

are listed and explained below. Always check for non-factory items added to the vehicle before doing any diagnosis. If the vehicle is equipped with these items, disconnect them to verify these add-on items are not the cause of the problem.

- (1) Verify the problem.
- (2) Verify any related symptoms. Do this by performing operational checks on components that are in the same circuit. Refer to the wiring diagrams.
- (3) Analyze the symptoms. Use the wiring diagrams to determine what the circuit is doing, where the problem most likely is occurring and where the diagnosis will continue.
- (4) Isolate the problem area.
- (5) Repair the problem.
- (6) Verify proper operation. For this step, check for proper operation of all items on the repaired circuit. Refer to the wiring diagrams.

WIRING REPAIR

When replacing or repairing a wire, it is important that the correct gauge be used as shown in the wiring diagrams. The wires must also be held securely in place to prevent damage to the insulation.

- (1) Disconnect battery negative cable.
- (2) Remove 1 inch of insulation from each end of the wire.
- (3) Place a piece of heat shrink tubing over one side of the wire. Make sure the tubing will be long enough to cover and seal the entire repair area.
- (4) Spread the strands of the wire apart on each part of the exposed wires (Fig. 11 example 1).

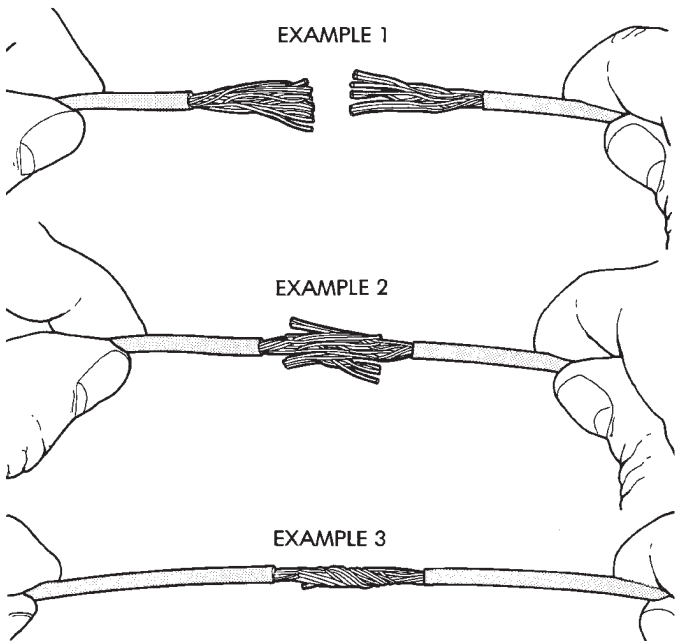


Fig. 11 Wire Repair

- (5) Push the two ends of wire together until the strands of wire are close to the insulation (Fig. 11 example 2).
- (6) Twist the wires together (Fig. 11 example 3).
- (7) Solder the connection together using rosin core type solder only. **Do not use acid core solder.**
- (8) Center the heat shrink tubing over the joint, and heat using a heat gun. Heat the joint until the tubing is tightly sealed and sealant comes out of both ends of the tubing.
- (9) Secure the wire to the existing ones to prevent chafing or damage to the insulation.
- (10) Connect battery and test all affected systems.

TERMINAL/CONNECTOR REPAIR—MOLEX CONNECTORS

- (1) Disconnect battery.
- (2) Disconnect the connector from its mating half/component.
- (3) Insert the terminal releasing special tool 6742 into the terminal end of the connector (Fig. 12).

