

## **7. OPTIONAL EQ.**

### **7. 1. STACKER BAR ROW MARKERS**

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### **7. 3. GRANULAR INSECTICIDE**

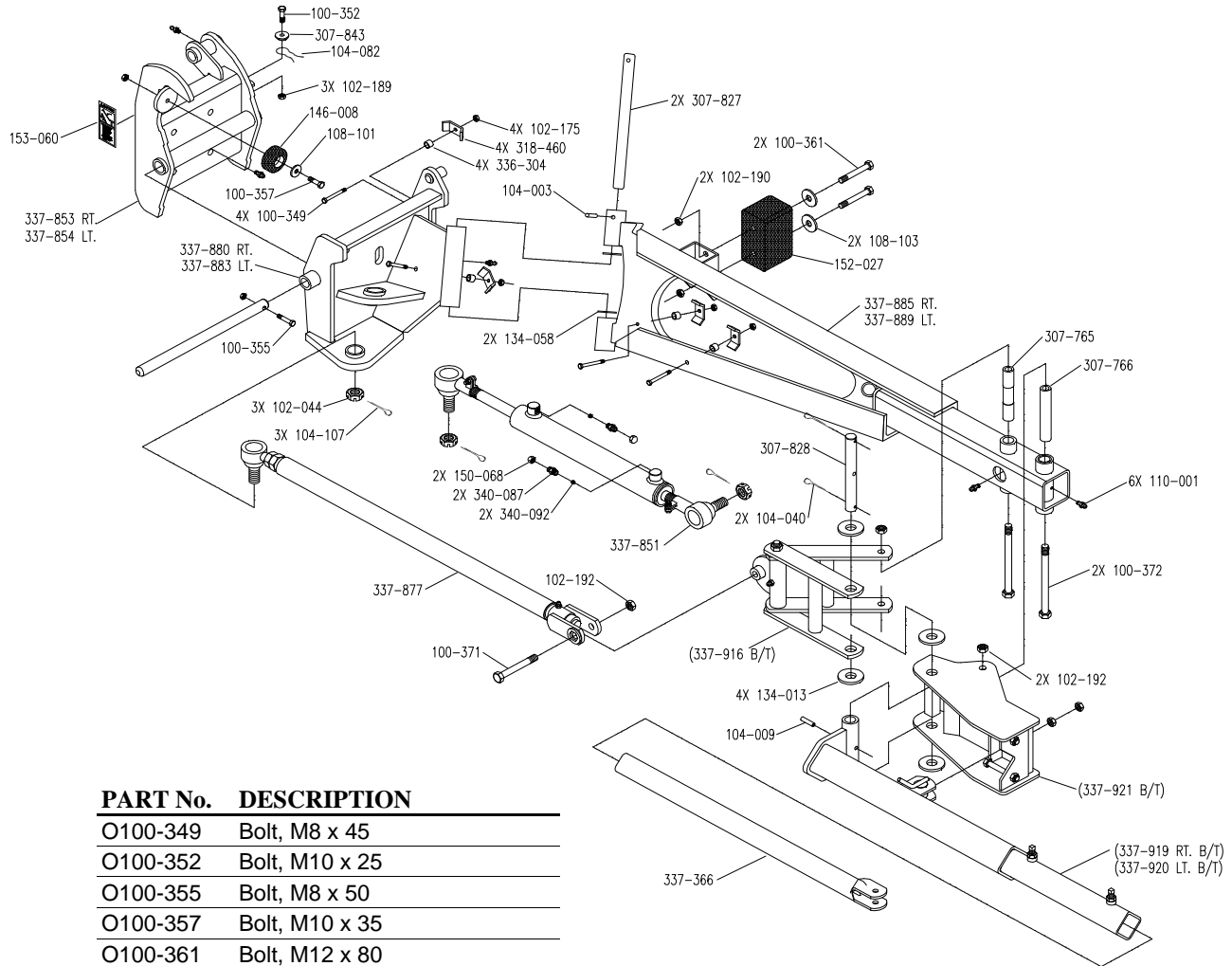
### **7. 4. MICROSEM INSECTICIDE**

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### **7. 7. LIQUID FERTILIZER**

## ROW MARKERS

### 8-row STACKER BAR Row Marker



#### PART No. DESCRIPTION

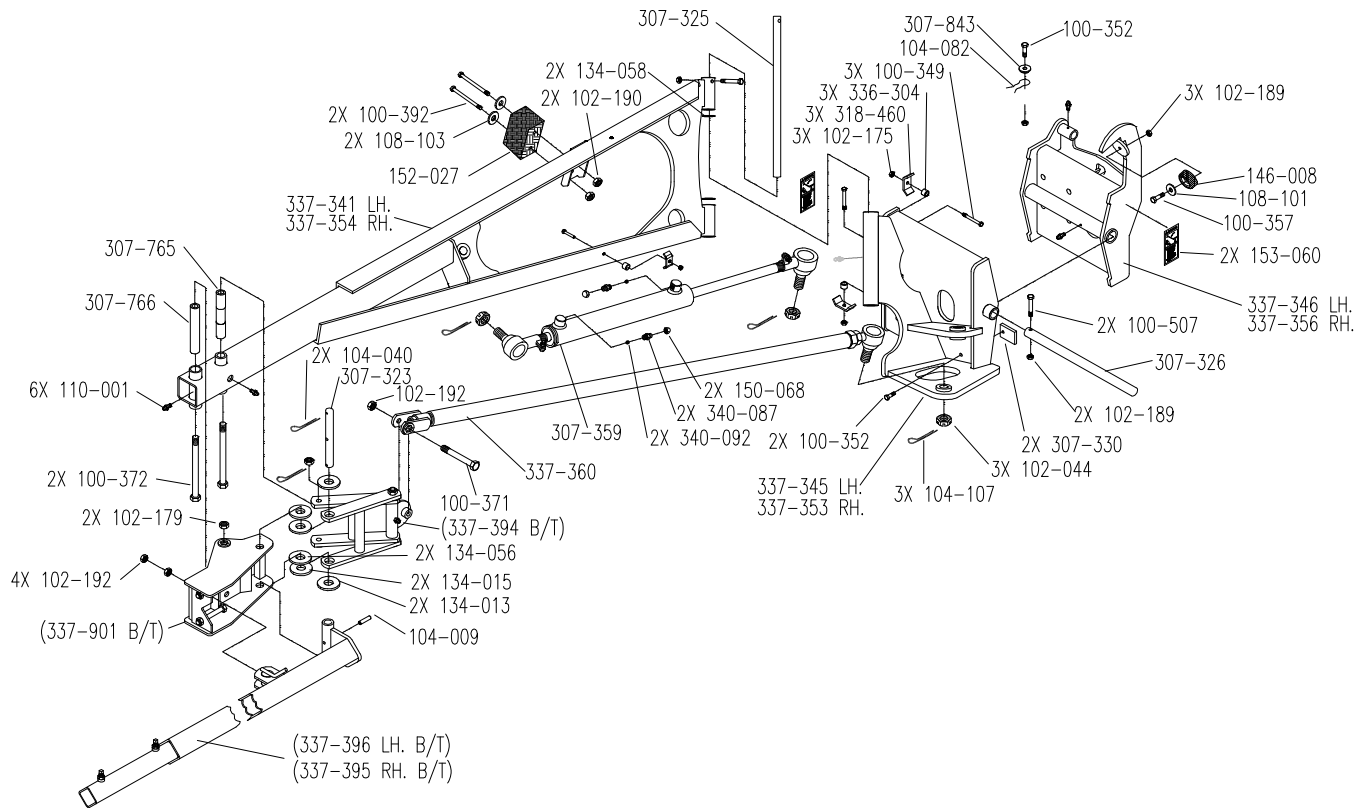
O100-349	Bolt, M8 x 45
O100-352	Bolt, M10 x 25
O100-355	Bolt, M8 x 50
O100-357	Bolt, M10 x 35
O100-361	Bolt, M12 x 80
O100-371	Bolt, M16 x 80
O100-372	Bolt, M16 x 200
O102-044	Slotted hex nut, 3/4-16
O102-175	Hex nut M8
O102-189	Lock nut M10
O102-190	Lock nut, M12
O102-192	Lock nut, M16
O104-003	Roll pin, 3/8 x 1 3/4
O104-009	Roll pin, 3/8x1 1/2
O104-040	Cotter pin, 1/4 x 2
O104-082	Hair pin clip, 5/164
O104-107	Cotter pin, 1/8 x 1 1/2
O108-101	Washer, M10.5 x 21 x 2
O108-103	Washer, M13 x 24 x 2.5
O110-001	Grease fitting, 1/4-28
O134-013	Bushing, 1 1/2 x 1 x 14Ga.
O134-058	Washer, 1"x2"x10Ga.
O146-008	Rubber bumper
O150-068	Cap nut, 7/16-20x1/4 tube
O152-027	Rubber bumper

