

Section IV. EXHAUST SYSTEM MAINTENANCE

3-46. EXHAUST SYSTEM MAINTENANCE TASK SUMMARY

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3-47. TAILPIPE 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

Gasket (Appendix G, Item 42)
Three locknuts (Appendix G, Item 128)
Two lockwashers (Appendix G, Item 133)

General Safety Instructions

Do not touch hot exhaust system components with bare hands.

WARNING

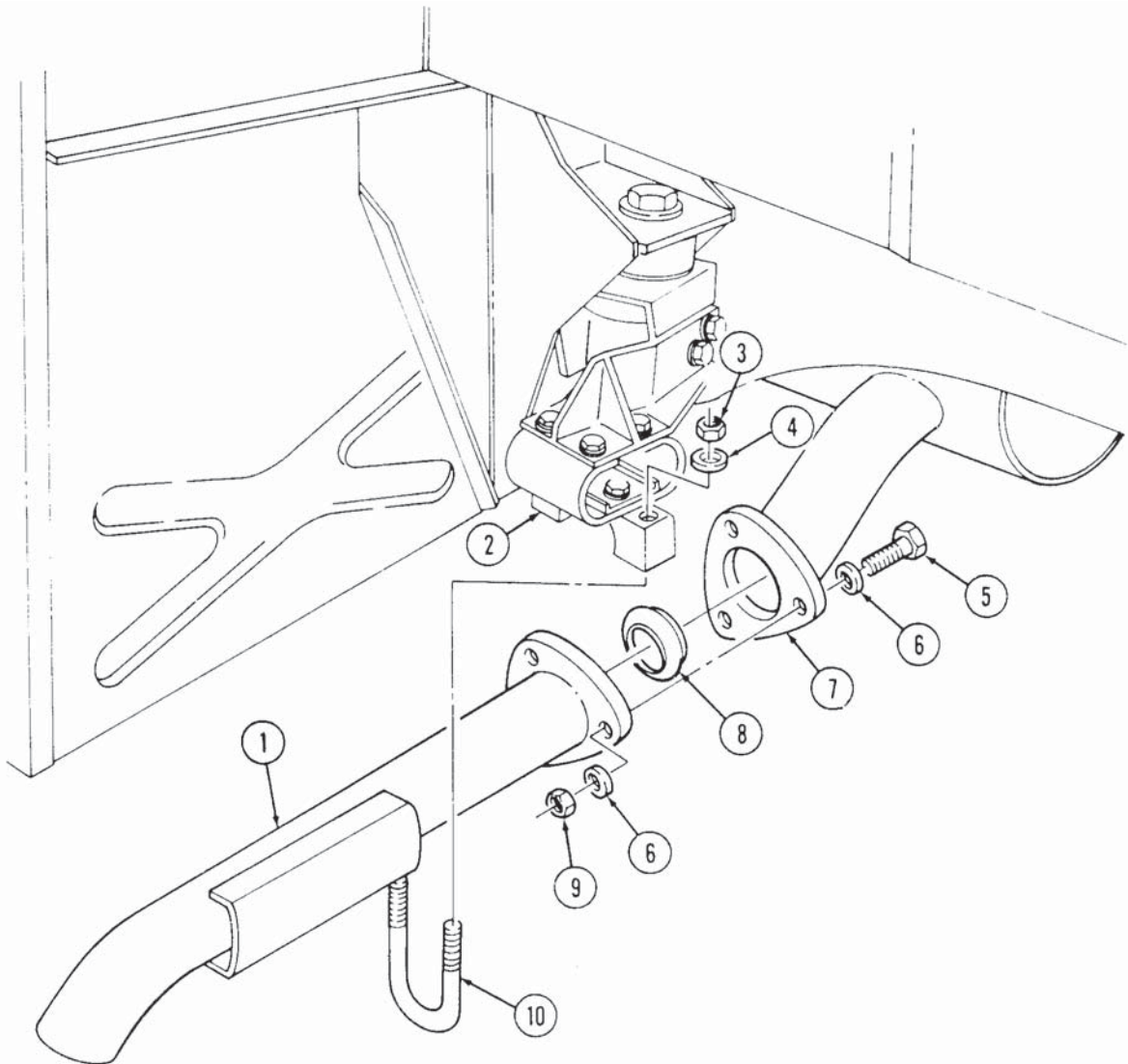
Do not touch hot exhaust system components with bare hands.
Severe injury will result.

a. Removal

1. Remove three locknuts (9), washers (6), capscrews (5), and washers (6) from tailpipe (1) and muffler (7). Discard locknuts (9).
2. Remove two nuts (3), lockwashers (4), and U-bolt (10) from tailpipe (1) and hanger (2). Discard lockwashers (4).
3. Remove tailpipe (1) and gasket (8) from muffler (7). Discard gasket (8).

