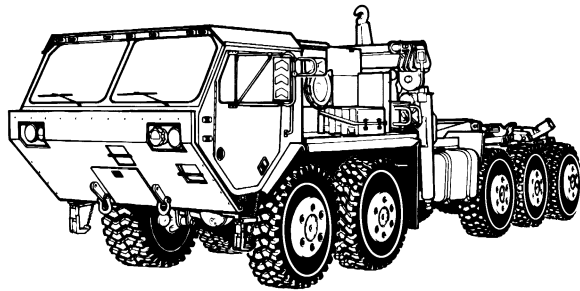


TECHNICAL MANUAL

## DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE VOLUME II

### PALLETIZED LOAD SYSTEM



#### MODEL M1074/M1075

NSN 2320-01-304-2277  
NSN 2320-01-304-2278

ENGINE MAINTENANCE	3-1
FUEL SYSTEM MAINTENANCE	4-1
COOLING SYSTEM MAINTENANCE	5-1
ELECTRICAL SYSTEM MAINTENANCE	6-1
TRANSMISSION MAINTENANCE	7-1
TRANSFER CASE MAINTENANCE	8-1
AXLE MAINTENANCE	9-1
BRAKE SYSTEM MAINTENANCE	10-1
WHEELS AND TIRES MAINTENANCE	11-1
STEERING SYSTEM MAINTENANCE	12-1
REFERENCES	A-1
EXPENDABLE SUPPLIES AND MATERIALS	B-1
MANUFACTURED ITEMS	C-1
TORQUE LIMITS	D-1
MANDATORY REPLACEMENT PARTS	E-1
TOOL IDENTIFICATION LIST	F-1

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# Direct Support and General Support Maintenance Manual

## PALLETIZED LOAD SYSTEM

MODEL M1074/M1075  
NSN 2320-01-304-2277  
NSN 2320-01-304-2278

Current as of 01 August 1999

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## TABLE OF CONTENTS

	Page
CHAPTER 3    ENGINE MAINTENANCE .....	3-1
CHAPTER 4    FUEL SYSTEM MAINTENANCE .....	4-1
CHAPTER 5    COOLING SYSTEM MAINTENANCE .....	5-1
CHAPTER 6    ELECTRICAL SYSTEM MAINTENANCE .....	6-1
CHAPTER 7    TRANSMISSION MAINTENANCE .....	7-1
CHAPTER 8    TRANSFER CASE MAINTENANCE .....	8-1
CHAPTER 9    AXLE MAINTENANCE .....	9-1
CHAPTER 10    BRAKE SYSTEM MAINTENANCE .....	10-1
CHAPTER 11    WHEEL AND TIRE MAINTENANCE .....	11-1
CHAPTER 12    STEERING SYSTEM MAINTENANCE .....	12-1

\* This manual supersedes TM 9-2320-364-34-2, 25 February 1994.

## TABLE OF CONTENTS (CONT).

		<b>Page</b>
APPENDIX A	REFERENCES .....	A-1
APPENDIX B	EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST .....	B-1
APPENDIX C	ILLUSTRATED LIST OF MANUFACTURED ITEMS .....	C-1
APPENDIX D	TORQUE LIMITS .....	D-1
APPENDIX E	MANDATORY REPLACEMENT PARTS .....	E-1
APPENDIX F	TOOL IDENTIFICATION LIST .....	F-1
INDEX .....	INDEX-1	
SCHMATICS .....		SCHMTC-1
Section I	145 Amp Alternator and DDEC II Engine	
Section II	200 Amp Alternator and DDEC III Engine	

## HOW TO USE THIS MANUAL

This manual is designed to help maintain the Model M1074/M1075 Palletized Load System (PLS) truck. Listed below are some special features included in this manual to help locate and use the needed information:

- A front cover table of contents is provided for quick reference to chapters and sections that will be used often.
- Warning, caution, and note headings, subject headings, and other essential information are printed in bold type making them easier to see.
- The maintenance tasks describe what must be done to the truck before starting the task (Equipment Condition), and what must be done to return the vehicle to operating condition after the task is finished (Follow-On Maintenance).
- The Appendixes are located at the end of the manual. They contain a reference guide to other manuals, a list of expendable supplies and materials, and other material for maintaining the PLS truck.
- In addition to text, there are exploded-view illustrations showing how to take a component off and put it back on. Cleaning and inspection procedures are also included as required.
- Chapter 3 through 19 of this manual covers Direct Support Maintenance for each PLS truck.

