

ILISP516-C Shift Interlock 2020 - 2025 Ford Transit



Introduction

The ILISP516-C is a wheelchair lift safety interlock which will work with the key on or key off. It will enable the lift when certain vehicle safety conditions are met, and will lock the transmission in Park when the lift is in use (not stowed). Optional Plug & Play harnesses are available for most applications which makes the installation fast and easy.

Installation Instructions

Disconnect vehicle battery before proceeding with installation.



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

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.

CAUTION

All electronic products are susceptible to damage from Electrostatic Discharge or ESD. Ground yourself before handling or working with the module and harnessing by first touching chassis ground, such as the barrel of the cigarette lighter.

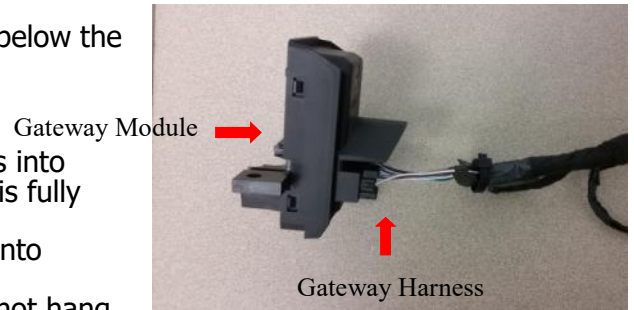


ILISP516 Module

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. Locate the module in an area away from any high external heat sources (engine heat, heater ducts, etc.). Do not actually mount the module until all wire harnesses are routed and secure. The last step of the installation is to mount the module.

Gateway Plug and Play Harness (4-pin connector)

1. Locate the vehicles Gateway Module. It will be mounted below the lower left dash panel.
2. Remove the harness behind the Gateway module by pressing the locking tab and pulling outward.
3. Plug the Female side of the InterMotive Gateway Harness into the back of the Gateway module. Ensure the connection is fully seated and secured by the locking tab.
4. Plug the Male side of the InterMotive Data Link Harness into the Gateway harness.
5. Secure the ILISP516-C Gateway harness so that it does not hang below the lower dash panel.
6. Plug the free end of the Data Link harness into the mating 4-pin connector on the ILISP516-C module.



LED Display Panel Mounting - Black 4-pin connector

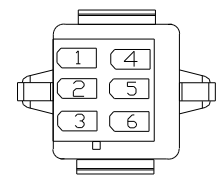
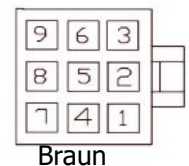
Locate a suitable position on the dashboard, within view of the driver to mount the LED Display Panel. Ensure that there is open space behind the dash where the panel is mounted. The harness is 40" in length, which is the maximum distance the display can be from the module.

1. Drill a 5/8" hole in the dash where the center of the display will be located.
2. Attach the Black 4-pin connector of the LED Display Panel Harness to the module.
3. Run the other end of the harness under the dash and out through the 5/8" hole.
4. Attach the end to the LED Display Panel. Ensure the panel is level and secure using supplied screws.

Lift Connections - 8-pin module connector—Optional Plug & Play Lift Harness for Braun lifts

1. Plug the 8 pin connector into the ILISP516-C module.
2. Run the lift harness out to the lift and plug it into the appropriate lift connector:
 - Braun models 9-Pin connector Pin 2
 - Mobility Networks/VMI 6-Pin connector Pin 5

If the harness includes a control relay integrated into the harness, peel off the 2-sided tape and stick to the lift housing.



Mobility Networks/VMI

Park Brake Connection

Plug & Play Park Brake Harness (Manual Park Brake)- Disconnect the OEM connector from the Park Brake Switch. Plug in the Park Brake T-Harness, and plug in the OEM connector also into the T" harness.

Lift Connections - 8-pin module connector—Blunt cut or (Plug and Play) Harness for Braun lifts

The ILISP516-C provides three low true inputs, a high true input, and one 12V, 1 amp output.

If a control relay is needed to power the lift (lift draws more than 1A), a standard rectifier diode (Digikey RL202-TPCT-ND or equivalent), **must** be installed between pins 85 & 87 of the relay, as shown in the ILISP516-C CAD Blunt Cut drawing.

The following four wires will need to be lengthened, using solder and heat shrink or tape. The blunt-cut (4-wire) harness provides for control connections to the lift as follows:

Orange or Green – connect this output to the lift or lift relay. Refer to the CAD when making this connection. This output provides 12V @ 8 amp when it is safe to operate the lift.

