ARMY TM 9-2320-386-10
AIR FORCE TO 36A12-1B-1121-1

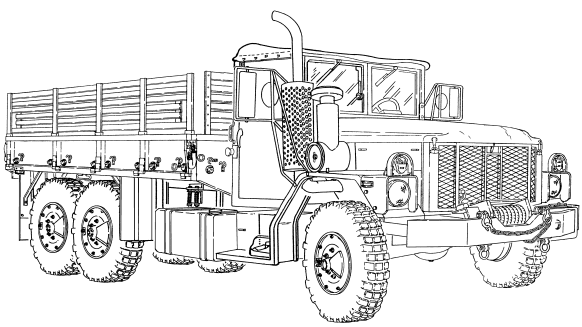
TECHNICAL MANUAL

EXTENDED SERVICE PROGRAM (ESP)

OPERATOR'S MANUAL

FOR

2-1/2-TON, 6X6, M44A3 SERIES TRUCKS (DIESEL)



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TRUCK, CARGO: 2-1/2-TON, 6X6,
M35A3 (2320-01-383-2047) (EIC: BHK);
(2320-01-383-3850) (EIC: BHL)
M35A3C (2320-01-383-2050) (EIC: BHP);
(2320-01-383-2049) (EIC: BHQ)
M36A3 (2320-01-383-2048) (EIC: BHM);
(2320-01-383-2046) (EIC: BHN).

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26 JANUARY 1996

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TECHNICAL MANUAL
NO. 9-2320-386-10

TECHNICAL ORDER
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DEPARTMENTS OF THE ARMY
AND AIR FORCE
WASHINGTON, D.C., *26 January 1996*

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M36A3 (2320-01-383-2048) (EIC: BHM);
(2320-01-383-2046) (EIC: BHN).

This manual will provide operation and maintenance instructions for ESP vehicles.

REPORTING 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 Equipment Technical Publications), 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 E-mail your letter or DA Form 2028 direct to: AMSTA-LC-CI/TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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HOW TO USE THIS MANUAL

ABOUT YOUR MANUAL

Spend some time looking through this manual. You'll find that it takes a positive approach and clearly states only what you can do. Before attempting any questionable operation which is not specifically authorized in this manual, clearance must be obtained from your supervisor.

Features added to improve the convenience of this manual and increase your efficiency are:

a. Accessing Information – This includes physical entry features such as the bleed-to-edge indicators on the cover and edge of the manual. Troubleshooting guides for specific systems lead directly to step-by-step directions for problem solving and maintenance tasks.

b. Illustrations – A variety of methods are used to make locating and identifying components easier. Locator illustrations with keyed text, exploded views, and cut-away diagrams make the information in this manual easier to understand and follow.

c. Keying Text With Illustrations – Instructions/text are located together with figures that illustrate the specific task you are working on. Generally, the task steps and illustrations are located on adjacent pages.

USING YOUR MANUAL: EXAMPLE 1

TASK: You are starting your ESP vehicle engine and are in need of instructions to complete this procedure.

OPERATING INSTRUCTION STEPS:

1. Look at the cover of this manual. You will see chapter and appendix titles listed from top to bottom on the right-hand side.
2. Look at the right edge of the manual. On some of the pages you will see bleed-to-edge indicators (black bars) that are aligned with bars on the cover. These are the locations of titles in the text.
3. Look for OPERATING INSTRUCTIONS in the list on the cover.

ARMY TM 9-2320-386-10

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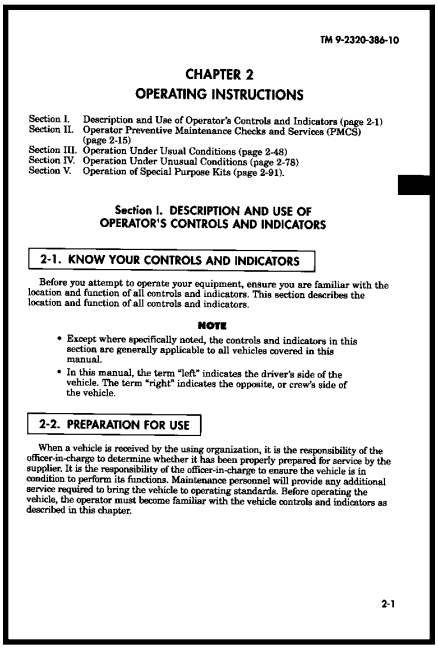
HOW TO USE THIS MANUAL (Contd)

4. Turn to page 2-1 with the edge indicator matching the black bar for OPERATING INSTRUCTIONS. (Page number is listed next to title.)
5. Look through the list of section titles until you find Section III, OPERATION UNDER USUAL CONDITIONS.
6. Turn to page 2-48 as indicated.
7. Look through the list of paragraph titles in paragraph 2-11, OPERATION UNDER USUAL CONDITIONS, until you locate Starting the Engine (Above +20°F) (-6.7°C).



