



# 450HD & 660HD

## Owner's Manual

### &

## Parts Book

**For Models:**

**Case Steiger Wheeled** - 375, 380, 385, 425, 430, 435, 440, 450, 480, 485, 500, 530, 535

**Case Steiger Quad** - 375, 380, 385, 425, 430, 435, 440, 450, 480, 485, 500, 530, 535

**New Holland** - TJ375, TJ380, TJ425, TJ430, TJ440, TJ450, TJ480, TJ500, TJ530, TJ9030, TJ9040, TJ9050, TJ9060

Purchase Date

Serial Number

Model Number

Tractor Model

Dealer

# Contents

Description	Page
To The Owner, Angle / Tilt Function Abbreviation Key & Unpacking Components	2
Maintenance & Safety Precautions	3
Skid Shoe and Tilt Plate Adjustment & Torque Specifications	4
Blade Assembly	5
Hydraulic Instructions, Angle System & 2-Lever Angle System Operating Instructions	6-7
Assembling Lift Components & Initial System Startup	8
Lift System	9
Quick Attach System	10-11
Hydraulic Angle - Hydraulic Tilt & Hydraulic Angle - No Tilt System	12-13
Hydraulic Angle - Hydraulic Tilt & Hydraulic Angle - No Tilt Hose Routing (Blade Side)	14-15
Hydraulic Angle - 2 Lever System Hose Routing (Blade Side)	15-16
Angle Hydraulic Components	18
No Angle - Hydraulic Tilt System & Hydraulics	18-19
U-End Extensions	20
Wire Harness	21
Hydraulic Schematic	22-23
Contact Us, Improvements, & Warranty	24

## To The Owner

This manual contains information concerning the operation, adjustment, and maintenance of the 450 & 660 blade assembly. You have purchased dependable, long lasting equipment, but only by proper care and operation can you expect to receive the performance and long service built into our products. Please have all operators read this manual carefully and keep the manual available for ready reference. If you have any questions or concerns, contact Grouser Products.

## Angle / Tilt Function Abbreviation Key

HAHT	Hydraulic Angle - Hydraulic Tilt	6-Way
HANT	Hydraulic Angle - No Tilt	4-Way
NAHT	No Angle - Hydraulic Tilt	4-Way
NANT	No Angle - No Tilt	2-Way

## Unpacking Components

Unstrap and remove the lift frame, hoses, top arms, and any boxes of hardware from the undercarriage. If any components are missing, call Grouser.

# Maintenance

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

- Inspect all equipment before operation for existing or potential damages.
- Lubricate all joints with high quality grease.
- Inspect and tighten all bolts to torque specifications on page 10.
- Check replaceable cutting edge for wear ensuring there is enough material to prevent permanent damage to the blade.
- Make sure all non-rotating pins are secured properly.
- Check hydraulic cylinders and hoses for damage or leaks. For replacement parts, see hydraulic pages for your specific system.
- Check skid shoes for wear and replace if necessary. For adjustment, see page 10.
- Inspect all tilt-ways for aggressive wear. See page 10 for tilt plate adjustment.

## Safety Precautions

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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 to these precautions, please follow all safety and operational instructions of your tractor manufacturer.

### **The Dozer:**

1. The 450 & 660 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 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.

### **Servicing the 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 Dozer:**

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

# Skid Shoe and Tilt Plate Adjustment

## Skid Shoe Adjustment:

1. Raise and secure blade to access skid shoe bolts and nuts.
2. Loosen nuts and set skid shoe depth by sliding the shoe back and forth in direction 'A' shown in Figure 1.
3. Once the depth is set, tighten bolts to 150 ft-lbs.
4. When skid shoes are worn down, replace with new skid shoes.

## Tilt Plate Adjustment:

1. Remove bolts and tilt plates.

Note: Don't remove all of the bolts at the same time.

2. Add or remove washers as needed to adjust tilt-way clearance to have 1/16" - 1/8" of clearance in direction 'B' shown in Figure 1.
3. Once the tilt-way clearance is set, tighten bolts to 640 ft-lbs.

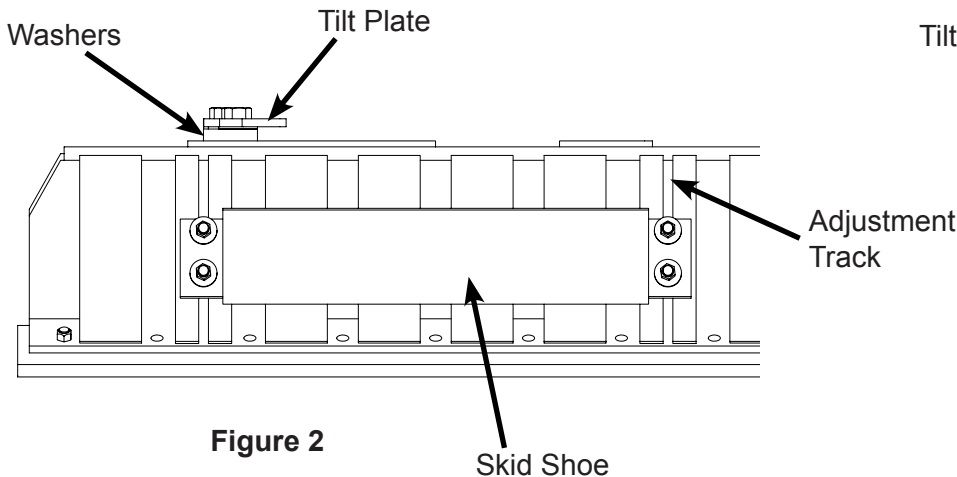


Figure 2

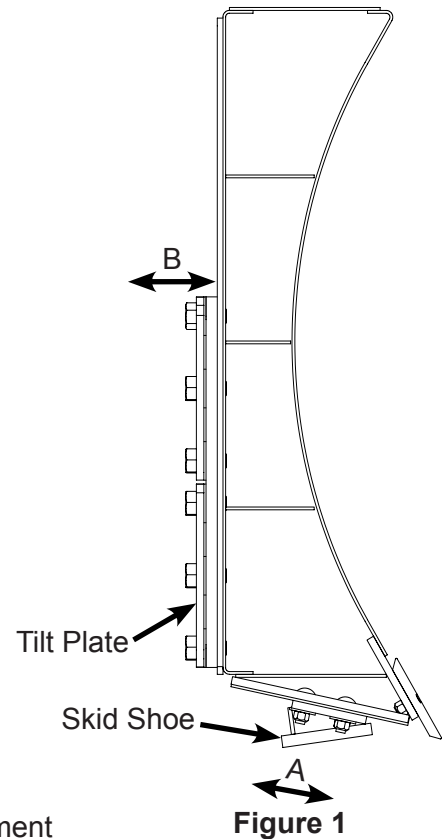


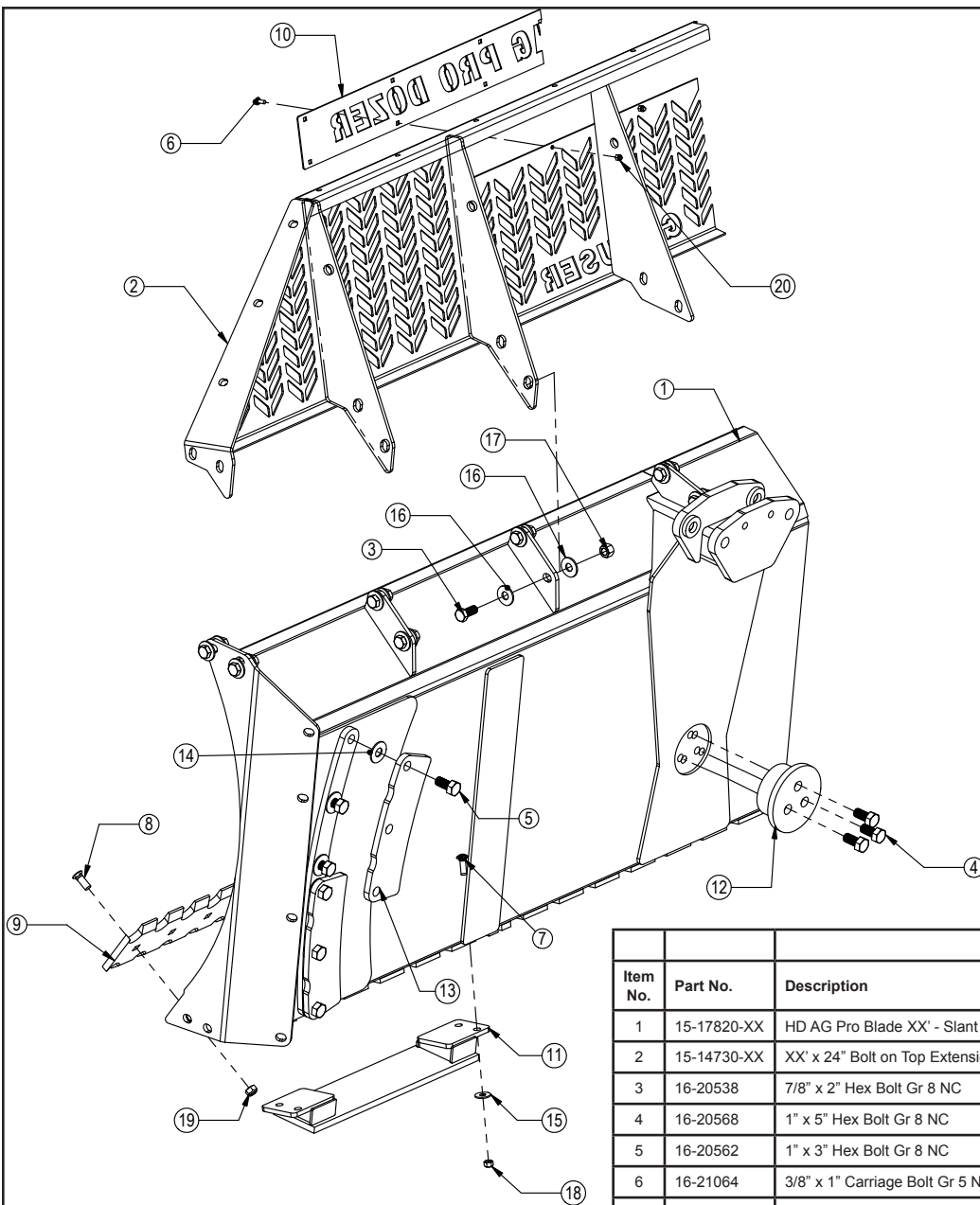
Figure 1

## Torque Specifications

All bolts should be tightened to the specifications that are stated. If specifications are not stated, follow torque charts below.

