WIRING DIAGRAMS MANUAL DEVELOPMENT PROCESS

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CHAPTER 1: WIRING DIAGRAMS OVERVIEW

A. PURPOSE AND OBJECTIVE

The Wiring Diagrams Manuals provide Ford, Lincoln-Mercury and Ford Truck dealership technicians with unique information to facilitate the efficient diagnosis and repair of electrical and electronic system concerns on Ford Motor Company products. Ford Dealerships require technically accurate service information to efficiently resolve electrical problems on customer vehicles. The effectiveness of the Wiring Diagrams in the dealership service bay reduces warranty costs and contributes to Ford Motor Company's reputation for high quality service. Independent Service Stations will use the Wiring Diagrams to service Ford vehicles. Insuring a high quality manual for use in this application will result in cost savings for the customer and the development of a growing respect from the automotive technicians for Ford service publications. Ford Customer Service Division's Hot-Line Group uses the Wiring Diagrams when responding to the automotive technician during the servicing of Ford vehicles. The Retail Market will use the Wiring Diagrams to perform his/her own vehicle troubleshooting. Assembly Plants will use the Wiring Diagrams during production to effect maintenance during assembly.

B. SUMMARY OF WIRING DIAGRAMS FEATURES

1) One manual is produced for each vehicle platform each model year.

2) The manual displays electrical/electronic information in a "system" format. (Example: All components and wiring schematics for the engine control system would appear in one section, with off-page references to other sections when necessary.)

3) A section entitled, “Table of Contents” **Cell 1**, offers all “ cell ” page references and is shared between all Wiring Diagrams for continuity.

4) A section entitled, “Index” **Cell 2**, lists all components, grounds, and splices and the page on which the best view is shown, and it is shared between all Wiring Diagrams for continuity.

5) A section entitled, "Introduction" **Cell 3**, offers helpful information on how to use the Wiring Diagrams; it is shared between all Wiring Diagrams for continuity.

6) A section entitled, "Symbols" **Cell 4**, Illustrates all symbols used in WD with their descriptions. It is shared between all Wiring Diagrams for continuity.

7) A section entitled, "Connector Repair Procedures" **Cell 5**, offers helpful information on troubleshooting wiring harness and connector hidden concerns; it is shared between all Wiring Diagrams for continuity.

8) Notes, cautions and warnings, which contain important safety and component function information, are also included.

9) A section entitled, "Wiring Harness Overview" **Cell 9**, offers a vehicle bird's eye view with all wiring harnesses routing and its part number with description. It is shared between all Wiring Diagrams for continuity.

10) Component testing procedures are included to advise technicians how to perform diagnostic tests on various components, **Cell 149**. This section is shared between all Wiring Diagrams for continuity.

11) Connector face views are shown with pin and circuit numbers and wire colors and circuit function, **Cell 150**. (Refer to ES-FOTB-1274-AA file for the North American circuit numbering and color code specifications @ http://www_eese.ford.com/~edgs/edgs_generic/e_master/ccolor.html.)

12) Full-view (vehicle and vehicle section) illustrations direct the technician to the locations of components, connectors, grounds, harnesses, and splices on the vehicle, **Cell 151**.

13) Component, Connector, Splice, Ground, and Wiring Harness Locations are documented in Component Location Charts, Cell **152**. This location information enables the technician to quickly locate the electrical component referenced in the schematic; and it is shared between all Wiring Diagrams for continuity.

14) A section entitled, "Vehicle Repair Location Charts" **Cell 160**, illustrates all vehicle repair location codes. This location information enables the technician to quickly identify the location of the repair. It consists of one page and is shared between all Wiring Diagrams for continuity.

CHAPTER 2: DEVELOPMENT SPECIFICATIONS

A. Development Guidelines

1. Header/Footer Information

Page layout

- Page Orientation: All Wiring Diagrams will be 8.5" x 11", landscape.
- *Margins*: For detailed measurements for margins, headers, footers, etc., refer to page 31. This page represents an odd page. The margins are based on the "inside-outside" system, which allows space for binding. Thus, the measurements should be mirrored horizontally for even pages.
- *Header*
  - The Header text is Helvetica 13pt. Bold
  - The header text is underlined by a .5 pt. bar.
- *Footer*
  - The footer will include the Model Year **(XXXX),** Model **Name, and publication to print month (XX), current calendar Year (XXXX)**
  - The footer is over-lined by a .5 pt bar.
  - The footer text will be Helvetica 11 pt. Normal

Cells and Page Numbering

Each section in the Wiring Diagrams will be assigned a specific cell number prefix. Each page number will contain the cell number prefix and page number suffix; for example, "3-1," "3" is the cell number prefix and "1" is the page number suffix.

- *Frame*: The pages are broken up into three frames: Header, Main and Footer. Each frame is used to supply different information.
- *Header Frame*: The header frame provides the cell number, page number and cell name. The header will change from left to right based on the page number. Odd numbered pages (with the exception of the Table of contents) are flush left, while even numbered pages are flush right.

Page number Left:
Font: Helvetica
Text: 13pt., Bold
Format: Flush Left
Position: Precedes the Cell Name by .4 inches
Page number Right:
Font: Helvetica
Text: 13pt., Bold
Format: Flush Right
Position: Follows the Cell Name by .4 inches
Cell name Left:
Font: Helvetica
Text: 13pt., Bold
Format: Flush Left,
Position: Follows the Page Number by .4 inches
Cell name Right:
Font: Helvetica
Text: 13pt., Bold
Format: Flush Right,
Position: Precedes Cell Number by .4 inches
Cell number, page number and cell name will be underlined with .5 pt. Bar.

Footer Frame: The footer frame provides the Model Year and Model Name, which are placed directly underneath "Page End" bar .5 pt. The footer will change from left to right consistently with the page number. Odd numbered pages are flush left, while even numbered pages are flush right.

Model Year name Left:
Font: Helvetica
Text: 11pt.
Format: Flush Left
Model Year name Right:
Font: Helvetica
Text: 11pt.
Format: Flush Right
Main Frame: The main frame of the page holds a variety of information. Depending on the cell, it will house a wiring schematic, connector faces, a vehicle component location view and/or an index.
All of the components involved in producing the items listed above will be covered throughout this chapter. The frame width should be fixed at 9.75 inches and the height fixed at 6.78 inches.
Refer to page 31 for for Header, Frame and Footer frame settings.

2. Cell Layout

Table of Contents - Cell 1: This cell will be in two-column format. The page will conform to "even page" specifications but receive the number 1-1.In upper left of the main frame the model name followed by the text "Wiring Diagrams" (e-g. Ranger Wiring Diagrams) will appear. This text will be 30 pt. Helvetica Bold. Beneath this text will be a 1pt line extending the entire width of the frame. The font for the Table of Contents list is 10 or 11 pt. Times (or equivalent). The cell will be headed with the vehicle name followed by “Wiring Diagrams” and will be in 30 pt. Modern Bold left justified and underlined with 1pt.(i.e. Ranger Wiring Diagrams) The entire Table of Contents will be in Swiss font and in 11 pt. Modern Bold (or equivalent) and will be arranged in order of cell appearance. The cell name will be separated from the cell number and page number by leader dot tab. The cell number and page number will be right aligned with the column. This section will consist of one page. The ordering information and accuracy disclaimer will appear at the bottom of the main frame. Refer to page 14 for actual example settings/layout.

Index – Cell 2: This cell begins on a left-hand page (the reverse side of the Table of Contents. This section will be in a two-column format. Each entry will consist of an item, followed by a leader dot tab, again followed by a cell/page reference. The items should be left aligned with the column format, and in 11pt Times. The entries should be sorted in alphabetical order by item. Listing the electrical components shown in the publication and the page on which the best view can be located. Capitalization of entry will mirror components name text within the wiring diagrams. This cell contains the best view – shown complete - of each component, splice, ground, and fuse – qualifier might be needed. Refer to page 15 for actual example settings/layout.

Introduction - Cell 3 This cell will contain information about how to use the publication. This section will be common in all Wiring Diagrams. This cell will be identical in all wiring diagrams that utilize the same format and circuit numbering. This section will be formatted into two columns; Left column will contain text information whereas right column will be used for graphical aid display. This section will be consisted of the following subtitles, their descriptions, and graphical aid templates: 1) Current Flow, 2) Switch Positions, 3) Splices, 4) Component Referencing, 5) Component Names, Notes, and Base Part Numbers, 6) Component Identifications, 7) Fuse and Relay Information, 8) Power Distribution, 9) Ground distribution, 10) Component and Connector Information, 11) Note, 12) Complete Circuit Operation. An Information Safety Notice will be placed after the last item in the cell. All subtitles will be assigned a reference number in corresponding to its graphical aid information. The graphical aid templates and Safety Warning Notice will be edged Bold. The subtitles will be in Times, Bold, and 11 pt. The Text will be in times, 11 pt. Refer to page 17 for actual example settings/layout.

Symbols- Cell 4 This section will contain all symbols and its conventional names used in all electrical subsystems. This section will be in three-column format and, in some cases, two-

column format. All symbols, whether displayed individually or in a template, will be edged Bold. Symbol conventional names will be in Swiss, 10 pt., placed to the right of its symbol and separated by 2 “tap” distance. Where template is used, a description will be used, edged with a box and arrow pointing to its bolded symbol. Where a 3D figure is shown a chart will be used; edged bold, and reference numbers will be assigned correspondingly. Refer to page 18 & 19.

Connector Repair Procedures- Cell 5 This section will be identical for all Wiring Diagram Publications. This section will contain general information on how to troubleshoot wiring harness and repair connector procedures. This section will be in two column format and will include the following subtitles with its descriptions and graphical aid: 1) Troubleshooting wiring harness and connector hidden concerns, 2) Terminal not properly seated, 3) Defective insulation stripping, 4) Partially mated connectors, 5) Deformed (enlarged) female terminals, 6) Electrical short inside the harness, 7) Electrical short within the harness, 8) Broken wire strands in harness, and 9) Recommended splicing method. All graphical aid will be bold edged. Refer to page 20 for actual example settings/layout.

Wiring Harness Overview – Cell 9 This section will contain a bird's eye view of the vehicle with all harness routing in two-dimension. Rectangles will be used to represent each harness, outlined with a 1pt. Black line. The harnesses will be filled with various colors and patterns to distinguish them from one another. Each harness line will be identified with a circled number and an arrow pointing to the called out harness on the page. Immediately after figure, a chart will be placed, corresponding to the harness called out in the bird's eye view. The chart will be in three-column format headed by “Item", “Part Number”, and “Description” in 7 pt Helvetica Bold font, and it will be centered on the page. The chart will display the harnesses called out on the graphic and will be in numeric order. The text in the chart will be 7 pt Helvetica. In publications covering two models, if a qualifier is necessary, it will be placed at the top left of the page, under the header bar, in Helvetica, 11 pt, bold. Refer to page 21 for actual example settings/layout.

Fuse and Relay Information – Cell 11 This section will contain information about all fuse and relay boxes in the vehicle. This section will be in two-column format paced in a template format, edged bold. All information, except fuses, will be placed within the graphical template in 9 pt., Helvetica, with an arrow pointing to its location. Immediately after the graphical information template, a chart headed with “Fuse”, “Amps”, and “Circuits protected” related information would be placed in a template edged bold. The Chart order will be driven by Fuse numbers. The graphical fuse and relay information will be Left-Subtitled (qualified) in 10 pt., Helvetica, Bold. Refer to page 23 for actual example settings/layout.

Component Testing –Cell 149 This section will contain testing procedures for many vehicle switches and relays. This section will be in two-column format and will contain the following for each component: 1) Schematic of component internals , 2) Component connector face view
3) Component testing procedure. This section will consist of and not be limited to the following:

1) “Introduction” on how to perform component testing procedure,
2) Main light switch,
3) Ignition switch,
4) Multifunction switch
5) Window switches (driver, passenger, etc.)
6) Exterior rear view mirror switch
7) Door lock switches (driver, passenger, sliding, and liftgate)
8) Roof opening switch
9) Power seat switches (driver, passenger, etc.)
10) Mini and Micro ISO relays.
11) Lumbar switches
12) Adjustable pedal switches

Refer to page 25 for actual example settings/layout.

Connector Views – Cell 150 This section will be in two-column format with outside border 1 pt. Bold Line. Connectors will be listed in numerical order. This section will consist of the following

information:
1.Connector Number
2.Connector Face
3. Connector Chart
4. Harness Number
5. Gender
Component Connectors:
Each connector face view, connector number, harness base part number, gender, component base part number, component name related to connector, and connector chart will be placed inside an outlined frame. The outline should be 1 pt. All text is Helvetica. Within each template:
1) Connector Face View will be centered.
2) Gender is centered under the connector face view in 8 pt. Bold all caps
3) Connector Number will be placed left-subtitled in 12 pt., Bold,
4) For component connectors, Ford Harness Base number will be placed under the connector number in 10 pt., Bold.
5) Component Name will be placed under harness base number in 6 pt.,
6) Connector color abbreviation is placed to the right of the connector number in 6 pt. Connector Color info is available in Wiring Diagrams Appendix.
7) Connector Table in which its headers will be 8 pt. Bold, will be placed beneath the connector face. The connector chart will consist of "Pin" number, "Circuit" number and color, and "Circuit Function". The chart text will be in 8 pt.
Inline Connectors:

1) The Connector Face View
2) The Harness Base Number
3) The Connector Number and gender
4) Pin numbers will be in parentheses and be listed in ascending alphanumeric order, followed by circuit number and wire color. Whenever possible, the in-line connector table will have one listing for both male and female connectors that are placed within the same template. In cases where significant differences exist between the circuit information on opposing sides, a separate chart for each side is acceptable.

Refer to page 26 for actual example settings/layout.

Component Location View – Cell 151: This section will consist of component illustrations displaying all component locations. This section will be in a template format in which grid-coordinates are assigned: Rows are alphabetically assigned, A-to-F, and Columns are numerically assigned, 1-to-8. This section will illustrate 1) component location with its connector numbers placed with an arrow pointing toward it, 2) harness routing with the base part number placed with arrow leading toward it, 3) Ground location with its number placed with an arrow pointing toward it, 4) Splice with its number placed with an "S" shape pointing toward it. If splices are located close to each other in harness routing, a single pointing line should be used with multiple splice numbers. The leader line specification should be as follows: line=.5 pt. Line Knockout= 4 pt. white, splice pointer = 1.5pt. black, splice knockout= 5pt white. The grid coordinates characters will be in 11 pt Bold. The harness graphic routing will be outside border bold. Inside the bottom right corner of the grid, an arrow is placed showing the orientation of the vehicle. The arrow is always to be pointing to the front of the vehicle.
Refer to page 59 for actual example settings/layout.
Cell 151 will consist of and not be limited to the following sequential order illustration pages; and it might vary by vehicle line accordingly (i.e., pick-up, SUV, Sports car, Sedan, etc.):

- Engine compartment
- Engine (isometric view for both left and right sides)
- Master Cylinder area – where engine compartment image is too complex.
- Fuse Box Area – where engine compartment image is too complex.
- Transmission
- Instrument panel (front and back views)
- Steering Column
- Steering wheel
- Floor Console

- A pillar
- B Pillar
- C Pillar
- D Pillar
- Floor
- Driver Seat
- Passenger Seat
- LH Rear Seat
- RH Rear Seat
- 3rd Row Seat
- Driver's Door
- Passenger Door
- LH Rear Door
- RH Rear Door
- Liftgate/ Trunk
- Roof/Side Walls
- Front HVAC
- Auxiliary HVAC
- Chassis

Refer to pages 34 through 57 for template examples.

Component Location Chart - Cell 152. This section will list all Component names, Connector numbers, Splices numbers, Ground numbers, and Harness numbers and reference pages/locations in vehicle. This section will be in two-column format in which each column will be in four-column format. This section will be consist of 5 sub-sections in which each section will receive the following titles in alphabetical order in 10 pt, Swiss, Bold: Components, Connectors, Grounds, Splices, and Wiring Harness.
The four-column format will be titled in column one:
"Components" and in column 5: "Cell 151". The four column format will be subtitled with a) column 1 "Ref. #", b) column 2 "Component Name, Location", c) column 3 [blank, used for leader dot], d) column 4 "Page/coordinates". All the subtitles will be in 10 pt, Swiss, Bold. Column 1 and 2 will be separated with a "tab", column 2 and 3 will be separate with leader dot, and within column 4 the page number and coordinate will be separated with a space hyphen, space. Note that one page /coordinate will be assigned to component name and location. All text will be in 11 pt, Swiss. Each sub-section will start on a fresh page. Components sub-section will be alphabetically driven, and connectors, splices, grounds, harness sub-sections will be numerically driven. In cases where there will be a sub sub-title, the title will be Bold (i.e., Splices section). Refer to pages 27 through 30 for actual example settings/layout.
Vehicle Repair Locations Charts - **Cell 160.** This cell is unique for each vehicle. Refer to page 33 for template example settings/layout.

3. Creating a Schematic

The following are some general rules to follow when creating a Wiring Diagram:

- *Angled Wires*: Use as few angled wires as possible. When they are unavoidable, they should be at 90 degrees with connection line in .5 pt. ends with a dot.
- *Airbag Warning*: airbag pages must contain the following text within a WARNING box: Refer to page 60 for approved verbatim.
- *Hybrid Warning*: Hybrid related pages must contain the following text within a WARNING box. Refer to Wiring Diagrams Appendix. Refer to page 60 for approved verbatim
- *Fire Suppression*: Fire suppression related pages should contain the following text with a WARNING box. Refer to Wiring Diagrams Appendix. Refer to page 60 for approved verbatim
- *Page qualifier* should be stated when a specific option applies (i.e., 3.8L). This information specifies which model of a particular vehicle is being depicted on a given page. It is placed in

the upper left hand corner. The qualifier will be in 11pt., Bold, Helvetica.

- *Qualifier*: Individual qualifiers should be used when showing more than one option on the vehicle. Qualifier either identified by using an option bracket, or a dashed box. It should be in 7 pt, Bold, Helvetica. When a dashed box is used, it will be edged in a 1 pt. black dotted line.
- *Cell reference*: It will be used with dashed wires to indicate where the complete circuit is shown. The page reference will be in 7 pt. Helvetica and placed on the right side of the circuit.
- *Hotbar*: A hotbar states when power is being supplied to the component shown. It will appear in 7pt. Helvetica and may contain the following text:
    - Hot in Start
    - Hot in ACC
    - Hot in Run
    - Hot at all times
    - Any other condition causing a circuit to have power applied.
- *Component location*: The number shown represents the cell and page number where the best view for that component is shown. The component location text will be 7 pt, Helvetica, Bold Italic.
- *Bubble Text*: This is used to provide a caption of text next to a component. The bubble graphic will be 1 pt., black and inside text will be 7 pt, flushed left. The bubble text should always be one pixel from the edge of the component it refers to. When crossing a wire, the bubble arrow is placed in the back. However in cases when it is pointed to a component within another component, the bubble arrow should go on the top of component boxes. If any part of the bubble crosses text, such as a connector number or wire number or color, it is placed behind. Also an arrow can be used when necessary to aid in showing which wire or component is being identified by various qualifiers.
- *Components*: Various symbols are used to represent the internal components. Only symbols shown in cell 4 should be used. When drawing wires within a component, a 1pt., black line is used. When a symbol cannot be shown, and text must be used, the text should be 7 pt, Helvetica.
- *Components Name/Callout*: The callout is placed approximately .04 inches to the right side of the component box - Underneath the name, internal callout, such switch position, etc., can be displayed. Finally, a reference to the component best view or cell 151 page (when component is shown in best view) is placed as the last item. Callout will be in 7 pt, Bold, Flushed Left and Helvetica font. The reference is 7 pt, Bold, Italic, Flushed Left and Helvetica font.
- *Fuse*: Fuse information text will be in Helvetica font, 7pt., text, and flush left.
- *Amp*: Amperage information will be Helvetica font, 7pt., text, and flush left.
- *In-reference*: The in reference is used within a component to reference another page number of the WD. It is only used within a component. It will be in Helvetica font, 7pt., and flush left.
- *Current Flow*: When creating a Ford Schematic, an important factor to remember is current flow. Electric current flow is shown as moving from top to bottom, left to right, as much as possible. .
- *Vertical Priority*: In the instance that a wire may cross over another, vertical priority is given. Vertical priority means the wire traveling from top to bottom is placed in front of the wire traveling from side to side. The two wires must be separated; to do this, a small white box is placed behind the vertical wire and in front of the horizontal wire. The edges of the box are made “not visible.”
- *Labeling Wires*: Each wire is labeled with a wire number and a color. The number is always placed on the left of vertical wires and on the top of horizontal wires. The color is then placed to the right of vertical wires and below horizontal wires. The circuit number and color wire will be in Helvetica font, 7pt. All Caps.
- *Connector*: Connector numbers should be placed to the right of the connector. The connector will be in Helvetica font, 7 pt., Underlined, and flush left. The connector number will be all caps, unless a suffix is used. All suffixes are lower case. The connector symbol and number should be placed directly above or below, and to the right of the component it is associated with.

- *Dashed line*: When two or more connectors' pins share the same connector, they are joined by 1 pt., dashed line. When in-line connector pins share the same connector number, the dashed line is placed on the female connector. The connector symbol and number is placed to the right of the last connector.
- *Splice*: The splice should be centered on the wire. The splice symbol and number should be to the right of the splice. The splice number will be in Helvetica Font, 7 pt., Underlined, All caps and flush left.
- *Ground*: The ground number is placed on the right side of the ground. When there are multiple grounds at the bottom of the schematic page, they should line up horizontally with one another, whenever possible. Helvetica Font, 7pt, Underlined, All caps.
- *Carrot*: Carrot will be in Swiss font, 8pt., Bold, Reversed type, All caps and centered. Each triangle contains a carrots are used to indicate where a wire is continuing to or from, which is dictated by, and follows the current flow. It is important to use the appropriate text; this is based on the direction of the carrot. The tip of the carrot should always be one pixel away from the wire. The reference text will be in Swiss font, 8pt., all caps; flush left and page reference will be in Swiss font, 8 pt., all caps, and flush left, short hyphen.
- Cell numbering utilization: Cell 22 through 28 will be used for Electronic Engine Controls information. In cases where there is a need for multiple engine application, it is desired to start with smallest engine block in lowest cell numbering. Refer to Wiring Diagrams Appendix.

