Form No. 13721

March 1999

PRO-FLO™ 2 TAILGATE SPREADER

Owner's Manual

⚠ CAUTION

Read this manual before installing or operating the spreader.

This manual is for WESTERN® PRO-FLO™2 Spreaders with serial numbers (202389 -)

TABLE OF CONTENTS

PREFACE

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

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

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.

⚠ WARNING

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

⚠ CAUTION

Indicates a situation that, if not avoided, could result in minor personal injury and/or damage to product or property.

NOTE: Identifies tips, helpful hints and maintenance information the owner/operator should know.

Before You Begin

- Park the vehicle on a level surface, place shift lever in PARK or NEUTRAL and set the parking brake.

⚠ 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 or 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.

⚠ 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

- **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.**
- **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 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: Maintain proper belt tension for correct belt functioning.

NOTE: Lubricate grease fittings after each use. Use a low temperature synthetic grease.

When tightening fasteners, refer to Torque Chart for the recommended fastener values.

Torque Chart

NC FASTENER TORQUE (FT-LB)

DIAMETER-THREADS PER INCH	GRADE G2	GRADE G5	GRADE G8
1/4 - 20	6	9	13
5/16 - 18	11	18	28
3/8 - 16	19	31	46
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

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

Caution Label

⚠ CAUTION

Do not lift spreader by wire channel. This could cause product damage and/or personal injury.

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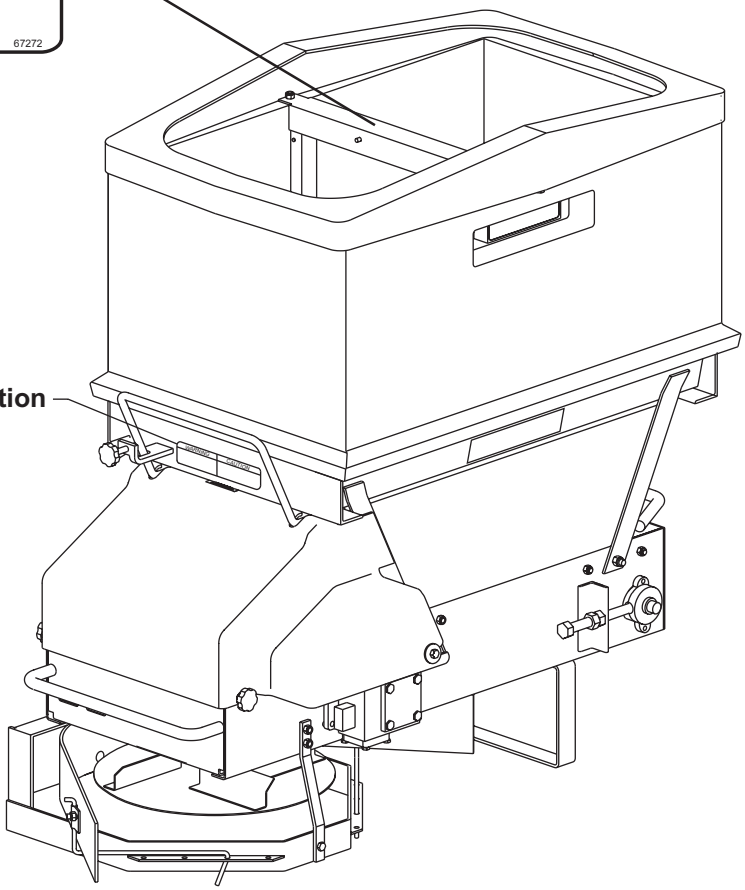
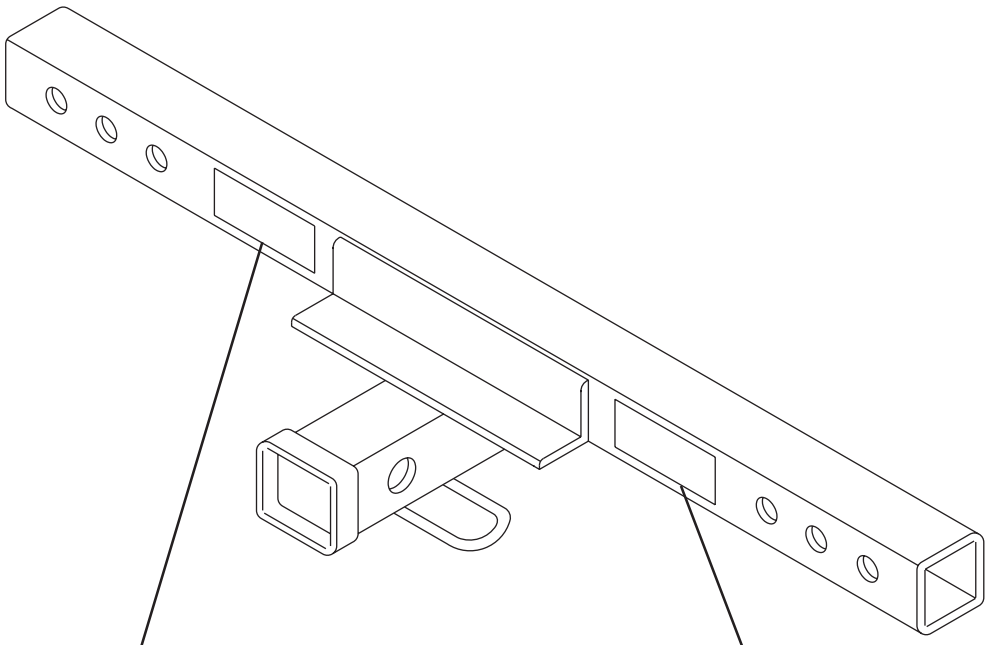


Warning/Caution Label

⚠ WARNING	⚠ CAUTION
• DO NOT EXCEED GVWR OR GAWR WITH SPREADER AND LOAD. • TURN SPREADER OFF 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.	• READ OWNER'S MANUAL BEFORE OPERATING OR SERVICING SPREADER. • EMPTY AND CLEAN SPREADER AFTER EACH USE. 68584

Under-Frame Mount Assembly Labels

The diagram below indicates the location of the safety and identification labels.



