



12-20 (V6) - Steiger & New Holland T9 Owner's Manual & Parts Book

For Models:

Case Steiger Wheeled - 500, 540, 550, 580,
600, 620

Case Steiger Quad - 450, 470, 500, 550, 580,
600, 620

New Holland - T9.600, T9.615, T9.645, T9.670,
T9.700

Purchase Date
Serial Number
Model Number
Tractor Model
Dealer

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To The Owner

This manual contains information concerning the operation, adjustment, and maintenance of the 12-20 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.

Undercarriage Installation Instructions

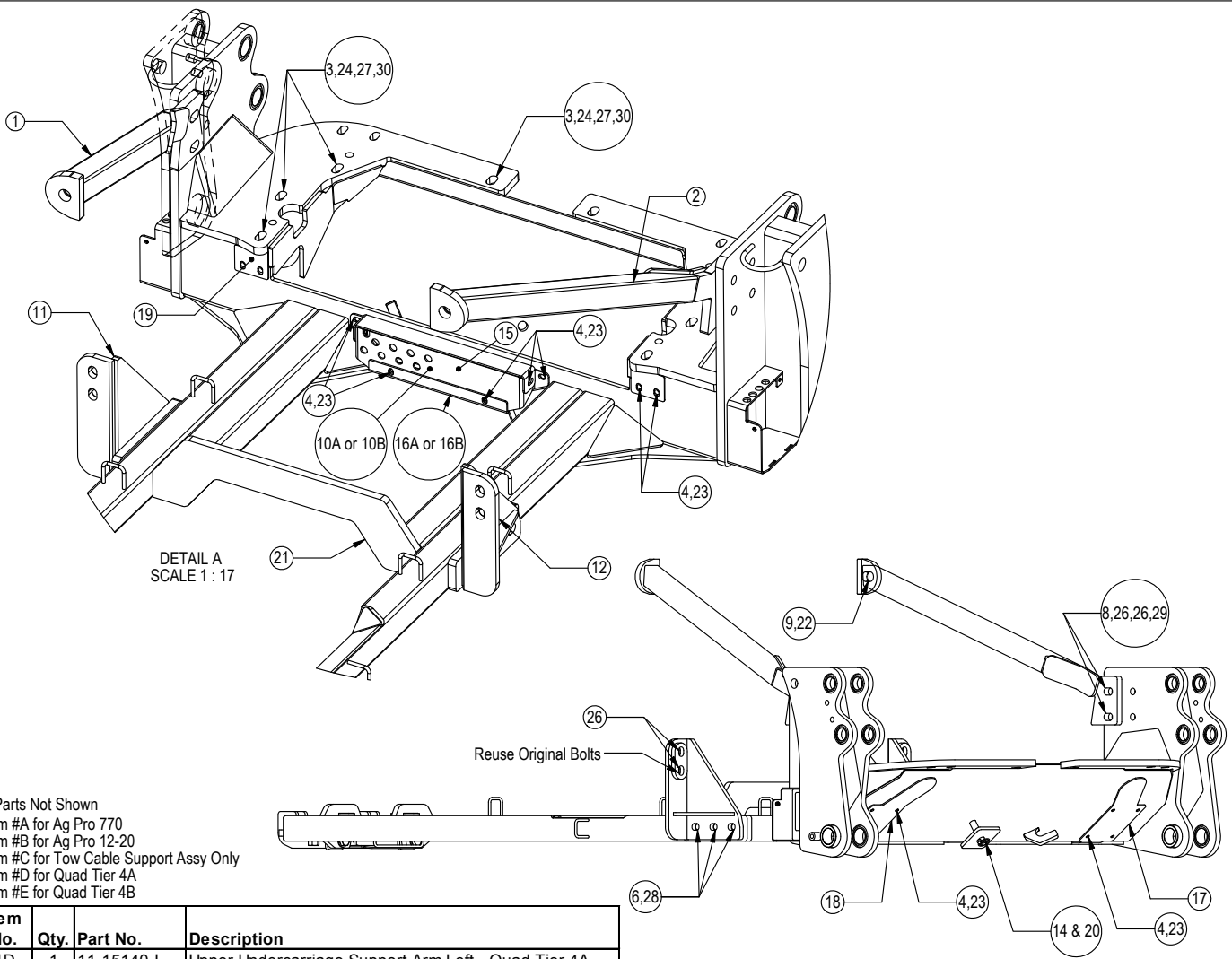
Caution:

- Always use precaution when working around any equipment.
- Always wear safety glasses.
- Follow tractor manufacturer's safety guidelines when installing this product.

NOTE: For all steps below, see diagram on Page 4 for quad tractors or Page 5 for wheeled tractors for clarification.

1. Read all instructions prior to installation.
2. Remove existing toolboxes, front weights, and tow cable holder if equipped. Tow cable can be reinstalled later if a bracket is purchased from Grouser Products.
3. If the bottom covers (PN: 44-14382-R,L) are not factory installed, attach to U/C with 1/2" x 1-1/4" bolts (PN: 16-20125) and 1/2" flat washers (PN: 57-20744).
4. If the bulkhead bracket (PN: 18-14370 or 18-15576) is not factory installed, attach to the U/C with 2 - 1/2" x 1-1/4" bolts (PN: 16-20125) and 1/2" flat washers (PN: 57-20744). See pages 7 and 22-27 for bulkhead fittings, steel lines, and hose locations.
5. If bulkhead covers (PN: 44-14375 & 44-14376 or 44-15591) are not factory installed, verify that all hydraulics are installed correctly and then attach the covers to the U/C with 6 - 1/2" x 1-1/4" bolts (PN: 16-20125) and 1/2" flat washers (PN: 57-20744).
Note: If rear 1" bolts are installed on the undercarriage, back out so the undercarriage will fit on the rear plate on the tractor frame.
6. Position the undercarriage (U/C) under tractor and center on the frame of the tractor.
7. Lift the rear of the U/C up and set the top plates of the U/C on the cross member. Push the U/C back until the vertical push plates are firmly against the cross member. Lift the U/C to within 3/4" of touching the tractor frame.
8. Insert 8 - 20mm x 90mm bolts (PN: 16-1510) with a 3/4" hardened flat washer (PN: 57-20757) on each bolt through the front holes of the tractor frame that line up with the front vertical holes of the U/C.
9. After all bolts are through the tractor frame and U/C, attach with a 3/4" heavy washer (PN: 57-3680) and a 20mm nut (PN: 70-20872-10). Verify that the rear of the U/C is firmly against the cross member.
10. At the rear of the undercarriage and pivot area of the tractor, hook the rear hose routing bracket to the tractor frame and bolt to the rear of the undercarriage with 1" x 3" bolts (PN: 16-20562), 1" hardened flat washers (PN: 57-20759), and 1" nuts (PN: 70-20599). The nut will fit between the plates on the brackets. See attached diagram for clarification.
11. Center the bracket on the undercarriage and tractor as close as you can. Torque the 1" bolts to 600 ft.lbs. There can be a gap between the bracket and undercarriage.
12. Tighten the rear vertical bolts up tight against the bottom of the tractor frame. Torque the rear vertical 1" bolts to 500-600 ft.lbs.
13. Tighten front vertical bolts until frame is tight vertically.
NOTE: If your tractor is a Tier 4A Quad tractor, continue with Step #14. If your tractor is a Tier 4B Quad tractor, continue with Step #15. If your tractor is a wheeled tractor, go to Step #16. If your tractor has ATI Tracks installed, go to Step #18.
14. For a Tier 4A quad tractor, attach the upper support arms (PN: 11-15140-R,L) to the U/C with 2 - 1" x 3-1/2" bolts (PN: 16-20564), 4 - 1" heavy duty flat washer (PN: 57-20819), and 2 - 1" nuts (PN: 70-20599) on each side of the U/C. Continue with Step #17.
15. For a Tier 4B quad tractor, attach the upper support arms (PN: 11-17740-R,L) to the U/C with 2 - 1" x 3-1/2" bolts (PN: 16-20564), 4 - 1" heavy duty flat washer (PN: 57-20819), and 2 - 1" nuts (PN: 70-20599) on each side of the U/C. Continue with Step #17.
16. For a wheeled tractor, attach the upper support arms (PN: 11-14548-R,L) to the U/C with 2 - 1" x 3-1/2" bolts (PN: 16-20564), 4 - 1" heavy duty flat washer (PN: 57-20819), and 2 - 1" nuts (PN: 70-20599) on each side of the U/C. Continue with Step #17.
17. Attach the upper support arms to the tractor with a 1-1/4" x 3-1/2" bolt (PN: 16-20896) and 1-1/4" flat washer (PN: 57-11671) on each side. Continue with the next Note.
18. For a tractor with ATI tracks, attach the upper support arms (PN: 11-15615-R,L) to the U/C with 2 - 1" x 3-1/2" bolts (PN: 16-20564), 4 - 1" heavy duty flat washer (PN: 57-20819), and 2 - 1" nuts (PN: 70-20599) on each side of the U/C.
19. Attach the upper support arms to the tractor with a 1-1/4" flat washer (PN: 57-11671) and 1-1/4" nut (PN: 70-20981) on each side.
NOTE: If your tractor is a quad tractor, continue with Step #20. If your tractor is a wheeled tractor or has ATI Tracks, go to Step #23.
20. Remove the 2 - 24mm bolts and spacers from front axle on the left and right side of the tractor. Discard the spacers.
21. Attach the quad yoke brackets (PN: 18-14550-R,L) to each side of the U/C with 6 - 1" x 2-1/2" bolts (PN: 16-20560) and a 1" x .375" thick washer (PN: 57-3682) on each bolt.
22. Dip the previously removed 24mm bolts in W30 oil and install the yoke brackets with the 24mm bolt and a heavy flat washer (PN: 57-20819) on each bolt. Continue with Step #25.
23. Attach the wheeled side plates (PN: 44-14383) to each side of the U/C with 4 - 1" x 2" bolts (PN: 16-20558) and a 1" x .375" thick washer (PN: 57-3682) on each bolt.
24. Use 2 - 1" x 3" bolt (PN: 16-20562) with a 1" x .375" thick washer (PN: 57-3682) on each bolt to attach the plates to the tractor frame. After the bolts are through the frame, attach with another 1" x .375" thick washer and a 1" nut (PN: 70-20599) on each bolt.
25. Once all bolts have been installed, torque the rear 3/4" bolts to 257 ft.lbs., torque the front 20mm bolts to 432 ft.lbs., the 1-1/4" bolts to 1,105 ft.lbs., the 1" bolts to 903 ft.lbs., and the 24mm bolts (for quad tractor) to 555 ft.lbs.
26. Bolt the side bolt cover (PN: 44-15575) to both sides of the undercarriage with 1/2" x 1-1/4" bolts (PN: 16-20125) and a 1/2" flat washer (PN: 57-20744) on each bolt.
27. After first 8 hours of use, re-torque all bolts.
28. Check all fasteners regularly to ensure proper operation of equipment.

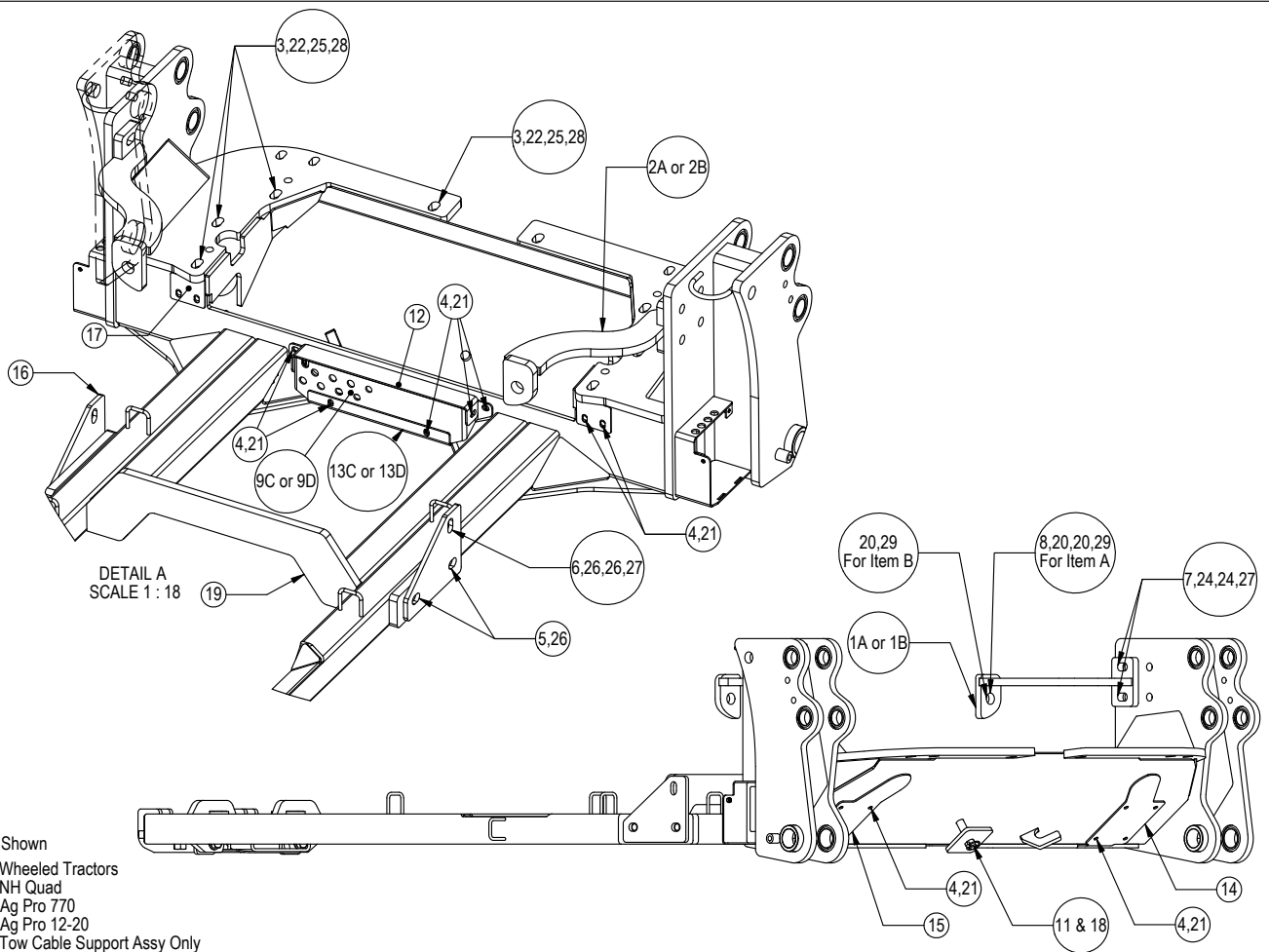
PN: 63-14825-A or 63-14360-A or 54-15620-A or 54-17745-A



* Parts Not Shown
 Item #A for Ag Pro 770
 Item #B for Ag Pro 12-20
 Item #C for Tow Cable Support Assy Only
 Item #D for Quad Tier 4A
 Item #E for Quad Tier 4B

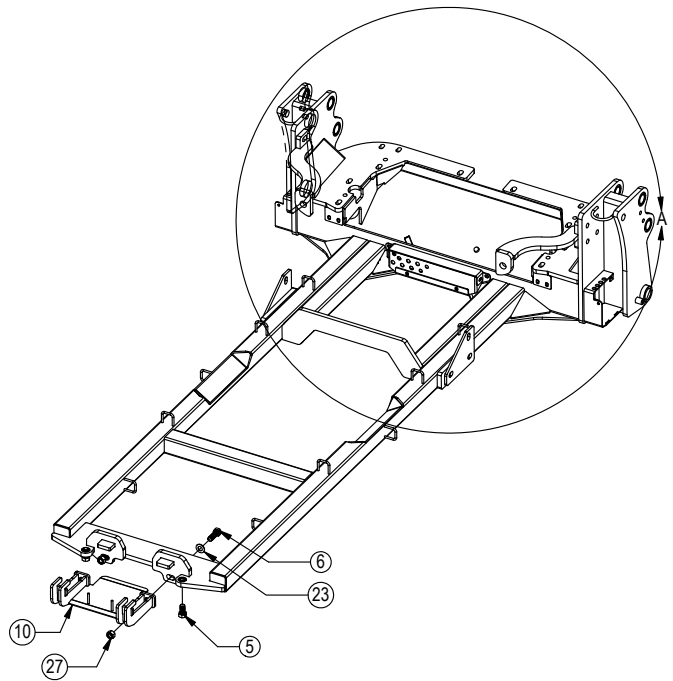
Item No.	Qty.	Part No.	Description
1D	1	11-15140-L	Upper Undercarriage Support Arm Left - Quad Tier 4A
2D	1	11-15140-R	Upper Undercarriage Support Arm Right - Quad Tier 4A
1E*	1	11-17740-L	Upper Undercarriage Support Arm Left - Quad Tier 4B
2E*	1	11-17740-R	Upper Undercarriage Support Arm Right - Quad Tier 4B
3	8	16-1510	20mm x 2.5mm x 90mm Metric Hex Bolt Gr 10.9 ZC
4	20	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC
5	2	16-20558	1" x 2" Hex Bolt Gr 8 NC
6	6	16-20560	1" x 2-1/2" Hex Bolt Gr 8 NC
7	2	16-20562	1" x 3" Hex Bolt Gr 8 NC
8	4	16-20564	1" x 3-1/2" Hex Bolt Gr 8 NC
9	2	16-20896	1-1/4" x 3-1/2" Hex Bolt Gr 5 NC Zinc
10A	1	18-14370	Bracket, Bulkhead - AG Wide Frame
10B*	1	18-15576	Bracket, Bulkhead - 12-20 Slider
11	1	18-14550-L	Steiger Quad Yoke Bracket - Left
12	1	18-14550-R	Steiger Quad Yoke Bracket - Right
13	1	18-17280	770 CNH Rear UC Hose Routing Bracket
14C	1	43-16764	Lynch Pin
15	1	44-14375	Plate, Top Bulkhead Cover - AG Wide Frame
16A	1	44-14376	Plate, Bottom Bulkhead Cover - AG Wide Frame
16B*	1	44-15591	Plate, Bottom Bulkhead Cover - 12-20 Slider
17	1	44-14382-L	Plate, Bottom Cover Left - AG Wide Frame
18	1	44-14382-R	Plate, Bottom Cover Right - AG Wide Frame
19	2	44-15575	Plate, 770 Undercarriage Side Bolt Cover
20C	1	44-15585	770 Steiger / NH Tow Cable Holding Plate
21	1	54-14360	770 Steiger / T9 Large Frame Quad and Wheeled UC
22	2	57-11671	1-1/4" Flat Washer
23	20	57-20744	1/2" Flat Washer
24	8	57-20757	3/4" Hardened Flat Washer - 1-1/2" OD
25	2	57-20759	1" SAE Hardened Flat Washer - 2" OD
26	12	57-20819	1" Flat Washer Heavy Duty Gr 8 (USS)
27	8	57-3680	2.00 OD X .75 ID x .375" Washer CZ Plated
28	6	57-3682	2.50 OD X 1.00" ID x .375" Washer CZ Plated
29	6	70-20599	1" Hex Nut Gr 8 NC
30	8	70-20872-10	20mm Hex Nut 2.5 Pitch Class 10 Zinc

TITLE:
 770 Steiger Quad UC Assy.



* Parts Not Shown
 Item #A for Wheeled Tractors
 Item #B for NH Quad
 Item #C for Ag Pro 770
 Item #D for Ag Pro 12-20
 Item #E for Tow Cable Support Assy Only

Item No.	Qty.	Part No.	Description
1A	1	11-14548-L	Upper Undercarriage Support Arm Left, Wheeled
2A	1	11-14548-R	Upper Undercarriage Support Arm Right, Wheeled
1B*	1	11-15615-L	Upper Undercarriage Support Arm Left, NH Quad
2B*	1	11-15615-R	Upper Undercarriage Support Arm Right, NH Quad
3	8	16-1510	20mm x 2.5mm x 90mm Metric Hex Bolt Gr 10.9 ZC
4	20	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC
5	6	16-20558	1" x 2" Hex Bolt Gr 8 NC
6	4	16-20562	1" x 3" Hex Bolt Gr 8 NC
7	4	16-20564	1" x 3-1/2" Hex Bolt Gr 8 NC
8A	2	16-20896	1-1/4" x 3-1/2" Hex Bolt Gr 5 NC Zinc
9C	1	18-14370	Bracket, Bulkhead - 770 Wide Frame
9D*	1	18-15576	Bracket, Bulkhead - 12-20 Slider
10	1	18-17280	770 CNH Rear UC Hose Routing Bracket
11E	1	43-16764	Lynch Pin
12	1	44-14375	Plate, Top Bulkhead Cover - AG Wide Frame
13C	1	44-14376	Plate, Bottom Bulkhead Cover - AG Wide Frame
13D*	1	44-15591	Plate, Bottom Bulkhead Cover - 12-20 Slider
14	1	44-14382-L	Plate, Bottom Cover Left - AG Wide Frame
15	1	44-14382-R	Plate, Bottom Cover Right - AG Wide Frame
16	2	44-14383	770 Steiger / T9 Large Frame Wheeled Side Plate
17	2	44-15575	Plate, 770 Undercarriage Side Bolt Cover
18E	1	44-15585	770 Steiger / NH Tow Cable Holding Plate
19	1	54-14360	770 Steiger / T9 Large Frame Quad and Wheeled UC
20A	4	57-11671	1-1/4" Flat Washer
20B	2	57-11671	1-1/4" Flat Washer
21	20	57-20744	1/2" Flat Washer
22	8	57-20757	3/4" Hardened Flat Washer - 1-1/2" OD
23	2	57-20759	1" SAE Hardened Flat Washer - 2" OD
24	8	57-20819	1" Flat Washer Heavy Duty Gr 8 (USS)
25	8	57-3680	2.00 OD X .75 ID x .375" Washer CZ Plated
26	8	57-3682	2.50 OD X 1.00" ID x .375" Washer CZ Plated
27	8	70-20599	1" Hex Nut Gr 8 NC
28	8	70-20872-10	20mm Hex Nut 2.5 Pitch Class 10 Zinc
29	2	70-20981	1-1/4" Hex Nut Gr 5 NC



TITLE: 770 Steiger / T9
 Wheeled UC Assy.