3-47. TAILPIPE REPLACEMENT (Cont'd)**b. Installation**

1. Install gasket (8) and tailpipe (1) on muffler (7) with three washers (6), capscrews (5), washers (6), and locknuts (9). Tighten locknuts (9) to 26 lb-ft (35 N•m).
2. Install tailpipe (1) on hanger (2) with U-bolt (10), two washers (4), and nuts (3).



FOLLOW-ON TASK: Start engine (TM 9-2320-280-10) and check for exhaust leaks.

3-48. MUFFLER AND INSULATOR REPLACEMENT (ALL MODELS EXCEPT M1123 AND "A2" VEHICLES)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Applicable Models

All except: M997A2, M1025A2, M1035A2, M1043A2, M1045A2, M1097A2, M1123

Tools

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

Materials/Parts

Nine locknuts (Appendix G, Item 128)
Gasket (Appendix G, Item 42)
Two lockwashers (Appendix G, Item 133)

Manual References

TM 9-2320-280-24P

Equipment Condition

Tailpipe removed (para. 3-47).

General Safety Instructions

Do not touch hot exhaust system components with bare hands.

WARNING

Do not touch hot exhaust system components with bare hands.
Severe injury will result.

a. Removal

1. Remove three locknuts (10), washers (9), capscrews (12), and washers (9) from muffler (7) and crossover pipe (8). Discard locknuts (10).
2. Remove two nuts (16), lockwashers (15), and U-bolt (13) from muffler (7) and support bracket (14). Discard lockwashers (15).
3. Remove gasket (11) by pulling muffler (7) towards rear of vehicle. Discard gasket (11).

NOTE

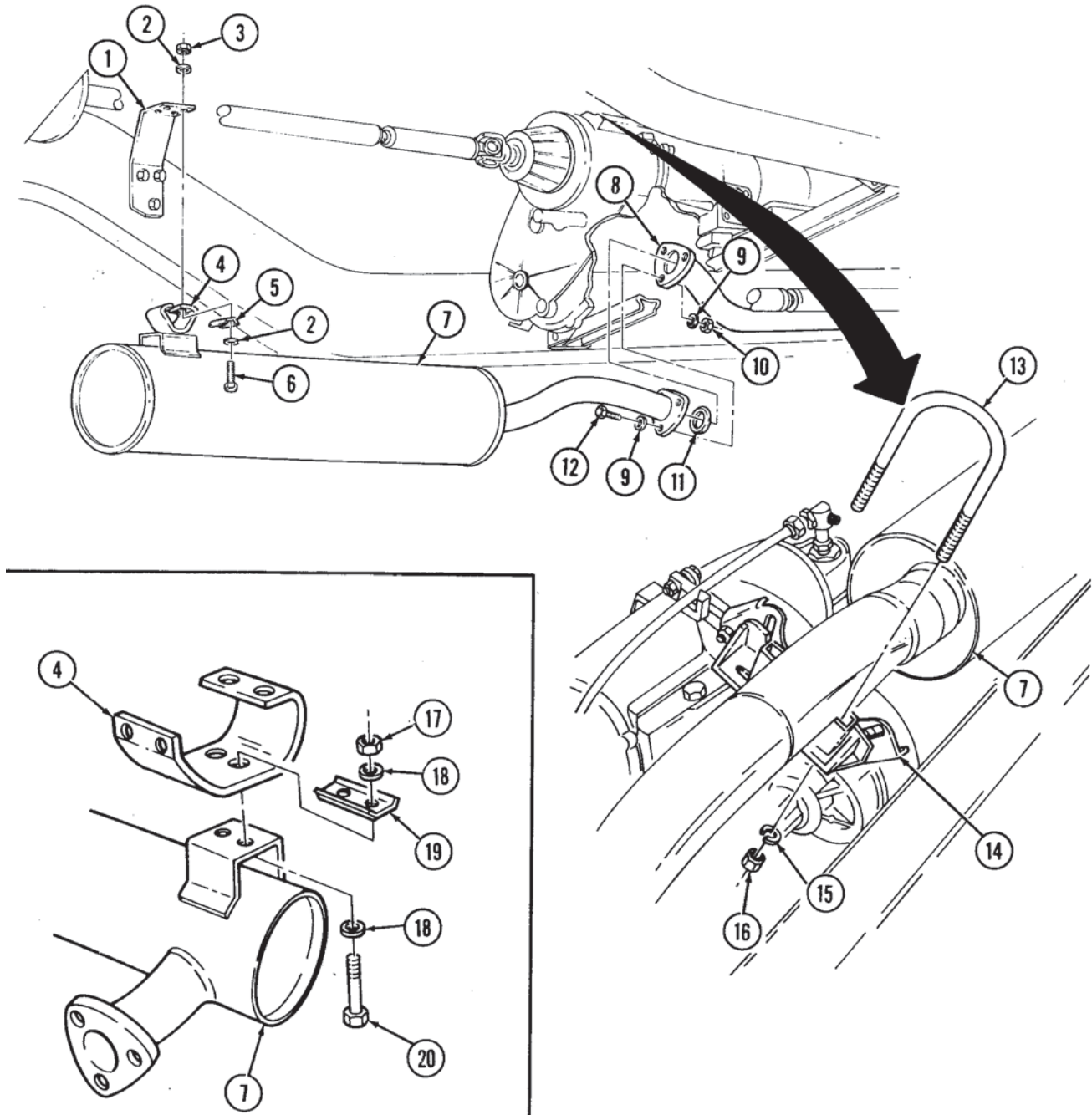
It may be necessary to lower rear propeller shaft (para. 6-5) to gain access to locknuts on muffler hanger.

