



770HD HAHT w/ Joystick Owner's Manual & Parts Book

For Models:

Case Steiger Quad - 450, 500, 550, 600

Purchase Date
Serial Number
Model Number
Tractor Model
Dealer

Contents

Description	Page
To The Owner, Angle / Tilt Function Abbreviation Key & Unpacking Components	2
Maintenance & Safety Precautions	3
Undercarriage Installation Instructions	4-5
Assembling Lift Components & Initial System Startup	6
Lift System	7
Hose Routing	8
Electric Hydraulic Angle System Operating Instructions	9
Angle Position Sensor Adjustment	9
Skid Shoe and Tilt Plate Adjustment & Torque Specifications	10
Angle Wire Harness	11
Quick Attach System	12-13
Hydraulic Angle - Hydraulic Tilt System	14-15
Hydraulic Angle - Hydraulic Tilt Hose Routing (Blade Side)	16-17
Tractor Side Hydraulic Hose Routing	18-19
Hydraulic Connections	20
Blade Assembly & Angle Hydraulic Components	21
Electric System Wire Harness Schematic and Hydraulic Schematic	22-23
Joystick Parts	24
Bracket & Joystick Installation	25
Valve Bracket & Valve Installation, Plumbing	26-28
Cable Installation, Valve Cover Installation, & Joystick Operation	28-30
Joystick Schematics and Hydraulic Schematic	31-33
Contact Us, Improvements, & Warranty	36

To The Owner

This manual contains information concerning the operation, adjustment, and maintenance of the 770 blade assembly. You have purchased dependable, long lasting equipment, but only by proper care and operation can you expect to receive the performance and long service built into our products. Please have all operators read this manual carefully and keep the manual available for ready reference. If you have any questions or concerns, contact Grouser Products.

Angle / Tilt Function Abbreviation Key

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

Unpacking Components

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

Maintenance

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

Servicing the Dozer:

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

Storing the Dozer:

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

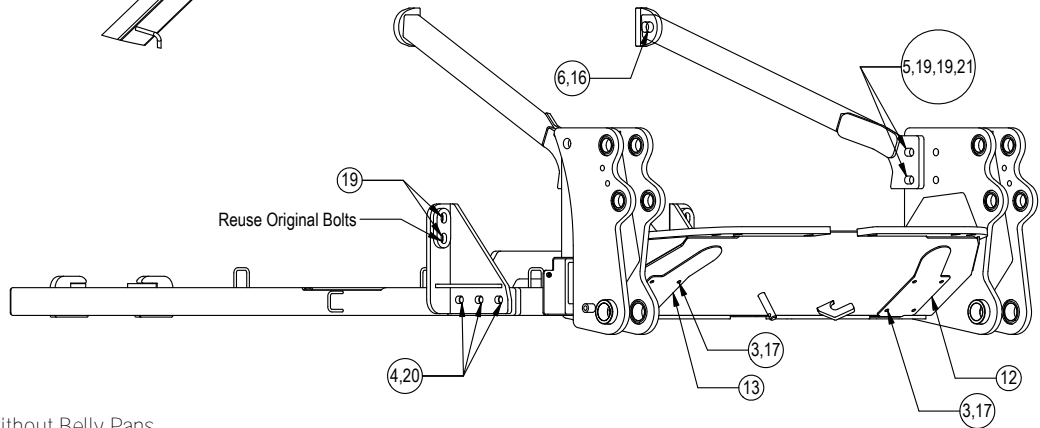
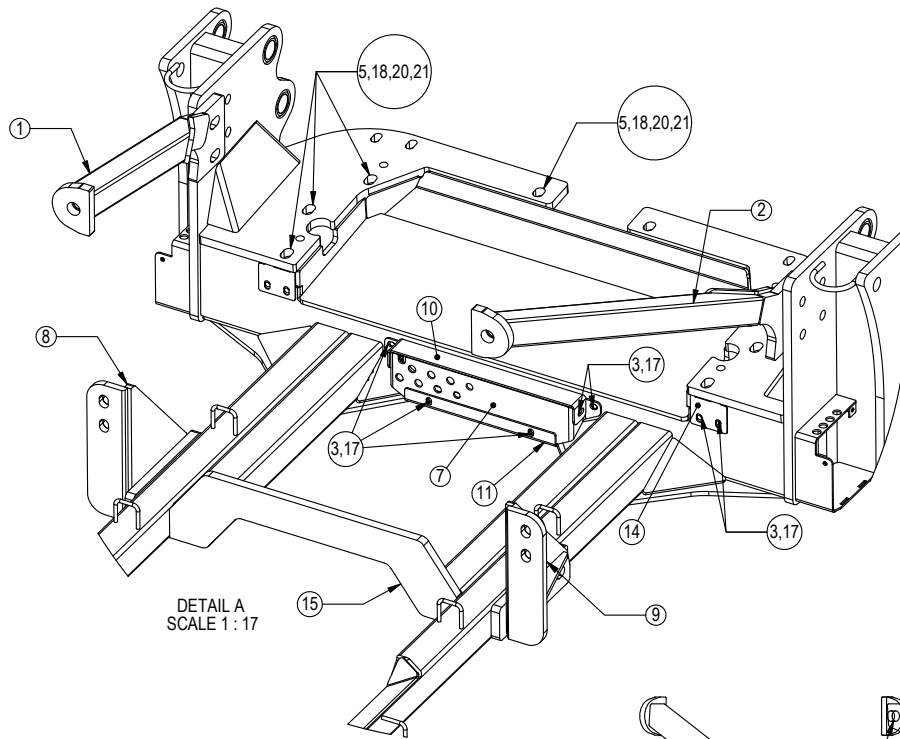
Undercarriage Installation Instructions

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 5.

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) 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 16-21 for bulkhead fittings, steel lines, and hose locations.
5. If bulkhead covers (PN: 44-14375 & 44-14376) 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 belly pans are to be installed, the bottom bulkhead cover (PN: 44-14376) is not needed.
6. Drill out holes in the tractor frame that line up with the front holes on the undercarriage to 1".
7. Position the undercarriage (U/C) under tractor and center on the frame of the tractor.
8. 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.
9. Insert 8 - 1" x 3-1/2" bolts (PN: 16-120564) with a 1" hardened flat washer (PN: 57-20759) on each bolt through the front holes of the tractor frame that line up with the front vertical holes of the U/C.
10. After all bolts are through the tractor frame and U/C, attach with a 1" heavy washer (PN: 57-3682) and a 1" nut (PN: 70-20599). Verify that the rear of the U/C is firmly against the cross member. Tighten until frame is tight vertically.
11. For a 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.
12. 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.
13. Remove the 2 - 24mm bolts and spacers from front axle on the left and right side of the tractor. Discard the spacers.
14. Attach the quad yoke brackets (PN: 18-14550-R,L) to each side of the U/C with 6 - 1" x 2" bolts (PN: 16-20558) and a 1" x .375" thick washer (PN: 57-3682) on each bolt.
15. 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.
16. Once all bolts have been installed, torque the front 1" vertical bolts to 903 ft-lbs., the 1-1/4" bolts to 1,105 ft-lbs, the 24mm bolts (for quad tractor) to 555 ft-lbs, and then the remaining 1" bolts to 903 ft-lbs.
17. Bolt the side bolt cover (PN: 44-15575) to both sides of the undercarriage with 1/2" x 1-1/4" bolts and a 1/2" flat washer on each bolt.
18. After first 8 hours of use, re-torque all bolts.
19. Check all fasteners regularly to ensure proper operation of equipment.

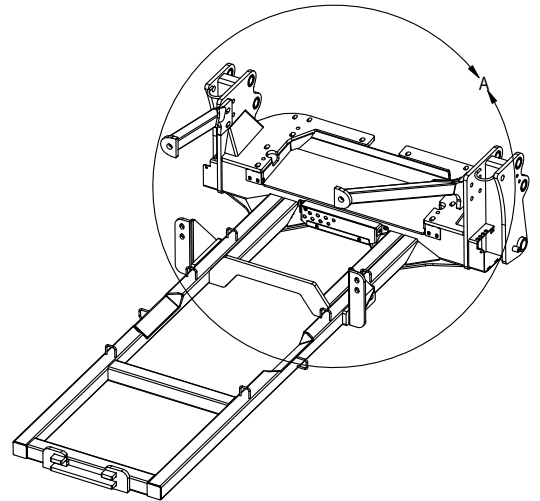


* Parts Not Shown

Item #A Only for 770HD UC without Belly Pans.

Item #B Only for 770HD UC with Belly Pans.

Item No.	Qty.	Part No.	Description
1	1	11-15140-L	Upper Undercarriage Support Arm Left - Quad
2	1	11-15140-R	Upper Undercarriage Support Arm Right - Quad
3A	20	16-20125	1/2" X 1 1/4" Hex Bolt Gr 5 NC
3B	18	16-20125	1/2" X 1 1/4" Hex Bolt Gr 5 NC
4	6	16-20558	1" X 2" Hex Bolt Gr 8 NC
5	12	16-20564	1" X 3-1/2" Hex Bolt Gr 8 NC
6	2	16-20896	1-1/4" x 3-1/2" Hex Bolt Gr 5 NC Zinc
7	1	18-14370	Bracket, Bulkhead - AG Wide Frame
8	1	18-14550-L	Steiger Quad Yoke Bracket - Left
9	1	18-14550-R	Steiger Quad Yoke Bracket - Right
10	1	44-14375	Plate, Top Bulkhead Cover - AG Wide Frame
11A	1	44-14376	Plate, Bottom Bulkhead Cover - AG Wide Frame
12	1	44-14382-L	Plate, Bottom Cover Left - AG Wide Frame
13	1	44-14382-R	Plate, Bottom Cover Right - AG Wide Frame
14	2	44-15575	Plate, 770 Undercarriage Side Bolt Cover
15A	1	54-15590	770HD Special Steiger / T9 Large Frame Quad and Wheeled UC
15B*	1	54-15660	770HD Special Steiger / T9 Large Frame Quad and Wheeled UC - Belly Pan
16	2	57-11671	1-1/4" Flat Washer
17A	20	57-20744	1/2" Flat Washer
17B	18	57-20744	1/2" Flat Washer
18	8	57-20759	1" Hardened Flat Washer - 2" OD
19	12	57-20819	1" Flat Washer Heavy Duty Gr 8 (USS)
20	14	57-3682	2.50 OD X 1.00" ID x .375" Washer CZ Plated
21	12	70-20599	1" Hex Nut Gr 8 NC



TITLE:
770 Steiger Quad 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.

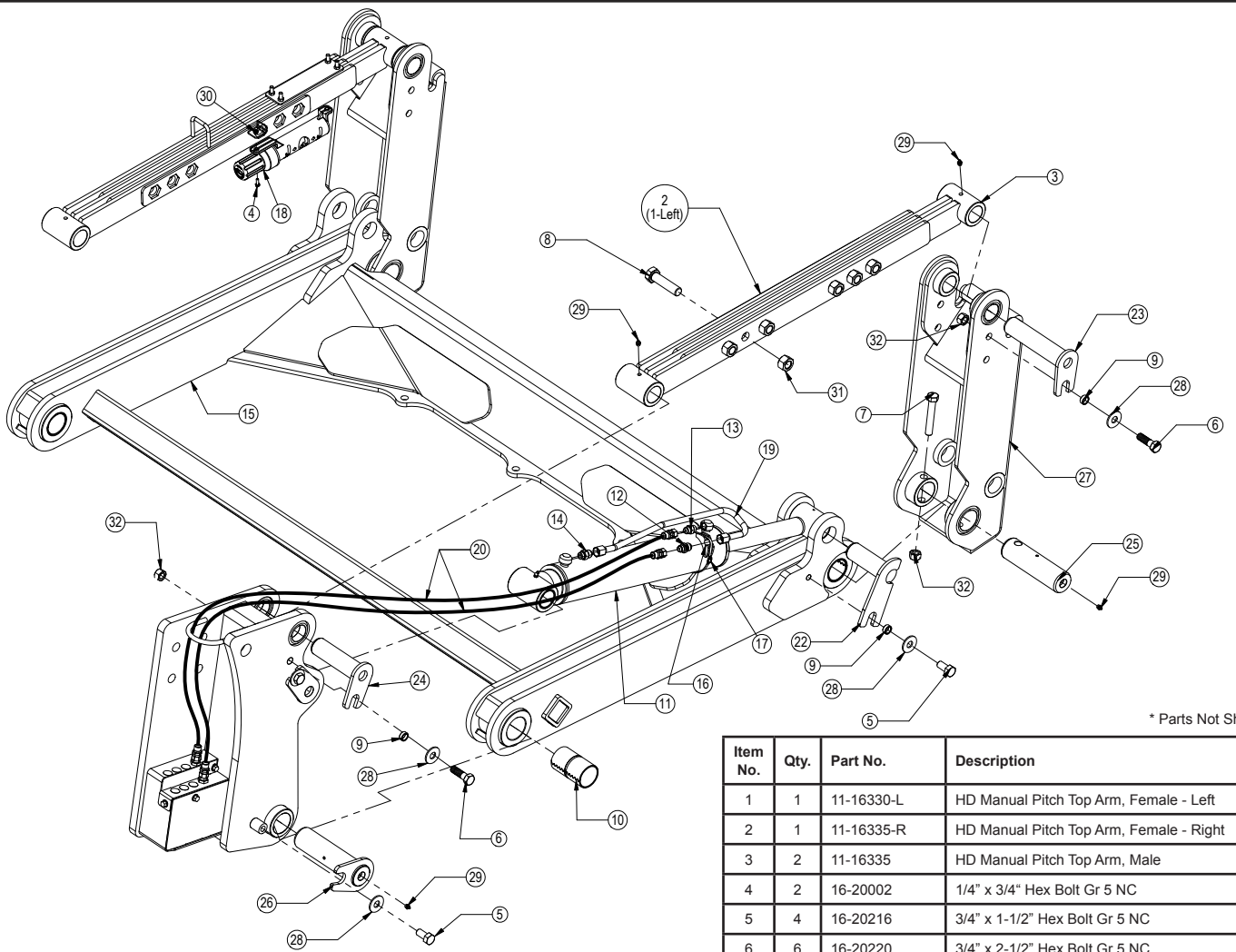
1. Remove all pins on each side of the undercarriage.
2. Position the lift frame between the two plates on both sides of the undercarriage.
3. Align the lift frame to the bottom holes of the undercarriage and attach with the proper pins and hardware.
4. Lift the end of the cylinders up and attach to 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 16 or 18 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 #10-15, refer to Page 18-20 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 3/8" hoses and attach each one to their designated fitting at the center of the undercarriage.
14. Route the hoses thru the hose loops on the undercarriage.
15. Continue to route the hoses thru the tractor. Keep away from all moving parts. Refer to Page 8 for hose routing.
16. 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.
17. Locate the fused power supply. Connect the red wire to power and the black to ground. Attach the 2-lever plug to the wire harness or install provided switch into an open switch hole in the right overhead console. Connect the wire harness to the switch. For Joystick, refer to Page 28
18. 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 #12-13 for further clarification on the quick attach system.
19. Tilt the male quick attaches forward slightly.
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. Tilt the male quick attaches backward till the blade is off the ground and the female quick attaches are against the front of the male quick attaches.
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 20 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 #11 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.