Assembling Lift Components

Now that the undercarriage is installed, some assembly of components is necessary. Follow the steps listed below. Refer to Page 7 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 22 for proper orientation.
9. Take the lift hoses that are already attached to the furthest forward fittings on the left and right side of the undercarriage and attach them to the lift cylinders.

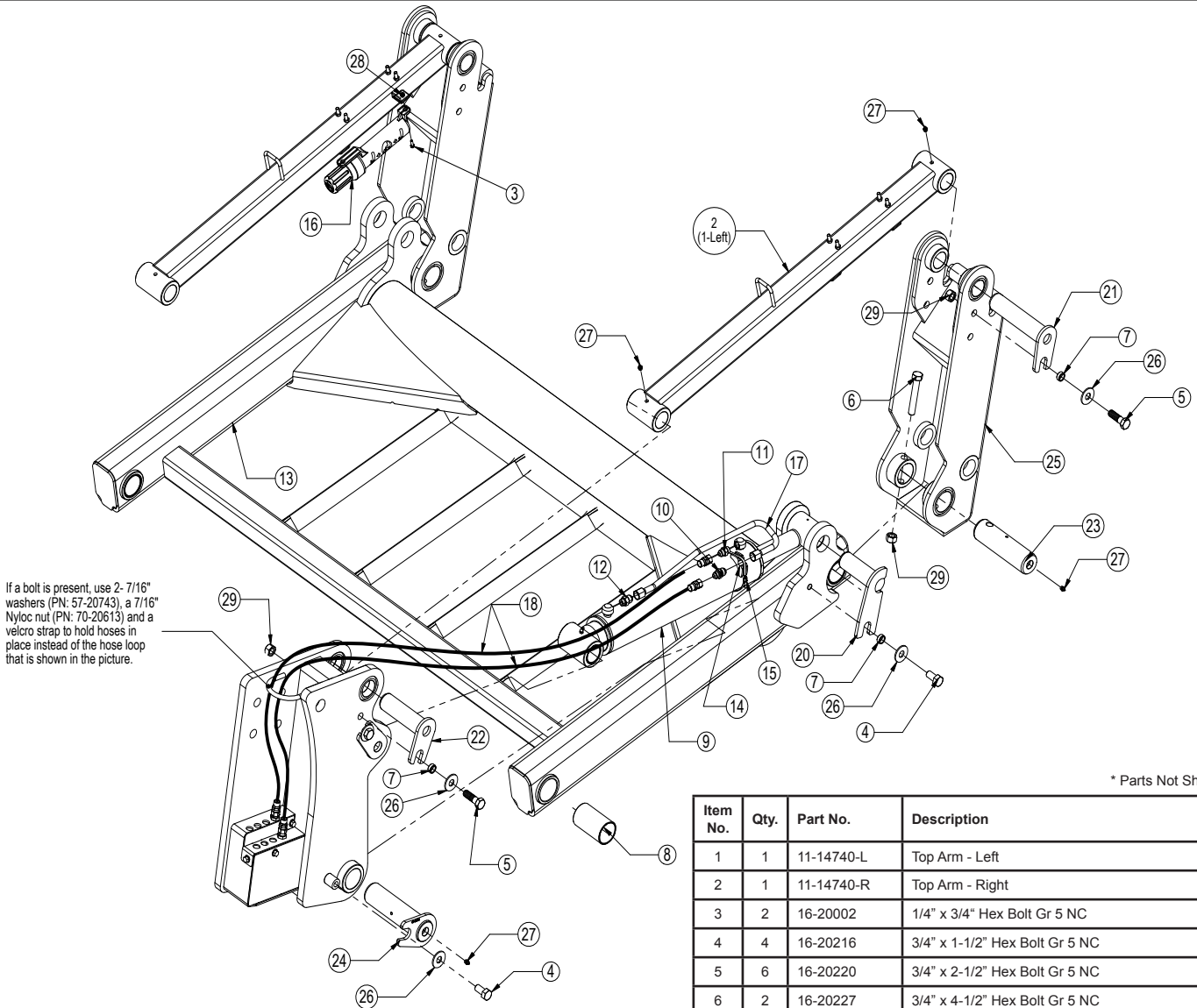
Note: For Step #10-16, refer to Page 22-27 for further information on hose routing and hose positions.

The amount and location of the female couplers is determined by functions the blade is set up for.

10. Run the remaining hoses thru the hose loop on the top arm and attach a 90° fitting to all the hoses.
11. Install a female quick coupler onto each 90° fitting from the previous step.
12. 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.
13. Take the long hoses and attach each one to their designated fitting at the center of the undercarriage.
14. Mark each hose clearly so that once the hoses are routed to the back of the tractor, it's easy to determine what cylinder base or rod end they are connected to.
15. Route the hoses thru the hose loops on the undercarriage.
16. Continue to route the hoses thru the tractor. Keep away from all moving parts. Refer to Page 8 for hose routing.
17. If applicable, attach the wire harness to the coupler mount on the top arm with 1/4" bolts and 1/4" nuts. Run the other end of the wire harness up into the cab of the tractor.
18. Locate the keyed power supply. Connect the red wire to positive and the black to ground. Attach the 2-lever plug to the wire harness or install provided switch (PN: 69-14679) into an open switch hole in the right overhead console or another convenient place in the tractor. Connect the wire harness to the switch. If you have the 2 lever angle system, attach the 2-lever plug (PN: 69-14683) to the wire harness.
19. 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 #14-15 for further clarification on the quick attach system.
20. 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.
21. Lift the male quick attaches up till the blade is off the ground and the female quick attaches are against the front of the male quick attaches.
22. Shut off machine and set the parking brake.
23. 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.
24. Plug the male couplers into the female couplers on the top arm. Refer to Page #26-27 for proper coupler locations for all functions. If applicable, plug the male blade break away end of the wire harness into the female blade break away end of the wire harness on the top arm.
25. Refer to Page #31 for clarification on the wire harness ends.

Initial System Startup

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.



If a bolt is present, use 2- 7/16" washers (PN: 57-20743), a 7/16" Nyloc nut (PN: 70-20613) and a velcro strap to hold hoses in place instead of the hose loop that is shown in the picture.

* Parts Not Shown

Item No.	Qty.	Part No.	Description
1	1	11-14740-L	Top Arm - Left
2	1	11-14740-R	Top Arm - Right
3	2	16-20002	1/4" x 3/4" Hex Bolt Gr 5 NC
4	4	16-20216	3/4" x 1-1/2" Hex Bolt Gr 5 NC
5	6	16-20220	3/4" x 2-1/2" Hex Bolt Gr 5 NC
6	2	16-20227	3/4" x 4-1/2" Hex Bolt Gr 5 NC
7	8	19-13515	3/4" ID - Non Rotating Pin Spacer Bushing
8	4	19-13525	2.75 x 2.50 x 4.75 Spring Bushing
9	2	26-34738	4x20 Long Cylinder - Bushed Tube Ends (647267)
10	2	31-11699-10-8	JIC Union (2403-10-8)
11	2	31-34040	Straight JIC x O-Ring (6400-8-8)
12	2	31-6400-10-8	Straight JIC x O-Ring (6400-10-8)
13	1	32-16950	770 Round Tube w/Guard Lift Frame
14	2	34-12932	Cylinder Saddle (ZR518)
15	2	34-12994	Hose Clamp
16	1	34-14961	Manual Canister
17	2	35-12931	Formed Steel Line (Lift Cylinder)
18	4	35-31130	63" x 1/2" -8JIC/-8JIC Hose W/Cordura
19*	1	43-12929-L	Pin Weld - Long Ear (Lift Cyl. / Lift Frame) - Left
20	1	43-12929-R	Pin Weld - Long Ear (Lift Cyl. / Lift Frame) - Right
21	2	43-13478	Pin Weld (Top Arm / QA)
22	4	43-13482	Pin Weld (Top Arm / UC & Lift Cyl. / UC)
23	2	43-14720	Pin Weld (Lift Frame / QA)
24	2	43-14725	Pin Weld (Lift Frame / UC)
25	2	45-12175	700 Series Male Quick Attach
26	10	57-20747	3/4" Flat Washer
27	8	58-9369	Grease Zerk 1/8" NPT Straight
28	2	70-20610	1/4" Nyloc Hex Nut Gr 5 NC
29	8	70-20607	3/4" Hex Center Lock Nut Gr 2 NC

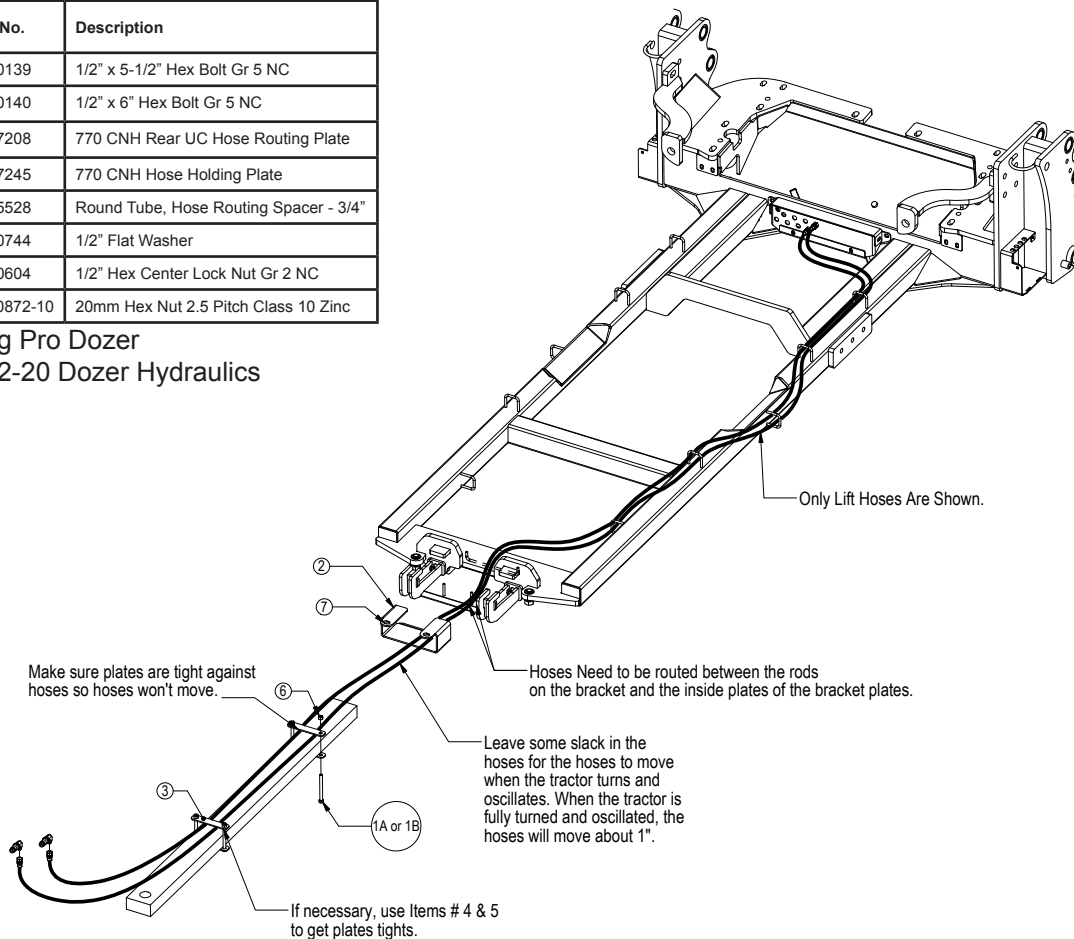
NOTE: When ordering cylinder seal kits, the part number on the cylinder is needed. The number is stamped on the base end of the cylinder opposite of the hydraulic ports.

No. On Cylinder	Part No.	Description
26-34738	49-12272	Seal Kit 4" Bore x 2" Rod (647204) Nitrided Rod

Hose Routing

Item No.	Qty.	Part No.	Description
1A	4	16-20139	1/2" x 5-1/2" Hex Bolt Gr 5 NC
1B	4	16-20140	1/2" x 6" Hex Bolt Gr 5 NC
2	1	44-17208	770 CNH Rear UC Hose Routing Plate
3	4	44-17245	770 CNH Hose Holding Plate
4	4	53-15528	Round Tube, Hose Routing Spacer - 3/4"
5	4	54-20744	1/2" Flat Washer
6	4	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
7	2	70-20872-10	20mm Hex Nut 2.5 Pitch Class 10 Zinc

Item #A for Ag Pro Dozer
Item #B for 12-20 Dozer Hydraulics



1. Attach the rear hose routing plate (PN: 44-17208) to the tractor frame behind the pivot point and before the drawbar. There will be 2 bolts sticking down. Attach with a 20mm nut (PN: 70-20872-10) on each side. Make sure the lip of the plate is facing towards the front of the tractor. See picture below for clarification.

2. Check all fasteners regularly to ensure proper operation of equipment.

For the following steps, refer to the hose routing diagram for further clarification.

3. Attach the end of the hoses that don't have cordura to the front of the undercarriage where all the steel lines come to the center of the undercarriage. The cordura should start close to the end of the undercarriage.

4. Route all the hoses from the front of the undercarriage, thru the hose loops on the undercarriage and thru the large loop at the rear of the undercarriage. Send hoses thru the bracket at the pivot point but stay on the outside of the rods that are by the center large nut on the tractor. The hoses should be between the rods on the bracket and the inside plates of the bracket.

5. Route the hoses thru the hose routing plate that was installed in Step #1.

6. Use Zip Ties to group some hoses on the left and right side of the hose routing plate. Strap the zip Ties over the top part of the routing plate that is bolted to the tractor frame to keep the hoses towards the outside of each side of the routing plate.

7. Continue to route the hoses down the top of the drawbar to the back of the tractor where you can plug them into the tractor SCV Ports.

8. Strap the hoses to the drawbar with a set of hose holding plates (PN: 44-17245) in 2 locations. Place 1 set as close to the front of drawbar as possible and the other behind the axle before the hoses would be routed upwards to be plugged in.

9. Make sure to keep some slack in the hose between the pivot point of the tractor and the first set of hose holding plates. The hoses will move when the tractor moves and oscillates.

10. For each set of plates, use 2 - 1/2" x 5-1/2" bolts (PN: 16-20139) and 2 - 1/2" nuts (PN: 70-20604). If you have a 12-20 dozer, use 1/2" x 6" bolts (PN:16-20140) instead. Put the bolts in from the bottom with the nuts on the top.

11. Tighten the 1/2" nuts so the hoses are tight and don't move. If you have the nuts as far as they go and you can't get the plates tight against the hoses, use the provided 3/4" spacers (PN:34-15528) and a 1/2" washer (PN: 57-20744) between the plates and the nuts to get everything tight against the top of the drawbar.

12. Make sure you still have some slack in the hoses by the pivot area so the hoses don't get pulled too tight when the tractor moves but don't make them too loose that they will get caught on any debris. Turn the tractor and oscillate the tractor to verify there is enough slack.

13. After first 8 hours of use, re-torque all bolts.

14. Check all fasteners regularly to ensure proper operation of equipment.

Electric Hydraulic Angle System Operating Instructions

If your Grouser blade was purchased with the Electric 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. Then fully retract. To angle the blade to the right, apply power to the diverter valve and then actuate the tractor hydraulic control lever. Always retract cylinders fully prior to switching functions. If a cylinder fails to retract fully, clear any possible obstruction.

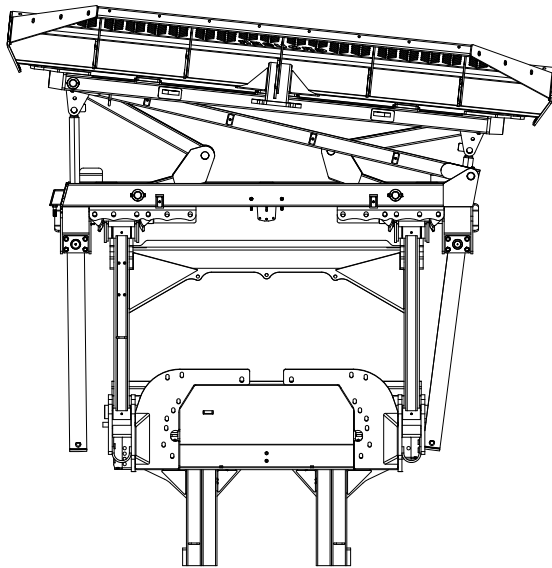
2-Lever Angle System Operating Instructions

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 2-lever angle valve. To angle the blade to the left or right, actuate the tractor hydraulic control lever corresponding to the left or right cylinder. Only one cylinder can be extended at a time.

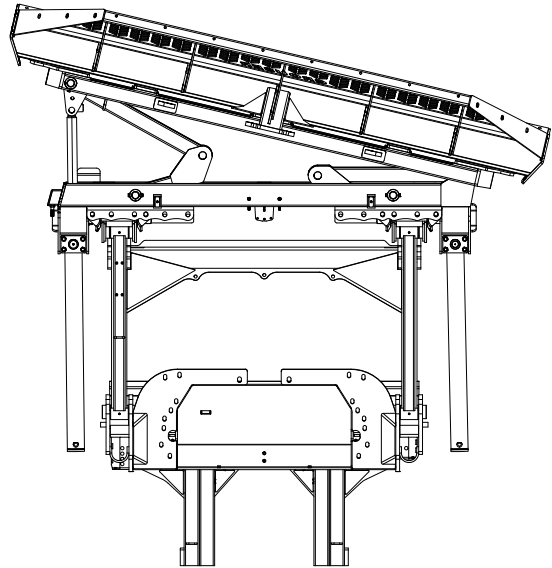
CAUTION: Do not bypass the hydraulic valve and plumb each cylinder to separate valves on the tractor.

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, damage may occur.**

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



INCORRECT



CORRECT

(Left or Right)

Angle Position Sensor Adjustment

The angle position sensor is set from the factory. If the system does not function correctly, verify the gap between the sensor and the plate and the position of the sensor. If any adjustments are necessary, follow the instructions below.

With cylinder retracted, verify that the proximity sensor is in the center of the plate that is on the cylinder end. To adjust the spacing between the plate and the sensor, loosen one of the nuts and turn the other nut till the spacing between the plate and the sensor is between 3/16" and 3/8". Once the correct spacing is achieved, tighten the locking nut.

Disconnecting the Blade

When disconnecting the blade from the lift system, a block needs to be put under the cutting edge to provide the proper blade angle for disconnecting the quick attach. You will need about 5-6" of height.

Skid Shoe and Tilt Plate Adjustment

Skid Shoe Adjustment:

1. Slide the ratchet keeper out of the way.
2. Loosen the jam nut on the ratchet.
3. Use the ratchet to adjust the skid shoe up or down in the.
4. Once the depth is set, slide the ratchet keeper back down into place to hold the ratchet from rotating.
5. Tighten the jam nut to lock the ratchet in place.
6. Place the handle in the manual holder container which is on the left top arm.
7. When skid shoes are worn down, replace with new skid shoes.

