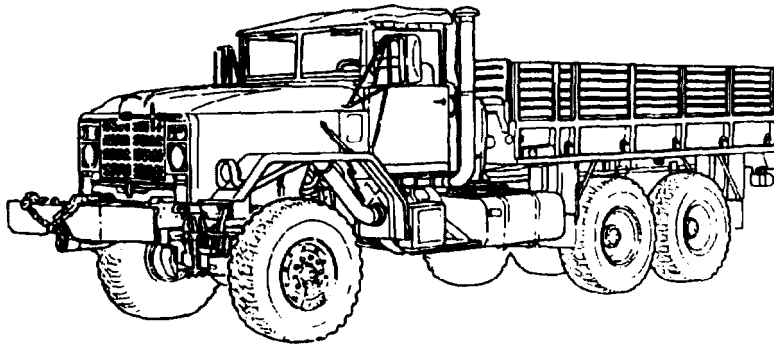


ARMY TM 9-2320-272-24-1 AIR FORCE TO 36A12-1C-1155-2-1

This publication supersedes TM 9-2320-272-20-1, October 1985, and changes 1 through 4; TM 9-2320-272-20-2, October 1985, and changes 1 through 3; TM 9-2320-272-34-1, June 1986, and changes 1 through 2; TM 9-2320-272-34-2, June 1986, and changes 1 and 2; and TM 9-2320-358-24&P, October 1992

TECHNICAL MANUAL VOLUME 1 OF 4 UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL FOR TRUCK, 5-TON, 6X6, M939, M939A1, M939A2 SERIES TRUCKS (DIESEL)



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SERVICE AND TROUBLESHOOTING
INSTRUCTIONS 2-1

PREVENTIVE MAINTENANCE CHECKS
AND SERVICES (PMCS) 2-2

UNIT TROUBLESHOOTING 2-60

UNIT MAINTENANCE 3-1

TRUCK, CARGO: 5-TON, 6X6, DROPSIDE,

M923 (2320-01-050-2084) (EIC: BRY); M923A1 (2320-01-206-4087) (EIC: BSS); M923A2 (2320-01-230-0307) (EIC: BS7);
M925 (2320-01-047-8769) (EIC: BRT); M925A1 (2320-01-206-4088) (EIC: BST); M925A2 (2320-01-230-0308) (EIC: B58);

TRUCK, CARGO: 5-TON, 6X6 XLWB,

M927 (2320-01-047-8771) (EIC: BRV); M927A1 (2320-01-206-4089) (EIC: BSW); M927A2 (2320-01-230-0309) (EIC: BS9);
M928 (2320-01-047-8770) (EIC: BRU); M928A1 (2320-01-206-4090) (EIC: BSX); M928A2 (2320-01-230-0310) (EIC: BTM);

TRUCK, DUMP: 5-TON, 6X6,

M929 (2320-01-047-8756) (EIC: BTH); M929A1 (2320-01-206-4079) (EIC: BSY); M929A2 (2320-01-230-0305) (EIC: BTN);
M930 (2320-01-047-8755) (EIC: BTG); M930A1 (2320-01-206-4080) (EIC: BSZ); M930A2 (2320-01-230-0306) (EIC: BTO);

TRUCK, TRACTOR: 5-TON, 6X6,

M931 (2320-01-047-8753) (EIC: BTE); M931A1 (2320-01-206-4077) (EIC: BS2); M931A2 (2320-01-230-0302) (EIC: BTP);
M932 (2320-01-047-8752) (EIC: BTD); M932A1 (2320-01-205-2684) (EIC: BS5); M932A2 (2320-01-230-0303) (EIC: BTQ);

TRUCK, VAN, EXPANSIBLE: 5-TON, 6X6,

M934 (2320-01-047-8750) (EIC: BTB); M934A1 (2320-01-205-2682) (EIC: BS4); M934A2 (2320-01-230-0300) (EIC: BTR);

TRUCK, MEDIUM WRECKER: 5-TON, 6X6,

M936 (2320-01-047-8754) (EIC: BTF); M936A1 (2320-01-206-4078) (EIC: BS6); M936A2 (2320-01-230-0304) (EIC: BTT).

DISTRIBUTION STATEMENT A - Approved for public release; distribution is unlimited.

DEPARTMENTS OF THE ARMY AND THE AIR FORCE

JUNE 1998

WARNING**EXHAUST GASES CAN KILL**

1. DO NOT operate vehicle engine in enclosed area.
2. DO NOT idle vehicle engine with windows closed.
3. DO NOT drive vehicle with inspection plates or cover plates removed.
4. BE ALERT at all times for odors.
5. BE ALERT for exhaust poisoning symptoms. They are:
 - Headache
 - Dizziness
 - Sleepiness
 - Loss of muscular control
6. IF YOU SEE another person with exhaust poisoning symptoms:
 - Remove person from area
 - Expose to open air
 - Keep person warm
 - Do not permit person to move
 - Administer artificial respiration or CPR, if necessary*

* For artificial respiration, refer to FM 21-11.
7. BE AWARE: The field protective mask for Nuclear, Biological, or Chemical (NBC) protection will not protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST EXHAUST POISONING IS ADEQUATE VENTILATION.

