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## Intelligent Lift Interlock System (ILIS501-D/DB) - Installation Instructions

### Ford Econoline – Diesel Engine 1997→2003

To aid in installation, first gain access to the connection points. Remove the lower dash panel below the steering column and the engine cover. Also, gain access to the lift power switch and the lift door switch circuits. These are usually accessible in the front control panel. It is not necessary to cut any Ford wires during the installation of the ILIS wire harness.

**LED DISPLAY PANEL** – Using the supplied Velcro strips, mount the display panel to the right of the steering column on the dashboard. Ensure that the panel is visible from the driver's seat before securing. Run the display wire harness through the rubber seal between the steering column and the dash. Snap the 6-pin connector into the matching connector in the control module. Ensure that the connector is fully seated. Do not permanently mount the control module until the main harness is installed.

**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.

**Park Circuit** – Locate the Ford black 16-pin connector located behind the air cleaner housing. Separate the connector halves and connect the black "T" harness connectors between them. Run the "T" harness out of the engine compartment. It may be necessary to drill a hole to run the harness out of the engine compartment area. Install the two Green wire terminals into the main harness 12-pin connector in the two empty slots. Either Green wire can be installed in either slot. Ensure that the metal pins securely lock into the 12-pin connector. Secure the harness with wire ties to prevent movement.

**Shift Lock Circuit** – Locate the Ford shift lock solenoid on the steering column and disconnect the black 3-pin connector. Be careful not to break the plastic tab on the connector. Insert the black female 3-pin connector from the main harness into the shift lock solenoid. Ensure that it is fully seated into the solenoid. Insert the black male 3-pin connector from the main harness into the connector that was originally installed in the shift lock solenoid. **It is imperative that these connectors mate with the tabs on the same side. Use the small wire tie to secure the two tabs together. These connectors must not be allowed to separate!**

**Lift Power Circuit** – Locate the lift power switch. Disconnect the circuit from the switch that goes to the lift relay. **Note: 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 (ie: lights, motors, etc.) off this circuit.**

**Parking Brake Circuit** – Disconnect the black Ford connector from the Parking Brake. Plug the female side of the connector from the Brown wire on the main harness to the parking brake. Install the male side of the connector on the Brown wire to the female connector in the Ford harness.

**Lift Door Circuit** – Note: the door switch must provide a ground with the door open. A switch that provides power with the door open will not operate correctly! Locate the lift door switch circuit. 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 of 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 on the metal support bracket behind the lower dash panel using 2-sided foam tape or wire ties.

## **LIMITED WARRANTY**

### ***WARRANTY PERIOD***

For the period of two years from the date of original purchase or 24,000 miles, whichever occurs first, *InterMotive Products* (a division of *InterMotive, Inc.*) warrants that products that fail to function properly under normal use due to a manufacturing defect when installed and operated according to the manufacturer's instructions enclosed with the unit will be replaced with a comparable unit without charge for parts only. The purchaser is responsible for the removal and installation of the product. This warranty is non-transferable and is only applicable in the United States and Canada.

### ***LIMITATION ON LIABILITY***

InterMotive Products will not be liable for loss or damage to property or any incidental or consequential loss or expense from property damage due directly or indirectly from the use or installation of this product.



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## Post Installation Instructions

### ILIS 401/501/502/601/602/604

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 door, 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, the Park Brake LED, and the Shift Lock LED remain illuminated.
- Place foot on service brake and attempt to shift out of Park. Shift lever should not be allowed to shift out of the Park position. If shift lever is allowed to move, check for loose connections at all connection points.
- Release Park Brake. Verify Park Brake LED and the Shift Lock LED on the LED Status panel are no longer illuminated. Remove foot from service brake and attempt to shift out of Park. Shift lever should not be allowed to shift out of the Park position. If shift lever is allowed to move, check for loose connections at all connection points.
- With Park Brake still released, place foot on service brake and attempt to shift out of Park. Shift lever should now be allowed to shift out of Park position. Verify that all LEDs are not illuminated with transmission in any other gear. If shift lever is not allowed to move, check for loose connections at all connection points.
- Place shift lever back to the Park position and verify that the Park LED on the LED Status Panel is illuminated.
- With Park Brake still released, 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 illuminated. Place foot on service brake and attempt to shift out of Park. Shift lever should not be allowed to shift out of "Park" position. If shift lever is allowed to move, check for loose connections at all connection points.
- Set Park Brake. Verify that the Park Brake LED on LED Status Panel is again illuminated. 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 should not be operational. If lift operates, check for loose connections at all connection points.
- If any irregular operational issues persist, contact InterMotive at 530-823-1048 for technical assistance.



