

Lift Interlock System with Optional Display For RAM ProMaster (Gasoline Engines) With Ignition On or Off

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1.0 Introduction

This product is intended for installation in RAM ProMaster vans with gas engines and FMVSS compliant, public-use platform lifts manufactured by The Braun Corporation, Ricon Corporation or Maxon Mobility. If another type of lift is to be used, contact the lift manufacturer to determine compatibility. There is an optional display for the ITM-PM (Standard), “Door Ajar” that also shows the status of the Park (PK), Lift Enable (Ⓛ), Shift Lock (SL), and Park Brake (PB).

This interlock system is designed to meet the requirements of FMVSS 403/404 and therefore must be installed in accordance with the lift manufacturer’s instructions. The installer must be trained and skilled in installing FMVSS compliant lift systems. The installation must also comply with SAE (Society of Automotive Engineers) and RAM electrical wiring procedures.

2.0 Product Description

The ITM-PM interlock system consists of the following components:

- ITM-PM Control Module
- 7201.090 Chassis Wiring Harness
- **Optional** Interlock Display DSP-ITM3
- **Optional** 7201.015A DSPITM2 Display Harness

Note: Do not substitute alternate screws for securing the Control Module. The supplied screws are of a correct length to ensure they do not penetrate the wall (Double Sided 3M VHB is preferred).

The Chassis Wiring Harness uses a 12-pin connector (P1) to plug into the interlock control module. This harness contains three blunt cut 12 inch wires of which one provides the lift Enable, and the two others (GND True) used in Cut-Away Chassis (Lift Door Closed, and Remote Door Closed), one “plug and play” T-cable that connects to the shiftlock solenoid, and a set of T-cables that connect to the Gateway Module next to the Glove Box.

The control module has one connector that connects to the wiring harness, and another that connects to the optional display module. In addition, it has a DIP switch for system configuration. It also has seven status LEDs (Bus, Shifter Locked, Park, Park Brake, Lift Door Open, Enable, Any Door Open) to aid in system troubleshooting.

3.0 Installation Procedures

3.1 Safety Precautions



This interlock product has been designed and manufactured to meet the intended application requirements and specifications. Any modifications to the product or to the installation procedure can be dangerous and will void InPower's warranty.

- Read and understand the instructions in this manual and other manuals before starting the installation.
- **WARNING!!** It should be noted that this vehicle has automatic Electronic Park Brake and which will automatically engage under circumstances as required by the vehicle. Please Read the ProMaster Owner's Manual to be aware of the operation of this vehicle and the Electronic Park Brake. **WARNING!!**
- Make sure that the vehicle battery power is disconnected during installation of the Interlock and lift systems.
- Reconnect the battery when the system installation is complete.
- Wear appropriate safety equipment, such as protective eyeglasses, face shield and clothing when installing equipment and handling the battery.
- Be careful when working near a battery. Make sure that the area is well ventilated and that there are no flames near the battery. Never lay objects on the battery that can short the terminals together. If battery acid gets in your eyes, immediately seek first aid. If acid gets on your skin, immediately wash it off with soap and water.

3.2 Getting Started

This manual provides instructions for installing the InPower Model ITM-PM Interlock System in the RAM ProMaster vans with gasoline engines and with a FMVSS compliant lift. It is important that you follow these instructions carefully and contact InPower if you need assistance or more information. Note that product technical documents are available on InPower's web site.



This interlock system installation requires additional parts and materials that are not supplied with the interlock product. Identify all required parts before starting the installation and ensure that these items are the correct type and quality.

Inspect the interlock product and all other components for damage before starting the installation. Do not perform the installation if any problems exist.

