



4500 - STX Quad HAHT- Joystick

Owner's Manual
&
Parts Book

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 6500 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.

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 3.
- 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 pages 9 or 12 for your specific system.
- Check skid shoes for wear and replace if necessary. For adjustment, see page 4.
- Inspect all tilt-ways for aggressive wear. See page 4 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 4500 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 or a Grouser dealer.

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.

Torque Specifications

All bolts should be tightened to specifications set by the manufacturer or previously stated amounts. If neither of these can be found the following torque chart should be used.

Size	Torque (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 (ft-lbs)	
	Grade 8.8	Grade 10.9
M18 x 2.50	202	284
M20 x 2.50	286	401
M22 x 2.50	388	547
M24 x 3.00	493	694

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.

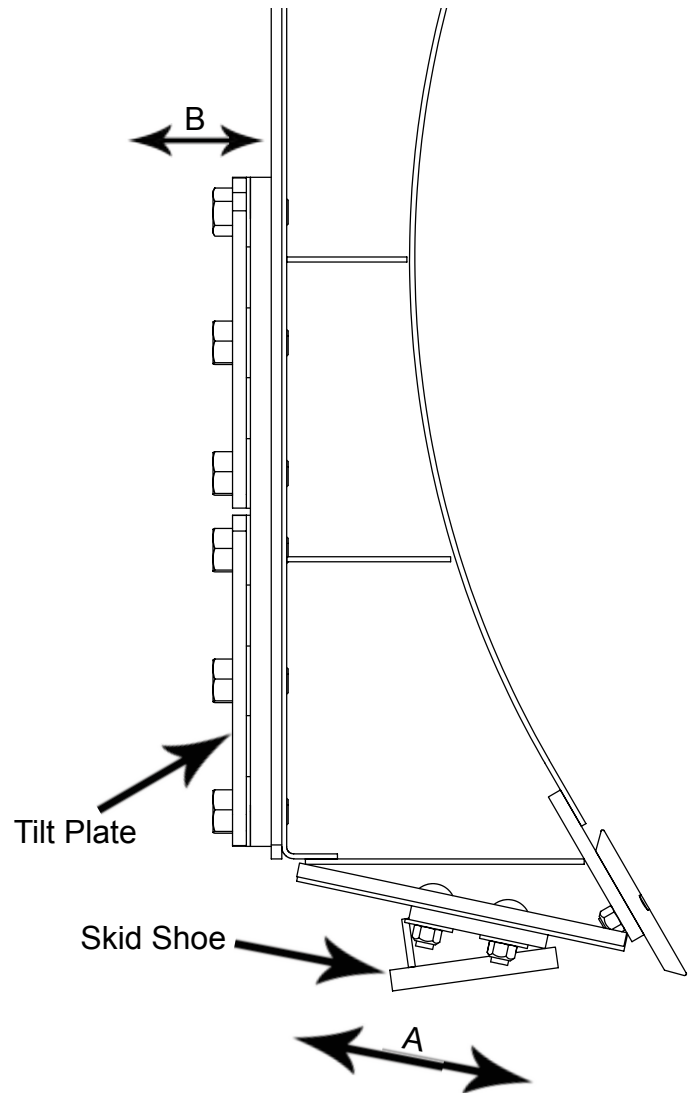


Figure 1

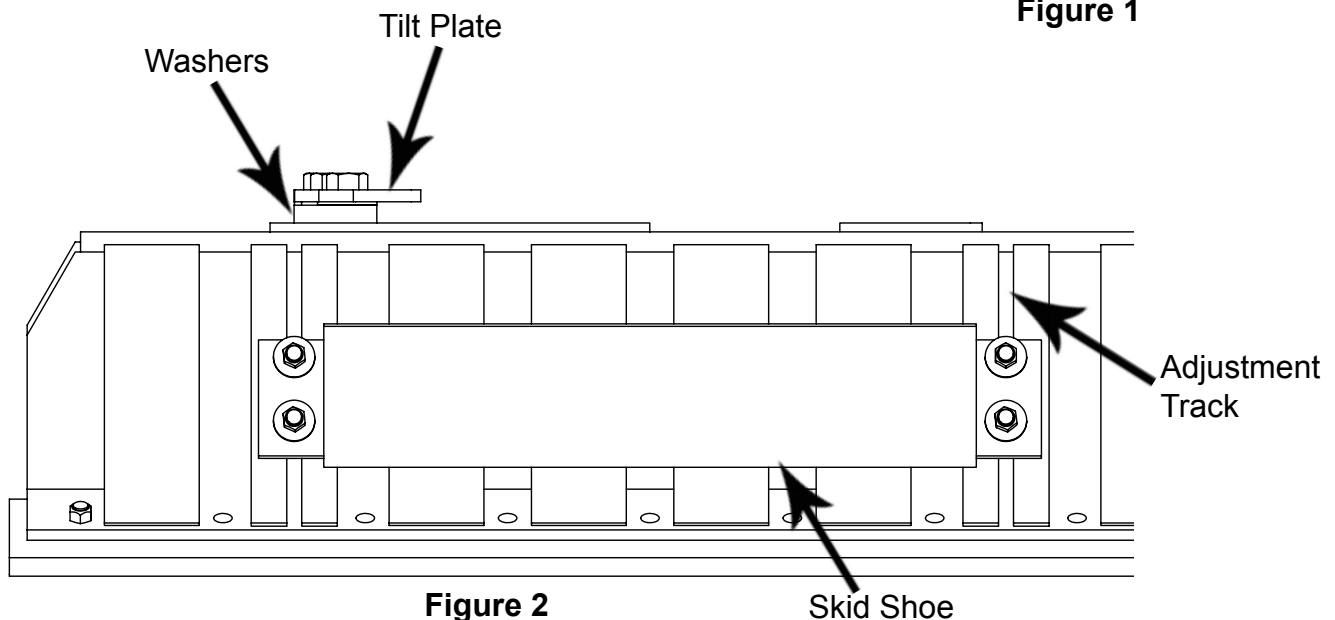
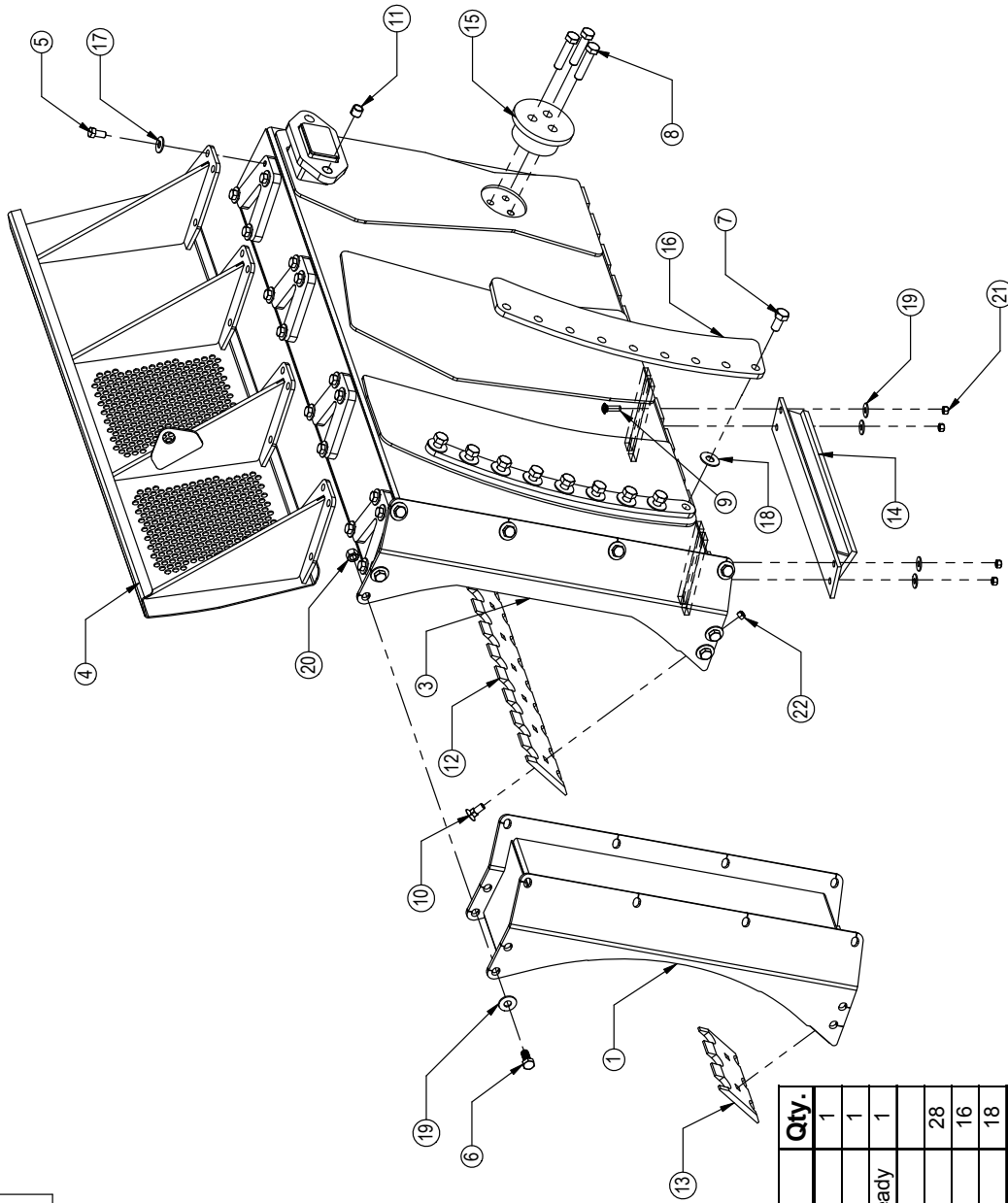


Figure 2

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Blade Assemblies



Item No.	Part No.	Description	Qty.
1	15-9332	1' End Extension - Left	1
2	15-9333	1' End Extension - Right	1
3	15-12412-12	4500 12' Blade Combo Ends - Top Ext. Ready	1
4	15-13420-12	12' x 18" Bolt On Top Extension	1
5	16-20216	3/4" x 1-1/2" Hex Bolt Gr 5 NC	28
6	16-20538	7/8" x 2" Hex Bolt Gr 8 NC	16
7	16-20562	1" x 3" Hex Bolt Gr 8 NC	18
8	16-20568	1" x 5" Hex Bolt Gr 8 NC	3
9	16-21188	5/8" x 2" Carriage Bolt Gr 5 NC	8
10	16-21748	3/4" x 2" Plow Bolt Gr 8 NC	28
11	19-7774	1" x 1" Spring Bushing	2
12	29-11223-6	6' - 3/4" x 8" Serrated Cutting Edge	2
13	29-11223-1	1' - 3/4" x 8" Serrated Cutting Edge	2
14	50-8725	Skid Shoe 33"	2
15	52-12380	4500 Center Tilt Way Cover	1
16	52-13466	4500 Tilt Plate Covers	2
17	57-20747	3/4" Flat Washer	28
18	57-20749	1" Flat Washer	18
19	57-20816	5/8" Flat Washer Grade 8 (USS)	24
20	70-20598	7/8" Hex Nut Gr 8 NC	16
21	70-20646	5/8" Hex Top Lock Nut Gr 5 NC	8
22	70-20647	3/4" Hex Top Lock Nut Gr 5 NC	28



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Phone 701.282.7710
Fax 701.282.8131

TITLE:

Blade Assembly

Date:

8-12-2010

Hydraulic Angle System Operating Instructions

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.

The diverter valve has a built-in safety relief valve that allows the cylinder to retract if its internal pressure exceeds 2,000 psi. 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. Refer to the Relief Valve Instructions below for possible adjustments.

Relief Valve Instructions

Reduce tractor valve pressure: Certain newer model tractors allow the service valve to be adjusted below the 2,000 psi point of the safety relief valve.

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.

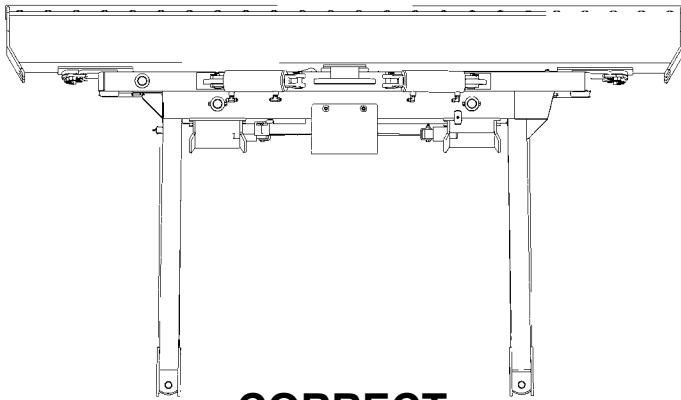
Automatic lever release: In certain newer model tractors, the hydraulic control lever will automatically release and instantly stop oil flow once the end of the stroke is reached.

