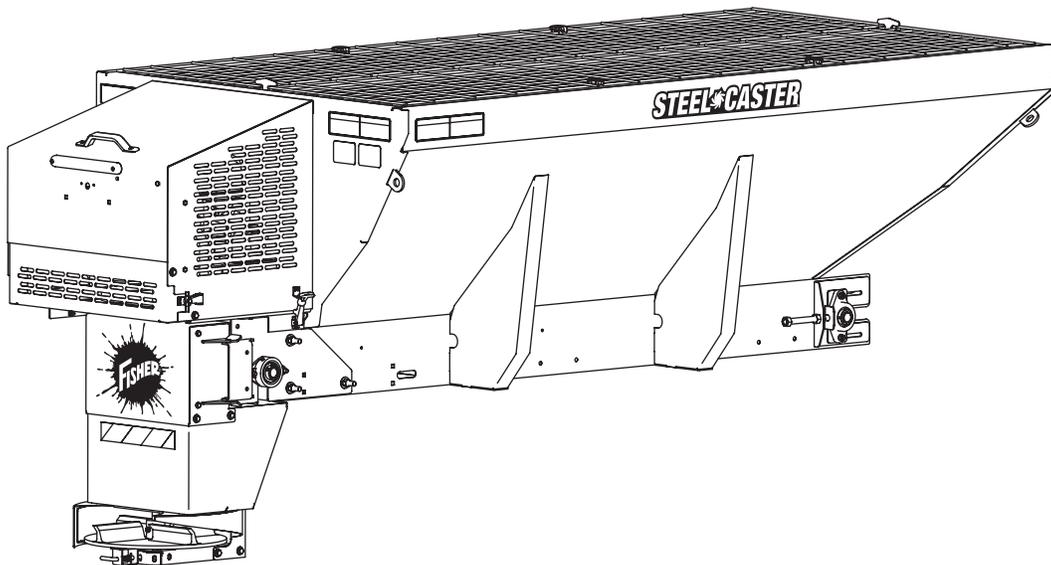




# **STEEL-CASTER™ Hopper Spreader** **With Gasoline Engine or Dual Hydraulic Drive**

**#99002, 99003, 99004, 99006, 99007,  
99008, 99010–99018;  
#99002-1, 99003-1, 99004-1, 99006-1, 99007-1,  
99008-1, 99010-1–99018-1**

**Owner's Manual**  
*Original Instructions*



**⚠ CAUTION**

**Read this document before operating  
or servicing the spreader.**

This manual is for FISHER® STEEL-CASTER Hopper Spreaders with serial numbers beginning with 150515 and higher.

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**This manual supersedes all editions with an earlier date.**



# TABLE OF CONTENTS

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<b>PREFACE</b> .....	4	<b>OPERATING THE SPREADER—</b>	
Owner's Information Form .....	4	<b>GAS MODELS</b> .....	17
<b>SAFETY</b> .....	5	Cab Control Identification .....	17
Safety Definitions .....	5	Engine Operation .....	17
Warning/Caution Labels .....	5	Electric Clutch Operation .....	18
Serial Number Label .....	6	Choke Adjustment (Honda Engines Only) .....	18
Safety Precautions .....	6	<b>OPERATING THE SPREADER—</b>	
Fuses .....	7	<b>HYDRAULIC MODELS</b> .....	19
Personal Safety .....	7	Operating the Cab Control .....	19
Fire and Explosion .....	7	<b>SPREADING MATERIAL</b> .....	20
Cell Phones .....	7	Spread Pattern Adjustment .....	21
Ventilation .....	8	<b>MAINTENANCE</b> .....	22
Battery Safety .....	8	Lubrication .....	22
Noise .....	8	Gear Oil Specification .....	22
Vibration .....	8	Drive Chain and Spinner Chain .....	23
Torque Chart .....	8	Conveyor Pintle Chain Tension .....	23
<b>LOADING</b> .....	9	Electric Clutch .....	24
Certification .....	9	Gasoline Engine Service and Repair .....	24
Spreader Specifications .....	9	Removing the Chute—Gas Models .....	25
Material Weights .....	9	Removing the Chute—Hydraulic Models .....	25
Load Volume .....	10	After Each Use .....	26
Determining Vehicle Payload .....	10	Storage .....	26
Determining Vehicle Payload Worksheet .....	11	At the End of Each Season or	
<b>MOUNTING THE SPREADER</b> .....	12	After Extended Storage .....	27
Install Hopper in Truck Bed .....	12	Fuse Replacement .....	27
Chute Length .....	13	Recycle .....	27
Install Chute—Gas Models .....	14	<b>DUAL HYDRAULIC CIRCUIT DIAGRAM</b> .....	28
Install Chute—Hydraulic Models .....	16	<b>TROUBLESHOOTING GUIDE</b> .....	29
Install Tie-Down Straps .....	16	Gas Models .....	29
		Hydraulic Models .....	29
		All Models .....	30

## PREFACE

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This manual has been prepared to acquaint you with the safety information, operation, and maintenance of your new hopper spreader. Please read this manual carefully and follow all recommendations. This will help ensure profitable and trouble-free operation of your hopper spreader. Keep this manual accessible. It is a handy reference in case minor service is required.

When service is necessary, bring your hopper spreader to your distributor. They know your spreader best and are interested in your complete satisfaction.

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**NOTE: This spreader is designed to spread snow and ice control materials only. Do not use it for purposes other than those specified in this manual.**

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Register your spreader online at [www.fisherplows.com](http://www.fisherplows.com)

### OWNER'S INFORMATION

Owner's Name: \_\_\_\_\_

Date Purchased: \_\_\_\_\_

Outlet Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Outlet Address: \_\_\_\_\_

Vehicle Model: \_\_\_\_\_ Year: \_\_\_\_\_

Spreader Type (Model): \_\_\_\_\_ Serial #: \_\_\_\_\_

Length: \_\_\_\_\_ Weight: \_\_\_\_\_ lb/kg: \_\_\_\_\_

# SAFETY

## SAFETY DEFINITIONS

### ⚠ WARNING

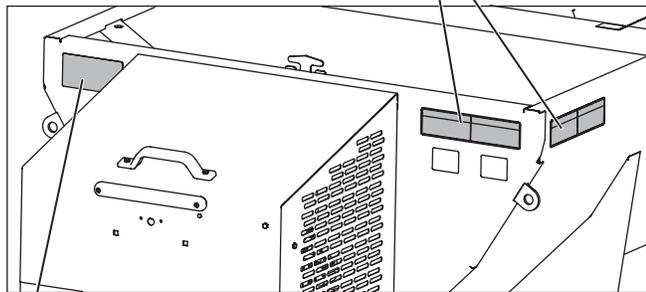
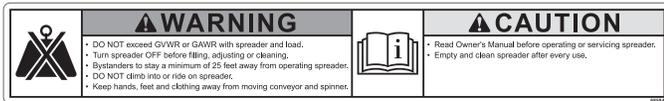
Indicates a potentially hazardous situation that, if not avoided, could result in death or serious personal injury.

### ⚠ CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**NOTE:** Indicates a situation or action that can lead to damage to your spreader and vehicle or other property. Other useful information can also be described.

### Warning/Caution Label (both sides of hopper)



### Warning Label — Rear Camera

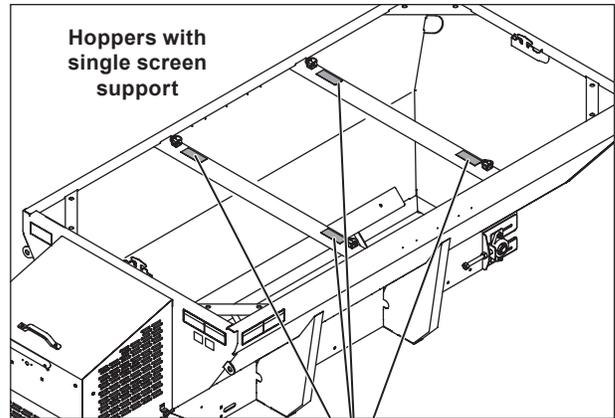
#### ⚠ WARNING

**Vehicles <10,000 lb GVWR**  
Obstructing the visibility from the vehicle's rear camera could result in serious injury or damage. An auxiliary camera system shall be installed if the vehicle's rear camera is removed or blocked.

## WARNING/CAUTION LABELS

Become familiar with and inform users about the warning and caution labels on the spreader.

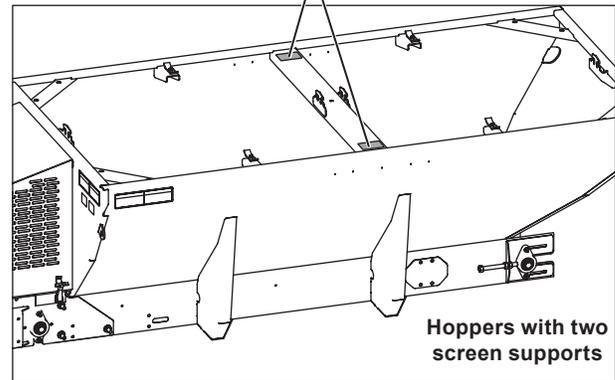
**NOTE:** If labels are missing or cannot be read, see your sales outlet.



### Caution Label — Lifting

#### ⚠ CAUTION

Do not lift spreader by this member. Lifting here could cause personal injury and property damage.

