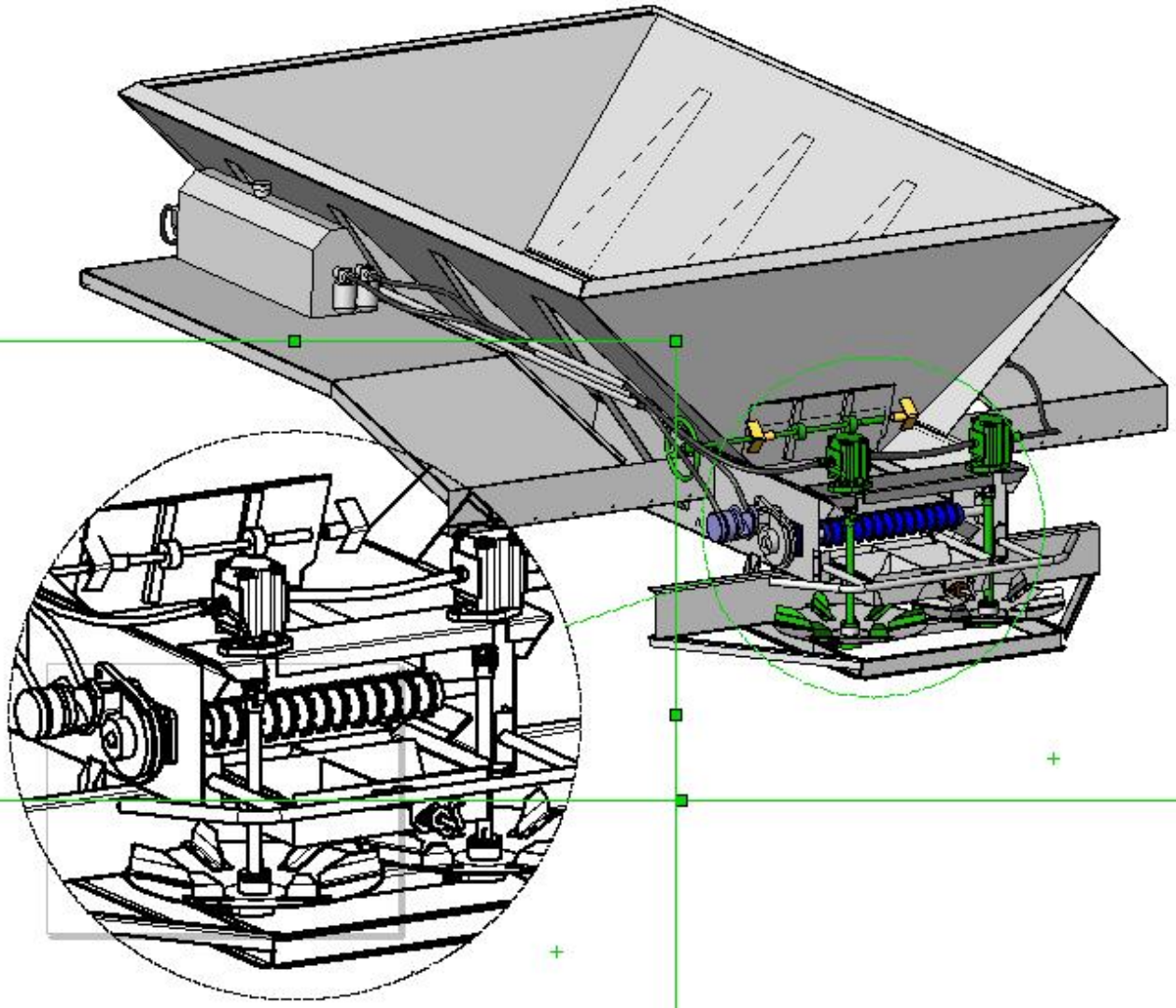
MagnaSpread

Hydraulic Truck Mount

Owners Manual



SALFORD BBI

TABLE OF CONTENTS

TO OUR CUSTOMERS

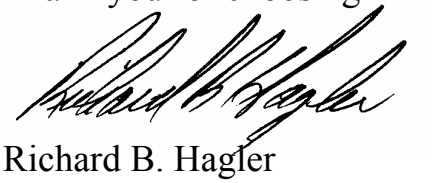
The BBI team takes pride in producing superior spreaders that will provide many years of service. Components are selected for their proven performance record and availability. Our skilled employees give special attention to detail in design and assembly to make certain our equipment will meet or exceed your expectations.

Our parts department stands ready to serve you with replacement parts at affordable prices. We stock a large inventory to assure support for our customers, and take pride in offering "same day service" for those orders received before mid-afternoon.

At BBI, we provide quality service with a friendly atmosphere. Our dealers can offer service assistance, or we can be contacted directly. We strive to quickly provide solutions for your needs in order to minimize any downtime or delays.

At BBI we take safety very seriously. Great concern is given to reduce any potential safety issues, whether with equipment or in the work place. Our equipment is designed to minimize pinch points and provide guards where they do exist. Decals are placed on our equipment to identify and caution against areas of pinch points and hazardous moving parts. Please be sure that those who operate BBI equipment are properly trained. *Never conduct maintenance or repairs unless the equipment is fully disabled with the power source turned off. Never stand inside or behind the unit while in operation or moving.* Our spreaders are designed to project materials from 30 to 90 feet, depending on the specific equipment; and *standing too close can result in injury. Please use extreme caution when operating all farm equipment.*

Thank you for choosing BBI spreading equipment. You will be glad you did.



Richard B. Hagler
President

"Spreaders That Work as Hard as You Do"

WARRANTY

Barron & Brothers International warrants all products manufactured by it to be free from defects in material and manufacturing at the time of shipment AND for an additional period of One Hundred Eighty (180) days, from the date invoiced to our direct customer or the dealer's customer AND provided the total period does not EXCEED One (1) Year from the date invoiced to the dealer. On parts manufactured by another vendor (i.e., motors, pumps, axles, etc.), the parts will be subject to the original manufacturer's warranty AFTER expiration of Barron & Brothers International's One Hundred Eighty Day (180) Warranty.

Barron & Brothers International's warranty SHALL BE VOID AND NOT APPLY to any product which has been subject to misuse (including but not limited to overloading), misapplication, neglect (including but not limited to improper maintenance), accident, improper installation of parts, modification of the unit, improper adjustment, or improper repair of the unit. All parts to be warranted by Barron & Brothers International must be returned to the factory for inspection and final disposition.

NOTE: THE PART ON QUESTION MUST BE RETURNED WITHIN 30 DAYS FOR CREDIT TO BE ISSUED!!

Barron & Brothers International's liability for its equipment, whether due to breach of warranty, negligence, strict liability, or otherwise, is LIMITED to providing a replacement part(s) in exchange for the defective part(s) AND Barron & Brothers International will not be liable for any injury, loss, damage, or expense, whether direct or consequential, including but not limited to loss of use, income, profit, or production, OR the increased cost of operation.

PARTS

Use only genuine Barron & Brothers International Parts!
Order them from the *Authorized Dealer* in your area.

When placing an order, please have available:

1. The pertinent model and serial number of the spreader.
2. The part name, part number, and the quantity required.
3. The correct street address to where the parts are to be shipped and the carrier if there is a preference. We cannot ship to P.O. boxes.

Shipping Damage

Claims for shortages or errors must be made immediately upon receipt of goods. When broken or damaged goods are received, a full description of the damage must be made to the carrier agent on the freight bill. If this is insisted upon, full damage can always be collected from the transportation company. Please contact BBI as soon as possible after carrier is notified.

If your claims are not being handled by the transportation company to your satisfaction, please contact our Customer Service Department at 1-800-282-3570 for assistance.

SAFETY WARNINGS

Please read and understand this manual before operation.

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THAT OF OTHERS, FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN INJURY OR DEATH.

In this manual and on the safety signs placed on your spreader, the words " DANGER," WARNING," "CAUTION," and "IMPORTANT" are used to indicate the following:

DANGER!

Indicates an imminently hazardous situation that, if not avoided WILL result in death or serious injury. This signal word is to be limited to the most extreme situations and typically for machine components that, for functional purposes, cannot be guarded.

WARNING!

Indicates a potentially dangerous situation that, if not avoided, COULD result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION!

Indicates a potentially hazardous situation that, if not avoided, MAY result in minor or moderate injury. It may also be used to guard against unsafe practices.

IMPORTANT!

Is used for informational purposes in areas that may involve damage or deterioration of equipment and would generally not involve personal injury.

The need for personal safety cannot be stressed enough. At Barron & Brothers, Int'l. we strongly urge you to make safety your top priority when operating any equipment. We firmly advise that anyone allowed to operate our equipment must be thoroughly trained and tested to prove that they understand the fundamentals for safe operation.

The following guidelines are intended to cover general usage and to assist you in avoiding accidents. There will be times when you will run into situations that are not covered in this section. At those times the best standard to use is common sense. If, at any time, you have a question concerning these guidelines, please call your authorized dealer or our factory at (800) 282-3570.

AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home, or on the highway, are caused by the failure of an individual to follow simple and fundamental safety rules and precautions. For this reason, most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT. THE COMPLETE OBSERVANCE OF ONE SIMPLE RULE WOULD PREVENT THOUSANDS OF SERIOUS INJURIES EACH YEAR. THAT RULE IS:

NEVER CLEAN, OIL, OR ADJUST A MACHINE WHILE IT IS UNDER POWER.

--National Safety Council

CAUTION!

If the spreader is used to transport chemicals, check with your chemical supplier regarding the DOT (Department of Transportation) regulations

SAFETY DECALS

DECAL MAINTENANCE INSTRUCTIONS:

1. Keep safety decals and signs clean and legible at all times.
2. Replace safety decals and signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety Decals are available from your local dealer's Parts Department or our factory.

HAZARDS TO AVOID:

1. Refrain from wearing loose fitting clothing on or around this piece of machinery. There are many places that loose clothing may become wrapped or pulled into devices.

2. Be aware of any moving parts on this machinery. Make sure that any person or persons on or around this piece of machinery are aware of the dangers as well. There are many places where injury may occur. Learn your unit and the dangers of it. Always use caution in the operation of this piece of machinery.

3. Be sure that any individuals operating this equipment are trained and are aware of the dangers of this equipment.

4. Check for rocks, sticks, or anything of solid mass that may cause bodily harm to you or damage your unit.

5. Never work on or repair this piece of equipment while it is running. The P.T.O. and/or any other power source must be completely disengaged while working on this unit.

6. Those working around this unit should remain at least 100 feet from it while it is in operation. The fans are able to propel objects at a high speed up to this distance.

