

4-24. ENGINE TEMPERATURE SENDING UNIT REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-280-24P
TM 9-2320-280-24P

Materials/Parts

Sealing compound (Appendix C, Item 44)

Equipment Condition

- Battery ground cable disconnected (para. 4-73).
- Hood raised and secured (TM 9-2320-280-10).

NOTE

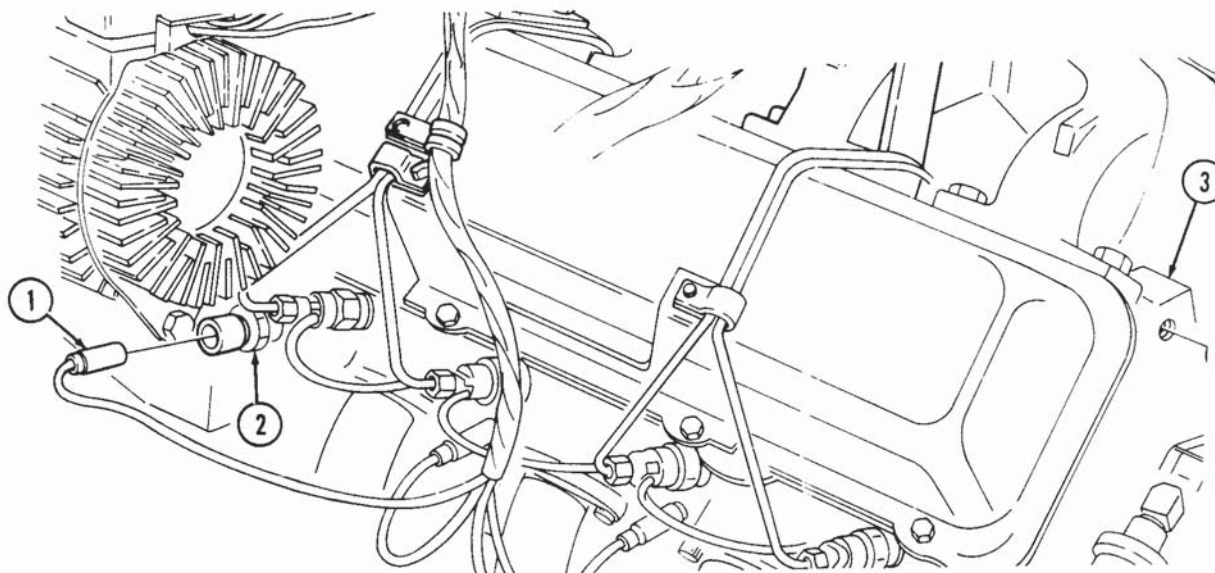
The engine temperature sending unit is located left front of engine.

a. Removal

1. Disconnect lead 33B (1) from engine temperature sending unit (2).
2. Remove engine temperature sending unit (2) from engine (3).

b. Installation

1. Apply sealing compound to threads of engine temperature sending unit (2).
2. Install engine temperature sending unit (2) to engine (3).
3. Connect lead 33B (1) to engine temperature sending unit (2).



- FOLLOW-ON TASKS:
- Connect battery ground cable (para. 4-73).
 - Start engine and check sending unit for leaks (TM 9-2320-280-10).
 - Lower and secure hood (TM 9-230-280-10).

4-25. OIL PRESSURE SENDING UNIT REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-280-10
TM 9-2320-280-24P

Materials/Parts

Sealing compound (Appendix C, Item 44)

Equipment Condition

- Battery ground cable disconnected (para. 4-73).
- Engine access cover removed (para. 10-15).

NOTE

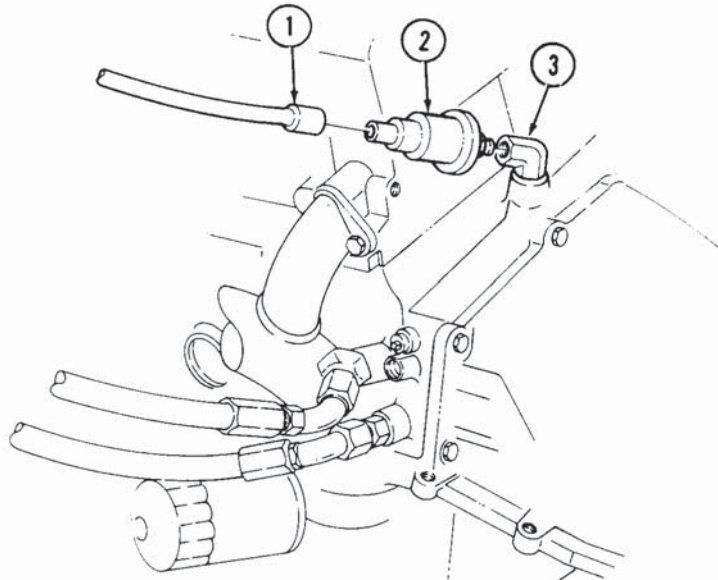
The oil pressure sending unit is located left rear of engine.