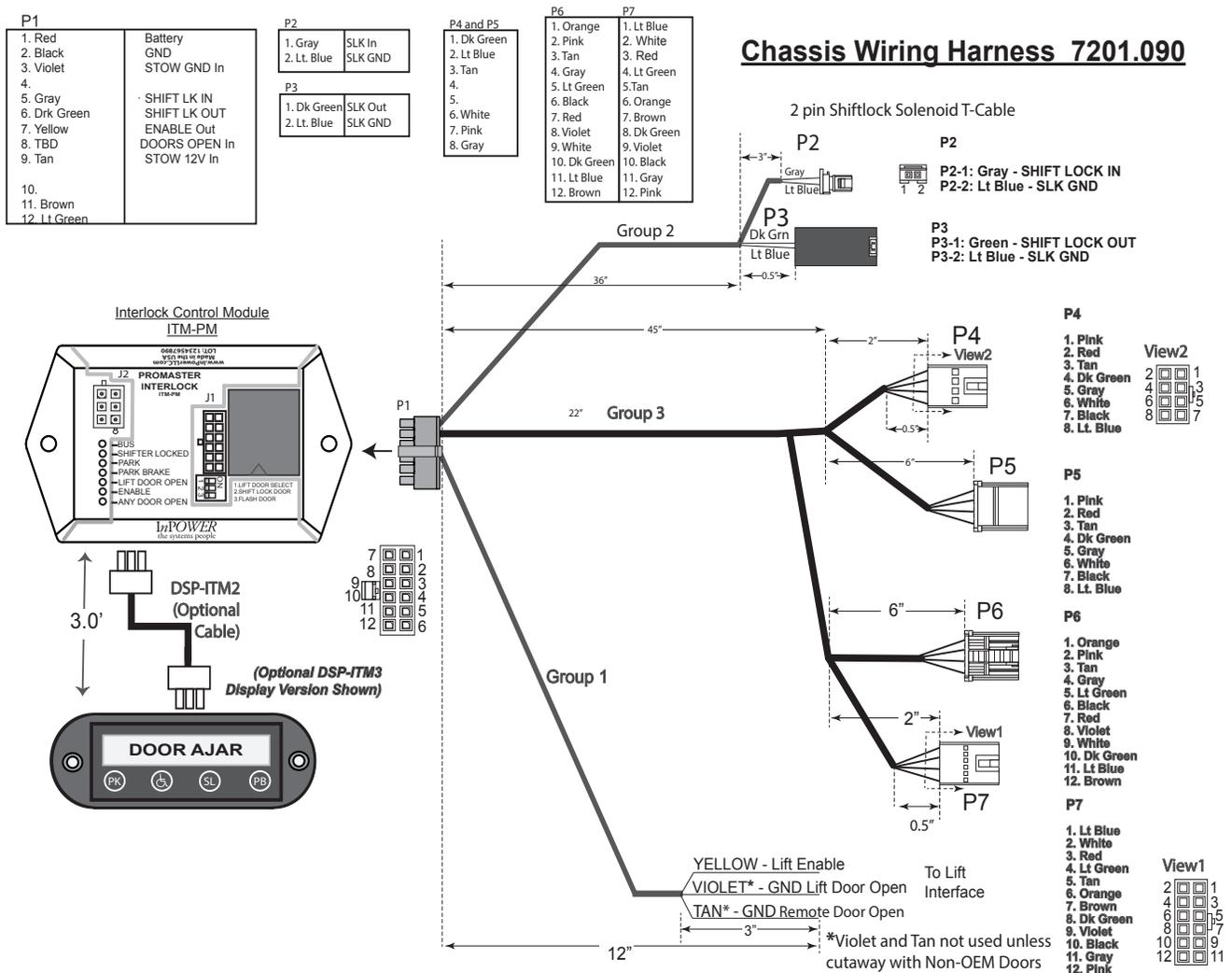
Determine the type of interlock interface required for the platform lift. This interlock system provides a +12 volt @ 1.8 amps Enable Lift output to allow the platform lift to be operated. If the lift system is not compatible with this interface signal you must take the necessary actions to adapt the lift system interface to the interlock system's interface. Refer to the lift manufacturer's installation instructions for further details.

The recommended mounting location for the ITM-PM interlock control module is in the center console below the shifter, due to the proximity of the wiring connections. **The unit must not be located in the engine compartment or any location that is not protected from the environment.**

4.0 System Layout Diagram

The following page shows the harness for this installation. Refer to Section 5. Wiring Instructions for details on how to wire the circuits.

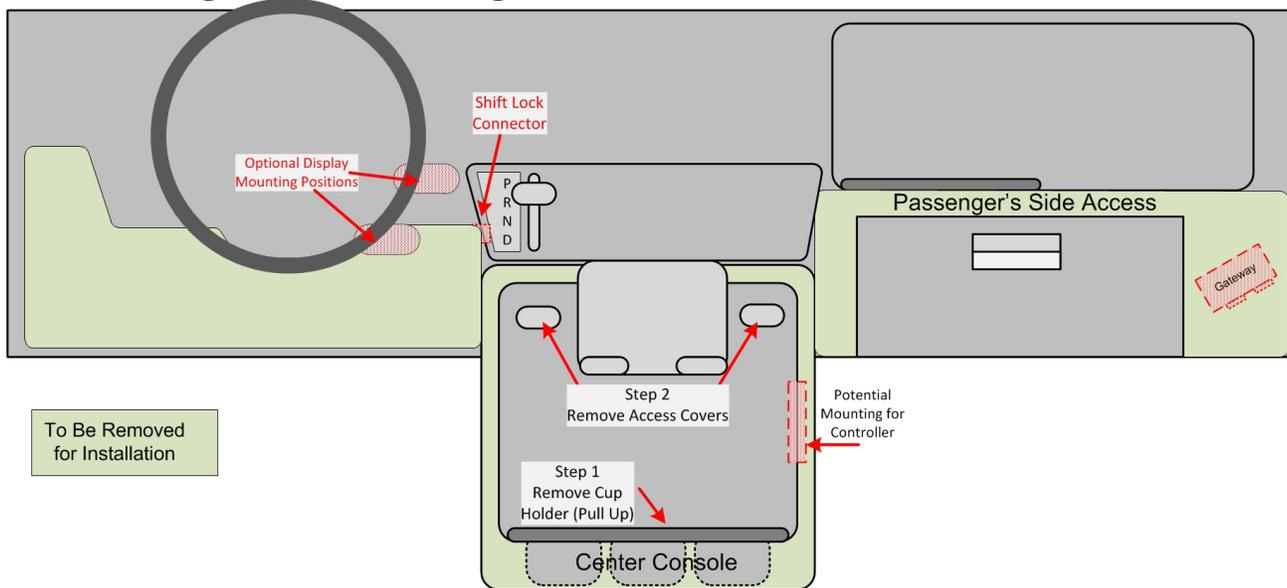
Interlock System Layout



5.0 Wiring Instructions

!!Make sure that the vehicle battery power is disconnected during installation of the interlock and lift system. Reconnect the battery when the system installation is complete!!

