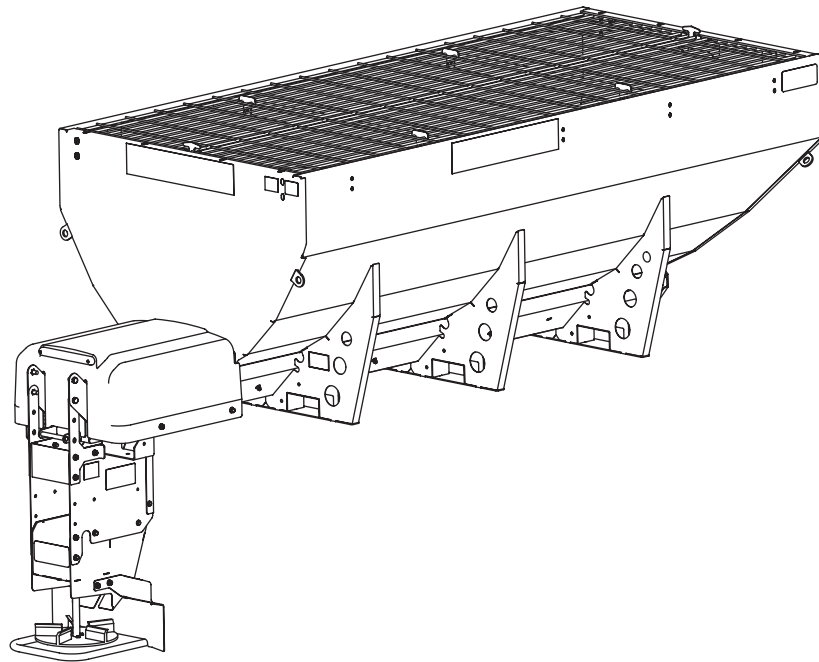




# HELIXX™ Stainless Steel Hopper Spreader

1.5, 2.0, 3.0, 4.5, & 6.0 yd<sup>3</sup>

## Installation Instructions



### **⚠ CAUTION**

Read this document before operating  
or servicing the spreader.

These installation instructions are for SnowEx® HELIXX stainless steel hopper spreaders  
with serial numbers beginning with 191001 and higher.

# SAFETY

## SAFETY DEFINITIONS

### WARNING

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

### CAUTION

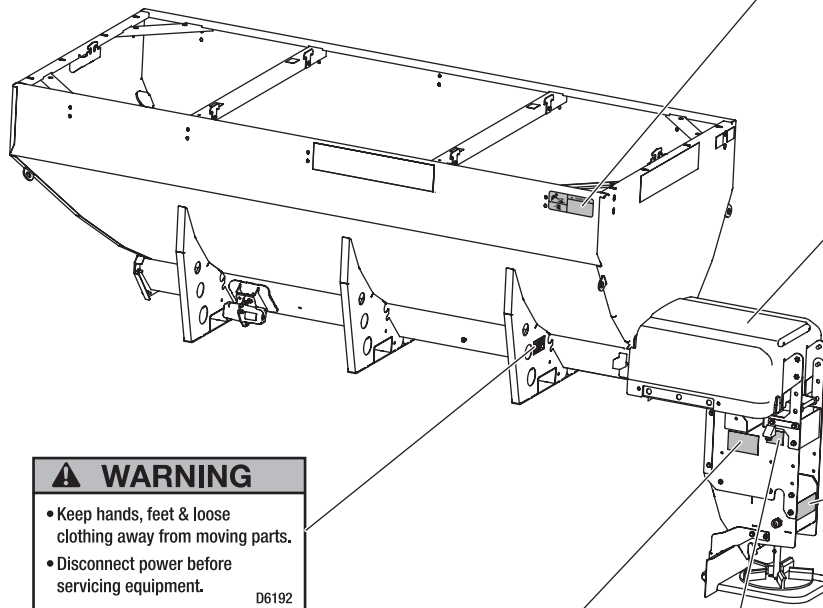
Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**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.

