

ARMY TM 9-2320-260-10 AIR FORCE TO 36A12-1C-481

TECHNICAL MANUAL OPERATOR'S MANUAL TRUCK, 5-TON, 6X6, M809 SERIES (DIESEL)



**TRUCK, CARGO: M813, M813A1, M814;
TRUCK, BOLSTER, LOGGING: M815;
TRUCK, WRECKER, MEDIUM: M816;
TRUCK, DUMP: M817;
TRUCK, TRACTOR: M818;
TRUCK, TRACTOR, WRECKER: M819;
TRUCK, VAN, EXPANSIBLE: M820, M820A1, M820A2;
TRUCK, STAKE, BRIDGE TRANSPORTING: M821**

HEADQUARTERS, DEPARTMENT OF THE ARMY

This copy is a reprint which includes current pages from Changes 1 through 4.

14 JUNE 1985

WARNING

EXHAUST CASES CAN KILL!

Brain damage or death can result from heavy exposure. Precautions must be followed to insure crew safety when the personnel heater or engine of any vehicle is operated for any purpose.

1. Do not operate your vehicle engine in enclosed areas.
 2. Do not idle vehicle engine with vehicle windows closed.
 3. Be alert at all times for exhaust odors.
 4. Be alert for exhaust poisoning symptoms. They are:
 - headache
 - dizziness
 - sleepiness
 - loss of muscular control
 5. If you see another person with exhaust poisoning symptoms:
 - remove person from area.
 - expose to open air.
 - keep person warm.
 - do not permit physical exercise.
 - administer artificial respiration, if necessary,
 - notify a medic.
- * For artificial respiration, refer to FM 21-11.
6. BE AWARE, the field protective mask for nuclear-biological-chemical (NBC) protection will not protect you from exhaust poisoning.
- THE BEST DEFENSE AGAINST EXHAUST POISONING IS ADEQUATE VENTILATION.**

WARNING

HIGH INTENSITY NOISE

Hearing protection is required for the driver and co-driver. Hearing protection is also required for all personnel working in and around this vehicle while the engine is running (reference AR 40-5 and TB MED 501).

WARNING SUMMARY

- After Nuclear, Biological, or Chemical (NBC) exposure of this vehicle, all air filters shall be handled with extreme caution. Unprotected personnel may experience injury or death if residual toxic agents or radioactive material are present. Servicing personnel will wear protective overgarments, mask, hood, and chemical protective gloves and boots. All contaminated air filters will be placed into double lined plastic bags and moved immediately to a temporary segregation area away from the work site. If contaminated by radioactive dust, the Company NBC team will measure the radiation before removal. The NBC team will determine the extent of safety procedures required. The temporary segregation area will be marked with the appropriate NBC signs. Final disposal of contaminated air filters will be in accordance with local SOP:
- Do not touch hot exhaust pipes with bare hands.
- Do not perform fuel system checks and inspection while smoking, or while near flames or sparks.
- Smoking, open flames, and sparks can cause battery gases to explode.
- Stay clear of dump body and cab protector at all times during loading and unloading operations.
- Never perform PMCS checks under raised dump body unless safety braces are properly positioned.
- Do not let vehicle coast downhill with clutch pedal depressed. Vehicle can go out of control.
- On dropside trucks, make certain forward end of dropsides are engaged before lowering tailgate.
- Dump body control lever in cab must be locked in "N" (neutral) position when dump truck is used as personnel carrier.
- Always chock vehicle wheels if operating site is on a grade, no matter how slight.
- After fording operations, do not rely on service brakes until they dry out.
- Pump brakes gradually when stopping vehicle on wet or slippery roads to avoid losing control of vehicle.
- Extreme care should be taken when removing surge tank filler cap if temperature gage reads above 175° F (79° C). Add coolant to cooling system only when engine is running. Add coolant slowly.
- **This vehicle has been designed to operate safely and efficiently within the limits specified in this TM. Operation beyond these limits is prohibited LAW AR 70-1 without written approval from the Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-CM-S, Warren, MI 48397-5000.**

Warning b Change 2

LIST OF EFFECTIVE PAGES

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page.

Dates of issue for original and changed pages are:

- Original 0 14 June 1985
- Change 1 01 September 1988
- Change 2 28 November 1989
- Change 3 07 June 1993
- Change 4 31 August 2003

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 396.
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*Zero in this column indicates original page.

