

# HOW TO CHECK YOUR G4 SPREAD PATTERN



# ***NEW LEADER***

## ***G4 SPREAD PATTERN***

***UNIT SERIAL NUMBER*** \_\_\_\_\_

***MANUAL NUMBER: 305438-SP-A***

***EFFECTIVE 01/2008***

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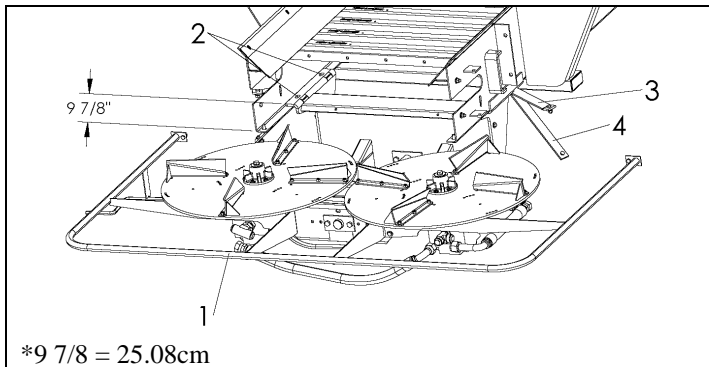
## SPINNER ASSEMBLY INSTALLATION



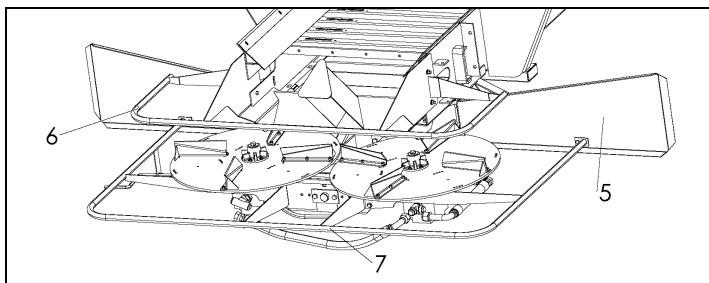
### WARNING

Keep spinner assembly supported until mounting is complete. Never exceed workload limits or use slings to lift items over people.

Use the following instructions when installing a G4 Spinner Assembly on a New Leader L5034 G4 spreader:



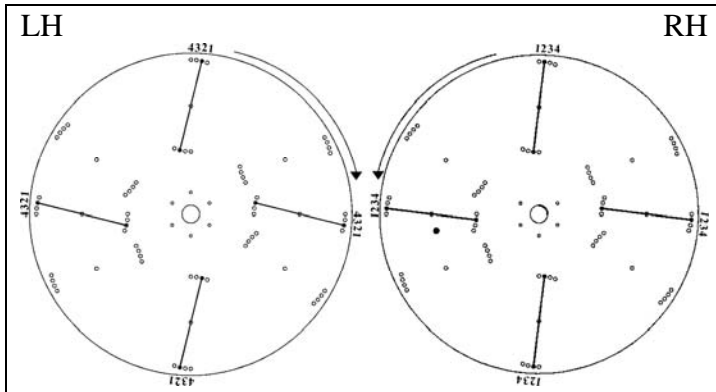
**Figure A – Spinner Assembly Installation**



