

Owners Manual

Electric Salt & Sand Spreader Models AG6E/AG8E/AG10E

Warning:

Do not exceed GVWR or GAWR with spreader and load. Overloading could result in an accident or damage.

Read this manual before installing or operating the spreader.





Warranty Registration Card

Dealer/Customer can register Sander **ONLINE** at www.arcticsnowplows.com or **Warranty Registration Card** and return to Arctic Equipment Manufacturing Corporation by fax or mail.

Arctic Equipment Manufacturing Corporation

35 Artisans Cres.
London, Ontario
Canada
N5V 5E9
Tel: (519) 452-3406
Fax: (519) 452-7119

Owners Name: _____

Address: _____

Date of Installation: _____

Model #: _____

Serial#: _____

How did you become aware of **Arctic Equipment Manufacturing Corporation**?

Newspaper Friend Radio/TV

Internet Distributor Previous Purchase

Other (specify) _____

Distributor's name: _____

Distributor's Address: _____

Sander Warranty

ARCTIC salt/sanding equipment is guaranteed to be free from defects in material or workmanship under normal use and service for 1 (one) year after the date of purchase. Arctic Equipment Manufacturing Corporation will replace or repair, at its election, without charge, any part which becomes defective within the period of time described above.

See specifications below what is not covered under warranty.

In no event shall Arctic Equipment Manufacturing Corporation be liable for claims for loss of use or consequential damages.

This warranty is made only to the original purchaser. There is no other warranty expressed, implied, or statutory.

All parts returned to us, transportation charges prepaid, must be accompanied with a "Return Goods Authorization" number, obtained from the factory. In order to reduce down-time, we will, on your request, send the parts required and you will be billed under the usual terms. A credit will be issued to your account when the parts, in our examination, prove to be defective.

Arctic Equipment Manufacturing Corporation reserves the right to change specification without prior notice.

Specifics not considered under warranty

Certain types of damage can occur, which cannot be attributed to defects in material and/or warranty, but rather as the owner's responsibility.

These conditions include, but are not limited to the following items. Damage resulting from:

1. Lack of or dirty lubrication.
2. Using other than recommended grade and type of lubrication.
3. Accident, abuse or neglect.
4. Stripped keyways or splines on external shafts.
5. Running over recommended speeds.
6. Repairs by an unauthorized person.
7. Damage caused by improper mounting or conditions on units not mounted by factory.
8. Improper maintenance or storage of equipment.

Customer Responsibility

The loaded vehicle, including all after market accessories, the salt/sanding equipment, passengers, and cargo, **MUST NOT** exceed the gross vehicle weight ratings (GVWR), front gross axle weight rating (FGAWR) or rear gross axle weight rating (RGAWR) specified on the Safety Compliance Certification Label located in the driver's side door opening. **It is the operator's responsibility to verify that these ratings are not exceeded.**

To determine the Gross Axle Weights for your vehicle, including all after market accessories, the salt/sanding equipment, passengers, and cargo, take your loaded vehicle to a scale. Place the front wheels of the vehicle on the scale to get the Front Gross Axle Weights (FGAW). To get the Rear Gross Axle Weights (RGAW), place the back wheels of the vehicle on the scale.

Disclaimer notice

Arctic Equipment Manufacturing Corporation (Arctic) does not assume liability for damage to your motor vehicle resulting from the attachment or use of Arctic salt/sanding equipment. The purchaser assumes all vehicle risk associated with the attachment and operation of this salt/sanding equipment.

The added weight may impair the operation and control of your vehicle. Additional equipment may be necessary before installing salt/sanding equipment. Please consult your vehicle dealers prior to the purchase and installation of the salt/sanding equipment.

Safety and warnings

WARNING:

- Do not exceed the gross vehicle weight ratings (GVWR), front gross axle weight rating (FGAWR) or rear gross axle weight rating (RGAWR) with spreader and load. Overloading could result in an accident or damage.(Refer to Material Density chart below)

Material Density

(lb per cubic yd)

Fine Salt – Dry 1400

Coarse Salt – Dry 1300

Coarse Sand – Dry 2800

Coarse Sand – Wet 3300

Before attempting any procedure in this book, read and understand all the safety information contained in this section. In addition, ensure all individuals working with you are also familiar with these safety precautions.

For your safety, warning and information decals have been placed on this product to remind the operator to take safety precautions. It is important that these decals are in place and are legible before operation begins. New decals can be obtained from Arctic Equipment Manufacturing or your local dealer.

Remember it is the owner's responsibility for communicating information on the safe use and proper maintenance of this equipment. The careful operator is the best operator. Most accidents are caused by human error. Certain precautions must be observed to prevent the possibility of injury to operator or bystanders and/or damage to equipment.

- Driver to keep bystanders a minimum of 25 feet away from operating spreader.

- Servicing the sander without special tools and knowledge could result in personal injury. See an authorized Arctic dealer for service.
- Before servicing the spreader, wait for conveyor or spinner to stop and then lock out power.
- Do not climb into or ride on spreader.

- Disconnect electric and/or hydraulic power and tag out if required before servicing or performing maintenance.

- Do not allow hands, hair or clothing to get near any moving parts such as spinner, chain etc.

-Do not wear neckties or loose clothing when working on the vehicle. These things can catch on moving parts or cause an electrical short circuit that could result in personal injury. Do not wear wrist watches, rings or other jewellery when working on the vehicle or individual equipment

-Do not allow unauthorized person to operate this unit.

-Do not work on a vehicle without having a fully serviced fire extinguisher available. (Dry chemical unit specified for gasoline, chemical or electrical fires).