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CHAPTER 2
OPERATING INSTRUCTIONS

Section I. Description and Use of Operator's Controls and Indicators (page 2-1)
Section II. Operator Preventive Maintenance Checks and Services (PMCS) (page 2-15)
Section III. Operation Under Usual Conditions (page 2-48)
Section IV. Operation Under Unusual Conditions (page 2-78)
Section V. Operation of Special Purpose Kits (page 2-91).

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. KNOW YOUR CONTROLS AND INDICATORS

Before you attempt to operate your equipment, ensure you are familiar with the location and function of all controls and indicators. This section describes the location and function of all controls and indicators.

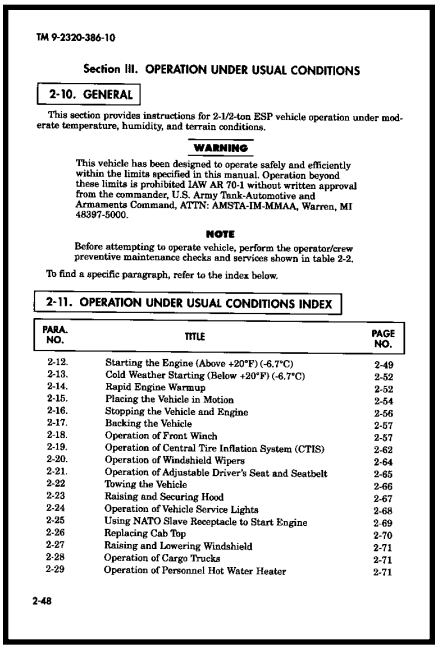
NOTE

- Except where specifically noted, the controls and indicators in this section are generally applicable to all vehicles covered in this manual.
- In this manual, the term "left" indicates the driver's side of the vehicle. The term "right" indicates the opposite, or crew's side of the vehicle.

2-2. PREPARATION FOR USE

When a vehicle is received by the using organization, it is the responsibility of the officer-in-charge to determine whether it has been properly prepared for service by the supplier. It is the responsibility of the officer-in-charge to ensure the vehicle is in condition to perform its functions. Maintenance personnel will provide any additional service required to bring the vehicle to operating standards. Before operating the vehicle, the operator must become familiar with the vehicle controls and indicators as described in this chapter.

2-1



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Section III. OPERATION UNDER USUAL CONDITIONS

2-10. GENERAL

This section provides instructions for 2-1/2-ton ESP vehicle operation under moderate temperature, humidity, and terrain conditions.

WARNING

This vehicle has been designed to operate safely and efficiently within the limits specified in this manual. Operation beyond these limits is prohibited IAW AR 70-1 without written approval from the commander, U.S. Army Tank-Automotive and Armaments Command, ATTN: AMSTA-IM-MMAA, Warren, MI 48397-5000.

NOTE

Before attempting to operate vehicle, perform the operator/crew preventive maintenance checks and services shown in table 2-2.

To find a specific paragraph, refer to the index below.

2-11. OPERATION UNDER USUAL CONDITIONS INDEX

PARA. NO.	TITLE	PAGE NO.
2-12.	Starting the Engine (Above +20°F) (-6.7°C)	2-49
2-13.	Cold Weather Starting (Below +20°F) (-6.7°C)	2-52
2-14.	Rapid Engine Warmup	2-52
2-15.	Placing the Vehicle in Motion	2-54
2-16.	Stopping the Vehicle and Engine	2-56
2-17.	Backing the Vehicle	2-57
2-18.	Operation of Front Winch	2-57
2-19.	Operation of Central Tire Inflation System (CTIS)	2-62
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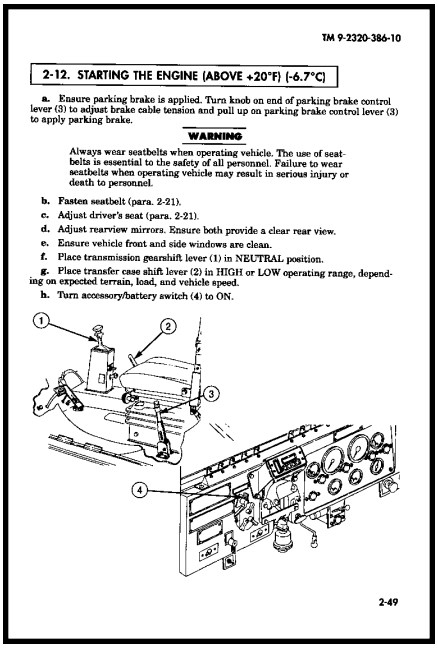
2-22	Towing the Vehicle	2-66
2-23	Raising and Securing Hood	2-67
2-24	Operation of Vehicle Service Lights	2-68
2-25	Using NATO Slave Receptacle to Start Engine	2-69
2-26	Replacing Cab Top	2-70
2-27	Raising and Lowering Windshield	2-71
2-28	Operation of Cargo Trucks	2-71
2-29	Operation of Personnel Hot Water Heater	2-71

2-48

HOW TO USE THIS MANUAL (Contd)

8. Turn to paragraph 2-12 on page 2-49 as indicated.
9. Starting on page 2-49 and continuing through page 2-51, you will find directions for starting the engine listed in progressive order.
10. Before performing the operating instruction steps, take time to examine and familiarize yourself with the complete operation procedure and required PMCS which starts on page 2-15.
11. Procedures include everything you must do to accomplish a basic operations task.
12. Numbered callouts, found with the art and text and arranged in a clockwise pattern, will make it easier for you to identify and locate instruments and controls.
13. Pay particular attention to all notes, cautions, and warnings. They are designed to assist you with your task, prevent damage to the vehicle and its components, and protect you from injury.



