WIRING DIAGRAMS

WIRE COLOR CODES

First color of a wire is the main color. Second color is the tracer.

Example: YELLOW/BLACK (YL-BK) is a YELLOW wire with a BLACK tracer.

WIRE DIGIT CODES

First number indicates in which connector the wire is plugged in.

Second number indicates the position of the wire in the connector.

The letter at the end of the number (if applicable) indicates a common circuit in the MPEM printed circuit with another wire bearing the same letter.

Example: 2-18 (g)

The first number indicates that the wire is positioned in the connector no. 2 of the MPEM.

The second number indicates that the wire is positioned in cavity no. 18 of the connector.

The letter (g) indicates a common circuit with another wire(s) bearing the same letter (g) in the circuit.

ECM

GTX 4-TEC Models

On the ECM, circuits are identified by a letter followed by a number.

The letter indicates in which connector the wire is plugged in.

The number indicates the position of the wire in the connector.

The connector "A" is connected to the engine wiring harness.

The connector "B" is connected to the watercraft wiring harness.

DEUTSCH CONNECTORS

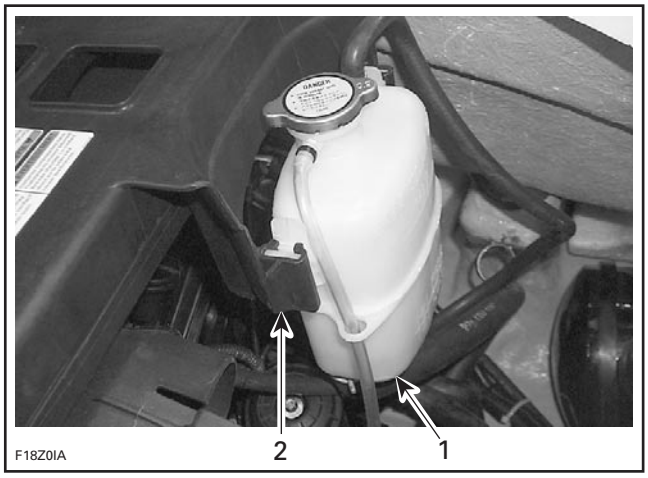
All Models

Deutsch connectors are used to connect wiring harness to the magneto the electrical box (some models) and the VCK (DI and 4-TEC models).

Removal from Engine Connector Bracket

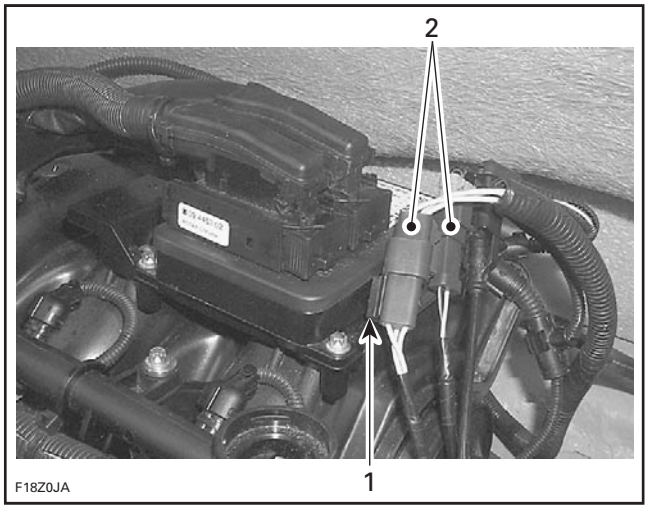
GTX 4-TEC Models

To remove Deutsch connectors from engine connector bracket, remove the expansion coolant tank.

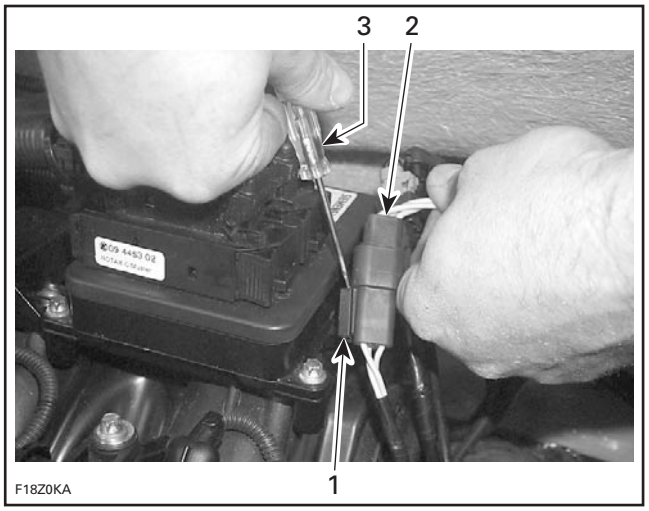


1. *Expansion coolant tank*
2. *Tank bracket*

Slide a flat screwdriver between the connector bracket and the Deutsch connectors and remove connectors.