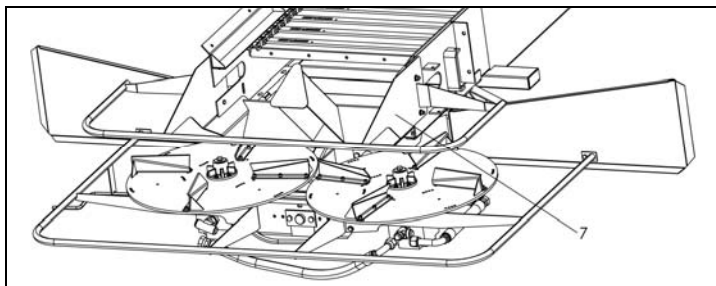
**Figure B – Shield Installation**

1. Use a suitable lifting device to hoist the spinner assembly (Item 1 - Figure A) onto the rear of the sills. Note: The spinner assembly weighs approximately 500 lbs. (154 kg) Align the spinner assembly holes with the sill holes. Insert four carriage bolts (Item 2) through holes, place shield brackets (Item 3), then stiffener bars (Item 4) on front bolts and attach with washers, lock washers and nuts. Hand-tighten only. Remove the two wooden 2 x 4's (5.08cm x 10.16cm) and hardware used during shipping.
2. Make sure the spinner assembly is square. Measure from the spinner mounting bracket that sits on the sill to the end of the sill on both sides. The distance should be approximately 9-7/8" (25.08cm) on each side as shown in Figure A. Center the spinner assembly from side-to-side by measuring from the spinner hub to the sill on each side—these two measurements should be equal. Tighten the rear bolts securely.
3. See Figure B. Install the right-hand (Item 5) and left-hand (Item 6) spinner shields on the spinner assembly and attach the shield brackets (Item 3) and stiffener bars (Item 4) to the shields using hardware provided. Attach the spinner guard (Item 7) both spinner shields with hardware provided. Tighten all shield hardware securely, including the front bolts of the spinner assembly.
4. Install the pressure, return and case drain hoses. Crank the spinner assembly all the way forward and back to make sure the hoses and fittings do not interfere with the spinner assembly as it moves. Tie all loose areas of hose together with wire ties to prevent contact with moving parts during operation.

## SPINNER ASSEMBLY INSTALLATION CONTINUED



**Figure C – Fin Location for 34” Conveyors**



**Figure D – Material Divider Installation**

5. Make sure the fins are installed on the spinner discs correctly. Position all fins in the position 2 as shown in Figure C.
6. Set spinner RPM at 550-575 for compost initially. These settings can be found using the controller in the cab. The spinner sensor will measure the spinner’s speed.
  
7. Slide the slots of the material divider (Item 8) onto both sills so material divider’s mounting tab rests on sills’ flanges. Align two holes on outside of each sill with material divider holes, insert capscrews and loosely attach washers, lock washers and nuts. Secure mounting tab to sill’ flanges with capscrews, lock washers and nuts. Tighten all hardware.

**ADJUSTING THE SPREAD PATTERN**

<b>NOTICE!</b>	Spinner assembly has NOT been adjusted at the factory. Before spreading material, spread pattern tests must be conducted to properly adjust the spread pattern. A Spread Pattern Test Kit, part number 300508, is available for this purpose. <b>THE MANUFACTURER OF THIS SPREADER WILL NOT BE LIABLE FOR MISAPPLIED MATERIAL DUE TO AN IMPROPERLY ADJUSTED SPREADER!</b>
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It is recommended that spread pattern tests be conducted prior to each spreading season, after any spreader maintenance, and periodically during the spreading season. Spread pattern tests must be performed for each product and application rate.

Spread pattern is affected by many factors. Among the more significant of these are:

1. Spinner speed.
2. Material weight per cubic foot.
3. Material flow characteristics.
4. Rate of delivery of material.
5. Point of delivery of material on spinner discs.
6. Balance between deliveries to both spinner discs.
7. Angle of the distributor fins on the spinner discs.
8. Cleanliness of the spinner fins and discs.
9. Level of spreader.
10. Wind and humidity.
11. Spacing of swaths.
12. Wear on spinner fins.

Since many of these factors will vary for each job, trial and experience must be used to determine the adjustments which must be made to obtain the spread width and spread pattern desired. The following instructions are given to cover the adjustments available and the effect that each will have on the spread pattern.

## ADJUSTING THE SPREAD PATTERN CONTINUED

### SPINNERS



#### WARNING

Use great caution while working around the spreader. Contact with spinners and other moving parts is very dangerous. Do not adjust while machinery is moving, wear eye protection and avoid discharge from spinners. Do not ride on moving spreader.

#### NOTICE!

Spinner discs and fins must be kept clean and polished. Even a small build-up on a spinner fin can significantly affect the spread pattern. Rusty, rough, bent or worn fins will produce poor spread patterns.

Fan speed is adjustable from approximately 350 to 680 RPM. This is accomplished by changing the settings in the controller.

Proper fan speed adjustment is very important in obtaining good spread patterns. The best fan speed to use will depend entirely on the material being spread, and must be determined by testing.

Pattern width will vary anywhere from 25 to 55 feet.

