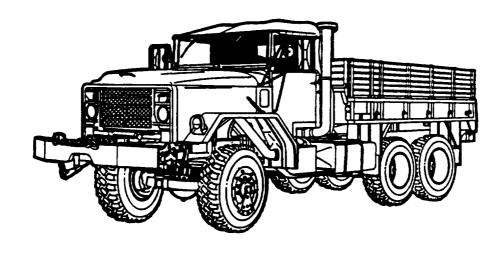
## TRANSPORT GUIDANCE TECHNICAL MANUAL



TRUCK 5-TON, 6X6
M939-SERIES/M939A1-SERIES/M939A2-SERIES

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HEADQUARTERS, DEPARTMENT OF THE ARMY

SEPTEMBER 1993

**Description** NSN

M939-Series	
M923 Truck, Cargo, Dropside, 5-ton, 6x6, WO/W	2320-01-050-2064
M925 Truck, Cargo, Dropside, 5-ton, 6x6, W/W	
M927 Truck, Cargo, Dropside, 5-ton, 6x6, WO/W	2320-01-047-8763
M928 Truck, Cargo, Dropside, 5-ton, 6x6, W/W	2320-01-047-8771
M929 Truck, Dump, 5-ton, 6x6, WO/W	2320-01-047-8770
M930 Truck, Dump, 5-ton, 6x6, W/W	2320-01-047-8756 2320-01-047-8755
M931 Truck, Tractor, 5-ton, 6x6, WO/W	2320-01-047-8753
M932 Truck, Tractor, 5-ton, 6x6, W/W	2320-01-047-8753
M934 Truck, Van, Expansible, 5-ton, 6x6, WO/W	2320-01-047-8752
M935 Truck, Van, Expansible, W/Hyd Tailgate, 5-ton, 6x6, WO/W	2320-01-047-8750
M936 Truck, Wrecker, 5-ton, 6x6, W/W	
Wisso Truck, Wicchel, S-toll, Oxo, W/W	2320-01-047-8754
M939A1-Series	
M923A1 Truck, Cargo, Dropside, 5-ton, 6x6, WO/W	2320-01-206-4087
M925A1 Truck, Cargo, Dropside, 5-ton, 6x6, W/W	2320-01-206-4088
M927A1 Truck, Cargo, Dropside, 5-ton, 6x6, WO/W	2320-01-206-4089
M928A1 Truck, Cargo, Dropside, 5-ton, 6x6, W/W	2320-01-206-4090
M929A1 Truck, Dump, 5-ton, 6x6, WO/W	2320-01-206-4079
M930A1 Truck, Dump, 5-ton, 6x6, W/W	2320-01-206-4080
M931A1 Truck, Tractor, 5-ton, 6x6, WO/W	2320-01-206-4077
M932A1 Truck, Tractor, 5-ton, 6x6, W/W	2320-01-205-2684
M934A1 Truck, Van, Expansible, 5-ton, 6x6, WO/W	2320-01-205-2682
M935A1 Truck, Van, Expansible, W/Hyd Tailgate, 5-ton, 6x6, WO/W	2320-01-205-2683
M936A1 Truck, Wrecker, 5-ton, 6x6, W/W	2320-01-206-4078
M939A2-Series	
M923A2 Truck, Cargo, Dropside, 5-ton, 6x6, WO/W	2320-01-230-0307
M925A2 Truck, Cargo, Dropside, 5-ton, 6x6, W/W	2320-01-230-0307
M927A2 Truck, Cargo, Dropside, 5-ton, 6x6, WO/W	2320-01-230-0308
M928A2 Truck, Cargo, Dropside, 5-ton, 6x6, W/W	2320-01-230-0303
M929A2 Truck, Dump, 5-ton, 6x6, WO/W	2320-01-230-0310
M930A2 Truck, Dump, 5-ton, 6x6, W/W	2320-01-230-0303
M931A2 Truck, Tractor, 5-ton, 6x6, WO/W	2320-01-230-0300
M932A2 Truck, Tractor, 5-ton, 6x6, W/W	2320-01-230-0302
M934A2 Truck, Van, Expansible, 5-ton, 6x6, WO/W	
M936A2 Truck, Wrecker, 5-ton, 6x6, W/W	2320-01-230-0300
Maddin II dan, Michael, o con, ono, mi	2320-01-230-0304

No. TM 55-2320-272-14-1

## TRANSPORT GUIDANCE Truck, 5-ton, 6x6 M939-series/M939A1-series/M939A2-series

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This manual supersedes TM 55-2320-272-14-1, dated 3 September 1986.

# CHAPTER 1 INTRODUCTION

### Section I. GENERAL

### 1-1. Purpose and Scope

This manual is for transportation officers and other personnel responsible for safe transport of the M939-, M939A1-, and M939A2-series, 5-ton, 6x6 trucks. In this manual, "the trucks" refers to all of the vehicles, while a specific series, or vehicle, will be identified by its model number. This manual provides transportability guidance for safe shipping and receiving of the trucks. It includes significant technical and physical characteristics of the vehicles as well as safety requirements for worldwide movement by various transport modes.

### 1-2. Related Publications

Additional information on transport procedures can be found in:

MTMCTEA Pamphlet 55-19, *Tiedown Handbook* for Rail Movements

MTMCTEA Reference 92-55-20, *Tiedown Hand-book for Truck Movements* 

MTMCTEA Pamphlet 56-1, Surface Transportation, Marine Terminal Lifting Guidance

MTMCTEA Pamphlet 70-1, Transportability for Better Strategic Mobility

FM 10-526, Airdrop of Supplies and Equipment, Rigging 5-ton trucks

FM 55-65, Strategic Deployment by Surface Transportation

TM 38-250/AFR 71-4, Preparation of Hazardous Materials for Military Air Shipment

USAREUR Regulation 55-1, *United States Army Motor Vehicle Operations on Public Roads* 

USAREUR Regulation 55-8, Loading and Securing Military Wheeled and Tracked Vehicles on European Railcars

AFP 76-2, Airlift Planning Factors

AR 55-162, Permits for Oversize, Overweight, or Other Special Military Movernents on Public Highways in the United States

AR 55-228, Transportation by Water of Explosives and Hazardous Cargo

46 CFR, Code of Federal Regulations, Title 46 49 CFR, Code of Federal Regulations, Title 49

### 1-3. User Comments

Users of this manual are invited to send comments and recommend suggested improvements on DA Form 2028 (Recommended Changes to DA Publica-

tions and Blank Forms) or on a marked copy of a page or pages of the manual. Forward these suggestions directly to Director, Military Traffic Management Command Transportation Engineering Agency, ATTN: MTTE-TR, 720 Thimble Shoals Boulevard, Suite 130, Newport News, VA 23606-2574. Address electronically transmitted messages to DIR MTMCTEA FORT EUSTIS VA //MTTE-TR/. This command will furnish a reply.

### 1-4. Definitions

The following definitions will be used throughout this manual:

- a. CONUS. Continental United States.
- b. OCONUS. Outside the continental United States.
- c. Curb Weight (CW). Weight of base vehicle including materials handling equipment (MHE), if applicable, with all kits, attachments, accessories, equipment, basic issue items (BII), and all fuels, lubricants, coolants, and hydraulic fluids topped off.
- d. Gross Vehicle Weight (GVW). Curb weight plus payload and crew weight.
- e. Payload. Any load placed in or on the vehicle that increases the GVW above the curb weight. The trailer tongue load and crew weight are not considered part of the payload for a 5-ton truck.
- f. Working Load Limit (WLL). The maximum load that can be applied to a chain or wire rope and maintain a safety factor of 5.
  - g. W/W. With winch.
  - h. WO/W. Without winch.
  - i. CTIS. Central tire inflation system.

### 1-5. Warnings, Cautions, and Notes

Throughout this manual, warnings, cautions, and notes emphasize important or critical guidance. They are used for the following conditions:

### \*\*\*WARNING\*\*\*

Instructions that must be followed to prevent serious injury to or death of personnel.

#### \*\*CAUTION\*\*

Instructions that must be followed to prevent damage to or destruction of equipment.

### \*Note\*

An operating procedure or condition that must receive special attention.

### Section II. SAFETY

### 1-6. General

Safety requirements for individual transport modes are in the corresponding chapters and appear as warnings, cautions, and notes. General safety considerations and precautions for all transport modes including self-delivery are as follows:

- a. The drivers must:
  - (1). Be qualified to operate the trucks.
- (2). Ensure all loose items have been secured before operating the trucks.
- (3). Remain with the trucks while the engines are running.
- (4). Bring the trucks to a complete stop before the trucks enter or leave a building.
- (5). Not operate the trucks in an enclosed area unless proper ventilation for engine combustion and removal of exhaust gases is available and operating.
- (6). Have a ground guide when operating the trucks in reverse or within 20 feet of another vehicle or a building.
  - b. Personnel must not:
    - (1). Mount or dismount moving trucks.

- (2). Smoke in or on the trucks, or within 50 feet of a refueling area.
- (3). Ride in a truck's bed area when the truck is being used as a mobile refueler.

### \*\*\*WARNING\*\*\*

Fire extinguishers must be readily available during all onloading/offloading operations.

#### \*\*WARNING\*\*

Proper ventilation must be provided when onloading/offloading with the engine running. Prolonged inhalation of carbon monoxide fumes may prove fatal.

#### \*NOTE\*

Regulations and/or transportation procedures normally associated with vehicles containing diesel fuel will apply.

#### \*NOTE\*

Unless the trucks are shipped with ammunition, they will not present any special hazardous or dangerous characteristics during their exposure to normal transportation environments.

### Section III. EQUIPMENT DESCRIPTION

### 1-7. General

The M939-, M939A1-, and M939A2-series, 5-ton, 6x6 trucks have various wheelbase and body styles. The trucks are designed for use on roads, highways, and cross-country terrain and in all types of weather.

- —The M939-series trucks have tandem axles with dual tires. The M939A1 and M939A2-series trucks have tandem axles with single radial tires. The M939A2-series trucks also have a central tire inflation system (CTIS). Each truck series is easily identified by the tires and CTIS.
- —The M939- and M939A1-series trucks have four tiedown provisions. Two on the front bumper and two on the rear bumper. The M939A2-series truck has these same provisions plus two additional tiedown provisions on the bottom of the front bumper.

—The weight and overall dimensions of the trucks differ, depending on the model number and series. Information specific to the transportability of each truck is the following section.

## 1-8. Technical Data and Transportability Drawings

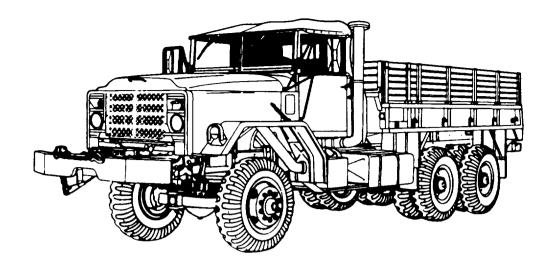
Modified data sheets and line drawings are grouped according to the series. Military load classification (MLC) is provided for trucks empty (E) and cross-country/highway (CC/HWY).

### 1-9. Reduced Configuration

Removable items such as bows, tarpaulin, and exhaust pipe extensions can be stowed within the truck cargo or crew compartments. Windshields can be folded down and the mirrors folded in. The spare tire may be removed and placed in the cargo compartment when the windshield is folded down.

### M939-SERIES

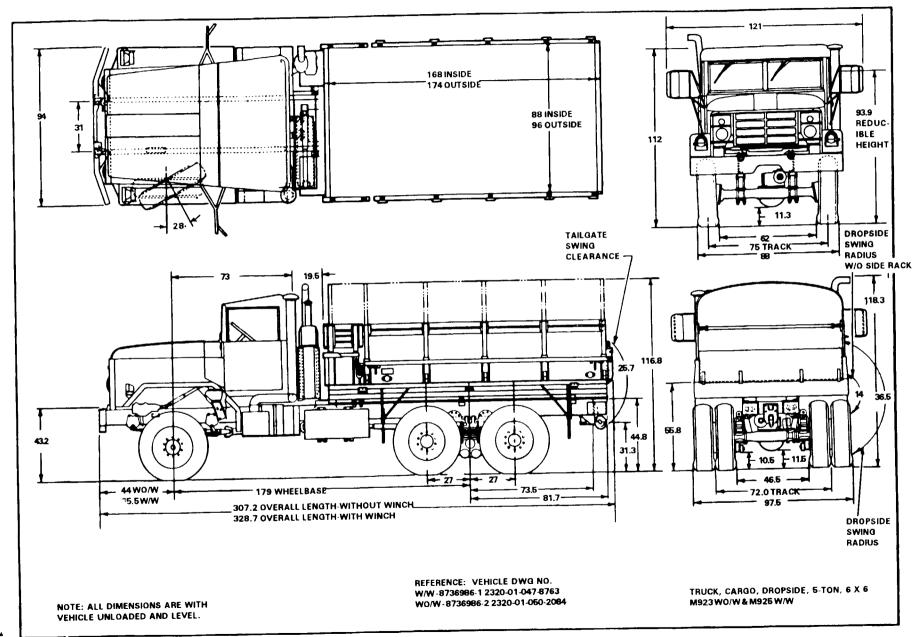
The M939-series trucks are easily identified by the tandem axles with dual tires.