7. Use extreme caution while operating the driven portion of this unit. Its size may limit your field of vision.

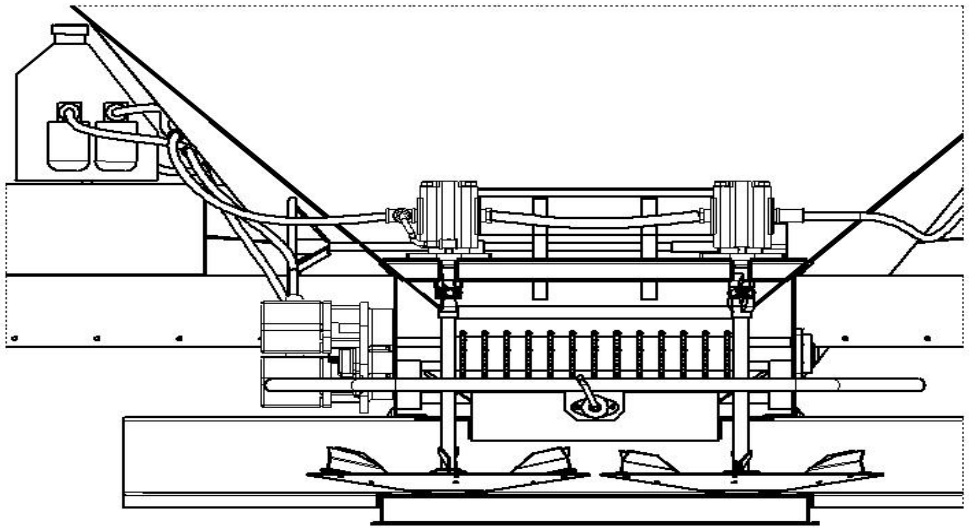
8. Never allow a leak of hydraulic fluid to persist. Hydraulic fluid is kept under very high pressure, and may cause serious injury if it hits the facial area, especially the eyes.

9. Shut down the entire system before checking hydraulic fluid level, or adding fluid to the system.

INITIAL STARTUP

Check over entire unit to be sure all guards and fasteners are in place and fasteners are properly tightened**. NOTE: Stand clear of moving machinery. Do not load spreader with material.**

1. Check to be sure that no loose parts or other material are in the hopper, on conveyor, or on spinner. Be sure to remove any loose pieces and ensure all guards are in place.
2. Check to make certain that no one is within 50 feet of the spinners. Engage PTO, which in turn engages the spinners.
3. Engine RPM should be increased to same as when running. Set spinners to desired speed.
4. Open feed gate to appropriate spread rate (reference chart on side of hopper).
5. Engage conveyor drive system.
6. Begin road testing spreader.



DO NOT check leaks with hands while system is operating, as high-pressure oil leaks can be dangerous! DO NOT check for leaks adjacent to moving parts while system is operating, as there may be danger of entanglement.

If your unit has a self-contained hydraulic system, check the oil reservoir and refill as required. **IMPORTANT!** Change the hydraulic oil filter after the first week or 50 hours of operation.

ROAD TEST

Prior to first use of the machine, prior to each spreading season, and following any major repair or overhaul, the machine should be road tested to verify that all systems and components are functioning properly. Road testing may be done on any suitable course that will allow the spreader to be driven at similar speeds to be used during spreading. The following procedure is offered as a guide.

CAUTION! To observe conveyor and spinner speeds while vehicle is in motion, proper safety precautions should be taken. These may include use of suitable mirrors clamped to permit observation by a safely seated observer, following the spreader in another vehicle at a safe distance or other suitable means. DO NOT stand in the body or on any part of the spreader, as there is danger of falling off vehicle or into moving machinery. Use great care while performing this test.

GENERAL OPERATING PROCEDURES

To operate the spreader, the following sequence should be observed:

1. Be sure the unit has been serviced and is in good operating condition.
2. Disengage the PTO.
3. Fill the body with material to be spread.
4. Drive to the location where spreading is to be done.
5. Adjust the unit's hydraulic control valve (priority valve) to the setting required for the material used, based on the desired spread pattern.
6. Adjust the material flow divider to provide proper delivery to spinners.
7. Set the feed gate opening to obtain the desired yield.
8. Engage the PTO
9. Drive at a speed that allows the engine to run at a proper RPM and maintain good control for the terrain.

ADJUSTING YOUR SPREADER

IMPORTANT! Spinner assembly and material flow dividers have not been adjusted at the factory. Before spreading material, spread pattern tests must be conducted to properly adjust the spreader. THE MANUFACTURER OF THIS SPREADER WILL NOT BE LIABLE FOR MISAPPLIED MATERIAL DUE TO AN IMPROPERLY ADJUSTED SPREADER.

It is recommended that spread pattern tests be conducted prior to each spreading season, after any spreader maintenance, and periodically during the season. Spread pattern tests must be conducted whenever a new product is to be applied.

The spread pattern is affected by a variety of conditions including:

1. Spinner speed.
2. Point of delivery of material to the spinner dishes.
3. The condition of the fins on the spinner dishes (i.e. damaged, bent, broken, rusted, dirty, etc.)
4. Material granule size.
5. Material flow characteristics.
6. Material weight per cubic foot.
7. Rate of delivery of material.
8. Balance between deliveries to both spinner dishes.
9. Cleanliness of the fins and the dishes themselves.
10. Level of spreader.
11. Wind.

Because most of these characteristics will change with each load of material being spread, a certain amount of experience mixed with some testing will determine the adjustments needed to obtain the spread width and pattern desired. Detailed information is provided in later sections on how to read the conditions you have and how to make changes to get the spread pattern you need.

FERTILIZER CALIBRATION

General Factors That Affect Spread Patterns:

Fertilizer Size and Density

The particle size will also determine the maximum spread pattern width. The spread pattern can vary anywhere from 25 ft for powder type materials such as lime or up to 60 ft for fertilizer pellets.

Large, dense particles will be thrown further than finer materials with lower density. Even after un-sized fertilizer has been thoroughly blended, segregation will occur during the spreading.

Size is more important than density in determining the distance a particle is thrown. For example, granular urea is less dense than potash or phosphate materials, but it has a larger particle. In most cases when spreading a blend, a higher percentage of urea will be found on the outer edge of the spread pattern.

Driving at an interval to obtain a 100% overlap will minimize the effect of segregation (See *Diagram A*).

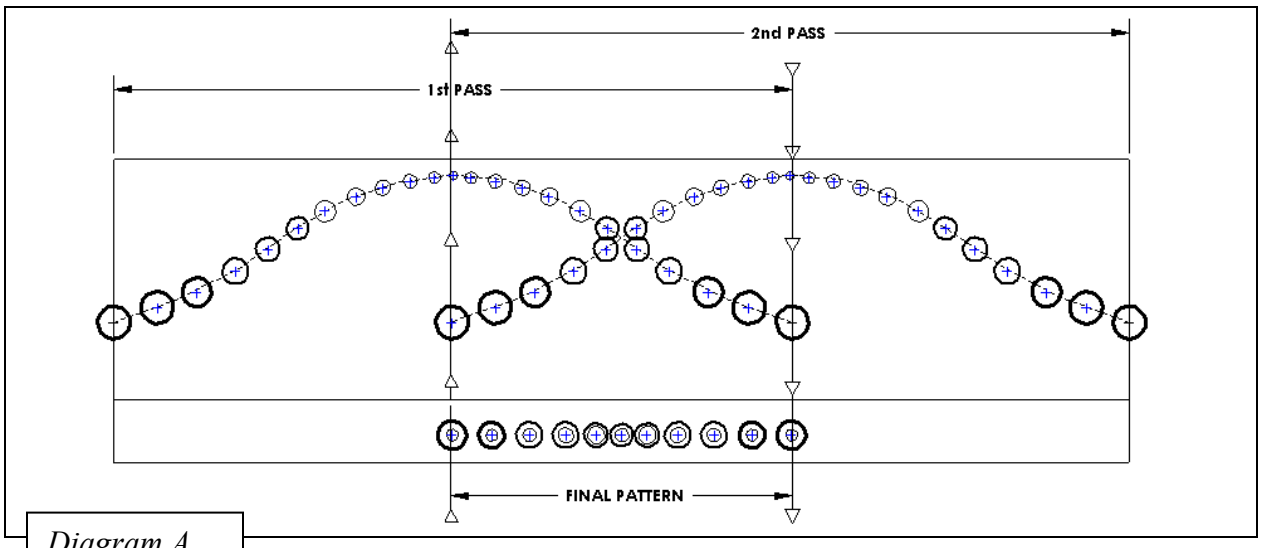


Diagram A

Application Rate and Ground Speed

These two factors combine to produce a flow rate. Drivers should avoid situations where both factors are high. As application rate is increased, ground speed should be lowered accordingly. When both ground speed and application rates are high, too much material is delivered to the spinner. When this happens the material will dribble off the spinners instead of being thrown, causing a heavy swath directly behind the spreader.

Generally, the best spread patterns are obtained when a spreader is operated at 5-10 mph.

Spinner RPM

Spinner speed is adjustable from approximately 400 to 900 RPM. However, spinners should be operated at approximately 550-650 rpm. As spinner speed is increased within the recommended range, the spread width will widen. This is a function of the hydraulic spinner system, which can be controlled by the priority valve.

Driving Interval

Variations in material being spread will change the swath width of any particular spreader. *Diagram B* shows the effect of driving interval on the fertilizer distribution across the field. BBI truck mounted spreaders are designed to run on a 30-40 foot swath spreading lime and approximately 60 feet spreading blended fertilizers. You can vary the swath widths as you become familiar with it and run your particular types of materials.

Effect of Driving Interval on Fertilizer Distribution

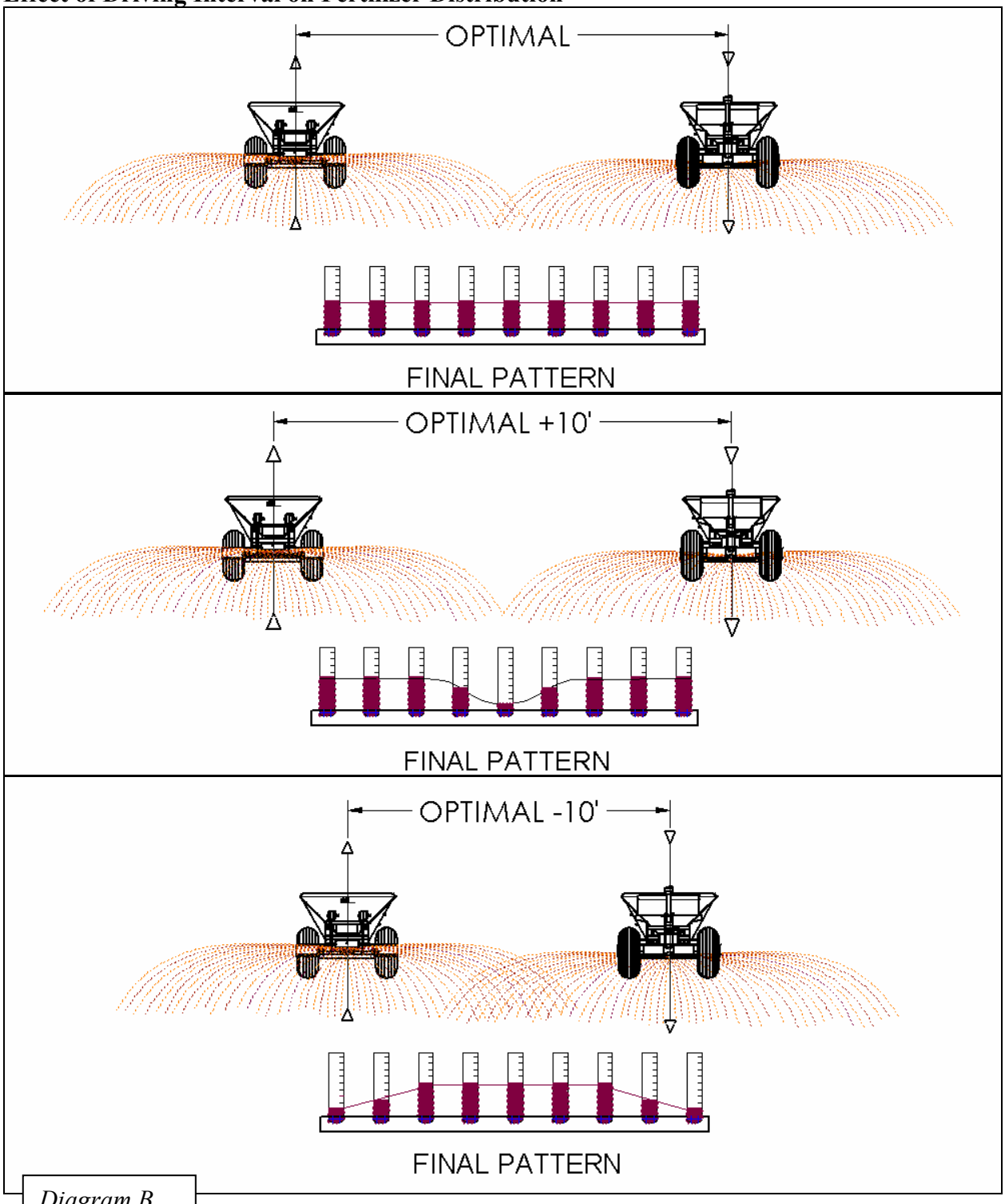


Diagram B

(Arrows indicate the direction of travel of the spreader.)

