

# Installation Instructions

## SHPE4000 SaltDogg® Electric Drive Poly Hopper Spreader 4.0 cubic yards

This manual applies serial numbers 11010 and above

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### General Information

Overall Length: 107.62 inches  
 Overall Width: 74 inches  
 Overall Height: 44 inches  
 Empty Weight: 774 lbs  
 Capacity Struck: 4.0 cu. yd.

### Vehicle Requirements

Trucks with GVWR 15,000 to 26,000 lbs.  
 135 AMP or higher alternator is recommended.

### Average Material Weights

| <u>Materials to use</u> | <u>Weight (pounds per cubic yard)</u> |
|-------------------------|---------------------------------------|
| Fine Salt-Dry           | 2,250                                 |
| Coarse Salt-Dry         | 1,431                                 |
| Sand Coarse-Dry         | 2,565                                 |

**Note:** To calculate the total spreader weight (including ice control material), add the empty spreader weight plus the ice control material and spreader accessories.



### CAUTION

Do not overload vehicle beyond the vehicle's GVWR or GAWR. Check vehicle's load rating certification sticker for maximum vehicle capacity.

### Safety Precautions

1. Read this entire Owners Manual before operating this spreader.
2. Read all safety decals on the spreader before operating.
3. Check to make sure all safety guards are securely mounted into place before operating this spreader.
4. Verify that all personnel are clear of the spreader spray area before starting or operating this spreader.
5. Do not over-load your vehicle beyond payload limits. If there are any questions, contact the vehicle manufacturer.
6. Do not adjust, clean, lubricate or unclog material jams without first turning off the spreader.
7. Do not climb on or in the spreader during operation. Do not ride on the spreader while the vehicle is in motion.
8. Make sure the spreader is securely fastened to the vehicle in accordance with this manual.
9. Do not operate a spreader that is in need of maintenance or repairs.
10. Always disconnect the battery before removing or replacing electrical components.

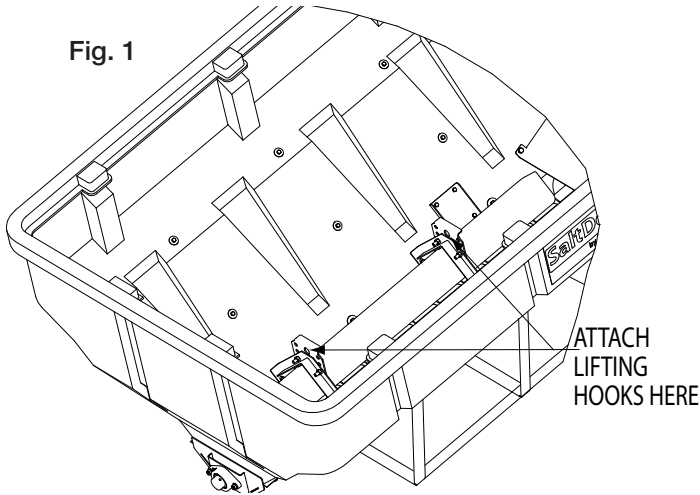
### WARNING

Improper installation and operation could cause personal injury, and/or property damage. Observe the following Safety Precautions before, during and after operating this spreader. By following these precautions and common sense, possible injury to persons and potential damage to this machine may be avoided.

**Installation Instructions**

**1. Mounting the Spreader onto the Vehicle:**

- A.** Remove the tailgate from the vehicle (if equipped) as well as any other object which will interfere with the spreader.
- B.** Check truck's bed for all kinds of sharp debris or foreign objects. They can cut and seriously damage poly hopper.
- C.** Next, set the spreader in the truck body. Use openings in both inverted vee brackets to lift the spreader (Fig.1).



- D.** Lower spreader into the truck bed. Attach chute to the spreader. If necessary, slide spreader rearward to have at least 1" clearance between chute and rear most vertical obstruction.
- E.** Make sure the spreader is centered from side to side and rear gussets rest fully on trucks body.
- F.** Using holes in gussets as templates transfer six (6) holes positions on trucks bed. Make sure that these holes will not interfere with any important trucks components. Drill six 9/16" holes. Bolt spreader to the vehicle. Using 1/2" grade 5 hardware.

