



Case STX

&

New Holland TJ/T9000

Joystick Installation Instructions

For Models:

Case STX Quadtrac: 480, 485, 530, 535

New Holland: TJ480, TJ530, T9050, T9060

Purchase Date
Serial Number
Model Number
Tractor Model
Dealer

To The Owner

This manual contains information concerning the installation of the joystick 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.

Caution:

- Always use caution when working around any equipment.
- Always wear safety glasses.
- Follow tractor manufacturer's safety guidelines when installing this product.
- Use paint where necessary to prevent rust.
- Do not modify or permit anyone else to modify or alter the equipment and its components without first consulting Grouser Products.

Note:

- When installing hardware, only finger tighten until all hardware is in place.
- Unstrap and remove any components that are attached for shipping.
- Read all instructions prior to performing installation.
- Your machine may vary slightly from the machine in this manual, but the same installation procedure will be compatible.

Bolt Torque Specifications

Bolt Dia. (inch)	Thread per inch	Grade 5	Grade 8
		Torque (ft·lbs.)	Torque (ft·lbs.)
1/4	20	8	12
1/4	28	10	14
5/16	18	17	25
5/16	24	19	29
3/8	16	30	45
3/8	24	35	50
7/16	14	50	70
7/16	20	55	80
1/2	13	75	110
1/2	20	90	120
9/16	12	110	150
9/16	18	120	170
5/8	11	150	220
5/8	18	180	240
3/4	10	260	380
3/4	16	300	420
7/8	9	430	600
7/8	14	470	660
1	8	640	900
1	12	710	990

Bolt Dia. (mm)	Pitch	Grade 8.8	Grade 10.9
		Torque (ft·lbs.)	Torque (ft·lbs.)
4	0.70	2	
5	0.80	4	
5	1.00	7	11
7	1.00	12	
8	1.25	17	26
8	1.00	18	
10	1.50	35	51
10	1.20	37	
10	1.00	39	
12	1.75	59	88
12	1.50	62	
12	1.25	65	
14	2.00	94	139
14	1.50	101	
16	2.00	146	210
18	2.50	210	
20	2.50	292	
22	2.50	398	
44	3.00	503	

Inventory

QTY	PART NO.	DESCRIPTION
4	16-11436	10-24 x 1" 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
1	18-12035	Bracket, Joystick - Adjustable
1	18-12038	Mount, Joystick - Adjustable
1	31-12331-6-6	-6 Male JIC to -6 ORFS Swivel (FS-7504-6-6)
1	31-12332-6-4	Female JIC Swivel x Male Pipe (6505-6-4)
2	31-15KB1212	Straight JIC x O-Ring (6400-12-12)
1	31-34033	Straight JIC x O-Ring (6400-6-5)
4	31-34041	Straight JIC x O-Ring (6400-8-10)
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 Thread Elbow 90° JIC x Metric (-12-27)
2	31-6400-12-10	Straight JIC x O-Ring (6400-12-10)
2	31-FS-2404-06-04	OFS Male Pipe Connector (FS-2404-06-04)
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
2	35-3970-20	Velcro Cordura 2" Diameter (SL-2.0)
1	44-11424	Valve Mount Cover
1	44-11435	Plate, Retaining Ring
1	44-12032	Plate, Joystick - Adjustable
1	44-12934	Plate, Shuttle Valve
1	56-11653	Joystick Valve
1	56-11658	Shuttle Valve
1	56-12423	Joystick Controller (#10100993)
1	56-12424	Joystick Wire Harness
1	56-12426	Joystick
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 / Cable Tie 50# 15.5"
1	69-11663	4100 Joystick Extension Cord 30'
1	70-20580	1/4" Hex Nut Gr 5 NC
6	70-20582	3/8" Hex Nut Gr 5 NC
2	70-20599	1" Hex Nut Gr 8 NC
2	70-20610	1/4" Nyloc Hex Nut Gr 5 NC

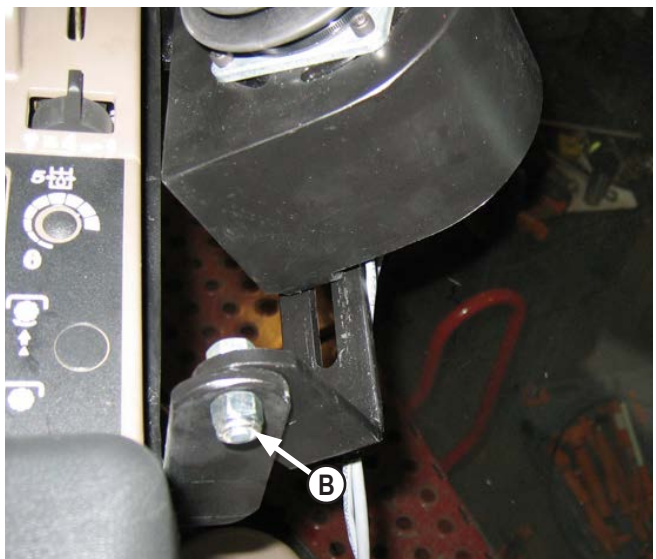
Bracket and Joystick Installation



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. Use 2 - 3/8" x 1" bolts, 2 - 3/8" washers and 2 - 3/8" nuts (A).