#### PART No. DESCRIPTION

O307-765	Bushing
O307-766	Bushing
O307-827	Pin, 16 5/8"
O307-828	Pin, 8 5/8"
O307-843	Lock washer
O318-460	Strap
O336-304	Spacer
O337-366	Extension tube, 2" x 60", blue
O337-851	Hydraulic cylinder, blue
O337-853	Mounting bracket R.H., blue
O337-854	Mounting bracket L.H., blue
O337-877	Strut, blue
O337-880	Pivot R.H., blue
O337-883	Pivot L.H., blue
O337-885	Arm, R.H., blue
O337-889	Arm, L.H., blue
O340-087	Adapter, 7/16" tapped
O340-092	Restrictor, .046"

**ROW MARKERS**

**12-row STACKER BAR Row Marker**

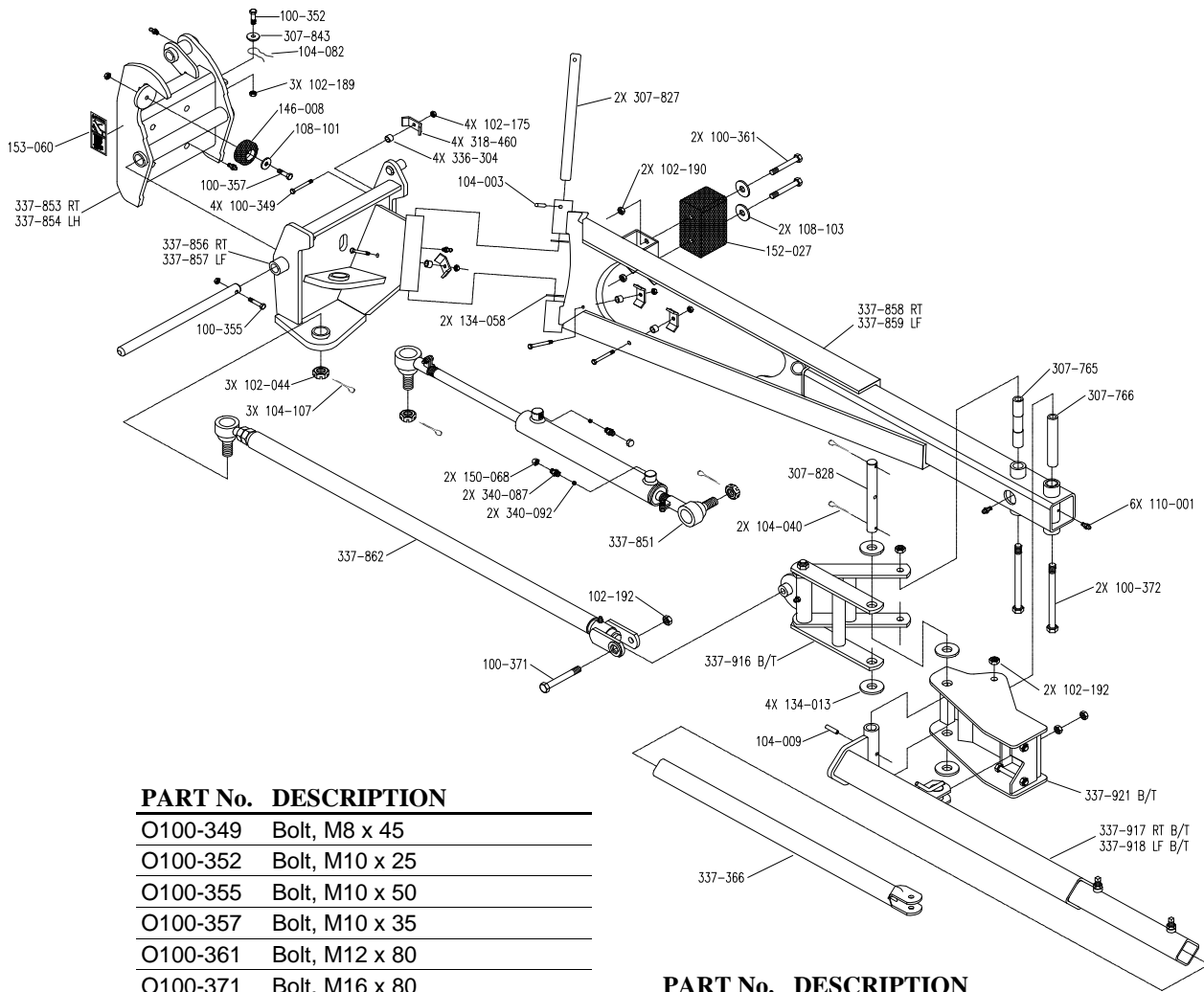


PART No.	DESCRIPTION
O100-349	Bolt, M8 x 45
O100-352	Bolt, M10 x 25
O100-357	Bolt, M10 x 35
O100-371	Bolt, M16 x 80
O100-372	Bolt, M16 x 200
O100-392	Bolt, M12 x 70
O100-507	Bolt, M10 x 55
O102-044	Hex nut, 3/4-16
O102-175	Hex nut, M8
O102-189	Lock nut, M10
O102-190	Lock nut, M12
O102-192	Lock nut, M16
O104-009	Roll pin, 3/8 x 1 1/2
O104-040	Cotter pin, 1/4 x 2
O104-082	Hair pin clip 51/64"
O104-107	Cotter pin, 1/8 x 1 1/2
O108-101	Washer
O108-103	Washer
O110-001	Grease fitting, 1/4-28 TPRT
O134-013	Bushing
O134-015	Bushing
O134-056	Washer
O134-058	Washer

