



770 Tier 4

Joystick Installation Instructions

For Models:

Case Steiger Quad - 450, 500, 550, 600

| |
|---------------|
| Purchase Date |
| Serial Number |
| Model Number |
| Tractor Model |
| Dealer |

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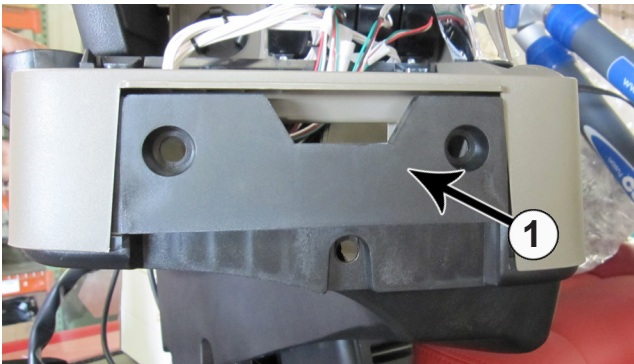
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Joystick and Bracket Parts List

| 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 | 16-20562 | 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 | 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) |
| 6 | 31-34041 | Straight JIC x O-Ring (6400-8-10) |
| 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 | 44-16713 | Steiger Tier 4 Joystick 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.

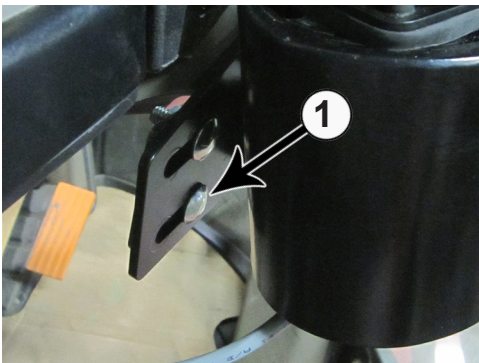


1. Remove the cover or the monitor mount from the front of the armrest.

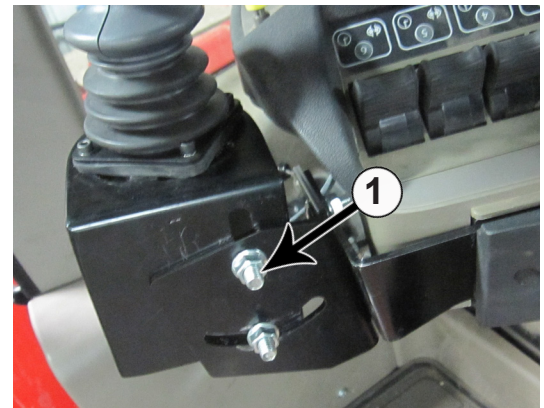
NOTE: The following pictures show the joystick assembly already in place. The joystick will be installed in a later step.



2. Attach the bolting bracket (PN: 18-16713) 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).



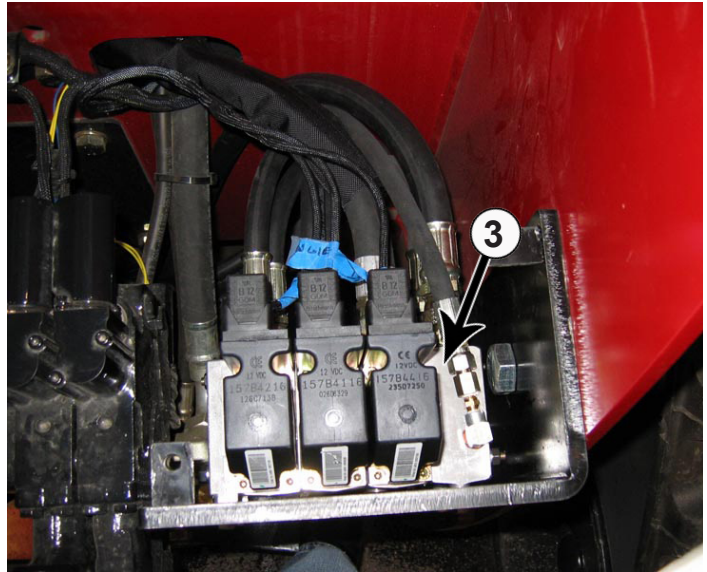
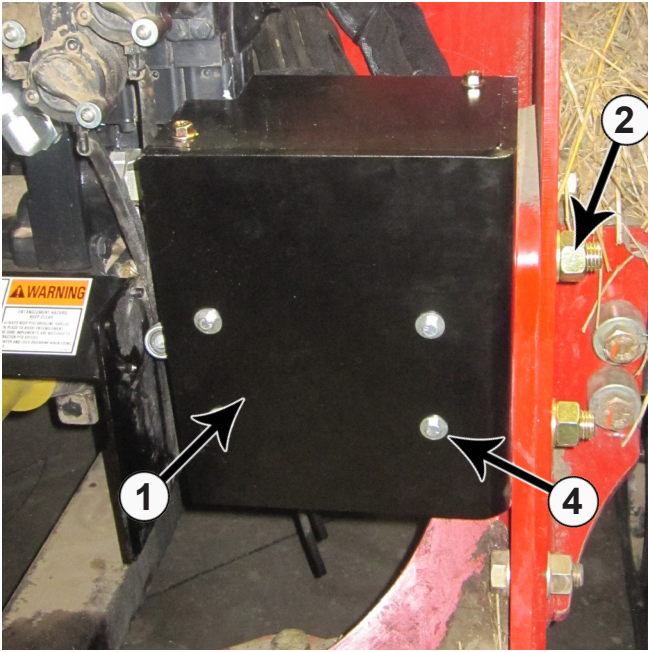
4. Attach the joystick mount (PN: 18-16705) to the bracket from Step #3 with 2 - 3/8" x 1" carriage bolts (PN: 16-21064) and 2 - 3/8" flange nuts (PN: 70-20622) (1).



