

4-8. STARTER REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

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

Special Tools

Crowfoot, 9/16 in. (Appendix B, Item 150)
Torque adapter, 3/4 in. (Appendix B, Item 145)
Socket adapter, 3/8 - 1/2 in. drive (Appendix B, Item 146)

Materials/Parts

Lockwasher (Appendix G, Item 133)
Lockwasher (Appendix G, Item 137)
Plain-assembled nut (Appendix G, Item 203)
Adhesive sealant (Appendix C, Item 10)
Sealing compound (Appendix C, Item 45)

Personnel Required

One mechanic
One assistant

Manual References

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

Equipment Condition

- Battery ground cable disconnected (para. 4-73).
- Arctic heater oil pan shroud removed (para. 12-48.2).
- Converter housing cover removed (para. 5-19).
- Sealed upper converter housing cover removed (para. 5-18).

General Safety Instructions

Starter must be supported during removal and installation.

WARNING

Starter must be supported during removal and installation. Failure to support starter may cause injury to personnel or damage to equipment.

NOTE

- Illustration shown is a cutaway of the right side of vehicle.
- Prior to removal, tag leads for installation.

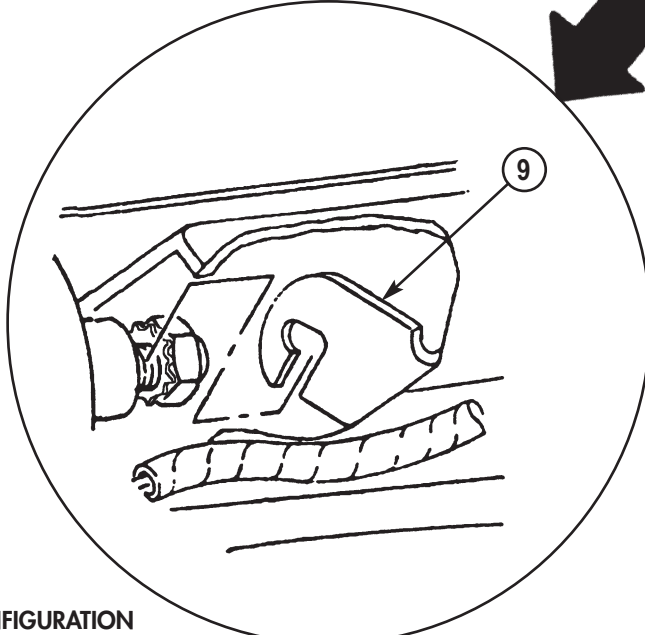
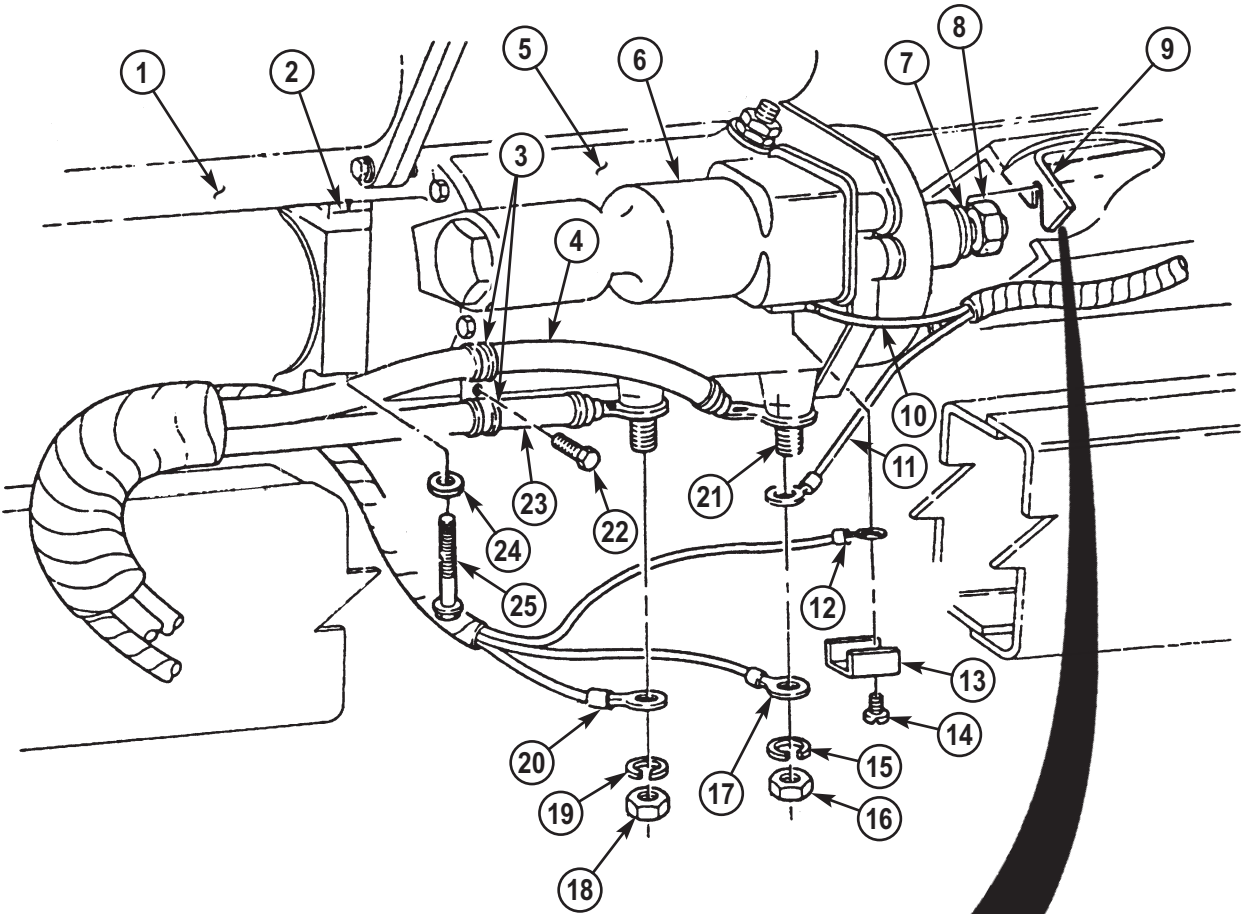
a. Removal

