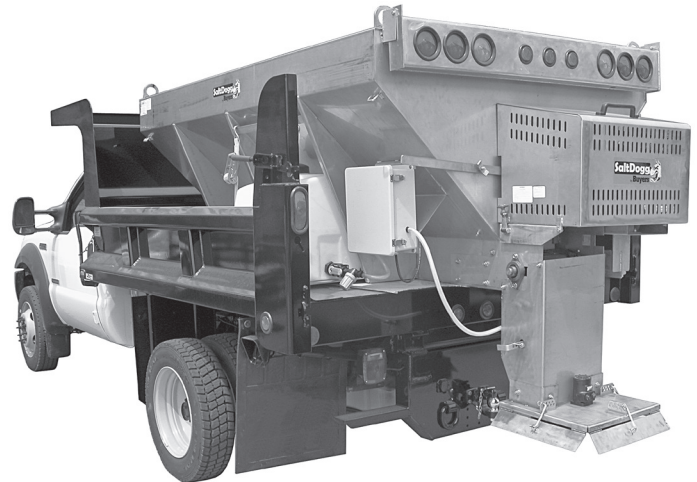


Installation Manual

Stainless Steel Self-Contained Hopper Spreaders, Gas Chain Feed

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General Information

Recommended Vehicle Requirements:

This spreader is to be used on trucks with dump bodies or flatbed trucks with a Gross Vehicle Weight Rated chassis of 15,000 lbs. or greater

CAUTION

Do not overload vehicle beyond the vehicle's Gross Vehicle Weight Rating (GVWR) or Gross Axle Weight Ratings (GAWR). Check the vehicle's load rating certification sticker for maximum vehicle capacity.

SPREADER WARRANTY INFORMATION

This warranty replaces all previous warranties and no employee of this company is authorized to extend additional warranties, or agreements, or implications not explicitly covered herein. Buyers Products Company warrants all parts of the product to be free from defects in material and workmanship for a period of one (1) year. Parts must be properly installed and used under normal conditions. Normal wear is excluded. Any part which has been altered, including modifications, misuse, accident, or lack of maintenance will not be considered under this warranty. The sole responsibility of Buyers Products Company under this warranty is limited to repairing or replacing any part(s) which are returned, prepaid, 30 days after such defect is discovered, and returned part(s) are found to be defective by Buyers Products Company. Authorization from Buyers Products Company must be obtained before returning any part. The following information must accompany defective parts returned to Buyers Products Company: RMA#, spreader model, serial number, date installed, and distributor from whom purchased. Buyers Products Company shall not be liable for damage arising out of failure of any unit to operate properly, or failure, or delay in work, or for any consequential damages. No charges for transportation or labor performed on any part will be allowed under this warranty.

Average Material Weights:

MATERIAL WEIGHT (pounds per cubic yard)

- Rock Salt – 2,160 lbs per cubic yard
- Sand weight, course dry – 2,565 lbs per cubic yard
- Sand weight, course wet – 3,240 lbs per cubic yard

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

Spreader Models and Specifications

MODEL #	POWER	HOPPER SIZE	OVERALL LENGTH	OVERALL WIDTH	EMPTY WEIGHT	CAPACITY (YDS.)
14708F381211	Gas	96" x 38"	116"	58"	1,455	2.5
14708F461211	Gas	96" x 46"	116"	70"	1,685	3.6
14709F381211	Gas	108" x 38"	128"	58"	1,570	2.9
14709F461211	Gas	108" x 46"	128"	70"	1,800	4.1
14709F521211	Gas	108" x 52"	128"	70"	1,907	5.1
14710F381211	Gas	120" x 38"	140"	58"	1,666	3.2
14710F461211	Gas	120" x 46"	140"	70"	1,911	4.6
14710F521211	Gas	120" x 52"	140"	70"	2,026	5.6

General Safety Precautions



This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to install or operate this spreader. Failure to comply with these instructions may result in personal injury. When you see this symbol. HEED ITS WARNING!

⚠ DANGER

This spreader was built to be operated according to the safe operation practices in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This spreader is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions may result in serious injury or death.

⚠ 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 spreader may be avoided.

- Read and fully understand the entire Installation and Operator's Manual before operating this spreader.
- Read and fully understand all safety decals on the spreader before operating the spreader.
- Check to make sure all safety guards and shields are securely mounted and in place before operating this spreader. Never remove or modify guards or shields.
- Verify that all personnel are clear of the spreader spray area before starting or operating this spreader.
- Do not over-load your vehicle beyond payload limits. If there are any questions, contact the end stage vehicle manufacturer.
- Shut off vehicle before servicing, adjusting, or cleaning. Do not unclog material jams without shutting off the vehicle and disconnecting the hydraulics.
- Do not climb, sit, walk or ride on the auger at any time. Do not ride on the spreader while the vehicle is in motion.
- Keep hands, feet, hair and loose clothing away from moving parts.
- Make sure the spreader is securely fastened to the vehicle in accordance with this Installation and Operator's Manual.
- Do not operate a spreader that needs maintenance or repairs.
- Do not operate the spreader while ill, tired, or under the influence of alcohol or drugs.

Safety Precautions – Gas Powered Models

- Make certain the engine cover is securely fastened to the spreader before operating the spreader.
- Never lay tools or equipment on top of the 12V DC battery as this could accidentally ground the positive (+) battery terminal. Grounding the battery could result in electrical shock, burns or damage to the vehicle or equipment.
- Always disconnect the battery before removing or replacing any electrical component.
- A charging battery gives off gases that can explode if touched by a spark or flame. Cover the top of the battery with electrically non-conductive material to keep sparks away from battery gases.
- If the spreader must be operated with the spreader battery disconnected, insulate the positive (red) battery cable and red wire from the engine alternator with electrical tape.

⚠ WARNING

It is recommended to install Backup Alarm on trucks to be up fitted with spreaders.

Safety Symbols

The following pages show safety symbols that may appear on this product. Read and fully understand all safety decals on the spreader before operating the spreader.

⚠ DANGER / PELIGRO

- Read and fully understand Operator's Manual before using this spreader.
- Failure to follow installation and operating instructions may result in serious injury or death!
- Do not climb, sit, walk or ride on conveyor/auger at any time.
- Exposed conveyor/auger and moving parts may cause serious injury or death.
- Disconnect and lock out power before servicing, adjusting or cleaning.
- Keep hands, feet, hair and loose clothing away from moving parts.
- Never remove or modify guards or shields.
- Use care when the spreader is being mounted, dismounted, or stored.

• Lea y entienda completamente el Manual del Operador antes de usar este esparcador.

• ¡Si no se siguen las instrucciones de instalación y funcionamiento se pueden producir lesiones graves o la muerte!

• No suba, se siente, camine o monte en el transportador/sinfin en ningún momento.

• La exposición del transportador/sinfin y de las piezas móviles puede producir lesiones graves o la muerte.

• Desconecte y bloquee la energía antes de realizar el mantenimiento, el ajuste o la limpieza.

• Aleje las manos, los pies, el cabello y la ropa holgada de las piezas móviles.

• Nunca quite o modifique los protectores o blindajes.

• Tenga cuidado al montar, desmontar o almacenar el esparcador.

⚠ WARNING / ADVERTENCIA

<p>DO NOT EXCEED VEHICLE PAYLOAD RATING</p> <ul style="list-style-type: none"> • SALT WEIGHT: 2,160 LBS PER CUBIC YARD • SAND WEIGHT: COURSE DRY 2,565 LBS PER CUBIC YARD • SAND WEIGHT: COURSE WET 3,240 LBS PER CUBIC YARD 	<p>NO EXCEDA LA CAPACIDAD DE CARGA DEL VEHICULO</p> <ul style="list-style-type: none"> • PESO DE LA SAL: 2160 LIBRAS POR YARDA CÚBICA • PESO DE LA ARENA: GRUESA SECA 2565 LIBRAS POR YARDA CÚBICA • PESO DE LA ARENA: GRUESA MOJADA 3240 LIBRAS POR YARDA CÚBICA
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Located On The Rear Of The Spreader

⚠ DANGER / PELIGRO

- Read and fully understand Operator's Manual before using this spreader.
- Failure to follow installation and operating instructions may result in serious injury or death!
- Do not climb, sit, walk or ride on conveyor/auger at any time.
- Exposed conveyor/auger and moving parts may cause serious injury or death.
- Disconnect and lock out power before servicing, adjusting or cleaning.
- Keep hands, feet, hair and loose clothing away from moving parts.
- Never remove or modify guards or shields.
- Use care when the spreader is being mounted, dismounted, or stored.

