

**ARMY TM 9-2320-365-10
AIR FORCE T.O. 36A12-1B-1095-1**

**OPERATOR'S INSTRUCTIONS
MANUAL
M1078 SERIES, 2-1/2 TON, 4x4,
LIGHT MEDIUM TACTICAL
VEHICLES (LMTV)**

MODEL	NSN	EIC
TRK, CAR., LMTV, M1078		
W/WN	2320-01-360-1898	BHH
W/O WN	2320-01-354-3385	BHD
TRK, VAN., LMTV, M1079		
W/WN	2320-01-360-1891	BHG
W/O WN	2320-01-354-3384	BHE
TRK, CHAS, LMTV, M1080	2320-01-353-9098	BHC
TRK, CAR., LMTV, AIR DROP M1081		
W/WN	2320-01-360-1899	BHJ
W/O WN	2320-01-355-3064	BHF

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**HEADQUARTERS, DEPARTMENTS OF THE
ARMY AND THE AIR FORCE**

17 JUNE 1998

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DEPARTMENTS OF THE ARMY
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TECHNICAL ORDER
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Washington, D.C., 17 June 1998

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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HOW TO USE THIS MANUAL

OVERVIEW

This Technical Manual (TM) is provided to help you operate and maintain the Light Medium Tactical Vehicles (LMTV). It is divided into the following major sections in order of appearance:

- **FRONT COVER INDEX.** The front cover index contains a list of the most important topics contained in the manual. It features a black box at the right edge of the cover which corresponds with a black box on the page containing the topic. The topics listed on the front cover are highlighted in the table of contents with a box.
- **WARNING SUMMARY.** Provides a summary of the warnings that appear throughout the manual. Read all WARNINGS and CAUTIONS before performing any operation, troubleshooting or maintenance procedures.
- **TABLE OF CONTENTS.** Lists the Chapters, Sections, Appendixes, and alphabetical Index with Page Number in order of appearance.
- **CHAPTER 1, INTRODUCTION.** Describes the LMTV and provides equipment data.
- **CHAPTER 2, OPERATING INSTRUCTIONS.** Describes operator's controls and indicators, preventive maintenance, and operating instructions.
- **CHAPTER 3, MAINTENANCE INSTRUCTIONS.** Provides instructions for Troubleshooting and operator maintenance.
- **APPENDIX A, REFERENCES.** Lists publications used with the LMTV and reference publications which contain information regarding the equipment.
- **APPENDIX B, COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS.** Lists and illustrates COEI and BII items issued with the LMTV.
- **APPENDIX C, ADDITIONAL AUTHORIZATION LIST (AAL).** Lists additional items you are authorized for support of the LMTV.
- **APPENDIX D, EXPENDABLE AND DURABLE ITEMS LIST.** Lists expendable and durable Items used in the performance of maintenance procedures.

- **APPENDIX E, STOWAGE AND DECAL/DATA PLATE GUIDE.** Shows the location of signs and details the location of COEI, BII, and AAL items.
- **APPENDIX F, LUBRICATION INSTRUCTIONS.** Gives operator lubrication instructions and the time interval at which lubrication is conducted. Lubrication points are also illustrated.
- **SUBJECT INDEX.** Lists important subjects contained in this Volume in alphabetical order, and gives the paragraph number where they are located.

FINDING INFORMATION

There are several ways to find the information you need in this manual. They are as follows:

- **TABLE OF CONTENTS.** Lists Chapters, Sections, Appendixes, and Indexes with Page Numbers in order of appearance.
- **CHAPTER INDEXES.** List Paragraphs contained in the individual Chapters with Paragraph and Page Numbers in order of appearance.
- **MALFUNCTION INDEX.** Lists malfunctions contained in the Troubleshooting Table with Page Numbers in order of appearance.
- **ALPHABETICAL (SUBJECT) INDEX.** Lists all important topics with Paragraph Numbers in alphabetical order.