For every material there is a critical fan speed. In other words, there is a speed which will result in the maximum width obtainable. Going beyond this speed will not increase spread width, but will result in poor patterns.

Too high a fan speed could result in a heavy deposit behind the truck due to break-down of material. This upper speed limit will be quite low for finely powdered material, and can be quite high for extremely coarse materials. In general, this critical speed will fall somewhere between 550 and 575 RPM for ordinary materials.

One way to adjust fan speed is to watch the material leaving the fans. At slow speed the material leaves the blades in narrow bands. At medium speed it forms wide bands in the air. At somewhat higher speed, the bands close into a uniform blur. Normally, the proper fan speed is slightly higher than that when the bands close to a blur.

**TEST EQUIPMENT AND PROCEDURES**

It is recommended that a spread pattern test be performed for each product and application rate you handle. Once initial testing is completed, testing should be repeated at the beginning of every season, or any time maintenance is performed on any component affecting spread patterns.

**SPREAD PATTERN TEST KIT**

<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
300508	Spread Pattern Test Kit, includes the following:				
70890	Collection Tray	21	99418	Data Sheets	100
87200	Divider	21	300503	Screw – #6-32 x 3/8	42
300506	Rack – Tube	1	300504	Nut – Lock #6-32	42
300507	Test Tubes	21	70897	Flags	5
300505	Clip – Molded	21	87199	Rope – 120’ marked	1
87332	Funnel	1	87201	Stakes	2

Note: Larger containers will be needed.

**SPREADER PREPARATION**

The spreader to be tested shall be in good mechanical condition and properly adjusted according to the Operation and Maintenance Manual.

All damaged and worn parts must be replaced. Spinner discs and blades must be free of any material build-up, rust or paint.

Fill the hopper with the material to be spread. Run the material out to the end of the conveyor.

Set the feedgate to deliver the required rate per acre. Make sure the feedgate is level and the indicator reflects the actual gate opening measured by standing a tape measure vertically in the fertilizer.

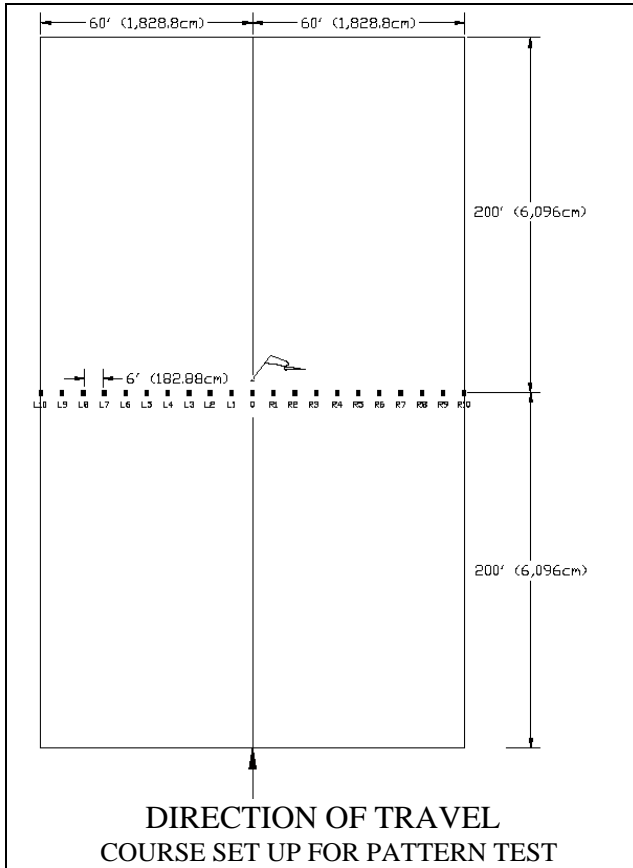
Adjust the spinner assembly by turning the crank. To begin testing, position the spinner at 3.5 for compost.

