

TECHNICAL MANUAL UNIT MAINTENANCE VOLUME I

PALLETIZED LOAD SYSTEM



MODEL M1074/M1075

NSN 2320-01-304-2277

NSN 2320-01-304-2278

INTRODUCTION	1-1
UNIT MAINTENANCE	2-1
UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES	2-7
DDEC II TROUBLESHOOTING	2-142
DDEC III TROUBLESHOOTING	2-513
REFERENCES	A-1
MAINTENANCE ALLOCATION CHART	B-1
EXPENDABLE SUPPLIES AND MATERIALS	C-1
MANUFACTURED ITEMS	D-1
TORQUE LIMITS	E-1
MANDATORY REPLACEMENT PARTS	F-1
TOOL IDENTIFICATION LIST	G-1

DISTRIBUTION RESTRICTION
Approved for public release;
distribution is unlimited.

TECHNICAL MANUAL

No. 9-2320-364-20

HEADQUARTERS
DEPARTMENT OF THE ARMY
 Washington, D.C. 01 August 1999

Unit Maintenance Manual PALLETIZED LOAD SYSTEM

MODEL M1074/M1075

NSN 2320-01-304-2277

NSN 2320-01-304-2278

Current as of 01 August 1999

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Publications and Blank Forms), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is <http://aeps.ria.army.mil>. If you need a password, scroll down and click on "ACCESS REQUEST FORM." The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or email your letter, DA Form 2028, or DA Form 2028-2, located at the back of this manual direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-AC-NML, Rock Island, IL 61299-7630. The email address is amsta-ac-nml@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726. A reply will be furnished to you.

TABLE OF CONTENTS

		Page
CHAPTER 1	INTRODUCTION	1-1
Section I	General Information	1-1
Section II	Equipment Description and Data	1-5
Section III	Principles of Operation	1-6
CHAPTER 2	VEHICLE MAINTENANCE	2-1
Section I	Repair Parts, Special Tools, Test, Measurement and Diagnostic Equipment, and Support Equipment	2-2
Section II	Service Upon Receipt	2-2
Section III	Unit Preventive Maintenance Checks and Services (PMCS)	2-6
Section IV	Troubleshooting	2-97
Section VI	Maintenance Procedures	2-3210
CHAPTER 3	ENGINE MAINTENANCE	3-1
CHAPTER 4	FUEL SYSTEM MAINTENANCE	4-1

* This manual supersedes TM 9-2320-364-20-1, 25 February 1994.

TABLE OF CONTENTS (CONT)

		Page
CHAPTER 5	EXHAUST SYSTEM MAINTENANCE	5-1
CHAPTER 6	COOLING SYSTEM MAINTENANCE	6-1
CHAPTER 7	ELECTRICAL SYSTEM MAINTENANCE	7-1
CHAPTER 8	TRANSMISSION MAINTENANCE	8-1
CHAPTER 9	TRANSFER CASE MAINTENANCE	9-1
CHAPTER 10	DRIVESHAFT AND UNIVERSAL JOINT MAINTENANCE	10-1
CHAPTER 11	AXLES MAINTENANCE	11-1
CHAPTER 12	BRAKE MAINTENANCE	12-1
CHAPTER 13	WHEEL AND TIRE MAINTENANCE	13-1
CHAPTER 14	STEERING SYSTEM MAINTENANCE	14-1
CHAPTER 15	FRAME MAINTENANCE	15-1
CHAPTER 16	SPRINGS AND SHOCKS	16-1
CHAPTER 17	CAB AND BODY MAINTENANCE	17-1
CHAPTER 18	MATERIAL HANDLING CRANE (MHC), SELF-RECOVERY WINCH (SRW) AND LOAD HANDLING SYSTEM (LHS) MAINTENANCE	18-1
CHAPTER 19	ACCESSORY ITEMS	19-1
CHAPTER 20	HYDRAULIC SYSTEM MAINTENANCE	20-1
CHAPTER 21	SPECIAL PURPOSE KITS MAINTENANCE	21-1
CHAPTER 22	ARMAMENT MAINTENANCE	22-1
CHAPTER 23	GAGES (NON-ELECTRICAL)	23-1
CHAPTER 24	CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL (CBR) EQUIPMENT MAINTENANCE	24-1

	Page
APPENDIXES	
A REFERENCES	A-1
B MAINTENANCE ALLOCATION CHART	B-1
C EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST	C-1
D ILLUSTRATED LIST OF MANUFACTURED ITEMS	D-1
E TORQUE LIMITS	E-1
F MANDATORY REPLACEMENT PARTS	F-1
G TOOL IDENTIFICATION LIST	G-1
INDEX	INDEX-1
SCHEMATICS	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, the Maintenance Allocation Chart (MAC), 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 2 of this manual covers Unit level Preventive Maintenance Checks and Services (PMCS) and basic troubleshooting, as well as general maintenance.

