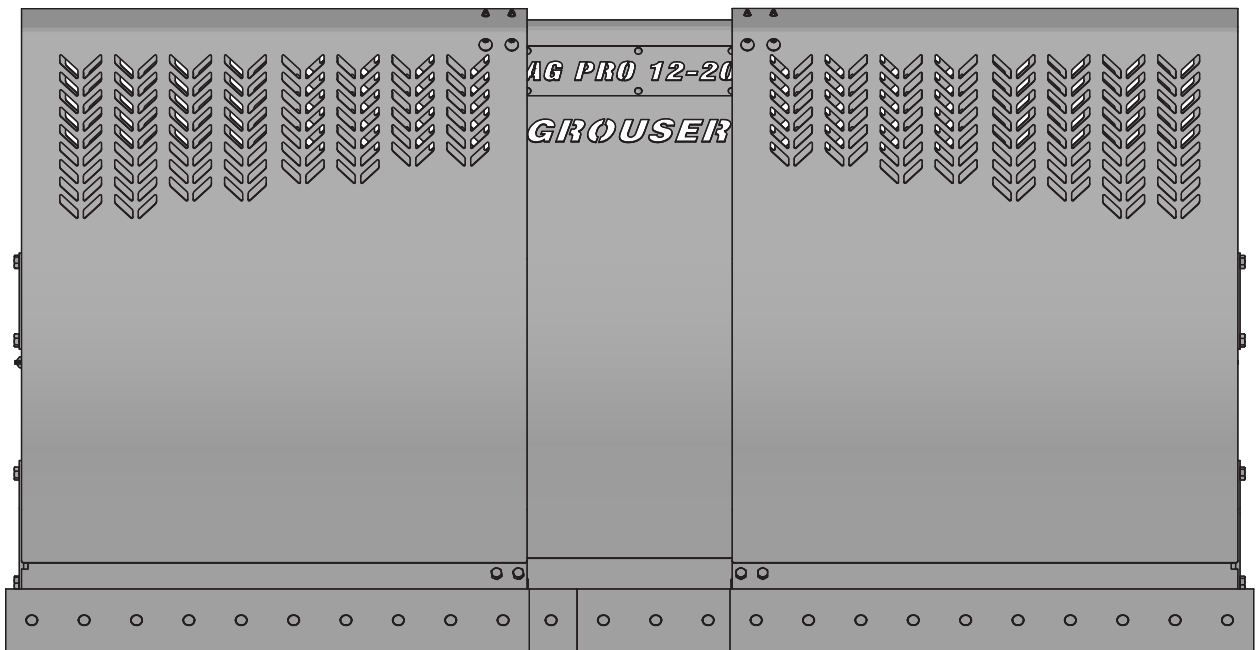




# Ag Pro 12-20 Lift System

## Owner's Manual & Parts Book



### Grouser Products

755 2nd Ave NW - West Fargo, ND 58078

**Phone:** 1-701-282-7710

**Fax:** 1-701-282-8131

**E-mail:** grouser@grouser.com

**Website:** www.grouser.com

Purchase Date

Serial Number

Model Number

Tractor Model

Dealer

Description	Page
Welcome To The Owner_____	2
Safety Precautions, Torque Specifications & Pre-Installation _____	3
Decals_____	3
Maintenance & Lubrication_____	4
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Thank you for your recent purchase of a Grouser 12-20 Dozer. Welcome to the family of satisfied Grouser blade owners. Grouser Products is committed to offering quality products to help professionals in their daily jobs. We are also committed to providing you the highest level of customer satisfaction possible. Again, thank you for your patronage. We look forward to serving you.

This manual contains information concerning the operation, adjustment, safety and maintenance of the 12-20 Dozer. You have purchased a dependable, long lasting piece of equipment. You can expect to receive long lasting performance and long service built into our products with proper care and operation. Please have all operators read and understand this manual carefully. Keep the manual available for reference. If, for any reason, you have questions or comments, we would be happy to hear from you. Call our number, 701-282-7710, or send us an e-mail at [info@grouser.com](mailto:info@grouser.com). You can expect us to respond to your e-mail in a timely manner.

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read and take the following precautions before operating this equipment. In addition, please follow all safety and operational instructions of your tractor manufacturer.

### The 12-20 Dozer:

1. The 12-20 Dozer should be operated only by those who are responsible and instructed to do so.
2. Read the owner's manual carefully before using this equipment. Lack of operating knowledge can lead to accidents.
3. Keep the 12-20 Dozer maintained in reliable and satisfactory condition to ensure your safety.
4. Make sure the area is clear of people before moving any equipment.
5. Do not modify or permit anyone else to modify or alter the equipment and its components without first consulting Grouser Products.
6. Lower the blade to the ground when not in use.

### Servicing the 12-20 Dozer:

1. Read and follow all safety instructions provided by the tractor manufacturer.
2. Always use proper personal safety gear when performing maintenance on equipment.
3. Before servicing, relieve hydraulic pressure, stop engine and fully engage parking brake.
4. Escaping hydraulic fluid under pressure can penetrate skin causing serious injury. If fluid is injected into skin, obtain medical attention immediately.
  - DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.
  - Stop the engine and relieve pressure before connecting or disconnecting lines.
  - Tighten all connections before starting the engine or pressurizing lines.

### Storing the 12-20:

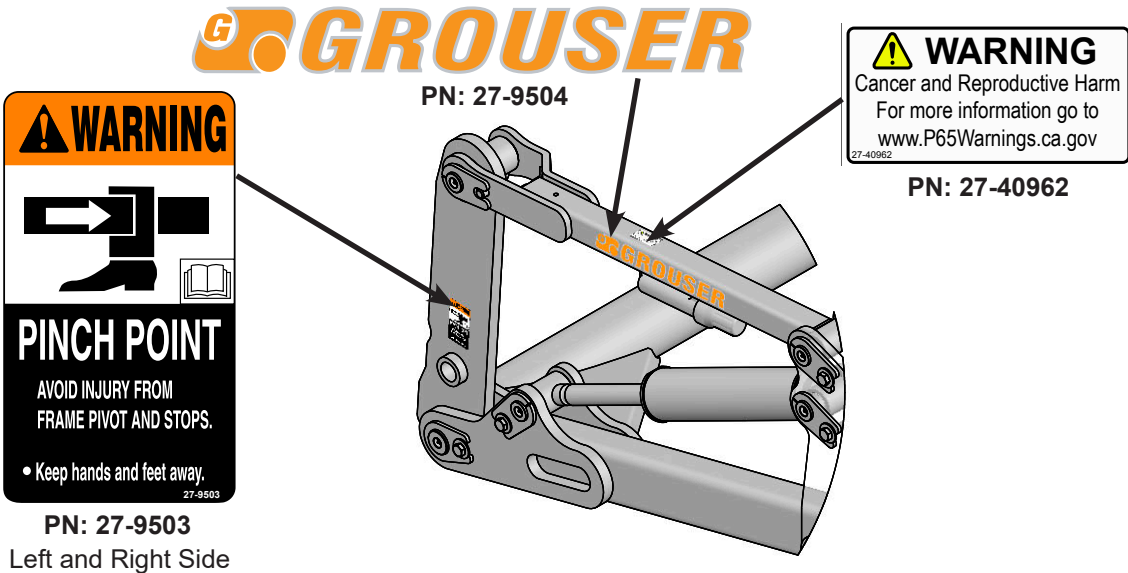
1. Thoroughly clean the 12-20 Dozer before storage. Use paint where necessary to prevent rust.
2. Check the 12-20 Dozer for worn or damaged parts. Install new parts as required.
3. Lubricate all pins and joints.

Tighten all bolts to the values listed below unless otherwise noted. Refer to the parts lists for proper length and grade of the bolts.

Size	Torque - Dry (ft-lbs)			
	SAE Grade 5		SAE Grade 8	
	UNC	UNF	UNC	UNF
5/16	17	19	24	27
3/8	30	35	45	50
7/16	50	55	70	80
1/2	75	85	110	120
9/16	110	120	150	170
5/8	150	170	210	240
3/4	260	300	380	420
7/8	430	470	600	670
1	640	720	910	1020

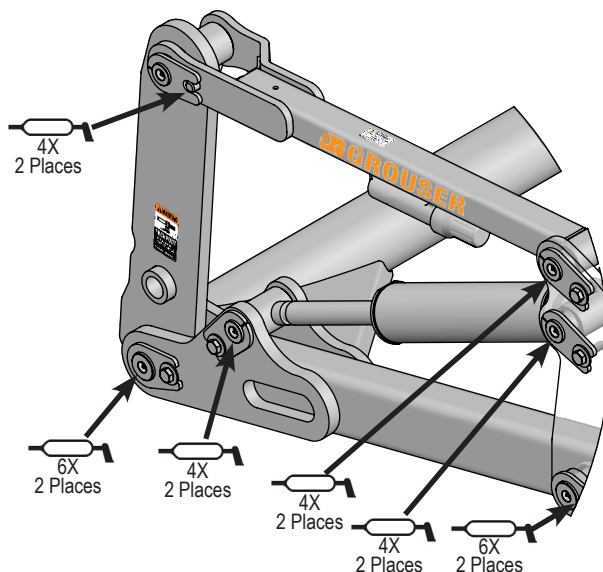
Torque - Dry (ft-lbs)	
Size	Grade 10.9
M18 x 2.50	284
M20 x 2.50	401
M22 x 2.50	547
M24 x 3.00	694

Unstrap and remove the lift frame, hoses, top arms, and any boxes of hardware from the undercarriage. If any components are missing, call Grouser.  
Install undercarriage per the tractor specific mounting instructions.



