

## 8W-01 WIRING DIAGRAM INFORMATION

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## WIRING DIAGRAM INFORMATION

## DESCRIPTION

## DESCRIPTION - HOW TO USE WIRING DIAGRAMS

DaimlerChrysler Corporation wiring diagrams are designed to provide information regarding the vehicles wiring content. In order to effectively use the wiring diagrams to diagnose and repair DaimlerChrysler Corporation vehicles, it is important to understand all of their features and characteristics.

Diagrams are arranged such that the power (B+) side of the circuit is placed near the top of the page, and the ground (B-) side of the circuit is placed near the bottom of the page (Fig. 1).

All switches, components, and modules are shown in the at rest position with the doors closed and the key removed from the ignition (Fig. 2).

Components are shown two ways. A solid line around a component indicates that the component is complete. A dashed line around the component indicates that the component is being shown is not complete. Incomplete components have a reference

number to indicate the page where the component is shown complete.

It is important to realize that no attempt is made on the diagrams to represent components and wiring as they appear on the vehicle. For example, a short piece of wire is treated the same as a long one. In addition, switches and other components are shown as simply as possible, with regard to function only.

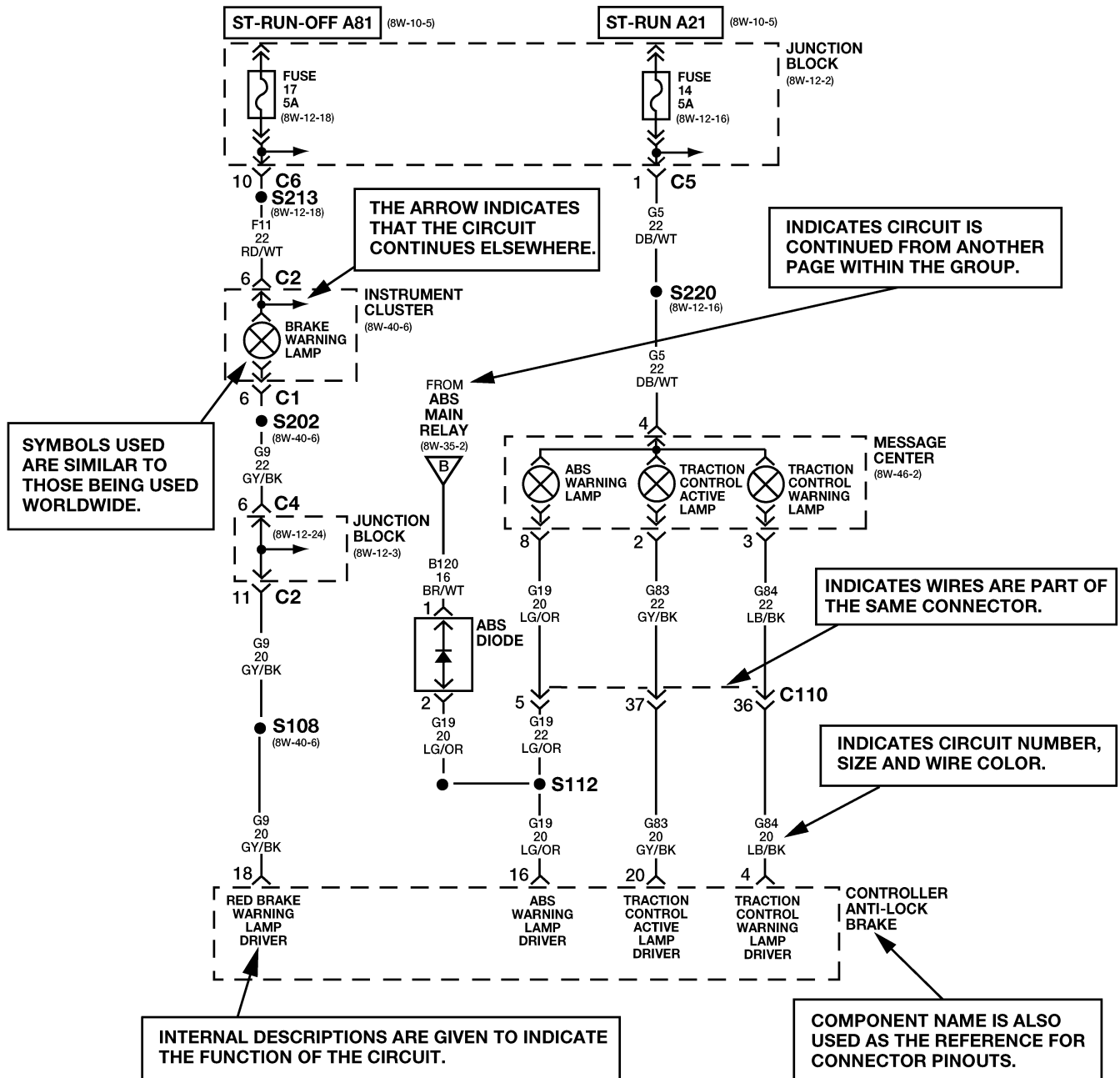
## SYMBOLS

International symbols are used throughout the wiring diagrams. These symbols are consistent with those being used around the world (Fig. 3).