TROUBLESHOOTING

Troubleshooting is contained in Chapter 3. When you have a problem with the operation of your equipment, look at Table 3-1, Malfunction Index on Page 3-2. Find the malfunction in the Index. Turn to the Page Number listed for the malfunction in Table 3-2, Troubleshooting. Perform the Steps required to correct the malfunction. If you can not find the malfunction, or the malfunction is not corrected, notify Unit Maintenance.

OPERATION AND MAINTENANCE

- **OPERATION.** Before you operate the LMTV, familiarize yourself with the controls and indicators (Chapter 2, Section I). Perform your BEFORE preventive maintenance (Chapter 2, Section II). Read the operating instructions contained in Chapter 2, Sections III and IV. Always follow the WARNINGS and CAUTIONS. During operation, perform your DURING preventive maintenance, and after operation perform your AFTER preventive maintenance (Chapter 2, Section II).
- **MAINTENANCE.** When you perform maintenance, look over the entire procedure before starting. Make sure you have the necessary tools and materials at hand. Always observe WARNINGS and CAUTIONS.

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Section I. GENERAL INFORMATION

1-1. SCOPE

This chapter provides general information, equipment description, and principles of operation for the M1078 series Light Medium Tactical Vehicle (LMTV). The LMTV will herein be referred to as the vehicle.

a. Type of Manual. This manual provides instructions for operation and Operator maintenance of the vehicle.

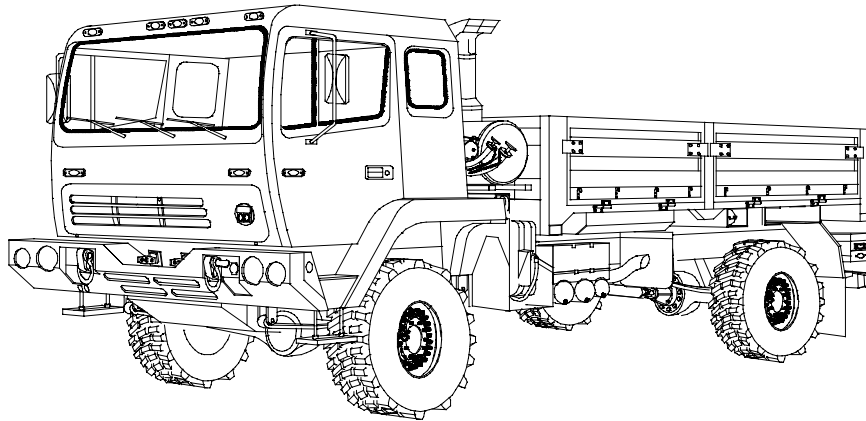
b. Name and Model. The vehicle model numbers and names are listed below:

- M1078 Truck, Cargo: 2 1/2-Ton, 4x4, Dropside (Figure 1-1).
- M1079 Truck, Van: 2 1/2-Ton, 4x4 (Figure 1-2).
- M1080 Truck, Chassis: 2 1/2-Ton, 4x4 (Figure 1-3).
- M1081 Truck, Cargo: 2 1/2-Ton, 4x4, Dropside, Air Drop (Figure 1-4).

1-1. SCOPE (CONT)

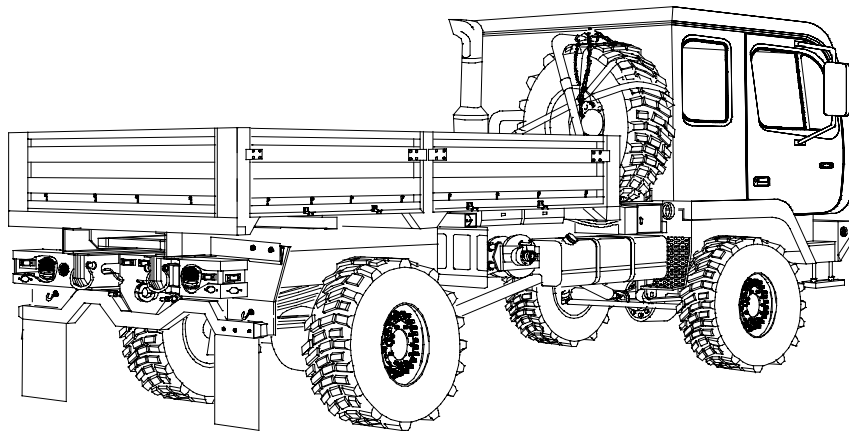
c. Purpose of Equipment. The LMTV series is a family of 4x4 wheeled vehicles. The purpose of these vehicles is as follows:

