AWARE VEHICLE INTELLIGENCE™ INSTALLATION MANUAL

FOR INTERNATIONAL® TRUCKS

CF500 and CF600

MODULES ARE NOT ACTIVATED WHEN SHIPPED. PLEASE SEE THE ACTIVATION GUIDE.

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APPENDIX

1. AWARE™ Vehicle Models

This installation procedure is for the International® Low Cab Forward Series. Applicable models include International® CF500 and CF600. Other vehicles may not be similar.

1.1. Before Installing

Please read this entire document prior to installing the AWARE module. Pay attention to all Cautions and Warnings.

CAUTION: Unauthorized antennas, modifications, or attachments could impair call quality, damage the module, or result in violation of FCC regulations. Do not use the module with a damaged antenna. Please contact your local authorized International® dealer for antenna replacement.

WARNING: To avoid property damage, personal injury, or death, park the vehicle on a flat level surface, set the parking brake, turn the engine off, and chock the wheels.

1.2. FCC RF Exposure Information

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of this cellular module complies with the FCC guidelines and these international standards.

WARNING: While the system is in operation, a separation distance of at least 20 centimeters (approximately 8 inches) must be maintained between the cellular antenna and the body of all persons in order to meet the FCC RF exposure guidelines.

2. How the system works

The AWAREmodule is a data collection and communication system mounted on a vehicle. It consists of a GPS and cellular antenna and a data communicator module. The data communicator module collects the vehicle's location and system information and sends it to the network control center through wireless technology.

3. Kit Installation Components

3.1. CF Kit Components

Kit Part Number: 2591521C91

- 3620482C91 AWARE module
- 3628309C92 AWARE main harness
- 2588150C91 Combined GPS & Cellular Antenna
- 3804805C1 Bracket, LCF
- 31048R1 Bolt, M6x30mm, hex flange head
- 31127R1 Bolt, M6x12mm, hex flange head
- 3544343C1 Nut, speed, M6x1, U-nut, short, locking
- 31081R1 Nut, M6, hex flange, PHC finish
- 575362C1 Cable Tie Tree, low force
- Activation Guide
- 0411-310-1605 Deutsch Terminal Remover

3.2. Driver Alert Kit Components (Optional)

Kit Part Number: 2589356C91

- 3593875C2 Driver Alert Switch
- 3594960C91 Driver Alert Switch Harness

3.3. Fuel Tax Indicator Light Components (Optional)

Kit Part Number: 2592410C91

- 3803693C1 Light, Data Not Logged
- 3607384C1 Relay, Fuel Tax

3.4. Components Provided by Installer

- Assorted tie-wraps
- Splice kit crimp tool
- Green Lee Punch for standard rectangular Eaton/Cutler Hammer Switch (part number ZTSE4426 from SPX).
- Diamond Logic® Builder Service tool for programming / provisioning module
- EZ-Tech® COM cable (IC3 or IC4)

4. AWARE Module Installation

Figure 1 - Module antenna plugs

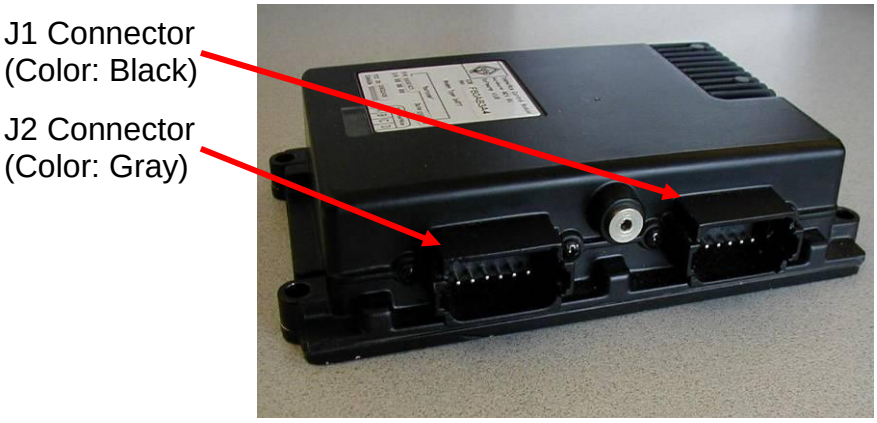


Figure 2 - Module connector locations

4.1. Remove Seats

1. Remove the passenger side seat by unfastening 2 bolts and pushing the seat back to release the sliding clip. One bolt is located at the front of the seat and the other bolt is located between the passenger seat and middle seat.

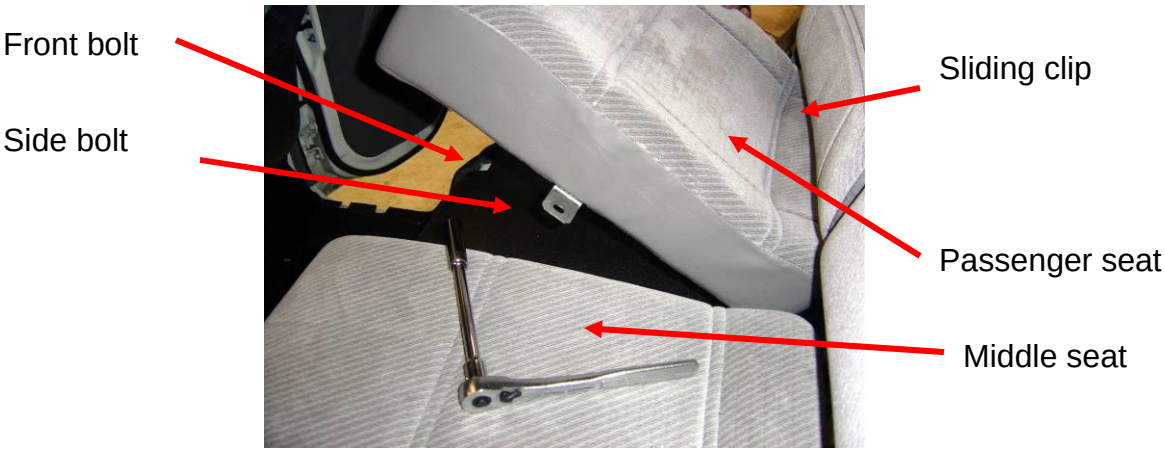


Figure 3 – Passenger seat removed

2. Remove the middle seat by unfastening 2 bolts and releasing the snap on the seat. One bolt is located at the front of the seat and the other bolt is located at the back of the seat, near the driver's seat. The snap is located under the seat.

Figure 4 – Middle seat removed

4.2. Mount Module to Bracket

1. Locate the module and mounting bracke.
2. Align the module to the top right corner of the bracket.
3. Secure the module to the bracket with 3 bolts and nuts. Insert the bolts through the back of the bracket and tighten the nut down from the front (module side). Two bolts & nuts are attached to the bottom of the module and 1 to the top left hole of the module.

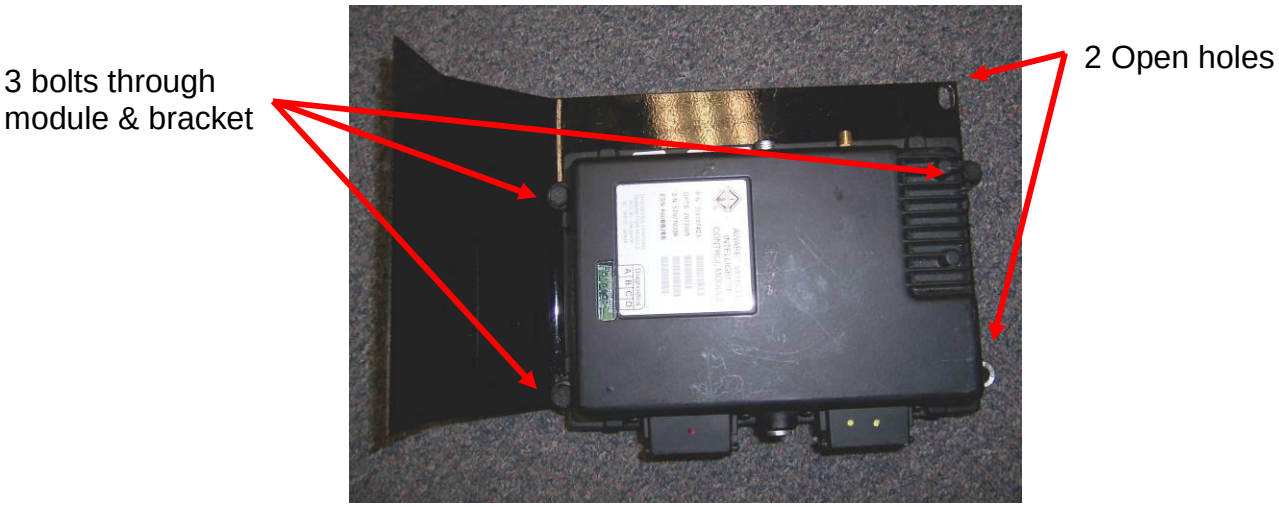


Figure 5 – Module mounted to Bracket

4.3. Mount Bracket & Module to Cab

1. Fold down the back rest of the middle seat.
2. Remove the cable tie tree holding up the liner in the back of cab.
3. Pull down liner to reveal mounting holes in cab.
4. Insert U-nut over the cab holes with the flat portion of the U-nut exposed.