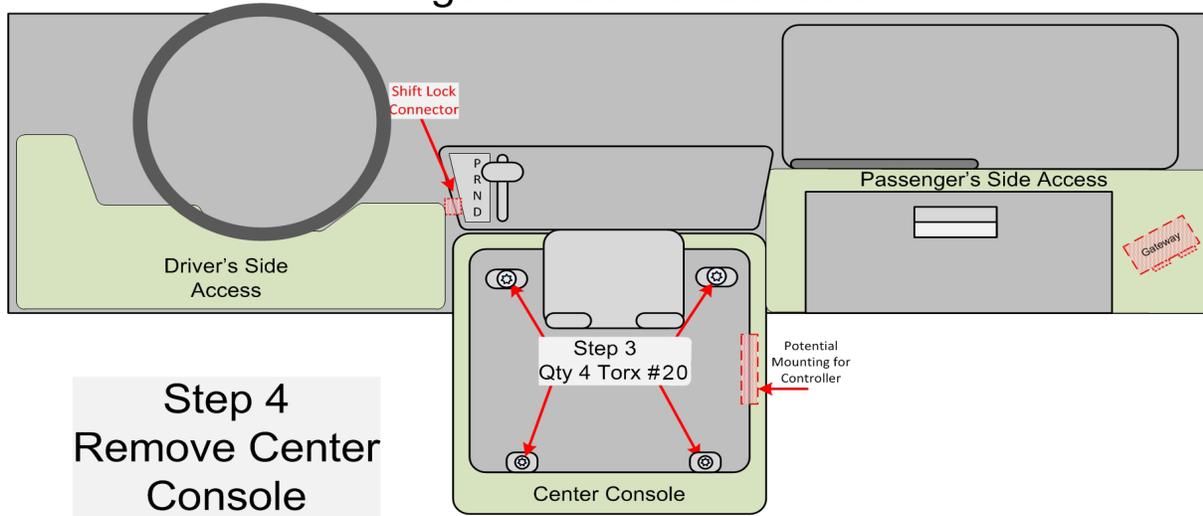
Figure 1 Dodge RAM Promaster Dash



Center Console and Drivers Side Cover Removal

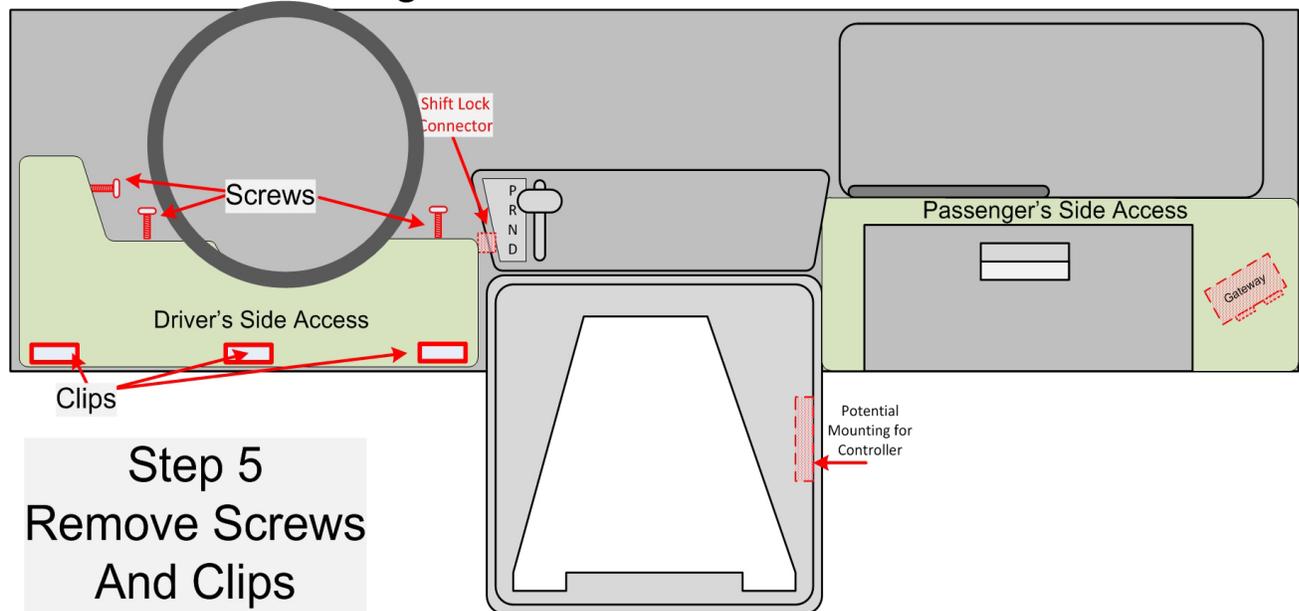
1. Remove Cup Holder insert and screw covers. (See Figure 1) Remove the 4 Torx #20 screws and unclip the fasteners from center console and remove the console (See Figure 2). Carefully disconnect the 2 two electrical connectors on the rear of the center console assembly. Set this aside.

