

# **Under-Frame and Support-Frame Mounts**

**For Single- and Two-Stage Tailgate Spreaders**

**Ford Super Duty F-250HD/350/450/550 1999 - 16**

## **Installation Instructions**

**⚠ CAUTION**

**Read Owner's Manual before operating or  
servicing spreader.**

# 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 to 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.

## SAFETY PRECAUTIONS

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 that all safety guards are in place.
- Before servicing the spreader, wait for conveyor or spinner to stop, then lock out power.
- 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.

### 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.

# SAFETY

## 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 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.

## 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 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.

# SAFETY

## NOISE

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

## VIBRATION

Operating snowplow 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 torque chart. Use standard methods and practices when attaching spreader, including proper personal protective safety equipment.**

<b>Recommended Fastener Torque Chart</b>					
<b>Inch Fasteners Grade 5 and Grade 8</b>					
<b>Size</b>	<b>Torque (ft-lb)</b>		<b>Size</b>	<b>Torque (ft-lb)</b>	
	 <b>Grade 5</b>	 <b>Grade 8</b>		 <b>Grade 5</b>	 <b>Grade 8</b>
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
<b>Metric Fasteners Class 8.8 and 10.9</b>					
<b>Size</b>	<b>Torque (ft-lb)</b>		<b>Size</b>	<b>Torque (ft-lb)</b>	
	 <b>Class 8.8</b>	 <b>Class 10.9</b>		 <b>Class 8.8</b>	 <b>Class 10.9</b>
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.					

## WEIGHT/LOADING RESTRICTIONS

These instructions cover vehicles recommended for carrying the spreader. Please see your sales outlet for proper vehicle applications.

### ⚠ WARNING

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

### 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.**

### CLASS IV RECEIVER HITCH

The following table contains information regarding the Class IV receiver hitch.

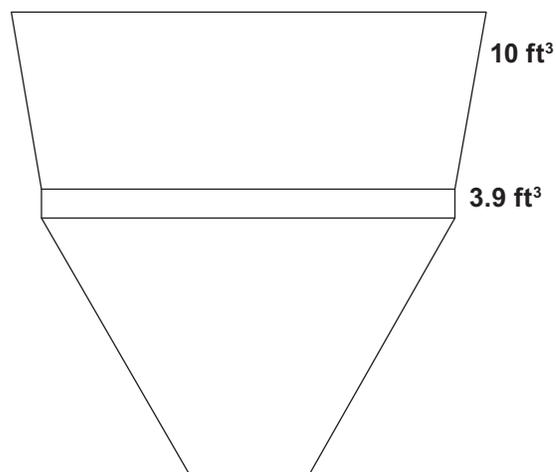
Hitch Type	Max. Gross Trailer Wt. (lb)	Max. Tongue Wt. (lb)
Weight Distributing	10,000	1,000
Weight Carrying Ball Mount	10,000	1,000

### APPROXIMATE MATERIAL WEIGHTS

#### ⚠ CAUTION

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

Material	Density (lb/ft <sup>3</sup> )
Very Coarse Salt	35
Coarse Salt	45
Fine Salt	50
Sand	95



**Salt = 40 lb/ft<sup>3</sup> (Average)**  
**10 ft<sup>3</sup> x 40 lb/ft<sup>3</sup> = 400 lb**

**Sand = 95 lb/ft<sup>3</sup>**  
**10 ft<sup>3</sup> x 95 lb/ft<sup>3</sup> = 950 lb**

# UNDER-FRAME MOUNT INSTALLATION

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## Frame Mount Installation

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**NOTE: Remove any existing trailer hitch and other after-market equipment that may interfere with the installation of this product according to these instructions.**

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1. Disconnect license plate illuminator bulbs and harness clips from bumper (one per side).
2. Support bumper and remove nuts securing bumper brackets to frame (two per side). Remove bumper from truck.
3. If trailer plug is attached to factory hitch (if so equipped), unplug trailer wire harness from hitch after first removing the plastic U-clip on the plug. Retain U-clip for reinstallation.
4. Remove the trailer plug and bracket assembly from the factory hitch. Retain the two self-tapping screws, along with the plug and bracket assembly, for later installation on the spreader subframe receiver hitch.
5. Support hitch and remove the fasteners securing hitch to frame. Remove hitch. Retain hitch and hardware for transfer when vehicle is sold or traded.

