



# **PATHFINDER, PATHFINDER XC OPERATOR'S MANUAL**

S/N: 20180360140 & Above

**Congratulations** on the purchase of your Ground Logic, Inc. machine. This product has been carefully designed and manufactured to be a dependable piece of equipment that will provide years of trouble-free operation.

**BEFORE OPERATING YOUR MACHINE, CAREFULLY READ AND UNDERSTAND THIS MANUAL IN ITS ENTIRETY.**

For future reference, place the serial number of the machine and date of purchase below:

Serial Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

GROUND LOGIC, INC.  
PAT-12012-2/PAT-22016-2

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# 1. MACHINE SPECIFICATIONS

## 1.1 TABLE OF SPECIFICATIONS

	<b>PATHFINDER</b>	<b>PATHFINDER XC</b>
<b>MODEL NUMBER</b>	This manual is for model number 5901725 (PAT-12012-2).	This manual is for model number 5901726 (PAT-22016-2).
<b>ENGINE</b>	<ul style="list-style-type: none"> <li>• Engine Model: GX200-RT2RMG2</li> <li>• Engine specifications: See your Honda engine owner's manual.</li> <li>• RPM: Full speed: 3750 rpm (no load) Idle: 1400 rpm.</li> <li>• 2:1 gear reduction with wet clutch.</li> </ul>	<ul style="list-style-type: none"> <li>• Engine Model: GX200-RT2RMG2</li> <li>• Engine specifications: See your Honda engine owner's manual.</li> <li>• RPM: Full speed: 3750 rpm (no load) Idle: 1400 rpm.</li> <li>• 2:1 gear reduction with wet clutch.</li> </ul>
<b>FUEL SYSTEM</b>	<ul style="list-style-type: none"> <li>• Capacity: 2.5 gal (9.5 L).</li> <li>• Type of fuel: Regular unleaded gasoline, 87 octane or higher.</li> <li>• Fuel shut-off valves: Located on engine.</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity: 2.5 gal (9.5 L).</li> <li>• Type of fuel: Regular unleaded gasoline, 87 octane or higher.</li> <li>• Fuel shut-off valves: Located on engine.</li> </ul>
<b>TRANSMISSION</b>	<ul style="list-style-type: none"> <li>• Transmission Model: Peerless 855 Series.</li> <li>• Gear selections: 2 forward, 1 reverse, neutral.</li> <li>• Speed: 3.5 mph (5.6 km/hour) low gear, 5.0 mph (8.0 km/hour) high gear.</li> </ul>	<ul style="list-style-type: none"> <li>• Transmission Model: Peerless 855 Series.</li> <li>• Gear selections: 2 forward, 1 reverse, neutral.</li> <li>• Speed: 3.5 mph (5.6 km/hour) low gear, 5.0 mph (8.0 km/hour) high gear.</li> </ul>
<b>TIRES AND WHEELS</b>	<ul style="list-style-type: none"> <li>• Front tires: 18 x 950 – 8, RV antifreeze added for ballast and traction.</li> <li>• Rear tires: 13 x 650 – 6</li> </ul>	<ul style="list-style-type: none"> <li>• Front tires: 18 x 950 – 8, RV antifreeze added for ballast and traction.</li> <li>• Rear tires: 13 x 650 – 6</li> </ul>
<b>SPREADER</b>	<ul style="list-style-type: none"> <li>• Spreader model: Spyker 120 Series.</li> <li>• Capacity: 120 lb.</li> </ul>	<ul style="list-style-type: none"> <li>• Spreader model: Spyker 220 Series.</li> <li>• Capacity: 220 lb.</li> </ul>
<b>SPRAYING SYSTEM</b>	<ul style="list-style-type: none"> <li>• Spray Pump: 2.0 GPM mechanically driven diaphragm pump.</li> <li>• Tank: 12.0 gallon (45.4 L) capacity.</li> <li>• Nozzles: Turbo FloodJet TF-VS5 (broadcast), Turbo TeeJet TT11004VP (trim).</li> <li>• Spray Patterns: 11' wide pattern for general spraying, 3' narrow pattern for trim spraying.</li> <li>• Spray Pressure: Regulated to 25 psi (172 kPa) to match ground speed with tip output.</li> </ul>	<ul style="list-style-type: none"> <li>• Spray Pump: 2.0 GPM mechanically driven diaphragm pump.</li> <li>• Tank: 16.0 gallon (60.6 L) capacity.</li> <li>• Nozzles: Turbo FloodJet TF-VS5 (broadcast), Turbo TeeJet TT11004VP (trim)</li> <li>• Spray Patterns: 10' wide pattern for general spraying, 3' narrow pattern for trim spraying.</li> <li>• Spray Pressure: Regulated to 25 psi (172 kPa) to match ground speed with tip output</li> </ul>

# 1. MACHINE SPECIFICATIONS CONTINUED

## 1.1 TABLE OF SPECIFICATIONS CONTINUED

	PATHFINDER	PATHFINDER XC
<b>DIMENSIONS</b>	<ul style="list-style-type: none"> <li>• Overall length: 54.0" (137 cm).</li> <li>• Overall width: 35.5" (90 cm).</li> <li>• Overall height: 49.0" (124 cm).</li> <li>• Weight: 375 lb. (170 kg) dry, 600 lb. (272 kg) full, 800 lb. (363 kg) full with 200 lb. (91 kg) rider.</li> </ul>	<ul style="list-style-type: none"> <li>• Overall length: 58.0" (147 cm).</li> <li>• Overall width: 35.5" (90 cm).</li> <li>• Overall height: 50.5" (128 cm).</li> <li>• Weight: 450 lb. (204 kg) dry, 785 lb. (356 kg) full, 985 lb. (447 kg) full with 200 lb. (91 kg) rider.</li> </ul>
<b>ELECTRICAL SYSTEM</b>	<ul style="list-style-type: none"> <li>• Charging system: N/A</li> <li>• Charging capacity: N/A</li> <li>• Safety interlock system: This machine is equipped with a neutral safety start module. To start the engine, the transmission must be in the neutral (N) position.</li> </ul>	<ul style="list-style-type: none"> <li>• Charging system: N/A</li> <li>• Charging capacity: N/A</li> <li>• Safety interlock system: This machine is equipped with a neutral safety start module. To start the engine, the transmission must be in the neutral (N) position.</li> </ul>

## 1.2 OPERATOR CONTROLS

- The handlebars provide access to most of the machine controls.
- Turning the handlebars while standing on the operator platform provides steering control.
- Squeezing the throttle lever on the right side of the handlebars provides speed control.
- Depressing the brake pedal on the operator platform provides braking control.
- The spray control lever controls liquid flow from the tank to the nozzles.
- The gate lever controls the flow of granular product out of the hopper.
- The engine ignition switch controls the operation or shutdown of the engine.
- The spray control knob controls liquid flow between the trim and broadcast spray nozzles.
- The spread control lever controls the center of the spread pattern of granular product.
- The gate stop on the front of the hopper controls the maximum gate opening for granular product.

# 2. GENERAL OPERATIONAL SAFETY

## 2.1 PROPOSITION 65 STATEMENT



This product can expose you to chemicals including gasoline engine exhaust, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of the unit, severe personal injury or death to you, or bystanders, or damage to property or equipment.

