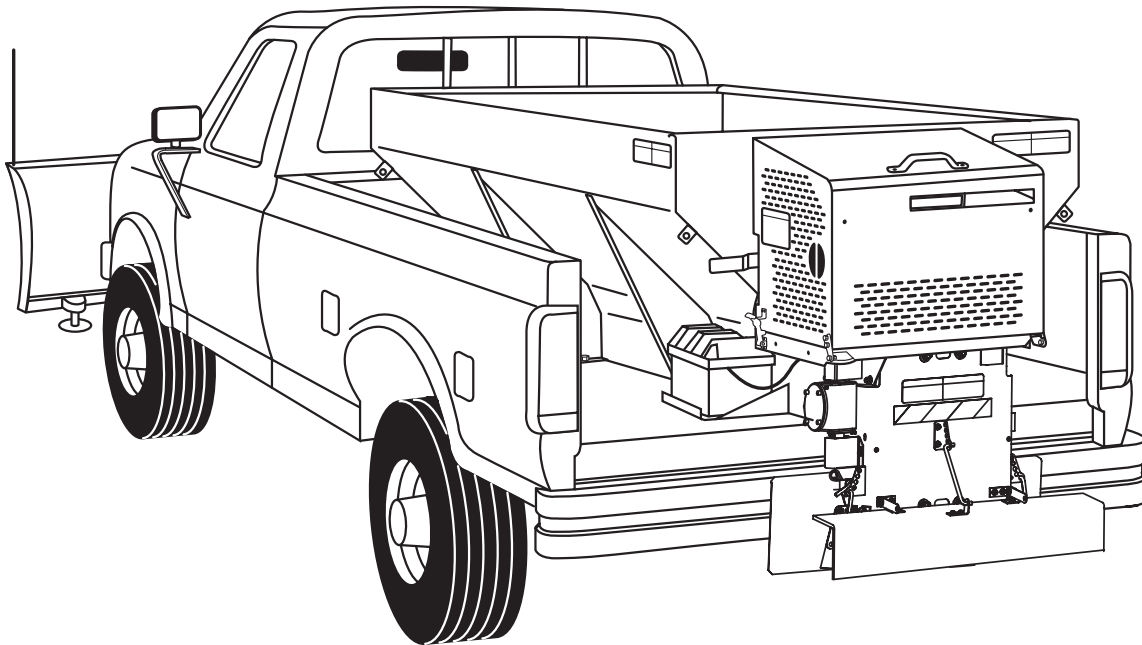




Regular and High Capacity ICE BREAKER™ Hopper Spreader Installation Instructions



⚠ CAUTION

Read this manual and engine owner's manual
before installing or operating the spreader.

This manual is for WESTERN® ICE BREAKER™ Hopper Spreaders with serial numbers beginning with 0609 and higher.

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SAFETY INFORMATION

⚠ 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 snowplow and vehicle or other property. Other useful information can also be described.

Before You Begin

Park the vehicle on a level surface, place shift lever in PARK or NEUTRAL and set the parking brake. Turn off the engine and remove keys.

⚠ 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 all safety guards are in place.
- Before servicing the spreader, wait for conveyor 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 door cornerpost of the vehicle. See Loading Section to determine maximum volumes of spreading material.

⚠ WARNING

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

⚠ WARNING

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

⚠ 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 spreader 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.
- 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 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 multi-purpose grease.

SAFETY INFORMATION

⚠ CAUTION

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

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




⚠ WARNING

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

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 (Ft.-Lb.)			
Size	 SAE Grade 2	 SAE Grade 5	 SAE Grade 8
1/4-20	6	9	13
5/16-18	11	18	28
3/8-16	19	31	46
3/8-24	24	46	68
7/16-14	30	50	75
1/2-13	45	75	115
9/16-12	66	110	165
5/8-11	93	150	225
3/4-10	150	250	370
7/8-9	150	378	591
1-8	220	583	893
Metric Grade 8.8 (Ft.-Lb.)			
Size	Torque	Size	Torque
M 6	7	M 12	60
M 8	17	M 14	95
M 10	35	M 16	155
These torque values apply to fasteners except those noted in the instruction.			

