TM 9-2320-266-10

TECHNICAL MANUAL

OPERATOR'S MANUAL

TRUCK, CARGO; 1-1/4 TON, 4X4

M880 (2320-00-579-8942)
M881 (2320-00-579-8943)
M882 (2320-00-579-8957)
M883 (2320-00-579-8959)
M884 (2320-00-579-8985)
M885 (2320-00-579-8989)

TRUCK, CARGO; 1-1/4 TON, 4X2

M890 (2320-00-579-8991)
M891 (2320-00-579-9046)
M892 (2320-00-579-9052)

TRUCK, AMBULANCE; 1-1/4 TON, 4X4

M886 (2310-00-579-9078)

TRUCK, AMBULANCE; 1-1/4 TON, 4X2

M893 (2310-00-125-5679)

HEADQUARTERS, DEPARTMENT OF THE ARMY

TM 9-2320-266-10
C7

Change

No. 7

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 12 October 1982

OPERATOR'S MANUAL

TRUCK, CARGO; 1-1/4 TON, 4X4
M880 (2320-00-579-8942), M881 (2320-00-579-8943)
M882 (2320-00-579-8957), M883 (2320-00-579-8959)
M884 (2320-00-579-8985), M885 (2320-00-579-8989)
TRUCK, CARGO; 1-1/4 TON, 4X2
M890 (2320-00-579-8991), M891 (2320-00-579-9046)
M892 (2320-00-579-9052)
TRUCK, AMBULANCE; 1-1/4 TON, 4X4
M886 (2310-00-579-9078)
TRUCK, AMBULANCE; 1-1/4 TON, 4X2
M893 (2310-00-579-5679)
TRUCK, TELEPHONE MAINTENANCE; 1-1/4 TON, 4X4
M888 (2320-01-044-0333)

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Remove pages	*Insert pages*
a and b	a through c/(d blank)
1-1 through 1-4	1-1 through 1-4
1-4.1 and 1-4.2	1-4.1 and 1-4.2
1-5 through 1-9/(1-10 blank)	1-5 through 1-9/(1-10 blank)
2-3 and 2-4	2-3 and 2-4
2-4.1/(2-4.2 blank)	2-4.1/(2-4.2 blank)
2-9 through 2-12	2-9 through 2-12
None	2-12.1/(2-12.2 blank)
2-13 and 2-14	2-13 and 2-14
2-16.1 and 2-16.2	2-16.1 and 2-16.2
2-16.9/(2-16.10 blank)	2-16.9/(2-16.10 blank)
3-1/(3-2 blank)	3-1/(3-2 blank)
3-7 and 3-8	3-7 and 3-8
None	3-8.1 and 3-8.2
3-9 and 3-10	3-9 and 3-10
3-10.1 and 3-10.2	3-10.1 through 3-10.5/(3-10.6 blank)
3-11 and 3-12	3-11/(3-12 blank)

Remove pages	*Insert pages*
3-19 through 3-22	3-19 through 3-22
3-23 through 3-26	3-23 through 3-26
4-1and 4-2	4-1 and 4-2
4-2.3 and 4-2.4	4-2.3 and 4-2.4
4-5 and 4-6	4-5 and 4-6
5-3 and 5-4	5-3 and 5-4
B-1/(B-2 blank)	B-1/(B-2 blank)
C-1/(C-2 blank)	C-1/(C-2 blank)
D-1/(D-2 blank)	D-1 and D-2
Index 1 through Index 7/ (Index 8 blank)	Index 1 through Index 7/ (Index 8 blank)
DA Form 2028-2	DA Form 2028-2

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General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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To be distributed in accordance with DA Form 12-38, TM requirements for Truck, Cargo, 1-1/4 Ton, M880, M881, M882, M883, M884, M885, M890, M891, M892; Ambulance, M886, M893, Telephone Maintenance Truck M888.

TM 9-2320-266-10

C6

Change
No. 6

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C. 19 September 1980

OPERATOR'S MANUAL

TRUCK, CARGO; 1-1/4 TON, 4X4
M880 (2320-00-579-8942), M881 (2320-00-579-8943)
M882 (2320-00-579-8957), M883 (2320-00-579-8959)
M884 (2320-00-579-8985), M885 (2320-00-579-8989)
TRUCK, CARGO; 1-1/4 TON, 4X2
M890 (2320-00-579-8991), M891 (2320-00-579-9046)
M892 (2320-00-579-9052)
TRUCK, AMBULANCE; 1-1/4 TON, 4X4
M886 (2310-00-579-9078)
TRUCK, AMBULANCE; 1-1/4 TON, 4X2
M893 (2310-00-579-5679)
TRUCK, TELEPHONE MAINTENANCE; 1-1/4 TON, 4X4
M888 (2320-01-044-0333)

TM 9-2320-266-10, 5 January 1976, is changed as follows:

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Remove pages	*Insert pages*
2-13/2-14	2-13/2-14
2-16.1 thru 2-16.2	2-16.1 thru 2-16.9
3-10.1/3-10.2	3-10.1/3-10.2
3-11 thru 3-12	3-11 thru 3-12
None	3-22.1/3-22.2 (blank)
INDEX 1 thru INDEX 2	INDEX 1 thru INDEX 2

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General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-38, Operator's Maintenance requirements for Truck, Cargo, 1-¼ Ton, M880, M881, M882, M883, M884, M885, M890. M891, M886 and M893.

CHANGE
No. 5

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. *17 October 1978*

Operator's Manual

TRUCK, CARGO; 1 ¼ TON, 4X4
M880 (2320-00-579-8942), M881 (2320-00-579-8943)
M882 (2320-00-579-8957), M883 (2320-00-579-8959)
M884 (2320-00-579-8985), M885 (2320-00-579-8989)
TRUCK, CARGO; 1 ¼ TON, 4X2
M890 (2320-00-579-8991), M891 (2320-00-579-9046)
M892 (2320-00-579-9052)
TRUCK, AMBULANCE; 1 ¼ TON, 4X4
M886 (2310-00-579-9078)
TRUCK, AMBULANCE; 1 ¼ TON, 4X2
M893 (2310-00-579-5679)
TRUCK, TELEPHONE MAINTENANCE; 1 ¼ TON, 4X4
M888 (2320-01-044-0333)

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Remove pages	*Insert pages*
2-5 and 2-6	2-5 and 2-6
2-13 and 2-14	2-13 and 2-14
3-9 and 3-10	3-9 and 3-10
3-10.1 and 3-10.2	3-10.1 and 3-10.2
3-11 and 3-12	3-11 and 3-12
3-23 through 3-26	3-23 through 3-26
4-5 and 4-6	4-5 and 4-6

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BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12–38, Operator maintenance requirements for Truck, Cargo: 1¼ Ton, M880, M881, M882, M883, M884, M885, M890, and M891 Ambulance, M886, and M893.

Change
No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C. *31 December 1977*

OPERATOR'S MANUAL

TRUCK, CARGO; 1-1/4 TON, 4X4
M880 (2320-00-579-8942), M881 (2320-00-579-8943)
M882 (2320-00-579-8957), M883 (2320-00-579-8959)
M884 (2320-00-579-8985), M885 (2320-00-579-8989)
TRUCK, CARGO; 1-1/4 TON, 4X2
M890 (2320-00-579-8991), M891 (2320-00-579-9046)
M892 (2320-00-579-9052)
TRUCK, AMBULANCE; 1-1/4 TON, 4X4
M886 (2310-00-579-9078)
TRUCK, AMBULANCE; 1-1/4 TON, 4X2
M893 (2310-00-579-5679)
TRUCK, TELEPHONE MAINTENANCE; 1-1/4 TON, 4X4
M888 (2320-01-044-0333)

TM 9-2320-266-10, 5 January 1976, is changed as follows:

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Remove Pages	Insert Pages
i/ii(blank)	i/ii(blank)
1-1 through 1-4	1-1 through 1-4
1-4.1 and 1-4.2	1-4.1 and 1-4.2
None	1-4.3/1-4.4(blank)
1-9/1-10(blank)	1-9/1-10(blank)
None	5-1 through 5-4
B-1/B-2(blank)	B-1/B-2(blank)

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Chief of Staff

Official:
J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-38, operator maintenance requirements for 1 1/4-ton truck, XM861, ambulance, XM863 and XM864.

Change
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C, 16 May 1977

OPERATOR'S MANUAL

TRUCK, CARGO; 1-1/4 TON, 4X4
M880 (2320-00-579-8942), M881 (2320-00-579-8943)
M882 (2320-00-579-8957), M883 (2320-00-579-8959)
M884 (2320-00-579-8985), M885 (2320-00-579-8989)
TRUCK, CARGO; 1-1/4 TON, 4X2
M890 (2320-00-579-8991), M891 (2320-00-579-9046)
M892 (2320-00-579-9052)
TRUCK, AMBULANCE; 1-1/4 TON, 4X4
M886 (2310-00-579-9078)
TRUCK, AMBULANCE; 1-1/4 TON, 4X2
M893 (2310-00-579-5679)

TM 9-2320-266-10, 5 January 1976, is changed as follows:

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2. New or changed material is indicated by a vertical bar in the margin of the page.

3. Added illustrations are indicated by a vertical bar in the margin adjacent to the illustration. Revised illustrations are indicated with a vertical bar adjacent to the new or revised portion of the illustration.

Remove pages	Insert pages
a and b	a and b
i/(ii Blank)	i/(ii Blank)
1-1 through 1-4	1-1 through 1-4
None	1-4.1 and 1-4.2
1-5 and 1-6	1-5 and 1-6
2-1 and 2-2	2-1 and 2-2
2-9 through 2-12	2-9 through 2-12
2-16.1 and 2-16.2	2-16.1 and 2-16.2
3-1 and 3-2	3-1 and 3-2

Remove pages	Insert pages
3-3 through 3-6	3-3 through 3-6
3-9 and 3-10	3-9 and 3-10
None	3-10.1 and 3-10.2
3-11 through 3-12.2	3-11 through 3-12.2
3-23 and 3-24	3-23 and 3-24
A-1/(A-2 Blank)	A-1/(A-2 Blank)
B-1/(B-2 Blank)	B-1/(B-2 Blank)
None	C-1/(C-2 Blank)
None	D-1/(D-2 Blank)
Index 3 and Index 4	Index 3 and Index 4
Index 7/(Index 8 Blank)	Index 7/(Index 8 Blank)

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General, United States Army
Chief of Staff

Official:
PAUL T. SMITH
Major General, United States Army
The Adjutant General

Distribution:

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TM 9-2320-266-10

★C2

Change
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 12 November 1976

OPERATOR'S MANUAL

TRUCK, CARGO; 1-1/4 TON, 4X4
M880 (2320-00-579-8942), M881 (2320-00-579-8943)
M882 (2320-00-579-8957), M883 (2320-00-579-8959)
M884 (2320-00-579-8985), M885 (2320-00-579-8989)
TRUCK, CARGO; 1-1/4 TON, 4X2
M890 (2320-00-579-8991), M891 (2320-00-579-9046)
M892 (2320-00-579-9052)
TRUCK, AMBULANCE; 1-1/4 TON, 4X4
M886 (2310-00-579-9078)
TRUCK, AMBULANCE; 1-1/4 TON, 4X2
M893 (2310-00-579-5679)

TM 9-2320-266-10, 5 January 1976, is changed as follows:

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3. Added illustrations are indicated by a vertical bar in the margin adjacent to the illustration. Revised illustrations are indicated with a vertical bar adjacent to the new or revised portion of the illustration.

Remove Pages	Insert Pages
1-9/1-10	1-9/1-10
2-3/2-4	2-3 thru 2-4.2
3-9 thru 3-12	3-9 thru 3-12.2
Index 3 thru Index 7	Index 3 thru Index 7

4. File this change in the front of the publication for reference purposes.

*This change supersedes TM 9–2320-266-ESC, 31 October 1975.

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Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-38, operator requirements for 1 1/4-ton truck, XM861, ambulance, XM863, and XM864 family of vehicles.

Change
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 30 July 1976

OPERATOR'S MANUAL

TRUCK, CARGO; 1-1/4 TON, 4X4
M880 (2320-00-579-8942), M881 (2320-00-579-8943)
M882 (2320-00-579-8957), M883 (2320-00-579-8959)
M884 (2320-00-579-8985), M885 (2320-00-579-8989)
TRUCK, CARGO; 1-1/4 TON, 4X2
M890 (2320-00-579-8991), M891 (2320-00-579-9046)
M892 (2320-00-579-9052)
TRUCK, AMBULANCE; 1-1/4 TON, 4X4
M886 (2310-00-579-9078)
TRUCK, AMBULANCE; 1-1/4 TON, 4X2
M893 (2310-00-579-5679)

TM 9-2320-266-10, 5 January 1976, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added illustrations are indicated by a vertical bar in the margin adjacent to the illustration. Revised illustrations are indicated with a vertical bar adjacent to the new or revised portion of the illustration.

Remove pages	Insert pages
a and b	a and b
1-9/1-10(blank)	1-9/1-10(blank)
2-1 through 2-6	2-1 through 2-6
None	2-6.1/2-6.2(blank)
2-11 and 2-12	2-11 and 2-12
2-15 and 2-16	2-15 and 2-16
None	2-16.1 and 2-16.2
3-1 through 3-8	3-1 through 3-8
4-1 and 4-2	4-1 and 4-2

Remove pages	Insert pages
None	4-2.1 through 4-2.4
4-3 and 4-4	4-3 and 4-4
A-1/A-2(blank)	A-1/A-2(blank)
B-1/B-2(blank)	B-1/B-2(blank)
Index 1 through Index 7	Index 1 through Index 7/Index 8(blank)

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PAUL T. SMITH
Major General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-38, operator maintenance requirements for 1 1/2-ton truck, cargo: 1 1/4-ton, 4x4, M715, ambulance M725, and maintenance M726.

WARNING

CARBON MONOXIDE POISONING CAN BE DEADLY

Carbon monoxide is a colorless, odorless, poisonous gas, which, when breathed, deprives the body of oxygen and causes suffocation. Exposure to air contaminated with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, apparent drowsiness, or coma. Permanent brain damage or death can result from severe exposure.

Carbon monoxide occurs in the exhaust fumes of fuel-burning heaters and internal combustion engines and can become dangerous under conditions of inadequate ventilation. The following precautions must be observed to insure the safety of personnel whenever the personnel heater or the main or auxiliary engine of any vehicle is operated for maintenance purposes or tactical use:

1. DO NOT operate heater or engine of vehicle in an enclosed area unless it is ADEQUATELY VENTILATED.

2. DO NOT idle engine for long periods without maintaining ADEQUATE VENTILATION in personnel compartments.

3. DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment doors removed unless necessary for maintenance purposes.

4. BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, IMMEDIATELY VENTILATE personnel compartments. If symptoms persist, remove affected personnel from vehicle and treat as follows: Expose to fresh air; keep warm; DO NOT PERMIT PHYSICAL EXERCISE; if necessary, administer artificial respiration.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS ADEQUATE VENTILATION.

WARNING

For artificial respiration, refer to FM 21-11.

WARNING

Ensure that ladder is secure on bows.

WARNING

Never remove the radiator cap when the engine is hot. Escaping steam or hot water can cause serious burns.

WARNING

Don't let solvents come in contact with your skin in extreme cold weather. Supercooling can cause frostbite in a matter of minutes.

WARNING

Do NOT use diesel fuel, gasoline, or benzene (Benzol) for cleaning. Use a cleaning solvent.

WARNING

If you find evidence of a fuel leak, don't drive the vehicle until the problem is solved.

WARNING

Do not operate the engine when the truck is up on the jack. You can be hurt badly if the truck moves or falls.

WARNING

Never mix radial and bias-ply tires on the truck as difficult handling may result.

WARNING

Do not turn on the hazard lights when you are moving in traffic. The hazard flasher overrides the brake lights, and a rear end collision could result.

WARNING

If you go into a spin, don't use the brakes until you're straightened out. Using the brakes will only make it harder to regain control.

WARNING

If the transfer control is at "N," the transmission is disengaged, and putting the transmission in "P" will not stop the truck from moving.

WARNING

There should be no odor of gasoline or exhaust gas in the passenger compartment. If you notice evidence of either of these, stop the heater immediately by turning the switch lever 1/8-turn counterclockwise. Then, ventilate the area to remove the fumes.

WARNING

Dry cleaning solvent, SD-2, used to clean parts is potentially dangerous to personnel and property. Do not smoke when using it. Do not use it near open flame or excessive heat. Always make sure there is a fire extinguisher nearby. Use solvent only in well ventilated places. Flash point of solvent is 100°F.

Wear gloves. The solvent evaporates quickly and can dry out and badly irritate your skin. In cold weather the solvent can cause frostbite.

TECHNICAL MANUAL

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. *5 January 1976*

OPERATOR'S MANUAL
TRUCK, CARGO; 1-1/4 TON, 4X4, M880 SERIES
TRUCK, CARGO; 1-1/4 TON, 4X2, M890 SERIES
TRUCK, AMBULANCE; 1-1/4 TON, 4X4, M886
TRUCK, AMBULANCE; 1-1/4 TON, 4X2, M893
TRUCK, TELEPHONE MAINTENANCE; 1-1/4 TON, 4X4, M888

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope.

This manual is for your use in operating and maintaining the M880/M890 series 1¼ ton trucks. It also provides instructions for trucks equipped with special purpose kits.

1-2. Maintenance Forms and Records.

TM 38-750 The Army Maintenance Management System (TAMMS), explains any maintenance forms and records required for use with the truck.

1-3. Reporting 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 the back of this manual direct to: US Army Tank-Automotive Command, ATTN: DRSTA-MB, Warren, MI 48090. A reply will be furnished to you.

1-4. Warranty Information.

The M880/M890 series trucks are warrantied by Chrysler Corporation for 12 months or 12,000 miles, whichever comes first. It starts on the date found in block 23, DA Form 2408-9, in the log book. Report all defects in material or workmanship to your supervisor, who will take appropriate action through your organizational maintenance shop.

1-5. Abbreviations.

Listed below are explanations of abbreviations used on the vehicle data and service plates throughout this manual.

amp	ampere
bhp	brake horsepower
cu in	cubic inch(es)
EIR	Equipment Improvement Recommendation
gal	gallon(s)
GAWR	Gross Axle Weight Rating
GVW	Gross Vehicle Weight
in	inch(es)
kph	kilometers per hour
lb	pound(s)
LO	Lubrication Order
mph	miles per hour
PMCS	Preventive Maintenance Checks and Services
psi	pounds per square inch

pt	pint(s)
qt	quart(s)
rpm	revolutions per minute
SAE	Society of American Engineers
v	volt(s)

Section II. DESCRIPTION AND DATA

1-6. Description.

a. The 1¼ ton trucks shown in figures 1-1 through 1-4.2 are commercial vehicles suitable for use on all types of roads and highways in all types of weather. In addition, the 4X4 models are designed for cross-country use and will ford hard-bottom streams to a depth of 16 inches. All vehicles have an automatic transmission with three forward and one reverse speeds. All trucks have a 318-cubic-inch displacement engine which operates on regular, leaded gasoline. However, unleaded gas can be used. The braking system uses hydraulically activated power-assisted front disc and rear drum service brakes.

b. Descriptive terms in this manual such as right or left, front or rear, refer to an area or component as viewed from the operator's seat facing the front of the vehicle. If you need a detailed description of any component of the M880/M890 truck series, refer to TM 9-2320-266-20. Your supervisor will have a copy.

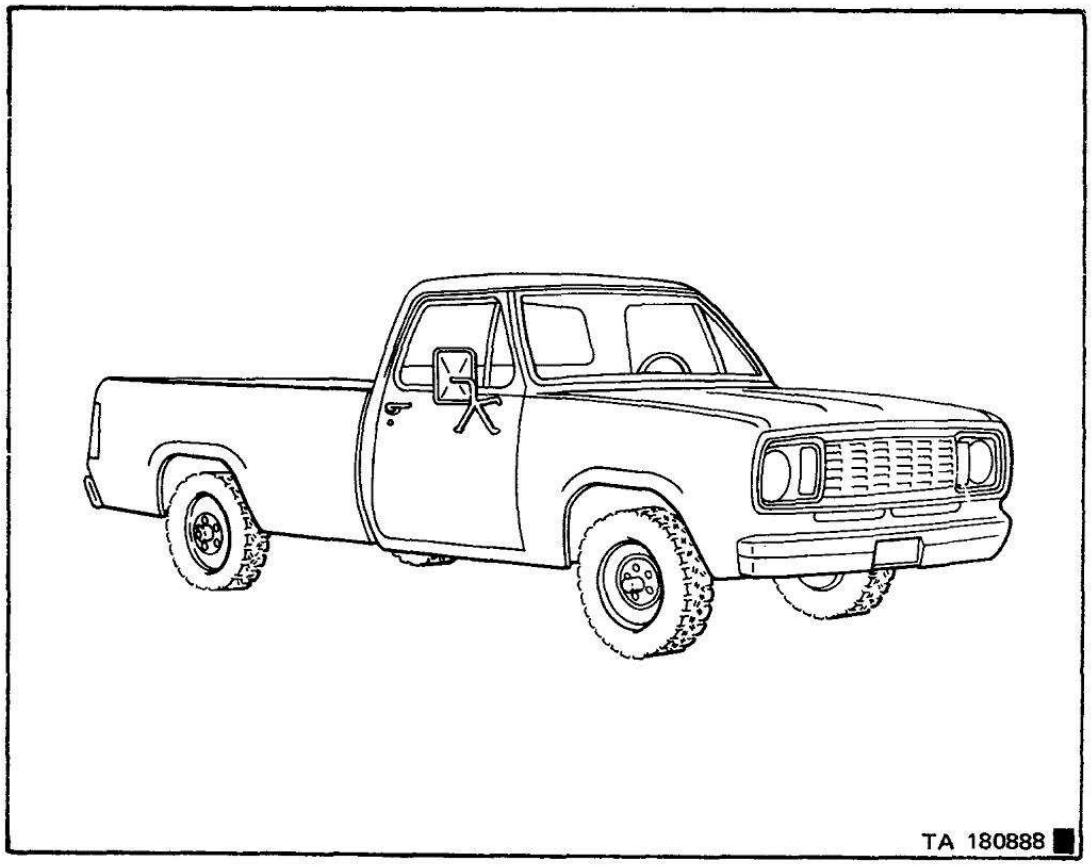


Figure 1-1. M880/M890 Cargo Truck, Right Front View.

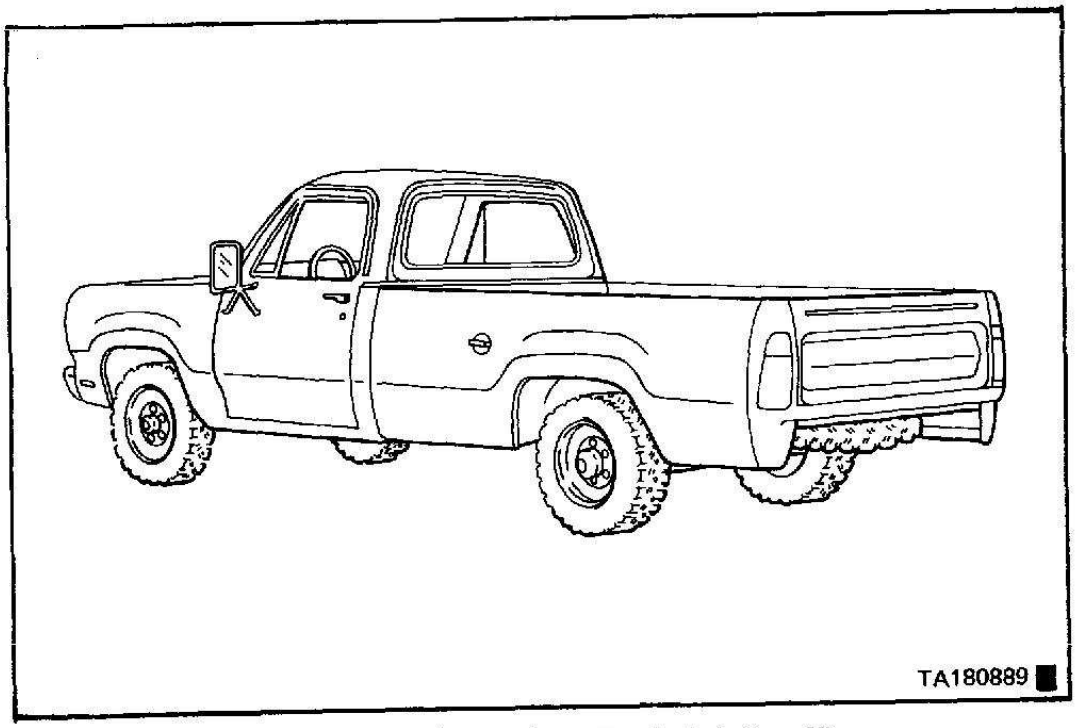


Figure 1-2. M880/M890 Cargo Truck, Left Rear View.