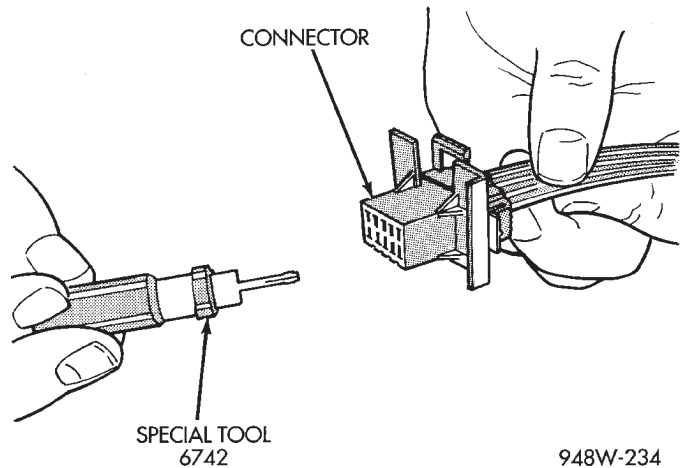


Fig. 12 Molex Connector Repair

- (4) Using special tool 6742, release the locking fingers on the terminal (Fig. 13).
- (5) Pull on the wire to remove it from the connector.
- (6) Repair or replace the connector or terminal as necessary.

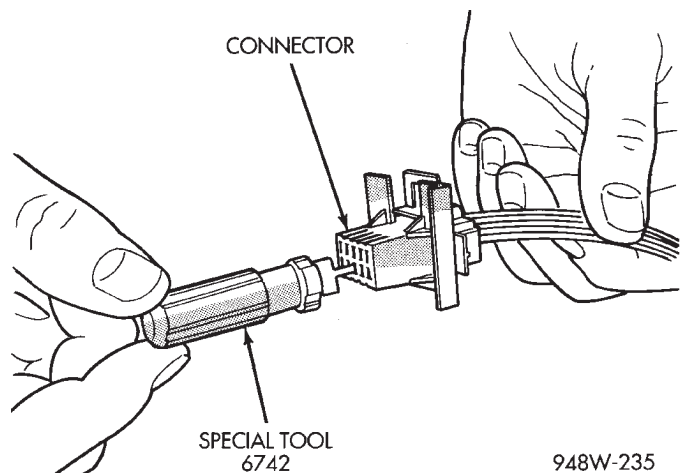


Fig. 13 Using Special Tool 6742

CONNECTOR REPLACEMENT

- (1) Disconnect battery.
- (2) Disconnect the connector that is to be repaired from its mating half/component.
- (3) Remove connector locking wedge, if required (Fig. 14).

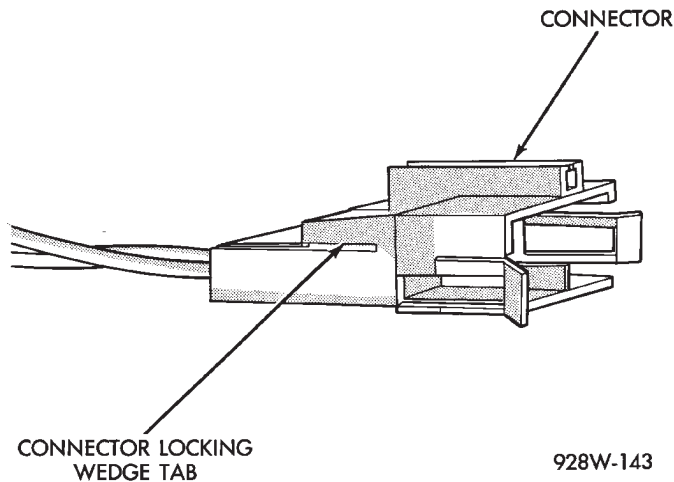


Fig. 14 Connector Locking Wedge Tab (Typical)

- (4) Position the connector locking finger away from the terminal using the proper pick from special tool kit 6680. Pull on the wire to remove the terminal from the connector (Fig. 15, and Fig. 16).
- (5) Reset the terminal locking tang, if it has one.
- (6) Insert the removed wire in the same cavity on the repair connector.
- (7) Repeat steps four through six for each wire in the connector, being sure that all wires are inserted into the proper cavities. For additional connector pin-out identification, refer to the wiring diagrams.
- (8) Insert the connector locking wedge into the repaired connector, if required.
- (9) Connect connector to its mating half/component.
- (10) Connect battery and test all affected systems.