SAFETY INFORMATION

Gasoline Warning Label

WARNING

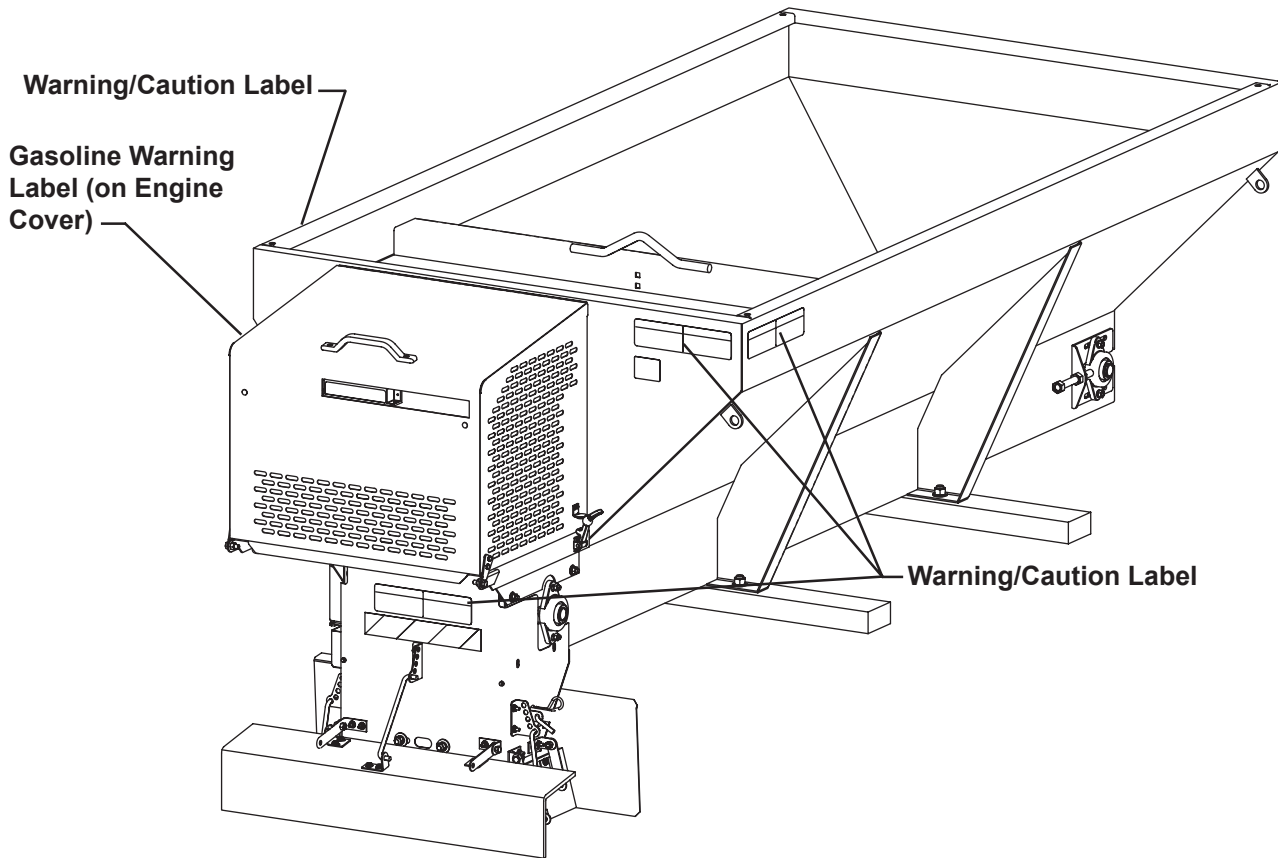
Gasoline is flammable.

- 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.

W65007/F9131

Please become familiar with the Warning and Caution labels on the spreader!

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



Warning/Caution Label

WARNING	CAUTION
<ul style="list-style-type: none"> • DO NOT EXCEED GVWR OR GAWR WITH SPREADER AND LOAD. • TURN OFF SPREADER BEFORE FILLING, ADJUSTING, OR CLEANING. • BYSTANDERS TO STAY A MINIMUM OF 25 FEET AWAY FROM OPERATING SPREADER. • DO NOT CLIMB INTO OR RIDE ON SPREADER. • KEEP HANDS, FEET, CLOTHING AWAY FROM MOVING CONVEYOR AND SPINNER. 	<ul style="list-style-type: none"> • READ OWNER'S MANUAL AND ENGINE MANUAL BEFORE OPERATING OR SERVICING SPREADER. • EMPTY AND CLEAN SPREADER AFTER EACH USE.

68595

LOADING

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

⚠ WARNING

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

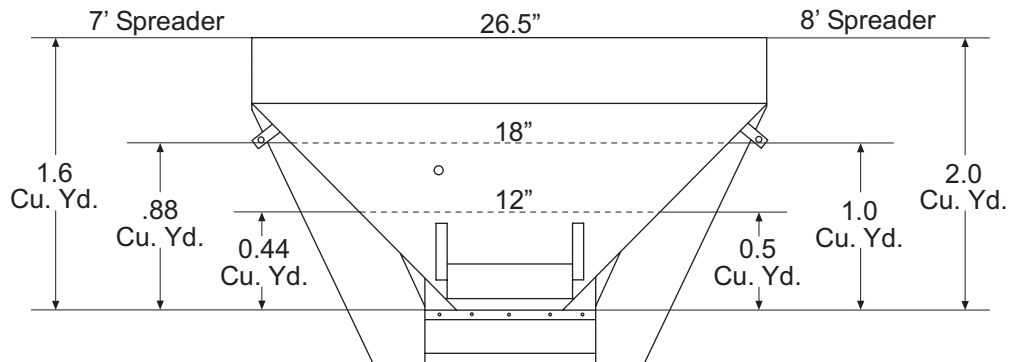
Certification

NOTE: All new untitled vehicle installations require National Highway Traffic Safety Administration (NHTSA) Altered Vehicle Certification Labeling. Installer to verify struck load of snow or ice control material does not exceed vehicle GVWR or GAWR ratings.