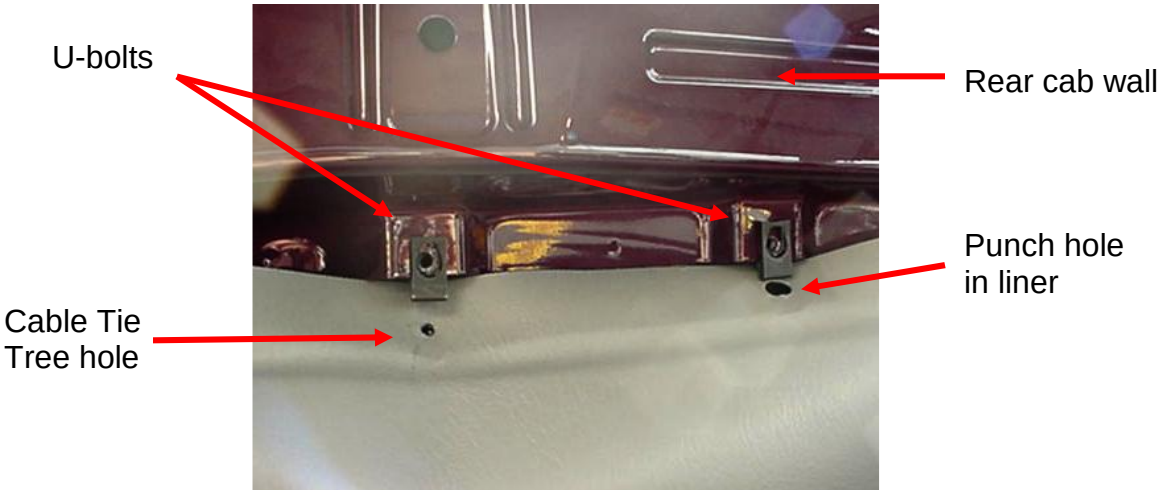


Figure 6 – U-nuts for Bracket on Back of Cab

5. Align the bracket's top holes (with module attached) with the Back of Cab U-nuts.
6. Secure bracket (with module attached) with bolts into the U-nuts. NOTE: The top right corner bolt will go through the bracket and module.

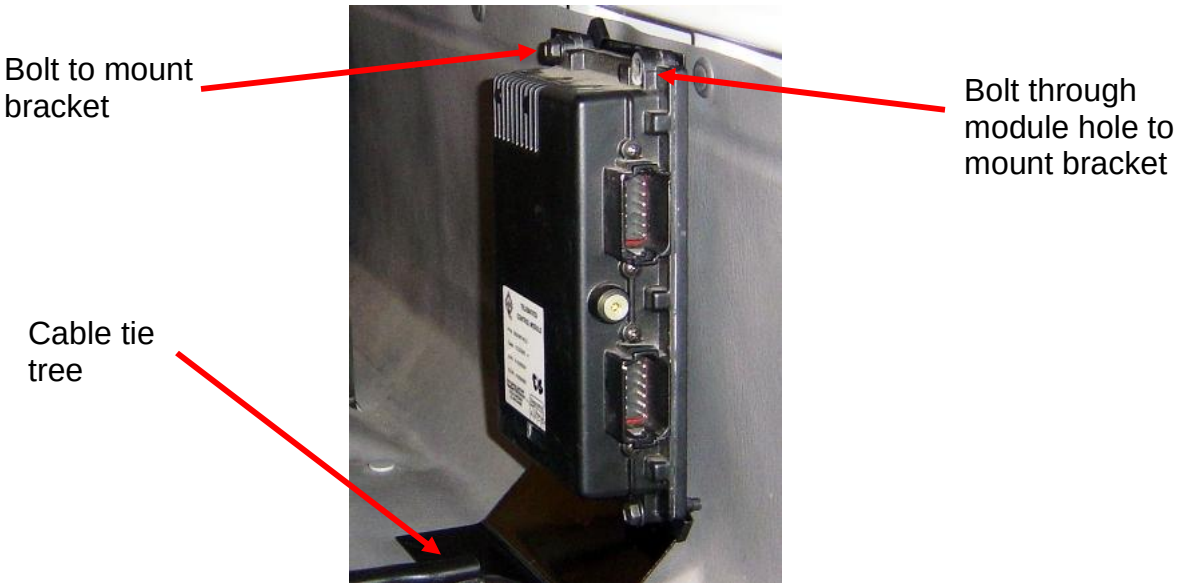


Figure 7 – Module & Bracket mounted to Back of Cab

5. AWARE Main Harness Installation

Reference the Cab Master Service Manual for more information. The manual can be found on ISIS® at "http://service.navistar.com".

5.1. Remove Trim

1. Remove the black trim around the instrument cluster by pulling forward.
2. Remove the steering column panel by unfastening 3 screws on the bottom of the column.
3. Remove the instrument cluster by unfastening 4 screws.

Figure 8 –Instrument Cluster

4. Remove the passenger side door skid plate.

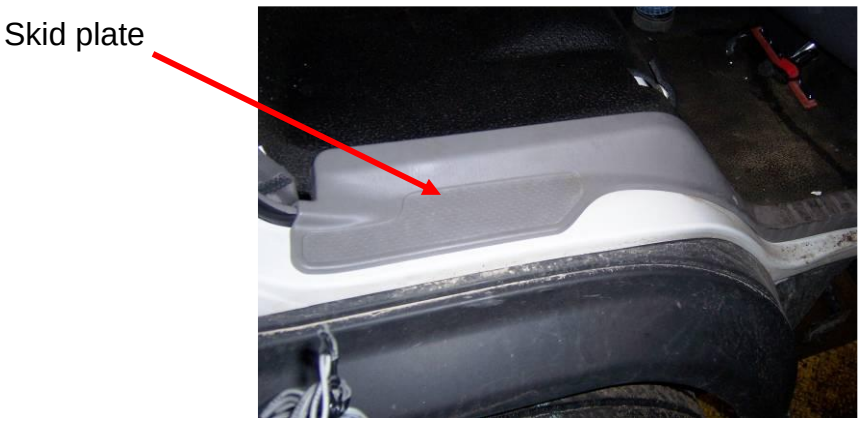


Figure 9 –Skid Plate

5. Remove the Lower Passenger Dash Panel for harness routing. There are two cable tree ties on each side and a bolt on the lower right side.

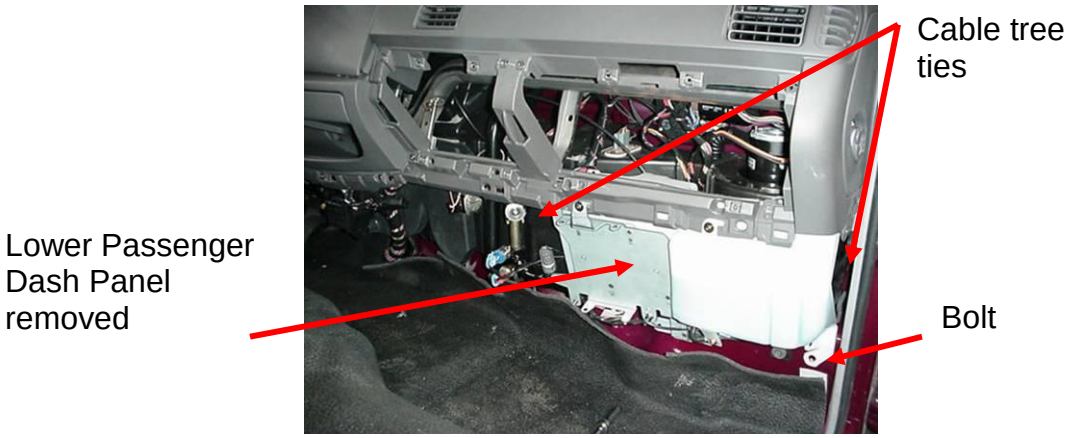


Figure 10 –Lower Passenger Dash Panel

6. Fold back the rubber floor mat starting from the passenger's side door. The floor mat is one piece and covers the entire floor.

Figure 11 –Rubber Floor Mat

5.2. Route Harness

1. For harness routing ease, start routing the module connectors FROM the instrument cluster area to the module located at the back of cab.
2. Insert the two module connectors into the dash opening left when the instrument cluster was removed.