(Continued on next page)

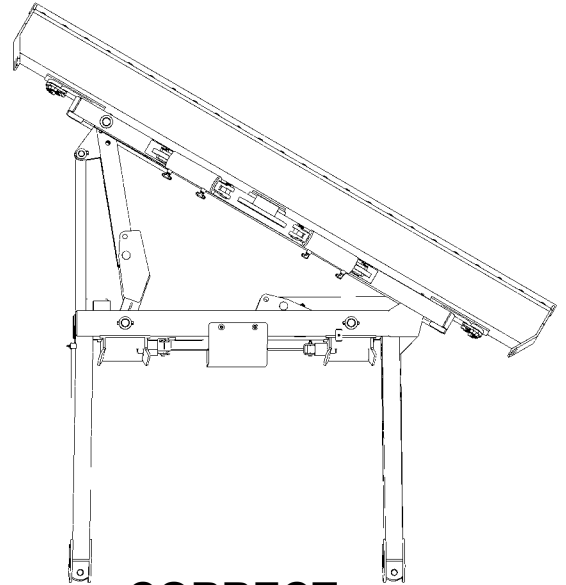
CAUTION: Do not bypass the safety relief valve and plumb each cylinder to separate valves on the tractor.

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.

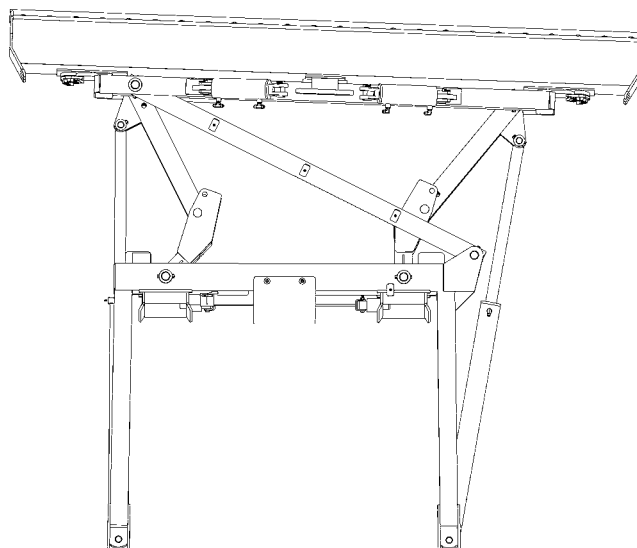
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CORRECT



CORRECT
(Left or Right)



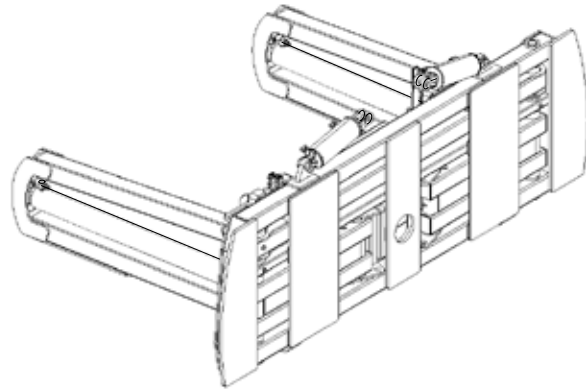
INCORRECT

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Hydraulic Angle - Hydraulic Tilt

To avoid frame damage, please read Hydraulic Angle System Operating Instructions (pages 6-7) before use!

Item No.	Qty.	Part No.	Description
1	1	11-12394	4500HD Stabilizer Arm
2	1	11-8082	Angle Arm Right
3	1	11-9039	Angle Arm Left
4	4	16-20036	5/16" x 1-1/2" Hex Bolt Gr 5 NC
5	1	16-20043	5/16" x 3-1/4" Hex Bolt Gr 5 NC
6	4	16-20132	1/2" x 3" Hex Bolt Gr 5 NC Zinc
7	2	16-20424	1/2" x 3-1/2" Hex Bolt Gr 8 NC
8	3	16-20427	1/2" x 4-1/2" Hex Bolt Gr 8 NC
9	4	16-35C612	3/8" - 16 x 3/4" Flanged Bolt (Yellow Zinc)
10	5.5	18-3074	Hose Hold Down Clamp
11	6	18-3075	Hose Hold Down Clamp Plate
12	4	19-13577	NR Pin Spacer Clevis End
13	2	19-7774	1"x1" Spring Bushing (125100100)
14	2	26-34711	4x8 Cylinder w/ Cast Clevis Ends
15	2	26-34725	4x43.5 Cylinder Tube Ends (Top Port)
16	1	32-12393	4500HD Angle Frame
17	1	32-12430	4500HD HAHT Tilt Frame
18	4	43-13580	1" Clevis Bolt In Pin
19	1	43-8130	1-15/16" x 23-1/4" Pin (Tilt Frame / Angle Arm Right)
20	2	43-8131	1-15/16" x 31" Pin (Angle Frame / Angle Arm)
21	1	43-8132	1-15/16" x 35-1/2" Pin (Tilt Frame / Angle Arm Left)
22	1	43-8133	1-15/16" x 7-1/8" Stabilizer Arm Pin
23	2	43-8134	1-1/2" x 8" Angle Cylinder Pin Base End
24	2	43-9352	1-1/2" x 7-1/2" Angle Cylinder Pin
25	2	58-9373	Grease Zerk 1/8" NPT 65°
26	6	58-9372	Grease Zerk 1/8" NPT 90°
27*	1	69-11125	52" 4X00 - 5X00 - 6X00 Wire Harness Assy Valve to Disconnect
28*	1	69-1531	Wire Harness 4X00, 5X00, 6X00 Large Dozer Assy.
29	1	70-20581	5/16" Hex Nut Gr 5 NC
30	9	70-20604	1/2" Hex Center Lock Nut Gr 5 NC

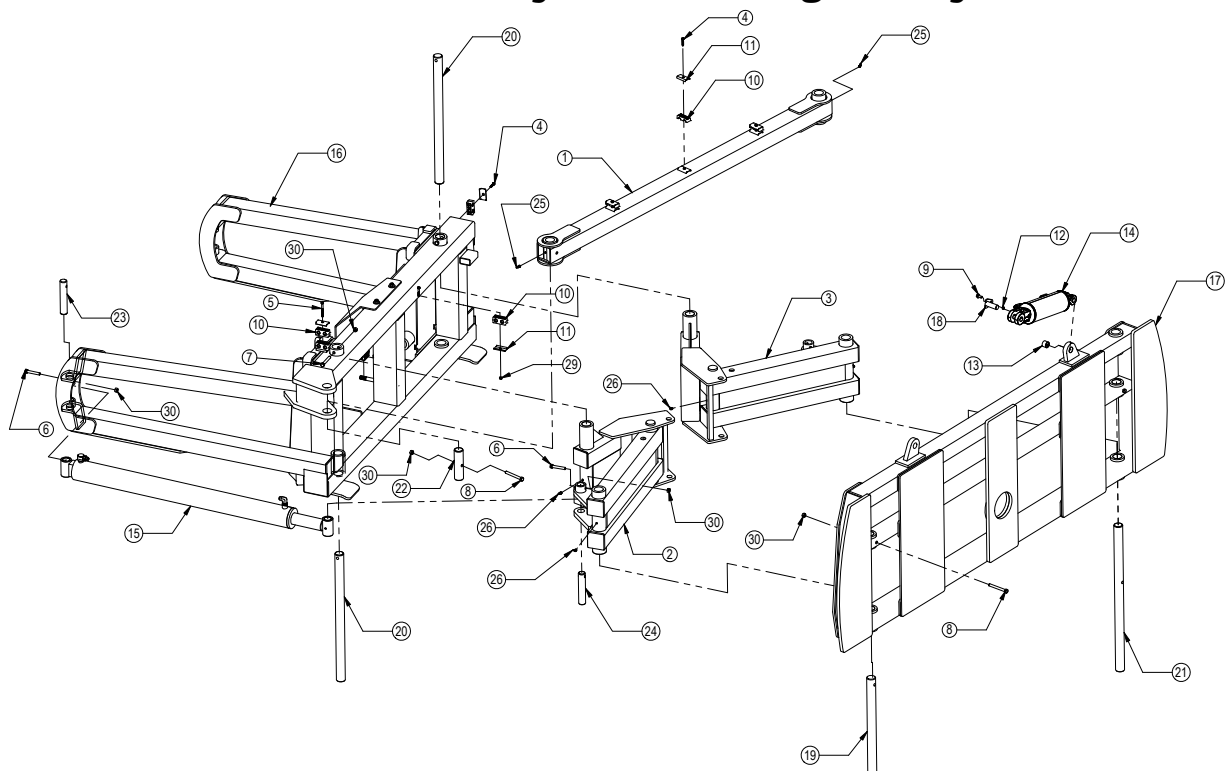



Refer to Page 9-10 for hydraulic components and hoses.
 Refer to Page 10 for Quick Attach Lever System Assembly.
 * Parts not shown.

	GROUSER PRODUCTS INC. 755 2nd Ave NW Phone 701.282.7710 West Fargo, ND 58078 Fax 701.282.8131 WWW.GROUSER.COM	
	TITLE: Hydraulic Angle - Hydraulic Tilt	Date: 8-12-2010

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Hydraulic Angle - Hydraulic Tilt

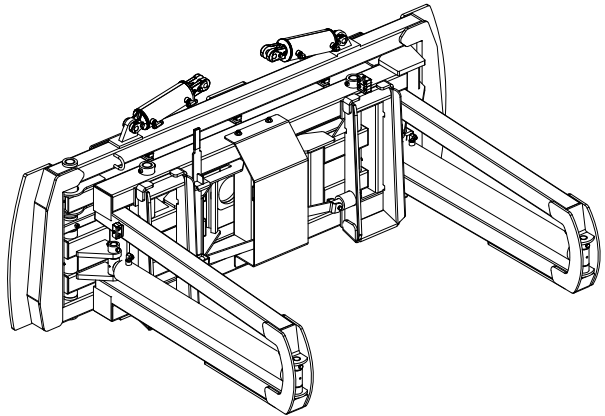


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Hydraulic Angle and Tilt Hose Routing

Item No.	Qty.	Part No.	Description
1	4	16-20036	5/16" X 1 1/2 " Hex Bolt Gr 5 NC
2	1	16-20043	5/16" X 3 1/4 " Hex Bolt Gr 5 NC
3	3	16-20125	1/2" X 1 1/4" Hex Bolt Gr 5 NC
4	2	16-20220	3/4" X 2 1/2" Hex Bolt Gr 5 NC
5	2	16-35C816	3/8" -16 X 1" Flanged Bolt
6	1	18-10248	2-1/2" Tube Clamp Assembly
7	1	18-12442	Bracket, Female Coupler Mount
8	1	18-12653	4500HD Bulkhead Union Bolt On Plate
9	5.5	18-3074	Hose Hold Down Clamp
10	6	18-3075	Hose Hold Down Clamp Plate
11	4	25-34321	Tappet Quick Coupler Female (8250-16)
12	8	25-34322	Tappet Quick Coupler Male (8010-16)
13*	4	25-3453	Pioneer Dust Cap Tilt (Green)
14*	2	25-3454	Pioneer Dust Plug Tilt (Green)
15*	4	25-3455	Pioneer Dust Cap Angle (Red)
16*	2	25-3456	Pioneer Dust Plug Angle (Red)
17	2	26-34711	4x8 Cylinder w/ Cast Clevis Ends
18	2	26-34725	4x43 5 Cylinder w/ tube ends (Top Port)
19	4	31-34000	Bulkhead Union JIC (2700-8-8)
20	1	31-34020	Bulkhead Branch Tee JIC (2703-8-8-8)
21	3	31-34040	Straight JIC x O-Ring (6400-8-8)
22	6	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)
23	12	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-08-10)
24	2	31-34060	Branch Tee JIC x O-Ring (6803-8-8-8)
25	1	31-34100	Swivel Nut Elbow 90° JIC (6500-8-8)
26	2	35-12211-0390	39" x 3/8" -8JIC/-8JIC Cold Temp Hose
27	1	35-12216-0540	54" x 1/2" -8JIC/-8JIC Cold Temp Hose
28	1	35-12216-0600	60" x 1/2" -8JIC/-8JIC Cold Temp Hose
29	2	35-12216-0660	66" x 1/2" -8JIC/-8JIC Cold Temp Hose
30	2	35-12216-1080	108" x 1/2" -8JIC/-8JIC Cold Temp Hose
31	4	35-12216-1100	110" x 1/2" -8JIC/-8JIC Cold Temp Hose
32	1	35-12216-1700	170" x 1/2" -8JIC/-8JIC Cold Temp Hose
33	1	35-12216-1820	182" x 1/2" -8JIC/-8JIC Cold Temp Hose
34	4	35-12216-2880	288" x 1/2" -8JIC/-8JIC Cold Temp Hose
35	1	44-12441	Plate, Female Coupler Retainer
36	1	56-1810	Hydraulic Valve
37	2	57-20742	3/8" Flat Washer
38	6	57-20744	1/2" Flat Washer
39	2	57-20747	3/4" Flat Washer
40	1	70-20581	5/16" Hex Nut NC
41	3	70-20584	1/2" Hex Nut NC
42	2	70-20607	3/4" Hex Center Lock Nut NC
43	6	70-20622	3/8" Flange Hex Nut NC
44	5	70-20807	3/4" Hex Jam Nut NF



* Parts Not Shown.