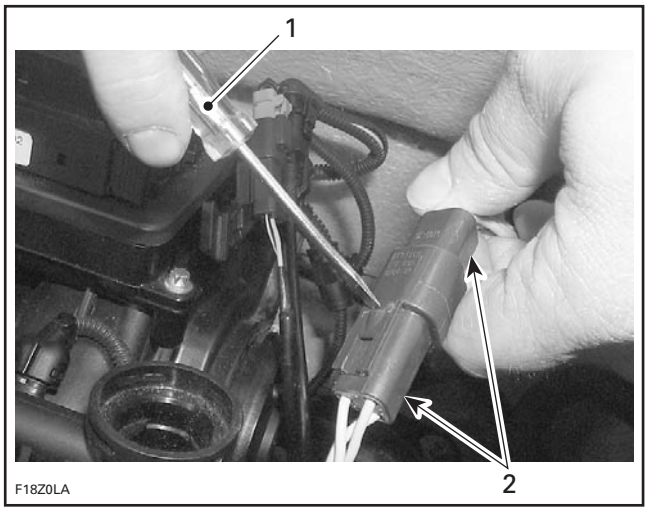


1. *Engine connector bracket*
2. *Deutsch connectors*

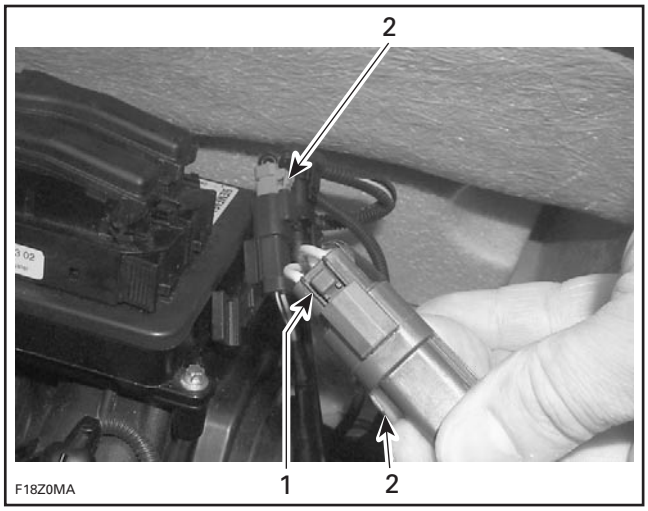


1. Engine connector bracket
2. Deutsch connectors
3. Flat screwdriver

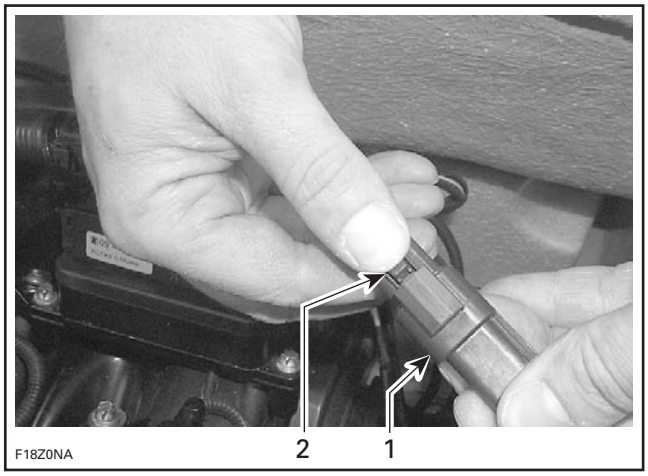
To disconnect the two Deutsch connectors, slide a flat screwdriver between each other to disengage, press the release button and disconnect them.



1. Flat screwdriver
2. Deutsch connectors



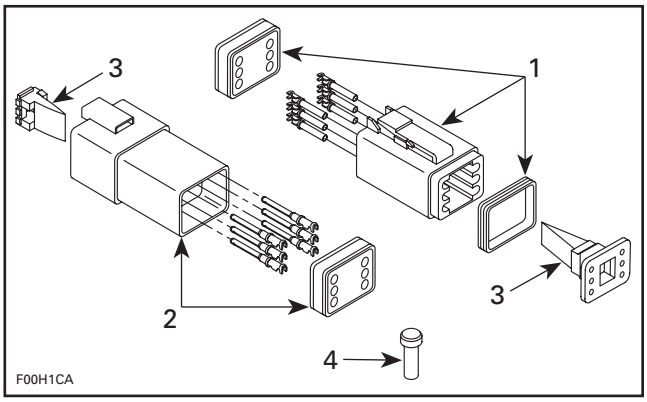
1. Release button
2. Deutsch connectors



1. Deutsch connectors
2. Press release button

Connector Disassembly

All Models

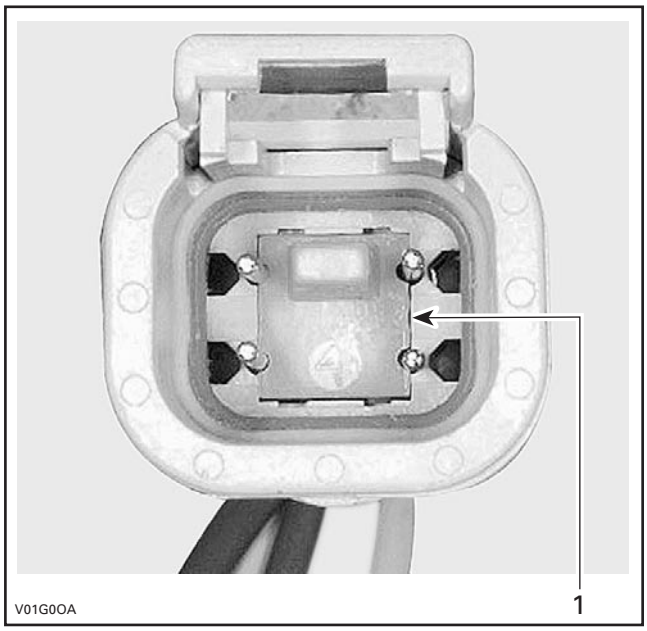


1. *Male connector*
2. *Female connector*
3. *Secondary lock*
4. *Sealing cap*

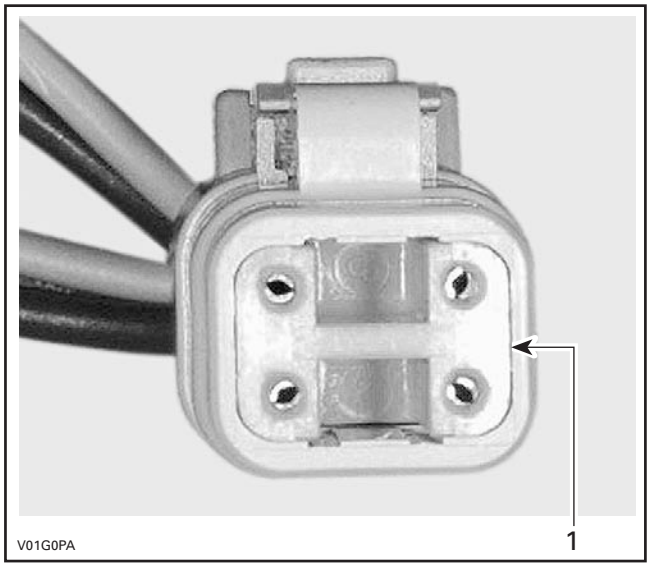
CAUTION: Do not apply dielectric grease on terminal inside connector.

To remove terminals from connector, proceed as follows:

– Using a long nose pliers, pull out the lock.



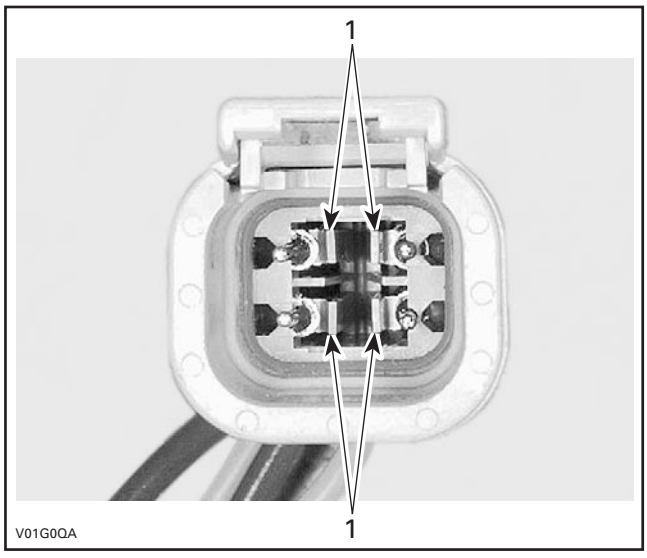
FEMALE CONNECTOR
1. *Female lock*



MALE CONNECTOR
1. *Male lock*

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

– Insert a 4.8 mm (.189 in) wide screwdriver blade inside the front of the terminal cavity.
– Pry back the retaining tab while gently pulling wire back until terminal is removed.