4. BASE LINE SPECIFICATIONS

Solid State Devices:
1) Suppliers will display in the Wiring Diagrams verbiage for all “solid state” devices, such as non-repairable processors, instrument clusters, modules, etc.
2) Internal details for switches will be displayed in the systems where their functions apply
3) Wiring Diagrams Suppliers will ensure that all displays will be accurate and consistent both between the Suppliers and among the Wiring Diagrams.
4) **"***Black Box" Information***:** Solid-state modules are to have the following:
    1) Pin numbers
    2) Text explaining function of each pin
    3) Functional electrical representation

Nomenclature:
Component, connector, circuit and all other labels, descriptions, and abbreviations (including acronyms) will conform to the conventions set forth in SAE Specification J1930, September 1995 release. Similar info which doesn’t fall within the nomenclature rules mentioned above can be obtained from FCSD Service Publication website @ www.tso.ford.com . In cases where there is a need for a new component name, a submission to FCSD Terminologist for approval is a must. Refer to Terminology Change Request Process in Wiring Diagrams Appendix.
Rules for Determining Electronic Circuit Names Part Nomenclature:
1) Society of Automotive Engineers (SAE) J1930 approved list, dated September 1995.
2) Parts Identification and Nomenclature Standardization (PINS) database.
3) Parameter Identification (PID).
4) Contact the TSO Parts Nomenclature Group Coordinator.
Schematics
All schematics will be shown in a power-to-ground configuration with power being at the top of the page, and ground at the bottom. All connector numbers, splice numbers, circuit numbers (NAO only), wire colors, and components names will be indicated. All text will be left justified.
Connector, Splice and Ground Numbers are to be assigned according to their location in the vehicle.
Connector Pin Numbering Default Statements In the absence of other numbering criteria, all connector pin numbering will be as follows:
Pin Identification - Pin will be identified with numbers.
Square or Rectangular Connectors - Numbering will begin with "1" in the upper, left hand row

and continue to the right until the end of the row. The first pin on the next lower row will be assigned the next higher number after he previous row-end number. This left-to-right numbering scheme will be repeated until all pins on the connector are numbered. (Example: A rectangular connector having three rows of six pins each will be numbered as follows: Row 1 will contain pins 1-6; Row 2 will contain pins 7-12; Row 3 will contain pins 13-18.)

Round or Circular Connectors -

Center Pin Present: Numbering will begin with "1" on the center pin, then "2" at the twelve o'clock pin, and continuing clockwise around the connector until complete.

Center Pin Not Present: Numbering will begin with "1" at the twelve o'clock pin and continue clockwise around the connector until numbering is complete.

Multiple Connector Modules - Multiple, adjacent connectors, present on a single component (module) will be numbered individually regardless of the total number of terminals according to the default connector numbering specifications described above. (Also, these connectors are to be displayed at the end of the cell.) (I.e. RCM connectors C125A, C125B, C125C)

Connector Face View Orientation Default Statements In the absence of other criteria, all connector face view presentations will be as follows:

1) **Presentation View** - Connectors will be displayed from the connector face view.

2) **Positioning/Orientation** - The connector face will be positioned so that the locking tab, if present, will always appear at the top of the display. *Connector Locking Tabs:* In the case of multiple locking tabs, the connector will be displayed with the larger tab at the top. (If the tabs are the same size, the Wiring Diagrams Suppliers and Service/Workshop Manual Suppliers will confer to ensure that the displays in both manuals are consistent.)

Circuit Numbers/Wire Colors: Circuits must be labeled at all components. To reduce schematic "clutter", redundant circuit numbers/wire colors may be omitted. However, all circuits that leave the page are to be labeled at the page end.

*Connector Faces***:** All pertinent connector faces with circuit numbers/wire colors will be shown in cell 150. All connector faces, regardless of its terminal numbers will have a pin-out chart. Call-outs will include circuit number, wire color and circuit function. In line connectors will have separate callouts, which will include circuit number and wire color. In cases where same pin-out pertains to more than one circuit number/color, it will be qualified.

Component Names*:* Component names used throughout the Wiring Diagrams need not always be accompanied by the component's acronym.

Acronyms: Approved TSO acronyms may be used without full component names when there is limited word space or when it becomes necessary to present shortened component names that have become awkwardly long.

In-Line Connector Gender: In-line connector C-Numbers will not include the suffix "M" or "F" to denote the gender of the connector, within the schematics. (Example: Connector number C123 *male* will not be displayed as *C123M*; C123 *female* will not be *C123F*.) "Gender" is identified as the gender of the terminals (e.g., pins, etc.), not the gender of the connector shell.

Connector Hard Shell Pin Numbering: If connectors have pin identifiers molded on the hard shell, pin numbering will follow the shell markings (i.e., letters, numbers, excluding non-alpha numeric characters and symbols.) In the absence of this identification, the default specification (s) will apply.

Module Case Pin Numbering: If modules have Pins identified on the case, and there are no identifiers on the connector shell, the module case markings will apply. In the absence of this identification, the default specification (s) will apply.

Modules with Multiple Adjacent Connectors*:*

1) If a module has multiple, adjacent connectors, and only the connector hard shells or the module case bear pin identifiers, pin numbering will follow the connector hard shell or module case markings. Otherwise, the default specification (s) will apply.

2) If a module and its connectors both bear pin identifier markings, pin identification will default to the connector markings.

Module Multiple Connector Cross Reference Table:

1) When a module contains multiple, adjacent connectors, and both the module and the connectors bear pin identifiers (as described in "Modules with Multiple Adjacent Connectors.") Suppliers will provide a pin number cross-reference table on the same page as the connectors.

2) The table columns will display first the Connector Pin Number, followed by the corresponding Module Pin Number, then the Circuit (number and wire colors), and the Circuit Function (description).
3) A table will be provided for each connector in the module. The title line for display will denote the module name.
Partial Pin Numbering: If connectors or modules bear pin identifier markings only for some but not all pins, the connector or module markings will be used.
Connectors Fastened by Screws: If screws are used in place of locking tabs, the connector will be displayed so that one screw is positioned at the top of the connector display as if the screw were a locking tab.
Direct Module-to-Module Connections*:*
1) If modules/components connect directly to other modules/components, the connectors will be displayed according to the FCSD Wiring Diagrams Specifications, or to these amendments as appropriate.
2) The side displayed will be that of the stationary module/component (i.e., the side closest to the harness with the power feed circuits.)

Connector Size Display:
1) General Specifications – It is prefer to display connector face view at 60% of actual size.
2) Sub-Size Connectors - Sub-size, or "micro-connectors", will be illustrated larger than their actual size.
Pin Connectors: Pins on connectors will be numbered.
Connector Colors*:* In all face views of connectors, Suppliers will include the color of connector hard shell.
Illustrations (Component Location View): All illustrations become the property of Ford Motor Company. The supplier is responsible for archiving the original illustrations for subsequent updates and reprints (if required). Each illustration will clearly call out all components, connectors (numbers), grounds, splices and harness numbers. Annotation will be as symmetrical as possible and clearly understandable. Call-outs line must not cross. All callout text and sub-titles will be 9pt. Pages with the same illustrations (different call-outs) will be numbered underneath (or next to) the title as 1 of 2, 2 of 2, etc… Callout arrows will be straight (no dog-leg). All illustrations will display the FCSD number including the suffix (model year) and the page number (1 of 8, 2 of 8, etc…). These numbers will correspond with the page number; for example, 2 of 8 will be page 151-2. Directional view arrows (“FRONT OF VEHICLE”) will appear on each illustration in the lower right of the drawing and be in correct orientation.
Common Page Definitions
The following pages are common to all Wiring Diagrams and will appear exactly the same in each:
Cell 1: Table of Contents
Cell 3: INTRODUCTION
Cell 4: SYMBOLS
Cell 5: CONNECTOR REPAIR PROCEDURES
Cell 160: VEHICLE REPAIR LOCATION CODES.
WE WANT TO HEAR FROM YOU: Next to last page of the manual
MAILER: Last page

5. Wiring Diagrams Technical Writing Requirements
Technical Vocabulary: Refer to for an alphabetical listing of terminology and cross-references to automotive parts and their proper names. Refer to J1930, SAE, and FCSD Terminology File attached in Wiring Diagrams Attachment – See chapter 4, "nomenclature".
Readability Guidelines: In order to ensure readability, the reading level of the Wiring Diagrams will be kept at an eighth grade equivalent.
Master Cell Listing: Refer to for a comprehensive list of all possible cell numbers and their respective names.
Spelling, Grammar and Punctuation Guidelines: Standard English writing guidelines will be following during the development of the Wiring Diagrams. The following references may be used:

THE ELEMENT OF STYLE by Strunk & White
THE ELEMENTS OF GRAMMAR by Strunk & White
WEBSTER'S DICTIONARY

Specification Compliance Validation

FCSD may request supplier compliance validation procedures be performed on sample Wiring Diagrams pages selected by FCSD.

- MECHANICAL VALIDATION

Text Page Compliance: FCSD will select text pages to be tested. These pages will then be evaluated by the supplier in regards to their compliance with this specification. The results will then be reported to FCSD.
Schematic Page Compliance: FCSD will select schematic pages to be tested. These pages will then be evaluated by the supplier in regards to their compliance with this specification. The results will then be reported to FCSD.
Illustration Page Compliance: FCSD will select illustration pages to be tested. These pages will then be evaluated by the supplier in regards to their compliance with this specification. The results will then be reported to FCSD.

- TECHNICAL ACCURACY VALIDATION

FCSD may request supplier compliance validation procedures be performed on sample Wiring Diagrams pages selected by FCSD. This validation will be performed on-vehicle.
1) "INTRODUCTION" TECHNICAL ACCURACY: FCSD will select "INTRODUCTION" SECTIONS TO BE TESTED. These sections will then be evaluated by the supplier in regards to their technical accuracy compliance. The results will then be reported to FCSD.
2) "S.P.E.C. Case Investigation": It is the responsibility of the Supplier to investigate all S.P.E.C. cases.
3) "COMPONENT TESTING" Technical Accuracy: FCSD will select "COMPONENT TESTING" sections to be tested. These sections will then be evaluated by the supplier in regards to their technical accuracy compliance. The results will then be reported to FCSD.
4) "SCHEMATIC TECHNICAL ACCURACY": FCSD will select "SCHEMATIC" pages to be tested. These pages will then be evaluated by the supplier in regards to their technical accuracy compliance. The results will then be reported to FCSD.

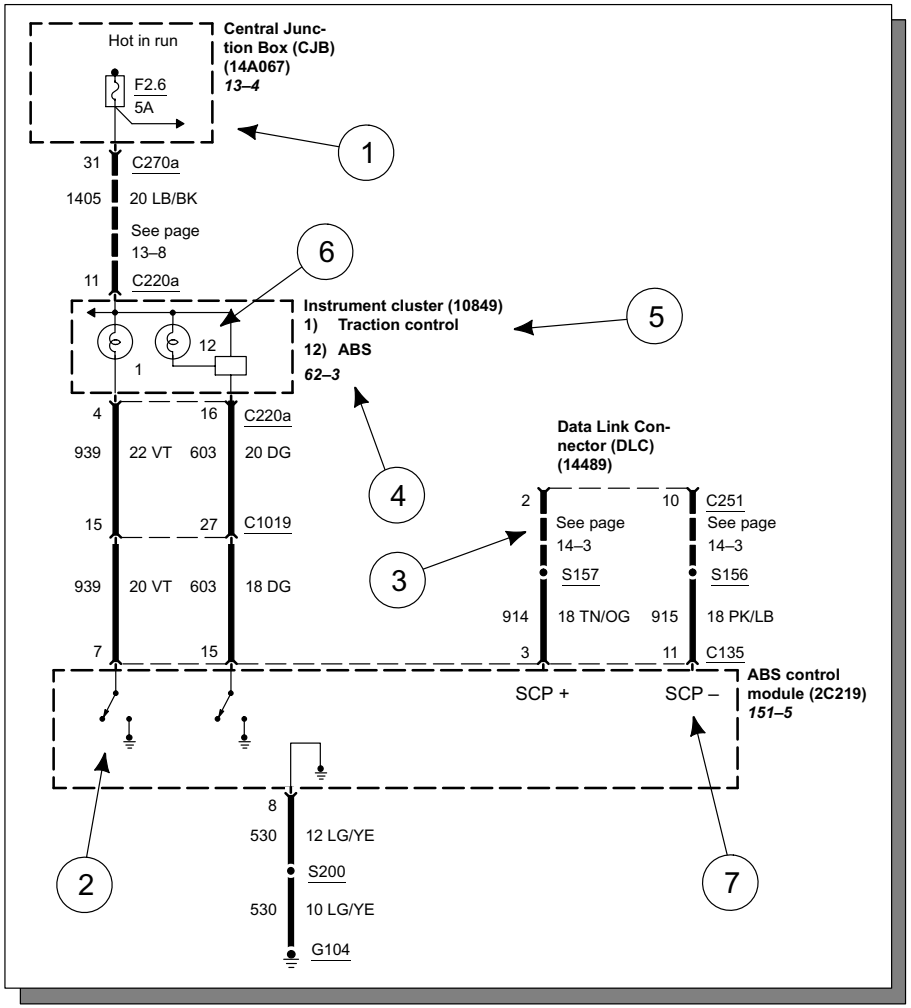
Table of Contents

Wiring Diagrams Appendix

Cell 1: Table of Contents
Cell 2: Index
Cell 3: Introduction
Cell 4: Symbols
Cell 5: Connector Repair Procedures
Cell 9: Wiring Harness Overview
Cell 10: Grounds
Cell 11: Fuse and Relay Information
Cell 13: Power Distribution
Cell 149: Component Testing
Cell 150: Connector Views
Cell 151: Component Location Views
Cell 152: Component Location Charts
Cell 160: Vehicle Repair Location Charts
ES-FOTB-1274-AA Document
Main Frame
Master cell naming and numbering
Connector Shell Color Document
Terminology Change Request Process

Note

All wiring connections between components are shown exactly as they exist in the vehicles. It is important to realize, however, that no attempt has been made on the schematic to represent components and wiring as they physically appear on the vehicle. For example, a 4-foot length of wire is treated no differently in a schematic from one which is only a few inches long. Furthermore, to aid in understanding electrical (electronic) operation, wiring inside complicated components has been simplified.



Complete Circuit Operation

Each circuit is shown completely and independently in one cell. Other components which are connected to the circuit may not be shown unless they influence the circuit operation.

Current Flow (1)

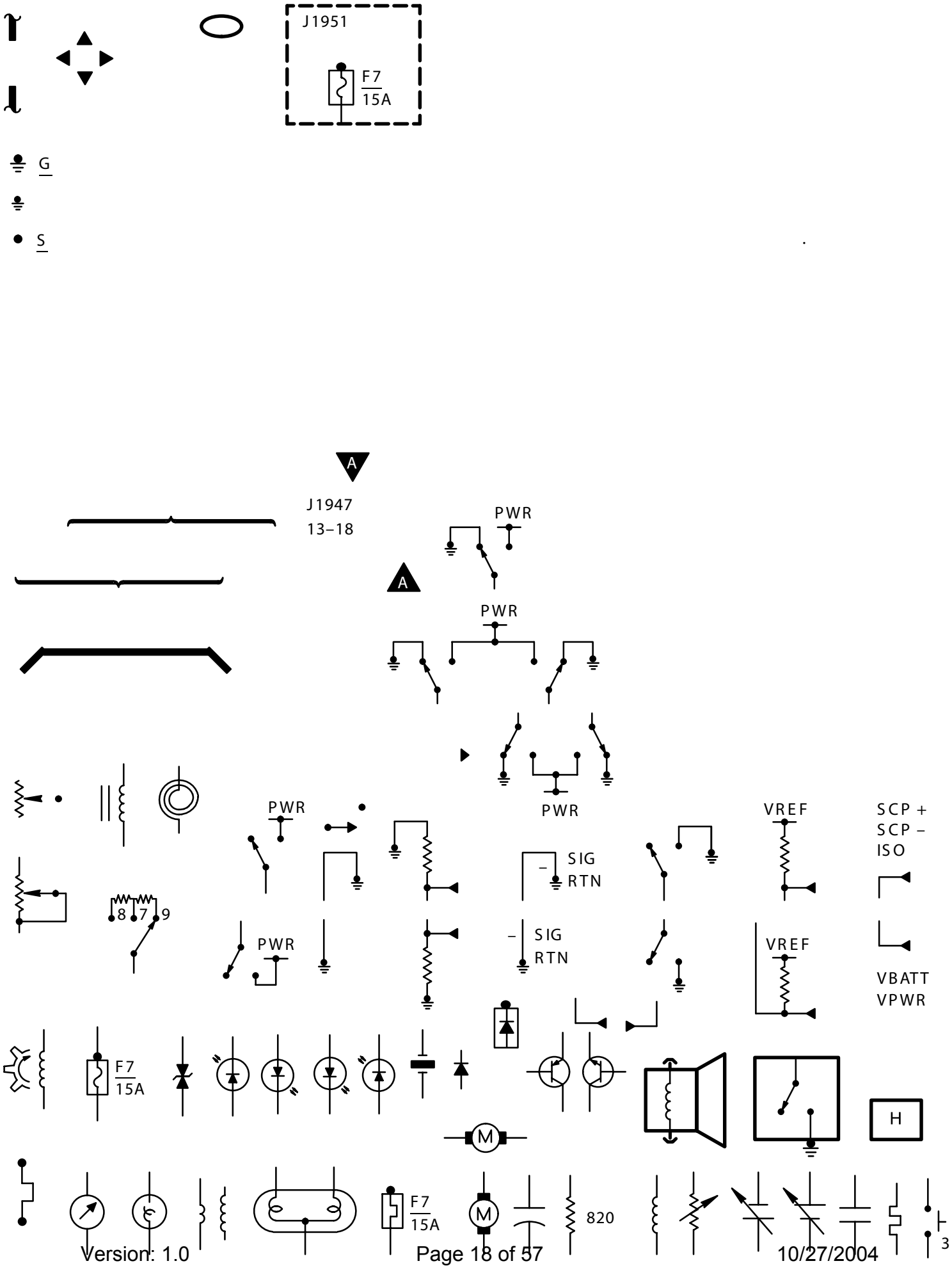
Each cell normally starts with the component that powers the circuit, such as a fuse or the ignition switch. Current flow is shown from the power source at the top of the page to ground at the bottom of the page. In order to concentrate on the essential parts, power supply and ground connections are sometimes simplified by a dashed line in the schematics. A full representation of the power supply of a fuse or the power distribution from a fuse to various components is given in cell 13 “Power Distribution”. Full representation of the ground connections is shown in cell 10 “Grounds”.

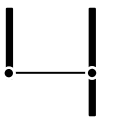
Switch Positions (2)

Within the schematic, all switches, sensors and relays are shown “at rest” (as if the Ignition Switch were OFF).

Splices (3)

A dashed line indicates that the splice is not shown completely. A reference is given to the page where the splice appears in full. It is also listed in the Index.


J1951
F7
15A
G
S
A
J1947
13–18
PWR
PWR
PWR
PWR
PWR
VREF
SCP +
SCP –
ISO
SIG
RTN
SIG
RTN
VREF
VBATT
VPWR
8 7 9
F7
15A
H
M
F7
15A
M
820
3



Distributed splice

Crossed wiring without connection

Splice

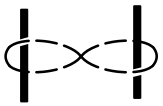
Removable connection

Ground

Connector

Female connector

Male connector



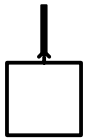
Twisted pair

Entire component

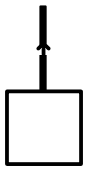
Part of a component

Component case directly attached to metal part of vehicle (ground)

Component with screw terminals



Connector attached to component

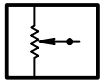


Connector attached to component lead (pigtail)

Positive Temperature Coefficient (PTC)

Resistor

Potentiometer (pressure or temperature)



Potentiometer (outside influence)

Battery

Fuse

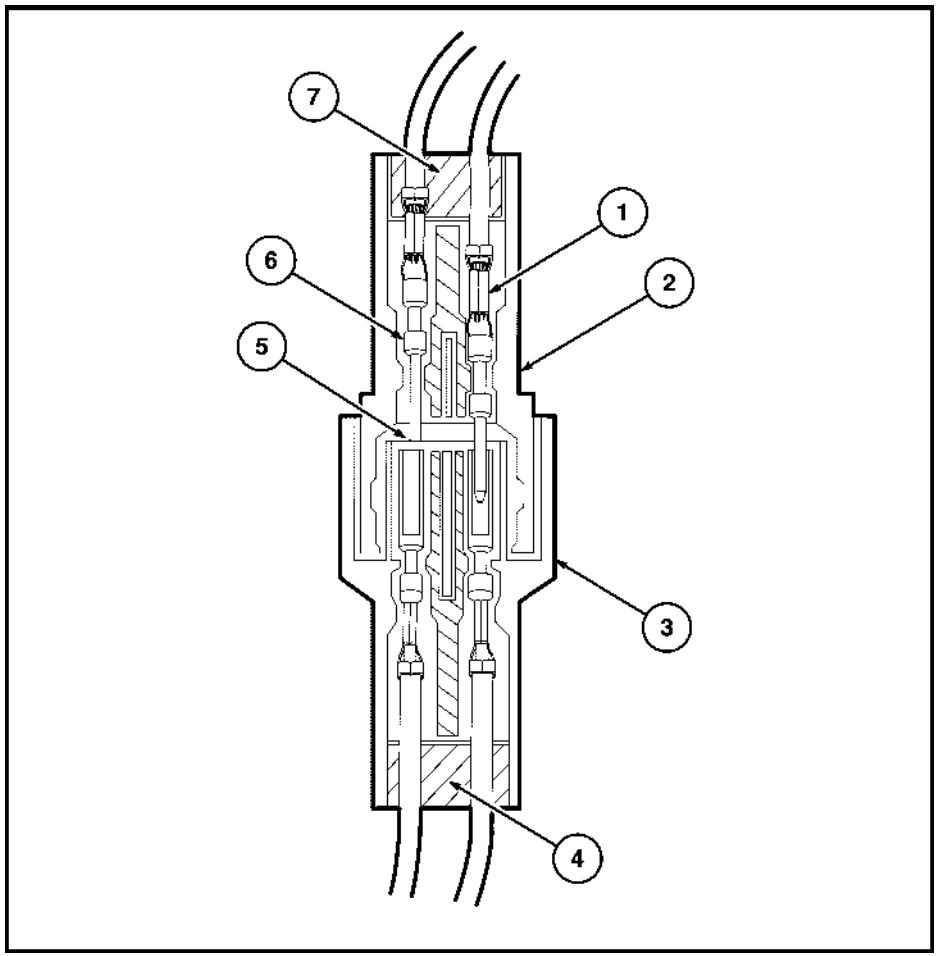
Circuit breaker

Heating element, Conductor loop

Troubleshooting wiring harness and connector hidden concerns

The following illustrations are known examples of wiring harness, splices and connectors that will create intermittent electrical concerns. The concerns are hidden and can only be discovered by a physical evaluation as shown in each illustration.