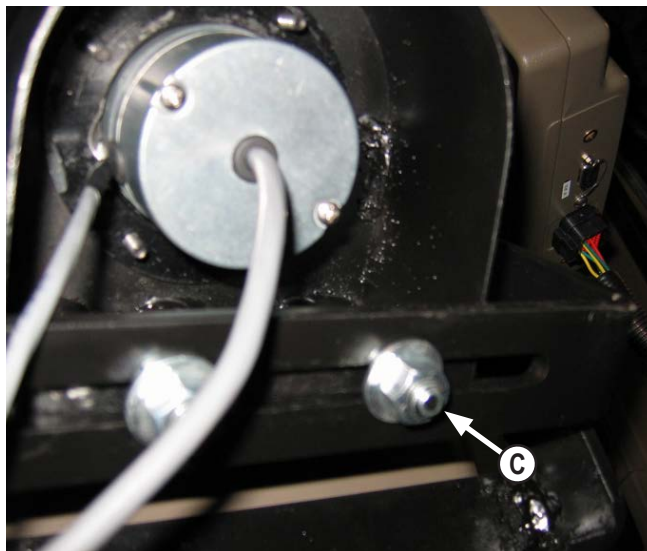
2. After joystick bracket is attached, reattach the lower section of the armrest.

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, 2 - 3/8" flat washers, and 2 - 3/8" nuts (B).

NOTE: Brackets may look slightly different but installation is still compatible.



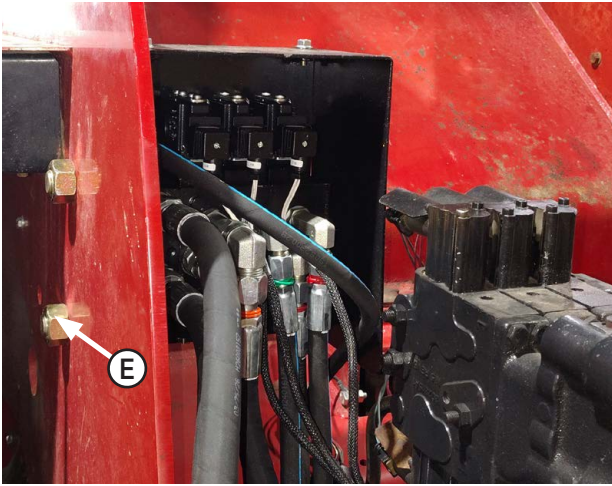
4. Attach the joystick mount (PN: 18-12038) to the joystick plate with 2 - 3/8" x 1" carriage bolts, 2 - 3/8" flat washers, and 2 - 3/8" nuts (C).



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 (D).

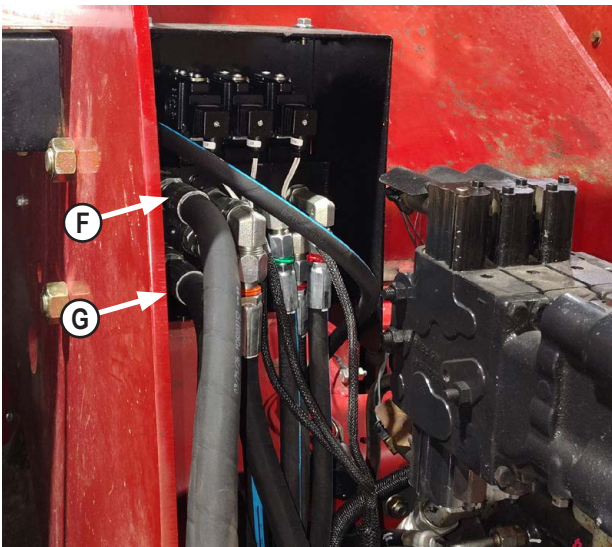
6. Adjust the joystick and mounts to position the joystick to the operator's preference. Once the joystick is in the correct position, tighten all of the fasteners.