-Do not smoke while working on the vehicle. Gasoline and battery acid vapours are extremely flammable and explosive.

-Do not alter the sander, or any part without written approval of Arctic Equipment Manufacturing Corporation.

-Do not use your hands to search for hydraulic fluid leaks; escaping fluid under pressure can be invisible and can penetrate the skin and cause injury.

- Do not leave unused material in hopper. Material can freeze or solidify, causing unit to not work properly. Empty and clean after each use.

-Inspect the sander periodically for defects. Parts that are loose, broken, missing or plainly worn must be tightened or replaced immediately.

-Check the job site for terrain hazards, obstructions and people. Check surrounding area for hazardous obstacles before operating this unit.

-Wear safety goggles when working on the vehicle to protect your eyes from battery acid, gasoline, and dust or dirt from flying off of moving engine parts.

-Be aware of and avoid contact with hot surfaces such as engine, radiator, and hoses.

-Wear safety glasses with side shields when striking metal against metal. Failure to heed could result in injury to the eye(s) or other parts of the body.

-Shut off the vehicle engine, place the transmission in neutral or park, turn the ignition switch to the "off" position, firmly apply the parking brake of the vehicle before removing / installing the sander.

- Be sure that the sander is properly attached before moving the vehicle.
- To remove the sander, the unit must be empty. Do not stand close to the sander when it is being lifted. Keep a safe distance away.

Sander Specification

- 3/4HP electric motor, 55 amp electric motor
- In cab variable speed controller or On/Off toggle switch

Variable Speed Controller for Electric Spreader is used for precise spreading. See more information in Variable Speed Control Section.

ON/ OFF switch - When a switch handle is in OFF position, a switch handle is not illuminated. If spreader in ON (motor is on) switch handle is illuminated red. If switch handle is illuminated white in OFF position a solenoid (under hood) is stuck and motor is running constantly. Disconnect power by removing connectors that connect two red and black cables at the back of the truck. See authorized Arctic Dealer.

- The motor and drive system is protected by a hinged hood
- Quiet electric-drive system
- Low-maintenance
- Stainless steel drive chain and hardened sprockets

Electric sander is equipped with an adjustable sand discharge chute. You can vary the spread width by simply redirecting the sand to another part of the spinner.

Spreader Installation

The AG6E spreader is designed for installation in a 6'/8' pickup truck bed. The AG8E is designed for installation in an 8' pickup truck bed. The AG10E spreader is designed for 10' dump truck or flat deck truck. Follow the steps below to install your unit in your vehicle.

- a) Slide spreader into position and secure with the ratchet straps into the cargo tie downs of the truck (pictures # 3 and #4)
- b) Bolt mounting angle bracket to spreader, then bolt it to the back of the truck using ½" bolt. (Picture #2)
- c) Install the sand chute using the required pivoting/fastening components. (Picture #12)
- d) Assemble the spinner assembly (split shafts), as shown in the assembly drawing in this manual, using the appropriate components. (Picture #5, 11 and 12)
- e) You may change the spinner disc height. Using the hole in the spinner disc hub as a guide, drill a hole through the shaft, for the mounting bolt. Cut off any excess length from the shaft and install the spinner disc.
- f) Connect all the cables as shown in the electric system diagram. Be sure to grease all connections.

Maintenance

Daily Inspection and Lubrication

- a) Check gearbox oil level. It should be filled to the oil level plug. (Picture#1)
- b) Lubricate the following grease nipples:
 - 1) 1 on conveyor idler shaft bearing (2 bearings) (picture #8)
 - 2) 1 on drive shaft bearing (picture #7)
 - 3) 1 on spinner shaft bearing (2 bearings if one hydraulic motor is used, 1 bearing if two hydraulic motors are used) (Picture #11)
 - 4) 1 on each coupling split shaft and gear box coupling (pictures #5 and #6)

Yearly Inspection

- a) At the end of the operating season, the unit should be thoroughly cleaned and lubricated. The conveyor chain (picture #9) should, ideally, be stored in oil. These preventative measures should prevent premature rusting of the unit. Grease bolts on the chain tighteners. (Picture #8)
- b) At this time or before the start of the next season, it is wise to check all drive components for appreciable wear. Any components which are questionable should be replaced now. This short and simple check will avoid down time during the operating season.
- c) Change the gear box oil.
- e) Replace the oil filter. (Note: If the unit is utilized year round, replace it twice a year).

Before Operating

- a) Grease all lubrication points.
- b) Ensure that the conveyor chain is dragging for one foot on the bottom return channel, of the spreader. (Do not over tighten the chain).

