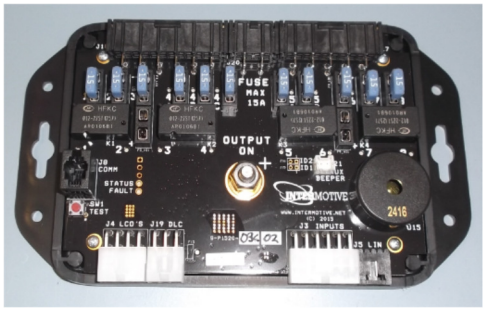
An ISO 9001:2015 Registered Company

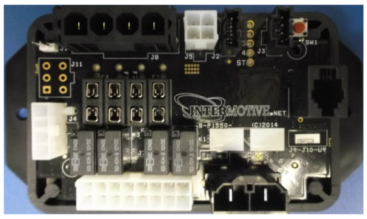
FlexTech
Programmable Relay Power Center
505/507/509/550/557/559/605/805/806
Symptom Flow Chart



FlexTech Programmable Relay Power Center Module (PRPC)

FlexTech Switch Backer Board (SBB)

FlexTech Door Ajar Display Panel (ILIS)(AFIS)



FlexTech Expansion Board (EXP)

The **Programmable Relay Power Center (PRPC)** is the core module in the **FlexTech System** and provides access to a broad range of vehicle data such as MPH, RPM, Park Brake, Service Brake, temperatures, transmission range, accelerator pedal, doors, lights, door locks, ABS, MIL, etc.

There are a number of additional modules that can be connected to the PRPC using a LIN cable. The PRPC then interfaces with these devices to extend the functionality of the FlexTech system. Please refer to the instructions for each module for its installation and operation.

- Switch Backer Board, (SBB) This board monitors eight switches and provide a programmable indicator light for each. They also provide a backlight and have two 1 A and four 0.5 A Low Current Outputs (LCOs). All functions are controlled by the PRPC. A total of two Switch Backer Boards can be used together on the PRPC.

- Expansion Board, (EXP) This board has four 10 A fused relay outputs, four 1 A LCO outputs, and four active low inputs which expand the capability of the PRPC. All functions are controlled by the PRPC. Two Expansion Boards can be used together.

- Gateway, A-G500 for use with PRC505/507/550/557. This activates the Intelligent Lift Interlock System (ILIS) for wheelchair lift operation, and the Advanced Fast Idle System (AFIS).

PRPC Installation Instructions and Vehicle Configuration Documentation are available from:

InterMotive Customer Care
530-823-1048 Ext. 159 or 162

Contact InterMotive to ensure you are using the latest PRPC-DIAG revision.

InterMotive Inc.
12840 Earhart Ave.
Auburn, CA 95602

Phone: (530) 823-1048
Fax: (530) 823-1516

www.intermotive.net
products@intermotive.net

Technician knowledge base and testing procedures

These diagnostic instructions are designed to help a qualified technician diagnose a potential issue with the InterMotive FlexTech system. The technician should have a basic electrical understanding of current flow, be able to read NEMA standard wiring diagrams, and know how to use a Digital Volt/Ohm Meter. (DVOM) They should be familiar with the FlexTech system and may need to contact the bus manufacturer for wiring schematics prior to starting any diagnostics. The Estimated Time To Complete times at the top of each pinpoint test are to help guide the technician and are not authorization for any warranty repair labor claims.

USING A TEST LIGHT OR POWER PROBE TO DIAGNOSE ANY INTERMOTIVE PRODUCT MAY GIVE INCORRECT DIAGNOSTIC INFORMATION AND RESULT IN DAMAGING THE SYSTEM.

Testing connector outputs and harness continuity

Using a Digital Volt/Ohm Meter (DVOM) back probe the FlexTech system connector on the harness side to read connector inputs, outputs, and check for harness continuity.

Do NOT stick anything into the front of the connector. Damage to the connector terminals may result.

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3 Performing the system post installation test.

4 Testing Relay Outputs / Output Trouble Codes Page

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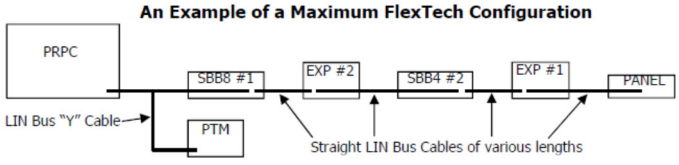
Acronyms

AFIS - Advanced Fast Idle System
CAN - Controller Area Network
DLC - Data Link Connector
DVOM - Digital Volt/Ohm Meter
EXP - Expansion Board
IDM - InterMotive Download Manager
ILIS - Intelligent Lift Interlock System
LCO - Low Current Output
LED - Light Emitting Diode
LIN - Local Information Network
OEM - Original Equipment Manufacture
PRPC - Programmable Relay Power Center
PTM - Pre Trip Module
SBB - Switch Backer Board

An Example of a Maximum FlexTech Configuration

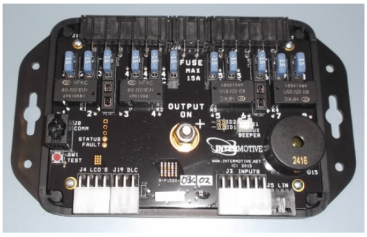


FlexTech
PRPC 505/507/509/550/557/559/605/805/806
Symptom Flow Chart

Begin diagnosis by performing the system post installation test.

1. Turn the ignition ON to wake up and initialize the PRPC module.

2. If the red LEDs are scrolling sequentially it indicates that the VIN is either not been found or is not valid. Cycle the key off then back on. If the red LEDs continue scrolling sequentially please contact InterMotive.



3. Ensure that all desired outputs are responding correctly per their programmed set of conditions in the PRPC configuration (For example, depending on the actual configuration, PRPC relay 4 activates when the engine is running).

Choose the condition from the chart below that best fits with the symptom identified.

Condition	Possible Causes	Action
• No PRPC system functions and no prove out of the lift display panel LED's. (If installed)	• Connections • Power / Ground • PRPC Module(s) • LED panel • Harness(es)	• Go to Pinpoint Test A.
• Some PRPC systems function, but entry doors, rear heater, and/or interior lights do not function properly.	• Connections • Harness(es) • LED panel • Module(s)	• Go to Pinpoint Test B.
• No lift function. No lift display function or prove out.	• Connections • LED panel • Harness(es) • Module	• Go to Pinpoint Test C.
• No lift function. Lift display LEDs flash top row then bottom row.	• Connections • Harness(es) • LED panel • Module(s)	• Go to Pinpoint Test D.

PRPC Installation Instructions and Vehicle Configuration Documentation are available from:

InterMotive Customer Care
530-823-1048 Ext. 159 or 162

Testing Relay Outputs

Each relay has an associated on-board green LED that indicates when the relay coil is active. These green LEDs can be thought of as conditions met indicators. In addition, each fused output has an on-board red LED to indicate when the fuse is blown. These red LEDs are processor controlled. If the module is not in diagnostic mode and a blown fuse is detected on a configured output, the associated on-board red LED will illuminate. No fuse sensing is performed on outputs that are not configured to turn on.

Choose the condition from the chart below that best fits with the symptom identified.

Condition	Possible Causes	Action
• No output to vehicle system from the PRPC J17 or J18 connector with the corresponding on-board green LED lit, indicating the relay coil is active.	• Power / Ground • Relay Fuse • Harness(es) • Module	• Go to Pinpoint Test E.
• One of the on-board green relay coil active LEDs is not lit with configuration conditions met. Other relays function properly.	• Inputs to PRPC • Harness(es) • Configuration • Module	• Go to Pinpoint Test F.
• PRPC J17 or J18 connector output pin has voltage without configuration conditions met and on-board green relay coil active LED is lit.	• Inputs to PRPC • Configuration • Module	• Go to Pinpoint Test G.

Diagnostics Operation

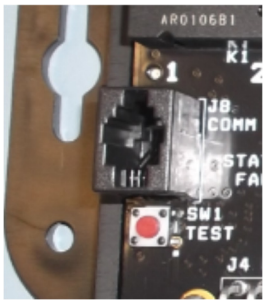
There are 8 “pages” of diagnostic displays that can be selected. Each page displays a different status using the red Fuse LEDs. In addition, when in any of the pages, the red FAULT LED will blink a fault code if there are any problems.