Valve Installation

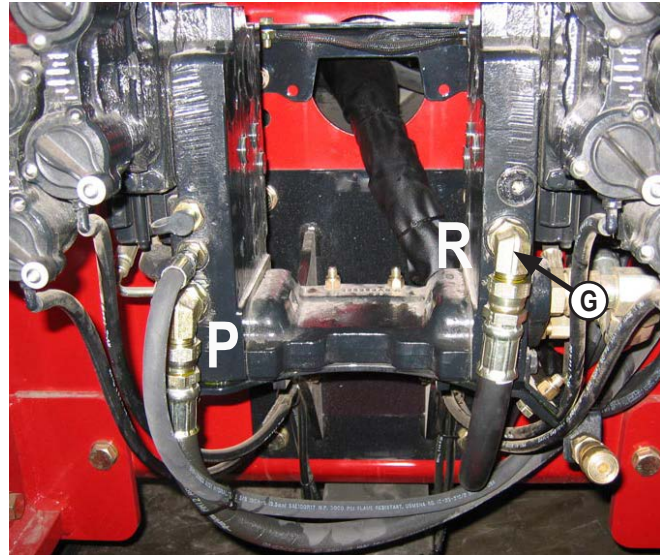


7. Use 2 - 1" x 2" bolts and 2 - 1" nuts to attach the rear valve mount to the side of the rear tractor frame (E).
8. Attach the control valve to the valve mount with 4 - 5/16" x 1" bolts and 4 - 5/16" flat washers.

Plumbing



9. Attach the 50" hoses to the top fitting on the control valve that are closest to the left side of the tractor frame (F). Attach the 35" hose to the bottom fitting (G).



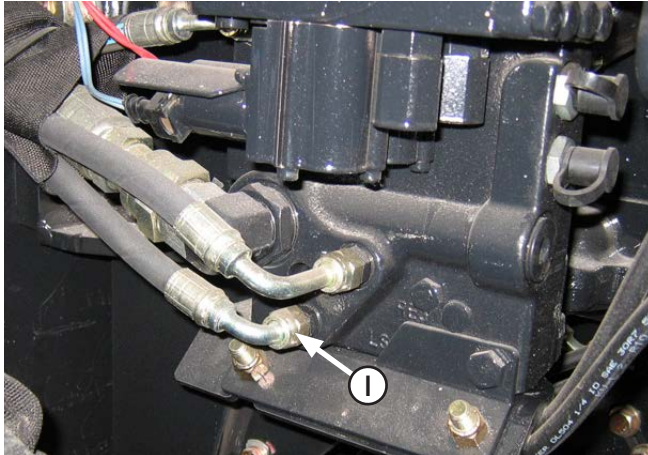
NOTE: Oil will flow. Be ready with an oil pan.

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) (G).
11. Attach the 35" 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.

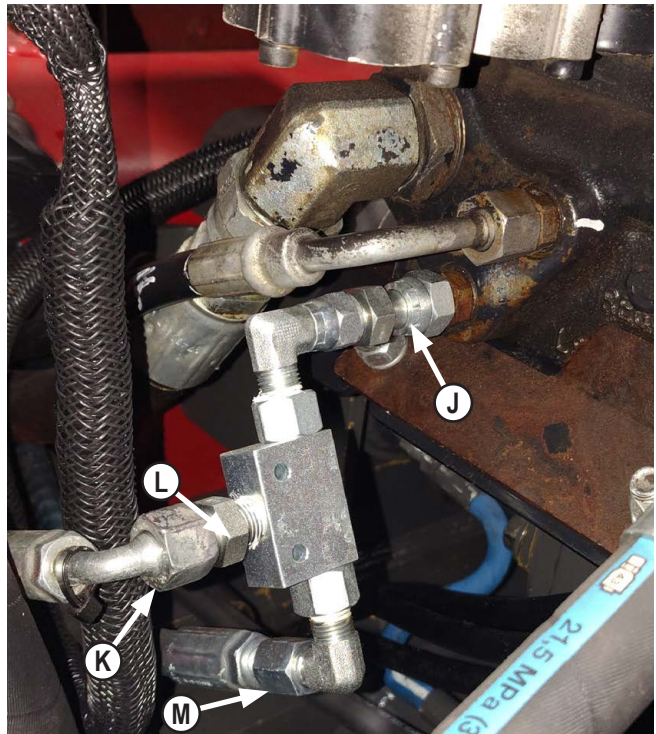


13. If fittings are not installed in the LS port on the control valve, install a straight -6-5 fitting (PN: 31-34033) and a 90° -6-6 fitting (PN: 31-34099) in the LS port (H).

14. Attach a 47" hose to the 90° fitting in the LS port.



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



16. Install a JIC x Face Seal Swivel to the fitting that the hydraulic line was removed from. Also install a Female JIC Swivel x Male Pipe fitting (Either a straight or a 90° is used and depends on available space) onto the previous fitting (J).

