

2018



OWNER'S MANUAL FOR 135LB STAINLESS STEEL SPREADER SNOWRATOR

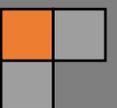




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1.0 SHIPPING CONTENTS

SR-HOPPER KIT (135) SHIPPING LIST

LTR P/N	Toro P/N	Description	Qty	Unit
30679	143-0012	KNOB	2	EA
80239-PUMP	143-0539	AUX ELECTRICAL HARNESS	1	EA
90205	142-0216	SPINNER SPEED CONTROLLER	1	EA
CB-381SS	126-0980	CARRIAGE BOLT, 3/8" x 1"	4	EA
CB-5161SS	HDW17294	CARRIAGE BOLT, 5/16" x 1"	4	EA
CB-51634SS	126-0695	CARRIAGE BOLT, 5/16" x 3/4"	2	EA
FWSS-516	HDW14535	WASHER, 5/16	4	EA
HFNCS-10S	142-0542	SERRATED FLANGE LOCK NUT, 10-32	4	EA
HFNCS-38S	135-2882	HEX FLANGE NUT, 3/8	4	EA
N/A	N/A	RED ROCKER SWITCH ASSEMBLY	1	EA
N/A	N/A	AUX CONTROL PANEL ASSEMBLY	1	EA
N/A	N/A	135LB STAINLESS STEEL SPREADER	1	EA
SC1-0500-SS	142-1450	1/2" SPLIT SHAFT COLLAR	2	EA
SM10193 TSSR	143-0090	HOPPER MOUNTING LATCH	2	EA
SM10401	143-0366	LEFT FERTILIZER BOX PLATFORM	1	EA
SM10402	143-0367	LEFT FERTILIZER BOX UPRIGHT	1	EA
SM10402-R	143-0368	RIGHT FERTILIZER BOX UPRIGHT	1	EA
SM10403	143-0369	RIGHT FERTILIZER BOX PLATFORM	1	EA
TRCP-1012S	143-0542	TRUSS SCREW, 10-32 x 1/2	4	EA
ZB200305-L	135-5470	LEFT FERTILIZER BOX	1	EA
ZB200305-RW	142-1953	RIGHT FERTILIZER BOX	1	EA

2.0 IMPORTANT INFORMATION

2.1 ABOUT THIS MANUAL

The purpose of this manual is to assist you in properly and safely operating and maintaining the 135lb Stainless Steel Spreader. Read and understand this entire manual before attempting to set-up, operate, adjust, perform maintenance on, or store this attachment. This manual provides essential information and instructions, which will help you enjoy years of dependable performance.

The designed and tested safety of the 135lb Stainless Steel Spreader is dependent upon its operations within the parameters and limitations explained in this manual. Be familiar with and follow all safety rules in this manual as well all safety rules for any related equipment, including the Snowrator.

Although these instructions have been compiled through extensive field experience and engineering data, some information presented herein may be generated in the nature due to unknown and/or varying operating conditions. However, these instructions, combined with your increased experience with the Snowrator, will enable you to develop procedures suitable to your particular application.

The illustrations and data used in the manual were current at the time of printing, but the Snowrator and 135lb Stainless Steel Spreader may vary slightly due to ongoing engineering changes. L. T. Rich Products, Inc reserves the right to implement engineering and design changes to the Snowrator as may be necessary without prior notification.

2.2 OVERVIEW

The 135lb Stainless Steel Spreader is an optional attachment that can be mounted to the Snowrator and used to spread salt/granular product. It has a variable speed electric motor which allows variable spread distances from 6 to 25 feet. This depends on volume/density, particle size and rate of travel, and weather conditions. The pattern can be increased or decreased while spreading depending on needs. Travel at a constant speed for consistent results.

The 135lb Stainless Steel Spreader Attachment features stainless steel construction, electronic speed control, vibrator, rate control and directional control.

2.3 SAFETY

Safety is a primary concern in the design and manufacturing of all L. T. Rich Products. Unfortunately, our extensive efforts to provide safe equipment can be negated by a single careless act of an operator. In addition to the design and configuration of the 135lb Stainless Steel Spreader, hazard control and accident prevention are also dependent upon the awareness, condition, maintenance, and storage of the Snowrator and all optional attachments. This section is only for the 135lb. Stainless Steel Spreader. Please refer to the Owner's Manual for applicable safety information for the Snowrator. Additional safety tips are provided throughout this document.

Safety Cont...

2.3.1 Safety Equipment

When using or performing maintenance on the 135lb Stainless Steel Spreader, it is recommended that the operator wear gloves and safety glasses.

2.3.2 Mounting and Dismounting

Two people using proper lifting techniques are required to mount and dismount the 135lb. Stainless Steel Spreader. The risk of injury and/or damage to the unit is significantly increased if only one person is performing this activity.

2.3.3 Spinner

Turn off the spinner before adjusting spread pattern settings. ALWAYS keep fingers, hands, loose clothing, etc. clear of this area when it is in use.

2.3.4 Operation

Always scan the environment to ensure the product being spread does not come into contact with other people and animals. Do not spread within 25 feet of people or animals. Follow all guidelines provided in the Snowrator Owner's Manual.

2.4 MAINTENANCE

Follow all safety guidelines when performing maintenance on the 135lb Stainless Steel Spreader. In order to ensure the 135lb. Stainless Steel Spreader is kept in optimum condition, perform the following maintenance activities on a regular basis.

DO NOT USE WATER WHEN CLEANING HOPPER

Daily

- Clean debris and product from Hopper daily USING COMPRESSED AIR ONLY, to eliminate build up.
- Check daily to make sure guides (4) are not damaged to allow the hopper door to slide freely.

Weekly

- Lubricate Hopper cables with Silicone Spray weekly.

2.5 RELATED DOCUMENTS

- Snowrator Owner's Manual
- Installation Guide for 135lb Stainless Steel Spreader Conversion Kit (SRA-10020)

3.0 INSTALLATION



WARNING



Before Working on This Machine

- Switch Engine to OFF



- Please note that this installation guide is for a **standard machine only**.
- The hose and electrical harness routing may be different depending on the attachments that may already be installed on your machine.
- A SNOWRATOR machine is shown for all assembly photos.
- For any questions please contact us at toll free (877) 482-204 Mon-Fri 8 a.m. to 4:30 p.m.

3.1 TOOLS & EQUIPMENT

ITEM	QTY	DESCRIPTION	PHOTO
1	1	DRILL	
2	1	DRILL BIT, 3/8"	
3	1	RATCHET	
4	1	SOCKET, 13/16"	
5	1	EXTENSION, SOCKET, 1-1/2"	
6	6	WRENCH: 3/8", 1/2", 5/16", 7/16", 9/16", 13/16"	
7	1	ALLEN WRENCH, 1/8"	
8	1	SCREWDRIVER, PHILLIPS, NO. 2	
9	1	UTILITY KNIFE	
10	1	JACK, 1 TON	

ITEM	QTY	DESCRIPTION	PHOTO
1	1	GLOVES	
2	1	SAFETY GOGGLES	

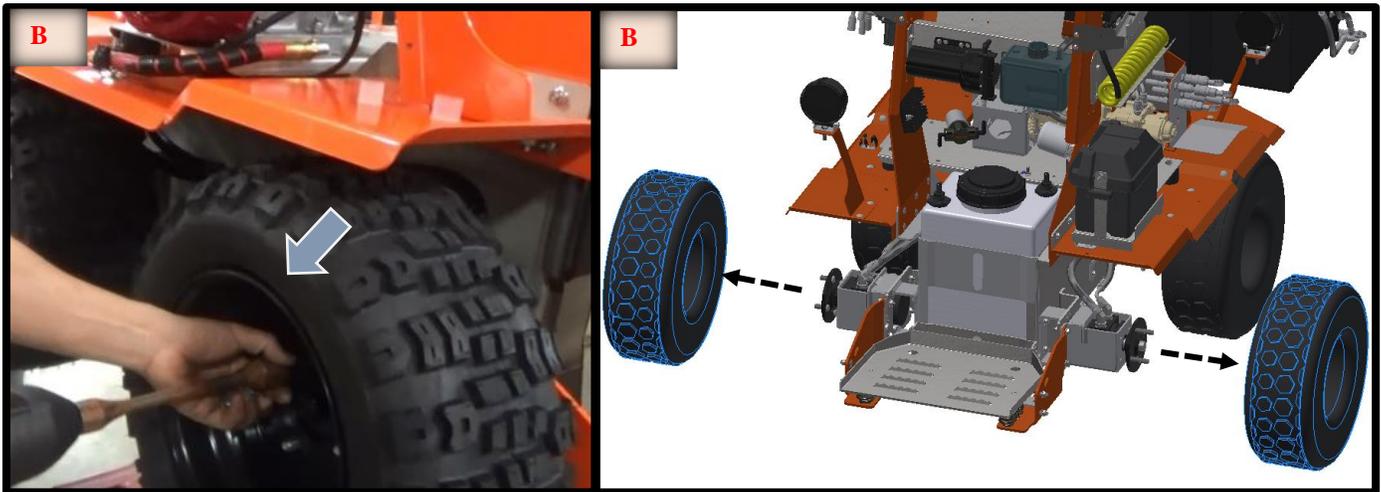
4.0 INSTALLATION

4.1 FERTILIZER BOXES

4.1.1 Remove Rear Tires.

Tools:
Ratchet with 13/16"

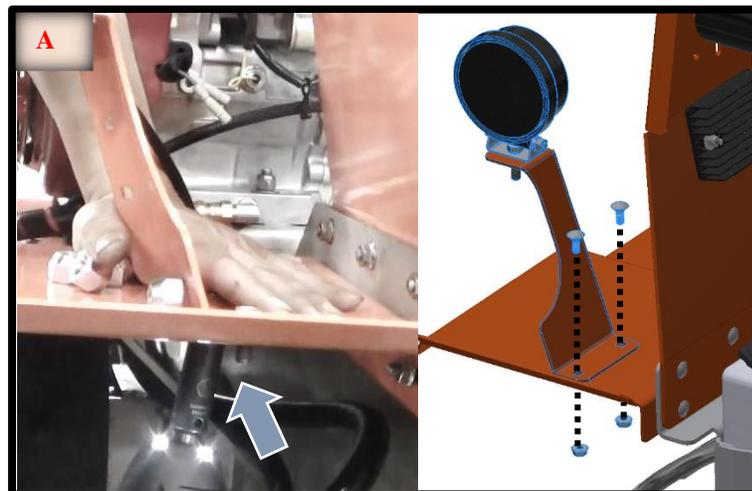
- A. *Raise the machine using a Jack and Jack Stands (not shown).*
B. *Remove both Rear Tires.*



4.1.2 Remove Rear Light Bracket.

Tools:
Ratchet with 1/2" Socket

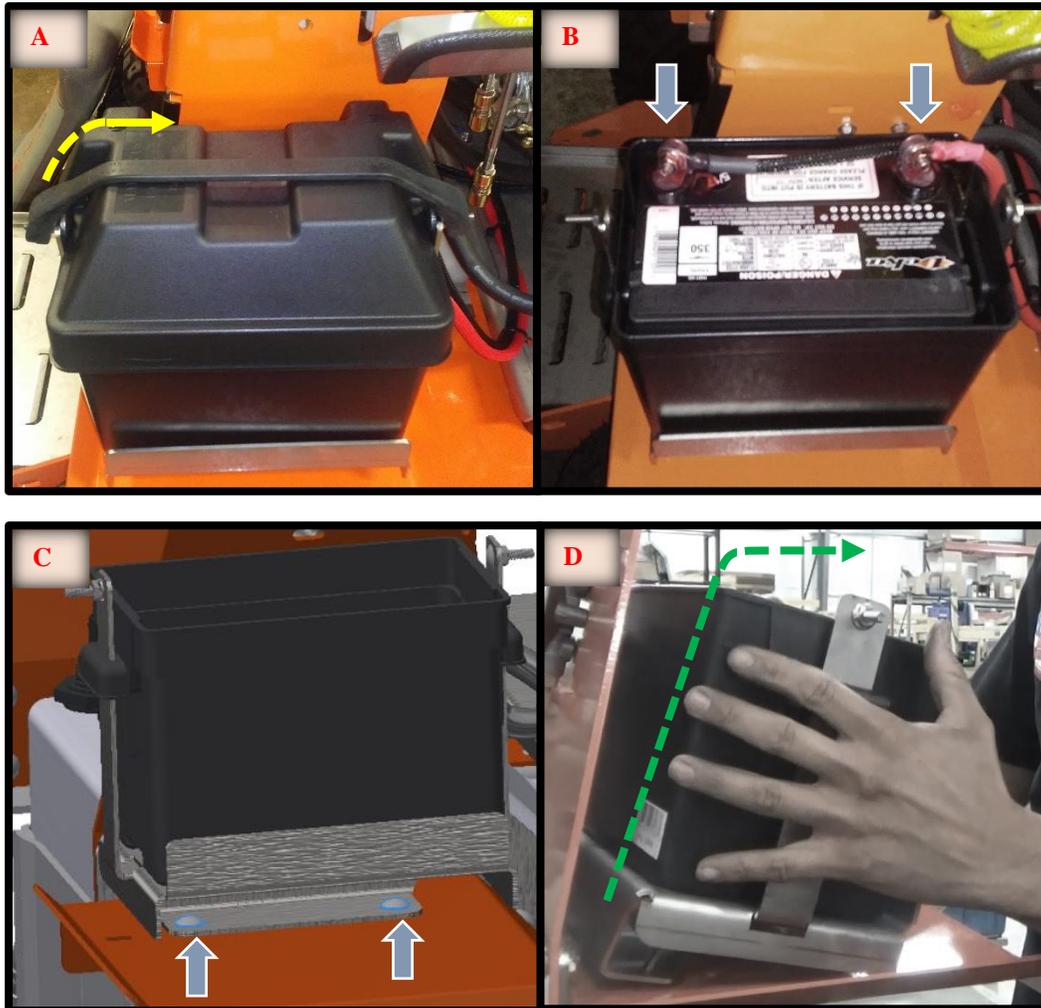
- A. *Remove the two Bolts connecting the Rear Light Bracket to the Frame.*
B. *Lay Rear Light Bracket gently on the Frame (not shown).*



*Fertilizer Boxes Cont...*4.1.3 Remove Battery Box.