Lubricants

Speed Reducer Lubricant.....80W90 Gear lube



Picture #1



Picture #2



Picture #3



Picture #4



Picture #5



Picture #6



Picture #7



Picture #8



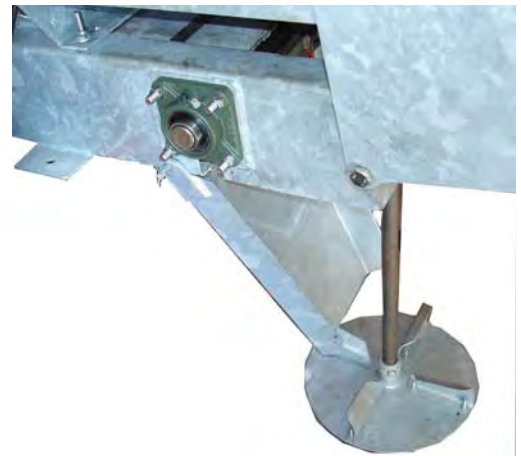
Picture #9



Picture #10

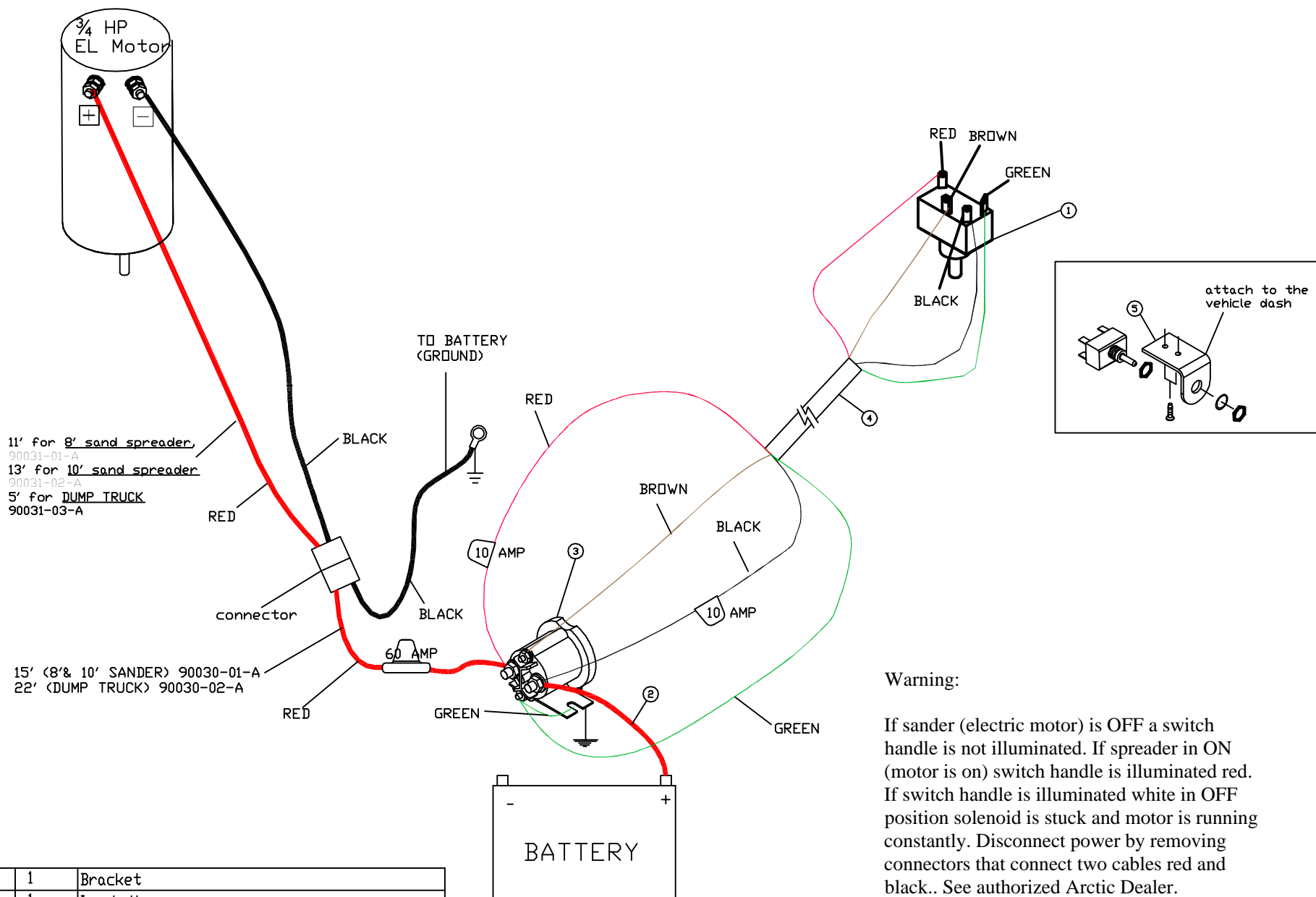


Picture #11



Picture #12

Wiring Diagram for Electric Sander with On/Off Switch



5	52018-M	1	Bracket
4	90192-B	1	Incab Harness
3	90190-N	1	Solenoid
2	51335-M	1	Battery Cable
1	90191-N	1	On/Off Switch
	PART #	QTY.	DESCRIPTION

Wireless Variable Speed DC Motor Controller

How it Works:

The Wireless DC Motor Controller provides RPM control for a single, 2 pole DC motor that can output up to over 200 amps for up to 1 seconds and continuous amperage of up to 70 to 75 amps. The speed or RPM control is done by providing the user 5 outputs, approximately 1/5 of the maximum motor RPM. Controller also incorporates a full RPM feature the runs the motor full speed for 6 to 8 seconds and then automatically shuts off and an E-Stop.

To protect the motor and electronics, the Controller has built-in safety circuits. These include:

- Automatic shut down if motor is locked up. How this is done is if the receiver senses a current draw of more than 200 amps for more than approximately 1000mS, the unit will shut down from 1 to 30 seconds.
- Automatic shut off if the current draw does not drop below 75 amps after 6 to 8 seconds. Once again, the receiver will shut down for 1 to 30 seconds.

IMPORTANT: User must maintain good, clean connections for proper operation, to avoid damage to the receiver and void the warranty.