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

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



\* Parts Not Shown  
 Item #A for Serrated Cutting Edges  
 Item #B for Straight Cutting Edges  
 Item #C for Custom Name Plate  
 Item #D for AG Pro Name Plate

Item No.	Part No.	Description	Blade Length				
			12'	14'	16'	18'	20'
1	15-17820-XX	HD AG Pro Blade XX' - Slant Top	1	1	1	1	1
2	15-14730-XX	XX' x 24" Bolt on Top Extension - Slant Top	1	1	1	1	1
3	16-20538	7/8" x 2" Hex Bolt Gr 8 NC	14	14	18	18	22
4	16-20568	1" x 5" Hex Bolt Gr 8 NC	3	3	3	3	3
5	16-20562	1" x 3" Hex Bolt Gr 8 NC	12	12	12	12	12
6	16-21064	3/8" x 1" Carriage Bolt Gr 5 NC	8	8	8	8	8
7	16-21188	5/8" x 2" Carriage Bolt Gr 5 NC	8	8	8	8	8
8	16-21748	3/4" x 2" Plow Bolt Gr 8 NC	24	28	32	36	40
9A	29-11223-6	6' - 3/4" x 8" Serrated Cutting Edge	2	-	-	3	2
9A	29-11223-7	6' - 3/4" x 8" Serrated Cutting Edge	-	2	-	-	-
9A	29-11223-8	6' - 3/4" x 8" Serrated Cutting Edge	-	-	2	-	1
9B*	29-11118-6	6' - 3/4" x 8" Cutting Edge	2	-	-	3	2
9B*	29-11118-7	7' - 3/4" x 8" Cutting Edge	-	2	-	-	-
9B*	29-11118-8	8' - 3/4" x 8" Cutting Edge	-	-	2	-	1
10C	44-14830	Custom Name Plate	1	1	1	1	1
10D	44-15150	Ag Pro Name Plate	1	1	1	1	1
11	50-16710	HD Skid Shoe 33"	2	2	2	2	2
12	50-12380	HD Center Tilt Way Cover	1	1	1	1	1
13	52-16222	HD Tilt Plate	4	4	4	4	4
14	57-20749	1" Flat Washer	12	12	12	12	12
15	57-20816	5/8" Flat Washer Grade 8 (USS)	8	8	8	8	8
16	57-20818	7/8" Flat Washer Heavy Duty Grade 8 (USS)	28	28	36	36	44
17	70-20598	7/8" Hex Nut Gr 8 NC	14	14	18	18	22
18	70-20646	5/8" Hex Top Lock Nut Gr 5 NC	8	8	8	8	8
19	70-20647	3/4" Hex Top Lock Nut Gr 5 NC	24	28	32	36	40
20	70-20622	3/8" Flange Nut	8	8	8	8	8

# Hydraulic Instructions

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Prior to operating the blade, bleed all air out of the hydraulic system. Start with the furthest location away from the remote until all air is out.

## Hydraulic Angle System Operating Instructions

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If your Grouser blade was purchased with the Hydraulic Angle Option, you will have the ability to angle the blade 30 degrees left or right. To achieve these angles, the two cylinders are designed to operate independently of each other through an electric diverter valve. To angle the blade to the left, actuate the tractor hydraulic control lever in the cab with the diverter valve un-powered. To angle the blade to the right, apply power to the diverter valve and then actuate the tractor hydraulic control lever.

## 2-Lever Angle System Operating Instructions

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If your Grouser blade was purchased with the 2-Lever Hydraulic Angle Option, you will have the ability to angle the blade 30 degrees left or right. To achieve these angles, the two cylinders are designed to operate independently of each other with the use of 2 tractor hydraulic control levers and a safety relief valve. To angle the blade to the left or right, actuate the tractor hydraulic control lever corresponding to the left or right cylinder.

The safety relief valve allows the cylinder to retract if its internal pressure becomes excessive. With this safety feature in place, when either cylinder reaches the end of its stroke, the safety relief valve will reroute pressure to the opposite cylinder causing it to extend. If this occurs, refer to the Relief Valve Instructions below for possible adjustments. Only one cylinder should be extended when angled dozing.

## Relief Valve Instructions

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**Set the safety relief valve at a higher pressure than tractor:** To increase the pressure of the relief valve, install a 0-5,000 psi pressure gauge into the base end of right angle cylinder (see page 26). Loosen the jam nut on the safety valve and tighten the Allen screw 1/2 turn. Next, extend the right side cylinder out until the safety valve activates, while the safety valve is in function, record the pressure reading on the gauge. Continue to tighten the Allen screw in 1/2 turn increments and record the pressure until a high enough relief setting is obtained. **Do not exceed the 3,000-psi operating pressure of the cylinders.** Tighten the jam nut and remove the gauge. Follow the same steps for the left side cylinder.

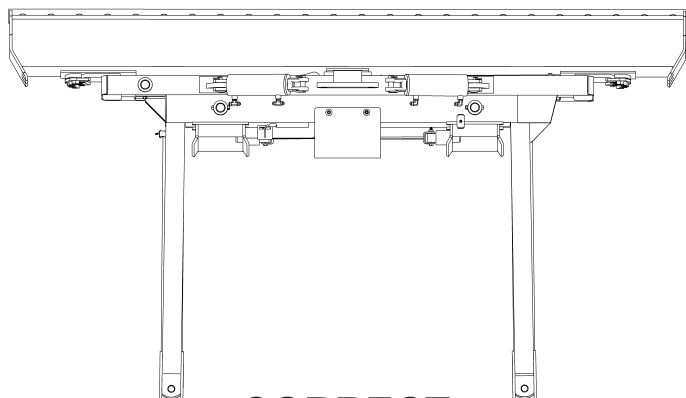
**Automatic lever release:** In certain newer model tractors, the hydraulic control lever will automatically release and instantly stop oil flow once the end of the stroke is reached.

(Continued on next page)

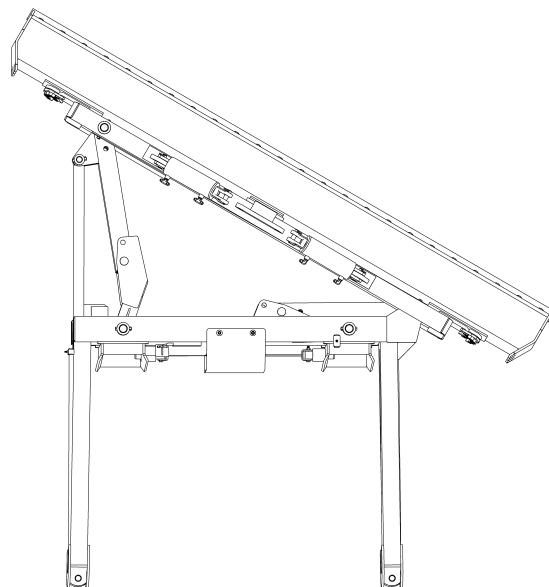
**CAUTION: Do not bypass the safety relief valve and plumb each cylinder to separate valves on the tractor.**

To ensure proper use and life of equipment, it is recommended to have both cylinders closed for straight ahead dozing and only one cylinder partially or fully extended for angled dozing as shown in the diagrams below. **If the angle system is not used correctly, frame damage may occur.** Some damaged frames can be repaired, please contact Grouser Products for repair instructions if needed.

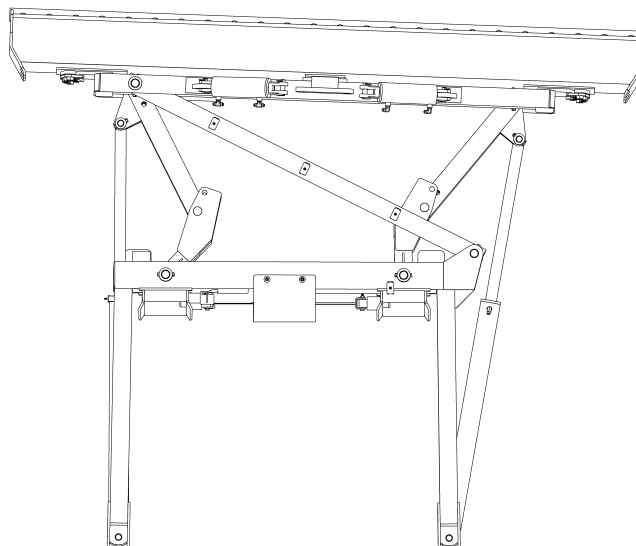
**Please contact Grouser Products with any questions by:**  
Phone - 701-282-7710 or 800-747-6182; Fax - 701-282-8131



**CORRECT**



**CORRECT**  
(Left or Right)



**INCORRECT**

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# Assembling Lift Components

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Now that the undercarriage is installed, some assembly of components is necessary. Follow the steps listed below. Refer to Page 9 for the correct hardware and orientation of parts.

1. Remove all pins on each side of the undercarriage.
2. Position the lift frame between the two plates on both sides of the undercarriage.
3. Align the lift frame to the bottom holes of the undercarriage and attach with the proper pins and hardware.
4. Lift the end of the cylinders up and attach to the undercarriage with the proper pins and hardware.
5. Attach the top arms to the top of the undercarriage with the proper pins and hardware.
6. Remove the male quick attaches that are in the female quicks on the blade, angle frame, or tilt frame.
7. Attach the male quick attaches to the lift frame and top arms with the proper pins and hardware.
8. If the quick couplers and coupler mount are not already attached to the left top arm, attach the coupler mount to the left top arm with 4 - 3/8" flange nuts. See Page #14-15 for proper orientation.
9. Install each coupler into the designated hole on the coupler mount and hold them in place with the coupler retainer plate, 3/8" x 3/4" bolts and 3/8" flange nuts.
10. Attach the lift hoses to the lift cylinders and to the bulkhead tee fitting at the center front of the undercarriage.
11. Attach the angle and tilt hoses to the coupler mount and route to bulkhead bracket on the undercarriage. Refer to Page #14-19 for clarification.
12. Take all of the 288" hoses and attach each one to their designated fitting on the bulkhead brackets.
13. Route the hoses thru the hose loops on the undercarriage to the back of the tractor.
14. Keep the hoses away from all moving parts.
15. Install the 90° fitting and the male couplers on the end of each hose and plug into the rear SCV's of the tractor.
16. Pull the pin puller handle on the left side of the quick attach system towards the outside of the blade to open the quick attach system. Refer to Page #10-11 for further clarification on the quick attach system.
17. Tilt the male quick attaches forward slightly.
18. Drive the tractor forward slowly until the top edge of the male quick attach is under the top lip of the female quick attach already on the blade assembly.
19. Tilt the male quick attaches backward till the blade is off the ground and the female quick attaches are against the front of the male quick attaches.
20. Shut off machine and set the parking brake.
21. Move the pin puller handle on the left side of the blade assembly towards the center of the blade to lock the blade in place and use the latch to lock the handle in place. If applicable, turn up the blade stands on the blade.
22. Plug the male couplers into the female couplers on the top arm.

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## Initial System Startup

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Start the tractor and run the blade thru all the functions. If any function does not work properly, bleeding of the system may be required. If problem still persists, call Grouser Products.