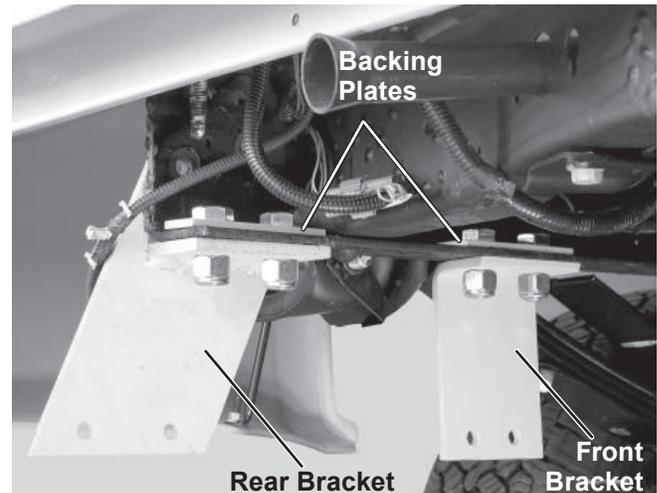
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**NOTE: On 1999 model year trucks, enlarge each of the eight frame holes used to attach brackets and backing plates to 25/32" in the following steps.**

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## Rear Bracket Installation

1. Position rear bracket against frame and align holes in lower frame flange and bumper bracket holes to holes in bracket.
2. Secure bracket using backing plate above lower frame flange. Insert two 3/4" x 2" cap screws down through backing plate, vehicle frame and rear bracket. Secure with locknuts.
3. Repeat for other side.



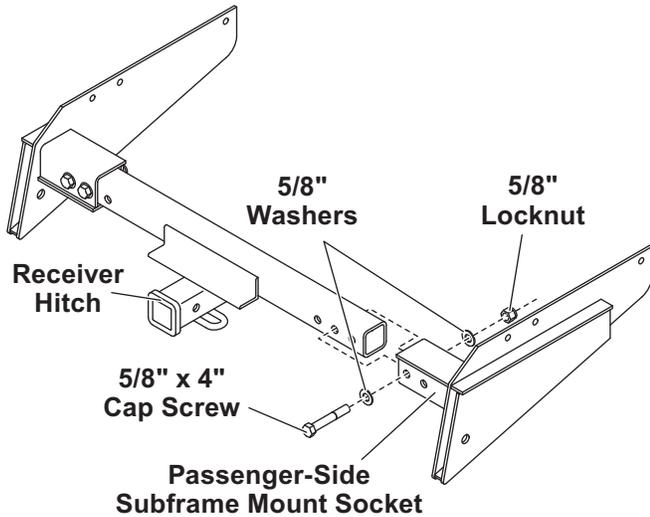
## Front Bracket Installation

1. Position front brackets to existing holes in lower frame flange and secure using backing plates, 3/4" x 2" cap screws, and locknuts.
2. Repeat for other side.

# UNDER-FRAME MOUNT INSTALLATION

## SUBFRAME ASSEMBLY

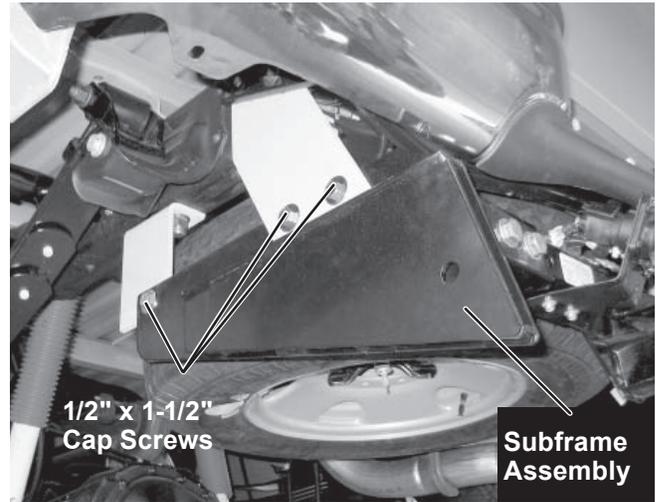
1. Insert receiver hitch into passenger-side subframe mount socket to first position (wide configuration) and align holes.



