

# **OPERATOR'S MANUAL**

## **5 cu ft Drop Spreader**

### **TK4311 and TK4313**

9/5/2018

For your safety, please read and save all safety and operating instructions prior to using equipment.

## Safety Labels

### Read Safety in Machine Operator's Manual

Read the general safety operating precautions in your machine operator's manual for additional safety information.

### Operating Safely

- Read the machine and attachment operator's manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the machine and disengage the controls quickly.
- Do not modify machine or safety devices. Unauthorized modifications to the machine or attachment may impair its function and safety.
- Do not let children or an untrained person operate machine.
- Make any necessary adjustments before you operate. Never attempt to make any adjustments while the engine is running, unless if recommended in adjustment procedure.
- Look behind machine before you back up. Back up carefully.
- Do not let anyone, especially children, ride on machine or attachment. Riders are subject to injury such as being struck by foreign objects and being thrown off. Riders may also obstruct the operator's view, resulting in the machine being operated in an unsafe manner.
- Disengage any power to the attachment when the machine is transported or not in use.
- Never exceed 15 mph when loaded spreader is attached to vehicle. Braking distances may be reduced and handling characteristics may be impaired at speeds above 15 mph.
- Never use wet materials or materials with foreign debris in the spreader. This unit is designed to spread dry, clean, free-flowing material.
- Never leave material in hopper when not in use.

### Practice Safe Maintenance

- Only qualified, trained adults should service this machine.
- Understand service procedure before doing work. Keep area clean and dry.
- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.

- Never lubricate, service or adjust the machine or attachment while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- Keep hands, feet, clothing, jewelry, and long hair away from any moving parts, to prevent them from getting caught.
- Lower any attachment completely to the ground or to an existing attachment mechanical stop before servicing the attachment. Disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.
- Disconnect battery or remove spark plug wire (for gasoline engines) before making any repairs.
- Before servicing machine or attachment, carefully release pressure from any components with stored energy, such as hydraulic components and springs.
- Release hydraulic pressure by lowering attachment or cutting units to the ground or to a mechanical stop and move hydraulic control levers.
- Securely support any machine or attachment elements that must be raised for service work. Use jack stands or lock service latches to support components when needed.
- Never run engine unless park brake is locked.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Replace all worn or damaged safety and instruction decals.
- Check all hardware at frequent intervals to be sure the equipment is in safe working condition.
- Do not modify machine or safety devices. Unauthorized modifications to the machine or attachments may impair its function and safety.



### Wear Appropriate Clothing

- Always wear eye protection when operating the machine.
- Wear close fitting clothing and safety equipment appropriate for the job.
- Wear a suitable protective device such as earplug. Loud noise can cause impairment or loss of hearing.

## **Safety Labels**

### **Read Chemical Container Label**

- Chemicals can be dangerous. Improper selection or use can injure persons, animals, plants, soils or other property. Select the right chemical for the job and handle and apply with care.
- Read the instructions, precautions, and warnings on the container label before opening. Use the product strictly according to label directions for specific applications, in the amounts specified, at the times specified and only when needed.
- Keep the container closed tightly except when preparing the mix.
- Do not remove labels from chemical containers. Store all chemicals in their original containers.
- Do not mix chemicals unless stated on the container label.
- Store chemicals when not in use according to the container label.

### **Handle Chemical Products Safely**

- Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with equipment include pesticides, herbicides and fungicides.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products: Physical and health hazards, safety procedures, and emergency response techniques.
- The MSDS should be obtained from the chemical dealer at the time of the chemical purchase.
- Check the MSDS before beginning any job using a hazardous chemical. Know exactly what the risks are and how to do the job safely. Always wear recommended personal protection equipment.

