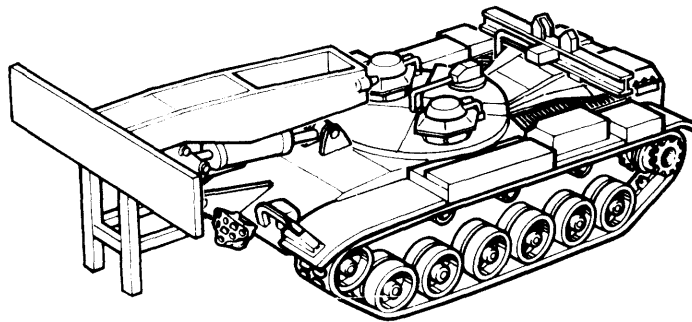


TM 5-5420-202-20-2

TECHNICAL MANUAL

ORGANIZATIONAL
MAINTENANCE



**M60A1 TANK CHASSIS,
TRANSPORTING:
FOR BRIDGE,
ARMORED-VEHICLE-LAUNCHED;
SCISSORING TYPE, CLASS 60
(5420-00-889-2020)**



HEADQUARTERS, DEPARTMENT OF THE ARMY

28 OCTOBER 1985

Technical Manual
No. 5-5420-202-20-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C 28 October 1985

ORGANIZATIONAL MAINTENANCE MANUAL

M60A1 TANK CHASSIS, TRANSPORTING: BRIDGE,
ARMORED-VEHICLE-LAUNCHED: SCISSORING TYPE; CLASS 60

NSN 5420-00-889-2020

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual to: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MBC, Warren, Michigan 48397-5000. A reply will be furnished to you.

TABLE OF CONTENTS

VOLUME 1

	PAGE
HOW TO USE THIS MANUAL	iv
CHAPTER 1 INTRODUCTION	1-1
Section I General Information	1-1
Section II Equipment Description and Data	1-2
CHAPTER 2 PRINCIPLES OF OPERATION	2-1
Section I Integrated Systems Operation	2-1
Section II Systems Operations	2-2
CHAPTER 3 HULL MAINTENANCE	3-1
Section I Repair Parts, Special Tools, TMDE and Support Equipment	3-1
Section II Service Upon Receipt	3-6
Section III Preventive Maintenance Checks and Services (PMCS)	3-7
CHAPTER 4 TROUBLESHOOTING	4-1
Section I General	4-1

★ This manual together with TM 5-5420-202-20-1, TM 5-5420-202-20-3 and TM 5-5420-202-20-4 supersedes TM 5-5420-202-20, 14 January 1976.

TABLE OF CONTENTS - Continued**VOLUME 2**

	PAGE
CHAPTER 5 POWERPLANT MAINTENANCE	5-1
CHAPTER 6 ENGINE MAINTENANCE	6-1
CHAPTER 7 FUEL SYSTEM MAINTENANCE	7-1
CHAPTER 8 EXHAUST SYSTEM MAINTENANCE	8-1
CHAPTER 9 COOLING SYSTEM MAINTENANCE	9-1

VOLUME 3

CHAPTER 10 ELECTRICAL SYSTEM MAINTENANCE	10-1
CHAPTER 11 TRANSMISSION AND SHIFTING MAINTENANCE	11-1
CHAPTER 12 FINAL DRIVE AND UNIVERSAL JOINTS MAINTENANCE	12-1
CHAPTER 13 BRAKE SYSTEM MAINTENANCE	13-1
CHAPTER 14 TRACKS AND SUSPENSION SYSTEM MAINTENANCE	14-1
CHAPTER 15 STEERING SYSTEM MAINTENANCE	15-1
CHAPTER 16 HULL-EXTERIOR MAINTENANCE	16-1

VOLUME 4

CHAPTER 17 HULL-INTERIOR MAINTENANCE	17-1
CHAPTER 18 PERSONNEL HEATER MAINTENANCE	18-1
CHAPTER 19 SPEEDOMETER AND TACHOMETER MAINTENANCE	19-1
CHAPTER 20 FIRE EXTINGUISHER SYSTEM MAINTENANCE	20-1
CHAPTER 21 ENGINE SMOKE GENERATOR SYSTEM MAINTENANCE	21-1
CHAPTER 22 SMOKE GRENADE LAUNCHER MAINTENANCE	22-1
APPENDIX A REFERENCES	A-1
APPENDIX B MAINTENANCE ALLOCATION CHART	B-1
APPENDIX C GENERAL MAINTENANCE	C-1
APPENDIX D EXPENDABLE SUPPLIES AND MATERIALS	D-1