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## **Intelligent Lift Interlock System (ILIS) – 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. As an added feature, it also will not allow the vehicle to be shifted out of park anytime the parking brake is applied. This feature eliminates excessive parking brake wear due to driving with the parking brake applied.

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 and/or the parking brake is applied. 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 (ILIS) – Diagnostic Procedures**

### **Ford Econoline & Chevy GMT 600**

The following is to provide an aid in understanding the System Status Display Panel function and diagnostics of the Intelligent Lift Interlock System. If the diagnostic steps do not lead to a repair, please contact InterMotive Products directly at 530-823-1048 for technical assistance. If installing an ILIS on a vehicle that previously had a lift interlock system installed (retrofit), please verify that all components of the previous system have been removed from the vehicle.

### ***SYSTEM STATUS DISPLAY PANEL***

**Park Brake LED** – Illuminates in red when parking brake is applied.

- LED on all the time
  1. Short to ground on the Brown wire
  2. Faulty park brake switch (stuck closed)
- LED off all the time
  1. Open in the Brown wire
  2. Faulty park brake switch (stuck open or contaminated contacts)

**Park LED** – Illuminates in red when the vehicle is in the “Park” range.

#### ***1999 – Present Chevy Van***

- LED on but shifter not in park
  1. Short to power in Black/White wire.
- LED off but shifter in park
  1. Open in Black/White wire
  2. Short to ground in Black/White wire.

#### ***1997 - Present Econoline***

- LED on but shifter not in park
  1. Short to ground on one or both of the Green wires (check for MIL in instrument cluster)
  2. Open in one of the Green wires
- LED off but shifter in park
  1. Open in both of the Green wires (check connector)

**Door Open LED** – Illuminates in red when the lift door is open.

- LED on but lift door is closed
  1. Faulty lift door switch
  2. Short to ground on Red/White wire
  
- LED off but lift door is open
  1. Lift door switch not grounding when door is open (incorrect switch installation)
  2. Faulty lift door switch
  3. Short to power on Red/White wire

**Shift Lock LED** – Illuminates in amber when the when the lift door is open and/or the parking brake is applied. If illuminated, the vehicle will not be allowed to shift out of park.

- LED is on all of the time
  1. Check status of “Door Open” and “Park Brake” LEDs
- LED is off all of the time
  1. Check status of “Door Open” and “Park Brake” LEDs