* Parts Not Shown

Item No.	Qty.	Part No.	Description
1	1	11-16330-L	HD Manual Pitch Top Arm, Female - Left
2	1	11-16335-R	HD Manual Pitch Top Arm, Female - Right
3	2	11-16335	HD Manual Pitch Top Arm, Male
4	2	16-20002	1/4" x 3/4" Hex Bolt Gr 5 NC
5	4	16-20216	3/4" x 1-1/2" Hex Bolt Gr 5 NC
6	6	16-20220	3/4" x 2-1/2" Hex Bolt Gr 5 NC
7	2	16-20227	3/4" x 4-1/2" Hex Bolt Gr 5 NC
8	12	16-20566	1" x 4" Hex Bolt Gr 8 NC
9	8	19-13515	3/4" ID - Non Rotating Pin Spacer Bushing
10	4	19-13525	2.75 x 2.50 x 4.75 Spring Bushing
11	2	26-5200	5x20 Cylinder - Tube Ends
12	2	31-11699-10-10	JIC Union (2403-10-10)
13	2	31-34042	Straight JIC x O-Ring (6400-10-10)
14	2	31-34203	Straight Long JIC x O-Ring (6400L-10-10)
15	1	32-16050	770HD Lift Frame
16	2	34-12932	Cylinder Saddle (ZR518)
17	2	34-12933	Hose Clamp
18	1	34-14961	Manual Canister
19	2	35-12931	Formed Steel Line (Lift Cylinder)
20	4	35-31930	63" x 5/8" -10JIC/-10JIC Hose W/Cordura
21*	1	43-12929-L	Pin Weld - Long Ear (Lift Cyl. / Lift Frame) - Left
22	1	43-12929-R	Pin Weld - Long Ear (Lift Cyl. / Lift Frame) - Right
23	2	43-13478	Pin Weld (Top Arm / QA)
24	4	43-13482	Pin Weld (Top Arm / UC & Lift Cyl. / UC)
25	2	43-14720	Pin (Lift Frame / QA)
26	2	43-14725	Pin Weld (Lift Frame / UC)
27	2	45-12175	700 Series Male Quick Attach
28	10	57-20747	3/4" Flat Washer
29	8	58-9369	Grease Zerk 1/8" NPT Straight
30	2	70-20580	1/4" Hex Nut Gr 5 NC
31	12	70-20599	1" Hex Nut Gr 8 NC
32	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.

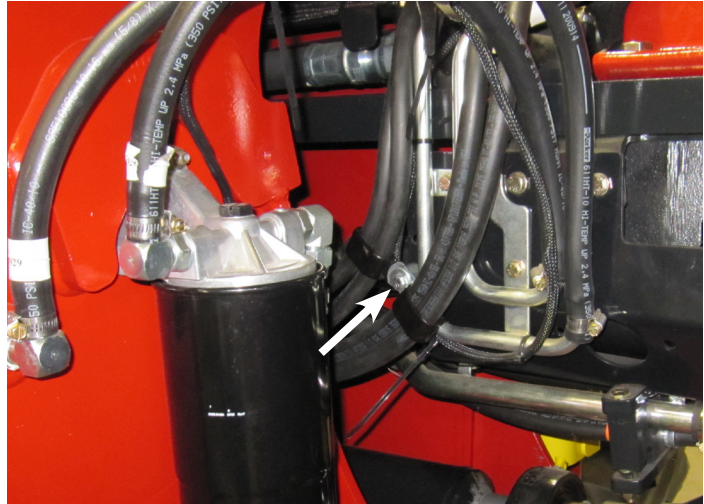
No. On Cylinder	Part No.	Description
26-5200	49-11640	Seal Kit 5 x 20 Nitrided Rod

Hose Routing

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

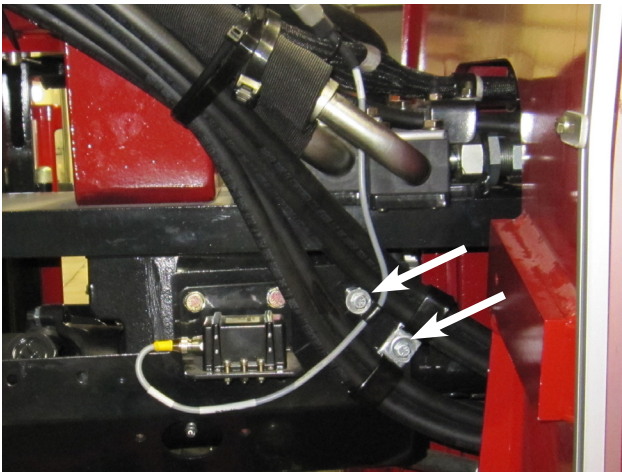


1. Route the hoses from the bulkhead fittings at the middle of the undercarriage thru all the hose loops on the undercarriage. Once at the end of the undercarriage route the hoses up along the tractor frame following any of the tractor's hoses while still staying away from any sharp corners and moving parts.



3. Route 2 sets of hoses on the right side of the tractor as shown in the picture. Use the 3/4" long spacer to space out the hose clamps on the tractor. Use a 5/16" x 2" bolt, 2 - 5/16" washers and a 5/16" nut to attach to the tractor.

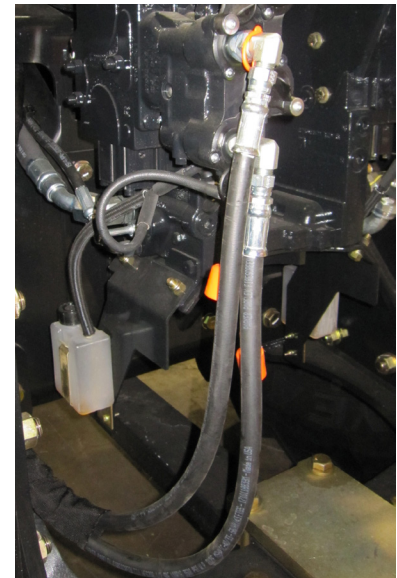
4. After attaching the hoses, enter the rear frame and route the hoses thru the hose loops along the inside of the frame.



2. Route 1 and/or 2 sets of hoses on the left side of the tractor as shown in the picture. Use a 5/16" x 1" bolt, 2 - 5/16" washers, and a 5/16" nut to bolt the 2 clamps to the plate on the tractor. Use the 1-1/4" long spacer to space out the wire harness on the tractor. Use a 5/16" x 2" bolt, 2 - 5/16" washers and a 5/16" nut.

NOTE: If there are more than 2 sets of hoses to run to the back of the tractor, continue with Step # 3. If there is only 1 or 2 sets of hoses continue with step #4.

NOTE: These pictures show 4 sets of hydraulic hoses. The same applies for any number of hoses. Hoses should be routed on the left side first and then route the remaining hoses on the right side of the tractor frame.



5. Exit thru the rear frame as shown in the picture. Install a 90° and a male coupler at the end of each hose. Plug each coupler into a rear SCV. As an example, keep both lift hoses together on one section. Refer to hydraulic schematics on Page 23 for further information.

6. After all hoses are routed, group hoses together and secure with zip ties. Use the heavy duty zip ties for securing the hoses that are routed thru the tractor frame. See the picture in Step #1 above for an example.

7. Check the hoses when the tractor is at full oscillation and fully turned to check for any interference.

8. Return to Page 6 and continue the installation with Step #16.

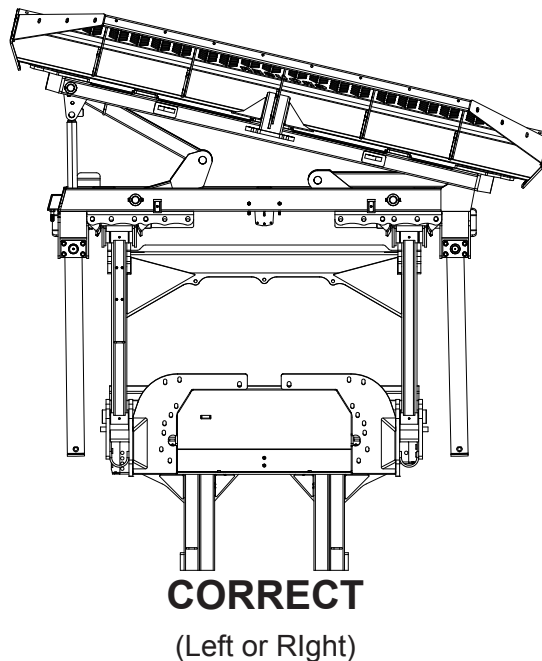
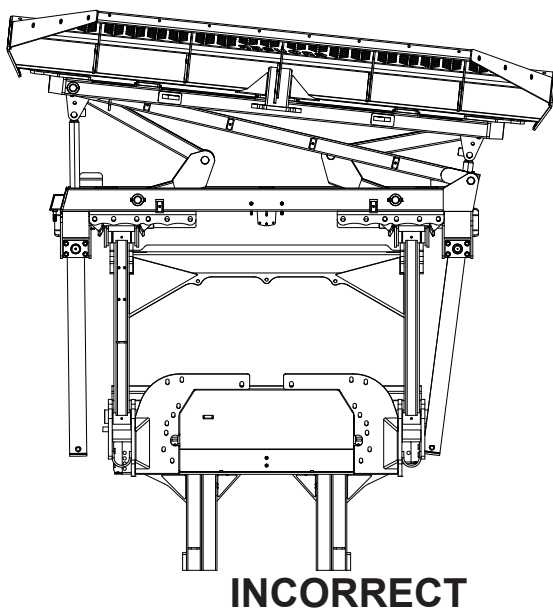
Electric Hydraulic Angle System Operating Instructions

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.

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



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.

Skid Shoe and Tilt Plate Adjustment

Skid Shoe Adjustment:

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

Tilt Plate Adjustment:

1. Remove bolts and tilt plates.

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

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

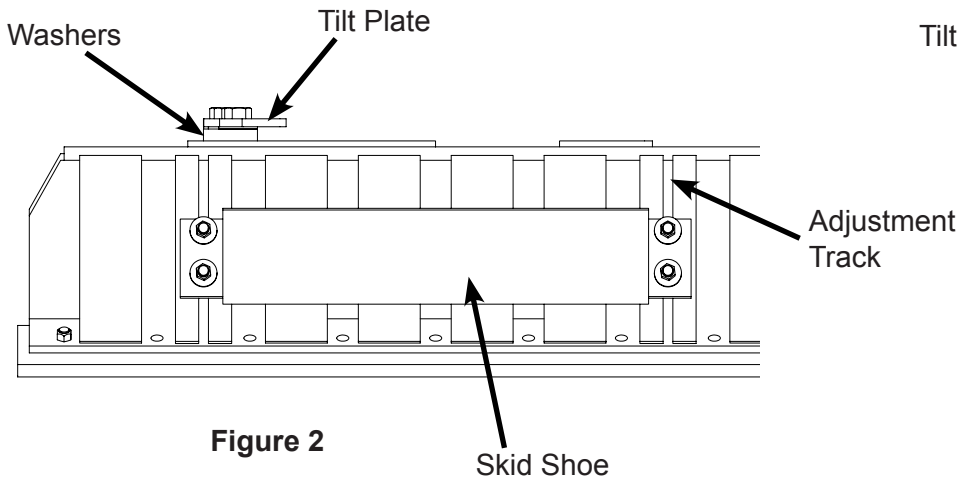


Figure 2

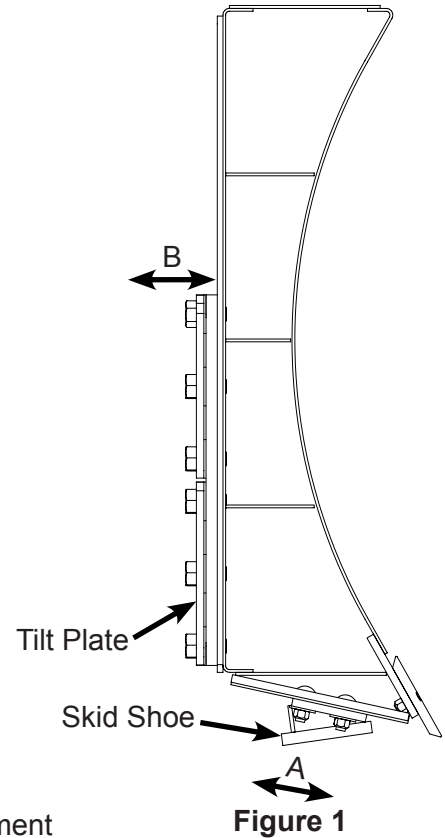


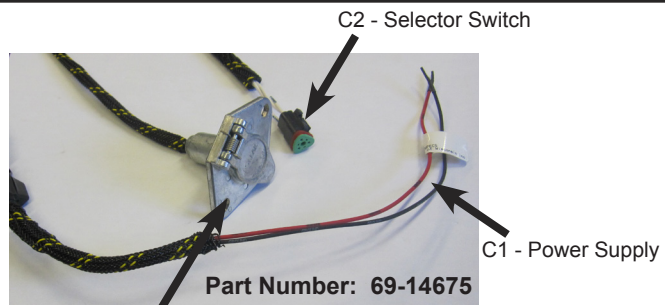
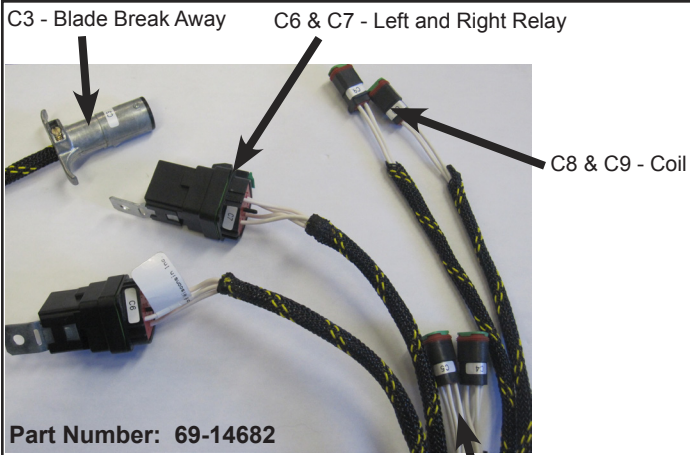
Figure 1

