

**FTL & FTLH - EXW**  
**Fertilizer and Lime Spreader**  
**SERIAL # \_\_\_\_\_**  
**WORK ORDER # \_\_\_\_\_**

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## **Chandler Equipment Company Personnel**

**Bill Chandler**      **Chief Executive Officer**  
**Advertising & Marketing**  
**Dealer / Distributor Arrangements**

**Brannon Chandler**   **General Manager**  
**Production & Scheduling**  
**Warranty, Sales and Service**

**Andrea Thompson**   **Administrative Assistant**

**Lisa Johnson**        **Accounts Receivable**  
**Collections**

**Michael Sosebee**     **Sales Manager**

**Gene Dye**            **Outside Sales**  
**Mid-South Regional Sales Manager**

**Dan McCorvey**      **Outside Sales**  
**Southeast Regional Sales Manager**

**Richard Wray**        **Outside Sales**  
**Western Regional Sales Manager**

**Matt Farmer**        **Inside Sales**

**Michael Anderson**   **Precision Ag Products**  
**Equipment Service**

**Wes Hobgood**        **Parts & Service**

**Kimbrow Grizzle**     **Parts & Service**

## **Warranty Policy**

### **A) Standard Warranty:**

Chandler Equipment Company warrants that equipment manufactured by Chandler Equipment Company, under normal conditions of use and service, shall be free from material defects due to faulty manufacturing for the period listed below.

- a. Poultry Litter Spreaders and Conveyors – Six (6) Months
- b. Fertilizer and Lime Pull Type Spreader – Six (6) Months
- c. Fertilizer Tenders (Trailer or Truck Mounted) – Six (6) Months
- d. Fertilizer and Lime Chassis Mounted Spreaders – One (1) Year

**This warranty period is from the date of delivery to the original owner.**

(Warranty period is on equipment built after July 1, 2012)

### **B) Warranty Approval:**

- a. Any and All warranty claims must be approved in writing by Chandler Equipment Company prior to any work being done.
- b. **ANY WORK DONE WITHOUT PRIOR WRITTEN APPROVAL WILL NOT BE COVERED UNDER WARRANTY AND THE CUSTOMER / DEALER WILL BE RESPONSIBLE FOR ALL COST.**

### **C) Warranty Claim Forms: (Dealer Only)**

- a. Warranty claim form / forms will be supplied to Dealer upon request.
- b. Warranty claim forms are available in 2 part paper form or in an electronic format.
- c. All warranty claims must include serial number, date of purchase, customer name and date of sale to original owner. (See attached warranty claim instructions for guidelines on filling out warranty claim form)
- d. Improperly filed or misleading information on warranty claims shall result in warranty claim being denied.
- e. **ALL WARRANTY CLAIMS MUST BE FAXED TO (770) 535-1265.**

### **D) Labor and Repair Cost: (Dealers Only)**

- a. Labor for any repairs must be approved prior to any work being done.
- b. Labor rate (per hour) will be determined by Chandler Equipment Company, See Chandler Labor Rate List.
- c. Also Chandler Equipment Company retains the right to adjust any and all warranty claims.

### **E) Dealer Responsibility:**

- a. Dealer shall be first line in all communications with the customer.
- b. Dealer shall also maintain good and open communications between the customer and Chandler Equipment in order to resolve warranty issues.



- c. Dealer shall be responsible for informing the customer of operating procedures, safety precautions and normal maintenance to help avoid any warranty issues.
- d. Promptly inform Chandler Equipment of any possible warranty issues.
- e. Dealer is responsible for making every effort to resolve warranty issues in a timely manner.
- f. Notify Chandler Equipment on any possible non-warranty issues, such as any modification made to equipment.

#### **F) Original Chandler Genuine Parts:**

- a. Chandler Equipment Company will only warranty equipment that uses Chandler Genuine Parts. Any equipment that is sold by a dealer with parts other than Original Chandler Genuine parts shall Void Any and All warranties

#### **G) Replacement Parts Shipping:**

- a. Chandler Equipment Company shall send Chandler Genuine Parts for warranty replacement. Chandler Equipment shall NOT warranty any part or parts replaced by the Customer/Dealer that are not Chandler Genuine Parts.
- b. Cost of any part or parts that are replaced by the Customer / Dealer that are not Chandler Genuine Parts shall be the sole responsibility of the Customer / Dealer.  
All replacement parts covered under warranty will be shipped via regular UPS. The cost of any parts shipped **UPS-Next Day Air** will be the sole responsibility of the Customer/Dealer.

#### **H) Parts Returns:**

- a. All parts replaced under warranty will be returned to Chandler Equipment Company within 20 days of replacement for warranty evaluation. All parts returned for warranty evaluation must be in its original state free of modifications. Any modifications will result in the warranty claim being denied and the part or parts returned back to the customer/dealer.
- b. Any hydraulic components returned must be assembled (in original state) and with the ports plugged to prevent any contamination. Any hydraulic component that has been disassembled will VOID the warranty claim and the part or parts returned back to the customer/dealer.
- c. All Returned Parts for warranty evaluation must be clearly tagged with the following information.
  - I. RMA number
  - II. Customer or Dealer Name, address, phone number and contact person
  - III. Equipment serial number
  - IV. Complete description of problem

#### **I) Misuse or Improper Installation:**

- a. Any equipment, parts, or components that have been damaged by improper installation or misuse will **NOT** be covered under this warranty.
- b. Chandler Equipment accepts no responsibility or liability of any kind due to improper installation of equipment or parts on any product manufactured by Chandler Equipment Company. This includes, but is not limited to, any damages to personal property, crops, or any other equipment.

#### **J) Incomplete Equipment and Dealer Add-Ons:**

- a. Chandler Equipment does not warrant any equipment sold **INCOMPLETE**. This includes (but is not limited to) axles, tires, any hydraulic components or paint.
- b. Any Non Genuine Chandler Parts that are installed as aftermarket add-ons by anyone not approved in writing by Chandler Equipment Company shall **VOID ALL WARRANTIES**.
- c. Chandler Equipment Company accepts no responsibility, nor shall warrant any equipment or any component that is damaged due to any type Control System not sold and installed by Chandler Equipment Company.

**K) Items Not Covered Under this Warranty:**

- a. Any equipment that has been modified from its original state.
- b. Any equipment used for any other purpose than what it was originally designed for.
- c. Any travel time, cleaning of equipment, unloading of material, or towing.
- d. Any cost of materials that have been applied improperly due to the lack of customer / dealer not following proper operating instructions.

## **Raven Industries**

1 year standard warranty covers all defects in workmanship or materials on your Raven applied products under normal use.

All Raven Industries parts must be returned clean and free of any fluids.

It is recommended that the defective parts be returned to Chandler Spreaders, Inc. in the packaging that the replacements parts came in.

**Warranty claims must be submitted to Chandler Equipment Company no later than 10-days after the repair date. The dealer must add the following information when filing a warranty claim on a Raven component.**

- Spreader serial number.
- Part number and serial number of the defective part.
- Description of failure.
- Procedure to diagnose failure.

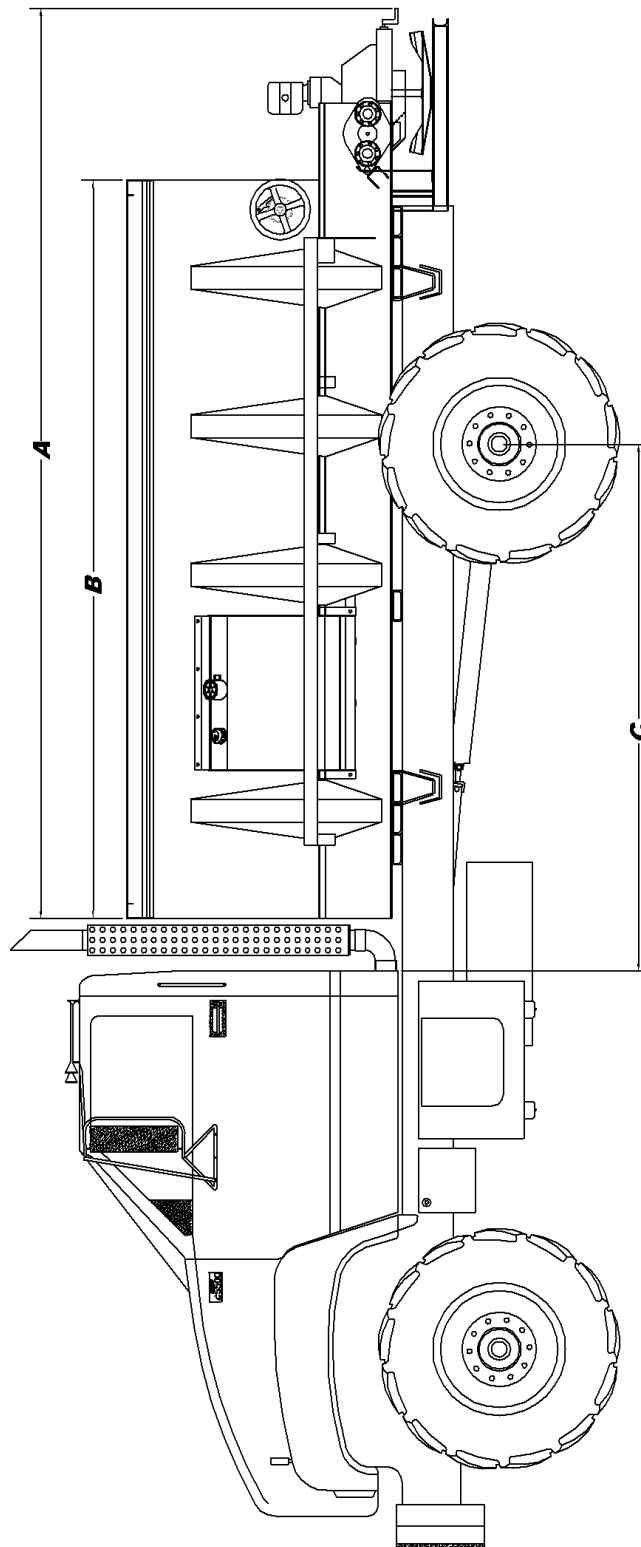
All Raven Industries parts returned to Chandler Spreaders, Inc. for warranty reimbursement will be submitted to Raven Industries for diagnostic testing. If the defective part is deemed a “No Failure” by Raven Industries the part will be returned to the customer, and the customer will be charged a \$108.00 diagnostic fee and any freight charges associated with the defective part.

**All defective parts must be returned to Chandler Spreaders, Inc. within 15 days of failure. Customer will be invoiced for replacement parts until warranty credit is issued by Raven Industries to Chandler Spreaders, Inc. Customer will then be credited for the replacement parts at that time. If any part/parts are found to be defective by misuse or improper installation, customer will be responsible for all charges for replacement parts and any corresponding freight charges.**

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# **Section 1**

## **Basic Information FTL – EXW FTLH – EXW**



## FTL – EXW Semi-Float

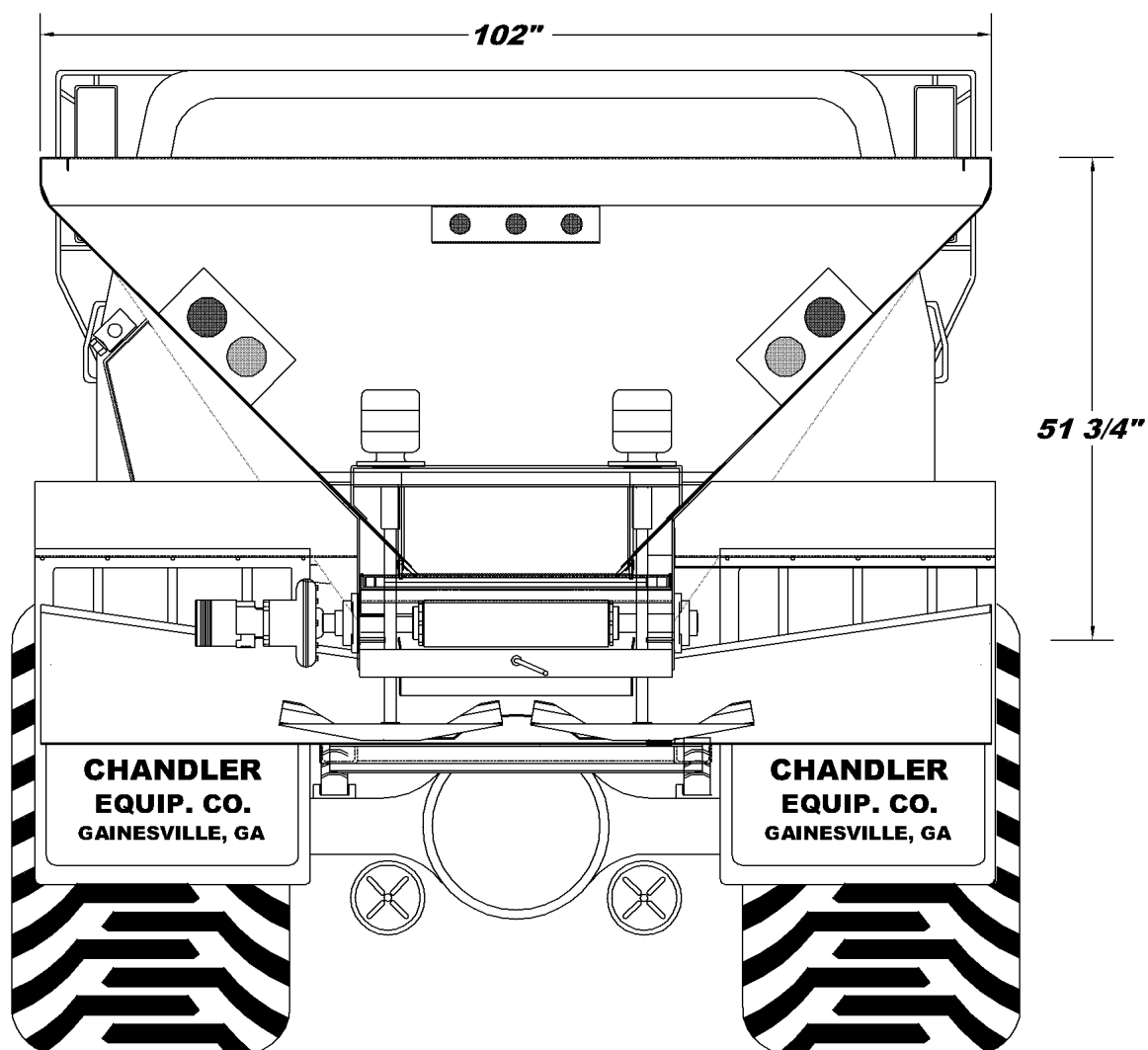
## FTL – EXW Dimensions

	<u>11' Unit</u>	<u>12' Unit</u>	<u>13' Unit</u>	<u>14' Unit</u>
A - Overall Length	165"	177"	189"	201"
B - Inside Hopper	132"	144"	156"	168"
C - Cab to Center of Axle	96"	102"	108"	114"

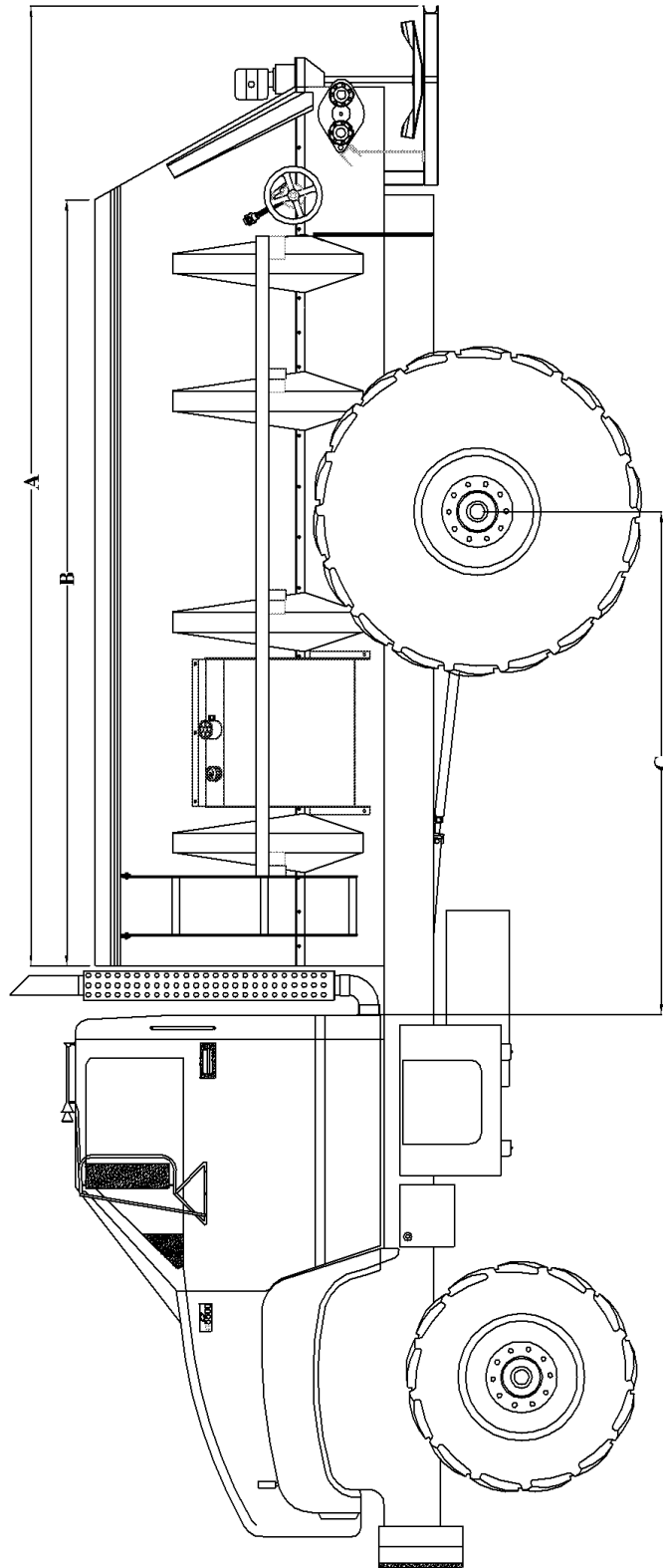
## FTL – EXW Capacities

	<u>11' Unit</u>	<u>12' Unit</u>	<u>13' Unit</u>	<u>14' Unit</u>
Hopper Capacity (Struck Level)	222 Cu. Ft.	242 Cu. Ft.	262 Cu. Ft.	282 Cu. Ft.
Payload (Struck Level) (@ 65# Material)	14,430 lbs.	15,730 lbs.	17,030 lbs.	18,330 lbs.
Hopper Capacity (Heaped & Tarped)	258 Cu. Ft.	290 Cu. Ft.	305 Cu. Ft.	329 Cu. Ft.
Payload (Heaped & Tarped) (@ 65# Material)	16,770 lbs.	18,850 lbs.	19,825 lbs.	21,385 lbs.

