

To: All Distributors
Regional Sales Managers and National Sales Manager

From: Technical Service

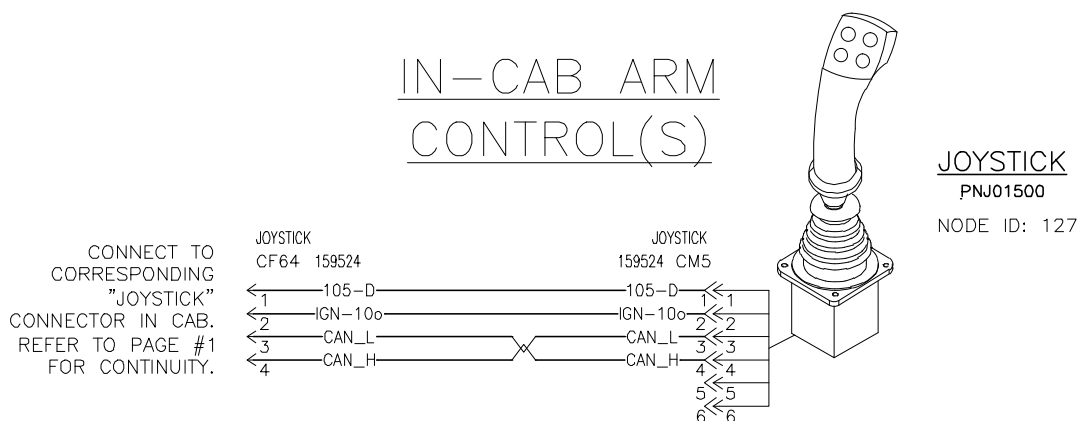
Model: Labrie Automizer, Expert (With Automated Arm)

Subject: Labrie Joystick Test Procedures

The joystick controller used on the Labrie Automizer & Expert systems vary, as the current production multiplex system joystick, part number PNJ01500, does not function in the same manner as previous Labrie joysticks. Different testing methods are necessary for each; when a joystick is suspect, the following procedures provide information for testing both the current production (multiplex) and previous production (non-multiplex) joysticks:

MULTIPLEX JOYSTICK TESTING

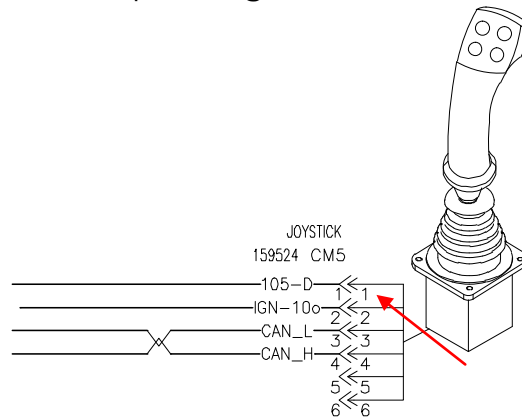
The multiplex joystick is connected to Node 10 via Labrie's proprietary Can Hi, Can Lo connection. Ignition voltage is also sent to the joystick via Node 10 and an isolated ground.



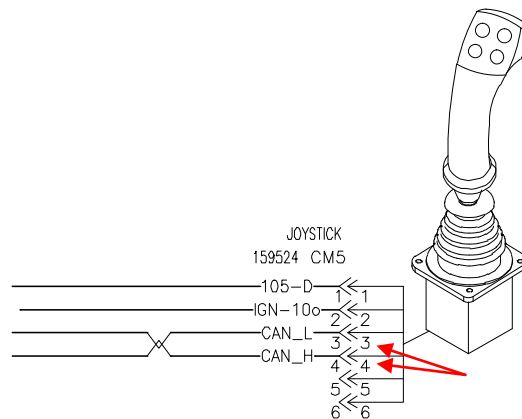
Step 1- Verify Wiring

In any instance where the joystick is suspect, perform the following tests:

- a) Disconnect CM5; with ignition on, use a multimeter to verify that at least 12 volts (dc) is present at pin 2, when pin 1 is grounded.



- b) Setting the multimeter to resistance, measure resistance from pin 1 to battery ground. The resistance measurement should be below 2 Ohms.
- c) Turn off the ignition, and if applicable, turn off the battery disconnect switch. Use the multimeter to measure the resistance between pin 3 and pin 4. The resistance measurement should be 57-63 Ohms. If the measurement is not within specifications, refer to the appropriate model Labrie Multiplex Diagnostic Guide (provided with TSB 14-10, contact the LabriePlus Service Department if copies are required).