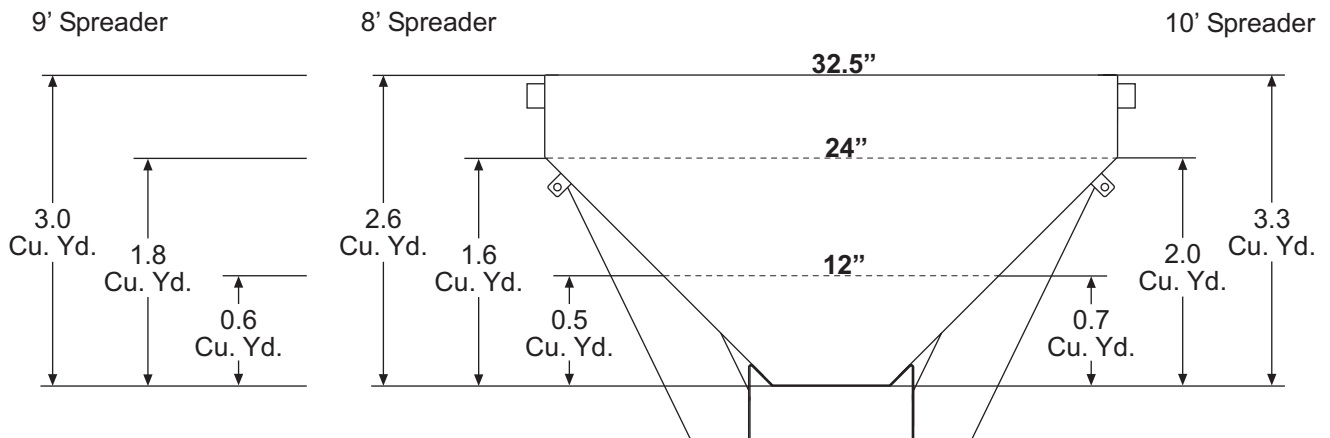
Material Weights

Material	Density (lb. per cubic yd.)
Fine Salt - Dry	1,350
Coarse Salt - Dry	1,215
Coarse Sand - Dry	2,700
Coarse Sand - Wet	3,240
Cinders	1,080

Regular Capacity Load Volume



High Capacity Load Volume



SPREADER MOUNTING INSTRUCTIONS

Mounting the Spreader onto the Vehicle

NOTE: Periodically through the snow season, verify the mounting devices are secure.

1. Remove the tailgate from the truck.

⚠ WARNING

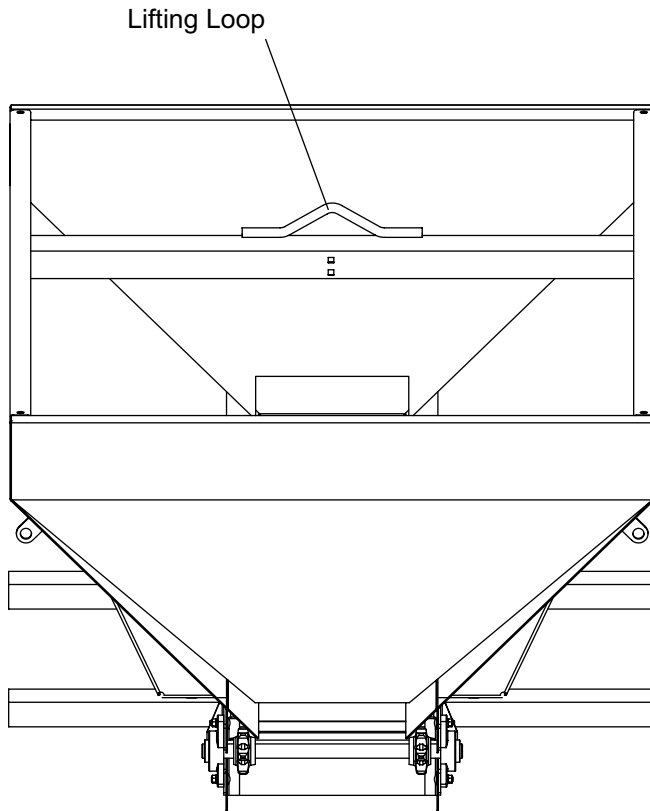
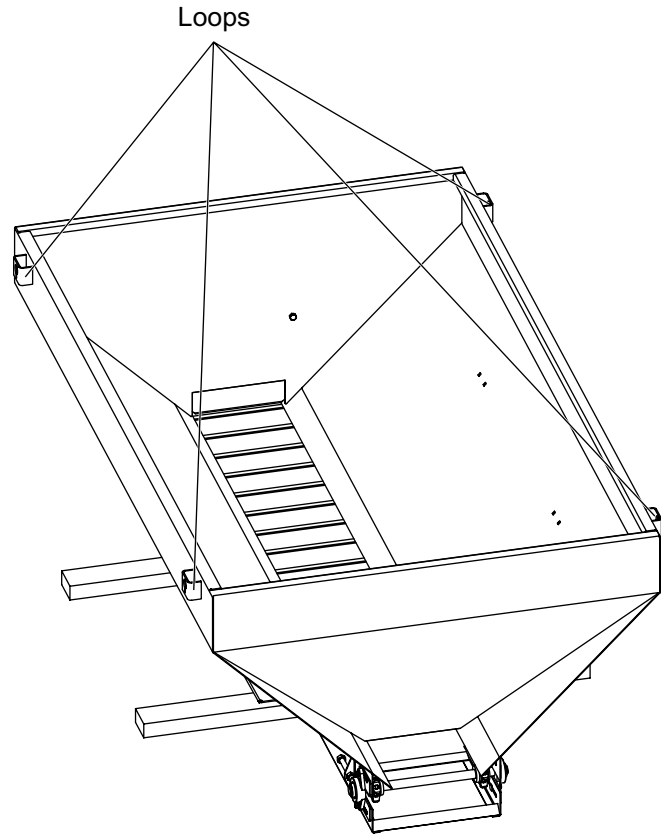
Before lifting, verify hopper is empty of material. The lifting device must be able to support the spreader's weight.

2. Lift the spreader. See appropriate instructions below.

Regular Capacity: Lift spreader by hooking the loop located on rear cross channel inside hopper.

