

3-7. ENGINE OIL COOLER SUPPLY AND RETURN LINES MAINTENANCE

This task covers:

- a. Supply Line Removal
- b. Inspection
- c. Supply Line Installation

INITIAL SETUP:

Tools

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

Materials/Parts

Tiedown strap (Appendix G, Item 306)
Lockwasher (Appendix G, Item 133)
Locknut (Appendix G, Item 72)

Manual References

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

Equipment Condition

- Engine left splash shield removed (para. 10-17).
- Engine access cover removed (para. 10-15).

General Safety Instructions

Do not drain oil when engine is hot.

a. Removal

WARNING

Do not drain oil when engine is hot. Severe injury to personnel will result.

CAUTION

Cover or plug all hoses and connections immediately after disconnection to prevent contamination. Remove all plugs prior to connection.

NOTE

- Engine oil cooler supply and return lines are replaced basically the same. This procedure covers supply line replacement.
 - Have drainage container ready to catch oil.
 - Left splash shield can be modified to add engine access cover. Refer to appendix D, Figs. D-86 and D-87 for installation.
1. Disconnect supply line connector (5) from adapter (4) and allow oil to drain.
 2. Disconnect supply line connector (16) from oil cooler port (17).
 3. Remove locknut (3), washer (2), capscrew (15), and washer (2) from supply line clamp (14), brake line clamp (1), and frame bracket (13). Discard locknut (3).
 4. Remove capscrew (7), lockwasher (8), and clamp (9) from supply line (12) and engine mount bracket (10). Discard lockwasher (8).
 5. Remove tiedown strap (11) from supply line (12) and return line (6). Discard tiedown strap (11).

b. Inspection

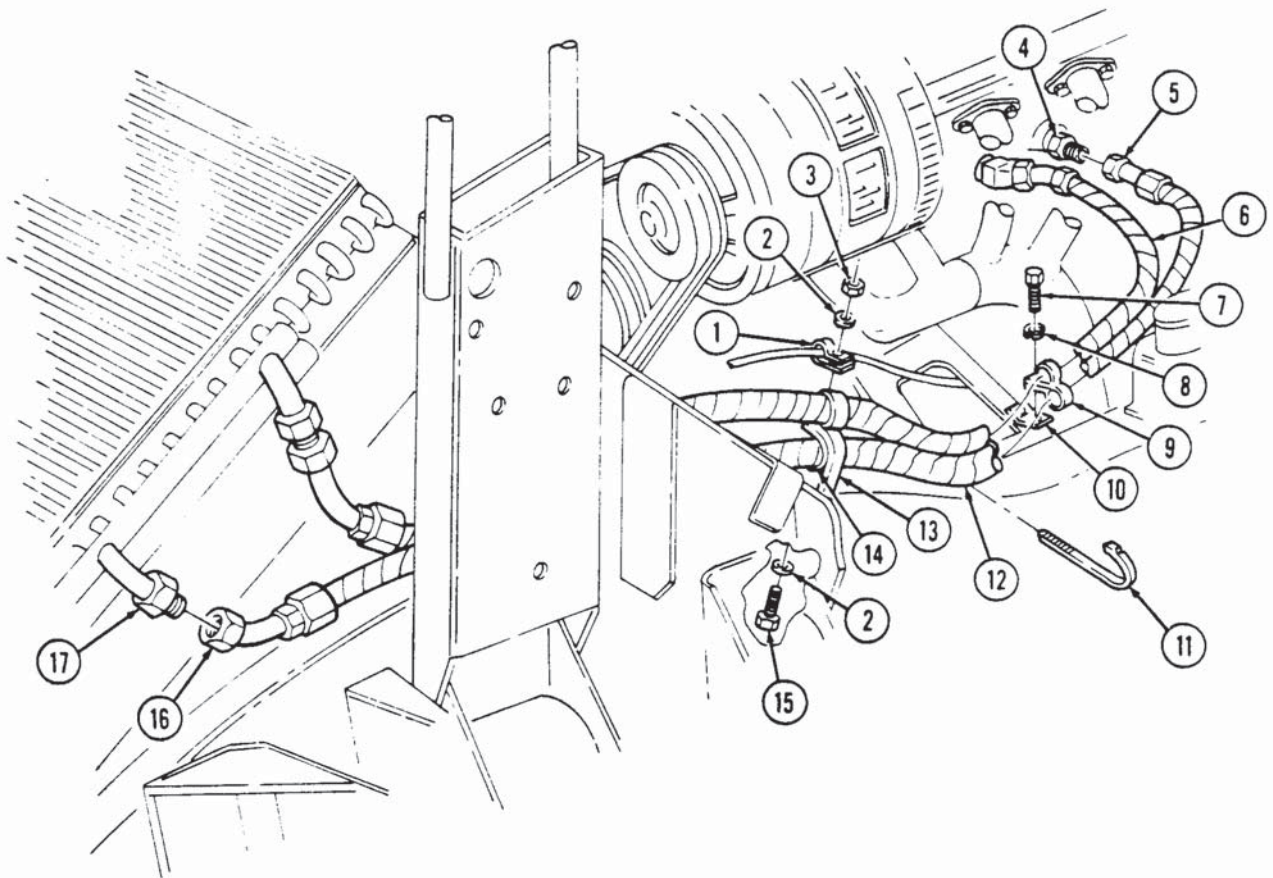
Inspect adapter (4) for damaged threads or cracks. Replace if defective.