WARNING SUMMARY

- Hearing protection is required for the driver and passenger. Hearing protection is also required for all personnel working in and around this vehicle while the engine is running (AR-40-5 and TB MED 501).
- If required to remain inside vehicle during extreme heat, occupants should follow the water intake, work/rest cycle, and other stress preventive measures (FM 21-10, Field Hygiene and Sanitation).
- If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult with your unit NBC officer or NBC NCO for appropriate handling or disposal instructions.
- This vehicle has been designed to operate safely and efficiently within the limits specified in this TM. Operation beyond these limits is prohibited by IAW AR 70-1 without written approval from the commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMCPEO-CM-S, Warren, MI 48397-5000.
- Never work under dump body unless safety braces are properly positioned. Failure to do this will result in injury to personnel.
- During winching operation, never stand between vehicles. Assistant must remain in secondary vehicle to engage service brake if cable snaps or automatic brake fails while towing vehicle. Failure to do this may result in injury to personnel.
- Accidental or intentional introduction of liquid contaminants into the environment is in violation of state, federal, and military regulations. Refer to Army POL (para. 1-7) for information concerning storage, use, and disposal of these liquids. Failure to do so may result in injury or death.
- Cleaning solvents are flammable and toxic. Do not use near open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to do this will result in injury to personnel and/or damage to equipment.
- Eyeshields must be worn when cleaning with compressed air. Compressed air source will not exceed 30 psi (207 kPa). Failure to do so may result in injury to personnel.
- Extreme care should be taken when removing surge tank filler cap if temperature gauge reads above 175°F (79°C). Steam or hot coolant under pressure will cause injury.
- Alcohol used in the alcohol evaporator is flammable, poisonous, and explosive. Do not smoke when removing alcohol evaporator or adding fluid, and do not drink fluid. Failure to do this will result in injury or death.
- Do not perform electrical circuit testing fuel tank with fill cap or sending unit removed. Fuel may ignite, causing injury to personnel.
- When performing battery maintenance, ensure batteries are seated and clamped down, all rubber boots are installed, clamps are well down on battery posts, and all battery cables lie flat against the top of the batteries. Failure to do this may result in injury to personnel and/or damage to equipment.
- Ensure companion seatbelts are not caught inside battery box. This will cause belts to rot which may lead to injury of personnel.
- On M938/A1/A2 model vehicles, remove spare tire prior to changing tire and install tire in spare tire carrier after tire change is complete. Operation of crane and/or vehicle engine while vehicle is on jacks may result in injury to personnel or damage to equipment.
- Never assemble or disassemble tire and rim assembly while inflated, use inflation to seat locking on split rim or tire on two-piece rim, or inflate a tire without a tire inflation cage. Injury to personnel may result.
- Do not disconnect air lines or hoses, remove safety valves or CTIS components, or perform brake chamber repairs before draining air reservoirs. Small parts under pressure may shoot out with high velocity, causing injury to personnel.

Warning b

WARNING SUMMARY (Contd)

- Remove all jewelry when working on electrical circuits. Jewelry coming in contact with electrical circuits may produce a short circuit, causing extreme heat, explosions, and fling particles of metal. Failure to do so will result in injury or death and damage to equipment.
- Use eyeshields and follow instructions carefully when performing assembling, disassembling, or maintenance on this device. Components of this device are under spring tension and may shoot out at a high velocity. Failure to do so will result in injury to personnel.
- Do not remove hoses with engine running or start engine with hoses removed. High-pressure fluids may cause hoses to whip violently and spray randomly. Failure to do so may result in injury to personnel.
- Keep hands out from between metal surfaces when removing heavy components. Failure to do so may result in injury to personnel.
- Keep personnel out from under equipment and components of equipment when supported by only a lifting device. Sudden loss of lifting power or shift in load may result in injury or death.
- Do not drain engine, transmission, or radiator fluids, or remove lines containing these fluids, when hot. Doing so may result in injury to personnel.
- Vehicle will become charged with electricity if it contacts or breaks high-voltage wires. Do not leave vehicle while high-voltage lines are in contact with vehicle. Failure to do so may result in injury to personnel.
- Wear hand protection when handling lifting and winching cables, hot exhaust components, and parts with sharp edges. Failure to do so may result in injury to personnel.
- Do not perform fuel system procedures while smoking or within 50 ft (15.2 m) of sparks or open flame. Diesel fuel is highly flammable and can explode easily, causing injury or death to personnel and/or damage to equipment.
- Ensure drainvalve on aftercooler is open when filling cooling system. Failure to do so may result in injury to personnel.
- Turbocharger intake fins are extremely sharp and turn at very high rpm. Keep hands and loose items away from intake openings. Failure to do so may result in injury to personnel.
- Do not place hands between frame and radiator when removing screws from trunnion or lifting radiator. Sudden changes in support may cause the radiator to shift, causing injury to personnel.
- Air pressure may create airborne debris. Use eye protection or injury to personnel may result.
- Air system components are subject to high pressure. Always relieve pressure before loosening or removing air system components.
- Wear safety goggles when using a hammer.
- Ether is extremely flammable. Do not perform ether start system procedures near fire. Injury to personnel may result.