**⚠ WARNING**

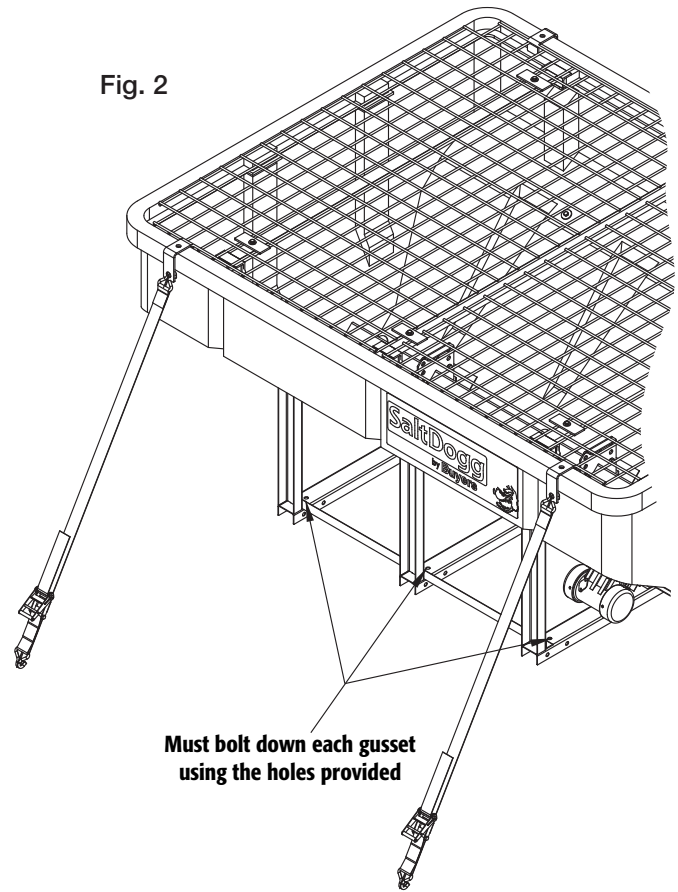
Do not drill holes into fuel tanks, fuel lines, through electrical wiring, etc. that may be damaged by drilling.

- G.** Attach tie-down hooks to the hopper. Secure spreader using four ratchet straps as shown. Tighten straps evenly to secure spreader in the middle of the truck box (Fig. 2). **Inspect straps and hardware after each time spreader is loaded. Tighten straps and hardware if necessary.**

**⚠ WARNING**

Important! Do not use ratchet straps or tailgate latch exclusively! Always bolt spreader to the vehicle.

Fig. 2



**Alternative tie-down methods:**

- Attach straps to round openings in frame uprights.
- As alternative method spreader can be installed into dump bed using Tailgate Latch Kit #3013744 (sold separately) Fig. 3. To insure proper installation follow instructions supplied with kit #3013744.

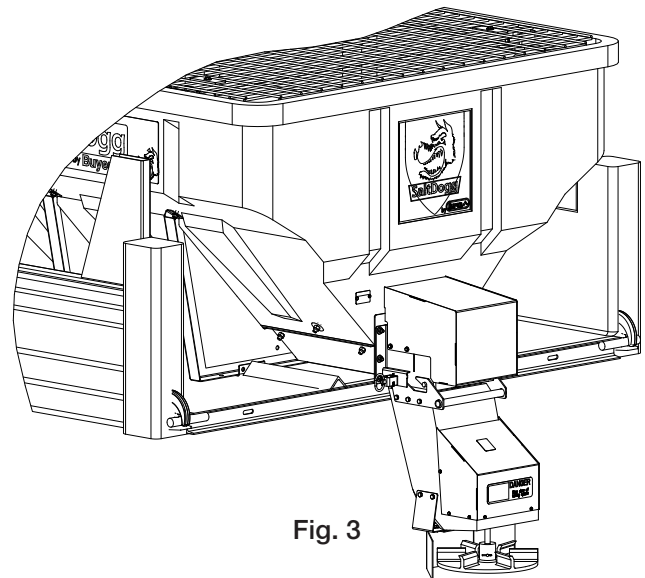
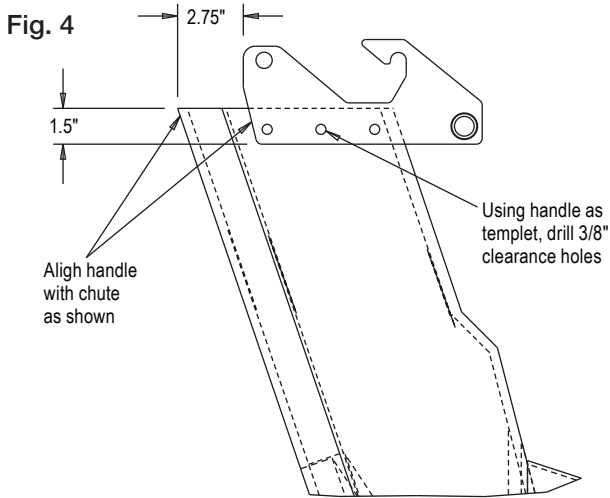


Fig. 3

**H.** It is recommended to have spinner disk positioned 16-20 inches above ground. If chute is too long for recommended heights, trim chute. Then follow instructions shown in Fig.4 to drill holes for chute handle. Attach handle to chute using 3/8 screws, washers and nuts from hardware kit.



## 2. Control Box And Vehicle Wiring Harness Installation

Make sure you have connected the proper wire color.  
**THIS IS WIRE GROUND ELECTRICAL SYSTEM! NO CONNECTIONS TO TRUCK'S FRAME OR BODY ALLOWED!**  
**NOTE: Always disconnect battery before attempting to install electrical components on your vehicle.**

- A.** Mount the controller in a convenient location in the truck cab. It is recommended not to mount the controller directly in front of heat vents. Allow ample air space around controller.
  - B.** Route both wire harnesses into truck cab through firewall (it may be necessary to drill holes). Insulate hole to avoid water leaks.
  - C.** Insure no wires are nicked or damaged during installation.
  - D.** Connect the 4-pin connector on the wire harness to the control box 4-pin connector.
- IMPORTANT!** Make sure all wires securely attached to vehicle or spreader. Use wire ties and/or wire clamps to attach wires. All excess wires must be rolled into bungles and attached to vehicle or spreader.

