

AT-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.

Fertilizer and Lime Spreader Safety

SAFETY LABELS

Your safety and the safety of those around you are very important to us here at Chandler Equipment Co. Therefore we have provided important safety labels throughout this manual.

A safety label alerts you of potential hazards that can injure you or others. Each safety label is preceded by a safety alert symbol  and either the words DANGER, WARNING, or CAUTION.



DANGER

**Failure to follow instructions WILL
Result in DEATH or SERIOUS INJURY**



WARNING

**Failure to follow instructions CAN result
In DEATH or SERIOUS INJURY**



CAUTION

**Failure to follow instructions CAN result
In INJURY**

Safety Precautions

- 1) Be sure all guards or other safety devices, and decals are in place and functioning properly.**
- 2) Stay away from moving parts when spreader is in operation.**
- 3) Check lug nuts daily.**
- 4) Maintain proper tire pressure, according tire manufacturers specifications.**
- 5) If spreader becomes clogged, turn off PTO/Hydraulics before entering hopper or cleaning the spreader.**
- 6) Be sure to fully empty hopper before transporting.**
- 7) Never exceed 25 mph (LOADED) on the highway.**

Safety Decals



WARNING!

- **DO NOT ADJUST UNTIL SPINNERS STOP MOVING**
- **STAY OUT OF BOX WHILE CONVEYOR IS IN MOTION**
- **DO NOT RIDE ON SPREADER WHILE VEHICLE IS IN MOTION**
- **STAY CLEAR OF SPINNERS WHILE SPINNERS ARE IN MOTION**

THINK SAFETY!



PTO SAFETY DECAL





LUG NUT DECAL

MAXIMUM LOADED SPEED



HYDRAULIC SYSTEM DECAL

WARNING

Failure to hookup Hydraulic Spinner Option properly may cause serious damage to Tractor or Spreader

Before hooking to tractor carefully read the operations and parts manual. If you are not certain of which system you have contact Chandler Equipment or your local dealer



WARNING!

Failure to hook up Hydraulic Spinner Option properly may Cause serious damage to Tractor Hydraulic System or Spreader

When hooking up Hydraulic Spinner Option use the following procedure.

Connect Pressure Hose to tractor remote using coupler marked for the Lower Position.



(Symbol indicates Lower Position)

This will turn the spinners in proper direction when lever is in the Lower position.
(PUSHED FORWARD)

If tractor is equipped with hydraulic motor return option (low pressure return circuit)
Connect Return Line here

Or

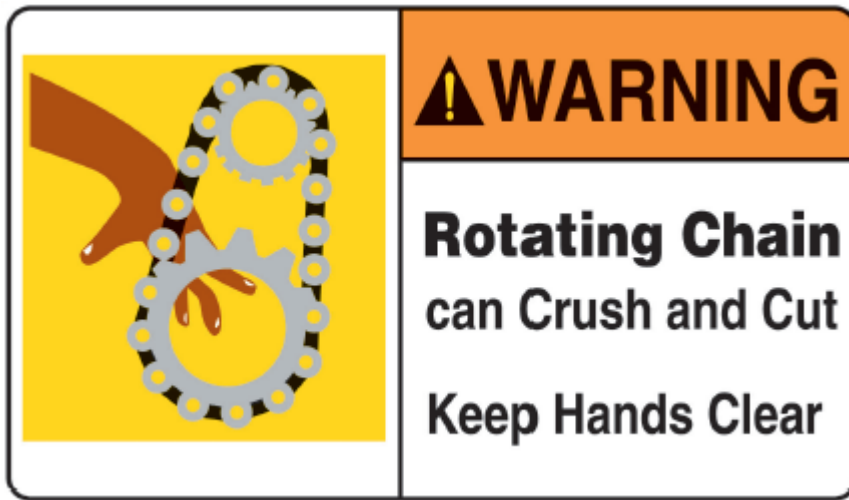
Connect Return Hose to tractor remote using coupler marked for the Raise Position.



When Disengaging Spinners push lever forward into FLOAT Position.
NEVER GO TO NEUTRAL TO TURN SPINNERS OFF.

Before hooking to tractor, carefully read operation and parts manual. If you are not certain whether your Hydraulic System is the Open Type or Close Type, Contact your local Dealer or Chandler Equipment

ROTATING CHAIN WARNING



ROTATING SPINNERS WARNING



PTO Shaft Adjustment And Maintenance



IMPORTANT

The following section contains important information regarding the safety and operation of PTO drive equipment. As our spreaders are sold throughout the world we install a standard length PTO shaft to accommodate multiple types and brands of tractors. Therefore, modification (i.e. shortening) of the shaft may be required to meet the specific needs of your tractor. Follow the guidelines set forth in this manual to ensure proper and safe operation of your spreader.

HOW TO SHORTEN THE PTO DRIVE SHAFT

- 1) Attach the implement to the draw bar. Align the implement with the tractor on level ground - this will be the position at which the driveline is at its shortest length. If the driveline will fit the tractor and implement at this point, without bottoming out, no further action is necessary.
- 2) If the driveline will not fit without bottoming out, separate the driveline into two half shafts. Mount the tractor half on the PTO, and mount the implement half on the power input connection (PIC).
- 3) Hold the two halves side-by-side. Mark the outer shield tube where it overlaps the end of the shield cone on the implement half shaft, plus 1/4".
- 4) Disassemble the shields from the half shafts.
- 5) Cut the outer shield tube at the mark made in (c). Using the cut piece as a guide, cut an equal amount from the inner shield tube, the outer drive tube, and the inner drive tube.
- 6) Using a half round or rat tailed file, carefully deburr the cut end of the drive tubes. Shake and/or wipe metal chips / filings from the drive tubes.
- 7) Coat the inner drive tube with #2 grease along its entire length.
- 8) Reassemble the shields onto each half shaft. Slide the inner half shaft into the outer.

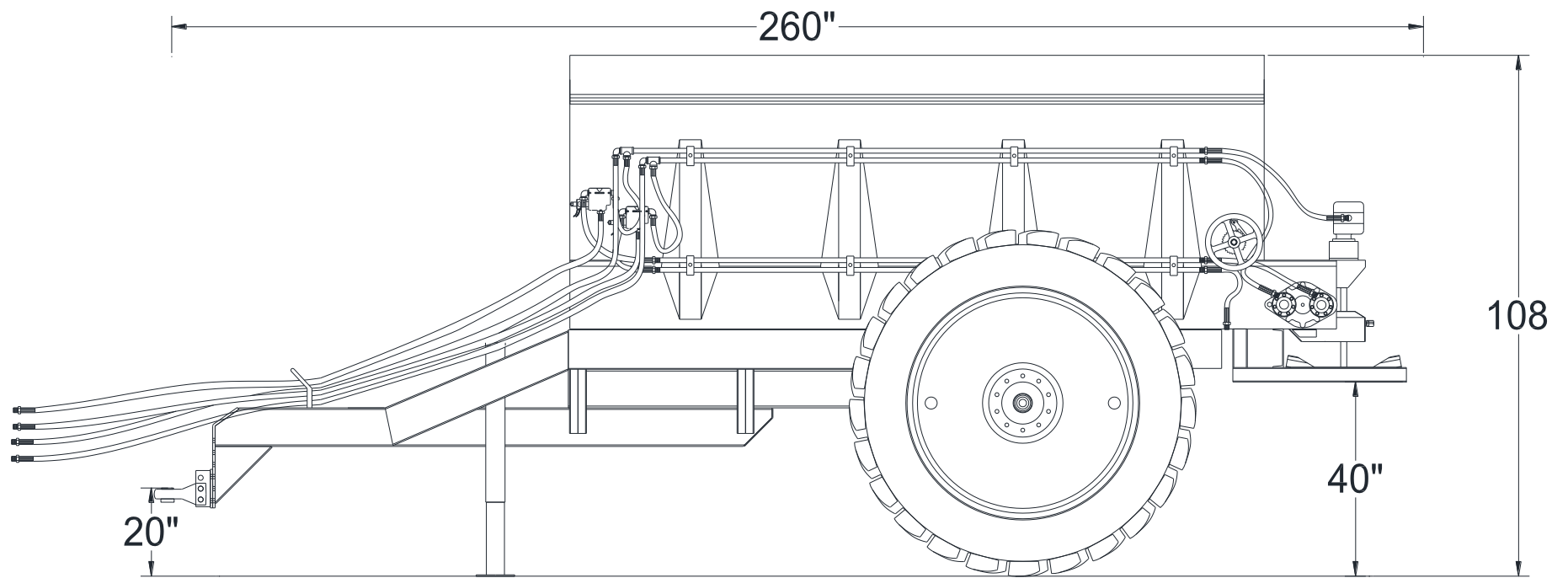
- 9) **Attach the driveline to the tractor PTO and implement PIC. Make sure each end is firmly attached to its respective shaft.**
- 10) **Make sure driveline does not bottom out when the implement is fully raised, and that at least 1/3 of the tube is engaged when the implement is at its lowest height.**

LUBRICATION

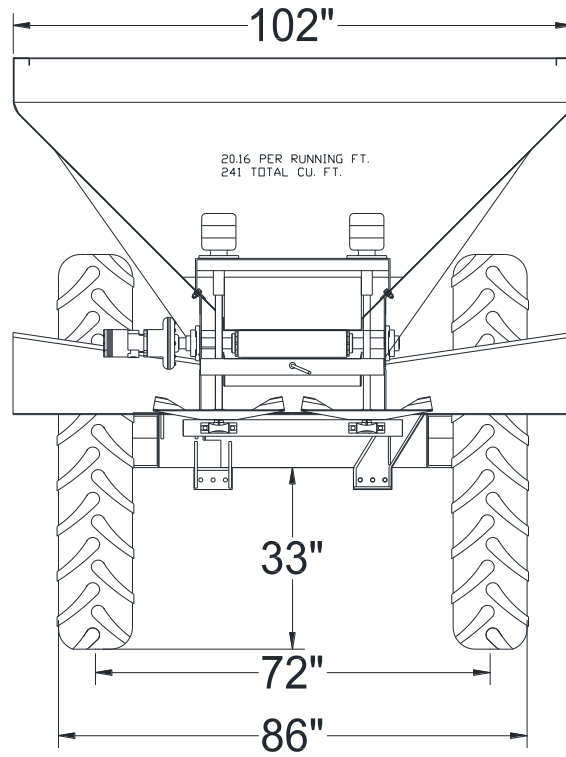
- **Always wear adequate safety equipment when performing any maintenance**
- **LUBRICATION OF THE UNIVERSAL JOINT**
 - **Rotate the shielding until opening the access hole. Lubricate, and close the hole by rotating the shielding.**
- **LUBRICATION OF THE 650 CV JOINT**
 - **Rotate the shell to expose the grease fitting and inject grease.**
- **LUBRICATION OF THE TELESCOPING TUBES**
 - **If grease fittings are not provided, separate the two halves of the driveline and manually lubricate the telescoping tubes.**
- **Check that all components are in good condition and properly lubricated before using the driveline. Clean and re-lubricate the driveline before storage at the end of the season.**
 - **Lubrication the 650 type 70° CV joint every 8 hours.**
 - **Lubricate all other components every 50 hours.**
 - **Pump grease into the crosses until it purges from the bearing caps.**
 - **Inject grease gradually and avoid pumping the grease gun violently with resulting high delivery pressure.**
 - **Use NLGI grade 2 grease.**
 - **Before storage at the end of the season remove any grease that has accumulated inside the CV joint shield.**
- **Replace worn or damaged parts with genuine Bondioli & Pavesi spare parts.**
 - **Do not modify or tamper with any part of the driveline.**
 - **For any operations not explained in this manual, consult your implement dealer or manufacturer, or your local Bondioli & Pavesi representative.**