- A. Remove **battery cover** by unhooking strap.
- B. Detach the **Negative** (black) and **Positive** (red) **Wires** from battery.
- C. Remove **bolts** that attach the Battery Box Bracket to the Frame.
- D. Remove **Battery Box Bracket** from Frame.

Tools:
Ratchet with 1/2" Socket

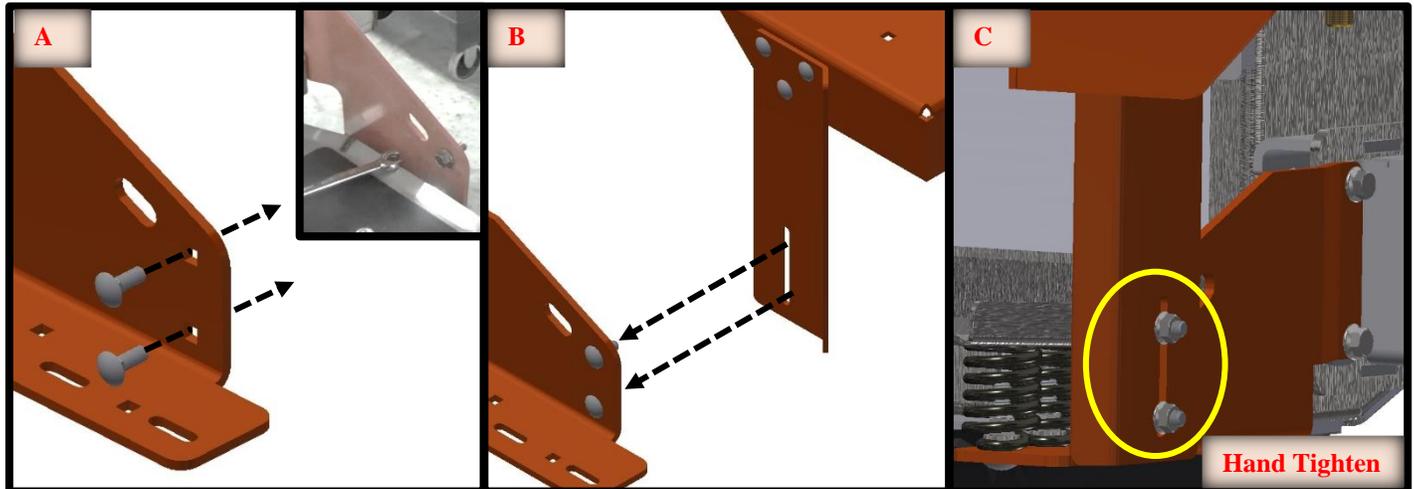


Fertilizer Boxes Cont...

4.1.4 Attach the Right Fert Box Platform

Tools:
Ratchet with 9/16" Socket

- A. Insert (2) 3/8" x 1" Bolt into Footplate Bracket
- B. Line up Slot in Fert Box Platform with Bolts
- C. Fasten with (2) 3/8" Flange Nuts.

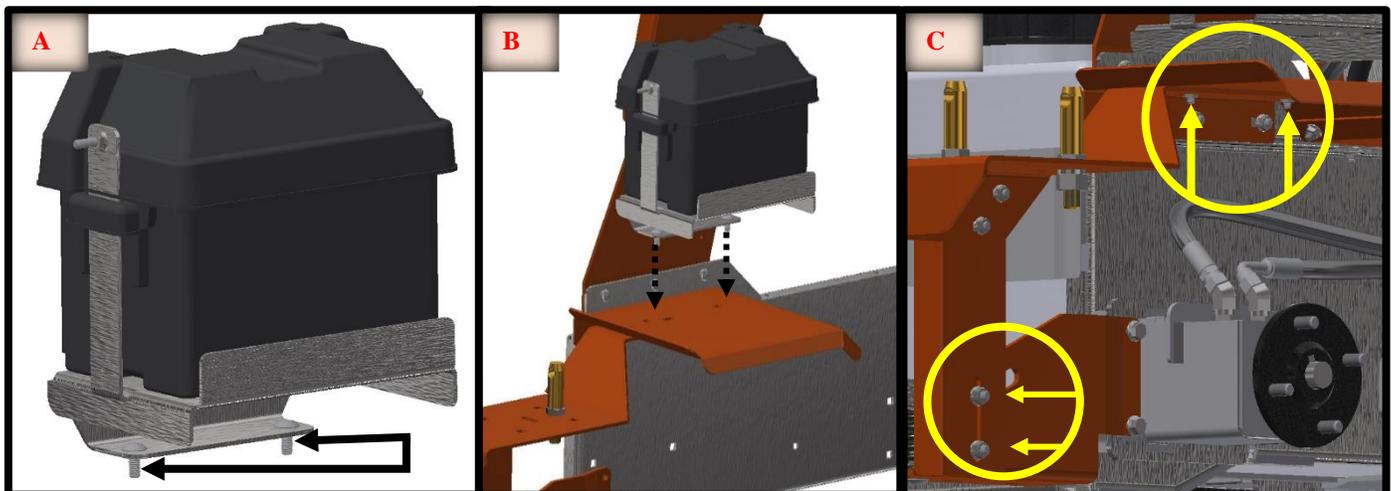


4.1.5 Attach the Battery Box Bracket

Tools:
Wrench, 1/2"
Wrench, 9/16"

- A. Replace 5/16" x 3/4" Bolts in Battery Box Bracket with 5/16" x 1" Bolts
- B. Align Fert Box Platform to Fender and Battery Box Bracket
- C. Tighten all (4) Bolts to Foot Plate Bracket and Fender
- D. Re-Connect the Red Battery Cable (not shown)

*** DO NOT CONNECT NEGATIVE (BLACK) BATTERY CABLE UNTIL READY TO TEST! ***

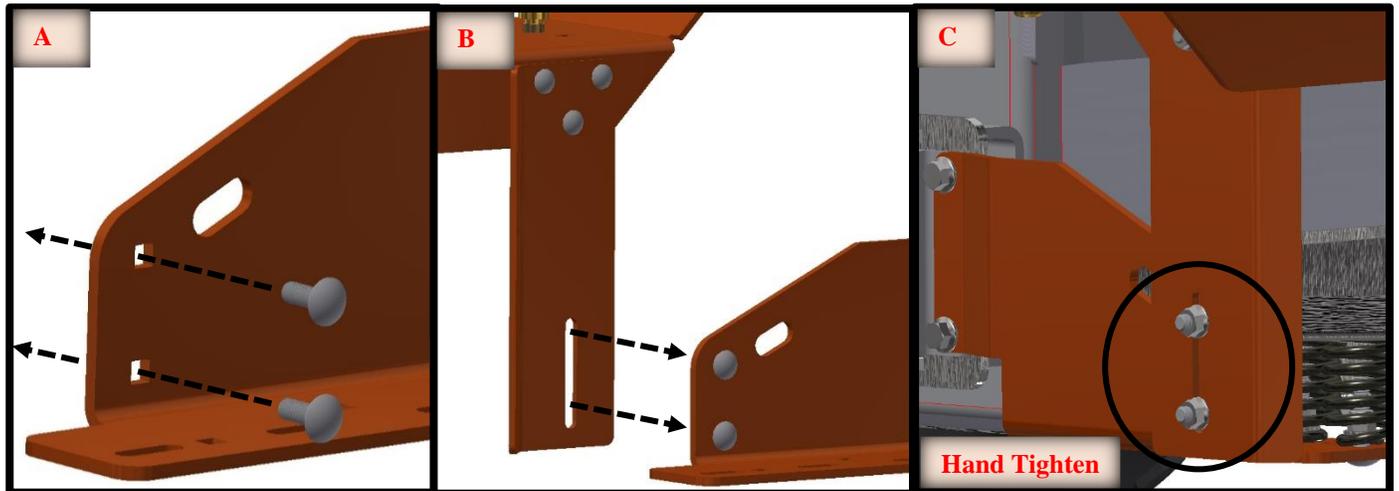


Fertilizer Boxes Cont...

4.1.6 Attach the Left Fert Box Platform

Tools:
Ratchet with 9/16" Socket

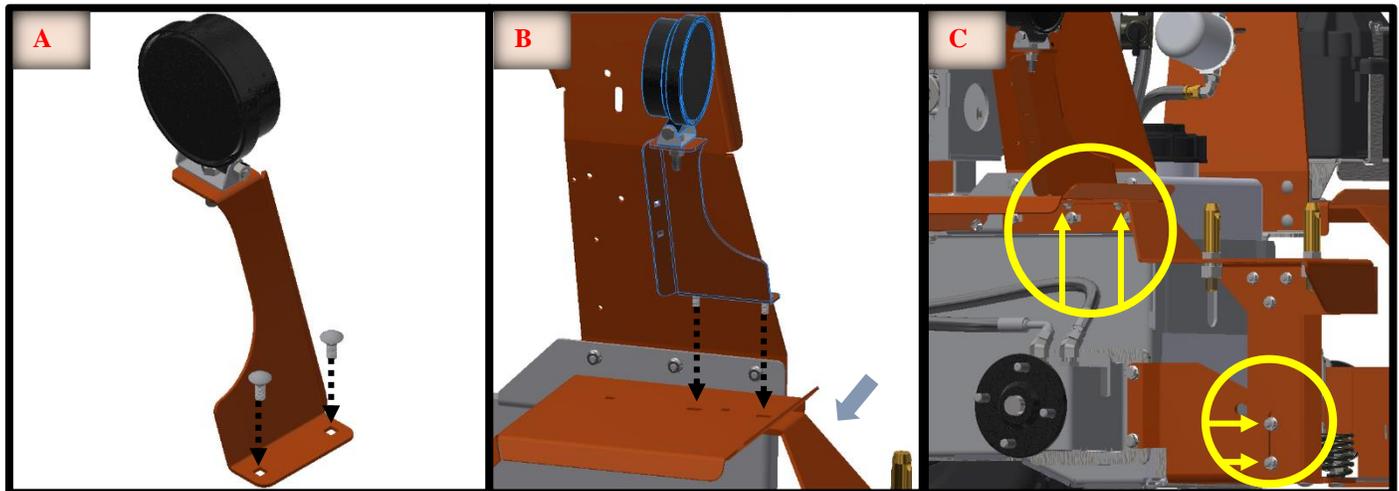
- A. Insert (2) 3/8" x 1" Bolt into Footplate Bracket
- B. Line up Slot in Fert Box Platform with Bolts
- C. Fasten with (2) 3/8" Flange Nuts



4.1.7 Attach Rear Light Bracket

Tools:
Wrench, 1/2"
Wrench, 9/16"