Operation:



TRANSMITTER

Shown above is a transmitter for wireless operation of a 12VDC motor. The button functions are as follows:

1. **ON/** This button turns on the receiver unit and will allow the receiver to function. It also will stop the unit, but does not shut down the receiver.
2. **#1/** Slow speed setting of approximately 1/5th of full motor speed.
3. **#2/** Speed setting or approximately 2/5th of full motor speed.
4. **#3/** Speed setting or approximately 3/5th of full motor speed.
5. **#4/** Speed setting or approximately 4/5th of full motor speed.

6. #5/ Full Speed.
7. **Blast/** A timed 6 to 8 second full speed with auto shut down.
8. **OFF/** Shuts down the receiver unit. Must be turned on using Button #1

Programming Transmitter to Receiver:

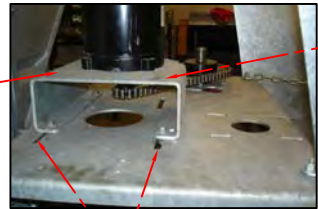
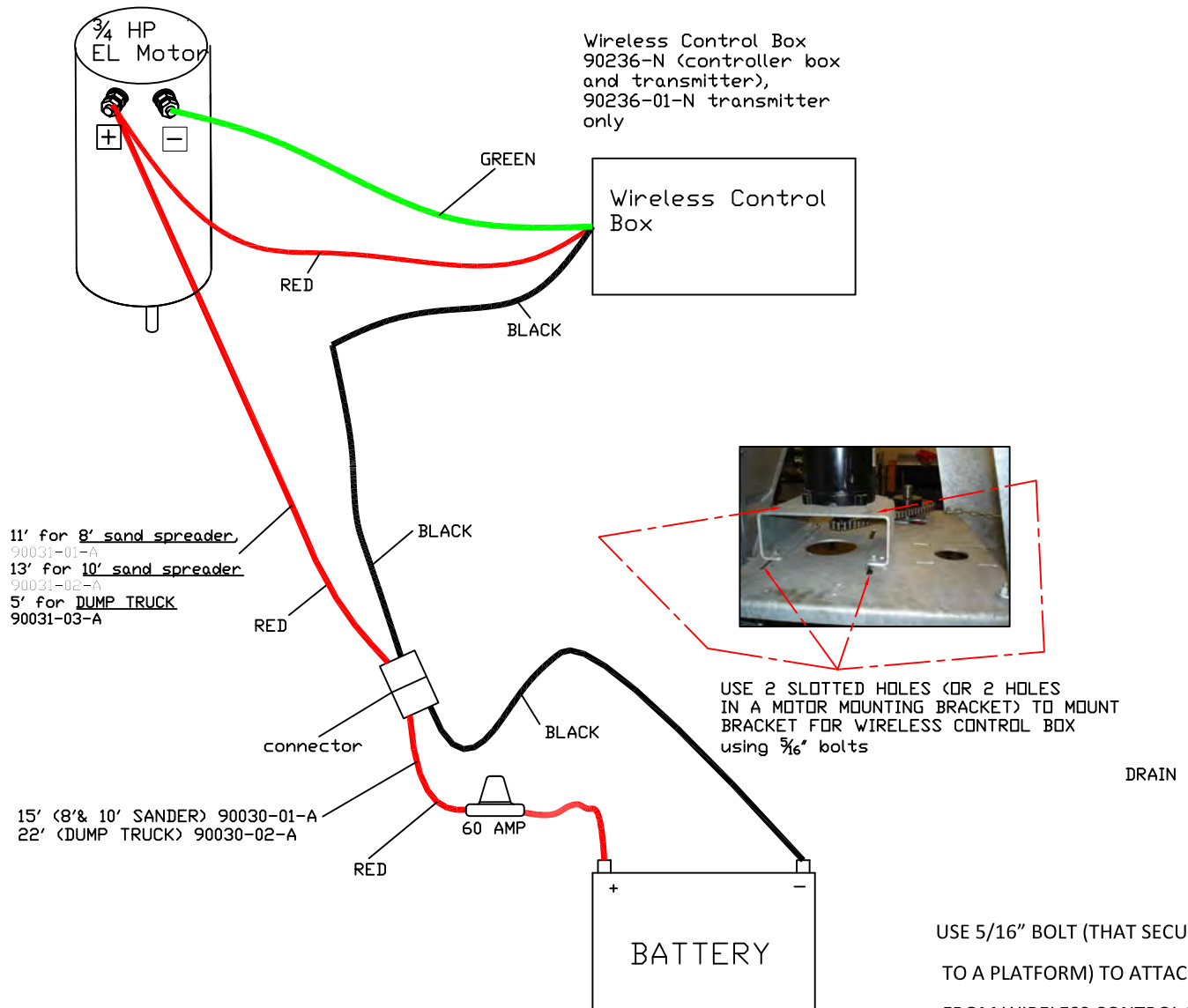
The following are the step by step procedures for setting the unique address between the transmitter and receiver or adding extra transmitters to the receiver (up to 40 transmitters).

1. Disconnect green the receiver box wire from motor.
2. On the backside of the Transmitter, use a paperclip and insert it in the hole next to the clear blue window. Once the programming button is depressed, a blue LED will begin to blink for 15 seconds. Flip the Transmitter over and firmly depress all 8 buttons starting with the ON button within 15 seconds. Now the Transmitter has acquired a 1 in 16 million address.
3. Next step is to remove the receiver box cover noting the drain hole positions in the cover. Hook up the Power (red wire) and Ground (black wire) to a 12VDC power source. Inside the box next to the red LED depress the black programming button. The red LED will begin to flash for 15 seconds. Take the Transmitter while the red LED is flashing and firmly depress the ON button within the 15 seconds. Now the unique address of the Transmitter will only be recognized by that matched receiver. The red LED will automatically shut off after 15 seconds. To make sure the programming procedure was successful, depress any of the Transmitter buttons and the red LED in the receiver should light. Re-install the cover noting drain hole position, depress the "OFF" button on the transmitter to make sure the unit is off and re-connect the the receiver box (green wire) to the motor. The Transmitter is now ready to operate the DC motor.