## **Handling Waste Product and Chemicals**

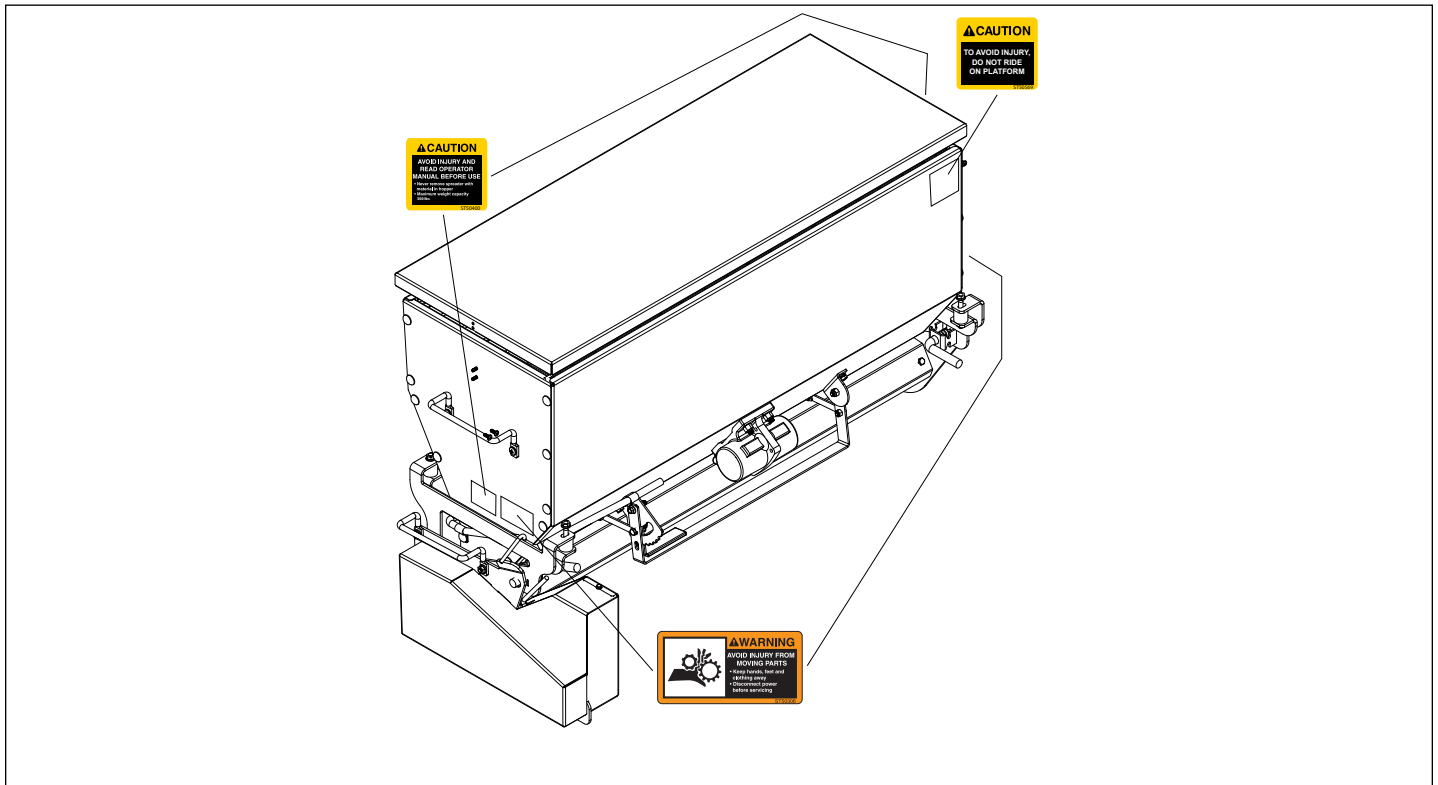
Waste products, such as, used oil, fuel, coolant, brake fluid, and batteries, can harm the environment and people:

- Do not use beverage containers for waste fluids - someone may drink from them.
- See your Recycling Center or authorized dealer to learn how recycle or get rid of waste products.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products: Physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your machine is responsible for providing the MSDS for that product.

## Safety Labels

## Safety Labels

### Safety Label Location



### Understanding The Machine Safety Labels



The machine safety labels shown in this section are placed in important areas on your machine to draw attention to potential safety hazards.

On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with this safety-alert symbol. DANGER identifies the most serious hazards.

The operator's manual also explains any potential safety hazards whenever necessary in special messages that are identified with the word, CAUTION, and the safety-alert symbol.

Replace missing or damaged safety labels. Use this operator's manual for correct safety label placement.

There can be more safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

### French or Spanish Safety Labels and Operator's Manual

Operator's manuals and safety labels with content in French or Spanish are available for this machine through authorized John Deere dealers.

