

4600M / 5100M / 5500M Hard Hose Drag Reel



**OPERATOR'S PARTS and MAINTENANCE MANUAL
2007 EDITION**

Cadman
POWER EQUIPMENT

Limited

AGRICULTURAL MACHINERY & IRRIGATION EQUIPMENT

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TR-MAN-5155M

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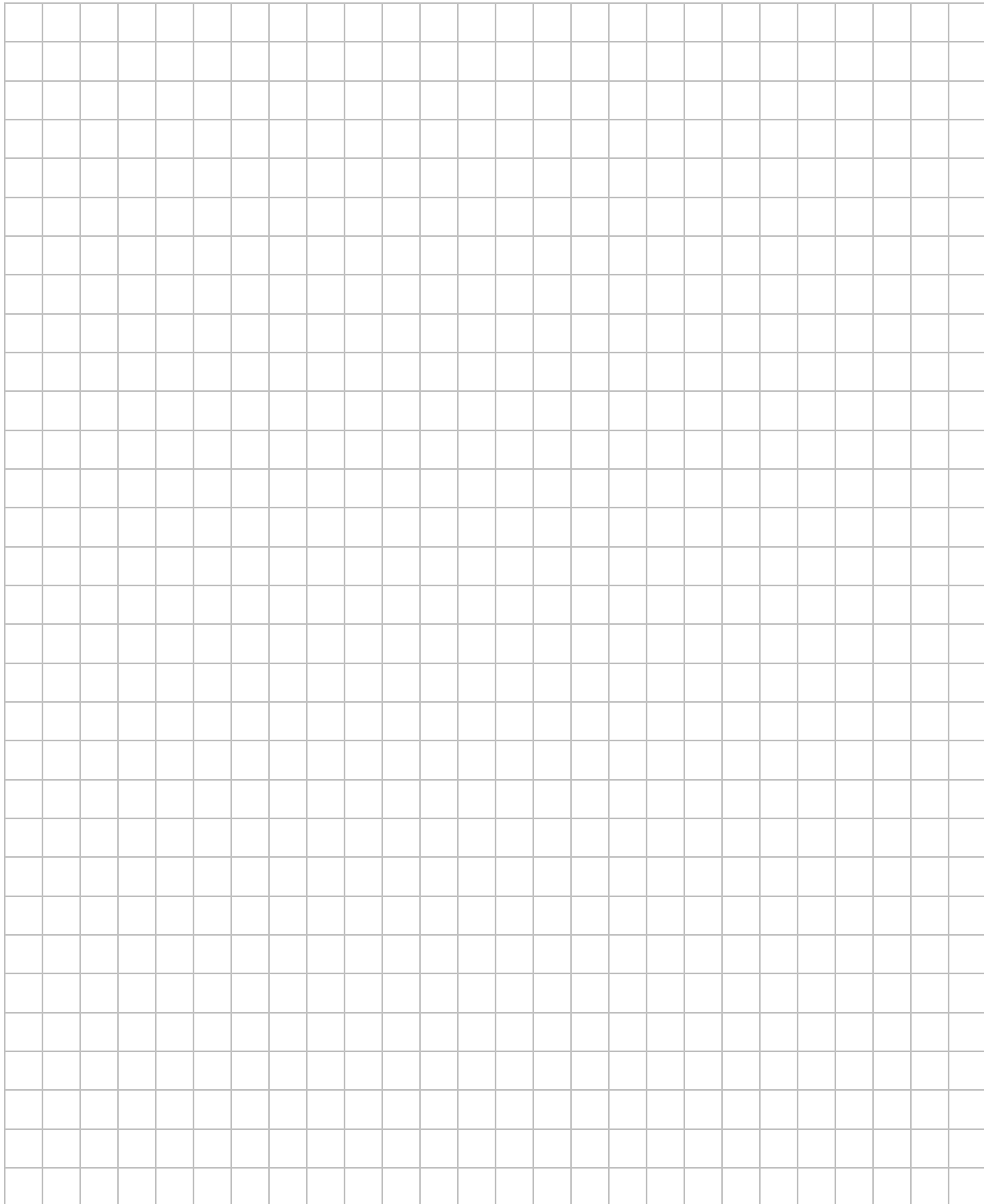
TR-MAN-5155M

Operator's Manual - 4600M 5100M 5500M

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Table of Contents

Table of Contents	1
Hard Hose Drag Reel	3
Warranty Policy	4
When Applying Liquid Manure.....	5
Safety Precautions	6
Safety Decals	7
Planning Your Application	8
Equipment Set-up.....	10
Beginning Your Application	13
Application Pattern	16
Finishing an Application.....	17
Parts Section	23
Required Maintenance	52
Indexing System Adjustment	56
Useful Information	58



Hard Hose Drag Reel

We would like to thank you for purchasing your new **Cadman Hard Hose Drag Reel**. You have purchased a product of superior quality that will serve your needs for a long time provided you follow this manual and safety procedures.



Figure 1 - Hard Hose Drag Reel

img-00270.png

BEFORE operating your new **Cadman Hard Hose Drag Reel**, inspect the machine for any damage or parts which may have come loose during shipping. **REPORT ANY DAMAGE TO CADMAN POWER EQUIPMENT LIMITED OR YOUR LOCAL DEALER IMMEDIATELY!**

Warranty Policy

CADMAN POWER EQUIPMENT LIMITED warrants that each machine it manufactures shall be free from defects in materials and workmanship. The terms of this warranty are as follows:

- All components manufactured by **CADMAN POWER EQUIPMENT LIMITED** shall be warranted for a period of one (1) year from the date of delivery, except the frame and hose drum structures which shall be warranted for a period of three (3) years.
- The polyethylene hose used on **CADMAN HARD HOSE DRAG REELS** will be warranted for a period of five (5) years from the date of delivery, on a pro-rated basis. The schedule for the polyethylene hose warranty is as follows:
1st to 10th month from the date of delivery is **100%**
11th to 60th month from the date of delivery, the warranty shall diminish from **100%** to **0%** at a rate of **2%** per month.
- **CADMAN POWER EQUIPMENT LIMITED** makes no warranty whatsoever in regard to tires, engines, and other trade accessories used on its equipment. The customer shall rely solely on the warranties offered (if any) by the respective manufacturer of these trade accessories.

The sole obligation to **CADMAN POWER EQUIPMENT LIMITED** under this warranty is limited to the repair or replacement of any part it manufactured, which, in the judgment of **CADMAN POWER EQUIPMENT LIMITED**, failed under normal and proper use and maintenance due to defective materials or workmanship. All freight charges incurred shall be the sole responsibility of the customer.

CADMAN POWER EQUIPMENT LIMITED and its dealers (who are neither authorized nor qualified to undertake any obligations on behalf of **CADMAN POWER EQUIPMENT LIMITED**) **DO NOT**, under any circumstances, accept any responsibility for any losses or costs incurred due to parts failure and/or delays during the parts replacement process.

This warranty will be considered void if any alterations or modifications have been made to the machine without the express written consent of **CADMAN POWER EQUIPMENT LIMITED** outlining the nature and the extent of such modifications.

CADMAN POWER EQUIPMENT LIMITED, whose policy is one of continuous improvement, reserves the right to change specifications and designs without notice or incurring obligation.

The warranties expressed herein are non-transferable and replace any other warranties, either written or verbal, which may have been given or implied.

When Applying Liquid Manure

Environmental concerns seem to be driving legislative agendas in many agricultural areas across the continent. Current and pending laws in many agricultural regions of North America are changing the ways in which the agricultural community is expected to manage their liquid animal waste products.

The changes in legislation typically target two main issues; run-off prevention during and after application and soil nutrient loading.

Run-off seems to be the largest concern with nutrient application. Run-off may result from several different factors, most of which are controllable. These factors include; exceeding the soil intake rate; nutrient application on steep grades; high application amounts; leaking mainline fittings and seals; sudden rainfall during or immediately after application; ground frost; etc. Constant watch must be kept and immediate action taken when necessary to prevent run-off from occurring.

Soil nutrient loading depends on many variables. Some of these variables (but certainly not all) are soil type, type of crop being grown in the application area, application timing, nutrient value of the material being applied (nutrient value should be assessed at the time of application as it can change throughout the year), etc.

Soil type will determine the intake rate at which liquid may be applied. Cultivation of the field just prior to application can improve the intake rate of some soils.

Great potential benefit lies in using the nutritional value of the nutrient being applied to replace some or all of the traditional chemical fertilizer used. Application timing and amount are important considerations. Soil analysis taken prior to planting and during the growth periods of the crop will help determine if there is room for further application amounts to be added prior to crop maturity. A total management plan should include provisions to end the crop season without surplus nutrients left as residual. These excess nutrients typically end up in the ground water supply. Local colleges, universities and agricultural extension services are usually a good source of information. They can usually help you determine an application program that prevents soil nutrient overload due to excess application.

Cadman Power Equipment Limited cannot possibly provide up-to-date recommendations with regard to the legal obligations you must deal with in your particular area. However, as a manufacturer of equipment used in nutrient application (liquid manure, milk house run-off, etc.), we feel it necessary to make you aware that the municipal, regional and state governing bodies in your area may have recently enacted new legislation or revised existing legislation with regard to nutrient handling practices and procedures.

It is your responsibility to make yourself aware of and abide by the current legislation in your area. Please take the time to contact your local agricultural representative to obtain the latest information regarding legal handling and application of nutrient.

Safety Precautions

Please take the time to read and understand this manual so that unnecessary errors and risks are avoided. If you have any questions or concerns, please contact **Cadman Power Equipment Ltd.** or your local dealer/distributor.

- **DO NOT** move or operate this machine until you have read and understand all the instructions in this manual.
- **NEVER** allow untrained persons to operate this machine.
- **DO NOT** attempt to service this machine while it is in operation.
- **MAKE CERTAIN** all mechanical and hydraulic tension has been released before attempting any service on the machine.
- **CHECK** all fasteners (nuts and bolts) regularly for tightness.
- **PERFORM REQUIRED MAINTENANCE** as prescribed or as necessary to keep this machine in safe operating condition.
- **KEEP ALL SPECTATORS** at a safe distance.
- **STAY CLEAR** of high pressure supply lines, especially when first pressurizing the system.
- **DO NOT** remove or alter any shielding on this machine.
- **BE CERTAIN** that the machine is securely anchored (using stabilizer legs) before unwinding the hose.
- **KEEP CLEAR** of all moving parts.
- **NEVER** tow this machine at speeds greater than **10 mph / 16 km/h** and be certain the tow vehicle has adequate braking capacity to maintain safe control at all times.
- **REGULAR INSPECTION** of your pipe couplings, tubing and gaskets should be a part of your regular set-up routine. Any defective parts **MUST** be replaced or repaired before the machine is put into service.

OPERATOR NOTE

Safety is just a word until put into practice.

Safety must be the first thing on your mind when operating any piece of machinery.

Failure to follow all safety instructions can result in serious injury or death to you or any spectators.

Remember...

SAFETY FIRST!



This symbol, the safety-alert symbol, indicates a hazard. When you come across the safety-alert symbol in this manual, make certain you fully understand and abide by the given instructions or warnings.

Safety Decals

The safety decals on this machine are intended to warn the operator of potential hazards. It is important that these decals are properly maintained.

- keep all safety decals legible (remove dirt or debris)
- replace any damaged or illegible decals
- replace any missing decals
- if applicable, include the current safety decal specified by **Cadman Power Equipment Limited** on any components installed during repair

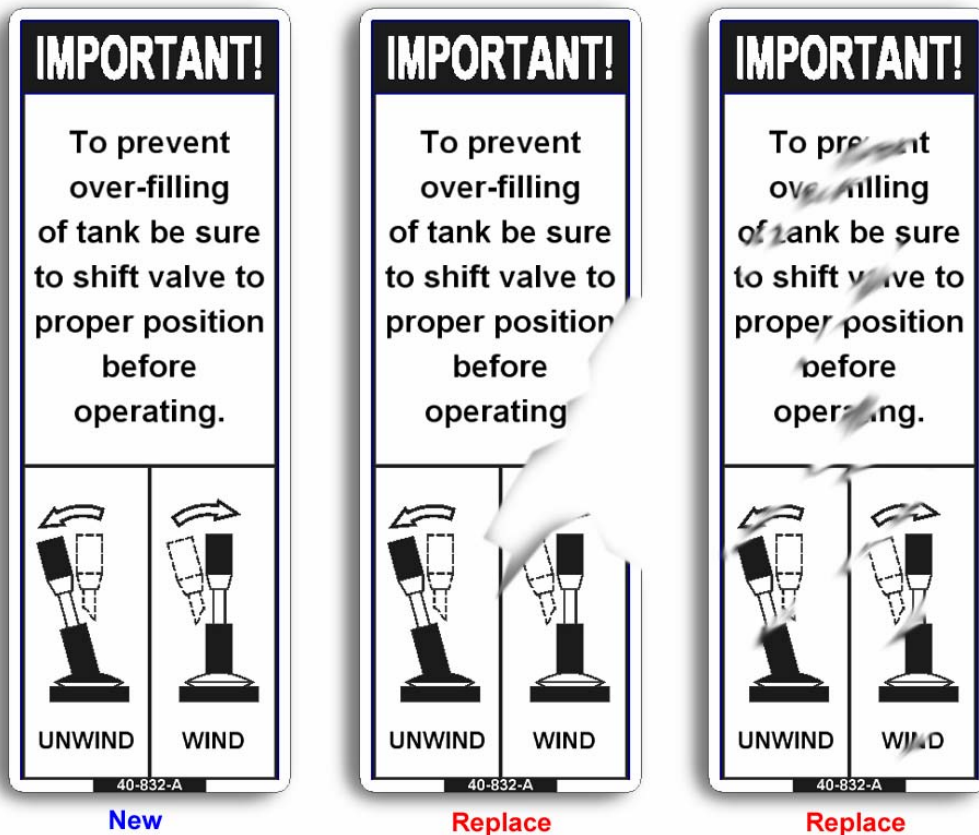


Figure 2 - Replace Decal

img-00131.png

To obtain the required replacement safety decals contact **Cadman Power Equipment Limited**. Re-install all decals in the proper location on the machine. For part numbers and locations please refer to the Decal Assembly drawing of this manual on page 49.

Planning Your Application

You will benefit from having an accurate plan to follow before you set-up or operate your equipment. When creating your plan, remember that a properly planned field layout will cover the most area with the least amount of set-up time.

Using the chart below you can:

1. **Divide your field into the least number of sections to obtain complete coverage.** If the area you plan to cover is larger than the maximum area that your **Cadman Hard Hose Drag Reel** will cover (see chart below), you will need to have at least two (2) sections.
2. **Determine the best position for your reel in each section.** It is usually best to position your reel near the center of each section and use a zigzag pattern (see the section "Application Pattern" on page 16). This will allow the hose to be pulled to the furthest point during your first pull.

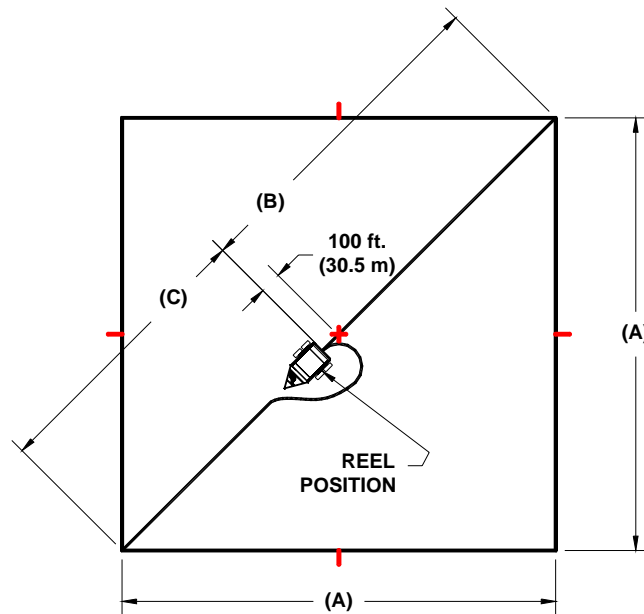


Figure 3 - Reel Position

img-00120-A.wmf

Maximum	4600M	5100M	5500M
Application Area (per set-up)	99 acres	80 acres	99 acres
(A)	2078 ft.	1867 ft.	2078 ft.
(B) Usable Hose Length.	1520 ft.	1370 ft.	1520 ft.
(C)	1420 ft.	1270 ft.	1420 ft.



You **MUST** leave a **MINIMUM** of 50 ft (15.25 m) of hose at the rear of the machine at all times. This will help reduce the risk of kinking the hose behind the reel.



You **MUST** leave as a **MINIMUM** one (1) coil of hose on the drum at all times. Failure to do so **WILL** result in hose damage.

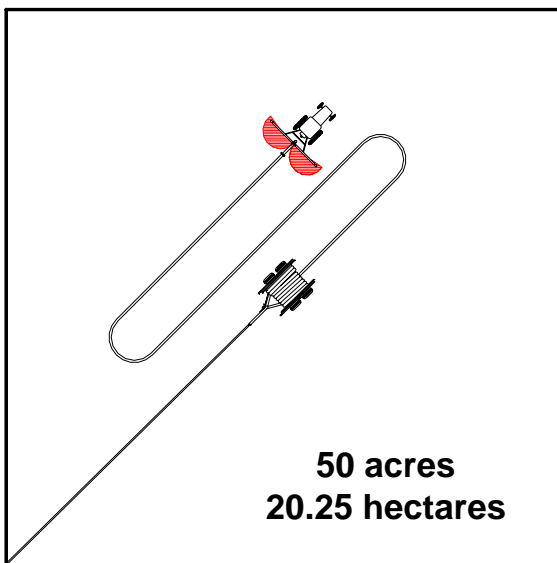


Figure 4 - One Set-up

img-00121.wmf

- Square field, smaller than maximum application area
- Reel is positioned approximately in the center of the field
- Complete coverage, one set-up

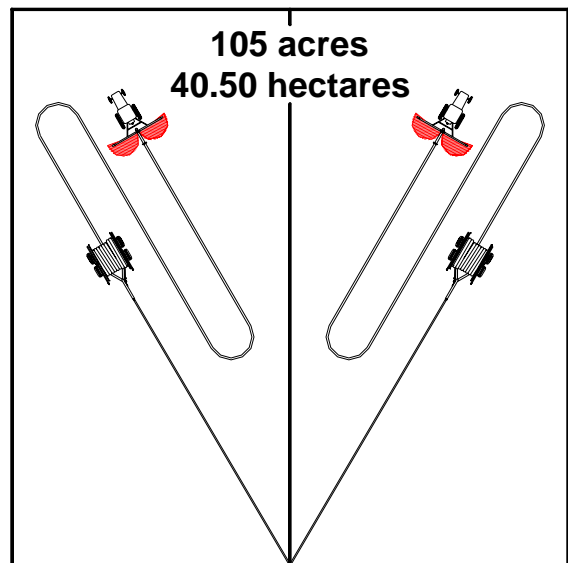


Figure 5 - Two Set-ups

img-00122.wmf

- Square field, larger than maximum application area
- Field has been split into two (2) sections
- Complete coverage, two set-ups

Equipment Set-up

Step 1

Following your plan, tow the machine to the first section.