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TECHNICAL MANUAL
NO. 9-2320-260-10
TECHNICAL ORDER
NO. 36A12-1C-481

CHANGE
NO. 4

HEADQUARTERS,
DEPARTMENT OF THE ARMY,
WASHINGTON, D.C., 31 August 2003

**OPERATOR'S MANUAL
FOR**

**TRUCK, 5-TON, 6X6, M809 SERIES TRUCKS (DIESEL)
TRUCK, CARGO: M813, M813A1, M814;
TRUCK, BOLSTER LOGGING: M815;
TRUCK, WRECKER, MEDIUM: M816;
TRUCK, DUMP: M817;
TRUCK, TRACTOR: M818;
TRUCK, TRACTOR, WRECKER: M819;
TRUCK, VAN EXPANSIBLE: M820, M820A1, M820A2;
TRUCK, STAKE, BRIDGE TRANSPORTING: M821**

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1. Remove old pages and insert new pages as indicated below.
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None
i and ii
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DA Form 2028-2

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and B-27 and B-28
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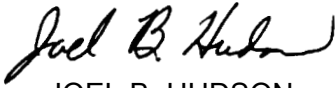
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NO. 9-2320-260-10
TECHNICAL ORDER
NO. 36A12-1C-481

TM 9-2320-260-10
TO 36A12-1C-481
C3

CHANGE
NO.3

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 7 June 1993

OPERATOR'S MANUAL
FOR
TRUCK, 5-TON, 6X6, M809 SERIES (DIESEL)
TRUCK, CARGO: M813, M813A1, M814;
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TRUCK, TRACTOR, WRECKER: M819;
TRUCK, VAN, EXPANSIBLE: M820, M820A1, M820A2
TRUCK, STAKE, BRIDGE TRANSPORTING: M821

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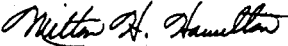
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NO. 9-2320-260-10

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TECHNICAL ORDER
NO. 36A12-1C-481

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No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 28 November 1989

**OPERATOR'S MANUAL
FOR**

**TRUCK, CARGO: M813, M813A1, M814
TRUCK, BOLSTER, LOGGING: M815
TRUCK, WRECKER, MEDIUM: M816;
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Remove Page	Insert Page
Warning a and Warning b 1-11 and 1-12 2-71 and 2-72	Warning a and Warning b 1-11 and 1-12 2-71 and 2-72

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To be distributed in accordance with DA Form 12-38-R, (Block 241) Operator maintenance requirements for Truck, Diesel, 5-6on, 6x6, M809-series.

**TECHNICAL MANUAL
NO. 9-2320-260-10**

TM 9-2320-260-10

**TECHNICAL ORDER
NO. 36A12-1C-481**

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CHANGE

**HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C., 1 September 1988**

NO. 1

**OPERATOR'S MANUAL
FOR**

**TRUCK, CARGO: M813, M813A1, M814;
TRUCK, BOLSTER, LOGGING: M815;
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Distribution:

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**TECHNICAL MANUAL
NO. 9- 2320-260-10
TECHNICAL ORDER
NO. 36A12-1C-481**

**HEADQUARTERS
DEPARTMENT OF THE ARMY**

Washington, DC 14 JUNE 1985

**OPERATOR'S MANUAL
FOR
5-TON, 6X6, M809 SERIES TRUCKS (DIESEL)**

Model		NSN Without Winch	NSN With Winch
Chassis	M809	2320-00-050-8842	2320-00-048-8841
Chassis	M809A1		2320-00-050-8941
Chassis	M810	2320-00-051-0586	2320-00-051-0585
Chassis	M811	2320-00-050-8986	2320-00-050-8985
Chassis	M811A1		2320-00-050-8989
Chassis	M811A2		2320-00-050-9005
Chassis	M812		2320-00-050-9011
Chassis, Rocket Launcher	M812A1		2320-00-050-9040
Truck, Cargo	M813	2320-00-050-8902	2320-00-050-8890
	M813A1	2320-00-050-8913	2320-00-050-8905
	M814	2320-00-050-8988	2320-00-050-8987
Truck, Bolster Logging	M815		2320-00-050-8927
Truck, Wrecker, Medium	M816		2320-00-051-0489
Truck, Dump	M817	2320-00-050-8970	2320-00-051-0589
Truck, Tractor	M818	2320-00-050-8984	2320-00-050-8978
Truck, Tractor, Wrecker	M819		2320-00-050-9004
Truck, Van, Expansibile	M820		2320-00-050-9006
	M820A1		2320-00-050-9007
	M820A2		2320-00-050-9010
Truck, Stake, Bridge Transporting	M821		2320-00-050-9015

* This manual supersedes TM 9-2320-260-10-1, 10-2, 10-3, and 10-4, dated 20 August, 1980.

This publication is required for official use or for administrative or operational purposes only. Distribution is limited to U.S. Government Agencies. Other requests for this document must be referred to: Commander, U.S. Army Tank-automotive and Armaments Command, Attn: AMSTA-LC-CIP-WT, Rock Island, IL 61299-7630.

HOW TO USE THIS MANUAL

This manual:

a. Contains information for safe and efficient operation of your equipment. These instructions provide you with a general knowledge of the equipment, its characteristics, and usual and unusual operation procedures.

b. Provides you with troubleshooting procedures, so that you can keep your equipment operating properly.