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 1

INTRODUCTION

Para	Contents	Page
1-1	Scope	1-1
1-2	Maintenance Forms, Records and Reports	1-5
1-3	Destruction Of Army Material To Prevent Enemy Use	1-5
1-4	Official Nomenclature, Names and Designations	1-5
1-5	Reporting Equipment Improvement Recommendations (EIR)	1-5
1-6	Warranty Information	1-5
1-7	Equipment Characteristics, Capabilities and Features	1-5
1-8	Location And Description Of Major Components	1-6
1-9	Equipment Data	1-6
1-10	Power Train	1-6
1-11	Engine Systems	1-9
1-12	Electrical System	1-12
1-13	Air System	1-19
1-14	Hydraulic System	1-20
1-15	Steering System	1-21
1-16	Self-Recovery Winch (SRW)	1-22
1-17	Material Handling Crane (MHC)	1-23
1-18	Load Handling System (LHS)	1-26
1-19	Wheels And Tires	1-27
1-20	Central Tire Inflation System (CTIS)	1-28
1-21	Cab	1-28
1-22	PLS Trailer (PLST)	1-29
1-23	PLS Flatrack (FR)	1-30

Section I. GENERAL INFORMATION

1-1. SCOPE.

This chapter provides general information, equipment descriptions and principles of operation for the M1074/M1075 Palletized Load System (PLS). The PLS will herein be referred to as the truck.

- a. Type of Manual.** Unit Maintenance Instructions, TM 9-2320-364-20.
- b. Model Numbers and Equipment Names.** The different truck models are listed below:

M1074	Truck with crane (Figure 1-1)
M1075	Truck without crane (Figure 1-2)
M1076	Trailer (Figure 1-3)
M1077	Flatrack (Figure 1-4)

c. Purpose of Equipment. The PLS is an ammunition-hauling tactical wheeled truck and trailer combination with integral self-load/unload capability using the PLS flatrack (FR).

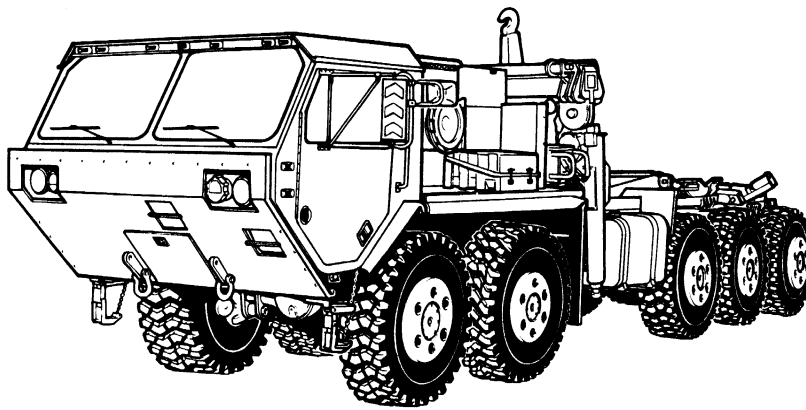
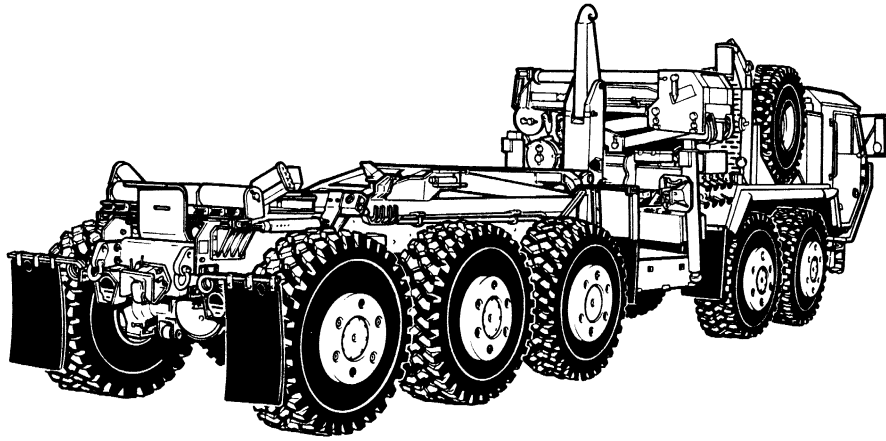