## TERMINOLOGY

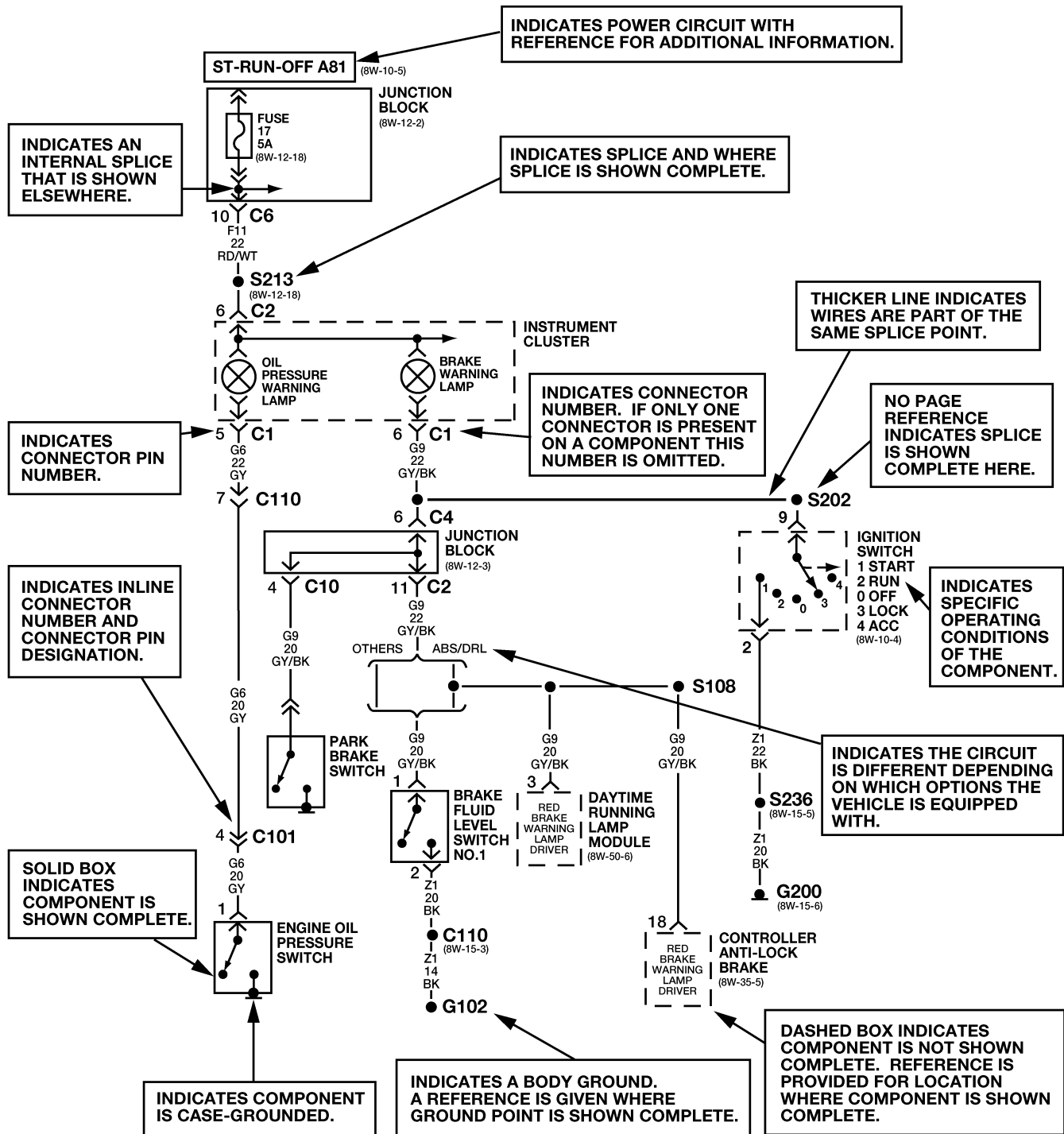
This is a list of terms and definitions used in the wiring diagrams.

DIAGRAMS ARE ARRANGED WITH THE POWER B+ SIDE OF THE CIRCUIT NEAR THE TOP OF THE PAGE, AND THE GROUND SIDE OF THE CIRCUIT NEAR THE BOTTOM OF THE PAGE.



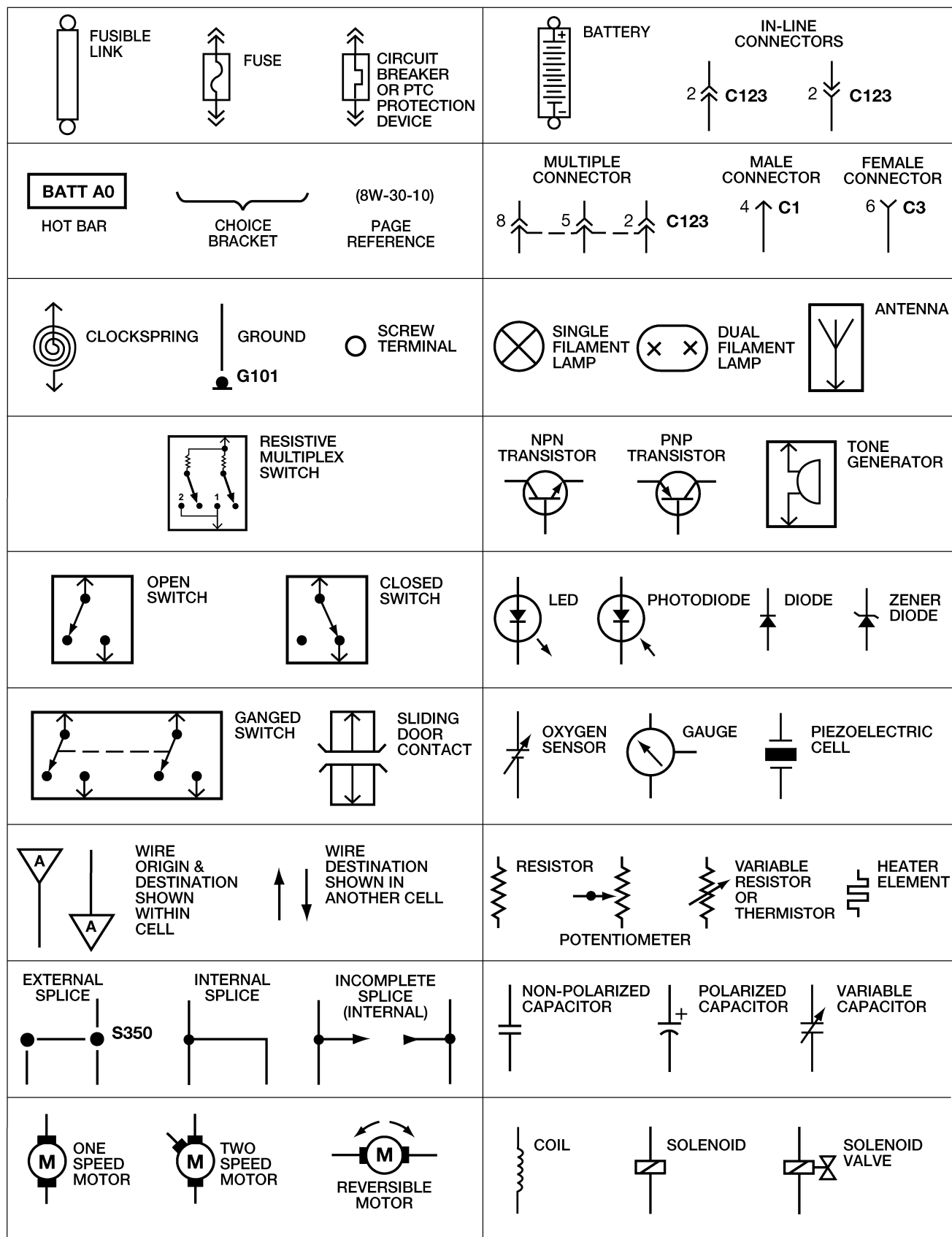
The System shown here is an **EXAMPLE ONLY**. It does not represent the actual circuit shown in the **WIRING DIAGRAM SECTION**.