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2-12. STARTING THE ENGINE (ABOVE +20°F) (-6.7°C)

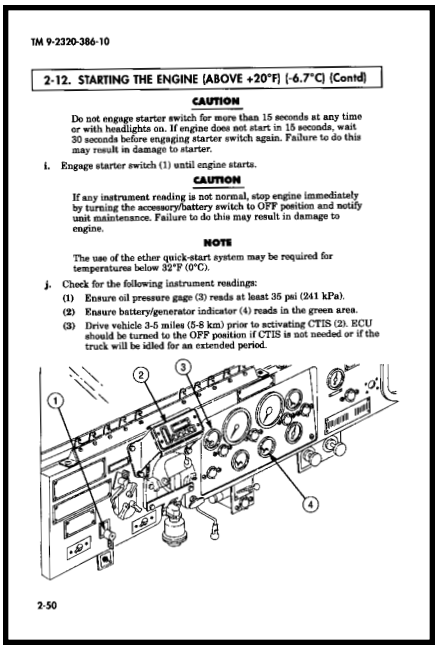
a. Ensure parking brake is applied. Turn knob on end of parking brake control lever (3) to adjust brake cable tension and pull up on parking brake control lever (3) to apply parking brake.

WARNING

Always wear seatbelts when operating vehicle. The use of seatbelts is essential to the safety of all personnel. Failure to wear seatbelts when operating vehicle may result in serious injury or death to personnel.

b. Fasten seatbelt (para. 2-21).
c. Adjust driver's seat (para. 2-21).
d. Adjust rearview mirrors. Ensure both provide a clear rear view.
e. Ensure vehicle front and side windows are clean.
f. Place transmission gearshift lever (1) in NEUTRAL position.
g. Place transfer case shift lever (2) in HIGH or LOW operating range, depending on expected terrain, load, and vehicle speed.
h. Turn accessory/battery switch (4) to ON.

2-49



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2-12. STARTING THE ENGINE (ABOVE +20°F) (-6.7°C) (Contd)

CAUTION

Do not engage starter switch for more than 15 seconds at any time or with headlights on. If engine does not start in 15 seconds, wait 30 seconds before engaging starter switch again. Failure to do this may result in damage to starter.

i. Engage starter switch (1) until engine starts.

CAUTION

If any instrument reading is not normal, stop engine immediately by turning the accessory/battery switch to OFF position and notify unit maintenance. Failure to do this may result in damage to engine.

NOTE

The use of the ether quick-start system may be required for temperatures below 32°F (0°C).

j. Check for the following instrument readings:
(1) Ensure oil pressure gage (3) reads at least 35 psi (241 kPa).
(2) Ensure battery/generator indicator (4) reads in the green area.
(3) Drive vehicle 3-5 miles (5-8 km) prior to activating CTIS (2). ECU should be turned to the OFF position if CTIS is not needed or if the truck will be idled for an extended period.

2-50

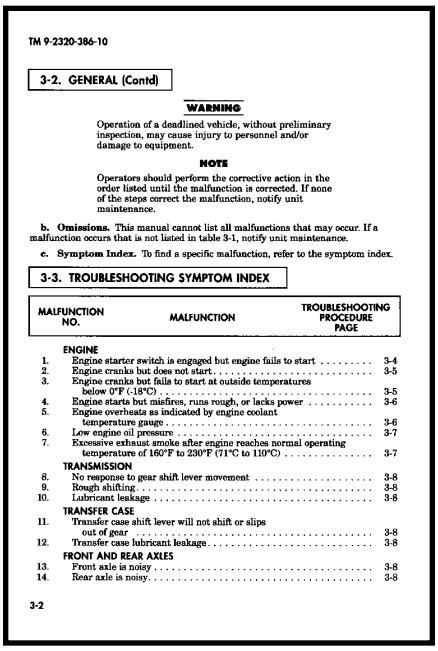
HOW TO USE THIS MANUAL (Contd)

USING YOUR MANUAL: EXAMPLE 2

TASK: Your ESP vehicle tires have inadequate tire inflation and you need instructions to correct this condition.

TROUBLESHOOTING STEPS:

1. Look at the cover of this manual. You will see chapter and appendix titles listed from top to bottom on the right-hand side.
2. Look at the right edge of the manual. On some of the pages you will see bleed-to-edge indicators (black bars) that are aligned with bars on the cover. These are the locations of chapters and appendices in the text.
3. Look for OPERATOR MAINTENANCE in the list on the cover.
4. Turn to those pages with the edge indicator matching the black bar for Chapter 3, OPERATOR MAINTENANCE. (Page 3-1 is listed next to title.)
5. Locate Section II, OPERATOR TROUBLE-SHOOTING on page 3-1.
6. Look through the list of paragraph titles in paragraph 3-3, TROUBLESHOOTING SYMPTOM INDEX, until you locate CENTRAL TIRE INFLATION SYSTEM (CTIS) on page 3-3.
7. Look for symptom number 24 Inadequate tire inflation/deflation under various road conditions.
8. Turn to page 3-12 as indicated, and perform the steps indicated.