HOW TO USE THIS MANUAL (Cont'd)

c. Provides best possible operating instructions under most circumstances. Multiple emergencies, adverse weather, terrain, etc., may require modification of these procedures.

d. Takes a “positive approach” and normally states only what you can do. Unusual operations or configurations are prohibited unless specifically included. Before attempting any questionable operation, which is not specifically permitted in this manual, clearance must be obtained from your supervisor.

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 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 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 E-mail address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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CHAPTER 1 INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE

a. This manual contains instructions for operating and servicing M809 series vehicles. These vehicles are:

- (1) M813 Cargo Truck WO/W and W/W.
- (2) M813A1 Cargo Truck WO/W and W/W (Dropside).
- (3) M814 Cargo Truck WO/W and W/W (XLWB).
- (4) M815 Bolster Logging Truck W/W.
- (5) M816 Medium Wrecker Truck W/W.
- (6) M817 Dump Truck WO/W and W/W.
- (7) M818 Tractor Truck WO/W and W/W.
- (8) M819 Tractor Wrecker Truck W/W.
- (9) M820 and M820A1 Expansible Van Truck WO/W.
- (10) M820A2 Expansible Van Truck WO/W (W/HLG).
- (11) M821 Bridge Transporting Stake Truck WO/ W.

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

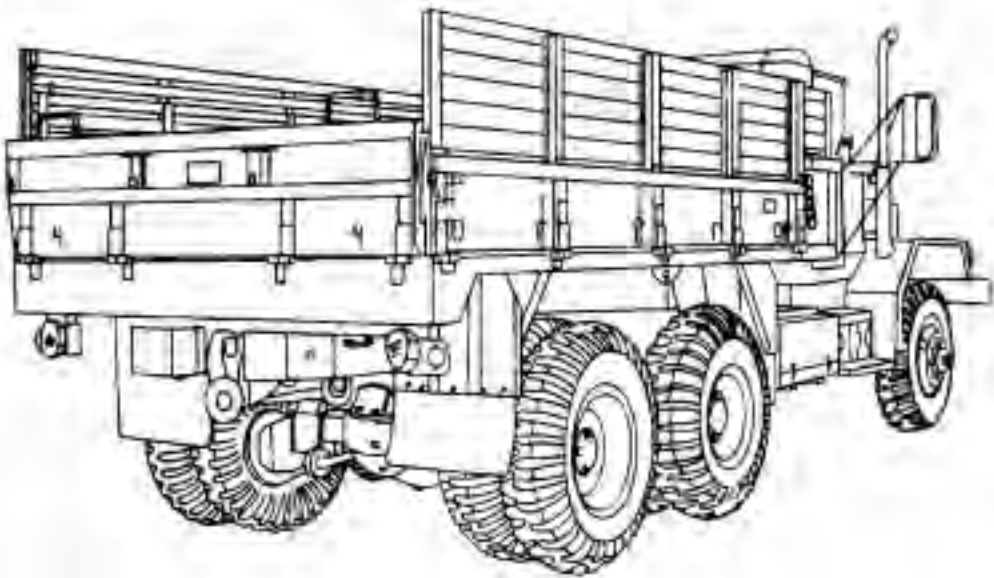
- (1) Description of each vehicle and its operation.
- (2) The purpose of each vehicle.
- (3) Vehicle limitations such as load limits.
- (4) Cautions and warnings to operators regarding safety to personnel and equipment.
- (5) The function of all panel controls and indicators.
- (6) The function of all body controls and indicators.
- (7) How and when to use special purpose kits.
- (8) Operator maintenance checks and service procedures.
- (9) Troubleshooting procedures to be followed by operators if the vehicle malfunctions.
- (10) Operator forms and records.

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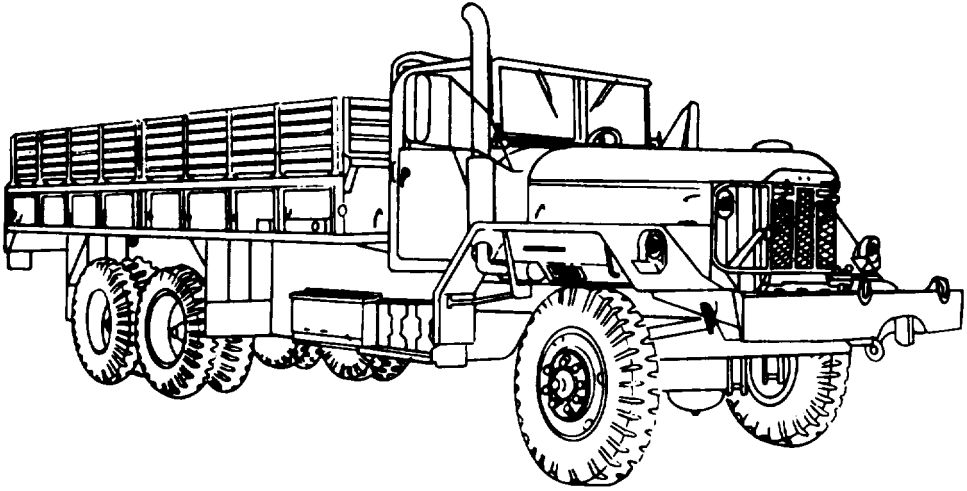
1-1