c. Installation

1. Position supply line (12) in approximate mounting location along frame.
2. Install supply line clamp (14) and brake line clamp (1) on frame bracket (13) with washer (2), capscrew (15), washer (2), and locknut (3). Tighten locknut (3) to 6 lb-ft (8 N•m).
3. Connect supply line connector (16) to oil cooler port (17).

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4. Connect supply line connector (5) to adapter (4).
5. Secure supply line (12) to engine mount bracket (10) with clamp (9), lockwasher (8), and capscrew (7).
6. Secure supply line (12) to return line (6) with tiedown strap (11).



- FOLLOW-ON TASKS:
- Install engine left splash shield (para. 10-17).
 - Fill oil to proper level (TM 9-2320-280-10).
 - Start engine (TM 9-2320-280-10) and inspect for leaks at engine oil cooler, supply and return lines.
 - Install engine access cover (para. 10-15).

3-8. ENGINE AND TRANSMISSION OIL COOLER ASSEMBLY MAINTENANCE

This task covers:

- a. Removal
- b. Installation

c. Cleaning and Inspection

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

Equipment Condition

- Engine left splash shield removed (para. 10-17).
- Power steering cooler removed (para. 8-28).

General Safety Instructions

- Do not drain oil when engine is hot.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa).

CAUTION

Do not bend transmission oil cooler fins. Damaged fins reduce cooling efficiency, which may damage engine and/or transmission.

a. Removal

WARNING

Do not drain oil when engine is hot. Severe injury to personnel will result.

CAUTION

Cover or plug all hoses and connections immediately after disconnection to prevent contamination. Remove all plugs prior to connection.

NOTE

- Have drainage container ready to catch oil.
- Note position of hoses for installation.

1. Disconnect two engine oil cooler supply and return lines (7) from engine oil cooler ports (9).
2. Loosen two hose clamps (2) and disconnect two transmission oil cooler line connector hoses (1) from transmission oil cooler ports (3).
3. Remove four socket-head screw and washer assemblies (5), washers (6) and oil cooler (4) from radiator (8).

b. Installation

1. Install oil cooler (4) on radiator (8) with four washers (6) and socket-head screw and washer assemblies (5).
2. Connect two transmission oil cooler line connector hoses (1) to transmission oil cooler ports (3) and tighten two hose clamps (2). Tighten clamps (2) to 10-20 lb-in. (1-2 **N•m**).
3. Connect two engine oil cooler supply and return lines (7) to engine oil cooler ports (9).

c. Cleaning and Inspection

1. Remove four socket-head screw and washer assemblies (5) and washers (6) securing oil cooler (4) to radiator (8).
2. Make four two-by-four wood blocks, 2-1/2 inches (63 mm) long. Raise oil cooler (4) 1-1/2 inches (38 mm) and place one block under each corner between oil cooler (4) and radiator (8).

