveline length and procedures for shortening the driveline.

### 3.06 - Pre-Operational Check

Check each of the following, carefully, prior to engaging the equipment:

1. No wrappings or foreign objects are around the spreader.
2. All hardware is tight.
3. All safety shields and guards are in place and tightly attached.
4. 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.

### 3.07 - Attaching to the Tractor

Units may be used on tractors ranging from 16 to 50 HP equipped with a standard rear PTO and category 1 three point hitch<sup>7</sup>. The 209 and 212 series are also cat. 1 quick hitch compatible. **Never use this spreader with tractors over 50 HP.**



**DANGER:** Do not allow anyone to stand between spreader and tractor while attaching implement.



**WARNING:** Never attempt to attach the implement to the tractor or make an adjustment 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.

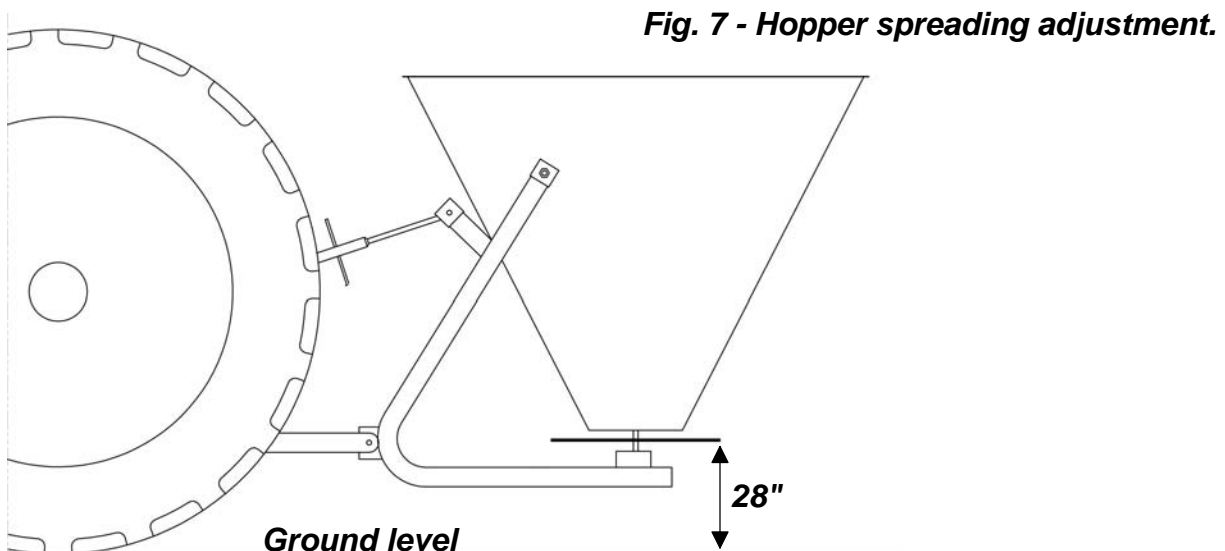
To attach the implement to the tractor do the following:

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.

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<sup>7</sup> See Table 2, page 35.

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 the spreading disc at a distance of 28" above ground level (see fig. 7).



Install the end of the driveline to the spreader and the opposite end to the tractor PTO. Be sure each end is connected securely with either the locking pin or bolt and nut. 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.

### 3.08 - 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 safety 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.
5. Ballast may need to be added to tractor to maintain steering control.

### **3.09 - 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 50 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.

The quantity of material distributed per acre depends on the following factors:

1. Position of the lever connected to the hopper gates.
2. Ground speed.
3. Weight and size of the material to be spread.
4. Spreading width.

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

The spreading is adjustable in three ways by:

1. Adjusting the **amount of material to be spread**.
2. Adjusting the **spread pattern**.
3. Adjusting the **spreading width**.

### Spread adjustment for Model 203

To adjust the **amount of material to be spread**, loosen the knob below the flow control assembly and open or close the shutter lever to adjust the size of the opening at the bottom of the hopper. So for example, if it is determined that the appropriate opening is position #6, loosen the knob on the blocking plate and push the lever in until the hole is completely closed. Tighten the knob on the blocking plate in position #6. To begin spreading, pull the lever back until the blocking plate stops it in position #6.

