



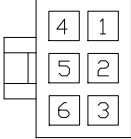
## GUARDIAN 401 A - Symptom Flow Chart - Lift Interlock

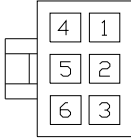
Condition	Possible Causes	Action
<ul style="list-style-type: none"> <li>▪ No prove out of LED's</li> </ul>	<ul style="list-style-type: none"> <li>▪ Connections</li> <li>▪ Power</li> <li>▪ Ground</li> <li>▪ Wake up</li> <li>▪ LED panel</li> <li>▪ Harness(es)</li> <li>▪ Module</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go to Pinpoint Test A</li> </ul>
<ul style="list-style-type: none"> <li>▪ LED's not illuminated when conditions met</li> </ul>	<ul style="list-style-type: none"> <li>▪ Connections</li> <li>▪ Harness(es)</li> <li>▪ Lift power</li> <li>▪ Lift not stowed</li> <li>▪ Module</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go to Pinpoint Test B</li> </ul>
<ul style="list-style-type: none"> <li>▪ LED's properly illuminate but lift not operating</li> </ul>	<ul style="list-style-type: none"> <li>▪ Connections</li> <li>▪ Harness(es)</li> <li>▪ Lift</li> <li>▪ Module</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go to Pinpoint Test C</li> </ul>
<ul style="list-style-type: none"> <li>▪ LED's flash lift does not operate</li> </ul>	<ul style="list-style-type: none"> <li>▪ Current draw of lift</li> <li>▪ Module revision</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go to Pinpoint Test D</li> </ul>
<ul style="list-style-type: none"> <li>▪ Lift operates when safety conditions are not met</li> </ul>	<ul style="list-style-type: none"> <li>▪ Connections</li> <li>▪ Harness(es)</li> <li>▪ Lift</li> <li>▪ Module</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go to Pinpoint Test E</li> </ul>
<ul style="list-style-type: none"> <li>▪ Vehicle will not crank</li> </ul>	<ul style="list-style-type: none"> <li>▪ Connections</li> <li>▪ Harness(es)</li> <li>▪ Starter</li> <li>▪ Module</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go to Pinpoint Test F</li> </ul>
<ul style="list-style-type: none"> <li>▪ Vehicle cranks when conditions not met</li> </ul>	<ul style="list-style-type: none"> <li>▪ Connections</li> <li>▪ Harness(es)</li> <li>▪ Module</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go to Pinpoint Test G</li> </ul>
<ul style="list-style-type: none"> <li>▪ Lift operates intermittently</li> </ul>	<ul style="list-style-type: none"> <li>▪ Connections</li> <li>▪ Harness(es)</li> <li>▪ Park</li> <li>▪ Park brake</li> <li>▪ Lift</li> <li>▪ Module</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go to Pinpoint Test H</li> </ul>

The following items are necessary for proper diagnosis:

- Digital multimeter (do not use a test lamp)
- Guardian 401A documentation  
(Available at [www.intermotive.net](http://www.intermotive.net))

## PINPOINT TEST A: NO PROVE OUT OF LEDS

Test Step	Result/Action to Take
<b>A1 Ensure that all connectors are installed correctly</b> <ul style="list-style-type: none"> <li>▪ Carefully inspect module and harness(es)</li> <li>▪ Verify correct harness connector in the correct module plug</li> <li>▪ Refer to schematics in Guardian documentation</li> </ul>	Results _____  Yes Go to A2  No Review install instructions, reinstall all connectors in their proper position. Test system for normal operation.
<ul style="list-style-type: none"> <li>▪ Are all harness connectors properly installed into module?</li> </ul>	
Test Step	Result/Action to Take
<b>A2 Ensure that all wires are in their correct connector cavity</b> <ul style="list-style-type: none"> <li>▪ Carefully inspect all harness connectors</li> <li>▪ Verify that each connector has the correct wire in each cavity</li> <li>▪ Refer to schematics in Guardian documentation for wire colors</li> </ul>	Results _____  Yes Go to A3  No Contact InterMotive for assistance with harness
<ul style="list-style-type: none"> <li>▪ Are all wires in their correct connector cavity?</li> </ul>	
Test Step	Result/Action to Take
<b>A3 Check power and grounds</b> <ul style="list-style-type: none"> <li>▪ Key in the On position</li> <li>▪ With only the lift harness and display harness plugged into module, measure voltage between pin 4 and pin 6</li> <li>▪ Measure voltage between pin 4 and pin 3</li> <li>▪ Red lead on pin 6 and pin 3</li> <li>▪ Black lead on pin 4 (back probe connector)</li> </ul> <div style="text-align: center; margin: 10px 0;">  <p>Back of lift Connector</p> </div> <ul style="list-style-type: none"> <li>▪ Are voltages greater than 10v?</li> </ul>	Results _____  Yes Go to A5  No Go to A4
Test Step	Result/Action to Take
<b>A4 Check power at lift</b> <ul style="list-style-type: none"> <li>▪ Measure voltage at lift</li> <li>▪ Consult lift manufacturer for lift output circuit</li> </ul>	Results _____  Yes Go to A5  No Contact lift manufacturer or installer
<ul style="list-style-type: none"> <li>▪ Is voltage greater than 10v?</li> </ul>	