PART No.	DESCRIPTION
O146-008	Rubber bumper
O150-068	Cap nut, 7/16-20
O152-027	Rubber bumper
O307-323	Pin
O307-325	Pin
O307-326	Pivot pin
O307-330	Mounting tab
O307-359	Hydraulic cylinder
O307-765	Bushing 6"
O307-766	Bushing 6"
O307-843	Lock washer
O318-460	Strap
O336-304	Spacer
O337-341	Arm L.H. ATI
O337-345	Pivot L.H., ATI
O337-346	Mounting bracket L.H. ATI
O337-353	Pivot R.H., ATI
O337-354	Arm R.H. ATI
O337-356	Mounting bracket R.H. ATI
O337-360	Strut, blue
O340-087	Adaptor, 7/16MB x 7/16MJ
O340-092	Restictor, 1/2-20 x 3/8 (.046)

## ROW MARKERS

### 12-row 30" STACKER BAR Row Marker



#### PART No. DESCRIPTION

O100-349	Bolt, M8 x 45
O100-352	Bolt, M10 x 25
O100-355	Bolt, M10 x 50
O100-357	Bolt, M10 x 35
O100-361	Bolt, M12 x 80
O100-371	Bolt, M16 x 80
O100-372	Bolt, M16 x 200
O102-044	Slotted hex nut, 3/4-16
O102-175	Hex nut, M8
O102-189	Lock nut, M10
O102-190	Lock nut, M12
O102-192	Lock nut, M16
O104-003	Roll pin, 3/8 x 1 3/4
O104-009	Roll pin, 3/8 x 1 1/2
O104-040	Cotter pin, 1/4 x 2
O104-082	Hair clip pin, 5/164"
O104-107	Cotter pin, 1/8 x 1 1/2
O108-101	Washer, M10.5x21x2
O108-103	Washer, M13.5x24x2.5
O110-001	Grease fitting, 1/4-28 TPRT
O134-013	Bushing, 1 1/2" x 1" x 14GA
O134-058	Washer, 1 x 2 x 10GA
O146-008	Rubber bumper
O150-068	Cap nut, 7/16-20x1/4
O152-027	Rubber bumper

#### PART No. DESCRIPTION

O307-765	Bushing
O307-766	Bushing
O307-827	Pin
O307-828	Pin
O307-843	Lock washer
O318-460	Strap
O336-304	Spacer
O337-366	Extension tube, 2"x 60" blue
O337-851	Hydraulic cylinder, blue
O337-853	Mounting bracket R.H., blue
O337-854	Mounting bracket L.H., blue
O337-856	Pivot R.H., blue
O337-857	Pivot L.H., blue
O337-858	Arm R.H., blue
O337-859	Arm L.H., blue
O337-862	Strut, blue
O340-087	Adaptor
O340-092	Restrictor, 1/4-20x3/8 (.046")

## US INSECTICIDE SYSTEM

### GRANULAR APPLICATION RATES

The US Insecticide System is mounted to the planter unit and has a hand clutch to engage or disengage the metering mechanism for easy removal of the hopper. Be sure no foreign objects get into the hopper when it is being filled with product. Keep hopper lids on when not being filled to prevent accumulation of dirt or moisture in the hoppers.

Many things can affect the rate of delivery of granular chemicals such as temperature, humidity, speed, ground conditions, flow ability of different materials or any obstruction in the meter.

**NOTE:** Since the chemical meter is driven directly from the seed meter box, changing the seed population after calibrating will change the output of the chemical meter, even if ground speed remains constant.



**WARNING!** Agricultural chemicals can be dangerous. Improper use can result in injury to persons, animals and soil. Handle with care and follow directions supplied by the chemical manufacturer.

A field check is important to determine the correct application rates. The following method for calibrating is recommended:

1. Attach a plastic bag to each chemical meter outlet tube.

2. Lower the planter and drive 500 feet at the desired seeding population and speed.
3. Weigh (in ounces) the amount of chemical in one bag.
4. Multiply the number of ounces by the factor shown below for your row width.

Row Width	Factor
38"	1.7
36"	1.8
30"	2.2
22"	3

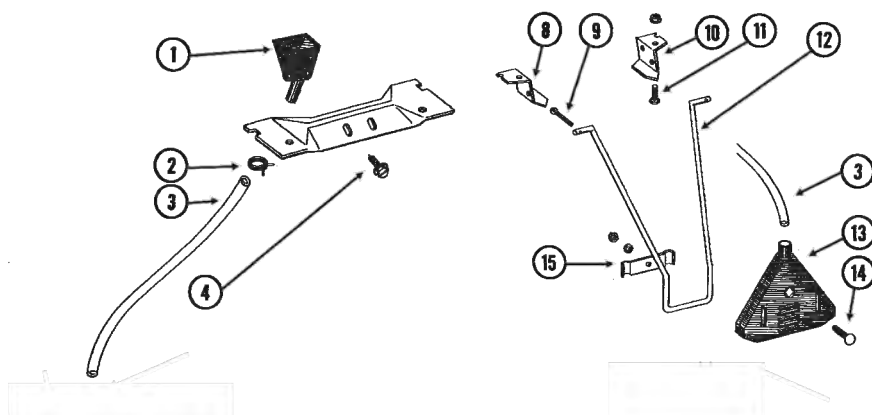
Example: You have driven 500 feet. Your row spacing is 30" and you have collected 4.5 ounces of material in a plastic bag. Multiply 4.5 by the factor 2.2. This would indicate that you are applying 9.9 lbs./acre.

If you do not have the desired amount of chemical per acre, adjust the metering gate accordingly. Zero for minimum output while 45 for maximum output. It is suggested that after a desired rate is achieved through calibration, you record the ground speed and transmission setting used for the calibration along with the chemical used for future reference.

**NOTE:** It is important to check calibration of all rows.

**ATTENTION:** Once you have the proper setting do not vary your planting speed as this will affect the output.

### SPREADER TUBE ASSEMBLY



ITEM	PART No.	DESCRIPTION
1	KD2423	Funnel
2	K10680	Hose clamp
3	KD2947	Hose, precut, 7/16" x 28"
4	K10523	Self-tapping screw, 10 -24 x 1/2"
8	KD1115L	Hanger bracket, LH
9	K10452	Cotter pin, 1/8"x 1/2"
10	KD1115R	Hanger bracket, RH
11	K10310	Carriage bolt, 1/4" x 3/4"
	K10227	Lock washer, 1/4"
	K10103	Nut, 1/4"
12	KD8756	Hanger, standard length
13	KA2075	Diffuser, 14" band
14	K10306	Carriage bolt, 3/8" x 2"
	K10229	Lock washer, 3/8"
	K10101	Nut, 3/8"
15	KD118	Clamp plate



## MICROSEM MICROGRANULAR INSECTICIDE SYSTEM

### STANDARD MICROSEM SYSTEM

The microsem system meters microgranular products such as insecticide and herbicide with precision. The system is ground driven and has a positive displacement. The output is set by means of a transmission that is unaffected by a change in planting speed. The microsem system is mounted to the toolbar frame with support brackets to reduce weight on the planter unit. The microsem system with auger is equipped with a telescoping outlet, and its output starts from a minimum of 2-3 lbs/acre.

Each microsem hopper has a 33 lb. capacity and can be used with a double outlet for two row units or with a single outlet for one row unit.