Figure 6 - Engage Brake Prior to Transport

img-00126.png



It is important to verify that the drum brake is engaged prior to moving your Cadman Hard Hose Drag Reel. Failure to do so can result in equipment damage.

Step 2

Park the reel approximately 100 ft. (30.5m) from the center of the field. (Refer to Figure 3 on page 8.) Face the hose end of the machine toward the furthest corner.

Keep the chassis of the machine on firm and level ground. A **Cadman Hard Hose Drag Reel** has a high center of gravity.

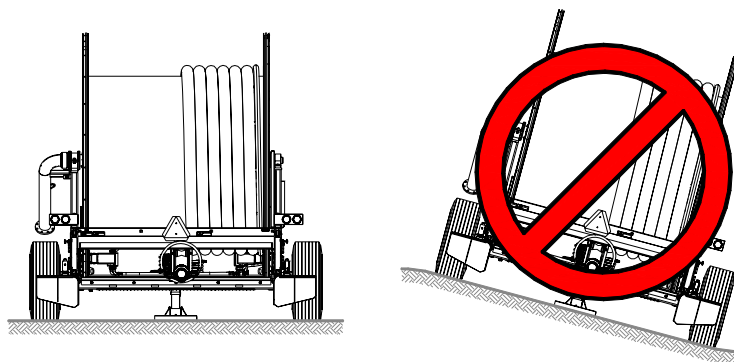


Figure 7 - Work on firm and level ground (image exaggerated)

img-00119.wmf

It is essential that it be operated from a stable position to prevent roll over.

Step 3

Stabilize your reel by fully extending the hydraulic stabilizer legs.

Step 4

Level your machine using the tongue jack.

Step 5

Connect the main supply line to your reel.

Step 6

Disconnect the hydraulic hosing and unhitch your tractor. Position your tractor, (with the applicator attached) at the rear of the reel.

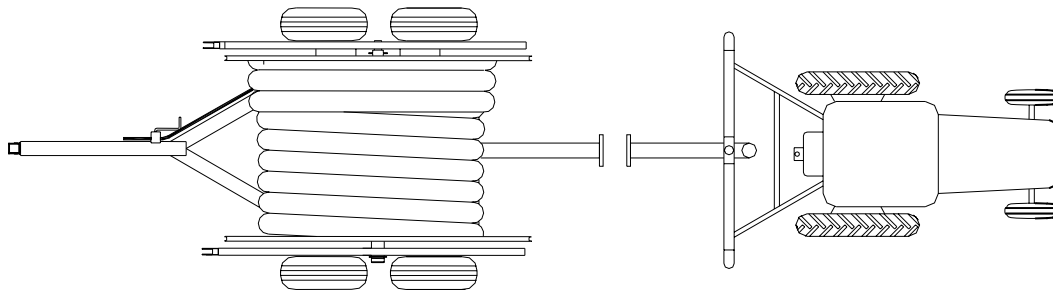


Figure 8 - Position Tractor

img-00043.wmf

Step 7

Remove the hose flag from the hose end.

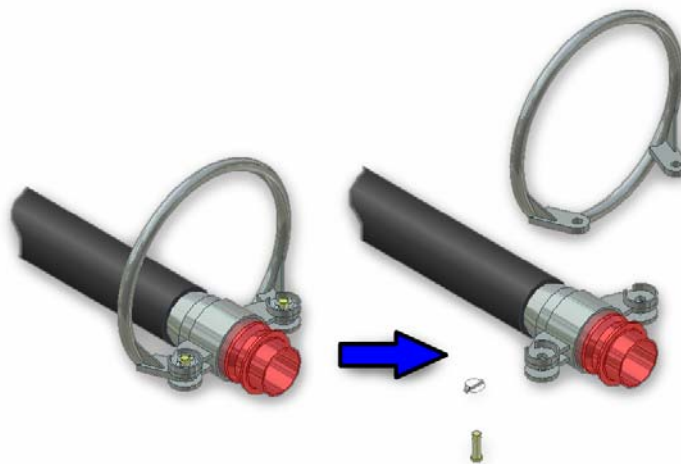


Figure 9 - Remove Hose Flag

img-00123.png

Step 8

Connect the soft hose from your reel, using the ringlock clamp, to the hose elbow on drawbar of your tractor. Secure both tow chains. When properly set, the hose should not be stressed during operation.

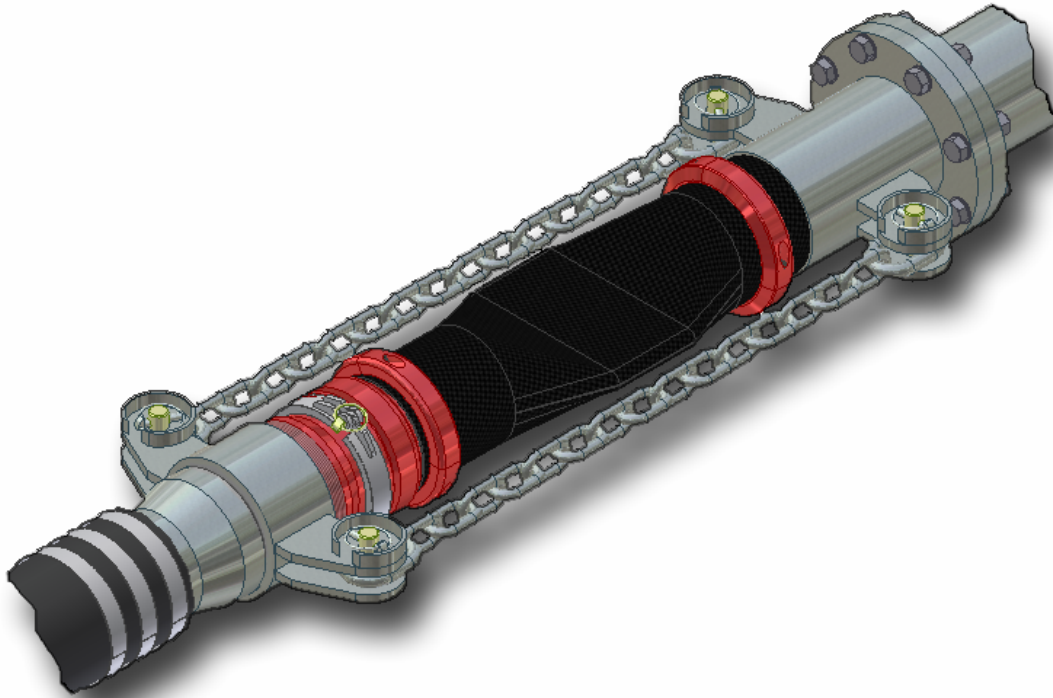


Figure 10 - Connect Chains

img-00144-A.png

Beginning Your Application

Once you have set-up your **Cadman Hard Hose Drag Reel** you can start the application process. It is important to complete the following steps...

Step 1

Release the brake to allow the drum to rotate during hose pull-out.



Figure 11 - Disengage Drum Brake

img-00127.png



IMPORTANT! Failure to complete Step 1 WILL result in serious equipment damage.

Step 2

Relieve pressure from the clutch pump. The pressure must be completely relieved prior to attempting pull out of the hose. Ensure the valve is in the open position (down towards tongue frame). Failure to complete this step WILL result in drive system damage.

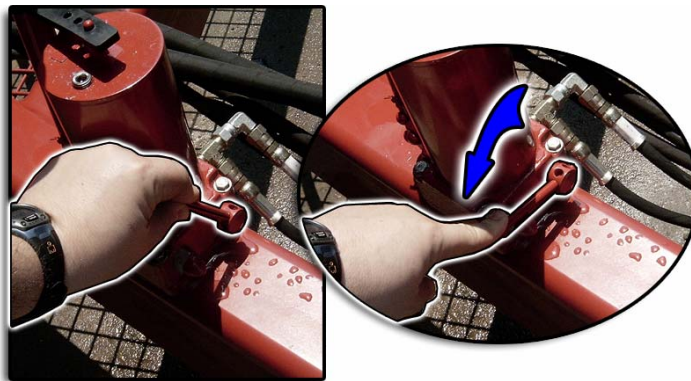


Figure 12 - Clutch Pump – Relieve Pressure

img-00265.png

Step 3

Adjust the brake handle position so that a slight amount of brake tension is applied. This tension should be enough to control the hose drum and prevent loosening of the hose on the drum when the tractor stops pulling the hose. Turn the handle till the brake pads touch the brake disc. Then turn the brake adjust handle approximately one-eighth of a turn.

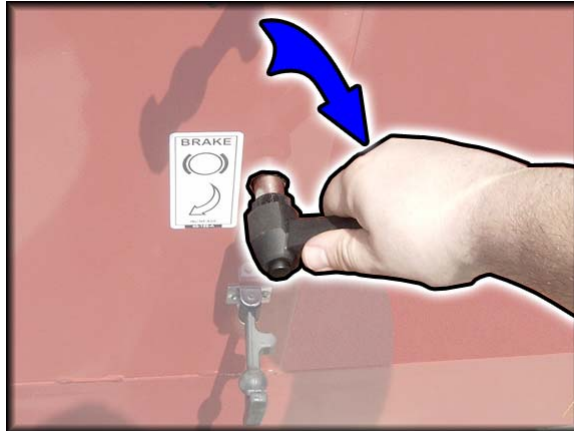


Figure 13 - Drum Brake

img-00266-A.png

Step 4

Pull out the hose toward the furthest corner as laid out in your plan (refer to section "Planning Your Application" found on page 8). As you approach the corner look at the reel to see how much hose remains. As a minimum you require one (1) coil of hose to remain on the drum at all times. Once you have determined there is enough hose, continue to the corner and make your first turn.

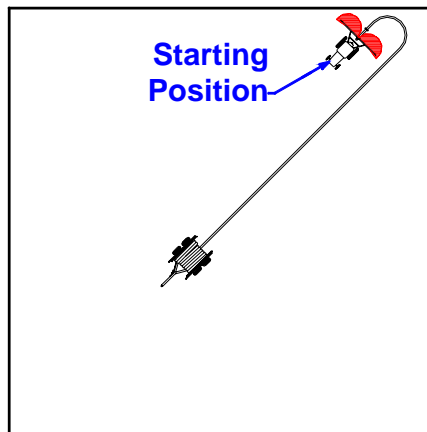


Figure 14 - Starting Position

img-00047.wmf

Step 7

Now engage the brake so that the drum will no longer rotate. By locking the drum you will prevent the hose from being pulled off the drum connection. Obstacles (hills, rocks, etc.) in the field can cause the hose to pull out if the drum is not locked.

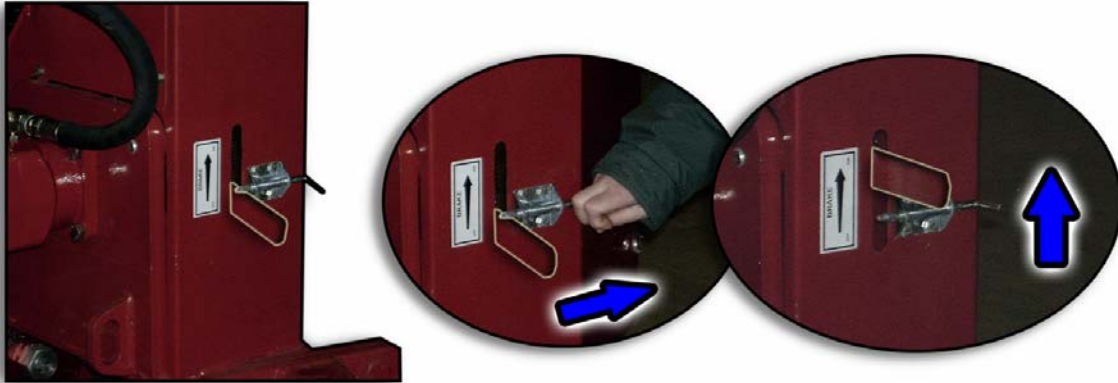


Figure 15 - Engage Brake Prior to Application

img-00127.png

Step 8

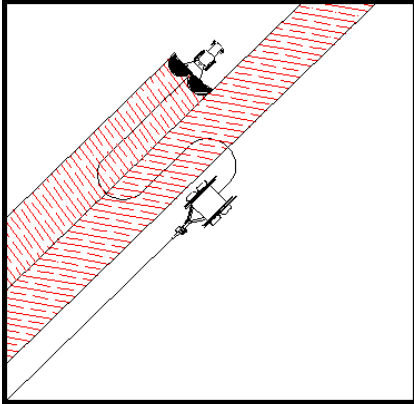
Begin pumping the liquid slowly. You must allow the system to purge the air within the hose before raising the system to the desired operating pressure. Once the liquid reaches the applicator, the driver should start moving to distribute the liquid. At this point you can increase the pump rpm raising the operating pressure to the desired level.



Pressurizing your Cadman Hard Hose Drag Reel must be done slowly and cautiously to purge all the air from the system. Air must be purged before bringing the system up to full operating pressure.

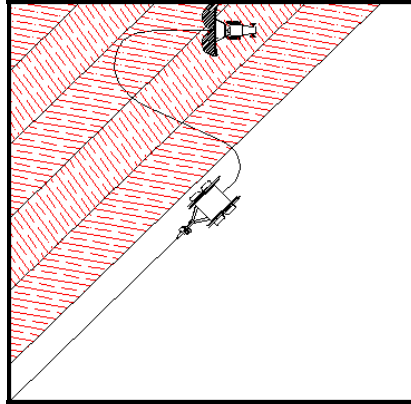
Application Pattern

There are a number of hose drag patterns that can be used during your application. **Cadman Power Equipment Limited** has found the zigzag pattern to be one of the best methods. Although we recommend this method, you are not limited to using it. Follow the instructions below if you are going to use the zigzag method.



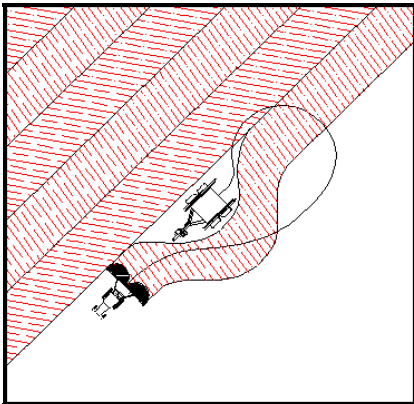
img-00035.gif

1. Using a zigzag pattern cover the first half of your section while working away from the reel.



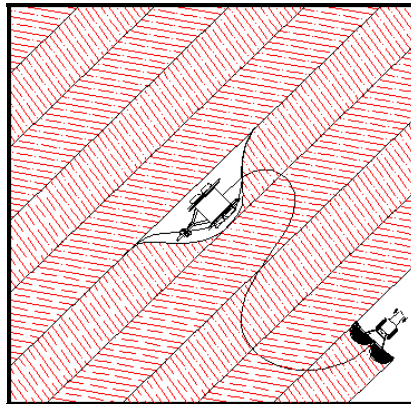
img-00036.gif

2. When you have completed the first half, drive along the outside to the second half.



img-00037.gif

3. Cover the second half in a similar fashion, using a zigzag pattern and working away from the reel.



img-00038.gif

4. Finish covering the entire section. Signal the pump operator when you are finished applying.

OPERATOR NOTE

Where field conditions permit, always attempt to pull the hose either up or down sloping terrain instead of operating across a side hill.

Always turn away from the reel. Failure to do this could cause you to get "trapped" by the drag hose.

Be aware of obstacles in the field. Proper application planning should take into consideration any obstacles that could hinder your application.

Keeping your **Cadman Hard Hose Drag Reel** clean will dramatically prolong its life.

Cleaning of the hose, as well as cleaning the exterior of the **Hard Hose Drag Reel** is highly recommended after each use.

Finishing an Application

Step 1

When you are nearing complete coverage of a section, signal the operator to shut down the pump. Start the hose blow out procedure. Continue to move the applicator through the field until flow to the applicator has stopped.



The hose is a high volume “Receiver Tank” containing a large amount of fluid. Be sure to allow enough spreading area to properly apply the hose content.

- Ø 6” hose contains approximately 1 ½ US Gallons per foot
- Ø 8” hose contains approximately 2 ⅔ US Gallons per foot

	660	1320	1980	2640	3300	3960	4620	5280	5940	6600	Feet
Ø 6"	969	1939	2908	3877	4847	5816	6785	7755	8724	9693	US Gal
Ø 8"	1723	3447	5170	6893	8616	10340	12063	13786	15509	17233	US Gal

Failure to compensate for the remaining fluid can result in over application of fluid.

Step 2

Drag the hard hose so that it is back at the original start position. Disconnect the applicator from the hard hose by uncoupling the ringlock fitting.

