

# **27936 and 27936-1**

## **Under-Frame Mount for Single- and Two-Stage Tailgate Spreaders**

**Dodge Ram 2500HD/3500**

**2003 - 13**

**Installation Instructions**

**⚠ CAUTION**

Read the Owner's Manual before operating or servicing the 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 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.

---

## 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 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 the torque chart. Use standard methods and practices when attaching spreader including proper personal protective safety equipment.

Recommended Fastener Torque Chart (ft-lb)			
Size	Torque		
	 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.			

# 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.

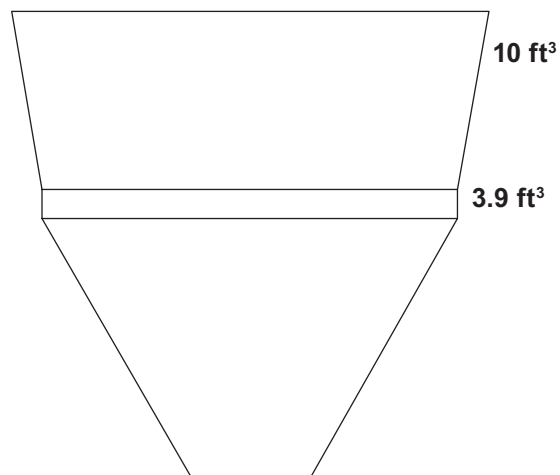
Hitch Type	Max. Gross Trailer Wt. (lb)	Max. Tongue Wt. (lb)
Weight Distributing	10,000	1,000
Weight Carrying Ball Mount	10,000	1,000

## APPROXIMATE MATERIAL WEIGHTS

### ⚠ CAUTION

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

Material	Density (lb per cubic ft)
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

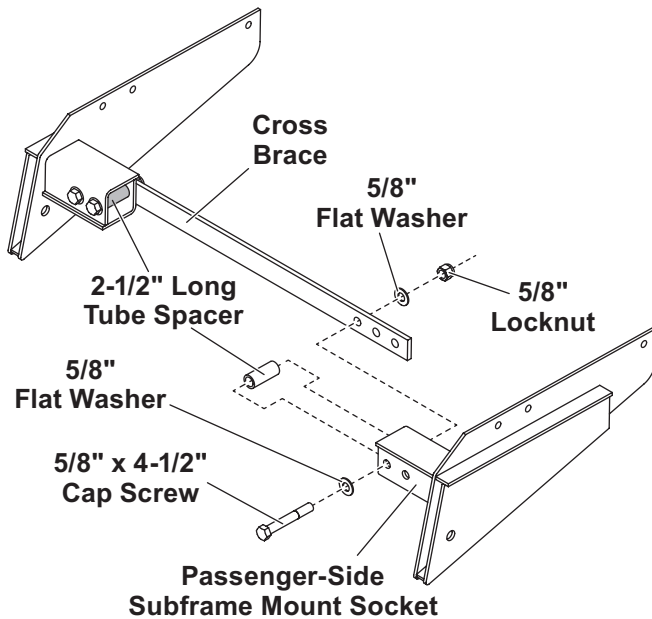
# UNDER-FRAME MOUNT INSTALLATION

## SUBFRAME ASSEMBLY

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

### If truck is equipped with optional OEM receiver hitch:

1. Position the cross brace in front of the passenger-side subframe mount socket at its furthest position (narrow configuration) and align holes.

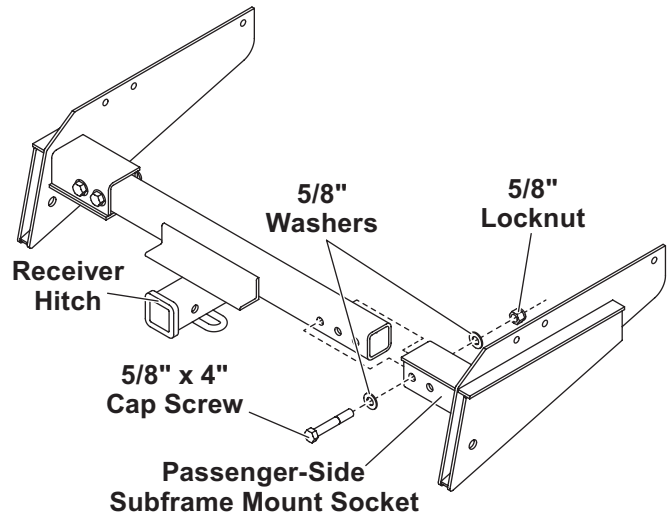


2. Install two 5/8" x 4-1/2" cap screws (with 5/8" flat washers under heads) through the subframe mount socket, tube spacers and cross brace as shown. Secure with 5/8" flat washers and 5/8" locknuts. The 5/8" x 4" cap screws and receiver hitch will not be used in this application.