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3-2. GENERAL (Contd)

WARNING

Operation of a deadlined vehicle, without preliminary inspection, may cause injury to personnel and/or damage to equipment.

NOTE

Operators should perform the corrective action in the order listed until the malfunction is corrected. If none of the steps correct the malfunction, notify unit maintenance.

b. Omissions. This manual cannot list all malfunctions that may occur. If a malfunction occurs that is not listed in table 3-1, notify unit maintenance.

c. Symptom Index. To find a specific malfunction, refer to the symptom index.

3-3. TROUBLESHOOTING SYMPTOM INDEX

MALFUNCTION NO.	MALFUNCTION	TROUBLESHOOTING PROCEDURE PAGE
	ENGINE	
1.	Engine starter switch is engaged but engine fails to start	3-4
2.	Engine cranks but does not start	3-5
3.	Engine cranks but fails to start at outside temperatures below 0°F (-18°C)	3-5
4.	Engine starts but misfires, runs rough, or lacks power	3-6
5.	Engine overheats as indicated by engine coolant temperature gauge	3-6
6.	Low engine oil pressure	3-7
7.	Excessive exhaust smoke after engine reaches normal operating temperature of 160°F to 230°F (71°C to 110°C)	3-7
	TRANSMISSION	
8.	No response to gear shift lever movement	3-8
9.	Rough shifting	3-8
10.	Lubricant leakage	3-8
	TRANSFER CASE	
11.	Transfer case shift lever will not shift or slips out of gear	3-8
12.	Transfer case lubricant leakage	3-8
	FRONT AND REAR AXLES	
13.	Front axle is noisy	3-8
14.	Rear axle is noisy	3-8

3-2

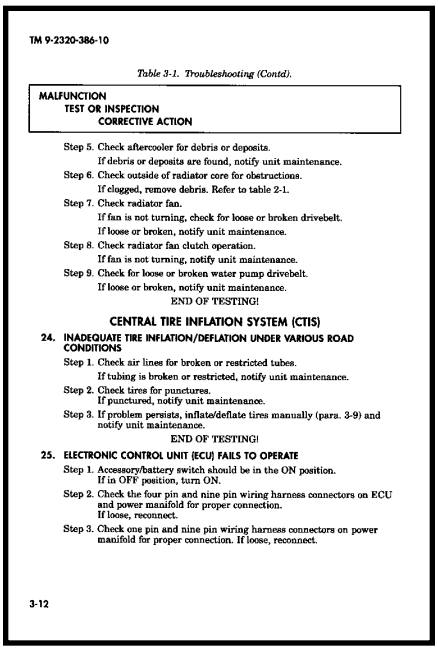

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Table 3-1. Troubleshooting (Contd).

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
Step 5. Check aftercooler for debris or deposits. If debris or deposits are found, notify unit maintenance.
Step 6. Check outside of radiator core for obstructions. If clogged, remove debris. Refer to table 2-1.
Step 7. Check radiator fan. If fan is not turning, check for loose or broken drivebelt. If loose or broken, notify unit maintenance.
Step 8. Check radiator fan clutch operation. If fan is not turning, notify unit maintenance.
Step 9. Check for loose or broken water pump drivebelt. If loose or broken, notify unit maintenance. END OF TESTING!
CENTRAL TIRE INFLATION SYSTEM (CTIS)
24. INADEQUATE TIRE INFLATION/DEFLATION UNDER VARIOUS ROAD CONDITIONS
Step 1. Check air lines for broken or restricted tubes. If tubing is broken or restricted, notify unit maintenance.
Step 2. Check tires for punctures. If punctured, notify unit maintenance.
Step 3. If problem persists, inflate/deflate tires manually (para. 3-9) and notify unit maintenance. END OF TESTING!
25. ELECTRONIC CONTROL UNIT (ECU) FAILS TO OPERATE
Step 1. Accessory/battery switch should be in the ON position. If in OFF position, turn ON.
Step 2. Check the four pin and nine pin wiring harness connectors on ECU and power manifold for proper connection. If loose, reconnect.
Step 3. Check one pin and nine pin wiring harness connectors on power manifold for proper connection. If loose, reconnect.

3-12

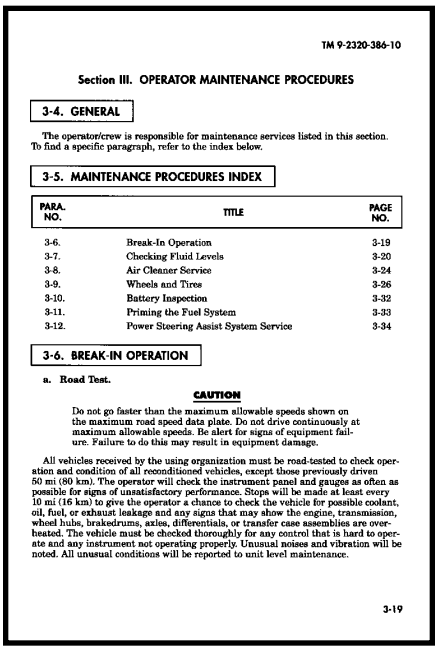
HOW TO USE THIS MANUAL (Contd)

USING YOUR MANUAL: EXAMPLE 3

TASK: You need to check the fluid levels, and are in need of instruction to complete this procedure.