## 2. GENERAL OPERATIONAL SAFETY CONTINUED

### 2.2 OPERATING SAFELY

The safety alert triangle (  ) in text signifies important cautions or warnings which must be followed.



Figure 1

Congratulations on purchasing a superior-quality piece of lawn and garden equipment. Our products are designed and manufactured to meet or exceed all industry standards for safety.

Do not operate this machine unless you have been trained. Reading and understanding this operator's manual is a way to train yourself.

Keep both feet on the operator platform at all times. Power equipment is only as safe as the operator. If it is misused, or not properly maintained, it can be dangerous! Remember, you are responsible for your safety and that of those around you.

Use common sense, and think through what you are doing. If you are not sure that the task you are about to perform can be safely done with the equipment you have chosen, ask a professional: contact your local authorized dealer.

### 2.3 CHEMICAL SAFETY

#### WARNING

Chemicals used in this machine such as herbicides and pesticides may be hazardous to apply and produce gasses that are hazardous if inhaled or with contact to your skin. Caustic liquid or chemical burns could occur if chemicals are not used properly.

- Read and follow all the instructions and warnings on Material Safety Data Sheets (MSDS) from manufacturer for all chemicals used.
- Become familiar with and follow all warnings, recommendations, instructions and procedures for: first aid measures, safe use, mixing, handling, applying, spills clean-up, storage and disposal of all chemicals as listed on the manufacturer's label or MSDS of any herbicides, pesticides or other chemicals.
- Wear all personal protective equipment as recommended on the manufacturer's label or MSDS of any herbicides, pesticides or other chemicals. Personal protective equipment may include safety glasses or goggles and/or face shields, chemical resistant gloves, rubber boots, and a respirator or air purifying filter mask.
- Before working on this machine, be sure the sprayer / valve system and hopper has been thoroughly rinsed according to the recommendations of the chemical manufacturer (see MSDS and product labels).

## 2. GENERAL OPERATIONAL SAFETY CONTINUED

### 2.3 CHEMICAL SAFETY CONTINUED

- Obtain the proper training before using or handling any chemicals. Follow all local, state and federal requirements for the handling and spreading or spraying of chemicals.
- Be sure to verify there is an adequate supply of clean water and soap nearby and immediately wash off any chemicals that may contact you.
- Handle chemicals in a well-ventilated area.
- Keep clean water available for immediate rinsing off and clean-up of any spilled chemicals, especially when filling the sprayer tank.
- Do NOT attempt to clean spray nozzles by blowing through them or placing in or near your mouth.
- Never enter the spray tank or hopper with your unprotected hands, or place your mouth or face over or into these openings. Chemicals and fumes may be hazardous to your health.



### WARNING

- Reduce your speed and minimize the weight of your load (in the hopper and volume in the tanks) when operating on hills or rough terrain to avoid possible instability, tipping or rollover of the machine.
- Liquid in the tanks and granular materials in the hopper may shift during operation. This is most common while turning, going up, down or across hills, when suddenly changing speed, or operating on rough terrain. This shift in load may cause possible instability, tipping or rollover of the machine. Reduce your speed in these situations.

### 2.4 TRAINING

- Read, understand, and follow all instructions in the manual and on the unit before starting. If the operator(s) or mechanic(s) cannot read English it is the owner's responsibility to explain this material to them.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- All operators and mechanics should be trained. The owner is responsible for training the users.
- Only allow responsible adults, who are familiar with the instructions, to operate the unit.
- Never let children or untrained people operate or service the equipment. Local regulations may restrict the age of the operator.
- The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people or property.

### 2.5 PREPARATION

- Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Use only accessories and attachments approved by the manufacturer.
- Wear appropriate clothing including safety shoes, safety glasses and ear protection. Long hair, loose clothing or jewelry may get tangled in moving parts.
- Inspect the area where the equipment is to be used and remove all objects such as rocks, toys and wire, which can be thrown by the machine.

## 2. GENERAL OPERATIONAL SAFETY CONTINUED

### 2.5 PREPARATION CONTINUED

- Use extra care when handling gasoline and other fuels. They are flammable and vapors are explosive.
- Use only an approved container for gasoline.
- Never remove fuel cap or add fuel with the engine running. Allow engine to cool before refueling. Do not smoke. Never refuel or drain the machine indoors.
- Check that safety switches and shields are attached and functioning properly. Do not operate unless they function properly.
- Become familiar with and follow all warnings, recommendations, instructions and procedures for safe use, handling, applying, storage and disposal of all chemicals as listed on the manufacturer's label of any herbicides, pesticides or other chemicals.
- Wear all personal protective equipment as recommended on the manufacturer's label or MSDS of any herbicides, pesticides or other chemicals. Personal protective equipment may include safety glasses or goggles and/or face shields, chemical resistant gloves, rubber boots and a respirator or filter mask.

#### **WARNING**

It is a violation of California Public Resource Code, Section 4442, to use or operate the engine on any forest-covered, brush-covered or grass-covered land unless the exhaust system is equipped with a spark arrester, as defined in Section 4442, maintained in effective working order. Other states or federal jurisdictions may have similar laws. Contact an Authorized Service Dealer to obtain a spark arrester designed for the exhaust system installed on this engine.

- OSHA regulations may require the use of hearing protection when exposed to sound levels greater than 85 dBA for an 8 hour time period

#### **CAUTION**

This machine produces sound levels in excess of 85 dBA at the operator's ear and can cause hearing loss though extended periods of exposure. Wear hearing protection when operating this machine.

### 2.6 CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the unit and the operating activity. Never assume that children will remain where you last saw them.

- Keep children out of the operating area and under the watchful care of another responsible adult.
- Be alert and turn unit off if children enter the area.
- Before and during reverse operation, look behind and down for small children.
- Never carry children, even with spreader spinner and sprayer pump off. They may fall off and be seriously injured or interfere with safe unit operation. Children who have been given rides in the past may suddenly appear in the operation area for another ride and be run over or backed over by the machine.
- Never allow children to operate the unit.
- Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.



## 2. GENERAL OPERATIONAL SAFETY CONTINUED

### 2.7 SAFE HANDLING OF GASOLINE


To avoid personal injury or property damage, use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive.




- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only approved gasoline containers.
- Never remove the gas cap or add fuel with the engine running. Allow the engine to cool before refueling.
- Never fuel the machine indoors.
- Never store the machine or fuel container where there is an open flame, spark, or pilot light such as near a water heater or other appliance.
- Never fill containers inside a vehicle or on a truck bed with a plastic bed liner. Always place containers on the ground away from your vehicle before filling.
- Remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
- Keep nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
- If fuel is spilled on clothing, change clothing immediately.
- Never over-fill the fuel tank. Replace gas cap and tighten securely.
- Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
- If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
- Replace all fuel tank caps and fuel container caps securely.

## 3. SAFETY AND INSTRUCTIONAL DECALS

### 3.1 INTRODUCTION TO SAFETY ALERT SYMBOLS AND SIGNAL WORDS

Before operating your unit, read the safety decals. The cautions and warnings are for your safety. To avoid a personal injury or damage to the unit, understand and follow all safety decals.

The safety alert symbol  is used to identify safety information about hazards that can result in personal injury. A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.

-  **DANGER** indicates a hazard which, if not avoided, will result in death or serious injury.
-  **WARNING** indicates a hazard which, if not avoided, could result in death or serious injury.
-  **CAUTION** indicates a hazard which, if not avoided, could result in minor or moderate injury.