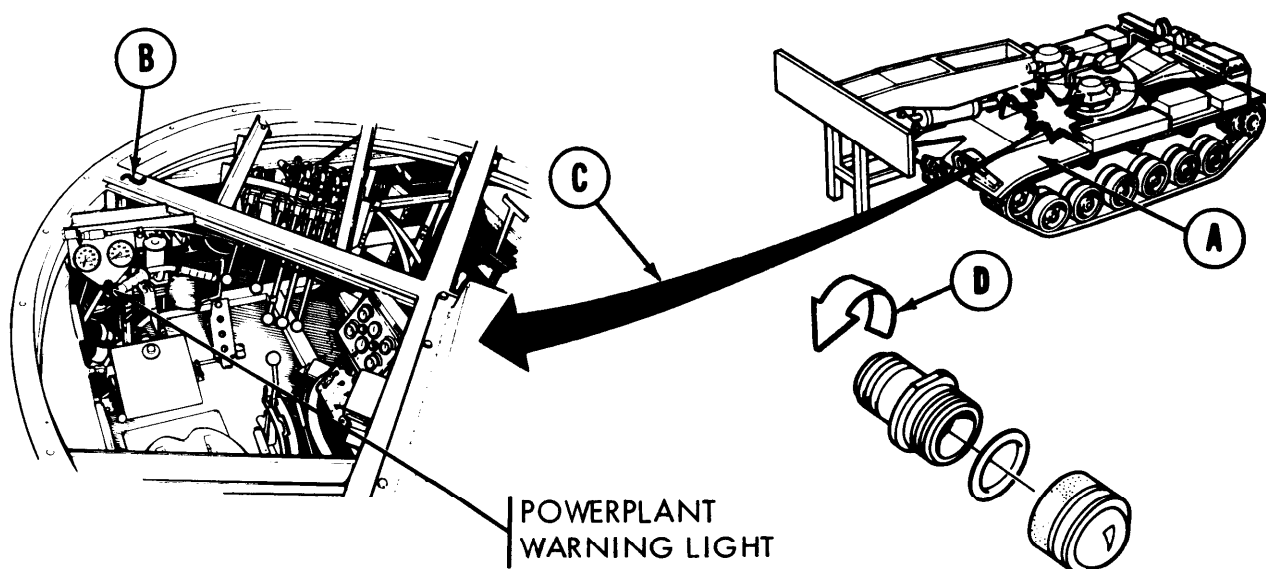
TABLE OF CONTENTS - Continued

VOLUME 4 - Continued

	PAGE
APPENDIX E SCHEMATIC DIAGRAMS	E-1
APPENDIX F ILLUSTRATED LIST OF MANUFACTURED ITEMS	F-1
ALPHABETICAL INDEX	I-1
MAINTENANCE INFORMATION INDEX	MI-1

HOW TO USE THIS MANUAL:

- Manual is divided into chapters.
- Chapters are by functional group code and are presented in same order as the RPSTL (Repair Parts and Special Tools List).
- Procedure indexes are on procedures that are four pages or more, and indicate how the procedure is set up, i.e., disassembly, removal, cleaning, inspection, etc.
- All references within this technical manual refer to page numbers.
- Steps are numbered and are to be performed in that order.
- Be sure to read all NOTES, WARNINGS, and CAUTIONS.
- Locator views are included wherever necessary. These will help you locate the item which the procedure is referencing.
- Jagged circle (✱) on locator (A) indicates a cutout and means the item is inside the vehicle.
- A (⌒) symbol represents the outside surface (B) of a piece of equipment that cannot be shown in its entirety.
- Callouts are shown by a circle with a letter inside.
- Locator arrows (C) are black, and mechanical motion arrows (D) are white.
- Broken leader arrow (--->) indicates the item is either inside or under the vehicle and cannot be seen.



TA247960

HOW TO USE THIS MANUAL - Continued

- An illustrated list of manufactured items includes complete instructions for making items authorized to be manufactured or fabricated and used at organizational maintenance.
- A maintenance information index lists all parts subject to maintenance tasks. It provides the location of all maintenance tasks related to a component in this manual.
- Certain sections of the manual have detailed “how to use” instructions at the beginning of the section - for example troubleshooting.
- As a general maintenance practice, throw away all removed lockwashers, locknuts, and cotter pins, and replace with new lockwashers, locknuts, and cotter pins at installation.

CHAPTER 5

POWERPLANT MAINTENANCE INDEX

PROCEDURE	PAGE
Powerplant Replacement	5-2
Power Take-off Disconnect	5-23
Powerplant Tests (Ground Hop)	5-25

POWERPLANT REPLACEMENT (Sheet 1 of 21)

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	5-2
Installation	5-14

TOOLS: 9/16 in. socket with 1/2 in. drive
 7/16 in. socket with 1/2 in. drive
 Ratchet with 1/2 in. drive
 Flat-tip screwdriver
 Long round nose pliers
 7/16 in. combination box and open end wrench
 11/16 in. combination box and open end wrench
 7/8 in. combination box and open end wrench
 7/8 in. crowfoot with 3/8 in drive
 Diagonal cutting pliers
 3/4 in. socket with 1/2 in. drive
 Spanner wrench
 Pinch bar
 5 in. extension with 1/2 in. drive
 1-1/2 in. socket with 3/4 in. drive
 Ratchet with 3/4 in. drive
 Universal joint with 1/2 in. drive
 Hammer
 Torque wrench with 3/8 in. drive (0-600 lb-in) (0-68 NŽm)
 Torque wrench with 1/2 in. drive (0-175 lb-ft) (0-237 NŽm)
 Torque wrench with 3/4 in. drive (0-600 lb-ft) (0-813 N m)
 Adjustable wrench
 5 ton hoist capable of lifting powerplant 12 ft. high

SPECIAL TOOLS Final drive guide shields (Fig. F-1, Appendix F) (2 required)
 Final drive adapter hook-up tool (Fig. F-4, Appendix F)
 Engine and transmission sling (Item 32, Chapter 3, Section I)

SUPPLIES: Covers for fire extinguisher flexible tubing
 Covers for hydraulic brake line openings
 Covers for fuel lines openings
 Covers for air cleaner hoses and outlets
 Grease (Item 37, Appendix D)
 Lockwire (Item 61, Appendix D)
 Light rope (or heavy masking tape)
 Cotter pins
 Wooden blocks 12 in. x 12 in.
 Lockwashers

PERSONNEL: Three

REFERENCE: TM 5-5420-202-10

NOTE

Use suitable container to catch fuel whenever any fuel line or connection is loosened or disconnected. Use cloth to wipe any spillage. Discard cloth and drained fuel in accordance with local procedures.

