



John Deere 9R IT4

Joystick Installation Instructions

For Models:

John Deere 9R IT4: 9360R, 9410R, 9460R, 9510R, 9560R

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.
- Read all instructions prior to performing installation.
- All pictures show the final product fully installed.



To ensure the safety of those working under and around the machine, apply parking brake, remove key from ignition, and block tires before working on the machine.

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	

Parts Breakdown

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
2	16-35C612	3/8" x 3/4" Flanged Bolt
3	16-35C616	3/8" x 1" Flanged Bolt
4	16-20034	5/16" X 1 " Hex Bolt Gr 5 NC
3	16-20558	1" X 2" Hex Bolt Gr 8 NC
1	18-18940	Valve Mount
1	31-12331-6-6	-6 JIC to -6 ORFS Swivel (FF6504-6-6)
1	31-14177-4-6	Swivel Nut Elbow 90° - Male Pipe x Female JIC Swivel (6501-4-6)
2	31-15KB1212	Straight JIC x O-Ring (6400-12-12)
1	31-34033	Straight JIC x O-Ring (6400-6-5)
6	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 (7801-12-27)
1	31-FS-2404-06-04	OFS Male Pipe Connector
1	31-FS-7504-06-06	OFS Female Swivel x Male JIC (FS-7504-06-06)
1	35-11681-0360	-6 FJIC x -6 FJIC - 36"
1	35-12329-0360	-12 FJIC x -12 FJIC - 36"
1	35-12329-0440	-12 FJIC x -12 FJIC - 44"
1	44-11435	Plate, Retaining Ring / SureGrip
1	44-15881	Joystick Base
1	44-15882	Joystick Plate
1	44-15885	Joystick Plate 2
1	44-18941	Valve Mount Cover
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" Nut
3	70-20599	1" Hex Nut Gr 8 NC
4	70-20622	3/8" Flange Nut Gr 5 NC

Bracket & Joystick Installation

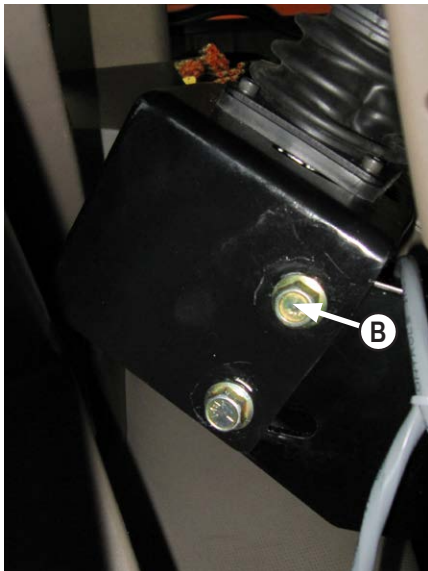
NOTE: Your machine may vary slightly from the machine in this manual, but the same installation procedure will be compatible.



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

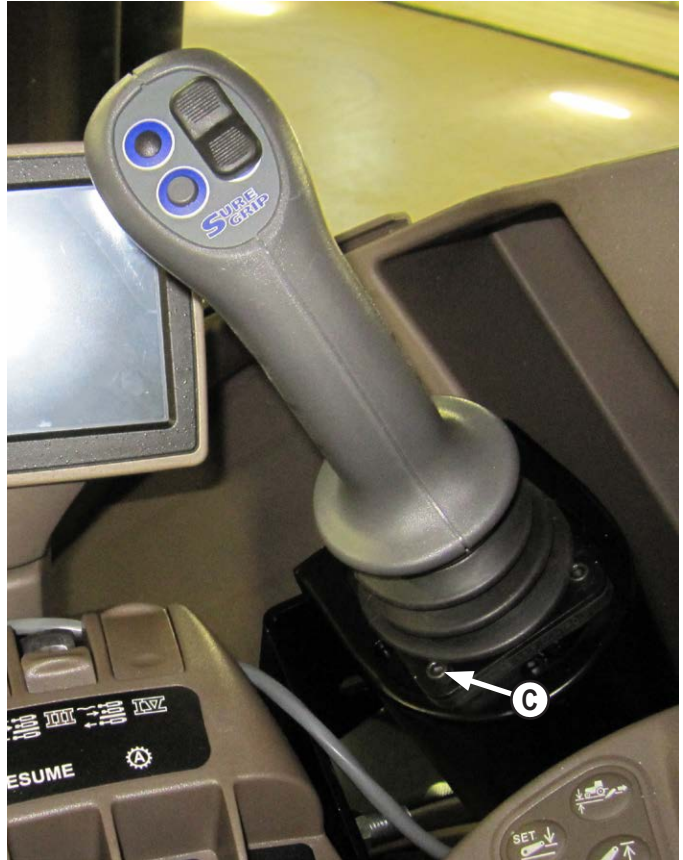
1. Remove bottom cover of monitor mount under arm rest. Remove 2 of the bolts and attach Joystick bottom base with same bolts (A).