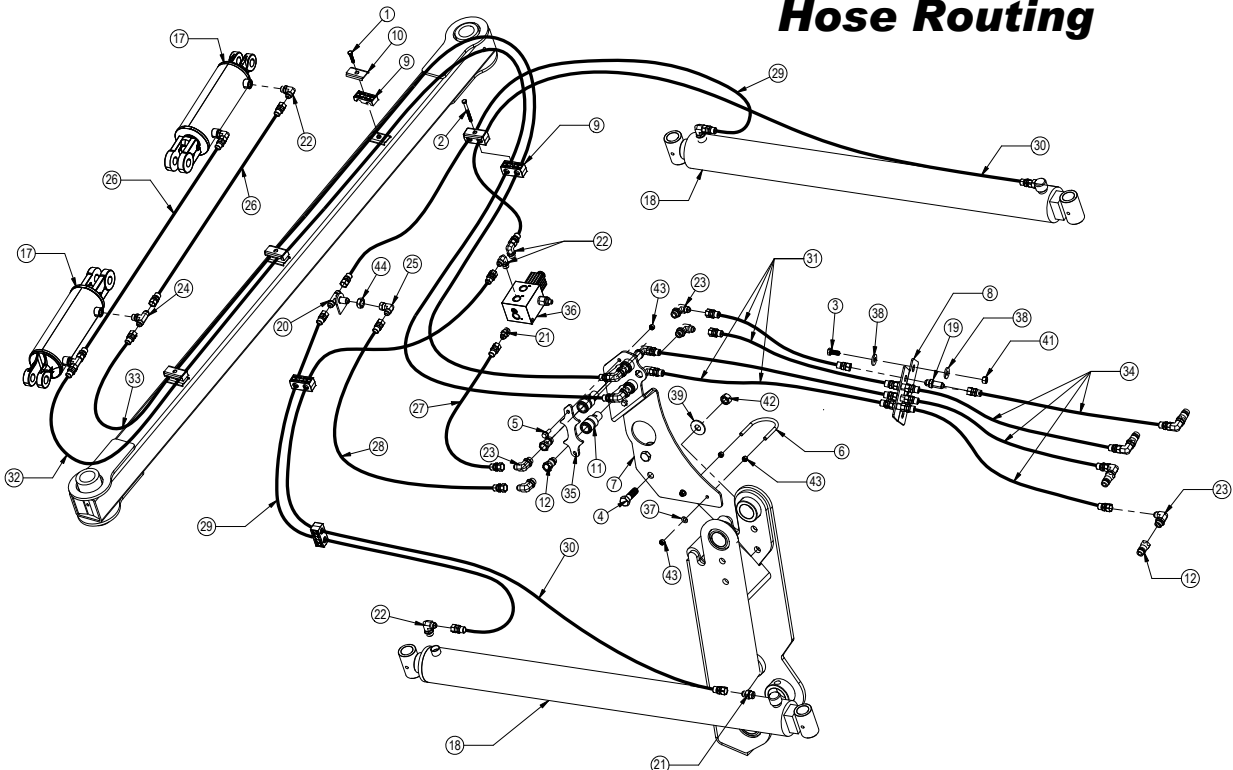
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 Hose Routing

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Hydraulic Angle and Tilt Hose Routing



Note: Hoses are not drawn to scale.

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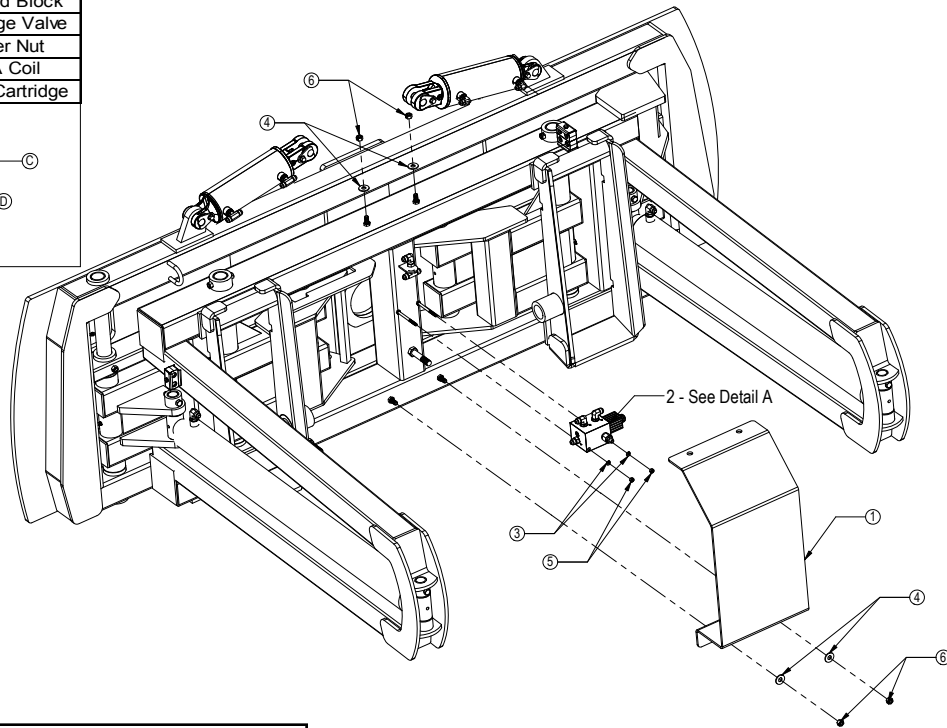
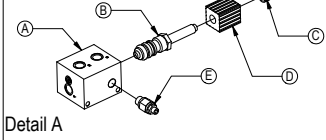
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Angle Hydraulic Components

Item No.	Qty.	Part No.	Description
A	1	56-3705	Manifold Block
B	1	51-3356	Cartridge Valve
C	1	70-3357	Retainer Nut
D	1	68-3487	12V 3A Coil
E	1	51-3706	Relief Cartridge



Item No.	Qty.	Part No.	Description
1	1	18-1701	Hydraulic Valve Cover
2	1	56-1810	Hydraulic Valve
3	2	57-20761	5/16" Lock Washer
4	4	57-20744	1/2" Flat Washer
5	2	70-20581	5/16" Hex Nut Gr 5 NC
6	4	70-20604	1/2" Hex Center Lock Nut Gr 5 NC



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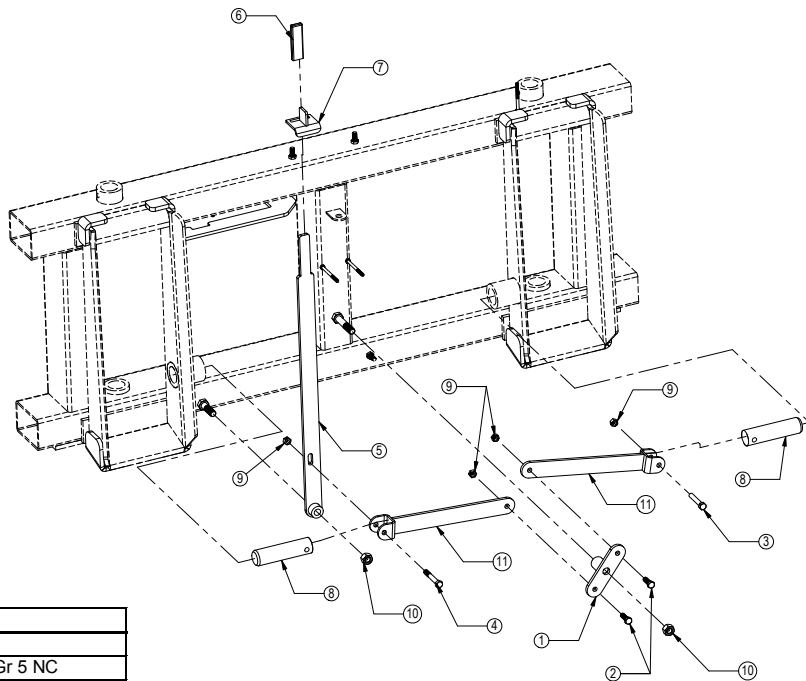
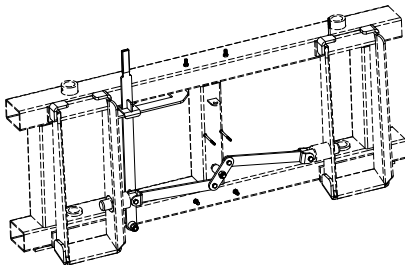
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Angle Hydraulic Components

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Quick Attach Lever System



Item No.	Qty.	Part No.	Description
1	1	11-3049	Bell Crank Weld
2	2	16-20126	1/2" x 1-1/2" Hex Bolt Gr 5 NC
3	1	16-20132	1/2" x 3" Hex Bolt Gr 5 NC
4	1	16-20134	1/2" x 3-1/2" Hex Bolt Gr 5 NC
5	1	39-3056	Handle Weld
6	1	39-3072	Handle Cover
7	1	39-3223	Latch Weld
8	2	43-3050	Lock Pin
9	4	70-20604	1/2" Hex Center Lock Nut Gr 5 NC
10	2	70-20607	3/4" Hex Center Lock Nut Gr 5 NC
11	2	73-3053	Link Weld



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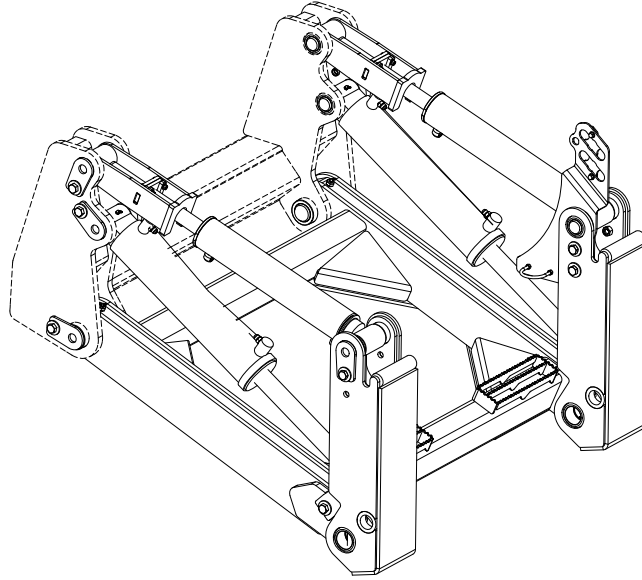
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Quick Attach Lever System

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Lift System

Item No.	Qty.	Part No.	Description
1	2	11-12440	Power Pitch Stop Arm Weld
2	4	16-1795	Lift Frame Grease Bolt
3	8	16-20068	3/8" x 2-1/2" Hex Bolt Gr 5 NC
4	8	16-20216	3/4" x 1-1/2" Hex Bolt Gr 5 NC
5	2	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	26-5200	5x20 Cylinder w/ tube ends
10	2	26-34738	4x20 Cylinder w/ Bushed Ends
11	1	32-12420	4500 Lift Frame - Boxed Design
12	4	34-12436	Power Pitch Soft Support
13	1	43-12929-L	Pin Weld (Lift Cyl. / Lift Frame) - Left
14	1	43-12929-R	Pin Weld (Lift Cyl. / Lift Frame) - Right
15	2	43-13477	QA Bottom Pin
16	2	43-13478	Pin Weld (Top Arm / QA)
17	4	43-13482	Pin Weld (Top Arm / UC) & (Lift Cyl. / UC)
18	2	43-13517	Pin Weld (Lift Frame / UC)
19	2	45-12175	4500 QA Male Assy.
20	16	57-20742	3/8" Flat Washer
21	10	57-20747	3/4" Flat Washer
22	6	58-9369	Grease Zerk 1/8" NPT Straight
23	2	58-9371	Grease Zerk 1/8" NPT 45°
24	8	70-20602	3/8" Hex Center Lock Nut
25	4	70-20607	3/4" Hex Center Lock Nut



Refer to Page 9 for hydraulic components and hoses.