Selecting the Output Trouble Codes Page

This diagnostic page 8 is selected by pressing and releasing the TEST button (you must have the ignition on in normal operating mode). When pressing this button, hold it down for about 1 second before releasing it (holding it longer than 1 second is not going to cause a problem). To select page 8, starting from normal operating mode, press and release the test button eight times. The amber STATUS LED will blink the page number alternately with the FAULT LED which is now blinking the fault code. If there are no faults detected, the fault code is three slow blinks of the fault LED. To return to normal operation, press and release the test button one more time. All LEDs will then return to normal operation with fault and status off.

As mentioned before, the red fault LED will be blinking the trouble code when any of the 8 pages is selected. The fault LED blinks out the three digit code alternatively with the Status LED which is blinking the page number. When everything is working properly, the fault LED will be blinking 3 times rather slowly. This is a code of 1-1-1 which means NO fault, operating normally.

When there is a fault, the LED first blinks a number that tells where in the PRPC the fault is coming from (LCOs, Relays, Beepers, etc.). This will blink from 2 to 15 times (11 to 14 not used), note this count. There will then be a brief pause before the 2nd digit (the same time as between blinks for the 1-1-1 code). The 2nd digit will then blink and will be one of the following: 1, 2, 3, 4, 5, 7, or 15. Note this 2nd count. There will again be a brief pause before the 3rd digit. The 3rd digit will usually indicate which output the fault is on, but there are some other codes where the 3rd count has a different meaning. Again, note this count. The following is an example of a full fault code. It indicates that relay number 4 has an output fault: 3-2-4.



Don't worry about getting the count right the first time. The fault count will repeat alternating with the page count on the Status LED so you will have plenty of time to see the counts over and over to get it right. Only 1 fault will be shown. If there are more than 1 fault in the board, only the highest priority fault will be shown. The fault codes are listed in the table below. The beginning of the table shows lowest priority faults. The end of the table shows the highest priority faults.

Fault Code	What The Code Means	Fault Code	What The Code Means
1-1-1	**No Fault, operating normally**	7-1-(LCO #)	SBB2-LCO Fault-LCO #
2-2-(LCO #)	PRPC-LCO-Output Fault*	7-2-(LCO #)	SBB2-LCO Invalid Receive Data-LCO #
2-3-(LCO #)	PRPC-LCO-Invalid Timeout**	7-3-(LLED #)	SBB2-Load LED Fault-LLED #
2-4-(LCO #)	PRPC-LCO-Invalid Receive Data***	7-4-(LLED #)	SBB2-Load LED Invalid Receive Data-LLED #
2-5-(LCO #)	PRPC-LCO-Invalid Unsupported****	7-5-1	SBB2-LCO Hardware Error
2-7-(LCO #)	PRPC-LCO-Unknown Error	7-5-2	SBB2-Backlight Error
3-2-(Relay #)	PRPC-Relay-Output Fault*	7-5-3	SBB2-Input Error
3-3-(Relay #)	PRPC-Relay-Invalid Timeout**	8-1-(LCO #)	EXP1-LCO Fault-LCO #
3-4-(Relay #)	PRPC-Relay-Invalid Receive Data***	8-2-(LCO #)	EXP1-LCO Invalid Receive Data-LCO #
3-5-(Relay #)	PRPC-Relay-Invalid Unsupported****	8-3-1	EXP1-LCO Hardware Error
3-7-(Relay #)	PRPC-Relay-Unknown Error	8-4-1	EXP1-Low Battery Voltage
4-2-(Beeper #)	PRPC-Beeper-Output Fault*	8-7-15	EXP1-PCB Temperature Fault
4-3-(Beeper #)	PRPC-Beeper-Invalid Timeout**	9-1-(LCO #)	EXP2-LCO Fault-LCO #
4-4-(Beeper #)	PRPC-Beeper-Invalid Receive Data***	9-2-(LCO #)	EXP2-LCO Invalid Receive Data-LCO #
4-5-(Beeper #)	PRPC-Beeper-Invalid Unsupported****	9-3-1	EXP2-LCO Hardware Error
4-7-(Beeper #)	PRPC-Beeper-Unknown Error	9-4-1	EXP2-Low Battery Voltage
5-4-1	PRPC-AFIS-No Security	9-7-15	EXP2-PCB Temperature Fault
5-4-2	PRPC-AFIS-BCM No Security	10-1-1	LIN-No Communications-PTIM
5-4-3	PRPC-AFIS-Scan tool Detect	10-2-1	LIN-Receive Error-PTIM
5-5-1	PRPC-CAN1 Error	10-1-2	LIN-No Communications-SBB1
5-5-2	PRPC-CAN2 Error	10-2-2	LIN-Receive Error-SBB1
5-5-3	PRPC-LCO Hardware Error	10-1-3	LIN-No Communications-SBB2
6-1-(LCO #)	SBB1-LCO Fault-LCO #	10-2-3	LIN-Receive Error-SBB2
6-2-(LCO #)	SBB1-LCO Invalid Receive Data-LCO #	10-1-4	LIN-No Communications-EXP1
6-3-(LLED #)	SBB1-Load LED Fault-LLED #	10-2-4	LIN-Receive Error-EXP1
6-4-(LLED #)	SBB1-Load LED Invalid Receive Data-LLED #	10-1-5	LIN-No Communications-EXP2
6-5-1	SBB1-LCO Hardware Error	10-2-5	LIN-Receive Error-EXP2
6-5-2	SBB1-Backlight Error	15-15-1	PRPC-PCB Temperature Fault
6-5-3	SBB1-Input Error		

* Output fault (overcurrent or overvoltage)
** Data timed out (The data associated with the output has timed out)
*** Invalid Data (The data associated with the output is invalid)
**** Unsupported Data (The data associated with the output is not supported on the current vehicle)

Fault Code Diagnostic Page

After retrieving the fault code, use the table below to determine the pinpoint test required.

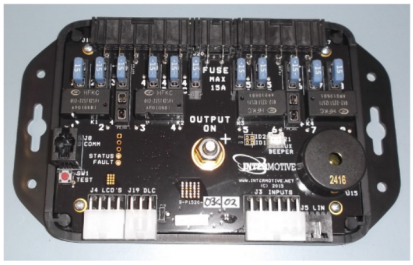
Condition	Possible Causes	Action
• Any fault code starting with 2.	• Connections • Power / Ground • Harness(es) • OEM Issue • PRPC Module	• Go to Pinpoint Test H.
• Any fault code starting with 3.	• Connections • Power / Ground • Harness(es) • OEM Issue • PRPC Module	• Go to Pinpoint Test I.
• Any fault code starting with 4.	• Connections • Power / Ground • Harness(es) • OEM Issue • PRPC Module	• Go to Pinpoint Test J.
• Any fault code starting with 5.	• Connections • Harness(es) • OEM Issue / Scan Tool Detected	• Go to Pinpoint Test K.
• Any fault code starting with 6.	• Connections • Power / Ground • Harness(es) • SBB1 Module	• Go to Pinpoint Test L.
• Any fault code starting with 7.	• Connections • Power / Ground • Harness(es) • SBB2 Module	• Go to Pinpoint Test M.
• Any fault code starting with 8.	• Connections • Power / Ground • Harness(es) • EXP1 Module	• Go to Pinpoint Test N.
• Any fault code starting with 9.	• Connections • Power / Ground • Harness(es) • EXP2 Module	• Go to Pinpoint Test O.
• Any fault code starting with 10.	• Connections • PRPC, SBB1, SBB2, EXP1, EXP2 Module • Harness(es) • LED panel	• Go to Pinpoint Test P.
• Any fault code starting with 15.	• Connections • PRPC Module • Harness(es)	• Go to Pinpoint Test Q.