• Lea y entienda completamente el Manual del Operador antes de usar este esparcador.

• ¡Si no se siguen las instrucciones de instalación y funcionamiento se pueden producir lesiones graves o la muerte!

• No suba, se siente, camine o monte en el transportador/sinfin en ningún momento.

• La exposición del transportador/sinfin y de las piezas móviles puede producir lesiones graves o la muerte.

• Desconecte y bloquee la energía antes de realizar el mantenimiento, el ajuste o la limpieza.

• Aleje las manos, los pies, el cabello y la ropa holgada de las piezas móviles.

• Nunca quite o modifique los protectores o blindajes.

• Tenga cuidado al montar, desmontar o almacenar el esparcador.

Located On Each Side Of The Spreader

⚠ DANGER / PELIGRO

STAY CLEAR OF TURNING SPINNER

MANTÉNGASE LEJOS DEL GIRANDO HILANDERO

Located on the Rear Chute Assembly / Spinner

⚠ WARNING

GASOLINE ENGINE

- DO NOT OPERATE IN AN ENCLOSED AREA.
- DO NOT FILL GAS TANK WHILE ENGINE IS RUNNING OR HOT.
- DO NOT SERVICE UNIT WITHOUT REMOVING SPARK PLUG WIRE.
- DO NOT SMOKE OR USE OPEN FLAME WITHIN 25 FEET OF SPREADER.
- ALLOW SPILLED GAS TO EVAPORATE COMPLETELY BEFORE STARTING ENGINE.
- SHUT OFF ENGINE WHEN NOT IN USE EVEN FOR SHORT PERIODS OF TIME.
- READ AND UNDERSTAND OWNERS MANUAL BEFORE OPERATING SPREADER.

1499025

Located on the Engine Cover

Installation Instructions

Mounting the Spreader onto the Vehicle:

This model of spreader is intended to be installed on a standard 34" wide truck chassis or inside an appropriate length dump or platform body. Use the following as a guide for installation.

1. Remove the tailgate from the vehicle if applicable.
2. Lift the spreader using the (4) lifting loops in the corners of the hopper.

WARNING

The lifting device must be adequately rated to lift a payload equal to or greater than the spreader weight. See page 1 for spreader weights. Empty the spreader before lifting.

3. Center the spreader in the vehicle. The spreader sills must overhang 14" beyond the rear of the nearest vertical obstruction (bumper, trailer hitch, etc). Attach chute to spreader, check for interference between the vehicle and the Spinner/Chute Assembly. (see Spinner Chute Installation Instructions below)
4. If the body platform is not flat, place the spreader on 1" x 6" hardwood boards. This will evenly distribute the weight of the loaded spreader on the entire cross channels. This will also help with removal of excess material that accumulates under the spreader.

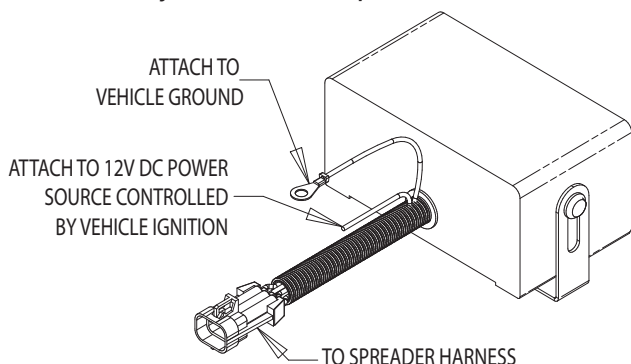
CAUTION

Inspect tie downs and hardware after each time spreader is loaded. Tighten tie downs and hardware if necessary.

5. Bolt the spreader to the vehicle frame through the lengths of lumber using the holes located in each of the four (4) side gussets. Use 1/2" SAE Grade 5 hardware as required by vehicle application.
6. In addition to the 1/2" SAE Grade 5 hardware, secure the spreader to the vehicle by attaching the four (4) tie-down eyes located at each corner of the spreader to the vehicle's factory installed anchor points using suitable tie-down devices.
 - The spreader must be securely fastened to the frame or body of the vehicle.
 - Verify with the vehicle's manufacturer that the factory installed anchor points are designed for tie-down of such load.
 - Periodically check that the spreader mounting hardware is securely tightened, retighten if necessary

Control Box and Vehicle Wiring Harness Installation

Note: The following instructions describe how to install the spreader so that the spreader engine will start using the dedicated battery located on the spreader.



Vehicle Wiring Installation

- Determine a wiring path for the vehicle wiring harness.

WARNING

Do not drill holes through fuel tanks, fuel lines, electrical wiring, etc. during the harness installation process.

- Mount the control box in a convenient location in the truck cab.

WARNING

Do not install control box in the vehicle's airbag deployment area. Refer to the vehicle's manual for airbag deployment area.

- Connect the green wire from the Cab Control Box to a known good vehicle ground.
- Connect the stripped end of the red wire from the Cab Control Box to an accessory wire terminal that is controlled by the vehicle's ignition switch.

Spreader Wiring Installation

- Attach the terminal end of the black (negative) battery cable to the negative terminal (marked "-") on the battery.
- Connect the terminal end of the red (positive) battery cable to the positive terminal (marked "+") on the battery.

CAUTION

Verify that the Ignition Switch on Control Box is in the "OFF" position prior to completing next step.

- Connect the spreader and vehicle wiring harnesses to each other.

Spinner Chute Installation Instructions

Mounting the Gas Spinner Chute Assembly

- Remove the chain guard by first removing the four (4) 1/4-20 X .75 hex head bolts, lock washers, and nuts.
- Attach the Spinner Chute Assembly to the gas-powered spreader using the four (4) 1/2-13 x 1.25 hex head screws, flat washers, lock washers, and nuts. The flat washers are to be placed over the slots in the sill extensions. Push the chute assembly forward towards the cab of the vehicle and loosely attach the hardware. Do not tighten the fasteners at this step.
- Install the roller chain between the spinner chute sprocket and the gearbox sprocket. Make certain both of the sprockets are horizontally in line with one another. If the sprockets are out of alignment, adjust the height of the gearbox sprocket to correct the alignment.
- Install the roller chain master link.
- To adjust the roller chain tension, pull the spinner chute assembly away from the rear of the vehicle to take up slack in chain then tighten chute fasteners. The correct chain tension should allow a 5/16" deflection midway between both chain sprockets. If additional adjustment is needed, loosen the spinner shaft bearing bolts and slide the shaft away from the gearbox sprocket. Be sure to maintain the vertical alignment of the spinner shaft and bearings before tightening the hardware.
- Replace the chain guard using the four (4) 1/4-20 X .75 hex head bolts, lock washers, and nuts.
- Tighten all hardware

⚠ IMPORTANT

Do not over-tension either roller chain. Over tensioning can cause damage to bearings, roller chain, sprockets, or the engine.