- A. Insert (2) 5/16" x 1" Bolt into Rear Light Bracket
- B. Align Fert Box Platform to Fender and Rear Light Bracket
- C. Tighten all (4) Bolts to Foot Plate Bracket and Fender

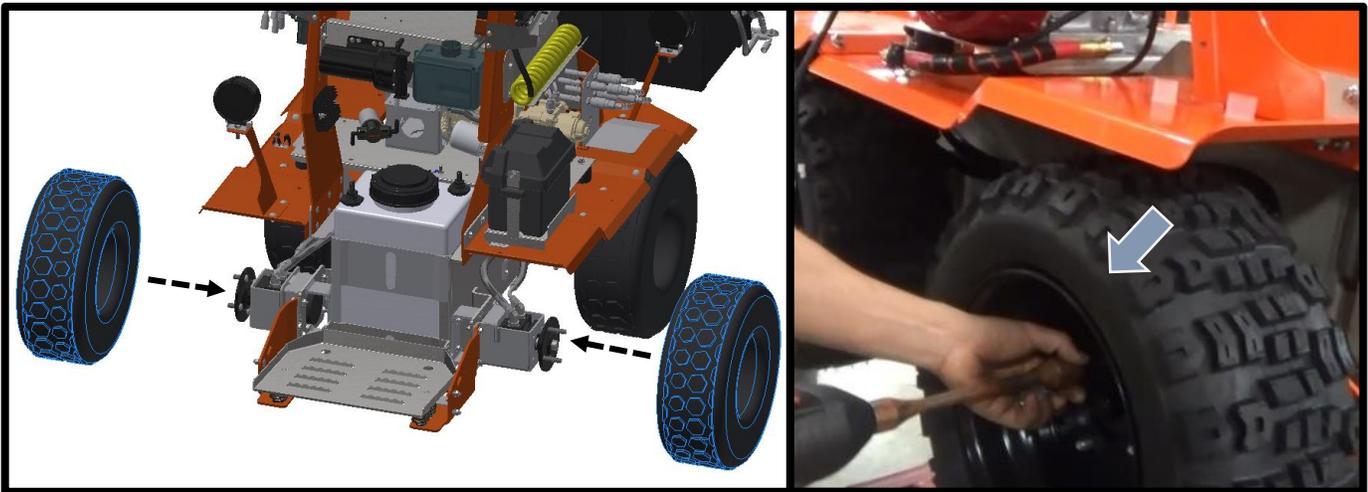


Fertilizer Boxes Cont...

4.1.8 Attach Rear Tires

Tools:
Ratchet with 13/16"

- A. **Attach Rear Tires.**
- B. **Lower Machine** and remove Jack.



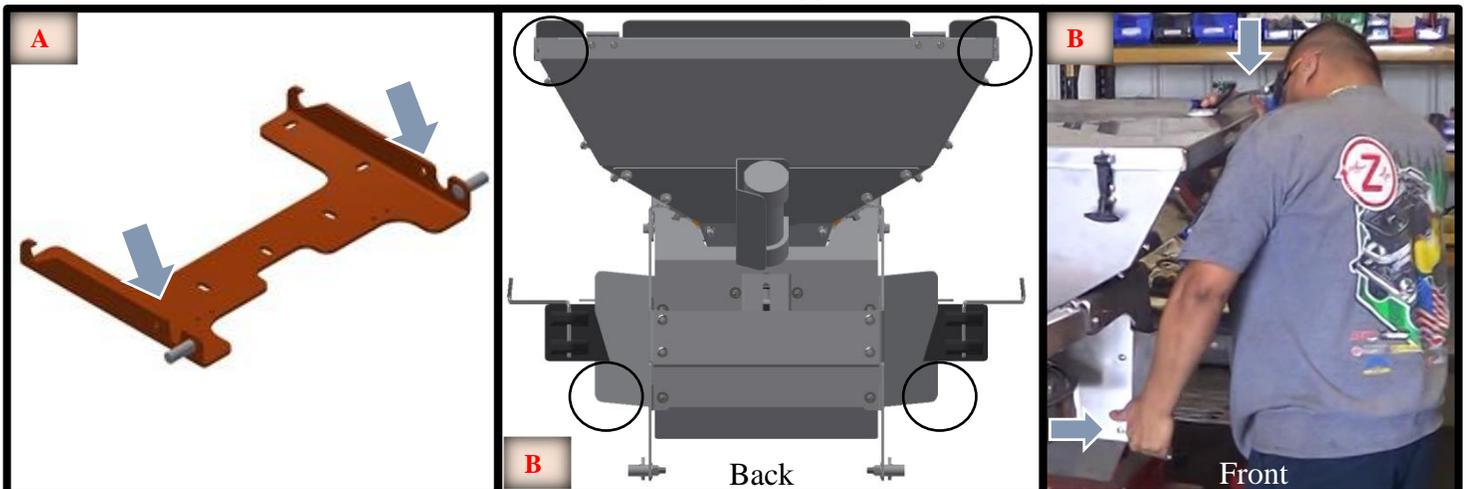
4.2 SPREADER

This section requires TWO people in order to install it safely. Always use safe lifting techniques. Take care not to pinch fingers or drop the spreader during installation.

4.2.1 Mount 135lb Stainless Steel Spreader

Tools:
Drill, 3/8" bit

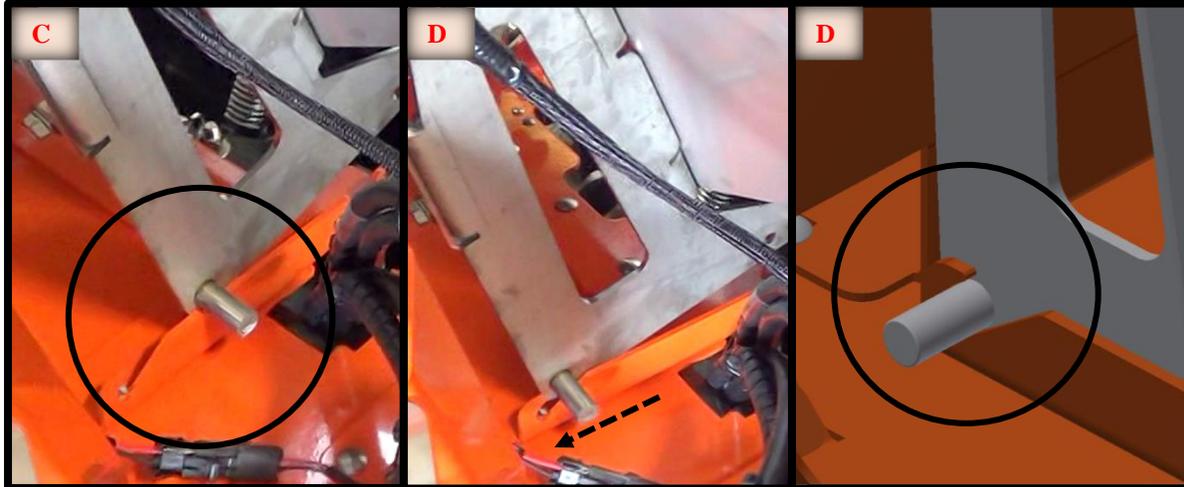
- A. **Drill out the quick-release pin hole** on the Mounting Plate of Snowrator
- B. With one person on each side, **lift the 135lb Stainless Steel Spreader** by the Back Shield and the rear of the Hopper.



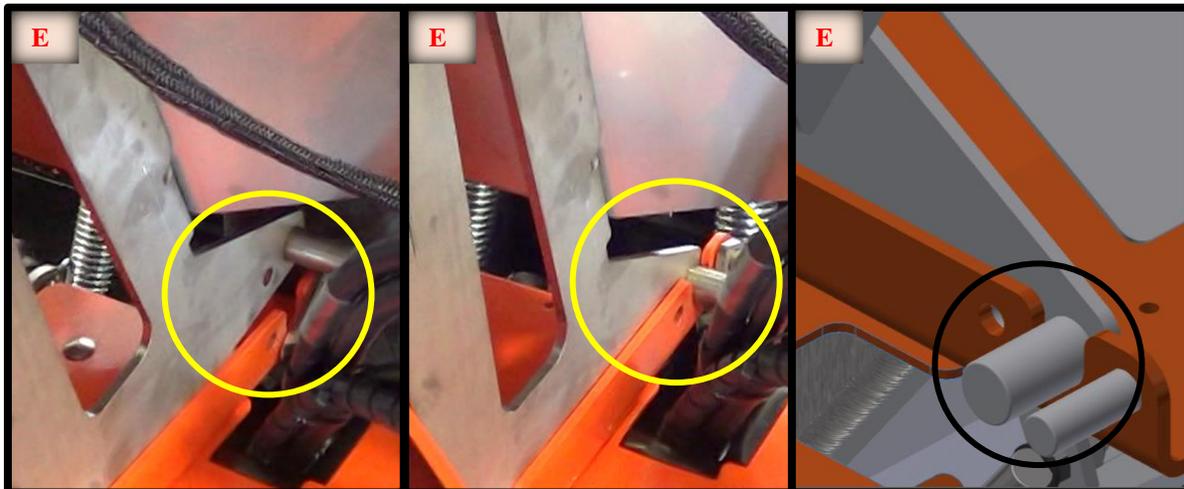
Mount Spreader Cont...

C. Rest the **rear of base** on the Mounting plate with the front at a slightly elevated angle.

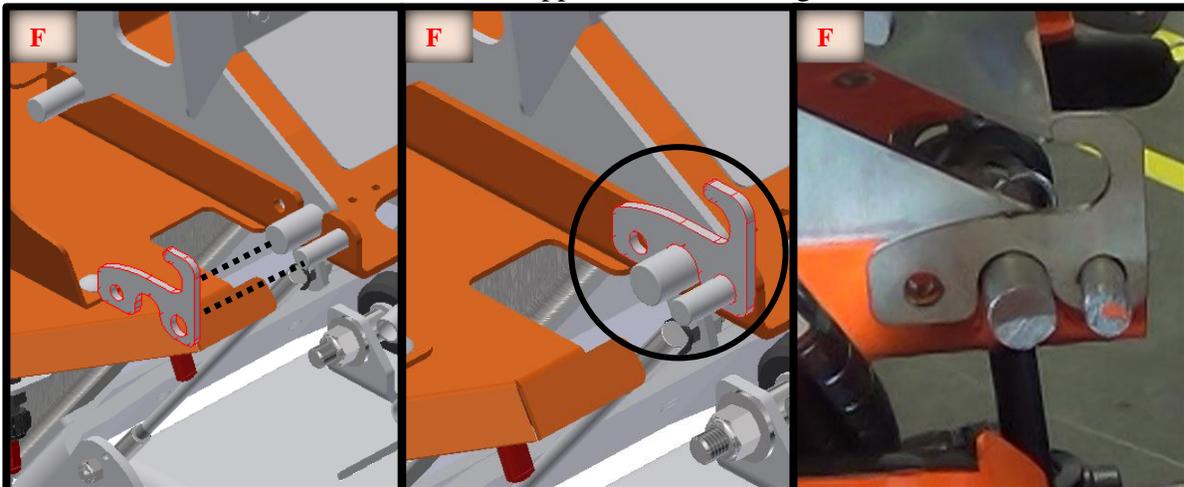
D. Slide the **Hopper Hinge Rods** down into the rear Mounting Plate hooks.



E. Set the **front of base** down so the Hopper Latch Rods are in the front Mounting Plate Hook.



F. Attach **Latches** to the Hopper Latch Mounting Rods.

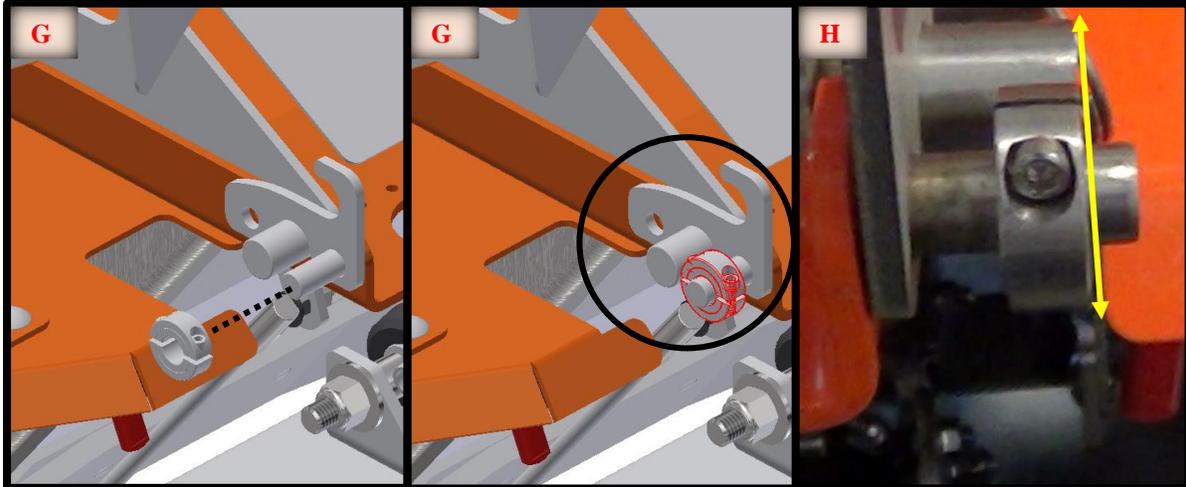


Mount Spreader Cont...