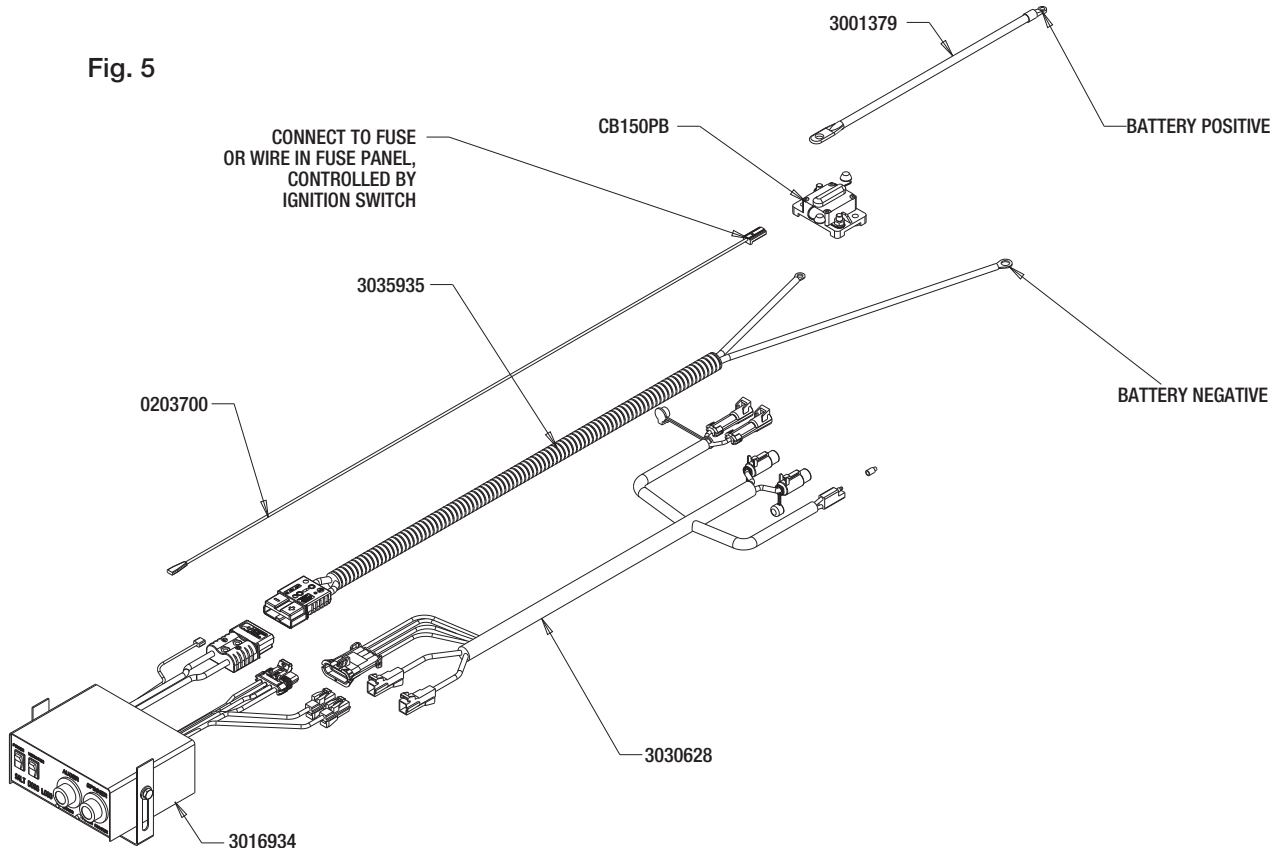
**⚠ WARNING**

Do not drill holes into fuel tanks, fuel lines, through electrical wiring, etc that may be damaged by drilling. To insure good performance of your spreader, check the condition of truck's electrical system. Using digital voltmeter, check alternator and battery voltage. With engine running and head lights and heater fan ON good voltage reading should fall between 13.0 and 15.3 volts. If voltage reading falls out of this range, check and adjust your electric system.

**⚠ CAUTION**

Do not mount controller in the way of air bag deployment!

**Fig. 5**



**E.** Connect the 2-pin connector on the power cable to the control box mating connector.

**F.** Connect wire harness single connectors to control box connectors.

**G.** Connect fuse connector to the fuse terminal or ignition switch (5 AMP max).

**H.** Lay out a path for the power cable to the battery, use quick ties to secure power cable.

**DO NOT CONNECT TO BATTERY AT THIS TIME!**

**I.** Lay out path for wire harness to the rear of the vehicle. It is recommended to stay clear of the exhaust system. Excess heat can damage the wire harnesses. Use quick ties to secure harness to underbody.