HITCH TYPE	MAX. GROSS TRAILER WEIGHT (LB.)	MAX. TONGUE WEIGHT (LB.)
WEIGHT DISTRIBUTING	10,000	1,000
WEIGHT CARRYING BALL MOUNT	10,000	1,000

67181

⚠ WARNING

DO NOT cut, drill, weld or modify this tube

67182

This Manual covers vehicles which have been recommended for carrying the spreader. The following vehicles are recommended:

- All Ford Light Duty F-Series trucks over 6000 lb. GVWR
- All Chevrolet/GMC Light Duty pick-up trucks over 6000 lb. GVWR
- All Dodge pickup trucks over 5800 lb. GVWR

Certification

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

⚠ WARNING

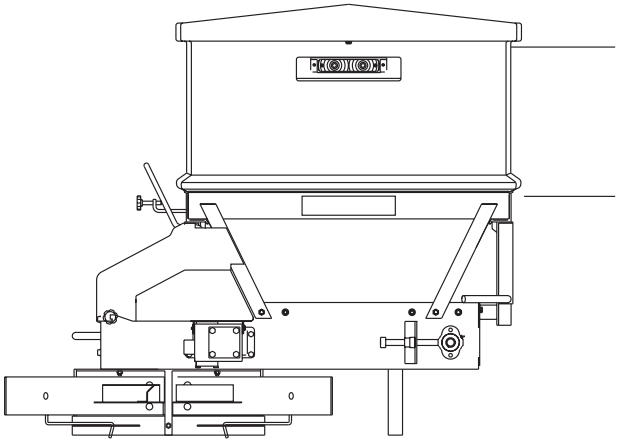
Overloading could result in an accident or damage. Do not exceed GVWR or GAWR ratings as found on the driver-side cornerpost of the vehicle.

⚠ WARNING

The use of under-frame or in-bed mounts on half-ton trucks is restricted to spreading only salt or calcium chloride. (max. 70 lb. per cu. ft.) Failure to comply could result in exceeding the payload capacity.

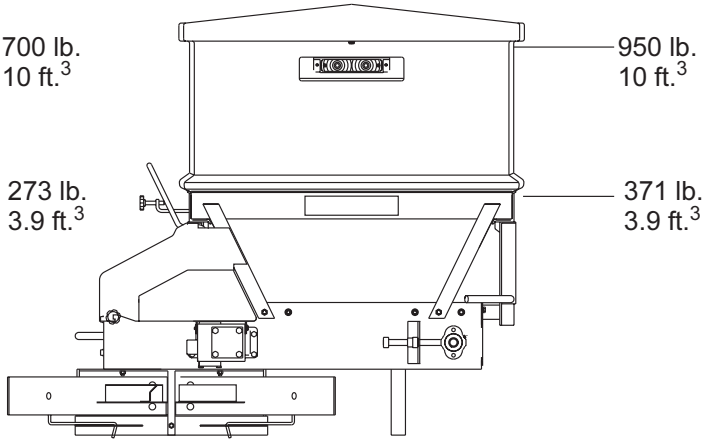
Load Weights

Approximate Salt Weight



Salt = 70 lb./ft ^{3}

Approximate Sand Weight



Sand = 95 lb./ft^3

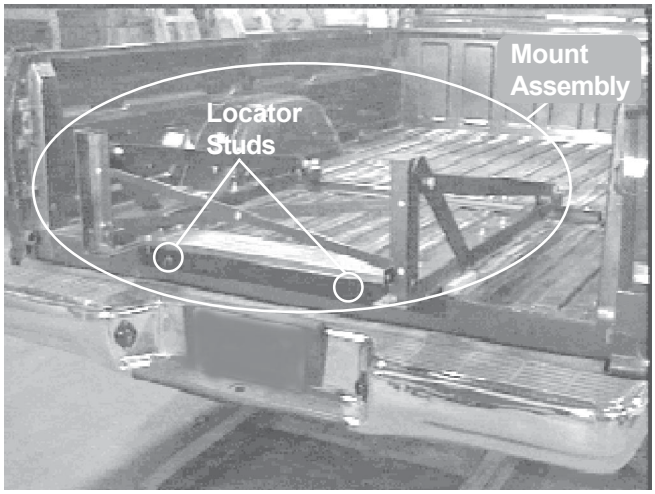
Plus Approximate Base Unit Weight of 355 Lbs. Including Mount

In-Bed Mount

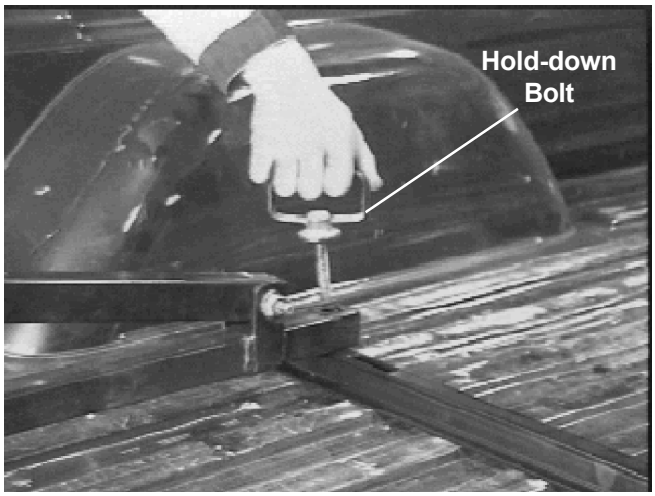
1. Remove the tailgate from the vehicle.

2. Place the mount assembly into the bed of the vehicle.

3. Slide the assembly forward engaging the locator studs.



4. Secure the front of the mount assembly to the channel using hold-down bolts. Hand tighten.



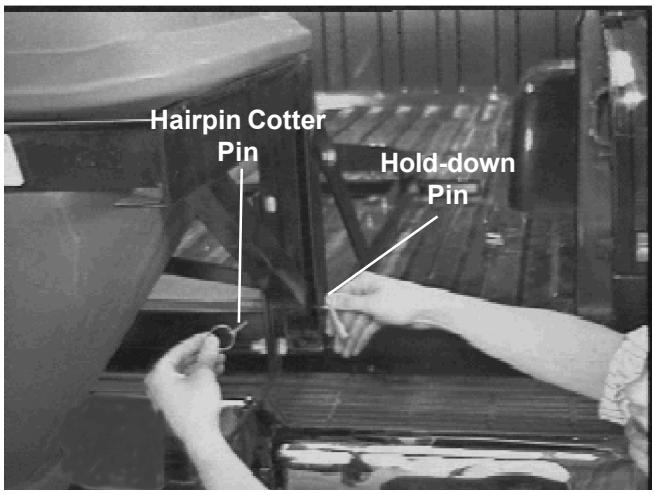
NOTE: Apply a small amount of grease to the bolt thread periodically to ensure easy removal.