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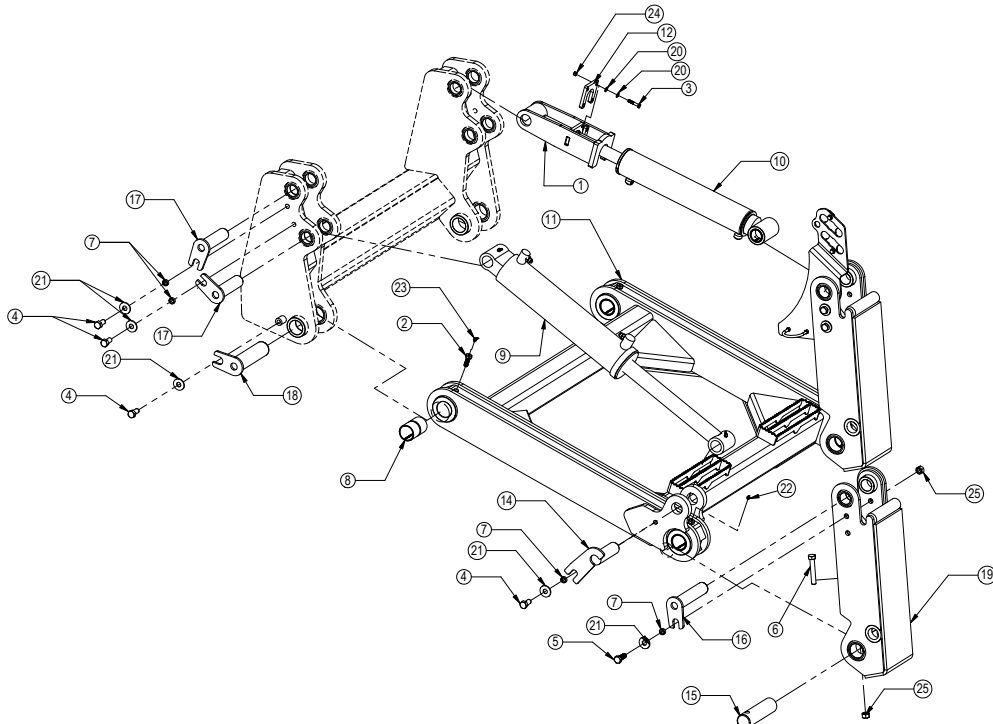
Lift System

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Lift System



Note: Some parts are not shown.



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Lift System

Date:

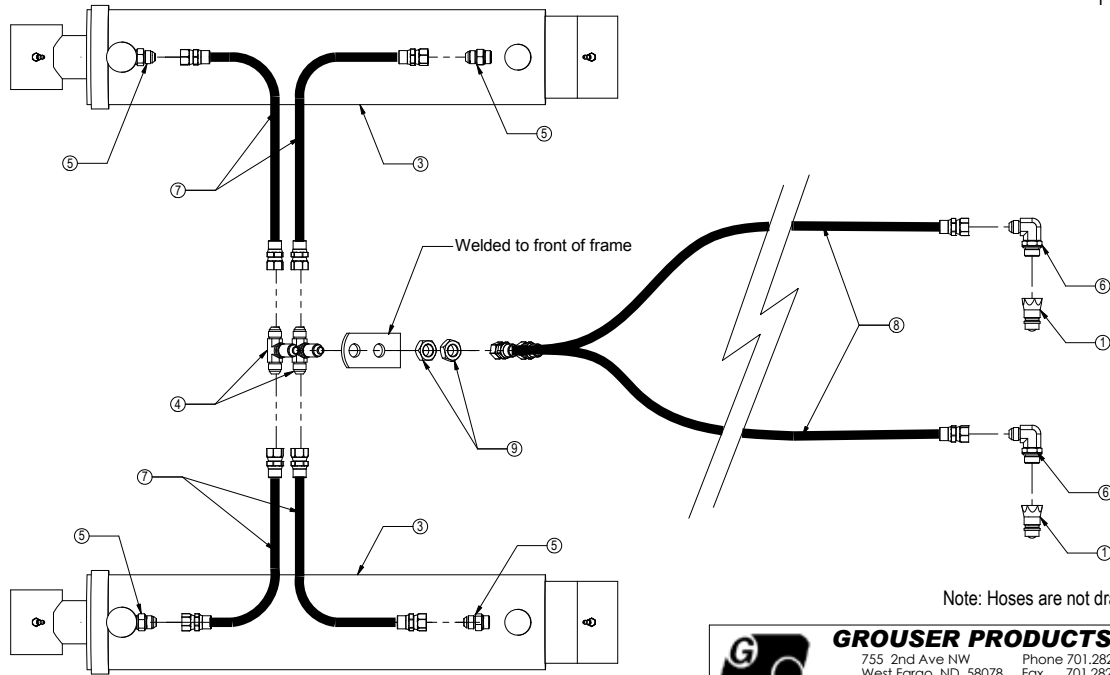
8/22/2010

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Lift System Hydraulic Components

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	25-34322	Tappet Quick Coupler Male (8010-16)
2*	2	25-3457	Pioneer Dust Cap Lift (Orange)
3	2	26-5200	5x20 Cylinder w/ tube ends
4	2	31-34021	Bulkhead Branch Tee JIC (2703-10-10-10)
5	4	31-34042	Straight JIC x O-Ring (6400-10-10)
6	2	31-34052	Straight Thread Elbow 90° JIC x O-Ring (6801-10-10)
7	4	35-12213-0750	75" x 5/8" -10JIC/-10JIC Hose Cold Temp
8	2	35-12213-2880	288" x 5/8" -10JIC/-10JIC Hose Cold Temp
9	2	70-20808	7/8" Hex Jam Nut NF

* Part Not Shown.



Note: Hoses are not drawn to scale.



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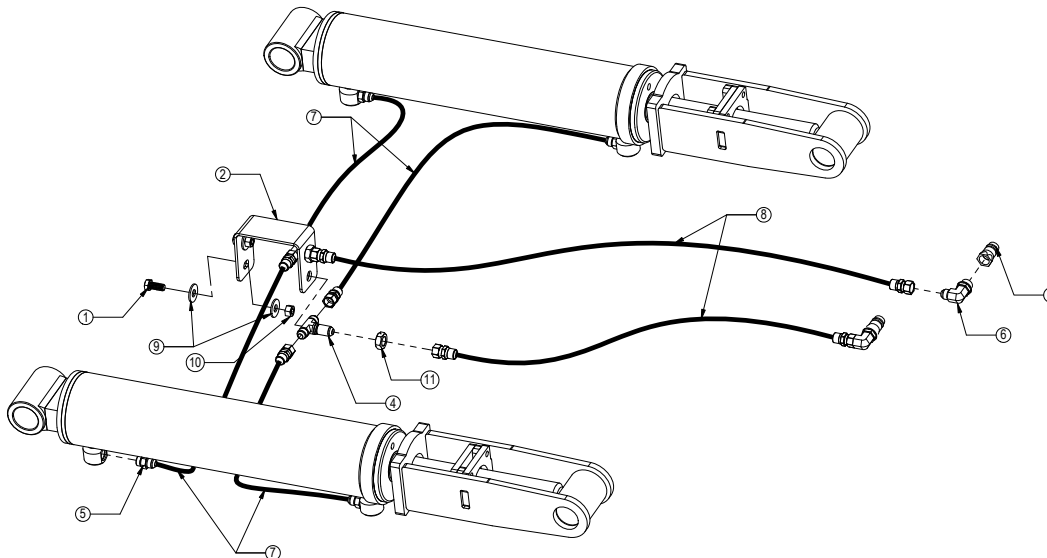
755 2nd Ave NW Phone 701.282.7710
West Fargo, ND 58078 Fax 701.282.8131
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TITLE: Lift System Hydraulic Components

Date: 10-19-2009

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Power Pitch Hydraulics



Item No.	Qty.	Part No.	Description
1	2	16-20126	1/2" x 1-1/2" Hex Bolt Gr 5 NC
2	1	18-12625	Power Pitch Bulkhead Tee Bracket
3	2	25-34322	Tappet Quick Coupler Male
4	2	31-34020	Bulkhead Branch Tee JIC (2703-8-8-8)
5	4	31-34040	Straight JIC x O-Ring (6400-8-8)
6	2	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-08-10)
7	4	35-12216-1180	118" x 1/2" -8JIC/-8JIC Cold Temp Hose
8	2	35-12216-2880	288" x 1/2" -8JIC/-8JIC Cold Temp Hose
9	4	57-20744	1/2" Flat Washer
10	2	70-20584	1/2" Hex Nut
11	2	70-20807	3/4" Hex Jam Nut NF



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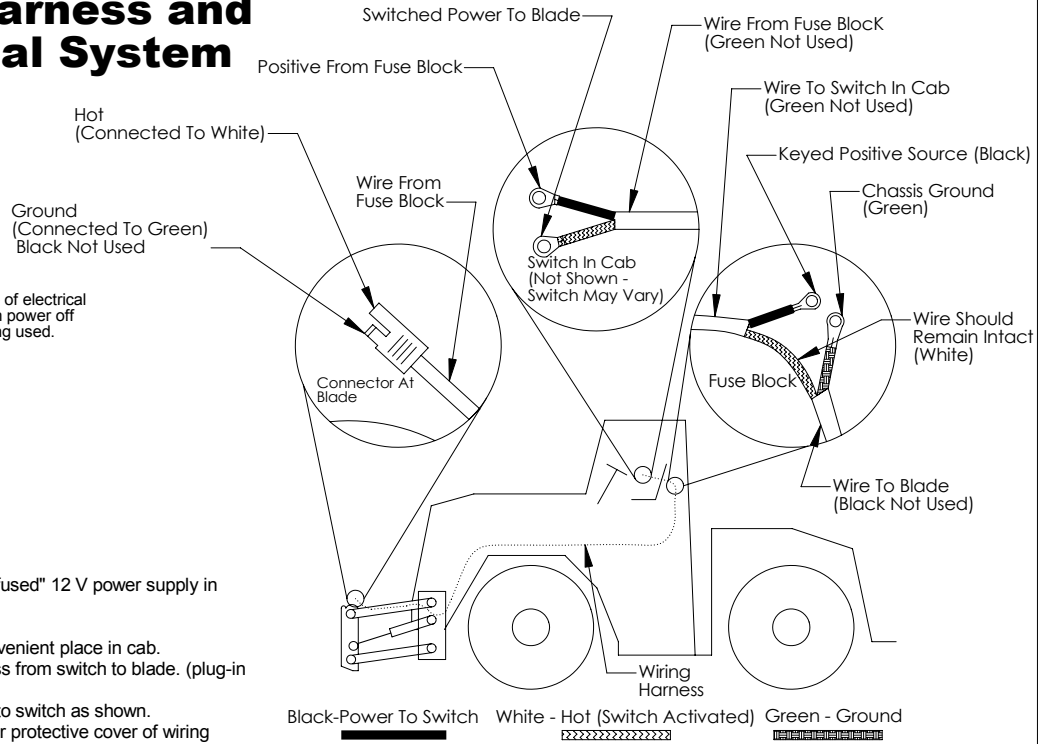
TITLE: Power Pitch Hydraulics

Date: 8/22/2010

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Wiring Harness and Electrical System

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



Instructions

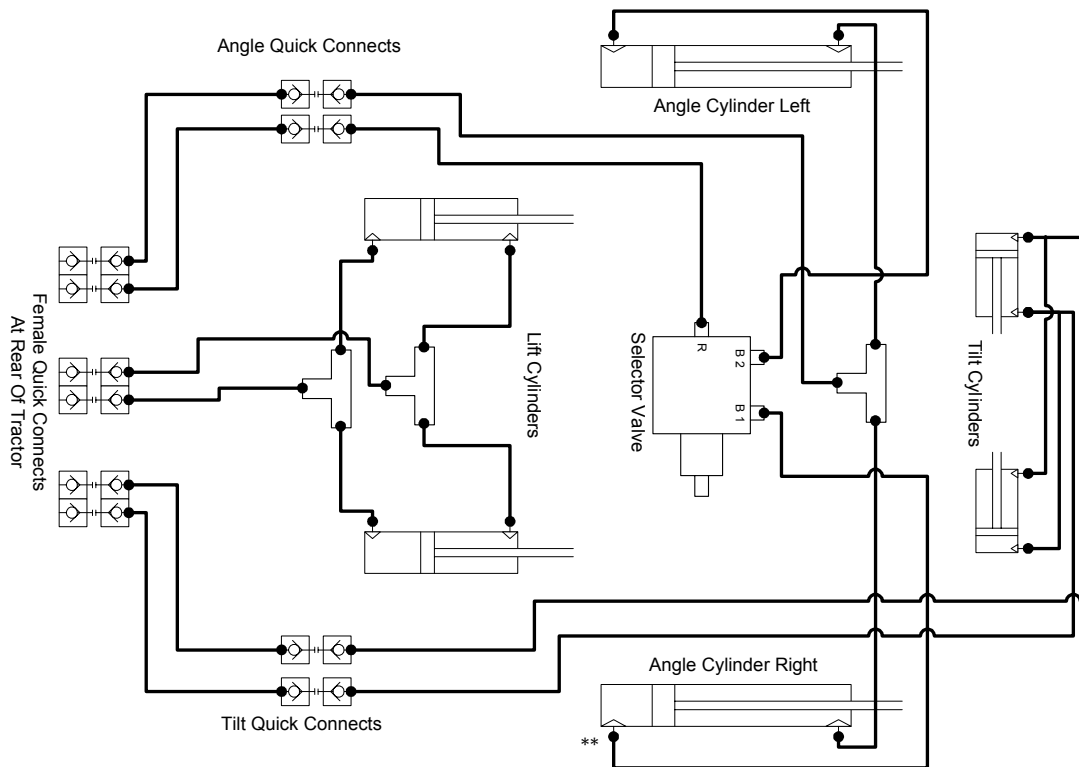
1. Locate "keyed and fused" 12 V power supply in cab of tractor.
2. Disconnect battery.
3. Install switch in convenient place in cab.
4. Route wiring harness from switch to blade. (plug-in connector at blade)
5. Connect wire ends to switch as shown.
6. Remove 12" of outer protective cover of wiring harness where it passes by the 12 V power supply.
7. Separate and cut Black wire. Connect switch side of wire to 12 V supply.
8. Separate and cut Green wire. Connect blade side of wire to chassis ground.
9. White wire remains intact.

