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## **Intelligent Lift Interlock System (ILIS801/802D) – Operating Instructions**

The Intelligent Lift Interlock System (ILIS) is a microprocessor driven system for controlling wheelchair lift operation. Lift operation will only be allowed when all of the following conditions are met:

1. The vehicle is in “Park”
2. The parking brake is applied.
3. The vehicle ignition is on.
4. The lift power switch is on.
5. The lift door is open.

The Intelligent Lift Interlock System (ILIS) also will not allow the vehicle to be shifted out of park if the lift door is open.

When the vehicle is first started, or if the key is turned to the “Run” position the five LED’s on the display panel will illuminate for 1-2 seconds as a prove out of the LED’s. After prove out, the operation of the LED’s are as follows:

- Lift Power – Illuminates in green if power is available to the lift. This means that all conditions for lift operation have been met.
- Park Brake – Illuminates in red when the parking brake is applied.
- Park - Illuminates in red when the vehicle is in park range.
- Door Open - Illuminates in red when the lift door is open.
- Shift Lock - Illuminates in amber when the lift door is open. If illuminated, the driver will not be allowed to shift out of park.

***All five LED’s must be illuminated for the lift to operate.***

The LED’s can also be used for diagnostic purposes. For example, if the Door Open LED is not illuminated when the lift door is open, the lift will not operate. This means that the ILIS module does not detect that the door is open. Thus, the technician should inspect the lift door switch and its circuit.



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## Intelligent Lift Interlock System Installation Instructions

### MB 45/55 & International 3200 w/Allison 2200/2400 Transmission & Shift Lock Solenoid

Allison Generation 3 Controls – Part # ILIS801-D 2002-2006

Allison Generation 4 Controls – Part # ILIS802-D 2007-2008

Verify which level of Allison Control System the vehicle has. A Generation 3 Control System will have a transmission range sensor (there are two different types) attached to the shift linkage on the driver's side of the transmission. This application would require **Part # ILIS801-D**. See example below:



A Generation 4 Control System will typically have a build date after June 2006, and will have no external transmission range sensor. On these systems the transmission range sensor is located inside the transmission case. This application would require **Part # ILIS802-D**.

To aid in installation, first gain access to the connection points. Gain access to the lift power switch, park brake switch, Transmission Sensor connectors, shift lock solenoid, and the lift door switch circuits.

**LED DISPLAY PANEL** – Locate a suitable position on the dashboard, within view of the driver for the mounting of the ILIS LED Display Panel. The length of the display harness is 40". This is the maximum distance the display can be from the ILIS control module. Drill a 1" hole in the dashboard where you wish the center of the display to be. Attach the 6-pin end of the LED harness to the ILIS control module. Run the 10-pin end of the harness under the dash and out through the 1" hole. Attach the 10-pin end of the display harness to the ILIS LED Display Panel. Ensure panel is level, and secure using the supplied screws.

The two blunt cut wires (red and black) are for optional backlighting of the lower icons. There are three installation options:

1. Do not connect the wires. The display will function properly, but the lower icons will not be backlit.
2. Connect the black wire to ground and the red wire to a 12V ignition switched power source. This will allow the lower icons to be backlit with the ignition in the "on" position.
3. Connect the black wire to ground and the red wire to a 12V headlamp switched power source. This will allow the lower icons to be backlit only when the headlamps are on.

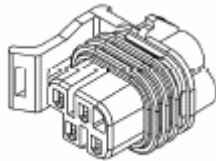
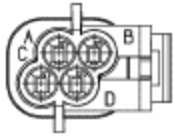
**MAIN HARNESS** - Position the main harness such that the 12- pin connector is in position to be installed into the control module. **The connector should not be installed into the module until the main harness is fully installed. All connections must be made with ignition power OFF!** The connection points to be made for the installation of the main harness are listed below.

**Power Circuit** – Locate a fused power source that is "hot" with the ignition in the "**Run**" position only. **Do not connect to a source that is hot in run and Crank!** Attach the **Red** wire from the main harness to this source.

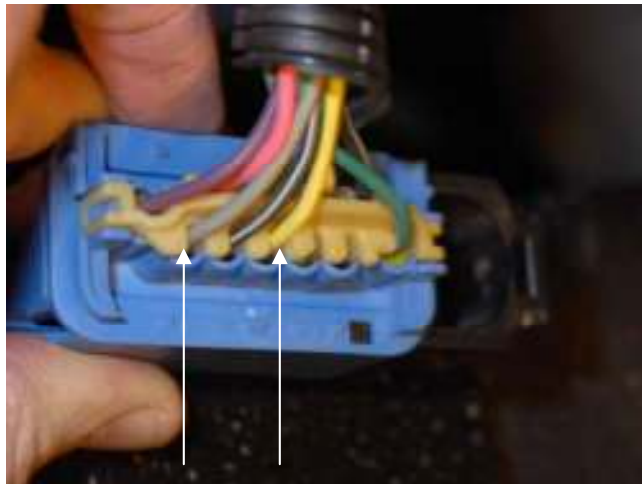
**Ground Circuit** – Locate a ground source near the control module. Attach the **Black** wire from the main harness to this source.



