

WIRING HARNESS AND CONNECTORS

SERVICE TOOLS

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GENERAL

The illustrations in this subsection are typical. Several variants of the connector types, such as different number of pin cavities, are used on the vehicle.

CONNECTOR ABBREVIATION DESCRIPTION

ABBREVIATION	DESCRIPTION
BD	RH multifunction switch
BN1	Ground terminal
BN2	Ground terminal
BN4	Ground terminal
BP1	Positive terminal to PF2
BP2	Positive terminal from battery
BP3	Positive terminal to SM
CC	Ignition switch
CL	Cluster
CRD	Rear RH turn light (Used on European models only)
CRG	Rear LH turn light (Used on European models only)
DB	Diagnostic connector
DC1	Accessory outlet
DC2	Accessory outlet
DC3	Accessory outlet

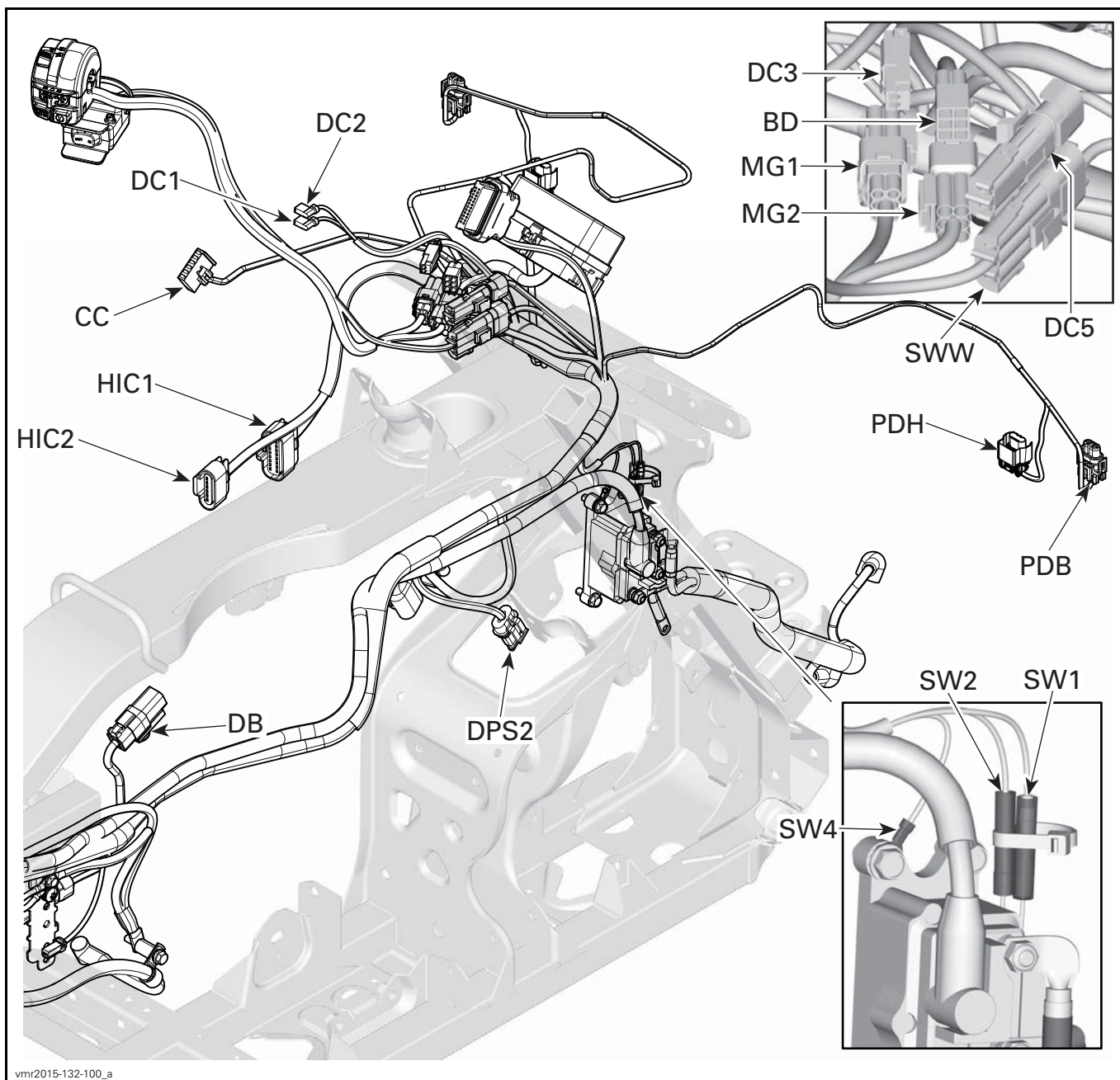
ABBREVIATION	DESCRIPTION
DC5	Accessory outlet
DC6	Accessory outlet
DC7	Accessory outlet
DPS1	Dynamic power steering
DPS2	Dynamic power steering
DPS3	Dynamic power steering
FL	Fuse link
FP	Fuel pump
FRR	Rear brake light switch
FT	Cooling fan
HIC1	Harness interconnect
HIC2	Harness interconnect
HICa	Harness interconnect (Used on European models only)
MG1	LH multifunction switch
MG2	LH multifunction switch
PDB	RH lower headlight
PDH	RH upper headlight
PF1	Front Fuse box
PF2	Rear fuse holder
PGB	LH LO beam headlight
PGH	LH HI beam headlight
PL	License plate light (Used on European models only)

Subsection 02 (WIRING HARNESS AND CONNECTORS)

