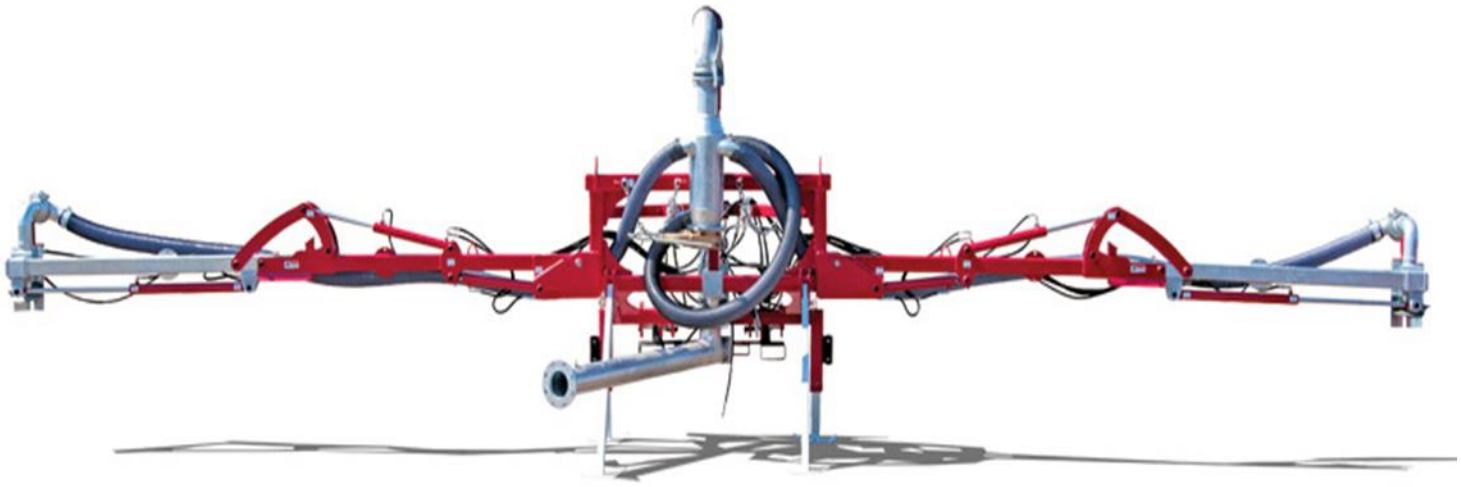
Cadman

STRENGTH SIMPLICITY DEPENDABILITY

3NMB

3 Nozzle Manure Boom



OPERATOR'S and MAINTENANCE MANUAL
2014 Edition

TR-MAN-3NMB

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3NMB - 3 Nozzle Manure Boom

We would like to thank you for purchasing your new **Cadman 3 Nozzle Manure Boom**. You have purchased a product of superior quality that will serve your needs for a long time as long as you follow this manual and safety procedures.

Figure 1 – 3 Nozzle Manure Boom

img-00692

This unit has been made to evenly distribute nutrient (liquid manure, milk house run-off, etc.) during field applications. You can mount this unit on any Category 1, 2, 3, or 3N three-point hitch system and for more convenience a Quick Hitch system.

BEFORE operating your **Cadman 3 Nozzle Manure Boom**, 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!**

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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.

- **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** will not provide any warranty express or implied to any overdue accounts.

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.

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When Applying Liquid Manure

Current and pending laws in agricultural regions of North America change the ways in which the agricultural community needs to manage their liquid animal waste products. As a manufacturer of agricultural equipment, we feel it necessary to make you aware that the municipal, regional and state governing bodies in your area may have created new laws or updated current laws for nutrient handling practices and procedures. The changes in these laws typically target run-off prevention and soil nutrient loading.

Run off may result from several factors. Some (but not all) of the factors are:

- Incorrect application
- Difficult application areas containing steep hills or other features that may make run off more likely to happen
- Changes in weather that would allow run off to happen (sudden storms just before or just after applying, ground frost, etc.…)

Constant watch must be kept and immediate action taken when needed to prevent run off from happening.

Soil nutrient loading depends on several variables. Some (but not all) of these variables are:

- The type of crop(s) being grown
- The type of soil the crop(s) are growing in
- Nutritional value of what you are applying
- Nutritional needs of the crop(s) and soil they are growing in

Application timing, nutritional value of what you are applying, and the type of soil will determine the intake rate at which liquid may be applied. Soil analysis taken at appropriate times will help you create a correct application plan for your crop(s). In addition; local colleges, universities, and agricultural extension services are a good source of information. They may be able to help you create an application program that will help prevent problems with your application.

CADMAN POWER EQUIPMENT LIMITED is unable to provide up-to-date recommendations for the laws you must follow in your area. It is your responsibility to make yourself aware of and follow the law in your area. Please contact your local agricultural representative to obtain the latest information for legal handling and application of nutrient.

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Safety Precautions

Please take the time to read and **UNDERSTAND** this manual to avoid errors and unnecessary risks. If you have any questions or concerns, please contact **CADMAN POWER EQUIPMENT LIMITED** or your local dealer/distributor.

- **DO NOT** move or operate this machine until you have read and understand these 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 SURE** 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 you first start up the system.
- **DO NOT** remove or alter any shielding on this machine.

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 and/or any spectators.

- **MAKE SURE** that the machine is securely anchored (using a tractor/ 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.
- **NEVER** transport this machine with boom arms extended.
- **REGULAR INSPECTION** of your pipe/hose couplings, tubing and gaskets must be a part of your regular set-up routine. Any defective parts **MUST** be replaced or repaired before the machine is put into service.

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

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Safety Decals

Cadman Power Equipment Limited has determined the hazards on your 3 Nozzle Manure Boom and has labeled the machine accordingly. The safety decals on this machine are there to warn the operator of potential hazards.

Figure 2 - Signal Word Panels

img-00340

Each safety decal on this machine contains a Signal Word Panel which indicates the degree of hazard. Definitions of the Signal Words are as noted below:

- **DANGER -** an immediate, hazardous situation that if not avoided, **WILL RESULT IN DEATH OR SERIOUS INJURY**.
- **WARNING -** a potentially hazardous situation that if not avoided, could result in death or serious injury. This includes hazards that are exposed when guards are removed.
- **CAUTION -** a potentially hazardous situation that if not avoided, may result in minor or moderate injury.

It is important that these decals are maintained.

- keep all safety decals clean and legible
- replace any damaged decals
- replace any missing decals
- if applicable, install the current safety decal specified by **Cadman Power Equipment Limited** on any components installed during repair

Figure 3 – Replace Decal

img-00131-A

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Location of Safety Decals

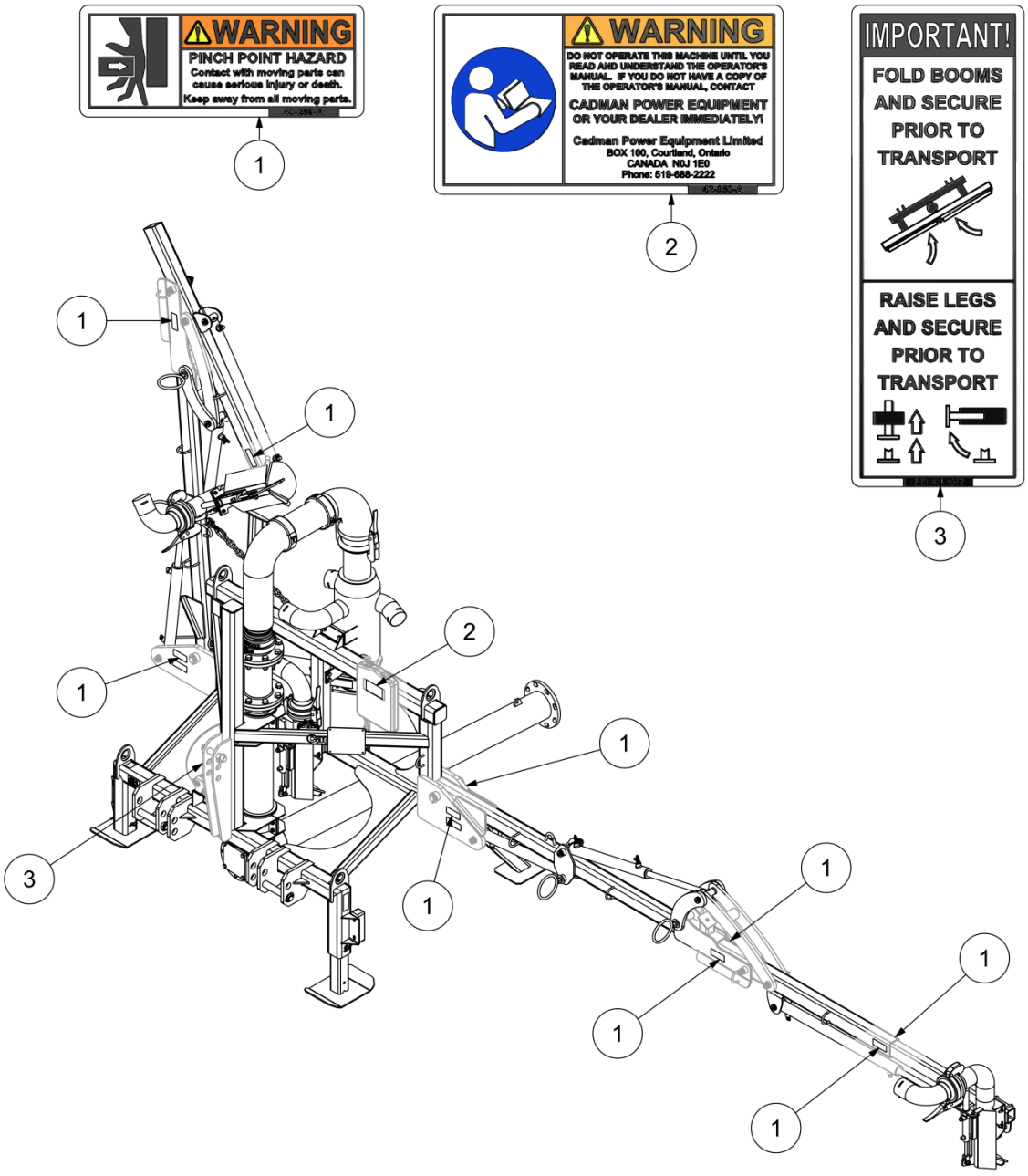

Figure 4 - Safety Label Location

img-00693

To obtain the required replacement safety decals contact **Cadman Power Equipment Limited or your Local Dealer**. Re-install all decals in the proper location on the machine. For part numbers please see page 32.