4. Remove four locknuts (3), washers (2), capscrews (6), and washers (2) securing insulator (4) and retaining plates (5) to muffler hanger (1) and remove muffler (7). Discard locknuts (3).
5. Remove two locknuts (17), washers (18), capscrews (20), washers (18), insulator (4), and retaining plate (19) from muffler (7). Discard locknuts (17).

b. Installation

1. Install insulator (4) and retaining plate (19) to muffler (7) with two washers (18), capscrews (20), washers (18), and locknuts (17). Tighten locknuts (17) to 10 lb-ft (14 N•m).
2. Install muffler (7), insulator (4), and retaining plates (5) to muffler hanger (1) with four washers (2), capscrews (6), washers (2), and locknuts (3).
3. Install muffler (7) on bracket (14) with U-bolt (13), two lockwashers (15), and nuts (16).
4. Install gasket (11) and muffler (7) on crossover pipe (8) with three washers (9), capscrews (12), washers (9), and locknuts (10). Tighten locknuts (10) to 26 lb-ft (35 N•m).

3-48. MUFFLER AND INSULATOR REPLACEMENT (ALL MODELS EXCEPT M1123 AND "A2" VEHICLES)



FOLLOW-ON TASK: Install tailpipe (para. 3-47).

3-49. MUFFLER AND CATALYTIC CONVERTER REPLACEMENT (M1123 AND "A2" VEHICLES ONLY)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Applicable Models

M997A2, M1025A2, M1035A2, M1043A2,
M1045A2, M1097A2, M1123

Tools

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

Materials/Parts

Nine locknuts (Appendix G, Item 128)
Manifold seal assembly (Appendix G, Item 197)
Two lockwashers (Appendix G, Item 167)

Manual References

TM 9-2320-280-24P

Equipment Condition

Tailpipe removed (para. 3-47).

General Safety Instructions

Do not touch hot exhaust system components with bare hands.

WARNING

Do not touch hot exhaust system components with bare hands.
Severe injury will result.

a. Removal

CAUTION

Support muffler and catalytic converter during replacement.
Failure to do so may result in damage to equipment.

1. Remove two clamps (12) and heat shield (13) from crossover pipe (14).
2. Remove four nuts (7) and U-bolt (25) from heat shield (11), support bracket (24), and muffler (26).
3. Loosen clamp (8) and remove heat shield (11) from catalytic converter (18).
4. Remove two nuts (10) and heat shield (4) from muffler (26).
5. Remove three locknuts (16), washers (15), capscrews (23), and washers (15) from catalytic converter (18) and crossover pipe (14). Discard locknuts (16).
6. Remove two nuts (21), lockwashers (20), and U-bolt (17) from catalytic converter (18) and support bracket (19). Discard lockwashers (20).
7. Remove manifold seal assembly (22) by pulling catalytic converter (18) towards rear of vehicle. Discard manifold seal assembly (22).

NOTE

It may be necessary to lower rear propeller shaft (para. 6-5) to gain access to locknuts on muffler hanger.