2. Install two 5/8" x 4" cap screws (with 5/8" flat washers under heads). Secure with 5/8" flat washers and 5/8" locknuts.
3. Repeat on other side.

## SUBFRAME ASSEMBLY INSTALLATION

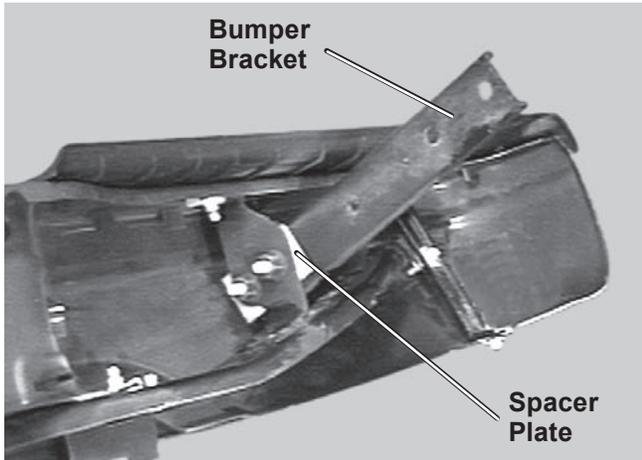
1. Position the assembled subframe under the truck inside of the two rear mount brackets and outside the two front mount brackets.
2. Install two 1/2" x 1-1/2" cap screws in the rear brackets and one 1/2" x 1-1/2" cap screw in the front bracket on each side with 1/2" flat washers under heads. Secure with 1/2" flat washers and 1/2" locknuts.



# UNDER-FRAME MOUNT INSTALLATION

## Bumper Installation

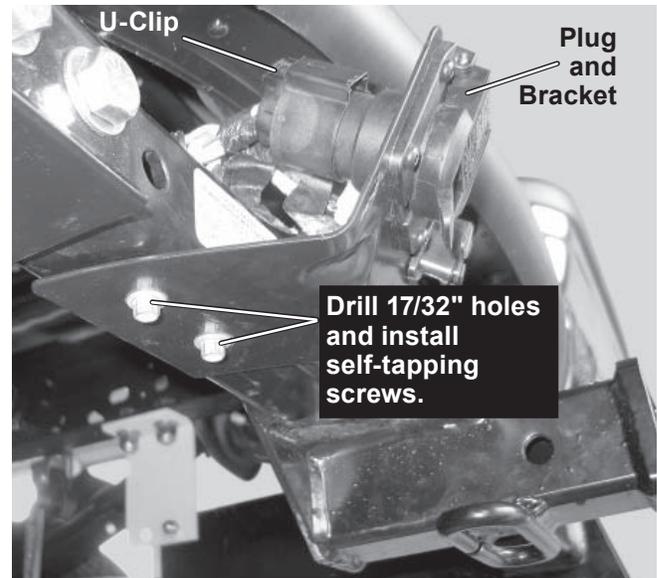
1. Install spacer plates to both sides of bumper between bumper and bumper brackets using original hardware.



2. Install bumper to vehicle using original hardware. The original bolts will pass through the vehicle frame, then through the spreader rear bracket, then through the bumper bracket.
3. Tighten all fasteners according to recommended fastener values on torque chart.
4. Reconnect license plate illuminator bulbs and harness clips to bumper (one per side).