The drive sprocket is mounted on the upper hex shaft. The hoses direct the granular product directly between the disc openers via drop tubes, or behind the disc openers via a spreader tube.

### TROUBLE SHOOTING

#### PROBLEM:

**Variations between the outlets or metering boxes.**

#### POSSIBLE CAUSE:

- There may be foreign material mixed with the product
- **ATTENTION** there may be moisture in the product.
- The metering unit may have been assembled improperly.
- The outlet chute may be warped.
- The hose may be too long or bent, causing the hose to clog.

### INSECTICIDE DROP TUBE

**7085.DA** Mounts on the right hand side of the unit, with the same bolts that attach the disc scraper. It deposits material down in the seed trench behind the seed tube. The top of the tube points straight up.



**7085.GA** Mounts on the left hand side of the unit, with the same bolts that attach the disc scraper. It deposits material down in the seed trench behind the seed tube. The top of the tube points straight up.

**7085.SS**

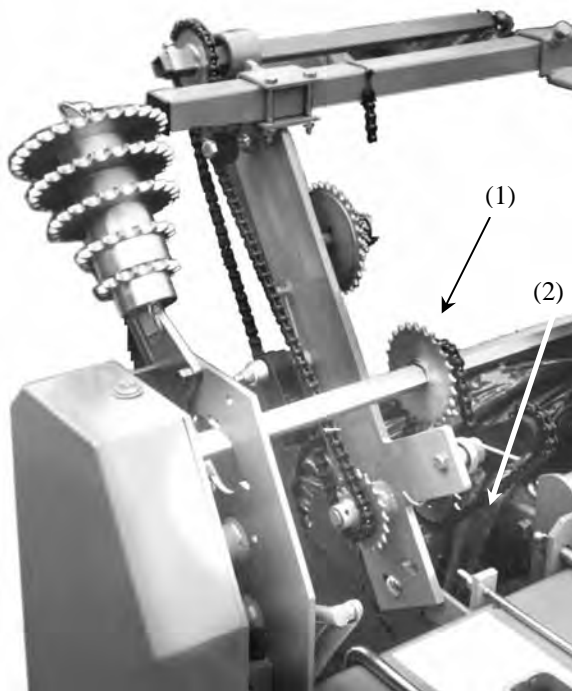


Mounts on the left hand side of the unit, with the same bolts that attach the disc scraper. It deposits material down in the seed trench behind the seed tube. The top of the tube curves towards the rear to accept the feeder hose from the Air Insecticide System.

## MICROSEM MICROGRANULAR INSECTICIDE SYSTEM

### SETTING THE OUTPUT

The output is a function of the number of rotations of the spindle of the metering boxes, which is set primarily with the double sprocket (1) and the interchangeable sprockets (2). The chart provided will assist with the setting and also indicates the sprockets to be used for the principle commercial products. The furnished information is a recommendation only.



**NOTE:** Avoid moisture contamination. Moisture in the product will cause hardening and could cause chain breakage. To avoid this problem, empty hoppers and store in a dry place.

**NOTE:** This unit should be used only with microgranulars and not with powders or granulates. It is possible to meter large granulars provided the inside auger is changed for a special one.



**WARNING** Agricultural chemicals can be dangerous. Improper use can result in injury to persons, animals and soil. Handle with care and follow instructions of the chemical manufacturer.

### HOW TO TEST FOR INSECTICIDE RATES

Measure out a distance of 328 feet (100m).

Set the sprocket combination to: A=12, B=30, C=12. (This ratio = 0.24 or the number of Microsem shaft rotations for 1 drive wheel rotation.)

Remove the hoses from a 2 outlet hopper, placing a bag or other container to catch the product. Put the product into the Microsem hopper. Engage the Microsem and drive forward the pre-measured distance. Weigh the amount of product caught in the container and convert to grams.

$$\begin{aligned} \text{Ounces} & \times 31.103481 = \text{grams} \\ \text{Inches} & \times 2.54 = \text{cm} \end{aligned}$$

Use the following formula:

$$\text{Output} = \frac{10 \times \text{quantity weighted (g)}}{\text{Inter-rows (cm)} \times 2}$$

#### Example:

Inter-rows = 60 cm (23.63")  
Quantity weighed = 60 grams (1.929 oz)

If you require 8 kg/ha or 8 lb/acre, choose the ratio  
 $\frac{8}{5} \times 0.24 = 0.384$   
A=12, B=18, C=12

If you require 11 kg/ha or 11 lb/acre, choose the ratio  
 $\frac{11}{5} \times 0.24 = 0.528$   
A=12, B=22, C=20

$$\text{Output} = \frac{10 \times 60}{60 \times 2} = 5 \text{ kg/ha or } 5 \text{ lb/acre}$$

From the following chart, find the closest sprocket combination to achieve appropriate lbs/acre.

Note: Because of the large variety of insecticides and its density and irregularity of granulars, it is impossible to provide an exact chart. This is a close approximation only.

**MICROSEM MICROGRANULAR INSECTICIDE SYSTEM**

**Possible Sprocket Combinations**

**Ratios Obtained**

A	B	C	
12	35	12	----- 0.21
12	32	12	----- 0.22
12	<b>30</b>	12	----- 0.24
12	<b>25</b>	12	----- 0.29
12	<b>22</b>	12	----- 0.33
12	20	12	----- 0.36
12	<b>18</b>	12	----- 0.40
12	16	12	----- 0.45
12	<b>15</b>	12	----- 0.48 or
12	25	20	----- 0.48
12	23	20	----- 0.51
12	<b>22</b>	20	----- 0.54
12	21	20	----- 0.57
12	<b>12</b>	12	----- 0.60
12	24	12	----- 0.63
12	<b>18</b>	21	----- 0.66
25	<b>22</b>	12	----- 0.68
12	10	12	----- 0.72
25	20	12	----- 0.75
12	<b>15</b>	20	----- 0.80
25	<b>18</b>	12	----- 0.83
25	16	12	----- 0.94
25	<b>15</b>	12	----- 1 or
12	12	20	----- 1
25	<b>22</b>	20	----- 1.13
12	10	20	----- 1.20
25	<b>12</b>	12	----- 1.25
25	<b>18</b>	20	----- 1.40
25	10	12	----- 1.50
25	<b>15</b>	20	----- 1.66
25	<b>12</b>	20	----- 2.08
25	10	20	----- 2.50

Less Product



Note: The bold sprocket numbers for the interchangeable B sprocket are standard.

The remaining sprockets for the interchangeable B sprocket are available on request. (13-14-16-23-26-35)

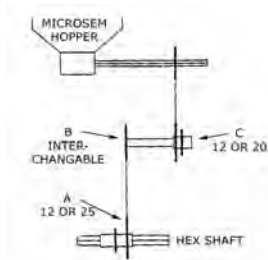


More Product

**MICROSEM MICROGRANULAR INSECTICIDE SYSTEM**

**MICROSEM SETTING CHART - Drive sprockets to be used**

These settings are theoretical and approximate. Actual output may vary. Other outputs can be obtained by using different sprocket arrangements of the Microsem drive, however travel speed variations will not affect the output.