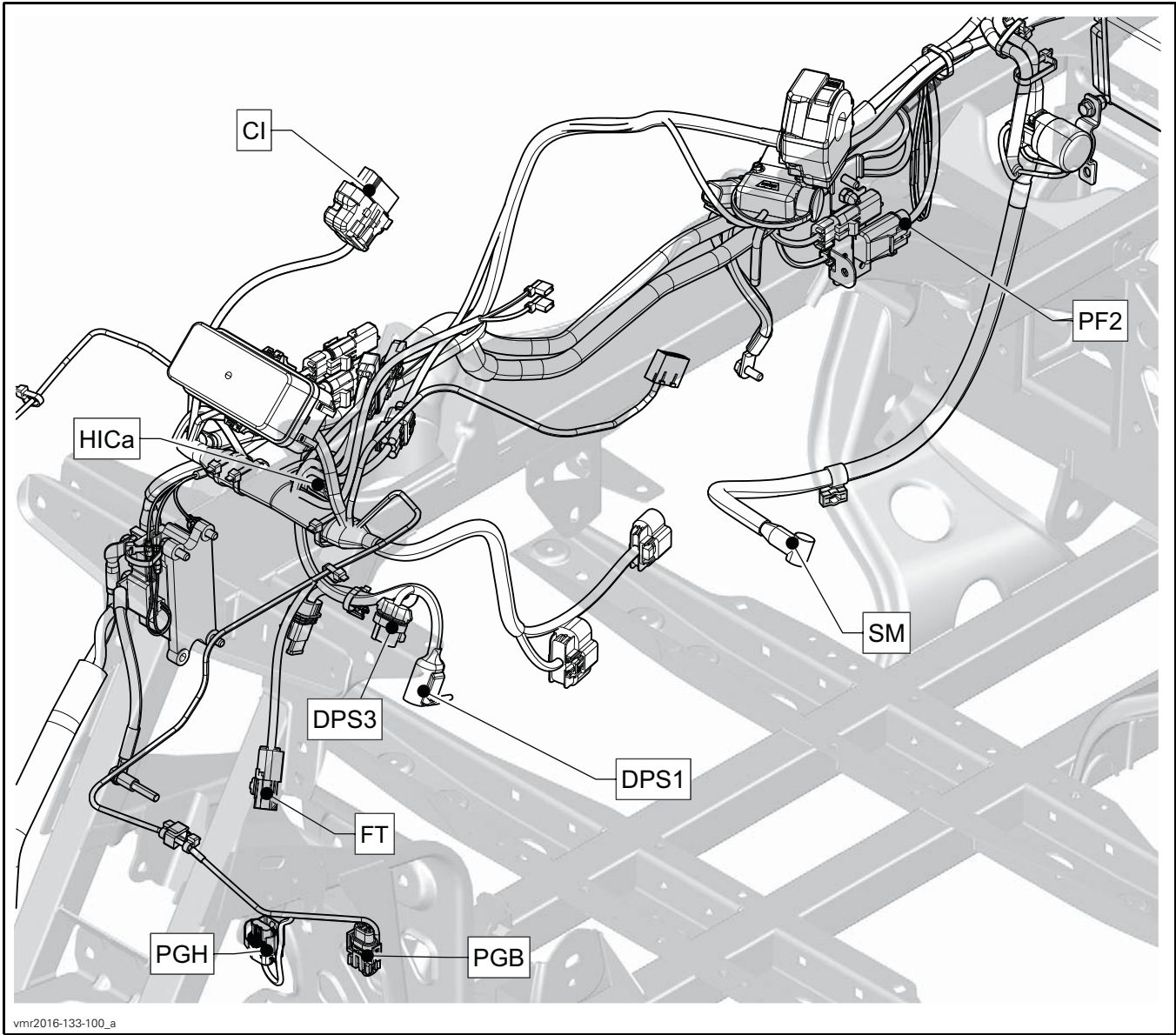
ABBREVIATION	DESCRIPTION
PLD	RH License plate light (Used on European models only)
PLG	LH License plate light (Used on European models only)
PRD	Rear RH light
PRG	Rear LH light
RBL	Trailer harness (Used on European models only)
RD1	Voltage regulator/rectifier
SM	Starter motor
SS1	Starter solenoid
SS2	Starter solenoid
SW1	Winch relay
SW2	Winch relay
SW4	Winch relay
SWW	Winch remote switch

WIRING HARNESS ROUTING

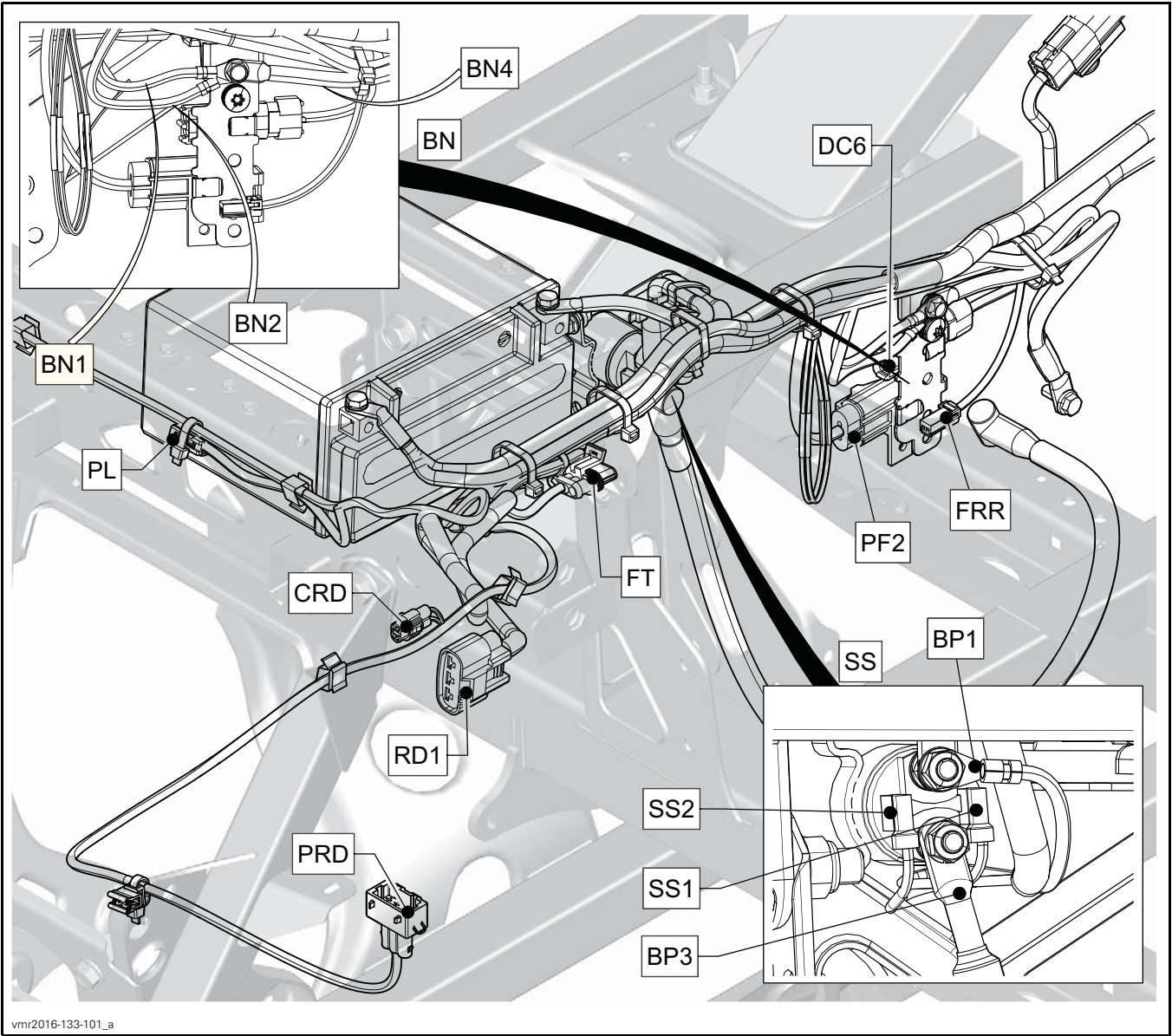
Main Harness (Front 1/2)