Slope of Land

Spreading fertilizer up or down hill may cause the materials to be placed on a different area of the spinner, thus changing the spread pattern. Spreaders with discharge chutes extending down close to the spinners and having small openings through which fertilizer falls on the fans reduce the variation due to slope.

On hillsides, the spreader will throw material further down hill than up. However, this just shifts the spread pattern sideways and subsequent passes overlap properly. It is important to divide the flow of the fertilizer equally between both distributors. This is accomplished with a center divider, which extends from the flow divider to the gate.

Humidity

This causes fertilizer to adhere to flow divider and spinner blades. This build-up of material will change the spread pattern. More of a problem is the fertilizer that adheres to the conveyor chain and is carried forward under the spreader. This fertilizer falls off in a narrow streak and will show up as a difference in crop growth. Any build-up of fertilizer on the spreader should be cleaned off when it first begins to form.

Wind

When the wind is with or against the direction of travel it does not offset the spread pattern too much. A crosswind will shift the entire pattern sideways. The final pattern remains reasonably accurate for wind up to 15 mph. Crosswinds have more of an affect on lower density materials. *Diagram C* shows how wind can affect spread patterns.

Effect of Cross Wind

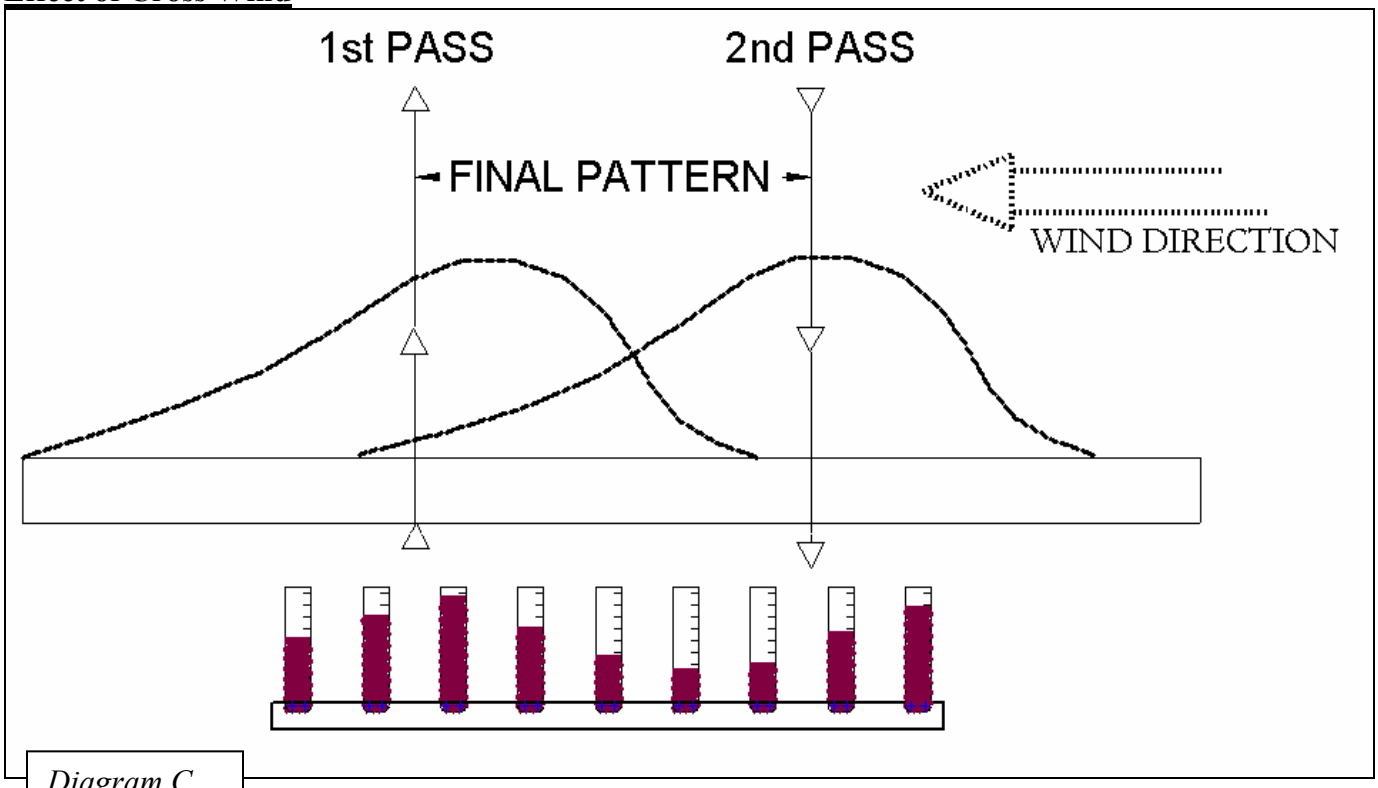


Diagram C

HOW TO CHECK A SPREAD PATTERN

Spread Pattern Test Kit

The test kit used for checking spread patterns contains the following items:

- 13 plastic pans (14" x 18") with 5" sides
- 13 plastic test tubes with ¾" opening
- 1 test tube rack
- 1 tape measure
- 1 funnel
- 1 weigh cup to determine weight per cubic foot or five gallon bucket

Setting up the Test Area

The test area should be 250 feet in length and as wide as necessary, depending on the swath width of the spreader to be checked.

Use the chart below to determine the interval that the pans should be placed. A swath width from 30'-80' will be sufficient to check most spreaders.

SWATH WIDTH	NUMBER OF PANS NEEDED	INCHES BETWEEN EACH PAN (center to center)
30'	7	60"
35'	8	60"
40'	9	60"
45'	10	60"
50'	11	60"
55'	12	60"
60'	13	60"

Lay out test pans on a level area so the spreader can be driven into or with the wind. If the wind is greater than ten miles per hour, a spread pattern check should not be attempted.

Position the pans so the spreader can be running at least 100' before it reaches them and can continue spreading 150' beyond the pans. Place a marker at the beginning and end of the test area as guides for the operator.

Level the pans and place them at essentially the same height. Place a marker at the center of each pan so after the pans have been picked up they can be placed back in their original position without measuring. *Diagram D* shows the area requirements for a 50' spread pattern test.

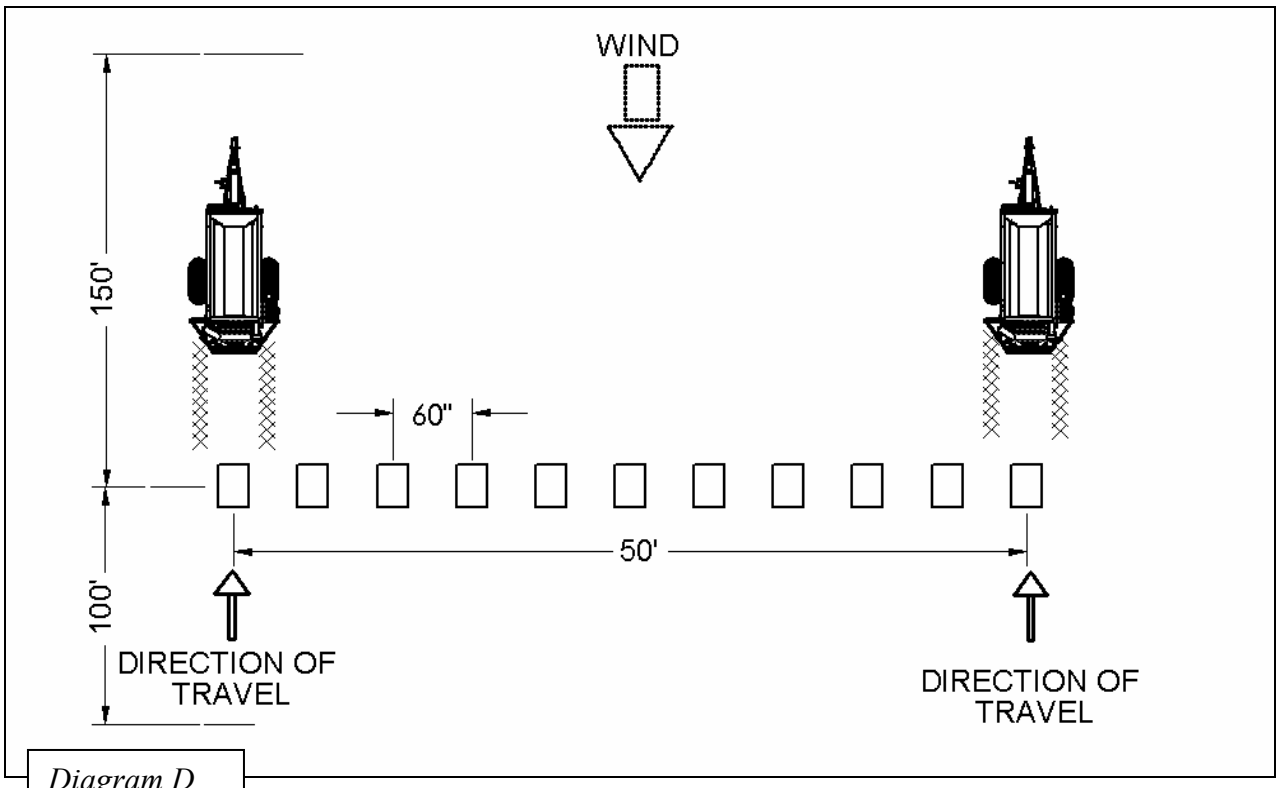


Diagram D

Reviewing The Spread Pattern

Select the application rate, which is common to your operation. To get a good spread pattern check, 200-400 pounds per acre is adequate. For a single check, 25 pounds of fertilizer per 100 pounds per acre application rate will be needed. Potash can be used for the checking because it is less expensive than other materials. Once the spreader is set to give an even distribution of potash, other fertilizer materials such as urea and blends should be used to see if the pattern differs.

When loading the spreader, care should be taken to place the fertilizer materials against the gate.

