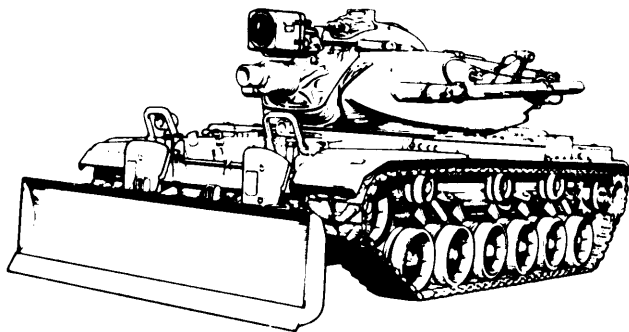


TECHNICAL MANUAL
ORGANIZATIONAL MAINTENANCE
VOLUME 3 OF 5
CHAPTERS 5 THRU 9



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

COMBAT ENGINEER VEHICLE,
FULL-TRACKED, M728
2350-00-795-1797
(HULL)

This copy is a reprint which includes current
pages from Changes 1 thru 4

TA141003

Technical Manual
No. 9-2350-222-20-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C., 20 February 1981

ORGANIZATIONAL MAINTENANCE
COMBAT ENGINEER VEHICLE
FULL TRACKED, M728
NSN (2350-00-795-1797)
(HULL)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake 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 direct 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	iii
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. Functional Description	2-1
Section	II. Systems Operation	2-1
CHAPTER	3. HULL MAINTENANCE INSTRUCTIONS	3-1
Section	I. Repair Parts, Special Tools, TMDE, and Support Equipment	3-1
Section	II. Service Upon Receipt	3-5
Section	III. Preventive Maintenance Checks and Services - Hull (Automotive)	3-7

VOLUME 2

CHAPTER	4. TROUBLESHOOTING	4-1
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VOLUME 3

CHAPTER	5. POWERPLANT MAINTENANCE	5-1
CHAPTER	6. ENGINE MAINTENANCE	6-1

*This manual, together with TM 9-2350-222-20-1-1, 20 February 1981, TM 9-2350-222-20-1-2, 20 February 1981, TM 9-2350-222-20-1-4, 20 February 1981, and TM 9-2350-222-20-1-5, 20 February 1981, supersedes TM 9-2350-222-20, 27 September 1965, including all changes.