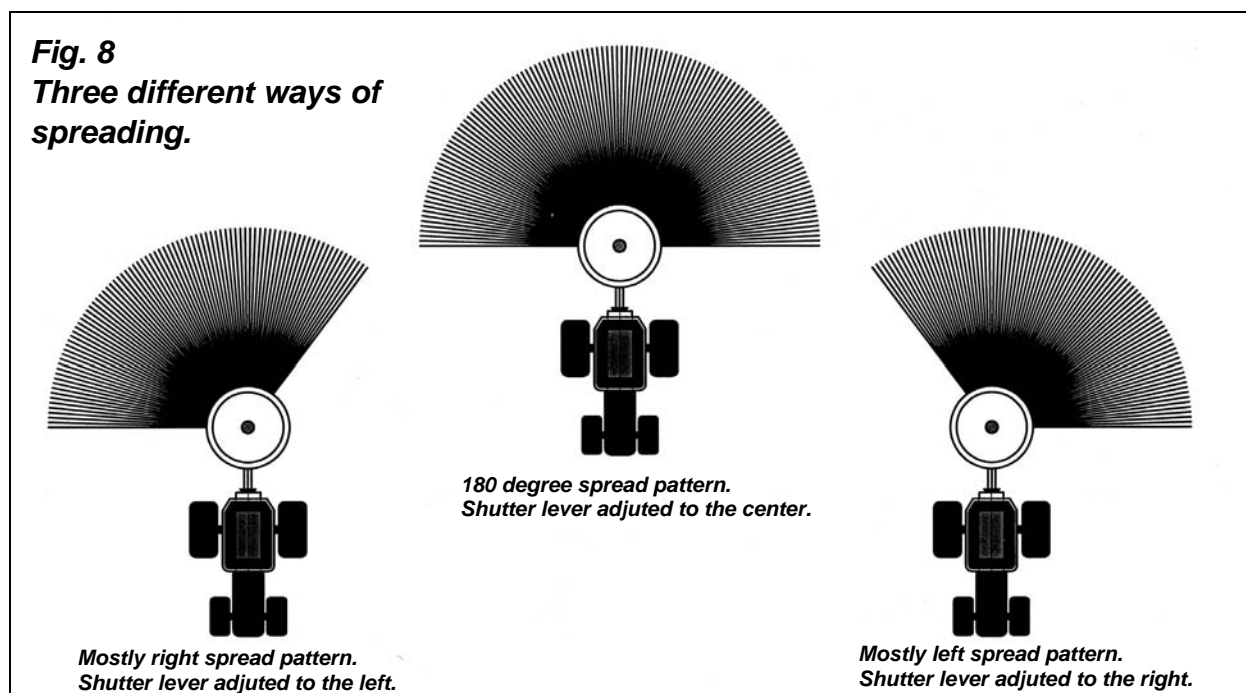
To help the operator set the spreader correctly, Table 3<sup>8</sup> shows the amount of material distributed for each of the ten lever positions. So for example, with the shutter lever in position #6 and a ground speed of 2.5 mph, the output should be approximately 553 lbs/acre.

To adjust the **spread pattern**, loosen the knob that holds the flow control assembly to the guard and slide the lever to the left or to the right. Doing this, closes the spread pattern from 180° when the shutter lever is in the center, to either mostly right when the lever is shifted all the way to the left, or mostly left when the lever is shifted all the way to the right. (see fig. 8).

To reduce the **spreading width** use the optional rear deflector. Adjust the deflector up and down to obtain the desired spreading distance. The higher up the deflector is, the further the spread width, the lower the deflector is, the closer the material will be spread.

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<sup>8</sup> See Table 3 - Model 203 swath spread patterns, page 36.



### Spread adjustment for Models 206, 209 & 212

To adjust the **amount of material being spread** move the lever in and out to open or close the gates located at the bottom of the hopper.

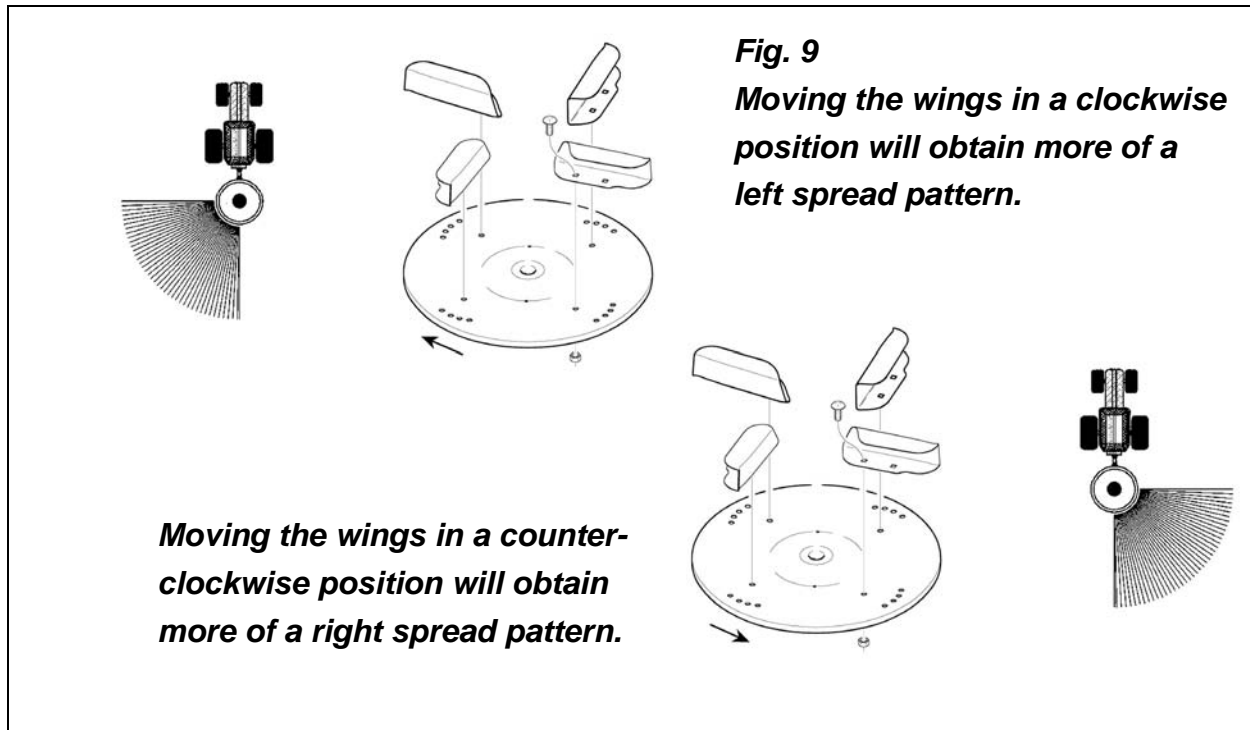
Use the scaled rod to set the desired opening of the gates and tighten the knob on the lever stop on the preset number on the scale. When the lever is pulled open it will stop against the lever stop to the preset number on the scale.