Spreader Operation

Engine Oil and Gearbox Oil

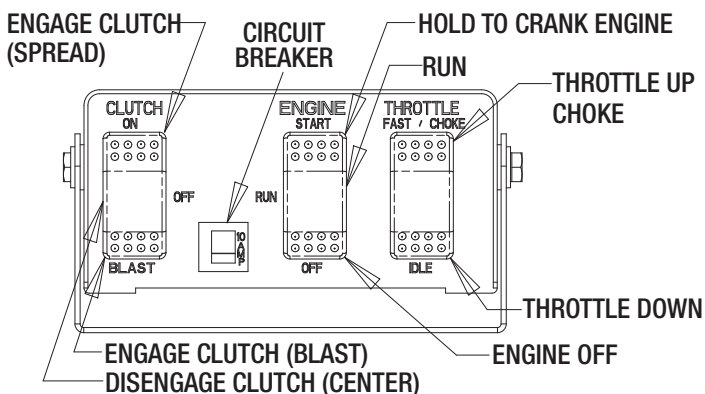
The engine crankcase of gasoline powered spreaders is filled with 1 quart of SAE 5W-30 motor oil at the factory. The gearbox of any spreader is filled with SAE 90 gear lubricant at the factory.

⚠ IMPORTANT

Verify that the above oil viscosity meets your operating temperature requirements. If not, empty and refill with the proper viscosity oil. Before starting spreader, check that the engine crankcase and gearbox are filled to the proper level with lubricant.

Before starting the gasoline spreader engine, follow all safety precautions

Cab Control Box Functions



• **Clutch Switch:** The clutch switch is a three-position switch with the following functions:

- "OFF" position: While in this position, with the engine running, the spreader feed chain and the spinner disk will not rotate and therefore the spreader will not spread ice control material.
- "ON" position: While in this position, the spreader feed chain and the spinner disk will rotate and material will be dispensed when the engine is running.
- "BLAST" position: While in this position with the engine running, the spreader feed chain and the spinner disk will spin. The switch must be held down in the "BLAST" position to activate this function.

• **Engine Switch:** The ignition switch is a three-position switch with the following functions:

- "OFF" position: While in this position, 12V DC power is shut off to the spreader. To turn off the spreader, turn the switch to this position.
- "RUN" position: While in this position, 12V DC power is turned on to the spreader.

- "START" position: While holding in this position, the spreader's engine starter is activated.
- Throttle Switch: The throttle switch is a two-position switch with the following functions:
 - "CHOKE/FAST" position: While in this position, the engine speed will gradually increase until the engine linkage reaches its choke position.
 - "IDLE" position: While in this position, the engine speed will gradually decrease.

Starting the Gasoline Engine

- Verify that the CLUTCH switch on the cab control box is in the center/OFF position
- Verify that the ENGINE switch on the cab control box is in the center/OFF position
- Turn the truck/vehicle's ignition to the ON position.
- Position the ENGINE switch on the cab control box to the RUN position.
- Position the THROTTLE switch on the cab control box downward to the IDLE position and hold for approximately two seconds.
- Hold the ENGINE switch in the START position. The engine on the spreader will begin to crank.
- While the engine is cranking, press and hold the THROTTLE switch to the CHOKE/FAST position.
- Release both the ENGINE and THROTTLE switches when the engine starts.
- After the engine starts, press and hold the THROTTLE switch to the IDLE position to release the choke (hold switch in the IDLE position for half a second to one second).

Stopping the Gasoline Engine

- Reduce engine RPM's by holding the THROTTLE switch to the IDLE position for 2-3 seconds.
- To stop the engine, press the ENGINE switch on the cab control box to the OFF position.

Clutch Operation

- Start the engine following the instructions above and adjust the speed to slightly above idle.
- Position the CLUTCH switch on the cab control box to the ON position.
- Once the Clutch is engaged, increase the engine RPM's by pressing the THROTTLE switch on the cab control box to the CHOKE/FAST position.

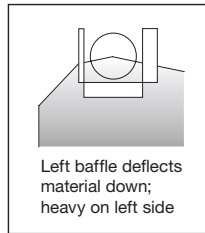
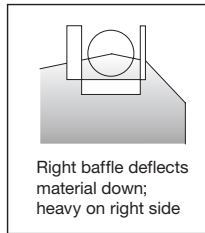
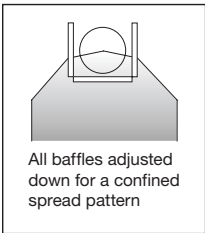
⚠ IMPORTANT

It is recommended that the clutch only be engaged at the lowest possible speed without stopping the engine. This practice will prevent premature spinner chain failure and chain tension loss. Do not repeatedly use the "Blast" function. Using this function too often will prematurely wear the clutch and flex coupler and potentially promote component failure.

Spinner/Chute Operation

- The spread pattern and the amount of material dispensed will depend on the following factors:
 - Engine RPM
 - Feed gate door position
 - Baffle settings
- Keep the following relationships in mind:
 - Increasing the engine RPM will increase the speed of the conveyor and therefore the amount of material going onto the spinner.
 - Decreasing the engine RPM will decrease the speed of the conveyor and therefore the amount of material going onto the spinner.
 - Opening or closing the feed gate door will regulate the amount of material dropping onto the spinner for any conveyor speed.

Below are illustrations that show the baffles effect on the spread pattern as viewed from the top of the spinner disk



WARNING

- Before working in or around spreader equipment, be sure all hydraulic controls are moved to OFF position, the PTO must be disengaged (OFF) and the truck engine must be shut off.
- When operating, be sure everyone is standing clear of spreader.
- Be alert for anything that may require shutting down the system.
- Equipment must be started up slowly and watched from a safe distance.

CAUTION

- Always follow the following precautions so as not to cause damage to the spreader.
- If the conveyor chain does not move because of dense material or a material jam, with the truck off, remove all material from the hopper and free the chain.
 - To prevent the feed chain from freezing, do not store material in the spreader.
 - If the material in the hopper freezes, move the spreader into a warm area to thaw.
 - The gearbox is designed to only accept torque from the input shaft. Therefore, **DO NOT ATTEMPT TO FREE THE CONVEYOR BY USING A PIPE OR SIMILAR TOOL TO MOVE OR DISLodge THE CHAIN.** This action will void all warranties.

Spreader Start-up

1. Set feed gate opening and baffle positions for desired material flow and spread pattern.
2. Check to make certain that no loose parts or other material are in hopper, chute or on the spinner disk
3. Warm up the hydraulic system
 - a. Start the truck engine
 - b. Engage PTO and circulate hydraulic oil for several minutes
 - c. Position manual spreader valve ON/OFF lever to ON position
 - d. Rotate the auger control knob and spinner control knob on the manual spreader valve to the desired operating position
 - e. Move the ON/OFF lever to the OFF position after warming up the system. Position the spinner and auger control knobs to the desired settings
4. Put spreading material in the V-Box.
5. Changing the auger and spinner speeds as well as adjusting the feed gate and baffle positions will produce various spread patterns.

Operating the Spreader

1. Adjust the internal and external spinner baffles to positions that you have previously determined to give you desired spread pattern.
2. Before each use, warm up the hydraulic system following the procedure described in the Initial Spreader Setup section
3. Valve setting changes may be made with truck in motion
4. Allow Manual Spreader Valve to cool down before moving ON/OFF lever to the OFF position.
5. Moving the Manual Spreader Valve to the OFF position will stop the spinner and auger at the same time without changing their knob/valve settings

CAUTION

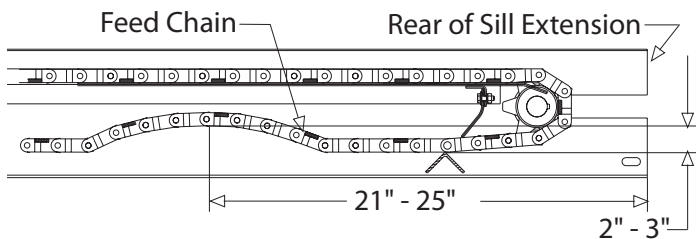
Position the valve on/off control lever in the off position when the spreader is not in use or is removed. In the event the valve on/off control lever is left in the on position, a heat problem may occur as the pump continues to pump oil to the hydraulic valve. This could cause a hose to burst spraying hot oil.