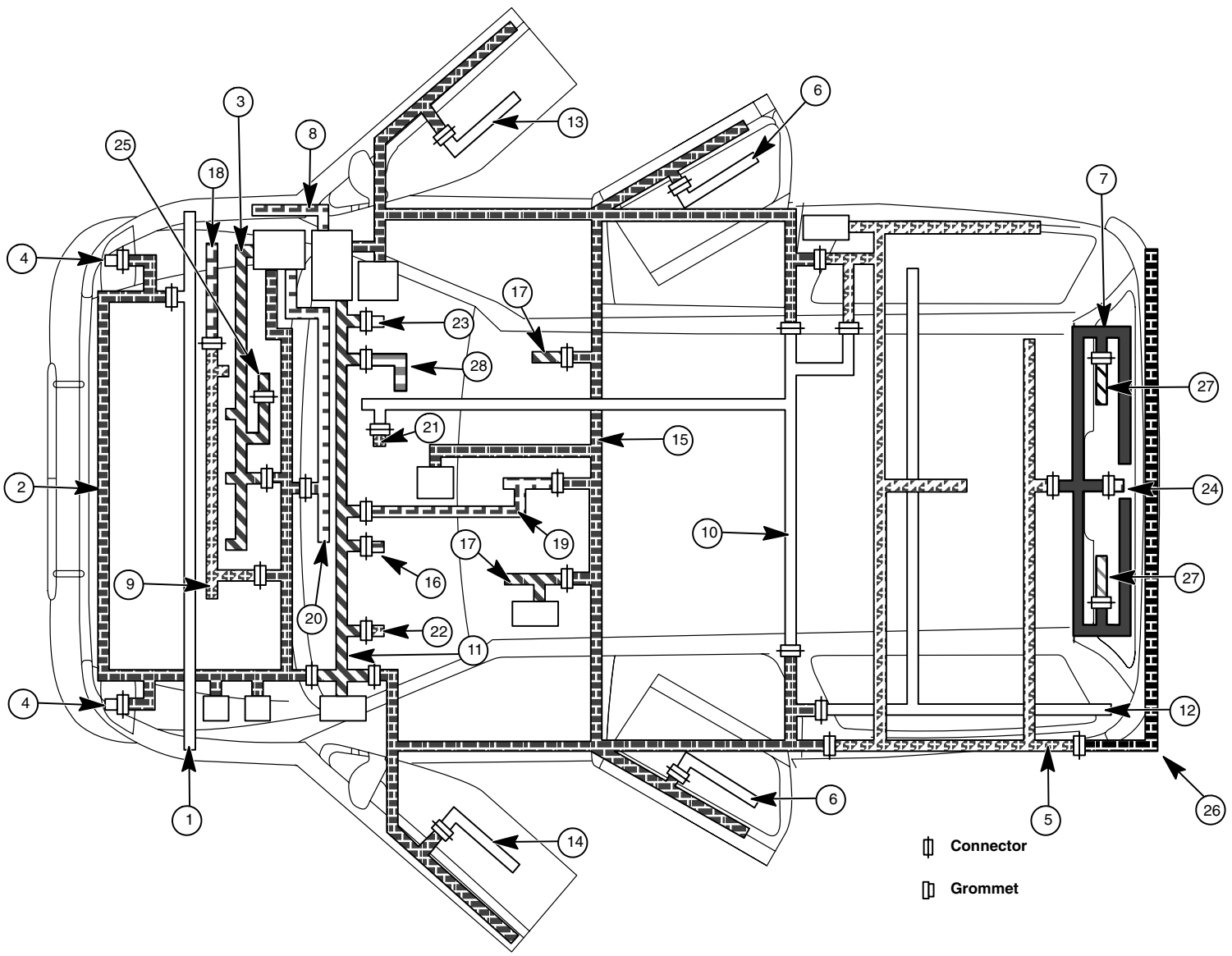
NOTE: Several components, such as the PCM, utilize gold plated terminals in their connections to the wiring harness. If those terminals need to be replaced, they must be replaced with a gold plated terminal.



Terminal not properly seated

1 = Locked terminal
2 = Male half
3 = Female half
4 = Seal
5 = Intermittent contact
6 = Unlocked terminal (Hidden by wire seal)
7 = Seal

Check for unlocked terminals by pulling each wire at the end of the connector.


1
2
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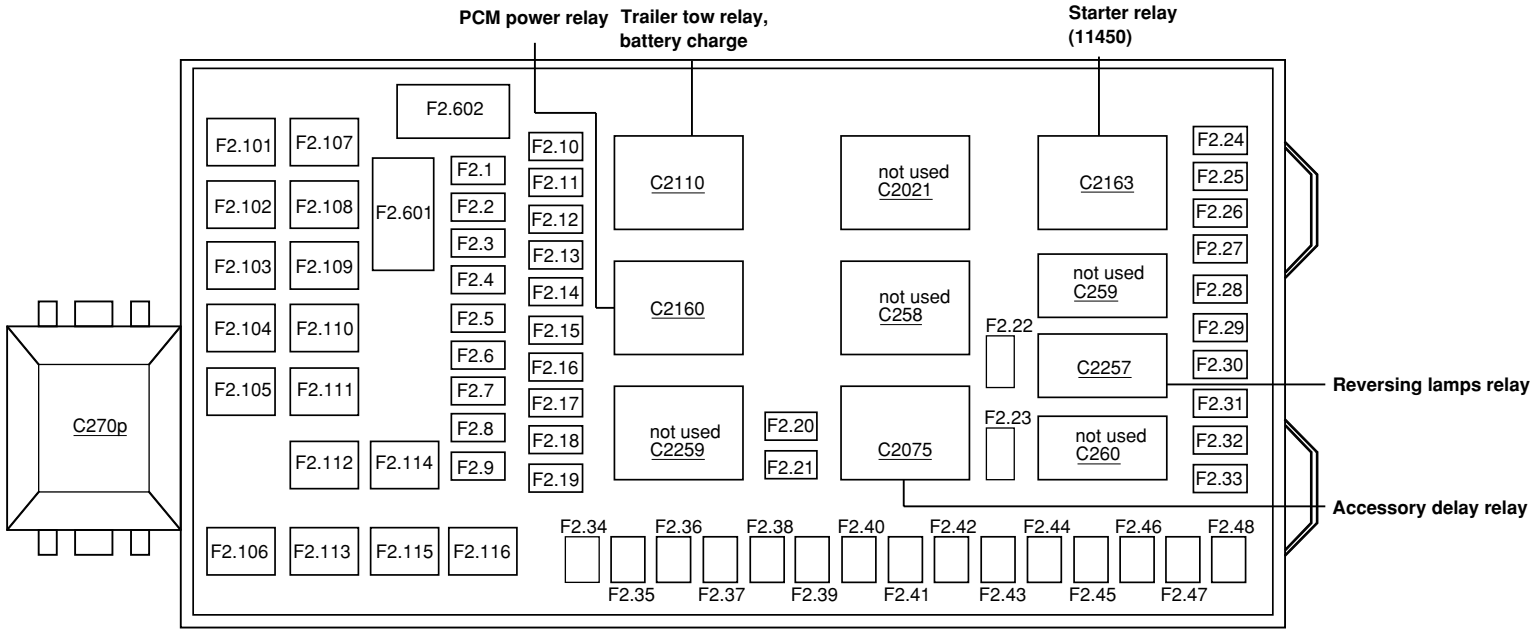
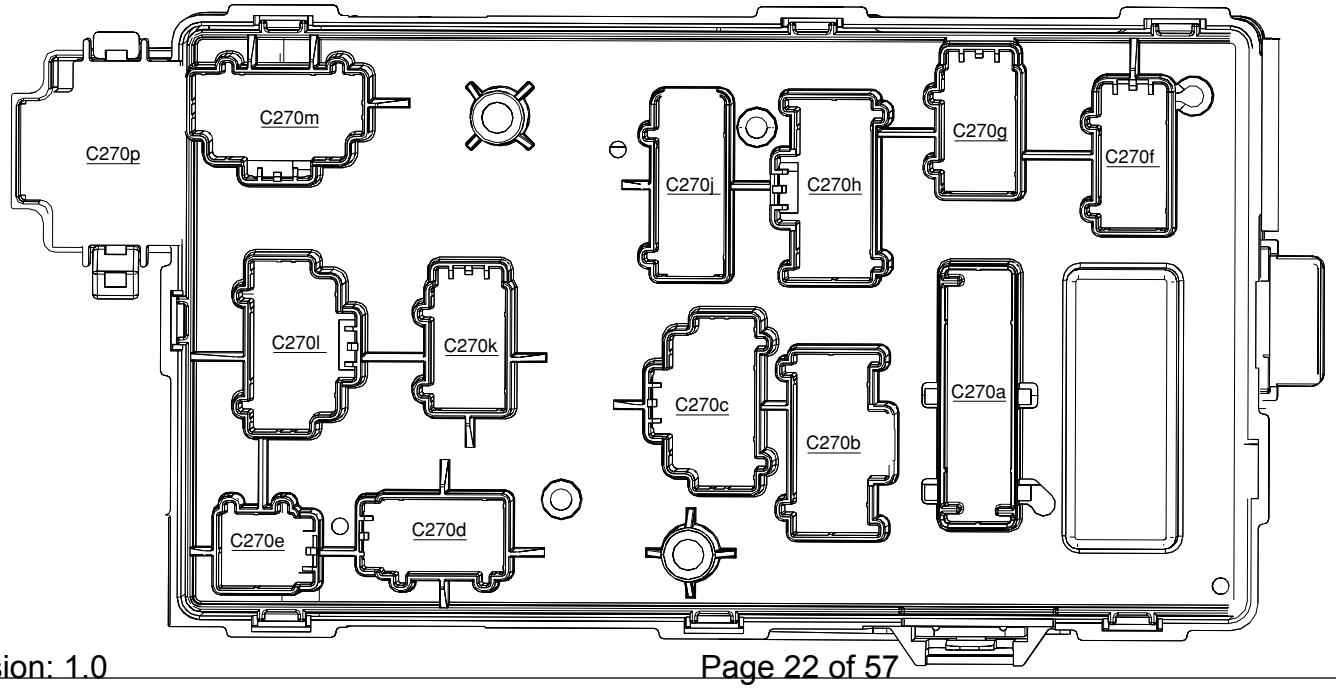
27
28
Connector
Grommet

Item	Part Number	Description
1	12614	Wiring harness – Air spring suspension pressure indicator switch
2	12A581	Wiring harness – Engine control sensor
3	12B637	Wiring harness – Engine control sensor and fuel charge
4	13A006	Wiring harness – Headlamps
5	13A409	Wiring harness – Rear lamp connector
6	14014	Wiring harness – Door lock feed
7	14086	Switch and wiring assembly – Right rear window regulator control
8	14300	Wiring harness – Battery output
9	14305	Wiring harness – Alternator rectifier system
10	14335	Wiring harness – Interior illumination
11	14401	Wiring harness – Main
12	14405	Wiring harness – Tail lamps
13	14630	Wiring harness – Window regulator, right front door
14	14631	Wiring harness – Window regulator, left front door
15	14A005	Wiring harness – Body main
16	15080	Wiring and socket assembly – Cigar lighter lamp
17	14A699	Wiring harness – Power seats
18	14B060	Wiring harness – Starter motor relay and battery ground
19	14B079	Wiring harness – Console panel
20	15525	Wiring harness – Back up lamp switch to rear lamp feed
21	15A657	Wiring harness – Roof sliding panel control switch
22	15K857	Wiring harness – Park brake switch
23	18B518	Wiring harness – Heater blower motor, front
24	13412	Wiring harness – Rear license plate lamp
25	14B102	Wiring harness – Temperature sensor
26	14N139	Wiring harness – Backup alarm jumper
27	15A414	Wiring harness – Marker lamp switch transformer
28	17C712	Wiring harness – Vanity mirror lamp

Central Junction Box (CJB) (14A067)





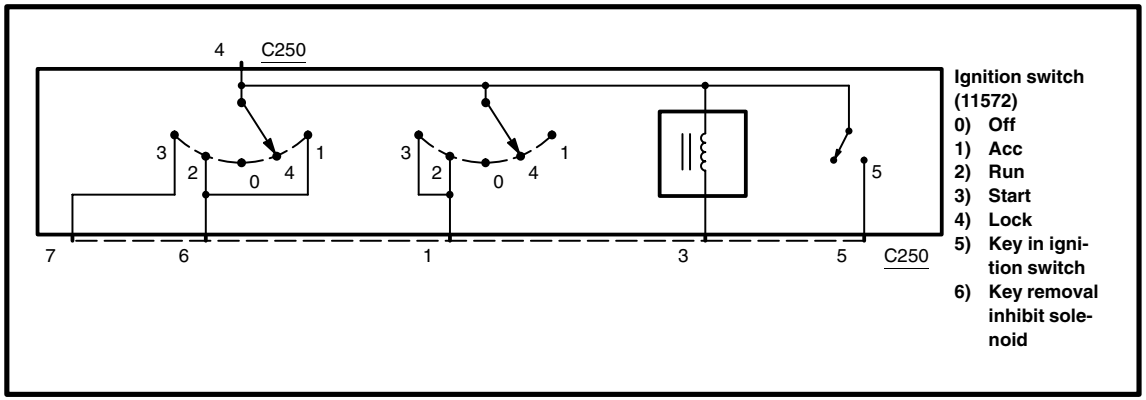
Fuse	Amps	Circuits protected
F2.1	15A	Adjustable Pedal
F2.2	10A	Instrument Cluster
F2.3	10A	not used
F2.4	20A	Power point, instrument panel (19N236)
F2.5	10A	not used
F2.6	-	not used
F2.7	30A	Vehicle Security Module (VSM) (15K602), Main light switch (11654), Multifunction switch
F2.8	20A	Reversing lamps relay
F2.9	-	not used
F2.10	-	not used
F2.11	20A	Radio (18806)
F2.12	20A	Cigar lighter, front (15055), Data Link Connector (DLC) (14489)
F2.13	5A	Exterior rear view mirror switch (17B676)
F2.14	-	not used
F2.15	-	not used
F2.16	-	not used
F2.17	15A	Main light switch (11654), Vehicle Security Module (VSM) (15K602)
F2.18	20A	Brake pedal position switch (13480), Indicator flasher relay (13350)
F2.19	10A	Vehicle Security Module (VSM) (15K602), Four-wheel drive control module (14B466)
F2.20	15A	Trailer electronic brake control controller
F2.21	20A	Heated seat relay, driver side front
F2.22	20A	Powertrain Control Module (PCM) (12A650), Vapor management valve, EGR system module, Mass Air Flow (MAF) sensor (13480), EGR system module, Intake Manifold Tuning Valve (IMTV) - Gasoline
	20A	Powertrain Control Module (PCM) (12A650), EGR valve actuator, Injector Pressure Sensor (IPS), Glow Plug Control Module (GPCM), Electronic fan clutch, Mass Air Flow (MAF) sensor (13480) - Diesel
F2.23	20A	Heated oxygen sensors (HO2S), A/C clutch relay, Fuel system
F2.24	15A	Tow/Haul switch, Electronic Automatic Temperature Control (EATC) module (19980)

Fuse	Amps	Circuits protected
F2.25	-	not used
F2.26	10A	Restraints control module (14B321), Passenger Air bag Deactivation (PAD) switch
F2.27	15A	HTD mirror relay, Heated seat relay, driver side front, Indicator flasher relay (13350), Trailer tow relay, Battery charge, Vacuum pump motor, Brake shift interlock, Electronic Shift On the Fly (ESOF) solenoid, Parking Aid Module (PAM) (15T850), DRL relays
F2.28	10A	Trailer electronic brake control controller
F2.29	10A	Customer access
F2.30	15A	Instrument cluster, Fog lamp relay, Headlamp, left (13008), High beam, Headlamp, right (13008), High beam
F2.31	15A	Starter Relay, Clutch Pedal Position Switch
F2.32	5A	Radio (18806)
F2.33	15A	Instrument cluster (10849), Four-wheel drive control module (14B466), Windshield wiper motor (17D539)
F2.34	10A	Brake pedal position switch (13480), Electronic Automatic Temperature Control (EATC) module(19980)
F2.35	10A	Instrument cluster (10849)
F2.36	-	not used
F2.37	15A	Horn relay
F2.38	20A	Trailer tow parking lamp relay
F2.39	15A	HTD mirror relay
F2.40	20A	Fuel pump relay
F2.41	10A	Instrument cluster (10849)
F2.42	15A	Radio (18806), Door lock switch,driver side (14963), Door lock switch, passenger side (14028)
F2.43	10A	Fog Lamp relay
F2.44	-	not used
F2.45	10A	Four-wheel drive control module (14B466), Instrument cluster, Passive Anti-Theft (PATS) transceiver, Electrochromatic inside mirror unit (17700), Compass display and module

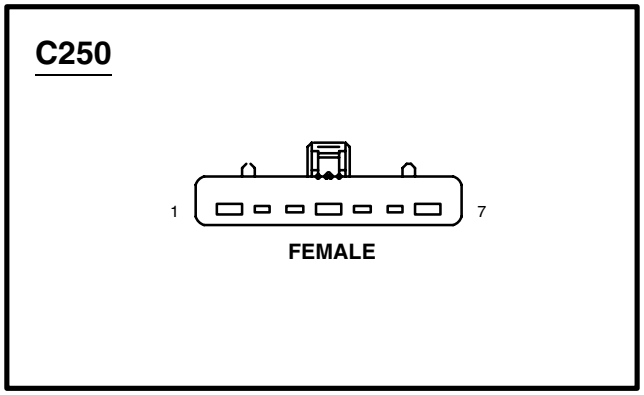
s

Ignition switch (11572)

Schematic



Terminals



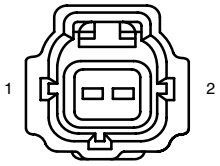
Component testing procedure

Circuit to test	Connect self–powered test light or ohmmeter to terminals	Move switch to these positions	A good switch will indicate
Run/Start power circuit	4 and 1	Off/Lock	Open circuit
		Accessory	
		Run	Closed circuit
		Start	
Run/Acc power circuit	4 and 6	Off/Lock	Open circuit
		Accessory	Closed circuit
		Run	
		Start	Open circuit
Start power circuit	4 and 7	Off/Lock	Open circuit
		Accessory	
		Run	
		Start	Closed circuit
Key In	4 and 5	In	Closed circuit
		Out	Open circuit

C107 (WH)

14B102

Cylinder–head temperature sensor (6G004)



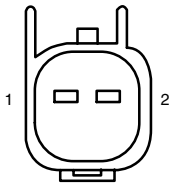
MALE

Pin	Circuit	Circuit function
1	1102 (YE/LG)	Cylinder–head temperature sensor (6G004) to Powertrain Control Module (PCM) (12A650)
2	359 (GY/RD)	signal, return

C108

12B637

Knock sensor 2 (12A699)



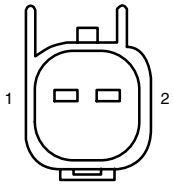
MALE

Pin	Circuit	Circuit function
1	1274 (DG/WH)	Knock sensor 2 (12A699), signal –
2	311 (DG/VT)	Knock sensor 2 (12A699), signal +

C109

12B637

Knock sensor 1 (12A699)



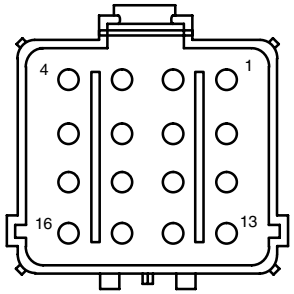
MALE

Pin	Circuit	Circuit function
1	1273 (YE)	Knock sensor 1 (12A699), signal –
2	310 (YE/RD)	Knock sensor 1 (12A699), signal +

* Navigator

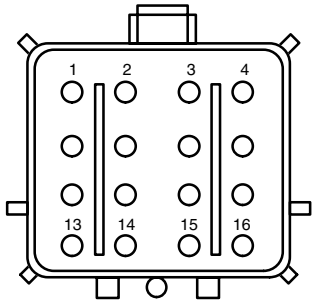
C110 (BK)

12A581



FEMALE

12614



MALE

(1)	57 (BK)	(9)	–
(2)	424 (TN)	(10)	–
(3)	426 (RD/BK)	(11)	*413 (LG)
(4)	432 (BK/PK)	(12)	422 (PK/BK)
(5)	–	(13)	415 (LG/OG)
(6)	–	(14)	–
(7)	–	(15)	414 (OG/RD)
(8)	–	(16)	*412 (OG/LB)

C111 (BK)

12B637

Coil On Plug (COP) 1 (12029)

FEMALE

Pin	Circuit	Circuit function
1	16 (RD/LG)	Voltage supplied in Start and Run (overload protected)
2	1024 (LG/WH)	Coil On Plug (COP) 1 (12029), control