To help the operator set the spreader correctly, Table 4<sup>9</sup> shows the amount of material distributed for each of the ten lever positions. So for example, with the lever in position #5, a ground speed of 5 mph, the output should be approximately 246 lbs/acre.

**Adjusting the spread pattern:** The machine can be adjusted to spread to the center or to either of the two sides. To spread 180° behind the tractor, both gates should be open. To spread more towards the right, operate the spreader with the right gate open and the left gate closed. To spread more to the left, close the right gate and leave the left gate open. Loosen the knob on the gate to be left closed. When lever is pushed open, the gate with the loose knob will remain closed.

Models 209 and 212 also allow you to adjust the wings that are bolted to the spinner disc. Moving the wings clockwise makes the material spread more to the left, whereas moving the wings counterclockwise will move the spread pattern more towards the right (**see fig. 9**). So for example, if the material being spread tends to be thrown center-right and the desired direction is more towards the left, try moving the wings clockwise and, if the result is still not satisfactory, loosen the knob on the right gate to keep it closed while the spreader is in use.

<sup>9</sup> See Table 4 - Models 206, 209 & 212 swath spread patterns, page 36.



To reduce the **spreading width** use the optional rear deflector. Adjust the deflector up and down to obtain the desired spreading distance. The higher up the deflector is, the further the spread width, the lower the deflector is, the closer the material will be spread.

### 3.10 - 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, and 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.



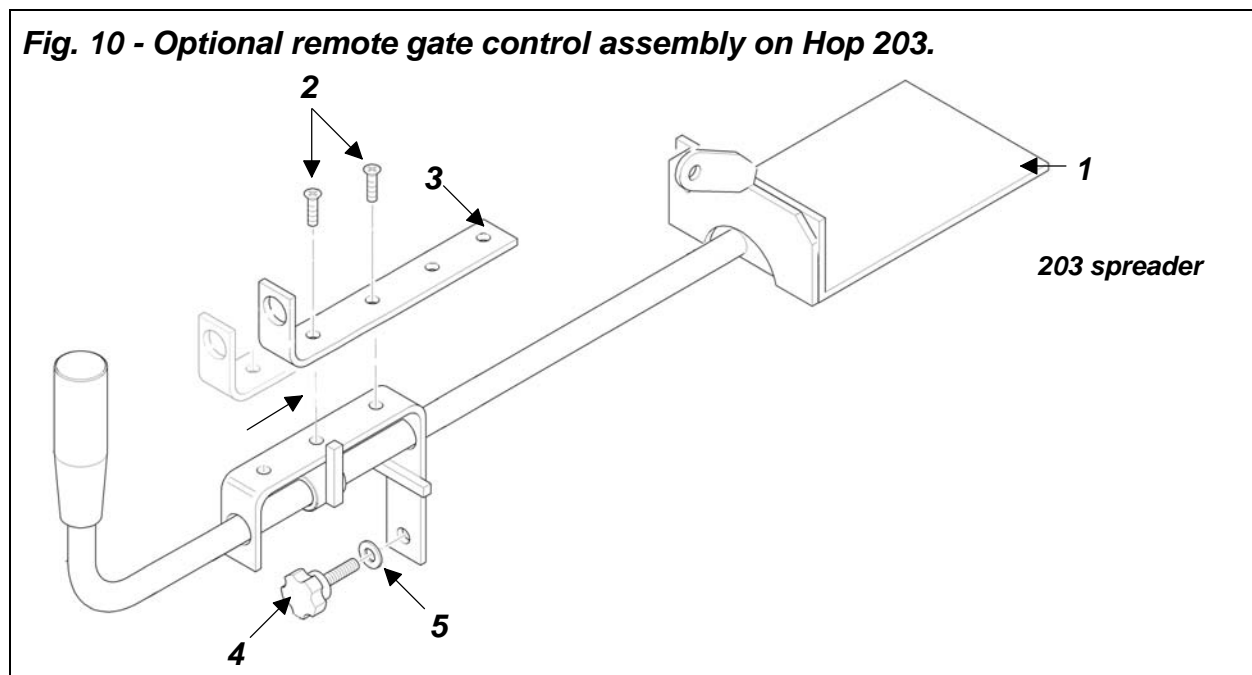
### 3.11 - Optional Deflector

The optional rear deflector, available for all models, bolts on to the spreader frame and is used to regulate the **spreading width**. Move the deflector up and down to change the spreading distance. The higher the deflector is up the further the spread width, the lower the less distance the material travels.

On models 206, 209 and 212 the "U" protection needs to be removed before assembling the deflector.