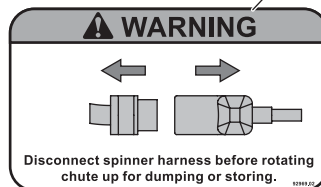
## WARNING/CAUTION LABELS

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

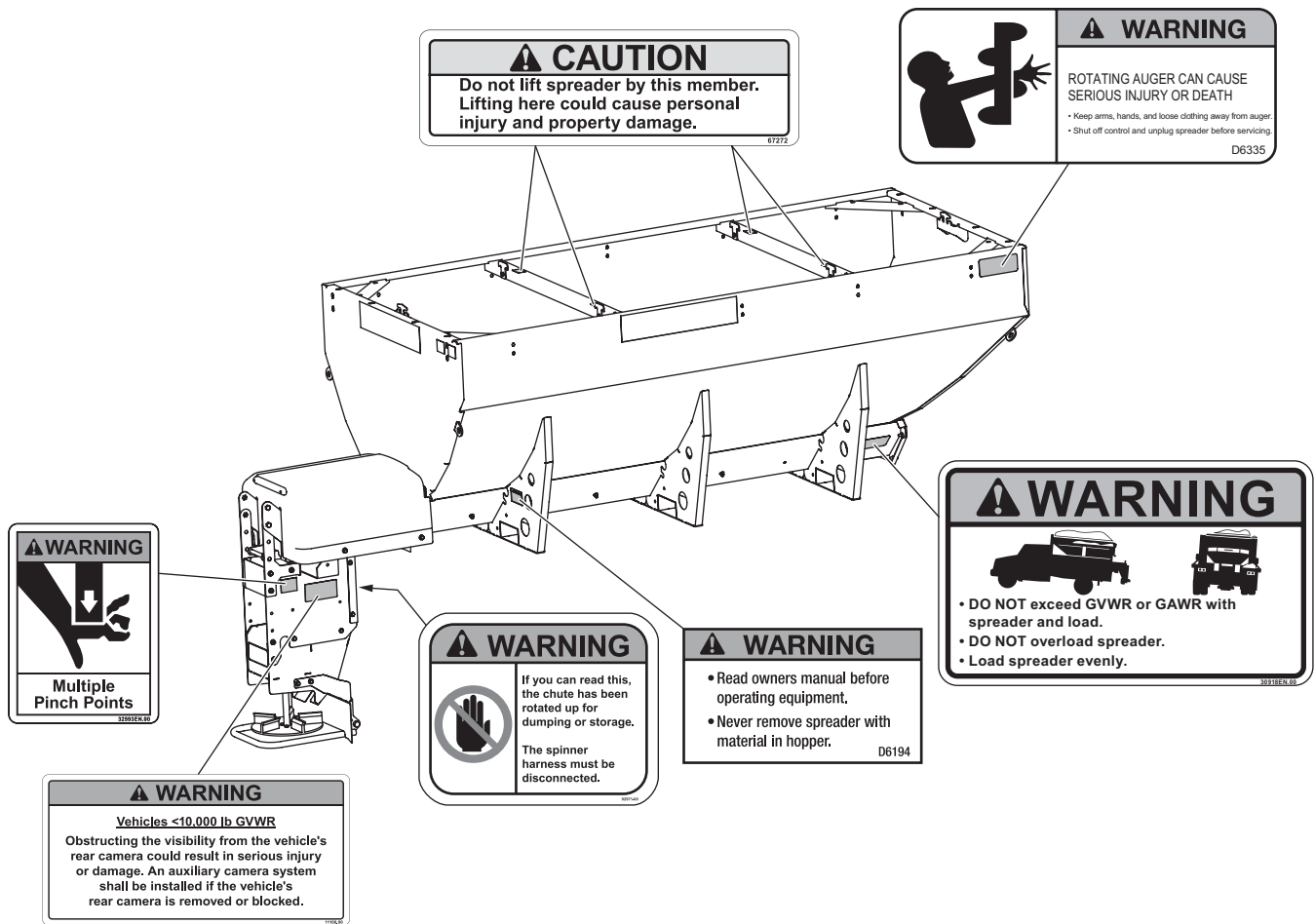
**NOTE:** If labels are missing or cannot be read, see your sales outlet.



Located under the cover, on top of the electrical enclosure.



# 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 Part Number

**SNOWEX** TrynEx International, LLC  
531 Ajax Drive  
Madison Heights, MI 48071

HELIXX™ 00 YD³ SS HOPPER

**YYMMDDLXXXXZZZZZ**



# SAFETY

## SAFETY PRECAUTIONS

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

### ⚠ WARNING

- Driver to keep bystanders minimum of 25 feet (7.6 m) 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.

### ⚠ 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.

# SAFETY

## FUSES

The electrical system contains several automotive-style 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 ratings and locations are shown in the Vehicle Harness Diagram in the Electrical Components section of this 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.

## 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

These Installation Instructions cover 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

Read and adhere to manufacturer's ice-control material package labeling, including 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.

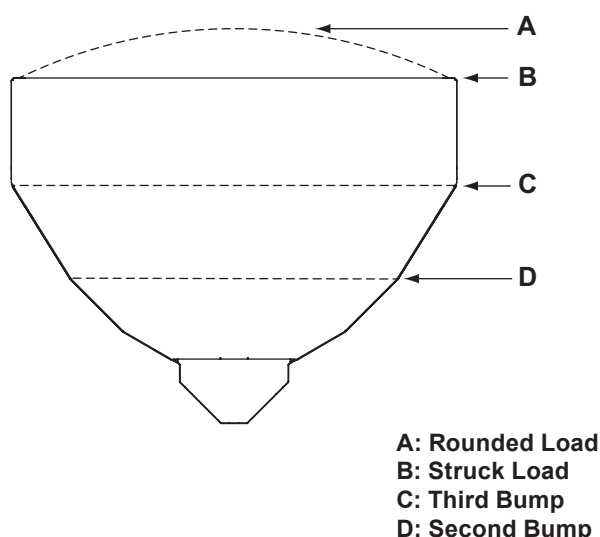
### SPREADER SPECIFICATIONS

Hopper Model	Overall Length (in)	Bed Length (in)	Empty Weight (lb)	Bed Height (in)	Capacity Struck (yd <sup>3</sup> )
1.5 yd <sup>3</sup> (7')	115.0	95.8	490	33.5	1.5
2.0 yd <sup>3</sup> (8')	127.0	108.4	509	33.5	2.0
3.0 yd <sup>3</sup> (9')	139.0	120.3	632	42.5	3.0
4.5 yd <sup>3</sup> (9')	139.0	120.3	740	45.5	4.5
6.0 yd <sup>3</sup> (10')	150.0	131.4	818	52.5	5.7

# LOADING

## LOAD VOLUME

Hopper Model	Load Volume (yd <sup>3</sup> )			
	A	B	C	D
1.5 yd <sup>3</sup> (7')	2.1	1.7	1.3	0.5
2.0 yd <sup>3</sup> (8')	2.4	1.9	1.5	0.6
3.0 yd <sup>3</sup> (9')	3.5	3.0	1.7	0.7
4.5 yd <sup>3</sup> (9')	4.8	4.2	3.4	1.5
6.0 yd <sup>3</sup> (10')	6.7	5.7	3.5	1.3



## 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 Installation 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, snowplow, 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 vehicle 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 diagrams at left 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.