Spreader Maintenance

Check and maintain the correct oil level for both the engine crankcase (gasoline models) and the gearbox (all models). The engine crankcase is filled with 1 quart of SAE 5W-30 motor oil at the factory. The gearbox is filled with SAE 90 gear lubricant at the factory.

In-Season Maintenance

1. Wash spreader after every use. Make sure no material is left under auger/ chain and/or inside trough.
2. Inspect and retighten fasteners after every 7-10 hours of operation. Replace any loose or damaged fasteners.
3. Lubricate your spreader every 7-10 hours of operation and/or following every snow event using a lithium NLGI #2 rated general purpose marine grade grease.
 - a. Idler Shaft Bearings (2)
 - b. Drive Shaft Bearing (1)
 - c. Feed Gate Jack
 - d. Gearbox Input Shaft (if equipped with a fitting)
 - e. Check the gearbox oil level and maintain the proper 3/4 full level by adding the appropriate lubricant. Use care to keep contaminants from getting in reservoir when checking and filling.
4. Check the Feed Chain tension periodically. See the Chain Tension Diagram below. When adjusting the chain, be certain to adjust both sides equally. This adjustment is made on each side of the spreader at the Idler Bearing.
5. Lubricate the conveyor chain at least once per week. Use Lucas Oil® 10014 chain lubricant or similar all-weather lubricant.
6. If applicable, use dielectric grease on all electrical connectors before an electrical connection is made or after connector is disconnected
7. It is recommended to cover spreader with the tarp during storage periods.



End of Season / Off-Season Storage Maintenance

1. Wash spreader. Make certain no material or residue is left in or outside the hopper. Thoroughly dry all metal surfaces. Repaint and oil all previously painted surfaces and auger to protect from rust.
2. Lubricate all bearings (see list above) using lithium NLGI #2 rated general purpose marine grade grease
3. If applicable, inspect wire near connections checking for broken or missing insulation or corroded wires. Trim corroded wires and replace connectors if necessary. Apply dielectric grease on all electrical connections.

4. Store hopper indoors, in a cool, dry place.
5. If applicable, remove controller from truck. Store controller indoors, in a cool, dry place

Gasoline Engine Maintenance

To extend the life of the gasoline engine and electric clutch, the following procedures are recommended:

- Maintain the spreader engine according to the engine owner's manual. This manual is shipped with the spreader. The engine warranty is covered by the engine's manufacturer. If engine service is required, contact an authorized service center for the engine's manufacturer.
- At the end of the season, remove and clean the electric clutch.
 - After cleaning, coat both mating surfaces of the clutch with oil or light grease.
 - Remove oil and grease prior to using the clutch again.

Throttle Motor Replacement Instructions

(diagram on pg. 7)

Removal Instructions:

- Carefully observe the existing installation and mark the position of the throttle control bracket on the engine mount stand.
- Disconnect the wire connections.
- Remove the 1/4-20 fasteners that hold the throttle control bracket to the engine mount stand. Remove the throttle motor assembly.

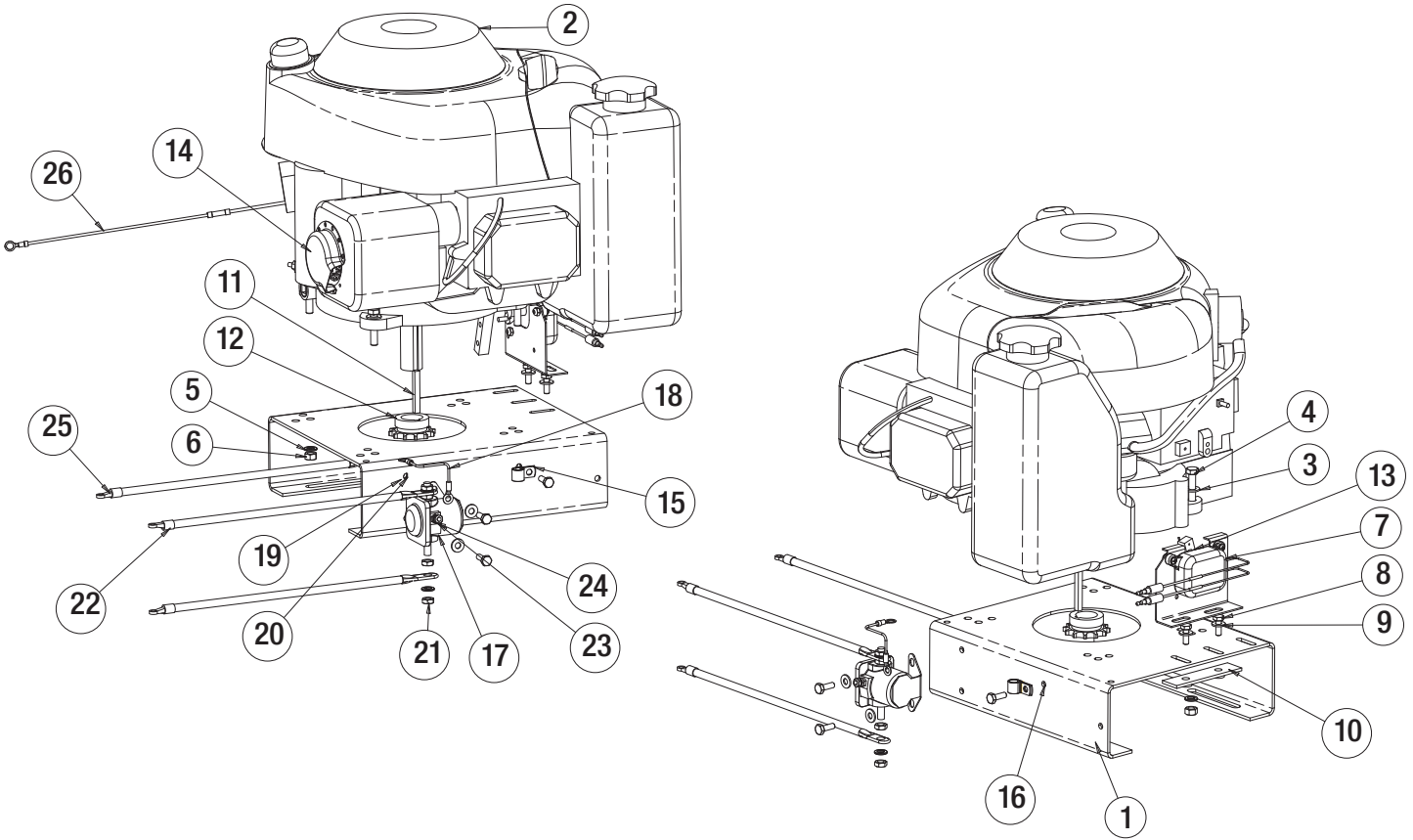
⚠ IMPORTANT

Improper installation of the throttle motor assembly can result in damage to the engine choke/throttle linkage.

Installation Instructions:

- Connect the electrical wiring. Be certain to connect the brown wire to brown wire and red wire to red wire.
- Run the new throttle motor until the crank is within opening of the throttle control bracket.
- Fasten the new throttle motor to the throttle control bracket using the original hardware.
- Place the throttle pin assembly on the crank of the throttle motor using hole in the middle of plastic block.
- Place the assembly onto the engine mount stand by inserting the throttle pin into the engine choke/throttle linkage slider.
- Keeping the throttle pin assembly parallel to the engine choke/throttle linkage bolt the assembly to the engine mount stand with the existing hardware.
- Run throttle motor in both directions until the slider in choke/throttle linkage stops against choke/throttle linkage bracket. Adjust position of throttle bracket if necessary.

