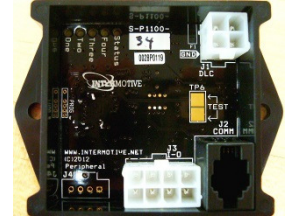


**LOCK510-B Shift Interlock Commercial  
2009-2017 Ford E-Series  
Contact InterMotive for specific applications**



## System Overview

The LOCK510-B is a microprocessor driven system for controlling wheelchair lift operation. The system will operate with the vehicle ignition on or off. Lift operation will be enabled when specific vehicle safety conditions are met and will lock the transmission shifter in Park when the wheelchair lift is in use. Optional Plug and Play harnesses are available for most applications, making installation fast and easy.

### IMPORTANT—READ BEFORE INSTALLATION

It is the installer's responsibility to route and secure all wiring harnesses where they cannot be damaged by sharp objects, mechanical moving parts and high heat sources. Failure to do so could result in damage to the system or vehicle and create possible safety concerns for the operator and passengers. Avoid placing the module where it could encounter strong magnetic fields from high current cabling connected to motors, solenoids, etc. Avoid radio frequency energy from antennas or inverters next to the module. Avoid high voltage spikes in vehicle wiring by always using diode clamped relays when installing upfitter circuits.

## Installation Instructions

**Disconnect vehicle battery before proceeding with installation.**



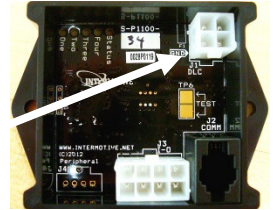
**WARNING**  
Disconnect the battery to  
prevent setting a check engine  
light.

### LOCK510-B Module

Remove the lower dash panel below the steering column area and find a suitable location to mount the module so that the Diagnostic LED's can be viewed with the lower dash panel removed. Secure using 2-sided foam tape, screws or wire ties. Locate the module in an area away from any high heat sources. Do not actually mount the module until all wire harnesses are routed and secure (last step of the installation is to mount the module).

## Data Link Harness Installation

1. Locate the vehicle OBDII Data Link Connector, mounted below the lower left dash panel.
2. Remove the mounting screws for the OBDII Connector. Plug the red connector from the LOCK510-B Data Link Harness into the vehicle's OBDII connector. Ensure the connection is fully seated and secure with the supplied wire tie.
3. Mount the Black pass through connector from the LOCK510-B Data Link Harness in the former location of the vehicle's OBDII connector.
4. Secure the LOCK510-B Data Link Harness so that it does not hang below the lower dash panel.
5. Plug the free end of the Data Link Harness into the mating 4-pin connector on the LOCK510-B module.



## Control Inputs/Outputs - 8-pin connector

The LOCK510-B provides three ground side inputs and one 12V, 1/2 amp output.

Refer to the LOCK510-B CAD drawing as reference when reading these instructions. A control relay may be needed to power some lifts, due to the lift drawing more than 1/2 amp. Install a TVS (diode clamped) relay as shown on the CAD drawing.

Lengthen the following **two** wires, (three if optional Green wire used), using solder and heat shrink or tape. The blunt-cut (4-wire) harness provides for control connections to the vehicle as follows:

**Orange** – connect this output to the lift or lift relay. Refer to the particular lift model drawing when making this connection. This output provides 12V @ 1/2 amp when it is safe to operate the lift.

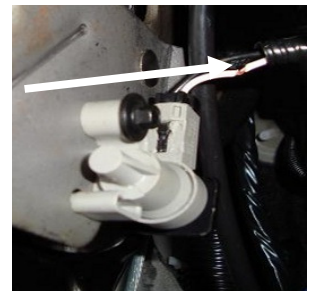
**Gray** – connect this input to the Lift Door switch. Ensure that a ground signal is provided with the door open. When the door is open the vehicle is prevented from shifting out of Park. This door must be open in order to allow lift operation.

**Green** – Connect this wire only if an additional door connection is desired.

This input is an **optional** connection for an additional door (passenger). It is connected the same as the Lift Door and also prevents shifting out of Park. This door does not have to be open to allow lift operation.

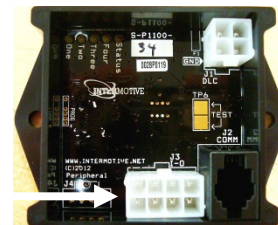
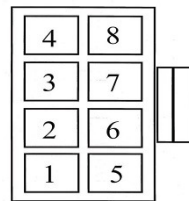
**Brown** – Connect this wire only if "key off" lift operation is desired

This **optional** input connects to the OEM Park Brake switch (as shown) such that the switch is made when the Park Brake is set. Install a standard rectifier diode (digikey RL202-TPCT-ND or equivalent) to isolate the Parking Brake ground signal. Strip back some insulation off the WT/VT wire, solder the Brown wire on and tape or use heat shrink tubing.