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## Hose Routing

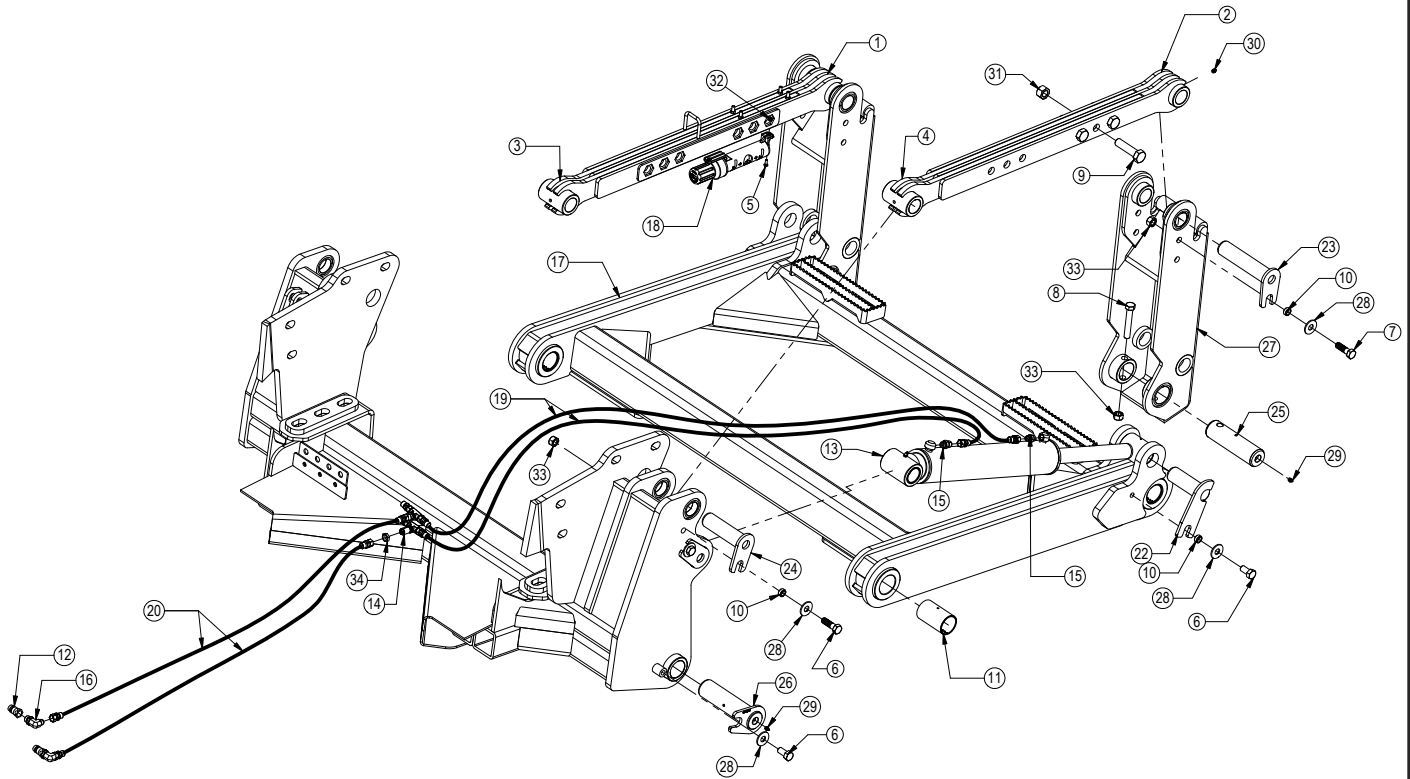
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**Note: Installer is responsible to route hoses in a practical manner. The hoses need to be routed away from sharp corners and moving parts and need to be secure.**



Left Side Hydraulics Are Not Shown.  
Hoses Not Drawn to Scale



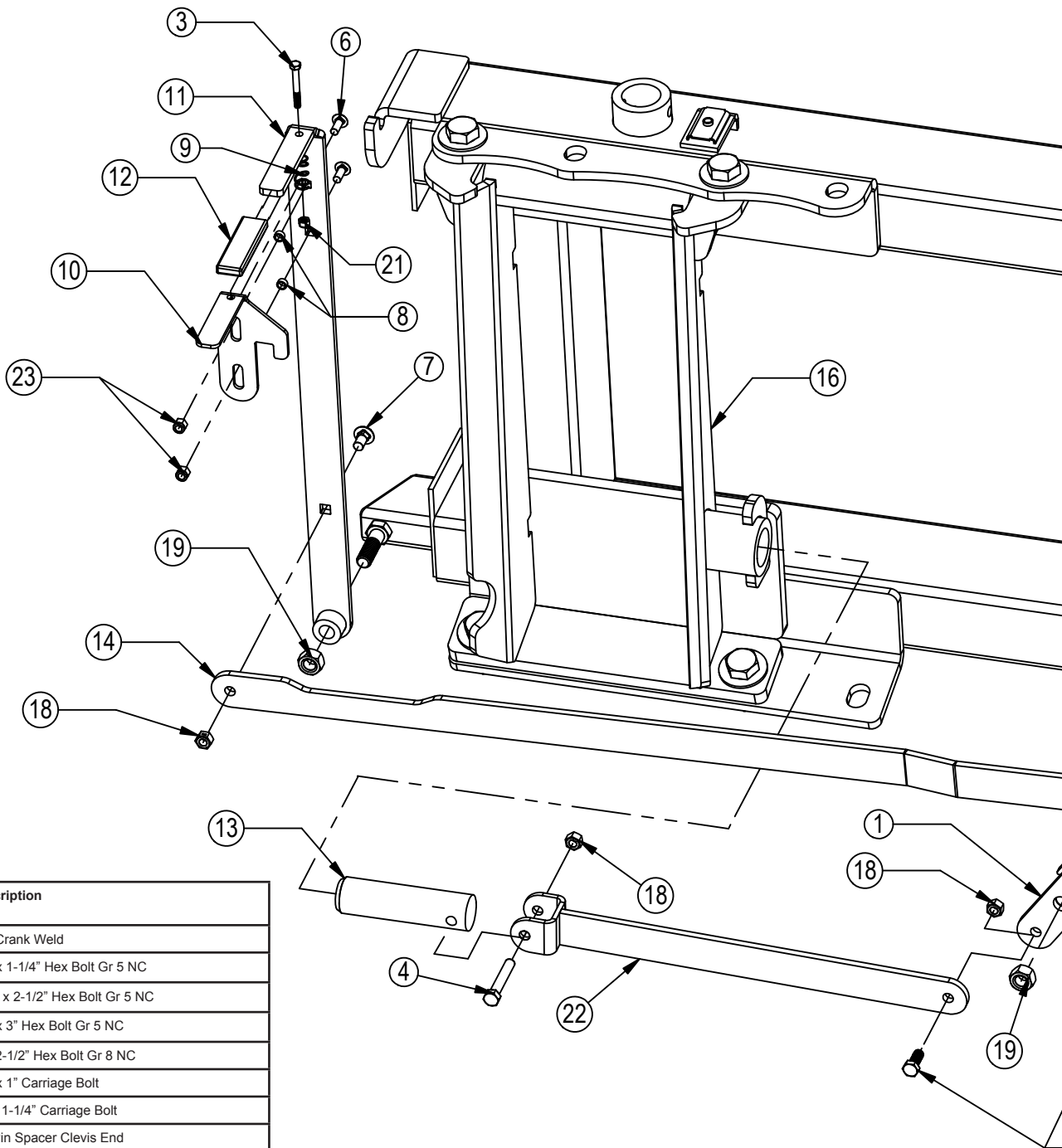
\* Parts Not Shown  
Item #A for 450HD  
Item #B for 660HD

Item No.	Qty	Part No.	Description
1	1	11-16330-L	Manual Pitch Top Arm, Female - Left
2	1	11-16330-R	Manual Pitch Top Arm, Female - Right
3	1	11-16335-L	Manual Pitch Top Arm, Male - Left
4	1	11-16335-R	Manual Pitch Top Arm, Male - Right
5	2	16-20002	1/4" x 3/4" Hex Bolt Gr 5 NC
6	8	16-20216	3/4" x 1-1/2" Hex Bolt Gr 5 NC
7	2	16-20220	3/4" x 2-1/2" Hex Bolt Gr 5 NC
8	2	16-20227	3/4" x 4-1/2" Hex Bolt Gr 5 NC
9	12	16-20566	1" x 4" Hex Bolt Gr 8 NC
10	8	19-13515	3/4" ID - Non Rotating Pin Spacer Bushing
11	4	19-13525	2.75 x 2.50 x 4.75 Spring Bushing
12	2	25-34342	Tappet Quick Coupler - Male
13	2	26-5200	5x20 Cylinder w/ tube ends (C50-115A)
14	2	31-34021	Bulkhead Branch Tee JIC (2703-10-10-10)
15	4	31-34042	Straight JIC x O-Ring (6400-10-10)
16	2	31-34052	Straight Thread Elbow 90° JIC x O-Ring (6801-10-10)
17A	1	32-12420	450HD Lift Frame
17B	1	32-13640	660HD Lift Frame

Item No.	Qty	Part No.	Description
18	1	34-14961	Manual Canister
19A	4	35-30931	66" x 5/8" -10JIC/-10JIC Hose
19B	4	35-30934	75" x 5/8" -10JIC/-10JIC Hose
20	2	35-30960	288" x 5/8" -10JIC/-10JIC Hose
21*	1	43-12929-L	Pin Weld - Long Ear (Lift Cyl. / Lift Frame) - Left
22	1	43-12929-R	Pin Weld - Long Ear (Lift Cyl. / Lift Frame) - Right
23	2	43-13478	Pin Weld (Top Arm / QA)
24	4	43-13482	Pin Weld (Top Arm / UC & Lift Cyl. / UC)
25	2	43-14720	Pin (Lift Frame / QA)
26	2	43-14725	Pin (Lift Frame / UC)
27	2	45-12175	Series Male Quick Attach
28	10	57-20747	3/4" Flat Washer
29	4	58-9369	Grease Zerk 1/8" NPT Straight
30	4	58-9372	Grease Zerk 1/8" NPT 90°
31	12	70-20599	1" Hex Nut Gr 8 NC
32	2	70-20610	1/4" Nyloc Hex Nut Gr 5 NC
33	4	70-20607	3/4" Hex Center Lock Nut Gr 2 NC
34	2	70-20808	7/8" Hex Jam Nut

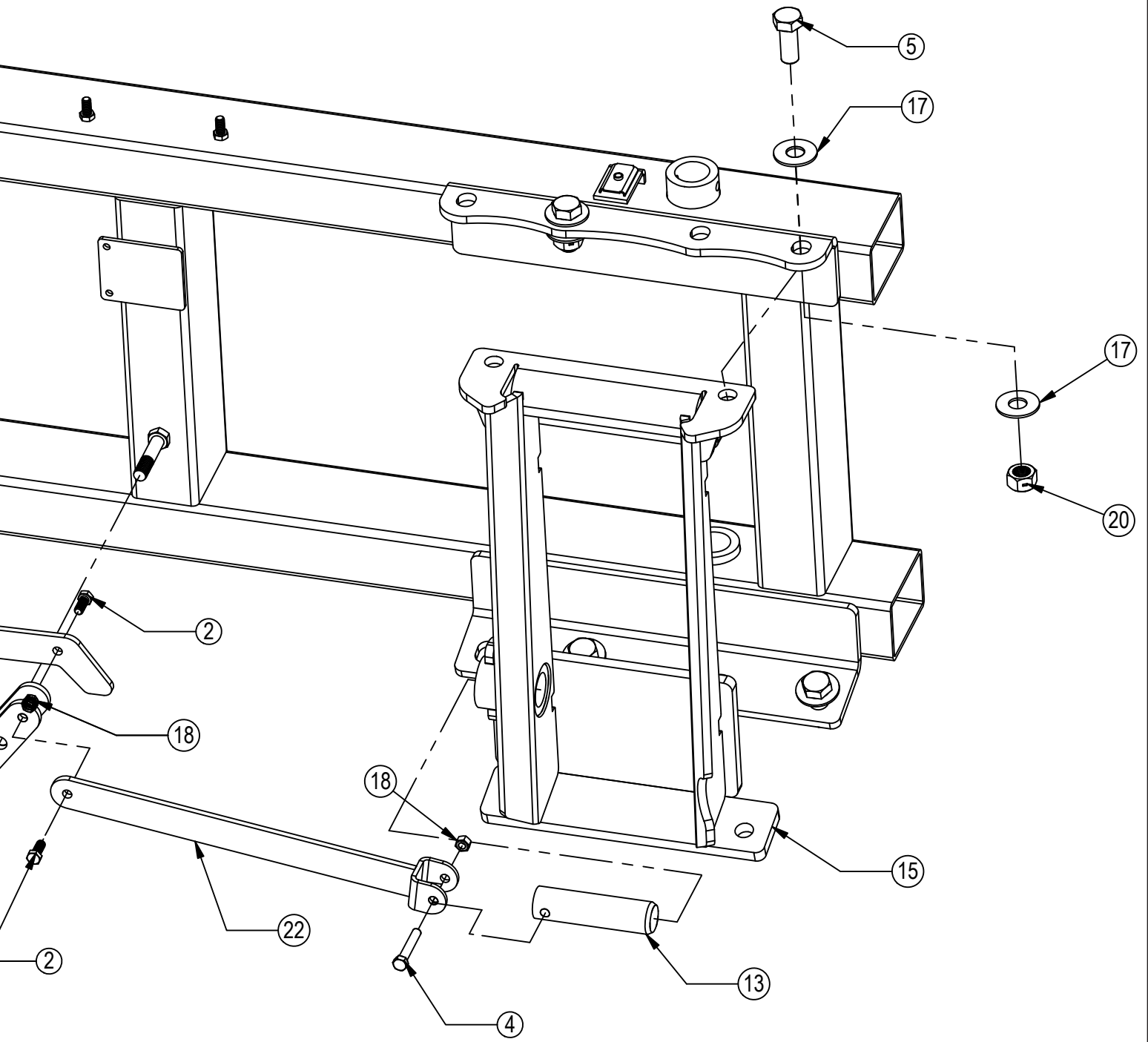
NOTE: When ordering cylinder seal kits, the part number on the cylinder is needed. The number is stamped on the base end of the cylinder opposite of the hydraulic ports.