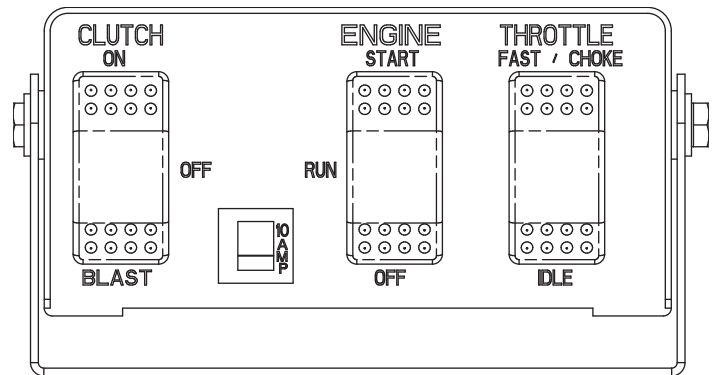
Gas Engine Assembly



Bill of Material

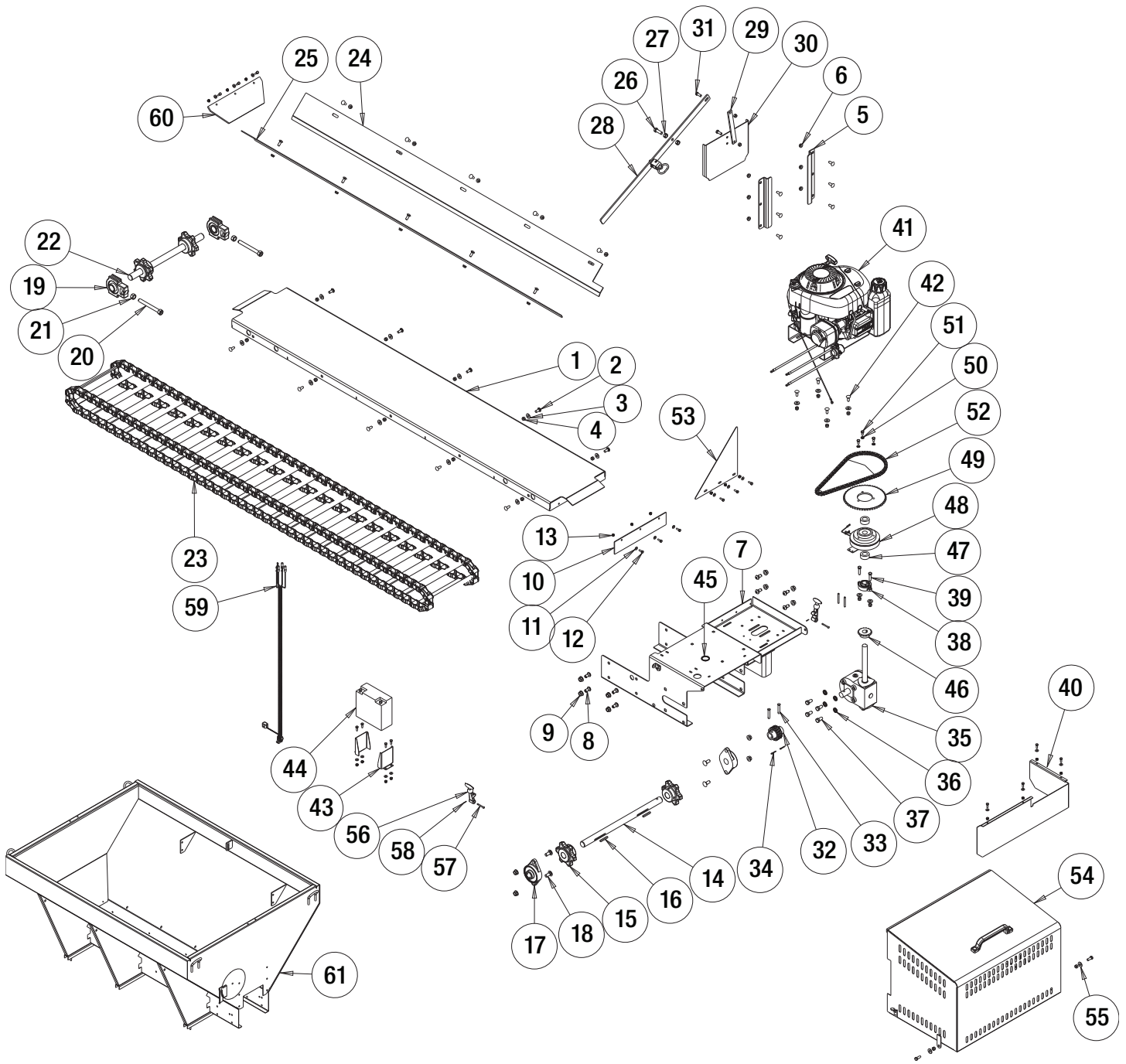
ITEM	PART NO.	QTY.	DESCRIPTION
1	3008326	1	Stand, Engine Mount
2	3006887	1	Engine, 9 (10.5) HP Briggs, w/ Recoil & Fuel Tank
3	FWF031075006	4	Washer, 5/16 SAE, ZN
4	FCS031018150	4	Screw, HHC 5/16-18 x 1.5 Gr. 5, ZN
5	FWL031058008	6	Washer, Spring Lock, 5/16 ZN
6	FNH031018025	4	Nut, 5/16-18 Hex, ZN
7	3003231	1	Throttle Control
8	FCS025020075SS 5	1	Screw, Cap 1/4-20 x 3/4 SST
9	FWF025063007	4	Washer, Flat 1/4 SAE, ZN clear
10	1411911	1	Retainer, Throttle Motor Kit
11	KS402	1	Key, 1/4 x 1/4 x 2
12	1411915	1	Sprocket, Engine Drive
13	1411910	1	Throttle Pin Assembly
14	3006887A	1	Deflector, Exhaust (comes with engine)
15	4375	1	Clamp, Hose .4375, 9/32 ZN
16	FNE025020031	1	Nut, Nylon Insert 1/4-20 ZN
17	1306070	1	Solenoid, Motor
18	3007679	1	Wire Harness Ground
19	FWL025050006SS 2	2	Washer, 1/4" Spring Lock
20	FNH02502021SS	2	Nut, Hex 1/4-20 ZN
21	FNJ031024019	4	Nut, Jam 5/16-24 ZN
22	3001379	2	Cable, SCH Battery 14" red
23	FNH010032014	2	Nut, Hex 10-32 ZN yellow
24	FWL010031005	1	Washer, #10 Split Lock, ZP
25	3001378	1	Cable, SCH Battery 14" black
26	3006922	1	Wire Assy., Voltage Regulator, 9HP B&S

Replacement Rocker Switches



PART NO.	DESCRIPTION
3007300	Clutch Rocker Switch
3007301	Engine Rocker Switch
3007302	Throttle/Choke Rocker Switch