5. Lift the hopper assembly using a hoist or two people, and tip slightly forward.

6. Position the tabs of the hopper assembly over the top of the mount assembly, and lower.

7. Allow the hopper assembly to lower into position.

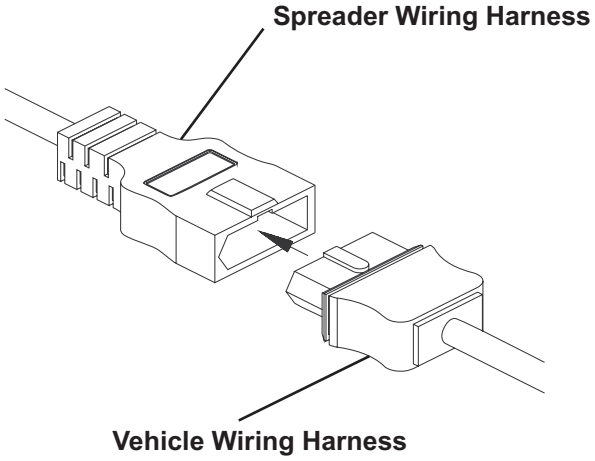
8. Insert hold-down pins and secure with hairpin cotter pins.



⚠ CAUTION

Both hold-down pins must be in place and secured with hairpin cotter pins. The hopper assembly may become unstable if the pins are not properly secure while the vehicle is in motion.

9. Connect the spreader wiring harness to the vehicle wiring harness.

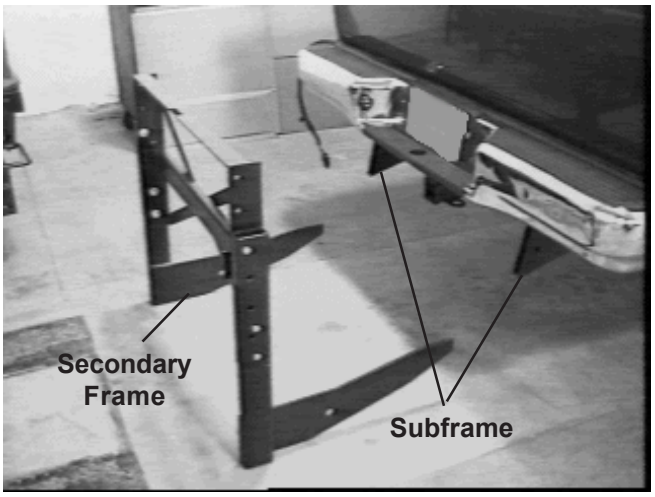


10. Verify vehicle stoplights and spreader center high mounted stoplight are working properly.

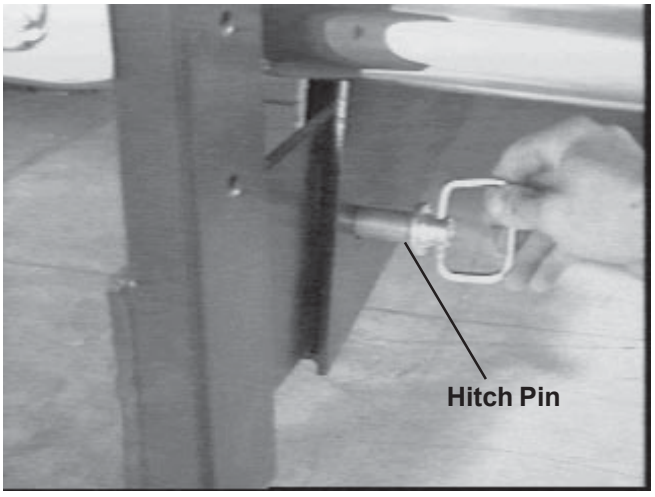
NOTE: Grease all electrical connections with dielectric grease.

Under-Frame Mount

1. Install the secondary frame into the subframe.

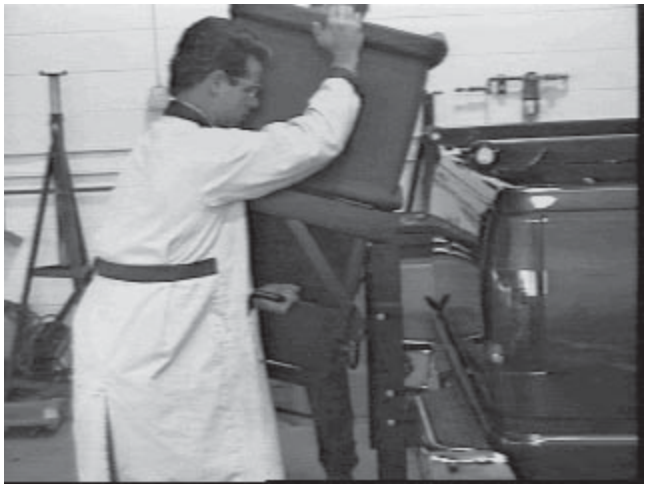


2. Insert the hitch pin on each side, and secure with linch pins.

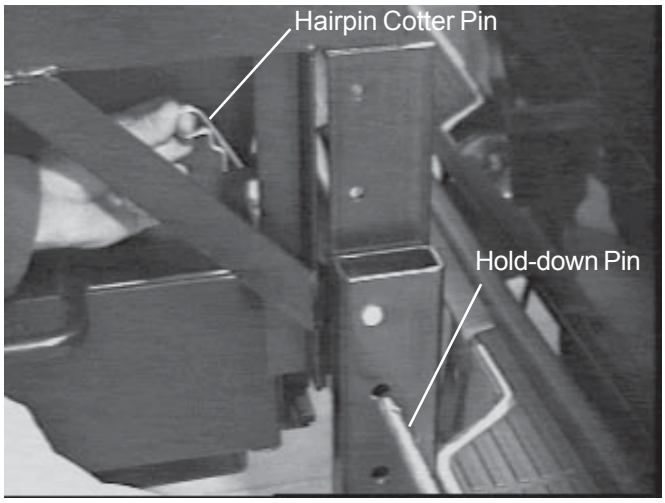


3. Lift the hopper assembly using a hoist or two people, and tip slightly forward.

4. Position tabs on the hopper assembly over the top of the mount assembly, and lower the assembly.



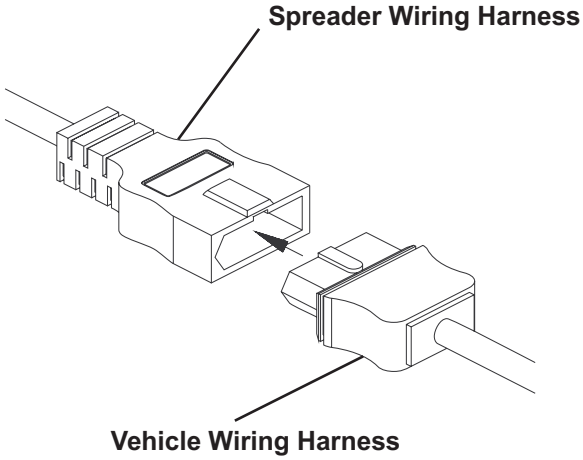
5. Insert pin on each side and secure with hairpin cotter pin.