Fill the scale, included in the test kit, with material to be spread. Balance the scale on a nail or knife to find the weight per cubic foot.

OR

If you do not have a hand held scale, simply weigh a 5-gallon bucket of your material and subtract the weight of the bucket (or tare weight). Multiply this weight by 1.5 to get 7.5 gallons of material, which is equal to 1 cubic foot.

The charts on the spreaders refers to material in “weight per cubic foot”

Determine the gate setting by using the chart on side of the spreader hopper. Note: fertilizers usually weigh 60-65 lbs. per cubic foot and lime usually weighs approximately 90 lbs. per cubic foot.

Begin operating the spreader 100’ before the pans. Straddle each end pan with the spreader and drive 150’ past the pans before stopping the spreader.

Using a funnel, empty each pan into its corresponding test tube.

Numerically record the amount and plot the results on the graph paper provided with the kit.

EFFECTIVE SWATH WIDTH

The effective swath width is the interval that a particular spreader should be driven to obtain uniform application. Driving at an interval other than an effective swath width will result in a non-uniform application (*Diagram B*). The effective swath width will vary with the type of material being spread and the rate per acre it is applied. Spread pattern checks should be made before different fertilizer materials are spread.

There are basically three acceptable spread patterns, the flat top, pyramid and oval (*Diagram E.*) With the correct swath spacing, all of these will give a uniform rate of application throughout a field.

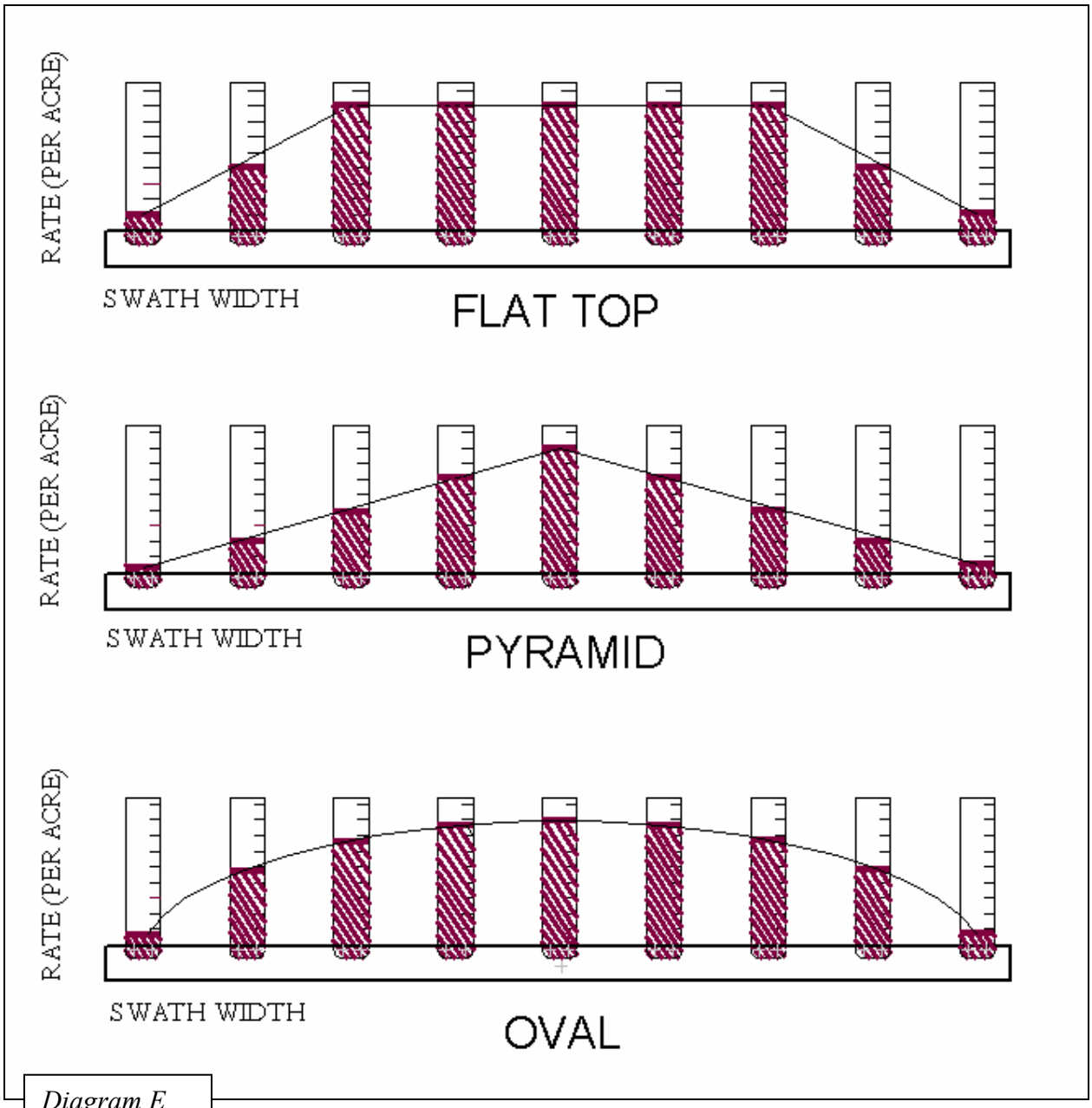


Diagram E

When one of these patterns is obtained, further adjustment is unnecessary and the effective swath width can be determined.

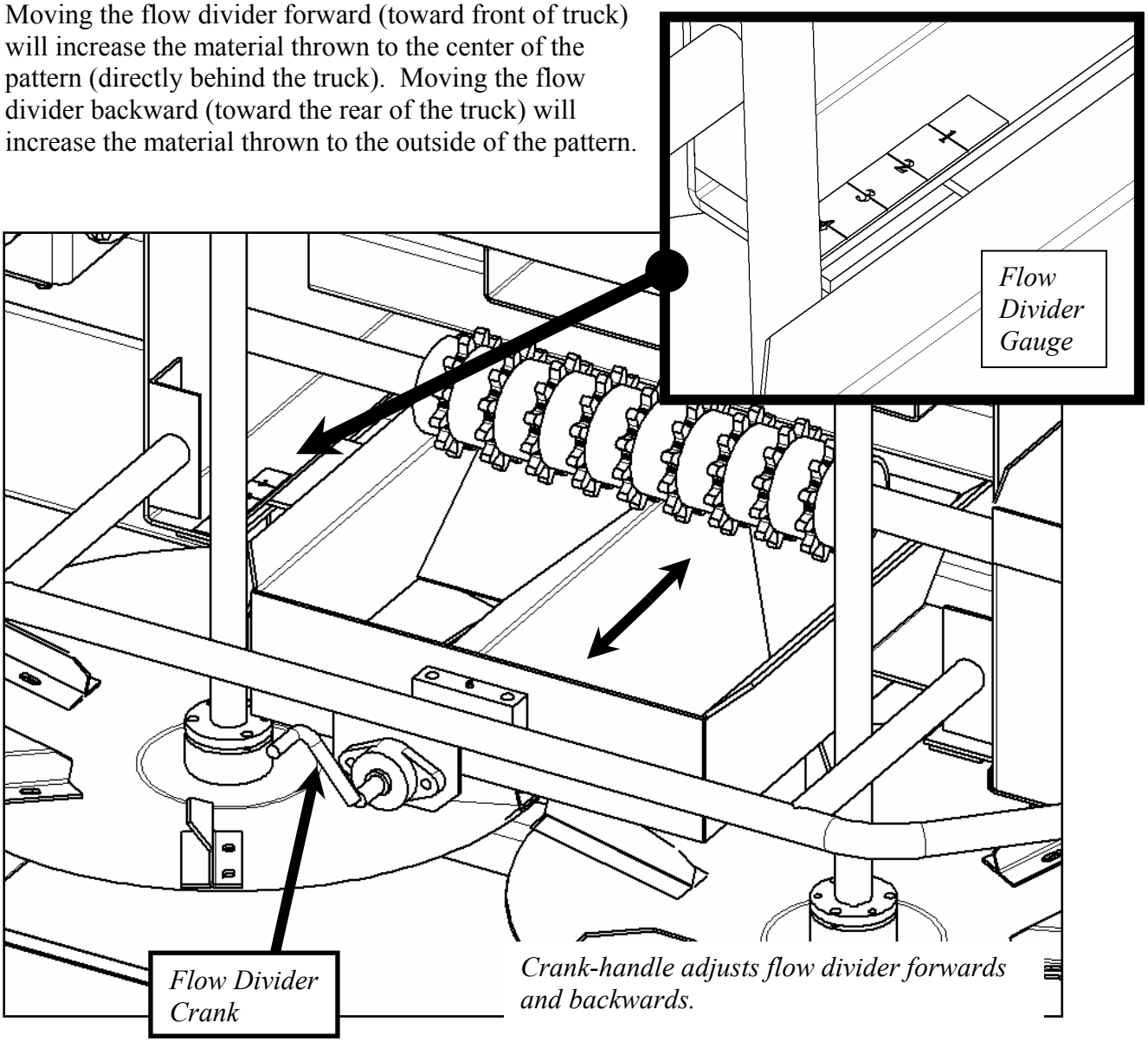
FINE-TUNING SPREAD PATTERNS

A spreader can have three main adjustments: an adjustable material flow divider, movable spinner blades on some models and the spinner rpm. On standard units, the flow divider is the main control. Keep in mind that adjustable components are all interrelated, which means changing one may cause others to be affected in unexpected ways.

MATERIAL FLOW DIVIDER

The purpose of the flow divider is to funnel fertilizer materials from the conveyor chain to the spinners. It is designed to place the material on a specific location on the spinners. It is adjustable forward and backward using the Crank Handle above and in the center of the spinners. A good starting point for setting the flow divider is on "3". From there you can adjust it forward or to the rear as needed.

Moving the flow divider forward (toward front of truck) will increase the material thrown to the center of the pattern (directly behind the truck). Moving the flow divider backward (toward the rear of the truck) will increase the material thrown to the outside of the pattern.



Crank-handle adjusts flow divider forwards and backwards.

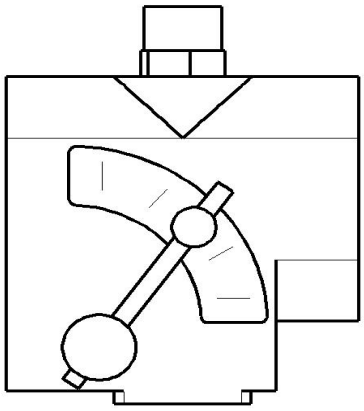
Spread patterns can also be adjusted by moving the point of delivery toward the outer edge of the spinner or into the center. Placement of fertilizer near the outer edge of the spinner will increase the amount of fertilizer deposited behind the spreader. Shifting the point of delivery to the center of the spinner will increase the amount of material thrown to the sides.
The material divider should be adjusted in conjunction with spinner speed to obtain the best spread pattern. Trial and error will help determine the correct position most of the time. After experience is obtained with a variety of materials, the trial and error will become less and less of an effort but never completely eliminated.

SPINNERS

Proper spinner speed adjustment is very important in obtaining good spread patterns. Its use will depend entirely on the material being spread. Once set for a particular material, use a marker to label the location of the flow control lever so as to avoid having to rerun the trial and error testing for that particular material again.