Skid Shoe Ratchet

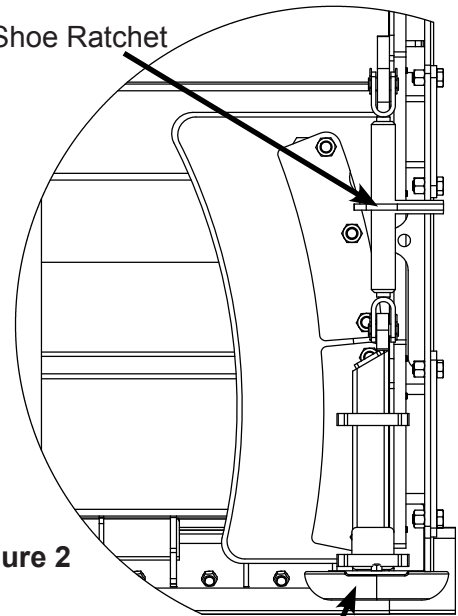


Figure 2

Skid Shoe

Tilt Plate Adjustment:

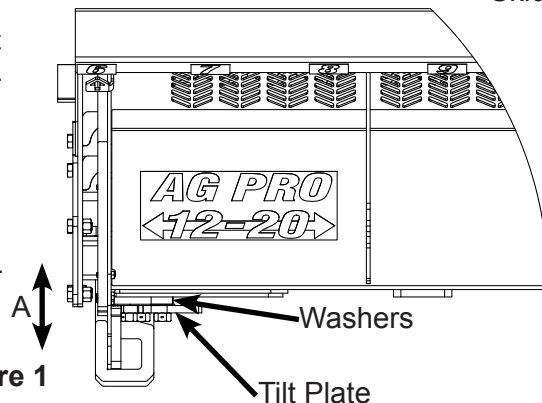
1. Remove nuts and tilt plates.

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

If you can't easily remove the bottom tilt plates, the tilt frame will need to be tilted further than with the cylinders. To do this follow Steps #2-6. Otherwise continue with Step #4.

2. Remove the hose clamps behind the top of the tilt frame that are holding the blade hoses.
3. Unattach the tilt cylinders from the blade and move out of the way. Tilt the tilt frame all the way up on one side to get easier access to the bottom tilt plates on the opposite side. Then tilt the tilt frame the other direction to work with the other bottom tilt plates.
4. Add or remove washers as needed to adjust tilt-way clearance to have 1/16" - 1/8" of clearance in direction 'A' shown in Figure 1.
5. Once the tilt-way clearance is set, tighten bolts to 640 ft-lbs.
6. If you removed the hoses clamps and unattached the cylinders, reattach the hose clamps and cylinders.

Figure 1



Washers

Tilt Plate

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

Maintenance

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

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:

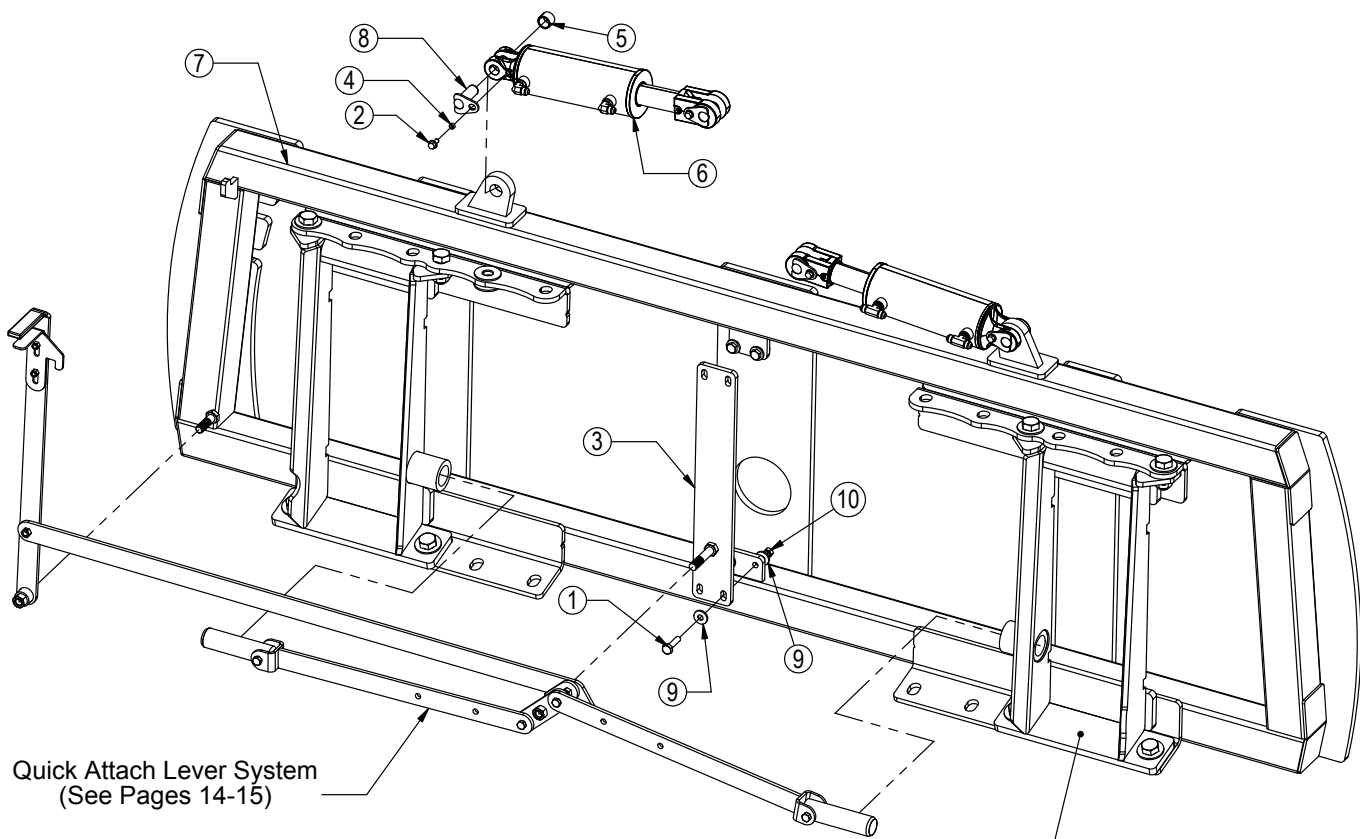
1. The 12-20 Dozer should be operated only by those who are responsible and instructed to do so.
2. Read the owner's manual carefully before using this equipment. Lack of operating knowledge can lead to accidents.
3. Keep the dozer maintained in reliable and satisfactory condition to ensure your safety.
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 inside and outside of 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.

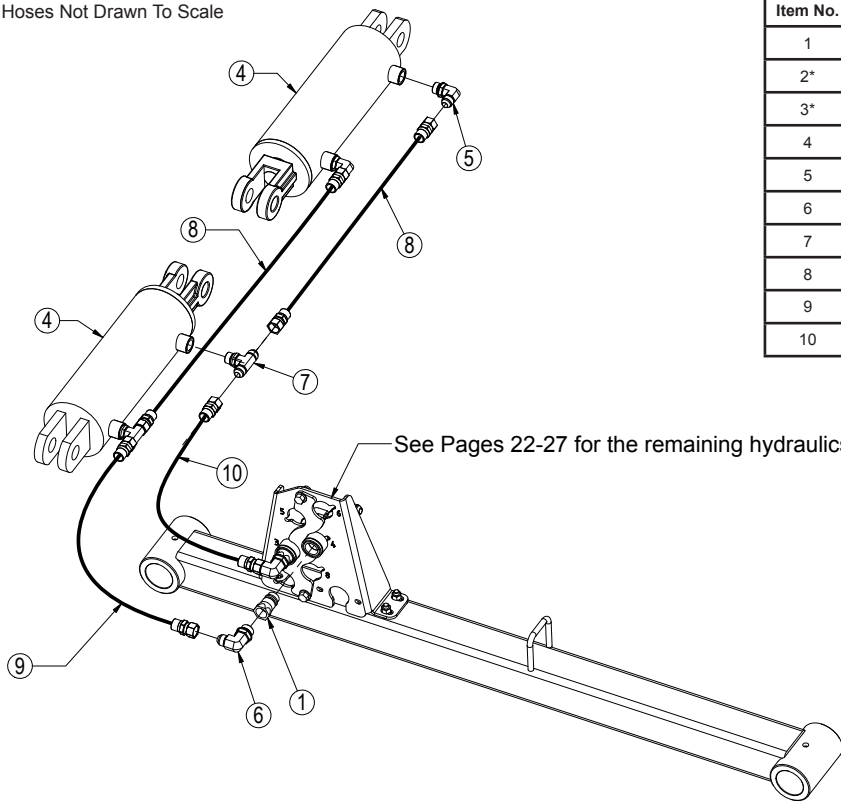


Quick Attach Lever System
(See Pages 14-15)

Quick Attach (See Pages 14-15)

Item No.	Qty.	Part No.	Description
1	4	16-20128	1/2" x 2" Hex Bolt Gr 5 NC
2	4	16-35C612	3/8" x 3/4" Flanged Bolt
3	1	18-14658	NAXT Center Bracket
4	4	19-13577	NR Pin Spacer Clevis End
5	2	19-7774	1" x 1" Spring Bushing
6	2	26-34711	4 x 8 Cylinder w/ Cast Clevis Ends
7	1	32-16980	12-20 NAHT Tilt Frame
8	4	43-13580	1" Clevis Bolt In Pin
9	8	57-20744	1/2" Flat Washer
10	4	70-20604	1/2" Hex Center Lock Nut Gr 2 NC

Hoses Not Drawn To Scale



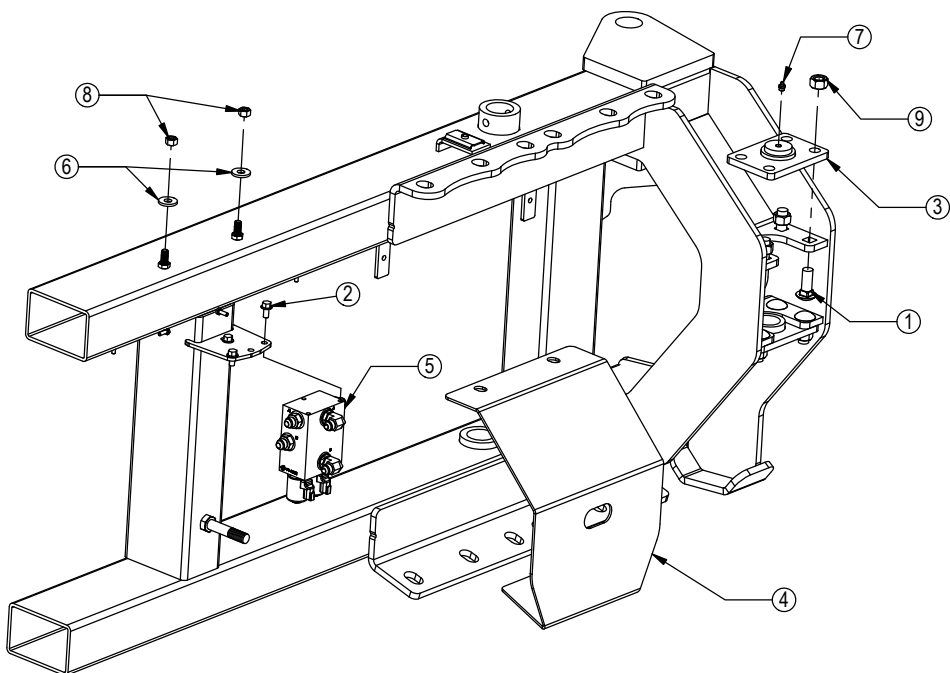
See Pages 22-27 for the remaining hydraulics.

Item No.	Qty.	Part No.	Description
1	2	25-34342	Tappet Quick Coupler Male - Poppet Style
2*	2	25-3453	Pioneer Dust Cap Tilt (Green)
3*	2	25-3454	Pioneer Dust Plug Tilt (Green)
4	2	26-34711	4 x 8 Cylinder W/ Cast Clevis Ends
5	2	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)
6	2	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
7	2	31-34060	Branch Tee JIC x O-Ring (6803-8-8-8)
8	2	35-30022	39" x 3/8" -8JIC/-8JIC Hose
9	1	35-30122	40" x 1/2" -8JIC/-8JIC Hose
10	1	35-30126	50" x 1/2" -8JIC/-8JIC Hose

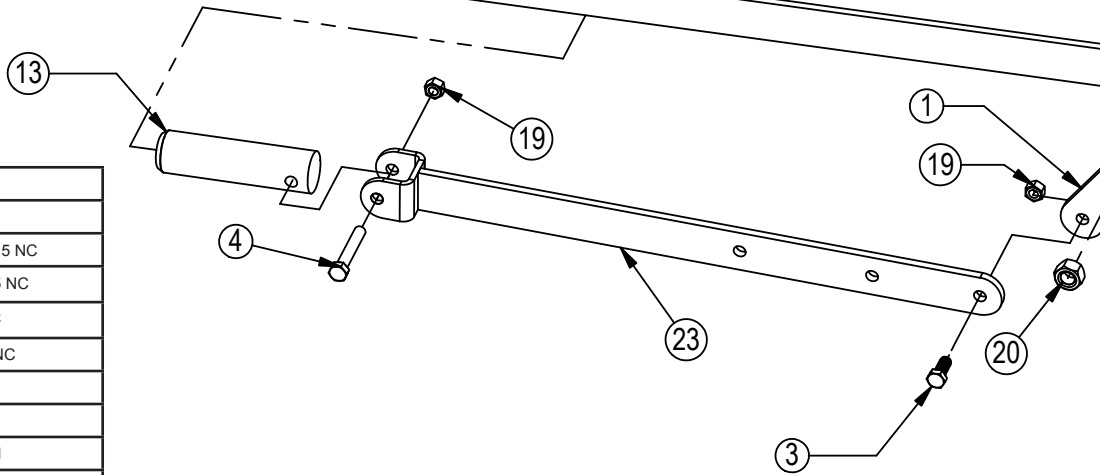
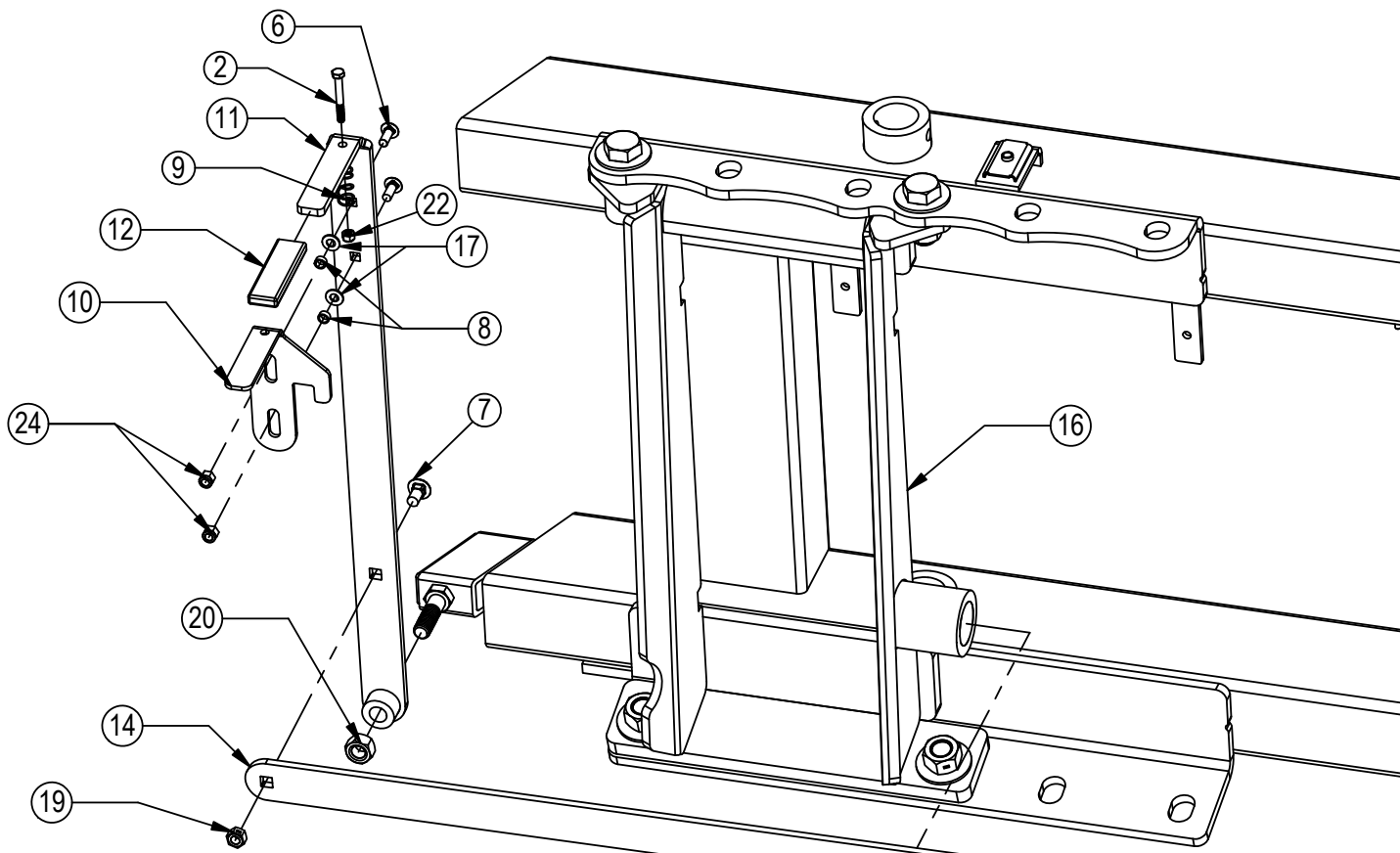
* Parts Not Shown

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
26-34711	49-12271	Seal Kit 4 x 8 (647135) Nitrided Rod, Clevis Ends

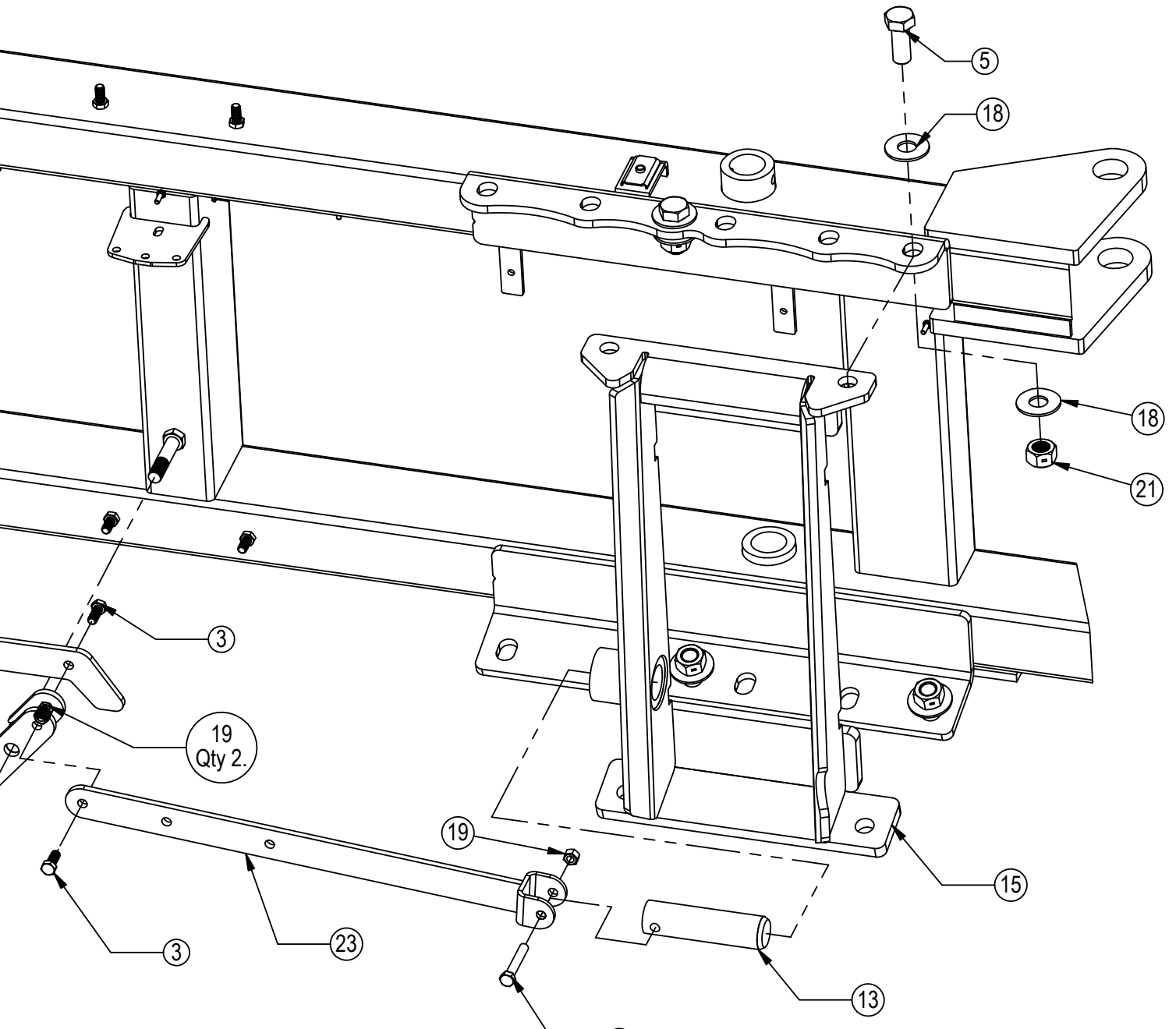


Item No.	Qty.	Part No.	Description
1	16	16-21218	3/4" x 2" Carriage Bolt Gr 5 NC
2	3	16-35C612	3/8" x 3/4" Flanged Bolt
3	4	18-14670	770- Trunnion Mount Bracket
4	1	18-1701	AG Pro Hydraulic Valve Cover
5	1	56-14680	Logic Hydraulic Angle Valve
6	2	57-20744	1/2" Flat Washer
7	4	58-9369	Grease Zerk 1/8" NPT Straight
8	2	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
9	16	70-20607	3/4" Hex Center Lock Nut Gr 2 NC