Figure 2 Center Console



2. Remove the Panel (Figure 3) below the Steering wheel (3 Phillips screws) to allow access to the 2 Pin Shift Lock Connector. There are 2 ports on the piece behind this access panel.

Figure 3 Driver's Side Removal



Glove Box Removal

3. Remove the Panel containing the Glove box by removing the 6 Torx #20 screws (4 in Tray (Fig 4A) and 2 in Glove box Fig 4B) and the unfastening the clips Figure 4B.

Figure 4a Glove Box Removal

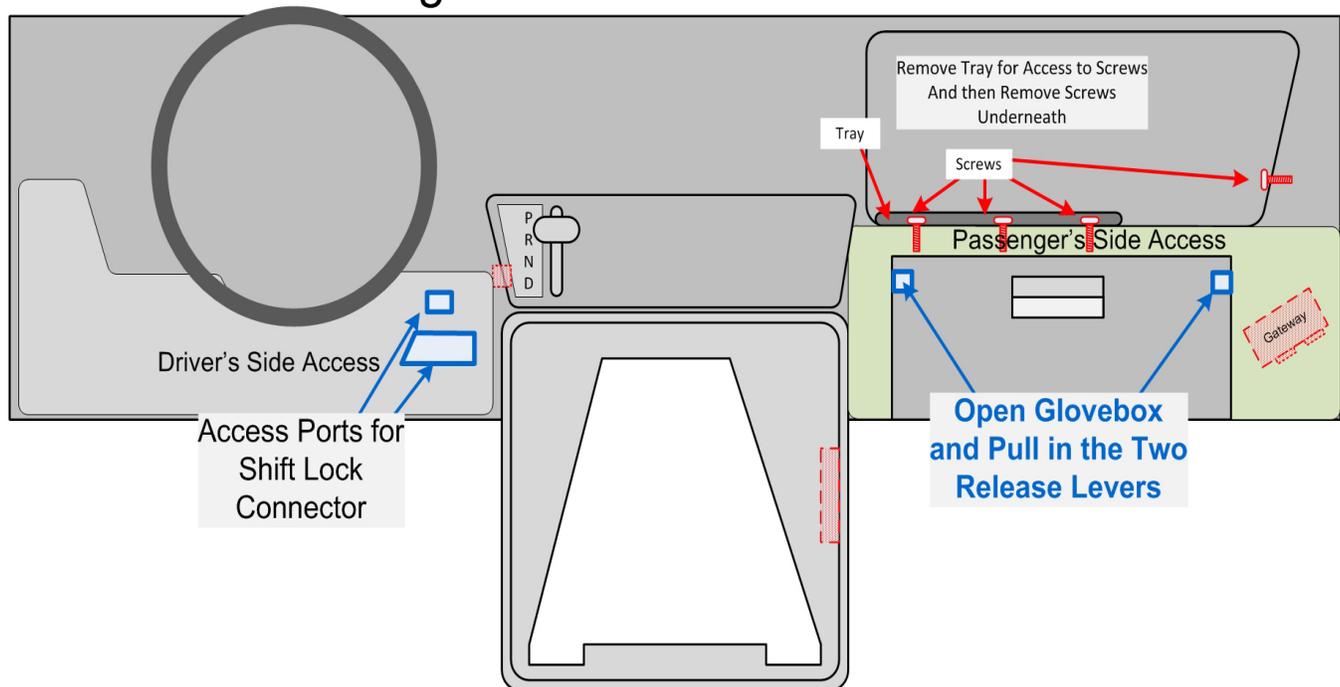
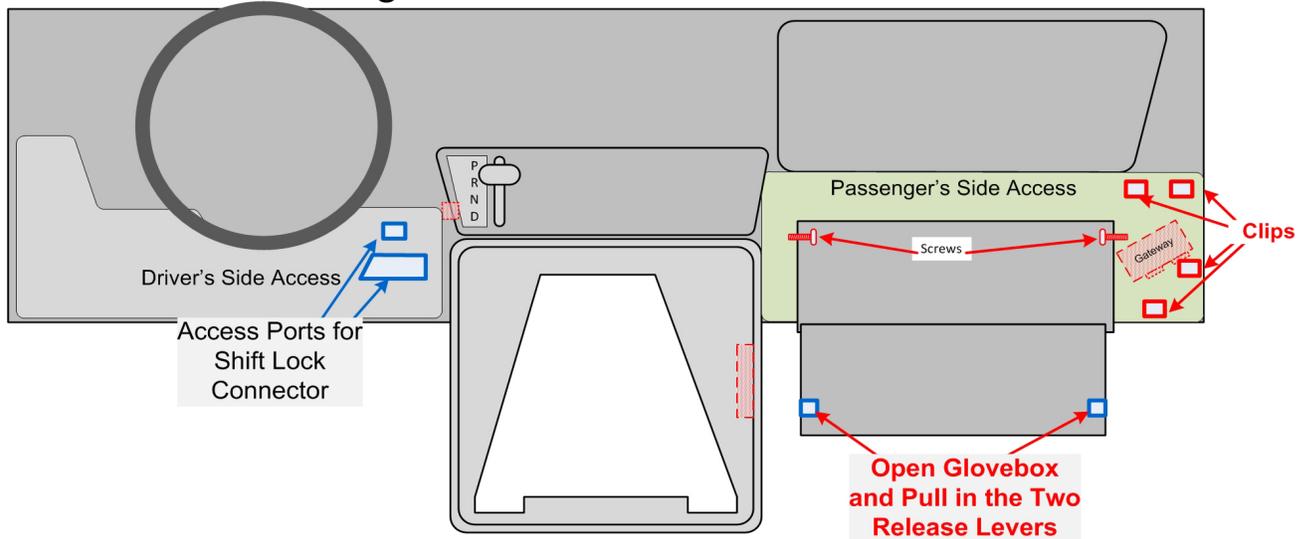
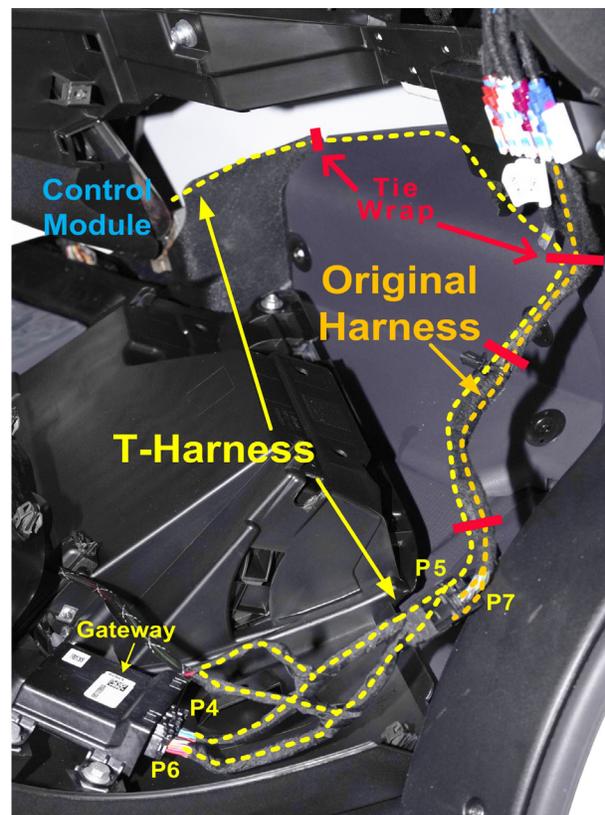
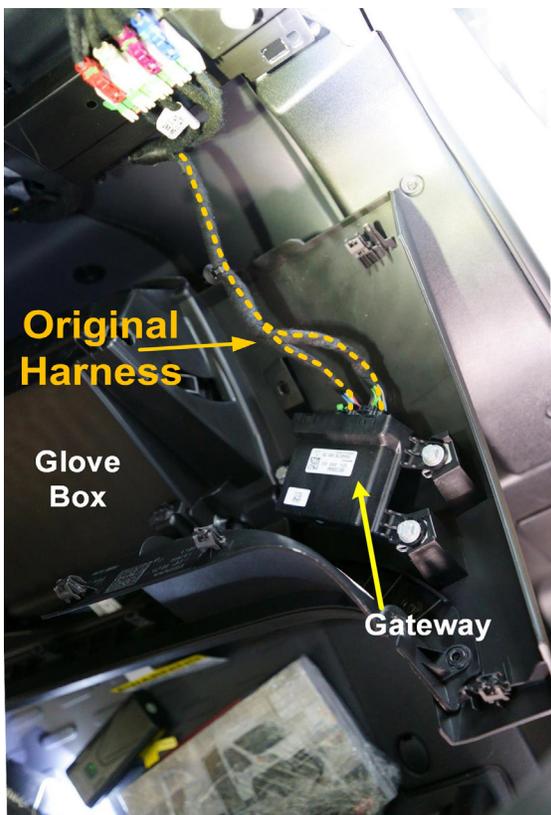