**Fig. 1 WIRING DIAGRAM EXAMPLE 1**



The System shown here is an **EXAMPLE ONLY**. It does not represent the actual circuit shown in the **WIRING DIAGRAM SECTION**.

**Fig. 2 WIRING DIAGRAM EXAMPLE 2**



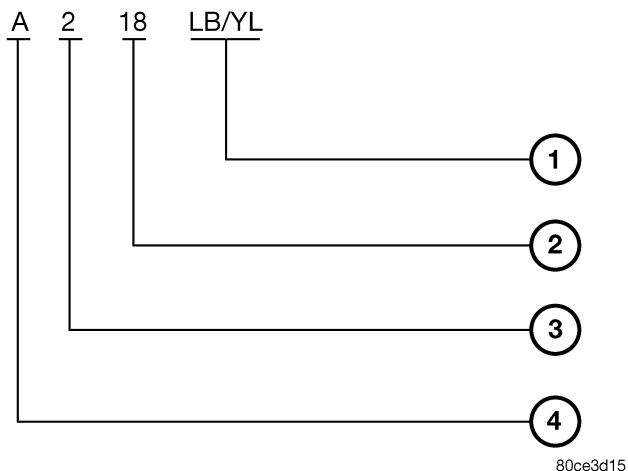
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Fig. 3 WIRING DIAGRAM SYMBOLS

LHD . . . . . Left Hand Drive Vehicles  
 RHD . . . . . Right Hand Drive Vehicles  
 ATX . . Automatic Transmissions-Front Wheel Drive  
 MTX . . Manual Transmissions-Front Wheel Drive  
 AT . . . Automatic Transmissions-Rear Wheel Drive  
 MT . . . Manual Transmissions-Rear Wheel Drive  
 SOHC . . . . . Single Over Head Cam Engine  
 DOHC . . . . . Double Over Head Cam Engine  
 Export . . Vehicles Built For Sale In Markets Other  
 Than North America  
 Except Export . . . Vehicles Built For Sale In North  
 America

## DESCRIPTION - CIRCUIT INFORMATION

Each wire shown in the diagrams contains a code which identifies the main circuit, part of the main circuit, gage of wire, and color (Fig. 4).



**Fig. 4 WIRE CODE IDENTIFICATION**

- 1 - COLOR OF WIRE (LIGHT BLUE WITH YELLOW TRACER)
- 2 - GAGE OF WIRE (18 GAGE)
- 3 - PART OF MAIN CIRCUIT (VARIES DEPENDING ON EQUIP-  
MENT)
- 4 - MAIN CIRCUIT IDENTIFICATION

### WIRE COLOR CODE CHART

| COLOR CODE | COLOR       |
|------------|-------------|
| BL         | BLUE        |
| BK         | BLACK       |
| BR         | BROWN       |
| DB         | DARK BLUE   |
| DG         | DARK GREEN  |
| GY         | GRAY        |
| LB         | LIGHT BLUE  |
| LG         | LIGHT GREEN |
| OR         | ORANGE      |
| PK         | PINK        |
| RD         | RED         |

| COLOR CODE | COLOR       |
|------------|-------------|
| TN         | TAN         |
| VT         | VIOLET      |
| WT         | WHITE       |
| YL         | YELLOW      |
| *          | WITH TRACER |

## DESCRIPTION - CIRCUIT FUNCTIONS

All circuits in the diagrams use an alpha/numeric code to identify the wire and it's function. To identify which circuit code applies to a system, refer to the Circuit Identification Code Chart. This chart shows the main circuits only and does not show the secondary codes that may apply to some models.

### CIRCUIT IDENTIFICATION CODE CHART

| CIRCUIT | FUNCTION                                 |
|---------|--|
| A       | BATTERY FEED                             |
| B       | BRAKE CONTROLS                           |
| C       | CLIMATE CONTROLS                         |
| D       | DIAGNOSTIC CIRCUITS                      |
| E       | DIMMING ILLUMINATION CIR-<br>CUITS       |
| F       | FUSED CIRCUITS                           |
| G       | MONITORING CIRCUITS (GAUG-<br>ES)        |
| H       | MULTIPLE                                 |
| I       | NOT USED                                 |
| J       | OPEN                                     |
| K       | POWERTRAIN CONTROL MOD-<br>ULE           |
| L       | EXTERIOR LIGHTING                        |
| M       | INTERIOR LIGHTING                        |
| N       | MULTIPLE                                 |
| O       | NOT USED                                 |
| P       | POWER OPTION (BATTERY<br>FEED)           |
| Q       | POWER OPTIONS (IGNITION<br>FEED)         |
| R       | PASSIVE RESTRAINT                        |
| S       | SUSPENSION/STEERING                      |
| T       | TRANSMISSION/TRANSAXLE/<br>TRANSFER CASE |
| U       | OPEN                                     |
| V       | SPEED CONTROL, WIPER/<br>WASHER          |
| W       | WIPERS                                   |

| CIRCUIT | FUNCTION      |
|---------|---------------|
| X       | AUDIO SYSTEMS |
| Y       | TEMPORARY     |
| Z       | GROUND        |

## DESCRIPTION - SECTION IDENTIFICATION AND INFORMATION

The wiring diagrams are grouped into individual sections. If a component is most likely found in a particular group, it will be shown complete (all wires, connectors, and pins) within that group. For example, the Auto Shutdown Relay is most likely to be found in Group 30, so it is shown there complete. It can, however, be shown partially in another group if it contains some associated wiring.

Splice diagrams in Section 8W-70 show the entire splice and provide references to other sections the splices serves. Section 8W-70 only contains splice diagrams that are not shown in their entirety somewhere else in the wiring diagrams.

Section 8W-80 shows each connector and the circuits involved with that connector. The connectors are identified using the name/number on the diagram pages.