NOTE: Refer to bottom picture for correct orientation of parts when assembling.



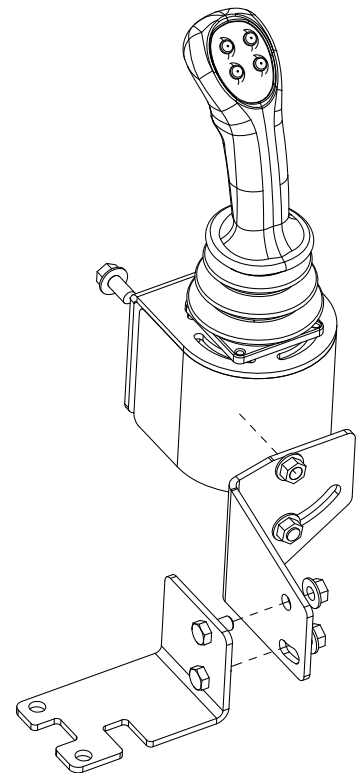
2. Attach Joystick plate to bottom base with 2 - 3/8" flange nuts.

3. Attach Joystick top base to joystick plate with 2 - 3/8" x 3/4" bolts and 2 - 3/8" flange nuts (B).

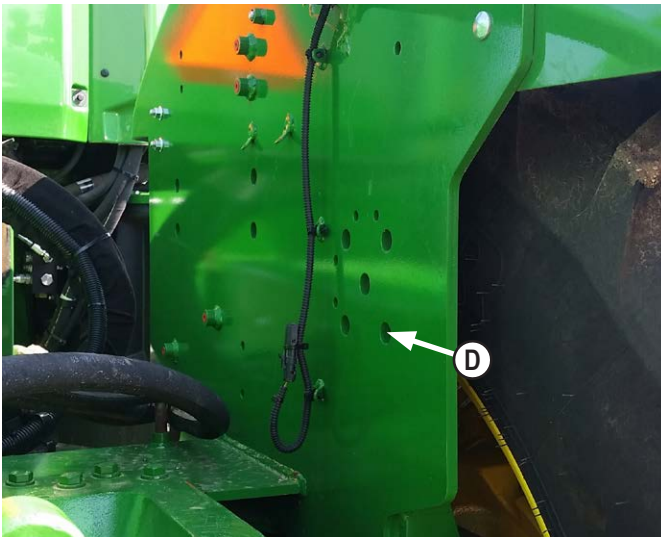


4. Hold mounting ring inside side mount, and attach joystick to top of side mount and mounting ring with 4 - 1" socket head cap screws (C).

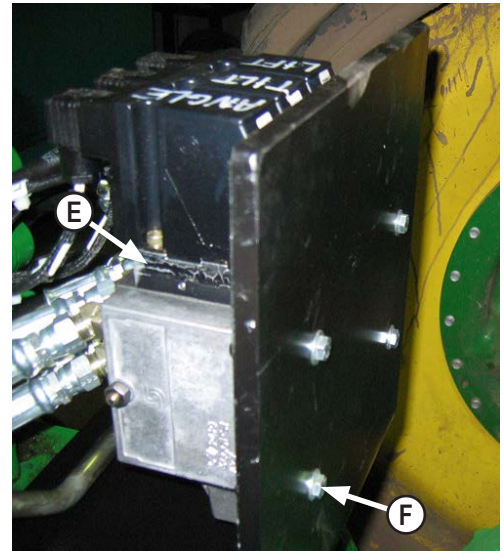
5. Adjust joystick and mounts to operator's preference. Tighten all fasteners.



