

**Part Number: PT791-0T099****Kit Contents**

| Item # | Quantity Req'd. | Description                 |
|--------|-----------------|-----------------------------|
| 1      | 1               | Trailer Wire Harness Module |
| 2      | 1               | 4-Flat Harness              |
| 3      | 1               | Battery Power Wire Harness  |
| 4      | 1               | Mounting Bracket, 4-Flat    |
| 5      | 2               | Screw #10-24                |
| 6      | 2               | Nut/Washer #10-24           |
| 7      | 35              | Cable Tie 8.50"             |
| 8      | 2               | Cable Tie 14.50"            |
| 9      | 4               | Aluminum Adhesive tape      |
| 10     | 1               | Male Housing                |
| 11     | 15              | Foam-Pad                    |
| 12     | 1               | Tubing 12"                  |
| 13     | 1               | Fuse Location Card          |

**Additional Items Required For Installation**

| Item # | Quantity Req'd. | Description           |
|--------|-----------------|-----------------------|
| 1      | 1               | 3m Automotive Sealant |

**Recommended Tools**

| <b>Personal &amp; Vehicle Protection</b> | <b>Notes</b>        |
|--|---------------------|
| Safety Glasses                           |                     |
| Vehicle Protection                       | Cloth/Rag           |
| Protective Tape                          |                     |
| <b>Special Tools</b>                     | <b>Notes</b>        |
| Circuit Tester                           |                     |
| <b>Installation Tools</b>                | <b>Notes</b>        |
| Ratchet                                  | 3/8" Drive          |
| Socket                                   | 10mm, 12 mm         |
| Trim Panel Remover Tool                  |                     |
| Screwdriver                              | Phillips            |
| Pliers                                   | Diagonal Cutting    |
| Wrench                                   | 12mm, 10mm          |
| Knife or Cutters                         |                     |
| Flexible Pickup Tool                     |                     |
| Torque Wrench                            | 4.1 N•m (36 lbf•in) |
|  | 5.4 N•m (48 lbf•in) |
| <b>Special Chemicals</b>                 | <b>Notes</b>        |
| VDC Approved Cleaner                     |                     |

**General Applicability****Recommended Sequence of Application**

| Item # | Accessory           |
|--------|---------------------|
| 1      | Wire Harness Module |
| 2      | Hitch               |
| 3      | 4-flat Harness      |
| 4      | Mud Flaps           |

\*Mandatory

**Vehicle Service Parts** (may be required for reassembly)

| Item # | Quantity Req'd. | Description |
|--------|-----------------|-------------|
| 1      |                 |             |
| 2      |                 |             |
| 3      |                 |             |

**Legend**

**STOP:** Damage to the vehicle may occur. Do not proceed until process has been complied with.



**OPERATOR SAFETY:** Use caution to avoid risk of injury.



**CAUTION:** A process that must be carefully observed in order to reduce the risk of damage to the accessory/vehicle and to ensure a quality installation.



**TOOLS & EQUIPMENT:** Used in Figures calls out the specific tools and equipment recommended for this process.



**REVISION MARK:** This mark highlights a change in installation with respect to previous issue.



**SAFETY TORQUE:** This mark indicates that torque is related to safety.



## Procedure

Care must be taken when installing this accessory to ensure damage does not occur to the vehicle. The installation of this accessory should follow approved guidelines to ensure a quality installation.

This document covers such items as:-

1. Vehicle Protection (use of covers and blankets, cleaning chemicals, etc.).
2. Safety (eye protection, rechecking torque procedure, etc.).
3. Vehicle Disassembly/Reassembly (panel removal, part storage, etc.).
4. Electrical Component Disassembly/Reassembly (battery disconnection, connector removal, etc.).

**Notes:**

Removed Parts: -  
Place all removed parts on a protected surface.



Connectors: -  
When disconnecting connectors, do not pull on the wires; pull on the connectors.



Cable Ties: -  
When using cable ties to secure harness, clip the ties after securing them.



Machine Screws: -  
Start all machine screws by hand.

**Vehicle Preparation:**

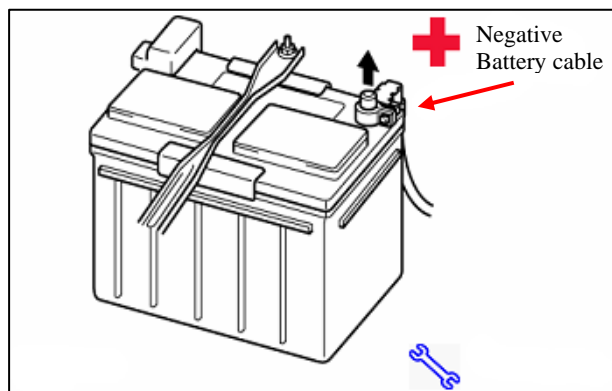
1. Professional installation by an authorized dealer is highly recommended. Read all instructions thoroughly prior to installation. Ensure all parts are included in kit and follow all vehicle safety guidelines.



2. Read all battery warnings on disconnecting and reconnecting the vehicle's battery terminal from the battery. Follow all procedures and disconnect and isolate the negative battery terminal.