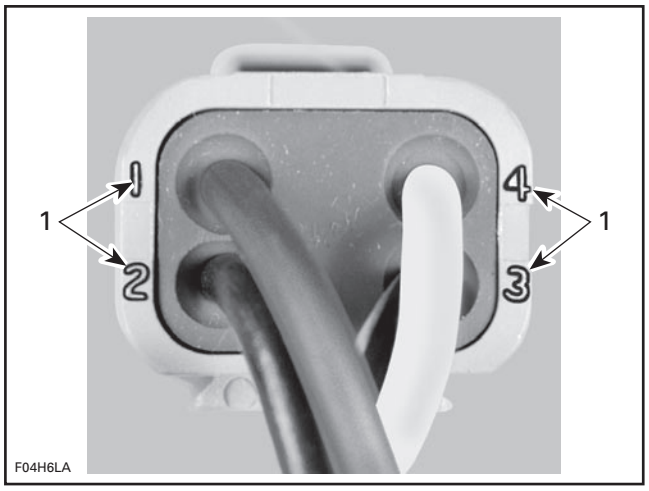


FEMALE CONNECTOR
1. *Retaining tab*

To install:

– For insertion of a terminal, make sure the lock is removed.
– Insert terminal into appropriate cavity and push as far as it will go.

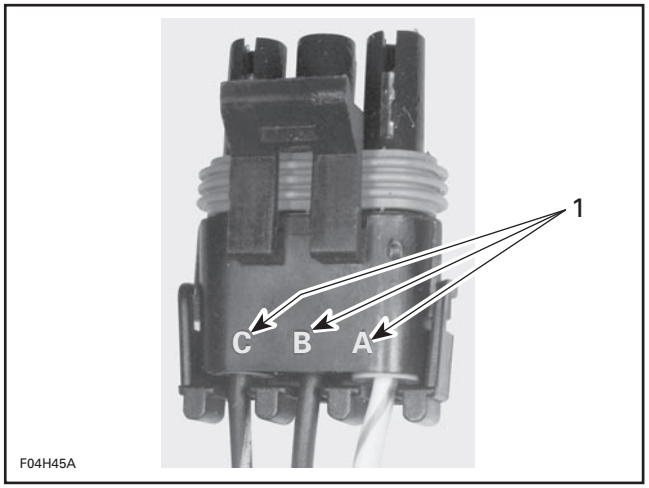
– Pull back on the terminal wire to be sure the retention fingers are holding the terminal.
– After all required terminals have been inserted, the lock must be installed.



1. Wire identification numbers

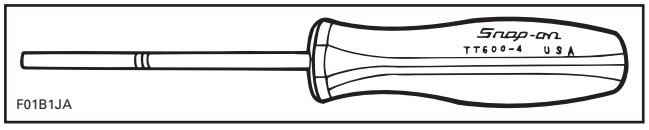
PACKARD CONNECTOR

Packard connectors are used to connect electrical harnesses and gauges.



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

To remove terminal from Packard connector, use Snap-on TT600-4 tool.



⚠ WARNING

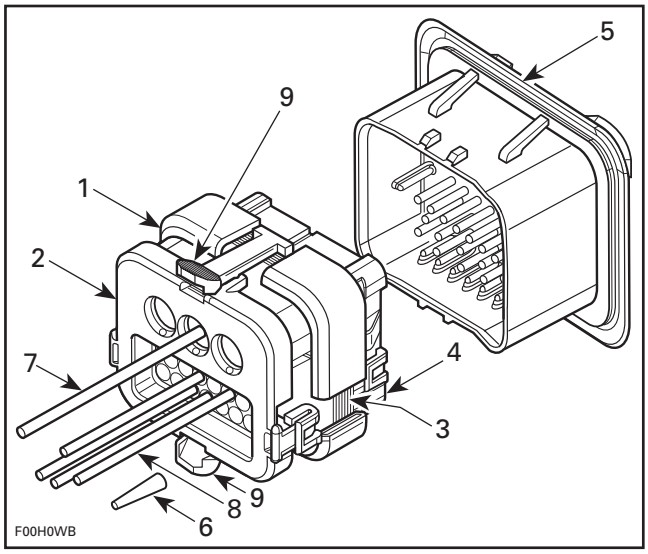
Ensure all terminals are properly crimped on wires and connector are properly fastened.

AMP PLUG CONNECTOR

These connectors are found on the MPEM.

When servicing electrical system, special care must be taken when working with AMP plug connectors in order to prevent any malfunction of the system.

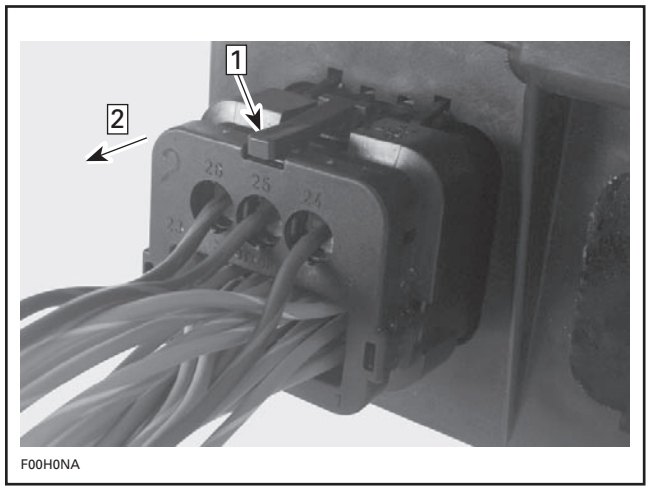
Description



AMP PLUG CONNECTOR
1. Male connector
2. Cover assembly
3. Mating seal
4. Wedge lock
5. MPEM connector
6. Seal plug
7. Power wire
8. Signal wire
9. Locking tab

Removal

To remove the male connector from the MPEM, press both tabs and pull connector.