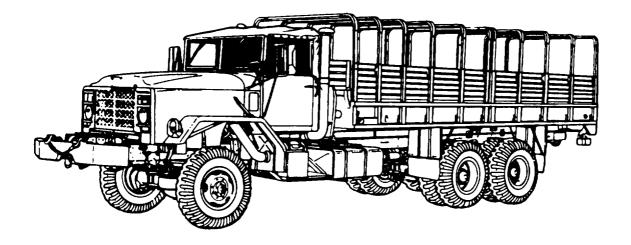


### M923 WO/W AND M925 W/W NOMENCLATURE: TRUCK, CARGO, DROPSIDE, 5-TON, 6X6

DESIGNATIONS **VEHICLE DATA** M925 ARMY PART NO 8736986-2 8736986-1 2320-01-047-8763 CURB WEIGHT, FULLY EQUIPPED LESS PAYLOAD AND CREW FRONT (LB) 10.750 REAR BOGIE (LB) 11,770 11,820 22,750 PAYLOAD 10.000 10,000 GROSS WEIGHT, FULLY EQUIPPED WITH PAYLOAD, LESS CREW\* FRONT (LB) 10,905 21.665 32,570 15.000 1.500 1.500 CENTER OF GRAVITY (AT CURB WEIGHT) 40.1 40.6 REAR OF CENTERLINE OF FRONT AXLE (IN.) 98.0 93.7 PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD MAXIMUM SPEED (MPH) 55 55 CRUISING RANGE (MI) 350 TURNING RADIUS (FT) 38 38 MILITARY LOAD CLASSIFICATIONS E ..... 10 CC/HWY ..... 16 15

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT



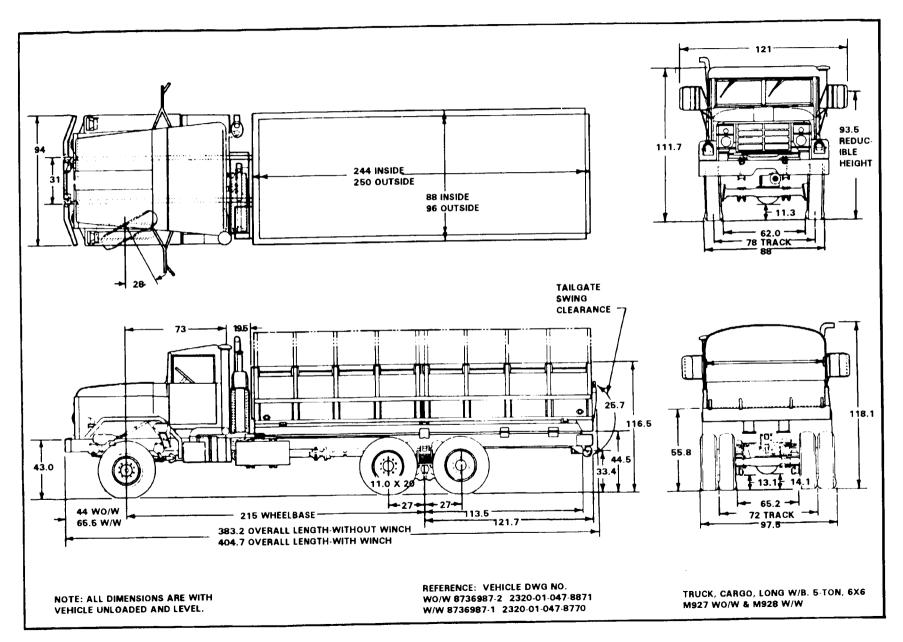


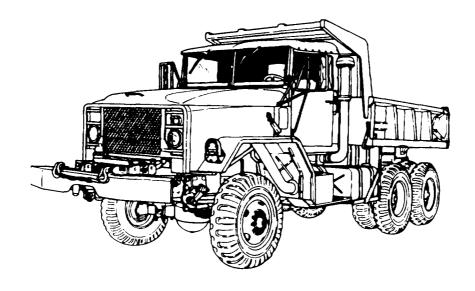
### M927 WO/W AND M928 W/W NOMENCLATURE: TRUCK, CARGO, DROPSIDE, 5-TON, 6X6

DESIGNATIONS VEHICLE DATA

ARMY PART NO	M927	M928
	8736987-2	8736987-1
NSN 23 CURB WEIGHT, FULLY EQUIPPED	20-01-047-8771	2320-01-047-8770
LESS PAYLOAD AND CREW		
	10.000	44.000
FRONT (LB)	10,200	11,230
REAR BOGIE (LB)	14,100	14,170
TOTAL (LB)	× 1.000	25,400
PAYLOAD CROSS WEIGHT FILLY FOURDED	10,000	10,000
GROSS WEIGHT, FULLY EQUIPPED		
WITH PAYLOAD, LESS CREW*		
FRONT (LB)	10,205	11,235
REAR BOGIE (LB)	24,095	24,165
TOTAL (LB)	34,300	35,400
TOWED LOAD ALLOWANCE	15.000	15,000
MAXIMUM VERTICAL LOAD ON PINTLE	1,500	1,500
CENTER OF GRAVITY (AT CURB WEIGHT)		
ABOVE GROUND (IN.)	39.2	39.5
REAR OF CENTERLINE OF FRONT AXLE (IN.)	125.6	120.0
PERFORMANCE		
AT GROSS WEIGHT W/O TOWED LOAD		
MAXIMUM SPEED (MPH)	55	55
CRUISING RANGE (MI)	350	350
TURNING RADIUS (FT)	46.2	46.2
MILITARY LOAD CLASSIFICATIONS		
E	10	10
CC/HWY	16	17

<sup>\*</sup> ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT





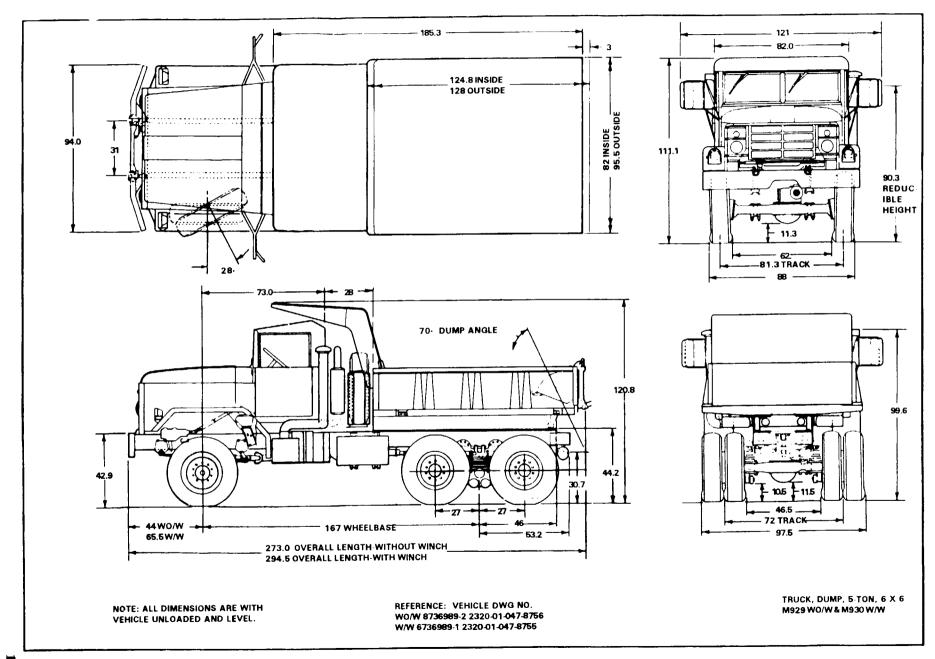
## M929 WO/W AND M930 W/W NOMENCLATURE: TRUCK, DUMP, 5-TON, 6X6

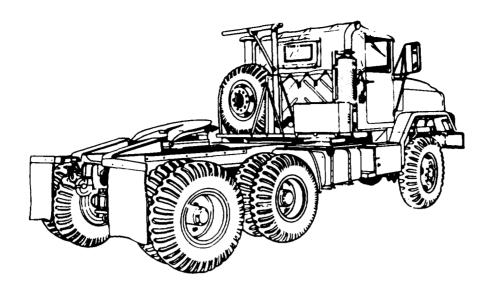
**DESIGNATIONS VEHICLE DATA** M930 8736989-1 NSN 2320-01-047-8756 2320-01-047-8755 CURB WEIGHT, FULLY EQUIPPED LESS PAYLOAD AND CREW FRONT (LB) 10.290 11.340 13,750 TOTAL (LB) 23,990 25.090 PAYLOAD 10,000 10,000 GROSS WEIGHT. FULLY EQUIPPED WITH PAYLOAD, LESS CREW\* FRONT (LB) 10,495 11,545 REAR BOGIE (LB) 23,495 23.545 TOTAL (LB) 33,990 35.090 TOWED LOAD ALLOWANCE 15,000 15,000 MAXIMUM VERTICAL LOAD ON PINTLE 1,500 1,500 CENTER OF GRAVITY (AT CURB WEIGHT) 44.4 REAR OF CENTERLINE OF FRONT AXLE (IN.) 91.4 PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD 55 CRUISING RANGE (MI) 480 TURNING RADIUS (FT) 41.3 39.2 MILITARY LOAD CLASSIFICATIONS E .....

17

CC/HWY

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT



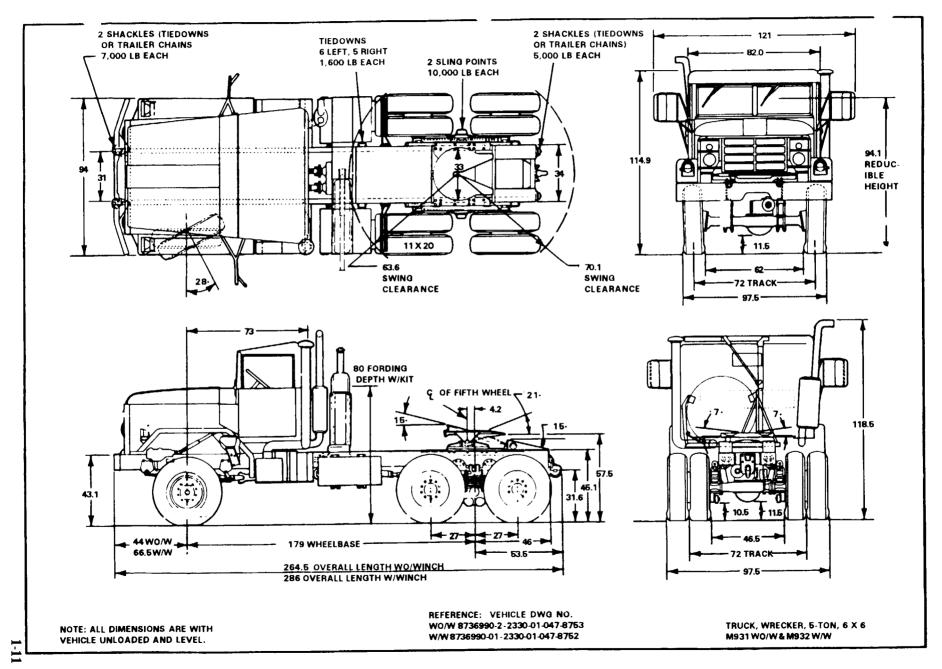


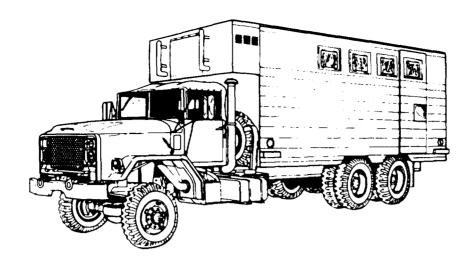
# M931 WO/W AND M932 W/W NOMENCLATURE: TRUCK, TRACTOR, 5-TON, 6X6

DESIGNATIONS VEHICLE DATA

ARMY PART NO	M931 8736990-2	M932 8736990-1
NSN	2320-01-047-8753	2320-01-047-8752
CURB WEIGHT, FULLY EQUIPPED		
LESS PAYLOAD AND CREW		
FRONT (LB)		10,870
REAR BOGIE (LB)	10,690	10,740
TOTAL (LB)		21.610
SEMITRAILER LOAD ON FIFTH WHEEL	15,000	15,000
SEMITRAILER WEIGHT W/PAYLOAD	37.500	37,500
GROSS COMBINATION WEIGHT,		
FULLY EQUIPPED W/SEMITRAILER		
PAYLOAD LESS CREW		
FRONT (LB)		11,245
REAR BOGIE	25,315	25,365
TRAILER BOGIE	22,500	22,500
TOTAL (LB)		59,110
TOWED LOAD ALLOWANCE ON PINTLE	15,000	15,000
MAXIMUM VERTICAL LOAD ON PINTLE	1,500	1,500
CENTER OF GRAVITY (AT CURB WEIGHT)		
ABOVE GROUND (IN.)	35.4	36.6
REAR OF CENTERLINE OF FRONT AXLE (IN.)	86.2	81.4
PERFORMANCE		
AT GROSS WEIGHT W/O TOWED LOAD		
MAXIMUM SPEED (MPH)	55	55
CRUISING RANGE (MI)		460
TURNING RADIUS (FT)	39.2	41.3
MILITARY LOAD CLASSIFICATIONS		
E	9	9
CC/HWY	17	18

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

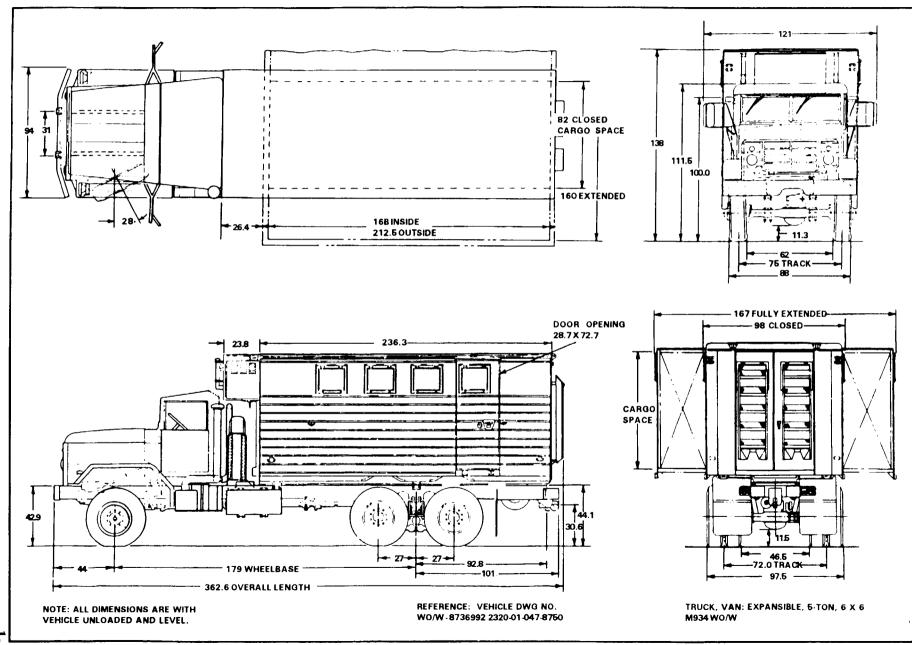


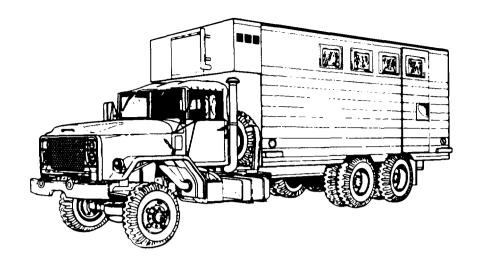


## M934 WO/W NOMENCLATURE: TRUCK, VAN, EXPANSIBLE, 5-TON, 6X6

DESIGNATIONS VEHIC	LE DATA
ARMY PART NO	
LESS PAYLOAD AND CREW FRONT (LB)	10.590
REAR BOGIE (LB)	17.850
TOTAL (LB)	28.440
PAYLOAD	5,000
GROSS WEIGHT, FULLY EQUIPPED WITH PAYLOAD. LESS CREW"	0,000
FRONT (LB)	10,765
REAR BOGIE (LB)	22,675
TOTAL (LB)	33,440
TOWED LOAD ALLOWANCE	15,000
MAXIMUM VERTICAL LOAD ON PINTLE	1,500
CENTER OF GRAVITY (AT CURB WEIGHT)  ABOVE GROUND (IN)	
REAR OF CENTERLINE OF FRONT AXLE (IN.)	135.6
PERFORMANCE	
AT GROSS WEIGHT W/O TOWED LOAD	
MAXIMUM SPEED (MPH)	63
CRUISING RANGE (MI)	350
TURNING RADIUS (FT) MILITARY LOAD CLASSIFICATIONS	47.2
E	12
CC/HWY	16

