



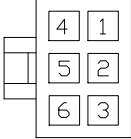
GUARDIAN 401 A - Symptom Flow Chart - Lift Interlock

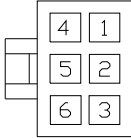
Condition	Possible Causes	Action
<ul style="list-style-type: none"> ▪ No prove out of LED's 	<ul style="list-style-type: none"> ▪ Connections ▪ Power ▪ Ground ▪ Wake up ▪ LED panel ▪ Harness(es) ▪ Module 	<ul style="list-style-type: none"> ▪ Go to Pinpoint Test A
<ul style="list-style-type: none"> ▪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

The following items are necessary for proper diagnosis:

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

PINPOINT TEST A: NO PROVE OUT OF LEDS

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

Test Step	Result/Action to Take
A6 Check LED display <ul style="list-style-type: none"> Key in the On position Measure voltage between chassis ground and pin 1 of the display connector. (Back probe connector) <div style="text-align: center;">  <p>Back of display Connector</p> </div> <ul style="list-style-type: none"> Is voltage greater than 4.5v? 	<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>

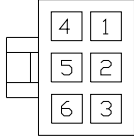
PINPOINT TEST B: LEDS NOT ILLUMINATED WHEN CONDITIONS MET

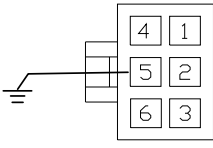
Test Step	Result/Action to Take
B1 Ensure that all connectors are installed correctly <ul style="list-style-type: none"> Carefully inspect module and harness(es) Verify correct harness connector in the correct module plug Refer to schematics in Guardian documentation <ul style="list-style-type: none"> Are all harness connectors properly installed into module? 	<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>

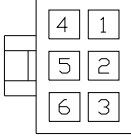
Test Step	Result/Action to Take
B2 Ensure that all wires are in their correct connector cavity <ul style="list-style-type: none"> Carefully inspect all harness connectors Verify that each connector has the correct wire in correct cavity Refer to schematics in Guardian documentation for wire colors <ul style="list-style-type: none"> Are all wires in their correct connector cavity? 	<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
B3 Check operation <ul style="list-style-type: none"> Key in the On position Perform each function, set park brake, unfold lift <ul style="list-style-type: none"> Which LED does not illuminate? 	<p>Lift power - Go to B4</p> <p>Lift not stowed - Go to B6</p>

Test Step	Result/Action to Take
B4 Check park brake operation <ul style="list-style-type: none"> Key in the On position Apply and release park brake <ul style="list-style-type: none"> Does the park brake light illuminate on the dash? 	<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
B5 Check park brake operation <ul style="list-style-type: none"> Key in the On position Apply and release park brake Measure voltage between chassis ground and pin 1 of the vehicle 1 connector (back probe connector)  <p>Back of Connector</p> <ul style="list-style-type: none"> Does the voltage read 0v with park brake applied and 12v with park brake released? 	<p>Results _____</p> <p>Yes Go to B7</p> <p>No Contact InterMotive for assistance with harness</p>

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

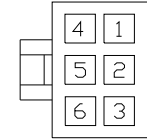
Test Step	Test Step
B7 Check ignition power <ul style="list-style-type: none"> At the module, vehicle 2 connector (back probe pin 1) Measure voltage between pin 1 and chassis ground  <p>Back of Connector</p> <ul style="list-style-type: none"> Is voltage greater than 10v 	<p>Results _____</p> <p>Yes Ensure 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
C1 Ensure that all connectors are installed correctly <ul style="list-style-type: none"> Carefully inspect module and harness(es) Verify correct harness connector in the correct module plug Refer to schematics in Guardian documentation <ul style="list-style-type: none"> Are all harness connectors properly installed into module? 	<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
C2 Ensure that all wires are in their correct connector cavity <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Are all wires in their correct connector cavity? 	<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 _____

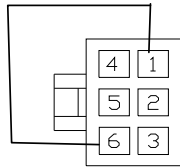
Yes
Go to E2

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

Test Step	Result/Action to Take
E2 Ensure that all wires are in their correct connector cavity	
<ul style="list-style-type: none"> 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 	<p>Yes Go to E3</p> <p>Results _____</p>
<ul style="list-style-type: none"> Are all wires in their correct connector cavity? 	<p>No Contact InterMotive for assistance with harness</p>

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

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

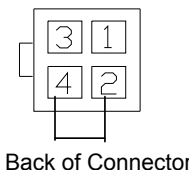


Back of Connector

PINPOINT TEST F: VEHICLE WILL NOT CRANK

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

Test Step	Result/Action to Take
F2 Ensure that all wires are in their correct connector cavity	
<ul style="list-style-type: none"> 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 	<p>Yes Go to F3</p> <p>Results _____</p>
<ul style="list-style-type: none"> Are all wires in their correct connector cavity? 	<p>No Contact InterMotive for assistance with harness</p>

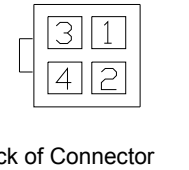
Test Step	Result/Action to Take
F3 Check starter circuit <ul style="list-style-type: none"> Disconnect vehicle 2 connector from module, using a jumper wire, jump pin 2 to pin 4 Verify lift is fully stowed Attempt to crank engine <div style="text-align: center;">  <p>Back of Connector</p> </div>	<p style="text-align: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

Test Step	Result/Action to Take
F4 Check stater circuit <ul style="list-style-type: none"> 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 Attempt to crank engine 	<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
G1 Ensure that all connectors are installed correctly <ul style="list-style-type: none"> Carefully inspect module and harness(es) Verify correct harness connector in the correct module plug Refer to schematics in Guardian documentation 	<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
G2 Ensure that all wires are in their correct connector cavity <ul style="list-style-type: none"> 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 	<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
G3 Check starter circuit <ul style="list-style-type: none"> Disconnect vehicle 2 connector from module Attempt to crank engine <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>

PINPOINT TEST H: LIFT OPERATES INTERMITTENTLY

Test Step	Result/Action to Take
<p>H1 Check lift operation</p> <ul style="list-style-type: none">Observe LED's when lift will not operate What does the LED panel display?	<p>No LED's illuminated - Go to pinpoint test A</p> <p>LED's flash - Go to pinpoint test E</p>