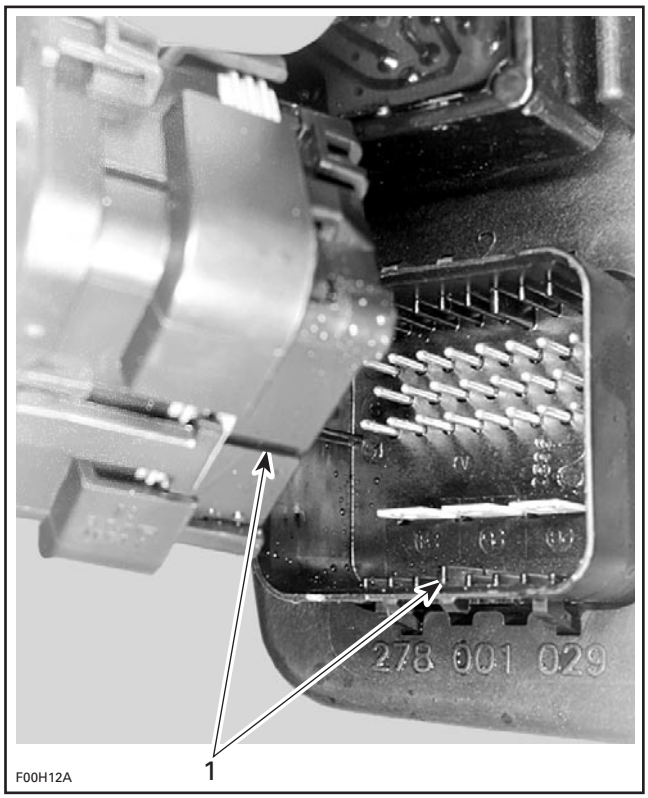


Step 1: Press tabs (both sides)
Step 2: Pull male connector

Installation

Do not apply any product to the pins of the connectors on the MPEM.

Each male connector is mechanically keyed to mate only with identical mechanical keyed connector on the MPEM.



1. Mechanically keyed

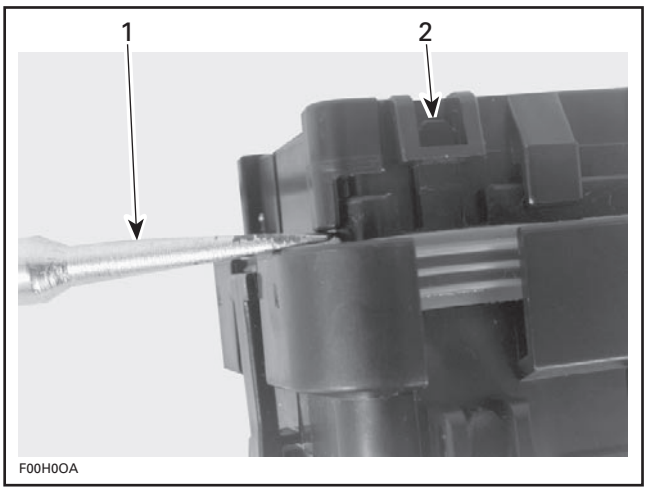
Terminal Removal

SIGNAL WIRE

Insert a screwdriver blade between the connector and the wedge lock tab.

Release the locking tab and at the same time, pry the wedge lock to the open position.

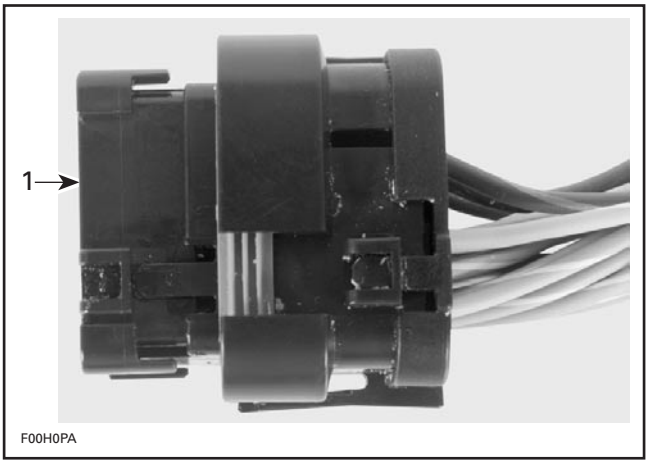
CAUTION: The wedge lock should never be removed from the connector for insertion or removal of the signal wire terminals.



1. Screwdriver between wedge lock and connector
2. Locking tab

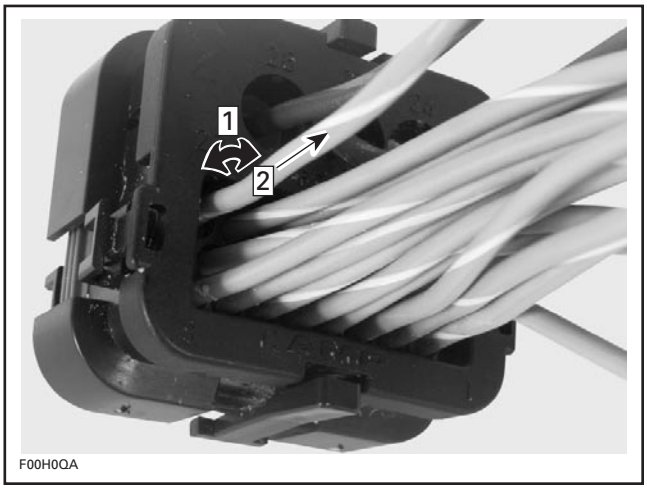
Repeat the same steps for the other locking tab retaining the wedge lock.

The wedge lock is now in the open position.



1. Wedge lock opened

While rotating the wire back and forth over a half turn (1/4 turn in each direction), gently pull the wire until the terminal is removed.



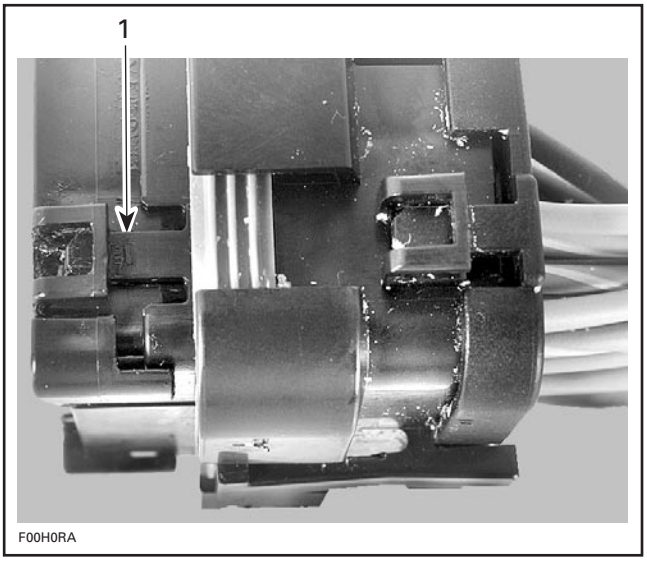
Step 1: Rotate wire back and forth
Step 2: Pull wire

POWER WIRE TERMINAL

NOTE: The wedge lock must be removed to extract power terminal.

Open the wedge lock.