### Warning

#### Avoid Injury From Moving Parts



- Keep hands, feet and clothing away
- Disconnect power before servicing

## Safety Labels

### Caution

Avoid Injury and Read Operator Manual Before Use



- Never remove spreader with material in hopper
- Maximum weight capacity 350 lb.

### Caution

To Avoid injury, do not ride on platform

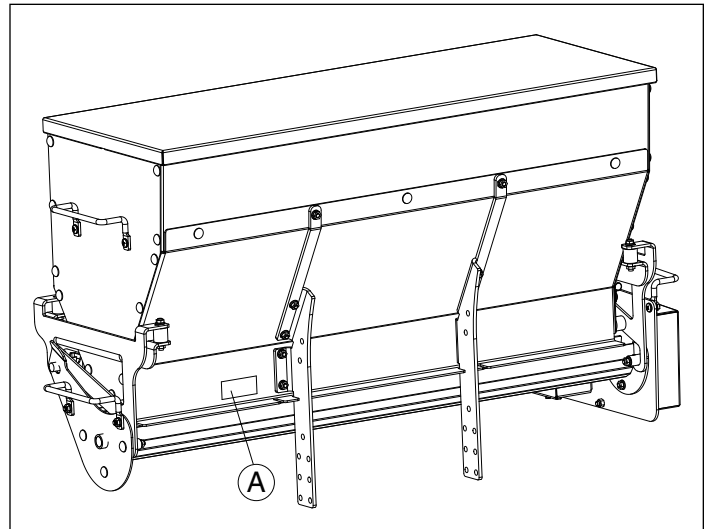


### Parts in Kit

Qty	Description
1	Spreader

### Wiring Kit

Qty	Description
1	Control Box
1	Battery Harness
1	Extension Harness
1	Spreader Harness Wire Ties



The serial number label (A) is located on the lower front right side as shown above.

### Machine Requirements

#### 2" Receiver

Maximum drop spreader weight is 540 lbs. Vehicle's receiver hitch must be rated accordingly to prevent damage to vehicle and drop spreader.

#### 3 Point Hitch

Requires category 1 three point hitch. If no front attachment is installed on vehicle, ballast may be required to stabilize vehicle. Refer to vehicle manual for proper ballasting.

## Installing

Mount the spreader to the 3 point hitch or 2" receiver. Use the grab handles located on the hopper side panels to lift into 2" receiver. It is recommended 2 people do this installation.

Connect the ring terminals on the battery harness to the battery (red positive, black negative).

Mount control box in a place convenient to operator. Four #6-32 screws on bottom of control box can be used for mounting.

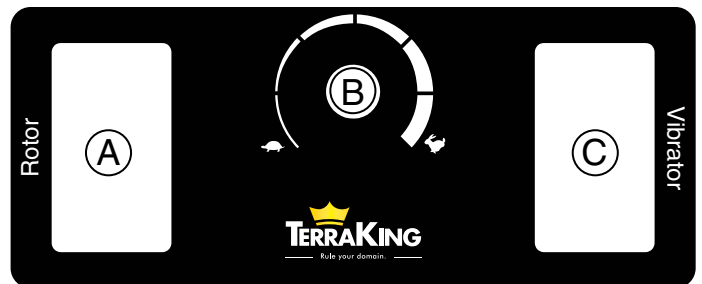
Connect two wire extension from battery harness to control box. Connect four wire extension from control box to spreader.

## Operation

Switch (A) controls the motor to start and stop the material flow. Allow motor two seconds to ramp up to speed changes or on/off inputs.

Knob (B) controls the speed of the rotor and material application rate.

Switch (C) controls the vibrator to prevent bridging and keep the material flowing faster and more evenly.



## Calibration

For proper application of the desired material the drop spreader must be calibrated. A suitable container is required to catch the material falling from the drop spreader.

1. Park the machine safely (see Parking Safely in the Safety section).
2. Ensure that all wiring is plugged in and test auger speed and vibration functions.
3. Turn off the spreader. Never make adjustments to the spreader while it is operating.
4. Place the gates near one of the middle positions to begin (see Metering Gate Adjustment).
5. Place container under the drop spreader.
6. Fill the spreader with the desired material with enough to cover the auger and lower portion of the spreader.
7. Turn the speed control knob to the desired position. Turn on the spreader and observe the spreading of the material.
8. Turn off spreader and dump spread material back into the hopper.
9. Adjust the gate position or auger speed to achieve desired material flow rate.

