Airflo MANUFACTURING CO., INC.

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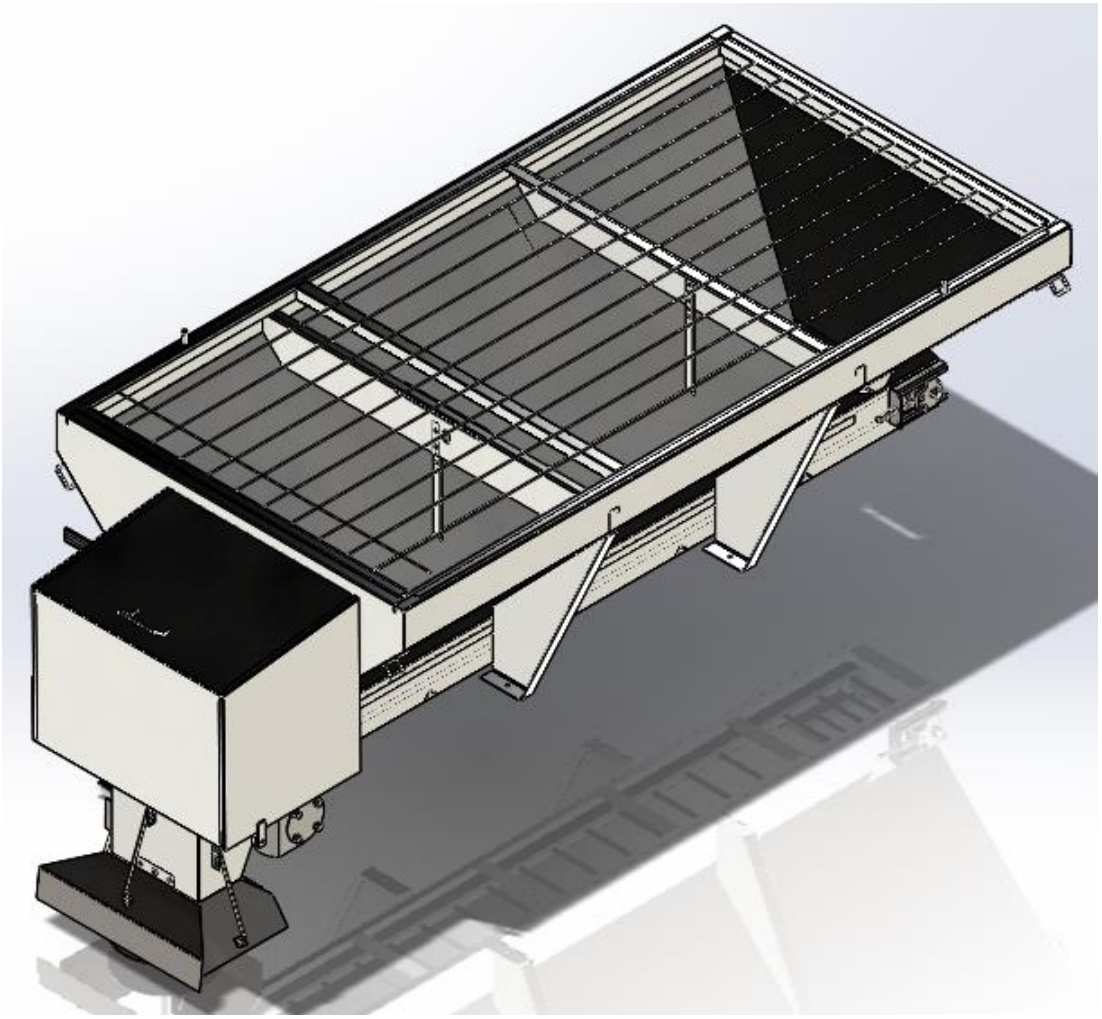
OPERATOR & PARTS MANUAL

PSV-8E (GAS DRIVEN SPREADER)



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Contents

Pre-Use Checklist

- Read this entire Owner's Manual before attempting to operate or install the spreader. Consult the Briggs & Stratton engine Owner's Manual as well. **NOTE: The Briggs & Stratton Owner's Manual can be found online at the Briggs & Stratton website. You will need the model number and type number, which can be found at the front of the engine. Refer to Figure 1.**

Figure 1.

- To avoid overloading the sander, check the recommended maximum payload for the sander before loading or operating.
- Check all CAUTION, WARNING and DANGER decals on the spreader before operating. Refer to figures 2-5.

Figure 2.

Figure 3.

- Check the engine crankcase and the gearbox to make sure that any lubricants that are being used at filled to their required levels and have the right viscosities.
- Make sure the engine cover is securely fastened to the spreader before operating.
- Verify that all personnel are clear of the spreader spray area before operating.
- Make sure that the spreader is securely fastened to the vehicle.

Figure 4.

Figure 5.

Vehicle Requirements

¾ or 1 ton pick-up above 8500# GVWR

CAUTION ⚠

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

Spreader and Material Weights

MATERIAL	WEIGHT (POUNDS PER CUBIC YARD)
PSV-8E	650 lbs.
#1 Rock Salt	950 lbs.
#2 Rock Salt	1,215 lbs.
Coarse Sand-Dry	2,565 lbs.
Coarse Sand- Wet	3,240 lbs.

Safety

WARNING

Observe the following Safety Precautions before, during and after operating the spreader. By following these precautions and common sense, possible injury to persons and potential damage to this may be avoided.