**J.** Connect the wire harness to the motors and vibrator. Make sure wire colors on wire harness match colors on the motor.

**Thoroughly clean battery terminals. Make sure battery terminals have no tarnish or corrosion.**

**DO NOT CONNECT WIRE HARNESS TO DAMAGED OR CORRODED TERMINALS! IT MAY RESULT IN OVERHEATING, LOST POWER AND POTENTIAL CONTROLLER DAMAGE!**

**K.** Install the circuit breaker within 12" from the battery. Connect red wire from cable 3035935 and battery cable 3001379 to circuit breaker according to the breaker markings. Connect the power cable and battery cable directly to the battery. Make sure connection to battery terminals is good and tight. Loose connection to battery terminals will result in sparking, overheating and possible battery damage!

In trucks with dual battery systems always connect power cable to primary battery (larger capacity/ truck starting battery).

**L.** Insure all functions of the controller are working properly.

**M.** Observe auger moving in proper direction. If direction is wrong reverse wires between Motor and Wire Harness.

**N.** Optional spot light (5 AMP max) can be installed on spreader. Use utility light kit part number 3018009. Remove cap from single white wire. Connect light to this wire and the trucks frames known ground (negative).and trucks frame.

### Spreader Operation

**1.** SHPE4000 spreader is equipped with a dual independent speed Controller with warning lights and a Vibrator switch. To start the spreader, press the ON-OFF switch. Switch will illuminate. The auger will accelerate to full speed for 2 sec., then slow down to dialed speed. The spinner will accelerate to full speed for 2 sec., then slow down to dialed speed.

**2.** To activate the Vibrator press the Vibrator switch ON. Vibrator switch will illuminate.

**3.** To stop the spreader push ON-OFF switch to OFF position.

### Material Flow Adjustments

**Always use screen during spreader operation! Various materials have different moisture absorption rate, some materials may not perform as desired. Therefore, the substitution of the alternate material may be necessary for optimum performance.**

The SHPE4000 is equipped with an adjustable inverted vee. Use lowest setting for salt and raise inverted vee when salt/sand

mixture or sand is used. Material spray pattern can be adjusted by changing chute shield position.

### Controller Warnings

Check controller instruction sheet for latest controller updates and troubleshooting codes. Controller instruction sheet is inside controller shipping box.

**IMPORTANT! INSTALLER, DO NOT DISCARD CONTROLLER INSTRUCTION SHEET. STAPLE SHEET TO SPREADER MANUAL AND GIVE TO END USER!**

### Spreader Maintenance

**1.** Wash spreader after every use. Make sure no material is left under auger and/or inside trough.

**2.** Inspect and retighten fasteners after every 5-7 hours of operation.

**3.** Lubricate bearings every 7-10 hours of operation using general automotive grease.

**4.** Inspect terminals/connectors every time you disconnect spreader from wire harness. Apply thin layer of dielectric grease on terminals. If any tarnish/corrosion is found, clean terminals and apply dielectric grease.

**5.** Use dielectric grease on all electrical connectors before an electrical connection is made or after connector is disconnected

**6.** Grease and spray with lubricant Auger bearing after every 20 hours of use.

**7.** Empty the spreader of all ice control materials when not in use. Wash out the spreader to prevent material builds up.

**8.** It is recommended to cover spreader with the tarp during storage periods. Tarp can be attached to anchors on both sides of tie downs.

### End of Season Maintenance

**1.** Wash spreader. Make sure no material or residue is left in and outside the hopper.

**2.** Lubricate bearing using general automotive grease.

**3.** Inspect wire harness, connectors for broken insulation, missing components. Replace if necessary.

**4.** Apply dielectric grease on all electrical connectors.

**5.** Store hopper indoors, in a dry, cool place.

**6.** Remove controller from truck. Store controller indoors, in a dry, cool place.

### Summer Storage

**1.** Apply dielectric grease or similar protective compound on all electrical connectors & protect them with caps before storage.