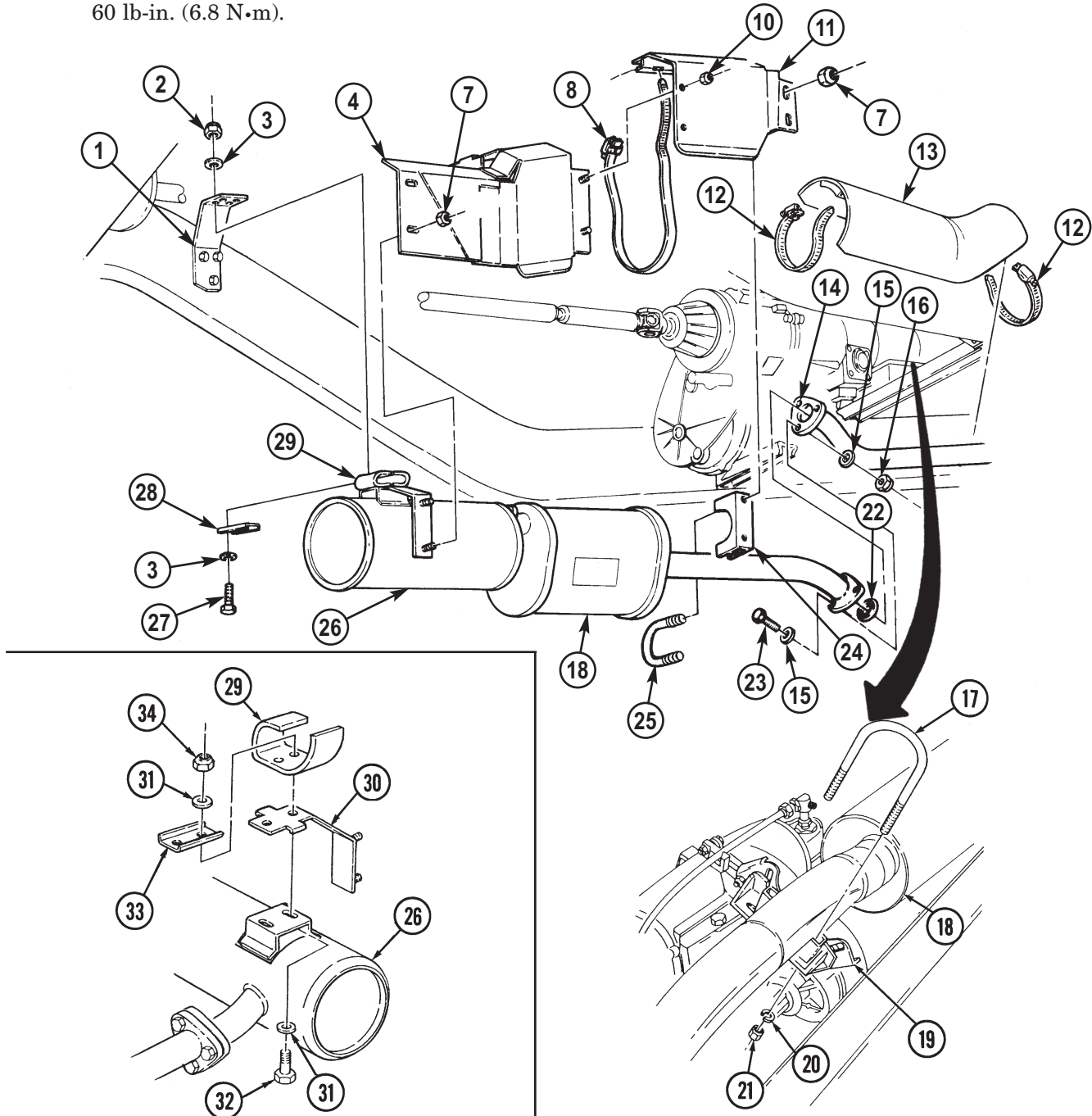
8. Remove four locknuts (2), washers (3), capscrews (27), washers (3), two retaining plates (28), and muffler (26) from muffler hanger (1). Discard locknuts (2).
9. Remove two locknuts (34), washers (31), capscrews (32), washers (31) insulator (29), retaining plate (33), and bracket (30) from muffler (26). Discard locknuts (34).

b. Installation

1. Install bracket (30), insulator (29) and retaining plate (33) on muffler (26) with two washers (31), capscrews (32), washers (31), and locknuts (34). Tighten locknuts (34) to 10 lb-ft (14 N•m).
2. Install muffler (26) and two retaining plates (28) on muffler hanger (1) with four washers (3), capscrews (27), washers (3), and locknuts (2).
3. Install catalytic converter (18) on bracket (19) with U-bolt (17), two lockwashers (20), and nuts (21).