⚠ CAUTION

Both hold-down pins must be in place and secured with hairpin cotter pins. The hopper assembly may become unstable if the pins are not properly secure while the vehicle is in motion.

6. Connect spreader wiring harness to the vehicle wiring harness.



NOTE: Grease all electrical connections with dielectric grease.

7. Verify vehicle stoplights and spreader center high mounted stoplight are working properly.

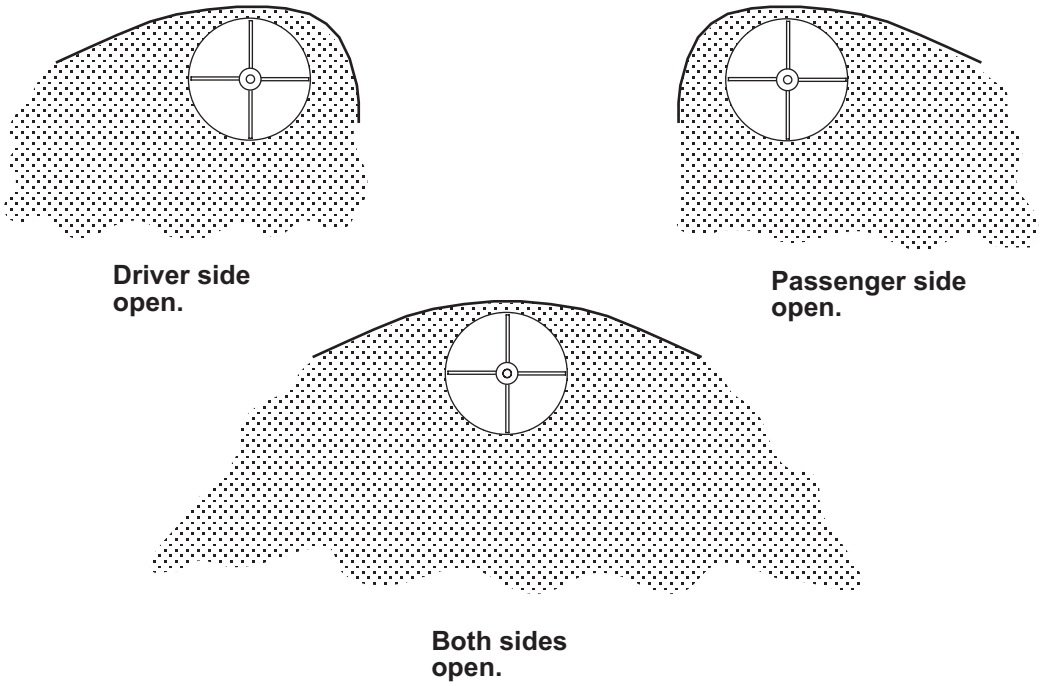
Adjusting the Gates and the Deflector

Spread pattern, pattern width, and the amount of material dispensed are dependent on the spinner speed, gate position, and deflector position.

⚠ WARNING

Before making any adjustments to the gate/ deflector settings, always turn the power off.

Deflector Effect



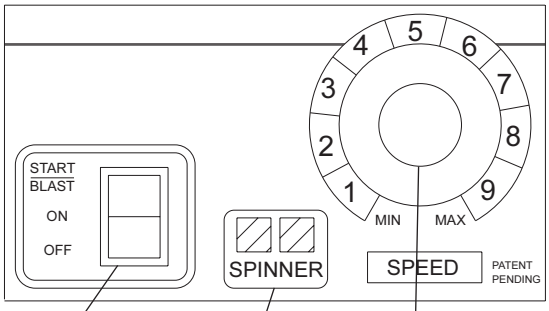
Driver side open.

Passenger side open.

Both sides open.

There are two control options. They include the PWM Control and the Single Speed Control.

PWM Control



Power Switch
Used to start and stop the spinner

Speed Dial
Used to change the speed of the spinner

Indicator Lights
Indicate whether the spinner is in motion.
Left light is red and indicates a fault.
Right light is green and indicates power is on.

Starting and Stopping the Motor

⚠ WARNING

Before starting the motor, be sure all personnel and equipment are clear of the discharge area.

1. To start the spreader motor, press the power switch to the START/BLAST position and release. This is a momentary position and the power switch will automatically return to the ON position when released. The spreader will operate at the speed selected on the speed dial.

2. Press the power switch to the OFF position to stop the motor. The power switch will remain in this position.

NOTE: The truck ignition must be on to start the spreader.

NOTE: If the truck ignition is turned off while the spreader is running, the motor will stop.

Adjusting the Spinner Speed

The speed setting can be adjusted when the spreader is either on or off.

1. Turn the speed dial clockwise. As the numbers on the speed dial increase, so will the speed.

2. Turn the speed dial counterclockwise. As the numbers on the speed dial decrease, so will the speed.

Blast/Maximum Speed

1. Press and hold the power switch to the START/BLAST position for as long as maximum speed is needed.

NOTE: If speed dial is set to max, pressing the blast button will not affect spinner speed.

2. Release the power switch when maximum speed is no longer needed. When released, it will automatically return to the ON position and to the speed shown on the speed dial.

NOTE: When blast is used, the speed dial will remain at the preset speed and will not move to the maximum speed setting.

Spinner Indicator Lights

Two lights on the cab control indicate the status of the motor:

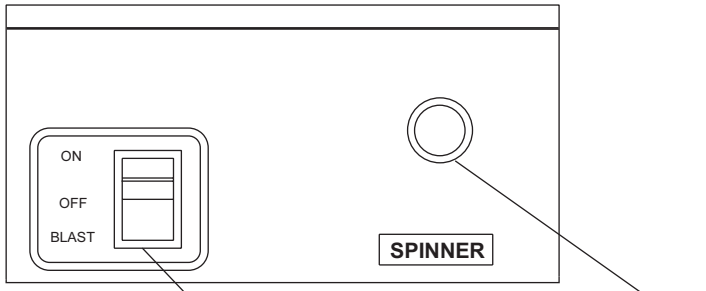
- Left light is red and indicates a fault. When the red (left) light is on, the power is on and the motor is not running.

- Right light is green and indicates power is on. When the green (right) light is on, there is power to the controller and the motor is running.

If there are problems while operating the spreader, refer to the Troubleshooting section of this manual.

NOTE: Always place the vinyl cover over the hopper to prevent moisture buildup. Do not let the spreader sit idle with material in the hopper for an extended period of time. This can cause the material to compact and reduce or stop the flow of material.

Single Speed Control



On/Off Control Switch
Used to start and stop the spinner.