Figure 4b Glove Box Removal

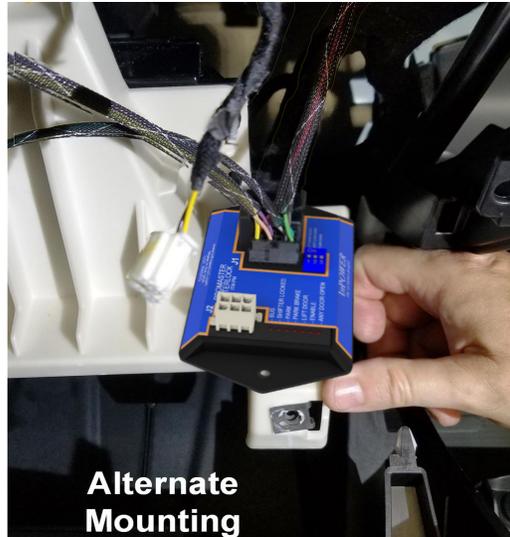


- Identify the Gateway below, unplug the two connectors and install the T Harness (P4/P5 and P6/P7) in their place. Connect the original harness to the appropriate connector.

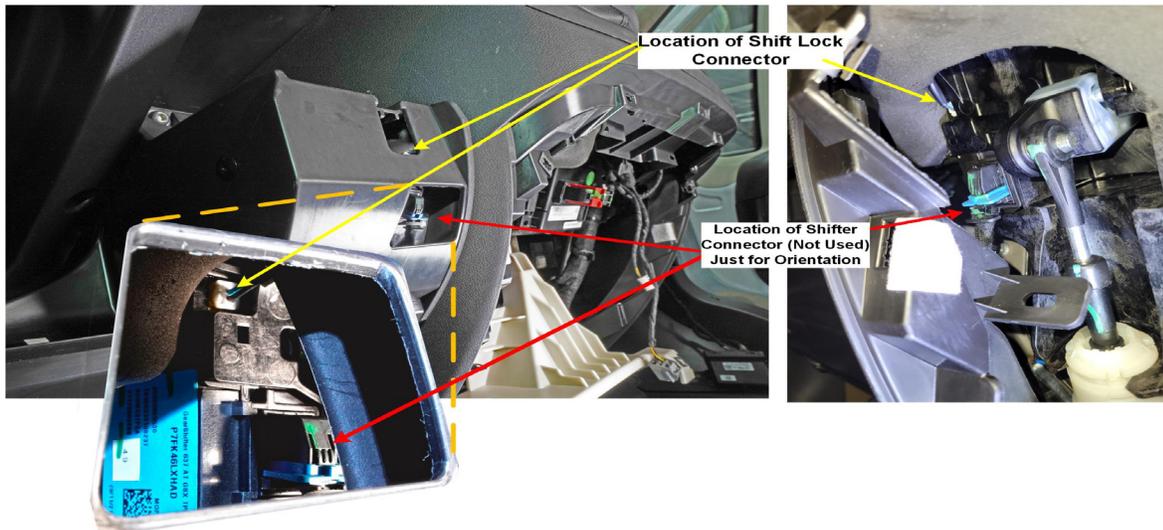


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Attach with either 3M VHB double-sided tape or short plastic screws (to avoid going all the way through the wall). Alternate mount is shown below on the right.



6. Locate the 2 Pin Shift Lock connector (Shown in the following Figures).



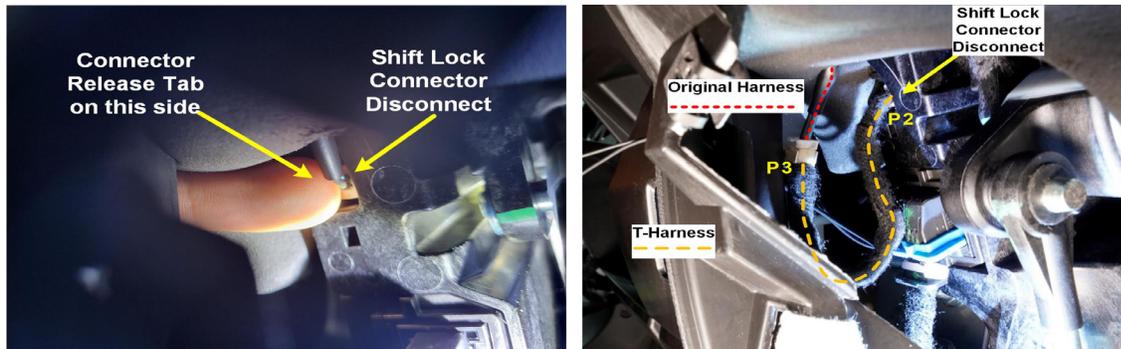
7. Unplug 2-pin shift lock solenoid connector on the left side of the shifter. Always insert and remove connectors by gripping the connectors. Do not pull on the wires.

WARNING!

Do not use metal tools to remove this connector!! EXTREMELY Fragile!

WARNING!

8. Plug the 2-pin connector on the T-harness (P2) into the 2-pin connector on the solenoid and plug the original plug into P3 of the T harness. (Shown below)



5.0 Wiring Instructions (Continued) Doors and Platform

Circuit Group 1 Wiring (Platform Lift Enable)

1. Review the platform lift installation manual and determine how to wire the ITM-PM interlock system to the platform lift's interlock interface.
2. Note that the **Lift Enable** is a +12 volt OUTPUT (**Yellow Wire**) from the interlock system and an INPUT to the lift system. When at +12 volts the platform lift can be operated.
3. Connect the interlock yellow Enable wire found on the interlock harness to the lift enable input.
4. Note: The ITM- interlock will supply a +12 volt @ 1.8 amp output to allow operation of the lift.
5. Verify that this is the correct polarity for the platform lift.
6. Circuit Group 1 Wiring (*Lift Stow Tan-12V TRUE, Lift Stow- Violet GND TRUE*) - **NOT CONNECTED For ITM-PM-UVL Only**

Circuit Group 1 Wiring Cut-Away Chassis (Lift and Remote Door Enable) Aux Door Inputs

1. Review the Door Closed Switch installation manual and determine how to wire the ITM-PM interlock system to the Lift Door Closed Switch.
2. The **Lift Door Closed Wire (Violet)** is a GND True interface that connects the Lift Door Closed Switch to the Aux Lift Door Closed input of the ITM-PM. The Lift Door Closed Switch when Open should be GND.
3. Connect the interlock **Violet** wire found on the interlock harness to the lift door closed input. Verify the operation by examination of the Lift Door Open LED and operating the corresponding door.
4. Review the Remote Door Closed Switch installation instructions and determine how to wire the ITM-PM interlock system to the Remote Door Closed Switch.
5. The **Remote Door Closed Wire (Tan)** is a GND True interface that connects the Remote Door Closed Switch to the Remote Door Closed input of the ITM-PM. The Remote Door Closed Switch when Open should be GND.
6. Connect the interlock **Tan** wire found on the interlock harness to the remote door closed input. Verify the operation by examination of the **Any Door Open LED** and operating the corresponding door.