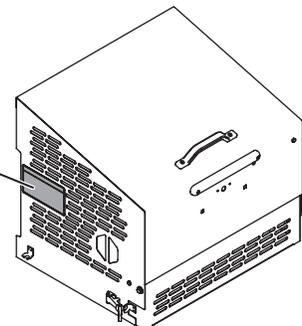


### Warning Label — Gasoline

#### ⚠ WARNING

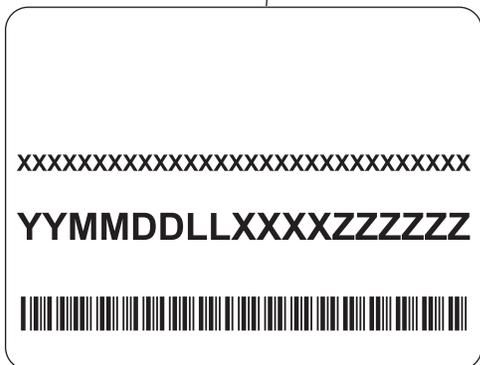
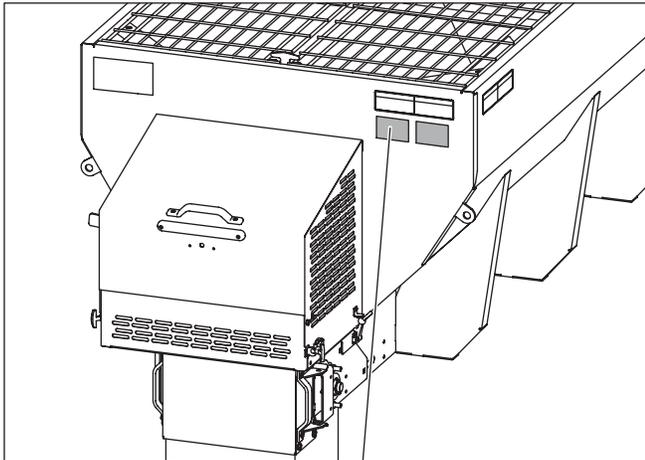
Gasoline is flammable.

- Turn off engine and allow it to cool before filling gas tank.
- DO NOT smoke or use open flame within 25 feet of spreader.
- Allow spilled gas to evaporate completely before starting engine.
- Gasoline engine produces poisonous gases while running. DO NOT operate in an enclosed area.
- Gasoline engine has hot and moving parts that can cause injury. Use care when working with or near the gasoline engine and its parts.
- Shut off engine when not in use, even for short periods of time, to avoid damage to equipment or property.



# SAFETY

## SERIAL NUMBER LABEL



Code	Definition
YY	2-Digit Year
MM	2-Digit Month
DD	2-Digit Day
LL	2-Digit Location Code
XXXX	4-Digit Sequential Number
ZZZZZ	5- to 7-Digit Assembly PN

## SAFETY PRECAUTIONS

Improper installation and operation could cause personal injury and/or equipment and property damage. Read and understand labels and the Owner's Manual before installing, operating, or making adjustments.

**⚠ WARNING**

- Driver to keep bystanders minimum of 25 feet away from operating spreader.
- Before working with the spreader, secure all loose-fitting clothing and unrestrained hair.
- Before operating the spreader, verify that all safety guards are in place.
- Before servicing the spreader, wait for conveyor, auger, and spinner to stop.
- Do not climb into or ride on spreader.

**⚠ WARNING**



Overloading could result in an accident or damage. Do not exceed GVWR or GAWR ratings as found on the driver-side vehicle door cornerpost. See Loading section to determine maximum volumes of spreading material.

**⚠ WARNING**

Do not install the control for this product in the deployment path of an air bag. Refer to vehicle manufacturer's manual for air bag deployment area(s).

**⚠ WARNING**

Vehicles <10,000 lb GVWR: Obstructing the visibility from the vehicle's rear camera could result in serious injury or damage. An auxiliary camera system shall be installed if the vehicle's rear camera is removed or blocked.

**⚠ WARNING**



Hydraulic fluid under pressure can cause skin injection injury. If you are injured by hydraulic fluid, get medical attention immediately.

**⚠ WARNING**

With chute removed, use dump switches to operate conveyor.

# SAFETY

## CAUTION

If rear directional, CHMSL light, or brake stoplights are obstructed by the spreader, the lights shall be relocated, or auxiliary directional or brake stoplights shall be installed.

## CAUTION

During the hopper installation we recommend the addition of an OSHA compliant Backup Alarm. This alarm is required for OSHA governed employers.

## CAUTION

- Do not operate a spreader in need of maintenance.
- Before operating the spreader, reassemble any parts or hardware removed for cleaning or adjusting.
- Before operating the spreader, remove materials such as cleaning rags, brushes, and hand tools from the spreader.
- Before operating the spreader, read the engine owner's manual, if so equipped.
- While operating the spreader, use auxiliary warning lights, except when prohibited by law.
- Tighten all fasteners according to the Torque Chart. Refer to Torque Chart for the recommended torque values.

## CAUTION

Disconnect electric and/or hydraulic power and tag out if required before servicing or performing maintenance.

## CAUTION



**DO NOT** leave unused material in hopper. Material can freeze or solidify, causing unit to not work properly. Empty and clean after each use.

**NOTE:** Lubricate grease fittings after each use. Use a good quality multipurpose grease.

## FUSES

The electrical system contains several blade-style automotive fuses. If a problem should occur and fuse replacement is necessary, the replacement fuse must be of the same type and amperage rating as the original. Installing a fuse with a higher rating can damage the system and could start a fire. Fuse Replacement, including fuse ratings and locations, is located in the Maintenance section of this Owner's Manual.

## PERSONAL SAFETY

- Remove ignition key and put the vehicle in park or in gear to prevent others from starting the vehicle during installation or service.
- Wear only snug-fitting clothing while working on your vehicle or spreader.
- Do not wear jewelry or a necktie, and secure long hair.
- Wear safety goggles to protect your eyes from battery acid, gasoline, dirt, and dust.
- Avoid touching hot surfaces such as the engine, radiator, hoses, and exhaust pipes.
- Always have a fire extinguisher rated BC handy, for flammable liquids and electrical fires.

## FIRE AND EXPLOSION

### WARNING

**Gasoline is highly flammable and gasoline vapor is explosive. Never smoke while working on vehicle. Keep all open flames away from gasoline tank and lines. Wipe up any spilled gasoline immediately.**

Be careful when using gasoline. Do not use gasoline to clean parts. Store only in approved containers away from sources of heat or flame.

# SAFETY

## CELL PHONES

A driver's first responsibility is the safe operation of the vehicle. The most important thing you can do to prevent a crash is to avoid distractions and pay attention to the road. Wait until it is safe to operate Mobile Communication Equipment such as cell phones, text messaging devices, pagers, or two-way radios.

## VENTILATION

### ⚠ WARNING

Vehicle exhaust contains lethal fumes. Breathing these fumes, even in low concentrations, can cause death. Never operate a vehicle in an enclosed area without venting exhaust to the outside.

## BATTERY SAFETY

### ⚠ CAUTION

Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks, or lit tobacco to come near the battery. When charging or working near a battery, always cover your face and protect your eyes, and also provide ventilation.

- Batteries contain sulfuric acid, which burns skin, eyes, and clothing.
- Disconnect the battery before removing or replacing any electrical components.

## NOISE

Airborne noise emission during use is below 70 dB(A) for the spreader operator.

## VIBRATION

Operating spreader vibration does not exceed 2.5 m/s<sup>2</sup> to the hand-arm or 0.5 m/s<sup>2</sup> to the whole body.

## TORQUE CHART

### ⚠ CAUTION

Read instructions before assembling. Fasteners should be finger tight until instructed to tighten according to the Torque Chart. Use standard methods and practices when attaching spreader, including proper personal protective safety equipment.

Recommended Fastener Torque Chart					
Inch Fasteners Grade 5 and Grade 8					
Size	Torque (ft-lb)		Size	Torque (ft-lb)	
	 Grade 5	 Grade 8		 Grade 5	 Grade 8
1/4-20	8.4	11.9	9/16-12	109	154
1/4-28	9.7	13.7	9/16-18	121	171
5/16-18	17.4	24.6	5/8-11	150	212
5/16-24	19.2	27.3	5/8-18	170	240
3/8-16	30.8	43.6	3/4-10	269	376
3/8-24	35.0	49.4	3/4-16	297	420
7/16-14	49.4	69.8	7/8-9	429	606
7/16-20	55.2	77.9	7/8-14	474	669
1/2-13	75.3	106.4	1-8	644	909
1/2-20	85.0	120.0	1-12	704	995
Metric Fasteners Class 8.8 and 10.9					
Size	Torque (ft-lb)		Size	Torque (ft-lb)	
	 Class 8.8	 Class 10.9		 Class 8.8	 Class 10.9
M6 x 1.00	7.7	11.1	M20 x 2.50	325	450
M8 x 1.25	19.5	26.9	M22 x 2.50	428	613
M10 x 1.50	38.5	53.3	M24 x 3.00	562	778
M12 x 1.75	67	93	M27 x 3.00	796	1139
M14 x 2.00	107	148	M30 x 3.50	1117	1545
M16 x 2.00	167	231	M33 x 3.50	1468	2101
M18 x 2.50	222	318	M36 x 4.00	1952	2701
These torque values apply to fasteners except those noted in the instructions.					

# LOADING

This Owner's Manual covers vehicles that have been recommended for carrying the hopper spreader. Please see your local dealer for proper vehicle applications.

## CERTIFICATION

### ⚠ WARNING

New untitled vehicle installation of a spreader requires National Highway Traffic Safety Administration altered vehicle certification labeling. Installer to verify that struck load of snow or ice control material does not exceed GVWR or GAWR rating label and complies with FMVSS.

### ⚠ WARNING

Overloading could result in an accident or damage. Do not exceed GVWR or GAWR as found on the driver-side cornerpost of vehicle.

### ⚠ CAUTION

Never use wet materials or materials with foreign debris with any of these spreaders. These units are designed to handle dry, clean, free-flowing material.