TABLE OF CONTENTS - Continued

Page

CHAPTER	7.	FUEL SYSTEM MAINTENANCE	7-1
CHAPTER	8.	EXHAUST SYSTEM MAINTENANCE	8-1
CHAPTER	9.	COOLING SYSTEM	9-1

VOLUME 4

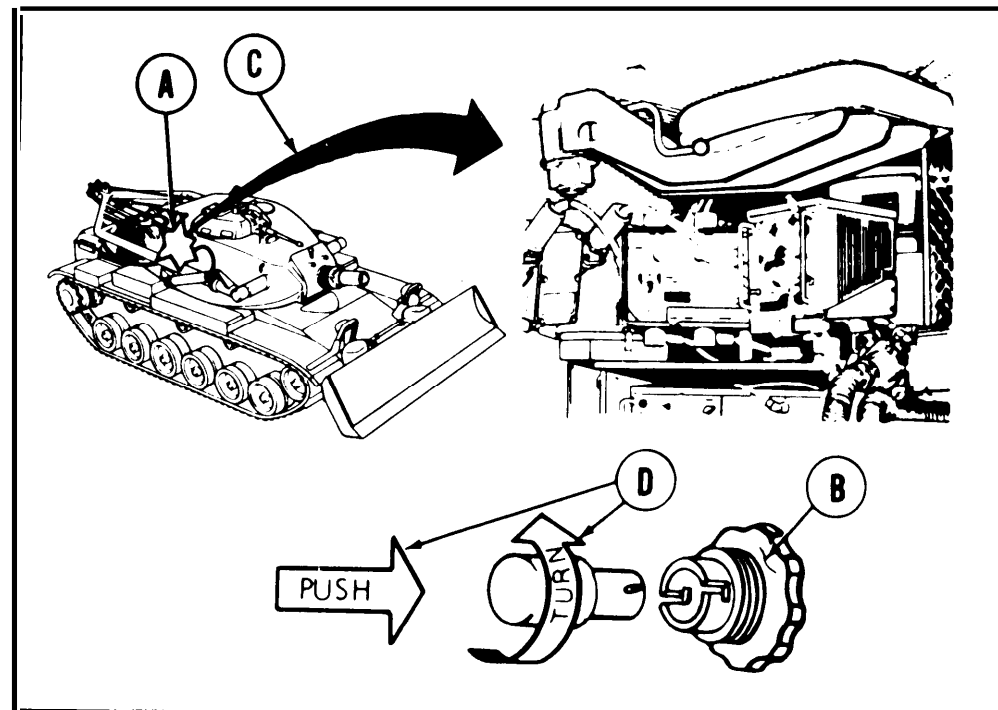
CHAPTER	10.	ELECTRICAL SYSTEM MAINTENANCE.	10-1
CHAPTER	11.	TRANSMISSION AND SHIFTING MAINTENANCE	11-1
CHAPTER	12.	FINAL DRIVE AND UNIVERSAL JOINTS MAINTENANCE	12-1
CHAPTER	13.	BRAKE SYSTEM MAINTENANCE.. . . .	13-1
CHAPTER	14.	TRACKS AND SUSPENSION SYSTEM MAINTENANCE	14-1
CHAPTER	15.	STEERING CONTROL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

VOLUME 5

CHAPTER	16.	EXTERIOR HULL MAINTENANCE.. . . .	16-1
CHAPTER	17.	INTERIOR HULL MAINTENANCE.. . . .	17-1
CHAPTER	18.	HYDRAULIC SYSTEM	18-1
CHAPTER	19.	PERSONNEL HEATER MAINTENANCE	19-1
CHAPTER	19.1	BILGE PUMP AND GENERATOR EXHAUST MAINTENANCE . . .	19.1-1
CHAPTER	20.	SPEEDOMETER AND TACHOMETER MAINTENANCE	20-1
CHAPTER	21.	FIRE EXTINGUISHER SYSTEM MAINTENANCE	21-1
CHAPTER	22.	GAS PARTICULATE SYSTEM MAINTENANCE	22-1
CHAPTER	23.	SMOKE GENERATOR MAINTENANCE	23-1
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
APPENDIX	E.	ELECTRICAL SCHEMATICS	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:

- This manual is divided into chapters.
- Chapters are by functional group code and are presented in same order as the RPSTL (Repair Parts and Special Tool 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 and inspection, etc.
- All manual 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 for 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.



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HOW TO USE THIS MANUAL - Continued

- Certain sections of the manual have detailed 'how to use' instructions at the beginning of the section - for example, troubleshooting.
- A maintenance information index is located in back of this manual. It is set up in alphabetical order and maintenance function, for example, disassemble, clean, inspect, repair, remove, install, assemble, and test.
- An illustrated list of manufactured items, or better known as fabricated tools, is located in back of this manual. It is nothing more than direction on how to fabricate tools that are listed throughout the manual.

CHAPTER 5
POWERPLANT MAINTENANCE INDEX

PROCEDURE	PAGE
Powerplant Replacement (2D Engine)	5-25
2D Engine Powerplant Tests (Ground Hop)	5-48

POWERPLANT REPLACEMENT (2D ENGINE) (Sheet 1 of 23)

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	5-26
Installation	5-37

TOOLS: 5 ton hoist or comparable lifting device capable of lifting powerplant 12 ft. high
 Ratchet with 1/2 in. drive
 2 in. extension with 1/2 in. drive
 9/16 in. socket with 1/2 in. drive
 Ratchet with 3/4 in. drive
 1-1/2 in. socket with 3/4 in. drive
 Torque wrench with 3/4 in. drive (0-600 lb-ft) (0-813 N.m)
 7/16 in. combination box and open end wrench
 11/16 in. combination box and open end wrench
 5/16 in. combination box and open end wrench
 Adjustable wrench
 Spanner wrench
 Long round nose pliers
 Flat-tip screwdriver
 9/16 in. combination box and open end wrench
 3/8 in. combination box and open end wrench