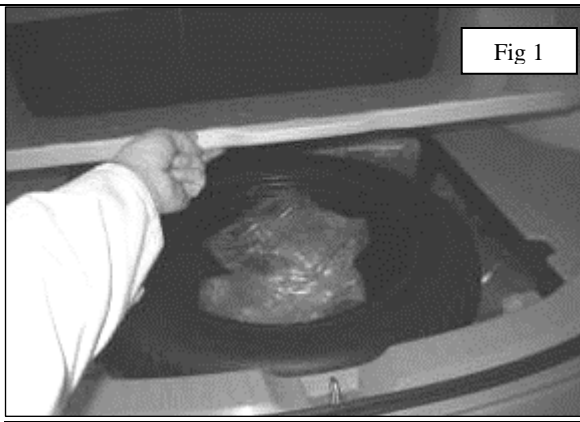
3. Wear safety glasses and take all safety precautions during installation.

**Disassembly of Vehicle**

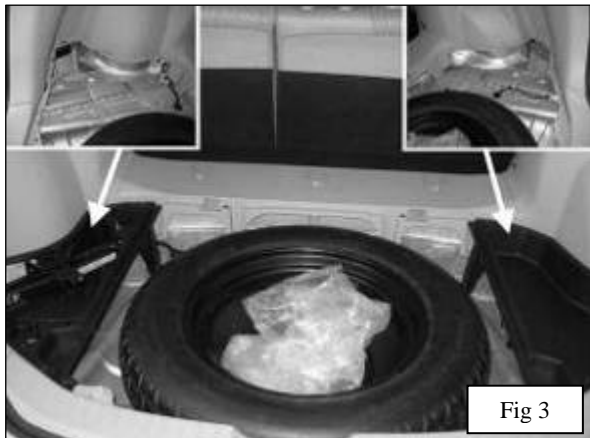
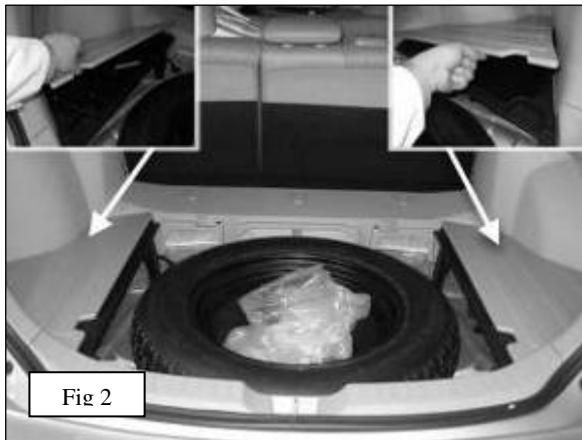
1. Open tail gate, and side doors.




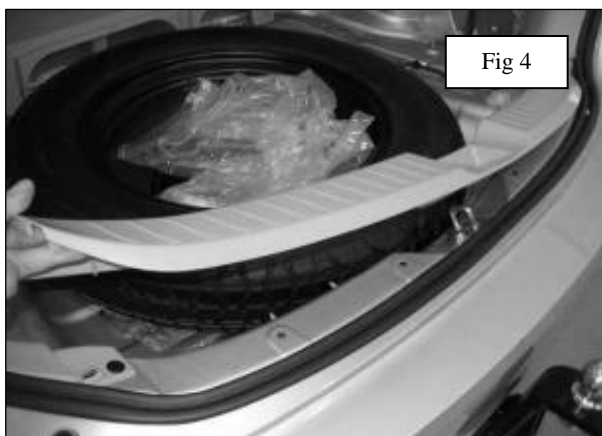
2. Open the hood and locate the Battery on the driver's side of the vehicle, follow all guidelines and disconnect the negative battery cable using a 10mm wrench.



3. In the trunk area, temporarily remove the floor coverings that are over the spare tire area (Fig 1 & 2).



-  4. Locate and remove the jack and storage trays on both sides of the tire by twisting off the plastic retaining screws and by using a trim panel remover and prying the trim panel fasteners (Fig 3).




-  5. Gently pry the threshold plate up and away from the vehicle using a trim panel tool (Fig 4).



Fig 5



6. Working on the Driver's side of the vehicle, fold down the back seats and temporarily remove the plastic rear trim panel by removing 3 bolts using a 10mm wrench (Fig 5) Note: To access the bolt in the rear seat release handle (Red Arrow) you need to use a trim panel remover tool or a flat screwdriver to pry the cover plate off. After removing all three bolts, pry the panel clips that hold the panel in place, disconnecting any wiring before removing panel. (Figs 6 & 7).