No. On Cylinder	Part No.	Description
26-5200	49-11640	CTD Seal Kit 5x2" (SKC50-115A) Nitrided Rod

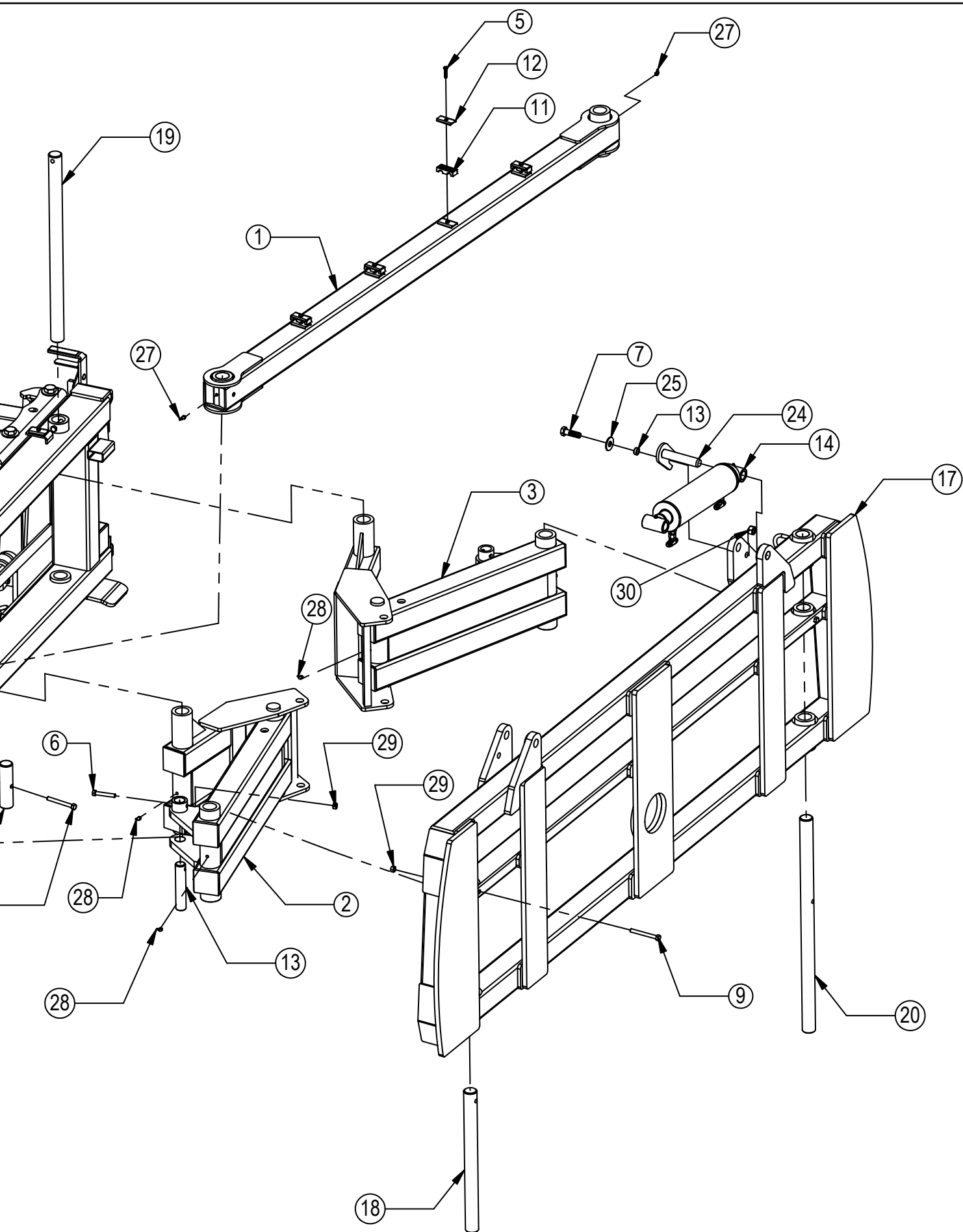


Some Parts Hidden For Clarity

Item No.	Qty.	Part No.	Description
1	1	11-3049	Bell Crank Weld
2	3	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC
3	1	16-20040	5/16" x 2-1/2" Hex Bolt Gr 5 NC
4	2	16-20132	1/2" x 3" Hex Bolt Gr 5 NC
5	8	16-20560	1" x 2-1/2" Hex Bolt Gr 8 NC
6	2	16-21064	3/8" x 1" Carriage Bolt
7	1	16-21125	1/2 x 1-1/4" Carriage Bolt
8	2	19-13577	NR Pin Spacer Clevis End
9	1	34-17799	Pin Pulling Latch Spring
10	1	39-14663	AG Pro Pin Puller Latch
11	1	39-14665	AG Pro Pin Puller Handle Weld
12	1	39-3072	Handle Cover (Orange)
13	2	43-3050	QA Lock Pin
14	1	44-14709	AG Pro Pin Puller Link Plate
15	1	45-16035-R	HD Female Vertical Bolt On Quick Attach, Right
16	1	45-16035-L	HD Female Vertical Bolt On Quick Attach, Left
17	16	57-20819	1" Flat Washer Heavy Duty Gr 8 (USS)
18	6	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
19	2	70-20607	3/4" Hex Center Lock Nut Gr 2 NC
20	8	70-20609	1" Hex Center Lock Nut Gr 2 NC
21	1	70-20611	5/16" Nyloc Hex Nut
22	2	75-14655	AG Pro Pin Puller Link Weld
23	2	70-20622	3/8" Flange Nut

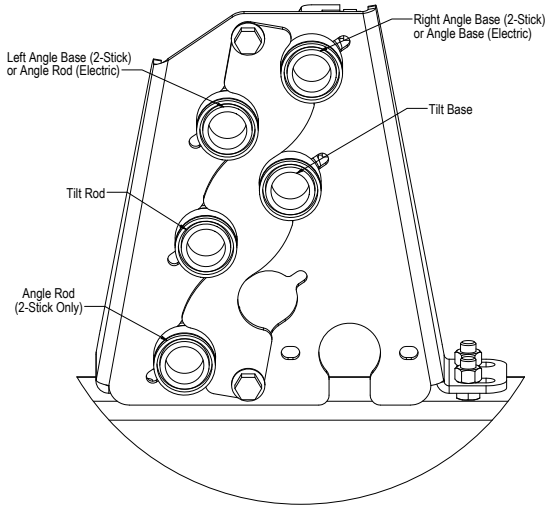
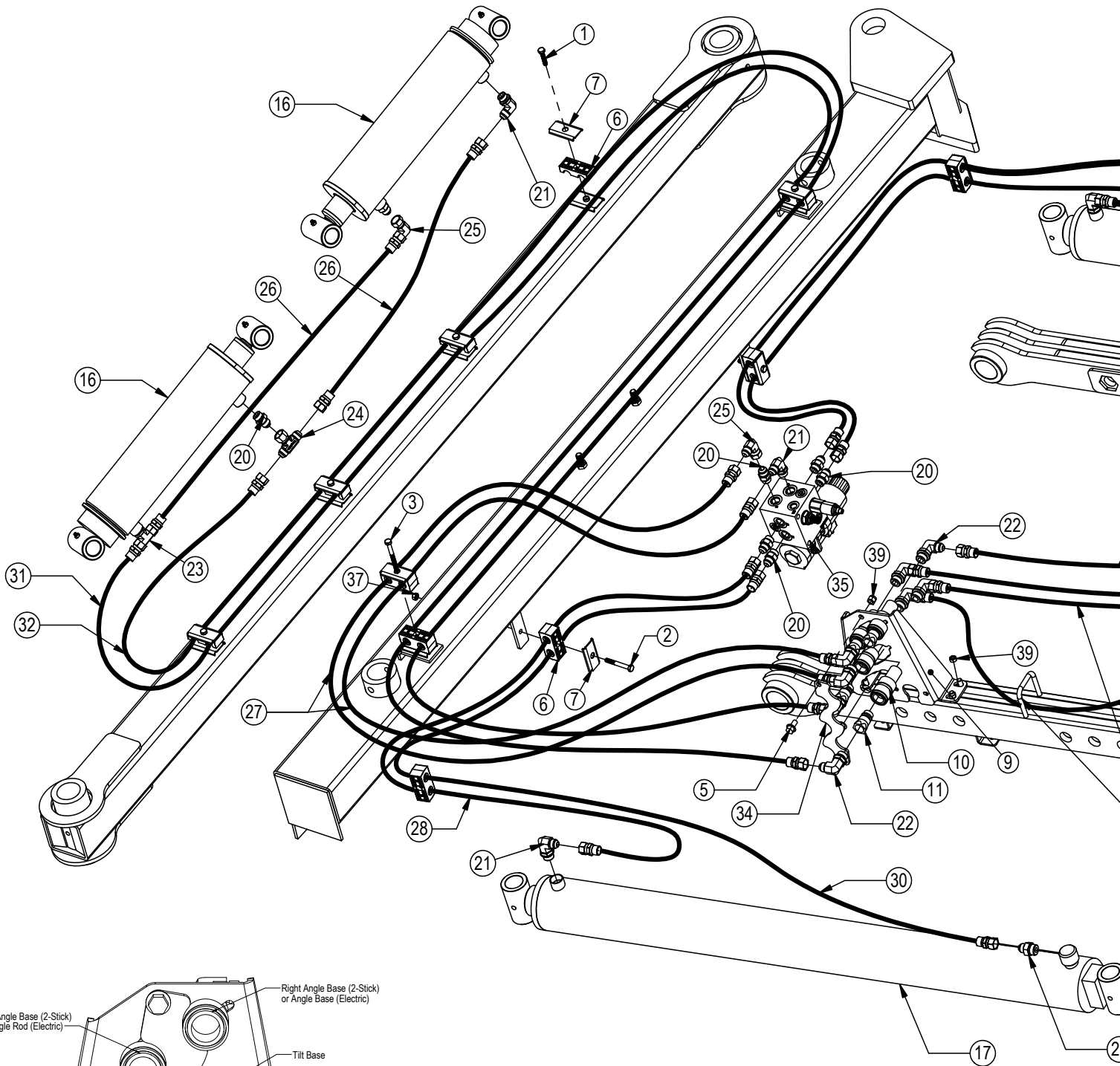