Section 1

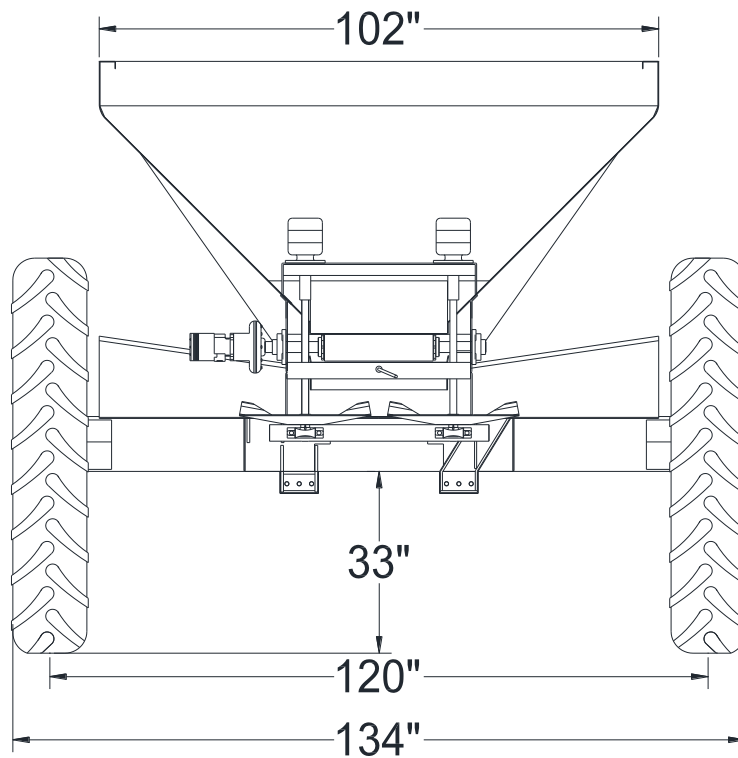
Basic Information AT-FTLH EXW



AT-FTLH EXW



AT-FTLH EXW 72" Centers

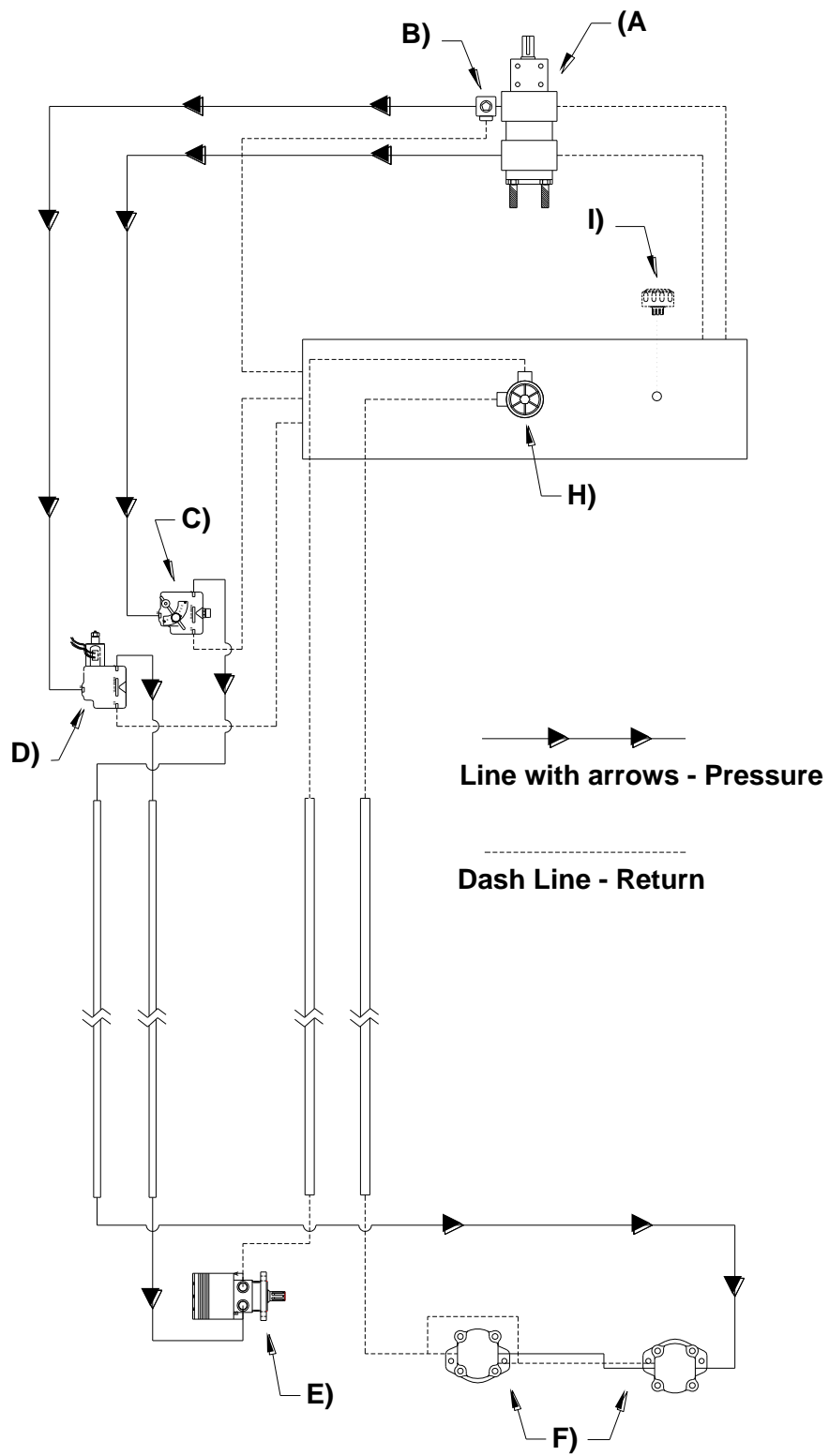


AT-FTLH EXW 120" Centers

	Fertilizer @ 65 #	Lime @ 90 #
Hopper Capacity (Struck Level)	280 Cubic Ft.	
Payload (Struck Level)	18220 Lbs.	24,000 Lbs.
Hopper Capacity (Heaped & Tarped)	310 Cubic Ft	
Payload (Heaped & Tarped)	20,150 Lbs.	28,000 Lbs.

Section 2

Hydraulic System

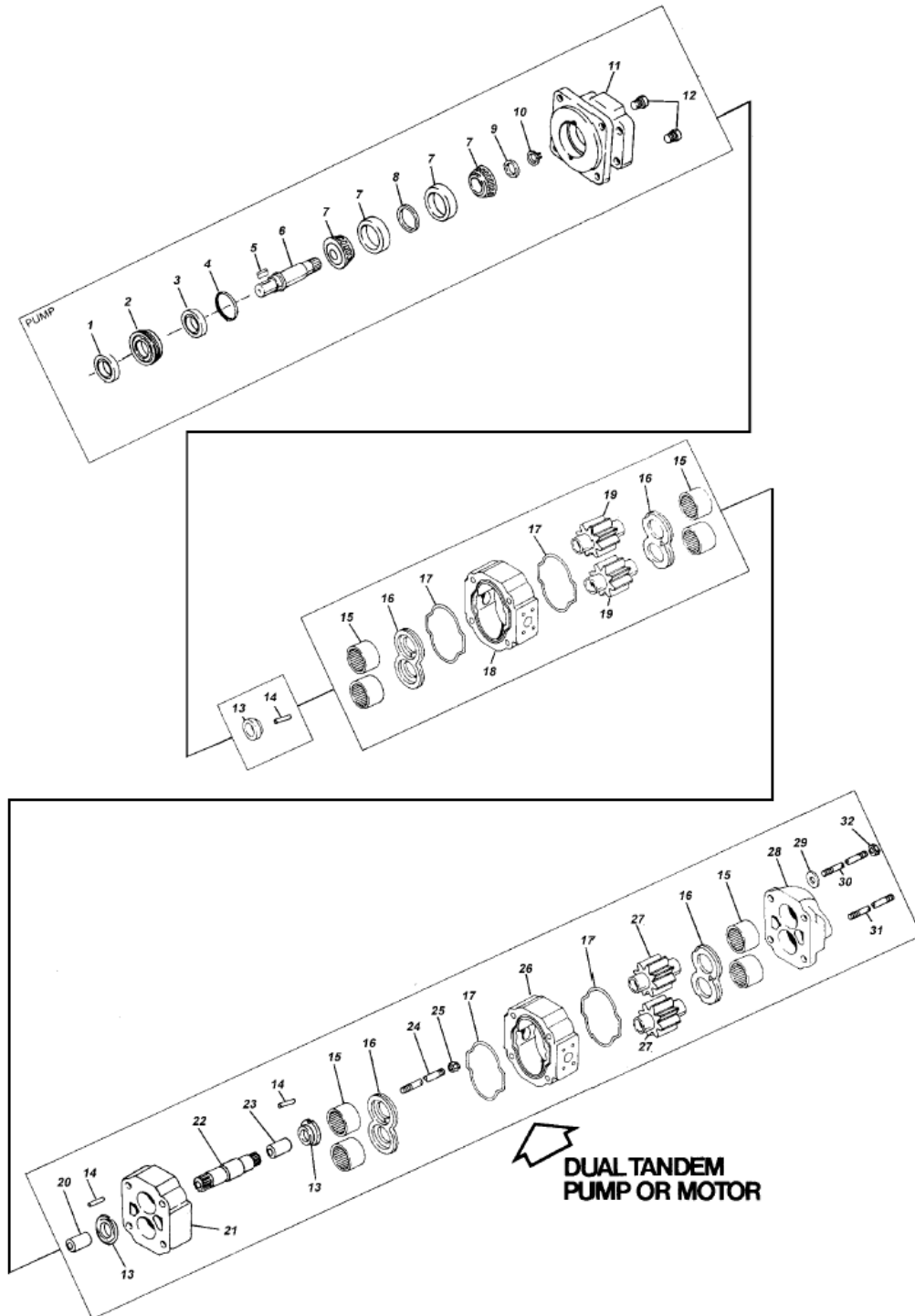


30 PTT - FT EXW Self Contained Hydraulic System

Part #	Description
A) 400-C-209B	P - 2500 Tandem Pump 2 1/2" x 2 1/2"
B) 400-1-308	Relief Valve - Nonadjustable - 2500 PSI
C) 400-1-313	Flow Control Valve with Built-in Relief
D) <u>Options:</u>	<u>Control Valve</u>
063-0171-846	Raven: 30 GPM PWM
063-0172-194	Raven: 30 GPM Fast Valve
35-02128	Teejet: 30 GPM EXR - 4
E) 400-R-106	Parker - MB - 18 - Single Rawson Drive
400-R-104	Parker - MB - 12 - Twin Rawson Drive
F) 400-C-218B	M - 2500 2" Gear Spinner Motor
G) 300-1-208	Filter Gauge (not shown)
H) 300-FL-113A	EXW - Filter
I) 400-1-317	Breather Cap

2500 SERIES

P2500B(599SPL)AXHK25-62AHK25-1(CHA)

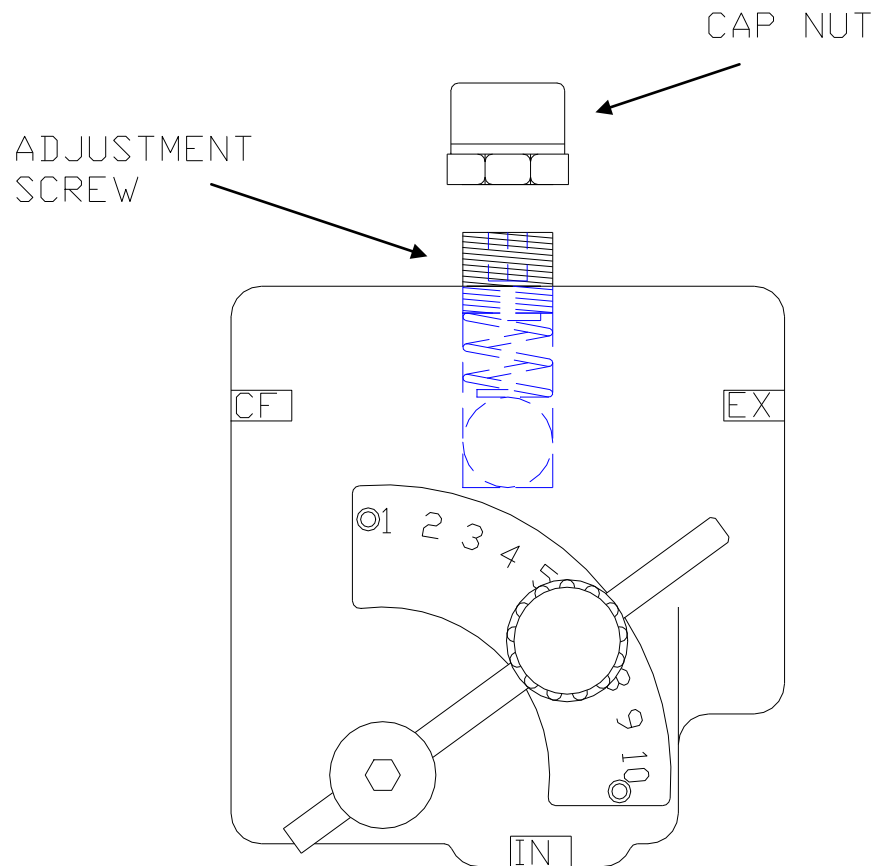


Note: Drawing shown with Flange Mount (Part 11) actual Pump has 4-Bolt Pad Mount (see parts list next page)

**MODEL NUMBER
DESCRIPTION****P2500B(599SPL)AXHK25-62AHK25-1(CHA)
PUMP TYPE I SHAFT**

Item Number On Exploded View	Description	Order This Part Number	Quantity Per Unit
1	SPECIAL SEAL	280-1774-935	1
2	RETAINER RING	GZ-0961-1	1
3	PUMP SHAFT SEAL	W62-26-10	1
4	O'RING	K-2995-47	1
5	SHAFT KEY	W09-44	1
6	PUMP SHAFT	TB-0024-1	1
7	TAPER BEARING	W015-7	2
8	BEARING SPACER	FA-0558	1
9	SHAFT SPACER	XZ-0558-2	1
10	SNAP RING	W86-100	1
11	TYPE III PAD MOUNT (SEC)	LA-0575-3	1
12	CHECK VALVE	L-0280-K	2
13	SHAFT BUSHING	ZQ-1909	3
14	ROLL PIN	W004-19	3
15	ROLLER BEARING	R-0921	8
16	THRUST PLATE	X-0947-TC	4
17	GEAR HOUSING GASKET SEAL	TA-2995-244	4
18	GEAR HOUSING 2-1/2"	LZ-0577-25-5	1
19	GEAR SET 2-1/2"	JZ-0996L-25	1
20	GEAR SPACER 1-1/8"	SZ-0408-9	1
21	BEARING CARRIER (BC)	JA-0576	1
22	CONNECTING SHAFT	SZ-0022	1
23	GEAR SPACER 1-1/8"	SZ-0408-9	1
24	THREADED ROD	3/8"-16	1
25	LOCK NUT	W78-05	1
26	GEAR HOUSING 2-1/2"	LZ-0577-25-5	1
27	GEAR SET 2-1/2"	JZ-0996L-25	1
28	PORT END COVER (PEC)	QZ-0592	1
29	WASHER 5/8"	W033-2	4
30	TIE BOLT 12-1/2"	ZD-0391-125	2
31	TIE BOLT 16"	ZD-0391-16	2
32	HEX NUT 5/8"-11	W3-65	4

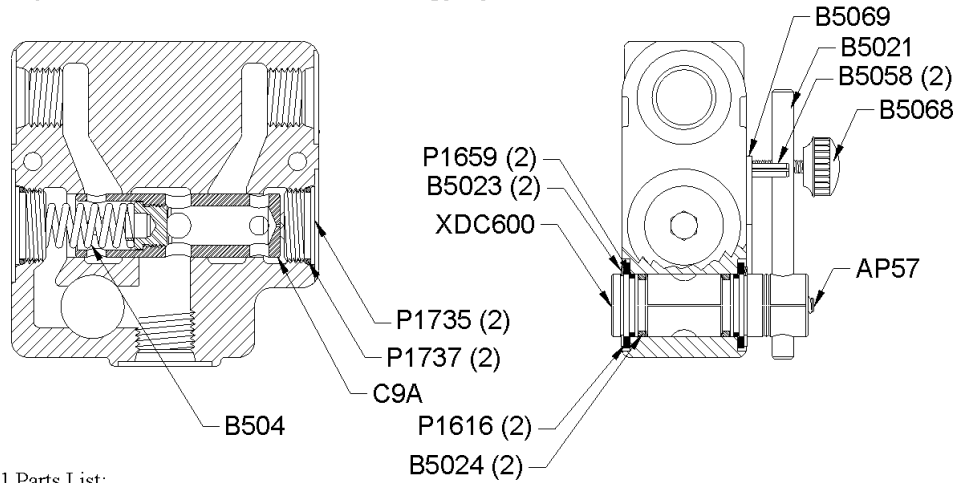
FCR – 51 - .75 Flow Control Valve



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



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



FC51 Parts List:

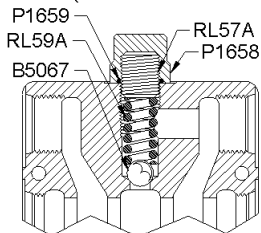
AP57 1/4-20 x 1/4 Set Screw
 B5021 Handle
 B5023 Snap Ring
 B5024 O-ring 2-116
 B504 Spring
 B5058 3/16 x 7/8 Spring Pin
 B5068 10-32 x 3/4 Thumb Screw

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.