The following is necessary for proper diagnosis:

- **Minimum system voltage (battery voltage) of 12.4 volts.**
- **Digital multimeter (do not use a test lamp as circuit damage will result).**
- **PRPC Configuration Documentation as per the application.**

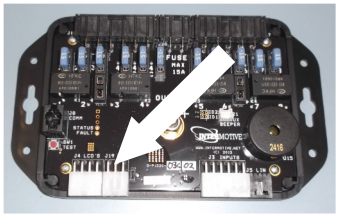
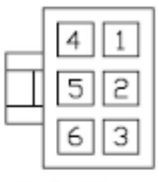
Vehicle Configuration Documentation is available from:
InterMotive Customer Care
530-823-1048 Ext. 159 or 162

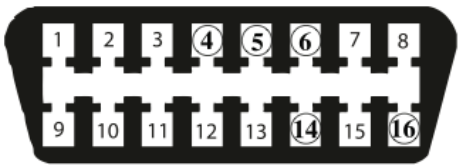
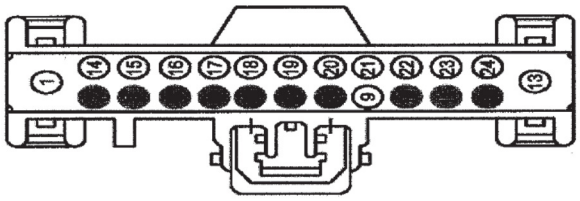
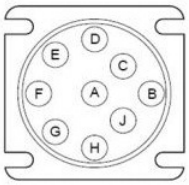
PINPOINT TEST A: No PRPC system functions and no prove out of the lift display panel LED's. (If installed)



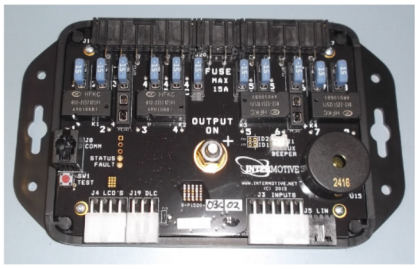
No prove out (all LED's light up) of the PRPC circuit board LEDs or Lift Display Panel LEDs when the Ignition is turned on, indicates that:
- the PRPC module is not powered up
- the LED display is inoperative

Estimated Time To Complete: 15 Minutes

Test Step	Result/Action to Take
A1 Ensure that all connectors are installed correctly.	
• Carefully inspect the PRPC module and harness(es). • Verify harness connectors are fully seated into the PRPC module. • Refer to the schematics in the PRPC documentation. • Are all harness connectors properly installed into module?	Results_____ Yes Go to A2 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
A2 Ensure that all wires are in their correct connector cavity.	
• Carefully inspect all harness connectors. • Verify that each connector has the correct wires in the correct connector pin cavity. • Refer to schematics in FlexTech Configuration Summary documentation for wire colors and pin locations. • Are all wires in their correct connector pin cavity?	Results_____ Yes Go to A3 No Contact InterMotive for assistance with harness and connectors
A3 Check voltage at the White 6 Pin J19 DLC connector at module.	
• Disconnect the white 6 pin J19 DLC connector at module. • Using a digital multimeter measure the voltage between the red wire pin 1 and the gray wire pin 4 of J19 DLC connector. • Is the voltage greater than 11.5 Volts?   Back of Connector	Results_____ Yes Contact InterMotive for assistance with further diagnostic steps. No PRPC505, 507, 509, 550, 557, 559, 605 Go to A4 B-PRPC505 Go to A5 PRPC805, 806, 850, 856 Go to A6

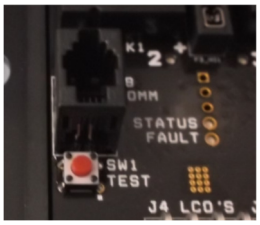
Test Step	Result/Action to Take
A4 Check voltage at the OEM Data Link Connector (DLC)	
• Disconnect the Red data link connector at the OEM DLC. • Using a digital multimeter, measure voltage between pin 4 and pin 16 of OEM Data Link Connector.  • Is the voltage greater than 10 Volts?	Results_____ Yes Contact InterMotive for assistance with the InterMotive Data Link harness No Check the fuse for the DLC (Data Link Connector). Refer to the owner's guide or service publications for the location of this fuse. If the DLC fuse is okay, contact OEM dealer for OEM electrical system service.
A5 Check voltage at the OEM Data Link Connector (DLC)	
• Disconnect the OEM white 24 pin connector from the PRPC data link harness at the back of the OEM Gateway module. • Using a digital multimeter, measure voltage between pin 1 and pin 13 of OEM 24 pin Data Link Connector.  • Is the voltage greater than 10 Volts?	Results_____ Yes Contact InterMotive for assistance with the InterMotive Data Link harness No Check the fuse for the DLC (Data Link Connector). Refer to the owner's guide or service publications for the location of this fuse. If the DLC fuse is okay, contact OEM dealer for OEM electrical system service.
A6 Check voltage at the OEM Data Link Connector (DLC)	
• Disconnect the OEM J1939 9 pin connector from the PRPC data link harness. • Using a digital multimeter, measure voltage between pin A and pin B of OEM 9 pin Data Link Connector. | Pin	Value | |---|---| | A | +12V | | B | Ground | | C | CAN Shield | | D | CAT Data Link (CDL) Hi | | E | CAT Data Link (CDL) Lo | | F | CAN/J1939 Lo | | G | CAN/J1939 Hi | | H | ATA/J1587/J1708 Lo | | J | ATA/J1587/J1708 Hi |  9-Pin Deutsch – CAT Industrial Connector (J1708/J1587, J1939, CAT Data Link) • Is the voltage greater than 10 Volts?	Results_____ Yes Contact InterMotive for assistance with the InterMotive Data Link harness No Check the fuse for the DLC (Data Link Connector). Refer to the owner's guide or service publications for the location of this fuse. If the DLC fuse is okay, contact OEM dealer for OEM electrical system service.

PINPOINT TEST B: Some PRPC systems function, but entry doors, rear heater, and/or interior lights do not function properly.



The PRPC module is powered up if the PRPC circuit board LEDs and Lift Display Panel LEDs prove out (all LED's light up) when the Ignition is turned on.

Estimated Time To Complete: 10 Minutes

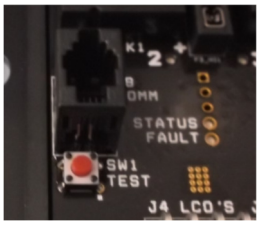
Test Step	Result/Action to Take
B1 Ensure that all connectors are installed correctly.	
• Carefully inspect PRPC module and harness(es). • Verify harness connectors are fully seated into the PRPC module. • Refer to schematics in PRPC documentation. • Are all harness connectors properly installed into module?	Results_____ Yes Go to B2 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
B2 Ensure that all wires are in their correct connector cavity.	
• Carefully inspect all harness connectors.. • Refer to schematics in PRPC documentation for wire colors and pin locations. • Verify that each connector has the correct wires in the correct connector pin cavity • Are all wires in their correct connector pin cavity?	Results_____ Yes Go to B3 No Contact InterMotive for assistance with harness and connectors
B3 Check for fault codes on PRPC module.	
• With the key in the ON position, press the red test button (SW1) 8 times. LED 5B will be lit on the PRPC circuit board. • The amber STATUS LED will blink the page number alternately with the FAULT LED which is now blinking the fault code. If there are no faults detected, the fault code is three slow blinks of the fault LED. • Is there a fault detected?	 Results_____ Yes Go to the Fault Code Diagnostic Page (See Page 6) No Contact InterMotive for assistance with further diagnostic steps.

PINPOINT TEST C: No lift function. No lift display function.

The PRPC module is powered up and the Lift Display Panel LEDs do not prove out (all LED's do not light up) when the Ignition is turned on.

Estimated Time To Complete: 10 Minutes

Test Step	Result/Action to Take
C1 Ensure that all connectors are installed correctly.	
• Carefully inspect PRPC module and harness(es). • Verify harness connectors are fully seated into the PRPC module. • Refer to schematics in PRPC documentation. • Are all harness connectors properly installed into module?	Results_____ Yes Go to C2 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
C2 Ensure that all wires are in their correct connector cavity.	
• Carefully inspect all harness connectors. • Refer to schematics in PRPC documentation for wire colors and pin locations. • Verify that each connector has the correct wires in the correct connector pin cavity. • Are all wires in their correct connector pin cavity?	Results_____ Yes Go to C3 No Contact InterMotive for assistance with harness and connectors
C3 Check for fault codes on PRPC module.	
• With the key in the ON position, press the red test button 8 times. LED 5B will be lit on the PRPC circuit board. • The amber STATUS LED will blink the page number alternately with the FAULT LED which is now blinking the fault code. If there are no faults detected, the fault code is three slow blinks of the fault LED. • Is there a fault detected?	Results_____ Yes Go to the Fault Code Diagnostic Page (See Page 4) No Contact InterMotive for assistance with further diagnostic steps.