- A** = Double sprocket on hex shaft - driven 1
- B** = Interchangeable sprocket - driven 2
- C** = 12 or 20 tooth sprocket

	A / B / C	A / B / C	A / B / C	A / B / C	A / B / C	A / B / C	A / B / C	A / B / C
#'s per acre	<b>5.35</b>	<b>6.42</b>	<b>7.22</b>	<b>8.03</b>	<b>9.82</b>	<b>11.15</b>		
<b>THIMET</b> 22"	12 / 18 / 12	12 / 15 / 12	12 / 22 / 20	12 / 12 / 12	12 / 15 / 20	25 / 18 / 12		
<b>20G</b> 30"	12 / 22 / 20	12 / 18 / 20	25 / 20 / 12	25 / 18 / 12	25 / 15 / 12	25 / 22 / 20		
36"	12 / 18 / 20	12 / 15 / 20	25 / 16 / 12	25 / 15 / 12	25 / 12 / 12			
40"	25 / 22 / 12	25 / 18 / 12	25 / 15 / 12	25 / 22 / 20				

#'s per acre	<b>5.00</b>	<b>6.50</b>	<b>8.10</b>	<b>9.30</b>	<b>10.00</b>	<b>11.40</b>	<b>13.50</b>	
<b>DASANIT</b> 22"		12 / 12 / 12	25 / 22 / 12	12 / 15 / 20	25 / 18 / 12	25 / 15 / 12	25 / 22 / 20	
<b>15G</b> 30"	12 / 18 / 20	25 / 20 / 12	25 / 18 / 12	25 / 15 / 12	25 / 22 / 20	25 / 18 / 20		
36"	25 / 22 / 12	25 / 16 / 12	25 / 22 / 20	25 / 12 / 12	25 / 18 / 20	25 / 15 / 20		
40"	25 / 20 / 12	25 / 15 / 12	25 / 12 / 12	25 / 18 / 20	25 / 15 / 20	25 / 14 / 20		

#'s per acre	<b>5.85</b>	<b>6.50</b>	<b>7.20</b>	<b>8.70</b>	<b>9.70</b>	<b>10.80</b>	<b>12.30</b>	<b>14.50</b>
<b>FURADAN</b> 22"		12 / 25 / 12	12 / 22 / 12	12 / 20 / 12	12 / 18 / 12	12 / 22 / 12	12 / 15 / 12	12 / 12 / 12
<b>15G</b> 30"	12 / 22 / 12	12 / 20 / 12	12 / 18 / 12	12 / 15 / 12	12 / 22 / 20	12 / 12 / 12	25 / 22 / 12	12 / 15 / 20
36"	12 / 18 / 12	12 / 16 / 12	12 / 15 / 12	12 / 12 / 12	12 / 18 / 20	25 / 22 / 12	12 / 15 / 20	25 / 15 / 12
40"	12 / 16 / 12	12 / 15 / 12	12 / 22 / 20	12 / 18 / 20	25 / 22 / 12	12 / 15 / 12	25 / 15 / 12	

#'s per acre	<b>5.40</b>	<b>7.13</b>	<b>8.91</b>	<b>10.70</b>	<b>12.50</b>	<b>14.25</b>	<b>16.04</b>	
<b>COUNTER 15G</b> 22"	12 / 18 / 12	12 / 22 / 20	25 / 22 / 12	25 / 18 / 12	25 / 15 / 12	25 / 22 / 20	25 / 12 / 12	
<b>LORSBAN 15G</b> 30"	12 / 22 / 20	12 / 15 / 20	25 / 15 / 12	25 / 22 / 20	25 / 18 / 20	25 / 16 / 20	25 / 15 / 20	
36"	12 / 18 / 20	25 / 16 / 12	25 / 22 / 20	25 / 18 / 20	25 / 15 / 20	25 / 14 / 20	25 / 12 / 20	
40"	12 / 15 / 20	25 / 15 / 12	25 / 12 / 12	25 / 15 / 20	25 / 14 / 20	25 / 12 / 20		

#'s per acre	<b>17.82</b>	<b>19.60</b>	<b>21.40</b>	<b>23.20</b>				
<b>COUNTER 15G</b> 22"	25 / 18 / 20	25 / 16 / 20	25 / 15 / 20	25 / 14 / 20				
<b>LORSBAN 15G</b> 30"	25 / 14 / 20	25 / 12 / 20						

**MICROSEM MICROGRANULAR INSECTICIDE SYSTEM**

**MICROSEM SETTING CHART - Drive sprockets to be used**

These settings are theoretical and approximate. Actual output may vary. Other outputs can be obtained by using different sprocket arrangements of the Microsem drive, however travel speed variations will not affect the output.

	A / B / C	A / B / C	A / B / C	A / B / C	A / B / C	A / B / C	A / B / C	A / B / C
<b>#'s per acre</b>	<b>3.56</b>	<b>8.90</b>	<b>10.95</b>	<b>13.35</b>	<b>17.80</b>	<b>22.25</b>	<b>26.70</b>	
<b>TEMIK 15G</b> 22"		12 / 18 / 12	12 / 15 / 12	12 / 22 / 20	12 / 15 / 20	25 / 15 / 12	25 / 22 / 20	
<b>GYPSUM</b> 30"		12 / 22 / 20	12 / 18 / 20	12 / 15 / 20	25 / 12 / 12	25 / 18 / 20	25 / 15 / 20	
36"		12 / 18 / 20	12 / 15 / 20	25 / 12 / 12	25 / 20 / 20	25 / 15 / 20	25 / 12 / 20	
40"	12 / 25 / 12	25 / 22 / 12	25 / 18 / 12	25 / 15 / 12	25 / 18 / 20	25 / 12 / 20	25 / 12 / 20	

<b>#'s per acre</b>	<b>1.78</b>	<b>4.45</b>	<b>8.90</b>					
<b>TEMIK 15 G</b> 22"		12 / 15 / 12	25 / 12 / 12					
<b>CORNCOB</b> 30"	12 / 25 / 12	25 / 22 / 12	25 / 18 / 20					
<b>GRIT</b> 36"	12 / 22 / 12	12 / 15 / 20	25 / 15 / 20					
40"	12 / 18 / 12	25 / 15 / 12	25 / 12 / 20					

<b>#'s per acre</b>	<b>2.70</b>	<b>3.20</b>	<b>3.70</b>	<b>4.50</b>	<b>5.60</b>	<b>6.70</b>	<b>7.80</b>	<b>9.40</b>
<b>ZENECA</b> 22"	12 / 25 / 12	12 / 22 / 12	12 / 18 / 12	12 / 15 / 12	12 / 12 / 12	25 / 22 / 12	25 / 18 / 12	25 / 15 / 12
<b>FORCE</b> 30"	12 / 18 / 12	12 / 15 / 12	12 / 22 / 20	25 / 22 / 12	12 / 15 / 20	25 / 15 / 12	25 / 22 / 20	25 / 18 / 20
<b>3G</b> 36"	12 / 15 / 12	12 / 22 / 20	12 / 18 / 20	12 / 15 / 20	25 / 15 / 12	25 / 22 / 20	25 / 18 / 20	25 / 15 / 20
38"	12 / 23 / 20	12 / 12 / 12	25 / 22 / 12	25 / 18 / 12	25 / 15 / 12	25 / 12 / 12	25 / 10 / 12	