Repeat on the other side.

### If truck is not equipped with optional OEM receiver hitch:

1. Insert the receiver hitch into the passenger-side subframe mount socket to furthest position (narrow 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. The 5/8" x 4-1/2" cap screws, 2-1/2" long tube spacers and flat cross brace will not be used in this application.

Repeat on the other side.

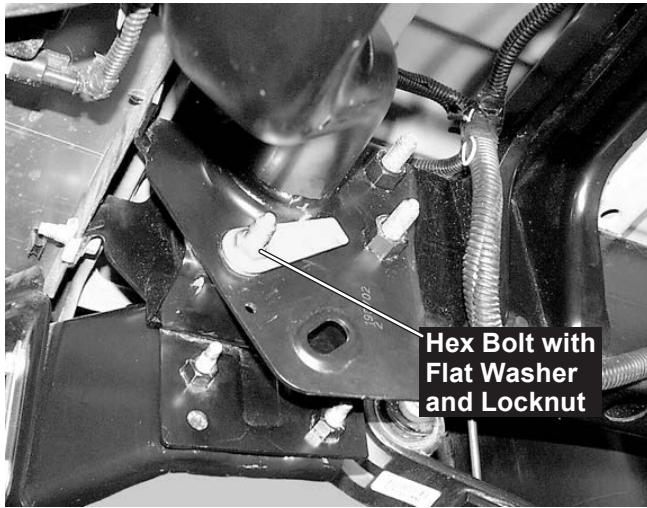
# UNDER-FRAME MOUNT INSTALLATION

## SUBFRAME ASSEMBLY INSTALLATION

Before proceeding, determine which truck configuration you have by comparing it to the photos of Configuration 1 (shown below) and Configuration 2 (shown on the following page).

### For Configuration 1:

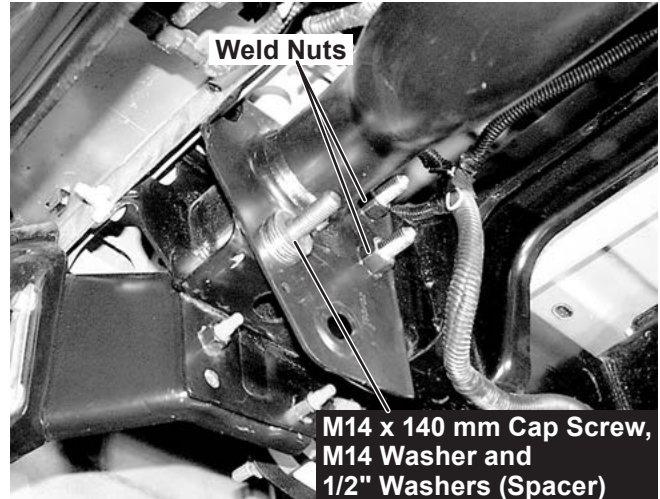
#### Hex Bolt with Flat Washer and Locknut



1. Remove the OEM-supplied metric hex bolt with flat washer and locknut from bumper assembly. The hex bolt with flat washer will not be reused.

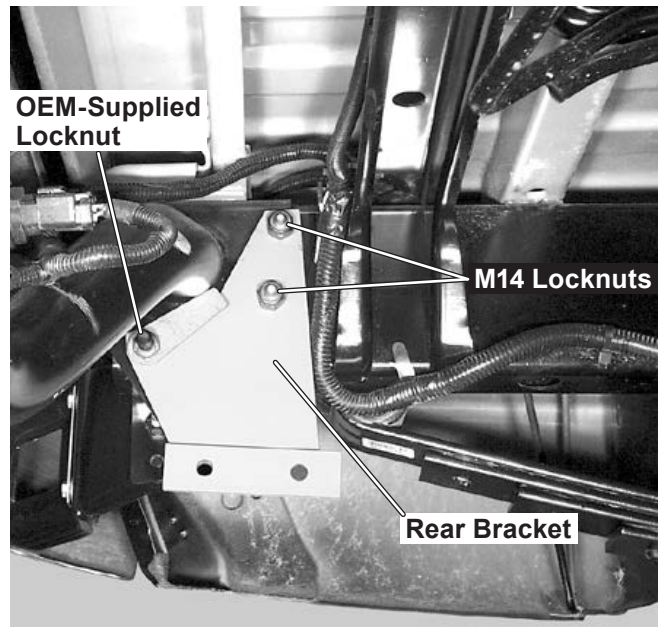
Repeat on the other side.