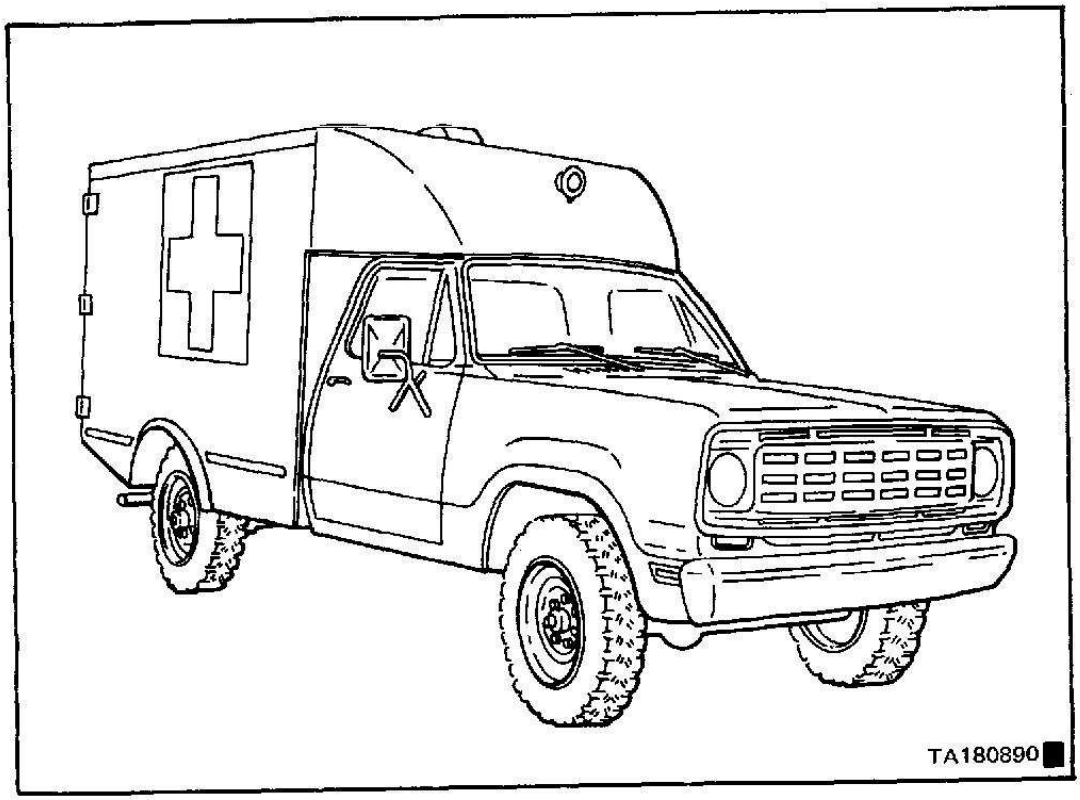


Figure 1-3. M886/M893 Ambulance, Right Front View.

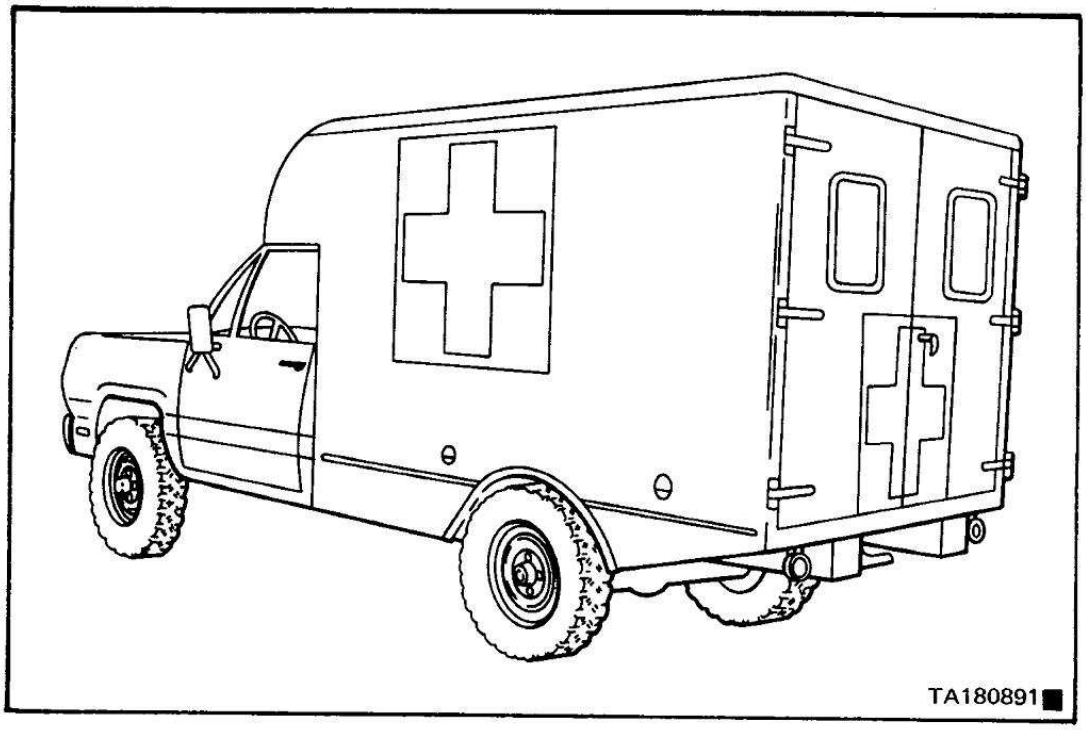


Figure 1-4. M886/M893 Ambulance, Left Rear View.

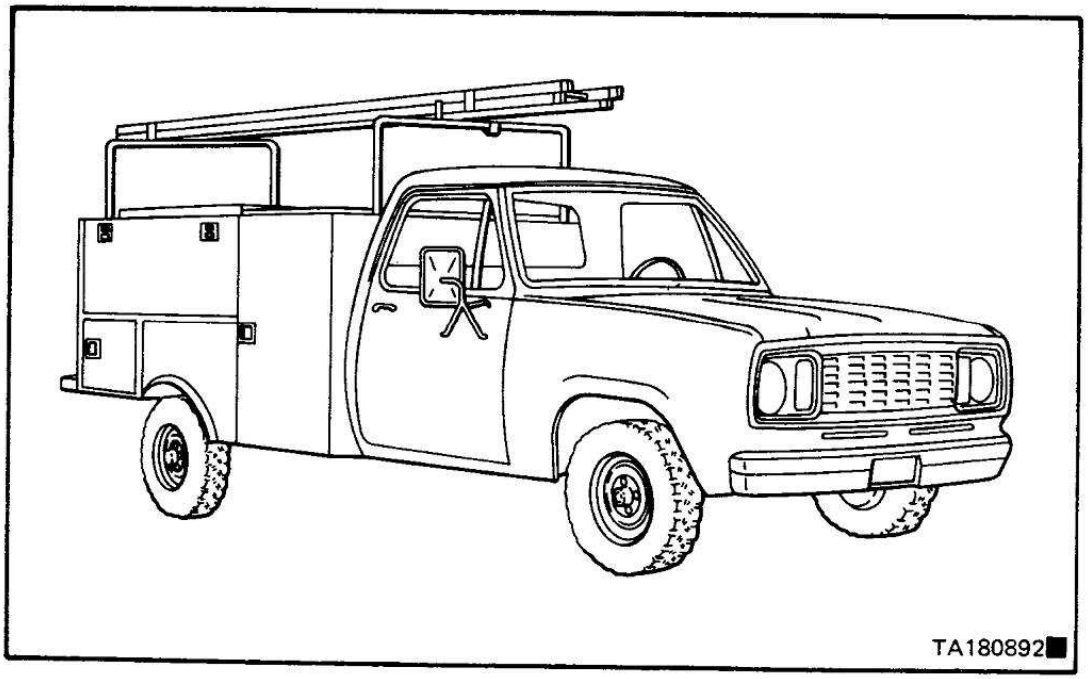


Figure 1-4.1. M888 Telephone Maintenance Truck, Right Front View.

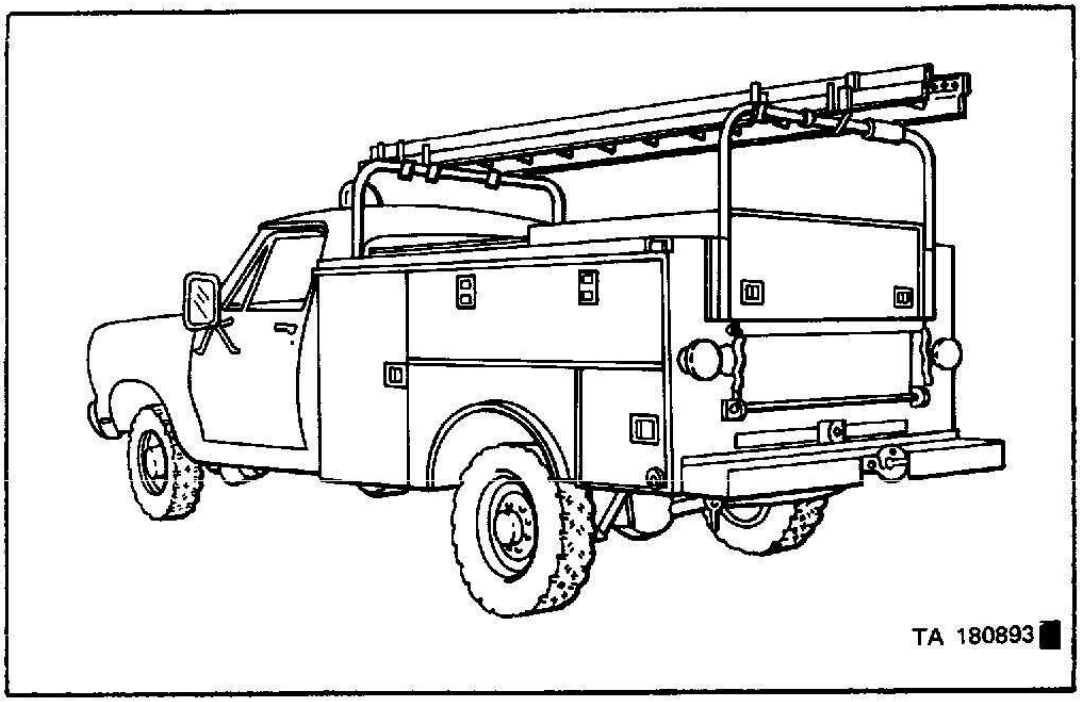


Figure 1-4.2. M888 Telephone Maintenance Truck, Left Rear View.

1-7. Differences Between Models.

a. General. The 1¼ ton trucks covered in this manual are of various body styles and have various final drive mechanisms. Where differences among vehicle models exist, this manual will cite the applicable models. When no models are cited, no difference exists among the models in that area, and the instructions and illustrations apply to all models.

b. Cargo Truck. The 1¼ ton 4X4 cargo truck is a general purpose vehicle designed for highway or cross-country operations. The 4X2 cargo truck is designed primarily for highway use. Both models have a pintle hook at the rear to permit towing of a trailer.

c. Ambulance. Both the 4X4 and the 4X2 ambulance models are designed to carry up to five litter patients plus one ambulatory patient, or up to six ambulatory patients. The 4X4 model is designed for both highway and cross-country operations. The 4X2 model is designed primarily for highway use.

d. Telephone Truck. The 1¼ ton 4x4 truck is designed for highway or cross-country operations in support of telephone maintenance. It has a pintle hook at the rear to permit towing of a trailer.

e. Model Number Designation. The different model configurations are listed below.

(1) M880. A 4X4 cargo truck.

(2) M881. A 4X4 cargo truck equipped with a 60 amp/24 V generating system kit, in addition to the vehicle's 12 V electrical system.

(3) M882. A 4X4 cargo truck equipped with a 60 amp/24 V generating system kit and a communications kit, in addition to the vehicle's 12 V electrical system.

(4) M883. A 4X4 cargo truck with a S250 shelter kit installed in the cargo box. In addition to the vehicle's 12 V electrical system, this model is equipped with a 60 amp/24 V generating system kit.

(5) M884. A 4X4 cargo truck with a S250 shelter kit installed on the cargo box. In addition to the vehicle's 12 V electrical system, this model is equipped with a 100 amp/24 V generating system kit.

(6) M885. A 4X4 cargo truck with a S250 shelter kit installed on the cargo box.

(7) M886. A 4X4 ambulance.

(8) M888. A 4X4 truck with a telephone maintenance body installed.

(9) M890. A 4X2 cargo truck.

(10) M891. A 4X2 cargo truck equipped with a 12 V electrical system and a 60 amp/24 V generating system kit.

(11) M892. A 4X2 cargo truck equipped with a 12 V electrical system, a 60 amp/24 V generating system kit, and a communications kit.

(12) M893. A 4X2 ambulance.

f. Body Change. Models with a part number effectivity date before August 15, 1976, have a different grille and front turn signals than those manufactured after that date (figure 1-4.1).

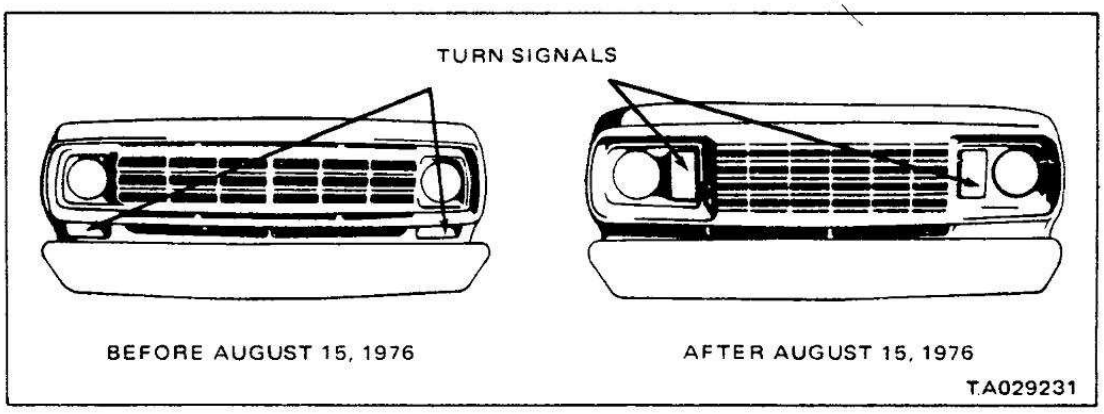


Figure 1-4.3 Differences Between Grilles.

1-8. Vehicle Characteristics.

a. Fuel System. The fuel system consists of the following:

(1) A 20-gallon fuel tank located in the middle, inside of the frame rails.

(2) A fuel pump located on the lower front, right-hand side of the engine.

(3) Two fuel filters, one located in the fuel tank and the other located between the fuel pump and the carburetor.

(4) A 2-barrel carburetor.

(5) Fuel lines and vacuum lines.

b. Vehicle Electrical System. The vehicle uses a 12 V electrical system with negative ground. A 50 amp alternator is provided as standard equipment, but kits are available for either 60 amp/24 V or 100 amp/24 V systems.

c. Brake System. The service brake system used on all models consists of front disc brakes, rear drum brakes, a dual master cylinder, and a vacuum-assist power booster. The parking brake is cable-operated and utilizes the rear service brakes.

d. Suspension. All models use four double-acting shock absorbers, one at each wheel. The 4X4 models have leaf springs on the front and rear axles; the 4X2 models have coil springs on the front axle and leaf springs on the rear.

e. Steering System. The vehicle is equipped with a manual steering system.

f. Wheels and Tires. All models are equipped with 16.5 X 6.75 drop center rim wheels. Tires are on- and off-road design radials. Tire size for all models is 9.50R16.5D.

WARNING

Never mix radial and conventional (bias-ply) tires on the truck. Handling becomes difficult and you'll have no true feeling of the road when you try to drive.

g. Instruction Plates and Decals. Various informational, caution, and instruction plates and decals are shown in figure 1-5. Observe the cautions and instructions on these plates at all times.

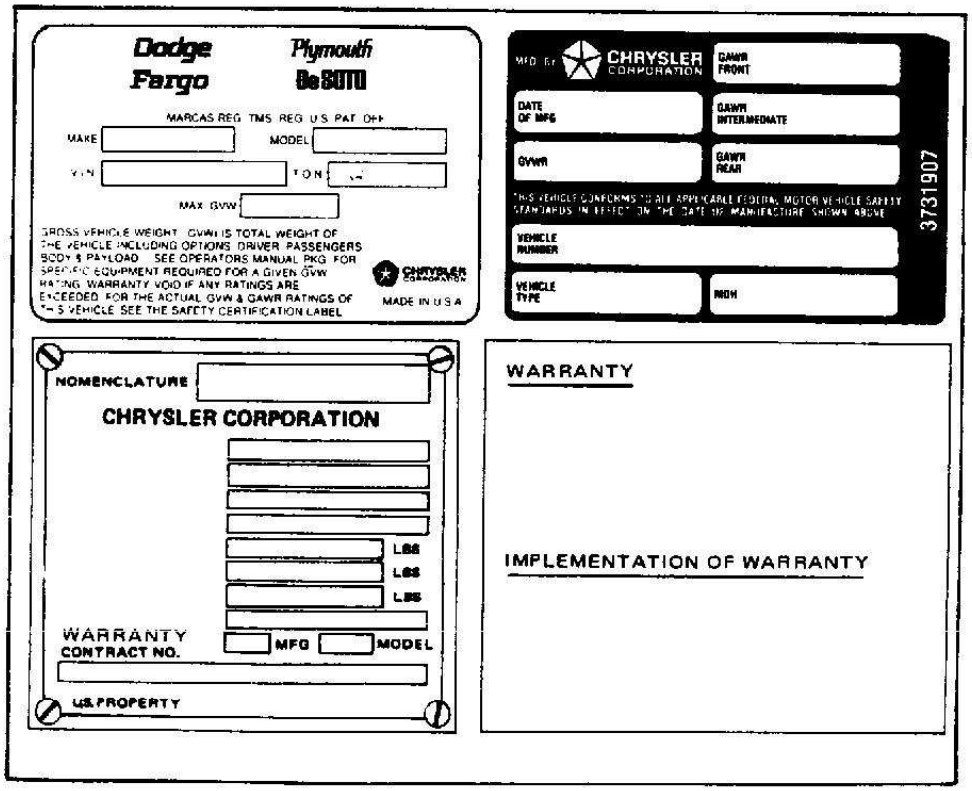


Figure 1-5. Instruction Plates and Decals.

1-9. Engine.

The engine is a commercial 318 cu in, V-8 type engine. It burns regular, leaded gasoline. The engine is rated at 150 bhp at 4,000 rpm.

1-10. Tabulated Data.

Basic information you will need to know about the trucks is contained in table 1-1.

Table 1-1. Tabulated Data

Data	Model				
	4X4 Cargo Truck	4X2 Cargo Truck	4X4 Ambulance	4X2 Ambulance	4X4 Telephone Maintenance Truck
Vehicle:					
Make	Dodge	Dodge	Dodge	Dodge	Dodge
Model	W200	W200	W200	D200	D200
Weights:					
Curb	4648 lbs (2108 kg)	4217 lbs (1913 kg)	6116 lbs (2774 kg)	5684 lbs (2578 kg)	5014 lbs (2274 kg)
Payload	2500 lbs (1134 kg)	2500 lbs (1134 kg)	1200 lbs (544 kg) (5 litter patients)	1200 lbs (544 kg) (5 litter patients)	2000 lbs (907 kg)
GVW	7748 lbs (3515 kg)	7317 lbs (3319 kg)	7716 lbs (3500 kg)	7284 lbs (3304 kg)	8000 lbs (3639 kg)
GAWR (front)	3190 lbs (1447 kg)	2826 lbs (1282 kg)	3310 lbs (1502 kg)	2945 lbs (1336 kg)	2000 lbs (907 kg)
GAWR (rear)	4558 lbs (2068 kg)	4491 lbs (2037 kg)	4406 lbs (1999 kg)	4339 lbs (1968 kg)	5000 lbs (2268 kg)
Wheelbase	131.00 in (332.74 cm)	131.00 in (332.74 cm)	131.00 in (332.74 cm)	131.00 in (332.74 cm)	131.00 in (332.74 cm)
Track (front)	65.26 in (165.76 cm)	64.98 in (165.05 cm)	65.26 in (165.76 cm)	64.98 in (165.05 cm)	65.26 in (165.76 cm)
Track (rear)	64.00 in (162.56 cm)	64.00 in (162.56 cm)	64.00 in (162.56 cm)	64.00 in (162.56 cm)	64.00 in (162.56 cm)
Ground clearance	8.50 in (unloaded, 55 psi in rear) 8.0 in (loaded)	8.50 in (unloaded, 55 psi in rear) 8.0 in (loaded)	8.50 in (unloaded, 55 psi in rear) 8.0 in (loaded)	8.50 in (unloaded 55 psi in rear) 8.0 in (loaded)	8.50 in (unloaded, 55 psi in rear) 8.0 in (loaded)
Height (overall)	73.85 in (187.58 cm)	70.77 in (179.76 cm)	101.00 in (256.54 cm)	98.00 in (248.92 cm)	85.00 in (215.90 cm)
Length (overall)	218.74 in (555.6 cm)	218.74 in (555.6 cm)	215.42 in (547.17 cm)	215.42 in (547.17 cm)	214.00 in. (543.56 cm)
Width (overall)	79.50 in (201.93 cm)	79.50 in (201.93 cm)	79.50 in (201.93 cm)	79.50 in (201.93 cm)	87.50 in (222.25 cm)
Engine:					
Type	v-type, overhead valve	v-type, overhead valve	v-type, overhead valve	v-type, overhead valve	v-type, overhead valve
Number of cylinders	8	8	8	8	8
Bore	3.91 in (9.93 cm)	3.91 in (9.93 cm)	3.91 in (9.93 cm)	3.91 in (9.93 cm)	3.91 in (9.93 cm)
Stroke	3.31 in (8.41 cm)	3.31 in (8.41 cm)	3.31 in (8.41 cm)	3.31 in (8.41 cm)	3.31 in (8.41 cm)
Piston displacement	318.3 cu in, (5.217 liters)	318.3 cu in (5.217 liters)	318.3 cu in (5.217 liters)	318.3 cu in (5.217 liters)	318.3 cu in (5.217 liters)
Compression ratio	8.6:1	8.6:1	8.6:1	8.6:1	8.6:1
Compression pressure	140 psi	140 psi	140 psi	140 psi	140 psi

Table 1-1. Tabulated Data – Continued

Data	Model				
	4X4 Cargo Truck	4X2 Cargo Truck	4X4 Ambulance	4X2 Ambulance	4X4 Telephone Maintenance Truck
Horsepower	150 bhp at 4000 rpm	150 bhp at 4000 rpm	150 bhp at 4000 rpm	150 bhp at 4000 rpm	150 bhp at 4000 rpm
Torque	230 ft-lbs at 2400 rpm	230 ft-lbs at 2400 rpm	230 ft-lbs at 2400 rpm	230 ft-lbs at 2400 rpm	230 ft-lbs at 2400 rpm
Ignition timing	2° before 0	2° before 0	2° before 0	2° before 0	2° before 0
Recommended fuel 1/	Regular, leaded gasoline	Regular, leaded gasoline	Regular, leaded gasoline	Regular, leaded gasoline	Regular, leaded gasoline
Carburetor:					
Choke unloader	0.310 in	0.310 in	0.310 in	0.310 in	0.310 in
Vacuum kick	0.110 in	0.110 in	0.110 in	0.110 in	0.110 in
Fast idle speed (rpm after 500 miles; engine warm)	1500	1500	1500	1500	1500
Axle ratios	4.10:1	4.10:1	4.10:1	4.10:1	4.10:1
Allowable speeds:					
First gear	25 mph (40 kph) 2	25 mph (40 kph)	25 mph (40 kph) 2	25 mph (40 kph)	25 mph 2 (40 kph)
Second gear	45 mph (72 kph) 2	45 mph (72 kph)	45 mph (72 kph) 2	45 mph (72 kph)	45 mph (72 kph)
Reverse	9 mph (14.5 kph) 2	9 mph (14.5 kph)	9 mph (14.5 kph) 2	9 mph (14.5 kph)	9 mph 2
Drive	2/	–	2/	–	2/
Capacities:					
Fuel tank	20 gals (75.7 liters)	20 gals (75.7 liters)	20 gals (75.7 liters)	20 gals (75.7 liters)	20 gals (75.7 liters)
Crankcase:					
Without filter	5.0 qts (4.73 liters)	5.0 qts (4.73 liters)	5.0 qts (4.73 liters)	5.0 qts (4.73 liters)	5.0 qts (4.73 liters)
With filter	6.0 qts (5.68 liters)	6.0 qts (5.68 liters)	6.0 qts (5.68 liters)	6.0 qts (5.68 liters)	6.0 qts (5.68 liters)
Cooling system	18 qts (17 liters)	18 qts (17 liters)	18 qts (17 liters)	18 qts (17 liters)	18 qts (17 liters)
Differential:					
Rear	6 pts (2.84 liters)	6 pts (2.84 liters)	6 pts (2.84 liters)	6 pts (2.84 liters)	6 pts (2.84 liters)
Front (4X4 models only)	4 pts (1.89 liters)	–	4 pts (1.89 liters)	–	4 pts (1.89 liters)
Transmission	19 pts (8.99 liters)	19 pts (8.99 liters)	19 pts (8.99 liters)	19 pts (8.99 liters)	19 pts (8.99 liters)
Transfer case (4X4 models only)	9 pts (4.26 liters)	–	9 pts (4.26 liters)	–	9 pts (4.26 liters)

Table 1-1. Tabulated Data – Continued

Data	Model				
	4X4 Cargo Truck	4X2 Cargo Truck	4X4 Ambulance	4X2 Ambulance	4X4 Telephone Maintenance Truck
Tires:					
Size 3/	9.50R16.5D	9.50R16.5D	9.50R16.5D	9.50R16.5D	9.50R16.5D
Inflation pressures:					
Front	45 psi (3.16 kg/ cm^2) (309 kPa)	45 psi (3.16 kg/ cm^2) (309 kPa)	45 psi (3.16 kg/ cm^2) (309 kPa)	45 psi (3.16 kg/ cm^2) (309 kPa)	45 psi (3.16 kg/ cm^2) (309 kPa)
Rear	55 psi (3.87 kg/ cm^2) (380 kPa)	55 psi (3.87 kg/ cm^2) (380 kPa)	55 psi (3.87 kg/ cm^2) (380 kPa)	55 psi (3.87 kg/ cm^2) (380 kPa)	55 psi (3.87 kg/ cm^2) (380 kPa)
Maximum load capacity:					
Front	2030 lbs (920.8 kg)	2030 lbs (920.8 kg)	2030 lbs (920.8 kg)	2030 lbs (920.8 kg)	2030 lbs (920.8 kg)
Rear	2650 lbs (1202 kg)	2650 lbs (1202 kg)	2650 lbs (1202 kg)	2650 lbs (1202 kg)	2650 lbs (1202 kg)

1/ Type of gasoline: Designed for use with regular, leaded gas, but unleaded may be used.