Follow these guidelines when using this manual:

- Read all WARNINGS and CAUTIONS before performing any procedure.
- The equipment conditions found in the maintenance procedures are of a general nature and the mechanic may be able to perform only certain steps within a procedure to accomplish the equipment condition.

## CHAPTER 3

### ENGINE MAINTENANCE

Para	Contents	Page
3-1	Direct Support Engine Maintenance Introduction .....	3-1
3-2	Engine Adjustments .....	3-3
3-3	Engine Testing .....	3-10
3-4	Engine/Transmission Assembly Replacement .....	3-16
3-5	Engine/Transmission Separation .....	3-48
3-6	Engine Lifting Brackets Replacement .....	3-57
3-7	Cylinder Head Assembly Replacement .....	3-62
3-8	Expansion Plug Replacement .....	3-79
3-9	Crankshaft Pulley Replacement .....	3-83
3-10	Vibration Damper/Front Balance Cover Replacement .....	3-86
3-11	Vibration Damper Replacement .....	3-92
3-12	Crankcase Front Cover And Oil Seal Replacement .....	3-96
3-13	Flex Plate And Hub Replacement .....	3-103
3-14	Rear Oil Seal/Sleeve Replacement .....	3-106
3-15	Air Box Cover And Gasket Replacement .....	3-111
3-16	Air Box Drain Replacement .....	3-113
3-17	Exhaust Valve Bridge Replacement .....	3-115
3-18	Exhaust Valve Replacement .....	3-118
3-19	Push Rod And Cam Follower Replacement .....	3-121
3-20	Rocker Arm Replacement .....	3-125
3-21	DDEC Speed Sensor Pulse Wheel Replacement .....	3-128
3-22	Engine Oil Pan And Gasket Replacement .....	3-132
3-23	Engine Oil Breather And Hoses Replacement .....	3-141
3-24	Engine Oil Filler Tube Replacement .....	3-145
3-25	Engine Oil Dipstick And Dipstick Tube Replacement .....	3-148
3-26	Engine Oil Pump Repair .....	3-151
3-27	Engine Oil Pressure Regulator Valve Replacement .....	3-158
3-28	Engine Oil Pressure Relief Valve Replacement .....	3-160
3-29	Engine Oil Cooler Assembly Replacement .....	3-162
3-30	Engine Oil Cooler Adapter Replacement .....	3-169
3-31	Exhaust Manifold Replacement .....	3-175
3-32	Engine Brake Retarder Replacement .....	3-179
3-33	Shipping Container, Engine Assembly Replacement .....	3-183

#### 3-1. DIRECT SUPPORT ENGINE MAINTENANCE INTRODUCTION.

This chapter contains maintenance instructions for repairing, replacing, installing, and servicing engine components as authorized by the Maintenance Allocation Chart (MAC) at the Direct Support Maintenance level.

- a.** Follow these maintenance instructions when removing and installing the engine and engine components:
- (1) When unpacking items, remove packing material (for example: barrier paper, tape, plastic bags, and protective caps).
  - (2) Cap or tape over engine inlets and exhaust ducts to prevent foreign objects from getting inside the engine. Keep dust, dirt and other objects out of internal parts of the engine.

### 3-1. DIRECT SUPPORT ENGINE MAINTENANCE INTRODUCTION (CONT).

#### **CAUTION**

Do not use tape to close off fuel or oil openings. Sticky surface of tape will mix with fuel or oil and will get in the engine lines.