## Control Inputs/Outputs - 8-pin connector (continued)

- Pin #1 — N/C
- Pin #2 — N/C
- Pin #3 — ORANGE (Vehicle Secure (12V) Output)
- Pin #4 — GREEN (Passenger Door Open (GND) Input) \*Optional
- Pin #5 — BROWN (Park Brake (GND) Input) \*Optional
- Pin #6 — N/C
- Pin #7 — ORANGE (from Pin #3)
- Pin #8 — GRAY (Lift Door Open (GND))



### Connect the 8 pin connector to the module

#### LOCK510-B Module

Ensure all the harnesses are properly connected and routed, and are not hanging below the dash area. Mount the LOCK510-B module as described on page one and secure using screws or doubled sided tape.

### Reconnect vehicle battery

## Post Installation / Check List

**The following checks must be made after installation of the system, to ensure correct and safe operation of the lift. If any of the checks do not pass, do not deliver the vehicle. Recheck all connections per the installation instructions**

Begin the checklist with the vehicle in the following state:

- Lift stowed
  - Lift access door closed
  - Park Brake set (PB)
  - Transmission in park
  - Ignition off (Key off)
1. Turn ignition key on (to "run"), attempt to deploy the lift. The lift must not deploy with the Lift Door closed.
  2. With key on, release the Park Brake (PB) and open the lift access door, attempt to deploy the lift. The lift must not deploy with Park Brake released.
  3. With key on, Lift Door open, PB set, transmission in park, attempt to deploy the lift. Verify the lift deploys.
  4. With key on, Lift Door closed, PB set, verify the transmission will not shift out of Park.
  5. With key on, Lift Door open, PB released, verify the transmission will not shift out of park.
  6. With the lift deployed, attempt to shift the transmission out of Park. Verify the transmission shift lever does not shift out of Park.
  7. With key on, Lift Door closed, PB released and the Service Brake applied, attempt to shift the transmission shift lever out of Park. Verify the vehicle will shift out of Park

**Optional input:** If the vehicle is equipped with a connection for an additional door (passenger) the transmission shift lever will not shift out of Park, unless the door is closed.

**Optional input:** If the vehicle is equipped with key off lift function, the Park Brake must be set for system to be operational.

**Note:** If the vehicle has Daytime Running Lights they will be activated when the Lift Door is open and/or the Park Brake is on and the Ignition Key is on.

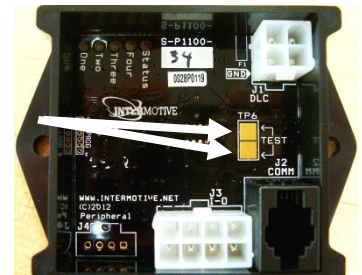
**Confirmation Signal- (2009-2010 model year vehicles).** The vehicle lamps and radio will cycle briefly when the ignition is on and the lift door is initially closed. This signal is sent from the Ford PCM.

### Lift Interlock Diagnostic Mode Testing

Enabling Diagnostic Mode allows a visual indication of system status and is a good troubleshooting tool when used in conjunction with the above tests. The module is fully functional in this mode. Enter Diagnostic Mode by the following steps:

1. Place transmission in Park and turn ignition switch to run position.
2. Momentarily short the two Gold "Test" pads together on the module. LED's on the module will prove out, then become status indicators:

- LED 1 will be on when Shift Lock enabled.
- LED 2 will be on when transmission is in Park.
- LED 3 will be on when Park Brake is set.
- LED 4 will be on when Lift Door is open.
- LED marked "status" indicates "Vehicle Secure" or "Lift enabled" meaning there is 12V on Pin 3 (green wire) which connects to the lift.
- Cycling the key will exit Diagnostic Mode and all LED's will be off.



## Leave in Vehicle Operating Instructions LOCK510-B Shift Interlock Commercial 2009-2017 Ford E-Series

The LOCK510-B system is a microprocessor driven system for controlling wheelchair lift operation. The system will operate with the vehicle ignition on or off (if optional Park Brake input supplied). Lift operation will be enabled when specific vehicle safety conditions are met and will lock the transmission shifter in Park when the wheelchair lift is in use. The LOCK510-B prevents the vehicle from being shifted out of park if the lift door is open. As an added feature, the vehicle cannot be shifted out of park anytime the parking brake is applied. This eliminates excessive parking brake wear due to driving with the parking brake applied.

Key on operation :Lift operation will only be allowed when all of the following conditions are met:

- The vehicle is in "Park"
- The Park Brake is applied.
- The vehicle ignition is on.
- The Lift Door is open.