The worksheet for Determining Vehicle Payload (next page) includes an example.



# LOADING

## Determining Vehicle Payload – Worksheet

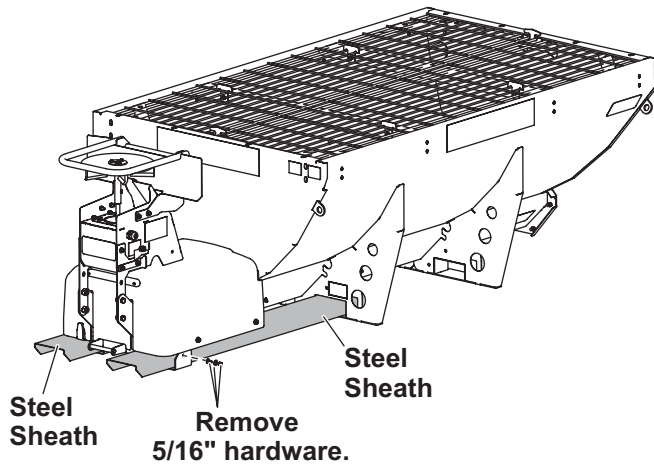
	Material Type	<i>Example:</i> Dry Salt				
A	Equipment installed when vehicle was weighed	1.5 yd <sup>3</sup> Spreader				
B	Front Gross Axle Weight Rating [FGAWR] (lb)	6000				
C	Rear Gross Axle Weight Rating [RGAWR] (lb)	7000				
D	Gross Vehicle Weight Rating [GVWR] (lb)	11,000				
E	Gross Vehicle Weight [GVW], empty (lb)	– 7402				
F	Payload Available (lb)	= 3598				
G	Material Density (lb/yd <sup>3</sup> )	÷ 2160				
H	Maximum Volume (yd <sup>3</sup> )	= 1.7				
I	Maximum Material Fill Level, approx. Refer to Load Volume table and diagrams.	A				
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.					

## UNPACKING THE SPREADER

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### REMOVE SHIPPING DUNNAGE AND LOCATE COMPONENTS

1. Before installation of the spreader, remove and discard the steel sheaths that are installed in the fork pockets by removing the 5/16" hardware.
2. Remove and discard all other shipping dunnage.
3. The vehicle harness is located in the hopper. The parts box and control kit are in the passenger-side saddle bag under the auger cover.



# MOUNTING THE SPREADER

## INSTALL HOPPER IN VEHICLE BED

The spreader is shipped from the factory with the spinner drive assembly secured in storage position. Leave the assembly in that position until instructed to lower it into operating position.

### Lifting the Spreader

#### ⚠ CAUTION

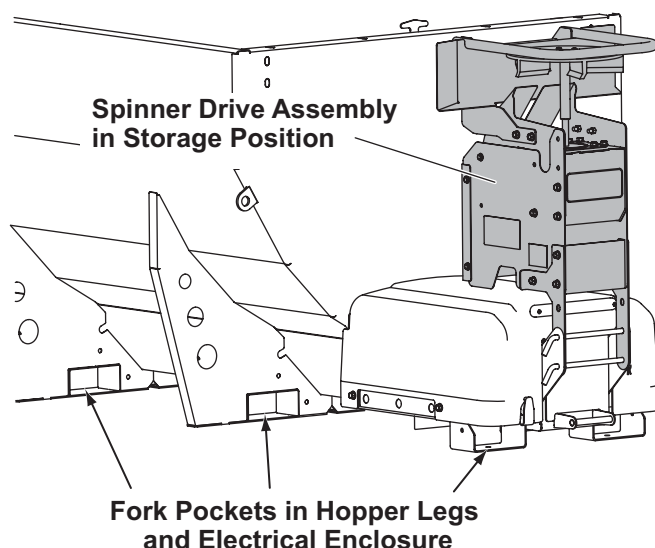
Before lifting, verify that the hopper is empty of material. The lifting device must be able to support the spreader's weight as shown in the Spreader Specifications table.

1. Remove the hopper top screens and clear any debris from inside the hopper. Remove the vehicle tailgate.
2. Lift the spreader into the vehicle bed, making sure to center it from side to side.