Warning c/(Warning d blank)

TECHNICAL MANUAL
NO. 9-2320-272-24-1

HEADQUARTERS
DEPARTMENTS OF THE ARMY AND THE AIR FORCE
Washington, D.C., 30 JUNE 1998

TECHNICAL ORDER
NO. 36A12-1C-1155-2-1

TECHNICAL MANUAL
VOLUME 1 OF 4
UNIT, DIRECT SUPPORT, AND
GENERAL SUPPORT MAINTENANCE MANUAL
FOR

TRUCK, 5TON, 6X6, M939, M939A1, M939A2 SERIES TRUCKS (DIESEL)

TRUCK	MODEL	EIC	NSN WITHOUT WINCH	NSN WITH WINCH
Cargo, Dropside	M923	BRV	2320-01-050-2084	
Cargo, Dropside	M923A1	BSS	2320-01-206-4087	
Cargo, Dropside	M923A2	BS7	2320-01-230-0307	
Cargo, Dropside	M925	BRT		2320-01-047-8769
Cargo, Dropside	M925A1	BST		2320-01-206-4088
Cargo, Dropside	M925A2	BS8		2320-01-230-0308
Cargo	M927	BRV	2320-01-047-8771	
Cargo	M927A1	BSW	2320-01-206-4089	
Cargo	M927A2	BS9	2320-01-230-0309	
Cargo	M928	BRU		2320-01-047-8770
Cargo	M928A1	BSX		2320-01-206-4090
Cargo	M928A2	BTM		2320-01-230-0310
Dump	M929	BTH	2320-01-047-8756	
Dump	M929A1	BSY	2320-01-206-4079	
Dump	M929A2	BTN	2320-01-230-0305	
Dump	M930	BTG		2320-01-047-8755
Dump	M930A1	BSZ		2320-01-206-4080
Dump	M930A2	BTO		2320-01-230-0306
Tractor	M931	BTE	2320-01-047-8753	
Tractor	M931A1	BS2	2320-01-206-4077	
Tractor	M931A2	BTP	2320-01-230-0302	
Tractor	M932	BTD		2320-01-047-8752
Tractor	M932A1	BS5		2320-01-205-2684
Tractor	M932A2	BTQ		2320-01-230-0303
Van, Expansible	M934	BTB	2320-01-047-8750	
Van, Expansible	M934A1	BS4	2320-01-205-2682	
Van, Expansible	M934A2	BTR	2320-01-230-0300	
Medium Wrecker	M936	BTF		2320-01-047-8754
Medium Wrecker	M936A1	BS6		2320-01-206-4078
Medium Wrecker	M936A2	BTT		2320-01-230-0304

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual, directly to: Director, Armament and Chemical Acquisition and Logistics Activity, ATTN: AMSTA-AC-NML, Rock Island, IL 61299-7630. A reply will be furnished to you. You may also provide DA Form 2028-2 information via datafax or e-mail:

- E-mail: am&a-ac-nml. @ria-emh2.army.mil
- Fax: DSN 783-0726 or commercial (309) 782-0726

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This publication is published in four volumes. TM 9-2320-272-24-1 contains chapters 1,2, and 3 (through section IX). TM 9-2320-272-24-2 contains chapters 3 (sections X through XVI) and 4 (sections I through III). TM 9-2320-272-24-3 contains chapter 4 (sections IV through XVI). TM 9-2320-272-24-4 contains chapters 5 and 6 and appendices A through H. Volume 1 contains a table of contents for the entire manual. Volumes 1,2, and 3 contain an alphabetical index covering tasks found in their respective volume. Volume 4 contains an alphabetical index covering all tasks found in the entire manual.

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HOW TO USE THIS MANUAL

ABOUT YOUR MANUAL

Spend some time looking through this manual. You'll find that it has a new look, different than most TMs you've been using, including its predecessors, TM 9-2320-272-20-1, TM 9-2320-272-20-2, TM 9-2320-272-34-1, TM 9-2320-272-34-2, and TM 9-2320-358-24&P.

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

- a. **Accessing Information** - These include physical entry features such as the bleed-to-edge indicators on the cover and edge of the manual. Extensive 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 fixing components much easier. Locator illustrations with keyed text, exploded views, and cut-away diagrams make the information in this manual easier to understand and follow.
- c. **Commonality** - Only items that are unique to a specific series or vehicle will be given a separate procedure. When only minor differences occur, notes are added to tell you to alter the normal procedure in one way or another to accommodate the differences.
- d. **Keying Text with Illustrations** - Instructions/text are located together with illustrations of the specific task you are performing. In most cases, the task steps and illustrations are located on facing pages, with text on the left and illustrations on the right. Continue reading for an example of modular text and illustration layout,

HOW TO USE THIS MANUAL

Here's an example of how to use your manual:

Task: The unit maintenance mechanic of an M939 series vehicle reports that the engine cranks but fails to start.