Torque Specifications

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

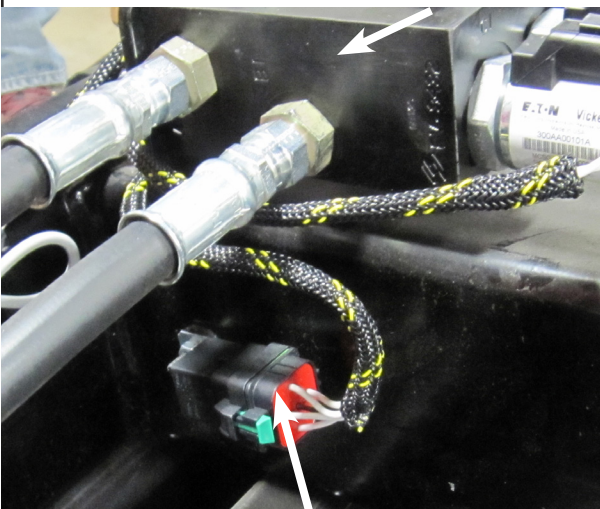
Size	Torque - Dry (ft-lbs)			
	SAE Grade 5		SAE Grade 8	
	UNC	UNF	UNC	UNF
5/16	17	19	24	27
3/8	30	35	45	50
7/16	50	55	70	80
1/2	75	85	110	120
9/16	110	120	150	170
5/8	150	170	210	240
3/4	260	300	380	420
7/8	430	470	600	670
1	640	720	910	1020

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

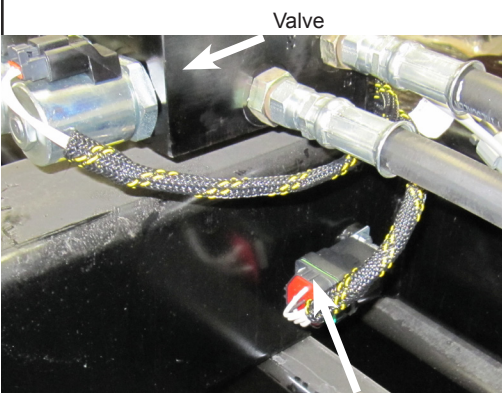
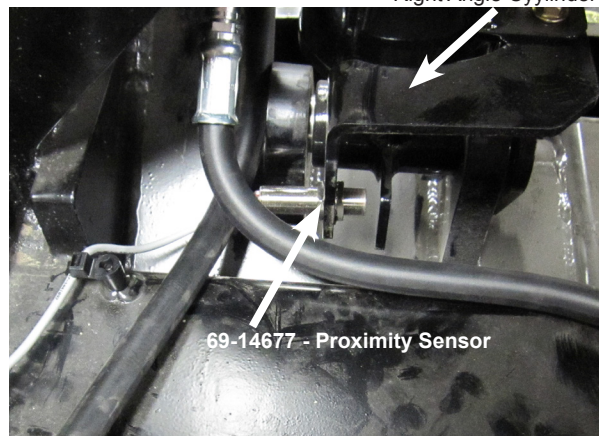


C3 - Blade Break Away
See Page 18 for Attaching to Bracket

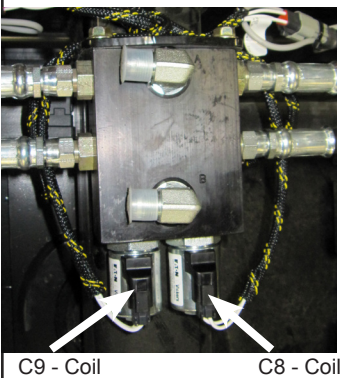
C4 & C5 - Left and Right Proximity
Valve



Right Angle Cylinder

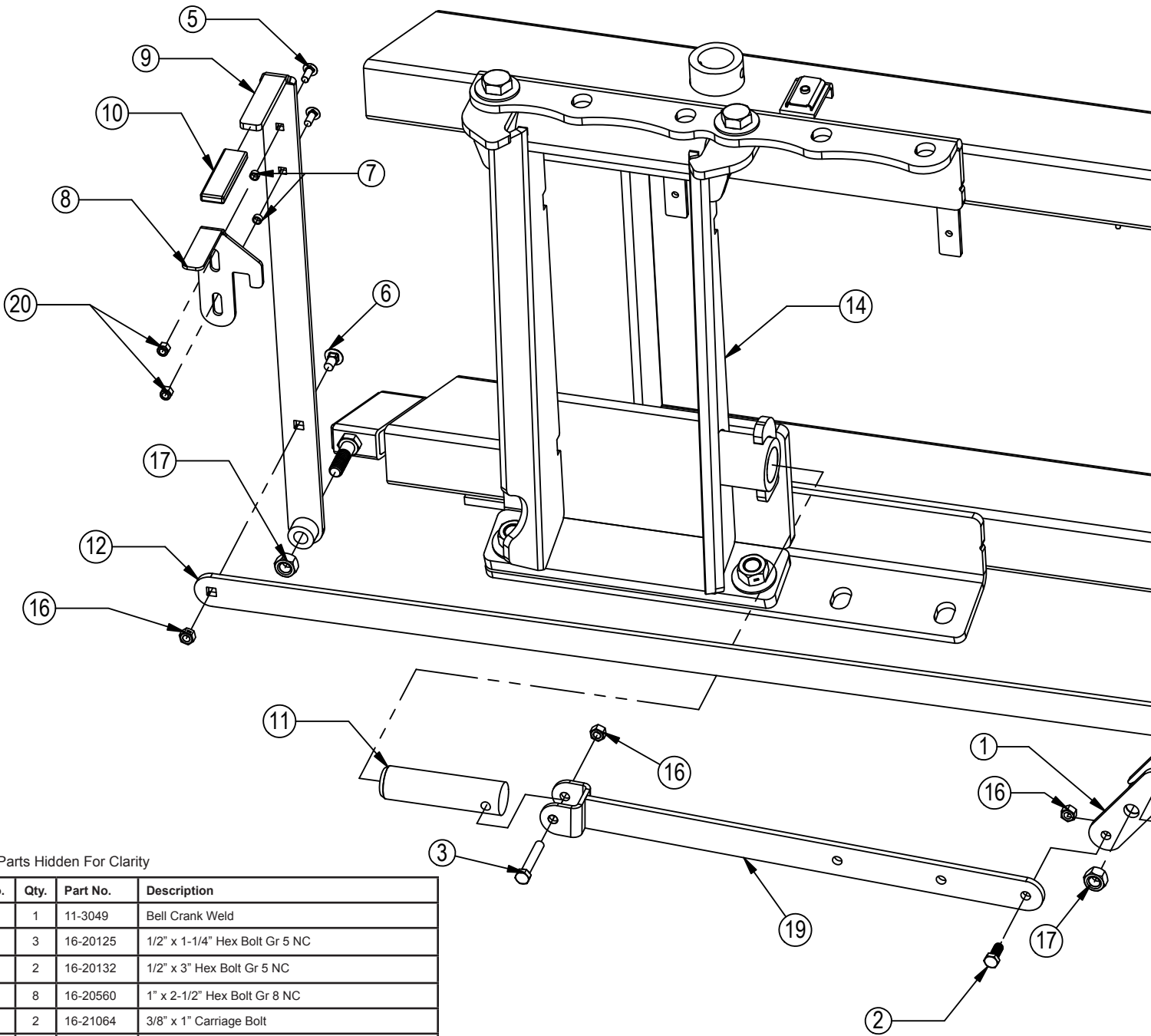


In Cab Connector (Not Needed with Joystick)
USED ONLY WITH
2 LEVER ANGLE SYSTEMS



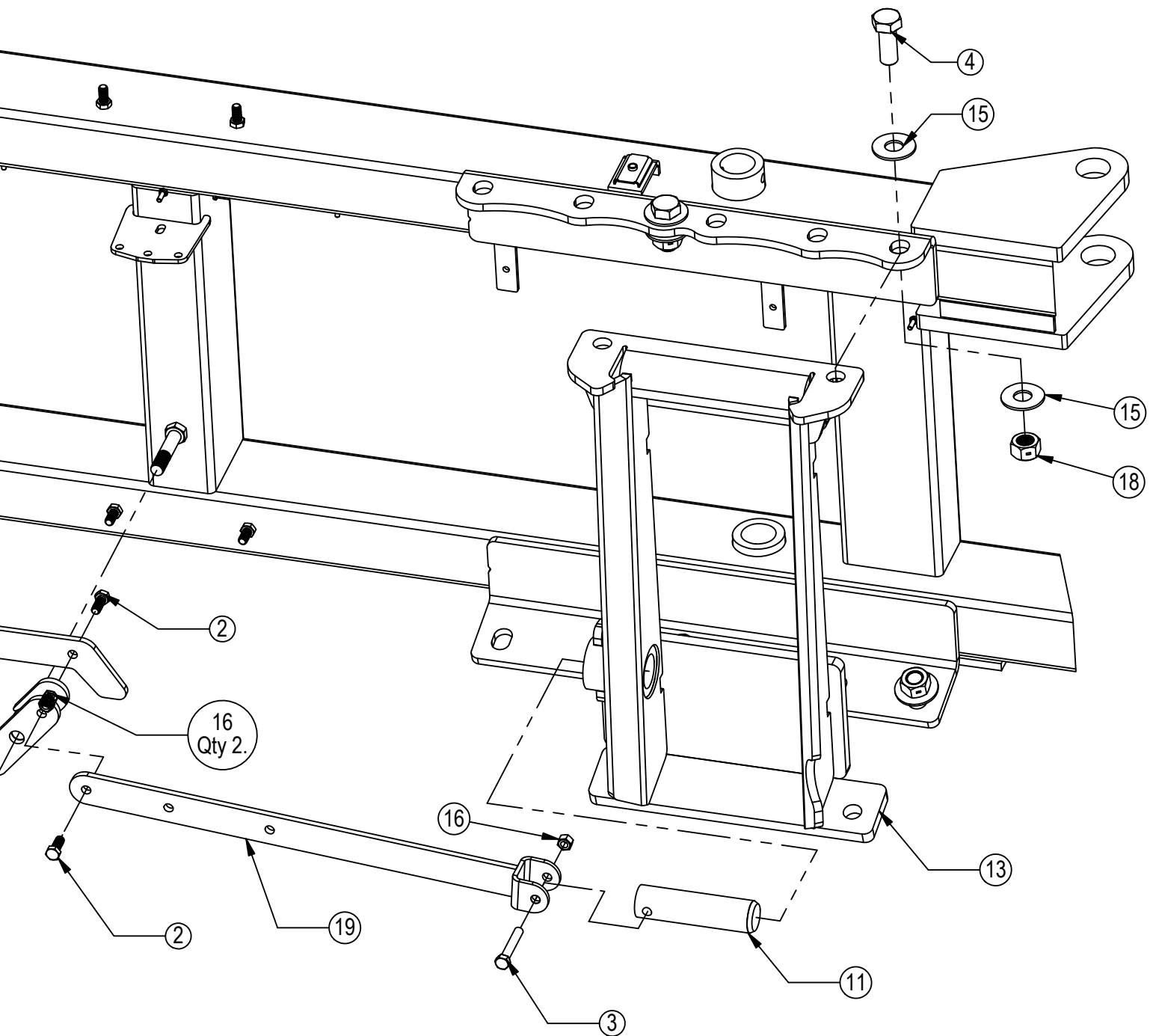
In Cab Switch (Not Needed with Joystick)
USED ONLY WITH
ELECTRIC ANGLE SYSTEMS
See Pages 22 for full system wire harness
schematic