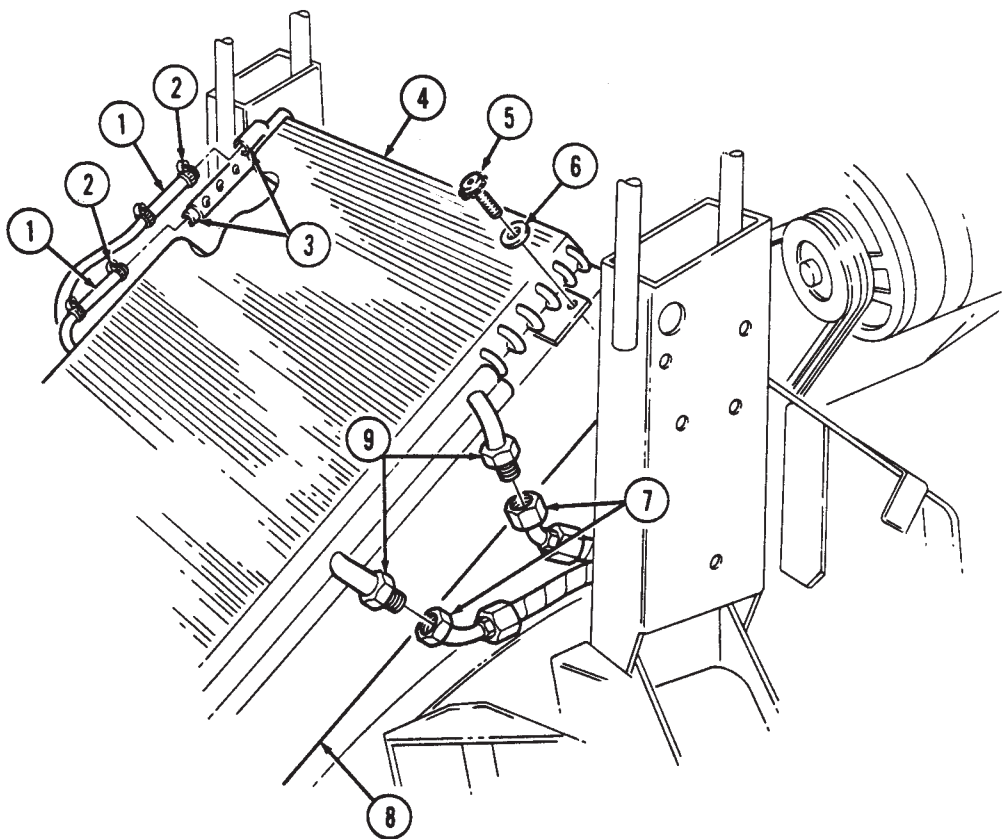
3-8. ENGINE AND TRANSMISSION OIL COOLER ASSEMBLY MAINTENANCE (Cont'd)**WARNING**

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

CAUTION

Using high water pressure when cleaning engine and transmission oil cooler and radiator can cause damage. High water pressure should not be directed at oil cooler or radiator.

3. Using water and compressed air, remove dirt, trash, and insects embedded in oil cooler (4) and radiator fins (8).
4. Inspect oil cooler (4) for breaks, punctures, cracks, and splits. Replace oil cooler (4), if damaged.
5. Remove four wood blocks.
6. Install oil cooler (4) on radiator (8) with four washers (6) and socket-head screw and washer assemblies (5).



- FOLLOW-ON TASKS:**
- Install power steering cooler (para. 8-28).
 - Fill transmission oil to proper level (TM 9-2320-280-10).
 - Fill engine oil to proper level (TM 9-2320-280-10).
 - Install engine left splash shield (para. 10-17).
 - Start engine (TM 9-2320-280-10) and check for leaks.