## TEST EQUIPMENT AND PROCEDURES CONTINUED

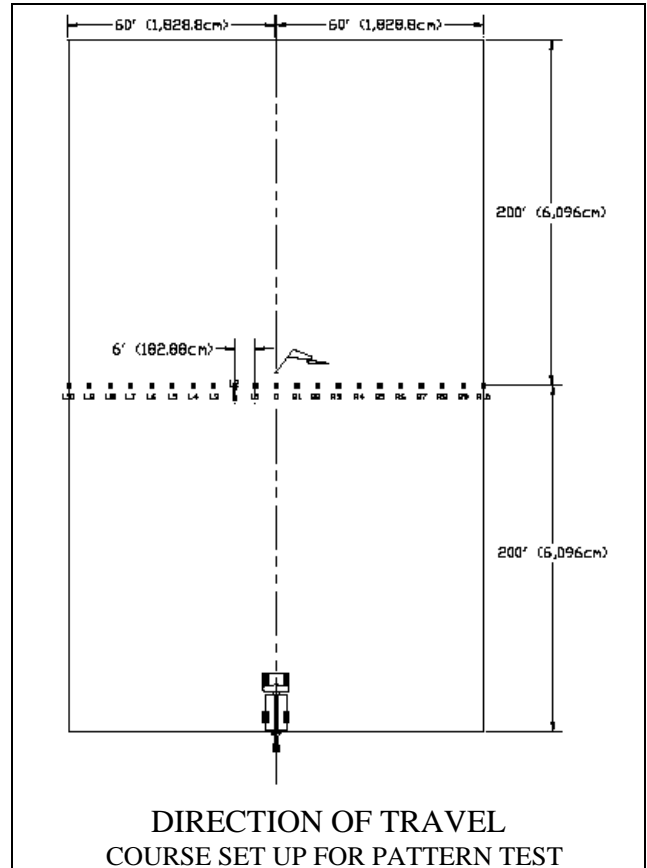
### TEST PROCEDURE

The area selected for testing, measuring 120 feet x 400 feet (3,657.6cm x 12,192cm), should have a slope of less than two degrees.

Insert a plastic grid into each of the 21 collection trays. Position the 21 collection trays on six-foot (6') (182.88cm) centers with the longest dimension of the tray parallel to the direction of travel. (Figure E)



**Figure E – Tray Positions**



**Figure F – Spreader Position**



**TEST EQUIPMENT AND PROCEDURES CONTINUED**

All testing should be done when the wind velocity is less than 5 MPH. If wind is present, testing must be done with spreader traveling parallel (within  $\pm 15$  degrees) to the wind direction.

Do not allow loaded spreader to sit for more than four hours prior to testing.

Prior to driving the spreader through the test course, it should be driven at least 450 feet (13,716cm) at spreader test speeds.

Spreader must be driven over the collection trays in **ONLY ONE DIRECTION**.

Position spreader at the beginning of the course so that vehicle will straddle center collection tray. (Figure F) Set gate opening based on desired rate/acre according to theoretical application charts supplied with each unit.

Drive spreader completely through course at normal operating speeds.

**DATA RECORDING**

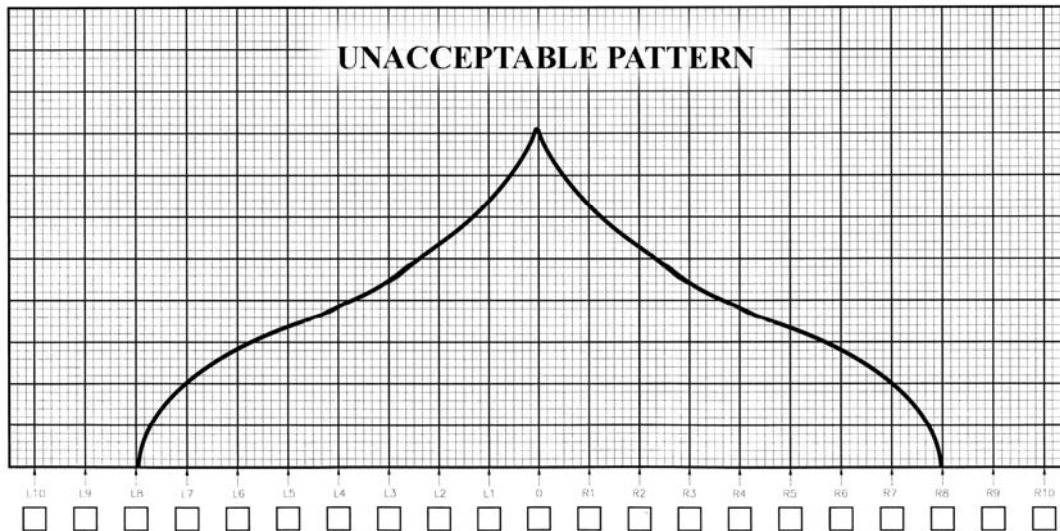
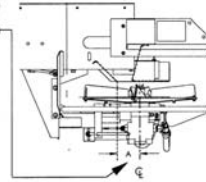
Using the data sheets supplied with the kit, document all spreader adjustments required.