2/ Maximum speeds: With the 4X4 transfer shift lever in LO and transmission in "1," the maximum allowable speed is 10 mph (16 kph). With the transfer in LO and the transmission in "2" or "D," the maximum allowable speed is 19 mph (31 kph). Higher speeds will over-rev the engine and can damage the transfer assembly.

3/ Tire size: The tire size number includes the letters "R" and "D." The "R" indicates that it is a radial tire. The "D" stands for the tire load range, which is a set of minimum test standards that has replaced the old ply-rating system. Load range "D" is a rating for a heavy-duty tire capable of carrying the maximum rated payload of the truck.

1-11. Radio Interference.

The M880, M886, M888, M890, and M893 trucks are not equipped with military standard electro-magnetic interference components, although they do contain commercial standard SAE suppression componentry. They should not be operated within 50 feet of a vehicle with communications equipment or any ground receiver/transmitter. The unsuppressed vehicles may interfere with operation of the communications equipment.

1-12. Vehicle Bridge Classification.

The vehicle bridge classification numbers for the M880/M890 series vehicles are the same for both cross-country and highway use. They are shown in table 1-2.

Table 1-2. Vehicle Bridge Classification

Vehicle	Empty	Loaded
M880	2	4
M881	2	4
M882	2	4
M883	2	4
M884	2	4
M885	2	4
M886	3	4
M888	2	4
M890	2	4
M891	2	4
M892	2	4
M893	3	3

CHAPTER 2
OPERATING PROCEDURES

WARNING

If the vehicle fails to operate properly, refer to the troubleshooting procedures in chapter 3.

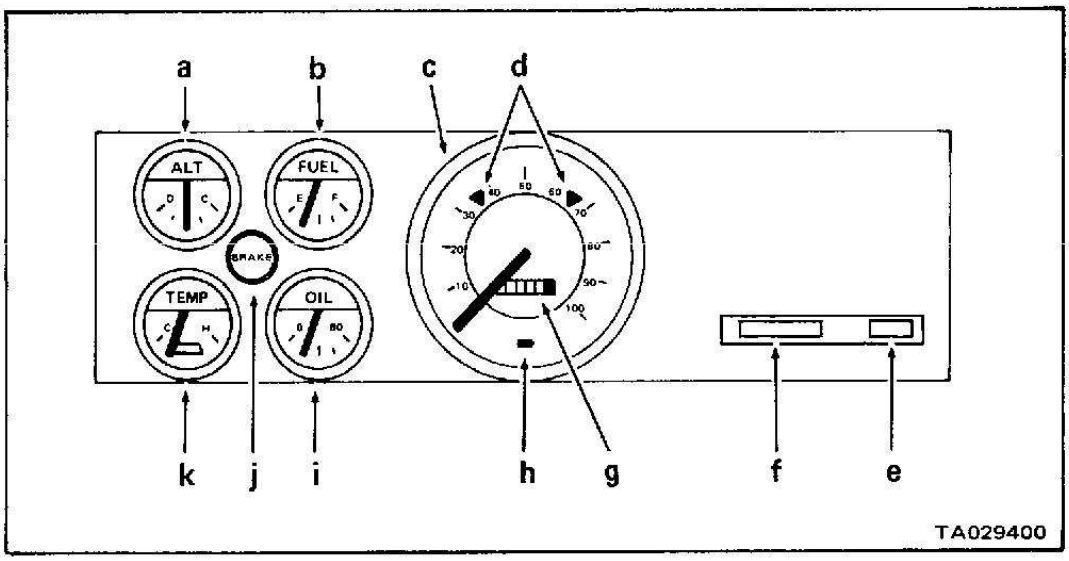
Section I. GENERAL INFORMATION

2-1. Organization.

The information and illustrations in this chapter provide the basic text you need in order to operate the truck properly. Controls and instruments are generally described in the order that you use them while driving. Before driving the truck, make sure you know the location and operation of all controls and instruments. A thorough review of this manual is the best way to do this. Get into the cab and identify each instrument and control in the actual truck as you come upon it in the manual.

2-2. Know Your Instruments.

Figure 2-1 shows the truck's instrument panel. Very often the lights and gages can tell you something is wrong long before you realize it yourself. Know them before you operate the vehicle.



Legend for Figure 2-1:
Index letters on the figure are keyed to the corresponding paragraphs below.

Figure 2-1. Instrument Panel Lights and Gages.

a. Alternator Indicator. Shows you whether the battery is being charged or discharged, and normally stays near center while driving. Extreme discharge readings indicate something wrong in the electrical system.

b. Fuel Gage. Shows the amount of fuel left in the tank. The ignition switch must be turned to ON for this gage to operate.

c. Speedometer. Tells you the speed the truck is traveling.

d. Turn Signal Indicators. Lights set into the speedometer scale flash left or right when the turn signals are turned on. When the lights flash extremely rapid, stay on steadily without flashing, do not come on at all, or appear extremely dim, the turn signals need servicing.

e. Seat Belt Reminder Light. Lights up for no more than 8 seconds when the ignition switch is turned to the ON position. If the driver's seat belt is not fastened, a buzzer will sound while the light is on.

f. Transfer Case Warning Light. (4X4 trucks built after March 1, 1976, only.) Alerts you that the transfer is in the HI LOC or LO LOC position.

g. Odometer. Shows the total mileage on the truck since it was put into service or since a new odometer has been installed.

h. High Beam Indicator. Lights up when the headlights are on high beam.

i. Oil Pressure Gage. Any reading, even a low one, indicates that the engine is being lubricated. No readings at all, or constant high readings when the engine is warm, indicate trouble. Readings tend to be low when you're stopped or moving slowly, and high if the engine is cold or if you're using engine compression to slow you down (for example, going down a hill in second gear).

j. Brake System Warning Light. Comes on when the parking brake is applied and the ignition switch is turned on. If the warning light comes on when the service brake pedal is applied (and the parking brake is not applied), it indicates a problem in the brake system. The light will stay on until the brakes are repaired.

k. Temperature Gage. Indicates engine coolant temperature. After starting a cold engine, you won't see any reading for the first 2 to 5 minutes. Once the engine is warm, the pointer should stay near center when you drive but may rise slightly in congested traffic or when you're hauling a heavy load. The band in the center of the gage indicates normal warmed-up operating temperatures.

2-3. Preparing the Vehicle for Service.

a. All newly received vehicles must be road tested to check their operation and general condition. The test can be performed during your normal duties. The test must be long enough to allow complete observation of the truck's operating condition.

b. While driving, watch the instrument panel and gages for any indication of faulty vehicle operation. Stop the truck and discontinue the test if any serious trouble develops. Pay special attention during the road test to the oil pressure and temperature gages. If you get any indication of faulty operation—SHUT DOWN THE ENGINE. Notify organizational maintenance and do not attempt to drive further.

c. Stop at least twice in the first 25 miles to look for leaking coolant, oil, gas, or exhaust. Also, check for overheating of the engine, transmission, wheel hubs, brakes, differentials, or transfer assembly. Discontinue the test if you find any of these trouble symptoms.

d. Note any controls that are hard to operate or instruments that give irregular readings. Be alert for unusual noises or vibrations.

e. After completing or discontinuing the test, report any of the above problems, as well as the truck's general condition, to organizational maintenance.

Section II. OPERATING PROCEDURES

2-4. Break-In Operations.

The break-in period for a new truck lasts for the first 500 miles. During this period, be especially careful while doing your preventive maintenance checks and services (PMCS) (table 3-1), and report any problems to organizational maintenance immediately. Observe the following rules during break-in:

a. Do not exceed 50 mph. Work up to this speed gradually during the first 200 miles.

b. Do not drive at a steady speed for long periods. Vary your speed up and down from time to time to assist engine break-in.

c. For the first 200 miles, do not load the truck to more than 75 percent of the maximum payload.

d. Avoid rapid acceleration and deceleration.

e. Avoid sudden or forced engagement of operating controls.

f. Avoid sudden stops except in an emergency.

g. Avoid engine overheating.

h. Drive only under normal weather and terrain conditions, if possible.

2-5. Do's and Don'ts.

The following precautions are general guidelines to help you avoid damaging your vehicle. They apply to all M880/M890 series trucks. Keep them in mind whenever you drive.

a. DO. . . operate with tires inflated to 45 psi in front and 55 psi in the rear.

b. DO. . . take it easy when the engine is cold. The engine is made to run warm.

c. DO. . . shift into Neutral when standing more than 60 seconds.

d. DO. . . come to a complete stop before shifting into Park or Reverse.

e. DON'T. . . overload the truck. Always distribute cargo weight over the axles as evenly as possible but without exceeding allowable front or rear axle weights.

f. DON'T. . . operate the starter for more than 15 seconds at a time. Wait for at least 15 seconds between attempts to start the engine.

g. DON'T. . . race the engine when shifting from Park or Neutral into another gear.

h. DON'T. . . go faster than the allowable speed in any gear (see tabulated data).

i. DON'T. . . coast downhill in Neutral.

j. DON'T. . . add water to the radiator when the engine is overheated. Let it cool first.

2-6. Before-Operation Services.

Before putting the truck into service each day, perform the Before-Operation portions of the Preventive Maintenance Checks and Services (PMCS) outlined in table 3-1, chapter 3. This insures that the truck is ready to go and allows you to fix any minor problems before they become major problems.

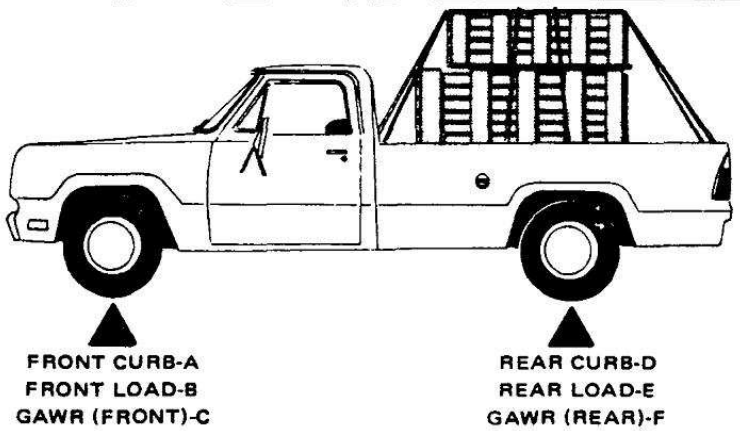
2-7. Loading the Truck.

a. Weight Limits. These trucks are rated in terms of Gross Vehicle Weight (GVW), which is the maximum allowable loaded weight of the truck, driver, passengers, and payload, measured in pounds. The trucks are also rated in terms of the maximum load you can put on front and rear axles (called the Gross Axle Weight Rating, or GAWR). These ratings are specified on the Safety Certification Label located on the door column by the driver's seat (see figure 1-5).

CAUTION

GVW and GAWR ratings must NEVER be exceeded. The ratings are based on the weakest component in the suspension system (axles, springs, tires, or wheels). Overloading can cause serious damage to the truck's suspension system, and could present a safety hazard.

b. Distribution of Load. Figure 2-2 shows a fully loaded truck. Note that the load is distributed so that neither the GVW nor the GAWR ratings are exceeded. For heavy loads always place as much of the weight as possible on the center of the loadbed. This will distribute the weight properly over both axles.



– KEY –

VEHICLE	A	B	C	D	E	F
M880	2727	463	3190	1921	2637	4558
M890	2363	463	2826	1854	2637	4491

TA028740

Figure 2-2. Proper Distribution of Load Weight.

2-7.1 Towing a Trailer.

a. M880/M890 series vehicles are equipped with a pintle hook for pulling a trailer. Prior to towing a trailer with a M880/M890 series vehicle, check to make sure that the trailer is equipped with 12V light bulbs. If the trailer isn't, have the bulbs changed.

b. Your vehicle is capable of towing another M880/M890 series vehicle for short distances only. Prolonged towing could result in damage to the transmission in your truck.

2-8. Starting the Engine.

a. Adjustments for the Driver. Taking the following steps will make the truck safer and more comfortable to drive.

(1) Adjust the seat to the most comfortable and effective position. The seat adjustment lever is located near the floor on the left side of the seat.

(2) Adjust and fasten the seat belt (figure 2-3). Wear the belt as low as possible so it fits snugly across the hip bones. Cab passengers must also wear seat belts.

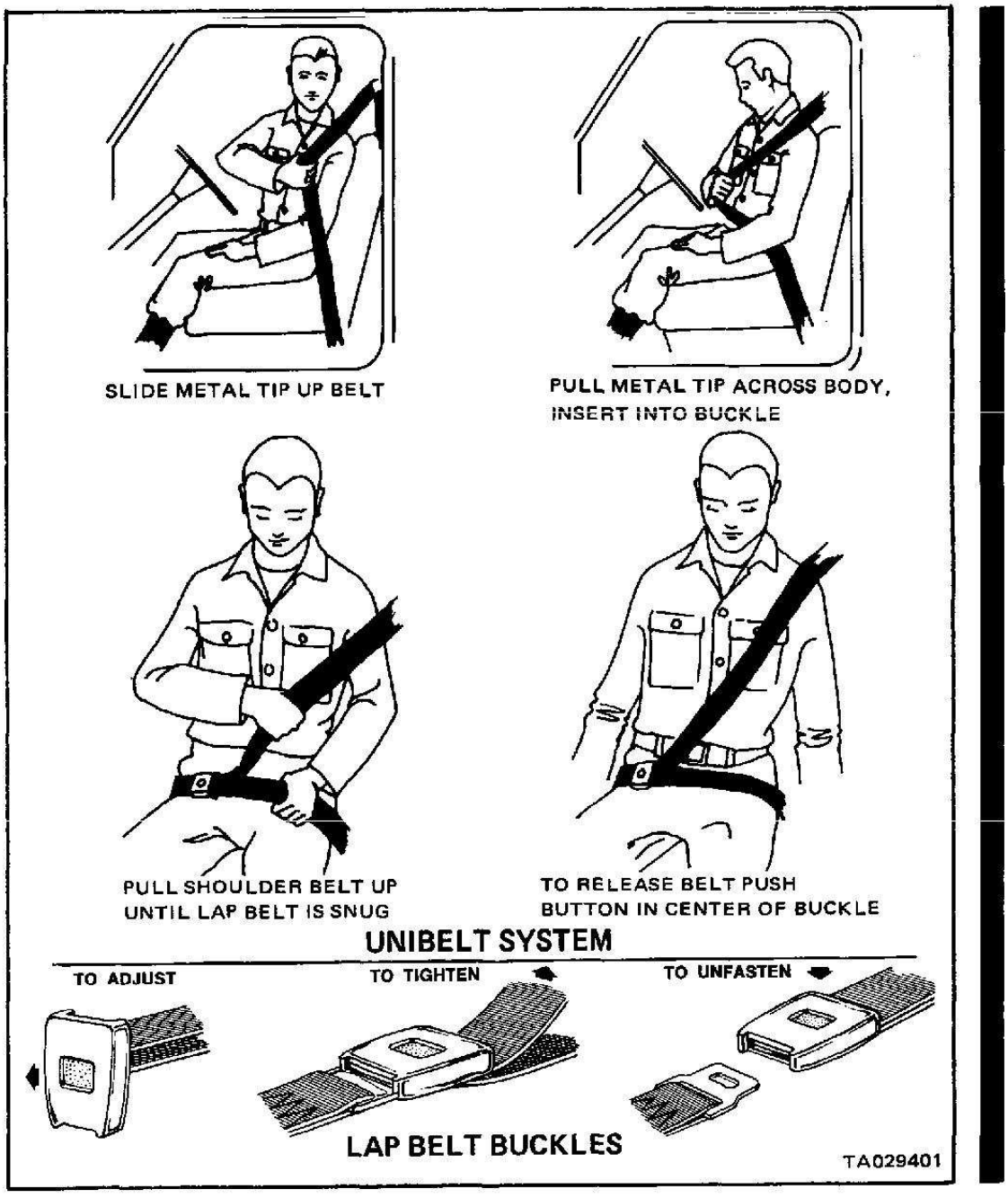


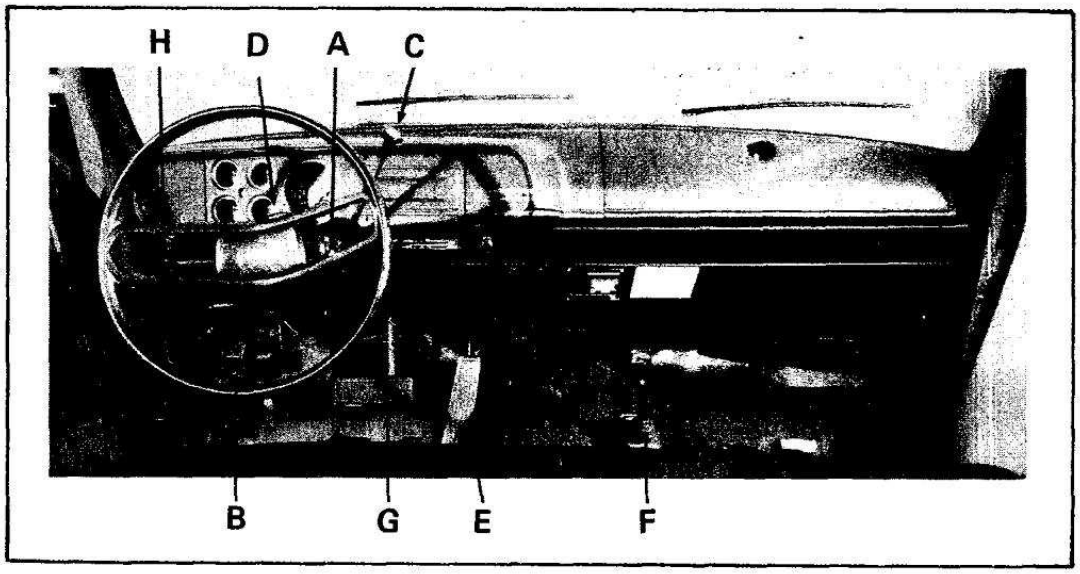
Figure 2-3. Adjusting and Using Seat Belts.

(3) Adjust the rearview mirror. By pulling the lever on the bottom of the mirror toward you, the day/night feature is set for daytime driving. Pushing the lever toward the windshield at night eliminates headlight glare from vehicles behind you.

(4) Make sure the outside mirrors give you a good view of the road behind and to the sides of you. Adjust them, if necessary.

b. Engine Starting Procedure.

(1) Insert the key in the ignition switch (A in figure 2-4).



Legend for Figure 2-4:

A - Ignition switch	D - Gear selector indicator	G - Service brake pedal
B - Parking brake pedal	E - Accelerator pedal	H - Turn signal control lever
C - Gear selector	F - Transfer shift control lever	

Figure 2-4. Driver's Cab Controls.

(2) Make sure the parking brake is set by pushing down hard on the pedal (B) with your foot.

(3) Put the gear selector (C) in "P" (Park) or "N" (Neutral). The indicator over the steering column (D) shows which gear you've selected.

(4) Push the accelerator pedal (E) to the floor once and release it.

(5) Turn the ignition switch to START (figure 2-5) and release it when the engine starts. IMMEDIATELY CHECK YOUR OIL PRESSURE GAGE! Under normal conditions, you should see the oil pressure gage indicate some pressure within 3 to 5 seconds. If the pointer doesn't move, SHUT DOWN THE ENGINE and refer to the troubleshooting chart in chapter 3.

CAUTION

Do not operate the starter for more than 15 seconds at a time. If the engine doesn't start by then, turn the ignition switch to OFF and wait at least 15 seconds before trying again.

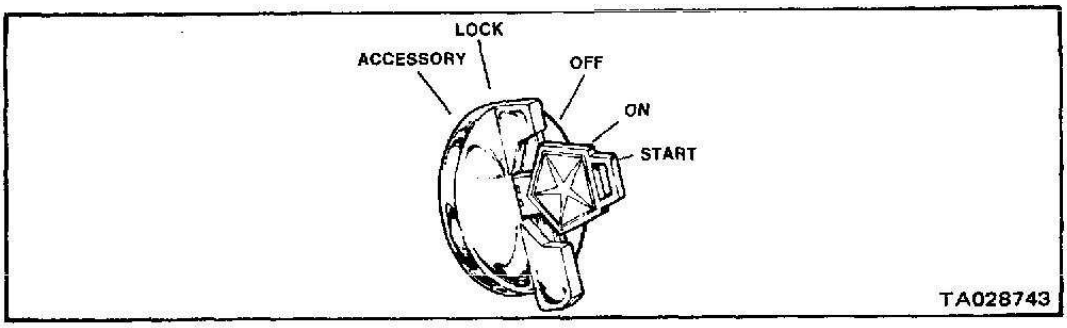


Figure 2-5. Ignition Switch Positions.

(6) If the engine doesn't start after the second try, refer to paragraph 2-15 for engine starting hints.

(7) If the engine starts but idles too fast, depress the accelerator pedal slightly and then release it at once. This will slow down the engine.

2-9. Driving the Vehicle.

The following procedure is for use on normal roads or hard, smooth terrain during good weather in the daytime. See paragraph 2-14 for additional instructions on controls used for driving at night or in bad weather. Paragraph 2-29 covers operation on unusual terrain.

a. Check Your Instruments. Before moving the vehicle, check your instruments carefully. After starting, the alternator indicator should show a slight charge. There should be some oil pressure indication. The temperature gage will not indicate anything for 2 to 5 minutes, but after that it should gradually move up into the normal range.

CAUTION

If you don't see an indication of engine temperature increasing within 5 minutes, or if the pointer moves up rapidly to the high side of the normal range or above, SHUT DOWN THE ENGINE and refer to the troubleshooting chart in chapter 3.

While driving, refer to the instrument panel frequently. Any time you see a possible indication of trouble, stop the truck and investigate the cause.

CAUTION

Shut down the engine immediately if, during operation, you notice either one of the following oil pressure trouble signs.