a. Removal

1. Disconnect lead 36 A (1) from oil pressure sending unit (2).
2. Remove oil pressure sending unit (2) from elbow (3).
3. Inspect elbow (3) for damage. Replace if damaged. Apply sealing compound to threads of elbow (3) before installing on engine.

b. Installation

1. Apply sealing compound to threads of oil pressure sending unit (2).
2. Install oil pressure sending unit (2) to elbow (3).
3. Connect lead 36A (1) to oil pressure sending unit (2).



- FOLLOW-ON TASKS:
- Connect battery ground cable (para. 4-73).
 - Start engine (TM 9-2320-280-10) and check sending unit for leaks.
 - Install engine access cover (para. 10-15).

4-26. FUEL PRESSURE TRANSDUCER REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-280-10
TM 9-2320-280-24P

Materials/Parts

Sealing compound (Appendix C, Item 44)

Equipment Condition

- Battery ground cable disconnected (para. 4-73).
- Hood raised and secured (TM 9-2320-280-10).

NOTE

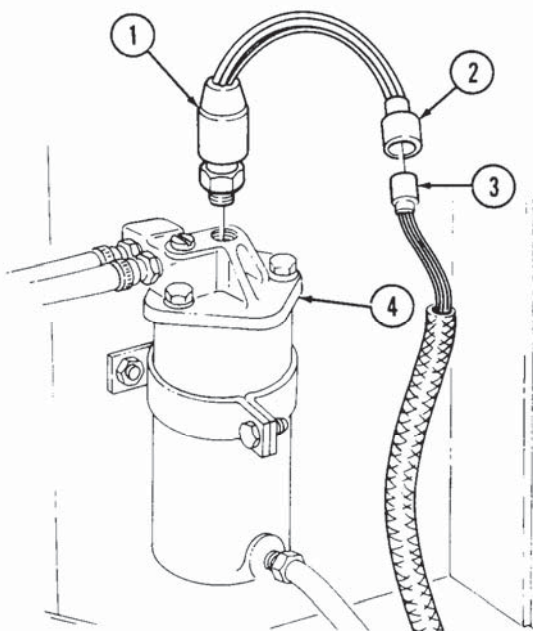
The fuel pressure transducer is a sensor unit for diagnostic testing. It is mounted on top of the fuel filter on the firewall of the vehicle.

a. Removal

1. Disconnect multiple connector (2) from STE/ICE-R wiring harness (3).
2. Remove fuel pressure transducer (1) from fuel filter (4).

b. Installation

1. Apply sealing compound to threads of fuel pressure transducer (1).
2. Install fuel pressure transducer (1) to fuel filter (4).
3. Connect multiple connector (2) to STE/ICE-R wiring harness (3).



- FOLLOW-ON TASKS:
- Connect battery ground cable (para. 4-73).
 - Start engine (TM 9-2320-280-10) and check fuel pressure transducer for leaks.
 - Lower and secure hood (TM 9-2320-280-10).

4-27. COLD ADVANCE SWITCH REPLACEMENT

This task covers:

a Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Sealing compound (Appendix C, Item 44)

Manual References

TM 9-2320-280-24P

Equipment Condition

- Battery ground cable disconnected (para. 4-73).
- Engine coolant drained as necessary (para. 3-60).
- Engine access cover removed (para. 10-15).