Specifications:

- Up to 200 amp output for up to 1 second.
- Continuous output of up to 75 amps.
- 5 motor speed outputs of approximately 1/5, 2/5, 3/5, 4/5 and 5/5ths of motor current draw.
- Built in E-Stop using OFF button.
- Built-in over current safety protection. If a lock-up condition occurs at the motor causing the motor to draw more than 200 amps the unit will automatically shut down and must be turned back on using the ON button after the circuit temperature drops to an acceptable range taking 1 to 30 seconds. **Warning:** If this situation continues to re-occur the operator needs to check for reasons why the motors will not turn. Continually trying to start a jammed motor will eventually cause damage to the receiver and motor.

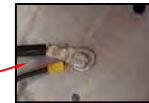
Wiring Diagram for Wireless Variable Speed Control Box



USE 2 SLOTTED HOLES (OR 2 HOLES IN A MOTOR MOUNTING BRACKET) TO MOUNT BRACKET FOR WIRELESS CONTROL BOX using $\frac{5}{16}$ " bolts

DRAIN HOLE

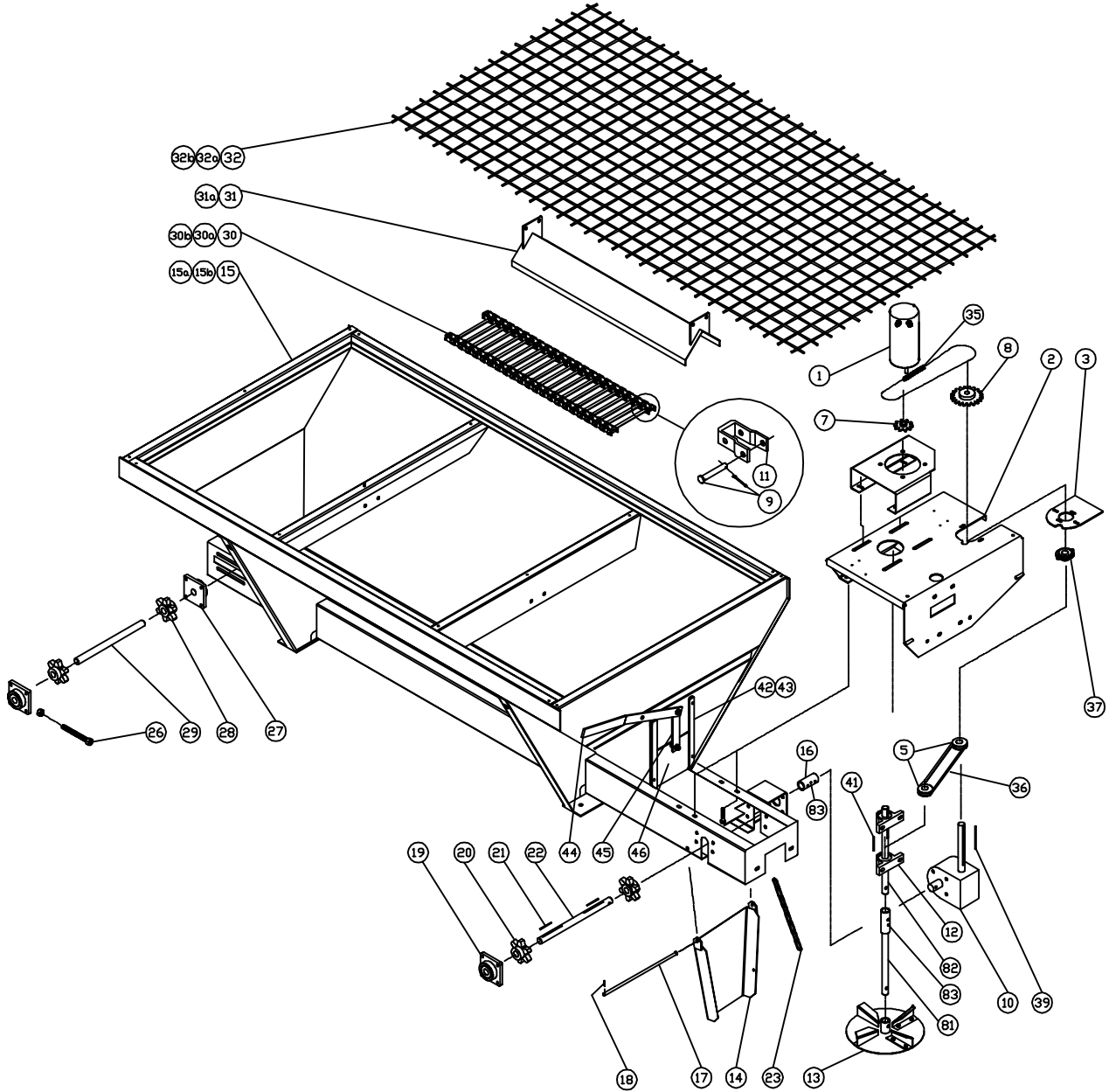
BRACKET FOR WIRELESS CONTROL BOX



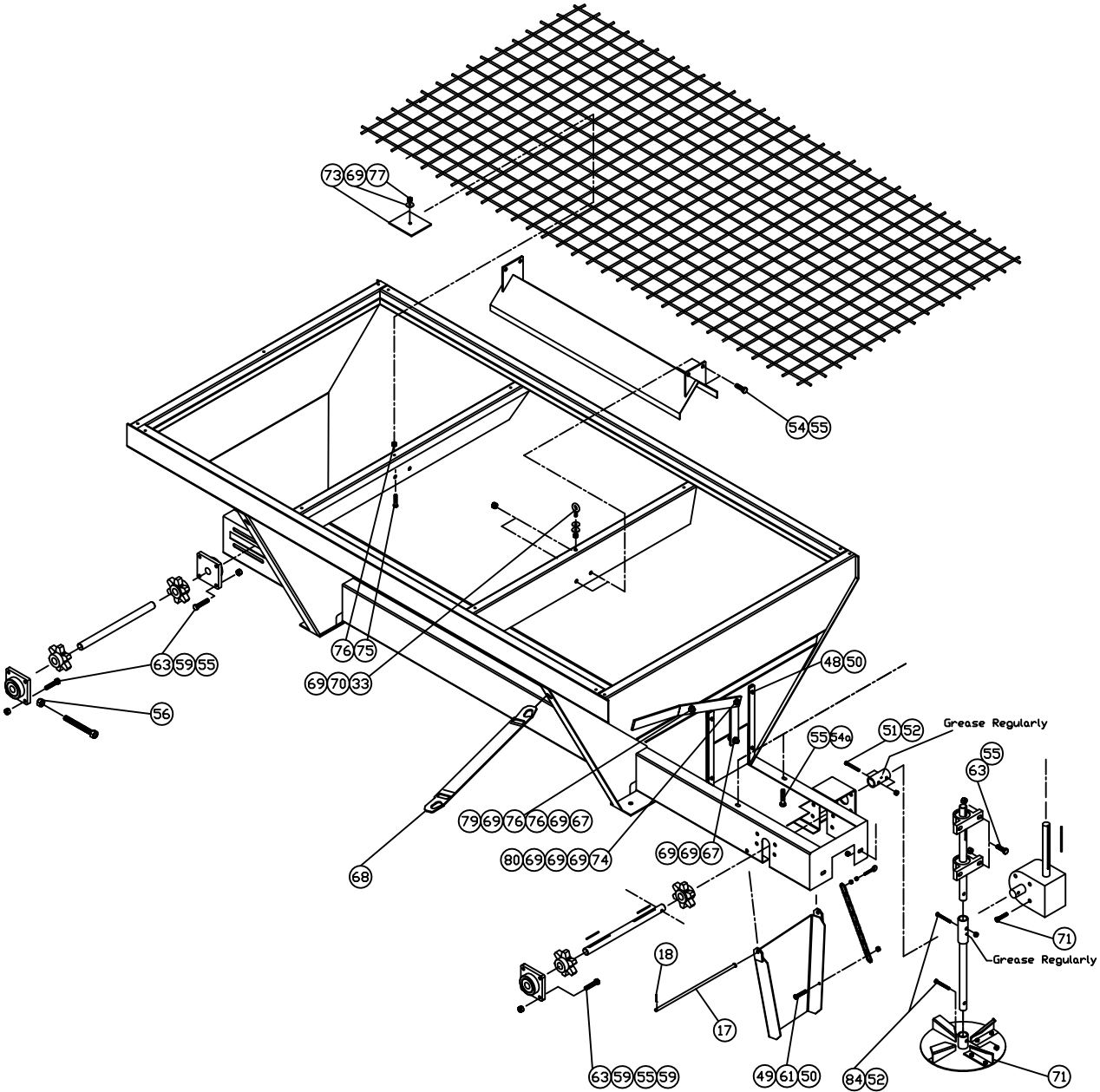
USE $\frac{5}{16}$ " BOLT (THAT SECURES WIRELESS CONTROL MOUNTING BRACKET TO A PLATFORM) TO ATTACH GROUND BATTERY CABLE AND BLACK CABLE FROM WIRELESS CONTROL BOX (APPLY GREASE ON CONNECTION)