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.

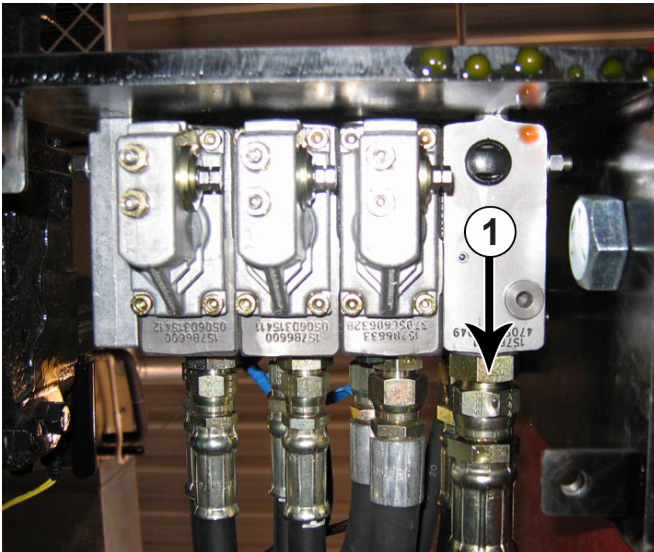
Valve Bracket & Valve Installation



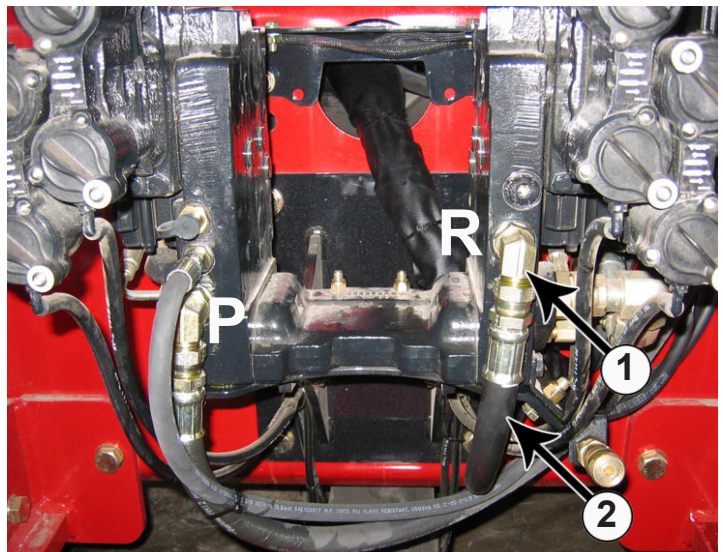
7. Attach the rear valve mount (PN: 18-11426) (1) to the rear of the tractor. Use 2 - 1" x 3" bolts (PN: 16-20562) and 1" nuts (PN: 70-20599) to attach the mount to the side of the tractor frame (2).
8. Attach the control valve (3) to the valve mount with 4 - 5/16" x 1" bolts (PN: 16-20034) and 4 - 5/16" flat washers (PN: 57-20741) (4).

