C/L Pull Type Litter and Shavings Spreader

SERIAL # _____

WORK ORDER # _____

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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 CALIMS 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 that 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.

Litter 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 toTractor 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

STOP

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)

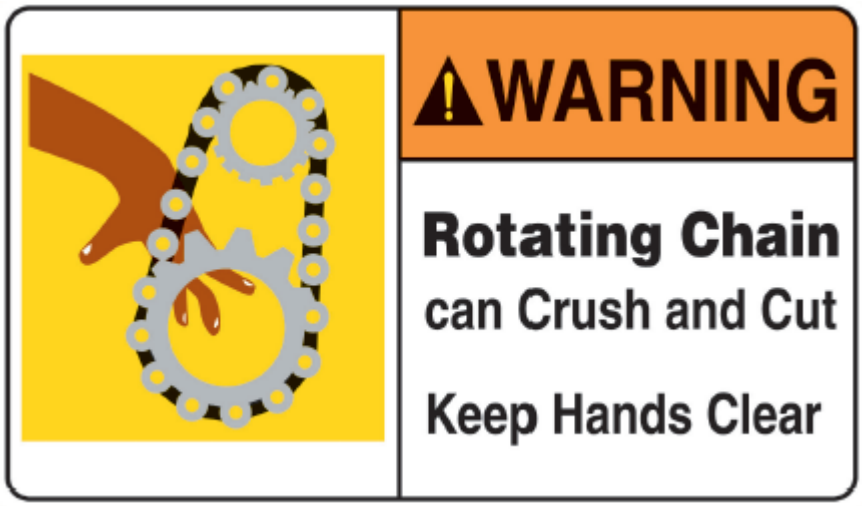
This will turn the spinners in proper direction when lever is in the Lower position. (PUSHED FORWARD)

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

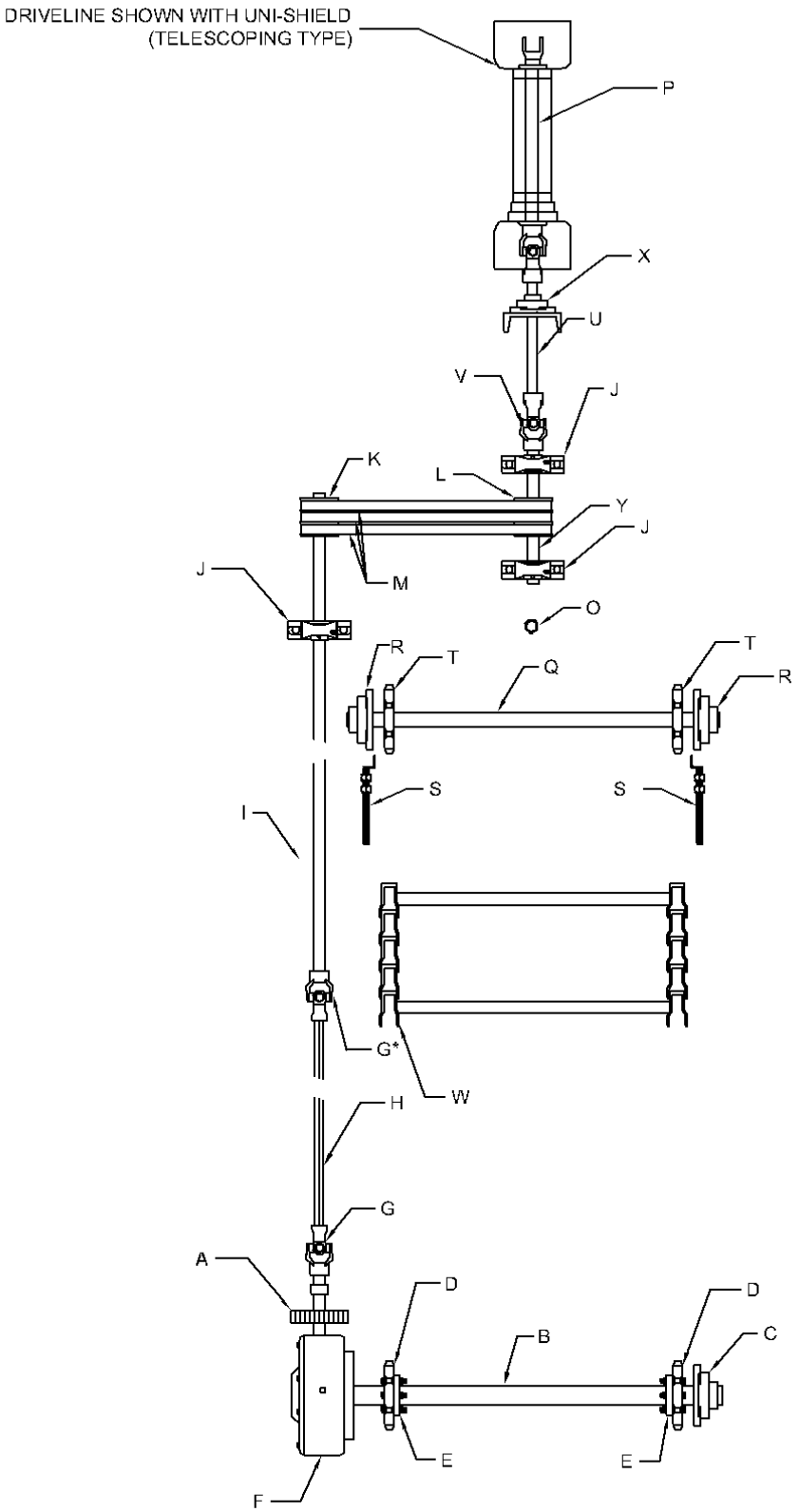
MAXIMUM SPINNER SPEED

Section 1 C/L Litter
Mechanical Pull Type Spreader

Rev. H

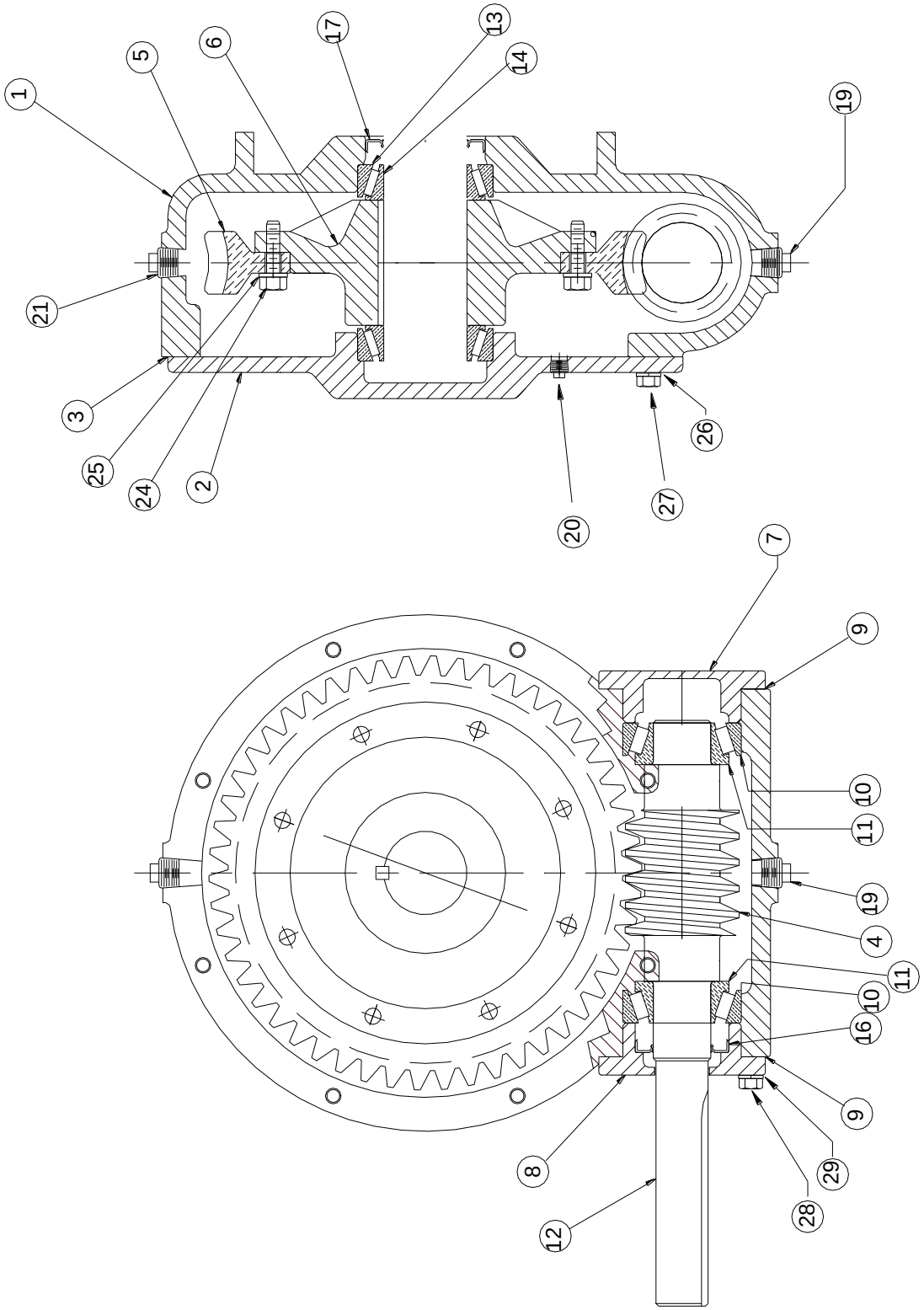
Section 1 – Mechanical Drive

1) Drive Assembly



Ref.	Description	Part #	
A)	Sprocket 60BS20 - 5/16 Kw	700-1-106	
B)	Rear Roller Shaft Complete	CL-RR-44.5-MECH	Add 6” for 40” Floor
C)	Flange Bearing	UCF-211-32	
D)	Roller Sprocket - 2" - 8 Tooth	700-2-208	
E)	Bolt-On Hub - 2"	700-2-209	
F)	50:1 Gear Case	100-50-1-01A	LH CCW Rotation
G)	U – Joint 1 1/4" x 7/8" Hex – 5/16" Key	200-2-002A	
G*)	U – Joint 1 1/4" x 7/8" Hex – 1/4" Key	200-2-002	
H)	7/8" Hex Shaft	200-2-015	
I)	Drive Line - 1 1/4"	200-2-023	Specify Length
J)	Pillow Block Bearing	UCP-207-20	
K)	Pulley 3-B-6.0-SD	1100-2-207	
	(540 RPM and 1000 RPM - PTO)		
L)	Pulley		
	3-B-11.0- SK (540 RPM - PTO)	1100-2-206	
	3-B-6.0-SD (1000 RPM - PTO)	1100-2-207	
M)	V - Belt		For 40” Floor:
	Banded 3B-72 (540 RPM - PTO)	1100-1-108A	3B-78, 1100-1-124
	Banded 3B-64 (1000 RPM - PTO)	1100-1-106A	3B-70; 1100-1-118A
N)	Bushing (not shown)		
	SD - 1 1/4"	1100-2-213	
	SK - 1 1/4"	1100-2-216	
O)	Snap Ring	PTF - 13	
P)	PTO Shaft – 48” OA		
	540 - RPM	200-2-018A	C.V. 200-2-018D
	1000 – RPM (1 3/8”)	200-2-018B	C.V. 200-2-018
	1000 – RPM (1 3/4”)	200-2-018C	C.V. 200-2-018E
Q)	Roller Shaft 1 1/2" - 39"	300-C-006	Add 6” for 40” Floor
R)	Flange Bearing	UCF-208-24	
S)	Front Roller Adjustment Rods	300-C-017	
T)	Roller Sprocket -1 1/2 8 Tooth	700-2-210	
U)	Cradle Shaft - 21 1/8"	300-C-030	
V)	U-Joint H-12 1 1/4" – 1/4" Key	200-1-199A	
W)	Chain Assembly	Specify Length and Type of Chain	
		(Serial Number needed when ordering chain)	
X)	Flange Bearing	UCF-207-20	
Y)	Jack Shaft - 11 1/4"	300-C-029	

2) 50:1 Gear Case (L.H. Shown)



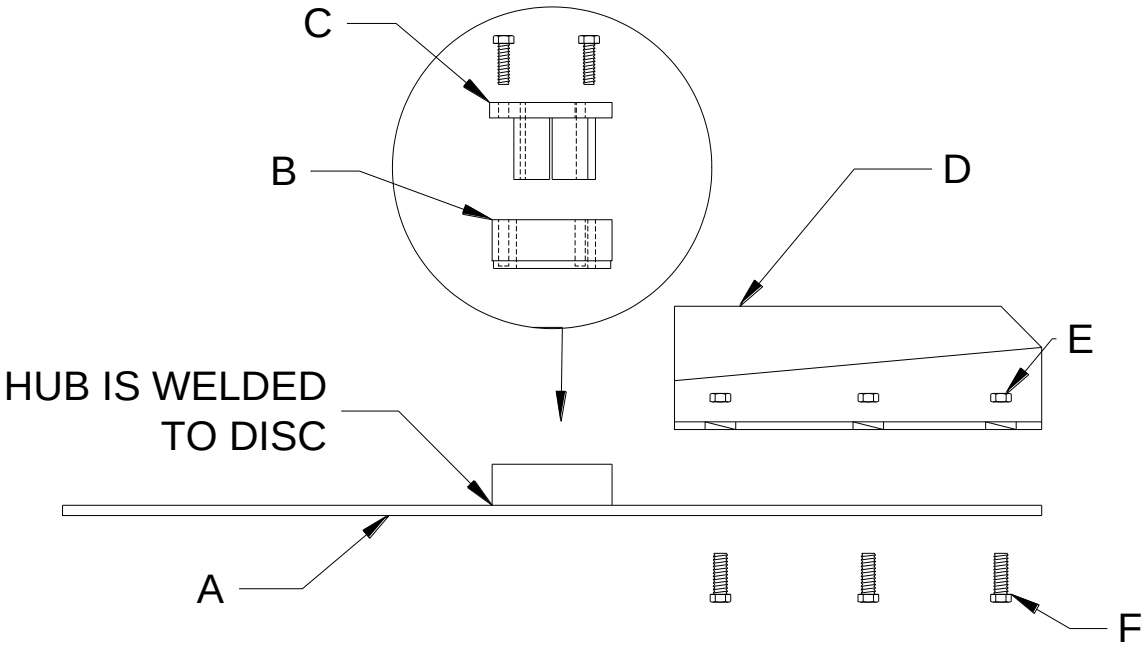
	Description	Part #
1)	50:1 Housing	100-50-1-02
2)	50:1 Cover Plate	100-50-1-03
3)	Gasket, Cover Plate	100-50-1-17
4)	Worm Gear and Shaft Assembly ***	100-50-1-06 A or B
5)	Ring Gear ***	100-50-1-08 A or B
6)	Ring Gear Hub	100-50-1-07
7)	Solid End Cap	100-50-1-05
8)	Shaft End Cap	100-50-1-04
9)	End Cap Gasket	100-50-1-18
10)	Input Race	100-50-1-09A
11)	Input Bearing	100-50-1-09
13)	Output Race	100-50-1-10A
14)	Output Bearing	100-50-1-10
16)	Input Seal	100-50-1-11
17)	Output Seal	100-50-1-12
19)	Drain Plug	100-50-1-19
20)	Level Plug	100-50-1-20
21)	Vent Plug	100-50-1-21
24)	Capscrew Ring Gear	100-50-1-22
25)	Lockwasher Ring Gear	100-50-1-23
26)	Capscrew Cover Plate	100-50-1-24
27)	Lockwasher	100-50-1-25
28)	Capscrew End Cap	100-50-1-26
29)	Lockwasher End Cap	100-50-1-27

***** There are two pair of worm & ring gear:**

L/H gears: Turn input counterclockwise; ring turns towards the rear (opposite engine rotation); A part#

*** **R/H gears: Turn input clockwise; ring turns towards the rear (engine rotation); B part#**

3) Spinner Disc Assembly



Spinner Disc Assembly Parts List

A) Spinner Disc

- **b. Disc and Hub – 300-CL-102M- (Right or Left)**
- **c. Spinner Complete – 300-CL-103M- (Right or Left**

B) Hub – HP1 – 300-CL-106

C) Bushing – P1-1 ¼" – ¼" Key – 300-CL-109

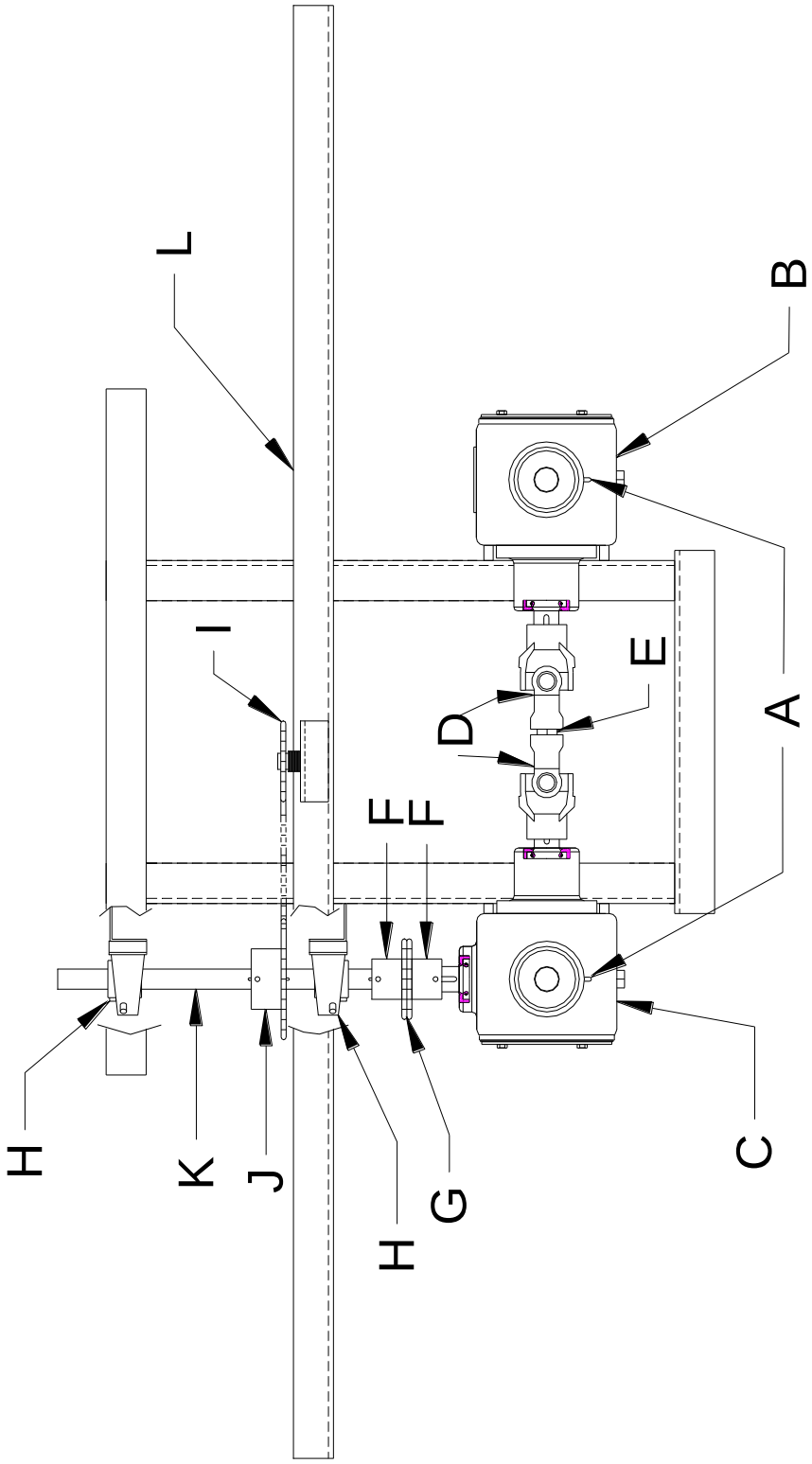
D) Spinner Blade

- **a. Right Hand – 300-CL-104A-R, Qty. 4 each**
- **b. Left Hand – 300-CL-104A-L, Qty. 4 each**