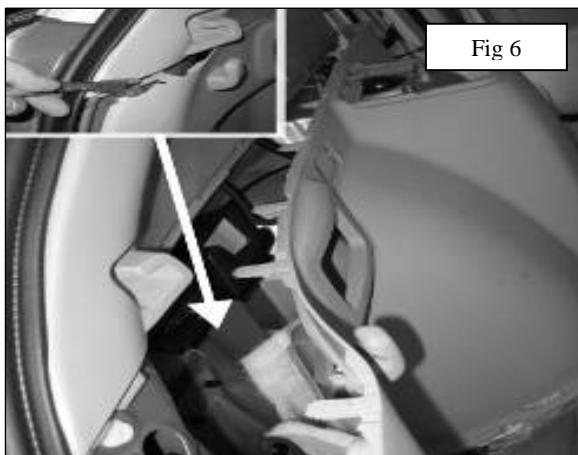


Fig 6

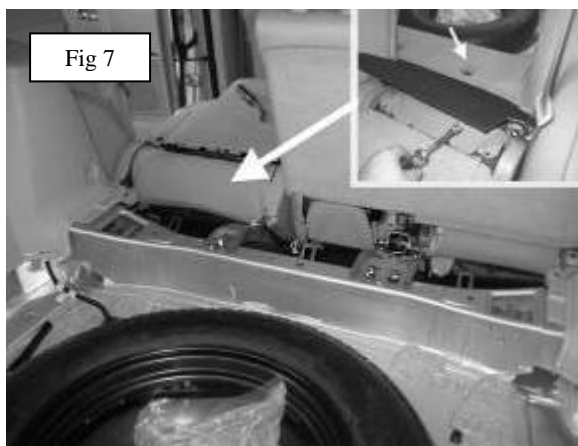


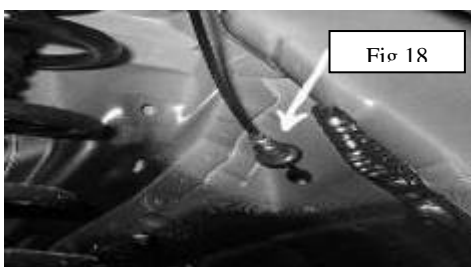
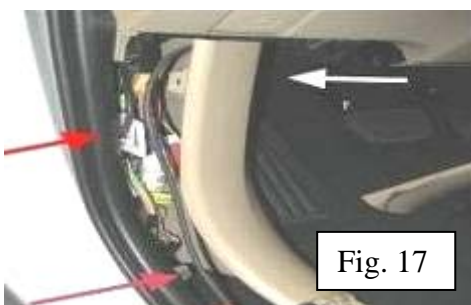
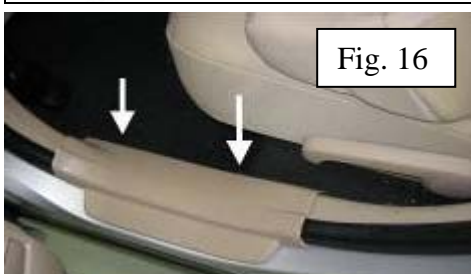
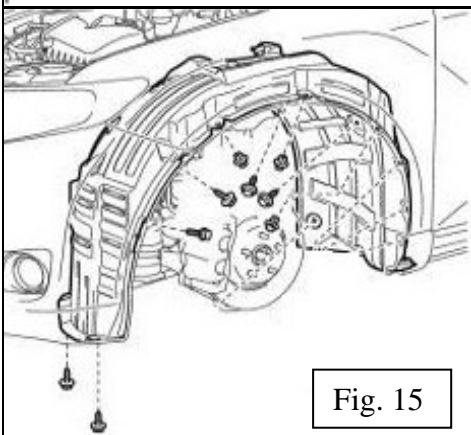
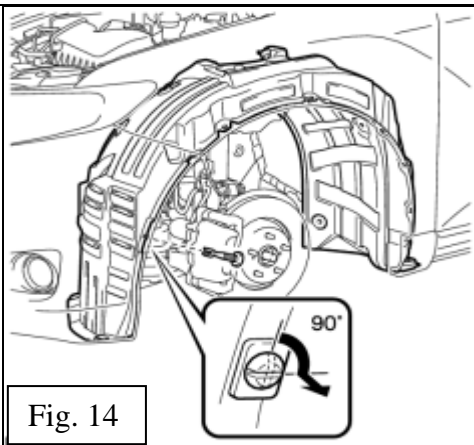
Fig 7



7. Remove plastic panel behind rear seats using a trim panel remover.



8. On the Passenger's side, repeat step 6 and partially pull back the trim panel to expose the vehicle's tail lamp connectors.



9. On the Driver's side it requires removal of front tire to access this area, make sure the vehicle is fully supported before proceeding. Partially remove the front fender liner by using a screwdriver, turn the pin 90 degrees and remove the pin hold clip. Next remove enough of the clips, bolts and screws as shown to lower the fender liner and gain access to the area for routing the trailer wire without bending or creasing the liner (Fig 14 & 15).



10. Inside the vehicle on the driver's side, use a trim panel tool, and temporarily remove both of the threshold plates on driver's side doors and the kick panel as shown (Fig 16 & 17).

### Harness Module Installation

1. Locate the hood release cable and grommet rearward of the suspension and pull out of hole to access the grommet (Fig 18).





Fig. 19a

Fig. 19b

Fig. 19c

Fig. 19d

Fig. 19e

Fig. 19f



Fig. 20

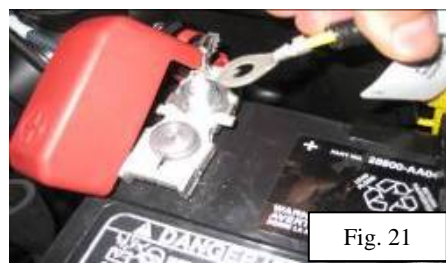


Fig. 21



Fig. 22

2. Using wire snips, make a ~ 1/4" cut in the second bump (bump closest to the grommet base, Fig 19a).



**CAUTION: DO NOT CUT THE BASE OF THE GROMMET AS IT WILL AFFECT ITS RETENTION AND COULD CAUSE A WATER LEAK. (Fig 19b)**

3. Place a 1" piece of tubing over the metal clamp and completely wrap the entire tubing with electrical tape. **Continue the tape down onto the cable, as shown in Fig 19c and Fig 19d.**
4. Tightly secure the tubing with a cable tie.  
**CAUTION: The cable tie end must be opposite the slit previously made in the grommet. (Fig 19e and Fig 19f)**



5. Locate the Battery on the Driver's side of the vehicle, follow all guidelines and disconnect positive wire nut from the battery cable using a 12mm wrench or socket and ratchet. (Fig.20).