### 3.12 - Optional Remote Gate Control

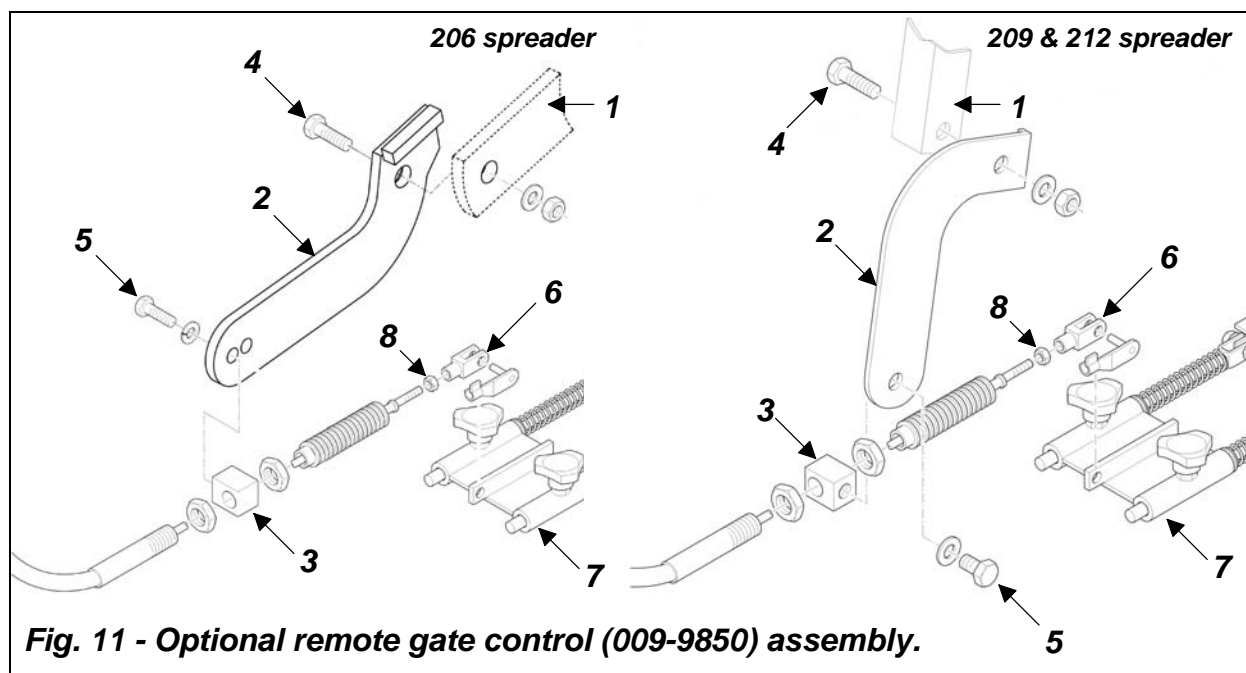
The remote gate control is an accessory that can be mounted on these ground driven spreaders to allow the adjustment of the quantity of seed distributed conveniently from the tractor's seat.



To assemble the remote gate control on the Hop 203 spreader proceed as follows (**see fig. 10**):

1. Ensure the hopper is empty, remove the spreader from the tractor and position on a stable ground.
2. Position the remote gate control assembly on the driveline or hitch side of the spreader.
3. Remove the 3 bolts (#2) that hold the cable support plate (#3).
4. Slide the cable support plate by one hole (**see fig. 10**) towards the shutter and re-tighten using 2 of the 3 bolts that were removed in step 3.
5. Remove from the remote gate assembly, bolt (#4) and flat washer (#5).
6. Remove from spreader complete shutter assembly.

7. Insert the shutter assembly (#1) connected to the remote gate control.
8. Reinsert bolt (#4) and flat washer (#5) in the same location in which the original shutter device was connected.
9. Tighten the jam nut located behind the yoke.
10. Some adjustment may be needed to ensure a full stroke of the opening and closing process. This can be accomplished by loosening the nut behind the yoke unit and also loosening the jam nuts located on the mounting plate. Be sure to re-tighten all hardware that was loosened in this process.