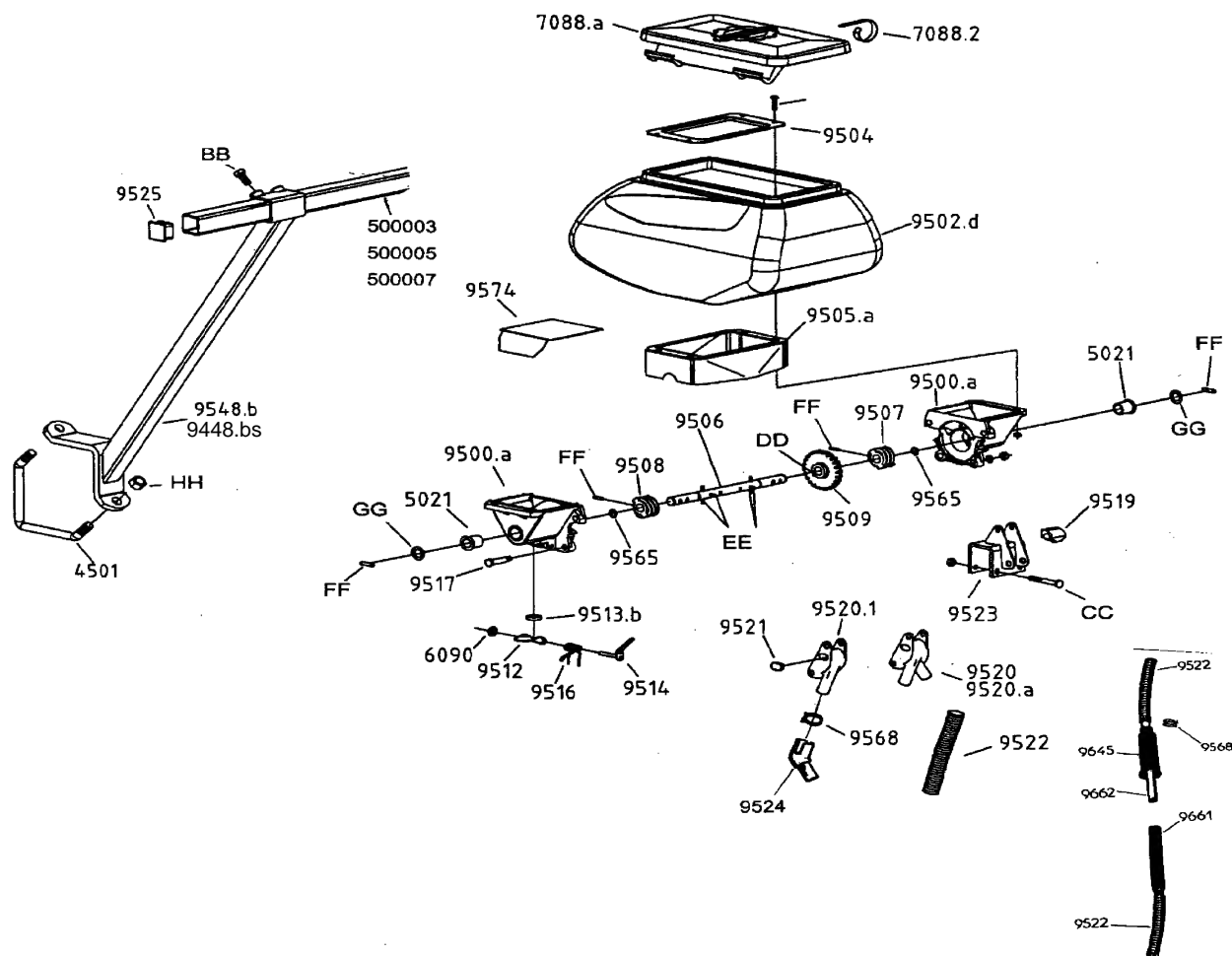
<b>#'s per acre</b>	<b>3.40</b>	<b>4.00</b>	<b>4.60</b>	<b>4.90</b>	<b>5.50</b>	<b>6.70</b>	<b>8.10</b>	<b>10.10</b>
<b>RIDOMIL</b> 22"	12 / 22 / 12	12 / 18 / 12	12 / 16 / 12	12 / 15 / 12	12 / 22 / 20	12 / 18 / 20	12 / 15 / 20	25 / 15 / 12
<b>GOLD GR</b> 30"	12 / 16 / 12	12 / 15 / 12	12 / 22 / 20	12 / 18 / 20	25 / 20 / 12	25 / 18 / 12	25 / 22 / 12	25 / 18 / 20
<b>PC11G</b> 36"	12 / 22 / 20	25 / 24 / 12	12 / 18 / 20	12 / 15 / 20	25 / 18 / 12	25 / 22 / 20	25 / 12 / 12	25 / 15 / 20
38"	12 / 21 / 20	25 / 22 / 12	25 / 22 / 12	25 / 18 / 12	25 / 15 / 12	25 / 22 / 20	25 / 18 / 20	

<b>#'s per acre</b>	<b>3.10</b>	<b>3.50</b>	<b>4.20</b>	<b>5.10</b>	<b>5.70</b>	<b>7.00</b>	<b>8.50</b>	<b>10.60</b>
<b>GOLD PC</b> 22"	12 / 25 / 12	12 / 22 / 12	12 / 18 / 12	12 / 15 / 12	12 / 22 / 20	12 / 18 / 20	12 / 15 / 20	25 / 15 / 12
30"	12 / 18 / 12	12 / 16 / 12	12 / 22 / 20	12 / 18 / 20	25 / 20 / 12	25 / 18 / 12	25 / 22 / 20	25 / 20 / 12
36"	12 / 15 / 12	12 / 22 / 20	12 / 18 / 20	12 / 15 / 20	25 / 18 / 12	25 / 22 / 20	25 / 12 / 12	12 / 12 / 12
38"	12 / 23 / 20	12 / 21 / 20	25 / 22 / 12	25 / 18 / 12	25 / 16 / 12	25 / 22 / 20	25 / 18 / 20	

<b>#'s per acre</b>	<b>13.50</b>	<b>16.00</b>	<b>20.00</b>	<b>22.40</b>				
<b>AMEBIN</b> 22"	25 / 18 / 12	25 / 15 / 12	25 / 12 / 12	25 / 18 / 20				
30"	25 / 22 / 20	25 / 18 / 20	25 / 15 / 20					
36"	25 / 18 / 20	25 / 15 / 20	25 / 12 / 20					
40"	25 / 12 / 12	25 / 13 / 20						

## MICROSEM INSECTICIDE ASSEMBLY

### Microsem Assembly



#### PART No. DESCRIPTION

4501	V-bolt, 16mm
5021	Self lubricated bushing
6090	Snapping, 6mm
7085.da	Drop tube, right hand
7085.ga	Drop tube, left hand
7088.a	Lid, hopper, with clip (7088.2)
7088.2	Clip, for hopper lid
9500.a	Housing(half), metering unit (replaces old 9500 & 9501 left & right sides)
9502.d	Plastic hopper only, 25 liter, -'03
9504	Steel base (hopper to meter)
9505.a	Rubber skirt
9506	4x35 roll pins)
9507	Worm gear, lft(reqrs 6x25 roll pin)
9508	Worm gear, rht(reqrs 6x25 roll pin)
9509	4x25 roll pin)
9512	Trap door (to clean out meter unit)
9513.a	Seal for trap door
9514	Lever for trap door
9516	Spring for trap door
9517	Bolt (fastens housings together)
9519	Rubber plug
9520	Two outlet chute (towards the front)
9520.a	Two outlet chute (towards the rear)