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

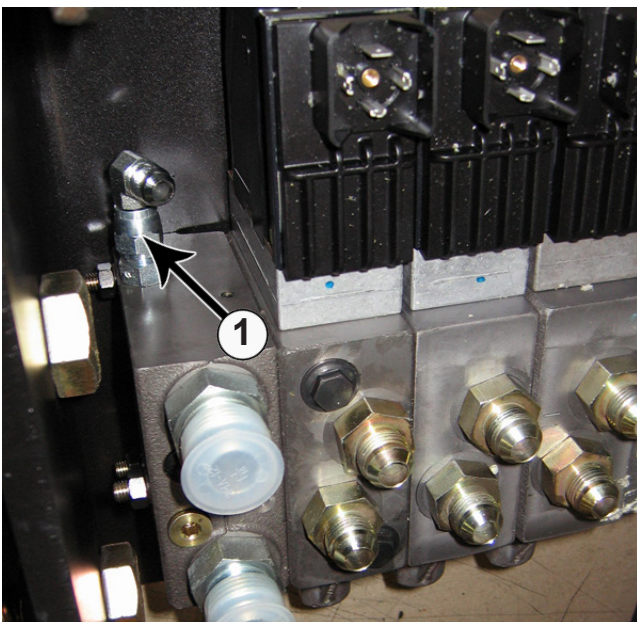
Plumbing



- 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.

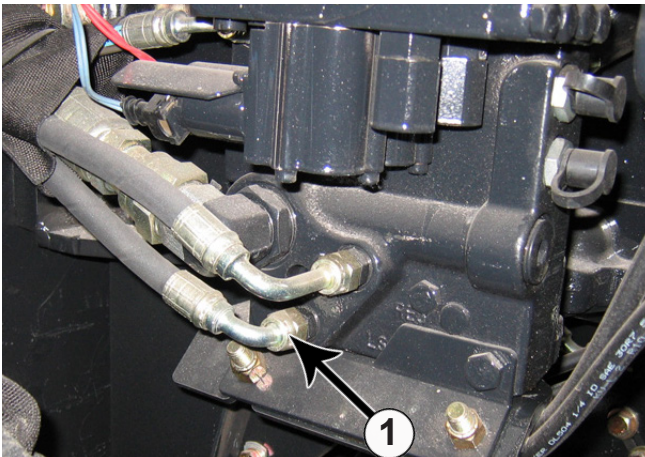


10. Remove the plug or quick connect from the P and R ports at the rear of the tractor and replace each with a 90° fitting (PN: 31-34259) (1).
11. Attach the 50" hose from the **bottom** fitting on the control valve to the 90° fitting at the P port.
12. Attach the 50" hose from the **top** fitting on the control valve to the 90° fitting at the R port. (2).

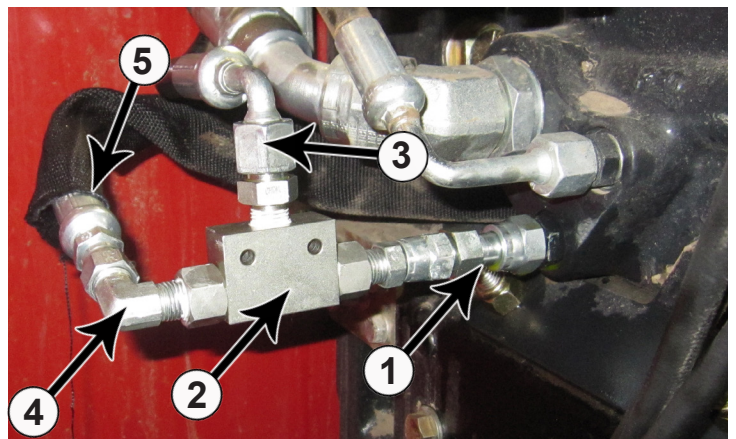


13. If fittings are not installed in the LS port on the control valve, install a straight -6-5 fitting (PN: 31-34033) and a 90° -6-6 fitting (PN: 31-34099) in the LS port (1).

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).