**3-49. MUFFLER AND CATALYTIC CONVERTER REPLACEMENT
(M1123 AND "A2" VEHICLES ONLY) (Cont'd)**

4. Install manifold seal assembly (22) and catalytic converter (18) on crossover pipe (14) with three washers (15), capscrews (23), washers (15), and locknuts (16). Tighten locknuts (16) to 26 lb-ft (35 N·m).
5. Install heat shield (4) on muffler (26) with two nuts (10).
6. Install heat shield (11) on catalytic converter (18) with clamp (8).
7. Install heat shield (11) on bracket (24) and muffler (26) with U-bolt (25) and four nuts (7).
8. Install heat shield (13) on crossover pipe (14) with two clamps (12). Tighten clamps (12) to 60 lb-in. (6.8 N·m).



FOLLOW-ON TASK: Install tailpipe (para. 3-47).

3-50. CROSSOVER PIPE REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

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

Materials/Parts

Nine locknuts (Appendix G, Item 128)
Two manifold seals (Appendix G, Item 197)
Gasket (Appendix G, Item 42)

Manual References

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

Equipment Condition

- Engine access cover removed (para. 10-15).
- Right exhaust manifold rear heat shield removed (para. 3-54).

General Safety Instructions

Do not touch hot exhaust system components with bare hands.

WARNING

Do not touch hot exhaust system components with bare hands.
Severe injury will result.