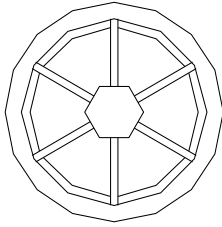
EXPLODED VIEW FOR M2500A(786SPL)ADDQ20-62(CHA)

PART NUMBERS

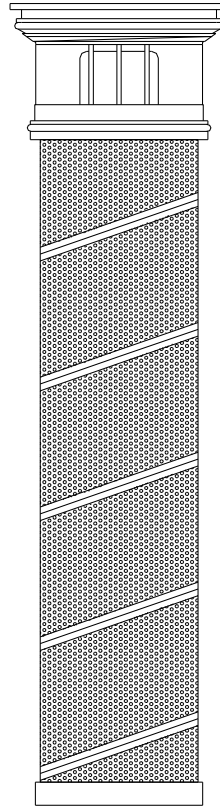
MODEL NUMBER	M2500A(786SPL)ADDQ20-62(CHA)
DESCRIPTION	MOTOR TYPE III SHAFT

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

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

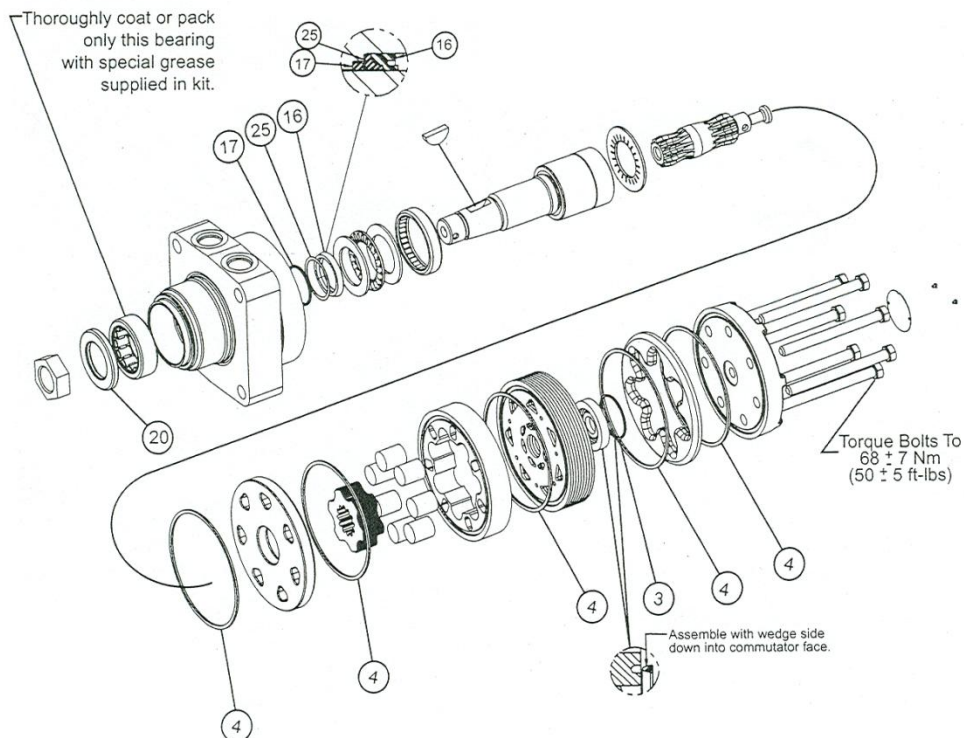
SK000092 (Buna), SK000093 (Fluorocarbon),

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) Shut Tractor PTO off and install pressure gauge into “CF” port on flow control valve.
(Refer to hydraulic flow control valve drawing – page?)**
- C) Set flow control valve on 10.**
- D) Restart engine**
- E) With PTO engaged, increase tractor engine RPM's to ordinary operating speed. (were your tractor engine RPM)**
- F) Slowly release clutch while watching pressure gauge.**
- G) Pressure gauge should read 2000 PSI. If not adjust pressure as outlined below.**

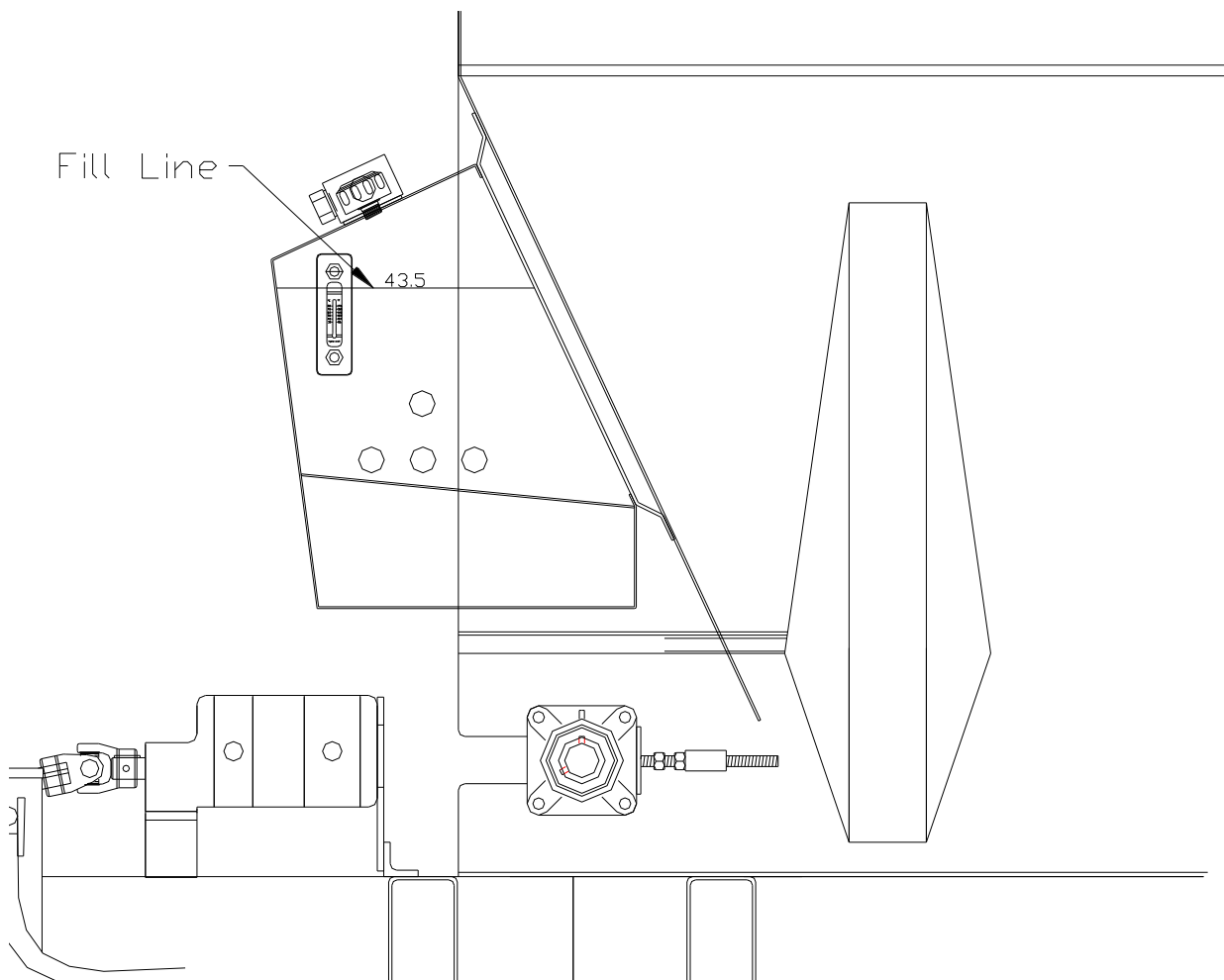
Caution: When checking pressure, never allow truck to run over a few seconds with pumping running and gauge installed in line. Once pressure reading is taken engage clutch immediately.

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

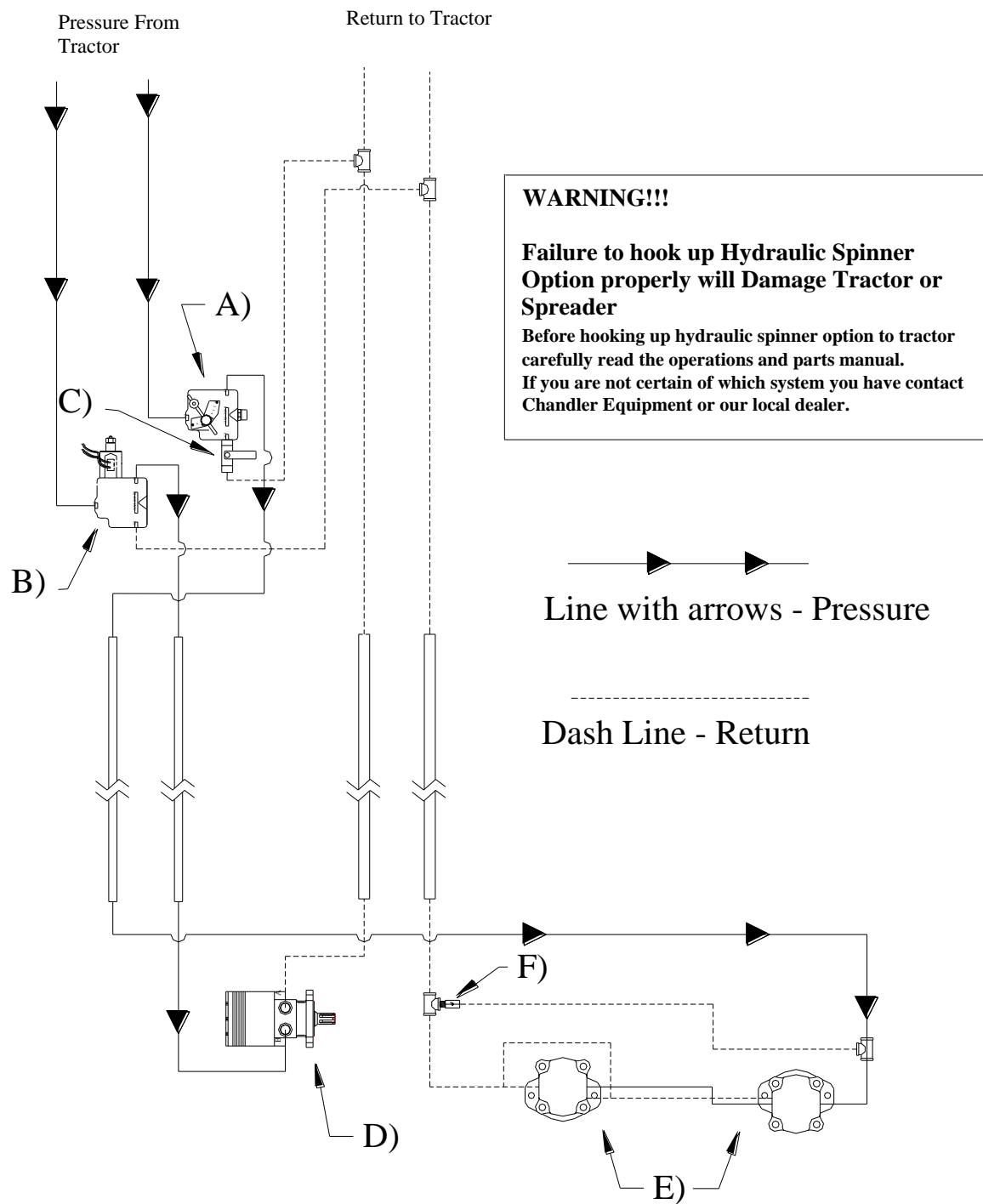


Oil Capacity: 45 Gallons

Type Oil: SAE 46 Series Hydraulic Oil

Section 3

Plug to Tractor Hydraulic System



30 PTT – FT Hydraulic System – Plug to Tractor

Part #	Description
A) 400-1-313	Flow Control Valve with Built-in Relief
B) <u>Options:</u>	<u>Control Valve</u>
063-0171-846	Raven: 30 GPM PWM
063-0172-194	Raven: 30 GPM Fast Valve
35-02128	TeeJet: 30 GPM EXR - 4
C)	Ball Valve
D) 400-R-106	Parker - MB - 18 - Single Rawson Drive
400-R-104	Parker - MB - 12 - Twin Rawson Drive
E) 400-C-218B	M - 2500 2" Gear Spinner Motor

WARNING!!!

To avoid damage to Tractor or Chandler Spreader use following procedure when hooking up the hydraulic spinner option to the tractors hydraulic system.

Hydraulic System Pumps:

Today's tractors are equipped with either Constant Displacement or Variable Displacement Hydraulic Pumps. Constant Displacement Pumps put out a constant flow regardless of pressure (until the relief valve bypasses the flow). The only way to vary the flow on this type of pump is to change the engine speed. Variable Displacement Pumps will produce only the flow required by the implement until total pump output is reached. If less than total pump output is required, an automatic stroke control mechanism decreases the pump output to maintain a constant pressure and flow. The output varies according to demand.

Hydraulic Controls:

There are two types of hydraulic control or spool valve used on tractors today. They are named after the design of the spool valves themselves. One is called "Open Center" because in the neutral (or center) position it is open to allow flow back to the hydraulic reservoir. Open Center Valves are used exclusively on Constant Displacement Pumps. The other valve type is called a "Closed Center" because in the neutral (or center) position all hydraulic flow is stopped on the circuit. Closed Center Valves are used exclusively on Variable Displacement Pumps.

There are four basic positions for each type of spool valve. They are Raise, Neutral, Lower, and Float (in order, from back to front). The names used for these positions vary somewhat between manufactures, but the order of the positions does not.

To properly operate a hydraulic motor on a tractor hydraulic circuit, only the **Lower** and **Float** positions should be used. **Use Lower for "On" and Float for "Off"**. The Float position is recommend for turning the motor off because it allows the remote circuit to flow in a continuous loop allowing the motor to free wheel to a stop and also does not trap pressure in the circuit.

Both Open and Closed Center Valves can trap oil on both sides of the circuit in the Neutral position. Use of this position for "off" will cause premature failure of the hydraulic motor.

The Raise position is not recommend for "On" because the valve must travel through the Neutral position to get to Float.

Many tractor hydraulic systems route return lines through filters or other restrictive elements, which can cause an increase in the return circuit pressure. It is recommend to utilize either a standard (or purchase an optional) **low-pressure return circuit**. This will allow for less oil heat generation, lower horsepower consumption, and longer oil seal life.

Consult with your tractor manufacturer to see if your tractor is or can be equipped in this way.

Hooking up Hydraulic Spinner Option to Tractor Remotes

When hooking up Hydraulic Spinner Option use the following procedure.

Connect Pressure Hose to tractor remote using coupler marked for the Lower Position.



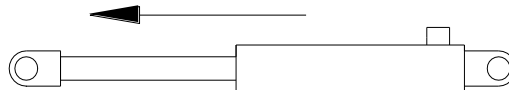
(Symbol indicates Lower Position)

This will turn the spinners in proper direction when lever is in the Lower position.

If tractor is equipped with hydraulic motor return option (low pressure return circuit) Connect Return Line here

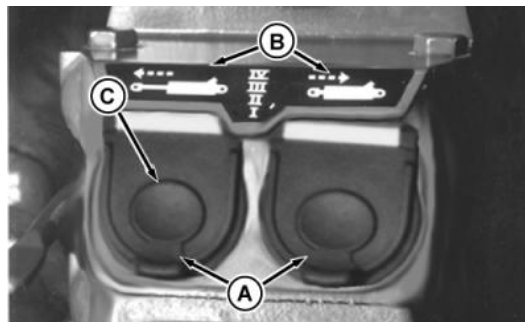
Or

Connect Return Hose to tractor remote using coupler marked for the Raise Position.