**Due to the harsh environment this equipment operates in, the following tasks should be performed every 10 hours or less.**

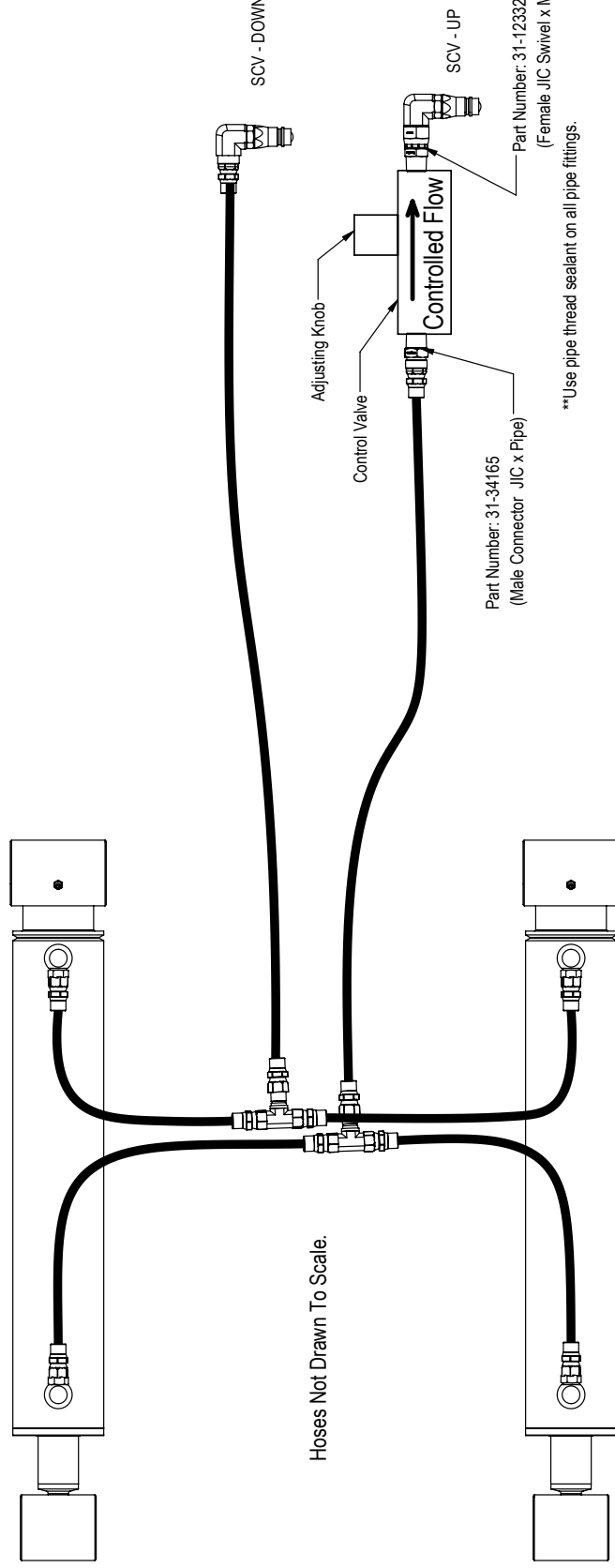
- Inspect all equipment before operation for existing or potential damage.
- Lubricate all joints with high quality grease. See below for grease locations.
- Inspect all bolts, and tighten any loose bolts to torque specifications on page 3.
- Check hydraulic cylinders and hoses for damage or leaks. For replacement parts, see hydraulic pages 6-11.
- Make sure all non-rotating pins are secured properly.
- Inspect all decals and order replacement decals from your dealer if any are damaged or worn.
- For multi-coupler maintenance, see pages 12-13.
- Replace parts with original parts only.



THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GROUSER PRODUCTS INC. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF GROUSER PRODUCTS INC. IS PROHIBITED.

#### Instructions:

1. Remove the male quick coupler from the SCV - UP which should be from the Rod End of the Lift Cylinder.
2. Remove the hose from the 90° fitting installed into the male quick coupler removed in Step #1.
3. Install the -12 male pipe x -12 female JIC Swivel fitting into the end of the control valve on the side the arrow is pointing to. Use pipe thread sealant on pipe fittings.
4. Attach the 90° fitting with the male quick coupler still attached to the JIC Swivel fitting that was installed in Step #3.
5. Install the -12 male pipe x -12 male JIC Straight fitting into the end of the control valve on the side opposite that the arrow is pointing to. Use pipe thread sealant on pipe fittings.
6. Attach the end of the original hose to the fitting attached in Step #5. See diagram below for further clarification on orientation of the control valve.
7. Plug male quick coupler back into the tractor
8. To adjust the control valve, unscrew the adjusting knob at the top of the valve. Run the lift cylinders up and down.
9. Adjust the lift speed by turning the adjusting knob back in with 1/2 turn increments.
10. After each 1/2 turn, run the lift cylinders up and down. Continue to do this until the desired speed is achieved and there is no chatter or cavitation.
11. After the control valve is adjusted, lock the adjusting knob with the lock screw.



#### Note:

Your system may look slightly different from the diagram shown above but all lift systems are plumbed so that the rod end of both cylinders come to a t-fitting and then run to the back of the tractor and hook up to the SCV - UP.

The base end of both cylinders come to a t-fitting and then run to the back of the tractor and hook up to the SCV - DOWN.



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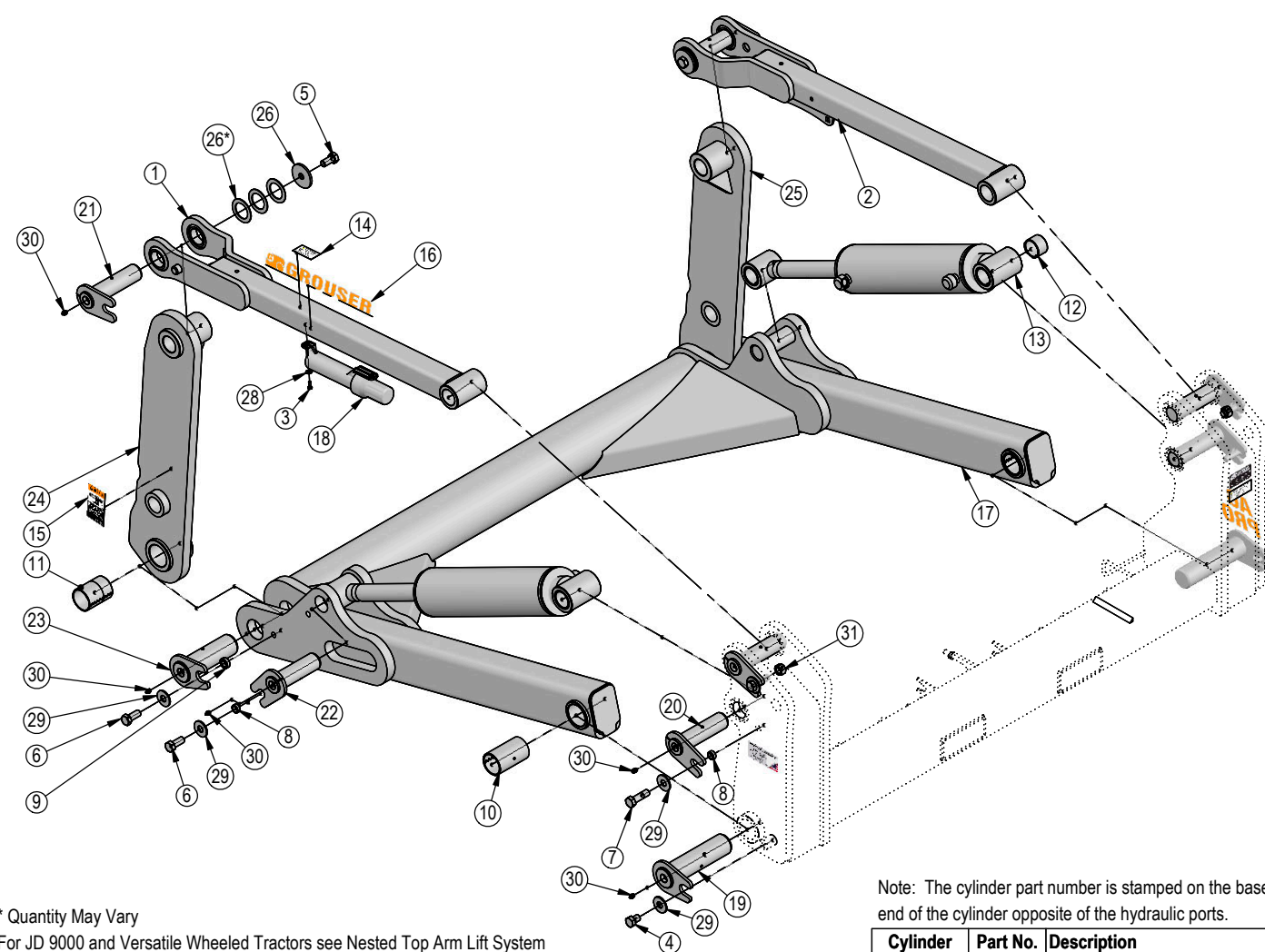
755 2nd Ave NW  
West Fargo, ND 58078  
Phone 701.282.7710  
Fax 701.282.8131  
WWW.GROUSER.COM