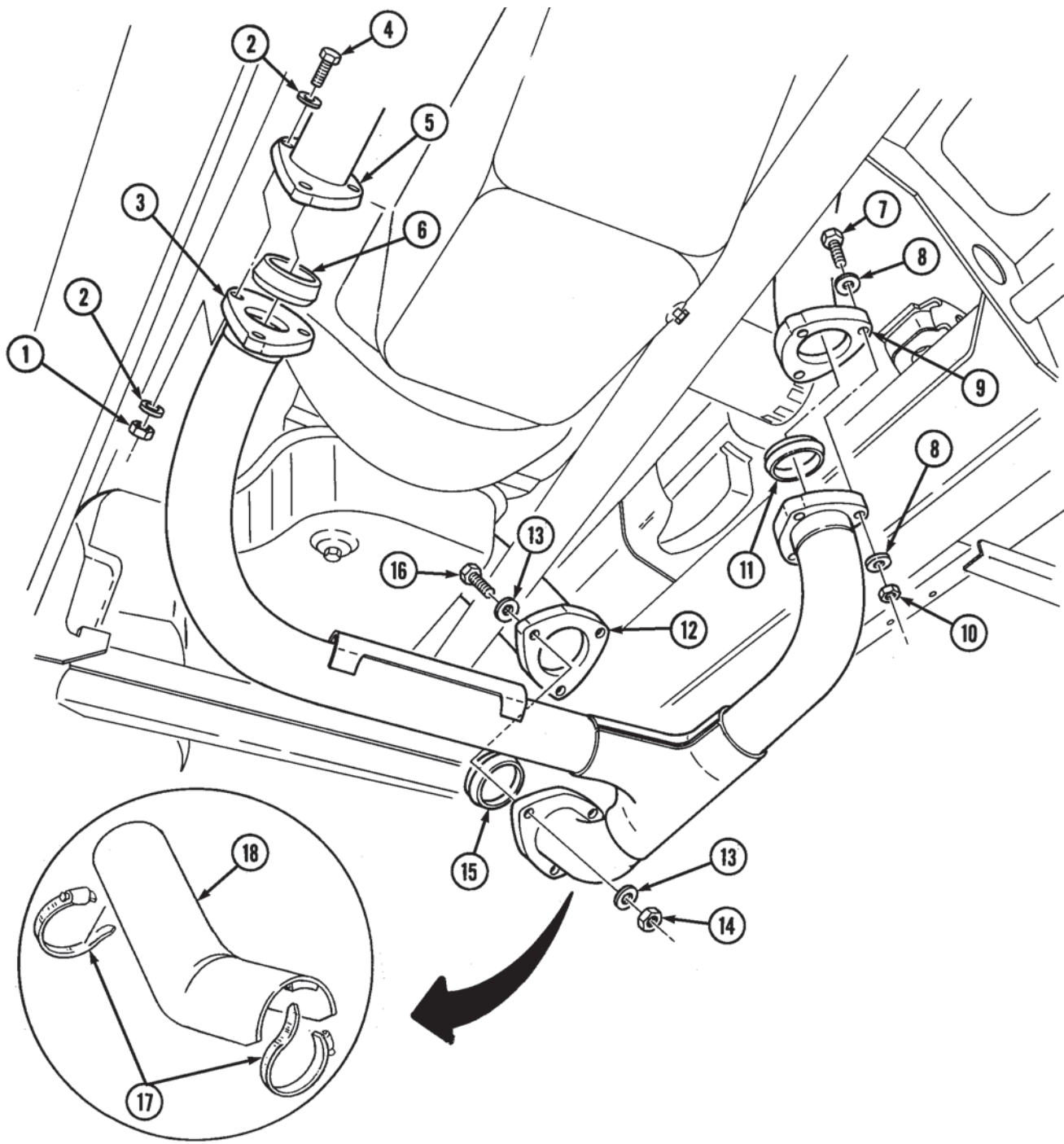
a. Removal

1. Remove two clamps (17) and heat shield (18) from crossover pipe (3).
2. Remove three locknuts (1), washers (2), capscrews (4), washers (2), and crossover pipe (3) from right exhaust manifold (5). Discard locknuts (1).
3. Remove three locknuts (14), washers (13), capscrews (16), washers (13), and crossover pipe (3) from muffler (12). Discard locknuts (14).
4. Remove three locknuts (10), washers (8), capscrews (7), washers (8), and crossover pipe (3) from left exhaust manifold (9). Discard locknuts (10).
5. Remove and discard two manifold seals (6) and (11) and gasket (15).

b. Installation

1. Install manifold seal (11) and crossover pipe (3) on left exhaust manifold (9) with three washers (8), capscrews (7), washers (8), and locknuts (10).
2. Install gasket (15) and crossover pipe (3) on muffler (12) with three washers (13), capscREW (16), washers (13), and locknuts (14).
3. Install manifold seal (6) and crossover pipe (3) on right exhaust manifold (5) with three washers (2), capscrews (4), washers (2), and locknuts (1).
4. Tighten locknuts (1), (10), and (14) to 26 lb-ft (35 N•m).
5. Install heat shield (18) on crossover pipe (3) with two clamps (17).

3-50. CROSSOVER PIPE REPLACEMENT(Cont'd)



- FOLLOW-ON TASKS:**
- Start engine (TM 9-2320-280-10) and check for exhaust leaks.
 - Install right exhaust manifold rear heat shield (para. 3-54).
 - Install engine access cover (para. 10-15).

3-51. TAILPIPE HANGER 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

Materials/Parts

Six locknuts (Appendix G, Item 128)

General Safety Instructions

Do not touch hot exhaust system components with bare hands.

a. Removal

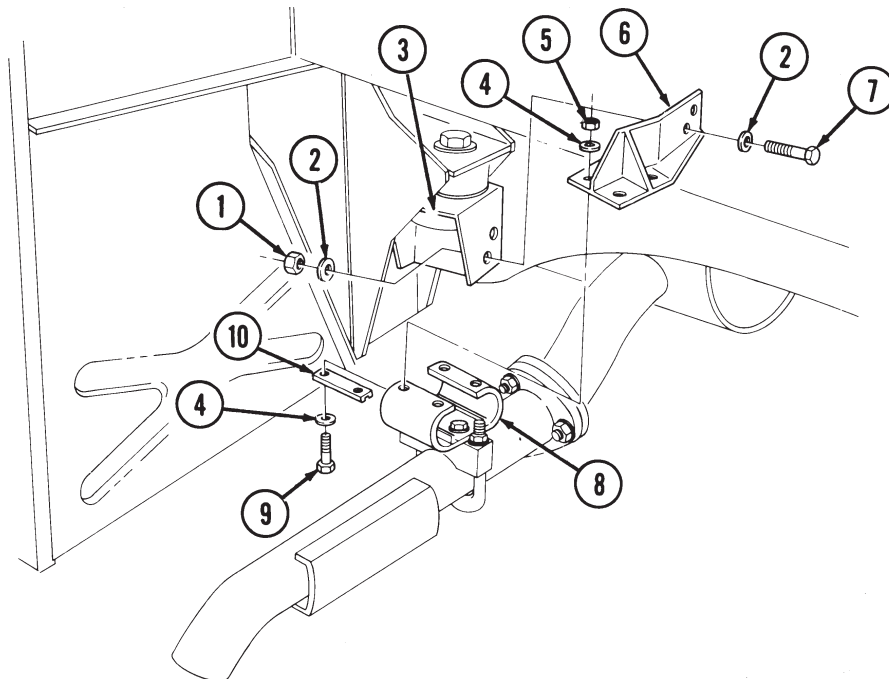
WARNING

Do not touch hot exhaust system components with bare hands.
Severe injury will result.