MAINTENANCE PROCEDURES:

1. Look at the cover of this manual. You will see chapter and appendix titles listed from top to bottom on the right-hand side.
2. Look at the right edge of the manual. On some of the pages you will see bleed-to-edge indicators (black bars) that are aligned with bars on the cover. These are the locations of chapters and appendices in the text.
3. Look for OPERATOR MAINTENANCE in the list on the cover.
4. Turn to those pages with the edge indicator matching the black bar for Chapter 3, OPERATOR MAINTENANCE. (Page 3-1 is listed next to title.)
5. Locate Section III, OPERATOR MAINTENANCE PROCEDURES on page 3-1.
6. Look through the paragraph titles in paragraph 3-5, MAINTENANCE PROCEDURES INDEX, until you locate Checking Fluid Levels, para. 3-7 on page 3-20.
7. Turn to paragraph 3-7, CHECKING FLUID LEVELS on page 3-20.
8. Procedures include everything you must do to accomplish a basic maintenance task, such as checking fluid levels.
9. Before beginning a maintenance task, familiarize yourself with the entire maintenance procedure.
10. Pay particular attention to all notes, cautions, and warnings. They are designed to assist you with your task, prevent damage to the vehicle and its components, and protect you from injury.



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Section III. OPERATOR MAINTENANCE PROCEDURES

3-4. GENERAL

The operator/crew is responsible for maintenance services listed in this section. To find a specific paragraph, refer to the index below.

3-5. MAINTENANCE PROCEDURES INDEX

PARA. NO.	TITLE	PAGE NO.
3-6.	Break-In Operation	3-19
3-7.	Checking Fluid Levels	3-20
3-8.	Air Cleaner Service	3-24
3-9.	Wheels and Tires	3-26
3-10.	Battery Inspection	3-32
3-11.	Priming the Fuel System	3-33
3-12.	Power Steering Assist System Service	3-34

3-6. BREAK-IN OPERATION

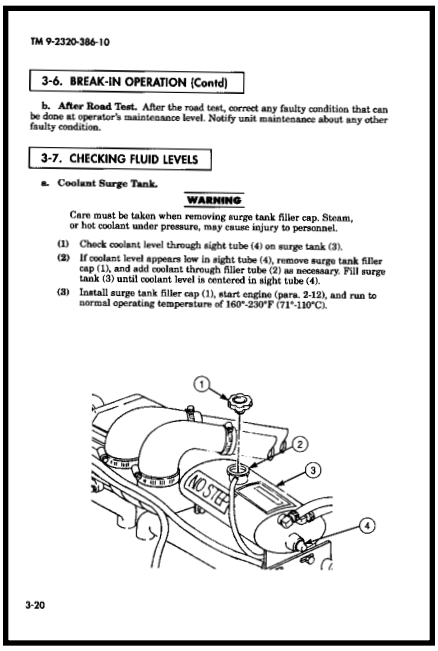
a. **Road Test.**

CAUTION

Do not go faster than the maximum allowable speeds shown on the maximum road speed data plate. Do not drive continuously at maximum allowable speeds. Be alert for signs of equipment failure. Failure to do this may result in equipment damage.

All vehicles received by the using organization must be road-tested to check operation and condition of all reconditioned vehicles, except those previously driven 50 mi (80 km). The operator will check the instrument panel and gauges as often as possible for signs of unsatisfactory performance. Stops will be made at least every 10 mi (16 km) to give the operator a chance to check the vehicle for possible coolant, oil, fuel, or exhaust leakage and any signs that may show the engine, transmission, wheel hubs, brakedrums, axles, differentials, or transfer case assemblies are overheated. The vehicle must be checked thoroughly for any control that is hard to operate and any instrument not operating properly. Unusual noises and vibration will be noted. All unusual conditions will be reported to unit level maintenance.

3-19



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3-6. BREAK-IN OPERATION (Contd)

b. **After Road Test.** After the road test, correct any faulty condition that can be done at operator's maintenance level. Notify unit maintenance about any other faulty condition.

3-7. CHECKING FLUID LEVELS

a. **Coolant Surge Tank.**

WARNING

Care must be taken when removing surge tank filler cap. Steam, or hot coolant under pressure, may cause injury to personnel.

(1) Check coolant level through sight tube (4) on surge tank (3).

(2) If coolant level appears low in sight tube (4), remove surge tank filler cap (1), and add coolant through filler tube (2) as necessary. Fill surge tank (3) until coolant level is centered in sight tube (4).

(3) Install surge tank filler cap (1), start engine (para. 2-12), and run to normal operating temperature of 160°-230°F (71°-110°C).