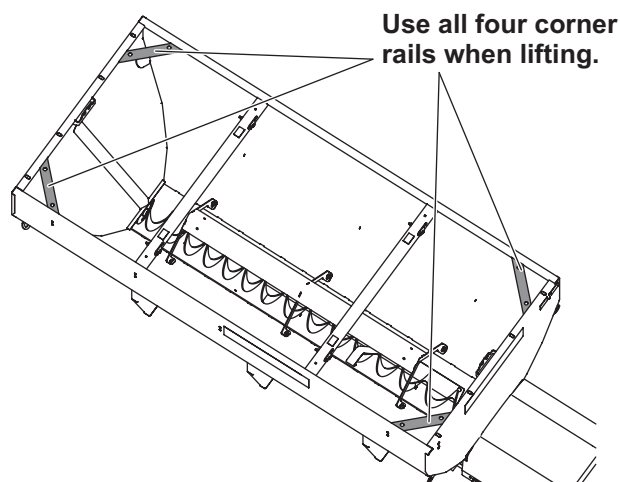
To lift the spreader, use one of the following procedures:

- a. Use a forklift equipped with fork extensions. Verify that the fork extensions slide through the fork pockets on the electrical enclosure and the hopper legs.

At least two fork pockets (per side) must be used when lifting 1.5 and 2.0 yd<sup>3</sup> hoppers, and at least three fork pockets (per side) must be used when lifting 3.0, 4.5 and 5.0 yd<sup>3</sup> hoppers.



- b. Remove the top screens. Using slings or chains, lift the spreader by the four diagonal corner rails and move it into the vehicle bed.



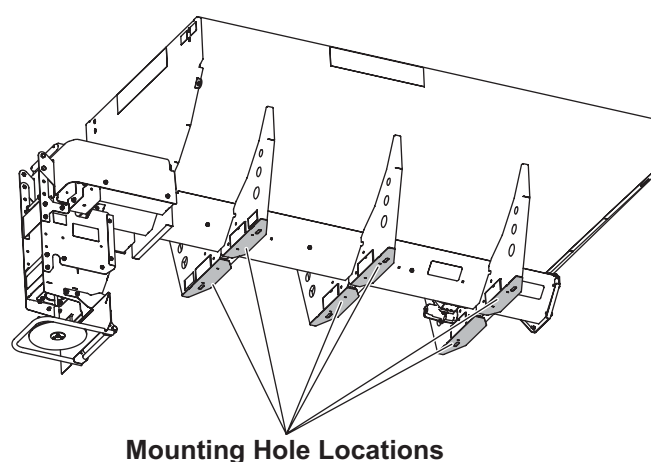
### Install Mounting Hardware

1. Position the spreader so the spinner drive assembly will be approximately 1" away from the rear of the vehicle once it is lowered into operating position.

#### ⚠ CAUTION

Before drilling holes, check to be sure that no vehicle wiring or other components could be damaged.

2. Using the mounting holes in the spreader fork pockets as a template, mark the mounting hole positions on the vehicle bed, and drill 9/16" holes for the frame cap screws.



## MOUNTING THE SPREADER

**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.

### **⚠ WARNING**

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

- Secure the spreader to the vehicle bed through the fork pockets, using *at least* one fastener per fork pocket. Use 1/2" hardware as required by the vehicle application.

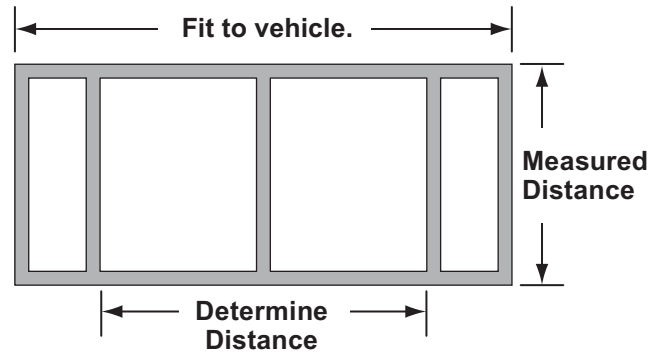
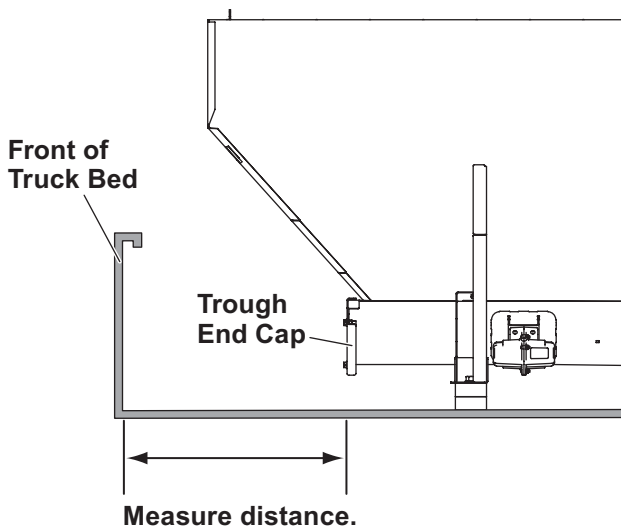
**NOTE:** If the mounting holes are not directly over the vehicle box supports, the vehicle bed must be braced to the frame to prevent buckling or deforming the vehicle bed.