Hydraulic Connections

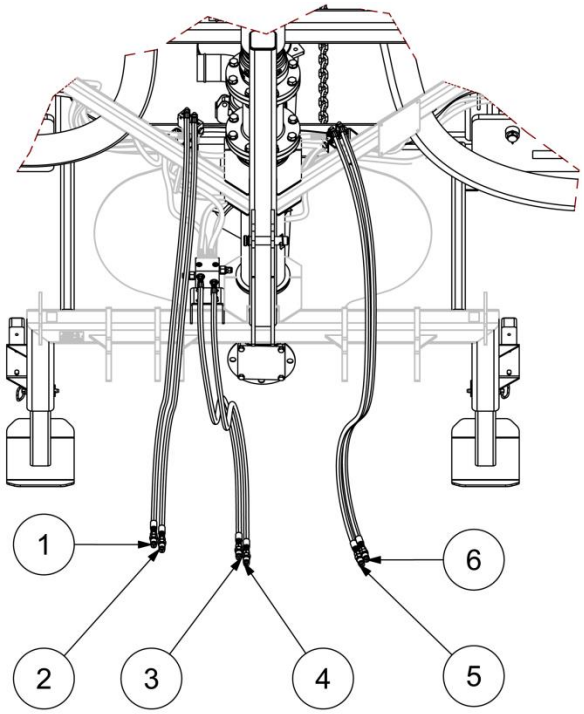

Figure 5 – Hydraulic Connections

img-00694

ITEM	DESCRIPTION	QTY
1	SPLASH PLATE – ARM RETRACTION	1
2	SPLASH PLATE – ARM EXTENSION	1
3	FOLD ARMS	1
4	UNFOLD ARMS	1
5	SPLASH PLATE - EXTEND	1
6	SPLASH PLATE - RETRACT	1

Connecting and disconnecting hydraulic hoses must ONLY be done when the machine is shut down and is in a non-loaded condition. This means that all mechanical and hydraulic pressure has been released. Make sure to clean all contact surfaces before connecting hydraulic hoses or replacing the multi-port dust caps. Replace all multi-port dust caps when not in use. When connecting the female and male multi-port units together watch that you do not catch your fingers or other objects in between the connections.

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Operation Instructions

Figure 6 – Tractor Operating 3 Nozzle Boom

img-00695

Complete the following instructions to setup and operate your 3 Nozzle Manure Boom:

Step 1

Connect your 3 Nozzle Manure Boom to the three-point hitch system of your tractor. Then connect the hydraulic system to the tractor after your 3 Nozzle Manure Boom is properly connected to your Tractor.

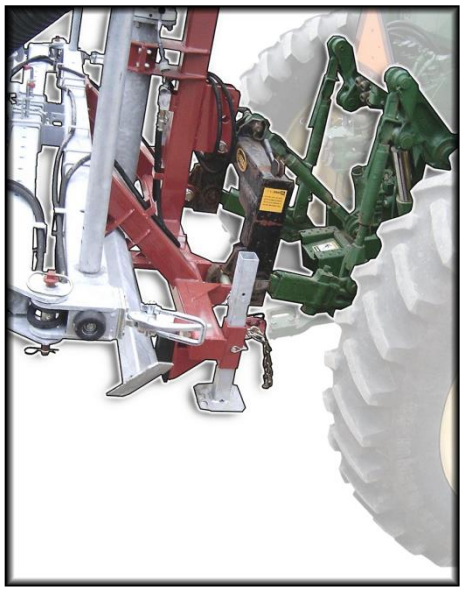

Figure 7 – Tractor Operating 3 Nozzle Boom

img-00041

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Step 2

Before operating the 3 Nozzle Manure Boom for the first time **OR** after a long period of storage you must synchronize the splash plate adjustment cylinders. Cycle the tractor's hydraulic system to close the splash plates. Hold the system in the closed position for **AT LEAST 5 MINUTES** to purge the boom's hydraulic system of air. This step must be completed to ensure even coverage during the application process.

Step 3

Raise the 3 Nozzle Manure boom; then raise all four leg stands.

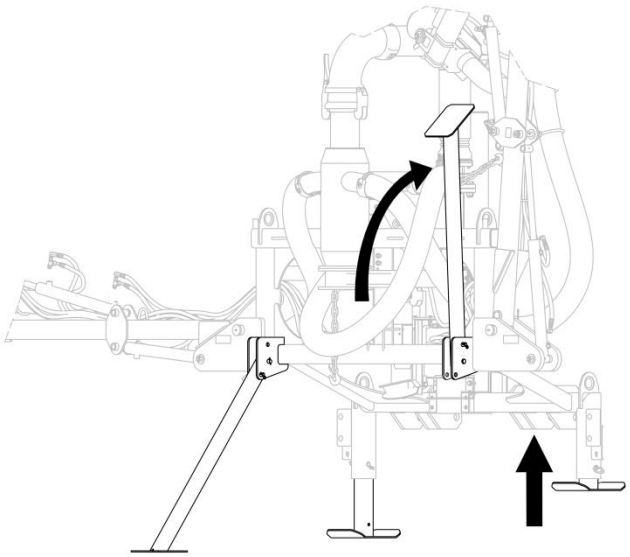

Figure 8 - Retract Stand Legs

img-00696

Step 4

Locate your tractor so that the boom is in front of the nutrient delivery system connection.

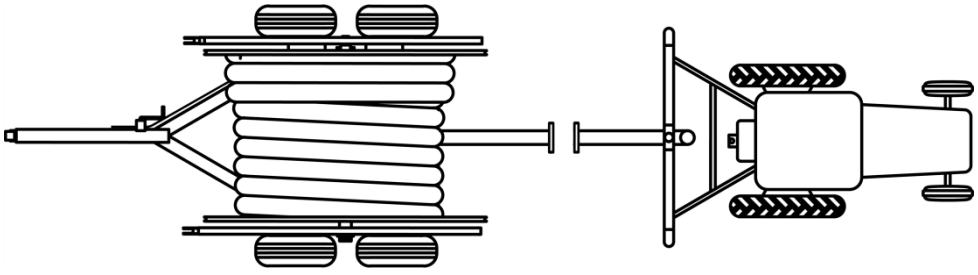

Figure 9 - Locate Tractor

img-00043

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Step 5

Connect the Drag Elbow connection to the nutrient delivery systems hose and check that all chains are connected.

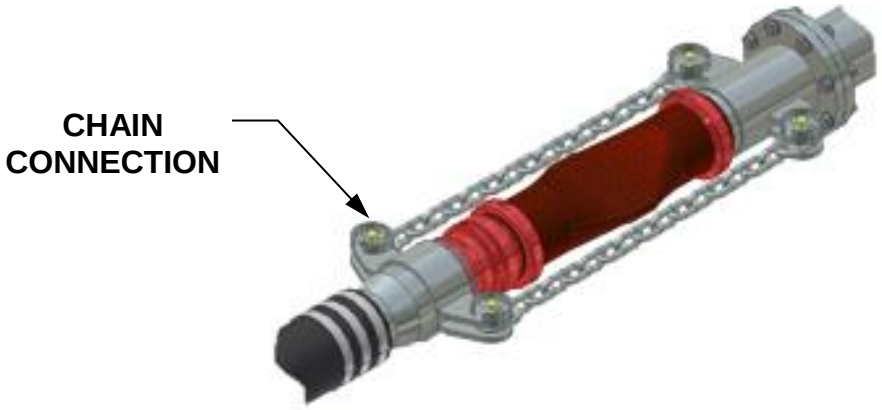

Figure 10 - Connect Chains

img-00144

If the chains are not connected correctly damage may occur resulting in ponding/pooling of effluent.

Step 6

Check that the Ball Catcher Valve is fully closed. If the Ball Catcher valve is not fully closed then close it and check to make sure it's fully closed.

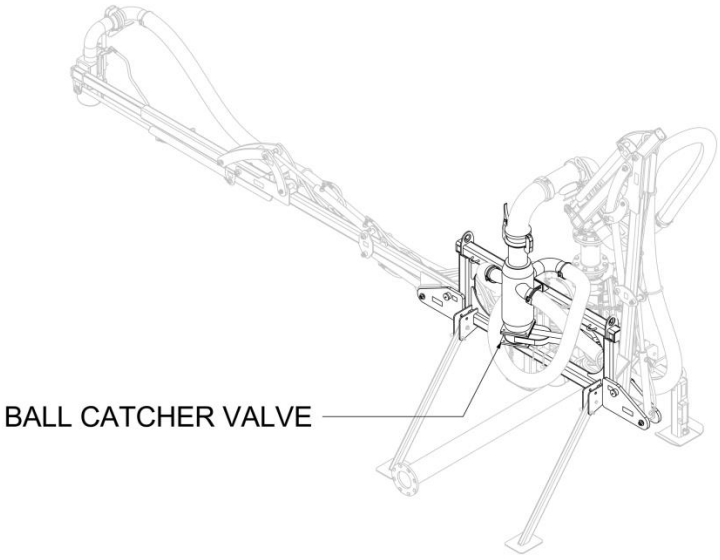

Figure 11 – Ball Catcher Valve

img-00698

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Step 7

Check that all hose connections are secured correctly. Unfold the boom arms and move them into position using your Tractor's hydraulics after you have checked all hose connections.

Figure 12 - Unfold Boom Arms

img-00046-A

Step 8

Pull the hose out to furthest point in your field to prepare for application.

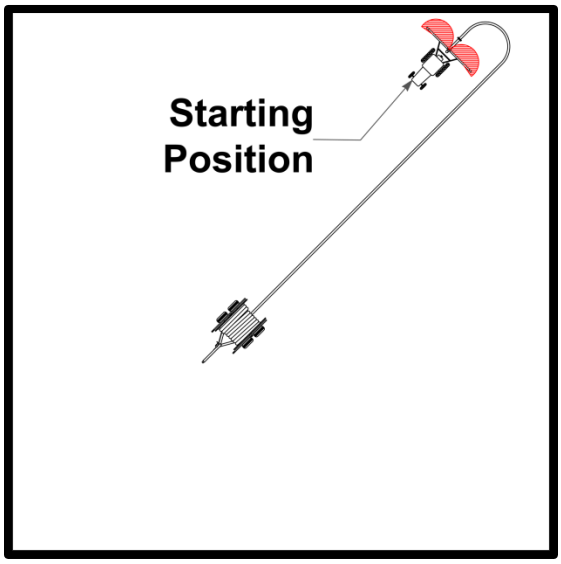

Figure 13 - Boom Field Starting Position

img-00047

The Hose Reel MUST have at least one full coil of hose on the drum as a minimum to prevent damage to equipment. Damage can cause fluid leaks and will result in ponding/pooling of effluent.