2. Install one M14 x 140 mm cap screw with M14 flat washer under head. Assemble a spacer approximately 5/8" thick with 1/2" flat washers.



Repeat on the other side.

3. Position the driver-side rear bracket against the spacer (1/2" flat washers) and the bumper assembly weld nuts. Secure with the OEM-supplied locknut and two M14 locknuts.



Repeat on the other side.

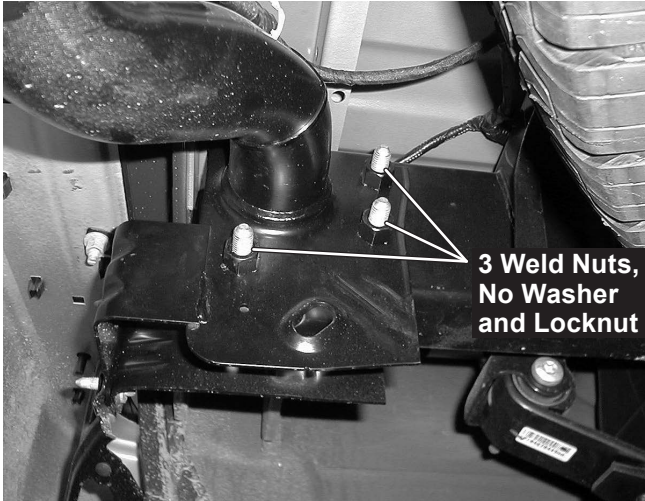
Continue with Step 4.



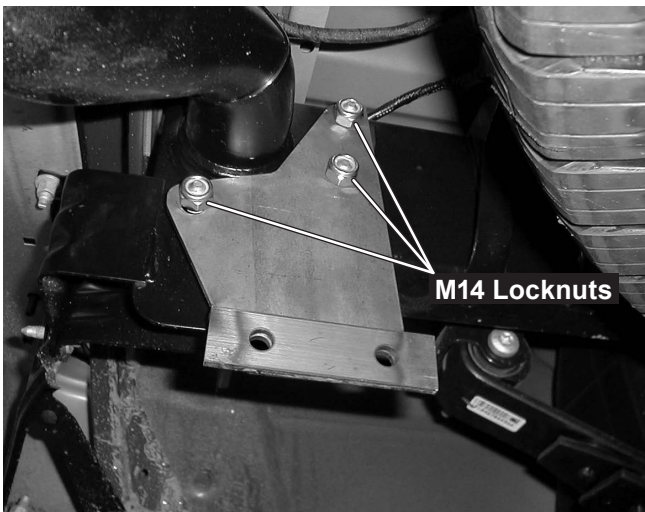
## UNDER-FRAME MOUNT INSTALLATION

### For Configuration 2:

#### Three Weld Nuts, No Washer and Locknut:



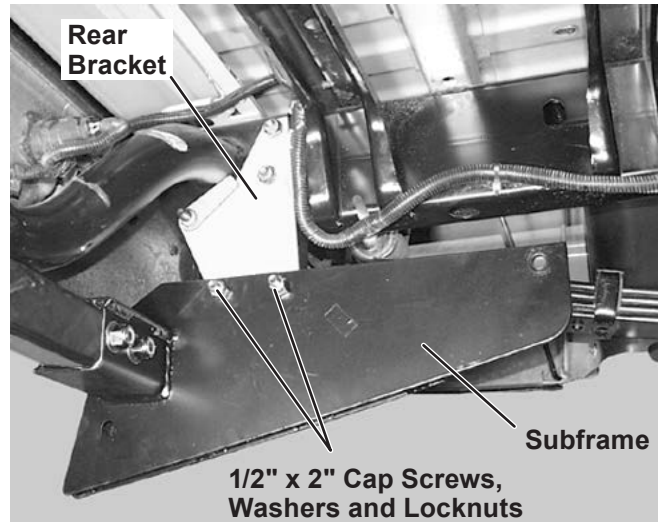
1. Position the driver-side rear bracket against the bumper assembly weld nuts.
2. Secure with three M14 locknuts.