- (3) Cap or tape over open tubes, hoses, fittings and engine openings as soon as parts are taken off.
- (4) Use suitable container to catch oil and coolant when removing hoses, fittings and plugs.
- (5) Handle and store removed engine components carefully.
- (6) Inspect parts as removed for breaks, dents, cracks, surface defects or other obvious damage. Turn in bad parts. Set aside good parts for later use.
- (7) When possible, replace gaskets, packings and seals removed during repair work. Replace lockwire, lockwashers and cotter pins at time of reassembly.
- (8) Replace broken, worn or burned electrical wiring.
- (9) Replace broken, frayed, crimped or soft flexible hoses. Replace stripped or damaged fittings. Replace entire connected flexible hoses if fittings are damaged.
- (10) Tag and mark shims, connectors, wires, valves, fittings and mating ends of lines before disconnecting or removing. Identify similar parts to ensure correct assembly.
- (11) Use hoists, jacks and other aids when lifting engine.

**b.** Follow these inspection instructions when removing and installing the engine:

- (1) Inspect mounting surfaces and surfaces in contact with gaskets, seals or machined surfaces. Look for burrs or scratches which might damage parts or seals upon installation. Remove any defects found.
- (2) Remove drain plugs from engine system components and inspect sediment sticking to plug. Grit or fine metal particles may indicate actual or potential component failure. A few fine particles are normal. This inspection will help to show defective parts before internal inspection of the components.
- (3) Inspect hose surfaces for broken or frayed fabric. Check for breaks caused by sharp kinks or contact with other parts of the truck. Inspect fitting threads for damage. Replace any defective parts. After assembly and during initial truck operation period, check for leaks. Inspect wiring harnesses for chafed or burned insulation. Inspect terminal connectors for loose connections and broken parts. Visually inspect castings and weldments for cracks.

### 3-2. ENGINE ADJUSTMENTS.

This task covers:

- a. Exhaust Valve Clearance Adjustment
- b. Engine Brake Retarder Adjustment
- c. Fuel Injector Timing Adjustment
- d. Follow-On Maintenance

#### INITIAL SETUP

##### *Tools and Special Tools*

- Tool Kit, General Mechanic's (Item 240, Appendix F)
- Gage, Feeler (Item 77, Appendix F)
- Gage, Feeler, Jacobs Brake (Item 78, Appendix F)
- Gage, Timing, Injector (Item 80, Appendix F)
- Wrench Set, Pushrod (Item 272, Appendix F)
- Wrench Set, Socket 3/8 in. Drive (Item 273, Appendix F)
- Wrench, Torque (0-175 lb-ft [0-237 N·m]) (Item 277, Appendix F)