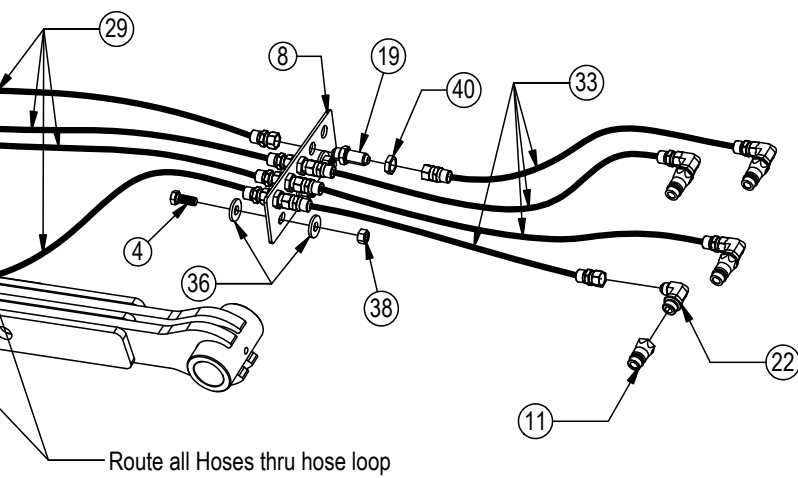
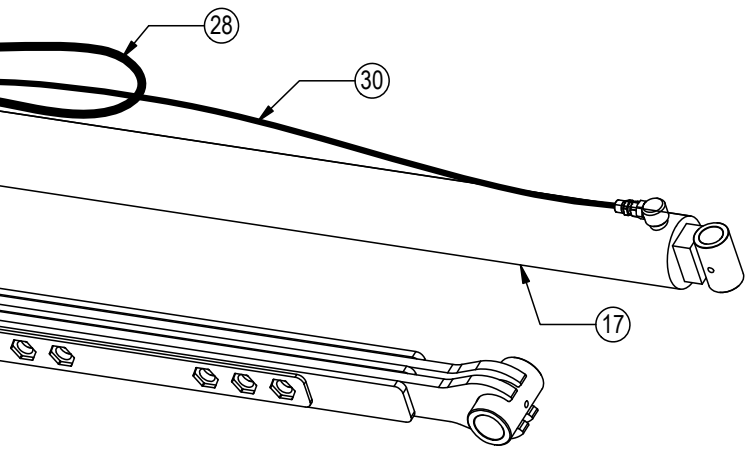




# Hydraulic Angle - Hydraulic Tilt Or Hydraulic Angle - No Tilt Hose Routing

Hoses Not Drawn To Scale





Item No.	Part No.	Description	Configuration Qty.	HAHT Qty.	HANT Qty.
1	16-20036	5/16" x 1-1/2" Hex Bolt Gr 5 NC	7	4	
2	16-20040	5/16" x 2-1/2" Hex Bolt Gr 5 NC	2	2	
3	16-20043	5/16" x 3-1/4" Hex Bolt Gr 5 NC	1	-	
4	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC	3	3	
5	16-35C612	3/8" x 3/4" Flange Bolt	2	2	
6	18-3074	Hose Hold Down Clamp	9	5	
7	18-3075	Hose Hold Down Clamp Plate	10	5	
8	18-12630	Bulkhead Union Bolt on Plate	1	1	
9	18-14737	Female Coupler Mount	1	1	
10	25-34321	Tappet Quick Coupler Female	4	2	
11	25-34342	Tappet Quick Coupler Male	8	4	
12*	25-3453	Pioneer Dust Cap Tilt (Green)	4	-	
13*	25-3454	Pioneer Dust Plug Tilt (Green)	2	-	
14*	25-3455	Pioneer Dust Cap Angle (Red)	4	4	
15*	25-3456	Pioneer Dust Plug Angle (Red)	2	2	
16	26-34728	4 x 12 Cylinder W/ Cast Clevis Ends	2	-	
17	26-34725	4 x 43.5 Cylinder Tube Ends, Top Port	2	2	

\* Parts Not Shown

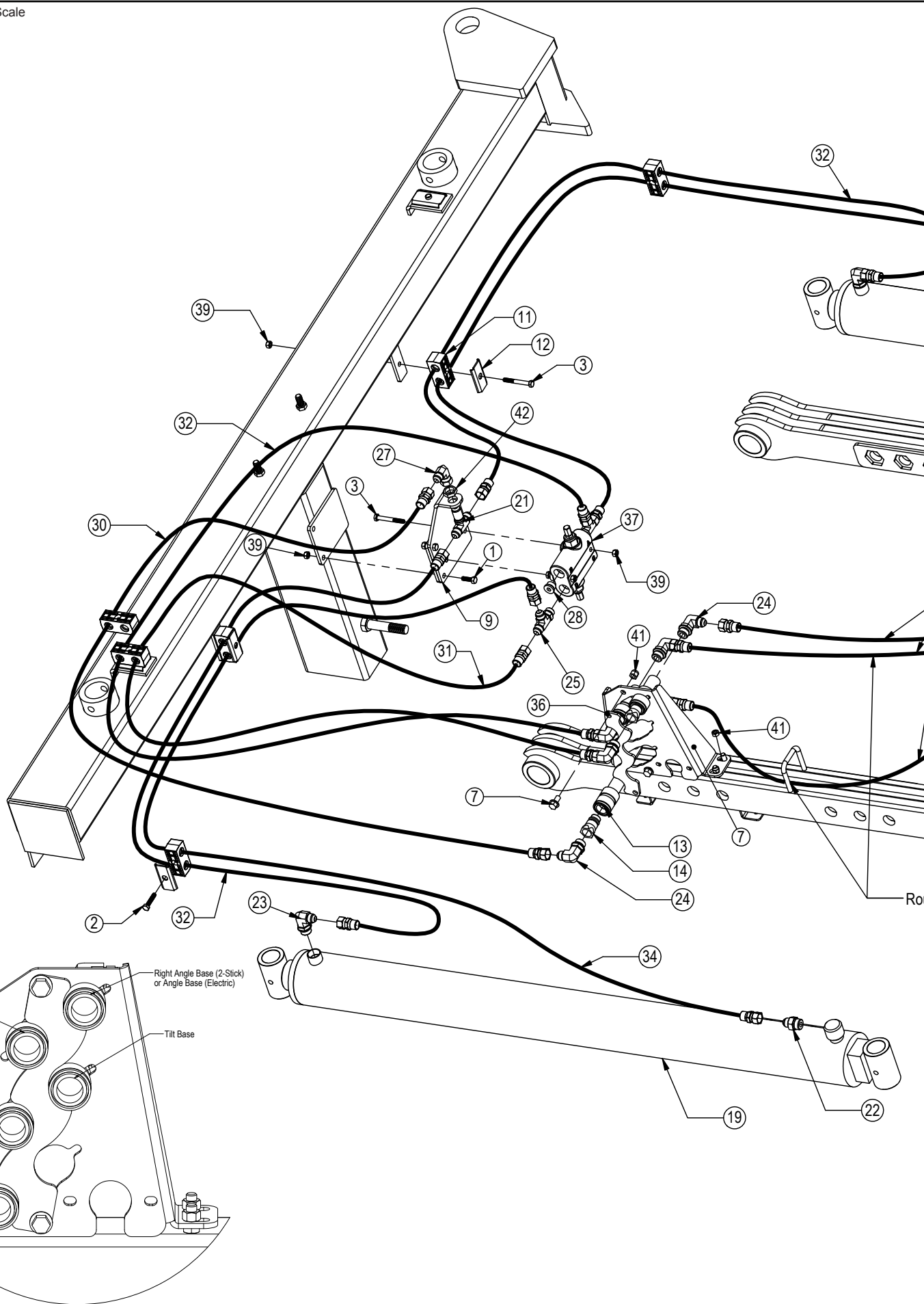
Item No.	Part No.	Description	Configuration Qty.	HAHT Qty.	HANT Qty.
18*	31-13332	-6 SAE Breather Fitting	1	1	
19	31-34000	Bulkhead Union JIC (2700-8-8)	4	2	
20	31-34040	Straight JIC x O-Ring (6400-8-8)	9	7	
21	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)	4	3	
22	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)	12	6	
23	31-34060	Branch Tee JIC x O-Ring (6803-8-8-8)	1	-	
24	31-34080	Swivel Nut Branch Tee JIC (6600-8-8-8)	1		
25	31-34100	Swivel Nut Elbow 90° JIC (6500-8-8)	2	1	
26	35-30124	45" x 3/8" -8JIC/-8JIC Hose	2	-	
27	35-30130	63" x 1/2" -8JIC/-8JIC Hose	2	2	
28	35-30131	66" x 1/2" -8JIC/-8JIC Hose	2	2	
29	35-30138	87" x 1/2" -8JIC/-8JIC Hose	4	2	
30	35-30141	96" x 1/2" -8JIC/-8JIC Hose	2	2	
31	35-30153	205" x 1/2" -8JIC/-8JIC Hose	1	-	
32	35-30156	215" x 1/2" -8JIC/-8JIC Hose	1	-	
33	35-30160	288" x 1/2" -8JIC/-8JIC Hose	4	2	
34	44-14738	Female Coupler Retainer	1	1	
35	56-13305	Hydraulic Angle Valve	1	1	
36	57-20744	1/2" Flat Washer	6	6	
37	70-20581	5/16" Hex Nut NC	2	2	
38	70-20604	1/2" Hex Center Lock Nut	3	3	
39	70-20622	3/8" Flange Hex Nut	6	6	
40	70-20807	3/4" Hex Jam Nut	4	2	

NOTE: When ordering cylinder seal kits, the part number on the cylinder is needed. The number is stamped on the base end of the cylinder opposite of the hydraulic ports.

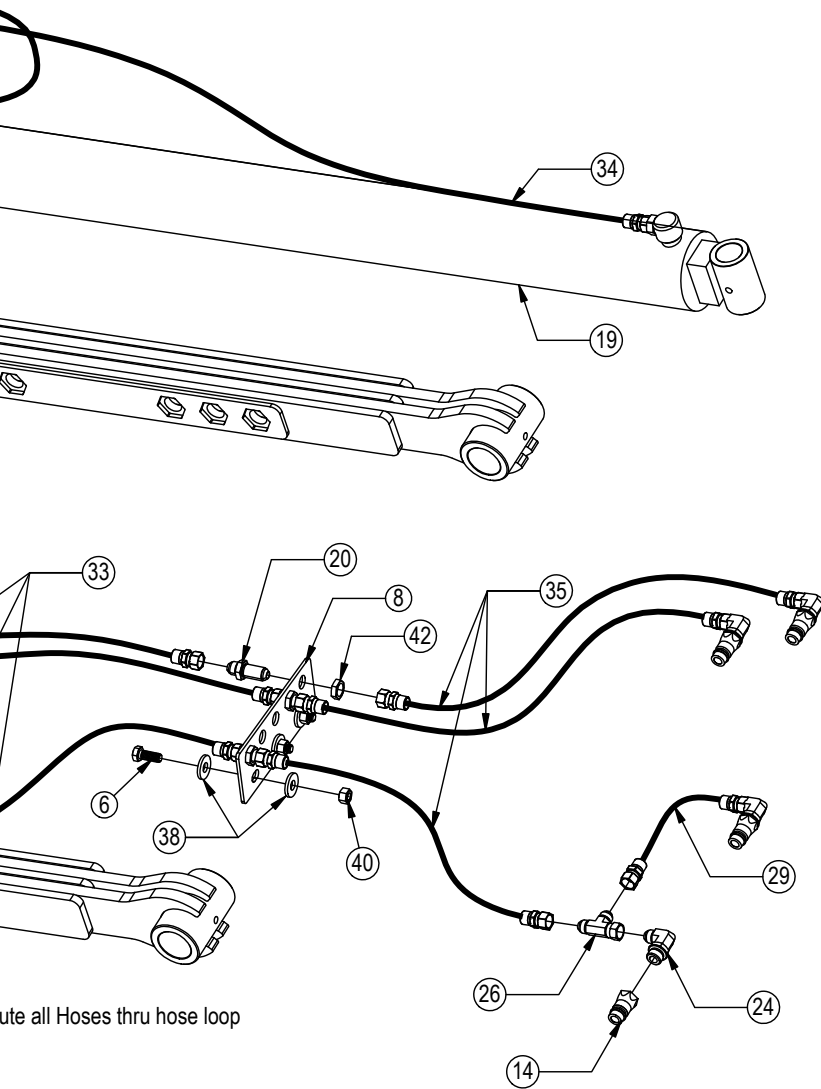
No. On Cylinder	Part No.	Description
26-34728	49-12272	Seal Kit 4" Bore x 2" Rod (647204) Nitrided Rod
26-34725	49-12274	Seal Kit 4 x 43.5 (647210) Nitrided Rod