(Symbol indicates Raise Position)

Many of today's tractors you can select for a motor or cylinder. Be sure that you have selected Motor not Cylinder. (This will also allow oil to flow similar to a low-pressure circuit)



(John Deere Tractor shown symbols may vary on different manufactures)

Caution: When hooking up any hydraulic lines to tractor turn engine “OFF” and make sure all Remote Levers are in the neutral position.

Important: Hydraulic hoses can fail due to physical damage, kinks, age and exposure.

Check hoses daily and replace faulty hoses immediately to avoid possible personal injury or damage to equipment.

To check spinners for proper rotation use the following procedure.

- A) Start engine on tractor.
- B) Start spinners by pushing remote lever forward into the “Lower” position. Check to be sure spinners are turning the proper direction (see drawing page 5)
- C) If spinners are not turning proper direction switch hoses in remotes.
- D) When turning spinners “OFF” push Lever forward into the Float Position.
- E) **Never** turn spinners **“OFF”** by pushing Lever into **“Neutral”** this will stop spinners suddenly, not let them free spin to a stop and will damage spinner motors or tractor hydraulic system.

If you are not certain how to hookup the pressure and return line contact Chandler Equipment Co. or your local dealer.

NOTE: All Chandler Spreaders with the hydraulic spinner option will run with an Open or Closed System. If running with an Open System the ball valve underneath the flow control valve must be “ON”. If running with a “CLOSED” System the ball valve should be “OFF”. (See drawing page 5)

Setting Spinner Speed using Hydraulic Spinner Option

Proper spinner speed for most common applications of Fertilizer and Lime is 725 RPM. The Flow Control Valve located on the side of the spreader controls this speed.

Use the following procedure to set spinner speed:

(After reading pervious pages and determining which hydraulic system you are using)

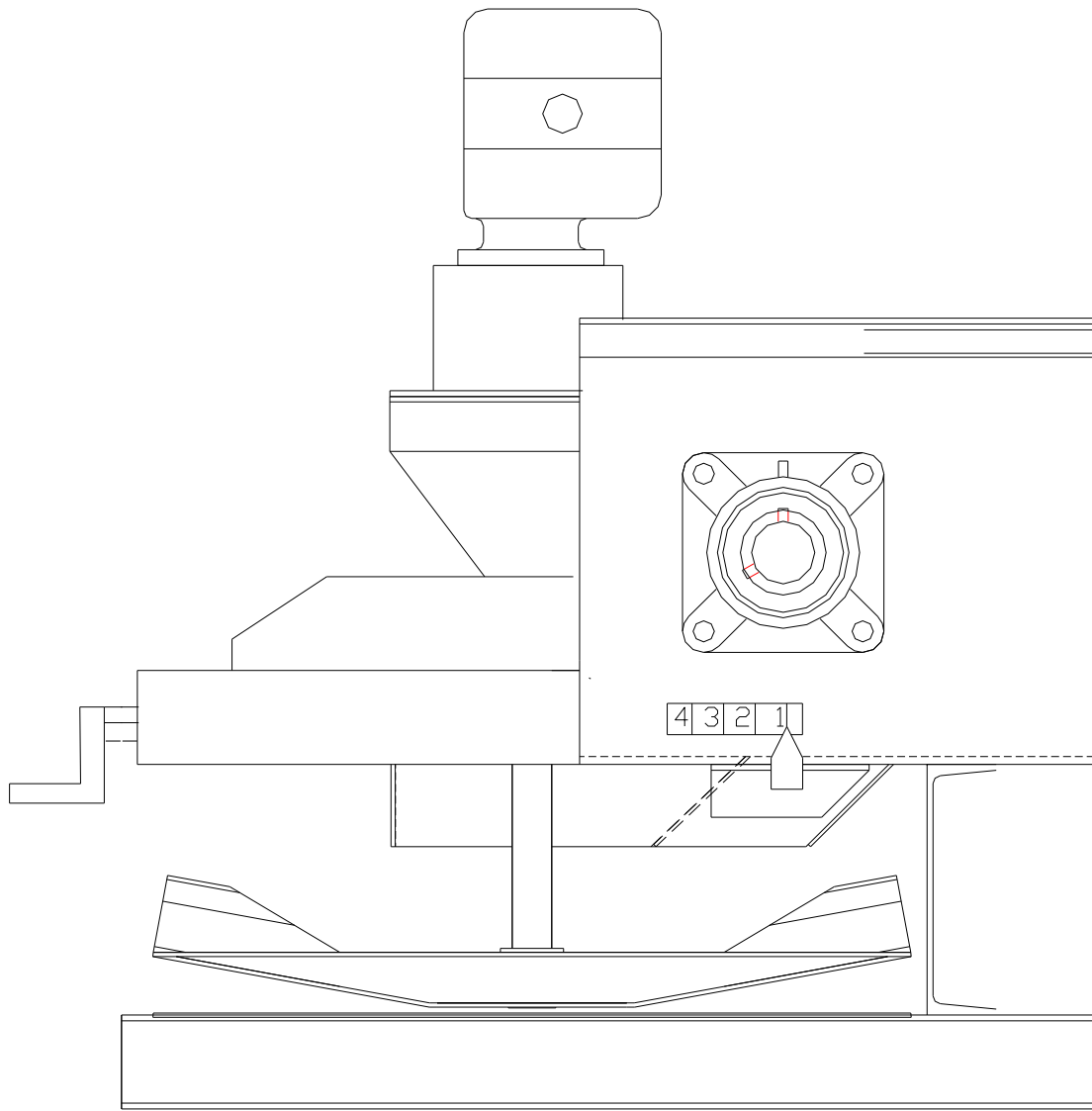
- A) After hooking up Pressure / Return lines and making sure they are turning in the proper direction.
- B) Set Flow Control Valve on “6”
- C) Start Tractor engine
- D) Engage spinners by pushing remote lever forward into the lower position.
- E) This should start turning the spinners.
- F) Using a hand tact check spinner speed.
- G) If spinner speed is not 725 RPM use flow control valve to adjust spinners to proper speed.
- H) Repeat this process if needed.
- I) Some material may take a different spinner speed.
(Such as with lime spinner speed may need to be turned up to 750 – 800 RPM, lighter materials may need slower spinner speed)

If you have any questions on spinner speed contact Chandler Equipment Co. or your local dealer.

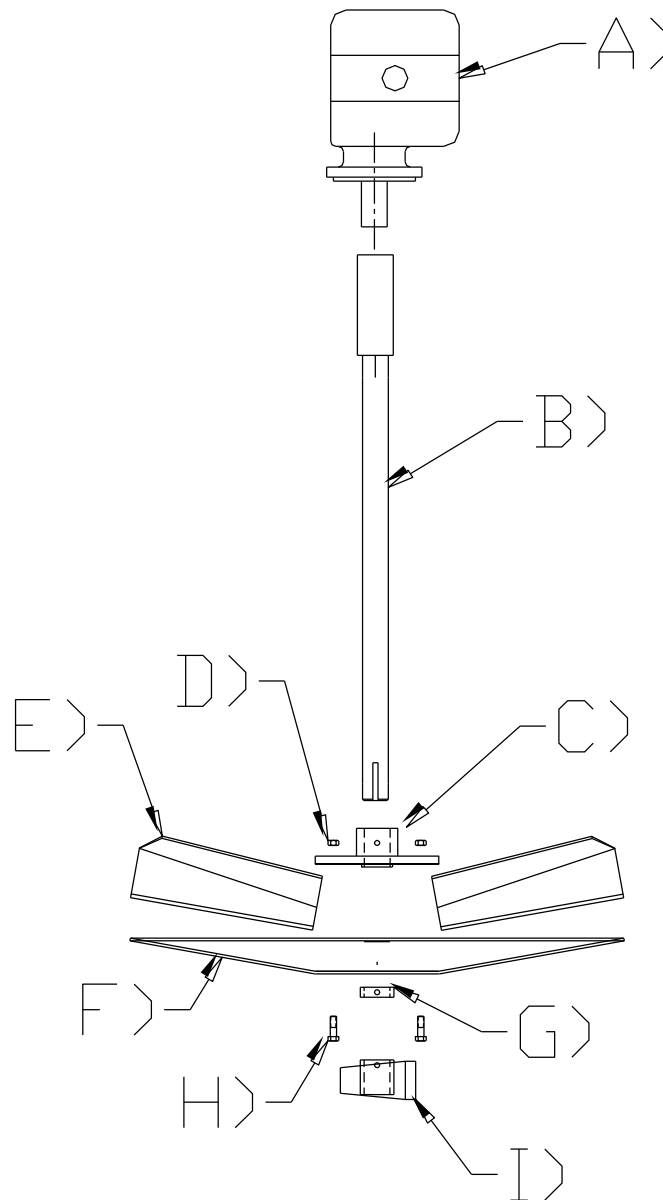
Section 4

Spinner

Assembly

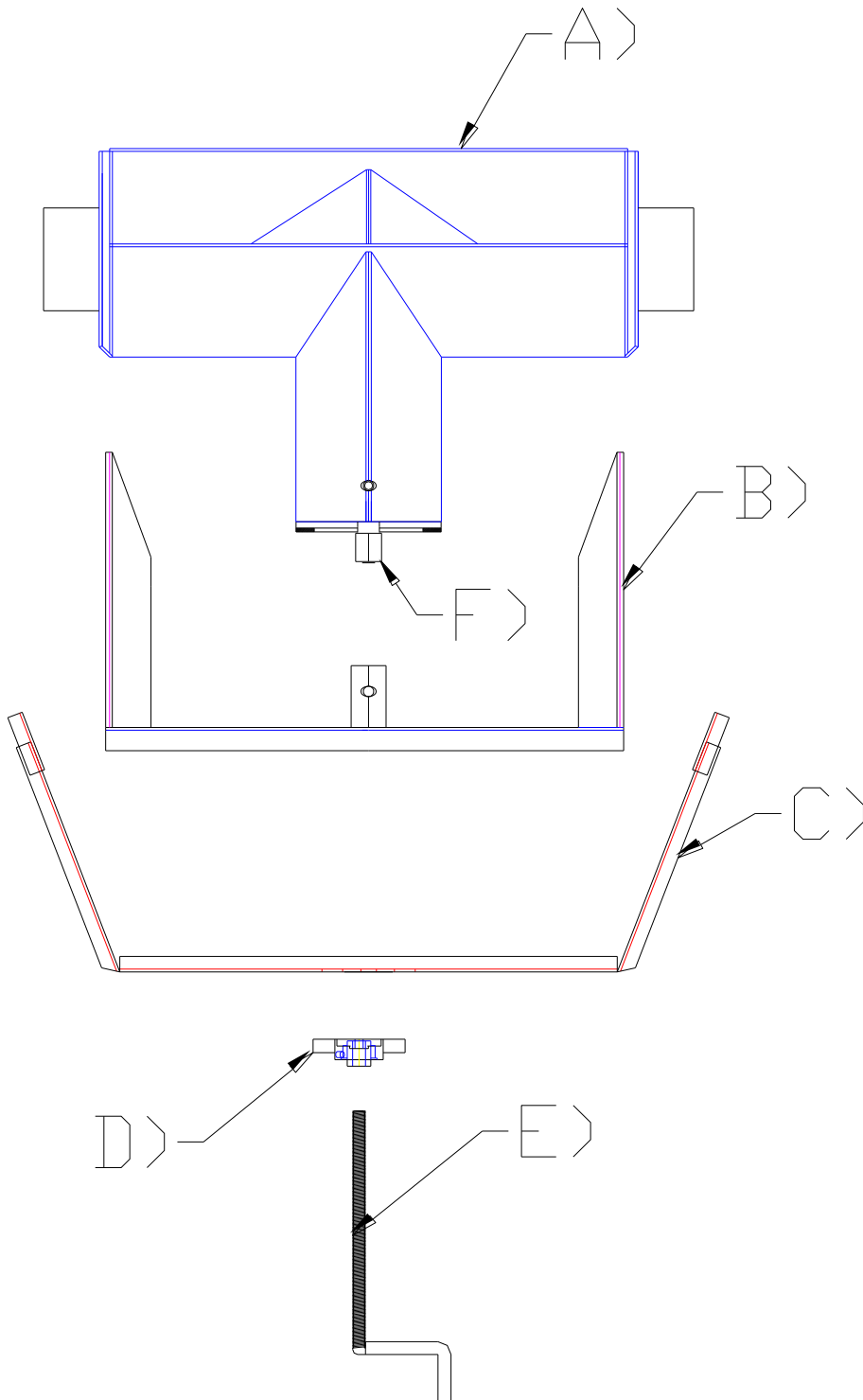


Spinner Assembly Side View



Spinner Assembly Exploded View

Part #	Description
A) 400-C-218B	M-2500 - 2" Gear Spinner Motor
B) 300-1-210	Spinner Shaft M25
300-1-211	Spinner Shaft - Stainless M25
C) 300-FL-112	4 Bolt Spinner Hub
300-FL-112A	4 Bolt Spinner Hub - Stainless
D) 300-FL-114	5/16" Hex Head Flange Nut
E) 300-EXW-103	F/L EXW H/T Spinner Blades
F) 300-EXW-101	Spinner Disc
300-EXW-102	Spinner Disc - Stainless
G) 300-1-208	Lock Collar
H) 300-FL-113A	5/16 x 1" Hex Head Bolt
I) UCP - 207 -20	Pillow Block Bearing