# FTL – EXW Semi-Float Width







## FTLH – EXW Full Float

1 - 4

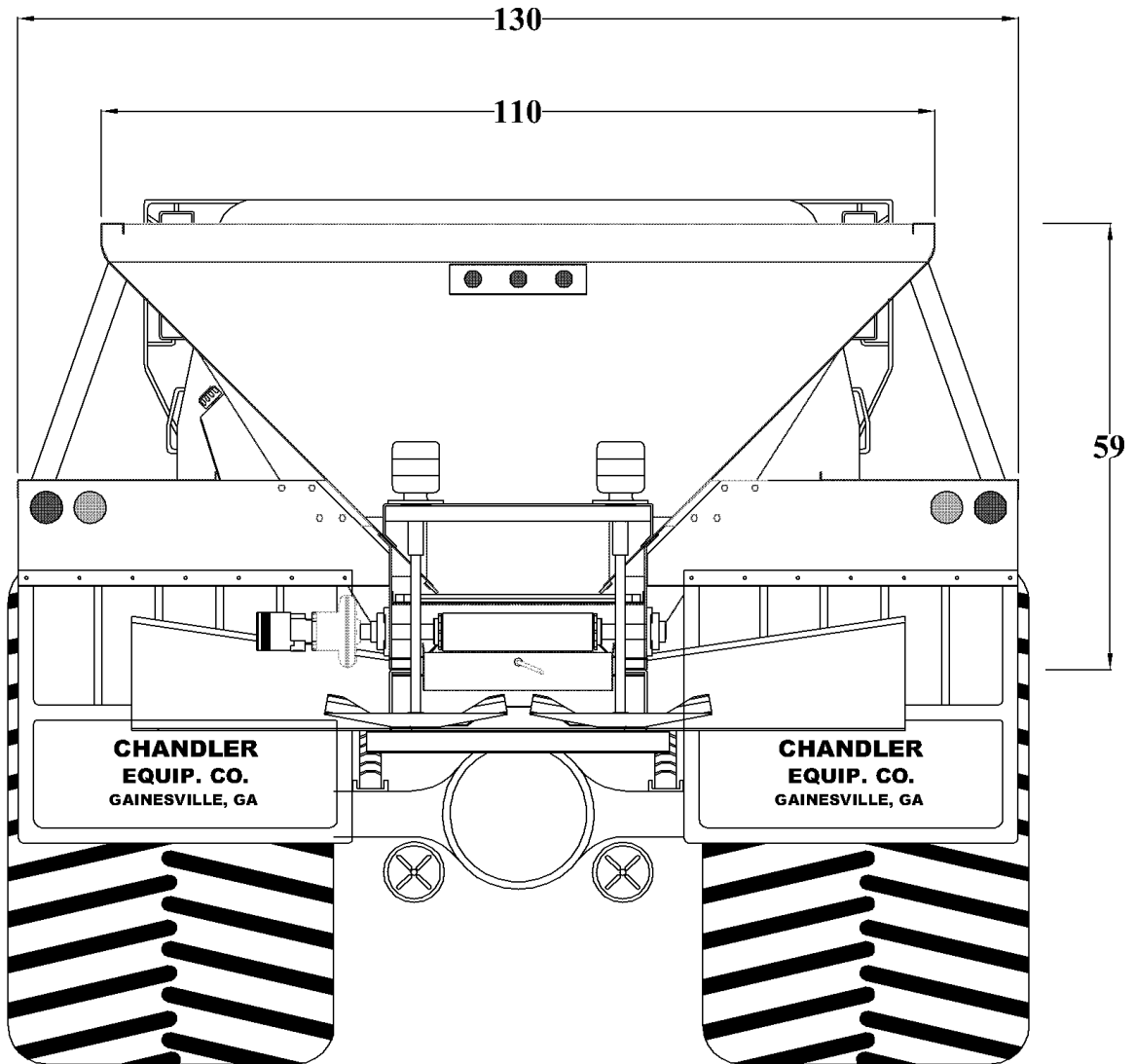
## FTLH – EXW Dimensions

	<u>11' Unit</u>	<u>12' Unit</u>	<u>13' Unit</u>
A - Overall Length	195 1/2"	183 1/2"	195 1/2"
B - Inside Hopper	132"	144"	156"
C - Cab to Center of Axle	96"	102"	108"

## FTLH – EXW Capacities

	<u>11' Unit</u>	<u>12' Unit</u>	<u>13' Unit</u>
Hopper Capacity (Struck Level)	257 Cu. Ft.	280 Cu. Ft.	303 Cu. Ft.
Payload (Struck Level) (@ 65# Material)	16,702 lbs.	18,220 lbs.	19,695 lbs.
Hopper Capacity (Heaped & Tarped)	287 Cu. Ft.	310 Cu. Ft.	340 Cu. Ft.
Payload (Heaped & Tarped) (@ 65# Material)	18,655 lbs.	20,150 lbs.	22,110 lbs.

# FTLH – EXW Full Float Width

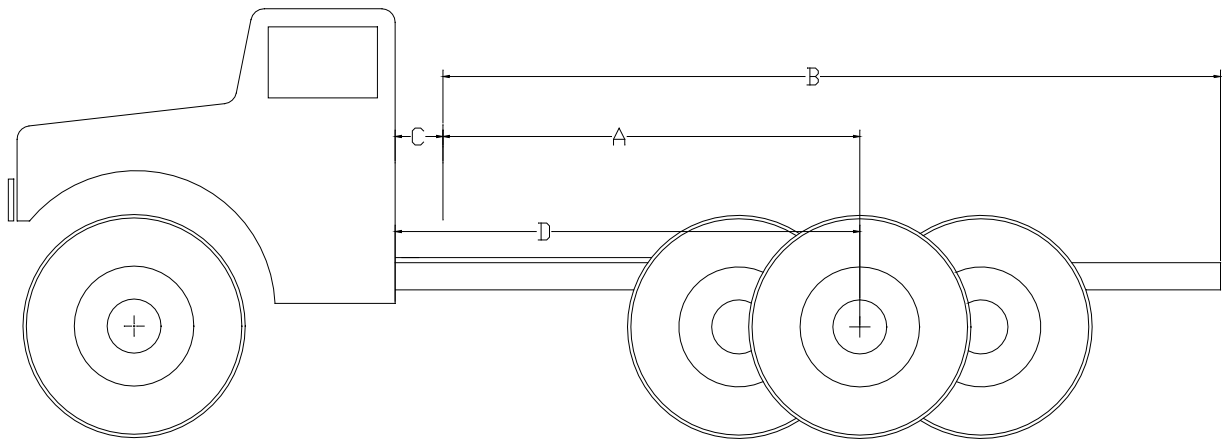


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# **Section 2**

# **Installation**

# 1) Chassis Length



- A= Distance from front of spreader to center of axle**
- B= Distance from front of spreader to end of frame rail**
- C= Distance from back of cab to front of spreader**
- D= Distance from back of cab to center of axle**  
(Center of axles on tandem axle truck)
- E= Distance from center of axle/axle to end of frame rail**

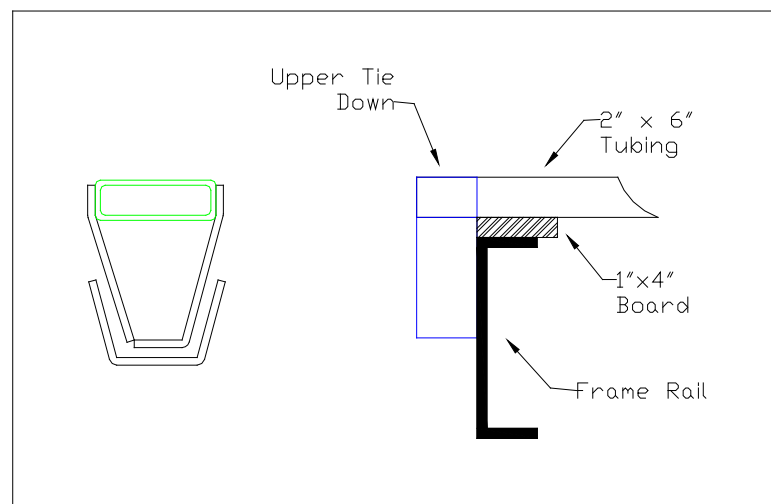
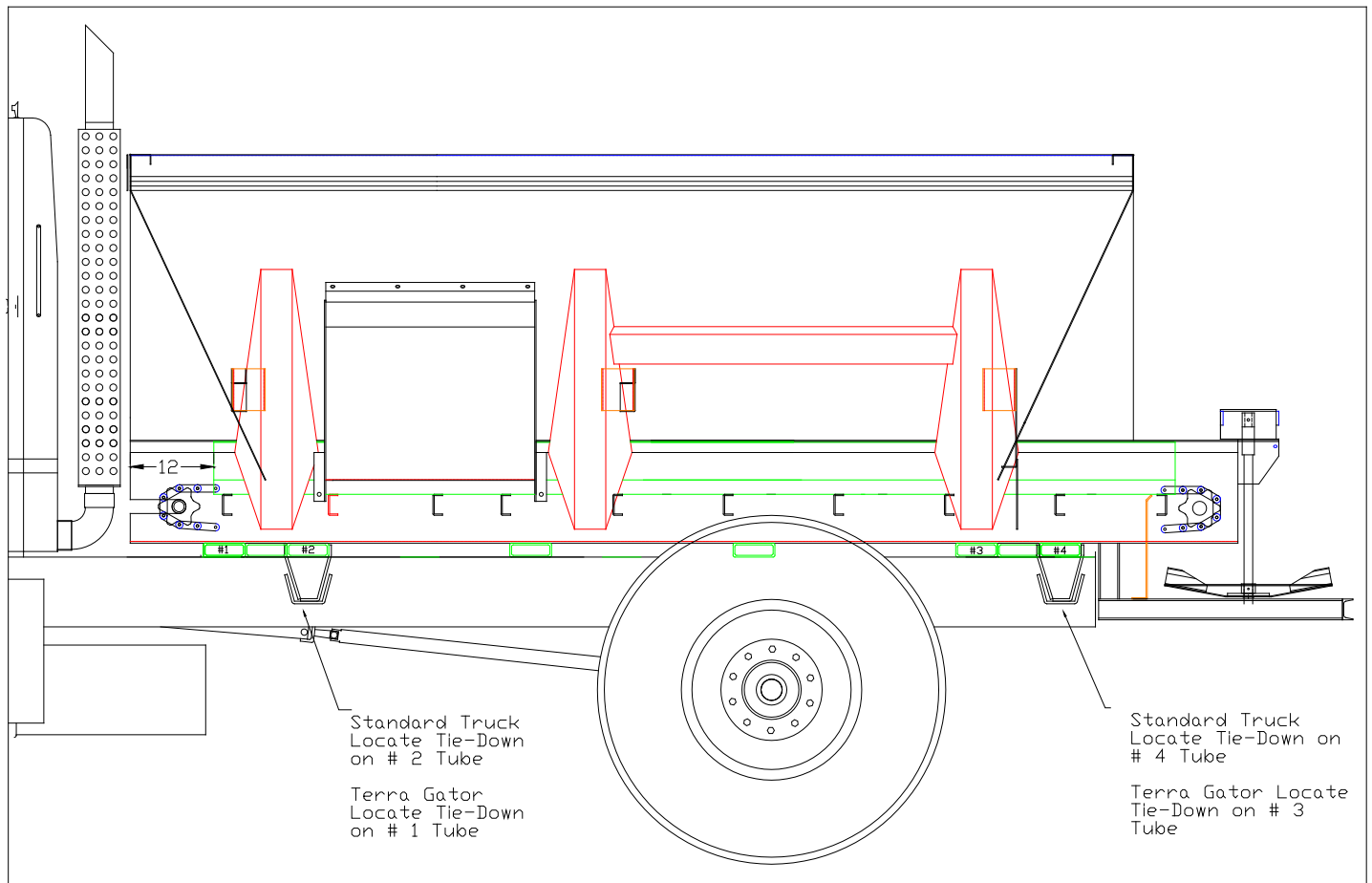
## Single Axle Truck

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
10'	66"	108"	6"	72"	42"
11'	78"	120"	6"	84"	42"
12'	88"	132"	6"	94"	44"
13'	96"	144"	6"	102"	48"

## Tandem Axle Truck

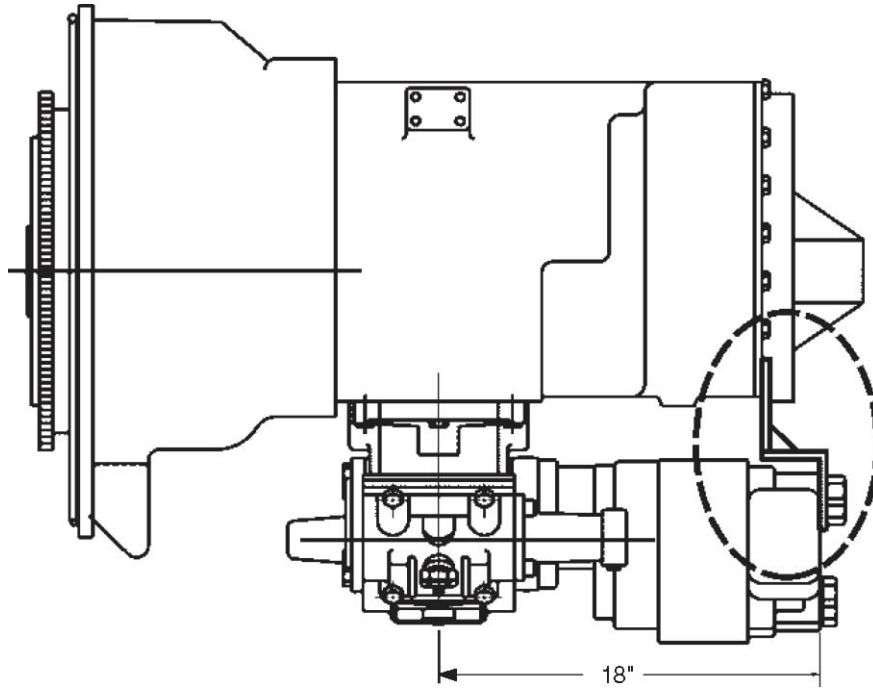
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
14'	102"	156"	12"	114"	54"
15'	108"	168"	12"	120"	60"
16'	114"	180"	12"	126"	66"

## 2) Tie-Down Location



## Tie-Down Location FTLH – EXW

### 3) Direct Mount Pump Support Recommendations



**Use caution to ensure that bracket does not pre-load pump/P.T.O. mounting**

**Chandler Equipment Co. strongly recommends the use of pump supports (Support Brackets) in all applications.**

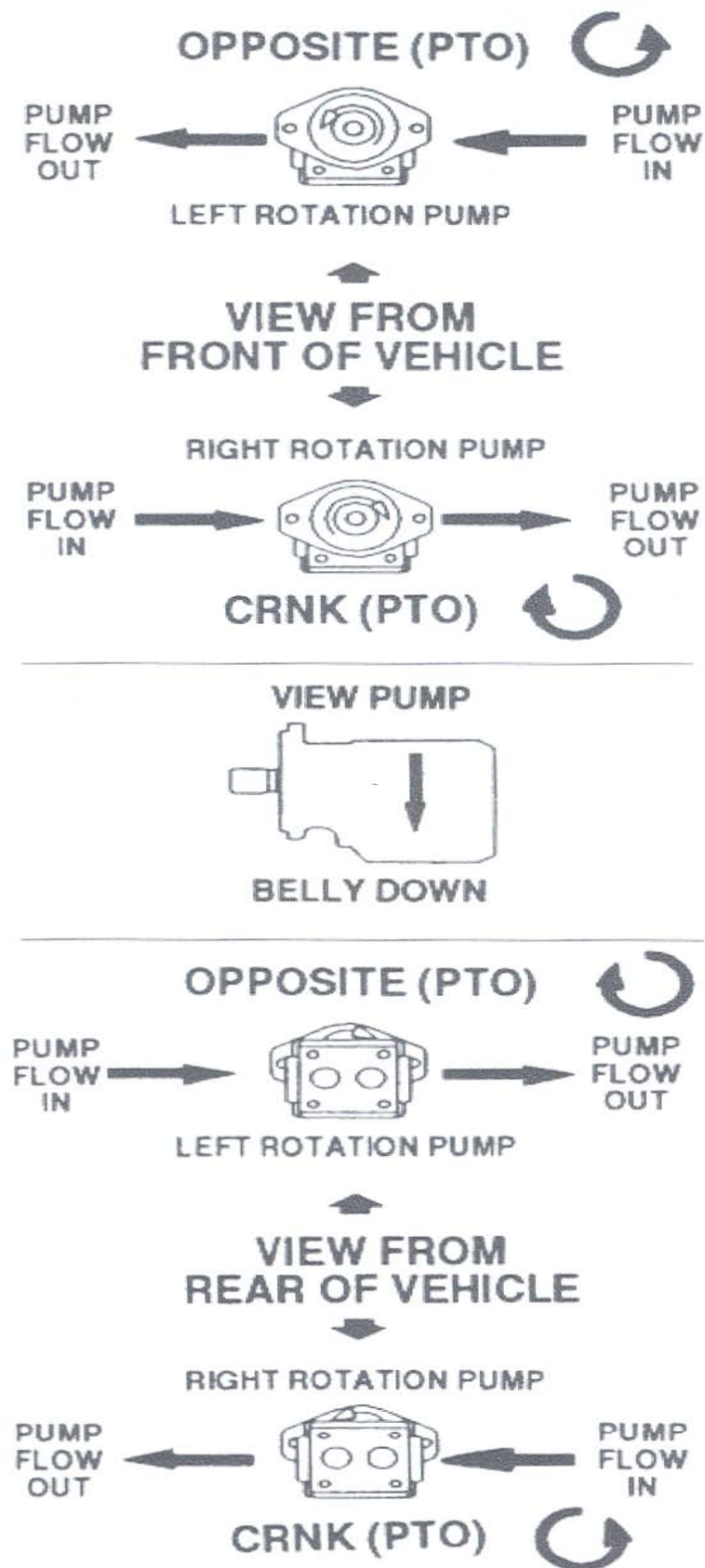
**P.T.O. warranty will be void if a pump bracket is not used when:**

- 1) The combined weight of pump, fittings and hose exceed **40 pounds**
- 2) The combined length of the P.T.O. and pump is **18 inches** or more from the P.T.O. centerline to the end of the pump

**ALSO:** Remember to pack the female pilot of the P.T.O. pump shaft with grease before installing the pump on the P.T.O. (reference Chelsea grease pack 379688)



#### 4) Hydraulic Pump Installation



## 5) Hydraulic Drive System Requirements

### 1) The Chandler FTL – Control System

Requires a Tandem pump, pumping 30 GPM for the conveyor and 22 GPM for the spinners. Each section has a capability of producing 2200 PSI. This spreader comes standard with a Commercial P-20-2 x 1.5 pump. Use the following chart below to match proper Pump and PTO combination.

<u>Type of Engine</u>	<u>Truck RPM</u>	<u>PTO %</u>
Diesel	2000 – 2500	85-90

### 2) The Chandler FTLH - EXW – Control System

Requires a Tandem pump, pumping 30 GPM for the conveyor and 22 GPM for the spinners. Each section has a capability of producing 2200 PSI. This spreader comes standard with a Commercial P-20-2 x 1.5 pump. Use the following chart below to match proper Pump and PTO combination.