Go on to Sheet 2

POWERPLANT REPLACEMENT (Sheet 2 of 21)

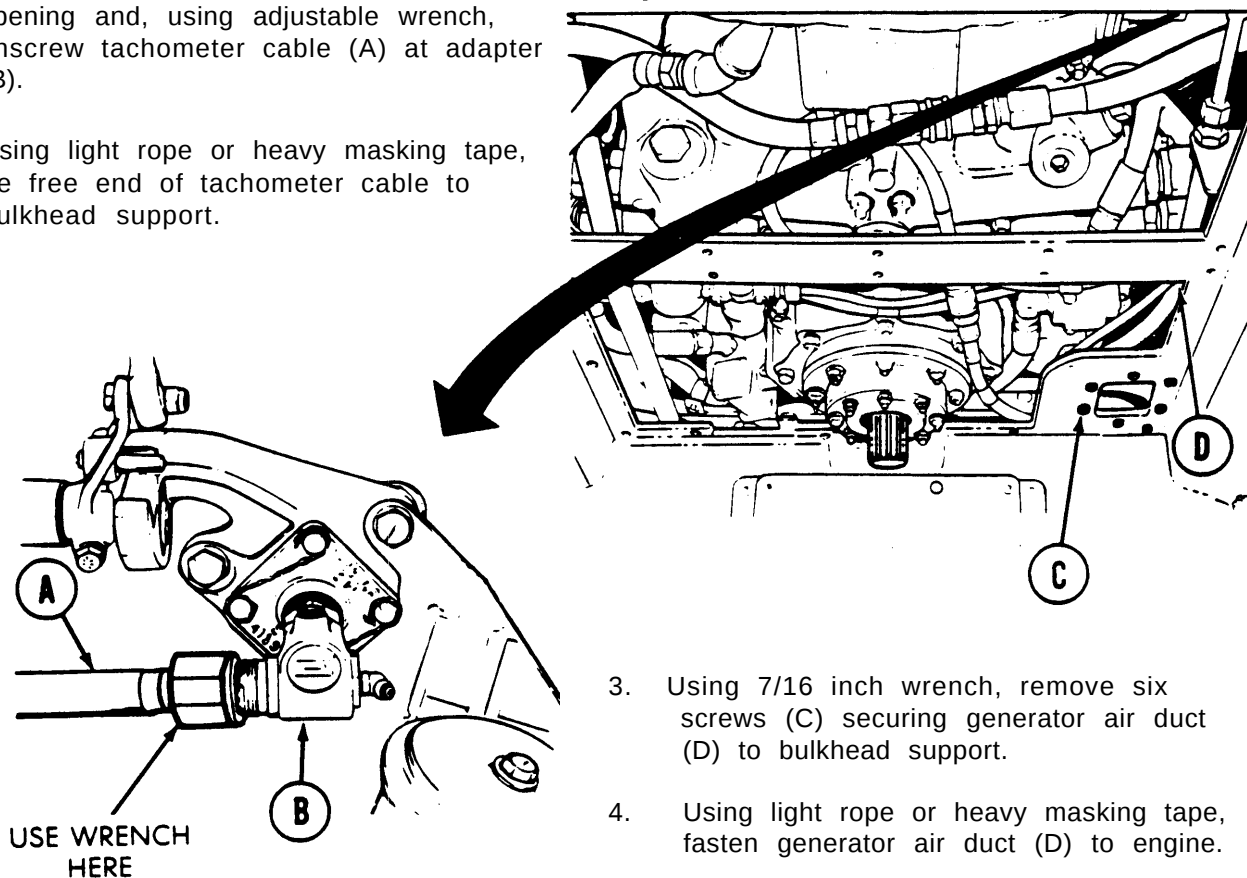
- PRELIMINARY PROCEDURES:**
- Park vehicle on level ground, block both tracks at front and rear (TM 5-5420-202-10)
 - Release parking brake (TM 5-5420-202-10)
 - Place shifting lever in P (park) (TM 5-5420-202-10)
 - Place MASTER BATTERY switch OFF (TM 5-5420-202-10)
 - Disconnect battery ground straps (page 10-268)
 - Remove top deck (page 16-21)
 - Remove transmission shroud (page 9-2)
 - Remove engine upper access cover (page 17-11)
 - Disconnect power take-off (page 5-23)

NOTE

Procedures for the removal and installation of the powerplant equipped with an AVDS 1790-2D or AVDS 1790-2DA are similar. Differences are noted in the procedure.

REMOVAL:

1. Reach through engine access cover opening and, using adjustable wrench, unscrew tachometer cable (A) at adapter (B).
2. Using light rope or heavy masking tape, tie free end of tachometer cable to bulkhead support.