# Hydraulic Angle - 2 Lever System Hose Routing

Hoses Not Drawn To Scale







Route all Hoses thru hose loop

Item No.	Qty.	Part No.	Description
1	2	16-20034	5/16" x 1" Hex Bolt Gr 5 NC
2	3	16-20036	5/16" x 1-1/2" Hex Bolt Gr 5 NC
3	4	16-20040	5/16" x 2-1/2" Hex Bolt Gr 5 NC
4*	1	16-20043	5/16" x 3-1/4" Hex Bolt Gr 5 NC
5*	1	16-20048	5/16" x 5" Hex Bolt Gr 5 NC
6	3	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC
7	2	16-35C612	3/8" x 3/4" Flange Bolt
8	1	18-12630	Bulkhead Union Bolt On Plate
9	1	18-14695	Bracket, Relief Valve
10	1	18-14737	Female Coupler Mount Bracket
11	6	18-3074	Hose Hold Down Clamp
12	5	18-3075	Hose Hold Down Clamp Plate
13	3	25-34321	Tappet Quick Coupler Female
14	7	25-34322	Tappet Quick Coupler Male
15*	3	25-3401	Pioneer Dust Cap Left Angle (Yellow)
16*	1	25-3402	Pioneer Dust Plug Left Angle (Yellow)
17*	4	25-3455	Pioneer Dust Cap Right Angle (Red)

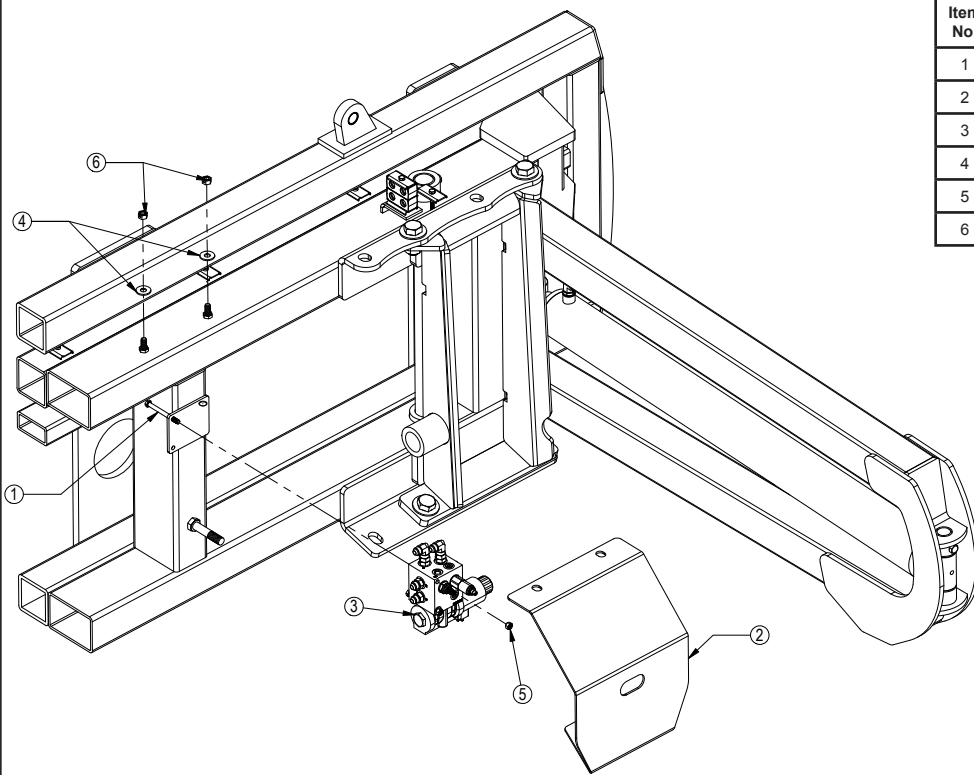
\* Parts Not Shown

Item No.	Qty.	Part No.	Description
18*	2	25-3456	Pioneer Dust Plug Right Angle (Red)
19	2	26-34725	4 x 43.5 Cylinder Tube Ends, Top Port
20	3	31-34000	Bulkhead Union JIC (2700-8-8-8)
21	1	31-34020	Bulkhead Branch Tee JIC (2703-8-8)
22	2	31-34040	Straight JIC x O-Ring (6400-8-8)
23	2	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)
24	10	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
25	2	31-34070	Run Tee JIC x O-Ring (6804-8-8)
26	1	31-34090	Swivel Nut Run Tee JIC (6602-8-8-8)
27	1	31-34100	Swivel Nut Elbow 90° JIC (6500-8-8)
28	2	31-34123	Hex Socket O-Ring Plug (6409-8-8)
29	1	35-30121	35" x 1/2" -8JIC/-8JIC Hose
30	1	35-30128	57" x 1/2" -8JIC/-8JIC Hose
31	1	35-30131	66" x 1/2" -8JIC/-8JIC Hose
32	3	35-30132	69" x 1/2" -8JIC/-8JIC Hose
33	3	35-30138	87" x 1/2" -8JIC/-8JIC Hose
34	2	35-30141	96" x 1/2" -8JIC/-8JIC Hose
35	3	35-30160	288" x 1/2" -8JIC/-8JIC Hose
36	1	44-14738	Female Coupler Retainer Plate
37	1	56-7772	Relief Valve
38	6	57-20744	1/2" Flat Washer
39	6	70-20581	5/16" Hex Nut NC
40	3	70-20604	1/2" Hex Center Lock Nut NC
41	6	70-20622	3/8" Flange Hex Nut NC
42	4	70-20807	3/4" Hex Jam Nut NF

NOTE: When ordering cylinder seal kits, the part number on the cylinder is needed. The number is stamped on the base end of the cylinder opposite of the hydraulic ports.

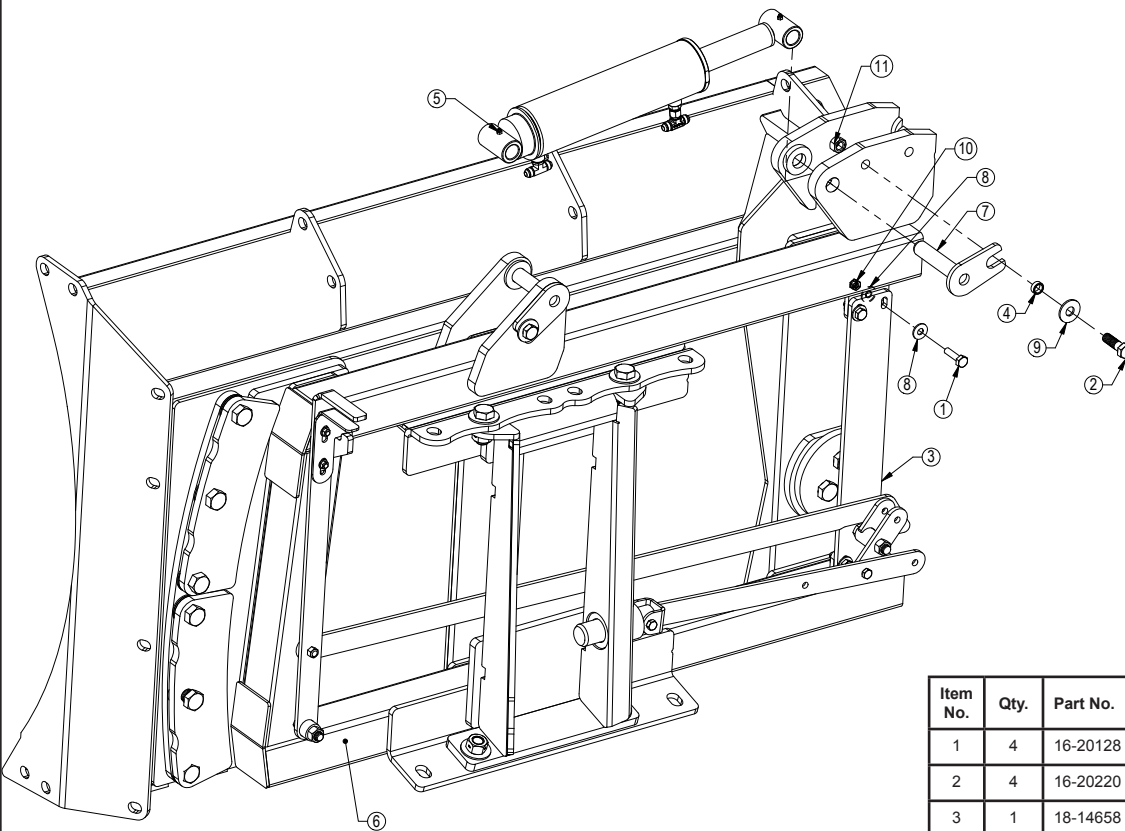
No. On Cylinder	Part No.	Description
26-34725	49-12274	Seal Kit 4 x 43.5 (647210) Nitrided Rod

# Angle Hydraulic Components



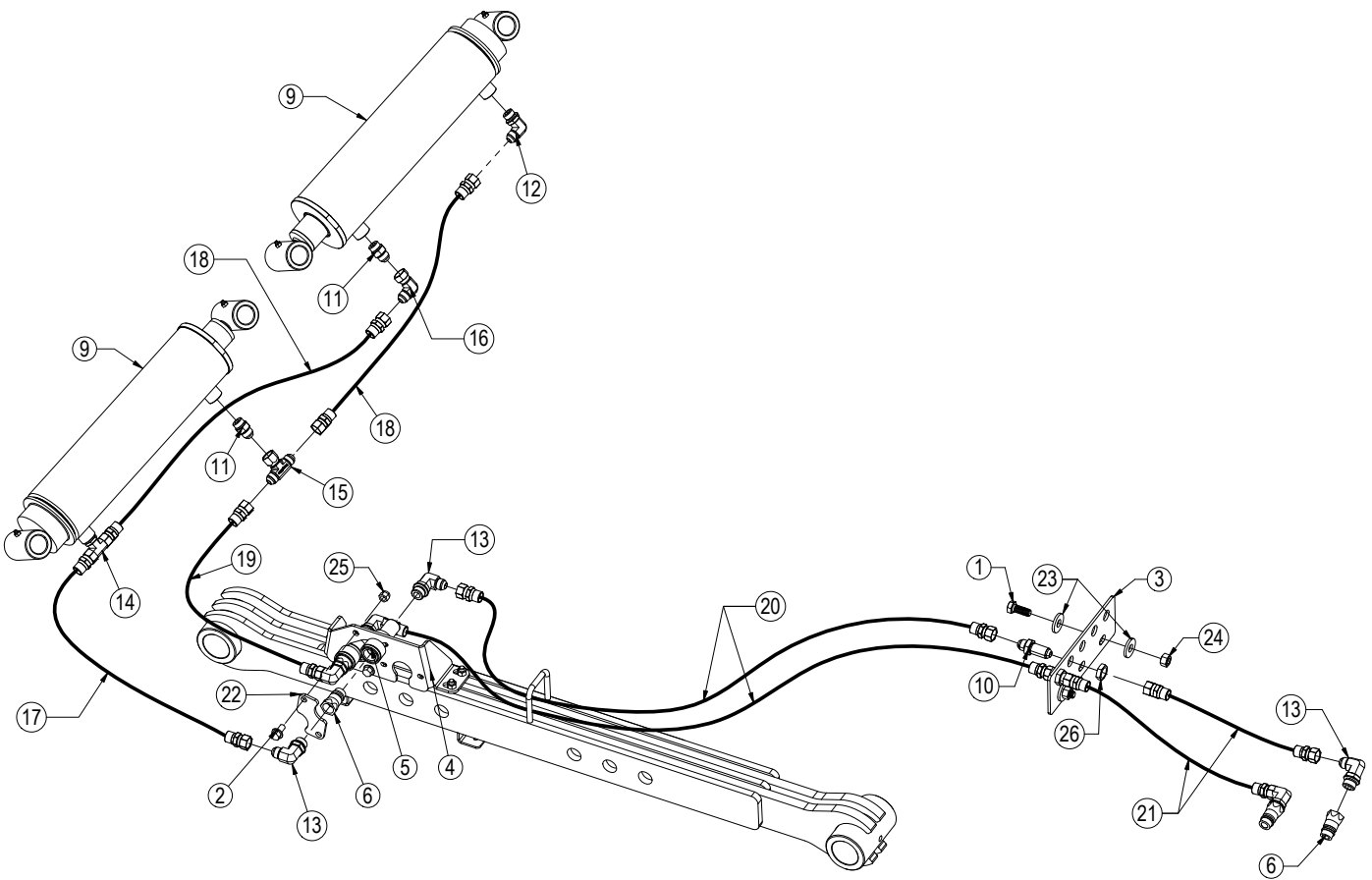
Item No.	Qty.	Part No.	Description
1	2	16-20077	3/8" x 4-1/2" Hex Bolt Gr 5 NC
2	1	18-1701	AG Pro Hydraulic Valve Cover
3	1	56-13305	Hydraulic Angle Valve
4	2	57-20744	1/2" Flat Washer
5	2	70-20582	3/8" Hex Nut
6	2	70-20604	1/2" Hex Center Lock Nut Gr 2 NC