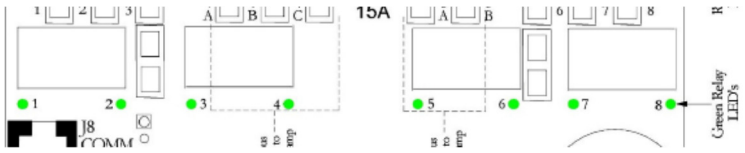
PINPOINT TEST D: No lift function. Lift display LEDs flash top row then bottom row.

The PRPC module is powered up and the Lift Display Panel LEDs flash the top row then bottom row when the Ignition is turned on.

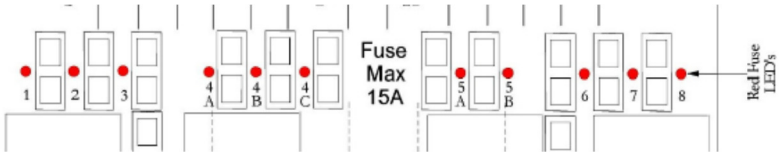
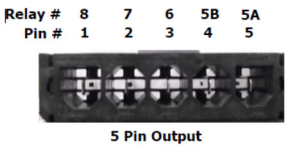
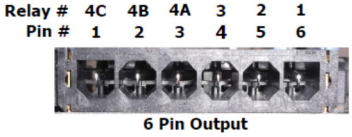
Estimated Time To Complete: 5 Minutes

Test Step	Result/Action to Take
D1 Verify the correct LED Display Panel is installed.	
• Unscrew the LED display panel for the vehicle. • Locate the part number on the back of the LED Display Panel. • Is the part number: S-E130, S-E140, or S-E240? S-E130 FW: 1.04 PRPC LED 18-11-693 S-E140 FW: 1.04 PRPC LED 18-29-780 S-E240 FW: 1.04 PRPC LED 18-21-353	Results_____ Yes Go to D2 No Contact InterMotive to acquire the correct Lift LED Display Panel.
D2 Ensure that the connector is installed correctly	
• Carefully inspect the Lift Display Panel and harness. • Verify harness connector is fully seated into the Lift Display Panel. • Refer to schematics in PRPC documentation. • Is the harness connector properly installed into Lift Display Panel?	Results_____ Yes Go to D3 No Reconnect harness properly. Retest system operation.
D3 Ensure that all wires are in their correct connector cavity.	
• Carefully inspect the harness connector. • Verify that the connector has the correct wires in the correct connector pin cavity. 1 BLUE 2 YELLOW 3 WHITE 4 RED Back of Connector . • Are all wires in their correct connector pin cavity?	Results_____ Yes Contact InterMotive for assistance with further diagnostic steps. No Contact InterMotive for assistance with harness and connectors .

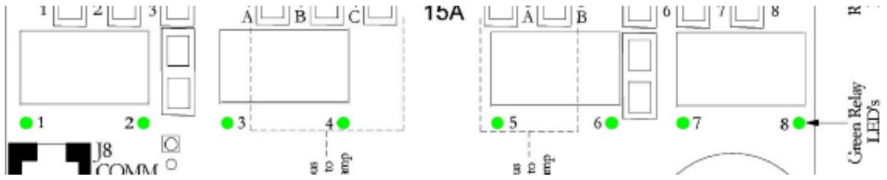
PINPOINT TEST E: No output to vehicle system from the PRPC J17 or J18 connector with the corresponding on-board green LED lit, indicating the relay coil is active.



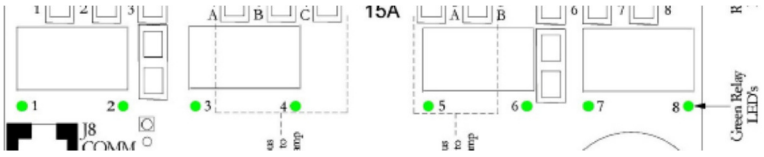
Estimated Time To Complete: 5 Minutes

Test Step	Result/Action to Take
E1 Check fuse placement.	
• Check if a fuse is installed corresponding to the relay output. Fuse #3 and Fuse #6 can only have one fuse: (Active high output bottom or Active low output top) • Refer to schematics in PRPC documentation. • Is there a fuse installed in the correct holder?	Results_____ Yes Go to E2 No Install missing fuse. Test system operation.
E2 Check fuse condition.	
• Is the Red LED lit next to the fuse?  	Results_____ Yes Replace defective fuse. Test system operation. No Go to E3.
E3 Test output from PRPC J17 or J18 connector pin.	
• Unplug the PRPC J17 or J18 connector to check for voltage or ground at the corresponding pin. (See Below) **J17**  **J18**  • Is the corresponding pin output correct for the configuration ?	Results_____ Yes Inspect wiring from PRPC to Vehicle System. No Contact InterMotive for assistance with PRPC Module or Configuration.

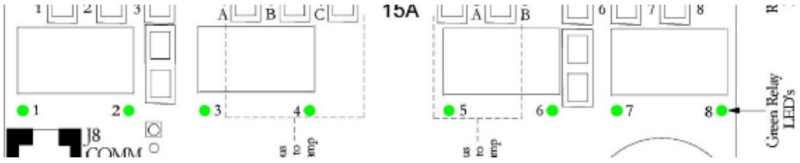
PINPOINT TEST F: One of the on-board green relay coil active LEDs is not lit with configuration conditions met. Other relays function properly.



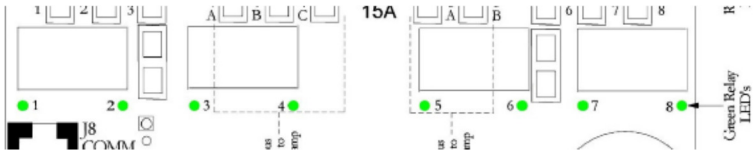
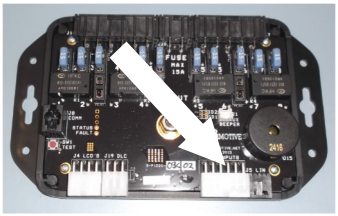
Estimated Time To Complete: 15 Minutes

Test Step	Result/Action to Take
F1 Check Configuration for conditions for relay function.	
• Contact InterMotive for a copy of the PRPC configuration. • Are all PRPC Configuration conditions met for system operation?	Results_____ Yes Go to F2 No Complete conditions. Test system operation.
F2 Check if the other PRPC circuit board relays are functioning properly with conditions met.	
• Are the other PRPC Relay green LEDs lit with the PRPC configuration conditions met? 	Results_____ Yes Go to F3 No Go to Pin Point Test A
F3 Using the PRPC configuration information, check wire locations and inputs to J3 connector.	
• Using the PRPC Configuration information, determine if any of the J3 inputs are used for conditions met. • With relay conditions met, are J3 inputs wired to the correct pin location and getting the correct input information to meet conditions?  **PRPC J3 12 pin connector**	Results_____ Yes Contact InterMotive for assistance with PRPC module. No Correct wiring or input from the source to complete conditions. Test system operation.

PINPOINT TEST G: PRPC J17 or J18 connector output pin has voltage without configuration conditions met and on-board green relay coil active LED is.

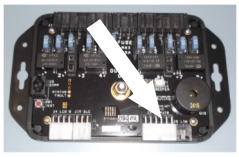
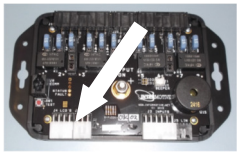
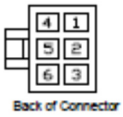
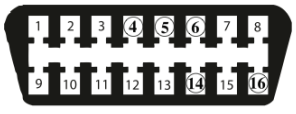


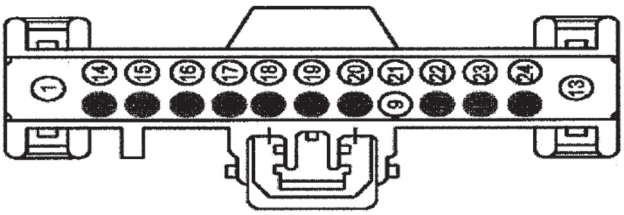
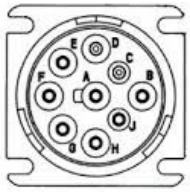
Estimated Time To Complete: 5 Minutes

Test Step	Result/Action to Take
G1 Check Configuration for conditions.	
• Contact InterMotive for a copy of the PRPC configuration. • Are all of the PRPC Configuration conditions met for system operation?	Results_____ Yes Remove configuration conditions. Retest system operation. No Go to G2.
G2 Check if the other PRPC circuit board relays are functioning properly with their conditions met.	
• Are the other PRPC Relay green LEDs lit with the PRPC configuration conditions met? 	Results_____ Yes Go to G3 No Go to Pin Point Test A
G3 Using the PRPC configuration information, check wire locations and inputs to J3 connector.	
• Using the PRPC Configuration information, determine if any of the J3 inputs are used for conditions met. • With relay conditions met, are J3 inputs wired to the correct pin location and getting the correct input information to meet conditions?   **PRPC J3 12 pin connector**	Results_____ Yes Contact InterMotive for assistance with PRPC module. No Correct wiring or input from the source to complete conditions. Test system operation.