NOTE

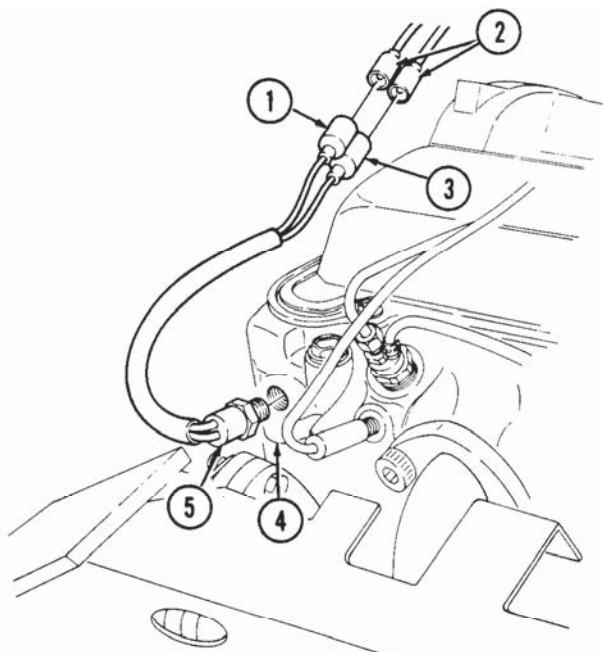
- The cold advance switch is located in the right cylinder head water jacket at the rear of the cylinder head just above the exhaust manifold.
- Prior to removal, tag leads for installation.

a. Removal

1. Disconnect leads 569G (1) and 569B (3) from engine harness (2).
2. Remove cold advance switch (5) from engine (4).

b. Installation

1. Apply sealing compound to threads of cold advance switch (5). Install cold advance switch (5) in engine (4).
2. Connect leads 569G (1) and 569B (3) to engine harness (2).



- FOLLOW-ON TASKS:
- Connect battery ground cable (para. 4-73).
 - Fill cooling system (para. 3-60).
 - Install engine access cover (para. 10-15).

4-28. FUEL LEVEL SENDING UNIT REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Five lockwashers (Appendix G, Item 139)
Gasket (Appendix G, Item 45)

Manual References

TM 9-2320-280-10
TM 9-2320-280-24P

Equipment Condition

Fuel tank removed (para. 3-24).

General Safety Instructions

Do not perform this procedure near fire, flames, or sparks.

WARNING

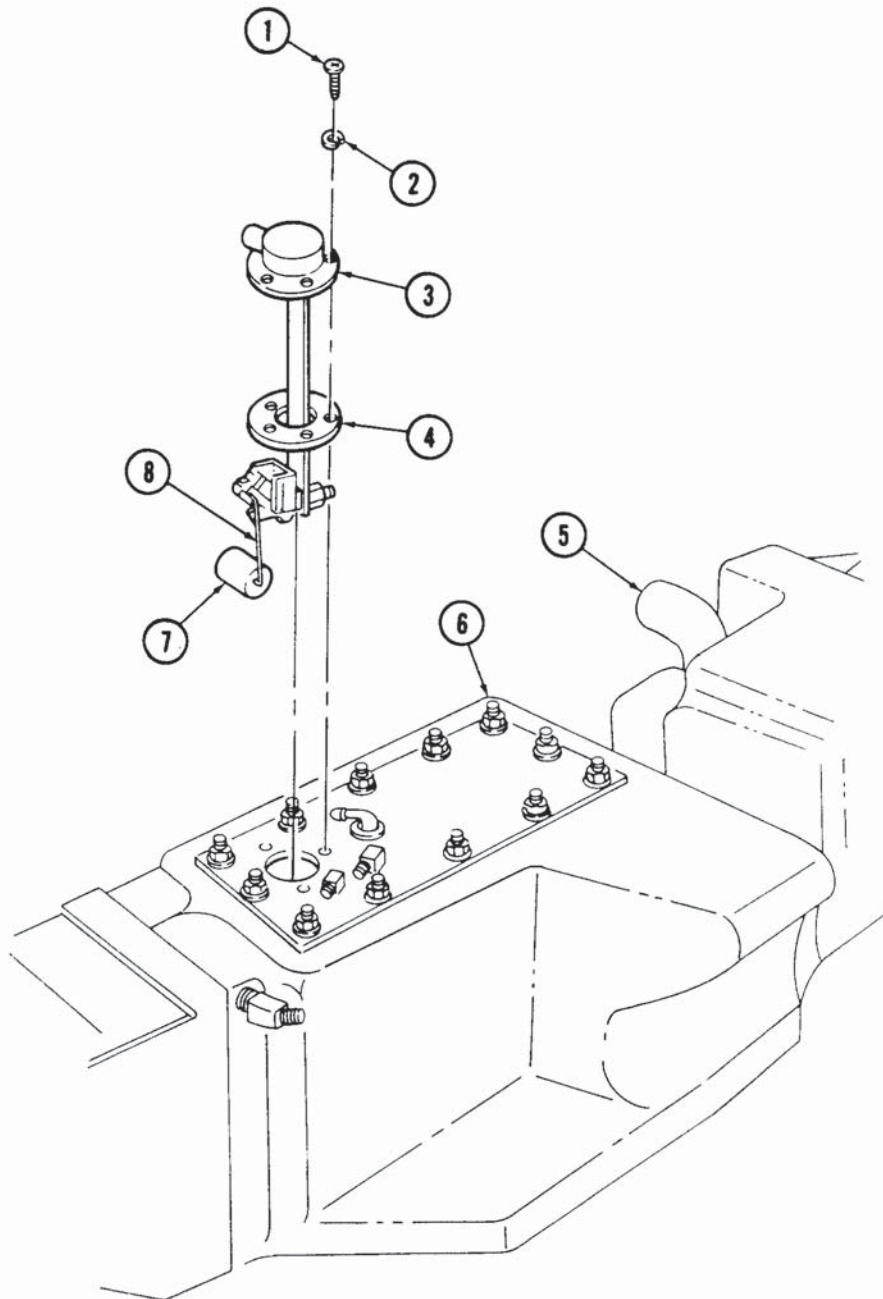
Diesel fuel is highly flammable. Do not perform this procedure near fire, flame, or sparks. Severe injury or death will result.