Valve Bracket & Valve Installation



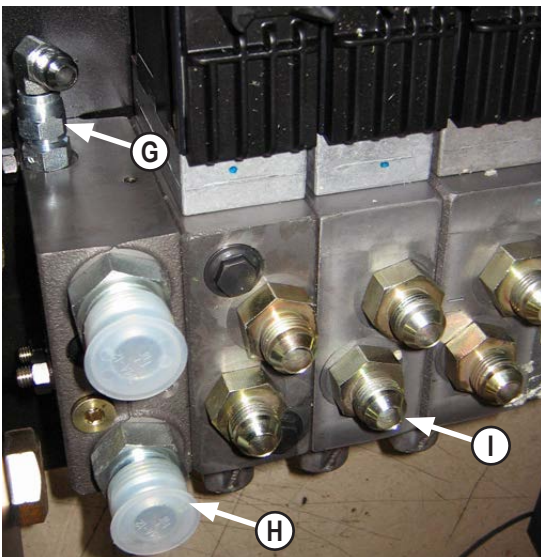
6. Attach rear valve mount to rear of tractor along right tractor side frame with 3 - 1" x 2" bolts and 3- 1" nuts (D). Use 3 furthest back holes. The valve mount should be open to the back of the tractor and 2 tabs to hold valve cover on are on top.



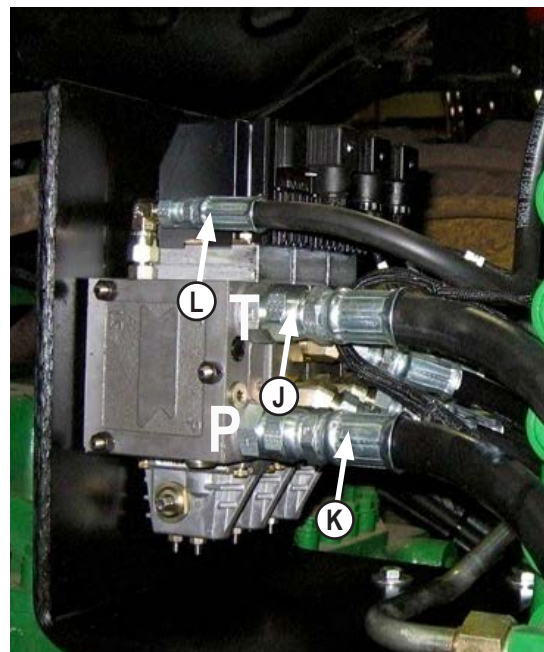
NOTE: Your machine may vary slightly from this picture but the same installation procedure will be compatible.

7. Attach valve (E) to valve mount with 4 - 5/16" x 1" bolts and 4 - 5/16" flat washers (F).

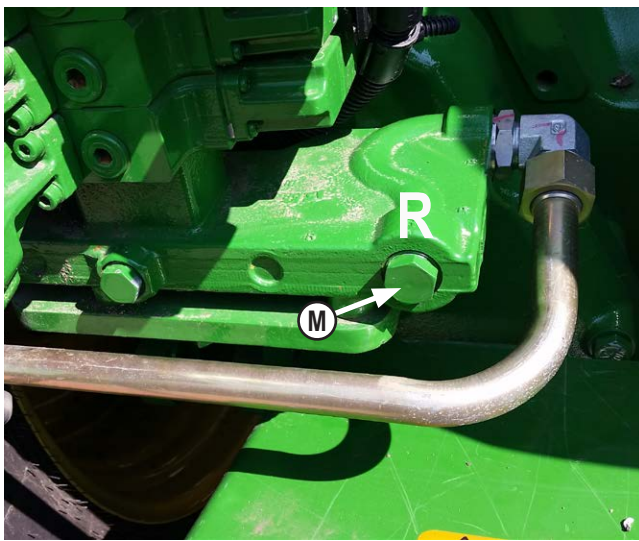
Valve Installation



8. Install 1 - straight -6 JIC x -5 O-Ring fitting and 1 - 90° Swivel -6JIC x -6JIC fitting in the **Load Sense** port on top of valve (G).
9. Install 2 - straight -12 JIC x -12 O-Ring fittings into **P** and **T** ports on valve (H).
10. Install 6 - straight -8 JIC x -10 O-Ring fittings into work ports on valve (I).