SPECIAL TOOLS: Engine and transmission sling (Item 31, Chapter 3, Section I)

FABRICATED TOOLS: Final drive guide shield (Fig F-1, Appendix F) (2 required)
 Final drive adapter hook-up tool (Fig F-4, Appendix F)

SUPPLIES:	Covers for fire extinguisher tubing fittings	Rubber gloves (Item 73, Appendix D)
	Covers for primary fuel line fittings	Plastic caps
	Covers for hydraulic brake line fittings	Goggles (Item 74, Appendix D)
	Covers for fuel return line fittings	Rags (Item 65, Appendix D)
	Covers for air cleaner outlet hose connect points	Dry cleaning solvent (Item 54, Appendix D)
	Covers for fire extinguisher elbows (3 required)	
	Grease (Item 36, Appendix D)	
	Small rope	
	Wooden blocks, 12 in. x 12 in. x 14 in. (3 required)	
	Masking tape (Item 57, Appendix D)	
	Lockwasher (10 required)	
	Lockwasher (2 required)	
	Cotter pin	

PERSONNEL: Three

REFERENCE: TM 9-2350-222-10

Go on to Sheet 2

POWERPLANT REPLACEMENT (2D ENGINE) (Sheet 2 of 23)

PRELIMINARY PROCEDURES: Park vehicle on level ground, block both tracks at front and rear
Release parking brake (TM 9-2350-222-10)
Place MASTER BATTERY switch to OFF (TM 9-2350-222-10)
Disconnect battery ground straps (page 10-283)
Remove lower engine access cover (page 16-41)
Remove top deck (page 16-21)
Remove transmission shroud (page 9-20)
Remove right angle drive, pump and clutch (page 18-100)
Remove engine shroud (page 9-2)

REMOVAL:

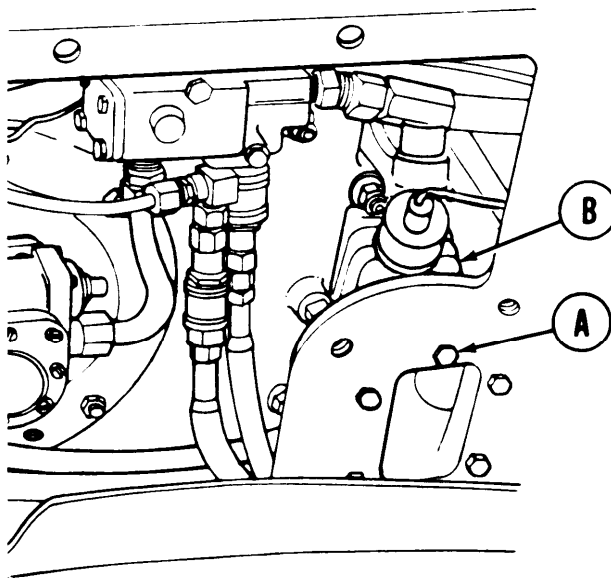
NOTE

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

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read 'NO SMOKING WITHIN 50 FEET OF VEHICLE.'