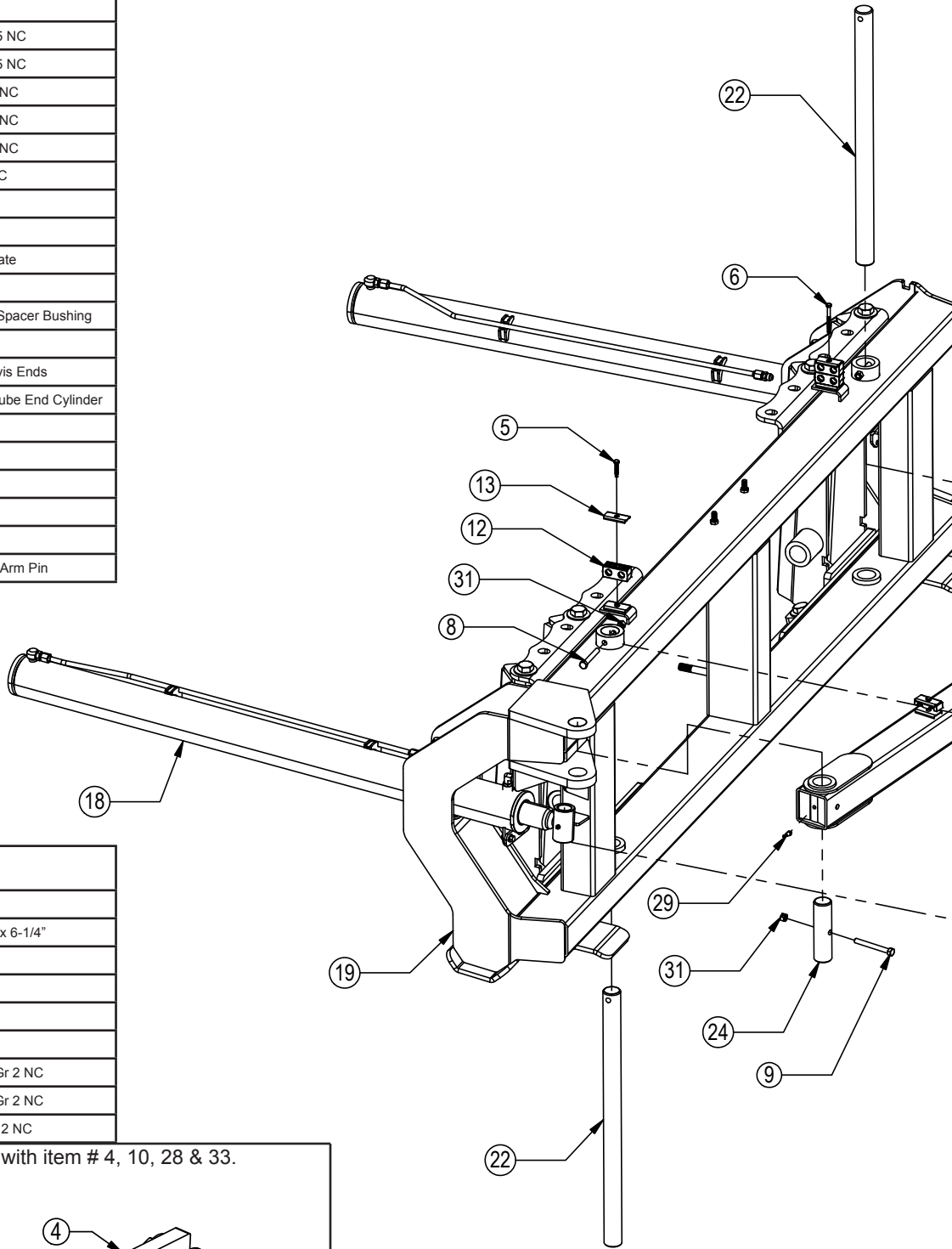
Some Parts Hidden For Clarity

Item No.	Qty.	Part No.	Description
1	1	11-3049	Bell Crank Weld
2	1	16-20040	5/16" x 2-1/2" Hex Bolt Gr 5 NC
3	3	16-20125	1/2" x 1-1/4" 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	44-14662	Pin Puller Link Plate
15	1	45-14710-R	Female Bolt On Quick Attach, Right
16	1	45-14710-L	Female Bolt On Quick Attach, Left
17	2	57-20742	3/8" Flat Washer
18	16	57-20819	1" Flat Washer Heavy Duty Gr 8 (USS)
19	6	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
20	2	70-20607	3/4" Hex Center Lock Nut Gr 2 NC
21	8	70-20609	1" Hex Center Lock Nut Gr 2 NC
22	1	70-20611	5/16" Nyloc Hex Nut Gr 5 NC
23	2	75-14655	AG Pro Pin Puller Link Weld
24	2	70-20622	3/8" Flange Nut



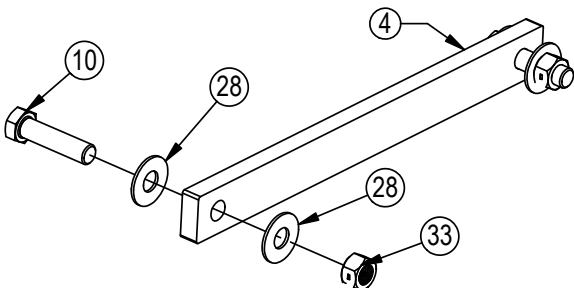
Hydraulic Angle - Hydraulic Tilt Or Hydraulic Angle - No Tilt

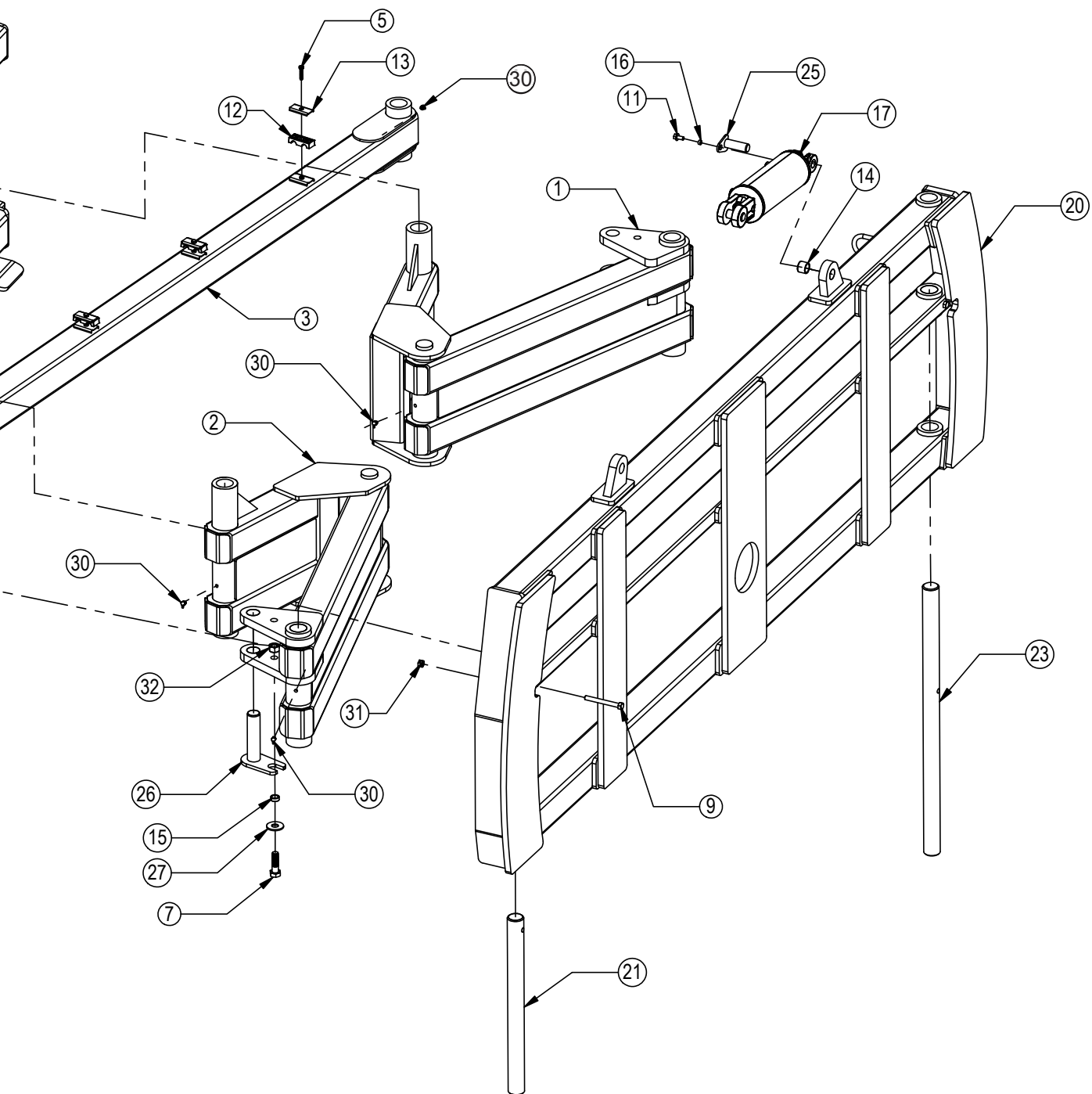
Item No.	Qty.	Part No.	Description
1	1	11-14640-L	770 Series Angle Arm Left
2	1	11-14640-R	770 Series Angle Arm Right
3	1	11-14650	770 Series Stabilizer Arm
4	1	14-9366	Non Tilt Bar
5	5	16-20036	5/16" x 1-1/2" Hex Bolt Gr 5 NC
6	1	16-20043	5/16" x 3-1/4" Hex Bolt Gr 5 NC
7	2	16-20220	3/4" x 2-1/2" Hex Bolt Gr 5 NC
8	2	16-20424	1/2" x 3-1/2" Hex Bolt Gr 8 NC
9	3	16-20427	1/2" x 4-1/2" Hex Bolt Gr 8 NC
10	2	16-20564	1" x 3-1/2" Hex Bolt Gr 8 NC
11	4	16-35C612	3/8" x 3/4" Flanged Bolt
12	5	18-3074	Hose Hold Down Clamp
13	6	18-3075	Hose Hold Down Clamp Plate
14	2	19-7774	1" x 1" Spring Bushing
15	2	19-13515	3/4" ID - Non Rotating Pin Spacer Bushing
16	4	19-13577	NR Pin Spacer Clevis End
17	2	26-34711	4 x 8 Cylinder W/ Cast Clevis Ends
18	2	26-34739	4 x 55 Trunnion Mounted Tube End Cylinder
19	1	32-14610	770 Angle Frame
20	1	32-16985	12-20 - 770 HA Tilt Frame
21	1	43-8130	1-15/16" x 23-1/4" Pin
22	2	43-8131	1-15/16" x 31" Pin
23	1	43-8132	1-15/16" x 35-1/2" Pin
24	1	43-8133	1-15/16" x 7-1/8" Stabilizer Arm Pin



Item No.	Qty.	Part No.	Description
25	4	43-13580	1" Clevis Bolt In Pin
26	2	43-8466	Angle Cylinder Pin - 1-1/2" x 6-1/4"
27	2	57-20747	3/4" Flat Washer
28	4	57-20749	1" Flat Washer
29	1	58-9373	Grease Zerk 1/8" NPT 65°
30	7	58-9372	Grease Zerk 1/8" NPT 90°
31	5	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
32	2	70-20607	3/4" Hex Center Lock Nut Gr 2 NC
33	2	70-20609	1" Hex Center Lock Nut Gr 2 NC

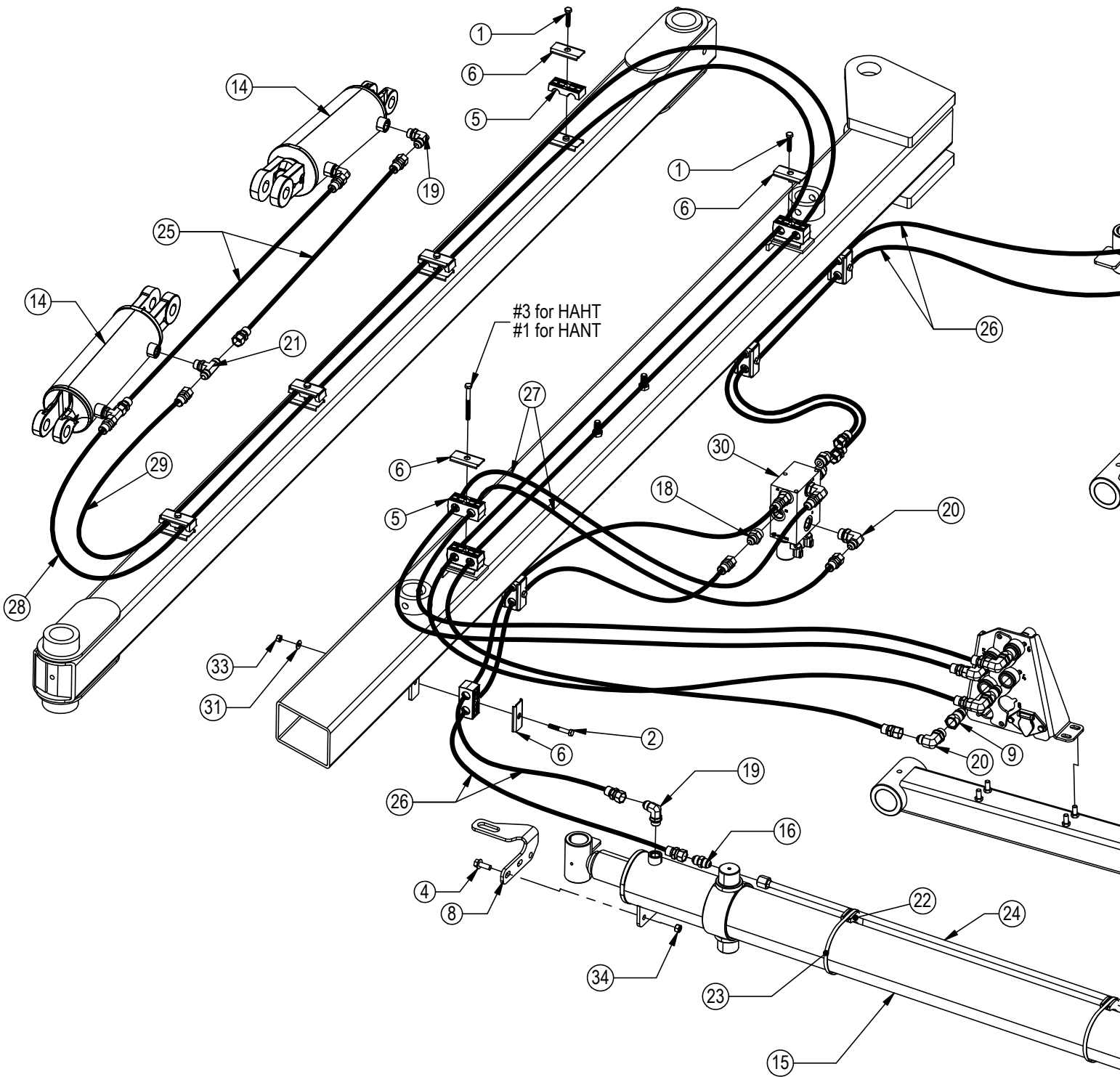
HANT - Replace item # 11, 16, 17 & 25 with item # 4, 10, 28 & 33.





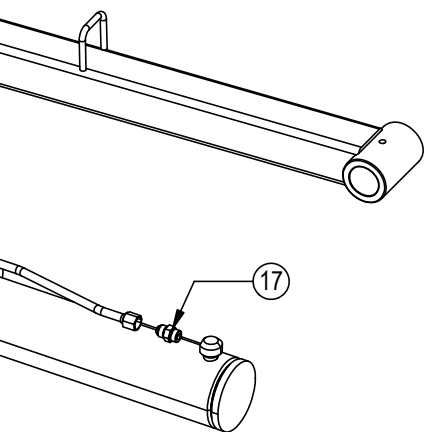
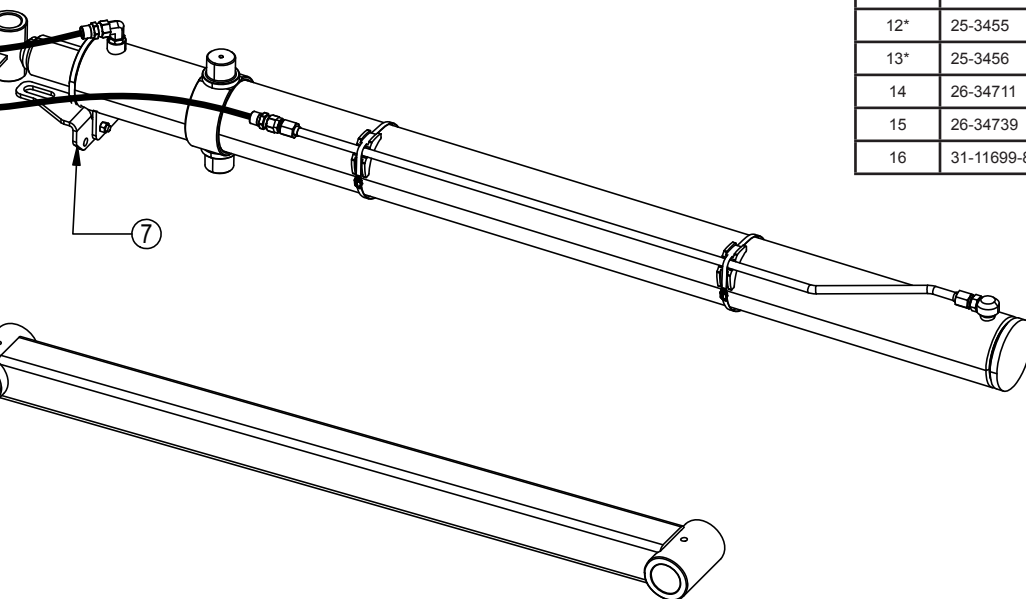
Hydraulic Angle - Hydraulic Tilt Or Hydraulic Angle - No Tilt Hose Routing

Hoses Not Drawn To Scale



		Configuration	HAHT	HANT
Item No.	Part No.	Description	Qty.	Qty.
1	16-20036	5/16" x 1-1/2" Hex Bolt Gr 5 NC	5	1
2	16-20040	5/16" x 2-1/2" Hex Bolt Gr 5 NC	4	4
3	16-20043	5/16" x 3-1/4" Hex Bolt Gr 5 NC	1	-
4	16-35C616	3/8" x 1" Flanged Bolt	4	4
5	18-3074	Hose Hold Down Clamp	9	5
6	18-3075	Hose Hold Down Clamp Plate	10	5
7	18-14684-R	Switch Mount Bracket - Right	1	1
8	18-14684-L	Switch Mount Bracket - Left	1	1
9	25-34342	Tappet Quick Coupler Male - Poppet Style	4	2
10*	25-3453	Pioneer Dust Cap Tilt (Green)	2	-
11*	25-3454	Pioneer Dust Plug Tilt (Green)	2	-
12*	25-3455	Pioneer Dust Cap Angle (Red)	2	2
13*	25-3456	Pioneer Dust Plug Angle (Red)	2	2
14	26-34711	4 x 8 Cylinder W/ Cast Clevis Ends	2	-
15	26-34739	4 x 55 Trunnion Mounted Tube End Cylinder	2	2
16	31-11699-8-8	JIC Union (2403-8-8)	2	2

* Parts Not Shown



See Page 22-27 for the remaining hydraulics and hydraulic connections.
See Page 33 for hydraulic schematics.