6. Locate the trailer power wire provided and if not already removed, remove the 15 amp fuse before proceeding. The fuse will be re-installed in another step.



7. Following all guidelines, install the trailer wire ring terminal onto the positive battery post. Note make sure to position the ring terminal so that the protective cover can be reattached over the post. Tighten the nut to 5.4 N•m (48 lbf•in).



**Torque: 5.4 N•m (48 lbf•in)**



**CAUTION:** Do not touch the negative terminal with any tool when installing the positive battery cable. (Fig. 21)

8. Cable tie (white arrow) the fuse holder to the Battery support post (Fig. 22).



Fig. 23

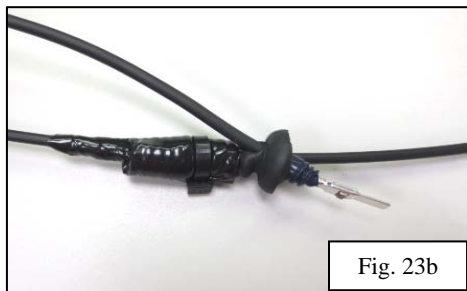


Fig. 23b

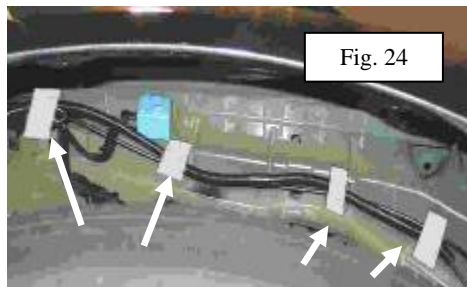
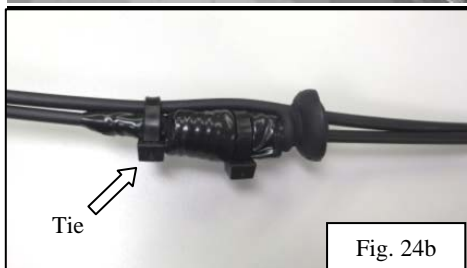


Fig. 24



Tie

Fig. 24b

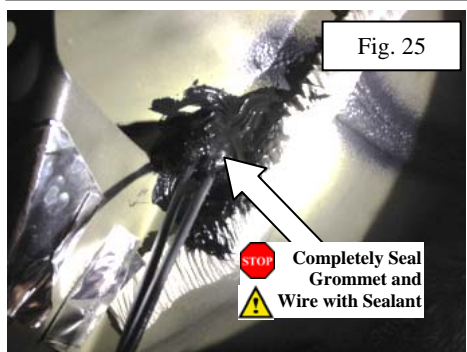


Fig. 25

**STOP** Completely Seal Grommet and Wire with Sealant  
**!**

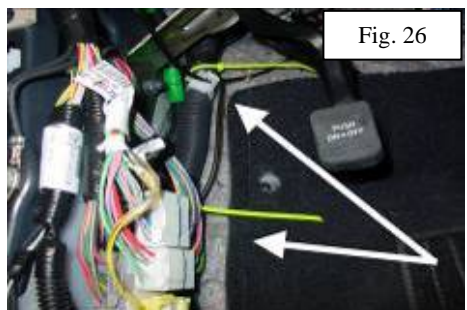


Fig. 26

9. Route the wiring along the battery over to the driver's side fender. Using two cable ties, spaced out approximately every 6" (150mm), secure the wire harness following the same path as the hood release cable (two white arrows) (Fig. 23).

10. Route the power wire in the wheel fender area following the same path as the hood release cable. Push the trailer power wire thru the grommet slit (Fig. 23b), and reseal the grommet back into the hole.

11. Pull the excess wire into the vehicle interior. Using 4 pieces of aluminum adhesive tape, spaced out approximately every 6" (150mm), secure the wire to the metal panel following the hood release cable as shown in Fig. 24.

12. Secure the trailer power wire to the hood release cable with a cable tie (Fig. 24b) and then use sealant (not provided) (Fig. 25).



**CAUTION:** Make sure the sealant completely seals around the wire and grommet to prevent moisture from getting into the vehicle (Fig. 25).

13. Route power harness along kick panel area, following existing vehicle harness, spaced out approximately every 6" (150mm), secure harness using 3 cable ties as shown (Fig. 26 & 27).