### ⚠ CAUTION



Read and adhere to manufacturer's ice-control material package labeling, including Material Safety Data Sheet requirements.

## MATERIAL WEIGHTS

Material	Density		
	(lb/ft <sup>3</sup> )	(lb/yd <sup>3</sup> )	(kg/m <sup>3</sup> )
Salt	80	2160	1282
Sand	100	2700	1602

Material densities are approximate and are based on dry, loose material. It is the responsibility of the operator to know the weight of the material to be spread and the vehicle carrying capacity.

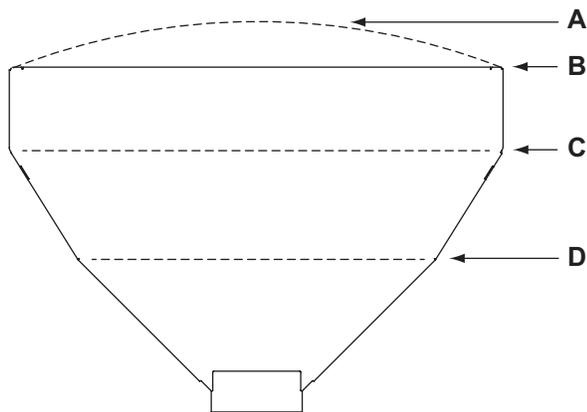
## SPREADER SPECIFICATIONS

Hopper Model	Overall Length (in)	Bed Length (in)	Empty Weight (lb)	Overall Width (in)	Bed Height (in)	Capacity Struck (yd <sup>3</sup> )
8 ft (Reg. Cap.)	119	96	761	50	39.5	1.9
9 ft (Reg. Cap.)	149	108	846	50	40.6	3.0
9 ft (High Cap.)	130	115	960	70	47	4.2
10 ft (Reg. Cap.)	144	122	987	70	47	4.5
10 ft (High Cap.)	147	125	1035	70	53.75	5.67

# LOADING

## LOAD VOLUME

Hopper Model	Load Volume (yd <sup>3</sup> )			
	A	B	C	D
8 ft (Reg. Cap.)	2.4	1.9	1.5	0.6
9 ft (Reg. Cap.)	3.5	3.0	1.7	0.7
9 ft (High Cap.)	4.8	4.2	3.4	1.5
10 ft (Reg. Cap.)	5.3	4.5	3.7	1.4
10 ft (High Cap.)	6.7	5.7	3.5	1.3



- A: Rounded Load**
- B: Struck Load**
- C: Second Bump**
- D: First Bump**

## DETERMINING VEHICLE PAYLOAD

### ⚠ WARNING

**Overloading could result in an accident or damage. Do not exceed GVWR or GAWR ratings as found on the driver-side door cornerpost of the vehicle. See Loading Section to determine maximum volumes of spreading material.**

1. Install the hopper spreader and optional equipment according to the instructions.
2. Install or attach any other equipment that will be on the vehicle while the hopper spreader will be in use (step bumper, trailer hitch, snowplows, etc.). Fill gas tanks.
3. Obtain the Gross Vehicle Weight Rating (GVWR), Front Gross Axle Weight Rating (FGAWR) and Rear Gross Axle Weight Rating (RGAWR) from the certification label located inside the driver-side door jamb or door.
4. With the occupants in the truck for normal hopper spreader operation, weigh the vehicle to obtain gross vehicle weight (GVW).
5. Subtract the GVW from the GVWR to determine the available material payload.
6. Obtain the weight per cubic yard (lb/yd<sup>3</sup>) of the desired material. Divide the weight into the payload to determine the maximum volume of material that can be carried.
7. Refer to the Load Volume table and diagram to determine the maximum fill level for the material.
8. Fill the hopper with material to the calculated level. Reweigh the vehicle with occupants and verify that the Loaded Gross Vehicle Weight, Front Gross Axle Weight, and Rear Gross Axle Weight are less than the vehicle's ratings.
9. Repeat Steps 6–8 for each type of material.

Refer to "Determining Vehicle Payload Worksheet" on the next page for an example.

# LOADING

## Determining Vehicle Payload Worksheet

	Material Type	<i>Example:</i> Dry Salt				
A	Equipment installed when vehicle was weighed	8' Stainless Steel Hopper Spreader				
B	Front Gross Axle Weight Rating [FGAWR] (lb)	6000				
C	Rear Gross Axle Weight Rating [RGAWR] (lb)	7000				
D	Gross Vehicle Weight Rating [GVWR] (lb)	11,000				
E	Gross Vehicle Weight [GVW], empty (lb)	- 7402				
F	Available Payload (lb)	= 3598				
G	Material Density (lb/yd <sup>3</sup> )	÷ 2160				
H	Maximum Volume (yd <sup>3</sup> )	= 1.67				
I	Maximum Material Fill Level, approx. Refer to Load Volume table and diagram.	C				
J	Loaded Front Gross Axle Weight (lb) Must be less than weight in Row B.					
K	Loaded Rear Gross Axle Weight (lb) Must be less than weight in Row C.					
L	Loaded Gross Vehicle Weight [GVW] (lb) Must be less than weight in Row D.					

# MOUNTING THE SPREADER

## INSTALL HOPPER IN TRUCK BED

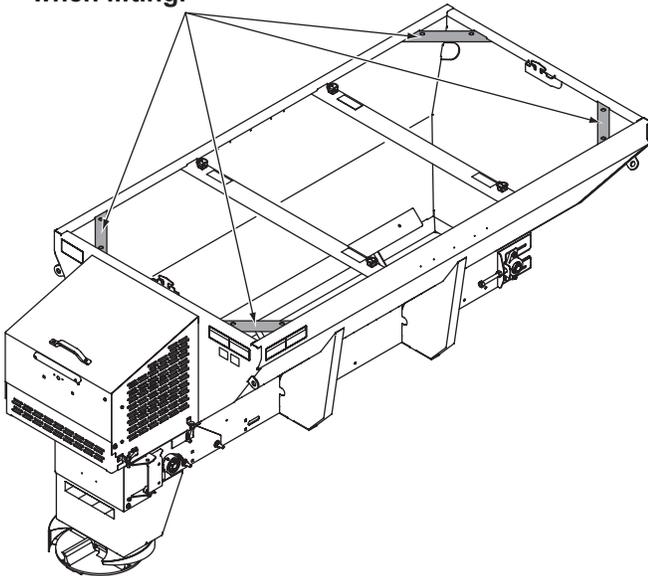
**NOTE:** Periodically throughout the snow and ice control season, verify that mounting devices are secure.

### **⚠ CAUTION**

**Before lifting, verify that the hopper is empty of material. The lifting device must be able to support the spreader's weight as shown in the spreader specifications table.**

1. Remove the top screens and set them aside. Remove any debris from inside the hopper.
2. If the material chute has been stored inside the hopper, remove the chute and set it aside. Two or more people are recommended for this step, as the chute weighs more than 70 lb.
3. Lift the spreader by the four diagonal corner rails, as shown, using slings or chains. Move the spreader into the truck bed.

**Use all 4 rails when lifting.**



### **⚠ WARNING**

**Spreader shall be bolted to vehicle frame. Do not rely on the tie-down chains or straps alone to hold spreader in vehicle.**

4. Adjust the spreader position to align the holes in the hopper support legs with the mounting holes in the truck bed. If mounting holes are not already drilled, refer to the Hopper Spreader Installation Instructions.

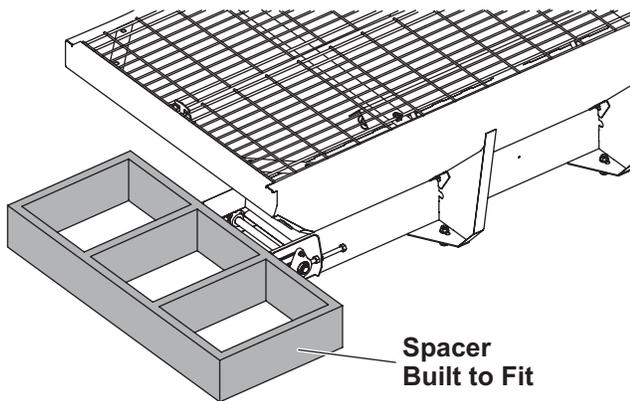
Install the spreader in the truck bed using four 5/8" Grade 5 bolts as required by the vehicle application, 5/8" flat washers on both sides, and 5/8" locknuts.

**If the mounting holes are not directly over the truck box supports, the truck bed must be braced to the frame to prevent buckling or deforming the truck bed.** Accessory mounting bars are available for installations that require additional bracing. Contact your authorized dealer.

**NOTE:** Pay special attention when drilling or clamping dissimilar metals to aluminum bodies. Galvanic corrosion can occur if not handled properly. Contact vehicle manufacturer for recommended attachment practices.

## MOUNTING THE SPREADER

5. Connect the vehicle-side harness to the hopper-side harness.
6. Reinstall the top screens.
7. Install the sill spacer between the end of the hopper sill and the front of the truck bed as shown. If you do not have a spacer, refer to the Hopper Spreader Installation Instructions for directions on building one. **Failure to install this spacer could result in damage to the spreader.**

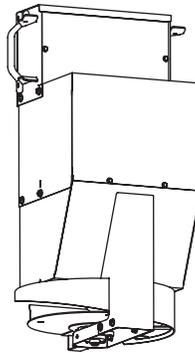


### CHUTE LENGTH

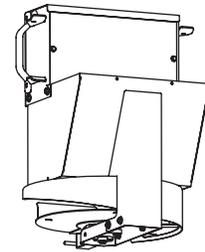
The material chute comes in two lengths.

- **8' Hoppers:** Short chute configuration is standard. The chute extends 14.75" below the truck bed and will fit most pickup trucks.
- **9' and 10' Hoppers:** Long chute configuration is standard. The chute extends 26.75" below the truck bed. The long chute configuration is required for flat bed and dump truck installations.