If the material is bridging in the hopper or not spreading smoothly, test again with the addition of vibration. The vibration will cause the material to flow better from the hopper to the auger as well as spread more evenly. The vibrator may also cause an increase in material flow rate.

## Operating

To calculate application rate:

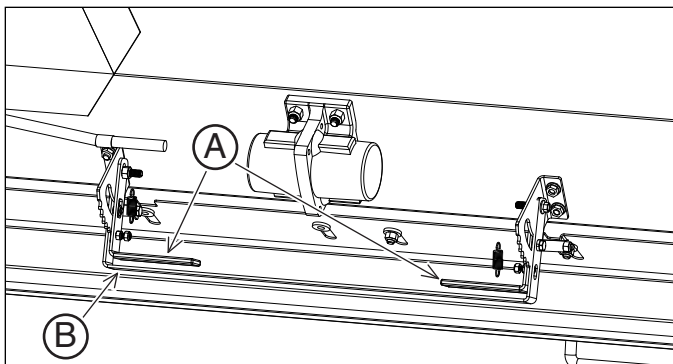
- Determine the vehicle speed that will be used.
- Place the container on a scale and make note of the weight or tare the scale.
- Measure the weight / mass of the material spread in 30 seconds. Subtract the weight / mass of the container.
- Divide lbs measured in 30 seconds by the intended speed of the vehicle in mph, and multiply by 6.06 to get lbs per 1000 ft<sup>2</sup>.

$$\frac{\text{lbs per 30 seconds}}{\text{intended vehicle speed in mph}} \times 6.06 = \frac{\text{lbs}}{1000\text{ft}^2}$$

$$\frac{\text{kg per 30 seconds}}{\text{intended vehicle speed in kmph}} \times 3.5 = \frac{\text{kg}}{1000\text{m}^2}$$

## Metering Gate Adjustment

To adjust the opening on the metering gate, squeeze lever(A) downward and rotate handle(B) to desired opening. There are 6 gate positions, each position increments the gate by approximately 1/4".



## Preventing and Clearing blockages.

Material flows best when material is free of large clumps. If a blockage occurs or material is not spreading, proceed with the following steps until the blockage is cleared.

1. Open the metering gate to a larger position and attempt to spread material again.
2. Turn on the vibrator to help break apart any clumps of material and help the material to flow into the rotor tray. Attempt to spread again.
3. If the rotor is stalled and jammed. Disconnect the spreader harness from the control box. Follow the steps in the cleaning the rotor section.
4. Disconnect power from the spreader. Remove lid and open top grate. Remove any clumped material from the hopper

## Maintenance

Before performing any maintenance, turn off the spreader and park machine safely (see Parking Safely in the Safety section). Unplug the spreader harness from the control box.

## Cleaning Rotor

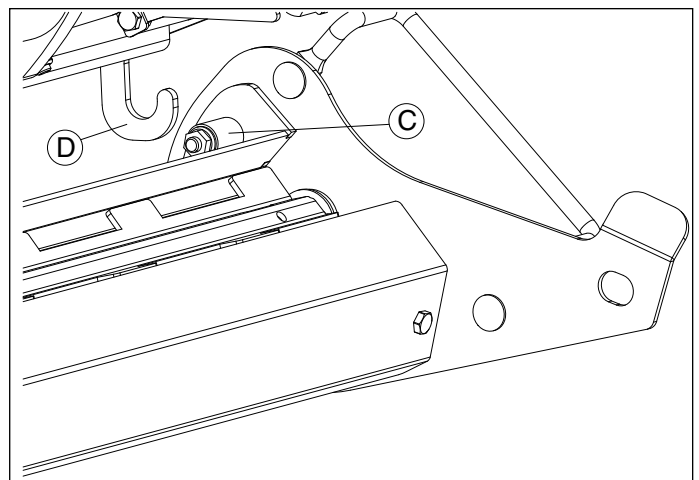
To clean the rotor area, do not reach down from the top of the machine. The tray housing the rotor is removable.

1. Disconnect the power cord (A) to the drive motor.
2. Lock out the pins (B) on both sides of the machine. When the second pin is pulled, the rear of the tray will drop.