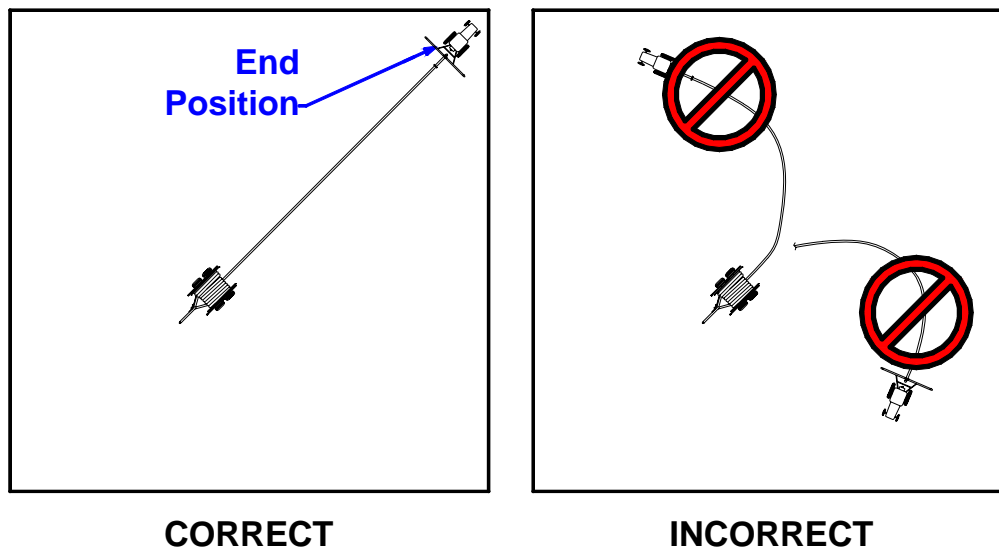


Figure 16 - Return to End Position

img-00125.wmf

Step 3

Re-install hose flag to hose end.

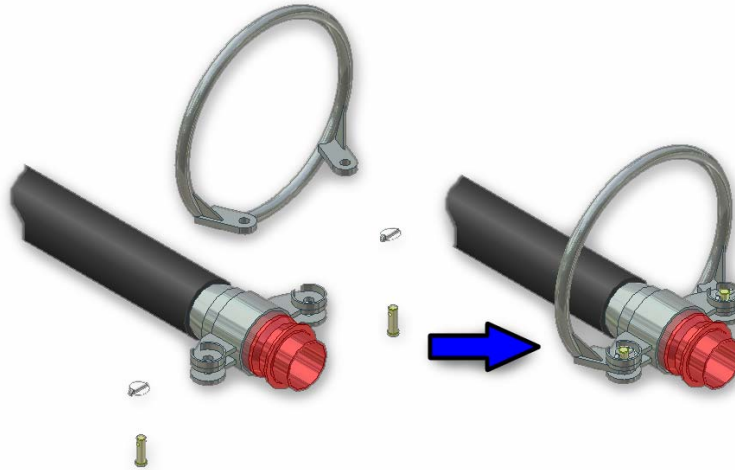


Figure 17 - Re-install Hose Flag

img-00124.png



DO NOT under any circumstances rewind the hose without the flag installed. Rewinding the hose without the flag installed will cause extensive damage to your machine.

Step 4

Move the tractor to the front and re-hitch the machine. Connect the hydraulic lines to the tractors hydraulic supply.

Step 5

Fully release the drum brake and secure with the spring latch to prevent the brake from being re-applied.

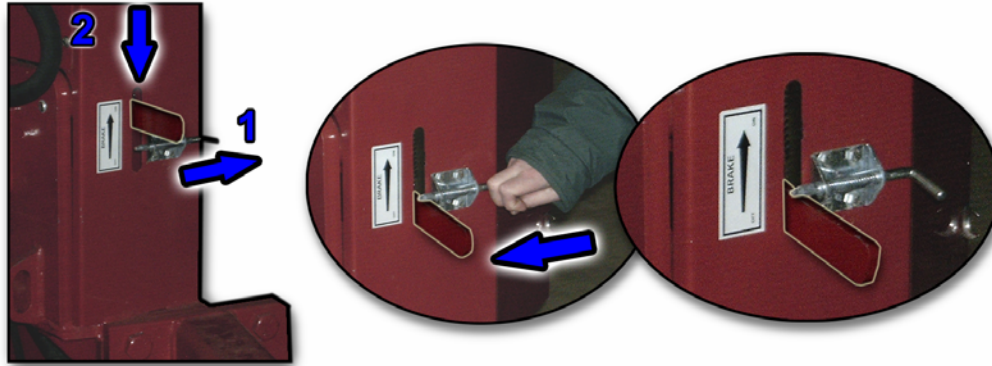


Figure 18 - Release Drum Brake

img-00127.png



DO NOT under any circumstances rewind the hose without the brake released. Rewinding the hose without the brake released will cause extensive damage to your machine.

Step 6

Release the brake tension on the chain drive. Turn the handle until the brake pads are no longer touching the brake disc.



Figure 19 - Release Brake Tension

img-00267.png

Step 7

Close the ball valve on the clutch pump. Pump the handle five (5) or six (6) time to increase pressure. This will engage the clutch system to allow hose retrieval.

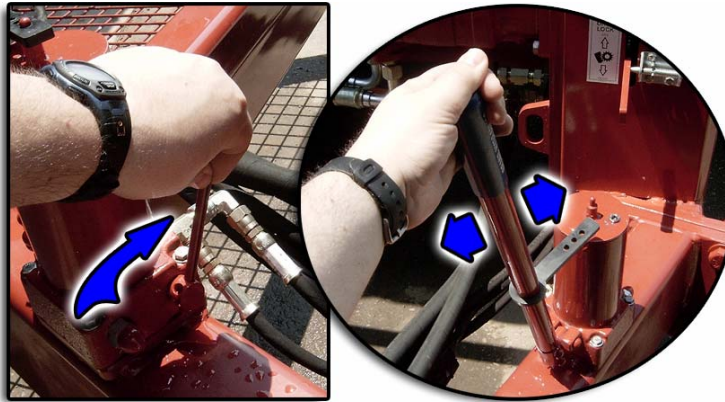


Figure 20 - Clutch Pump - Apply Pressure

img-00268.png

Step 8

Start the retrieve cycle. Immediately check to see that the shut-off mechanism is working properly.

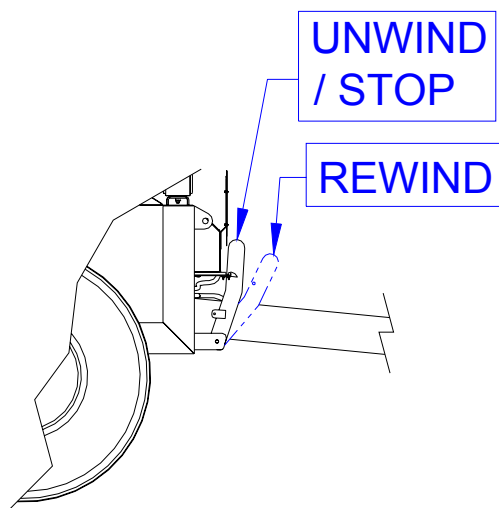


Figure 21 - Shut-off Bar Detail

img-00130.wmf

- Verify the shut off bar is in the rewind position.
- Engage the tractor hydraulics to begin the hose rewind.
- Raise the shut-off bar to the STOP (vertical) position. This should stop the rotation of the drum.
- **If the drum does not stop, immediately stop the rewind cycle** by disengaging the tractors hydraulic system. Check the valve linkage is installed correctly.
- If valve adjustment was required, re-test the retrieve cycle.



If for any reason the shut-off system failed, major damage could result. Check the automatic shut-off system before every retrieve cycle. Never operate the machine if you discover a problem.

Step 9

With the shut-off system working properly, check the hose indexing system. The hose should be tightly wound together. If the hose is improperly indexing, you will notice the hose trying to climb up on itself or leave large gaps. If this happens, check the indexer adjustment as shown on page 56.

Step 10

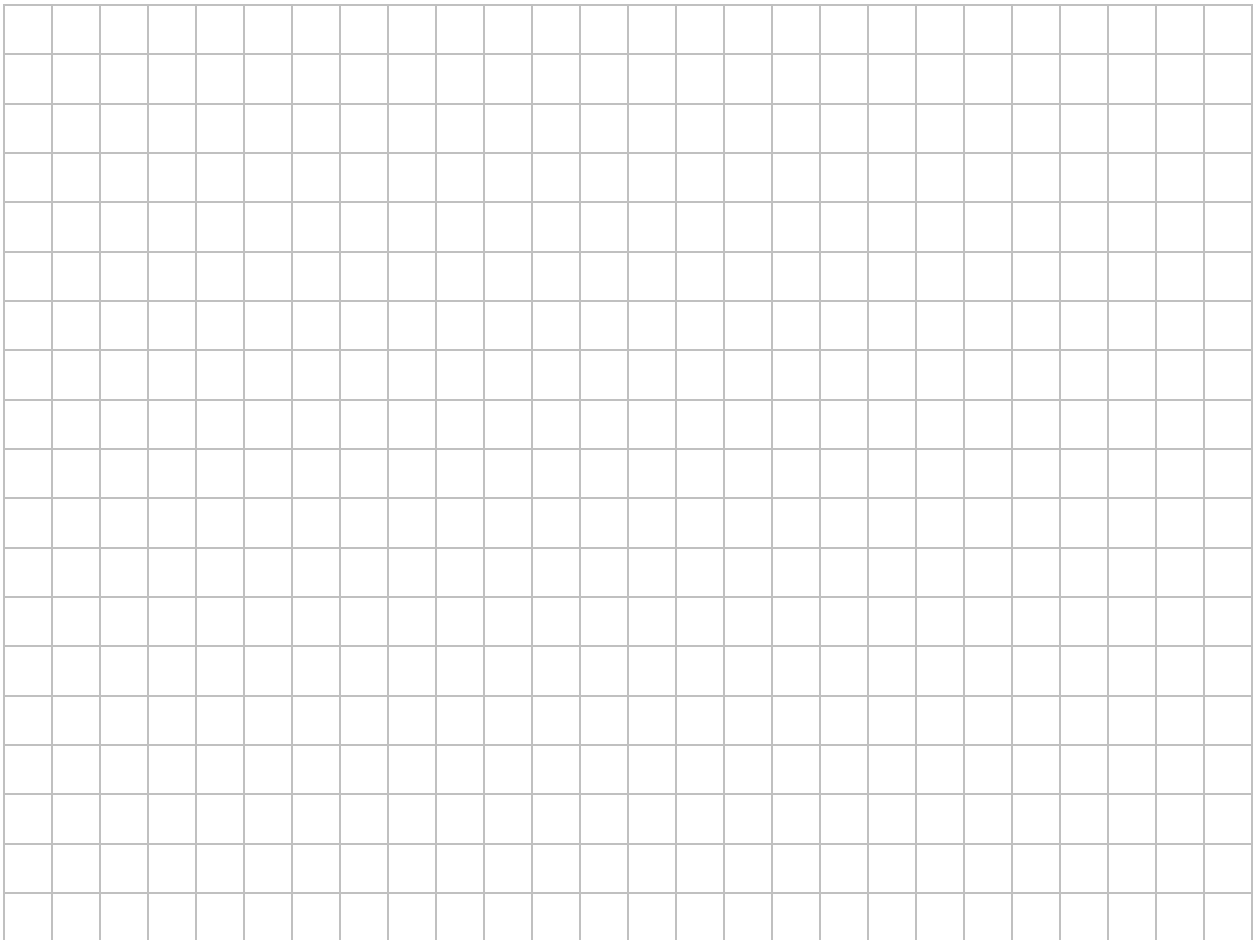
Disconnect the supply line from your machine.

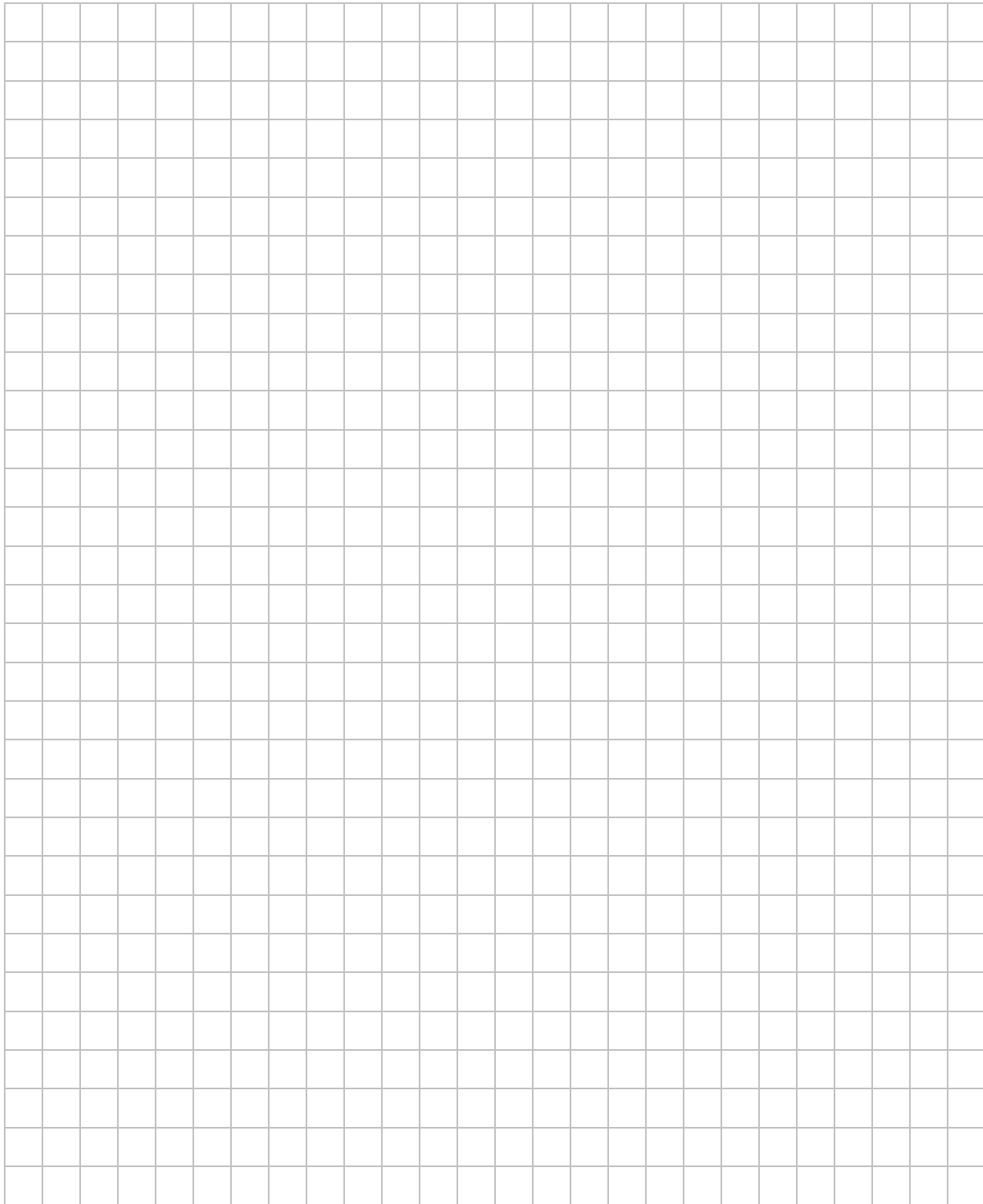
Step 11

When the hose is fully recoiled, set the drum brake, relieve clutch pump pressure, lift the hydraulic stabilizer legs, disengage the tractor hydraulics and raise the tongue jack.

Step 12

Tow the reel to the next set-up location and reconnect the supply line as required.





Parts Section

From Serial Number:

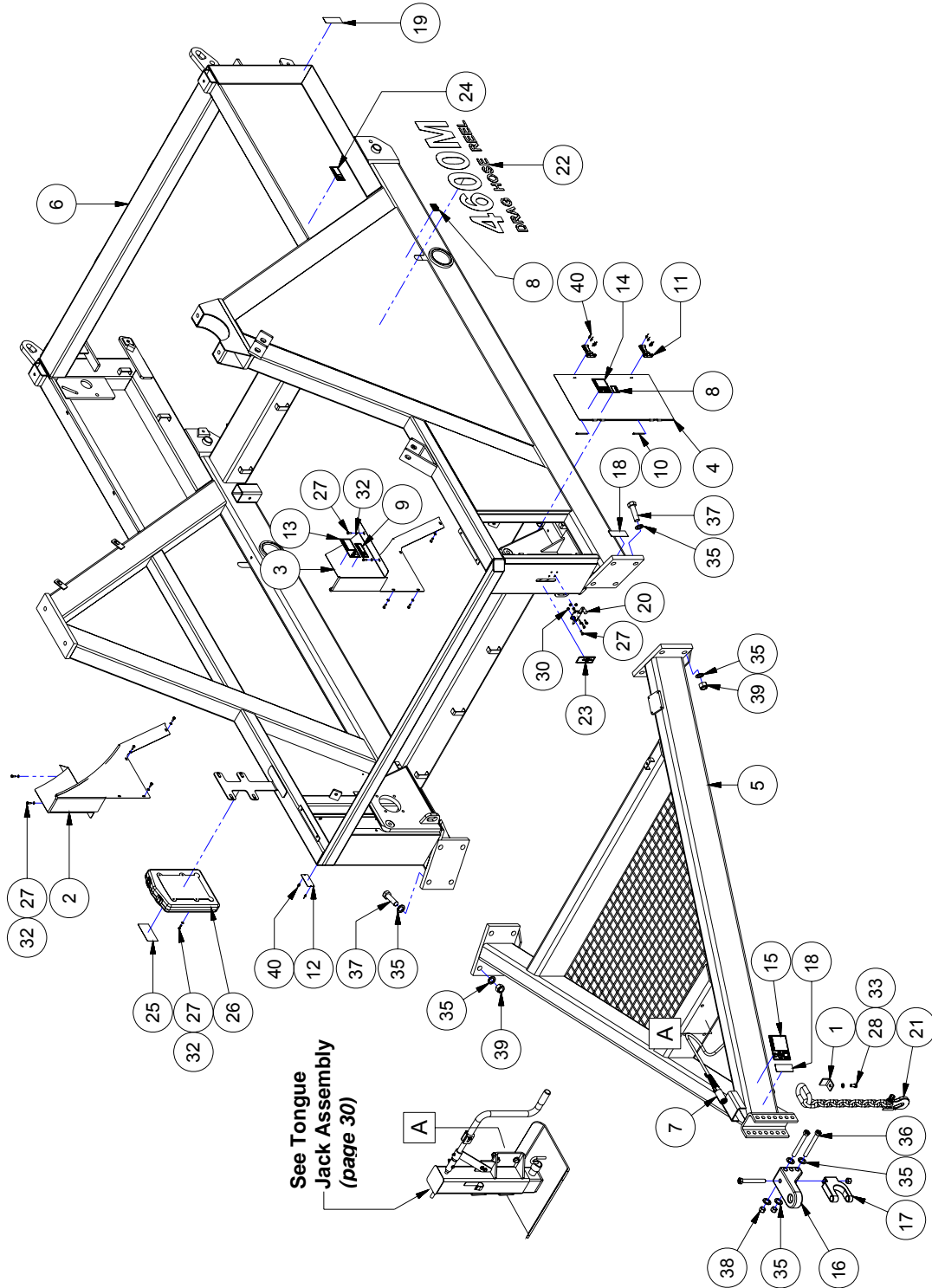
01307024600M - 4600M / 5100M / 5500M

Frame Assembly - Front	24
Frame Assembly - Rear	26
Tongue Jack Assembly	28
Walking Beam Assembly	30
Optional Brake Kit - TR-OPT-BK5155	32
Indexing System	34
Drum Assembly	36
Inlet Plumbing	38
Drive System – Right Side	40
Drive System – Left Side	42
Hydraulic System – Drive	44
Hydraulic System - Stabilizers	46
Light Housing – 22-645	48
Decals	49