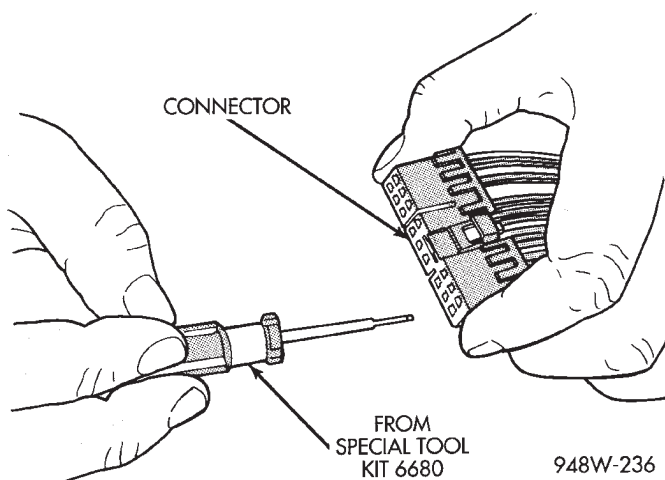


Fig. 15 Terminal Removal

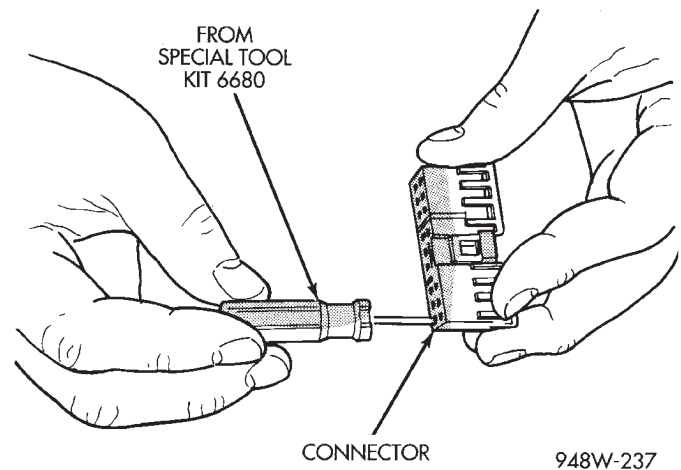


Fig. 16 Terminal Removal Using Special Tool

CONNECTOR AND TERMINAL REPLACEMENT

- (1) Disconnect battery.
- (2) Disconnect the connector (that is to be repaired) from its mating half/component.
- (3) Cut off the existing wire connector directly behind the insulator. Remove six inches of tape from the harness.
- (4) Stagger cut all wires on the harness side at 1/2 inch intervals (Fig. 17).
- (5) Remove 1 inch of insulation from each wire on the harness side.
- (6) Stagger cut the matching wires on the repair connector assembly in the opposite order as was done on the harness side of the repair. Allow extra length for soldered connections. Check that the overall length is the same as the original (Fig. 17).

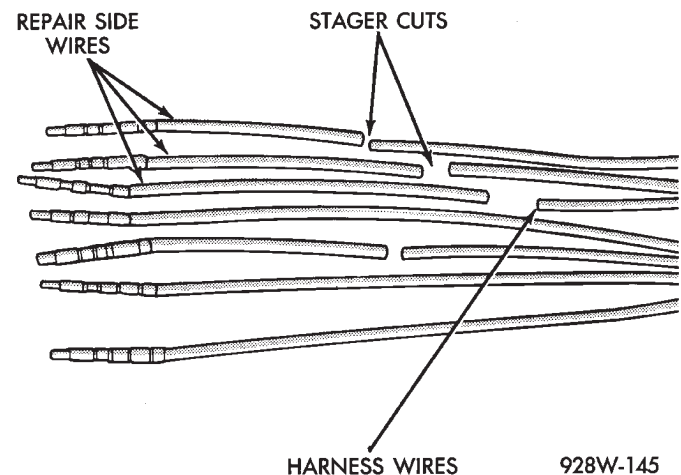


Fig. 17 Stagger Cutting Wires (Typical)

- (7) Remove 1 inch of insulation from each wire.
- (8) Place a piece of heat shrink tubing over one side of the wire. Be sure the tubing will be long enough to cover and seal the entire repair area.
- (9) Spread the strands of the wire apart on each part of the exposed wires (Fig. 11 example 1).