TITLE: Lift System Speed Control Kit

Date: 8/24/2016 DWG. NO.: 19699-INS

Some assembly of Lift System components is necessary. Follow the steps listed below. See diagram below for the correct hardware and orientation of parts.

1. Remove all pins and fasteners on each side of the undercarriage and set aside for later installation.
2. Position the lift frame between the two plates on both sides of the undercarriage and align to the bottom holes.
3. Insert pins and hardware to attach the lift frame, the base end of the lift cylinders, and the top arms to the undercarriage.
4. Insert pins and hardware to attach the male quick attaches to the lift frame, and to the top arms. Use 2" washers as shims to keep top arm pins tight and in place. Only use as many as needed until pin is tight.
5. Torque all fasteners according to the specifications on Page 3.



\* Quantity May Vary  
For JD 9000 and Versatile Wheeled Tractors see Nested Top Arm Lift System

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	11-19975-L	Top Arm Weld
2	1	11-19975-R	Top Arm Weld
3	2	16-20002	1/4" X 3/4" Hex Bolt Gr 5 NC CZ
4	2	16-20214	3/4" X 1" Hex Bolt Gr 5 NC CZ
5	2	16-20216	3/4" X 1-1/2" Hex Bolt Gr 5 NC CZ
6	4	16-20217	3/4" X 1 3/4" Hex Bolt Gr 5 NC CZ
7	4	16-20220	3/4" X 2-1/2" Hex Bolt Gr 5 NC CZ
8	6	19-13515	Spacer, NR Pin
9	2	19-43989	.75 x 1.25 NR Pin Bushing
10	2	19-13525	2.75 x 2.50 x 4.75 Spring Bushing
11	2	19-18089	2.75 x 2.50 x 3.75 Spring Bushing
12	8	19-16695	2.25 x 2.00 x 1.50 Spring Bushing
13	2	26-34751	5 x 18 Hydraulic Cylinder
14	1	27-40962	Warning Prop 65 Decal
15	2	27-9503	Pinch Decal (Foot)
16	2	27-9504	Grouser Horizontal Decal

Note: The cylinder part number is stamped on the base end of the cylinder opposite of the hydraulic ports.

Cylinder	Part No.	Description
26-34751	49-12275	Seal Kit 5 x 18 Nitrided Rod

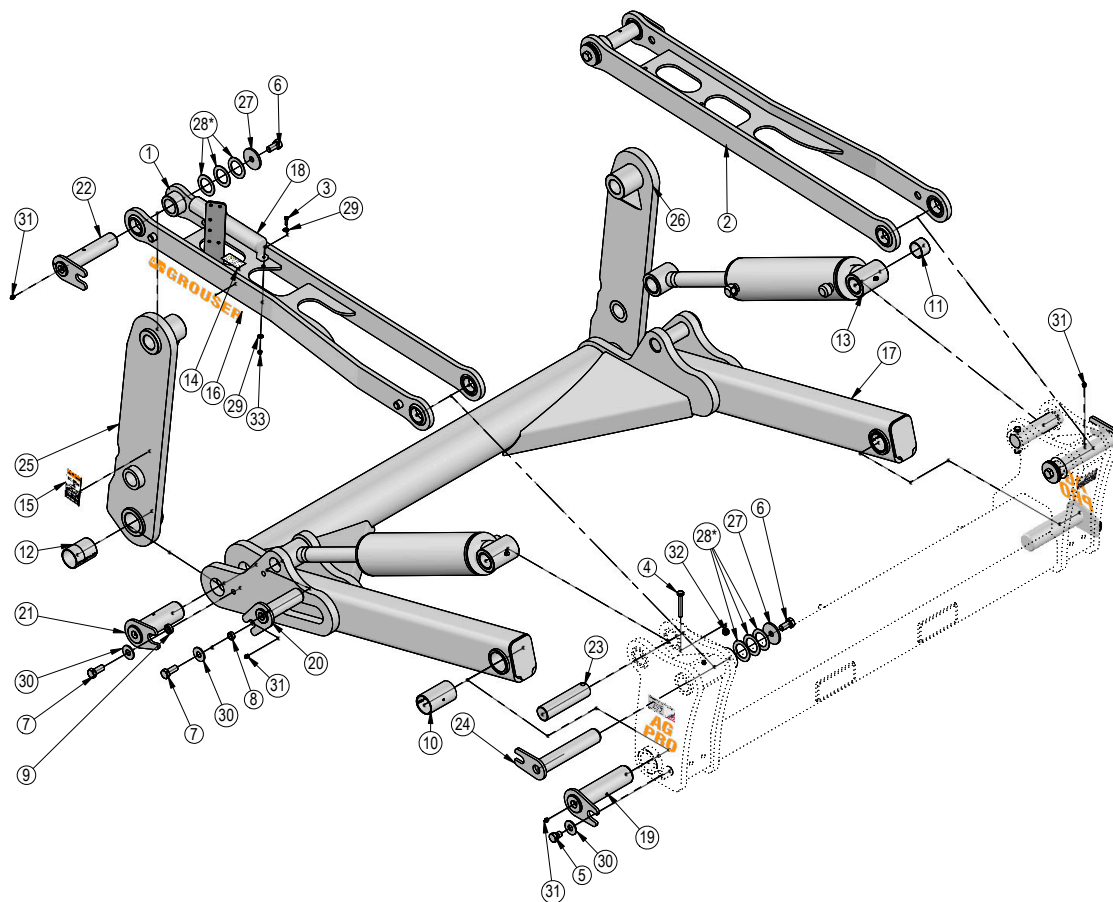
ITEM NO.	QTY.	PART NO.	DESCRIPTION
17	1	32-42335	Lift Frame
18	1	34-14961	Manual Canister Small
19	2	43-14725	Lift Frame / UC Pin
20	4	43-18120	Top Pin Weld
21	2	43-18127	Top Arm Pin Weld
22	2	43-18175	Lift Cyl Pin Weld
23	2	43-18635	Ag Pro Plus QA Pin
24	1	45-18110-L	Male Quick Attach, Ag Pro S - Left
25	1	45-18110-R	Male Quick Attach, Ag Pro S - Right
26	2	57-1530	3/4" x 3".00 x .25" HD Washer CZ
27*	6	57-1811	2" Washer
28	2	57-20740	1/4" Flat Washer CZ
29	10	57-20747	3/4" Flat Washer CZ
30	12	58-9369	Straight 1/8" NPT Grease Zerk
31	2	70-20607	3/4" Hex Center Lock Nut Gr 5 NC CZ



**Note:** Refer to Pages 8-11 for the correct hose lengths and hose location.

**Note:** All connections are identified by spiral bands. 2 bands are from the base end of a cylinder and 1 band is from the rod end of a cylinder. Orange = Lift, Green = Tilt, Red = Angle, Yellow = Angle 2-Stick, Blue = Left Blade Cylinder, and Brown = Right Blade Cylinder.

1. Connect the lift hoses to the lift cylinders.
2. Verify that hoses are not twisted and protected from rubbing on any sharp edges. See Pages 8-11 for proper hose routing.
3. Install the 45° fittings into the multi-couplers on both top arms.
4. Identify each remaining hose at the front of the undercarriage by the colored bands on the end of the hose and connect the hose to the corresponding 45° fitting on the multi-coupler. Refer to Pages 8-11 for proper hose locations.
5. Hoses were plugged into the rear of the tractor during the undercarriage installation. If system is Hydraulic Angle with 2-Stick, verify that the 35" hose was installed and plumbed correctly at the back of the tractor. Refer to Page 8-9 or the Hydraulic Schematic on Page 14-15.
6. If necessary, refer to Page 5 for Lift Speed Control Installation instructions.
7. Continue on Page 11 for initial startup instructions.