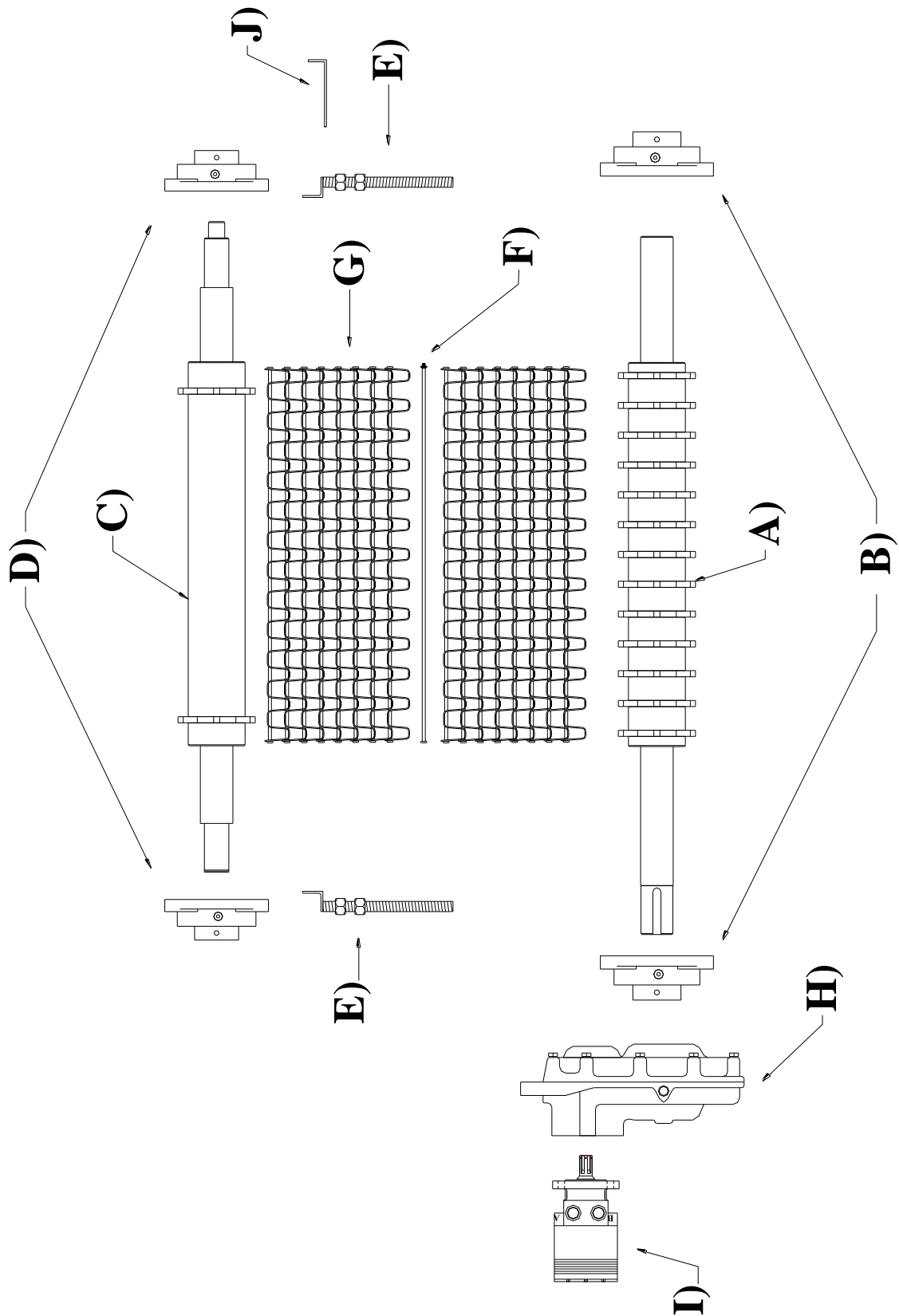


Flow Divider Exploded View

	Part #	Description
A)	300-EXW-107	EXW Flow Divider Base
B)	300-EXW-108	EXW Flow Divider Insert
A & B	300-EXW-106	EXW Flow Divider Assembly
C)	300-EXW-109	Flow Divider Bar
D)	UCFL-204-10	5/8" Flange Bearing
E)	300-FT-012	Flow Divider Adjustment Rod
F)	300-FT-013	Flow Divider Nut

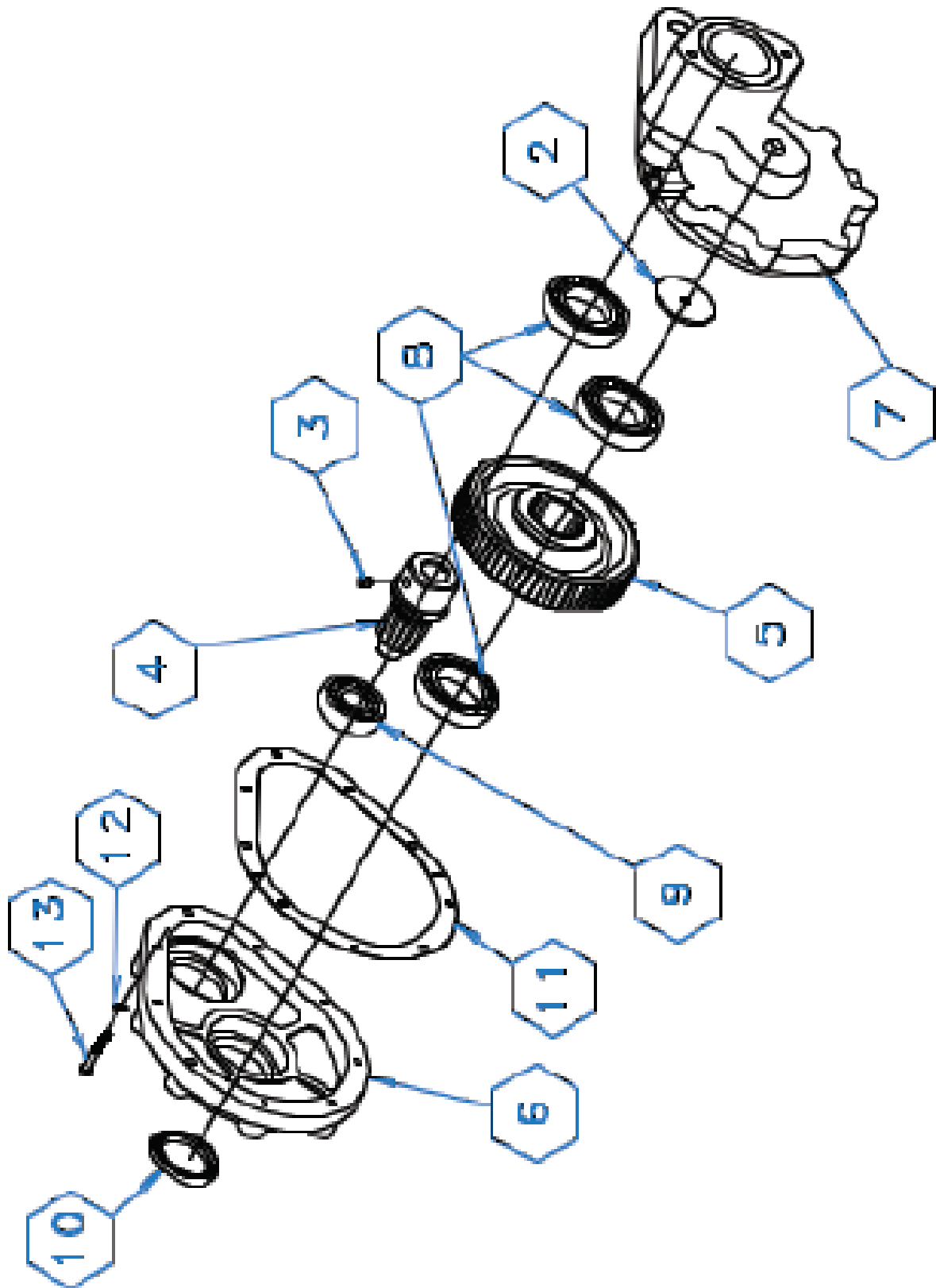
Section 5

Conveyor Drive



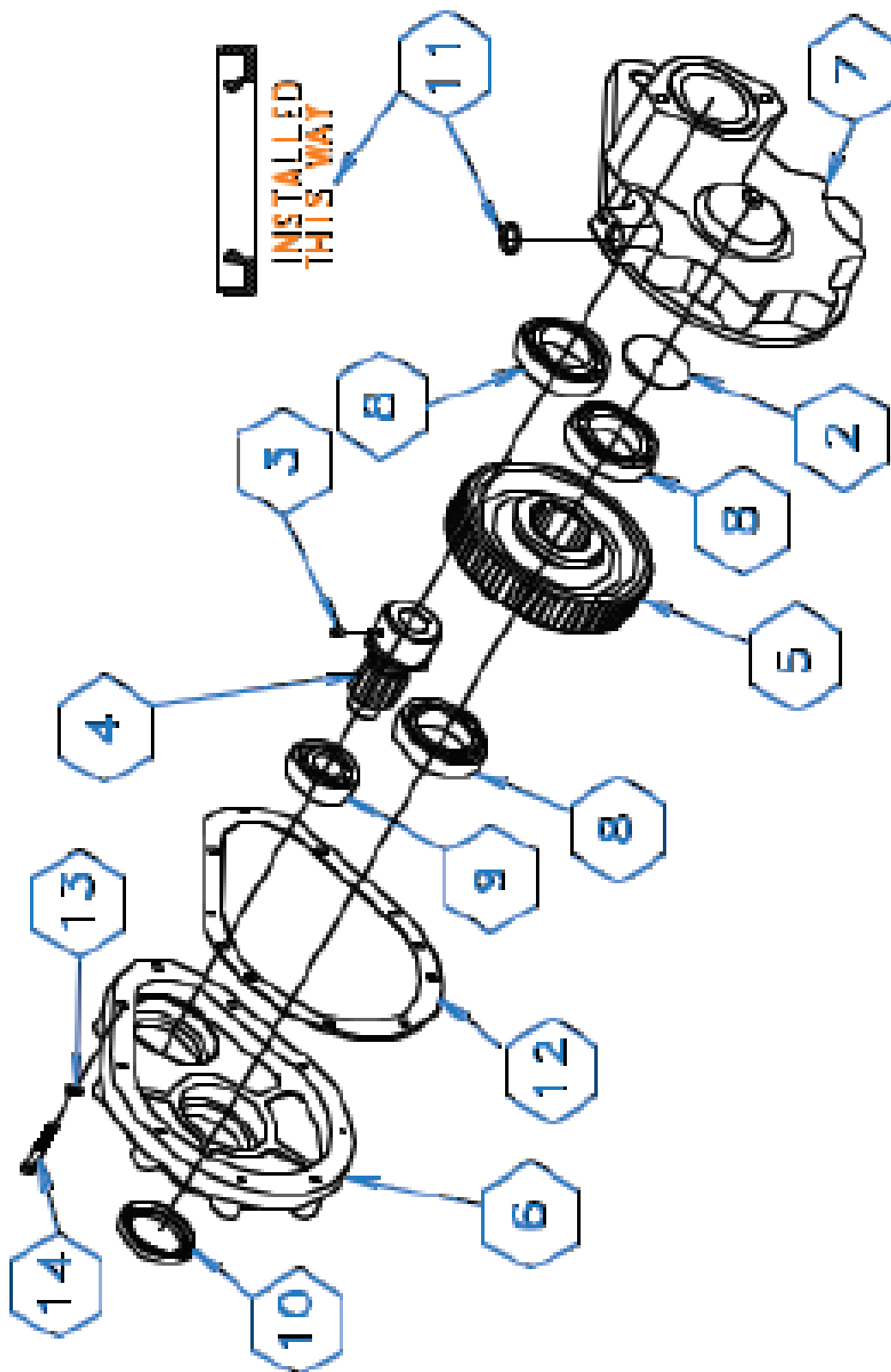
Conveyor Assembly

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



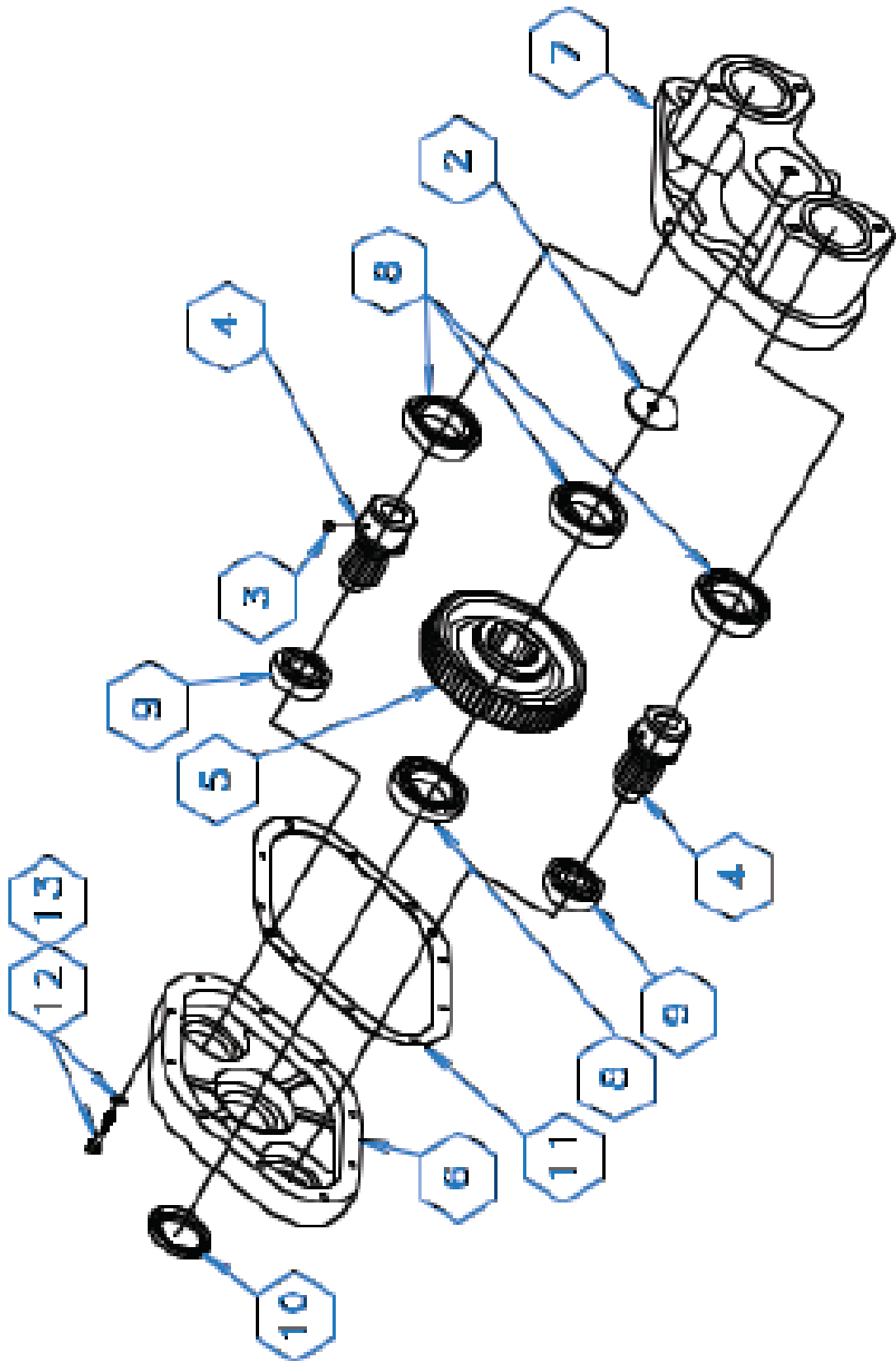
Rawson Single Gear Case

<u>Part #</u>	<u>Description</u>
1) 100-R-1-12	Plug Kit
2) 400-1-308	Washer
3) 400-1-313	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	Cap screw - 5/16" x 1 1/2"
14) 100-R-1-11	Key - 1/2" (not shown)