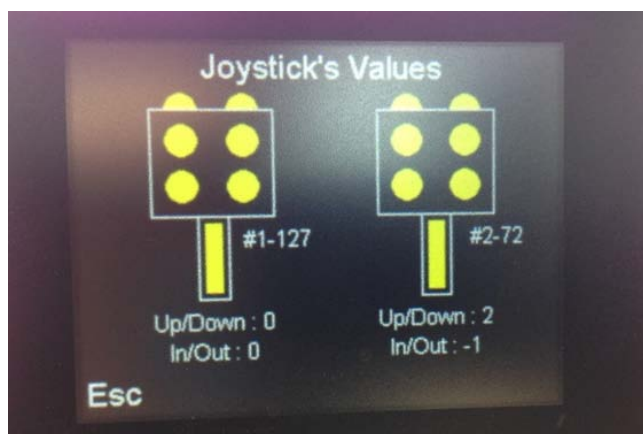


STEP 2 – Check Joystick Buttons

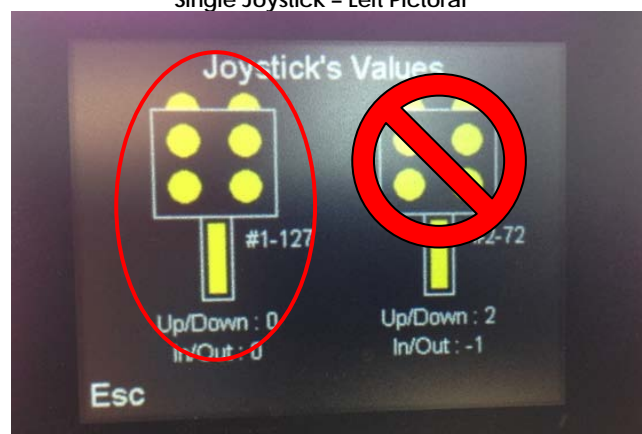
Press menu on the Node 11 display. With the up/down keys on the directional pad, select "I/O status", then press ok.



The following screen will appear. Note that regardless of whether the unit has one or two joysticks, two joysticks will always be displayed. In a single joystick installation, the left side joystick will always represent the primary controls.



Single Joystick – Left Pictoral

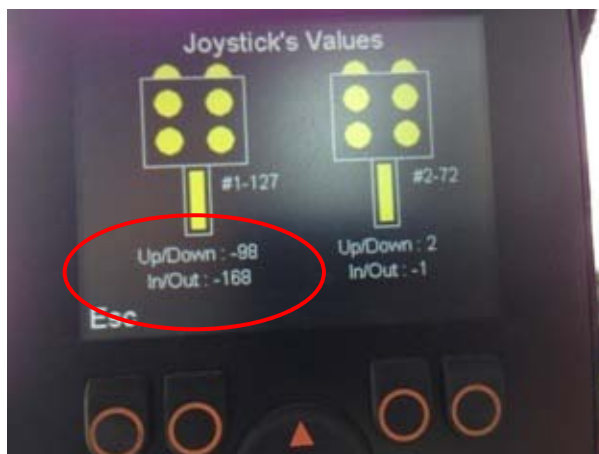


The technician may operate any button, including those not used, as well as the dead-man trigger to verify operation – the corresponding button on the screen turns from yellow to green when activated. If not, the button or internal wiring to the button may be suspect.



Step 3 – Check Joystick Axes

The joystick sends a digital signal to Node 10 as previously described. It will provide a value when moved in any position that may be verified using the multiplex display viewer. When the joystick is in the neutral (centered) position, the in/out and up/down values should be at 0. When the joystick is shifted to the full arm up or arm in position (6 o'clock or 9 o'clock), the display should read -245 to -265. When the joystick is shifted to the full arm down or arm out position (12 o'clock or 3 o'clock), the display should read 245 to 265.

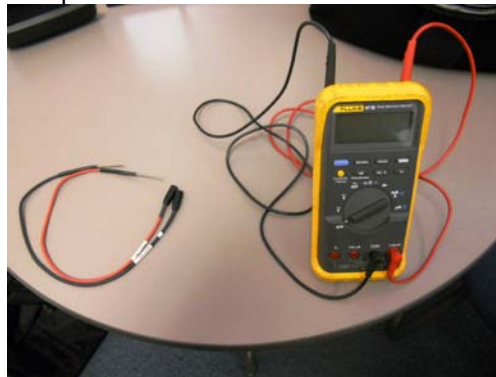


If there are any issues when attempting to operate dual functions (arm in/up, arm out/down), check the joystick in the specific position of concern for variations or spiking in the values; the values should remain consistent. If the full values do not meet specification or the values do not hold consistent readings, the joystick is suspect and should be replaced.

NON-MULTIPLEX JOYSTICK TESTING

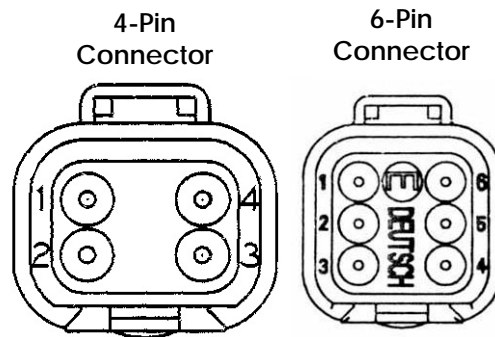
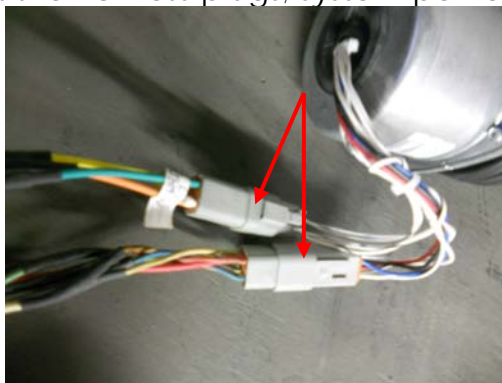
Tools required:

- System electrical schematic – contact the LabriePlus Service Department toll-free at (800) 231-2771; provide the body serial number. An electronic copy of the specific system electrical schematic will be provided via e-mail.
- Digital multimeter
- Test probe spoons, Labrie part number 972214



Step 1 – Locate the Joystick Harnesses, Identify Wiring

Find the four pin and six pin Deutsch connectors where the joystick plugs into the main harness. Typically they are in close proximity to the bottom of the joystick housing. Do not disconnect the harness plugs; system power is required for the tests.



Step 2 – Verify Joystick Supply Power & Ground

Ensure that there is at least 100 PSI air pressure in the chassis air system. The following tests must be performed with the truck engine running, the Labrie pump switch in the ON position, and all safety stop switches in the RUN position. ENSURE THAT THE AREA AROUND AND ABOVE THE AUTOMATED ARM ARE CLEAR OF OBJECTS AND PEOPLE FOR THE DURATION OF THE TESTS.

Joystick power:

On the body harness side of the 6-pin connector, locate pin #2. Connect the black lead of the multimeter to a known good ground, and connect a test probe spoon to the red multimeter lead. Insert the spoon into pin #2 of the 6-pin harness connector. Set the multimeter to DC voltage; it should read full battery power (approximately 12 volts). If not, there is a power supply issue; back-trace wire #158D on the body harness to locate and resolve the issue.

Joystick Ground:

On the body harness side of the 6-pin connector, locate pin #1. Connect the red lead of the multimeter to a known good power source, and connect a test probe spoon to the black multimeter lead. Insert the spoon into pin #1 of the 6-pin harness connector. Set the multimeter to DC voltage; it should read full battery power (approximately 12 volts). If not, there is a grounding issue; back-trace wire #105J on the body harness to locate and resolve the issue.

Step 3 – Check Joystick Outputs

Dead-Man Trigger:

On the body harness side of the 6-pin connector, locate pin #5, and on the body harness side of the 4-pin connector, locate pin #4. Connect the black lead of the multimeter to a known good ground, and connect a test probe spoon to the red multimeter lead. Insert the spoon into pin #5 of the 6-pin harness connector. Set the multimeter to DC voltage and depress the dead-man trigger on the joystick; the multimeter should read full battery power (approximately 12 volts). Insert the spoon into pin #4 of the 4-pin harness connector. Set the multimeter to DC voltage and depress the dead-man trigger on the joystick; it should read full battery power (approximately 12 volts). If not in either case, the joystick is suspect.

Gripper Control Buttons:

On the body harness side of the 4-pin connector, locate pins #1 and #2. Connect the black lead of the multimeter to a known good ground, and connect a test probe spoon to the red multimeter lead. Insert the spoon into pin #1 of the 4-pin harness connector. Set the multimeter to DC voltage and depress the dead man trigger and the gripper open button on the joystick; the multimeter should read full battery power (approximately 12 volts). Insert the spoon into pin #2 of the 4-pin harness connector. Set the multimeter to DC voltage and depress the dead-man trigger and gripper close button on the joystick; it should read full battery power (approximately 12 volts). If not in either case, the gripper control button (Labrie part number ELI02425-01) on the joystick is suspect.

Arm In/Out (Slide) Function:

On the body harness side of the 6-pin connector, locate pin #4. Connect the black lead of the multimeter to a known good ground, and connect a test probe spoon to the red multimeter lead. Insert the spoon into pin #4 of the 6-pin harness connector. Set the multimeter to DC voltage and depress the dead man trigger; with the joystick in the neutral position, the multimeter should read 6.5 – 7 volts. Move the joystick to the arm in position; the multimeter should read variable voltage as the joystick is moved, lowering to 3.5 volts in the full in position. Move the joystick to the arm out position; the multimeter should read variable voltage up to 9.5 volts when in the full out position. If the voltage range in either direction varies by less than 3 volts, the joystick is suspect.

Arm In/Out (Slide) Function:

On the body harness side of the 6-pin connector, locate pin #3. Connect the black lead of the multimeter to a known good ground, and connect a test probe spoon to the red multimeter lead. Insert the spoon into pin #3 of the 6-pin harness connector. Set the multimeter to DC voltage and depress the dead man trigger; with the joystick in the neutral position, the multimeter should read 6.5 – 7 volts. Move the joystick to the arm down position; the multimeter should read variable voltage as the joystick is moved, lowering to 3.5 volts in the full down position. Move the joystick to the arm up position; the multimeter should read variable voltage up to 9.5 volts when in the full up position. If the voltage range in either direction varies by less than 3 volts, the joystick is suspect.

Please contact the LabriePlus Service Department at (800) 231-2771 with any questions or for further information.