# No Angle - Hydraulic Tilt



Item No.	Qty.	Part No.	Description
1	4	16-20128	1/2" x 2" Hex Bolt Gr 5 NC
2	4	16-20220	3/4" x 2-1/2" Hex Bolt Gr 5 NC
3	1	18-14658	NAXT Center Bracket
4	4	19-13515	3/4" ID - Non Rotating Pin Bushing
5	2	26-34728	4 x 12 Cylinder w/ Tube Ends
6	1	32-17810	660HD - NAHT Tilt Frame
7	4	43-16116	1-1/4" Pin Weld (HD Tilt)
8	8	57-20744	1/2" Flat Washer
9	4	57-20747	3/4" Flat Washer
10	4	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
11	4	70-20607	3/4" Hex Center Lock Nut Gr 2 NC

Hoses Not Drawn To Scale



\* Parts Not Shown

Item No.	Qty.	Part No.	Description
1	2	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC
2	2	16-35C612	3/8" x 3/4" Flange Bolt
3	1	18-12630	Bulkhead Union Bolt On Plate
4	1	18-14733	Female Coupler Mount - NAHT
5	2	25-34321	Tappet Quick Coupler Female
6	4	25-34342	Tappet Quick Coupler Male
7*	4	25-3453	Pioneer Dust Cap Tilt (Green)
8*	2	25-3454	Pioneer Dust Plug Tilt (Green)
9	2	26-34728	4 x 12 Cylinder W/ Tube Ends
10	3	31-34000	Bulkhead Union JIC (2700-8-8-8)
11	2	31-34040	Straight JIC x O-Ring (6400-08-08)
12	1	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)
13	6	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
14	1	31-34060	Branch Tee JIC x O-Ring (6803-8-8-8)
15	1	31-34080	Swivel Nut Branch Tee JIC (6600-8-8-8)
16	1	31-34100	Swivel Nut Elbow 90° JIC (6500-8-8)
17	1	35-30122	40" x 1/2" -8JIC/-8JIC Hose
18	2	35-30124	45" x 1/2" -8JIC/-8JIC Hose
19	1	35-30126	50" x 1/2" -8JIC/-8JIC Hose
20	2	35-30138	87" x 1/2" -8JIC/-8JIC Hose
21	2	35-30160	288" x 1/2" -8JIC/-8JIC Hose
22	1	44-14734	Female Coupler Retainer - NAHT
23	6	57-20744	1/2" Flat Washer
24	3	70-20604	1/2" Hex Center Lock Nut NC
25	6	70-20622	3/8" Flange Hex Nut NC
26	4	70-20807	3/4" Hex Jam Nut NF

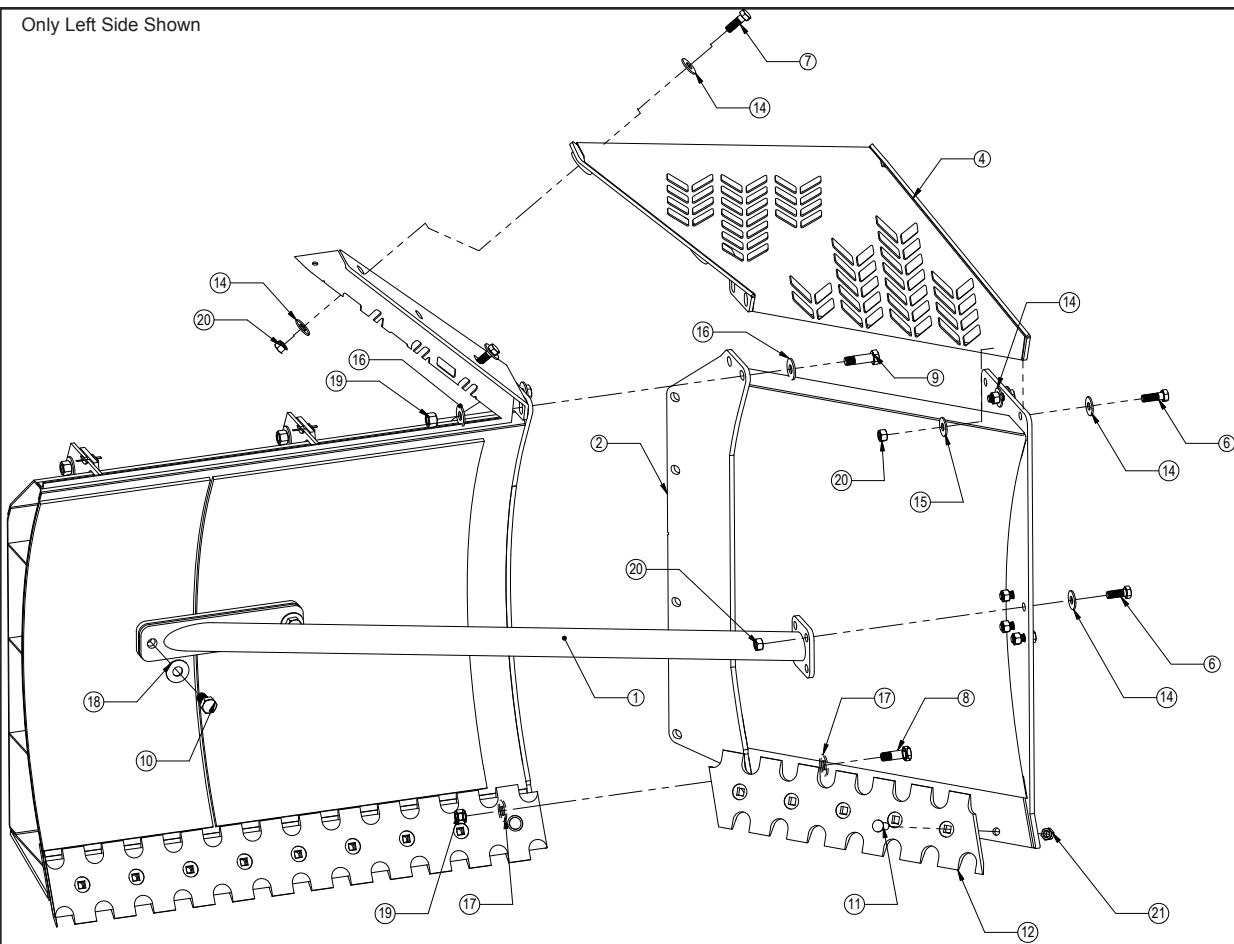
NOTE: When ordering cylinder seal kits, the part number on the cylinder is needed. The number is stamped on the base end of the cylinder opposite of the hydraulic ports.

No. On Cylinder	Part No.	Description
26-34728	49-12272	Seal Kit 4" Bore x 2" Rod (647204) Nitrided Rod

No Angle - Hydraulic Tilt Hydraulics

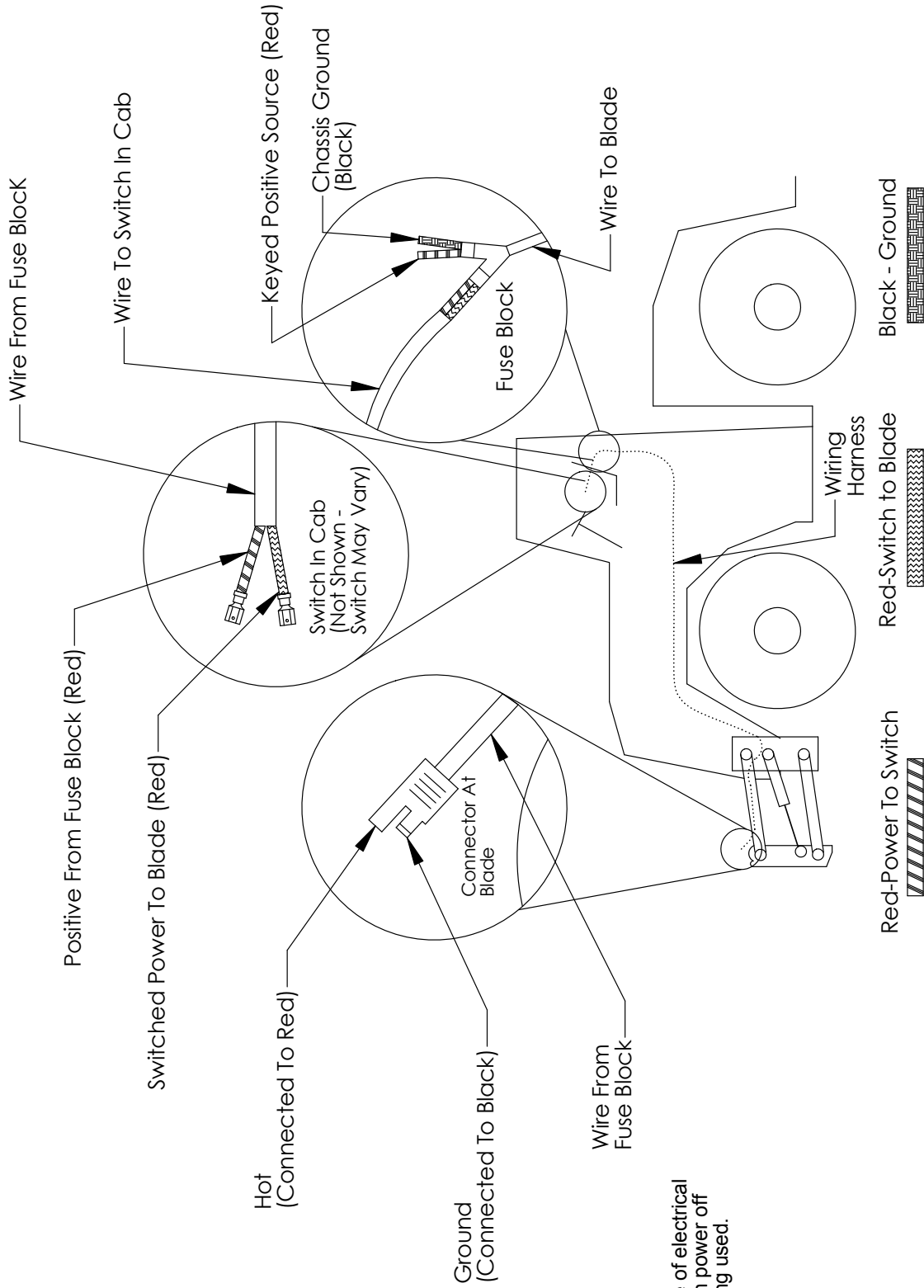
# Option - U-End Extensions

Only Left Side Shown



\* Parts Not Shown  
 Item #A for Serrated Cutting Edges  
 Item #B for Straight Cutting Edges