**NOTICE** indicates a situation that could result in damage to the product.



### 3. SAFETY AND INSTRUCTIONAL DECALS CONTINUED

#### 3.1 INTRODUCTION TO SAFETY ALERT SYMBOLS AND SIGNAL WORDS

##### WARNING

If any safety decals become worn or damaged, and cannot be read, order replacement decals from your local dealer.

#### 3.2 SAFETY ICONS AND WARNING DECALS

##### Safety Icons

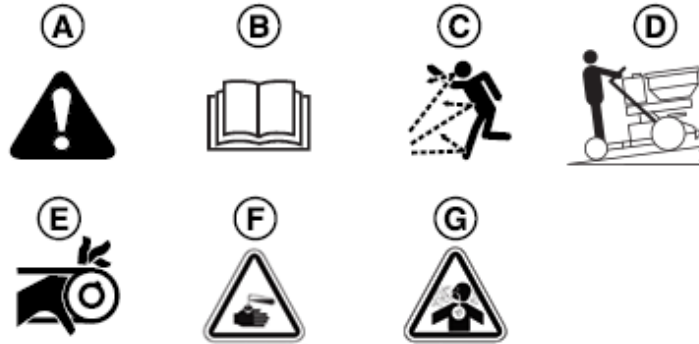


Figure 2: Safety Icons

Explanation of Icons in Figure 2	
Callout	Description
A	Alert
B	Read the Manual
C	Thrown Objects
D	Slope Direction for Safe Operation
E	Amputation - Rotating Parts
F	Caustic Liquid/Chemical Burn
G	Gas Inhalation Hazard

Figure 3: Explanation of Icons in Figure 2



Figure 4: Amputation and Pinch Point Hazard Decal

### 3. SAFETY AND INSTRUCTIONAL DECALS CONTINUED

#### 3.2 SAFETY ICONS AND WARNING DECALS CONTINUED

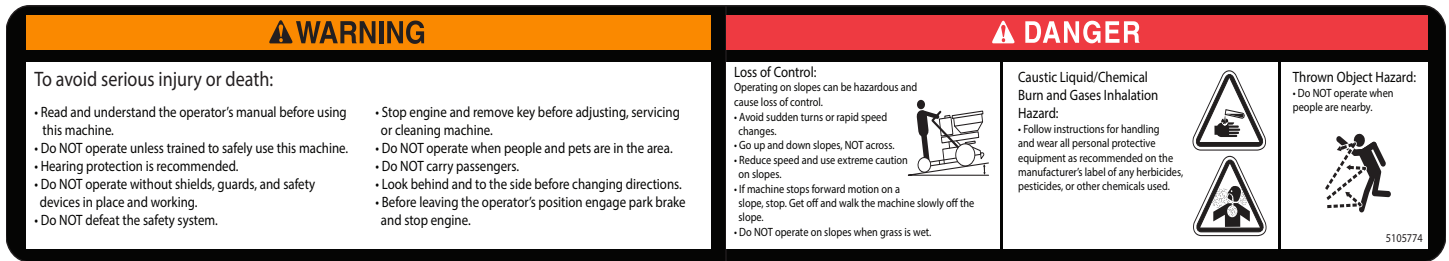


Figure 5: Warning and Danger Combination Decal

#### 3.3 INSTRUCTIONAL DECALS

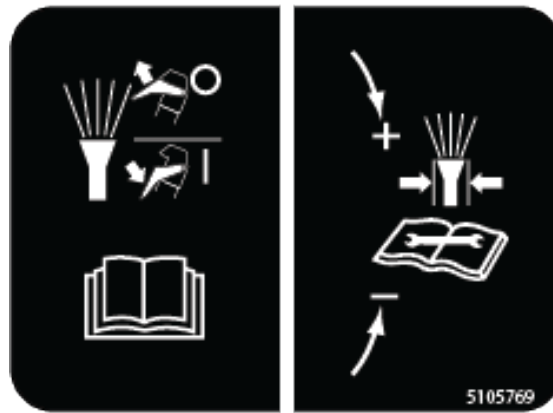


Figure 6: Sprayer Control Decal



**Spray Control Lever:** See section 4.2 CONTROLS for spray control lever operating instructions.



When this lever is released, the spray valve is closed (OFF position)



When this lever is depressed, the spray valve is open (ON position)  
Releasing the spray control lever will automatically close the sprayer valve (OFF position)



**Spray Pressure Relief Valve:** See section 6.3 CALIBRATING THE SPRAY FLOW RATE for Spray Pressure Relief Valve operating instructions.

Turning the knob clockwise increases spray pressure and turning the knob counter clockwise decreases spray pressure.

### 3. SAFETY AND INSTRUCTIONAL DECALS CONTINUED

#### 3.3 INSTRUCTIONAL DECALS CONTINUED



Figure 7: Foot Brake Decal



Foot Brake Decal: See section **4.2 CONTROLS** for brake pedal operating instructions.



Releasing the brake pedal disengages the band brakes on the rear wheels (OFF position).



Depressing the brake pedal engages the band brakes on the rear wheels (ON position).



Figure 8: Parking Brake Decal



**Parking Brake:** Pull the parking brake lever rearward and up to engage the parking brake. Move the lever fully forward and down to disengage the parking brake.



	Disengage	Releases the parking brake.
	Engage	Locks the parking brake.

Figure 9: Explanation of Parking Brake Decal

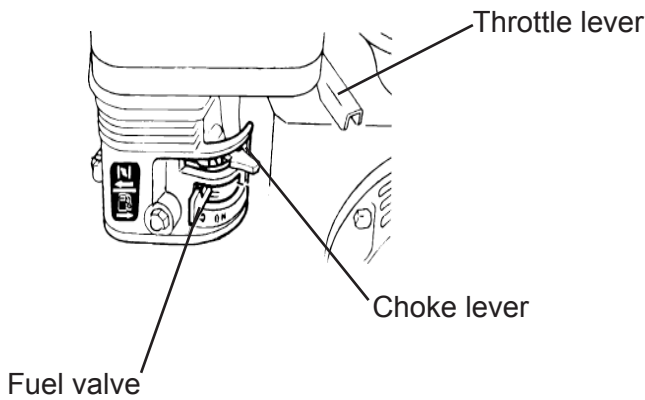
### 3. SAFETY AND INSTRUCTIONAL DECALS CONTINUED

#### 3.4 HONDA ENGINE DECALS AND ENGINE CONTROLS

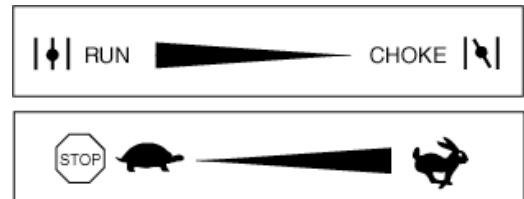
■ READ OWNER'S MANUALS BEFORE OPERATION.  
 ■ LIRE LE MANUEL D'UTILISATEUR AVANT USAGE.  
 ■ VOR INBETRIEBNAHME UNBEDINGT  
 BEDIENUNGSANLEITUNG DURCHLESEN.  
 ■ NO UTILIZAR SIN ANTES NO HABER LEIDO EL MANUAL.