<u>Type of Engine</u>	<u>Truck RPM</u>	<u>PTO %</u>
Diesel	2000 - 2500	85– 90

If installing Chandler FTLH-EXW on a Terra Gator with Terra Shift Transmission use P-20 1 ¾” x 1” Gear Pump. (119 %)

**Note:** If pump and PTO combination are not available contact your  
Local Dealer or Chandler Equipment Service Department

## Hydraulic Oil Requirements

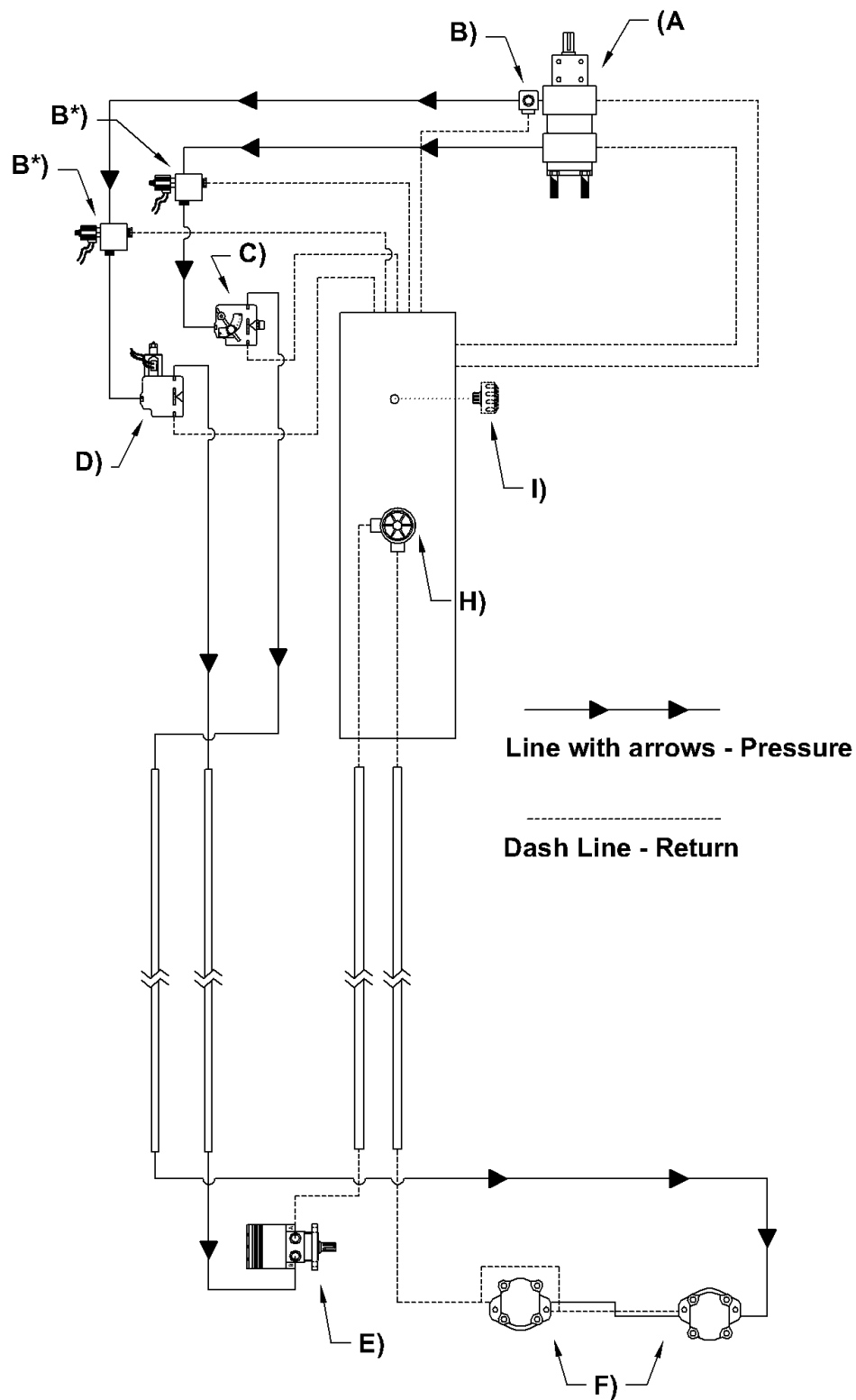
- 1) Oil Type – 46 Series (10 to 15 W)

**Note:** Use hydraulic oil not motor oil

# **Section 3**

# **Hydraulic System**

# Hydraulic System FTL/FTLH - EXW



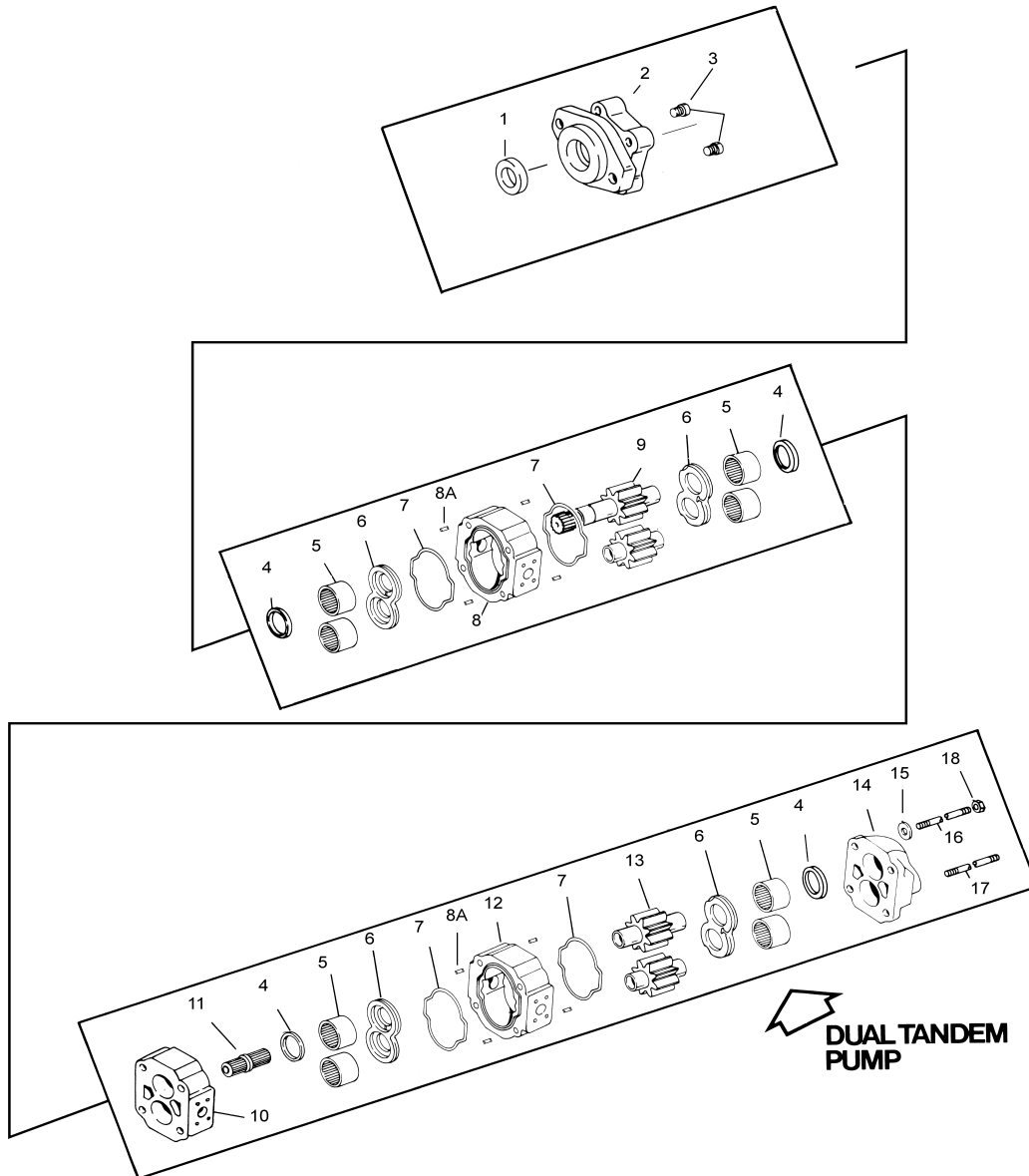
FTL/FTLH - EXW Self Contained Hydraulic System

<b>Part #</b>	<b>Description</b>
<b>A) 400-C-217</b>	<b>P – 2100 Tandem Pump 2" x 1 ½" (Standard)</b>
<b>400-C-339</b>	<b>P – 2100 Tandem Pump 1 ¾" x 1" (Terra Shift)</b>
<b>B) 400-1-308</b>	<b>Relief Valve - Nonadjustable - 2500 PSI</b>
<b>B*) 400-1-307A</b>	<b>1" Electric Dump Valve (Only for Terra Shift Model)</b>
<b>C) 400-1-313</b>	<b>Flow Control Valve with Built-in Relief</b>
<b>D) <u>Options:</u></b>	<b><u>Control Valve</u></b>
<b>063-0171-846</b>	<b>Raven: 30 GPM PWM</b>
<b>063-0173-164</b>	<b>Raven: 30 GPM Fast Valve #12 O-ring</b>
<b>35-02128</b>	<b>TeeJet: 30 GPM EXR - 4</b>
<b>E) 400-R-106</b>	<b>Parker - MB - 18 - Single Rawson Drive</b>
<b>400-R-104</b>	<b>Parker - MB - 12 - Twin Rawson Drive</b>
<b>F) 400-C-218B</b>	<b>M - 2500 2" Gear Spinner Motor</b>
<b>G) 300-1-208</b>	<b>Filter Gauge (not shown)</b>
<b>H) 300-FL-113A</b>	<b>EXW - Filter</b>
<b>I) 400-1-317</b>	<b>Breather Cap</b>

# P – 2100 Tandem Pump 2" x 1 1/2" (Standard)

## 2100 SERIES

EXPLODED VIEW FOR P2100B286AXXE15-14AXE15-1



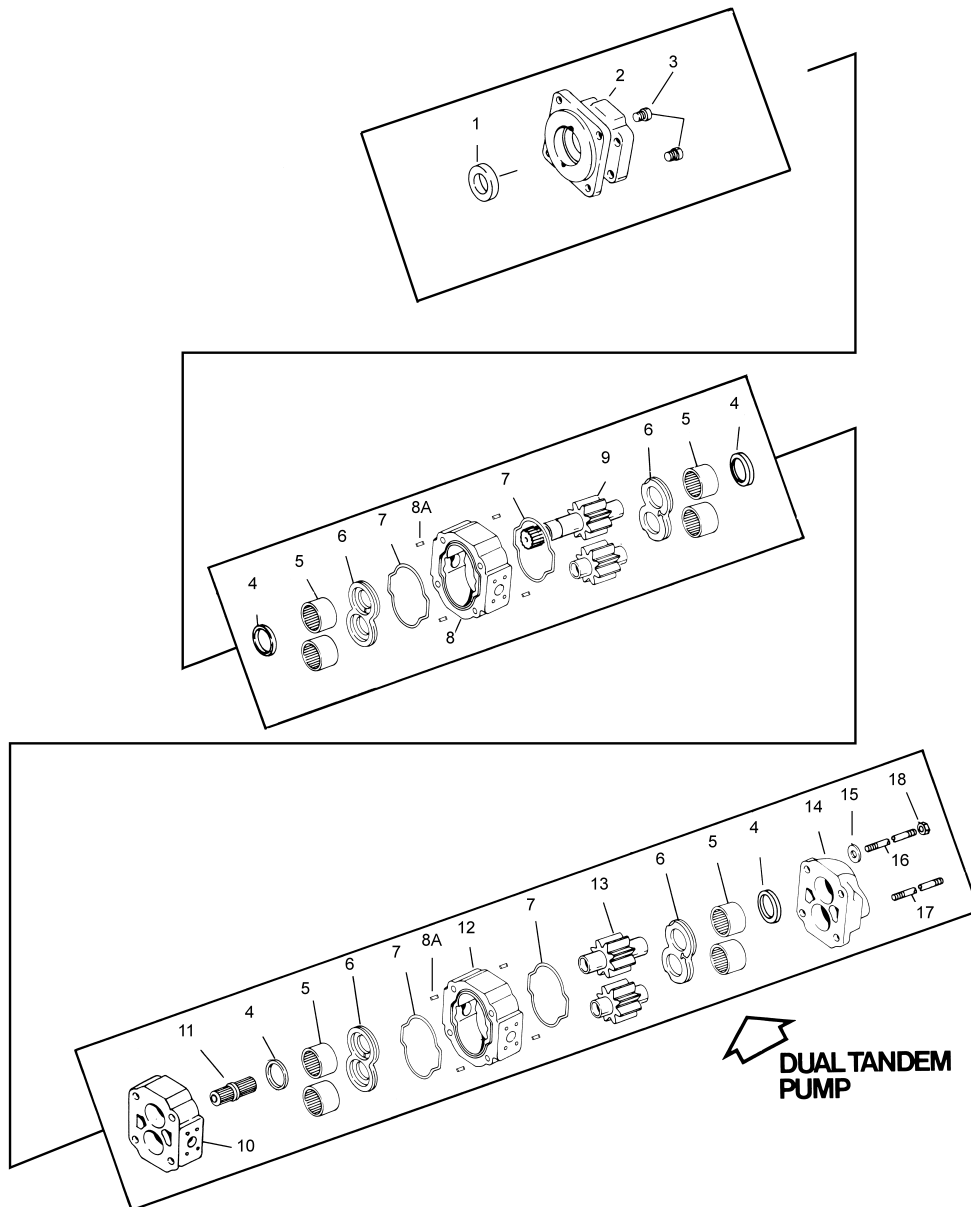
## P – 2100 Tandem Pump 2" x 1 ½" (Standard)

MODEL NUMBER 400-C-209B		PARTS ORDERING NUMBERS P2100B286AXXE15-14AXE15-1		
DESCRIPTION		PUMP TYPE I SHAFT		
Item Number On Exploded View	Description	Order This Part Number		Quantity Per Unit
1	PUMP SHAFT SEAL		W62-26-16	1
2	2-BOLT-B SHAFT END COVER (SEC)		574-00664	1
3	CHECK VALVE ASSEMBLY		L-0280-K	2
4	RING SEAL		KA-0558-1XS	4
5	ROLLER BEARINGS		X-0921	8
6	THRUST PLATE		ZZ-0947-TC	4
7	HOUSING GASKET		K-2995-240	4
8	GEAR HOUSING 1-1/2"		577-00661-15-5	1
8A	DOWEL PINS		280-1971-031	8
9	GEAR SET 1-1/2"L X 13 SPLINE		AC-0024L-3-15	1
10	BEARING CARRIER (BC)		576-00665	1
11	SHAFT CONNECTOR		YZ-0022	1
12	GEAR HOUSING 1-1/2"		577-00661-15-5	1
13	GEAR SET 1-1/2"		U-0996L-15	1
14	PORT END COVER (PEC)		592-00662	1
15	WASHER 9/16"		W033-3	4
16 & 17	TIE BOLTS 9/16-12 X 12-1/4"		900-01021-1225	4
18	HEX NUT 9/16-12		900-01022	4

# P – 2100 Tandem Pump 1" x 1 3/4" (Terra Shift)

## 2100 SERIES

EXPLODED VIEW FOR P2100B231AXXE17-14AXE10-1

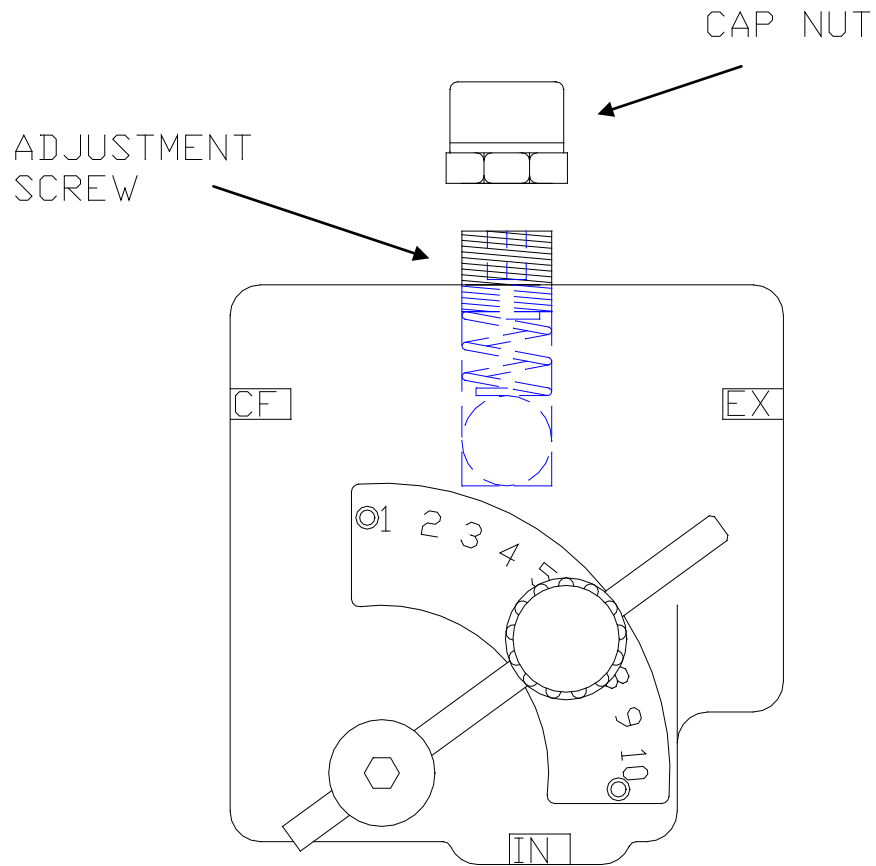




## P – 2100 Tandem Pump 1” x 1 ¾” (Terra Shift)

MODEL NUMBER DESCRIPTION		PARTS ORDERING NUMBERS P2100B231AXXE17-14AXE10-1 PUMP TYPE I SHAFT		
Item Number On Exploded View	Description	Order This Part Number		Quantity Per Unit
1	PUMP SHAFT SEAL		W62-26-16	1
2	4-BOLT-B SHAFT END COVER (SEC)		574-00890	1
3	CHECK VALVE ASSEMBLY		L-0280-K	2
4	RING SEAL		KA-0558-1XS	4
5	ROLLER BEARINGS		X-0921	8
6	THRUST PLATE		ZZ-0947-TC	4
7	HOUSING GASKETS		K-2995-240	4
8	GEAR HOUSING 1-3/4"		577-00661-17-5	1
8A	DOWEL PINS		280-1971-031	8
9	GEAR SET 1-3/4"L X 13 SPLINE		AC-0024L-3-17	1
10	BEARING CARRIER (BC)		576-00665	1
11	SHAFT CONNECTOR		YZ-0022	1
12	GEAR HOUSING 1"		577-00661-10	1
13	GEAR SET 1"		U-0996L-10	1
14	PORT END COVER (PEC)		592-00662	1
15	WASHER 9/16"		W033-3	4
16 & 17	TIE BOLTS 9/16-12 X 12-1/4"		900-01021-1225	4
18	HEX NUT 9/16-12		900-01022	4

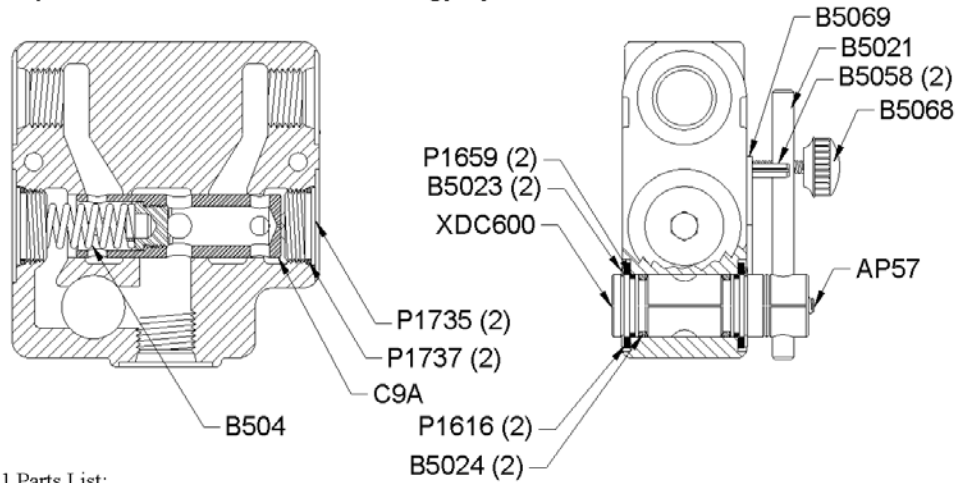
## FCR – 51 - .75 Flow Control Valve



**Note: Never bottom out adjustment screw. This could damage hydraulic system.**

# **B BRAND** **HYDRAULICS**

## **FC51 (Manual Flow Control and 0-30 gpm):**



### **FC51 Parts List:**

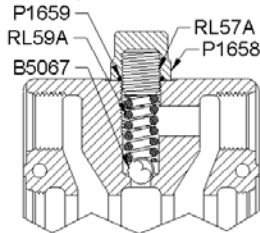
AP57 1/4-20 x 1/4 Set Screw  
 B5021 Handle  
 B5023 Snap Ring  
 B5024 O-ring 2-116  
 B504 Spring  
 B5058 3/16 x 7/8 Spring Pin  
 B5068 10-32 x 3/4 Thumb Screw