- (1) M1078 - Cargo hauling vehicle; can be outfitted for troop transport when equipped with a troopseat kit.
- (2) M1079 - Van can be outfitted with communications equipment, or shop equipment installed.
- (3) M1080 - Vehicle chassis; this chassis will accept a cargo bed or may be modified for special missions.
- (4) M1081 - Cargo hauling vehicle; can be airdropped and outfitted for troop transport when equipped with a troopseat kit.



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LEFT FRONT VIEW

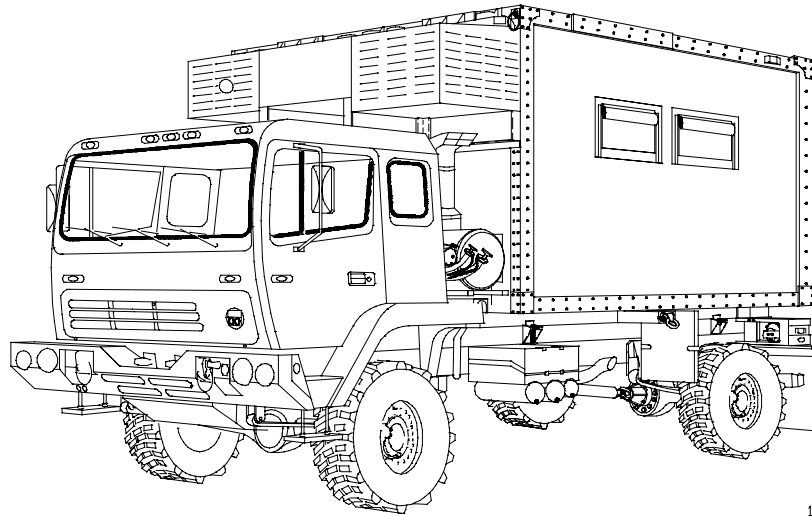


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RIGHT REAR VIEW

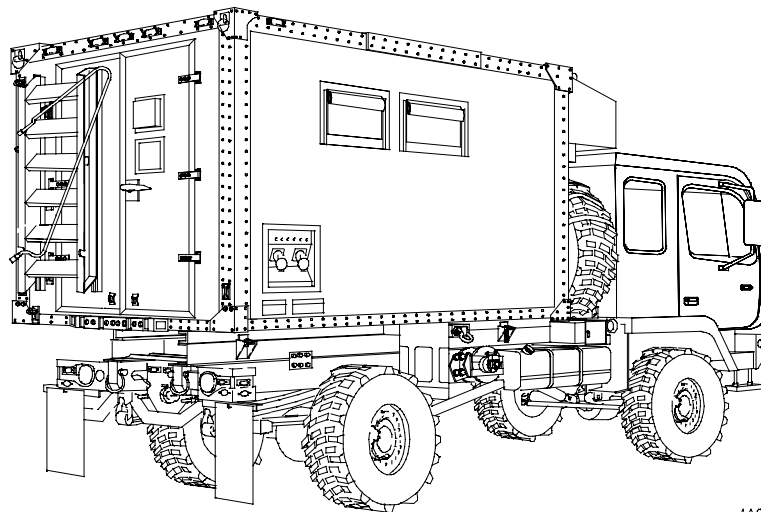
Figure 1-1. M1078 Truck, Cargo: 2 1/2-Ton, 4x4, Dropside

1-1. SCOPE (CONT)