IMPORTANT ENGINE INFORMATION-HONDA MOTOR CO.,LTD  
 ENGINE FAMILY:THN163U1G1RA DISPLACEMENT-163cm<sup>3</sup>  
 TUNE UP SPECIFICATION \*REFER TO OWNER'S MANUAL FOR  
 MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS. THIS ENGINE  
 MEETS 1995 CALIFORNIA EMISSION REGULATIONS FOR  
 UTILITY AND LAWN AND GARDEN EQUIPMENT ENGINES.

**OIL ALERT**  
 ■ WHEN OIL LEVEL LOW,  
 ENGINE STOPS IMMEDIATELY.



Set lever to choke when starting cold.



Set lever to desired engine speed.  
 Move lever completely to the left to stop engine.

## 4. OPERATING INSTRUCTIONS

### 4.1 OPERATION

- Keep both feet on the operator platform at all times.
- Never run an engine in an enclosed area.
- Operate only in the daylight or with good artificial light, keeping away from holes and hidden hazards.
- Be sure all drives are in neutral and parking brake is engaged before starting engine. Only start engine from the operator's position.
- Be sure of your footing while using pedestrian controlled equipment, especially when backing up. Walk, don't run. Reduced footing could cause slipping.
- Slow down and use extra care on hillsides. Be sure to travel in the recommended direction on hillsides. Turf conditions can affect the machines stability. Use caution when operating near drop-offs.
- Do not Operate in reverse unless absolutely necessary. Always look down and behind before and while traveling in reverse.
- Slow down and use caution when making turns and when changing directions on slopes.
- Never leave a running unit unattended. Always disengage the spreader spinner and sprayer pump, set parking brake, stop engine, and remove keys before dismounting. Keep hands and feet away from the rotating parts.
- Disengage the spreader spinner and sprayer pump when not operating.
- Never operate with guards not securely in place. Be sure all switches are attached, adjusted properly and functioning properly.
- Do not change the engine governor setting or overspeed the engine.
- Stop on level ground, lower implements, disengage spreader spinner and sprayer pump, engage parking brake, shut off engine before leaving the operator's position for any reason.
- Look behind and down before backing up to be sure of a clear path.
- Never carry passengers and keep pets and bystanders away.
- Do not operate the unit while under the influence of alcohol or drugs.
- Slow down and use caution when making turns and crossing roads and sidewalks. Disengage spreader spinner and sprayer pump if not operating.
- Use care when loading or unloading the machine into a trailer or truck.
- Use care when approaching blind corners, shrubs, trees or other objects that may obscure vision.
- To reduce fire hazard, keep unit free of grass, leaves & excess oil. Do not stop or park over dry leaves, grass or combustible materials.

## 4. OPERATING INSTRUCTIONS CONTINUED

### 4.2 CONTROLS

The user should become familiar with all controls before operating the machine.

- **Handlebars:** The handlebars provide steering control of the machine and should be grasped with the hands at the location of the foam grips.
- **Throttle lever:** The throttle lever is located at the end of the right hand side of the handlebars. Squeezing the throttle lever increases the speed of the engine. Releasing the throttle lever allows the engine to return to idle speed. When the transmission is engaged in any position other than neutral, squeezing the throttle will cause the machine to move relative to the gear that has been selected. The more the lever is squeezed, the greater the speed of the machine.
- **Brake pedal:** The brake pedal is located in the middle of the operator platform. Depressing the brake pedal engages the band brakes on the rear wheels and slows the motion of the machine.
- **Spray control lever:** The spray control lever is located near the left side of the handlebars and controls the flow of liquid from the tank to the spray nozzles. When the lever is in the vertical position, the valve is closed. When the lever is in the horizontal position (the lever can be either pushed forward or pulled backward), the valve is open.
- **Gate lever:** The gate lever is located on the left side of the console and controls the opening at the bottom of the hopper. Pushing forward on the gate lever causes the gate to close so that no granular product will flow out of the bottom of the hopper. Pulling backward on the gate lever causes the gate to open so that granular product will flow.
- **Engine ignition switch:** The engine ignition switch is located on the left side of the console and controls the ignition circuit of the engine. The engine will only start and run when the switch is in the “ON” position. The engine will not start or will shut down if the switch is in the “OFF” position.
- **Spray control knob:** The spray control knob is located on the right side of the console and controls which nozzle the liquid in the spray system is directed towards. When the knob is positioned in the wide spray position, liquid is directed toward the broadcast nozzle. This nozzle will create a maximum spray width of 11'. When the knob is positioned in the narrow spray position, liquid is directed toward the trim nozzle. This nozzle will create a maximum spray width of 3'.
- **Spread control lever:** The spread control lever is located on the right side of the console and controls the center of the granular spread. The lever controls the position of a baffle located below the gate of the hopper. As this baffle is moved relative to the gate opening, the center of the dispensed material changes. To operate, the lever is first unlocked by rotating counterclockwise. The handle can then be moved up and down to change the position of the baffle. Once the correct position is found, the handle is rotated clockwise to lock the lever in place.
- **Gate stop:** The gate stop controls the maximum opening of the hopper gate and is located on the front of the hopper. The knob is rotated one direction or the other until the desired maximum gate opening is obtained.

### 4.3 BEFORE FIRST TIME OPERATION

- Be sure to read all information in the Operator Safety and Operation sections before attempting to operate this unit.
- Become familiar with all of the controls and how to stop the unit.
- Drive in an open area without operating the spreader and sprayer to become accustomed to the unit.

## 4. OPERATING INSTRUCTIONS CONTINUED

### 4.3 BEFORE FIRST TIME OPERATION CONTINUED



Never operate on slopes greater than 12°.

- Select slow ground speed before driving onto a slope. Use extra caution when operating on slopes with any accessories attached to the unit.
- Operate up and down slopes, NOT across, use caution when changing direction on slopes and do NOT start or stop on a slope.

### 4.4 PRE-START

- Fill the fuel tank. For best results use only fresh, clean regular grade unleaded gasoline with an octane rating of 87 or higher. Do not add oil to the gasoline.
- Do not overfill the fuel tank. Never fill the fuel tank so that the fuel level rises above a level that is ½" below the bottom of the filler neck. This will allow for fuel expansion and will help to prevent fuel spillage.
- Understand the controls, their locations, their functions, and their safety requirements.
- Refer to Maintenance, Section 7, and perform all the necessary inspection and maintenance steps.

### 4.5 STARTING THE MACHINE

- Position the machine on a flat and level surface.
- Ensure that the transmission is in the neutral (N) position and that the engine ignition switch is in the "ON" position.
- Open the fuel shut-off valves located on the engine and below the fuel tank.
- If the engine is cold, activate the choke lever located on the engine. If the engine is warm, it may not be necessary to activate the choke lever.
- Firmly grasp the handle of the start cord and pull the handle toward the rear of the machine.

Do not squeeze the throttle lever when starting the machine.

- Once the engine has started, gradually deactivate the choke lever.
- Carefully step onto the operator platform.
- Move the transmission lever to the desired location.
- Slowly squeeze the throttle lever to start the machine moving.



## **4. OPERATING INSTRUCTIONS CONTINUED**

### **4.6 STOPPING THE MACHINE**

- Position the machine on a flat and level surface.
- Completely release the throttle lever.
- Move the transmission lever to the neutral (N) position.
- Move the engine ignition switch to the “OFF” position.