1. Persons who install, mount, operate, or service this equipment must be properly instructed and warned.
2. Read operator manuals completely before operating the equipment.
3. Read all instructional, cautionary, and warning decals.
4. Check the spreader to ensure that all shields and gates are in place.
5. Use care when mounting and dismounting the spreader.
6. Make sure to turn off all power to the spreader before performing any repairs, maintenance, or inspections.
7. Keep all personnel and property away from the chute/spinner assembly while the spreader is in operation.
8. Keep the spreader unit and components in proper working condition. Replace any missing or damaged safety signs.
9. Any unauthorized modifications to the spreader and related components may impair its functions and/or safety.
10. Check to make sure all safety guards are securely mounted into place before operating the spreader.
11. Keep all loose clothing, hair, jewelry and limbs clear of the spreader before starting or operating the spreader.
12. Do not adjust, clean, oil or unclog material jams without first turning off the spreader, removing the engine spark plug and control panel fuse.
13. Do not climb on or in the spreader during operation.
14. Do not ride the spreader while in operation.
15. Do not attempt to operate the spreader when it is in need of maintenance or repair.

Installation Instructions

Mounting the Spreader onto the Vehicle

1. Install the inverted “V” in the spreader using the bolts, nuts, and washers provided. See Figure 6.
2. Remove the tailgate from the vehicle.
3. Lift the spreader by attaching the lifting device to the slot on the passenger side of the rear inside brace.

CAUTION
Check the rated maximum payload of the lifting device before lifting the spreader.

4. Place the spreader on top of two pieces of lumber so that the lumber rests under the side gussets as shown in Figure 7. **NOTE: This will help to remove any excess material that accumulates under the spreader.**
5. Lift the spreader and place it in the back of the vehicle so that it is centered to the vehicle and the rails of the spreader are 14” from the rear of the truck.
6. Bolt the spreader to the vehicle frame through side gussets and the lumber.
7. Tie the spreader to the vehicle from the tie-down eyes to the vehicles anchor points.

Bill of Materials

ITEM NO.	PART NAME	PART NUMBER	QTY.
6	INVERTED "V"	40134	1
9	SCREEN	34039	1
11	HEX BOLT 3/8 - 16 X 1"	01227	4
12	HEX BOLT 3/8" - 16	01006	4
13	FLAT WASHER 3/8"	01014	4
14	LOCK WASHER 3/8"	01016	4

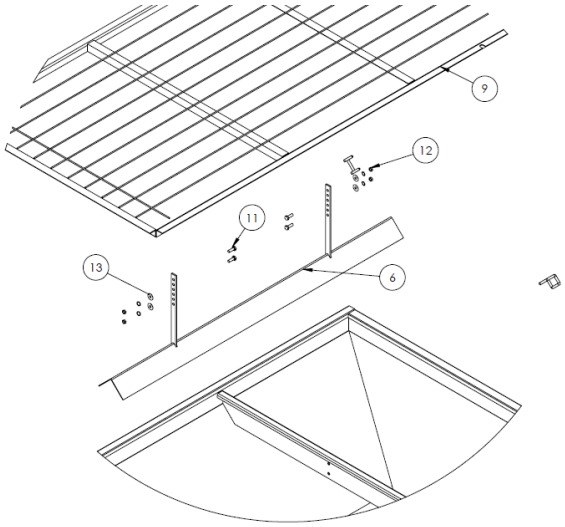


Figure 6.

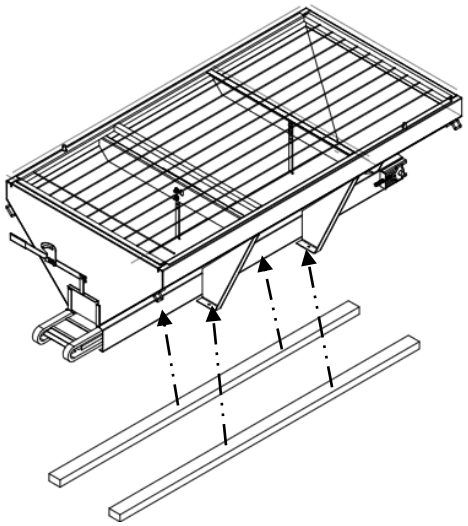


Figure 7.

Things to Know after Mounting the Spreader

A. The tie-down straps are provided for the purpose of securing the spreader to the vehicle only and are not to be used for any other purpose. It is imperative that the spreader be tied to the vehicle at all times.

B. Be sure to verify with vehicles manufacturer that the factory installed anchor points are designed for this application.

C. Periodically check to see if the spreader mounting hardware is securely tightened.

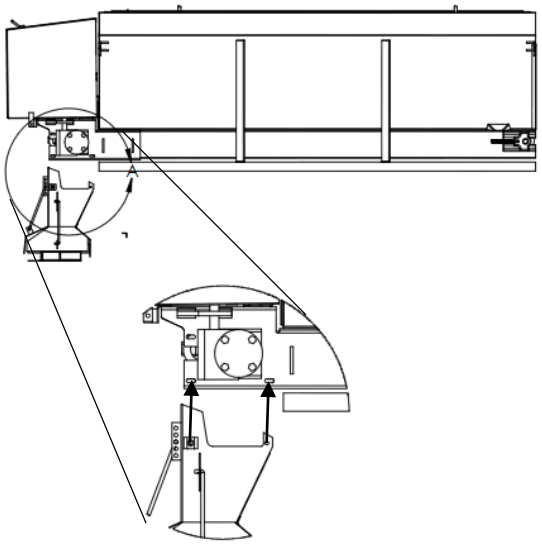


Figure 8.

Mounting the Spinner/Chute Assembly

1. Attach the Spinner/Chute Assembly to the spreader using the four 3/8-16 X 5/8" hex head bolts, lock washers and nuts provided. Attach the bolts so that the bolt head is inside the chute assembly. Refer to Figures 8-9. **NOTE: Attach the bolts loosely at this time.**
2. Install the roller chain between the sprocket mounted to the Spinner/Chute Assembly and the Gearbox Sprocket. Make sure both sprockets are in-line with one another. Tighten the gearbox sprocket set screw. Install the roller chain master link. See Figure 10.