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Step 9

3. Adjust the nozzles for correct coverage and to avoid excess overlap. This can be done by three separate adjustments:

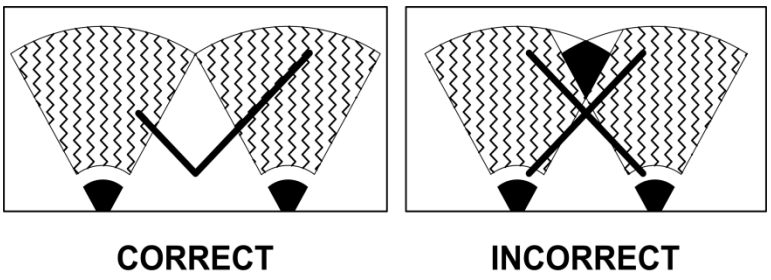


Figure 14 - Unreel Direction

img-00048

4. Adjust the sliding nozzle mount to your needed width.

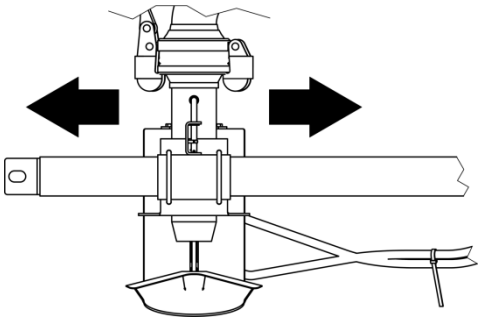


Figure 15 - Sliding Nozzle Adjustment

img-00049

5. Adjust the three-point hitch to your needed height

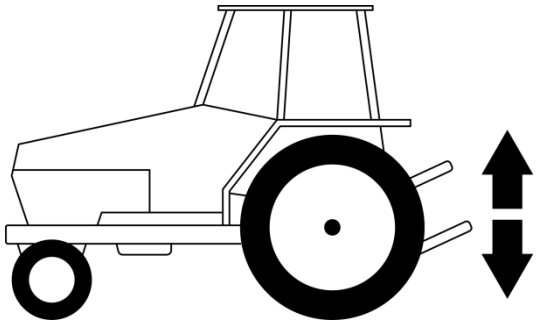


Figure 16 - 3-Point Hitch Adjustment

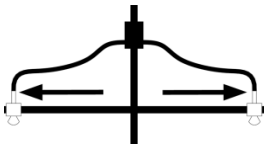
img-00051

OPERATOR NOTE

Each application may require adjustment based on system variables (e.g. solid content, pump pressure, distance from source, etc.). The following are guidelines to aid in the set-up process

Maximum:

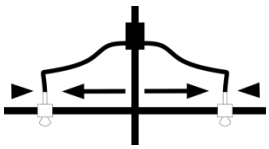
For Low (1-2%) Solid Content Fluid and good operating pressure adjust the nozzles to the maximum width.



img-00032

Medium:

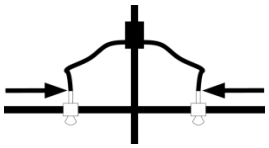
For Medium (3-4%) Solid Content Fluid and/or poor operating pressure adjust the nozzles to a narrower width.



img-00033

Minimum:

For High (5-6%) Solid Content Fluid and/or poor operating pressure adjust the nozzles to the narrowest width.



img-00034

Please Note:

Variables such as system design, pump capacity, 3-point hitch limitations, and slurry constitution may result in adjustments other than shown in these guidelines.

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OPERATOR NOTE:
Adjust tractor hydraulic flow to a low level. Slow splash plate movement allows for better adjustment of the spread pattern.

6. Adjust the splash plates to get the correct spread pattern.

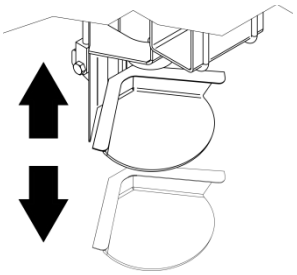
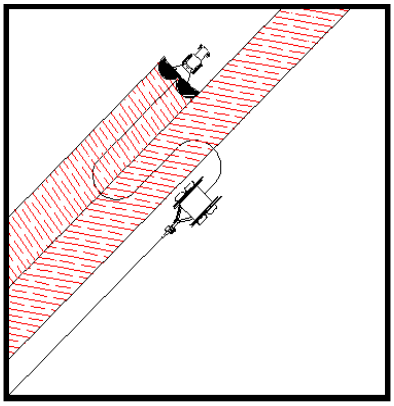


Figure 17 – Splash Plate Adjustment

img-00050

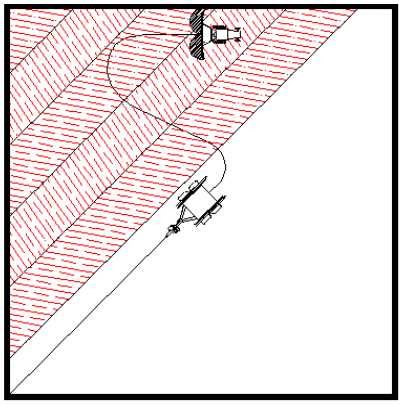
Step 10

Once the boom nozzles are set correctly you can start applying nutrient liquid. There are a number of hose drag patterns that can be used when applying nutrient liquid. **Cadman Power Equipment Limited** has found the zigzag pattern to be one of the best methods. We recommend this method, but you are not limited to using it. Follow the instructions below if you are going to use the zigzag method.



img-00035

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



img-00036

2. When you have finished the first half, drive along the outside of the area to the second half of your section

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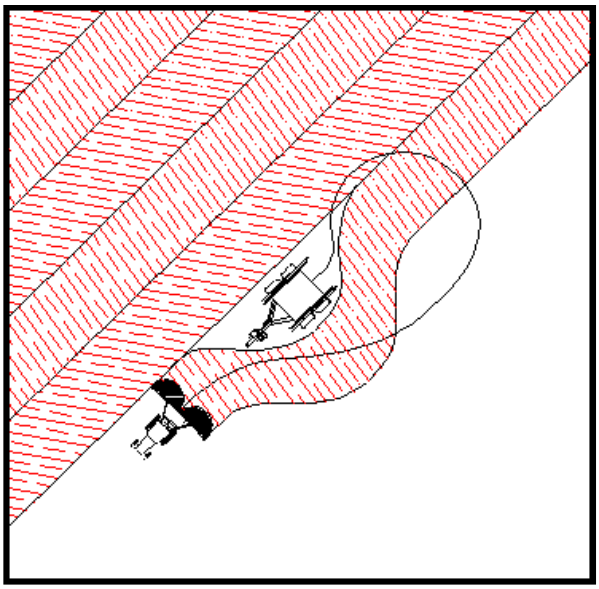
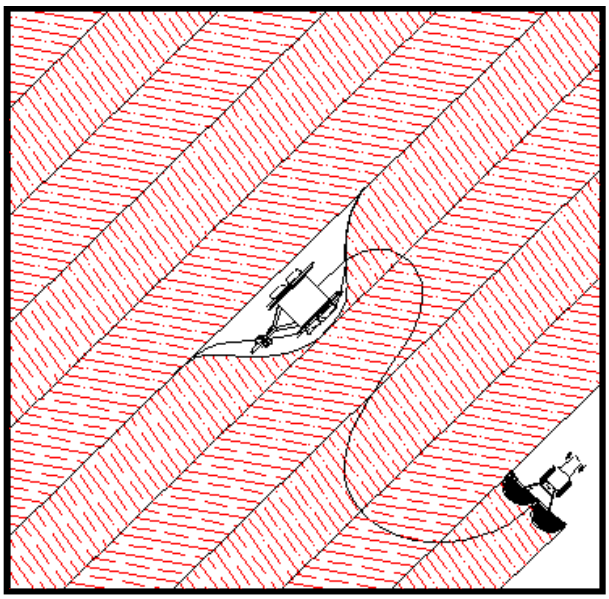


img-00037

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



img-00038

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 up or down sloping terrain instead of operating across a side hill.

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

Be aware of obstacles in the field. Application plans need to take into account any obstacles that could get in the way of your application.

Keeping your 3 Nozzle Manure Boom clean will dramatically increase its life.

Cleaning the hoses, as well as cleaning the exterior of your 3 Nozzle Manure Boom is highly recommended after each use.

Step 11

Start the hose blow out procedure. Keep moving the boom through the field until flow to the nozzles has stopped.

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The hose is a high volume "Receiver Tank" containing a large amount of fluid. You must allow enough spreading area to properly apply the hose contents.

- 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

Failing to compensate for the fluid in the hose <u>WILL</u> result in over application of fluid.

Notes

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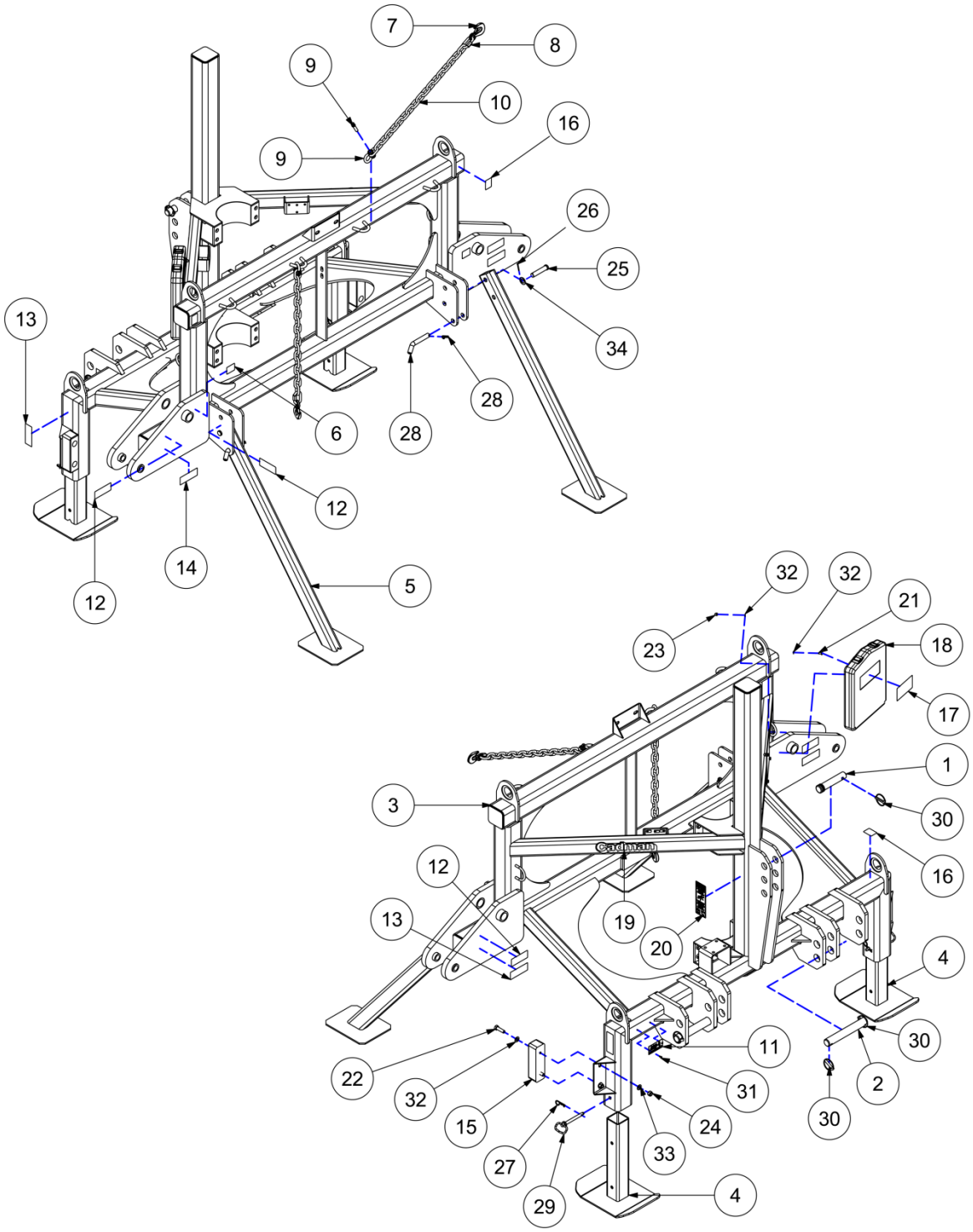
Frame Assembly