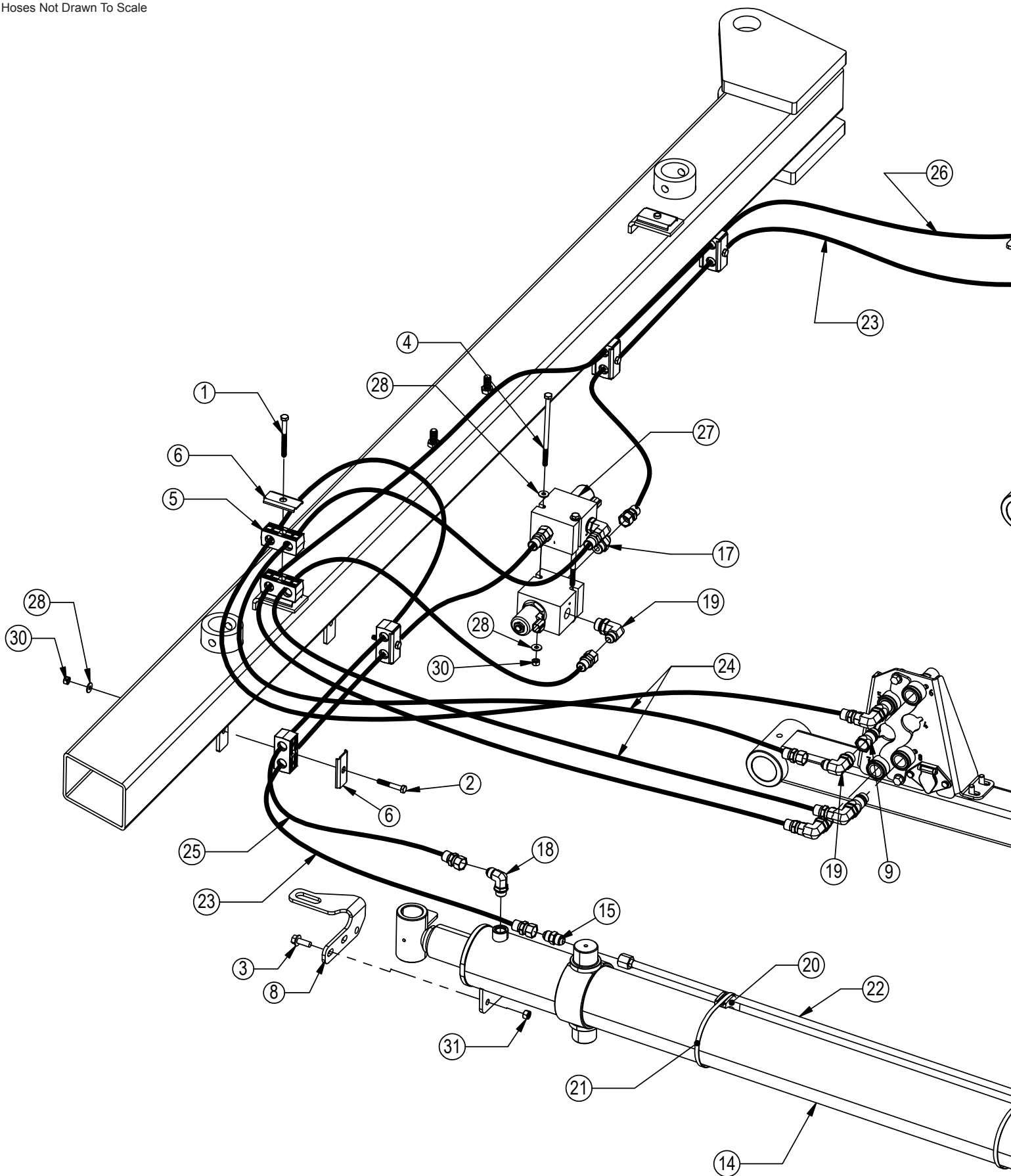
		Configuration	HAHT	HANT
Item No.	Part No.	Description	Qty.	Qty.
17	31-34040	Straight JIC x O-Ring (6400-8-8)	2	2
18	31-34041	Straight JIC x O-Ring (6400-8-10)	4	4
19	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)	4	2
20	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)	6	4
21	31-34060	Branch Tee JIC x O-Ring (6803-8-8-8)	2	-
22	34-12932	Cylinder Saddle	4	4
23	34-12994	Cylinder Hose Clamp	4	4
24	35-14674	45° -8 Formed Steel Line - Tier 4 Angle	2	2
25	35-30022	39" x 3/8" -8JIC/-8JIC Hose	2	-
26	35-30131	66" x 1/2" -8JIC/-8JIC Hose	4	4
27	35-30132	69" x 1/2" -8JIC/-8JIC Hose	2	2
28	35-30173	230" (19.17') x 1/2" -8JIC/-8JIC Hose	1	-
29	35-30174	240" (20') x 1/2" -8JIC/-8JIC Hose	1	-
30	56-14680	Logic Hydraulic Angle Valve	1	1
31	57-20741	5/16" Flat Washer	4	4
32*	59-34952	Stud Mounted Zip Tie	10	10
33	70-20581	5/16" Hex Nut NC	4	4
34	70-20622	3/8" Flange Hex Nut NC	4	4

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
26-34711	49-12271	Seal Kit 4 x 8 (647135) Nitrided Rod, Clevis Ends
26-34739	49-12274	Seal Kit 4 x 55 (647210) Nitrided Rod

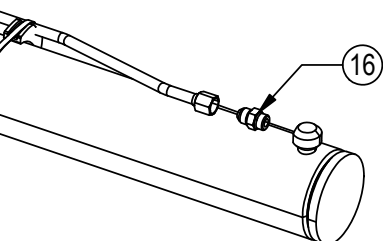
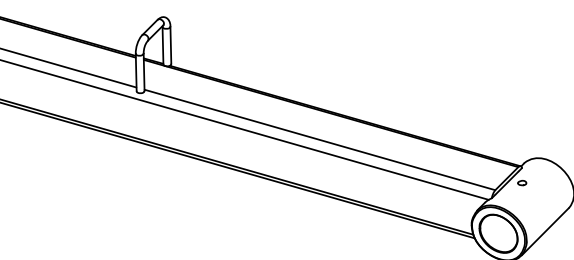
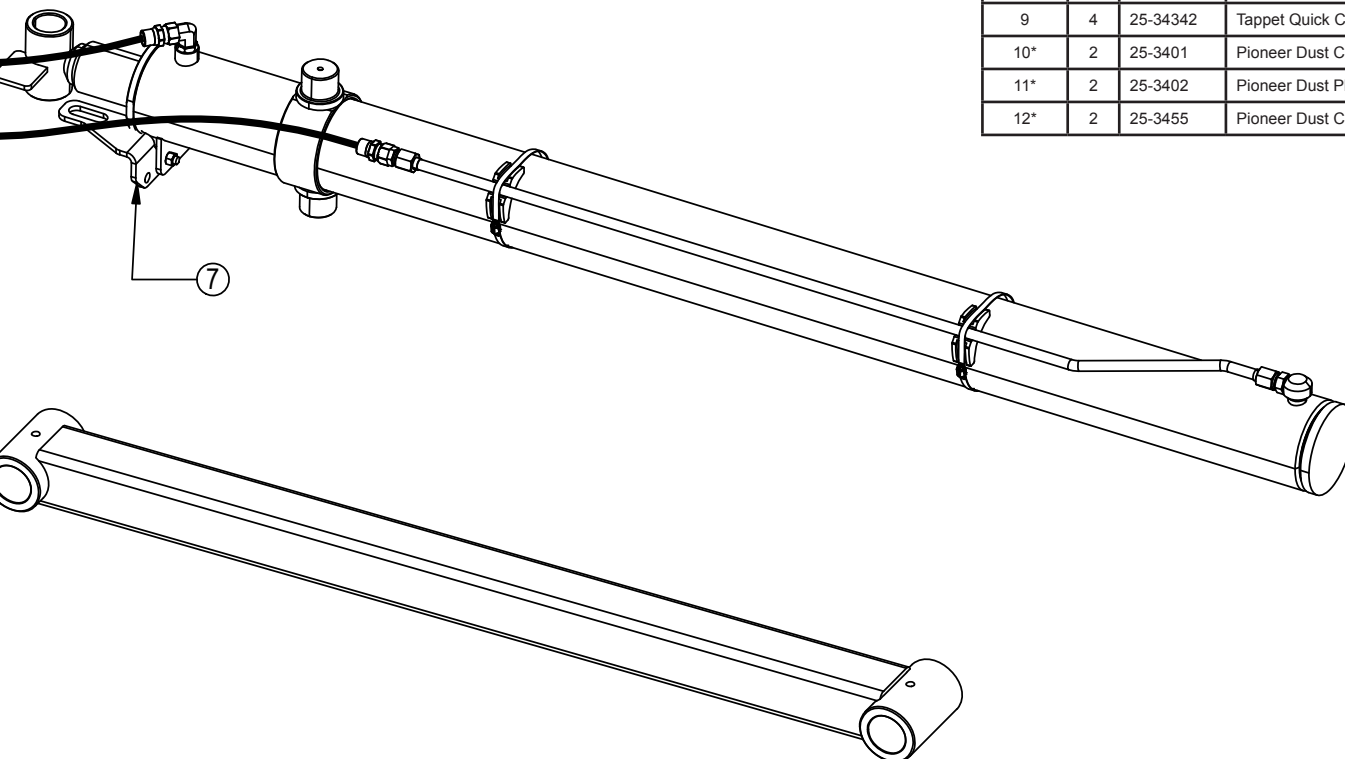
Hydraulic Angle - 2 Lever System Hose Routing

Hoses Not Drawn To Scale



Item No.	Qty.	Part No.	Description
1	1	16-20043	5/16" x 3-1/4" Hex Bolt Gr 5 NC
2	4	16-20040	5/16" x 2-1/2" Hex Bolt Gr 5 NC
3	4	16-35C616	3/8" x 1" Flanged Bolt
4	2	16-20050	5/16" x 6" Hex Bolt Gr 5 NC
5	6	18-3074	Hose Hold Down Clamp
6	5	18-3075	Hose Hold Down Clamp Plate
7	1	18-14684-R	Switch Mount Bracket - Right
8	1	18-14684-L	Switch Mount Bracket - Left
9	4	25-34342	Tappet Quick Coupler Male - Poppet Style
10*	2	25-3401	Pioneer Dust Cap Left Angle (Yellow)
11*	2	25-3402	Pioneer Dust Plug Left Angle (Yellow)
12*	2	25-3455	Pioneer Dust Cap Right Angle (Red)

* Parts Not Shown



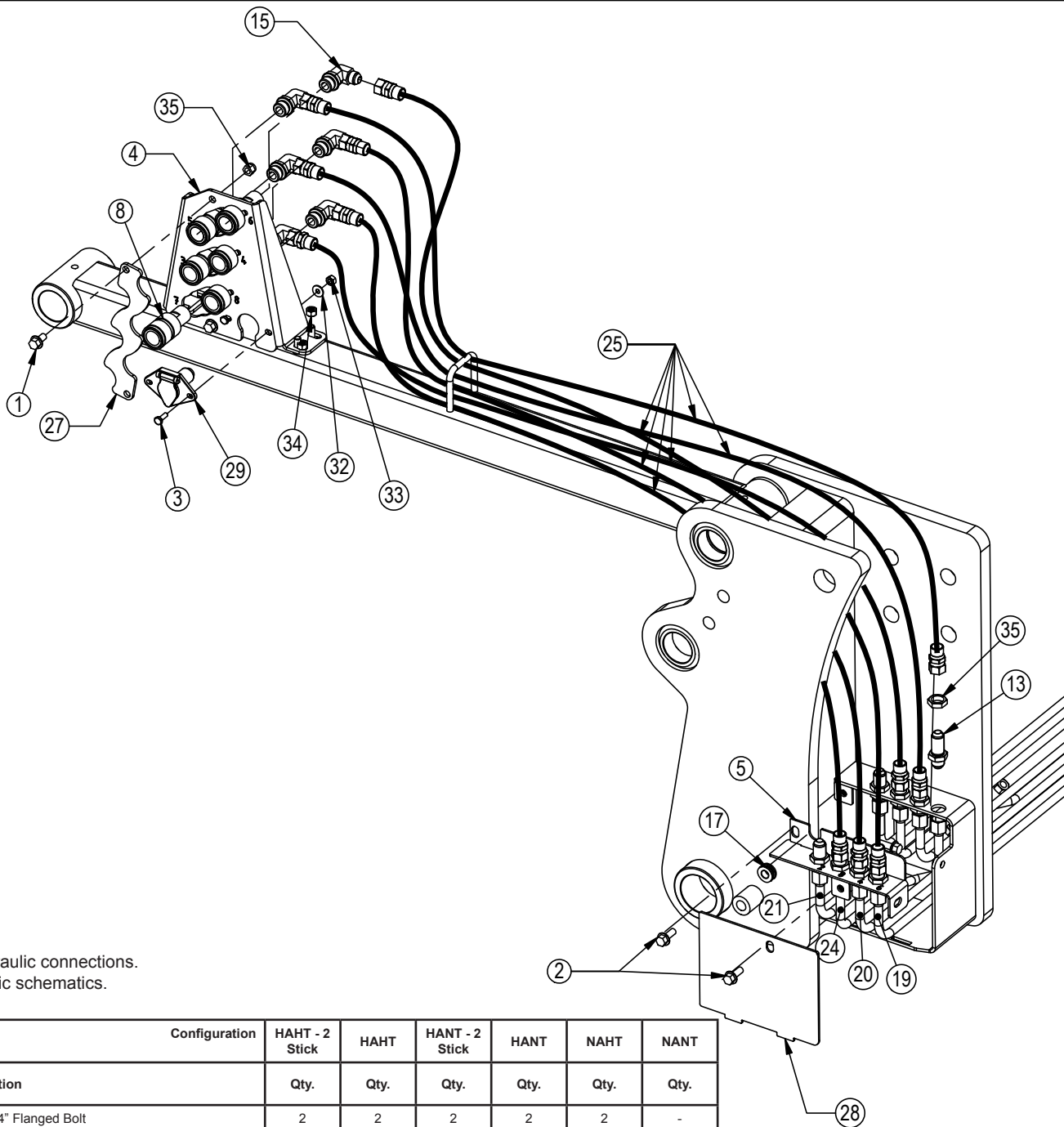
NOTE: When ordering cylinder seal kits, the part number on the cylinder is needed. The number is stamped on the base end of the cylinder opposite of the hydraulic ports.

No. On Cylinder	Part No.	Description
26-34739	49-12274	Seal Kit 4 x 55 (647210) Nitrided Rod

See Page 22-27 for the remaining hydraulics and hydraulic connections. See Page 33 for hydraulic schematics.

Item No.	Qty.	Part No.	Description
13*	2	25-3456	Pioneer Dust Plug Right Angle (Red)
14	2	26-34739	4 x 55 Trunnion Mounted Tube End Cylinder
15	2	31-11699-8-8	JIC Union (2403-8-8)
16	2	31-34040	Straight JIC x O-Ring (6400-8-8)
17	2	31-34041	Straight JIC x O-Ring (6400-8-10)
18	2	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)
19	6	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
20	4	34-12932	Cylinder Saddle
21	4	34-12994	Cylinder Hose Clamp
22	2	35-14674	45° -8 Formed Steel Line - Tier 4 Angle
23	2	35-30131	66" x 1/2" -8JIC/-8JIC Hose
24	2	35-30132	69" x 1/2" -8JIC/-8JIC Hose
25	1	35-30175	119" x 1/2" -8JIC/-8JIC Hose
26	1	35-30176	138" x 1/2" -8JIC/-8JIC Hose
27	1	56-14772	2-Stick Logic Angle Valve Kit
28	8	57-20741	5/16" Flat Washer
29*	10	59-34952	Stud Mounted Zip Tie
30	6	70-20581	5/16" Hex Nut NC
31	4	70-20622	3/8" Flange Hex Nut NC

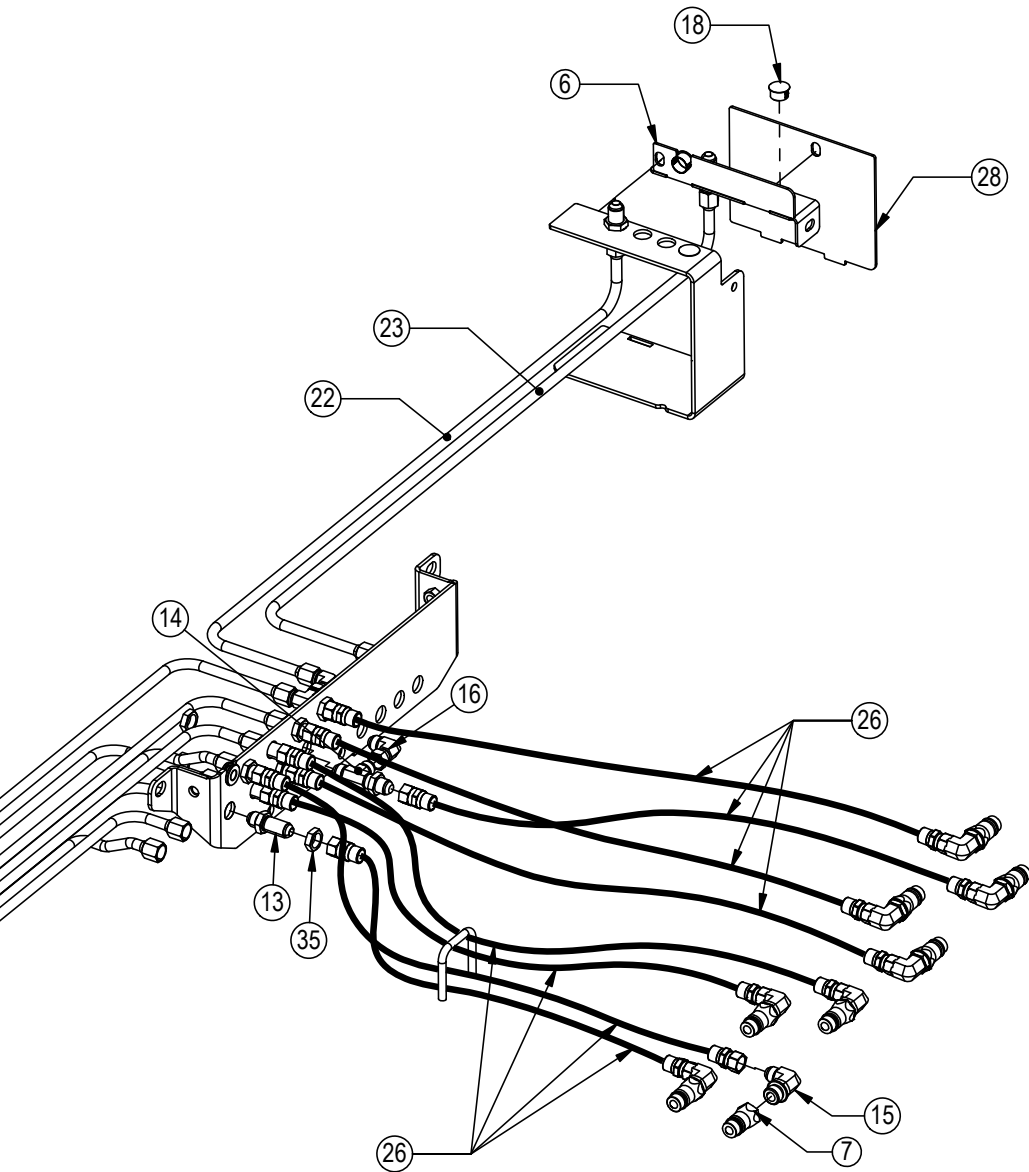
Hoses Not Drawn To Scale



See Page 26-27 for hydraulic connections.
See Page 33 for hydraulic schematics.