B5069 FC51 Dial Plate  
 C9A Spool (Standard)  
 C9A-093 Spool (.093 Dash Pot)  
 C9A-2P Spool (2 Port)  
 C9AS Spool (.020 Dash Pot)  
 P1616 Nylon Seal Retainer  
 P1659 O-ring 2-019 90D

P1735 #12 SAE Plug  
 P1737 O-ring 2-021 90D  
 P1740 Identification Tag  
 XDC598 Spool (30 gpm)

### **FC Options:**

#### **FCR51 (BALL SPRING RELIEF)**



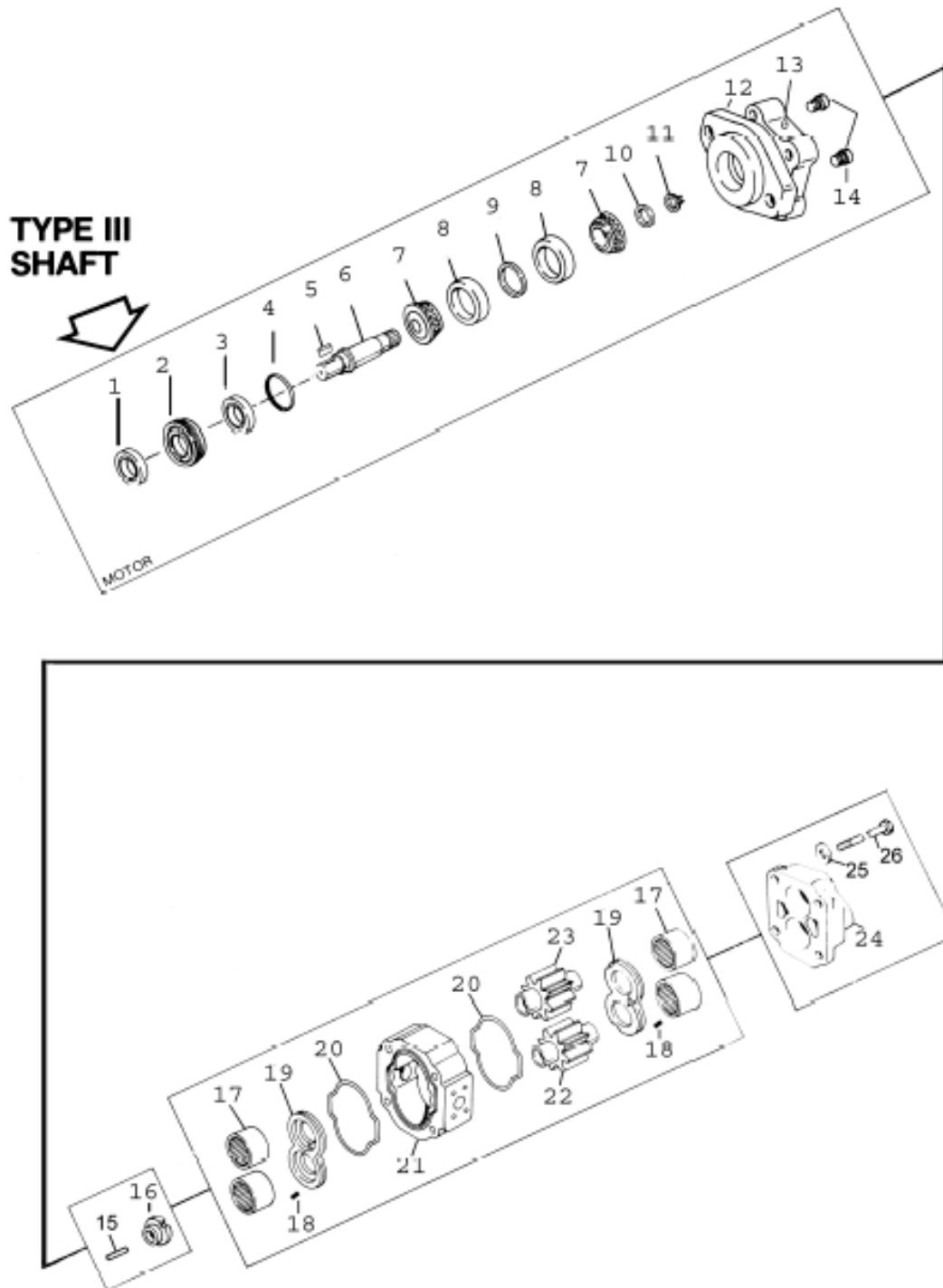
### **FCR51 Parts List:**

B5067 1/2 Steel Ball  
 P1658 Cap Nut  
 P1659 O-ring 2-019 90D  
 RL57A Adjusting Screw  
 RL59A Spring

Note: Casting not sold separately.  
 Replace with new valve.

# 2500 SERIES

EXPLODED VIEW FOR M2500A(786SPL)ADDQ20-62(CHA)



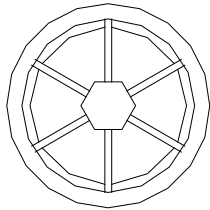
## PART NUMBERS

<b>MODEL NUMBER</b>	<b>M2500A( 786SPL)ADDQ20-62(CHA)</b>
<b>DESCRIPTION</b>	<b>MOTOR TYPE III SHAFT</b>

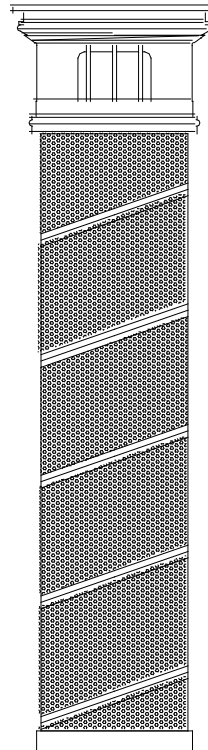
Item Number On Exploded View	Description	Order This Part Number	Quantity Per Unit
1	SPECIAL SEAL	280-1774-935	1
2	SEAL RETAINER	GZ-0961	1
3	MOTOR SHAFT SEAL	W62-49-1	1
4	O-RING	K-2995-47	1
5	SHAFT KEY	W09-44	1
6	SHAFT 1/4" DIA. KEYED	TB-0024-1	1
7 & 8	TAPER BEARING	W015-7	2
9	TAPER BEARING SPACER	XZ-0558-2	1
10	SHAFT BEARING SPACER	FA-0558	1
11	SNAP RING	W86-100	1
12	2-BOLT-B SHAFT END COVER (SEC)	RA-0575-3	1
13	1/4" PIPE PLUG FOR (SEC)	W0-17	1
14	CHECK VALVES	L-0280-K	2
15	ROLL PIN	W004-19	1
16	SHAFT BUSHING	ZQ-1909	1
17	ROLLER BEARING	R-0921	4
18	THRUST PLATE POCKET SEALS	J-2915-22	1
19	THRUST PLATE	X-0947-TC	2
20	GEAR HOUSING GASKET SEAL	TA-2995-244	2
21	GEAR HOUSING 2"	LZ-0577-20-2	1
22 & 23	GEAR SET 2"	JZ-0996L-20	1
24	PORT END COVER (PEC)	QZ-0592	1
25	WASHER 5/8"	W033-2	4
26	HEX HEAD BOLT 5/8-11 X 5-1/2"	W1-78	4

# HYDRAULIC FILTER

**Top  
View**



**Side  
View**



**Part # 300-FL-113A**

# Conveyor Motor

## Service Bulletin 050016

Issued February 2003

For TF (MB) and TG (ME) Torqmotor Seal Kits

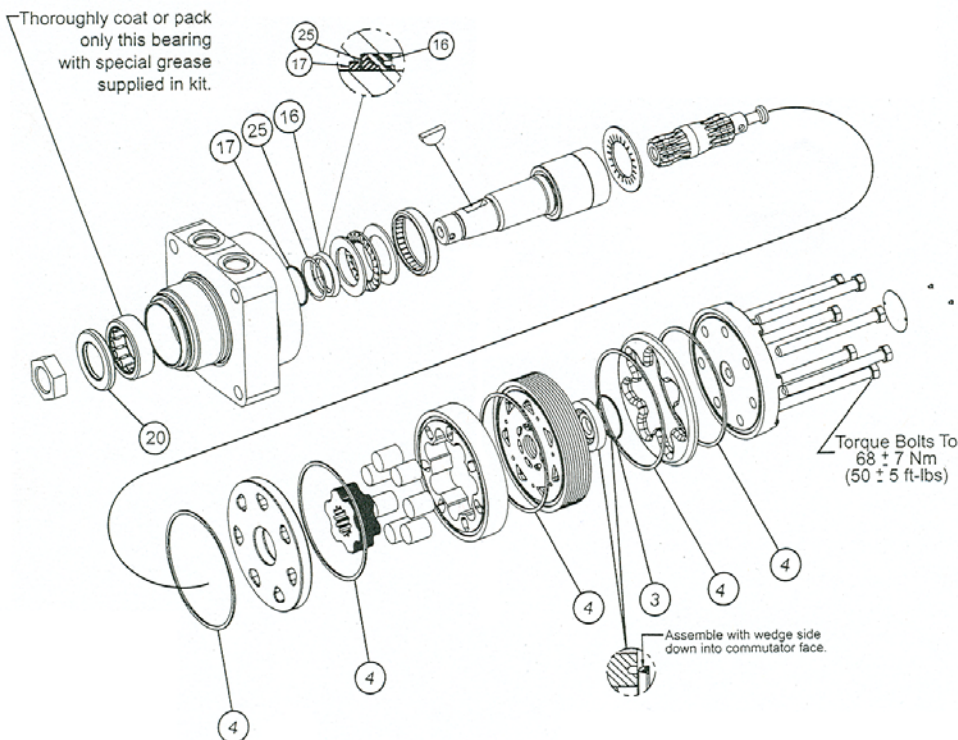
SK000092 (Buna), SK000093 (Fluorocarbon),

SK000099 (Vespel Commutator Seal)

Reference Torqmotor Service Manual SM1512.



QTY	Item	Description	Buna P/N	Fluorocarbon P/N	Vespel P/N
1	17	Back up ring	028515	028515	028515
1	25	Back up washer	029118	029118	029118
1	3	Commutator Seal	032435	032435	032439
1	16	Shaft Seal	032817	032818	032817
6	4	Body Rings	032819	032820	032819
1	20	D&W Seal	478035	478035	478035
1		Bearing Lubricant	406018	406018	406018
1		Service Bulletin	050016	050016	050016



# **Fertilizer and Lime Spreader Pressure Settings for Spinners**

## **1) Checking Pressure**

- A) Run unit empty at ordinary operating speed (engine RPM's) for approximately 10 minutes. This allows oil to reach operating temperatures.**
- B) Disengage PTO and install pressure gauge into “CF” port on flow control valve.  
(Refer to hydraulic flow control valve drawing – page 3-7)**
- C) Set flow control valve on 10.**
- D) Restart engine**
- E) With PTO engaged, increase engine RPM's to ordinary operating speed.**
- F) Slowly release clutch while watching pressure gauge.**
- G) Pressure gauge should read 2000 PSI. If not, adjust pressure as outlined below.**

**Caution:** When checking pressure, never allow truck to run over a few seconds with gauge installed in line. Once pressure reading is taken, engage clutch immediately.

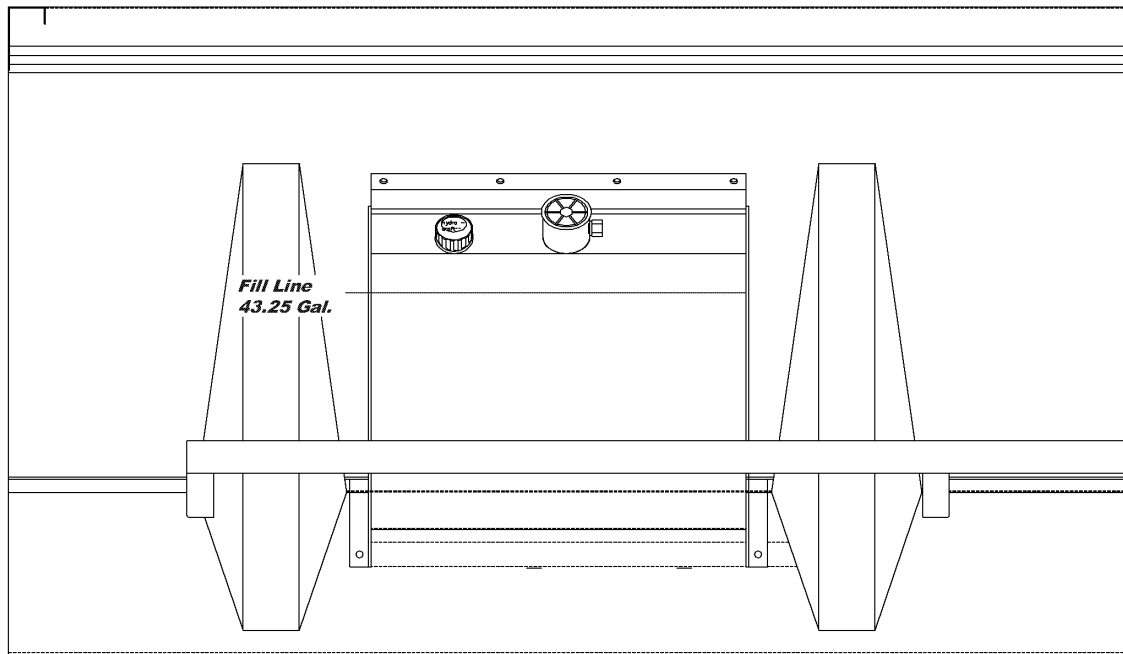
## **2) Adjusting Hydraulic Flow Control Valve Pressure:**

- A) Remove cap nut on flow control valve (located on top of valve)**
- B) Using a 5/16” Allen wrench, turn adjustment screw “IN” to increase pressure or “OUT” to decrease pressure.**
- C) Turn adjustable screw on half turn, and then check pressure setting as outlined above.**
- D) Continue this procedure until pressure gauge reads 2000 PSI.**

**NOTE:** If unable to obtain 2000 PSI contact your local dealer or Chandler Equipment Service Department at 1-800-243-3319.



# Hydraulic Oil Level



**Oil Capacity: 45 Gallons**

**Type Oil: SAE 46 Series Hydraulic Oil**

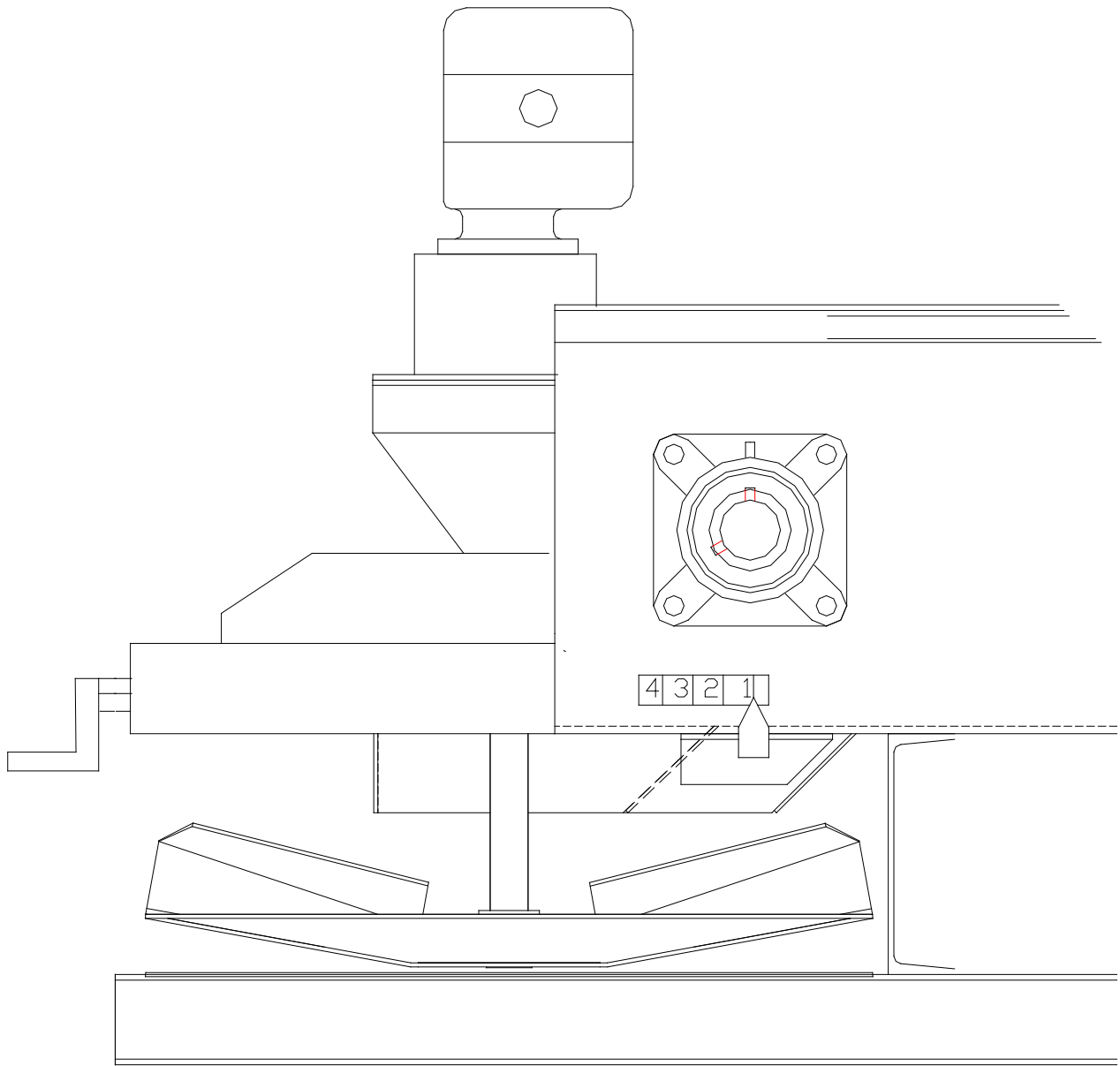
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# **Section 4**