Quick Attach System



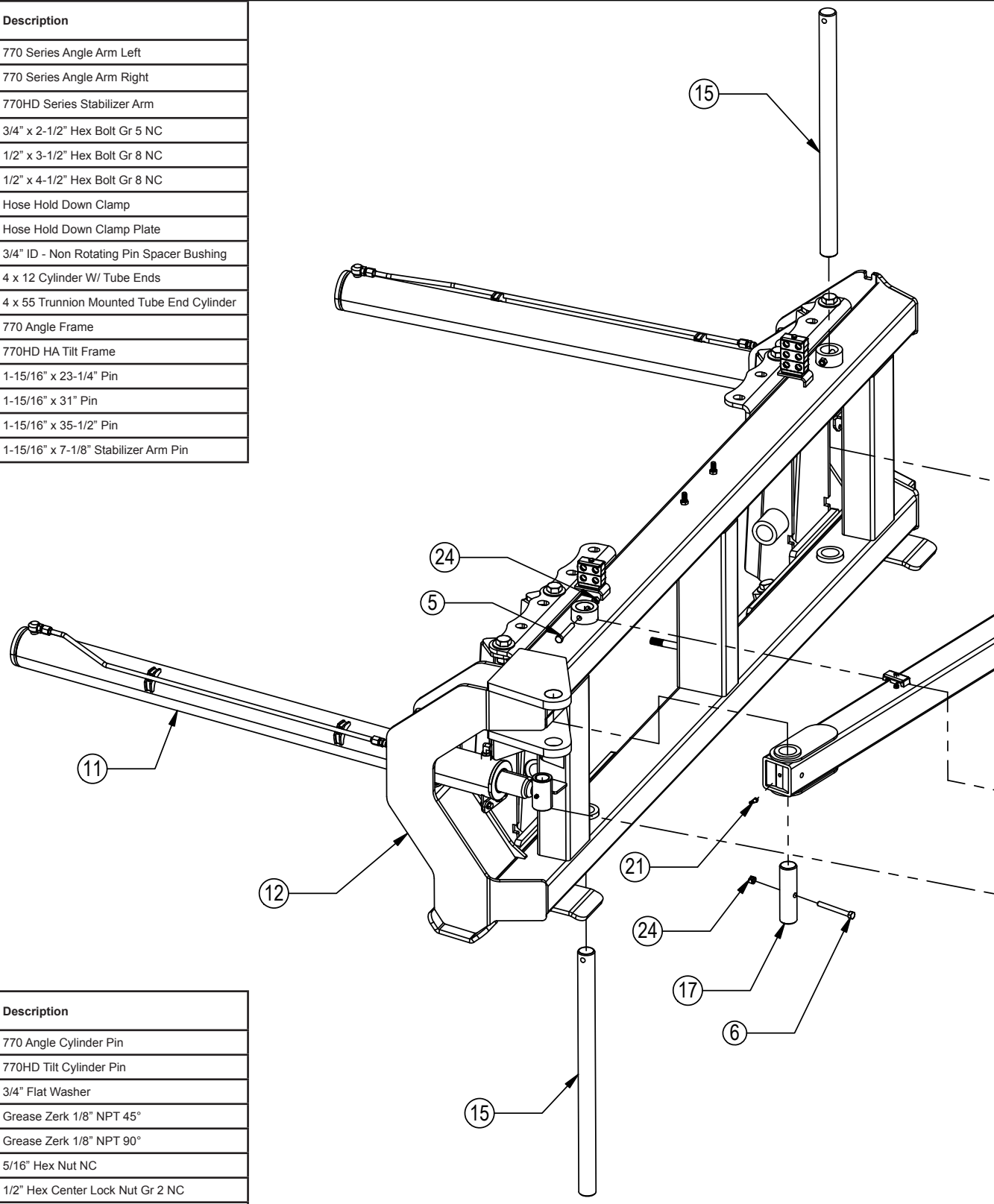
Some Parts Hidden For Clarity

Item No.	Qty.	Part No.	Description
1	1	11-3049	Bell Crank Weld
2	3	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC
3	2	16-20132	1/2" x 3" Hex Bolt Gr 5 NC
4	8	16-20560	1" x 2-1/2" Hex Bolt Gr 8 NC
5	2	16-21064	3/8" x 1" Carriage Bolt
6	1	16-21125	1/2 x 1-1/4" Carriage Bolt
7	2	19-13577	NR Pin Spacer Clevis End
8	1	39-14663	AG Pro Pin Puller Latch
9	1	39-14665	AG Pro Pin Puller Handle Weld
10	1	39-3072	Handle Cover (Orange)
11	2	43-3050	QA Lock Pin
12	1	44-14662	AG Pro Pin Puller Link Plate
13	1	45-16035-R	HD Female Vertical Bolt On Quick Attach, Right
14	1	45-16035-L	HD Female Vertical Bolt On Quick Attach, Left
15	16	57-20819	1" Flat Washer Heavy Duty Gr 8 (USS)
16	6	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
17	2	70-20607	3/4" Hex Center Lock Nut Gr 2 NC
18	8	70-20609	1" Hex Center Lock Nut Gr 2 NC
19	2	75-14655	AG Pro Pin Puller Link Weld
20	2	70-20622	3/8" Flange Nut



Hydraulic Angle - Hydraulic Tilt

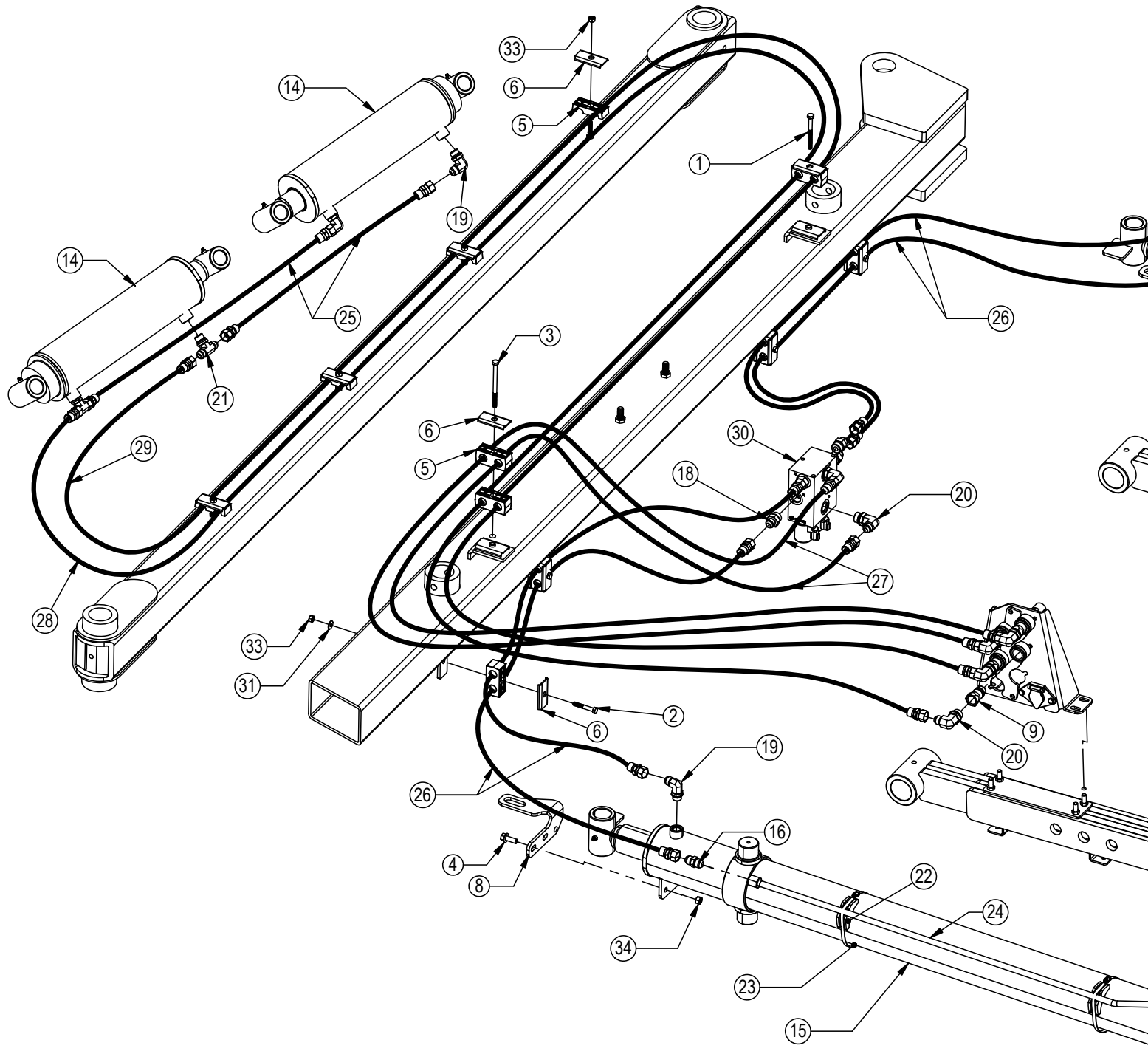
Item No.	Qty.	Part No.	Description
1	1	11-14640-L	770 Series Angle Arm Left
2	1	11-14640-R	770 Series Angle Arm Right
3	1	11-16010	770HD Series Stabilizer Arm
4	6	16-20220	3/4" x 2-1/2" Hex Bolt Gr 5 NC
5	2	16-20424	1/2" x 3-1/2" Hex Bolt Gr 8 NC
6	3	16-20427	1/2" x 4-1/2" Hex Bolt Gr 8 NC
7	2	18-3074	Hose Hold Down Clamp
8	4	18-3075	Hose Hold Down Clamp Plate
9	6	19-13515	3/4" ID - Non Rotating Pin Spacer Bushing
10	2	26-34728	4 x 12 Cylinder W/ Tube Ends
11	2	26-34739	4 x 55 Trunnion Mounted Tube End Cylinder
12	1	32-14610	770 Angle Frame
13	1	32-16020	770HD HA Tilt Frame
14	1	43-8130	1-15/16" x 23-1/4" Pin
15	2	43-8131	1-15/16" x 31" Pin
16	1	43-8132	1-15/16" x 35-1/2" Pin
17	1	43-8133	1-15/16" x 7-1/8" Stabilizer Arm Pin



Item No.	Qty.	Part No.	Description
18	2	43-8466	770 Angle Cylinder Pin
19	4	43-16116	770HD Tilt Cylinder Pin
20	6	57-20747	3/4" Flat Washer
21	2	58-9371	Grease Zerk 1/8" NPT 45°
22	6	58-9372	Grease Zerk 1/8" NPT 90°
23	4	70-20581	5/16" Hex Nut NC
24	5	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
25	6	70-20607	3/4" Hex Center Lock Nut Gr 2 NC

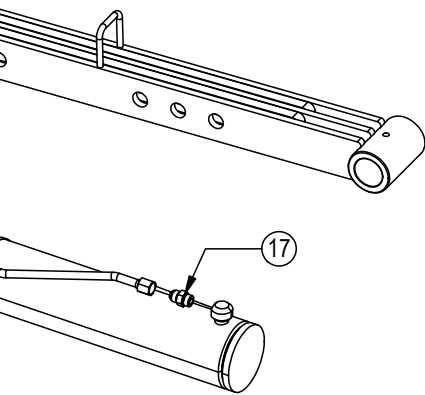
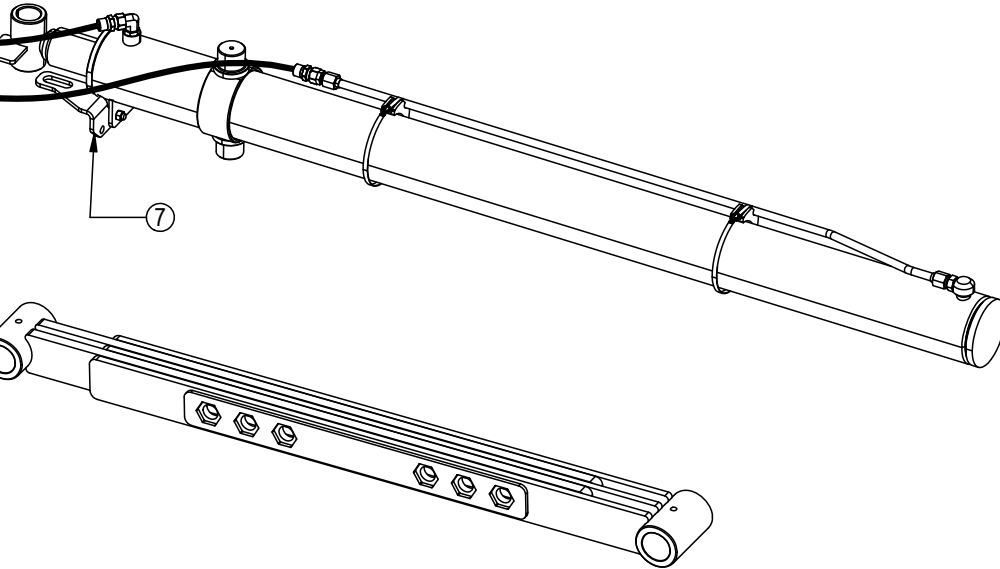
Hydraulic Angle - Hydraulic Tilt Hose Routing

Hoses Not Drawn To Scale



Item No.	Qty.	Part No.	Description
1	1	16-20036	5/16" x 1-1/2" Hex Bolt Gr 5 NC
2	4	16-20038	5/16" x 2" Hex Bolt Gr 5 NC
3	1	16-20043	5/16" x 3-1/4" Hex Bolt Gr 5 NC
4	4	16-35C616	3/8" x 1" Flanged Bolt
5	9	18-3074	Hose Hold Down Clamp
6	10	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	25-34322	Tappet Quick Coupler Male
10*	2	25-3453	Pioneer Dust Cap Tilt (Green)
11*	2	25-3454	Pioneer Dust Plug Tilt (Green)
12*	2	25-3455	Pioneer Dust Cap Angle (Red)
13*	2	25-3456	Pioneer Dust Plug Angle (Red)
14	2	26-34728	4 x 12 Cylinder W/ Tube Ends