Gray or Black – Connect this input to the Lift Stowed Switch. It must have a ground signal with the lift stowed. When lift is not stowed, the vehicle is prevented from shifting out of Park.

White - Connect the White wire (Lift wake up (GND) input to pin #1 of the 9 pin lift adapter connector.

Yellow - Connect this output to the OEM Shift Lock circuit. (See next page for detailed instructions)

Park Brake Connection

NOTE: An Electric Park Brake (EPB) became an option beginning in 2021. If the vehicle has EPB, skip the steps below as the Brown wire will not need to be connected. EPB status is read over the CAN network and "key off" lift operation is possible.

Brown – Connect this wire only if "key off" lift operation is desired. Connect this **optional input** 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 (RL202-TPCT-ND or equivalent) as shown in the Blunt Cut CAD drawing, to isolate the Parking Brake ground signal. Strip back some insulation off the White/Violet wire, solder the Brown wire on and tape or use heat shrink tubing. This connection is required if lift operation is desired when the vehicle ignition is OFF.



Shift Lock Connection

There are multiple cup holder options for the Ford Transit. Please follow the appropriate instructions.

Option 1

- Remove the cup holder.



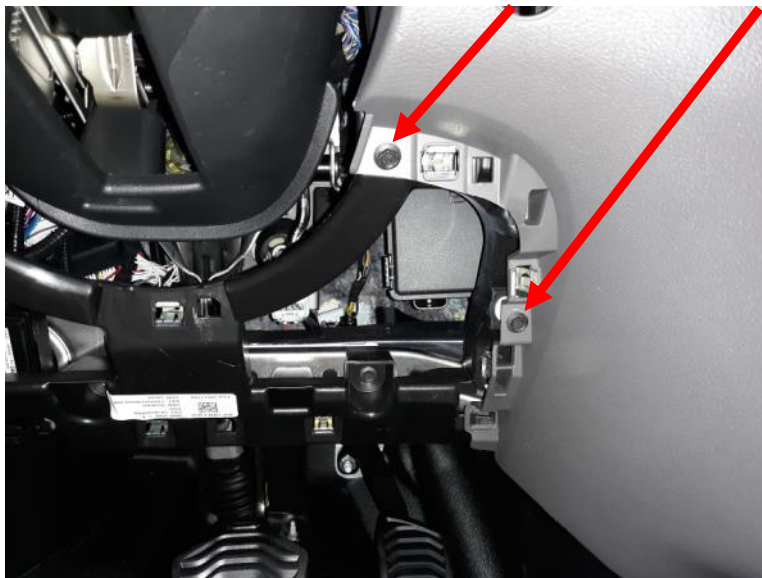
Shift Lock Connection (Continued)

Option 2

- Remove the under dash panel by firmly grasping it and pulling it towards the rear of the vehicle.



- Remove the two screws as seen in the photo.



Shift Lock Connection (Continued)

- Remove the trim panel on the passengers side (see photo) by using a plastic trim removal tool.



- Open the glove box and remove the screw as shown in the photo.



Shift Lock Connection (Continued)

- Remove the gear shifter trim panel using a plastic trim removal tool.



- Remove the small trim piece shown in photo.



Shift Lock Connection (Continued)

- Remove the center under dash panel by firmly grasping it and pulling it towards the rear of the vehicle.

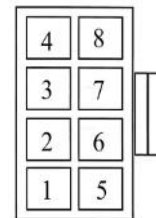
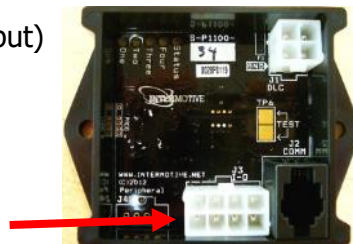


- Locate connector 2810 (12-pin connector). Remove the OEM connector and plug it into the mating 12-pin connector T-harness supplied with the ILISP516. Plug the remaining male connector into the OEM cavity.



- Pin #1 — N/C
- Pin #2 — N/C
- Pin #3 — GREEN (ORANGE) (Vehicle Secure (12V) Output)
- Pin #4 — WHITE (Wake-up Signal (GND) input)
- Pin #5 — BROWN (Park Brake (GND) Input)
- Pin #6 — N/C
- Pin #7 — YELLOW (Shift Lock Output)
- Pin #8 — BLACK (GRAY) (Lift Stowed (GND) Input)

Connect the 8 pin connector to the module



8 Pin lift connector

ILISP516 Module

Ensure all the harnesses are properly connected and routed, and are not hanging below the dash area. Mount the ILISP516 module as described on page one. Secure using screws or doubled sided tape.