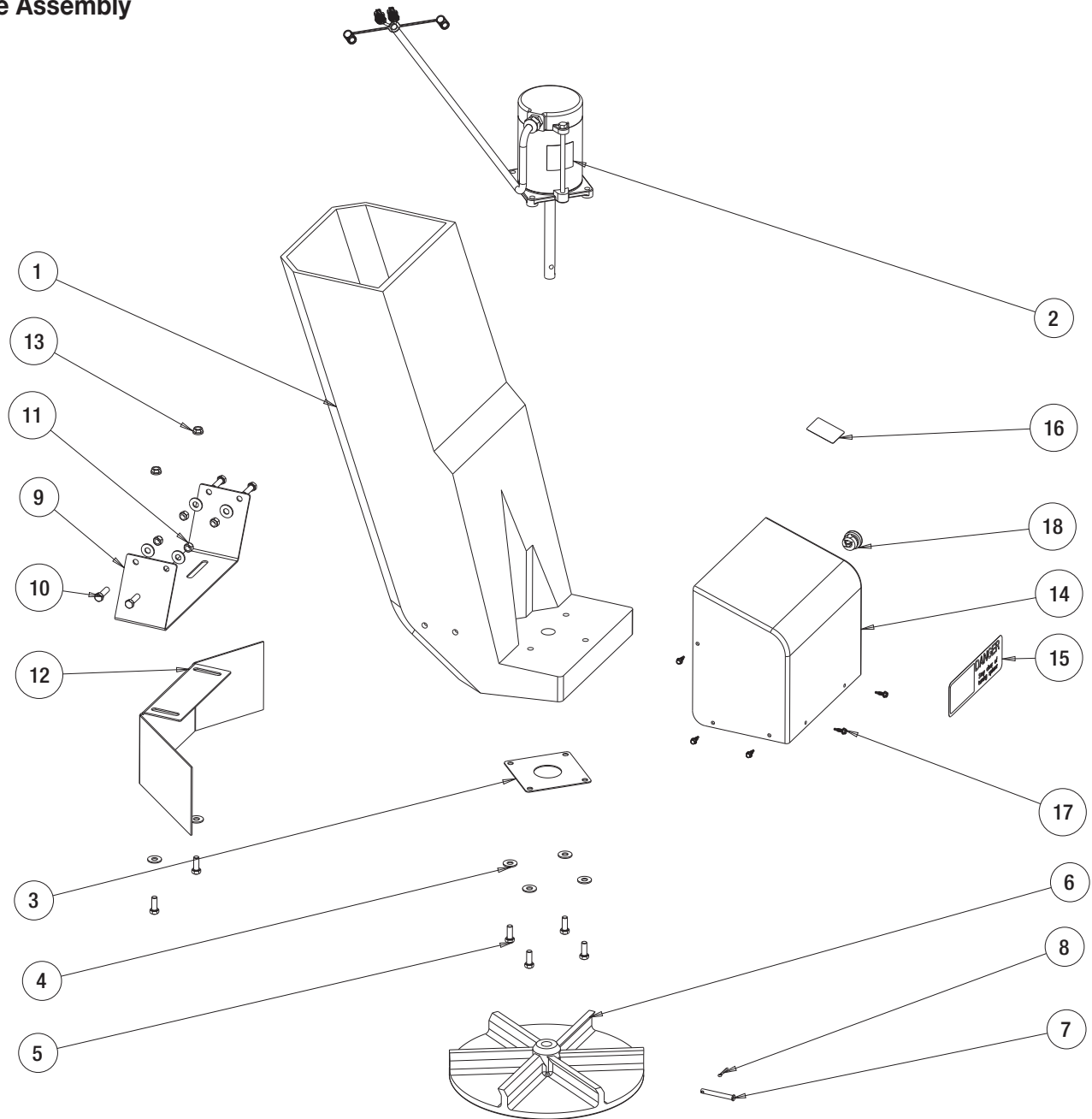
**2.** Disconnect and remove speed controller from vehicle and store it in dry and cool place. Protect controller from excessive heat and moisture.