### WIRING SECTION CHART

| GROUP            | TOPIC                                       |
|------------------|---|
| 8W-01 thru 8W-09 | General information and Diagram Overview    |
| 8W-10 thru 8W-19 | Main Sources of Power and Vehicle Grounding |
| 8W-20 thru 8W-29 | Starting and Charging                       |
| 8W-30 thru 8W-39 | Powertrain/Drivetrain Systems               |
| 8W-40 thru 8W-49 | Body Electrical items and A/C               |
| 8W-50 thru 8W-59 | Exterior Lighting, Wipers and Trailer Tow   |
| 8W-60 thru 8W-69 | Power Accessories                           |
| 8W-70            | Splice Information                          |
| 8W-80            | Connector Pin Outs                          |
| 8W-91            | Connector, Ground and Splice Locations      |

## DESCRIPTION - CONNECTOR, GROUND AND SPLICE INFORMATION

**CAUTION:** Not all connectors are serviced. Some connectors are serviced only with a harness. A typ-

ical example might be the Supplemental Restraint System connectors. Always check parts availability before attempting a repair.

## IDENTIFICATION

In-line connectors are identified by a number, as follows:

- In-line connectors located in the engine compartment are C100 series numbers
- In-line connectors located in the Instrument Panel area are C200 series numbers.
- In-line connectors located in the body are C300 series numbers.
- Jumper harness connectors are C400 series numbers.
- Grounds and ground connectors are identified with a "G" and follow the same series numbering as the in-line connectors.
- Splices are identified with an "S" and follow the same series numbering as the in-line connectors.
- Component connectors are identified by the component name instead of a number. Multiple connectors on a component use a C1, C2, etc. identifier.

## LOCATIONS

Section 8W-91 contains connector/ground/splice location illustrations. The illustrations contain the connector name (or number)/ground number/splice number and component identification. Connector/ground/splice location charts in section 8W-91 reference the figure numbers of the illustrations.

The abbreviation T/O is used in the component location section to indicate a point in which the wiring harness branches out to a component. The abbreviation N/S means Not Shown in the illustrations

## WARNINGS - GENERAL

**WARNINGS** provide information to prevent personal injury and vehicle damage. Below is a list of general warnings that should be followed any time a vehicle is being serviced.

**WARNING:** Always wear safety glasses for eye protection.

**WARNING:** Use safety stands anytime a procedure requires being under a vehicle.

**WARNING:** Be sure that the ignition switch always is in the off position, unless the procedure requires it to be on.



**WARNING:** Set the parking brake when working on any vehicle. An automatic transmission should be in park. A manual transmission should be in neutral.

**WARNING:** Operate the engine only in a well-ventilated area.

**WARNING:** Keep away from moving parts when the engine is running, especially the fan and belts.

**WARNING:** To prevent serious burns, avoid contact with hot parts such as the radiator, exhaust manifold(s), tail pipe, catalytic converter and muffler.

**WARNING:** Do not allow flame or sparks near the battery. Gases are always present in and around the battery.

**WARNING:** Always remove rings, watches, loose hanging jewelry and avoid loose clothing.

## DIAGNOSIS AND TESTING - WIRING HARNESS

### TROUBLESHOOTING TOOLS

When diagnosing a problem in an electrical circuit there are several common tools necessary. These tools are listed and explained below.

- **Jumper Wire** - This is a test wire used to connect two points of a circuit. It can be used to bypass an open in a circuit.

**WARNING:** Never use a jumper wire across a load, such as a motor, connected between a battery feed and ground.

- **Voltmeter** - Used to check for voltage on a circuit. Always connect the black lead to a known good ground and the red lead to the positive side of the circuit.

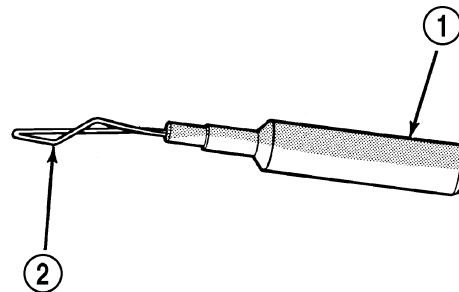
**CAUTION:** Most of the electrical components used in today's vehicles are Solid State. When checking voltages in these circuits, use a meter with a 10 - megohm or greater impedance rating.

- **Ohmmeter** - Used to check the resistance between two points of a circuit. Low or no resistance in a circuit means good continuity.

**CAUTION:** Most of the electrical components used in today's vehicles are Solid State. When checking resistance in these circuits use a meter with a 10 -

megohm or greater impedance rating. In addition, make sure the power is disconnected from the circuit. Circuits that are powered up by the vehicle's electrical system can cause damage to the equipment and provide false readings.

- **Probing Tools** - These tools are used for probing terminals in connectors (Fig. 5). Select the proper size tool from Special Tool Package 6807, and insert it into the terminal being tested. Use the other end of the tool to insert the meter probe.



948W-233

**Fig. 5 PROBING TOOL**

- 1 - SPECIAL TOOL 6801  
2 - PROBING END

## INTERMITTENT AND POOR CONNECTIONS

Most intermittent electrical problems are caused by damaged electrical connections or wiring. It is also possible for a sticking component or relay to cause a problem. Before condemning a component or wiring assembly, check the following items.

- Connectors are fully seated
- Spread terminals, or terminal push out
- Terminals in the wiring assembly are fully seated into the connector/component and locked into position
  - Dirt or corrosion on the terminals. Any amount of corrosion or dirt could cause an intermittent problem
  - Damaged connector/component casing exposing the item to dirt or moisture
  - Wire insulation that has rubbed through causing a short to ground
  - Some or all of the wiring strands broken inside of the insulation
  - Wiring broken inside of the insulation

## TROUBLESHOOTING WIRING PROBLEMS

When troubleshooting wiring problems there are six steps which can aid in the procedure. The steps 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.

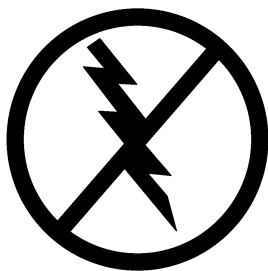
- (1) Verify the problem.
- (2) Verify any related symptoms. Do this by performing operational checks on components that are in the same circuit. Refer to the wiring diagrams.
- (3) Analyze the symptoms. Use the wiring diagrams to determine what the circuit is doing, where the problem most likely is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

## STANDARD PROCEDURE

### STANDARD PROCEDURE - ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES

All ESD sensitive components are solid state and a symbol (Fig. 6) is used to indicate this. When handling any component with this symbol, comply with the following procedures to reduce the possibility of electrostatic charge build up on the body and inadvertent discharge into the component. If it is not known whether the part is ESD sensitive, assume that it is.