\* Quantity May Vary

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	11-19035-L	Nested Top Arm Weld
2	1	11-19035-R	Nested Top Arm Weld
3	2	16-20004	1/4" X 1" Hex Bolt Gr 5 NC CZ
4	2	16-20134	1/2" X 3-1/2" Hex Bolt Gr 5 NC CZ
5	2	16-20214	3/4" X 1" Hex Bolt Gr 5 NC CZ
6	4	16-20216	3/4" X 1-1/2" Hex Bolt Gr 5 NC CZ
7	4	16-20217	3/4" X 1 3/4" Hex Bolt Gr 5 NC CZ
8	2	19-13515	Spacer, NR Pin
9	2	19-43989	.75 x 1.25 NR Pin Bushing
10	2	19-13525	2.75 x 2.50 x 4.75 Spring Bushing
11	8	19-16695	2.25 x 2.00 x 1.50 Spring Bushing
12	2	19-18089	2.75 x 2.50 x 3.75 Spring Bushing
13	2	26-34752	5 x 18 Hydraulic Cylinder With Zerk
14	1	27-40962	Warning Prop 65 Decal
15	2	27-9503	Pinch Decal (Foot)
16	2	27-9504	Grouser Horizontal Decal
17	1	32-42335	Lift Frame
18	1	34-14961	Manual Canister Small

**Note:** The cylinder part number is stamped on the base end of the cylinder opposite of the hydraulic ports.

Cylinder	Part No.	Description
26-34751	49-12275	Seal Kit 5 x 18 Nitrided Rod

ITEM NO.	QTY.	PART NO.	DESCRIPTION
19	2	43-14725	Lift Frame / UC Pin
20	2	43-18175	Lift Cyl Pin Weld
21	2	43-18635	Ag Pro Plus QA Pin
22	2	43-19040	Top Arm - Quick Attach Pin Weld
23	2	43-19041	Pin, Lift Cylinder
24	2	43-19043	Top Arm - Undercarriage Pin Weld
25	1	45-18110-L	Male Quick Attach, Ag Pro S
26	1	45-18110-R	Male Quick Attach, Ag Pro S
27	4	57-1530	3/4" x 3".00 x .25" HD Washer CZ
28*	12	57-1811	2" Washer
29	4	57-20740	1/4" Flat Washer CZ
30	6	57-20747	3/4" Flat Washer CZ
31	10	58-9369	Straight 1/8" NPT Grease Zerk
32	2	70-20604	1/2" Hex Center Lock Nut Gr 5 NC CZ
33	2	70-20610	1/4" Nylock Hex Nut Gr 5 NC CZ

ITEM NO.	PART NO.	HAHT QTY.	HANT QTY.	NAHT QTY.	NANT QTY.	DESCRIPTION
1	16-20124	2	2	2	-	1/2" x 1" Hex Bolt Gr 5 NC
2	16-812525	2	2	2	-	8mm x 1.25mm x 25mm Metric Hex Bolt Gr 10.9
3	18-19995-L	1	1	1	-	Multi-Coupler Mount
4*	25-19868	-	1	1	-	Multi-Coupling Plate - 2 Port - Fixed
5*	25-19871	-	1	1	-	Multi-Coupling Plate - 2 Port - Cap
6	25-19864	1	-	-	-	Multi-Coupling Plate - 4 Port Fixed
7	25-19867	1	-	-	-	Multi-Coupling Plate - 4 Port - Cap
8	25-19870	4	2	2	-	Multi-Coupling Plate - Male Coupler
9	25-34342	6	4	4	2	Tappet Quick Coupler Male - Poppet Style
10	25-3453	2	-	2	-	Pioneer Dust Cap Tilt (Green)
11	25-3455	2	2	-	-	Pioneer Dust Cap Angle (Red)
12	25-3457	2	2	2	2	Pioneer Dust Cap Lift (Orange)
13	25-40407	4	2	2	-	Multi-Coupling Plate - Snap Ring
14	31-11699-10-10	2	2	2	2	JIC Union
15	31-15199-8-8	4	2	2	-	JIC Union Elbow 90°
16	31-34032	2	2	2	2	Bulkhead Run Tee JIC
17A,B	31-34051	4	2	2	-	Straight Thread Elbow 90° JIC x O-Ring
17C*	31-6802-08-10	4	2	2	-	Straight Thread Elbow 45° JIC x O-Ring
18A,B	31-34059	2	2	2	2	Straight Thread Elbow 90° JIC x O-Ring
18C*	31-6802-12-10	2	2	2	2	Straight Thread Elbow 45° JIC x O-Ring
19	31-34150	4	2	2	-	Straight Thread Elbow 45° JIC x O-Ring

\* Part Not Shown

Hoses Not Drawn to Scale

Item A for CNH, JD 9R, JD 9030

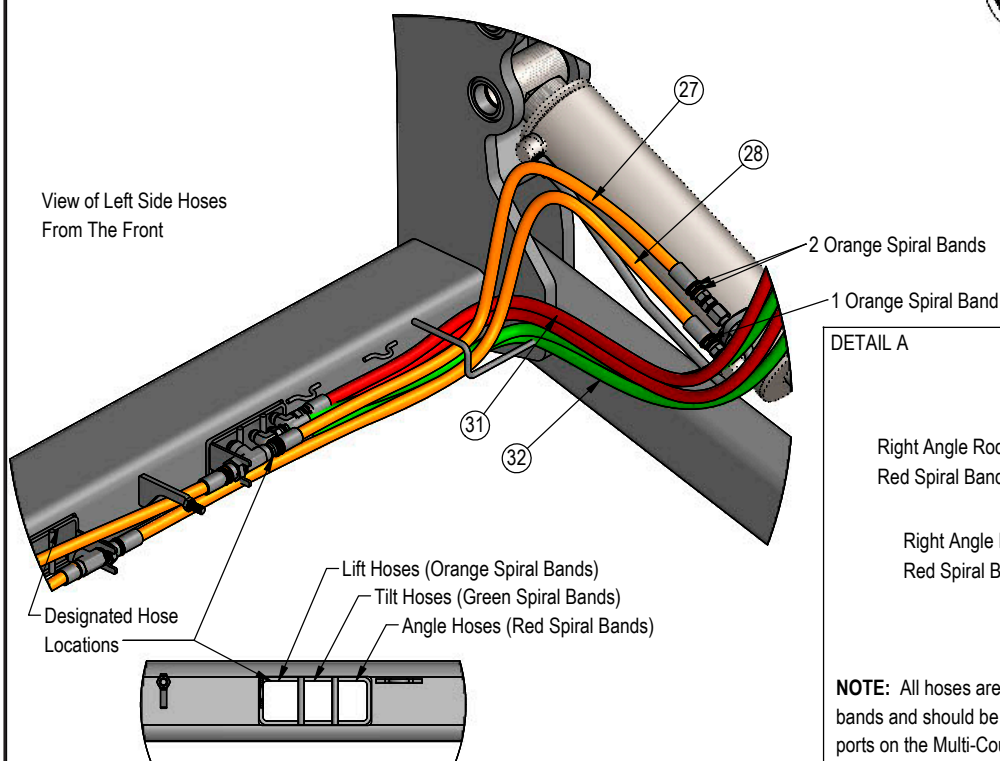
Item B for Versatile, Challenger MT900 and JD 9RX

Item C for Claas Xerion Tractor

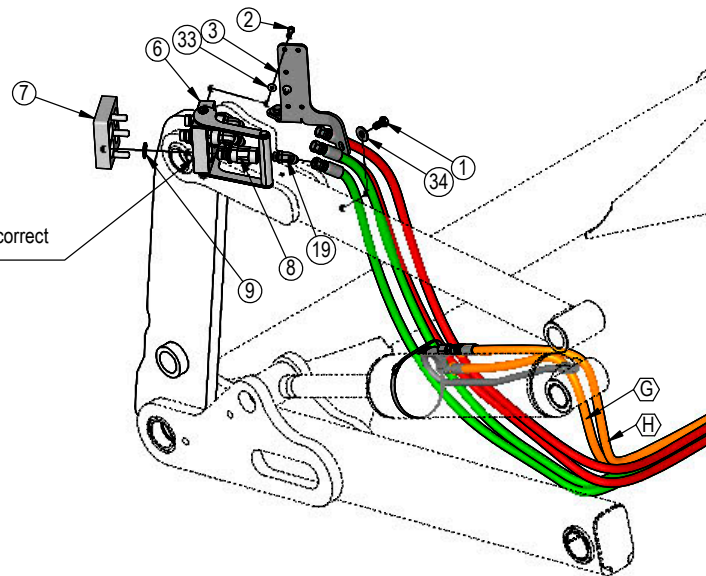
Item #1, 3 and 33 not used with Nested Top Arm Lift Systems

HAHT Shown. See Page 11 for remaining Multi-Coupler Configurations.