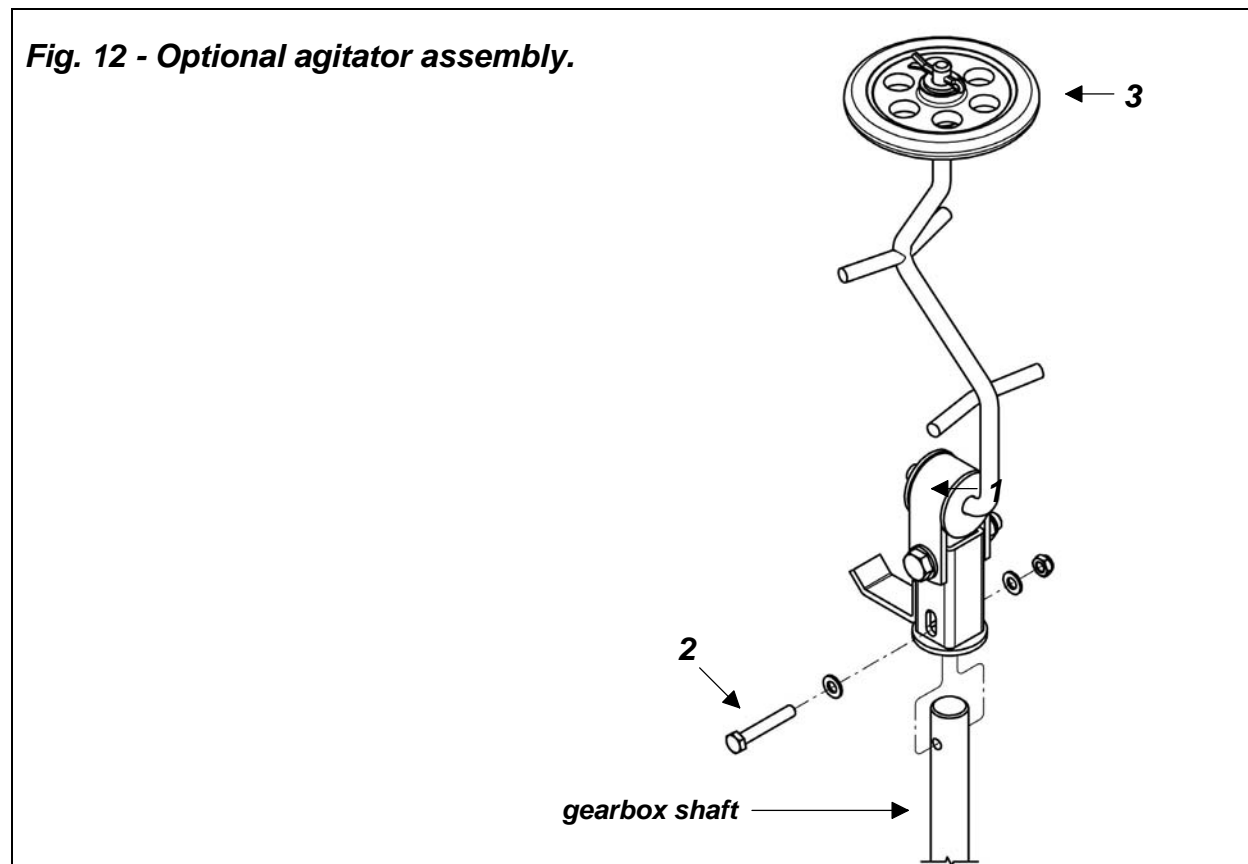


To assemble the remote gate control on the Hop 206, 209 and 212 spreaders proceed as follows (see fig. 11):

1. Ensure the hopper is empty, remove the spreader from the tractor and position on a stable ground.
2. Position the remote gate control assembly on the driveline or hitch side of the spreader.
3. Remove from the remote gate assembly, bolt (#4), flat washer and nut.
4. Attach bracket (#2) to the frame (#1) above the dual shutters. **IMPORTANT:** For models 209 and 212 plate must be attached with bracket (#2) facing inwards while for model 206 plate must be attached with bracket (#2) facing outwards (see fig. 11).
5. Disconnect the original spreader lever from the shutter device.
6. Adjust cable support (#3) to a level position for the stroke assembly and tighten bolt (#5) once completed.
7. Attach the yoke unit (#6) located at the end of the cable to the shutter device (#7) in the same place in which the original lever bracket was attached to the shutter device.
8. Tighten the jam nut located behind the yoke (#8).

- Some adjustment may be needed to ensure a full stroke of the opening and closing process. This can be accomplished by loosening the nut (#8) behind the yoke and also loosening bolt (#5). Be sure to re-tighten all hardware that was loosened in this process.

### 3.13 - Optional Agitator



To assemble the optional agitator to the spreader proceed as follows (see fig. 12):

- Remove original stationary stirrer from spreader by unbolting the bolt that holds it to the spreader.
- Replace optional agitator (#1) (pre-assembled at the factory) in the same position of the original stationary stirrer.
- Insert hex bolt (#2), two flat washers (one per each side) and tighten nut.
- Ensure that the stirrer wheel (#3) turns freely.

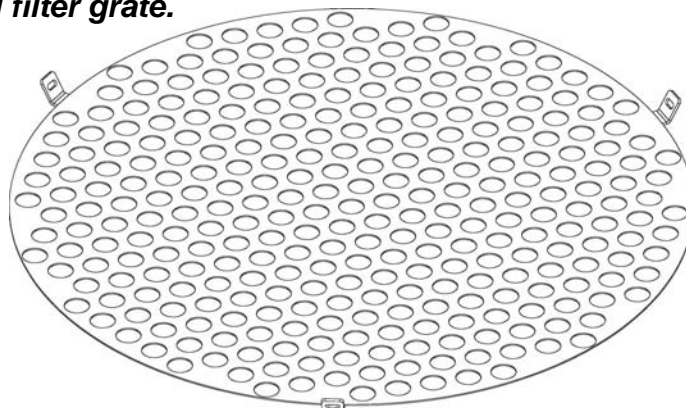


**CAUTION:** Do not run optional tumbling agitator with an empty hopper. Damage to the spreader can occur due to excessive friction between the agitator wheel and the hopper.

### 3.14 - Optional Filter Grate

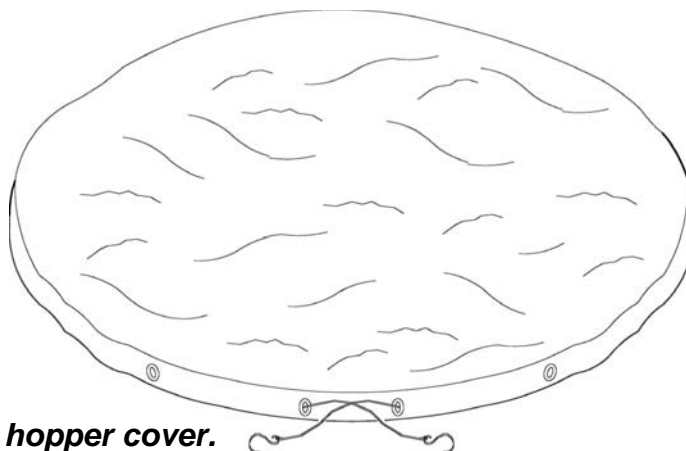
The filter grate (see fig. 13) is a simple bolt-on accessory, ideal for filtering clots and foreign objects from the material being spread.

**Fig. 13 - Optional filter grate.**



### 3.15 - Optional Hopper Cover

The hopper cover is available for all models (see fig. 14). 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.