harness in parallel to the wire in cavity B by stripping the insulation, soldering, and using a watertight sealer on the connection anywhere along the length of this wire. **Do not cut the wire.** Attach the other green wire from the ILIS main harness in parallel to the wire in cavity D by stripping the insulation, soldering, and using a watertight sealer on the connection anywhere along the length of this wire. **Do not cut the wire.**



- **(Single Connector Range Sensor)** - Locate the Transmission Range Sensor on the driver's side of the transmission. There is one 12 pin connector. For this connection, you will use the **two green wires** from the ILIS main harness in parallel to the wire in cavity 4 by stripping the insulation, soldering, and using a watertight sealer on the connection anywhere along the length of this wire. **Do not cut the wire.** Attach the other green wire from the ILIS main harness in parallel to the wire in cavity 6 by stripping the insulation, soldering, and using a watertight sealer on the connection anywhere along the length of this wire. **Do not cut the wire.**



- **Park Circuits –Generation 4 (ILIS802-D) Internal Transmission Range Sensor** - Locate the transmission harness connector on the transmission case. It is a 24 pin connector. For this connection, you will use the **two green wires** from the ILIS main harness. These two wires are interchangeable, but they both must be used. Attach one of the green wires from the ILIS main harness in parallel to the wire in cavity 21 by stripping the insulation, soldering, and using a watertight sealer on the connection anywhere along the length of this wire. **Do not cut the wire.** Attach the other green wire from the ILIS main harness in parallel to the wire in cavity 20 by stripping the insulation, soldering, and using a watertight sealer on the connection anywhere along the length of this wire. **Do not cut the wire.**

**Shift Lock Circuit** – Locate the shift lock solenoid (typically on the transmission shifter). This solenoid will pull a large current, so a relay must be used. Attach the **Blue** wire from the main harness to one of the coil terminals of a standard automotive relay. Attach the other coil terminal on the relay to ground. This blue wire will provide 12V when shift lock is commanded (Lift Door open). Next the normal operation of the vehicle's shift lock solenoid must be determined. There are two possible operating modes: 1. Powering the solenoid locks the shifter, or 2. Powering the solenoid unlocks the shifter. For operating **mode 1**, attach the relay common terminal to a fused ignition 12V source. Attach the normally open (NO) terminal in parallel to the shift lock solenoid power wire. For operating **mode 2**, cut the power wire to the shift lock solenoid. Attach one of the cut ends to the relay common terminal. Attach the other cut end to the normally closed (NC) terminal. **After installation, verify that the shift lock solenoid still locks in Park until the brake pedal is depressed.**

**Lift Power Circuit** – Locate the lift power switch. Disconnect the circuit from the switch that goes to the lift relay. This must be a power switch, not a grounding switch. Connect this circuit to the **Blue/White** wire from the main harness with a spade terminal. Connect the **Yellow** wire from the main harness to the power switch using a spade terminal. The lift power circuit must only activate the lift power relay/solenoid and must not draw more than 7.0 Amps. **Do not power any other loads (i.e.: lights, motors, etc.) off this circuit.**

**Parking Brake Circuit** – Locate the Parking Brake Switch circuit. This circuit must provide a ground signal when the parking brake is engaged. Connect the **Brown** wire from the main harness to this wire by stripping the insulation, soldering, and taping.

**Lift Door Circuit** – Locate the lift door switch circuit. The door switch must provide a ground with the door open. A switch that provides power with the door open will not operate correctly. Connect the **Red/White** wire from the main harness to this wire by stripping the insulation, soldering, and taping.

**Park Output Circuit** – This is an optional circuit that provides a ground in Park gear only. This circuit is useful if the operator wishes to activate or deactivate an accessory only in Park (ie: power operated front door). Attach the **White** wire from the main harness to the ground side of the accessory. If this option is not desired, cut the wire at the 12-pin connector and discard the wire. **Note: This output can only carry low current loads such as a relay primary coil. Higher loads can cause damage to the control module. The current of the load must first be determined and can not exceed 500 milliamps continuous load. This wire must not be attached directly to power without a load, or damage to the control module will result!**

Finally, snap the 12-pin connector of the main wire harness into the control module. Make sure the connector is fully seated. Secure the control module behind the lower dash panel using 2-sided foam tape or wire ties. Test for proper installation using Post Installation Instruction Sheet.