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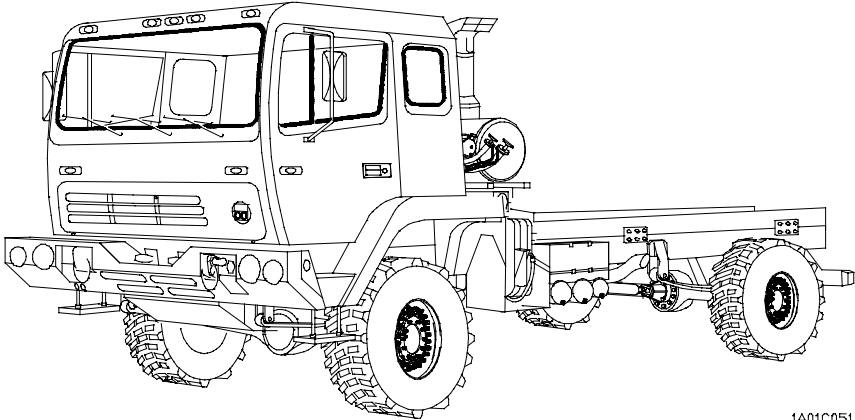
LEFT FRONT VIEW



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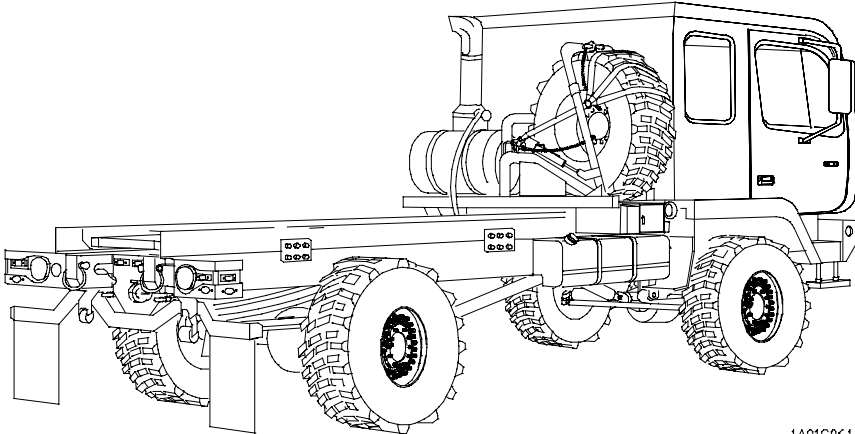
RIGHT REAR VIEW

Figure 1-2 M1079 Truck, Van: 2 1/2 Ton, 4x4.