Long Chute



Short Chute



Ideal spinner height is 12"–18" above the ground. For some installations the chute length may need to be adjusted to achieve the desired spinner height.

If no length adjustment is required, skip to "Install Chute—Gas Models" or "Install Chute—Hydraulic Models."

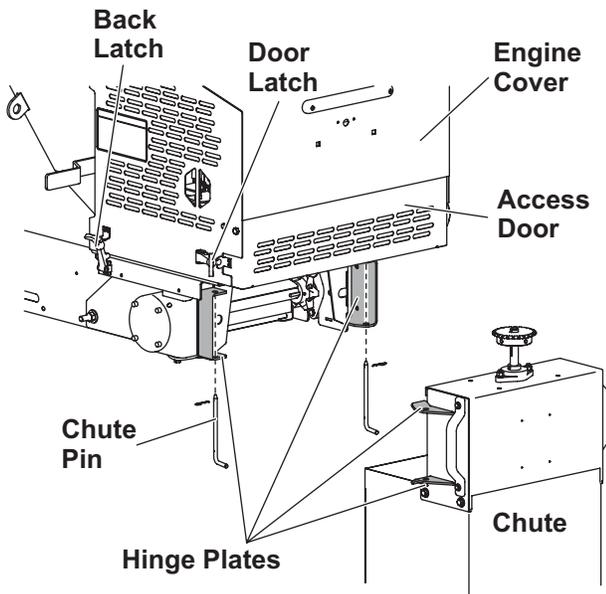
Extending a short chute requires installation of the appropriate Chute Extension Kit (includes long spinner shaft), available from your authorized dealer.

A long chute can be shortened by removing the center section and installing the optional short spinner shaft that is shipped with the 9' and 10' hoppers. Refer to the Hopper Spreader Installation Instructions.

# MOUNTING THE SPREADER

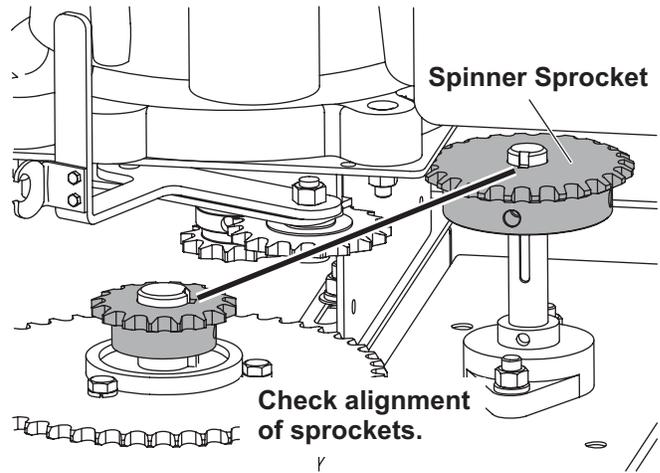
## INSTALL CHUTE—GAS MODELS

1. Unlatch the access door on both sides. Lift the door and slide it inward to hold it open.
2. Pick up the chute from each side and slide the chute-side hinge plates over the hopper-side hinge plates. Two people are recommended for this step.



3. Line up the hinge pivot holes. Insert a 1/2" x 8-1/4" chute pin on each side. Secure the chute pins with 3/32" x 2-1/4" cotter pins.

4. Release both back latches and lift the engine cover.
5. Using a straight edge, check the alignment of the spinner and drive sprockets.

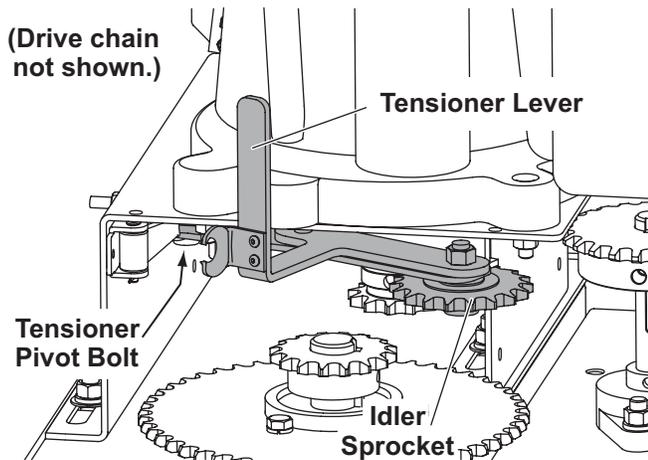


6. To adjust sprocket alignment, loosen the spinner sprocket set screw, adjust the sprocket position up or down as required, and retighten the set screw.
7. Install the spinner drive chain over the spinner and drive sprockets.

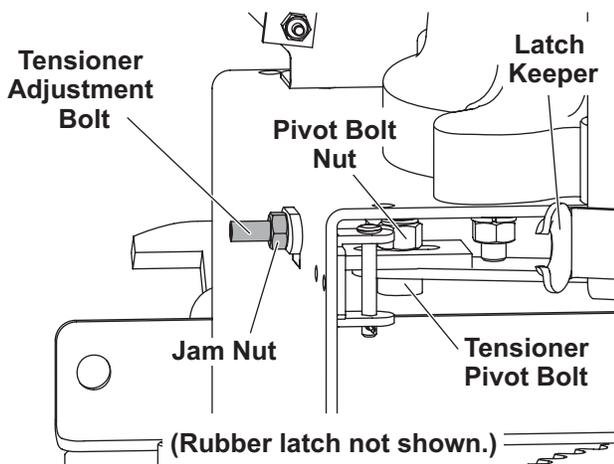
# MOUNTING THE SPREADER

## Adjust Spinner Drive Chain Tension

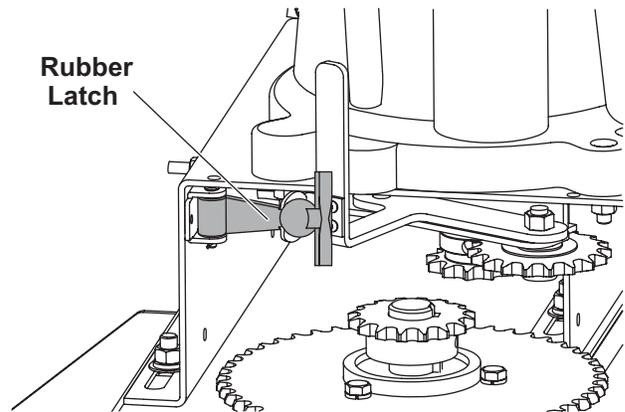
1. Position the tensioner so it is fully extended, with the idler sprocket engaged with the chute drive chain.
2. Loosen the tensioner pivot bolt and nut.
3. Slide the tensioner toward the chain until the chain is tight.
4. Tighten the tensioner pivot bolt nut.



5. Loosen the tensioner adjustment bolt jam nut and advance the adjustment bolt until it contacts the tensioner pivot bolt nut. This will keep the pivot bolt from moving.



6. Tighten the tensioner adjustment bolt jam nut.
7. Check the chain tension. Correct tension allows the chain to move 1/4" when pressed midway between the sprockets. To adjust the tension, repeat Steps 2–6 as required.
8. Tighten the tensioner pivot bolt nut to 30 ft-lb. Tighten the tensioner adjustment bolt jam nut.
9. Hook the rubber latch into the latch keeper on the tensioner lever.

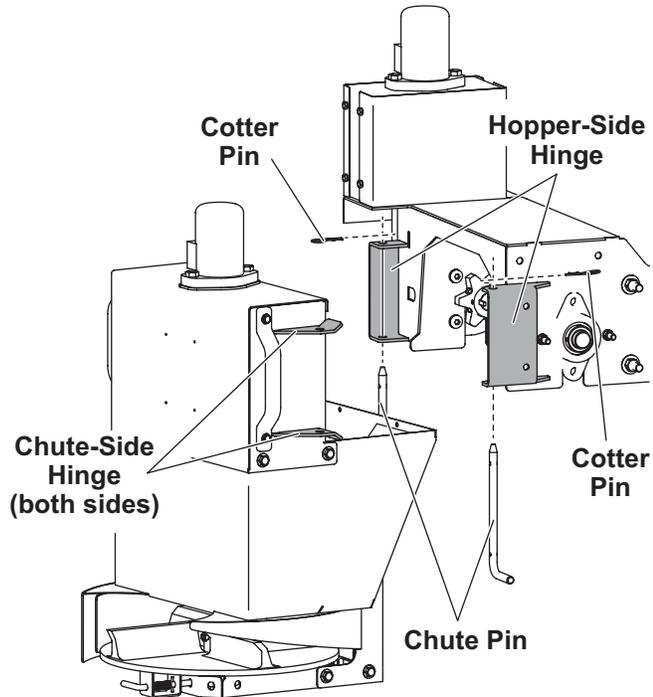


10. Close the engine cover and secure the back latches. Close and latch the access door.

# MOUNTING THE SPREADER

## INSTALL CHUTE—HYDRAULIC MODELS

1. Pick up the chute from each side and slide the chute-side hinges over the hopper-side hinges. Two people are recommended for this step.
2. Line up the hinge pivot holes. Insert a 1/2" x 8-1/4" chute pin from below on each side and secure with a 3/32" x 2-1/4" cotter pin.