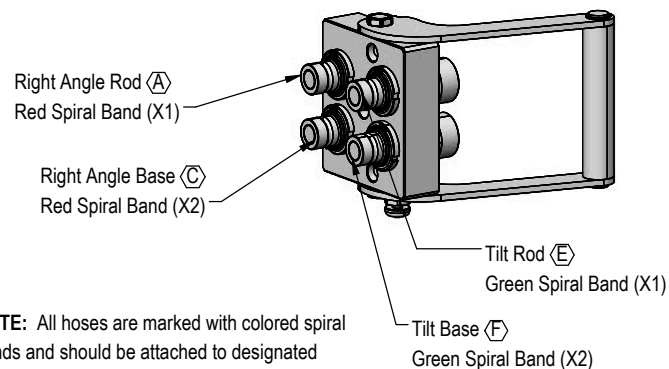
Every hydraulic function from the front to the back of the system is designated by a ○ and a letter and can also be referenced on the Hydraulic Schematic on Page 14-15.



See Detail A for correct hose locations



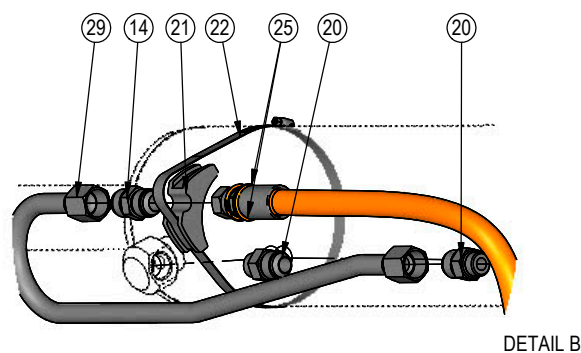
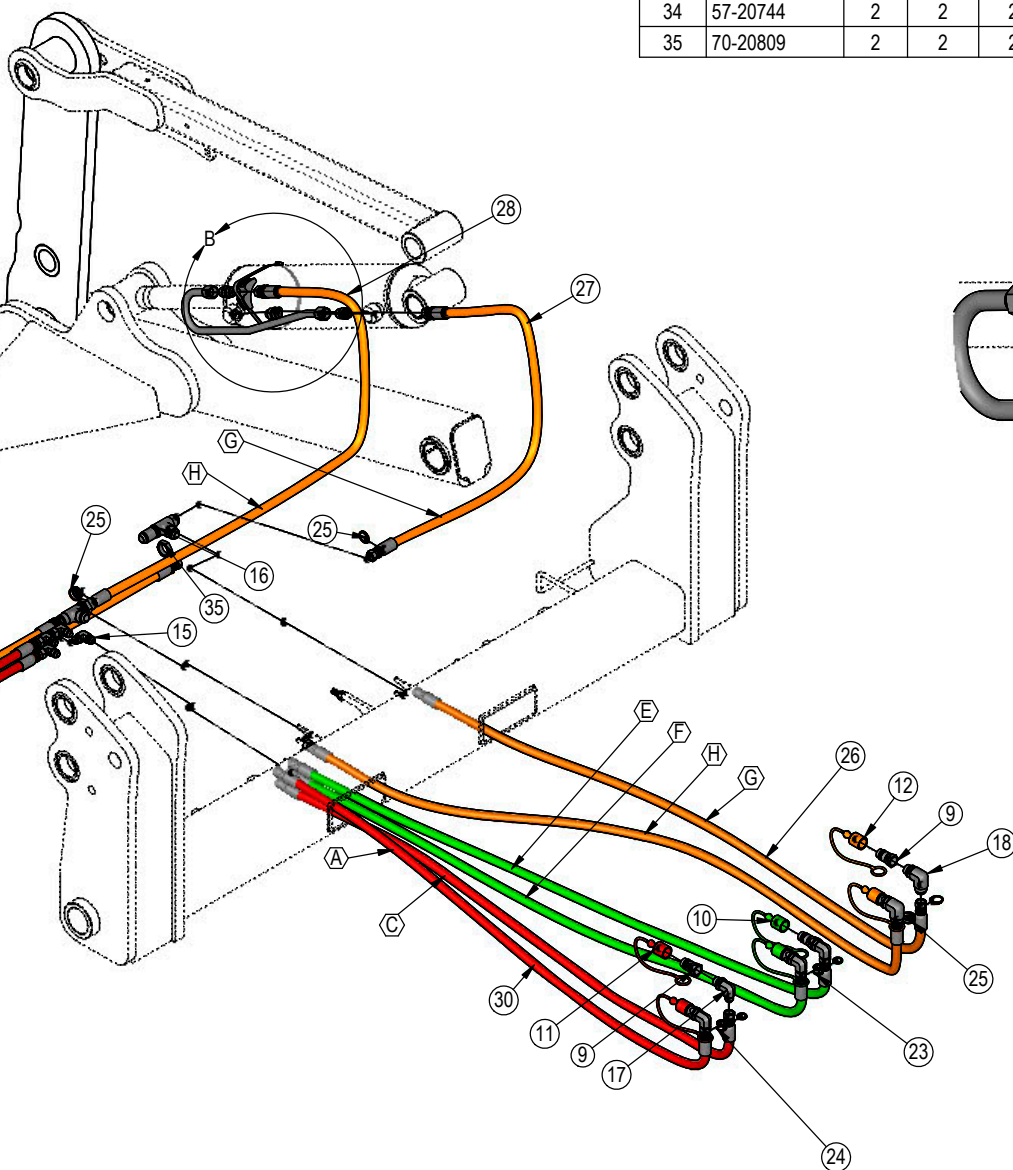
#### DETAIL A



**NOTE:** All hoses are marked with colored spiral bands and should be attached to designated ports on the Multi-Coupler.