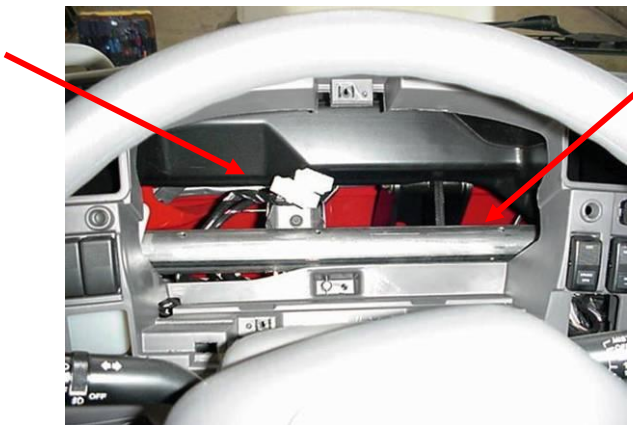


Figure 12 –Start Routing AWARE Harness HERE

3. Route harness behind the dash down to the cab floor.

Figure 13 –Routing AWARE Harness to floor

4. Route harness from front dash, under floor mat along the cab floor to the module.

Figure 14 –AWARE Harness along floor under rubber mat

5.3. Connect Harness to Module

1. Connect module connectors to the module. The module connectors are keyed for proper connection.

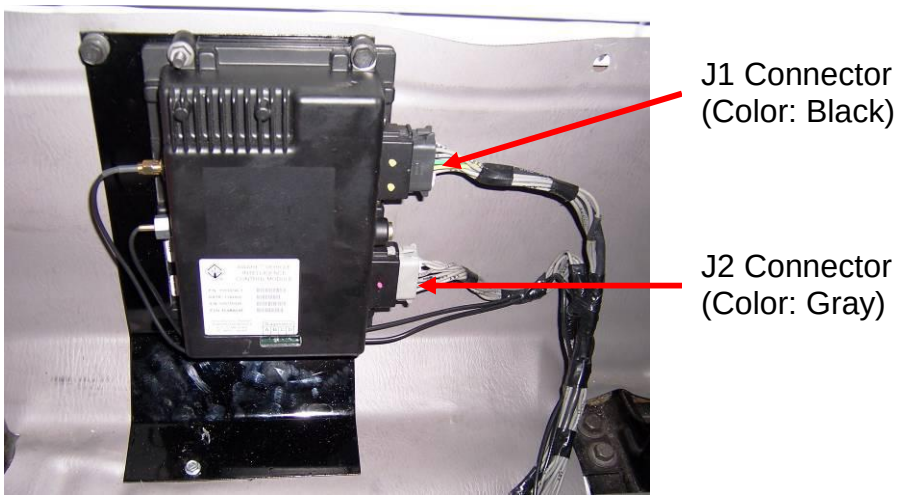


Figure 15 –Harness connection to module

5.4. *Connect Harness to Vehicle & Cluster*

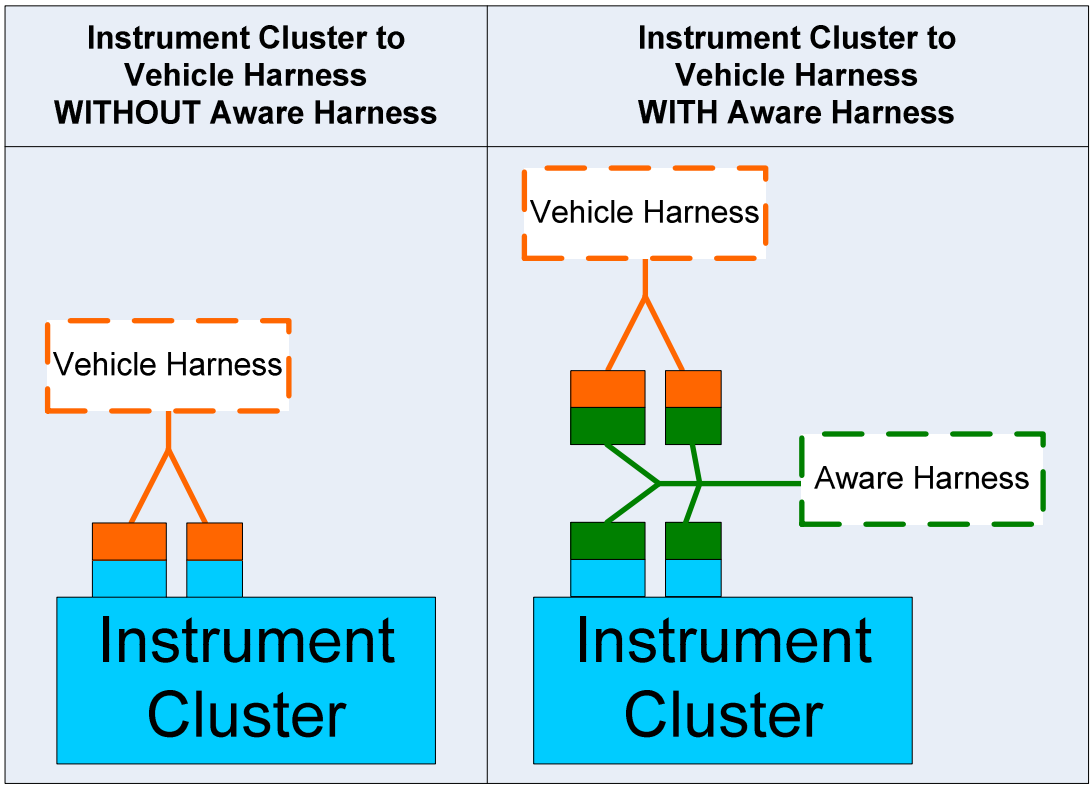


Figure 16 –Overview of AWARE harness to vehicle harness & instrument cluster

2. Located the Instrument cluster connectors.
3. Attach the mating end of the AWARE harness to the vehicle's instrument cluster connectors.
4. Attach the mating end of the AWARE harness to the instrument cluster.

Figure 17 –Harness connection to vehicle harness & instrument cluster

5.5. Battery, Ignition & Ground

The Battery, Ignition and Ground connections are all made to the instrument cluster. NO ADDITIONAL SPLICING IS REQUIRED.

Description	Connector	Connector Pin Total	Cavity	Circuit #	Cluster Circuit Color	Aware Circuit #	Aware Circuit Color
Battery	Cluster	12-way	2	3049	Black\Light Green	BATT	Red
Ignition	Cluster	12-way	1	489	Pink\Black	IGN	Pink
Ground	Cluster	18-way	1	57	Black	GND	White

5.6. J1708/J1587 Connection

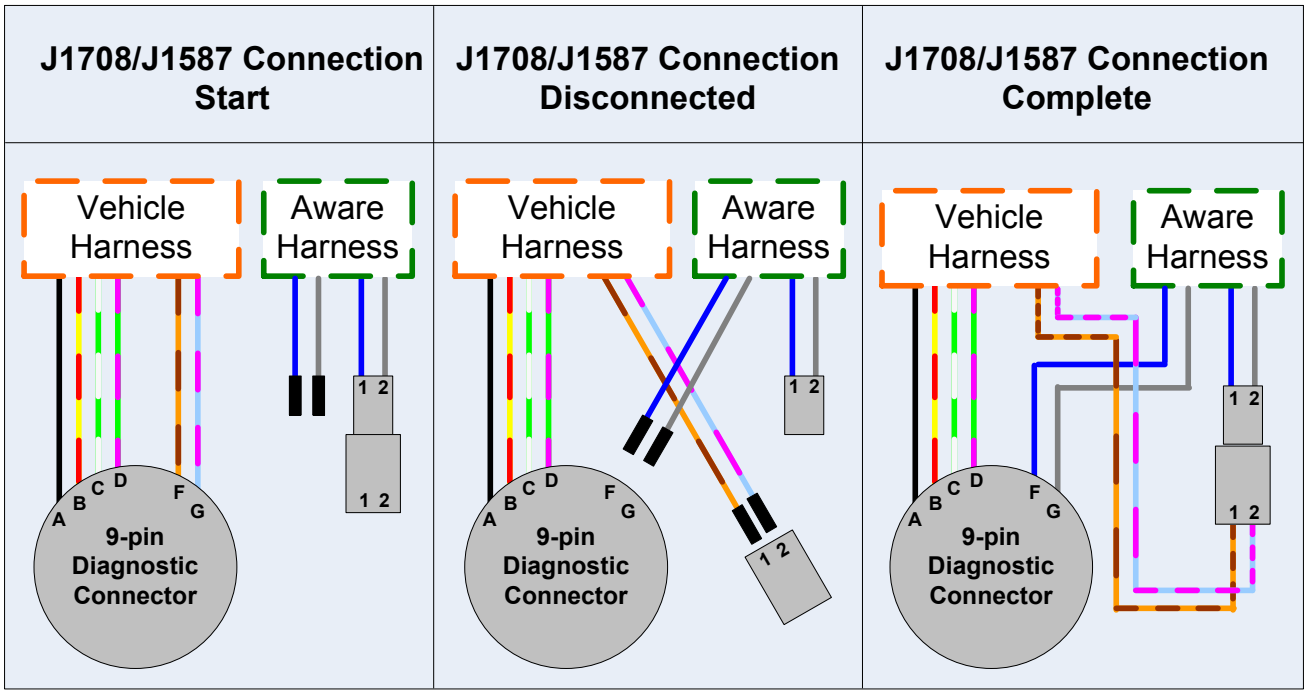


Figure 18 –Overview of Aware J1708/J1587 connection to the 9-pin diagnostic connector

1. Locate the J1708/J1587 twisted pair of wires (blue & gray) with the 2 pin gray connectors from the AWARE main harness and route them to the 9-pin diagnostic connector.

2. Remove the 4 screws holding the 9-pin diagnostic connector to gain access to the wiring.

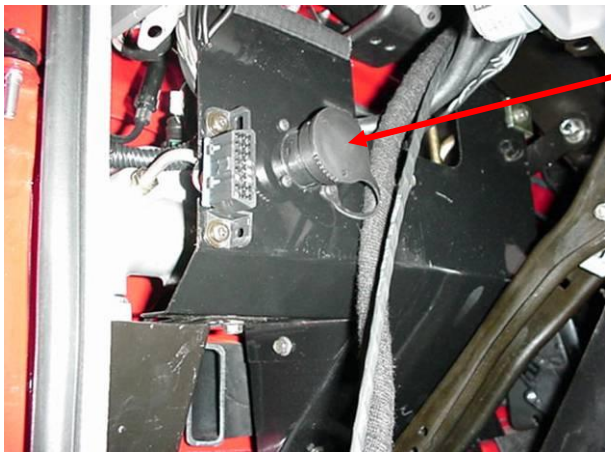


Figure 19 – 9-pin Diagnostic Connector

3. Located the J1708 wires from cavity F and G from the diagnostic connector.

Cavity	Description	Color: Vehicle Harness	Color: Aware Harness
A	Ground	Black	-
B	Battery	Red/Yellow	-
C	J1939+	White/Light Green	-
D	J1939-	Pink/Light Green	-
E	-	-	-
F	J1708+	Tan/Orange	Blue
G	J1708-	Pink/Light Blue	Gray
H	-	-	-
J	-	-	-

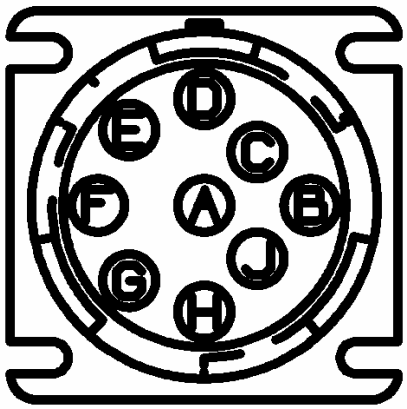


Figure 20 – Diagnostic Connector Pinout

4. Remove the J1708 wires using the Deutsch Terminal Remover (included in kit).
5. Insert the terminal remover around the wire into the back of the connector. Press terminal remover in as far as possible.
6. Pull back on wire.