Frame Assembly - Front

4600M – 5100M – 5500M

(FROM 01307024600M)



Frame Assembly - Front

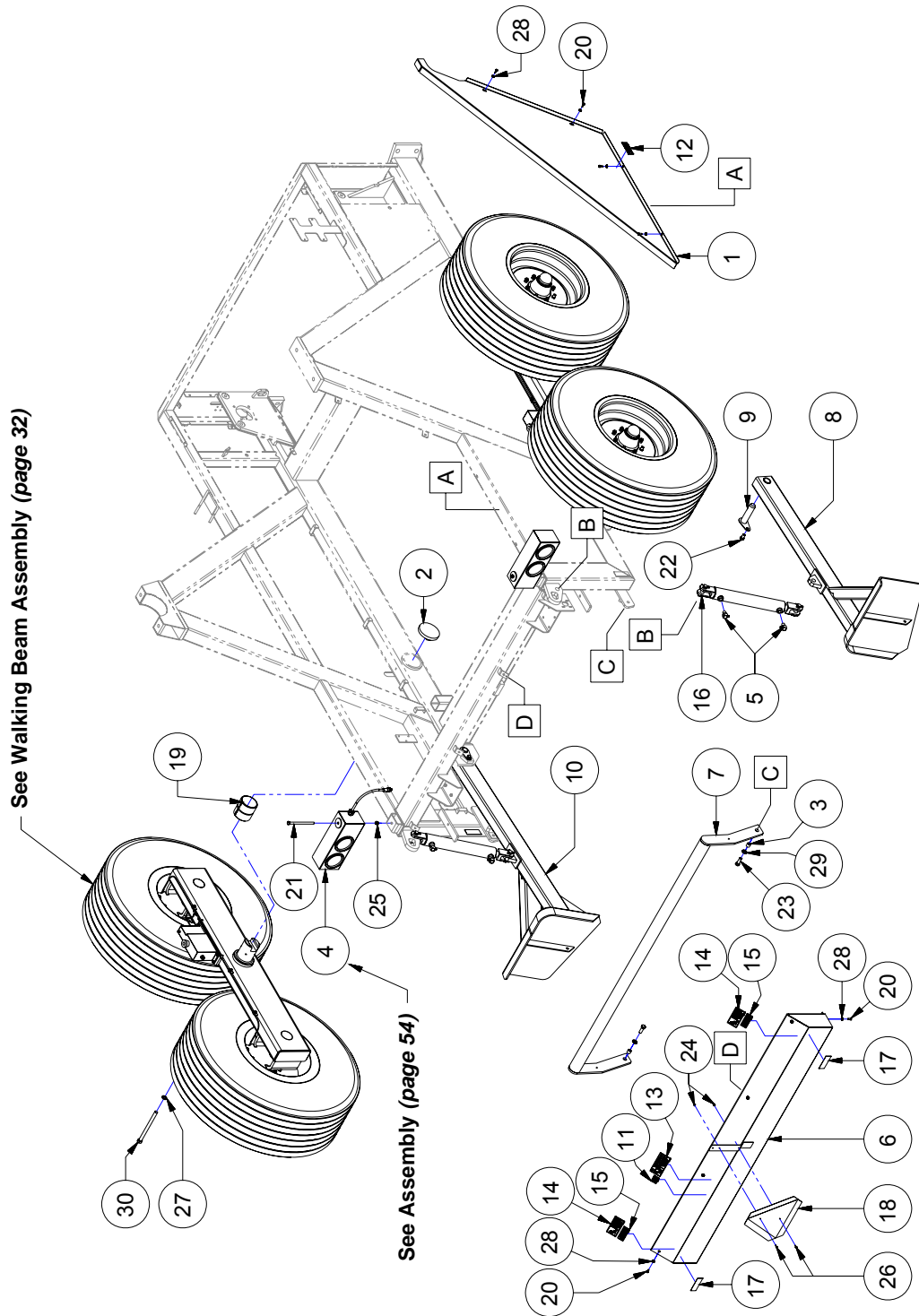
4600M – 5100M – 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	SAFETY CHAIN RETAINER	17-213	1
2	UPPER CHAIN GUARD - R.H.	22-615-B	1
3	UPPER CHAIN GUARD - L.H.	22-618-A	1
4	DRIVE COVER DOOR	22-624	2
5	TONGUE WELDMENT - 4600M/5100M ONLY	26-200-A	1
—	TONGUE WELDMENT - 5500M ONLY	22-200-A	1
6	FRAME WELDMENT - 4600M/5100M ONLY	26-400-A	1
—	FRAME WELDMENT - 5500M ONLY	22-400-A	1
7	WIRING HARNESS - LIGHTS - 4600M/5100M ONLY	26-611	1
—	WIRING HARNESS - LIGHTS - 5500M ONLY	22-635	1
8	LABEL - GREASE POINT	40-041-A	4
9	LABEL - ENTANGLEMENT	40-051-A	2
10	3/16 X 3 IN. BRASS HINGE PIN	40-200-C	4
11	RUBBER LATCH KIT	40-217	4
12	CADMAN SERIAL NUMBER TAG	40-238	1
13	LABEL - ROTATING DRUM	40-287-B	2
14	LABEL - MOVING PARTS HAZARD	40-290-A	2
15	LABEL - MAX TOW SPEED	40-291-A	1
16	HITCH	40-402	1
17	CLEVIS KIT - C/W BOLT & NUT	40-403	1
18	AMBER REFLECTIVE DECAL	40-598	4
19	RED REFLECTIVE DECAL	40-599	2
20	SPRING LATCH WITH 3/8 ROD	40-608	1
21	SAFETY CHAIN	40-623	1
22	DECAL - 4600M SIDE PANEL	40-754-4600M	2
—	DECAL - 5100M SIDE PANEL	40-754-5100M	2
—	DECAL - 5500M SIDE PANEL	40-754-5500M	2
23	LABEL - DRUM LOCK	40-917	1
24	LABEL - TORQUE WHEELS	42-035	2
25	LABEL - OPERATOR MANUAL	42-050	1
26	MANUAL PAK - LARGE	42-071	1
27	1/4-20 X 0.75 STAINLESS STEEL BOLT	88-BLT-02520X075	20
28	1/2-13 X 1.00 STAINLESS STEEL BOLT	88-BLT-05013X100	1
30	1/4-20 STAINLESS STEEL LOCKNUT	88-NUT-LOC025-20	4
32	1/4 STAINLESS STEEL LOCK WASHER	88-WSR-LOC025	16
33	1/2 STAINLESS STEEL LOCK WASHER	88-WSR-LOC050	1
35	1.00 STAINLESS SAE FLAT WASHER	88-WSR-SAE100	20
36	3/4-10 X 6.00 GRADE 8 BOLT	89-BLT-07510X650	2
37	1-8 X 3 1/2 GRADE 8 BOLT	89-BLT-10008X350	8
38	3/4-10 GRADE 8 LOCK NUT	89-NUT-LOC075-10	2
39	1-08 GRADE 8 LOCK NUT	89-NUT-LOC100-08	8
40	3/16 X 3/8 IN. RIVET	90-RIV-019X038	18

Frame Assembly - Rear

4600M – 5100M – 5500M
(FROM 01307024600M)



Frame Assembly - Rear

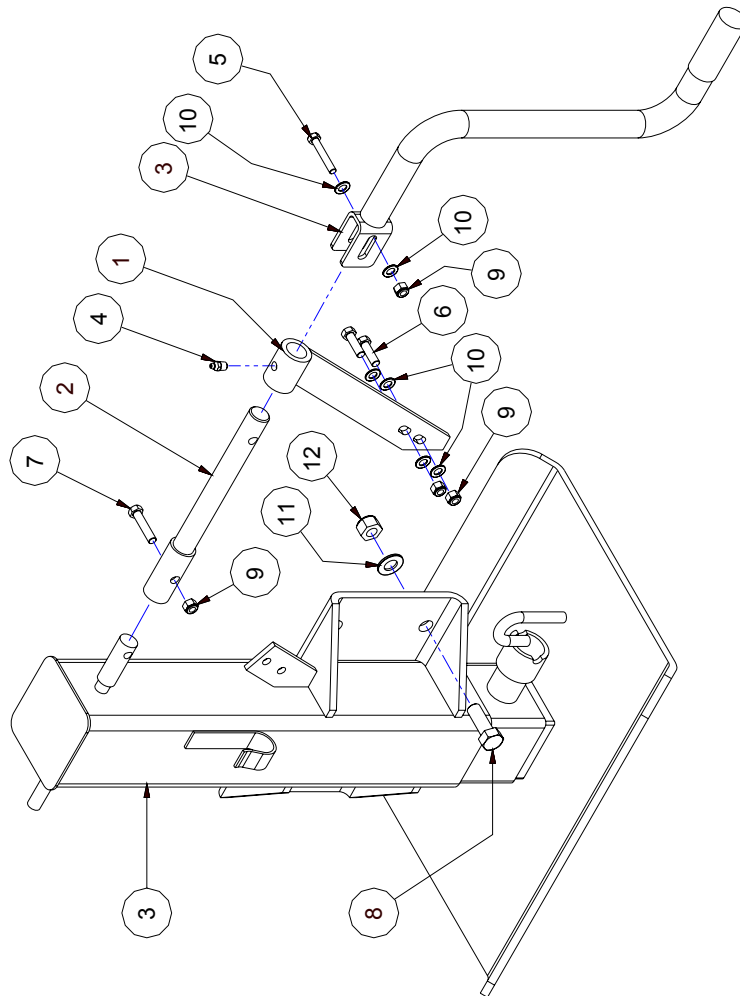
4600M – 5100M – 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	IDLER SHIELD - PAINTED	22-619	1
2	AXLE RETAINER - PAINTED	22-625	2
3	SHUT OFF BAR BUSHING - PLATED	22-629	2
4	TURN SIGNAL HOUSING ASSEMBLY	22-645	2
5	ELBOW - #6 JIC-M X #8 NPT-M X 90°	25-WHD-5405X6X8	4
6	INDEXER SHIELD - 4600M/5100M ONLY	26-601	1
-	INDEXER SHIELD - 5500M ONLY	22-616	1
7	SHUT OFF BAR - 4600M/5100M ONLY	26-603-A	1
-	SHUT OFF BAR - 5500M ONLY	22-614-A	1
8	STABILIZER WELDMENT - RIGHT	26-606-A	1
9	STABILIZER PIN WELDMENT	26-607	2
10	STABILIZER WELDMENT - LEFT	26-609-A	1
11	LABEL - GREASE POINT	40-041-A	1
12	LABEL - ENTANGLEMENT	40-051-A	1
13	LABEL - INDEXER CONDITION	40-115-A	1
14	LABEL - ROTATING DRUM	40-287-B	2
15	LABEL - PINCH POINT	40-289-A	2
16	2 1/2 X 14 IN LG. HD HYD. CYLINDER	40-525-A	2
17	DECAL - RED REFLECTIVE	40-599	4
18	SLOW MOVING VEHICLE	40-640	1
19	GREASE GROOVE BUSHING	42-086	2
20	5/16-18 X 0.75 STAINLESS STEEL BOLT	88-BLT-03118X075	10
21	1/2-13 X 7.50 STAINLESS STEEL BOLT	88-BLT-05013X750	2
22	5/8-11 X 1.00 STAINLESS STEEL BOLT	88-BLT-06311X100	2
23	5/8-11 X 1.75 STAINLESS STEEL BOLT	88-BLT-06311X175	2
24	#10-32 STAINLESS STEEL LOCK NUT	88-NUT-LOC010-32	2
25	1/2-13 STAINLESS STEEL LOCK NUT	88-NUT-LOC050-13	2
26	10-32 X 5/8 STAINLESS PAN PHILLIPS M.S.	88-SCR-PHP010-32X063	2
27	3/4 STAINLESS STEEL LOCK WASHER	88-WSR-LOC075	2
28	5/16 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE031	10
29	5/8 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE063	2
30	3/4-10 X 10 IN GR. 8 BOLT	89-BLT-07510X1000	2

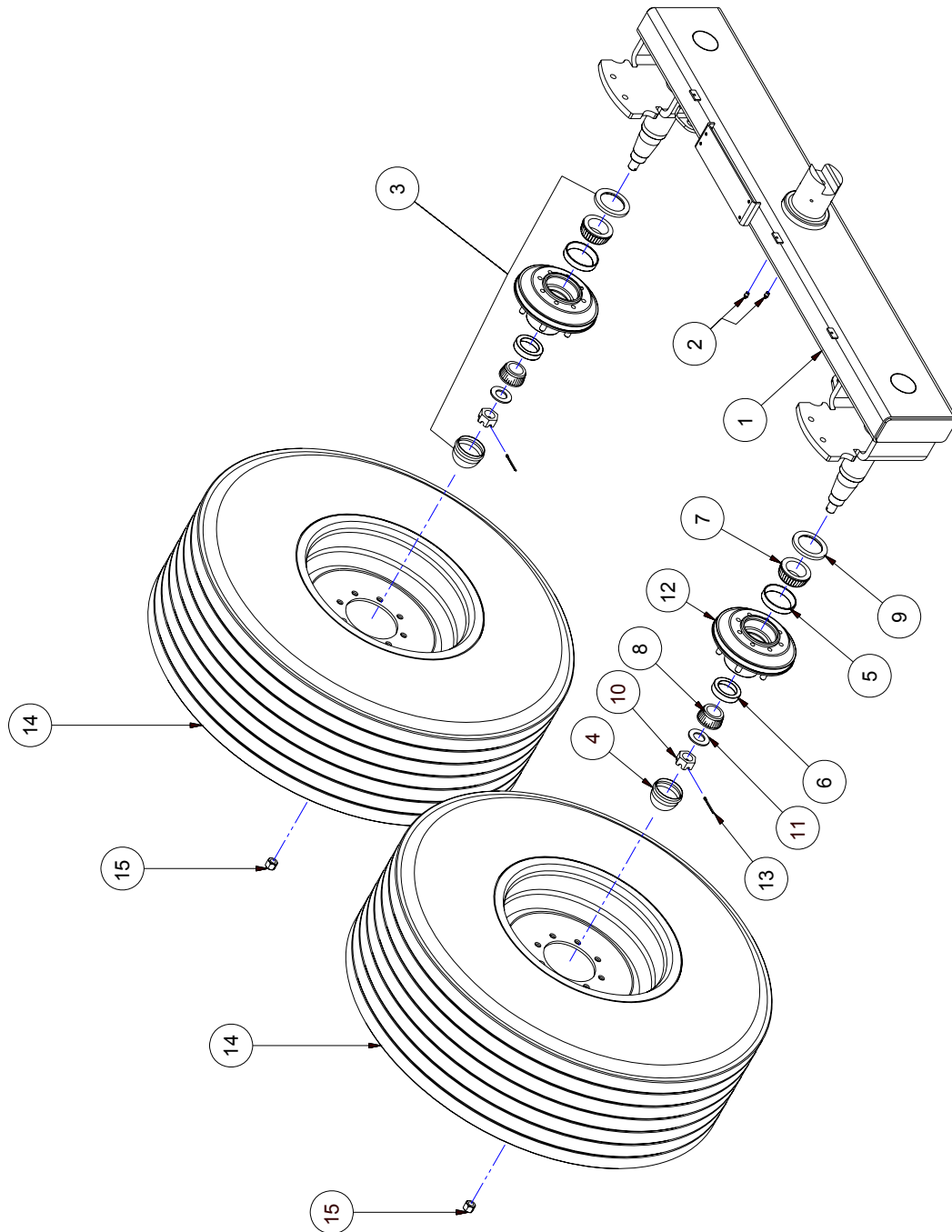
Tongue Jack Assembly

4600M – 5100M – 5500M
(FROM 01307024600M)



Walking Beam Assembly

4600M – 5100M – 5500M
(FROM 01307024600M)