Spinner Speed

On hydraulic driven spinners, the speed is controlled by a priority valve. The priority valve can be adjusted to regulate a constant spinner speed, as long as enough oil is being supplied by the pump. The amount of oil being supplied to the spinner system is directly related to the truck's engine RPM's. If engine speed is too slow, then spinners will not have sufficient oil supplied to keep them at the desired speed. Engine speed requirements will differ for individual trucks depending on the percentage of the P.T.O. and pump size.



The hydraulic flow control (priority valve) regulates spinner speed.

Spinner speed will vary depending on the type of material being spread. The size and weight of the particle determine the speed required. Too high a spinner speed will dump everything behind the truck. For finely powdered materials the speed will be fairly low but for large particle materials, the speed may be very high. In general, the speed will probably be in the range of 550 to 650 RPM.

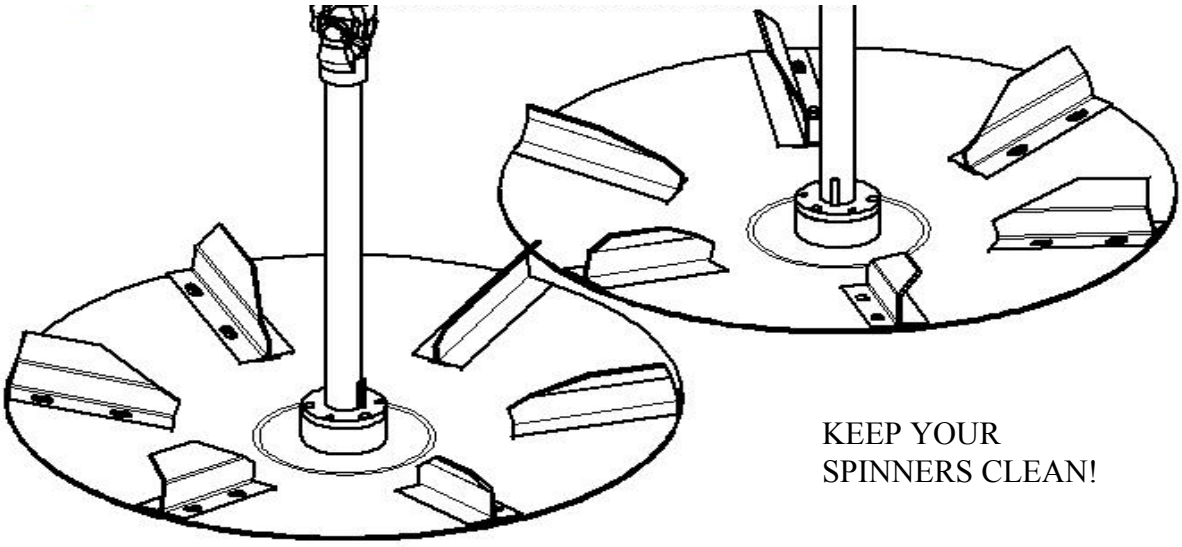
Predicting how an increase or decrease in spinner speed will affect the pattern of distribution is difficult. This adjustment should be made only after other methods of adjustment fail to give a satisfactory pattern. Increasing spinner speed may increase or decrease the material directly behind the spreader, depending on the material being spread, the original spinner RPM, and type of blade setting. Adjustments with spinner speed will be by trial and error and is less predictable than other means of adjustment.

Perhaps the best way to adjust the spinner speed is to observe the way material spins off the spinner. At slow speed the material leaves the blades in bands. At medium speeds it forms wide bands in the air, and at higher speeds the bands form into one thick blur.

Spinner Blades or Fins

IMPORTANT! **Keep your spinners clean.** The smallest amount of build-up, rust, or anything that causes a rough surface will affect the outcome of the spread pattern.

The purpose of the spinner blades is to catch the material deposited on the spinner and guide it so the fertilizer is thrown off at the proper angle.



KEEP YOUR
SPINNERS CLEAN!

Spinner blades, or fins, are formed in a manner to give an effective loft and trajectory of material. However, in time, they will wear and disfigure from the abrasiveness of the materials. Excessive wear can cause an uneven spread pattern. Worn fins should be replaced before they affect the spread pattern. They can be purchased from your nearest dealer or by calling our BBI parts department.

CAUTION! Contact with spinners and other moving parts is very dangerous. Please exercise caution when working around the spreader. Stand clear of the discharge coming off the spinners. Do not ride on a moving spreader. Do not make adjustments while the machinery is moving. **Always wear eye protection.**

DO NOT STAND ON THE FENDER WHILE THE SPREADER IS IN MOTION

Troubleshooting

Here are some common results of spread pattern tests and how to correct them.

Pattern 1: Two heavy swaths located directly behind the spinners; material is seen blowing over the tops of the spinners.
Cause: Spinner speed too fast, material blows over the tops of the spinners and falls to the ground directly behind the unit.
Cure: Decrease spinner speed.

Pattern 2: Heavy on one side only.
Cause:
1. More material is being deposited on one spinner.
2. Material has collected on the divider panels.

Cure:
1. Accurately measure the position of the flow divider.
2. Keep divider scraped clean of material build-up.

Pattern 3: Heavy in the center, no material exists ahead of fans.
Cause: Divider is too far forward.
Cure: Move divider toward rear.

Pattern 4: Heavy at outer edges. Excessive material strikes front deflector panels.
Cause:
1. Deflector is too far rearward.
2. Spinner speed too fast.

Cure:
1. Adjust divider forward.
2. If adjusting flow divider does not fix problem, adjust spinner speed.

Pattern 5: Good pattern
Cause: Proper spinner and divider setting
Effect: Material exits on arc from near spinner to front deflector. Pattern density tapers off to nothing at outer 10% on each side of total spread width.

ACCURATE METERING OF FERTILIZER MATERIALS

Once an adequate spread pattern has been obtained, the spreader should be calibrated to deliver the desired rate per acre.

Tables for determining the gate setting can be found on the spreader decal on the side of the hopper. Many times an operator will set the gate according to the rate chart and be disappointed when he comes up short or has product left over at the end of the field. This discrepancy is usually caused by the miscalculation of the bulk density or weight per cubic foot. The guesswork of estimating the weight per cubic foot of a blend can be eliminated with the use of the weigh scale or weighing 7.5 gallons as previously discussed.
After the spreader has been successfully calibrated and tested, it is ready for use.

Remember to USE EXTREME CAUTION and FOLLOW ALL SAFETY INSTRUCTIONS while operating this machinery.

PREVENTATIVE MAINTENANCE IT PAYS!

The handling and spreading of commercial fertilizers is very corrosive on the metal parts of your spreader due to the chemical agents in the material. Without an established preventative maintenance program, your spreader will decay in a relatively short time. If the cleaning, lubrication, and maintenance recommendations that we provide are followed, your spreader will have a much longer life, more satisfactory service, and overall costs will be lower.

Hydraulic System

If your unit has a self-contained hydraulic system, the right grade and type of oil is critical for it to function properly. A good, quality **30-weight** oil is used in BBI systems. Next in importance is that the oil must be clean. To help achieve this, keep the hydraulic oil in closed containers and clean the top of the container before opening and pouring. If you must transfer the oil to another container, measure or transfer through a funnel, make sure they are very clean. Refer to the appendix at the end of this manual for a general hydraulic schematic.

SERVICE SCHEDULE

1. Check the hydraulic fluid level daily. Add oil if needed. Periodically inspect the hoses and fittings for leaks.
2. Change the hydraulic oil filter after the first 50 hours of work every season.
3. After the first filter change, replace the filter, as the schedule requires.
4. The reservoir should be drained through the drain plug (not through the suction outlet), flushed, refilled, and the element filter changed annually. If the oil or filter shows any signs of breaking down (i.e. discoloration, etc.) under continuous high-pressure operation, change the oil and filter.

Conveyor Chain

Hose down the machine and remove any material build-up on the sprockets or under the chain. If material is allowed to build up, the chain may ride up and damage the chain and the body.

NOTE: If material builds up under the chain, the chain will ride on the material instead of the bottom panel. The more material allowed to build, the closer the chain becomes to the chain shields. If the chain should catch a chain shield, it could permanently distort the chain, the chain shield, or the body. In the same manner, if the material is allowed to build up in the sprockets, the same sort of damage will occur. Do not remove material while the chain or spinners are running.

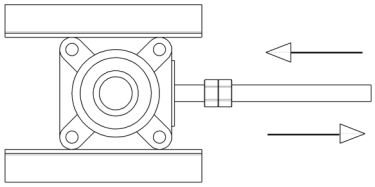
Lubricate the conveyor chain at least once a week. Use a mixture of 75% fuel oil and 25% SAE 10 oil in a pressurized hand sprayer.

DANGER!

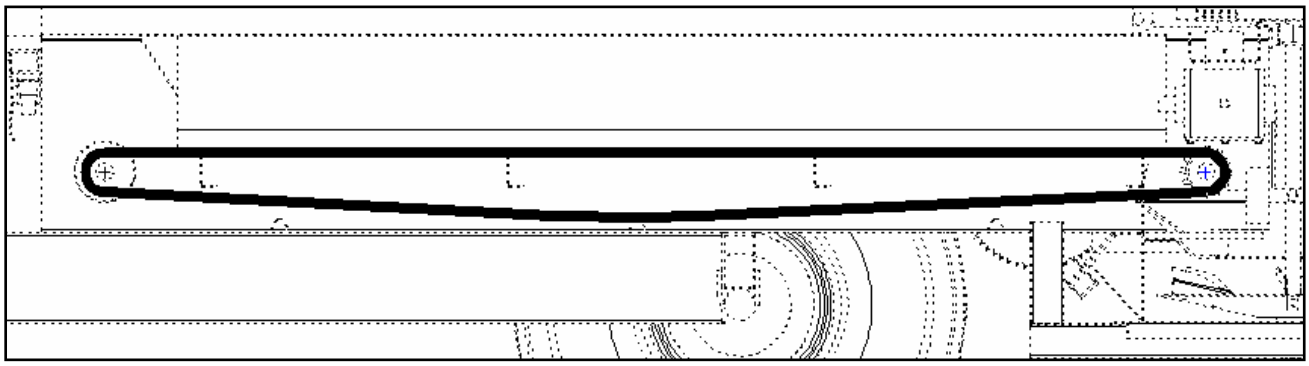
When the conveyor is running, stay out of the hopper and away from all moving parts, nor should you use tools on the conveyor while it is operating. To lubricate chain, shut down spinners, and run conveyor very slowly, spray the oil mixture between the links. Do this once a week after washing the machine, allow it to dry before lubricating.

Conveyor chain tension is also a factor in chain and sprocket life. The proper chain tension is illustrated below. Be sure the chain is tensioned equally on both sides. This adjustment is made on each side of the unit at the idler bearings located at the front of the unit.