Optional Display Wiring - Install the Display

Drill the appropriate holes in the dash for the Interlock Display close to the Interlock in a convenient place (the cable is 36" so make certain there is enough extra for routing the harness). Mount the Interlock Display in a convenient place on the dash close to the interlock so there is enough cable. Suggested position is shown below.

Once the holes are cut, attach the wire harness to the DSP-ITM3 to connect the Display to the ITM-PM.



6.0 System Operation and Checkout

Test to ensure that it has been wired correctly and that there are no loose connections.

6.1 Interlock System Operation

The interlock system is active when the lift door is open or when the Ignition Switch is on. It is a good idea to acquaint yourself with the Status LEDs and the Display as you step through this sequence.

System Diagnostic LED Indicators (Located on the control module)

BUS	■ (Red) On when the unit is communicating with the Data Bus (Pwr on, flash every 3 sec)
SHIFTER LOCKED	■ (Red) On when the shifter is locked
PARK	■ (Red) On when vehicle is in Park
PARK BRAKE	■ (Red) On when the park brake is set.
LIFT DOOR OPEN	■ (Red) On when the platform lift door is ajar or open (not fully closed)
ENABLE	■ (Red) On when the interlock allows the platform lift to operate.
ANY DOOR OPEN	■ (Red) On when any door is open.

The following is the interlock system sequence of operation with **Ignition ON**:

1. With the parking brake and place shifter in Park position. Start the vehicle - Verify the corresponding LEDs are illuminated.
 - (Optional Display "PB" and "PK" should be ON)
2. Open lift door. - Verify the corresponding LED is illuminated
 - (Optional Display "Door Ajar" should flash)
 - Lift Enable will activate allowing operation of platform lift - Verify LED Operation.
 - (Optional Display "Lift Enable"  should be ON)
 - The Shifter should be locked in Park. Verify this and that the LED Operation is proper.
 - (Optional Display "SL" should be ON)
3. The platform lift may now be operated (Refer to the platform lift operating instructions).
 - Note: During the Lift Enable sequence, if the parking brake is released, the Lift Enable will be deactivated, preventing lift operation.
4. When the lift cycle is completed, return the lift to its fully stowed position.
5. Close the lift door (**Door Ajar** should stop Flashing on the **Optional Display**).
6. The shift lock will be automatically released.

7. The cycle is now complete and the vehicle can be taken out of Park and driven.
8. If the Optional Display is installed, the Indicators should reflect the vehicle status.

The following is the interlock sequence of operation with the **Ignition OFF**

1. With the Ignition OFF, Parking Brake Set, and Vehicle in Park, open the Lift Door. Verify the LEDs Operation.
 - Lift Enable will activate allowing operation of platform lift - Verify LED Operation.
 - (Optional Display “Lift Enable ”) should be ON)
2. If desired, Start the Lift and run the Lift Cycle. Verify the LEDs on the module, and on the Optional Display.

7. System Troubleshooting

If there is a problem with system operation, there is a very high probability that either the control module lost its ground or +12 volt power source, or that one or more of its inputs are not being activated by the remote switches (e.g., Lift Door Switch). Most troubles are related to wiring problems, or switches either failing or becoming out of adjustment. The 2 most common problems are a shorted door switch and a broken lift stow switch. If the lift door switch is shorted the ITM-PM Interlock will keep the lift enabled and drain the battery within a few days. If the lift stow switch is broken or out of adjustment the shifter will be locked in Park.

Troubleshooting Procedure:

Power:

1. Determine if the control module is powered (Bus LED flashes every 3 Seconds).
2. Ensure that the 10 pin connector is properly connected to the shifter and that both 7.5 amp fuses F16 and F18 in the Power Distribution Center are not blown.

Interconnects:

1. Check that the connectors and fuses are all correct and intact
2. If they are, Start by turning off ignition and closing the lift door.
3. Step through the operating sequence described in Section 6.
4. As you step through Section 6, pay particular attention to the diagnostic LEDs on the module (and on the Optional Display if installed).
5. Verify that LED Display agrees with system condition.
6. If they do not, check the corresponding wiring and the sensors.

DIP SWITCH SETTINGS

The ITM-PM module contains 3 DIP Switches for selection of operation configurations.