Walking Beam Assembly

4600M – 5100M – 5500M

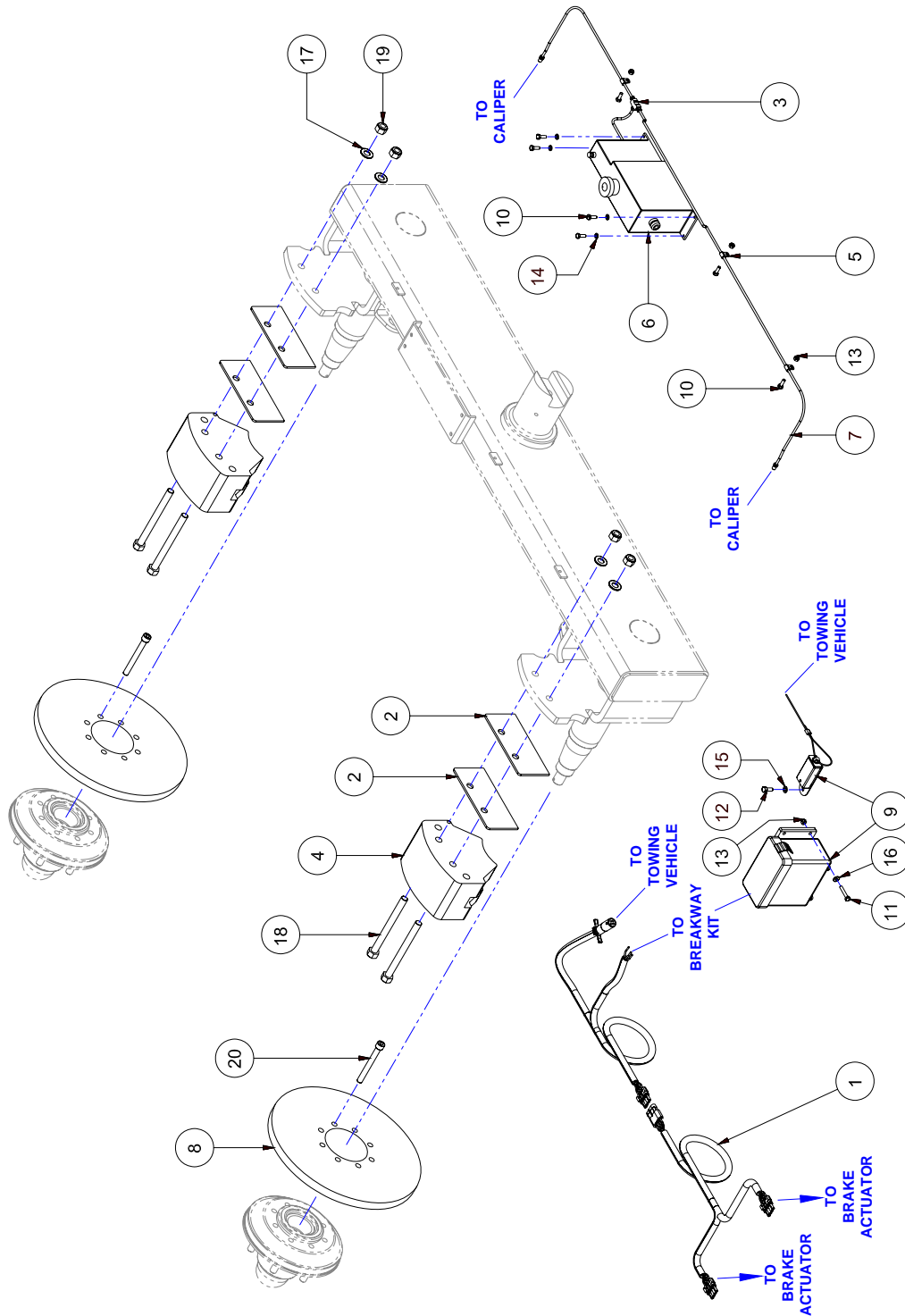
(FROM 01307024600M)

Item	Description	Part Number	Qty
1	WALKING BEAM AXLE	22-606	1
2	1/8 NPT GREASE FITTING	40-001	2
3	10,000 SERIES HUB ASSY CONSIST OF:	55-099	2
4	DUST CAP	55-109	1
5	INNER CONE	55-129	1
6	OUTER CONE	55-130	1
7	ROLLER BEARING, INNER	55-131	1
8	ROLLER BEARING, OUTER	55-132	1
9	GREASE SEAL	55-133	1
10	CASTLE NUT	55-134	1
11	RETAINING WASHER	55-135	1
12	HUB	55-136	1
13	COTTER PIN, 5/32 X 2.00 LG.	90-PIN-CT016X200	1
14	445/65R22.5 WHEEL ASSY, 5500M ONLY	55-127	2
—	385/65R22.5 WHEEL ASSY, 4600M/5100M ONLY	55-128	2
15	5/8-18 LUG NUT	55-137	16

Optional Brake Kit - TR-OPT-BK5155

4600M - 5100M - 5500M

(FROM 01307024600M)



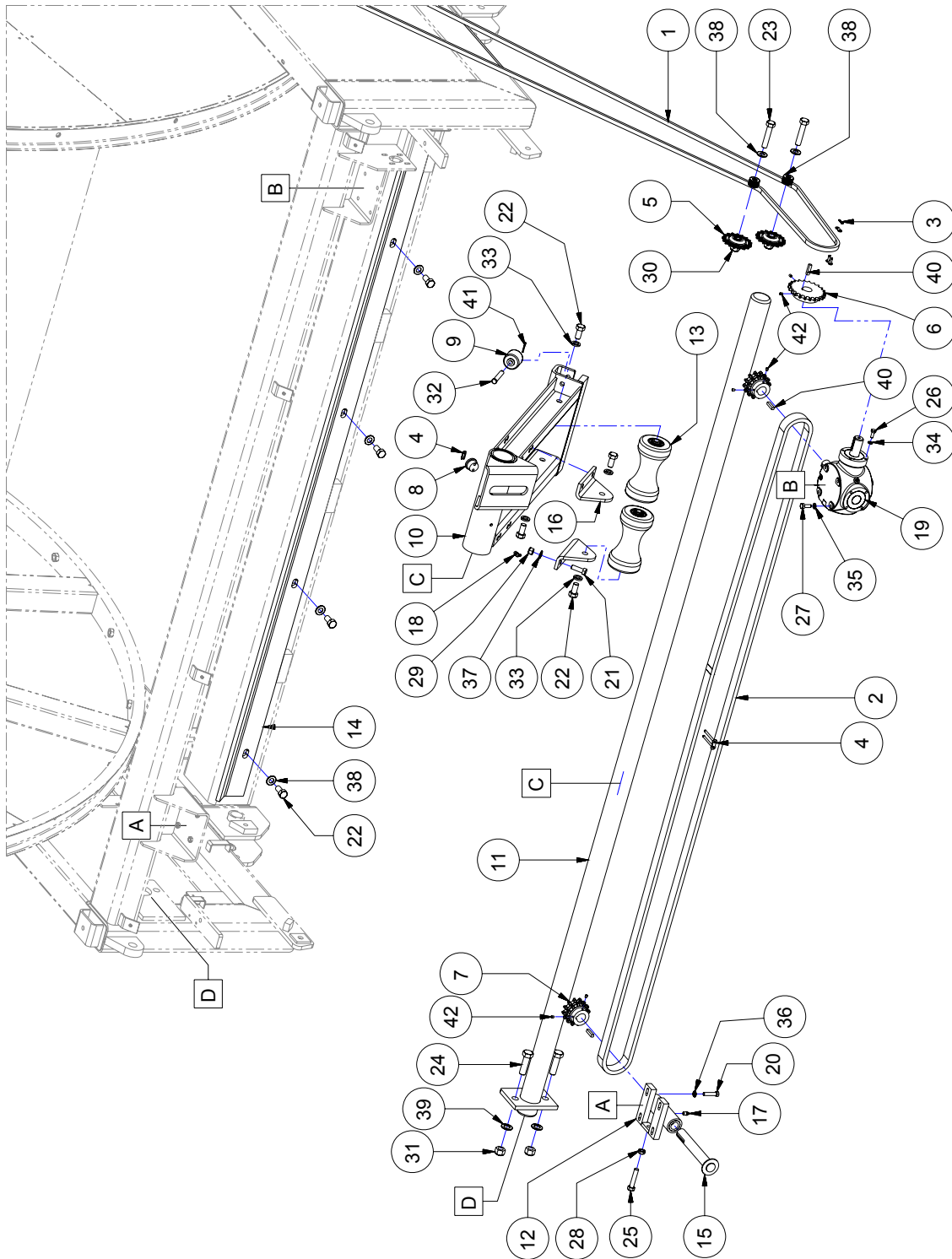
Optional Brake Kit - TR-OPT-BK5155 4600M - 5100M - 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	WIRING HARNESS, BRAKES - 4600M/5100M ONLY	26-615	1
—	WIRING HARNESS, BRAKES - 5500M ONLY	22-636	1
2	SPACER BRAKE CALIPER	22-780	4
3	3/16 STEEL UNION TEE	25-WHD-702X3	1
4	HYDRAULIC BRAKE CALIPER	40-746	2
5	3/16 IN BRAKE CLAMP	40-763	3
6	HYDRASTAR HBA-10 BRAKE ACTUATOR	55-101	1
7	BRAKE LINE KIT	55-104	1
8	BRAKE DISC ø14.90 IN.	55-106	2
9	BREAKWAY KIT	55-110	1
10	1/4-20 X 0.75 STAINLESS STEEL BOLT	88-BLT-02520X075	7
11	1/4-20 X 1.50 STAINLESS STEEL BOLT	88-BLT-02520X150	4
12	5/16-18 X 0.75 STAINLESS STEEL BOLT	88-BLT-03118X075	1
13	1/4-20 STAINLESS STEEL LOCK NUT	88-NUT-LOC025-20	7
14	1/4 STAINLESS STEEL LOCK WASHER	88-WSR-LOC025	4
15	5/16 STAINLESS STEEL LOCK WASHER	88-WSR-LOC031	1
16	1/4 STAINLESS STEEL SAE WASHER	88-WSR-SAE025	4
17	5/8 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE063	4
18	5/8-11 X 7 LG. GR. 8 BOLT	89-BLT-06311X700	4
19	5/8-11 GR. 8 LOCK NUT	89-NUT-LOC063-11	4
20	1/2-20 X 4 1/2 LG. GR8 SHCS	90-SCR-SH05020X450	16

Indexing System

4600M – 5100M – 5500M
(FROM 01307024600M)



Indexing System

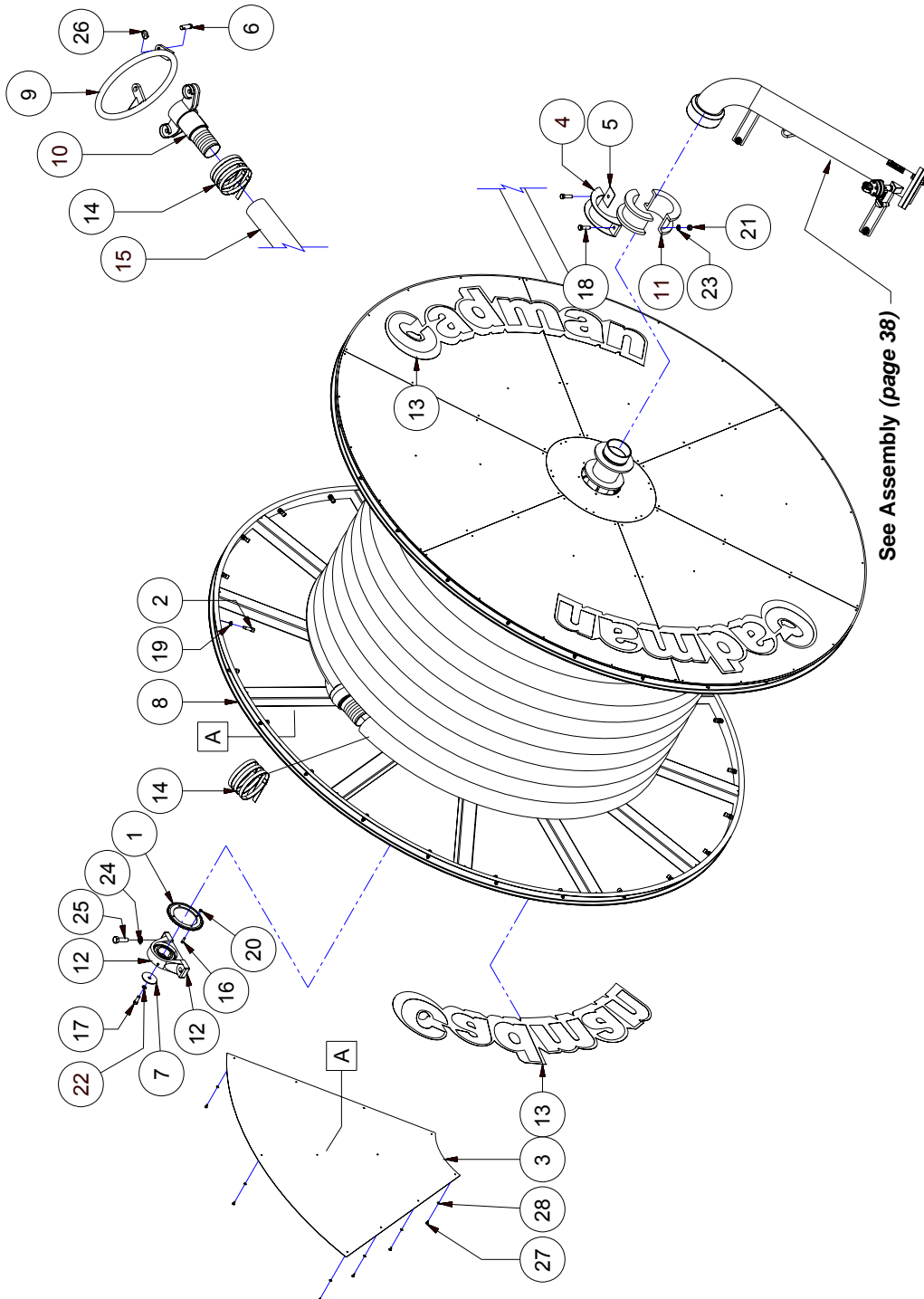
4600M – 5100M – 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	#50 RIVETED ROLLER CHAIN/LINK	10-CHN-50-1RIV	1
2	#60-2 RIVETED ROLLER CHAIN/LINK	10-CHN-60-2RIV	1
3	#50 CONNECTING LINK	10-LNK-50CONN	1
4	#60-3 CONNECTOR LINK W/CLIP	10-LNK-60-3CONN	1
5	#50-17 AETNA IDLER SPROCKET	10-SPT-50-17IDLER	2
6	50B22 SPROCKET FIN. TO 30MM KS, 5500M ONLY	10-SPT-50B22XM30	1
—	50B24 SPROCKET FIN. TO 30MM KS, 5100M ONLY	10-SPT-50B24XM30	1
—	50B26 SPROCKET FIN. TO 30MM KS, 4600M ONLY	10-SPT-50B26XM30	1
7	SPROCKET - D60B12 X 30MM	10-SPT-D60B12XM30	2
8	#60 INDEXER DRIVE BUTTON	15-041	1
9	TRACK ROLLER ASSY	15-163	2
10	HOSE GUIDE WELDMENT	22-602-A	1
11	INDEXER SLIDE BAR, 5500M ONLY	22-607	1
—	INDEXER SLIDE BAR, 4600/5100M ONLY	26-600	1
12	INDEXER IDLER BLOCK	22-612	1
13	HOSE GUIDE ROLLER ASSY	22-630	2
14	HOSE GUIDE RAIL, 5500M ONLY	22-631	1
—	HOSE GUIDE RAIL, 4600M/5100M ONLY	26-602	1
15	INDEXER IDLER SHAFT	22-746-A	1
16	ROLLER MOUNT BRACKET - PAINTED	26-608	2
17	1/8 NPT GREASE FITTING	40-001	1
18	1/8 NPT 90 DEG GREASE FITTING	40-001-90	1
19	BONDIOLI 2020 GEARBOX	40-862	1
20	3/8-16 X 1.75 STAINLESS STEEL BOLT	88-BLT-03816X175	4
21	1/2-13 X 1.50 STAINLESS STEEL BOLT	88-BLT-05013X150	4
22	5/8-11 X 1.25 STAINLESS STEEL BOLT	88-BLT-06311X125	9
23	5/8-11 X 3.00 STAINLESS STEEL BOLT	88-BLT-06311X300	2
24	3/4-10 X 2.50 STAINLESS STEEL BOLT	88-BLT-07510X250	2
25	1/2-13 X 2.50 FULL THREAD BOLT	88-BLT-FT05013X250	1
26	M8-1.25 x 20MM STAINLESS STEEL BOLT	88-BLT-M08125X020	4
27	M10-1.50 x 25MM STAINLESS STEEL BOLT	88-BLT-M10150X025	4
28	1/2-13 STAINLESS STEEL JAM NUT	88-NUT-JAM050-13	1
29	1/2-13 STAINLESS STEEL LOCK NUT	88-NUT-LOC050-13	4
30	5/8-11 STAINLESS STEEL LOCKNUT	88-NUT-LOC063-11	2
31	3/4-10 STAINLESS STEEL LOCK NUT	88-NUT-LOC075-10	2
32	1/2 X 3 IN LG. STAINLESS CLEVIS PIN	88-PIN-CL050X300	2
33	5/8 STAINLESS STEEL LOCK WASHER	88-WSR-LOC063	4
34	LOCK WASHER, M08	88-WSR-LOCM08	4
35	LOCK WASHER, M10	88-WSR-LOCM10	4
36	3/8 STAINLESS SAE WASHER	88-WSR-SAE038	4
37	1/2 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE050	4
38	5/8 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE063	25
39	3/4 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE075	2
40	KEY, 5/16 SQ. X 1.38 IN. LG.	90-KEY-SQ031X138	3
41	COTTER PIN, 1/8 X 1.00 LG.	90-PIN-CT013X100	2
42	SET SCREW, 1/4" -20 X 5/16" LG.	90-SCR-ST02520X031	6

Drum Assembly

4600M – 5100M – 5500M
(FROM 01307024600M)