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

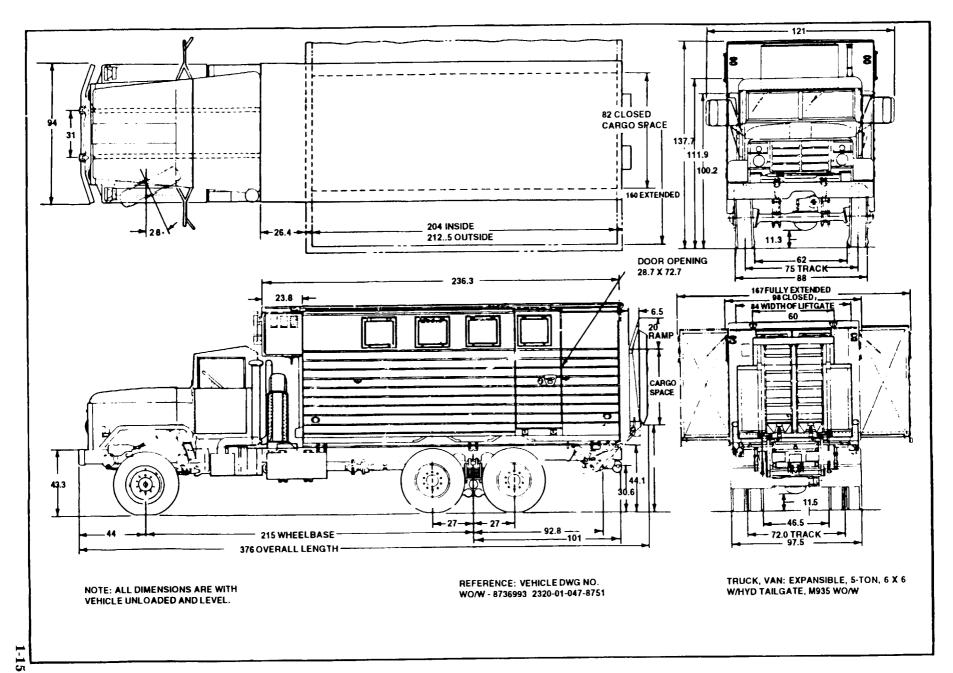


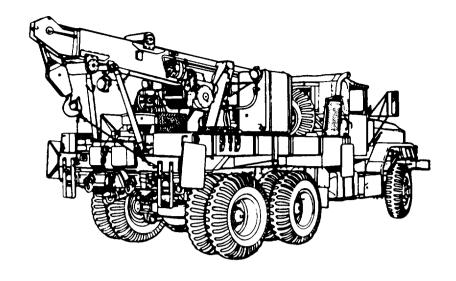


## M935 WO/W NOMENCLATURE: TRUCK, VAN, EXPANSIBLE, W/HYD TAILGATE 5-TON, 6X6

DESIGNATIONS	VEHICLE DATA
	M935
ARMY PART NONSN	
CURB WEIGHT, FULLY EQUIPPED	
LESS PAYLOAD AND CREW	0.040
FRONT (LB)	
REAR BOGIE (LB)	
TOTAL (LB)	
PAYLOAD	5,000
GROSS WEIGHT, FULLY EQUIPPED	
WITH PAYLOAD, LESS CREW*	0.015
FRONT (LB)	
REAR BOGIE (LB)	
TOTAL (LB)	,
TOWED LOAD ALLOWANCE	1 700
MAXIMUM VERTICAL LOAD ON PINTLE	
CENTER OF GRAVITY (AT CURB WEIGHT)	56.9
ABOVE GROUND (IN.)  REAR OF CENTERLINE OF FRONT AXLE (IN.)	
PERFORMANCE	
AT GROSS WEIGHT W/O TOWED LOAD	
MAXIMUM SPEED (MPH)	55
CRUISING RANGE (M)	0.50
TURNING RADIUS (FT)	45.0
MILITARY LOAD CLASSIFICATIONS	
E	14
CC/HWY	17
00/11/1	

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

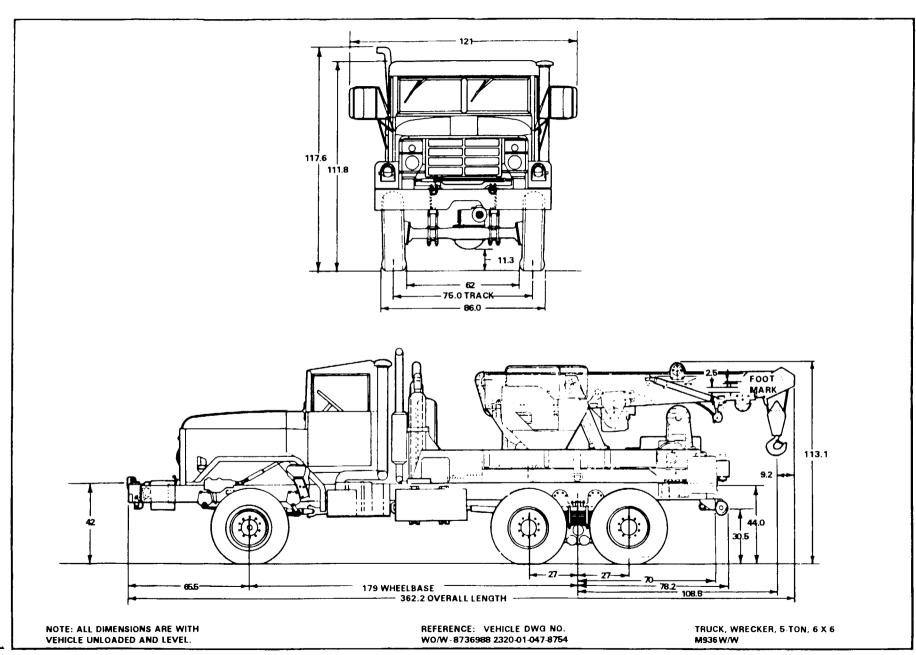




### M936 W/W NOMENCLATURE: TRUCK, WRECKER, 5-TON, 6X6

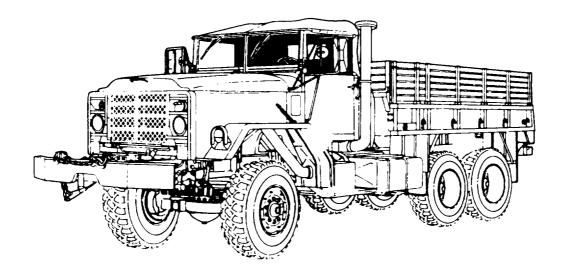
**DESIGNATIONS VEHICLE DATA** NSN 2320-01-047-8754
CURB WEIGHT, FULLY EQUIPPED LESS PAYLOAD AND CREW GROSS WEIGHT, FULLY EQUIPPED WITH PAYLOAD. LESS CREW\* FRONT (LB) CENTER OF GRAVITY (AT CURB WEIGHT) ABOVE GROUND (IN.) 50.5 REAR OF CENTERLINE OF FRONT AXLE (IN.) PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD MAXIMUM SPEED (MPH) CRUISING RANGE (MI) 500 TURNING RADIUS (FT) MILITARY LOAD CLASSIFICATIONS E ..... 18 CC/HWY .....

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT



### **M939A1-SERIES**

The M939A1-series trucks are easily identified by the single radial tires on the tandem axles. This series does not have CTIS.

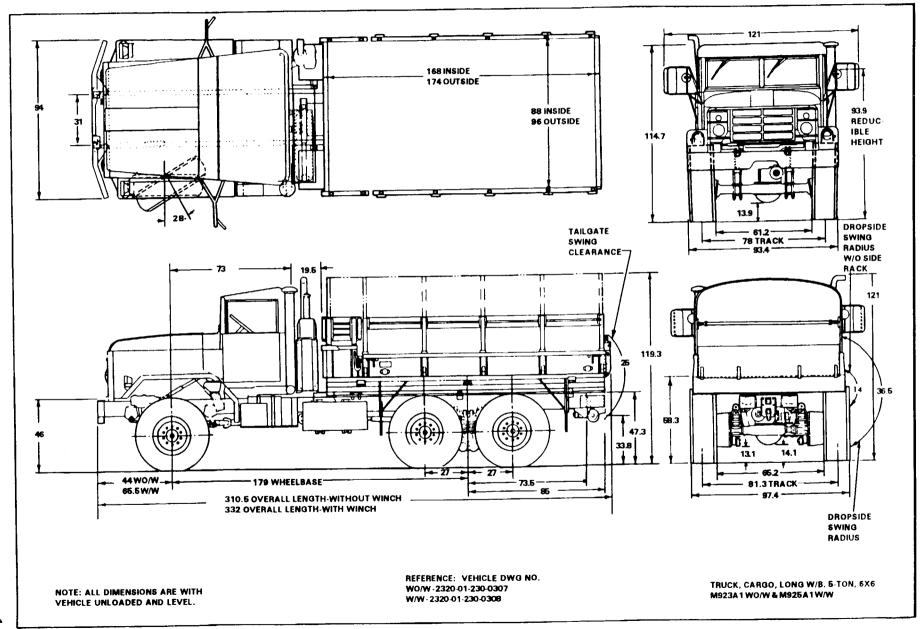


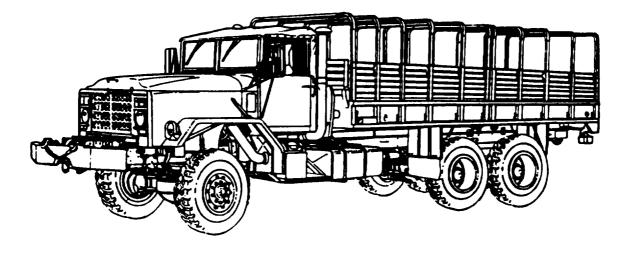
# M923A1 WO/W AND M925A1 W/W NOMENCLATURE: TRUCK, CARGO, DROPSIDE, 5-TON, 6X6

DESIGNATIONS VEHICLE DATA

	M923A1	M925A1
ARMY PART NO.		8750152
NSN	2320-01-206-4087	2320-01-206-4088
CURB WEIGHT, FULLY EQUIPPED		
LESS PAYLOAD AND CREW	40.00	
FRONT (LB)		11,255
REAR BOGIE (LB)		12.020
TOTAL (LB)	,	23,275
PAYLOAD	. 10,000	10,000
GROSS WEIGHT, FULLY EQUIPPED		
WITH PAYLOAD, LESS CREW*		
FRONT (LB)	10,185	11,235
REAR BOGIE (LB)		22,040
TOTAL (LB)		33,275
TOWED LOAD ALLOWANCE	15,000	15,000
MAXIMUM VERTICAL LOAD ON PINTLE	1,500	1,500
CENTER OF GRAVITY (AT CURB WEIGHT)		
ABOVE GROUND (IN.)	42.8	43.3
REAR OF CENTERLINE OF FRONT AXLE (IN.)	96.6	92.4
PERFORMANCE		
AT GROSS WEIGHT W/O TOWED LOAD		
MAXIMUM SPEED (MPH)	63	63
CRUISING RANGE (MI)	350	350
TURNING RADIUS (FT)	38	38
MILITARY LOAD CLASSIFICATIONS		
E	9	10
CC/HWY	16	16