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TITLE: Wiring Harness and Electrical System Date: 6-22-2006

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Hydraulic Schematic



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** Denotes location of gauge for adjustment of relief valve.

TITLE: Hydraulic Schematic Date: 7-28-2006

4500 Case STX Quad 375-500 Cast Yoke With Hubs

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.
1. Read all instructions prior to installation.
 2. Remove existing toolboxes and tow cable holder if equipped.
 3. Remove the 2 - 24mm bolts and spacers from the front axle on the left and right side of the tractor. Discard the spacers.
 4. Install the yoke brackets (PN: 18-5170-R,L) (see attached diagram for correct orientation). Dip the previously removed 24mm bolts in W30 oil and install with a heavy flat washer (PN: 57-20819) on each bolt and tighten finger tight.
 5. Insert 8 - 20mm x 90mm bolts (PN: 16-1510) with a 0.91" ID heavy washer (PN: 57-11659) on each of the bolts into the front vertical slots at the front of the U/C. See attached diagram for clarification.

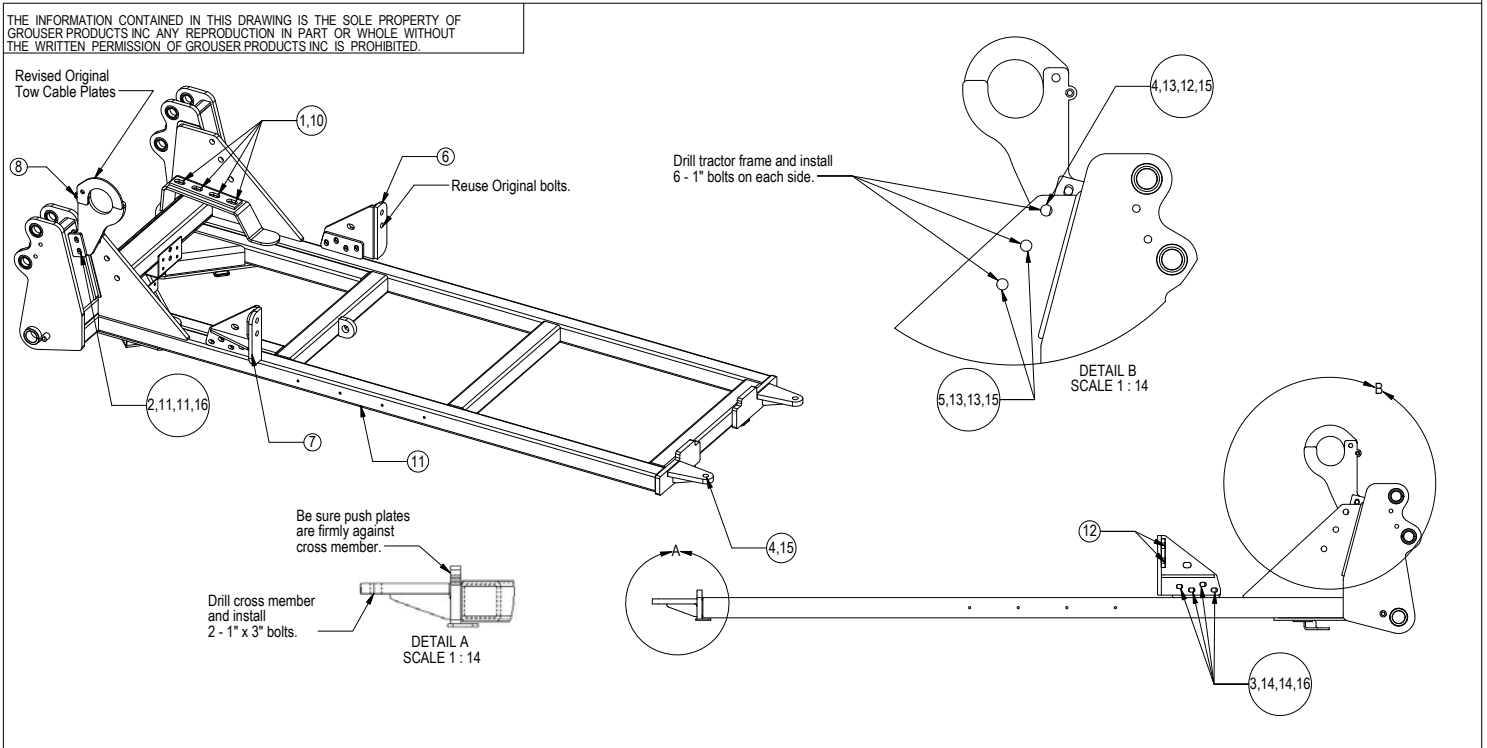
Caution: When lifting the undercarriage, be aware of the 20mm x 90mm bolts so that you do not damage the threads.

6. Position the undercarriage under tractor and center on the frame of the tractor. Lift U/C to within 3/4" of touching the tractor frame.
7. Push the U/C back until the vertical push plates are firmly against the cross member. Clamp the rear mounting ears to the cross member to prevent movement of the U/C.
8. Insert the 20mm x 90mm bolts (PN: 16-1510) with washers from Step #5 into the tractor frame. Tighten until frame is tight vertically.
9. Verify that the rear mounting ears and the vertical push plates are still tight against the cross member and that the yoke bracket holes line up with the U/C holes.
10. Using the two holes in the ears as guides, drill 2 - 1" holes through the cross member and install 2 - 1" x 3" bolts (PN: 16-20562) with a 1" nut (PN: 70-20599) on each bolt. Tighten finger tight.
11. Attach each yoke bracket to the U/C with 4 - 3/4" x 3" bolts (PN: 16-20222), 8 - 3/4" ID heavy washers (PN: 57-3680), and 4 - 3/4" nuts (PN: 70-20607) in the bottom 4 holes.
12. Verify that the undercarriage is tight against the tractor frame and will not move when drilling holes in the following step.
13. Using the U/C as a guide, drill the 6 - 1" holes through the side of the tractor frame.

Caution: When drilling, be aware of all parts behind the material being drilled so that you do not mistakenly hit or puncture components on engine side of tractor frame.

14. Install 2 - 1" x 3" Bolts (PN: 16-20562) with a 1" ID heavy washer (PN: 57-3682) on each bolt in the top two holes.
15. Install 4 - 1" x 3-3/4" bolts (PN: 16-20565) with a 1" ID heavy washer (PN: 57-3682) on each bolt in the bottom four holes. See attached diagram for clarification.
16. After all 6 bolts are through the tractor frame, attach with a 1" flat washer (PN: 57-20819) on the top two holes, a 1" heavy washer (PN: 57-3682) on the bottom four holes, and a 1" nut (PN: 70-20599) on each bolt. See attached diagram for clarification.
17. Once all bolts have been installed, torque the two rear ear 1" bolts to 903 ft.·lbs.

18. Torque the 4 - 24mm bolts to 555 ft·lbs. and the 8 - 3/4" yoke bracket bolts to 257 ft·lbs.
19. Torque the 6 - 20mm front vertical bolts to 432 ft·lbs., and the remaining 1" bolts to 903 ft·lbs.
20. If tow cable is available, install the revised original tow cable plate in between the 2 plates on the left side of the undercarriage. Attach with 2 - 3/4" x 2-1/2" bolts (PN: 16-20220), 4 - 3/4" flat washers (PN: 57-20747), and 2 - 3/4" lock nuts (PN" 70-20607. Torque the 3/4" bolts to 257 ft·lbs.
21. Attach the latching plate (PN: 44-12789) to the bolting plate with the original hardware
22. Hook the tow cable on the tow cable bolting plate. Position the latching plate so the cable stays in place. Lock the latching plate with a lynch pin (PN: 43-9360). See attached diagram for clarification.
23. After first 8 hours of use, re-torque all bolts.
24. Check all fasteners regularly to ensure proper operation of equipment.



Item No.	Qty.	Part No.	Description
1	8	16-1510	20mm x 2.5mm x 90mm Metric Hex Bolt Gr 10.9
2	2	16-20220	3/4" x 2-1/2" Hex Bolt Gr 5 NC
3	8	16-20222	3/4" x 3" Hex Bolt Gr 5 NC
4	4	16-20562	1" x 3" Hex Bolt Gr 8 NC
5	4	16-20565	1" x 3-3/4" Hex Bolt Gr 8 NC
6	1	18-5170-R	6X00 STX Quad 480 / 530 Bracket Right
7	1	18-5170-L	6X00 STX Quad 480 / 530 Bracket Left
8	1	43-9360	7/16" x 1-1/4" Lynch Pin
9	1	54-14300	4500 STX 375 / 500 Quad - Cast Yolk - Belly Pan Ready UC
10	8	57-11659	0.91" ID x 2.50" OD x 0.50" Thick CZ Plated - Trimmed Washer
11	4	57-20747	3/4" Flat Washer
12	6	57-20819	1" Flat Washer Heavy Duty Gr 8 (USS)
13	10	57-3682	1.00" ID x 2.50" OD x 0.375" Heavy Washer CZ Plated
14	16	57-3680	0.75" ID x 2.00 OD x 0.375" Heavy Washer CZ Plated
15	8	70-20599	1" Hex Nut Gr 8 NC
16	10	70-20607	3/4" Hex Center Lock Nut Gr 2 NC

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TITLE	4500HD - STX Quad 375 - 500 Cast Yoke	DWG. NO. 14300-A
Date:	8/22/2010	Scale: 1:28
		Sheet: 1

Joystick and Bracket Parts List

QTY.	PN	Description
4	16-11436	10-24 x 1.00" Socket Head Cap Screw
3	16-20006	1/4" X 1-1/2" Hex Bolt Gr 5 NC
4	16-20034	5/16" X 1 " Hex Bolt Gr 5 NC
5	16-20064	3/8" X 1" Hex Bolt Gr 5 NC Plated
2	16-20558	1" X 2" Hex Bolt Gr 8 NC
4	16-21064	3/8" x 1" Carriage Bolt Gr 5 NC
1	18-11426	Mount, Rear Valve- STX / Danfoss
1	18-12035	Bracket, STX / SureGrip Joystick - Adjustable
1	18-12038	Mount, STX / SureGrip Joystick - Adjustable
1	31-34033	Straight JIC x O-Ring (6400-6-5)
4	31-34041	Straight JIC x O-Ring (6400-8-10)
2	31-34042	Straight JIC x O-Ring (6400-10-10)
2	31-34046	Straight JIC x O-Ring (6400-12-12)
1	31-34099	Swivel Nut Elbow 90° JIC (6500-6-6)
1	31-34158	Male Connector -6 JIC x -4 Pipe (2404)
2	31-34259	Straight Threaded Elbow 90° JIC X Metric (7801-12-27)
2	31-FS-2404-06-04	OFS Male Pipe Connector
1	35-12214-0470	47" x 3/8" -6 FJIC x -6 FJIC Cold Temp
2	35-12215-0500	50" x 3/4" -12 FJIC x -12 FJIC Cold Temp
1	35-12226-0220	15" x 3/8" -6 FST x -6 FST 90° - Cold Temp
2	35-3970-20-24	Velcro Cordura 2" Diameter (24 Inches)
1	44-11424	Valve Mount Cover- STX / Danfoss
1	44-11435	Plate, Retaining Ring / SureGrip
1	44-12032	Plate, STX / SureGrip Joystick - Adjustable
1	44-12934	Plate, Shuttle Valve
1	56-11653	Sunsource/Danfoss 3 Spool Valve/Joystick
1	56-11658	Shuttle Valve - JD and STX
1	57-20740	1/4" Flat Washer
4	57-20741	5/16" Flat Washer
9	57-20742	3/8" Flat Washer
10	59-34951	Zip Tie 50# 15.5"
1	70-20580	1/4" Hex Nut Gr 5 NC
2	70-20599	1" Hex Nut Gr 8 NC
6	70-20582	3/8" Hex Nut Gr 5 NC
2	70-20610	1/4" Nyloc Hex Nut Gr 5 NC

Bracket & Joystick Installation

NOTE: Your machine may vary slightly from the machine in this manual, but the same installation procedure will be compatible.