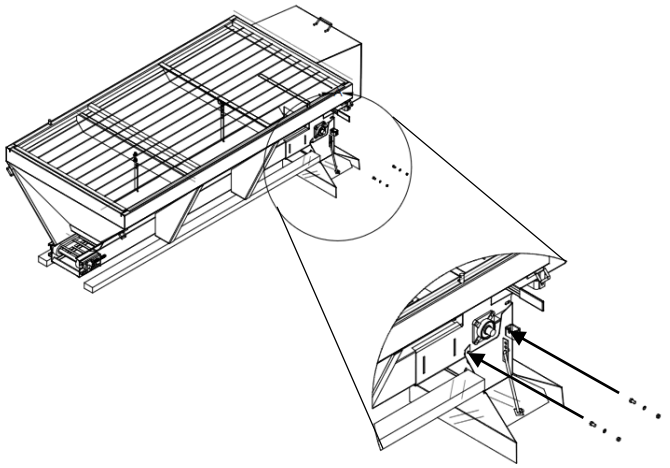


Figure 9.

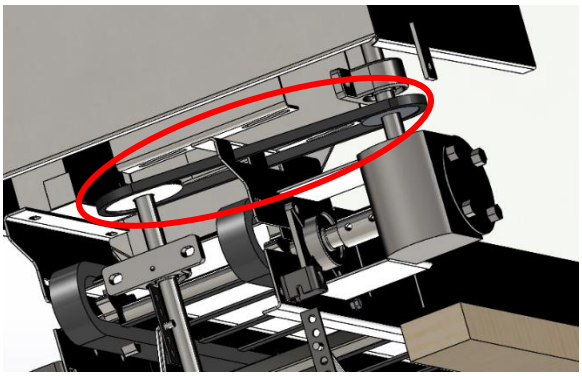


Figure 10.

3. Adjust the tension of the roller chain by loosening the Pillow Block Bearings that are supporting the Spinner Shaft and moving the shaft either towards or away from the Gearbox Sprocket. The correct chain tension should allow a 5/16" deflection in the chain midway between both chain sprockets. See Figures 11-12. **NOTE: Be sure to maintain the vertical alignment between the Spinner Shaft and the bearings before re-tightening the hardware.**

CAUTION

Do not over-tighten the chain tension. This can cause damage to the chain, shaft, bearings and Gearbox.

4. Install the chain guard using the three ¼-20 X ¾" hex head bolts, lock washers, and nuts.
5. Torque the 3/8-16x1-1/4" Pillow Block Bolts to 236 Inch-Pounds (20 Foot-Pounds).

Figure 11.

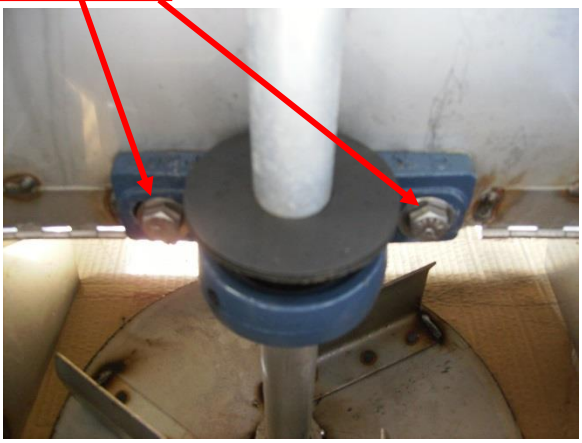


Figure 12.

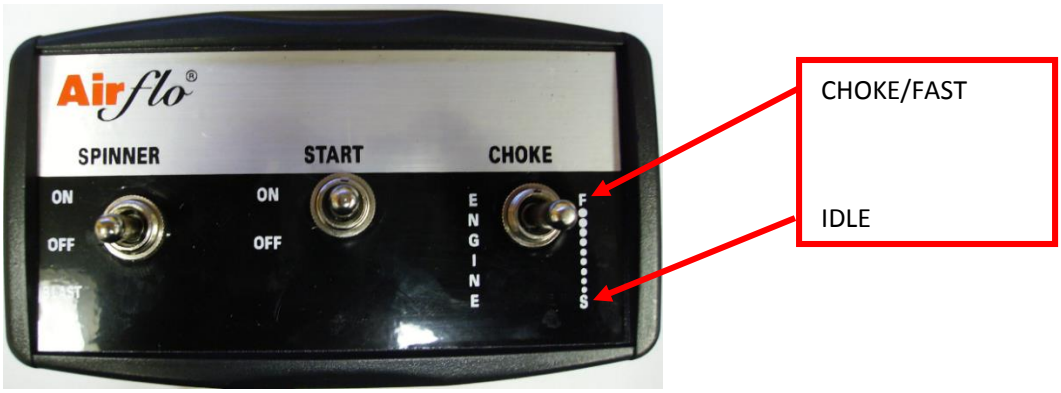


Figure 13.

Spreader Operation

NOTE: Before Starting the engine, follow all safety precautions.