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

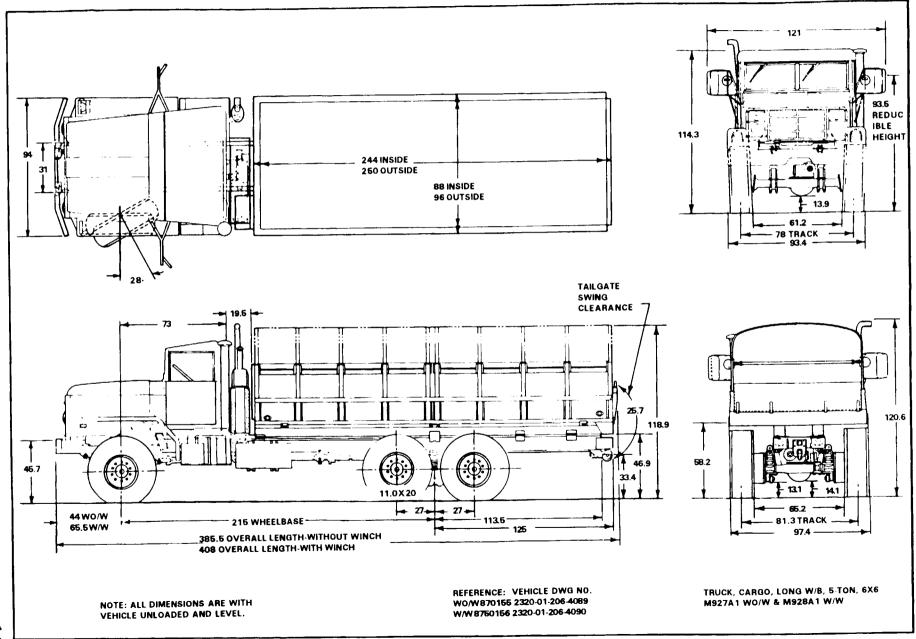


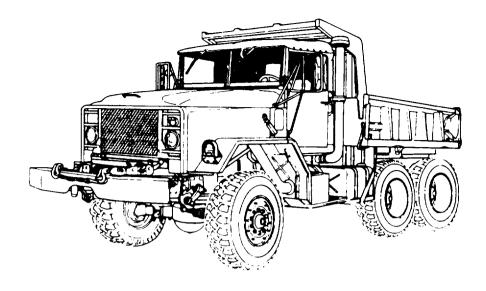


# M927A1 WO/W AND M928A1 W/W NOMENCLATURE: TRUCK, CARGO, DROPSIDE, 5-TON, 6X6

**DESIGNATIONS VEHICLE DATA** M927A1 M928A1 8750155 8750156 ARMY PART NO..... 2320-01-206-4090 NSN 2320-01-206-4089 CURB WEIGHT, FULLY EQUIPPED LESS PAYLOAD AND CREW FRONT (LB) 11,755 14.380 REAR BOGIE (LB) 14.310 TOTAL (LB) 25,035 26,135 10,000 PAYLOAD ..... GROSS WEIGHT, FULLY EQUIPPED WITH PAYLOAD, LESS CREW\* FRONT (LB) 10.706 11,735 24.330 24.400 REAR BOGIE (LB) TOTAL (LB) 35,035 36,135 TOWED LOAD ALLOWANCE 15.000 15.000 MAXIMUM VERTICAL LOAD ON PINTLE 1,500 1,500 CENTER OF GRAVITY (AT CURB WEIGHT) 42.1 41.8 ABOVE GROUND (IN.) REAR OF CENTERLINE OF FRONT AXLE (IN.) 122.9 1183 PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD MAXIMUM SPEED (MPH) 63 63 CRUISING RANGE (MI) 350 350 46.2 MILITARY LOAD CLASSIFICATIONS E ..... 10 11 CC/HWY ..... 16 17

1 ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

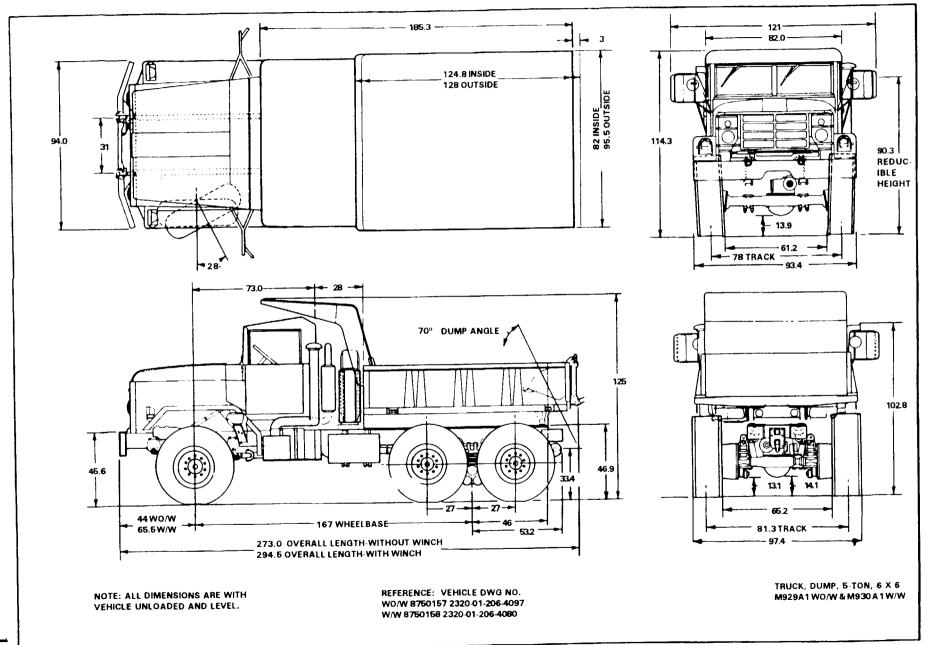


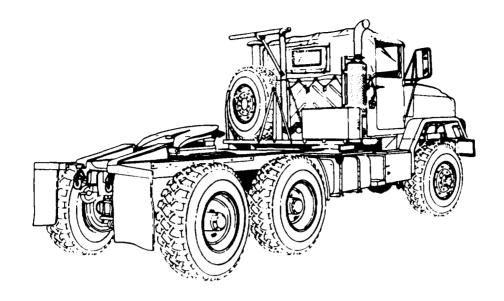


# M929A1 WO/W AND M930A1 W/W NOMENCLATURE: TRUCK, DUMP, 5-TON, 6X6

**DESIGNATIONS** VEHICLE DATA M929A1 M930A1 ARMY PART NO 8750158 2320-01-206-4080 CURB WEIGHT. FULLY EQUIPPED LESS PAYLOAD AND CREW 12,045 REAR BOGIE (LB) 14,080 14,120 TOTAL (LB) 25.065 26.165 PAYLOAD 10,000 10.000 GROSS WEIGHT, FULLY EQUIPPED WITH PAYLOAD. LESS CREW\* 12.245 REAR BOGIE (LB) 23,880 23,920 36.165 TOWED LOAD ALLOWANCE 15,000 15,000 1,500 CENTER OF GRAVITY (AT CURB WEIGHT) 47.1 90.1 PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD MAXIMUM SPEED (MPH) 63 63 500 TURNING RADIUS (FT) 36.6 41.3 MILITARY LOAD CLASSIFICATIONS E ..... 11 11 CC/MPH ..... 17 17

<sup>\*</sup>ADD 600 LB FOR 3-SOL DIER CREW W/EQUIPMENT



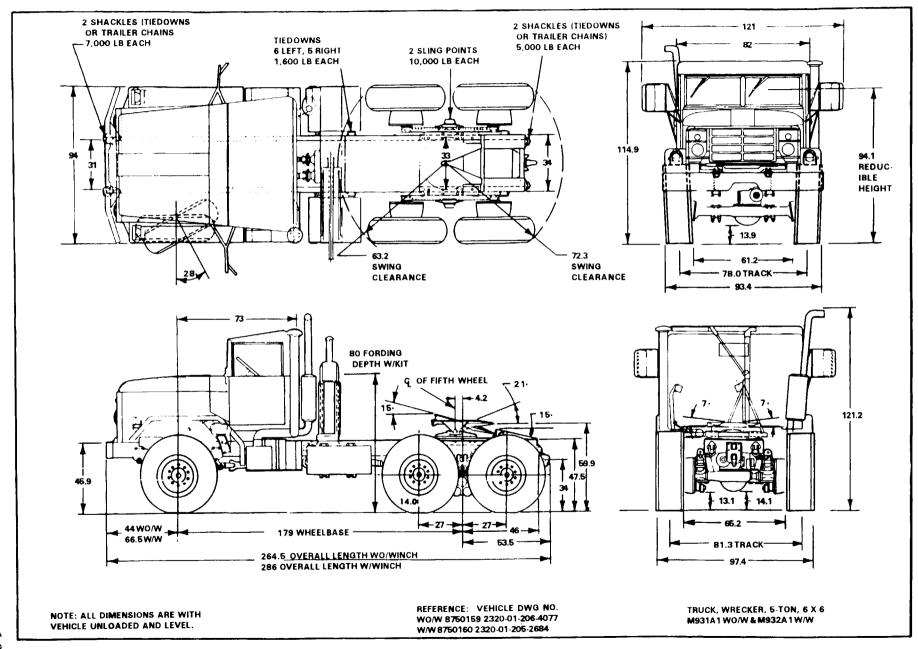


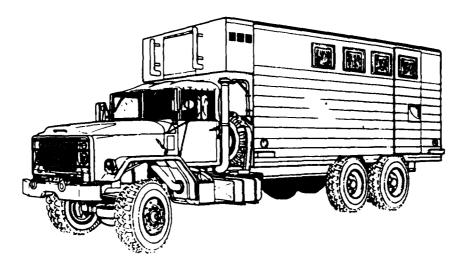
# M931A1 WO/W AND M932A1 W/W NOMENCLATURE: CHASSIS, TRUCK, TRACTOR, 5-TON, 6X6

DESIGNATIONS VEHICLE DATA

ARMY PART NO.	.M931A1 .8750159	M932A1 8750160
NSN CURB WEIGHT, FULLY EQUIPPED	2320-01-206-4077	2320-01-205-2684
LESS PAYLOAD AND CREW		
FRONT (LB)	10.340	11,400
REAR BOGIE (LB)		10.840
TOTAL (LB)		22.2.\$0
SEMITRAILER LOAD ON FIFTH WHEEL	15,000	15.000
SEMITRAILER WEIGHT W/PAYLOAD	37 500	37.500
GROSS COMBINATION WEIGHT,	07.000	37.300
FULLY EQUIPPED W/ SEMITRAILER		
PAYLOAD LESS CREW		
FRONT (LB)	10,710	11.770
REAR BOGIE	25,430	25,470
TRAILER BOGIE	22.500	22.500
TOTAL (LB)	58,640	59,740
TOWED LOAD ALLOWANCE ON PINTLE	15,000	15,000
MAXIMUM VERTICAL LOAD ON PINTLE	1,500	1,500
CENTER OF GRAVITY (AT CURB WEIGHT)		
ABOVE GROUND (IN.)	01.1	38.9
REAR OF CENTERLINE OF FRONT AXLE (IN.)	85.3	81.4
PERFORMANCE		
AT GROSS WEIGHT W/O TOWED LOAD		
MAXIMUM SPEED (MPH)	63	63
CRUISING RANGE (MI)		440
TURNING RADIUS (FT)	39.2	41.3
MILITARY LOAD CLASSIFICATIONS		
E	9	10
CC/HWY		

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

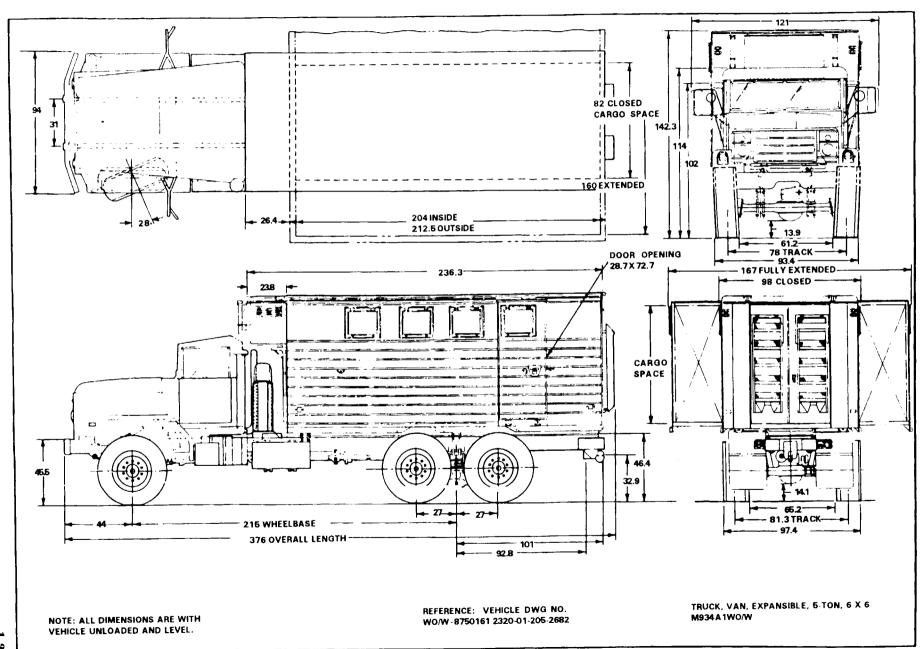


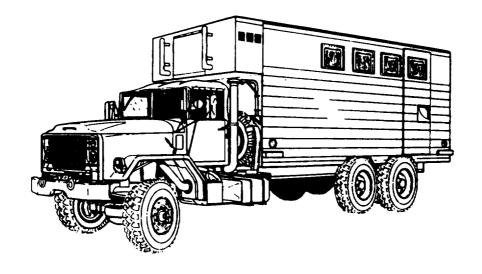


M934A1 WO/W NOMENCLATURE: TRUCK, VAN, EXPANSIBLE, 5-TON, 6X6

**DESIGNATIONS VEHICLE DATA** M934A1 ARMY PART NO..... 8750161 NSN 2320-01-205-2682 CURB WEIGHT, FULLY EQUIPPED LESS PAYLOAD AND CREW FRONT (LB) REAR BOGIE (LB) 29,280 TOTAL (LB) PAYLOAD GROSS WEIGHT, FULLY EQUIPPED WITH PAYLOAD. LESS CREW\* FRONT (LB) REAR BOGIE (LB) TOTAL (LB) 34,280 TOWED LOAD ALLOWANCE MAXIMUM VERTICAL LOAD ON PINTLE 1,500 CENTER OF GRAVITY (AT CURB WEIGHT) ABOVE GROUND (IN.) 57.5 REAR OF CENTERLINE OF FRONT AXLE (IN.) 132.8 PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD MAXIMUM SPEED (MPH) 63 CRUISING RANGE (MI) 350 TURNING RADIUS MILITARY LOAD CLASSIFICATIONS 13 E ..... CC/HWY ..... 16