### Construct and Install Frame Spacer

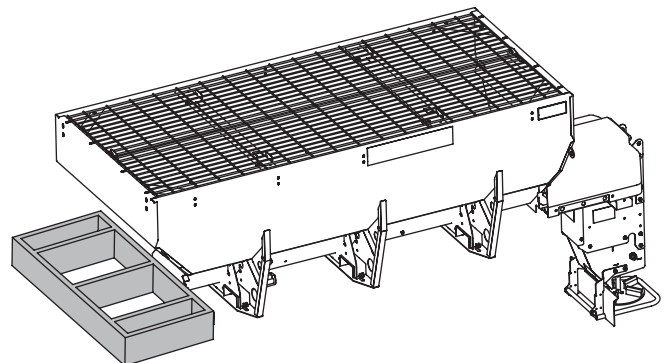
### **⚠ CAUTION**

Failure to install the frame spacer could result in damage to the spreader and/or vehicle.

- Measure the distance from the hopper trough end cap to the front of the vehicle bed. Construct a frame spacer from 2" x 8" lumber to fit that area.



- Install the frame spacer between the end cap of the hopper trough and the front of the vehicle bed.



Frame Spacer Built to Fit

### Install Tie-Down Straps

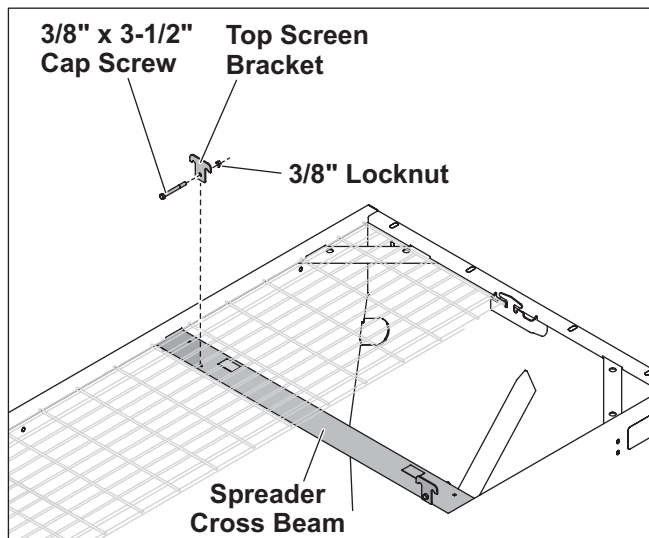
Run straps from the tie-down loops from the spreader hopper diagonally outward to the vehicle frame.

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

# TOP SCREENS & SPINNER DRIVE ASSEMBLY

## INSTALL BRACKETS AND TOP SCREENS

1. If the top screens were previously removed for lifting, put them back into place on the hopper cross beams.
2. Install a top screen bracket at each end of the spreader cross beams using the supplied 3/8" x 3-1/2" cap screws and 3/8" locknuts to secure the top screens to the cross beams.



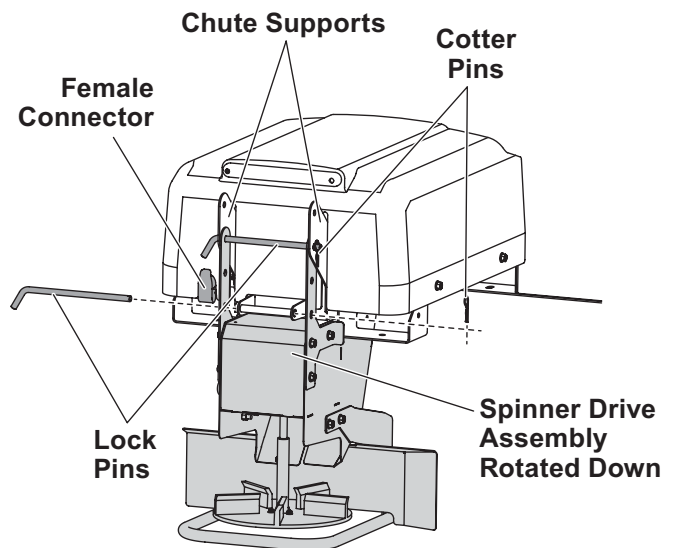
## SET UP SPINNER DRIVE ASSEMBLY IN OPERATING POSITION

To move the spinner drive assembly from storage/shipping position to operating position:

1. Remove the fasteners securing the spinner drive assembly to the chute supports. Discard the fasteners and blocking (not shown).

**NOTE:** After removing the fasteners, the spinner drive assembly will no longer be attached to the spreader. Use caution to avoid causing personal injury and/or damaging the spinner drive assembly.

2. Carefully set the spinner drive assembly on the ground. Orient it in operating position as shown below.
3. Install the lock pins found in the parts box to attach the spinner drive assembly to the chute supports. *Install the top lock pin first*, using the lower holes in the chute supports. Secure each locking pin with a cotter pin.



4. Connect the spinner motor harness to the female connector extending from the rear of the hopper.

# WIRING AND HARNESS INSTRUCTIONS

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## WIRING INSTRUCTIONS

Spreaders are shipped from the factory with the spreader harness wired to the motor and spreader module.

To properly wire the hopper spreader, follow this recommended installation sequence:

1. Install the vehicle battery cable and control harness included with the spreader.
2. Install the cab control as described under "Cab Control Installation."