E) 5/16" Flange Nut – 300-FL-117, Qty. 12 each

F) 5/16" x 1" Bolt – 300-FL-113A, Qty. 12 each

4) Spinner Drive Assembly



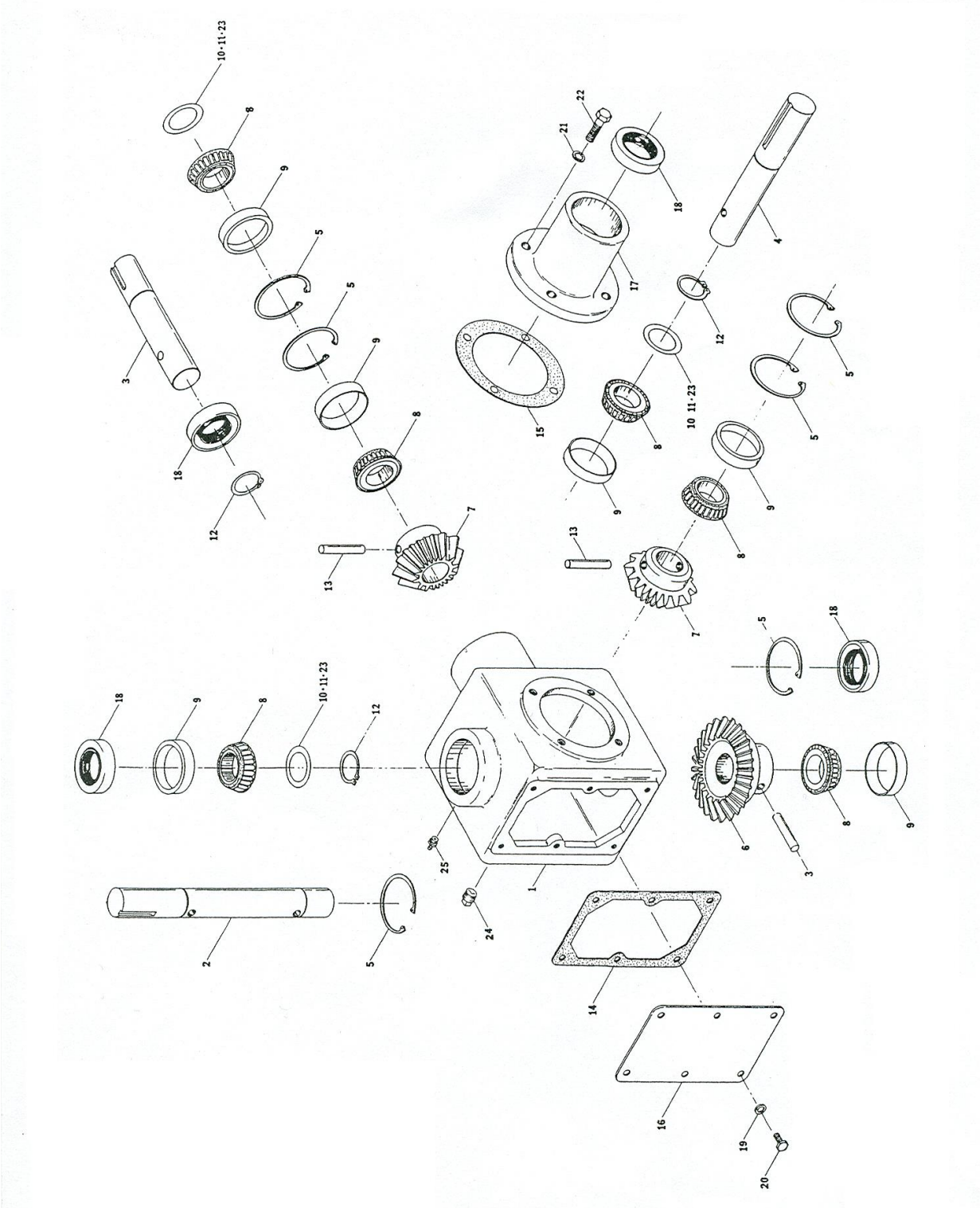
Spinner Drive Assembly Parts List

	Description	Part #
A)	Grease Zerk	PTF - 22
B)	Gear Case – 2 Shaft **	PTF - 71 - 2 L or R
C)	Gear Case - 3 Shaft **	PTF - 71 - 3 L or R
D)	U-Joint 1 ¼”R ¼" Kw x 7/8" Hex	200-2-002
E)	Gearbox Connecting Shaft	300-C-008
F)	5016 Chain Coupler	700-1-118
G)	5016 Chain Assembly	500-1-105
H)	Pillow Block Bearing	UCP-207-20
I)	Idler Sprocket - 6015E	700-1-121
J)	Sprocket 60BS20 x 1 ¼” – ¼” Key	700-1-106
K)	Shaft – 1 ¼" x 13 ¼" Jack Shaft	300-C-007
L)	Spread Shield	300-C-014
M)	Roller Chain # 60 (not shown, per foot)	500-1-101

***** When Ordering Gear Cases, please identify the placement of the Bevel gear(item 6) on the output shaft. It could be on top or bottom of Pinion gear(s). Pull cover plate off to identify.**

5) Spinner Gear Cases

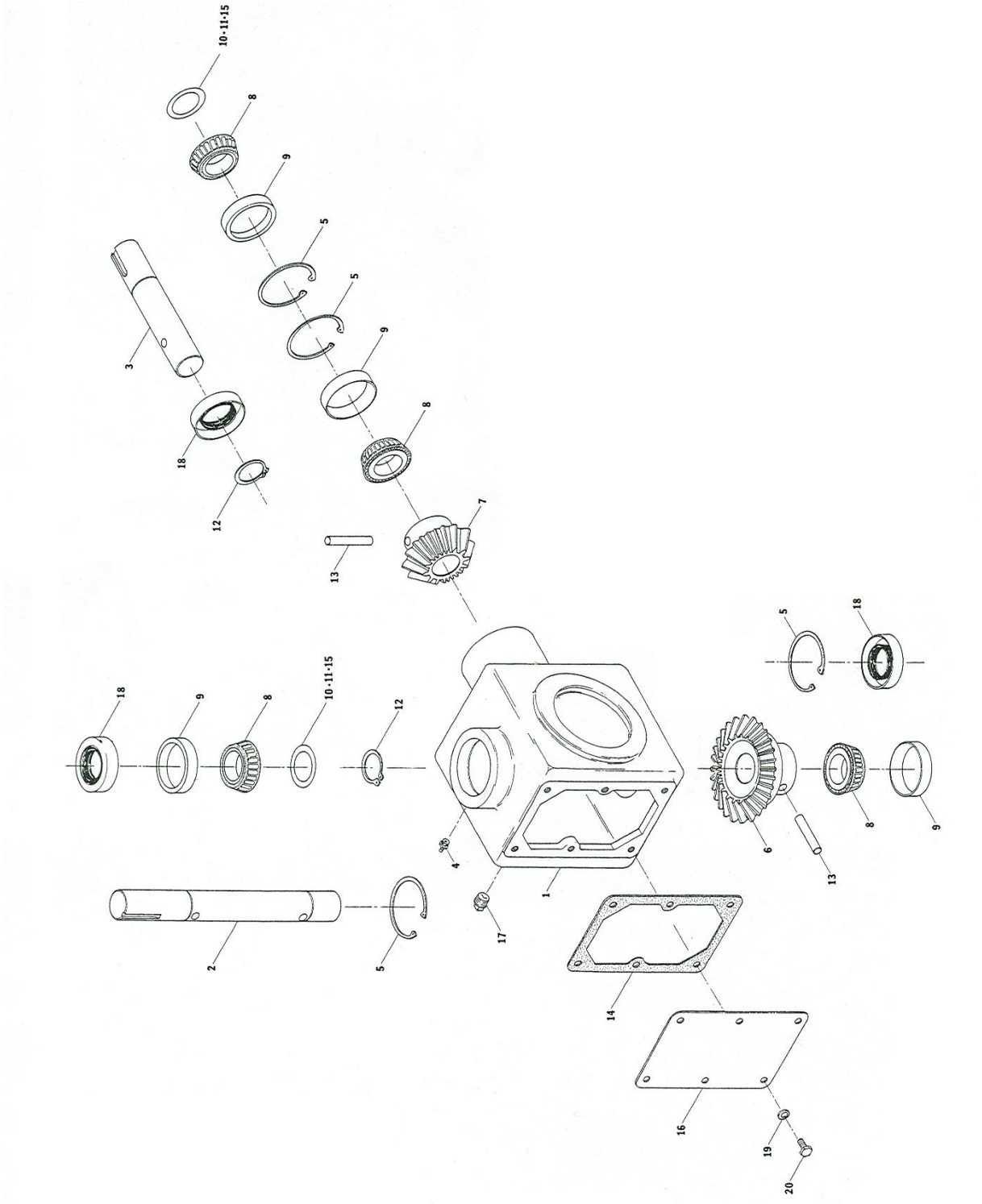
A) PTF – 71 – 3 L or R



	Description	Part #
1)	Housing	PTF - 1A
2)	Output Shaft	PTF - 6
3)	Input Shaft (short)	PTF - 7
4)	Input Shaft (long)	PTF - 7P
5)	Retaining Ring (large)	PTF - 12
6)	Gear, Bevel	PTF - 8B
7)	Gear, Pinion	PTF - 8P
8)	Bearing	PTF - 10C
9)	Race	PTF - 10R
10)	Shim (.005)	PTF - 18A
11)	Shim (.010)	PTF - 18B
12)	Retaining Ring (small)	PTF - 13
13)	Pin, Hardened	PTF - 9
14)	Gasket, Square Cover Plate	PTF - 3
15)	Gasket, Round .010 (third shaft or cover plate)	PTF - 19A
16)	Cover, Square	PTF - 2
17)	Housing, Bearing	PTF - 20
18)	Oil Seal	PTF - 11
19)	Lockwasher 1/4"	PTF - 5
20)	Capscrew 1/4"	PTF - 4
21)	Lockwasher 3/8"	PTF - 17
22)	Capscrew 3/8"	PTF - 15
23)	Washer	PTF - 16
24)	Plug, 1/2" Pipe	PTF - 14
25)	Grease Zerk	PTF - 22

Item # 6 PTF-8B Gear can go on top or bottom
of output shaft depending on rotation of PTO
Tractor PTO Turns Opposite Engine Rotation
****Opposite Rotation Gear to the Top**

B) PTF – 71 – 2 L or R



	Description	Part #
1)	Housing	PTF - 1A
2)	Output Shaft	PTF - 6
3)	Input Shaft (short)	PTF - 7
4)	Grease Zerk	PTF - 22
5)	Retaining Ring	PTF - 12
6)	Gear, Bevel	PTF - 8B
7)	Gear, Pinion	PTF - 8P
8)	Bearing	PTF - 10C
9)	Race	PTF - 10R
10)	Shim (.005)	PTF - 18A
11)	Shim (.010)	PTF - 18B
12)	Retaining Ring (small	PTF - 13
13)	Pin, Hardened	PTF - 9
14)	Gasket, Square Cover Plate	PTF - 3
15)	Washer	PTF - 16
16)	Cover, Square	PTF - 2
17)	Plug, 1/2" Pipe	PTF - 14
18)	Oil Seal	PTF - 11
19)	Lockwasher 1/4"	PTF - 5
20)	Capscrew 1/4"	PTF - 4

Item # 6 PTF-8B Gear can go on top or bottom of output shaft depending on rotation of PTO

Tractor PTO Turns Opposite Engine Rotation

****Opposite Rotation Gear to the Top**

1) Basic Operation of Mechanical C/L Pull Type Spreader

A) Rate per Acre

The rate per acre on a mechanical spreader depends on several factors. If the following specifications are met use the chart below.

Density @ 25 lbs. Per Cubic Ft.

Tractor speed @ 6 MPH **30 ft. Swath**

Gate Opening	Rate Per Acre
2”	700
4"	1400
6"	2100
8"	2800
10"	3500
12"	4200
14”	4800

Note: Rate per acre may vary depending on density and ground speed.

- **Weight of 5 gallon bucket full of litter (minus weight of bucket) multiplied by 1.5 produces density in weight per cubic ft.**
-

2) Basic Maintenance

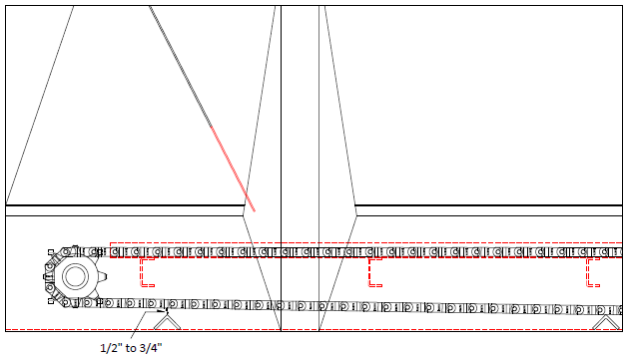
A) Conveyer Chain

A Chandler Litter and Shaving Spreader comes standard with a open barrel construction chain. Due to the construction of this chain it is nearly impossible for it to "freeze up", but when spreading materials that are highly corrosive such as hen litter, maintenance of the chain is essential. The chain should be lubricated frequently with 4 parts fuel oil and 1 part 10 W motor oil. The conveyor chain must be adjusted properly to ensure long life and proper spread of material.

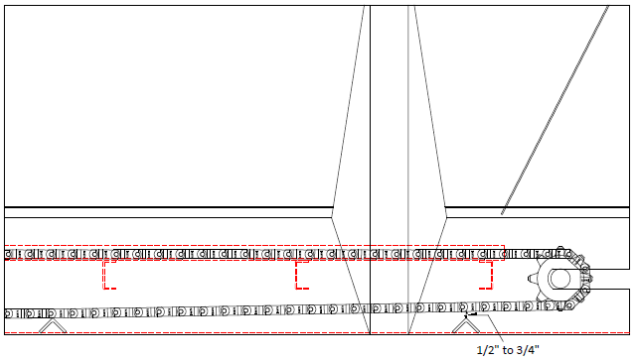
a. To adjust conveyor chain, tighten the adjustment screw rods located behind the front roller bearings.

b. Adjust Chain tension so that the chain clears front and rear the cross-members angels of the spreader frame by ½" – ¾". Chain Should be still slightly dragging on the rest of the cross-member angles.

Rear View



Front View



c. Adjust each side only one half inch at a time.

d. When adjusting the chain measure each side to ensure that the front stays square with the frame of the spreader.

e. When the chain stretches beyond the adjustment on the front roller it may be necessary to remove a few links of the chain

f. Locate the connecting pins in the chain and remove. Using a grinder, grind the head off the pins of links that are to be removed and remove links.

g. Replace the connecting pins and adjust chain.

B) Bearings

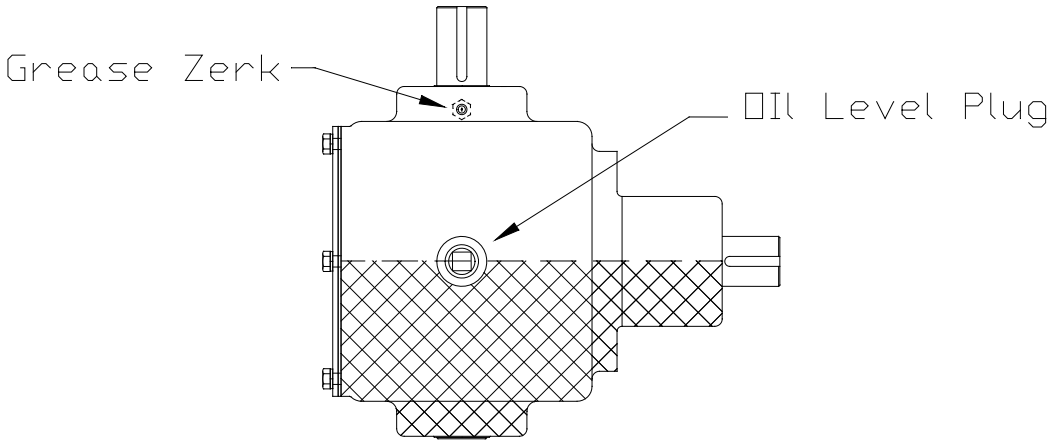
A) Conveyor Bearings
Check bearing daily for wear.
Grease spinner bearings daily – one shot of grease per day.
(Do Not Over Grease)

B) Spinner Bearings
Check bearings daily for wear and movement. Replace bearing immediately if there is any movement in bearing. This can cause serious damage to gears inside spinner gear case.
Grease top spinner bearing daily – one shot of grease per day.
(Do Not Over Grease)

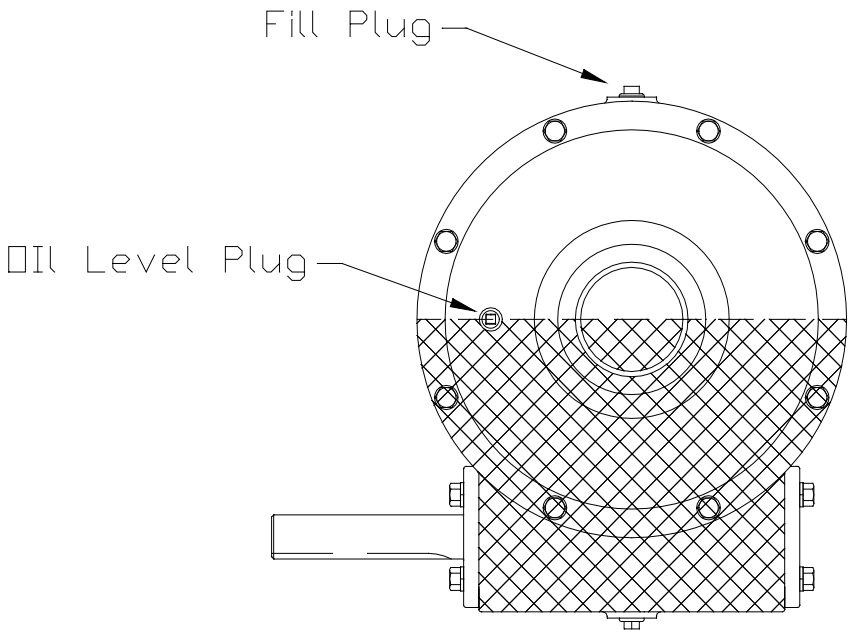
C) Oil Levels

Maintain proper lubricant level in gear case. At the first sign of an oil seal leak, replace immediately.

a. Spinner Gear Case



b. 50:1 Conveyor Gear Case Oil Level



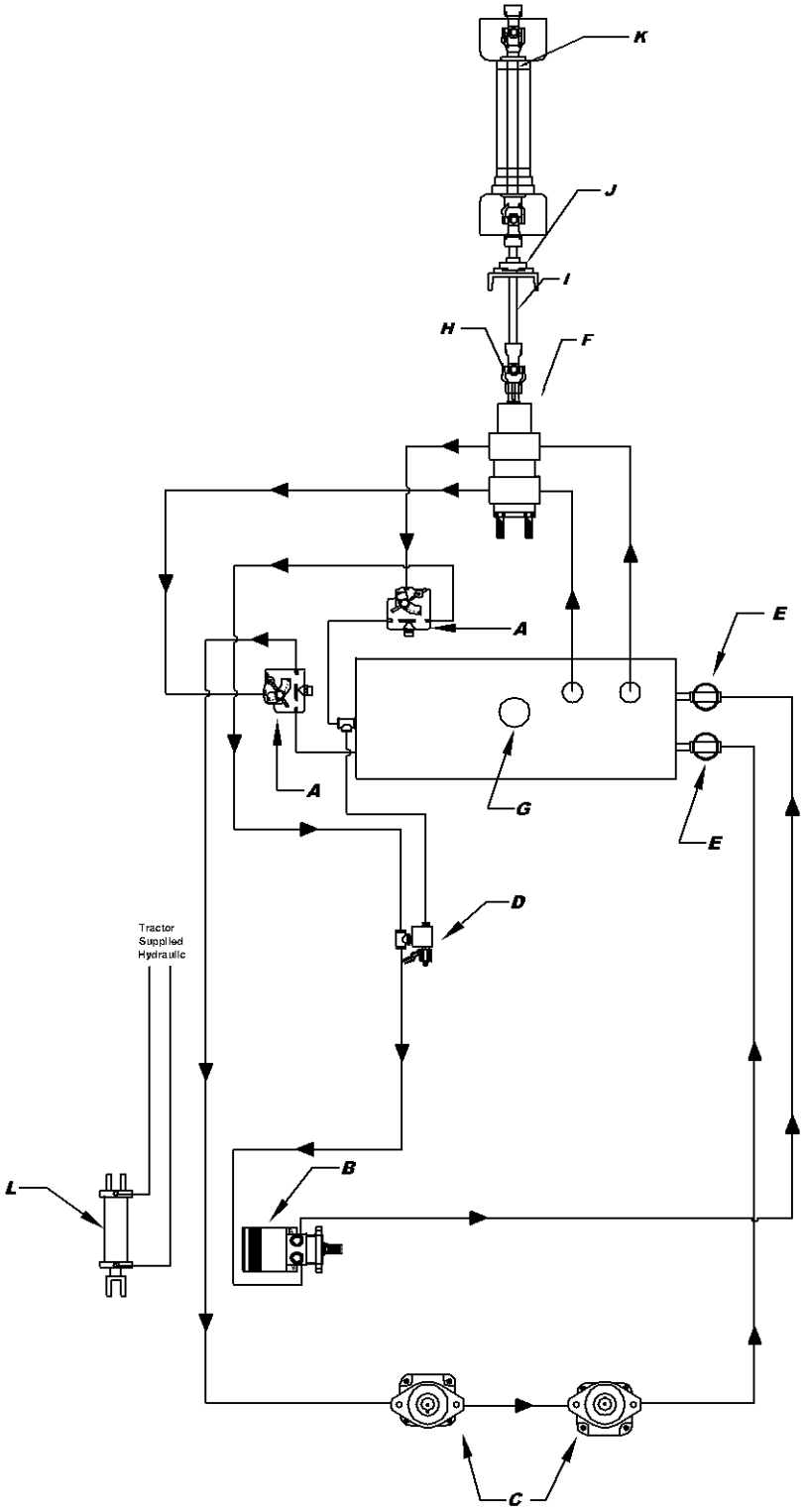
Note: Use 90 Weight Gear Lube

Section 2 C/L Litter
Hydraulic Pull Type Spreader

Rev. H

Section 2 – Hydraulic Drive

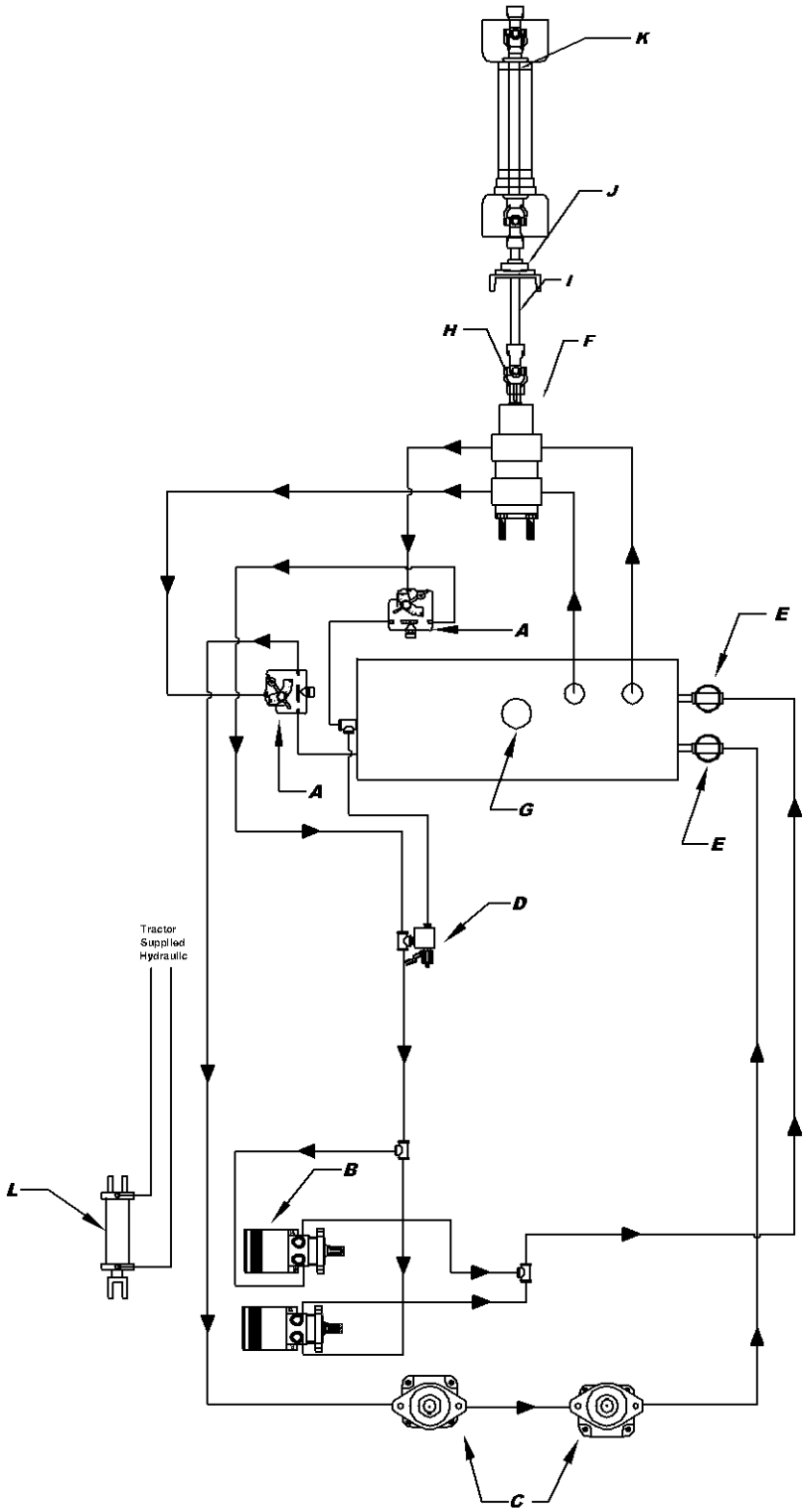
1) Hydraulic System –Single Motor on Conveyor