a. Removal

1. Remove five screws (1) and lockwashers (2) from fuel level sending unit (3) and fuel tank (6). Discard lockwashers (2).
2. Remove fuel level sending unit (3) from inside of fuel tank (6).
3. Remove and discard gasket (4).

b. Installation

1. Place gasket (4) on fuel level sending unit (3).
2. Install fuel level sending unit (3) into fuel tank (6) ensuring not to bend float arm (8).
3. Align holes of fuel level sending unit (3) to tank (6) so float (7) is pointed in same direction that tank filler neck (5) points.
4. Secure fuel level sending unit (3) with five lockwashers (2) and screws (1). Tighten screws (1) to 32 lb-in. (4 N•m).

4-28. FUEL LEVEL SENDING UNIT REPLACEMENT (Cont'd)

FOLLOW-ON TASKS: • Install fuel tank (para. 3-24).
• Check fuel gauge for proper operation (TM 9-2320-280-10).

4-29. GLOW PLUG CONTROLLER/TEMPERATURE SENSOR REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-280-10
TM 9-2320-280-24P

Materials/Parts

Grease (Appendix C, Item 25)
Sealing compound (Appendix C, Item 44)

Equipment Condition

- Battery ground cable disconnected (para. 4-73).
- Hood raised and secured (TM 9-2320-280-10).

NOTE

- It may be necessary to clamp surge tank-to-lower radiator tube to prevent loss of coolant.
- Two different systems are used. One uses glow plug controller and the other uses a temperature sensor. The temperature sensor is indicated by a yellow band.