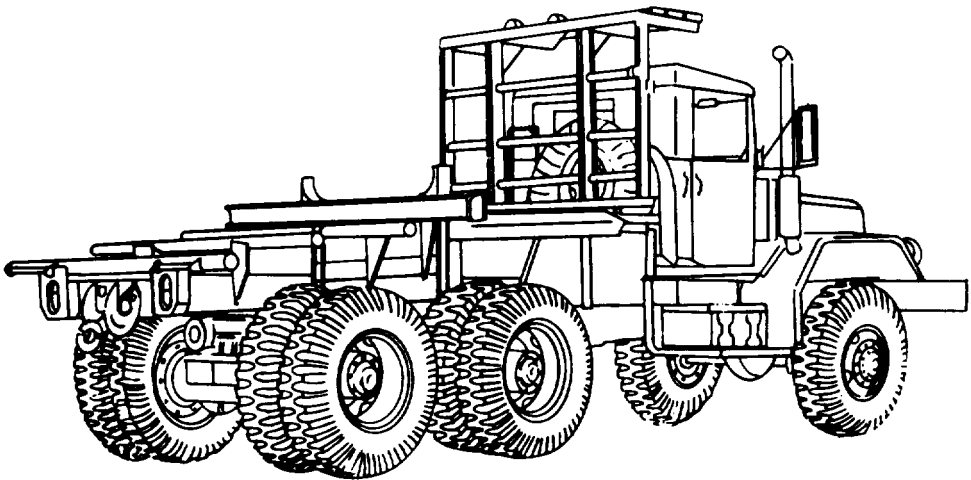
**5-TON, 6X6, CARGO TRUCK WO/W AND W/W (M813)
(RIGHT FRONT VIEW)**



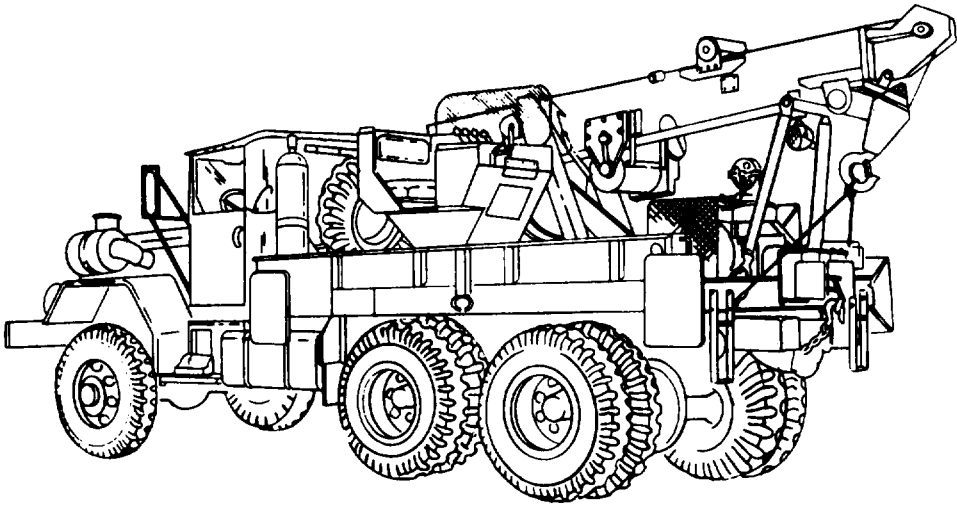
**5-TON, 6X6 CARGO TRUCK, DROPSIDE WO/W AND W/W (M813A1)
(RIGHT REAR VIEW)**



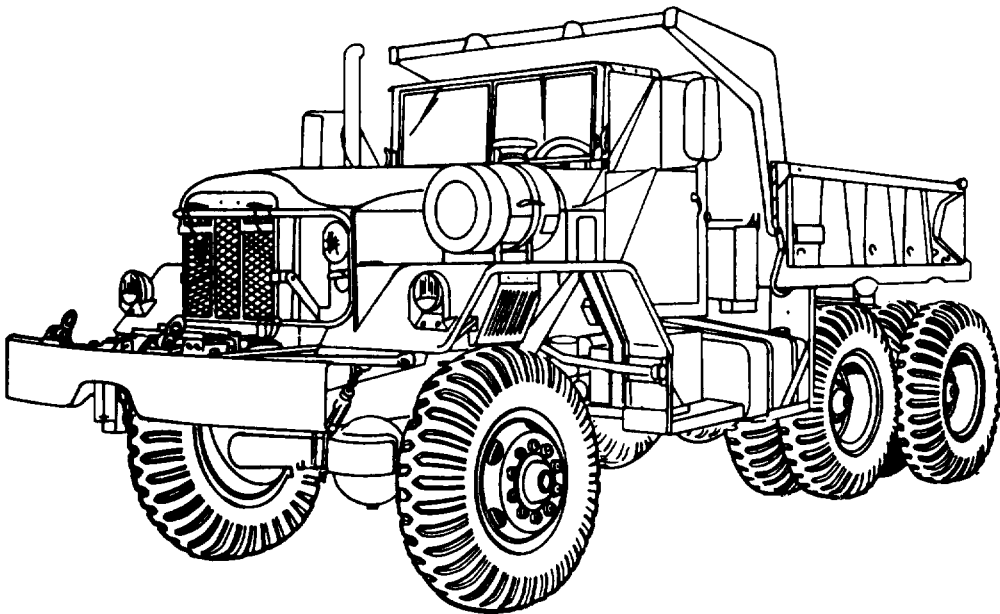
**5-TON, 6X6, CARGO TRUCK, EXTENDED CARGO BODY
WO/W AND W/W (M814)
(RIGHT FRONT VIEW)**