1. Remove nut (18), lockwasher (19), lead 3D (20), and negative cable 7A (23) from starter (5). Discard lockwasher (19).
2. Remove adhesive sealant from positive terminal (21) on starter (5).

NOTE

- Perform step 3 for all vehicles except M1123 and "A2" series vehicles.
 - Perform step 4 for M1123 and "A2" series vehicles only.
3. Remove nut (16), lockwasher (15), leads 81A (11) and 81B (17), and positive cable 6A (4) from starter (5). Discard lockwasher (15) and tiedown strap (9.1).
 4. Remove nut (16), lockwasher (15), and lead 81B (17) from starter (5). Discard lockwasher (15).
 5. Remove screw (14), clip (13), and leads 74B (12) and 74A (10) from solenoid (6).
 6. Remove screw (22), two clamps (3), negative cable 7A (23), and positive cable 6A (4) from starter (5).
 7. Loosen plain-assembled nut (8) and washer (7) (if installed) on stud connecting starter (5) to bracket (9). Discard plain-assembled nut (8).
 8. While supporting starter (5) from under vehicle, remove two capscrews (25) and washers (24) from starter (5) and engine (1).
 9. Remove starter (5) and shim (2) from engine (1).

4-8. STARTER REPLACEMENT (Cont'd)



NEW CONFIGURATION

4-8. STARTER REPLACEMENT (Cont'd)

b. Installation

1. Install an 0.08 in. (2 mm) shim (2) on starter (5).
2. Position shim (2) and starter (5) to flywheel housing with solenoid (6) facing outward.
3. Slide front stud on starter (5) in bracket (9).

NOTE

Some capscrews have sealing compound pre-applied. Additional sealing compound is not required.