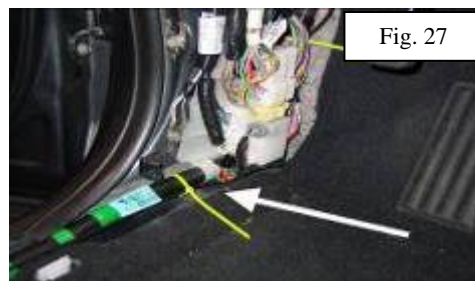


Fig. 27



Fig. 28



Fig. 29

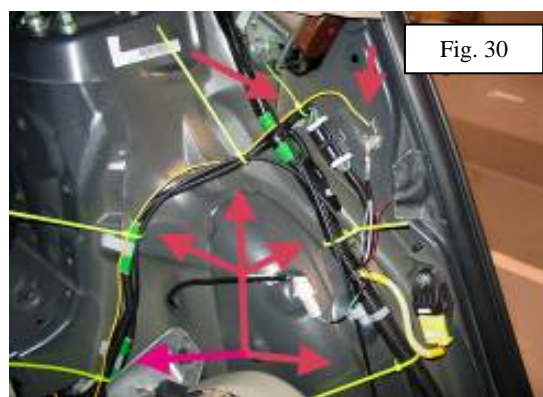


Fig. 30



Fig 31

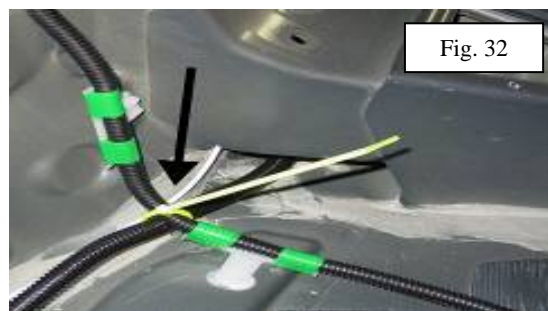


Fig. 32

14. Route power harness along both doorframe thresholds following existing vehicle harness, spaced out approximately every 6" (150mm), secure harness using 7 cable ties as shown (Fig 28 & 29)



15. Continue to route the power wire to the trunk area of the vehicle (Fig 30). In addition route the ground wire (white with ring terminal) from the trailer wire harness module to the ground stud following the existing vehicle wiring. Cable tie the wires to the existing harness, spaced out approximately every 6" (150mm), using 6 ties as shown rearward of rear passenger door.



16. Once wiring is in the trunk area, route wire through small access hole in the cross member behind the rear seat using a flexible pickup tool. Avoid sharp edges and components that move that may cut the wire. Apply tubing over the wires in this area and route wire to the black box (Fig 31 & 32).



17. Once inside the trunk, plug the power wire into the Gray housing provided and push the white tab to lock the wire into position (Fig 33 & 34).

18. Locate the gray connector on the trailer harness and plug the power wire into it (Fig 35).

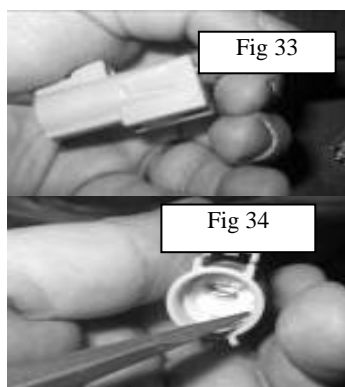


Fig 33

Fig 34

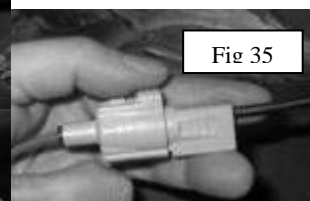
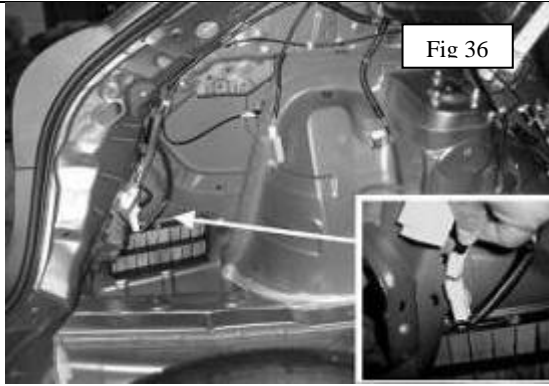
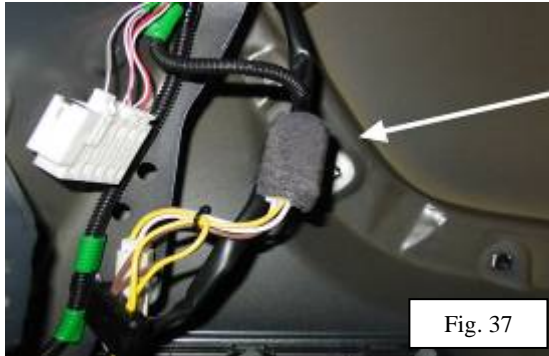


Fig 35





19. Starting on the driver's side, locate the vehicle's four (4) pin rear tail lamp connector and separate from the tail lamp assembly. Plug the harness containing the **Yellow & Brown** wire in between these separated halves. Be sure that the connectors are fully inserted (Fig 36).