Spinner Indicator Light
Illuminated light Indicates power to the motor.

Starting and Stopping the Motor

⚠ WARNING

Before starting the motor, be sure all personnel and equipment are clear of the discharge area.

1. Move the power switch to the on position to start the motor. Motor will start immediately. The power switch will remain in this position.

2. Move the power switch to the OFF position to stop the motor. The power switch will remain in this position.

Blast Position

Move and hold the power switch to the BLAST position for as long as momentary operation is needed. When released, the switch will automatically return to the OFF position and stop the motor.

NOTE: The truck ignition must be on to start the spreader.

NOTE: If the truck ignition is turned off while the spreader is running, the motor will stop.

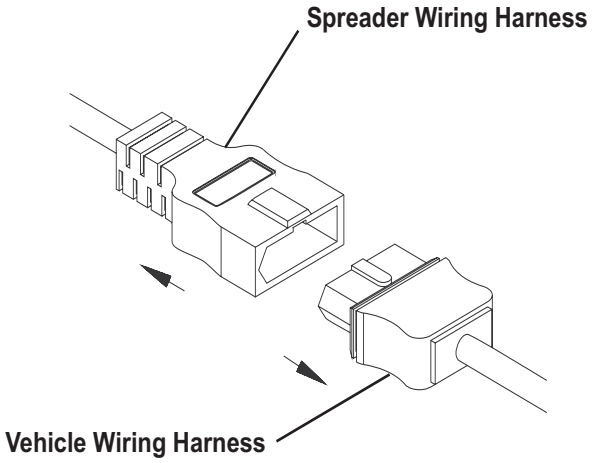
If there are problems while operating the spreader, refer to the Troubleshooting section in this manual.

NOTE: Always place the vinyl cover over the hopper to prevent moisture buildup. Do not let the spreader sit idle with material in the hopper for an extended period of time. This can cause the material to compact and reduce or stop the flow of material.

In-bed Mount

NOTE: Empty the hopper before removing the spreader.

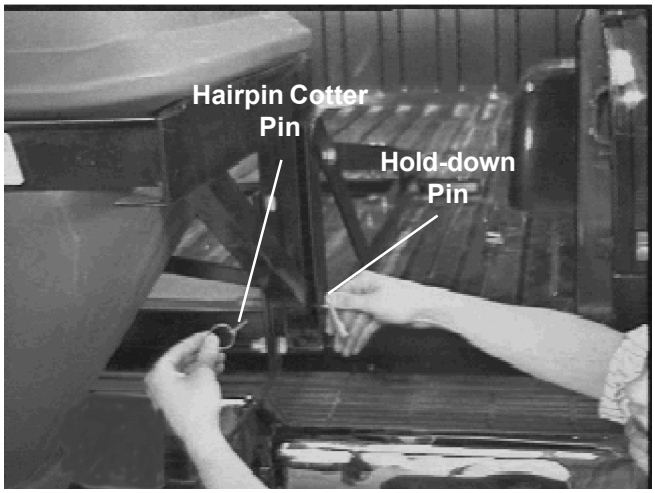
1. Disconnect the spreader wiring harness from the vehicle wiring harness.



NOTE: Grease the electrical connections using dielectric grease.

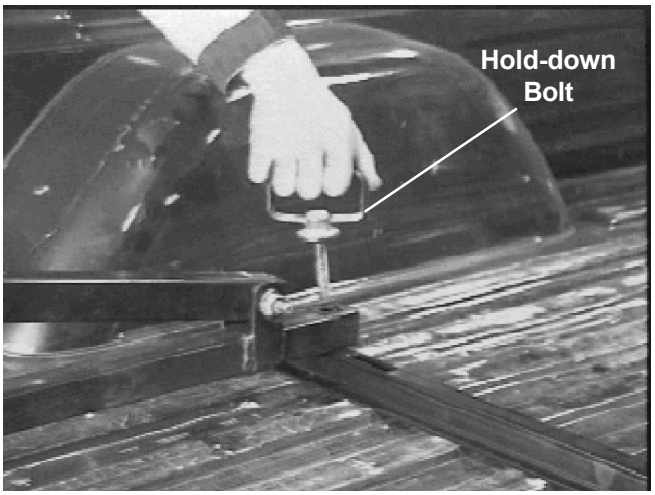
2. Install the plug cover over the vehicle harness plug.

3. Remove the hairpin cotter pins and hold-down pins.



4. Using a hoist or two people, tip the hopper assembly forward and lift it off of the mount assembly.

5. Loosen and remove the hold-down bolts from the front of the mount assembly.



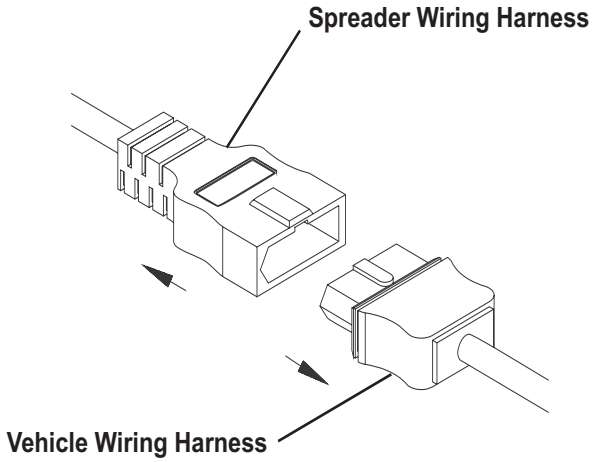
6. Remove the mount assembly from the vehicle.

7. Install the tailgate.

Under-Frame Mount

NOTE: Empty the hopper before removing the spreader.

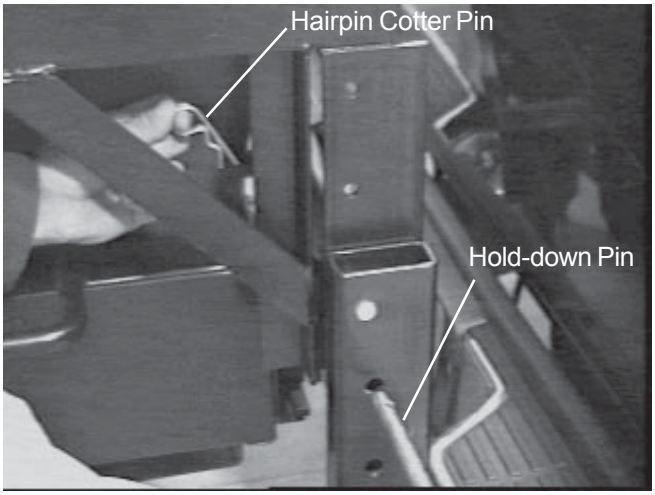
1. Disconnect the spreader wiring harness from the vehicle wiring harness.