* Parts Not Shown



NOTE: Refer to Page 23 for Hydraulic Schematic

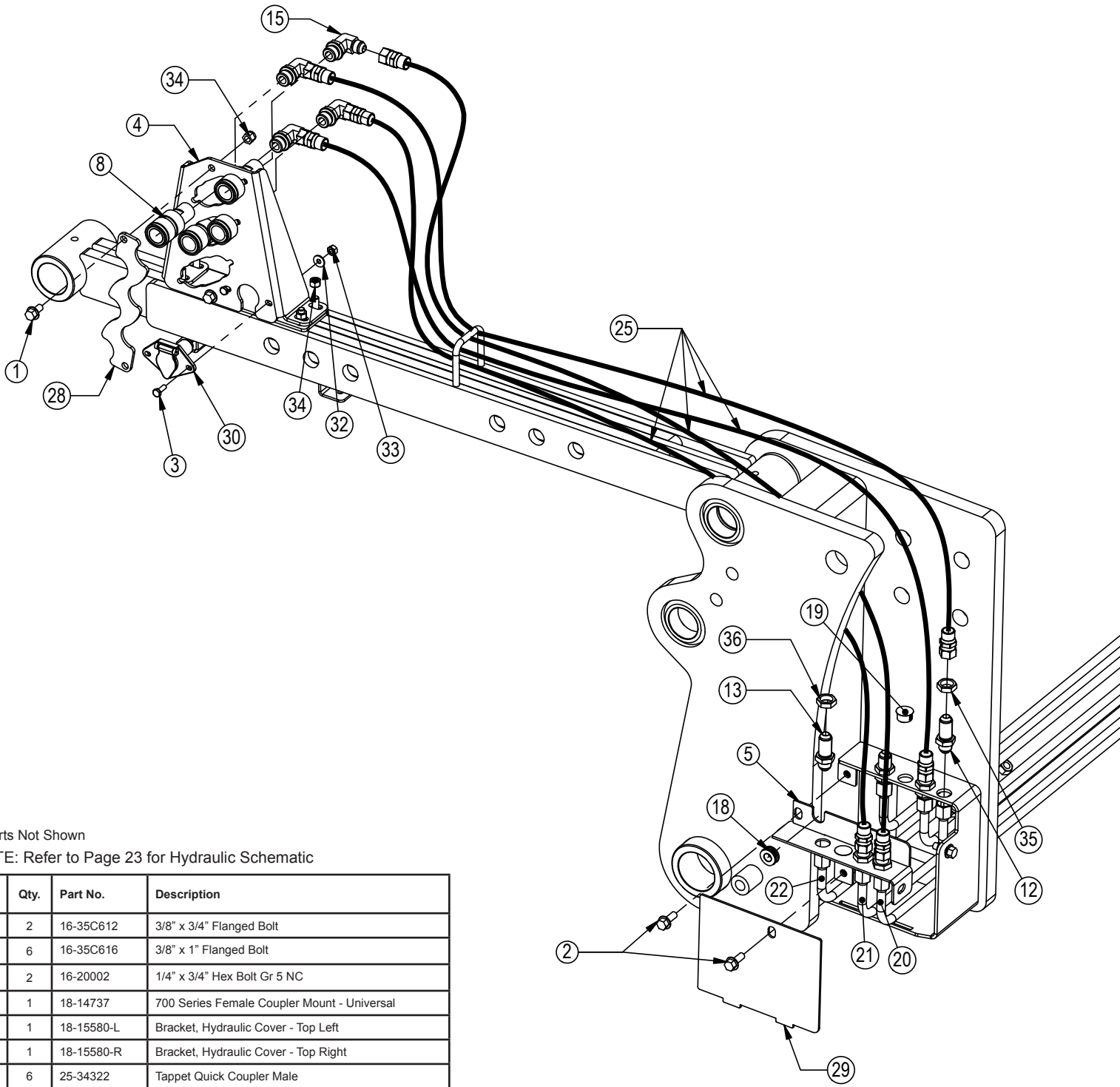
Item No.	Qty.	Part No.	Description
15	2	26-34739	4 x 55 Trunnion Mounted Tube End Cylinder
16	2	31-11699-8-8	JIC Union (2403-8-8)
17	2	31-34040	Straight JIC x O-Ring (6400-8-8)
18	4	31-34041	Straight JIC x O-Ring (6400-8-10)
19	4	31-34050	Straight Thread Elbow 90° JIC x O-Ring (6801-8-8)
20	6	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
21	2	31-34060	Branch Tee JIC x O-Ring (6803-8-8-8)
22	4	34-12932	Cylinder Saddle
23	4	34-12994	Cylinder Hose Clamp
24	2	35-14674	45" -8 Formed Steel Line - Tier 4 Angle
25	2	35-30177	44" x 1/2" -8JIC/-8JIC Hose
26	4	35-30131	66" x 1/2" -8JIC/-8JIC Hose
27	2	35-30135	78" x 1/2" -8JIC/-8JIC Hose
28	1	35-30173	230" (19.17') x 1/2" -8JIC/-8JIC Hose
29	1	35-30174	240" (20') x 1/2" -8JIC/-8JIC Hose
30	1	56-14680	Logic Hydraulic Angle Valve
31	4	57-20741	5/16" Flat Washer
32*	10	59-34952	Stud Mounted Zip Tie
33	8	70-20581	5/16" Hex Nut NC
34	4	70-20622	3/8" Flange Hex Nut 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
26-34728	49-12272	Seal Kit 4" Bore x 2" Rod (647204) Nitrided Rod
26-34739	49-12274	Seal Kit 4 x 55 (647210) Nitrided Rod

Tractor Side - Hydraulic Hose Routing

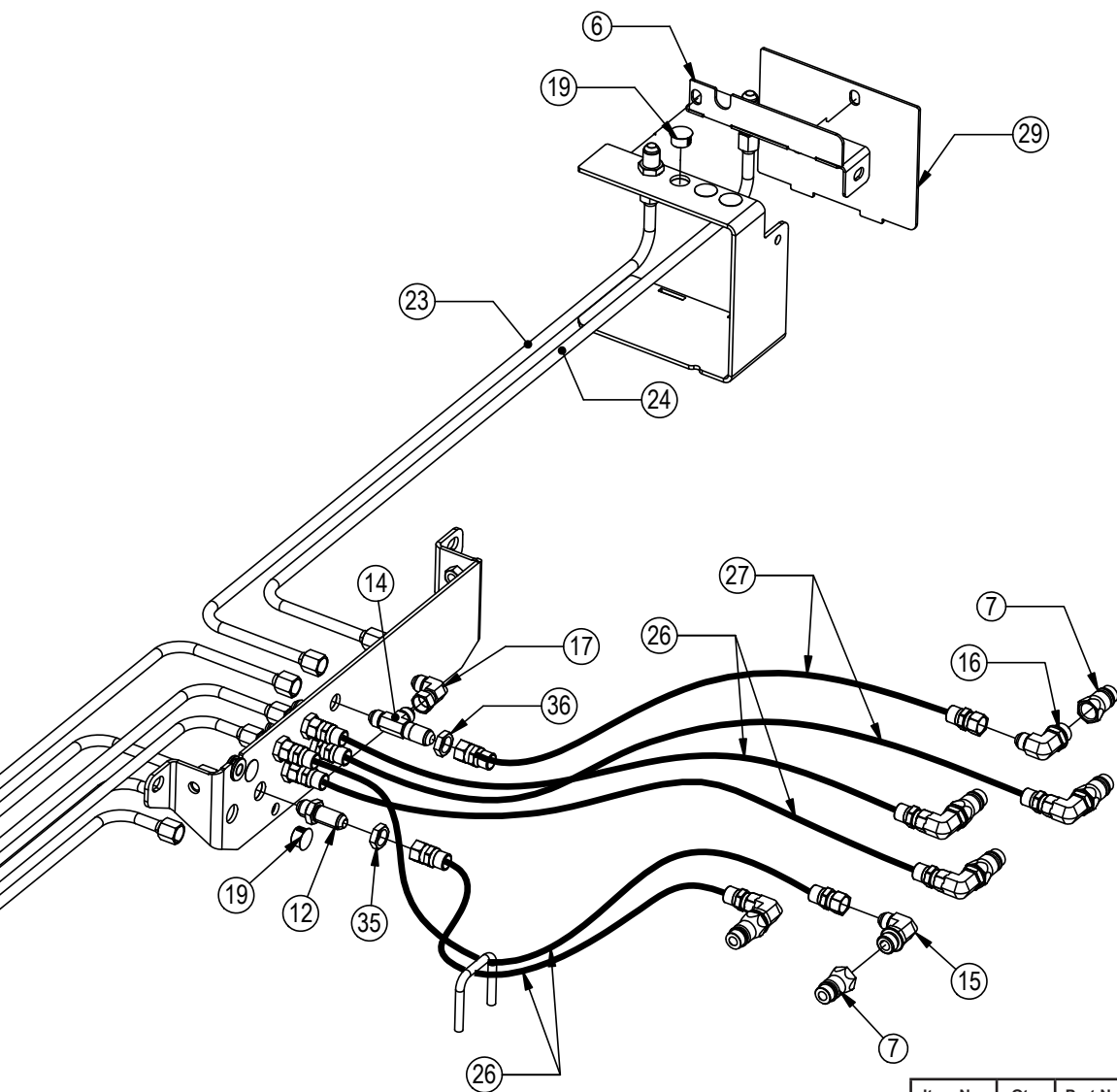
Hoses Not Drawn To Scale



* Parts Not Shown

NOTE: Refer to Page 23 for Hydraulic Schematic

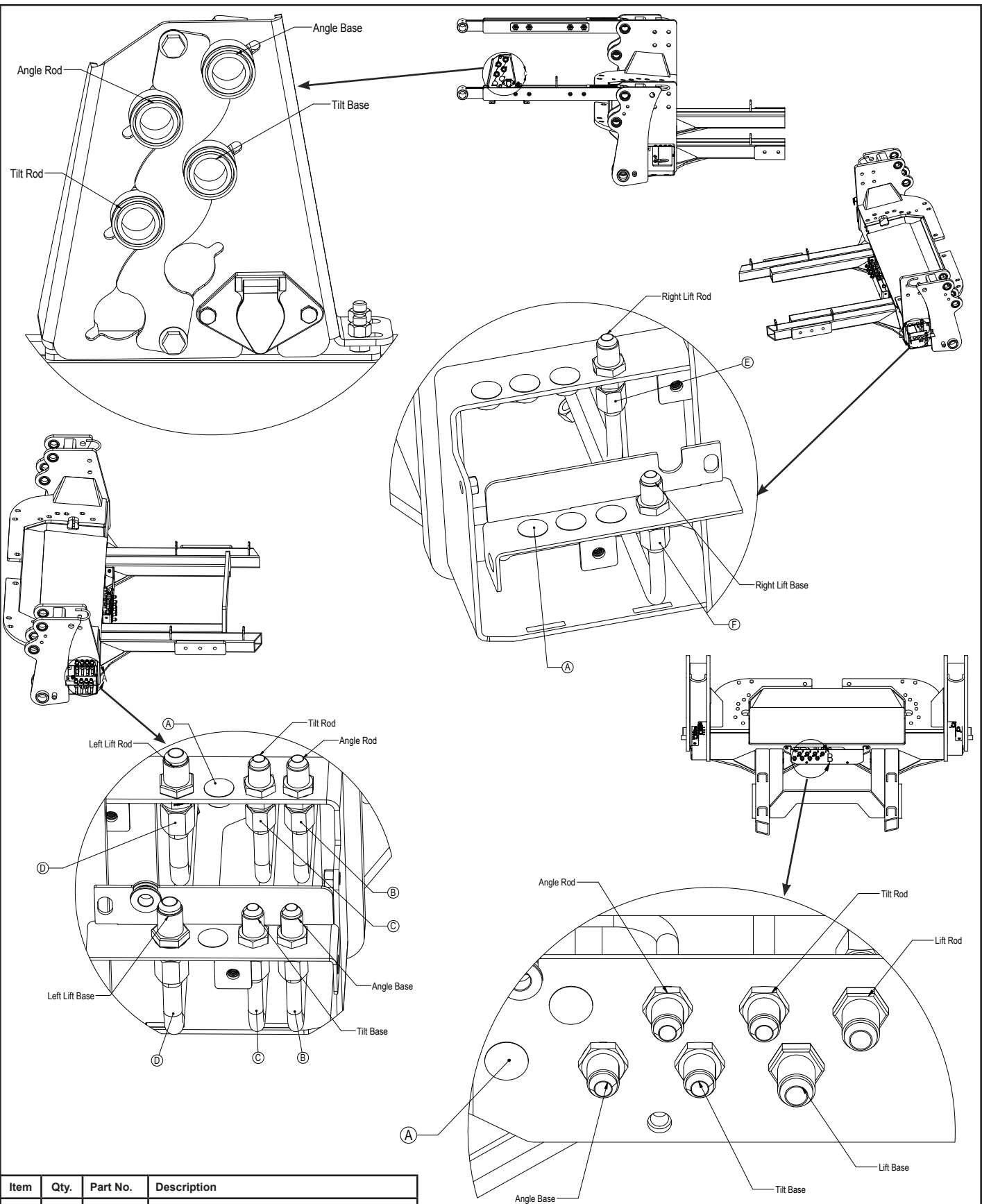
Item No.	Qty.	Part No.	Description
1	2	16-35C612	3/8" x 3/4" Flanged Bolt
2	6	16-35C616	3/8" x 1" Flanged Bolt
3	2	16-20002	1/4" x 3/4" Hex Bolt Gr 5 NC
4	1	18-14737	700 Series Female Coupler Mount - Universal
5	1	18-15580-L	Bracket, Hydraulic Cover - Top Left
6	1	18-15580-R	Bracket, Hydraulic Cover - Top Right
7	6	25-34322	Tappet Quick Coupler Male
8	4	25-34321	Tappet Quick Coupler Female
9*	2	25-3453	Pioneer Dust Cap Tilt (Green)
10*	2	25-3455	Pioneer Dust Cap Right Angle (Red)
11*	2	25-3457	Pioneer Dust Cap Lift (Orange)
12	8	31-34000	Bulkhead Union JIC (2700-8-8)
13	4	31-2700-10-10	Bulkhead Union JIC (2700-10-10)
14	2	31-34031	Bulkhead Run Tee JIC (2704-10-10-10)
15	8	31-34051	Straight Thread Elbow 90° JIC x O-Ring (6801-8-10)
16	2	31-34052	Straight Thread Elbow 90° JIC x O-Ring (6801-10-10)
17	2	31-34101	Swivel Nut Elbow 90° JIC (6500-10-10)
18	2	34-14826	1/2" ID Rubber Grommet