Using the funnel, transfer the contents of each collection tray into its corresponding test tube beginning at one end of the trays and working towards the opposite end.

Record the volume in each test tube in the box on the data sheet under the corresponding tray position. (Figure G) **NOTE:** It is highly recommended that **ONLY ONE ADJUSTMENT** be made between test samples taken. If more than one adjustment is made, it will be difficult to determine which adjustment was responsible for the change in pattern shape.

## TEST EQUIPMENT AND PROCEDURES CONTINUED

Pattern Test No. 2 Material Used FERTILIZER Spinner Indicator Setting 3 1/2" (8.93cm)  
 Site HECO Weight/Cu.Ft. 60# Drop-off Point to CL Distance 2" (5.08cm)  
 Date 12.06.07 Rate/Acre 200 Blade Settings 2 1 2 1  
 Spreader Model L3020G4 Gate Opening 2 1/2 Spinner Valve Setting 7  
 Conveyor Type #4 Wind: From      at      MPH Spinner RPM 700



Pattern Test No. 2 Material Used FERTILIZER Spinner Indicator Setting 3 3/4" (9.53cm)  
 Site HECO Weight/Cu.Ft. 60# Drop-off Point to CL Distance 2" (5.08cm)  
 Date 12.06.07 Rate/Acre 200 Blade Settings 2 1 2 1  
 Spreader Model L3020G4 Gate Opening 2 1/2 Spinner Valve Setting 7  
 Conveyor Type #4 Wind: From      at      MPH Spinner RPM 700

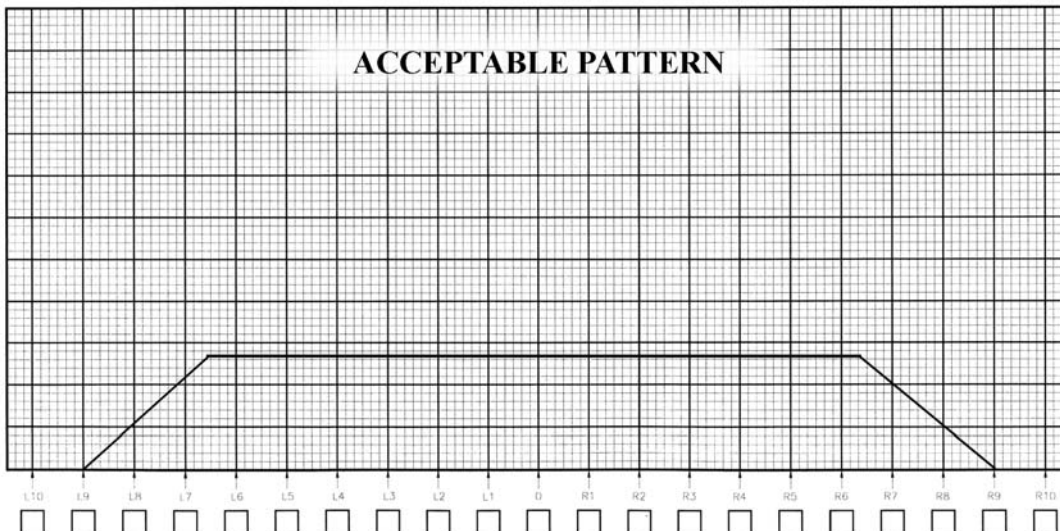
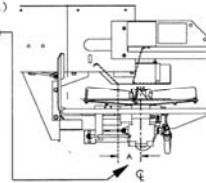


Figure G – Spread Chart Example

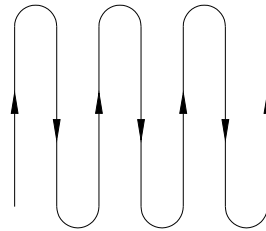
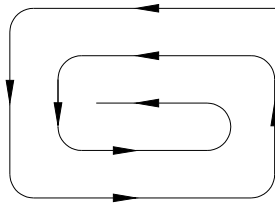
## TEST EQUIPMENT AND PROCEDURES CONTINUED

Once you attain a desirable pattern (Figure K), optimum-driving centers can be determined. To determine optimum driving centers (effective swath width), locate the points on both the left and right side of the pattern where the amount of material applied is half the amount at the center of the pattern. The distance between these two points represents the driving centers to be used.