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LEFT FRONT VIEW

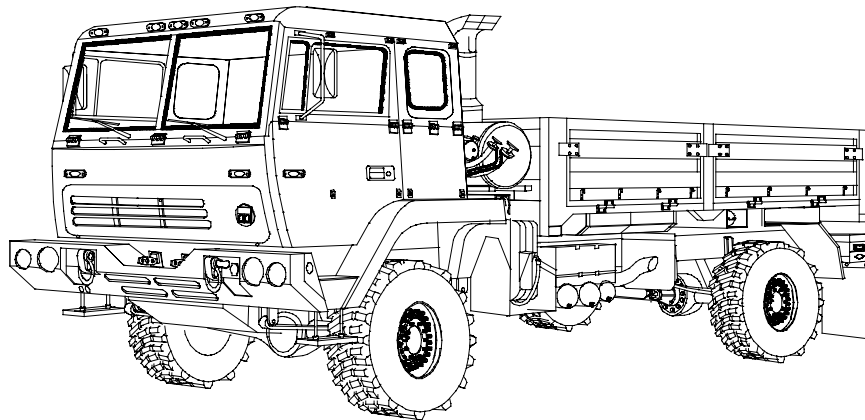


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RIGHT REAR VIEW

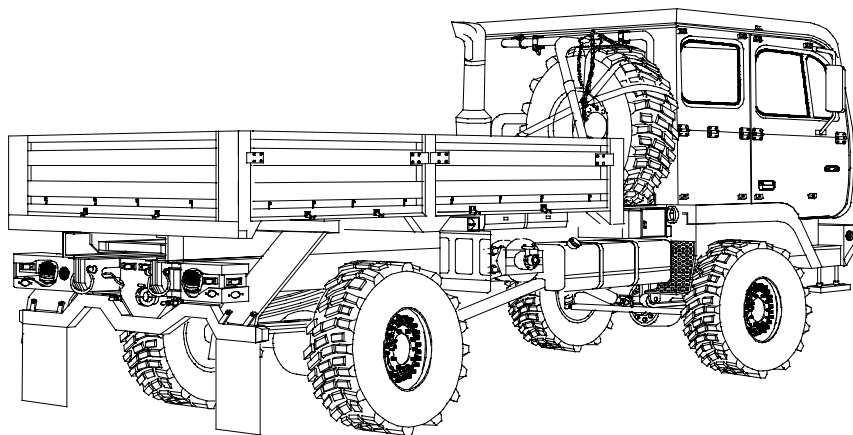
Figure 1-3. M1080 Truck, Chassis: 2 1/2-Ton, 4x4

1-1. SCOPE (CONT)



1A01C071

LEFT FRONT VIEW



1A01C081

RIGHT REAR VIEW

Figure 1-4. M1081 Truck, Cargo: 2 1/2-Ton, 4x4, Dropside, Air Drop

1-2. MAINTENANCE FORMS AND PROCEDURES

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750 as contained in the Maintenance Management Update.

1-3. CORROSION PREVENTION AND CONTROL (CPC)

The vehicle has a total service life of 20 years which allows for extended periods of operation in a corrosive environment. A corrosive environment includes exposure to high humidity, salt spray, road de-icing chemicals, gravel damage, and atmospheric contamination. No action beyond normal washing and repair of damaged areas is needed to control corrosion. To prevent moisture accumulation, drain holes are provided on structural and sheet metal areas where needed, and stowage boxes are provided with seals and baffled drains.

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with the vehicle be reported so that the problem can be corrected and improvements made to prevent the problem in the future.

While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using form SF 368 (Product Quality Deficiency Report). Using keywords such as "corrosion", "rust", "cracking", or "deterioration" will ensure that the information is identified as a CPC problem.

Form SF 368 should be submitted to the address specified in DA PAM 738-750.

1-4. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Command decision, according to the tactical situation, will determine when the using organization is to destroy a vehicle. A destruction plan will be prepared by the using organization, unless one was prepared by a higher authority. For general vehicle destruction procedures, refer to TM 750-244-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-automotive and Artillery Command).

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your vehicle 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 or performance. Put it on an SF 368. Mail it to us at: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/FMTV/312, Warren, MI 48397-5000. We'll send you a reply.

1-6. WARRANTY INFORMATION

The vehicle is warranted by Stewart & Stevenson Services, Inc., Tactical Vehicle Systems Division for 18 months or 12,000 miles (19,308 km), whichever comes first. For complete information covering this warranty, refer to TB 9-2300-365-15, Warranty Program for M1078 Series, 2 1/2 Ton, 4x4, Light Medium Tactical Vehicles (LMTV).

1-7. NOMENCLATURE CROSS-REFERENCE LIST

<u>COMMON NAME</u>	<u>OFFICIAL NOMENCLATURE</u>
Cold Start System	Ether quick-start system
Engine Coolant	Antifreeze, ethylene glycol mixture
Gladhand	Quick-disconnect coupling
Parking Brake	SYSTEM PARK Control
Throttle Pedal	Accelerator pedal

1-8. LIST OF ABBREVIATIONS

<u>ABBREVIATION</u>	<u>NAME</u>
AAL	Additional Authorization List
amp	Amperes
AOAP	Army Oil Analysis Program
ATAAC	Air to Air Aftercooler
BII	Basic Issue Item
°C	Degrees Celsius
CAC	Charge Air Cooler
CBR	Chemical, Biological, and Radiological
CCW	Counterclockwise
cid	Cubic Inch Displacement
cm	Centimeter
COEI	Component of End Item
CPC	Corrosion Prevention and Control
CTIS	Central Tire Inflation System
CW	Clockwise
DA	Department of the Army