## Trailer Plug and Bracket Installation (2005 and Newer)

1. The installer is permitted to drill two 17/64" diameter holes in the underside of the hitch tube, directly under the rating label on the driver side, for the sole purpose of attaching the trailer plug furnished with the vehicle factory hitch. In accordance with the warning label on the hitch tube, no other holes are allowed.
2. Attach the plug and bracket assembly as shown using the two self-tapping bolts furnished with the vehicle. Locate the holes by using the plug bracket as a template.



3. Reconnect the trailer harness to the plug. Install the plastic locking U-clip.

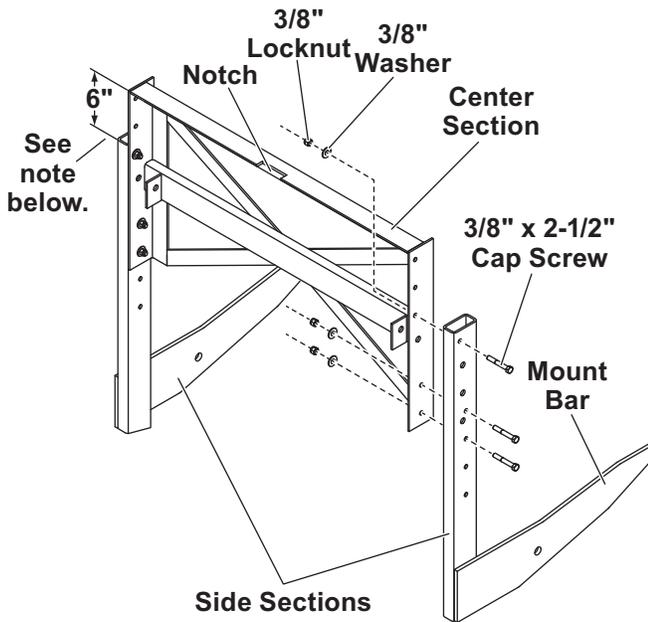
## Vehicle Wiring Harness

Refer to the wiring harness and instructions furnished with the tailgate spreader. The wiring may now be installed.

# UNDER-FRAME MOUNT INSTALLATION

## SECONDARY FRAME ASSEMBLY

1. Place the center section on the ground with the notch in the top cross member facing downward. Position the L-shaped side sections on either side of the center section so that the 3/8" thick mount bars are pointing upward and are outboard of their tubes (wide configuration). Locate the two L-shaped side sections so that the tops of their tubes are approximately 6" below the top cross member of the center section.



### Highest Center Section Position Shown

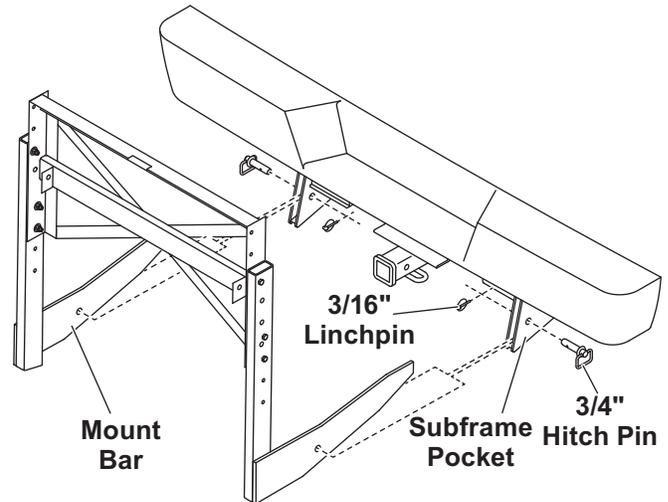
2. Align the holes and install six 3/8" x 2-1/2" cap screws through the tubes of the L-shaped side sections and the center section side plates. Retain with washers and locknuts, using three on each side.

**NOTE: The center section may be assembled to the L-shaped side sections three or six inches lower for use with higher trucks.**

3. Tighten all fasteners according to the torque chart.

## MOUNTING THE SECONDARY FRAME

1. Position the secondary frame behind the truck and insert the mount bars of the secondary frame into the subframe pockets.