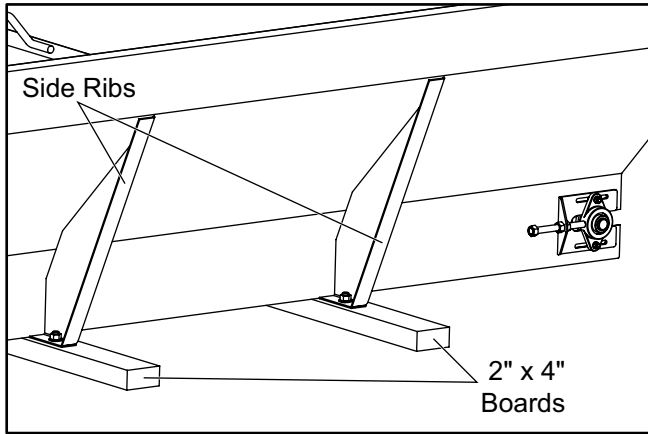
NOTE: The loop is located at the approximate balance point of the spreader. The balance point may vary with engine fluid levels, battery, top screen, or residual material in hopper.

High Capacity: Lift spreader by hooking all four loops located at the corners of the hopper.

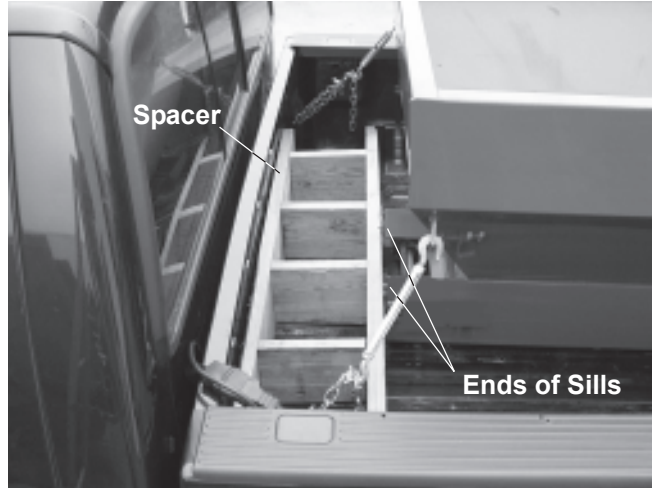
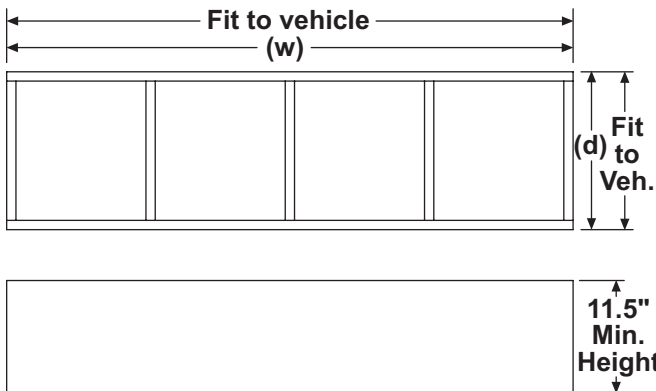


SPREADER MOUNTING INSTRUCTIONS

- Before lowering the spreader, place lengths of lumber (2" x 4" x 48" minimum) under the side ribs. By elevating the spreader off of the vehicle, it is easier to remove excess material that accumulates under the spreader.



- Center the spreader on the vehicle with the end of the spreader sills 11" to the rear of the nearest vertical obstructions (bumper, trailer hitch, etc.).
- Measure the distance from the front of the truck bed to the sills and make a spacer to place between the bed and the rails.



⚠ WARNING

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

- Bolt the spreader to the vehicle frame through the lengths of lumber using the holes located at each lower support leg. Use 1/2" hardware as required by vehicle application. If 2 x 4's 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.

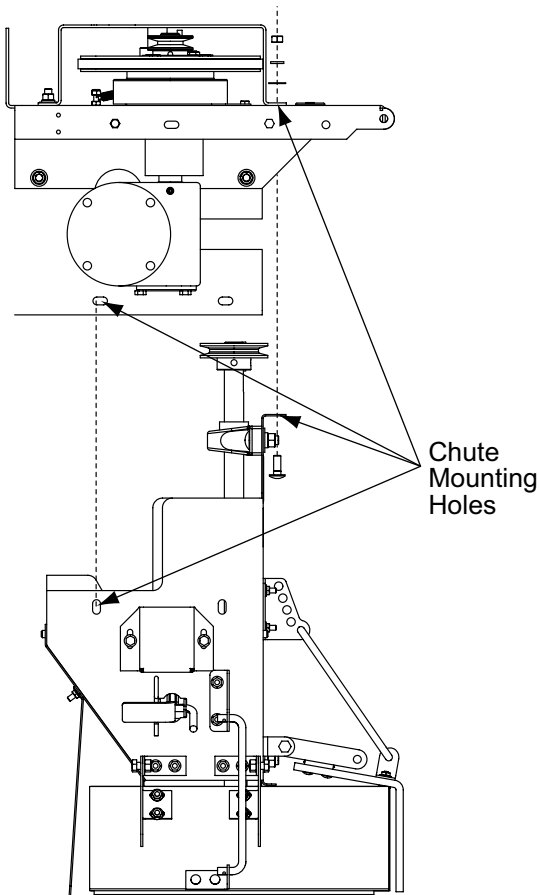
CHUTE ATTACHMENT INSTRUCTIONS

Chute Assembly – Center Belt Drive

NOTE: Chute Assembly is a two person activity.