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Frame Assembly

ITEM	DESCRIPTION	PART NUMBER	QTY
1	HITCH PIN - UPPER	13-397	1
2	LOWER HITCH PIN	13-405-A	2
3	MAIN BOOM FRAME WELDMENT	13-500-S	1
4	DROP LEG FABRICATION	13-910-A	2
5	STABILIZER LEG WELDMENT	13-958-C	2
6	LABEL - GREASE POINT	40-041-A	2
7	SAFETY HOOK - 3/4 TON	40-062	2
8	RAPID LINK - 3/8"	40-063	2
9	SHACKLE - 3/8 IN. GALVANIZED	40-064	2
10	TOW CHAIN - 3/8 X 18 LINKS	40-065	2
11	CADMAN SERIAL NUMBER TAG	40-238	1
12	LABEL - PINCH POINT	40-289-A	6
13	DECAL - AMBER REFLECTIVE	40-598	4
14	DECAL - RED REFLECTIVE	40-599	2
15	BUMPER - 2 1/4 X 7 11/16 X 2.00	40-820	2
16	LABEL - LIFT POINT	40-933	4
17	LABEL - OPERATOR MANUAL	42-050-A	1
18	MANUAL PAK - LARGE	42-071	1
19	DECAL - CADMAN 11" L X 2.41" H	42-DCL-009S	2
20	LABEL - TRANSPORT INSTR.	42-LBL-014	1
21	BOLT - 1/4-20 X 1/2	90-BLT-02520X050	4
22	BOLT - 1/2-13 X 1 3/4	90-BLT-05013X175	4
23	NUT ACORN - 1/4-20UNC LOW	90-NUT-ACL025-20	4
24	NUT LOCK - 1/2-13	90-NUT-LOC050-13	4
25	CLEVIS PIN - 3/4 X 3.25	90-PIN-CL075X325	2
26	COTTER PIN - 1/8 X 1.00 LONG	90-PIN-CT013X100	2
27	HAIR PIN - 1/8 X 2 1/8 LONG	90-PIN-HP012X213	2
28	PIN HITCH - Ø3/4" X 3 1/2 w/COTTER	90-PIN-HT075X350	2
29	HITCH PIN - 1/2" X 4 3/4"	90-PIN-HTC050X475	2
30	LYNCH PIN - STANDARD	90-PIN-LYNCH	5
31	RIVET - 3/16 X 3/8 IN	90-RIV-019X038	2

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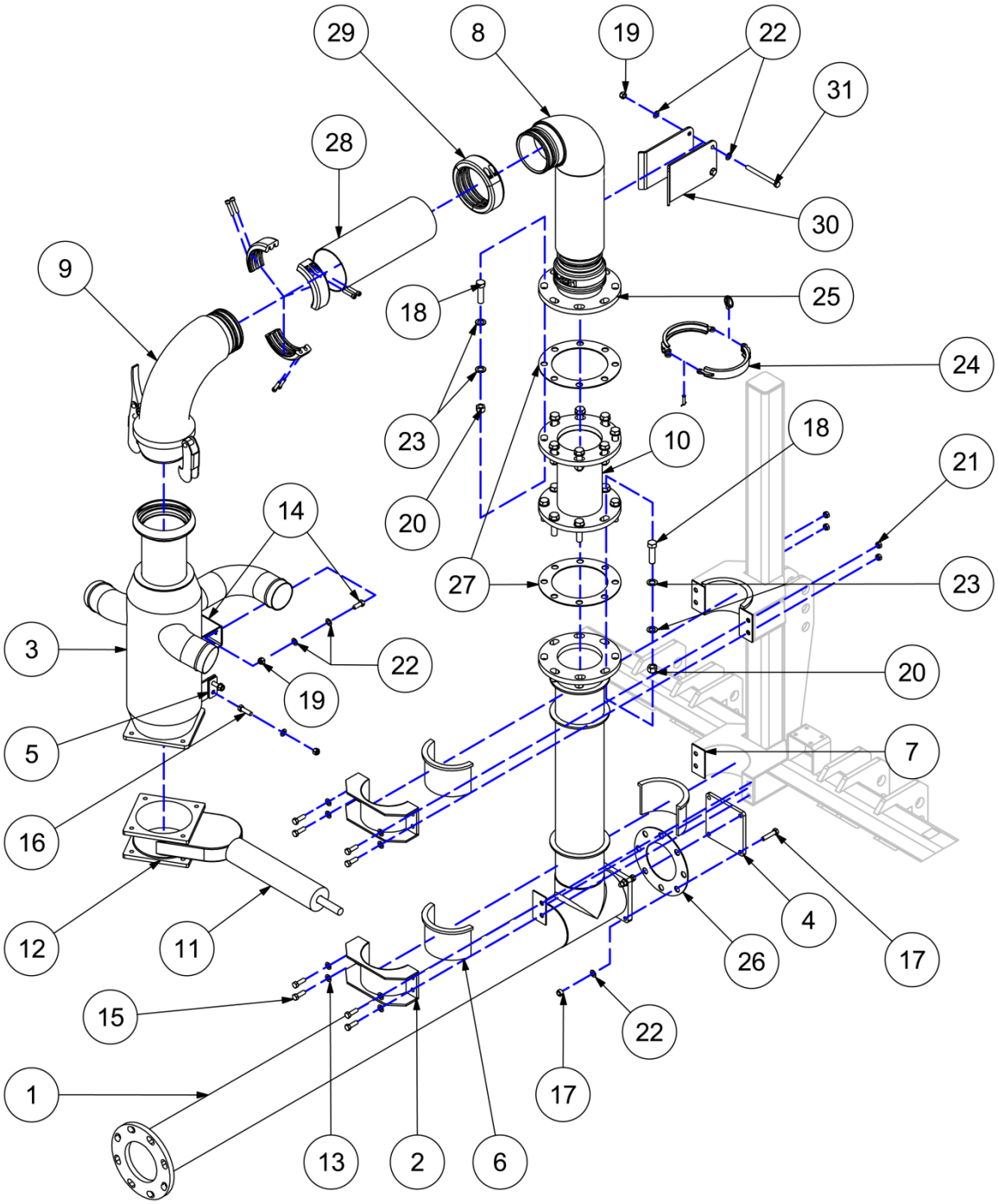
Swing Arm Assembly



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Swing Arm Assembly

ITEM	DESCRIPTION	PART NUMBER	QTY
1	DRAG ELBOW - Ø 6" 3NMB	13-505-C	1
2	CLAMP - 6" ELBOW	13-506-A	2
3	DISTRIBUTION MANIFOLD - 3NMB	13-509	1
4	GATE VALVE FLANGE CAP	13-600-A	1
5	SHIM - MANIFOLD	13-741	2
6	BUSHING - DRAG ELBOW	13-777-A	4
7	ANTI-ROTATION PLATE	13-891-A	4
8	ELBOW - Ø6" CADLOCK	13-988	1
9	ELBOW - Ø6" X 90° BARB / WIL-LOC	13-907	1
10	SPACER - FLOW METER REPLACEMENT	34-415	1
11	8" HYDRAULIC CYLINDER WITH SPIRING RETURN	40-HYD-TV8HCSJ	1
12	8" KNIFE GATE STEM VALVE	40-NPT-VLVTV8FSV	1
13	WASHER SAE - 1/2”	89-WSR-SAE050	8
14	BOLT - 1/2”-13 X 1 1/4”	90-BLT-05013X125	2
15	BOLT - 1/2”-13 X 1 1/2”	90-BLT-05013X150	8
16	BOLT - 1/2”-13 X 1 3/4”	90-BLT-05013X175	2
17	BOLT - 1/2”-13 X 2 1/4”	90-BLT-05013X225	4
18	BOLT - 3/4”-10 X 2 3/4”	90-BLT-07510X275	16
19	NUT LOCK - 1/2”-13	90-NUT-LOC050-13	8
20	NUT LOCK - 3/4”-10	90-NUT-LOC075-10	16
21	WELD NUT - 1/2”-13 CTR	90-NUT-CPW050-13	4
22	WASHER SAE - 1/2”	90-WSR-SAE050	12
23	WASHER SAE - 3/4”	90-WSR-SAE075	32
24	RINGLOCK CLAMP - HEAVY DUTY 6" WITH PINS	IR-FCL-HD6	1
25	HD RINGLOCK TUBE - 6" FLANGED STE	IR-FL6-6CLST	1
26	GASKET - 5" COMPANION FLANGE WITH BOLTS	IR-GKT-CF5	1
27	GASKET - 6" FLANGE - 8 BOLT	IR-GKT-FL6	2
28	HOSE - 6" CADMAN DRAG PRO - 17" LONG	IR-HOZ-600CDL/FT	1
29	CLAMP - 6" STORZ DOUBLE W/BOLTS	IR-MIS-20065DBL	2
30	BRACKET - EXTENSION TUBE	13-770	2
31	BOLT - 1/2-13 X 5 1/2	90-BLT-05013X550	2

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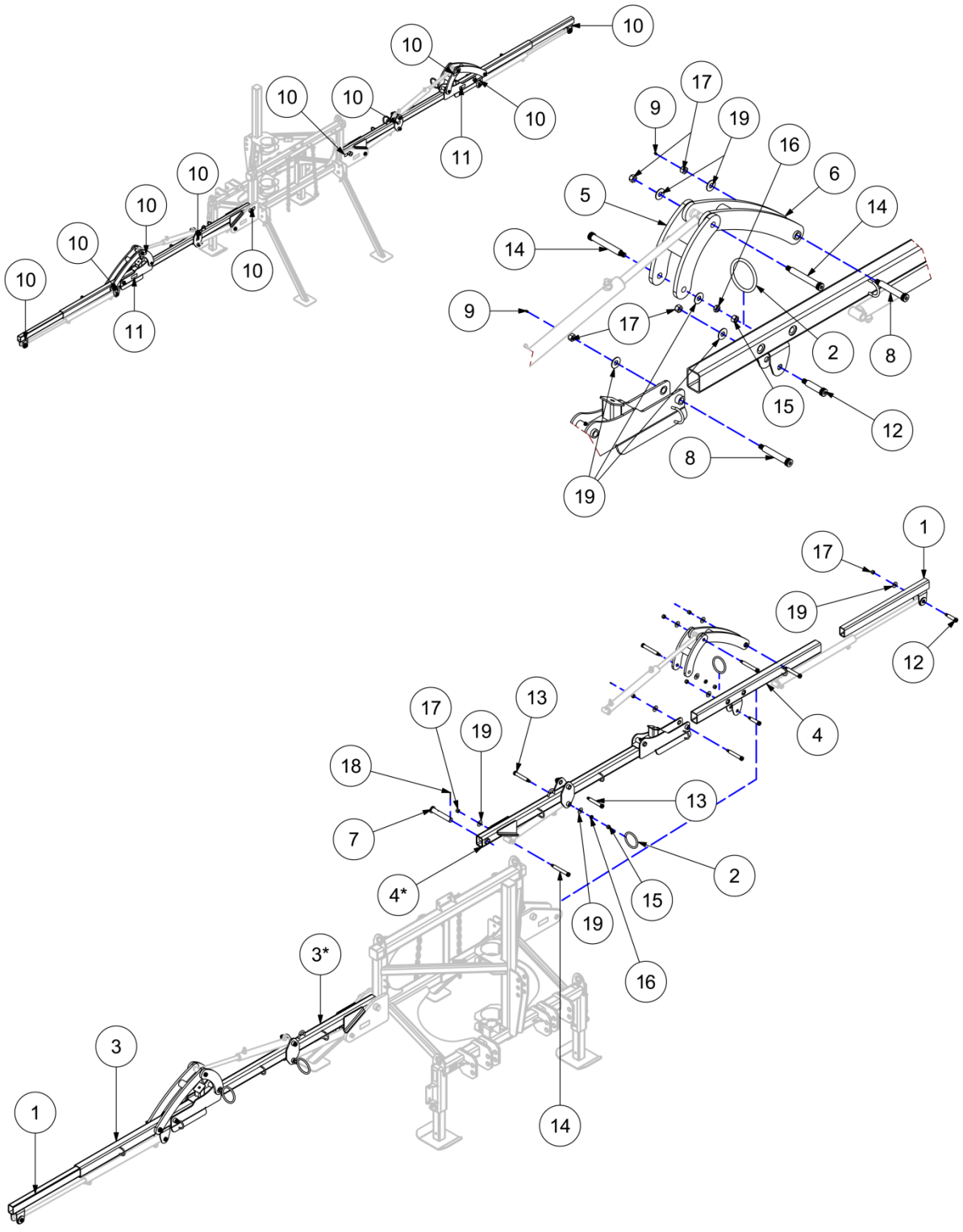
Boom Assembly