11. Attach the 36" hoses (PN: 35-12329-0360) to the top fitting on the left side of valve (J).
12. Attach the 44" hoses (PN: 35-12329-0440) to the bottom fitting on the left side of valve (K).
13. Attach the 36" hose to the 90° fitting from Step #8 in the LS port (L).

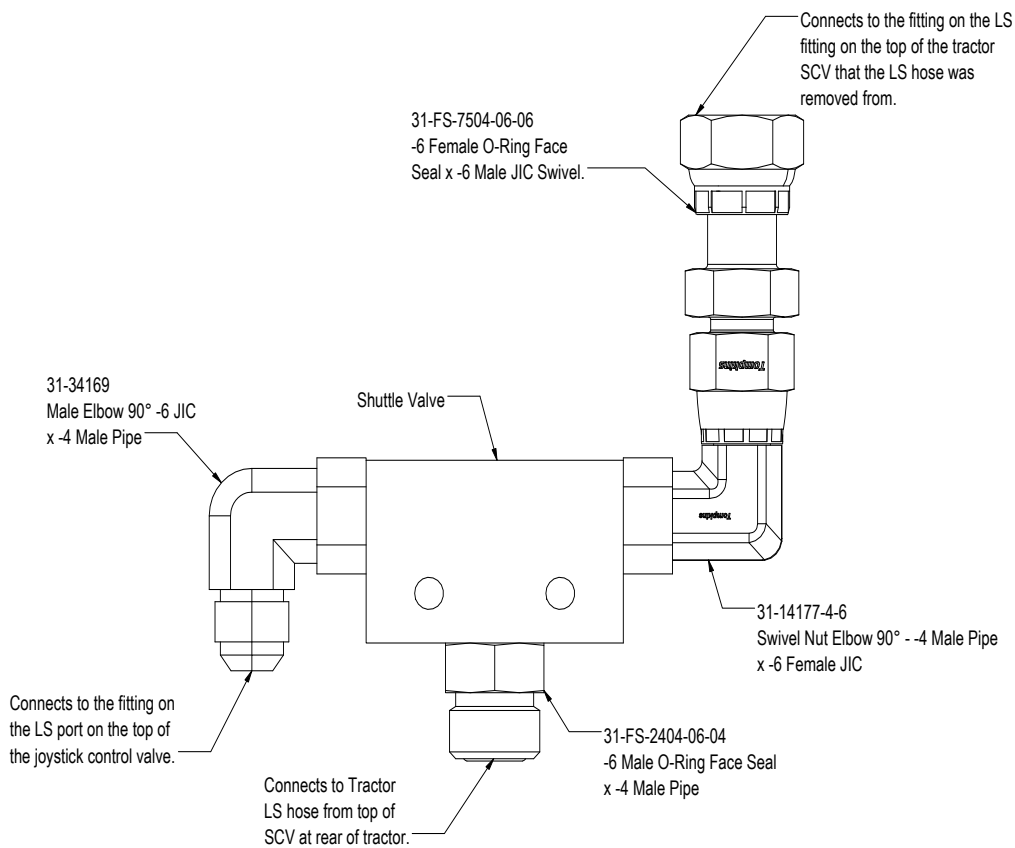


NOTE: Oil will flow. Be ready with an oil pan.

14. Remove the plug or quick connect from the bottom P and R ports at the rear of tractor and replace each with a 90° fitting (M & N).
15. Attach the 36" hose from top fitting (T) on valve to 90° fitting at the R port. (M)
16. Attach the 44" hose from bottom fitting (P) on valve to 90° fitting at the P port. (N).



17. Disconnect the LS hose from the top of the SCV. Leave the stack of fittings in place. Hose will be installed in a later step (O).
18. Attach a Face Seal Male x Pipe Fitting (PN:31-FS-2404-6-4) to outlet port on the shuttle valve that is between the bolt holes. Attach the Tractor LS hose to Face Seal fitting (1)
19. Attach a -4 Male Pipe x -6 female Swivel fitting (PN: 31-14177-4-6) to end of shuttle valve that is furthest away from joystick valve you installed on Page 5. Now attach a -6 ORFS Swivel x -6 Male JIC fitting (PN: 31-FS-7504-06-06) to fitting you just installed.
20. Attach the fittings you installed in Step #19 to the open tractor fitting that you removed the LS hose from in Step #17.
21. Attach a -6 Male Elbow x -4 Pipe (PN: 31-34169) to the shuttle valve opposite of the side attached in Step #19 . Attach the 36" hose from Step #13 to the male elbow.