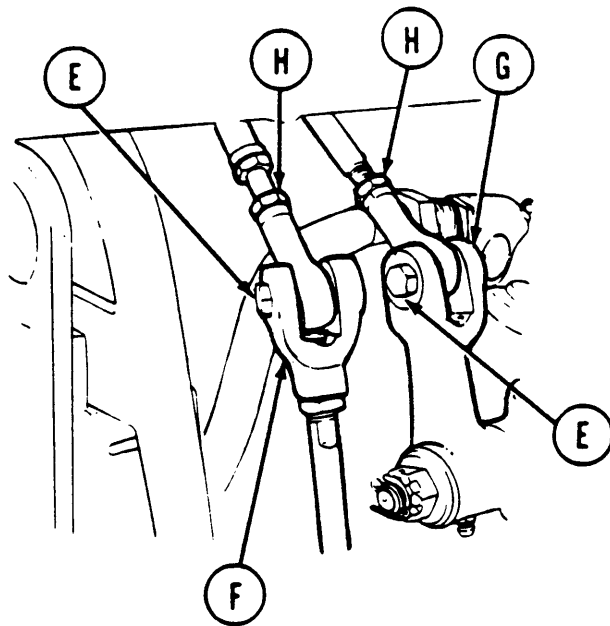


3. Using 7/16 inch wrench, remove six screws (C) securing generator air duct (D) to bulkhead support.
4. Using light rope or heavy masking tape, fasten generator air duct (D) to engine.

Go on to Sheet 3

POWERPLANT REPLACEMENT (Sheet 3 of 21)

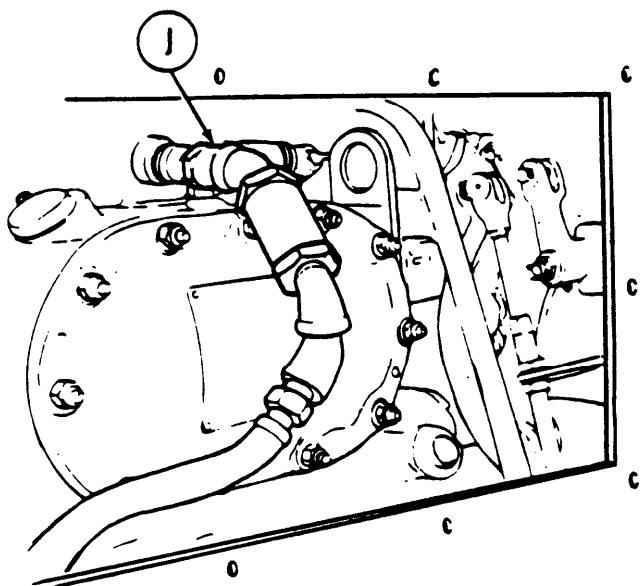
5. Using 7/16 inch box end of wrench, remove two bolts (E) securing manual fuel shutoff clevis (F) and accelerator linkage lever (G) to rod ends (H).
6. Separate accelerator linkage lever (G) and fuel shutoff clevis (F) from two rod ends (H).



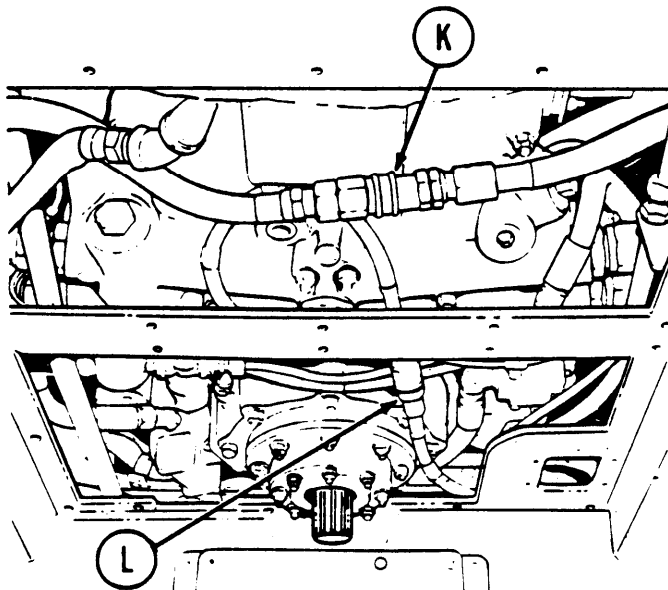
7. Reach through engine access cover opening and disconnect fire extinguisher flexible tubing (J) at quick-disconnect.
8. Tie free end of fuel shutoff clevis (F) and fire extinguisher flexible tubing (J) out of way.

CAUTION

Put protective coverings over fire extinguisher openings.