Control Panel Description

1. The "Spinner" switch is a three position switch with the following functions:
   a. ***OFF Position:*** While the switch is in this position and the engine is running, the spreader feed chain and the spinner disk will remain non-operational.
   b. ***ON Position:*** While the switch is in this position and the engine is running, the spreader feed chain and the spinner disk will dispense the ice control material at the normal regulated rate.
   c. ***BLAST Position:*** While the switch is in this position and the engine is running, the spreader feed chain and the spinner disk will dispense the ice control material at a higher rate. **NOTE: In order to use this option, the switch must be held in this position. It cannot be toggled like the "ON" or "OFF" options.**
2. The "Start" switch is a three position switch with the following functions:
   a. ***OFF Position:*** While in this position, 12 VDC power is shut off to the spreader.
   b. ***ON Position:*** While in this position, 12 VDC power is turned on to the spreader.
   c. ***START Position:*** While in this position, the engine speed will increase.
3. The "Choke" switch is a two position switch with the following functions:
   a. ***CHOKE/FAST Position:*** While in this position, the engine speed will increase to help start the engine.
   b. ***IDLE Position:*** While in this position, the engine speed will decrease to release the choke.

Wire Harness Installation

Figure 14.

1. The Hot Wire (RED) can be connected to either the fuse box or directly to the battery.
2. The White Wire must be ground to the chassis.

Figure 15.

3. Connect the Female Connector to the Male Connector near the engine.

Starting the Engine

1. Verify that the Spinner switch and the Start switch on the spreader control unit are in the OFF position.
2. Now turn the Start switch to the ON position.
3. Move the Choke switch to the IDLE position and hold for approximately two seconds.
4. Turn the Start switch to the START position and hold.
5. While the engine is cranking, move the throttle switch to the CHOKE/FAST position.
6. Release the Choke switch when the engine starts to fire.
7. Release the Start switch when the engine turns over.
8. Now move the Choke switch to the IDLE position for ½ to 1 second to release the choke.

Stopping the Engine

1. To stop the engine, simply move the Start switch to the off position.

Spinner Operation

1. Start the engine and adjust the speed to slightly above IDLE.
2. Move the Spinner switch to the on position.
3. Increase the engine RPM by moving the Choke Switch towards the CHOKE/FAST position.
4. It is recommended that the clutch only be engaged at the lowest possible speed without stopping the engine. This will prevent premature spinner chain failure and tension loss.

Spinner/Chute Assembly Operation

1. The spread pattern and the amount of material dispensed depends on the following:
   a. Engine RPM
   b. Feed Gate Position
   c. Baffle Settings
2. Keep the following information in mind:
   a. Decreasing the RPM's will decrease the amount of material transporting to the spinner.
   b. Increasing the engine RPM's will increase the amount of material transporting to the spinner.
   c. The size of the feed gate opening will determine the amount of material transporting to the spinner in relation to the position of the gate.

Precautions

CAUTION

Always follow the spreader precautions in order to limit any damage done to the spreader

1. If the feed chain does not move because of dense material or jams, remove all material from the hopper and free the chain.
2. If the material in the hopper freezes, move the spreader into a warm area to thaw.
3. To prevent the feed chain from freezing, do not store the material in the spreader.
4. The gearbox is designed to only accept torque from the input shaft.

CAUTION

DO NOT ATTEMPT TO FREE THE FEED CHAIN BY USING A PIPE WRENCH OR SIMILAR TOOL TO MOVE OR DISLODGE THE CHAIN.

IF THE FEED CHAIN IS MOVED, THE GEARS WITHIN THE GEAR CASE WILL STRIP. THIS ACTION WILL VOID THE WARRANTY.

Spreader Maintenance

1. Use dielectric grease on all electrical connections before an electrical connection is made or after a connector is disconnected.
2. Grease the following:
   a. Idler Shaft Bushings (2)
   b. Drive Shaft Bushings (2)
   c. Spinner Shaft Bushings (2)
   d. Flanged Bearing located between gearbox and clutch
   e. Gearbox Input Shaft Bearing.
   NOTE: Do not over grease. Can cause seal damage.
3. Fill the gear case to the oil level plug with SAE 90 gear-type lubricant. Routinely check and maintain level.
4. Fill the engine crankcase with the recommended oil until it reaches the fill line. Refer to the Briggs & Stratton owner's manual for the recommended viscosity. Routinely check and maintain level.
5. Maintain the correct tension on the following chains:
   a. ***Feed Chain Tension***-Check to make sure that the distance between the end rail and the point of contact between the chain and the lower flange of the rail is 26" to 30". Refer to Figure 16. Turn the screws shown in Figures 17 and 18 to adjust the chain tension as needed.

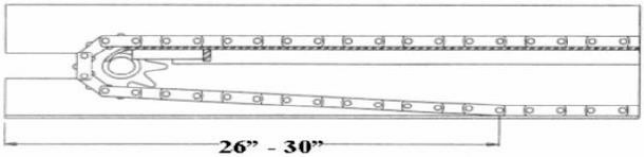


Figure 16.

Figure 17.

Figure 18.

b. ***Engine to Gearbox Drive Chain***- Maintain proper tension on the Drive Chain by checking to see if the deflection at the mid-point between the two sprockets is 5/16". Loosen the four 3/8" – 16 X 1" carriage bolts and slide the engine mount stand. Then torque the bolts back to 236 Inch-Pounds (20 Foot-Pounds). See Figures 19 and 20.

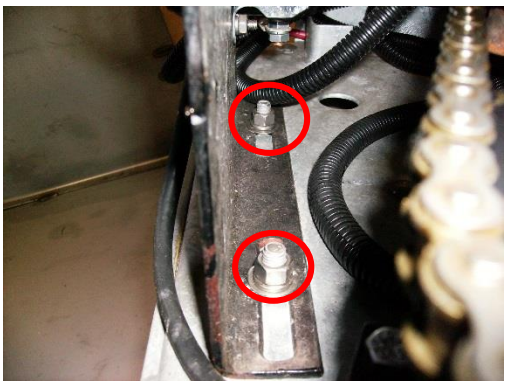


Figure 19.