- (1) Always touch a known good ground before handling the part. This should be repeated while handling the part and more frequently after sliding across a seat, sitting down from a standing position, or walking a distance.
- (2) Avoid touching electrical terminals of the part, unless instructed to do so by a written procedure.
- (3) When using a voltmeter, be sure to connect the ground lead first.
- (4) Do not remove the part from its protective packing until it is time to install the part.
- (5) Before removing the part from its package, ground the package to a known good ground on the vehicle.



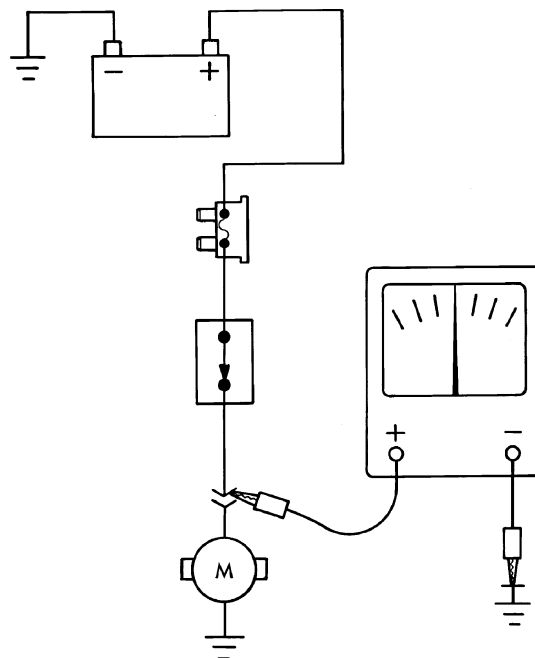
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**Fig. 6 ELECTROSTATIC DISCHARGE SYMBOL**

### STANDARD PROCEDURE - TESTING OF VOLTAGE POTENTIAL

- (1) Connect the ground lead of a voltmeter to a known good ground (Fig. 7).

- (2) Connect the other lead of the voltmeter to the selected test point. The vehicle ignition may need to be turned ON to check voltage. Refer to the appropriate test procedure.



948W-194

**Fig. 7 TESTING FOR VOLTAGE POTENTIAL**

### STANDARD PROCEDURE - TESTING FOR CONTINUITY

- (1) Remove the fuse for the circuit being checked or, disconnect the battery.
- (2) Connect one lead of the ohmmeter to one side of the circuit being tested (Fig. 8).
- (3) Connect the other lead to the other end of the circuit being tested. Low or no resistance means good continuity.

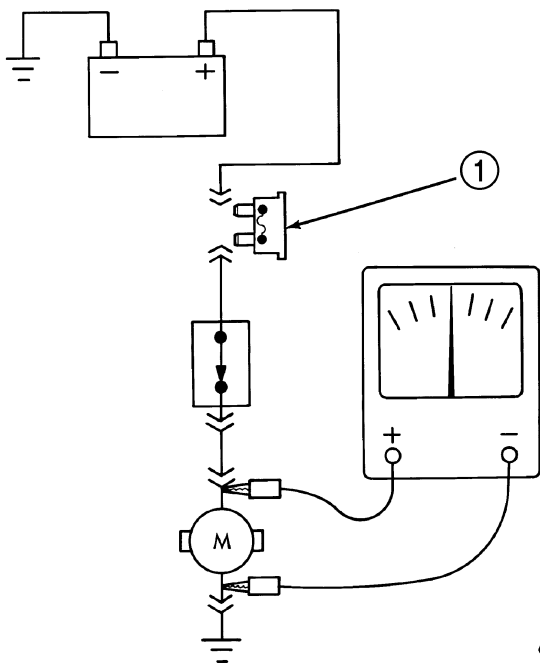
### STANDARD PROCEDURE - TESTING FOR A SHORT TO GROUND

- (1) Remove the fuse and disconnect all items involved with the fuse.
- (2) Connect a test light or a voltmeter across the terminals of the fuse.
- (3) Starting at the fuse block, wiggle the wiring harness about six to eight inches apart and watch the voltmeter/test lamp.
- (4) If the voltmeter registers voltage or the test lamp glows, there is a short to ground in that general area of the wiring harness.

### STANDARD PROCEDURE - TESTING FOR A SHORT TO GROUND ON FUSES POWERING SEVERAL LOADS

- (1) Refer to the wiring diagrams and disconnect or isolate all items on the suspected fused circuits.
- (2) Replace the blown fuse.





**Fig. 8 TESTING FOR CONTINUITY**

1 - FUSE REMOVED FROM CIRCUIT

(3) Supply power to the fuse by turning ON the ignition switch or re-connecting the battery.

(4) Start connecting or energizing the items in the fuse circuit one at a time. When the fuse blows the circuit with the short to ground has been isolated.

## STANDARD PROCEDURE - TESTING FOR A VOLTAGE DROP

(1) Connect the positive lead of the voltmeter to the side of the circuit closest to the battery (Fig. 9).

(2) Connect the other lead of the voltmeter to the other side of the switch, component or circuit.

(3) Operate the item.

(4) The voltmeter will show the difference in voltage between the two points.