NOTE: Grease the electrical connections using dielectric grease.

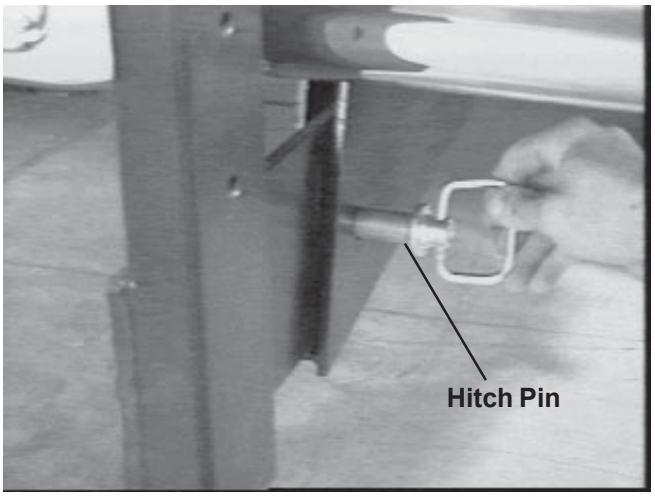
2. Install the plug cover over the vehicle harness plug.

3. Remove the hairpin cotter pins and the hold-down pins.

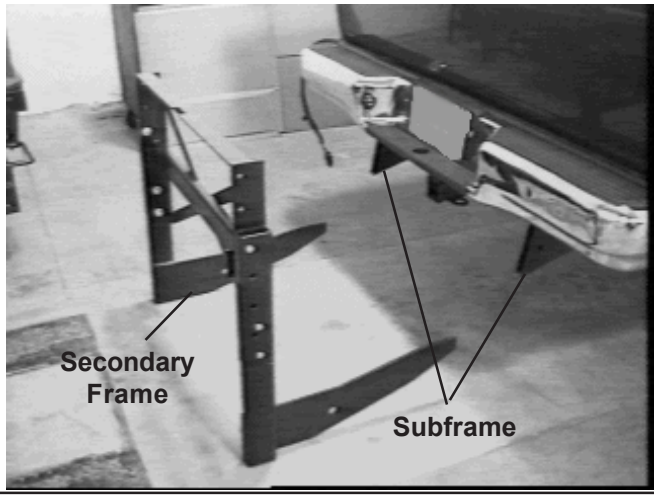


4. Tip the hopper assembly forward and lift it off of the mount assembly.

5. Remove the linchpins and hitch pins retaining the secondary frame.



6. Remove the secondary frame assembly from the subframe.



Safety

⚠ WARNING

- **Do not overload any part of your towing system.**
- **Do not modify your hitch. Install only on specified vehicles which are in good condition.**
- **This product is designed to tow trailers. Do not use as cargo carriers, motorcycle carriers, boat hoists, or coupler alignment devices. Do not use as a jacking point. Do not attach anything with or in place of the ball.**
- **Do not pull multiple trailers. Towing one trailer behind another may cause severe instability and loss of control.**

Important Information on Towing

Make sure all operators of your equipment read and understand this information before towing. This information will help you properly select, use, and maintain your towing equipment. Learn the capabilities and limitations of each part.

⚠ CAUTION

Never exceed the gross trailer weight or tongue weight of this equipment. Never exceed the lowest weight rating of any part of your towing system. See the Label - information (rating) area in the Safety Section of this manual.

Gross trailer weight is the weight of the trailer plus the weight of the cargo. Measure gross trailer weight by putting the fully loaded trailer on a vehicle scale. Tongue weight is measured by placing the fully loaded trailer on a level surface with the coupler at normal towing height. Use a commercial scale to measure the weight at the coupler.

Ball Mounts/Drawbars

Select these products by their gross trailer weight and tongue weight ratings. Select hitches and receivers for specific vehicles. Do not purchase a ball mount or drawbar which will give more than a four inch drop or seven inch extension as measured from the lower rear edge of the receiver.

Hitch Balls

Select by gross trailer weight rating, coupler socket size, and mounting platform thickness and hole size. Hole must not exceed threaded shank diameter by more than 1/16 inch. Use lock washer. Tighten according to instructions. When tightened, shank must protrude beyond bottom of nut. Gross trailer weight rating and ball diameter are marked on balls.

Trailer Couplers

The coupler socket should be smooth, clean and lightly lubricated. Tighten or adjust according to the coupler manufacturer's instructions.

Safety Chains

Connect safety chains properly every time you tow. Cross chains under coupler. Attach securely to the hitch or tow vehicle so they cannot bounce loose. Leave only enough slack to permit full turning. Too much slack may prevent chains from maintaining control if other connections separate. Do not allow chains to drag on the road.

Electrical Connections

Make these safety-critical connections every time you tow, no matter how short the trip. Check operation, including electric brake manual control, before getting on the road.

Sway Controls

Sway controls can lessen the effects of sudden maneuvers, wind gusts, and buffeting caused by other vehicles. We recommend sway controls for trailers with large surface areas, such as travel trailers. Adjustable friction models can help control the sway of travel trailers with low tongue weight percentages.

Other Useful Equipment

Air springs, air shocks, or helper springs are useful for some hitch applications. A transmission cooler may be necessary for heavy towing. Many states require towing mirrors on both sides.

Tire Inflation

Check often. Follow tow vehicle and trailer manufacturer's recommendations. Improper tire inflation can cause trailer sway.

Equipment and Parts Check

Check ball, coupler, chains, retaining pins and clips and all other connections every time you tow. Re-check at fuel and rest stops.

No Passengers in Trailers!

Under no circumstances should people be allowed in trailers while towing.

Trailer Loading

Proper loading helps prevent sway. Place heavy objects on the floor ahead of the axle. Balance the load side to side and secure it to prevent shifting. Tongue weight should be 10-15 percent of gross weight for most trailers. Too low a percentage of tongue weight can cause sway. Never load the trailer rear-heavy; load the trailer front heavy.

Driving

The additional weight of a trailer affects acceleration, braking and handling. Allow extra time for passing, stopping, and changing lanes. Severe bumps can damage your towing vehicle, hitch, and trailer. Drive slowly on rough roads. Stop and make a thorough inspection if any part of your towing system strikes the road. Correct any problems before resuming travel.

Excessive Sway

Excessive sway can lead to loss of control. Sway motion should settle out quickly. Sway tends to increase on a downgrade. Starting slowly, increase the speed in gradual steps. If sway occurs, reduce speed slowly, stop, and adjust your trailer load and equipment. Repeat until the trailer is stable at highway speed. Do this whenever your trailer loading changes.