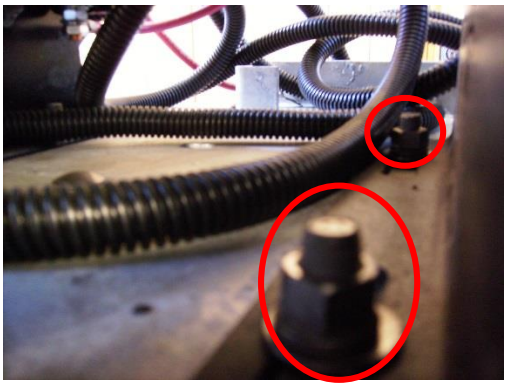


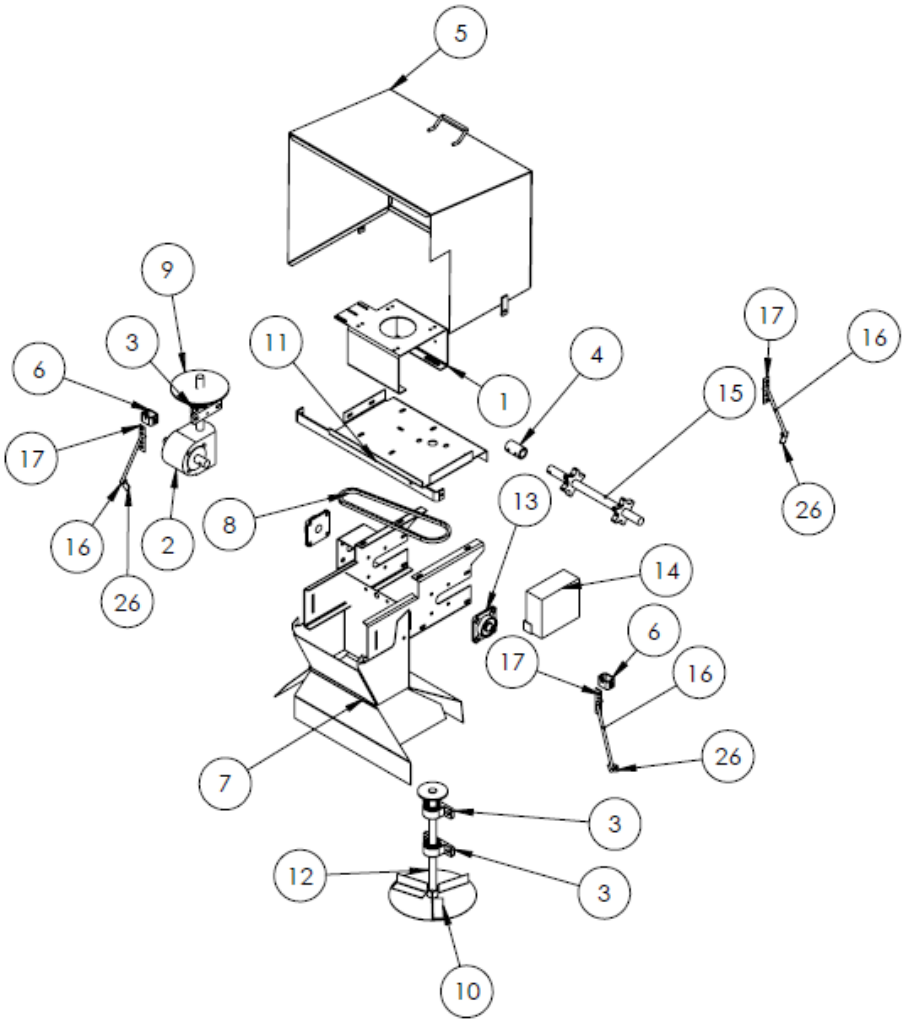
Figure 20.

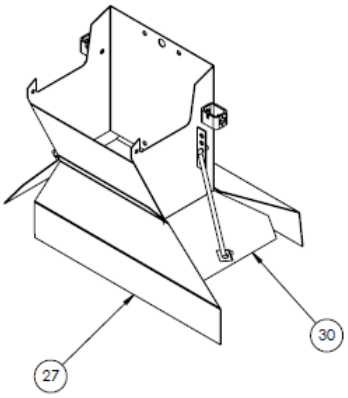
c. ***Gearbox to Spinner Shaft Drive Chain***-Correct tension for the Drive Chain is also a 5/16" deflection at the mid-point between the two sprockets. Adjust the chain by loosening the Pillow Block Bolts as was shown in Figures 11 and 12 and slide the pillow blocks in the desired direction.

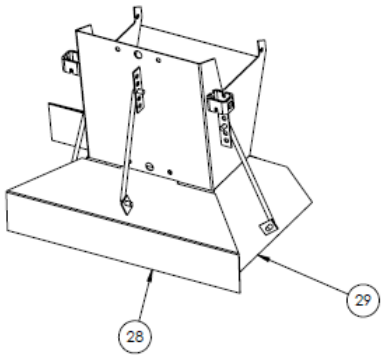
6. Empty the spreader of all snow control material when not in use to prevent a frozen feed chain.
7. Wash out the spreader when it is not in use and at the end of the season to remove all snow control materials. Thoroughly dry all metal surfaces. Paint and oil all bare carbon steel surfaces to help protect against rust build-up. Properly store spreader during the off-seasons.
8. Use the following procedures to help minimize the possibility of damage and extend the life of the electric clutch:
   a. At the end of the season, remove and clean the clutch.
   b. After cleaning, coat both of the mating surfaces with oil or light grease.
   c. Remove oil and grease prior to using clutch again.
9. Maintain the engine according to the Briggs & Stratton owner's manual that has been provided with the spreader. The engine warranty is covered by Briggs & Stratton. If service is required, contact an authorized Briggs & Stratton Service Center.