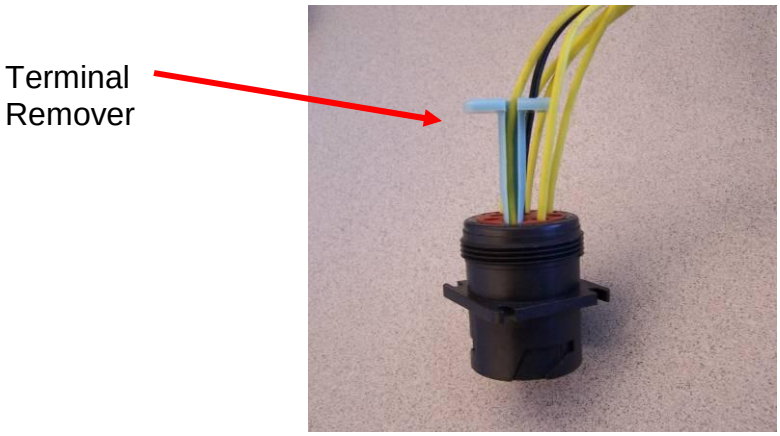


Figure 21 – Diagnostic Connector with terminal remover inserted

7. Locate the J1708/J1587 portion of the Aware harness. It contains two harness break-outs, one with a twisted pair of wires with terminals on the end and the other with a connector and an unpopulated mating Connector.

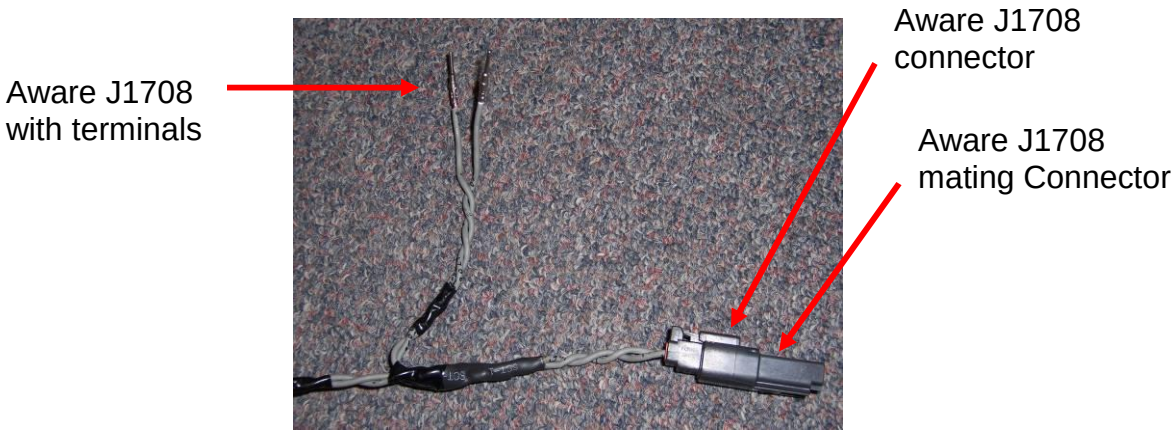


Figure 22 – AWARE Harness J1708/J1587 Connection

8. Disconnect the mating connector from the J1708 connector pair.
9. From the 9-pin Diagnostic Connector, insert the J1708+ Tan & Orange wire into the J1708 mating Connector, Cavity 1.
10. From the 9-pin Diagnostic Connector, insert the J1708- Pink & Light Blue wire into the J1708 mating Connector, Cavity 2.
11. Insert terminal lock into the mating Connector.

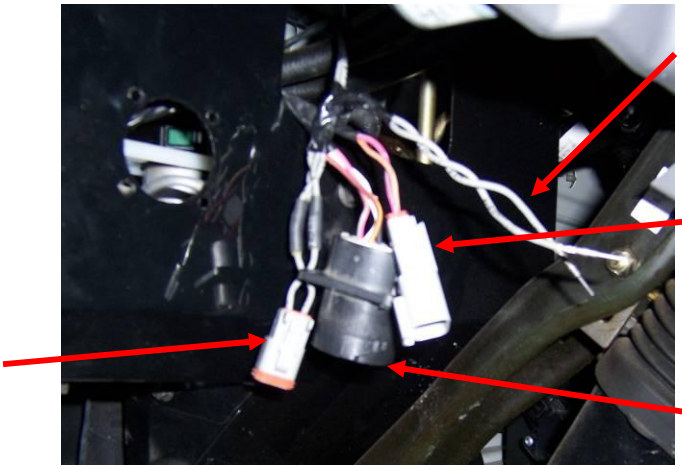


Figure 23 – J1708 Connection, In Progress

12. Insert the J1708+ (positive) Blue wire into the 9-pin Diagnostic Connector, Cavity F.
13. Insert the J1708– (negative) Gray wire into the 9-pin Diagnostic Connector, Cavity G.

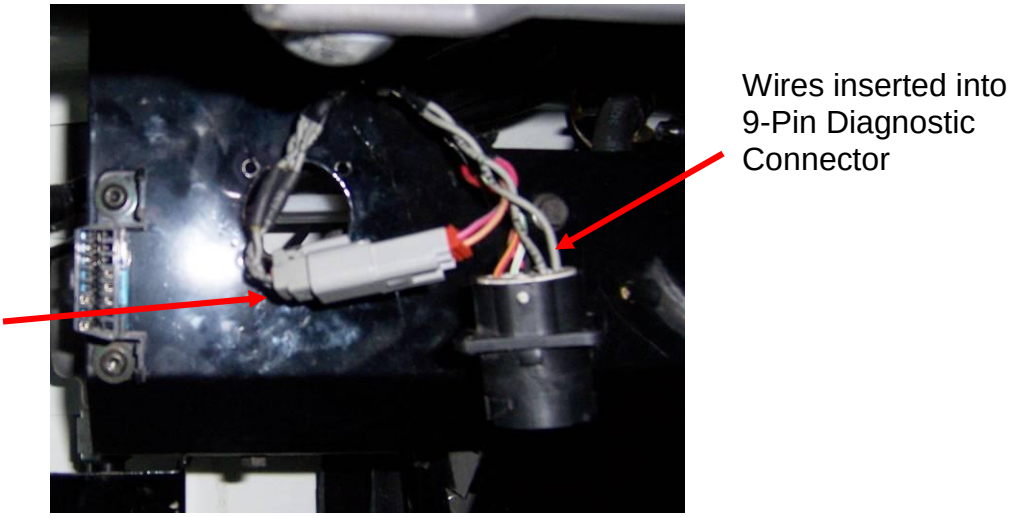


Figure 24 – J1708 Connection, Completed

14. Reattached the 4 screws to secure the 9-pin Diagnostic Connector.

5.7. J1939 Connection

The J1939 connections are all made to the instrument cluster.
NO ADDITIONAL SPLICING IS REQUIRED.

Description	Connector	Connector Pin Total	Cavity	Circuit #	Cluster Circuit Color	AWARE Circuit #	AWARE Circuit Color
J1939+	Cluster	18-way	17	1851	White/Light Green	J1939+	Yellow
J1939-	Cluster	18-way	16	1852	Pink/Light Green	J1939-	Green

5.8. Accessory Equipment Monitoring Connection

5.8.1. Fuel Sender

The Fuel Level connection is made to the instrument cluster.
NO ADDITIONAL SPLICING IS REQUIRED.

Description	Connector	Connector Pin Total	Cavity	Circuit #	Cluster Circuit Color	AWARE Circuit #	AWARE Circuit Color
Fuel Level	Cluster	12-way	10	29	Yellow\White	AD1	Gray

Remember to configure with Diamond Logic® Builder as defined in Section 10 Configuration.

5.8.2. Park Brake

The Park Brake connection is made to the instrument cluster.
NO ADDITIONAL SPLICING IS REQUIRED.

Description	Connector	Connector Pin Total	Cavity	Circuit #	Cluster Circuit Color	AWARE Circuit #	AWARE Circuit Color
Park Brake	Cluster	12-way	12	162	Light Green\Red	AD2	Gray

Remember to configure with Diamond Logic® Builder as defined in Section 10 Configuration.