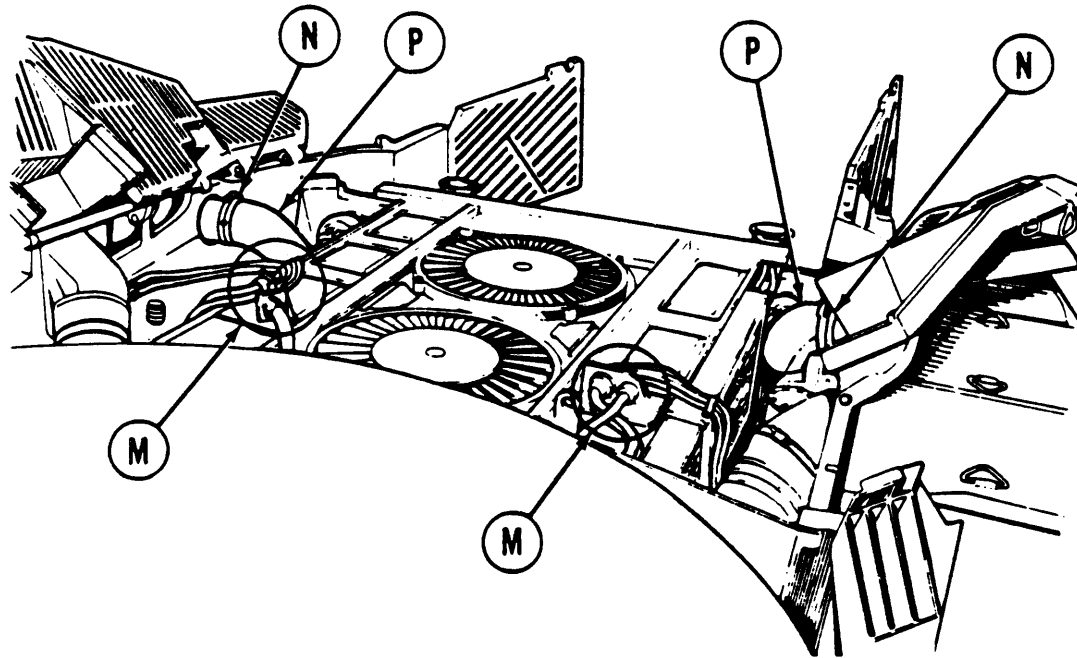
9. Disconnect main fuel line at quick-disconnect fitting (K).
10. Disconnect purge line at quick-disconnect fitting (L).
11. Tie both fuel line and purge hoses out of way at top of powerplant.



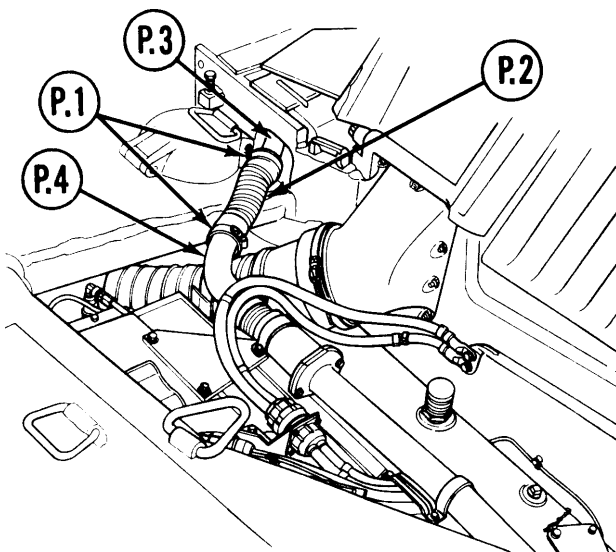
Go on to Sheet 4

TA247963

POWERPLANT REPLACEMENT (Sheet 4 of 21)



12. Using spanner wrench, disconnect four electrical harness connectors (M) at both sides of powerplant.
13. Using screwdriver, loosen two clamps (N) which hold air cleaner outlet hose (P) at each side of powerplant.
14. Disconnect air cleaner outlet hoses (P). Make sure you cover air cleaner outlet hose openings.



NOTE

If your vehicle is equipped with a 2DA engine, do steps 14.1 and 14.2. If not, proceed to step 15.

- 14.1 Using screwdriver, loosen two clamps (P.1).
- 14.2. Slide hose (P.2) off manifold (P.3) and back onto tube (P.4).

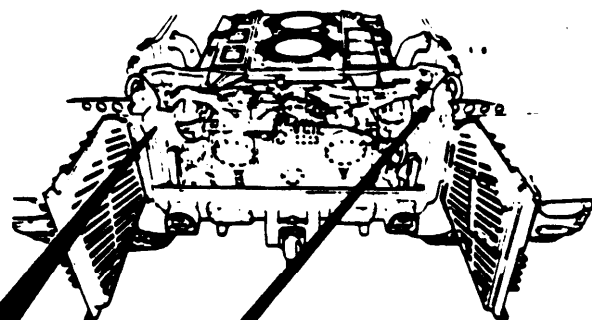
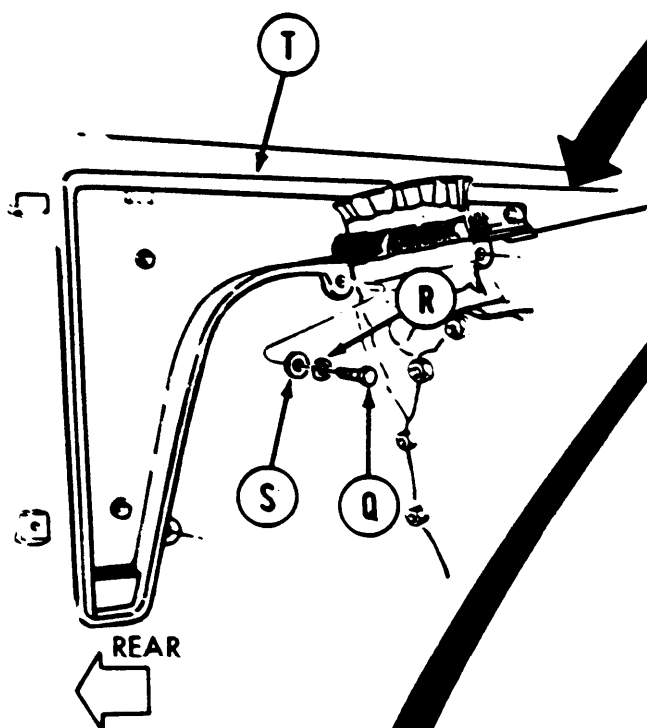
Go on to Sheet 5

POWERPLANT REPLACEMENT (Sheet 5 of 21)

15. Using 9/16 inch socket with ratchet and extension, remove six screws (Q), lockwashers (R), and washers (S) securing two angle brackets (T).