Troubleshooting steps:

1. Look at the cover of this manual. You'll see subjects 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'll see black bars (edge indicators) that are aligned with the subject bars on the cover. These are the locations of the subjects in the manual.
3. Look for UNIT TROUBLESHOOTING in the subject list on the cover,
4. Turn to the page with the edge indicator matching the subject bar for UNIT TROUBLESHOOTING. Page numbers are also listed next to the subject titles.
5. An edge indicator is placed on the first page of the UNIT TROUBLESHOOTING.

NOTE

If the first page of a subject has an even-numbered page, it will appear on your left, but the edge indicator will still be on the page to your right. So, if the information you are looking for does not start on the page to your right, it will on the page to your left.

6. Look down the list until you find ENGINE. Beneath that heading you will find the symptoms noted by the maintenance mechanic: Engine cranks, fails to start.
7. Turn to the page indicated: page 2-9.
8. On page 2-9, steps/test relating to resolving the malfunction of "Engine cranks, fails to start," are:
 - Step 1. You inspect the fuel pump shutoff valve and find it is defective and must be replaced. You see para. 4-6 referenced.
 - Step 2. The rest of the inspection shows no other cause for the problem.
9. Locate para. 4-5, and you will find the detailed procedure for removing the old fuel pump shutoff valve and replacing it with a new one.

HOW TO USE THIS MANUAL (Contd)

NOTE

Before starting the maintenance task, look through the entire procedure to familiarize yourself with it.

- a. The entire procedure (4-5. FUEL PUMP SHUTOFF REPLACEMENT), according to the THIS TASK COVERS header, includes: a. Removal and b. Installation.
- b. The nine basic subheadings listed under INITIAL SETUP outline the task preconditions, materials, tools, manpower requirements, and general safety instructions. They are:
 - APPLICABLE MODELS: Any models that require that particular maintenance task.
 - TEST EQUIPMENT: Test equipment needed to complete a task.
 - SPECIAL TOOLS : Those tools required to complete the task.
 - MATERIALS/PARTS: All parts or materials required to complete the task.
 - PERSONNEL REQUIRED: The number and type of personnel needed to accomplish a task.

NOTE

If you think you need more help to correctly or safely complete the task (perhaps as a result of an unusual condition, etc.), alert your supervisor and ask for help.

- REFERENCES(TM): Those manuals required to complete the task.
 - EQUIPMENT CONDITION Notes the conditions that must exist before starting the task. For (4-5. FUEL PUMP SHUTOFF REPLACEMENT), the hood must be raised and secured (TM 9-2320-272-10), and the left splash shield removed (TM 9-2320-272-10).
 - SPECIAL ENVIROMENTAL CONDITIONS: Outlines specific environmental conditions necessary to perform the task. For example: Darken an area when adjusting headlight beams.
 - GENERAL SAFETY INSTRUCTIONS: Summarizes all safety warnings for the maintenance task.
- c. A step-by-step maintenance procedure follows the INITIAL SETUP.
 - d. At the end of the procedure, FOLLOW-ON TASK(S) will list those additional task(s) that must be performed to complete the procedure. The follow-on tasks for 4-5. FUEL PUMP SHUTOFF REPLACEMENT are: Start engine (TM 9-2320-272-10), check fuel pump shutoff valve for proper operation (TM 9-2320-272-101, install left. splash shield (TM 9-2320-272-10), and lower and secure hood (TM 9-2320-272-10X)
10. Refer to our example procedure, 4-5. FUEL PUMP SHUTOFF REPLACEMENT as we review the following points:
 - a. Modular Text: Both pages of text and illustrations are to be used together. This manual was designed so that the two pages are visible at once, making part identification and procedure sequence easy to follow.
 - b. Initial Setup: Outlines task conditions.
 - c. Illustrations: An exploded view of the components removed from the vehicle shows part locations, attachments, and spatial relationships.
 11. Refer to TM 9-2320-272-24P, Unit, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for Truck, 5-Ton, 6x6, M939, M939A1, M939A2 Series Trucks, when requisitioning parts and special tools for Unit, Direct Support, and General Support maintenance,
 12. Your manual is easier to use once you understand its design. We hope it will encourage you to use it more often.

CHAPTER 1 INTRODUCTION

- Section I. General Information (page 1-1)
- Section II. Equipment Description and Data (page 1-5)
- Section III. Principles of Operation (page 1-25)

Section I. GENERAL INFORMATION

1-1. SCOPE

a. This manual contains information and instructions needed to service and maintain 5-ton, 6x6, M939, M939A1, and M939A2 (M939/A1/A2) series vehicles by unit, direct support, and general support maintenance personnel. This manual is intended to be used in conjunction with TM 9-2320-272-10 and TM 9-2320-272-24P for overall completion of tasks found in this manual.

b. The vehicle model numbers and description of vehicles covered in this manual are:

Table 1-1. Vehicle Cross-Reference Table.