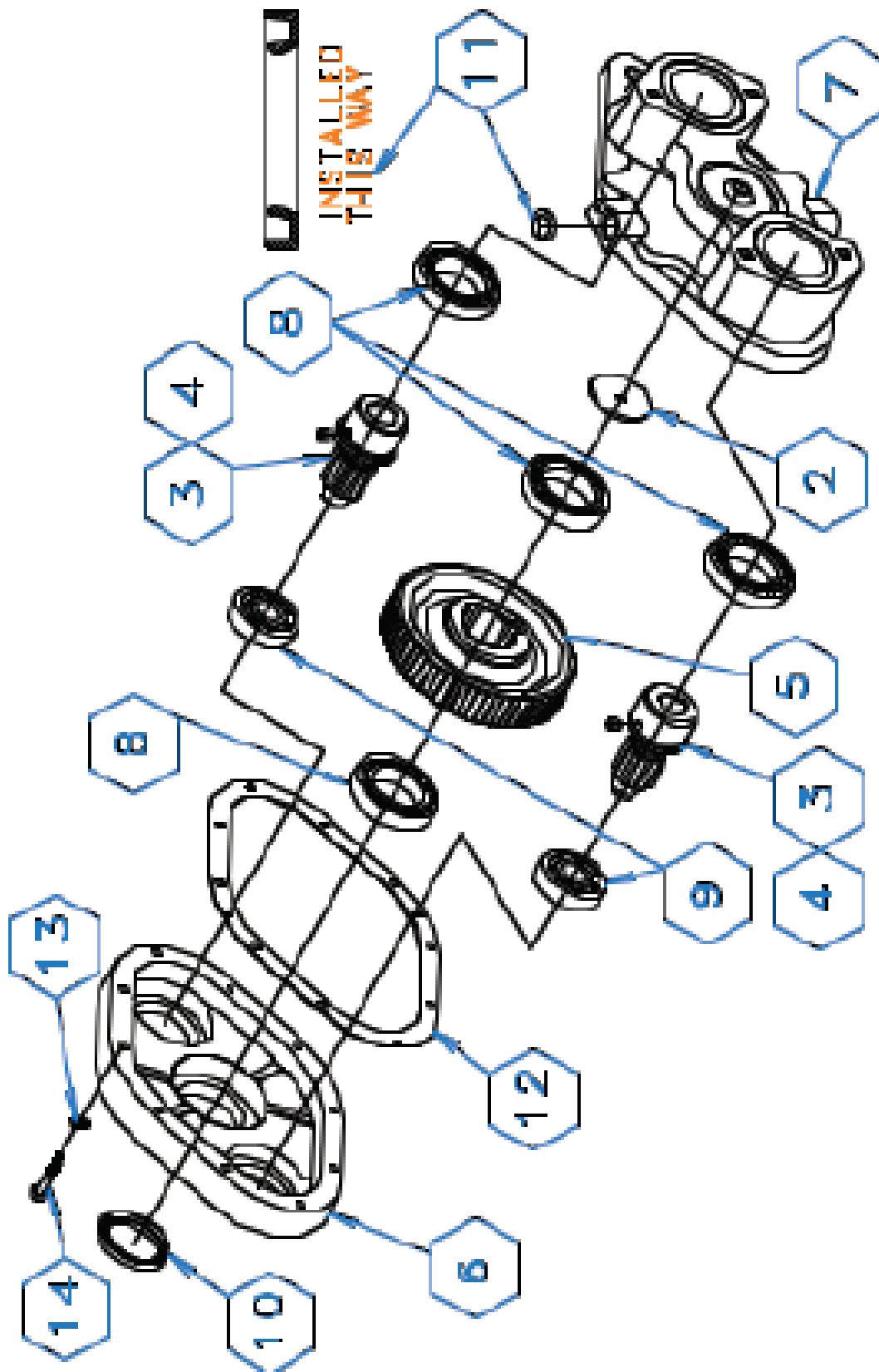
Rawson Single Gear Case with Sensor Port

Part #	Description
1) 100-R-1-12	Plug Kit
2) 100-R-1-14	Washer
3) No Part #	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-1-10A - LH	Outboard Housing - Single w/ Sensor Port LH
8) 100-R-1-03	Bearing - 50mm
9) 100-R-1-04	Bearing -25mm
10) 100-R-1-05	Oil Seal
11) 100-R-1-15	Oil Seal - Sensor Port
12) 100-R-1-06	Gasket
13) 100-R-1-13	Washer - 5/16" Lock
14) 100-R-1-14	Cap screw - 5/16" x 1 1/2"
15) 100-R-1-11	Key - 1/2" (not shown)



Rawson Twin Gear Case

Part #	Description
1) 100-R-1-12	Plug Kit
2) 100-R-1-15	Washer
3) No Part #	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-2-02	Inboard Housing - Twin
7) 100-R-2-03	Outboard Housing - Twin
8) 100-R-1-03	Bearing - 50mm
9) 100-R-1-04	Bearing -25mm
10) 100-R-1-05	Oil Seal
11) 100-R-2-06	Gasket - Twin
12) 100-R-1-13	Washer - 5/16" Lock
13) 100-R-1-14	Cap screw - 5/16" x 1 1/2"
14) 100-R-1-11	Key - 1/2" (not shown)



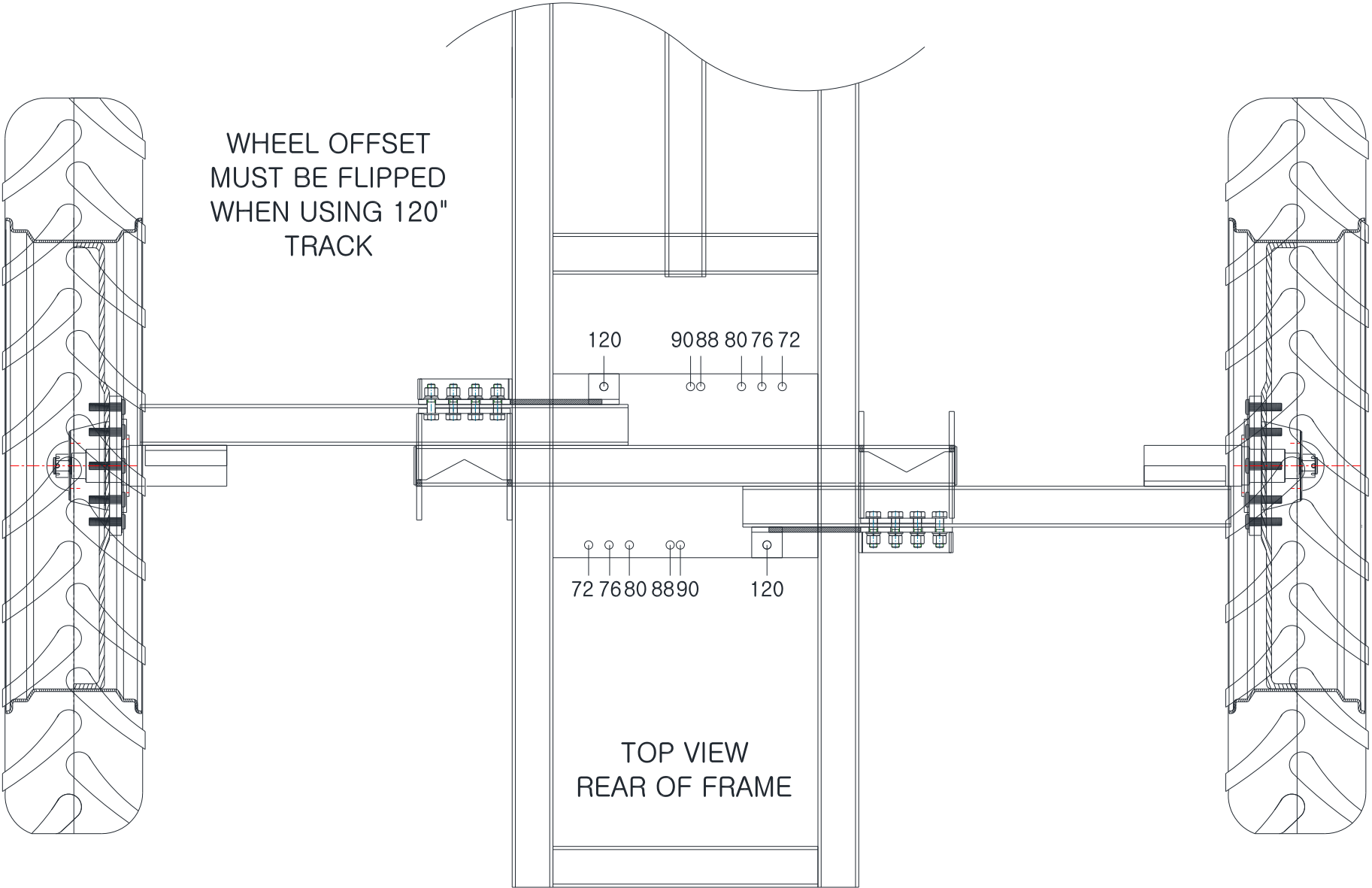
Rawson Twin Gear Case with Sensor Port

Part #	Description
1) 100-R-1-12	Plug Kit
2) 100-R-1-15	Washer
3) No Part #	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-2-02	Inboard Housing - Twin
7) 100-R-2-03A - LH	Outboard Housing - Twin w/ Sensor Port LH
8) 100-R-1-03	Bearing - 50mm
9) 100-R-1-04	Bearing -25mm
10) 100-R-1-05	Oil Seal
11) 100-R-1-16	Oil Seal - Sensor Port
12) 100-R-2-06	Gasket - Twin
13) 100-R-1-13	Washer - 5/16" Lock
14) 100-R-1-14	Cap screw - 5/16" x 1 1/2"
15) 100-R-1-11	Key - 1/2" (not shown)