Part List

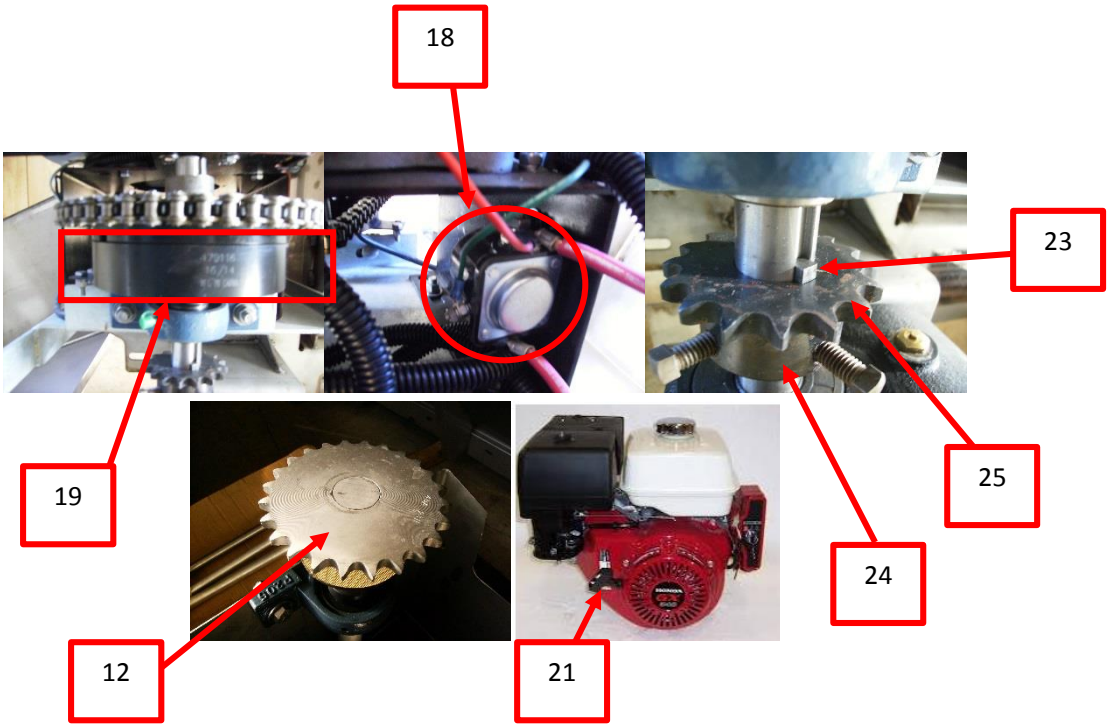
Spinner/Chute Assembly





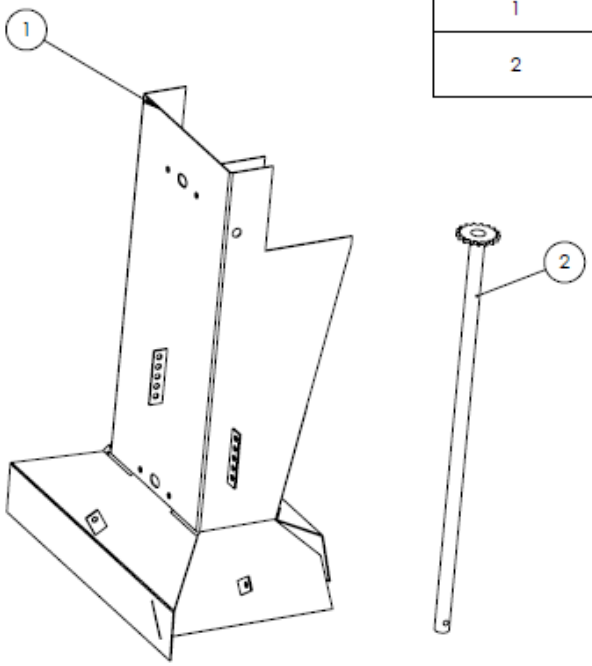


ITEM NO.	PART NAME	PART NUMBER	QTY.
1	MOTOR MOUNT	120051	1
2	GEAR BOX	03001	1
3	BASIC PILLOW BLOCK BEARING	05001	3
4	COUPLER	40842	1
5	HOOD	40259	1
6	SPRING PIN MOUNT	51042	2
7	SHORT CHUTE SHELL	40272	1
8	CHAIN	04038	1
9	SPROCKET	40181	1
10	SPINNER DISK W/ SPINNER VANES	40151	1
11	ORIGINAL MOTOR TABLE - 8FT	120050	1
12	SPINNER SHAFT w/ WELDED SPROCKET- GAS	14002	1
13	1 1/8" FLANGE BEARING	05008	2
14	BATTERY	40123	1
15	CONVEYOR DRIVE SHAFT W/ WELDED SPROCKETS	40148	1
16	CHUTE ADJUSTMENT ROD	04068	3
17	CHUTE ADJUSTMENT TAB	51044	3
18	SOLENOID	07012	1
19	ELECTRIC CLUTCH	40032	1
20	BRIGGS & STRATTON ENGINE	30011	1
21	HP HONDA ENGINE	30020	1
23	SHAFT KEY	19010	1
24	LOCK COLLAR	40042	1
25	40B16 SPROCKET	06001	1
26	CHUTE TAB	51051	3
27	CHUTE REAR FLAP	51048	1
28	CHUTE FRONT FLAP	51102	1
29	CHUTE FLAP DRIVERS	51103	1
30	CHUTE FLAP PASSENGERS	51104	1