Warning: User must maintain good, clean connections for proper operation and to avoid damage to the receiver and void the warranty. All connections must be greased regularly.

Galvanized Sander with
3/4 HP Electric Motor
AG6E, AG8E & AG10E



Galvanized Sander with
 $\frac{3}{4}$ HP Electric Motor
 AG6E, AG8E & AG10E





Galvanized Sander AG6, AG8, AG10 With Electric Motor			
	Part #	Description	Quantity
1	90151-N	Electric Motor ¾" HP	1
2	90117-C	Gas Engine Mounting Plate	1
3	90118-A	Top Bearing Plate	1
5	90090-N	Gearbox Pulley, 2.3"	2
7	90152-N	Sprocket motor side	1
8	90153-N	Sprocket gear box side	1
9	RB-32992-05	Apron Chain Connecting Pin	1
10	90150-N	Gear Box 50:1	1
	90150-01-N	Worm Gear (output shaft)	
	90150-02-N	Worm Thread (Input Shaft)	
	90150-03-N	Input Shaft	
	90150-04-N	Output shaft	
	90150-05-N	Input Cover	
	90150-06-N	Output cover	
	90150-07-N	Input Taper Bearing	
	90150-08-N	Output Taper Bearing	
	90150-09-N	Output Key 1/4" x 1/4" x 54.5 mm	
	90150-10-N	Input Key 1/4" x 1/4" x 45.5 mm	
	90150-11-N	Input Oil Seal	
	90150-12-N	Output Oil Seal	
11	RB-32992-04	Apron Chain Connecting Link	1
12	HH-00905-013	Spinner Bearing	2
13	RB-889-G	Spinner Disc	1
14	RB-32996-G	Chute	1
15	90093-D-E	Sander, 6', body weldment	1