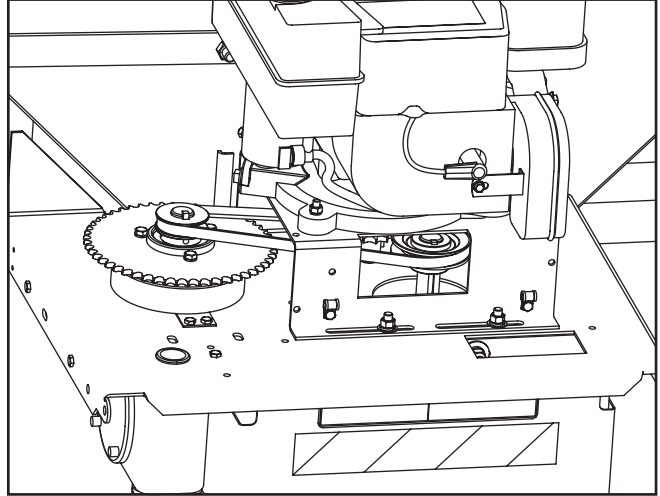
NOTE: For an alternate chute mounting procedure, see instructions for mounting to a hydraulic hopper.

1. **26" Chute Only** - Remove the access panel on the back of the chute housing.
2. Loosely attach the chute assembly using four 3/8" x 1" carriage bolts, flat washers, lock washers, and nuts with the heads of the bolts on the inside of the chute.



3. Push the chute assembly toward the front of the vehicle. **DO NOT** tighten the bolts at this time.

4. Install the belt between the spinner shaft pulley and the gear case pulley. Raise chute up to bottom of engine base and tighten four mounting bolts.



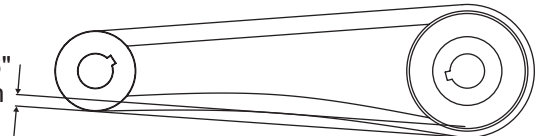
5. Verify the pulleys are in line, *the set screws are tight*, and there is adequate clearance between the pulley and the engine mount.

⚠ CAUTION

Over-tightening the belts may damage the bearings on the gear case, the engine, and/or the spinner shaft. Over-tightening will also shorten the life of the belt.

6. To adjust belt tension, loosen the spinner shaft bearing bolts and move the spinner shaft away from the gear case. Correct belt tension allows 1/4" to 5/16" deflection midway between the pulleys when belt is pushed with your finger. Make sure the spinner shaft is vertical and the pulleys are lined up before retightening the fasteners.

1/4" - 5/16"
Deflection



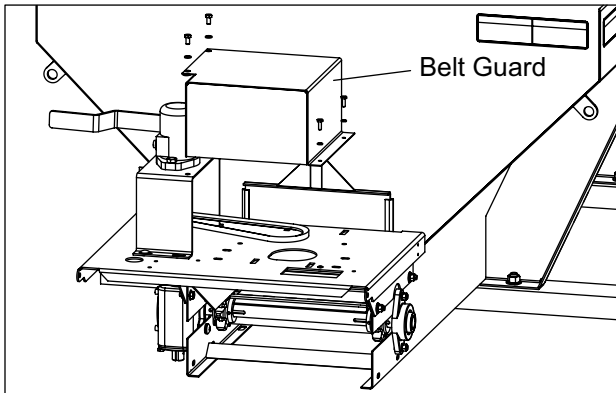
7. **26" Chute Only** - Secure the access panel onto the chute housing.
8. Tighten all fasteners according to the torque chart.

CHUTE ATTACHMENT INSTRUCTIONS

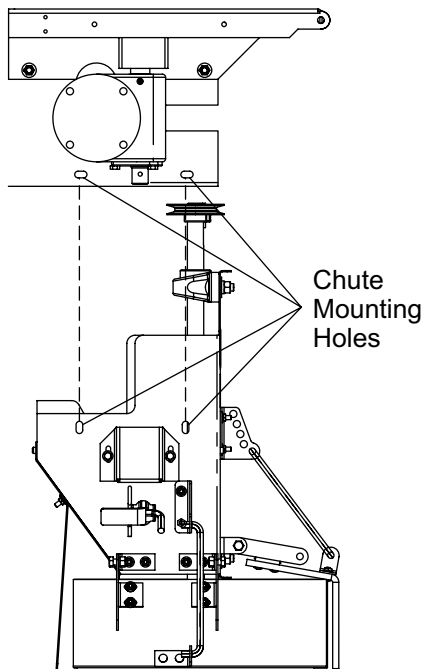
Chute Assembly – Center Belt Drive Hydraulic Hopper

NOTE: Chute Assembly is a two person activity.

1. **26" Chute Only** - Remove the access panel on the back of the chute housing.
2. Remove belt guard from hopper.



3. Loosely attach the chute assembly using four 3/8" x 1" carriage bolts, flat washers, lock washers, and nuts with the heads of the bolts on the inside of the chute.

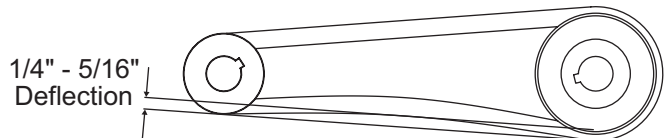


4. Push the chute assembly toward the front of the vehicle. DO NOT tighten the bolts at this time.
5. Install the belt between the spinner shaft pulley and the gear case pulley. Raise chute up to bottom of engine base and tighten four mounting bolts.
6. Verify the pulleys are in line and *the set screws are tight*. (You may have to lower the pulley on the chute about 2 inches).

⚠ CAUTION

Over-tightening the belts may damage the bearings on the gear case, the engine, and/or the spinner shaft. Over-tightening will also shorten the life of the belt.

7. To adjust belt tension, loosen the spinner shaft bearing bolts and move the spinner shaft away from the gear case. Correct belt tension allows 1/4" to 5/16" deflection midway between the pulleys when belt is pushed with your finger. Make sure the spinner shaft is vertical and the pulleys are lined up before retightening the fasteners.