Main Harness (Front 2/2)



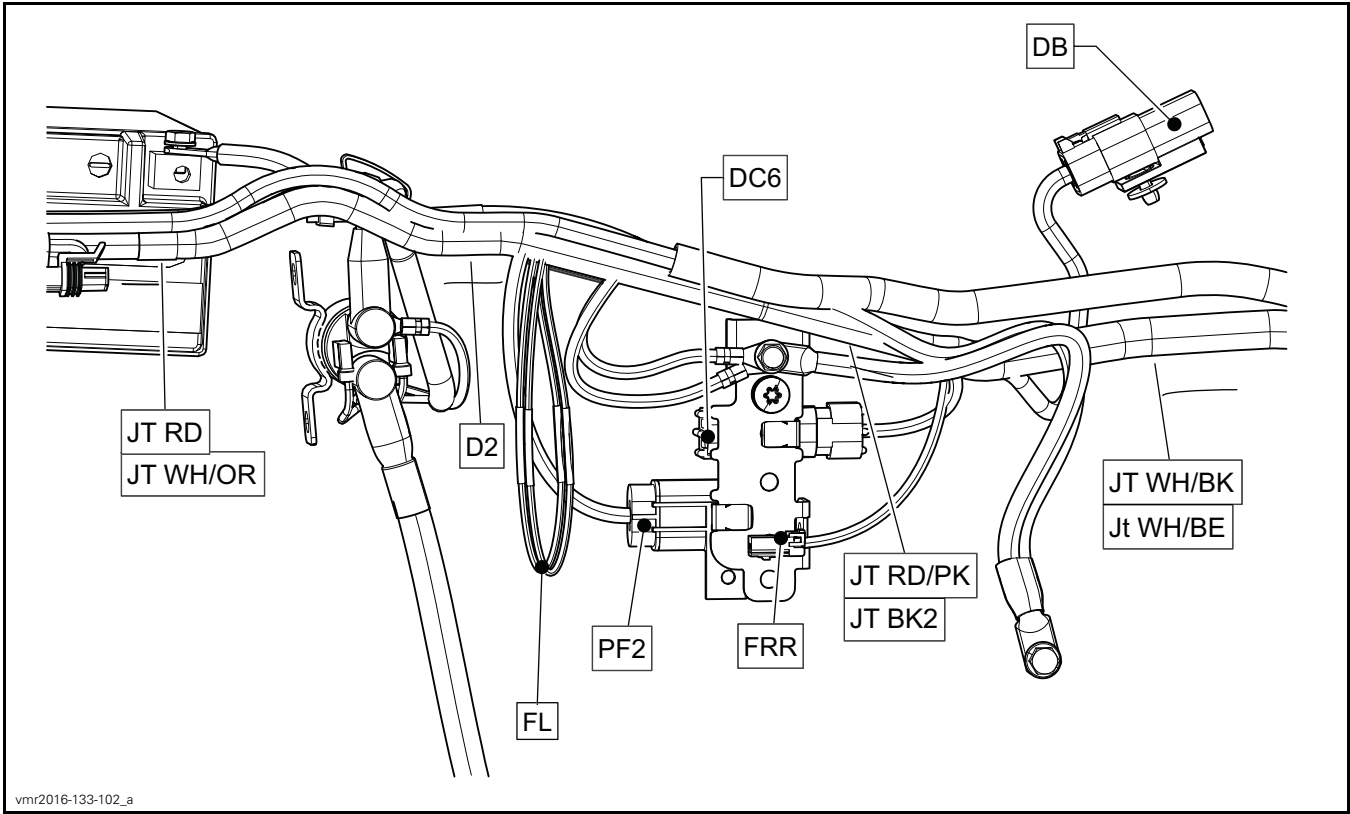
Main Harness (Rear)



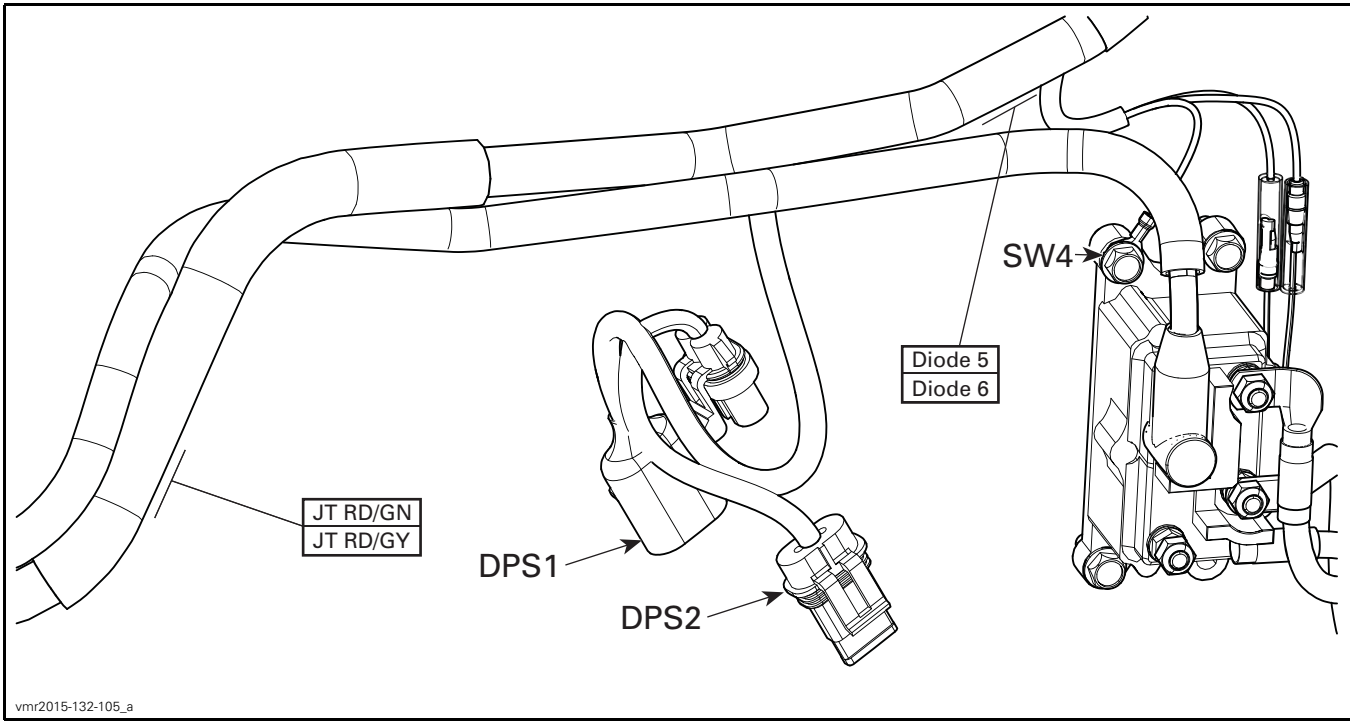
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WIRING HARNESS SPLICE LOCATION