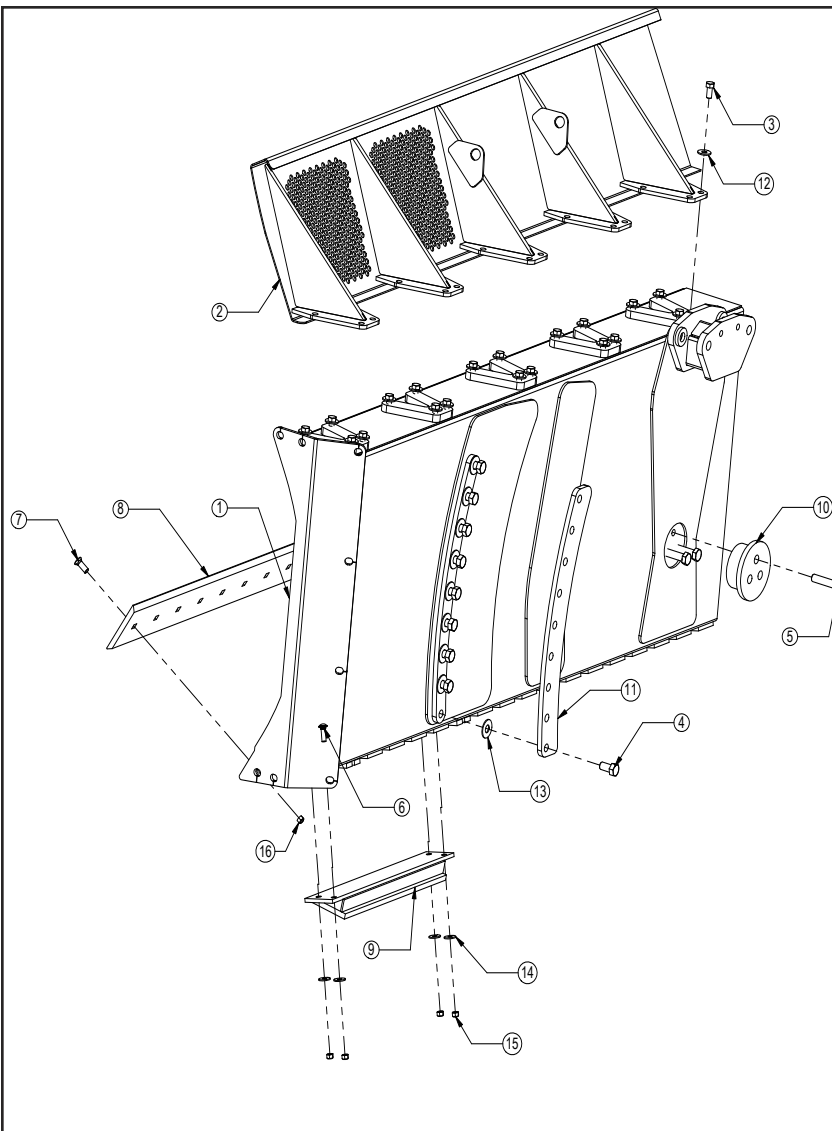
* Parts Not Shown

Item No.	Qty.	Part No.	Description
19	11	34-14898	Dome Plug (3044)
20	2	35-14351	31.63" -8 Formed Steel Line (Angle)
21	2	35-14352	33.88" -8 Formed Steel Line (Tilt)
22	2	35-15556	36.19" -10 Formed Steel Line (HD Left Lift)
23	1	35-15557	36.22" -10 Formed Steel Line (770HD Right Lift)
24	1	35-15558	39.22" -10 Formed Steel Line (770HD Right Lift)
25	4	35-31132	69" x 1/2" -8JIC/-8JIC Hose W/ Cordura
26	4	35-30172	318" (26.5') x 1/2" -8JIC/-8JIC Hose
27	2	35-30963	318" (26.5') x 5/8" -10JIC/-10JIC Hose
28	1	44-14738	700 Series Female Coupler Retainer-Universal
29	2	44-15120	700 Series Side Cover Plate - Left
30	1	69-14681	Logic Angle Valve Wire Harness
31*	1	69-14679	Electric Angle Switch
32	2	57-20740	1/4" Flat Washer
33	2	70-20580	1/4" Hex Nut Gr 5 NC
34	6	70-20622	3/8" Flange Hex Nut NC
35	8	70-20807	3/4" Hex Jam Nut
36	6	70-20808	7/8" Hex Jam Nut

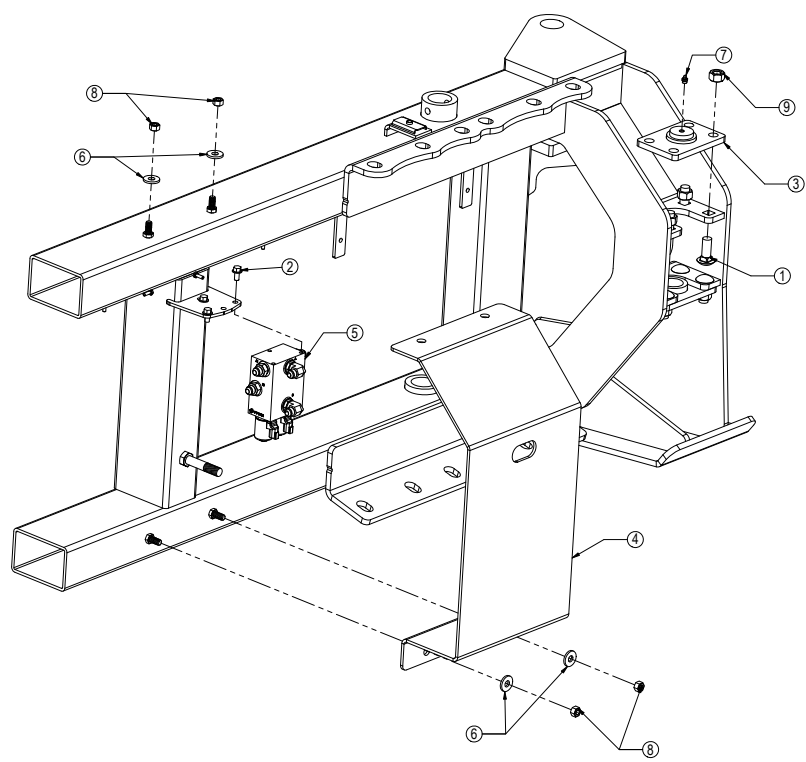
Hydraulic Connections



Item	Qty.	Part No.	Description
A	11	34-14898	Dome Plug (3044)
B	2	35-14351	31.63" -8 Formed Steel Line (Angle)
C	2	35-14352	33.88" -8 Formed Steel Line (Tilt)
D	2	35-15556	36.19" -10 Formed Steel Line (Left Lift)
E	1	35-15557	36.33" -10 Formed Steel Line (770 Right Lift)
F	1	35-15558	39.22" -10 Formed Steel Line (770 Right Lift)

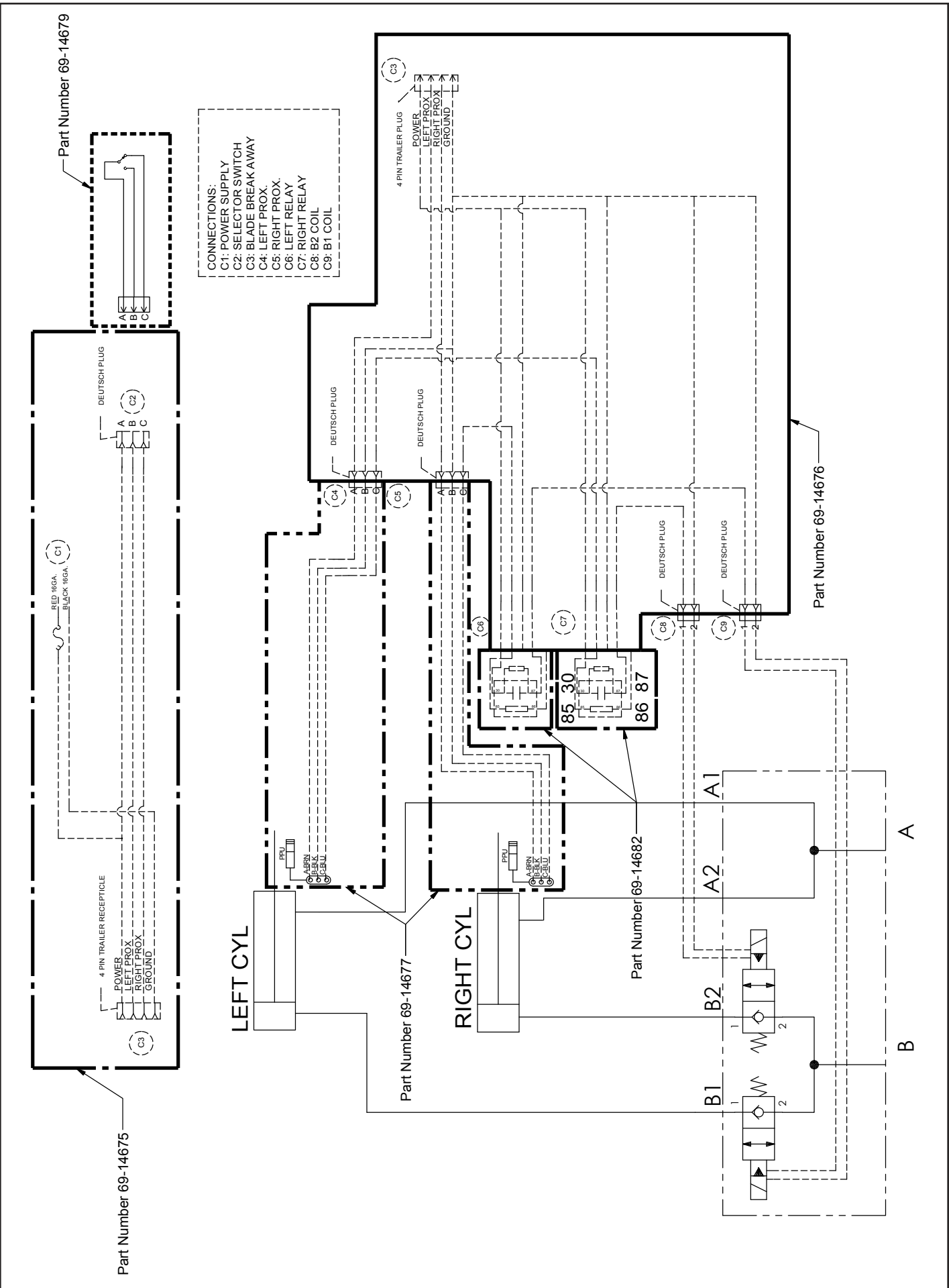


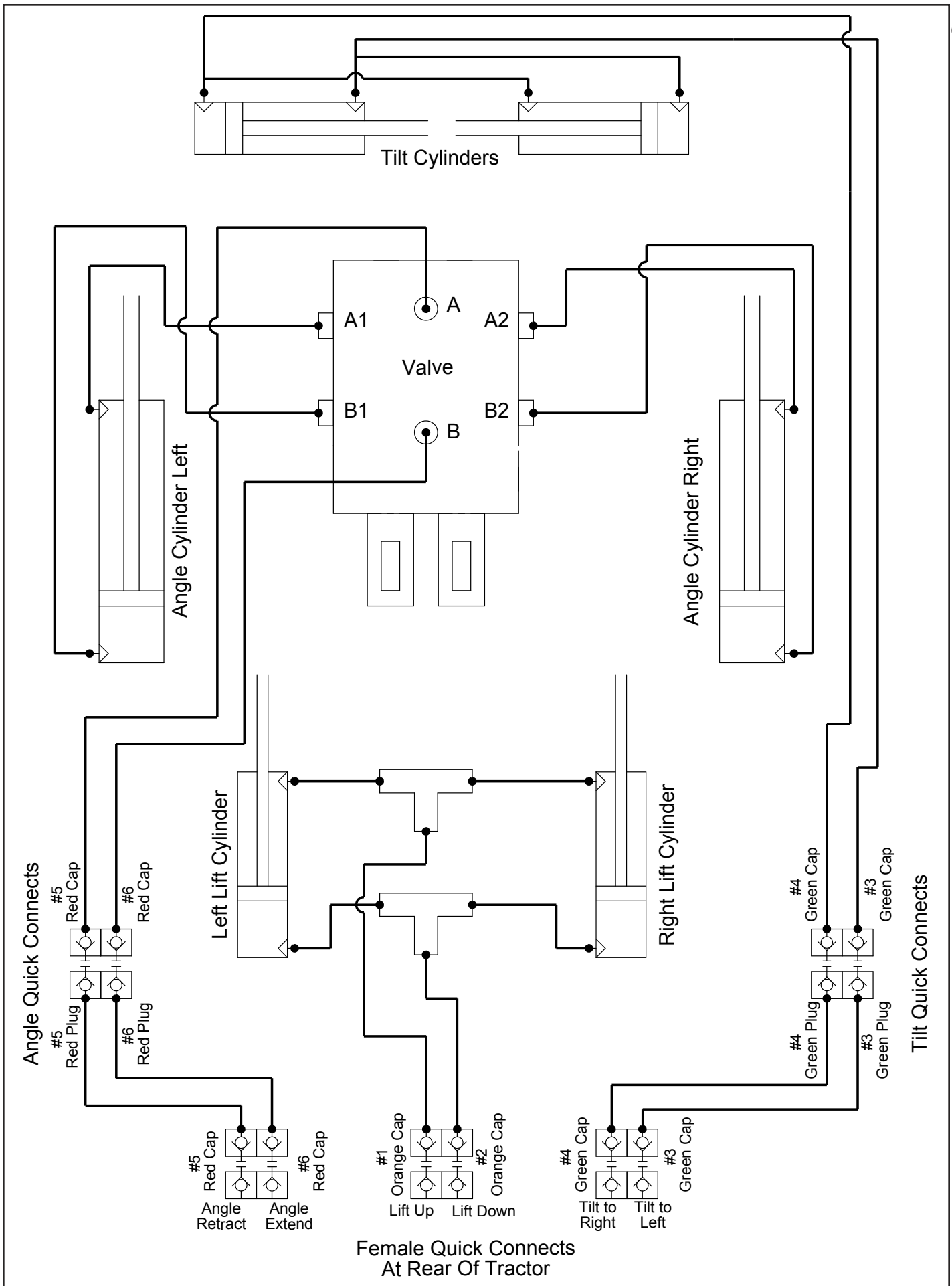
Item No.	Qty.	Part No.	Description
1	1	15-12462-16	HD 16' Blade Combo Ends - Top Ext Ready
2	1	15-13420-16	16' x 18" Bolt on Top Extension
3	36	16-20216	3/4" x 1-1/2" Hex Bolt Gr 5 NC
4	18	16-20562	1" x 3" Hex Bolt Gr 8 NC
5	3	16-20568	1" x 5" Hex Bolt Gr 8 NC
6	8	16-21188	5/8" x 2" Carriage Bolt Gr 5 NC
7	32	16-21748	3/4" x 2" Plow Bolt Gr 5 NC
8	2	29-11118-8	8'- 3/4" x 8" Double Bevel Cutting Edge
9	2	50-16710	HD Skid Shoe 33"
10	1	52-12380	HD Center Tilt Way Cover
11	2	52-16030	HD Tilt Plate Covers
12	36	57-20747	3/4" Flat Washer
13	18	57-20749	1" Flat Washer
14	8	57-20816	5/8" Flat Washer Grade 8 (USS)
15	8	70-20646	5/8" Hex Top Lock Nut Gr 5 NC
16	32	70-20647	3/4" Hex Top Lock Nut Gr 5 NC