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**NOTE: Use dielectric grease on all electrical connections.**

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## Vehicle Battery Cable Installation

1. Before beginning this installation, remove the battery cables from the vehicle battery.
2. Using the 1/4" x 3/4" cap screws, 1/4" flat washers, and 1/4" locknuts, mount the fuse holder near the vehicle battery so that the 22" battery cable can be installed from the POSITIVE (+) battery terminal to the fuse holder. Install the fuse into the fuse holder and hand tighten the nuts.
3. Attach one end of the 22" battery cable to the fuse holder so that the ring terminal is on top of the fuse. Replace the lock washer and nut.
4. Lay out a path for routing the vehicle battery cable from the rear of the vehicle bed to the vehicle battery. Make sure that the path avoids any hot, sharp, or moving parts of the vehicle. Routing will vary from vehicle to vehicle.
5. Route the vehicle battery cable as laid out in Step 4.
6. Using cable ties, secure the battery cable to the vehicle. Verify that the harness cannot drop onto the road when it is disconnected from the spreader.
7. Attach the vehicle battery cable red wire to the other fuse holder stud so that the ring terminal is on top of the fuse. Replace the lock washer and nut.
8. Torque the fuse holder nuts to 106–159 in-lb and snap the fuse holder cover into place.
9. Attach the other end of the 22" battery cable to the POSITIVE (+) battery post.
10. Attach the vehicle battery cable black wire to the NEGATIVE (–) battery terminal.

# WIRING AND HARNESS INSTRUCTIONS

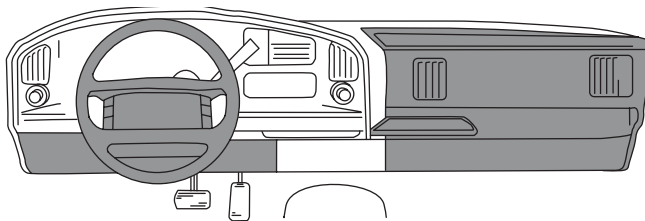
## Vehicle Control Harness Installation

1. Plug the vehicle harness into the spreader harness.
2. Lay out a path for routing the vehicle control harness from its attachment point on the vehicle battery cable into the cab of the vehicle. Make sure that the path avoids any hot, sharp, or moving parts of the vehicle. Routing will vary from vehicle to vehicle.
3. Choose a cab control mounting location that can be reached by the harness. The location must be within easy reach of the vehicle operator without restricting access to vehicle controls or instrumentation.

Do not mount the control in areas prohibited by the vehicle manufacturer for reasons of crashworthiness. See the vehicle's body builder's book, owner's manual, or service manual for details. The shaded portions in the illustration below show the most commonly restricted areas.

### ⚠ CAUTION

Do not alter, modify, or install additional components in shaded areas shown below. Failure to comply may interfere with airbag deployment or cause injury to operator in an accident.



### ⚠ CAUTION

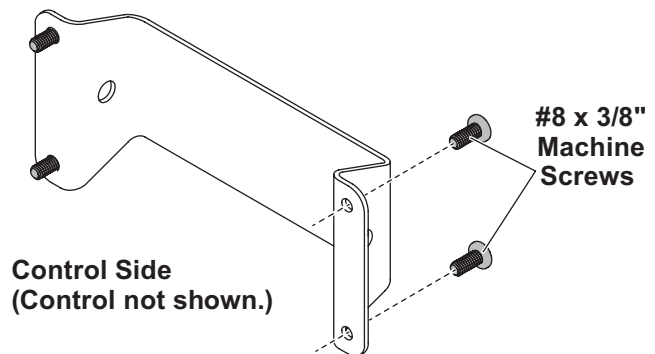
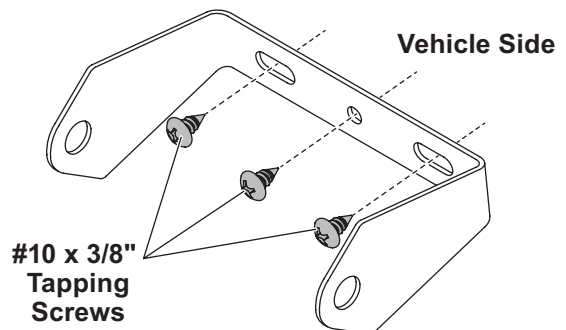
Before drilling any holes, check both sides of the material for any wires, fuel lines, fuel tanks, etc., that may be damaged by drilling.

4. Drill a 5/8" hole in the fire wall so that the vehicle control harness can reach the desired cab control location.

5. Insert a rubber grommet into the hole.
6. Route the harness as laid out in Step 2.
7. Secure the vehicle control harness to the vehicle.
8. Attach the red wire to a switched accessory circuit.

## Cab Control Installation

1. Confirm that the chosen cab control mounting position will not interfere with other equipment or allow unintentional starting of the spreader.
2. Install the vehicle side of the mounting bracket using three #10 x 3/8" Phillips head tapping screws.

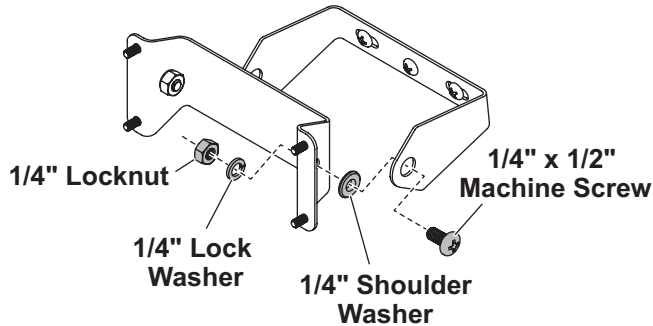


3. Install the control side of the bracket to the control using four #8 x 3/8" Phillips head machine screws.

## WIRING AND HARNESS INSTRUCTIONS

1. Install the control side of the bracket to the vehicle side using 1/4" x 1/2" Phillips head machine screws, 1/4" nylon shoulder washers, 1/4" lock washers, and 1/4" locknuts.