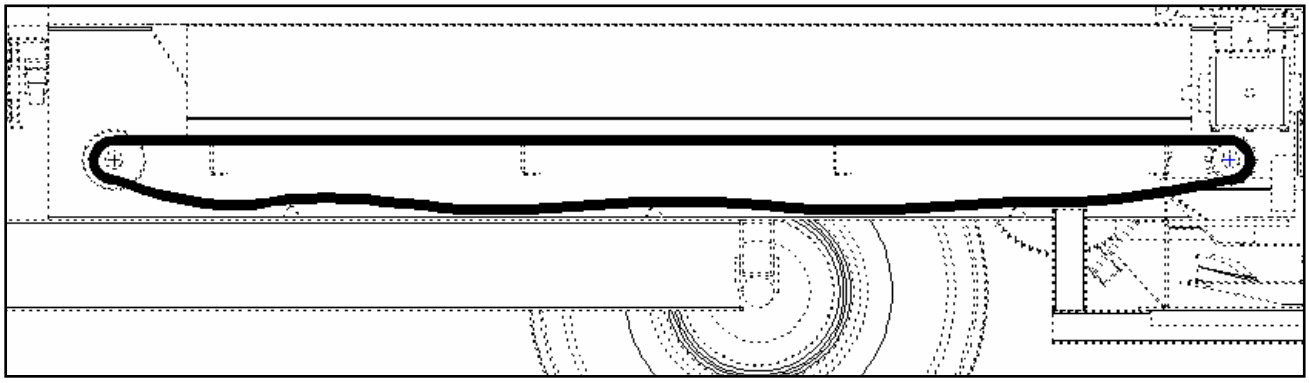
Chains that are too tight will tend to stretch, causing excess sprocket wear and eventually breakage. Too much slack presents the possibility of the chain catching on sub-frame parts.



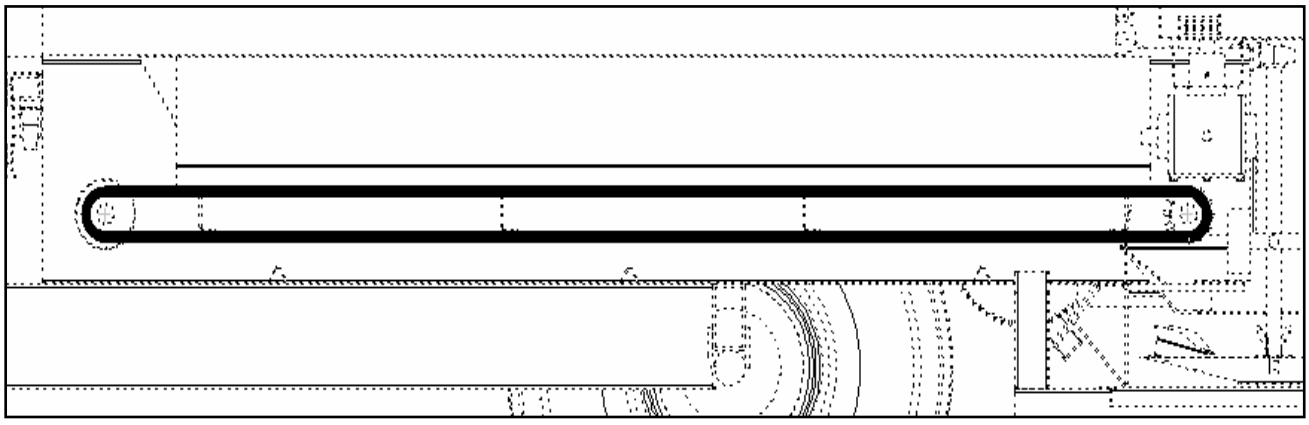
Front Roller Adjustment controls chain tension.



Optimum chain tension



Too loose

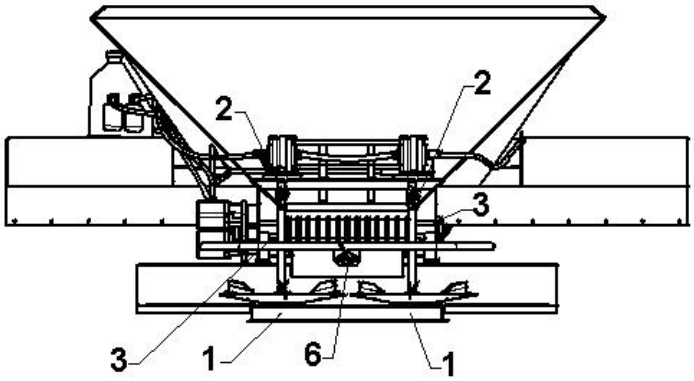


Too tight

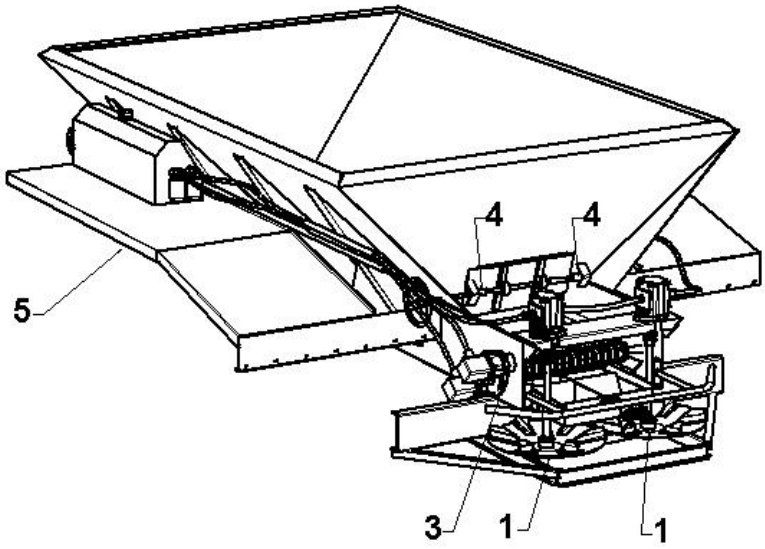
Note: Stainless steel mesh chain will stretch when first used. Chain must be checked for appropriate tension and properly adjusted to avoid damaging unit. After initial break-in period, stretching should be minimal.

LUBRICATION

All bearings are prelubricated with grease. The grease in a bearing acts to prevent excessive wear of parts, protects ball races and balls from corrosion and aids in preventing excessive heat within the bearing. This is even more critical when used in dusty or moist conditions. It is very important the grease maintains its proper consistency during operation. It must not be fluid and it must not channel.



1) Pillow Block Bearings
2) U-Joints
3) Rear Roller Bearings
4) Gate Rod Hangers
5) Front Rollers
6) Flow Divider Bearing and Bushing



Bearings should be lubricated with a #2 Lithium Base grease formulated from a high quality mineral oil with rust and oxidation inhibitors. Examples are Shell Alvania #2, Mobil Mobilux #2, and Texaco Multifak #2.
Pump the grease slowly until it forms a slight bead around the seals. This bead indicates adequate lubrication and also provides additional protection against the entrance of dirt.

Be sure all fittings are thoroughly cleaned before grease is injected. Points to be lubricated by means of grease gun have standard grease fittings.

LUBRICATION GUIDE

Frequently lubricate all bearings and other grease points to extend the life of the components. When lubricating, it is important to also inspect the components to ensure satisfactory operation. The required interval of relubricating will depend on the operating environment. Conditions such as dust, moisture, speed, and temperature will affect how often to relubricate.

Operating Conditions	Bearing Temperatures	Grease Interval
Dirty, Dusty	32^0 F to 150^0 F	1 to 4 weeks
Moisture	32^0 F to 150^0 F	Daily to 1 per week

CLEANUP

For maintaining minimum maintenance operation, this equipment should be thoroughly washed every two to three days during the operating season. Hose the unit down under pressure to free all sticky and frozen material.

It is important that the machine be thoroughly cleaned at the end of each operating season. All lubrication and maintenance instructions should be closely followed. For longer life of the painted parts, repaint worn spots to prevent the formation of rust.

CAUTION!

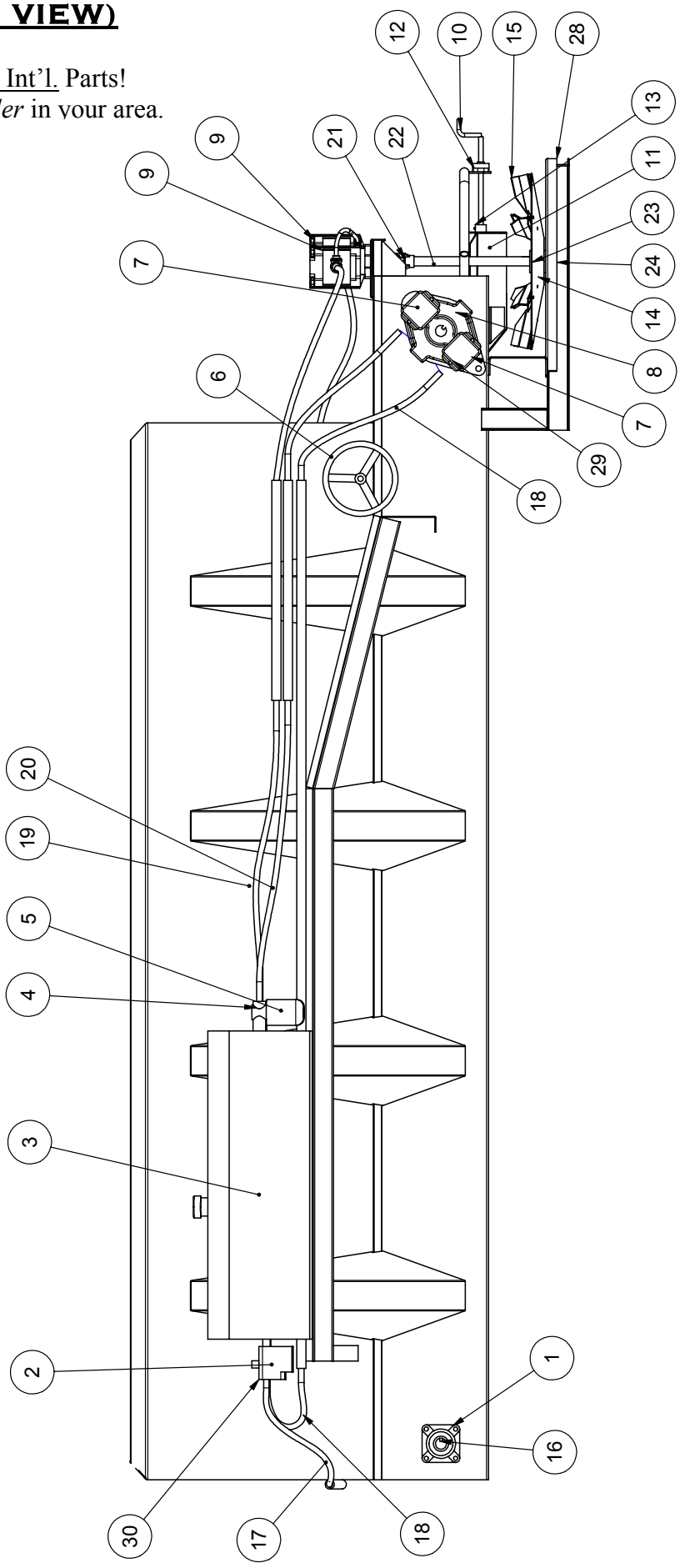
High-pressure wash can inject water and/or fertilizer into the sensitive components. Use caution when cleaning these areas.

FASTENERS

Tighten all screw fasteners to recommended torque values after the first week of operation and annually thereafter. If loose fasteners are found at any time, tighten to the recommended torque value. Replace any lost or damaged fasteners or other parts immediately upon finding such damage or loss.