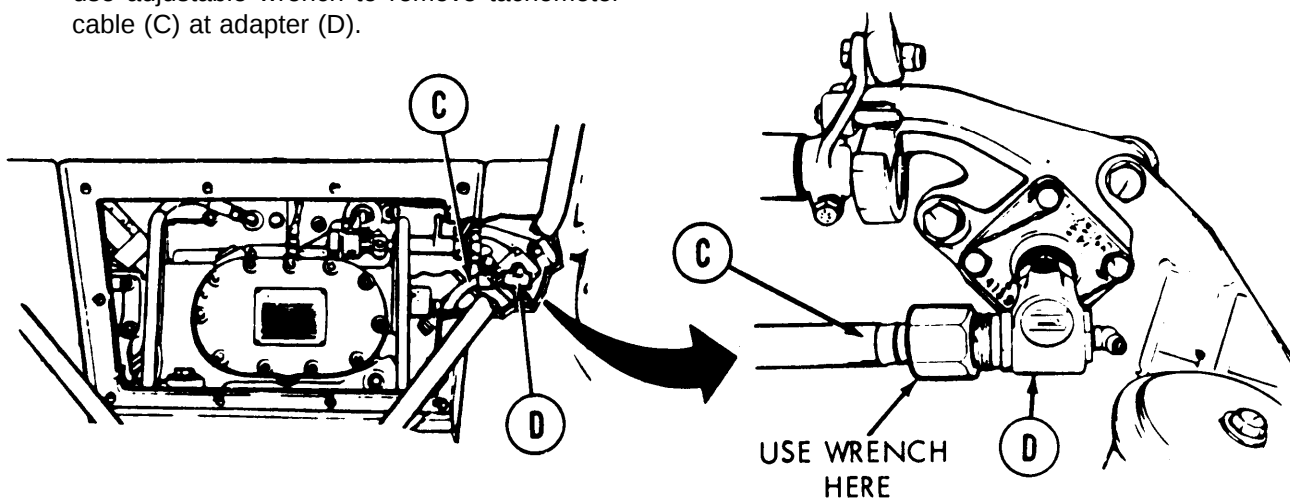
1. Using 7/16 inch wrench, remove six screws (A) holding generator air duct (B) to bulkhead wall
2. Fasten generator air duct (B) to engine with light rope or heavy masking tape.



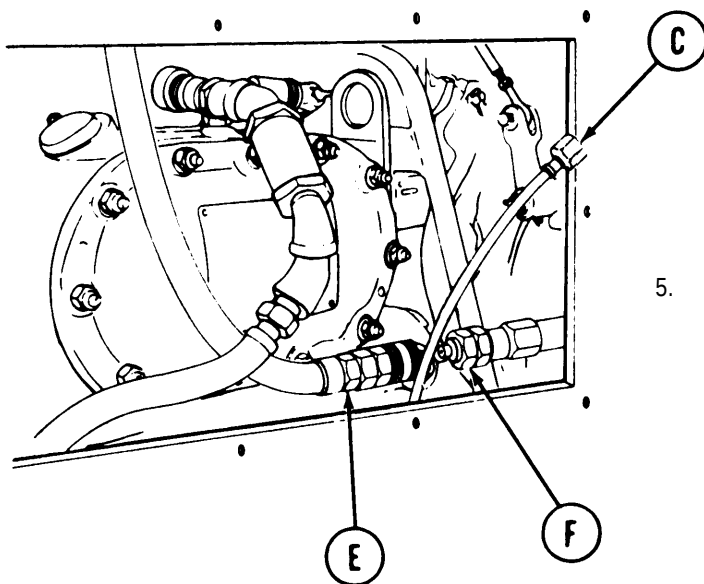
Go on to Sheet 3

POWERPLANT REPLACEMENT (2D ENGINE) (Sheet 3 of 23)

3. Reaching through engine access cover opening, use adjustable wrench to remove tachometer cable (C) at adapter (D).



4. Using light rope or heavy masking tape, tie free end of tachometer cable (C) to inside of turret.



5. Reaching through engine access cover opening, manually disconnect main fuel line (E) at quick-disconnect fitting (F). Put protective coverings on ends of fuel line (E) and quick-disconnect fitting (F).