NO PRESSURE: Engine is not being lubricated and continued operation will damage it. Occasional low oil pressure readings are okay.

CONTINUOUS HIGH PRESSURE: If this happens after the engine is warmed up, the engine may be overfilled with oil. Continued operation will damage the oil seals, the main bearings, and cause other damage requiring a complete overhaul of the engine. See the troubleshooting chart in chapter 3.

b. Select a Transfer Range (4X4 Models Only). The 4X4 trucks are equipped with a transfer that provides continuous four-wheel drive operation. See paragraph 2-14 for operating procedures.

c. Select a Transmission Range. Move the transmission gear selector to the desired position. (See paragraph 2-12 for instructions on use of Reverse.) Use these rules to select your gear range:

(1) "D" (Drive)–for normal use. This is the correct forward gear to use under light-to-moderate loads for most city and highway driving. When you pass another vehicle, you can step down sharply on the gas to shift the transmission down automatically into a lower gear.

CAUTION

To prevent damaging the transfer case, do not exceed 19 mph in "D" if your 4X4 transfer is in LO or LO LOC.

(2) "2" (Second). Use "2" for driving slowly in heavy city traffic and when on mountain roads or cross-country terrain where more precise speed control is required. Also use "2" when climbing long grades under heavy load and for engine braking on steep downhill grades.

CAUTION

To prevent overspeeding the engine, do not go over 45 mph in range "2" (19 mph with 4X4 transfer in LO or LO LOC).

(3) "1" (First). This gear is for climbing up very steep grades and for increased engine braking when going down very steep hills. Since "1" is a locked-in gear, this range provides the maximum possible control over both engine and road speed in difficult driving situations.

CAUTION

To prevent overspeeding the engine, do not go over 25 mph in "1" (10 mph with 4X4 transfer in LO or LO LOC).

d. Release Parking Brake. Step on the service brake pedal. Release the parking brake by pulling hard on the T-handle brake release located under the dashboard directly over the parking brake pedal. Release the service brake and step on the accelerator pedal gradually to move the truck.

2-10. Making Turns (Turn Signal Operation).

Always use turn signals when making turns, changing lanes, or pulling out of parking spaces. The turn signal control lever has five positions. Move the lever UP to signal right turns and DOWN to signal left turns. Figure 2-6 shows the various positions you can use. The inner positions are spring-loaded to return to OFF, which is handy when changing lanes or making very gradual turns. The outside positions will cause the turn signals to stay on until you complete a sharp turn or until you manually return the lever to the center position.

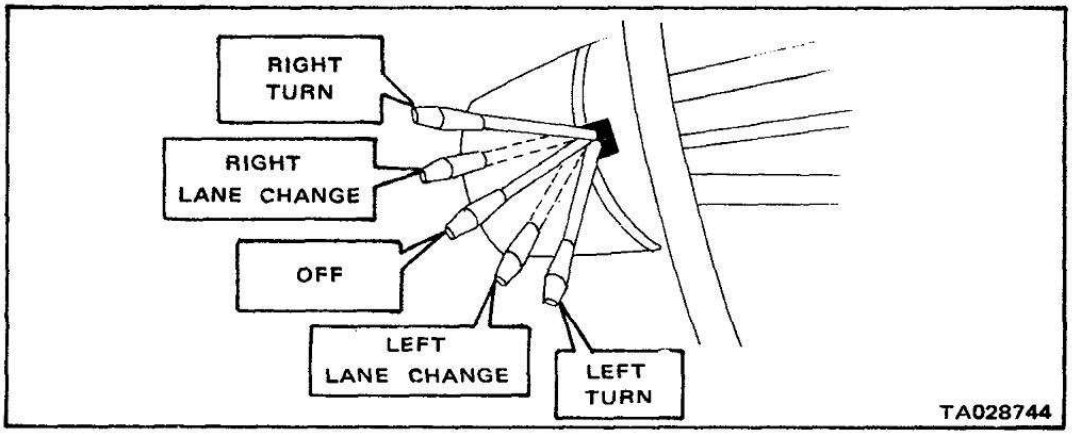


Figure 2-6. Turn Signal Control Lever Positions.

2-11. Stopping the Vehicle.

Release the accelerator pedal and apply the service brakes slowly and steadily to avoid loss of traction. Always remember to shift the transmission to "N" (Neutral) if you are stopped any longer than 60 seconds with the engine running.

NOTE

Avoid using "P" when the engine is running, as the transmission locking pin impedes the circulation of transmission fluid.

2-12. Moving in Reverse.

a. Bring the vehicle to a complete stop.

b. Keeping your foot on the service brake, place the transmission selector in "R" (Reverse).

c. Release the service brake and depress the accelerator to move in Reverse.

CAUTION

Limit reverse speed to 9 mph (5 mph with 4X4 transfer in LO or LO LOC).

2-13. Parking the Vehicle.

a. Bring the vehicle to a complete stop.

b. Apply the parking brake.

c. Place the transmission gear selector in "P" (Park). This locks the transmission so the truck won't move. If you're driving a 4X4 model, make sure the transfer is in gear.

WARNING

If the transfer control is at "N," the transmission is disengaged and putting the transmission in "P" will not stop the truck from moving.

d. Put all switches in the OFF position unless the tactical situation requires otherwise.

e. When parking vehicles with a towed load, or if on a steep grade, chock the wheels.

f. To lock the doors, push down on the lock buttons located on the door by the window. Both doors may be unlocked by pulling the buttons back up or by using the ignition key in the door lock keyholes outside the cab. In addition, you can unlock the driver's door from inside by using the door handle. If you press down on the lock buttons with the doors open and then close the doors, both doors will stay locked. Be sure you have the key.

2-14. Additional Cab Controls.

This paragraph describes the function and use of various controls not mentioned directly in the operation procedures. See figure 2-7 for control locations.

a. Transfer Shift Control Lever (4X4 Models Only). The 4X4 trucks have no provision for two-wheel drive operation. Using the wrong transfer range on hard surfaces or paved roads can damage front wheel drive components and make the engine over-rev. (The engine runs at twice the normal rate when in LO or LO LOC.) Transfer shift control positions (figure 2-8) are as follows:

(1) "N" (Neutral). In this position, both front and rear axles are disengaged. Engine power will not reach the wheels.

(2) "HI" (High)–normal position for driving. In this position, you're in four-wheel drive, but a differential assembly allows the wheels to turn at slightly different speeds. This lets you make turns on hard surfaces without damaging the suspension system, and allows travel at normal highway driving speeds.

(3) "HI LOC" (High Lock)–not for normal use. See section IV for use of this range under unusual driving conditions. Never use this range on hard surfaces.

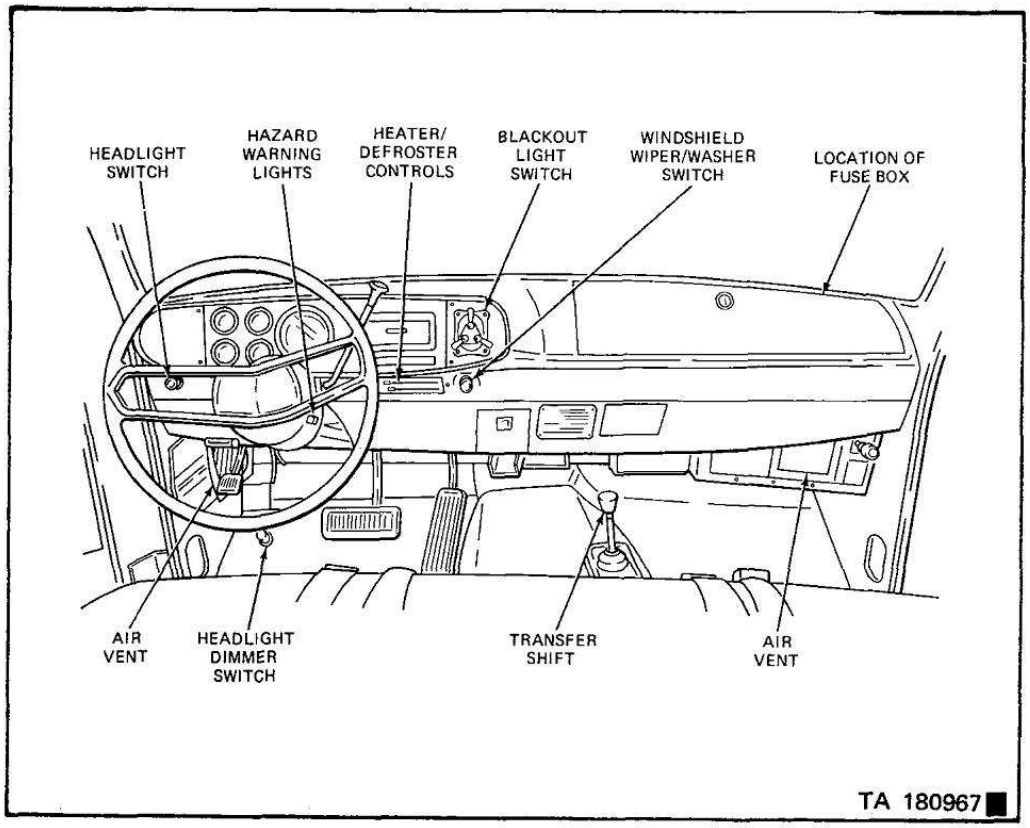


Figure 2-7. Additional Cab Controls.

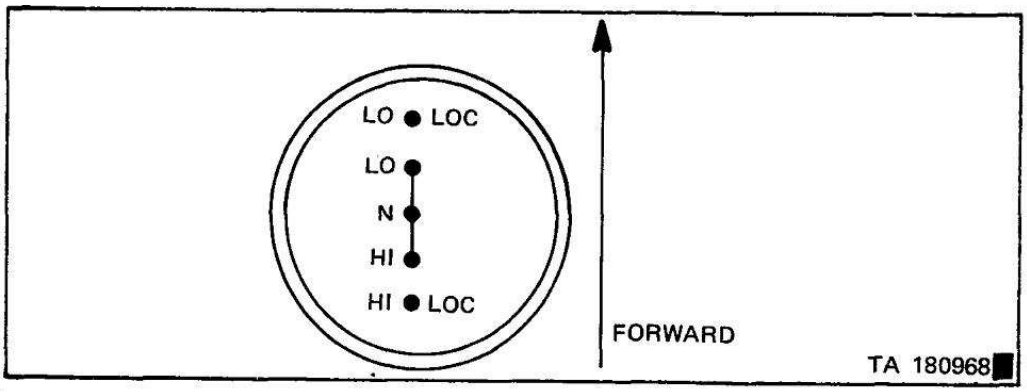


Figure 2-8. Transfer Shift Control Positions.

(4) "LO" (Low)–for hard pulling on hard surfaces. This position provides an additional 2.1 gear reduction between the transmission and the wheels for greatly increased pulling power or engine compression braking power. You will get more acceleration and engine braking power by shifting to LO (with the transmission in "D" (Drive)) than by keeping the transfer in HI and shifting the transmission down to "2" (Second). LO transfer range is also useful for providing extra engine fan cooling when you are driving in heavy traffic.

CAUTION

Limit forward speed to 19 mph when the transfer is in LO or LO LOC, to avoid damaging the transfer.

(5) "LO LOC" (Low Lock)–not for normal use. See section IV for use of this range under unusual driving conditions. Never use this range on hard surfaces.

b. How to Shift the Transfer (4X4 Models Only). You will find that you can leave the shift lever in HI most of the time. When you do need to shift from high to low range, or back again, use the following procedure:

(1) Bring the truck to a complete stop.

(2) Put the transmission gear selector in "N."

(3) Move the transfer control shift lever quickly through "N" to the range you need (normally HI or LO).

NOTE

If you leave the transfer in "N" for any length of time, you may have trouble getting back into LO or HI gear range. If this happens, shift the transmission gear selector to "R" briefly and then shut off the engine. Waiting 15 seconds, put the transmission gear selector into "P", and try the transfer control shift lever again. Repeat the procedure until it goes into gear.

c. Headlight/Parking Light Switch (Night Driving). The headlight/parking light switch (figure 2-9) controls outside lights and the cab instrument panel light. To turn these lights off, push the switch all the way in. Pull it out to its first position to light up the parking lights, taillights, and instrument panel light. Pull it out to its second position to light up the headlights. Turn the knob to the right or left to regulate the brightness of the instrument panel light. For night driving, use the minimum panel brightness required to see the speedometer and other instruments.

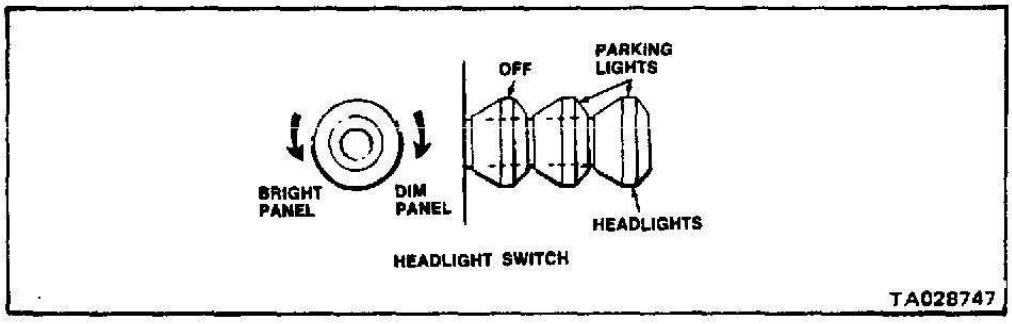


Figure 2-9. Headlight/Parking Light Switch Positions.

d. Headlight Dimmer Switch. The headlight dimmer switch is located on the floor of the driver's compartment to the left of the driver. Press this button with your foot to change from high to low beams and vice versa. When your high beams are on, the high beam indicator lights up in the instrument cluster.

d .1 . *Blackout Light Switch.* The blackout light switch is located (below) on the dash board to the right of windshield wiper/washer switch. The BO light switch overrides the headlight parking switch (figure 2-9.1).

(1) In normal daytime road driving, with the blackout (BO) master switch in the stop light position, the brake lights, turn signal and horn will function.

(2) For nighttime road driving the BO light switch needs to be in service drive so the headlights, brake light, taillight, turn signal and horn will function.

(3) For blackout operation turn blackout light master switch to BO drive position.

(4) For normal peace time road driving, turn BO master switch to service drive and leave it there until you need BO drive again. When ignition switch is turned off, it shuts off all the electrical system.

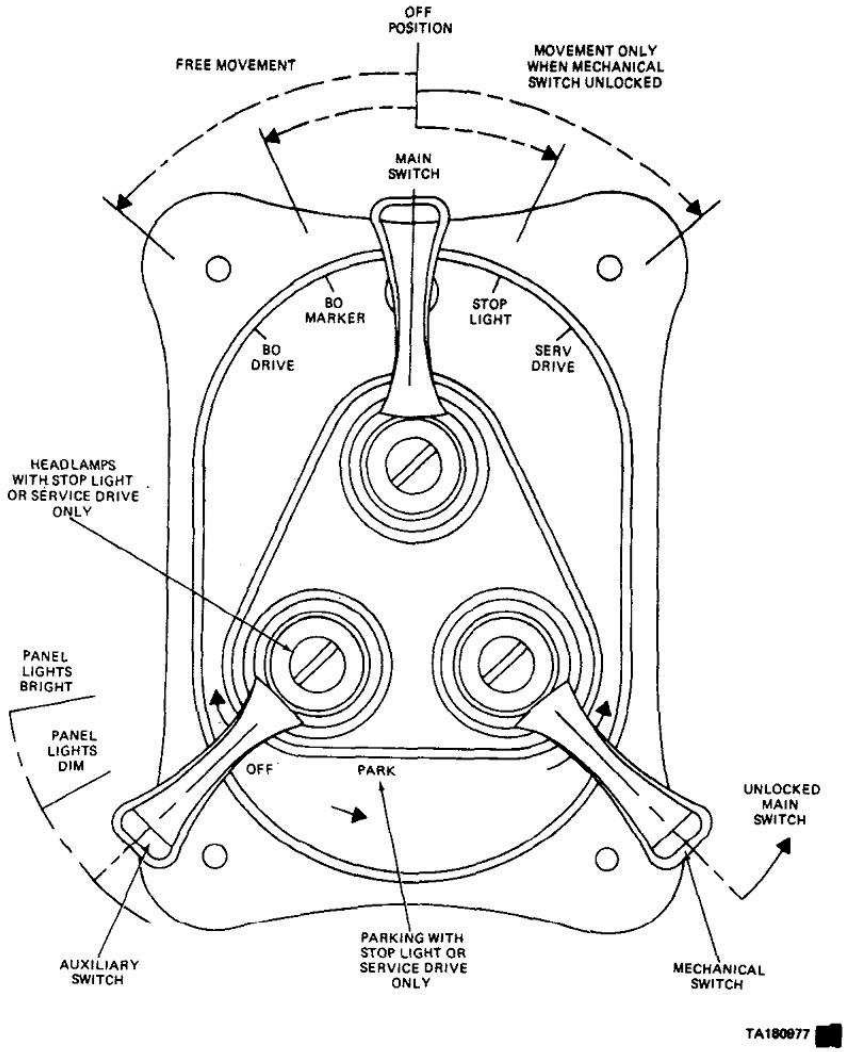


Figure 2-9.1 Blackout Light Switch and Lever Positions.

e. Hazard Warning Lights. The hazard warning light switch is on the right side of the steering column. Pull the switch out to turn the lights on. The hazard warning flasher causes all four turn signal lights to flash on and off. This warns oncoming traffic that your vehicle is a potential traffic hazard. Always put the turn signal lever in OFF (center) position when using these lights. If you have to leave the vehicle, the lights will continue to flash with the ignition key removed.

WARNING

Do not turn on the hazard lights when moving in traffic. The hazard flasher overrides the brake lights, so if you hit the brakes, the vehicle behind you will have no warning. If state or local laws require you to use the hazard lights in certain situations such as when you are at low speeds on an interstate highway—be ready to turn off the hazard lights INSTANTLY when you hit the brakes.

f. Windshield Wiper/Washer Control (Wet Weather). Turn the windshield wiper/washer control clockwise to activate the windshield wipers (the switch has both a slow and a fast position). Push the control toward the dashboard to spray water or solvent/water mixture on the windshield. This is useful when the windshield becomes dirty or oily while you are driving. After driving in cold weather, always turn the wiper switch to OFF and let the wipers return to rest before you shut down the engine. If the wiper switch is left on and the wipers freeze to the windshield, the wiper motor can be damaged when the engine is restarted.

g. Air Vents (Hot Weather). The truck has two direct outside air ducts. The left duct is open when you pull the slide back toward you. The right duct is open when you push the slide to the left.

h. Heater/Defroster Controls (Cold Weather). The heater/defroster controls are shown in figure 2-10.

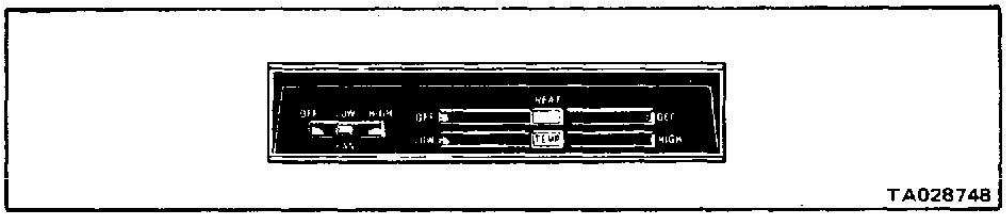


Figure 2-10. Heater/Defroster Controls.

(1) Temperature control lever. Use the lower lever to maintain cab temperatures at a comfortable level. Heater air temperature goes up as you slide the lever to the right.

(2) Air flow lever. The upper lever controls the direction of heated air flow. When on OFF (extreme left), no air will flow through the system. When on HEAT (center), most of the air goes into the passenger compartment, with a small amount going to the windshield to prevent fogging. When on DEF (defrost, extreme right), all the heated air goes onto the windshield to defrost or defog the glass. During warm, wet weather you can defog the windshield using DEF and the lowest temperature control setting.

(3) Fan switch. The fan switch has three positions: OFF, LOW, and HIGH fan speeds. Use the fan to control the amount of air flow through the heater. During normal driving you don't need to use the fan since air pressure in front of the truck forces air through the system.

CAUTION

Before using the fan, put the air flow lever in HEAT or DEF and make sure the air intake, located outside the vehicle just below the windshield wipers, is free of snow or other obstructions. Any restriction of air flow can damage the fan motor.

2-15. Engine Starting Hints.

If the following steps do not help start the engine, refer to the troubleshooting chart (table 3-2) or paragraph 2-16 for emergency starting procedures.

CAUTION

Do not tow- or push-start the truck.

CAUTION

Do not pump the accelerator pedal.

a. Flooded Engine. You will probably smell gasoline when this happens. Push the accelerator pedal to the floor and hold it there while trying to start the engine.

b. Dead Battery. See paragraph 2-16 for emergency starting procedures.

c. Engine Already Warmed Up. When the engine is already warm, it will start more easily if you hold the accelerator pedal down about halfway when starting.

d. Warm Weather During warm weather, when the engine is cold, press the accelerator pedal once and release it before turning the ignition switch to START.

e. Cold Weather or Truck Inactive. Especially if the temperature is below 0^{0}F. or if the truck has been standing inactive for several days, use this procedure:

(1) Push the accelerator to the floor once and then let it up part way while starting.

(2) Make sure the parking brake is on. Start the engine with the transmission in "P" or "N".

(3) After starting, let the engine idle for at least 30 seconds before moving the truck.

2-16. Emergency Procedures.

a. Emergency Starting (Jump Starting). Jump starting is appropriate when your truck's battery is low or dead. Use the troubleshooting chart (table 3-2) to determine whether this is the problem. If so, use the following procedure.

CAUTION

These trucks have a 12V electrical system. Since most tactical vehicles have 24V systems you must use the jumper connections shown in figure 2-11 for jump starting. Direct jumping from 24V systems will damage the charging system; *always disconnect one battery of a 24V system* before attempting to jump start the truck.

(1) Connect a jumper cable to the POSITIVE terminal of the discharged battery, then to the POSITIVE terminal of the jump battery.

(2) Connect one end of the second jumper cable to the NEGATIVE terminal of the jump battery. Connect the other end to the alternator bracket of the truck that has a dead battery (figure 2-11), or to another suitable engine ground.

(3) Start the engine of the vehicle that has a dead battery.

(4) Reverse the steps to remove the jumper cables.

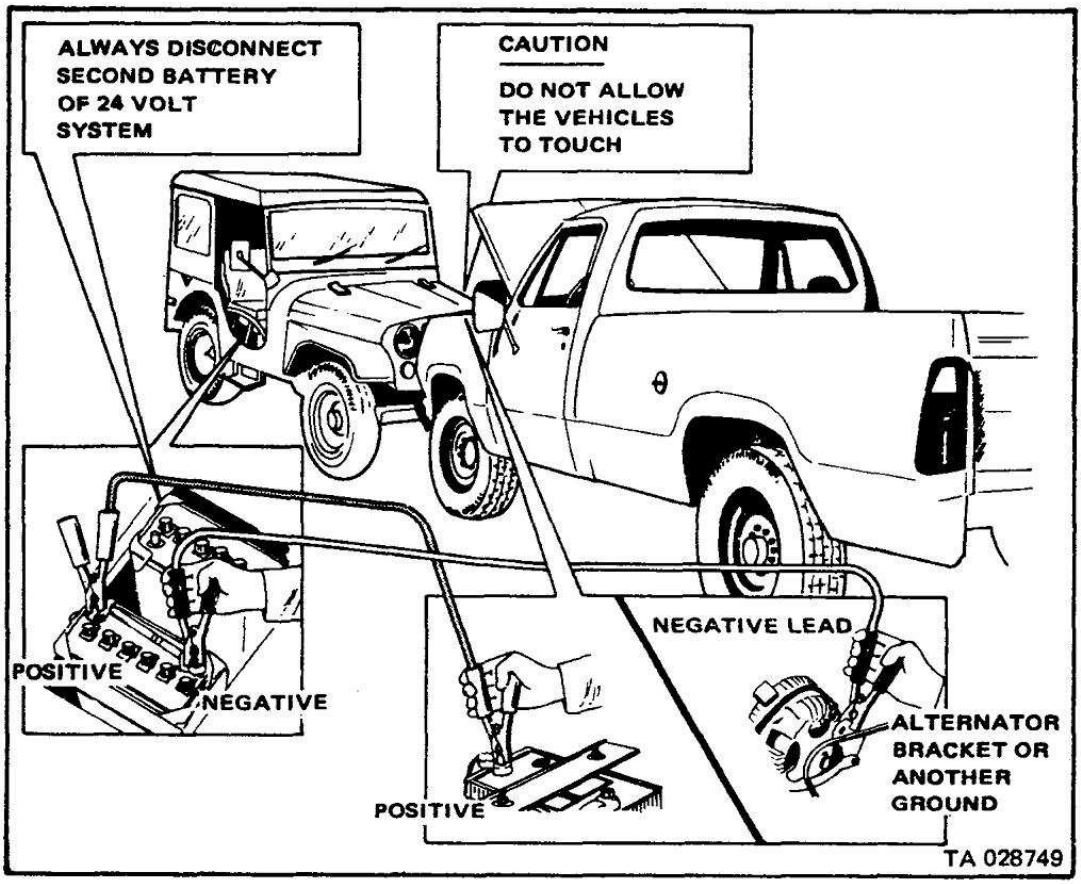


Figure 2-11. Jump Starting the Truck.

b. Towing the Vehicle. The truck can be towed with all four wheels on the ground or with either the front or the rear wheels raised. Attach the tow bar or other towing device to the main structural members, not to the bumpers or bumper brackets. Always get approval from the officer in charge before towing one of these trucks. Always observe state and local laws that apply to towed vehicles. Use the towing procedures given below.