Hopper Assembly

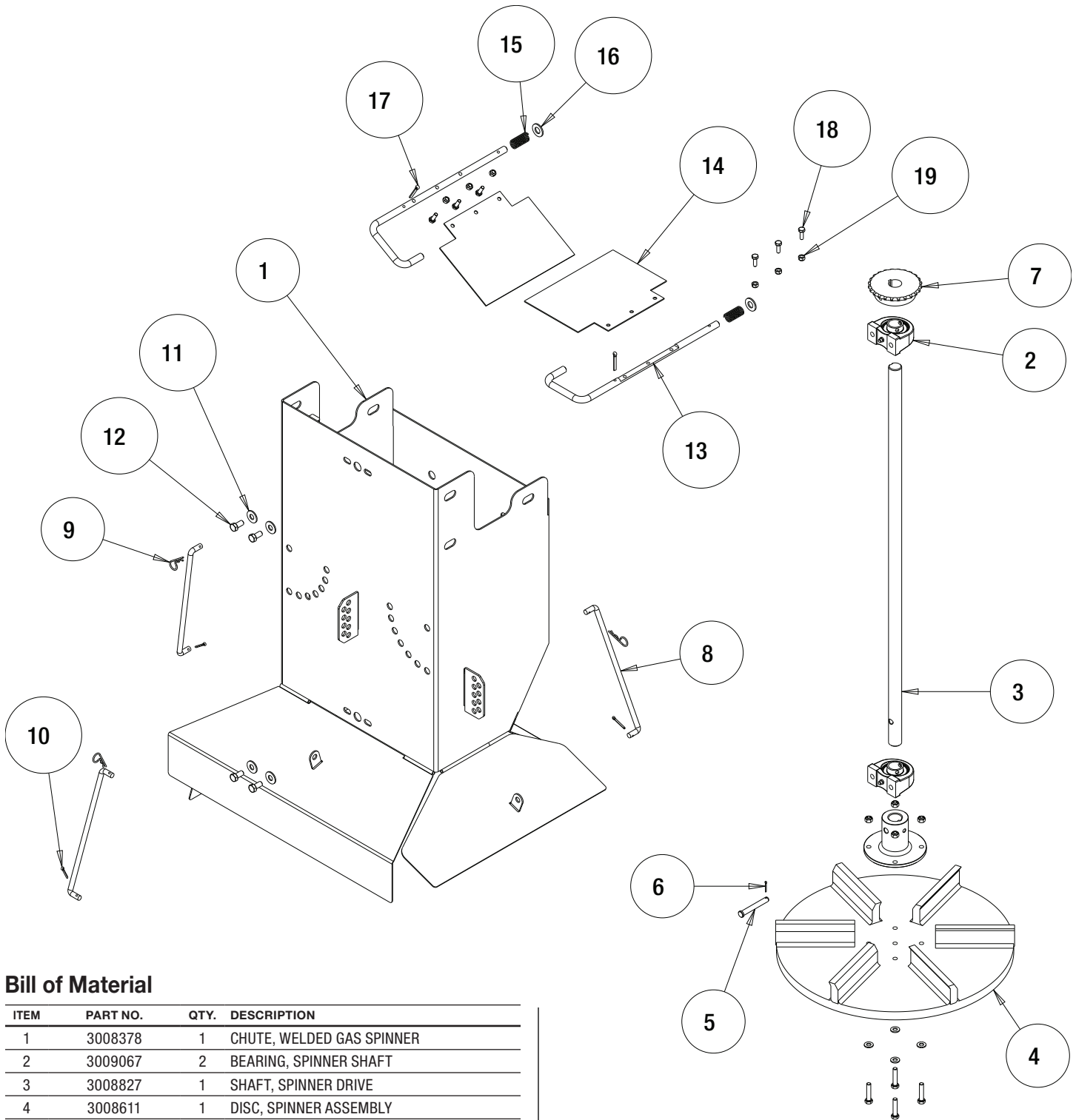


Hopper Assembly Bill of Materials

ITEM	PART NO.	QTY.	DESCRIPTION
1	3049336	1	FLOOR WELDMENT, 8FT
	3050127	1	FLOOR WELDMENT, 9FT
	3050400	1	FLOOR WELDMENT, 10FT
2	3014960	26	BOLT, 3/8-16 X 1 CARRIAGE SHORT NECK SST
3	FWF038100007SS	16	WASHER, FLAT 3/8 USS SST
4	FNE038016044SS	20	NUT, NYLOCK 3/8-16 X 7/16 SST
5	3049252	2	GUIDE FEEDGATE
6	3001255	16	NUT, HEX FLNG-3/8-16 SST
7	3008894	1	DECK, ENGINE, WELDED
8	3004278	8	SCREW, BTN HD SOC CAP 1/2-13x 1 SST
9	3001523	12	NUT, HX FLNG-1/2-13 SST
10	3008872	1	WIPER BELT, HOPPER
11	FWF025063007SS	17	WASHER, FLAT 1/4 SAE SS
12	FCS025020075SS	17	SCREW, CAP 1/4-20 X 3/4 SST
13	FNE025020031SS	17	NUT, NYLOCK, 1/4-20, GR A, SST
14	3008316	1	SHAFT, SPROCKET DRIVE END
15	3008300	4	SPROCKET, D667H CHAIN
16	KS402	3	KEY, 1/4 X 1/4 X 2
17	3008294	2	BEARING, FLANGED
18	3024115	4	BOLT, CARRIAGE, 1/2-13 X 1-1/2, FT SST
19	3008290	2	BEARING, HEAVY DUTY TAKE-UP
20	141050WSS	2	BOLT, WELDED TAKE UP, SCH IDLER
21	FNH063011054SS	2	NUT, HH 5/8-11 X 17/32 HIGH SST
22	3008317	1	SHAFT, IDLER SPROCKET
	3014539	1	CHAIN, D667H CONVEYOR, 8FT
	3008860	1	CHAIN, D667H CONVEYOR, 9FT
	3009114	1	CHAIN, D667H CONVEYOR, 10FT
23	3049257	1	SHIELD, CHAIN, PS, 8FT
	3050130	1	SHIELD, CHAIN, PS, 9FT
	3050396	1	SHIELD, CHAIN, PS, 10FT
	3049353	1	SHIELD, CHAIN, DS, 8FT
24	3050129	1	SHIELD, CHAIN, DS, 9FT
	3050397	1	SHIELD, CHAIN, DS, 10FT
	25	FCS050013150SS	1
26	3003874	2	NUT, HEX REVERSABLE LOCK 1/2-13 SST
27	3011832	1	LEVER, WELDED, FEED GATE
28	3008339	1	BAR, FEED GATE DOOR
29	3008338	1	DOOR, SALT GATE

ITEM	PART NO.	QTY.	DESCRIPTION
31	FCS038016100SS	4	SCREW, HHC 3/8-16 X 1 304 SST
32	3008289	1	COUPLING, DRIVE SHAFT/ GEARBOX
33	1410803	2	PIN, CLEVIS, 3/8 X 2, 1038 ST, YZN
34	FPC013000100	2	COTTER PIN, 1/8 X 1, ZINC
35	1401200	1	GEARBOX
36	FWL050088013SS	4	WASHER, LOCK - 1/2 SPLIT SST
37	FCS050013100SS	4	SCREW, HHC-1/2-13 X 1 SST
38	1411000	1	BEARING, 2-HOLE FLANGED 1"
39	FCS038016150SS	2	SCREW, HX HD CAP 3/8-16 X 1-1/2 SST
40	3008418	1	CHAINGUARD
41	3008327	1	ENGINE ASSEMBLY
42	FCB037516100SS	4	BOLT, 3/8-16 X 1 CARRIAGE SST
43	3001363	2	BRACKET, BATTERY MOUNT
44	1410717	1	BATTERY, 12 V, 20 AH, 275 CCA SLA
45	1413200	1	GROMMET, 1 1/2 RUBBER
46	1410702	1	SPROCKET, GEARBOX SPINNER CHAIN
47	1411500	2	COLLAR, 1 IN SHAFT LOCKING
48	1401150	1	ASSEMBLY, CLUTCH
49	1411800	1	SPROCKET, CLUTCH CHAIN
50	FWL031058008SS	3	WASHER, 5/16 LOCK SST
51	FCS031018063SS	3	SCREW, HHC 5/16-18 X 5/8 SST
52	3009327	1	CHAIN, #40 MID SIZE SPREADER
53	3002113	1	GUARD, ENGINE BASE SST
54	3018369	1	SHROUD ENGINE SST
55	3001361	2	WASHER, 3/8 NYLON FLAT
56	3002398	2	STRAP, HOOD LATCH
57	3002390	2	PIN, CLEVIS 3/16" X 1-11/16" SST
58	3002392	2	PIN, COTTER 1/16" X 1/2" SST
59	3009653	1	WIRE HARNESS 3' HOPPER SPREADER
60	3050273	1	WIPER BELT, FRONT, MID SIZE
	3050392	1	HOPPER WELDMENT, 10FT, 38IN
	3050416	1	HOPPER WELDMENT, 10FT, 46IN
	3050421	1	HOPPER WELDMENT, 10FT, 52IN
61	3049452	1	HOPPER WELDMENT, 8FT, 38IN
	3049249	1	HOPPER WELDMENT, 8FT, 46IN
	3050122	1	HOPPER WELDMENT, 9FT, 38IN
	3050280	1	HOPPER WELDMENT, 9FT, 46IN