3-20

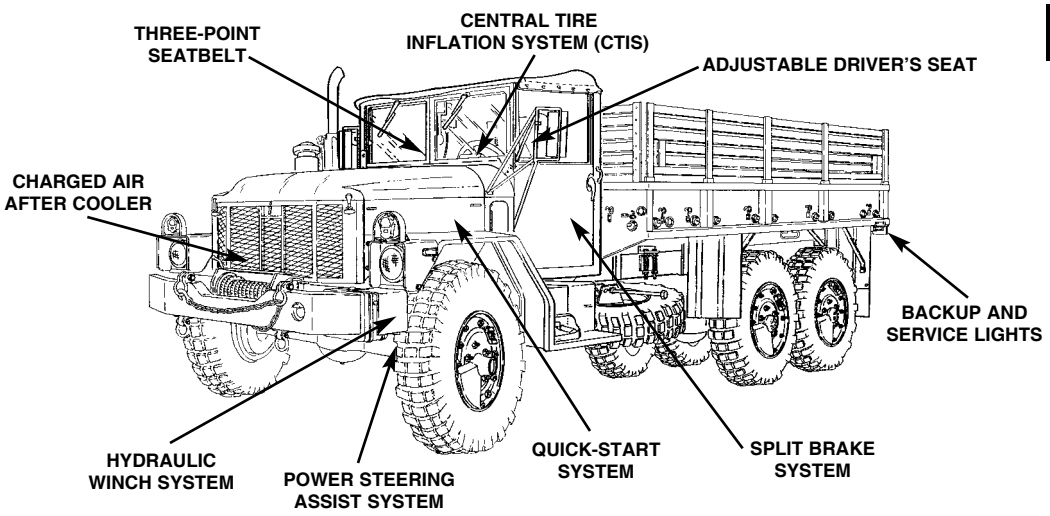
HOW TO USE THIS MANUAL (Contd)

USING THIS MANUAL: EXAMPLE 3 (Contd)

11. An exploded diagram of the component, removed from the vehicle, shows part locations, attachments, and assembly relationships.
12. Numbered callouts, found with the art and text and arranged in a clockwise pattern, will make it easier for you to identify parts and locations.
13. Examine this manual and you will discover it is easier to use when you understand its design. We hope it will encourage you to use it often.

CHAPTER 1
INTRODUCTION

Section I. General Information (page 1-2)
Section II. Equipment Description (page 1-5)
Section III. Principles of Operation (page 1-14)



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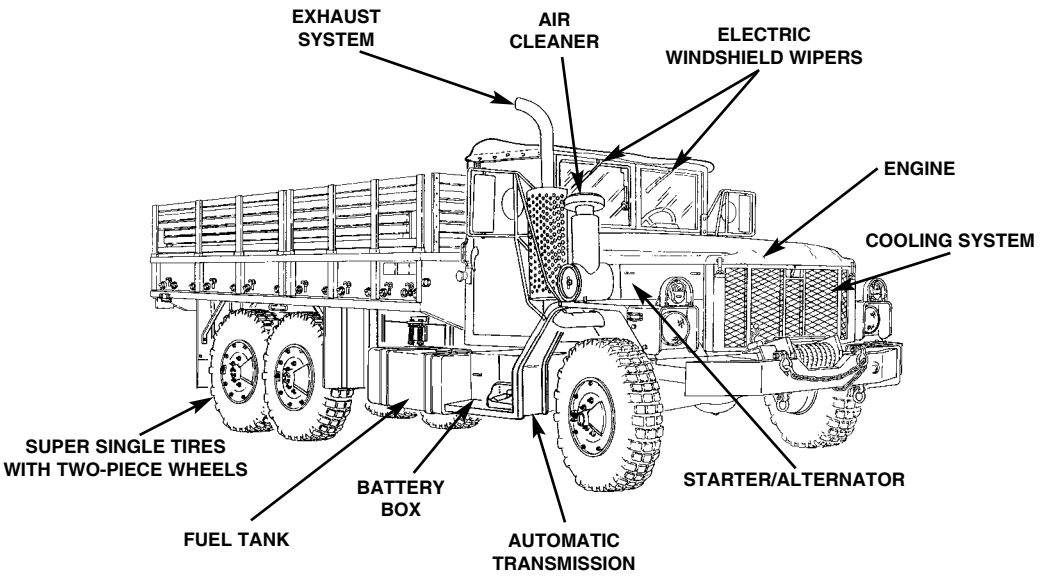

M36A3

Section I. GENERAL INFORMATION

1-1. SCOPE

a. This manual contains instructions for operating and servicing 2-1/2-ton, 6x6, M44A2 series vehicles which have been remanufactured through the Extended Service Program (ESP). These vehicles are:

(1) M35A3, Cargo Truck, WO/W and W/W (Fixed Side)
(2) M35A3C, Cargo Truck, WO/W and W/W (Dropside)
(3) M36A3, Cargo Truck, WO/W and W/W (Long Wheelbase)

b. The material presented here provides operators with information and procedures needed to provide the safest and most efficient operation and servicing of these vehicles. This information includes:

(1) Vehicle limitations.
(2) The function of controls.
(3) Operation instructions for vehicle.
(4) Cautions and warnings to operators regarding safety to personnel and equipment.
(5) Operator maintenance checks and services.
(6) Troubleshooting procedures to be followed by operator if the vehicle malfunctions.
(7) Operator forms and records.