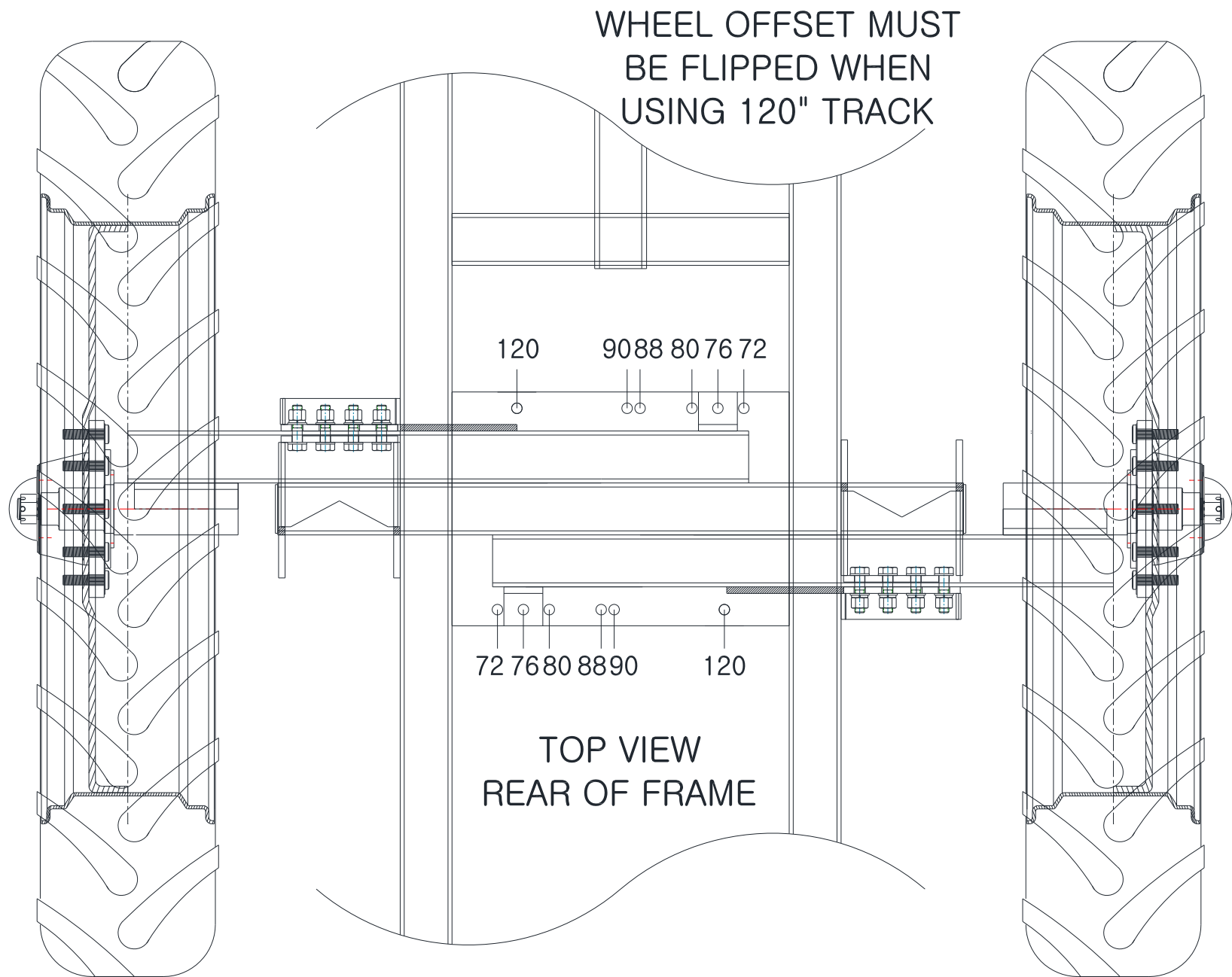
Section 6

Adjustable Axle Assembly

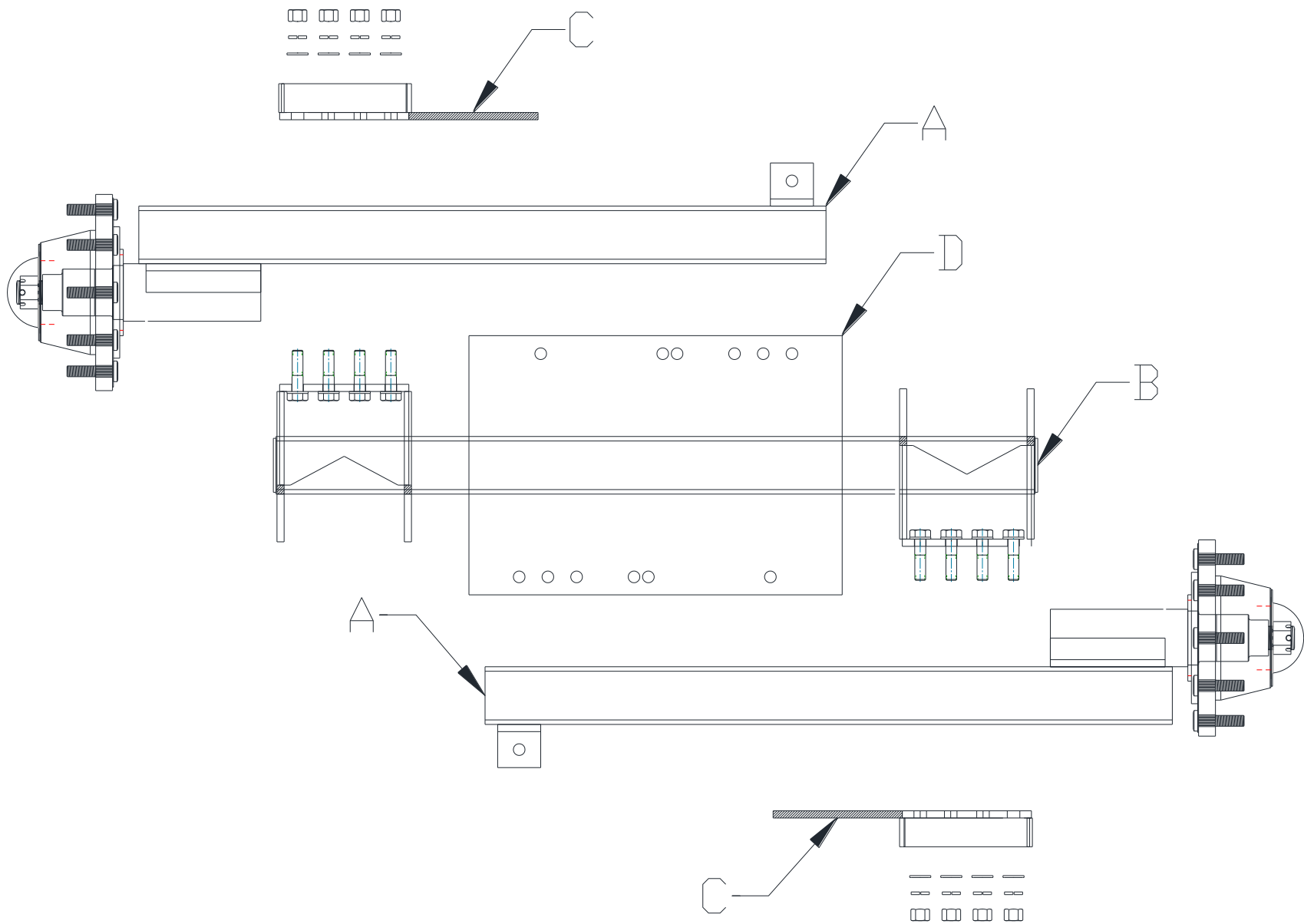
AT-FTLH-EXW – Adjustable Axle Assembly



AT-FTLH-EXW – Adjustable Axle Settings



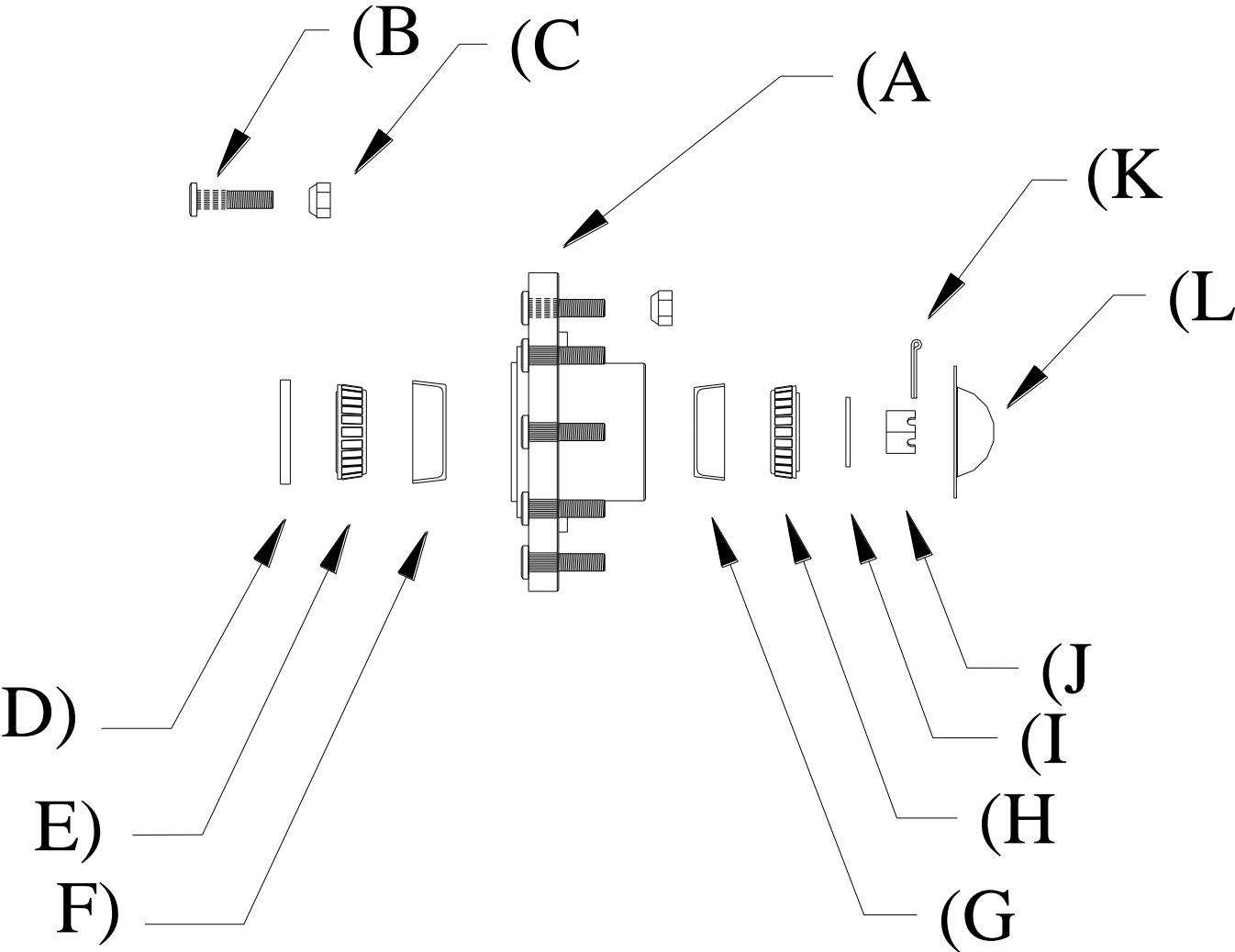
AT-FTLH-EXW – Adjustable Axle - Breakdown



AT-FTLH-EXW – Adjustable Axle – Parts List

	Part #	Description
A)	400-9-201	Axle Assembly *,**
B)	400-9-202	Main Axle Tube
C)	400-9-203	Axle Pressure Plate *
D)	400-9-204	Axle Gauge Plate
	* Left and Right are Interchangeable	
	** Does NOT Include Hub	

AT-FTLH-EXW – G900 Hub Assembly



AT-FTLH-EXW – G900 Hub Assembly – Parts List

	Part #	Description
A)	800-9-110	G900 - 10 Bolt Hubs Only
B)	800-9-111	G900 - 10 Bolt Wheel Stud
C)	800-9-112	G900 - 10 Bolt Wheel Nut
D)	800-9-113	G900 Hub Seal
E)	800-9-114	G900 Inner Bearing
F)	800-9-115	G900 Inner Race
G)	800-9-116	G900 Outer Race
H)	800-9-117	G900 Outer Bearing
I)	800-9-118	G900 Spacer Washer
J)	800-9-119	G900 Spindle Nut
K)	800-9-120	G900 Cotter Pin
L)	800-9-121	G900 Hub Cap
M)	800-9-122	G900 Hub Cap Bolt (not shown)

Recommended Torque:

Stud Size	Recommended Torque
11/16 - 19	250 - 300 Ft. - Lbs.

Caution: Check lug nuts daily

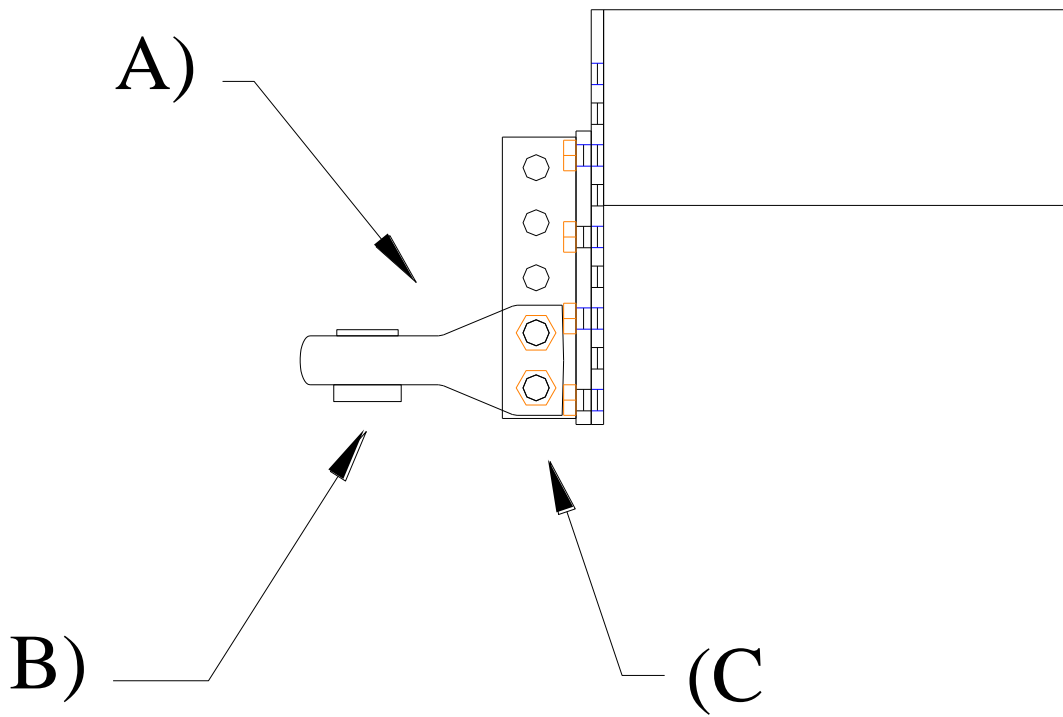
Recommended Tire Pressure:

380/90R – 46 – R1W – 65 PSI

Section 7

Bull Pull Hitch Assembly

Bull Pull Hitch Assembly



	Part #	Description
A)	800-7-110	CAT-4 Bull Pull Hitch (complete)
B)	800-7-111	Insert 1-1/2"
C)	800-7-113	Bull Pull Adapter Plate 30/35 PTT-EXW

Section 8

Basic Set-Up & Operation

Basic Operation of Pull Type 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 tractor reaches 1000 PTO 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 1000 PTO 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 tractor engine RPMs to 1000 PTO - 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 tractor, 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.

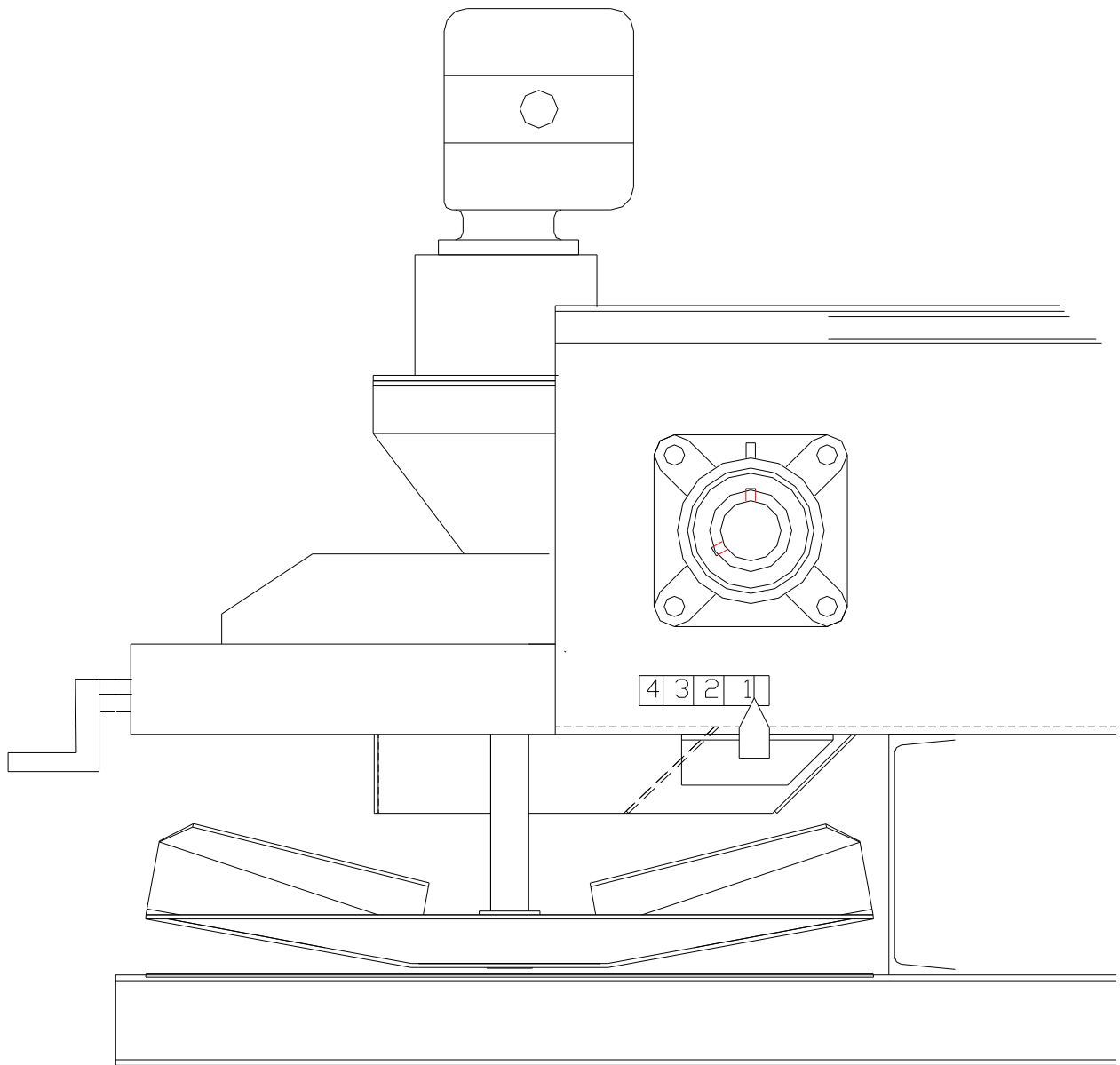
Material Divider Settings:

<u>Bed Type</u>	<u>Material</u>	<u>Setting</u>	<u>Pattern</u>
30 & 35 PTT-FT EXW	Lime	2"	50'
	Blended Fertilizer	3" – 3 3/4"	70'

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 tractor 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 tractor, 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.