	Description	Part #	Quantity
A)	Flow Control Valve	400-1-313	2
B)	Hydraulic Motor – Conveyor Drive MB-18	400-R-106	1
C)	Hydraulic Motor – Spinner M-30 2" Gear	400-C-201	2
D)	Optional Electric Valve (dump valve ¾")	400-1-307	1
E)	Hydraulic Filter Assembly		
	a. Filter Only	400-1-319	2
	b. Complete Assembly	400-1-318	2
F)	Hydraulic Pump P-2500		
	a. 1000 RPM Pump P-2500 1 ½" x 1 ½"	400-C-209	1
	b. 540 RPM Pump P-2500 2 ½"x 2 ½"	400-C-209B	1
G)	Breather Cap	400-1-317	1
H)	U-Joint – UJ-1 ¼" – ¼" kw x 1 ¼" – 5/16 kw H12	200-1-199B	1
I)	Cradle Shaft – 1 ¼" x 11 1/4" (540 PTO).	300-C-029B	1
	Cradle Shaft – 1 ¼" x 13 1/4" (1000 PTO).	300-C-029A	
J)	Flange Bearing –1 ¼"	UCF-207-20	1
K)	PTO Shaft		
	a. 540 RPM – 48" x 1 3/8" 6 Spline	200-2-018A 200-2-018D (CV)	1
	b. 1000 RPM – 48" x 1 3/8" 21 Spline	200-2-018B 200-2-018 (CV)	1
	c. 1000 RPM – 48" x 1 ¾" 20 Spline	200-2-018C 200-2-018E (CV)	1
	Parts for Hydraulic Gate Option		
L)	Hydraulic Gate Cylinder (optional)	400-1-304	1
	Parts Not Shown		
M)	Sight Gauge	400-1-322	1
N)	1" Gate Valve	400-1-332	2
***	Switchbox, Conveyor Valve On/Off	400-1-357	1

*****2017 models and newer are built with a 540 PTO PUMP and CRADLE SHAFT. This setup comes with a larger OIL TANK allowing the end-user the ability to switch from 540 to 1000 RPM tractors (changing only the PTO SHAFT).**

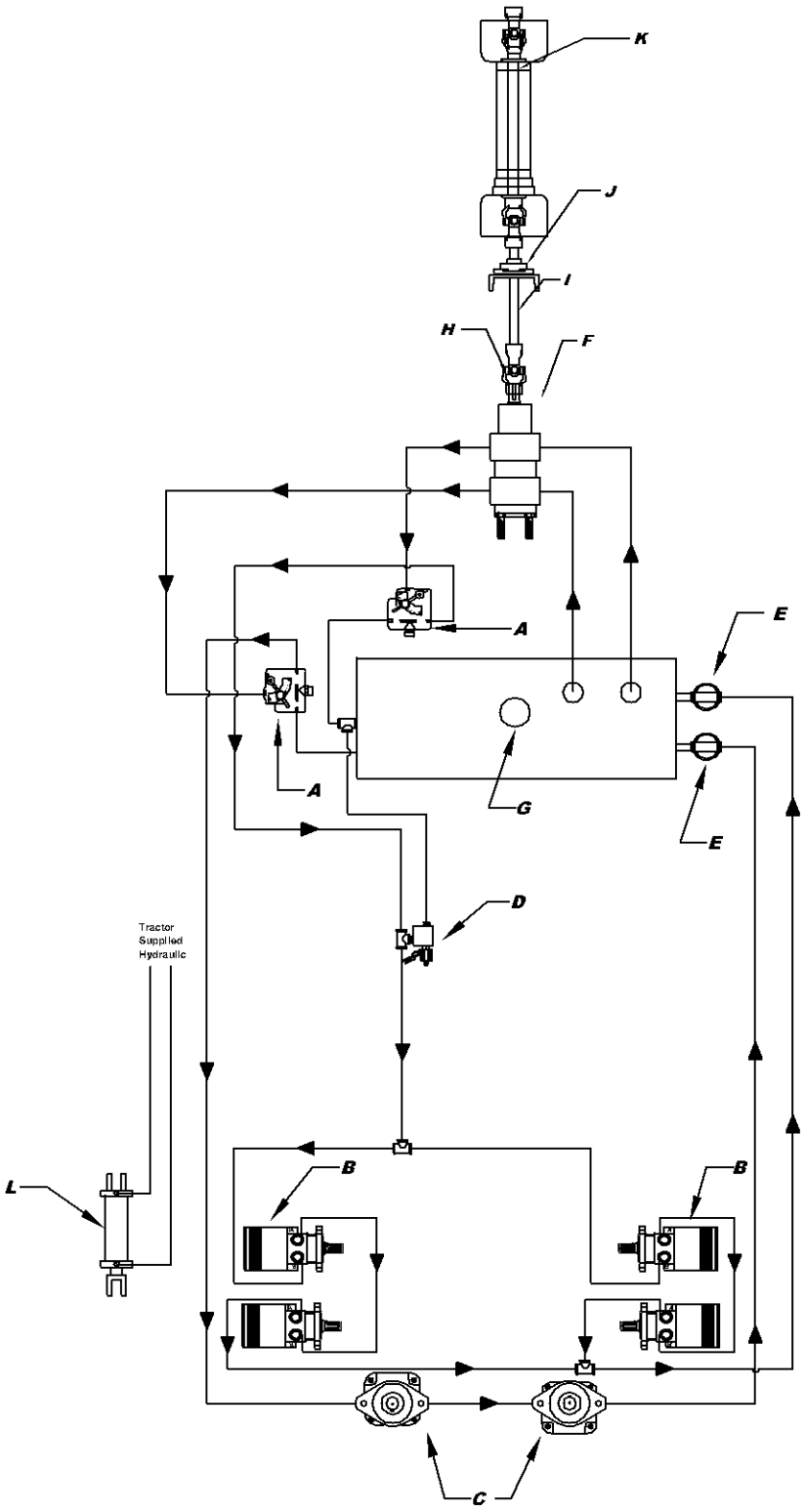
2) Hydraulic System – Tandem Motors on Conveyor



	Description	Part #	Quantity
A)	Flow Control Valve	400-1-313	2
B)	Hydraulic Motor – Conveyor Drive MB-12	400-R-104	2
C)	Hydraulic Motor – Spinner M-30 2” Gear	400-C-201	2
D)	Optional Electric Valve (dump valve ¾”)	400-1-307	1
E)	Hydraulic Filter Assembly		
	a. Filter Only	400-1-319	2
	b. Complete Assembly	400-1-318	2
F)	Hydraulic Pump P-2500		
	a. 1000 RPM Pump P-2500 1 ½” x 1 ½”	400-C-209	1
	b. 540 RPM Pump P-2500 2 ½”x 2 ½”	400-C-209B	1
G)	Breather Cap	400-1-317	1
H)	U-Joint – UJ-1 ¼” – ¼” kw x 1 ¼” – 5/16 kw H12	200-2-199B	1
I)	Cradle Shaft – 1 ¼” x 11 1/4” (540 PTO).	300-C-029B	1
	Cradle Shaft – 1 ¼” x 13 1/4” (1000 PTO).	300-C-029A	
J)	Flange Bearing –1 ¼”	UCF-207-20	1
K)	PTO Shaft		
	a. 540 RPM – 48” x 1 3/8” 6 Spline	200-2-018A	1
	b. 1000 RPM – 48” x 1 3/8” 21 Spline	200-2-018B	1
	c. 1000 RPM – 48” x 1 ¾” 20 Spline	200-2-018C	1
	Parts for Hydraulic Gate Option		
L)	Hydraulic Gate Cylinder (optional)	400-1-304	1
	Parts Not Shown		
M)	Sight Gauge	400-1-322	1
N)	1" Gate Valve	400-1-332	2
*	Switchbox, Conveyor Valve On/Off	400-1-357	1

*****2017 models and newer are built with a 540 PTO PUMP and CRADLE SHAFT. This setup comes with a larger OIL TANK allowing the end-user the ability to switch from 540 to 1000 RPM tractors (changing only the PTO SHAFT).**

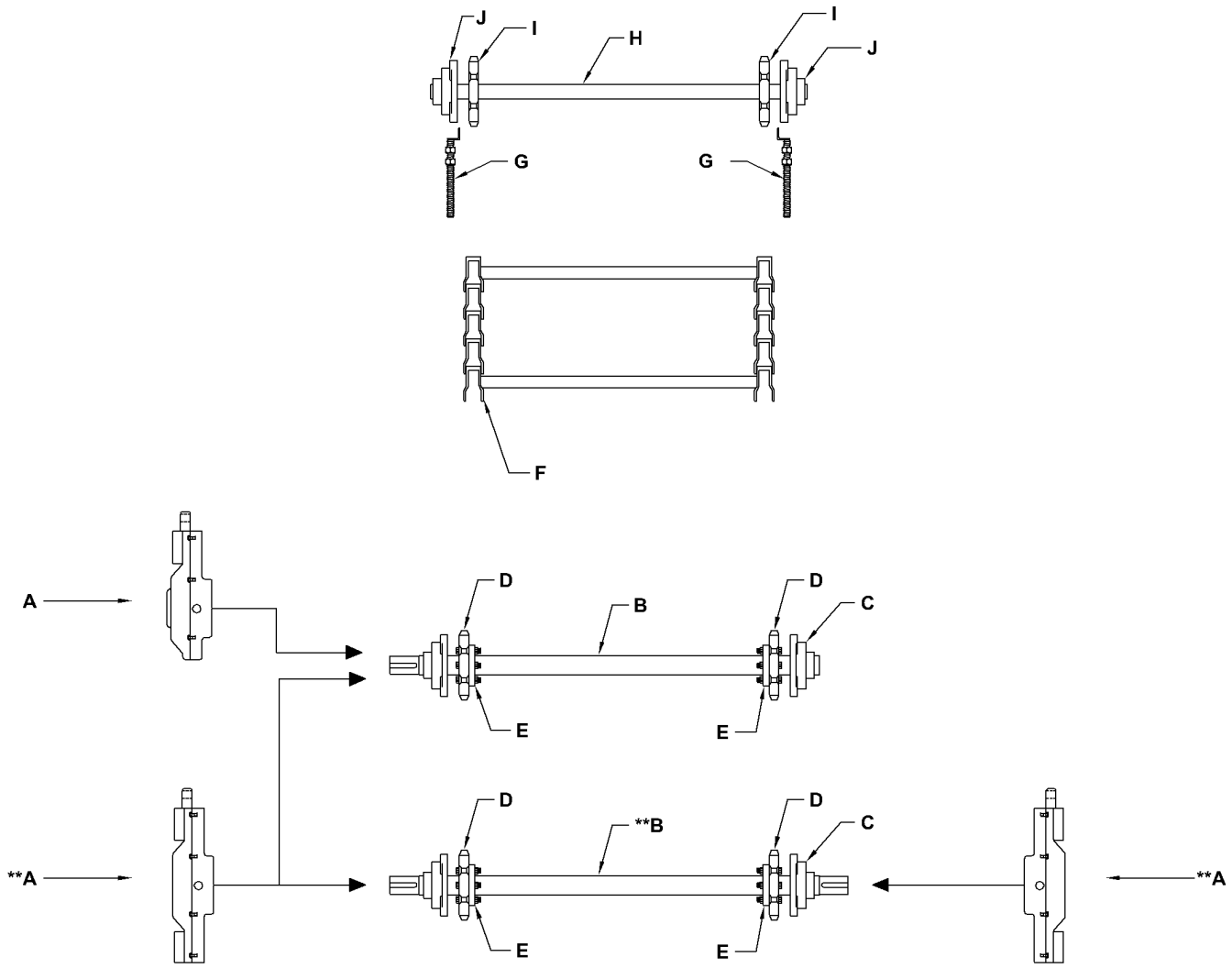
3) Hydraulic System – Dual Tandem Motors on Conveyor



	Description	Part #	Quantity
A)	Flow Control Valve	400-1-313	2
B)	Hydraulic Motor – Conveyor Drive MB-18	400-R-106	4
C)	Hydraulic Motor – Spinner M-30 2” Gear	400-C-201	2
D)	Optional Electric Valve (dump valve ¾”)	400-1-307	1
E)	Hydraulic Filter Assembly		
	a. Filter Only	400-1-319	2
	b. Complete Assembly	400-1-318	2
F)	Hydraulic Pump P-2500		
	a. 1000 RPM Pump P-2500 1 ½” x 1 ½”	400-C-209	1
	b. 540 RPM Pump P-2500 2 ½”x 2 ½”	400-C-209B	1
G)	Breather Cap	400-1-317	1
H)	U-Joint – UJ-1 ¼” – ¼” kw x 1 ¼” – 5/16 kw H12	200-2-199B	1
I)	Cradle Shaft – 1 ¼” x 11 1/4” Lg.	300-C-029B	1
	Cradle Shaft – 1 ¼” x 13 1/4” Lg.	300-C-029A	
J)	Flange Bearing –1 ¼”	UCF-207-20	1
K)	PTO Shaft		
	a. 540 RPM – 48” x 1 3/8” 6 Spline	200-2-018A	1
	b. 1000 RPM – 48” x 1 3/8” 21 Spline	200-2-018B	1
	c. 1000 RPM – 48” x 1 ¾” 20 Spline	200-2-018C	1
	Parts for Hydraulic Gate Option		
L)	Hydraulic Gate Cylinder (optional)	400-1-304	1
	Parts Not Shown		
M)	Sight Gauge	400-1-322	1
N)	1" Gate Valve	400-1-332	2
*)	Switchbox, Conveyor Valve On/Off	400-1-357	1

*****2017 models and newer are built with a 540 PTO PUMP and CRADLE SHAFT. This setup comes with a larger OIL TANK allowing the end-user the ability to switch from 540 to 1000 RPM tractors (changing only the PTO SHAFT).**

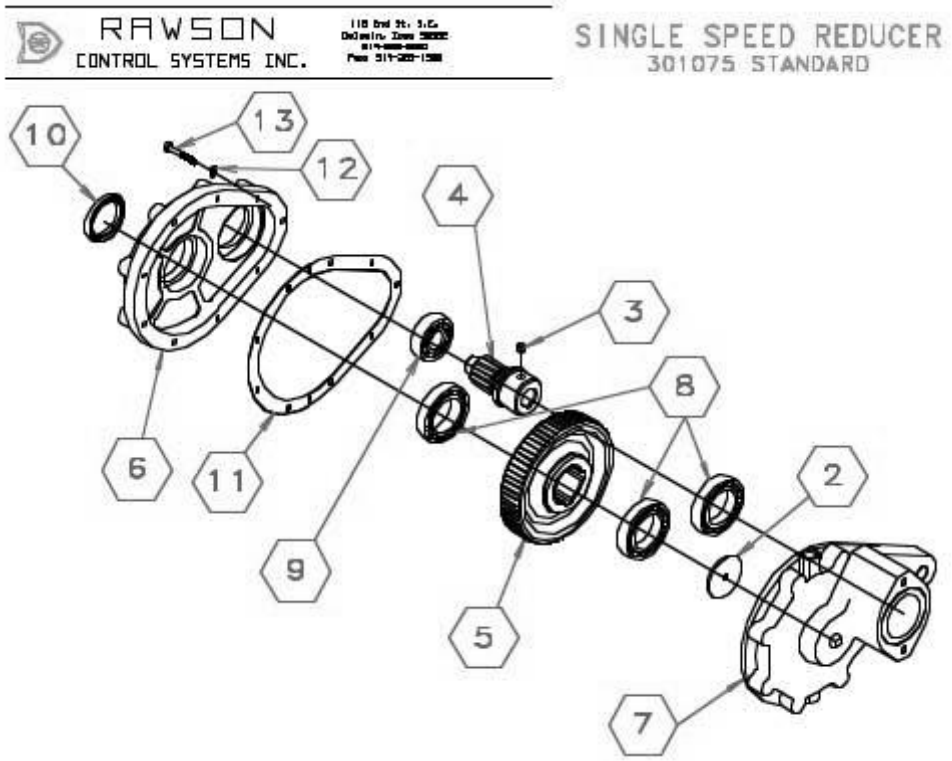
4) Conveyor Drive Assembly



Description	Part #
A) Aluminum Gear Case - Single	100-R-1-01
**A) Aluminum Gear Case - Tandem	100-R-2-01
B) Rear Roller Shaft Complete – 2” x 43”	CL-RR-43-667
**B) Rear Roller Shaft – 2” x 47” Dual Tandem Gear Case	CL-RR-43-667
C) Flange Bearing	UCF-211-32
D) Roller Sprocket - 2" - 8 Tooth	700-2-208
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 – 1 ½” x 39"	300-C-006
I) Roller Sprocket – 1 ½” 8 Tooth	700-2-210
J) Flange Bearing	UCF-208-24

**** The only thing holding Aluminum Gear Case onto the shaft is a single bolt and two ½” keys in the gear case. Technically, once the bolt is removed, the gear case should slide right off the shaft. However, due to the torque generated between the shaft and drive gear in the case, the keys could deform and make it difficult to slide off. In this case, splitting the two case housings and knocking the deformed keys out will allow the case to slide right off.**

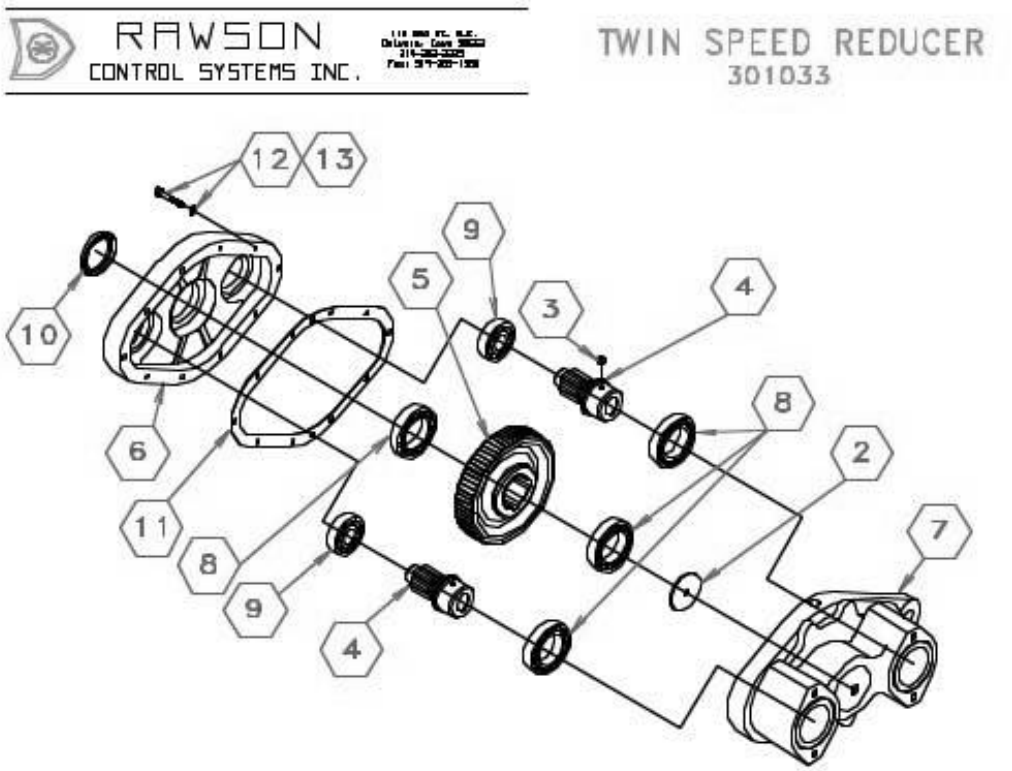
5) Single Conveyor Gear Case



	Description	Part #
1)	Single Gear Case (complete)	100-R-1-01
4)	Pinion Gear	100-R-1-08
5)	67T Gear	100-R-1-07
6)	Inboard Housing	100-R-1-09
7)	Outboard Housing	100-R-1-10
8)	Bearing - 50MM	100-R-1-03
9)	Bearing - 25MM	100-R-1-04
10)	Seal	100-R-1-05
11)	Gasket - Single	100-R-1-06
12)	Lock Washer	100-R-1-13
13)	Capscrew 5/16"	100-R-1-14
14)	Key - ½" (not shown)	100-R-1-11
15)	Breather Plug (not shown)	100-R-1-12