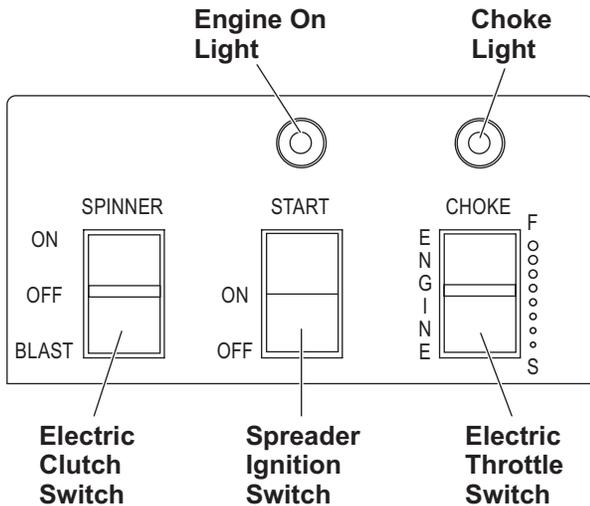
3. Once the chute is in place, install the hydraulic hoses.

## INSTALL TIE-DOWN STRAPS

Install tie-down straps from the four tie-down loops on the spreader body to the truck frame. Use one strap per loop, pulling diagonally away from the hopper body.

# OPERATING THE SPREADER—GAS MODELS

## CAB CONTROL IDENTIFICATION



**NOTE:** The conveyor and spinner will operate when spinner switch is in the "ON" or "BLAST" position.

## ENGINE OPERATION

Refer to the Cab Control Identification drawing.

### Starting the Engine

1. Turn the vehicle ignition switch to ON.
2. Verify that the spinner switch on the control is in the "OFF" position.
3. Press and hold the spreader ignition switch in the "START" position.
4. While the engine is cranking, move the electric throttle switch to "CHOKE/F" (Fast). The choke light will come on when the choke begins to close. Hold the switch in the "F" position for 1/2 second after the light comes on.
5. When the engine starts to fire, move the throttle switch toward the "S" (Slow) position. The engine will then start and the green engine light will come on.
6. Release the ignition switch.
7. Move the throttle switch toward "F" to bring the engine up to maximum speed. Allow the engine to warm up to proper operating temperature before attempting to spread materials.

**NOTE:** Do not hold the throttle switch in the FAST position until the choke re-engages. The engine will not run with the choke 100% engaged. See **Choke Adjustment Procedure** for instructions for tuning the maximum choke point.

8. To control the engine speed:

*Increase:* Hold the throttle switch at the "CHOKE/F" position. Do not operate the engine with the choke light on.

*Decrease:* Hold the throttle switch at the "S" position.

**NOTE:** If the engine does not start after 10 seconds of cranking, turn both vehicle and spreader ignition switches OFF and see the engine manual that is shipped with the spreader.

**NOTE:** Maximum engine speed is obtained just prior to choking the engine.

### Stopping the Engine

1. Move the throttle to the "S" (Slow) position and hold for two seconds.
2. Move the spreader ignition switch to "OFF."

#### ⚠ CAUTION

When the engine will not be run for a period of 5 minutes or more, be sure to turn off the fuel supply valve, if the engine is equipped with a fuel shutoff. Refer to the engine Owner's Manual.

#### ⚠ CAUTION

Do not leave unused material in hopper. Material can freeze or solidify, causing unit to not work properly. Empty and clean hopper after each use.

#### ⚠ CAUTION

Do not attempt to free the conveyor chain by using a pipe wrench or any other tool on the output shaft of the gear case. The gear case is designed to accept torque from the input shaft only. Attempts to turn the output shaft will strip the gears and void any warranty.

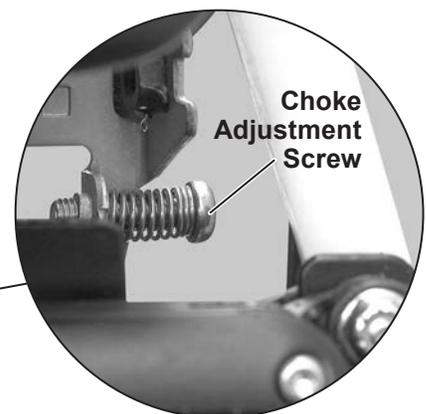
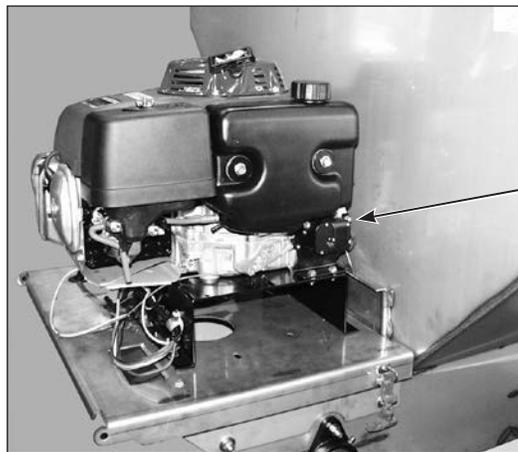
# OPERATING THE SPREADER—GAS MODELS

## ELECTRIC CLUTCH OPERATION

1. Start the engine.
2. Adjust the engine speed to slightly above idle.
3. Move the electric clutch switch to the "ON" position.
4. Increase the engine speed to the desired RPM.

## CHOKE ADJUSTMENT (HONDA ENGINES ONLY)

1. Engines are shipped with choke adjusted to the completely closed position when the choke is engaged. The choke only requires adjusting if inspection reveals the choke is not fully closing.
2. Move the throttle control to full choke position.
3. Turn the choke adjusting screw counterclockwise five to seven turns.
4. Attempt to move the choke rod in the direction of the choke adjusting screw. **If the rod has no movement**, no adjustment is necessary.
5. Return the choke adjusting screw to its original position or clockwise until it touches the choke lever. **If the choke rod has movement**, bend the engaging tab in the direction away from the choke adjusting screw until there is no choke rod movement.
6. In the event that bending the tab fails to remove all choke rod movement, partially straighten out the bend in the choke rod. This bend is near the governor arm.
7. The choke adjusting screw, when properly adjusted, stops excessive force from being exerted on the choke actuator.



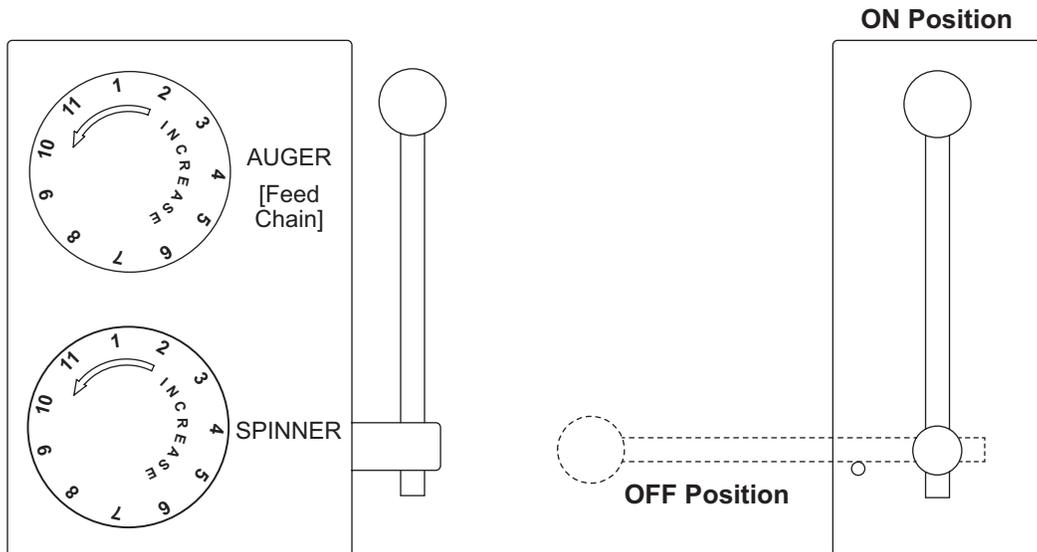
# OPERATING THE SPREADER—HYDRAULIC MODELS

The hydraulic units operate from the truck-mounted hydraulics and should be installed by an authorized dealer. The dual-motor hydraulic-drive system allows the operator to control the spinner and conveyor chain independently.

The illustration shows a representative dual-motor control valve available as an accessory through your authorized dealer. Your control may look different; refer to the operation instructions provided by the installer of your specific system.

## OPERATING THE CAB CONTROL

1. Engage the hydraulic system with the spreader lever in the "OFF" position.
2. To turn the spreader on, move the lever to the "ON" position. The spinner and conveyor should begin to turn.
3. The spinner and auger speeds are independently adjusted by rotating the adjustment knobs. The knobs can be adjusted either during operation or with lever in the "OFF" position. The speed settings will be maintained when the lever is placed in the "OFF" position.