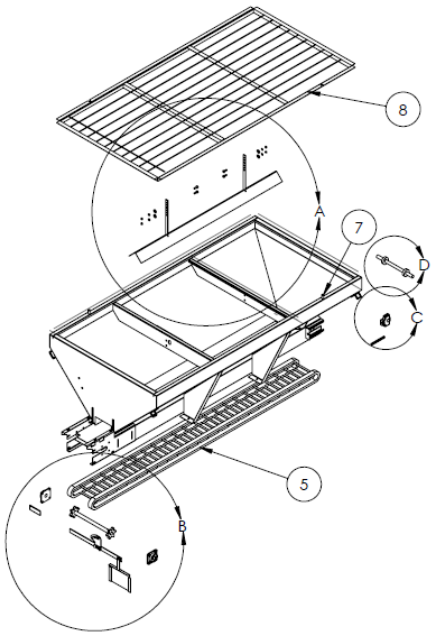

18
23
19
25
24
12
21

Chute Body with 12 Inch Extension

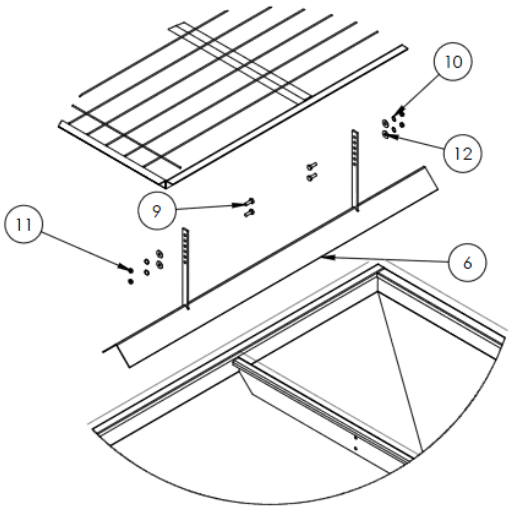
ITEM NO.	PART NUMBER	PART NAME	QTY.
1	40273	LONG CHUTE SHELL	1
2	14003	SPINNER SHAFT + 12 W/ SPROCKET	1



Hopper Assembly



ITEM NO.	PART NAME	PART NUMBER	QTY.
1	DOOR HANDLE	40138	1
2	DOOR HANDLE PLASTIC SLEEVE	09038	1
3	BEARING SLIDER	05004	2
4	TAKE UP THREADED ROD W/ NUT	91024	2
5	DRAG CHAIN	40155	1
6	INVERTED "V"	40134	1
7	SCREEN MOUNT PIN	120068	1
8	SCREEN	34039	2
9	HEX BOLT - 3/8 - 16 X 1"	01227	4
10	LOCK WASHER 3/8"	01006	4
11	HEX NUT 3/8" - 16	01014	4
12	FLAT WASHER 3/8"	01016	4
13	FLANGE BEARING	05008	2
14	CONVEYOR SHAFT	40148L	1
15	IDLER SHAFT	40186	1



DETAIL A
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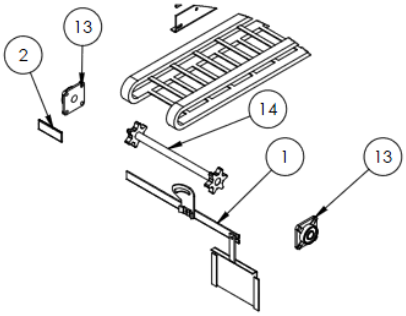
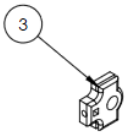
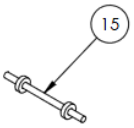