Tools:
Allen Wrench, 1/8"

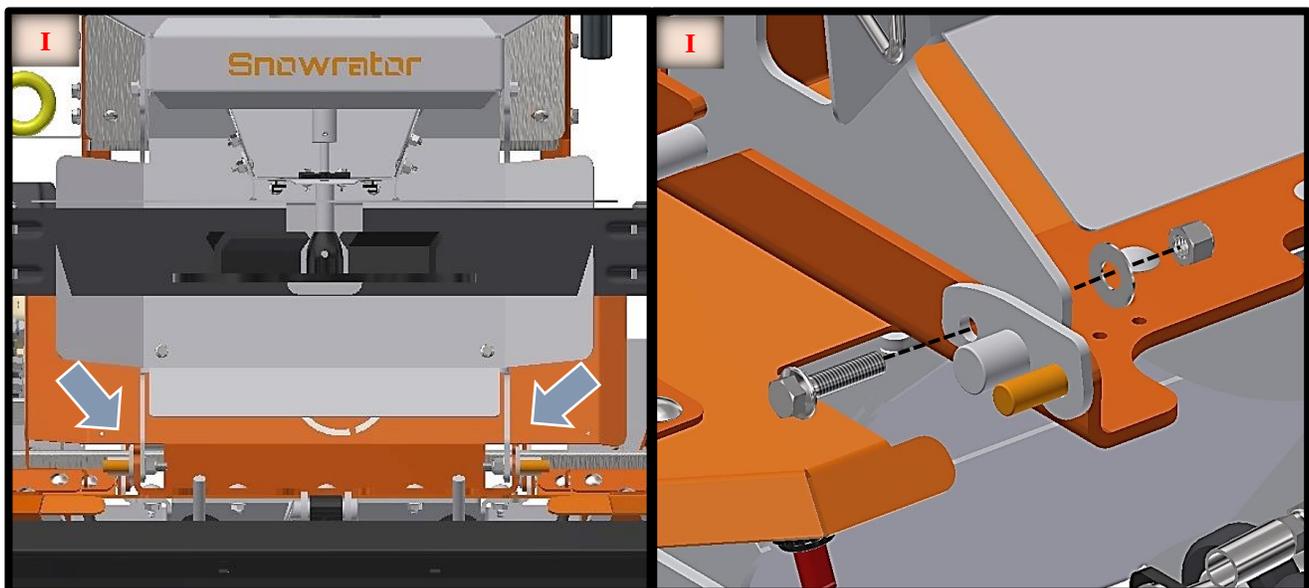
G. *Secure both **Latches** with a 1/2" Split Shaft Collar.*

H. *Align 1/2" **Split Shaft Collar** so it is flush with the outer edge of the Hopper Latch Rod and *tighten.**



I. *Insert a 3/8" **Bolt** through Hopper Latch, Base and Mounting Plate on both sides of the Hopper Base.*

J. *Set the **Hopper Cable, Vibrator, Connector and Spinner Motor Connector** off to the side (*Not shown*). These will be connected in the next section.*

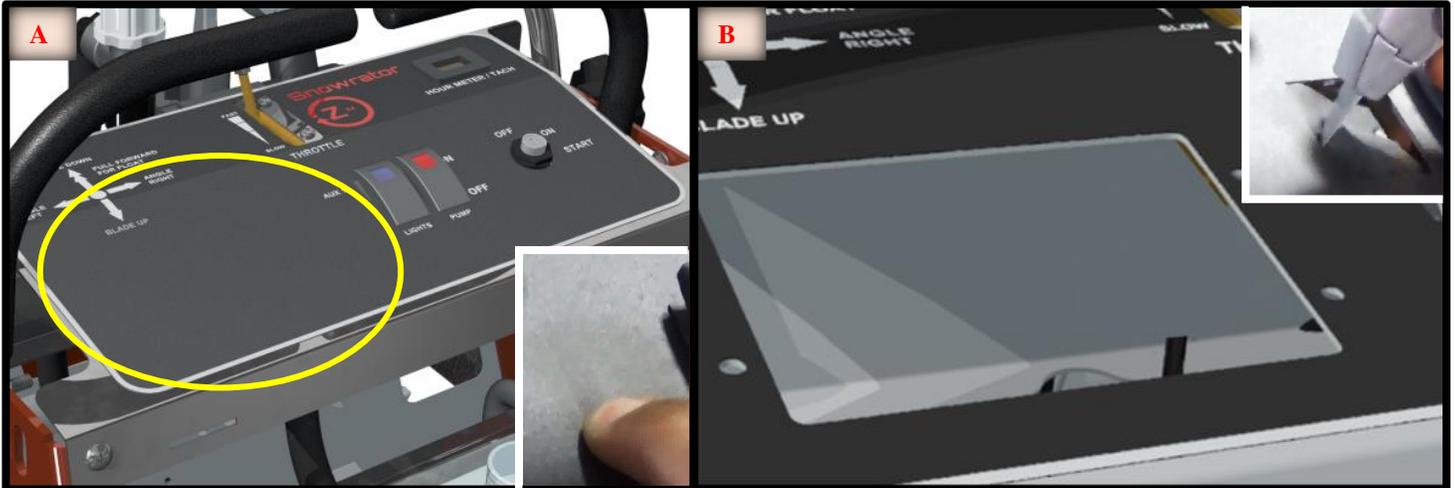


4.3 SPEED CONTROL UNIT

4.3.1 Speed Control Unit, Mechanical

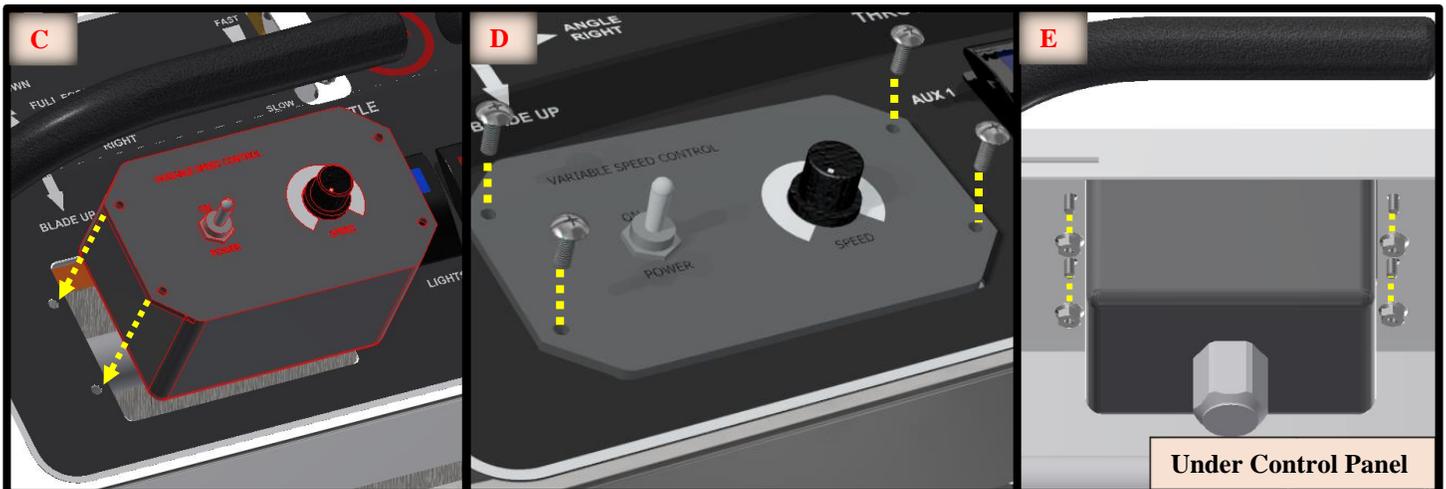
Tools:
Utility Knife

- A. *Rub Slot Edges* to reveal Cut location
- B. *Cut into Main Control Panel* using utility knife and use a Die Grinder with cut-off wheel to cut tabs.



Tools:
Ratchet with 11/32 Socket
Phillips Screwdriver

- C. *Insert Speed Control Unit* in the Main Control Panel Cutout.
- D. *Insert (4) 10-32 x 1/2"* Phillips **Screws** in Mounting Holes on Speed Control Unit
- E. *Fasten to Main Control Panel* with (4) 10-32 **Flange Nuts**



Speed Control Unit cont...

4.3.2 Speed Control Unit, Electrical

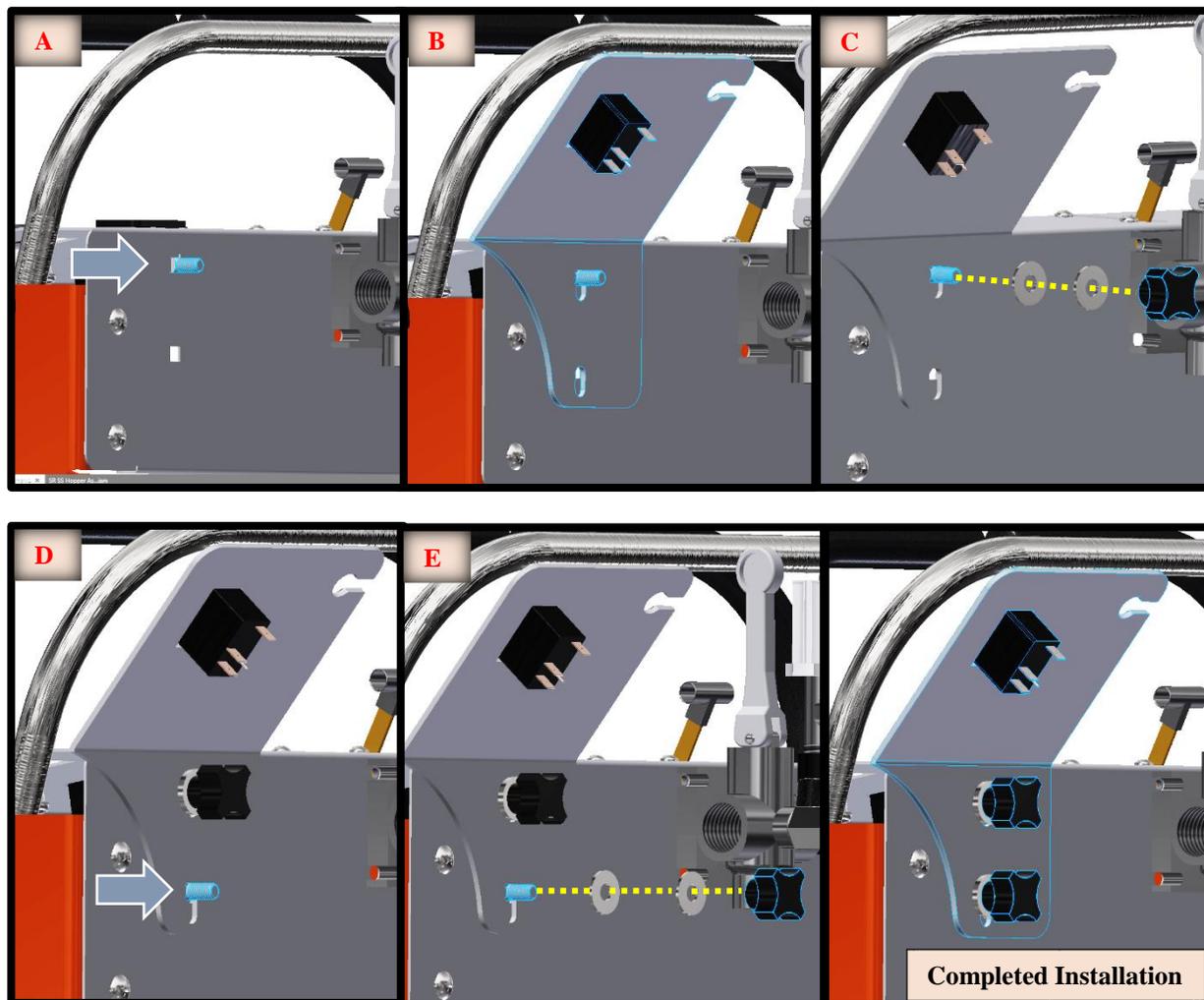
A. Power and Ground

1. Attach the **connector** labeled POWER to the Power Ground Harness Connector labeled SPINNER.
2. Attach the **connector** labeled MOTOR to the Spinner Motor Connector

4.4 AUX CONTROL PANEL

4.4.1 Aux Control Panel, Mechanical

- A. *Insert* (1) 5/16" x 3/4" **Carriage Bolt** in the top Aux Control Panel mounting location.
- B. *Position* the **Aux Control Panel** on the bolt.
- C. *Fasten* with (2) 5/16" **Washers** and (1) **Hand Knob**.
- D. *Insert* (1) 5/16" x 3/4" **Carriage Bolt** in the bottom Aux Control Panel mounting location.
- E. *Fasten* with (2) 5/16" **Washers** and (1) **Hand Knob**.