CAUTION

Never tow by lifting the front or rear wheels when the truck is loaded. The extra stress may cause structural damage.

(1) Towing 4X2 models. You can tow at speeds under 30 mph for up to 15 miles, with all four wheels on the ground and the transmission in "N." First make sure there is no damage in the power train from the rear wheels to the transmission, in the front wheels, or in the steering system. For distances over 15 miles, remove the drive shaft before

towing. Then you can tow at speeds up to 40 mph for any distance. If the rear wheels are damaged, tow the truck from the rear with the rear wheels raised (be sure to tie the steering wheel to keep the front wheels in a straight ahead position).

(2) Towing 4X4 models. If there is no damage in the power train from the front or rear wheels to the transfer, and the steering system works, you can tow the truck any distance at speeds up to 40 mph with all four wheels on the ground. Place the transfer control shift lever in "N" and the transmission gear selector in"P." If the rear wheels are damaged, remove the front drive shaft, secure the steering wheel in a straight ahead position, and tow with the rear wheels raised. To tow with the front wheels raised, remove the rear drive shaft.

Section III. OPERATION OF AUXILIARY EQUIPMENT

2-17. Paragraph 2-17 deleted.

2-18. Cargo Box Cover Kit.

a. The cargo box cover kit consists of a fabric cover, supporting bows, and angle-iron ribs. The strings on the inside of the cover are used to raise the sides, as shown in figure 2-12.

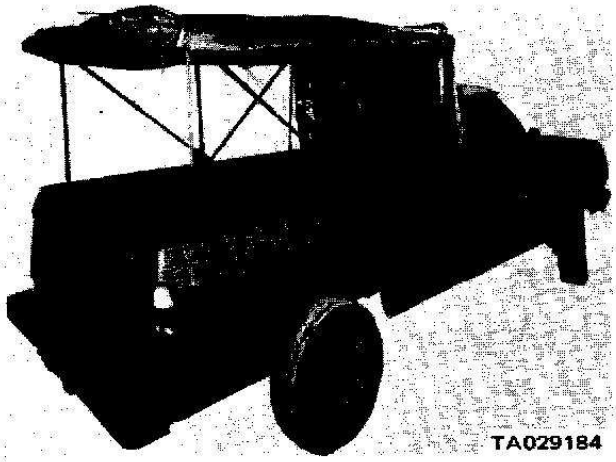


Figure 2-12. Cargo Box Cover Sides Rolled Up.

b. When you are not using the cover, it may be folded and secured to the truck, as shown in figure 2-13.

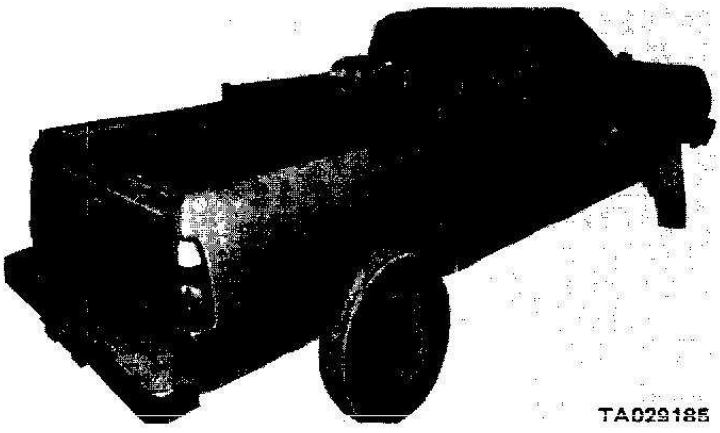


Figure 2-13. Cargo Box Cover Secured.

2-19. Troop Seat Kit.

The troop seat kit provides space for eight passengers in the cargo box of the truck. The seat may be lowered individually for use (figure 2-14), or raised for storage (figure 2-15). You can lock the seats in the up or down position with the T-handled, quick-release pin, located near the hinge pin. A safety cable across the back of the truck snaps onto the eye bolts.

Figure 2-14. Troop Seats Locked in Down Position.

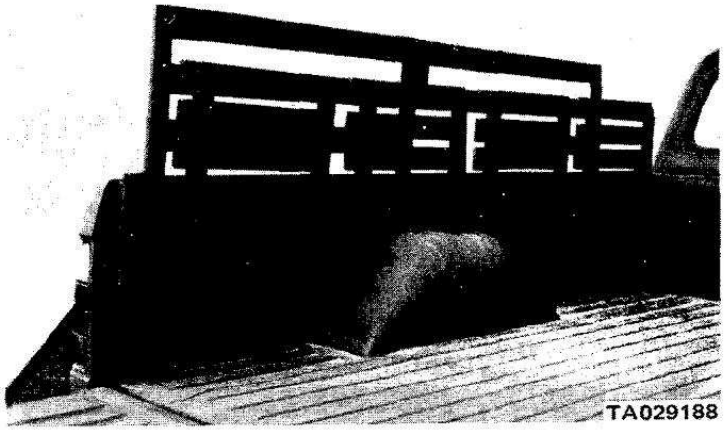


Figure 2-15. Troop Seats Locked in Up Position.

2-20. 60 Amp, 24 V Generator Kit.

The M881, M883, M891, and M892 are equipped with a 24 V, 60 amp charging system, in addition to their 12 V system. On these models, the windshield washer reservoir is mounted on the right front fender and the jack is mounted behind the seat on the passenger side of the cab.

2-21. 100 Amp, 24 V Generating Kit.

The M884 is equipped with a 24 V, 100 amp charging system, in addition to the vehicle's 12 volt system. On this model, the windshield washer reservoir is mounted on the right front fender and the jack is mounted behind the seat on the passenger side of the cab.

2-22. Communication Installation Kit. Furnished by CECOM in a separate manual. (TM 11-2300-459-14 & P series).

2-23. Communication Shelter Tie-Down Kit. Furnished by CECOM in a separate manual (SB11-640).

2-24. Portable Fire Extinguisher (Ambulance Only). See paragraph 4-1.

2-25. Arctic Winterization Equipment.

2-25.1 Description.

Arctic winterizational equipment installed on the M880-series truck permits operation of the vehicle in extreme cold weather conditions. Use of the "Swingfire" heater will aid in starting your vehicle, even if cold-soaked, down to a temperature of -50° Farenheit (-46° Centigrade). A heavy-duty heater motor and core replaces the standard units for heating the cab area. An M880 or M882 truck will have the cargo area reworked to accommodate a 24 volt personnel heater with insulated structure installed to protect personnel. The M886 ambulance 12 volt personnel heater will be replaced with a 24 volt personnel heater. All winterized vehicles have wide-tread snow tires and tubes installed.

2-25.1.1 Location of Equipment.

The Swingfire heater when not in use is stored in the stowage box positioned on or in the right rear of the M886 and certain M880 trucks. The heater when being used is inserted in the heater water jacket leading into the engine compartment from the grille. The heater jacket vents the Swingfire heater exhaust to the enclosed 12 volt and 24 volt batteries as well as heating the engine coolant. The cab heavy-duty motor and core are installed on the right side of the firewall. The 24 volt personnel heater is installed on the right front corner of the floor of those trucks with an enclosed cargo area. The 24 volt personnel heater of the M886 ambulance is located under the rear of the left bench.

2-25.1.2 Differences Between Models.

Refer to table 2-1 for a listing showing which winterization components are installed on your M880-series trucks.

Table 2-1. Differences Between Models Matrix

WINTERIZATION COMPONENTS	INSTALLED ON M880	M882	M884	M886
Engine compartment rework	X	X	X	X
Swingfire heater	X	X	X	X
Personnel heater, 24 volt	X	X		X
Cab heavy-duty motor & core	X	X	X	X
Cargo box bowing & insulation	X	X		
Rear panel, door & floor	X	X		
Hood insulation	X	X	X	X
Cab insulation	X	X	X	

2-25.2 Arctic Kit Operating Procedures.

2-25.2.1 Swingfire Heater.

The Swingfire model heater, manufacturered by J. Eberspacher of West Germany, is used to preheat your vehicle engine coolant and batteries when required in extreme cold conditions. The heater operates on leaded, no-lead, or aviation type gasoline. A 24 volt DC outlet is installed on the right front vehicle grille to permit initial starting; after starting, the heater works without current by self-ignition in the combustion chamber. Refer to figure 2-16 for cutaway view of Swingfire components.

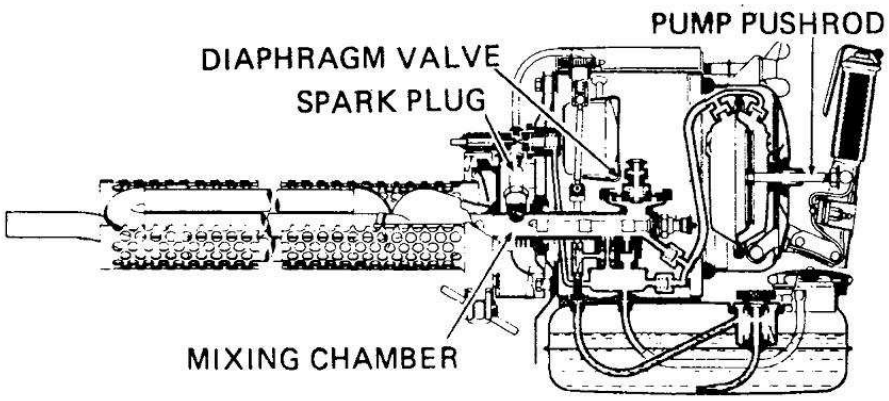


Figure 2-16. Swingfire Heater Components.

2-25.2.1.1 Starting Engine with Swingfire Heater.

a. Heater Preparation.

(1) Fill Swingfire heater tank with clean fuel.

(2) Tighten fuel tank cap (fig. 2-17).

(3) Check air shut-off valve by pushing pin in (fig. 2-17). Pressure pin must bounce back.

(4) Check position of diaphragm valve (fig. 2-16). Turn clockwise to full "+" position.

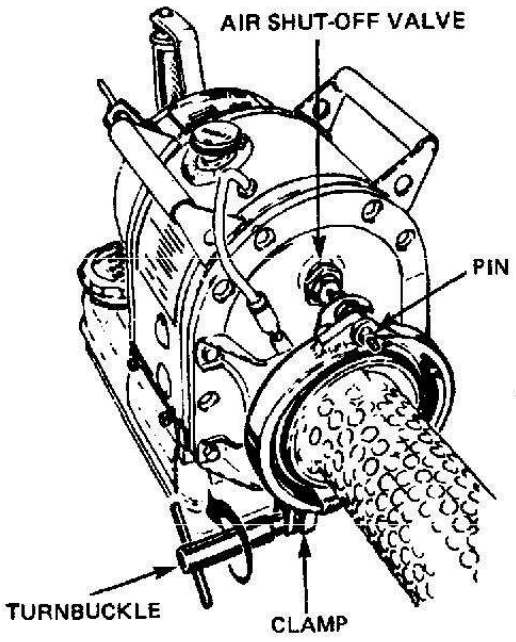


Figure 2-17. Swingfire Heater, Front

b. Starting Heater.

WARNING

Heater is not to be operated in an enclosed area as heater exhaust gases, including carbon monoxide, are toxic.

(1) Install starting cable by plugging connector end into receptacle above jacket opening on vehicle grille. Plug other end of cable into heater handle. Check current flow by squeezing handle lever (fig. 2-18) to activate pushbutton switch. You should hear a distinct humming sound.

(2) Close fuel regulator by turning knob counterclockwise (fig. 2-18).

(3) When outside temperature is above 0° F (-18° C), move pump handle forward and backward in firm and regular manner. After moving back and forth three or four times, open fuel regulator knob one-half to one turn with one hand while continuing to operate pump lever handle with other hand.

(4) When first pulsating sounds are heard, continue pumping and adjusting fuel regulator knob until pulsating sounds come in regular intervals. At this point, stop pumping; the heater has been started.

(5) Because a warm heater requires less fuel than a cold one, keep heater running for 3 to 5 minutes while continuing to fine adjust fuel regulator knob. This knob controls fuel and air mixture.

(6) If you move pump lever too fast or open regulator knob too wide, you will flood the heater. A white fuel fog will leave the pulsation pipe (fig. 2-16) and pulsation stops. To correct this, close fuel regulator knob; pump handle until surplus fuel has been blown out exhaust pipe and pulsations start again. Once pulsations start, open fuel regulator knob one-half to two turns and adjust as in step *(5)*, above.

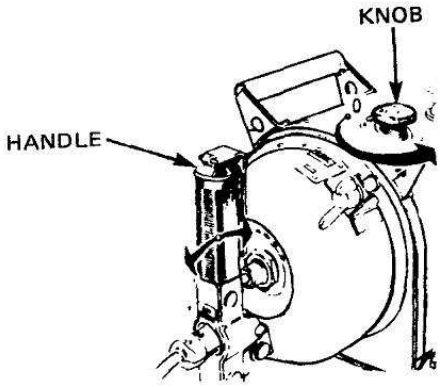


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Figure 2-18. Swingfire Heater, Top

(7) If heater has been flooded to point where fuel overflows from diaphragm valve (fig. 2-16) into mixing chamber, correct as follows:

(a) Disconnect cable from grille receptacle.

(b) Open chamber cover (fig. 2-19) by unscrewing wing nut.

(c) Tilt heater to left to let fuel run out.

(d) Clean up run-off and let chamber dry out.

c. Starting Heater Below 0° F (-18° C).

(1) Heater is started in *b*, above, except that before pumping, step *(3)* above, depress pushbutton switch (fig. 2-19) on handle to activate preheating plug and hold length of time applicable to temperature range as follows:

(a) For 0° F (-18° C) to -20° F (-29° C), depress pushbutton switch 2 minutes before pumping.

(b) For -20° F (-29° C) to -30° F (-34° C), 2 minutes.

(c) For -30° F (-34° C) to -40° F (-40° C), 4 minutes.

(d) For -40° F (-40° C) to -50° F (-46° C), at least 5 minutes.

(2) When starting to pump, step *b (3)* above, open regulator knob one to one and one-half turns for these low temperatures.

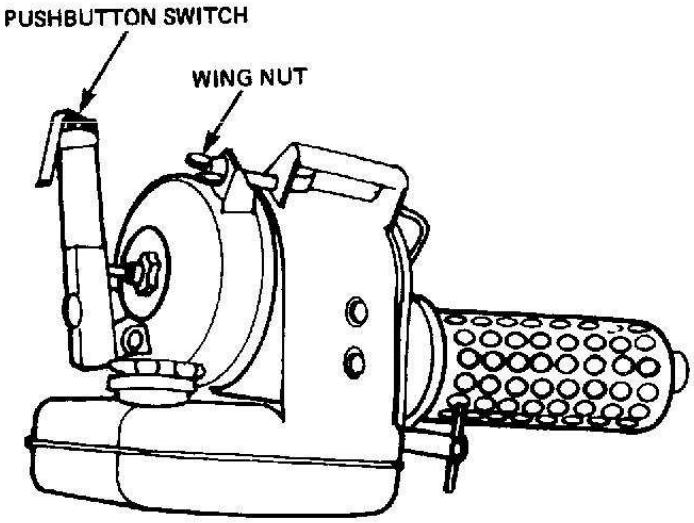

Figure 2-19. Swingfire Heater, Rear.

NOTE

If heater stops after long period of operation, it is probably flooded. Sometimes 10 to 15 pump movements with regulator valve closed will bring back regular pulsations. Heater cable is not required as heat from chamber will ignite fuel.

d. Starting Vehicle With Aid of Heater.

(1) With heater operating and starting cable disconnected, open clamp (fig. 2-17) by rotating turnbuckle counterclockwise. Position heater in water jacket, and rotate turnbuckle 16 full turns to lock heater clamp to water jacket.

(2) Let heater continue to operate until frost melts from engine block at point where block outlet tube completes return of engine coolant to water jacket. Melting of frost at this point indicates engine coolant has been heated throughout the engine block.

(3) Turn on vehicle ignition and start engine.

(4) With vehicle engine running, turn off heater by closing fuel regulator knob completely. Remove heater from water jacket.

(5) Let heater cool and put in stowage box on M886. Be certain to tighten heater clamp to rack retaining tube to prevent damage to heater when vehicle is moving. If heater is not to be used for at least 48 hours, let heater cool and remove remaining gasoline from heater tank.

2-25.2.2 Personnel Heater.

a. General. A winterized M880 or M882 vehicle has a 24 volt operated personnel heater installed in the front right corner of the cargo area. Heater is operated by electric control box assembly (fig. 2-20). The M886 12 volt personnel heater, located under rear of left bench, has been replaced by a 24 volt personnel heater system (fig. 2-21).

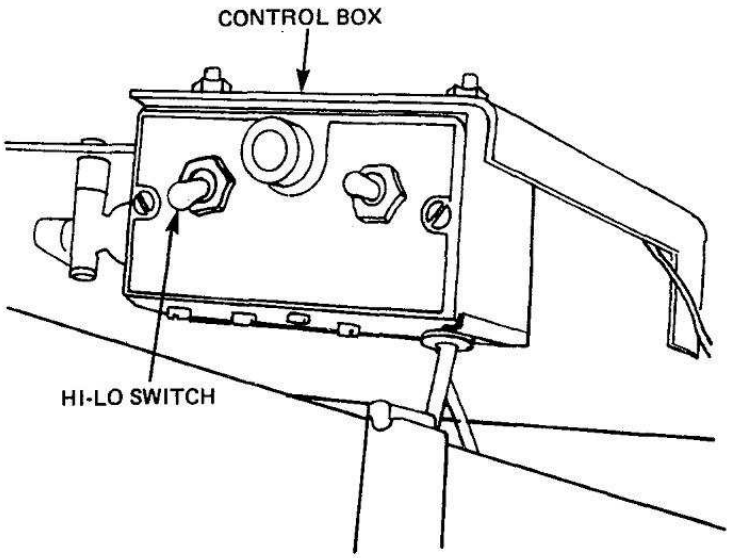

Figure 2-20. Electric Control Box Assembly.

b. Operating Personnel Heater.

(1) Open shut-off cock in personnel heater fuel line.

(2) Close outside air intake by turning damper handle on diverter assembly (fig. 2-22) to right in a counterclockwise direction.

(3) Place HI-LO switch (fig. 2-20) in HI position.

(4) Hold RUN-OFF-START switch in START position until amber indicator light comes on.

(5) Turn switch to RUN position to place heater in operation. In LO position, heater provides 14,000 Btu per hour, and in HI position, heater provides 30,000 Btu per hour.

(6) With heater running satisfactorily, open outside air intake by turning damper handle on diverter assembly (fig. 2-22) to verticle position.

(7) Heater is turned off by placing RUN-OFF-START switch in OFF position. Burning in heater will stop immediately, but motor will continue to operate until heater is purged of fuel and combustion gases.

2.25.2.3 Cab Heavy-Duty Heater Operation.

The Cab heavy-duty heater is operated by the heater/defroster controls in the cab. Refer to figure 2-7 for location and operation of these controls.

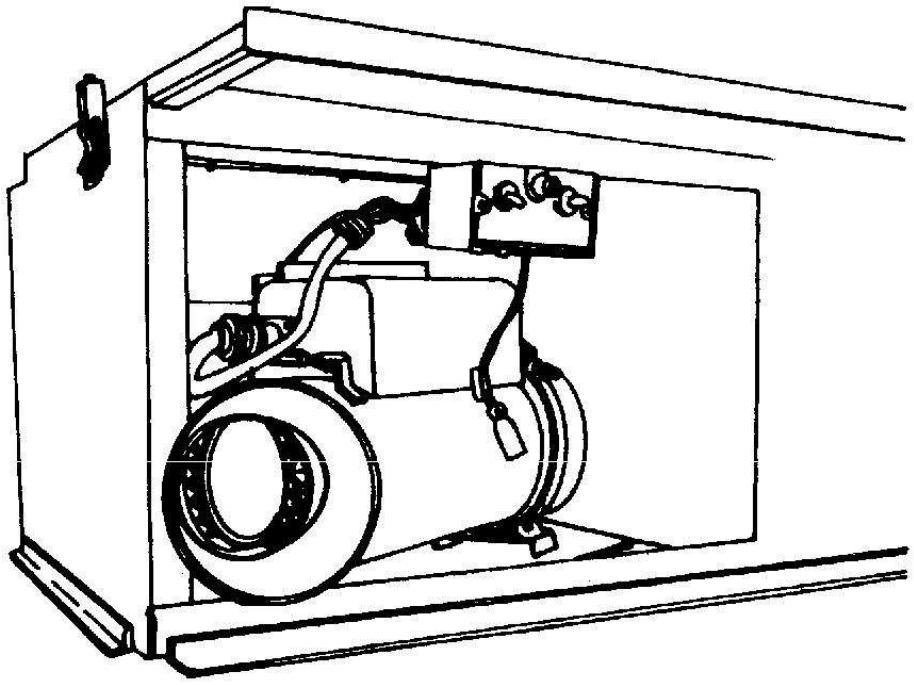

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Figure 2-21. Ambulance Personnel Heater.

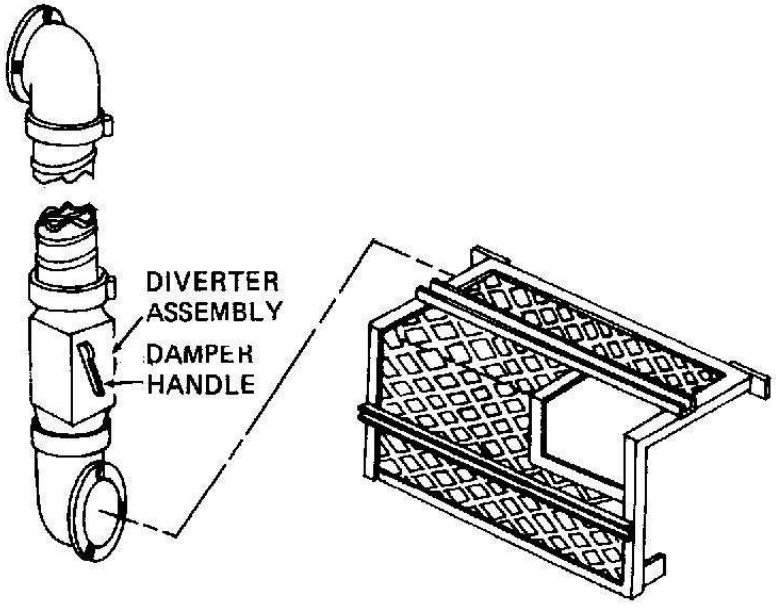

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Figure 2-22. Personnel Heater Diverter.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-26. General Conditions.

a. Vehicle Care. Be especially careful when cleaning and lubricating the truck when the weather is very hot, very cold, or very wet. See chapter 3, section V, for additional maintenance requirements under adverse conditions.

b. Frequent Breakdowns. If any part of your truck fails frequently, prepare an Equipment Improvement Recommendation (EIR) on DA Form 2407 (Maintenance Request) to report this condition.