Components **Cell 151**

Location **Page/coordinates**

Connectors — Cell 151

	Location	Page/coordinates
C100	engine, front	4 – E 2
C101	engine, front	4 – F 3
C102a	engine, front	1 – A 6
C102b	engine, front	1 – A 6
C103	engine, front	4 – F 6
C104	engine, front	4 – F 3
C107	engine, LH side, front	
C108	engine, rear	5 – D 2
C109	engine, rear	5 – E 2
C110	engine compartment, front, RH side	3 – F 4
C111	RH cylinder head	4 – B 1
C112	RH cylinder head	4 – A 4
C113	RH cylinder head	4 – A 6
C114	RH cylinder head	4 – B 7
C115	LH cylinder head	5 – A 5
C116	LH cylinder head	5 – A 3
C117	LH cylinder head	5 – B 2
C118	LH cylinder head	5 – C 2
C120	engine, front	35 – E 2
C124	engine compartment, LH side, rear	2 – C 7
C125	engine bulkhead, top, center	2 – B 7
C130	engine compartment, RH side	2 – A 3
C131	engine compartment, front, RH side	1 – F 1
C132	behind radiator grille	1 – F 3
C133	front of vehicle, LH side	3 – D 5
C134	front of vehicle, RH side	3 – D 1
C135	engine compartment, LH side	2 – D 7
C138	engine compartment, RH side	2 – C 1
C141	in exhaust system, rear	7 – C 4
C142	in exhaust system, rear	7 – A 6
C143	transmission – 4R75E	7 – B 1
C144	engine, LH side	5 – D 2
C145	engine compartment, RH side	3 – C 4
C146	engine compartment, RH side – 4R75E	3 – A 5
C147	engine compartment, rear, LH side	1 – B 7
C148	engine compartment, rear, LH side	2 – C 7
C149	engine compartment, rear, LH side	2 – B 7
C150	engine compartment, LH side	1 – C 8
C151	front of vehicle, LH side – Navigator	1 – D 8
C152	front of vehicle, LH side	2 – E 7
C160	engine compartment, RH side	2 – B 1
C161	engine compartment, RH side – Navigator	2 – D 1
C162	front of vehicle, RH side	2 – F 2
C167	transmission, LH side – 4R75E	7 – E 2
C171	in exhaust system, RH side	5 – F 3
C172	in exhaust system, LH side	4 – E 7
C174	engine, top, RH side	4 – C 1
C175b	engine bulkhead, RH side	1 – A 3
C175e	engine bulkhead, RH side	4 – A 1
C175t	engine bulkhead, RH side	7 – A 4
C177	front of vehicle, LH side	1 – F 6
C181	RH cylinder head	4 – C 1
C182	RH cylinder head	4 – A 3
C183	RH cylinder head	4 – A 5
C184	RH cylinder head	4 – A 7
C185	LH cylinder head	5 – A 4
C186	LH cylinder head	5 – A 2
C187	LH cylinder head	5 – B 2
C188	LH cylinder head	5 – C 2
C189	throttle body	5 – A 7
C190	engine, top	4 – C 7
C192	engine compartment, RH side	3 – C 2
C193	transmission, rear – 4R75E	7 – F 3
C194	engine, top, LH side	4 – E 2
C197a	engine, bottom, RH side	1 – A 4
C197b	engine, bottom, RH side	1 – A 4
C202a	on steering column	14 – B 3
C202b	on steering column	14 – B 3

Ground points — Cell 151

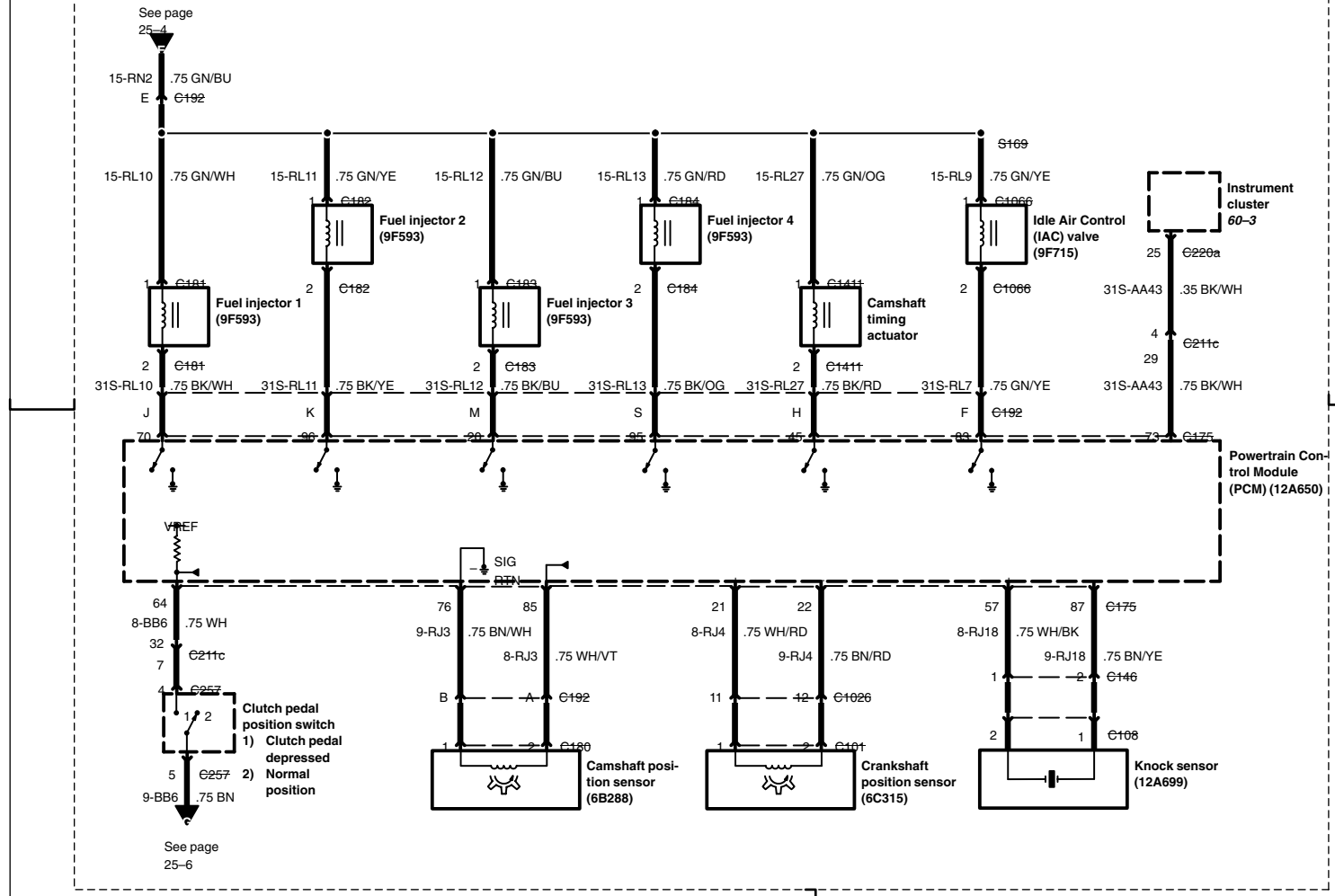
	Location	Page/coordinates
G100	on radiator, LH side	3 – F 6
G101	on radiator, RH side	3 – F 3
G102	engine compartment, RH side, rear	3 – B 4
G103	engine compartment, RH side, fender	3 – A 4
G104	engine compartment, RH side, on frame rail	3 – D 2
G105	engine, RH side	3 – A 4
G200	kick panel, passenger side	12 – D 8
G201	kick panel, passenger side	17 – F 3
G202	kick panel, driver side	10 – E 7
G300	LH B–pillar	15 – D 2
G301	kick panel, LH side	15 – D 4
G400	vehicle underbody, rear	35 – C 8
G401	behind trim panel, in loading space, LH side	19 – B 5
G402	behind trim panel, in loading space, LH side	19 – B 5
G403	vehicle underbody, rear	35 – B 7
G404	in loading space, RH side, behind trim panel	21 – B 4
G500	left front door, bottom, rear – with safety canopy	28 – F 2
G600	right front door, bottom, rear – with safety canopy	29 – F 4

Splices — Cell 151

	Location	Page/Coordinates
S100	Wiring harness – Engine control sensor (12A581) near T/O to, G100	3 – D 7
S101	Wiring harness – Engine control sensor (12A581) in T/O to, C135	3 – D 6
S102	Wiring harness – Engine control sensor (12A581) near T/O to, C1450	3 – D 8
S104	Wiring harness – Engine control sensor (12A581) near T/O to, C150	3 – C 8
S105	Wiring harness – Engine control sensor (12A581) near T/O to, C125	3 – C 8
S106	Wiring harness – Engine control sensor (12A581) near T/O to, C125	3 – A 6
S107	Wiring harness – Engine control sensor (12A581) near T/O to, G102	3 – A 6
S108	Wiring harness – Engine control sensor (12A581) near T/O to, C145	3 – C 4
S109	Wiring harness – Engine control sensor (12A581) near T/O to, G102	3 – A 3
S113	Wiring harness – Engine control sensor (12A581) near T/O to, G102	3 – A 3
S114	Wiring harness – Engine control sensor (12A581) near T/O to, G102	3 – C 5
S115	Wiring harness – Engine control sensor (12A581) near T/O to, G102	3 – C 5
S116	Wiring harness – Engine control sensor (12A581) near T/O to, G101	3 – D 2
S117	Wiring harness – Engine control sensor (12A581) near T/O to, C277	3 – B 8
S119	Wiring harness – Air spring suspension pressure indicator switch (12614) in T/O to, C110	35 – C 1
S120	Wiring harness – Air spring suspension pressure indicator switch (12614) in T/O to, C110	35 – D 1
S121	Wiring harness – Air spring suspension pressure indicator switch (12614) in T/O to, C110	35 – D 1
S122	Wiring harness – Engine control sensor (12A581) near T/O to, G102	3 – C 5
S124	Wiring harness – Engine control sensor and fuel charge (12B637) near T/O to, C117	4 – C 8
S126	Wiring harness – Engine control sensor and fuel charge (12B637) near T/O to, C188	5 – C 2
S127	Wiring harness – Engine control sensor and fuel charge (12B637) near T/O to, C188	5 – D 2
S128	Wiring harness – Engine control sensor and fuel charge (12B637) near T/O to, C1442	5 – F 5
S129	Wiring harness – Engine control sensor and fuel charge (12B637) near T/O to, C114	5 – E 6
S131	Wiring harness – Engine control sensor and fuel charge (12B637) in T/O to, C113	5 – D 7
S132	Wiring harness – Engine control sensor and fuel charge (12B637) in T/O to, C183	5 – D 7
S133	Wiring harness – Engine control sensor (12A581) near T/O to, G102	3 – A 4
S135	Wiring harness – Headlamps (13A006) in T/O to, C133	3 – F 6
S136	Wiring harness – Headlamps (13A006) in T/O to, C134	3 – E 2
S138	Wiring harness – Back up lamp switch to rear lamp feed (15525) near T/O to, C175t	7 – B 4
S140	Wiring harness – Back up lamp switch to rear lamp feed (15525) near T/O to, C175t	7 – B 4
S141	Wiring harness – Back up lamp switch to rear lamp feed (15525) near T/O to, C141	9 – C 3
S142	Wiring harness – Back up lamp switch to rear lamp feed (15525) near T/O to, C141	9 – C 3

Wiring harness **Cell 151**

	Location	Page/coordinates
12614	Wiring harness – Air spring suspension pressure indicator switch – with air suspension	35 – E 2
13412	Wiring harness – Rear license plate lamp	32 – C 7
14014	Wiring harness – Door lock feed	30 – B 3
14086	Switch and wiring assembly – Right rear window regulator control	32 – B 6
14300	Wiring harness – Battery output	3 – B 1
14305	Wiring harness – Alternator rectifier system	3 – D 5
14335	Wiring harness – Interior illumination	23 – B 4
14401	Wiring harness – Main	13 – E 6
14405	Wiring harness – Tail lamps	
14630	Wiring harness – Window regulator, right front door	29 – C 7
14631	Wiring harness – Window regulator, left front door	28 – C 2
15080	Wiring and socket assembly – Cigar lighter lamp – without center console	
15525	Wiring harness – Back up lamp switch to rear lamp feed	7 – B 2
12A581	Wiring harness – Engine control sensor	3 – A 5
12B637	Wiring harness – Engine control sensor and fuel charge	
13A006	Wiring harness – Headlamps	3 – E 7
13A409	Wiring harness – Rear lamp connector	23 – B 6
14A005	Wiring harness – Body main	15 – F 5
14A699	Wiring harness – Power seats	27 – B 7
14B060	Wiring harness – Starter motor relay and battery ground	3 – C 1
14B079	Wiring harness – Console panel	24 – E 6
14B102	Wiring harness – Temperature sensor	
14N139	Wiring harness – Backup alarm jumper – with parking aid	19 – D 2
15A414	Wiring harness – Marker lamp switch transformer – Navigator	32 – E 7
15A416	Kit – Trailer lamp plug and wiring	
15A657	Wiring harness – Roof sliding panel control switch – with sliding roof	23 – C 6
15K857	Wiring harness – Park brake switch	
17C712	Wiring harness – Vanity mirror lamp	23 – D 2
18B518	Wiring harness – Heater blower motor, front	33 – B 6


See page 25–4
15-RN2 .75 GN/BU
E C192
15-RL10 .75 GN/WH
15-RL11 .75 GN/YE
15-RL12 .75 GN/BU
15-RL13 .75 GN/RD
15-RL27 .75 GN/OG
15-RL9 .75 GN/YE
S169
C182
Fuel injector 2 (9F593)
C184
Fuel injector 4 (9F593)
C1066
Idle Air Control (IAC) valve (9F715)
Instrument cluster 60–3
25 C220a
31S-AA43 .35 BK/WH
4 C211c
29
31S-AA43 .75 BK/WH
C181
Fuel injector 1 (9F593)
C183
Fuel injector 3 (9F593)
C1411
Camshaft timing actuator
2 C181
31S-RL10 .75 BK/WH
J
70
31S-RL11 .75 BK/YE
K
90
2 C183
31S-RL12 .75 BK/BU
M
89
31S-RL13 .75 BK/OG
S
95
2 C1411
31S-RL27 .75 BK/RD
H
15
31S-RL7 .75 GN/YE
F
83
C192
73 C175
Powertrain Control Module (PCM) (12A650)
VREF
SIG RTN
64
8-BB6 .75 WH
32
7 C211c
4 C257
1 2
Clutch pedal position switch
1) Clutch pedal depressed
2) Normal position
5 C257
9-BB6 .75 BN
See page 25–6
76
9-RJ3 .75 BN/WH
85
8-RJ3 .75 WH/VT
B A C192
1 2 C180
Camshaft position sensor (6B288)
21
8-RJ4 .75 WH/RD
22
9-RJ4 .75 BN/RD
11 12 C1026
1 2 C181
Crankshaft position sensor (6C315)
57
8-RJ18 .75 WH/BK
87 C175
9-RJ18 .75 BN/YE
1 2 C146
2 1 C108
Knock sensor (12A699)

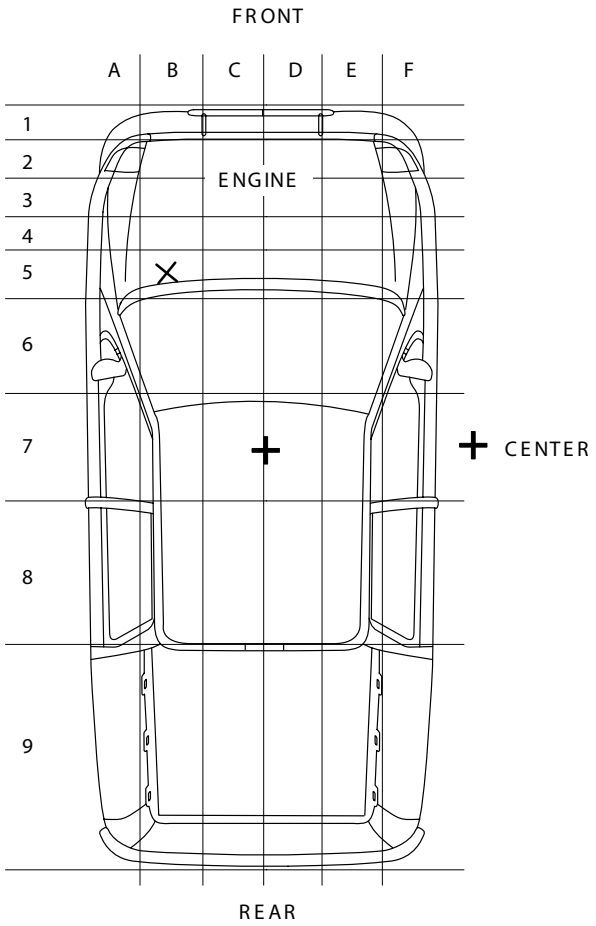
VEHICLE REPAIR LOCATION CODES

TO PINPOINT THE ACTUAL VEHICLE LOCATION OF A REPAIR, THE VEHICLE REPAIR LOCATION CODE IS REQUIRED.

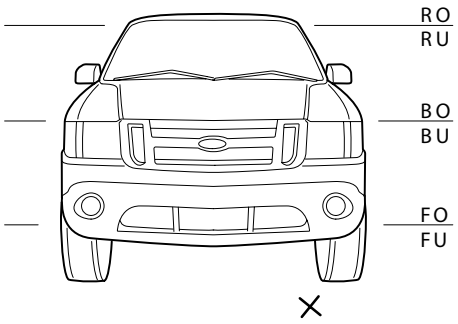
FOR EXAMPLE, AN ªXº HAS BEEN PLACED IN THE QUADRANT OF THE VEHICLE DIAGRAMS INDICATING THE LOCATION OF THE REPAIR. SEE DIAGRAMS.

LOCATION CODE, FOR THE EXAMPLE: B5/FU ±
(UNDER THE FLOOR AND BETWEEN THE DRIVER'S FEET.)

FRONT/REAR DIRECTION



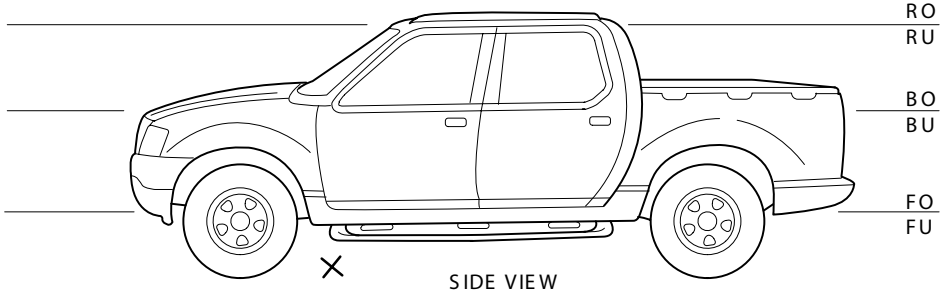
OVER/UNDER DIRECTION



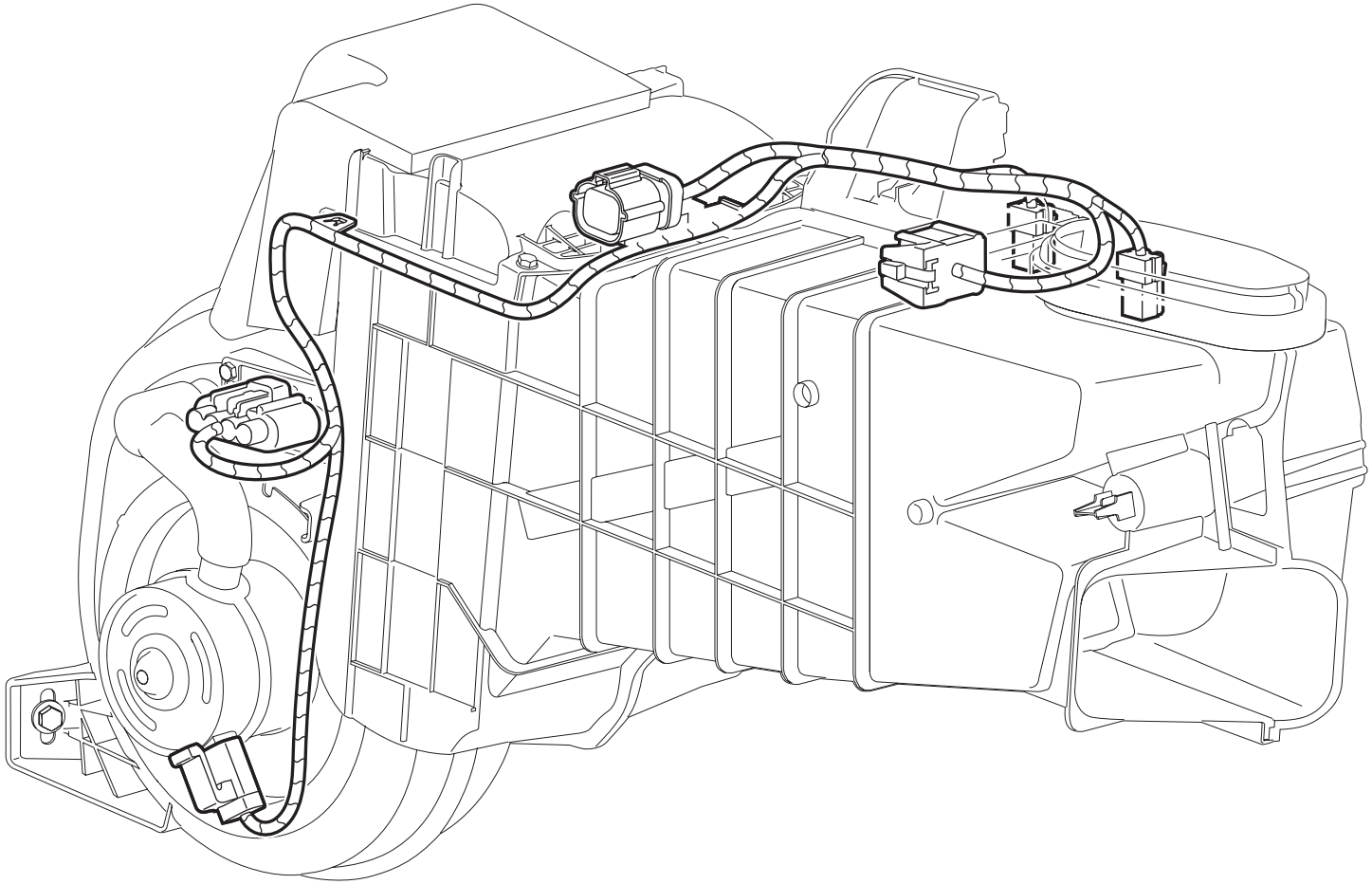
R = ROOF LINE
- RO = ROOF OVER
- RU = ROOF UNDER