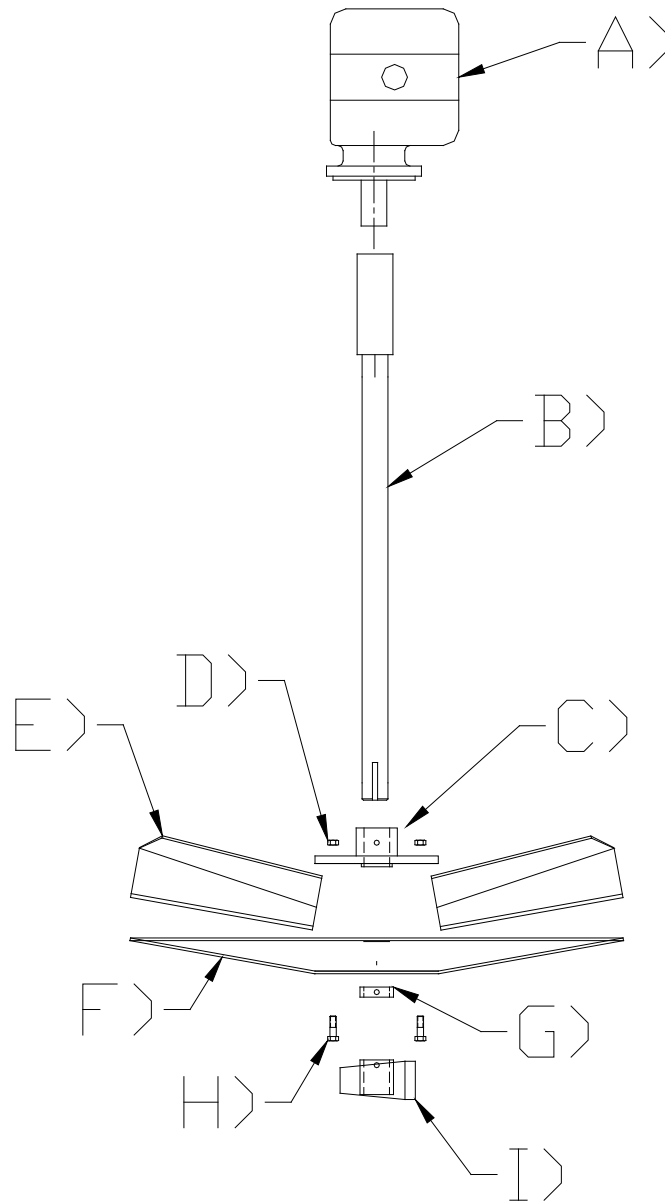
# **Spinner**

# **Assembly**

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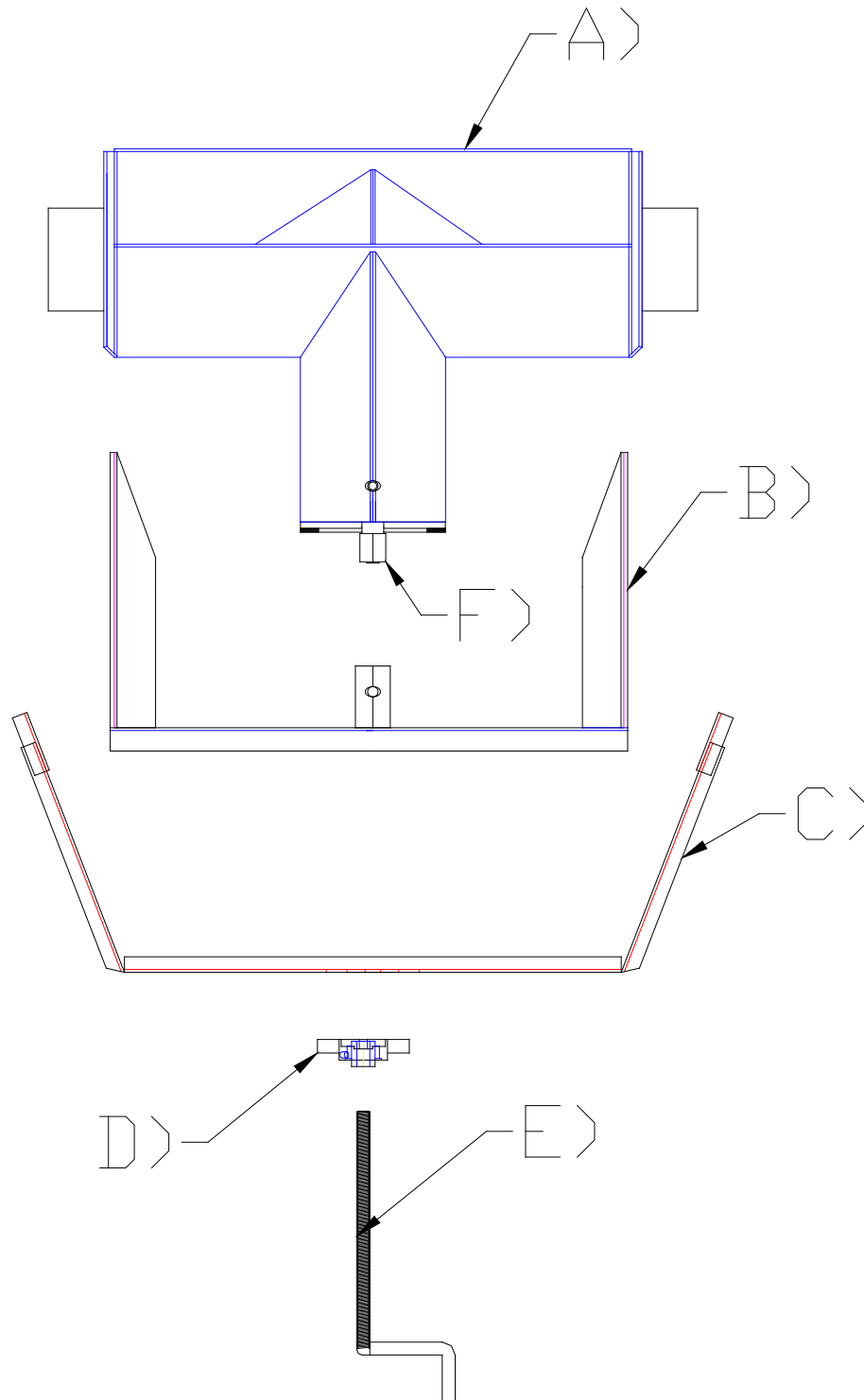
**Spinner Assembly Side View**



**Spinner Assembly Exploded View**

## Spinner Assembly Parts List

	<b>Part #</b>	<b>Description</b>
A)	<b>400-C-218B</b>	<b>M-2500 - 2" Gear Spinner Motor</b>
B)	<b>300-EXW-115</b>	<b>EXW Spinner Shaft MS 28 1/4" Mesh Chain</b>
	<b>300-EXW-116</b>	<b>EXW Spinner Shaft MS 31 1/4" Belt Over Bar</b>
	<b>300-EXW-117</b>	<b>EXW Spinner Shaft SS 28 1/4" Mesh Chain</b>
	<b>300-EXW-118</b>	<b>EXW Spinner Shaft SS 31 1/4" Belt Over Bar</b>
C)	<b>300-FL-112</b>	<b>4 Bolt Spinner Hub</b>
	<b>300-FL-112A</b>	<b>4 Bolt Spinner Hub - Stainless</b>
D)	<b>300-FL-114</b>	<b>5/16" Hex Head Flange Nut</b>
E)	<b>300-EXW-105</b>	<b>EXW H/T Spinner Blade RH</b>
	<b>300-EXW-106</b>	<b>EXW H/T Spinner Blade LH</b>
F)	<b>300-EXW-101</b>	<b>24" Disc Only RH-MS</b>
	<b>300-EXW-102</b>	<b>24" Disc Only LH-MS</b>
	<b>300-EXW-103</b>	<b>24" Disc Only RH-SS</b>
	<b>300-EXW-104</b>	<b>24" Disc Only LH-SS</b>
F*)	<b>300-EXW-107</b>	<b>EXW Spinner Assembly RH-MS</b>
	<b>300-EXW-108</b>	<b>EXW Spinner Assembly LH-MS</b>
	<b>300-EXW-109</b>	<b>EXW Spinner Assembly RH-SS</b>
	<b>300-EXW-110</b>	<b>EXW Spinner Assembly LH-SS</b>
G)	<b>300-1-208</b>	<b>Lock Collar</b>
H)	<b>300-FL-113A</b>	<b>5/16 x 1" Hex Head Bolt</b>
I)	<b>UCP - 207 -20</b>	<b>Pillow Block Bearing</b>



Flow Divider Exploded View



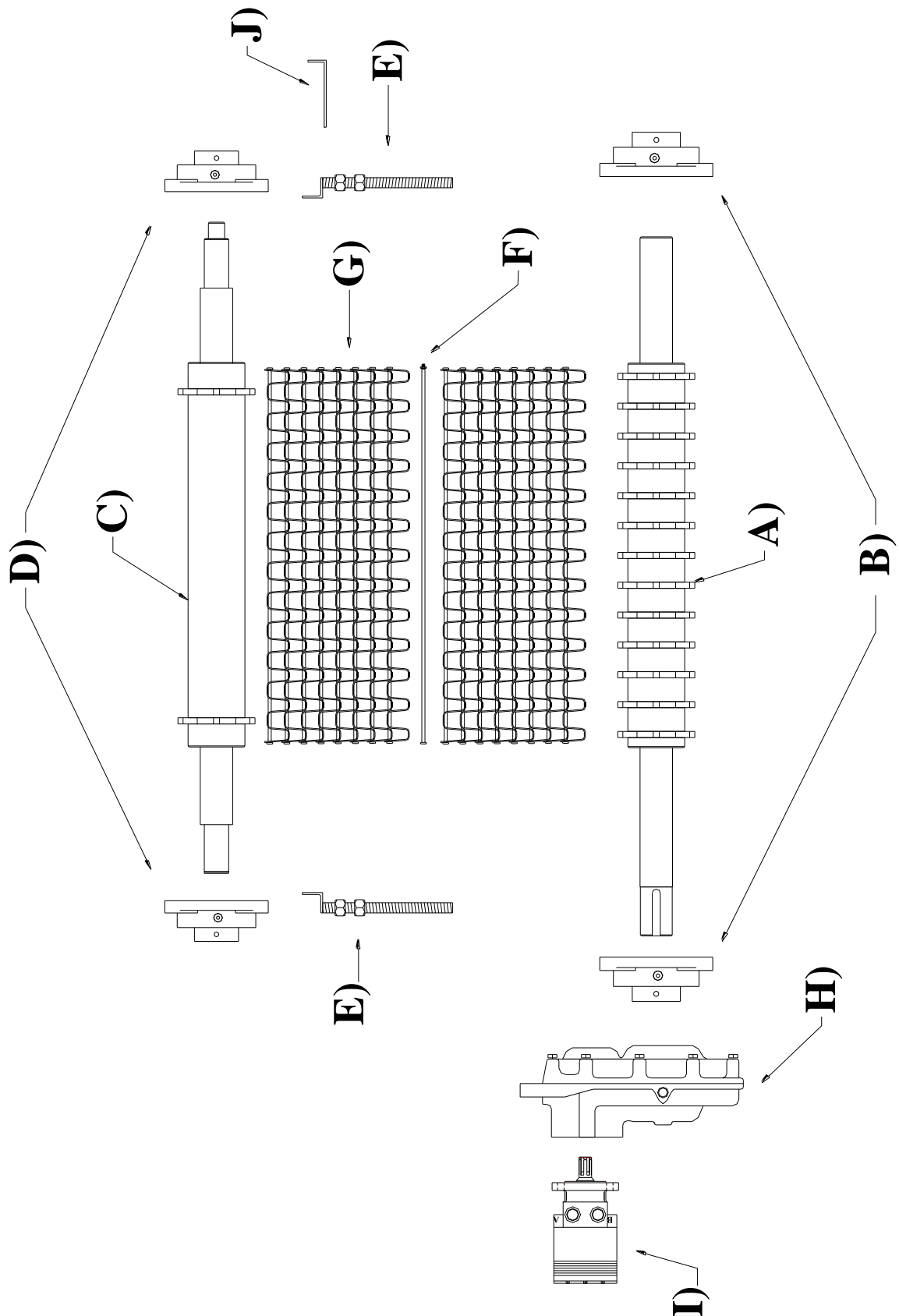
## **Flow Divider Parts List**

	<b>Part #</b>	<b>Description</b>
<b>A)</b>	<b>300-EXW-111</b>	<b>EXW Flow Divider Base</b>
<b>B)</b>	<b>300-EXW-112</b>	<b>EXW Flow Divider Insert</b>
<b>A &amp; B)</b>	<b>300-EXW-114</b>	<b>EXW Flow Divider Assembly</b>
<b>C)</b>	<b>300-EXW-113</b>	<b>Flow Divider Bar</b>
<b>D)</b>	<b>UCFL-204-10</b>	<b>5/8" Flange Bearing</b>
<b>E)</b>	<b>300-FT-012</b>	<b>Flow Divider Adjustment Rod</b>
<b>F)</b>	<b>300-FT-013</b>	<b>Flow Divider Nut</b>

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# **Section 5**

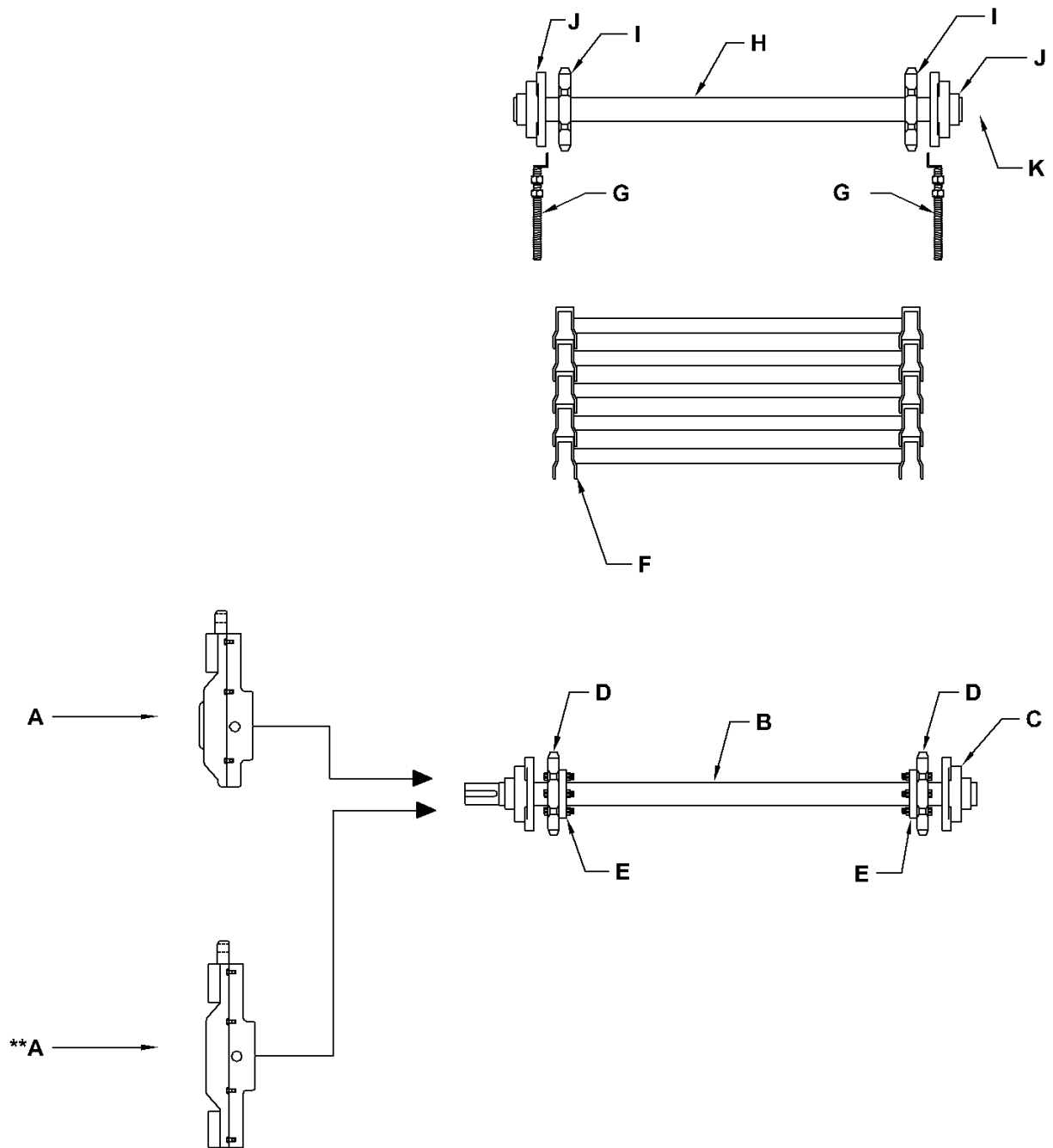
# **Conveyor Drive**



## Conveyor Assembly – 24" Mesh Type Chain

## Conveyor Assembly – 24” Mesh Type Chain Parts List

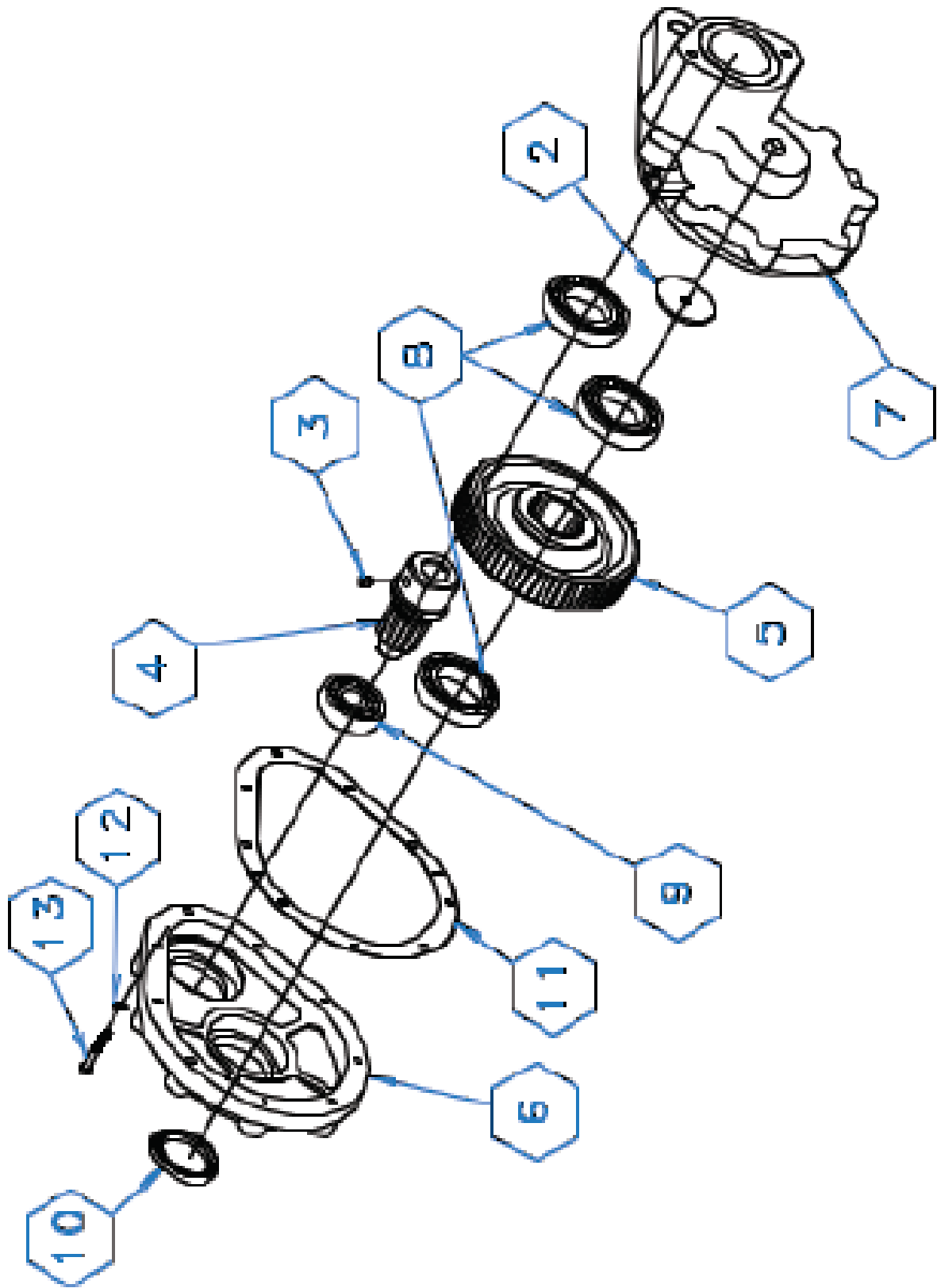
<b>Part #</b>	<b>Description</b>
<b>A) HWC-R-2434</b>	<b>Rear Roller Assembly</b>
<b>B) UCF-211-32</b>	<b>Flange Bearing</b>
<b>C) HWC-F-2434-EXW</b>	<b>Front Roller Assembly - EXW</b>
<b>D) UCF-208-24</b>	<b>Flange Bearing</b>
<b>E) 300-FT-008</b>	<b>Roller Adjustment Rod</b>
<b>F) 500-3-309</b>	<b>Connecting Pin - 24"</b>
<b>G) 500-3-304</b>	<b>Bar Type Chain - 24" (304" lg.)</b>
<b>H) 100-R-1-01</b>	<b>Gear Case - Single</b>
<b>100-R-2-01</b>	<b>Gear Case - Twin</b>
<b>100-R-1-01A</b>	<b>Gear Case - Single with Rate Sensor Port</b>
<b>100-R-2-01A</b>	<b>Gear Case - Twin with Rate Sensor Port</b>
<b>I) 400-R-106</b>	<b>Hydraulic Motor - MB18 (Single Gear Case)</b>
<b>400-R-104</b>	<b>Hydraulic Motor - MB12 (Twin Gear Case)</b>