N O T E

One angle bracket is located on each side at rear of vehicle.

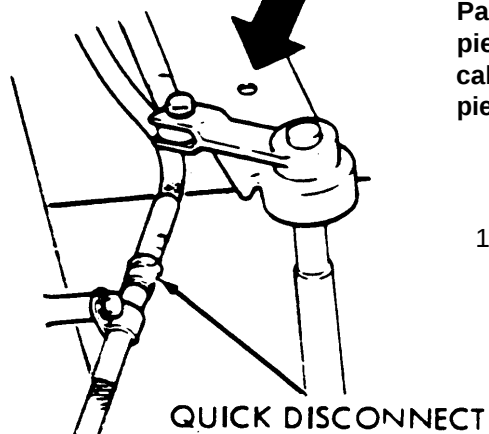


REAR OF VEHICLE

16. Lift up on rear corners of both brackets (T) to remove them.

NOTE

Parking brake cable in engine compartment may be one piece or two piece with quick disconnect. If two piece cable is in your vehicle skip steps 18 through 22. If one piece cable is used skip step 17 and proceed with step 18.



17. Manually turn hex portion of quick disconnect counterclockwise till loose, then displace rear portion of cable.

Go on to Sheet 6

TA247965

POWERPLANT REPLACEMENT (Sheet 6 of 21)

18. Using 9/16 inch socket, remove two screws (U) and lockwashers (V) securing parking brake support bracket. BELLCRANK

19. Using pliers, remove cotter pin (W).

20. Remove straight pin (X). Separate rod end of parking brake control (AB) from bell-crank.

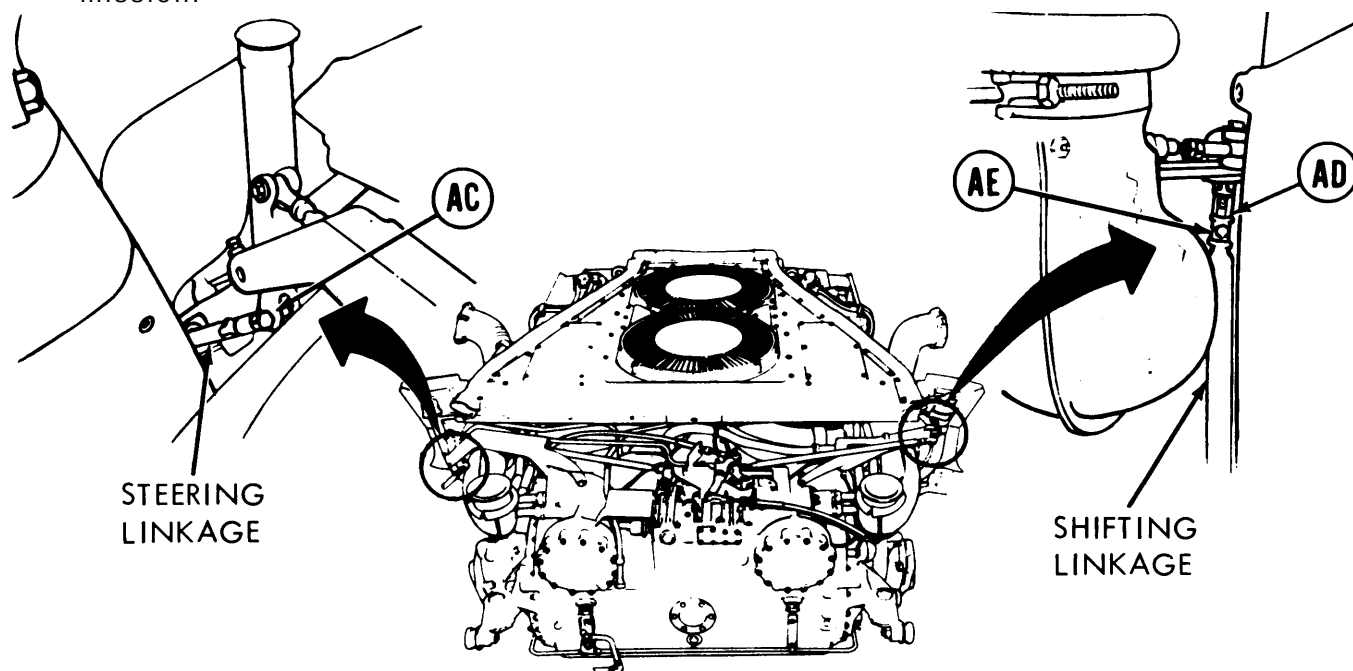
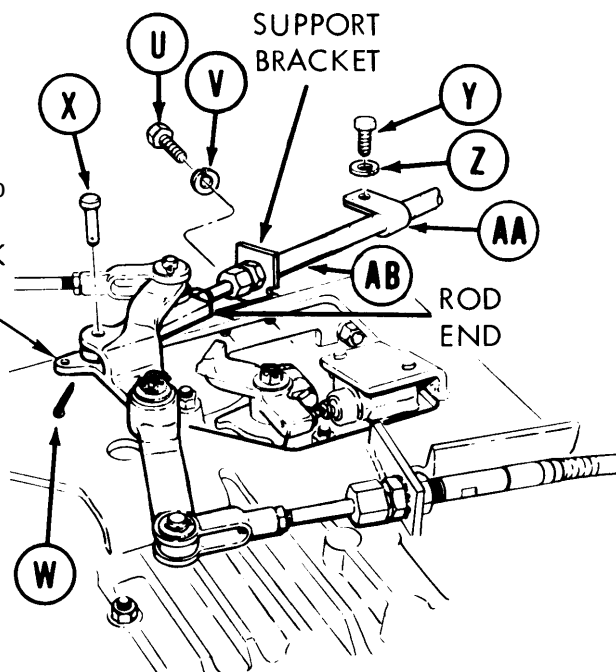
21. Using 7/16 inch wrench, remove screw (Y) and lockwasher (Z) attaching clamp (AA) that secures parking brake control (AB).