Key Off operation (if optional input connected)

- Vehicle must be in Park before turning key off.
- The Park Brake is applied
- The Lift Door is open

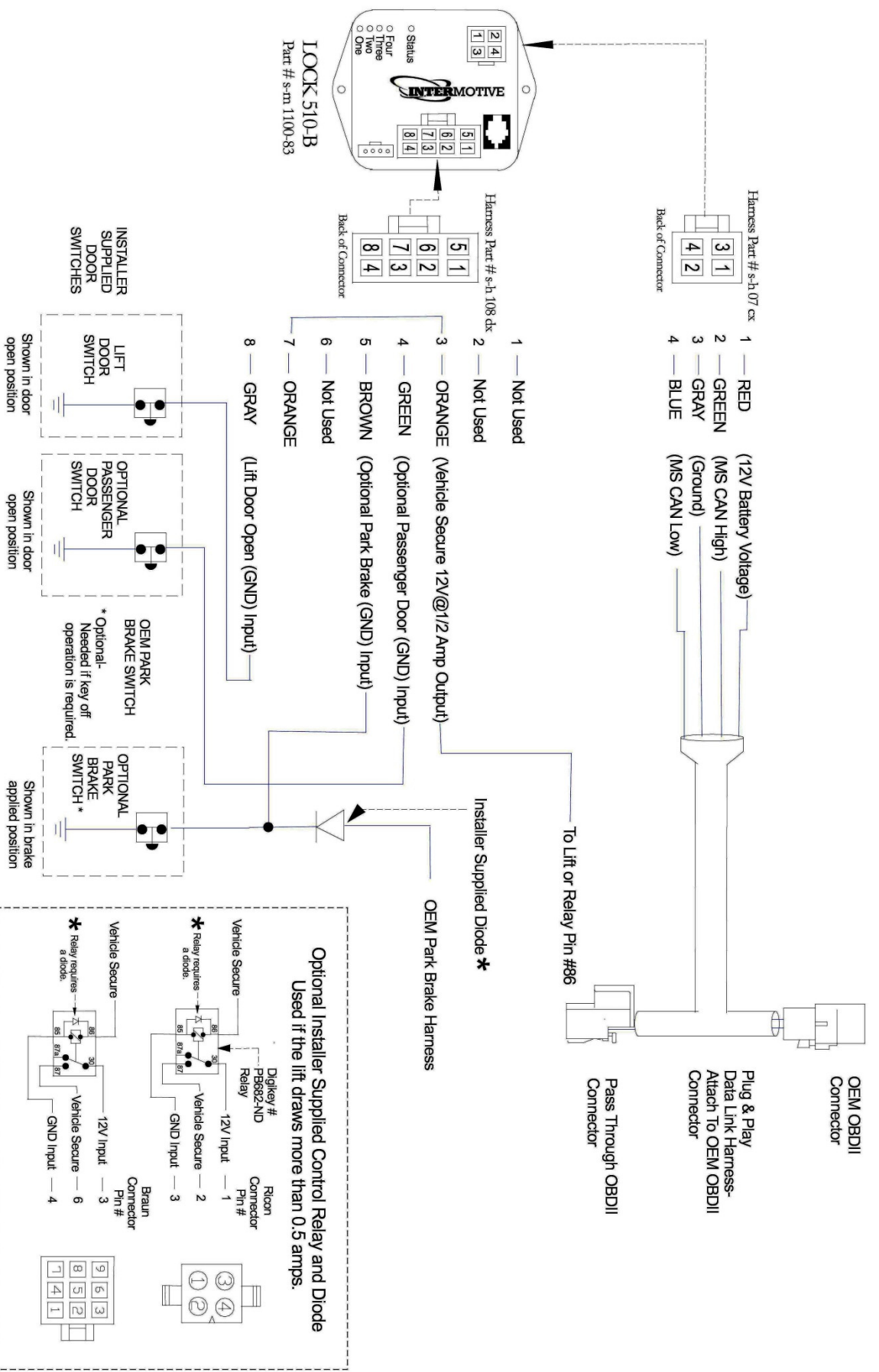
If the vehicle is equipped with a connection for an additional door (passenger), the transmission shift lever will not shift out of Park, unless the additional door is closed.

When the Lift Door is closed and ignition power is not present for 5 minutes, the system will enter a low current "sleep" mode of operation. To wake from "sleep" mode, the ignition must be turned on (key on) or the Lift Door must be opened.

**Note:** If the vehicle has Daytime Running Lights they will be activated when the Lift Door is Open and/or the Park Brake is On and the Ignition key is On.

**Confirmation Signal – (2009-2010 Model year vehicles):** The vehicle lamps and radio will cycle briefly when the ignition is on and the lift door is initially closed. This is a confirmation signal sent from the Ford PCM.

Do not leave the Lift Door open when the vehicle is not in use. This will cause a draw on the vehicle's electrical system and may result in a dead battery.



If the LOCK510-B fails any step in the Post Installation Test, review the installation instructions and check all connections.  
If necessary, call InterMotive Technical Support at (530) 823-1048.