Reconnect vehicle battery

Post Installation / Check List

ILISP516-C (Electric Lift Door)

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 as per the installation instructions

Begin the checklist with the vehicle in the following state:

- Lift Stowed
- Lift Door closed
- Park Brake set (PB)
- Transmission in Park (P)
- Ignition off (Key off). Wait until the module goes into "Sleep" mode (all panel LEDs OFF) which takes approximately 5 minutes.



Vehicle Secure/Lift Enable, Lift Deployed, Park Brake, Park, Shift Lock

1. Press the Lift Deploy Request button on the remote fob (electric door), or open door and press button on pendant (manual door). Verify the module wakes up and all 5 LED's illuminate for approximately 2 seconds. The lower icon LEDs are backlit and will remain illuminated whenever the module is awake. The fob button may have to be held for 2 seconds or more to wake up the system.
2. Turn the ignition key on.
3. With Lift Door open, Park Brake set and transmission in Park, all LED's except Lift Deployed and Shift Lock will be ON. Attempt to deploy the lift. Verify the lift deploys and all 5 LED's are ON.
4. With the Lift deployed and Service Brake applied, verify the vehicle cannot be shifted out of Park
5. Stow the Lift but leave door open.
6. With Lift Door open, Lift Stowed, and transmission in Park, release Park Brake. Verify all LEDs except Park are OFF. Attempt to deploy the lift. Verify Lift does not deploy with Park Brake released.
7. With Lift Door open, Park Brake set, Lift stowed, and Transmission in Neutral, verify Lift does not deploy.
8. With Lift Door open, Park Brake released and Service Brake applied, verify transmission will shift out of Park. Put transmission back into Park.
9. **Turn Ignition Key OFF** and repeat step 3. NOTE - this time the Shift Lock LED will be ON prior to Lift deployment.
10. With Lift Door open, Lift Stowed, transmission in Park, release Park Brake. Verify all LEDs except Park and Shift Lock are OFF. Attempt to deploy the lift. Verify Lift does not deploy with Park Brake released.
11. Close Lift Door and apply Park Brake. If not already, the module should go to sleep with all LEDs OFF in less than 5 min. since the countdown to sleep began at Step 9.

If any of the previous Post Installation tests fail, enter diagnostic mode.

Post Installation / Check List

Using Module LEDs

The module has 5 on-board LEDs which are used to convey information about the operation of the module. In the normal mode all LEDs are OFF, but they come ON in different situations:

Operation Errors - Under certain conditions the module LEDs are used to indicate errors which prevent continued operation. In this case, the Status LED will blink and depending which other LEDs are lit, the error is identified as follows:

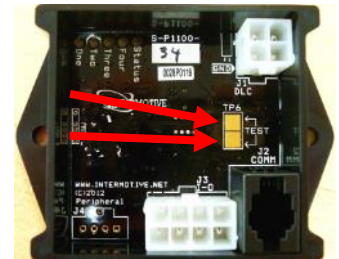
- LED1 ON - Set-up error on output device.
- LED2 ON - Could not set up the CAN communication
- LED3 ON - Output error
- LED 2&3 ON - Lost CAN traffic

VIN Errors - If there is an error while getting the vehicle VIN, LEDs 1-4 will scroll 2 times then another LED will turn on to ID the error as follows:

- LED1 ON - Wrong Mfg.
- LED2 ON - Wrong chassis
- LED3 ON - Wrong engine
- LED4 ON - Wrong model year
- STATUS ON - Bogus VIN (e.g. all characters the same)
- No LEDs ON - No VIN response

Status - Diagnostic Mode can be entered by shorting the two pads marked "test" together on the circuit board. LED's will scroll a couple times, then LED1 will "blink out" the current firmware version, then the LEDs will reveal system status as follows:

- LED 1 ON when Shift Lock enabled.
- LED 2 ON when transmission is in park.
- LED 3 ON when Park Brake is set.
- LED 4 ON when Lift is Deployed.
- STATUS LED ON indicates "Vehicle Secure" or "Lift enabled" meaning there is 12V on Pin 3 which connects to the lift.
- Cycling the key will exit Diagnostic Mode and all LED's will be off.



Leave in vehicle Operating Instructions ILISP516-C Shift Interlock (Electric Lift Door) 2020 - 2025 Ford Transit

ILISP516-C Lift Interlock

The ILISP516-C is a wheel chair lift safety interlock which will operate with the key on or key off. It will enable the lift when certain vehicle safety conditions are met, and will lock the transmission shifter in Park when the wheelchair lift is in use (not stowed). The ILISP516-C prevents the vehicle from being shifted out of park if the lift is not stowed.