## Conveyor Assembly – 24” Bar Type Chain

# Conveyor Assembly – 24” Bar Type Chain Parts List

<u>Description</u>	<u>Part #</u>
A) Rawson Gear Case - Single	100-R-1-01
**A) Rawson Gear Case - Tandem	100-R-2-01
B) Rear Roller Shaft – 2” x 43”	300-C-023
C) Flange Bearing	UCF-211-32
D) Roller Sprocket - 2" - 6 Tooth	700-2-207B
E) Bolt-On Hub - 2"	700-2-209
F) Chain Assembly	Specify Length and Type of Chain (Serial Number needed when order chain)
G) Front Roller Adjustment Rods	300-C-017
H) Front Roller Shaft – 2” x 39”	300-C-006A
I) Roller Sprocket – 2” - 6 Tooth	700-2-207B
J) Flange Bearing	UCF-208-24

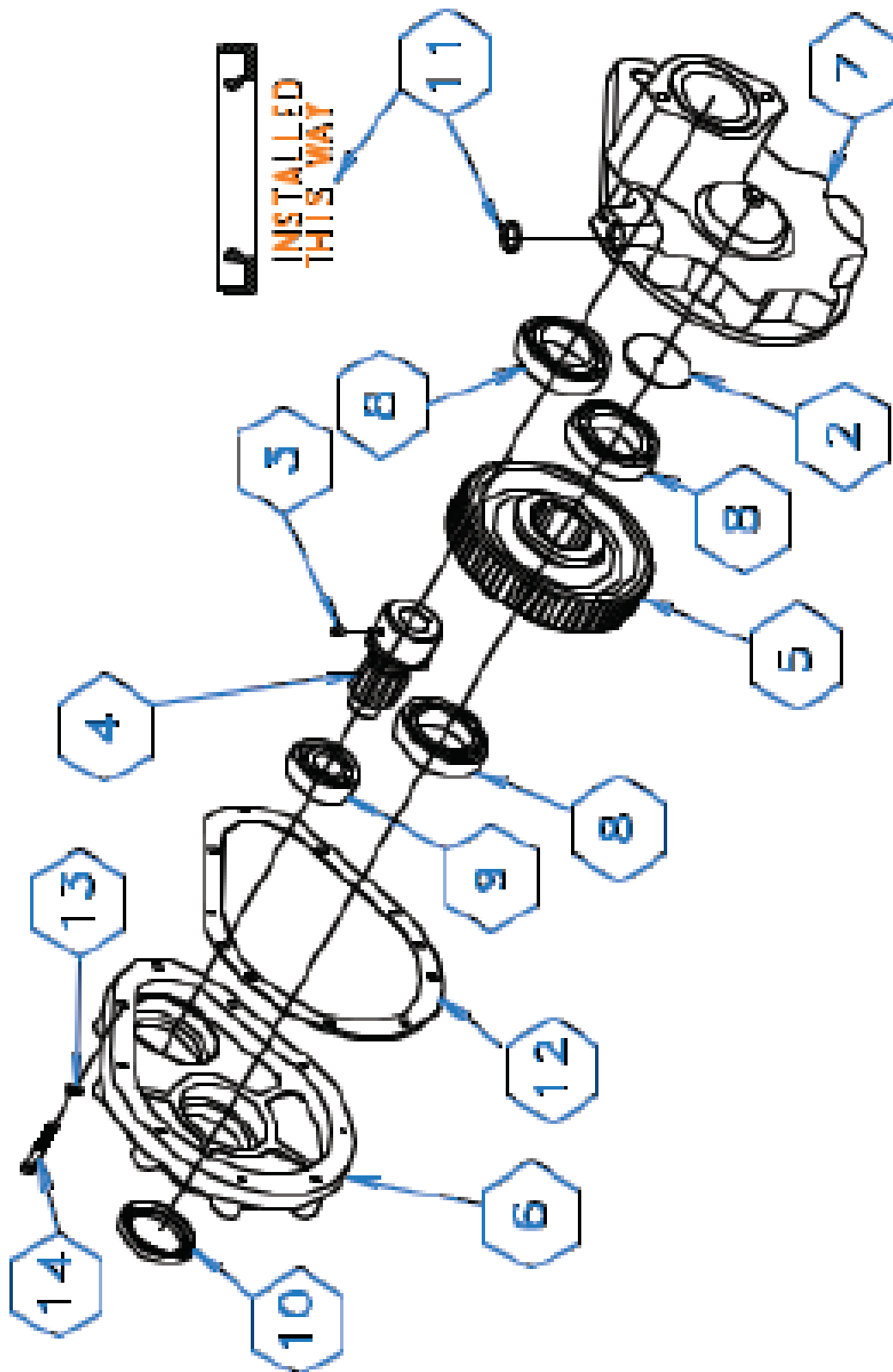


## **Rawson Single Gear Case**



## Rawson Single Gear Case Parts List

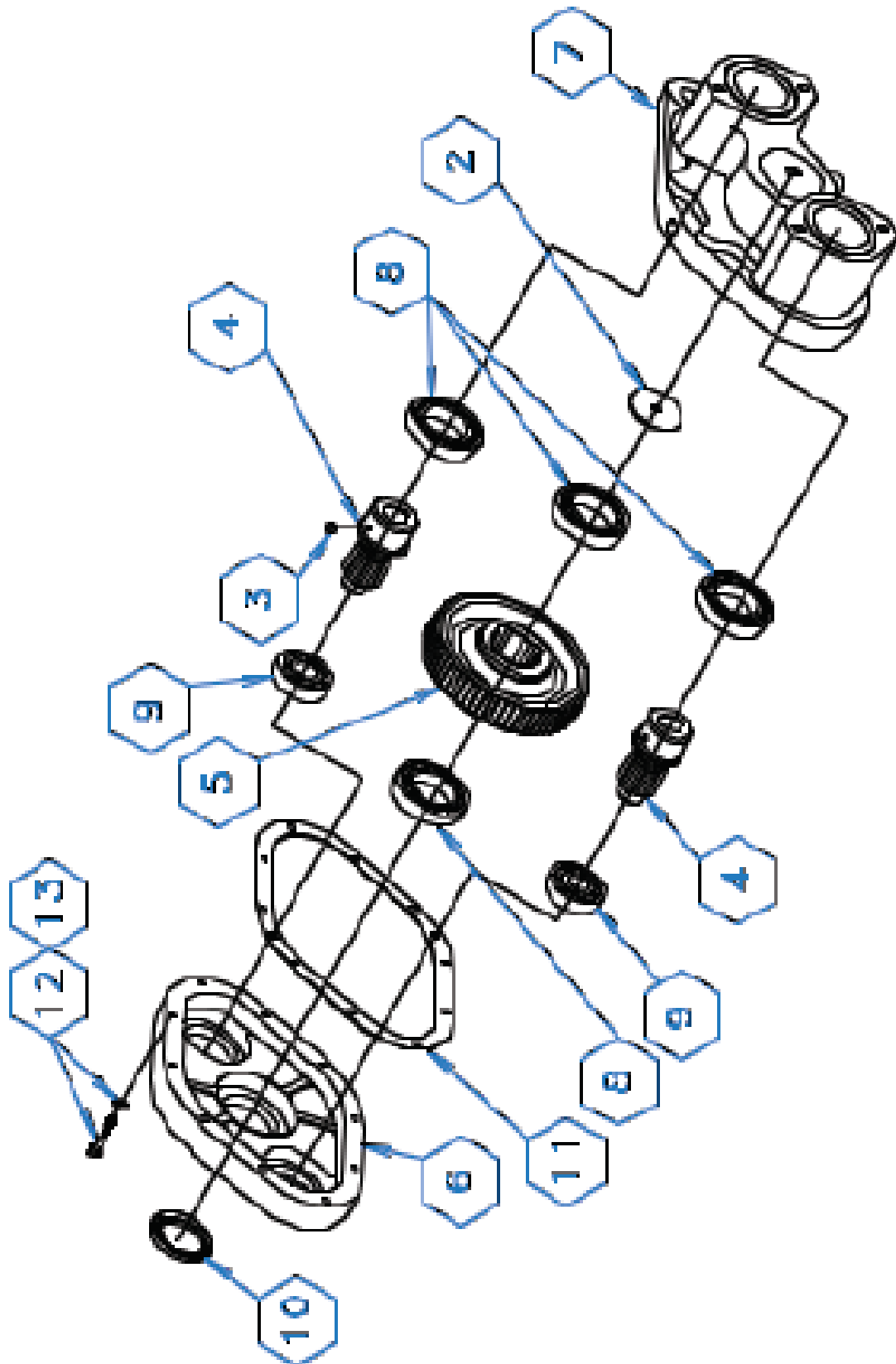
<b><u>Part #</u></b>	<b><u>Description</u></b>
1) 100-R-1-12	Plug Kit
2) N/A	Washer
3) N/A	Plug - Delrin (comes installed in pinion gear)
4) 100-R-1-08	Pinion Gear - 11 Tooth
5) 100-R-1-07	Drive Gear 67 - Tooth
6) 100-R-1-09	Inboard Housing - Single
7) 100-R-1-10	Outboard Housing - Single
8) 100-R-1-03	Bearing - 50mm
9) 100-R-1-04	Bearing -25mm
10) 100-R-1-05	Oil Seal
11) 100-R-1-06	Gasket – Single
12) 100-R-1-13	Washer - 5/16" Lock
13) 100-R-1-14	Capscrew - 5/16" x 1 1/2"
14) 100-R-1-11	Key - 1/2" (not shown)



## Rawson Single Gear Case with Sensor Port

## **Rawson Single Gear Case with Sensor Port Parts List**

<b>Part #</b>	<b>Description</b>
<b>1) 100-R-1-12</b>	<b>Plug Kit</b>
<b>2) N/A</b>	<b>Washer</b>
<b>3) N/A</b>	<b>Plug - Delrin (comes installed in pinion gear)</b>
<b>4) 100-R-1-08</b>	<b>Pinion Gear - 11 Tooth</b>
<b>5) 100-R-1-07</b>	<b>Drive Gear 67 - Tooth</b>
<b>6) 100-R-1-09</b>	<b>Inboard Housing - Single</b>
<b>7) 100-R-1-10A - LH</b>	<b>Outboard Housing - Single w/ Sensor Port LH</b>
<b>8) 100-R-1-03</b>	<b>Bearing - 50mm</b>
<b>9) 100-R-1-04</b>	<b>Bearing -25mm</b>
<b>10) 100-R-1-05</b>	<b>Oil Seal</b>
<b>11) 100-R-1-15</b>	<b>Oil Seal - Sensor Port</b>
<b>12) 100-R-1-06</b>	<b>Gasket</b>
<b>13) 100-R-1-13</b>	<b>Washer - 5/16" Lock</b>
<b>14) 100-R-1-14</b>	<b>Capscrew - 5/16" x 1 1/2"</b>
<b>15) 100-R-1-11</b>	<b>Key - 1/2" (not shown)</b>

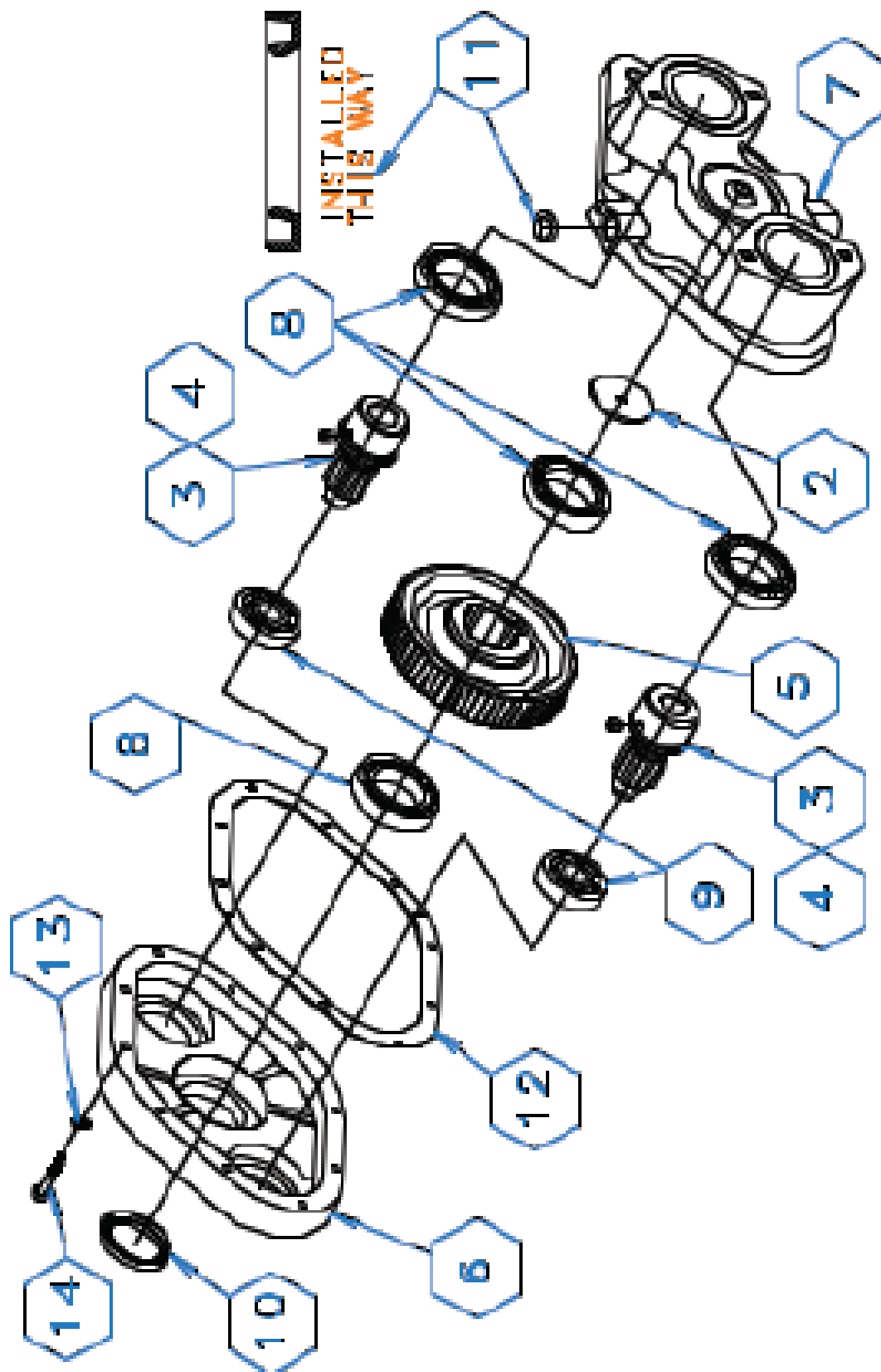


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## Rawson Twin Gear Case

## **Rawson Twin Gear Case Parts List**

<b>Part #</b>	<b>Description</b>
<b>1) 100-R-1-12</b>	<b>Plug Kit</b>
<b>2) N/A</b>	<b>Washer</b>
<b>3) N/A</b>	<b>Plug - Delrin (comes installed in pinion gear)</b>
<b>4) 100-R-1-08</b>	<b>Pinion Gear - 11 Tooth</b>
<b>5) 100-R-1-07</b>	<b>Drive Gear 67 - Tooth</b>
<b>6) 100-R-2-02</b>	<b>Inboard Housing - Twin</b>
<b>7) 100-R-2-03</b>	<b>Outboard Housing - Twin</b>
<b>8) 100-R-1-03</b>	<b>Bearing - 50mm</b>
<b>9) 100-R-1-04</b>	<b>Bearing -25mm</b>
<b>10) 100-R-1-05</b>	<b>Oil Seal</b>
<b>11) 100-R-2-06</b>	<b>Gasket - Twin</b>
<b>12) 100-R-1-13</b>	<b>Washer - 5/16" Lock</b>
<b>13) 100-R-1-14</b>	<b>Capscrew - 5/16" x 1 1/2"</b>
<b>14) 100-R-1-11</b>	<b>Key - 1/2" (not shown)</b>



## Rawson Twin Gear Case with Sensor Port

## **Rawson Twin Gear Case with Sensor Port Parts List**

<b>Part #</b>	<b>Description</b>
<b>1) 100-R-1-12</b>	<b>Plug Kit</b>
<b>2) N/A</b>	<b>Washer</b>
<b>3) N/A</b>	<b>Plug - Delrin (comes installed in pinion gear)</b>
<b>4) 100-R-1-08</b>	<b>Pinion Gear - 11 Tooth</b>
<b>5) 100-R-1-07</b>	<b>Drive Gear 67 - Tooth</b>
<b>6) 100-R-2-02</b>	<b>Inboard Housing - Twin</b>
<b>7) 100-R-2-03A - LH</b>	<b>Outboard Housing - Twin w/ Sensor Port LH</b>
<b>8) 100-R-1-03</b>	<b>Bearing - 50mm</b>
<b>9) 100-R-1-04</b>	<b>Bearing -25mm</b>
<b>10) 100-R-1-05</b>	<b>Oil Seal</b>
<b>11) 100-R-1-16</b>	<b>Oil Seal - Sensor Port</b>
<b>12) 100-R-2-06</b>	<b>Gasket - Twin</b>
<b>13) 100-R-1-13</b>	<b>Washer - 5/16" Lock</b>
<b>14) 100-R-1-14</b>	<b>Capscrew - 5/16" x 1 1/2"</b>
<b>15) 100-R-1-11</b>	<b>Key - 1/2" (not shown)</b>

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# **Section 6**

## **Basic Set-Up & Operation**

## **Basic Operation of Truck Spreader**

- 1) Make sure that flow control valve is adjusted properly for spinner speed.
- 2) Raise gate for desired rate of application.
- 3) Adjust material divider accordingly.
- 4) Refer to operator's manual for your rate controller on how to operate and calibrate controller.
- 5) Be sure that the correct spreader constant is entered into rate controller.
- 6) Engage PTO control. once engaged, spinners should begin turning.
- 7) Conduct a spread pattern pan test, and make any required adjustments.
- 8) You are now ready to spread.
- 9) Use the following guidelines if any adjustments are necessary.

## Setting Spinner Speed

We recommend a spinner speed of **650–750 RPM** as this unit is designed for a 70–90 ft. spread pattern for fertilizer and a 50–60 ft. pattern for lime. This spreader is equipped with a flow control valve to adjust spinner speed and to maintain a constant speed after your truck reaches 2000 RPM's. Generally the flow control valve will need to set at about 6, however due to machining tolerances, this setting will vary from one spreader to the next.

### Spinner speed should be set following these guidelines:

- 1) Rev engine speed at 2000 RPM.
  - a. Before starting engine be sure that there is no material or obstructions in bed or on spinners.
- 2) Take a hand tach reading on spinner shaft.
  - a. Spinners shafts are center drilled underneath the spinners to accept a hand tach.
  - b. If unit has a **control system** with spinner speed sensor and spinner speed read out, this can be used in place of hand tach reading.
- 3) Adjust lever on flow control valve until desired speed is reached - the higher the indicator number the faster the spinners should run.
- 4) After getting correct spinner speed, increase truck engine RPMs to 3000 - spinner speed should remain within reason of the desired speed.
- 5) If spinner speed does not remain constant within reason, disassemble flow control valve and clean parts as outlined under **Troubleshooting Procedures**, Problem I, investigations **B** and **C**.

**NOTE:** In some instances, due to density of materials, a faster or slower spinner speed may be desired. If so, follow above procedures and set speed accordingly.

**CAUTION:** Due to normal wear, the setting on the flow control valve may need to be set higher as time goes by. Check spinner speed often.