2. Slide the secondary frame into the subframe until the holes align.
3. Install two 3/4" hitch pins through the holes in the subframe and the secondary frame.
4. Install a 3/16" linchpin into the hole of each 3/4" hitch pin.

# UNDER-FRAME MOUNT INSTALLATION

## SPREADER INSTALLATION

**NOTE:** If the spreader obstructs the view of the license plate, check for any local regulations that may apply.

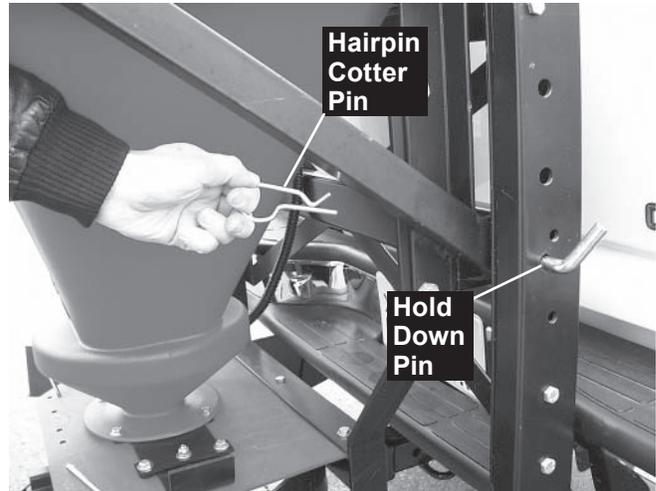
1. Lift the spreader assembly and tip slightly forward. Position tabs on the spreader assembly over the top of the installed secondary frame assembly and lower the spreader assembly.



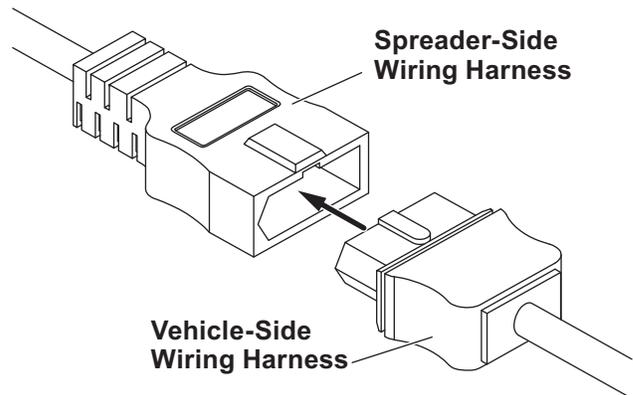
2. Allow the spreader assembly to rotate until the bottom contacts the secondary frame assembly.