Test Step	Result/Action to Take
<b>A6 Check LED display</b> <ul style="list-style-type: none"> <li>▪ Key in the On position</li> <li>▪ Measure voltage between chassis ground and pin 1 of the display connector. (Back probe connector)</li> </ul> <div style="text-align: center;">  <p>Back of display Connector</p> </div> <ul style="list-style-type: none"> <li>▪ Is voltage greater than 4.5v?</li> </ul>	<p style="text-align: center;">Results _____</p> <p>Yes Contact InterMotive for assistance with led display</p> <p>No Contact InterMotive for assistance with harness</p>

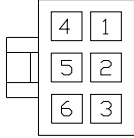
## PINPOINT TEST B: LEDS NOT ILLUMINATED WHEN CONDITIONS MET

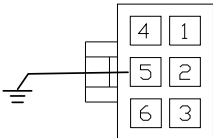
Test Step	Result/Action to Take
<b>B1 Ensure that all connectors are installed correctly</b> <ul style="list-style-type: none"> <li>▪ Carefully inspect module and harness(es)</li> <li>▪ Verify correct harness connector in the correct module plug</li> <li>▪ Refer to schematics in Guardian documentation</li> </ul> <ul style="list-style-type: none"> <li>▪ Are all harness connectors properly installed into module?</li> </ul>	<p style="text-align: center;">Results _____</p> <p>Yes Go to B2</p> <p>No Review install instructions, reinstall all connectors in their proper positions. Test system for normal operation.</p>

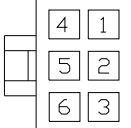
Test Step	Result/Action to Take
<b>B2 Ensure that all wires are in their correct connector cavity</b> <ul style="list-style-type: none"> <li>▪ Carefully inspect all harness connectors</li> <li>▪ Verify that each connector has the correct wire in correct cavity</li> <li>▪ Refer to schematics in Guardian documentation for wire colors</li> </ul> <ul style="list-style-type: none"> <li>▪ Are all wires in their correct connector cavity?</li> </ul>	<p style="text-align: center;">Results _____</p> <p>Yes Go to B3</p> <p>No Contact InterMotive for assistance with harness</p>

Test Step	Result/Action to Take
<b>B3 Check operation</b> <ul style="list-style-type: none"> <li>▪ Key in the On position</li> <li>▪ Perform each function, set park brake, unfold lift</li> </ul> <ul style="list-style-type: none"> <li>▪ Which LED does not illuminate?</li> </ul>	<p>Lift power - Go to B4</p> <p>Lift not stowed - Go to B6</p>

Test Step	Result/Action to Take
<b>B4 Check park brake operation</b> <ul style="list-style-type: none"> <li>▪ Key in the On position</li> <li>▪ Apply and release park brake</li> </ul> <ul style="list-style-type: none"> <li>▪ Does the park brake light illuminate on the dash?</li> </ul>	<p style="text-align: center;">Results _____</p> <p>Yes Go to B5</p> <p>No Contact OEM dealer for assistance</p>

Test Step	Result/Action to Take
<b>B5 Check park brake operation</b> <ul style="list-style-type: none"> <li>Key in the On position</li> <li>Apply and release park brake</li> <li>Measure voltage between chassis ground and pin 1 of the vehicle 1 connector (back probe connector)</li> </ul>  <p>Back of Connector</p> <ul style="list-style-type: none"> <li>Does the voltage read 0v with park brake applied and 12v with park brake released?</li> </ul>	<p>Results _____</p> <p>Yes Go to B7</p> <p>No Contact InterMotive for assistance with harness</p>

Test Step	Test Step
<b>B6 Check lift stowed signal</b> <ul style="list-style-type: none"> <li>Key in the On position</li> <li>At the 6 pin connector at module labeled lift, back probe pin 5 and jump to chassis ground</li> </ul>  <p>Back of Connector</p> <ul style="list-style-type: none"> <li>Does the lift not stowed LED illuminate?</li> </ul>	<p>Results _____</p> <p>Yes Inspect lift stowed switch or lift adjustment</p> <p>No Contact InterMotive for assistance with module</p>