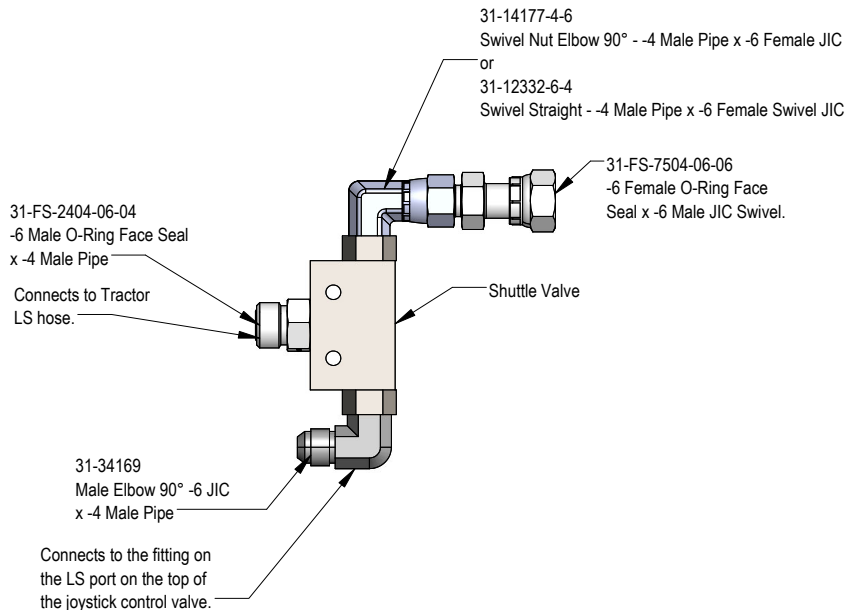
17. Install a male pipe connector fitting (PN: 31-FS-2404-06-04) (K) in the outlet port on the shuttle valve (L).

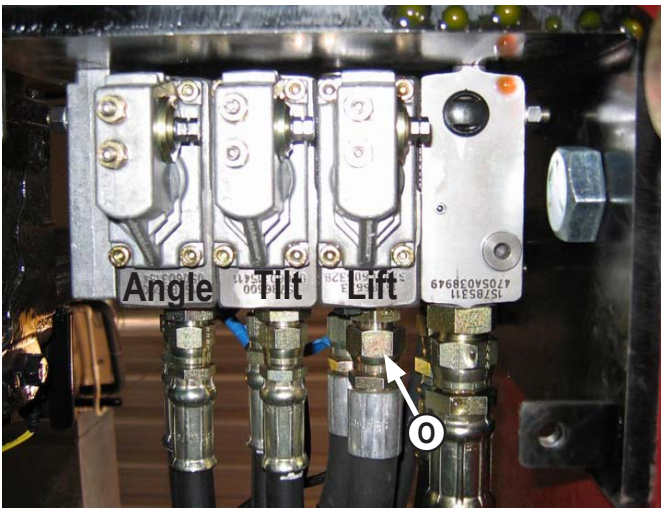
18. Install a male pipe x male JIC fitting (PN: 31-34169) (M) in the side port on the shuttle valve. Attach the other side port to the fitting installed on the tractor from Step #16.

Note: It is critical that the original tractor hose is attached to the outlet/top port on the shuttle valve as shown in the picture.

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

20. Attach the 47" hose from Step #14 to the male 90° fitting on the side of the shuttle valve (M).

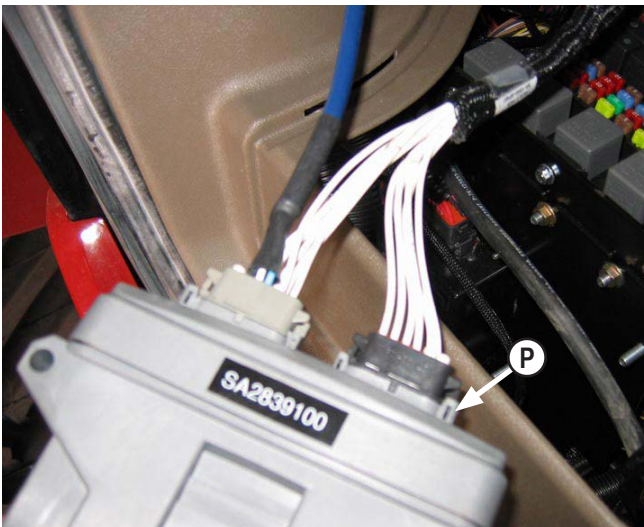




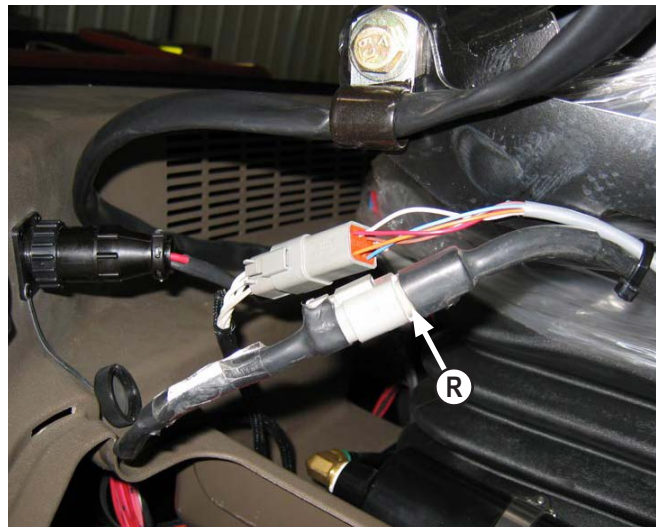
NOTE: Valve shown from the bottom.