Chute Assembly

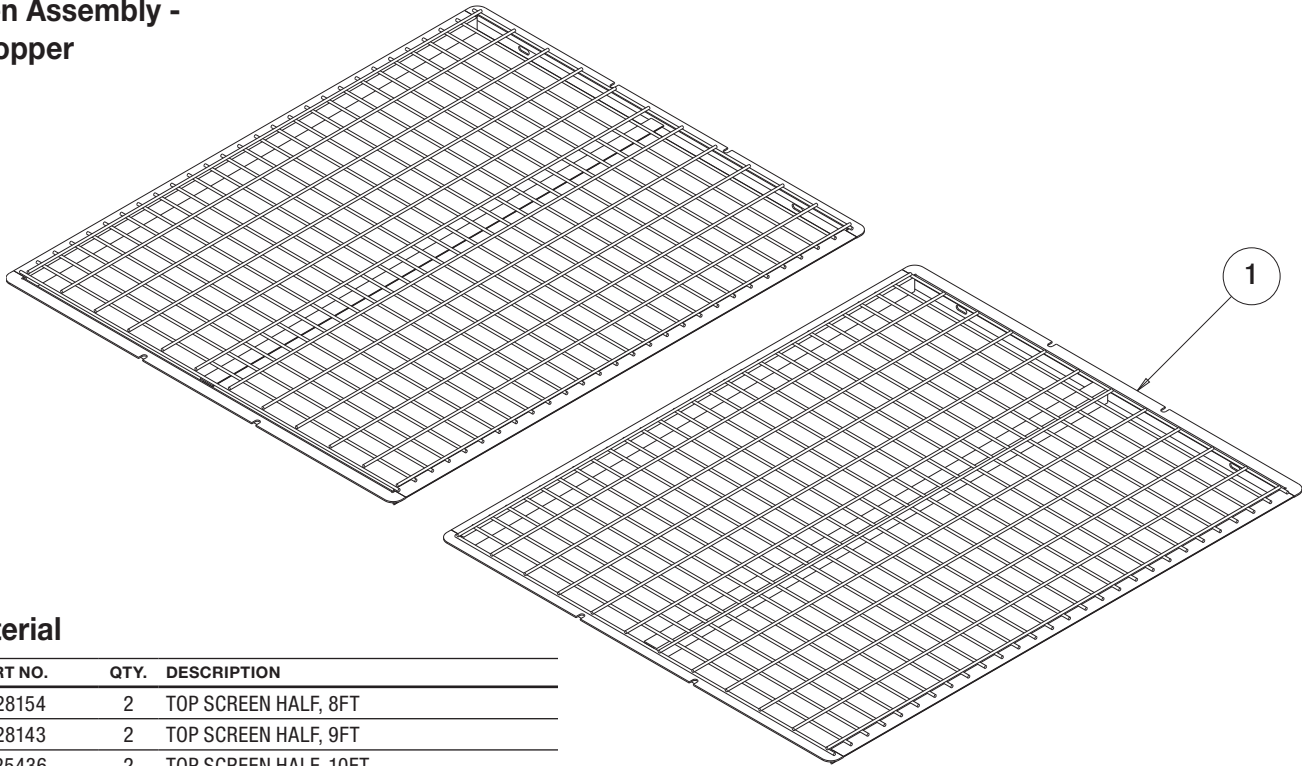


Bill of Material

ITEM	PART NO.	QTY.	DESCRIPTION
1	3008378	1	CHUTE, WELDED GAS SPINNER
2	3009067	2	BEARING, SPINNER SHAFT
3	3008827	1	SHAFT, SPINNER DRIVE
4	3008611	1	DISC, SPINNER ASSEMBLY
5	3009632	1	PIN, CLEVIS 3/8 X 2.5 UL
6	FPC007800075	1	COTTER PIN, 5/64 X 3/4
7	3008835	1	SPROCKET, 24 TOOTH, #40 R CHAIN
8	1420015	3	CONTROL ROD, SCH CHUTE
9	1420016	3	PIN, HAIR COTTER, CLEAR ZINC
10	FPC013000100	3	COTTER PIN, 1/8 X 1, ZINC
11	FWF038100007SS	4	WASHER, FLAT 3/8 USS SST
12	FCS038016075SS	4	SCREW, HHC-3/8-16 X 3/4 SST
13	3008852	2	ROD, SELECTOR

ITEM	PART NO.	QTY.	DESCRIPTION
14	3008396	2	DEFLECTOR, INSIDE
15	3008853	2	SPRING, SPINNER CHUTE BAFFLE
16	FWF050106010	2	WASHER, FLAT 1/2" SAE ZINC
17	FPC019000125	2	PIN, COTTER 3/16" X 1.25" ZN
18	FCS025020075SS	6	SCREW, CAP 1/4-20 X 3/4 SST
19	FNE025020031	6	NUT, NYLON INSERT 1/4-20 ZINC

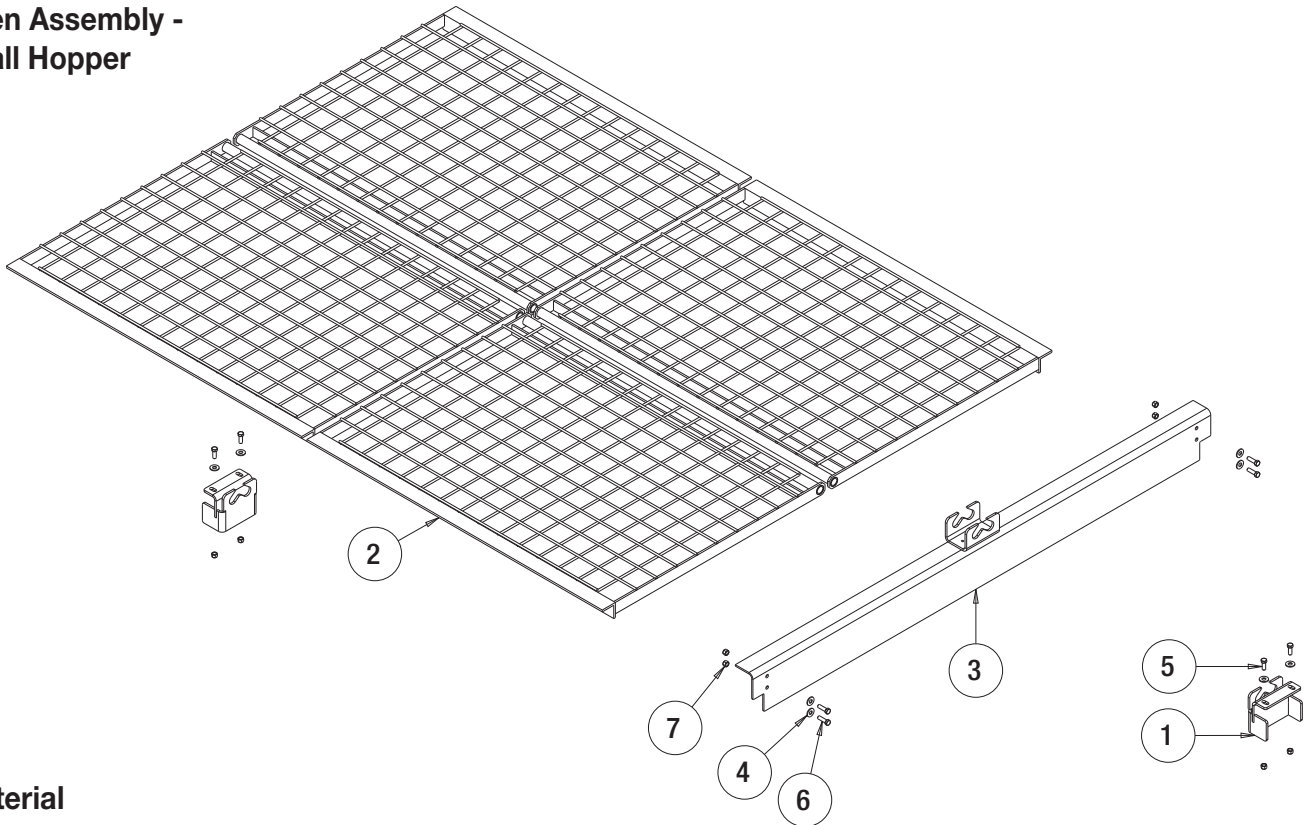
Top Screen Assembly - 38" Tall Hopper



Bill of Material

ITEM	PART NO.	QTY.	DESCRIPTION
	3028154	2	TOP SCREEN HALF, 8FT
1	3028143	2	TOP SCREEN HALF, 9FT
	3025436	2	TOP SCREEN HALF, 10FT