8. Additional belt tension may be applied by pulling the chute assembly toward the rear.
9. Install belt guard.
10. **26" Chute Only** - Secure the access panel onto the chute housing.
11. Tighten all fasteners according to the torque chart.

WIRING AND HARNESS PLUG INSTRUCTIONS

Wiring Instructions

To properly wire the hopper spreader, please adhere to the following recommended installation sequence.

1. Install either the Spreader or Vehicle Battery Kit per the instructions included with the kit.
2. Install the vehicle harness included with the spreader per the following instructions.
3. Install the cab control per the instructions included with the cab control.

Vehicle Harness Installation

All spreaders are shipped from the factory with the spreader harness wired to the engine, clutch, and electric throttle.

NOTE: Use dielectric grease on all electrical connections.

1. Plug the vehicle harness into the spreader harness.
2. Lay out a path for routing the vehicle harness into the cab of the truck. Make sure the vehicle harness avoids any hot or moving parts of the truck. Routing will vary from truck to truck.
3. Identify a convenient location for the cab control that can be reached by the harnesses and wiring.

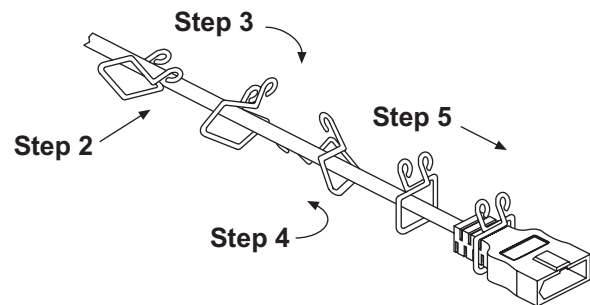
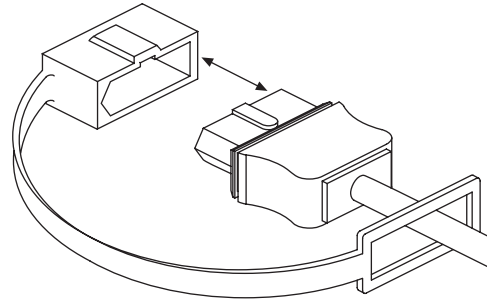
⚠ CAUTION

Before drilling any holes, check both sides of the material for any wires, fuel lines, fuel tanks, etc. that may be damaged by drilling.

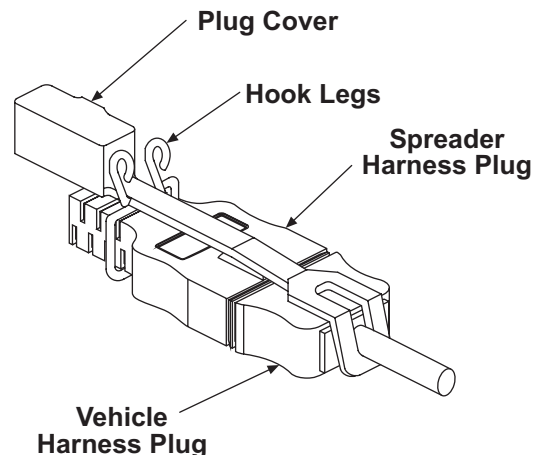
4. Drill a 5/8" hole in the fire wall so that the vehicle harness can reach the desired cab control location.
5. Insert the rubber grommet into the hole.
6. Route the harness to the desired location.
7. Secure the vehicle harness to the truck. Verify that the harness cannot drop onto the road when it is disconnected from the spreader.

Harness Plug and Hook Instructions

1. Install the plug cover as shown.



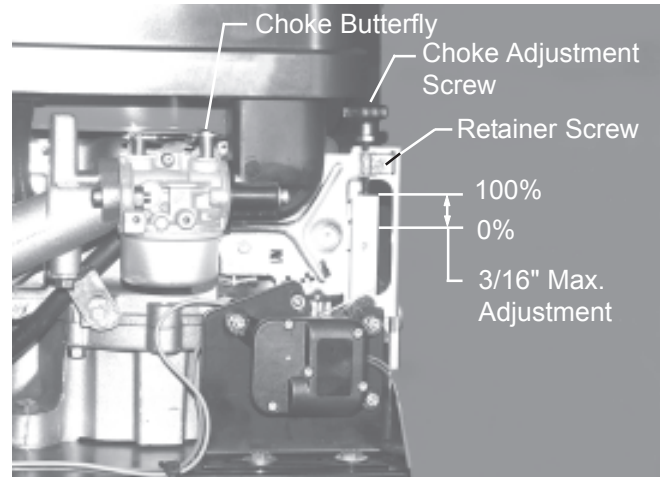
2. Position the legs of the hook over the spreader harness.
3. Twist the hook to spread the wire.
4. Rotate the hook and push over the spreader harness.
5. Squeeze the legs of the hook together and slide the hook over the spreader harness plug.
6. After connecting the spreader harness plug with the vehicle harness plug, secure the plug cover into the legs of the hook.