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 (O). Refer to drawing on page 9 for proper hose locations.
23. 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.
24. Use zip-ties to hold the hoses into place.

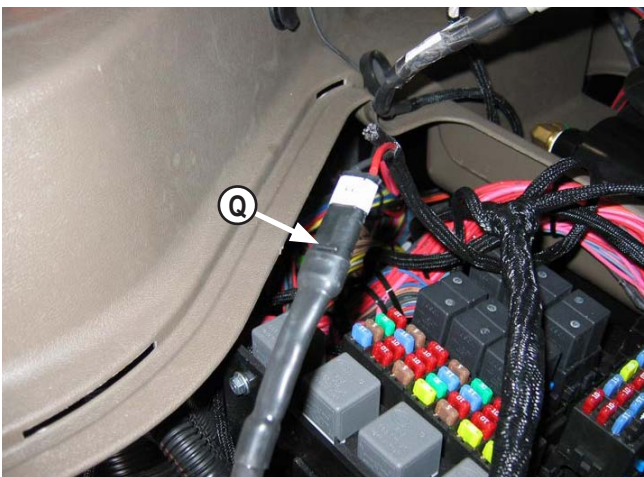
Cable Installation



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



29. Connect the cable from the joystick to the wire harness (R).



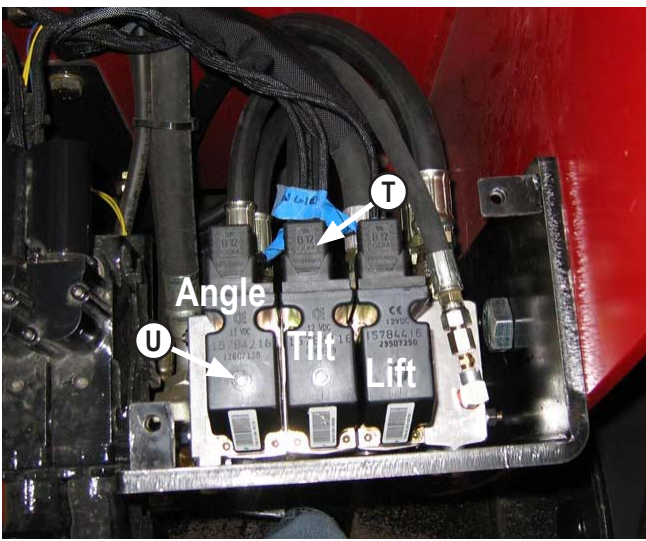
26. Connect the dozer angle extension cord to the wire harness (Q). Run the cord through the hole in the floor of the fuse compartment.

27. Guide the extension cord from the wire harness to the front of the tractor. Run the wire along the hoses on the left side of the lift system.

28. Connect to the blade side angle wire harness at the top arm.



30. 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 (S).



31. Guide the 3 cables and Dins from the wire harness out to the rear of the tractor (T).

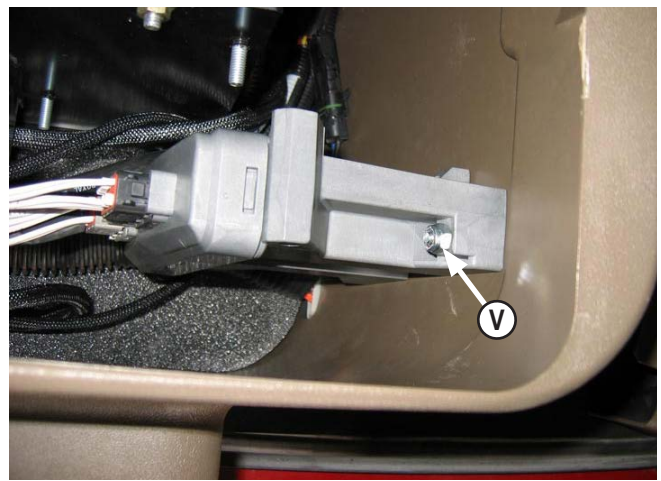
32. Put the supplied rubber seal on each Din connector.

33. Connect the **Lift**, **Tilt**, and **Angle** Dins to the corresponding connections on the back of the control valve.

34. Use screws to fasten the Dins to the control valve (U).

NOTE: The electric dozer functions can be overridden by attaching the supplied handle to the control valve and operating them.

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



36. Drill a hole for a 1/4" bolt in the fuse compartment. Attach the wire harness to the compartment with a 1/4" bolt, 1/4" washer, and a 1/4" nut (V).