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Boom Assembly

ITEM	DESCRIPTION	PART NUMBER	QTY
1	SLIDING NOZZLE MOUNT	13-194-B	2
2	HOSE SUPPORT RING	13-601	4
3	OUTER BOOM WELDMENT R.H.	13-625-A	1
3*	INNER BOOM WELDMENT R.H.	13-620	1
4	OUTER BOOM WELDMENT L.H.	13-925-B	1
4*	INNER BOOM WELDMENT L.H.	13-920-B	1
5	CONNECTOR LINK	13-927-B	2
6	DRIVING LINK	13-934-B	2
7	3 NOZZLE BOOM PIN	13-967-A	2
8	SHOULDER BOLT - 1"X5.5"LGX3/4"-10 UNC	13-990-A	4
9	GREASE FITTING - 1/4”-28	40-001-02528	4
10	LABEL - GREASE POINT	40-041-A	10
11	LABEL - PINCH POINT	40-289-A	2
12	SHOULDER SCREW - Ø1.00” X 3 1/2” LG X 3/4”-10	90-BLT-SH100X350	4
13	SHOULDER SCREW - Ø1.00” X 5 1/2” LG X 3/4”-10	90-BLT-SH100X550	4
14	SHOULDER SCREW - Ø1.00” X 6 1/2” LG X 3/4”-10	90-BLT-SH100X650	6
15	NUT HEX - 3/4”-10	90-NUT-HEX075-10	4
16	NUT JAM - 3/4”-10	90-NUT-JAM075-10	4
17	NUT LOCK - 3/4”-10	90-NUT-LOC075-10	14
18	COTTER PIN - 3/16” X 2.00”	90-PIN-CT019X200	2
19	WASHER FLAT - 3/4"	90-WSR-FLT075	18

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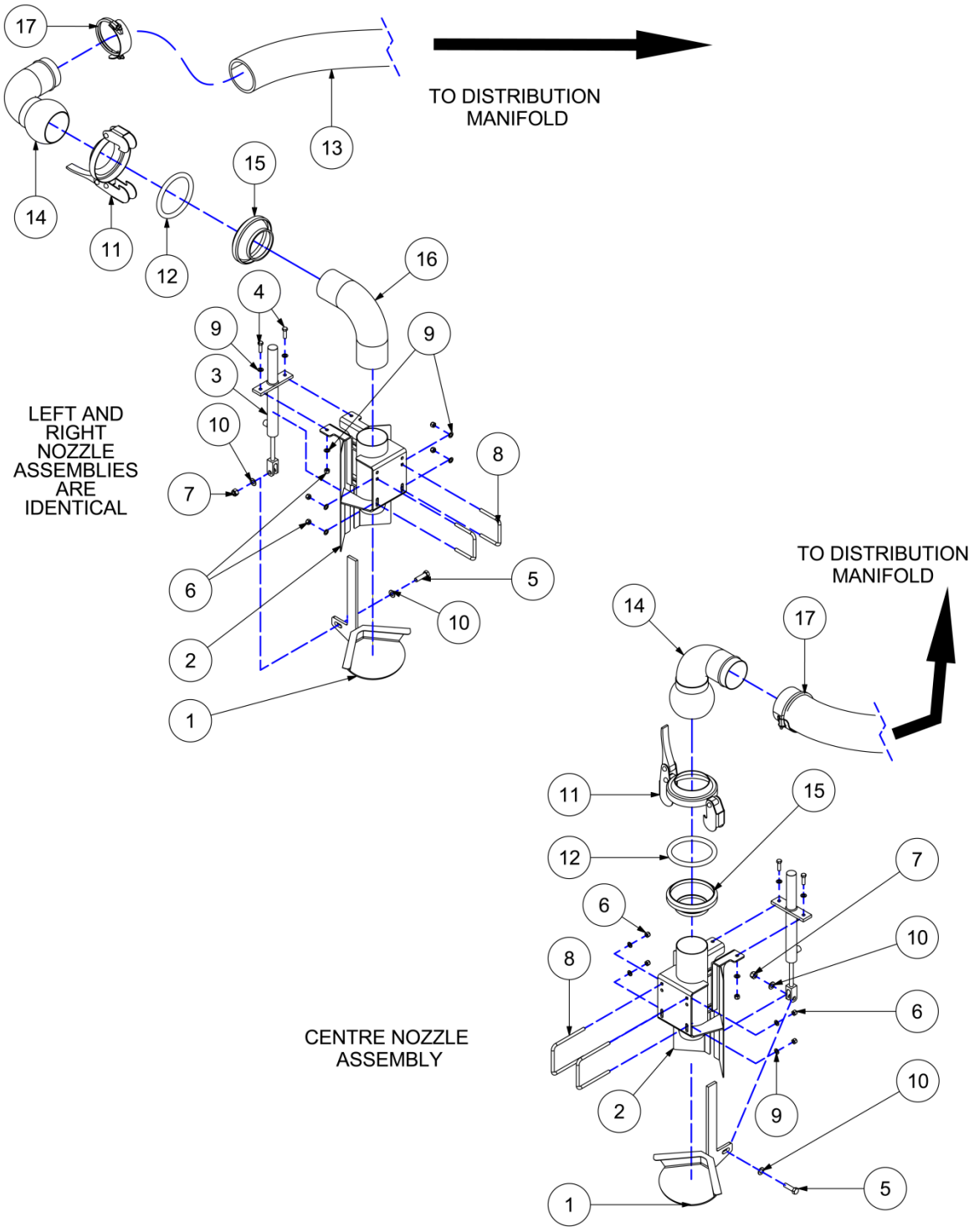
Nozzle Assembly



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Nozzle Assembly

ITEM	DESCRIPTION	PART NUMBER	QTY
1	HYDRAULIC SPLASH PLATE	13-137-B	3
2	NOZZLE WLDT., 3.00"	13-610	3
3	NOZZLE ADJUSTING CYLINDER	40-620	3
4	BOLT - 3/8”-16 X 1 1/4”	90-BLT-03816X125	6
5	BOLT - 1/2”-13 X 1 3/4”	90-BLT-05013X175	3
6	NUT LOCK - 3/8”-16	90-NUT-LOC038-16	18
7	NUT LOCK - 1/2”-13	90-NUT-LOC050-13	3
8	U-BOLT 3/8"-16 UNC X 3.50”	90-UBT-SQ03816X350X350	6
9	WASHER SAE - 3/8”	90-WSR-SAE038	24
10	WASHER SAE - 1/2”	90-WSR-SAE050	6
11	4" LEVER LOCKING RING	IR-FCL-WL4	3
12	GASKET - 4" (WIL-LOC)	IR-GKT-WL4	3
13	Ø 4" BLACK SUCTION HOSE	IR-HOZ-SUC400TF	3
14	ELBOW - WILLOC WELDMENT	13-563	3
15	Ø4" WILLOC SOCKET	IR-CPL-WL4	3
16	Ø4" X 14 GA. 90° ELBOW	40-808	4
17	4.00 IN. SPIRAL CLAMP (LH)	50-023	12

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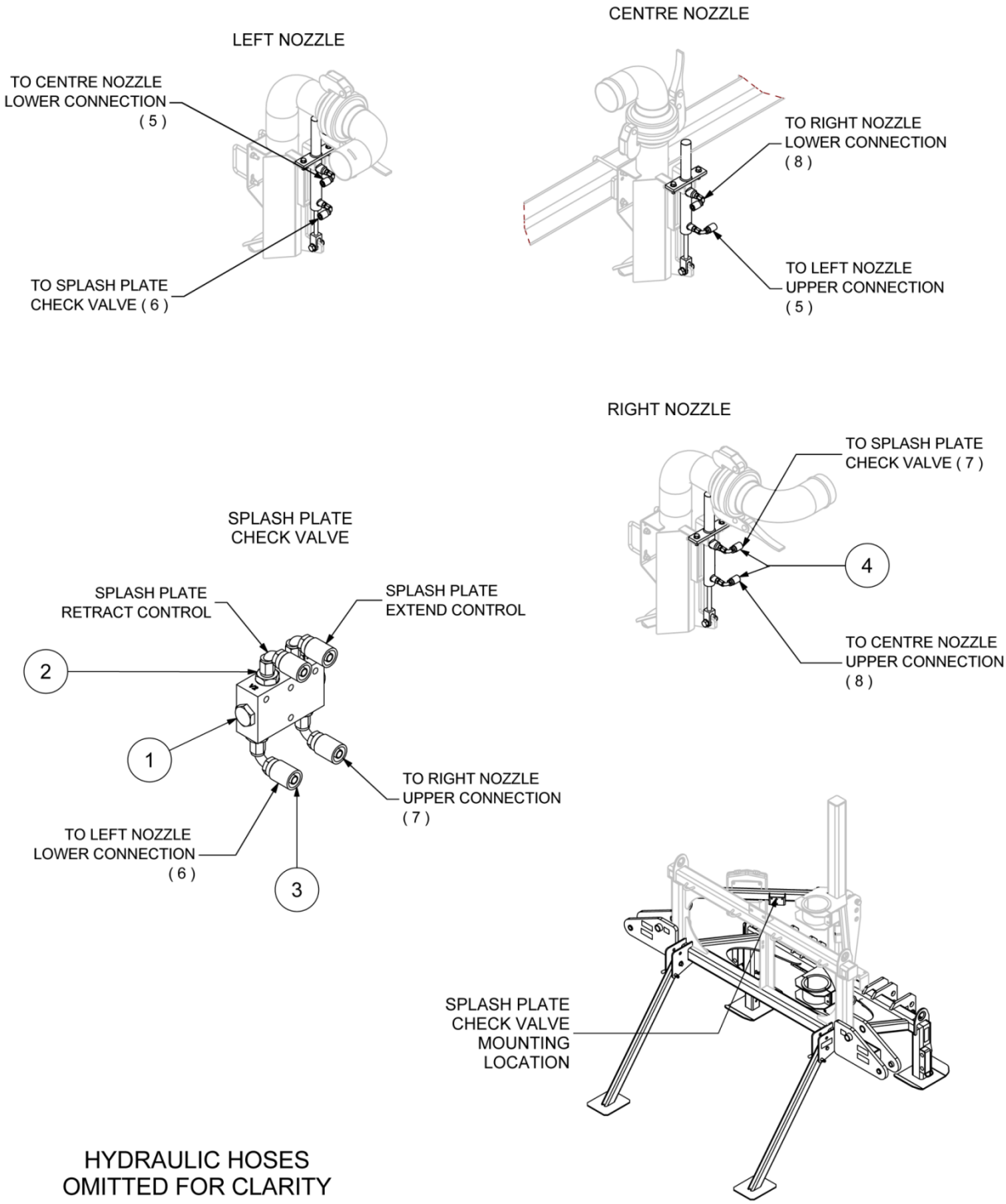
Hydraulic Assembly