Top Screen Assembly - 46"/52" Tall Hopper

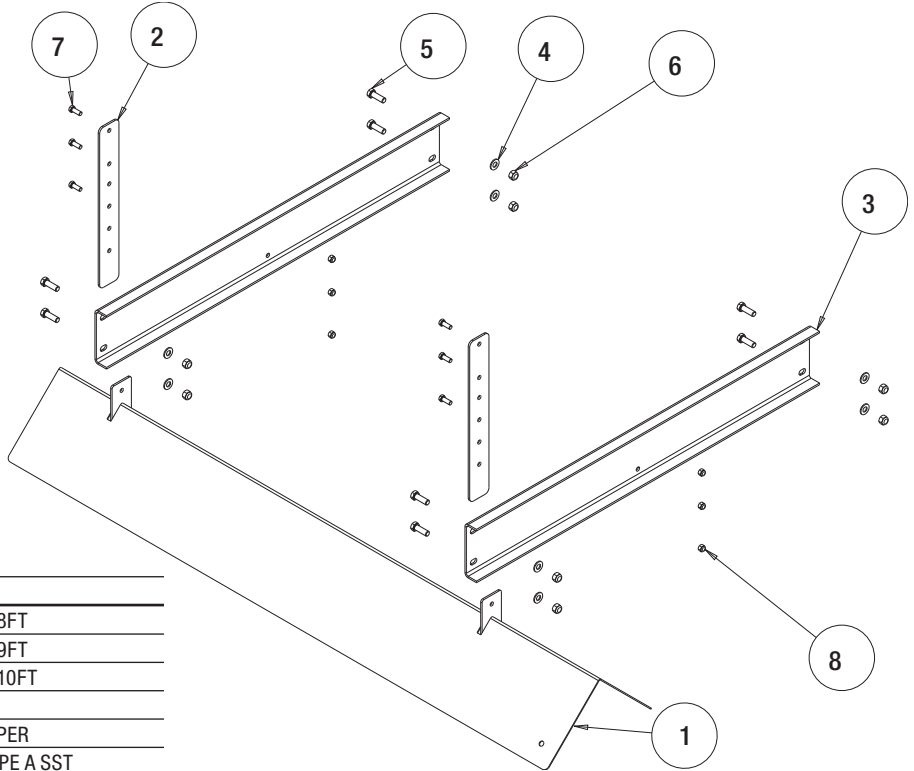


Bill of Material

ITEM	PART NO.	QTY.	DESCRIPTION
1	3049435	2	DETENT WELDM, MIDSIZE
	3014545	4	GRATE, WELDED, PAINTED, 8FT
2	3008352	4	GRATE, WELDED, PAINTED, 9FT
	3009206	4	GRATE, WELDED, PAINTED, 10FT
3	3049438	1	SUPPORT, FLAT SCREEN, MIDSIZE

ITEM	PART NO.	QTY.	DESCRIPTION
4	FWF038100007SS	8	WASHER, FLAT 3/8 USS SST
5	FCS038016100SS	4	SCREW, HHC 3/8-16 X 1 304 SST
6	FCS038016125SS	4	SCREW, HHC-3/8-16 X 1.25 SST
7	FNE038016044SS	8	NUT, NYLOCK 3/8-16 X 7/16 SST

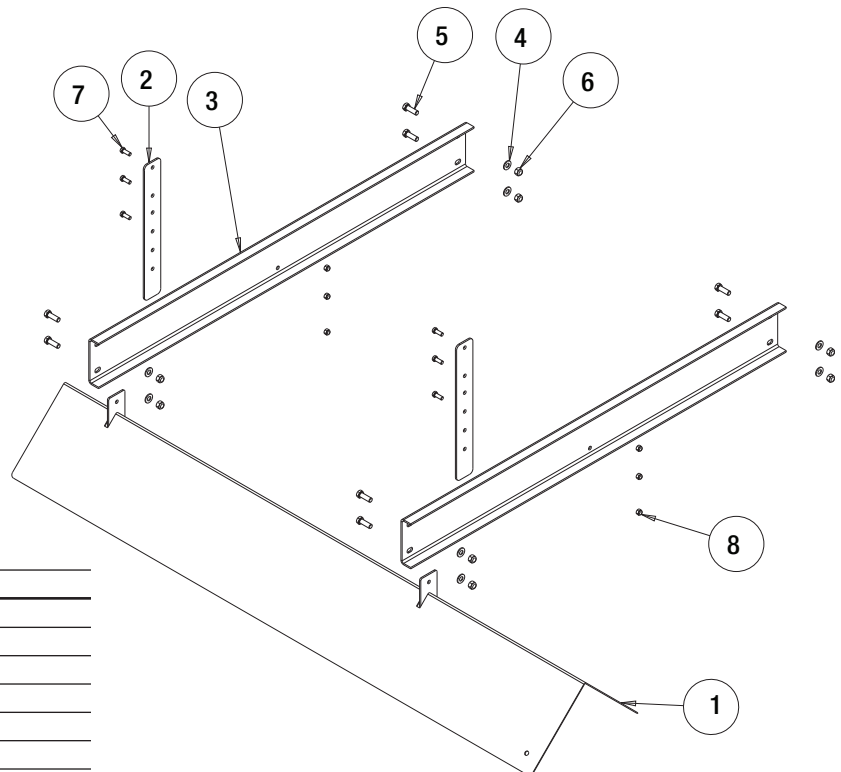
**Inverted V Assembly -
38" Tall Hopper**



Bill of Material

ITEM	PART NO.	QTY.	DESCRIPTION
1	3049460	1	INVERTED VEE,WELDMENT 8FT
	3028141	1	INVERTED VEE,WELDMENT 9FT
	3025254	1	INVERTED VEE,WELDMENT 10FT
2	3030225	2	BAR, INVERTED VEE
3	3049463	2	CROSS MEMBER, 38IN HOPPER
4	3003873	8	WASHER, FLAT 1/2" SAE TYPE A SST
5	3006723	8	SCREW, HEX HD 1/2-13x1.5 GR5 SS
6	FNE050013053SS	8	NUT, NYLOCK 1/2-13 SS
7	FCS038016100SS	6	SCREW, HHC 3/8-16 X 1 304 SST
8	FNE038016044SS	6	NUT, NYLOCK 3/8-16 X 7/16 SST

**Inverted V Assembly -
46"/52" Tall Hopper**



Bill of Material

ITEM	PART NO.	QTY.	DESCRIPTION
1	3037082	1	INVERTED VEE,WELDMENT 8FT
	3028141	1	INVERTED VEE,WELDMENT 9FT
	3025254	1	INVERTED VEE,WELDMENT 10FT
2	3030225	2	BAR, INVERTED VEE
3	3030224	2	CROSS MEMBER, HOPPER
4	3003873	8	WASHER, FLAT 1/2 ID SST
5	3006723	8	SCREW, HEX HD 1/2-13x1.5 GR5 SS
6	FNE050013053SS	8	NUT, NYLOCK 1/2-13 SS
7	FCS038016100SS	6	SCREW, HHC 3/8-16 X 1 304 SST
8	FNE038016044SS	6	NUT, NYLOCK 3/8-16 X 7/16 SST