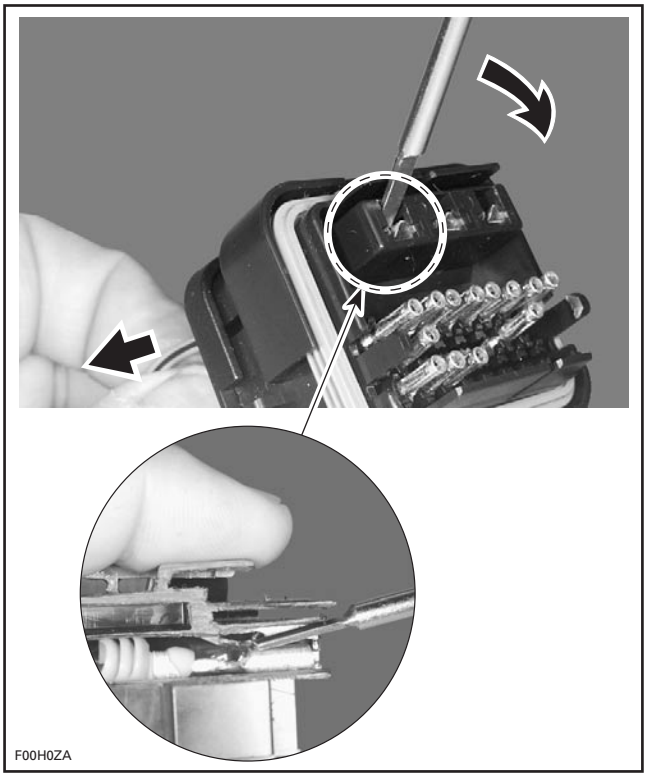
Pull both locking tabs and remove wedge lock from connector.



1. Pull locking tab (both sides)

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

Insert a 4.8 mm (.189 in) wide screwdriver blade inside the front of the terminal cavity.



Pry back the retaining tab while gently pulling wire back until terminal is removed.

Terminal Crimping

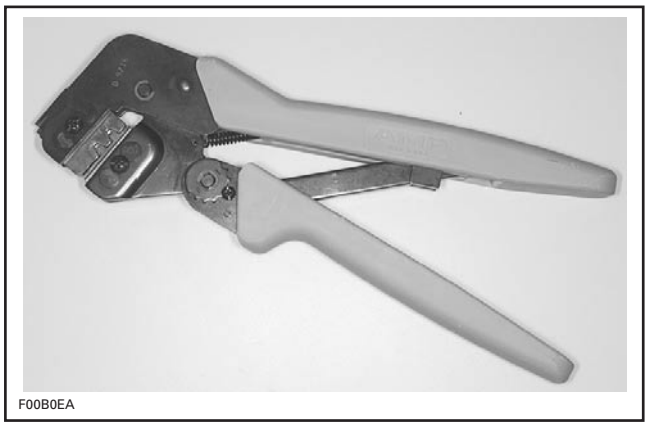
The size of the wires must be 20 to 16 AWG with a wire insulation diameter having a minimum dimension of 1.7 mm (.067 in) and a maximum dimension of 2.78 mm (.106 in).

The wire strip length must be 5.1 mm (13/64 in).

NOTE: When stripping wires, ensure conductor is not nicked, scrapped or cut. Wire stripping tool jaws may leave marks on the surface of the wire insulation. If these marks occur at the location of the wire seal, leakage may result. Insulation surface within 25 mm (1 in) from the tip of the terminal must be smooth.

All terminals in AMP plug connectors must be crimped using the crimping tool (P/N 529 035 909) and crimper die (P/N 529 035 908).

CAUTION: If terminals are not crimped using the proper crimping tool, the wire seal may be damaged.

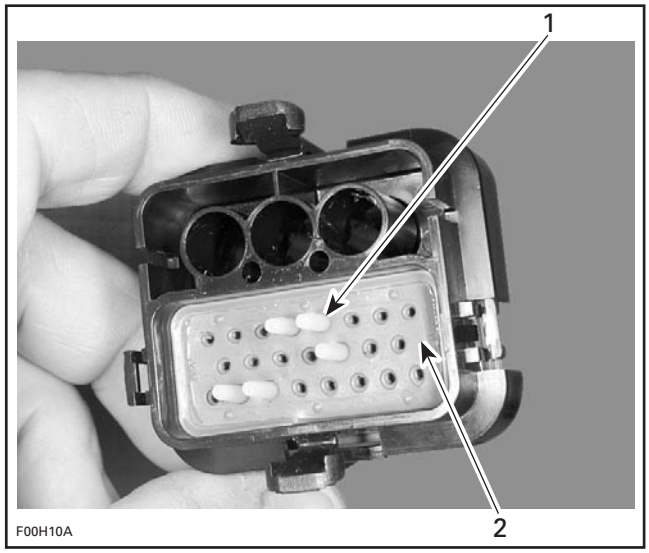

F00B0EA

CRIMPING TOOL

All circuits are sealed by a diaphragm in the rubber wire seal. When installing a terminal in connector, the diaphragm is pierced as the terminal passes through it.

If the diaphragm is pierced and the cavity is not used, install a seal plug, large end first, into circuit cavity as far as it will go.

NOTE: It is suggested that all unused circuit cavities be sealed with a seal plug, even if they are not pierced.



1. *Seal plug*
2. *Wire seal*

CAUTION: Do not pierce the diaphragm with a sharp point when performing electrical troubleshooting. The resulting pinholes in the insulation will allow moisture to penetrate the system and possibly result in system failure.

Terminal Installation

For insertion of signal terminal, make sure the wedge lock is in the open position.

NOTE: For insertion of power terminal, the wedge lock may or may not be on the open position.

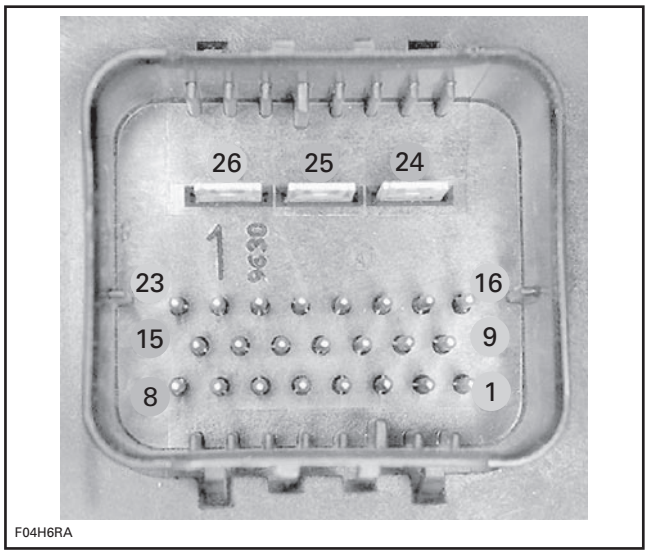
Insert terminal into appropriate circuit cavity and push as far as it will go.