##### *Personnel Required*

Two

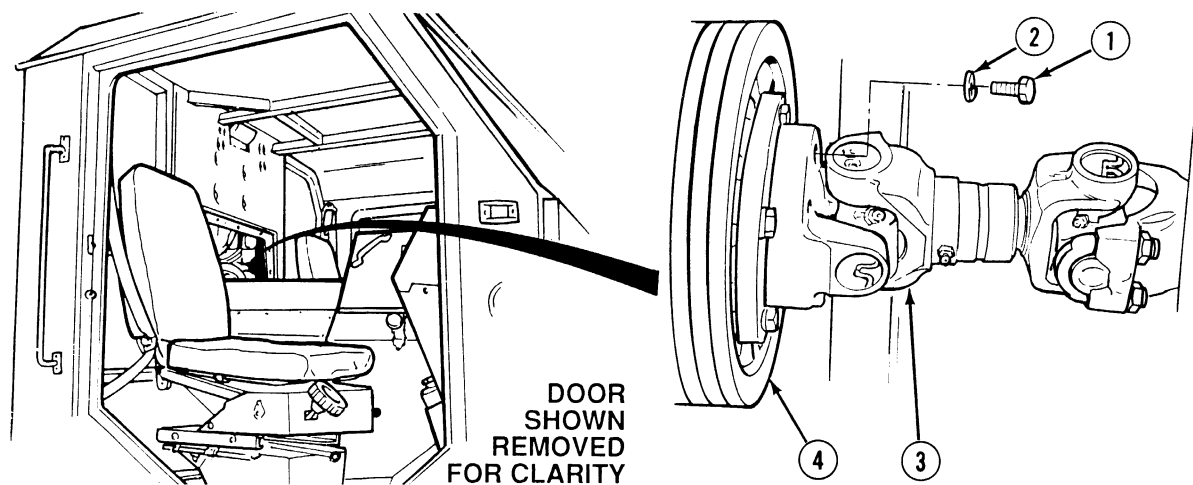
##### *Equipment Condition*

- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)
- Batteries disconnected, (TM 9-2320-364-20)
- Rocker covers removed, (TM 9-2320-364-20)

##### *Materials/Parts*

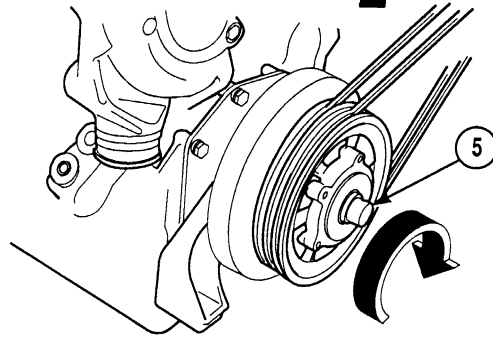
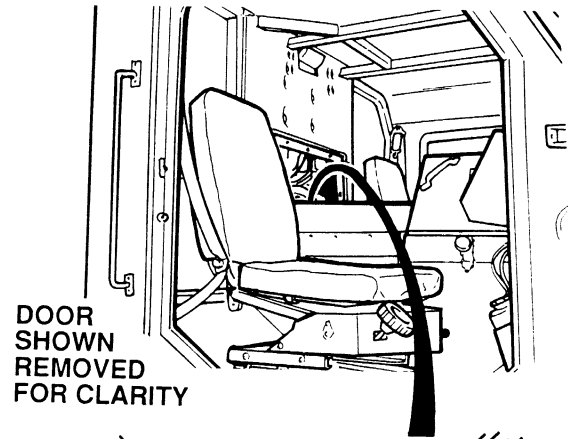
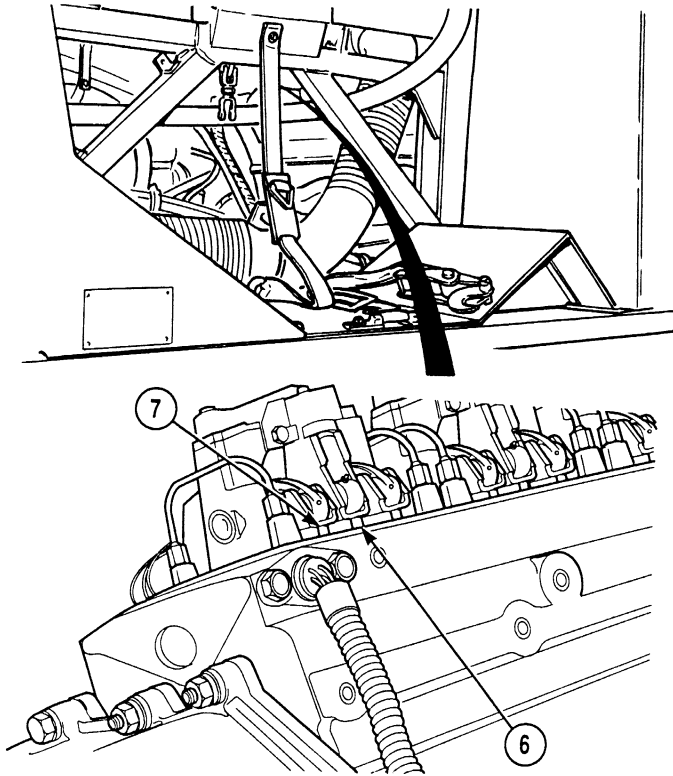
- Sealing Compound (Item 53, Appendix B)
- Lockwasher (4) (Item 252, Appendix E)

#### a. Exhaust Valve Clearance Adjustment.



- (1) Remove four screws (1), lockwashers (2) and pump drive shaft (3) from engine (4). Discard lockwashers.