**Lift Power LED** – Illuminates in green when if all other LEDs are on and the lift power switch is on.

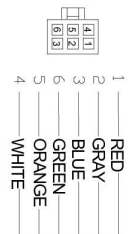
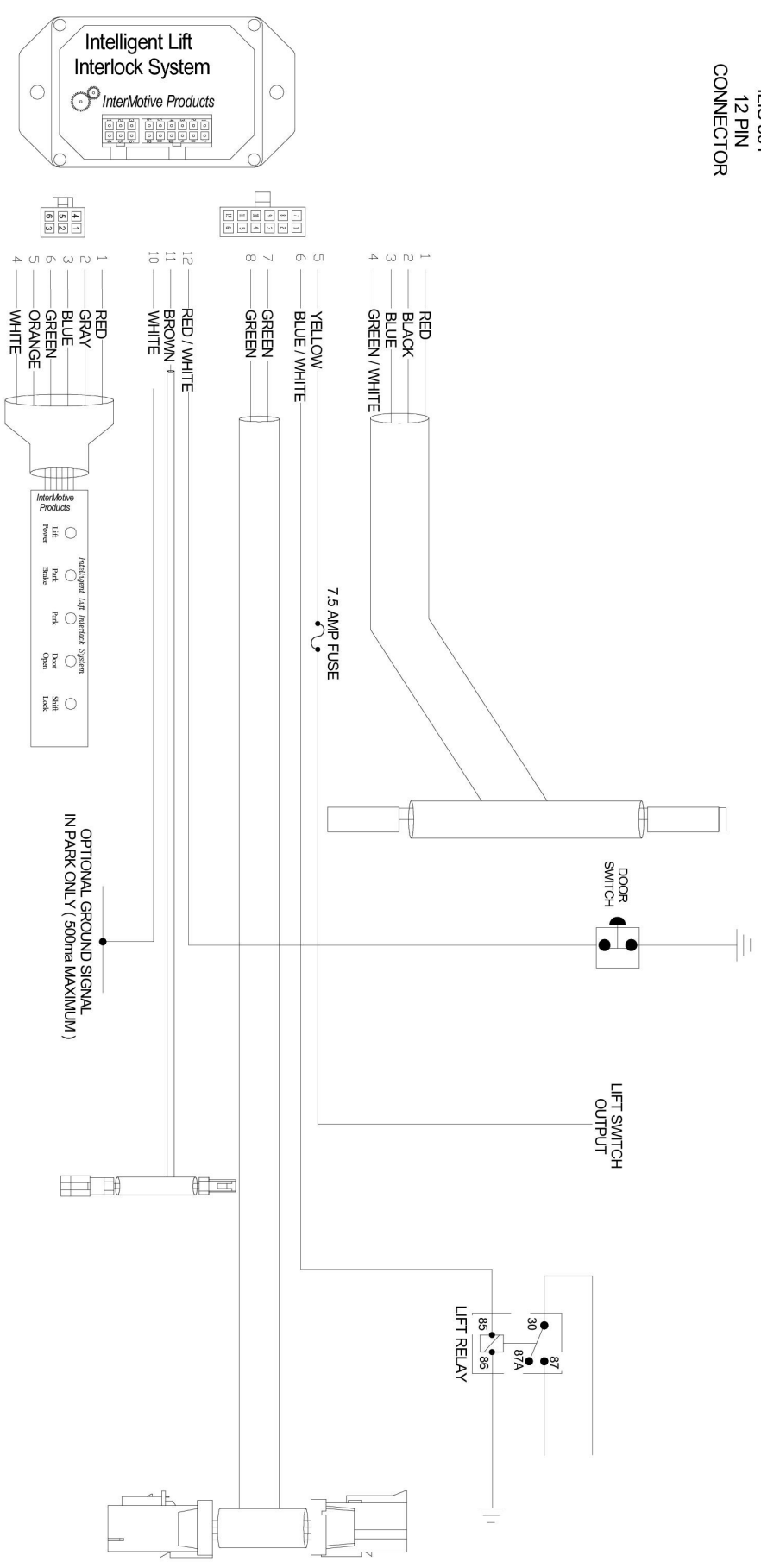
- LED is on when it should be off
  1. Check status of the other four LEDs
- LED is off when it should be on
  1. Check status of the other four LEDs
- LED is on but lift does not operate
  1. Faulty lift solenoid
  2. Open in Blue/White wire between ILIS and lift solenoid

# REVISIONS

DATE : CHANGE :

- |    |               |  |
|----|---------------|--|
| 7  | GREEN         | PARK-B1 INPUT - ATTACH TO TRANSMISSION RANGE SENSOR (GAS-GRAY 4 PIN CONNECTOR) (DIESEL-BLACK 16 PIN CONNECTOR) |
| 8  | GREEN         | PARK-B2 INPUT - ATTACH TO TRANSMISSION RANGE SENSOR (GAS-GRAY 4 PIN CONNECTOR) (DIESEL-BLACK 16 PIN CONNECTOR) |
| 1  | RED           | POWER INPUT - ATTACH TO SHIFT-LOCK SOLENOID (BLACK 3 PIN T-HARNESS CONNECTOR)                                  |
| 2  | BLACK         | GROUND INPUT - ATTACH TO SHIFT-LOCK SOLENOID (BLACK 3 PIN T-HARNESS CONNECTOR)                                 |
| 3  | BLUE          | SHIFT INTERLOCK OUTPUT - ATTACH TO SHIFT-LOCK SOLENOID (BLACK 3 PIN T-HARNESS CONNECTOR)                       |
| 4  | GREEN / WHITE | SHIFT INTERLOCK INPUT - ATTACH TO SHIFT-LOCK SOLENOID (BLACK 3 PIN T-HARNESS CONNECTOR)                        |
| 5  | YELLOW        | LIFT POWER INPUT - ATTACH TO OUTPUT SIDE OF LIFT POWER SWITCH  |
| 6  | BLUE / WHITE  | LIFT POWER OUTPUT - ATTACH TO LIFT POWER RELAY   |
| 12 | RED / WHITE   | LIFT DOOR INPUT - ATTACH TO LIFT DOOR SWITCH INPUT (GROUND SIGNAL)   |
| 11 | BROWN         | PARK BRAKE INPUT - ATTACH TO PARK BRAKE SWITCH   |
| 10 | WHITE         | OPTIONAL PARK-ONLY OUTPUT (GROUND SIGNAL)  |

ILIS 501  
12 PIN  
CONNECTOR



PRODUCT : **INTELLIGENT LIFT INTERLOCK SYSTEM**

DRAWN BY: SHAWN CONKLIN  
DATE DRAWN: 7/17/03  
CHECK BY: Ed Protkopik  
PART NO: ILIS 501 DB  
DATE CHECKED: 7/29/03