2-27. Extreme Cold Weather Operation.

a. Starting Up. Be very careful when starting your truck in cold weather, especially if it has been shut down for more than a day. Lubricants might be congealed and cause damage. Tires can be frozen to the ground or frozen in the shape of a flat spot. Brake shoes might be frozen to the drums. If someone left the parking brake on overnight, the cable might be frozen even if the brake shoes aren't. So let the engine warm up for at least 5 minutes after you start it. Then drive the truck slowly for a short distance, as a test run. Take it easy until the truck is warmed up enough to let you drive normally.

b. Watch the Instruments. Check the instruments frequently for any sign of trouble. If instrument readings are abnormal after the engine is warm, stop and investigate the cause.

c. Driving Techniques. See FM 21-305 for instructions on good driving techniques and on hazards in snow, ice, and unusual terrain during extremely cold conditions.

d. 4X4 Models Only. See paragraph 2-29 for special instructions on how to use HI LOC and LO LOC transfer ranges in difficult driving situations.

e. At Halt or Parking. Park the truck out of the wind if you can. If you can't find shelter, park facing away from the wind. If you plan to shut down for more than a day and high, dry ground isn't available, make a footing of planks or brush and chock the truck in place, if necessary. Always follow these rules:

(1) Put the transmission in "P" and chock the wheels. DO NOT use the parking brake when stopped for long periods in extremely cold weather. If yours is a 4X4 model, make sure the transfer is in gear.

NOTE

The parking brake works by locking the rear service brakes using a cable that runs from the parking brake foot pedal to the rear brake drums. In extremely cold weather, snow or water splashed or dripped onto the cable can freeze it in the housing and keep you from moving the truck again until it thaws.

(2) Clean off any snow, ice, or mud from all parts of the truck as soon as possible after parking. Protect the engine and accessories against loose, drifting snow which can melt and then refreeze, causing damage when you start up again. Cover the truck with canvas if you can, but be sure not to let the canvas freeze to the ground.

(3) If the engine is already protected with antifreeze, you are okay. If not, and no antifreeze is available, open the radiator draincock, remove the radiator cap, and drain the cooling system. After draining, check the drain hole to make sure it isn't obstructed. If it is, use a soft wire to clear the hole. Then put the following note on the steering wheel: "DO NOT OPERATE. Radiator empty. Refill before using." Leave the radiator cap on the driver's seat.

(4) Check tires for proper inflation pressure (45 psi in front, 55 psi in back and spare).

2-28 Extreme Hot Weather Operation.

General Conditions. The main problem you will encounter during hot weather driving is overheated engines. You should keep an especially sharp eye out for overheating when you are–

–Making long, hard pulls in lower gear ranges up steep grades.

–Driving in slow, heavy traffic.

–Driving for long distances at high speed.

–Hauling loads close to your maximum capacity.

–Operating over soft terrain (mud, sand, etc.).

Unless you are going slow enough to need additional fan cooling, don't operate with the transmission in the lower gears. Keep a close eye on the temperature gage and pull over for a cooling-off period when necessary. If any problem develops, such as overheating, refer to the troubleshooting table in chapter 3.

b. At Halt or Parking. Follow these rules:

(1) Park under cover if possible. Direct sunlight will shorten the life of rubber, fabric, plastic, and paint.

(2) If you can't find cover, protect the vehicle with tarpaulins. If you can't cover the entire truck, cover the window glass and engine compartment first, especially if it's a sandy or dusty area.

2-29. Operation on Unusual Terrain.

a. General Rules. Driving cross-country over rough or unusual terrain is basically a problem of using good sense. Experience is the best teacher. But there are a few good rules to keep in mind when you are in that kind of driving situation:

(1) Keep your engine at a moderate speed, no matter how fast your ground speed may be. Your engine works at its best pace in the mid-range rpm's (revolutions per minute); you can slow down or speed up quickly without changing gears if you get into a tight spot. Use the transmission gear selector (and your transfer control shift lever, if you are driving a 4X4) to control the engine speed.

(2) Don't let your wheels start spinning, especially on soft ground. If they do start spinning, try to minimize it. Remember, if the wheels dig in until the suspension arm rests on the surface, you are in trouble.

(3) Be careful not to completely lose traction on one front and one rear wheel at the same time. Even with the transfer in a LOC position, if both a front and a rear wheel are spinning, you will have no way to power-out of the situation. So watch out for soft shoulders.

(4) Be careful not to break through crusted ice, snow, sand, or mud.

b. Use of HI LOC and LO LOC Transfer Ranges (4X4 Models Only). Use the lock positions of the transfer ONLY on soft ground where even a little wheel spin could throw you out of control or get you into trouble. The transfer HI LOC and LO LOC positions work by locking the front and rear axle drive shafts together. There is almost no chance of wheels slipping in this position, unless all four wheels spin at once. But if you use this feature on hard ground or paved roads, you may damage the suspension. Use your best judgment about when you need to use a LOC position.

NOTE

You can shift into or out of either HI LOC or LO LOC with the vehicle moving and the transmission in any gear. When shifting out of a LOC position the lock may not disengage right away unless you move in Reverse for a short distance.

Here are some situations where LOC positions can be helpful:

(1) Driving across crusted snow, sand, mud, etc. where it is important not to break any wheel through the surface.

(2) Driving on sheet ice or through deep, loose snow, where maximum traction is a must.

(3) Crossing soft-bottom streams where you can't afford to dig in a wheel.

(4) Crossing sand dunes, deep sand, or deep mud where just a little extra traction can make a big difference.

CAUTION

Don't drive in LOC ranges on hard surfaces, as the drive train and suspension may be damaged.

c. Snowy or Icy Roads and Terrain. Use chains on the driving wheels to increase traction. Stay aware of the exact direction in which the front wheels are steering; on ice, the truck may continue in a straight line even though the wheels are turned. If you go into a spin, turn the front wheel in the same direction that the rear is skidding and release the accelerator pedal. After you are straightened out, apply the brakes very gently to slow down.

WARNING

If you go into a spin, DON'T USE THE BRAKES until you are straightened out. It will only make matters worse.

d. Fording. The critical parts of the truck are protected for fording up to 16 inches of water in hard-bottom crossings. However, you must follow the required after-fording maintenance instructions in paragraph 3-14. Conduct fording operations as follows:

(1) Determine the feasibility of fording by making sure the bottom of the crossing is not so soft that you will sink into the bottom below the 16-inch limit. If you sink deeper, the starter motor may have to be replaced.

(2) Make sure the engine is operating properly.

(3) Put the transmission in "1" (First) and shift the transfer control to LO LOC.

(4) Enter the water slowly but don't let the engine stall.

(5) Limit your speed to 3 or 4 mph.

(6) After fording, don't rely on your brakes until they have been tested. If they don't work properly, depress the brake pedal with a light pressure while moving the truck. This will dry out the brakes.

CHAPTER 3
MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION

3-1. General.

NOTE

Lubrication procedures are performed at the organizational maintenance level. You may be required to assist the mechanic.

Periodic servicing insures that your truck will operate at peak performance. Lubrication Order LO 9-2320-266-12 gives complete cleaning and lubricating instructions. Refer to "Notes" for specific instructions on lubrication. Service intervals are based on normal operation under normal conditions.

3-2. Lubrication Order LO 9-2320-266-12.

A copy of the lubrication order is issued with each truck and must remain with it at all times. If you receive the vehicle without a copy, have organizational maintenance personnel requisition one immediately. Remember:

a. The time to change oil is when starting or other operations become sluggish, or when temperatures move out of the appropriate range for the grade of oil currently in the truck. Do not wait for the next normally scheduled lubrication.

b. When you are operating under extreme conditions, lubricants should always be changed more frequently than the normal intervals specified by the lubrication order. Lubricants break down or become contaminated more frequently under extreme conditions.

Figure 3-1. Deleted.

Page 3-3 through 3-6 deleted.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

3-3. General.

Preventive maintenance means the systematic care, inspection, and servicing of equipment to keep it in good condition and to prevent breakdowns. As the truck's operator, your role is to:

a. Be sure to perform your PMCS each time you operate the vehicle.

b. Be prepared to assist the mechanics when they lubricate the vehicle. Perform any other services when required to by your commander.

c. Maintenance Forms and Records. Every mission begins and ends with the paperwork. There isn't much of it, but you have to keep it up. The forms and records you fill out have several uses: (1) They are a permanent record of the services, repairs, and modifications made to your vehicle; (2) They are reports to Organization Maintenance and to your Commander; and (3) They are a checklist for your when you want to know what is wrong with the vehicle after its last use and whether those faults have been fixed. For the information you need on forms and records see TM 38-750.

d. Preventive Maintenance Checks and Services (Table 3-1).

(1) Do your Before operation (B) PREVENTIVE MAINTENANCE just before you operate your vehicle. Pay attention to the CAUTIONS and WARNINGS.

(2) Do your During operation (D) PREVENTIVE MAINTENANCE while the vehicle and/or its component systems are in operation.

(3) Do your After operation (A) PREVENTIVE MAINTENANCE right after operating the vehicle. Pay attention to the CAUTIONS and WARNINGS.

(4) Do your (W) PREVENTIVE MAINTENANCE weekly.

(5) Do your (M) PREVENTIVE MAINTENANCE once a month.

(6) If something doesn't work, troubleshoot it with the instructions in Section III, Table 3-2, and notify your supervisor.

(7) Always do your PREVENTIVE MAINTENANCE in the same order until it become a habit. Once you've had some practice, you'll spot anything wrong in a hurry.

(8) If anything looks wrong and you can't correct it, write it on your DA Form 2404. If you find something seriously wrong, report it to your Organizational Maintenance RIGHT NOW.

(9) When you do your PREVENTIVE MAINTENANCE, take along the tools you need to make all the checks. You always need a rag or two.

3-4. Recording Repairs.

Use DA Form 2404 (Equipment Inspection and Maintenance Worksheet) to record any faults that you discover before, during, and after operation unless you can fix them yourself. You do not need to record faults that you fix yourself unless they involve replacing parts. When you replace a part tell organizational maintenance so they can enter the repair work in their record system.

3-5. Fluid Leakage Classes.

It is necessary for you to know how fluid leakage affects the status of the fuel, oil, coolant, or hydraulic systems. The following are definitions of the types/classes of leakage you need to know to be able to determine the status of your vehicle. Learn, then be familiar with them and REMEMBER -- WHEN IN DOUBT, NOTIFY YOUR SUPERVISOR.

CAUTION

Equipment operation is allowable with minor leakages (Class I or II). Of course, consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

When operating with Class I or II leaks, continue to check fluid levels as required in your PMCS.

Class II leaks should be reported to your supervisor or to Organizational Maintenance personnel immediately.

a. Class I. Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

b. Class II. Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

c. Class III. Leakage of fluid great enough to form drops that fall from the item being checked/inspection.

3-6. GENERAL MAINTENANCE PROCEDURES.

WARNING

Dry cleaning solvent (Type SDII) is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100°F.

a. Cleanliness. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent, Type SDII, on all metal surfaces. Use soap and water to clean plastic or rubber materials.

b. Bolts, Nuts, and Screws. Check them all for obvious looseness, missing, bent, or broken condition. You can't try them all with a tool, but look for chipped paint, bare metal, or rust around bolt heads. If you find one you think is loose, tighten it or report it to Organizational Maintenance personnel.

c. Welds. Look for chipped paint, rust, or gaps where parts are joined together. If you find a bad weld, report it to your Organizational Maintenance personnel.

d. Electrical Wires and Connectors. Check the wiring for worn or cracked insulation, bare wires, and loose or broken connectors. Tighten any loose connectors, and double check operation of the circuit to make sure it works.

e. Hose and Fluid Lines. Look for wear, damage, leaks, and loose clamps or fittings. Wet spots show leaks, of course, but a stain around a fitting or connector can mean a leak. If a leak is a result of a loose fitting or connector, tighten it. If found to be broken or worn out, report it to Organizational Maintenance personnel. When inspection shows that a brake hose is worn, chafed, cracked, crimped, or abraided which has resulted in damage to hose through the outer casing to the first ply of fabric, it is mandatory that hose assembly be replaced prior to use of the vehicle.

f. Damage. Damage is defined as any deficiency that would affect safety or render the vehicle unserviceable for mission requirements.

g. General Cleaning. Look for build-up of grease, rust, or fungus growth. Metal items such as name plates, caution plates, and instruction plates will rust fast once they get started. Fungus will destroy fabrics and plastics in hot, humid weather.

3-7. DAILY PREVENTIVE MAINTENANCE SERVICES.

NOTE

Your vehicle should be ready for the road before you drive it. These checks are to be made in the order listed, within the designated intervals.

Follow these steps and check the same way time after time. You will soon develop a routine that not only makes the PMCS go faster, but lets you quickly find anything wrong. While driving, always keep in mind the during operation checks specified in the table. At the end of your after operations checks, record any new problem on DA Form 2404 and notify Organizational Maintenance. (Check points for the PMCS are shown in fig 3-2.)

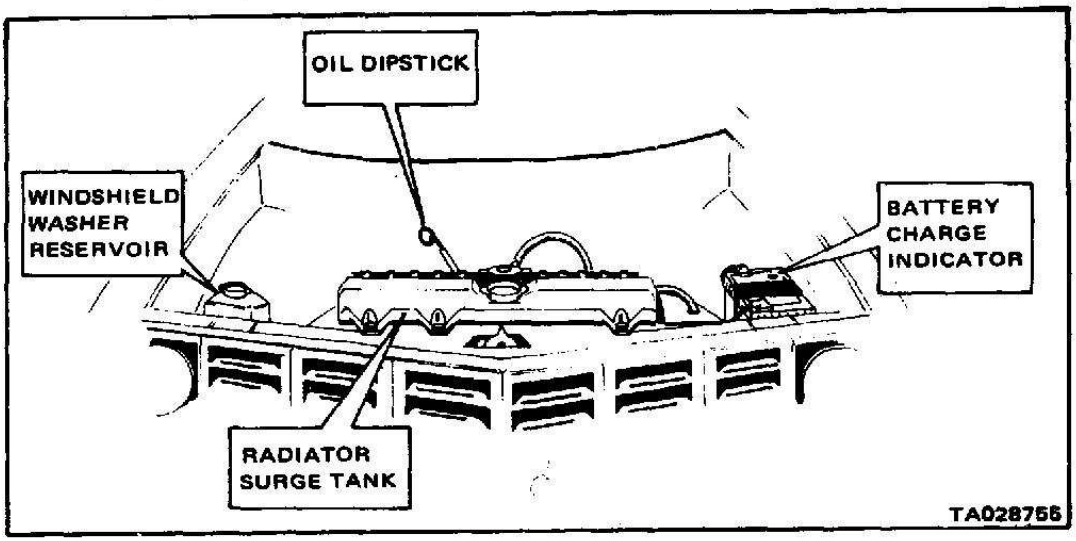


Figure 3-2. PMCS Check Points.

BEFORE STARTING YOUR PM CHECKS, READ THE FOLLOWING:

If anything looks wrong and you can't correct it yourself, write it down on your DA Form 2404. If you find something serious, notify organizational maintenance RIGHT NOW.

Some checks are common to the entire truck:

a. Loose Bolts. A loose bolt can be hard to spot without actually applying a wrench, but you can often tell by loose or chipping paint, bare metal, or rust around the bolt head.

b. Welds. Some body and frame components are welded together. You can tell a damaged weld by rust or chipping paint over the crack.

c. Electrical Wires and Connectors. Check the electrical wiring for cracks. Look for exposed wires; they can cause electrical shorts. Tighten any loose connectors.

d. Hoses and Fluid Lines. Check all hoses and lines for wear, leaks, and loose clamps or fittings. Stains around a fitting indicate a leak; the fitting may require tightening, repair, or replacement.

e. General Cleaning. Keep an eye out for build-up of grease, rust, or fungus growth. Steel items like nameplates, caution plates, and instruction plates will rust fast once they get started. Fungus will destroy fabrics and plastics in hot, humid weather. See paragraph 3-6 for cleaning procedures and precautions.

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
						NOTE Perform Weekly (W) as well as Before Operation (B) PMCSs if: a. You are the assigned operator but have not operated the vehicle since the last weekly. b. You are operating the vehicle for the first time.	
						MAKE THE FOLLOWING WALK AROUND CHECKS:	
1.						EXTERIOR OF VEHICLE	
	*					a. Visually check for obvious damage to body and cab that would impair operation.	
	*					b. Look under the vehicle for evidence of fluid leakage (fuel, oil, brake fluid, or coolant).	Any fuel, or brake fluid leakage. Class III leakage of oil or coolant.
						c. Check condition of:	
		*				(1) Windshield and windows	Windshield cracked sufficiently enough to impair operator's vision.
		*				(2) Windshield wiper arms and blades.	
	*					(3) Mirrors.	
				*		(4) All locking and fastening devices.	
				*		(5) Spare tire mounting.	
		*				(6) Operation of doors and windows.	
		*				(7) Operation of headlights, taillights, stoplights, turn signals, and blackout lights.	
2.						TIRES	
	*					a. Check tires for:	
						(1) Cuts, gouges, cracks, or penetrating objects.	Tires have cuts, gouges, or cracks which would result in tire failure during operation.
						(2) Look for tread wear past the tread wear bars indicators.	Tread wear bar indicators on two tires are visible across the tread crown of the tire.
						(3) Check for indication of separation or air bubbles on the sidewall or tread.	Obvious air bubble on sidewall or tread.
				*		b. Check for correct air pressure. For normal operation, tire pressure should be: TYPE SIZE PRESSURE Radial or Bias 9.50 x 16.5 Front 45 psi Rear 55 psi CAUTION The most common cause of early failure of radial tires is underinflation.	One axle mounted tire missing or unserviceable and no spare is available.

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services – Continued

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
3.						FUEL SYSTEM	
				*		a. Inspect fuel tank for leaks and broken supports.	Any fuel leakage or broken tank support.
				*		b. Check fuel lines and hoses for leaks and damage. Make sure all connections are secure.	Any loose or leaking lines, hoses, or connectors.
						UNDERBODY	
4.						FRAME	
					*	Visually inspect frame side rails, crossmembers, and underbody supports for broken bolts or rivets, obvious cracks, broken welds, and rusted-through conditions.	Any obvious cracked, loose, or broken side rail, crossmember, welds, bolts, or rivets.
						ENGINE COMPARTMENT	
5.						RADIATOR	
						WARNING	
						Never remove the radiator cap when the engine is at operating temperature or overheated. Coolant system is under pressure, and escaping steam or hot water can cause serious burns. Do not add coolant to the radiator if engine is hot.	
				*		Check radiator and surge tank to see if coolant is up to "COLD" (lower) fill mark.	Class III leak.
					*	Check hoses, clamps, radiator, and water pump for deterioration, leakage, and secure connections. If you have to add coolant often, notify Organizational Maintenance.	
6.						ENGINE OIL LEVEL	
						CAUTION	
						DO NOT OVERFILL above the FULL mark. Too much oil will damage the main bearings and require engine overhaul. See the trouble-shooting chart if oil is above FULL.	
						Check engine oil level. The oil level should be between ADD and FULL marks on the dipstick. Add oil as necessary. See LO 9-2320-266-12 for correct interval and specification of lubricants.	

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services – Continued

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
7.						BATTERIES	
						WARNING Don't smoke, have open flame, or make sparks around the batteries, especially if the filler caps are off. They can explode and cause injury.	
						NOTE	
						On models M881, M882, M883, M884, M891, and M892 you will find three batteries located in the engine compartment. The single battery mounted on the driver's side supplies 12 volts to operate the vehicle engine electrical components, lights, and accessories.	One or more batteries missing.
						The two batteries mounted on the passenger side supplies 24 volts needed to operate communication equipment and/or special arctic equipment.	Engine will not crank.
					*	a. Visually check terminals and posts for damage or corrosion.	Batteries not charged to operate 24V system.
					*	b. Visually check for cracked or leaking casing.	
				*		c. Check fluid level if standard type battery such as 6 TN is used, add water as necessary.	
				*		d. When maintenance free type is used, visually check charge condition indicator on top of battery.	
				*		e. If battery charge is repeatedly low, contact Organizational Maintenance personnel.	

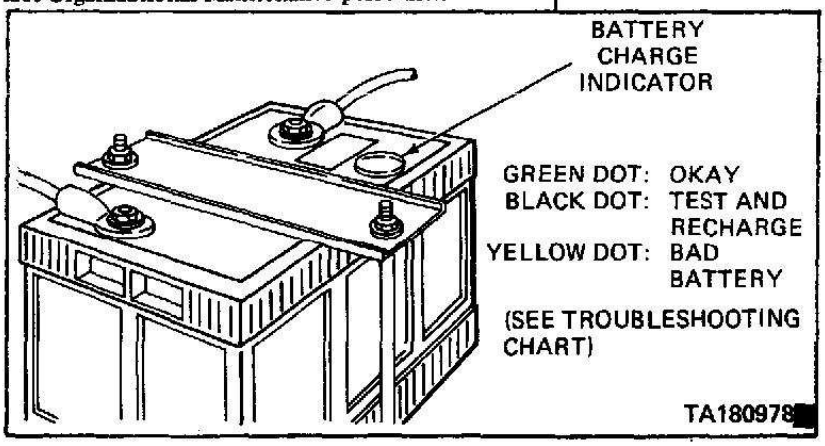


Table 3-1. Operator/Crew Preventive Maintenance Checks and Services – Continued

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
8.						DRIVE BELTS	
					*	Inspect belts for cracking, fraying, breaks, or missing.	Belts are frayed, broken, or missing.
						INTERIOR OF VEHICLE	
9.						INSTRUMENTS	
						CAUTION If the oil pressure reading does not show any oil pressure within three to five seconds after starting or if the temperature reading increases rapidly, shut down engine at once or engine may be damaged.	
		*				a. After engine is warmed up, check the engine instruments on instrument panel for steady, normal readings within ranges of individual gages. (1) Oil Pressure 0 - 80 (2) Temperature C - H (3) Battery/Alternator D - C	Instruments do not read within limits. Temperature, oil pressure, alternator is inoperative or indicates a problem or gives faulty reading.
		*				b. If gages show erratic readings and other checks indicate that battery condition and engine temperature are within limits, check for loose connection at gages and report to Organizational Maintenance personnel.	
10.						BRAKE SYSTEM	
		*				a. Move the vehicle to determine stopping ability of service brakes. Check for any pulling to one side, grabbing, or other abnormal operation.	Any brake line or hose leaking or damaged. Service brakes do not stop vehicle. Service brakes pull or grab.
		*				b. Determine parking brake ability of service brakes. (1) Engage hand brake. (2) With engine at idle speed, move transmission selector from park through drive range, then slowly increase engine speed.	
11.		*				STEERING SYSTEM	
						As you operate the vehicle, note any unusual free play, binding, wander, shimmy, or noises.	Loose, binding, or wandering conditions.

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services – Continued

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
						Report unusual conditions to your Organizational Maintenance personnel.	
12.						TRANSMISSION	
						WARNING The 4 x 4 trucks have no provision for two-wheel operation. Using the wrong transfer range on hard surfaces or paved roads can damage front wheel drive components and make the engine over-rev (See fig 2-8).	
						WARNING Emergency brake must be on for transmission/ transfer checks. If the transfer control is at "N", the transmission is disengaged and putting the transmission in "P" will not stop the truck from moving.	
		*				a. Shift the selector lever through all ranges observing any unusual stiffness or binding of shifting linkage, and check to insure if it is in the correct position on indicator.	Transmission is inoperative.
						b. With engine at operating temperature, set parking brake, shift selector in neutral, check the fluid level and condition of the transmission fluid. Add fluid if dipstick indicates "ADD".	Fluid has a distinct odor of being burnt. Fluid level above FULL mark or below ADD, until corrected.
13.						TRANSFER	
		*				Check shifting operation for unusual noise, stiffness, or jumping out of gear.	Transfer is inoperative.
14.						HORNS	
		*				Check for operation if tactical situation permits.	
15.						FRONT AND REAR DRIVE AXLES AND PROPELLOR SHAFTS	
		*				Listen for unusual noises or vibrations. Vibrations, clicking, or clunking noises indicate worn U-Joints or damaged propellor shafts.	Unusual noises or vibrations evident.

Table 3-1.1. Operator/Crew Preventive Maintenance Checks and Services
M880, M881, M882, M890, M891, M892 Truck Cargo

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
1.	*					SIDE AND END PANELS a. Check that side and end panels are not bent or broken and have no broken welds (Fig 2-14). b. Check cargo covers, fasteners for operation.	

Table 3-1.2. Operator/Crew Preventive Maintenance Checks and Services
M888 Telephone Maintenance Truck

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
1.	*					REAR COMPARTMENT a. Check locking and fastening devices on special tool and equipment doors to ensure security if required. b. Check ladder to be securely fastened to the carrier racks (See fig 5-5).	