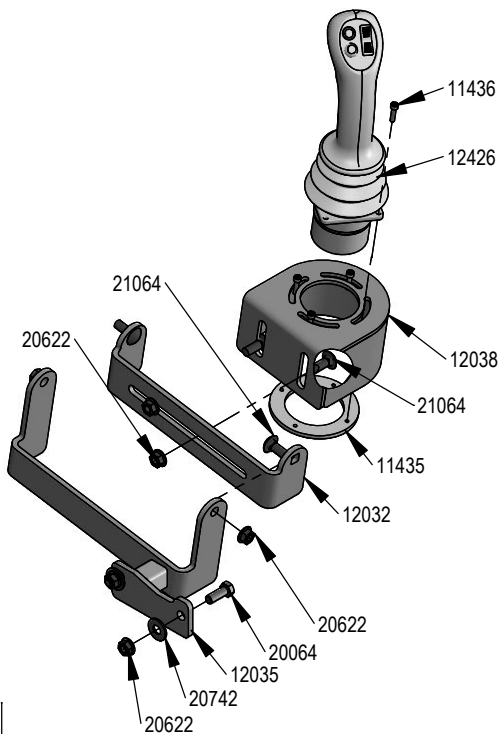
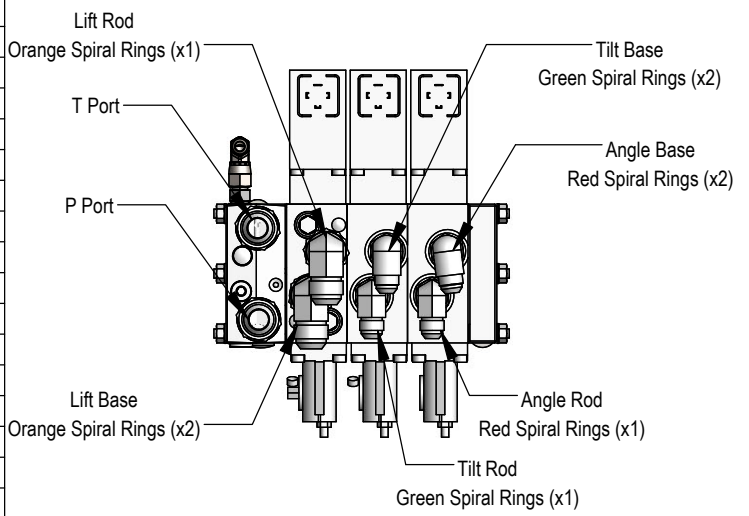
Valve Cover Installation



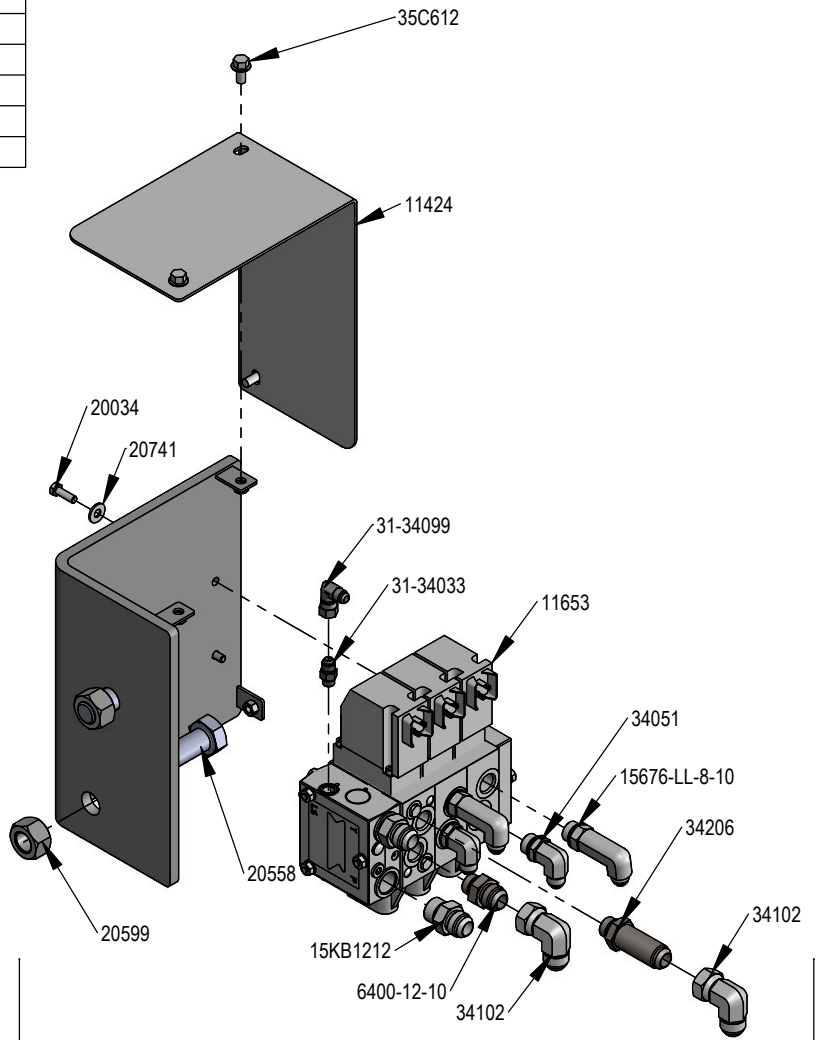
37. Place the valve cover over the valve and hoses as shown in the picture. Verify that the hoses are not being pinched.