20. Wrap the connector using a foam pad provided (Fig 37).



21. Route the T-Connector containing the **Green & Red** wire along the threshold to the passenger's side taillight vehicle connector. Secure the harness with 6 pieces of foam pads as shown, spaced out approximately every 6" (150mm), (Figs 38, 39 & 40)



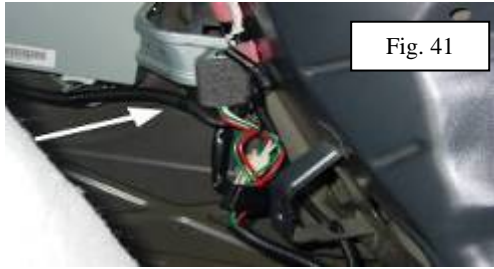


Fig. 41

22. Repeat step 7 & 8 using the T-Connector ends containing the **Green & Red** wire (Figs 41).

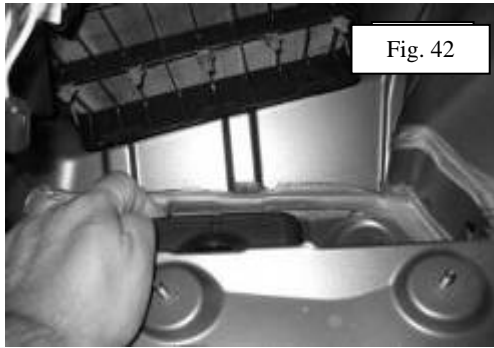


Fig. 42

- ⚠ 23. Inside of the cargo tray area, locate a suitable mounting location for the black power module box. The box should be mounted on a flat surface across from the ventilation grille. Test fit and make sure the trim panels will fit back on before attaching with double-sided tape (Fig 42).

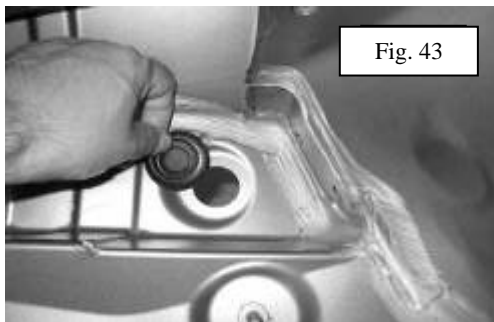


Fig. 43

- ⚠ 24. Clean the flat area using a VDC approved cleaner. Using the double-sided tape provided, mount the trailer harness black box on a clean smooth surface. Press firmly and let it setup before going to the next step.

25. Remove the grommet on the driver's side in the tray area (Fig 43). From underneath the vehicle route the 4-flat harness wires containing the 4-pin black connector and grommet up through the hole.

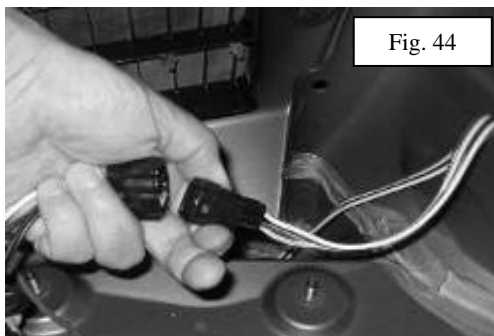


Fig. 44

- ⚠ 26. Locate the black mating plug from the power module and attach. Be sure that the connectors are fully inserted (Fig 44).

27. Using a 2 foam pads, secure excess wire bundle and connectors to prevent rubbing and vibration noises (Fig 45).

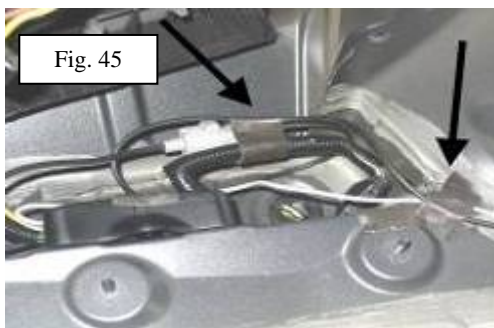


Fig. 45

- ⚠ 28. Make sure that all connections are completely installed on the trailer harness. Locate the grey battery connectors and black 4-pin connectors near the black box. Using two foam pads provided, or more if needed, peel back the paper exposing the adhesive side and wrap each connector to prevent rattling.

Fig. 46



#### 4-Flat Harness Installation



Bumper Fascia removed for clarity in the following steps, do not remove Bumper Fascia (Fig 46-50 & 52).

1. Seat 4-flat harness grommet into the hole and secure it to the harness with a cable tie.
2. Using tubing provided, cover exterior 4-flat harness, secure with tape (Fig 46).
3. From underneath the vehicle on the driver's side of the vehicle, use a 10mm wrench to remove 2 bolts from the black bumper fascia support allowing it move freely, shown with White arrows (Fig 47). Do not remove the rearmost fastener shown with Red arrow (Fig 49).

Fig. 47

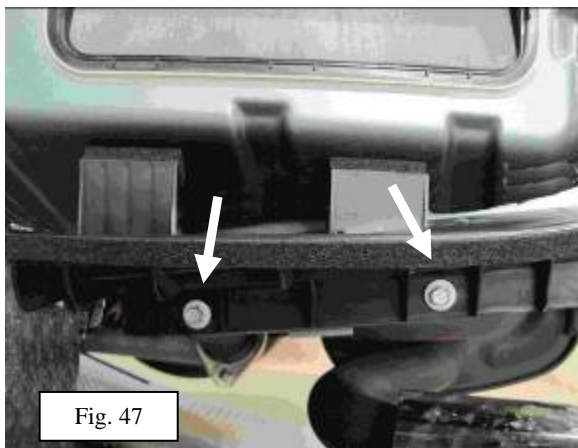
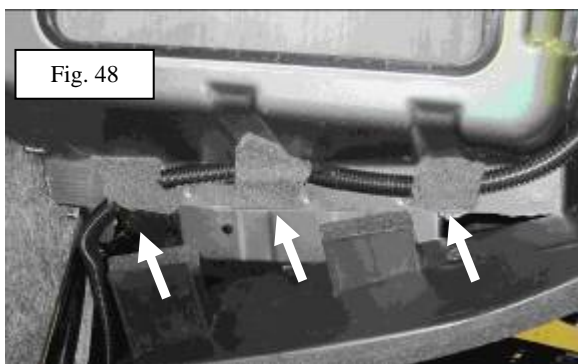