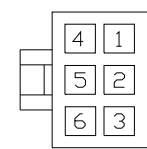
Test Step	Test Step
<b>B7 Check ignition power</b> <ul style="list-style-type: none"> <li>At the module, vehicle 2 connector (back probe pin 1)</li> <li>Measure voltage between pin 1 and chassis ground</li> </ul>  <p>Back of Connector</p> <ul style="list-style-type: none"> <li>Is voltage greater than 10v</li> </ul>	<p>Results _____</p> <p>Yes Ensure that ignition switch is off</p> <p>No Contact InterMotive for assistance with module</p>

## PINPOINT TEST C: LED'S PROPERLY ILLUMINATE BUT LIFT DOES NOT OPERATE

Test Step	Result/Action to Take
<b>C1 Ensure that all connectors are installed correctly</b> <ul style="list-style-type: none"> <li>Carefully inspect module and harness(es)</li> <li>Verify correct harness connector in the correct module plug</li> <li>Refer to schematics in Guardian documentation</li> </ul> <ul style="list-style-type: none"> <li>Are all harness connectors properly installed into module?</li> </ul>	<p>Results _____</p> <p>Yes Go to C2</p> <p>No Review install instructions, reinstall all connectors in their proper positions. Test system for normal operation.</p>

Test Step	Result/Action to Take
<b>C2 Ensure that all wires are in their correct connector cavity</b> <ul style="list-style-type: none"> <li>Carefully inspect all harness connectors</li> <li>Verify that each connector has the correct wire in correct cavity</li> <li>Refer to schematics in Guardian documentation for wire colors</li> </ul> <ul style="list-style-type: none"> <li>Are all wires in their correct connector cavity?</li> </ul>	<p>Results _____</p> <p>Yes Go to C3</p> <p>No Contact InterMotive for assistance with harness</p>

Test Step	Result/Action to Take
C3 Check lift operation	

- Key in the Off position
  - Ensure that all conditions met, park brake set, vehicle in park
  - Measure voltage at pin 1 of the lift harness at module (back probe)
- 

Back of Connector
- Is voltage greater than 10v?

Results \_\_\_\_\_

Yes  
Contact InterMotive for assistance with lift harness or lift

No  
Contact Intermotive for assistance with module

**PINPOINT TEST D: LED'S FLASH, LIFT DOES NOT OPERATE**

Test Step	Result/Action to Take
D1 Ensure that all connectors are installed correctly	

- Carefully inspect module and harness(es)
  - Verify correct harness connector in the correct module plug
  - Refer to schematics in Guardian documentation
- Are all harness connectors properly installed into module?

Results \_\_\_\_\_

Yes  
Go to D2

No  
Review install instructions, reinstall all connectors in their proper position. Test system for normal operation.

Test Step	Result/Action to Take
D2 Ensure that all wires are in their correct connector cavity	

- Carefully inspect all harness connectors
  - Verify that each connector has the correct wire in correct cavity
  - Refer to schematics in Guardian documentation for wire colors
- Are all wires in their correct connector cavity?

Results \_\_\_\_\_

Yes  
Go to D3

No  
Contact InterMotive for assistance with harness

Test Step	Result/Action to Take
D3 Check for overcurrent condition	

- Carefully inspect and identify which lift harness has been installed
  - Using the Braun or Ricon lift adapter, pull the fuse to install multimeter in series for current draw test.
  - Set scale on meter to 10Amp
  - Activate lift
- Is the current draw greater than 8 Amps during lift activation?

Results \_\_\_\_\_

Yes  
It will be necessary to install a relay on the lift output circuit

No  
Contact InterMotive for assistance with module

**PINPOINT TEST E: LIFT OPERATES WHEN SAFETY CONDITIONS ARE NOT MET**

Test Step	Result/Action to Take
E1 Ensure that all connectors are installed correctly	

- Carefully inspect module and harness(es)
  - Verify correct harness connector in the correct module plug
  - Refer to schematics in Guardian documentation
- Are all harness connectors properly installed into module?

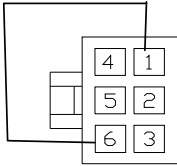
Results \_\_\_\_\_

Yes  
Go to E2

No  
Review install instructions, reinstall all connectors in their proper position. Test system for normal operation.