Table 3-1.3. Operator/Crew Preventive Maintenance Checks and Services M886, M893 Ambulance

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
1.						AMBULANCE CAB COMPARTMENT	
	*					Check condition of fire extinguisher and fire extinguisher mounting bracket. Have fire extinguisher recharged if necessary.	
2.						AMBULANCE PATIENT COMPARTMENT	
	*					a. Check operation of patient compartment doors and equipment. Look for obvious damage that would prevent doors from closing completely (See fig 4-1.7).	Rear compartment doors will not close and lock.
		*				b. Turn on the following switches, lights, and accessories to check that they operate properly:	
		*				(1) Surgical light switch and light.	
		*				(2) Door switches and blackout light.	
		*				(3) Patient compartment heater and exhaust blower.	Any fuel leak in heater, or defect in the ventilation exhaust system.
						(See fig 4-1).	

Table 3-1.4. Operator/Crew Preventive Maintenance Checks and Services M883, M884, M885 With Communication Shelter

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
1.						COMMUNICATION SHELTER	
	*					a. Check locking and fastening devices on compartment doors to ensure security if required.	
		*				b. Check that tie-down cables are positioned in place and secured to the hold-down eye fasteners, cables for fraying.	
				*		c. Check that dunnage is in place to prevent the shelter compartment from shifting in the cargo box.	

Table 3-1.5. Operator/Crew Preventive Maintenance Checks and Services M880, M882, M884, M886 With Winterization Kit

NOTE: These checks and services are to be made in the order listed within the designated interval

B – Before Operation D – During Operation A – After Operation
W – Weekly M – Monthly

Item No.	Interval B	D	A	W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	The Equipment is not Ready/Available if:
1.						SPECIAL PURPOSE KIT ARCTIC WINTERIZATION KIT a. Check engine coolant heater assembly as follows:	
		*				(1) Check that heater, fuel lines, and fittings for leakage.	Any fuel leak.
	*					(2) Check that exhaust tube is not loose or damaged.	
		*				(3) Check that coolant hose and fittings are not leaking.	Class III leak.
						b. PERSONNEL HEATER	
		*				(1) Check for leaking fuel lines or fittings and damaged or loose electrical connections.	Any fuel leak.
		*				(2) Check operation of heater controls in both HI/LO settings.	Heater does not ignite or operate freely.
		*				c. SWINGFIRE HEATER Check for proper operation and function. Clean and adjust when necessary.	

Section III. TROUBLESHOOTING

3-7. Scope.

a. This section contains troubleshooting information for locating and correcting operating problems. Each problem is followed by a list of tests or inspections. These will help you determine probable causes and corrective actions to take. You should perform the tests/inspections and corrective actions in the order listed.

b. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected after you take the listed actions, return to organizational maintenance if you can. Otherwise stop the truck and notify your supervisor.

3-8. Troubleshooting.

a. Basic Procedure. When you have trouble starting your truck or have trouble on the road, there are some fairly simple repairs that can get the truck running again. First identify the MALFUNCTION (or problem). Then locate it in table 3-2 on the following pages and follow the directions in the CORRECTIVE ACTION column.

b. If You Can't Fix It. If you can't pinpoint the problem, or if it's too serious to fix, stop the truck and notify organizational maintenance right away.

c. Expedient Repairs. Quite a few of the CORRECTIVE ACTIONS are labeled "Expedient." These are repairs that don't really fix the trouble, but can help you get the vehicle back home. There is one important caution to remember about expedient repairs:

CAUTION

When you get the truck running again by using an expedient, RETURN IMMEDIATELY to organizational maintenance. Expedients are designed only to let you get home again. Continued operation on expedient repairs can damage the truck.

Table 3-2. Troubleshooting

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

1. ENGINE WILL NOT TURN OVER WHEN IGNITION SWITCH IS TURNED TO THE START POSITION.

Step 1. Check position of transmission gear selector.

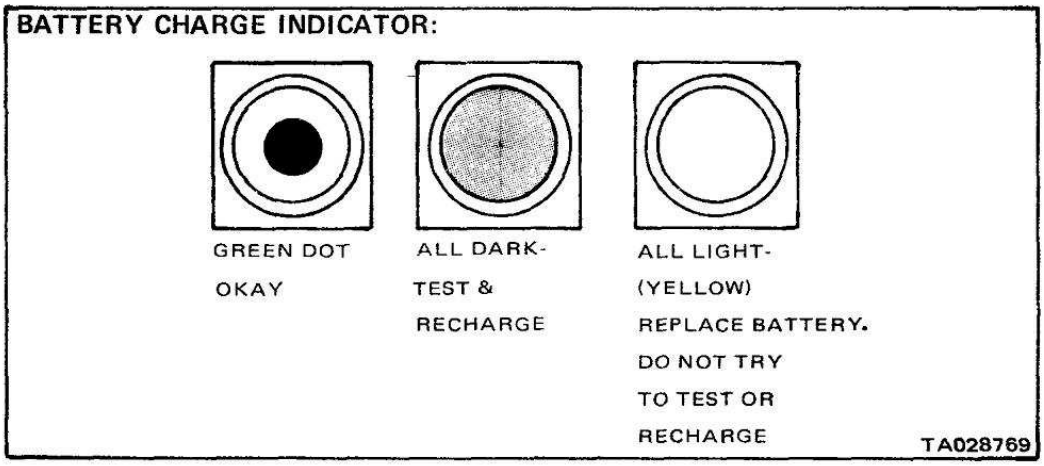
Move the transmission gear selector to "P" or "N" position.

Step 2. See if battery connections are loose.

Tighten loose connections.

Step 3. The battery may be discharged. Look at the charge indicator on the battery.

(EXPEDIENT: Get a jump start. See paragraph 2-16 for the procedure.)



CAUTION

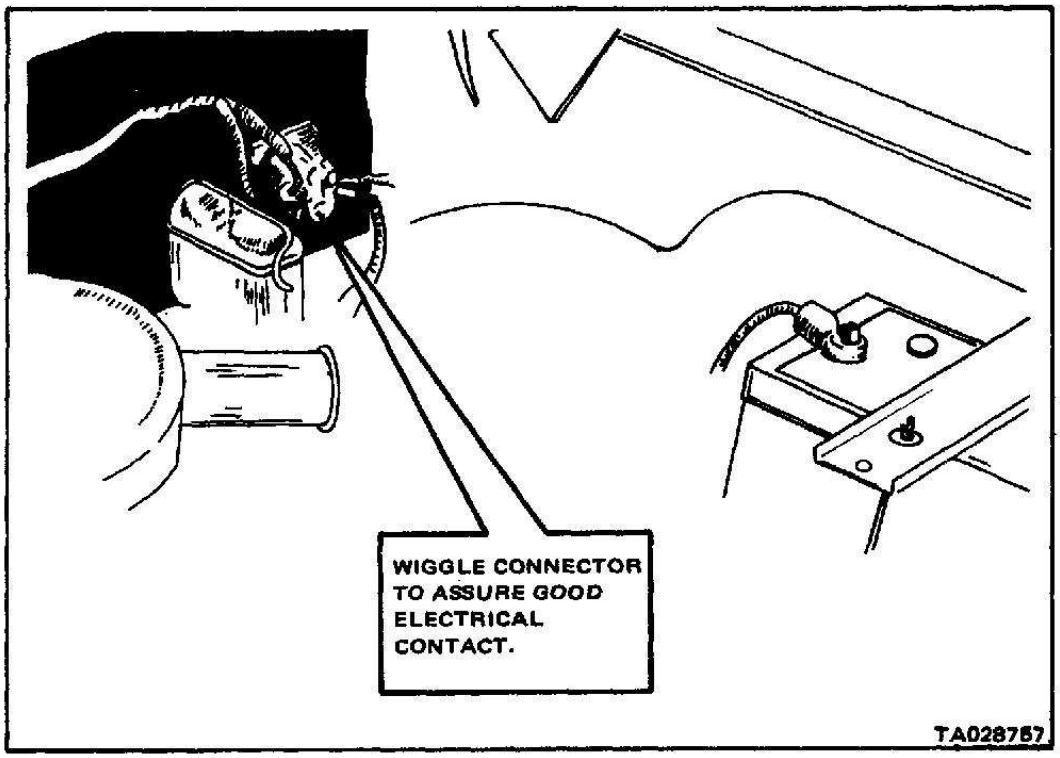
Do not try to jump start a 12 V system with a 24 V system. Read paragraph 2-16 before using the jump start expedient.

Table 3-2. Troubleshooting--Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

Step 4. Check the wiring harness connection located on the firewall.

(EXPEDIENT: Move the connectors back and forth to insure proper contact.)



Step 5. Other tests or inspections.

Notify organizational maintenance personnel.

2. ENGINE TURNS OVER BUT WILL NOT START.

Step 1. The fuel tank may be empty. Check the gage with the ignition switch ON.

Fill the fuel tank and restart the engine as if in warm weather (paragraph 2-15d).

Step 2. The battery may be weak. Use the same procedures outlined in malfunction 1, step 3.

Step 3. See if battery connections are dirty.

Clean connections.

Table 3-2. Troubleshooting--Continued

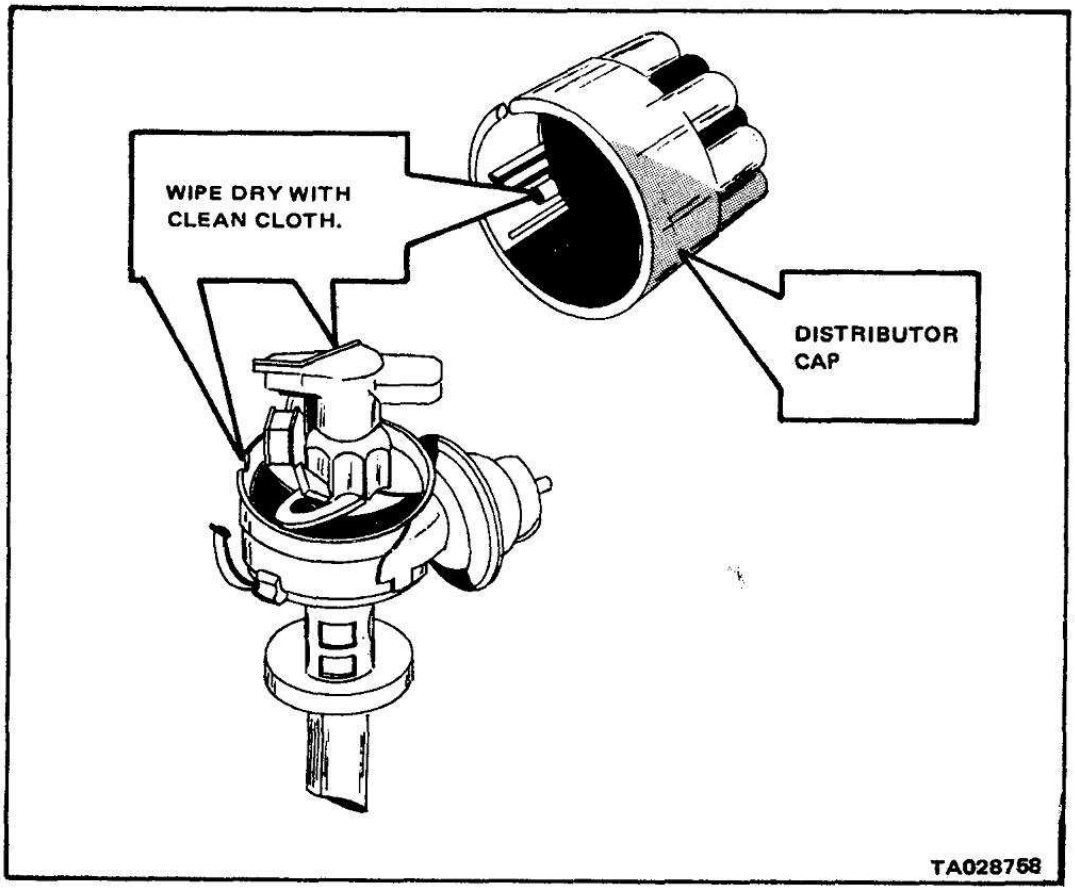
MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

Step 4. The engine may be flooded, as evidenced by a strong fuel smell.

See paragraph 2-15a for starting procedures. If flooding continues, notify organizational maintenance personnel.

Step 5. Look under the hood to see if the ignition wiring is wet, especially the distributor cap.

Remove the distributor cap and, if it's wet, wipe it dry with a cloth. Wipe dry any wet wiring.



Step 6. Other tests or inspections.

Notify organizational maintenance personnel.

3. ENGINE STARTS BUT DOES NOT CONTINUE TO RUN.

Step 1. The fuel level may be low. Check the fuel gage.

Add fuel if necessary.

Table 3-2. Troubleshooting–Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

Step 2. If the engine is cold, the choke butterfly valve may be stuck open. Remove the air cleaner and see if the valve is open.

(EXPEDIENT: Hold the throttle linkage open and work the choke butterfly valve back and forth until it operates freely. If you can't get it to move freely, leave it open, pump the accelerator pedal or throttle linkage four times, and then start the engine. Let the engine warm up for several minutes before driving the truck back to organizational maintenance.)

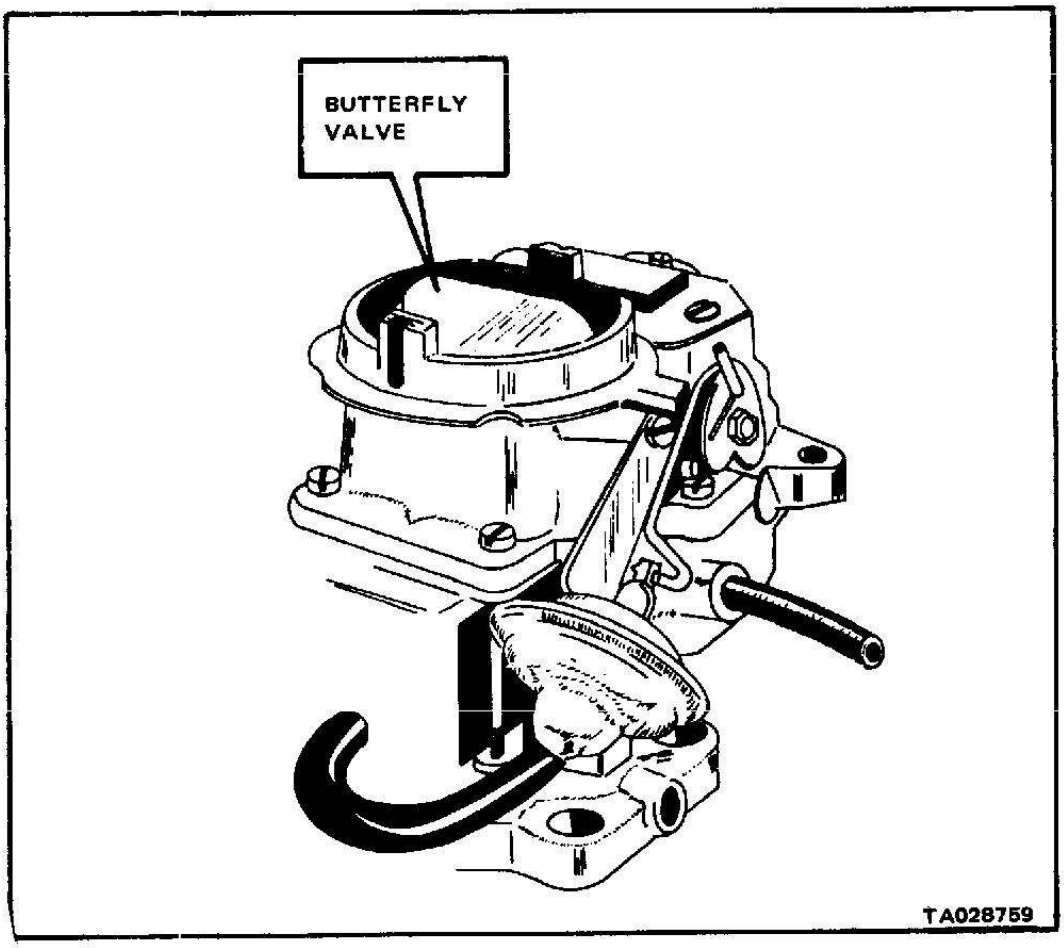
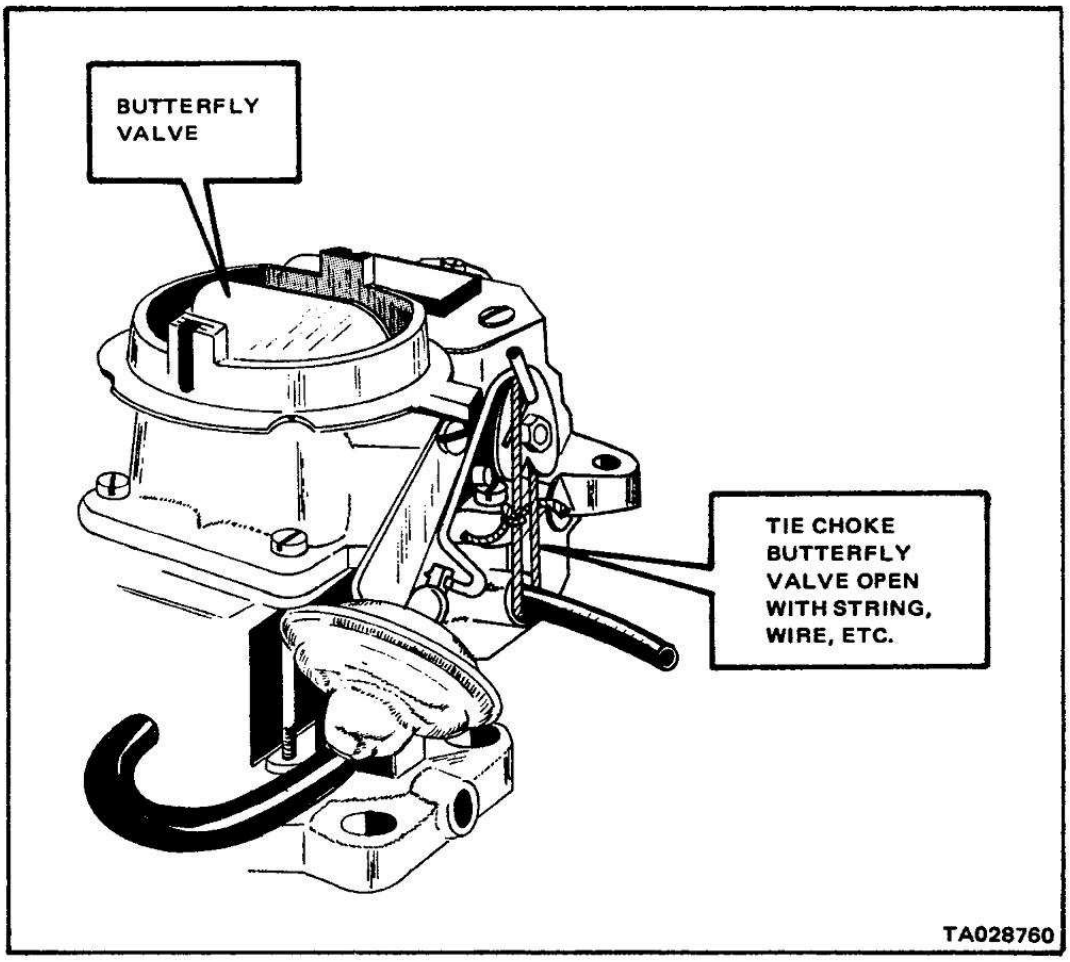


Table 3-2. Troubleshooting–Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 3. If the engine is warm, the choke butterfly valve may be stuck closed. Remove the air cleaner and see if the valve is closed.

(EXPEDIENT: Tie the choke valve linkage in the open position.)



Step 4. With the air cleaner removed, pump the accelerator linkage by hand and watch the top of the carburetor cover. If you see fuel running out, the float valve is stuck.

(EXPEDIENT: Wrap a rag several layers thick around a wrench and tap the carburetor bowl *lightly* to free the float. Start as if flooded.)

Step 5. Other tests or inspections.

Notify organizational maintenance personnel.

Table 3-2. Troubleshooting—Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

4. ENGINE OVERHEATING

Step 1. Check the coolant level in the surge tank.

Add coolant if necessary (refer to step 5, below).

Step 2. Take a look at the outside of the radiator for obstructions such as leaves, etc.

Remove anything that blocks the core or impedes air flow.

Step 3. Check the cooling system hoses for evidence of leaks (wet spots, escaping steam or water).

(EXPEDIENT: Tighten any loose hose clamps and refill the radiator, using the procedure given in step 5, below.)

(EXPEDIENT: If the hose itself is leaking and tape is available, tape the hose TIGHTLY and refill the radiator using the procedure given in step 5, below.)

(EXPEDIENT: If one of the heater hoses is leaking, remove the radiator cap using the procedure given in step 5, below. Then bypass the heater by forming a closed loop with the one good hose. First, remove the leaky hose completely. Next, disconnect the remaining hose at the heater and connect it back to the water valve.)

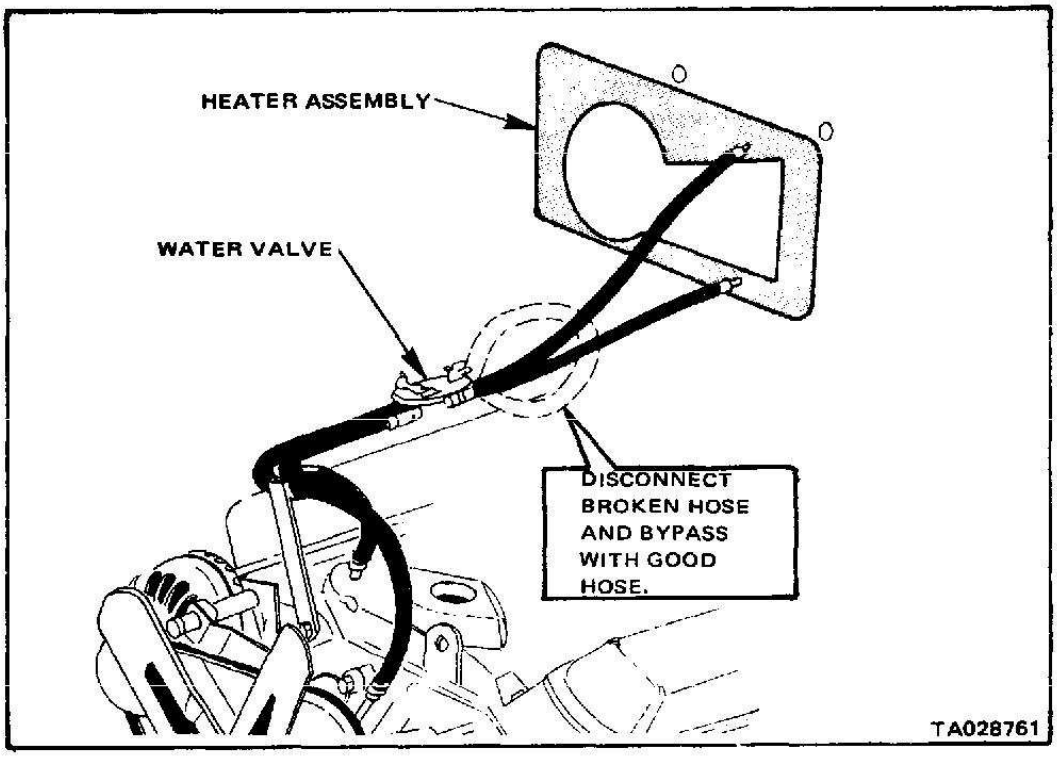


Table 3-2. Troubleshooting–Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

Step 4. Check the radiator itself for evidence of pinhole leaks (wet areas, escaping steam, etc.).

(EXPEDIENT: If you find leaks, refill the radiator using the procedure given in step 5, below. Replace the radiator cap only to the first detent. (Do not tighten it.)

Step 5. Check the coolant level in the surge tank.

(EXPEDIENT: If no water is visible or if the level is below the "Cold" mark, let the engine cool down (10 to 15 minutes). When the radiator is no longer hot to the touch, put a rag over the radiator cap and carefully remove it.

WARNING

Never remove the cap when the engine is hot. This is a high-pressure cooling system, and escaping steam or hot water can cause serious burns.

With the radiator cap removed, start the engine. If you don't see coolant circulating just below the filler neck, add water until you do. Replace the cap to the FIRST DETENT–do not tighten it completely, or buildup of pressure will just make you lose the coolant again. With the radiator cap back on loosely, fill up the surge tank. Watch your temperature gage carefully when driving back to organizational maintenance.)

Step 6. Check the engine oil level.

(EXPEDIENT: If the oil is low but some oil does show on the dipstick, drive slowly and cautiously back to organizational maintenance. If no oil shows on the dipstick, do not drive the vehicle.)