Key On function:

1. The system will wake up when the fob or pendant deploy buttons are pushed.
2. With the module awake and the vehicle in Park, the (P) LED will be ON.
3. When the Park Brake is applied, the (PB) & Vehicle Secure LEDs will be ON.
4. When the Lift is deployed, all LEDs will be ON, and the transmission will be locked in Park.



Key Off function:

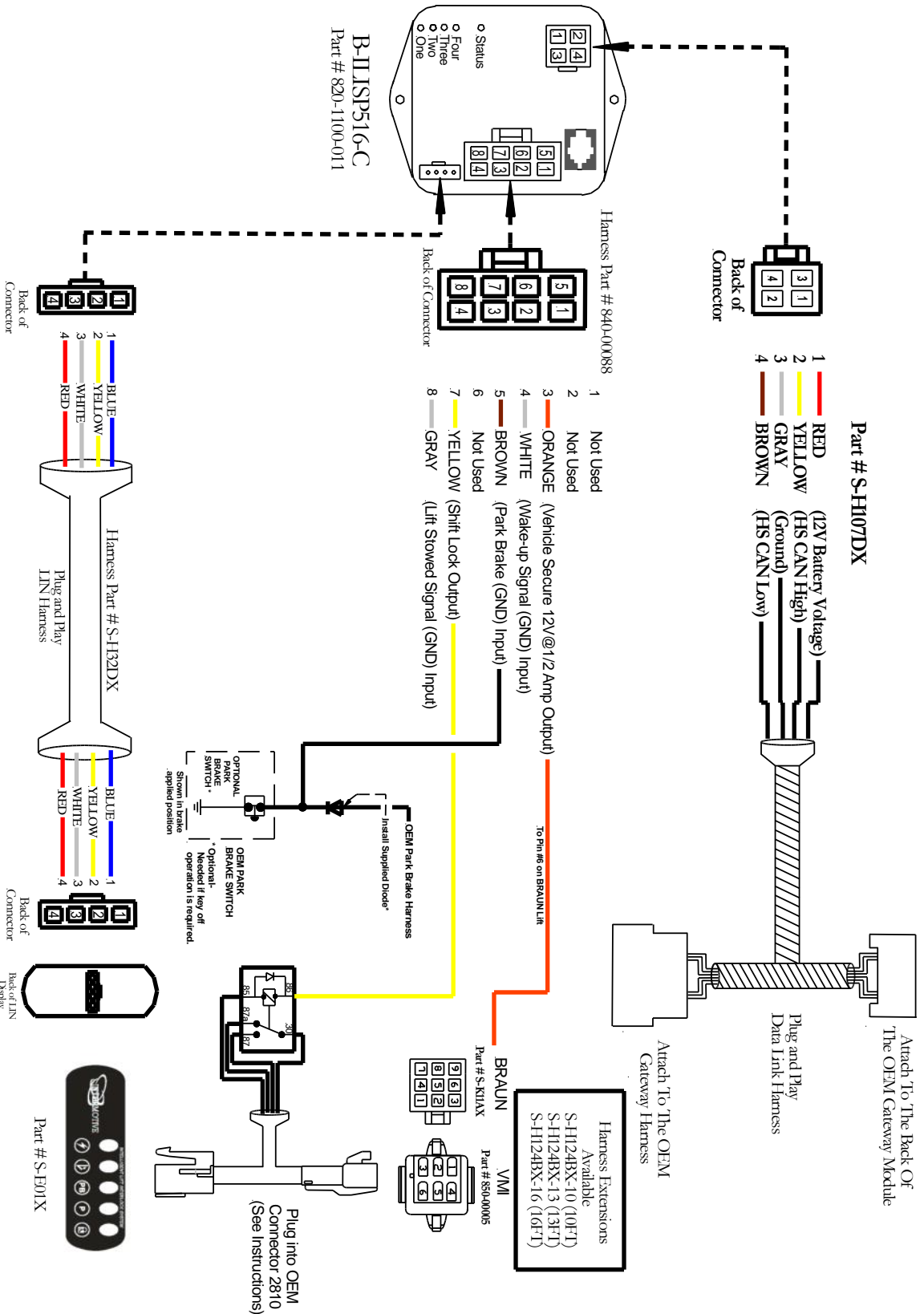
- Vehicle must be in Park before turning key off.
- With vehicle in Park and Park Brake applied, all LED's except Lift Deployed will be ON.
- When the lift starts to deploy, the Lift Deployed LED will turn ON

Low Power Mode:

When the lift is stowed and ignition power is turned OFF, the vehicle CAN traffic will stop after a delay. Five min. after this traffic stops the system will enter a low current "sleep" mode of operation. To wake from "sleep" mode, turn the ignition on (key on) or press the lift deploy button on the pendant or fob (may have to be depressed for a second or two to wake the system). All display LEDs will turn ON for approximately 2 seconds as a "prove out". The backlit LEDs will remain on as long as the module is awake.