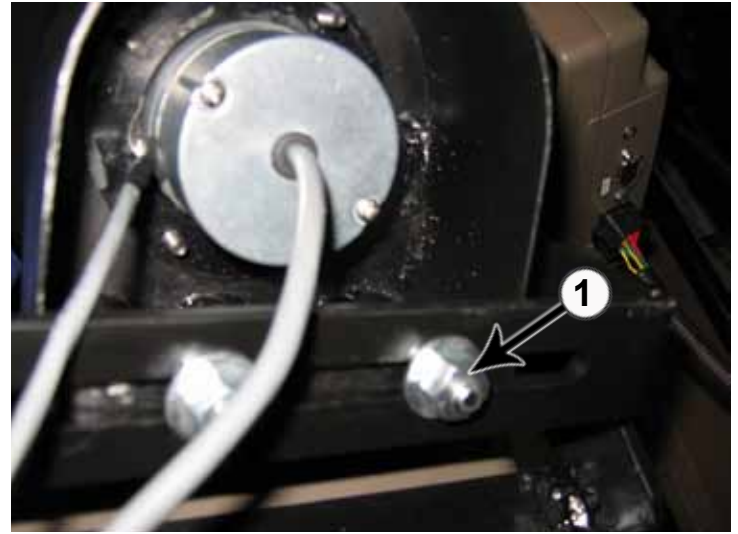
1. Remove lower section of armrest to get at the armrest frame. Attach the joystick bracket (PN: 18-12035) to the armrest frame located underneath the armrest (1). Use 2 - 3/8" x 1" bolts (PN: 16-20064) with a 3/8" washer (PN: 57-20742) and a 3/8" nut (PN: 70-20582) on each bolt.

2. After joystick bracket is attached, reattach the lower section of the armrest.

NOTE: The following pictures show the joystick assembly already in place. The joystick will be installed in a later step.



3. Attach the joystick plate (PN: 44-12032) to the joystick bracket with 2 - 3/8" x 1" carriage bolts (PN: 16-21064), 2 - 3/8" flat washers (PN: 57-20742) and 2 - 3/8" nuts (PN: 70-20582) (1).



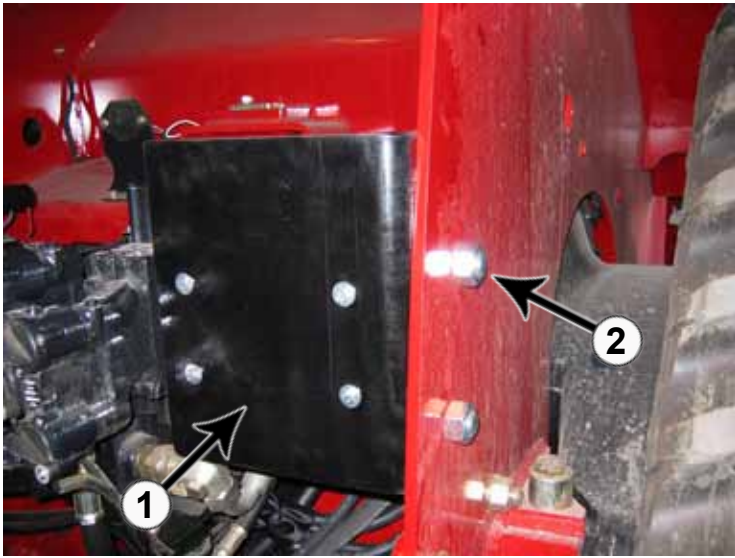
4. Attach the joystick mount (PN: 18-12038) to the joystick plate with 2 - 3/8" x 1" carriage bolts (PN: 16-21064), 2 - 3/8" flat washers (PN: 57-20742) and 2 - 3/8" nuts (PN: 70-20582) (1).



5. Hold the mounting ring (PN: 44-11435) inside the side mount, and attach the joystick to the top of the side mount and the mounting ring with 4 - 1" socket head cap screws (PN: 16-11436) (1).

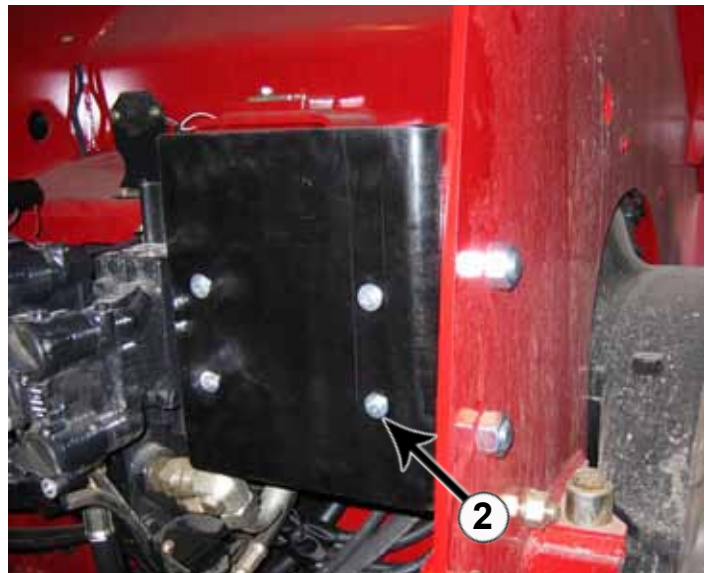
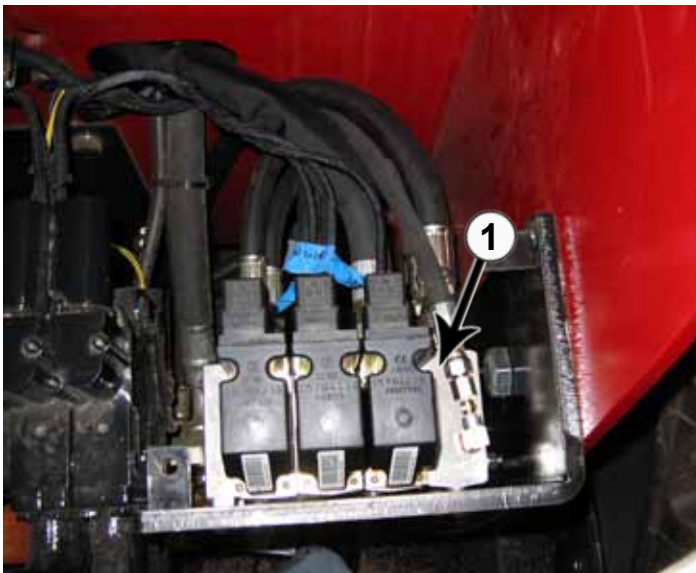
6. Adjust the joystick and mounts to position the joystick to the operator's preference. Once the joystick is in the correct position, tighten all of the fasteners.

Valve Bracket Installation



7. Attach the rear valve mount (PN: 18-11426) (1) to the rear of the tractor. Use 2 - 1" x 2" bolts (PN: 16-20558) and 1" nuts (PN: 70-20599) to attach the mount to the side of the tractor frame (2).

Valve Installation



8. Attach the control valve (1) to the valve mount with 4 - 5/16" x 1" bolts (PN: 16-20034) and 4 - 5/16" flat washers (PN: 57-20741) (2).

NOTE: Cables are shown in photo. The cables will be installed in a later step.

Plumbing



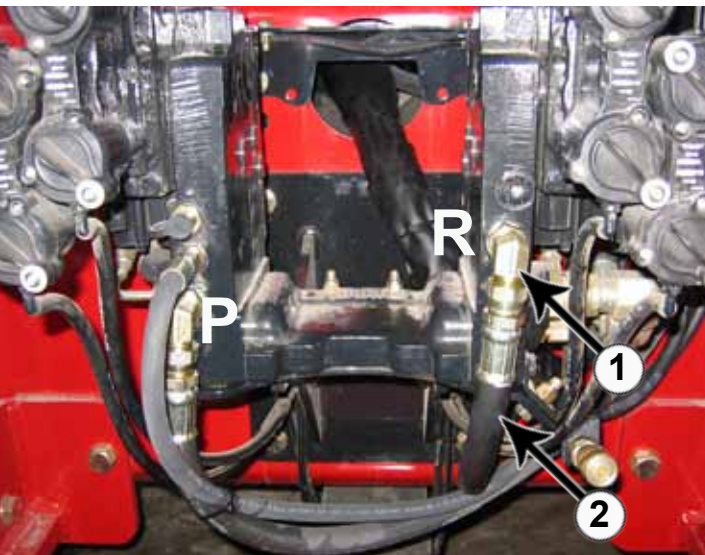
NOTE: Valve shown from the bottom.

9. Attach the 50" hoses (PN: 35-12215-0500) to the two fittings on the control valve that are closest to the right side of the tractor frame (1).



13. If fittings are not installed in the LS port on the control valve, install a straight -6-5 fitting (PN: 31-34033) and a 90° -6-6 fitting (PN: 31-34099) in the LS port (1).

14. Attach a 47" hose (PN: 35-12214-0470) to the 90° fitting in the LS port.

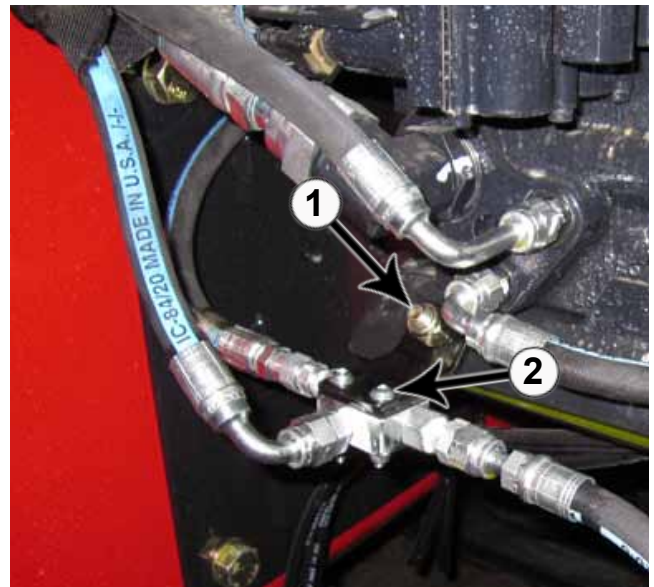


NOTE: Oil will flow. Be ready with an oil pan.

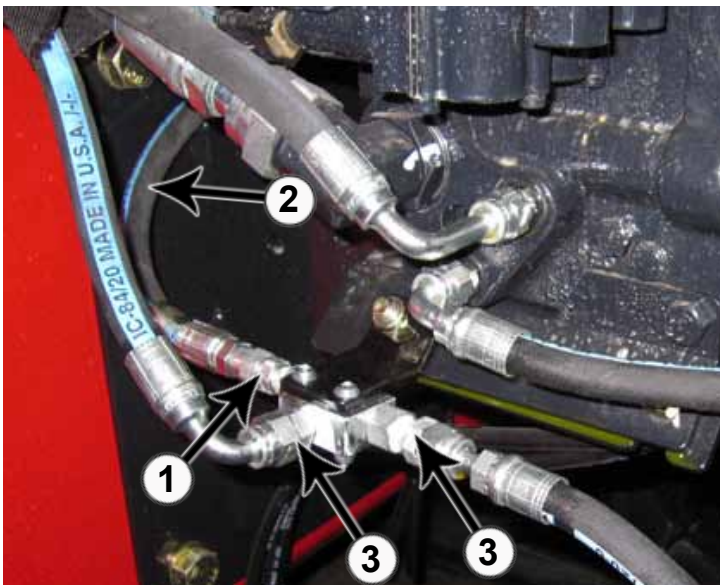
10. Remove the plug or quick connect from the **P** and **R** ports at the rear of the tractor and replace each with a 90° fitting (PN: 31-34259) (1).