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT





### M935A1 WO/W NOMENCLATURE: TRUCK, VAN, EXPANSIBLE, W/HYD TAILGATE 5-TON, 6X6

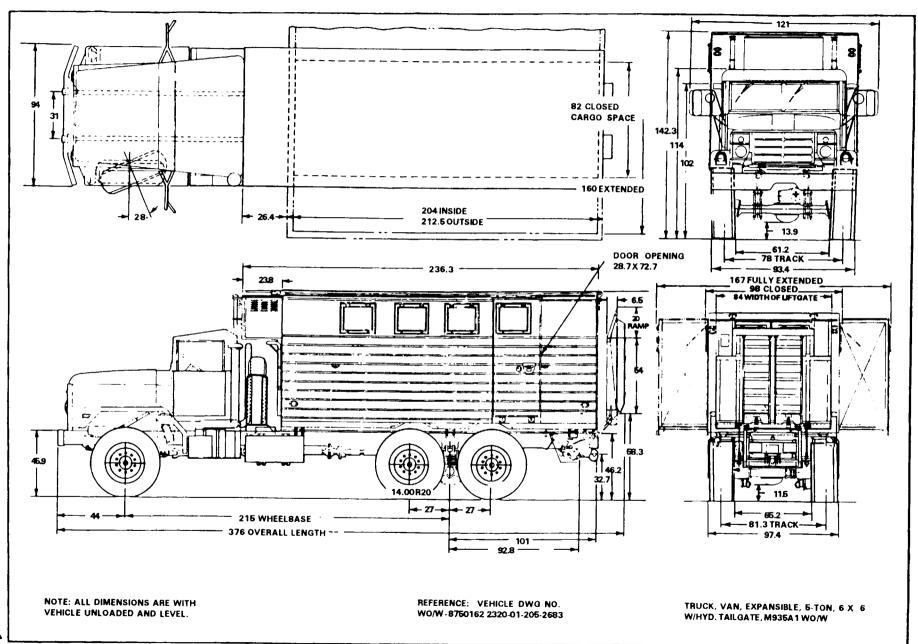
**VEHICLE DATA** M935A1 ARMY PART NO 8750162 NSN 8750162 CURB WEIGHT, FULLY EQUIPPED 2320-01-205-2683 LESS PAYLOAD AND CREW FRONT (LB) REAR BOGIE (LB) 21.040 TOTAL (LB) 31,280 GROSS WEIGHT. FULLY EQUIPPED WITH PAYLOAD, LESS CREW\* FRONT (LB) REAR BOGIE (LB) TOTAL (LB)
TOWED LOAD ALLOWANCE 15,000 MAXIMUM VERTICAL LOAD ON PINTLE
CENTER OF GRAVITY (AT CURB WEIGHT) 1,500 ABOVE GROUND (IN.) ..... 59.8 REAR OF CENTERLINE OF FRONT AXLE (IN.) 144.6 PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD MAXIMUM SPEED (MPH) 63 CRUISING RANGE (MI) TURNING KADIUS (FT)
MILITARY LOAD CLASSIFICATIONS 45.2

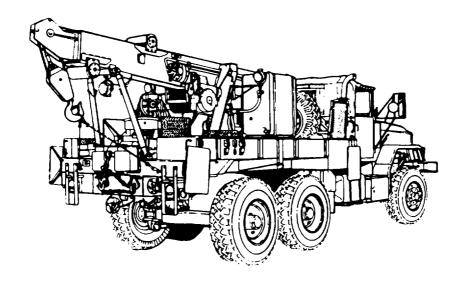
E ..... CC/HWY .....

17

**DESIGNATIONS** 

<sup>\*</sup> ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

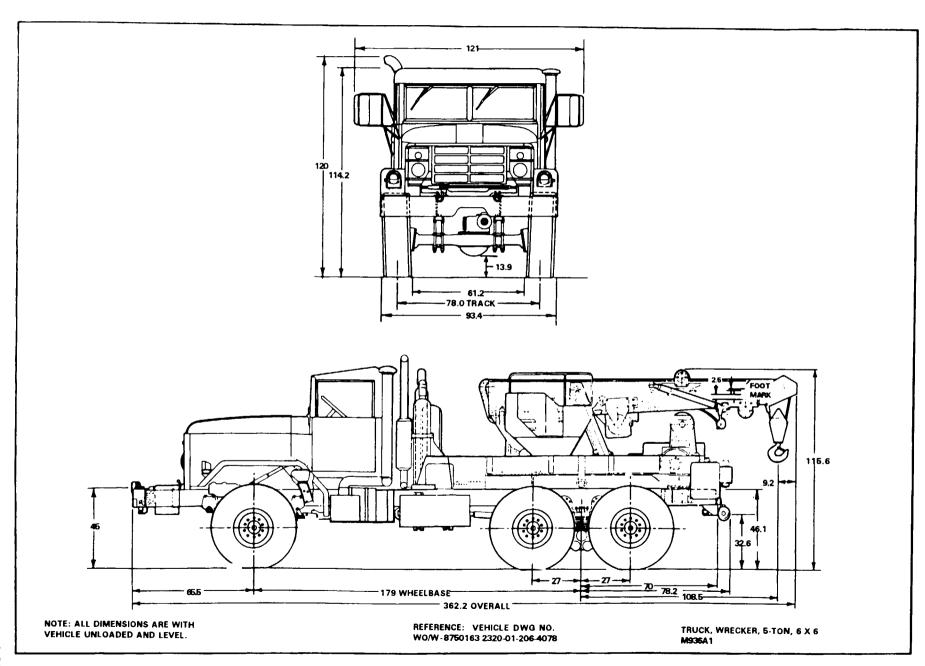




# M936A1 W/W NOMENCLATURE: TRUCK, WRECKER, 5-TON, 6X6

DESIGNATIONS VEHI	CLE DATA
ADVENDED NO	M936A1
ARMY PART NO.	
NSN	2320-01-206-4078
CURB WEIGHT, FULLY EQUIPPED	
LESS PAYLOAD AND CREW	
FRONT (LB)	
REAR BOGIE (LB)	. 26,080
TOTAL (LB)	38,155
PAYLOAD	7,000
GROSS WEIGHT, FULLY EQUIPPED	
WITH PAYLOAD, LESS CREW*	
FRONT (LB)	7,835
REAR BOGIE (LB)	37,320
TOTAL (LB)	45,155
TOWED LOAD ALLOWANCE	20,000
MAXIMUM VERTICAL LOAD ON PINTLE	2,000
CENTER OF GRAVITY (AT CURB WEIGHT)	
ABOVE GROUND (IN.)	52.9
REAR OF CENTERLINE OF FRONT AXLE (IN.)	
PERFORMANCE	
AT GROSS WEIGHT W/O TOWED LOAD	
MAXIMUM SPEED (MPH)	. 63
CRUISING RANGE (MI)	
TURNING RADIUS (FT)	. 39
MILITARY LOAD CLASSIFICATIONS	
E	. 18
CC/HWY	

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT



### M939A2-SERIES

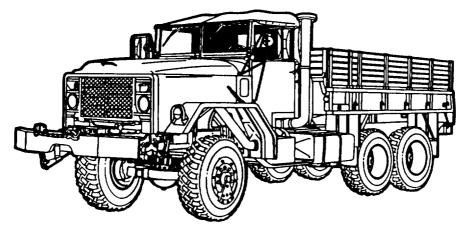
The M939A2-series trucks are easily identified by the tandem axles with single radial tires and CTIS.

The M939A2-series CTIS has the following four preset tire pressures:

Highway 60 pounds per square inch (psi)

(80 psi on the M936A2)

Cross Country 35 psi Sand/Snow 25 psi Emergency 12 psi



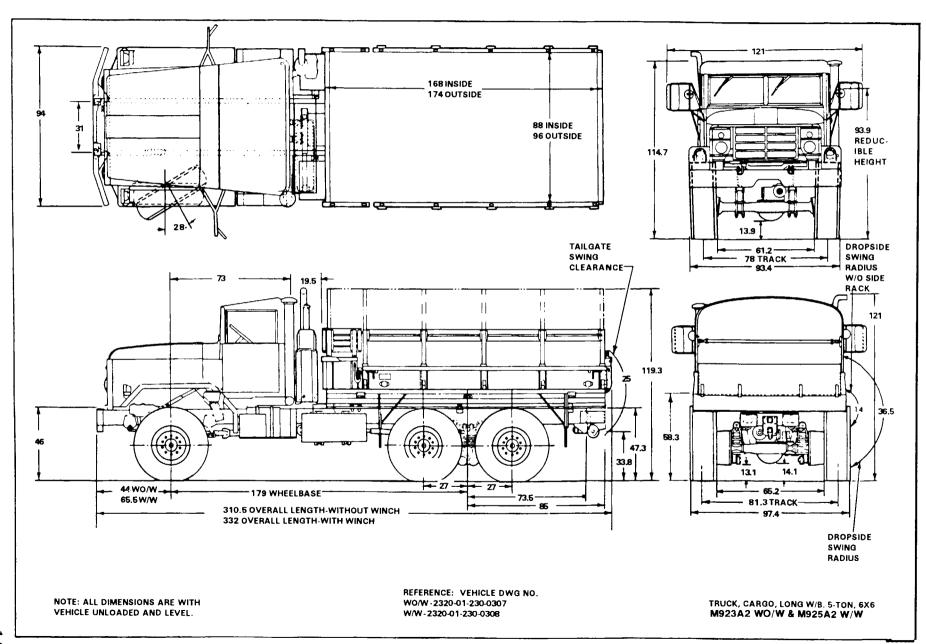
### M923A2 WO/W AND M925A2 W/W NOMENCLATURE: TRUCK, CARGO, DROPSIDE, 5-TON, 6X6

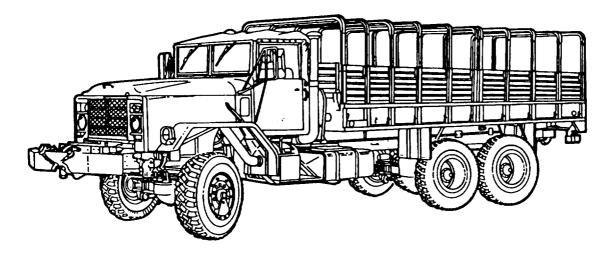
**DESIGNATIONS VEHICLE DATA** M923A2 M925A2 8750179 NSN 2320-01-230-0307 2320-01-230-0308 CURB WEIGHT, FULLY EQUIPPED LESS PAYLOAD AND CREW FRONT (LB) 8,930 9.980 12,000 12,050 TOTAL (LB) 20.930 22,030 10,000 10.000 GROSS WEIGHT, FULLY EQUIPPED WITH PAYLOAD, LESS CREW\* FRONT (LB) 8,910 9,960 REAR BOGIE (LB) 22.020 22,070 30,930 32,030 TOWED LOAD ALLOWANCE ..... 15,000 15,000 1.500 1,500 CENTER OF GRAVITY (AT CURB WEIGHT) ABOVE GROUND (IN.) 39.3 42.0 100.3 94.5PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD 63 63 350 350 38.3 42.8 MILITARY LOAD CLASSIFICATIONS E ..... 9 9 CC/HWY .....

15

16

<sup>\*</sup> ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

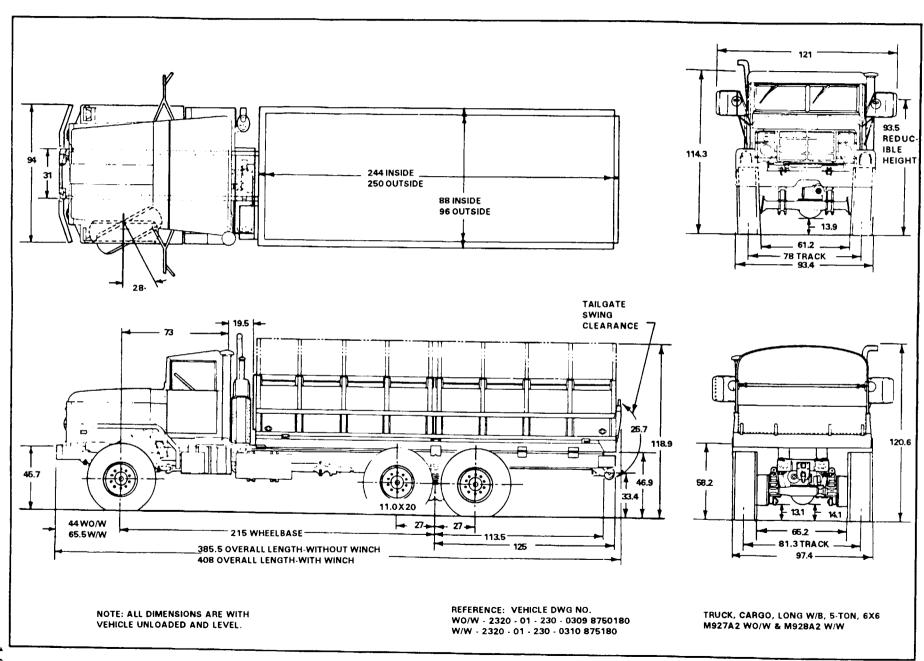


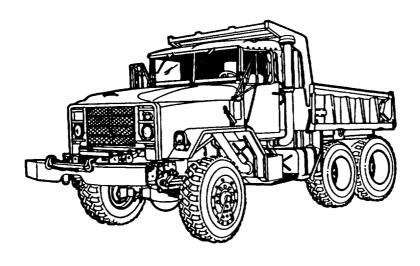


### M927A2 WO/W AND M928A2 W/W NOMENCLATURE: TRUCK, CARGO, DROPSIDE, 5-TON, 6x6

**VEHICLE DATA DESIGNATIONS** M928A2 M927A2 8750182 ARMY PART NO..... 8750180 2320-01-230-0310 CURB WEIGHT, FULLY EQUIPPED LESS PAYLOAD AND CREW 9,450 10,480 FRONT (LB) 14,410 14,340 REAR BOGIE (LB) 24,890 23.790 TOTAL (LB) 10,000 10,000 PAYLOAD ..... GROSS WEIGHT. FULLY EQUIPPED WITH PAYLOAD, LESS CREW\* 10,460 9,430 24.430 24,360 34,890 33,790 15,000 15,000 1,500 1,500 CENTER OF GRAVITY (AT CURB WEIGHT) 42.4 ABOVE GROUND (IN.) 129.7 123.2 PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD 63 63 350 350 47.5 47.5 MILITARY LOAD CLASSIFICATIONS 10 10 E ..... 16 CC/HWY .....