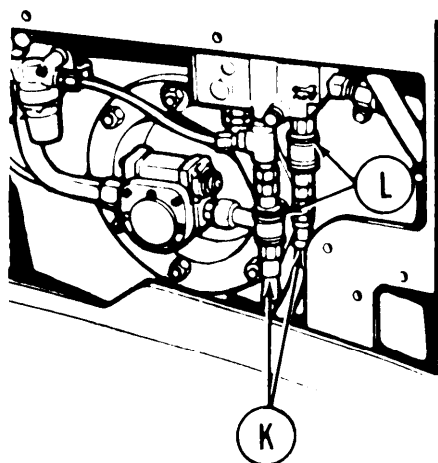
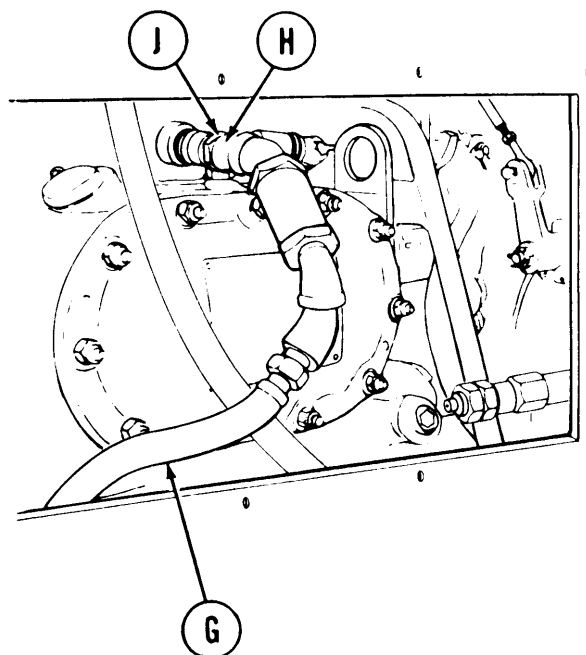
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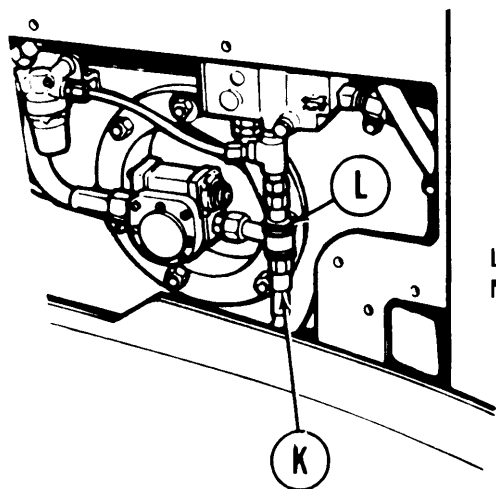
Change 1 5-27

POWERPLANT REPLACEMENT (2D ENGINE) (Sheet 4 of 23)

6. Reaching through engine access cover opening, manually disconnect fire extinguisher tubing (G) at quick-disconnect fitting (H).
7. Using light rope or heavy masking tape, tie free end of fire extinguisher tubing (G) out of the way.
8. Reaching through engine access cover opening, put protective coverings over end of fire extinguisher tubing (G) and its connect point (J) at the engine.



EARLY
MODEL



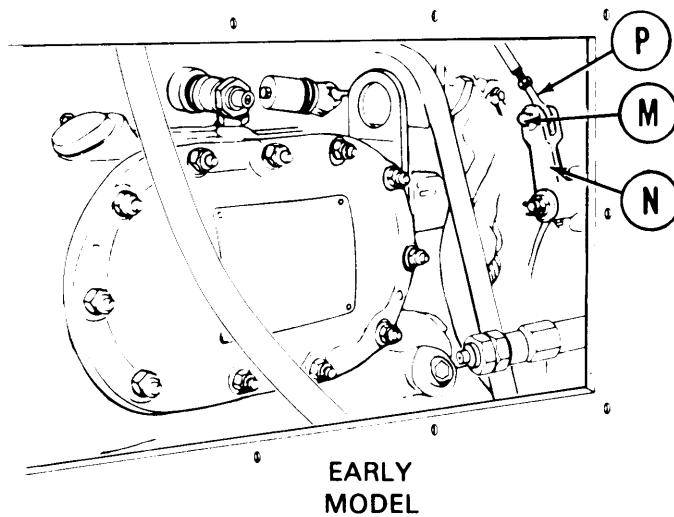
LATE
MODEL

9. On early model, reach through lower engine access cover opening and manually disconnect two priming fuel lines (K) at quick-disconnect fittings (L). Put protective coverings over open ends of both fittings (L) and (K).
- 9.1. On late model, reach through lower engine access cover opening and manually disconnect priming fuel line (K) at quick-disconnect fitting (L). Put protective covering over open end of fitting (L) and (K).