11. Attach the 50" hose from the **bottom** fitting on the control valve to the 90° fitting at the **P** port.

12. Attach the 50" hose from the **top** fitting on the control valve to the 90° fitting at the **R** port. (2).

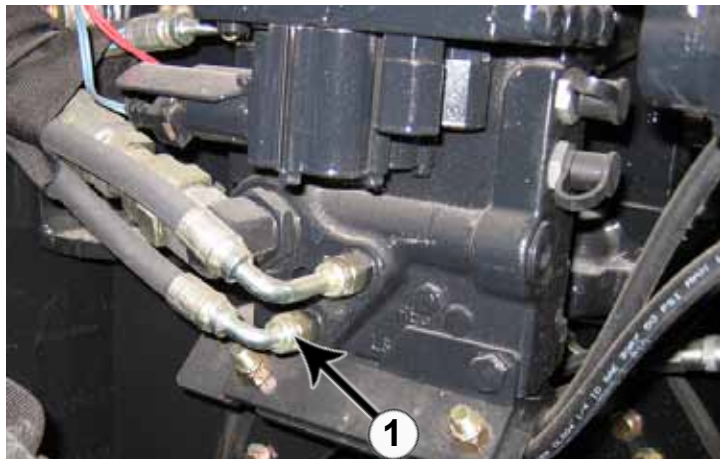


15. On the left side at the rear end of the tractor, remove the nut and attach the Shuttle Valve Plate (PN: 44-12934) to the tractor (1). Attach the shuttle valve (PN: 56-11658) to the plate with 2 - 1/4" x 1-1/2" bolts (PN: 16-20006) and 2 - 1/4" nuts (PN: 70-20610)

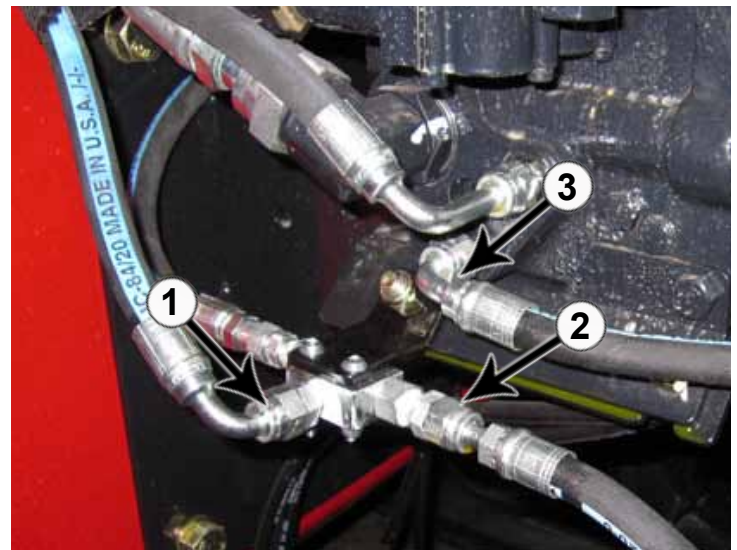


16. Install a male connector JIC x Pipe fitting (PN: 31-34158) in the shuttle valve (PN: 56-11658) (1). Attach the other end of the 47" hose from Step #14 to the male connector fitting (2).

17. Install a male pipe connector fitting (PN: 31-FS-2404-06-04) in the remaining ports on the shuttle valve (PN: 56-11658) (3).



18. On the left side of the manifold valve, disconnect the bottom hydraulic line (1).



19. Attach the previously disconnected hydraulic line to the male fitting on the shuttle valve (1).

20. Attach the straight end of the 22" hose (PN: 35-12226-0220) to the male fitting on the shuttle valve (2). The other end of the hose will be attached in Step #21.

21. Attach the other end of 22" hose from Step #20 to the fitting on the manifold valve (1).



NOTE: Valve shown from the bottom.

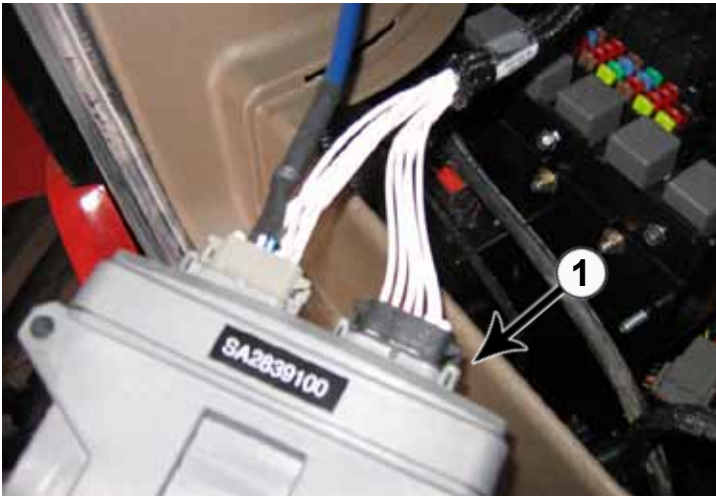
22. Guide the dozer **lift** hoses to the rear of the tractor. Wrap a hose protector around the hoses. If necessary, use zip ties to keep the hose protector in place.

23. Attach the dozer **Lift** hoses to the corresponding fittings on the control valve (1). The cylinder **base** end hose goes to the top fitting on the control valve. The cylinder **rod** end hose goes to the **bottom** fitting on the control valve.

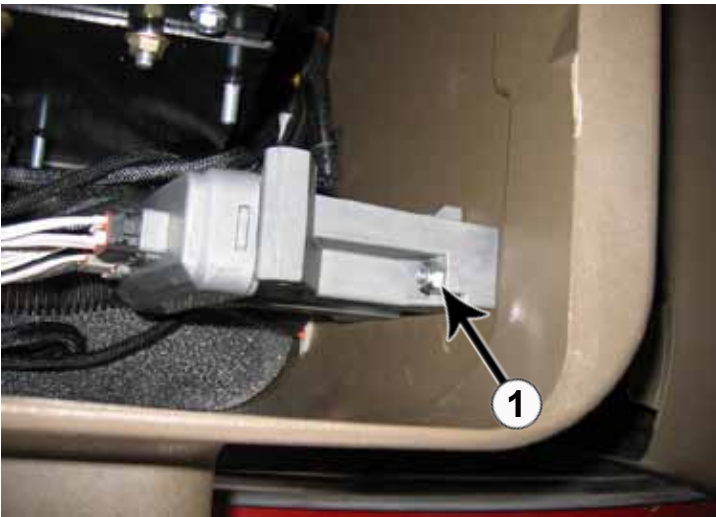
24. Guide the dozer **Angle** and **Tilt** hoses to the rear of the tractor. Attach the dozer **Angle** and **Tilt** hoses to the corresponding fittings on the control valve (1).

25. Use zip-ties to hold the hoses into place.

Cable Installation



26. Set control box in fuse compartment (1).



27. Drill a hole for a 1/4" bolt in the fuse compartment. Attach the wire harness to the compartment with a 1/4" bolt (PN: 16-20006), 1/4" washer (PN: 57-20740), and a 1/4" nut (PN: 70-20580) (1).

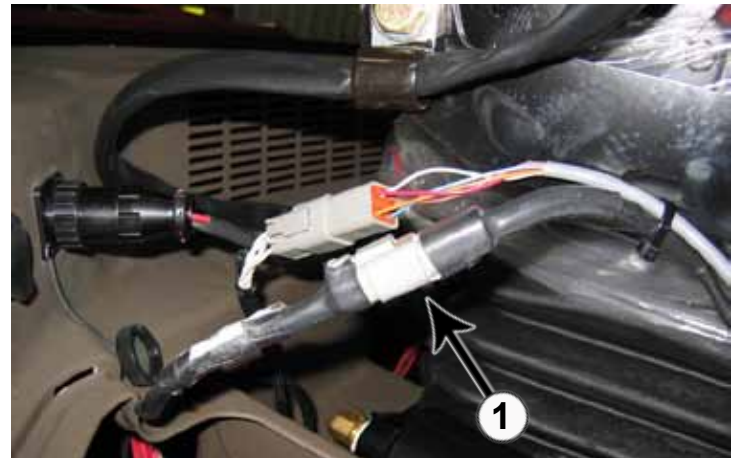


28. Connect the dozer angle extension cord (PN: 69-11663) to the wire harness (1). Run the cord through the hole in the floor of the fuse compartment.



29. Guide the extension cord from the wire harness to the front of the tractor. Run the wire along the left side of the lift frame (1).

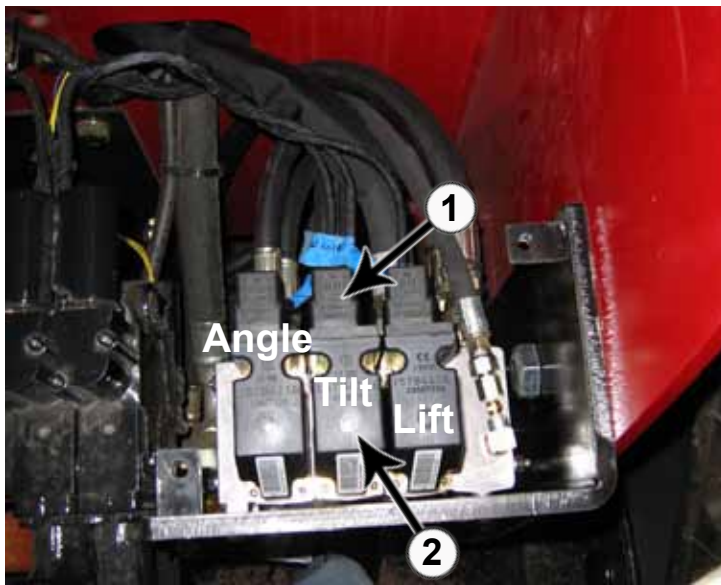
30. Connect to the extension cord on the angle system valve.



31. Connect the cable from the joystick to the wire harness (1).



32. Plug the power cord from the wire harness into the port located behind and to the right of the operator's seat in the tractor cab (1).



33. Guide the 2 cables and Dins from the wire harness out to the rear of the tractor (1).
34. Put the supplied rubber seal on each Din connector.
35. Connect the **Lift** and **Tilt** Dins to the corresponding connections on the back of the control valve (1).
36. Use screws to fasten the Dins to the control valve (2).
- NOTE:** The electric dozer functions can be overridden by attaching the supplied handle to the control valve and operating them.
37. Use zip-ties to hold cables in place.

Valve Cover Installation



38. Place the valve cover over the valve and hoses as shown in the picture. Verify that the hoses are not being pinched.
39. Attach the valve cover to the valve bracket with 3 - 3/8" x 1" bolts (PN: 16-20064) and a 3/8" washer (PN: 57-20742) on each bolt. (1).
40. Joystick installation is complete!

Joystick Operation

41. To **raise** the blade **up**, **pull back** on joystick.
42. To **lower** the blade **down**, **push forward** on joystick.
43. To **tilt** the blade **left**, tilt the joystick to the **left**.
44. To **tilt** the blade **right**, tilt the joystick to the **right**.
45. To extend and retract the **left** side of the blade, operate the rocker button on the top of the joystick.
46. To extend and retract the **right** side of the blade, hold down the trigger switch on the joystick handle and operate the rocker button on the top of the joystick.
47. To operate the float function, push the bottom switch on the left side on the top of the joystick.
- NOTE:** If directions are not correct, go to Step #23 and #24 on Page 16 and switch the hoses for each of the functions that are not correct.