* Parts Not Shown

Item No.	Part No.	Description	Configuration					
			HAHT - 2 Stick Qty.	HAHT Qty.	HANT - 2 Stick Qty.	HANT Qty.	NAHT Qty.	NANT Qty.
1	16-35C612	3/8" x 3/4" Flanged Bolt	2	2	2	2	2	-
2	16-35C616	3/8" x 1" Flanged Bolt	6	6	6	6	6	6
3	16-20002	1/4" x 3/4" Hex Bolt Gr 5 NC	2	2	2	2	-	-
4	18-14737	700 Series Female Coupler Mount - Universal	1	1	1	1	1	-
5	18-15580-L	Bracket, Hydraulic Cover - Top Left	1	1	1	1	1	1
6	18-15580-R	Bracket, Hydraulic Cover - Top Right	1	1	1	1	1	1
7	25-34342	Tappet Quick Coupler Male - Poppet Style	8	6	6	4	4	2
8	25-34321	Tappet Quick Coupler Female	6	4	4	2	2	-
9*	25-3401	Pioneer Dust Cap Left Angle (Yellow)	2	-	2	-	-	-
10*	25-3453	Pioneer Dust Cap Tilt (Green)	2	2	-	-	2	-
11*	25-3455	Pioneer Dust Cap Right Angle (Red)	2	2	2	2	-	-
12*	25-3457	Pioneer Dust Cap Lift (Orange)	2	2	2	2	2	2
13	31-34000	Bulkhead Union JIC (2700-8-8)	16	12	12	8	8	4
14	31-34030	Bulkhead Run Tee JIC (2704-8-8-8)	2	2	2	2	2	2
15	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)	14	10	10	6	6	2
16	31-34100	Swivel Nut Elbow 90° JIC (6500-8-8)	2	2	2	2	2	2
17	34-14826	1/2" ID Rubber Grommet	2	2	2	2	-	-



* Parts Not Shown

Item No.	Part No.	Description	Configuration					
			HAHT - 2 Stick	HAHT	HANT - 2 Stick	HANT	NAHT	NANT
18	34-14898	Dome Plug (3044)	Qty. 3	Qty. 7	Qty. 7	Qty. 11	Qty. 13	Qty. 17
19	35-14351	31.63" -8 Formed Steel Line (Angle)	2	2	2	2	-	-
20	35-14352	33.88" -8 Formed Steel Line (Tilt)	2	2	-	-	2	-
21	35-14353	36.13" -8 Formed Steel Line (Left Lift)	2	2	2	2	2	2
22	35-14356	36.63" -8 Formed Steel Line (770 Right Lift)	1	1	1	1	1	1
23	35-14357	39.63" -8 Formed Steel Line (770 Right Lift)	1	1	1	1	1	1
24	35-14824	29.38" -8 Formed Steel Line (2-Stick - Left Side)	2	-	2	-	-	-
25	35-31132	69" x 1/2" -8JIC/-8JIC Hose W/Cordura	6	4	4	2	2	-
26	35-30183	293" (24.42") x 1/2" -8JIC/-8JIC Hose w/165" Cordura	8	6	6	4	4	2
27	44-14738	700 Series Female Coupler Retainer-Universal	1	1	1	1	1	-
28	44-15120	700 Series Side Cover Plate - Left	2	2	2	2	2	2
29*	69-14681	Logic Angle Valve Wire Harness	1	1	1	1	-	-
30*	69-14679	Electric Angle Switch	-	1	-	1	-	-
31*	69-14683	2-Stick Wire Harness Cap	1	-	1	-	-	-
32	57-20740	1/4" Flat Washer	2	2	2	2	-	-
33	70-20580	1/4" Hex Nut Gr 5 NC	2	2	2	2	-	-
34	70-20622	3/8" Flange Hex Nut NC	6	6	6	6	6	-
35	70-20807	3/4" Hex Jam Nut	18	14	14	10	10	6

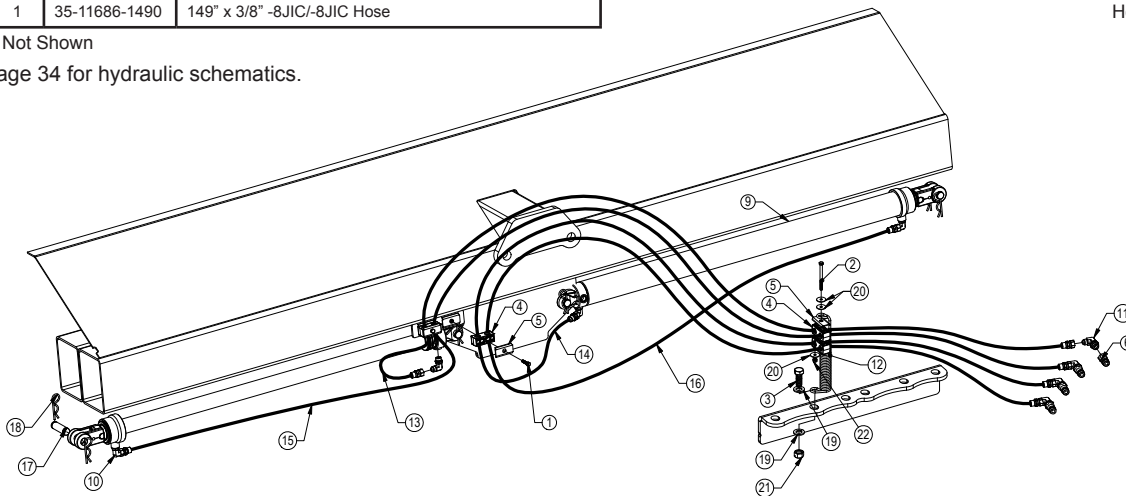
Item No.	Qty.	Part No.	Description
1	2	16-20036	5/16" X 1-1/2" Hex Bolt Gr 5 NC
2	1	16-20047	5/16" X 4-1/2" Hex Bolt Gr 5 NC
3	1	16-20218	3/4" X 2" Hex Bolt Gr 5 NC
4	4	18-3074	Hose Hold Down Clamp
5	4	18-3075	Hose Hold Down Clamp Plate
6	4	25-34342	Tappet Quick Coupler Male - Poppet Style
7*	2	25-3403	Pioneer Dust Cap Slider (Blue)
8*	2	25-3405	Pioneer Dust Cap Slider (Brown)
9	2	26-34741	3 x 48 Welded Cylinder (647660)
10	4	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)
11	4	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
12	1	34-13807	Spring, Hose Support
13	1	35-11686-1490	149" x 3/8" -8JIC/-8JIC Hose

Item No.	Qty.	Part No.	Description
14	1	35-11686-1610	161" x 3/8" -8JIC/-8JIC Hose
15	1	35-11686-1870	187" x 3/8" -8JIC/-8JIC Hose
16	1	35-11686-2120	212" x 3/8" -8JIC/-8JIC Hose
17	2	43-16306	Cylinder Pin
18	8	43-7767	Hitch Pin Clip
19	2	57-20757	3/4" SAE Hardened Flat Washer - 1-1/2" OD
20	3	57-20791	5/16" Fender Washer (1.25" OD)
21	1	70-20607	3/4" Hex Center Lock Nut Gr 2 NC
22	1	70-20611	5/16" Nyloc Hex Nut Gr 5 NC
23*	2	16-20125	1/2" X 1-1/4" Hex Bolt Gr 5 NC
24*	2	34-17585	12-20 Cylinder Strap
25*	2	70-20604	1/2" Hex Center Lock Nut NC

Hoses Not Drawn To Scale

* Parts Not Shown

See Page 34 for hydraulic schematics.

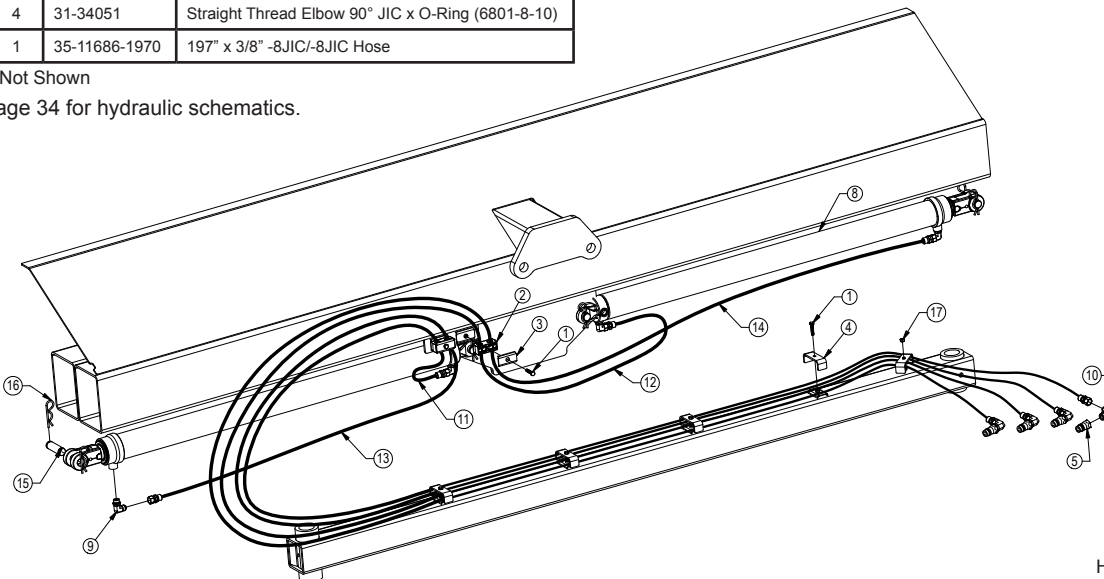


Item No.	Qty.	Part No.	Description
1	6	16-20036	5/16" X 1-1/2" Hex Bolt Gr 5 NC
2	2	18-3074	Hose Hold Down Clamp
3	2	18-3075	Hose Hold Down Clamp Plate
4	5	18-15684	Hose Hold Down Clamp Plate
5	4	25-34322	Tappet Quick Coupler Male
6*	2	25-3403	Pioneer Dust Cap Slider (Blue)
7*	2	25-3405	Pioneer Dust Cap Slider (Brown)
8	2	26-34741	3 x 48 Welded Cylinder (647660)
9	4	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)
10	4	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
11	1	35-11686-1970	197" x 3/8" -8JIC/-8JIC Hose

Item No.	Qty.	Part No.	Description
12	1	35-11686-2110	211" x 3/8" -8JIC/-8JIC Hose
13	1	35-11686-2480	248" x 3/8" -8JIC/-8JIC Hose
14	1	35-11686-2690	269" x 3/8" -8JIC/-8JIC Hose
15	2	43-16306	Cylinder Pin
16	8	43-7767	Hitch Pin Clip
17	1	70-20581	5/16" Hex Nut Gr 5 NC
18*	2	16-20125	1/2" X 1-1/4" Hex Bolt Gr 5 NC
19*	2	34-17585	12-20 Cylinder Strap
20*	2	70-20604	1/2" Hex Center Lock Nut NC

* Parts Not Shown

See Page 34 for hydraulic schematics.

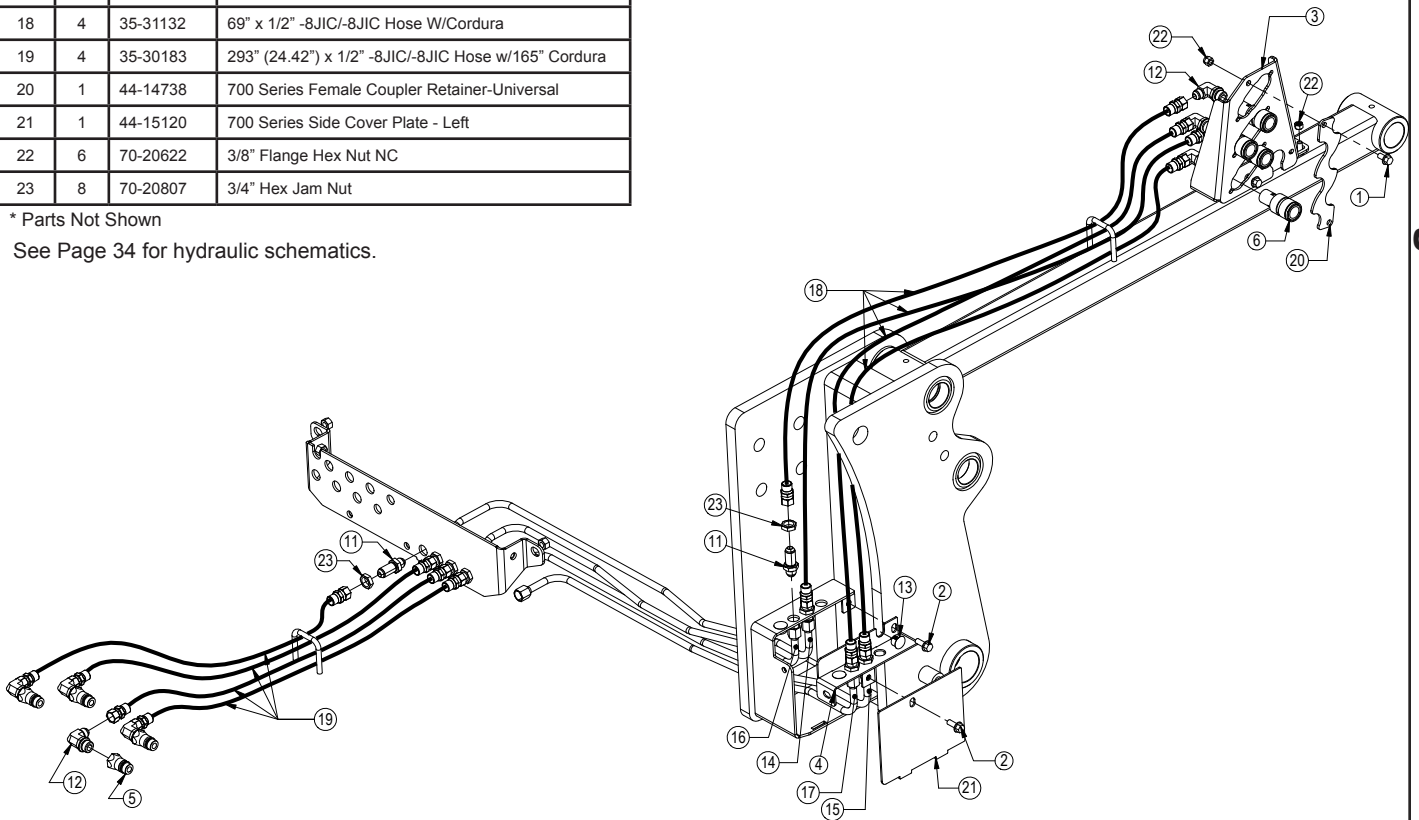


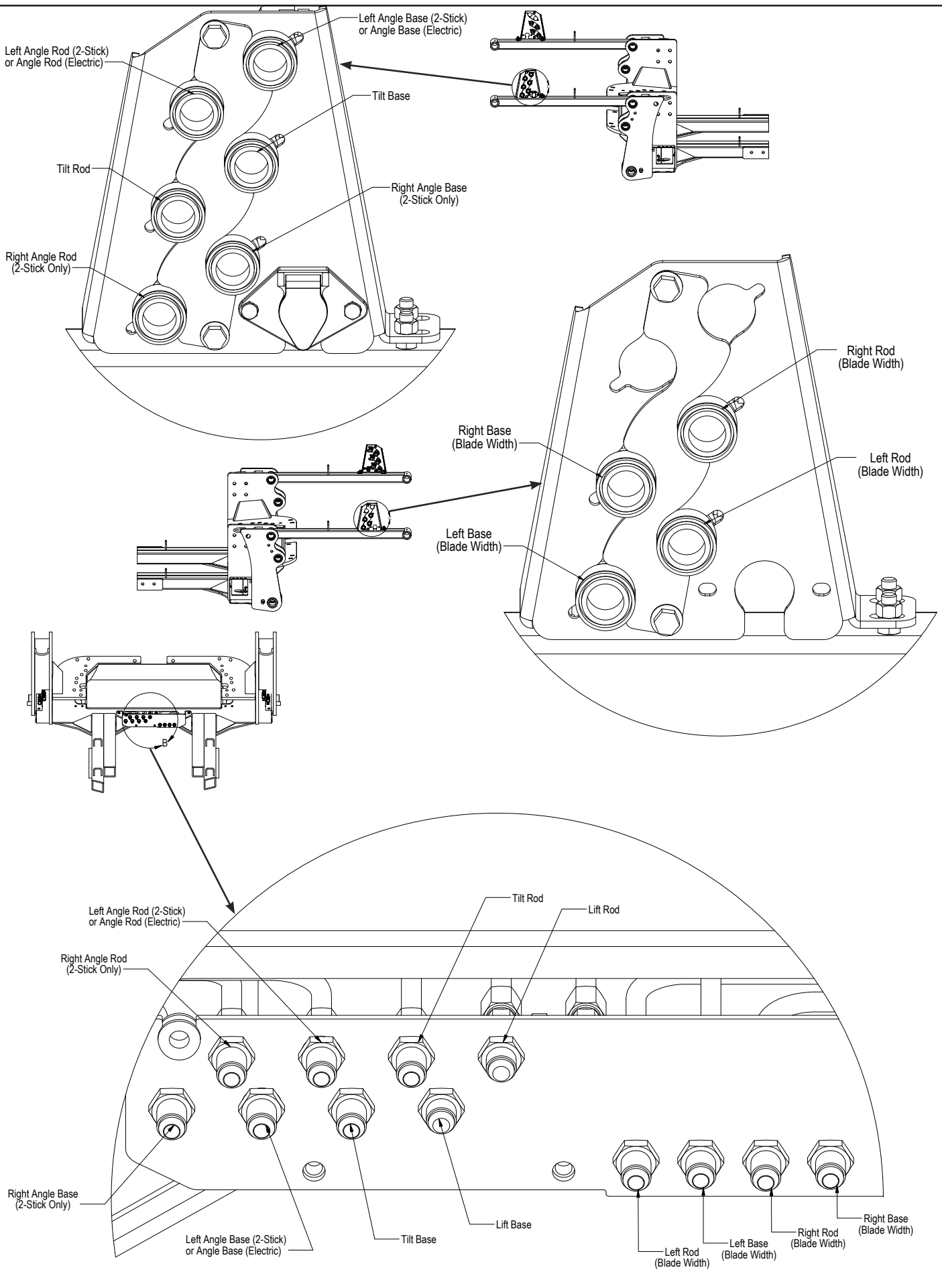
Hoses Not Drawn To Scale

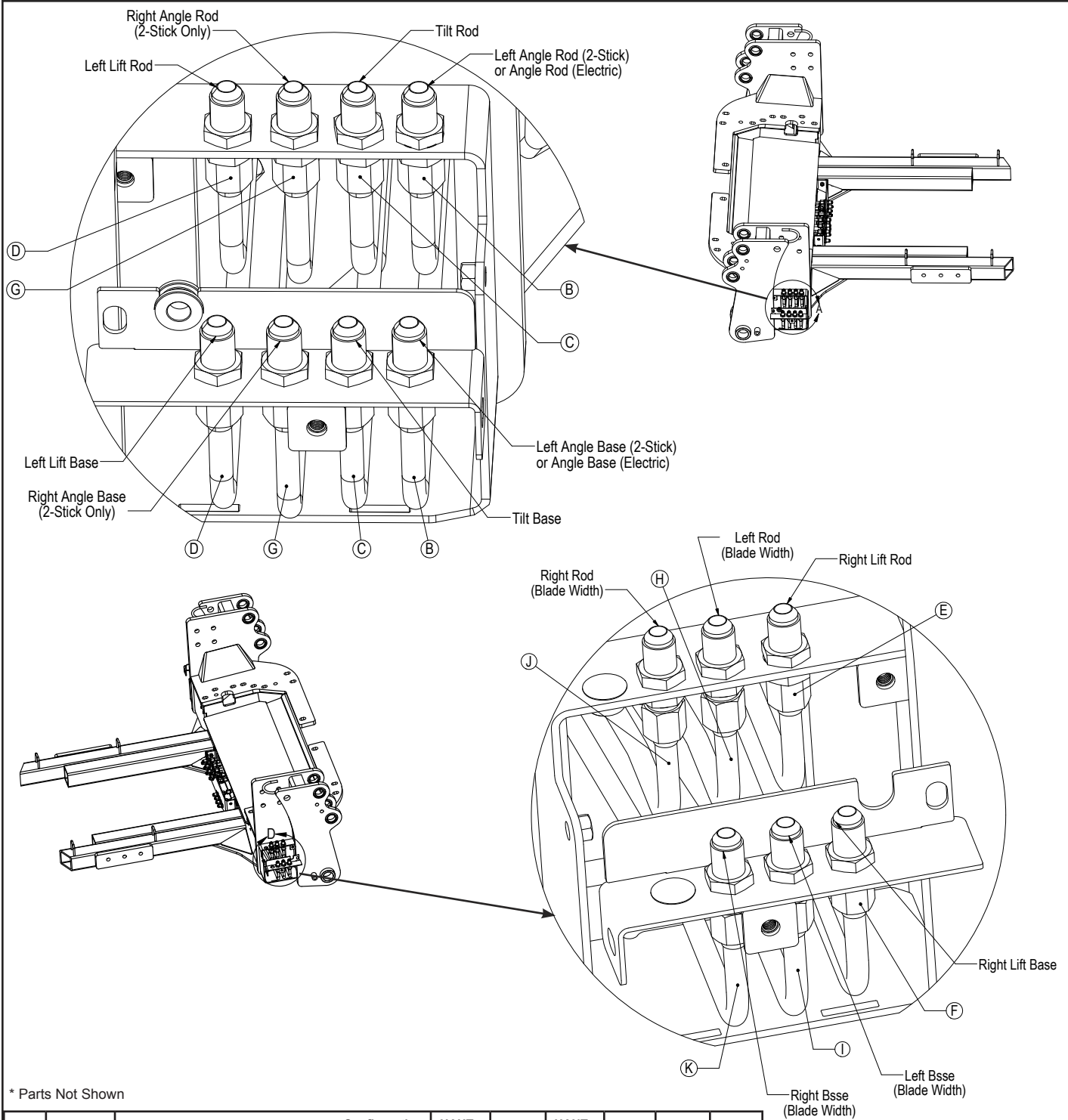
Item No.	Qty.	Part No.	Description
1	2	16-35C612	3/8" x 3/4" Flanged Bolt
2	3	16-35C616	3/8" x 1" Flanged Bolt
3	1	18-14737	700 Series Female Coupler Mount - Universal
4	1	18-15580-R	Bracket, Hydraulic Cover - Top Right
5	4	25-34342	Tappet Quick Coupler Male - Poppet Style
6	4	25-34321	Tappet Quick Coupler Female
7*	2	25-3401	Pioneer Dust Cap Left Angle (Yellow)
8*	2	25-3402	Pioneer Dust Plug Left Angle (Yellow)
9*	2	25-3455	Pioneer Dust Cap Right Angle (Red)
10*	2	25-3456	Pioneer Dust Plug Right Angle (Red)
11	8	31-34000	Bulkhead Union JIC (2700-8-8)
12	8	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
13	3	34-14898	Dome Plug (3044)
14	1	35-15616	35.38" -8 Formed Steel Line (Ag Pro 12-20 Left Rod)
15	1	35-15617	35.25" -8 Formed Steel Line (Ag Pro 12-20 Left Base)
16	1	35-15618	32.13" -8 Formed Steel Line (Ag Pro 12-20 Right Rod)
17	1	35-15619	32.00" -8 Formed Steel Line (Ag Pro 12-20 Right Base)
18	4	35-31132	69" x 1/2" -8JIC/-8JIC Hose W/Cordura
19	4	35-30183	293" (24.42") x 1/2" -8JIC/-8JIC Hose w/165" Cordura
20	1	44-14738	700 Series Female Coupler Retainer-Universal
21	1	44-15120	700 Series Side Cover Plate - Left
22	6	70-20622	3/8" Flange Hex Nut NC
23	8	70-20807	3/4" Hex Jam Nut

* Parts Not Shown

See Page 34 for hydraulic schematics.