**5-TON, 6X6, BOLSTER LOGGING TRUCK W/W (M815)
(RIGHT REAR VIEW)**

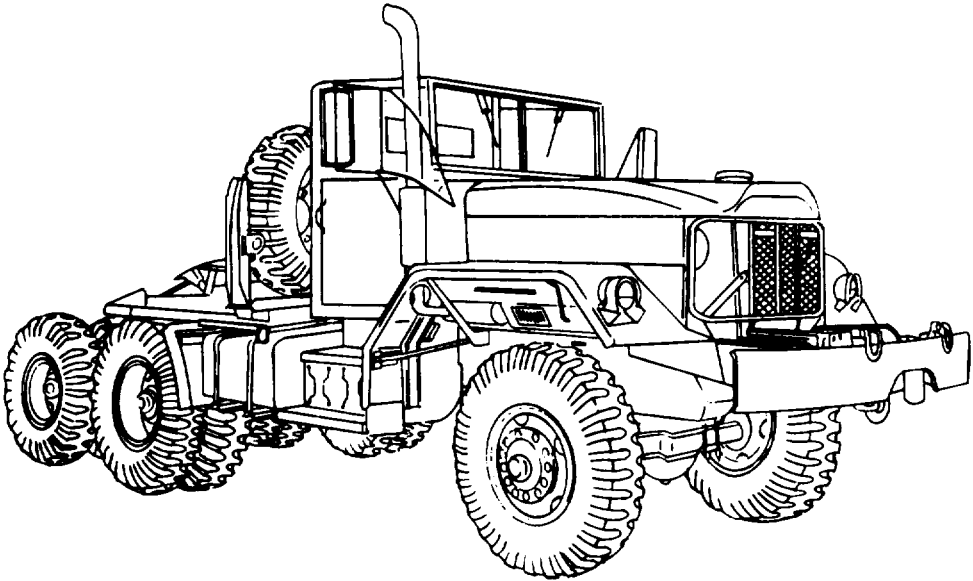


**5-TON, 6X6, MEDIUM WRECKER TRUCK W/W (M816)
(LEFT REAR VIEW)**

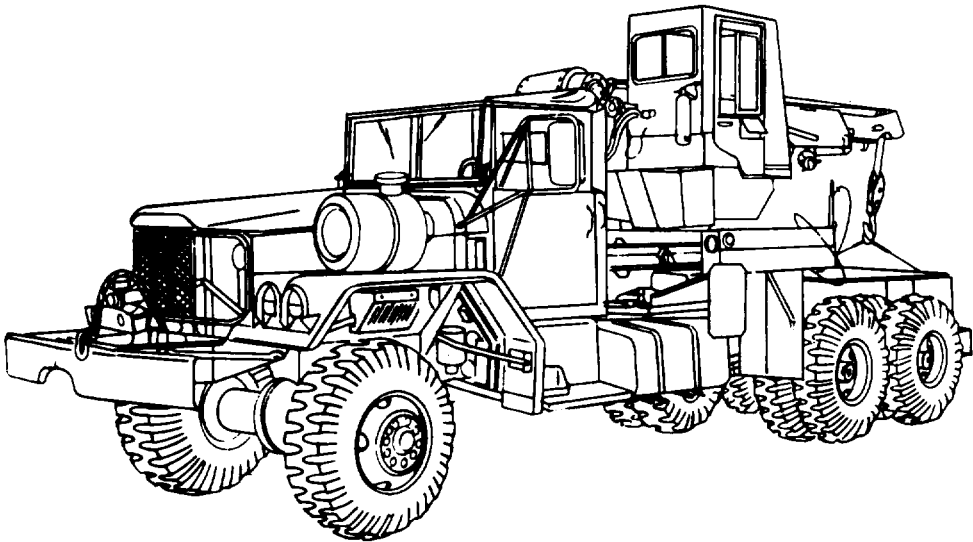