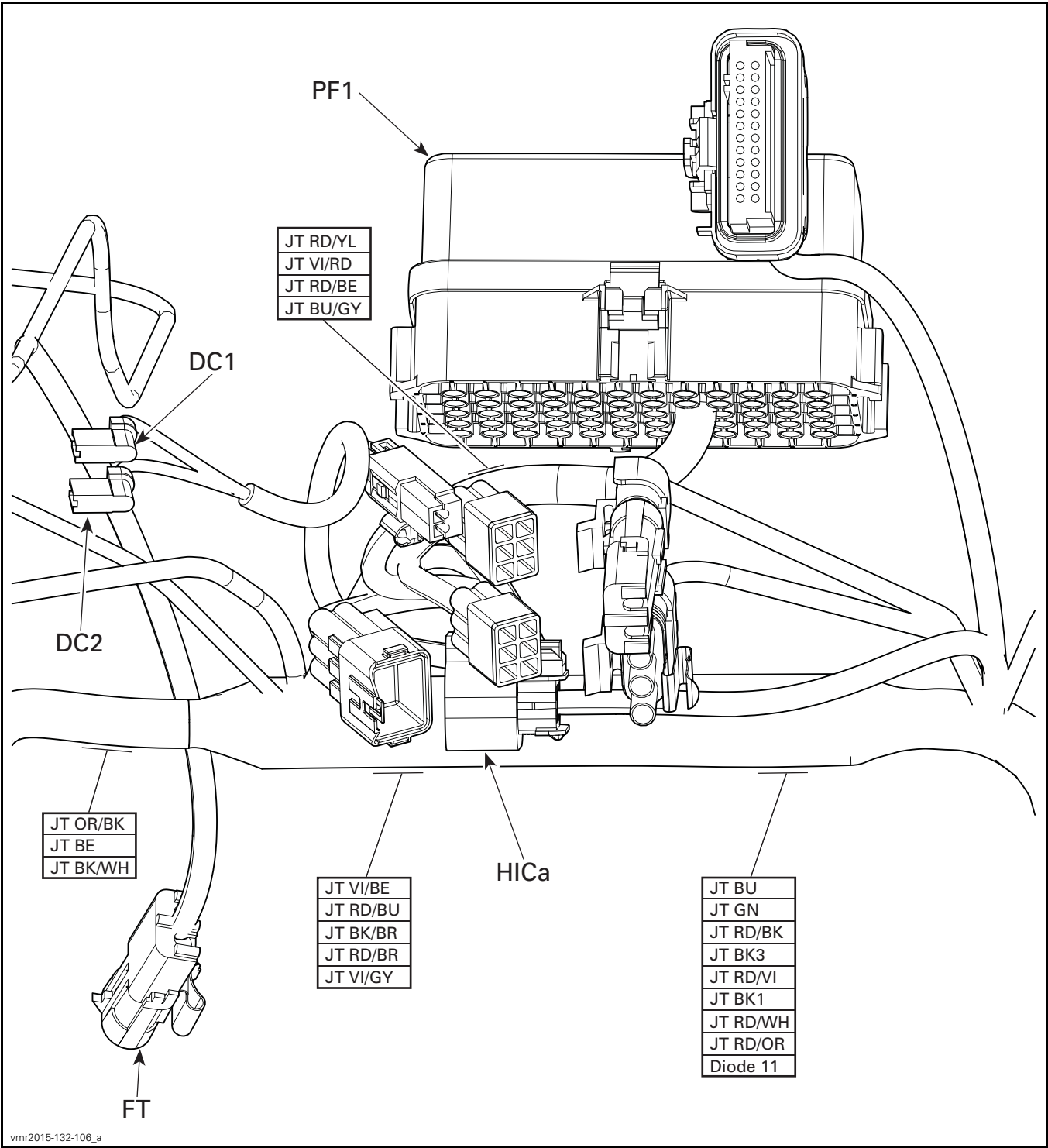
Main Harness (Rear Part)



Main Harness (Front Part 1/2)



Main Harness (Front Part 2/2)



PROCEDURES

DEUTSCH CONNECTORS

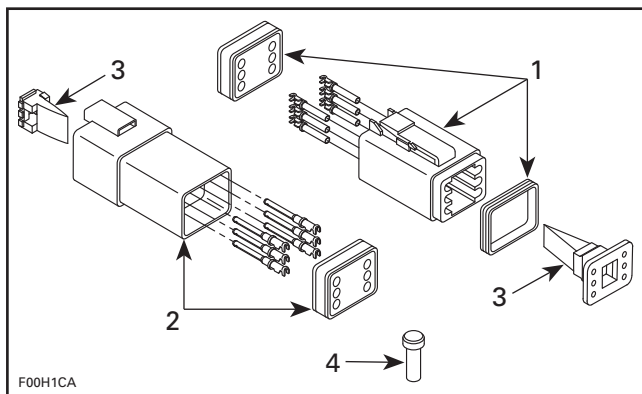
Deutsch Connector Application

A variety of Deutsch connectors are used on various systems:

- Diagnostic connector
- Vehicle speed sensor (VSS) connector.

The following procedures may be used on each as they are similar in construction.

Deutsch Connector Disassembly and Reassembly



TYPICAL —DEUTSCH CONNECTOR

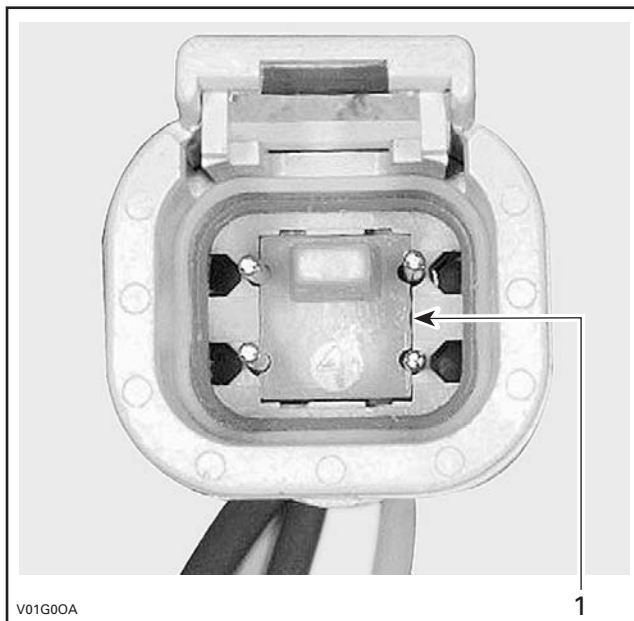
1. Male connector
2. Female connector
3. Secondary lock
4. Sealing cap

NOTICE Do not apply dielectric grease on terminal inside connector.