<sup>\*</sup> ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

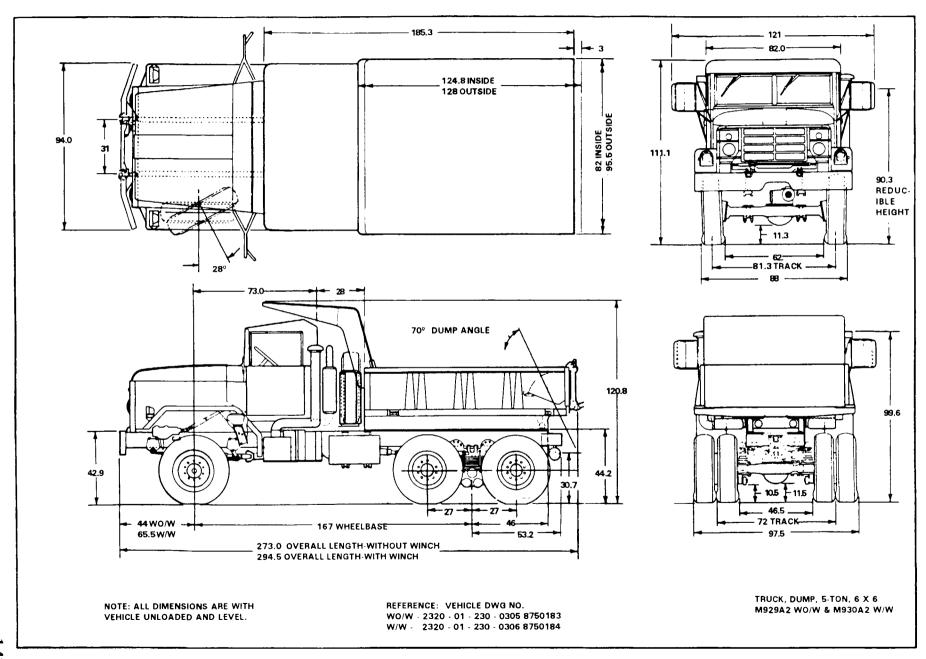


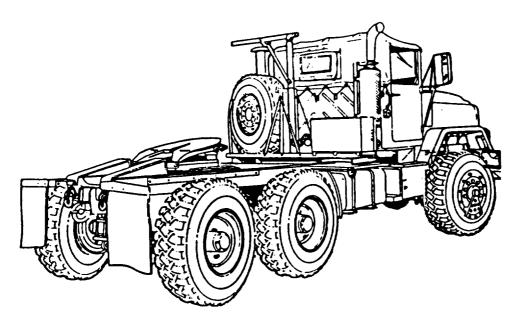


## M929A2 WO/W AND M930A2 W/W NOMENCLATURE: TRUCK, DUMP, 5-TON, 6X6

**VEHICLE DATA DESIGNATIONS** M929A2 M930A2 8740184 8750183 ARMY PART NO. 2320-01-230-0306 CURB WEIGHT. FULLY EQUIPPED LESS PAYLOAD AND CREW 10,770 FRONT (LB) 9,710 14,150 14.110 REAR BOGIE (LB) 24,920 23,820 10,000 10,000 PAYLOAD GROSS WEIGHT, FULLY EQUIPPED WITH PAYLOAD, LESS CREW\* 9,910 10,970 FRONT (LB) 23,950 23,910 REAR BOGIE (LB) 34,920 33.820 TOWED LOAD ALLOWANCE 15,000 15,000 1,500 1.500 CENTER OF GRAVITY (AT CURB WEIGHT) 44.4 ABOVE GROUND (IN.) 92.3 97.4 PERFORMANCE AT GROSS WEIGHT W/O TOWED LOAD 63 63 500 500 CRUISING RANGE (MI) TURNING RADIUS (FT) 38.3 38.3 MILITARY LOAD CLASSIFICATIONS 11 10 E ..... 17 CC/HWY .....

<sup>\*</sup> ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT



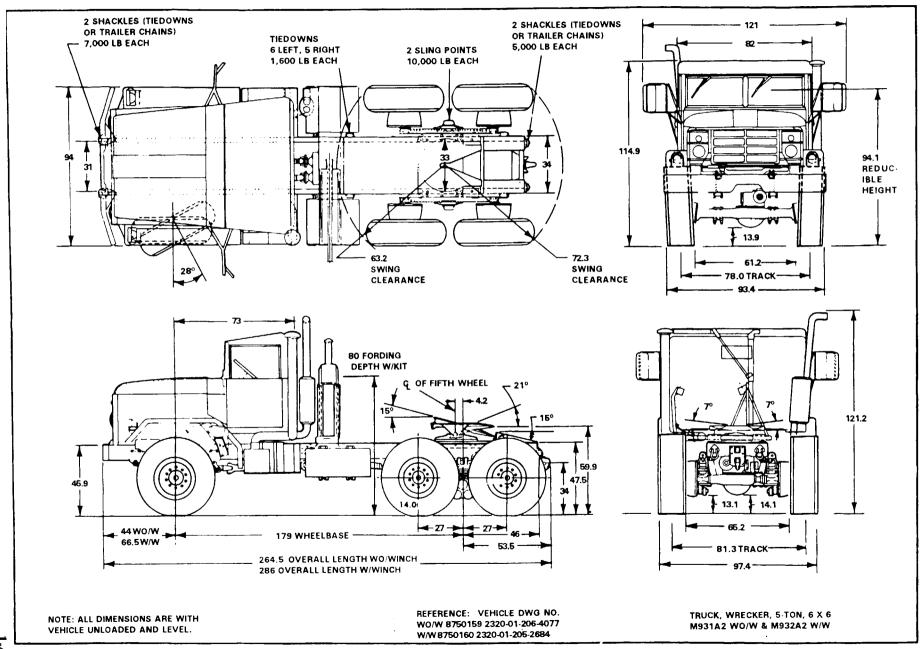


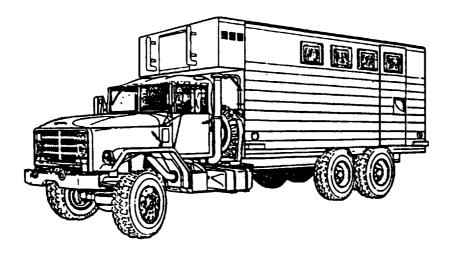
# M931A2 WO/W AND M932A2 W/W NOMENCLATURE: CHASSIS, TRUCK, TRACTOR, 5-TON, 6X6

DESIGNATIONS VEHICLE DATA

	M931A2	M932A2
ARMY PART NO.	8750185	8750186
NSN		2320-01-230-0303
CURB WEIGHT, FULLY EQUIPPED		
LESS PAYLOAD AND CREW		
FRONT (LB)	9,065	10,125
REAR BOGIE (LB)	10,830	10,870
TOTAL (LB)	19,895	20,995
SEMITRAILER LOAD ON FIFTH WHEEL	15,000	15,000
SEMITRAILER WEIGHT W/PAYLOAD	37,500	37,500
GROSS COMBINATION WEIGHT,		,
FULLY EQUIPPED W/ SEMITRAÎLER		
PAYLOAD LESS CREW		
FRONT (LB)	9,435	10,495
REAR BOGIE		25,500
TRAILER BOGIE		22.500
TOTAL (LB)	57,395	58,495
TOWED LOAD ALLOWANCE ON PINTLE	15,000	15,000
MAXIMUM VERTICAL LOAD ON PINTLE	1,500	1,500
CENTER OF GRAVITY (AT CURB WEIGHT)	,	,
ABOVE GROUND (IN.)	37.0	
REAR OF CENTERLINE OF FRONT AXLE ([ N.)		84
PERFORMANCE		
AT GROSS WEIGHT W/O TOWED LOAD		
MAXIMUM SPEED (MPH)	55	55
CRUISING RANGE (MI)		460
TURNING RADIUS (FT)		39.2
MILITARY LOAD CLASSIFICATIONS		
E	9	9
CC/HWY		

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

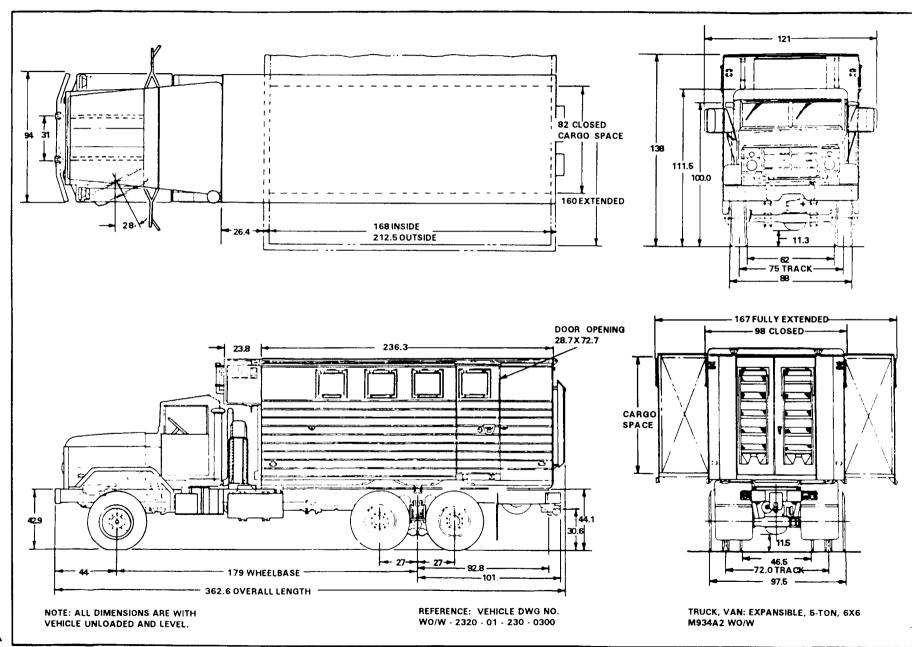


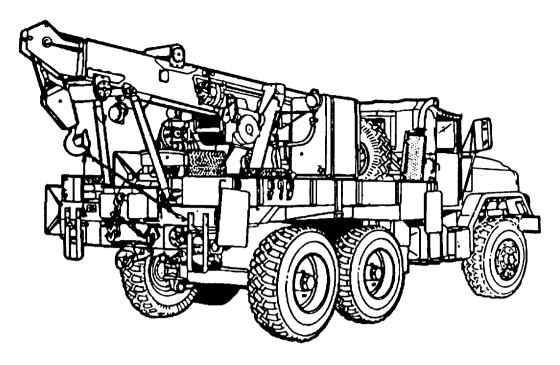


## M934A2 WO/W NOMENCLATURE: TRUCK, VAN, EXPANSIBLE, 5-TON, 6X6

DESIGNATIONS	VEHICLE DATA
	M934A2
ARMY PART NO	8750187
NSN	.232-01-230-0300
CURB WEIGHT, FULLY EQUIPPED	
LESS PAYLOAD AND CREW	
FRONT (LB)	9,915
REAR BOGIE (LB)	
TOTAL (LB)	
PAYLOAD	5,000
GROSS WEIGHT, FULLY EQUIPPED	
WITH PAYLOAD, LESS CREW"	40.40
FRONT (LB)	
REAR BOGIE (LB)	
TOTAL (LB)	
TOWED LOAD ALLOWANCE	
MAXIMUM VERTICAL LOAD ON PINTLE	1,500
CENTER OF GRAVITY (AT CURB WEIGHT)	
ABOVE GROUND (IN.)	
REAR OF CENTERLINE OF FRONT AXLE (IN.)	135.6
PERFORMANCE	
AT GROSS WEIGHT W/O TOWED LOAD	
MAXIMUM SPEED (MPH)	
CRUISING RANGE (MI)	
TURNING RADIUS (FT)	47.2
MILITARY LOAD CLASSIFICATIONS	
E	
CC/HWY	16

<sup>\*</sup> ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT

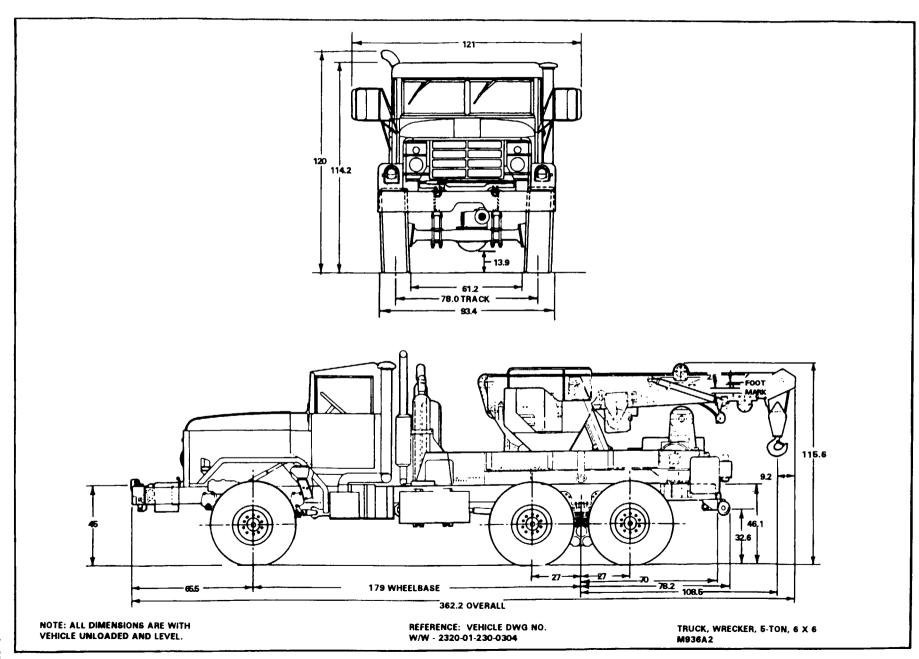




M936A2 W/W
NOMENCLATURE: TRUCK, WRECKER, 5-TON, 6X6

DESIGNATIONS	<b>VEHICLE DATA</b>
	M936A2
ARMY PART NO	8750189
NSN	
CURB WEIGHT, FULLY EQUIPPED	
LESS PAYLOAD AND CREW	
FRONT (LB)	10,800
REAR BOGIE (LB)	26,110
TOTAL (LB)	
PAYLOAD	7,000
GROSS WEIGHT, FULLY EQUIPPED	
WITH PAYLOAD, LESS CREW*	
FRONT (LB)	6,560
REAR BOGIE (LB)	
TOTAL (LB)	43,910
TOWED LOAD ALLOWANCE	20,000
MAXIMUM VERTICAL LOAD ON PINTLE	
CENTER OF GRAVITY (AT CURB WEIGHT)	,
ABOVE GROUND (IN.)	
REAR OF CENTERLINE OF FRONT AXLE (IN.)	
PERFORMANCE	
AT GROSS WEIGHT W/O TOWED LOAD	
MAXIMUM SPEED (MPH)	63
CRUISING RANGE (MI)	500
TURNING RADIUS	42.8
MILITARY LOAD CLASSIFICATIONS	
E	18
CC/HWY	

<sup>\*</sup>ADD 600 LB FOR 3-SOLDIER CREW W/EQUIPMENT



# CHAPTER 2 HIGHWAY TRANSPORT

#### Section I. GENERAL

#### 2-1. General

The trucks are highway transportable under their own power. The trucks will need highway permits in some areas of CONUS because they exceed the areas' legal width limits. AR 55-162 gives additional guidance on permits in CONUS.