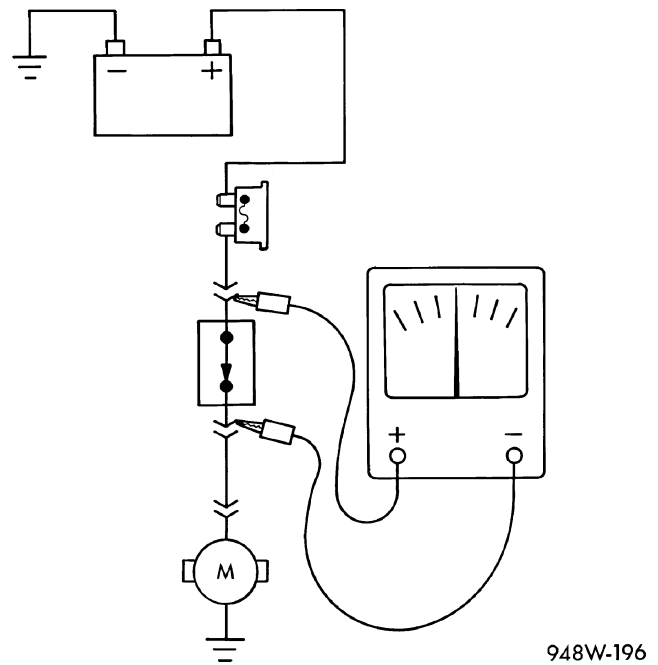
## SPECIAL TOOLS

### WIRING/TERMINAL

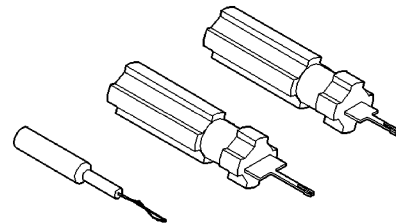
### CONNECTOR

### REMOVAL

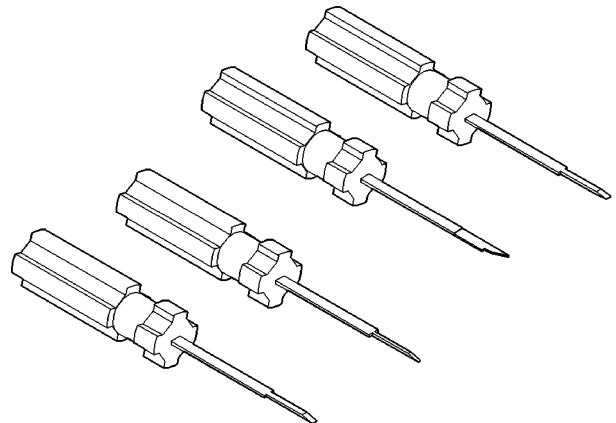
- (1) Disconnect battery.
- (2) Release Connector Lock (Fig. 10).
- (3) Disconnect the connector being repaired from its mating half/component.
- (4) Remove the dress cover (if applicable) (Fig. 10).
- (5) Release the Secondary Terminal Lock, if required (Fig. 11).



**Fig. 9 TESTING FOR VOLTAGE DROP**

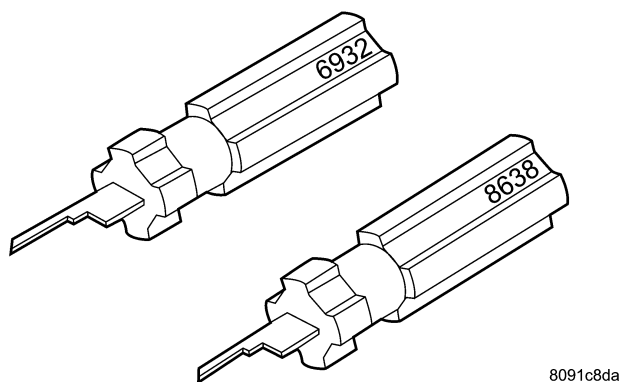


**PROBING TOOL PACKAGE 6807**

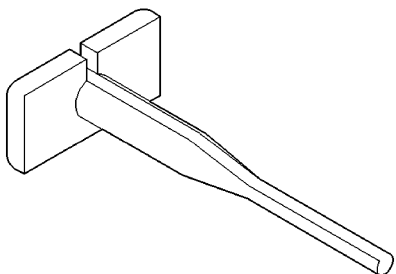
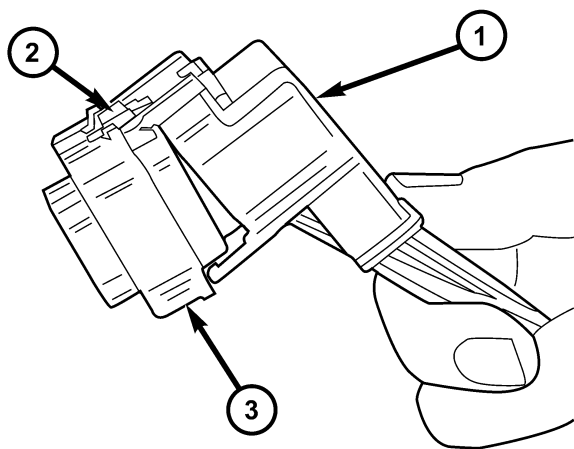


**TERMINAL PICK TOOL SET 6680**

- (6) Position the connector locking finger away from the terminal using the proper special tool. Pull on the wire to remove the terminal from the connector (Fig. 12).



8091c8da

**TERMINAL REMOVING TOOLS 6932 AND 8638****TERMINAL REMOVING TOOL 6934**

80c97bac

**Fig. 10 REMOVAL OF DRESS COVER**

- 1 - DRESS COVER
- 2 - CONNECTOR LOCK
- 3 - CONNECTOR

## INSTALLATION

- (1) Insert the removed terminal in the same cavity on the repair connector.
- (2) Repeat steps for each terminal 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.
- (3) When the connector is re-assembled, the secondary terminal lock must be placed in the locked position to prevent terminal push out.
- (4) Replace dress cover (if applicable).

- (5) Connect connector to its mating half/component.
- (6) Connect battery and test all affected systems.

## DIODE

### REMOVAL

- (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. 13).

### INSTALLATION

- (1) Remove the insulation from the wires in the harness. Only remove enough insulation to solder in the new diode.
- (2) Install the new diode in the harness, making sure current flow is correct. If necessary, refer to the appropriate wiring diagram for current flow (Fig. 13).
- (3) Solder the connection together using rosin core type solder only. **Do not use acid core solder.**
- (4) Tape the diode to the harness using electrical tape. Make sure the diode is completely sealed from the elements.
- (5) Re-connect the battery and test affected systems.