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, The Army Maintenance Management System (TAMMS).

1-3. CORROSION PREVENTION AND CONTROL (CPC)

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

1-3. CORROSION PREVENTION AND CONTROL (CPC) (Contd)

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 Standard Form 368, Product Quality Deficiency Report. Use of key words such as corrosion, rust, deterioration, or cracking will ensure that the information is identified as a CPC problem.

The form should be submitted to the address specified in DA Pam 738-750.

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

Procedures for destruction of Army materiel to prevent enemy use can be found in TM 750-244-6.

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

If the design of your vehicle needs improvement, let us know. If your vehicle is in proper operating condition and there are problems with vehicle or equipment performance, send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. It is not necessary to show a new design or a better way to perform a procedure. Just let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). You may also mail, fax or email your letter, DA Form 2028, or DA Form 2028-2 direct to: AMSTA-LC-CI/TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

1-6. WARRANTY INFORMATION

Extended Service Program (ESP) vehicles have an engine (Caterpillar) warranty of 150,000 miles or three years. They also have a transmission (Allison) warranty of two years with unlimited mileage. The warranty starts on the date found in block 23, DA Form 2408-9 in the log book.

1-7. USE OF THE METRIC SYSTEM

The equipment/system described herein contains metric components and requires metric common and special tools; therefore, metric units in addition to U.S. standard units will be used throughout this publication.

1-8. LIST OF ABBREVIATIONS

The following is a list of special abbreviations that appear in this manual. For a list of standard abbreviations that appear in this manual, refer to MIL-STD-12.

AAL – Additional Authorization List
AC – Alternating Current
Ah – Ampere hour
AOAP – Army Oil Analysis Program
AR – Army Regulation
ATAAC – Air-To-Air After Cooler
BFS – Brake Fluid, Silicone
BII – Basic Issue Item
C – Country
cm – Centimeter
cmm – Cubic meters per minute
C/MR – Change when Maintenance Requires
CAGEC – Commercial and Government Entity Code
cfm – Cubic feet per minute
COEI – Components of End Item
Contd – Continued
CPC – Corrosion Prevention and Control
CTIS – Central Tire Inflation System
CW – Chain (and) Wire Rope (lubricating oil)
°C – Celsius
DA – Department of the Army
DF – Diesel Fuel
E – Emergency
ECU – Electronic Control Unit
EIR – Equipment Improvement Recommendations
EIR MD – Equipment Improvement Report and Maintenance Digest
ESP – Extended Service Program
FSCM – Federal Supply Code for Manufacturer
°F – Fahrenheit
GAA – Grease, Automotive, and Artillery
GO – Lubricating Oil
g – Gram
H – Highway
HP – Horsepower
J – Joules
JP – Jet propulsion
kg – Kilogram
km – Kilometer
kPa – Kilopascal
L – Liter
LCD – Liquid Crystal Display
LO – Lubrication Order
m – Meter
m^3/min – Cubic meters per minute
MIL-STD – Military Standard
ml – Milliliter
mm – Millimeter
MT – Metric ton
N – Neutral
N – Newton
NATO – North Atlantic Treaty Organization
NBC – Nuclear, Biological, Chemical
NEU – Neutral
NSN – National Stock Number
N·m – Newton meter
OC – On-Condition
OEA – Oil, Engine (arctic)
OE/HDO – Lubricating Oil, Internal Combustion Engine, Tactical
PMCS – Preventive Maintenance Checks and Services
PPS – Priority Pressure Switch
psi – Pounds per square inch
R – Reverse
RPM – Revolutions per minute
S – Snow
SF – Standard Form
STE/ICE-R – Simplified Test Equipment for Internal Combustion Engines-Reprogrammable
TAMMS – The Army Maintenance Management System
TB – Technical Bulletin
TM – Technical Manual
TP – Technical Publication
v – Volts

1-9. GLOSSARY

The following list shows definitions of military terms that appear in this manual. Other terms in this manual are defined in the paragraph where they first appear.

Angle of Approach – Angle between front tires and front bumper

Angle of Departure – Angle between rear tires and rear bumperettes

Fording – Crossing through water

Grade – Steepness of terrain

Hydraulic – Operated by oil pressure

Operator – Driver of vehicle

Paulin – Canvas cover or tarpaulin (tarp)

Slaving – Jump-starting

Section II. EQUIPMENT DESCRIPTION

1-10. EQUIPMENT DESCRIPTION INDEX

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1-12.	Location and Description of Major Components	1-7
1-13.	Differences Between Models	1-8
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1-16.	Tabulated Data	1-13

1-11. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. Equipment Characteristics and Capabilities.