5.8.3. Service Brake

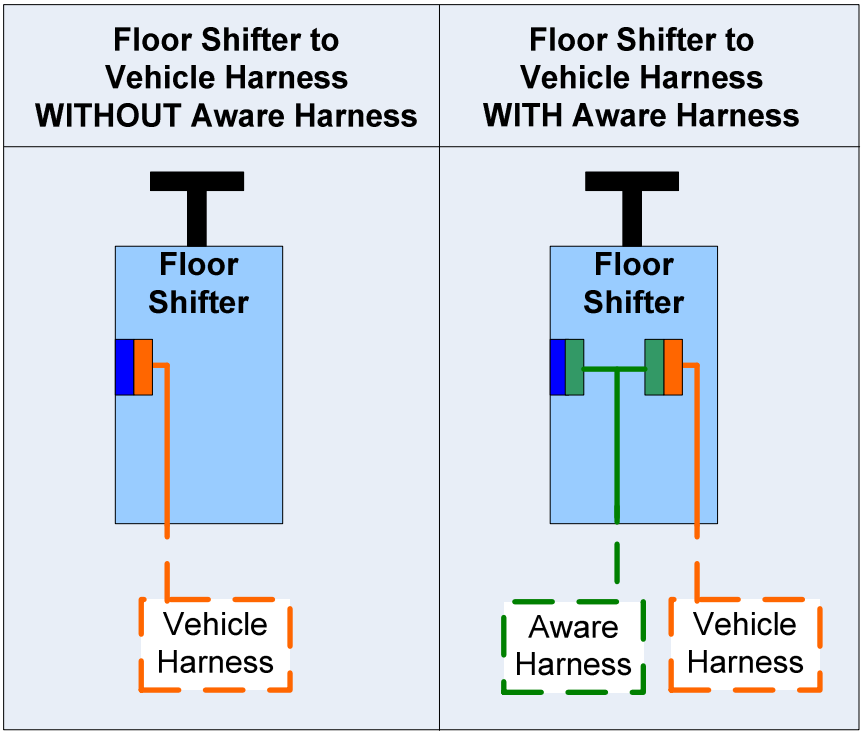


Figure 25 –Overview of Aware Service Brake connection to the Floor Shifter on vehicle

1. Remove the Floor Shifter Column panel by removing 3 screws from the top and one from the bottom.

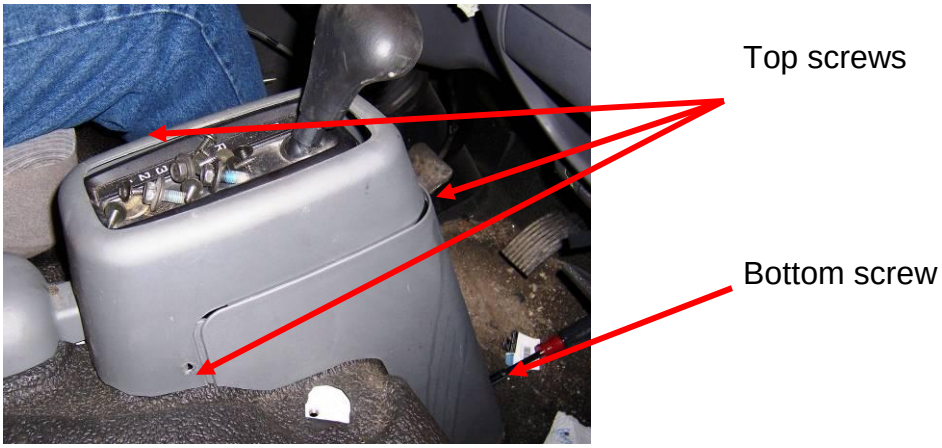


Figure 26 – Floor Shifter Column

2. Disconnect the 6-way floor shifter connector.
3. Connected the AWARE harness to both ends of the floor shifter.

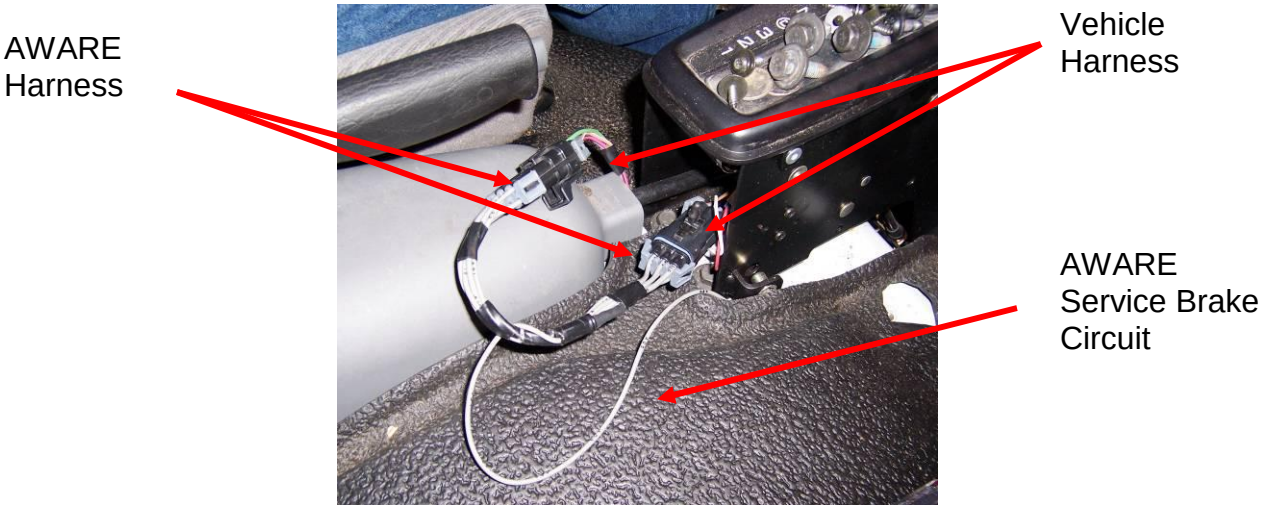


Figure 27 – Service Brake Connection Completed

Description	Connector	Connector Pin Total	Cavity	Circuit #	Cluster Circuit Color	AWARE Circuit #	AWARE Circuit Color
Service Brake	Shifter	6-way	A	511	Light Green	AD3	Gray

Remember to configure with Diamond Logic® Builder as defined in Section 10 Configuration.

6. Antenna Installation

1. Remove the right side glove box (large) by opening it and unfastening 6 screws.

Figure 28 –Glove Box

2. Remove the cover from the adhesive on the bottom of the antenna.
3. Secure the antenna on top of the small glove box.

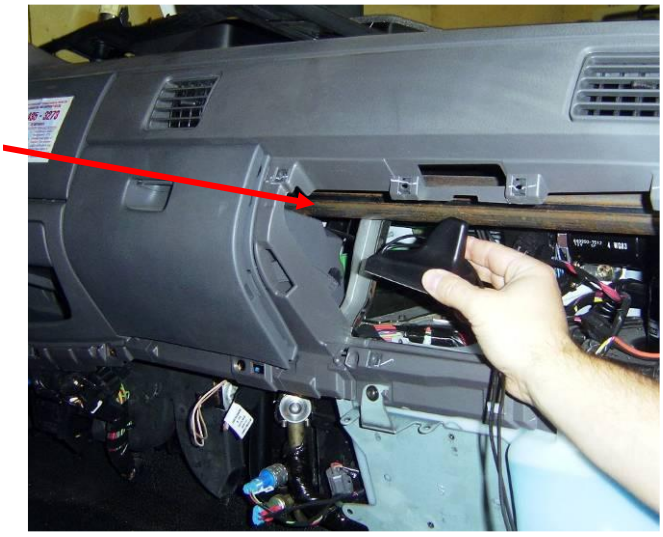


Figure 29 - Antenna Location

CAUTION – The routing of the AWARE antenna cable is extremely important. There must not be any kinks in the cable, and it must not be routed in such a manner as to make it susceptible to cuts in the outer insulator. Cuts and/or kinks in the cable will adversely affect AWARE signal reception and may permanently damage the AWARE module.

4. Route antenna cables behind glove box, inside dash to the cab floor.

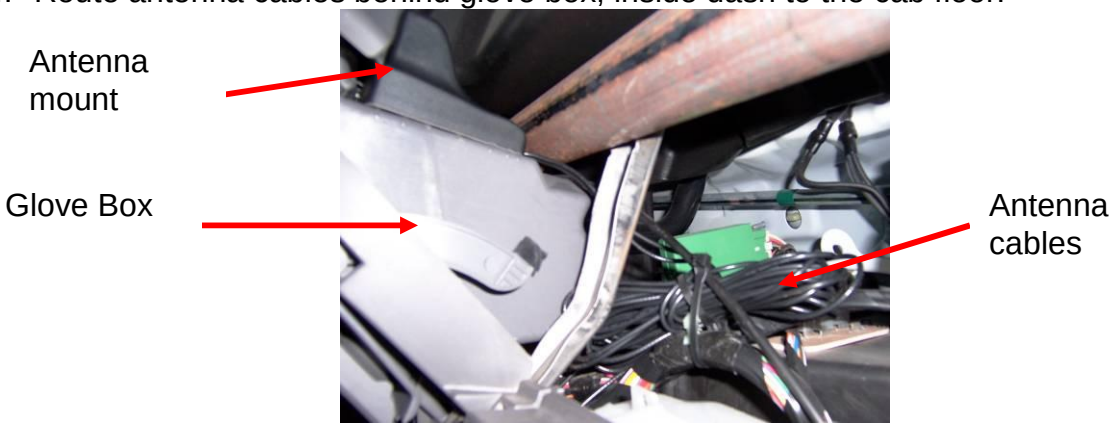


Figure 30 - Antenna Secured with cable routing

5. Route antenna cables with AWARE harness under floor mat to the back of cab.

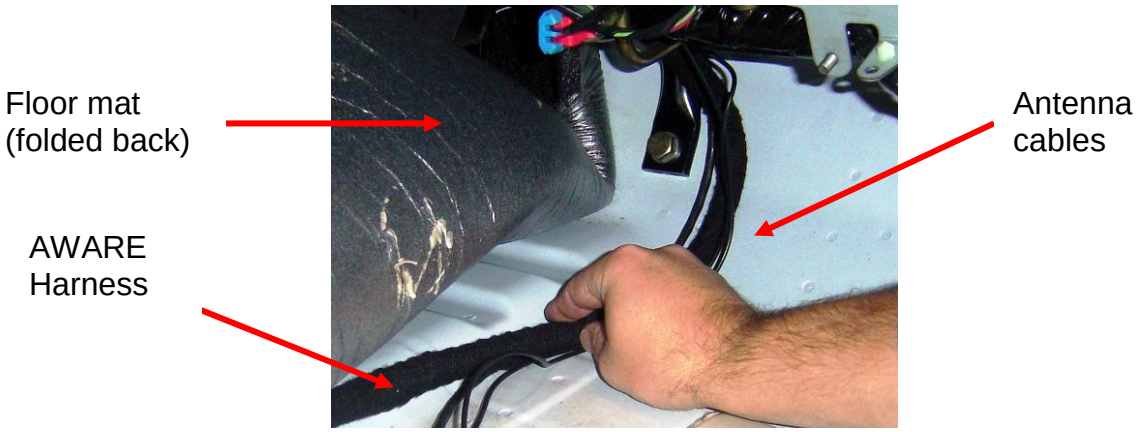


Figure 31 - Antenna cables routing on cab floor

6. Route the antenna cables in the cab to the AWARE module.
7. Connect the antenna cables finger tight only.

Figure 32 - Antenna cables connected to module

7. Driver Alert Switch Installation *(Optional)*

1. The recommended location for the Driver Alert Switch is the lower left base panel of the instrument panel above to the diagnostic connector. *(If the recommended location is not available, select a location that is accessible to the driver but away from normal vehicle operation equipment.)*
2. The recommended method to create a rectangular switch slot is to use a Green Lee Punch (P/N ZTSE4426 from SPX).