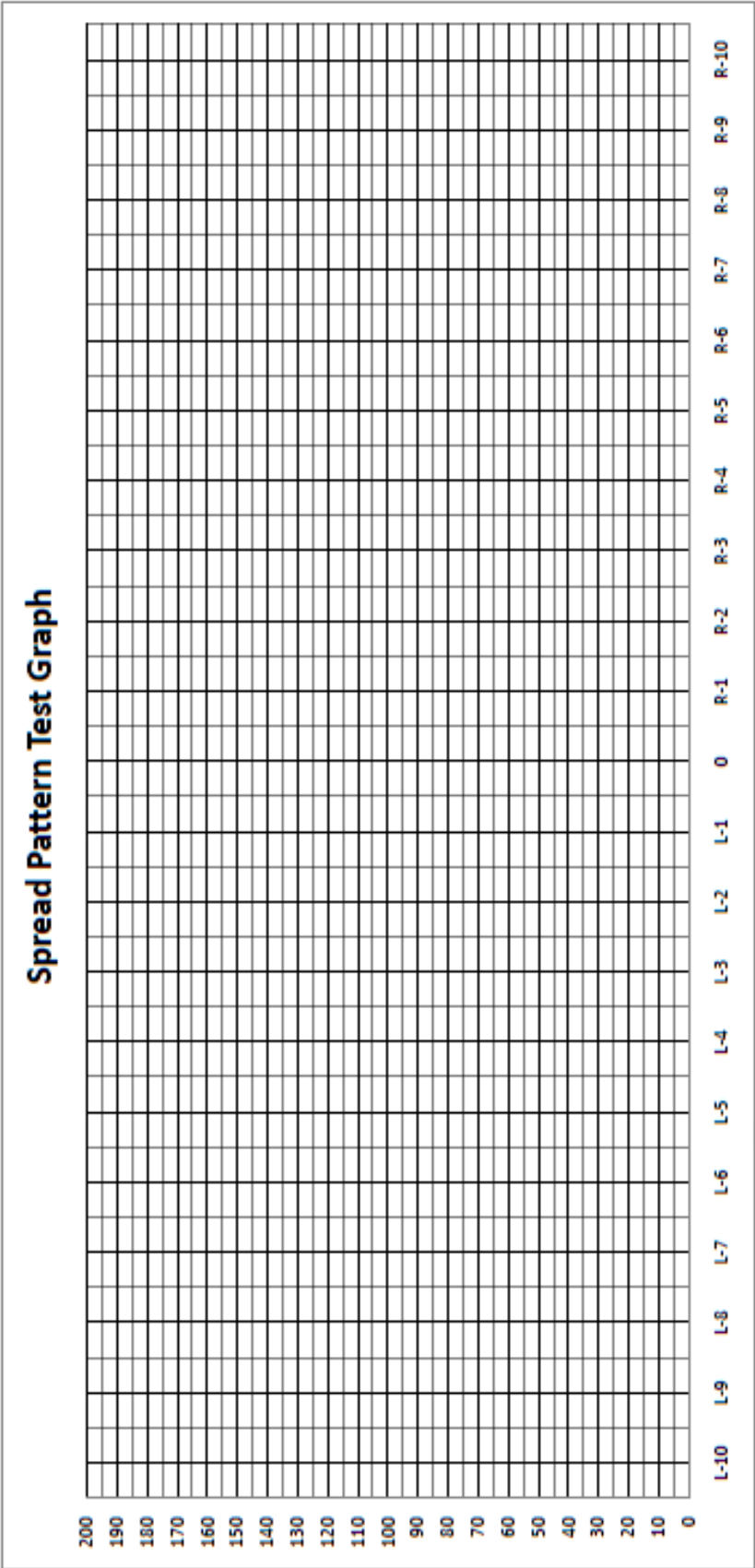
Data Recording

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.





QUALITY TENDERS AND SPREADERS

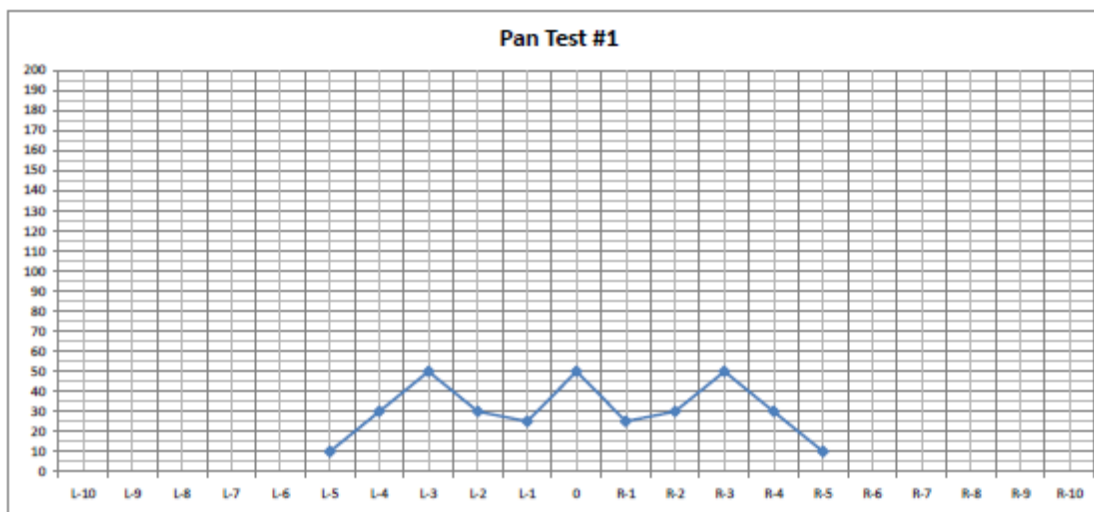
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Data Recording

Unacceptable Pattern

Date <u>9/1/2010</u>	Model <u>FTL-EKW</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
Ib./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			



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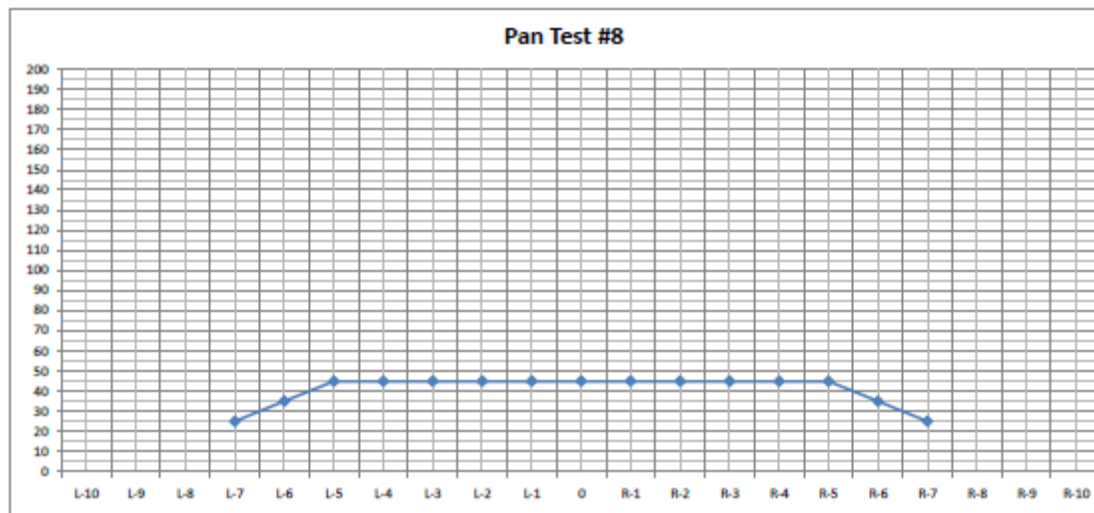
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Acceptable Pattern

Date <u>9/1/2010</u>	Model <u>FTL-EKW</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
Ib./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

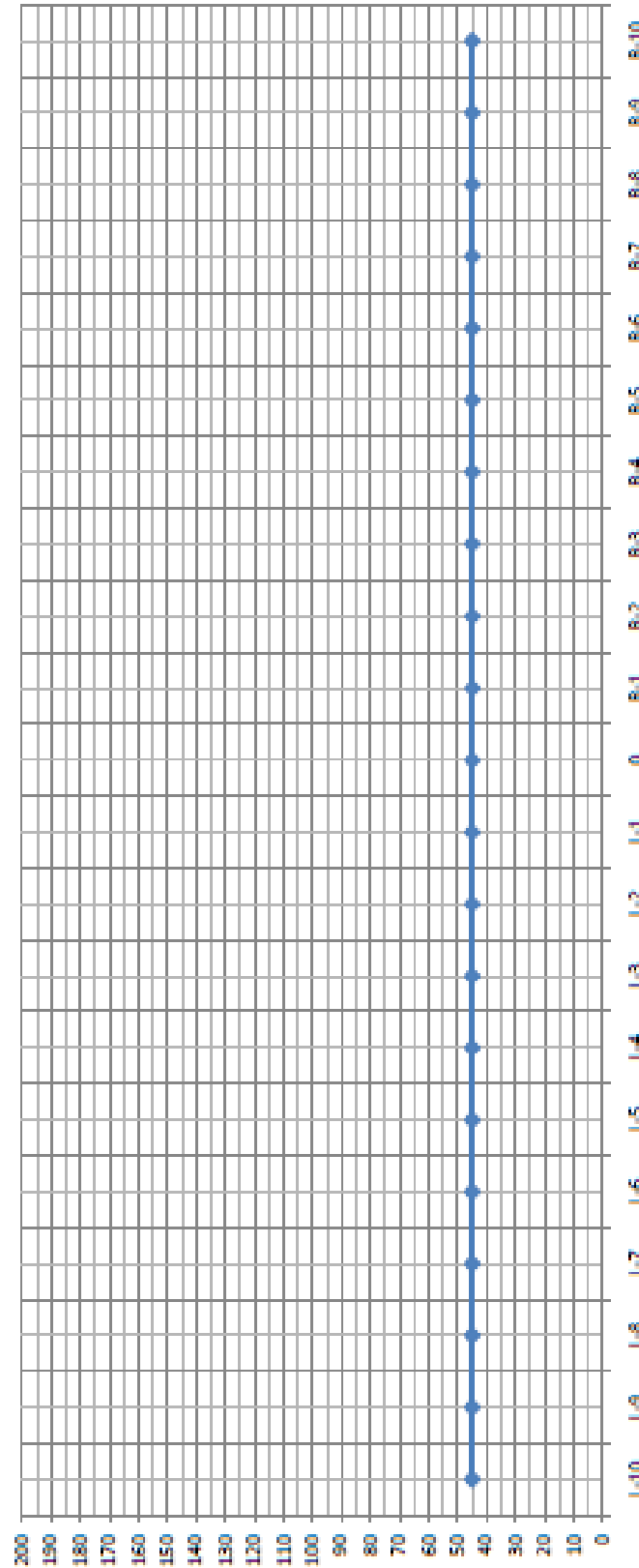
During initial testing only one pass over the pans is required. Once an optimal swath width is determined, a multiple pass test should be conducted to check the overlap areas of the swath.

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 DAP/Pot.Ash Spinner Valve Setting Pan Spacing 6 ft.
 Test Site Gene Farm Material Density 63 lb./cu.ft. Blade Settings L 1 R 1
 Flow Divider 8 1/2" Center and Sloped Sides

Pan Test #6



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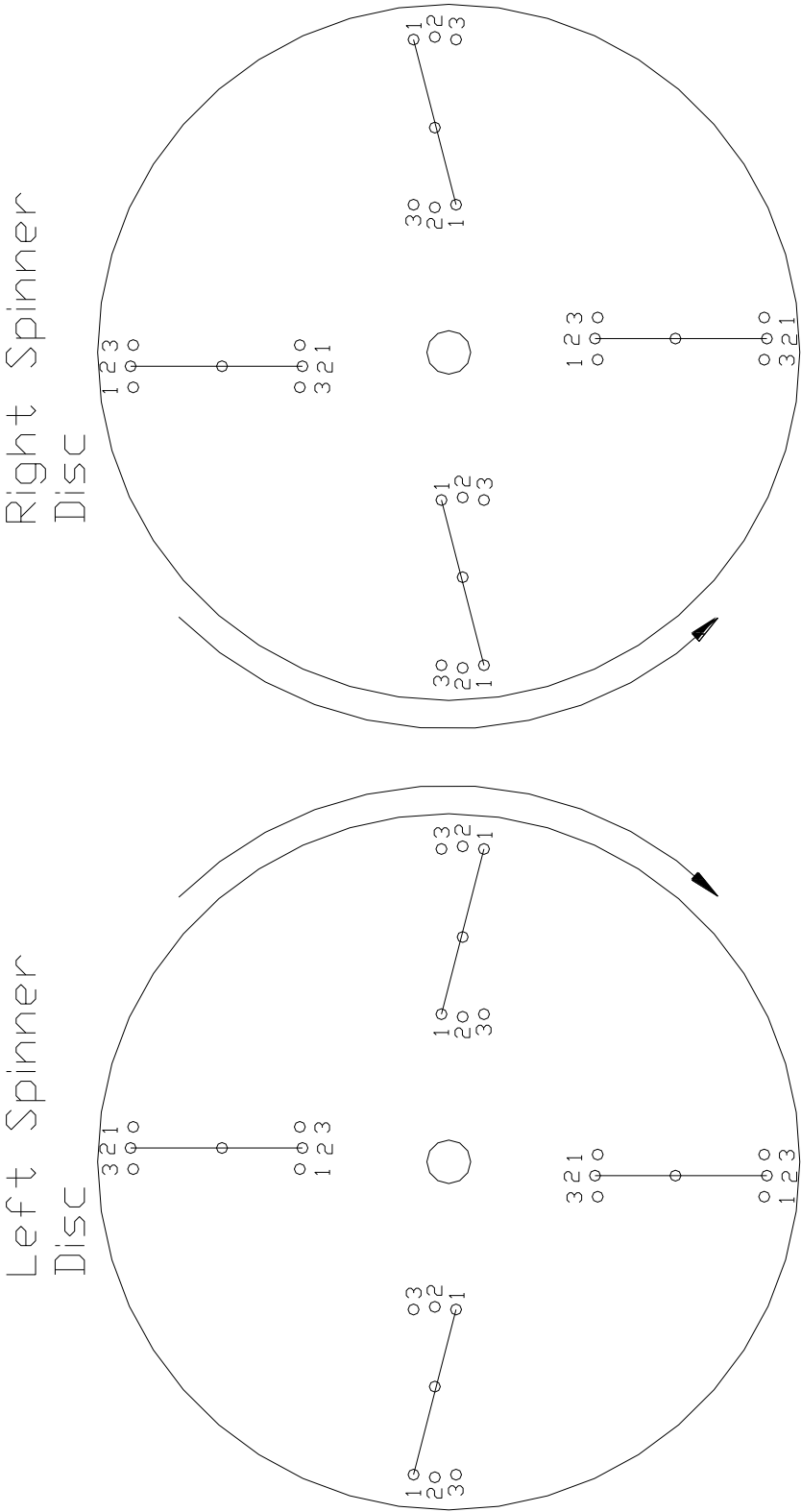
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Spread Pattern Troubleshooting

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

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



This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings present.

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.**

Section 9

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