**3-2. ENGINE ADJUSTMENTS (CONT).**



**CAUTION**

Crankshaft must be turned clockwise only. If crankshaft is turned counterclockwise, crankshaft screw will be loosened resulting in damage to equipment.

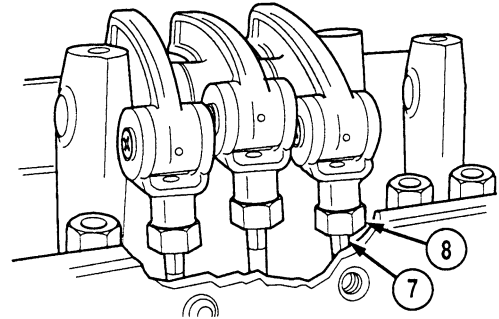
**NOTE**

Two push rods operate four exhaust valves for each of eight cylinders. All 16 exhaust valve clearance adjustments are performed the same way.

- (2) With the aid of an assistant, rotate crankshaft by turning pulley (5) clockwise until engine is on injection stroke. Injector push rods (6) will be fully up, and exhaust push rods (7) will be down.



- (3) Hold push rod (7) and loosen nut (8).

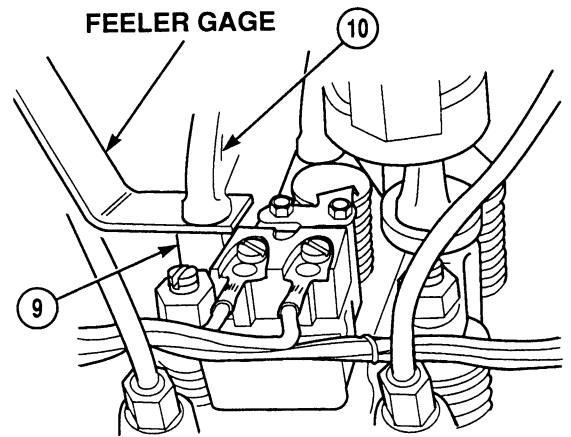


**BRAKE RETARDER AND FUEL LINES SHOWN REMOVED FOR CLARITY**

**NOTE**

Clearance is 0.016 in. (0.406 mm) for cold or hot setting.

- (4) Insert feeler gage (9) between valve bridge (9) and valve rocker arm (10) to check clearance.

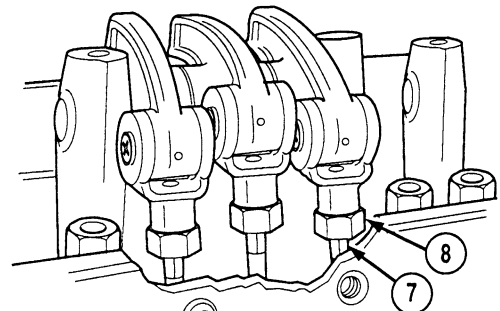


- (5) Adjust push rod (7) until slight drag is felt on feeler gage.

**NOTE**

Clearance is correct when 0.015 in (0.381 mm) feeler gage passes freely between rocker arm and valve bridge, but the 0.017 in (0.432 mm) feeler gage will not pass through.

- (6) Remove feeler gage, hold push rod (7) and tighten nut (8). Recheck clearance.
- (7) Repeat Steps (1) through (6) for other 15 exhaust valves.



**BRAKE RETARDER AND FUEL LINES SHOWN REMOVED FOR CLARITY**