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	4	57-20744	1/2" Flat Washer
7	4	58-9369	Grease Zerk 1/8" NPT Straight
8	4	70-20604	1/2" Hex Center Lock Nut Gr 2 NC
9	16	70-20607	3/4" Hex Center Lock Nut Gr 2 NC

Angle Wire Harness



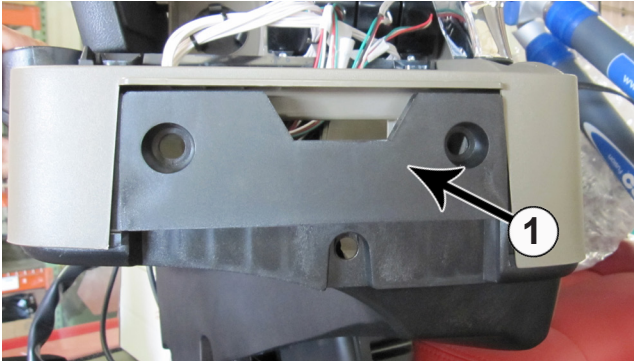


Joystick and Bracket Parts List

QTY.	PN	Description
4	16-11436	10-24 x 1.00" Socket Head Cap Screw
1	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
3	16-35C616	3/8" X 1" Flange Bolt
2	16-205562	1" X 3" 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	18-16705	Steiger Tier 4 Joystick Mount
1	18-16715	Steiger Tier 4 Joystick Bolting Bracket
1	31-12331-6-6	-6 JIC to -6 ORFS Swivel (FF6504 -6-6)
1	31-12332-6-4	Female JIC Swivel x Male Pipe (6505-6-4)
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	31-34169	Male Elbow 90° JIC x Pipe (2501-6-4)
2	31-34259	Straight Threaded Elbow 90° JIC X Metric (7801-12-27)
1	31-FS-2404-06-04	OFS Male Pipe Connector
1	35-11694-0470	47" x 3/8" -6 FJIC x -6 FJIC
2	35-11684-0500	50" x 3/4" -12 FJIC x -12 FJIC
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	44-16712	Steiger Tier 4 Middle Bolting Plate
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
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
4	70-20622	3/8" Flange 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.

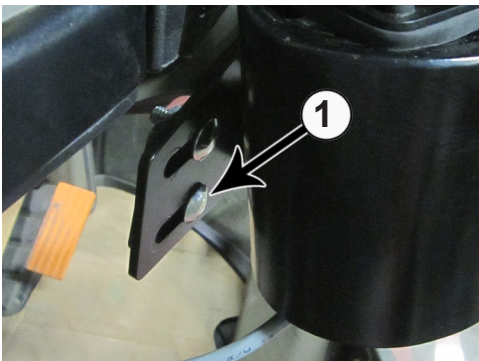


1. Remove the cover or the monitor mount from the front of the armrest.

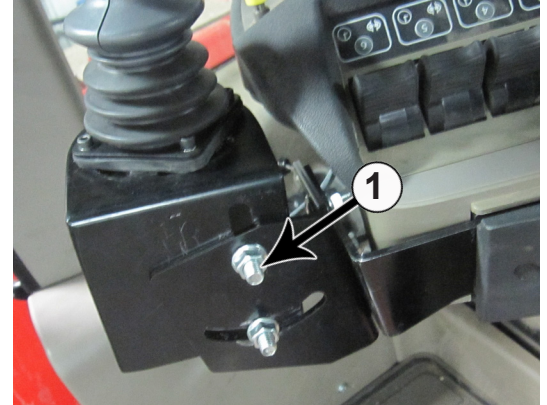
NOTE: The following pictures show the joystick assembly already in place. The joystick will be installed in a later step.



2. Attach the bolting bracket (PN: 18-16715) along with the cover or monitor mount to the front of the armrest with the original hardware from step #1. Put the bracket between the armrest and the cover or monitor mount (1).



3. Attach the small middle bolting plate (PN: 44-16712) to the bracket from Step #2 with 2 - 3/8" x 1" carriage bolts (PN: 16-21064) and 2 - 3/8" flange nuts (PN: 70-20622) (1).



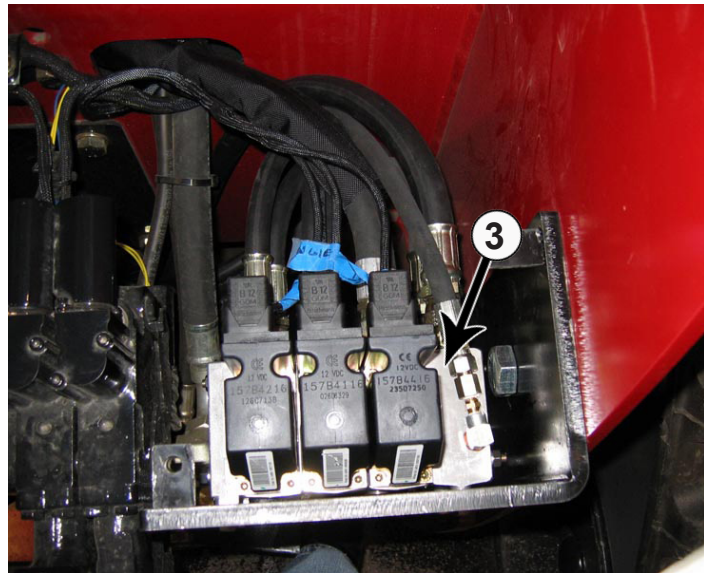
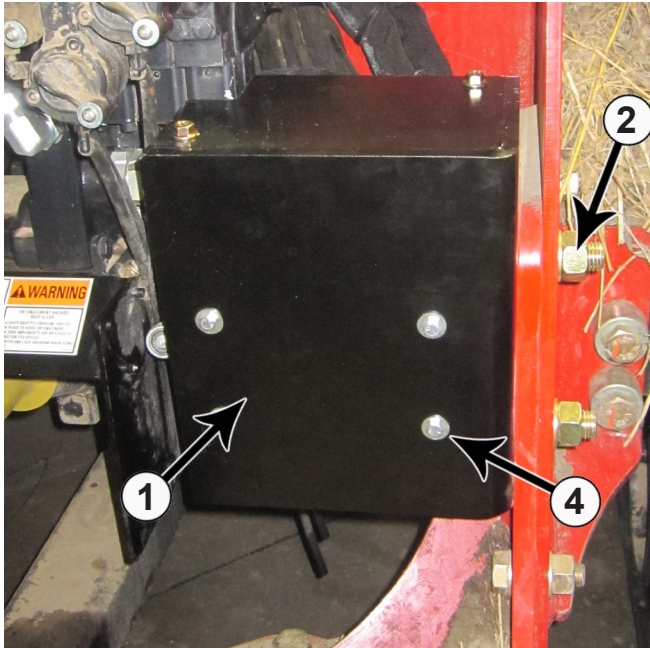
4. Attach the joystick mount (PN: 18-16705) to the bracket from Step #3 with 2 - 3/8" x 1" carriage bolts (PN: 16-21064) and 2 - 3/8" flange nuts (PN: 70-20622) (1).



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 & Valve Installation

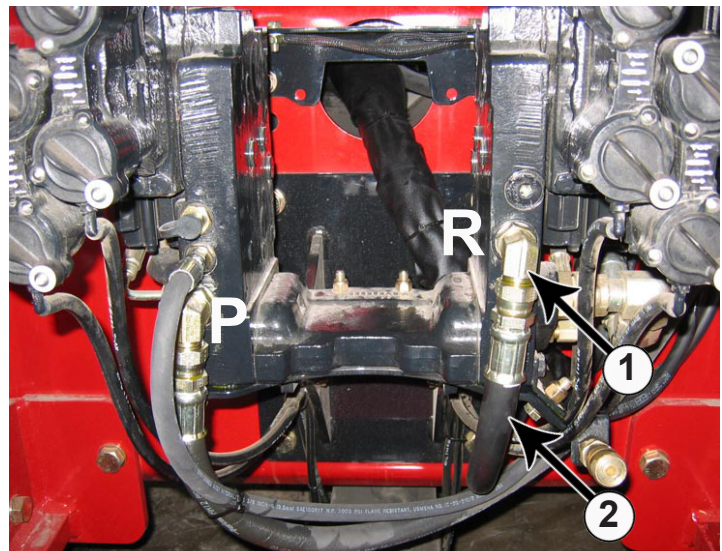
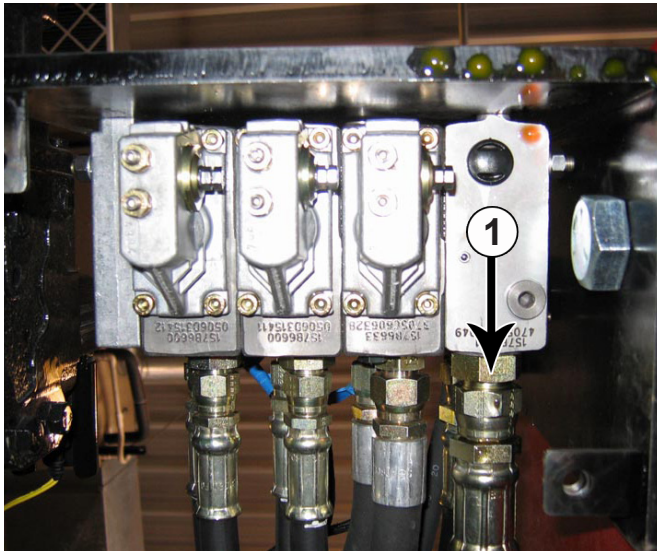


7. Attach the rear valve mount (PN: 18-11426) (1) to the rear of the tractor. Use 2 - 1" x 3" bolts (PN: 16-20562) and 1" nuts (PN: 70-20599) to attach the mount to the side of the tractor frame (2).

8. Attach the control valve (3) to the valve mount with 4 - 5/16" x 1" bolts (PN: 16-20034) and 4 - 5/16" flat washers (PN: 57-20741) (4).

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

Plumbing



NOTE: Valve shown from the bottom.

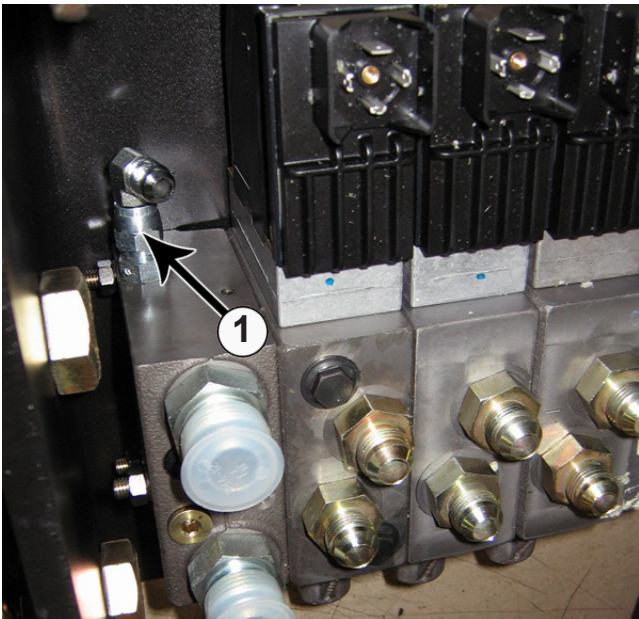
9. Attach the 50" hoses (PN: 35-12215-0500) to the two fittings on the control valve that are closest to the right side of the tractor frame (1).

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).

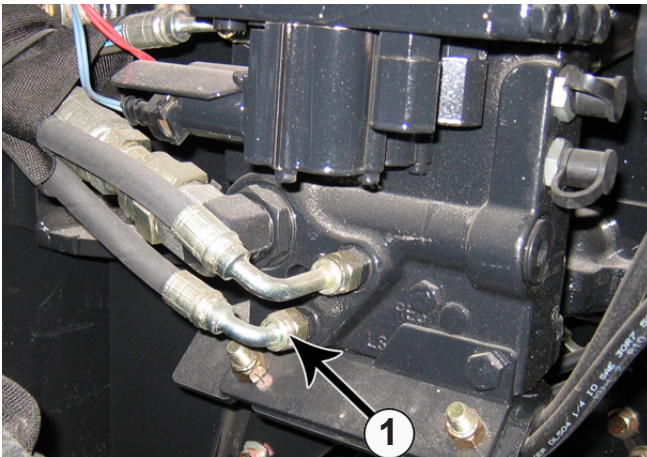
11. Attach the 50" hose from the **bottom** fitting on the control valve to the 90° fitting at the P port.