Aux Control Panel Cont...

4.4.2 Aux Control Panel, Electrical

A. Switch Connector

1. Connect the **Switch Connector** on the Electrical Harness to the connector on the back of the Vibrator Switch.

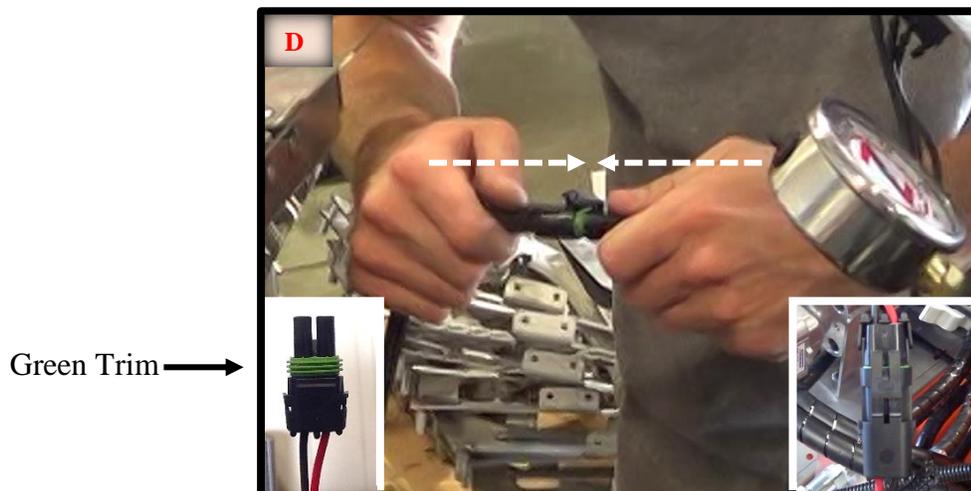


B. Power and Ground

1. Attach the **Vibrator Power & Ground Connector** to the Power/Ground Harness Connector labeled VIBRATOR.

C. Vibrator Switch Connector

1. Connect the **Vibrator Switch Connector** from the Aux Electrical Harness to the Vibrator Motor.



4.5 TEST

Connect the Negative (black) Battery Cable before testing. Refer to section 5 for Operating Instructions.

4.5.1 Vibrator

Verify the electrical connections have been made properly.

- A. Turn on the Vibrator. Listen for vibration.
- B. Turn off the Vibrator.

4.5.2 Speed Control Unit

Verify the electrical connections have been made properly.

- A. Press the top right button to start the spinner.
- B. Press the top left button to turn off the spinner.

4.5.3 Plow Clearance

Move the lift cylinder lower pin to the upper hole in the A-Frame then, check for clearance between the plow and the Directional Control after each step. The plow should have clearance when the Directional Control is open at its minimum and maximum positions (See Section 5.2.2). Refer to the Snowrator Owner's Manual for instructions on moving the plow.

- A. Raise the plow to its maximum upward position.
- B. Adjust the plow all the way to the left.
- C. Adjust the plow all the way to the right.
- D. Return the plow to the center position.

5.0 OPERATION

5.1 OPERATIONAL CONTROLS

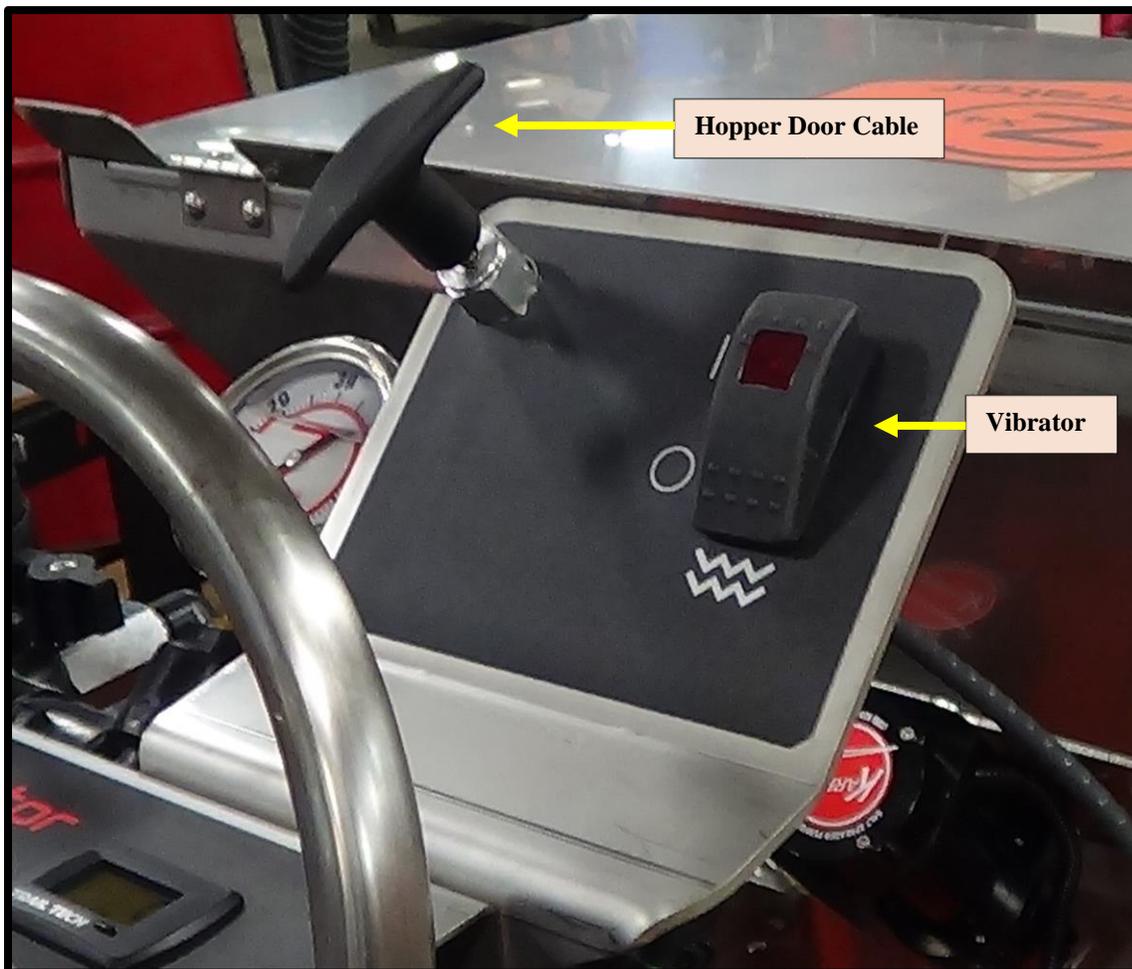
The 135lb Stainless Steel Spreader has four controls. These are the Vibrator Switch, Spinner Switch, Spinner Speed Control, and Hopper Cable. These controls can be operated while the spreader is in use.

5.1.1 AUX Control Panel

The Hopper Cable is located to the left of the Vibrator Switch. This Cable opens the Hopper Door when pulled upward and closes the Hopper Door when pushed downward. The Hopper Cable will only open as far as the Rate Control setting will allow.

The Vibrator Switch is located to the right of the Hopper Cable. It has a built-in light that indicates when it is on. Pressing the top of the switch will turn on the Vibrator mounted behind the Hopper. Pressing the bottom will turn it off.

Figure 1. Hopper Door Cable and Vibrator Switch location



Operational Controls Cont...

5.1.2 Main Control Panel

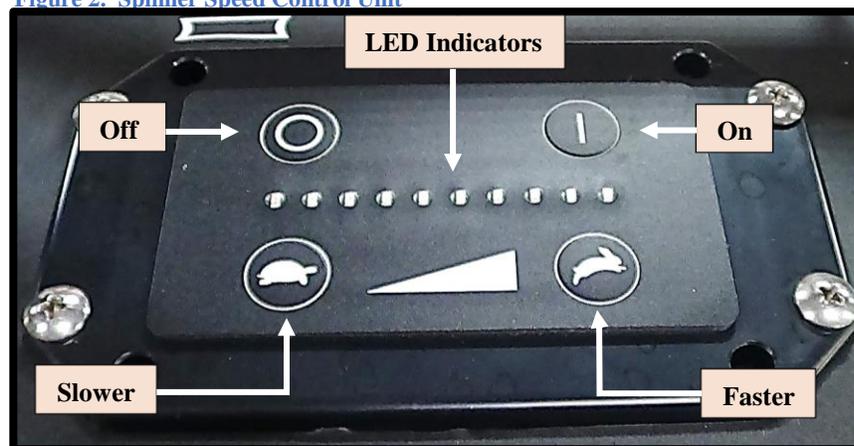
The Main Control Panel is where the Speed Control Unit for the Spinner Motor is located. The unit has an ON/OFF button, speed adjustment controls and an LED indicator strip. The LED indicators alert the operator of malfunctions when they flash in specific patterns. See the troubleshooting section for more information.

Power is applied to or removed from the unit by pressing the ON/OFF button. Speed Control is adjusted via the TURTLE and RABBIT buttons on the Speed Control Unit. Pressing the TURTLE button reduces Spinner speed and pressing the RABBIT button increases it. See section 5.2.2.

In extreme cold the grease in the spinner motor gearbox may cause the controller to error out due to too high of a current draw. The controller has a cold start sequence that will warm the motor up and allow the user to run the spreader normally in these conditions. If at any time you need to exit the COLD START SEQUENCE press the OFF button. The next time the controller is started it will be in normal operating mode.

1. Close the feed gate to prevent material loss.
2. Turn off the spreader
3. Check to make sure there are no obstructions around the spinner disk.
4. To activate the COLD START SEQUENCE, press and hold the turtle and rabbit then press the power button and release all three. The LED lights will scroll across the controller from left to right letting you know the COLD START SEQUENCE is activated.
5. During the COLD START SEQUENCE the motor will ramp up to full speed and stay there until the amp draw decreases to a specific limit. Then the controller will drop the speed down to half speed until the amp draw decreases to a specific limit. Then the controller will drop the speed down to the lowest setting until the amp draw decreases to a specific limit. Once the controller senses the current is within range the controller will exit the COLD START SEQUENCE. The LED lights will stop scrolling and only the first light will remain on.
6. The controller is now out of the COLD START SEQUENCE and can be operated normally.

Figure 2. Spinner Speed Control Unit



5.2 SPREAD PATTERN ADJUSTMENT CONTROLS

The 135lb Stainless Steel Spreader has four settings that can be adjusted to obtain the desired spread pattern, rate control, directional control, speed control. These settings adjust for distance, density, direction and area. Since it is electrically driven, the spread pattern is independent of ground speed. It should be noted that these settings work together and the desired spread pattern should be observed while the machine is still.