Fig. 48

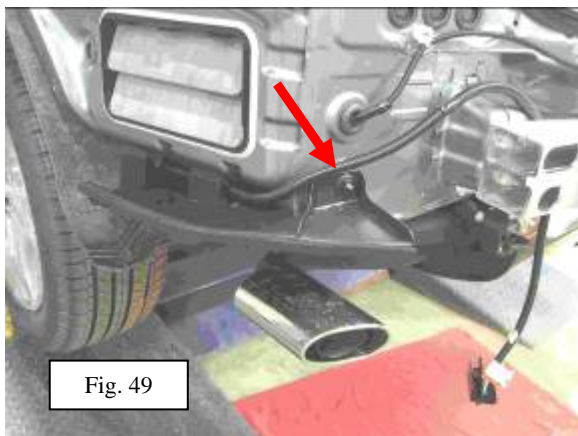


4. With the two bolts removed, the Black bumper support can be orientated to allow Routing of the 4-flat harness from grommet location to outside of vehicle between the bumper support and the vehicle body. Secure harness with 3 foam pads as shown (Fig 48). Then reinstall bumper fascia support. Tighten the bolts to 4.1 N•m (36 lbf•in) (Fig 47).



**Torque: 4.1 N•m (36 lbf•in)**

Fig. 49





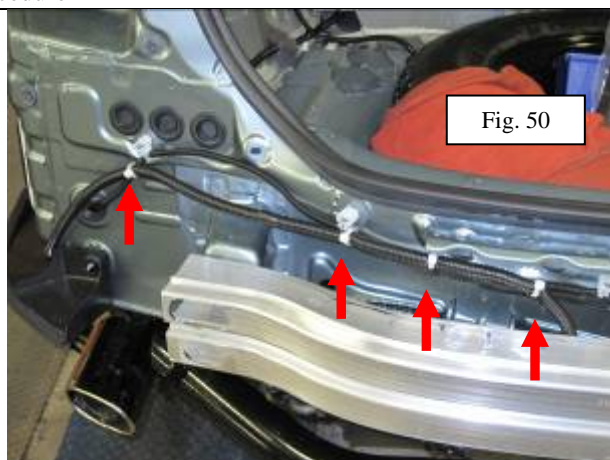


Fig. 50



Fig. 51

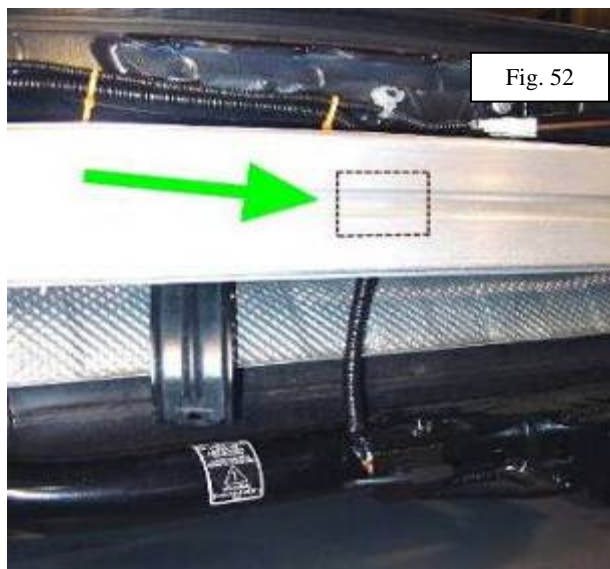


Fig. 52

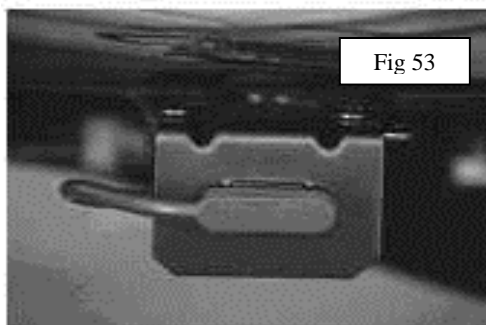


Fig. 53

5. Route 4-flat harness rearward and towards the center of the bumper structure, following the path of existing vehicle wiring. Secure using 4 cable ties as shown (Fig. 50).

6. Mount the 4-flat bracket to the Toyota Trailer hitch mount tab, using two screws and nuts provided (Fig 51).

7. Route the wire harness down to the trailer hitch mounting bracket, routing between the vehicle panel and bumper structure. Secure harness to bumper structure with foam pad (Fig 52).

8. Route 4-Flat connector through opening at backside of trailer hitch bracket. Push 4-Flat connector through mounting bracket past first detent (Fig 53).