Joystick Schematic

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CONNECTOR C6B, CONNECTS TO HARNESS CONNECTOR C6A

JOYSTICK "X" AND "Y" AXIS AND
5VDC PWR AND GND

FROM JOYSTICK

<	1	-	RED (5 VDC PWR)
<	2	-	BLACK (5 VDC GND)
<	3	-	WHITE ("X" AXIS)
<	4	-	BLUE ("Y" AXIS)

JOYSTICK AUXILIARY FUNCTIONS
12 VDC

FROM JOYSTICK

<	5	-	ORANGE (TRIGGER)
<	6	-	BLUE (TOP LEFT PB - ANGLE INC)
<	7	-	BROWN (BOTTOM RIGHT - FLOAT)
<	8	-	WHITE (BOTTOM LEFT - ANGLE DEC)
<	9	-	RED (12 VDC PWR)
<	10	-	NOT USED
<	11	-	NOT USED
<	12	-	NOT USED



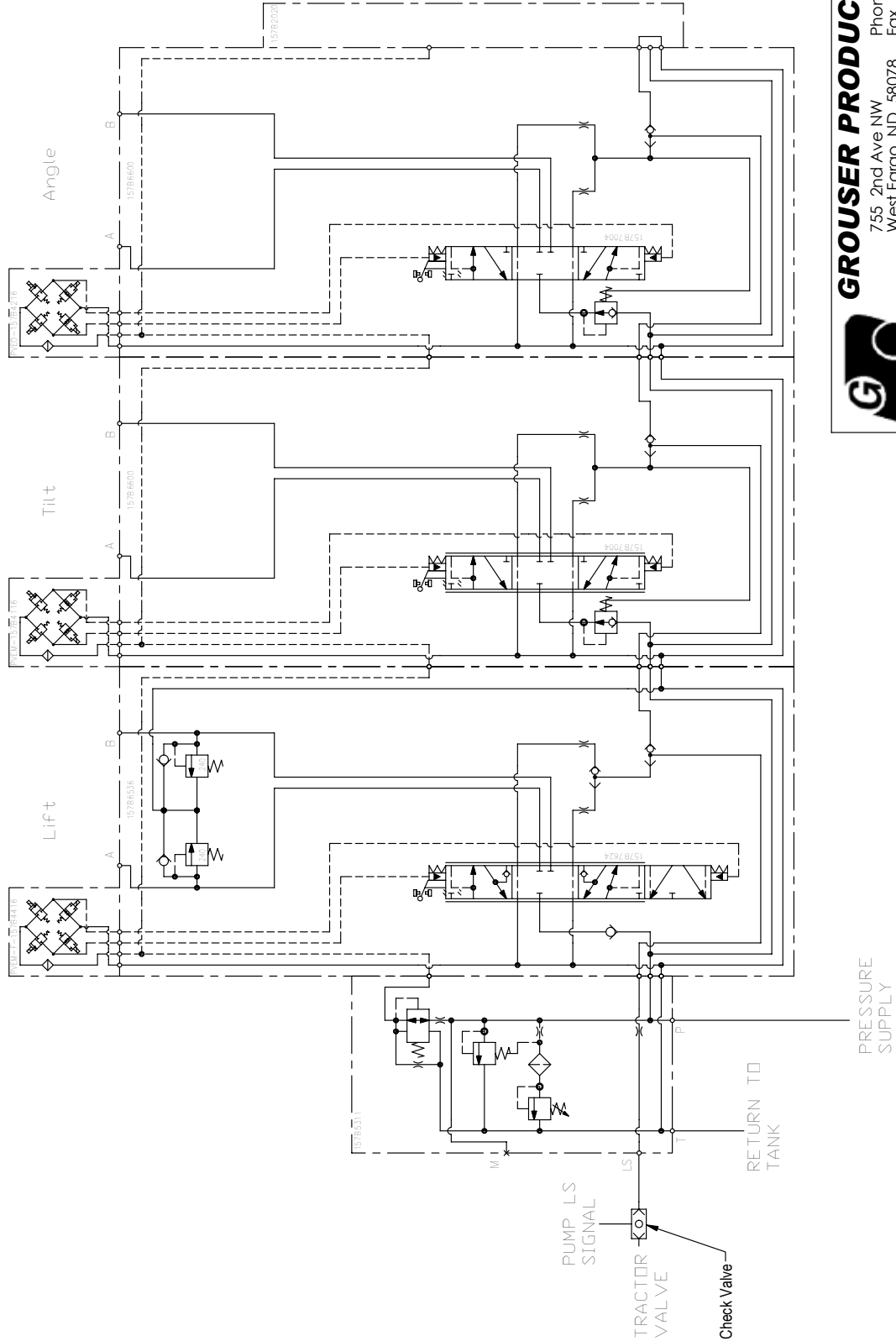
GROUSER PRODUCTS INC.
755 2nd Ave NW Phone 701.282.7710
West Fargo, ND 58078 Fax 701.282.8131
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TITLE: SA-2839-SCH-JOYSTICK2

Date: 6/14/2007 DWG. NO.:

Hydraulic Schematic

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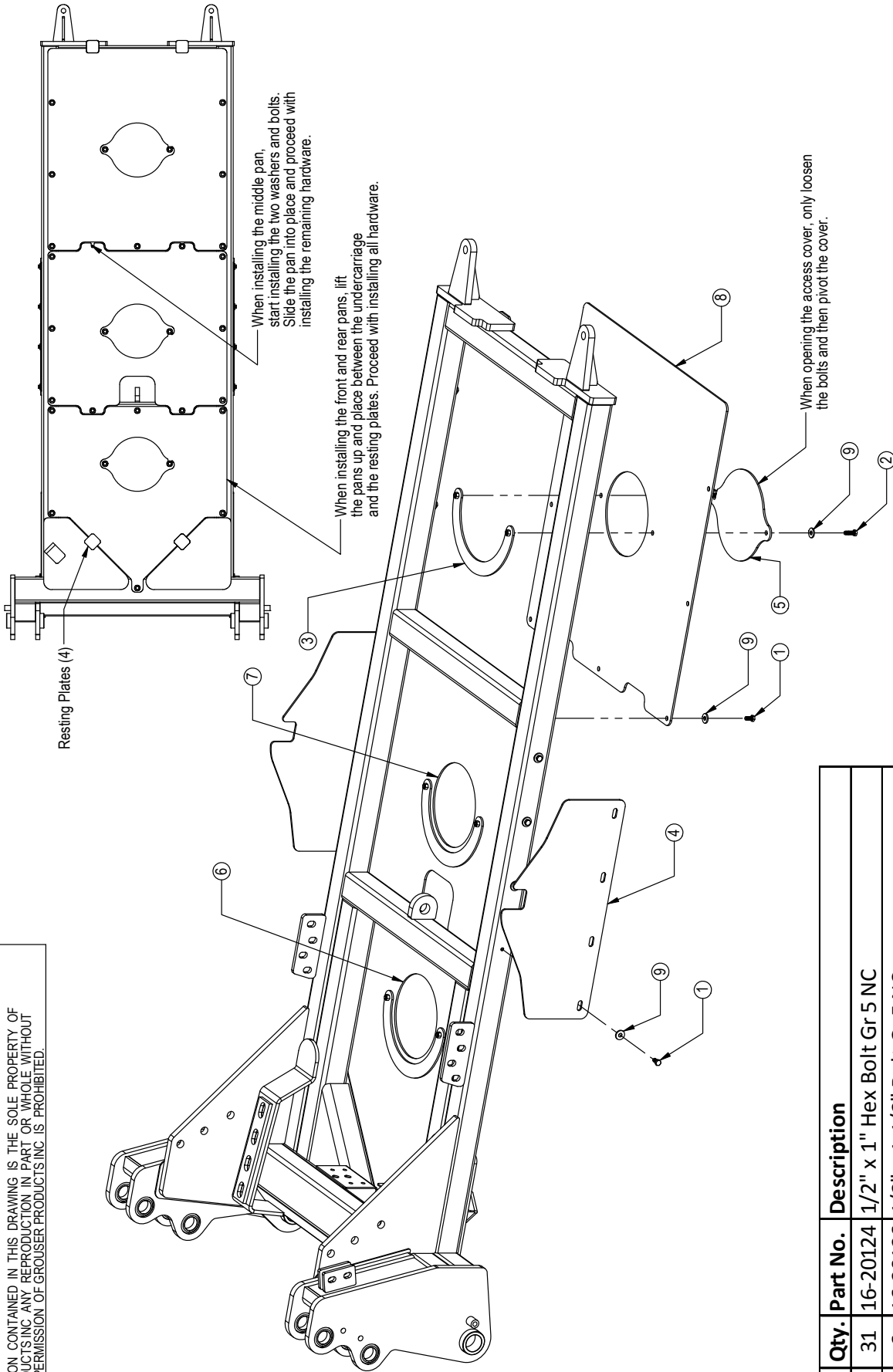
GROUSER PRODUCTS INC.
 755 2nd Ave NW
 West Fargo, ND 58078
 Phone 701.282.7710
 Fax 701.282.8131
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TITLE: Valve Hydraulic Schematic

Date: 5-1-2007 DWG. NO.: STX

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GROUSER PRODUCTS INC.
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 West Fargo, ND 58078
 WWW.GROUSER.COM
 Phone 701.282.7710
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TITLE: 4500HD Belly Pan Assy.

Date: 4/8/2010

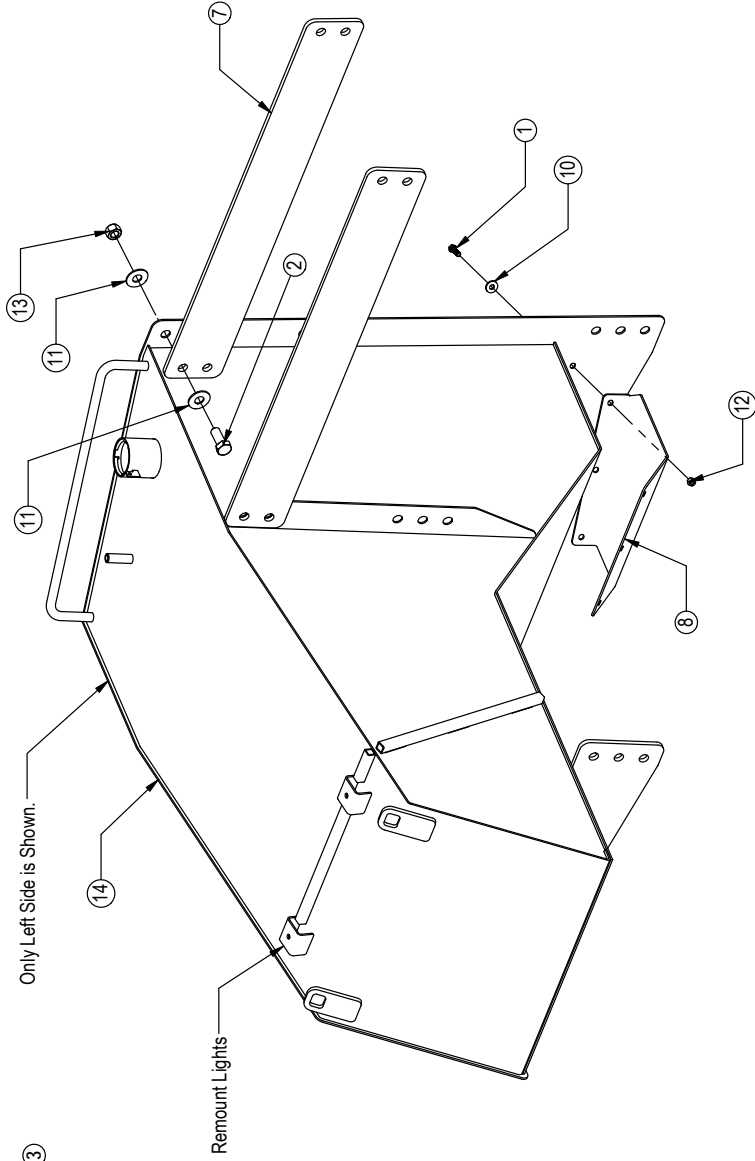
DWG. NO.: 14304-A

Item No.	Qty.	Part No.	Description
1	31	16-20124	1/2" x 1" Hex Bolt Gr 5 NC
2	6	16-20126	1/2" x 1-1/2" Bolt Gr 5 NC
3	3	18-12855	Bracket, Belly Pan Cover
4	2	44-11822	Belly Pan - Axle Cover
5	3	44-12854	Plate, Belly Pan Cover
6	1	44-14301	4500HD Arctic Belly Pan - Pan 1 of 3 (Front)
7	1	44-14302	4500HD Arctic Belly Pan - Pan 2 of 3 (Middle)
8	1	44-14303	4500HD Arctic Belly Pan - Pan 3 of 3 (Rear)
9	37	57-20744	1/2" Flat Washer

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Only Left Side is Shown.



Item No.	Qty.	Part No.	Description
1	12	16-20126	1/2" X 1-1/2" Hex Bolt Gr 5 NC
2	32	16-20270	1" X 2 1/2" Hex Bolt Gr 5 NC
3	2	31-13929-10-8	5/8" Beaded Hose Barb x 1/2" Male Pipe 90° (4501-10-8)
4	2	31-13932-8	1/2" NPT Hex Head Pipe Plug (5406P-8)
5	2	31-13939-10-8	5/8" Beaded Hose Barb x 1/2" Male Pipe (4404-10-8)
6	2	31-34133	Hex Pipe Nipple (5404-08-08)
7	2	44-13277	Plate, Brace - Tank
8	1	44-13278-L	Plate, Bottom Cover - Tank - Left
9	1	44-13278-R	Plate, Bottom Cover - Tank - Right
10	12	57-20744	1/2" Flat Washer
11	64	57-20749	1" Flat Washer
12	12	70-20584	1/2" Hex Nut Gr 5 NC
13	32	70-20589	1" Hex Nut Gr 5 NC
14	1	99-13270-L	Tank Weld - Left
15	1	99-13270-R	Tank Weld - Right
16	2	99-13931	1/2" NPT Ball Valve

Note: Modifications To the Tractor Are Necessary To Mount and Plumb The New Tanks.



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TITLE **Tank Assy.**

DWG. NO. **13270-A**

Date: **11-24-2009**

Scale: **1:20**

Sheet: **1**

Contact Us

As always, if you have any questions about your 4500 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.