# SPREADING MATERIAL

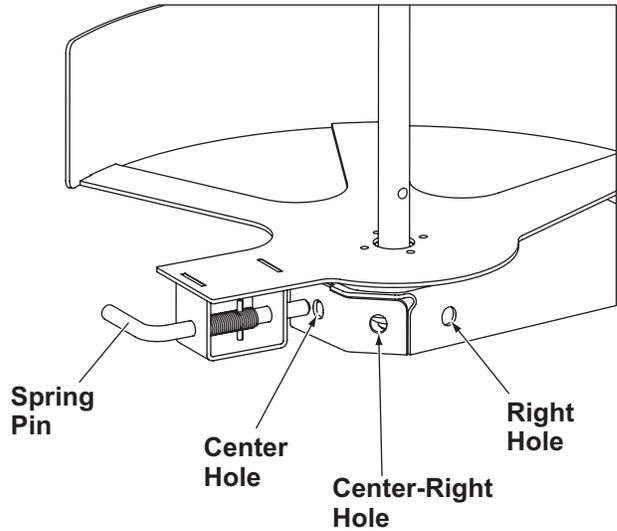
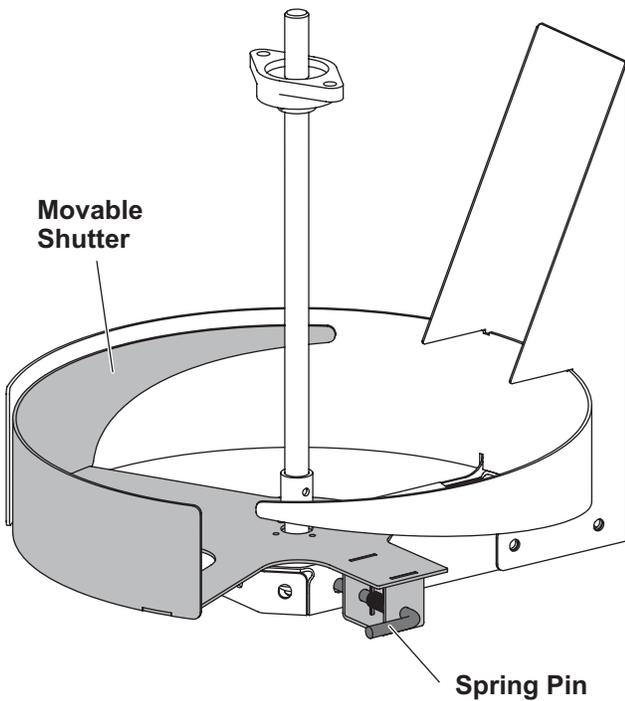
## SPREAD PATTERN ADJUSTMENT

The spread pattern and amount of material dispensed depend on hopper drive speed, feed gate position, and shutter setting:

- Decreasing hopper drive speed and/or gate opening will decrease the amount of material coming to the spinner.
- Increasing hopper drive speed and/or gate opening will increase the amount of material coming to the spinner.

Material flow is directed to left, right, or center by the movable shutter. Pull the spring pin located below the spinner, rotate the spinner assembly, and reinsert the pin in the appropriate hole.

- *Spring pin in the left and center-left holes:* Shutter directs material to the left (driver's) side of vehicle.
- *Spring pin in the center hole:* Shutter directs material evenly to both sides of vehicle.
- *Spring pin in the right and center-right holes:* Shutter directs material to the right (curb) side of vehicle.

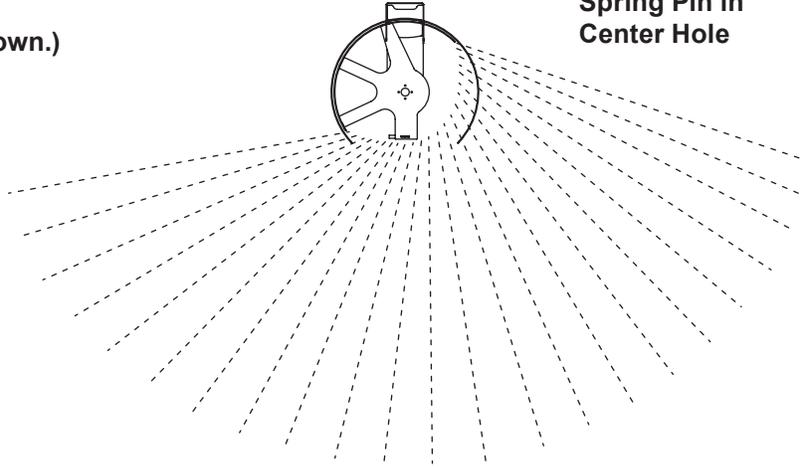


# SPREADING MATERIAL

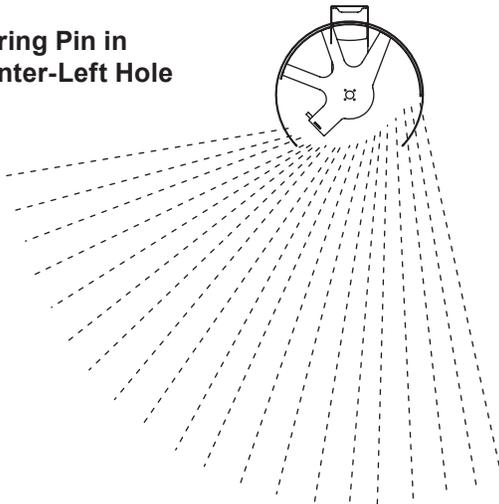
## Material Spread Pattern

(Spinner disc not shown.)

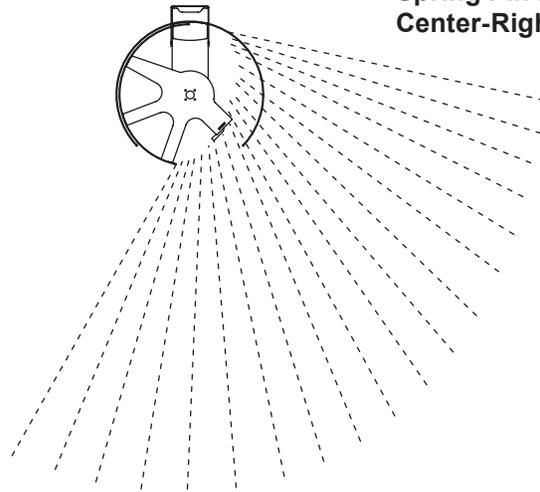
Spring Pin in  
Center Hole



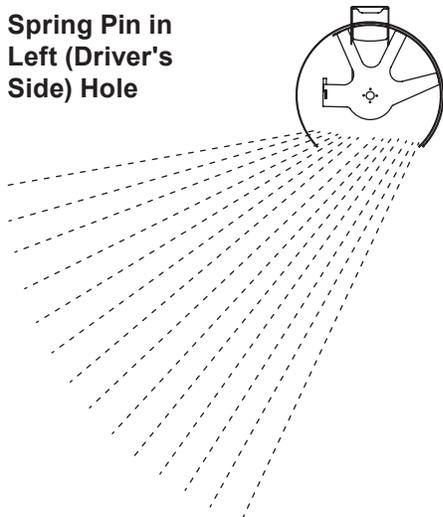
Spring Pin in  
Center-Left Hole



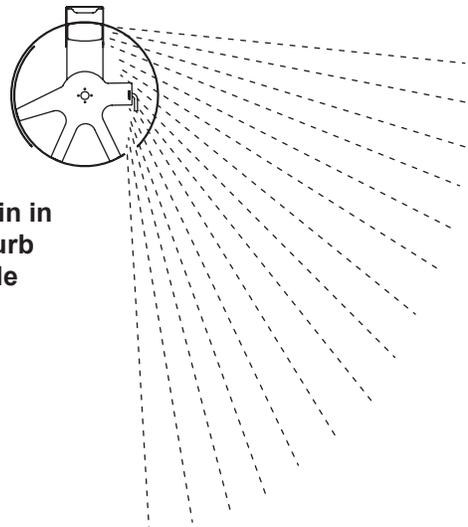
Spring Pin in  
Center-Right Hole



Spring Pin in  
Left (Driver's  
Side) Hole



Spring Pin in  
Right (Curb  
Side) Hole



# MAINTENANCE

## ⚠ CAUTION

Disconnect electric and/or hydraulic power and tag out if required before servicing or performing maintenance.

## LUBRICATION

## ⚠ CAUTION

Over-greasing may cause seal damage. The gear case must be filled to the oil-level plug with Mobil SHC 632 or Exxon SHP 320 or equivalent synthetic gear-type lubricant. Keep the breather plug clean.

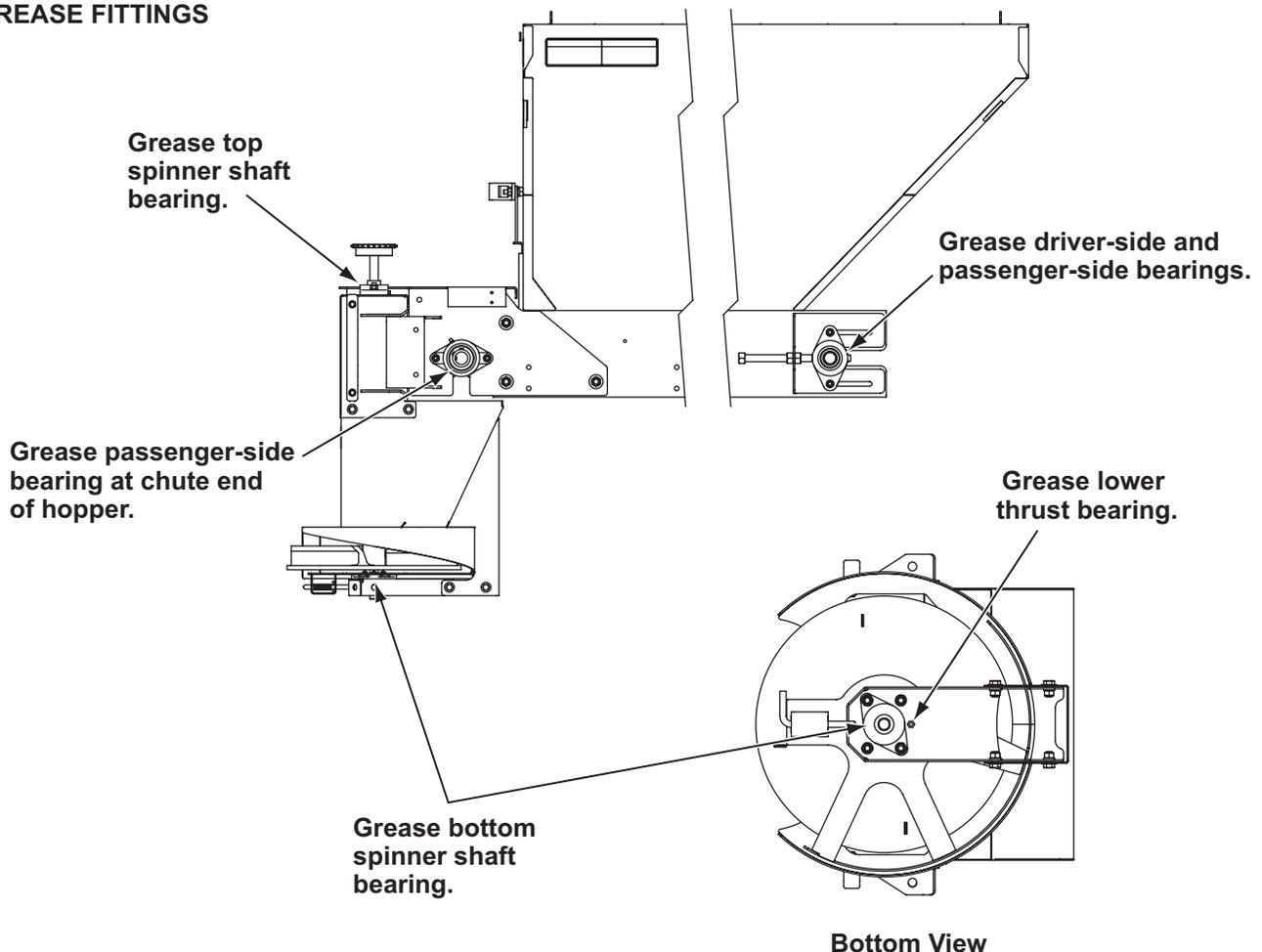
- After every 10 hours of operation, grease the idler bearings on the idler shaft, the flanged bearings on the drive shaft, and the spinner shaft bearings.