Item No.	Qty.	Part No.	Description
1	2	11-3699	U-End Extension Reinforcement Arm
2	1	15-15810-L	Slant Top U-End Extension - Left
3*	1	15-15810-R	Slant Top U-End Extension - Right
4	1	15-15815-L	Slant Top U-End Extension - Top Ext. - Left
5*	1	15-15815-R	Slant Top U-End Extension - Top Ext. - Right
6	12	16-20218	3/4" x 2" Hex Bolt Gr 8 NC
7	4	16-20219	3/4" x 2-1/4" Hex Bolt Gr 8 NC
8	12	16-20540	7/8" x 2-1/2" Hex Bolt Gr 8 NC
9	4	16-20542	7/8" x 3" Hex Bolt Gr 8 NC
10	4	16-20558	1" x 2" Hex Bolt Gr 8 NC
11	10	16-21748	3/4" x 2" Plow Bolt Gr 8 NC
12A	1	29-16603-L	Serrated Cutting Edge 8" Left Cut
12B	1	29-15801-L	Cutting Edge 8" Left Cut
13A*	1	29-16603-R	Serrated Cutting Edge 8" Right Cut
13B*	1	29-15801-R	Cutting Edge 8" Right Cut
14	22	57-20747	3/4" Flat Washer
15	2	57-20757	3/4" SAE Hardened Flat Washer - 1-1/2" OD
16	8	57-20758	7/8" SAE Hardened Flat Washer - 1-3/4" OD
17	12	57-20818	7/8" Flat Washer Heavy Duty Grade 8 (USS)
18	4	57-20819	1" Flat Washer Heavy Duty Grade 8 (USS)
19	16	70-20598	7/8" Hex Nut Gr 8 NC
20	16	70-20607	3/4" Hex Center Lock Nut NC
21	10	70-20647	3/4" Hex Top Lock Nut Gr 5 NC

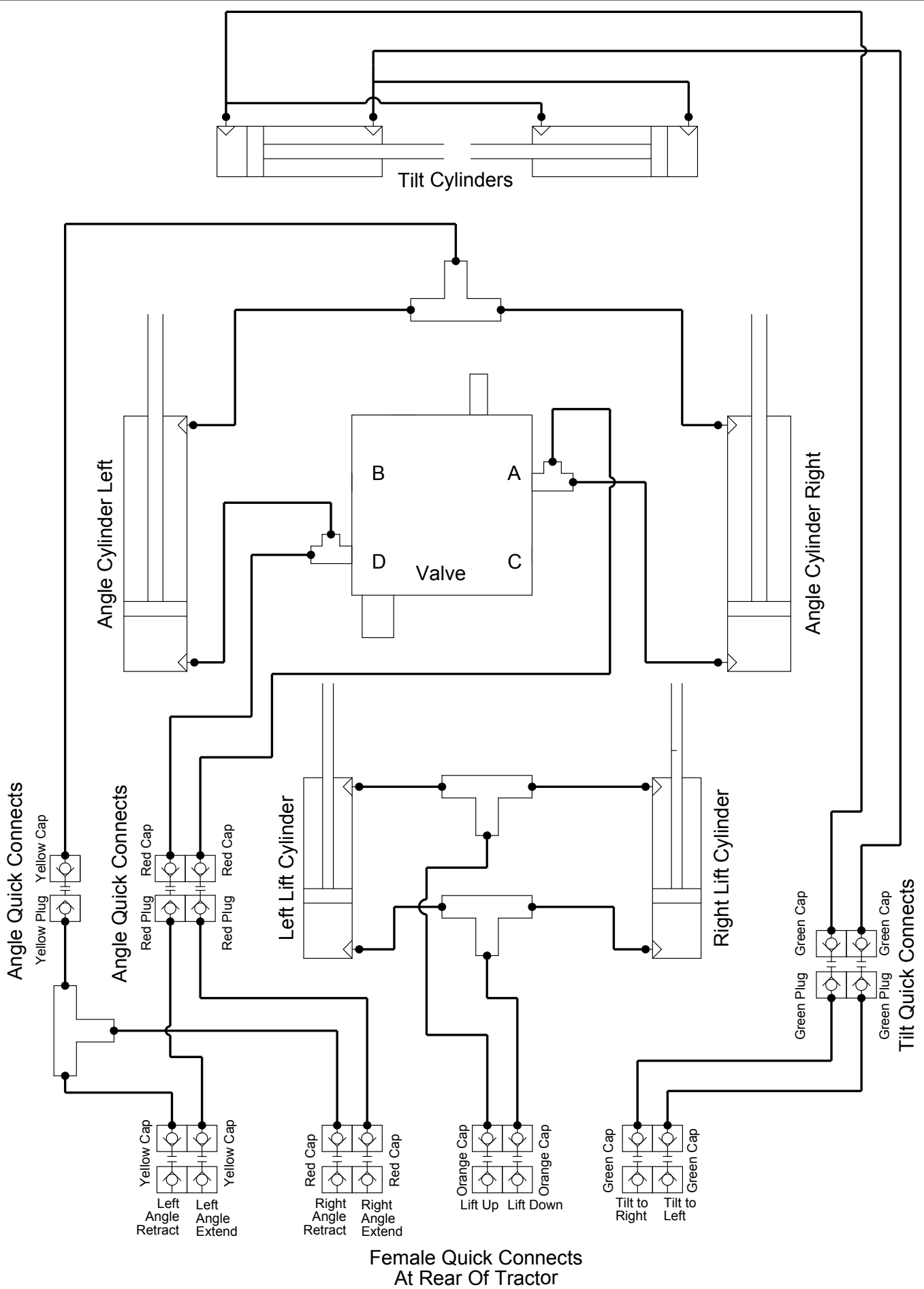


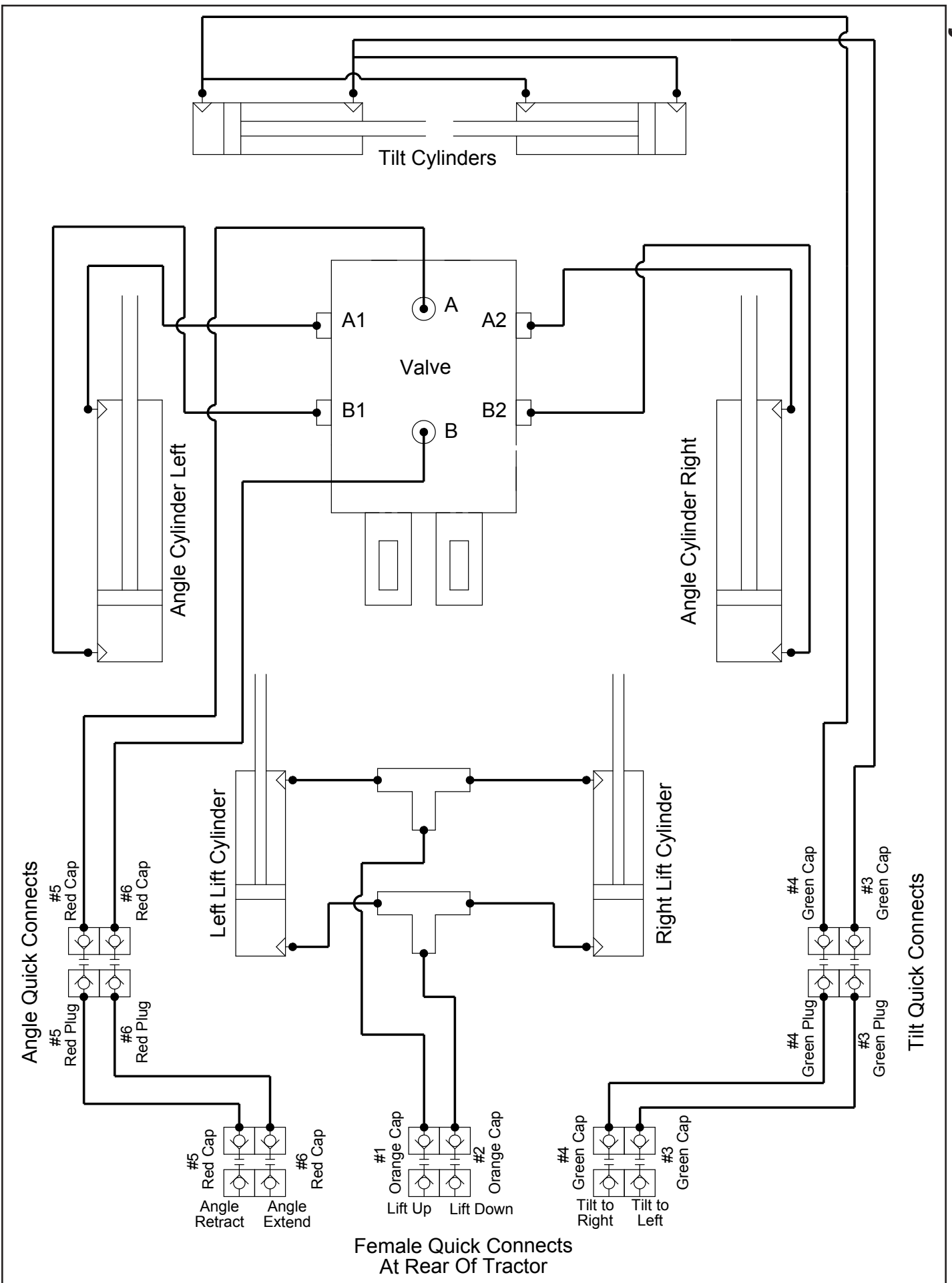
Note: To maximize life of electrical system and valve, turn power off when dozer is not being used.

**Instructions**

1. Locate "keyed and fused" 12 V power supply in cab of tractor.
2. Disconnect battery.
3. Connect the red wire to power and the black wire to ground.
4. Install switch in convenient place in cab.
5. Route wire harness from switch to the blade. (plug-in connector at blade)
6. Connect the switch to the wire harness.
7. Reconnect the battery.

# 2-Lever Hydraulic Schematic





# Contact Us

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As always, if you have any questions about your 450 & 660 Dozer or other products made by Grouser, feel free to contact us.

## Grouser Products

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**Website:** [www.grouser.com](http://www.grouser.com)



# 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 one year. If such equipment is found to be defective within one year, it is the obligation of Grouser Products under this warranty to repair or replace (exclusive of the cost of labor and transportation), any equipment or parts, in the judgment of Grouser Products to be defective in material or workmanship.

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. 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 in the setup process.

This warranty covers only defects in material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper assembly, improper adjustments, improper maintenance including lack of proper lubrication, or improper use. Therefore, Grouser Products liability under this warranty shall not be effective or actionable unless the equipment is assembled, maintained and operated in accordance with the operating instructions accompanying the equipment. 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.