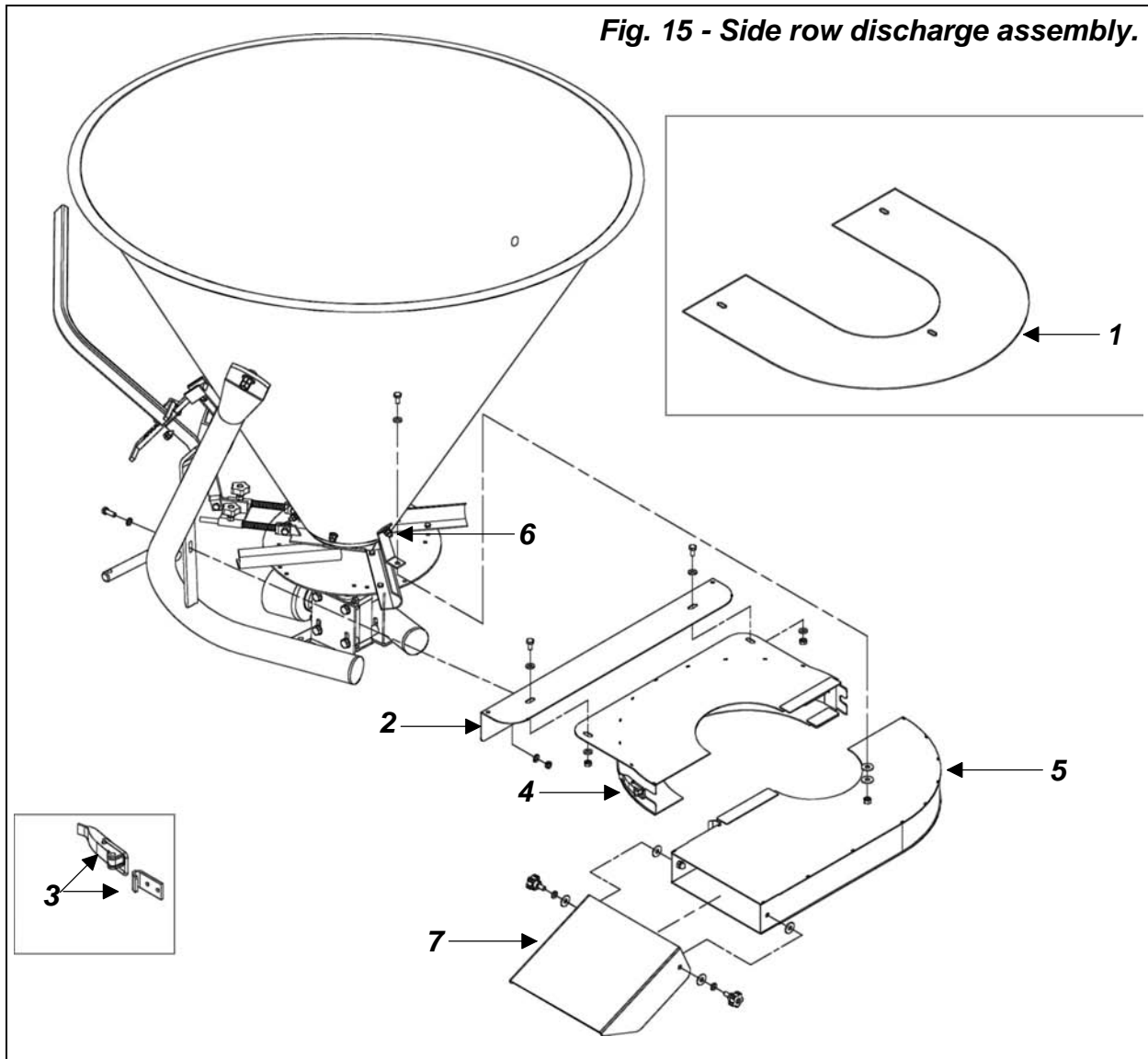


**Fig. 14 - Optional hopper cover.**

Spreader model	Hopper cover needed
Hop 203	009-9720
Hop 206	009-9721
Hop 209	009-9722
Hop 212	009-9723

### 3.16 - Optional Side Row Discharge

The optional side row discharge available for models Hop 209 and 212 is an accessory that allows to spread material exclusively to the left of the unit. The baffle plate mounted at the end of the chute allows to adjust the spread distance from 1 to 23 ft. (results may vary depending on density and weight of material being spread).



To assemble the side-row discharge proceed as follows (see fig. 15):

1. If the spreader is already assembled remove the two protections ("U" protection and "L" protection) (see #1 & 2, fig. 15). Note: The "U" protection (#1) will no longer be needed when using the optional side row discharge.
2. Loosen the nut securing the top of the attachment plate (#6) to the hopper. This will help align the hole on the side row discharge during re-assembly.
3. Unpack the side-row discharge and, using a flat head screwdriver to unlock the two side latches (#3), separate the two halves of the side row discharge (#4 & 5).