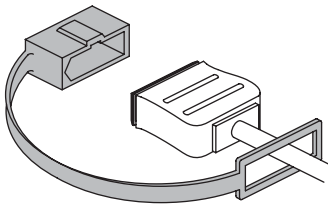
(Control not shown.)



2. Plug the vehicle control harness into the cab control.

### Harness Plug Cover

Install the supplied harness plug cover by slipping the loop end of the cover over the harness plug.



### CENTER HIGH-MOUNTED STOPLIGHT (CHMSL)

An LED center high-mounted stoplight is standard equipment on all HELIXX™ stainless steel hopper spreaders.

The orange wire from the spreader vehicle harness is for the CHMSL. Splice the orange wire into an existing CHMSL circuit wire tap. Location of the tap varies according to specific vehicle model, and may be located either in the cab or in the rear of the vehicle.

**Always use the tap provided by the OEM.**

DO NOT splice the orange wire into the wire coming off the stoplight switch by the brake pedal. Splicing at the stoplight switch may affect transmission shifting, cruise control, or other vehicle functions.

**For vehicles with a tap along the frame rail or at the rear cross member:**

1. Cut the tape holding the orange wire where it exits the convoluted tubing.
2. Pull out the orange wire to the location where the vehicle CHMSL tap is located. Cut a small V notch in the tubing for the wire to exit. Pull the wire through the V notch and tape the tubing on each side of the exit point.
3. Trim any excess length from the orange wire and splice into the vehicle tap.

Coil and cable-tie the brown wire away from any hot, sharp, or moving parts.

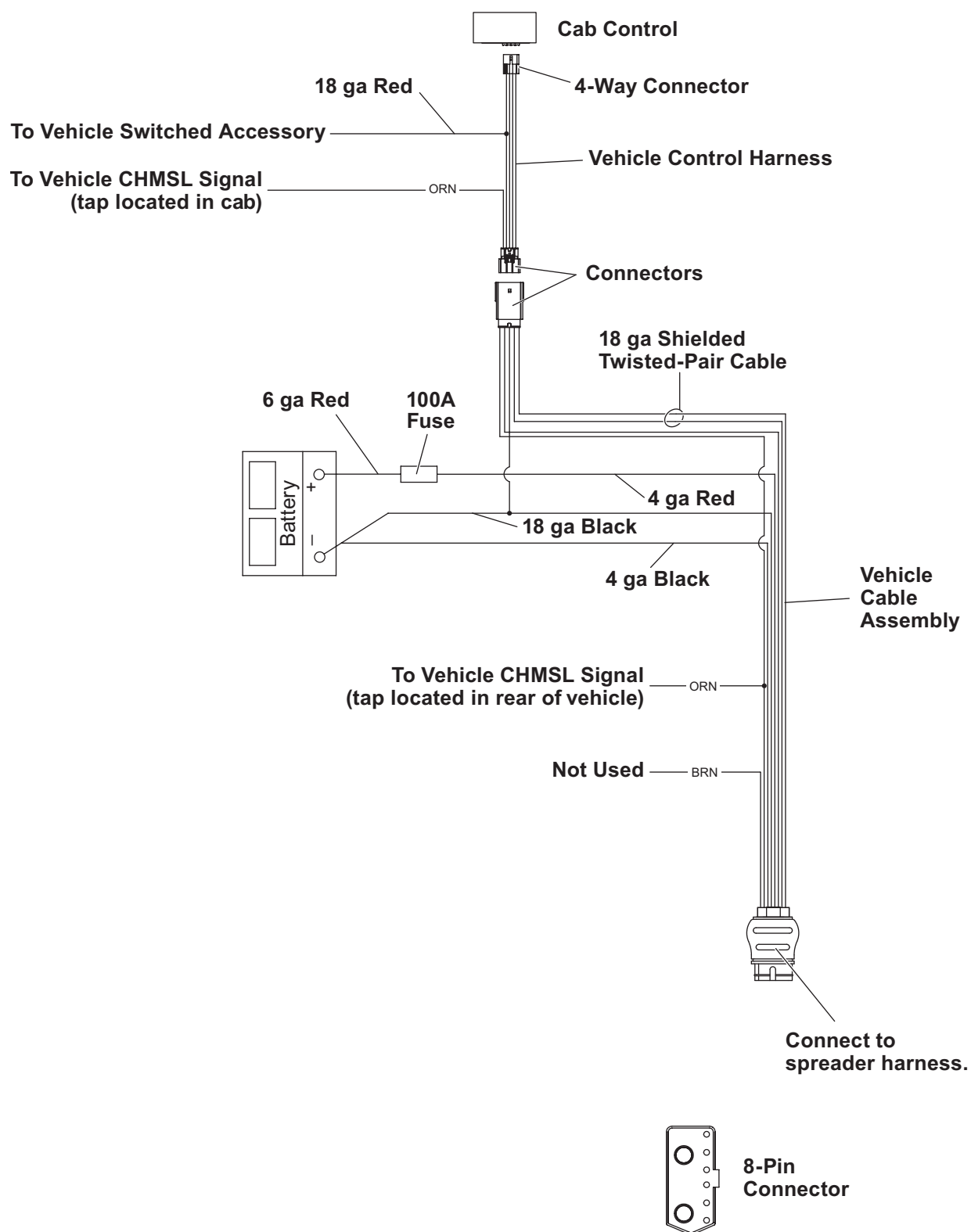
### INSTALL ACCESSORIES

To install any of the accessory kits that are available for the HELIXX™ steel hopper spreaders, follow the instructions included with each kit.