Drum Assembly

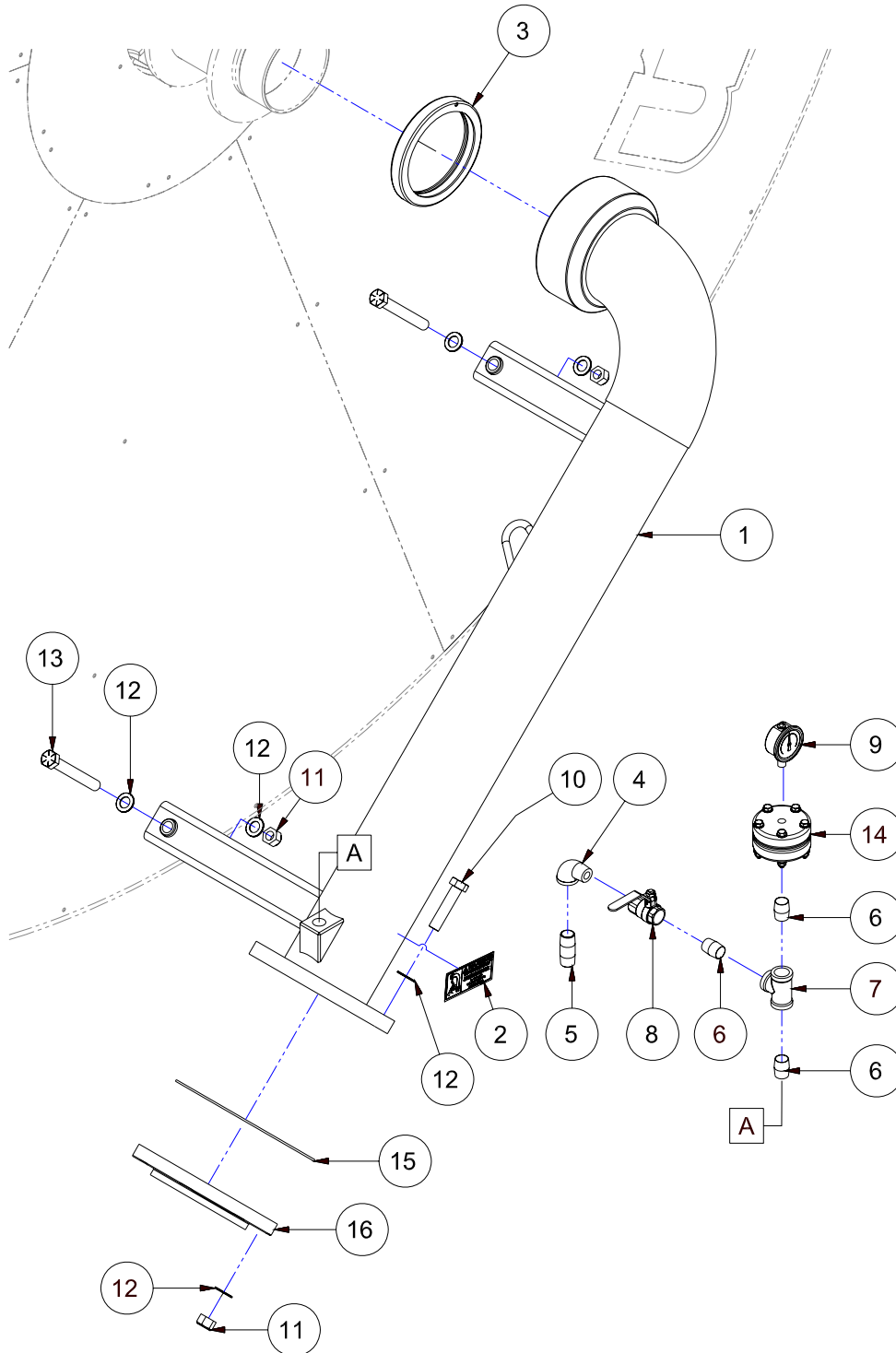
4600M – 5100M – 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	SPROCKET - 50A47 X 6.50 P.B., 5100M/5500M ONLY	10-070	1
—	SPROCKET – 50A48 X 6.50 P.B., 4600M ONLY	10-086	1
2	SPOOL DRIVE LUG - 5/8-11	15-120	48
3	REMOVABLE DRUM SKIN	22-533-B	1
4	BEARING CAP	22-601	1
5	ANTI-ROTATION PLATE	22-633	1
6	CLEVIS PIN	22-634	2
7	BEARING RETAINER PLATE	22-649	1
8	DRUM WELDMENT, 4600M/5100M ONLY	26-500-B	1
—	DRUM WELDMENT, 5500M ONLY	22-500-C	1
9	SHUT OFF RING	26-605	1
10	HOSE END WELDMENT - 4600M	26-610	1
—	HOSE END WELDMENT - 5100M	26-604	1
—	HOSE END WELDMENT - 5500M	22-644	1
11	DRUM BEARING, 5500-5100	40-745-A	1
12	3 1/25 IN PILLOW BLOCK BEARING	40-751	1
13	5500M CADMAN DECAL	40-754	4
14	7 IN' BAND-IT CLAMP STAINLESS	50-072	6
15	5.60 OD X 4.60 ID X 1550 FT HT HOSE, 4600M ONLY	52-017-1550	1
—	6.18 OD X 5.10 ID X 1550 FT HT HOSE, 5100M ONLY	52-015-1400	1
—	6.75 OD X 5.50 ID X 1550 FT HT HOSE, 5500M ONLY	52-013-1550	1
16	3/8-16 X 1.25 STAINLESS STEEL BOLT	88-BLT-03816X125	4
17	5/8-11 X 1.75 STAINLESS STEEL BOLT	88-BLT-06311X175	1
18	3/4-10 X 2.50 STAINLESS STEEL BOLT	88-BLT-07510X250	2
19	5/8-11 STAINLESS STEEL JAM NUT	88-NUT-JAM063-11	48
20	3/8-16 STAINLESS STEEL LOCKNUT	88-NUT-LOC038-16	4
21	3/4-10 STAINLESS STEEL LOCKNUT	88-NUT-LOC075-10	2
22	5/8 STAINLESS STEEL LOCK WASHER	88-WSR-LOC063	49
23	3/4 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE075	2
24	1.00 STAINLESS SAE FLAT WASHER	88-WSR-SAE100	2
25	1-8 X 3 GR. 8 BOLT	89-BLT-10008X300	2
26	LYNCH PIN - STANDARD	90-PIN-LYNCH	2
27	1/4 X 0.75 TEK SCREW	90-SCR-TEK025X075	11
28	1/4 NYLON FLAT WASHER	90-WSR-FLT025NYLON	11

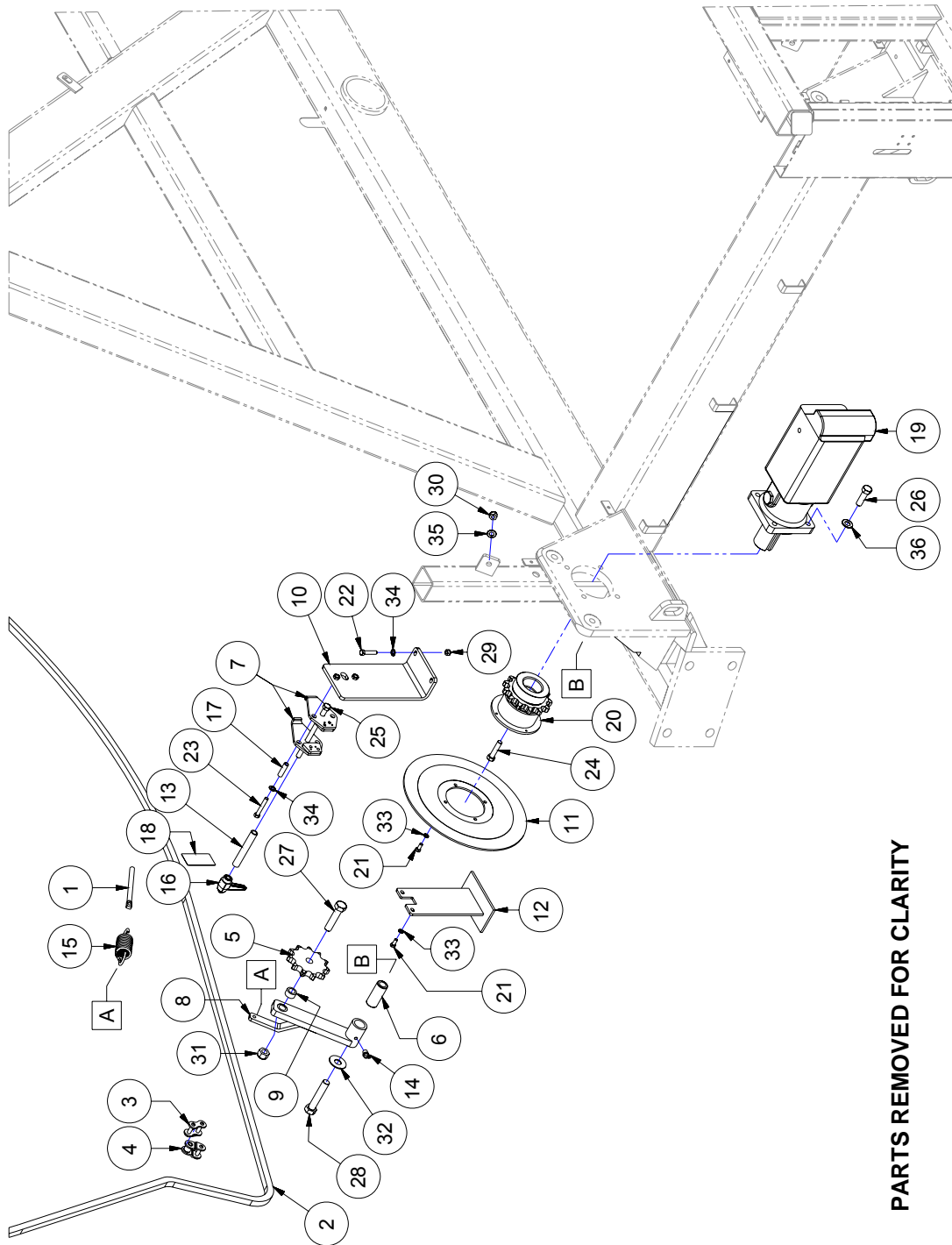
Inlet Plumbing

4600M - 5100M - 5500M
(FROM 01307024600M)



Drive System – Right Side

4600M - 5100M - 5500M
(FROM 01307024600M)



PARTS REMOVED FOR CLARITY

Drive System – Right Side

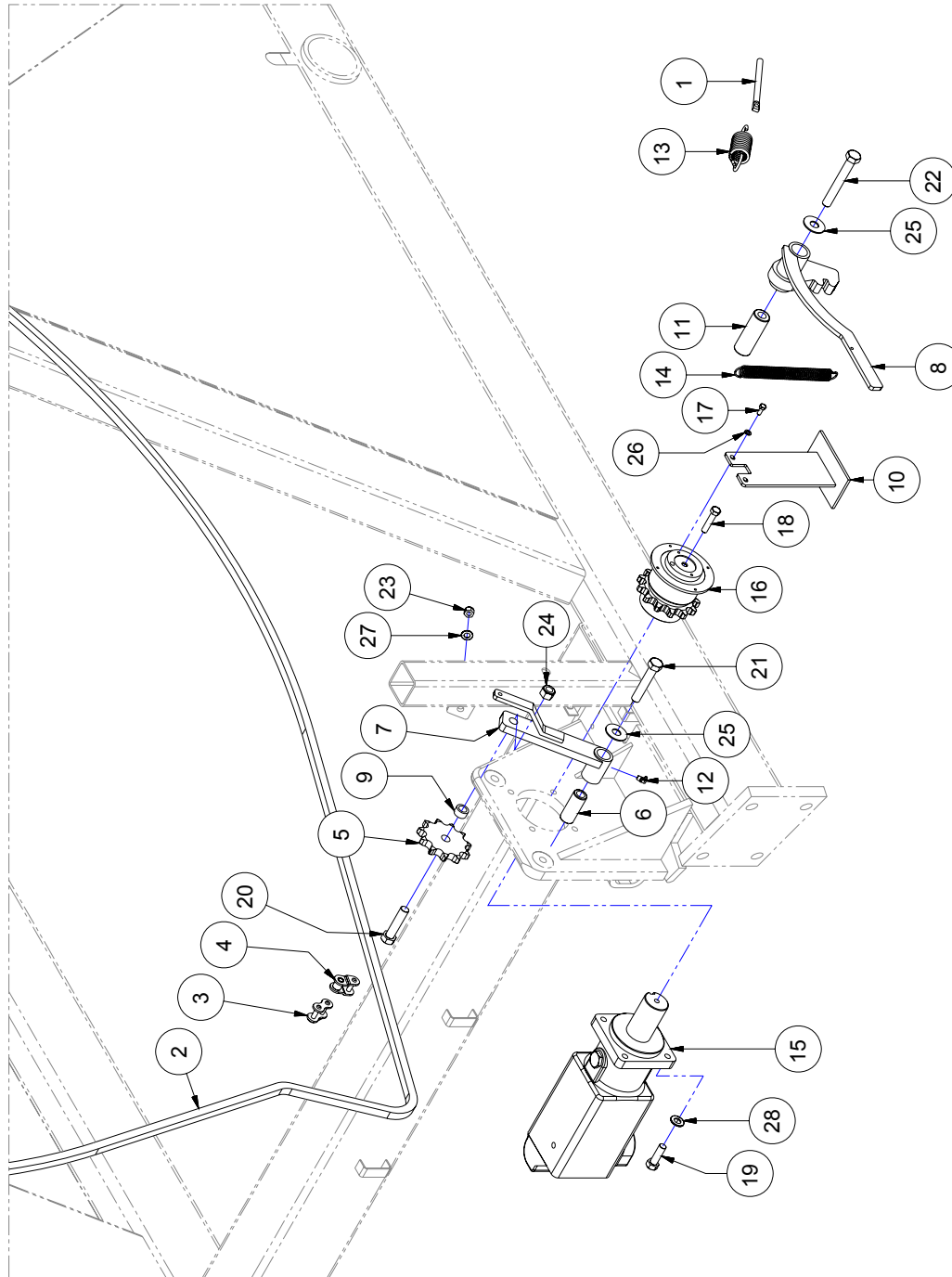
4600M - 5100M - 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	SPRING ADJUSTING ROD	06-635-B	1
2	#100 RIVETED ROLLER CHAIN 376 PITCH	10-CHN-100R368	1
3	#100 CONNECTING LINK	10-LNK-100CONN	1
4	#100 OFFSET LINK	10-LNK-100OFFSET	1
5	100 A 11 X 20MM X 13/16 THICK IDLER	10-SPT-100-11IDLER	1
6	IDLER ARM BUSHING, 1 1/4 IN X 3 LG.	16-611-A	1
7	BRAKE CALIPER HALF	17-639	2
8	IDLER ARM - PAINTED	22-609	1
9	IDLER SPACER - PLATED	22-628	1
10	BRAKE CALIPER BRACKET WELDMENT	22-650	1
11	BRAKE DISC - MACHINED	22-651	1
12	CLUTCH SUPPORT WELDMENT	22-656	1
13	SLEEVE BRAKE BOLT	22-799	1
14	GREASE NIPPLE - 1/4" - 45°	40-001-45	1
15	1 3/4 X 5 EXT. SPRING (IDLER)	40-056	1
16	BRAKE HANDLE	40-179	1
17	SPACER, 1/2 X 1 3/4 LG.	40-183	2
18	LABEL, BRAKE ADJUST	40-188-A	1
19	HYDRAULIC MOTOR, 4600M/5100M ONLY	40-526-A	1
—	HYDRAULIC MOTOR, 5500M ONLY	40-526	1
20	CLUTCHED DRIVE SPROCKET w/BOLT	42-081	1
21	5/16-18 X 0.75 STAINLESS STEEL BOLT	88-BLT-03118X075	6
22	3/8-16 X 1.75 STAINLESS STEEL BOLT	88-BLT-03816X175	2
23	3/8-16 X 2.50 STAINLESS STEEL BOLT	88-BLT-03816X250	2
24	1/2-13 X 2.25 STAINLESS STEEL BOLT	88-BLT-05013X225	1
25	1/2-13 X 7.50 STAINLESS STEEL BOLT	88-BLT-05013X750	1
26	5/8-11 X 2.00 STAINLESS STEEL BOLT	88-BLT-06311X200	4
27	3/4-10 X 3.25 STAINLESS STEEL BOLT	88-BLT-07510X325	1
28	3/4-10 X 4.00 STAINLESS STEEL BOLT	88-BLT-07510X400	1
29	3/8-16 STAINLESS STEEL LOCK NUT	88-NUT-LOC038-16	2
30	1/2-13 STAINLESS STEEL LOCK NUT	88-NUT-LOC050-13	1
31	3/4-10 STAINLESS STEEL LOCK NUT	88-NUT-LOC075-10	1
32	3/4 STAINLESS STEEL FLAT WASHER	88-WSR-FLT075	1
33	5/16 STAINLESS STEEL LOCK WASHER	88-WSR-LOC031	6
34	3/8 STAINLESS SAE WASHER	88-WSR-SAE038	4
35	1/2 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE050	1
36	5/8 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE063	4

Drive System – Left Side

4600M - 5100M - 5500M
(FROM 01307024600M)