**CAUTION:** Spinner speed is one of the most important factors in achieving a proper spread pattern and must be set properly and checked regularly.

**NOTE:** If the spinners are running too fast you will tend to leave a thin streak behind the center of the truck, if they are too slow it will leave a heavy streak.

**Record Valve Setting** \_\_\_\_\_

## Setting Material Divider

Material Divider settings are very important to the accuracy of the spread pattern. Improper divider settings will cause light or heavy streaks in the field.

**Material Divider should be set following these guidelines:**

- 1) Material Divider has an adjustment rod at the rear of the divider. Moving the divider “IN” or “OUT” will change the spread pattern.
- 2) Moving the Material Divider “OUT” will cause the spread pattern to be heavy on the outside of the spread swath.
- 3) Moving the Material Divider “IN” will cause the spread pattern to be heavy in the middle of the spread swath.

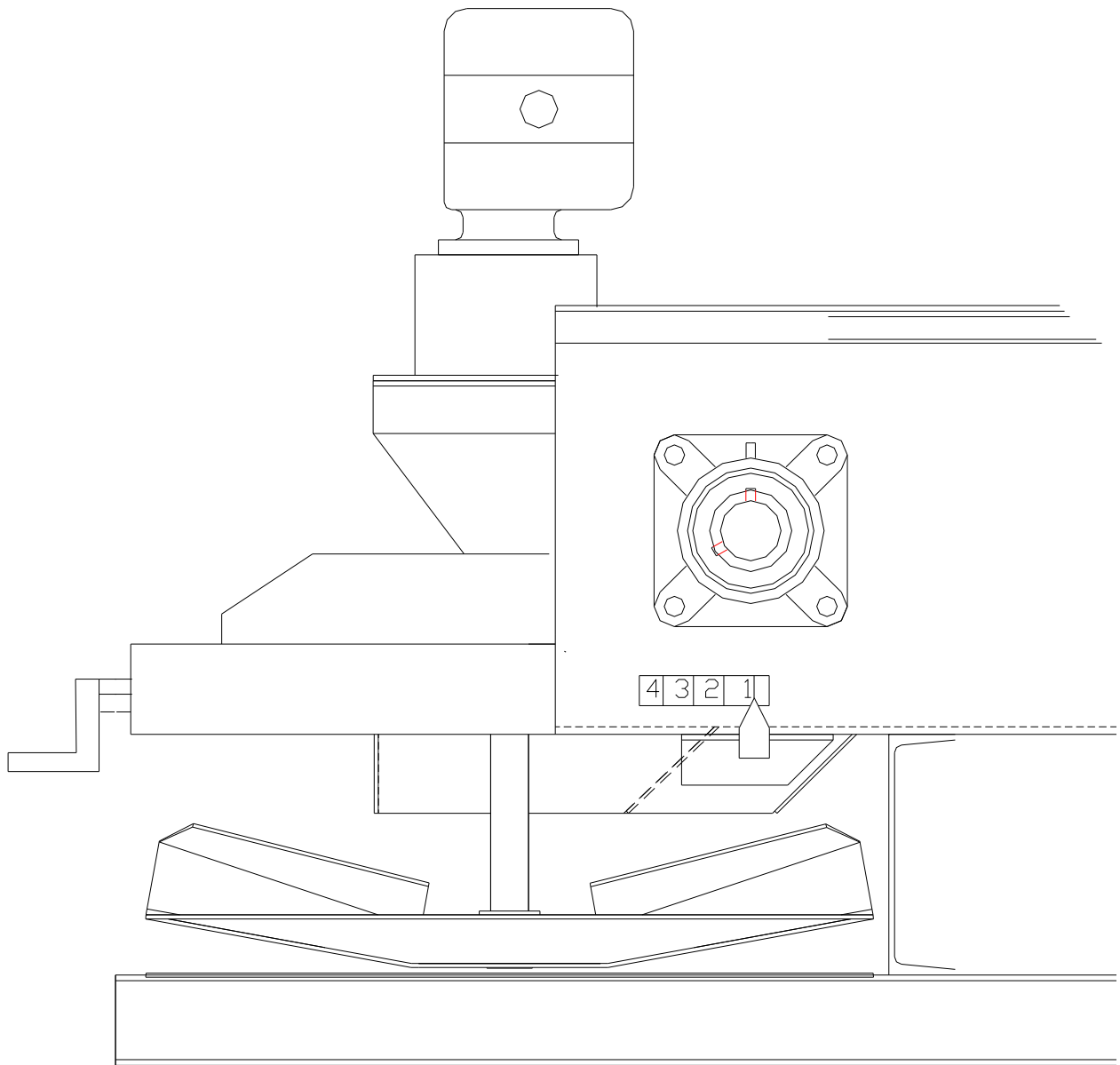
**Material Divider Settings:**

<u>Bed Type</u>	<u>Material</u>	<u>Setting</u>	<u>Pattern</u>
FTL-EXW	Lime	2"	50'
	Blended Fertilizer	3" – 3 3/4"	70'
FTLH-EXW	Lime	2"	60'
	Blended Fertilizer	3" – 3 3/4"	90'

**NOTE:** These are recommended settings and will vary according to material weight.

**NOTE:** When spreading Lime, remove the rear section of the material divider.

**NOTE:** Chandler Equipment Co. recommends each spreader to be tested, using a pan test kit, every season to ensure proper spread pattern.



**Spinner Assembly Side View**

## Spread Pattern Adjustment

We at Chandler Equipment Co. recommend performing a spread pattern pan test prior to each spreading season, after any spreader maintenance or modification, and periodically throughout the spreading season. A spread pattern test must be performed for each product to be applied to insure proper material application.

**NOTE:** The spinner assembly has **NOT** been adjusted at the factory. Before spreading, a spread pattern test must be performed to properly adjust spreader and obtain optimal spread pattern.

**NOTICE: CHANDLER EQUIPMENT CO. WILL NOT BE HELD LIABLE FOR MISAPPLIED MATERIAL DUE TO AN IMPROPERLY ADJUSTED SPREADER.**

**WARNING:** Use extreme caution while working around the spreader. Any contact with the spinners or other moving parts can cause injury. Do attempt to adjust any part of the spreader while the machinery is in use or moving. Wear eye protection and avoid discharge from spinners. Do not ride on the spreader while in motion.

The spread pattern is affected by several factors, including but limited to the following:

- A) Spinner speed.
- B) Material properties.
  - a. Weight per cubic foot.
  - b. Granular size and distribution.
  - c. Flow characteristics.
- C) Speed of bed chain.
- D) Position material is dropped on disc.
- E) Division of material between discs.
- F) Position of spinner blades on the spinner disc.
- G) Cleanliness of spinner assembly.
- H) Wear on spinner assembly.
- I) Height of spreader.
- J) Weather (wind, humidity, etc.)
- K) Spread width.

As these factors can vary from one job to the next, a trial and error pan test must be completed to determine the adjustments that fit your needs the best. As a result, numerous pan tests may be required to obtain the spread pattern and swath width you desire. The following instructions are given as guidelines to adjust your spreader and outline the effect of each adjustment on the spread pattern.

## **Spinner Assembly**

Spinner speed is adjustable as outlined above, and is a major factor in a proper spread pattern. The best spinner speed will depend on the material being spread, and only obtainable by way of testing.

Material properties play an important role in properly adjusting the spinner speed for the maximum spread pattern width. The particle size and distribution can greatly affect the spread width. This can vary from 25 feet for very finely ground dry lime and up to 120 feet or more for extremely large pelletized fertilizer. For each material there is an optimal spinner speed. In other words, there is a spinner speed that results in the best spread pattern and width.

Setting the spinner speed above the optimal speed will not create a wider pattern, instead it will result in a poor spread pattern. By setting the spinner speed to high, there will be a heavy deposit of material directly behind the truck as a result of the break-down of material. The maximum spinner speed will be lower for finely ground material, and can be much higher for coarser materials. Generally the optimal spinner speed will be somewhere between 650 and 750 rpm for ordinary materials. Once the initial testing is completed, testing should be repeated at the beginning of each spreading season, anytime maintenance or adjustments are made to the spread assembly, and periodically throughout the season as components can wear and change spreading characteristics.

**NOTE: Spinner discs and blades must be kept clean and maintained to ensure a proper spread pattern. A small build-up of material can have adverse effects on the spread pattern. Rusted, rough, bent, or worn blades and discs will produce a poor spread pattern.**

## **Material Divider Assembly**

As spinner speed is an important factor in a proper spread pattern, the position of the material divider is equally as effective in acquiring an optimal spread pattern. The position of the divider varies from one product to the next, and best determined by testing. However, there are some guidelines listed below on divider setting.

When spreading ag lime, be sure to remove the rear section of the divider, and start with the divider set on 2”.

For most fertilizers, begin with the divider at approximately 3” - 3 ¾”.

While spreading, if too much material is applied directly behind, move the divider towards the back of the spreader. If there is more being applied outside of the truck, adjust the divider towards the front of the spreader.

## **Spreader Preparation**

The spreader to be tested should be properly maintained and in good mechanical working condition in accordance with this manual. All damaged or worn parts should be replaced prior to completing the spread pattern test. Spinner discs, blades, and material divider should be free of any material build-up or rust.

Set the spreader gate according to your application rate. Make sure to check to see if the gate is level and that the indicator reads the actual height of the gate. Fill the hopper with material to be tested and run the spreader so that the material reaches the end of the chain.

## **Testing Procedure**

- Select an area for testing approximately 120' x 400', which has a slope of less than 2 degrees.
- Place a plastic grid into each of the 21 collection pans. Position the 21 pans on 6' centers with the long side parallel to the direction of travel.
- If possible perform test when wind speed is less than 5 MPH. If wind speed is greater than 5 MPH, testing must be completed while spreading parallel to the wind direction.
- Prior to conducting a pan test, be sure to run the spreader and obtain normal operating temperature of the hydraulic oil.
- Before driving across pans, operate the spreader long enough for the rate to level out and spinner speed to remain constant.
- Spreader must be driven over the pans in ONLY ONE DIRECTION.
- Position spreader at the beginning of the course so that the spreader will straddle the center pan. Be sure to set gate for the desired application rate according to this manual.
- Drive the spreader completely through the course at normal operating speeds.



Data Recording

Date\_\_\_\_\_

Run No. \_\_\_\_\_

No. of Passes \_\_\_\_\_

lb./Acre \_\_\_\_\_

Test Site \_\_\_\_\_

Model \_\_\_\_\_

Serial No. \_\_\_\_\_

Chain Type \_\_\_\_\_

Material \_\_\_\_\_

Material Density \_\_\_\_\_ lb./cu.ft.

Gate Setting \_\_\_\_\_

Flow Divider Setting \_\_\_\_\_

Spinner Speed \_\_\_\_\_ rpm

Spinner Valve Setting \_\_\_\_\_

Blade Settings L \_\_\_\_\_ R \_\_\_\_\_

Spread Width \_\_\_\_\_ ft.

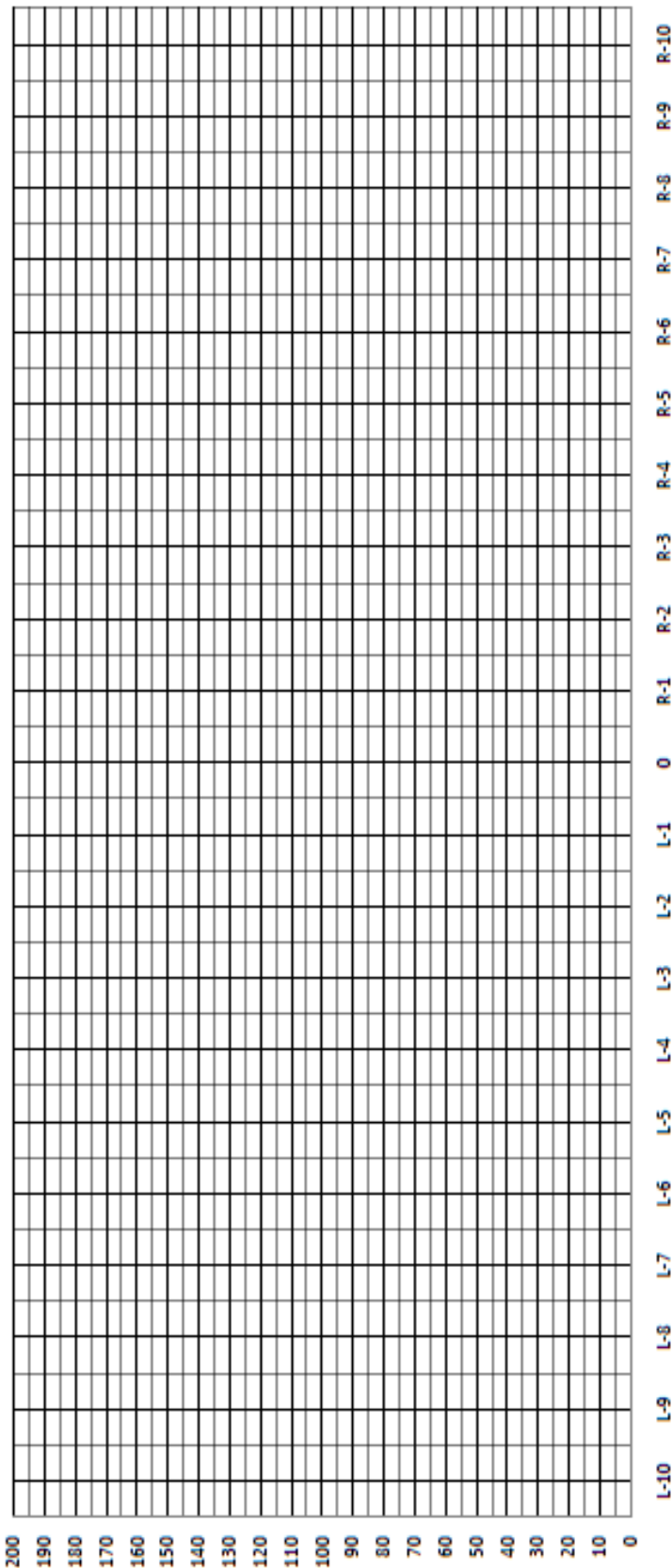
Height To Spinners \_\_\_\_\_ in.

Wind \_\_\_\_\_ @ \_\_\_\_\_ mph

Driving Method \_\_\_\_\_

Pan Spacing \_\_\_\_\_ ft.

Spread Pattern Test Graph





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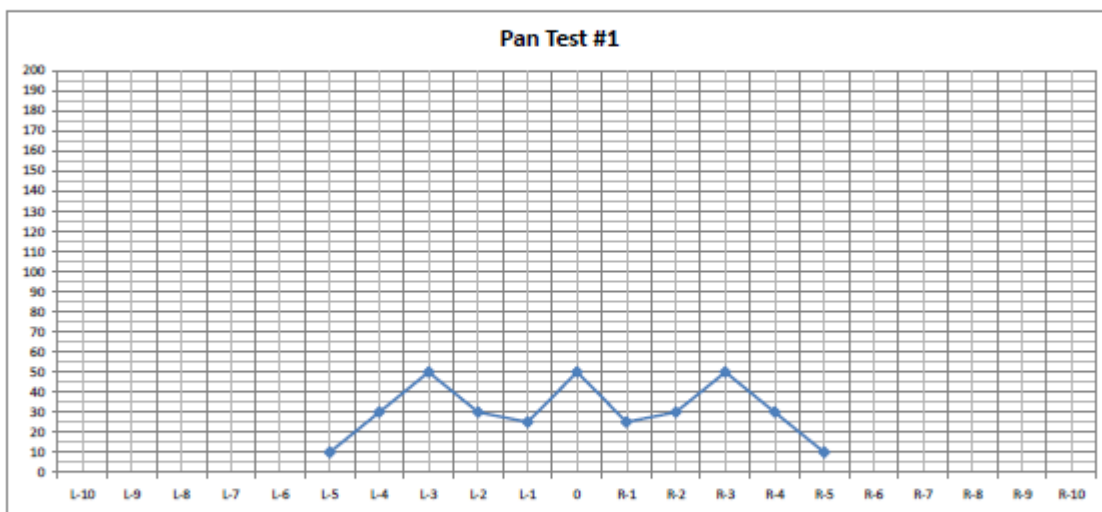
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## Data Recording

### Unacceptable Pattern

Date <u>9/1/2010</u>	Model <u>FTL-EXW</u>	Gate Setting <u>2</u>	Spread Width <u>70</u> ft.
Run No. <u>1</u>	Serial No. <u>22647</u>	Flow Divider Setting <u>3.75</u>	Height To Spinners <u>    </u> in.
No. of Passes <u>1</u>	Chain Type <u>24" Mesh</u>	Spinner Speed <u>700</u> rpm	Wind <u>    </u> @ <u>    </u> mph
lb./Acre <u>200</u>	Material <u>DAP/Pot Ash</u>	Spinner Valve Setting <u>    </u>	Driving Method <u>    </u>
Test Site <u>Gene Farm</u>	Material Density <u>63</u> lb./cu.ft.	Blade Settings L <u>2</u> R <u>2</u>	Pan Spacing <u>10</u> ft.
Flow Divider <u>8"</u> Center and <u>Sloped</u> Sides			



QUALITY TENDERS AND SPREADERS

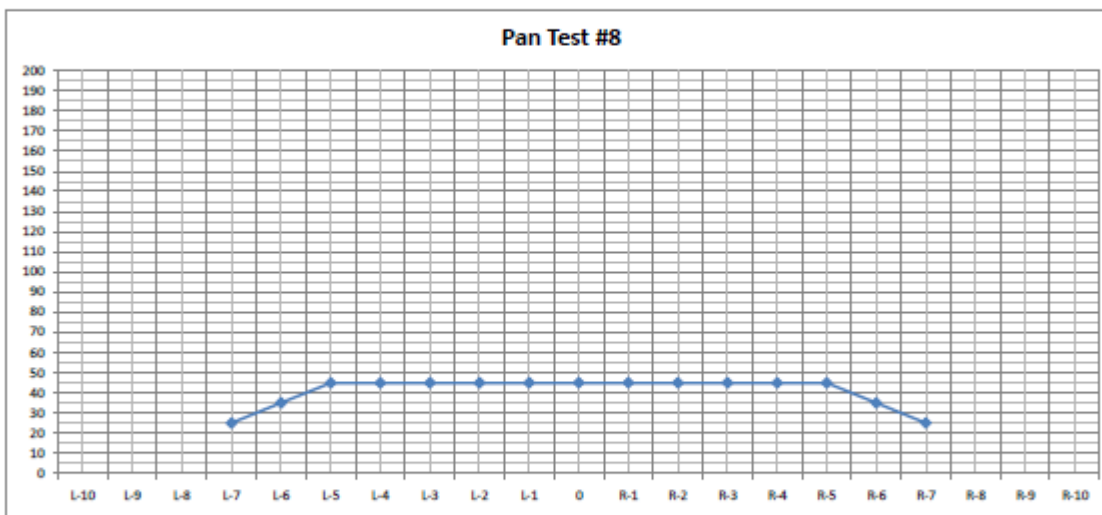
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### Acceptable Pattern

Date <u>9/1/2010</u>	Model <u>FTL-EXW</u>	Gate Setting <u>2</u>	Spread Width <u>80</u> ft.
Run No. <u>8</u>	Serial No. <u>22647</u>	Flow Divider Setting <u>3.75</u>	Height To Spinners <u>    </u> in.
No. of Passes <u>1</u>	Chain Type <u>24" Mesh</u>	Spinner Speed <u>700</u> rpm	Wind <u>    </u> @ <u>    </u> mph
lb./Acre <u>200</u>	Material <u>DAP/Pot Ash</u>	Spinner Valve Setting <u>    </u>	Driving Method <u>    </u>
Test Site <u>Gene Farm</u>	Material Density <u>63</u> lb./cu.ft.	Blade Settings L <u>1</u> R <u>1</u>	Pan Spacing <u>5</u> ft.
Flow Divider <u>8 1/2"</u> Center and <u>Sloped</u> Sides			



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## **Data Recording**

Using the data sheets supplied, document any and all adjustments made to the spreader while conducting the pan test.