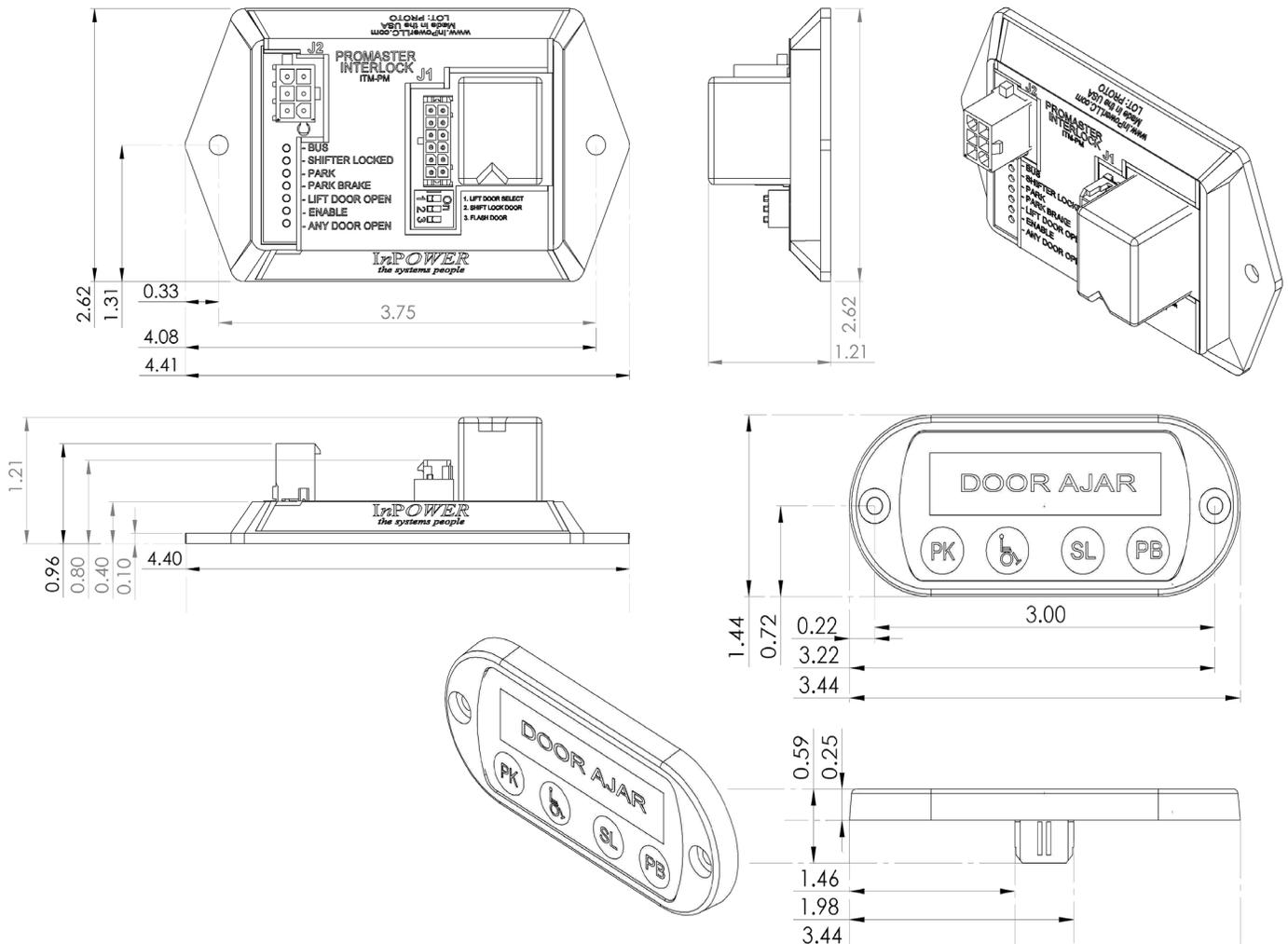


DIP SW 1 LIFT DOOR SELECT: OFF - REAR DOOR SELECTED,
ON - SIDE DOOR SELECTED

DIP SW 2 SHIFTER LOCK DOOR: LOCK SHIFTER IF
OFF - ONLY LIFT DOOR IS OPEN
ON - ANY DOOR IS OPEN

DIP SW 3 FLASH DOOR: FLASH “DOOR AJAR” IF
OFF - ONLY LIFT DOOR IS OPEN
ON - ANY DOOR IS OPEN

8. Mechanical Drawing



9. Reference Information

9.1 Company Contacts

RAM Body Builders
www.RamBodyBuilder.com
(866) 205-4102
rambbg@chrysler.com

RAM Service Manuals
www.techauthority.com

Ricon Corporation
7900 Nelson Road
Panorama City, CA 91402
(818) 267-3038
(800) 322-2884
www.riconcorp.com

The Braun Corporation
631 West 11th Street
Winamac, IN 46966
(574) 946-6153
(800) 946-6158
www.braunlift.com

Maxon Lift Corp.
11921 Slauson Avenue
Sante Fe Springs, CA 90670
(562) 464-0099
(800) 227-4116
www.maxonlift.com

9.2 Required Parts Not Supplied with ITM-PM Interlock System

1. Lift and Remote door switches.
2. Miscellaneous wire, mounting hardware, wire tie wraps, wire loom.

Contact Information:

InPowerLLC
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Lewis Center, Ohio 43035
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www.InPowerLLC.com