Drive System – Left Side

4600M - 5100M - 5500M

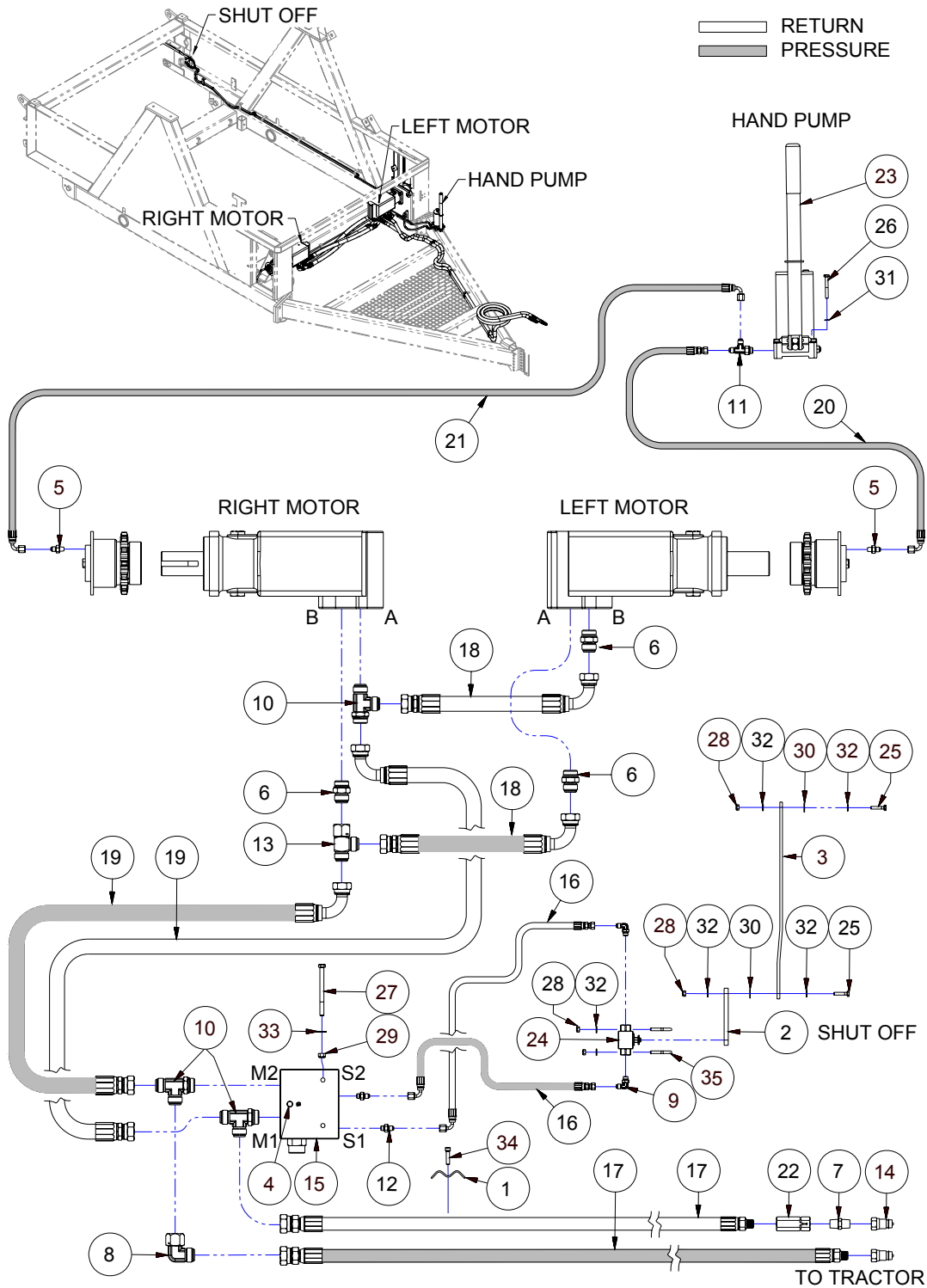
(FROM 01307024600M)

Item	Description	Part Number	Qty
1	SPRING ADJUSTING ROD	06-635-B	1
2	#100 RIVETED ROLLER CHAIN 376 PITCH	10-CHN-100R368	1
3	#100 CONNECTING LINK	10-LNK-100CONN	1
4	#100 OFFSET LINK	10-LNK-100OFFSET	1
5	100 A 11 X 20MM X 13/16 THICK IDLER	10-SPT-100-11IDLER	1
6	IDLER ARM BUSHING, 1 1/4 IN X 3 LG.	16-611-A	1
7	IDLER ARM - PAINTED	22-609	1
8	DRUM LOCK WELDMENT - PAINTED	22-610-B	1
9	IDLER SPACER - PLATED	22-628	1
10	CLUTCH SUPPORT WELDMENT	22-656	1
11	BRAKE DOG BUSHING	22-723-A	1
12	1/8 NPT 90 DEG GREASE FITTING	40-001-90	2
13	1 3/4 X 5 EXT. SPRING (IDLER)	40-056	1
14	1 1/16 X 7 IN LG. EXT SPRING	40-229	1
15	HYDRAULIC MOTOR, 4600M/5100M ONLY	40-526-A	1
—	HYDRAULIC MOTOR, 5500M ONLY	40-526	1
16	CLUTCHED DRIVE SPROCKET w/BOLT	42-081	1
17	5/16-18 X 0.75 STAINLESS STEEL BOLT	88-BLT-03118X075	2
18	1/2-13 X 2.25 STAINLESS STEEL BOLT	88-BLT-05013X225	1
19	5/8-11 X 2.00 STAINLESS STEEL BOLT	88-BLT-06311X200	4
20	3/4-10 X 3.25 STAINLESS STEEL BOLT	88-BLT-07510X325	1
21	3/4-10 X 4.00 STAINLESS STEEL BOLT	88-BLT-07510X400	1
22	3/4-10 X 5.50 STAINLESS STEEL BOLT	88-BLT-07510X550	1
23	1/2-13 STAINLESS STEEL LOCK NUT	88-NUT-LOC050-13	1
24	3/4-10 STAINLESS STEEL LOCK NUT	88-NUT-LOC075-10	1
25	3/4 STAINLESS STEEL FLAT WASHER	88-WSR-FLT075	2
26	5/16 STAINLESS STEEL LOCK WASHER	88-WSR-LOC031	2
27	1/2 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE050	1
28	5/8 STAINLESS STEEL SAE FLAT WASHER	88-WSR-SAE063	4

Hydraulic System – Drive

4600M – 5100M – 5500M

(FROM 01307024600M)



Hydraulic System – Drive

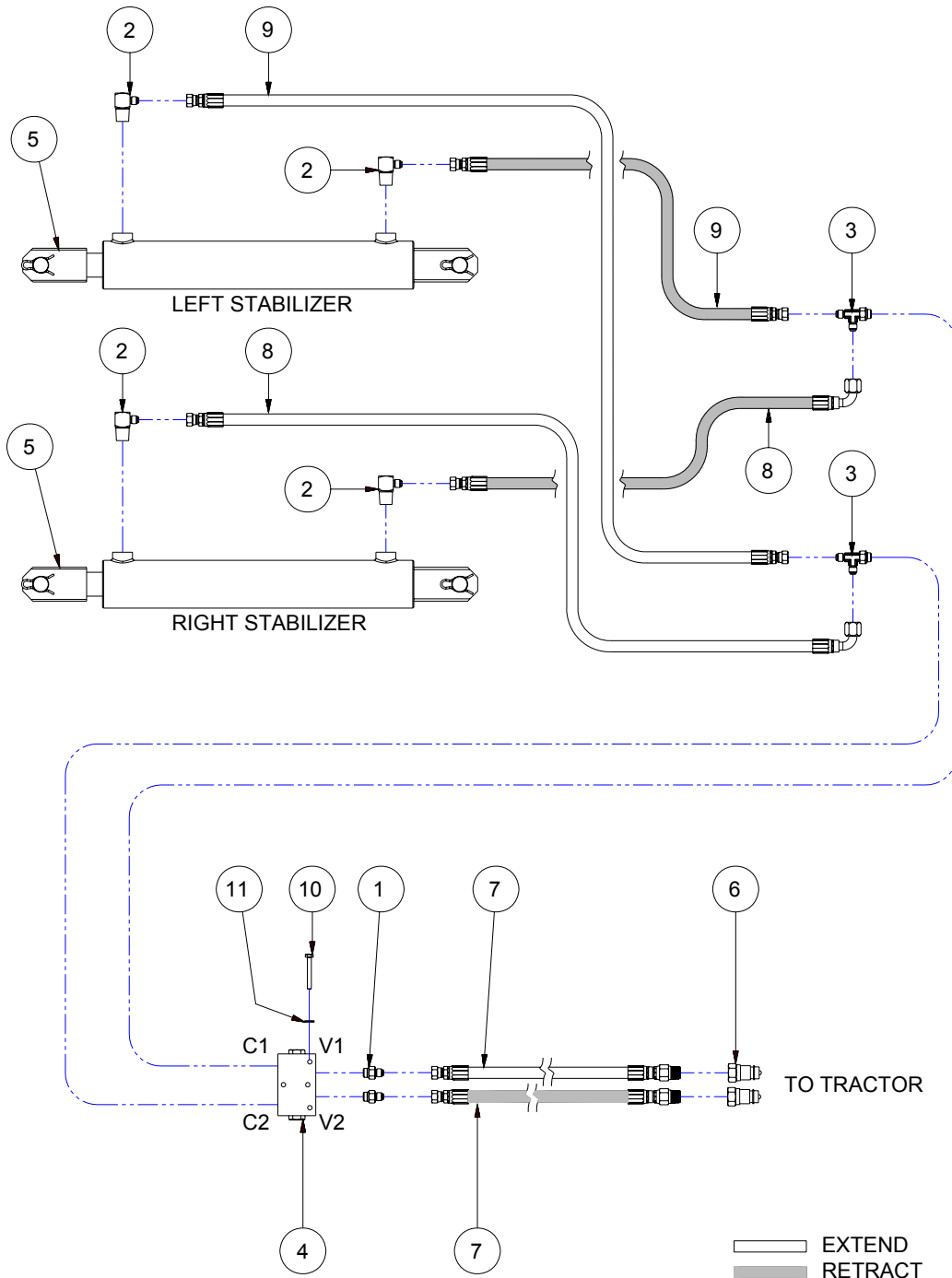
4600M – 5100M – 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	HOSE CLAMP ("BUTTERFLY" CLAMP)	16-632	4
2	VALVE HANDLE	22-657	1
3	VALVE TIE BAR	22-658	1
4	PLUG – 1/4" NPT SQUARE	25-WHD-3151X4	1
5	ADAPTER, #04 JIC-M X #02 NPT-M	25-WHD-5205X04	2
6	ADAPTER - #16 JIC-M X #16 SAE-M	25-WHD-5315X16	3
7	HEX NIPPLE - #8 NPT-M X #8 NPT-M	25-WHD-5404X8X8	1
8	SW. ELBOW - #16 JIC-M X #16 JIC-F X 90°	25-WHD-5506X16	1
9	ELBOW - #4 JIC-M X #4 SAE-M X 90°	25-WHD-5515X4	2
10	RUN TEE - #16JIC X #16JIC X #16SAE	25-WHD-5716X16	3
11	RUN TEE - #6 JIC X #6 JIC X #6 SAE	25-WHD-5716X6	1
12	ADAPTER - #4 JIC-M X #4 SAE-M	25-WHD-6400LX4X4	2
13	SW. RUN TEE - #16JIC X #16JIC X #16JIC	25-WHD-6602X16X16X16	1
14	HYDRAULIC COUPLER TIP	40-563	2
15	HYDRAULIC VALVE MANIFOLD	40-568-B	1
16	HYDRAULIC HOSE - 1/4 IN. X 129 IN.	40-HHZ-0030	2
17	HYDRAULIC HOSE - 3/4 IN. X 196 IN.	40-HHZ-0039	2
18	HYDRAULIC HOSE - 1 X 51 1/2 IN. - 4600M/5100M	40-HHZ-0169	2
—	HYDRAULIC HOSE - 1 X 80 IN. - 5500M ONLY	40-HHZ-0177	2
19	HYDRAULIC HOSE - 1 X 60 1/2 IN. - 4600M/5100M	40-HHZ-0170	2
—	HYDRAULIC HOSE - 1 X 89 IN. - 5500M ONLY	40-HHZ-0178	2
20	HYDRAULIC HOSE - 1/4 IN. X 41 IN.	40-HHZ-0171	1
21	HYDRAULIC HOSE - 1/4 IN. X 120 IN. - 4600M/5100M	40-HHZ-0172	1
—	HYDRAULIC HOSE - 1/4 IN. X 149 IN. - 5500M ONLY	40-HHZ-0176	1
22	1/2 IN. IN-LINE CHECK VALVE	40-HYD-CV050	1
23	HYDRAULIC HAND PUMP	40-HYD-HP22SA50	1
24	BALL VALVE - 1/4 IN. HIGH PRESS.	40-HYD-VLV025BLLFF	1
25	1/4-20 X 1.25 STAINLESS STEEL BOLT	88-BLT-02520X125	2
26	1/4-20 X 2.00 STAINLESS STEEL BOLT	88-BLT-02520X200	4
27	3/8-16 X 4.50 STAINLESS STEEL BOLT	88-BLT-03816X450	2
28	1/4-20 STAINLESS STEEL LOCK NUT	88-NUT-LOC025-20	6
29	3/8-16 STAINLESS STEEL LOCK NUT	88-NUT-LOC038-16	2
30	5/16 STAINLESS FLAT WASHER	88-WSR-FLT031	2
31	1/4 STAINLESS STEEL LOCK WASHER	88-WSR-LOC025	4
32	1/4 STAINLESS STEEL SAE WASHER	88-WSR-SAE025	8
33	3/8 STAINLESS STEEL SAE WASHER	88-WSR-SAE038	2
34	5/16-18 x 1 1/4 GRADE 8 SHCS	89-SCR-SH03118X125	4
35	U-BOLT - 1/4-20 ROUND	90-UBT-RND02520X200	2

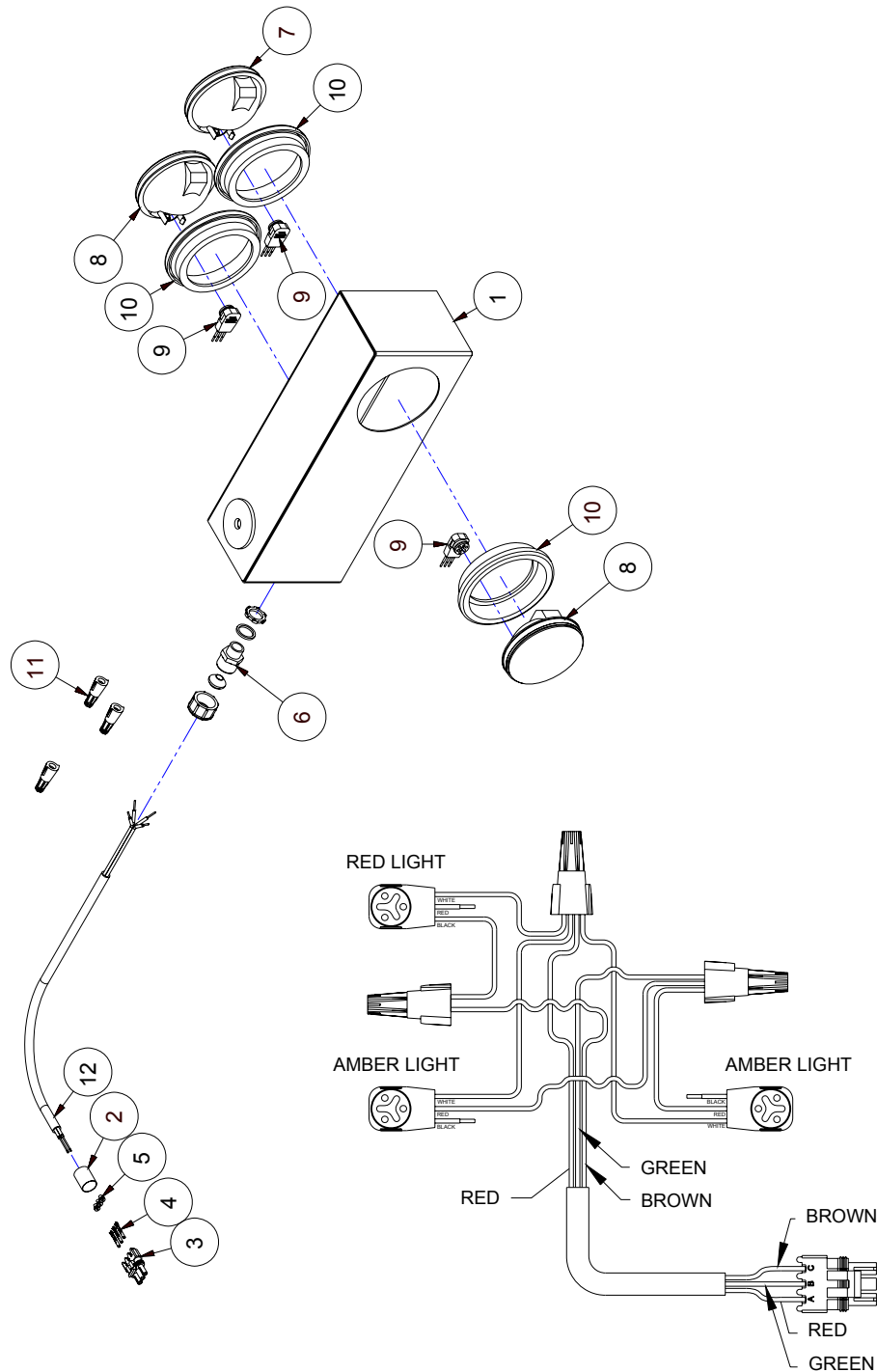
Hydraulic System - Stabilizers

4600M – 5100M – 5500M
(FROM 01307024600M)



Light Housing – 22-645

4600M – 5100M – 5500M
(FROM 01307024600M)



Light Housing – 22-645

4600M – 5100M – 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	TURN SIGNAL HOUSING	22-613	1
2	HEAT SHRINK TUBING 3/4"	40-234	1
3	MALE CONNECTOR - 3-WAY	40-366	1
4	FEMALE TERMINAL - 14 GA.	40-368	3
5	WIRE SEAL GREY - 16-14 GA.	40-369	3
6	STRAIN RELIEF CONNECTOR 1/2 IN.	40-533	1
7	TAIL LAMP - 4 IN. - RED	40-699	1
8	TAIL LAMP - 4 IN. - YELLOW	40-700	2
9	3 WIRE 90 DEG PLUG IN PIG TAIL	40-701	3
10	TAIL LAMP GROMMET	40-702	3
11	SMART SEAL CONNECTOR	40-796	3
12	4-CONDUCTOR CABLE	40-798	2

Decals

4600M – 5100M – 5500M

(FROM 01307024600M)

Decals

4600M – 5100M – 5500M

(FROM 01307024600M)

4

10

9

12

11

3

8

17

2

6

7

16

1

5

15

Decals

4600M – 5100M – 5500M

(FROM 01307024600M)

Item	Description	Part Number	Qty
1	LABEL - GREASE POINT	40-041-A	5
2	LABEL - HIGH PRESS SPRAY	40-049-A	1
3	LABEL - ENTANGLEMENT	40-051-A	3
4	LABEL - INDEXER CONDITION	40-115-A	1
5	LABEL - BRAKE ADJUST	40-188-A	1
6	CADMAN SERIAL NUMBER TAG	40-238	1
7	LABEL - ROTATING DRUM	40-287-B	4
8	LABEL - PINCH POINT	40-289-A	2
9	LABEL - MOVING PARTS HAZARD	40-290-A	2
10	LABEL - MAX TOW SPEED	40-291-A	1
11	DECAL - AMBER REFLECTIVE	40-598	4
12	DECAL - RED REFLECTIVE	40-599	4
13	DECAL - DRUM SIDE	40-754	4
14	DECAL - 4600M SIDE PANEL	40-754-4600M	2
—	DECAL - 5100M SIDE PANEL	40-754-5100M	2
—	DECAL - 5500M SIDE PANEL	40-754-5500M	2
15	LABEL - DRUM LOCK	40-917	1
16	LABEL - TORQUE WHEELS	42-035	2
17	LABEL - OPERATOR MANUAL	42-050	1

Required Maintenance

Prevention of mechanical failure is the goal of any good maintenance schedule. The secret to preventing unwanted down time is to adhere to a maintenance schedule suited to the way you use the equipment. Your maintenance schedule should include the following minimum requirements:



Maintenance must be done ONLY when the machine is shut down and is in a non-loaded condition. This means that no fluid is being pumped through the reel and all mechanical and hydraulic tension has been released from the hose rewind system and stabilizers.