VEHICLE DESCRIPTION	M939 SERIES	M939A1 SERIES	M939A2 SERIES
Truck, Cargo, Dropside, Without Winch (WO/W)	M923 (EIC: BRY)	M923A1 (EIC: BSS)	M923A2 (EIC: BS7)
Truck, Cargo, Dropside, With Winch (W/W)	M925 (EIC: BRT)	M925A1 (EIC: BST)	M925A2 (EIC: BS8)
Truck, Cargo, Extra Long Wheelbase (XLWB), Without Winch (WO/W)	M927 (EIC: BRV)	M927A1 (EIC: BSW)	M927A2 (EIC: BS9)
Truck, Cargo, Extra Long Wheelbase (XLWB), With Winch (W/W)	M928 (EIC: BRU)	M928A1 (EIC: BSX)	M928A2 (EIC: BTM)
Truck, Dump, Without Winch (WO/W)	M929 (EIC: BTH)	M929A1 (EIC: BSY)	M929A2 (EIC: BTN)
Truck, Dump, With Winch (W/W)	M930 (EIC: BTG)	M930A1 (EIC: BSZ)	M930A2 (EIC: BTO)
Truck, Tractor, Without Winch (WO/W)	M931 (EIC: BTE)	M931A1 (EIC: BS2)	M931A2 (EIC: BTP)
Truck, Tractor, With Winch (W/W)	M932 (EIC: BRD)	M932A1 (EIC: BS5)	M932A2 (EIC: BTQ)
Truck, Van, Expansibile	M934 (EIC: BTB)	M934A1 (EIC: BS4)	M934A2 (EIC: BTR)
Truck, Medium Wrecker	M936 (EIC: BTF)	M936A1 (EIC: BS6)	M936A2 (EIC: BTT)

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).

1-3. 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.

1-4. PREPARATION FOR STORAGE OR SHIPMENT

Storage and shipment instructions are found in chapter 6. Additional information can be found in TM 740-90-1, Marking, Packing, and Shipment of Supplies and Equipment: General Packaging Instructions for Field Use.

1-5. OFFICIAL NOMENCLATURE

The nomenclature, names, and designations used in this manual are in accordance with MIL-HDBK-63038-2.

1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs); REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes 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 back of this manual direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AC-NML, Rock Island, IL 61299-7630. A reply will be furnished to you.

1-7. WARRANTY INFORMATION

The 5-ton, 6x6, M939/A1 series vehicle Cummins engine (model NHC 250) and Allison transmission (model MT564CR) are warranted in accordance with TB 9-2300-295-15/21. The warranty starts on the date found in block 23, DA Form 2408-9, in logbook. Report all defects in material or workmanship to your supervisor, who will take appropriate action.

1-8. ARMY PETROLEUM, OILS, AND LUBRICANTS (POL)

Proper disposal of hazardous waste material is vital to protecting the environment and providing a safe work environment. Materials such as batteries, oils, and antifreeze must be disposed of in a safe and efficient manner.

The following references are provided as a means to ensure proper disposal methods are followed:

- Technical Guide No. 126 (from the U.S. Army Environmental Hygiene Agency)
- National Environmental Policy Act of 1969 (NEPA)
- Clean Air Act (CAA)
- Resource Conservation and Recovery Act (RCRA)
- Comprehensive Environmental Response, Compensation, and Liability Act
- Emergency Planning and Community Right to Know Act (EPCRA)
- Toxic Substances Control Act (TSCA)
- Occupational Health and Safety Act (OHSA)

The disposal of Army Petroleum, Oils, and Lubricants (POL) products are affected by some of these regulations. State regulations may also be applicable to POL. If you are unsure of which legislation affects you, contact state or local agencies for regulations regarding proper disposal of Army POL.

1-9. USE OF METRIC SYSTEM

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

1-10. LIST OF ABBREVIATIONS

AOAP - Army Oil Analysis Program	mm - millimeter
bx - box	mpg - miles per gallon
CAGEC - Commercial and Government Entity Code	mph - miles per hour
cm - centimeter	N•m - Newton meter
CTIS - Central Tire Inflation System	NATO - North Atlantic Treaty Organization
cu-ft - cubic feet	OZ - ounce
cu-yd - cubic yard	para. - paragraph
cuM - cubic Meter	PMCS - Preventive Maintenance Checks and Services
ea - each	POL - Petroleum, Oils, and Lubricants
ft - feet	psi - pounds per square inch
GM - Grease, Automotive and Artillery	pt - pint
GTW - Gross Towed Weight	PTO - Power Takeoff
gal. - gallon	qt - quart
in. inch	rpm - revolutions per minute
kg- kilograms	SEA - Standard, Engineering, and Automotive
km/h - kilometers per hour	TMDE - Test, Measurement, and Diagnostic Equipment
km/L - kilometers per liter	U/M - Unit of Measure
kPa - kiloPascal	W/W - With Winch
L - liter	WO/W - Without Winch
lb-ft - pound-feet	XLWB - Extra Long Wheelbase
lb - pound	
max - maximum	
min - minimum	

1-11. GLOSSARY

APPROACH ANGLE - Angle between front tire and front bumper
DEPARTURE ANGLE - Angle between rear tire and rear bumper
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 AND DATA

1-12. EQUIPMENT DESCRIPTION AND DATA INDEX

PARA. NO.	TITLE	PAGE NO.
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1-13. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. The M939, M939A1, and M939A2 (M939/A1/A2) series of vehicles are varied in design and capabilities. The M939 was a redesign and retrofit of the MS09 series of vehicles, providing enhanced capabilities.