3. Repeat on the other side.

### For Either Configuration 1 or 2:

4. Position the assembled subframe under the truck with rear brackets against outside surfaces of subframe. Install two 1/2" x 2" cap screws with 1/2" flat washers per side (four total) through the rear bracket and subframe, and secure with 1/2" locknuts.



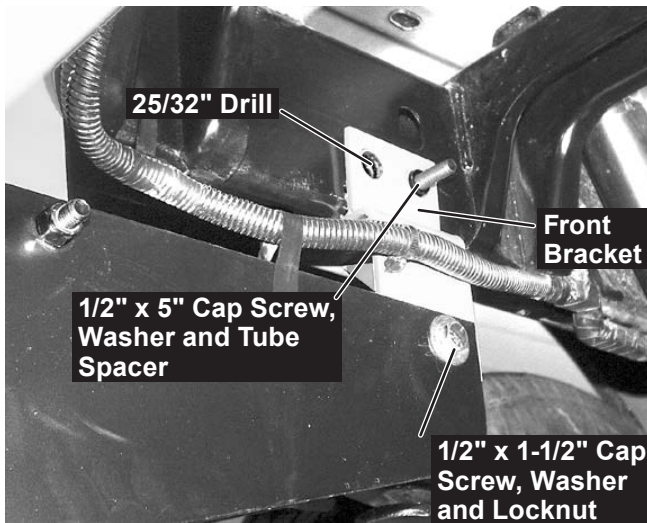
## UNDER-FRAME MOUNT INSTALLATION

### **⚠ 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.

5. Position the front bracket outside of the subframe and under the frame rail. Depending on the presence of any obstructions, align either the front or the rear hole on the bottom of the bracket with the hole in the subframe. Install a 1/2" x 1-1/2" cap screw with 1/2" flat washer from the inside of the subframe and secure with a 1/2" locknut. With the front bracket against the bottom surface of the frame rail, center punch the holes, then remove the bracket.

Drill two 25/32" holes on each side of the frame rail (four total) and reinstall the front bracket as previously described. Install two 1/2" x 5" cap screws with 1/2" flat washers through the tube spacers, front brackets and frame rail.



Repeat on the other side.

6. Secure with 1/2" flat washers and 1/2" locknuts.

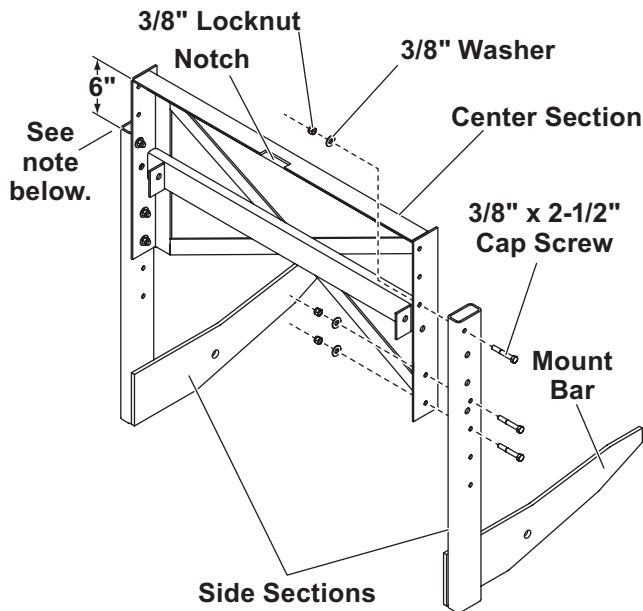


7. Tighten all fasteners according to the Torque Chart.

# 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 their 3/8" thick mount bars are pointing upward and are inboard of their tubes (narrow 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.