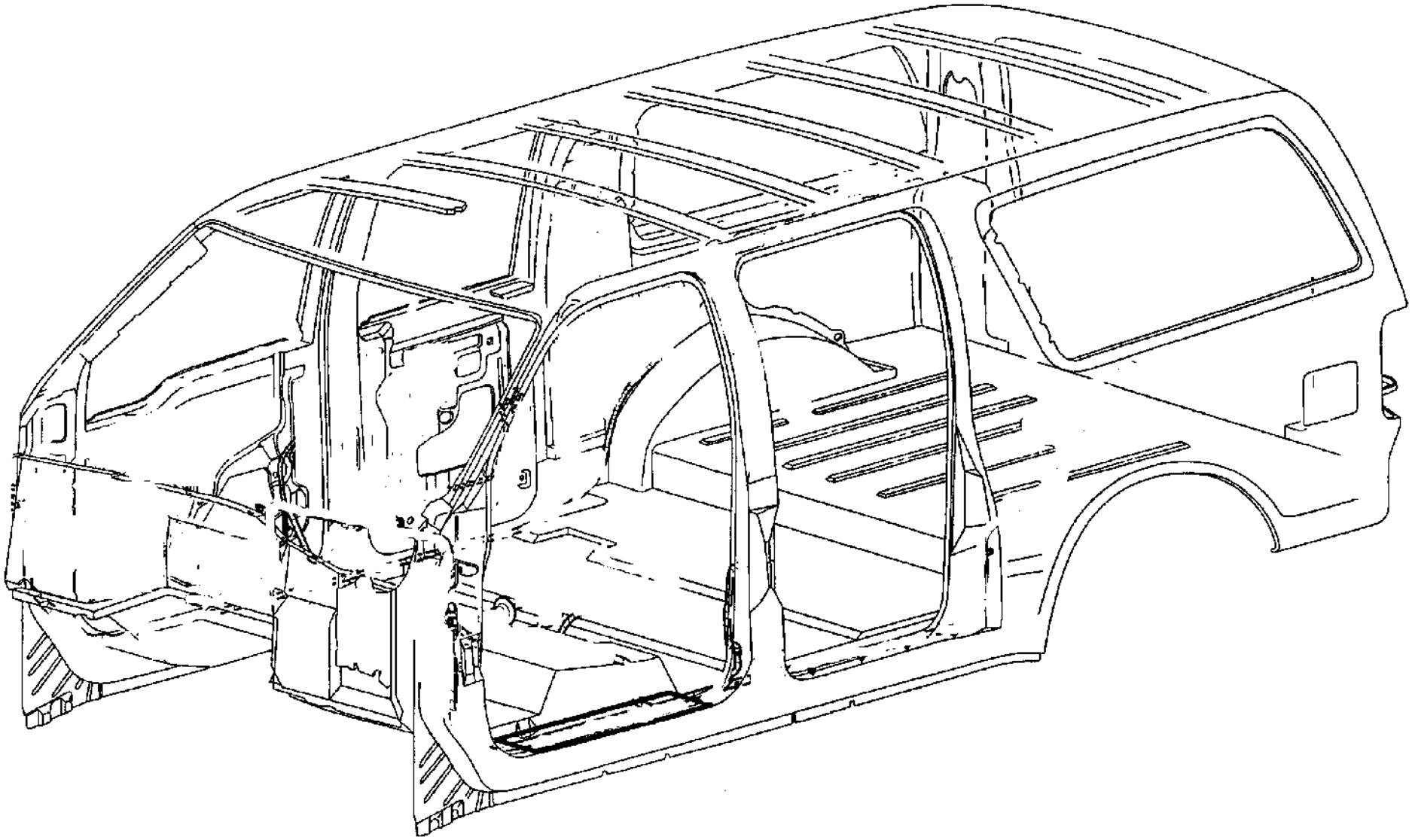
B = BELT LINE
- BO = BELT OVER
- BU = BELT UNDER