Pull back on the terminal wire to be sure the retention fingers in the connector are holding the contact properly.

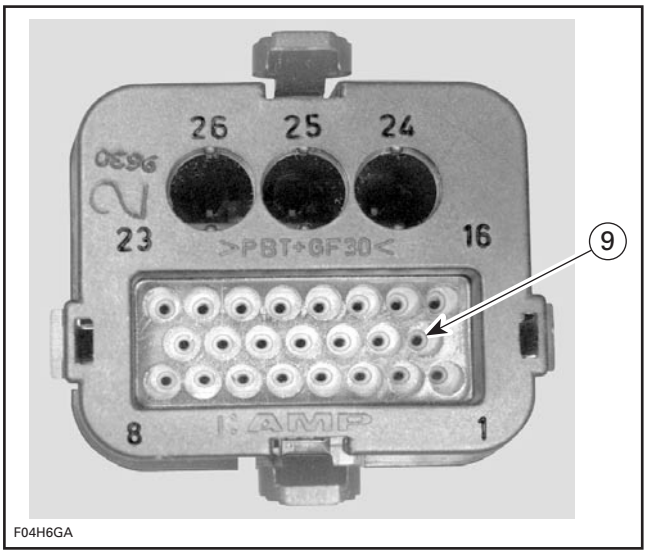
After all required terminals have been inserted, the wedge lock must be closed to its locked position.

IDENTIFICATION OF CONNECTOR PINS

AMP Connectors of MPEM



AMP Connectors of Wiring Harness

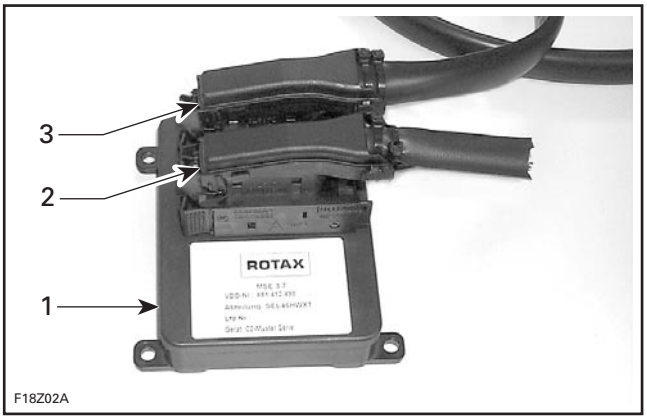


F04H6GA

ECM CONNECTORS

4-TEC Models Only

There are two ECM connectors used on the 4-TEC models and they are connected on the ECM. The engine harness female connector is connected on the module male connector "A" and the watercraft system control harness female connector is connected to the module male connector "B". The engine connector has 41 pins.



F18Z02A

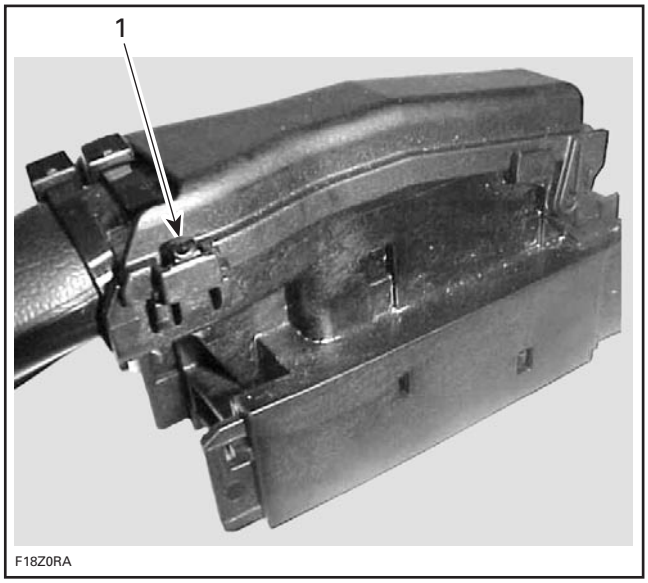
1. ECM
2. A connector (engine harness)
3. B connector (watercraft system harness)

CAUTION: Do not disconnect the ECM connectors needlessly. They are not designed to be disconnected/reconnected frequently.

CAUTION: Probe on top of terminal only. Do not try to probe inside terminal or to use a paper clip to probe inside terminal, it can damage the square-shaped terminal.

Terminal Removal

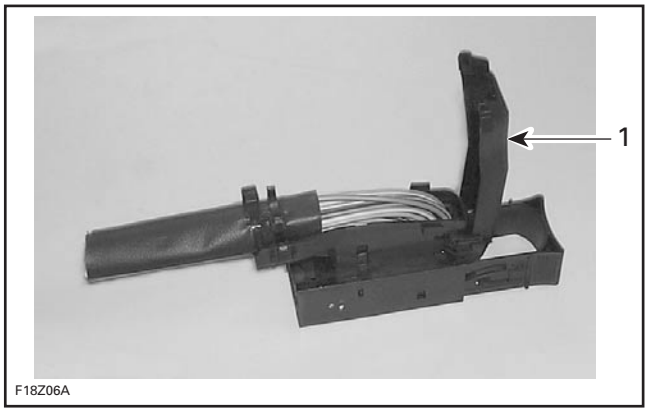
Unlock the connector cover by pushing in the tabs on top of the connector with a flat screwdriver to be able to flip the top cover up.



F18Z0RA

1. Push in tab

Lift the cover by pushing it forward.



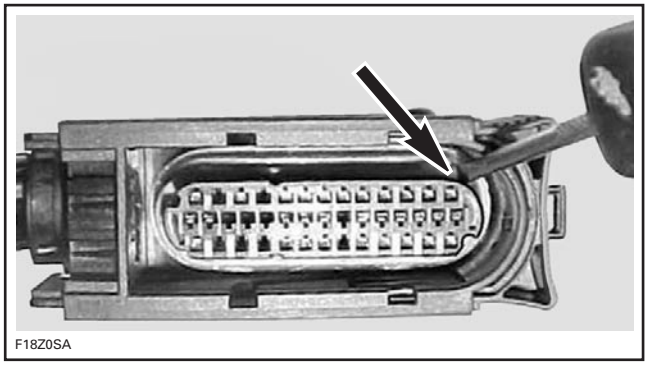
F18Z06A

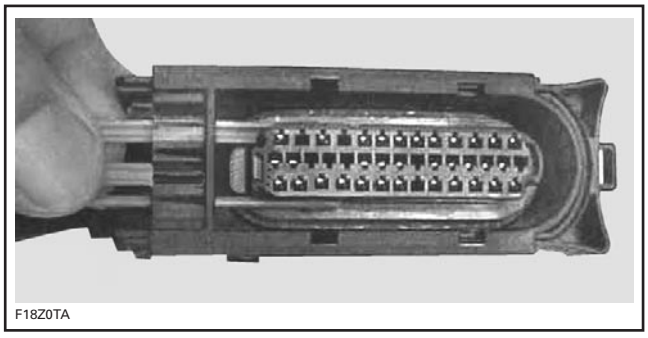
1. Cover

Cut both tie raps that secure the harness to the connector.