Test Step	Result/Action to Take
<b>E2 Ensure that all wires are in their correct connector cavity</b>	
<ul style="list-style-type: none"> <li>Carefully inspect all harness connectors</li> <li>Verify that each connector has the correct wire in correct cavity</li> <li>Refer to schematics in Guardian documentation for wire colors</li> </ul>	<p>Yes Results _____</p> <p>Go to E3</p>
<ul style="list-style-type: none"> <li>Are all wires in their correct connector cavity?</li> </ul>	<p>No</p> <p>Contact InterMotive for assistance with harness</p>

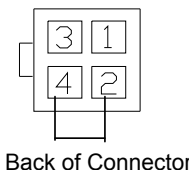
Test Step	Result/Action to Take
<b>E3 Check lift operation</b>	
<ul style="list-style-type: none"> <li>Disconnect lift connector from Guardian module and attempt to operate lift</li> </ul>	<p>Results _____</p>
<ul style="list-style-type: none"> <li>Does the lift operate?</li> </ul>	<p>Yes</p> <p>Check for short to power on lift circuit or at the lift</p> <p>No</p> <p>Go to E4</p>

Test Step	Result/Action to Take
<b>E4 Check lift operation</b>	
<ul style="list-style-type: none"> <li>Disconnect lift connector from Guardian module and jump pin 1 to pin 6</li> </ul>	<p>Results _____</p>
 <p>Back of Connector</p> <ul style="list-style-type: none"> <li>Does the lift operate?</li> </ul>	<p>Yes</p> <p>Contact InterMotive for assistance with module</p> <p>No</p> <p>Contact InterMotive for assistance with lift harness or lift</p>

## PINPOINT TEST F: VEHICLE WILL NOT CRANK

Test Step	Result/Action to Take
<b>F1 Ensure that all connectors are installed correctly</b>	
<ul style="list-style-type: none"> <li>Carefully inspect module and harness(es)</li> <li>Verify correct harness connector in the correct module plug</li> <li>Refer to schematics in Guardian documentation</li> </ul>	<p>Yes Results _____</p> <p>Go to F2</p>
<ul style="list-style-type: none"> <li>Are all harness connectors properly installed into module?</li> </ul>	<p>No</p> <p>Review install instructions, reinstall all connectors in their proper position. Test system for normal operation.</p>

Test Step	Result/Action to Take
<b>F2 Ensure that all wires are in their correct connector cavity</b>	
<ul style="list-style-type: none"> <li>Carefully inspect all harness connectors</li> <li>Verify that each connector has the correct wire in correct cavity</li> <li>Refer to schematics in Guardian documentation for wire colors</li> </ul>	<p>Results _____</p>
<ul style="list-style-type: none"> <li>Are all wires in their correct connector cavity?</li> </ul>	<p>Yes</p> <p>Go to F3</p> <p>No</p> <p>Contact InterMotive for assistance with harness</p>

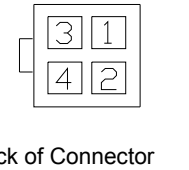
Test Step	Result/Action to Take
<b>F3 Check starter circuit</b> <ul style="list-style-type: none"> <li>Disconnect vehicle 2 connector from module, using a jumper wire, jump pin 2 to pin 4</li> <li>Verify lift is fully stowed</li> <li>Attempt to crank engine</li> </ul> <div style="text-align: center;">  <p>Back of Connector</p> </div>	<p style="text-align: right;">Results _____</p> <p>Yes Contact InterMotive for assistance with module</p> <p>No Go to F4</p>

Test Step	Result/Action to Take
<b>F4 Check stater circuit</b> <ul style="list-style-type: none"> <li>Using a jumper wire of the correct gauge jump at the two solder joints between the OEM starter harness and the InterMotive vehicle 2 harness</li> <li>Attempt to crank engine</li> </ul>	<p style="text-align: right;">Results _____</p> <p>Yes Contact InterMotive for assistance with harness</p> <p>No Contact OEM dealer</p>

### PINPOINT TEST G: VEHICLE CRANKS WHEN CONDITIONS NOT MET

Test Step	Result/Action to Take
<b>G1 Ensure that all connectors are installed correctly</b> <ul style="list-style-type: none"> <li>Carefully inspect module and harness(es)</li> <li>Verify correct harness connector in the correct module plug</li> <li>Refer to schematics in Guardian documentation</li> </ul>	<p style="text-align: right;">Results _____</p> <p>Yes Go to G2</p> <p>No Review install instructions, reinstall all connectors in their proper position. Test system for normal operation.</p>

Test Step	Result/Action to Take
<b>G2 Ensure that all wires are in their correct connector cavity</b> <ul style="list-style-type: none"> <li>Carefully inspect all harness connectors</li> <li>Verify that each connector has the correct wire in correct cavity</li> <li>Refer to schematics in Guardian documentation for wire colors</li> </ul>	<p style="text-align: right;">Results _____</p> <p>Yes Go to G3</p> <p>No Contact InterMotive for assistance with harness</p>

Test Step	Result/Action to Take
<b>G3 Check starter circuit</b> <ul style="list-style-type: none"> <li>Disconnect vehicle 2 connector from module</li> <li>Attempt to crank engine</li> </ul> <div style="text-align: center;">  <p>Back of Connector</p> </div>	<p style="text-align: right;">Results _____</p> <p>Yes Contact OEM</p> <p>No Contact InterMotive for assistance with module</p>