PINPOINT TEST H: Any fault code starting with 2.

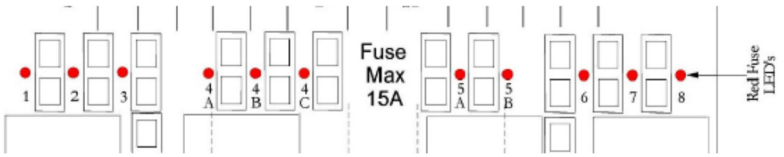
Estimated Time To Complete: 15 Minutes

Test Step	Result/Action to Take
H1 Ensure that all connectors are installed correctly.	
• Carefully inspect PRPC module and harness(es). • Verify harness connectors are fully seated into the PRPC module. • Refer to schematics in PRPC documentation. • Are all harness connectors properly installed into module?	Results_____ Yes If the second digit of the fault code is: 2 - Go to H2 3 - Go to H3 7 - Contact InterMotive for assistance with PRPC module. 4 - Go to H3 5 - Go to H7 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
H2 Check the white 8 pin J3 LCO connector pins for a short.	
• The third digit of the fault code is the LCO pin number on the white 8 pin J3 LCO connector where the issue is.  • If third digit of the fault code is 1 thru 7, Is that pin shorted to ground?  • If third digit of the fault code is 8, Is that pin shorted to 12v?	Results_____ Yes Repair short to ground/12v in wiring to LCO output. No Contact InterMotive for assistance with PRPC module.
H3 Incorrect CAN information being sent to the PRPC white J19 6 pin connector.	
• Unplug the white 6 pin J19 DLC connector.  • With key on, Check for voltage at the white 6 pin J19 DLC connector Pin # 2, Pin # 3, Pin # 5, and Pin # 6. PRPC805, 806, 850, 856 will only have Pin # 2 and Pin # 5.  • Are all voltages between 1.5v and 3.5v?	Results_____ Yes Contact InterMotive for assistance with PRPC module. No PRPC505, 507, 509, 550, 557, 559, 605 Go to H4 B-PRPC505 Go to H5 PRPC805, 806, 850, 856 Go to H6
H4 Check for CAN voltage at the OEM Data Link Connector.	
• Disconnect the Red data link connector at the OEM DLC. • Using a digital multimeter, measure voltage at pin # 3, pin # 6, Pin # 11, and pin # 14 of OEM Data Link Connector.  • Are all voltages between 1.5v and 3.5v?	Results_____ Yes Contact InterMotive for assistance with the InterMotive Data Link harness No OEM CAN issue. Contact vehicle manufacturer for trouble shooting assistance.

Test Step	Result/Action to Take
H5 Check CAN voltage at the OEM Data Link Connector	
• Disconnect the OEM white 24 pin connector from the PRPC data link harness at the back of the OEM Gateway module. • Using a digital multimeter, measure voltage at pin 19, pin 20, pin 22, and pin 23 of OEM Data Link Connector.  • Are all voltages between 1.5v and 3.5v?	Results_____ Yes Contact InterMotive for assistance with the InterMotive Data Link harness No OEM CAN issue. Contact vehicle manufacturer for trouble shooting assistance.
H6 Check CAN voltage at the OEM Data Link Connector	
• Disconnect the OEM J1939 9 pin connector from the PRPC data link harness. • Using a digital multimeter, measure voltage at pin C and pin D of OEM 9 pin Data Link Connector. . Pin / Value A Ground B +12V C CAN1/J1939 Hi D CAN1/J1939 Lo E CAN1/J1939 Shield F J1708/J1587 Hi G J1708/J1587 Lo H OEM Specific J ISO9141 K-Line  9-Pin Deutsch – PACCAR (J Used for ISO9141 K-Line) • Are both voltages between 1.5v and 3.5v?	Results_____ Yes Contact InterMotive for assistance with the InterMotive Data Link harness No OEM CAN issue. Contact vehicle manufacturer for trouble shooting assistance.
H7 Check Configuration for correct vehicle application.	
• Do a GET using the InterMotive Download Manager (IDM) to determine current PRPC configuration. • Contact InterMotive for a copy of the PRPC configuration. • Does the vehicle type on the configuration match the PRPC vehicle type?	Results_____ Yes Contact InterMotive for assistance with PRPC module No Contact InterMotive for correct PRPC configuration.

PINPOINT TEST I: Any fault code starting with 3.

Estimated Time To Complete: 5 Minutes

Test Step	Result/Action to Take
I1 Ensure that all connectors are installed correctly.	
• Carefully inspect PRPC module and harness(es). • Verify harness connectors are fully seated into the PRPC module. • Refer to schematics in PRPC documentation. • Are all harness connectors properly installed into module?	Results_____ Yes If the second digit of the fault code is: 2 - Go to I2 3 - Go to H3 4 - Go to H3 5 - Go to H7 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
I2 Check fuse condition.	
• Is the Red LED lit next to the fuse? 	Results_____ Yes Replace defective fuse. No Contact InterMotive for assistance with PRPC module.

PINPOINT TEST J: Any fault code starting with 4.

Estimated Time To Complete: 5 Minutes

Test Step	Result/Action to Take
J1 Ensure that all connectors are installed correctly.	
• Carefully inspect PRPC module and harness(es). • Verify harness connectors are fully seated into the PRPC module. • Refer to schematics in PRPC documentation. • Are all harness connectors properly installed into module?	Results_____ Yes If the second digit of the fault code is: 2 - Go to J2 3 - Go to H3 4 - Go to H3 5 - Go to H7 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
J2 Check Beeper operation on the PRPC circuit board.	
• Does the PRPC circuit board beeper sound when the conditions are met for any PRPC configuration? 	Results_____ Yes Contact InterMotive for assistance with the PRPC Configuration. No Contact InterMotive for assistance with PRPC module.

PINPOINT TEST K: Any fault code starting with 5.

Estimated Time To Complete: 5 Minutes

Test Step	Result/Action to Take
K1 Ensure that all connectors are installed correctly.	
• Carefully inspect PRPC module and harness(es). • Verify harness connectors are fully seated into the PRPC module. • Refer to schematics in PRPC documentation. • Are all harness connectors properly installed into module?	Results_____ Yes If the second digit of the fault code is: 4 - Go to K2 5 - If third digit is 1 or 2 - Go to K6 If third digit is 3 - Go to K7 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
K2 AFIS Security code issue.	
• The third digit of the fault code determines the OEM system with the issue. What is the third digit?	Results_____ If it is a: 1 - Go to K3 2 - Go to K4 3 - Go to K5
K3 Incorrect security code issue with OEM PCM.	
• Check vehicle for fault codes with OEM scan tool. • Are there any OEM PCM codes set?	Results_____ Yes OEM PCM issue. Contact vehicle manufacturer for trouble shooting assistance. No Contact InterMotive for assistance with PRPC module.
K4 Incorrect security code issue with OEM BCM.	
• Check vehicle for fault codes with OEM scan tool. • Are there any OEM BCM codes set?	Results_____ Yes OEM BCM issue. Contact vehicle manufacturer for trouble shooting assistance. No Contact InterMotive for assistance with PRPC module.
K5 AFIS Scan tool / Third Party CAN Issue.	
• Is there anything connected to the OEM OBDII connector besides the PRPC Data Link Harness?	Results_____ Yes Contact InterMotive regarding third party compatibility issue. No Contact InterMotive for assistance with PRPC module.

Test Step	Result/Action to Take
K6 PRPC CAN1 or CAN2 Error.	
• Check vehicle for fault codes with OEM scan tool. • Are there any OEM PCM codes set?	Results_____ Yes OEM PCM issue. Contact vehicle manufacturer for trouble shooting assistance. No Contact InterMotive for assistance with PRPC module.
K7 PRPC LCO Hardware Issue.	
• Check vehicle for fault codes with OEM scan tool. • Are there any OEM codes set?	Results_____ Yes OEM issue. Contact vehicle manufacturer for trouble shooting assistance. No Contact InterMotive for assistance with PRPC module.