When blended fertilizers are being applied, a visual inspection of the samples should be made to determine whether the blend within the effective swath width is consistent with the desired blend. If the blend is not consistent, a narrower overall swath width should be used and a new optimum driving center (effective swath width) should be determined.

Once the effective swath width has been established, a change in the processor may be required.

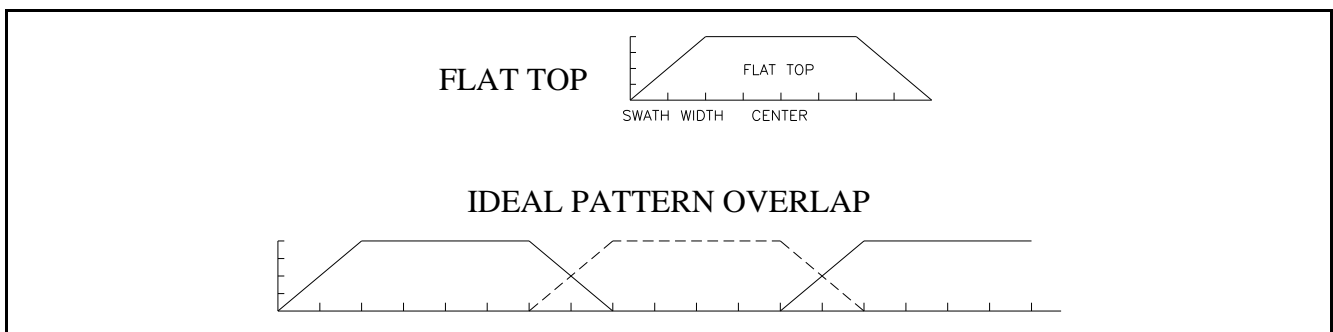
### DRIVING METHODS



**Figure I – Perimeter Method      Figure J – Switch Back Method**

The perimeter (Figure I) and switch back (Figure J) driving methods are both acceptable.

NOTE: Utilizing the switch back method amplifies non-symmetrical patterns by blending right side on right and left side on left. The perimeter method compensates for non-symmetrical patterns by blending the right side of the pattern with the left side of the adjacent pattern or vice versa.



**Figure K – Ideal Pattern**

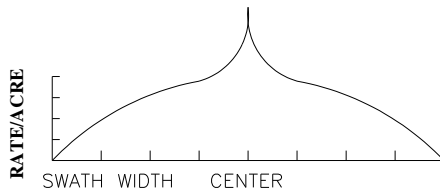
## TROUBLESHOOTING

### PROBLEMS

### PATTERNS

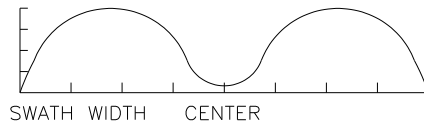
### RECOMMENDED ADJUSTMENTS

Heavy Directly Behind the Vehicle



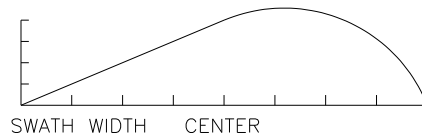
1. Move the spinner forward (toward the conveyor).
2. Decrease spinner RPM.
3. Move one or two spinner blades to a lower numbered hole.

Light Directly Behind the Vehicle



1. Move the spinner rearward (away from conveyor).
2. Increase spinner RPM.
3. Move one or two spinner blades to a higher numbered hole.

Pattern Off Center



1. Check to see feedgate is level and free of caked material.
2. Check to make sure individual spinner speeds are equal.
3. Check to be sure spinner assembly is mounted squarely and centered.
4. Testing should be done parallel to wind.