



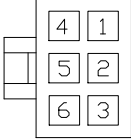
GUARDIAN 401 A - Symptom Flow Chart - Lift Interlock

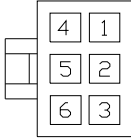
Condition	Possible Causes	Action
<ul style="list-style-type: none"> ▪ No prove out of LED's 	<ul style="list-style-type: none"> ▪ Connections ▪ Power ▪ Ground ▪ Wake up ▪ LED panel ▪ Harness(es) ▪ Module 	<ul style="list-style-type: none"> ▪ Go to Pinpoint Test A
<ul style="list-style-type: none"> ▪ 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.
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
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: 10px 0;">  <p>Back of lift Connector</p> </div> <ul style="list-style-type: none"> ▪ Are voltages greater than 10v? 	Results _____ Yes Go to A5 No Go to A4
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

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>

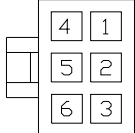
PINPOINT TEST B: LEDS NOT ILLUMINATED WHEN CONDITIONS MET

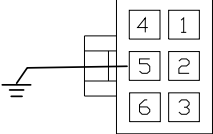
Test Step	Result/Action to Take
B1 Ensure that all connectors are installed correctly <ul style="list-style-type: none"> Carefully inspect module and harness(es) Verify correct harness connector in the correct module plug Refer to schematics in Guardian documentation <ul style="list-style-type: none">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

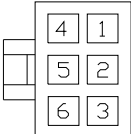
Test Step	Result/Action to Take
B2 Ensure that all wires are in their correct connector cavity <ul style="list-style-type: none"> Carefully inspect all harness connectors Verify that each connector has the correct wire in correct cavity Refer to schematics in Guardian documentation for wire colors <ul 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>

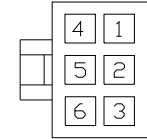
Test Step	Test Step
B7 Check ignition power <ul style="list-style-type: none"> At the module, vehicle 2 connector (back probe pin 1) Measure voltage between pin 1 and chassis ground  <p>Back of Connector</p> <ul style="list-style-type: none"> Is voltage greater than 10v 	<p>Results _____</p> <p>Yes Ensure 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?

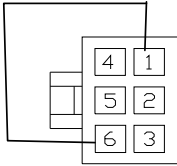
Results _____

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 Results _____</p> <p>Go to E3</p>
<ul style="list-style-type: none"> Are all wires in their correct connector cavity? 	<p>No</p> <p>Contact InterMotive for assistance with harness</p>

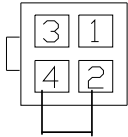
Test Step	Result/Action to Take
E3 Check lift operation	
<ul style="list-style-type: none"> Disconnect lift connector from Guardian module and attempt to operate lift 	<p>Results _____</p>
<ul style="list-style-type: none"> Does the lift operate? 	<p>Yes</p> <p>Check for short to power on lift circuit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

Test Step	Result/Action to Take
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>Back of Connector</p> <ul style="list-style-type: none"> Does the lift operate? 	<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
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 Results _____</p> <p>Go to F2</p>
<ul style="list-style-type: none"> Are all harness connectors properly installed into module? 	<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
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>Results _____</p>
<ul style="list-style-type: none"> Are all wires in their correct connector cavity? 	<p>Yes</p> <p>Go to F3</p> <p>No</p> <p>Contact InterMotive for assistance with harness</p>

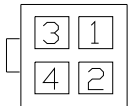
Test Step	Result/Action to Take
F3 Check starter circuit	
<ul style="list-style-type: none"> Disconnect vehicle 2 connector from module, using a jumper wire, jump pin 2 to pin 4 Verify lift is fully stowed Attempt to crank engine <div style="text-align: center;">  <p>Back of Connector</p> </div>	<p style="text-align: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

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>
<ul style="list-style-type: none"> Are all harness connectors properly installed into module? 	

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>
<ul style="list-style-type: none"> Are all wires in their correct connector cavity? 	

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>
<ul style="list-style-type: none"> Will vehicle crank engine? 	

PINPOINT TEST H: LIFT OPERATES INTERMITTENTLY

Test Step

Result/Action to Take

H1 Check lift operation

- Observe LED's when lift will not operate

No LED's illuminated - Go to pinpoint test A

LED's flash - Go to pinpoint test E

- What does the LED panel display?