PINPOINT TEST L: Any fault code starting with 6.

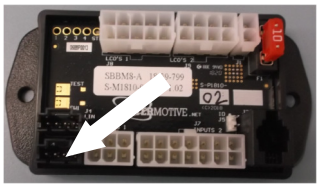
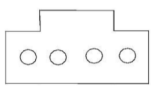
Estimated Time To Complete: 15 Minutes

The part that the SBBM8 uses for the LCO's, monitors overvoltage or overcurrent faults. An overcurrent fault could be caused by a short in the load being driven by that LCO's. The part shuts off the faulted output when a fault is detected, and keeps it off until the fault is cleared. There is a fault code display available while the SSBM8 is powered up.

To enter the Fault Code display mode, momentarily short the test pads together. The on-board amber status LED will blink in a way that indicates whether there is a fault or not and, if so, which output is faulted. When everything is working properly the status LED will blink twice with about a half second between blinks and will repeat this after a 1 full second delay. This is a code of 1-1 which means NO fault has been detected. When there is a fault the status LED will blink a two digit code that tells what the fault condition is. The first digit will be from 1 to 5 blinks quickly to indicate the type of fault, after about half a second the status LED will blink the second digit quickly. The status LED will repeat the fault code after a full second delay. This blinking will continue until the fault is cleared or the test pads are again shorted momentarily which turns status mode off. The fault codes are summarized below:

- 1-1 No faults detected
- 2-1 Fault detected for LCO #1
- 2-2 Fault detected for LCO #2
- 2-3 Fault detected for LCO #3
- 2-4 Fault detected for LCO #4
- 2-5 Fault detected for LCO #5
- 2-6 Fault detected for LCO #6
- 3-1 Fault detected for LCO #7
- 3-2 Fault detected for LCO #8
- 3-3 Fault detected for LCO #9
- 3-4 Fault detected for LCO #10
- 3-5 Fault detected for LCO #11
- 3-6 Fault detected for LCO #12
- 3-7 Fault detected for LCO #13
- 3-8 Fault detected for LCO #14
- 4-1 Fault detected for Backlight Output
- 5-3 LCO hardware failure

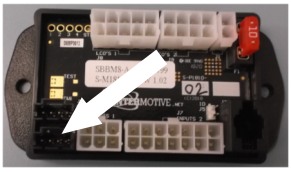
Only 1 fault can be shown with this method. If there is more than 1 fault in the board only the highest numbered fault will be shown. For example, if both LCO #6 is in fault and the backlight output is in fault then only the backlight fault will be shown. Likewise, if both General Purpose LCO #3 and #7 are in fault, only General Purpose LCO #7 will be shown.

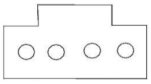
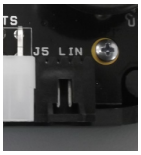
Test Step	Result/Action to Take
L1 Ensure that all connectors are installed correctly.	
• Carefully inspect SBB1 module and harness(es). • Verify harness connectors are fully seated into the SBB1 module. • Refer to schematics in SBB1 documentation. • Are all harness connectors properly installed into module?	Results_____ Yes If the second digit of the fault code is: 1 - Go to L2 2 - Go to H3 3 or 4 - Go to L3 5 - Go to L5 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
L2 Check the SBB1 Low Current Output for a short to ground.	
• The third digit of the fault code is the LCO number on the SBB1. If the digit is: 1 - LCO #1 J12 connector 2 - LCO #2 J13 connector • Unplug the LCO connector from the SBB1 module. • Is the connector, called out in the fault code, shorted to ground?	Results_____ Yes Repair short in wiring to the LCO output. No Contact InterMotive for assistance with SBB1 module.
L3 Checking LIN voltages at the black 4 pin J5 connector .	
• Disconnect the black 4 pin J3 connector for the PRPC LIN harness at the SBB1 module. • Using a digital multimeter, measure voltage at pin #1 Blue wire, pin #2 Yellow wire, pin #3 White wire, and pin #4 Red wire. Use the windows on the side of the connector to measure voltage. • Are all voltages correct?   	Results_____ Yes Contact InterMotive for assistance with the SBB1 module. No Go to L4.
L4 Checking LIN voltages at the PRPC J5 connector	
• Disconnect the black 4 pin J5 connector from the PRPC module. • Using a digital multimeter, measure voltage at pin #1, pin #2, pin #3, and pin #4 on the module. 1 - Ground Source 2 - 5 volts 3 - 1-12 volts 4 - Battery Voltage • Are all voltages correct?   J5 LIN Connector  	Results_____ Yes Repair short or break in LIN harness. No Contact InterMotive for assistance with PRPC module.

L5 SBB1 LCO Hardware Issue.	
• Check vehicle for fault codes with OEM scan tool. • Are there any OEM codes set?	Results_____ Yes OEM issue. Contact vehicle manufacturer for trouble shooting assistance. No Contact InterMotive for assistance with SBB1 module.

PINPOINT TEST M: Any fault code starting with 7.

Estimated Time To Complete: 15 Minutes

Test Step	Result/Action to Take
M1 Ensure that all connectors are installed correctly.	
• Carefully inspect SBB2 module and harness(es). • Verify harness connectors are fully seated into the SBB2 module. • Refer to schematics in SBB2 documentation. • Are all harness connectors properly installed into module?	Results_____ Yes If the second digit of the fault code is: 1 - Go to M2 2 - Go to H3 3 or 4 - Go to M3 5 - Go to M5 No Review install instructions, reinstall all connectors in their proper position. Test system operation.
M2 Check the SBB2 Low Current Output for a short to ground.	
• The third digit of the fault code is the LCO number on the SBB2. If the digit is: 1 - LCO #1 J12 connector 2 - LCO #2 J13 connector • Unplug the LCO connector from the SBB2 module. • Is the connector, called out in the fault code, shorted to ground?	Results_____ Yes Repair short in wiring to the LCO output. No Contact InterMotive for assistance with SBB2 module.
M3 Checking LIN voltages at the black 4 pin J5 connector	
• Disconnect the black 4 pin J5 connector for the PRPC LIN harness at the SBB2 module. • Using a digital multimeter, measure voltage at pin #1 Blue wire, Pin #2 Yellow wire, pin #3 White wire, and pin #4 Red wire. Use the windows on the side of the connector to measure voltage. • Are all voltages correct?	 1 BLUE 1 - Ground Source 2 YELLOW 2 - 5 volts 3 WHITE 3 - 1-12 volts 4 RED 4 - Battery Voltage Back of Connector Results_____ Yes Contact InterMotive for assistance with the SBB2 module. No Go to M4.

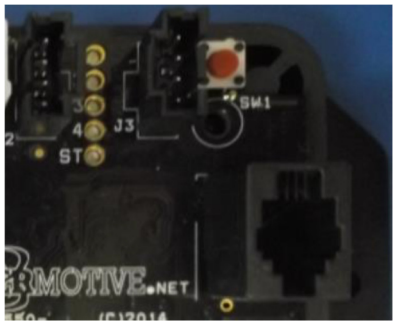
M4 Checking LIN voltages at the PRPC J5 connector	
• Disconnect the black 4 pin J5 connector from the PRPC module. • Using a digital multimeter, measure voltage at pin #1, pin #2, pin #3, and pin #4 on the module. 1 - Ground Source 2 - 5 volts 3 - 1-12 volts 4 - Battery Voltage 4 3 2 1 J5 LIN Connector • Are all voltages correct?	  
	Results_____ Yes Contact InterMotive for assistance with the LIN Harness. No Contact InterMotive for assistance with the PRPC module.
M5 SBB2 LCO Hardware Issue.	
• Check vehicle for fault codes with OEM scan tool. • Are there any OEM codes set?	Results_____ Yes OEM issue. Contact vehicle manufacturer for trouble shooting assistance. No Contact InterMotive for assistance with SBB1 module.

PINPOINT TEST N: Any fault code starting with 8.