Controlling Trailer Sway

Turbulence from another vehicle, a wind gust, or a downgrade can cause sudden sway along with shift of the trailer's load or a trailer tire blowout. If the trailer sways, it is the driver's responsibility to assess the situation and take appropriate action. Below are the suggestions that may apply when assessing the situation. If your trailer starts to sway:

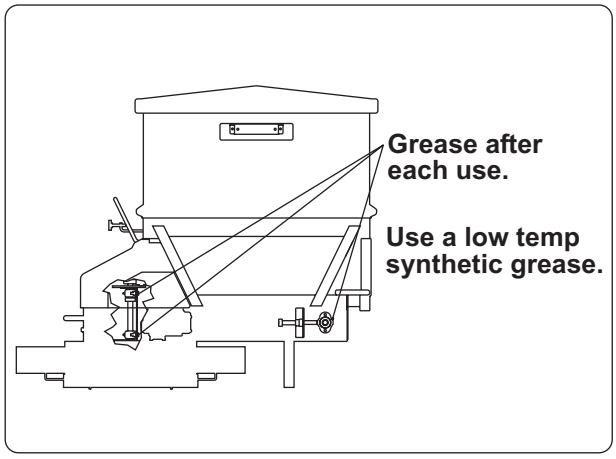
- reduce your speed gradually
- hold steering wheel as steady as possible
- and if your trailer has electric brakes, apply the trailer brakes alone without using the tow vehicles brakes.
- do not hit your brake pedal hard unless absolutely necessary.
- do not try to steer out of the sway condition. Sudden or violent steering can worsen the sway.
- do not speed up or swaying will increase.
- do not continue towing a trailer that tends to sway or you may lose control.

⚠ CAUTION

Disconnect electric power before servicing or performing maintenance.

To keep your spreader running smoothly, observe the following recommendations:

- Lubricate grease fittings after each use and at the end of each season.



- Maintain proper motor to shaft belt tension.

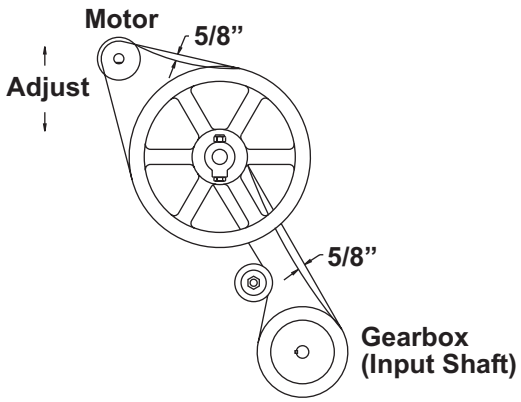
To adjust belt tension:

1. Loosen the carriage bolt that holds down the idler.
2. Slide the carriage bolt to increase or decrease tension.
3. After adjusting the idler, tighten the carriage bolt.

⚠ CAUTION

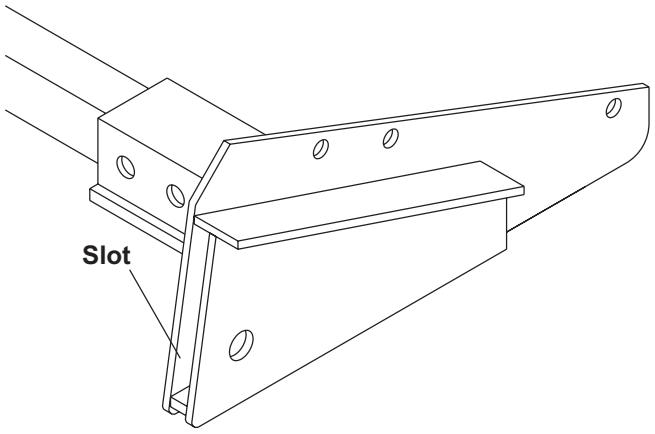
Overtightening the belt may result in damage to the motor bearing.

4. After tightening the carriage bolt, the belt should deflect 5/8” between the pulleys.



After each use:

- Wash out hopper and rinse off all external surfaces.
- Wash out the secondary frame slots in the under-frame mount to prevent build-up of material.