Terminal Removal

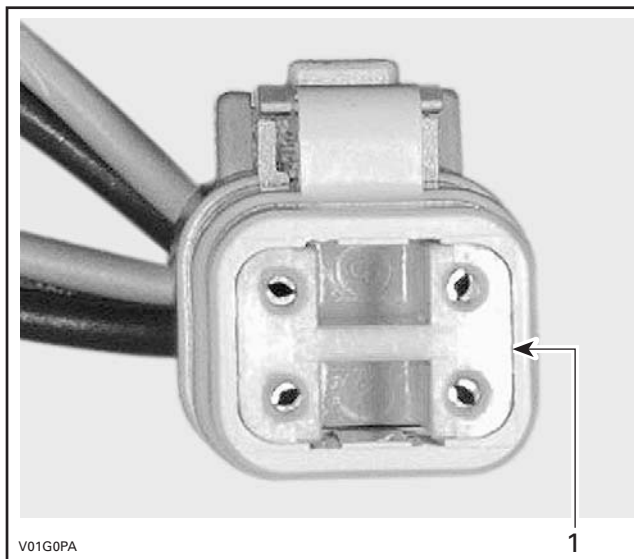
To remove terminals from connector, proceed as follows:

1. Using long nose pliers, pull out the secondary plastic lock from between the terminals.



TYPICAL — FEMALE CONNECTOR

1. Female lock

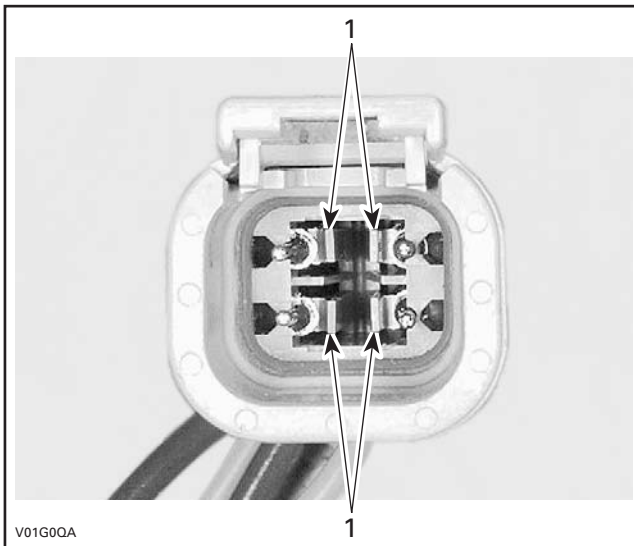


TYPICAL — MALE CONNECTOR

1. Male lock

NOTE: Before pin extraction, push wire forward to relieve pressure on retaining tab.

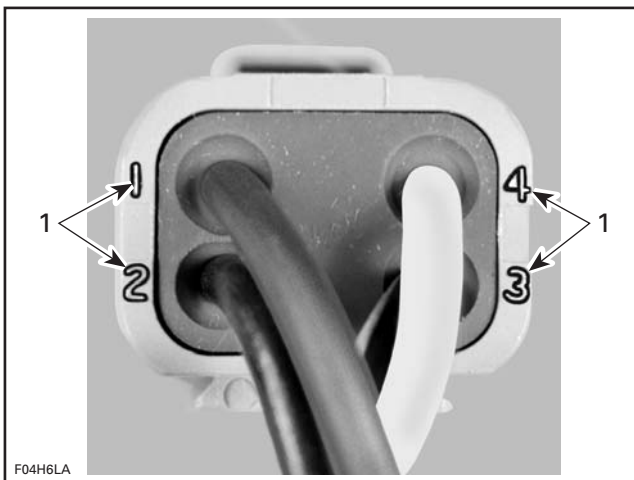
2. Insert a 4.8 mm (.189 in) wide screwdriver blade inside the front of the terminal cavity.
3. Pry the retaining tab away from the terminal while gently pulling the wire and terminal out of the back of the connector.



TYPICAL — FEMALE CONNECTOR
1. Retaining tabs

Terminal Insertion

1. For insertion of a terminal, ensure the secondary plastic lock is removed.
2. Insert terminal through the back of the connector in the appropriate position, and push it in as far as it will go. You should feel or hear the terminal lock engage.
3. Pull back on the terminal wire to be sure the retaining tabs are holding the terminal.
4. After all required terminals have been inserted, the lock must be installed.



TYPICAL — CONNECTOR PIN-OUT
1. Terminal position identification numbers

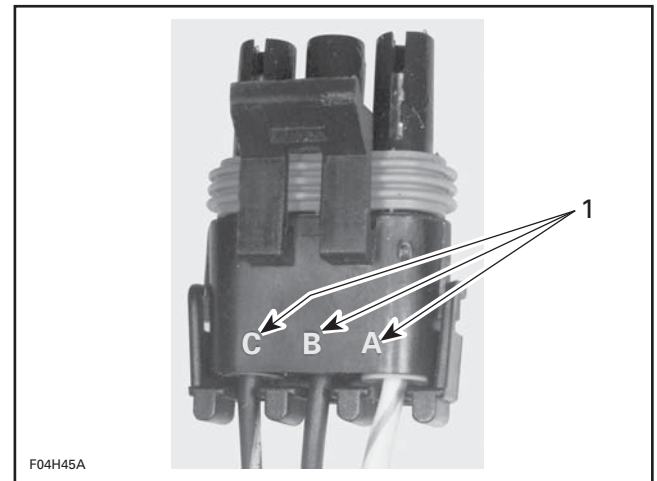
PACKARD CONNECTORS

Packard Connector Application

Packard connectors are used to connect:

- Electrical harnesses
- Gauges.

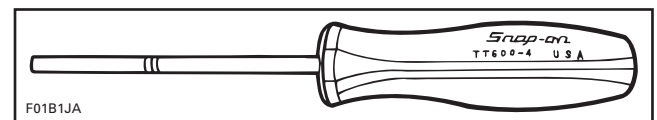
3-Pin Packard Connector



VIEW OF A 3-PIN PACKARD CONNECTOR
1. Identification letters

NOTE: This type of connector also comes in other pin configurations.

To remove a terminal from a 3-pin Packard connector, use the SNAP-ON TERMINAL REMOVER TOOL (P/N TT600-4).