(1) The leading features of the M939 are:

- (a) Automatic transmission (Allison MT654)
- (b) Hydraulic-assisted power steering system
- (c) Complete airbrake system
- (d) Improved cooling system
- (e) Three-crewmember cab
- (f) Tilt hood

(2) Changes were incorporated into later production engines (after engine serial number 11246663) which provided for control of exhaust gas recirculation back to the air intake manifold and the use of top-stop injectors to make up a clean air configuration.

(3) The M939A1 improved on the M939 by adding 14:00xR20 super-sized tires, increasing the minimum road clearance and approach and departure angle. This necessitated a modification to the spare tire rack and lifting device used on all series vehicles.

(4) The M939A2 incorporated a new engine (Cummins 6CTA8.3) and the Central Tire Inflation System (CTIS).

b. The M939/A1/A2 series vehicles can be distinguished from the M809 series by the following features:

(1) On the left side, the exhaust was moved behind the cab and tilted out so exhaust gases clear the side of the vehicle. Hood latches were installed on the sides of the hood near the mirrors. The battery box was incorporated into the companion seat to improve battery life in cold climates. A steering-assist cylinder was installed between the right front frame rail and the right axle hub.

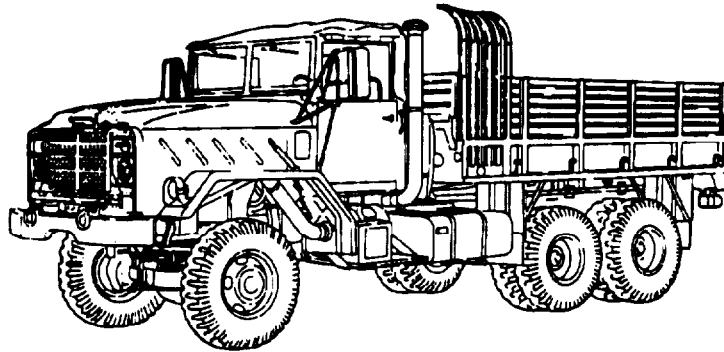
(2) From the front, the hood and fenders are an assembly which tilt forward for access to the engine compartment. A tilt handle and locking device was installed to tilt and hold the hood in a secured open position.

(3) The air filter was moved under the driver's door and the intake stack was brought up behind the cab, even with the cab top.

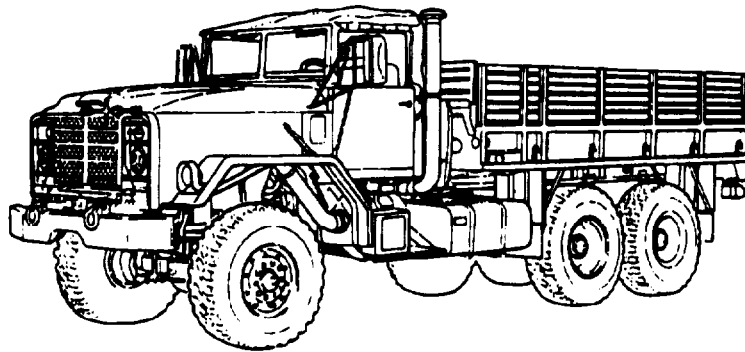
1-13. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (Contd)

c. Cargo Trucks With Dropsides: M923/A1/A2 WO/W and M925/A1/A2 W/W.

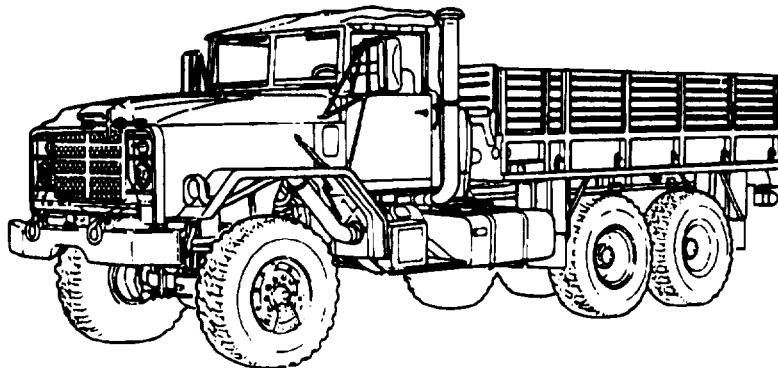
PURPOSE: These models are used to transport cargo and troops. The vehicles have a payload rating of 10,000 lbs (4,540 kg) and provide 550 cu-ft (15.4 CuM) of cargo space. Removable dropsides and tailgate permit hauling of extra wide loads and easy access for unloading cargo. Troop seats, bows, and canvas are also available. The M925/A1/A2 models have front winches and can be used for recovery operation. The bed of the M923A1/A2 and M925A1/A2 has been shifted back to facilitate a new lifting davit and spare tire mount. When the tire is mounted in its storage location on the M923A1/A2 and M925A1/A2, the top of the tire extends above the minimal reducible height and may need to be removed to obtain the necessary measurement.