**3.** Clean hopper and trough from all kinds of debris.

**4.** Remove, thoroughly lubricate and reinstall trough bearing.

**5.** Protect hopper from excessive temperatures during summer storage.

**Chute Assembly**

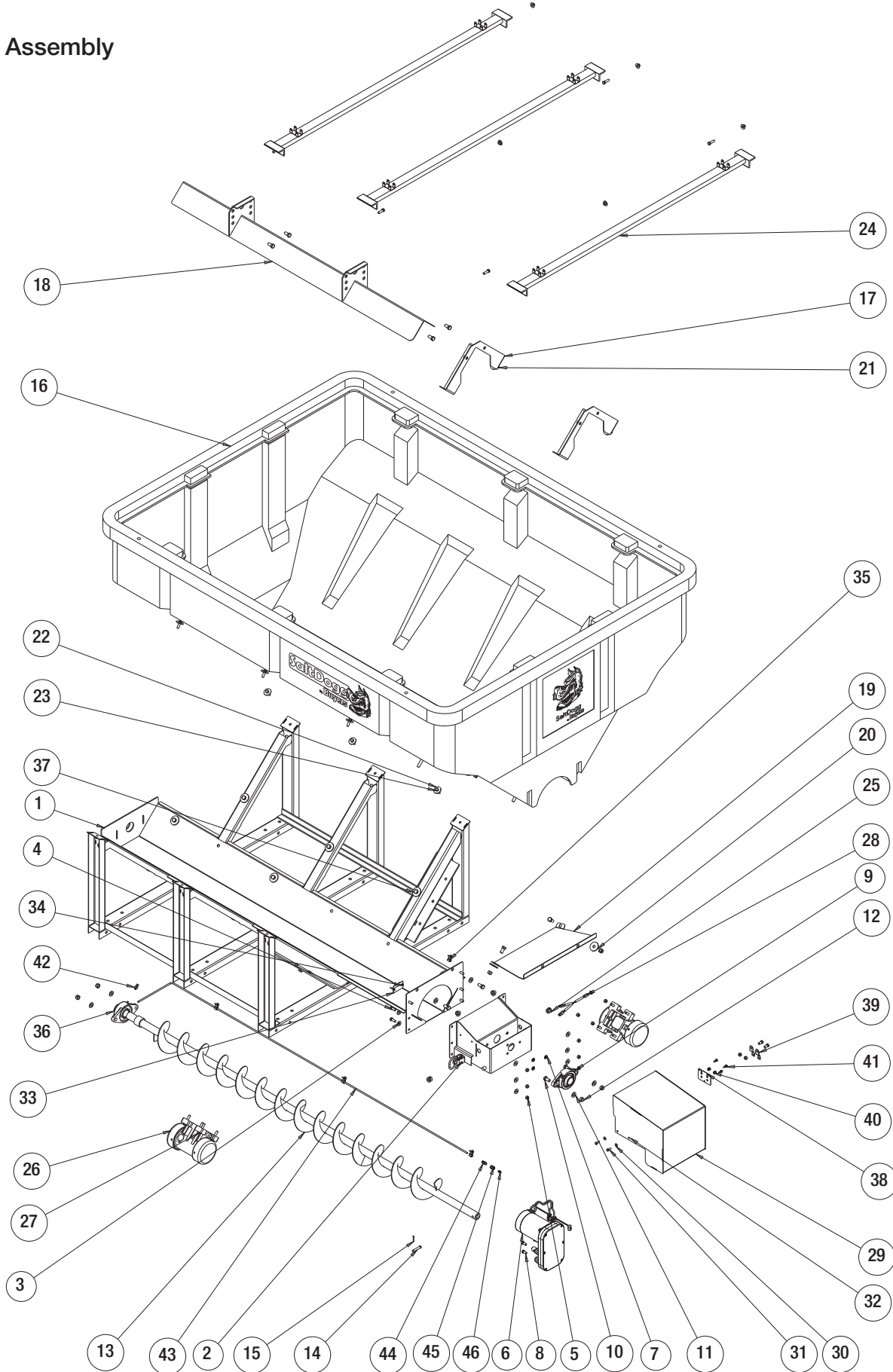


**Bill of Materials**

| ITEM NO. | PART NO.       | QTY. | DESCRIPTION                             |
|----------|----------------|------|---|
| 1        | 3012374        | 1    | CHUTE, SHPE4000                         |
| 2        | 3030907        | 1    | MOTOR 12 VDC, .5 HP SPINNER             |
| 3        | 3012802        | 1    | RETAINER, MOTOR, CHUTE                  |
| 4        | FWF038100007SS | 10   | WASHER, FLAT 3/8 USS SST                |
| 5        | FCS038016100SS | 6    | SCREW, HHC 3/8-16 X 1 304 SST           |
| 6        | 3012393        | 1    | SPINNER, 14" POLY CW                    |
| 7        | 3007113        | 1    | PIN, CLEVIS, 5/16 X 2-1/2, .141 HOLE ZN |
| 8        | FPC013000100   | 1    | COTTER PIN, 1/8 X 1, ZINC               |
| 9        | 3012397        | 1    | BRACKET, SHIELD CHUTE                   |
| 10       | FCS038016125SS | 4    | SCREW, HHC-3/8-16 X 1.25 SST            |

| ITEM NO. | PART NO.       | QTY. | DESCRIPTION                                 |
|----------|----------------|------|---|
| 11       | FNE038016044SS | 4    | NUT, NYLOCK 3/8-16 X 7/16 SST               |
| 12       | 3012396        | 1    | SHIELD CHUTE SHPE4000                       |
| 13       | 3001255        | 2    | NUT, HEX FLNG-3/8-16 SST                    |
| 14       | 3025108        | 1    | MOTOR COVER, CHUTE                          |
| 15       | 3007844        | 1    | DECAL, DANGER STAY CLEAR                    |
| 16       | 3002631        | 1    | LABEL, "NO STEP"                            |
| 17       | 3015873        | 8    | SCREW #12-14x 74 SS SELF DRIL HEX WASHER HD |
| 18       | 3025065        | 1    | BUSHING STRAIN RELIEF                       |