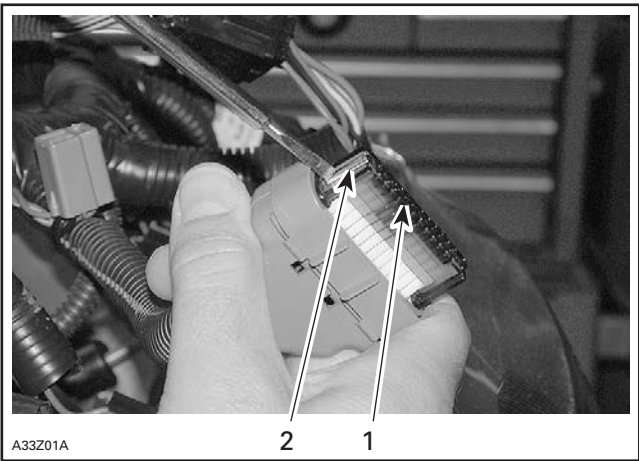
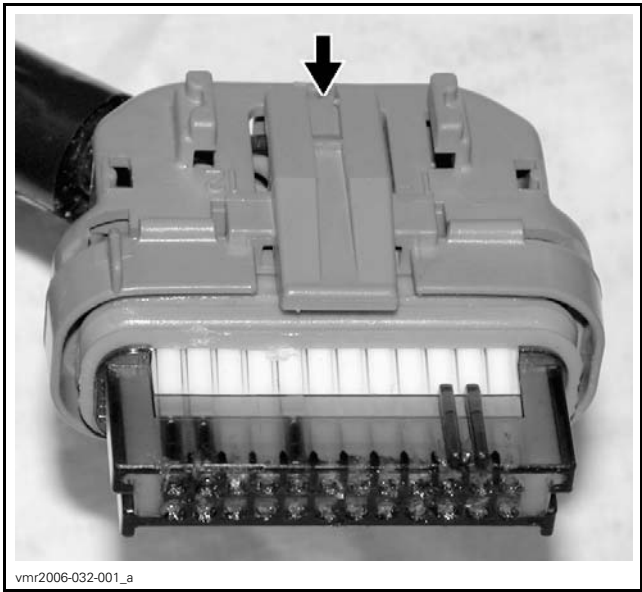


⚠ WARNING

Ensure all terminals are properly crimped on wires and connectors are properly fastened.

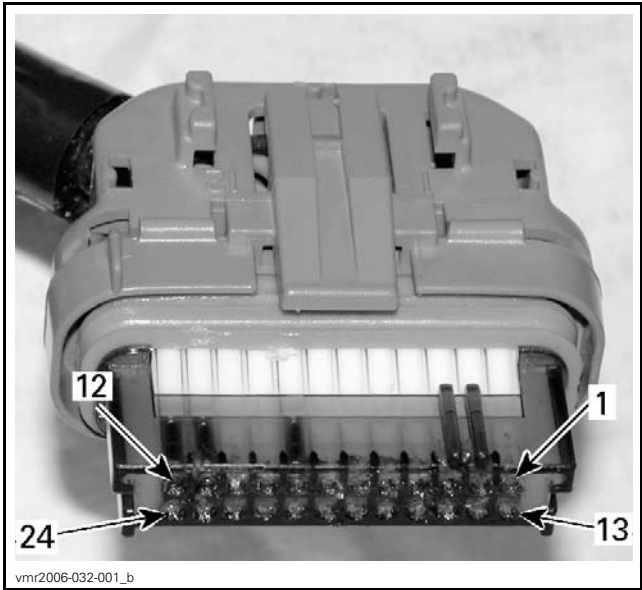
PACKARD CONNECTOR (MULTIFUNCTION GAUGE)

Firmly push down tab and hold to unlock connector while pulling it out.



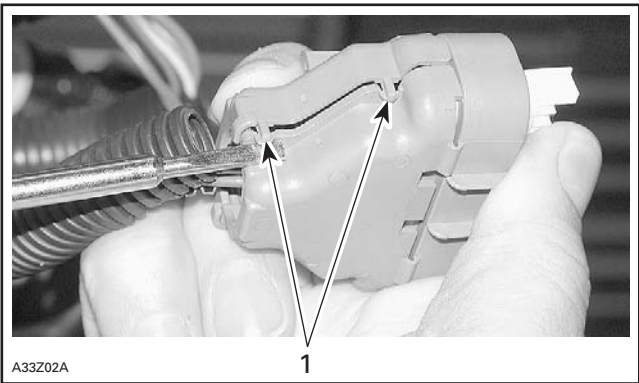
TYPICAL
1. Retainer
2. Tab (one on each side)

Open housing by lifting 4 tabs.



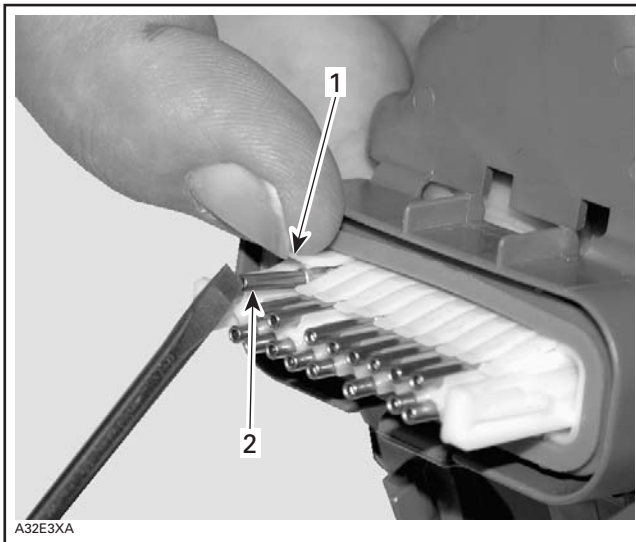
CONNECTOR PINOUT

Push on both tabs to remove retainer.



TYPICAL
1. Tabs (2 on each side)

Lift the top plastic lock of the female terminal to be removed and hold in position. Lift the female terminal to unlock from the housing and push out of housing.



TYPICAL

1. Lift and hold plastic lock
2. Lift to unlock and push out

MOLEX CONNECTOR

Molex Connector Application

Molex connectors are used on the following system:

- ECM

Molex Connector Removal

Push and hold the locking tab.



Rotate connector lock until it stops.



Pull out connector.



Molex Connector Installation

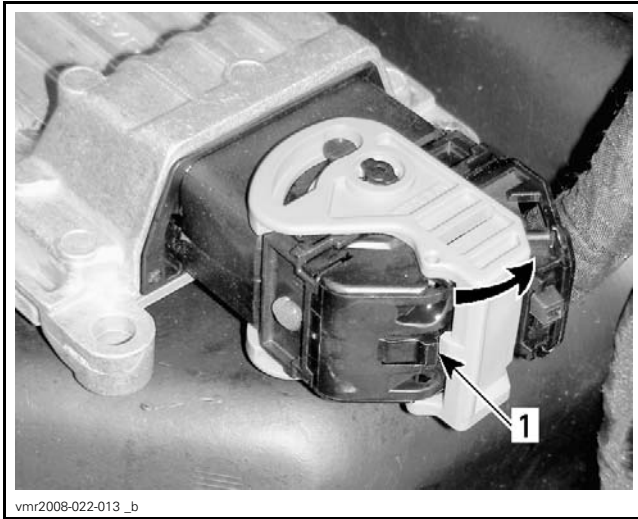
Fully open connector lock.