Using the funnel, transfer the contents of each catch pan into the corresponding test tube for its position.

**NOTE:** It is highly recommended to only make ONE adjustment between each test. If more than one adjustment is made it will hard to determine which adjustment is responsible for the change in spread pattern shape.

Once you've obtained a desirable pattern, maximum driving centers can be determined. In order to determine the maximum swath width, locate the points on both the left and right side of the pattern where the amount of material applied is half of the amount at the center of the pattern. The distance between these two points represents the optimal swath width.

If spreading blended fertilizer, a visual inspection of the samples should be conducted in order to determine if the blend within the swath is consistent with the desired blend. If the blend is not consistent, a narrower swath should be used and a new optimal width should be determined.

## **Driving Methods**

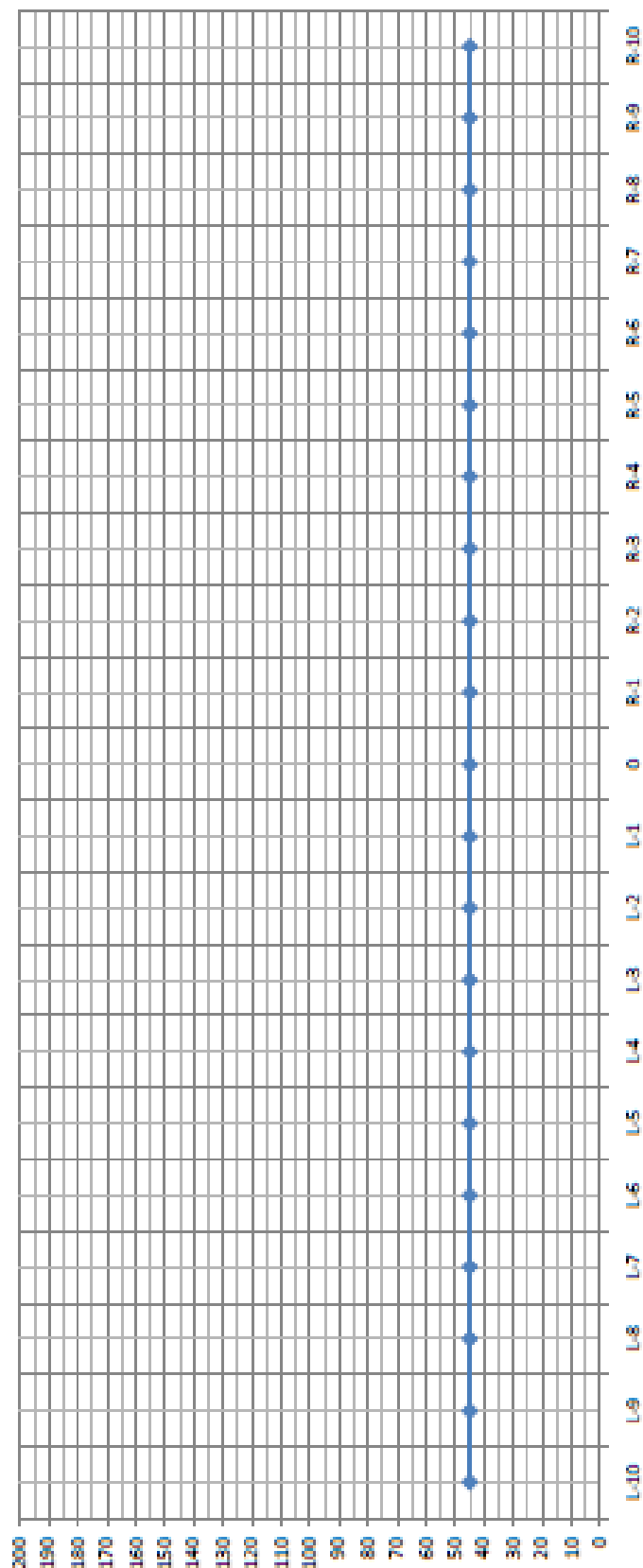
During initial testing only one pass over the pans is required. Once an optimal swath width is determined, a multiple pass test should be conducted to check the overlap areas of the swath.


There are different types of multiple pass driving methods; however we recommend a 3 pass switch back method. The use of this method amplifies non-symmetrical patterns by blending right side on right and left side on left.

## Acceptable Pattern Using a 3 Pass Switchback Driving Method

Date 9/1/2010 Model FTL-EXW Gate Setting 2 Spread Width 80 ft.  
 Run No. 6 Serial No. 22647 Flow Divider Setting 3.75 Height To Spinners in.  
 No. of Passes 3 Chain Type 24" Mesh Spinner Speed 700 rpm Wind @ mph  
 lb./Acre 200 Material OAP/Rot.Ash Spinner Valve Setting Pan Spacing 6 ft.  
 Test Site Gene Farm Blade Settings L 1 R 1  
 Flow Divider 8 1/2" Center and Sloped Sides

Pan Test #6




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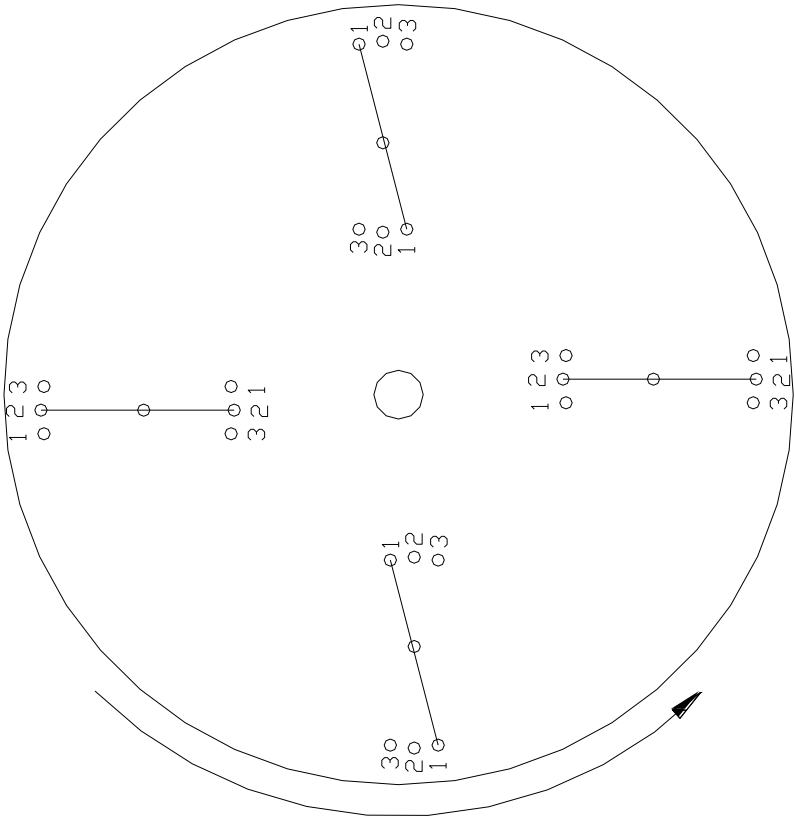
# Spread Pattern Troubleshooting

Problem	Recommended Adjustments
Heavy Directly Behind the Truck	<ol style="list-style-type: none"><li>1) Move the material divider towards the back of the spreader.</li><li>2) Decrease spinner speed.</li><li>3) Check spinner blade condition.</li><li>4) Move one or two spinner blades to a lower number hole.</li></ol>
Light Directly Behind the Truck	<ol style="list-style-type: none"><li>1) Move the material divider towards the front of the spreader.</li><li>2) Increase spinner speed.</li><li>3) Check spinner blade condition.</li><li>4) Move one or two spinner blades to a higher number hole.</li></ol>
Light Outside the Truck's Tracks	<ol style="list-style-type: none"><li>1) Check spinner blade condition.</li><li>2) Decrease spinner speed.</li><li>3) Move all spinner blades to a #2 hole.</li></ol>
Pattern Off Center	<ol style="list-style-type: none"><li>1) Check to see if gate is level and free of caked material.</li><li>2) Check to make sure material divider is square and centered.</li><li>3) Check to make sure spinners are centered and shafts are straight.</li><li>4) Make sure testing is done parallel to wind.</li></ol>

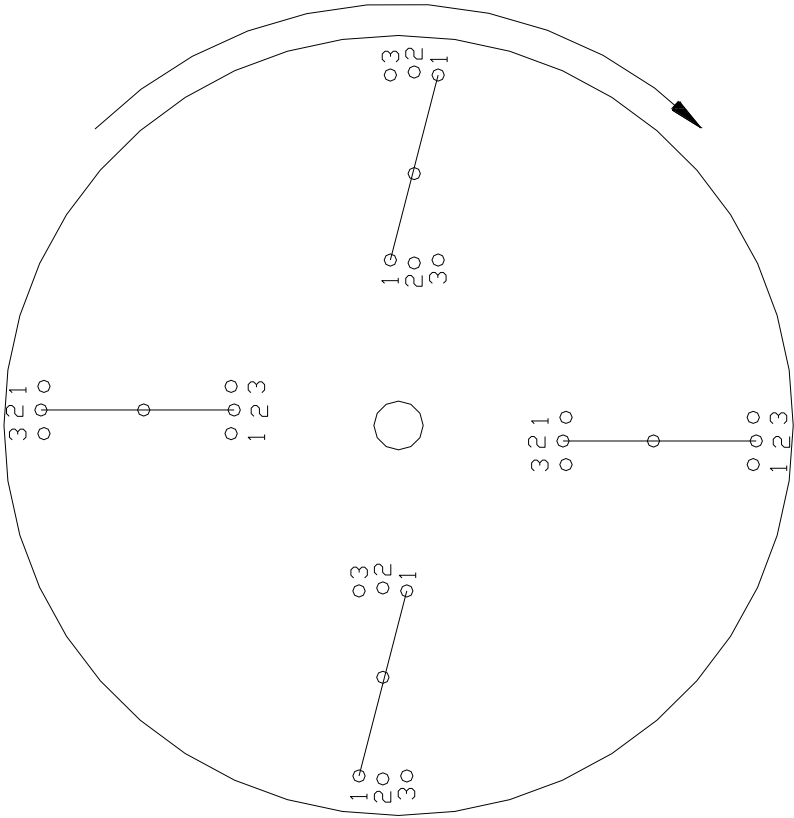
**NOTE:** The following Spinner Disc Hole Layout pertains to beds manufactured as of 10/1/2010. If this option is desired on your machine contact your local dealer or Chandler Equipment Co. for more information.

Spinner Disc Hole Layout

Right Spinner  
Disc



Left Spinner  
Disc



This image shows a full page of blank, lined paper. It features approximately 20 horizontal black lines spaced evenly across the page, typical of notebook paper. The lines are thin and extend from the left edge to the right edge. There are no margins, text, or other markings on the page.

1) **Control System:** Chandler Spreaders can be equipped with several types of control systems such as Raven, and TeeJet Technologies (Mid-tech)

## 2) Spreader Constant

	A) Rawson Gear Tooth Sensor 67 CPR	B) Raven Granular Encoder 180 CPR	C) Dickey John Rate Sensor 360 CPR
Gate Setting	24" Mesh Type Chain	24" Mesh Type Chain	24" Mesh Type Chain
1	368	989	1979
2	184	459	989
3	123	330	660
4	92	247	495
5	74	198	396
6	61	165	330
7	53	141	283
8	46	124	247
9	41	110	220
10	37	99	198

	Belt Over Bar/ Bar Type	Belt Over Bar/ Bar Type	Belt Over Bar/ Bar Type
Gate Setting	Chain	Chain	Chain
1	306	823	1646
2	156	411	823
3	102	274	549
4	77	206	411
5	61	165	329
6	51	137	274
7	44	118	235
8	38	103	206
9	34	91	183
10	31	82	165



# Caution

- 1) These are only starter constant numbers and will normally be within 3 – 5 %.
- 2) Chandler Equipment Co. always recommends performing a catch test to verify proper calibration. (See operator's manual for your control system for this procedure).
- 3) When spreading Fertilizer never go below a 2" Gate opening. The 1" Gate opening is recommended for seed and other light materials.
- 4) This spreader is capable of very accurate and precise applications of fertilizer and lime when properly calibrated. Although Chandler Equipment Co. has tested this spreader to offer recommended setting, the **final calibration** and application of different materials is the **RESPONSIBILITY OF THE OPERATOR.**

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# **Section 7**

## **Maintenance & Troubleshooting**

## Extending the Life of Your Spreader through Proper Maintenance

We at Chandler Equipment Co. are pleased that you have selected our equipment. We feel, as we are sure you do, with the high cost of fertilizers, repairs, and parts, that proper maintenance of equipment should be a high priority.

This unit is a major investment and must be maintained properly for years of excellent service. Listed below are some of the areas that require constant attention:

- 1) A Chandler Fertilizer Spreader comes standard with a **STAINLESS STEEL MESH TYPE CHAIN**. Due to the construction of this chain it will stretch approximately 16 inches in the first few weeks of service. Adjustment can be made on your front roller to take care of the first few inches of stretch. Once the adjustment is used, back off on the adjustment rods and remove as much chain as possible. Removal of chain will probably be required a couple of times. After the initial stretch has been taken out, only occasional adjustment of the chain will be necessary. Adjust chain tension rods the same on both sides. When properly adjusted, the chain should just clear the cross members of spreader frame. Be sure to keep build up cleaned out from under the mesh chain.
- 2) Be sure to check **HYDRAULIC OIL** level daily. Located on the front of the oil tank is an oil temperature/ oil level gauge. The oil level should be maintained within 1 inch of the black line at the top of the gauge. Never fill the tank past the black line or allow oil level to get below the red line as this could damage the hydraulic system of your spreader.
- 3) Grease bearings and U-joints daily when unit is in use.
- 4) Maintain proper lubricant level in gear case. At first sign of an oil seal leak, replace immediately.
- 5) Spreader body should be washed down occasionally and especially when not to be used for an extended period of time. Wash with 4 parts fuel oil and 1 part 10 W motor oil.
- 6) Be sure to run the material divider throughout its entire adjustment range daily and keep adjustment rod greased. Doing so will maintain proper adjustment function.
- 7) Spinner Assembly Maintenance
  - A) Spinner Blades
    - The spinner blades are a wearable item and must be checked regularly for wear. If spinner blades are worn, bent or have holes, replace immediately for proper spread pattern.
  - B) Spinner Disc
    - Check spinner disc daily for wear. If spinner disc are worn or do not spin true, replace immediately for proper spread pattern.

C) Spinner Bearings

- Check spinner bearings daily for wear and movement. Replace spinner bearing immediately if there is any movement in bearing. This can cause serious damage to spinner disc and motors. **DO NOT OVER GREASE**

D) Spinner Motors

- Check spinner motor seals daily for leaks. If spinner motor seal is leaking replace immediately. This could cause serious damage to hydraulic system and spinner motor.

8) Material Divider Maintenance

- A) It is necessary for the material divider and spinners to be clean at all times.
- B) Where excessive moisture exists it may be necessary to clean the material divider and spinners while in the field to achieve the best possible spread pattern.
- C) The material divider plays an important part in developing the proper spread pattern. This divider is adjustable "in" and "out".
- D) Proper adjustment is critical. Be sure to run the material divider throughout its entire adjustment range daily and keep adjustment rod greased. Doing so will maintain proper adjustment function.

## Troubleshooting Procedures

The following investigation recommendations are given you to assist in simple repairs. To effectively troubleshoot these areas there are only two (2) special instruments that will probably not be found in a mechanic's tool box - these are - 0-1500 RPM hand tach and a 0-3000 PSI pressure gauge. These items can normally be purchased locally but if you have problems obtaining these items they can be purchased from Chandler Equipment Co.

Description	Part Number
Digital Hand Tach (0-1500 RPM)	300-FT-033
Hydraulic Pressure Gauge (0-3000 PSI)	400-1-351

The trouble shooting program outlined following has been expressed as simply as possible through the use of a manual but if any questions arise please do not hesitate to call. If, after all investigations have been carried out relating to your problem, and the problem remains, contact Chandler Equipment Co.

**Problem I:** Spinner speed very slow even when not spreading or not at all.

### **Recommended Investigation:**

#### A) Basic Checks

- 1) Check to be sure indicator on flow control valve is located in its proper location (Refer to spinner speed and spread pattern instructions).
- 2) Check to be sure there is sufficient oil in tank and there is no restriction of any manner in line allowing oil flow from bottom of tank to pump.
- 3) Check spinner shaft bearings for proper lubrication and wear.
- 4) Check that keyways are properly in place on motor shafts.

**If** everything is in order proceed to investigation procedure **B**.

- B) Remove spool cap (3-7) from flow control valve. Remove other spool cap. From either side, push out spool and spring. Clean all items removed thoroughly and blow dry with air hose. Blow out housing areas thoroughly from which parts were removed.

### **Reassembly:**

- 1) Replace spool from upper side of housing making sure hollow end goes in first. Spool should slide freely.
- 2) Insert spring from lower side of housing. Make sure end of spring goes up in hollow part of spool.

- 3) Replace lower spool cap making sure spring sits in recessed area of spool cap.
- 4) Replace upper spool cap.

**If** problem has not been eliminated, continue to investigation procedure **C**.

C) Remove retaining ring from flow control valve.

- 1) With punch and hammer, knock lever spool from valve body. **CAUTION -**  
Be sure to mark in some manner top of spool before removing.
- 2) Clean thoroughly, area of housing from which lever spool was removed.
- 3) Clean thoroughly the lever spool outer area and blow out all holes with high pressure air hose.

**Reassemble** as taken apart, making sure, spool is replaced with area you marked in the same position.

**If** problem has not been eliminated, continue to investigation procedure **D**.

**NOTE:** The following investigation should be carried out very carefully and exactly as outlined for there is no relief system available for this procedure and if pump is working properly excessive pressure will build up immediately and cause damage if instructions are not carried out precisely.

D) Setting pressure for spinners.

- 1) Run unit empty at ordinary operating speed (engine RPM's) for approximately 10 minutes, to allow hydraulic oil to reach operating temperatures.
- 2) Disengage PTO and install pressure gauge into "CF" port on flow control valve.  
(Refer to hydraulic flow control valve drawing – page 3-7)
- 3) Set lever on flow control valve on 10.
- 4) Engage P.T.O. Rev truck engine up to approximately 2000 RPM.
- 5) Slowly release clutch while watching pressure gauge.
- 6) Pressure gauge should read 2000 PSI.

**If** not, adjust pressure in accordance to investigation procedure **E**.

E) Adjusting Hydraulic Flow Control Valve Pressure.

- 1) Remove cap nut on flow control valve (located on top of valve)
- 2) Using a 5/16" Allen wrench turn adjustment screw "IN" to increase pressure or "OUT" to decrease pressure.

- 3) Turn adjustable screw on half turn, and then check pressure setting as outlined above.
  - i. Be sure to count number of turns you adjust screw.
- 4) Continue this procedure until pressure gauge reads 2000 PSI.
  - i. If a 2000 PSI reading is reached on the gauge replace relief valve cover nut.
  - ii. If screwing in on the relief adjusting screw had none or little effect on the pressure, back adjusting screw out to its original position.

**NOTE:** If unable to obtain 2000 PSI contact your local dealer or Chandler Equipment Service Department at 1-800-243-3319

**Problem II:** Spinners will not throw material far enough.

**Recommended Investigation:**

- A) Verify proper spinner speed.
- B) Check hydraulic pressure relief. (See Problem I – Investigation D)
- C) Check that spinner blade bolts are tight and properly in place.
- D) Check that the spinner discs are securely fastened.

**Problem III:** Improper spread pattern.

**Recommended Investigation:**

- A) Check setting of material divider.
- B) Check spinner disc and blades for wear.
  - a. Replace as needed.
- C) Check spinner speed.

**NOTE:** If problems still persist or you have additional issues please contact your local dealer or Chandler Equipment Service Department at 1-800-243-3319