Figure 1-1. M1074 Palletized Load System Truck (With Crane)

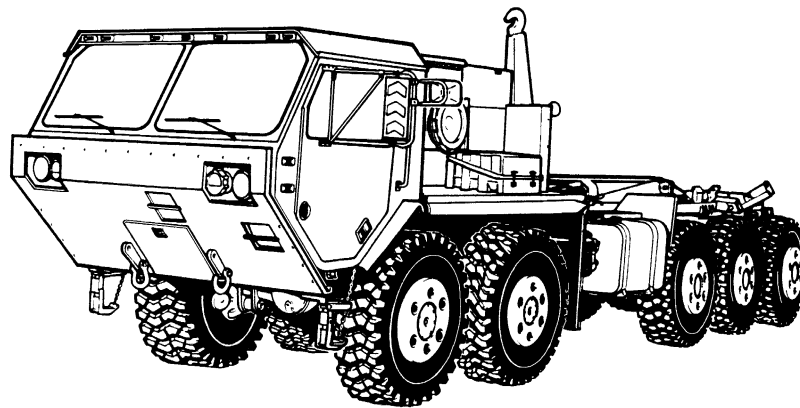
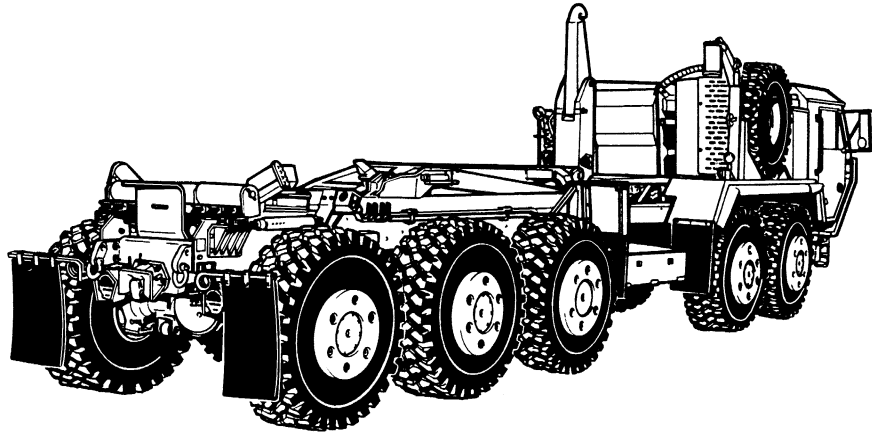


Figure 1-2. M1075 Palletized Load System Truck (Without Crane)

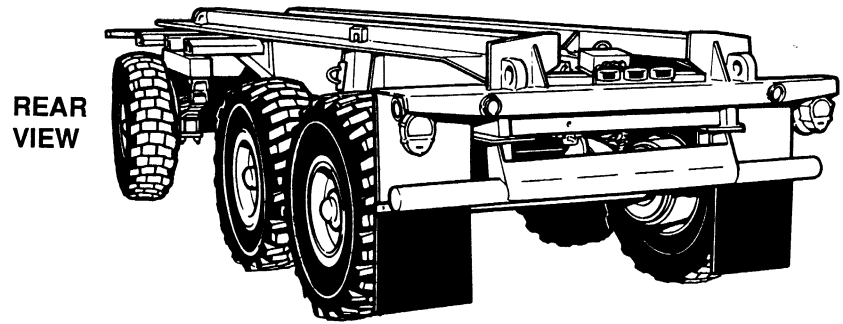
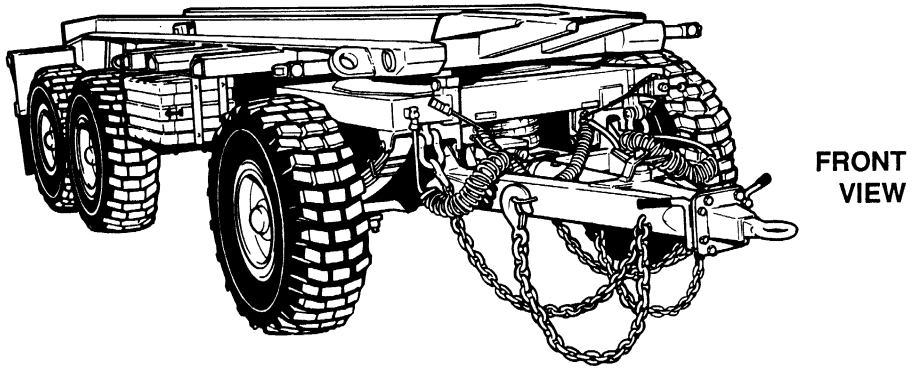