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

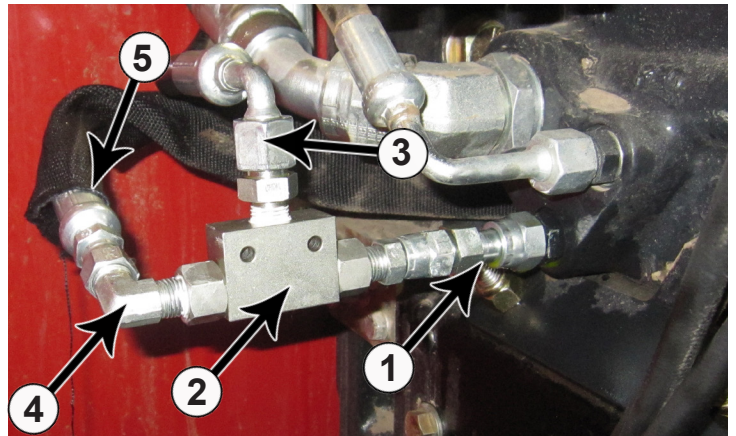


13. If fittings are not installed in the LS port on the control valve, install a straight -6-5 fitting (PN: 31-34033) and a 90° -6-6 fitting (PN: 31-34099) in the LS port (1).

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



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



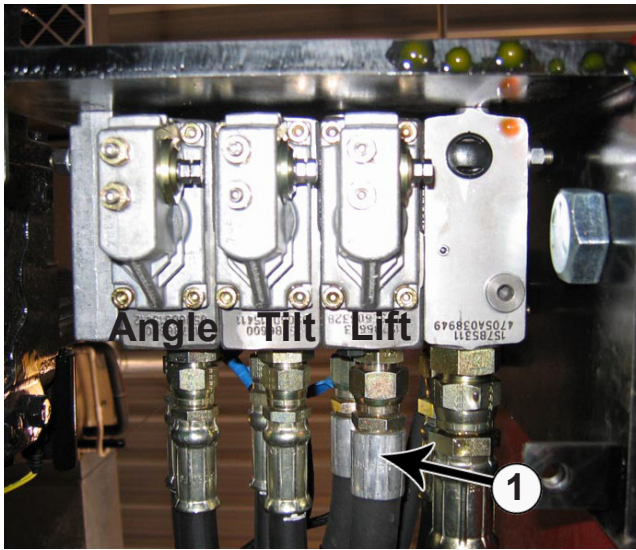
16. Install a JIC x Face Seal Swivel (PN: 31-12331-6-6) to the fitting that the hydraulic line was removed from. Also install a Female JIC Swivel x Male Pipe fitting (PN: 31-12332-6-4) onto the previous fitting (1).

17. Attach the shuttle valve (PN: 56-11658) (2) to the fittings from Step #16.

18. Install a male pipe connector fitting (PN:31-FS-2404-06-04) in the top port on the shuttle valve (PN: 56-11658) as shown in the picture (3).

19. Attach the previously disconnected hydraulic line from Step #15 to the top male fitting on the shuttle valve (3).

20. Install a 90° JIC x Pipe fitting (PN: 31-34169) (4) to the last port on the shuttle valve. Attach the straight end of the 47" hose (PN: 35-11694-0470) from Step # 14 to the male 90° fitting on the shuttle valve (5).



NOTE: Valve shown from the bottom.

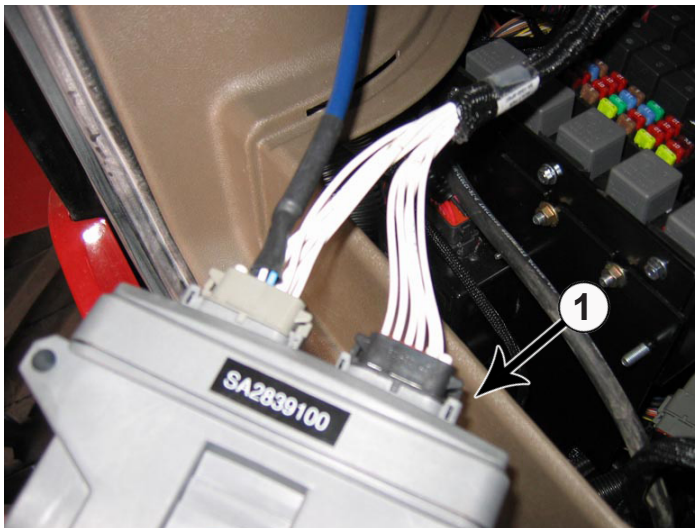
21. Guide the dozer **lift** hoses to the rear of the tractor. Wrap a hose protector around the hoses. If necessary, use zip ties to keep the hose protector in place.

22. 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.

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

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

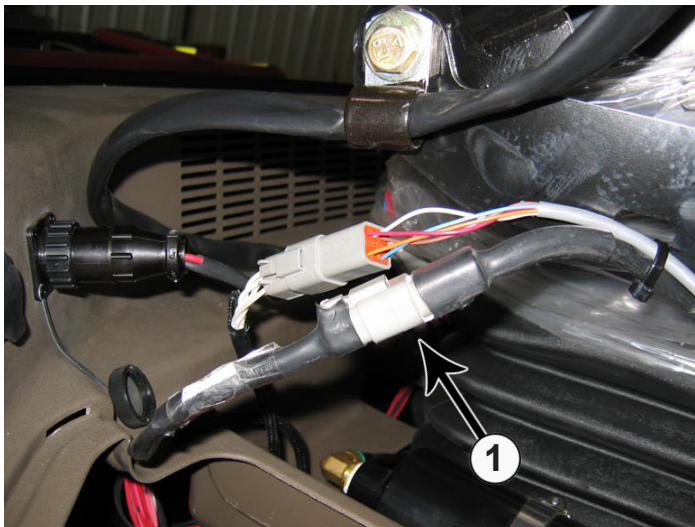
Cable Installation



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

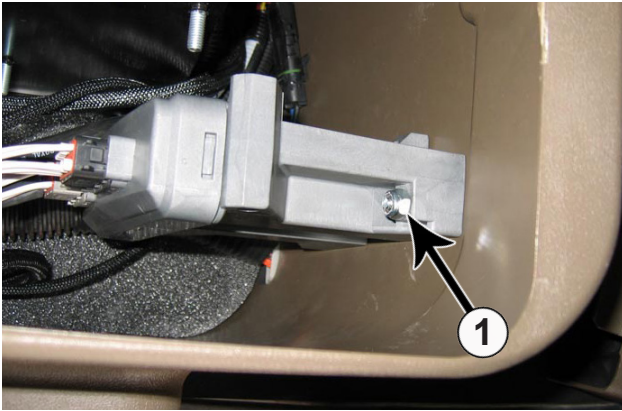


27. Plug the power cord from the wire harness into the port located behind and to the right of the operator's seat in the tractor cab (1).

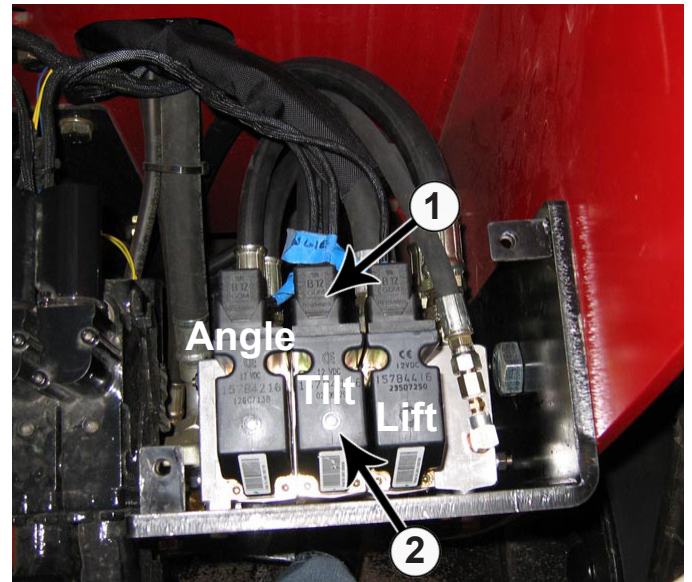


26. Connect the cable from the joystick to the wire harness (1).

28. Attach the supplied relay wire harness to the dozer blade wire harness (C2). Plug the 2 prong trailer connector from the relay into the trailer connector from the joystick (C11).



29. 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).



30. Guide the 2 cables and Dins from the wire harness out to the rear of the tractor (1).

31. Put the supplied rubber seal on each Din connector.

32. Connect the **Lift** and **Tilt** Dins to the corresponding connections on the back of the control valve (1).

33. 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.

34. Use zip-ties to hold cables in place.

Valve Cover Installation



35. Place the valve cover over the valve and hoses as shown in the picture. Verify that the hoses are not being pinched.

36. Attach the valve cover to the valve bracket with 3 - 3/8" x 1" bolts (PN: 16-35C616) (1).

37. Joystick installation is complete!

Joystick Operation

38. To **raise** the blade **up**, **pull back** on joystick.

39. To **lower** the blade **down**, **push forward** on joystick.

40. To **tilt** the blade **left**, tilt the joystick to the **left**.

41. To **tilt** the blade **right**, tilt the joystick to the **right**.

42. To extend and retract the **left** side of the blade, operate the rocker button on the top of the joystick.

43. 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.

44. 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

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

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

JOYSTICK AUXILIARY FUNCTIONS
12 VDC

FROM JOYSTICK



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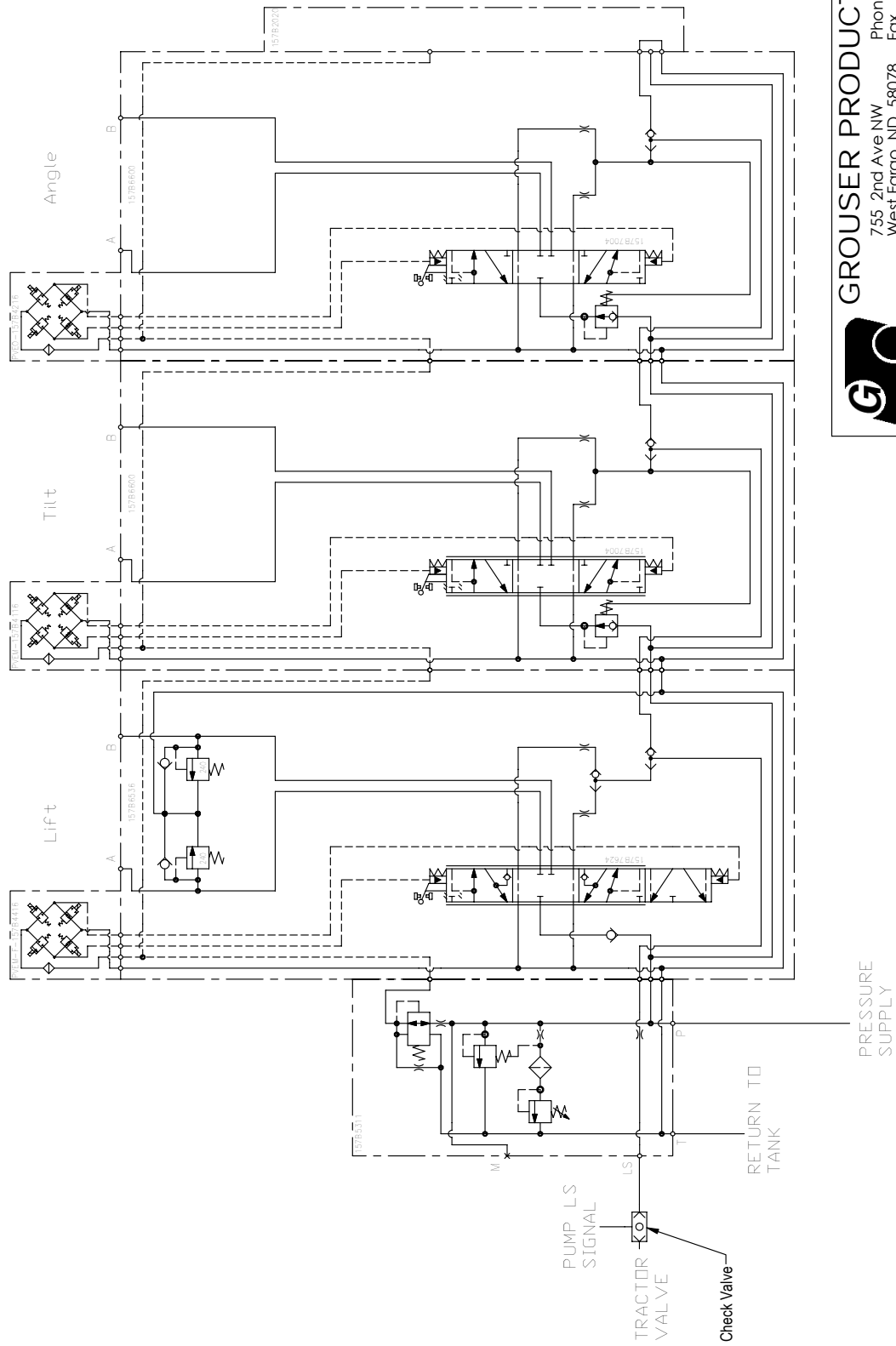
TITLE: SA-2839-SCH-JOYSTICK2

Date: 6/14/2007

DWG. NO.:

Hydraulic Schematic

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TITLE: Valve Hydraulic Schematic

Date: 5-1-2007

DWG. NO.: STX

Contact Us

As always, if you have any questions about your 770 Dozer or other products made by Grouser, feel free to contact us.

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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.