Each Use


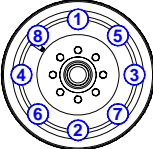
Maintenance Item	Figure	Procedure
Visually inspect equipment	N / A	Walk around the unit and inspect for loose, missing or damaged items. Check the condition of the indexer drive button, chains and connecting links. Replace missing or damaged items and tighten loosened items.
Maintain tire pressure.	N / A	Using a tire pressure gauge, check the pressure of each tire and add or remove air to achieve the manufacturer's recommended pressure posted on the tire sidewall.  DO NOT LOWER TIRE PRESSURE BELOW THE RECOMMENDED LEVEL. A lower pressure than the recommended pressure will result in the tire separating from the rim.
Tighten all wheel bolts	 img-00132.wmf	Before moving the unit, verify that the wheel bolts are tight. When tightening the lug nuts use the star pattern with your torque wrench set at 150 ft/lbs (203 N.m).
Adjust, if necessary, the alignment and tension of the drive chains	Figure 24	The drive chains (around the drum) are properly tensioned when it has no visible slack and is seating properly onto the drive pegs when the drum rotates. Adjustments are made by turning the locknut (3/4" wrench) on the spring adjustment rod.
Check the oil level in the indexer gearbox	Figure 23	Remove the oil plug (hex plug) on the side of the gearbox. The oil should be level with the bottom of the plug hole. (refill capacity = 350mL (12 oz.) approximately)
Lubricate the indexer drive button and slide rails	Figure 22	Liberally apply acceptable grease along the length of the slide rail and around the drive button. (See Lubricants)
Lubricate all grease fittings	Figure 25	Using a grease gun, lubricate each grease fitting with an appropriate amount of acceptable grease. (See Lubricants)

Table 1 - Required Maintenance - Each Use

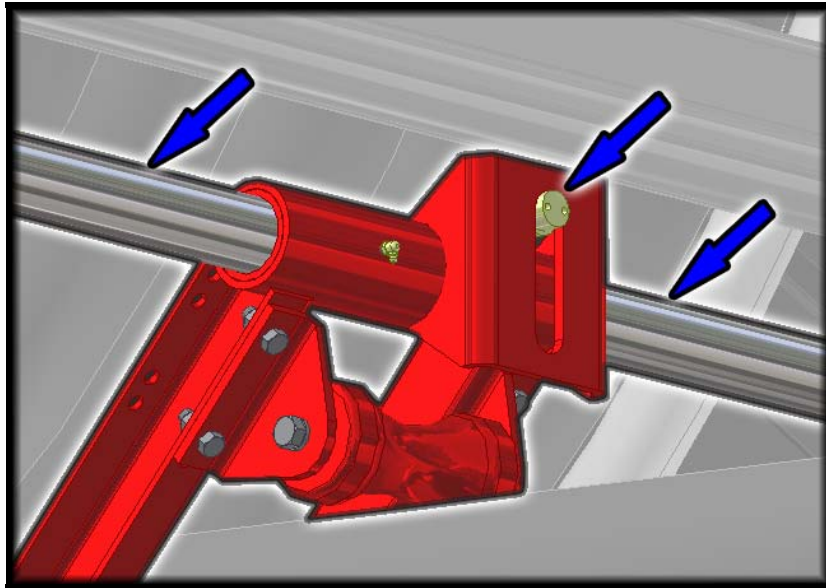


Figure 22 - Grease Indexer Rail and Button

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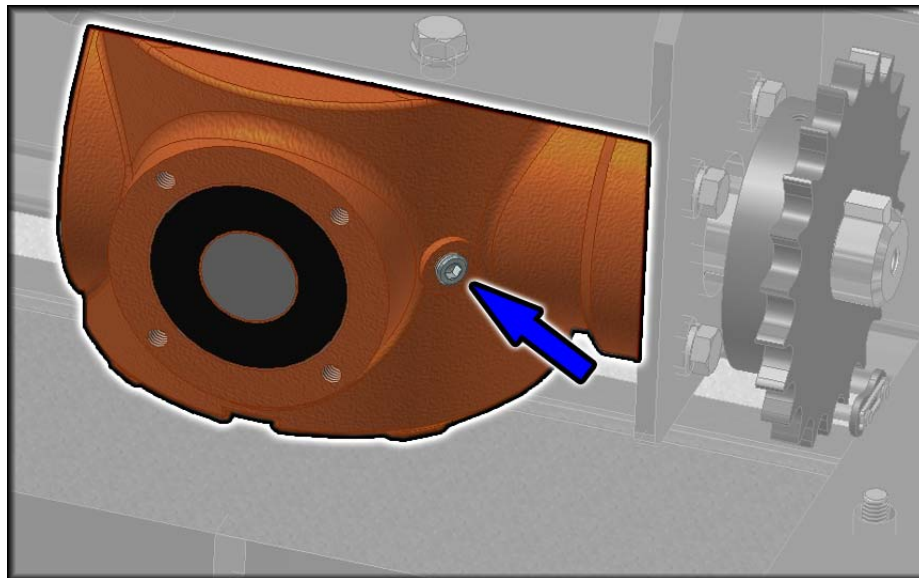


Figure 23 - Indexer Gearbox Oil Filling

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Figure 24 - Drive Chain Adjuster (both sides)

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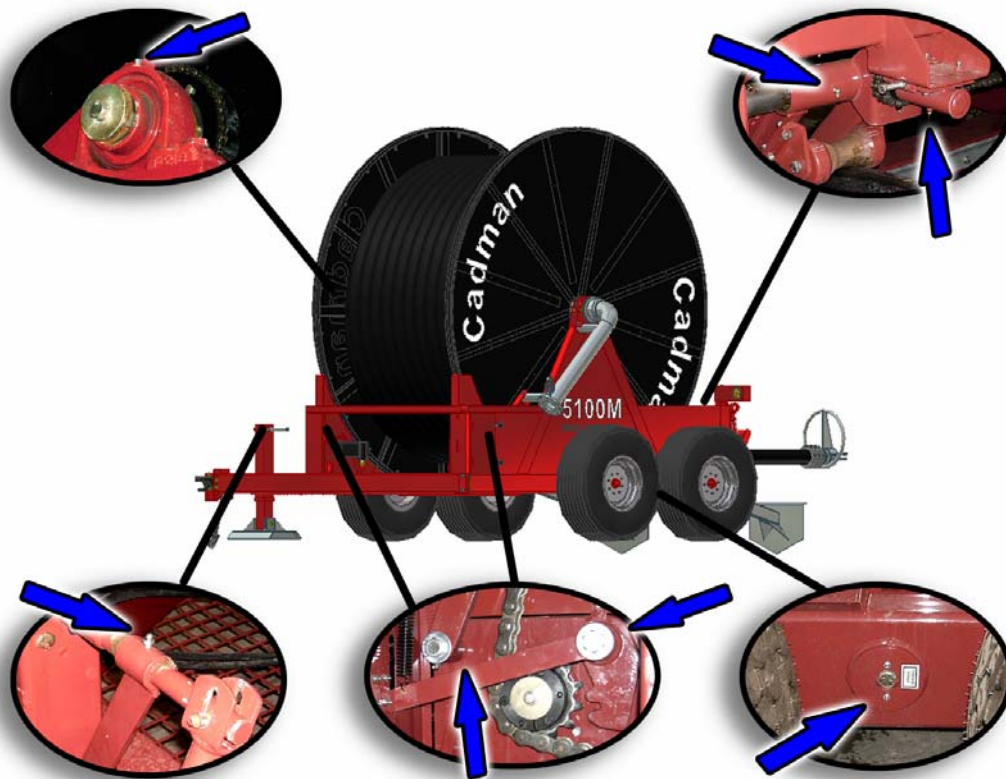


Figure 25 - Grease Points

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Before Storing



You **MUST** properly empty and flush your Hard Hose Drag System before storing the machine for more than one day. Failure to properly clean out the hose could result in the hose being plugged with sediment.



Before storing your unit ensure the drive brake is applied and all pressure is relieved from the clutch pump. This will prevent clutch damage.

Maintenance Item	Figure	Procedure
Drain and clean out the hose.	N / A	Use a clean-out ball (sold separately) following the instructions provided with the unit. OR Flush with water (minimum of 2000 gallons (7600 liters)) to completely purge the hose.
Clean, inspect and repack the main chassis wheel bearing.	N / A	See Walking Beam Assembly on page 30. Replace the seals as required
Lubricate all chains	N / A	Brush each chain with acceptable grease. (see "Lubricants")
Check the oil in the indexer gearbox	Figure 23	Remove the oil plug. Top off or replace the oil as required. The oil should be level with the bottom of the plug hole. (refill capacity = 350mL (12 oz.) approximately)

Table 2 – Required Maintenance - Before Storing

Lubricants

Grease: Any good grade multi-purpose, waterproof grease is compatible with the greasing requirements of your **Cadman Hard Hose Reel**.

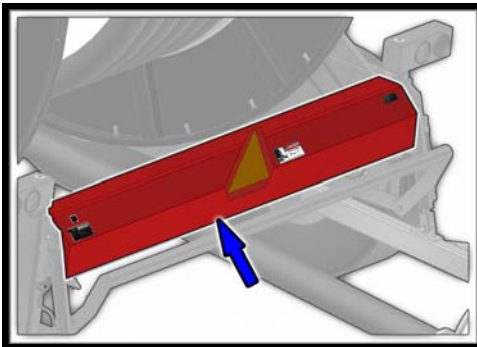
Gearbox: SAE 80W or 90W gear oil.

Indexing System Adjustment

The indexing should **ONLY** be checked when only the base layer of hose is remaining on the drum. The hose connection should be in the 6 o'clock position (closest to the ground). If gaps exist between the coils of the hose, set the drum brake and manually push the coils together. If the hose does not travel straight off the drum and through the hose guide it must be adjusted using the instructions below.

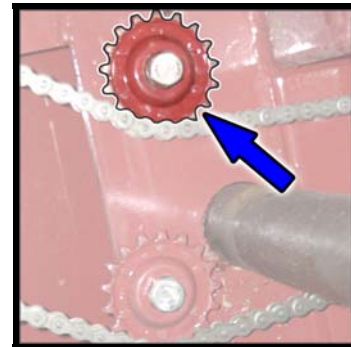


If safety shields are removed you MUST properly re-install them before operating the machine



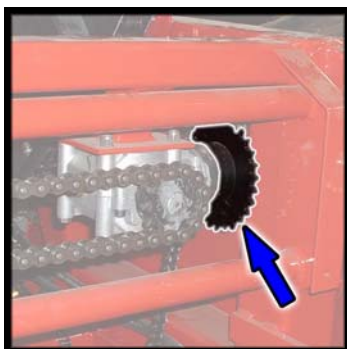
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With the brake set and the hose connection (barb on drum) at 6 o'clock, remove the index shield.



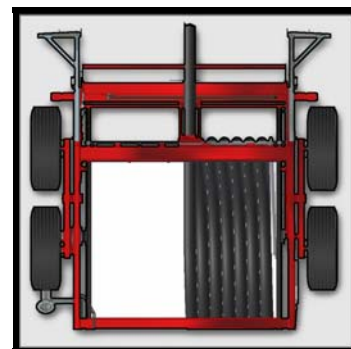
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Loosen the top idler gear, and then remove the chain from the sprocket on the gear box.



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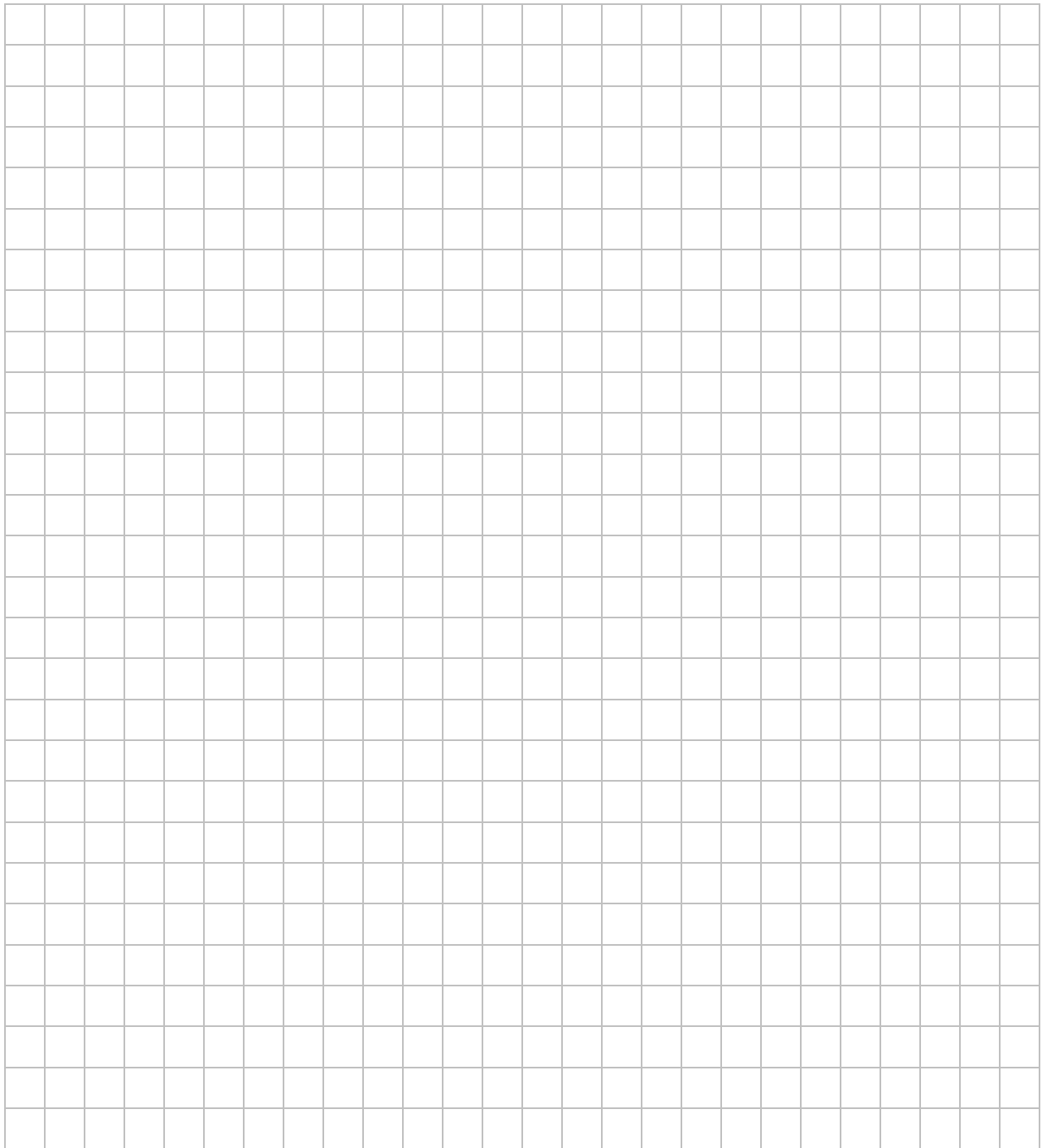
Adjust the position of the hose guide by rotating the sprocket.



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The hose guide is properly aligned when the hose travels in a straight line through the hose guide and lays flush against the drum elbow or previous coil of hose.

When re-installing the chain, hold pressure on the idler wheel by pushing with a wrench on the inside nut. Make sure all the slack from the lower portion of the chain is taken up. Tighten the idler wheel bolt while holding pressure. **Properly re-install all safety shields.**



Useful Information

LENGTH

1 FOOT	= 12	Inches	1 METER	= 39.37	Inches
1 ROD	= 0.3048	Meter	1 MILE	= 3.2808	Feet

AREA

1 SQUARE FOOT	= 144	Square Inches
	= 0.0929	Square Meters
1 SQUARE YARD	= 1296	Square Inches
	= 0.8361	Square Meters
1 SQUARE METER	= 1549.4	Square Inches
	= 10.764	Square Feet
1 ACRE	= 43560	Square Feet
	= 4047	Square Meters
	= 0.4047	Hectare
1 HECTARE	= 107642.62	Square Feet
	= 10000	Square Meters
	= 2.47105	Acres
1 SQUARE MILE	= 640	Acres
	= 259	Hectares

VOLUME

1 GALLON (US)	= 0.8327	Imperial Gallons
	= 231	Cubic Inches
	= 0.1337	Cubic Feet
	= 8.345	Pounds
1 CUBIC FOOT	= 1728	Cubic Inches
	= 7.48	Gallons (US)
	= 62.4	Pounds
	= 28.32	Liters
1 ACRE INCH	= 27154	Gallons (US)
	= 254	Cubic Meters / Hectare

AREA OF A CIRCLE = Diameter x Diameter x 0.7854

CYLINDER VOLUME (US GAL.) = Diameter (ft.) x Diameter (ft.) x Length (ft.) x 5.8748