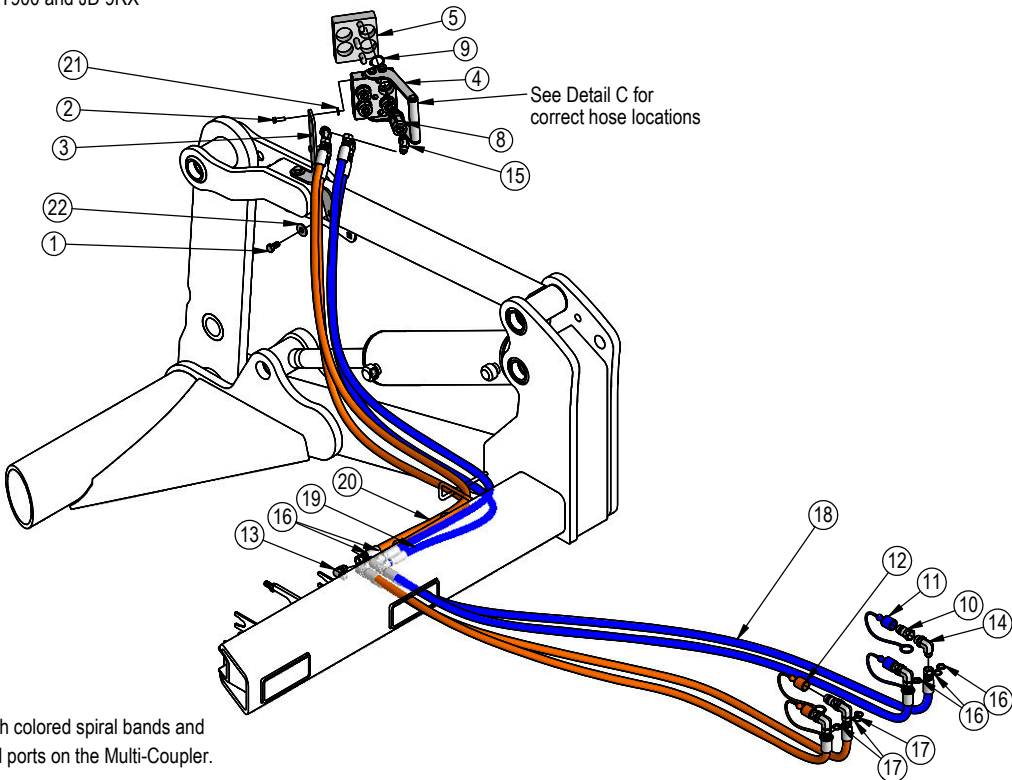


ITEM NO.	PART NO.	HAHT QTY.	HANT QTY.	NAHT QTY.	NANT QTY.	DESCRIPTION
20	31-34042	4	4	4	4	Straight JIC x O-Ring
21	34-12932	2	2	2	2	Cylinder Saddle
22	34-12933	2	2	2	2	Hose Clamp (worm drive - 5)
23	34-18888-GR	9	-	9	-	-12 Green - Spiral Band
24	34-18888-RD	9	9	-	-	-12 Red - Spiral Band
25	34-19494-OR	15	15	15	15	-16 Orange - Spiral Band
26A,C	35-12329-3000	2	2	2	2	300" (25") x 3/4" -12JIC/-12JIC Hose w/ Cordura
26B	35-12329-3200	2	2	2	2	320" (26.67") x 3/4" -12JIC/-12JIC Hose w/ Cordura
27	35-12636-0535	2	2	2	2	53.5" x 5/8" -10JIC/-12JIC Hose w/ Cordura
28	35-12636-0670	2	2	2	2	67" x 5/8" -10JIC/-12JIC Hose w/Cordura
29	35-18240	2	2	2	2	Lift Cylinder Steel Line
30A,C	35-30183	4	2	2	-	293" (24.42") x 1/2" -8JIC/-8JIC Hose w/ Cordura
30B	35-18953-3200	4	2	2	-	320" (26.67") x 1/2" -8JIC/-8JIC Hose w/ Cordura
31	35-31135	2	2	-	-	78" x 1/2" -8JIC/-8JIC Hose w/Cordura
32	35-31136	2	-	2	-	81" x 1/2" -8JIC/-8JIC Hose w/Cordura
33	57-20740	2	2	2	-	1/4" Flat Washer
34	57-20744	2	2	2	-	1/2" Washer
35	70-20809	2	2	2	2	1-1/16" Hex Jam Nut

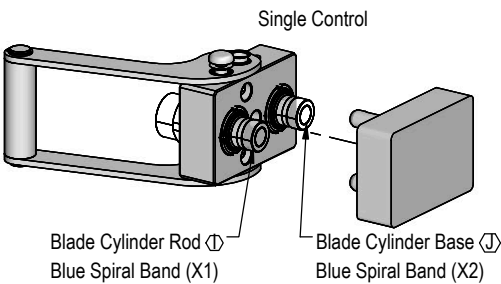
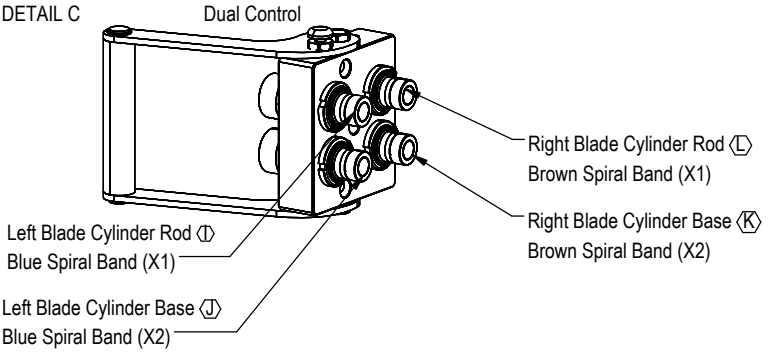


ITEM NO.	SINGLE CONTROL QTY.	DUAL CONTROL QTY.	PART NO.	DESCRIPTION
1	2	2	16-20124	1/2" x 1" Hex Bolt Gr 5 NC
2	2	2	16-812525	8mm x 1.25mm x 25mm Metric Hex Bolt Gr 10.9
3	1	1	18-19995-R	Multi-Coupler Mount
4	-	1	25-19864	Multi-Coupling Plate - 4 Port Fixed
5	-	1	25-19867	Multi-Coupling Plate - 4 Port - Cap
6	1	-	25-19868	Multi-Coupling Plate - 2 Port - Fixed
7	1	-	25-19871	Multi-Coupling Plate - 2 Port - Cap
8	2	4	25-19870	Multi-Coupling Plate - Male Coupler
9	2	4	25-40407	Multi-Coupling Plate - Snap Ring
10	2	4	25-34342	Tappet Quick Coupler Male - Poppet Style
11	2	2	25-3403	Pioneer Dust Cap Slider (Blue) (Left Cylinder)
12	-	2	25-3405	Pioneer Dust Cap Slider (Brown) (Right Cylinder)
13	2	4	31-15199-8-8	JIC Union Elbow 90°
14	2	4	31-34051	Straight Thread Elbow 90° JIC x O-Ring
15	2	4	31-34150	Straight Thread Elbow 45° JIC x O-Ring
16	9	9	34-18888-BL	-12 Blue - Spiral Band
17	-	9	34-18888-BR	-12 Brown - Spiral Band
18A,C	2	4	35-30183	293" (24.42") x 1/2" -8JIC/-8JIC Hose
18B	2	4	35-18953-3200	320" (26.67") x 1/2" -8JIC/-8JIC Hose
19	-	2	35-31135	78" x 1/2" -8JIC/-8JIC Hose W/Cordura
20	2	2	35-31136	81" x 1/2" -8JIC/-8JIC Hose W/Cordura
21	2	2	57-20740	1/4" Flat Washer
22	2	2	57-20744	1/2" Washer

Hose Not Drawn to Scale  
Item A for CNH, JD 9R, JD 9030  
Item B for Versatile, Challenger MT900 and JD 9RX

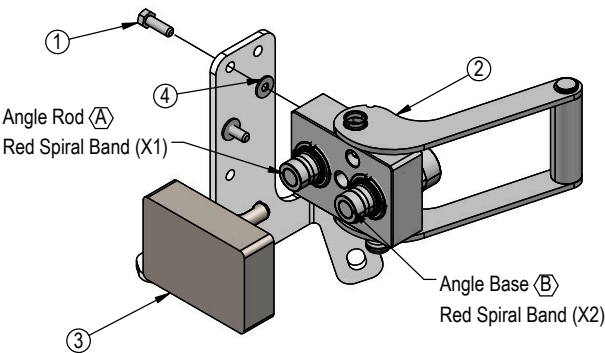


**NOTE:** All hoses are marked with colored spiral bands and should be attached to designated ports on the Multi-Coupler.

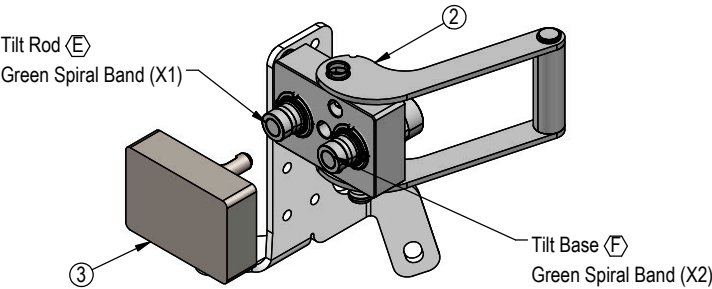


ITEM NO.	PART NO.	HANT QTY.	NAHT QTY.	DESCRIPTION
1	16-812525	2	2	8mm x 1.25mm x 25mm Metric Hex Bolt Gr 10.9
2	25-19868	1	1	Multi-Coupling Plate - 2 Port - Fixed
3	25-19871	1	1	Multi-Coupling Plate - 2 Port - Cap
4	57-20740	2	2	1/4" Flat Washer

HANT



NAHT



Prior to operating the blade system, all air must be purged from the hydraulic system. Follow the steps below for each function on your blade.

Lift Function:

1. With the lift frame down and blocked, loosen the fittings on both ends of the lift cylinders.
2. Actuate the raise function to supply oil to the rod end of the cylinders.
3. When oil starts to flow from the fittings, stop oil flow, and tighten the fitting on the rod end of the lift cylinders.
4. Continue to flow oil until the system is fully raised and then block the lift frame.
5. Actuate the function in the opposite direction to supply oil to the base end of the lift cylinders.
6. When all air is removed from the lift system, stop oil flow and tighten the fittings on the base end of the lift cylinders.
7. Raise lift system and remove blocks. Cycle up and down 5 more times.
8. Check tractor oil level and fill if necessary.
9. Continue with connecting the blade in 12-20 Parts Book.

Before Each Use:

- 1. Disconnect the mobile half from the parking station and the cap from the fixed half.
- 2. Check that there is no contamination (salt, sand, dirt, etc.):
  - A. On the pins.
  - B. Inside the cam.
  - C. In the locking mechanism area.
  - D. On the face of the plates and couplings.
- 3. In case of contamination, remove it with a cloth and/or compressed air.
- 4. Check that there is still a lubricant/anti-corrosion (grease or silicone - see Note 1):
  - A. On the pins.
  - B. Inside the cam.
  - C. In the locking mechanism area.
- 5. Connect the mobile and fixed halves together.