***** When Ordering these parts have serial number available to insure proper parts**

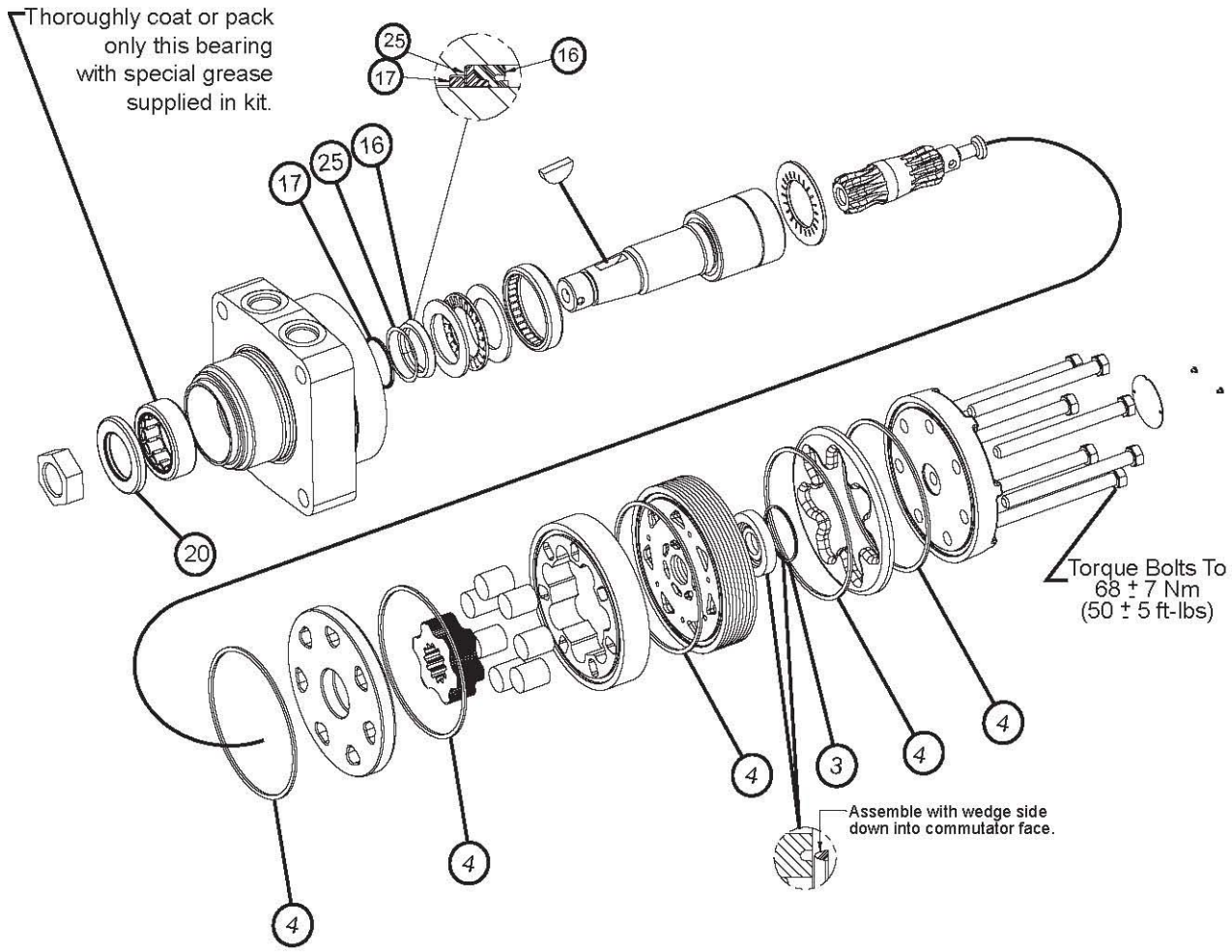
6) Tandem Conveyor Gear Case



	Description	Part #
1)	Tandem Gear Case (complete)	100-R-2-01
4)	Pinion Gear	100-R-2-04
5)	67T Gear	100-R-2-05
6)	Inboard Housing	100-R-2-02
7)	Outboard Housing	100-R-2-03
8)	Bearing - 50MM	100-R-2-08
9)	Bearing - 25MM	100-R-2-09
10)	Seal	100-R-2-07
11)	Gasket - Tandem	100-R-2-06
13)	Lock Washer	100-R-2-11
14)	Capscrew 5/16"	100-R-2-12

***** When Ordering these parts have serial number available to insure proper parts**

7) Conveyor Motor



	Description	Part #
1)	MB180102AAAA Motor - Single Gear Case	400-R-106
4)	MB120102AAAA Motor - Tandem Gear Case	400-R-104
5)	MB Seal Kit (includes- 3, 4, 16, 17, 20, 25)	400-R-109
6)	Motor Shaft - MB019002	400-R-111

***** When Ordering these parts have serial number available to insure proper parts**

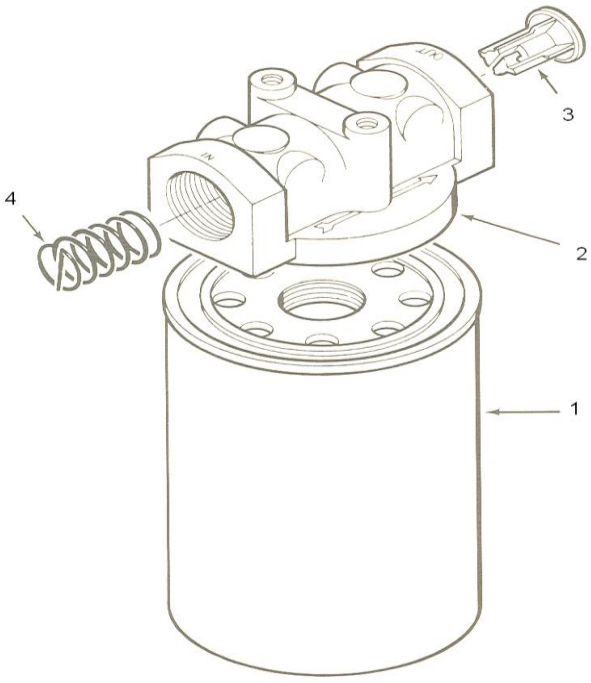
Hydraulic Oil Requirements

1) Oil Type – 46 Series (10 to 15 W)

Note: Use hydraulic oil not motor oil

2) Standard Tank Capacity 30 Gallons

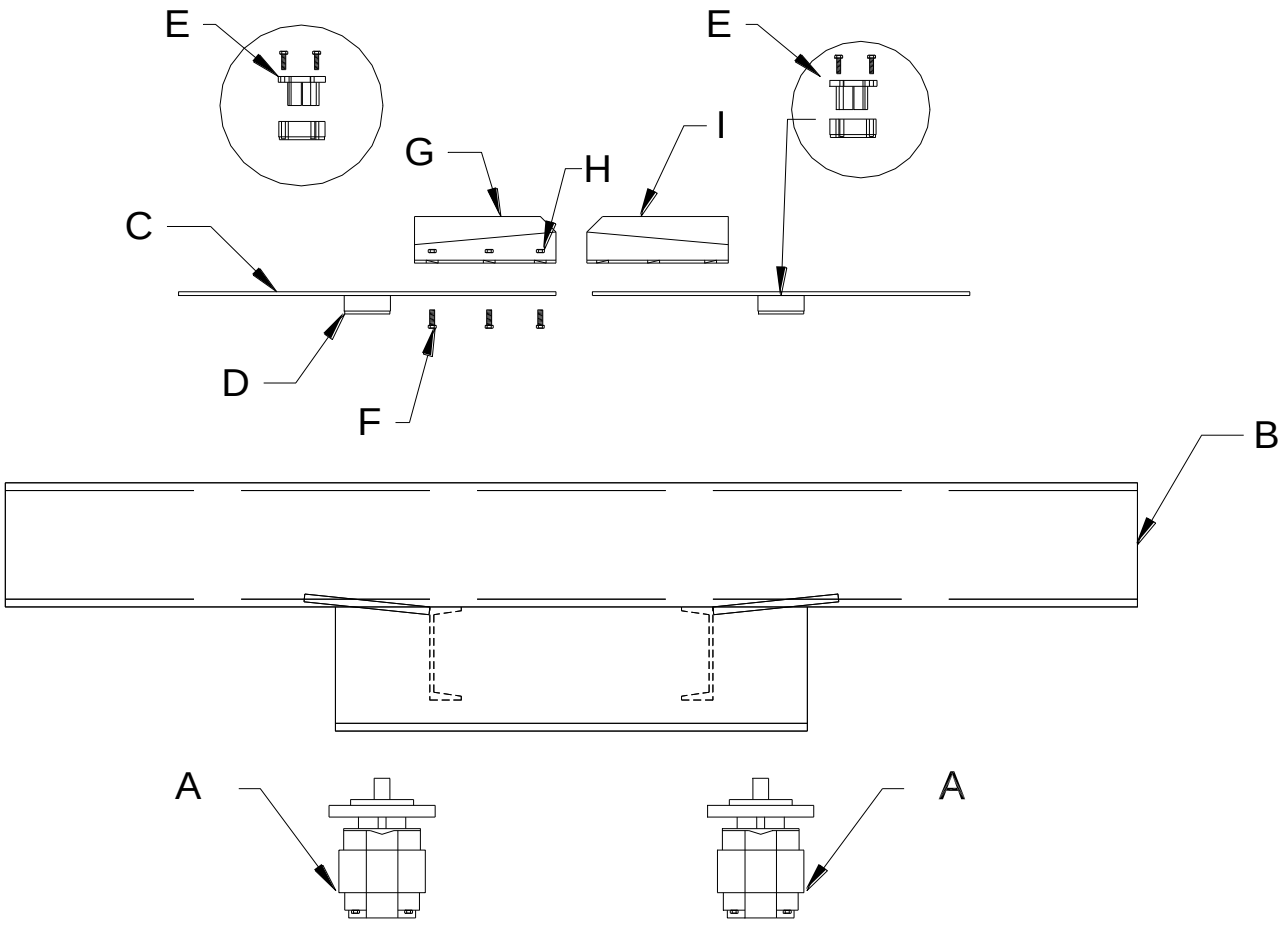
Hydraulic Filter



1) **Filter Element 400-1-319**
2) **Filter Head 400-1-319A (when ordering this part # items 3,4 are included**

Filter Cross Reference Numbers:
Napa Gold Filter# 1551; WIX Filter# 51551; Baldwin # BT839-10

Spinner Assembly



A) Spinner Motor M30 – 400-C-201

B) Spread Shield – 300-C-014

C) Spinner Disc
- **a. Disc w/ HP-1 Hub 300-CL-102H-(L/R)**
- **b. Complete Spinner 300-CL-103H-(L/R)**

D) Hub – HP-1 – 300-CL-106

E) Bushing – P1-1” – 300-CL-110

F) Bolt – 5/16” x 1” Hex Head

G) Nut – 5/16” Flange

H) Spinner Blade – 300-CL-104A-L (L.H.)

I) Spinner Blade – 300-CL-104A-R (R.H.)

***** Please see following page for spinner motor options and 30” spinner parts.**

Spinner Motor ID Chart:

Motor ID	Shaft Diameter	Flange (Hole centers)	Shape	Part Number
Parker M3000	1”	2 Bolt (5.75”)	Cube	**400-C-201**
Permco M-25 DB	1 ¼”	2 Bolt (5.75”)	Cube	**400-C-218B**
Ross MB06	1 ¼”	4 Bolt	Cylinder	**400-R-101**
Charlynn	1 ¼”	2 Bolt (4.5”)	Cylinder	**400-C-227**

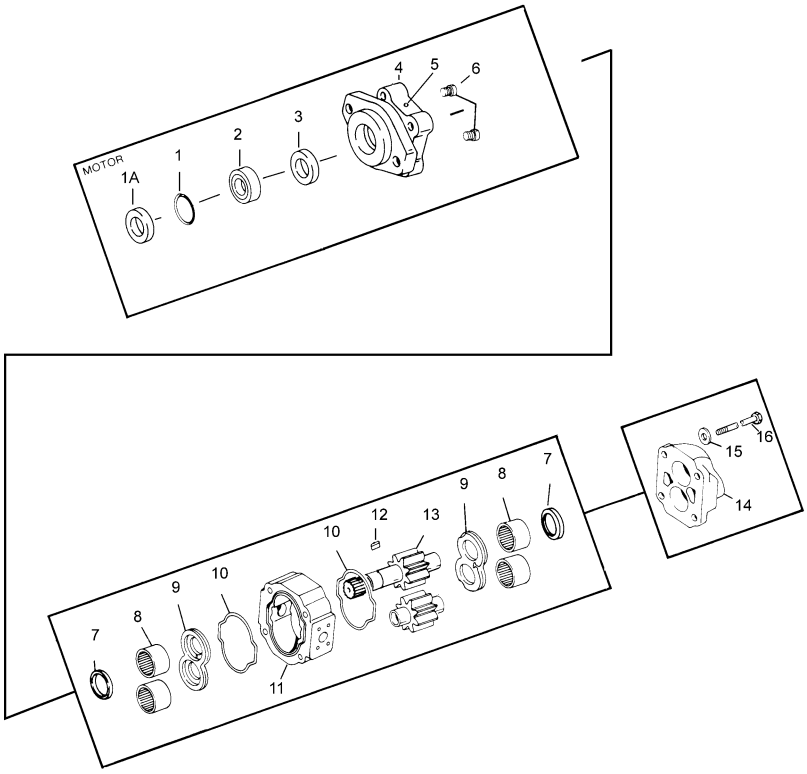
Optional 30” Spinner Parts (refer to previous illustration for reference letters):

C. **a**. 30” Spinner Disc with Bolt-On Hub 300-CL-115 (L/R)
b. 30” Spinner Disc Complete w/Hub and Blades 300-CL-116 (L/R)

D. Bolt-On Hub for 30” Spinner Disc 300-CL-117

H. L/H Spinner Blade (11”) 300-CL-104B-L
I. R/H Spinner Blade (11”) 300-CL-104B-R

Spinner Motor M-30 – 2



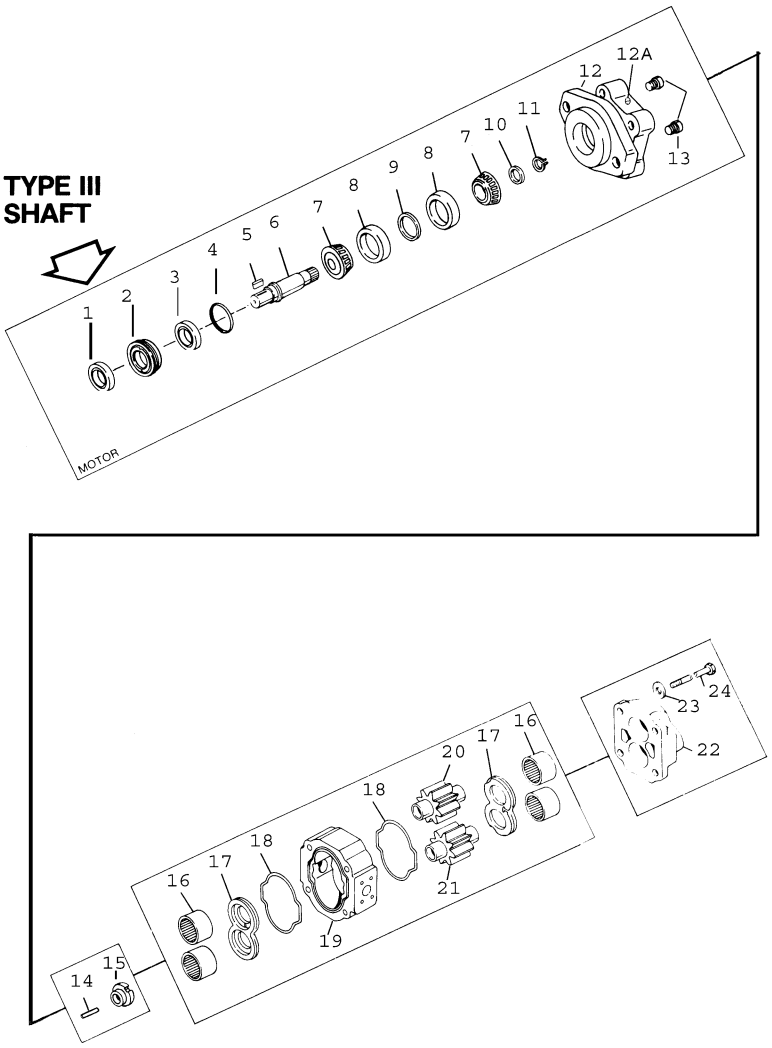
Assembly Parts

Assembly Parts Description
1A) GREASE SEAL
1) SNAP RING
2) BEARING SPACER
3) MOTOR SHAFT SEAL
4) 2-BOLT-B SHAFT END COVER (SEC)
5) PIPE PLUG 1/4" NPT FOR (SEC)
6) CHECK VALVE ASSEMBLY
7) RING SEAL
8) ROLLER BEARING
9) THRUST PLATE
10) GEAR HOUSING GASKET SEAL
11) GEAR HOUSING 1"
12) SHAFT KEY
13) GEAR SET 1-1/2"L X 1" KEYED
14) PORT END COVER (PEC)
15) WASHER 5/8"
16) HEX HEAD BOLT 5/8-11 X 4-1/2"

M-30 Motor Parts List

Description	Part #
M-30 - 2 Motor	400-C-201
M-30 Seal Kit (includes1A, 3, 10)	400-C-206
1A) GREASE SEAL	400-C-215
3) MOTOR SHAFT SEAL	400-C-205
8) ROLLER BEARING	400-C-204
9) THRUST PLATE	400-C-229
10) GEAR HOUSING GASKET SEAL	400-C-205A
12) SHAFT KEY	400-C-207
13) GEAR SET 2"L X 1" KEYED	400-C-211
SEAL INSTALLATION SLEEVE	400-C-226

Spinner Motor M-25 Double Bearing



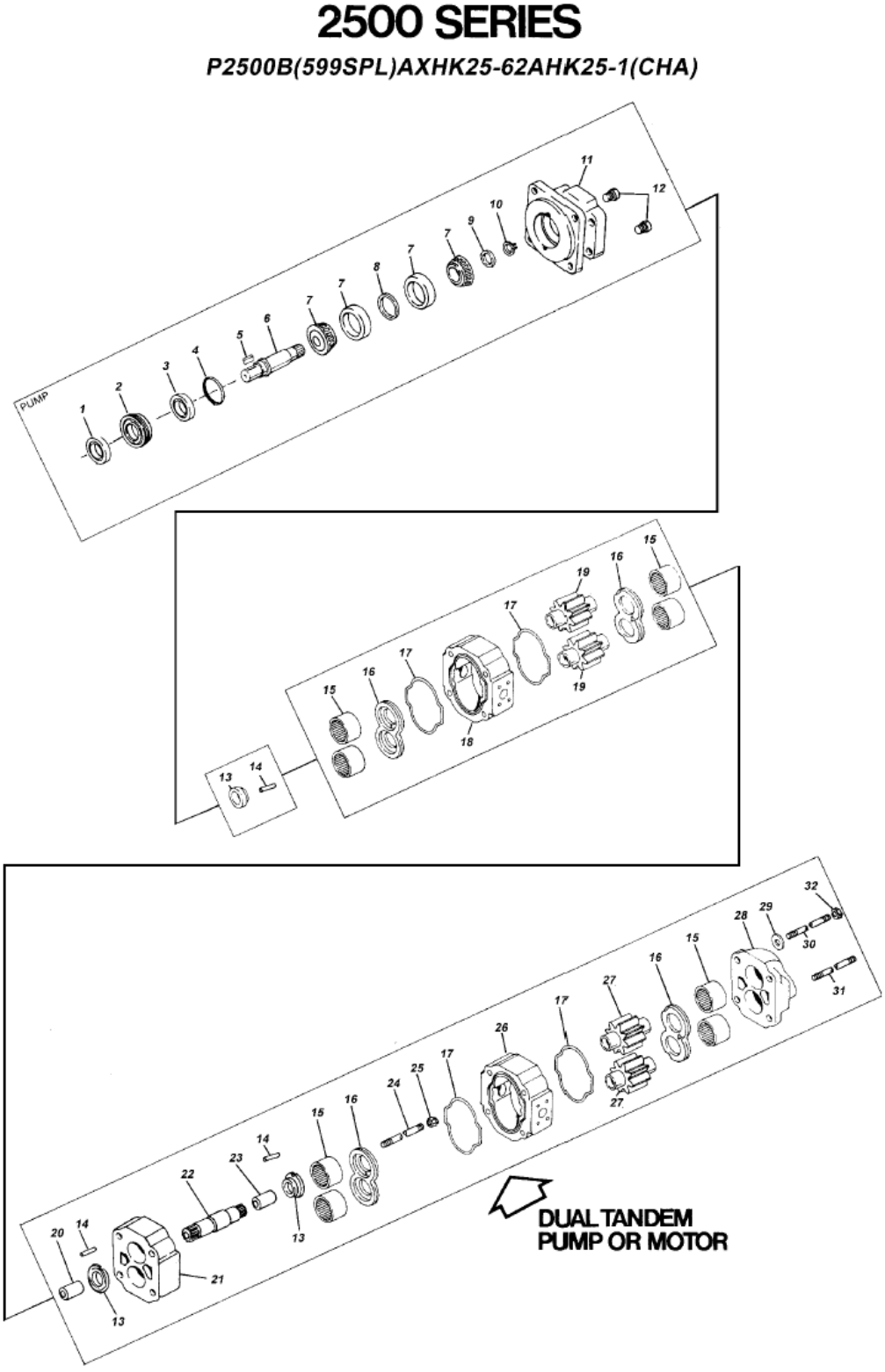
Assembly Parts Description

1	SPECIAL SHAFT SEAL
2	SEAL RETAINER
3	MOTOR SHAFT SEAL
4	O"RING
5	SHAFT KEY
6	SHAFT 1/4" DIA. KEYED
7 & 8	TAPER BEARING
9	TAPER BEARING SPACER
10	SHAFT BEARING SPACER
11	SNAP RING
12	2-BOLT-B SHAFT END COVER (SEC)
12A	1/4" PIPE PLUG FOR (SEC)
13	CHECK VALVES
14	ROLL PIN
15	SHAFT BUSHING
16	ROLLER BEARING
17	THRUST PLATE
18	GEAR HOUSING GASKET SEAL
19	GEAR HOUSING 1-1/2"
20 & 21	GEAR SET 1-1/2"
22	PORT END COVER (PEC)
23	WASHER 5/8"
24	HEX HEAD BOLT 5/8-11 X 5"