### **4.7 TRANSPORTING THE MACHINE**

- Use a heavy-duty trailer or hitch-mounted rack to transport the machine. Securely fasten the machine to the trailer or rack with straps, chains, cable, or ropes. Make sure that the trailer or rack has all of the necessary lighting and markings that are required by law. If using a trailer, make sure that the safety chains are secured.
- Use extreme caution when loading the machine on a trailer or rack. The ramps should be long enough so that the angle between the ramp and the ground does not exceed 12°. A steeper angle may cause the machine to lose traction and slide out of control.
- Always load the machine with the machine driving forward.
- Only use first gear (1) when loading the machine.
- Keep the machine in gear once it has been properly loaded and shut off. This will help to minimize movement of the machine on the trailer or rack during transportation.
- Move the transmission lever to the desired location.

### **4.8 OPERATING THE SPREADER**

- The spreader has a pattern width of approximately 14 feet. By using passes with an approximate 7 foot width, the granular product will be evenly distributed with the proper amount of overlap. Note that the sprayer also requires passes with an approximate 7 foot width. Sprayer operation details are noted in the next section.
- Adjust the gate stop to the desired setting.
- Completely close the hopper gate and add fertilizer to the hopper.
- Install the hopper shower cap if necessary.
- Carefully step onto the operator platform.
- Place the gear selector in second gear (2).
- Squeeze the throttle lever to start the machine rolling forward.
- Slide the gate lever to the OPEN position.
- To stop the spreading operation, slide the gate lever to the CLOSED position, release the throttle lever, and depress the brake pedal.

## **4. OPERATING INSTRUCTIONS CONTINUED**

### **4.9 OPERATING THE SPRAYER**

- The sprayer has a pattern width of approximately 11 feet with the broadcast tip. The effective pattern width is approximately 7 feet wide which allows the same pass width as the spreader. For this reason, the spreader and spraying systems may be operated at the same time.
- Add the required materials to the spray tank.
- Note the direction of the wind and plan an application path that allows the spraying to occur downwind.
- Avoid spraying in windy conditions as the spray may carry to non-target areas.
- Carefully step onto the operator platform.
- Rotate the spray width knob to the desired setting.
- Place the gear selector in second gear (2).
- Squeeze the throttle lever to start the machine rolling forward.
- Activate the spray control lever (horizontal position).
- To stop the spraying operation, deactivate the spray control lever (vertical position), release the throttle lever, and depress the brake pedal.

## 5. SLOPE OPERATIONAL SAFETY

### 5.1 SLOPE IDENTIFICATION GUIDE

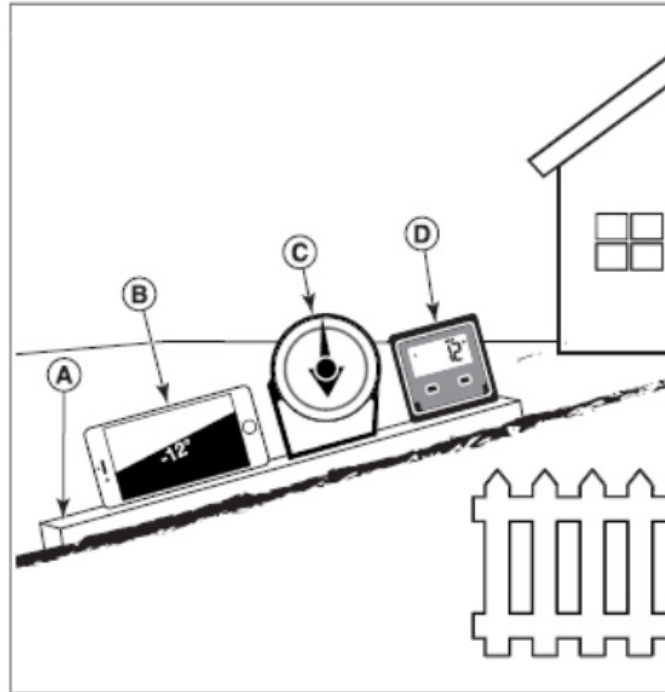


Figure 10

Measure the slope of a lawn surface with a smartphone or angle finder tool:

#### **⚠ WARNING**

Do not operate on slopes greater than 12 degrees.

1. Use a straight edge at least two (2) feet long (A, Figure 10). A 2x4 or a straight piece of metal works well.
2. Angle finder tools.
  - a) Use your smartphone: Many smartphones (B, Figure 10) have an inclinometer (angle finder) located under the compass application (app). Or, search an app store for an Inclinometer app.
  - b) Use angle finder tools: Angle finder tools (C & D, Figure 10) are available at local hardware stores or online (also called inclinometer, protractor, angle meter, or angle gauge). Dial type (C) or digital type (D) work, others may not. Follow user instructions with the angle finder tool.
3. Place the two (2) feet long straight edge along the steepest part of the lawn slope. Place the board up and down the slope.
4. Lay the smartphone or angle finder tool on the straight edge and read the angle in degrees. This is the slope of your lawn.

## 5. SLOPE OPERATIONAL SAFETY CONTINUED

### 5.2 SLOPE OPERATION

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not drive on it.

#### **DANGER: LOSS OF CONTROL**

Operating on slopes can be hazardous and cause loss of control.

- Avoid sudden turns or rapid speed changes.
- If machine stops forward motion on a slope, stop. Get off and walk the machine slowly off the slope.
- Go up and down slopes, NOT across.
- Reduce speed and use extreme caution on slopes.
- Do NOT operate on slopes when grass is wet.
- Do NOT operate on slopes over 12\* degrees.
- Reduce your speed and minimize the weight of your load (in the hopper and volume in the tanks) when operating on hills or rough terrain to avoid possible instability, tipping or rollover of the machine.

#### **DANGER**

Wet or soft slope hazard:

- Wet or soft slopes can cause sliding and loss of control
- Do NOT operate on slopes when grass is wet. Tires may lose traction and cause sliding and loss of control.
- Do NOT operate on slopes when soil is soft (such as after heavy rains). Tires may lose traction and cause sliding and loss of control.

#### **DANGER**

Water, retaining walls and drop-off hazard:

- Wheels dropping over edges may result in serious injury, death and drowning.
- Do NOT operate near water, retaining walls, drop-offs or embankments. The machine could suddenly roll over if a wheel goes over the edge or the edge breaks away.
- Reduce your speed when operating over rough terrain or near these hazards.
- Give yourself a minimum of two machine widths of clearance around these hazards.

\* This limit was determined per International Standard ISO 5395-3:2013, Section 4.6 and is based on the ISO 5395-3 Stability Test procedure described in Annex A. The 12 degree "limit of stability" is equal to 60% of the angle at which machine lift-off occurred in static tests. Actual dynamic stability may vary depending on operating conditions.

## 5. SLOPE OPERATIONAL SAFETY CONTINUED

### 5.2 SLOPE OPERATION CONTINUED

Do:

- Operate up and down slopes, NOT across.
- Remove obstacles such as rocks, tree limbs, etc.
- Watch for holes, ruts, or bumps. Uneven terrain could overturn the unit. Tall grass can hide obstacles.
- Use slow speed. Choose a slow speed so that you will not have to stop or change speed while on the slope.
- Use extra care with accessories. These can change the stability of the unit.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction.
- See your authorized dealer for recommendations of available weights to improve stability.