After Each Use:

- 1. Disconnect the mobile half from the fixed half.
- 2. Clean all contamination (salt, sand, dirt, etc.) from the following areas:
  - A. On the pins.
  - B. Inside the cam.
  - C. In the locking mechanism area.
  - D. On the face of the plates and couplings.

\*Use a cloth or compressed air. It is advised to not use water to clean these surfaces
- 3. Apply a lubricant/anti-corrosion (grease or silicone - see Note 1):
  - A. On the pins.
  - B. Inside the cam.
  - C. In the locking mechanism area.
- 4. Connect the cap to the fixed half and the mobile half to the parking station.

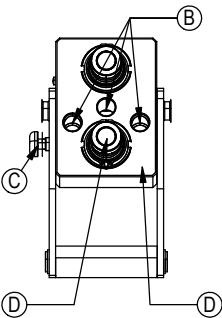
Note 1:

When sand and salt are present, or the plates under go a washdown, a heavy duty silicone spray lubricant should be used to replace grease from the factory. The lubricant should help protect from corrosion without collecting dust and contaminants, and will resist washing off when exposed to water.

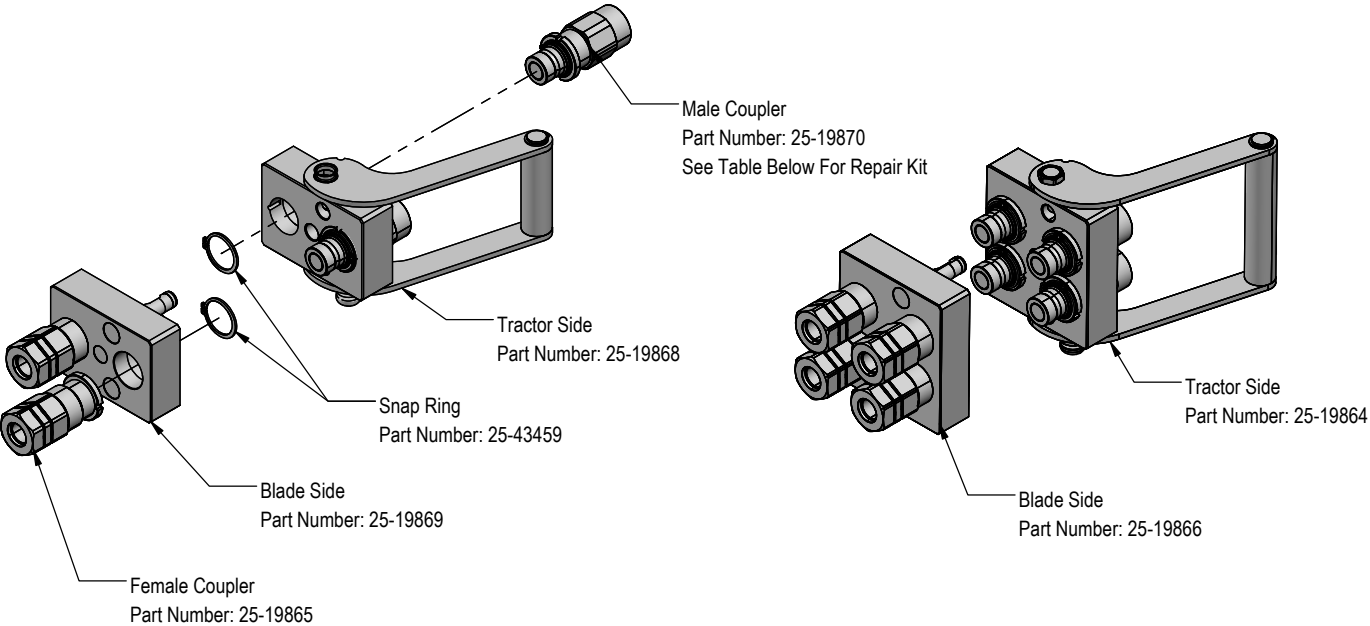
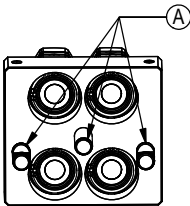
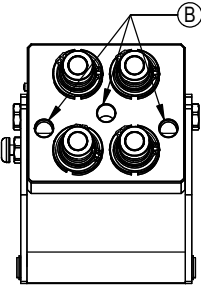
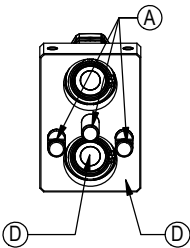
Recommended Lubricant Brands:

Fluid Film (Aerosol or Non-Aerosol), LPS-2 Heavy Duty Lubricant, or CRC 3-36.

Fixed Half



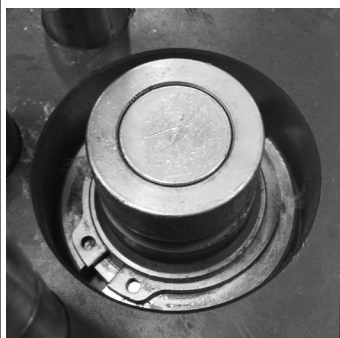
Mobile Half



PN	Description
25-43425	Male Coupler O-Ring Repair Kit



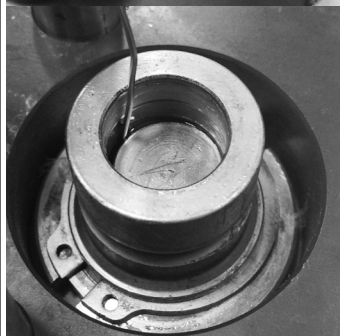
## Cleaning The Male Interface Seal:



1. Make sure the coupling is securely fastened into the plate or place in a vice.



2. Using a blunt, non-marring tool, depress the valve face until the seal is exposed. Insert a bent metal wire between the valve face and the body of the coupling. Use caution not to damage or scratch the seal when inserting the wire.



3. Inspect the seal and interior surfaces for contamination.

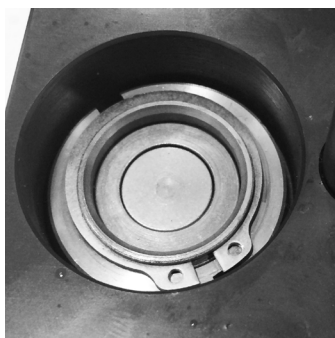


4. In case of contamination, carefully wipe surfaces with a soft cloth, or use compressed air to blow the contamination out. Do Not press hard on the seal as contamination can scratch the seal surface.



5. Using a non-marring tool, depress the valve face and remove the metal wire. Release the valve to the flush position.

## Cleaning The Female Bushing:



1. Make sure the coupling is securely fastened into the plate or place in a vice.



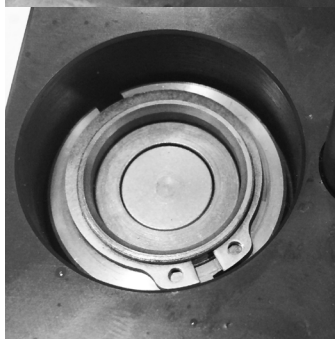
2. Using a non-marring tool, depress the outer ring to expose the bushing. There is no need to expose the valve seal, so stop pressing before the valve is opened.