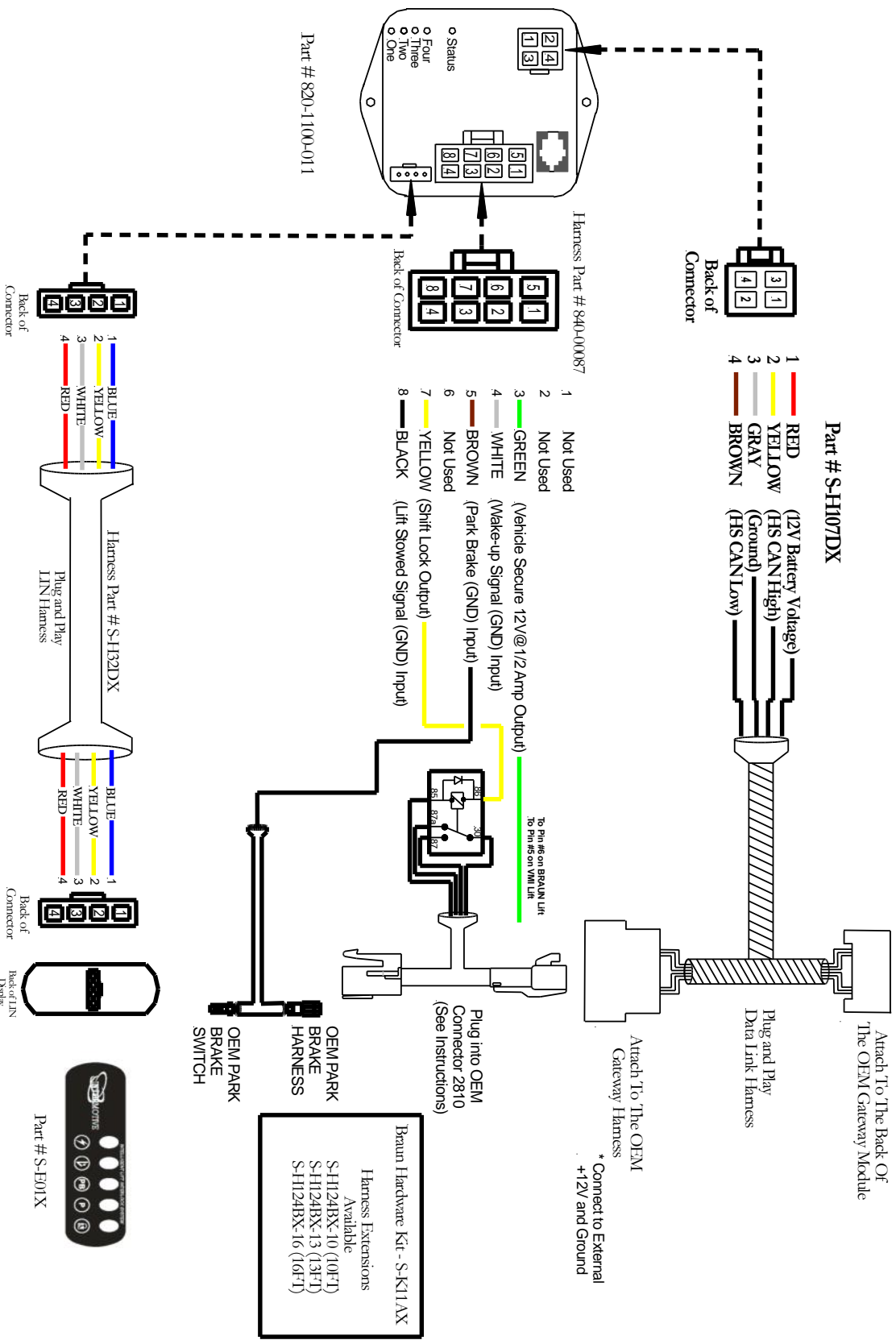
Note: Do not leave the lift deployed when the vehicle is not in use. This will prevent the module from going into the low power mode and cause a current draw on the vehicle's electrical system that could result in a dead battery after a time.

Blunt Cut



If the ILISP516-C 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.

Plug and Play



If the ILISP516-C 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.