M – 25 Double Bearing Motor Parts List

	Description	Part #
	M-25 DB MOTOR	400-C-218B
	M-25 DB SEAL KIT	400-C-220B
	(includes 1, 3, 4,)	
5	SHAFT KEY	400-C-334A
6	SHAFT 1/4" DIA. KEYED	400-C-331
20 & 21	GEAR SET 2"	400-C-219

P-2500 – 2 ½" x 2 ½" 540 RPM Tandem Pump



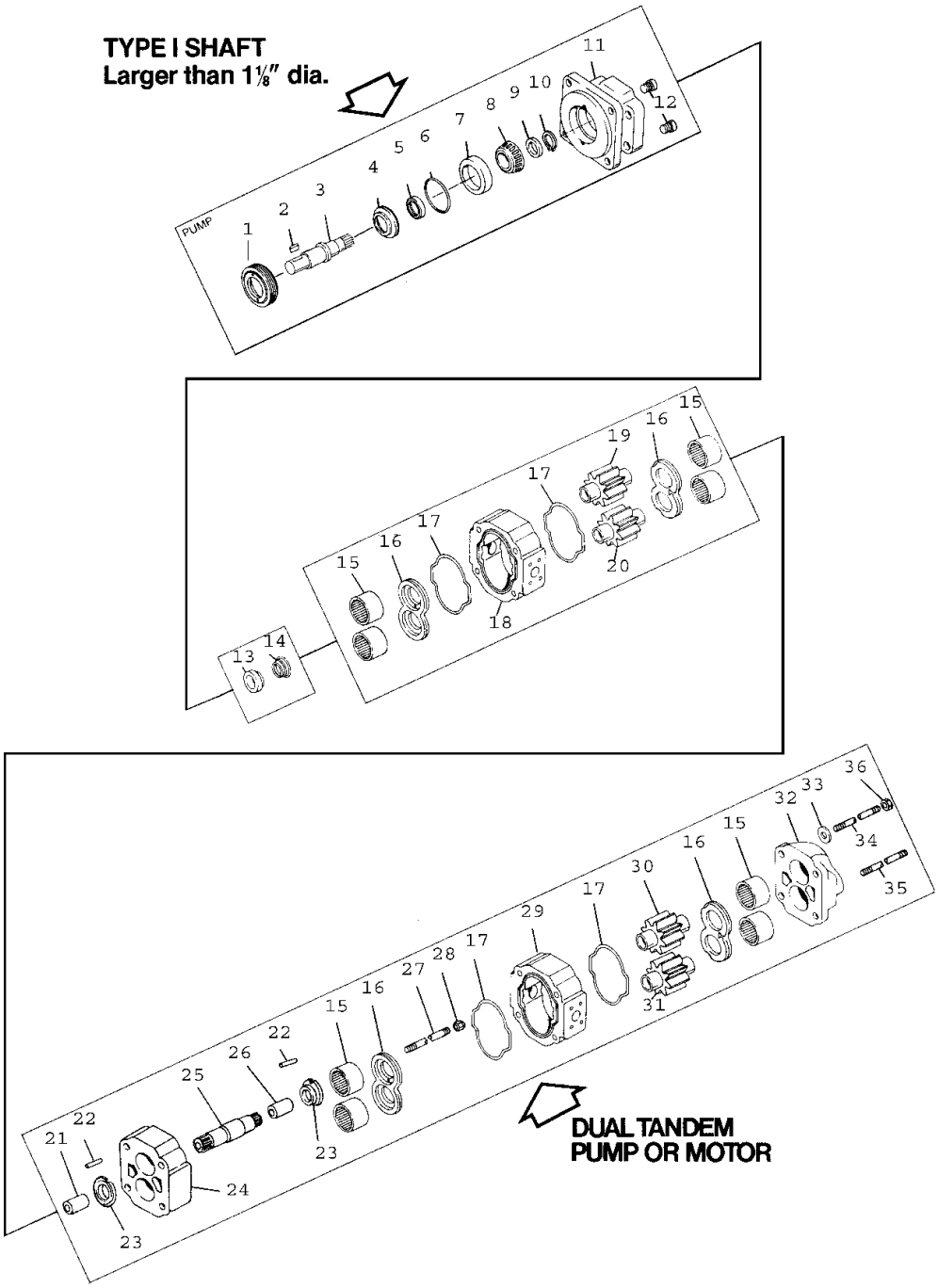
MODEL NUMBER	P2500B(599SPL)AXHK25-62AHK25-1(CHA)
DESCRIPTION	PUMP TYPE I SHAFT

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

06/20/2006

2500 SERIES

Exploded View of P2500B299AXHK15-00AHK15-1



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MODEL NUMBER	**P2500B299AXHK15-00AHK15-1**
DESCRIPTION	**PUMP TYPE I SHAFT**

Item Number On Exploded View	Description	Order This Part Number	Quantity Per Unit
1	RETAINER RING	V-0961	1
2	SHAFT KEY	W09-27	1
3	SHAFT 1-1/4" DIA. KEYED	QA-0024	1
4	SEAL RETAINER	RZ-0558	1
5	PUMP SHAFT SEAL	W62-26-13	1
6	O"RING	K-2995-26	1
7 & 8	TAPER BEARING	W015-7	1
9	SHAFT SPACER	XZ-0558-1	1
10	SNAP RING	W86-100	1
11	TYPE I PAD MOUNT (SEC)	RZ-0575-3	1
12	CHECK VALVE	L-0280-K	2
13	SHAFT BUSHING	ZG-1909	1
14	SPRING	Z-0216-182	1
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 1-1/2"	LZ-0577-15-5	1
19 & 20	GEAR SET 1-1/2"	JZ-0996L-15	1
21	GEAR SPACER 1-1/8"	SZ-0408-5	1
22	ROLL PIN	W004-19	2
23	SHAFT BUSHING SLOTTED	ZQ-1909	2
24	BEARING CARRIER (BC)	JA-0576	1
25	CONNECTING SHAFT	SZ-0022	1
26	GEAR SPACER 1-1/8"	SZ-0408-5	1
27	THREADED ROD	3/8"-16	1
28	LOCK NUT	W78-05	1
29	GEAR HOUSING 1-1/2"	LZ-0577-15-5	1
30 & 31	GEAR SET 1-1/2"	JZ-0996L-15	1
32	PORT END COVER (PEC)	QZ-0592	1
33	WASHER 5/8"	W033-2	4
34	TIE BOLT 10-1/2"	ZD-0391-105	2
35	TIE BOLT 12-1/2"	ZD-0391-125	2
36	HEX NUT 5/8"-11	W3-65	4

Basic Set Up

1) Setting Spinner Speed

A) Spinner Speed:

A standard Chandler Equipment Litter and Shaving spreader is set up for a 40 ft. spread pattern for Litter and up to 60 ft. spread pattern for Shaving with a spinner speed of 700 (for litter) – 800 (for shavings) RPM.
Use the following procedure to set spinners to proper speed

a. Start engine and engage PTO (Power Take Off)
   (Before starting engine make sure that there is no material or obstructions on spinners)

b. Set flow control valve to 6
   (Flow control valve is located at the front of the spreader)

c. Take a hand tach reading of the spinners speed.

d. Increase engine speed to 540/1000 PTO RPMs.

e. Take another hand tach reading.

f. Adjust flow control valve until spinners are set at 700 or 800 RPMs depending on which material you are applying.

Record Valve Setting _____

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

Notes: _____

WARNING: Never put hands near spinners when they are turning.
DO NOT use mechanical hand tach to set spinner speed.
Use Digital or Laser tach than can be used at a safe distance.
(Chandler Equipment Co. recommends Laser Tach Part # _____)

2) Pressure Settings for Spinners and Conveyor

1) Checking Pressure

Run unit empty at ordinary operating speed (engine RPM's) for approximately 10 minutes. This allows oil to reach operating temperatures.

A) Shut tractor off and install pressure gauge into "CF" port on flow control valve. (Refer to hydraulic flow control valve drawing – page 3-13, 3-14)
B) Set flow control valve on 10.
C) Restart engine
D) With PTO engaged slowly increase tractor engine RPM's to ordinary operating speed. (540/1000 PTO RPM)
E) Pressure gauge should read 2000 PSI. If not, adjust pressure as outlined below.

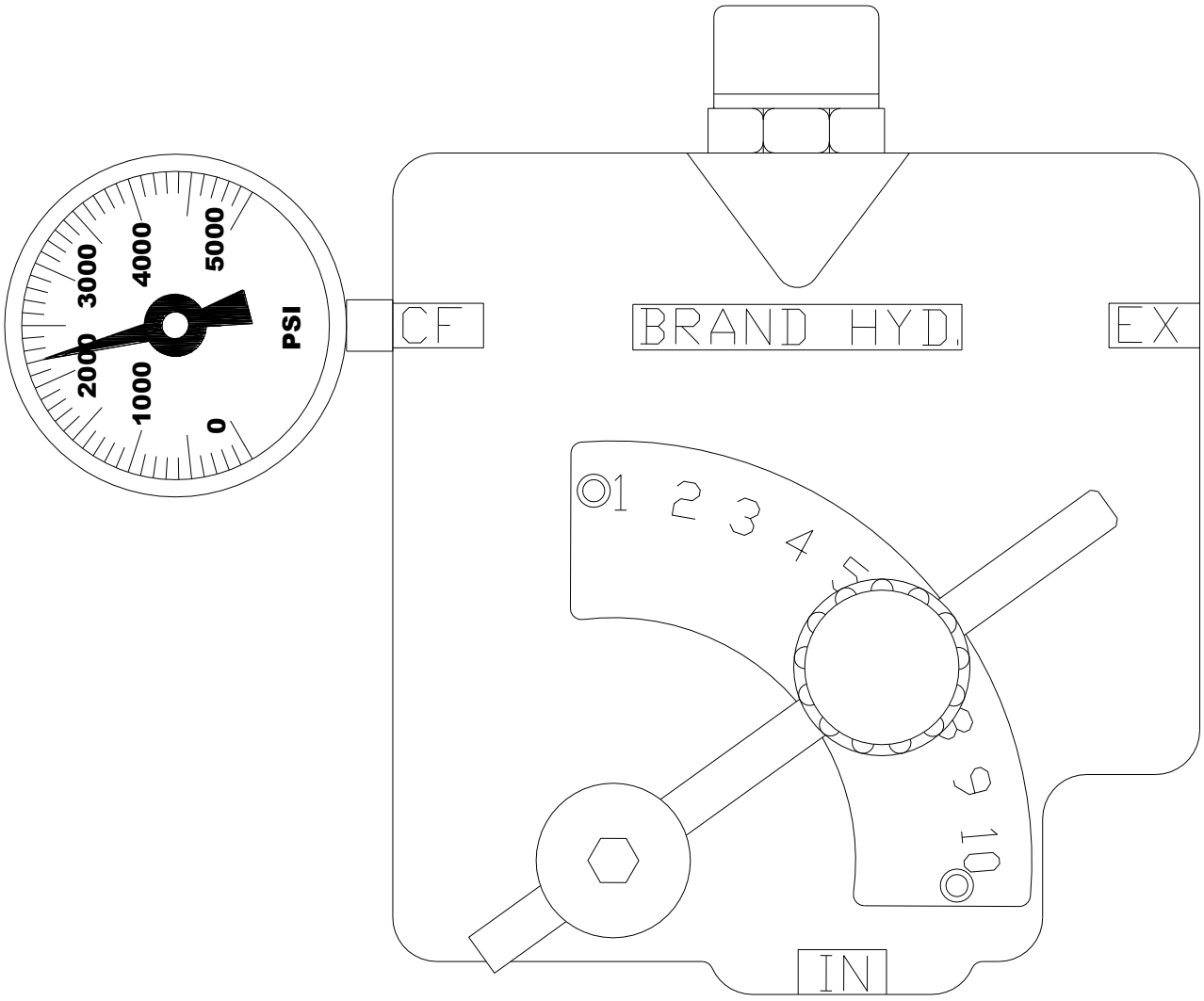
Caution: When checking pressure, never allow tractor to run over a few seconds with pump running and gauge installed in line. Once pressure reading is taken engage clutch immediately.

2) Adjusting Hydraulic Flow Control Valve Pressure:

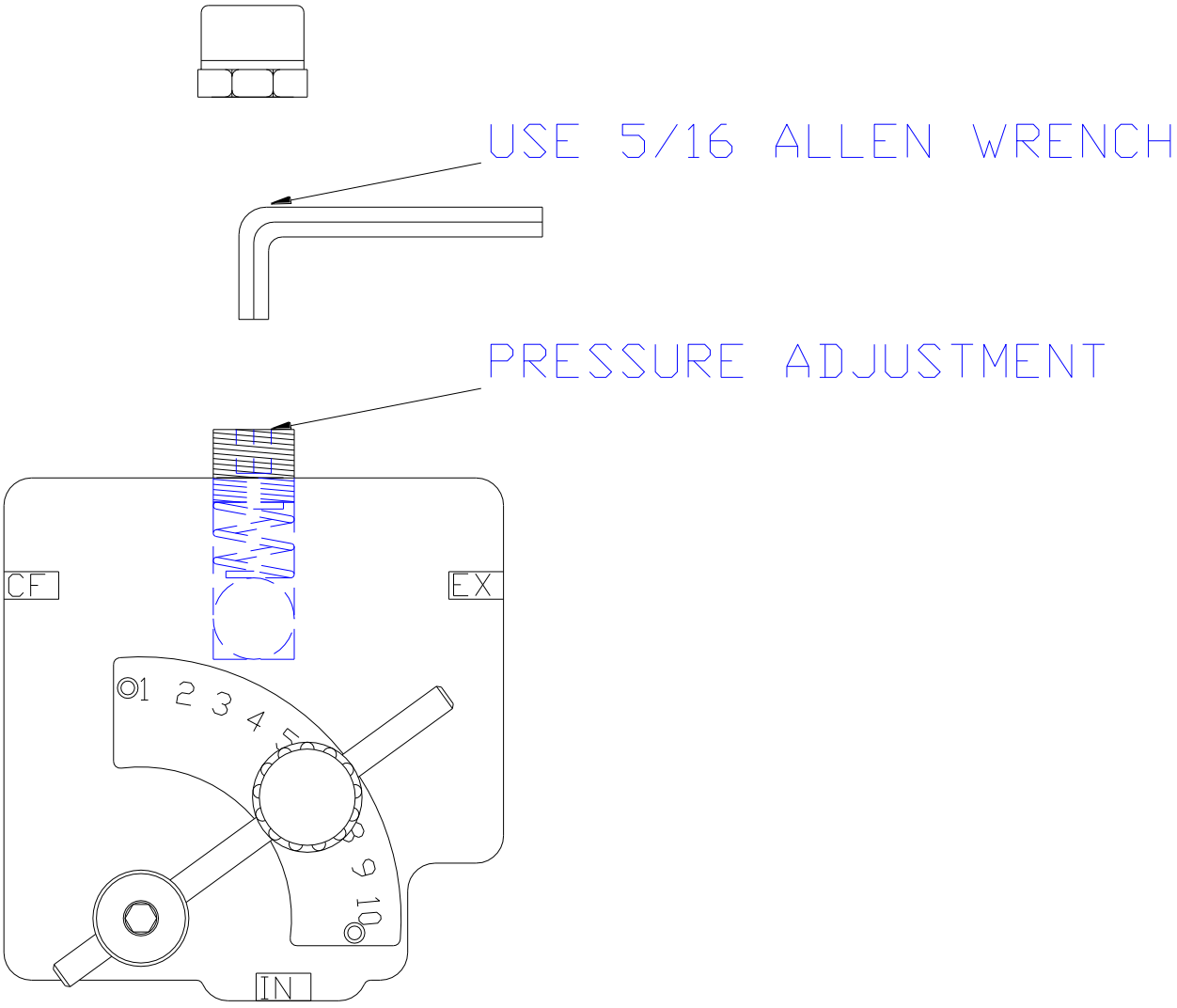
A) Remove cap nut on flow control valve (located on top of valve)
B) Using a 5/16" Allen wrench turn adjustment screw "IN" to increase pressure or "OUT" to decrease pressure.
C) Turn adjustable screw one half turn, and then check pressure setting as outlined above.
D) Continue this procedure until pressure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

1) How to Install Pressure Gauge



1) How to Adjust Relief 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” (Clockwise) to increase pressure or “OUT” (Counter Clockwise) to decrease pressure.

3) Turn adjustment screw one half turn, then check pressure setting as outlined above.

4) Continue this procedure until pressure gauge reads **2200 psi.**

3) Setting Rate Per Acre

ALL Chandler C/L Litter and Shaving Spreader have hydraulic valves to adjust the amount of material discharged by the conveyor chain.

1. Make a mark on the left end of the front roller shaft.
2. Rev tractor to operating PTO RPM (540 or 1000 RPM).
3. Adjust flow control valve so that the front roller makes 15 revolutions per 1 minute.
4. Adjust gate to match desired rate per acre according to the rate chart on the following page.
    a. If desired ground speed is NOT 6 mph contact Chandler Equipment Co. for additional rate charts at no extra cost.
    b. Please have the following information when calling:

Type of Spreader: _____

Serial Number: _____

Type of Chain: _____

Chain Width: _____

Desired Rate: _____

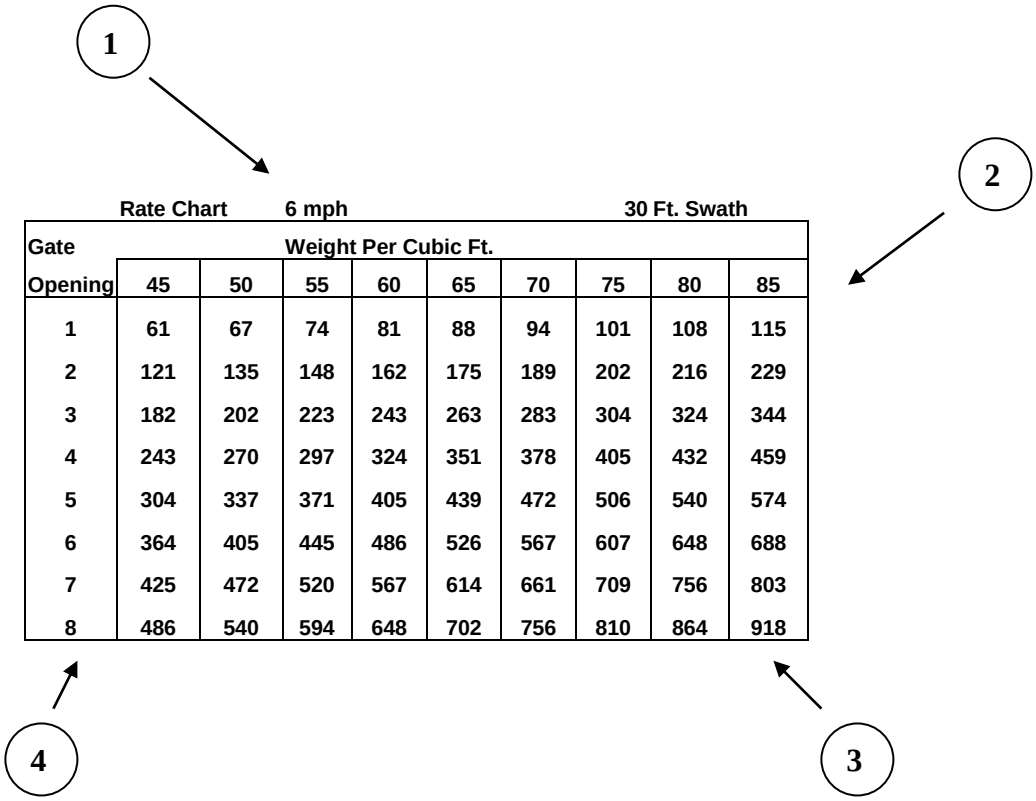
Desired Ground Speed (mph): * _____

*** Ground speed which can be safely maintained while spreading.**

FLOW CHART C/L Pull Type @ 6 MPH 40 Ft. Swath

Gate Opening	Litter 25	30	35	40	Weight Per Cubic Ft. 45		Lime 80	85	90	95
2	548	657	767	877	986		1753	1863	1972	2082
3	822	986	1150	1315	1479		2630	2794	2958	3123
4	1096	1315	1534	1753	1972		3506	3725	3945	4164
5	1370	1644	1917	2191	2465		4383	4657	4931	5205
6	1644	1972	2301	2630	2958		5259	5588	5917	6246
7	1917	2301	2684	3068	3451		6136	6519	6903	7286
8	2191	2630	3068	3506	3945		7013	7451	7889	8327
9	2465	2958	3451	3945	4438		7889	8382	8875	9368
10	2739	3287	3835	4383	4931		8766	9313	9861	10409
11	3013	3616	4218	4821	5424		9642	10245	10847	11450
12	3287	3945	4602	5259	5917		10519	11176	11834	12491
14	3835	4602	5369	6136	6903		12272	13039	13806	14573
	33.5 Inch Chain									

4) How to Use Rate Chart



Rate Chart 6 mph 30 Ft. Swath

Gate Opening	Weight Per Cubic Ft.								
	45	50	55	60	65	70	75	80	85
1	61	67	74	81	88	94	101	108	115
2	121	135	148	162	175	189	202	216	229
3	182	202	223	243	263	283	304	324	344
4	243	270	297	324	351	378	405	432	459
5	304	337	371	405	439	472	506	540	574
6	364	405	445	486	526	567	607	648	688
7	425	472	520	567	614	661	709	756	803
8	486	540	594	648	702	756	810	864	918

1) Selecting Proper Rate Chart

For most applications there is 1-rate chart supplied with each spreader that has a Hydraulic Drive System. The rate chart used will depend on the ground speed that you wish to spread.

2) Selecting Density of Material

Select density (weight per cubic foot) of the material that you are going to apply.

3) Selecting Application Rate

Once the density has been determined go down the column to find desired rate per acre.

4) Determining Gate Opening

Once you have found the desired rate per acre go across the chart to determine the gate opening needed.

Maintenance

1) Spinner Assembly

A) Spinner Blades

The spinner blades are wearable items 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 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.

Trouble Shooting

Problem	Solution
Spinners will not throw material far enough	Check hydraulic pressure relief see page 1-4 , 1-5 Check to see is spinner blade has come loose or been knocked off
Spinners will not turn	Check hydraulic pressure Check keyway in motor Replace if needed
Improper spread pattern	Check Material Divider location Check spinner disc and blades For wear Replace if needed Check Spinner Speed

Section 3 C/L Litter Hydraulic Spinners Plug to Tractor

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 vale. 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 required 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.