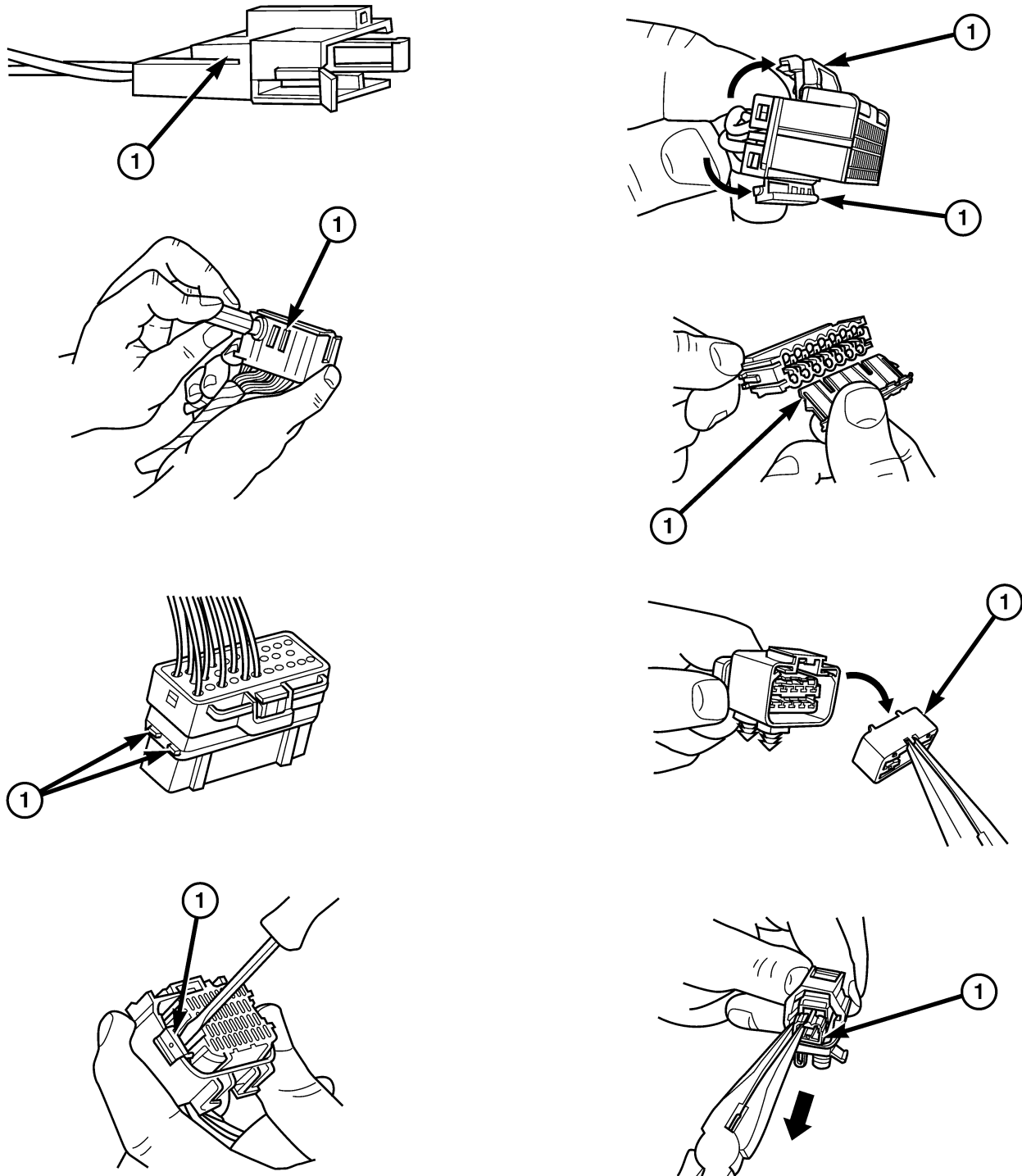
## TERMINAL

### REMOVAL

- (1) Follow steps for removing terminals described in the connector removal section.
- (2) Cut the wire 6 inches from the back of the connector.