4. Slide the front half (**#4**) of the side row discharge conveyor in front of the spreader and around the spreader disc so that the disc sits inside the conveyor.
5. Re-position the "L" protection (**#2**) over the front half of the side row discharge conveyor (**#4**), line up the two holes and secure the protection to the conveyor using the two M8x25 bolts, four Ø8 flat washers and two M8 nuts (Note: this hardware was already on the spreader and is not included in the side row discharge hardware).
6. Using a tape measure, align the discharge conveyor (**#4**) left to right and up to down, making sure the spreader disc sits exactly in the middle of the discharge conveyor. Once centered, secure the hardware so it does not move.
7. Slide the back half of the discharge conveyor (**#5**) onto the front half of the discharge conveyor (**#4**) making sure to line up the tabs properly so that they fit between the guides on the conveyors.
8. Lock the two side latches (**#3**) on the conveyors.
9. Secure the attachment plate (**#6**) to the back half of the discharge conveyor (**#5**) using one M8x25 bolt and Ø8 flat washers. Note: Several Ø8 flat washers are provided with the kit, they are to be used to help level the back half of the discharge conveyor (**#5**).
10. Attach baffle plate (**#7**) with two adjustment knobs (one on each side), two Ø8 lock washers and four Ø8 fender washers.
11. Before tightening hardware ensure that the spreader disc does not touch the conveyor by manually spinning the disc.
12. Tighten all hardware.

## 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 bolts<sup>10</sup>.

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<sup>10</sup> Refer to Table 1 - Torque Specifications, for head identification marking, page 35.

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.

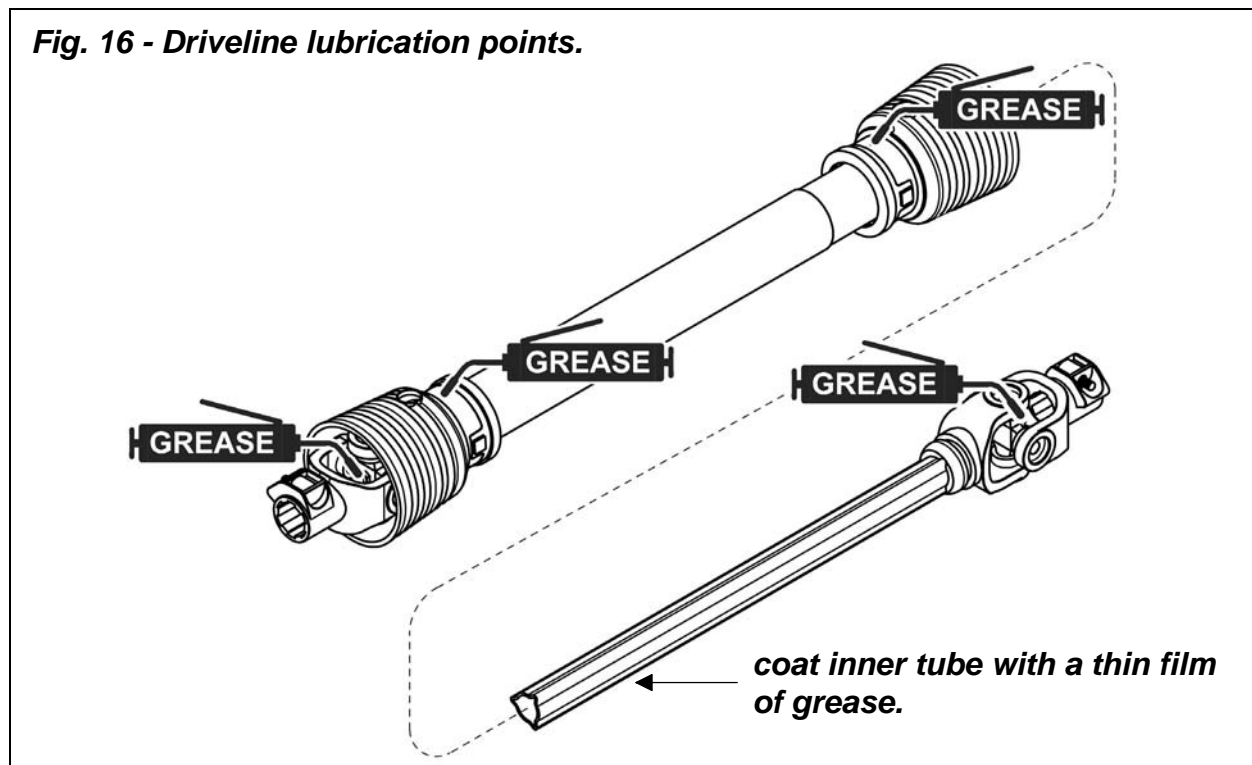
## 4.02 - Service

### 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.

### 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. 16**).
6. Grease the telescoping inner and outer tubes (**see fig. 16**).





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

1. Wash and dry the spreader carefully.
2. 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.
3. Tighten all hardware.
4. Apply a thick layer of grease to all exposed moving parts.
5. Apply a film of biodegradable oil in crevices and corners.
6. Cover the spreader from the elements in order to have it in perfect condition for the start of the next season.

**NOTE: The gearbox has been filled with EP grade grease from the factory. The grease never needs replacing unless internal work is done to the gearbox. If necessary add SAE 90 oil through the suitable cap by giving the proper inclination to the fertilizer spreader.**

### 4.03 - Driveline



**DANGER:** Only use the original driveline supplied with this implement and always with the safety shielding. 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. 17**).