22. Move parking brake control (AB) out of way.

23. Using 7/16 inch wrench, remove bolt (AC) securing steering linkage. Displace linkage at left side of transmission.

24. Using cutting pliers, remove lockwire (AD) at right side of transmission.

25. Using 7/16 inch wrench, remove screw (AE) and shifting linkage at right side of transmission.



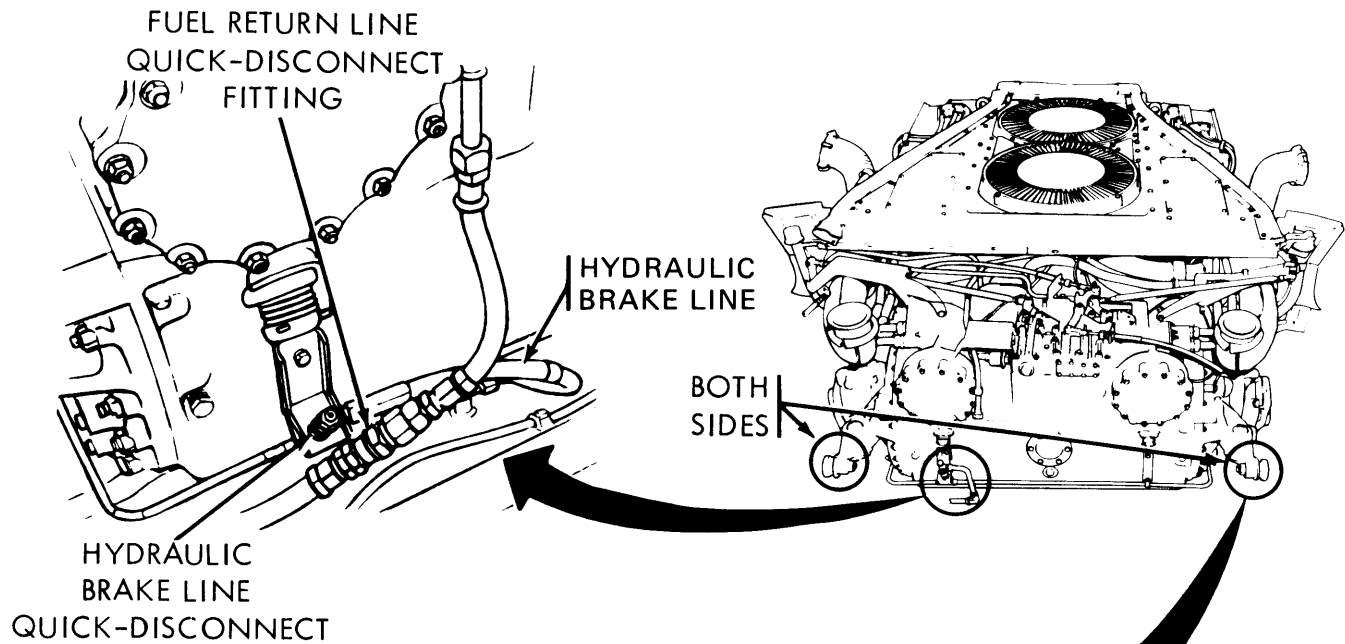
REAR TOP VIEW OF POWERPLANT

Go on to Sheet 7

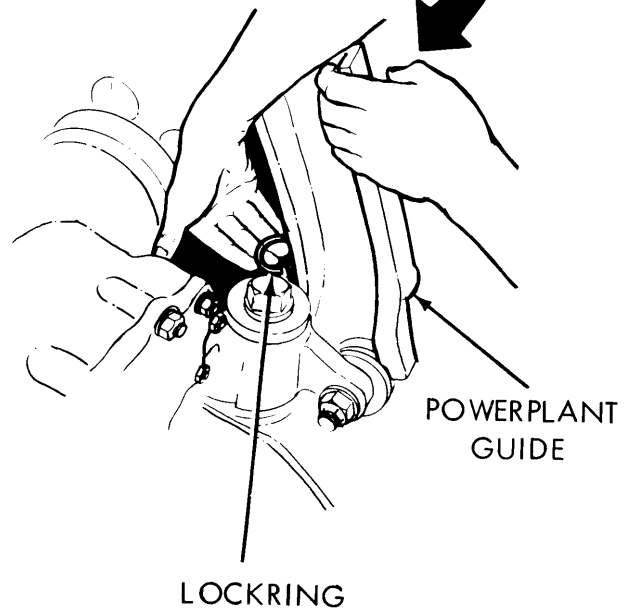
TA247966

POWERPLANT REPLACEMENT (Sheet 7 of 21)