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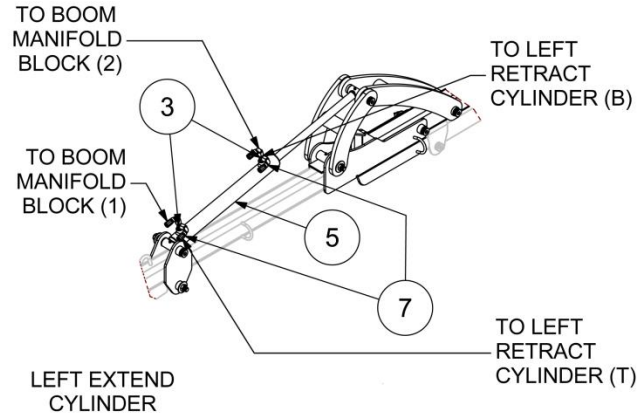
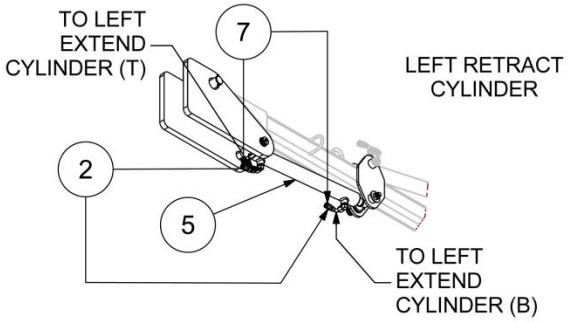
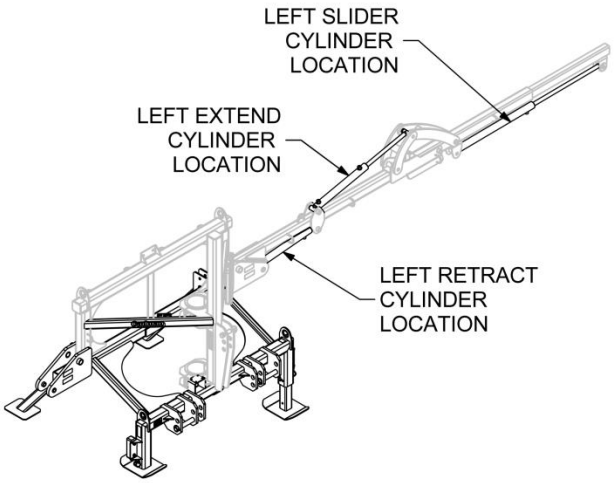
Hydraulic Assembly

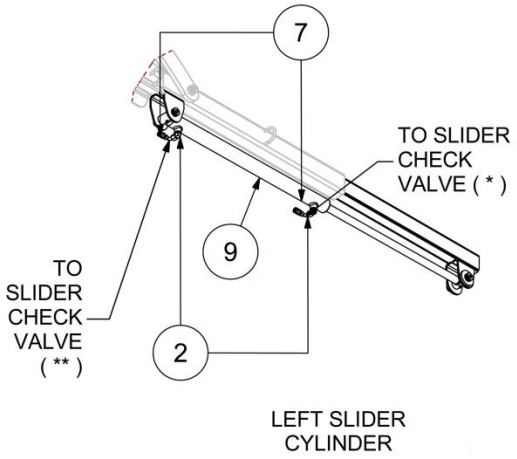
ITEM	DESCRIPTION	PART NUMBER	QTY
1	PILOT OPERATED CHECK VALVE	40-399	1
2	ADAPTER - #6 JIC-M X #8 SAE-M	25-WHD-5315X6X8	4
3	#6 HOSE CRIMP X Ø1/4" JIC F X 90°	40-HYD-06HOSX025JICF90	10
4	ADAPTER - #4 JIC-M X #2 NPT-M	25-WHD-5205X04	6
-	Ø 3/8" HYDRAULIC HOSE 230” LONG (NOT SHOWN)	40-HHZ-0224	1
-	Ø 3/8" HYDRAULIC HOSE 230” LONG (NOT SHOWN)	40-HHZ-0223	1
-	Ø 3/8" HYDRAULIC HOSE 230” LONG (NOT SHOWN)	40-HHZ-0223	1
-	Ø 3/8" HYDRAULIC HOSE 230” LONG (NOT SHOWN)	40-HHZ-0224	1

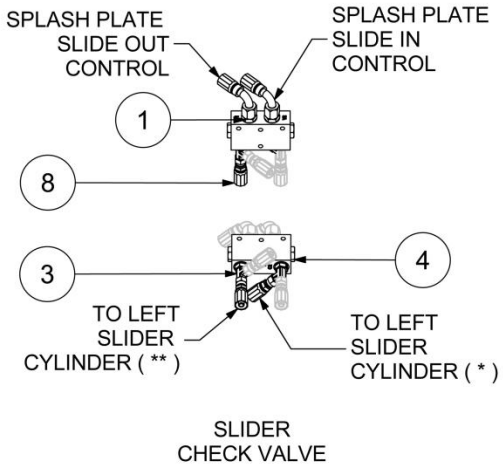
Hydraulic Assembly

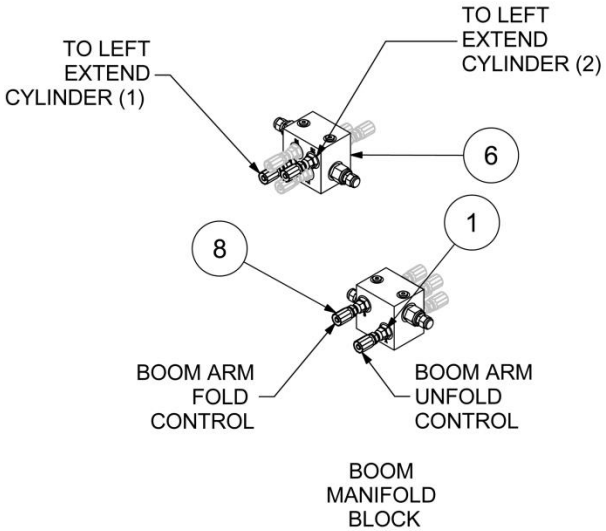












HYDRAULIC HOSES
OMITTED FOR CLARITY

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Hydraulic Assembly

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ADAPTER - #6 JIC-M X #8 SAE-M	25-WHD-5315X6X8	8
2	ELBOW - #6 JIC-M x #6 SAE x 90°	25-WHD-5515X6	4
3	RUN TEE - #6J X #6J X #6 SAE	25-WHD-5716X6	4
4	PILOT OPERATED CHECK VALVE	40-399	1
5	HYDRAULIC CYLINDER Ø2" X 18"	40-HYD-004	2
6	MANIFOLD BLOCK - FPHL50092	40-HYD-010	1
7	#6 HOSE CRIMP X Ø1/4" JIC F X 90°	40-HYD-06HOSX025JICF90	10
8	#6 HOSE CRIMP X Ø3/8" JIC FEMALE	40-HYD-06HOSX038JIC	10
9	HYDRAULIC CYLINDER Ø2" X 30"	40-HYD-CYL004	1
-	Ø3/8" HYDRAULIC HOSE - 104" LONG (NOT SHOWN)	40-HHZ-0214	1
-	Ø3/8" HYDRAULIC HOSE - 137" LONG (NOT SHOWN)	40-HHZ-0215	1
-	Ø3/8" HYDRAULIC HOSE - 67" LONG (NOT SHOWN)	40-HHZ-0217	1
-	Ø3/8" HYDRAULIC HOSE - 37" LONG (NOT SHOWN)	40-HHZ-0218	1
-	Ø3/8" HYDRAULIC HOSE - 180" LONG (NOT SHOWN)	40-HHZ-0221	1
-	Ø3/8" HYDRAULIC HOSE - 200" LONG (NOT SHOWN)	40-HHZ-0225	1

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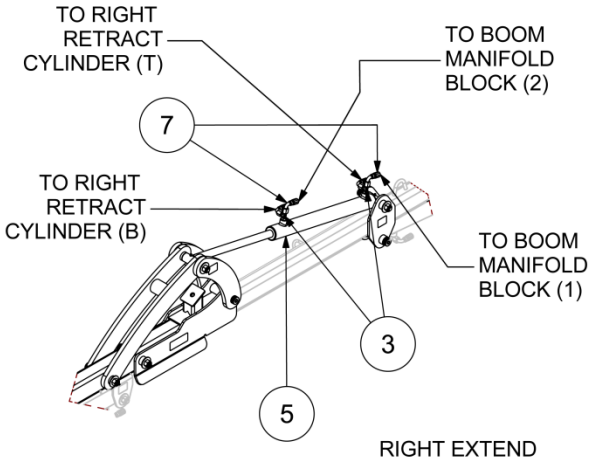
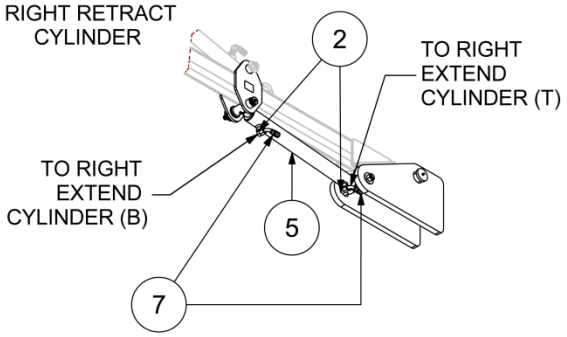
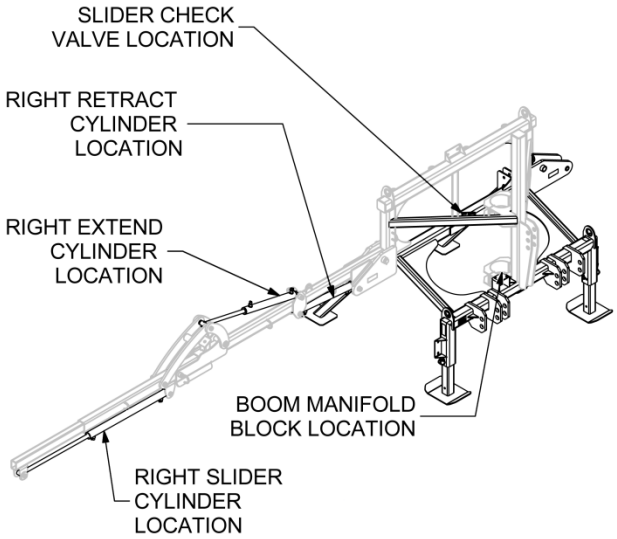
Hydraulic Assembly