**5-TON, 6X6, DUMP TRUCK WO/W AND W/W (M817)
(LEFT FRONT VIEW)**

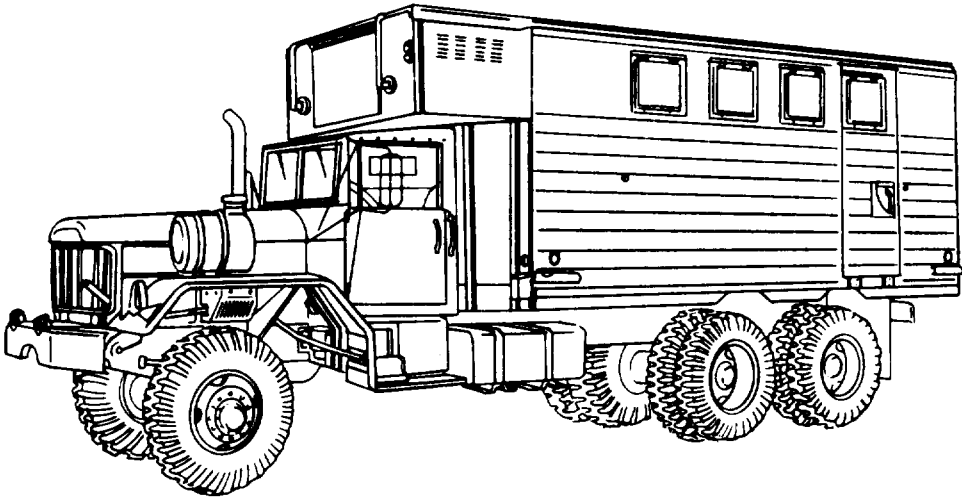
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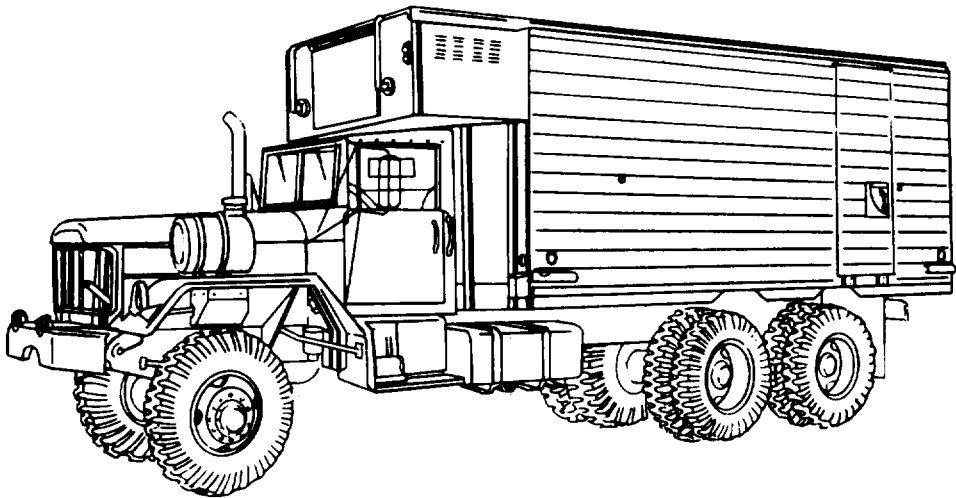
**5-TON, 6X6, TRACTOR TRUCK WO/W AND W/W (M818)
(RIGHT FRONT VIEW)**