CHOKE ADJUSTMENT PROCEDURE

Tecumseh Choke Adjustment Procedure

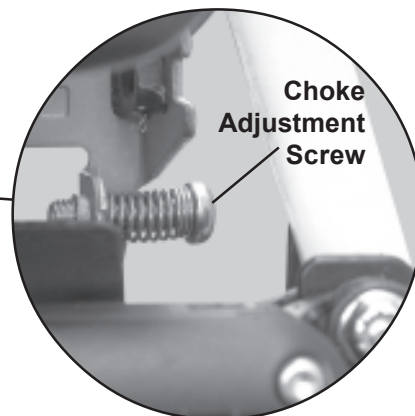
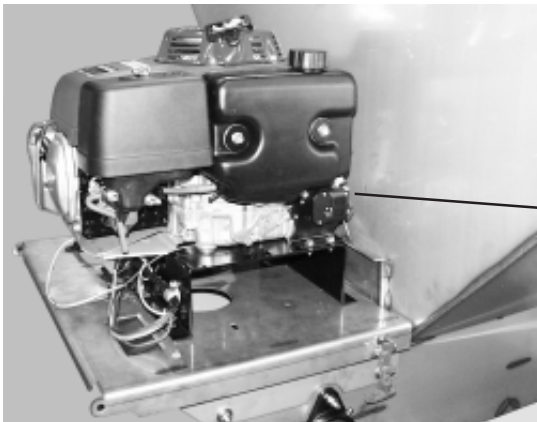
1. The choke linkage and choke adjustment screw is shipped from the factory with the choke butterfly set to **75% fully closed choke**.
2. With the choke set at 100% the engine will not stay running in the choked position. This position is for *extremely* cold conditions. Throttle linkage travel from 0% to 100% choke is 3/16". Four and one-half turns of the Choke Adjustment Screw (clockwise when viewed from above the engine) will take the maximum choke setting from fully closed to fully open (no choking at all).
3. To adjust your choke setting loosen the adjustment retainer screw and rotate the Choke Adjustment Screw clockwise one full turn (scratch a mark on the knob to indicate position). This will generally allow the engine to run very roughly with the throttle linkage at maximum choke. This is approximately the equivalent of 75% fully closed choke. **(This is the factory setting.)**



4. Additional adjustments can be made by 1/4 turn increments until you reach the desired start/run in choke setting of your preference/need.

Honda Choke Adjustment Procedure

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 throttle control to full choke position.
3. Turn choke adjusting screw counter-clockwise five to seven turns.
4. Attempt to move 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 choke lever.
6. If the choke rod has movement, bend engaging tab in the direction away from choke adjusting screw until there is no choke rod movement.
7. In the event 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.
8. The choke adjusting screw, when properly adjusted, stops excessive force from being exerted on the choke actuator.



HYDRAULIC UNIT INSTALLATION INSTRUCTIONS

Hydraulic Unit Installation

Recommended sequence of installation is as follows:

1. Pump (not provided).
2. Install hydraulic reservoir.
3. Install cab control valve (optional).
4. Install hydraulic hoses (not provided).
5. Fill hydraulic reservoir and check system.

Pump

Because of the wide range of possible installations of this hopper spreader, no pump is supplied with the unit. If your truck does not have a pump suitable to your application, one may be purchased from a local truck equipment supplier. This pump should produce 9 GPM at 1,500 PSI at normal operating speed and have 1" NPT suction and discharge ports.

Hydraulic Reservoir Installation

Position the reservoir outlet as high, or higher than, the pump inlet. Keep the hose distance as short as possible. (Reservoir used should have a capacity of 1-1/2 to 2 times the pump maximum flow rate in gpm.)

Cab Control Valve Installation

1. With the seat fully forward, select a suitable location to mount the cab control valve allowing for the operator to adjust the control and to turn it ON and OFF.
2. Check for clearance with ALL controls in the cab.
3. Under the cab, check for interference with transmission, etc.
4. Check to see that the cab control valve location does not interfere with entering or leaving cab.
5. Fabricate a bracket to mount cab control valve in selected location.
6. Insert a grommet into all holes drilled for this installation.
7. Mount valve and plumb pump and motor to valve.

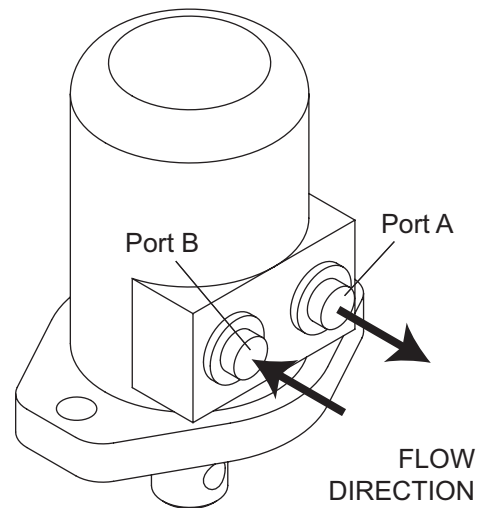
For single hydraulic motor and valve option:

Plumb Port "T" to reservoir, Port "P" to pressure side of pump, and Port "REG" of the valve to Port "B" of the gearbox motor.

For dual hydraulic motor and valve option:

Plumb Port "Auger" to Port "B" of gearbox motor and Port "Spinner" to Port "B" of spinner motor.