25. Put supplied rubber seal on each connector (R).

Note: See undercarriage mounting instructions for hose routing instructions.

22. Attach dozer lift, tilt and angle hoses to corresponding fittings in work ports on valve (P). Hoses with 2 spiral rings go on bottom fittings on valve. Hoses with 1 spiral ring go on top fittings on valve.

23. Use zip-ties to secure hoses.



26. Connect the Lift, Tilt, and Angle connectors to corresponding work section on valve (S).

27. Use screws to fasten the connectors to the control valve.

Note: Electric dozer functions can be overridden by attaching supplied handles to control valve and operating them. Electrical connection may have to be disconnected from work section.

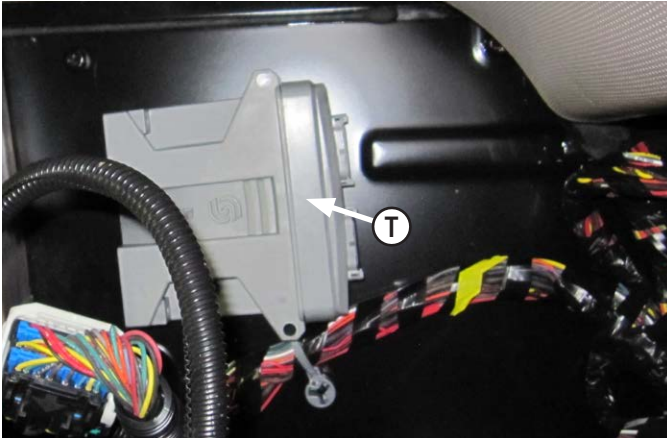
28. Use zip-ties to secure cables.



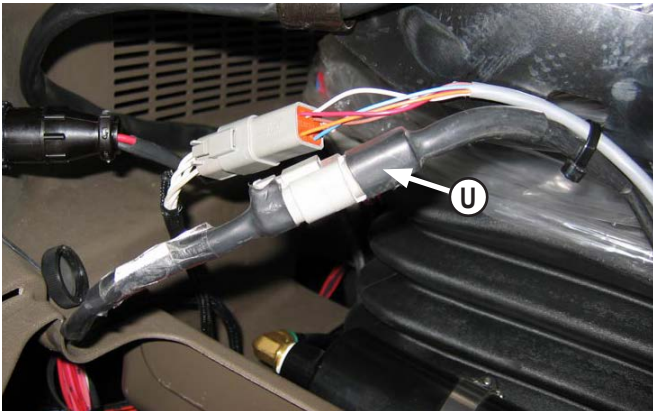
24. Start at pivot area of tractor and route end of wire harness labeled Lift, Tilt and Angle (Q) to rear of tractor.

Note: Route wire harness so it will not be repeatedly bent in any area or rubbing on any sharp edges when tractor is in use.