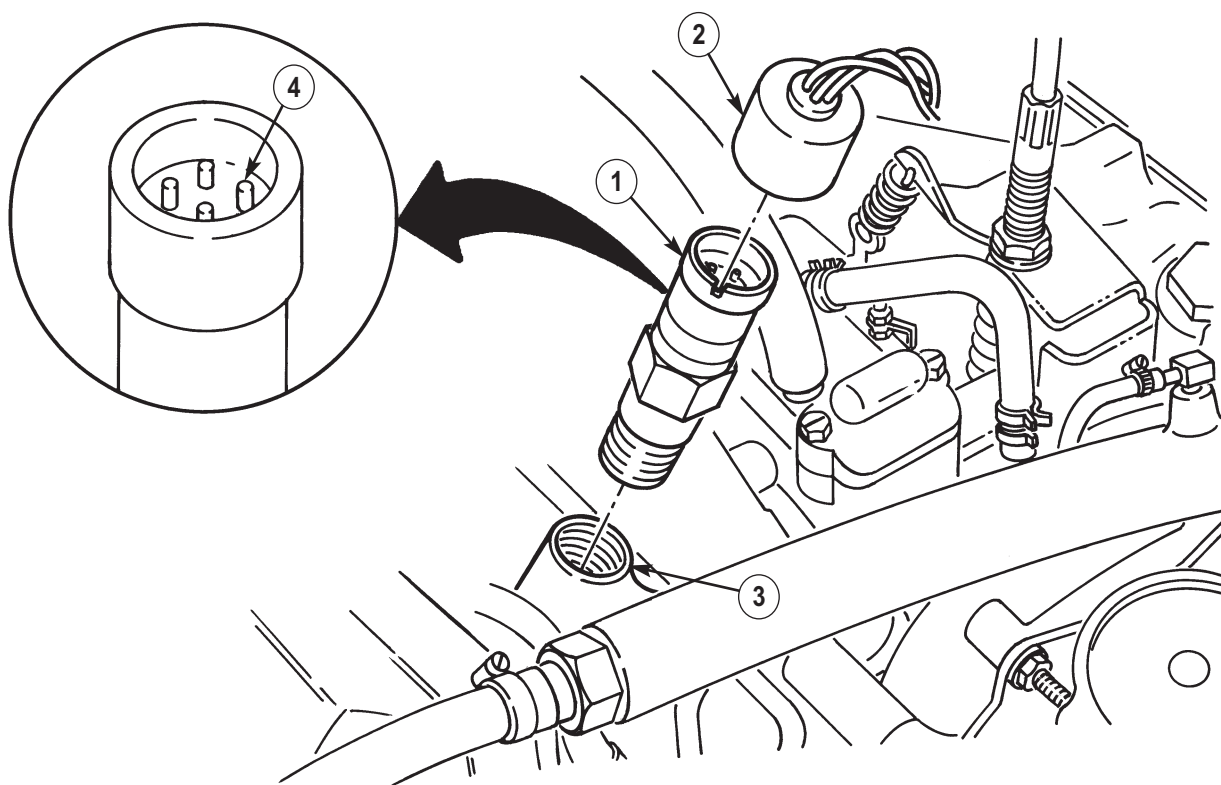
a. Removal

1. Disconnect multiple connector (2) from glow plug controller or temperature sensor (1).
2. Remove glow plug controller or temperature sensor (1) from water crossover (3).

b. Installation

CAUTION

- Do not attempt to start engine unless controller/sensor is mounted in engine for a minimum of 10 minutes or if all glow plugs are disconnected. Damage to glow plugs may result.
 - Do not overtighten controller/sensor. Damage to crossover will result.
1. Apply sealing compound to threads of glow plug controller or temperature sensor (1). Install glow plug controller or temperature sensor (1) on water crossover (3). Tighten controller or sensor (1) to 14-20 lb-ft (19-27 N•m).
 2. Apply grease to pins (4) of glow plug controller or temperature sensor (1).
 3. Connect multiple connector (2) to glow plug controller or temperature sensor (1).

4-29. GLOW PLUG CONTROLLER/TEMPERATURE SENSOR REPLACEMENT (Cont'd)

FOLLOW-ON TASKS: • Connect battery ground cable (para. 4-73).
• Lower and secure hood (TM 9-2320-280-10).

4-30. FAN TEMPERATURE SWITCH REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-280-10
TM 9-2320-280-24P

Materials/Parts

Sealing compound (Appendix C, Item 44)

Equipment Condition

- Battery ground cable disconnected (para. 4-73).
- Hood raised and secured (TM 9-2320-280-10).

NOTE

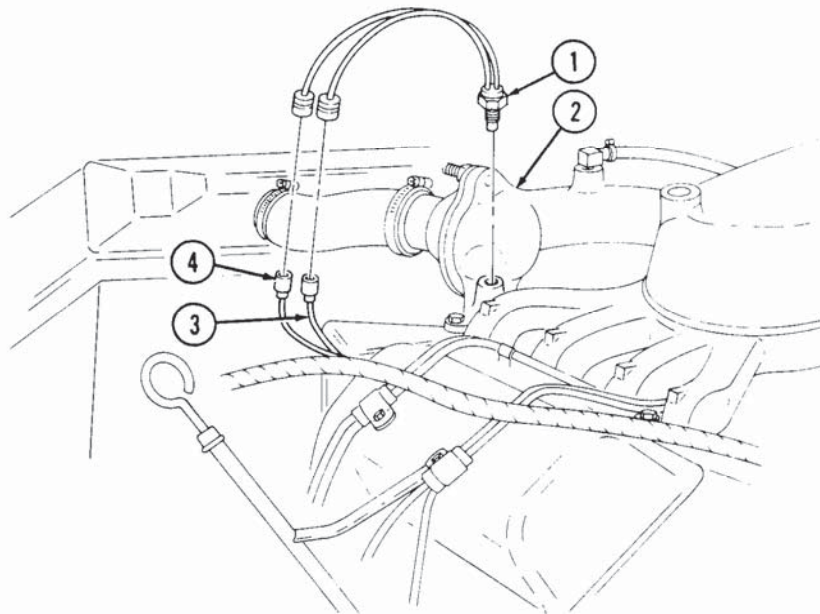
- The engine temperature switch is located on the top front side of the engine in the water crossover.
- Prior to removal, tag leads for installation.