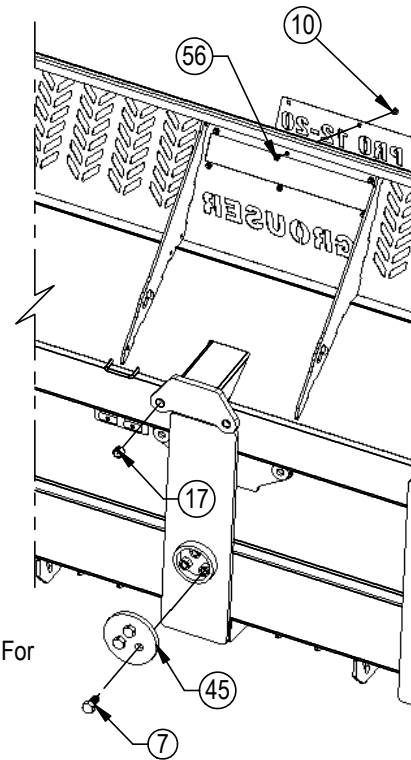
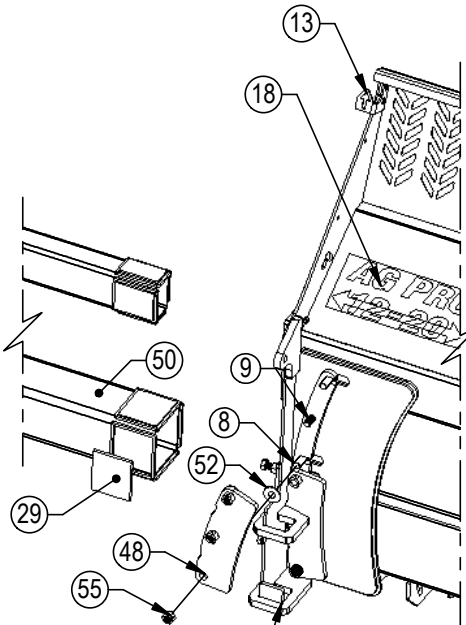
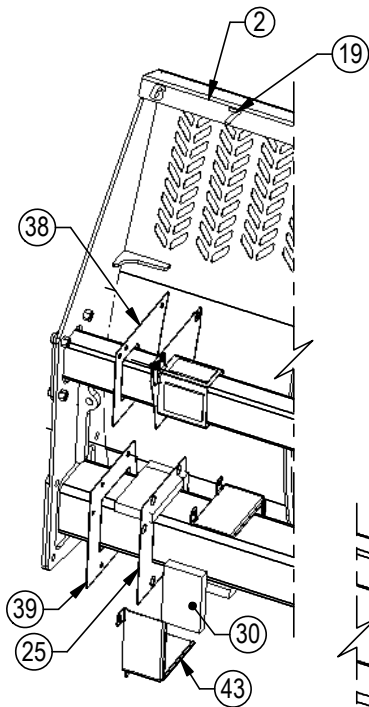






* Parts Not Shown

Item	Part No.	Description	Configuration					
			HAHT - 2 Stick Qty.	HAHT Qty.	HANT - 2 Stick Qty.	HANT Qty.	NAHT Qty.	NANT Qty.
A*	34-14898	Dome Plug (3044)	3	7	7	11	13	17
B	35-14351	31.63" -8 Formed Steel Line (Angle)	2	2	2	2	-	-
C	35-14352	33.88" -8 Formed Steel Line (Tilt)	2	2	-	-	2	-
D	35-14353	36.13" -8 Formed Steel Line (Left Lift)	2	2	2	2	2	2
E	35-14356	36.63" -8 Formed Steel Line (770 Right Lift)	1	1	1	1	1	1
F	35-14357	39.63" -8 Formed Steel Line (770 Right Lift)	1	1	1	1	1	1
G	35-14824	29.38" -8 Formed Steel Line (2-Stick - Left Side)	2	-	2	-	-	-
H	35-15616	35.38" -8 Formed Steel Line (Ag Pro 12-20 Left Rod)	1	1	1	1	1	1
I	35-15617	35.25" -8 Formed Steel Line (Ag Pro 12-20 Left Base)	1	1	1	1	1	1
J	35-15618	32.13" -8 Formed Steel Line (Ag Pro 12-20 Right Rod)	1	1	1	1	1	1
K	35-15619	32.00" -8 Formed Steel Line (Ag Pro 12-20 Right Base)	1	1	1	1	1	1

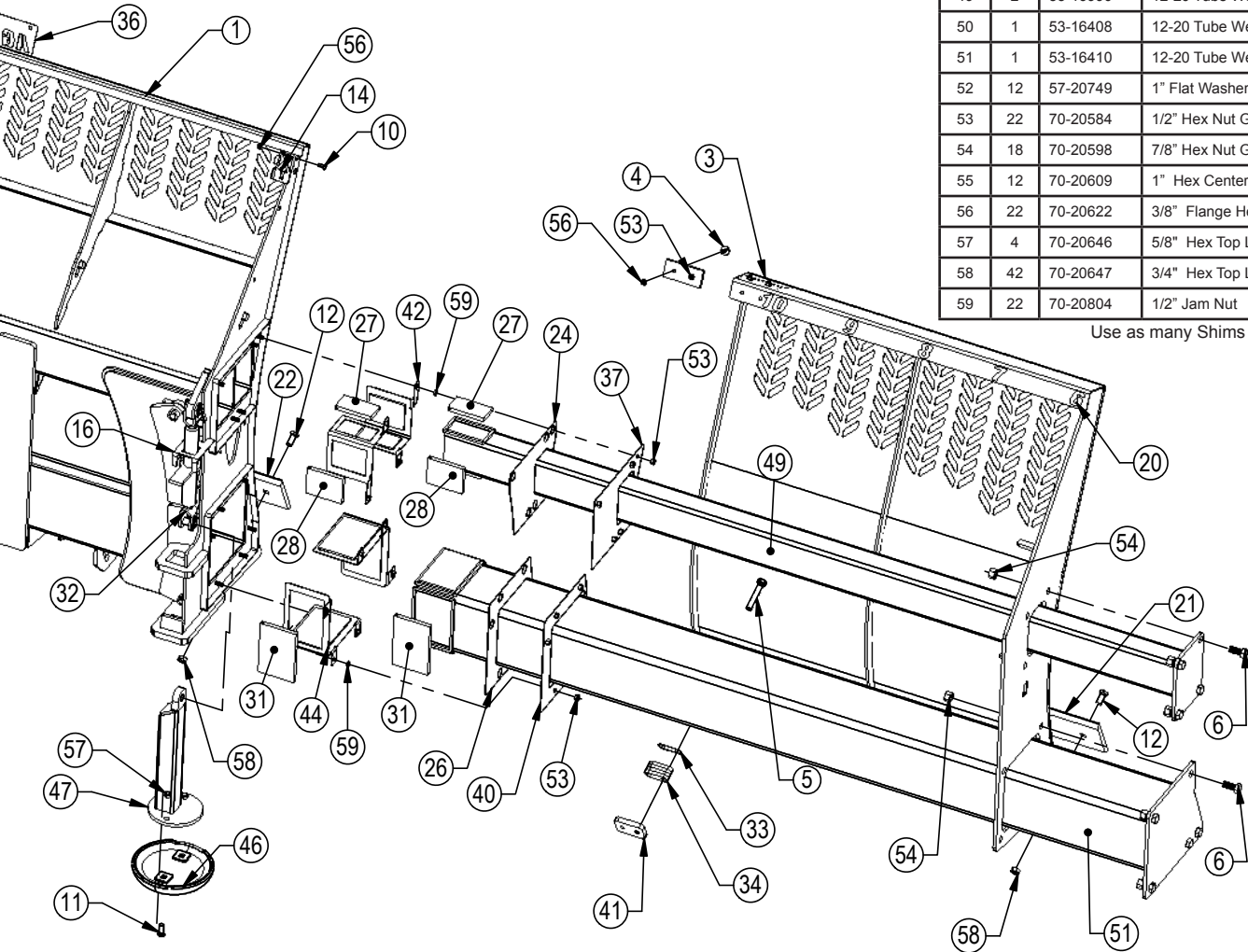


Left Side Skid Shoe Assembly Not Shown For Clarity.

Item No.	Qty.	Part No.	Description
1	1	15-17570	12-20 XAXT (V6) - Blade Weld
2	1	15-16855-L	12-20 Blade End Weld Left
3	1	15-16855-R	12-20 Blade End Weld Right
4	12	16-16305	3/8 x 1.25" Flanged Elevator Bolt
5	4	16-20517	3/4" x 4-1/2" Hex Bolt Gr 8 NC
6	18	16-20538	7/8" x 2" Hex Bolt Gr 8 NC
7	3	16-20558	1" x 2" Hex Bolt Gr 8 NC
8	8	16-20560	1" x 2-1/2" Hex Bolt Gr 8 NC
9	4	16-20562	1" x 3" Hex Bolt Gr 8 NC
10	10	16-21064	3/8" x 1" Carriage Bolt Gr 5 NC
11	4	16-21666	5/8" x 1-3/4" Plow Bolt Gr 5 NC
12	42	16-21748	3/4" x 2" Plow Bolt Gr 5 NC
13	1	18-16304-L	Bracket, Location Left 12-20 Slider
14	1	18-16304-R	Bracket, Location Right 12-20 Slider
15*	1	18-18595-L	Ratchet Keeper - Left
16	1	18-18595-R	Ratchet Keeper - Right
17	2	19-7774	1" x 1" Spring Bushing (125100100)
18	1	27-15598	Ag Pro 12-20 Decal
19	1	27-15612-L	Ag Pro 12-20 Width Decal - Left
20	1	27-15612-R	Ag Pro 12-20 Width Decal - Right
21	3	29-11118-5	5' - 3/4" x 8" Cutting Edge (4500, 6500)
22	1	29-11118-6	6' - 3/4" x 8" Cutting Edge (4500, 6500)
23	6	34-16158	Bearing, 2.625 x 6.00 W/ Holes
24	2	34-16419	12-20 Top Seal
25	1	34-16420	12-20 - 8" Tube Seal - Bottom Left
26	1	34-16421	12-20 - 10" Tube Seal - Bottom Right
27	8	34-16425	12-20 Top Narrow UHMW
28	8	34-16426	12-20 Top Wide UHMW
29	4	34-16427	12-20 8" Inner UHMW
30	4	34-16428	12-20 8" Outer UHMW

Item No.	Qty.	Part No.	Description
31	8	34-16429	12-20 10" UHMW
32	2	34-17565	Ratchet Jack
33	12	44-16977	12-20 Standoff Shim
34	2	44-16525	12-20 Standoff (1.25" x 2")
35*	1	44-15600	12-20 Custom Name Plate - (6.2" x 25.6")
36	1	44-15605	Ag Pro 12-20 Name Plate - (6.2" x 25.6")
37	1	44-16401	12-20 Plate, Top Cover Right
38	1	44-16402	12-20 Plate, Top Cover Left
39	1	44-16403	12-20 Plate, 8" Cover
40	1	44-16404	12-20 Plate, 10" Cover
41	2	44-16417	12-20 Plate, Slider
42	4	44-16422	12-20 Top Outer Retainer
43	2	44-16423	12-20 8" Outer Retainer
44	2	44-16424	12-20 10" Outer Retainer
45	1	44-3749	Backdrag Brace Plate
46	2	50-15458	12" Round Mushroom Skid Shoe
47	2	50-17580	12-20 Skid Shoe Mount - Mushroom
48	4	52-18299	12-20 Tilt Plate (Painted)
49	2	53-16990	12-20 Tube Weld - 4x6
50	1	53-16408	12-20 Tube Weld - 8x8
51	1	53-16410	12-20 Tube Weld - 10x10
52	12	57-20749	1" Flat Washer
53	22	70-20584	1/2" Hex Nut Gr 5 NC
54	18	70-20598	7/8" Hex Nut Gr 8 NC
55	12	70-20609	1" Hex Center Lock Nut Gr 2 NC
56	22	70-20622	3/8" Flange Hex Nut Gr 5 NC
57	4	70-20646	5/8" Hex Top Lock Nut Gr 5 NC
58	42	70-20647	3/4" Hex Top Lock Nut Gr 5 NC
59	22	70-20804	1/2" Jam Nut

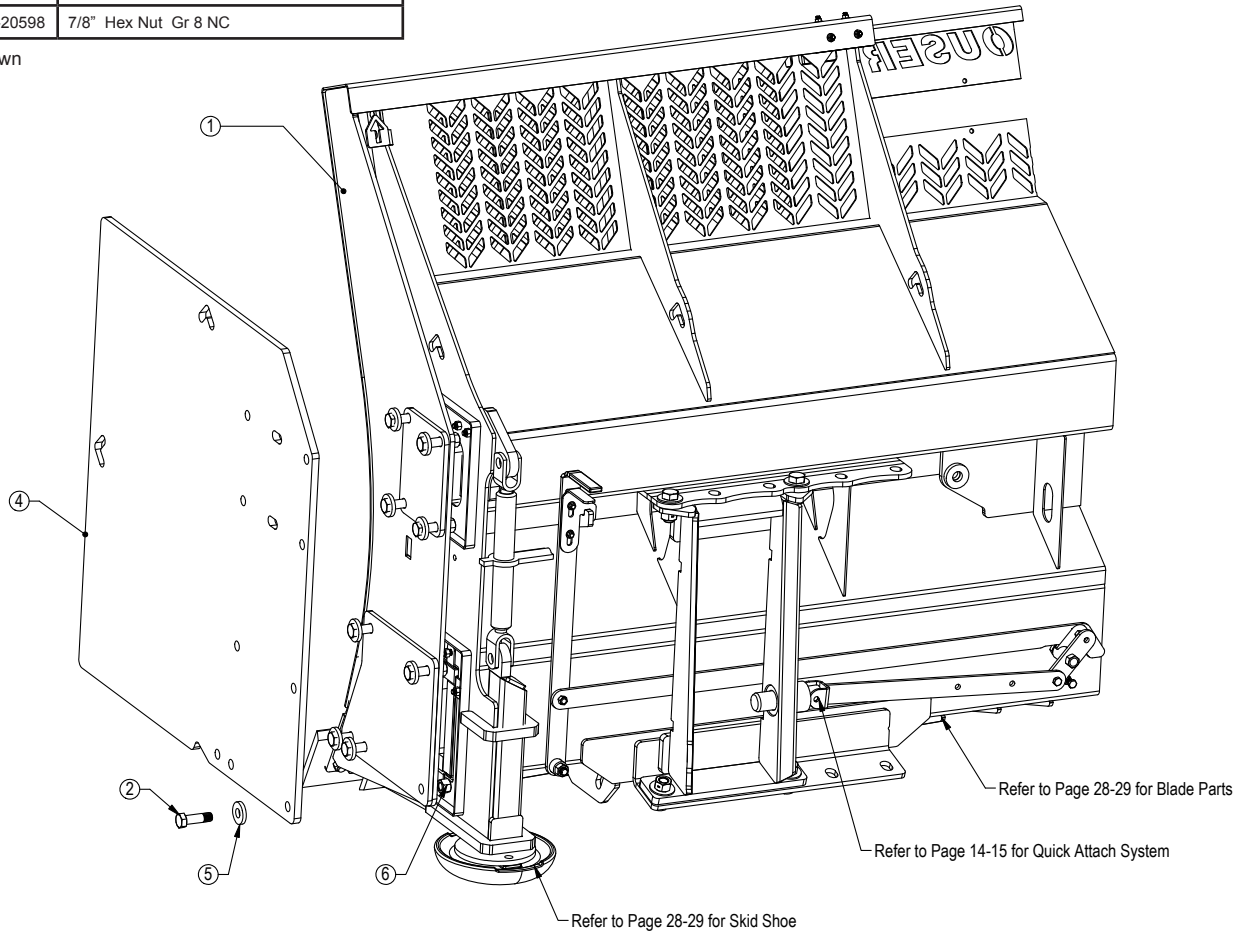
Use as many Shims (Item #33) as necessary