Install connector to ECM.

Subsection 02 (WIRING HARNESS AND CONNECTORS)

Rotate connector lock until it snaps locked.



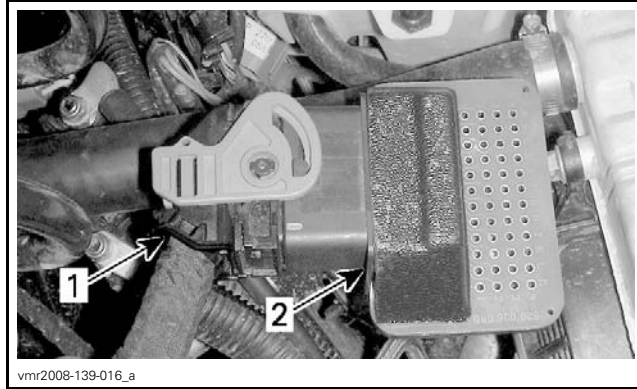
1. Locked here

Molex Connector Probing

The most recommended and safest method to probe ECM connector terminals is to use the ECM ADAPTER TOOL (P/N 529 036 166). This tool will prevent deforming or enlarging terminals which would lead to bad ECM terminal contact creating intermittent or permanent problems.



Disconnect the ECM connector and reconnect on the tool connector. Probe required terminals directly in the tool holes.



1. ECM connector (harness side)
2. ECM adapter

NOTICE Never probe directly on ECM harness connector. This could change the shape or enlarge the terminals and create intermittent or permanent contact problems.

Molex Connector Inspection

Before replacing an ECM, always check electrical connections.

1. Ensure connector locking mechanism is functioning properly.
2. Ensure all wire terminals (pins) are properly locked in the connector.
3. Ensure they are very tight, make good contact with the pins in the ECM.
4. Ensure the pins in the harness connector and the ECM connector are clean, shiny and corrosion-free.
5. Check wiring harness for signs of scoring.

NOTE: A “defective ECM module” could possibly be repaired simply by disconnecting and reconnecting it.

NOTICE Do not apply any lubricant product to the pins of the ECM connector.

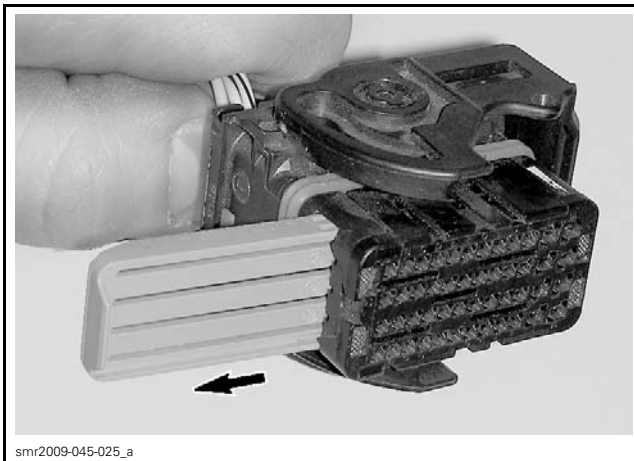
Molex Connector Terminal Removal (Harness Connector)

To remove a signal terminal from the ECM harness connector, use the ECM TERMINAL REMOVER 2.25 (P/N 529 036 175).

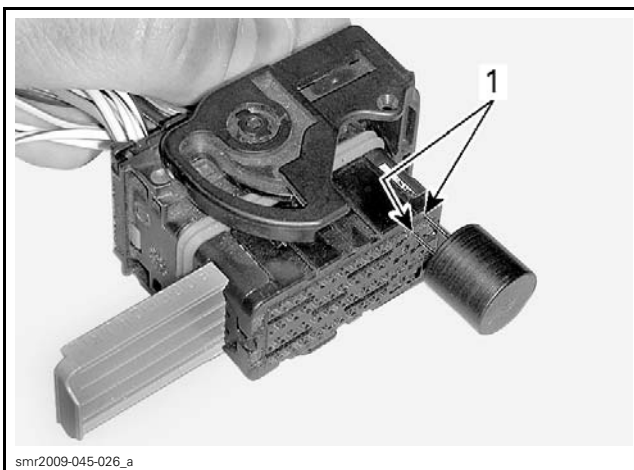
To remove a power terminal, use the ECM TERMINAL REMOVER 3.36 (P/N 529 036 174).



1. Remove rear protector from connector.
2. Pull out the connector lock.

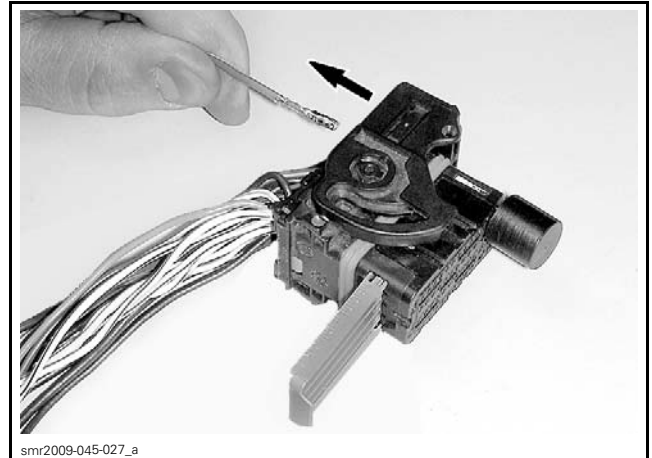


3. Insert tool to unlock terminal.



1. Unlock here

4. Gently pull on the wire to extract the terminal out the back of the connector.



NOTICE Before installing wire terminals in the connector, ensure all terminals are properly crimped on wires. After installation of wire terminals in the connectors, ensure they are properly locked by gently pulling on them as if to extract them.

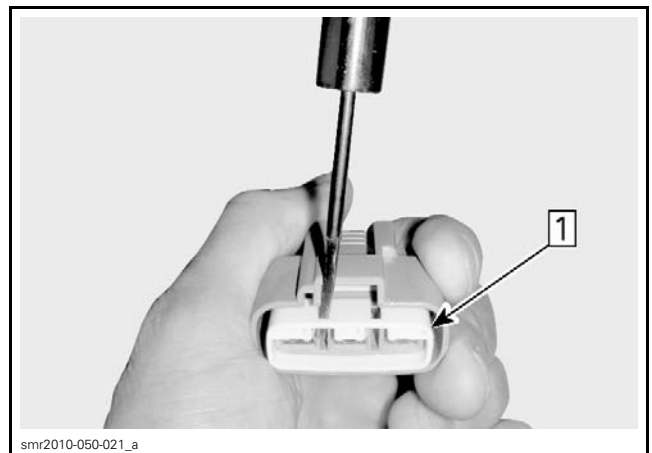
FURUKAWA CONNECTOR

Furukawa Connector Application

Voltage regulator/rectifier.