#### PART No. DESCRIPTION

9520.1	Single outlet
9521	Rubber plug for side of chute
9522	Hose (specify length)
9523	Clamp/mounting bracket
9524	Elbow for single outlet
9525	End cap for bar
9548.b	Support bar(for mounting to a 5x5 bar)
9548.bs	Support bar(for mounting to a 7x7 bar)
9565	Rubber O-ring
9568	Hose clamp (for 9522)
9574	Plate for hopper (to convert to single outlet)
9645	Protective Sleeve
9661	Female half of sliding drop tube assy
9662	Male half of sliding drop tube assy
500003	Carrier bar, 8' 2" long(1-1/2" square)
500005	Carrier bar, 11' 6" long(1-1/2" square)
500007	Carrier bar, 14' 9" long(1-1/2" square)
AA	10530096 - Phillips head bolt, 6 x 25
BB	HM-61225 - Hex bolt, 12 x 25
CC	HM-2860 - Hex bolt, 8 x 60
DD	10172041 - Roll pin, 4 x 25
EE	10172043 - Roll pin, 4 x 35
FF	10172090 - Roll pin, 6 x 25
GG	10622024 - Washer, 16 x 26 x 1
HH	NM-51605 - 16mm nylon locknut



## LIQUID FERTILIZER

### 3-point Mounted Planters

#### PUMP MOUNTING AND HOSE ARRANGEMENT

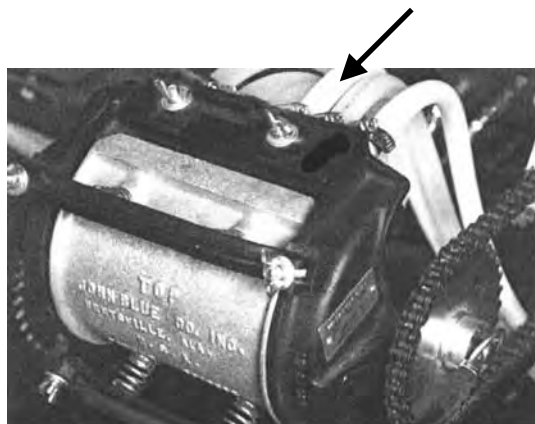
The squeeze pump is shipped with the discharge manifold in the rearward or non-operating position. Before operating or mounting the pump, position the discharge manifold in the forward or operating position and secure by tightening the wing nuts.

The pump should always be mounted even with or lower than the fertilizer tank for accurate metering. The rate of liquid fertilizer application is determined by the combination of sprockets on the squeeze pump and the drive shafts (see chart). When changing the sprocket combinations, check that the sprockets are in alignment, that the sprocket retaining collars are tight and that the chain tension is restored.

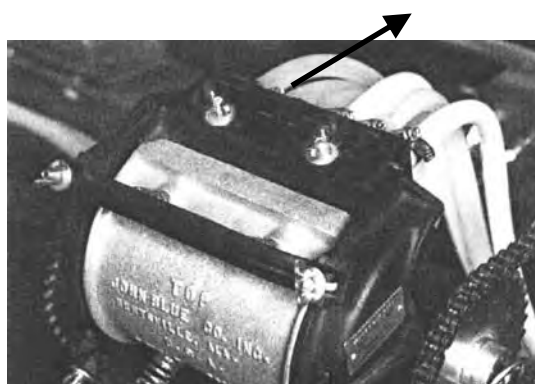
The shut-off valves should be closed to shut off the flow when the pump is not in use, either overnight, or for an extended amount of time. Also close the valves when servicing either the pump or the hoses.

To prolong the life of the hoses, the discharge manifold must be repositioned to the rearward position when not in use to prevent hose distortion.

The discharge pump must be in the forward position when the pump is in operation. To reposition the manifold, loosen the wing nuts and slide the manifold forward and sideways or rearward as required and retighten the nuts.



DISCHARGE MANIFOLD REARWARD



DISCHARGE MANIFOLD FORWARD



#### WARNING

Agricultural chemicals can be dangerous. Improper use can result in injury to persons, animals, and soil. Handle with care and follow instructions of the chemical manufacturer.



#### IMPORTANT

If the fertilizer is placed too close to the seed, it may cause germination or seedling damage especially if used in amounts in excess of the fertilizer manufacturer's recommendations. Check with your fertilizer dealer or manufacturer for the correct amount and placement of fertilizer.

## LIQUID FERTILIZER

### 3-point Mounted Planters

#### DELIVERY RATE CHART

The following delivery rate chart provides an approximate application rate only. Actual delivery will vary with temperature and the type of fertilizer being used.

Chart is shown in gallons per acre. This chart is for a pump with a 1/2" hose. For settings with a 5/16" hose, cut gal/acre in half.

#### 8 Tooth Driver Sprocket

Sprocket					
Part #	Driven	40"	38"	36"	30"
L-1383	8	21.9	23.1	23.9	29
L-1384	9	19.1	20.4	21.0	25.3
L-1385	10	17.2	18.3	18.9	22.7
L-1386	15	11.4	12.1	12.5	15.
L-1381	20	8.6	9.1	9.4	11.3
L-1387	22	7.7	8.2	8.5	10.2
L-1388	23	7.5	8.0	8.3	9.6
L-1389	26	6.7	7.1	7.3	8.8
L-1390	30	5.8	6.2	6.4	7.7
L-1391	31	5.6	5.9	6.1	7.4
L-1392	32	5.5	5.8	6	7.3

Gallons per Acre

#### 15 Tooth Driver Sprocket

L-1383	8	40.0	43.0	44.5	53.3
L-1384	9	35.9	38.2	39.5	47.4
L-1385	10	32.2	34.3	39.5	42.6
L-1386	15	21.5	22.9	23.6	28.4
L-1381	20	16.1	17.1	17.7	21.3
L-1387	22	14.6	15.6	16.1	19.3
L-1388	23	14.0	14.9	15.4	18.4
L-1389	26	12.5	13.3	13.7	16.5
L-1390	30	10.7	11.4	11.8	14.2
L-1391	31	10.3	11.0	11.3	13.6
L-1392	32	10.1	10.7	11.1	13.3

Gallons per Acre

#### OPTIONAL PISTON PUMP

If the machine is equipped with the piston pump option, the rate of liquid fertilizer application is determined by the piston pump settings.

To adjust delivery rate, loosen the 3/8" lock nut that secured the arm with the pointer and rotate the scale flange until the pointer is over the desired scale setting. The adjustment wrench will facilitate rotation of the scale flange. Tighten the 3/8" lock nut being careful not to over tighten.



#### CLEANING

The tanks and all hoses are made of sturdy plastic and rubber to resist corrosion. However, the tanks, hoses and metering pump should be thoroughly cleaned with water at the end of the planting season or prior to an extended period of non-use. Do not allow fertilizer to crystallize due to cold temperature or evaporation.

On machines equipped with the piston pump, the strainer located between the piston pump and ball valve should be taken apart and cleaned daily. Remove the end cap to clean the screen

#### PISTON PUMP STORAGE

**KEEP AIR OUT OF THE PUMP!** This is the only way to prevent corrosion. Even for short periods of storage, the entrance of air into the pump will cause **RAPID AND SEVERE CORROSION.**

#### Overnight Storage

Suspension Fertilizer must be flushed from the pump for ANY storage period.