F = FLOOR PLAN
- FO = FLOOR OVER
- FU = FLOOR UNDER

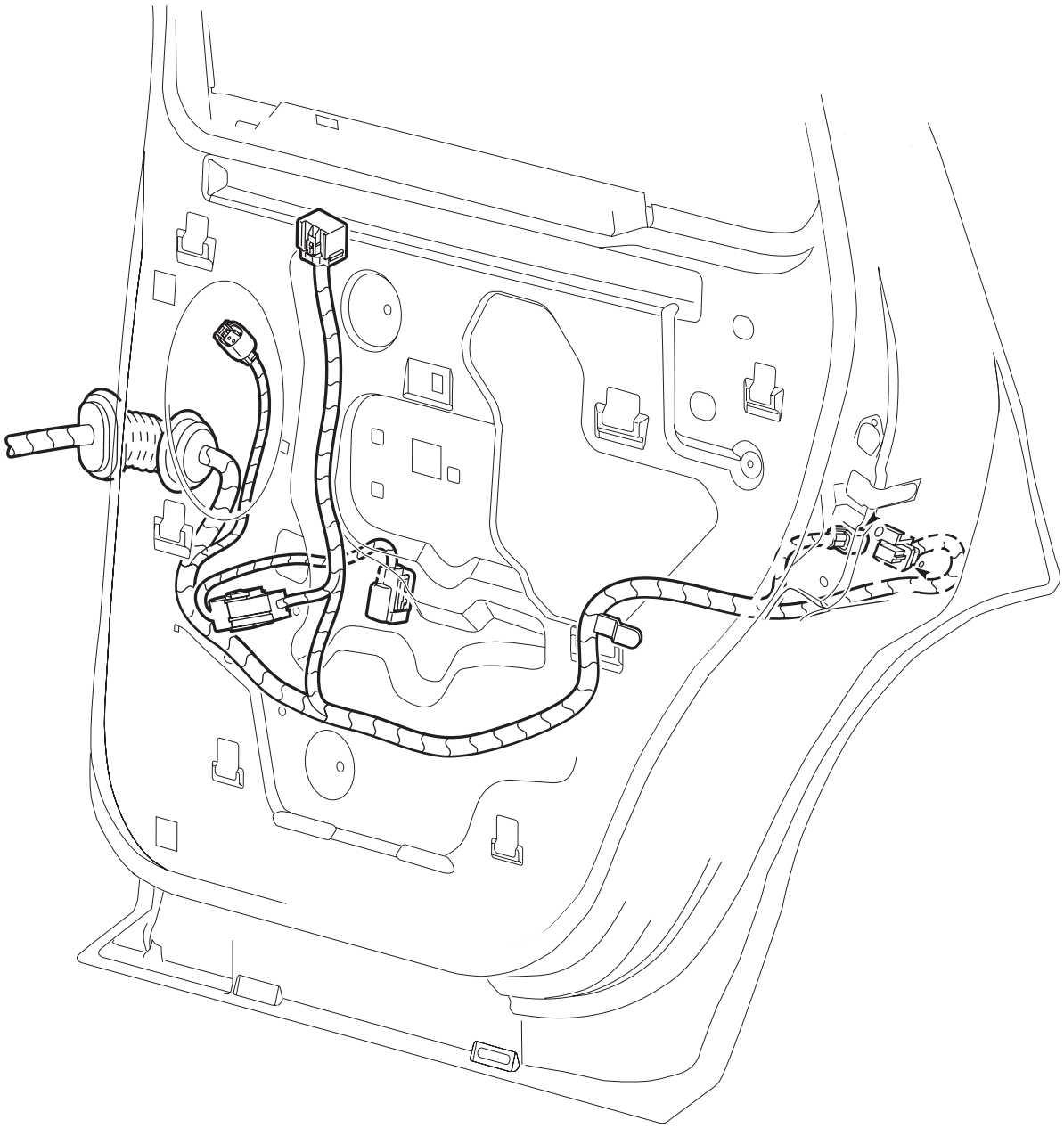


SIDE VIEW

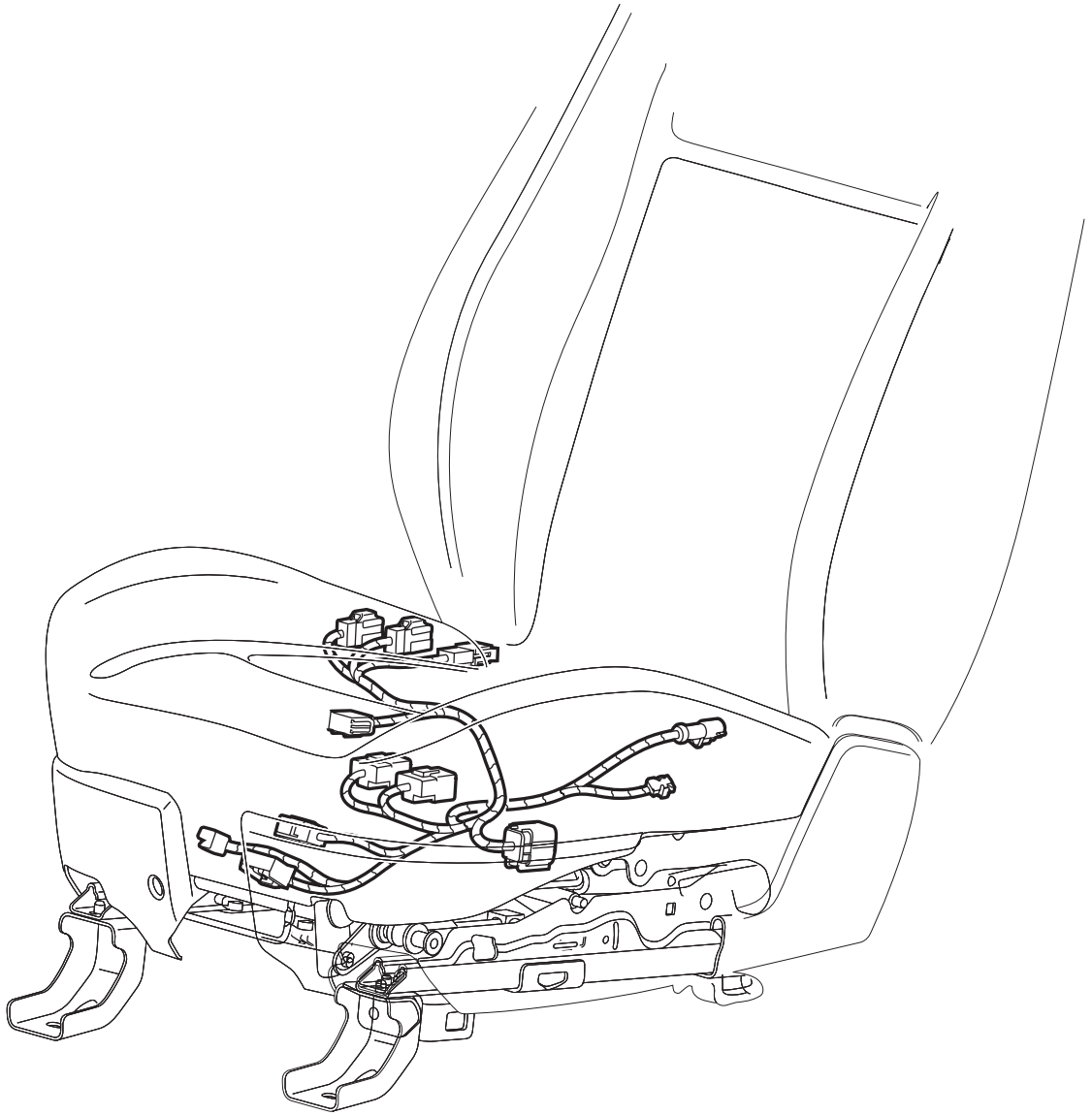




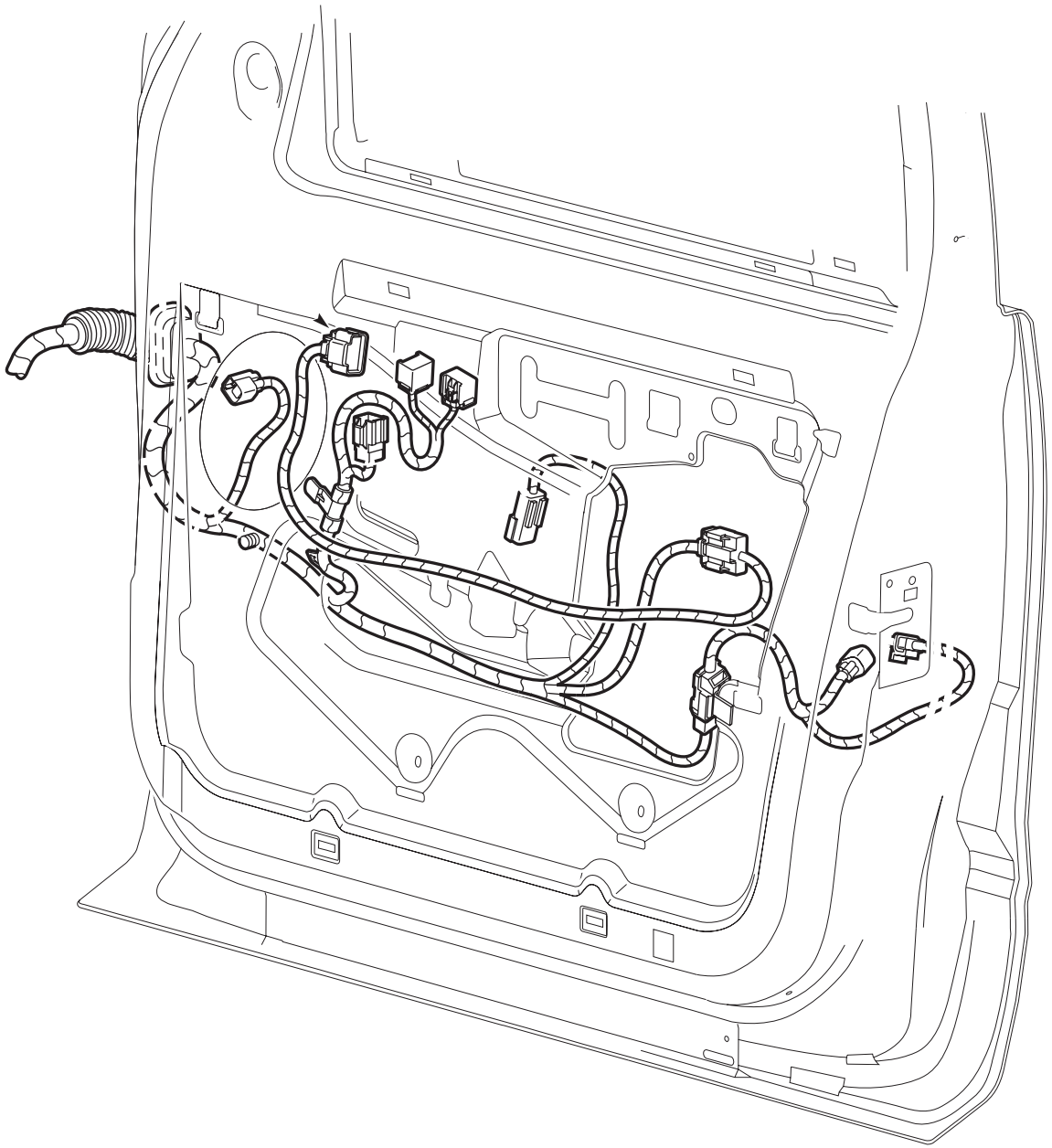
Roof and Full Body view

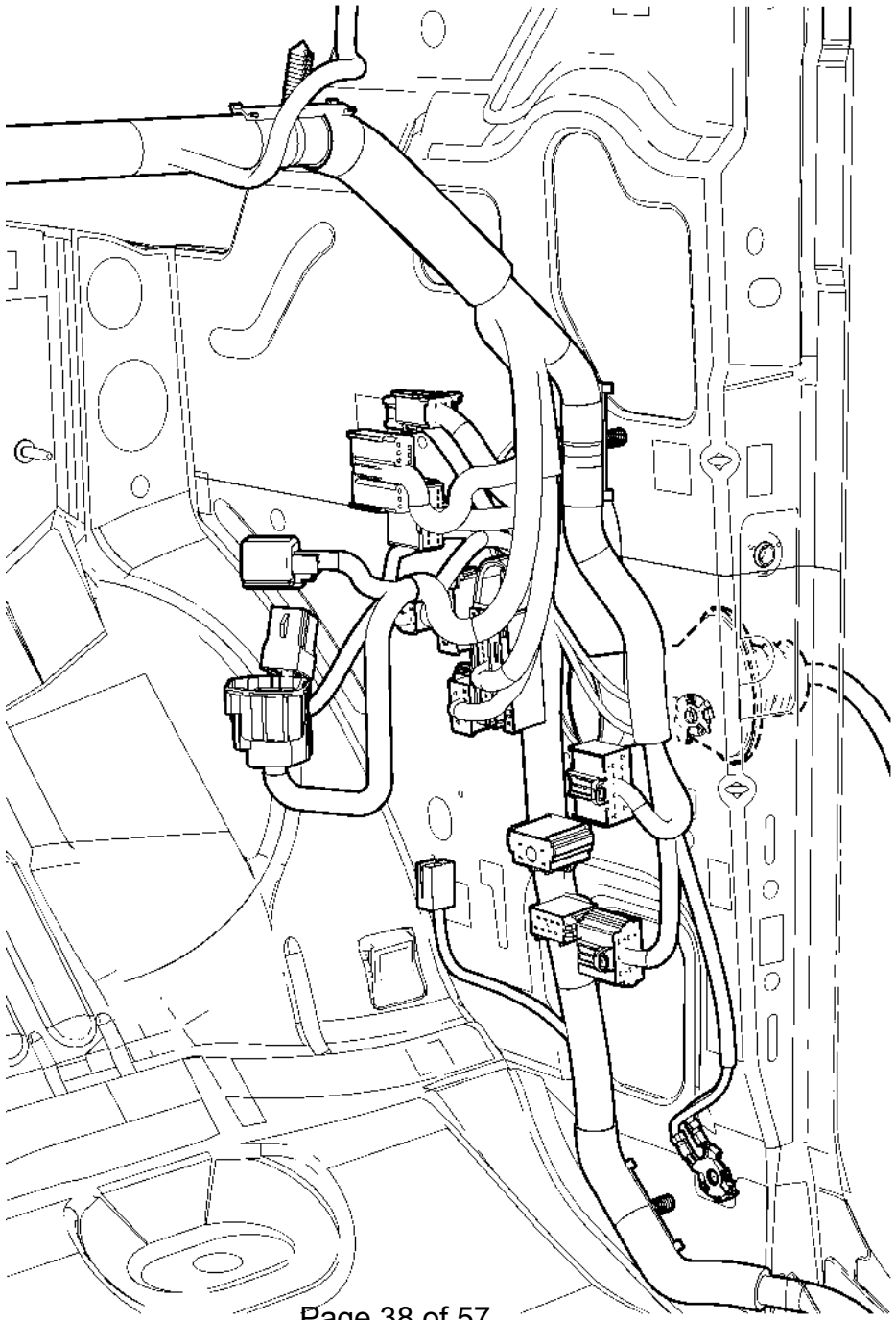


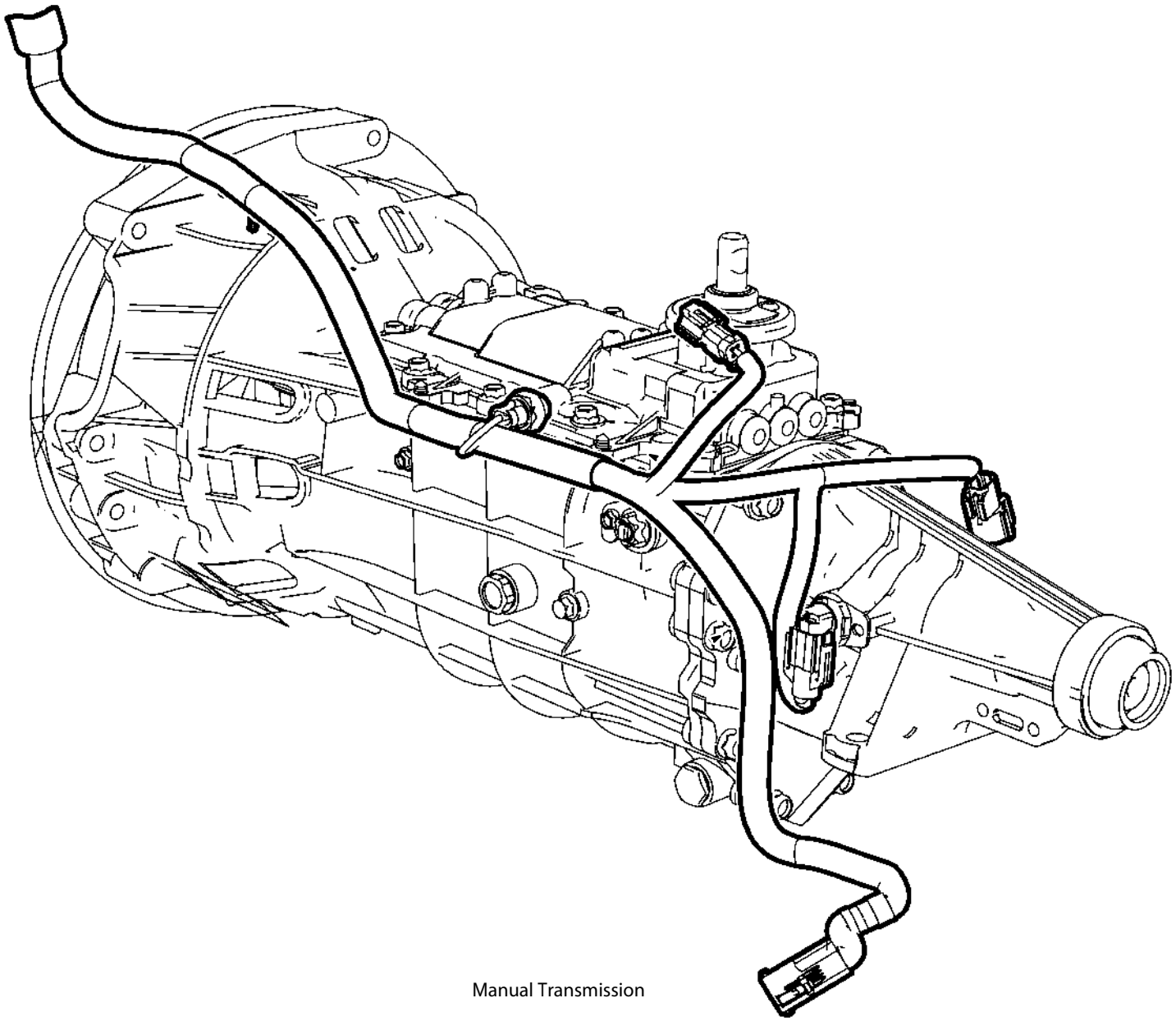
Door, Rear RH



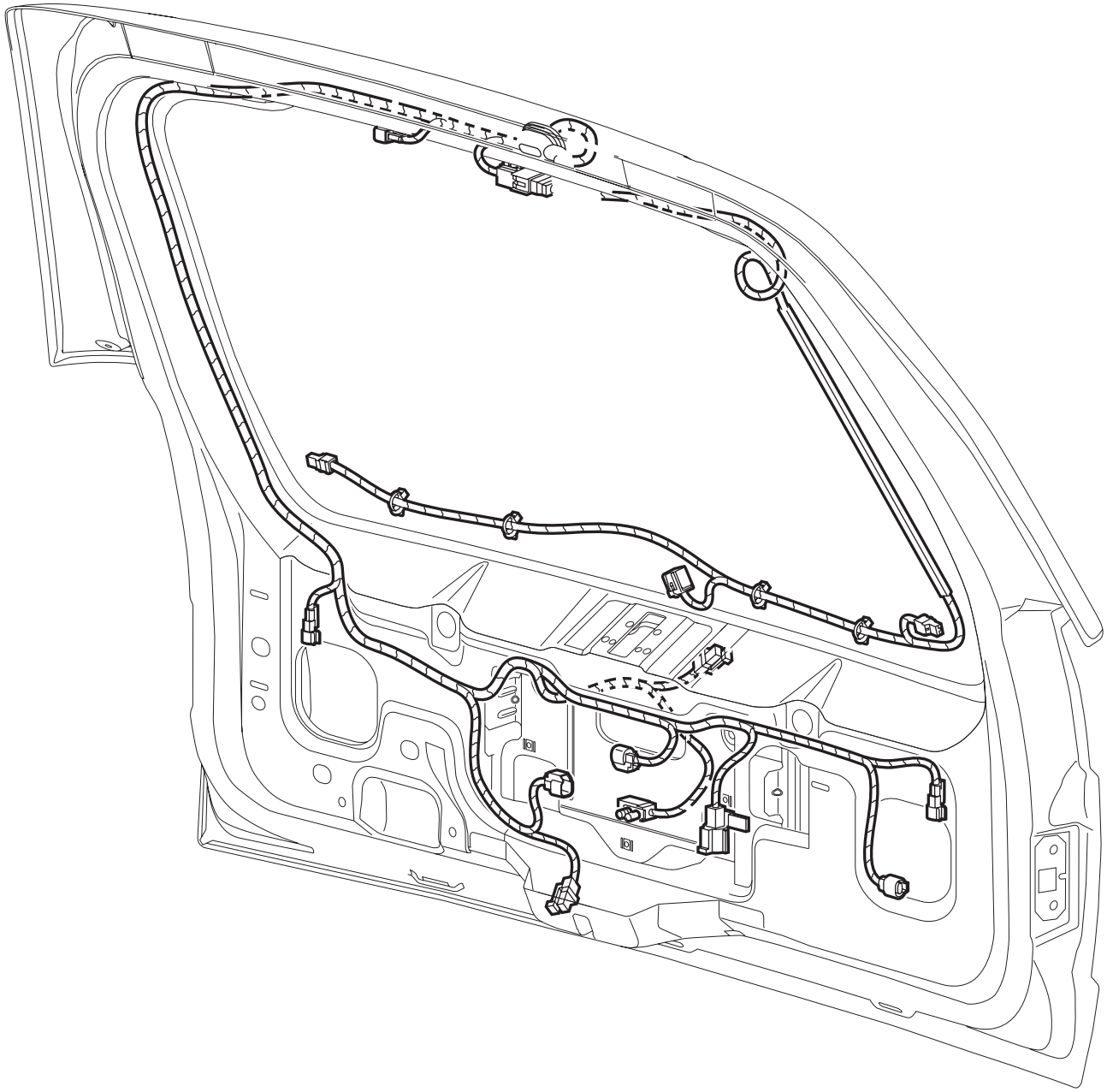
Passenger Seat

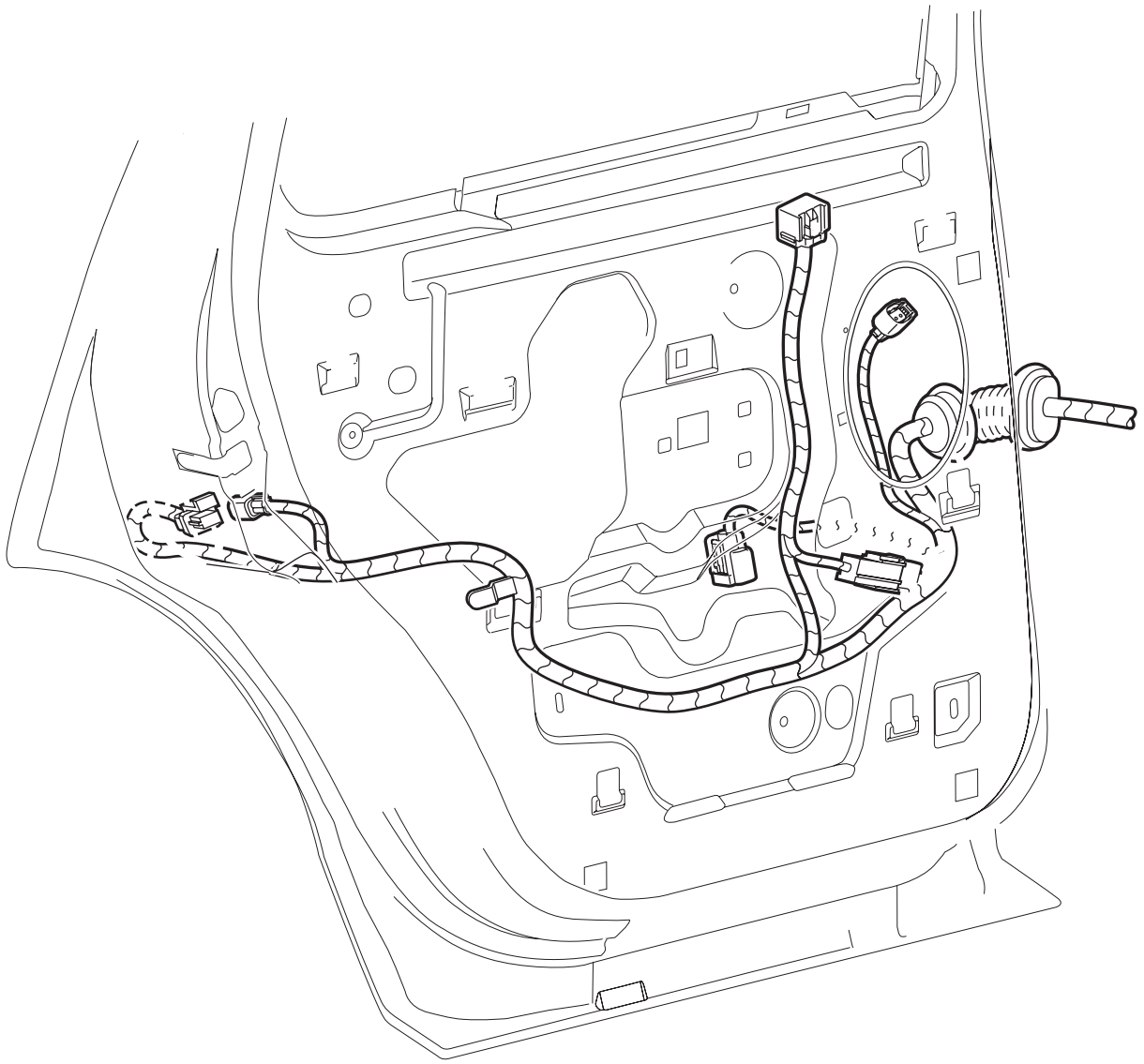


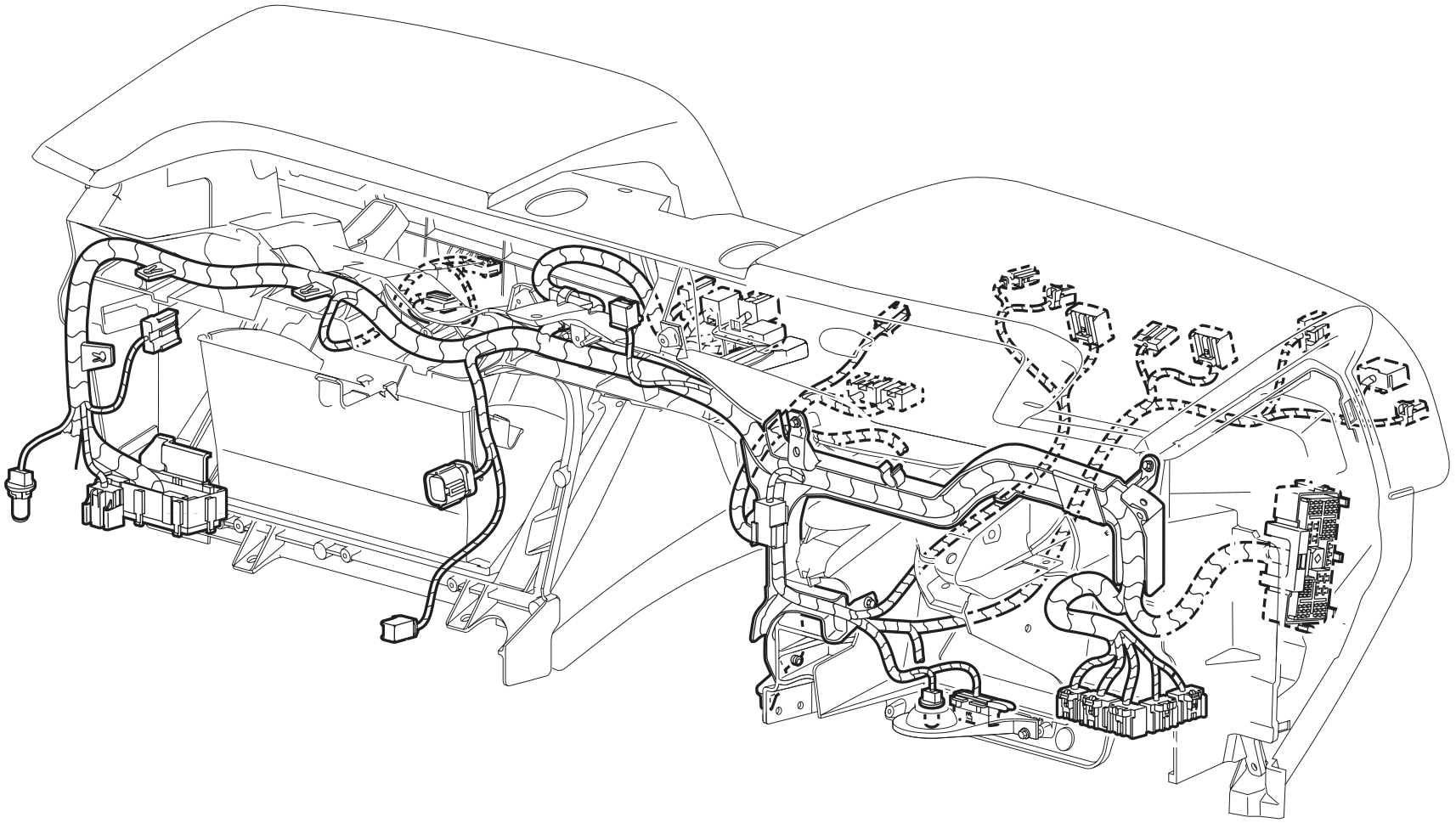