Do NOT:

- Avoid starting, stopping, or turning on a slope. If tires lose traction (i.e. machine stops forward motion on a slope), stop. Get off and walk the machine slowly off the slope.
- Do not turn on slopes unless necessary, and then, turn slowly and gradually uphill, if possible. Never operate straight down slopes.
- Do not operate near drop-offs, ditches, or embankments. The operator could lose footing or balance or machine could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
- Do not operate on wet grass. Reduced footing or traction could cause sliding.
- Do not try to stabilize the unit by putting your foot on the ground (ride-on units).
- Do not operate excessively steep slopes.
- Do not operate on slopes if you cannot back up them.

### 5.3 OPERATING ON SLOPES

Learn how to operate the Pathfinder on slopes and use your body position to improve traction and control of the machine.

Operation on slopes can be dangerous. Slopes are a major factor related to accidents, which can result in severe injury or death. Using the unit on a slope that is too steep where you do not have adequate wheel traction (and control) can cause sliding, loss of steering, control, and possible rollover. If you feel unsure about operating the unit on a slope, don't do it. It's not worth the risk.

- This machine has a high center of gravity and may become unstable on slopes. Always lean towards the slope of a hill when operating on slopes and lean towards the center of turn when changing directions on slopes.
- Operation on wet grass especially when going across or down slopes can cause loss of traction, sliding, loss of steering, control, and possible rollover.

## 5. SLOPE OPERATIONAL SAFETY CONTINUED

### 5.3 OPERATING ON SLOPES CONTINUED

Operate up and down slopes, NOT across:

- Operation down slopes can be dangerous and cause sliding, loss of steering, control, and possible rollover. Do NOT operate down a slope unless absolutely necessary. Drive very slowly in the lowest gear and be careful. Never make a sharp turn or sudden start or stop, as this can cause loss of traction, sliding, loss of steering, control and possible rollover. Apply the rear brakes first to slow your speed while descending a slope.
- Operate up the slope and lean your body forward (towards the control panel), while keeping a firm grip on the handle bar. This body position helps keep the front wheels on the ground.
- Operate down the slope and lean your body rearward with your arms out-stretched, while keeping a firm grip on the handlebar. This body position adds more weight to the rear wheels and improves traction, downhill braking, and control.
- Always be very gentle operating the controls, travel at a slower speed than normal.
- Do NOT accelerate quickly or change speed or direction suddenly while operating, as this may cause the machine's front wheels to come off the ground (up slopes) and to reduce the tendency to cause the machine to slip and slide (down slopes).

Operate across slopes (only if you cannot operate up and down the slope):

- It is recommended to operate across the face of slopes only when you cannot operate up or down the slopes. This may be the preferred technique for operating on very gentle slopes and to avoid going down a slope.
- Lean your body slightly rearward and towards the uphill side drive wheel, while keeping a firm grip on the handle bar. This body position adds more weight to the uphill side drive wheel to maximize traction and control.
- Do NOT accelerate quickly, as this may cause the machine's front wheels to come off the ground.
- Exert strong force and keep a firm grip on the handle bars to maintain control and resist the machine tendency to turn uphill

## 6. CALIBRATION

### 6.1 SPREADER FLOW RATE CALIBRATION

- The following instructions provide a method for adjusting the flow of fertilizer from the hopper so that the correct amount of fertilizer is applied to a 1000 ft<sup>2</sup> area. The machine is designed to apply fertilizer evenly by overlapping each pass by 50 percent. The spread width for most products is approximately 14 feet. This means that the center of each pass should be approximately 7 feet from the center of the previous pass. The effective material spread width is 7 feet and is the basis for calibration.
- Measure a distance of 143 feet on a flat paved surface. Using a paved surface will allow the fertilizer to be recollected and will prevent burning the turf if the application rate is largely different from what is intended. Traveling 143 feet with the machine equates to covering approximately 1000 ft<sup>2</sup> with fertilizer (7 ft x 143 ft = 1001 ft<sup>2</sup>).

## 6. CALIBRATION CONTINUED

### 6.1 SPREADER FLOW RATE CALIBRATION CONTINUED

- Set the gate stop to a setting of 5. This will be used as the starting setting for dialing in the correct gate stop setting for the particular material that is being used. Note that the spreader will have to be recalibrated for each different type of material that is spread. Make sure to record the final gate stop setting once the correct application rate has been achieved.
- Place the spreader gate lever in the CLOSED position. Place enough material in the hopper to cover 1000 ft<sup>2</sup>.
- Begin the spreading operation while moving toward the 143 foot marker. With the machine moving at full speed, the hopper should just empty out as the machine passes the marker. If the hopper empties before the marker is reached, turn the gate stop dial to a slightly lower setting and repeat the process. If the hopper empties after the marker is reached, turn the gate stop dial to a slightly higher setting and repeat the process. Continue this process until the proper dispensing rate is achieved.
- When the calibration is complete, collect the fertilizer that has been dispensed for reuse. Never leave the fertilizer on the pavement where it can wash away in runoff.

### 6.2 CENTERING THE SPREAD PATTERN

- The following instructions provide a method for adjusting the center of the spread pattern so that fertilizer is evenly distributed over the width of the spread area.
- Obtain the following items:
  - Eleven collection pans, 3 to 4 inches tall and 12 inches square (e.g. aluminum roasting pans).
  - Clear tube, ½" internal diameter, 4 inches tall. Use a permanent marker to mark the tube at ¼" increments all of the way up the tube. This will act as a measuring device for the collected fertilizer prills.
  - A ruler or tape measure.
  - A method of recording the collection amounts.
- Set the gate stop to a setting of 5.
- Move the gate lever to the OPEN position (the hopper must initially be empty).
- Turn the spread control lever counterclockwise to release the lock and move the lever in or out so that the baffle can be seen centered just below the opening of the gate in the bottom of the hopper. Turn the spread control lever clockwise to lock into position.
- Move the gate lever to the CLOSED position.
- Load the hopper with the fertilizer to be used for calibration.
- Place the eleven collection pans on a flat paved surface in a straight line on two-foot centers. Using a paved surface will allow the fertilizer to be recollected and will prevent burning the turf if the application pattern is largely different from what is intended.
- Make at least three passes traveling directly over the center pan in a path perpendicular to the row of pans. NOTE: All of the passes must be made in the same direction.
- Pour the contents of the first pan on the left into the graduated tube and record the amount of material that is in the tube. Repeat this measurement for each of the eleven collection pans.



## 6. CALIBRATION CONTINUED

### 6.2 CENTERING THE SPREAD PATTERN CONTINUED

- Add together all of the eleven numbers to find the total material that was dispensed.
- Divide the amount caught in each pan by the total amount. This is the percentage that was caught in each pan.
- The distribution should increase towards the center pan and decrease toward the outside pans. The distribution should also be approximately the same on each side. If it appears that the left side is receiving more material, pull the spread control lever out slightly and repeat the process. If it appears that the right side is receiving more material, push the spread control lever in slightly and repeat the process. Only slight adjustments are needed to make spread pattern changes.
- Once the correct distribution is achieved, measure the distance from the console surface to the top of the spread control lever. Record this measurement as the setting to be used for the particular fertilizer being evaluated. Note that the spreader will have to be recalibrated for each different type of material that is spread.
- When the calibration is complete, collect the fertilizer that has been dispensed for reuse. Never leave the fertilizer on the pavement where it can wash away in runoff.