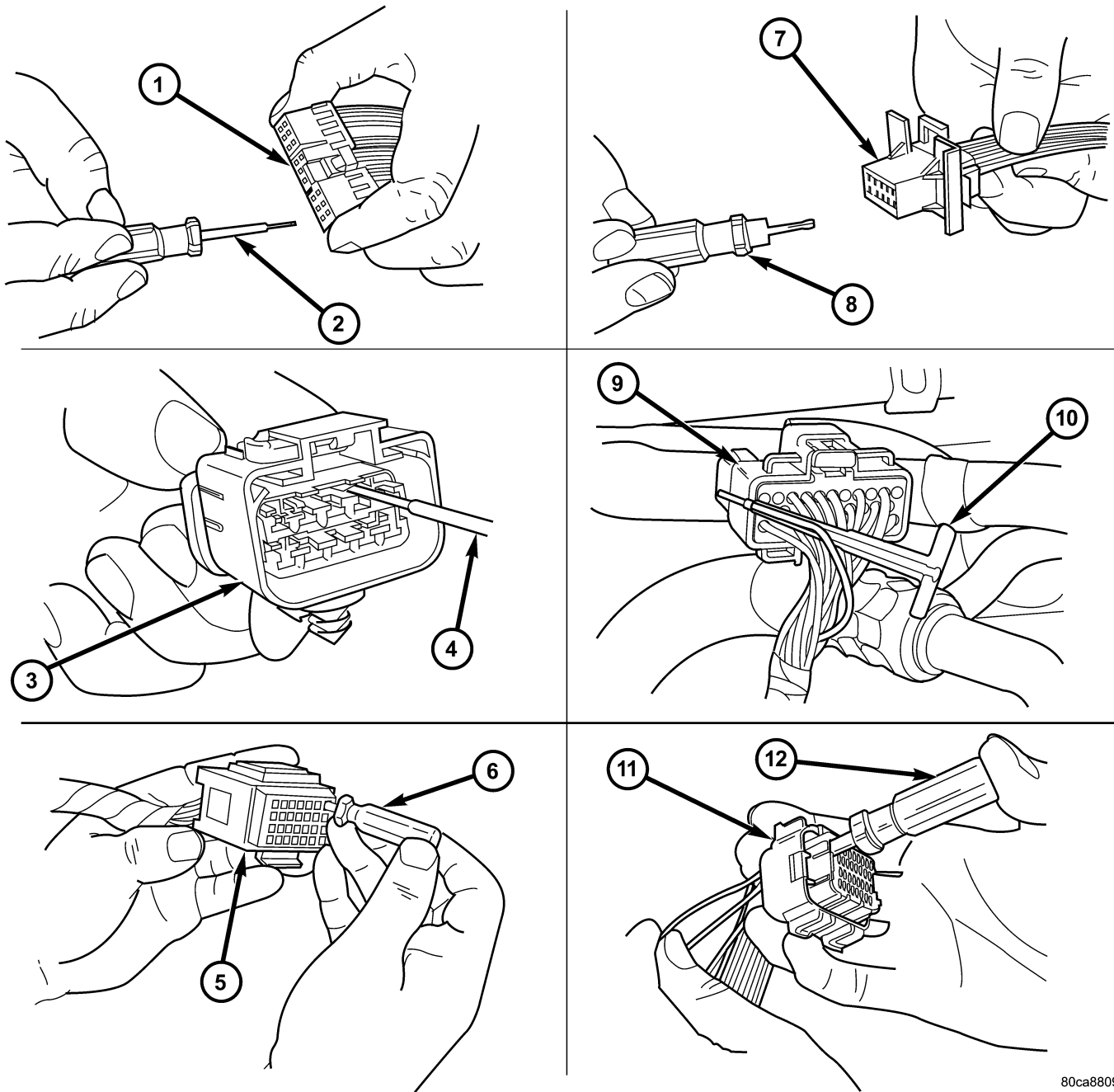
### INSTALLATION

- (1) Select a wire from the terminal repair kit that best matches the color and gage of the wire being repaired.
- (2) Cut the repair wire to the proper length and remove one-half (1/2) inch of insulation.
- (3) Splice the repair wire to the wire harness (see wire splicing procedure).
- (4) Insert the repaired wire into the connector.
- (5) Install the connector locking wedge, if required, and reconnect the connector to its mating half/component.
- (6) Re-tape the wire harness starting at 1-1/2 inches behind the connector and 2 inches past the repair.
- (7) Connect battery and test all affected systems.



80ca8802

**Fig. 11 EXAMPLES OF CONNECTOR SECONDARY TERMINAL LOCKS**



80ca8809

**Fig. 12 TERMINAL REMOVAL**

- 1 - TYPICAL CONNECTOR
- 2 - PICK FROM SPECIAL TOOL KIT 6680
- 3 - APEX CONNECTOR
- 4 - PICK FROM SPECIAL TOOL KIT 6680
- 5 - AUGAT CONNECTOR
- 6 - SPECIAL TOOL 6932

- 7 - MOLEX CONNECTOR
- 8 - SPECIAL TOOL 6742
- 9 - THOMAS AND BETTS CONNECTOR
- 10 - SPECIAL TOOL 6934
- 11 - TYCO CONNECTOR
- 12 - SPECIAL TOOL 8638

## WIRE

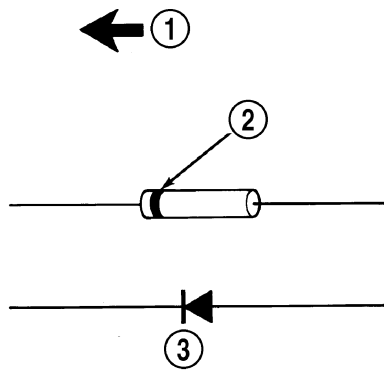
### STANDARD PROCEDURE - WIRE SPLICING

When splicing a wire, it is important that the correct gage be used as shown in the wiring diagrams.

(1) Remove one-half (1/2) inch of insulation from each wire that needs to be spliced.

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

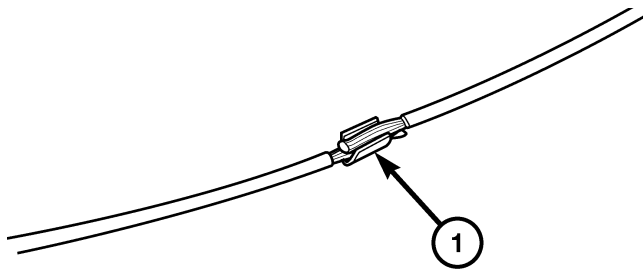
(3) Place the strands of wire overlapping each other inside of the splice clip (Fig. 14).



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**Fig. 13 DIODE IDENTIFICATION**

- 1 - CURRENT FLOW
- 2 - BAND AROUND DIODE INDICATES CURRENT FLOW
- 3 - DIODE AS SHOWN IN THE DIAGRAMS

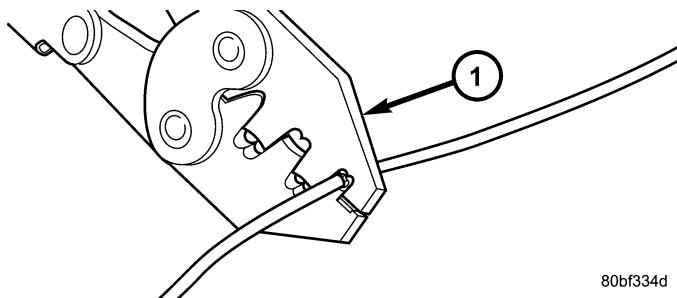


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**Fig. 14 SPLICE BAND**

- 1 - SPLICE BAND

(4) Using crimping tool, Mopar p/n 05019912AA, crimp the splice clip and wires together (Fig. 15).



80bf334d

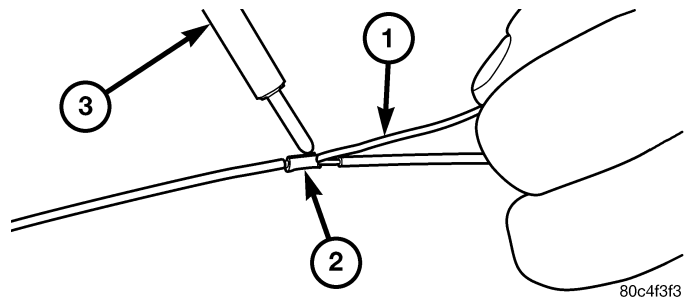
**Fig. 15 CRIMPING TOOL**

- 1 - CRIMPING TOOL

(5) Solder the connection together using rosin core type solder only (Fig. 16).

**CAUTION: DO NOT USE ACID CORE SOLDER.**

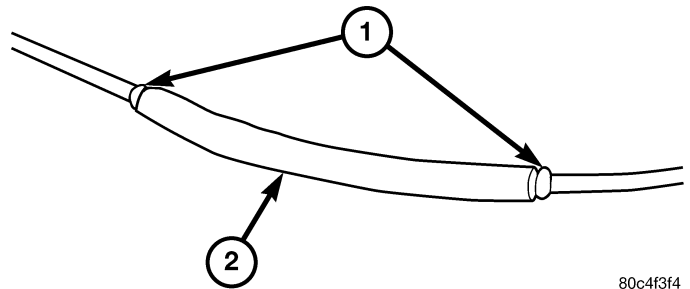
(6) Center the heat shrink tubing over the joint and heat using a heat gun. Heat the joint until the tubing is tightly sealed and sealant comes out of both ends of the tubing (Fig. 17).



80c4f3f3

**Fig. 16 SOLDER SPLICE**

- 1 - SOLDER
- 2 - SPLICE BAND
- 3 - SOLDERING IRON



80c4f3f4

**Fig. 17 HEAT SHRINK TUBE**

- 1 - SEALANT
- 2 - HEAT SHRINK TUBE