Dimensional and weight restrictions in foreign countries are more restrictive then those in the United States. Foreign highway authorities will require permits for highway transport where vehicles exceed the legal limits. The transportation movement officer (TMO) can provide further guidance for highway transport in foreign countries.

Permit requirements will vary depending on local regulations and conditions, but in general the shipper must:

- *a.* Submit DD Form 1266 (Request for Special Hauling Permit) to the installation transportation officer (ITO) 2 weeks before the planned movement.
- *b.* Be aware that travel may be restricted to daylight hours on normal workdays.
- *c.* Be prepared to use wide load signs, amber lights, and escorts.
  - d. Determine if blanket permits are available.

#### 2-2. Self-Delivery

The trucks move under their own power and do not require special preparation.

#### 2-3. Vehicle Recovery

Recover broken down or damaged trucks using the M936, M936A1, or M936A2 wrecker.

## CHAPTER 3 RAIL TRANSPORT GUIDANCE

#### Section I. GENERAL

#### 3-1. General

Most of the trucks are rail transportable in CO-NUS, Canada, and Mexico without restriction. The M934/M934A1/M1934A2 and M935/M935A1/M935A2 expansible van trucks' heights exceed the Association of American Railroads (AAR) rail clearance diagram. These trucks may require special routing on rail lines in the United States, Canada, and Mexico.

The M934/M934A1/M1934A2 and M935/M935A1/

M935A2 expansible van trucks, and M936/M936A1/M936A2 wrecker trucks will require special routing in foreign countries because of their nonreducible height. The trucks must be cleared for rail transport on an individual basis with the rail authorities of the host nation.

#### \*NOTE\*

Additional cargo may be transported with the vehicles if approved by the activity offering the equipment for transport.

#### Section II. RAIL LOADING

#### 3-2. Railcar Selection

The trucks are transportable on a variety of railcars. Table 3-1 presents characteristics of commonly available military and commercial railcars with comments about transporting the trucks on each railcar.

**Table 3-1 Evaluation of Railcar** 

Railcar	Features	Comments
DODX 140-TON	68 ft long. 10.5 ft wide 140-ton, steel deck, cushioned (1/2-in chain WLL 13,750 lb)	Not recommended; too large.
DODX 100-TON	54 ft long. 10.5 ft wide 100-ton, wood deck, standard (no chain tiedowns provided)	Suitable
нттх	60 ft long. 10.2 ft wide 73-ton, wood deck, cushioned (1/2-in chain WLL 13,750 lb)	Suitable
ITTX	89 ft long. 8.5 ft wide 70-ton, steel deck, cushioned (3/8-in chain WLL 9,000 lb)	
MTTX	60 ft long. 10.5 ft wide 74-ton, wood deck, cushioned (no chain tiedowns provided)	Suitable
OTTX	60 ft long 10.5 ft wide 72-ton, wood deck, cushioned (3/8-in chain WLL 9,000 lb)	Suitable
TTDX	89 ft. long, 8.5 ft wide 74-ton, steel deck, cushioned (1/2-in chain)	Suitable

Other general-purpose flatcars can be used provided they are of adequate size and capacity.

#### 3-3. Vehicle Preparation

Truck preparations for rail transport include:

- a. Securing all loose items.
- b. Removing all trash and mud from the vehicle.
- c. Checking for fluid leaks and repairing defects.
- d. Inspecting the engine and brakes, and repairing any defects.
- e. Inspecting tiedown provisions, and repairing or replacing any defective or missing provisions or shackles.

#### \*NOTE\*

Most of the trucks' heights can be reduced by removing bows, tarpaulin, and exhaust pipe extensions. If necessary, remove these items and stow them within the cargo or passenger compartments.

#### 3-4. Loading Procedures

Place the trucks onto the railcar with a crane of adequate capacity, or drive them onto the railcar if a suitable ramp or bridge is available. (See para 4-4 for lifting procedures.) The trucks must face in the same direction and be uniformly spaced along the length of the flatcar to allow sufficient space for securement at each end of the flatcar and between the trucks

Set the parking brakes.

Put transmissions in neutral, and wire them in place,

#### \*\*CAUTION\*\*

Use railcar and ground guides when loading or unloading the trucks.

#### \*\*CAUTION\*\*

Do not allow the trucks to exceed 3 miles per hour (walking speed) during loading or unloading operations.

## 3-5. Blocking and Tiedown Procedures

Rail tiedown of the trucks depends on the type of railcar, materials available, the truck series, and the trucks' GVW at time of shipment, The type of tiedown provisions on the trucks depends on the truck series. The M939- and M939A1-series trucks have two tiedown provisions (one set) while the M939A2-series trucks have four tiedown provisions that act as one set. Figure 3-1 shows the proper use of the four front provisions on the M939A-series trucks. Most often, the trucks will be transported on cushion draft, chain-equipped railcars. Instructions for this tiedown pattern are given in figure 3-2 and table 3-2.

The shipping unit should reference MTMCTEA Pamphlet 55-19 for additional guidelines on tying down its trucks.

Table 3-2. Rail Tiedown Procedure

Item	Procedure
Chain Tiedowns (4-1/2-inch chains with a WLL of 13,250 pounds)	Install 1/2-inch chains at indicated locations symmetrically around the truck with an angle from railcar deck to chain of about $45$ degrees.

Note: When chain-equipped railcars are not available, the shipping unit must provide chains or wire rope for tiedown.

All trucks will require blocking when transported on a wooden deck, standard draft gear railcar. Construction and application instructions for chock and side blocks are in MTMCTEA Pamphlet 55-19.

#### \*\*CAUTION\*\*

Blocking is required on wooden deck, standard draft gear railcars, The shipping unit must provide blocking materials.

#### \*NOTE\*

If transporting cargo in the truck cargo beds, it must be properly secured.

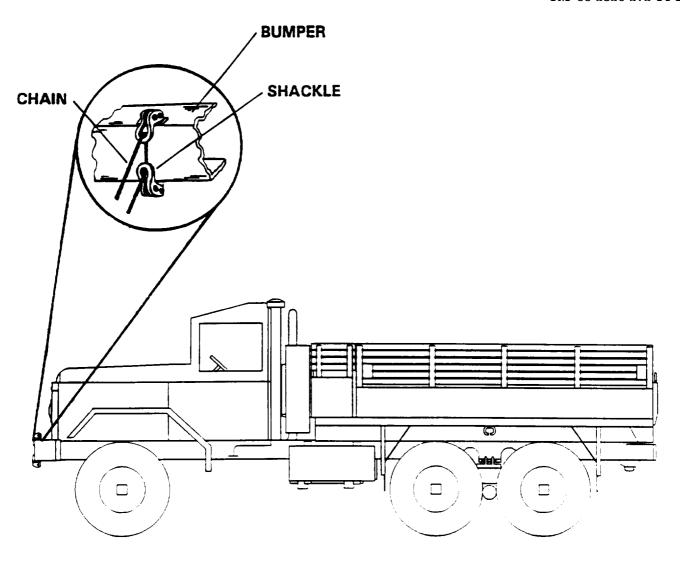
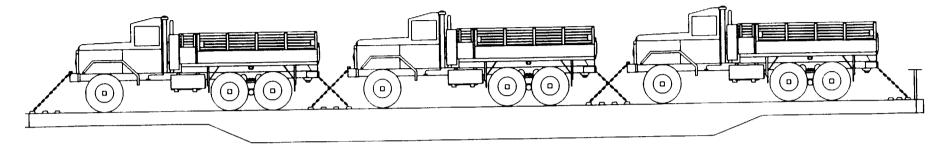


Figure 3-1. Proper use of the front tiedown provisions.



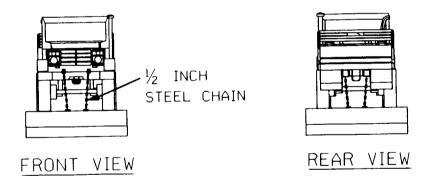


Figure 3-2. Chain tiedown pattern for transport on cushioned draft, chain-equipped railcars.

# CHAPTER 4 MARINE TRANSPORT

#### Section I. GENERAL

#### 4-1. General

The trucks are transportable by a variety of inland waterway cargo carriers and lighters and by all seagoing cargo vessels. Most marine vessels will have lashing/tiedown materials. If shoring is required or the vessel does not have tiedown materials, then the shipping unit must provide these materials. The ship must have suitable tiedown points such as D-rings or chain lashing anchors.

When possible, the vehicle should receive the protection of below-deck stowage. In general, good stowage of vehicles means having them placed fore and aft, as close together as practical, with minimum spacing between outer vehicles and the sweatboards. If not shipped on the vehicle, the breakable parts, spare parts, and OEM (on-equipment material) should be protected and properly identified as to location or disposition during shipment.

#### \*NOTE\*

The methods described in this chapter for lifting and securing vehicles are the recom-

mended procedures. Other methods of handling and stowing may be used, provided they will ensure safe delivery.

#### 4-2. Safety

In addition to the safety precautions in paragraph 1-6 and the cautions, warnings, and notes in this section, the following safety measures will apply for marine transport.

- *a.* The shipping unit will notify the marine vessel if ammunition or explosives are to be transported with the trucks. Compliance with AR 55-228, paragraph 2-7, is required.
- b. The trucks and ammunition will be handled and stowed in accordance with the Code of Federal Regulations, Title 49, Transportation, subparts 176.76 and 176.905. The same regulations are also contained in Water Carrier Tariff No. 32 or the current issue of this tariff.
- $\it c.$  Fire extinguishers will be readily available during ship loading and unloading.

#### Section II. SHIP LOADING

#### 4-3. Vehicle Preparation

Truck preparations for marine transport include:

- a. Securing all loose items.
- *b.* Emptying fuel tank to one-fourth of its capacity.
  - c. Removing all trash and mud from the trucks.
- *d.* Checking for fluid leaks and repairing defects.
- *e.* Inspecting engine and brakes, and repairing any defects.
- f. Inspecting tiedown provisions, and repairing or replacing any defective or missing provisions or shackles.

#### 4-4. Loading Procedures

When appropriate (such as RORO vessels), the trucks can be driven or towed onto the vessel. When lifting the trucks, the crane being used must be of adequate capacity. Ship and shore side cranes are usually rated in long tons (LT), 2,240 pounds, and/or metric tons (t), 1000 kilograms. Typical lifting diagrams for the trucks are shown in figures 4-1,4-2, and 4-3.

Place the trucks in the position indicated on the stow plan so that sufficient tiedown points are

available. Set the parking brake, and put the transmission in neutral. Disconnect the battery.

#### \*\*\*WARNING\*\*\*

Prior to offering the M939- or M939A1-series trucks for transport, check and replace, if necessary, the rear spring pin used for lifting these vehicles. The proper pin is NSN 5315-01-206-2239.

#### \*\*\*WARNING\*\*\*

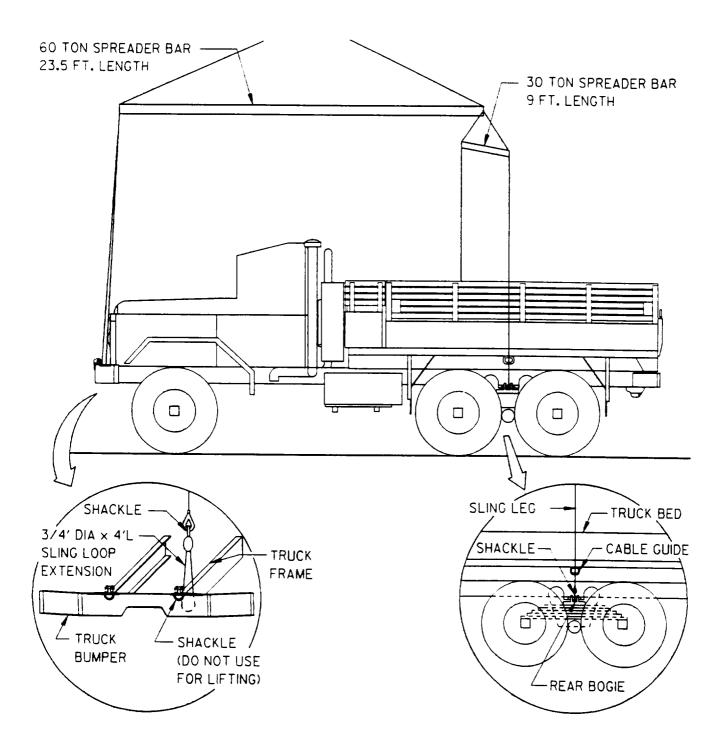
Do not use shackles on the M939- and M939A1-series trucks' front bumpers for lifting.

#### \*\*CAUTION\*\*

Ear protection (plugs) must be worn at all times when working in RORO ship holds.

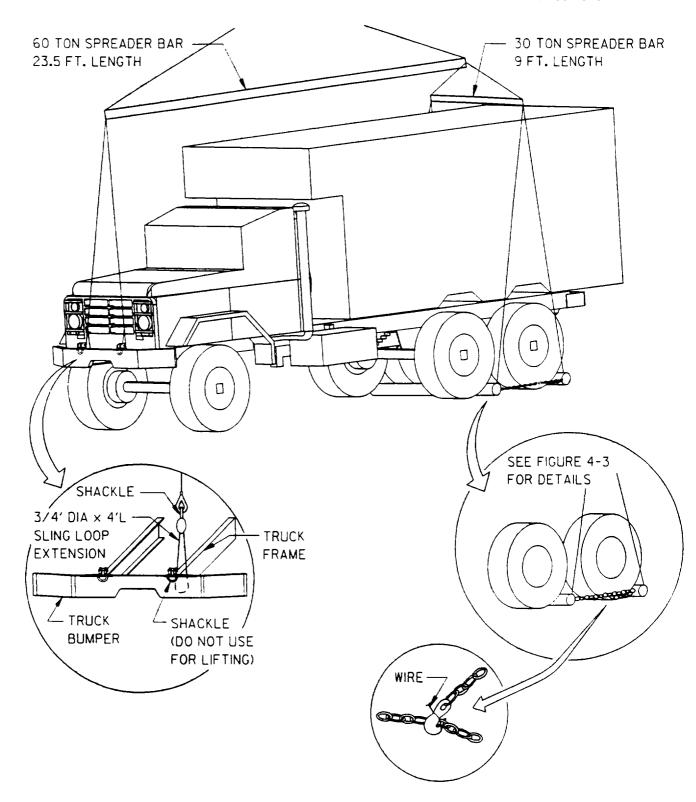
#### 4-5. Tiedown Procedures

The preferred tiedown pattern is four chains, with a 35,000-pound capacity, crossed and at an angle of thirty degrees for trucks weighing up to 50,000 pounds (fig 4-4). (The M939-, M939A1-, and M939A2-series trucks do not exceed this 50,000-pound GVW limit.) If the vessel is not equipped with lashing/tiedown materials, the shipping unit must provide them.