- After every 50 hours of operation, grease the input shaft bearing on the gear case and verify that the oil level of the gear case is level with the fill hole.
- Change the chain drive gear case oil once a year. Drain the oil by removing the side cover of the gear case. Refill with Mobil SHC 632, Exxon SHP 320 or equivalent synthetic gear oil. Oil level should be even with the bottom of the fill hole.

## GEAR OIL SPECIFICATION

Use Mobil SHC 632 or Exxon SHP 320 or equivalent.

## GREASE FITTINGS



# MAINTENANCE

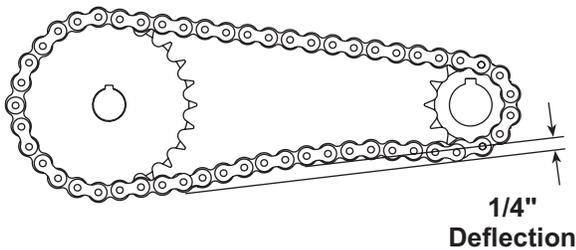
## DRIVE CHAIN AND SPINNER CHAIN

- At the beginning of each season, and once a month during the season, verify that the drive sprocket set screws and the clutch sprocket mounting bolts are tight.
- Visually inspect the drive chain for wear. If it is worn, replace the chain.

### ⚠ CAUTION

**Overtightening the roller chains may damage the bearings on the gear case and the engine. Overtightening will also shorten the life of the roller chain and of the sprockets.**

- Maintain correct chain tension. Correct tension allows for 1/4" of deflection midway between the pulleys/sprockets.



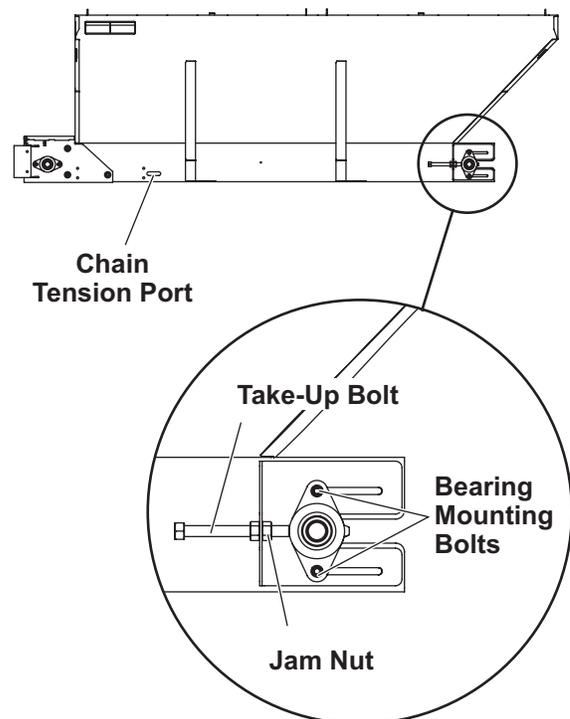
*To increase engine chain tension:* Loosen the four bolts that secure the engine mount to the engine base and pull the engine away from the clutch. After correct tension is achieved, retighten the engine mount bolts.

*Spinner chain tension* is maintained by the chain tensioner. Check the chain tensioner pivot point and lubricate as required for smooth tensioner movement.

## CONVEYOR PINTLE CHAIN TENSION

Periodically check the conveyor chain tension. The spreader should be out of the vehicle for this procedure.

1. The chain should be visible through the chain tension port. You should not be able to push the chain up or down so it goes above or below the hole. The chain should lift up 1" to 3" off the bottom of the chain sill channel. If the slack is greater than 3" and the chain goes past the port, tighten the chain as follows.
2. Loosen the two bearing mounting bolts on each side of the conveyor idle roller at the cab end of the hopper.
3. Loosen the jam nut on one of the idler take-up bolts. Tighten the take-up bolt by turning it clockwise while holding the jam nut. Repeat with the opposite take-up bolt, tightening equally on both passenger's side and driver's side until the chain is in the middle of the chain tension port.



4. Tighten the bearing mounting bolts.

# MAINTENANCE

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## ELECTRIC CLUTCH

To minimize problems and extend the life of the electric clutch, do the following:

- At the end of each snow season, remove and clean the clutch.
- After cleaning the clutch, coat both mating surfaces of the clutch with oil or light grease.
- Remove oil and grease prior to using the clutch again.

## GASOLINE ENGINE SERVICE AND REPAIR

Maintain the spreader engine according to the engine Owner's Manual that is shipped with the spreader. Engine warranty is covered by the engine manufacturer and is described in the engine manual.

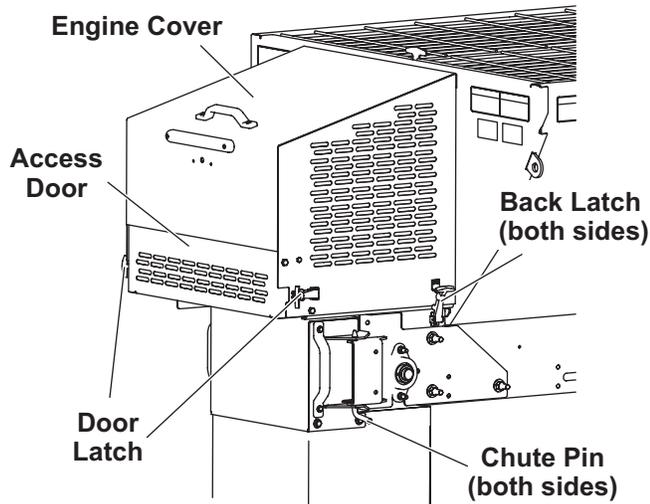
If service or repair is needed, contact an authorized engine manufacturer service center. To serve you promptly, the service center will need the make, model, type, and code number for your engine.

# MAINTENANCE

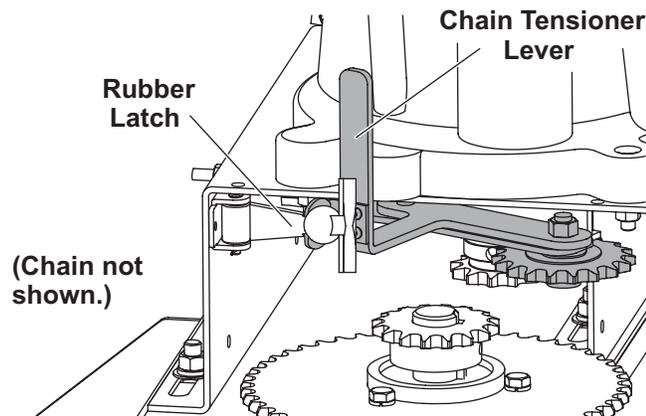
## REMOVING THE CHUTE—GAS MODELS

On gas-powered spreaders the drive chain must be disconnected before removing the chute.

1. Release the back latches and open the engine cover.



2. Release the chain tensioner rubber latch. Move the chain tensioner lever away from the motor to loosen the chain.



3. Remove the chain. Clean the chain and lubricate it with good-quality multipurpose grease. Store the chain in a plastic bag.
4. Replace the engine cover and close both back latches.
5. Unlatch the access door. Lift the door and slide it inward to hold it open.
6. Remove and retain the chute pins and cotter pins.
7. Remove the chute. Two people are recommended for this step.
8. Store the chute in a horizontal position. Insert the chute pins through the chute hinge plates and secure them with the cotter pins.

## REMOVING THE CHUTE—HYDRAULIC MODELS

1. Disconnect the hydraulic hoses from the spinner motor.
2. Remove and retain the chute pins and cotter pins.
3. Remove the chute. Two people are recommended for this step.
4. Store the chute in a horizontal position. Insert the chute pins through the chute hinge plates and secure them with the cotter pins.

# MAINTENANCE

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## AFTER EACH USE

### **⚠ CAUTION**

**DO NOT leave unused material in hopper. Material can freeze or solidify, causing unit to not work properly. Empty and clean after each use.**

- Wash out the hopper and rinse off all external surfaces.
- Clean out any trapped/frozen material from between the pintle chain and the vehicle bed surface.
- Apply dielectric grease on all electrical connections to prevent corrosion at the beginning and end of the season and after each use.
- Lubricate all grease fittings with good-quality multipurpose grease after every 10 hours of operation.