### 6.3 CALIBRATING THE SPRAY FLOW RATE

- The following instructions provide a method for adjusting the amount of flow being dispensed from the spray nozzles.
- Fill the spray tank with water.
- Place a container in a position near the spray nozzles so that all of the spray being dispensed by the nozzles can be captured in the container.
- Move the spray control knob to the desired spray width setting. The spray will flow through the broadcast tip (TF-VS5) on the wide spray setting. The spray will flow through the trim tip (TT11004VP) on the narrow spray setting.
- Place the machine in neutral (N), squeeze the throttle lever to run the engine at full throttle, and adjust the pressure relief valve so that the reading on the pressure gauge is 25 psi.
- Move the spray control lever to ON (horizontal position). Operate the spray system in the ON position for exactly one minute.
- Measure the collected water. The amount collected for each tip should approximately be as follows:
  - Broadcast tip (TF-VS5) = 100 ounces  $\pm$  10 ounces
  - Trim tip (TT11004VP) = 40 ounces  $\pm$  4 ounces
- If the output from the nozzles is slightly different from the values listed above, adjust the pressure relief valve slightly. Unscrewing the valve knob will decrease the system pressure and will decrease the output from the tips. Screwing the valve knob in will increase the system pressure and will increase the output from the tips.
- If the output from the nozzles is drastically different from the values listed above, there may be other problems with the system. Refer to section 8, FAULT ISOLATION.

## **7. MAINTENANCE, STORAGE, AND SERVICE**

### **7.1 MAINTENANCE AND STORAGE SAFETY**

- Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.
- Always follow the engine manual instructions for storage preparations before storing the unit for both short and long term periods.
- Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
- Never store the machine or fuel container inside where there is an open flame, such as in a water heater. Allow unit to cool before storing.
- Shut off fuel while storing or transporting. Do not store fuel near flames or drain indoors.
- Keep all hardware tight and keep all parts in good working condition. Replace all worn or damaged decals.
- Never tamper with safety devices. Check their proper operation regularly.
- Disengage spreader spinner and sprayer pump, set parking brake, stop engine and remove key or disconnect spark plug wire. Wait for all movement to stop before adjusting, cleaning or repairing.
- Clean grass and debris from moving parts, drives, mufflers, and engine to prevent fires. Clean up oil or fuel spillage.
- Let engine cool before storing and do not store near flame.
- Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
- Park machine on level ground. Never allow untrained personnel to service machine.
- Use jack stands to support components when required.
- Carefully release pressure from components with stored energy.
- Disconnect battery or remove spark plug wire before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect positive first and negative last.
- Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
- Charge batteries in an open well ventilated area, away from spark and flames. Unplug charger before connecting or disconnecting from battery. Wear protective clothes and use insulated tools.
- Check brake operation frequently. Adjust and service as required.
- Use only factory authorized replacement parts when making repairs.

## **7. MAINTENANCE, STORAGE, AND SERVICE CONTINUED**

### **7.1 MAINTENANCE AND STORAGE SAFETY CONTINUED**

- Always comply with factory specifications on all settings and adjustments.
- Only authorized service locations should be utilized for major service and repair requirements.
- Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.
- Units with hydraulic pumps, hoses, or motors: **WARNING:** Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. If foreign fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result. Keep body and hands away from pin holes or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, and not hands, to search for leaks. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. If leaks occur, have the unit serviced immediately by your authorized dealer.
- **WARNING:** Stored energy device. Improper release of springs can result in serious personal injury. Springs should be removed by an authorized technician.
- Always disengage the sprayer pump and spreader spinner and close the hopper gate before maintaining or storage.
- Empty the sprayer tank and fertilizer hopper before lifting or tilting the machine for maintenance or storage.

### **7.2 PERIODIC SERVICE INTERVALS**

#### **Daily Inspections:**

- Check engine oil level. See the Engine Owner's Manual.
- Check the reduction case oil level. See the Engine Owner's Manual.
- Check the air filter. See the Engine Owner's Manual.
- Spray the shaft bushing in the bottom of the hopper with a light oil lubricant such as WD-40.
- Check the entire machine for loose hardware or other problems. Resolve any issues before operating the machine.

#### **One Month or 20 Hour Maintenance Period:**

- Change the engine oil the first month or after 20 hours, whichever comes first. Change the engine oil every 100 hours after that. See the Engine Owner's Manual.
- Change the reduction case oil the first month or after 20 hours, whichever comes first. Change the reduction case oil every 100 hours after that. See the Engine Owner's Manual.

## **7. MAINTENANCE, STORAGE, AND SERVICE CONTINUED**

### **7.2 PERIODIC SERVICE INTERVALS CONTINUED**

#### **25 Hour Maintenance Interval:**

- Check the tire pressure in all four tires. Inflate the front drive tires to 10 psi. Inflate the rear operator platform tires to 15 psi.
- Clean debris from the engine and muffler.
- Inspect the spray system filter located right below the tank.
- Grease the wheel bearings on the operator platform.
- Wash the machine with low pressure water.
- Apply a light oil lubricant such as WD-40 to all moving parts except for belts and pulleys.

#### **50 Hour Maintenance Interval:**

- Clean the air filter. When operating in dusty conditions, the air filter may require more frequent cleaning.
- Check the brakes. Adjust if necessary.
- Grease the operator platform pivot hub.

#### **100 Hour Maintenance Interval:**

- Change the engine oil. See the Engine Owner's Manual.
- Change the reduction case oil. See the Engine Owner's Manual.
- Clean the sediment cup on the engine. See the Engine Owner's Manual.
- Check and adjust the spark plug. See the Engine Owner's Manual.
- Clean the spark arrester on the engine. See the Engine Owner's Manual.
- Inspect the fuel tank for debris. Clean if necessary.
- Inspect the fuel filter. Clean or replace as necessary.
- Inspect the belts. Replace if necessary.
- Flush and clean the spray tank.
- Check the spray system output rate. Replace spray tips and/or adjust pressure setting as necessary.

#### **300 Hour Maintenance Interval:**

- Replace the air filter. See the Engine Owner's Manual.
- Replace the spark plug. See the Engine Owner's Manual.
- Check the idle speed and adjust if necessary.\*
- Check the valve clearance and adjust if necessary.\*
- Check the gear oil level in the spinner right angle gearbox.

#### **500 Hour Maintenance Interval:**

- Clean the combustion chamber.\*

\*These items should be serviced by your Honda servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures.

## 8. FAULT ISOLATION

This section provides a method for troubleshooting machine problems. Before utilizing the following procedures, check the machine for obvious signs of damage or failure. This includes missing or loose components, components that have failed, or physical damage. Do not attempt to operate the machine until the machine has been repaired.

### 8.1 MACHINE DOES NOT START

FAILURE MODE	CAUSE OF PROBLEM	CORRECTIVE ACTION
Machine does not start.	The fuel level in the tank is low.	Add fuel to the fuel tank.
	The fuel shutoff valves are in the closed position.	Make sure that the fuel shut off valves are open. One valve is located below the tank and the other valve is located on the engine.
	The fuel line is clogged.	Clean the fuel line.
	The fuel tank has contamination.	Clean out the fuel tank and install fresh fuel.
	The choke setting is incorrect.	Ensure that the choke setting is correct for the starting conditions. Cold starts will require the choke to be activated while warm starts may not require the choke.
	The shift lever is not in the neutral (N) position.	Center the shift lever in the neutral (N) position. The transmission must be in the neutral position to start.
	The ignition switch is in the "OFF" position.	Move the ignition switch to the "ON" position.