#### Winter Storage

1. Flush pump thoroughly with 5 to 10 gallons of fresh water and circulate until all corrosive salts are dissolved in the pump.
2. With the pump set on 10, draw in a mixture of half diesel fuel and half 10 weight oil until the discharge is clean. Then plug inlet and outlet

## LIQUID FERTILIZER

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### 3-point Mounted Planters

#### PISTON PUMP APPLICATION RATES

Pump Setting	2	3	4	5	6	7	8	9	10
4-row 30"	13	19	26	32	38	45	51	58	64
4-row 36"	11	16	21	27	32	37	43	48	54
4-row 38"	10	15	20	26	30	35	41	46	51
6-row 30"	9	13	17	21	25	30	35	39	43
6-row 36"	7	11	14	18	21	25	29	32	36
6-row 38"	7	10	13	17	20	24	27	31	34
8-row 30"	7	10	13	16	19	23	26	29	32
8-row 36"	5	8	11	13.5	16	19	21.5	24	27
8-row 38"	5	7	10	13	15	18	20	23	25
12-row 30"	4	6.5	8.5	11	13	15	17	19.5	21
12-row 36"	4	5.5	7	9	11	12.5	14.5	16	18
12-row 38"	3	5	6.5	8.5	10	12	13.5	15	17

The above chart is for planters equipped with ground drive wheels that have 7.60 x 15 tires, 26 tooth drive sprocket, and a 22 tooth driven. This chart is based on average wheel slippage and liquid viscosities. This chart is also based on standard pump sprockets of 30 tooth drive and 16 tooth driven. Other sprockets are available.

Measure and weigh one gallon of actual fertilizer solution to determine exact application rates. This chart was calculated based on a solution weighing 10 pounds per gallon.

**IMPORTANT:** Fertilizer application rates can vary from the above chart. To prevent application miscalculation, make field checks to be sure you are applying fertilizer to all rows at the desired rate.

**NOTE:** Flow to all rows should be checked periodically. If one or more lines are plugged, the desired rate will be delivered to the remaining rows keeping total application rate at desired rate.

To check the exact number of gallons your fertilizer attachment will actually deliver on 30" row spacing, proceed as follows:

1. Remove the hose from one of the fertilizer openers and insert it into a collection container that has been secured to the planter frame.
2. Engage the fertilizer attachment and drive forward for 174'.
3. Measure the fluid ounces caught in the container and multiply that amount by 100.
4. Divide that amount by 128.
5. The result will be the gallons of fertilizer delivered per acre when planting in 30" rows. Rinse the collection container and repeat test on other rows if necessary. To convert this delivery rate for wider rows, multiply by the following conversion factors:

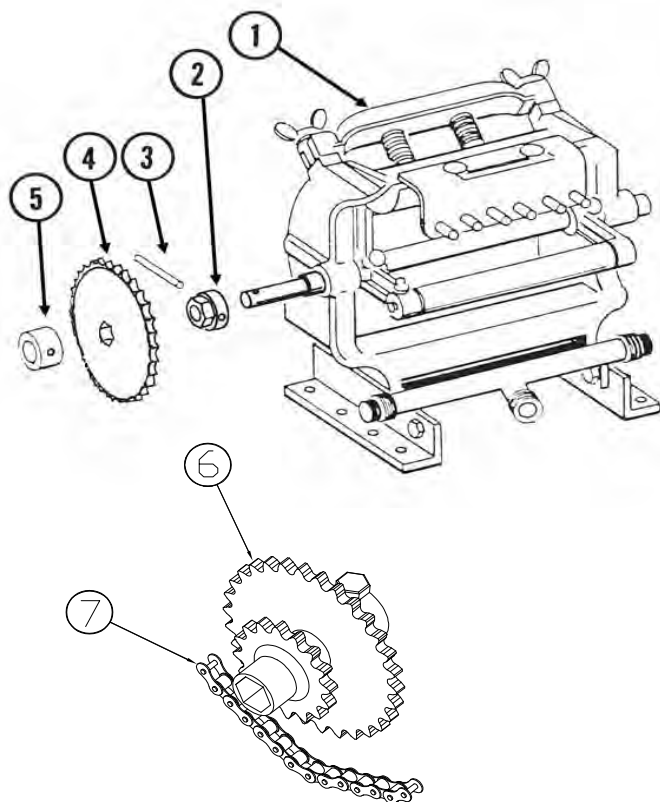
For 36" rows, multiply by .83 by result

For 38" rows, multiply by .79 by result

## LIQUID FERTILIZER

### 3-point Mounted Planters

#### SQUEEZE PUMP ASSEMBLY



ITEM	PART No.	DESCRIPTION
1	JBL6C	SQUEEZE PUMP 2 - 6 ROWS
	JBL8LC	SQUEEZE PUMP 8 ROWS
	JBL12C	SQUEEZE PUMP 12 ROWS
2	MPL1414	7/8" SPROCKET ADAPTER
3	F64286	SPRING PIN 5/16 X 2-1/4"
4	MPL1381	SPROCKET, 20 TOOTH
	MPL1383	SPROCKET, 8 TOOTH
	MPL1384	SPROCKET, 9 TOOTH
	MPL1385	SPROCKET, 10 TOOTH
	MPL1386	SPROCKET, 15 TOOTH
	MPL1387	SPROCKET, 22 TOOTH
	MPL1388	SPROCKET, 23 TOOTH
	MPL1389	SPROCKET, 26 TOOTH
5	MPL4414	7/8" SPROCKET RETAINER
6	MPL3016	DOUBLE SPROCKET, 16-30T
7	MPL2040A	DRIVE CHAIN 4 FT.

#### TROUBLESHOOTING

**PROBLEM: Pump hard or impossible to prime**

POSSIBLE CAUSE	SOLUTION
Valves fouled or in wrong place.	Inspect and clean valves.
Air leak in suction line.	Repair leak.
Pump is set too low.	Adjust pump setting.
Packing washers are worn out.	Replace.

**PROBLEM: Low metering.**

POSSIBLE CAUSE	SOLUTION
Valves are fouled or in wrong place.	Inspect and clean valves.
Air leak in suction line.	Repair leak.
Pump is set too low.	Adjust pump setting.
Broken valve spring.	Replace spring.

**PROBLEM: Over meters.**

POSSIBLE CAUSE	SOLUTION
Broken discharge valve spring.	Replace spring.
Trash is under valves.	Inspect and clean valves.
Improper rate setting.	Adjust pump setting.

**PROBLEM: Leaks through when stopped.**

POSSIBLE CAUSE	SOLUTION
Broken discharge valve spring.	Replace spring.
Trash is under valves.	Inspect and clean valves.

**PROBLEM: Fertilizer solution leaking under stuffing box.**

POSSIBLE CAUSE	SOLUTION
Packing washers are worn out.	Replace.

**PROBLEM: Pump is using excessive oil.**

POSSIBLE CAUSE	SOLUTION
Oil seals or o-ring worn and leaking.	Replace.

**PROBLEM: Pump operates noisily.**

POSSIBLE CAUSE	SOLUTION
Crankcase components worn excessively.	Inspect and replace if necessary.