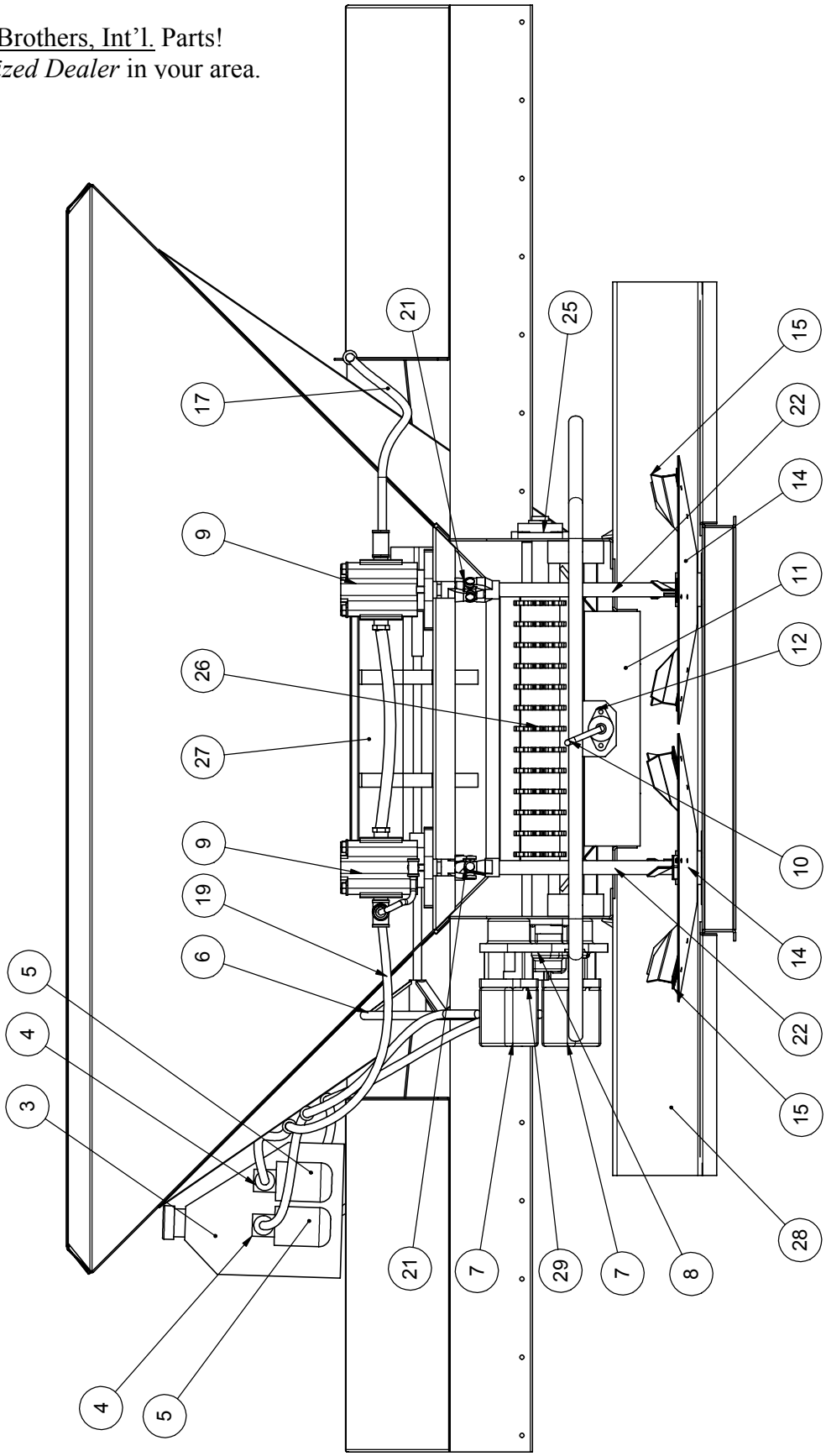
PARTS DIAGRAM (SIDE VIEW)

Use only genuine Barron & Brothers, Int'l. Parts!
Order them from the *Authorized Dealer* in your area.



PARTS DIAGRAM (REAR VIEW)

Use only genuine Barron & Brothers, Int'l. Parts!
Order them from the *Authorized Dealer* in your area.

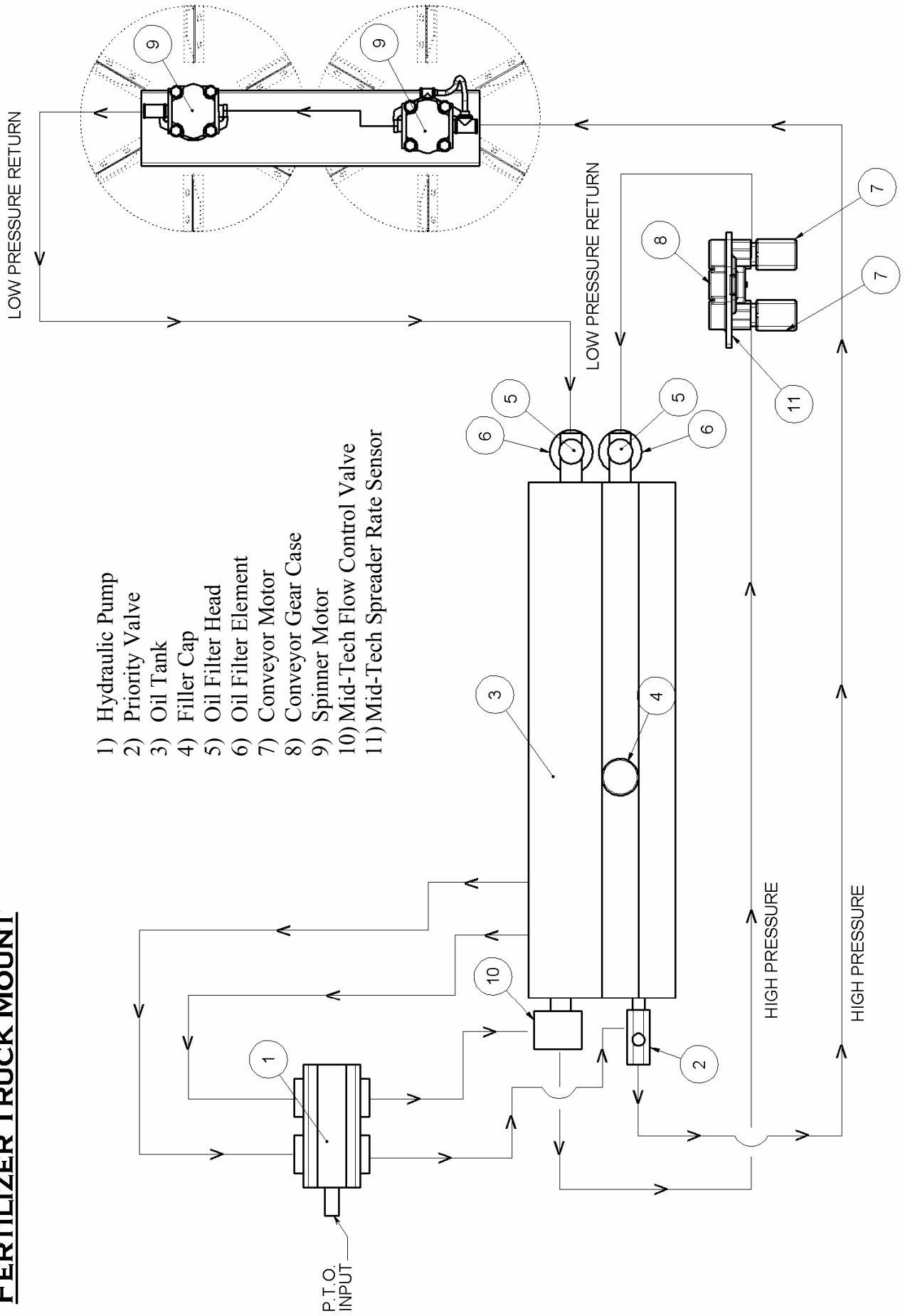


PARTS LIST

ITEM #	DESCRIPTION	PART #
1	1-1/2" 4-Bolt Flange Bearing	UCF208-24
2	Priority Valve	704052A
3	Oil Tank	HTT40
4	Filter Head	702782A
5	Filter Element	702784A
6	Gate Wheel	GWB
7	Conveyor Motor	
8	Conveyor Gear Case (single)	
9	Spinner Motor	30SM20
10	Flow Divider Handle Assembly	FDH
11	Material Flow Divider	FFD200
12	5/8" 2-Bolt Flange Bearing	UCF202-10
13	Teflon Bushing on Flow Divider	TFD-1
14	Carbon Fertilizer Spinner Dish Assembly	CDF-RH (CDF-LH)
	Stainless Fertilizer Spinner Dish Assembly	SDF-RH (SDF-LH)
	Carbon Fertilizer Dish Only	C24D
	Stainless Fertilizer Dish Only	SS24D
15	6" Carbon Spinner Blade	FT6-RH (FT6-LH)
	6” Stainless Spinner Blade	FTS6-RH (FTS6-LH)
16	Front Roller	FRM__
17	Hydraulic Spinner Drive Return (low pressure)	
18	Hydraulic Conveyor Drive Return (low pressure)	
19	Hydraulic Spinner Drive Pressure	
20	Hydraulic Conveyor Drive Pressure	
21	U-Joint	183010293
22	Spinner Shaft	FHMS-26
23	1-1/4" Taper-Lock Bushing	P1125
24	1-1/4" Pillow Block Bearing	UCP207-20
25	2" 4-Bolt Flange Bearing	UCF211-32
26	Rear Roller	RRM__
27	Gate (Stainless)	RG-2
28	Shield	FSHIELD
29	Mid-Tech Spreader Rate Sensor	
30	Mid-Tech Flow Control Valve	

Note: This is not a complete parts list. This list is intended to help in ordering replacement parts and aid in the general knowledge of your spreader.

Mid-Tech Hydraulic Schematic and Assembly
Fertilizer Truck Mount



MID-TECH ARC6000

Barron & Brothers International is an authorized dealer of Midwest Technologies, Inc. products.

The Mid-Tech ARC6000 application control system is an option for BBI hydraulic truck-mount units. It controls the material output by adjusting the speed of the conveyor relative to the truck's ground speed. The system consists of a control panel (console), flow control valve, speed sensor, and a spreader rate sensor (flow meter.)

The control panel offers an easy-to-use interface that includes many features. The console can display speed, application rate, total material applied, along with other useful information. It can also scan and check all features within the system and give warnings of any errors. The user must input the desired variables into the system using the console before the system is ready.

The speed sensor, or radar, reads the ground speed of the truck. The spread rate sensor, located on the conveyor gear case, reads the speed of the conveyor. The system, then, takes into account all inputs and, utilizing the flow control valve, adjusts the speed of the conveyor corresponding to the ground speed to produce a constant application rate.

Two guides created by BBI can assist you in the use of your Mid-Tech system. These guides, located on the following pages, are outlines of the setup and operation procedures only. For more detailed information about this Mid-Tech control system, please refer to the Mid-Tech ARC6000 operating manual supplied with the system. Contact BBI customer service for additional information about this Mid-Tech system or other Mid-Tech products.