<u>ABBREVIATION</u>	<u>NAME</u>
ECU	Electronic Control Unit
EIR	Equipment Improvement Recommendation
°F	Degrees Fahrenheit
FMVSS	Federal Motor Vehicle Safety Standard
ft	Foot
gal	Gallon, U.S.
GCWR	Gross Combination Weight Rating
GPFU	Gas Particulate Filter Unit
GVW	Gross Vehicle Weight
HI	High
hp	Horse Power
in.	Inch
kg	Kilogram
km/h	Kilometer Per Hour
kPa	Kilopascal
kw	Kilowatt
L	Liter
LED	Light Emitting Diode
lb	Pound
LH	Left Hand
LMTV	Light Medium Tactical Vehicle
m	Meter
MGVW	Maximum Gross Vehicle Weight
mi	Mile
mm	Millimeter
mph	Miles Per Hour
MTOE	Modified Table of Organization and Equipment
NBC	Nuclear, Biological, Chemical
PMCS	Preventive Maintenance Checks and Services
psi	Pounds Per Square Inch
PDP	Power Distribution Panel
PTO	Power Take-Off
qt	Quart
RH	Right Hand
rpm	Revolutions Per Minute
SAE	Society of Automotive Engineers
SRW	11K Self-Recovery Winch
TAMMS	The Army Maintenance Management System
TM	Technical Manual
vac	Volts Alternating Current
vdc	Volts Direct Current
WTEC II	World Transmission Electronic Control II
WTEC II TEPSS	WTEC II Transmission ECU Pushbutton Shift Selector
WTEC III	World Transmission Electronic Control III
WTEC III TPSS	WTEC III Transmission Pushbutton Shift Selector
XMSN	Transmission

1-9. GLOSSARY

<u>NOMENCLATURE</u>	<u>DEFINITION</u>
Alternator	Engine-driven generator used to charge batteries.
Fuel Injection	Method that fuel enters engine cylinders; through specially designed nozzles (injectors).
Parallel Connection	More than one battery connected together from positive to positive and from negative to negative.
Power Take-Off (PTO)	Gear-driven device used to power hydraulic equipment (e.g., 11K Self-Recovery Winch [SRW]).
Rigging	Cable, chains and straps used to secure loads.
Series Connection	More than one battery connected together from positive to negative.
Turbocharger	Air compressor driven by exhaust gases. Used to increase engine power.

Section II. EQUIPMENT DESCRIPTION

1-10. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. Characteristics. The LMTVs are a series of 4x4 tactical vehicles designed for use over all types of roads, cross-country terrain, and in all weather conditions. The cab and chassis for all vehicle models are similar. Each vehicle model is equipped with a unique body and may be equipped with other auxiliary equipment depending on vehicle mission.

b. Capabilities.

- (1) The vehicle operates in temperatures from -25°F to 120°F (-32°C to 49°C).
- (2) The vehicle can ford water up to 30 in. (76 cm) deep for 15 minutes without damage or requiring maintenance before operation can continue.

(3) The normal operating range for the vehicle is 300 mi (483 km), based on 54 gal (204 L) of fuel and vehicle at maximum gross vehicle weight when operated at an average speed of 25 mph (40 km/h). Varying loads, prolonged idle, use of Power Take-Off (PTO), off-road driving, and climatic conditions will affect operating range.

(4) Tiedown points are located so that the vehicle can be restrained in all directions during air transport in C-130 and C-141 aircraft. The vehicles are capable of being transported by highway, rail, and sea.

c. Features.

(1) An in-line, six-cylinder, 403 cid (6.6 L), turbocharged diesel engine, producing 225 hp (216 kW).

(2) An automatic transmission with seven forward speeds and one reverse speed. The transmission incorporates an integral transfer case. Normal mode is used when operating the vehicle under usual conditions. Off-road mode is used when operating on unimproved road surfaces. When operating in the normal mode, 70 percent of the power is distributed to the rear axles and 30 percent to the front axle. When operating in the off-road mode, power is evenly distributed between the front and rear axles.

(3) A power steering system consisting of a recirculating ball type steering gear box with hydraulic boost. Mechanical linkage provides the Operator with control in the event of steering oil pressure loss.