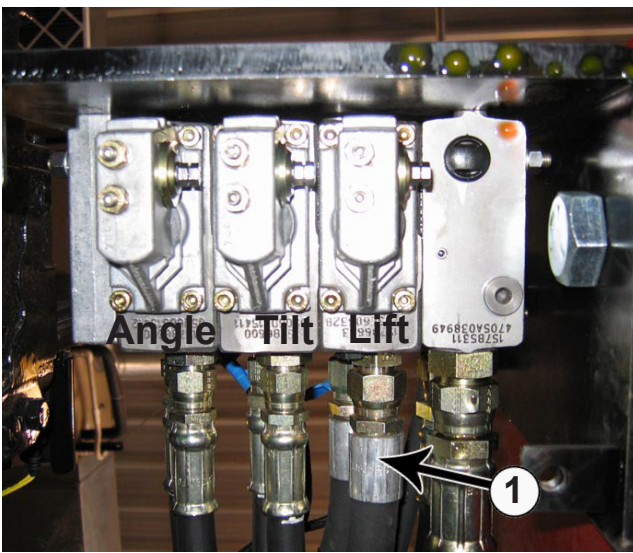
16. Install a JIC x Face Seal Swivel (PN: 31-12331-6-6) to the fitting that the hydraulic line was removed from. Also install a Female JIC Swivel x Male Pipe fitting (PN: 31-12332-6-4) onto the previous fitting (1).

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.

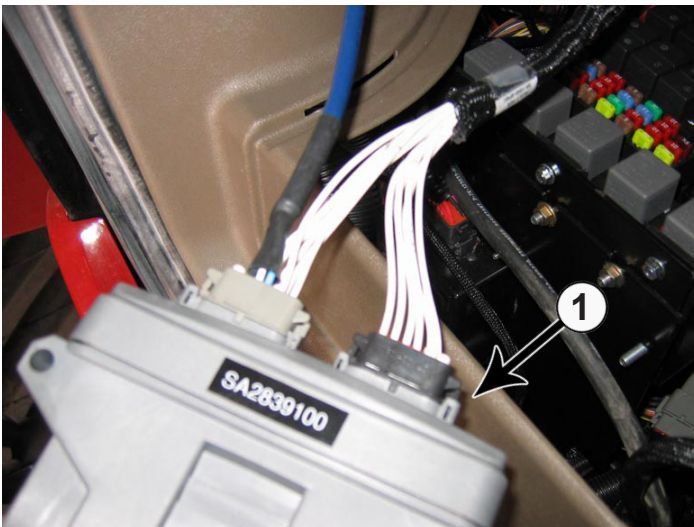
21. Guide the dozer **lift** hoses to the rear of the tractor. Wrap a hose protector around the hoses. If necessary, use zip ties to keep the hose protector in place.

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.