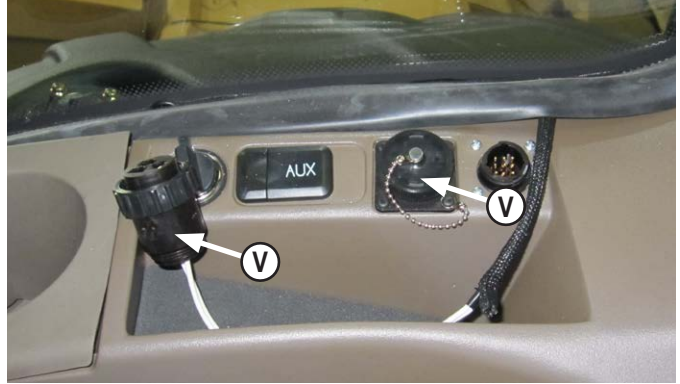
Cable Installation



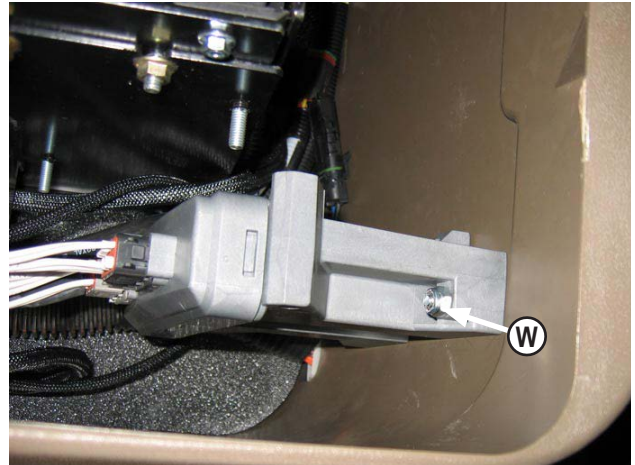
29. Set control box in fuse compartment (T).



30. Connect the cable from the joystick to the wire harness (U).



31. Plug power cord into the port located behind and to right of operator's seat in tractor cab (V).



32. Drill a hole for a 1/4" bolt in fuse compartment. Attach control box to compartment with a 1/4" bolt, 1/4" washer, and a 1/4" nut (W).

Valve Cover Installation



NOTE: The picture shows the valve attached to the opposite side of the tractor. The installation procedure is the same for on the right side.

33. Place the valve cover over the valve and hoses. Verify that the hoses are not being pinched.

34. Attach the valve cover to the valve bracket with 3 - 3/8" flange bolts (PN: 16-35C612). (X).

Joystick Operation

- 35. To **raise** blade **up**, **pull back** on joystick.
- 36. To **lower** blade **down**, **push forward** on joystick.
- 37. To **tilt** blade **left**, **tilt** the joystick to the **left**.
- 38. To **tilt** blade **right**, **tilt** the joystick to the **right**.
- 39. To extend and retract right side of blade, operate rocker button on top of joystick.
- 40. To operate the float function, push the bottom switch on the left side on the top of the joystick.
- 41. To cancel the float function, actuate the joystick.

Note: If directions are not correct, go to Step #22 on Page 7 and switch top and bottom hoses.