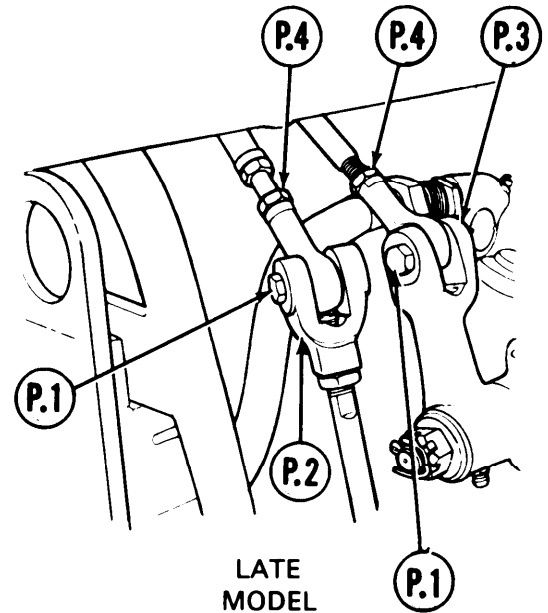
Go on to Sheet 5

TA253167

POWERPLANT REPLACEMENT (2D ENGINE) (Sheet 5 of 23)

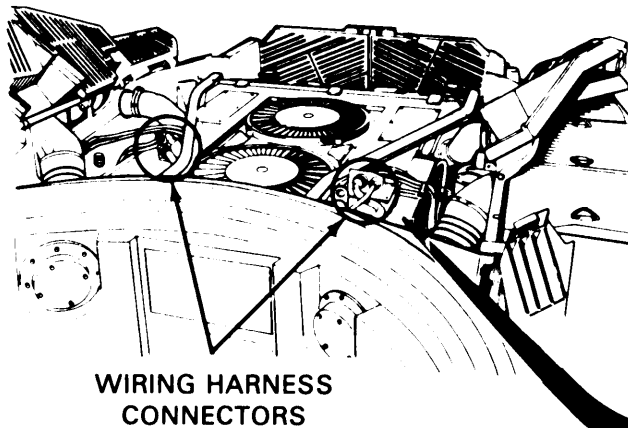


10. On early model, reach through engine access cover opening and use 7/16 inch wrench to remove bolt (M) holding accelerator linkage clevis (N) to rod end (P).

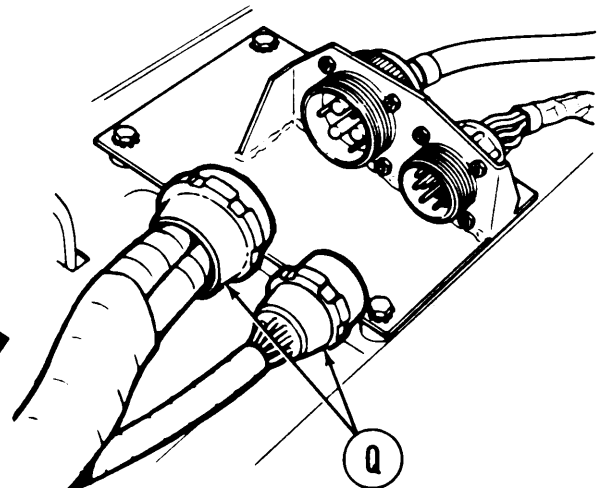


- 10.1. On late model, reach through engine access cover opening and use 7/16 inch wrench to remove two bolts (P. 1) securing manual fuel shutoff clevis (P.2) and accelerator linkage lever (P.3) to rod ends (P.4).

- 10.2. On late model, separate accelerator linkage lever (P.3) and fuel shutoff clevis (P.2) from two rod ends (P.4).