Galvanized Sander AG6, AG8, AG10 With Electric Motor			
	Part #	Description	Quantity
15a	90094-D-E	Sander, 8', body weldment	1
15b	90095-D-E	Sander, 10', body weldment	1
16	90119-B	Drive Coupling	1
17	RC-32854-02-G	Hinge Pin Weldment	1
18	HH-00020-081	Cotter Pin, 1/8" dia x 3/4" lg	1
19	HH-00859-019	Drive Shaft Bearing, Four Bolt Flange	1
20	RB-872	Drive Sprocket	2
21	HH-00291-101	Key, 1/4" Square x 2 -3/4"	2
22	90120-B	Drive Shaft	1
23	HH-00789-003-14	Chain , 3/16" dia x 14" long	1
24	HH-00789-003-20	Chain , 3/16" dia x 20" long	2
25	90128-D	Hood (not shown)	1
26	90131-A	Chain tightener	2
27	HH-00859-014	Idler Shaft Bearing, Four Bolt Flange	2
28	RB-874	Idler Sprocket	2
29	RB-876	Idler Shaft	1
30	RB-32992	Chain Assembly AG6 only	1
30a	RB-32992-02	Chain Assembly AG8 only	1
30b	RB-32992-03	Chain Assembly AG10 only	1
31	90114-96-C	V Channel, AG8	1
31a	90114-120-C	V Channel, AG10	1
32	90133-N	Screen AG6	1
32a	90134-N	Screen AG 8	1
32b	90135-N	Screen AG10	1
33	90132-N	Eye Bolt	1



Galvanized Sander AG6, AG8, AG10 With Electric Motor			
	Part #	Description	Quantity
34	HH-00857-006	Hood Latch	2
35	90182-M	Stainless steel chain	1
36	90148-N	A31-Gearbox to Spinner Shaft Belt	1
37	HH-00960-009	Jack Shaft Bearing	1
38	90168-A	Replaceable Spinner Disc Fin	1
39	HH-00291-011	Gearbox input shaft Key 1/4" Square x 3.5"	1
40	HH-00291-102	Motor pulley Key 1/4" Square x 1.50"	1
41	HH-00291-101	Spinner Shaft Pulley Key 1/4" Square x 2"	1
42	90124-B	Guide, top plate	2
43	90123-B	Guide, bottom plate	2
44	90126-B	Arm	1
45	90125-A	Middle Link	1
46	90122-A	Gate	1
47	HH-00972-088	Bolt, Hex Head, 1/2" x 1"	2
48	HH-00971-044	Bolt, Carriage, 5/16 UNC x 1 1/4"	8
49	HH-00293-028	Bolt, Hex Head, 5/16" x 1"	3
50	HH-00340-017	Nut, 5/16" Nylon Insert	16
51	HH-00293-055	Bolt, Hex Head, 3/8" UNC x 2 1/2"	2
52	HH-00340-001	Nut 3/8", Nylon Insert	2
53	HH-00340-901	1/4" Coarse Lock Nut	1
54	HH-00293-069	Bolt, Hex Head 7/16" x 1"	6
54a	HH-00971-104	Carriage Bolt, 7/16" x 1"	2
55	HH-00340-002	Hex Nut 7/16" Nylon Insert	12
56	HH-00294-007	5/8" Nut	2
57	HH-00293-003	1/4"-20 x 5/8" HHCS Bolt	1



Galvanized Sander AG6, AG8, AG10 With Electric Motor			
	Part #	Description	Quantity
58	HH-01169-069	Bolt, Hex Head 7/16" UNF x 1" long	1
59	HH-00341-005	Flat Washer, 7/16" x 1 1/8"	16
60	HH-00971-043	Bolt, Carriage, 5/16" UNC x 1" long	2
61	HH-00341-003	Flat washer 5/16"	16
62	HH-00293-032	Hex Head, Bolt 5/16" x 2" HHCS	4
63	HH-00293-072	Hex Head, Bolt 7/16" UNC x 1 3/4"	12
64	HH-00356-097	Bolt, Socket Head 5/16" 18 x 3/4" long	3
67	HH-00340-003	Nut, 1/2" Nylon Insert, Coarse	5
68	90040-N	Strap	4
69	HH-00341-006	Flat washer 1/2"	9
70	HH-00340-003	1/2" Locknut	1
71	HH-00300-062	Bolt, Hex Head, 1/2" UNC X 1" lg	4
72	RB-38759	Mounting Stop Angle (Not Shown)	1
73	90154-A	Screen Hold Down (2 for AG6)	1
74	HH-00540-004	Nut, 1/2" Nylon Insert, Fine	5
75	HH-00972-091	Bolt, 1/2"-20 x 1 3/4" HHCS (2 for AG6)	1
76	HH-00460-002	Nut, 1/2" x 20 Hex Nut (2 for AG6)	1
77	HH-00540-004	Nut 1/2" x 20 Nylon Insert Fine (2 for AG6)	1
78	HH-00293-029	Bolt, 5/16" -18 x 1 1/4"	2
79	HH-00293-094	Bolt, 1/2"-13 x 2 1/2"	1
80	HH-00972-090	Bolt, 1/2"-20 x 1 1/2" HHCS	1
81	90165-B	Bottom Split Spinner Shaft	1
	90167-B	Bottom Split Spinner Shaft Extended	1
82	90162-B	Top Spinner Split Shaft	1
83	HH-00233-001	1/4-28 Grease fitting	5