Figure 1-3. M1076 PLS Trailer

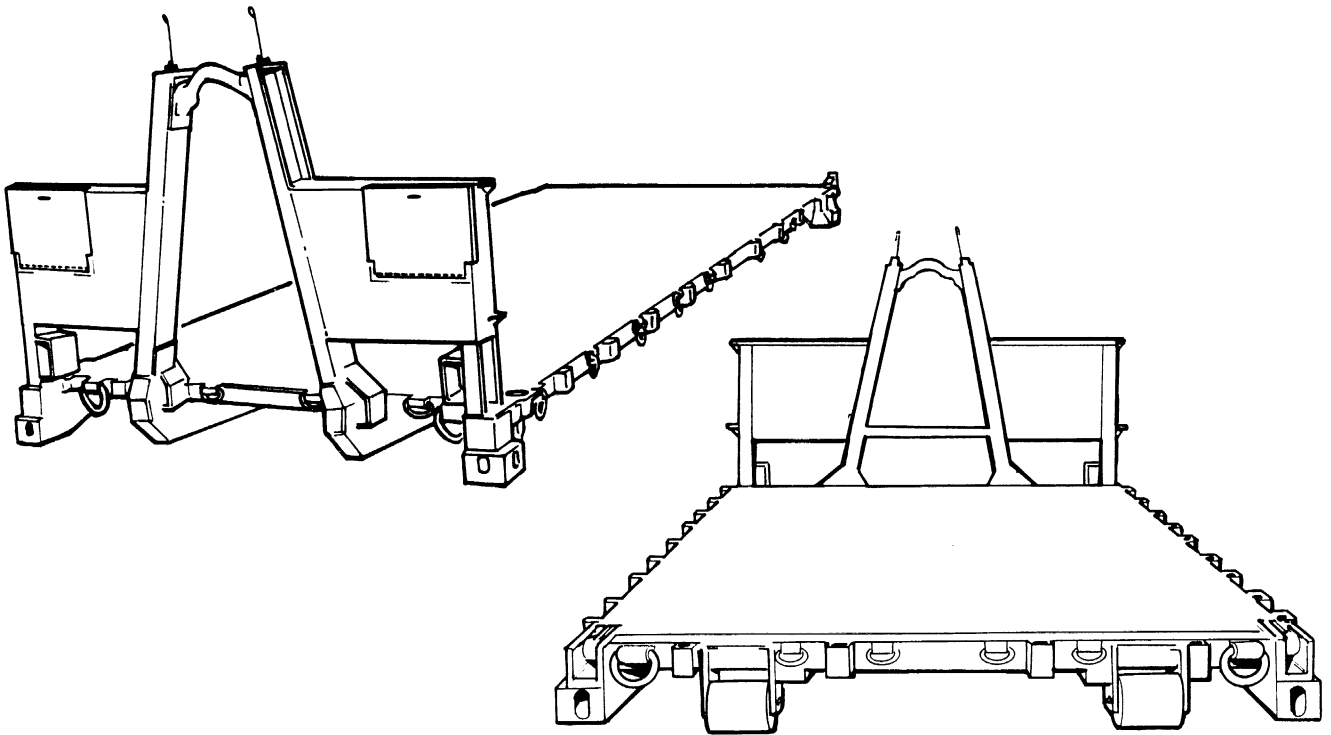


Figure 1-4. M1077 PLS Flatrack

1-2. MAINTENANCE FORMS, RECORDS AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS) (Maintenance Management UPDATE).

1-3. DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE.

Command decision, according to tactical situation, will determine when the destruction of the truck will be accomplished. A destruction plan will be prepared by the using organization unless one has been prepared by a higher authority. For general destruction procedures for this truck, refer to TM 750-244-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (US Army Tank-Automotive Command).

1-4. OFFICIAL NOMENCLATURE, NAMES AND DESIGNATIONS.

Table 1-1 lists the nomenclature cross-references used in this manual.