9. Install the 15 amp fuse. Using a circuit tester, test the functions on the 4-flat to make sure the installation is correct.



10. Using the remaining cable ties provide go through and secure the remainder of the trailer harness wiring.



11. Reposition all of the panels, carpet, threshold, weather strip and components removed in previous steps.

12. Reconnect the vehicle's negative battery cable. Tighten the nut to 5.4 N•m (48 lbf•in).



**Torque: 5.4 N•m (48 lbf•in)**



**CAUTION:** Do not touch the positive terminal with any tool when installing the negative battery cable.



Place installation instructions and fuse location card in owner's manual for future reference.



### WARNING:

Overloading circuit can cause fires. DO NOT exceed lower of towing manufacturer rating or:

- Max. stop/turn light: 2 bulbs per side (total 4.2 amps)
- Max. tail lights: 7.5 amps



Read vehicle's owners manual & instruction sheet for additional information.



# TOYOTA                      VENZA                      2009 –                      TRAILER WIRE HARNESS

Checklist - these points **MUST** be checked to ensure a quality installation.

Check: \_\_\_\_\_

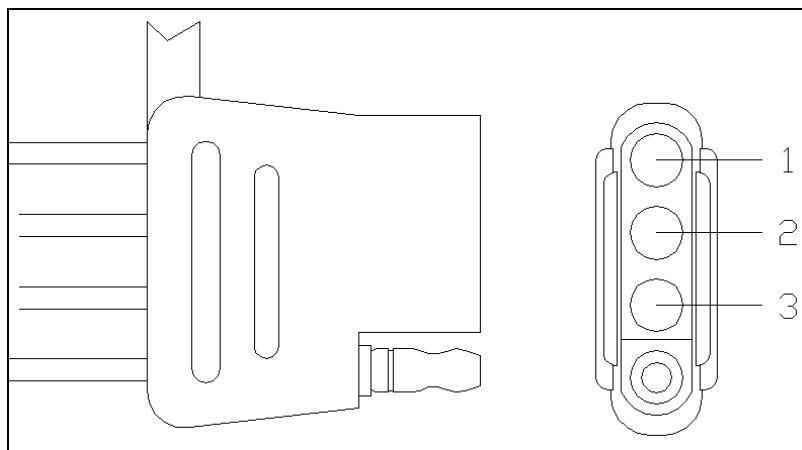
Look For: \_\_\_\_\_

## Accessory Function Checks

Using Trailer lights, Circuit tester or Multi-meter

|  |  |
|--|--|
| <ul style="list-style-type: none"><li>• <b>Activate individual vehicle light functions</b></li></ul>                       | <ul style="list-style-type: none"><li>• <b>Verify that the corresponding functions activate the trailer 4-flat</b></li></ul>                       |
| <b>Right Turn</b>  | <b>Circuit 1*</b>  |
| <b>Left Turn</b>   | <b>Circuit 2*</b>  |
| <b>Brake</b>   | <b>Circuits 1 &amp; 2</b>  |
| <b>Tail light</b>  | <b>Circuit 3</b>   |
| <ul style="list-style-type: none"><li>• <b>Activate a combination of vehicle light functions simultaneously.</b></li></ul> | <ul style="list-style-type: none"><li>• <b>Verify that the corresponding functions activate the trailer 4-flat (color coded circuit)</b></li></ul> |
| <b>Tail light &amp; Brake</b>  | <b>Circuit 1, 2 &amp; 3</b>  |
| <b>Left Turn &amp; Brake</b>   | <b>Circuit 1 &amp; 2*</b>  |
| <b>Right Turn &amp; Brake</b>  | <b>Circuit 1* &amp; 2</b>  |

**\*Flashes on and off when activated for turn circuit.**



## Vehicle Function Checks

Visual Inspection required

|   |   |
|---|---|
| <ul style="list-style-type: none"><li>• <b>Activate individual vehicle light functions.</b></li></ul> | <ul style="list-style-type: none"><li>• <b>Verify that the corresponding vehicle lights activate. If light does not activate then check the connection.</b></li></ul> |
|---|---|

# TOYOTA                      VENZA                      2009 –                      TRAILER WIRE HARNESS

Checklist - these points **MUST** be checked to ensure a quality installation.

Check: \_\_\_\_\_

Look For: \_\_\_\_\_

## Trouble Shooting Guide

|                                     |   |
|-------------------------------------|---|
| No Power to trailer light functions | Check trailer wiring harness fuse per owner's manual fuse location card.  |
|                                     | Check 4-flat connection between trailer and vehicle to make sure the connection is fully engaged.   |
|                                     | Turn all functions off and remove key for 10 seconds and retest functions with trailer attached.  |
|                                     | Turn all functions off and remove key for 10 seconds with trailer disengaged. Using a multi-meter check the function output at the 4-flat. If all functions work, check trailer for potential short or overload described in the owner's manual fuse location card. |
| Corrosion on 4-flat plug            | Clean connection and add Dielectric Grease (sold separately) to the terminal pins.  |

## Vehicle Appearance Check

- ☐ After accessory installation and removal of protective cover(s), perform a visual inspection.

Ensure no damage (including scuffs and scratches) was caused during the installation process.  
(For PPO installations, refer to TMS Accessory Quality Shipping Standard.)