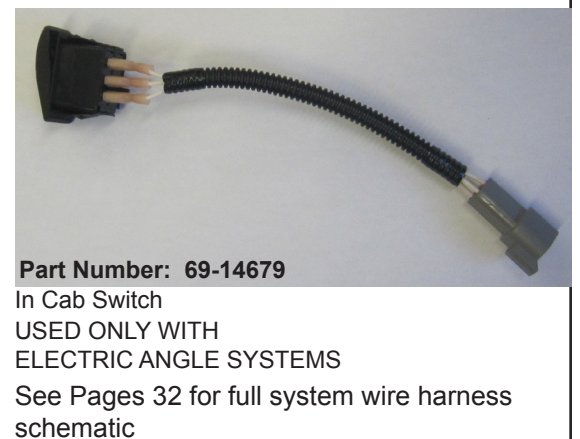
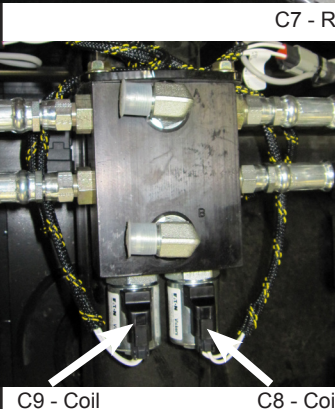
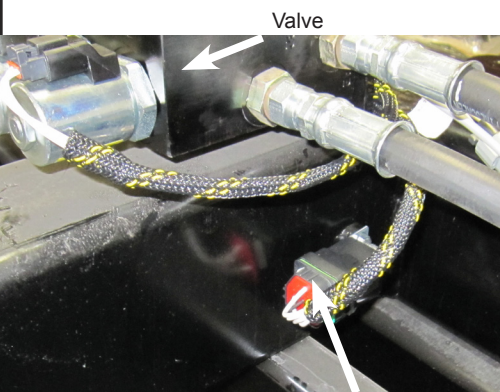
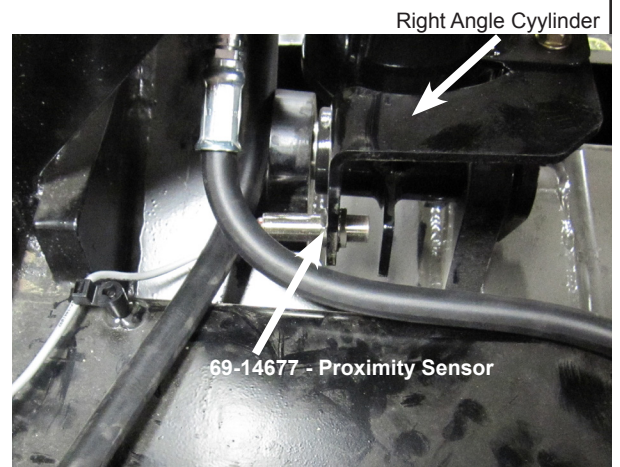
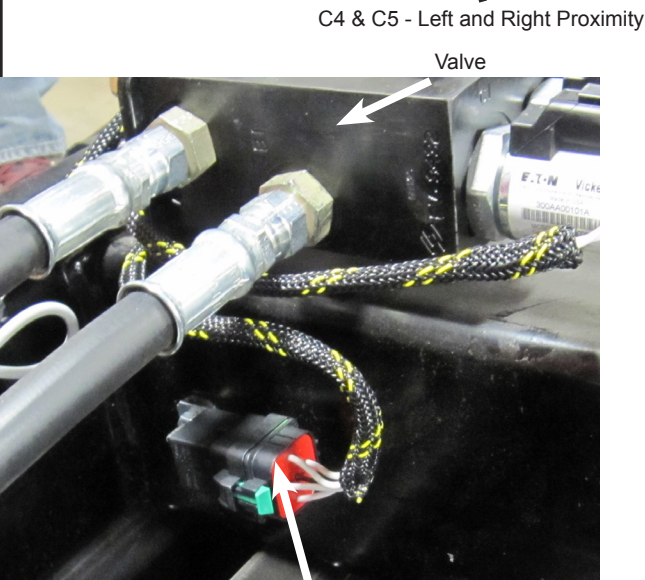
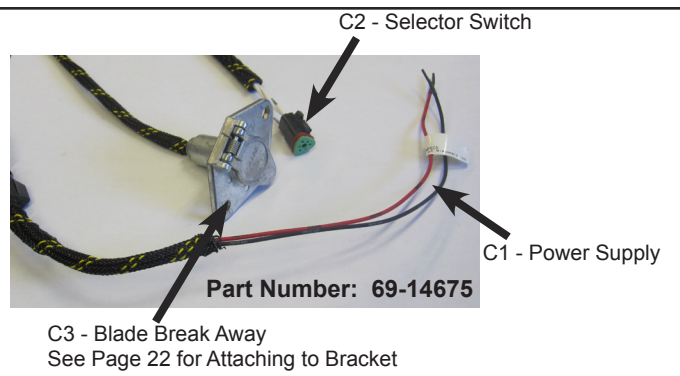
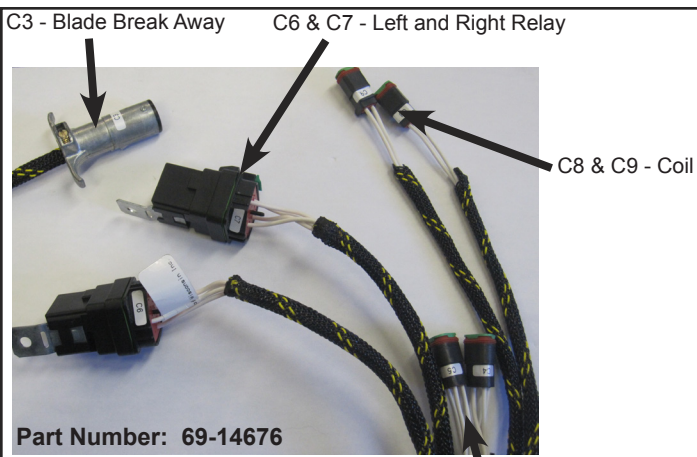


NANT Blade Assembly & End Plate Assembly

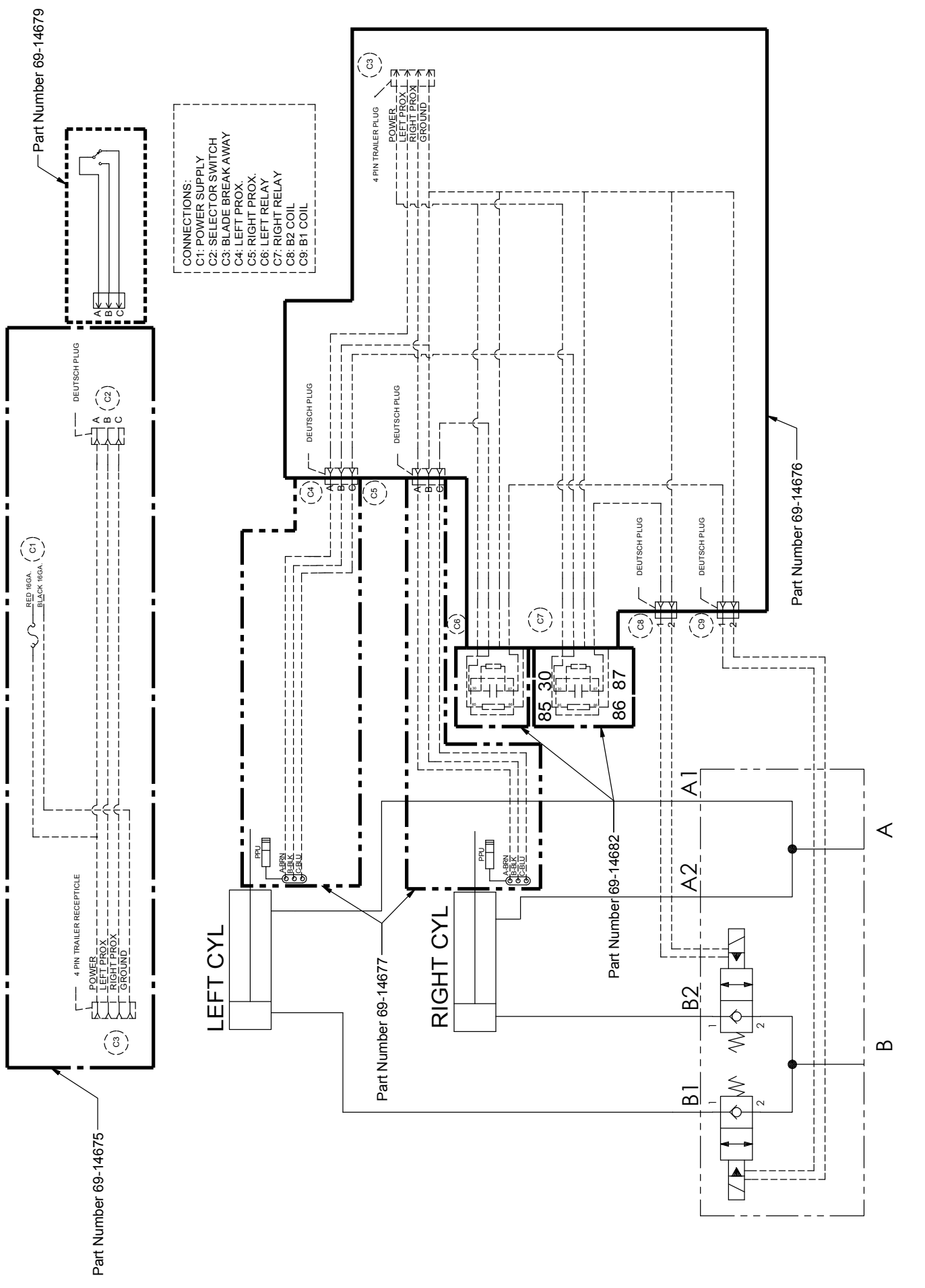
Item No.	Qty.	Part No.	Description
1	1	15-17590	NANT - Blade Weld 12-20 Slider (V6)
2	18	16-20542	7/8" X 3" Hex Bolt Gr 5 NC
3*	2	44-16470	Box End Plate 12-20 Slider
4	2	44-16480	Silage Box End Plate 12-20 Slider
5	18	57-20758	7/8" SAE Hardened Flat Washer - 1-3/4" OD
6	18	70-20598	7/8" Hex Nut Gr 8 NC

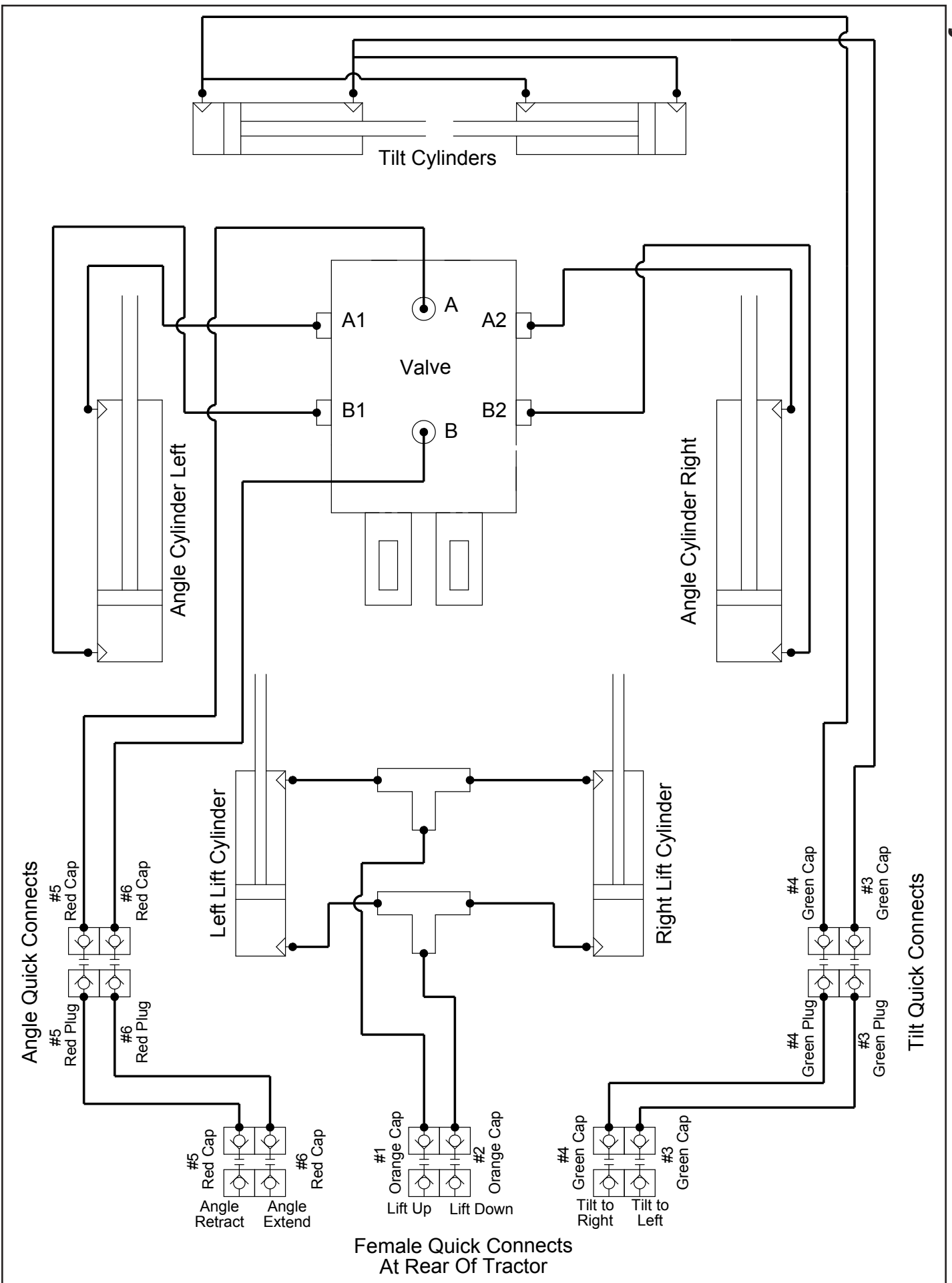
* Parts Not Shown





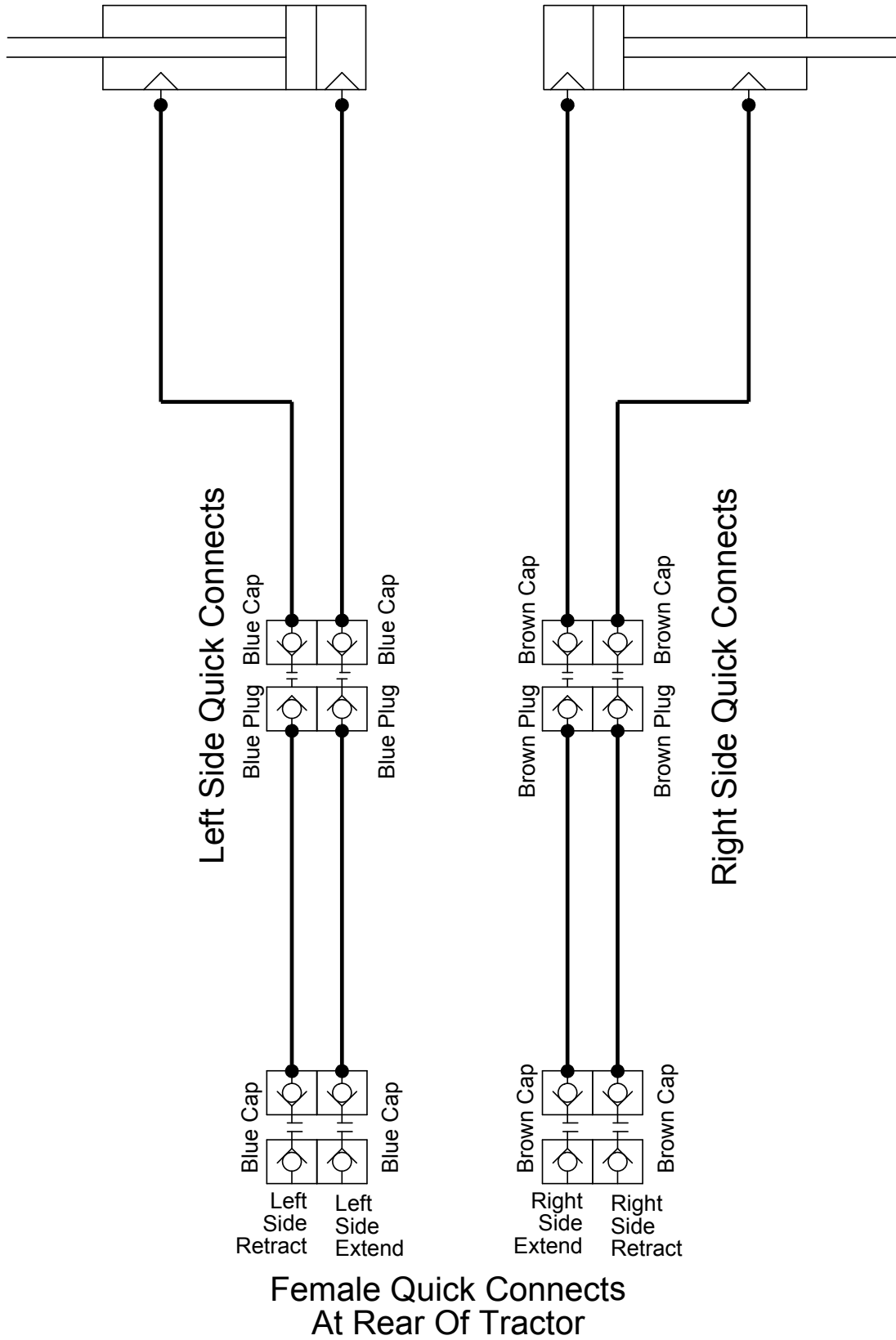
Angle Wire Harness





Female Quick Connects At Rear Of Tractor

12-20 Blade Cylinders

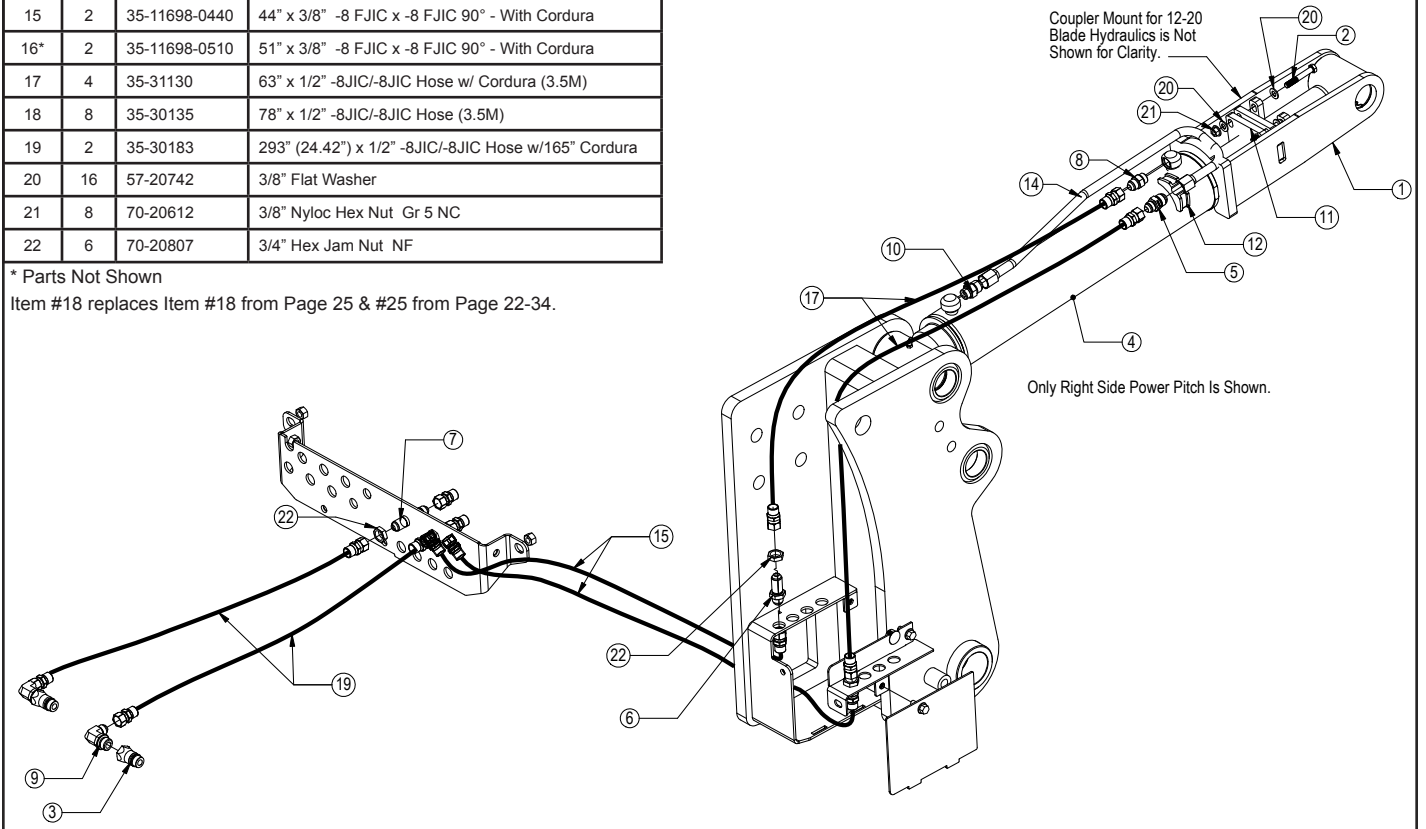


Item No.	Qty.	Part No.	Description
1	2	11-12440	Power Pitch Stop Arm Weld
2	8	16-20070	3/8" x 2-1/2" Hex Bolt Gr 5 NC
3	2	25-34342	Tappet Quick Coupler Male - Poppet Style
4	2	26-34738	4 x 20 Long Cylinder Bushed Tubed Ends
5	2	31-11699-10-8	JIC Union (2403-10-8)
6	4	31-34000	Bulkhead Union JIC (2700-8-8)
7	2	31-34030	Bulkhead Run Tee JIC (2704-8-8-8)
8	2	31-34040	Straight JIC x O-Ring (6400-08-08)
9	2	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-08-10)
10	2	31-6400-10-08	Straight JIC x O-Ring (6400-10-8)
11	4	34-12436	Power Pitch Soft Support
12	2	34-12932	Cylinder Saddle
13*	3	34-12994	Hose Clamp
14	2	35-12931	-10 Formed Steel Line (Lift Cylinder)
15	2	35-11698-0440	44" x 3/8" -8 FJIC x -8 FJIC 90° - With Cordura
16*	2	35-11698-0510	51" x 3/8" -8 FJIC x -8 FJIC 90° - With Cordura
17	4	35-31130	63" x 1/2" -8JIC/-8JIC Hose w/ Cordura (3.5M)
18	8	35-30135	78" x 1/2" -8JIC/-8JIC Hose (3.5M)
19	2	35-30183	293" (24.42") x 1/2" -8JIC/-8JIC Hose w/165" Cordura
20	16	57-20742	3/8" Flat Washer
21	8	70-20612	3/8" Nyloc Hex Nut Gr 5 NC
22	6	70-20807	3/4" Hex Jam Nut NF

* Parts Not Shown

Item #18 replaces Item #18 from Page 25 & #25 from Page 22-34.

Hoses Not Drawn To Scale



Contact Us

As always, if you have any questions about your 12-20 Dozer or other products made by Grouser, feel free to contact us.

Grouser Products

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Improvements

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

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.