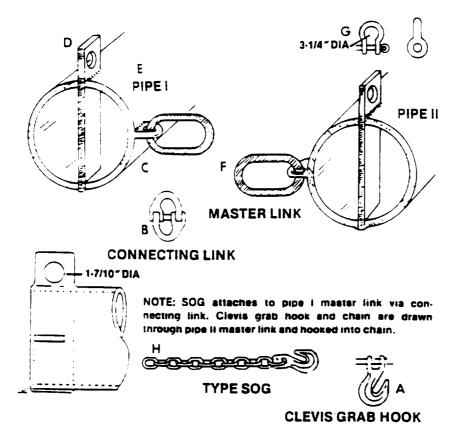
 $^{\ast}$  NOTE  $^{\ast}$  This method not intended for lifting expansible vans.

Figure 4-1. Lifting diagram.



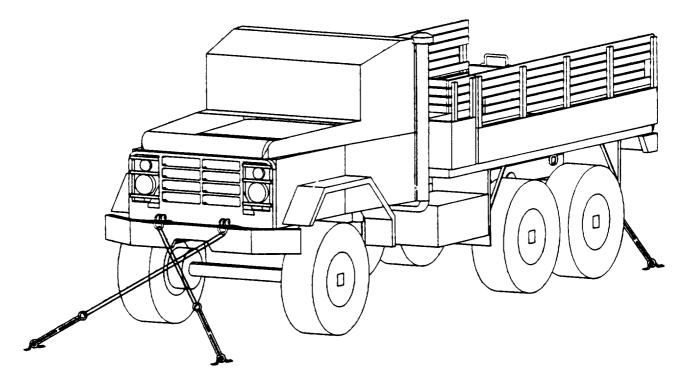
\* NOTE \*
This method of lifting expansible vans exceeds the 24-foot apex height as specified in MIL-STD-209.

Figure 4-2. Lifling diagram for expansible vans.



REF LTR	QUANTITY REQUIRED	DESCRIPTION	MATERIAL SPECIFICATION	PROOF (LB)
A	2	Clevis Grab Hook, 7/16-in, W/Keeper	ASTM - A330	10,000
В	2	Single Chain Link, 1/2-in.	ASTM - A337	13,000
С	4	1/2-in. Plate. 2.8-in. x 1.8-in.	ASTM - 36	
D	4	1/2-in. Plats, 12-in. x 3.3-in.	ASTM - 36	
E	2	112-inLong Pipe, 8-in.	ASTM · 53 (or equiv)	
F	4	Master Link, 3/4-in.	ASTM - 342	8,600
G	4	1-3/8-in. Shackle. Type IV. Class i	Steel (Typs IX)	33,400
Н	2	50 Links, 3/8-in.	Steel	13,200

Figure 4-3. Lifting provision for expansible vans.



\* NOTE \*

See figure 3-1 for proper use of the four front provisions on the M939A2-series trucks.

Figure 4-4. Marine tiedown diagram.

#### TM 55-2320-272-14-1

The location of the D-rings (or chain lashing anchors) and the tiedown materials available will determine the actual tiedown pattern.

#### \*\*\*WARNING\*\*\*

Do not walk under the trucks when lifted.

#### \*NOTE\*

If adequate lashing is not available, use blocking.

## CHAPTER 5 AIR TRANSPORT

#### Section I. GENERAL

#### 5-1. General

The trucks are all air transportable on C-5 and C-17 aircraft. The M923/M923A1/M923A2 thru M932/M932A1/M932A2 trucks are air transportable on C-130 and C-141 aircraft. The M936/M936A1/M936A2 wrecker trucks are transportable on the C-130 and C-141 aircraft using special procedures.

Variables such as weather, airfield characteristics, and distance to destination affect total cargo loads and operating ranges. AFP 76-2 provides general guidance on total cargo loads and operating ranges. For specific guidance, contact the nearest Air Mobility Command (AMC) activity.

The shipping unit must ensure that the trucks are properly prepared for air transport before reaching the marshaling area. All trucks cargo must be properly secured. The shipping unit will assist the aircraft loadmaster/crew in loading and tying down the trucks. It is the responsibility of the shipping unit to provide shoring material.

The M925, M925A1, and M929 trucks are certified for low-velocity airdrop (LVAD) from the C-130 and C-141, and low-altitude parachute extraction (LAPE) from the C-130. Procedures can be found in FM 10-526.

#### 5-2. Safety

Besides the general safety notes in paragraph 1-6, the following safety considerations and precautions apply for air transport:

- *a.* Personnel must not refuel or otherwise service the trucks within 50 feet of the aircraft.
- *b.* Personnel will wear ear protection (plugs) at all times while working on the flightline.
- *c.* Fire extinguishers will be readily available during aircraft loading and unloading operations.
- d. The vehicle maximum speed is 5 miles per hour (mph) when within 25 feet of an aircraft. The maximum speed on loading ramps or inside an aircraft is 3 miles per hour (mph).
- e. The fuel tank will be filled in accordance with TM 38-250/AFR 71-4, *Preparation of Hazardous Materials for Military Air Shipment.*

#### 5-3. Hazardous Material

The shipping unit must provide written notification before shipping dangerous or hazardous materials aboard military or Department of Defense (DOD) contract aircraft. Specific instructions are in TM 38-250/AFR 71-4 or in CFR 49.

#### Section II. TRANSPORT BY CARGO AIRCRAFT

#### 5-4. USAF Cargo Aircraft

The trucks are all certified for transport on the C-5 and C-17 aircraft. The M923/M923A1/M923A2 thru M932/M932A1/M932A2 trucks are certified for airlift on the C-130 and C-141 aircraft. The M936/M936A1/M936A2 wrecker trucks are certified for transport on the C-130 and C-141 aircraft using special procedures shown in paragraph 5.7.1.

The maximum vehicle axle loads permitted on the C-130 and C-141 aircraft floors limit the allowable cargo payload on each of the vehicles. The maximum axle loads are 13,000 pounds for the C-130 and 20,000 pounds for the C-141. Axle loads between 6,000 and 13,000 pounds are limited to a 28.75-foot portion of the C-130, and axle loads between 10,000 and 20,000 pounds are limited to 26.7-foot portion of the C-141.

### 5-5. U.S. Army Aircraft

The trucks exceed weight and dimensional limitations for internal transport on U.S. Army fixedwing and rotary-wing aircraft.

While several of the cargo truck and truck tractor versions are within the CH-47 helicopter external air transport capacity, there is no requirement for EAT. Therefore, Natick Research, Development and Engineering Center (Natick) has not evaluated nor certified the trucks for helicopter lift.

The U.S. Marine Corps is working with Natick to evaluate and certify some of their trucks for EAT by the Marine Corps CH-53. If certified, the trucks will only be transportable at curb weight using a modified/airlift bumper. For further information contact Natick. SATNC-UAS. Natick. MA 01760.

#### 5-6. Civil Reserve Air Fleet (CRAF)

The trucks are not certified for transport on CRAF aircraft. Commercial airlines evaluate transport on CRAF aircraft on a case-by-case basis.

#### 5-7. Vehicle Preparation

- a. Secure all loose items.
- b. Remove all trash and mud from the vehicle.
- c. Check for fluid leaks and repair any defects.
- d. Inspect the engine and brakes, and repair any lefects.
- *e.* Inspect and replace any damaged or missing tiedown shackles and provisions.
- *f.* For C-130 and C-141 aircraft, remove canvas top and exhaust stack, move spare tire, fold down windshield, and fold in mirrors.

## 5.7.1 M936/M936A1/M936A2 Wrecker Truck Preparation

For transport on the C-130 and C-141 aircraft, the height shall be reduced to 106.5 inches or less. This will require that the tires be inflated to cross-country tire pressures and may require removal of the upper roller from the boom. Axle weights shall be reduced to below 13,000 pounds for shipment on the C-130 aircraft. In addition, the following preparation must be accomplished prior to loading the trucks on either the C-130 or C- 141 aircraft.

- a. One of the following must be done:
- (1). Modify the stabilizer bars; that is, shortened, such that the boom is supported and the maximum height is still within the 106.5-inch limit.

- (2). Remove the stabilizer bars and lower the boom onto a block of wood shoring such that the hydraulic lift cylinders are not bottomed out. This will prevent damage to the hydraulic cylinders. The maximum height shall be less than or equal to the 106.5-inch limit. The boom must be restrained to meet the MIL-STD-1791 requirements of 3 g forward, 1.5 g lateral, 1.5 g aft, 2 g up, and 4.5 g down.
  - b. Remove the canvas top.
  - c. Remove the exhaust stack.
- $\it d.$  Remove the upper boom assembly roller (if required).
  - e. Fold down the windshield.

#### \*NOTE\*

Preparation for transport on C-17 aircraft could change as the aircraft comes into production.

### 5-8. Vehicle Loading

Vehicles with individual wheel loads in excess of 5,000 pounds may require shoring. For specific guidance, contact the nearest AMC activity. The shipping unit must provide shoring in accordance with the applicable aircraft loading technical order.

The shipping unit will assist the aircraft loadmaster/crew in loading and tying down the trucks. The USAF will provide the tiedown materials.

# APPENDIX A CONVERSION TABLES

#### 1. Common Metric Abbreviations

m = meter	kg = kilogram
dm = decimeter	km = kilometer
cm = centimeter	t = metric ton
mm = millimeter	

#### 2. Linear Measure

1  mi = 1,609.35  m	1  km = 0.62137  mi
1  yd = 0.9144  m	1  m = 1.0936  yd
1  ft = 0.3048  m	1  m = 3.2808  ft
1  in = 0.0254  m	1  m = 39.3700  in
1  m = 10  dm = 100  cm = 1000  mm	

#### 3. Surface Measure

1  sq yd = 0.8361  sq m	1  sq m = 1.196  sq yd
1  sq ft = 0.0929  sq m	1  sq m = 10.764  sq ft
1  sq in = 0.00065  sq m	1  sq m = 1,550  sq in

#### 4. Cubic Measure

1 cu yd = 0.76455 cu m	1 cu m = 1.31 cu yd
1  cu ft = 0.02831  cu m	1  cu m = 35.30  cu ft
1 cu in = 0.000016 cu m	1  cu m = 61,023  cu in

### 5. Weight

1  STON = 907.185  kg	1  kg = 2.2046  lb
1 LTON = 1016 kg	1 t = 1,000 kg
1  lb = 0.45359  kg	1 t = 2,204.62 lb
1  STON = 2,000  lb	1  LTON = 2,240  lb

- 6. The following simplified conversion factors are accurate to within 2 percent for quick computations:
  - a. Inches to centimeters Multiply inches by 10 and divide by 4.
  - b. Yards to meters Multiply yards by 9 and divide by 10.
  - c. Miles to kilometers Multiply miles by 8 and divide by 5.
  - d. Pounds to kilograms Multiply pounds by 5 and divide by 11.
- 7. The following conversions are provided for guidance when procuring lumber, wire rope, or wire in areas that use the metric system. Lumber sizes are rounded off to the nearest 1/2 cm.
  - a. Lumber

```
2-in x 4-in x desired length = 5-cm x 10-cm x desired length
```

1-in x 6-in x desired length = 2.5-cm x 15-cm x desired length

6-in x 8-in x desired length = 15-cm x 20-cm x desired length

1-in x 12-in x desired length = 2.5-cm x 30-cm x desired length (length normally expressed in ft or m)

b. Wire rope. Round off to next higher whole mm of available wire rope sizes.

```
318-in dia = 9.5-mm dia
1/2-in dia = 12.7-mm dia
518-in dia = 15.8-mm dia
314-in dia = 19.0-mm dia
718-in dia = 22.2-mm dia
1-in dia = 25.4-mm dia
1-1/4-in dia = 31.7-mm dia
1-1/2-in dia = 38.1-mm dia
```

 $\it c.~Wire.~No.~8$  gauge annealed (11/64-in dia) = 4.37-mm dia. Round off to the next higher whole mm of available wire rope sizes.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN General, United States Army Chief of Staff

Official:

MILTON H. HAMILTON Administrative Assistant to the Secretary of the Army

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### The Metric System and Equivalents

#### Linear Measure

1 centimeter = 10 millimeters = .39 inch 1 decimeter = 10 centimeters = 3.94 inches 1 meter = 10 decimeters = 39.37 inches 1 dekameter = 10 meters = 32.8 feet 1 hectometer = 10 dekameters = 328.08 feet 1 kilometer = 10 hectometers = 3,280.8 feet

#### Weights

1 centigram = 10 milligrams = .15 grain 1 decigram = 10 centigrams = 1.54 grains 1 gram = 10 decigram = .035 ounce 1 dekagram = 10 grams = .35 ounce 1 hectogram = 10 dekagrams = 3.52 ounces 1 kilogram = 10 hectograms = 2.2 pounds 1 quintal = 100 kilograms = 220.46 pounds 1 metric ton = 10 quintals = 1.1 short tons

#### Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce 1 deciliter = 10 centiliters = 3.38 fl. ounces 1 liter = 10 deciliters = 33.81 fl. ounces 1 dekaliter = 10 liters = 2.64 gallons 1 hectoliter = 10 dekaliters = 26.42 gallons 1 kiloliter = 10 hectoliters = 264.18 gallons

#### Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

#### Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

## **Approximate Conversion Factors**

To change	To	Multiply by	To change	To	Multiply by
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	. <b>3</b> 05	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet .	cubic meters	. <b>02</b> 8	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	<b>3</b> 5.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

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