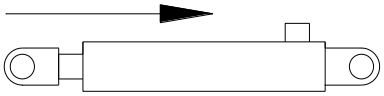
Both Open and Closed Center Valves can trap oil on both sides of the circuit in the Neutral position. Use of this position for "off" will cause premature failure or the hydraulic motor.
The Raise position is not recommend for "On" because the valve must travel through the Neutral position to get to Float.

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 (CASE DRAIN LINE).** 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

1) When hooking up Hydraulic Spinner Option use the following procedure.

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



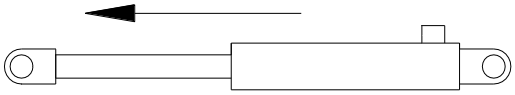
(Symbol indicates Lower Position)

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

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

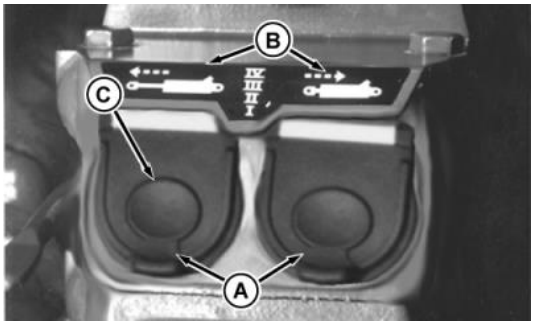
Or

C) 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 makes)

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.

2) 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.

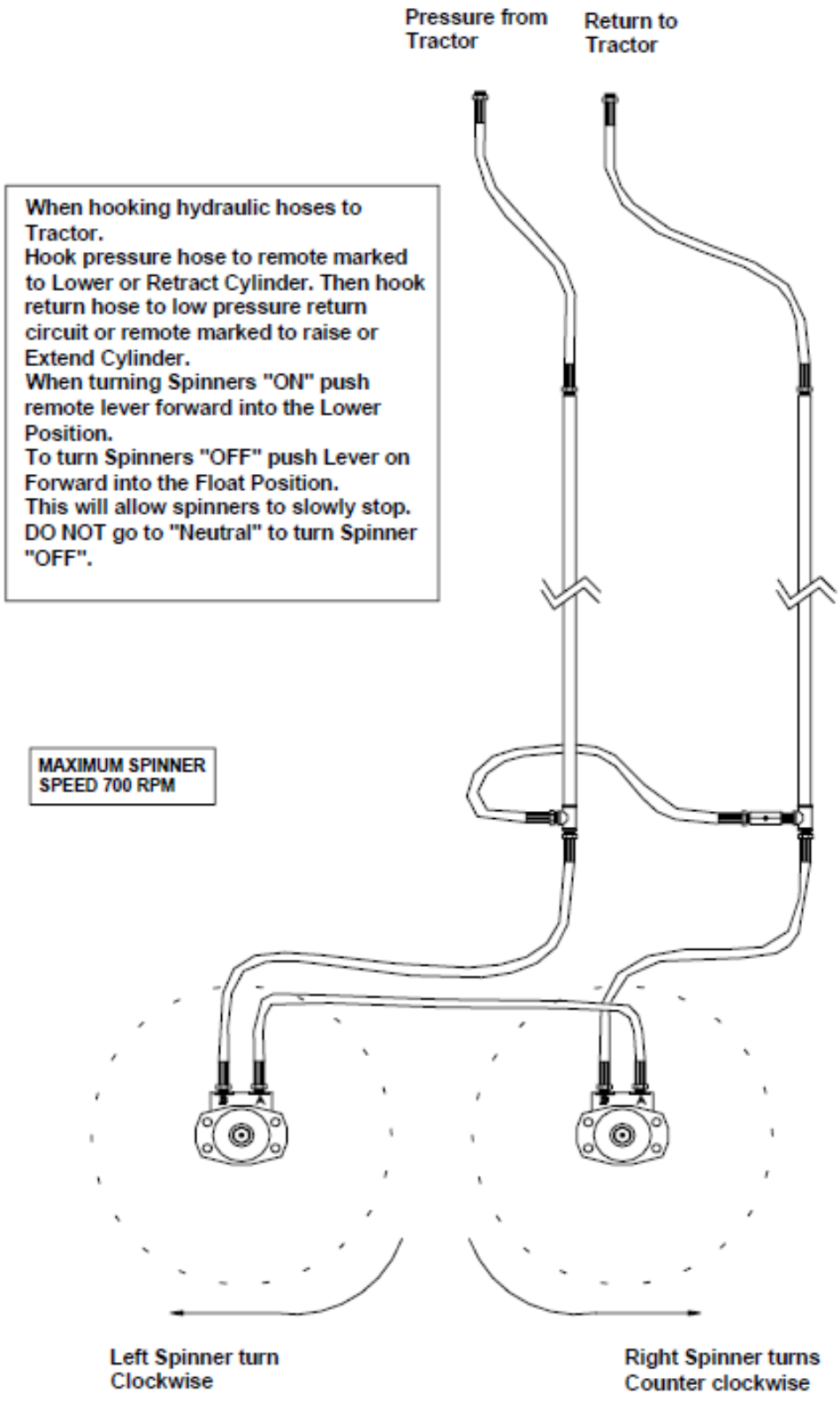
D) When turning spinners "OFF" push Lever forward into the **Float Position**.

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.

3) 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)

Hydraulic Spinner Hose Diagram



Setting Spinner Speed using Hydraulic Spinner Option

Proper spinner speed for most common applications of Litter and Lime is 650 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)

1) After hooking up Pressure / Return lines and making sure they are turning in the proper direction.

    A) Set Flow Control Valve on "6"

    B) Start Tractor engine

    C) Engage spinners by pushing remote lever forward into the lower position.

    D) This should start turning the spinners.

    E) Using a hand tach check spinner speed.

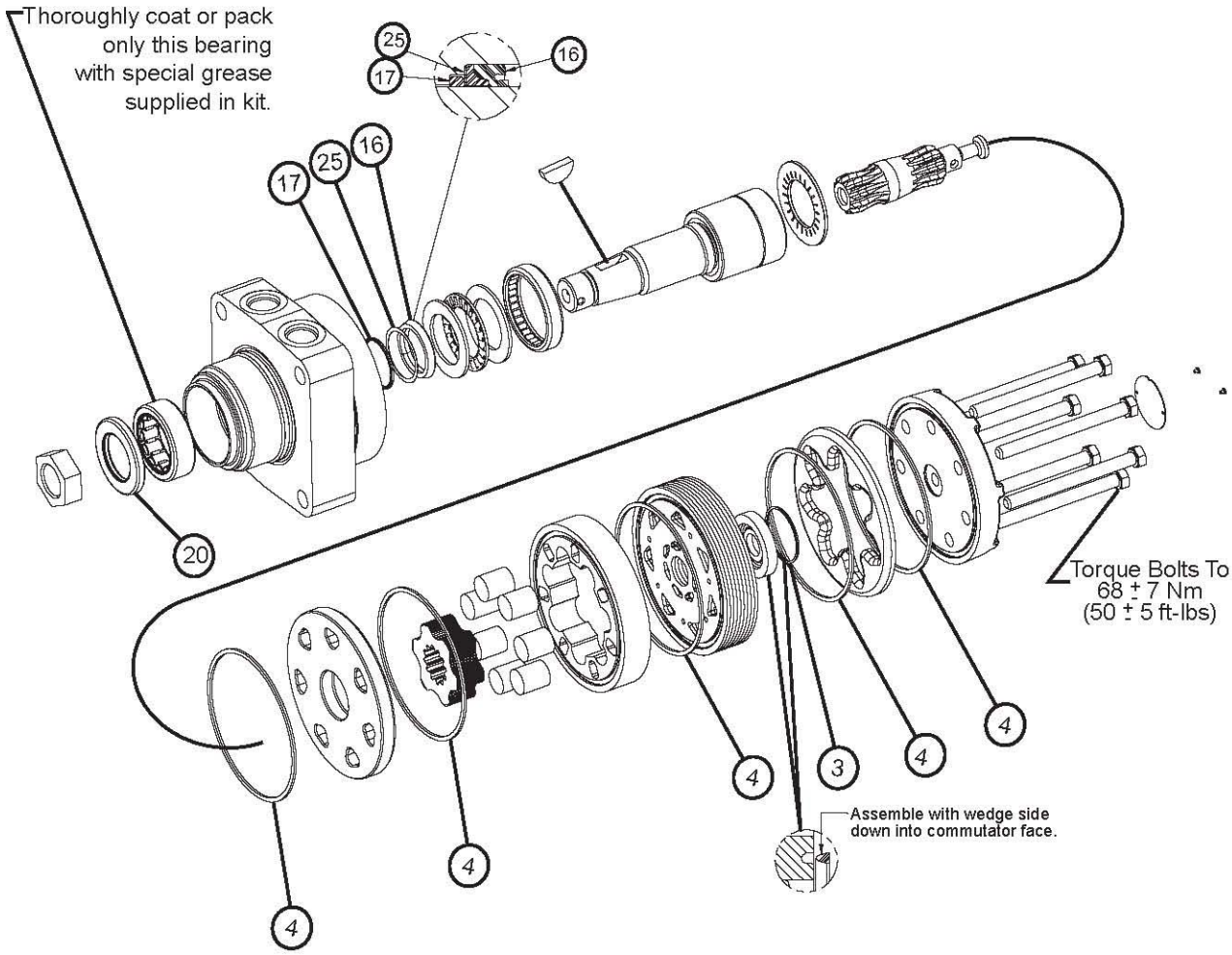
    F) If spinner speed is not 650 RPM use flow control valve to adjust spinners to proper speed.

    G) Repeat this process if needed.

H) Some material may take a different spinner speed.
(Such as with lime, spinner speed may need to be turned up to 700 – 750 RPM, lighter materials may need slower spinner speed)

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

Spinner Motor MB-06



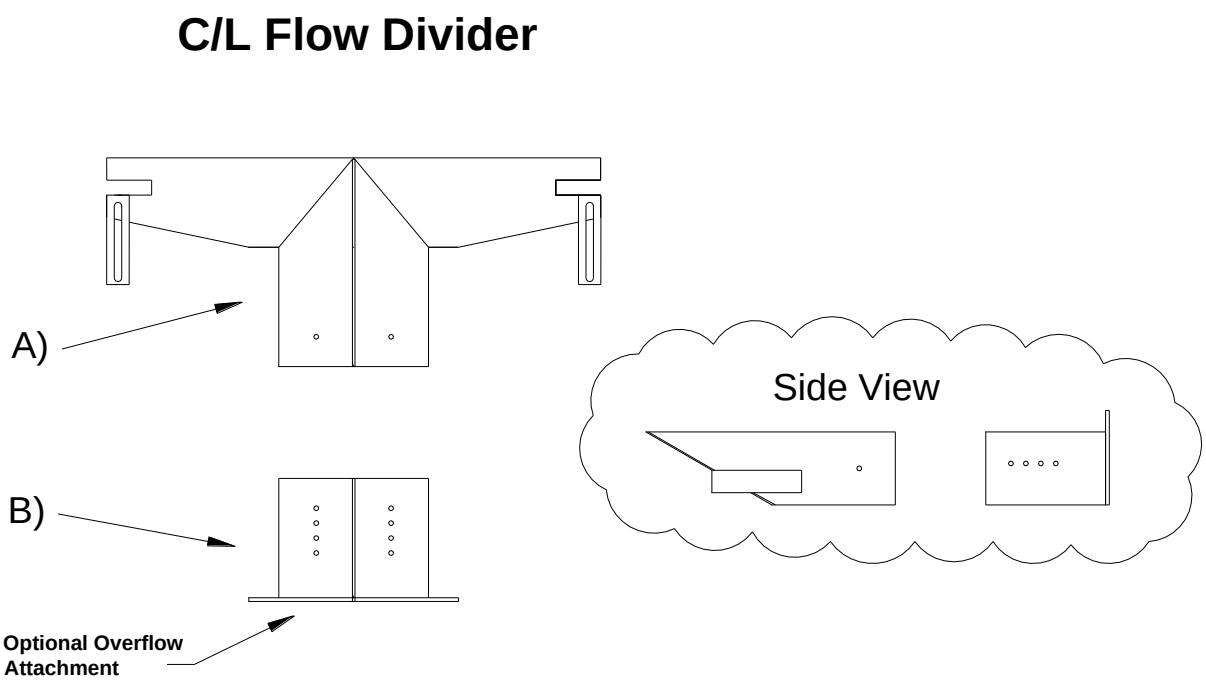
	Description	Part #
1)	MB060103 Motor - Single Gear Case	400-R-101
5)	MB Seal Kit (includes- 3, 4, 16, 17, 20, 25)	400-R-109
6)	Motor Shaft - MB019003	400-R-118

***** When Ordering these parts have serial number available to insure proper parts**

Section 4 C/L Flow Divider and Gate

NOTES:

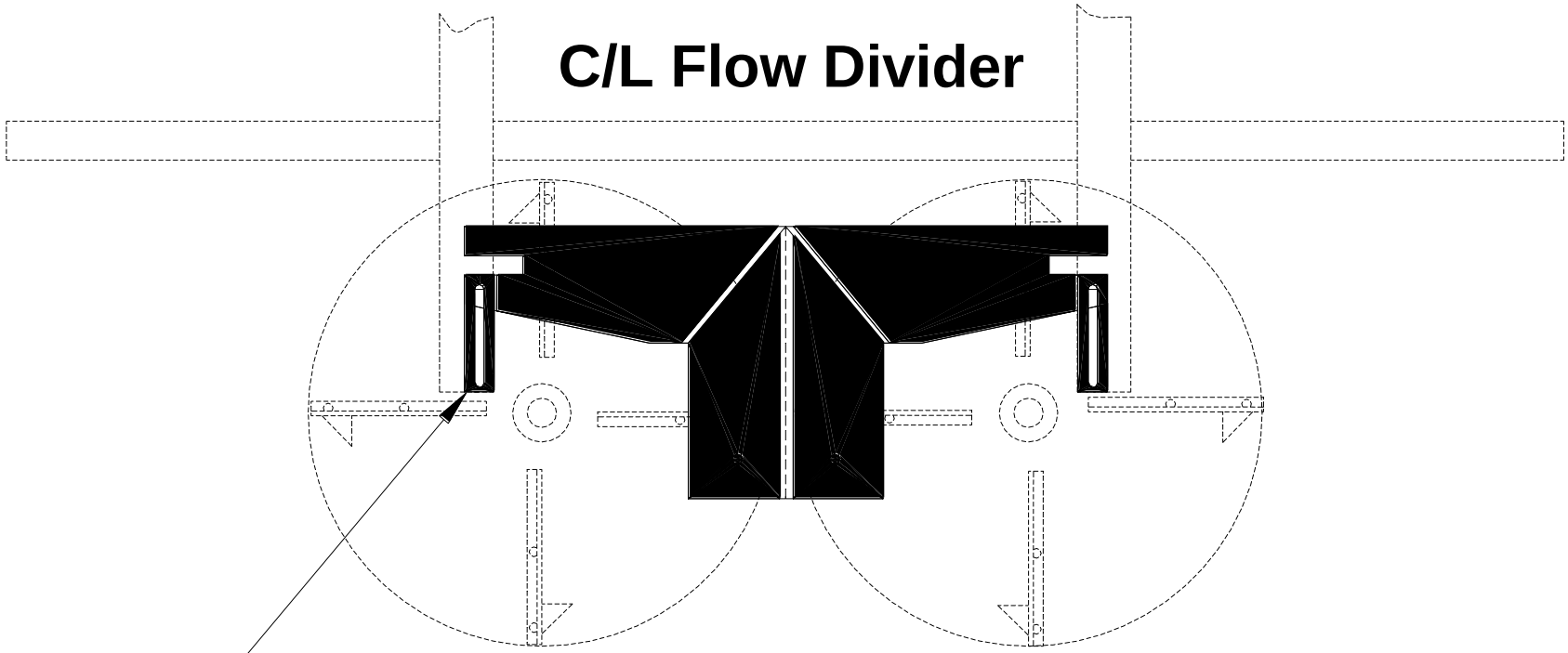
Section 4 Flow Divider Assembly



A) Flow Divider – 300-C-011A

B) Optional Overflow Attachment – 300-C-011B

C/L Flow Divider



Start with Flow Divider Flush with End of Rail
Moving divider in or out will change spread pattern

1) Setting Flow Divider

Flow Divider settings are very important to the accuracy of the spread pattern. Improper divider settings will cause light or heavy streaks in the field. Use the following steps to set material divider.

a. The Flow Divider has an adjustment slides on each side of the divider. Moving the divider “IN” or “OUT” will change the spread pattern.

b. Moving the Flow Divider “OUT” will cause the spread pattern to be heavy on the outside of the spread swath.

c. Moving the Flow Divider “IN” will cause the spread pattern to be heavy in the middle of the spread swath.

The settings may vary according to material weight.
Chandler Equipment Co. recommends each spreader to be tested every season to insure proper spread pattern.

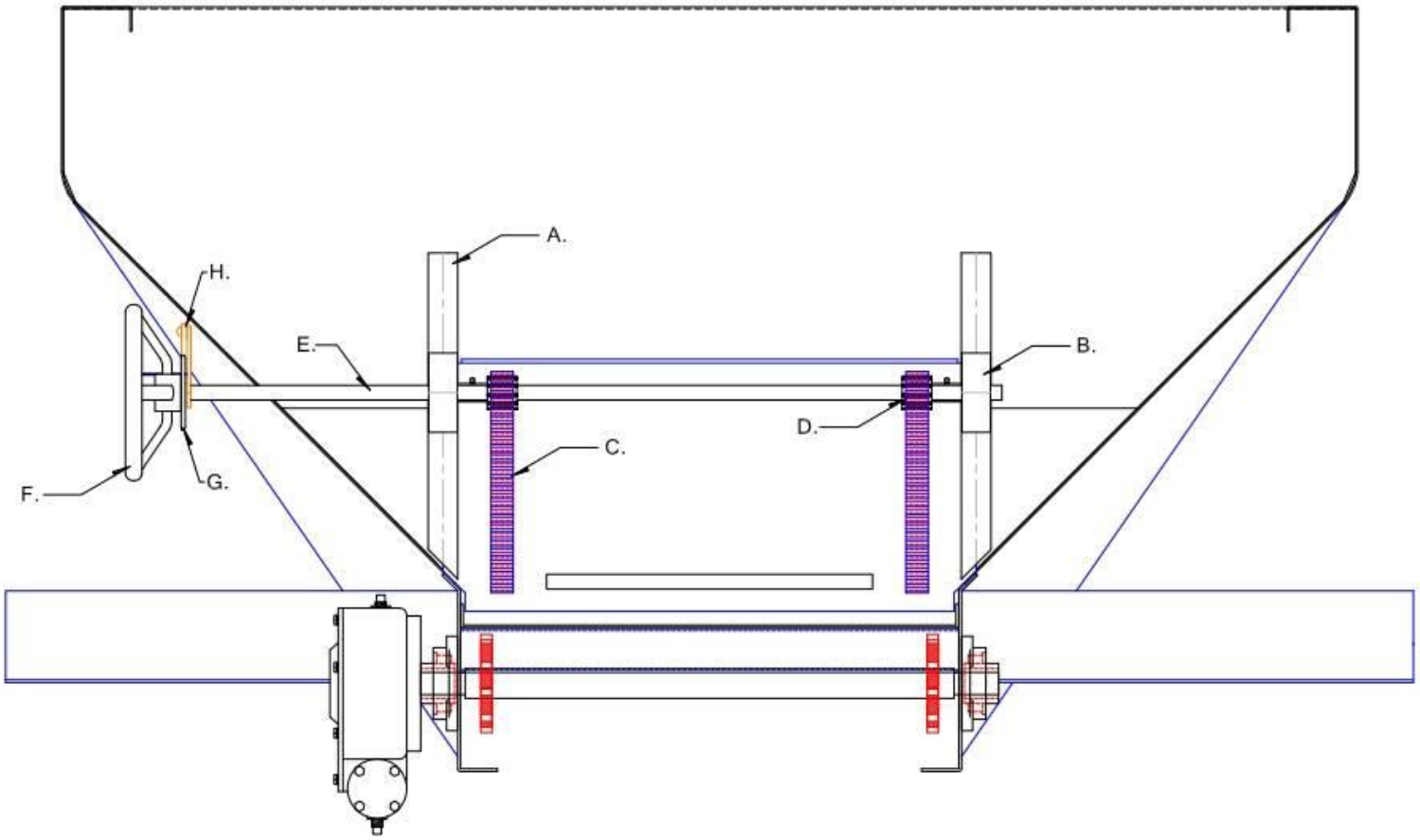
Notes:

_____

_____

_____

Manual Gate parts Assembly:

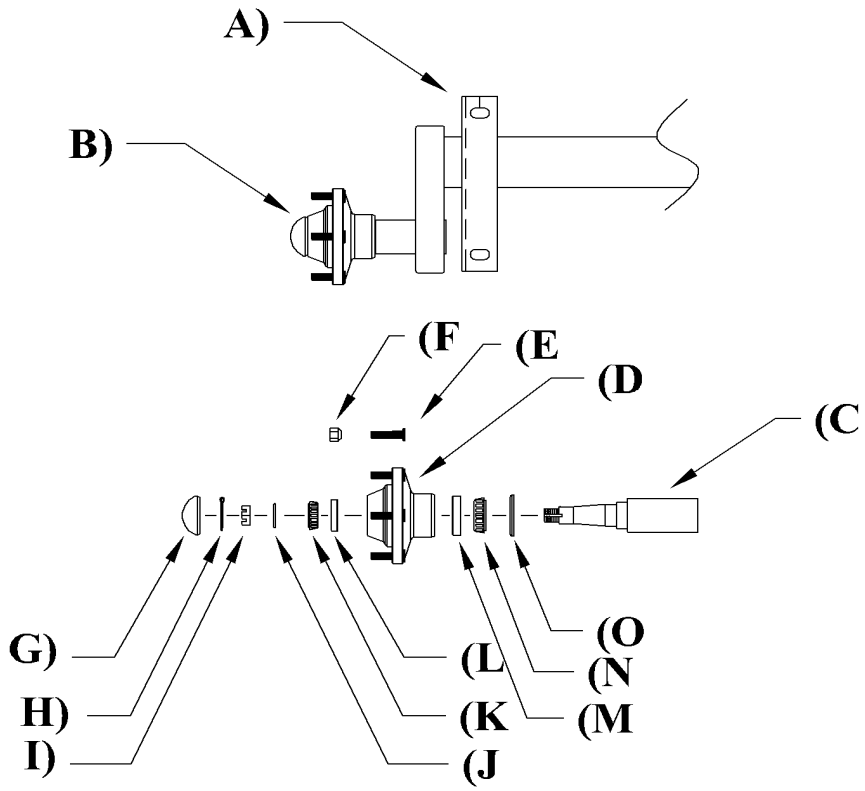


Reference	Part Number	Description
A	700-2-119	C/L Gate Slide
B	300-C-024	Gate Shaft Hanger
C	700-2-205	R6 Gate Rack
D	700-2-206	S6-11 Pinion Gear
E	300-C-022	1” CR Gate Shaft
F	300-C-018	Gate Wheel
G	300-C-020	Gate Latch Sprocket
H	300-C-019	Gate Latch Assembly