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
WWW.GROUSER.COM

TITLE: SA-2839-SCH-JOYSTICK2

Date: 6/14/2007

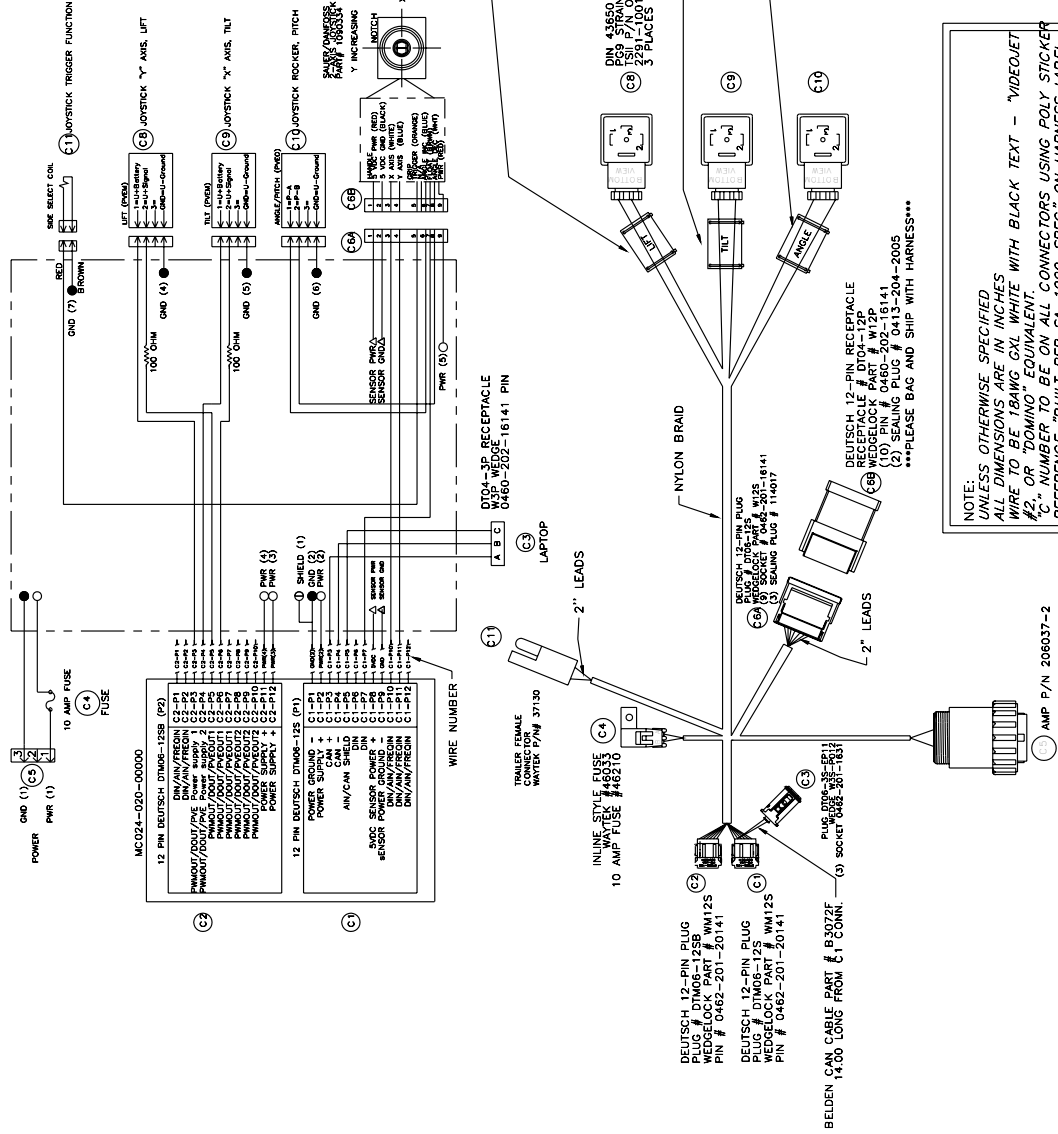
DWG. NO.:

Joystick Schematic

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SIGNAL SOURCE STD. PORT DESCRIPTIONS

○	PMR
○	SHIELD
△	SENSOR PMR
▲	SENSOR GND
○	CAN0 +
○	CAN0 -
○	DRIVE 0
○	CAN1 +
○	CAN1 -
○	DRIVE 1



USE ZIP TIE STYLE TAG TO LABEL AS SHOWN WITH WHITE WITH BLACK TEXT WITH PAINDUITS #PLT1M-M100 CABLE TIES (3) PLACES

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
WIRES TO BE 18AWG GXL WHITE WITH BLACK TEXT - "VIDEOJET #2" OR "DOMINO" EQUIVALENT.
"C" NUMBER TO BE ON ALL CONNECTORS USING POLY STICKER REFERENCE "BUILT PER SA-1000-SPEC" ON HARNESS LABEL.