26. Pull back on quick-disconnect to separate fuel return line at fitting. Cover openings.



27. Disconnect hydraulic brake line at quick-disconnect fitting.
28. Cover brake line opening so dirt cannot enter.
29. Pull locking out to unlock powerplant guide. Swing guide backward. Do this at both sides.

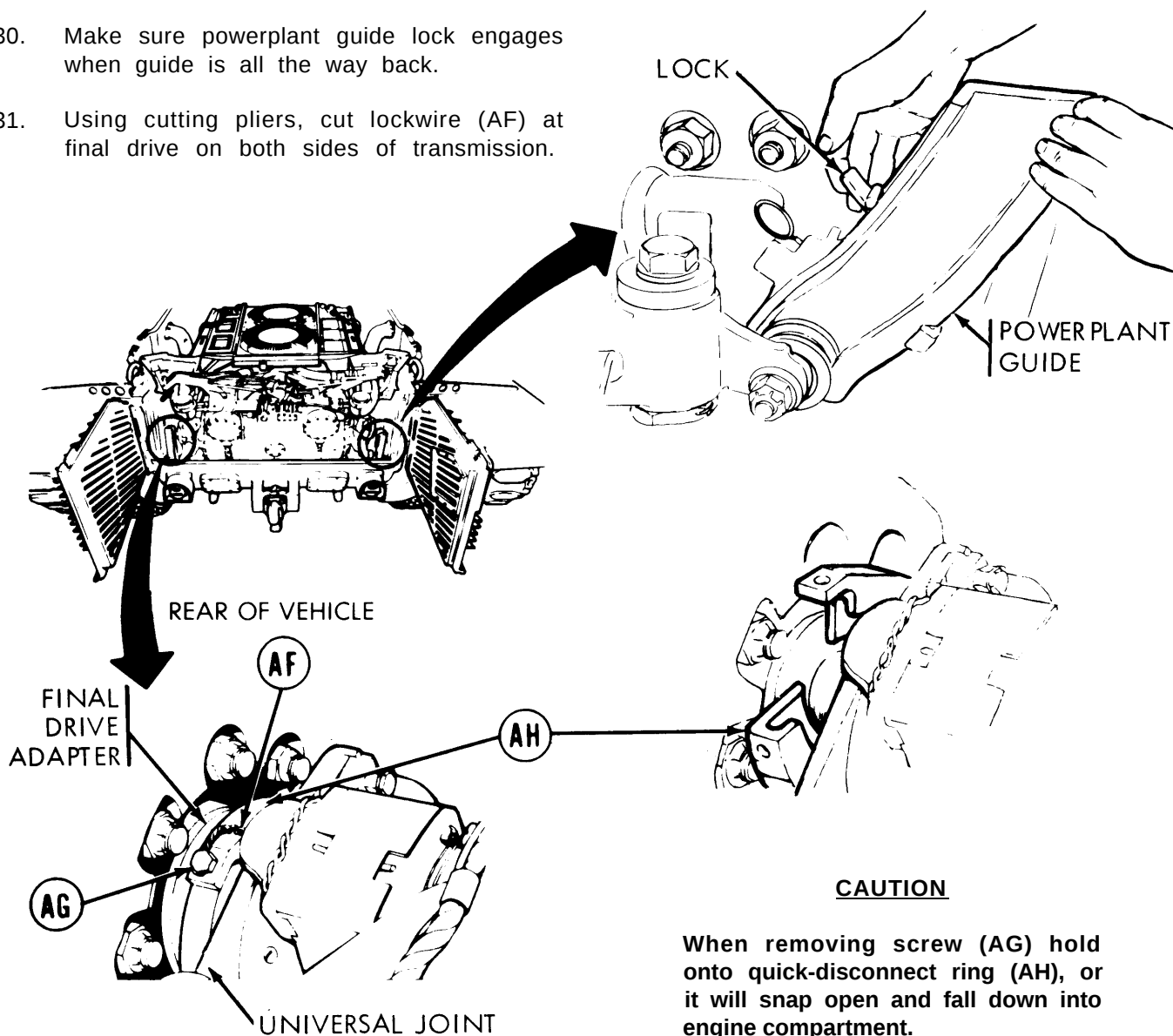


Go on to Sheet 8

TA247967

POWERPLANT REPLACEMENT (Sheet 8 of 21)

30. Make sure powerplant guide lock engages when guide is all the way back.
31. Using cutting pliers, cut lockwire (AF) at final drive on both sides of transmission.



32. Using 3/4 inch socket with universal joint, remove screw (AG) securing quick-disconnect ring (AH) from both sides of transmission.
33. Remove ring (AH) from both sides of transmission.

Go on to Sheet 9

TA247968