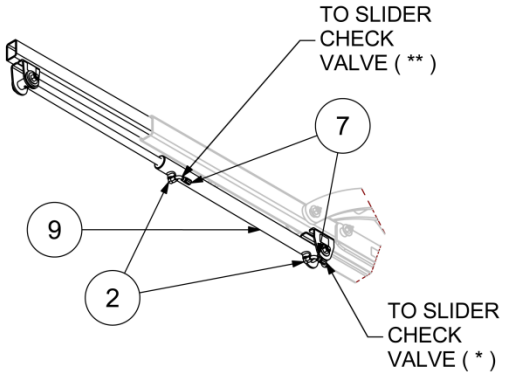


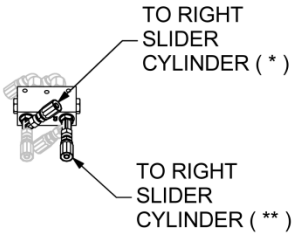
RIGHT EXTEND CYLINDER



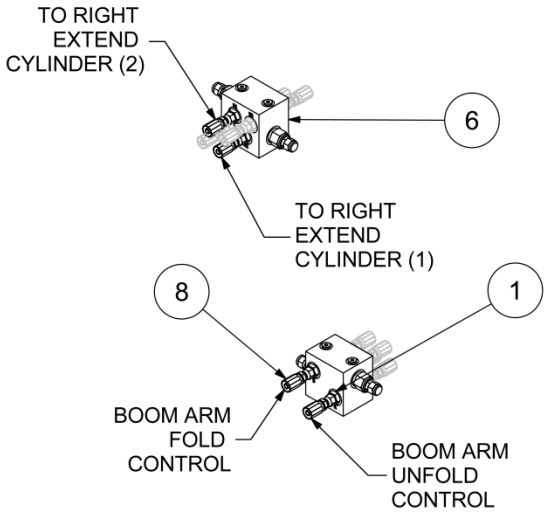
RIGHT SLIDER CYLINDER







SLIDER CHECK VALVE
SEE PAGES 28-29 FOR PARTS



HYDRAULIC HOSES OMMITED FOR CLARITY

BOOM MANIFOLD BLOCK

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Hydraulic Assembly

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ADAPTER - #6 JIC-M X #8 SAE-M	25-WHD-5315X6X8	8
2	ELBOW - #6 JIC-M x #6 SAE x 90°	25-WHD-5515X6	4
3	RUN TEE - #6J X #6J X #6 SAE	25-WHD-5716X6	4
4	PILOT OPERATED CHECK VALVE	40-399	1
5	HYDRAULIC CYLINDER Ø2" X 18"	40-HYD-004	2
6	MANIFOLD BLOCK - FPHL50092	40-HYD-CYL005	1
7	#6 HOSE CRIMP X Ø1/4" JIC F X 90°	40-HYD-06HOSX025JICF90	10
8	#6 HOSE CRIMP X Ø3/8" JIC FEMALE	40-HYD-06HOSX038JIC	10
9	HYDRAULIC CYLINDER Ø2" X 30"	40-HYD-CYL004	1
-	Ø3/8" HYDRAULIC HOSE - 117" LONG (NOT SHOWN)	40-HYD-0213	1
-	Ø3/8" HYDRAULIC HOSE - 93" LONG (NOT SHOWN)	40-HYD-0216	1
-	Ø3/8" HYDRAULIC HOSE - 67" LONG (NOT SHOWN)	40-HYD-0217	1
-	Ø3/8" HYDRAULIC HOSE - 37" LONG (NOT SHOWN)	40-HYD-0218	1
-	Ø3/8" HYDRAULIC HOSE - 168" LONG (NOT SHOWN)	40-HYD-0220	1
-	Ø3/8" HYDRAULIC HOSE - 200" LONG (NOT SHOWN)	40-HYD-0222	1

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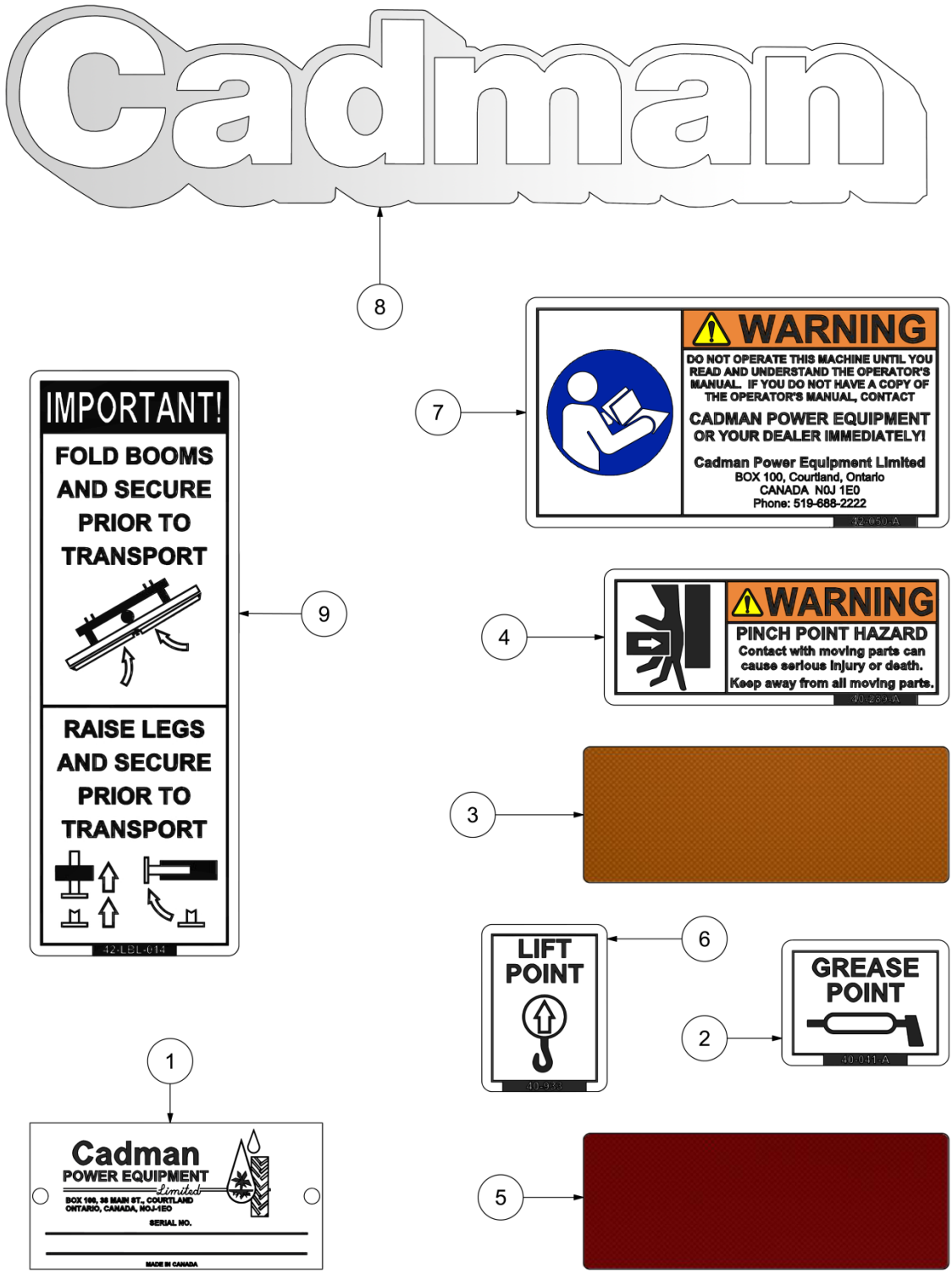
Label Assembly



Label Assembly

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CADMAN SERIAL NUMBER TAG	40-238	1
2	LABEL - GREASE POINT	40-041-A	1
3	DECAL - AMBER REFLECTIVE	40-598	1
4	LABEL - PINCH POINT	40-289-A	1
5	DECAL - RED REFLECTIVE	40-599	1
6	LABEL - LIFT POINT	40-933	1
7	LABEL - OPERATOR MANUAL	42-050-A	1
8	DECAL - CADMAN 11" L X 2.41" H	42-DCL-009S	1
9	LABEL - TRANSPORT INSTR.	42-LBL-014	1

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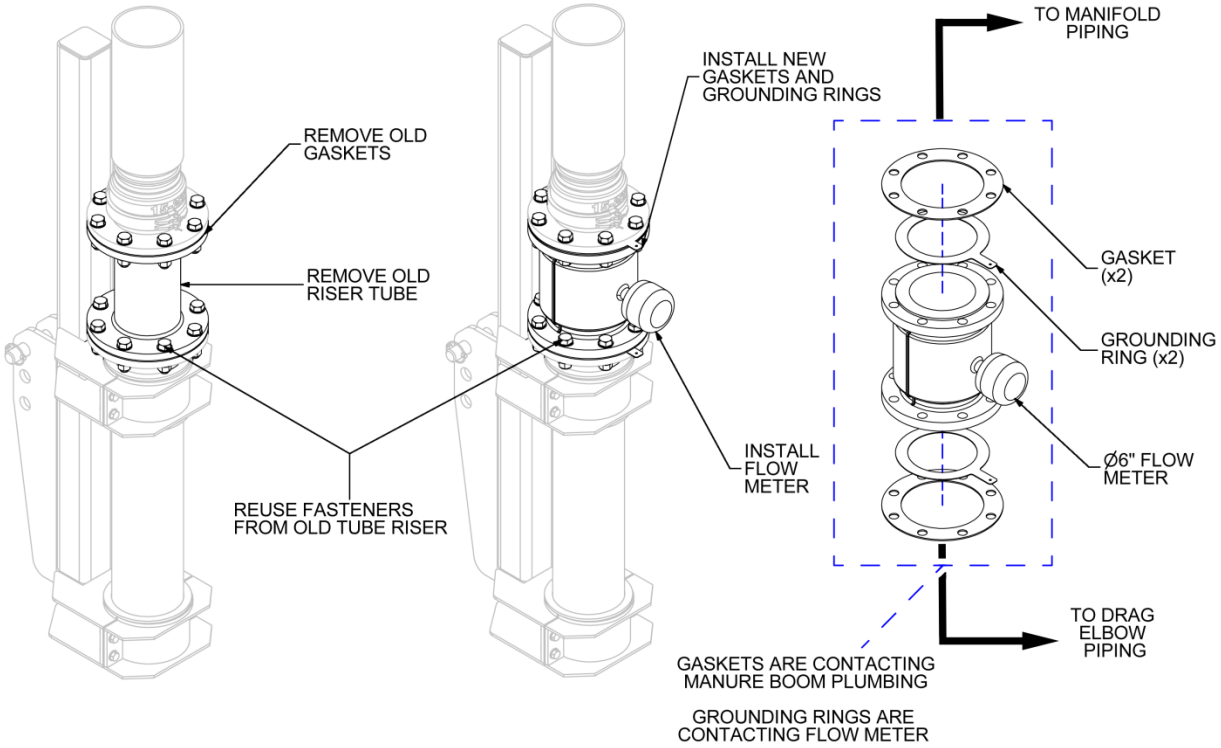
Optional Flow Meter



Installing optional flow meter

Step 1
Remove bolts fastening old riser tube and take old riser tube out of swing arm assembly. Save bolts, nuts, and washers for fastening flow meter assembly into place.

Step 2
Remove all old gaskets and clean surfaces of swing arm assembly flanges. Swing arm assembly flanges must be clean and free of any contaminants.

Step 3
Install flow meter with new gaskets and grounding rings in correct positions. Flow meter gauge must be free and clear of other parts of the 3 nozzle manure boom. Using bolts, nuts, and washers from step 1 bolt the flow meter assembly to the swing arm assembly.

Step 4
Install mounting assembly and monitor in cab of tractor. Connect extension and connect power cord.