Estimated Time To Complete: 15 Minutes

Relay Outputs:
Each relay has an associated on-board green LED that indicates when the relay coil is active. These green LEDs can be thought of as conditions met indicators. They are controlled by the on-board processor and are turned on when the corresponding relay is activated. In addition, each fused relay output has two on-board red LEDs which are used to indicate when the fuse is blown. These red LEDs are not processor controlled. If a fuse is blown one of the red LEDs will light when the relay is active and connected to its load. The red LED farthest from the fuse lights for a blown fuse when the output is in the sourcing mode (activated output is 12V and de-activated is open.) If the relay is in sinking mode (activated presents a ground and de-activated is open) the blown fuse will be indicated by the red LED nearest to the fuse when the relay is activated.

Low Current Outputs, LCOs
The EXP401-A monitors the LCOs for overvoltage or overcurrent faults. An overcurrent fault could be caused by a short in the load being driven by that LCO. When a fault is detected, the LCO is shut off until the fault is cleared. There is a fault code display available while the EXP401-A is powered up. To enter the Fault Code display mode, momentarily press and release the red test button. The on-board amber status LED will blink in a way that indicates whether there is a fault or not and, if so, which LCO is faulted. If more than 1 of the LCOs is in a fault condition the higher numbered LCO will be the one displayed. When everything is working properly, the status LED will blink twice with about a half second between blinks and will repeat this after a 1 full second delay. This is a code of 1-1 which means NO fault has been detected.

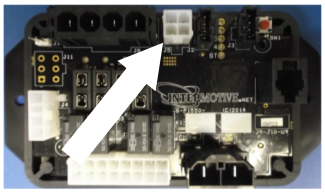


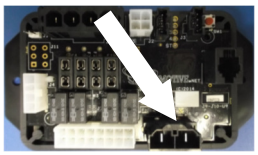
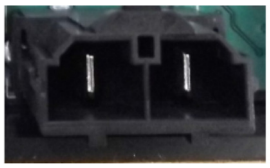
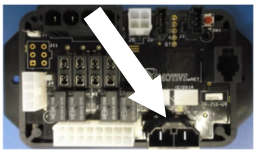
When there is a fault, the status LED first blinks twice quickly to indicate a fault, waits about half a second then blinks the LCO number quickly, 1 blink for LCO1, 2 blinks for LCO2, etc. After a full second delay the status LED will repeat the fault code. This blinking will continue until the fault is cleared or the red test button is again pressed and released to turn status mode off. The fault codes are summarized below:

- **1-1 No faults detected**
- **2-1 Fault detected for LCO #1**
- **2-2 Fault detected for LCO #2**
- **2-3 Fault detected for LCO #3**
- **2-4 Fault detected for LCO #4**

Multiple Units

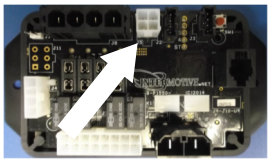
The FlexTech System can have 0, 1, or 2 EXP modules connected in a LIN Bus daisy chain along with 0, 1, or 2 SBB modules (Switch Backer Boards). In most systems there can also be a Gateway or AFIS control display panel on the daisy chain. In some cases there could also be a PTM (Pre-Trip Module).

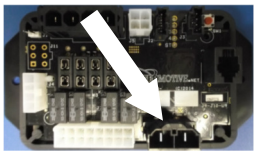
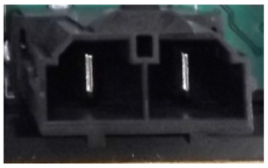
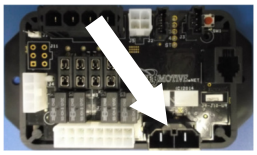
Test Step	Result/Action to Take
N1 Ensure that all connectors are installed correctly.	
• Carefully inspect EXP1 module and harness(es). • Verify harness connectors are fully seated into the EXP1 module. • Refer to schematics in EXP1 documentation. • Are all harness connectors properly installed into module?	Results_____ Yes If the second digit of the fault code is: 1 - Go to N2 2 - Go to H3 3 - Go to N3 4 - Go to N4 7 - Go to N5 No Review install instructions, reinstall all connectors in their proper position. Test system operation
N2 Check the EXP1 Low Current Output for a short to ground.	
• The third digit of the fault code is the LCO number on the EXP1. • Unplug the white 4 pin J5 LCO connector from the EXP1 module. • Is the pin number, called out in the fault code, shorted to ground on the harness connector?   EXP J5 LCO	Results_____ Yes Repair short in wiring to the LCO output. No Contact InterMotive for assistance with EXP1 module.
N3 EXP1 Hardware Issue.	
• Check vehicle for fault codes with OEM scan tool. • Are there any OEM codes set?	Results_____ Yes OEM issue. Contact vehicle manufacturer for trouble shooting assistance. No Contact InterMotive for assistance with EXP1 module.

Test Step	Result/Action to Take
N4 Low Battery Voltage Error.	
• Verify the OEM batteries are fully charged and vehicle charging system if functioning properly. • Check for Battery voltage at the J6 black 2 pin connector pin # 2. • Check for a ground at the J6 black 2 pin connector pin # 1. • Do you have the correct battery voltage and ground inputs to the J6 connector?   Pin # 2 Pin # 1	Results_____ Yes Contact InterMotive for assistance with EXP1 module. No Contact InterMotive for assistance with power and ground input wiring.
N5 PCB Temperature Fault	
• Disconnect the J6 black 2 pin connector. • EXP1 module is overheating. • Contact InterMotive for assistance with testing the EXP1 module. 	Results_____ Contact InterMotive for assistance with testing the EXP1 module.

PINPOINT TEST O: Any fault code starting with 9.

Estimated Time To Complete: 5 Minutes

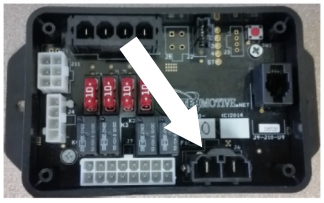
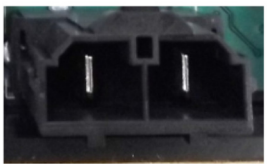
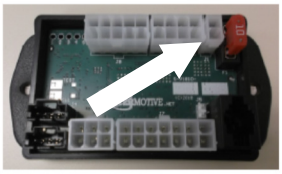
Test Step	Result/Action to Take
O1 Ensure that all connectors are installed correctly.	
• Carefully inspect EXP2 module and harness(es). • Verify harness connectors are fully seated into the EXP2 module. • Refer to schematics in EXP2 documentation. • Are all harness connectors properly installed into module?	Results_____ Yes If the second digit of the fault code is: 1 - Go to O2 2 - Go to H3 3 - Go to O3 4 - Go to O4 7 - Go to O5 No Review install instructions, reinstall all connectors in their proper position. Test system operation
O2 Check the EXP2 Low Current Output for a short to ground.	
• The third digit of the fault code is the LCO number on the EXP2. • Unplug the white 4 pin J5 LCO connector from the EXP2 module. • Is the pin number, called out in the fault code, shorted to ground on the harness connector?   EXP J5 LCO	Results_____ Yes Repair short in wiring to the LCO output. No Contact InterMotive for assistance with EXP2 module.

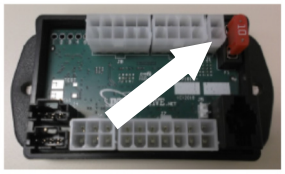
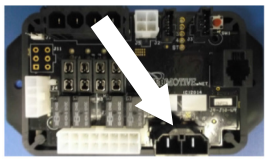
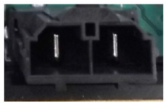
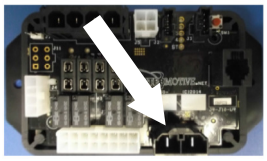
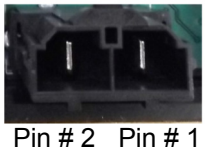
Test Step	Result/Action to Take
O3 EXP2 Hardware Issue.	
• Check vehicle for fault codes with OEM scan tool. • Are there any OEM codes set?	Results_____ Yes OEM issue. Contact vehicle manufacturer for trouble shooting assistance. No Contact InterMotive for assistance with EXP2 module.
O4 Low Battery Voltage Error.	
• Verify the OEM batteries are fully charged and vehicle charging system if functioning properly. • Check for Battery voltage at the J6 black 2 pin connector pin # 2. • Check for a ground at the J6 black 2 pin connector pin # 1. • Do you have the correct battery voltage and ground inputs to the J6 connector?   Pin # 2 Pin # 1	. Results_____ Yes Contact InterMotive for assistance with EXP2 module. No Contact InterMotive for assistance with power and ground input wiring.
O5 PCB Temperature Fault	
• Disconnect the J6 black 2 pin connector. • Contact InterMotive for assistance with testing the EXP2 module. 	Results_____ Contact InterMotive for assistance with testing the EXP2 module. .