**5-TON, 6X6, TRACTOR WRECKER TRUCK W/W (M819)
(LEFT FRONT VIEW)**

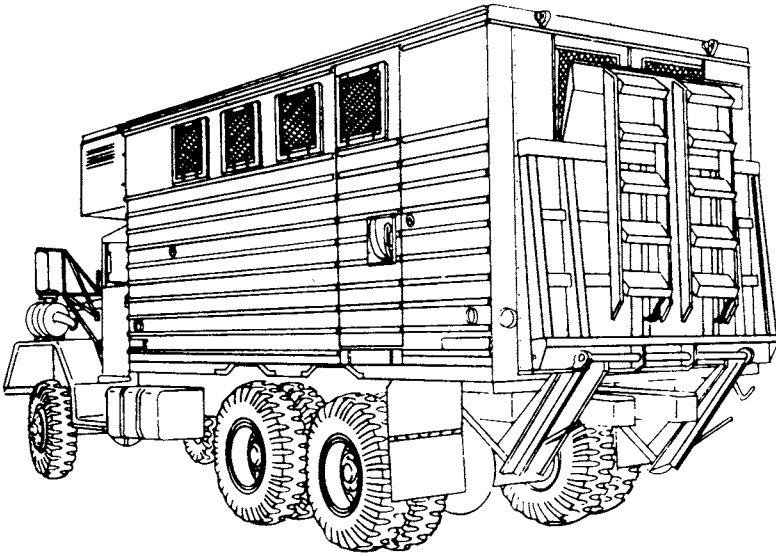


**5-TON, 6X6, EXPANSIBLE VAN TRUCK WO/W (M820)
(LEFT FRONT VIEW)**

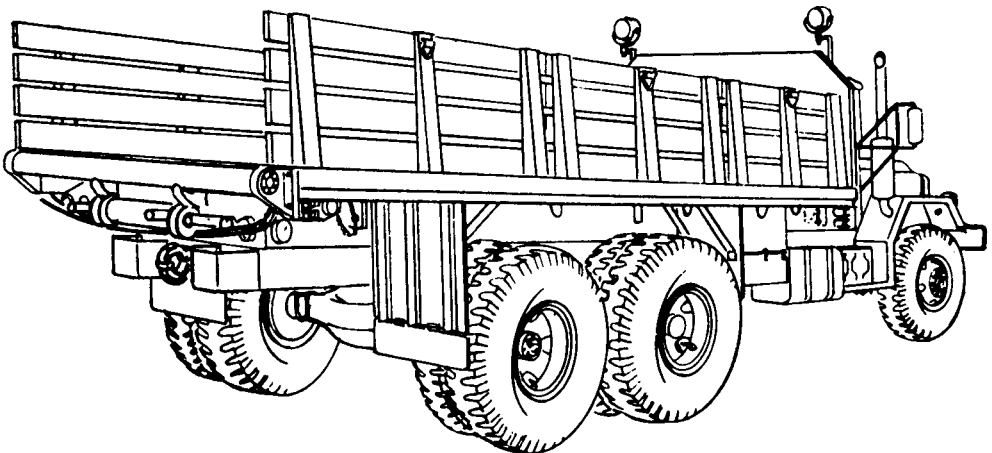


**5-TON, 6X6, EXPANSIBLE VAN TRUCK WO/W (M820A1)
(LEFT FRONT VIEW)**

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**5-TON, 6X6, EXPANSIBLE VAN TRUCK
WITH HYDRAULIC LIFTGATE WO/W (M820A2)
(LEFT REAR VIEW)**



**5-TON, 6X6 BRIDGE TRANSPORTING TRUCK WO/W (M821)
(RIGHT REAR VIEW)**

1-2. FORMS AND RECORDS

Vehicle Maintenance Forms and Records. The forms and records that must be kept up to date by operators are those prescribed by DA Pam 738-750.

1-3. DESTRUCTION OF MILITARY EQUIPMENT TO PREVENT ENEMY USE

Instructions for Equipment Destruction. Follow procedures given in TM 750-244-6 for procedures and destruction of tank-automotive equipment to prevent enemy use.

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS

a. 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. The preferred method for submitting QDRs is through the Army Electronic Product Support (AEPS) website under the Electronic Deficiency Reporting System (EDRS). The web address is: <https://aeprs.ria.army.mil>. This is a secured site requiring a password that can be applied for on the front page of the website. If the above method is not available to you, put it on an SF 368, Product Quality Deficiency Report (PQDR), and mail it to us at: Department of the Army, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/PQDR MS 267, 6501 E. 11 Mile Road, Warren, MI 48397-500. We'll send you a reply.

b. Equipment Improvement Report and Maintenance Digest (EIR MD). The quarterly Equipment Improvement Report and Maintenance Digest, TB 43-0001-62 series, contains valuable field information on the equipment covered in this manual. The information in the TB 43-0001-62 series is compiled from some of the Equipment Improvement Reports that you prepared on the vehicles covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that you submitted to the EIR program. The TB 43-0001-62 series contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWOs), warranties (if applicable), actions taken on some of your DA Form 2028s (Recommended Changes to Publications and Blank Forms), and advance information on proposed changes that may affect this manual. The information will help you in doing your job better and will help in keeping you advised of the latest changes to this manual. Also refer to DA Pam 25-30, Consolidated Index of Army Publications and Blank Forms, and appendix A, References, of this manual. For those with access to the World Wide Web (WWW), the EIR MD can be viewed through the Army Electronic Product Support. The site is <http://aeprs.ria.army.mil>.

1-5. VEHICLE/BRIDGE CLASSIFICATION

a. Refer to table 1-1 to find your vehicle class number. Table columns are as follows:

- E – Class number of vehicle with no payload.
- C – Class number of vehicle with cross-country payload.

b. Bridges along your route may be marked with a class number. The bridge class number shows the safe capacity of the bridge. If your vehicle class number is equal to or less than the bridge class number, the bridge will hold your vehicle. If your vehicle class number is greater than the bridge class number, your vehicle is too heavy for the bridge: **DO NOT CROSS.**

c. For more information, refer to FM 5-170, Route Reconnaissance and Classification.

Table 1-1. Vehicle Class Information.