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Required Maintenance

Prevention of mechanical failure is the goal of any good maintenance schedule. The way to prevent unwanted downtime is to follow 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 all mechanical and hydraulic tension has been released from the hose rewind system.

Each Use

MAINTENANCE ITEM	PROCEDURE
Visually inspect equipment	Walk around the unit and inspect for loose, missing, or damaged items. Replace missing or damaged items and tighten loosened items.
Inspect all pins	Inspect pins for wear or damage. Replace worn or damaged pins.
Lubricate all grease fittings	Using a grease gun, lubricate all grease fittings with an appropriate amount of grease (see “Lubricants”)

Table 1 - Required Maintenance - Each Use

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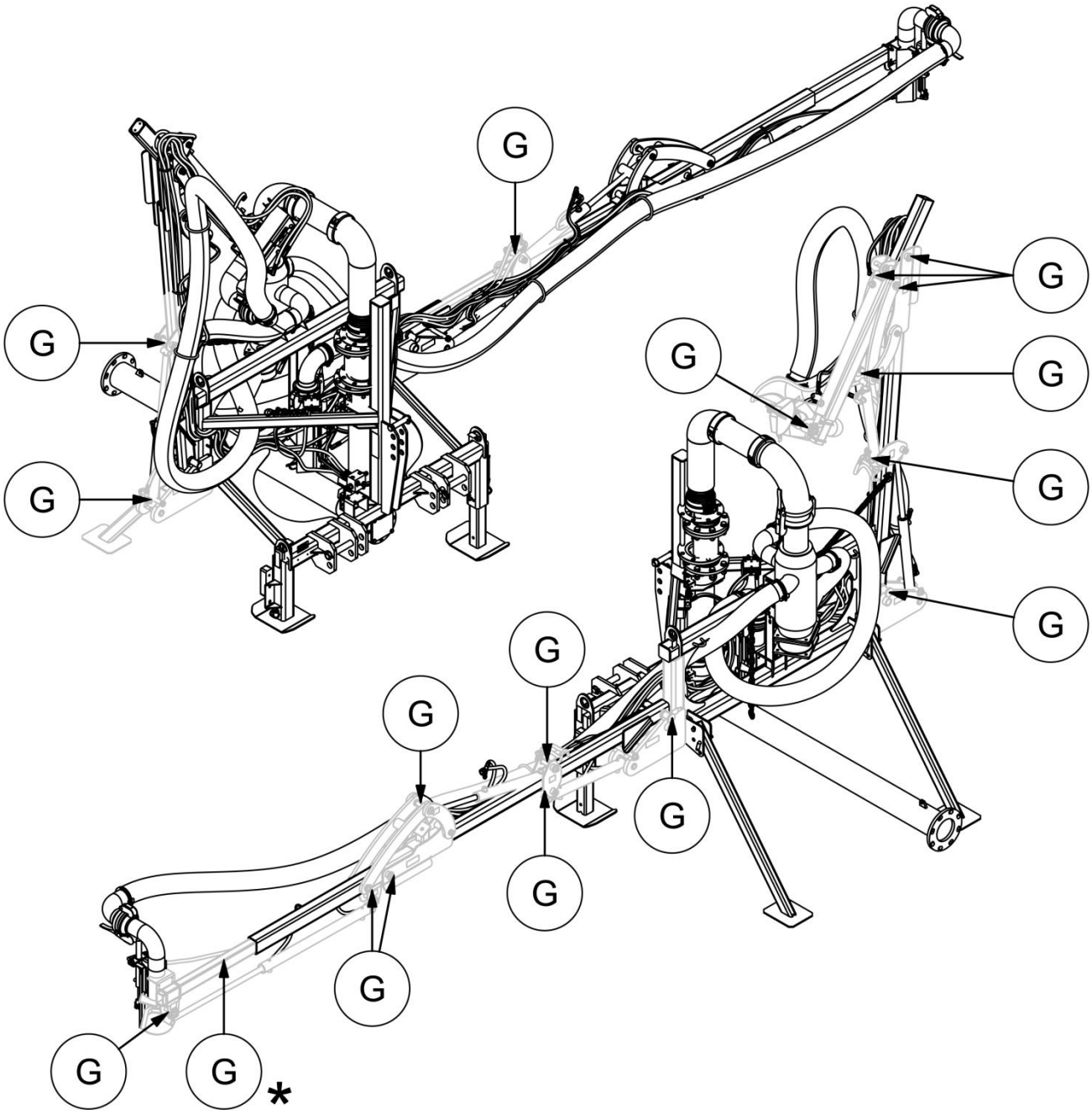

*Figure 18 - Grease Points (*On Slider Arm)*

img-00697

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Before Storing

Before storing your 3 Nozzle Manure Boom, <u>you must clean the hoses with a proper clean-out procedure</u> (e.g. clean-out ball launcher or water flushing). Failure to do so <u>WILL</u> result in gas build up in the hoses creating excess pressure. This can cause equipment failure which could result in death and/or serious injury.

MAINTENANCE ITEM	FIGURE	PROCEDURE
Visually inspect equipment	N / A	Walk around the unit and check for any loose, missing or damaged items. Replace missing or damaged items and tighten loosened items.
Clean unit	N / A	Flush drag elbow and nozzle hoses with water ensuring the unit is cleaned internally. Wash down the unit's exterior. Washing exterior will reduce corrosion damage.
Lubricate all grease fittings	Figure 18	Using a grease gun, lubricate all grease fittings with an appropriate amount of grease. (see "Lubricants")

Table 2 – Required Maintenance - Before Storing

Before Start Up *(After long term storage)*

MAINTENANCE ITEM	FIGURE	PROCEDURE
Review Operator's manual		Review this manual to refresh your memory regarding the proper operation of this machine. This will reduce the potential for equipment damage and user injury.
Visually inspect equipment	N / A	Walk around the unit and inspect for loose, missing or damaged items. Replace missing or damaged items and tighten loosened items.
Inspect all pins	N / A	Inspect pins for wear or damage. Replace worn or damaged pins.
Lubricate all grease fittings	Figure 18	Using a grease gun, lubricate all grease fittings with an appropriate amount of grease (see "Lubricants")

Table 3 – Required Maintenance - After Long Term Storage

Lubricants

Grease: Any good grade, multi-purpose, waterproof grease is compatible with the lubrication needs of your **Cadman 3 Nozzle Manure Boom.**

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Technical Specifications

Approximate 3 Nozzle Manure Boom Dimensions

IMPORTANT: The dimensions shown on the following pages are only approximate. Several factors affect these dimensions. For example: tire option, hose type, tire inflation, etc.

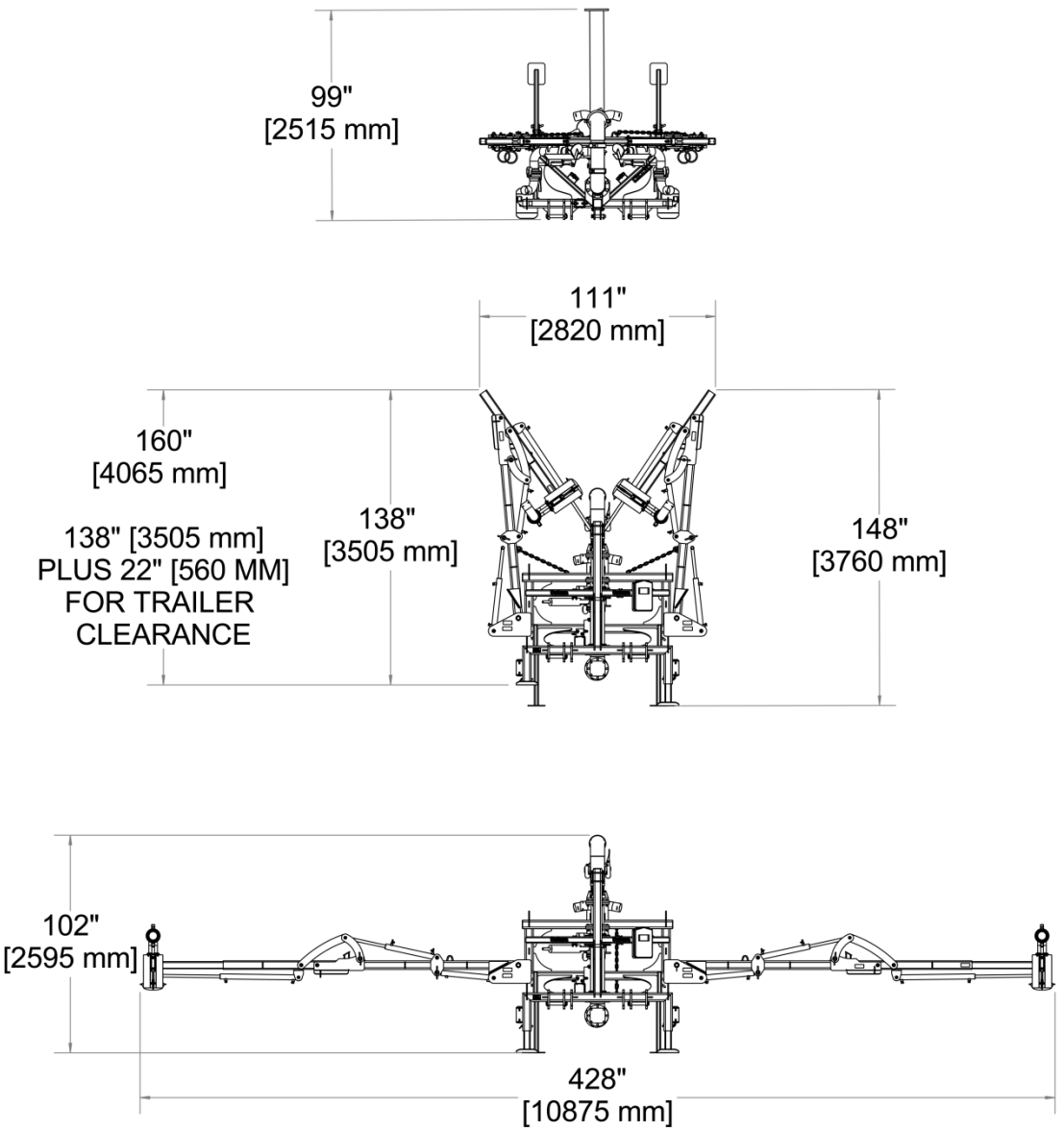

Figure 19 - Overall Dimensions with Arms Folded and with Arms Extended

img-00699

The approximate weight for an empty Cadman 3 Nozzle Manure Boom is: 3500 lb. [1546 kg]

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Useful Information

LENGTH

1 FOOT	= 12	Inches	**1 METER**	= 39.37	Inches
	= 0.3048	Meter		= 3.2808	Feet
1 ROD	= 198	Inches	**1 MILE**	= 5280	Feet
	= 16.5	Feet		= 1760	Yards
	= 5.5	Yards		= 320	Rods
	= 5.029	Meters		= 1609	Meters

AREA

1 SQUARE FOOT	= 144	Square Inches
	= 0.0929	Square Meters
1 SQUARE YARD	= 1296	Square Inches
	= 0.8361	Square Meters
1 SQUARE METER	= 1550	Square Inches
	= 10.764	Square Feet
1 ACRE	= 43560	Square Feet
	= 4047	Square Meters
	= 0.4047	Hectare
1 HECTARE	= 107639	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 5.8752

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