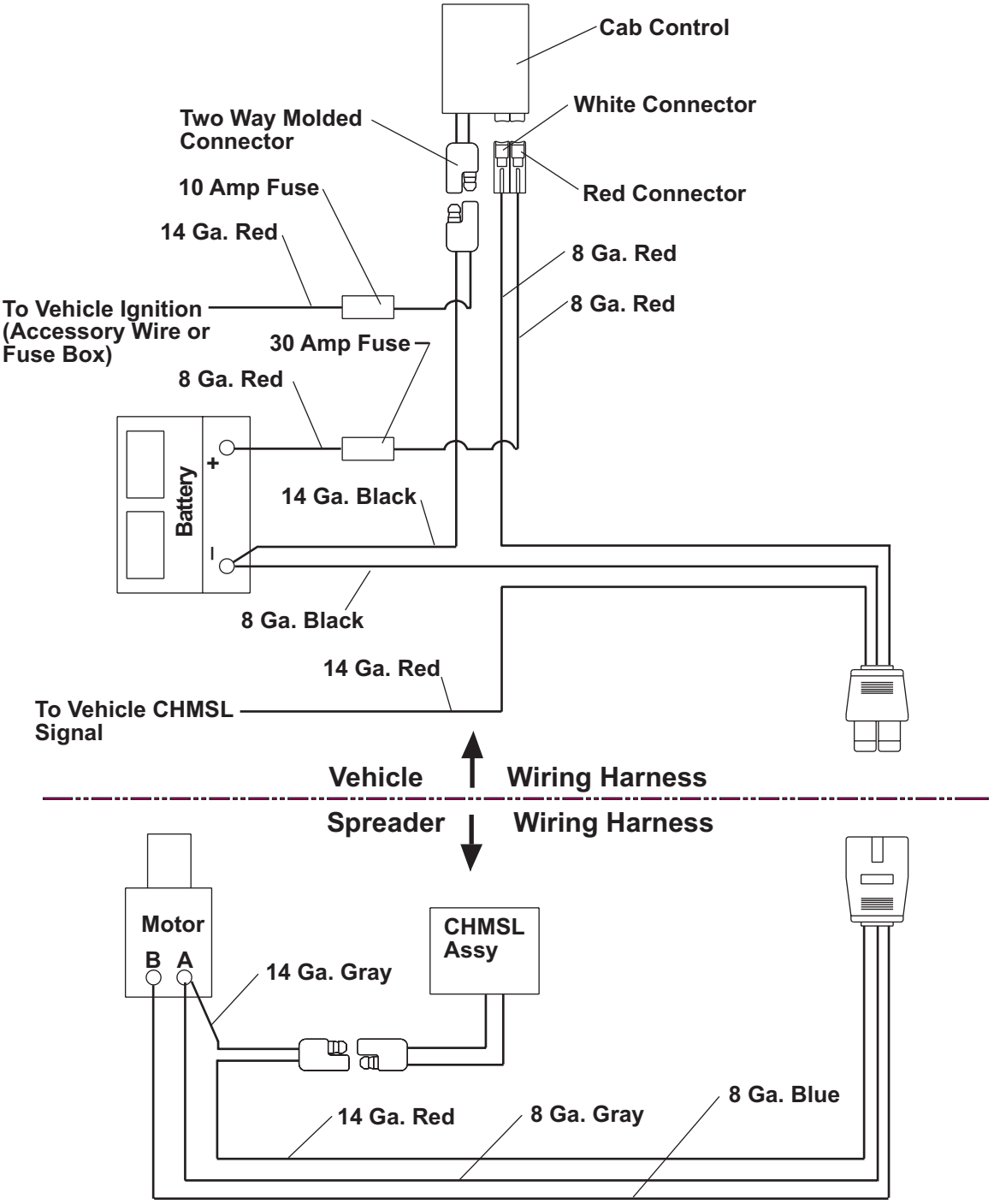


- Use dielectric grease on all electrical connections to prevent corrosion at the beginning and end of the season and after each use.
- Lubricate all grease fittings.

At the end of each season (or extended storage)

- Wash out hopper and rinse off all external surfaces.
- Apply dielectric grease on all electrical connections to prevent corrosion.
- Lubricate all grease fittings.
- Oil or paint all bare metal surfaces.

WIRING DIAGRAM



PWM (Variable Speed) Control

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
No power to cab control (Neither indicator light lit)	1. Control connector plug is loose.	1. Check plug connection at cab control.
	2. Blown fuse.	2. Check the 10 amp in-line fuse. Replace if necessary. Check power supply for 12 VDC.
	3. Low battery or loose connection.	3. Check vehicle battery connections. - Clean off corrosion - Repair or replace damaged wires
	4. Open circuit in wire from battery to cab control.	4. Repair or replace damaged wires.
Spreader does not operate (green indicator light lit)	1. Wire harness is damaged or has an open circuit between cab control and spreader.	1a. Check plug connections at cab control and spreader. 1b. Check wire connections at spreader motor and at vehicle battery – disconnect motor leads, set cab control to maximum, check for voltage at motor leads. 1c. Repair or replace damaged wires and connectors 1d. Check the 30 Amp in-line fuse. Replace if necessary. *Motor shaft should turn.*
	2. Motor brushes are worn and prevent motor operation.	2. Remove and inspect both motor brushes. Replace if worn (Brush kit 65241)
	3. Motor damaged internally.	3. Replace motor if the motor shaft will not turn.
Red indicator light is lit on cab control	Overloaded condition is causing over-current protection to activate.	Reset cab control by turning the power switch to OFF. Depress the START/BLAST switch to resume operation.
	1. Obstruction is preventing rotation of spreader.	1. Clear obstruction and reset cab control
	2. Motor does not turn.	2. Remove and inspect both motor brushes. Replace if worn (Brush kit 65241). Replace motor of the motor shaft will not turn.
	3. Bearings have seized.	3. Check bearings on spinner shaft, conveyor, and gearbox.
Turning the speed control dial on the cab control does not change the motor speed	1. Faulty cab control. 2. Red and white connectors are incorrectly hooked up.	1. Replace cab control. 2. Reconnect so red matches red, and white matches white.

On-Off (Single Speed) Control

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
No power to cab control (Switch is in ON position indicator light not lit)	1. Control connector plug is loose. 2. Blown fuse. 3. Low battery or loose connection. 4. Open circuit in wire from battery to cab control.	1. Check plug connection at cab control. 2. Check the 10 amp in-line fuse. Replace if necessary. Check power supply for 12 VDC. 3. Check vehicle battery connections. - Clean off corrosion - Repair or replace damaged wires 4. Repair or replace damaged wires.
Spreader does not operate (Indicator light is lit)	1. Wire harness is damaged or has an open circuit between cab control and spreader. 2. Bearings are seized. 3. Motor brushes are worn and prevent motor operation. 4. Motor bearings seized.	1a. Check plug connections at cab control and spreader. 1b. Check wire connections at spreader motor and at vehicle battery – disconnect motor leads, turn spreader switch on, check for voltage at motor leads. 1c. Repair or replace damaged wires and connectors 1d. Check the 30 Amp in-line fuse. Replace if necessary. *Motor shaft should turn.* 2. Check bearings on spinner shaft, conveyor, and gearbox. 3. Remove and inspect both motor brushes. Replace if worn (Brush kit 65241) 4. Replace motor if the motor shaft will not turn.

Mechanical Problems (PWM and On- Off Control)

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOULUTION
Spinner does not turn (Spreader motor is running)	1. Drive Belt is loose or damaged. 2. Motor pulley not secured to motor shaft. 3. Spinner pulley is not secured to the spinner shaft. 4. Spinner shaft bearings are dry or seized.	1. Adjust belt tension. Replace belt if damaged. 2. Tighten pulley set screw. Replace pulley if damaged. 3. Replace cap screw and nut if missing or damaged. Replace pulley if damaged. 4. *Spinner should turn by hand.* Grease or replace bearings.
Conveyor belt not moving (Spinner is turning)	1. Drive belt is loose or damaged. 2. Pulley is not secured to the spinner shaft. 3. Pulley is not secured to the gearbox shaft. 4. Gearbox is damaged 5. Conveyor rollers are not secured to the shafts. 6. Conveyor belt is loose or damaged. 7. Conveyor belt is not aligned. 8. Conveyor belt shaft bearings are seized or otherwise damaged.	1. Adjust belt tension. Replace belt if damaged. 2. Tighten pulley set screw. Replace pulley if damaged 3. Replace damaged or missing key. Replace pulley if damaged. 4. Replace gearbox if output shaft does not turn when input shaft turns. 5. Replace missing cap screws and nuts. Replace shafts or rollers if damaged. 6. Adjust belt tension. Replace belt if damaged. 7. Align belt to ride centered on rollers. 8. Grease or replace bearings.
Material in hopper does not flow (Conveyor belt and spinner are moving)	1. Feedgate is closed. 2. Obstruction in hopper.	1. Open feedgate fully, then adjust and lock at desired opening size. 2. Remove obstruction.
Spread pattern not optimum	1. Deflector out of adjustment.	1. Change deflector adjustment to suit desired pattern. (See “operating the Spreader” in this manual.)

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