1. Remove four locknuts (5), washers (4), capscrews (9), washers (4) two insulator reinforcement plates (10) and insulator (8) from tailpipe hanger (6). Discard locknuts (5).
2. Remove two locknuts (1), washers (2), capscrews (7), washers (2) and tailpipe hanger (6) from frame (3). Discard locknuts (1).

b. Installation

1. Install insulator (8) and insulator reinforcement plates (10) to tailpipe hanger (6) with four washers (4), capscrews (9), washers (4), and locknuts (5).
2. Install tailpipe hanger (6) to frame (3) with two washers (2), capscrews (7), washers (2), and locknuts (1). Tighten capscrews (7) to 26 lb-ft (35 N•m).



3-52. TAILPIPE INSULATOR REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

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

Materials/Parts

Four locknuts (Appendix G, Item 128)
Two lockwashers (Appendix G, Item 133)

Manual References

TM 9-2320-280-24P

Equipment Condition

Tailpipe removed (para. 3-47).

General Safety Instructions

Do not touch hot exhaust system components with bare hands.

WARNING

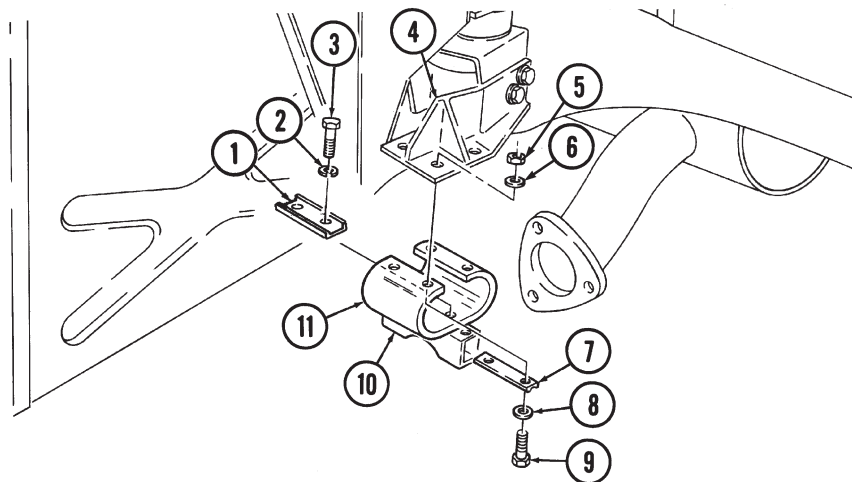
Do not touch hot exhaust system components with bare hands.
Severe injury will result.

a. Removal

1. Remove four locknuts (5), washers (6), capscrews (9), washers (8) reinforcement plates (7) and insulator (11) from tailpipe hanger (4). Discard locknuts (5).
2. Remove two capscrews (3), lockwashers (2), reinforcement plate (1) and U-bolt clamp (10) from insulator (11). Discard lockwashers (2).

b. Installation

1. Install reinforcement plate (1) and U-bolt clamp (10) to insulator (11) with two lockwashers (2) and capscrews (3). Tighten capscrews (3) to 10 lb-ft (14 N•m).
2. Install insulator (11) and reinforcement plate (7) to tailpipe hanger (4) with four washers (8), capscrews (9), washers (6), and locknuts (5). Tighten locknuts (5) to 10 lb-ft (14 N•m).



FOLLOW-ON TASK: Install tailpipe (para. 3-47).

3-53. MUFFLER SUPPORT BRACKET MAINTENANCE

This task covers:

- | | |
|--|--|
| <ul style="list-style-type: none"> a. Removal b. Disassembly | <ul style="list-style-type: none"> c. Assembly d. Installation |
|--|--|

INITIAL SETUP:

Tools

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

Materials/Parts

Four locknuts (Appendix G, Item 128)

Manual References

TM 9-2320-280-24P

Equipment Condition

- Muffler and insulator removed (all models except M1123 and "A2" series vehicles) (para. 3-48).
- Muffler and catalytic converter removed (M1123 and "A2" vehicles only) (para. 3-49).

a. Removal

NOTE

Hold bolt heads on transfer case secure to prevent changing torque or damaging transfer case seal.

Remove two locknuts (1), washers (2), and support bracket assembly (3) from transfer case (4). Discard locknuts (1).

b. Disassembly

1. Remove two locknuts (9), washers (8), capscrews (5), washers (6), mounting bracket (11), and washers (6) from support plate (10). Discard locknuts (9).
2. Remove two insulators (7) from mounting plate (11).

c. Assembly

1. Install two insulators (7) in mounting bracket (11).
2. Install two washers (6) between mounting bracket (11) and support plate (10) with two washers (6), capscrews (5), washers (8), and locknuts (9). Tighten locknuts (9) to 15 lb-ft (20 N•m).