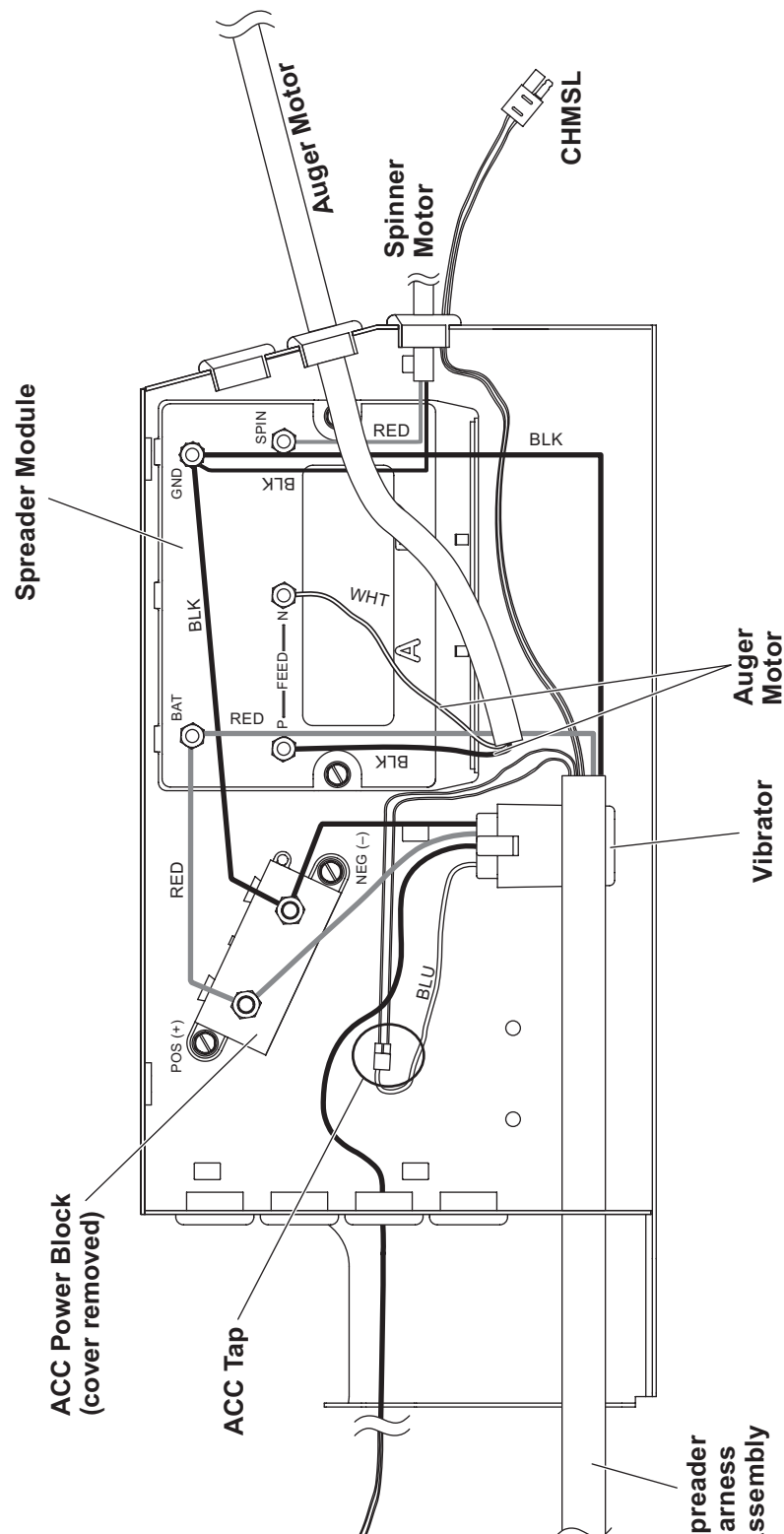
# ELECTRICAL COMPONENTS

## VEHICLE HARNESS DIAGRAM



# ELECTRICAL COMPONENTS

## ELECTRICAL CONTROL BOX SCHEMATIC



## FINAL ADJUSTMENTS

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### FINAL CHECKLIST

- ☐ Verify that the auger and spinner turn freely.
- ☐ Verify that dielectric grease is applied to all electrical connections.
- ☐ Verify that wire harnesses and battery cables are properly secured away from hot or moving parts.
- ☐ Verify that the vehicle battery cable has sufficient ground clearance when the spreader is removed from the vehicle.
- ☐ Verify that the CHMSL is properly wired and in working condition.
- ☐ Verify that the vibrator indicator light illuminates and that the vibrator is in working condition.

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

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