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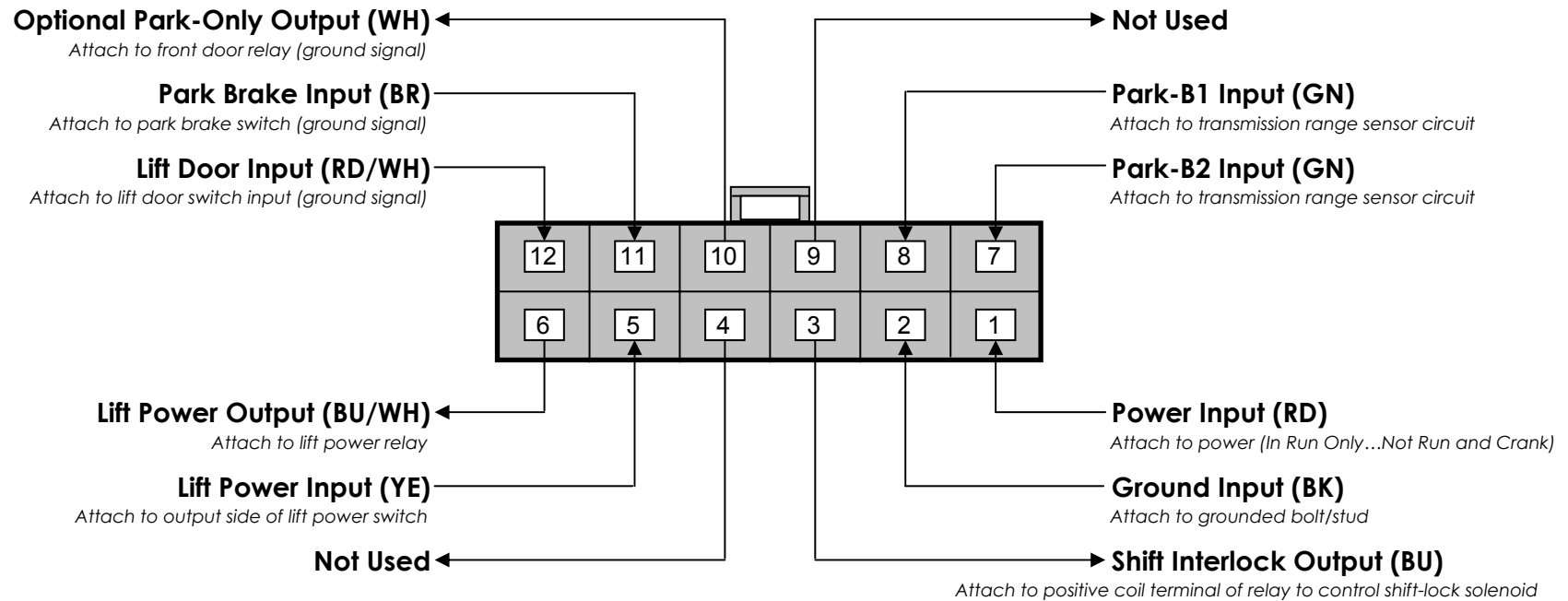
# Intelligent Lift Interlock System

## ILIS801-D / ILIS802-D

2002-Present MB 45/55 & International 3200 w/Allison 2200/2400

### 12 Pin Connector Schematic

(Back of Connector)





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## **Post Installation Instructions**

### **ILIS 801/802**

Upon completion of installation of the Intelligent Lift Interlock System, the following procedure **MUST BE PERFORMED TO VERIFY PROPER INTERLOCK INSTALLATION AND FUNCTION:**

- Set Park Brake, place transmission to Park position, close lift doors, and turn Lift Power Switch to the off position. Turn ignition to the “Run” position. Do not start vehicle.
- Verify LED prove-out on LED Status Panel  
All five (5) LEDs should illuminate for approximately one (1) second upon initial power on.
- Verify that the Park LED and the Park Brake LED remain illuminated.
- Have an assistant open the lift door(s). Verify that the Lift Door LED and the Shift Lock LED on the LED Status Panel are now also illuminated. Place foot on service brake and attempt to shift out of Park. Shift lever must not be allowed to shift out of “Park” position. If shift lever is allowed to move, check for loose connections at all connection points.
- Turn on Lift Power Switch. Verify that the Lift Power LED on the LED Status Panel is now illuminated. All five (5) LEDs on the LED Status Panel should now be illuminated. Have assistant verify lift operation. Lift should now be operational.
- Release Park Brake. Verify that the Park Brake LED and Lift Power LED on the LED Status Panel are not illuminated. Have assistant attempt to operate lift. Lift must not operate.
- Reset Park Brake, Close lift doors. Verify that the Lift Power, Door Open and Shift Lock LED’s turn off. Attempt to operate lift. Lift must not operate.
- Attempt to shift out of Park without stepping on the service brake (engine not running). Shifter must remain locked. Step on service brake and attempt to shift into neutral. You should now be able to shift. Have assistant open lift doors. The Park Brake, Lift Door and Shift Lock LED’s should be illuminated. Have assistant attempt to operate lift. Lift must not operate.
- If any irregular operational issues persist, contact InterMotive at 530-346-1801 for technical assistance.