The M35A3, M35A3C, and M36A3 cargo trucks are used for transporting troops or heavy loads. The trucks have a new engine and automatic transmission, and rebuilt transfer case and axles. Other new subsystems include new cooling, exhaust, air intake, split-brakes, fuel, electrical, power-assist steering, driver's seatbelt, super-single tires with two-piece wheels, Chemical Agent Resistant Coating (CARC) paint, Simplified Test Equipment/Internal Combustion Engine-Reprogrammable (STE/ICE-R), and Central Tire Inflation System (CTIS).

1-11. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (Contd)

All ESP vehicles have improved mobility and can traverse all types of roads and cross-country terrain in extreme high or low temperatures and humidity. The trucks are capable of fording hard-bottom water crossings up to 30 inches (76 centimeters) without a deepwater fording kit, and 72 inches (183 centimeters) with the fording kit. Front lifting shackles and vehicle tiedown brackets provide a means of lifting and securing the truck during transport.

b. Equipment Features.

(1) Engine is a Caterpillar 3116 Air-to-Air After Cooler (ATAAC) diesel, 170 HP, 420 lb-ft (570 N•m), designed to meet or exceed performance requirements of the 2-1/2-ton ESP vehicle.

(2) Automatic transmission is an Allison AT-1545P, 4-speed, which shifts automatically in all forward ranges and requires no operator action uncommon to standard automatic transmission.

(3) Transfer case is a Rockwell T-136, 2-speed, which in conjunction with the transmission, provides up to 8 forward and 2 rearward speed ranges to front and rear differentials.

(4) Front and rear axles are Rockwell C-240.

(5) Wheels are two-piece Motorwheel 20 x 11.00.

(6) Tires are Michelin 14.5 R20XL tubeless radials with a minimum life of 10,000 miles (16,090 km).

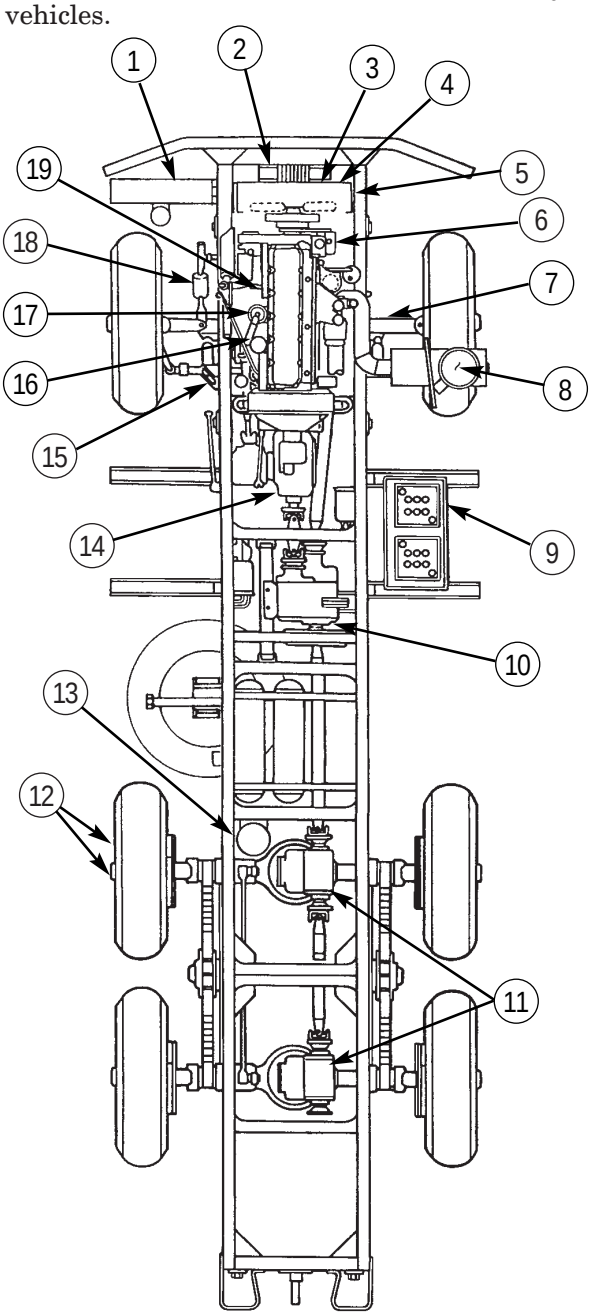
(7) Power assist steering cylinder and drag link are manufactured by Sycon.

(8) Central Tire Inflation System (CTIS), designed by CM Automotive Systems, allows the truck operator to monitor and regulate tire pressure from driver's compartment before and during vehicle operation.

(9) Air cleaner element has a capacity of 26.9 hours at 580 cfm (16 m^3/min) and is manufactured by Nelson.

1-12. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

This illustration shows the location of major equipment and components of ESP vehicles.



1. Front winch hydraulic oil reservoir
2. Front winch
3. Transmission oil cooler (oil-to-air)
4. Charged air cooler
5. Radiator
6. Surge tank
7. Front axle
8. Air cleaner
9. Batteries
10. Transfer case
11. Rear axles
12. Wheels/tires
13. Air dryer
14. Automatic transmission
15. Power assist steering cylinder
16. Engine oil dipstick
17. Engine oil fill
18. Drag link
19. Engine