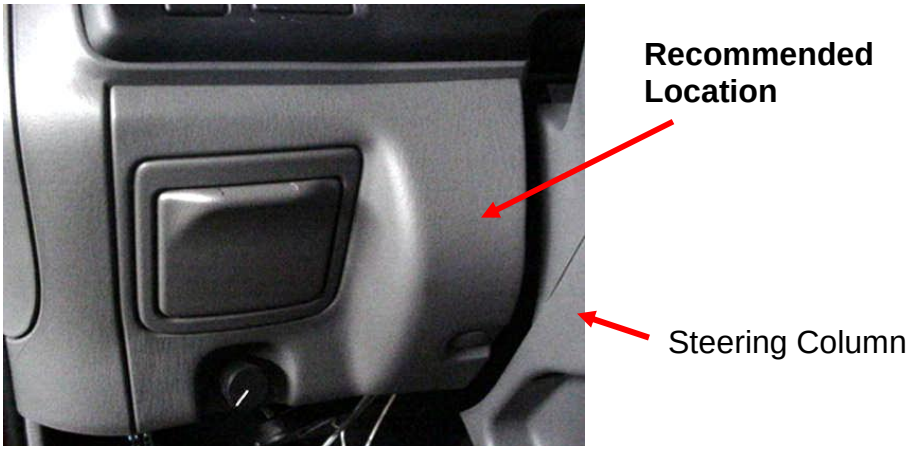


Figure 33 - Switch location

3. Insert the Driver Alert Switch from the front side of the panel until it snaps securely in place.
4. Connect the small black 8-pin connector on Driver Alert Switch harness to the AWARE main harness.
5. Splice the panel dimmer feed (blue wire) from the Driver Alert Switch harness to the illumination circuit in the instrument in the vehicle panel dimmer circuit splice pack.

Description	Connector	Connector Pin Total	Cavity	Circuit #	Cluster Circuit Color	AWARE Circuit #	AWARE Circuit Color
Dimmer Feed	Cluster	12-way	7	19	Light Blue\Red	PANELLGT	Blue

6. Connect the switch connector to the Driver Alert Switch mounted in the panel.

Figure 34 - Driver Alert Switch Installed

Remember to configure with Diamond Logic® Builder as defined in Section 10 Configuration.

8. Fuel Tax Reporting Indicator Light *(Optional)*

1. The recommended location for the fuel tax “No Data Logged” indicator light is the lower left section of the dash. *(If the recommended location is not available, select a location that is accessible to the driver but away from normal vehicle operation equipment.)*

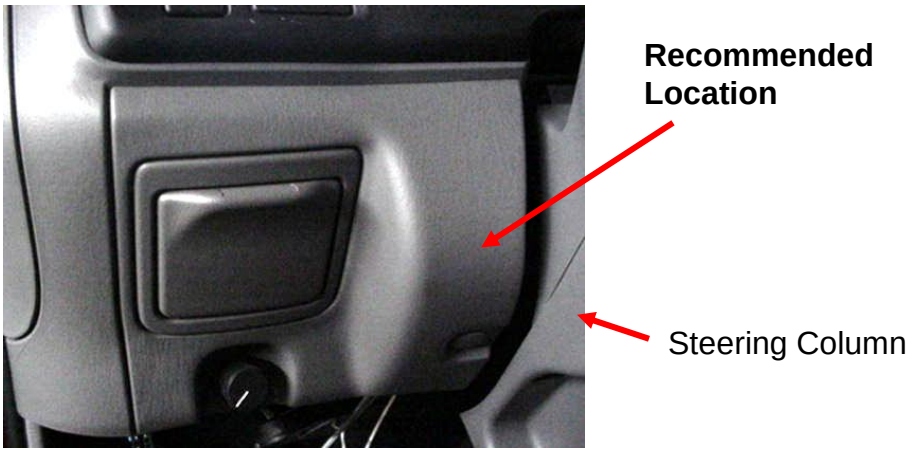


Figure 35 – Fuel Tax light location

2. The recommended method to create a rectangular switch slot is to use a Green Lee Punch (P/N ZTSE4426 from SPX).
3. Insert the “No Data Logged” light into the Plastic Plate until it snaps securely in place.

Figure 36 – No Data Logged light

4. Attach the “No Data Logged” connector from the AWARE harness to the “No Data Logged” indicator light.

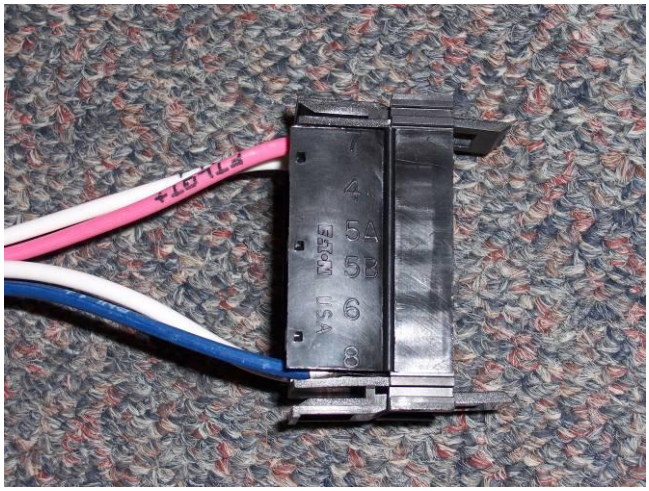


Figure 37 – No Data Logged connector

5. Locate the relay connector on the main AWARE harness.
6. Locate the relay from the Fuel Tax kit.
7. Attach the relay to the connector.

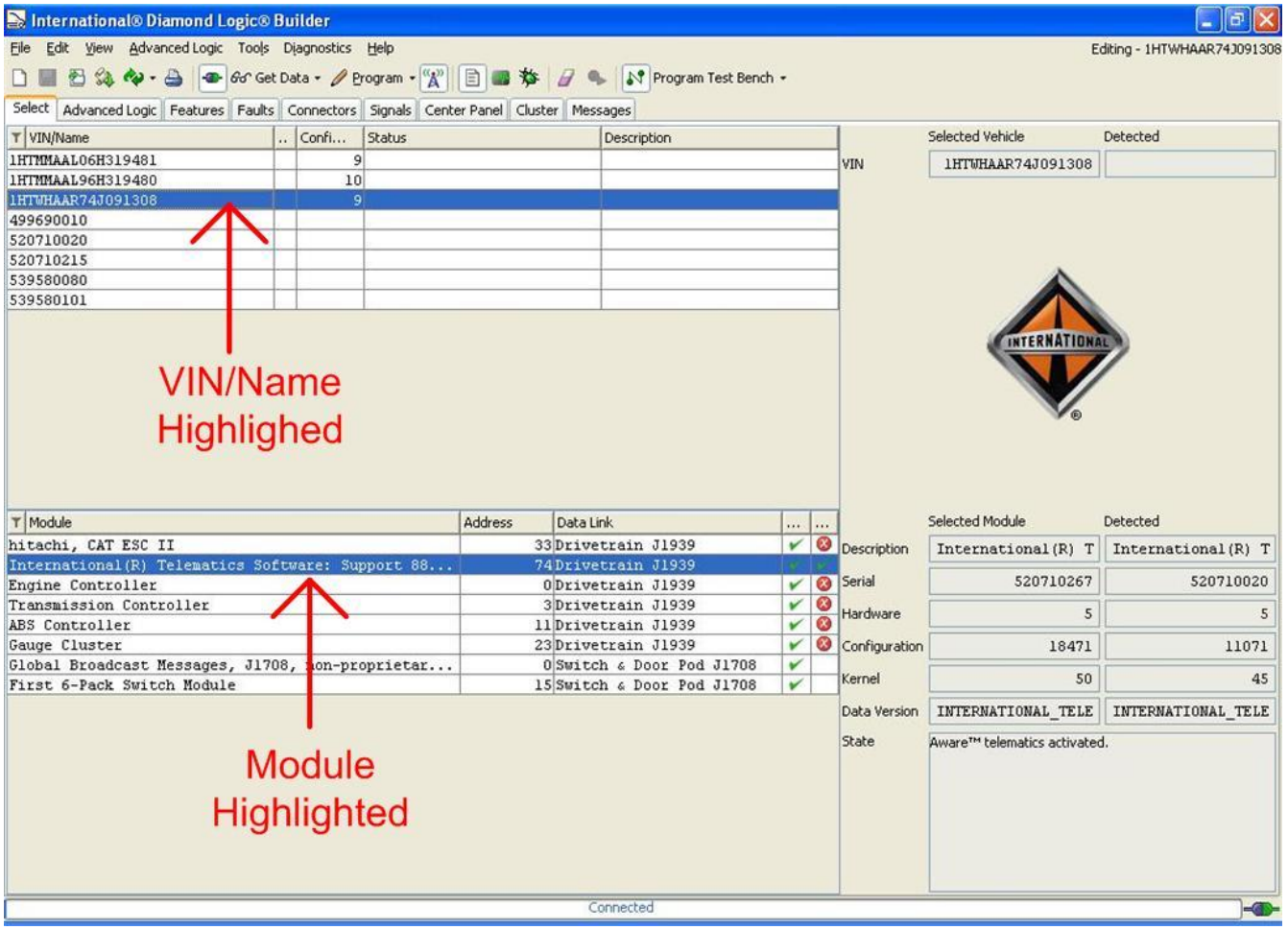
Figure 38 – Relay inserted into harness connector