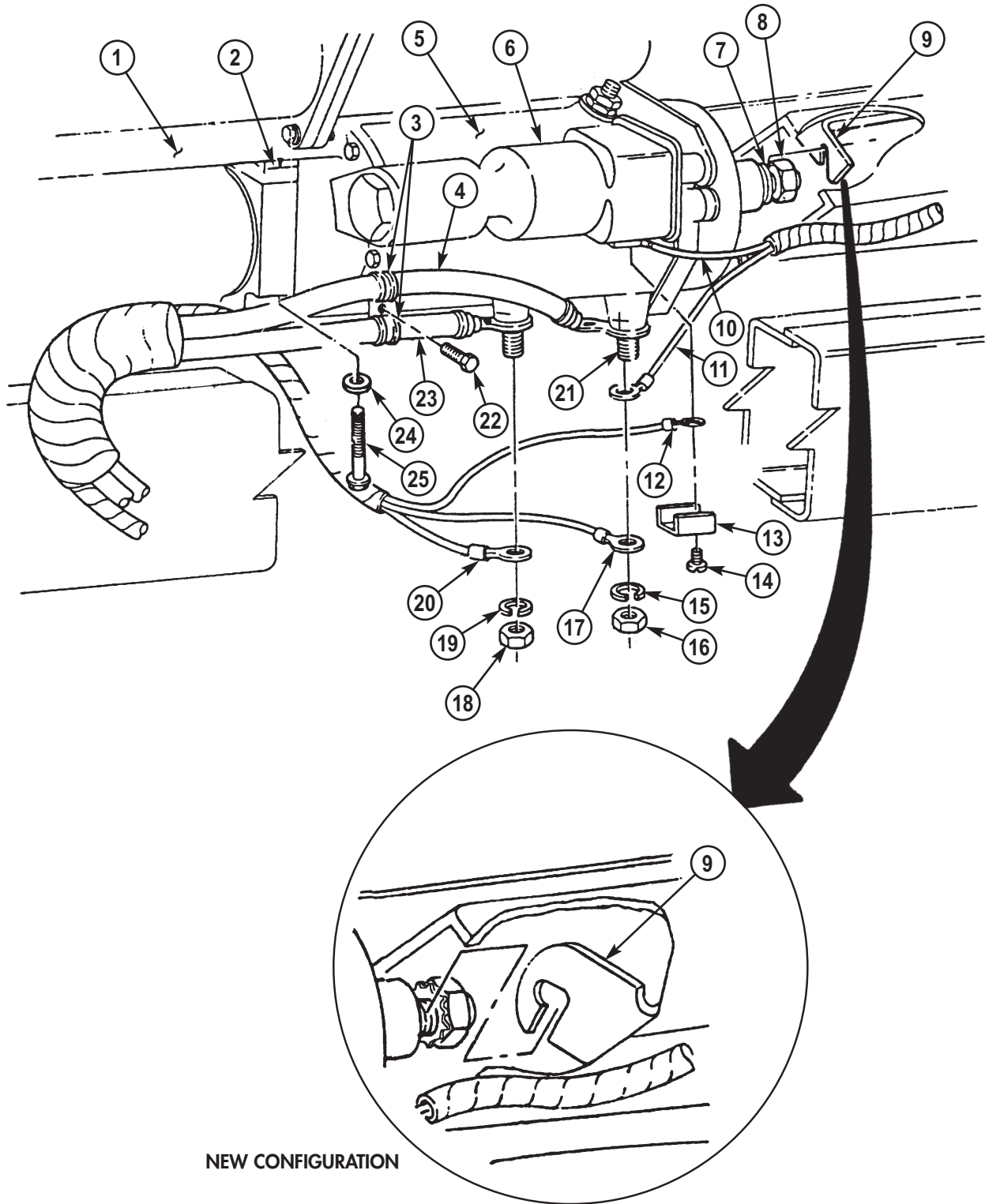
4. Apply sealing compound to capscrews (25). Install two washers (24) and capscrews (25) on starter (5) and engine (1). Tighten capscrews (25) to 30-40 lb-ft (41-54 N•m).
5. Secure starter (5) on bracket (9) with plain-assembled nut (8). Using crowfoot, tighten plain-assembled nut (8) to 15-19 lb-ft (20-26 N•m).
6. Install two clamps (3), and negative cable 7A (23) and positive cable 6A (4), on starter (5) with screw (22).
7. Connect leads 74A (10) and 74B (12) to solenoid (6) with clip (13) and screw (14). Tighten screw (14) to 20 lb-in. (2 N•m).

NOTE

Perform step 8 for all vehicles except M1123 and "A2" series vehicles. Perform step 9 for M1123 and "A2" series vehicles only.

8. Connect positive cable 6A (4) and leads 81A (11) and 81B (17) to starter (5) with lockwasher (15) and nut (16). Using torque adapter, tighten nut (16) to 25-30 lb-ft (34-41 N•m).
- 8.1. Deleted.
9. Connect lead 81B (17) to starter (5) with lockwasher (15) and nut (16). Tighten nut (16) to 25-30 lb-ft (34-41 N•m).
10. Seal positive terminal (21), leads 81B (17) and 81A (11), and positive cable 6A (4) with adhesive sealant. Apply sealant at least 1.8 in. (3.175 mm) thick, covering all exposed metal attached to the positive terminal (21).
11. Connect negative cable 7A (23) and lead 3D (20) to starter (5) with lockwasher (19) and nut (18). Using torque adapter, tighten nut (18) to 15-20 lb-ft (20-27 N•m).

4-8. STARTER REPLACEMENT (Cont'd)



NEW CONFIGURATION

- FOLLOW-ON TASKS:**
- Install converter housing cover (para. 5-19).
 - Install sealed upper converter housing cover (para. 5-18).
 - Connect battery ground cable (para. 4-73).
 - Install arctic heater oil pan shroud (para. 12-48.2).
 - Start engine (TM 9-2320-280-10) and check for smooth starter engagement.

4-9. CIRCUIT BREAKER 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

Two lockwashers (Appendix G, Item 136)

Equipment Condition

Battery ground cable disconnected (para. 4-73).

NOTE

- All circuit breakers are removed and installed basically the same.
- This procedure covers the instrument gauge circuit breaker.
- Prior to removal, tag leads for installation.

a. Removal

1. Loosen nut (1) and lower steering column (2).
2. Disconnect lead 29B (8) and 29D (9) from circuit breaker (6).
3. Remove two nuts (4), lockwashers (5), screws (7), and circuit breaker (6) from column bracket (3). Discard lockwasher (5).

b. Installation

1. Install circuit breaker (6) on column bracket (3) with two screws (7), lockwashers (5) and nuts (4).
2. Connect leads 29B (8) and 29D (9) to circuit breaker (6).
3. Raise steering column (2) and tighten nut (1) to 31 lb-ft (42 N•m).