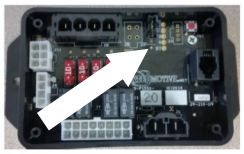
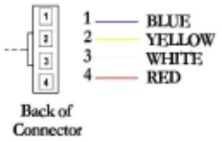
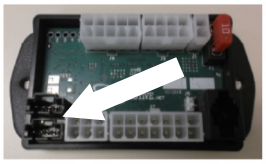
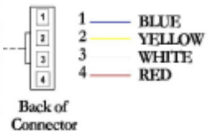
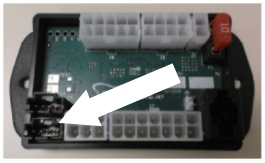
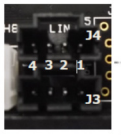
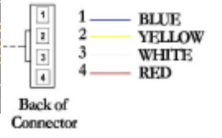
PINPOINT TEST P: Any fault code starting with 10.

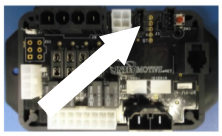
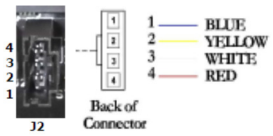
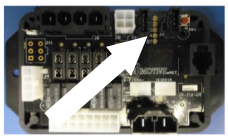
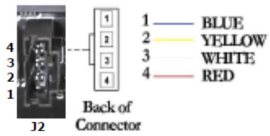
Estimated Time To Complete: 15 Minutes

P1 Ensure that all connectors are installed correctly.	
• Carefully inspect all FlexTech modules and harnesses. • Verify harness connectors are fully seated into the modules. • Refer to schematics in FlexTech documentation. • Are all harness connectors properly installed into module?	Yes If the second digit of the fault code is: 1 - Go to P2 2 - Go to P3 No Review install instructions, reinstall all connectors in their proper position. Test system operation

Test Step	Result/Action to Take
P2 No Communications	
• What is the third digit of the fault code?	Results_____ If the third digit of the fault code is: 1 - Go to P4 2 - Go to P5 3 - Go to P6 4 - Go to P7 5 - Go to P8
P3 Receive Error	
• What is the third digit of the fault code?	Results_____ If the third digit of the fault code is: 1 - Go to P9 2 - Go to P10 3 - Go to P11 4 - Go to P12 5 - Go to P13
P4 No Communications Pre Trip Inspection Module	
• Locate the Pre Trip Inspection Module on the vehicle.   Pin # 2 Pin # 1 • Disconnect the black 2 pin J6 connector from the Pre Trip Inspection module. • Using a digital multimeter, measure voltage at pin # 2 using Pin #1 as a ground source. • Is the voltage greater than 11.5 Volts?	Results_____ Yes Go to P9. No Contact InterMotive for assistance with power and ground input wiring.
P5 No Communications SBB1 Module	
• Locate the SBB1 Module on the vehicle.   1 - Battery Voltage 2 - Ground • Disconnect the white 2 pin J1 DLC connector from the SBB1 module. • Using a digital multimeter, measure voltage at pin # 1 using Pin # 2 as a ground source. • Is the voltage greater than 11.5 Volts?	Results_____ Yes Go to P10. No Contact InterMotive for assistance with power and ground input wiring.

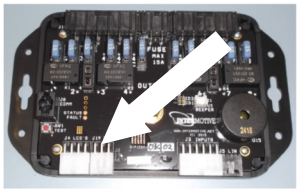
Test Step	Result/Action to Take
P6 No Communications SBB2 Module	
• Locate the SBB2 Module on the vehicle.   1 - Battery Voltage 2 - Ground • Disconnect the white 2 pin J1 DLC connector from the SBB2 module. • Using a digital multimeter, measure voltage at pin # 1 using Pin # 2 as a ground source. • Is the voltage greater than 11.5 Volts?	Results_____ Yes Go to P11. No Contact InterMotive for assistance with power and ground input wiring
P7 No Communications EXP1 Module	
• Locate the EXP1 Module on the vehicle.   Pin # 2 Pin # 1 • Disconnect the black 2 pin J6 connector from the EXP1 module. • Using a digital multimeter, measure voltage at pin # 1 using Pin # 2 as a ground source. • Is the voltage greater than 11.5 Volts?	Results_____ Yes Go to P12. No Contact InterMotive for assistance with power and ground input wiring
P8 No Communications EXP2 Module	
• Locate the EXP2 Module on the vehicle.   Pin # 2 Pin # 1 • Disconnect the black 2 pin J6 connector from the EXP2 module. • Using a digital multimeter, measure voltage at pin # 1 using Pin # 2 as a ground source. • Is the voltage greater than 11.5 Volts?	Results_____ Yes Go to P12. No Contact InterMotive for assistance with power and ground input wiring

P9 Receive Error Pre Trip Inspection Module	
• Locate the Pre Trip Inspection Module on the vehicle.    • Disconnect the black 4 pin J2 connector for the PRPC LIN harness at the Pre Trip Inspection module. • Using a digital multimeter, measure voltage at pin #1 Blue wire, Pin #2 Yellow wire, pin #3 White wire, and pin #4 Red wire. Use the windows on the side of the connector to measure voltage. • Are all voltages correct?	Results_____ Yes Contact InterMotive for assistance with the Pre Trip Inspection module. No Repair the PRPC LIN harness or contact InterMotive for assistance with replacing the PRPC LIN harness.
P10 Receive Error SBB1 Module	
• Locate the SBB1 Module on the vehicle.    • Disconnect the black 4 pin J3 connector for the PRPC LIN harness at the SBB1 module. • Using a digital multimeter, measure voltage at pin #1 Blue wire, Pin #2 Yellow wire, pin #3 White wire, and pin #4 Red wire. Use the windows on the side of the connector to measure voltage. • Are all voltages correct?	Results_____ Yes Contact InterMotive for assistance with the SBB1 module. No Repair the PRPC LIN harness or contact InterMotive for assistance with replacing the PRPC LIN harness.
P11 Receive Error SBB2 Module	
• Locate the SBB2 Module on the vehicle.    • Disconnect the black 4 pin J3 connector for the PRPC LIN harness at the SBB2 module. • Using a digital multimeter, measure voltage at pin #1 Blue wire, Pin #2 Yellow wire, pin #3 White wire, and pin #4 Red wire. Use the windows on the side of the connector to measure voltage. • Are all voltages correct?	Results_____ Yes Contact InterMotive for assistance with the SBB2 module. No Repair the PRPC LIN harness or contact InterMotive for assistance with replacing the PRPC LIN harness.

P12 Receive Error EXP1 Module	
• Locate the EXP1 Module on the vehicle.   • Disconnect the black 4 pin J2 connector for the PRPC LIN harness at the EXP1 module. • Using a digital multimeter, measure voltage at pin #1 Blue wire, Pin #2 Yellow wire, pin #3 White wire, and pin #4 Red wire. Use the windows on the side of the connector to measure voltage. • Are all voltages correct?	Results_____ Yes Contact InterMotive for assistance with the EXP1 module. No Repair the PRPC LIN harness or contact InterMotive for assistance with replacing the PRPC LIN harness.
P13 Receive Error EXP2 Module	
• Locate the EXP2 Module on the vehicle.   • Disconnect the black 4 pin J2 connector for the PRPC LIN harness at the EXP2 module. • Using a digital multimeter, measure voltage at pin #1 Blue wire, Pin #2 Yellow wire, pin #3 White wire, and pin #4 Red wire. Use the windows on the side of the connector to measure voltage. • Are all voltages correct?	Results_____ Yes Contact InterMotive for assistance with the EXP2 module. No Repair the PRPC LIN harness or contact InterMotive for assistance with replacing the PRPC LIN harness.

PINPOINT TEST Q: Any fault code starting with 15.

Estimated Time To Complete: 5 Minutes

Q1 PRPC-PCB Temperature Fault	
• Disconnect the white 6 pin J19 DLC connector at PRPC module. • The PRPC is overheating. • Contact InterMotive for assistance with testing the PRPC module. 	Results_____ Contact InterMotive for assistance with testing the PRPC module.

PRPC Installation Instructions and Vehicle Configuration Documentation are available from:

InterMotive Customer Care

530-823-1048 Ext. 159 or 162