8. Secure the harness with cable ties.

9. Software Upgrade

Verify the module contains the latest version of software by using Diamond Logic® Builder. Launch Diamond Logic® Builder while connected to the Internet to ensure the latest version of Diamond Logic® Builder software is downloaded onto the computer:

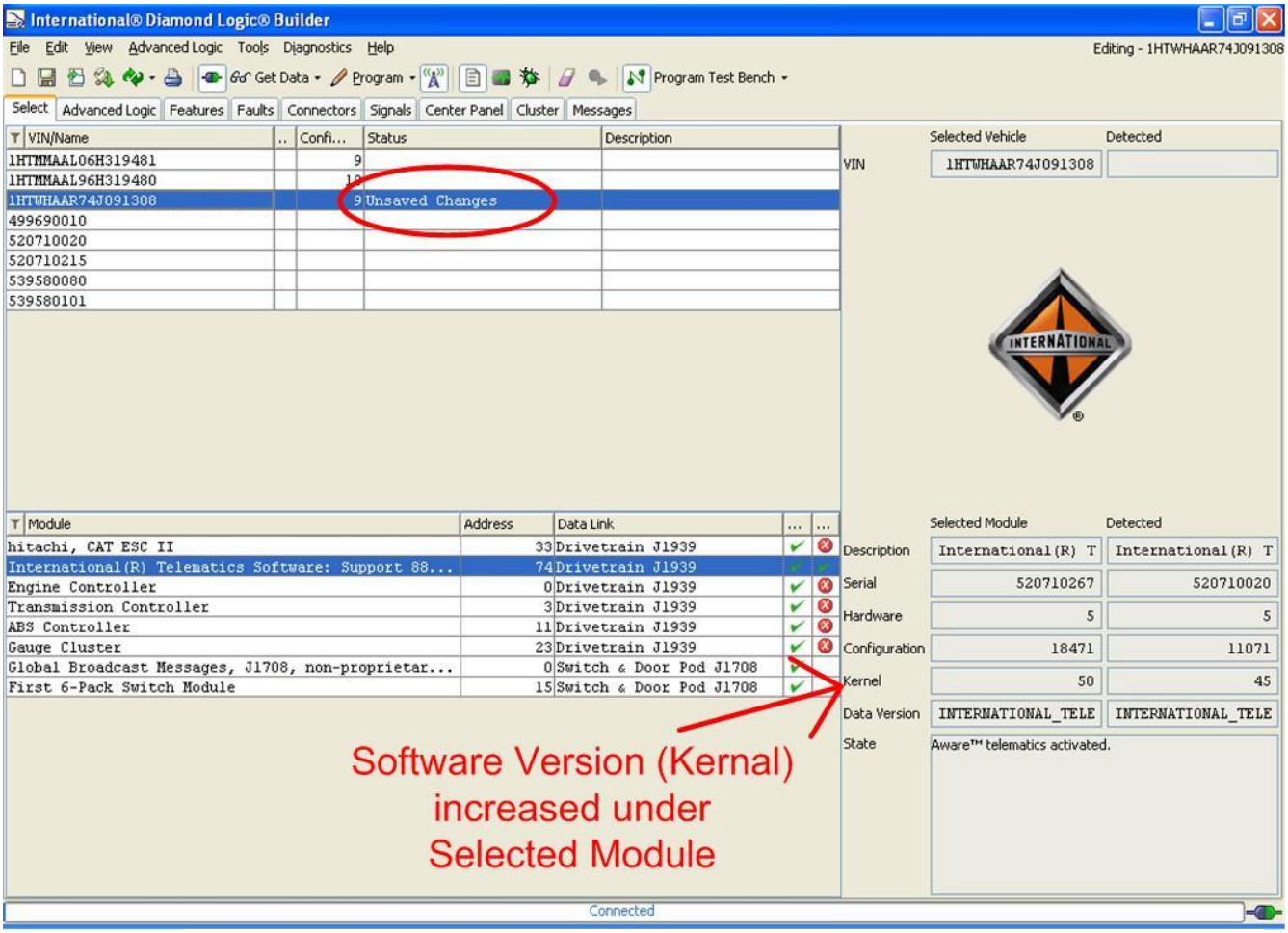
1. Connect your International ® EZ-Tech® or other laptop with Diamond Logic® Builder to the Internet
2. Launch Diamond Logic® Builder. Once Diamond Logic Builder opens, the computer may be disconnected from the internet.
3. Turn ignition Key ON.
4. Attach the computer to the diagnostic connector in the vehicle using an EZ-Tech® COM cable.
5. Allow Diamond Logic® Builder to detect the vehicle and module.
6. On the Select Tab, highlight the “VIN/Name” of the vehicle being programmed
7. Under Module, highlight International® Telematics
8. Select Tools, Get Data, Get Module Data



9. Select Edit, Update Software, Update Module

    a. If the screen displays a message “Already at latest version”, click the “OK” button and proceed to the next section. *(The module already has the latest version of software)*.

    b. If the Status field next to VIN/Name updates to “Unsaved Changes”, perform the following steps. *(The module needs upgraded to the newer version of Software as displayed in the selected module column)*:
        1. Select File, Save
        2. Select Tools, Program, Program Module



10. Configuration

The follow section details how to configure the parameters by using templates. To configure the parameters manually, see Appendix A.

10.1. Download Templates

10.1.1. Dealers

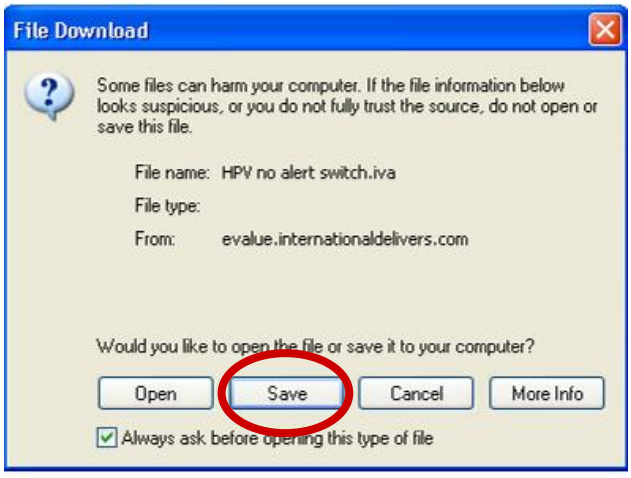
Templates can be downloaded from the ISIS web page http://service.navistar.com/
Select menu item: Technical Publications
Select menu item: AWARE Technical Publication
Scroll down on the screen to view the list of templates.

10.1.2. Customers

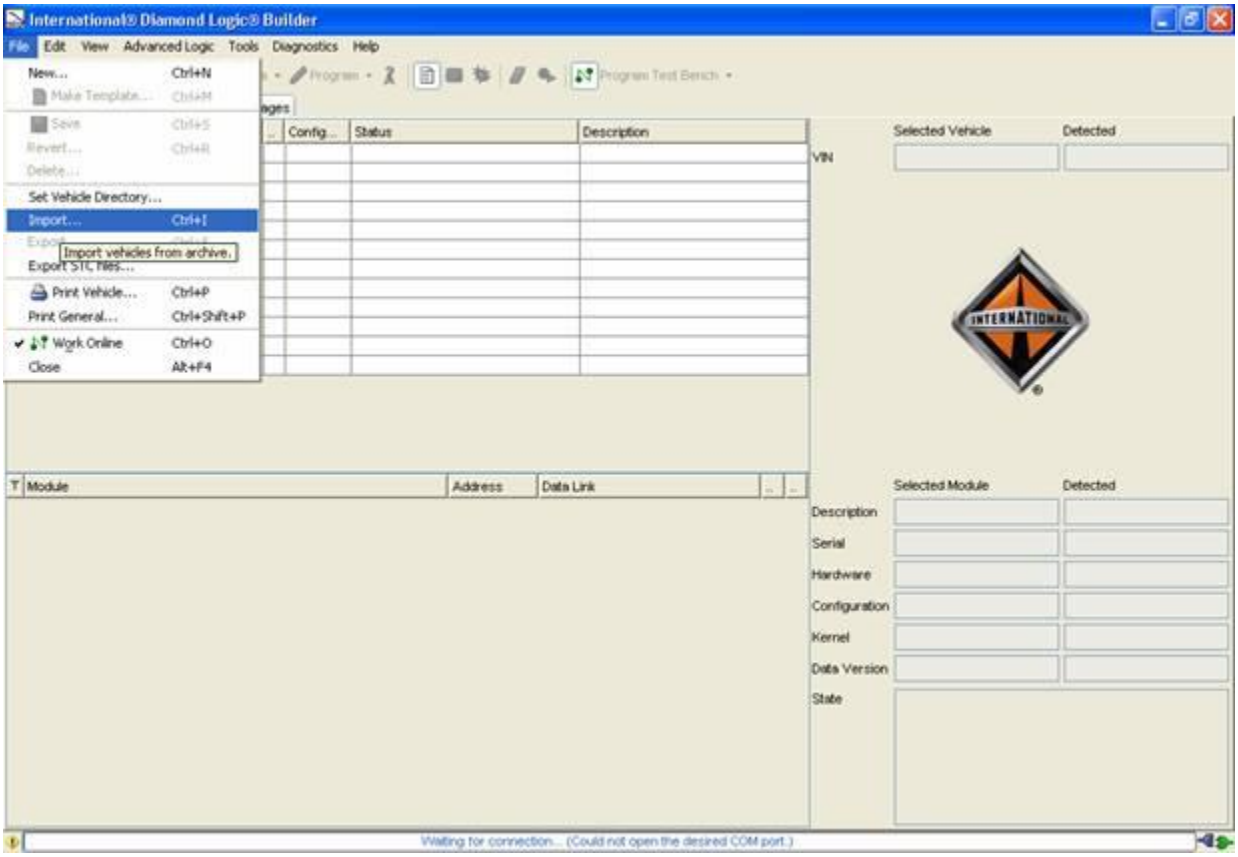
Templates can be downloaded from http://AwareTechPubs.internationaldelivers.com/
Scroll down on the screen to view the list of templates.