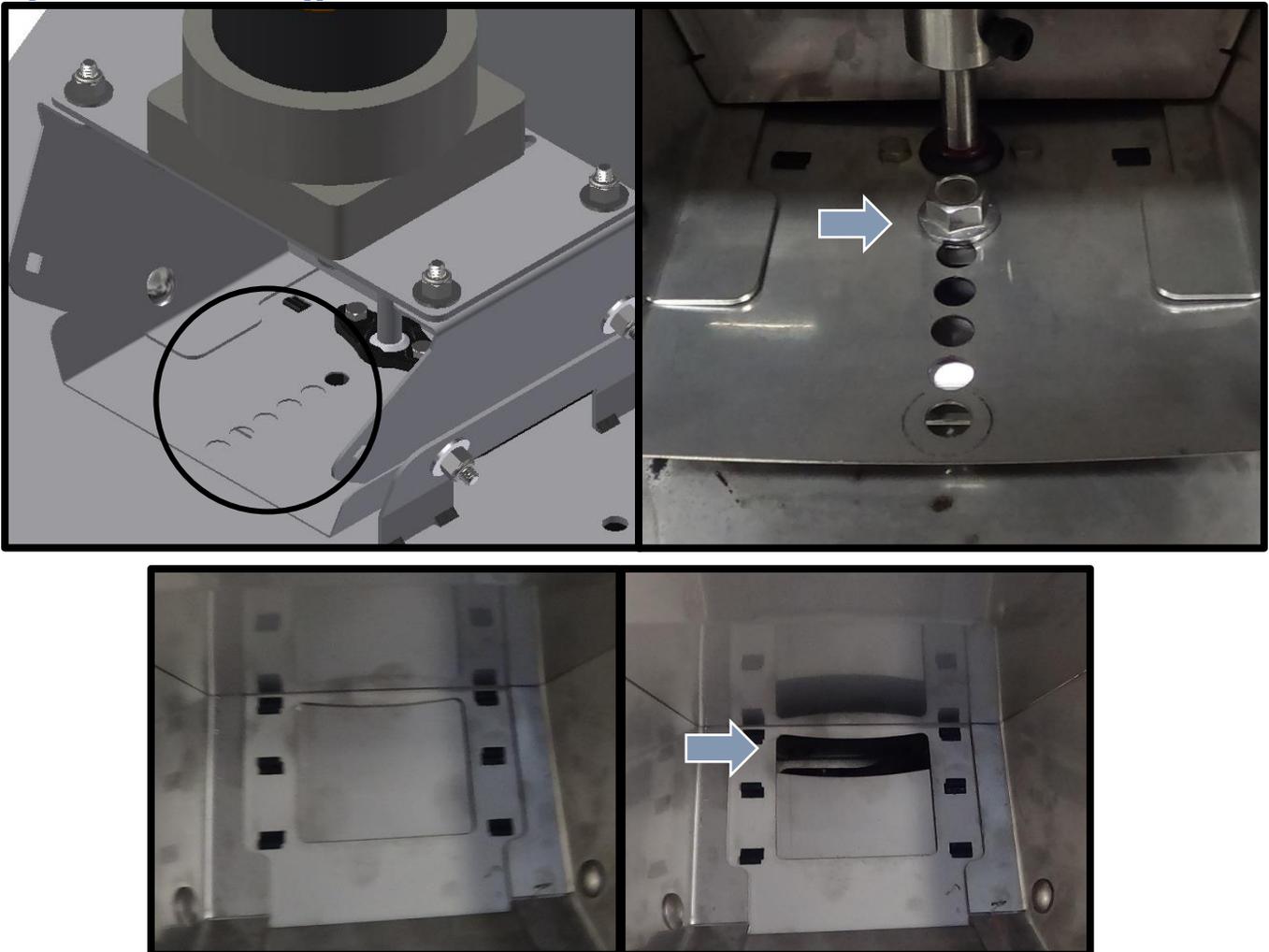
DO NOT attempt to adjust any of these settings, other than Speed Control, while the Spinner is moving.

5.2.1 Rate Control

The Rate Control is located on the front of the 135lb. Stainless Steel Spreader near the spinner. The Rate Control setting controls the amount of product that is dispersed from the Hopper by adjusting how far the Hopper Cable can open the Hopper Door. The Rate Control setting primarily affects the density of the product spread in the coverage area.

To adjust the Rate Control, insert a bolt in the desire hole and secure with a nut. Open the Hopper Door and visually inspect the Hopper Door opening.

Figure 3. Rate Control and Hopper



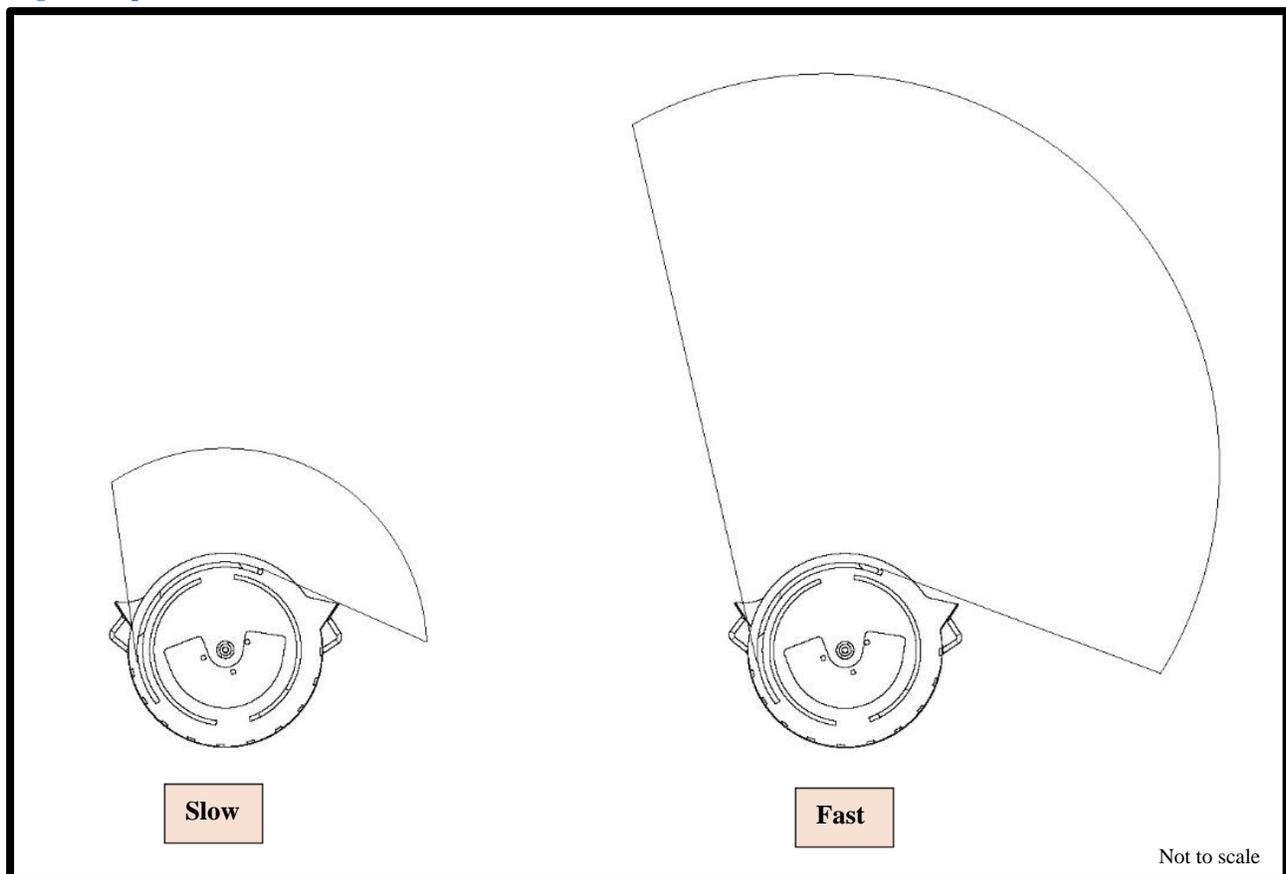
Spread Pattern Adjustment Controls Cont...

5.2.2 Speed Control

This setting controls the length (distance) of the spread pattern by controlling how fast the Spinner rotates. This control also affects the density of the spread pattern.

At the lowest speed, the product will be spread closer to the front of the machine with thicker coverage. As the Spinner speed increases, the product will be spread farther from the front of the machine with thinner coverage. The spreader is capable of distances of 6 - 25 feet.

Figure 4. Spread Pattern Distance



Spread Pattern Adjustment Controls Cont...

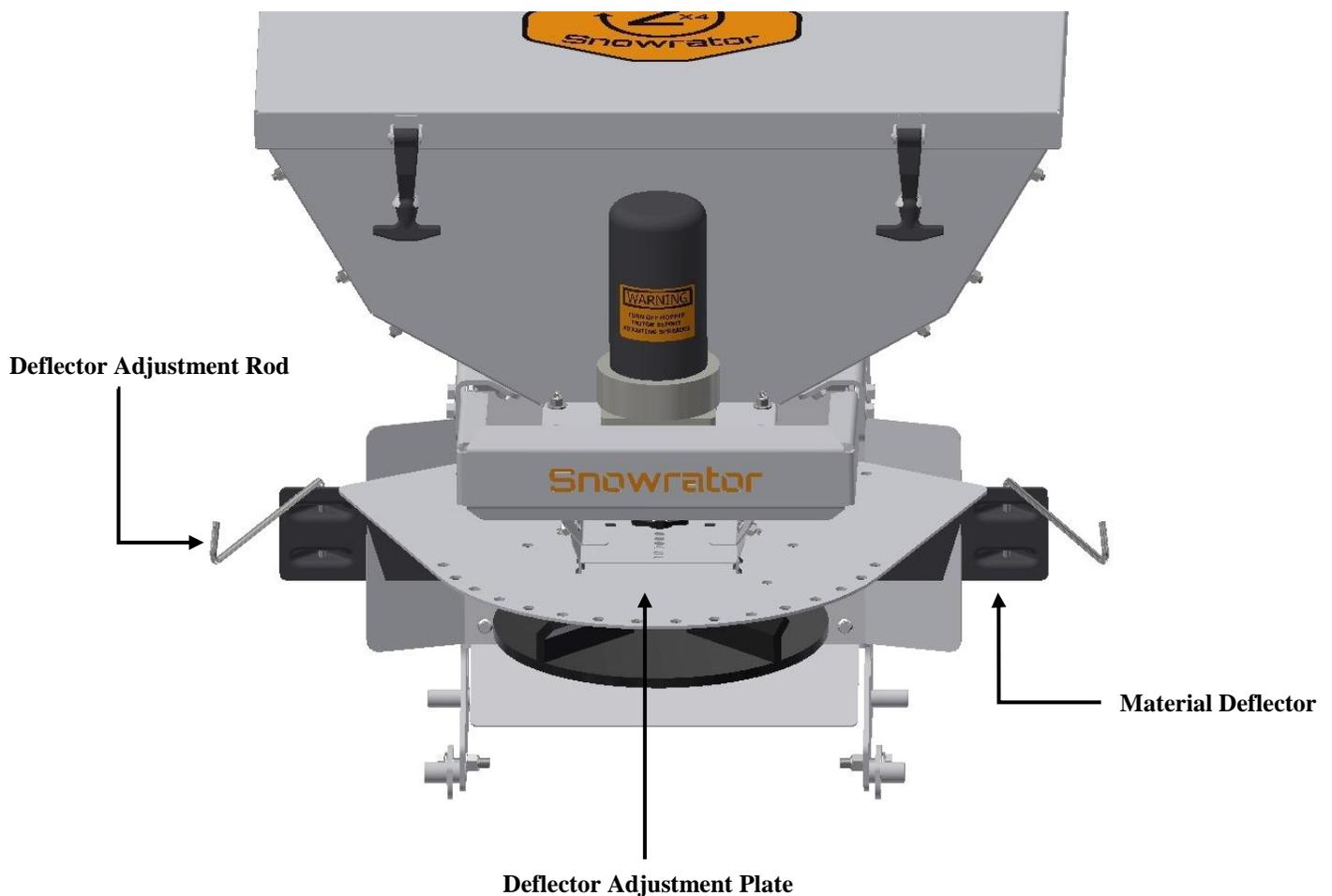
5.2.3 Directional Control

The Directional Control setting is located on the front of the 135lb. Stainless Steel Spreader below the Rate Control. It is made of three main components, the Material Deflector, Deflector Adjustment Plate and Deflector Adjustment Rods as shown in Figure 5. The Directional Control setting controls the direction and width of the spray pattern by the orientation and width of the opening. The leading edge of the spray pattern is controlled by the position of the Material Deflector on the operator left. Figure 7 shows the width of the opening also affects the density of the spread pattern as it will disperse the product over a wider area.

Disconnect power and then set the Directional Control by placing each Rod in one of the 16 adjustment holes in the Deflector Plate. Secure each Rod with a cotter pin.

*****DO NOT attempt to adjust the Directional Control while the Spinner is rotating!*****

Figure 5. Directional Control Diagram



Spread Pattern Adjustment Controls Cont...