a. Removal

1. Disconnect engine harness leads 458A (4) and 458B (3) from fan temperature switch (1).
2. Remove fan temperature switch (1) from water crossover (2).

b. Installation

1. Apply sealing compound to threads of fan temperature switch (1). Install fan temperature switch (1) to water crossover (2).
2. Connect engine harness leads 458A (4) and 458B (3) to fan temperature switch (1).



FOLLOW-ON TASKS: • Connect battery ground cable (para. 4-73).
• Lower and secure hood (TM 9-2320-280-10).

4-31. TIME DELAY MODULE REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Equipment Condition

- Battery ground cable disconnected (para. 4-73).
- Hood raised and secured (TM 9-2320-280-10).

Manual References

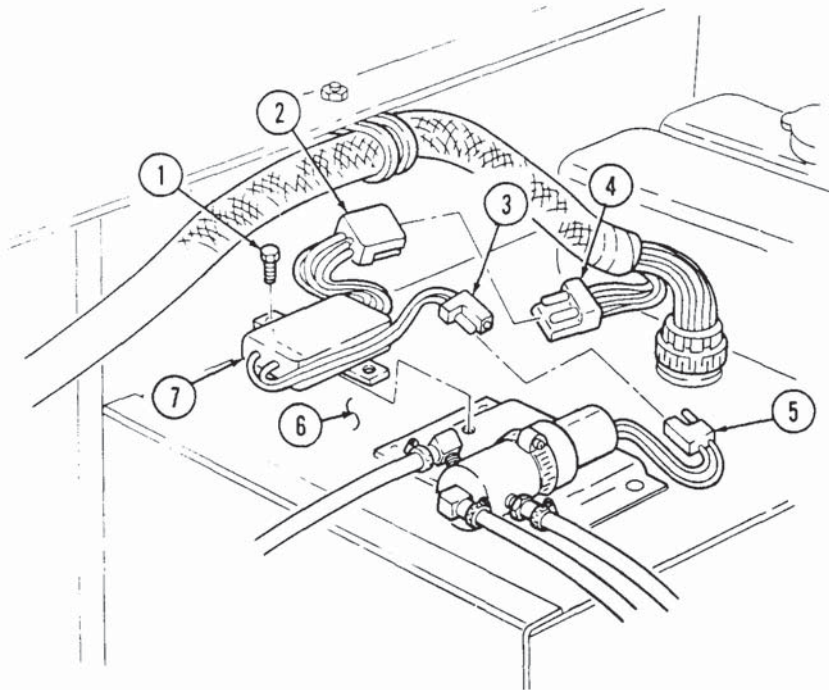
TM 9-2320-280-10
TM 9-2320-280-24P

a. Removal

1. Disconnect connector plug (3) from control valve connector (5).
2. Disconnect connector plug (2) from engine harness (4).
3. Remove two screws (1) and time delay module (7) from cowl (6).

b. Installation

1. Install time delay module (7) on cowl (6) with two screws (1).
2. Connect connector plug (2) to engine harness (4).
3. Connect connector plug (3) to control valve connector (5).



- FOLLOW-ON TASKS:
- Connect battery ground cable (para. 4-73).
 - Lower and secure hood (TM 9-2320-280-10).