Terminal Removal

1. Remove the secondary lock (plastic insert).

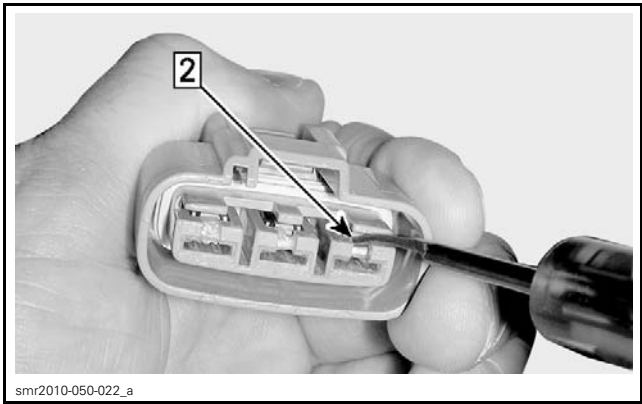


Step 1: Remove the secondary lock

2. Carefully insert the GM TERMINAL EXTRACTOR (P/N 12094430) between the lock and the pin to release the pin.

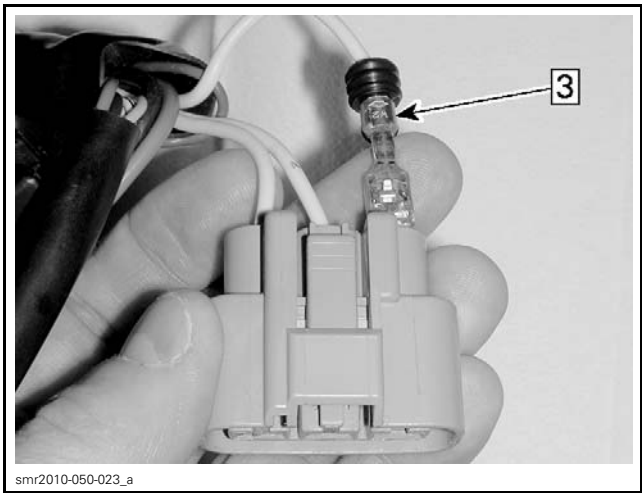


GM TERMINAL EXTRACTOR (P/N 12094430)



Step 2: Insert GM terminal extractor tool (P/N 12094430)

3. Gently pull on the wire to extract the pin out the back of the connector.



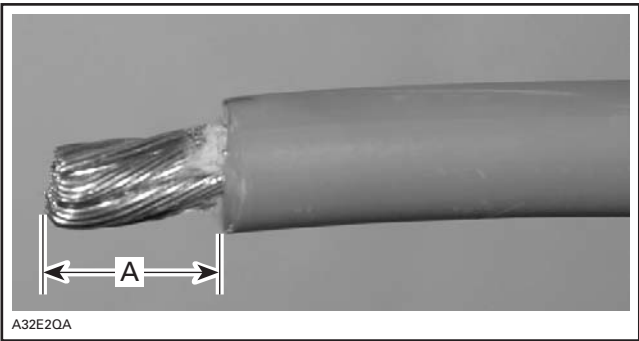
Step 3: Pull wire to extract pin

NOTICE Before installing terminals in the connectors, ensure all terminals are properly crimped on the wires. After installation of the wire terminals in the connectors, ensure they are properly locked by gently pushing on them as if to extract them.

BATTERY AND STARTER CABLE TERMINALS

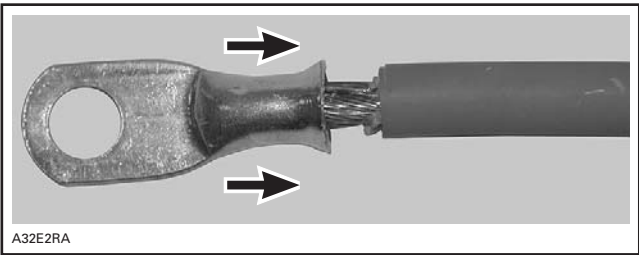
Cable Crimping

Carefully strip the wire approximately to 10 mm (3/8 in) in length, using a wire stripping tool or sharp blade/knife.



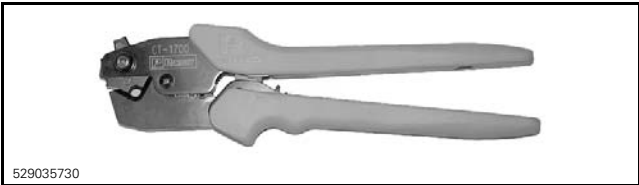
A. 10 mm (3/8 in)

NOTE: Make sure not to cut wire strands while stripping the wire.
Install the appropriate terminal on the wire according to the requirement. Refer to appropriate *PARTS CATALOG*.

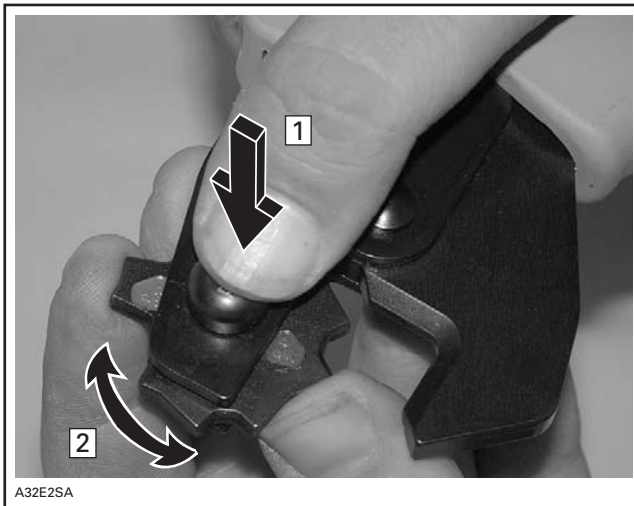


INSTALLATION OF TERMINAL

Follow the instructions provided with the CRIMPING TOOL (HEAVY GAUGE WIRE) (P/N 529 035 730) to select the proper position of the tool.



NOTE: Different wires require different crimping pliers settings.



POSITIONING THE CRIMPING PLIERS

Step 1: Press
Step 2: Rotate

After positioning the crimping pliers, crimp the terminal already installed on wire.



CRIMPING OF WIRE



PROPERLY CRIMPED WIRE

To verify, if the wire is properly crimped, apply some pulling force on wire and the terminal at the same time from both directions.

NOTICE Never weld the wire to the terminal. Welding can change the property of the wire and it can become brittle and break.

Install the protective heat shrink rubber tube on the terminal. Heat the heat shrink rubber tube using the heat gun so that it grasps the wire and the terminal.

NOTICE Make sure that the protective heat shrink rubber tube has been properly installed and no part of wire is exposed.