Setup Procedure

1. – POWER = "ON" - MODE = "SET-UP"
- DISPLAY = "PRIME"
- Hold Decrease Switch down & select "GRANULAR/STANDARD (PUMP C / STANDARD)

2. - % RATE = "DISPLAY" - MODE = "SET-UP"
- Use "Increase" or "Decrease" to set to "0"

3. **Spread Swath (BOOM WIDTH)**
- MODE = "SET-UP" - DISPLAY = "IMP. WIDTH"
- BOOM SWITCHES = "OFF"
- Use "Increase" or "Decrease" to set Boom #1 at desired swath width in inches (not feet)
- Set Boom #2 - #9 at "0" - Once complete, turn BOOM SWITCHES to "ON"
- Set MODE to "OPERATE"
- Spread swath in number of feet should now appear on screen.

4. **Product Density**
- BOOM SWITCHES = "OFF" - MODE = "SET-UP"
- DISPLAY = "APPL. RATE"
- Use "Increase" or "Decrease" to desired material weight per cubic foot.

5. **Spreader Constant** (Calculations of the initial spreader constant require the following info.)
- Gate Height (**H**) in inches - Gate Width (**W**) in inches
- Number of Sensor Pulses for each revolution of the spreader rate sensor (**P**)
- Distance conveyor moves during one revolution of the spreader rate sensor (**D**) in inches.

- Calculate the initial spreader constant as follows:
  (D x W x H)/1728 = FT
- "**FT^3**" = Volume discharged during one revolution of the spreader rate sensor in cu. ft.

- Continue as follows:

  P/FT^3 = Initial Calibration Number (Spreader Constant)

- To Enter Constant --
- MODE = "SET-UP" - DISPLAY = "TOTAL APPLIED"
- BOOM SWITCHES = "ON"
- Use "Increase" or "Decrease" to enter constant number.

6. **Radar Calibration**
- MODE = "SET-UP" - DISPLAY = "DISTANCE" -Set at "1000"

7. BE SURE VALVE IS CLOSED
- BOOM SWITCHES = "OFF" - POWER= "ON"
- MODE = "OPERATE" - DISPLAY = "TOTAL APPLIED"
- Hold "Increase" switch up until "Closed" position is entered, then release.

Then
- BOOM SWITCHES = "OFF" - MODE = "OPERATE"
- DISPLAY = "IMPL. WIDTH"
- Hold "Increase" switch up until closed or open is shown – (set to "CLOSED" position.)

8. **"G.S.O." Value**
- BOOM SWITCHES = "OFF" - MODE = "SET-UP"
- DISPLAY = "SPEED"
- Set value at "0"

Operation Procedure

- BOOM SWITCHES = “OFF”
- CONTROL CONSOLE = “POWER – ON”
- MODE = “OPERATE”
- DISPLAY TO % RATE – SHOULD BE AT 100%
- DISPLAY TO – “APPLICATION RATE” – USE “ INC.” OR “DEC.” SWITCH TO ENTER MATERIAL (IN LBS.) TO BE APPLIED PER ACRE
- MODE = “SET-UP”
- DISPLAY AT APPLICATION RATE (ALREADY ON) – USE “INC.” OR “DEC.” TO SET PRODUCT DENSITY WEIGHT (LBS. PER CUBIC FOOT)
- DISPLAY TO “TOTAL APPLIED” - BE SURE CONSTANT NUMBER CORRESPONDS TO SET-UP
- MODE = “OPERATE”
- DISPLAY = “IMP. WIDTH”
- MASTER SWITCH TO “ON” POSITION – SCREEN WILL SHOW SELECTED SPREAD SWATH - IF NOT WHAT IS DESIRED, TURN MODE BACK TO SET-UP
- BOOM SWITCHES = “OFF”
- ENTER DESIRED SPREAD SWATH IN INCHES INTO BOOM #1 – ALLOW TO CYCLE THRU BOOMS #2 - #9 MAKING SURE ALL ARE SET ON “0” – NOW RETURN TO “OPERATE” MODE
- BOOM SWITCHES = “ON” - DISPLAY SHOULD NOW READ IN “NO. OF FT.” SPREAD SWATH DESIRED
- BOOM SWITCHES = “OFF”
- DISPLAY = “APPLICATION RATE”
- TO BEGIN SPREADING – SET “G.S.O.” SWITCH TO “AUTOMATIC”
- POWER = “ON”
- MASTER SWITCH = “ON”

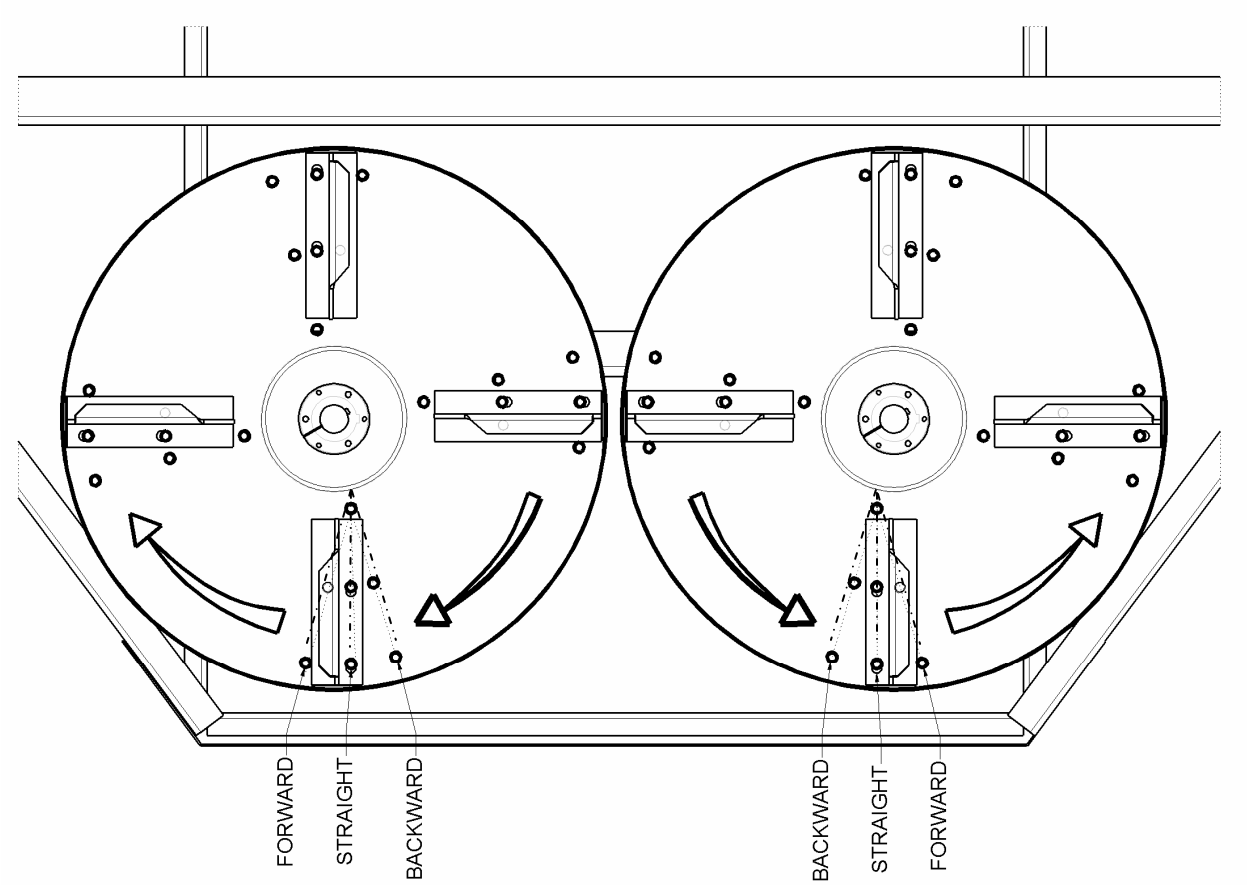
Magna Spread

The Magna Spread option for BBI fertilizer/lime spreaders allows for a wider spread swath at a consistent rate. The option includes either four adjustable 9" or 7-1/2" fins per spinner dish in lieu of the standard six nonadjustable 6" inch fins per spinner. The Magna Spread option also includes a material flow divider specifically designed for the longer fins. These two elements along with the appropriate spinner speed can produce an effective spread swath of 80' or wider, depending on the material density and particle size.

Because of these key components differing from standard BBI spreaders, options for adjusting the spread pattern will vary. For proper settings, use the charts provided with your unit as a starting point.

Spinners

The longer spinner fins can be adjusted to three different positions: straight, forward, and backward. The position of the fins affects the manner in which the material is broadcast. Moving the fins forward causes more material to be cast to the outside of the spread pattern (to the sides of the truck.) Alternately, placing the fins in the back position results in more material being thrown to the middle of the spread pattern (directly behind the truck.) For reference see diagram below.



This view shows Magna Spread spinners with the 7-1/2" fins in the "straight" position.

Spinner fin position is directly related to the material flow divider setting. As the fins are adjusted, the flow divider setting may also need to be moved in order to produce the proper spread pattern. For initial calibration, adjust flow divider and test results before moving spinner fins. Refer to the "Fertilizer Calibration" section in this manual for help testing the spread pattern.

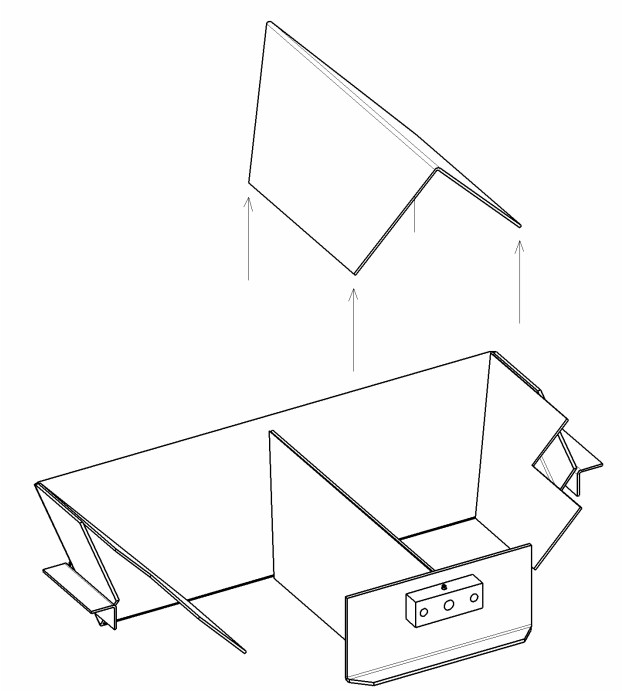
Material Flow Divider

The Magna Spread flow divider guides the material onto the spinners to optimize the particular fin designs. The flow divider settings are similar to standard BBI spreaders and are adjusted in the same fashion.

An insert for the flow divider is used when spreading fertilizer. The insert should be removed for spreading lime at high rates. It can be placed in its holder located on the outside of the hopper when not in use.

The initial setting for the Magna Spread flow divider will differ depending on the type of spreader in question. For example a unit with an 16" mesh chain conveyor will have a different flow divider setting than a 24" mesh chain. This also holds true for the spinner fins' position.

The setting may need adjusting further after checking the spread pattern. (For information about checking the spread pattern and adjusting the material flow divider, please refer to the appropriate section in the owner's manual.)



Use the flow divider insert for fertilizer and remove it for lime.

WARNING!

Do not attempt to remove the flow divider insert or make adjustments while the spreader is under power. Make sure spinners have completely stopped before servicing. Serious injury can occur.