11. Using spanner wrench, remove four electrical harness connectors (Q).



12. Using light rope or heavy masking tape, tie electrical connectors out of way of powerplant.

Go on to Sheet 5.1

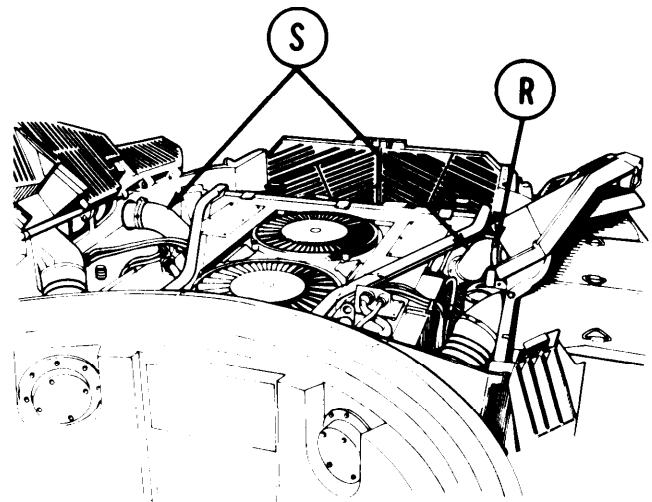
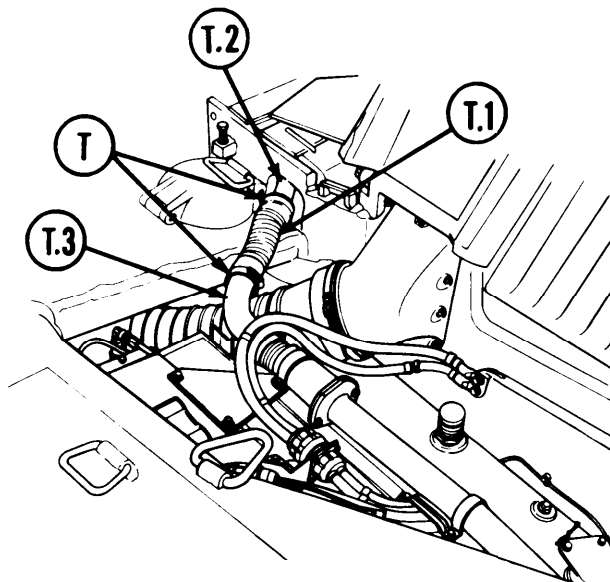
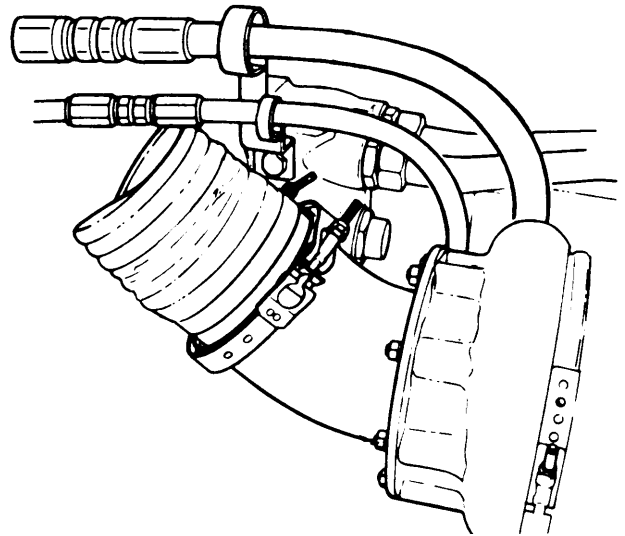
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POWERPLANT REPLACEMENT (2D ENGINE) (Sheet 5.1 of 23)

13. Using screwdriver, loosen two clamps (R) securing two air cleaner outlet hoses (S).
14. Disconnect two air cleaner hoses (S). Cover hose end 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 (T).
- 14.2. Slide hose (T.1) off manifold (T.2) and back onto tube (T.3).

Go on to Sheet 6

TA249052