Section 5 C/L Axle Assembly

7,000# Torsion Axle

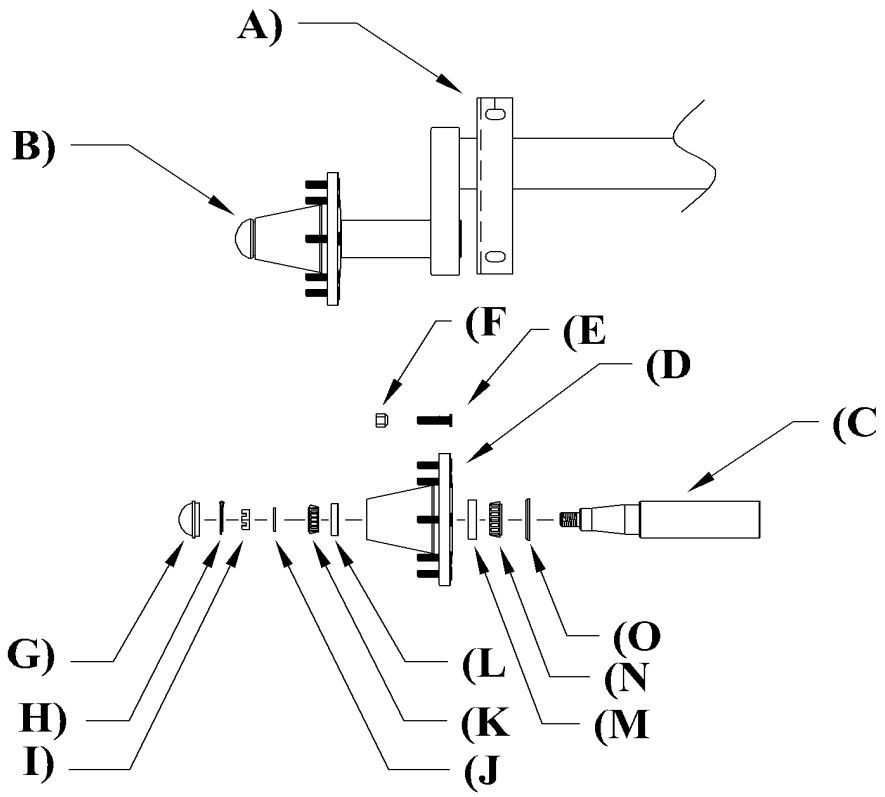
7,000 LB. AXLES
AXLE-HUB ASSY.



Ref.	Part Description	Part Number
A	7000 # Axle Assembly Complete (Standard)	800-2-119
B	6 Bolt Hub Assy.	800-2-104
C	Spindle	800-2-115
D	Hub Only	800-2-103
E	Wheel Stud	800-2-118
F	Wheel Nut	800-2-117
G	Hub Cap	800-2-107
H	Cotter Pin	800-2-102
I	Slotted Nut	800-2-114
J	Washer	800-2-116
K	Outer Cone (LM-67048)	800-2-111
L	Outer Race (LM-67010)	800-2-112
M	Inner Race (LM-501310)	800-2-109
N	Inner Cone (LM-501349)	800-2-108
O	Oil Seal	800-2-113

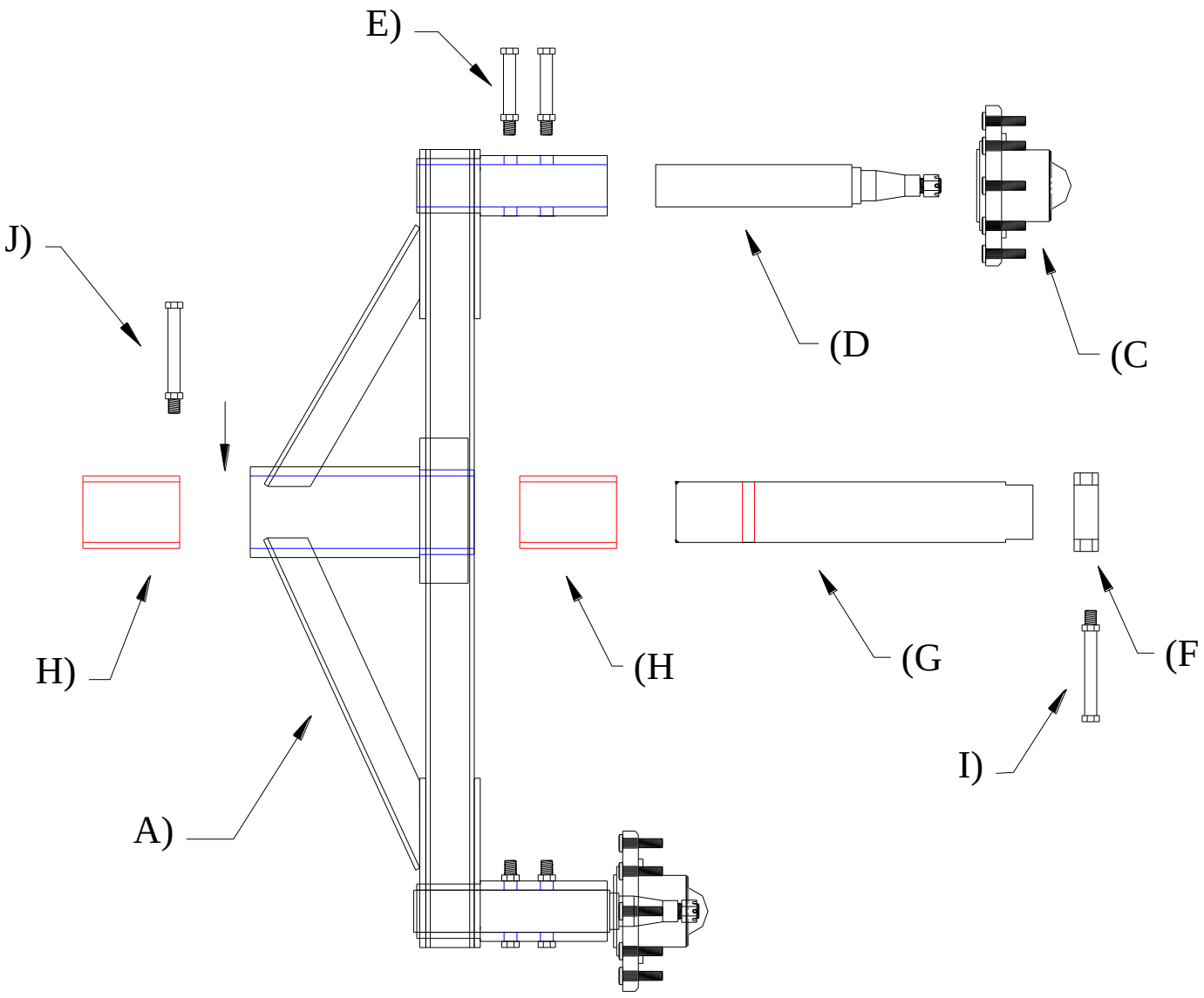
10,000# Torsion Axle

10,000 LB. AXLES
AXLE-HUB ASSY.



Ref.	Part Description	Part Number
A	10000 # Axle Assembly Complete (Standard)	800-3-116
B	8 Bolt Hub Assy.	800-3-102
C	Spindle	800-3-110
D	8 Bolt Hub Only	800-3-101
E	Wheel Stud	800-3-114
F	Wheel Nut	800-3-113
G	Hub Cap	800-3-103
H	Cotter Pin	800-3-115
I	Spindle Nut	800-3-109
J	Washer	800-3-112
K	Outer Cone (LM-501249)	800-3-106
L	Outer Race (LM-501310)	800-3-107
M	Inner Race (LM-506810)	800-3-105
N	Inner Cone (LM-506849)	800-3-104
O	Oil Seal	800-3-108

Walking Beam Assembly



Walking Beam Axle Parts List

	Part #	Description
A)	800-5-101(L/R)	Walking Frame Assembly (complete)
B)	800-5-102	Walking Frame (ONLY)
C)	800-6-110	873 - 10 Bolt Hub Assembly (complete)
D)	800-6-115	873 Walking Beam Spindle
E)	800-5-103	3/4" Bolt for Pivot Shaft
F)	800-5-104	Pivot Shaft Collar
G)	800-5-105	Pivot Shaft
H)	800-5-106	UHMW Bushing
I)	800-5-108	3/4" Bolt for Pivot Shaft Collar

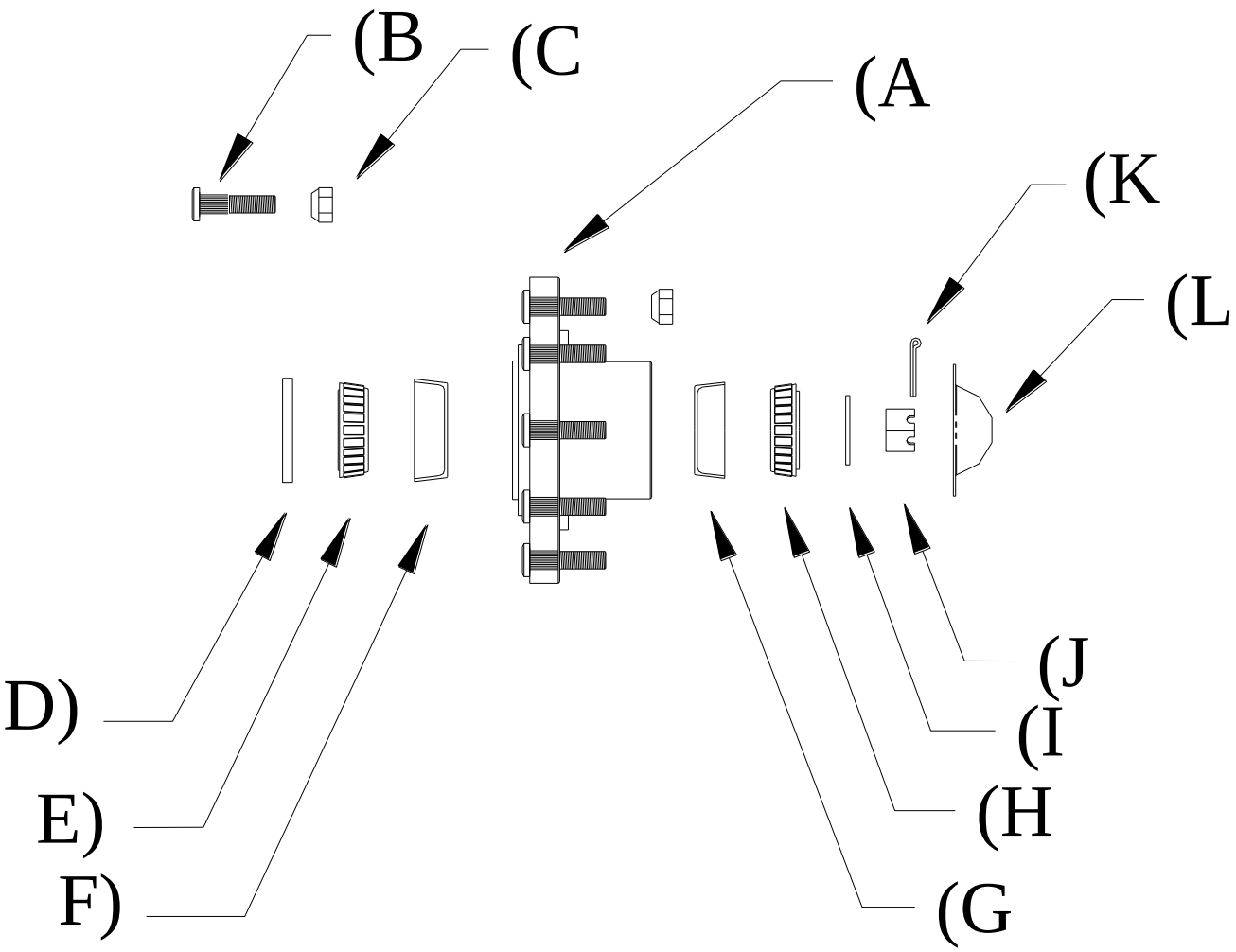
Jan. 15, 2017: Chandler Equipment modified fabrication of the C/L Pull Type Walking Beam Assembly. Hub and Spindle was upgraded from the previous 871 series to the 873 series. These parts are not interchangeable so please have serial number available when ordering.

Prior to 1-15-2017:

C.) 871 Hub Complete 800-4-102

D.) 871 Walking Beam Spindle 800-5-107

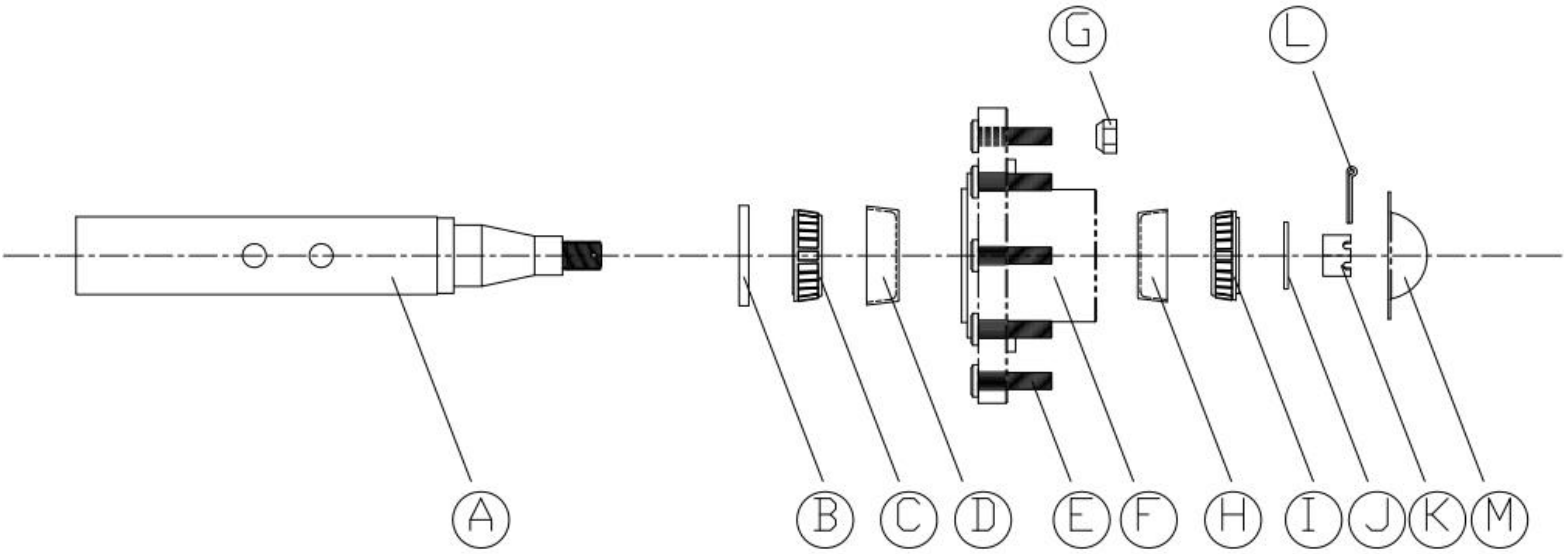
Pre-1/15/2017 871 Walking Beam Hub Assembly



871 Walking Beam Hub Assembly Parts List

	Part #	Description
A)	800-4-102	871 - 10 Bolt Hubs Only
B)	800-4-107	871 - 10 Bolt Wheel Stud
C)	800-4-108	871 - 10 Bolt Wheel Nut
D)	800-4-109	871 Hub Seal
E)	800-4-103	871 Inner Bearing
F)	800-4-104	871 Inner Race
G)	800-4-106	871 Outer Race
H)	800-4-105	871 Outer Bearing
I)	800-4-114	871 Spacer Washer
J)	800-4-113	871 Spindle Nut
K)	800-4-112	871 Cotter Pin
L)	800-4-110	871 Hub Cap
*)	800-4-111	Hub Cap Gasket

873 Hub and Spindle



Ref:	Part #	Description
A	800-6-115	Spindle
B	800-6-117	Oil Seal
C	800-6-111	Inner Bearing
D	800-6-112	Inner Race
E	800-4-107	Wheel Stud
F	800-6-110	Hub Complete
G	800-4-108	Wheel Nut
H	800-6-114	Outer Race
I	800-6-113	Outer Bearing
J	800-4-114	Washer
K	800-4-113	Castle Nut
L	800-4-112	Cotter Pin
M	800-4-110	Hub Cap
*	800-4-111	Hub Cap Gasket

Tire and Wheel Combinations

Axle	Bolt Pattern	Tire Size	Ply	Wheel Size	Air Pressure (psi)	Tire Part #	Wheel Part #	Tire and Wheel Part #
7000 #	6	12.5L x 15	8	15 x 10 LB	36	800-1-101	800-1-109	800-1-119
7000 #	6	14L x 16.1	8	16.1 x 11 C	32	800-1-102	800-1-110	800-1-120
10000#	8	16.5L x 16.1	10	16.1 x 14 C	36	800-1-103	800-1-111	800-1-121
10000#	8	19L x 16.1	12	16.1 x 16 C	36	800-1-104	800-1-112	800-1-122
10000#	8	21.5L x 16.1	12	16.1 x 16 C	36	800-1-105	800-1-112	800-1-123-8
16000# or Walking Beam	10	21.5L x 16.1	18	16.1 x 18 C	44	N/A	N/A	800-1-123-10
Walking Beam	10	700/40-22.5	16	22.5 x 25	32	N/A	N/A	800-1-132*

*Specify Right or Left

Lug Nut Torque Specifications (ft-lbs)

Axle	Stud Size	Part Number	Torque (ft-lbs)
7000 #	9/16"	800-2-118	110 - 125
10000#	5/8"	800-3-114	125 - 140
16000#	11/16"	800-1-133	250 - 300
Walking Beam	11/16”	800-1-133	250 - 300

Section 6 C/L Litter PTO Shaft Adjustment and Maintanance

Rev. H

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

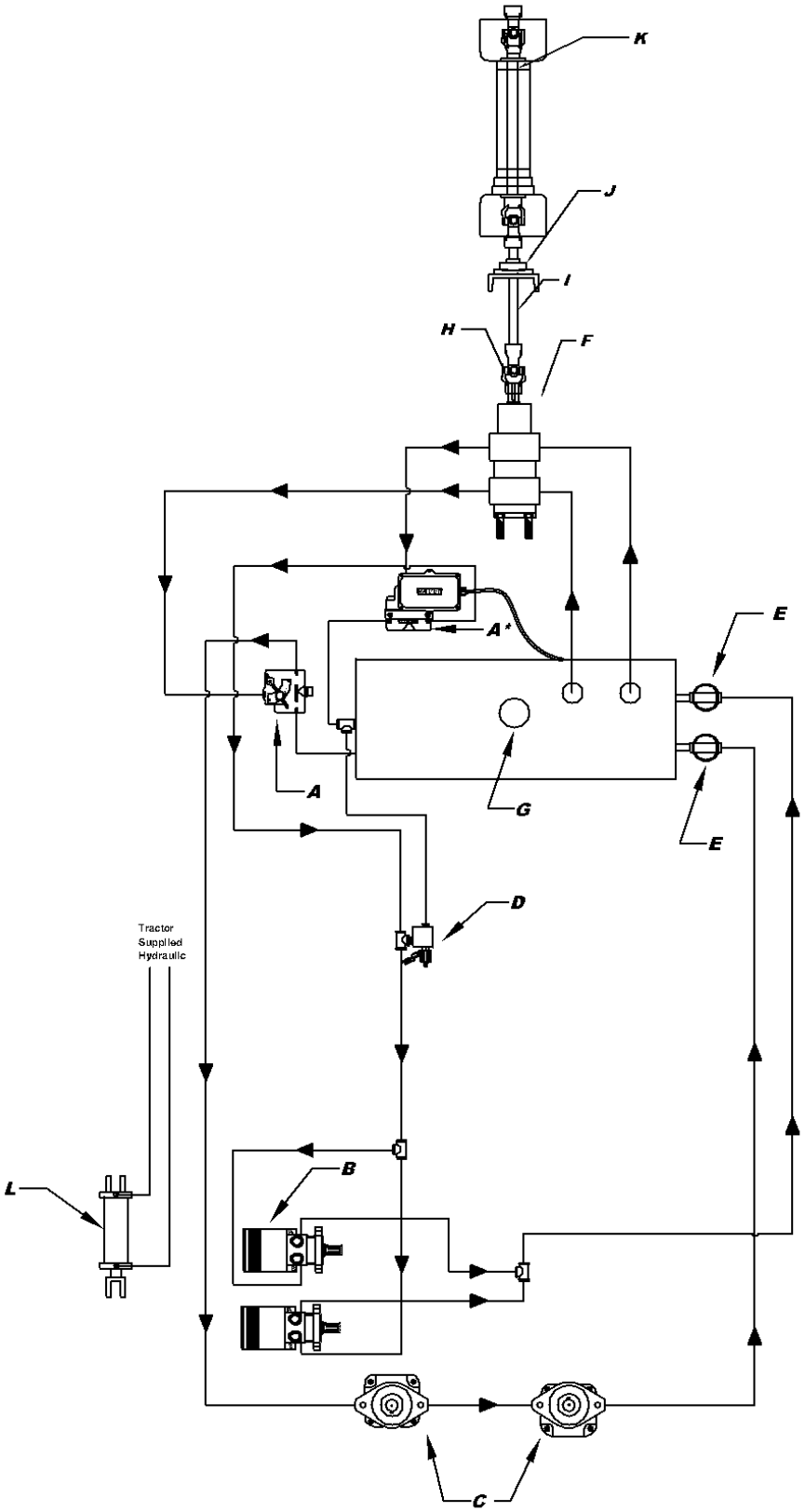
- Remove the shielding
- Shorten the drive tubes by the required length.
    - Telescoping tubes must always overlap by at least ½ of their length in normal operation and at least 1/3 of their length in all working conditions
    - During maneuvers, when the driveline is not rotating, the telescoping tubes must have a suitable overlap to maintain the tubes aligned and allow then to slide freely.
- Carefully deburr the ends of the tubes with a file and remove all filings from the tubes.
- Shorten shield tubes one at a time by cutting the same length that was cut from the drive tubes.
- Grease the internal drive tube and reassemble the shielding on the driveshaft.
- Check the length of the driveshaft at its minimum and maximum extensions on the implement.