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

3. Insert hold-down pins on each side and secure with hairpin cotter pins.



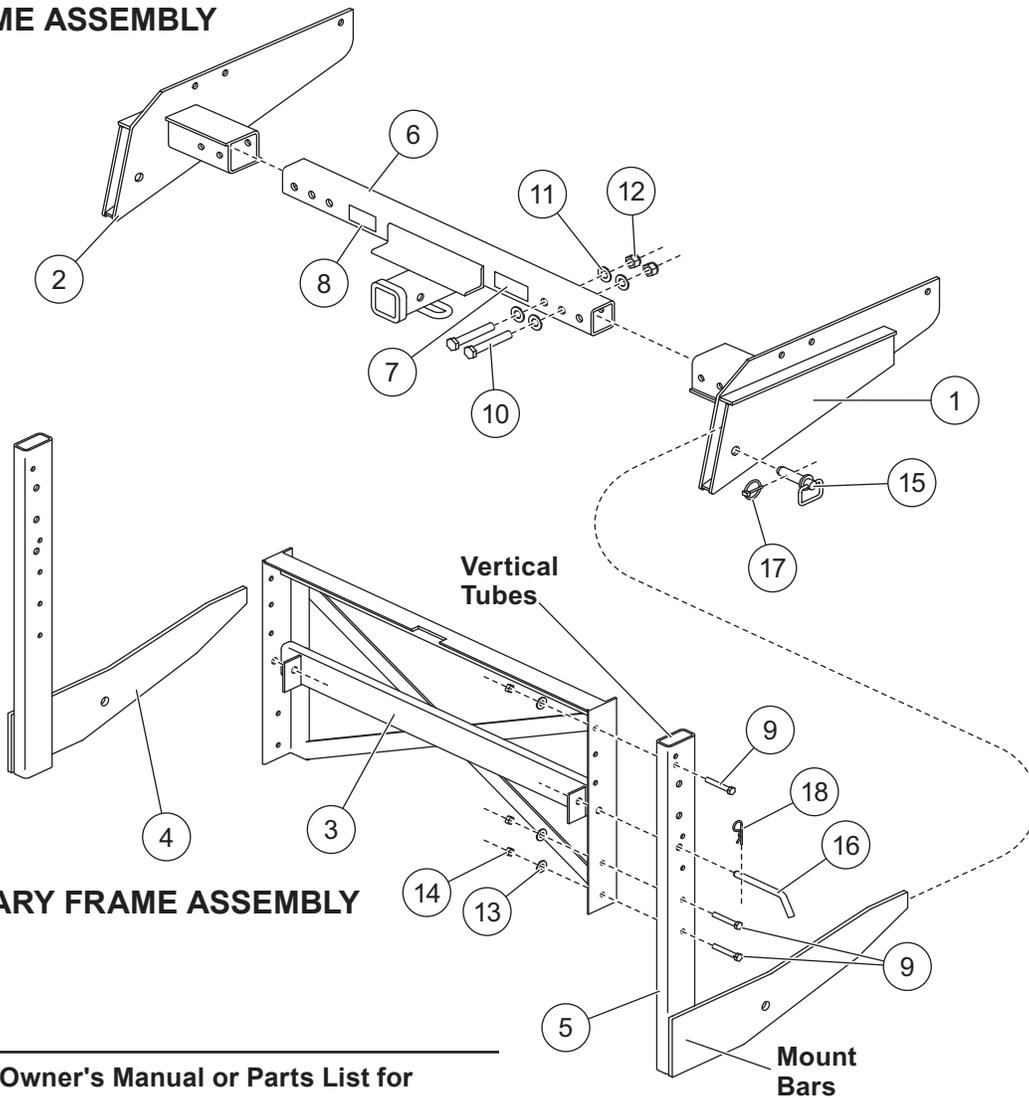
4. Connect the spreader-side wiring harness to the vehicle-side wiring harness.



**NOTE:** Coat all electrical connections with dielectric grease.

# ASSEMBLY DIAGRAMS

## SUBFRAME ASSEMBLY



## SECONDARY FRAME ASSEMBLY

**NOTE: See Owner's Manual or Parts List for service parts part numbers.**

Under-Frame Mount					
Item	Qty	Description	Item	Qty	Description
1	1	Mount Subframe – PS	6	1	Receiver Hitch with Labels (incl. items 17 and 18)
2	1	Mount Subframe – DS	7	1	Label – Information (Warning)
3	1	Secondary Frame – Center	8	1	Label – Information (Rating)
4	1	Secondary Frame – DS	ns	1	Bolt Bag
5	1	Secondary Frame – PS			
Bolt Bag					
9	6	3/8-16 x 2-1/2 Hex Cap Screw G8	14	6	3/8-16 Hex Locknut GB
10	4	5/8-11 x 4 Hex Cap Screw G8	15	2	3/4 x 2-3/4 Hitch Pin
11	8	5/8 Plain Washer Narrow	16	2	1/2 x 5-1/2 Pin
12	4	5/8-11 Hex Locknut GB	17	2	3/16 Linchpin
13	6	3/8 Plain Washer Wide	18	2	1/8 Hairpin Cotter
ns = not shown			G = Grade		

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The company reserves the right under its product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used. This equipment manufacturer or the vehicle manufacturer may require or recommend optional equipment for spreaders. Do not exceed vehicle ratings with a spreader. The company offers a limited warranty for all spreaders and accessories. See separately printed page for this important information.

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