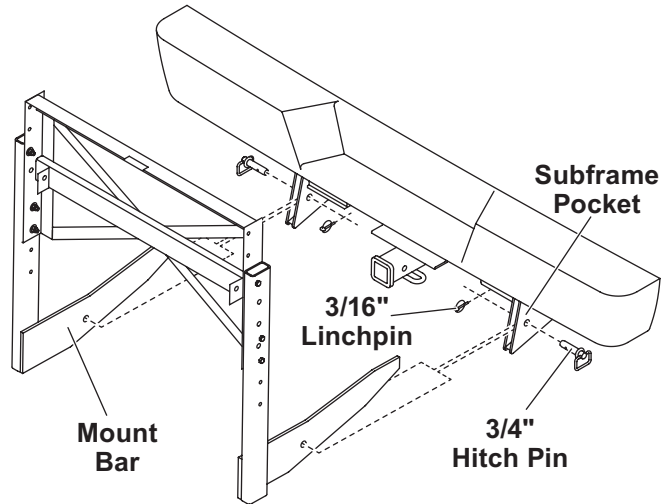
2. Align the holes and install six 3/8" x 2-1/2" cap screws through the tubes of the L-shaped side sections and the center section side plates. Retain with washers and locknuts, using three on each side.

**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 the tabs on the spreader assembly over the top of the installed secondary frame assembly and lower the spreader assembly.