## 8. FAULT ISOLATION CONTINUED

### 8.2 SPREADING SYSTEM OPERATES INCORRECTLY

FAILURE MODE	CAUSE OF PROBLEM	CORRECTIVE ACTION
Spreader pattern is uneven or spreader does not operate.	The gate opening in the bottom of the hopper is blocked.	Remove the material from the hopper and dislodge any clumps around the gate opening. Inspect the agitator wire and make sure that it is not worn, damaged, or missing.
	The spread control baffle is positioned incorrectly.	Follow the procedure outlined in Section 4.2 for centering the spread pattern.
	The input shaft of the spinner gearbox is not turning.	Inspect the tension of the drive belts. Make sure that the idler pulleys are maintaining pressure on the belts. Inspect the belts for severe wear or damage.
	The shaft coupler is loose.	Make sure that the coupler connecting the spinner shaft to the spinner gearbox is tightened correctly.
	The spinner is dirty, worn or damaged.	Inspect the spinner and clean or replace if necessary.
	The spinner clip is damaged or missing.	Inspect the spinner clip on the bottom of the spinner. If it is damaged or missing, the spinner may not spin even though the spinner shaft is rotating. Replace the spinner clip if necessary.

## 8. FAULT ISOLATION CONTINUED

### 8.3 SPRAYING SYSTEM OPERATES INCORRECTLY

FAILURE MODE	CAUSE OF PROBLEM	CORRECTIVE ACTION
Spraying pattern is uneven or spraying system does not operate.	The spray nozzle tips are out of position.	Rotate the spray nozzle tips so that the tip orifice is directed straight in front of the machine.
	The spray nozzles are out of position.	Verify that the lower nozzle (trim nozzle) is positioned approximately 30 degrees and the upper nozzle (broadcast nozzle) is positioned straight up and down.
	The spray valve is not in the correct position.	Verify that the spray valve is in the horizontal position when spraying. The valve lever can be moved either forward or backward to the horizontal position to operate. The valve is "OFF" in the vertical position.
	The pressure relief valve is set incorrectly.	Verify that the pressure gauge reads approximately 25 psi at full engine speed. Adjust the pressure relief knob in or out to obtain this pressure. Tighten the locking nut against the pressure relief knob.
	The strainer or tip is clogged.	Remove the spray nozzle tip and inspect the tip orifice and the strainer to make sure they are not clogged. Clean or replace these components as necessary.
	The filter is clogged.	Remove the sediment bowl from the filter housing and inspect the filter screen. Clean or replace the screen as necessary.
	The spray pattern knob is incorrectly set.	Move the spray pattern knob all the way to side of the desired pattern setting.
	The spray tank volume is low.	Refill the spray tank. Note that in very rough or hilly conditions, the liquid in the spray tank may slosh around and the tank discharge tube may starve when the tank level is low. This can cause poor spraying performance.
	The engine speed is too low.	Operate the machine at full engine speed. The spray system is designed to operate most efficiently at full engine speed.
	The pump is worn or damaged.	Loosen the suction fitting on the pump to verify that there is liquid flow to the pump. Tighten the suction fitting and loosen the discharge fitting to verify that the pump is operating correctly. If there is no flow, replace the pump.
	The pump input shaft is not spinning.	Verify that all of the belts are in good condition and are tensioned properly. Verify that the pump pulley is securely fastened to the pump shaft with a setscrew.



## 9. WARRANTY INFORMATION

### BRIGGS & STRATTON WARRANTY POLICY (November 2017) LIMITED WARRANTY

Briggs & Stratton warrants that, during the warranty period specified below, it will repair or replace, free of charge, any part that is defective in material or workmanship or both. Transportation charges on product submitted for repair or replacement under this warranty must be borne by purchaser. This warranty is effective for and is subject to the time periods and conditions stated below. For warranty service, find the nearest Authorized Service Dealer in our dealer locator map at [www.groundlogicinc.com](http://www.groundlogicinc.com). The purchaser must contact the Authorized Service Dealer, and then make the product available to the Authorized Service Dealer for inspection and testing.

There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to the warranty period listed below, or to the extent permitted by law. Liability for incidental or consequential damages are excluded to the extent exclusion is permitted by law. Some states or countries do not allow limitations on how long an implied warranty lasts, and some states or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state or country to country.\*

Covered Parts	Standard Warranty	Rental Warranty Period
Spreader-Sprayer and Spreaders	1 Year (12 Months)	90 Days
<ul style="list-style-type: none"><li>• Belts</li><li>• Tires</li><li>• Brake Pads</li><li>• Hoses</li><li>• Battery</li></ul>	90 Days	90 Days
Accessories	1 Year (12 Months)	90 Days
Engine*	See Engine Operator's Manual	See Engine Operator's Manual

\* Emissions-related components are covered by the Emissions Warranty Statement.

The warranty period begins on the date of purchase by the first retail or commercial customer. To ensure prompt and complete warranty coverage, register your product at the website shown above or at [www.groundlogicinc.com/support/warranty-registration/](http://www.groundlogicinc.com/support/warranty-registration/), or mail the completed registration card (if provided), or call 1-877-423-4340 (in USA).

Save your proof of purchase receipt. If you do not provide proof of the initial purchase date at the time warranty service is requested, the manufacturing date of the product will be used to determine the warranty period. Product registration is not required to obtain warranty service on Briggs & Stratton products.

## **ABOUT YOUR WARRANTY**

Warranty service is available only through Ground Logic Authorized Service Dealers. This warranty only covers defects in materials or workmanship. It does not cover damage caused by improper use or abuse, improper maintenance or repair, normal wear and tear, or stale or unapproved fuel.

**Improper Use and Abuse** - The proper, intended use of this product is described in the Operator's Manual. Using the product in a way not described in the Operator's Manual or using the product after it has been damaged will not be covered under this warranty. Warranty coverage will also not be provided if the serial number on the product has been removed or the product has been altered or modified in any way, or if the product has evidence of abuse such as impact damage, or water/chemical corrosion damage.

**Improper Maintenance or Repair** - This product must be maintained according to the procedures and schedules provided in the Operator's Manual, and serviced or repaired using genuine Briggs & Stratton parts or equivalent. Damage caused by lack of maintenance or use of non-original or non-equivalent parts is not covered by warranty.

**Normal Wear and Tear** - Like all mechanical devices, the unit is subject to wear even when properly maintained. This warranty does not cover replacement or repairs when normal use has exhausted the life of a part or the equipment. Except as noted in the warranty period, maintenance and wear items such as filters, belts, and brake pads (except engine brake pads) are not covered by warranty due to wear characteristics alone, unless the cause is due to defects in material or workmanship.

**Stale or Unapproved Fuel** - In order to function correctly, this product requires fresh fuel that conforms to the criteria specified in the Operator's Manual. Engine or equipment damage caused by stale fuel or the use of unapproved fuels (such as E15 or E85 ethanol blends) is not covered by warranty.

**Other Exclusions** - This warranty excludes damage due to accident, abuse, modifications, alterations, improper servicing, freezing or chemical deterioration. Attachments or accessories that were not originally packaged with the product are also excluded. This warranty does not include used, reconditioned, second-hand, or demonstration equipment or engines. This warranty also excludes failures due to acts of God and other force majeure events beyond the manufacturer's control.