(4) A fuel system which includes; a 56 gal (212 L) capacity, 54 gal (204 L) useable fuel tank, fuel/water separator with fuel priming pump, fuel transfer pump, secondary fuel filter, and fuel injectors.

(5) Two front and two rear towing eyes with shackles.

(6) A manually operated pintle hook for towing a trailer or a disabled vehicle.

(7) A Central Tire Inflation System (CTIS) that allows the Operator to adjust tire pressure, with the touch of a button, to suit terrain conditions.

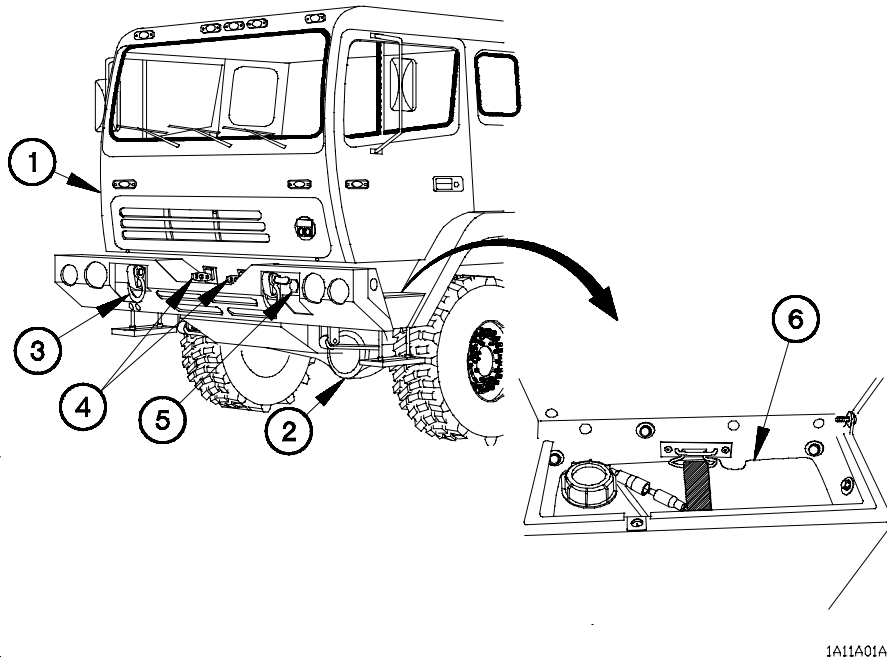
(8) A cab with accommodations for three personnel, or two personnel if a radio is installed.

(9) Service and emergency gladhands at the rear and front of the vehicle for towing a trailer or disabled vehicle, or for being towed.

(10) An air powered hydraulically operated system that allows the Operator to raise and lower the cab and spare tire quickly and easily. This system also provides the Operator with the means to safely and easily lower and raise the vehicle suspension for internal air transport. In addition, a backup hydraulic pump is provided in the event that there is not enough air pressure available to operate the primary system.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

a. Major External Components Common to All Vehicle Variants.



1A11A01A

Figure 1-5. Common Vehicle Components Location

- (1) **CAB.** The cab provides the crew with protection from the weather and contains the controls, gages, and indicators needed to operate the vehicle. The cab accommodates three fully-equipped personnel if no radio is installed, and two fully-equipped personnel if a radio is installed. The cab can be raised and lowered from the hydraulic manifold located on the passenger side of the vehicle.
- (2) **FRONT DRIVING AXLE.** Supports the weight of the vehicle and transmits power to drive the front wheels.
- (3) **FRONT TOW EYES/SHACKLES.** Provides attachment points for towing.
- (4) **FRONT GLADHANDS.** Allows connection of brake air supply between vehicles during towing operations.
- (5) **FRONT ELECTRICAL CONNECTOR.** A connector that receives 12 vdc power from a towing vehicle through an intervehicular cable.
- (6) **WINDSHIELD WASHER RESERVOIR.** A three quart (3 L) reservoir that stores fluid used to clean the windshield.