# Hopper Assembly

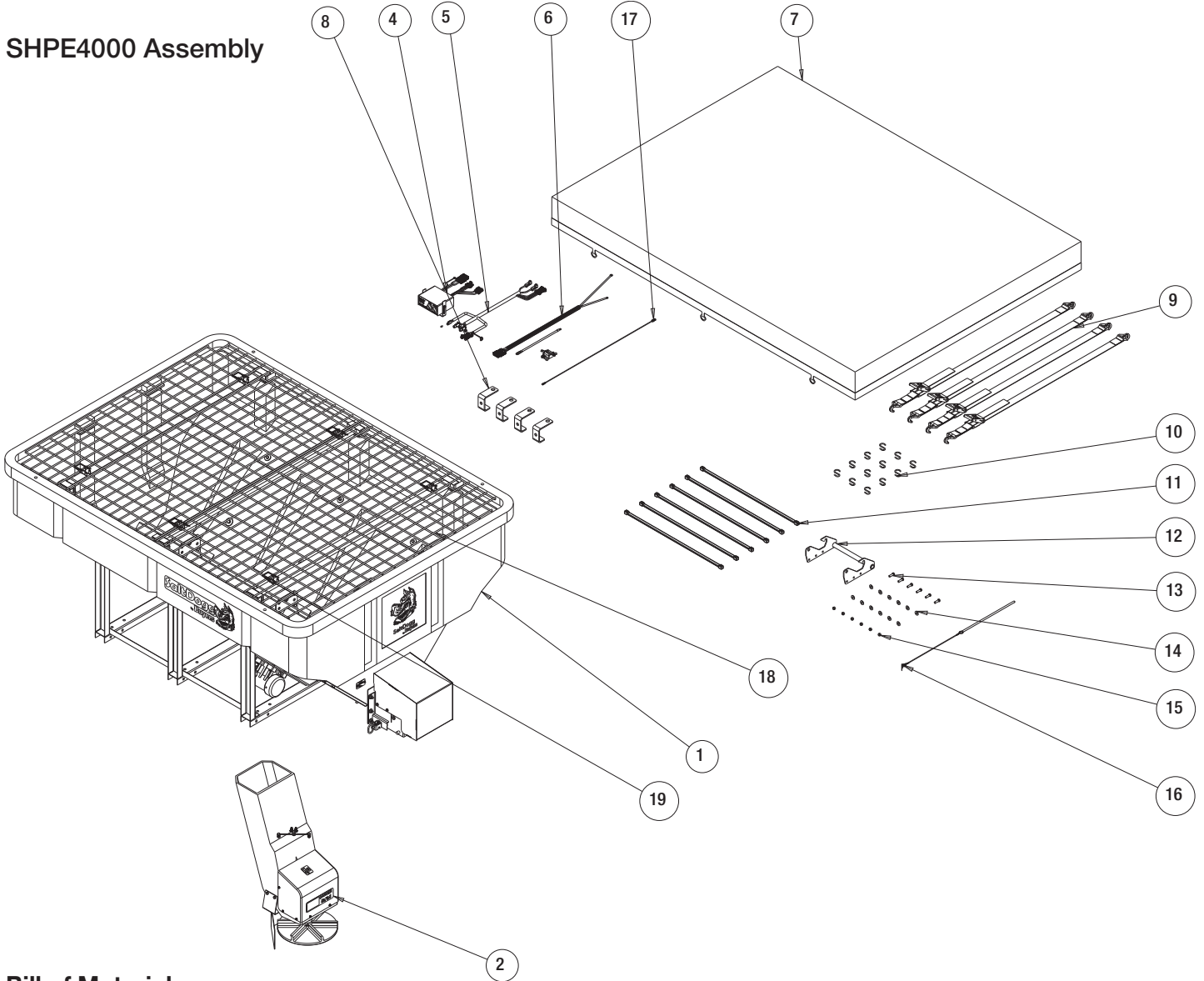


## Bill of Materials for Hopper Assembly

| ITEM NO. | PART NO.       | QTY. | DESCRIPTION                             |
|----------|----------------|------|---|
| 1        | 3013270        | 1    | TROUGH WELDMENT, SHPE4000               |
| 2        | 3012093        | 1    | BRACKET, WELDMNT GEAR MOTOR             |
| 3        | FWF038100007SS | 16   | WASHER, FLAT 3/8 USS SST                |
| 4        | FCS038016100SS | 4    | SCREW, HHC 3/8-16 X 1 304 SST           |
| 5        | FNE038016044SS | 28   | NUT, NYLOCK 3/8-16 X 7/16 SST           |
| 6        | 3038812        | 1    | GEAR MOTOR, AUGER SHPE4000              |
| 7        | FWL038069009SS | 3    | WASHER, LOCK RHS-3/8 SST                |
| 8        | FCS038016075SS | 5    | SCREW, HHC-3/8-16 X 3/4 SST             |
| 9        | 2F24SCR        | 2    | BEARING FLANGE 2 HOLES .75 ID SET SCREW |
| 10       | FCS050013100SS | 10   | SCREW, HHC-1/2-13 X 1 SST               |
| 11       | 3003873        | 14   | WASHER, FLAT 1/2 ID SST                 |
| 12       | FNE050013053SS | 24   | NUT, NYLOCK 1/2-13 SS                   |
| 13       | 3012001        | 1    | AUGER SHPE4000                          |
| 14       | 1410803        | 1    | PIN, CLEVIS, 3/8 X 2, 1038 ST, YZN      |
| 15       | FPC013000100   | 1    | COTTER PIN, 1/8 X 1, ZINC               |
| 16       | 3011999        | 1    | HOPPER POLY 4 CU YA                     |
| 17       | 3013442        | 2    | BRACKET WELDMNT, INERT. VEE             |
| 18       | 3013444        | 1    | INVERTED VEE, WELDMNT                   |
| 19       | 3012607        | 1    | COVER DISCHARGE                         |
| 20       | 3013516        | 18   | WASHER, FLAT 1/2 ID 2.0 OD .135 THK SST |
| 21       | 3006723        | 14   | SCREW, HEX HD 1/2-13x1.5 GR5 SS         |
| 22       | 3014189        | 6    | WASHER, FLAT 3/8 X 1.5 X.120 SST        |
| 23       | FCS038016125SS | 12   | SCREW, HHC-3/8-16 X 1.25 SST            |
| 24       | 3013279        | 3    | SCREEN SUPPORT, SHPE4000                |
| 25       | 3007821        | 3    | STRAIN RELIEF BUSHING                   |
| 26       | 3012081        | 2    | VIBRATOR 450 LBS, 12 VDC                |
| 27       | 3007066        | 8    | SCREW, HHC-3/8-16 X 2 SST               |