LUBRICATION

- Always wear adequate safety equipment when performing any maintenance
- **LUBRICATION OF THE UNIVERISAL 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 7 C/L Litter Control System

Hydraulic System –Tandem Motors on Conveyor with Raven Hydraulic Fast Valve



	Description	Part #	Quantity
A)	Flow Control Valve	400-1-313	1
A*)	Raven 30 GPM Hydraulic Fast Valve	1-063-0173-164	1
B)	Hydraulic Motor – Conveyor Drive MB-12	400-R-104	2
C)	Hydraulic Motor – Spinner M-30 2" Gear	400-C-201	2
D)	Optional Electric Valve (dump valve ¾")	400-1-307	1
E)	Hydraulic Filter Assembly		
	a. Filter Only	400-1-319	2
	b. Complete Assembly	400-1-318	2
F)	Hydraulic Pump P-2500		
	a. 1000 RPM Pump P-2500 1 ½" x 1 ½"	400-C-209	1
	b. 540 RPM Pump P-2500 2 ½"x 2 ½"	400-C-209B	1
G)	Breather Cap	400-1-317	1
	Parts for PTO Shaft		
	U-Joint – UJ-1 ¼" – ¼" kw x 1 ¼" – 5/16 kw		
H)	H12	200-2-199B	1
I)	Jack Shaft – 1 ¼" x 21 1/8" Lg.	300-C-030	1
J)	Flange Bearing –1 ¼"	UCF-207-20	1
K)	PTO Shaft		
	a. 540 RPM – 48" x 1 3/8" 6 Spline	200-2-018A	1
	b. 1000 RPM – 48" x 1 3/8" 21 Spline	200-2-018B	1
	c. 1000 RPM – 48" x 1 ¾" 20 Spline	200-2-018C	1
	Parts for Hydraulic Gate Option		
L)	Hydraulic Gate Cylinder (optional)	400-1-304	1
	Parts Not Shown		
M)	Sight Gauge	400-1-322	1
N)	1" Gate Valve	400-1-332	2

Spreader Constants for C/L Hydraulic Pull Type with Control System

Raven 180 CPR Rate Sensor 34" Chain

Gate Opening	Spreader Constant
2	254
4	127
6	85
8	64
10	51
12	42
14	36

Raven 180 CPR Rate Sensor 40" Chain

Gate Opening	Spreader Constant
2	216
4	108
6	72
8	54
10	43
12	36
14	31

Rawson 67 CPR Gear Tooth Sensor 34" Chain

Gate Opening	Spreader Constant
2	95
4	47
6	32
8	24
10	19
12	16
14	14

Rawson 67 CPR Gear Tooth Sensor 40" Chain

Gate Opening	Spreader Constant
2	80
4	40
6	27
8	20
10	16
12	13
14	11

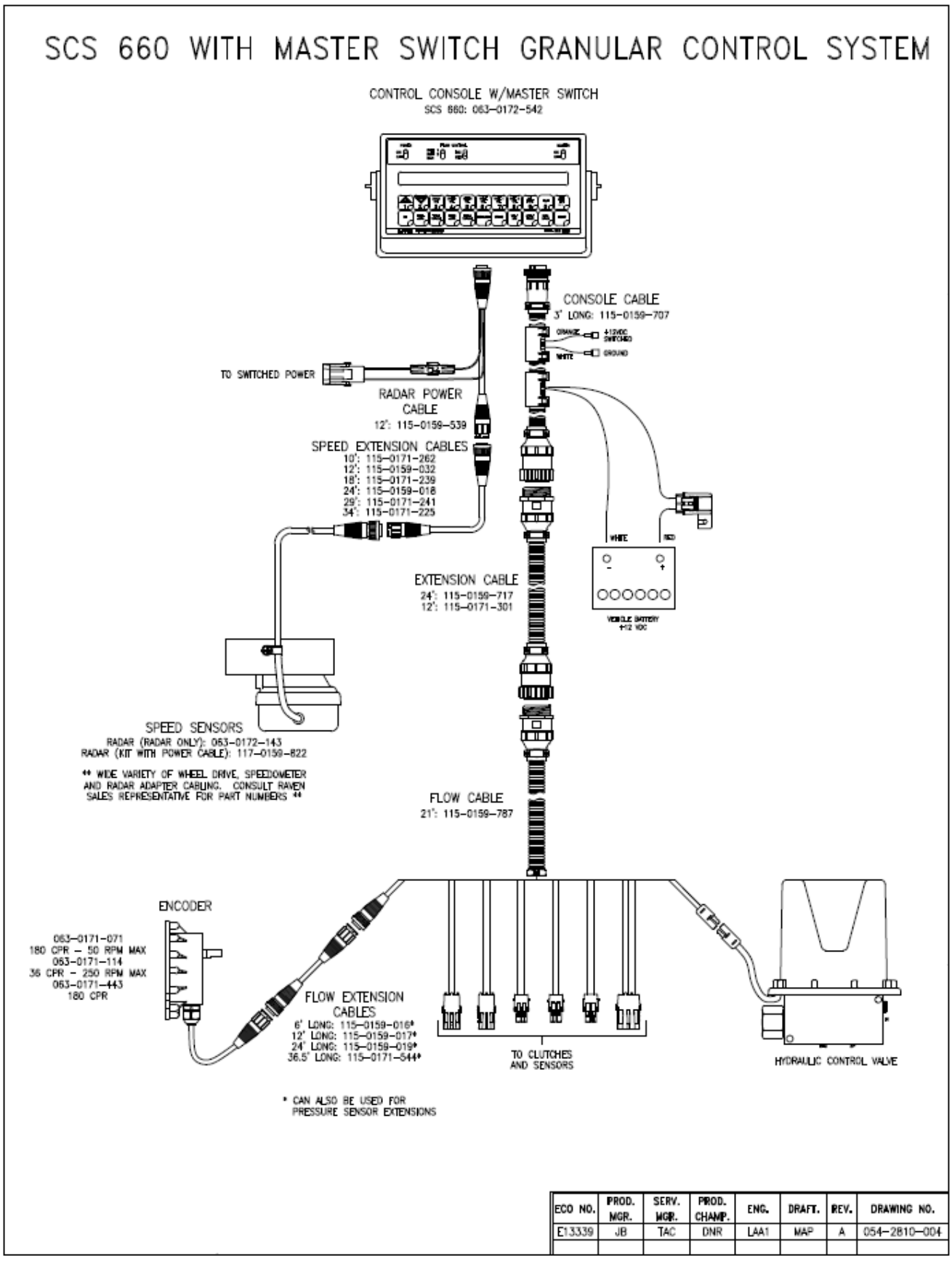
Raven or DJ 360 CPR Rate Sensor 34" Chain

Gate Opening	Spreader Constant
2	508
4	254
6	169
8	127
10	102
12	85
14	73

Raven or DJ 360 CPR Rate Sensor 40" Chain

Gate Opening	Spreader Constant
2	432
4	216
6	144
8	108
10	86
12	72
14	62

Raven SCS 660 Control System – Wiring Diagram



ECO NO.	PROD. MGR.	SERV. MGR.	PROD. CHAMP.	ENG.	DRAFT.	REV.	DRAWING NO.
E13339	JB	TAC	DNR	LAA1	MAP	A	054-2810-004

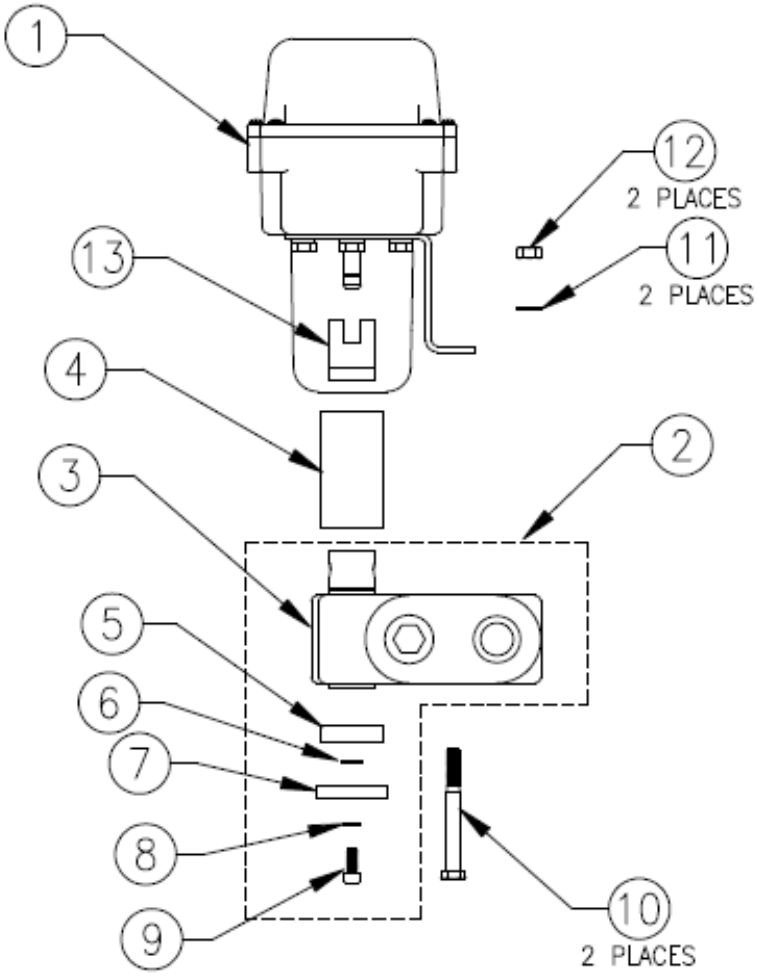
Raven SCS 660 Control System

QTY	Description	Part Number
1	660 Console w/ Master Switch	1-063-0172-542
1	3' Console Cable	1-115-0159-707
1	21' Granular Flow Control Cable	1-115-0159-787
1	30 GPM Hydraulic Fast Valve	1-063-0173-164
1	30 GPM PWM Hydraulic Control Valve *	1-063-0171-846
1	Granular Encoder	1-063-0171-071
1	Radar Kit w/ PC	9-117-0159-822
1	Cruizer w/ Patch Antenna Kit	1-117-0171-139
1	Cruizer w/ Helix Antenna Kit	1-117-0171-140
1	Boom Sense Adaptor	1-115-0171-792
1	Cable Port Exp Cruizer w/ Speed **	1-115-0171-793

*** Optional Flow Control Valve**

**** Replaces Radar when using Cruizer GPS System**

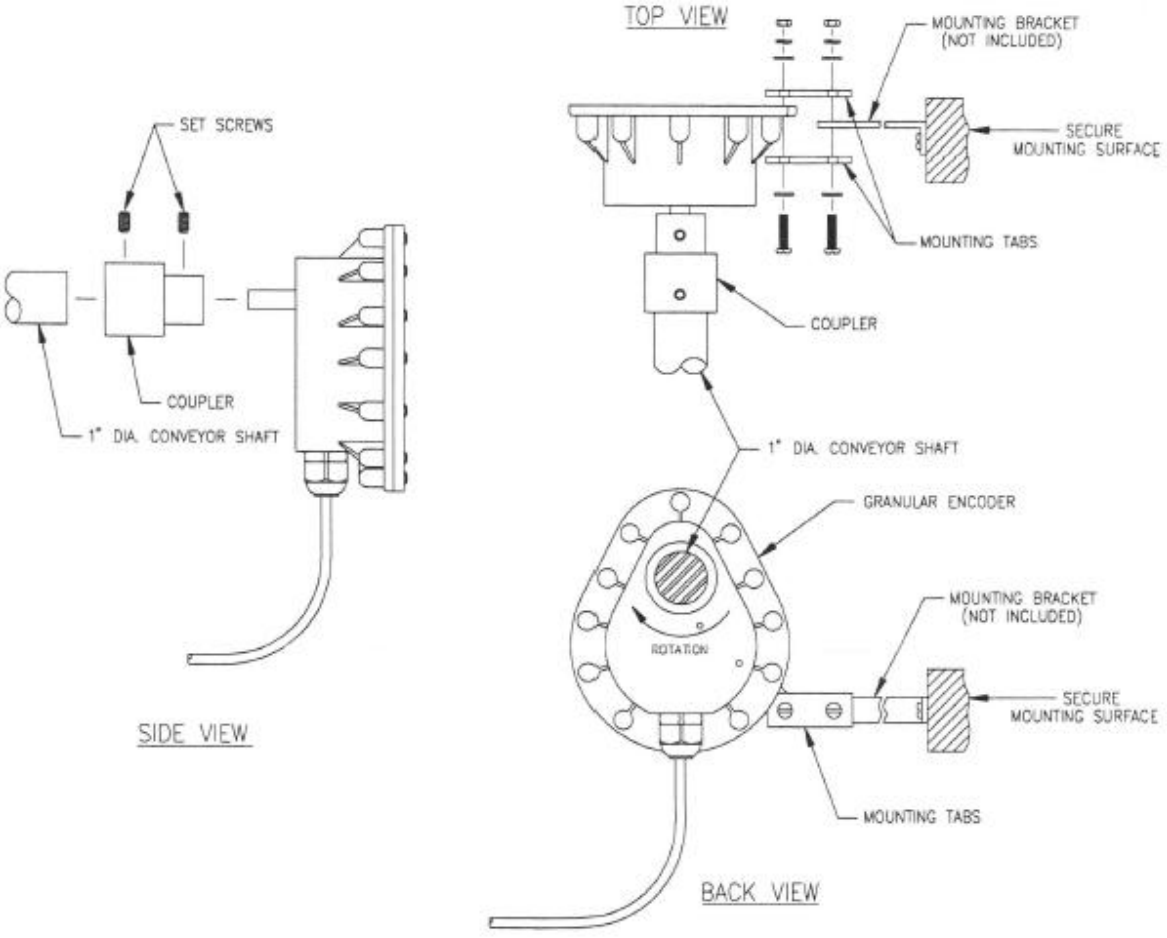
Raven 30 GPM Fast Valve



Ref	Description	Raven Part #
	Complete 30 GPM Fast Valve	1-063-0173-164
1	Motor Assembly, Fast Control	1-063-0172-150
2	Valve Assembly 30 GPM #12 O-Ring Port	1-063-0171-910
3	Valve 30 GPM #12 O-Ring Port	1-334-0002-054
4	Grease Retainer	1-107-0171-414
5	3" Grease Retainer	1-107-0159-905
6	Washer External Star	1-313-4000-010
7	Grease Retainer Cap	1-107-0159-904
8	Split Lock Washer	1-313-1000-013
9	Socket Head Cap Screw	1-311-0068-185
10	Hex Head Bolt 1/4" - 20 x 2 1/2"	1-311-0049-111
11	Split Lock Washer 1/4"	1-313-1000-037
12	Hex Nut 1/4" - 20	1-312-1001-074
13	Brand Coupler	1-107-0717-427

Raven Granular Encoder

GRANULAR ENCODER INSTALLATION INSTRUCTIONS



Install Encoder on output shaft of conveyor or other shaft which rotates at a known ratio to the conveyor.

IMPORTANT: Note direction of shaft rotation to mounting direction.

Install as follows:

1) Apply grease to the shaft in which you are installing the Granular Encoder. Secure Coupler on shaft with set screw.

2) Apply grease to open end of Coupling and secure Granular Encoder with set screw.

3) Install Mounting Tabs as shown to Granular Encoder. Install Mounting Tabs to a mounting bracket to prevent Encoder from rotating. DO NOT mount Granular Encoder rigidly. Sensor is to be supported by output shaft and Coupler ONLY.

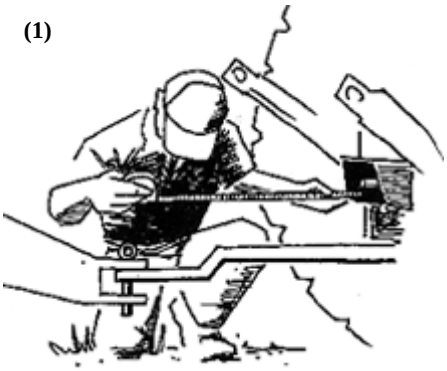
016-0159-520
9/03 REV. C
SHEET 1 OF 1

Section 8 C/L Litter Operation & Maintenance

Pre-Operation Requirements

- Be sure to disengage the PTO shaft and turn off the tractor before making any inspections or working around the PTO driveline.
- Follow the tractor manufacturer's recommendation for attaching the implement to the tractor. Make sure the distance from the tractor PTO shaft to the hole in the drawbar is the distance recommended by the implement manufacturer in the operator's manual. (1)

(1)



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 **(see Section 7 Control System)**.
6) Engage PTO control, once engaged spinners should begin turning.
7) Increase engine RPM slowly.
8) You are now ready to spread.
9) Use the following guidelines if any adjustments are necessary.

CAUTION: Never spread materials that your unit was not designed to spread. Doing so can cause significant damage to the unit. If type of material you wish to spread is questionable, call dealer or factory.

CAUTION: Never allow material to stay in unit long enough to freeze in extremely cold weather. Doing so can cause serious damage to the unit.

Setting Spinner Speed

We recommend a spinner speed of **700–750 RPM** as this unit is designed for a 25-35 ft. spread pattern for litter/lime with 24" spinner disc and a 30-50 ft. pattern for litter/lime with 30" spinner disc. This spreader is equipped with a flow control valve to adjust spinner speed and to maintain a constant speed after your tractor reaches 540/1000 PTO RPM's. Generally the flow control valve will need to be 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 to match PTO set up (540/1000).
    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 fan shaft.
    a. Spinners shafts are center drilled underneath the spinners to accept a hand tach.
    b. If unit has a **control system** with fan speed sensor and fan 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) Once set, if fan 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 fan 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 fan speed often.

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

    NOTE: If the fans 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.

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

Notes:

Extend Life of Your Spreader through Proper Maintenance

We are pleased that you have selected our equipment. We feel, as we are sure you do, with high cost of 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 Litter and Shaving Spreader come standard with an open barrel type chain. Due to the construction of this chain it is nearly impossible for it to "freeze up", but when spreading materials that are highly corrosive such as hen litter, maintenance of the chine is essential. The chain should be lubricated frequently with 4 parts fuel oil and 1 part 10W motor oil. The conveyor chain must be adjusted properly to ensure long life and proper spread of material. The conveyor chain should be kept tight enough so the chain, at its lowest point, just clears the frame angles. Adjustment is made at the front roller.
2) Be sure to check **HYDRAULIC OIL** level daily. Located on 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 bellow 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 10W motor oil.
6) Spinner Assembly Maintenance
    a. Spinner Blades
        i. 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
        i. 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
        i. 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
    i. 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 fans to be clean at all times.
    B) Where excessive moisture exists it may be necessary to clean the material divider and fans 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.
        a. Doing so will maintain proper adjustment function.

2) Proper Maintenance

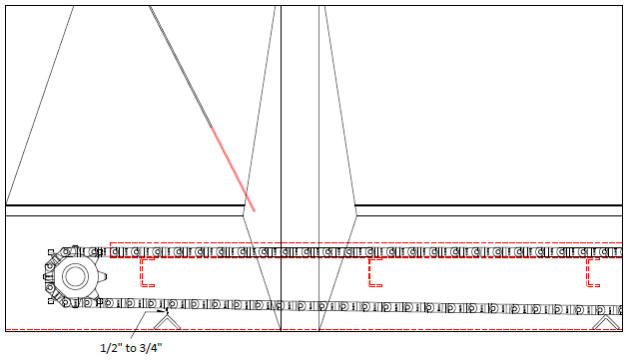
A) Conveyer Chain

A Chandler Litter and Shaving Spreader comes standard with a open barrel construction chain. Due to the construction of this chain it is nearly impossible for it to "freeze up", but when spreading materials that are highly corrosive such as hen litter, maintenance of the chain is essential. The chain should be lubricated frequently with 4 parts fuel oil and 1 part 10 W motor oil. The conveyor chain must be adjusted properly to ensure long life and proper spread of material.

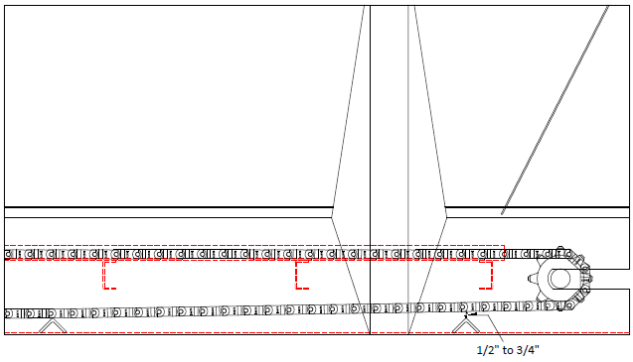
a. To adjust conveyor chain, tighten the adjustment screw rods located behind the front roller bearings.

b. Adjust Chain tension so that the chain clears front and rear the cross-members angels of the spreader frame by ½" – ¾". Chain Should be still slightly dragging on the rest of the cross-member angles.

Rear View



Front View



c. Adjust each side only one half inch at a time.

d. When adjusting the chain measure each side to ensure that the front stays square with the frame of the spreader.

e. When the chain stretches beyond the adjustment on the front roller it may be necessary to remove a few links of the chain

f. Locate the connecting pins in the chain and remove. Using a grinder, grind the head off the pins of links that are to be removed and remove links.

g. Replace the connecting pins and adjust chain.

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 thru 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, problem remains, contact Chandler Equipment Co.

Problem I: Fan 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 fan 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 (3-8) 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 3-5)
   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