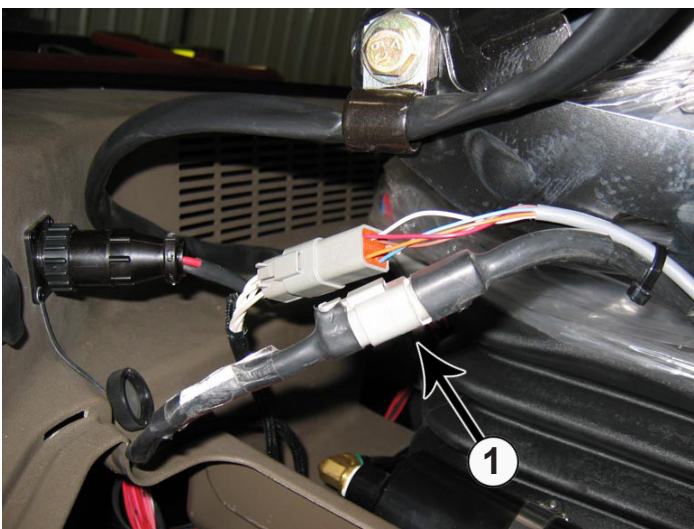
Cable Installation



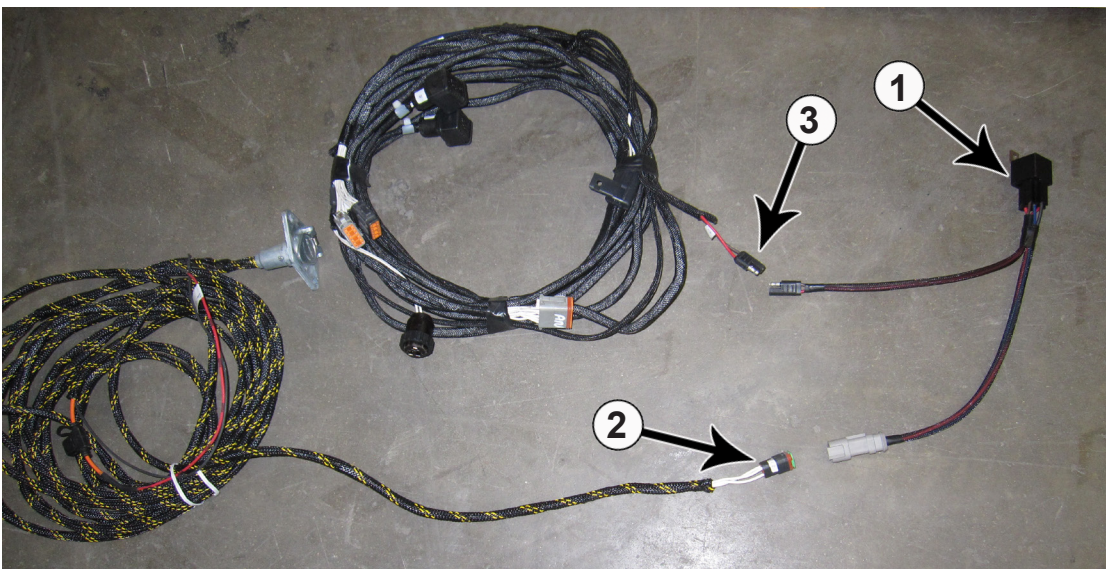
25. Set control box in fuse compartment (1).



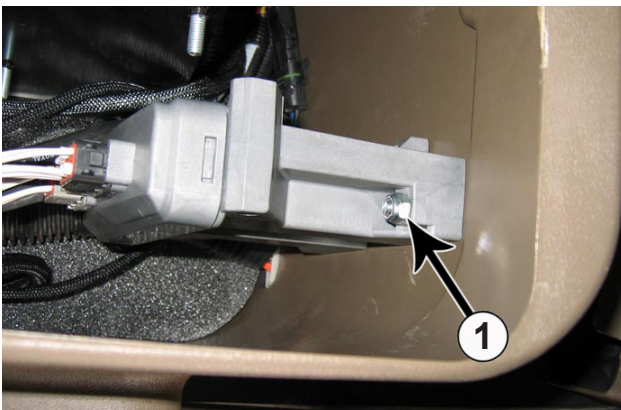
27. Plug the power cord from the wire harness into the port located behind and to the right of the operator's seat in the tractor cab (1).



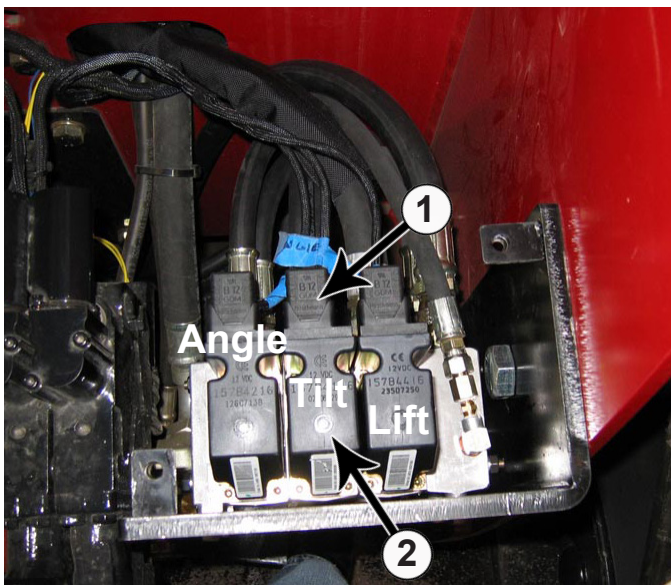
26. Connect the cable from the joystick to the wire harness (1).



28. Attach the supplied relay wire harness (PN: 69-16701) (1) to the dozer blade (undercarriage side) wire harness (PN: 69-14675) (C2) (2). See Page 27 of the 770 Owners Manual and Parts Book for information on the Blade Wire Harness. Plug the 2 prong trailer connector from the relay wire harness into the trailer connector from the joystick (C11) (3).