4-32. RPM SENSOR REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Applicable Models

All vehicles except: M997A2, M1025A2, M1035A2, M1043A2, M1045A2, M1097A2

Manual References

TM 9-2320-280-24P

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Equipment Condition

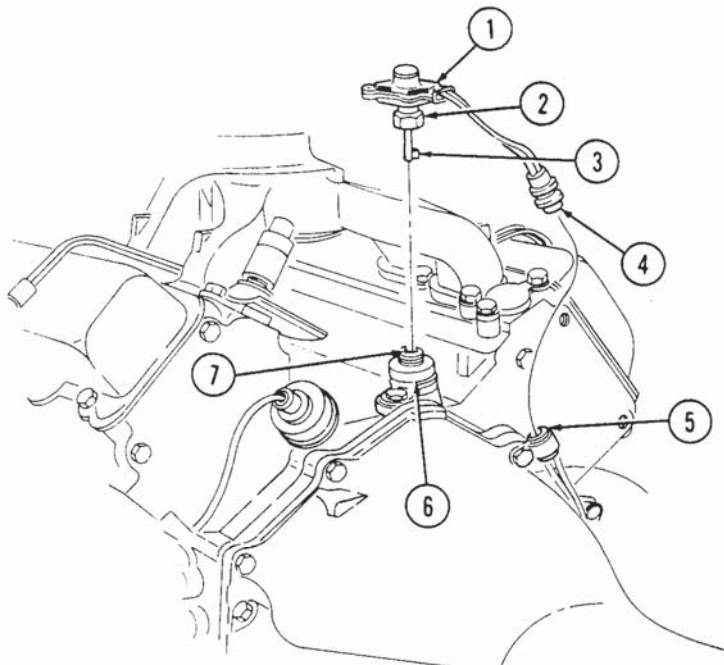
Engine access cover removed (para. 10-15).

a. Removal

1. Disconnect harness connector (5) from RPM sensor connector (4).
2. Loosen nut (2) and remove RPM sensor (1) from oil pump drive (6).

b. Installation

1. Align tab (3) on RPM sensor (1) with slot (7) in oil pump drive (6). Install RPM sensor (1) on oil pump drive (6) with nut (2).
2. Connect RPM sensor connector (4) to harness connector (5).



FOLLOW-ON TASK: Install engine access cover (para. 10-15).

4-33. ENGINE RPM SENSOR REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Applicable Models

M997A2, M1025A2, M1035A2, M1043A2,
M1045A2, M1097A2

Manual References

TM 9-2320-280-10
TM 9-2320-280-24P

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Equipment Condition

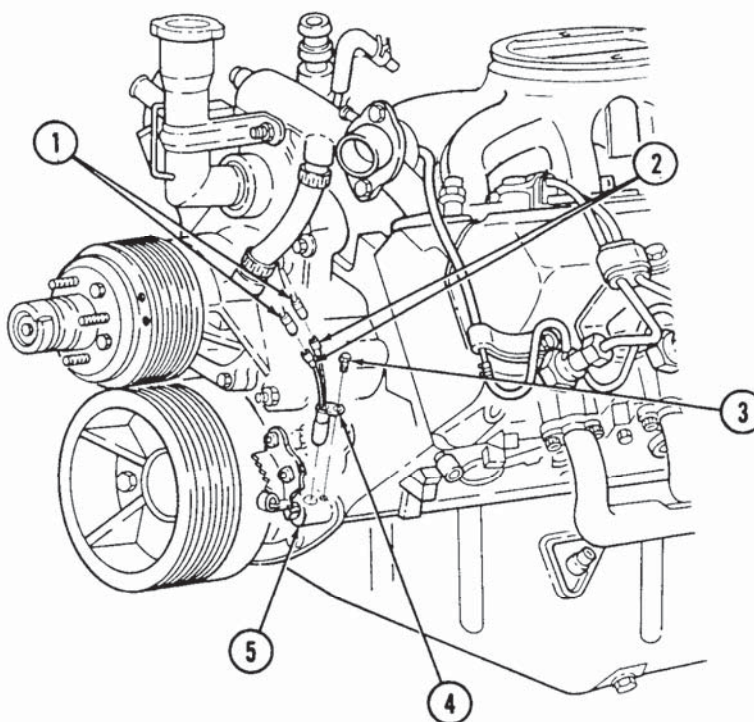
- Battery ground cable disconnected (para. 4-73).
- Hood raised and secured (TM 9-2320-280-10).

a. Removal

1. Disconnect engine harness leads (1) from RPM sensor leads (2).
2. Remove capscrew (3) and RPM sensor (4) from front cover (5).

b. Installation

1. Install RPM sensor (4) in front cover (5) with capscrew (3).
2. Connector RPM sensor leads (2) to engine harness leads (1).



- FOLLOW-ON TASKS:
- Connect battery ground cable (para. 4-73)
 - Lower and secure hood (TM 9-2320-280-10)