Vehicle	Model	NSN	Class Number	
			E	C
Cargo	M813	2320-00-050-8902 and	9	15
		2320-00-050-8890	9	15
	M813A1	2320-00-050-8913 and	9	15
		2320-00-050-8905	9	15
M814	2.320-00-050-8987 and	10	16	
	2320-00-050-8988	10	16	
Bolster	M815	2320-00-050-8927	10	16
Medium Wrecker	M816	2320-00-051-0489	18	24
Dump	M817	2320-00-050-8970 and	11	16
		2320-00-051-0589	10	16
Tractor	M818	2320-00-050-8984 and	9	17
		2320-00-050-8978	10	18
Tractor Wrecker	M819	2320-00-050-9004	16	22
Expansible Van	M820	2320-00-050-9006	11	14
	M820A1	2320-00-050-9007	11	14
	M820A2	2320-00-050-9010	12	15
Bridge Transporter	M821	2320-00-050-9015	12	17

**1-6. MILITARY TERMS AND MEASUREMENTS
ABBREVIATIONS**

LIST OF ABBREVIATIONS

All abbreviations that appear in this manual are listed below

AAL	Additional Authorization List
BII	Basic Issue Items
BE	Blackout
BAT	Bright
CC	Cross-Country
COEI	Components of End Item
CW	Chain (and) Wire Rope (lubricating oil)
DA	Department of Army
DFA	Diesel Fuel (arctic)
EIR'S	Equipment Improvement Recommendations
GAA	Grease, Automotive and Artillery
GO	Gear Oil
GOD	Gear Oil (sub-zero)
H	Highway
LO	Lubrication Order
MAC	Maintenance Allocation Chart
NBC	Nuclear, Biological, or Chemical
NON	National Stock Number
OE/HDO	Oil Engine/ Heavy Duty Oil
OVA	Oil. Engine (arctic)
Papa	Paragraph
pg	Page
PMCS	Preventive Maintenance Checks and Services
PA	Pair
PTO	Power Takeoff

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LIST OF ABBREVIATIONS (Cont'd)

rpm.	revolutions (turns) per minute
T M	Technical Manual
W/HLG	With Hydraulic Liftgate
w/o	without
wo/w	without winch
w/	with
w / w	with winch
XLWB	Extra Long Wheelbase
c m	centimeter
equip.	equipment
ft.	feet/foot
g	gram
gal.	gallon
in	inch
km	kilometer
k m/h	kilometers per hour
k P a	kilopascal
l	liter
lb	pound
l b - f t	pound-feet
l g	long
m	meter
mi	mile
mpg	miles per gallon
m p h	miles per hour
N•m	Newton meter
oz	ounce
psi	pounds per square inch
pt	pint
qt	quart
yd	yard

<p>1-7. MILITARY TERMS AND COMMON TERMS CROSS REFERENCE LIST</p>

**MILITARY TERMS AND COMMON TERMS
CROSS REFERENCE LIST**

The following is an alphabetical list of commonly used military terms that appear in this manual. This list is cross-referenced to commonly understood terms used in everyday speech that mean the same thing.

Engine Coolant	Anti-freeze/water
Exhaust Stack	Tailpipe
Failsafe Unit	Warning buzzer
F o r d i n g	Crossing through water
Grade	Steepness of hill
Hydraulics	Operated by oil pressure
Inclement Weather	Bad weather (rain, snow, high winds)
Indicators	Gages, warning lights, etc.
Mired	Stuck in mud or snow

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**MILITARY TERMS AND COMMOM TERMS
CROSS REFERENCE LIST (Cont'd)**

Operation	Task operator
operator	Driver
Slaving	Jump starting
Splash Shields.	Mud flaps
Transport	To carry
Turning Radius	Distance needed to make a U-turn
Usual Conditions	Good roads, good weather
Steering Knuckle Boot	C-V boot
Pauline	Canvas, tarp

Section II. EQUIPMENT DESCRIPTION AND DATA

1-8. GENERAL DESCRIPTION

a. The 5-ton, 6x6, M809 series trucks are tactical vehicles designed for use over all types of roads, highways, and cross-country terrain. M809 series vehicles ford hard-bottom water crossings up to 30 inches (76.2 centimeters) without a deepwater fording kit, and 78 inches (198.1 centimeters) with the kit. A five-speed manual transmission and a two-speed transfer provide 10 overall speed ranges. All are equipped with a rear towing pintle hook. Two front shackles and a pin on top of the rear springs provide a ready means of lifting the trucks for transportation.

WARNING

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

b. The M809 series trucks are powered by a 240 horsepower Cummins (NHC-250) diesel engine. All trucks, except the M815 and models equipped with the arctic winterization kit, have canvas cab tops. The M815 and those with arctic kits have metal cab tops. All vehicles are equipped with a mounted spare tire.

1-9. DESIGNATIONS

- a. These trucks are called 5-ton, 6x6, M809 series vehicles.
 - (1) The "5-ton" refers to the vehicle's load limit rating.
 - (2) The "6x6" means that each vehicle has six driving wheels.
 - (3) The "M809" is a code number given to this series of trucks to distinguish it from other series.

b. The 5-ton load limit rating of the M809 series trucks indicates the maximum amount of cargo weight the vehicle's axles and frame can withstand.

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