M923

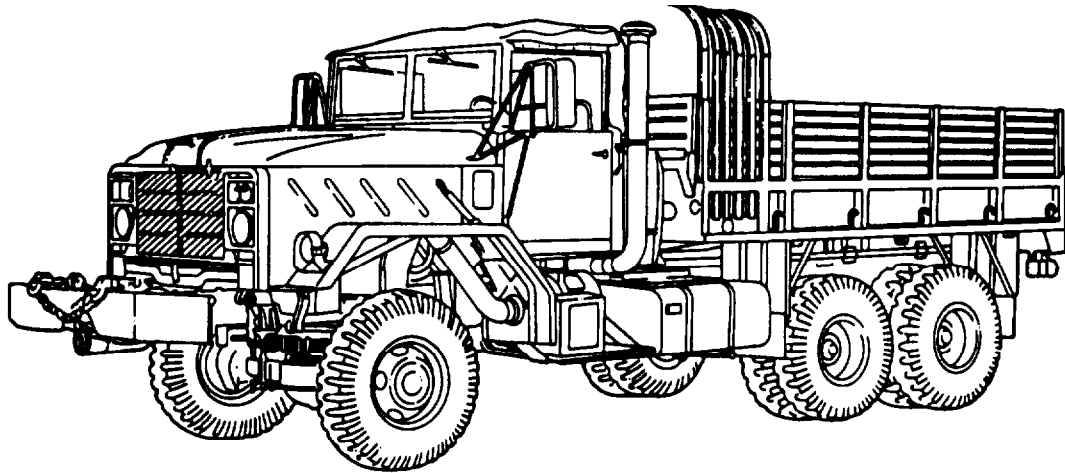


M923A1

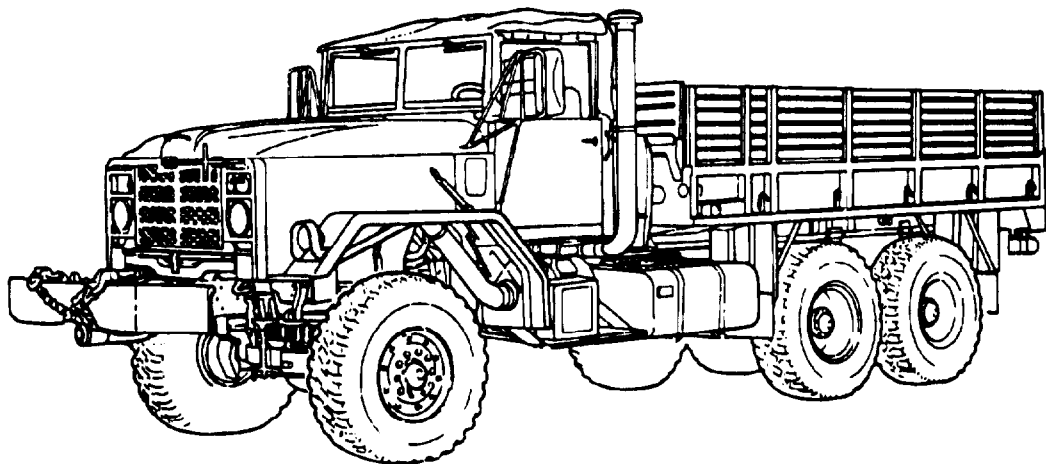


M923A2

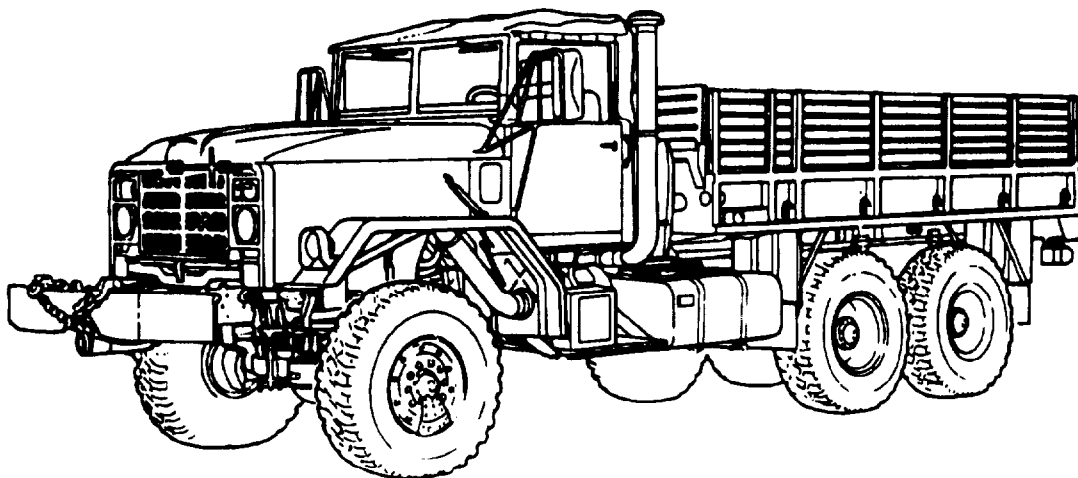
1-13. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (Contd)