38. Attach the valve cover to the valve bracket with 3 - 3/8" x 1" flange bolts (W).

PART NO.	QTY.	DESCRIPTION
11436	4	10-24 x 1.00" Socket Head Cap Screw
20034	4	5/16" X 1" Hex Bolt Gr 5 NC CZ
35C612	3	3/8" x 3/4" Flange Bolt
15KB1212	2	Straight JIC x O-Ring
31-34033	1	Straight JIC x O-Ring
15676-LL-8-10	2	Straight Thread Extra Long Elbow 90° JIC x O-Ring
31-34099	1	Swivel Nut Elbow 90° JIC
11435	1	Mounting Ring
11424	1	Plate, Cover
11653	1	Joystick Valve
12426	1	Joystick
20741	4	1/4" Flat Washer CZ
11426	1	Mount, Valve
20558	2	1" X 2" Hex Bolt Gr 8 NC YZ
20599	2	1" Hex Nut Gr 8 NC CZ
12035	1	Joystick Bracket
12038	1	Joystick Mount
12032	1	Adjusting Plate
21064	4	3/8" x 1" Carriage Bolt Gr 5 NC CZ
20622	6	3/8" Flange Hex Nut Gr 5 NC CZ
20064	2	3/8" X 1" Hex Bolt Gr 5 NC CZ
20742	2	3/8" Flat Washer CZ
34051	2	Straight Thread Elbow 90° JIC x O-Ring
34102	2	Swivel Nut Elbow 90° JIC (6500-12-12)
34206	1	Straight Long JIC x O-Ring
6400-12-10	1	Straight JIC x O-Ring



Joystick Mounted in Cab



Joystick Valve Mounted at Rear of Tractor

Joystick Operation

- 39. To raise the blade up, pull back on joystick.
- 40. To lower the blade down, push forward on joystick.
- 41. To tilt the blade left, tilt the joystick to the left.
- 42. To tilt the blade right, tilt the joystick to the right.
- 43. To extend and retract the right side of the blade, operate the rocker button on the top of the joystick.
- 44. To extend and retract the left side of the blade, hold down the trigger switch on the joystick handle and operate the rocker button on the top of the joystick.
- 45. To operate the float function, push the bottom switch on the left side on the top of the joystick.
- 46. To cancel the float function, actuate the joystick.

NOTE: If directions are not correct, go to Step #22 and #23 on Page 7 and verify that the hoses are installed correctly.

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

JOYSTICK AUXILIARY FUNCTIONS
12 VDC

<	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

FROM JOYSTICK



GROUSER PRODUCTS INC.
755 2nd Ave NW
West Fargo, ND 58078
WWW.GROUSER.COM

Phone 701.282.7710
Fax 701.282.8131

TITLE: SA-2839-SCH-JOYSTICK2

Date: 6/14/2007

DWG. NO.:

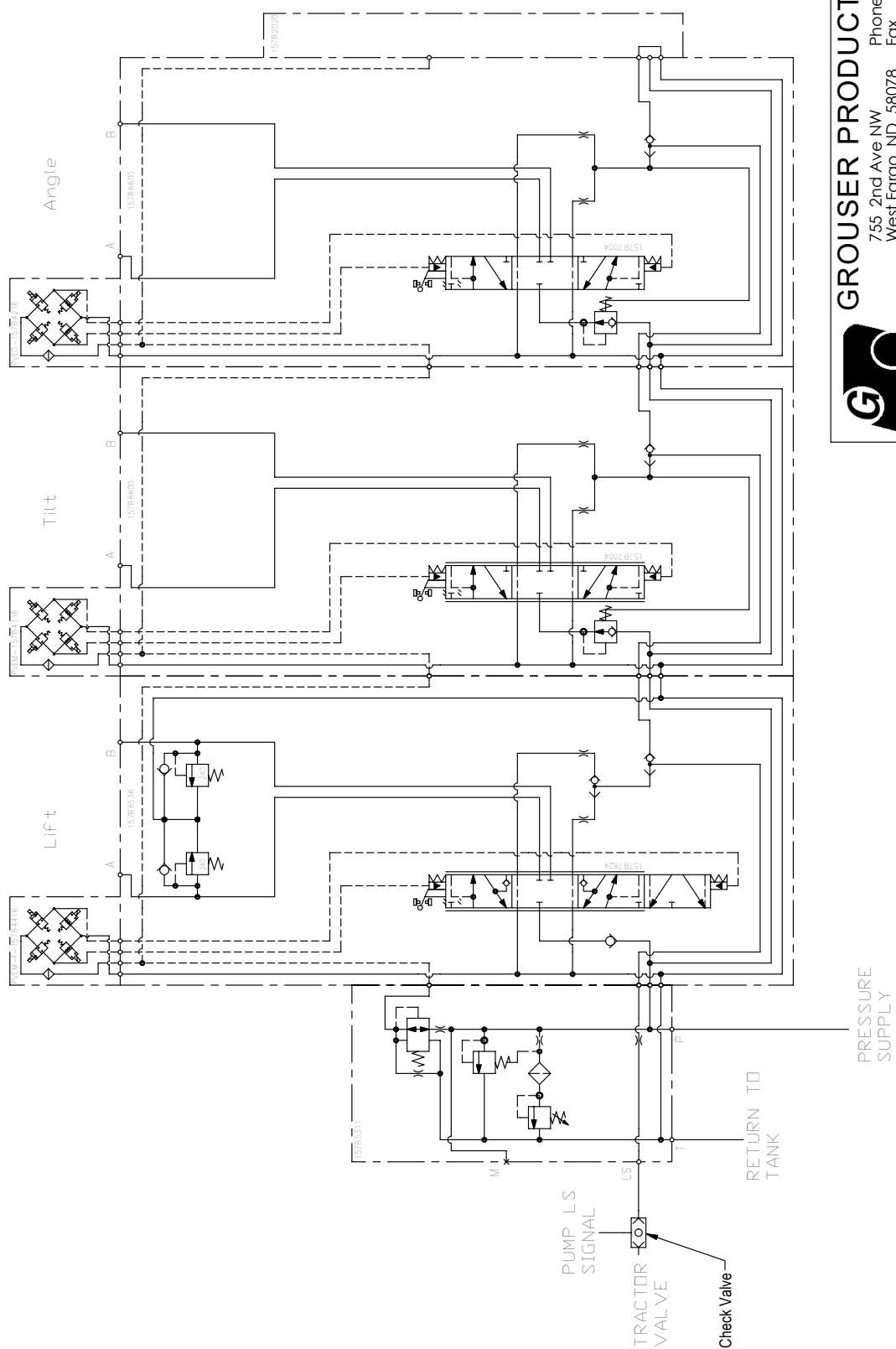
Hydraulic Schematic

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

TITLE: Valve Hydraulic Schematic

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

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Lift and Tilt Connection Information

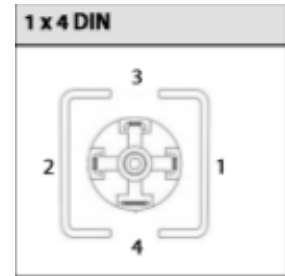
PVEM 4-pin DIN Connector

Pinout	Pin 1	Pin 2	Pin 3	Pin 4
1x4 DIN	U_{DC}	U_S	Error	GND

PVEM Technical Data

Control Specification

Description	Type	Value
Supply Voltage (U_{DC})	Rated Range	11 to 32 V_{DC}
	Max. ripple	5%
Signal Voltage PWM (U_S)	Neutral	$U_S = 0.5 U_{DC} = 50\%$ DUT
	Q: P to A	$U_S = (0.5 \text{ to } 0.25) U_{DC} = 50\%$ to 25% DUT
	Q: P to B	$U_S = (0.5 \text{ to } 0.75) U_{DC} = 50\%$ to 75% DUT
Input Impedance	Rated	12 k Ω
Input Capacitance	Rated	100 nF



Current consumption

Description	@ 12 V_{DC}	@ 24 V_{DC}
PWM Frequency (U_S) recommended	> 200 Hz	> 200 Hz
Current Consumption	690 mA	350 mA

Angle Connection Information

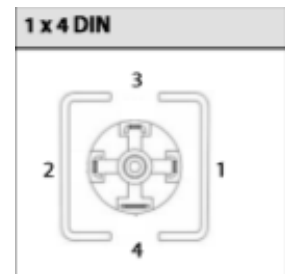
PVEO, PVEO-R and PVEO-HP 4-pin Connector

Pinout	Pin 1	Pin 2	Pin 3	Pin 4
1x4 AMP	U_{DC_A}	U_{DC_B}	GND	GND
1x4 DEUTSCH	U_{DC_A}	GND	GND	U_{DC_B}
1x4 DIN	U_{DC_A}	U_{DC_B}	-	GND

PVEO Technical Data

Control Specifications

Description	Type	12 V_{DC}	24 V_{DC}
Supply Voltage (U_{DC})	Range	11 to 15 V_{DC}	22 to 30 V_{DC}
	Max. ripple	5%	5%
Current Consumption	Typical	480 mA	250 mA
	Minimum	430 mA	220 mA
	Maximum	950 mA	480 mA



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 **two (2) years for Agriculture Series Blades and one (1) year for Heavy Duty Series from date of original retail delivery.**

The obligation of the consumer under this warranty:

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

The obligation of the dealer under this warranty:

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

The obligation of Grouser Products under this warranty:

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

This warranty does not cover:

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

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

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

Contact Us

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



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