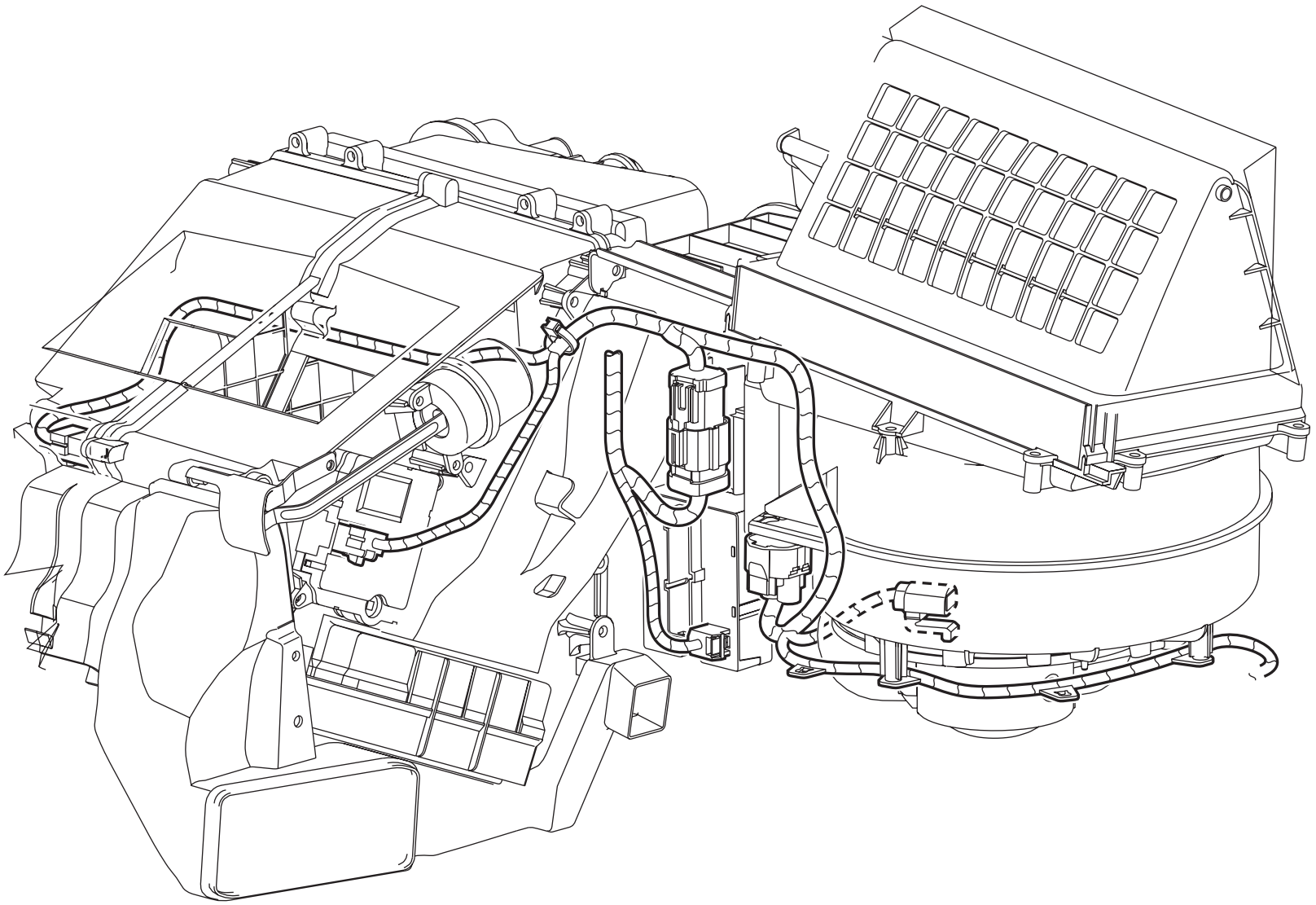
Manual Transmission

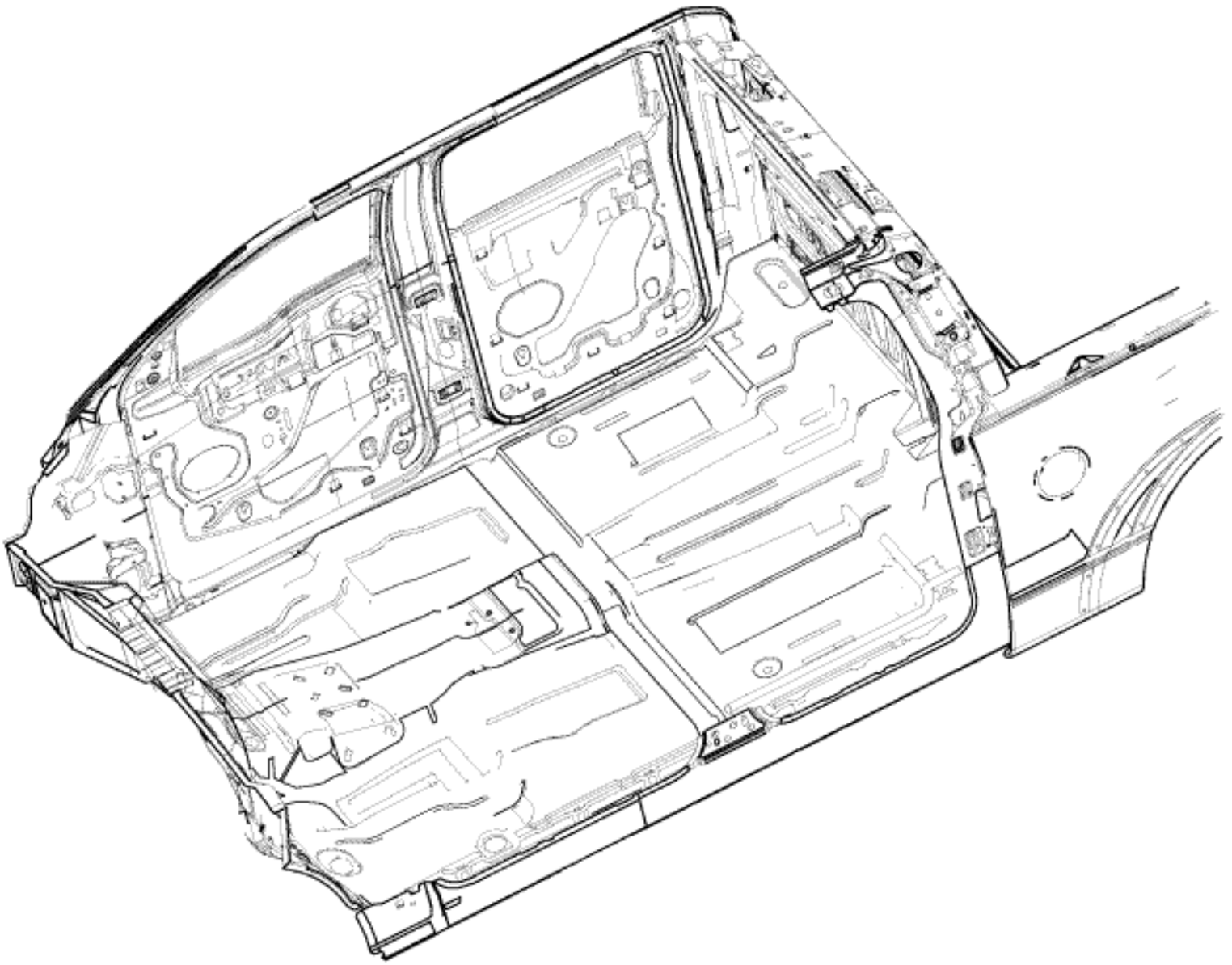


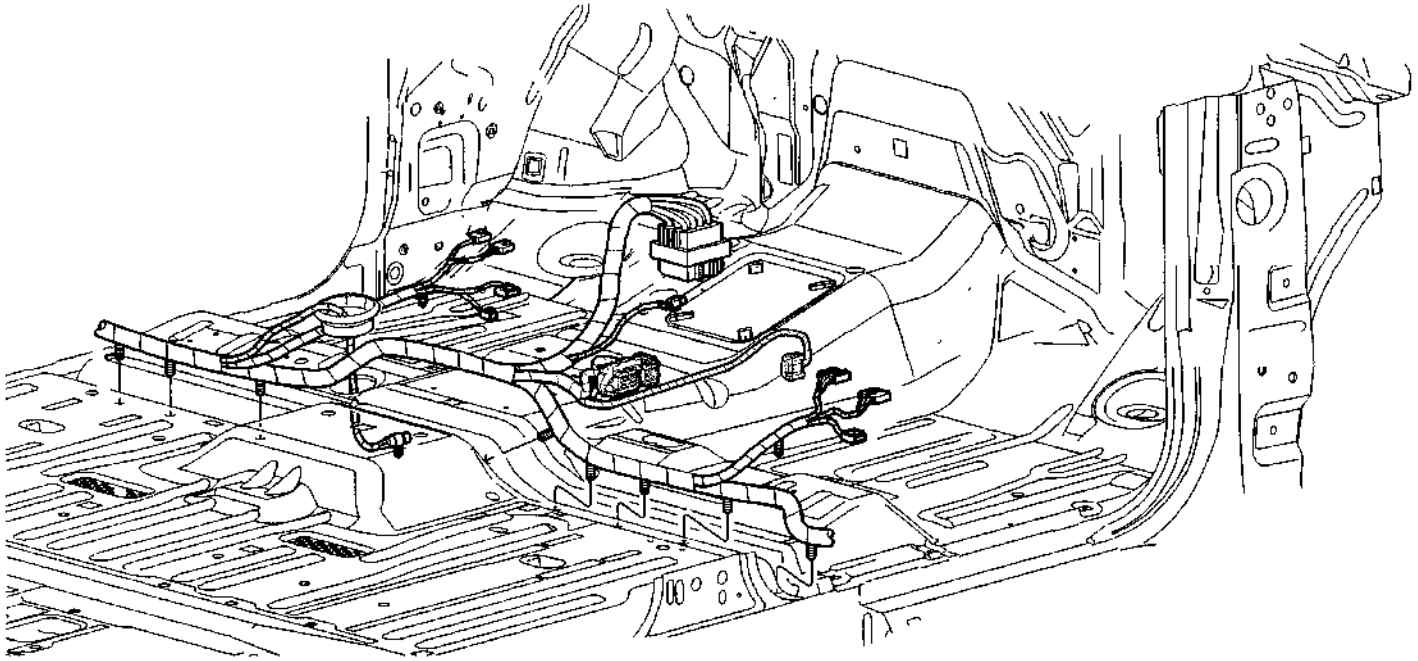


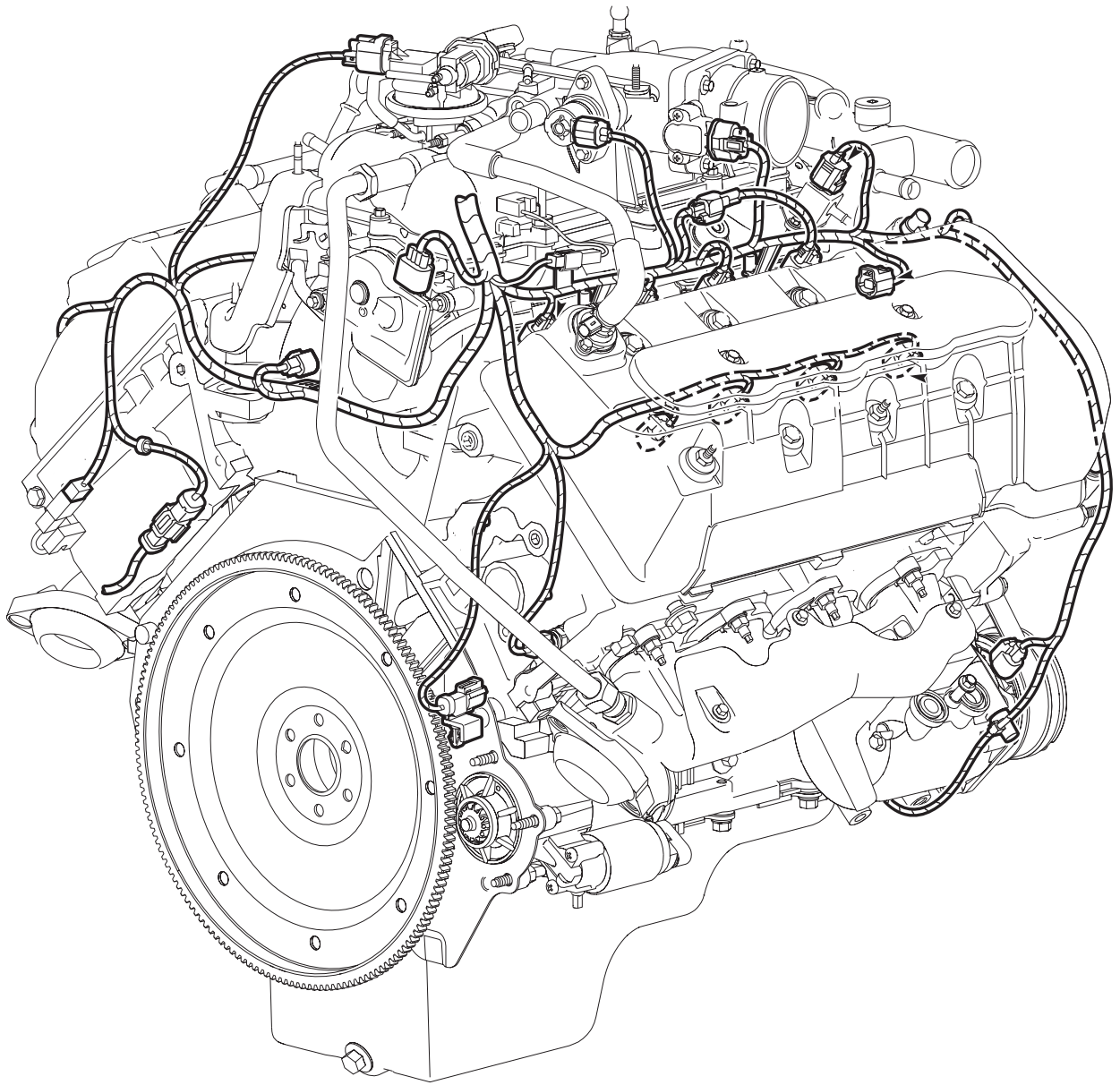


Dash Panel, Rear View

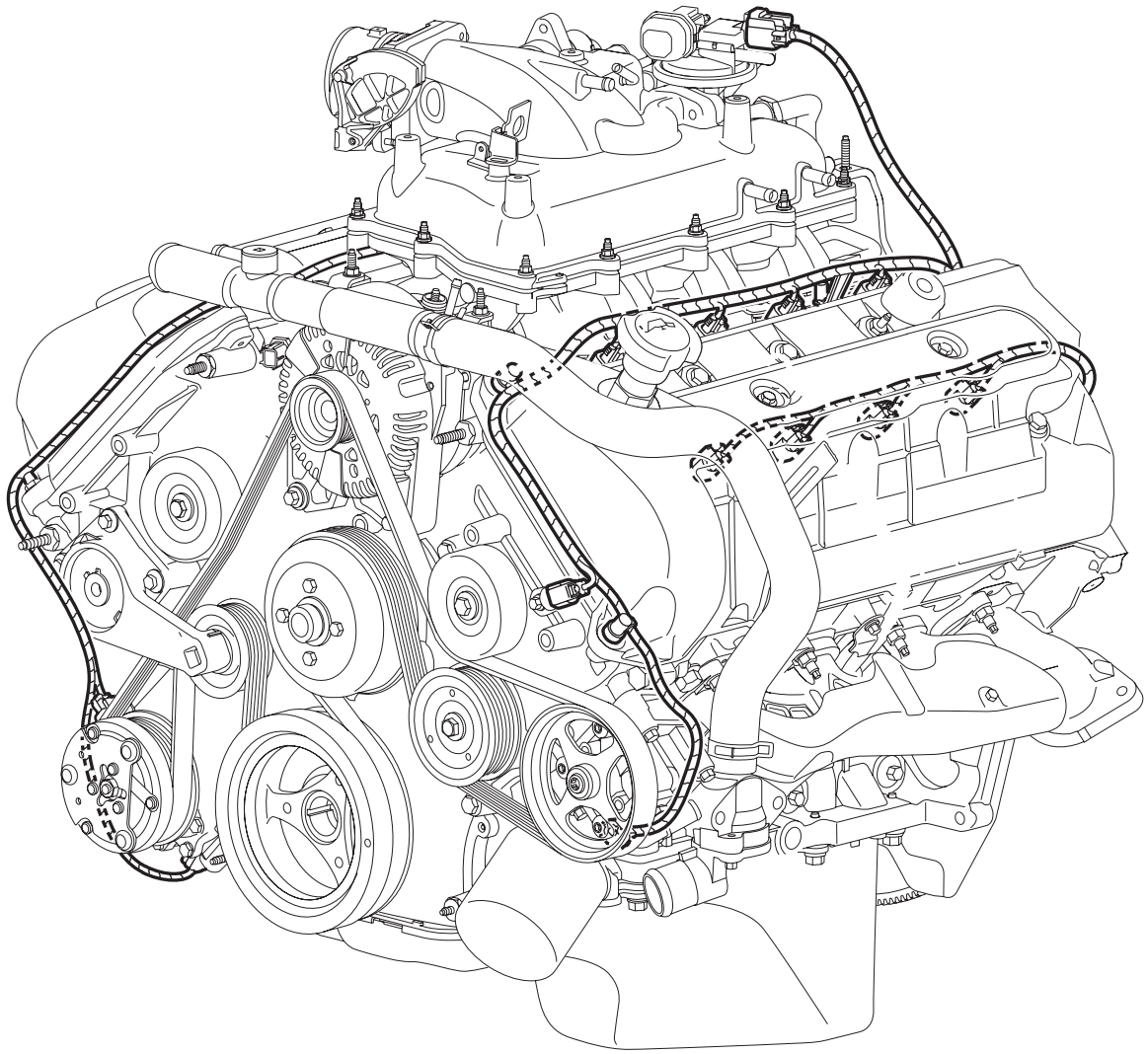




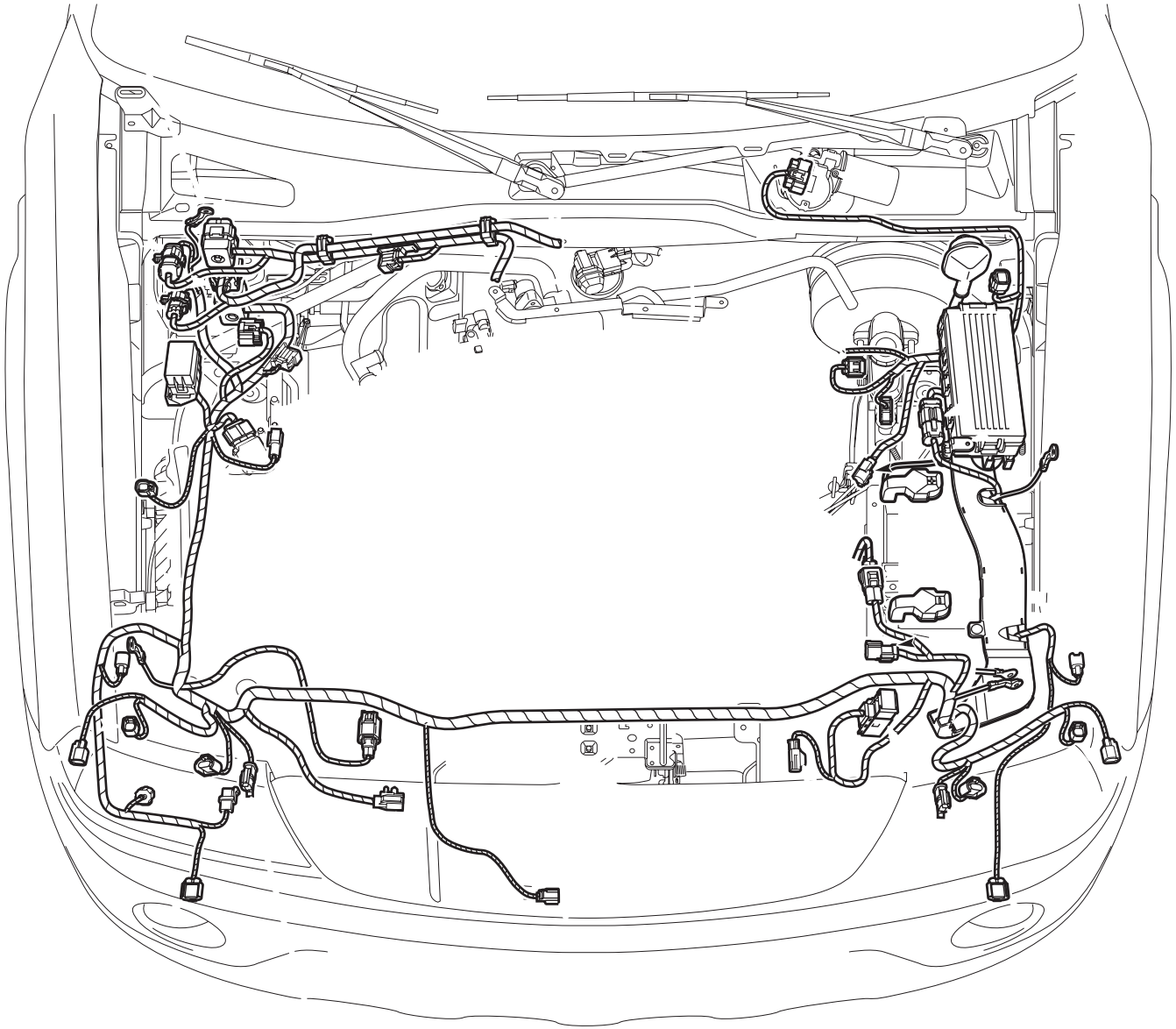




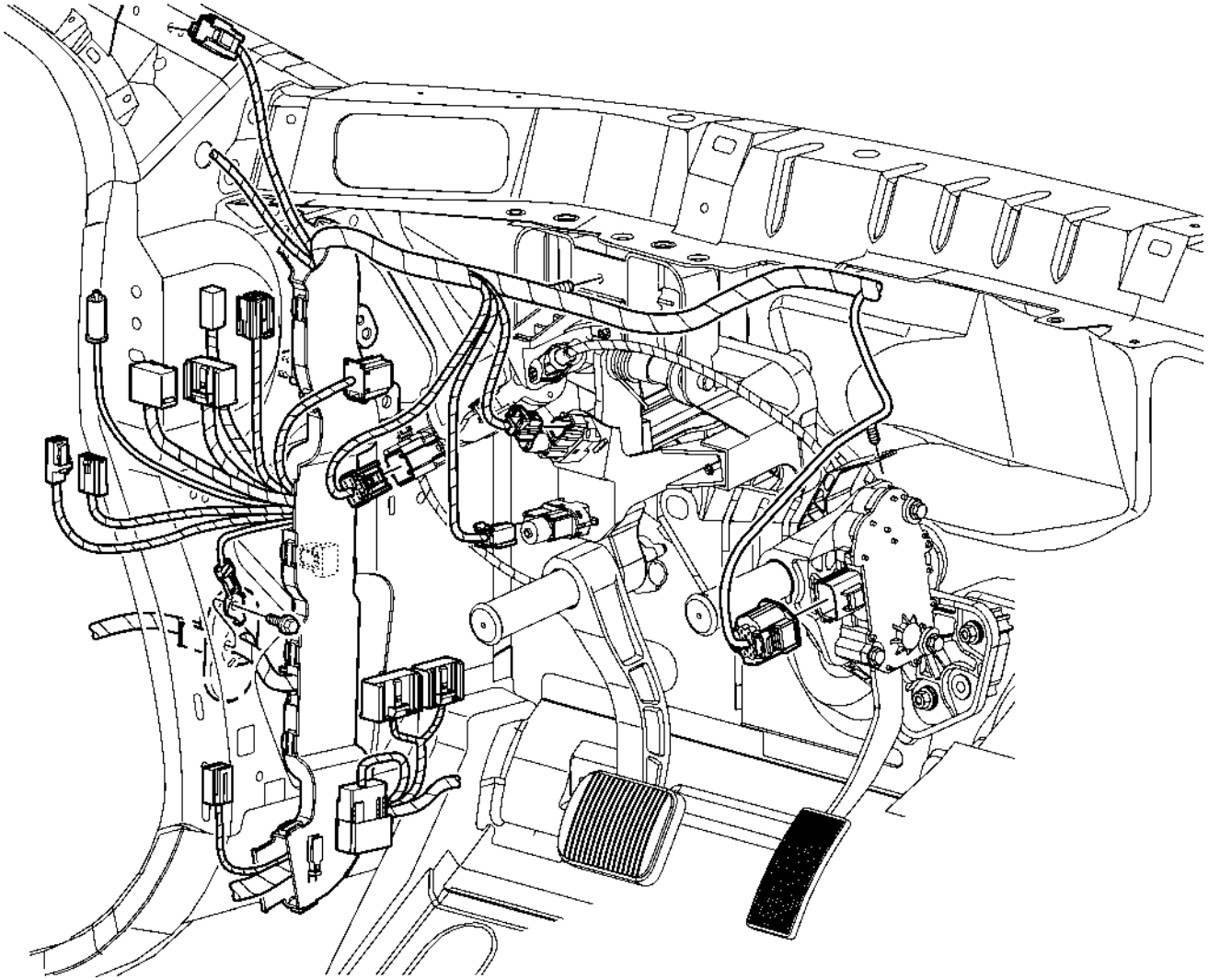
Engine RH



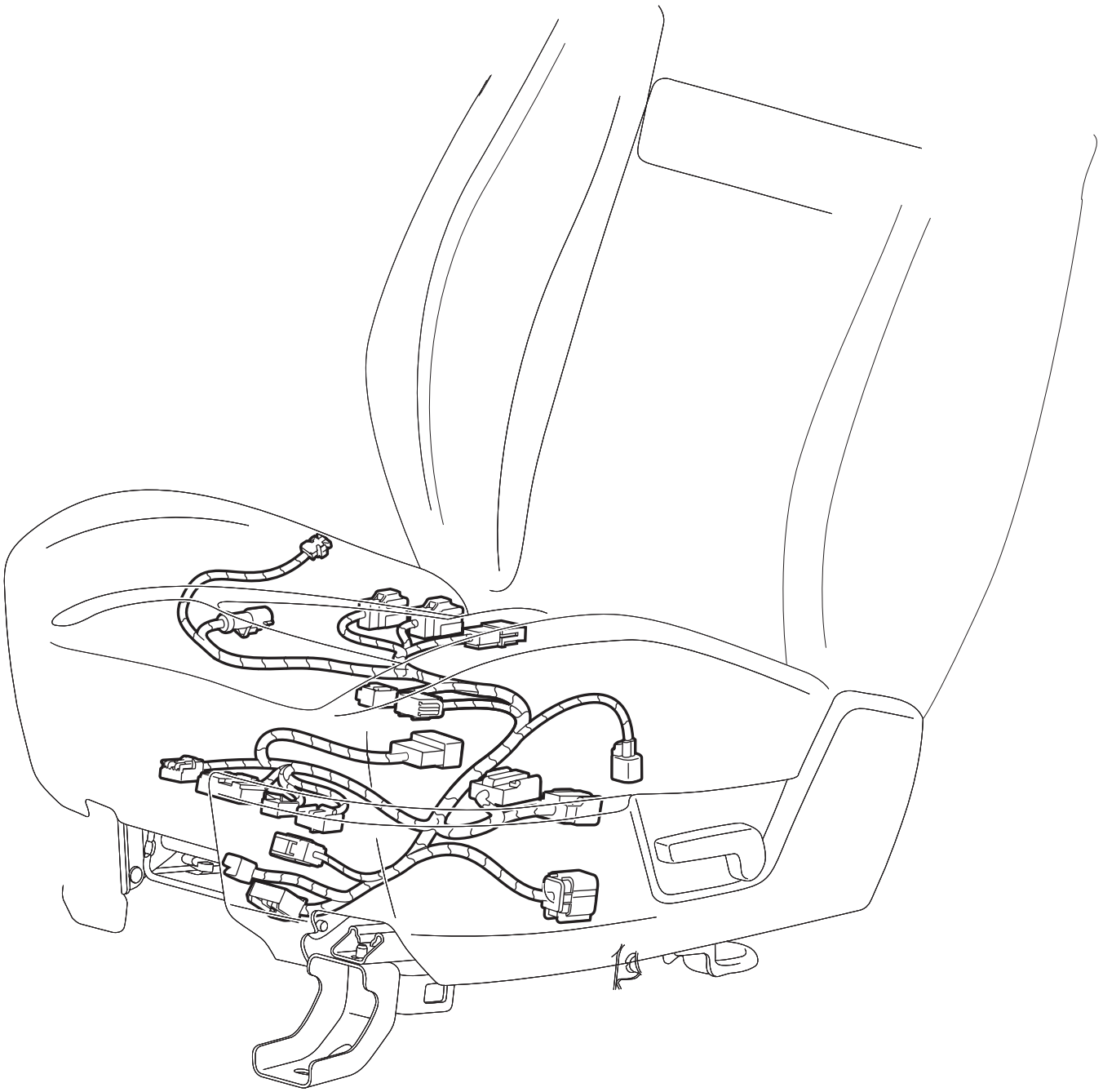
Engine - LH

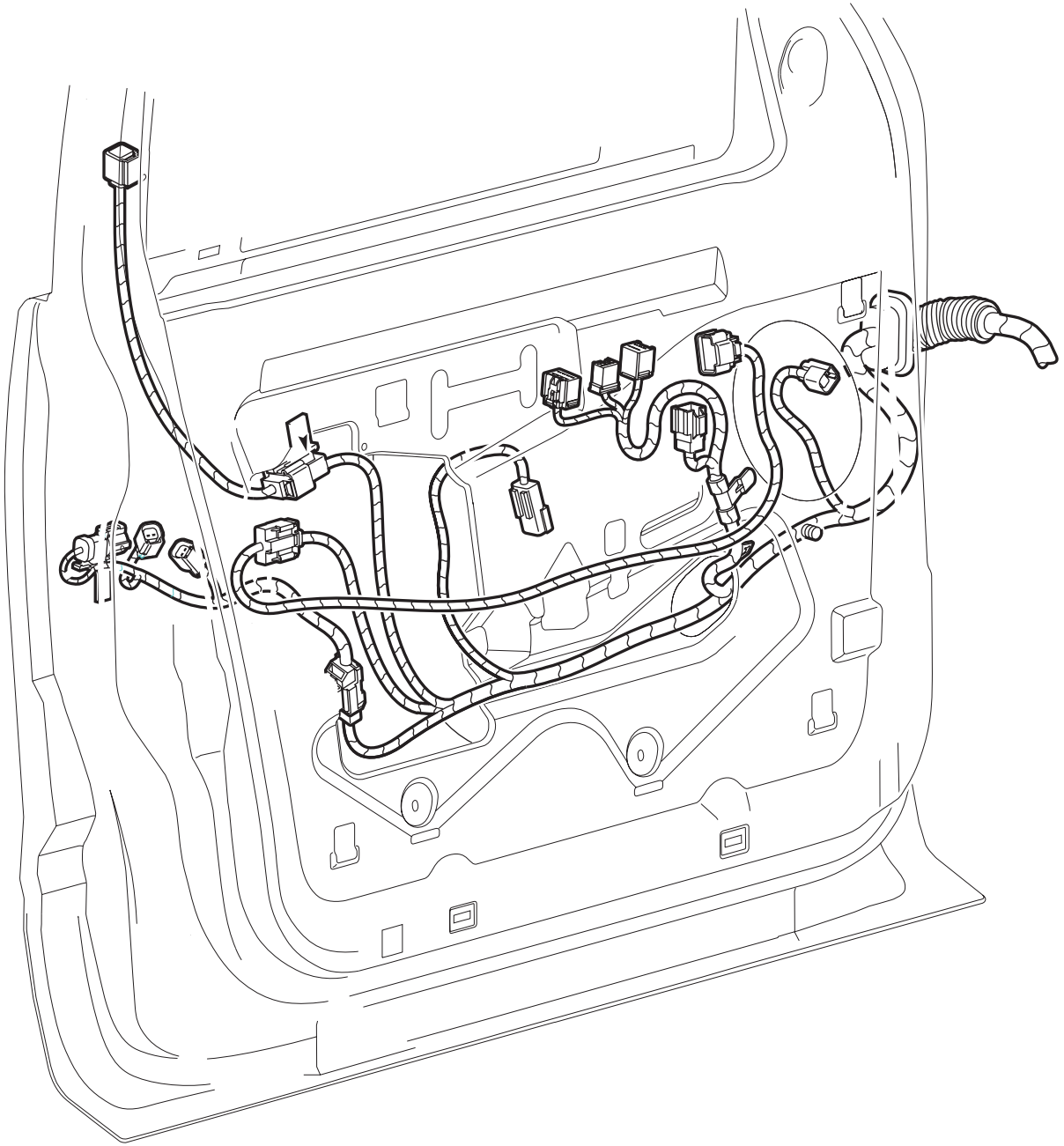