1. Tie raps

Turn the connector over and remove the orange locking tab by pushing and then pulling toward the wire harness.

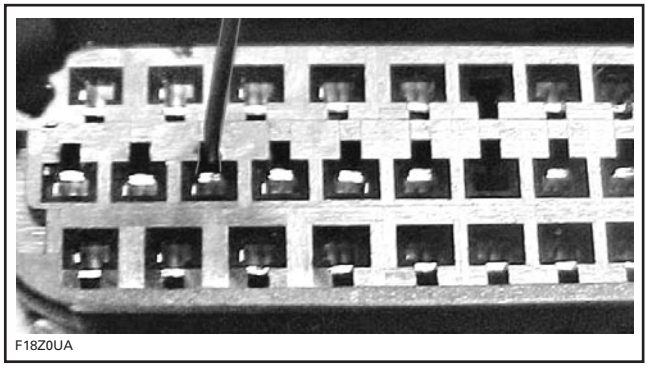


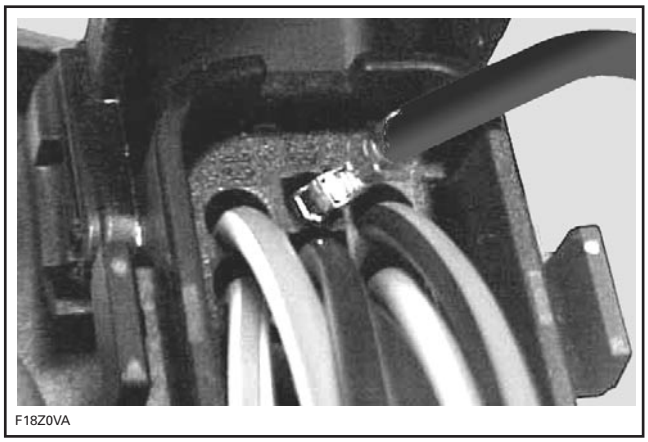


A terminal remover such as Snap-On TT600-1 (or a 0.76 mm (.030 in) oxyacetylene torch tip cleaner or a #68 drill bit) must be inserted into the terminal cavity to release the locking tab from the connector.

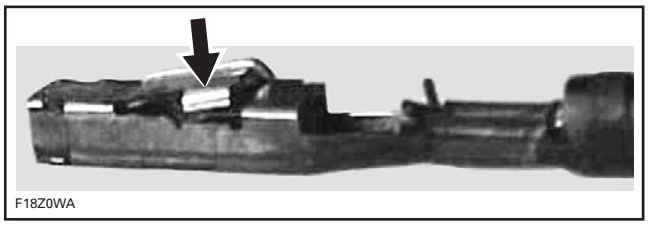
CAUTION: Using a tool tip larger than 0.76 mm (.030 in) may damage the terminal.

Insert the tool tip into the terminal cavity as shown, and locate its wire in the back of the connector. You may have to pry the tool tip against the locking tab to release it, then remove the terminal from the connector.





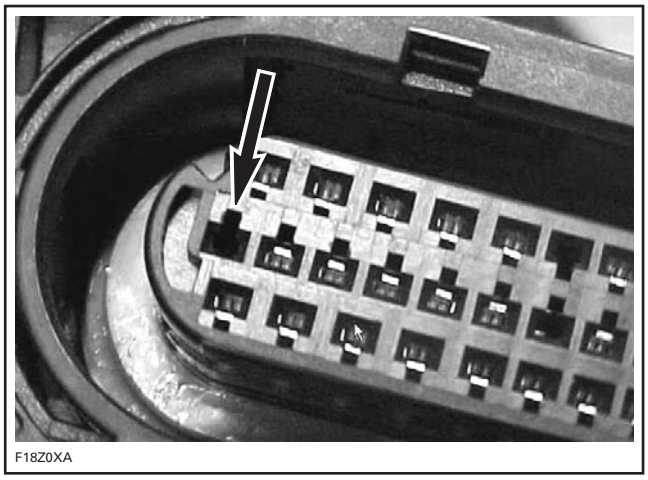
Check the locking tab on the terminal, it may have to be bent out a little so it will lock in its cavity when it is re-inserted.



If the wire is in good condition but the terminal is rusted or corroded, remove defective terminal and crimp a new one. If wire and terminal are defective, replace with a new genuine wire and new terminal and crimp them together as explained below.

IMPORTANT: Use genuine wires only. Otherwise wires will not fit properly.

When re-inserting the terminal, the locking tab must be installed facing the smaller cutout of the terminal cavity.

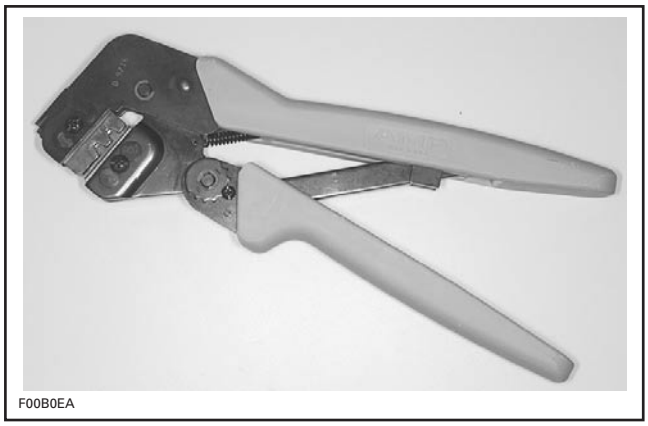

F18Z0XA

Insert the terminal, ensuring the locking tab snaps into its cavity.

Re-install the orange locking tab, attach the 2 tie raps, and close the connector cover.

Terminal Crimping (Kostal)

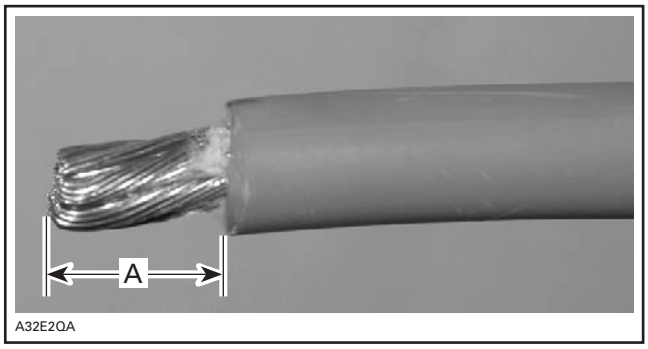
To crimp a new connector terminal, use the connector crimping tool (P/N 529 035 909) and the crimper die (P/N 529 035 906).