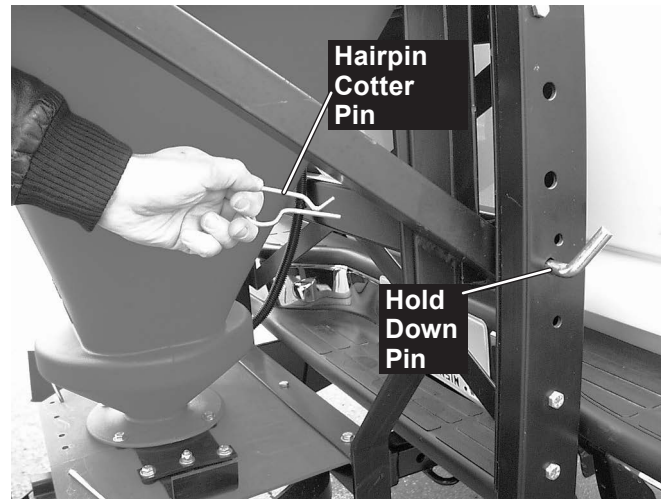


2. Allow the spreader assembly to rotate until the bottom contacts the secondary frame assembly.

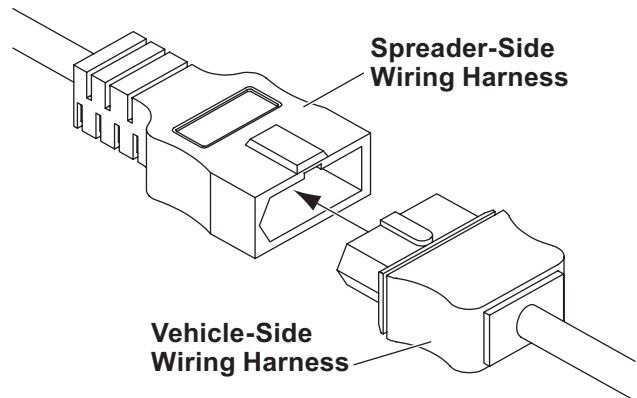
### ⚠ CAUTION

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



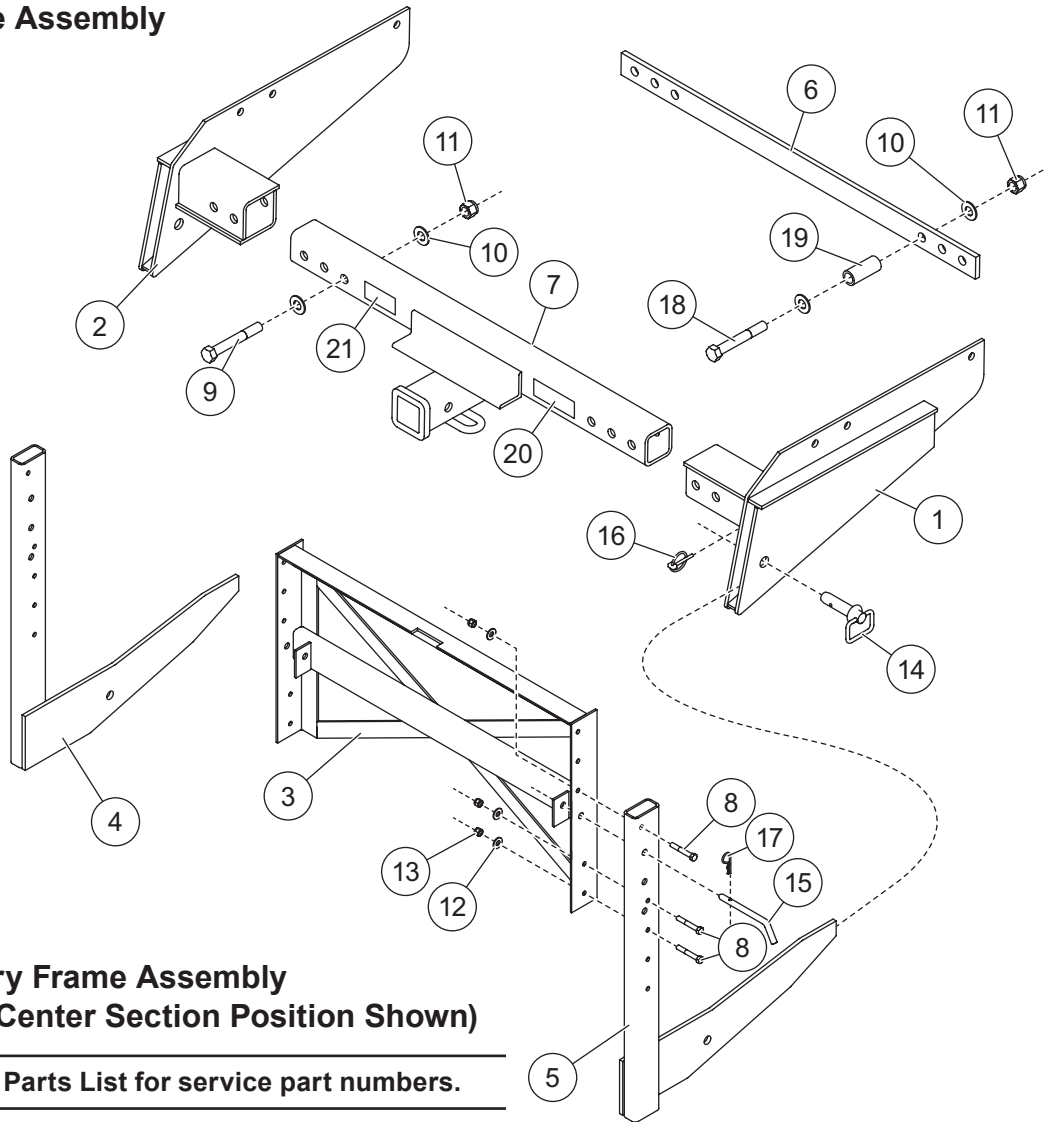
4. Connect the spreader-side wiring harness to the vehicle-side wiring harness.



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

# ASSEMBLY DIAGRAMS

## Subframe Assembly



## Secondary Frame Assembly (Highest Center Section Position Shown)

**NOTE: See Parts List for service part numbers.**

Subframe Assembly					
Item	Qty	Description	Item	Qty	Description
1	1	Mount Subframe – PS	12	6	3/8 Plain Washer
2	1	Mount Subframe – DS	13	6	3/8-16 Locknut
3	1	Secondary Frame – Center	14	2	3/4 x 2-3/4 Hitch Pin
4	1	Secondary Frame – DS	15	2	1/2 x 5-1/2 Pin
5	1	Secondary Frame – PS	16	2	3/16 Linchpin
6	1	Cross Brace	17	2	1/8 Hairpin Cotter
7	1	Receiver Hitch w/Labels	18	4	5/8-11 x 4-1/2 Cap Screw G8
8	6	3/8-16 x 1/2 Cap Screw G8	19	4	Tube Spacer
9	4	5/8-11 x 4 Cap Screw G8	20	1	Label Information (Warning)
10	8	5/8 Plain Washer	21	1	Label Information (Rating)
11	4	5/8-11 Locknut			

G = Grade

Items 8–17 are found in the support frame bolt bag assembly.

Items 18 and 19 are found in the under-frame mount bolt bag assembly.

---

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.

**Printed in U.S.A.**