Figure 6. Deflector Adjustment Holes

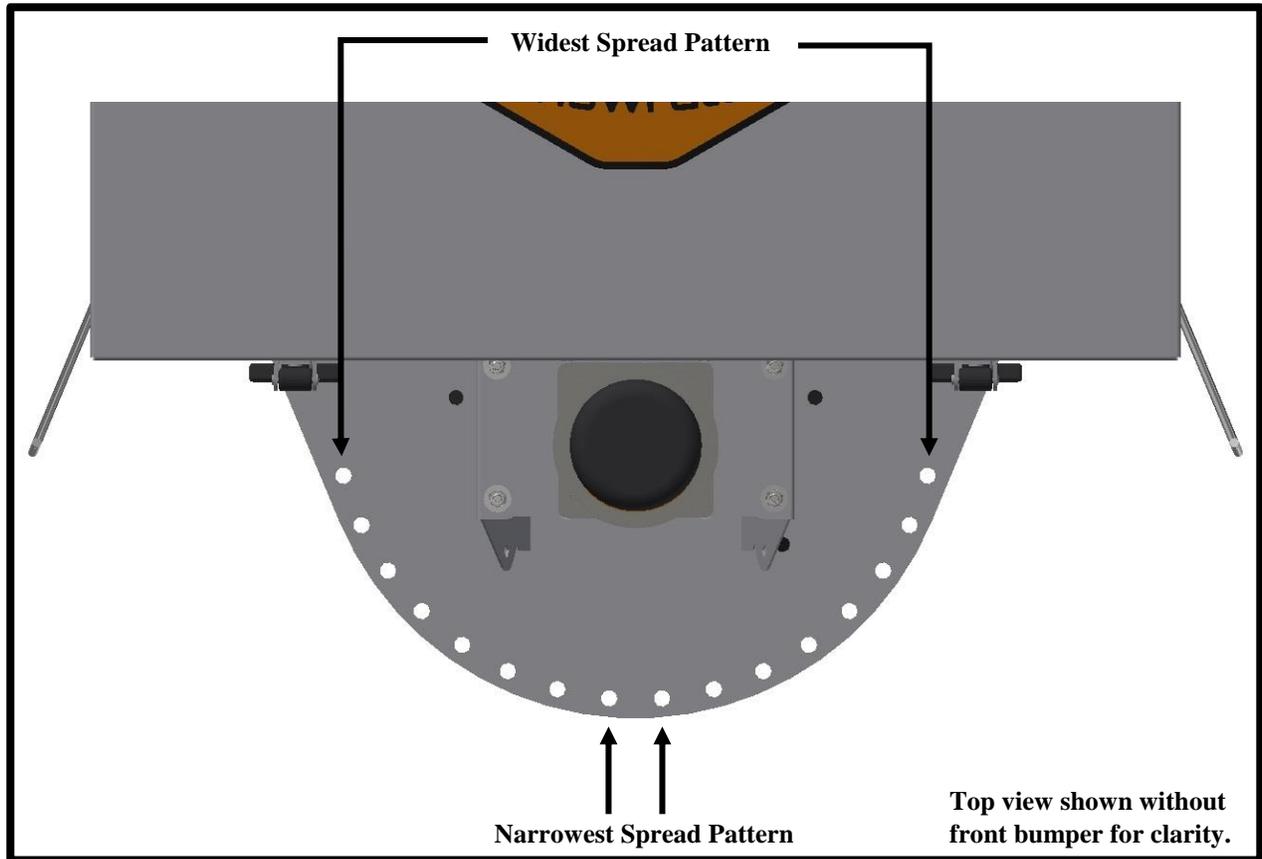
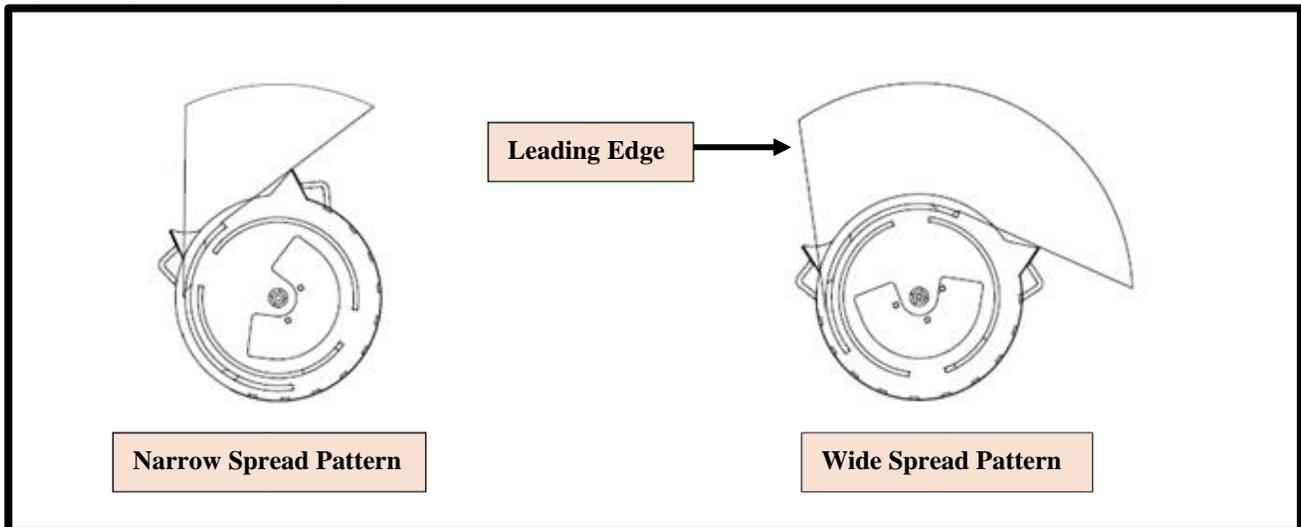


Figure 7. Spread Pattern Example



5.3 SPREAD PATTERN SET-UP

This section contains instructions on how to set up a spread pattern with the 135lb. Stainless Steel Spreader. Note that other conditions such as weather, operator driving speed, etc. can affect the spread pattern. Adjust accordingly. See Figure 8.

1. Make sure Spinner Switch is in the OFF position and the Snowrator is OFF.
2. Check the Hopper to verify it is clean and free of product. If not, clean it with compressed air.
3. Check Hopper sliding door guides for damage.
4. Set Rate Control using the nut & bolt on the front of the machine and verify Hopper Door opening width.
5. Adjust the Directional Control to the desired direction and opening width.
6. Fill the Hopper with the desired product.
7. Turn on Spinner. Only use Vibrator if material is not flowing.
8. Set the Spinner speed.
9. Open Hopper Door and observe spread pattern.
10. Turn off Vibrator and Spinner and adjust settings if necessary.

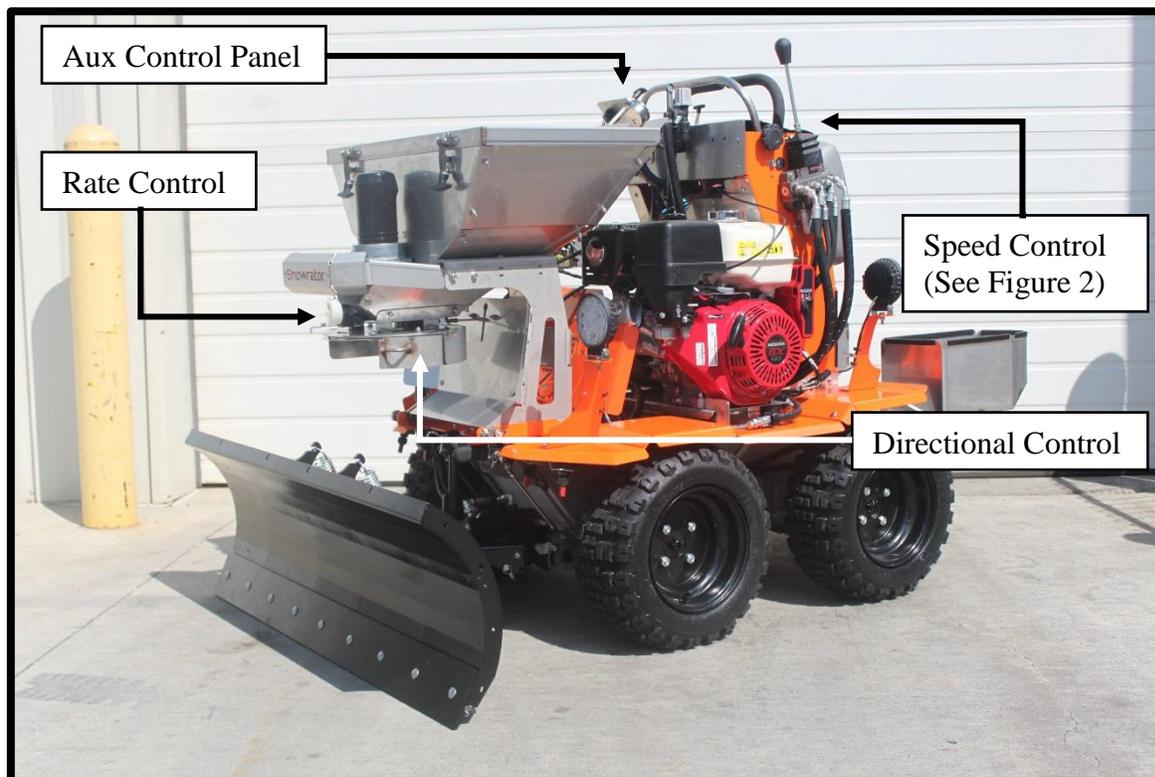
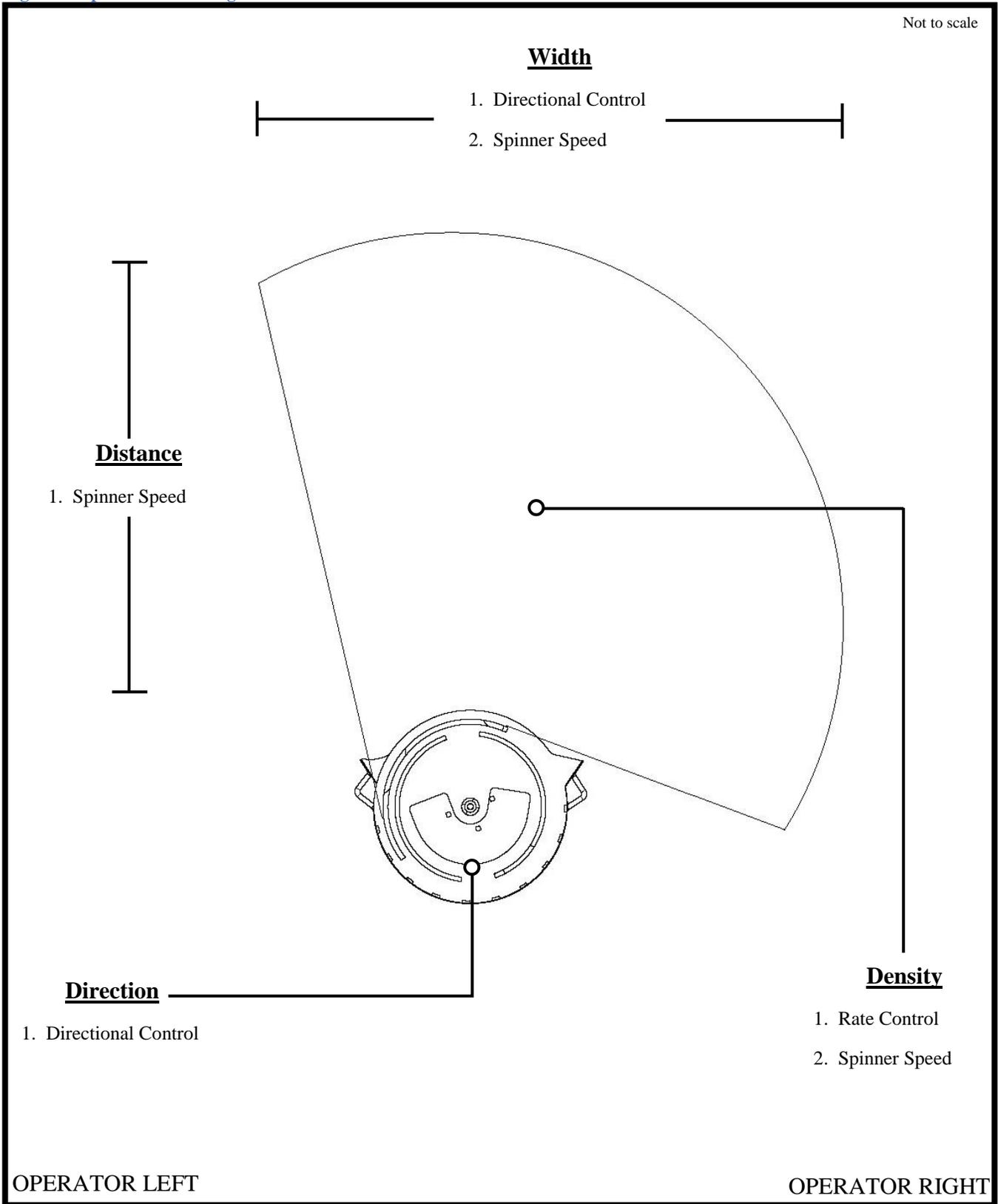