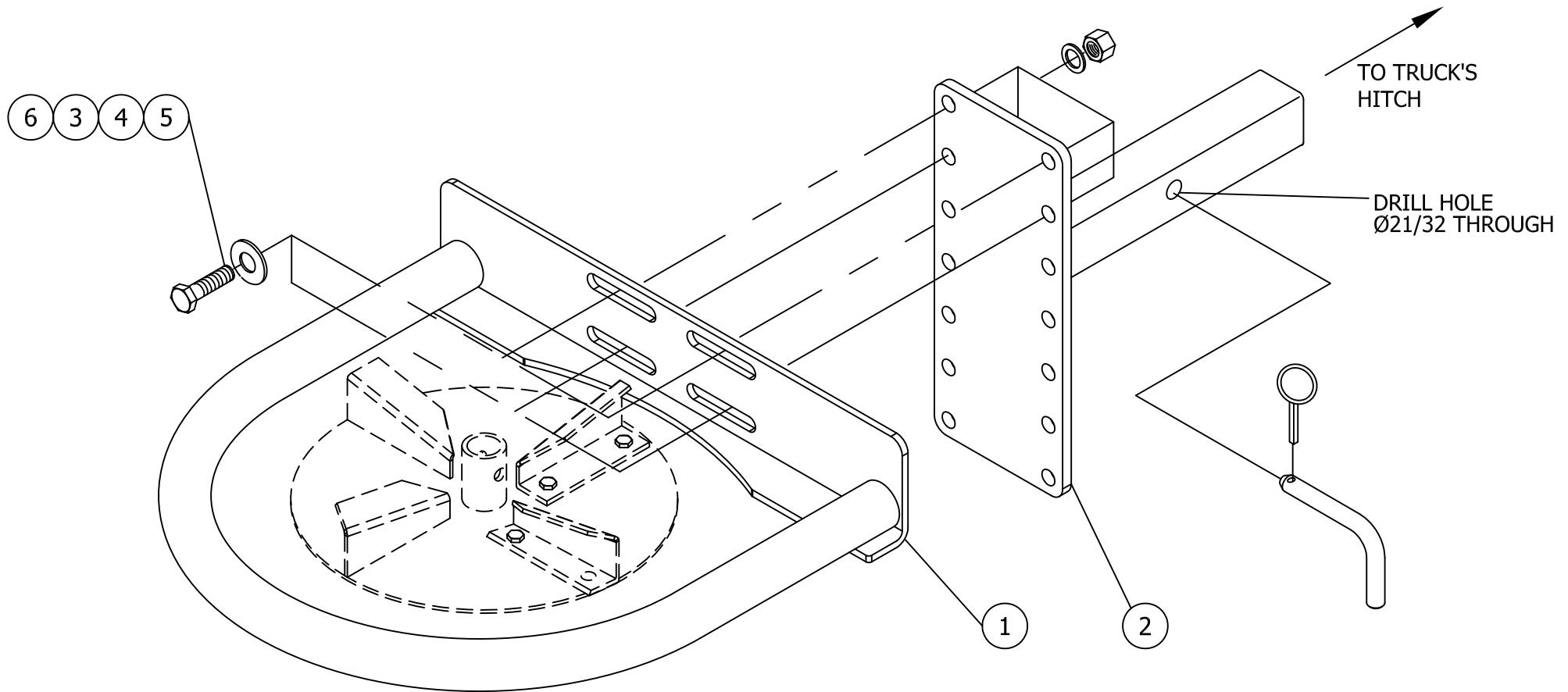


Galvanized Electric salt & sand spreader

R02

Galvanized Sander AG6, AG8, AG10 With Electric Motor			
	Part #	Description	Quantity
84	HH-01081-054	(1KCW) 3/8 16x 2 1/2 Grade 8 bolt	2

Optional Hitch Mounted Spinner Guard 90175-M



Spinner Guard			
Item	Part #	Description	Quantity
1	90176-B	Hoop Weldment	1
2	90179-B	Receiver weldment, spinner guard	1
3	HH-00341-006	½" Flatwasher	4
4	HH-00457-001	½" Lockwasher	4
5	HH-00460-002	½" – 20 Hex nut	4
6	HH-00972-090	½"-20, 1 ½ Bolt	4
7	51830-B	5/8", 2 ½" long hitch pin assembly	1

Mounting Instructions:

- 1: With sander installed and securely in place, insert Receiver weldment (2) into vehicle hitch.
- 2: Using provided hardware, attach the Hoop weldment (1) to Receiver weldment (2) in a position that best protects the spinner disc from impact and does not impede the spreading of sand/salt. Hoop should function best if it is located approx. 1" below the bottom of the spinner disc.
- 3: Once the proper location is determined, the hitch pin (7) hole (21/32" dia.) should be drilled in the receiver weldment (tube) (2) (Use the vehicle hitch pin hole as a guide).
- 4: After all parts are installed and tightened, ensure the hitch pin (7) is inserted and secured properly.

Warning:

- Spinner guard is not a substitute for good driving practices. Always drive with care and be aware of your surroundings (obstructions).
- Spinner guard should only be used for original manufacturer's application.
- Do not use as a step
- Do not alter or modify spinner guard
- Do not tow with spinner guard in place.
- Remove spinner guard when sander is not in truck