M925



M925A1

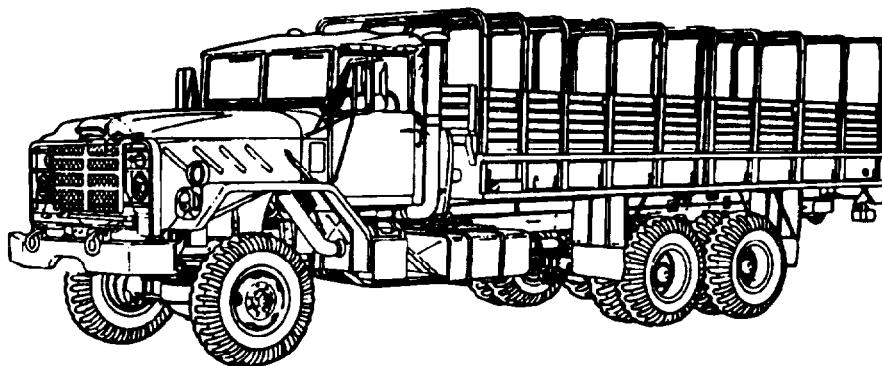


M925A2

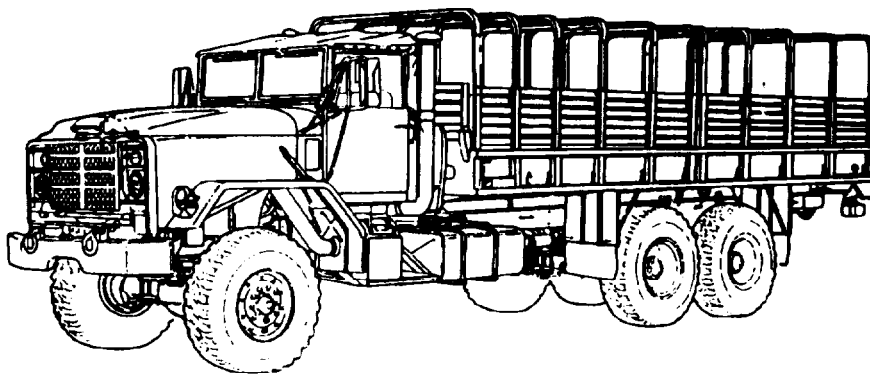
1-13. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (Contd)

d. Cargo truck With Extra Long Wheelbase (XLWB): M927/A1/A2 WO/W and M928/A1/1A2 W/W.

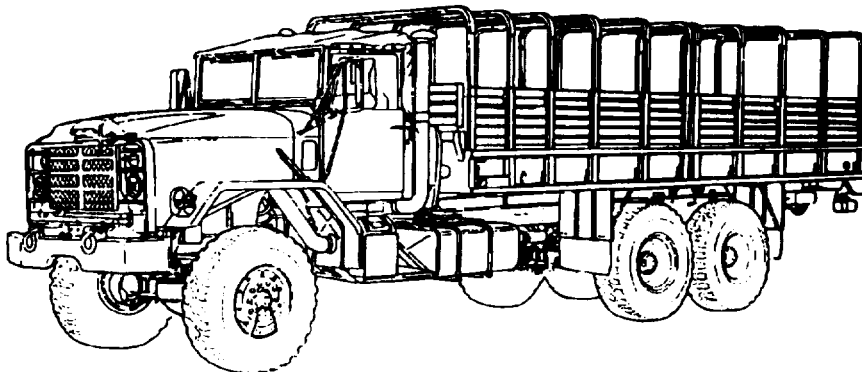
PURPOSE: These models are used to transport troops and longer cargo loads. They have the same characteristics as the M923/A1/A2 and M925/A1/A2, but have additional 76 in. (193 cm) of bed space that allows an extra 194 cu-ft (5.4 cuM) of cargo space. Troop seats, bow, and tarpaulin are available. This vehicle has permanent steel-welded sides. The M928/A1/A2 model vehicles have winches and can be used for recovery operations. The bed of the M923A1/A2 and M925A1/A2 has been shifted back to facilitate a new lifting davit and spare tire mount. When the tire is mounted in its storage location on the M923A1/A2 and M925A1/A2, the top of the tire extends above the minimal reducible height and may need to be removed to obtain the necessary measurement.



M927



M927A1



M927A2