Figure 8. Spread Pattern Diagram



6.0 TROUBLESHOOTING

Controller Error	Light pattern - Flashing									
	1	2	3	4	5	6	7	8	9	10
Over Current	X	X								
Short Circuit	X	X	X							
Open Circuit	X	X	X	X						
Low Voltage - 9.5 V	X	X	X	X	X					
High Voltage - 14.8 V - 19V	X	X	X	X	X	X				
Over Temperature - 60°C (140°F)	X	X	X	X	X	X	X			

Problem	Possible Cause	Corrective Action
Controller will not turn on	<ol style="list-style-type: none"> 1. Controller is not connected to Power/Ground harness. 2. Bad Connection at Power/Ground harness. 3. Dead/Low Battery 4. Blown fuse in Controller Harness 5. Blown fuse in Power/Ground Harness. 	<ol style="list-style-type: none"> 1. Connect Controller to Power/Ground harness. 2. Disconnect controller from the Power/Ground harness. Clean terminals and re-connect controller. 3. Turn off all electrical equipment (Lights, Pump, Spreader, etc.). Start engine manually. Let the engine charge the battery then continue operation. 4. Check fuse in the controller harness between controller and connection to power/ground harness. Replace if blown. 5. Check for power and ground at connector. If there is no power check for power on the other connectors. If there is no power on the other connectors. Examine electrical and find where the short is, replace damaged component(s). Replace Power/Ground harness.

Troubleshooting Cont...

First two lights on controller are flashing	<ol style="list-style-type: none"> 1. Spinner disk is stuck 2. Spinner Shaft is bent 3. Spinner disk is dragging on material deflector 	<ol style="list-style-type: none"> 1. Turn controller off. Disconnect spinner motor and free the spinner. Reconnect spinner Motor. Turn Controller on again to reset. 2. Turn controller off. Disconnect spinner motor and inspect shaft for damage, replace if necessary. Reconnect spinner Motor. Turn controller on again to reset. 3. Turn controller off. Disconnect spinner motor and clean off material deflector. Reconnect spinner Motor. Turn controller on again to reset.
First three lights on controller are flashing	<ol style="list-style-type: none"> 1. A short circuit between the controller and the spinner motor 2. Motor has an internal short circuit. 	<ol style="list-style-type: none"> 1. Turn controller off. Check, repair, or replace the wiring between the controller and spinner motor. Turn controller on again to reset. 2. Turn controller off. Replace the spinner motor. Turn controller on again to reset.
First four lights on controller are flashing	<ol style="list-style-type: none"> 1. Spinner motor not connected 2. Bad connection between controller and spinner motor 3. Power connector and Motor connector connected to Power/Ground harness 	<ol style="list-style-type: none"> 1. Turn controller off. Connect spinner motor. Turn controller on again to reset. 2. Turn controller off. Clean connection between controller and spinner motor. Turn controller on again to reset. 3. Disconnect the Motor connector from the Power/Ground harness and connect it to the Spinner Motor. Turn controller off and then on to reset.
First five lights on controller are flashing	<ol style="list-style-type: none"> 1. Low battery voltage 	<ol style="list-style-type: none"> 1. Increase Engine RPM. Turn controller off then on again to reset. 2. Turn Pump, Lights, Vibrator and Spinner motor off, Increase Engine RPM and let run for a while, Check volt meter when volt meter is approximately 12V. Turn controller off then on again to reset.

Troubleshooting Cont...

First six lights on controller are flashing	1. Voltage regulator is bad	1. Replace Voltage Regulator
First seven lights on controller are flashing	1. Controller is over heating	1. Let controller cool down. Circuit board needs to cool to below 60C before the controller will restart. Turn controller off then on again to reset.

7.0 PARTS LIST

SR-HOPPER KIT (135)

LTR P/N	Toro P/N	Description	Qty	Unit
30679	143-0012	KNOB	2	EA
30732	143-0014	SPINNER SAFETY DECAL	1	EA
70014	135-5935	HOPPER CABLE	1	EA
70014-B	135-5682	BALL JOINT	1	EA
70019	126-0988	DIAL SELECTOR	1	EA
70019-A	126-0986	PINE TREE CLIP	1	EA
70022	126-0985	DIAL HOLDER	1	EA
70023-S	143-0029	SPINNER MOTOR SHAFT, 3/8"	1	EA
70023-S TSSR	143-0543	SPINNER MOTOR SHAFT, 3/8" TO 3/4"	1	EA
70024-C	135-5937	1" SHAFT COUPLER	1	EA
70028	143-0030	SPINNER MOTOR	1	EA
70040	126-0990	SLIDE DOOR GUIDE	4	EA
70041	135-5965	DIAL FOLLOWER	1	EA
80239-PUMP	143-0539	AUX ELECTRICAL HARNESS	1	EA
80243	143-0045	ROCKER SWITCH	1	EA
80245	143-0047	RED ROCKER SWITCH LENS	1	EA
80316	135-9003	3/8" FLANGE BEARING	1	EA
80316-R	135-5943	3/8" FLANGE BEARING	1	EA
80748	135-9430	3/8" QUICK RELEASE PIN	2	EA
90001	1-809113	TRIM-LOK EDGING		
90121	143-0090	HOPPER LID LATCH	2	EA
90124	143-0092	HOPPER LID HINGE	2	EA
90135	143-0093	VIBRATOR	1	EA

SR-HOPPER KIT (135)

LTR P/N	Toro P/N	Description	Qty	Unit
90136	143-0094	SNOWRATOR LOGO DECAL	1	EA
90137	143-0095	AUX CONTROL PANEL DECAL	1	EA
90148	143-0096	3/8" BRONZE BUSHING	2	EA
90205	142-0216	SPINNER SPEED CONTROLLER	1	EA
CB-1434SS	HDW20143	BOLT, CARRIAGE - SS, 1/4-20 x 3/4	36	EA
CB-381SS	126-0980	BOLT, CARRIAGE - SS, 3/8X1		EA
CB-5161SS	HDW17294	BOLT, CARRIAGE - SS, 5/16-18 X 1		EA
CB-51634SS	126-0695	BOLT, CARRIAGE - SS, 5/16-18 x 3/4		EA
CTB-1550	142-0401	TIE WRAP, 50 LB BLACK		EA
FBF64LF-IR	HDW16196	RIVET, 0.1875 x 0.450	10	EA
FWSS-10	126-0759	WASHER, FLAT - SS, 10	10	EA
FWSS-14	142-0443	WASHER, FLAT - SS-1/4	42	EA
FWSS-38LOD	1126	WASHER, FLAT - SS, 3/8	2	EA
FWSS-516	HDW14535	WASHER, FLAT - SS,5/16 X 7/8		EA
FWSS-516LOD2	HDW14535	WASHER, LG OD - SS, 5/16	4	EA
HCSSC-1034	135-6356	SCREW, CAP, HEX - SS, 10-24 x 3/4	2	EA
HFNCS-10S	142-0542	NUT, HEX FLANGE, - SS 10-24 S/S		EA
HFNCS-38S	135-2882	NUT, LOCK, FLANGE, SERRATED -SS, 3/8-16		EA
HFNCS-516S	142-0545	NUT, LOCK, FLANGE, SERRATED - SS, 5/16-18	8	EA
HFSSC-1434	142-0556	SCREW, HEX, FLANGE - SS, 1/4-20 x 3/4	10	EA
HFSSC-38112	135-6278	SCREW, HEX, FLANGE - SS, 3/8-16 x 1 1/2	2	EA
HFSSC-51634	126-2712	SCREW, HEX FLANGE, - SS, 5/16-18 x 3/4	8	EA
MSC11336	MSC11336	SPINNER, URETHANE,12, CENTER CUTS	1	EA
MSC17203	MSC17203	BRKT-DEFLECTOR, SPREADER	2	EA

SR-HOPPER KIT (135)

LTR P/N	Toro P/N	Description	Qty	Unit
SC1-0500-SS	142-1450	1/2" SPLIT SHAFT COLLAR	2	EA
SET-1420X14	142-1492	SCREW, SET - 1/4-20 x 1/4	1	EA
SHCS-14-20X12	142-1545	SCREW, CAP, SOCKET HEAD - 14-20 x 1/2	1	EA
SM10193 TSSR	143-0545	HOPPER MOUNTING LATCH	2	EA
SM10202	143-0223	BUMPER BACKPLATE	1	EA
SM10317 TSSR	143-0314	REAR SHELL	1	EA
SM10318	143-0315	FRONT SHELL	1	EA
SM10319 TSSR 3	143-0535	RIGHT SHELL	1	EA
SM10319 TSSR 3-L	143-0536	LEFT SHELL	1	EA
SM10320	143-0317	SHELL LID	1	EA
SM10321	143-0318	VIBRATOR MOUNTING BRACKET	1	EA
SM10322	143-0319	VIBRATOR HEAT SHIELD	1	EA
SM10323 TSSR	143-0544	BUMPER	1	EA
SM10324 TSSR	143-0546	BOTTOM RATE CONTROLLER	1	EA
SM10325	143-0322	SPINNER MOTOR MOUNTING BRACKET	1	EA
SM10326-W	143-0534	RIGHT FRAME UPRIGHT	1	EA
SM10326-WL	143-0533	LEFT FRAME UPRIGHT	1	EA
SM10327	143-0324	UPRIGHT SUPPORT BRACKET	1	EA
SM10328 TSSR	143-0325	BACKSHIELD	1	EA
SM10329	143-0326	HOPPER CABLE BRACKET	1	EA
SM10330	143-0327	HOPPER DOOR	1	EA
SM10331-TSSR W	143-0329	DIRECTIONAL CONTROL MOUNTING PLATE	1	EA
SM10334-W	143-0333	BOTTOM DIRECTIONAL CONTROL	1	EA
SM10336-W	143-0337	MIDDLE DIRECTIONAL CONTROL	1	EA

SR-HOPPER KIT (135)

LTR P/N	Toro P/N	Description	Qty	Unit
SM10338	143-0339	SPINNER	1	EA
SM10339	143-0342	THROW ANGLE BRACKET	1	EA
SM10344	143-0349	AUX CONTROL PANEL BRACKET	1	EA
SM10401	143-0366	LEFT FERTILIZER BOX PLATFORM	1	EA
SM10402	143-0367	LEFT FERTILIZER BOX UPRIGHT	1	EA
SM10402-R	143-0368	RIGHT FERTILIZER BOX UPRIGHT	1	EA
SM10403	143-0369	RIGHT FERTILIZER BOX PLATFORM	1	EA
SRA-10010	143-0399	HOPPER AND FERT TRAY KIT	1	EA
SSNNC-1024	142-1655	NUT, NYLOCK - SS, 10-24	42	EA
SSNNC-14	142-1657	NUT, NYLOCK - SS, 1/4-20	2	EA
SSNNC-38	142-1659	NUT, NYLOCK - SS, 3/8-16	4	EA
SSNNC-516	142-1660	NUT, NYLOCK - SS, 5/16-18	1	EA
TGS05812	TGS05812	DEFLECTOR, ADJUSTABLE, TGS		EA
TRCP-1012S	143-0542	SCREW-PTH [10-32 x 0.75, SS]	8	EA
TRPC-1012S	142-1749	SCREW, MACHINE, TRUSS - SS, 10-32 x 1/2	4	EA
TRPC-1434S	142-1750	SCREW, MACHINE, TRUSS - SS, 1/4-20 x 3/4	42	EA
ZB200305-L	135-5470	LEFT FERTILIZER BOX	1	EA
ZB200305-RW	142-1953	RIGHT FERTILIZER BOX	1	EA

8.0 AUX ELECTRICAL WIRING HARNESS DIAGRAM