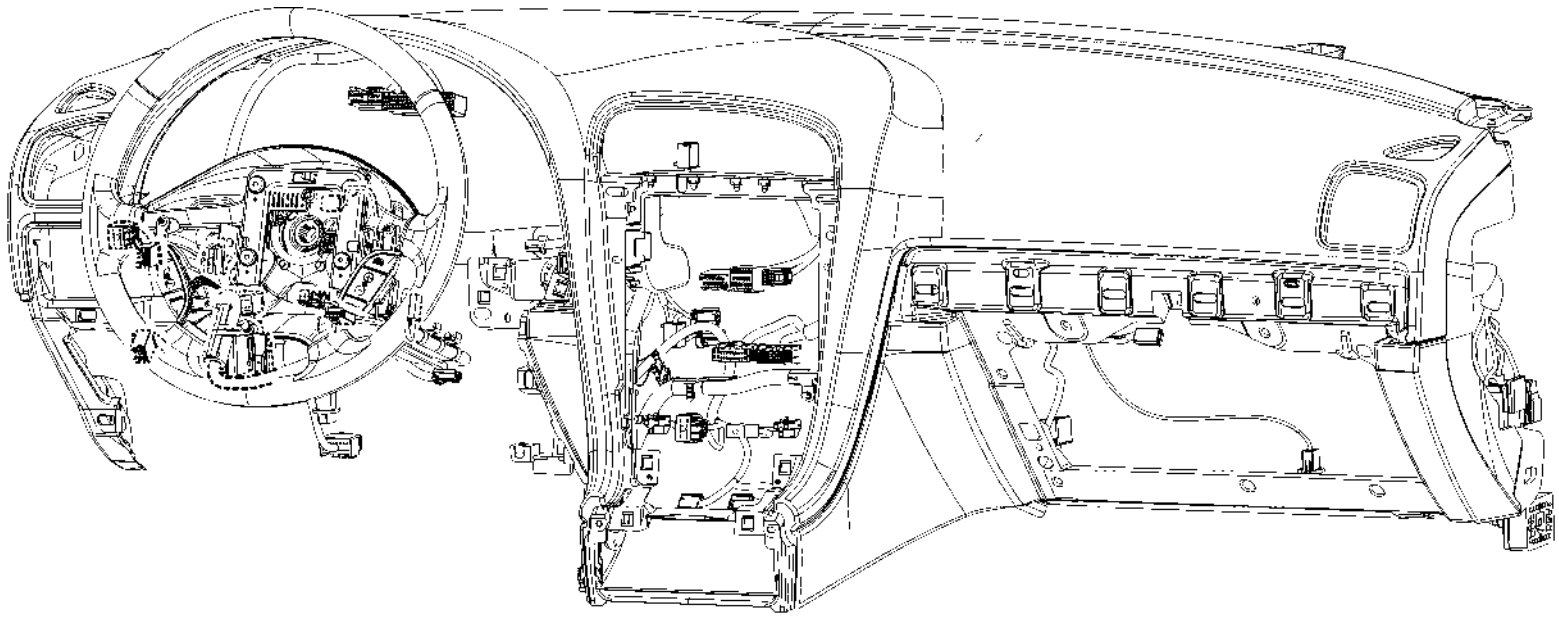
Engine Compartment



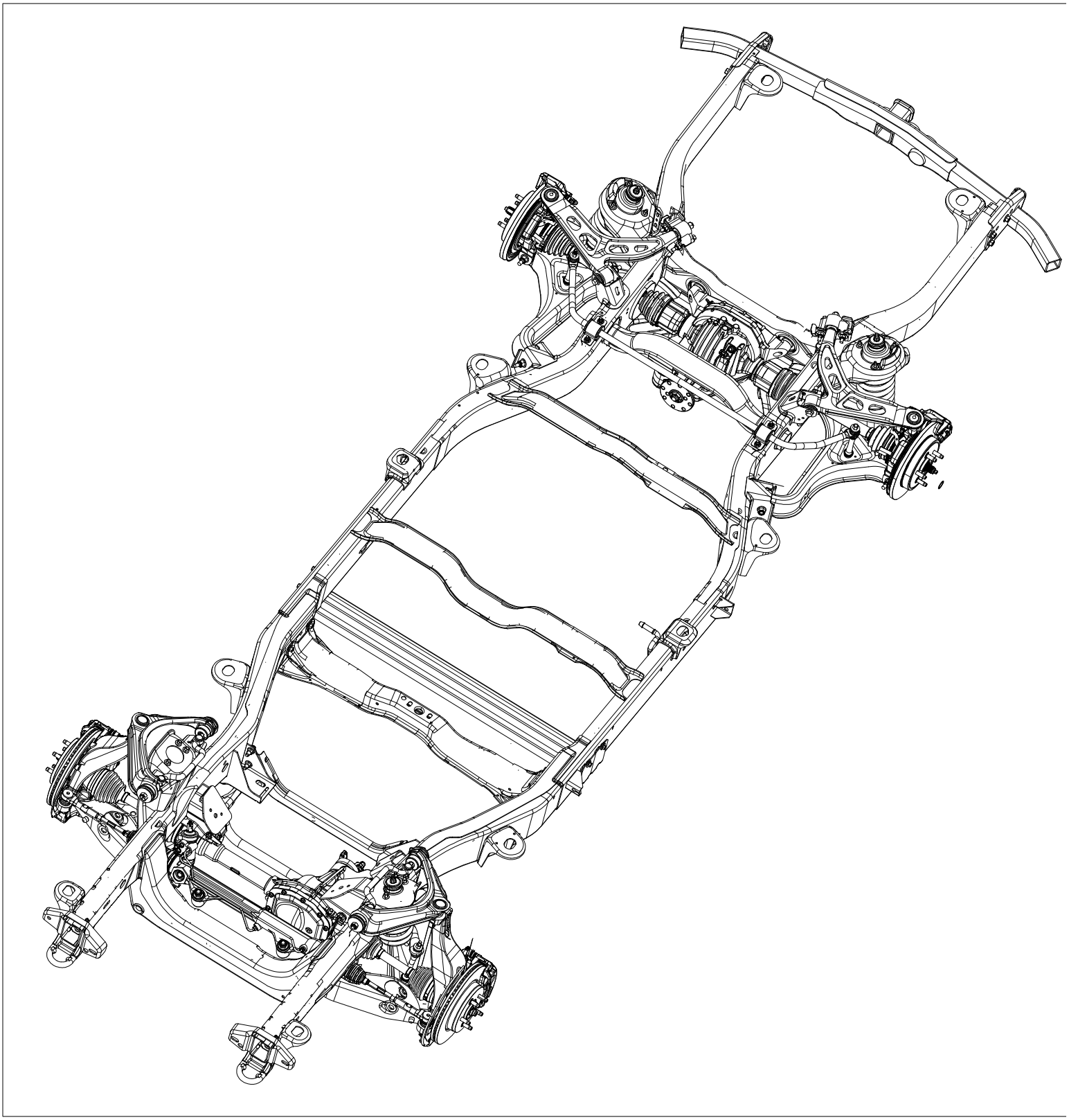
Driver A Pillar Area

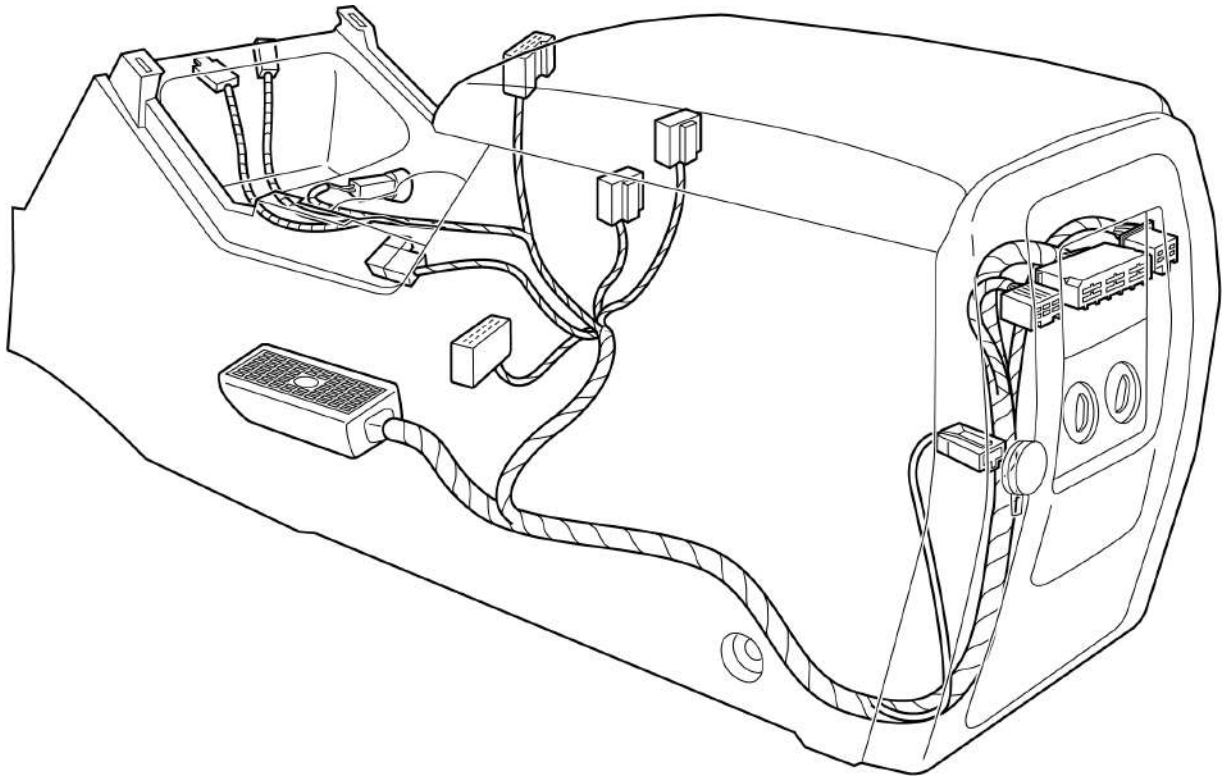


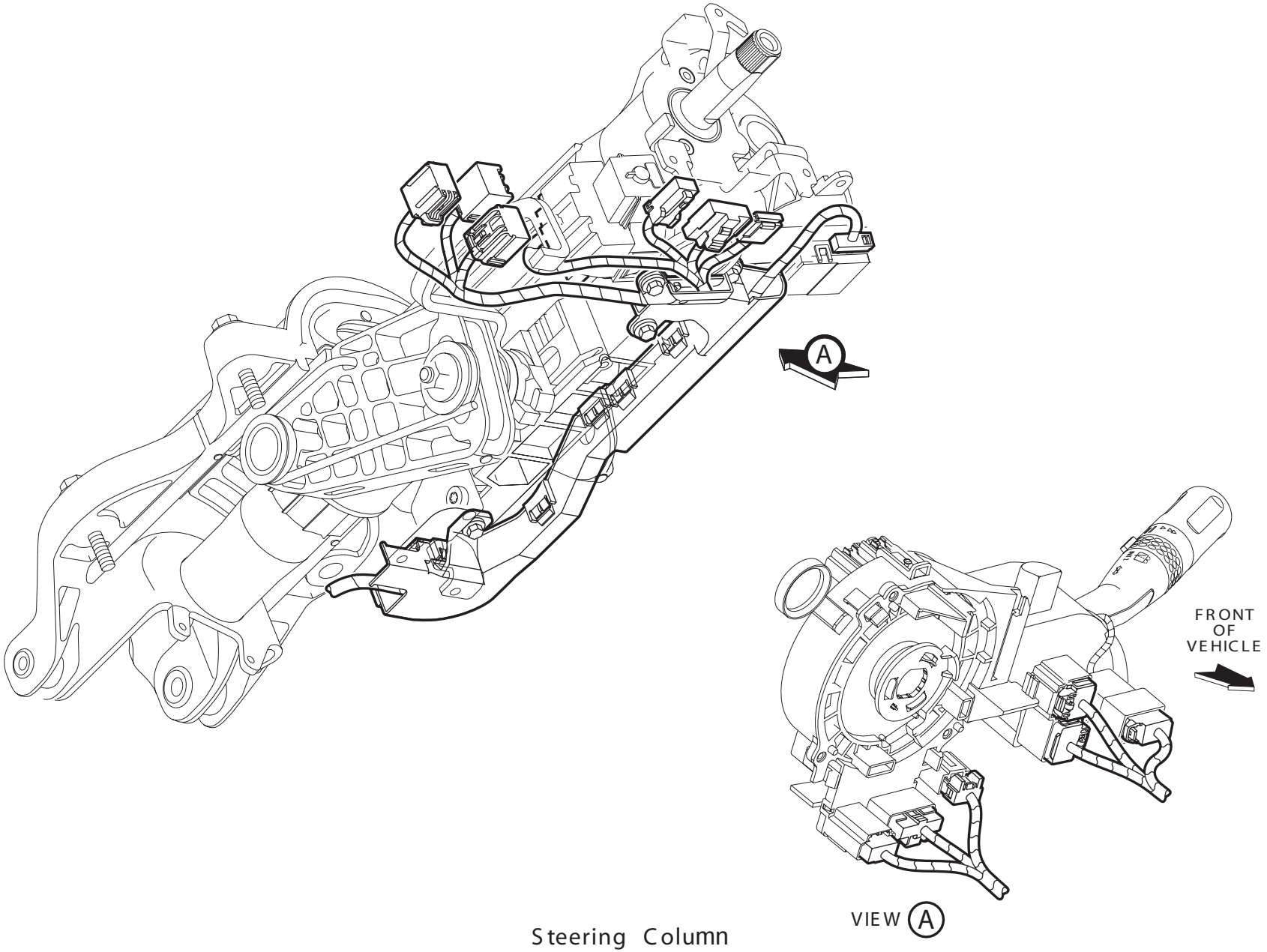


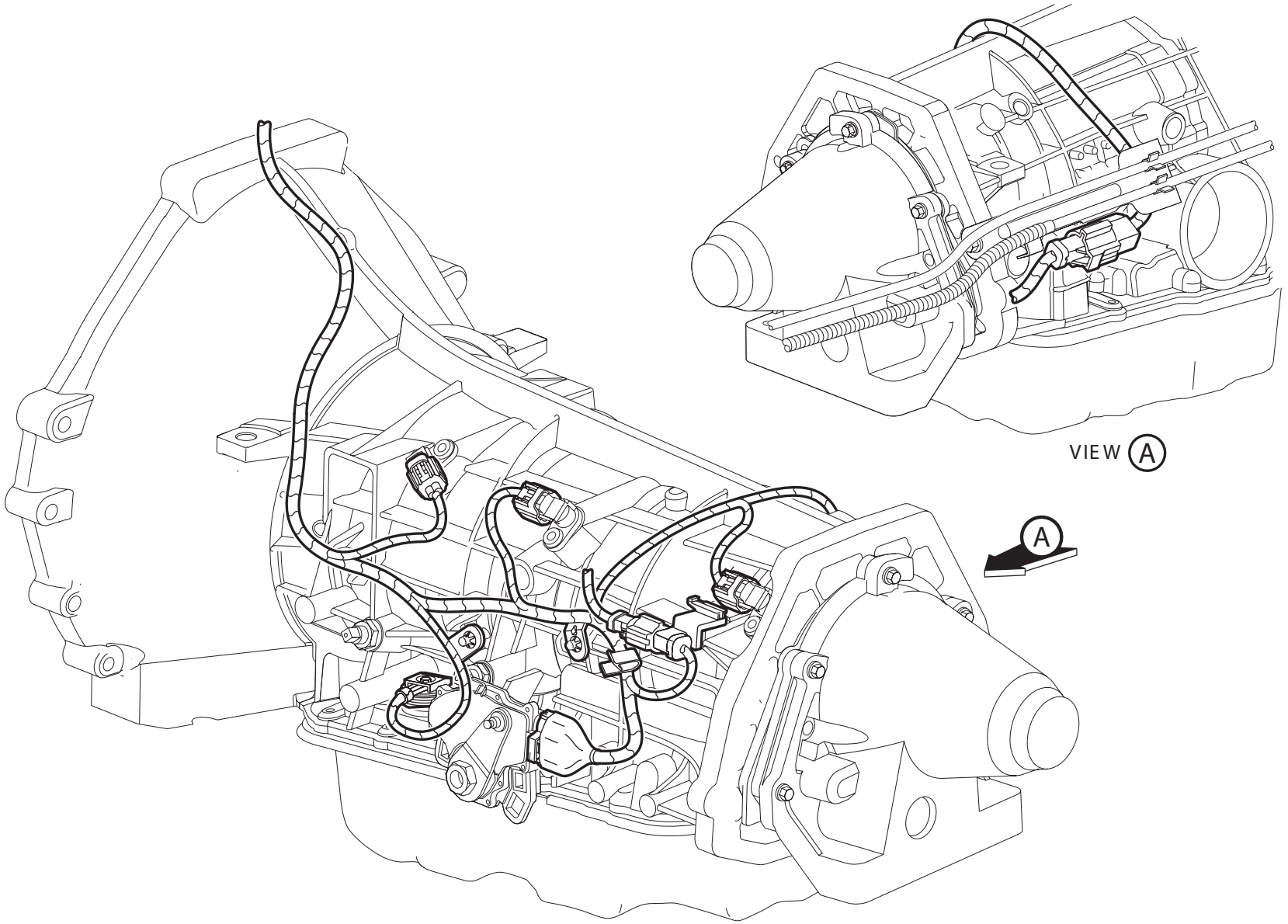


Dash panel, front view






A
FRONT
OF
VEHICLE
VIEW A


VIEW A
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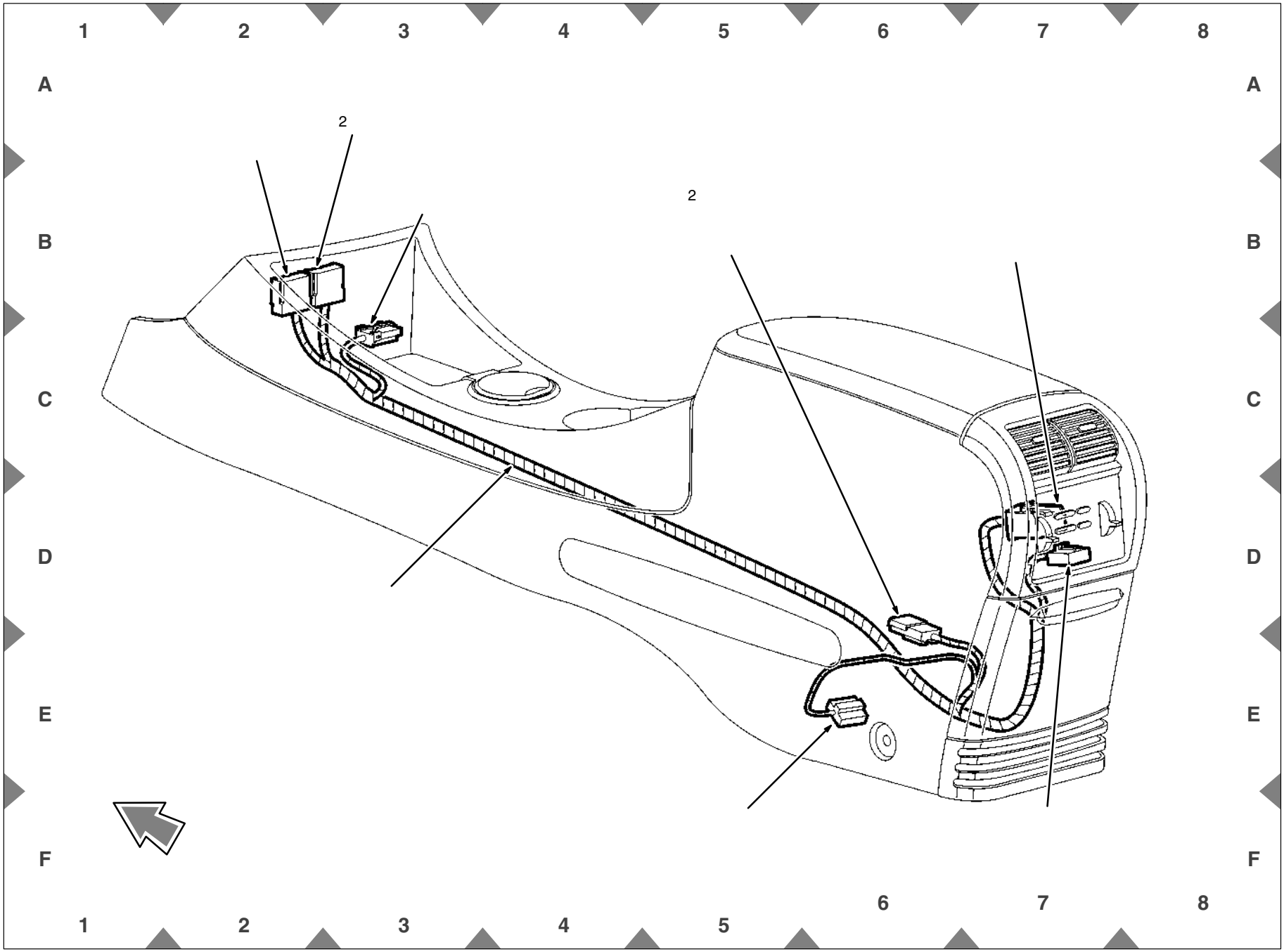
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