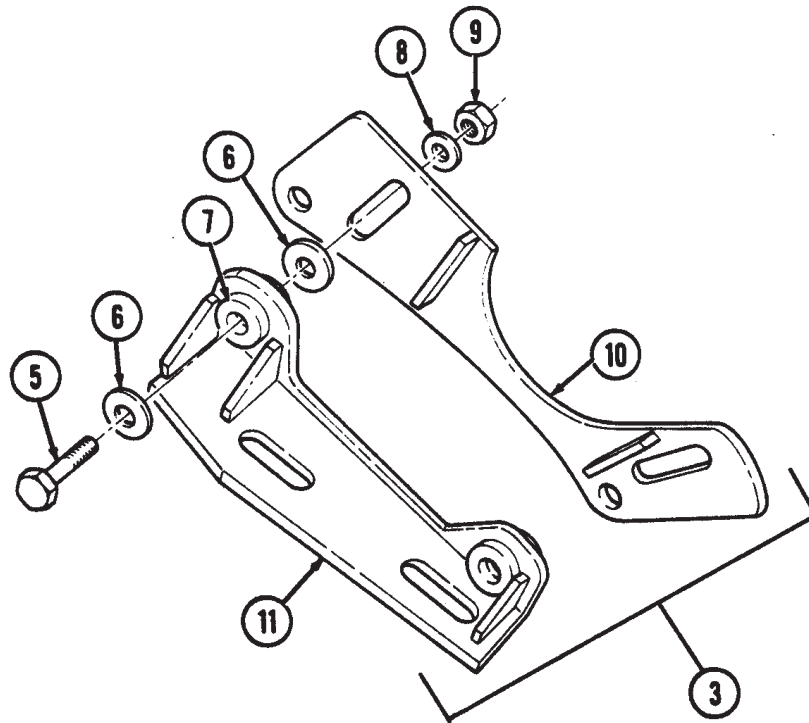
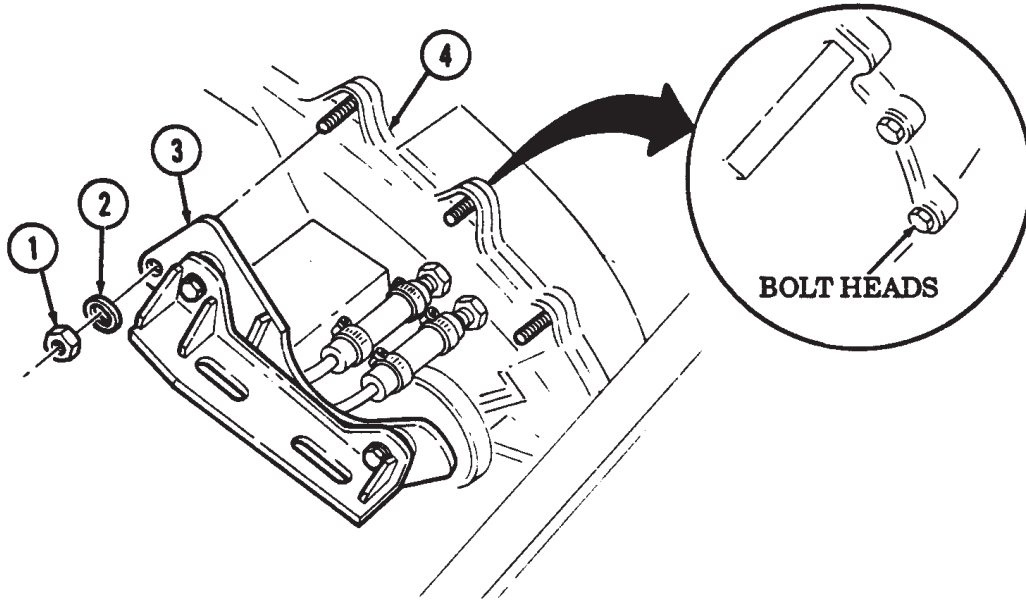
d. Installation

NOTE

Hold bolt heads on transfer case secure to prevent changing torque or damaging transfer case seal.

Install support bracket assembly (3) to transfer case (4) with two washers (2) and locknuts (1). Tighten locknuts (1) to 15 lb-ft (20 N•m).

3-53. MUFFLER SUPPORT BRACKET MAINTENANCE(Cont'd)



- FOLLOW-ON TASKS:**
- Install muffler and catalytic converter (M1123 and “A2” vehicles only) (para. 3-49).
 - Install muffler and insulator (all models except M1123 and “A2” series vehicles) (para. 3-48).