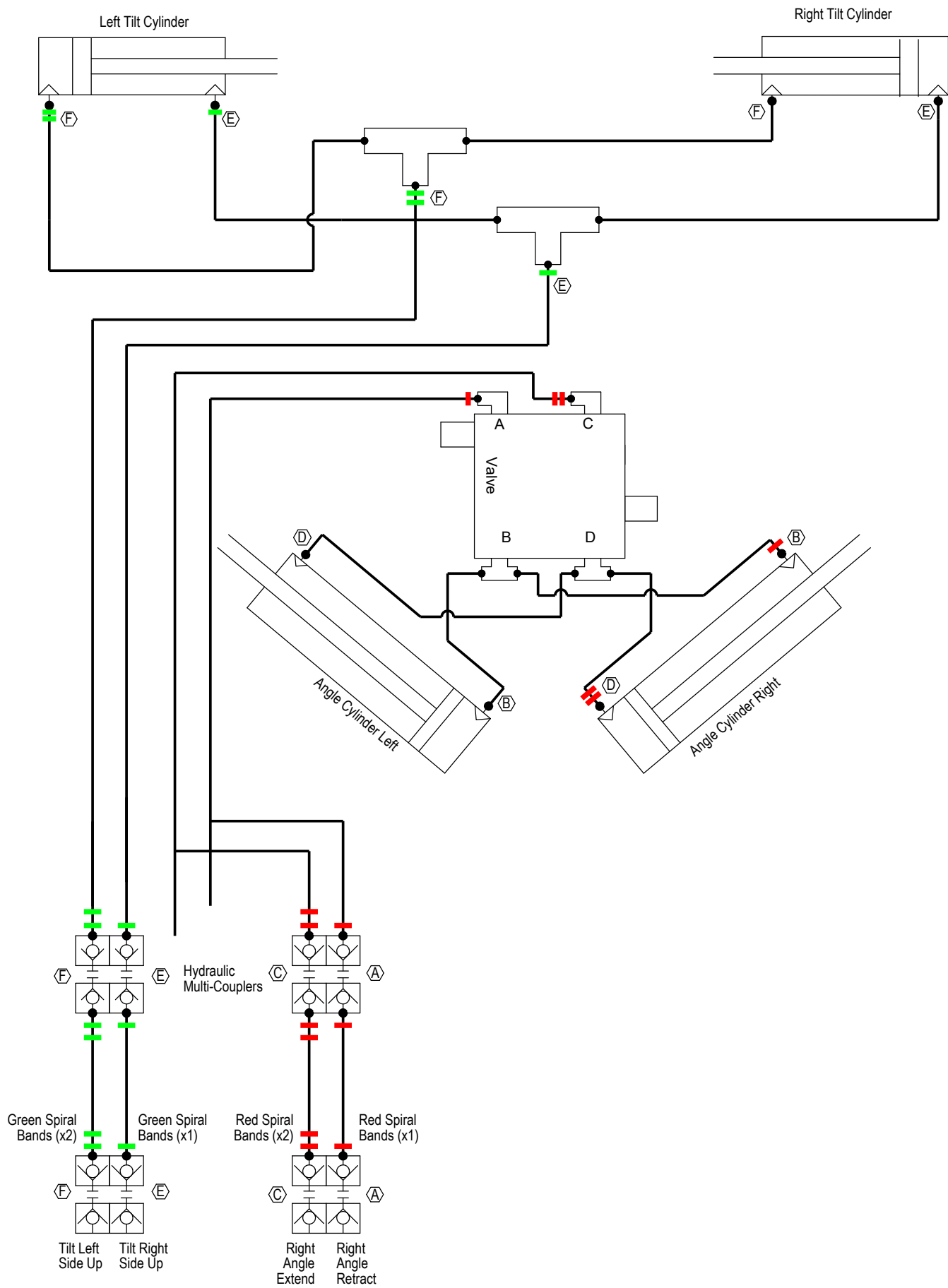
3. Inspect the interior body and bushing surfaces for contamination.



4. In case of contamination, carefully wipe surfaces with a soft cloth, or use compressed air to blow the contamination out.



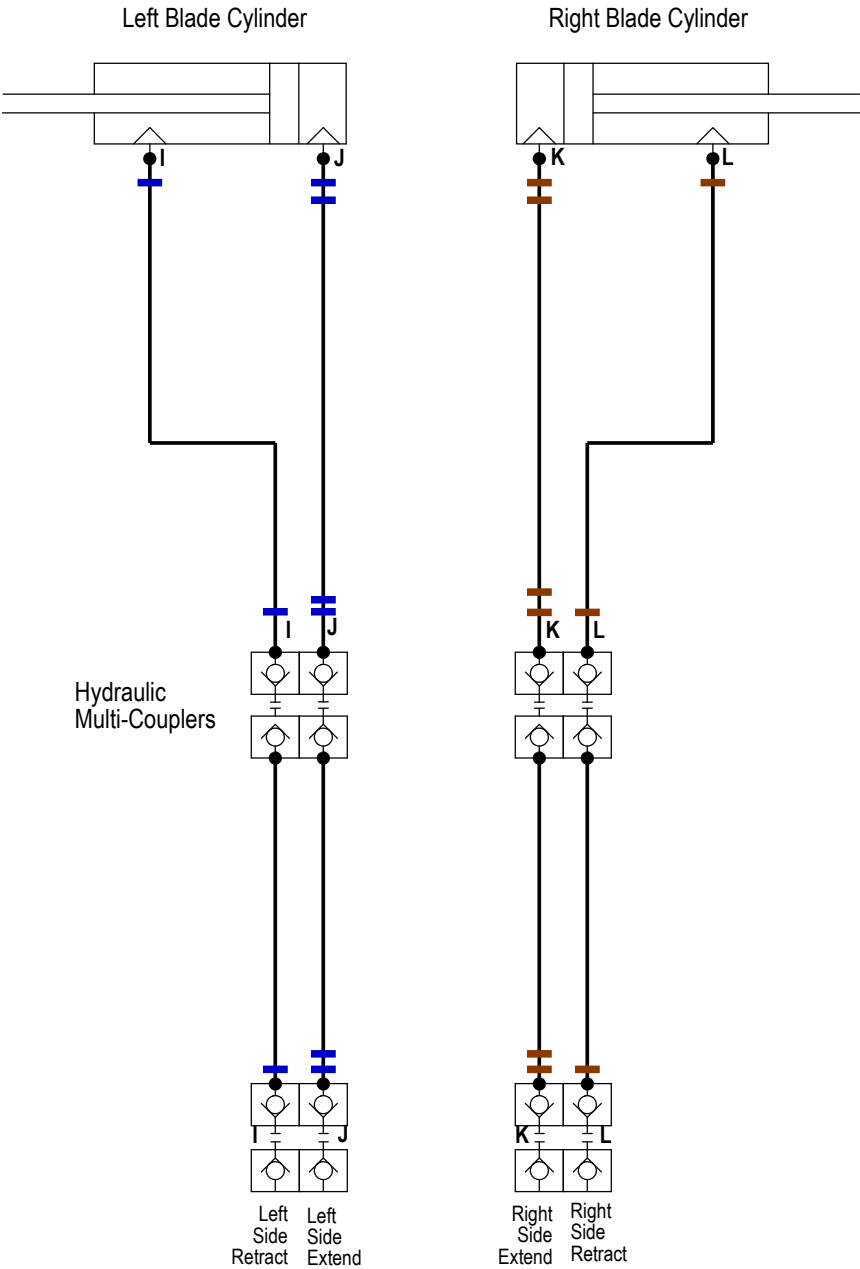
5. Release the outer ring so that it returns to the flush position.



Tractor Service Valve



Blade Hydraulic Schematic



# Improvements

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Grouser Products Inc. is continually striving to improve its products. We reserve the right to change prices, specification, or equipment at any time without notice. We also reserve the right to make improvements or changes when it becomes practical and possible to do so without incurring any obligation to make changes or additions to the equipment sold previously.

## Warranty

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Grouser Products warrants to the original purchaser of each item that the product be free from defects in material and workmanship under normal use and service for a period of **two (2) years for Agriculture Series Blades and one (1) year for Heavy Duty Series from date of original retail delivery.**

### **The obligation of the consumer under this warranty:**

1. To read the operators manual and to operate, lubricate, maintain and store equipment in accordance with the instructions listed in the operators manual.
2. To inspect equipment and if any part needs repair or replacement when continued use would cause damage or wear to other parts or safety.
3. All equipment or parts claimed to be defective in material or workmanship must be made available for inspection at the place of business of a dealer authorized to handle the equipment covered by this warranty, or, upon request by Grouser Products, shipped to the Grouser Products factory in West Fargo, North Dakota.

### **The obligation of the dealer under this warranty:**

1. Complete warranty registration form and submit within 30 days of sale.
2. Contact Grouser Products for authorization prior to performing any warranty repairs or part replacement.
3. Complete warranty request form and submit with photos and supporting documentation.

### **The obligation of Grouser Products under this warranty:**

1. Repair or replace, any equipment or parts, in the judgment of Grouser Products to be defective in material or workmanship.
2. Grouser Products will cover the cost of parts and ground shipping at dealer invoice only.
3. Grouser Products shall have no obligation to bear the cost of labor or transportation in connection with replacement or repair of any such defective parts.

### **This warranty does not cover:**

1. Depreciation or damage caused by normal wear, accident, improper assembly, improper adjustments.
2. Improper maintenance including lack of proper lubrication, or improper use. Including loose bolts, nuts, or fitting due to over tightening or vibration after 20 hours of operation.
3. Repairs or alterations without authorization from a Grouser Products representative.
4. Grouser Products shall have no liability if the equipment has been altered or reworked without the written authorization of Grouser Products.

Grouser Products' parts, which are furnished under this warranty and properly installed, shall be warranted to the same extent as the original parts under this warranty if, and only if, such parts are found to be defective within the original warranty period covering the original equipment.

**NO EMPLOYEE OR REPRESENTATIVE OF GROUSER PRODUCTS IS AUTHORIZED TO CHANGE THE WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY.**

## Contact Us

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As always, if you have any questions about your system or other products made by Grouser, feel free to contact us.



755 2nd Ave NW - West Fargo, ND 58078  
+1 701-282-7710 | [info@grouser.com](mailto:info@grouser.com)  
[www.grouser.com](http://www.grouser.com)