(10) Push the two ends of wire together until the strands of wire are close to the insulation (Fig. 11 example 2).

(11) Twist the wires together (Fig. 11 example 3).

(12) Solder the connection together using rosin core type solder only. **Do not use acid core solder.**

(13) Center the heat shrink tubing over the joint and heat using a heat gun. Heat the joint until the tubing is tightly sealed and sealant comes out of both ends of the tubing.

(14) Repeat steps 8 through 13 for each wire.

(15) Re-tape the wire harness starting 1-1/2 inches behind the connector and 2 inches past the repair.

(16) Re-connect the repaired connector.

(17) Connect the battery, and test all affected systems.

TERMINAL REPLACEMENT

(1) Disconnect battery.

(2) Disconnect the connector being repaired from its mating half.

(3) Remove connector locking wedge, if required (Fig. 14).

(4) Position the connector locking finger away from the terminal using the proper pick from special tool kit 6680. Pull on the wire to remove the terminal from the connector (Figs. 15 and 16).

(5) Cut the wire 6 inches from the back of the connector.

(6) Remove 1 inch of insulation from the wire on the harness side.

(7) Select a wire from the terminal repair assembly that best matches the color wire being repaired.

(8) Cut the repair wire to the proper length and remove 1 inch of insulation.

(9) Place a piece of heat shrink tubing over one side of the wire. Make sure the tubing will be long enough to cover and seal the entire repair area.

(10) Spread the strands of the wire apart on each part of the exposed wires (Fig. 11 example 1).

(11) Push the two ends of wire together until the strands of wire are close to the insulation (Fig. 11 example 2).

(12) Twist the wires together (Fig. 11 example 3).

(13) Solder the connection together using rosin core type solder only. **Do not use acid core solder.**

(14) Center the heat shrink tubing over the joint and heat using a heat gun. Heat the joint until the tubing is tightly sealed and sealant comes out of both ends of the tubing.

(15) Insert the repaired wire into the connector.

(16) Install the connector locking wedge, if required, and reconnect the connector to its mating half/component.

(17) Re-tape the wire harness starting 1-1/2 inches behind the connector and 2 inches past the repair.

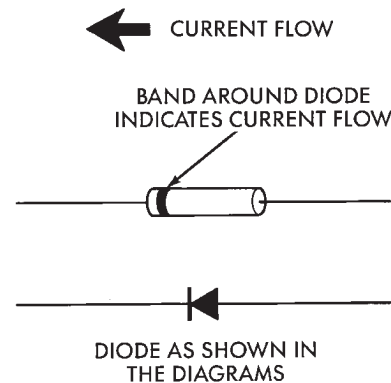
(18) Connect the battery, and test all affected systems.

DIODE REPLACEMENT

(1) Disconnect the battery.

(2) Locate the diode in the harness, and remove the protective covering.

(3) Remove the diode from the harness, pay attention to the current flow direction (Fig. 18).



948W-197

Fig. 18 Diode Identification

(4) Remove the insulation from the wires in the harness. Only remove enough insulation to solder in the new diode.

(5) Install the new diode in the harness, making sure current flow is correct. If necessary, refer to the appropriate wiring diagram for current flow.

(6) Solder the connection together using rosin core type solder only. **Do not use acid core solder.**

(7) Tape the diode to the harness using electrical tape. Make sure the diode is completely sealed from the elements.

(8) Re-connect the battery, and test affected systems.