29. Drill a hole for a 1/4" bolt in the fuse compartment. Attach the control box 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

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



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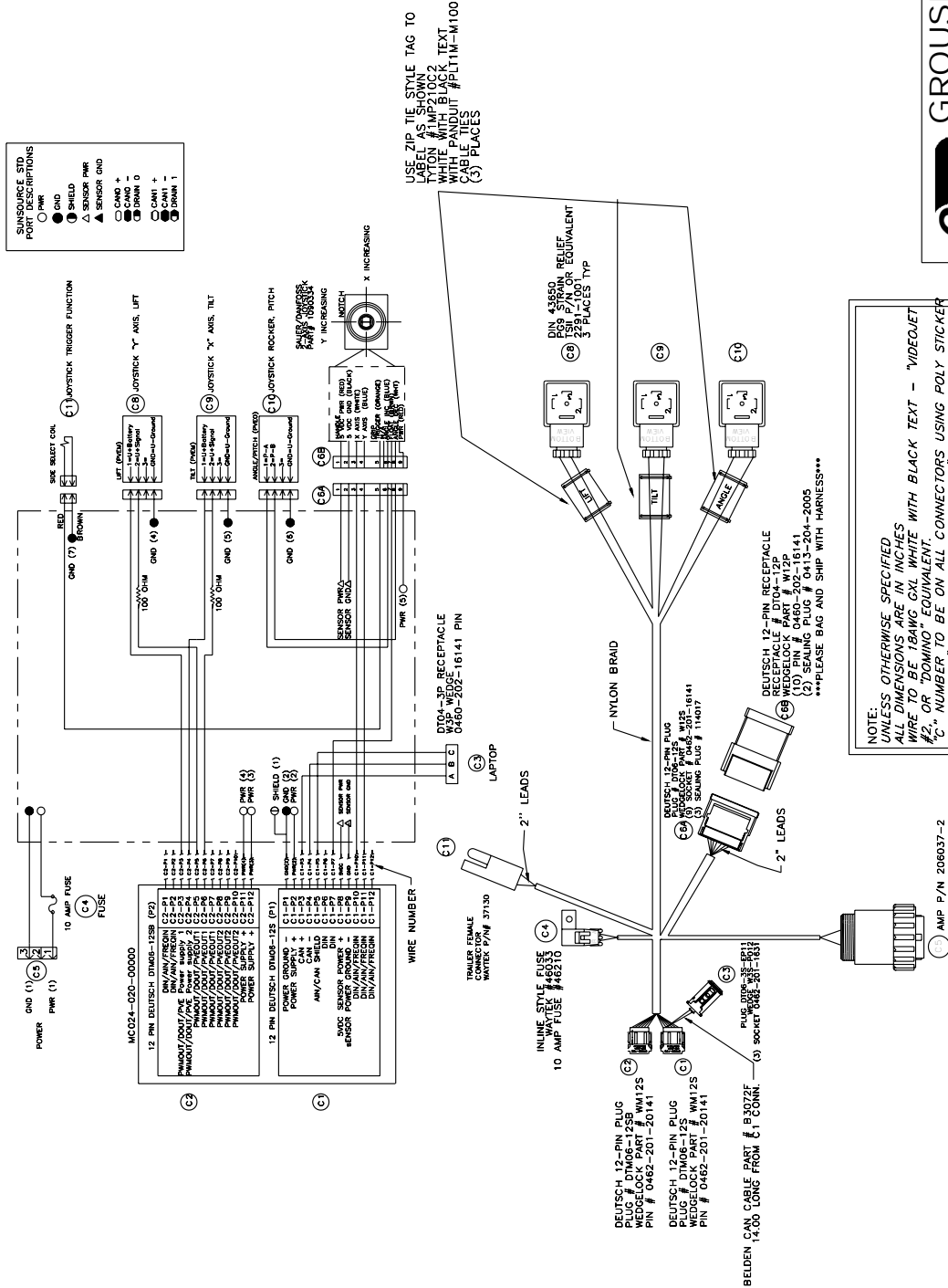
TITLE: SA-2839-SCH-JOYSTICK2

Date: 6/14/2007

DWG. NO.:

Joystick Schematic

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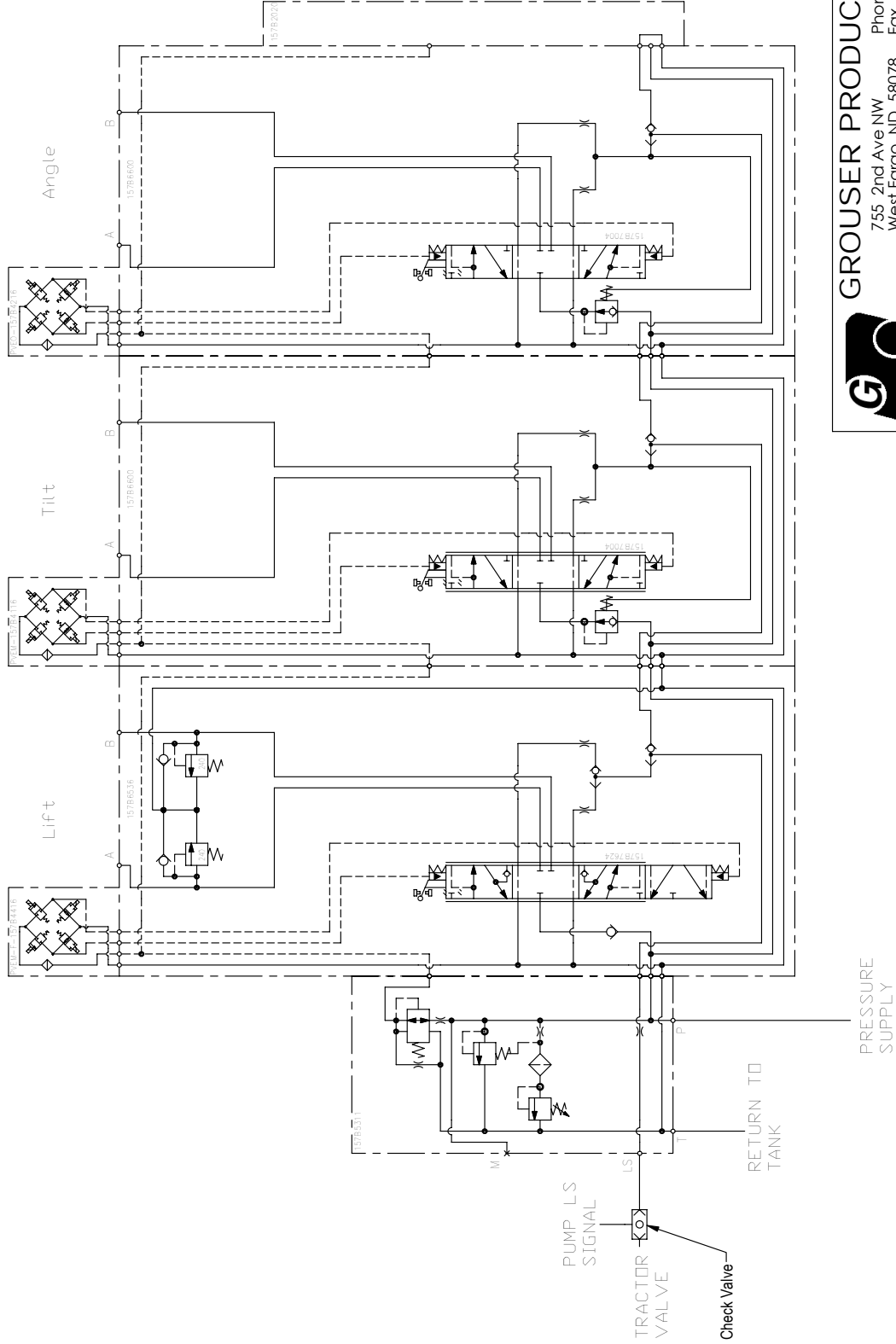
TITLE: SA-2839-MA2

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

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

Hydraulic Schematic

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TITLE: Valve Hydraulic Schematic

Date: 5-1-2007

DWG. NO.: STX

Lift and Tilt Connection Information

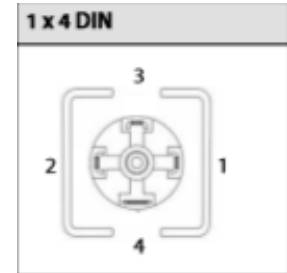
PVEM 4-pin DIN Connector

| 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 | $U_S = 0.5 U_{DC} = 50\%$ 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

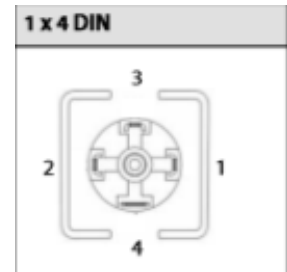
PVEO, PVEO-R and PVEO-HP 4-pin Connector

| 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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