DETAIL B
SCALE 1 : 16



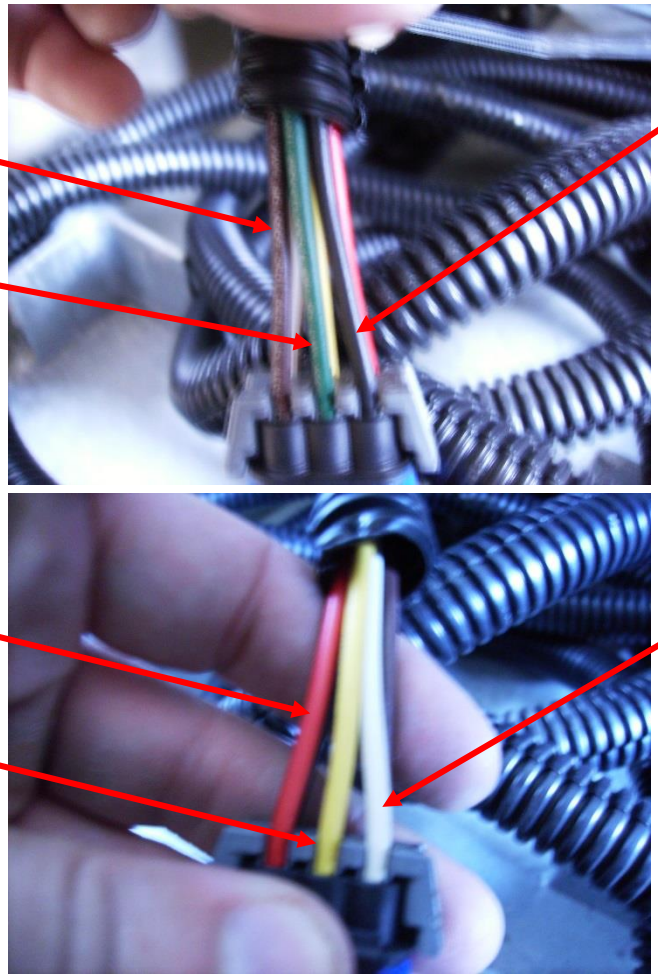
DETAIL C
SCALE 1 : 8

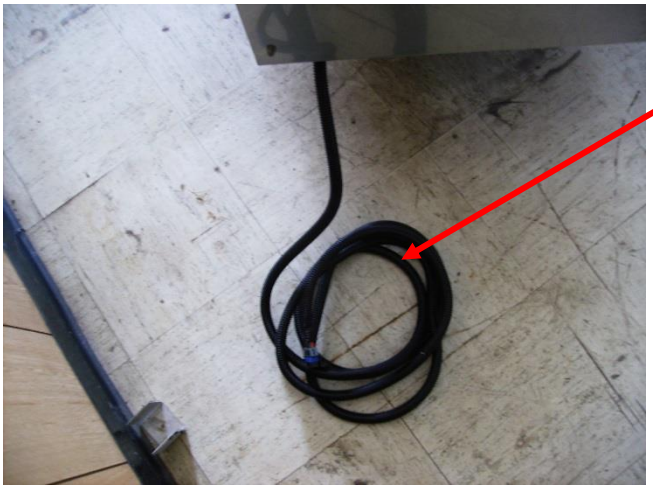


DETAIL D
SCALE 1 : 16

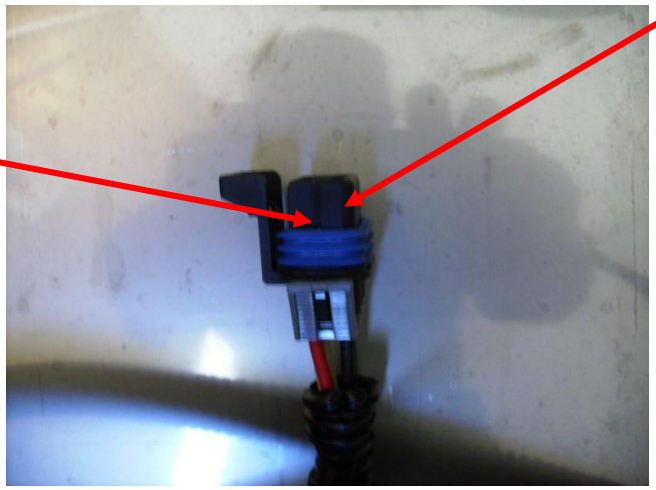
Spreader Controller

Cab Control Box w/ Wire Harness (40149) Qty. 1


Brown RVI Wire (07141) Qty. 1
Green RVI Wire (07138) Qty. 1
Black RVI Wire (07139) Qty. 1
Red RVI Wire (07136) Qty. 1
Yellow RVI Wire (07140) Qty. 1
White RVI Wire (07137) Qty. 1

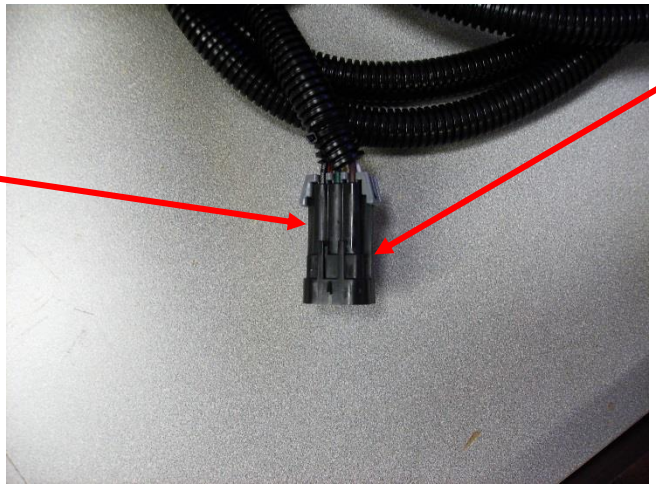


Spreader Side Wiring Harness (40044) Qty. 1



Terminal Connector Male (07149) Qty. 6

Terminal Connector Male (07151) Qty. 1



Terminal Connector Female (07148) Qty. 6

Terminal Connector Female (07150) Qty. 1

MATERIAL SPREADER WARRANTY

AIR-FLO MANUFACTURING CO., INC., hereinafter referred to as "Manufacturer", warrants each new material spreader sold by the manufacturer to be free from defects in material and workmanship, under normal use and service, for a period of One (1) year after the date of delivery to the original retail purchaser, and Manufacturer will, at its option, replace or repair, at one of the Manufacturer's Dealers, or at a point designated by the Manufacturer, any part or parts which shall appear to the satisfaction of the Manufacturer upon inspection at such point, to have been defective in material or workmanship. This warranty does not obligate the Manufacturer to bear any transportation charges in connection with the replacement or repair of defective parts.

This warranty shall not apply to any spreader which shall have been installed or operated in a manner not recommended by the Manufacturer; not to any spreader which shall have been repaired, altered, neglected, or used in any way which, in the Manufacturers opinion, adversely affects its performance; nor to any spreader in which parts not manufactured by the Manufacturer, or supplied by the Manufacturer or by one of the Manufacturers distributors or service centers, have been used; nor any accessories installed on the spreader where the accessory manufacturer has its own warranty; nor to normal maintenance services or replacement of normal service items.

Manufacturer reserves the right to modify, alter, and improve any spreader or parts without obligation to replace any spreader or parts previously sold with such modified, altered, or improved spreader or part.

THIS WARRANTY, AND THE MANUFACTURER'S OBLIGATION HEREUNDER, IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, and all other obligations or liabilities, including special or consequential damages or contingent liabilities arising out of failure of any spreader or part to operate properly. No person is authorized to give any other warranty or to assume any additional obligation on the Manufacturer's behalf unless made in writing and signed by the Manufacturer.

OPERATORS MANUAL-PSV-8E (GAS) REVISION HISTORY

REVISION LEVEL	REVISION DATE	PAGES REVISED	DESCRIPTION OF REVISION