**NOTE: It is recommended two people remove the rotor assembly**

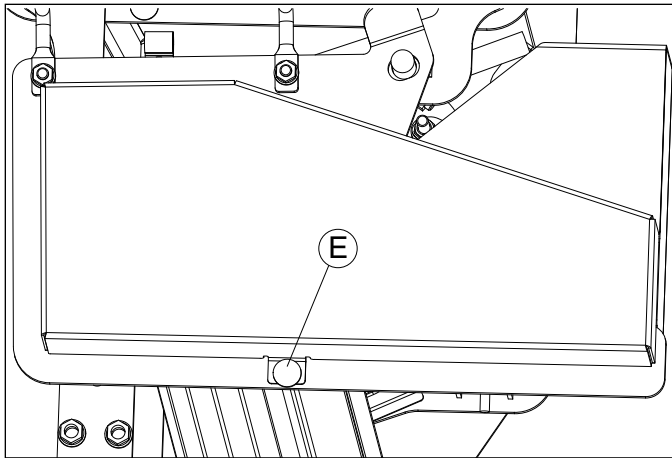
3. Lift pivot bolts (C) off the hooks (D) and the rotor can be removed for cleaning. (Left side shown above)



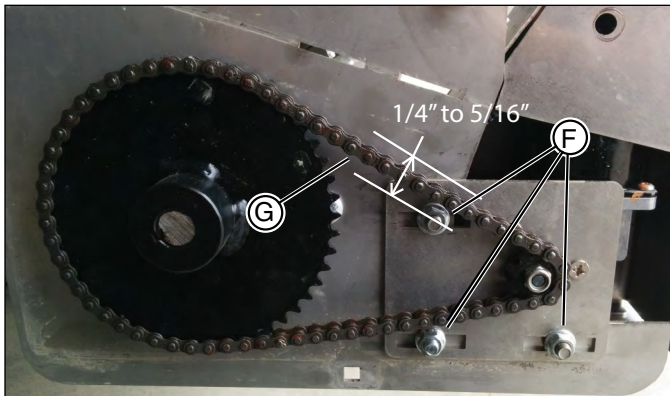
## Maintenance

### Adjusting Chain Tension

4. Remove bolt (E) and lift bottom of shield until it is rotated about 90° and pull out.



5. Loosen three bolts (F) and slide the motor mount plate rearward. The slack-side (G) tension should be 1/4" to 5/16" of midspan movement. Re-tighten three bolts.



### Chain Lubrication

Schedule chain lubrication:

- Apply lubrication upon removal from storage
- Reapply lubrication every 20 hours of use
- Apply lubrication prior to storage

### Cleaning

To protect from corrosion, clean spreader after every use with warm water and mild detergent.

Do not leave material in the spreader.

## Maintenance

Volume.....	5 cu ft (.14 cu m)
Material Capacity.....	350 lbs (159 kg)
Weight (empty, 3 point).....	191 lbs (87 kg)
Weight (empty, 2" receiver).....	180 lbs (82 kg)
Weight (maximum, full).....	540 lbs (245 kg)
Weight of rotor tray.....	48 lbs (22 kg)
Width.....	49 in (125 cm)
Depth (3 point).....	25 in (64 cm)
Depth (2" receiver).....	31 in (79 cm)
Height.....	28 in (71 cm)
Spreading Width.....	43 in (109 cm)
Rotor speed.....	1.3 to 6 RPM
Electrical.....	12 volt
Warranty.....	2 years



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## Warranty

TerraKing's products are guaranteed to be free from defects in material and workmanship from the date of purchase for two years, provided that purchaser properly assembles, installs, uses and maintains the product in accordance with this operators manual.

Purchaser's failure to adhere to such requirements will void the warranty. To the extent permitted by applicable law, all other warranties, representations, obligations and conditions, expressed or implied, including but not limited to implied warranties of merchantability, fitness for any particular purpose and non-infringement, are hereby disclaimed and excluded.

Any product which does not meet warranty shall, as purchaser's sole and exclusive remedy, be repaired or replaced by TerraKing. This warranty is not transferable. In addition, our warranty does not cover:

- Labor charges
- Loss or consequential, incidental or special damages of any kind or character

All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. TerraKing reserves the right to make changes at any time without notice.

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