F00B0EA

CRIMPING TOOL

To properly crimp the wires, strictly follow this procedure.

Strip the wire to a maximum of 3 mm (1/8 in).

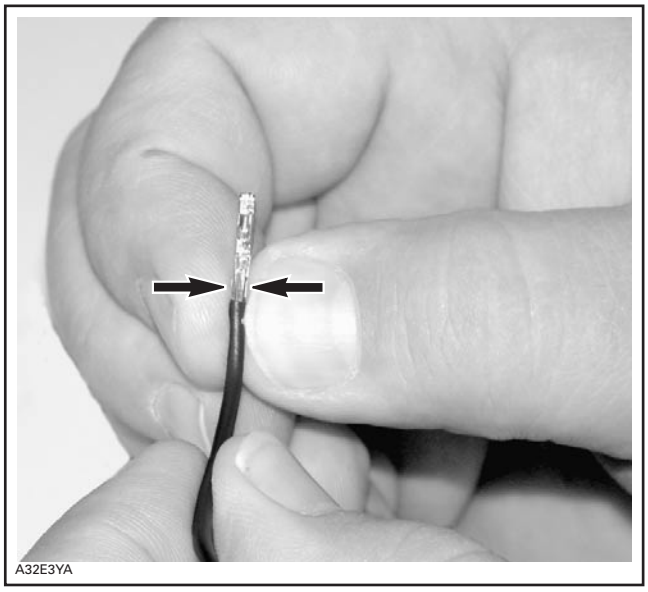


A32E2QA

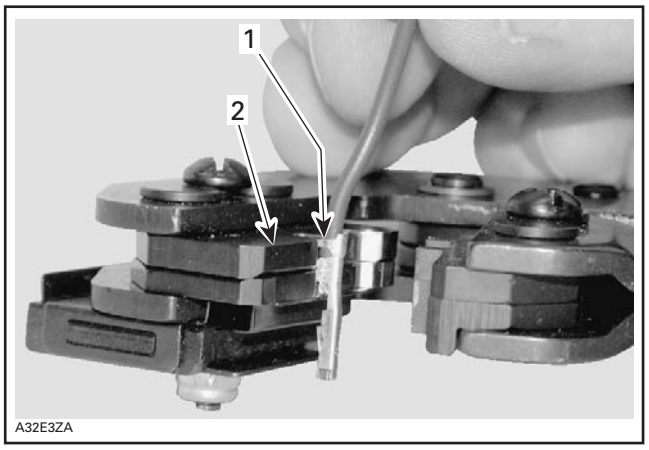
TYPICAL
A. 3 mm (1/8 in) max.

Position wire in terminal.

Squeeze the terminal tabs with your fingers to temporarily retain terminal in place.


A32E3YA

Insert terminal with wire in crimping pliers and position so that top of terminal tabs are flush with pliers edge or a little bit lower as shown.



1. Top of terminal tabs
2. Align tabs with pliers edge

Crimp terminal. Ensure no tiny wire goes out of terminal. This might cause strange problems of the electrical system.

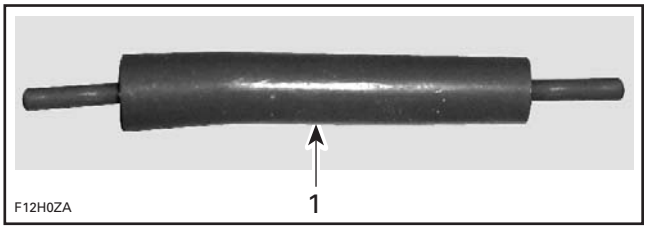
Lubrication

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

MAIN FUSE HOLDER JOINT CONNECTOR

DI Models

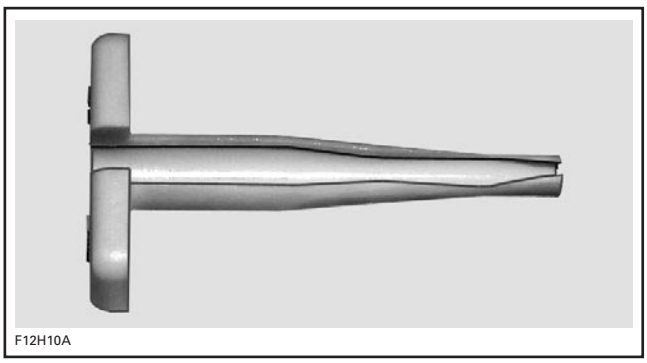
The fuse holder is located in the rear electrical box.



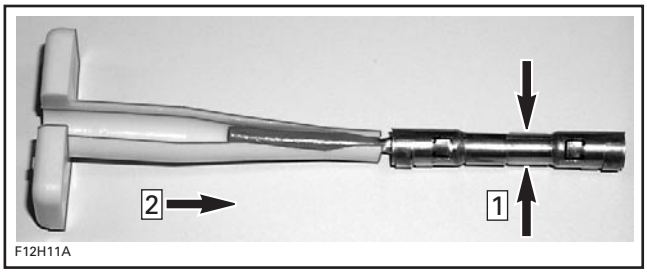
1. Main fuse holder joint connector

NOTE: In the following illustrations, the joint insulator has been removed for clarity purpose only. It is not necessary to remove it to separate the joint. The same procedure is to be used each side of the joint.

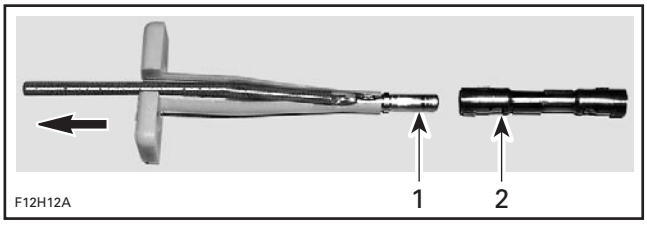
Insert the Deutsch joint connector tool (no. 114010) on the wire and push tool toward the joint to release it. While holding the joint insulator, push the tool until it bottoms. It is now unlocked. Maintaining the pressure with the tool, pull the wire out.



DEUTSCH JOINT CONNECTOR TOOL (NO. 114010)



Step 1: Hold the insulator
Step 2: Push the tool until it bottoms



1. While holding tool pressure, pull wire until terminal releases
2. Joint connector

For installation, simply push the wire in the connector. You should hear a locking "click". Try to pull the wire out to ensure terminal is properly locked. If not, remove the wire and bend the tabs inside the joint connector to allow proper locking. Recheck.