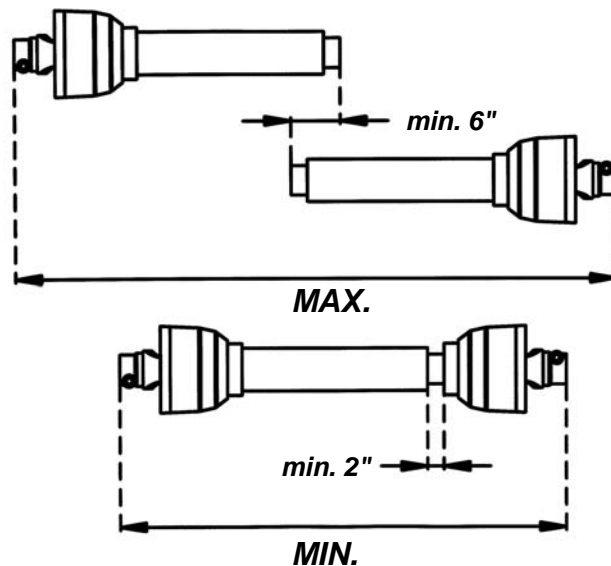
If determined that the driveline is too long, follow these procedures to adjust the length:

1. Separate the two driveline halves. Connect one half to the tractor PTO and the other half to the implement.
2. Raise and lower the implement with the 3 point hitch to find the position where the driveline is shortest. Hold the half shafts side by side and mark the desired length on the outer female tube guard leaving a 1 ½" 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.

If determined that the driveline is too short for your tractor, contact your local dealer.

**Fig. 17**



**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 - 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. Comply with all federal, state and local laws.
3. Reduce ground speed when turning and take care that the spreader does not strike obstacles such as trees, fences or buildings.
4. Always disengage PTO before raising spreader to transport position.

**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 inches 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 - FERTILIZER SPREADER - TECHNICAL FEATURES**

Series Hop, for tractors from 16 to 50 HP, PTO 540 rpm, 3 point hitch cat. 1									
Model	HP	Hopper	Hopper capacity cu. ft.	Carrying weight lbs.	Weight lbs.	Loading height	Loading width	Spreading width ft.	Driveline 1 3/8"
203-120	16-30	steel	3.71	237	81	31"	32"	23'	ASAE cat. 1
203-120	16-30	polyethylene	3.71	237	81	31"	32"	23'	ASAE cat. 1
206-121	16-30	steel	5.30	339	102	34"	35"	23'	ASAE cat. 1
206-221	16-30	polyethylene	5.30	339	102	34"	35"	23'	ASAE cat. 1
209-121	20-50	steel	8.58	549	125	40"	42"	46'	ASAE cat. 1
209-221	20-50	polyethylene	8.58	549	125	40"	42"	46'	ASAE cat. 1
209-421	20-50	polyethylene	8.58	549	125	40"	42"	46'	ASAE cat. 1
212-121	20-50	steel	11.95	765	136	46"	48"	46'	ASAE cat. 1
212-421	20-50	polyethylene	11.95	765	136	46"	48"	46'	ASAE cat. 1

**TABLE 3 - MODEL 203 SWATH SPREAD PATTERNS (lbs/acre)**

Lever position	Spreading width 20 feet		
	2.5 mph	3.75 mph	5 mph
1	89	45	39
2	143	89	71
3	223	152	107
4	312	196	152
5	419	277	205
6	553	330	277
7	651	410	321
8	767	473	384
9	874	562	437
10	999	625	500

**TABLE 4 - MODELS 206, 209, 212 SWATH SPREAD PATTERNS (lbs/acre)**

Lever position	Spreading width 46 feet		
	2.5 mph	5 mph	7.5 mph
1	50	39	16
2	123	61	43
3	246	123	82
4	369	184	123
5	492	246	166
6	-	307	201
7	-	369	246
8	-	430	282
9	-	492	323

## 5 - REPAIR PROCEDURES



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

### 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
<b>Model 203:</b>	
Spreader disc (501-650B)	1
Threaded bushing (501-622B)	1
Nut M30 (501-651B)	1
Stationary stirrer (501-123B)	1
<b>Model 206:</b>	
Spreader disc (001-4647)	1
Stationary stirrer (501-597B)	1
<b>Models 209 and 212:</b>	
Spreader disc wings (501-598B or 001-4414)	4
Stationary stirrer (501-597B)	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<sup>11</sup>.
6. Apply a thick layer of grease to all exposed moving parts.
7. Cover the spreader from the elements in order to have it in perfect condition for the start of the next season.

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<sup>11</sup> See Chapter 4 - Maintenance.

8. Make sure all parked machines are on a hard, level surface, and engage all safety devices.
9. Do not permit children to play on or around the stored unit.

<b>Touch up paint available:</b>	
<b>Part #</b>	<b>Description</b>
7300007	Primer, gray - aerosol spray can
7300008	Paint, Befco orange - aerosol spray can
7300010	Paint, Befco black - aerosol spray can

## 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.	Spreader disc wings not positioned properly.	Position spreader disc wings to the proper setting (see section 3.09 - Operating Techniques).
	Wrong gate opening.	Adjust gate openings.
Product not flowing to spreader disc.	Wet product. Powdered product.	Use dry product only. Use optional tumbling agitator.
PTO shaft turning but not the gearbox output shaft.	Roll pin missing or sheared on the spreader disc shaft.	Replace roll pin.
	Broken ring or pinion gear.	Replace ring or pinion gear.
Narrow spread width.	Incorrect PTO speed.	Increase PTO speed to 540 rpm.
	Hopper too far backwards.	Shorten the tractor's top link to position spreader so it runs level or inclined slightly forward toward the tractor.

## 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"/> Instruction Sticker.</p> <p><input type="checkbox"/> Operator's Manual.</p> <p>The machine described above, had 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*







## **Use only original spare parts**

*All rights reserved. It is unlawful to copy, reprint or use any of the information or details in this manual without the expressed written permission of the Company. Technical information provided in this manual is approximate, the Company reserves the right to modify or improve the models shown for technical or commercial purposes. Pictures in this manual do not necessarily show the machine as delivered.*

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**BEFCO**<sup>®</sup>

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