AMP P/N 206037-2



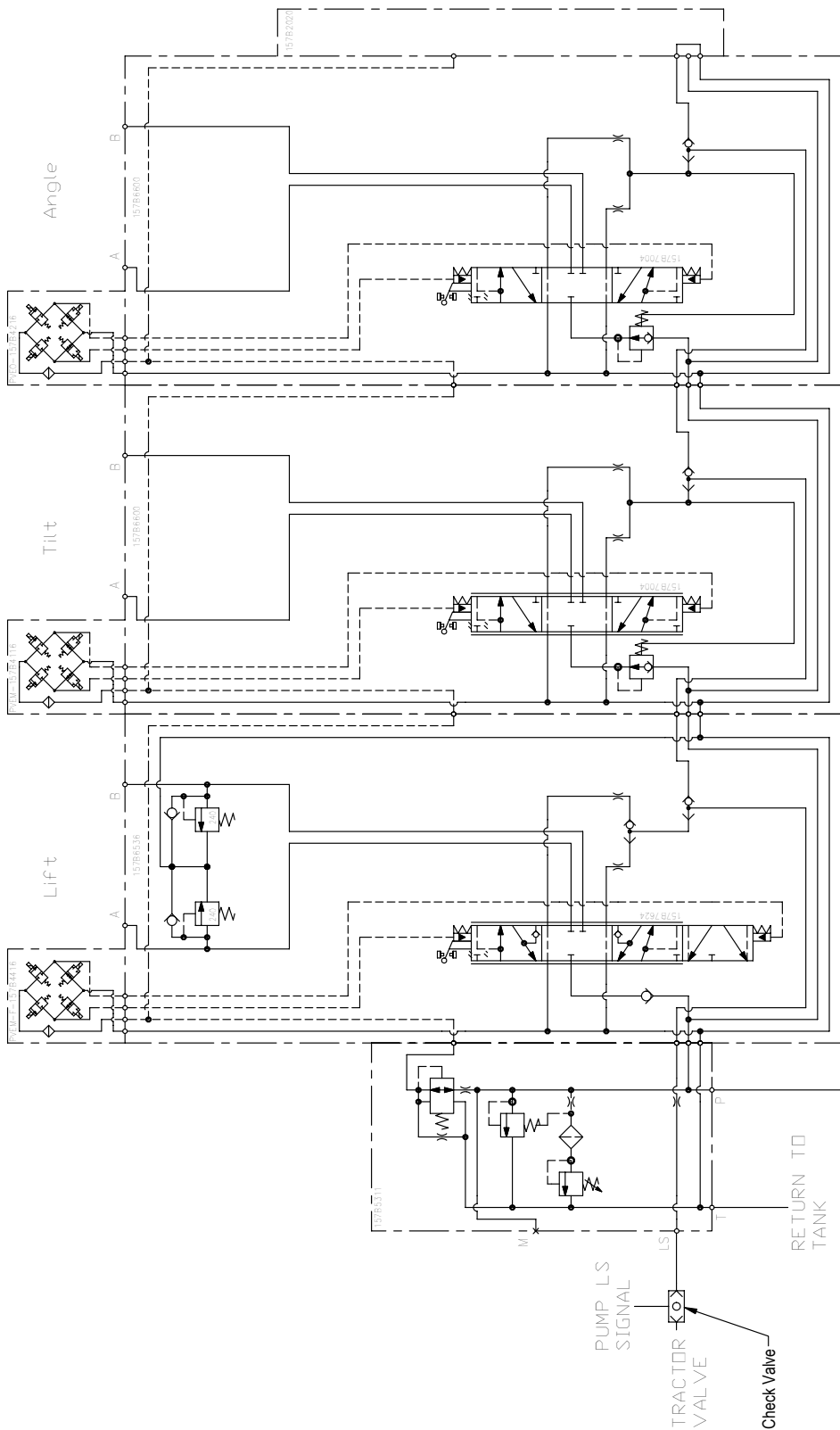
GROUSER PRODUCTS INC.
755 2nd Ave NW
West Fargo, ND 58078
Phone 701.282.7710
Fax 701.282.8131
WWW.GROUSER.COM

TITLE: SA-2839-MA2

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

Hydraulic Schematic

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

TITLE: Valve Hydraulic Schematic
 Date: 5-1-2007 DWG. NO.: STX

Lift and Tilt Connection Information

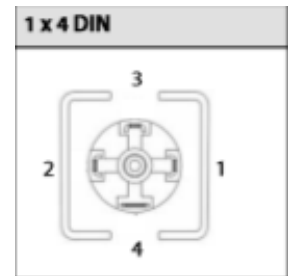
PVEM 4-pin DIN Connector

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	$U_S = 0.5 U_{DC} = 50\% \text{ DUT}$
	Q: P to A	$U_S = (0.5 \text{ to } 0.25) U_{DC} = 50\% \text{ to } 25\% \text{ DUT}$
	Q: P to B	$U_S = (0.5 \text{ to } 0.75) U_{DC} = 50\% \text{ to } 75\% \text{ DUT}$
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

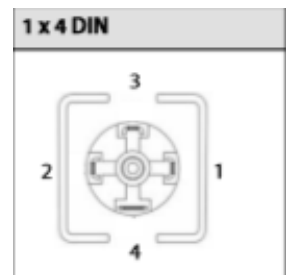
PVEO, PVEO-R and PVEO-HP 4-pin Connector

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.



755 2nd Ave NW - West Fargo, ND 58078
+1 701-282-7710 | info@grouser.com
www.grouser.com