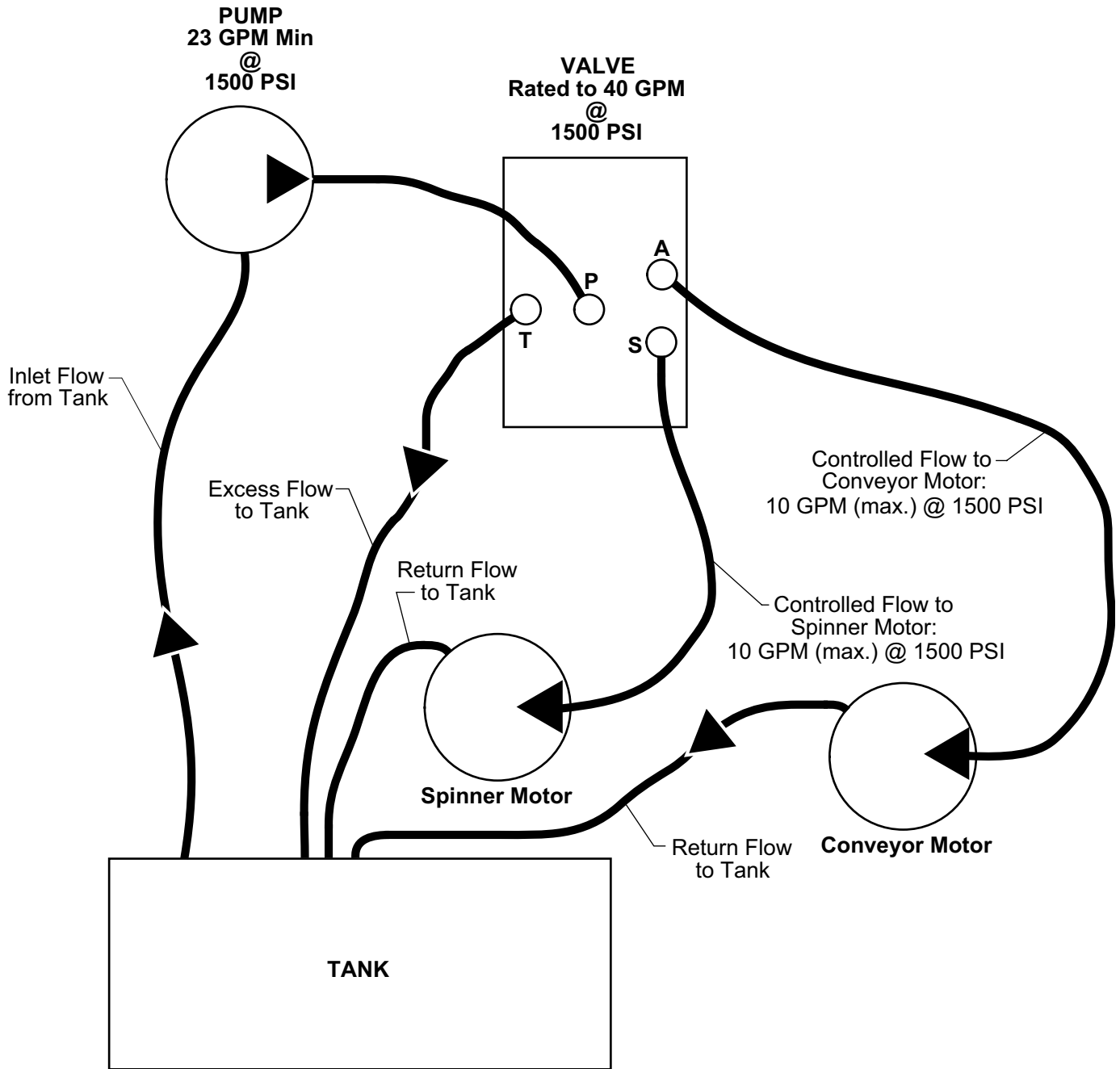
8. Check machine for proper rotation of drive shafts and hydraulic leaks.



Hydraulic Motor Plumbing

DUAL HYDRAULIC CIRCUIT DIAGRAM

Typical Hydraulic Circuit Dedicated Fixed Displacement Pump



FINAL ADJUSTMENTS

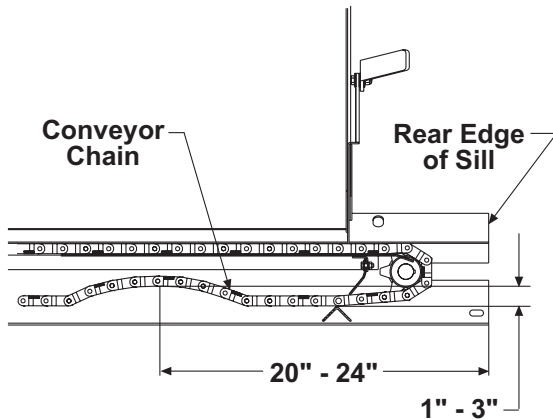
Drive Chain and Conveyor Chain

Check engine to electric clutch chain tension and clutch to spinner pulley belt tension. Correct tension allows 1/4" – 5/16" deflection midway between the pulleys.

To increase spinner belt tension: Loosen spinner bearing bolts, and pull shaft assembly away from the clutch. After correct tension is achieved, retighten the bearing bolts.

Check the conveyor chain tension. To check the tension, measure in 20"–24" from the end of the sills. Push up on the chain with your hand. The conveyor chain should lift 1"–3" off the conveyor chain guide or cross angles.

To increase chain tension: Use the two 5/8" x 6" take-up bolts at the front of the spreader to adjust conveyor chain tension. Loosen the locknuts before attempting to adjust the take-up bolts. Turn both bolts equal amounts to ensure the tension is equally distributed across both sides of the conveyor chain.



Final Checklist

- Verify correct engine oil level. (See engine manufacturers Owner's Manual.)
- Verify the gear case oil level is level with the fill hole.
- Verify correct engine-to-clutch sprocket alignment and chain tension.
- Verify correct gear case output shaft to spinner shaft alignment.
- Verify correct conveyor chain tension.
- Verify dielectric grease is applied to all electrical connections.
- Verify wire harnesses are properly secured away from hot or moving parts.
- Verify vehicle harness has sufficient ground clearance when the spreader is removed from the truck.
- Verify proper choke setting and choke light operation. See Choke Adjustment Procedure.



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