| ITEM NO. | PART NO.       | QTY. | DESCRIPTION                                 |
|----------|----------------|------|---|
| 28       | 3015652        | 1    | ADAPTER DUAL VIBRATORS, SHPE4000            |
| 29       | 3012408        | 1    | COVER, WELDMNT, GEAR MOTOR                  |
| 30       | FWF025063007SS | 8    | WASHER, FLAT 1/4 SAE SS                     |
| 31       | FCS025020075SS | 4    | SCREW, CAP 1/4-20 X 3/4 SST                 |
| 32       | FNE025020031SS | 4    | NUT, NYLON INSERT 1/4-20 SST                |
| 33       | 3017031        | 1    | PLATE, SERIAL NO. SHPE4000 SERIES           |
| 34       | 3007522        | 7    | SCREW, SHEET MTL #12x1.0 HEX WASHER HD SST  |
| 35       | 4375           | 5    | CLAMP, HOSE .4375, 9/32 HOLE                |
| 36       | 3013541        | 1    | CAP VYNIL 2.0 ID 1.0 LG                     |
| 37       | 3019616        | 2    | SCREW, HEX HEAD CAP 1/2-13 X 5.00 SST       |
| 38       | 3038833        | 1    | PLATE, CONNECTOR MOUNT                      |
| 39       | 3017121        | 2    | BRACKET, RECEPTACLE S28 DEUTSCH             |
| 40       | 3017982        | 2    | WIRE BUSHING OPEN/CLOSED HEYCO 2867         |
| 41       | 3015873        | 3    | SCREW #12-14x.74 SS SELF DRIL HEX WASHER HD |
| 42       | 3035344        | 1    | GREASE FITTING 1/4TUBE 1/4-28 MALE STRAIGHT |
| 43       | 3035360        | 1    | GREASE TUBE FRONT BEARING AUGER             |
| 44       | 3035347        | 1    | GREASE FITTING 1/4TUBE 1/8 NPT STRAIGHT     |
| 45       | H3309X2        | 1    | CONNECTOR, FEM NPT TO FEM NPT 1/8 X 1/8     |
| 46       | 800            | 1    | GREASE FITTING, 1/4 STD                     |
|          | 3006588        | .01  | COMPOUND ELECTRICAL NOCO CB-104             |
|          | 3006589        | .01  | LUBRICANT ANTISEIZE MOLY                    |

**SHPE4000 Assembly**



**Bill of Materials**

| ITEM NO. | PART NO.       | QTY. | DESCRIPTION                        |
|----------|----------------|------|------------------------------------|
| 1        | 3012015        | 1    | HOPPER ASSEMBLY SHPE4000           |
| 2        | 3019256        | 1    | CHUTE ASSEMBLY, SHPE6000           |
| 3        | 3039498        | 1    | HARDWARE KIT SHPE4000              |
| 4        | 3016934        | 1    | CONTROLLER SPEED 12 VDC, 60 AMP    |
| 5        | 3030628        | 1    | WIRE HARNESS MAIN                  |
| 6        | 3035938        | 1    | KIT POWER CABLE REPLACES 3016943   |
| 7        | 3012959        | 1    | TARP, SHPE4000                     |
| 8        | 3013589        | 4    | HOOK, TIE-DOWN SHPE4000            |
| 9        | 1496505        | 1    | HOLD DOWN KIT, SPREADER (4 STRAPS) |
| 10       | 9225           | 12   | S-HOOK, 2.5" ZN, TARP STRAP        |
| 11       | TS31           | 6    | STRAP, RUBBER TARP 31"             |
| 12       | 3013427        | 1    | HANDLE WELDMENT, CHUTE             |
| 13       | FCS038016125SS | 6    | SCREW, HHC-3/8-16 X 1.25 SST       |
| 14       | FWF038100007SS | 12   | WASHER, FLAT 3/8 USS SST           |
| 15       | FNE038016044SS | 6    | NUT, NYLOCK 3/8-16 X 7/16 SST      |
| 16       | 3030627        | 1    | LANYARD PIN ASSEMBLY               |
| 17       | 0203700        | 1    | WIRE ASSEMBLY, 36 LONG             |
| 18       | 3012458        | 2    | WIRE MESH, TOP SCREEN              |
| 19       | 66050          | 8    | SNAPPER PIN, 1/4 X 2, YLW ZINC     |