## STORAGE

The spreader can be stored in truck position on blocks or stands. Make sure the stands or supports are stable and the ground beneath is compacted enough that it will not shift over time.

### **⚠ CAUTION**

**Before lifting, verify that the hopper is empty of material. The lifting device must be able to support the spreader's weight as shown in the spreader specifications table.**

1. Remove the chute from the hopper body. (See "Removing the Chute.") Store the chute in a horizontal position. It may be placed inside or on top of the hopper if desired.
2. Remove the hopper mounting bolts and tie-downs.
3. Attach slings to the four corner lift points and, using a hoist, lift the hopper out of the vehicle. Move the spreader to the storage location with the hoist or lower it onto blocks and use a forklift to move it to a secure location.
4. The hopper body should be slightly tilted toward the chute end to keep any rainwater from pooling in the hopper.
5. Block the spreader so it is stable.

# MAINTENANCE

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## **At the End of Each Season or After Extended Storage**

- Wash out the hopper and rinse off all external surfaces.
- Apply dielectric grease on all electrical connections to prevent corrosion.
- Lubricate all grease fittings with good-quality multipurpose grease.
- Clean the drive chain and spinner chain and lubricate them with good-quality multipurpose grease.
- Oil or paint any chipped or bare surfaces that are not stainless steel.

## **FUSE REPLACEMENT**

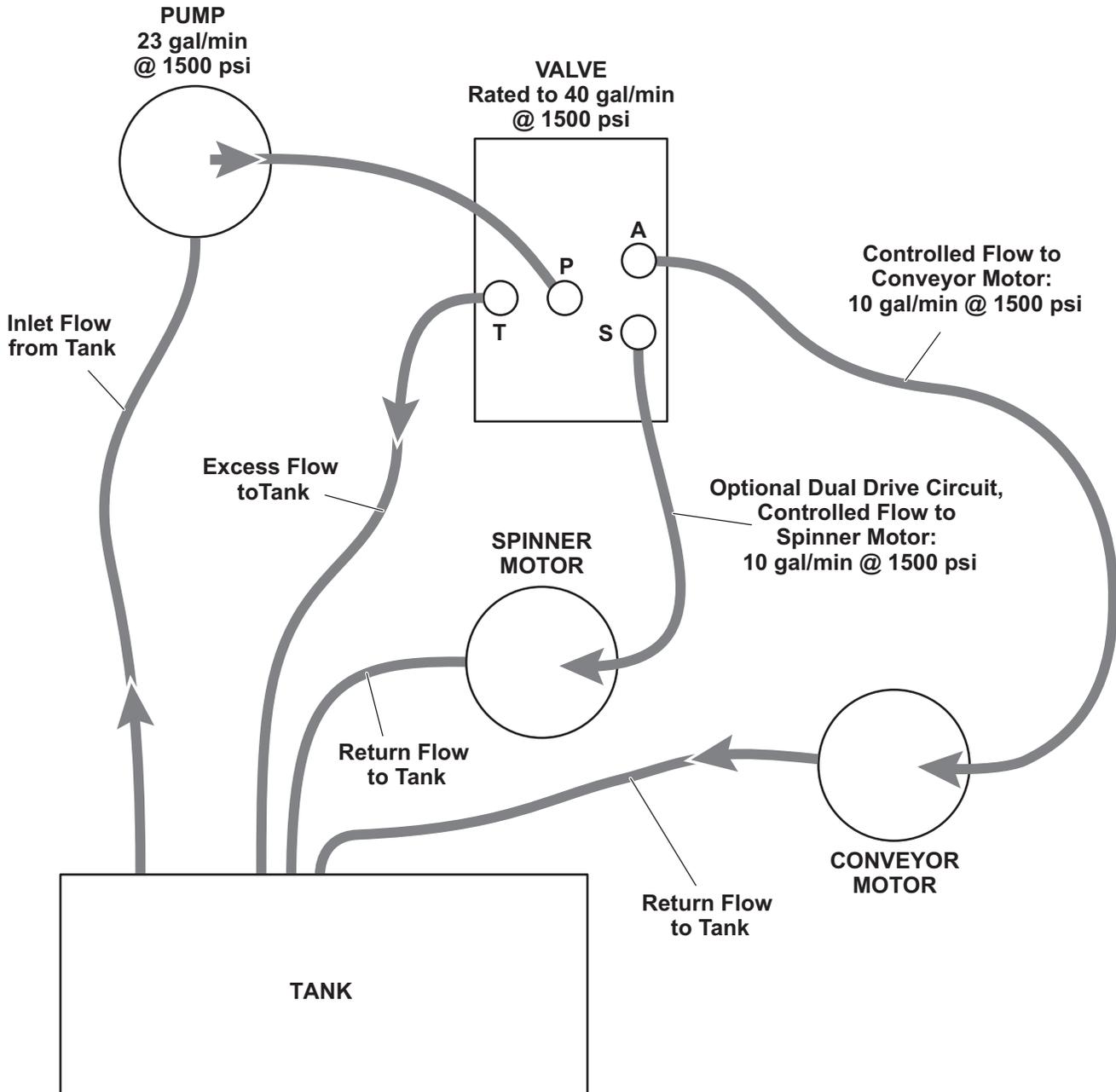
If a problem should occur and fuse replacement is necessary, the replacement fuse must be of the same type and amperage rating as the original. Installing a fuse with a higher rating can damage the system and could start a fire.

## **RECYCLE**

When your spreader has performed its useful life, many of its components can be recycled as steel. Gear oil shall be disposed of according to local regulations.

# DUAL HYDRAULIC CIRCUIT DIAGRAM

## Typical Hydraulic Circuit Dedicated Fixed Displacement Pump



## TROUBLESHOOTING GUIDE

<b>Gas Models</b>		
<b>Problem</b>	<b>Possible Cause</b>	<b>Suggested Solution</b>
<b>No power to cab control.</b> Ignition and control switches ON; Engine On light not illuminated.	1. Control connector plug is loose.	1. Check plug connection at cab control.
	2. Switched accessory connection is poor or faulty battery.	2a. Check for low battery. 2b. Check switched accessory connection.
	3. Vehicle control harness is damaged.	3. Repair or replace damaged wires or harness as required.
<b>Speed control does not change engine speed.</b>	1. Malfunctioning cab control.	1. Replace cab control.
	2. Malfunctioning throttle motor.	2a. Check connections. 2b. Replace throttle motor.
<b>Spreader does not operate.</b> Engine On light is illuminated.	1. Malfunctioning electric clutch.	1a. Check electric clutch function and power to clutch. 1b. Replace electric clutch.
	2. Wire harness is damaged or has an open circuit between cab control and spreader.	2a. Check plug connections at cab control and spreader. Check wire connections at battery. 2b. Repair or replace damaged wires and connectors. 2c. Check the in-line fuse. Replace if necessary.
<b>Spinner does not turn.</b> Engine is running.	<b>Unplug the spreader harness and tag out, if required, before performing any of the following repairs.</b>	
	1. Obstruction is preventing rotation.	1. Clear obstruction.
	2. Drive chain is loose or damaged.	2. Adjust the tension or replace the chain if it is worn or damaged.
	3. Spinner sprocket is not secured to spinner shaft.	3. Tighten the sprocket set screw or replace the sprocket if it is damaged.
	4. Spinner shaft bearings are dry or seized.	4. Grease or replace bearings.
	5. Malfunctioning electric clutch.	5a. Check electric clutch function and power to clutch. 5b. Replace electric clutch.

<b>Hydraulic Models</b>		
<b>Problem</b>	<b>Possible Cause</b>	<b>Suggested Solution</b>
<b>Unit speed does not increase with the dial setting.</b>	1. Insufficient fluid flow to hydraulic motors.	1a. Increase the truck engine speed. 1b. Check for adequate PTO percent. 1c. Check condition of pump.
<b>Unit stalls under load.</b>	1. Obstruction is preventing rotation.	1. Check circuit pressure: 900–1200 psi maximum, with relief valve lifting at 1500 psi.
<b>Unit speed fluctuates momentarily when control is first turned ON.</b>	1. Hydraulic fluid is cold.	1a. Wait until fluid has warmed up. 1b. Change to lighter-weight fluid.
<b>Pump blows seals at start-up.</b>	1. Pump installed backward.	1. Replace seals and reverse pump in driveline. (Note arrow on pump.)

## TROUBLESHOOTING GUIDE

All Models		
Problem	Possible Cause	Suggested Solution
<b>Conveyor chain not moving.</b> Spinner is turning.	<b>Unplug the spreader harness and tag out, if required, before performing any of the following repairs.</b>	
	1. Obstruction is preventing rotation.	1. Clear obstruction.
	2. Gear box is damaged.	2. Replace gear box if output shaft does not turn when motor shaft turns.
	3. Conveyor sprockets are not secured to shafts.	3. Replace or tighten set screws. Replace shafts or sprockets if damaged.
	4. Conveyor pintle chain is loose or damaged.	4. Adjust pintle chain tension. Replace pintle chain if damaged.
	5. Conveyor pintle chain is not aligned.	5. Align pintle chain to ride centered on rollers.
	6. Conveyor pintle chain shaft bearings are seized or otherwise damaged.	6. Grease or replace bearings.
<b>Material in hopper does not flow.</b> Conveyor pintle chain and spinner are moving.	<b>Unplug the spreader harness and tag out, if required, before performing any of the following repairs.</b>	
	1. Feed gate is closed.	1. Open feed gate fully, then adjust to desired opening size.
	2. Obstruction in hopper.	2. Clear obstruction.
	3. Material is bridged.	3. Clear the bridged material.





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