Table 1-1. Nomenclature Cross-Reference

<u>Common Name</u>	<u>Official Nomenclature</u>
Cable	Wire rope
Cold Start System	Ether quick-start system
Engine Coolant	Antifreeze, ethylene glycol mixture
Gladhand	Quick-disconnect coupling
Truck	Palletized Load System
Jacobs Brake	Engine Retarder

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your Palletized Load System needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E-MPA; Warren, Michigan 48397-5000. We'll send you a reply.

1-6. WARRANTY INFORMATION.

Refer to PLS Warranty Technical Bulletin, TB 9-2320-364-15 for complete warranty information covering the truck. Warranty starts on the date found in block 23, DA Form 2408-9, in the logbook. Report all defects in material or workmanship to the supervisor, who will take appropriate action.

SECTION II. EQUIPMENT DESCRIPTION AND DATA

1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES.

Refer to TM 9-2320-364-10 for equipment characteristics, capabilities and features.

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

Refer to TM 9-2320-364-10 for location and description of major components.

1-9. EQUIPMENT DATA.

Refer to TM 9-2320-364-10 for equipment data.

Section III. PRINCIPLES OF OPERATION

1-10. POWER TRAIN.

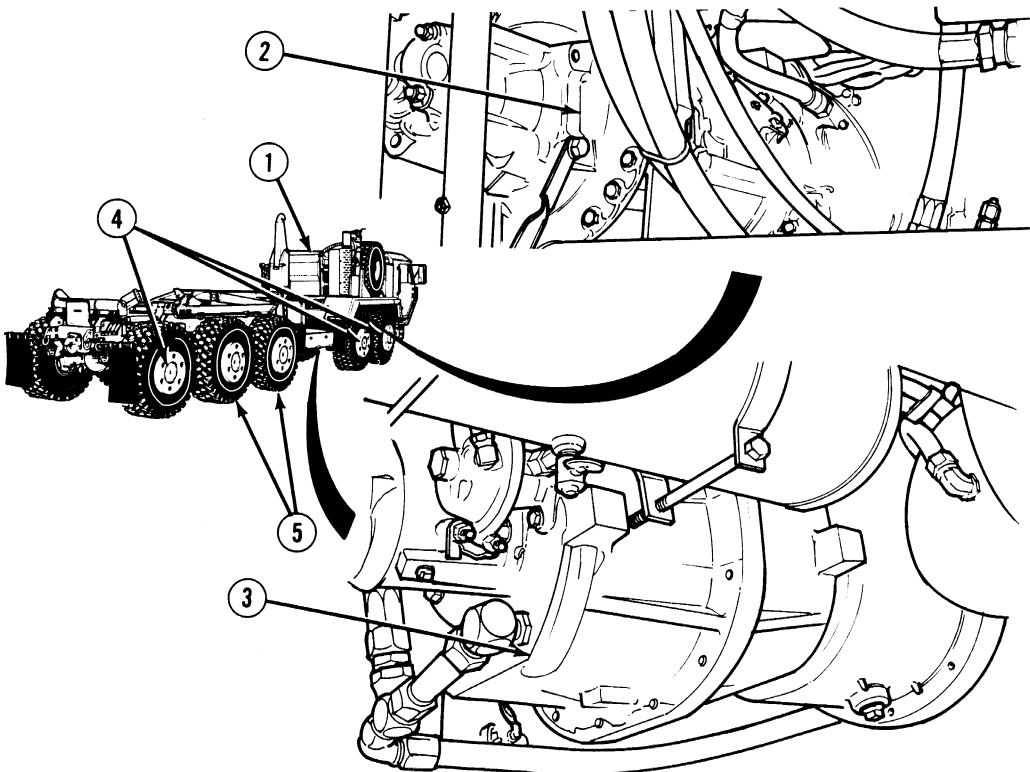


Figure 1-5. Power Train

Power for the truck is provided by a diesel engine (1, Figure 1-5) which is coupled directly to an automatic transmission (2). Power from the transmission is transferred to the transfer case (3) and on to the drive and steering axles (4) and the drive only axles (5) through a series of drive shafts and universal joints. The truck drive train is enhanced through the use of the Detroit Diesel Electronic Control II (DDEC II), or Detroit Diesel Electronic Control III (DDEC III) electronic engine controller and the Allison Transmission Electronic Control (ATEC) electronic transmission controller. The primary components of the ATEC system are an Electronic Control Unit (ECU) and shifter in the truck cab, an electrohydraulic valve module beneath the transmission gearing section that contains solenoid valves for clutch control, a throttle sensor that is activated by the accelerator pedal and an output speed sensor that relays the transmission out speed to the ECU for shifting and control functions.