10.2. Import Templates into Diamond Logic® Builder

1. Click on the hyperlink for the applicable template.
2. After the "File Download" screen appears, select Save



3. After the "Save As" screen appears, select a folder you will remember.
4. At the bottom of the "Save As" screen, for "Save as type" select "All Files"
5. Select Save
6. Once the template file finishes downloading, go back to Diamond Logic® Builder, and select File, Import…



7. When the Open window appears, select the template file that was downloaded to the laptop and click Open.
8. The template will now appear at the bottom of the VIN/Name list

10.3. Apply Templates to module

9. Highlight VIN/Name of the vehicle being programmed
10. Under Module, highlight International® Telematics
11. Select Edit, Apply Templates…
12. Select the desired template
13. Checkbox only Parameters
14. Select Apply Selected Templates
15. Next to the VIN/Name, Status will change to Unsaved Changes
16. Select File, Save

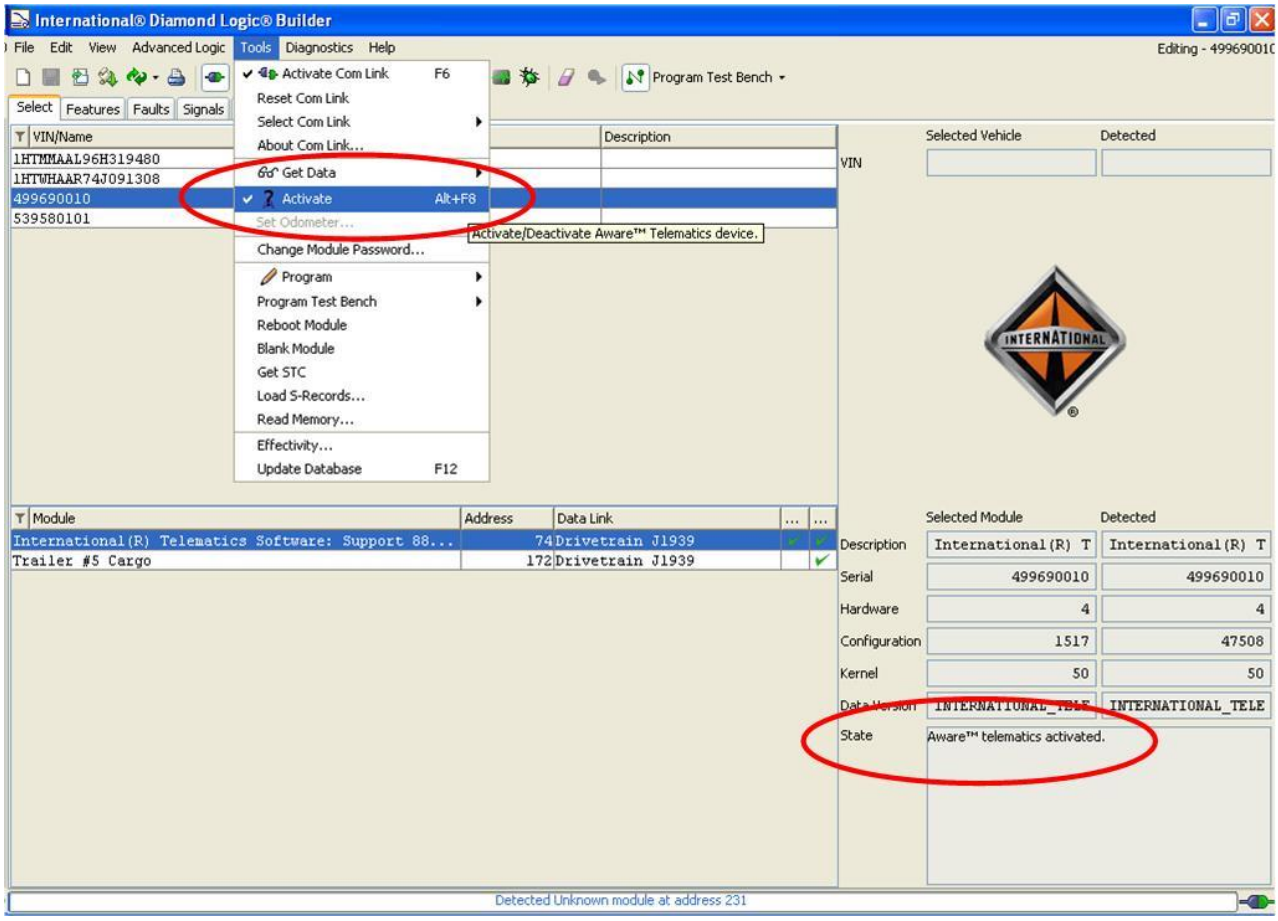
10.4. Program Templates to module

17. Select Tools, Program, Program Module

11. Activation

The module MUST be activated to communicate to the website.

1. **<u>Select Tools, Activate</u>**
2. Follow Diamond Logic® Builder prompts.
3. On the bottom right side of the screen, State will update to:
   <u>AWARE attempting to connect</u>
4. **Allow 10 minutes for the module to activate.**
5. Upon activation of the module, the State will update to:
   <u>AWARE activated</u>



12. Final Assembly Steps

1. Reinstall the floor shifter cover
2. Reinstall the large glove box.
3. Reinstall the rubber floor mat.
4. Reinstall the lower passenger dash panel.
5. Reinstall the passenger side skid plate.
6. Reinstall the instrument cluster.
7. Reinstall the steering column cover.
8. Reinstall the dash trim.
9. Reinstall the middle seat.
10. Reinstall the passenger seat.

Figure 39 - Trim Panels Reinstalled

A Program Parameters Manually

Parameters can be programmed manually (instead of using templates) in Diamond Logic® Builder through the following steps:

1. Highlight VIN/Name of the vehicle being programmed
2. Under Module, highlight International® Telematics
3. Select tab Features.
4. Select sub-tab AWARE.

Data Sources

5. Select Parameter: Engine Retarder Status Source
   Enter Value: None
6. Select Parameter: Transmission Retarder Status Source
   Enter Value: J1587

Fuel Sender

7. Select Parameter: Fuel Level Source
   Enter Value: General Purpose Input 1
8. Select Parameter: Analog 1 Mode
   Enter Value: Analog – VREF biased sensor
9. Select Parameter: Analog 1 Filter Coefficient
   Enter Value: 16
10. Select Parameter: Analog 1 X Values
    Enter Value: 10, 20, 30, 40, 50
11. Select Parameter: Analog 1 Y Values
    Enter Value: 0, 63, 125, 188, 250

Park Brake

12. Select Parameter: Parking Brake Switch Status Source
    Enter Value: General Purpose Input 2
13. Select Parameter: Analog 2 Mode
    Enter Value: Analog – Battery/Ignition biased sensor
14. Select Parameter: Analog 2 X Values
    Enter Value: 30, 30, 50, 70, 70
15. Select Parameter: Analog 2 Y Values
    Enter Value: 1, 2, 2, 2, 0

Service Brake

16. Select Parameter: Service Brake Switch Status Source
    Enter Value: General Purpose Input 3
17. Select Parameter: Analog 3 Mode
    Enter Value: Analog – Battery/Ignition biased sensor
18. Select Parameter: Analog 3 X Values
    Enter Value: 30, 30, 50, 70, 70
19. Select Parameter: Analog 3 Y Values
    Enter Value: 1, 2, 2, 2, 0

Miscellaneous

20. Select Parameter: Engine Speed Exception RPM Threshold
    Enter Value: 3600

Driver Alert Switch *(If the Driver Alert Switch has been installed, perform the next step.)*

21. Select Parameter: Driver Alert Switch Installed
    Enter Value: Enable

22. Select File, Save.
23. Select Edit, Update Software, Update Module to program the module.

B AWARE Module LED Troubleshooting Table

Indicated Items	LED's				Comments
	A	B	C	D	
Power disconnected	OFF	OFF	OFF	OFF	
Sleep mode active	Heart-beat	OFF	OFF	OFF	
Awake mode active	Slow Flash	-	-	-	
Ignition is ON	Steady ON	-	-	-	
Internal Fault Detected	Fast Flash	-	-	-	Highest priority for LED "A". Indicates in Awake and Ignition modes also.
GPS OFF	-	OFF	-	-	
GPS active	-	Slow Flash	-	-	
GPS acquired	-	Steady ON	-	-	
Cellular Modem OFF	-	-	OFF	-	
Cellular Modem signal strength (Low & no service)	-	-	Slow Flash	-	
Cellular Modem signal strength (High)	-	-	Steady ON	-	
Cellular modem transmitting data	-	-	Fast Flash	-	Highest priority for LED "C". Shall indicate for a minimum of 3 seconds.
Communication on J1939 data link	-	-	-	Slow Flash	
Cellular modem receiving data	-	-	-	Fast Flash	Highest priority for LED "D". Shall indicate for a minimum of 3 seconds.

Flash Rate Definition
Heartbeat = 1 flash every minute Slow Flash = 1 flash every second Fast Flash = 4 flashes every second