CAUTION

Keep a careful eye on the oil pressure and temperature gages when you're driving a vehicle that you know is low on oil. You may still be losing oil. If the oil pressure gage stops showing any pressure or if the temperature gage indicates overheating a second time, SHUT IT DOWN and don't move the vehicle any farther.

Step 7. Other tests or inspections.

Notify organizational maintenance personnel. Do not drive the vehicle until the problem has been solved.

Table 3-2. Troubleshooting–Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

5. LACK OF POWER

Step 1. Your parking brake may be applied.

Release the parking brake.

Step 2. Recheck your load; you could be overloaded.

Lighten the load if possible or use a lower driving range.

Step 3. Stop the vehicle and check for a stuck choke butterfly valve.

(EXPEDIENT: See malfunction 3, step 2.)

Step 4. Other tests or inspections.

Notify organizational maintenance personnel.

6. ENGINE WILL NOT IDLE OR IT MISFIRES.

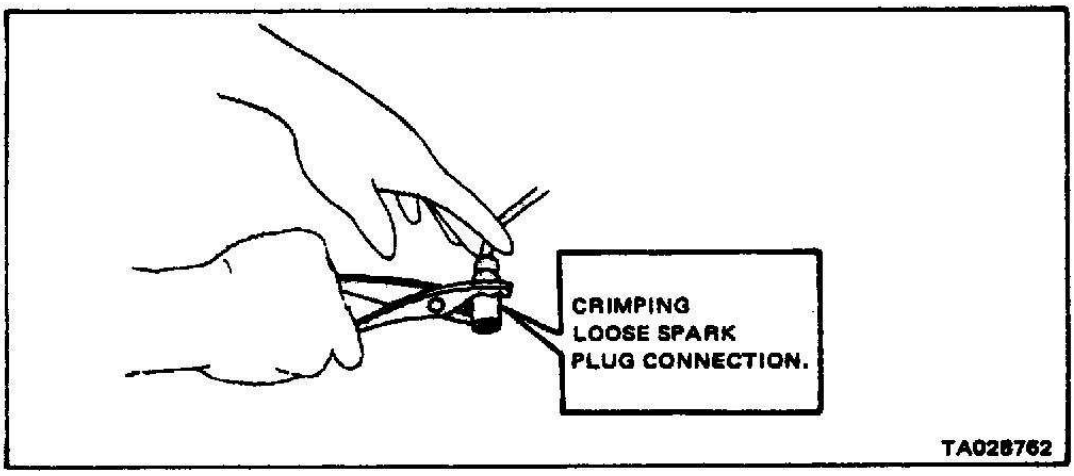
Step 1. Check for a stuck choke butterfly valve.

(EXPEDIENT: See malfunction 3, step 2.)

Step 2. Look for disconnected spark plug wires and check for loose connections.

Reconnect spark plug wire.

(EXPEDIENT: Crimp any loose connections.)



Step 3. Check for loose or broken vacuum hoses.

(EXPEDIENT: Reconnect or tape the hose. If it's cracked near the end, cut it at the crack and reconnect the good portion.)

Step 4. You may have a stuck carburetor float.

(EXPEDIENT: See malfunction 3, step 4.)

Table 3-2. Troubleshooting—Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 5. Other tests and inspections.

Notify organizational maintenance personnel.

7. EXCESSIVE FUEL CONSUMPTION.

Step 1. You may be pushing the vehicle too hard.

Keep good driving practices in mind. Review this manual and TM 21-305 (Manual for Wheeled Vehicle Drivers). If you treat the truck right, it will serve you a lot better.

Step 2. The choke butterfly valve may be stuck closed or partly closed.

(EXPEDIENT: See malfunction 3, step 2.)

Step 3. Look over the fuel system components (including lines, carburetor gasket, fuel pump, and gas tank) for leaks. Evidence of leaks includes wet connections, droplets, or gasoline odor in the driver's compartment after the engine is warmed up.

WARNING

If you find a fuel leak, or even indirect evidence of a leak (such as odor), DON'T DRIVE until the problem is solved.

8. GAGES INOPERATIVE OR OPERATING ABNORMALLY.

Step 1. Turn the ignition switch to ON and start the engine. The alternator and oil pressure gages should register immediately, and the temperature gage should register as soon as the engine is warm. Observe the gages. (See chapter 2 for normal readings.)

If the gages register abnormally, stop the engine.

(EXPEDIENT: If a gage does not register, it may be stuck. Tap it with your finger. If you still get no results, stop the engine.)

Step 2. *The oil pressure gage reads high.* This is normal when the engine is cold and when you are using compression to slow you down, such as on a downhill grade in second gear. If the gage reads consistently high when the engine is warm and you are not using engine compression for braking, the engine may be overfilled with oil.

Park the truck on level ground, wait 2 minutes, and check the engine oil level. If it is over the "Full" mark and you have a wrench, loosen the drain plug (on bottom of the oil pan) and drain out some oil. Tighten the plug and check the level again to make sure you are in the acceptable operating range. If not, drain some more oil. When you are between the "Add" and "Full" mark, tighten the drain plug.

Table 3-2. Troubleshooting--Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

CAUTION

If you don't have a wrench to loosen the drain plug, DON'T drive the vehicle with a high oil level. Too much oil can blow out the oil seals, damage the main bearings, and cause other damage requiring a complete overhaul.

9. LUBRICANT LEAKS.

Step 1. Observe the drain plugs for leaks.

Tighten the drain plugs and check oil level. If it is low, add oil.

Step 2. Loss of engine oil may be caused by lubricant level being too high.

(EXPEDIENT: Follow the procedure given in malfunction 8, step 2. Be sure to report the problem to organizational maintenance, since the oil loss may be due to blown oil seals.)

10. HORN INOPERATIVE OR OPERATES CONTINUALLY.

Step 1. If the horn does not operate when you press the horn button, check the fuse. If the fuse is all right, look at the horn wires and make sure they are tight.

Tighten any loose connections.

Step 2. When the horn operates continually or operates occasionally without the button being depressed:

(EXPEDIENT: Remove the horn fuse from the fuse box. Notify organizational maintenance.)

11. ABNORMAL TIRE WEAR.

Step 1. Check for leaks and proper tire pressure (45 psi on front and 55 psi on rear and spare). Inflate low tires to the proper pressure or bleed off any excess pressure. (Check pressure on cold tires only.)

Step 2. On 4X4 drive models, make sure the LOC position is not used on hard surfaces.

Use the LOC positions on the transfer only when *maximum* traction is needed. Never use it on hard surfaces or paved roads.

Step 3. Here are some additional tips for you to remember:

a. Apply your brakes evenly; don't make sudden, sliding stops.

b. Don't overload the vehicle and don't drive too fast for the road conditions.

Table 3-2. Troubleshooting—Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

c. Take it easy on turns. If you hear the tires while turning, you are going too fast.

d. Conduct frequent inspections for cuts, bruises, and imbedded glass or nails.

12. WHEEL WOBBLES.

Step 1. Check the tightness of the lug nuts with the lug wrench.

Tighten as required.

Step 2. Look for low tire pressure.

Inflate to proper pressure (45 psi on front and 55 psi on rear and spare).

13. HARD STEERING.

Step 1. Hard steering may be caused by low tire pressure.

Inflate tires to proper pressure.

Step 2. Other tests or inspections.

Notify organizational maintenance personnel.

14. LOOSENESS IN STEERING.

Step 1. Check tire pressure.

Inflate tires to proper pressure.

Step 2. Other tests or inspections.

Notify organizational maintenance personnel.

15. RUNNING LIGHTS, BLACKOUT LIGHTS, HEATER, STOP LIGHTS, OR INSTRUMENT PANEL LIGHTS INOPERATIVE.

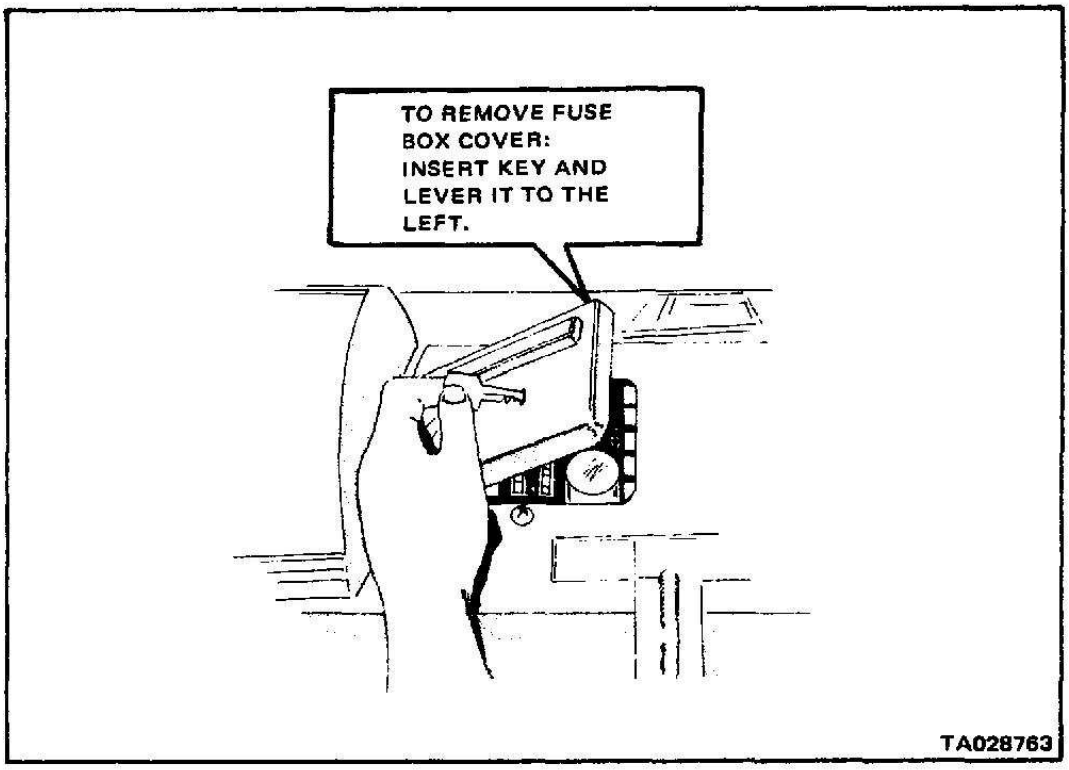
Step 1. Check the fuse box (figure 2-7) for a blown fuse.

(EXPEDIENT: If you find a blown fuse, remove the horn fuse and substitute it for the more critical one which is blown. In the case of the instrument panel lights, use the spare fuse in the radio fuse receptacle.)

Table 3-2. Troubleshooting–Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
16. SWINGFIRE HEATER FAILS TO START.
Step 1. Check the fuel tank. Fill fuel tank.
Step 2. Review starting procedure.
Step 3. Check heater starting cable. Insure that connections are tight.

Table 3-2. Troubleshooting–Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

Step 2. Other tests and inspections. Notify organizational maintenance personnel.

Section IV. CORRECTIVE MAINTENANCE (INSTRUCTIONS FOR OPERATOR)

3-9. Changing the Tires.

The truck has a spare wheel and tire assembly located under the loadbed. When you change the tire use these procedures:

NOTE

If the spare tire has never been removed from the truck, you might have to cut the locking cable used for security in transit.

a. Apply the parking brake tightly. Then chock the wheel located diagonally opposite the one you are changing.

b. Place the jack in the proper position, and loosen the wheel lug nuts about one quarter turn. Proper jack positions are as follows:

NOTE

If a hydraulic jack is used, the jackpad must be placed directly under the spring shackle, and not under the rounded area of the axle as shown in figure 3-4.

(1) Front wheels. For front tires on 4X2 models, place the jack under the inner edge of the lower control-arm pivot-bolt mounting bracket (see figure 3-3). Make sure the jack is centered under the bracket. For 4X4 models, place the jack under the axle housing just outside of the spring-retaining "U" bolt (figure 3-4).

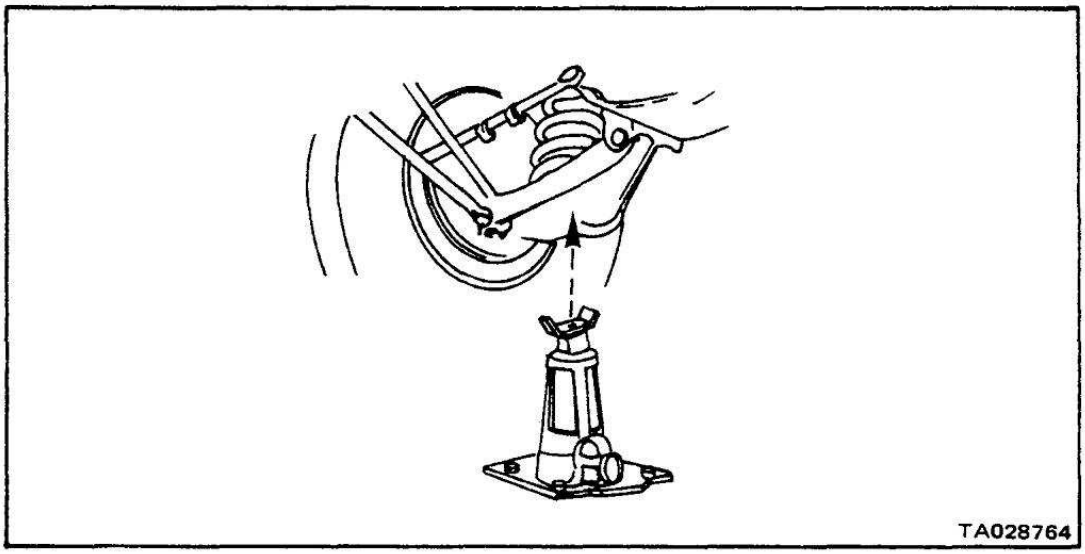


Figure 3-3. Front Axle Jack Position (4X2 Models).

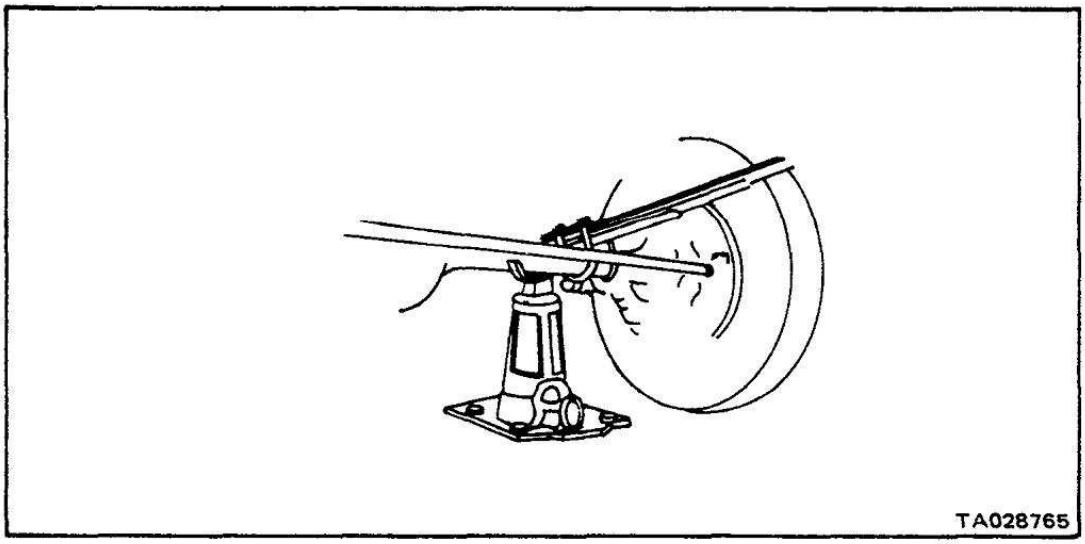


Figure 3-4. Front Axle Jack Position (4X4 Models).

NOTE

If a hydraulic jack is used, the jack pad must be placed directly under the spring shackle, and not under the rounded area of the axle as shown in figure 3-5.

(2) Rear wheels. For rear tires, place the jack under the axle next to the spring hanger on the same side as the flat tire (see figure 3-5).

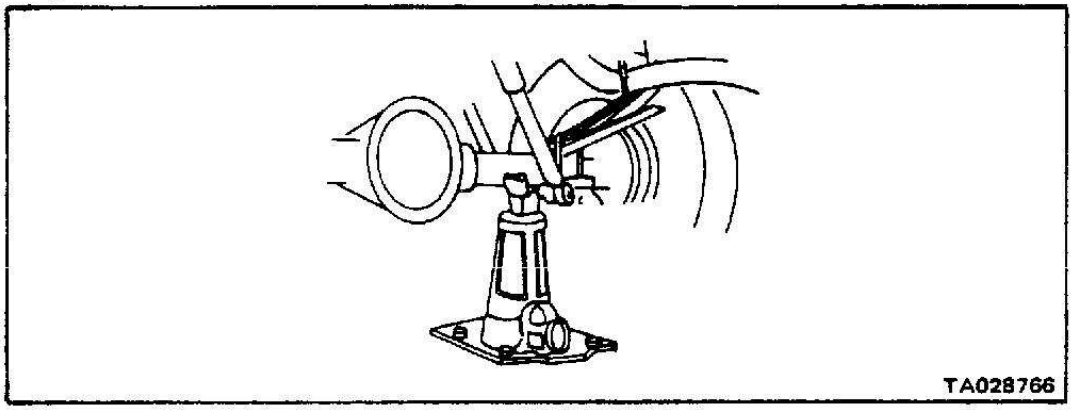


Figure 3-5. Rear Axle Jack Position.

c. Raise the wheel off the ground and remove the lug nuts. Then remove the wheel.

WARNING

Do not operate the engine when the vehicle is raised on the jack. You can be seriously hurt if the truck moves and falls off the jack.

d. Mount the spare tire and tighten the lug nuts snug as shown in figure 3-6.

e. Lower the vehicle, retighten the lug nuts, and remove the jack.

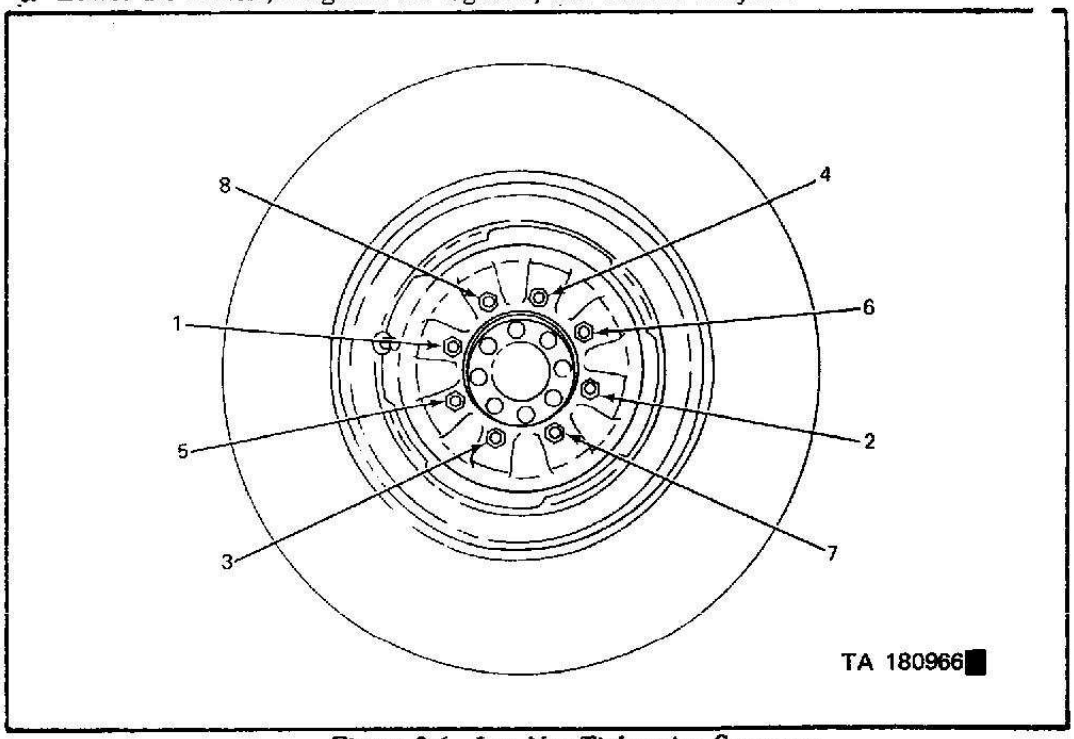


Figure 3-6. Lug Nut Tightening Sequence.

f. Stow the jack equipment properly in the engine compartment (see figure 3-7). Mount the flat tire in the spare tire compartment.

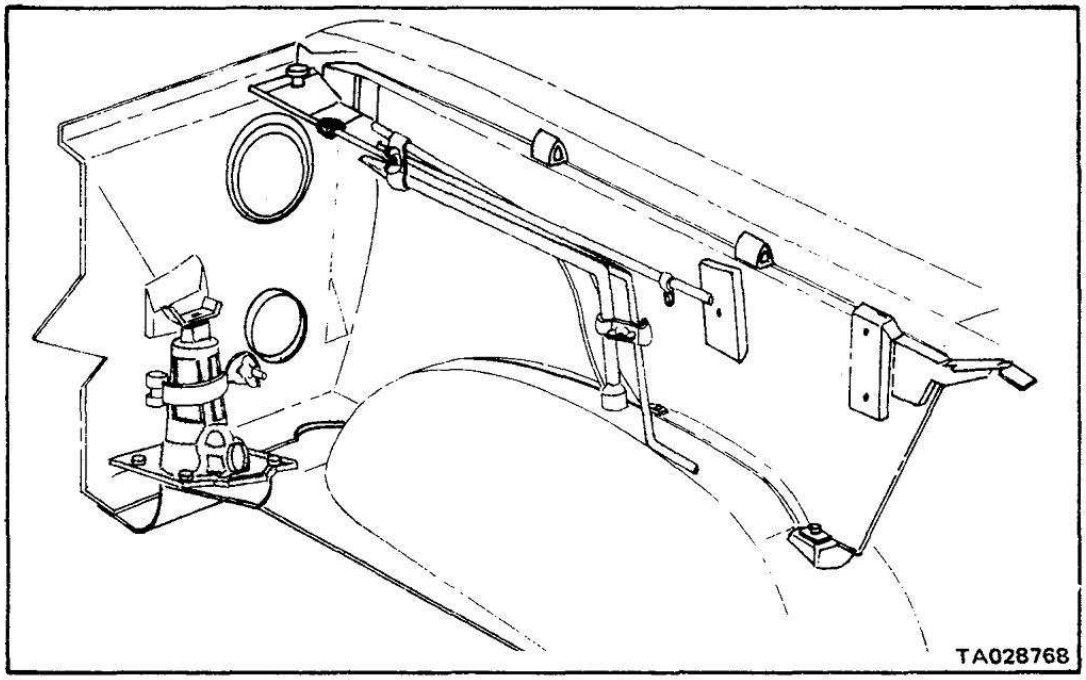


Figure 3-7. Tool Stowage.

3-10. Stopping Tire Valve Leaks.

When a tire keeps going down gradually and there is no evidence of glass or nail punctures, check the tire valve with a drop of water. You will see it bubble if the valve is leaking. If it is leaking, get a screw-type cap or a valve core tool from organizational maintenance. Tighten the valve core. If it still leaks, notify organizational maintenance.

Section V. MAINTENANCE UNDER UNUSUAL CONDITIONS

3-11. Extreme Cold Weather.

a. Preparing the Vehicle. The truck requires careful preparation when it's to be operated in extreme cold weather. Extreme cold (below 0^{o}F) can thicken lubricants, cause electrical short circuits by cracking the insulation, interfere with carburetor operation, and make structural materials hard, brittle, and easily damaged. In general, when preparing a truck for extreme cold weather service, follow these rules:

(1) The truck must be scheduled for cold weather servicing.

(2) Make sure the cooling system is protected. Refer to FM 9-207 for mandatory instructions.

b. Cold Weather Maintenance Requirements. When the temperature drops below 0^{o}F, be especially careful while you do your PMCS. If you let the vehicle get into bad condition you probably won't be able to start it, or it may take hours of hard work to do so. Always report any operating problems or trouble in starting to organizational maintenance.

Always allow extra time for engine warm up during this kind of weather. In arctic temperatures as low as -50°F it may take up to 2 hours just to reach normal operating ranges. If you are using a solvent in unheated areas to clean rust or grease, remember:

WARNING

Don't let solvents come in contact with your skin in extreme cold weather. Rapid evaporation causes supercooling and you can get a serious case of frostbite within minutes.

c. For Long Halts or Extended Shutdown. Park the truck in a warm place, if possible. If no power plant heater is available, remove the battery and store it in a warm place. You don't have to drain out the oil since it will remain fluid.

3-12. Extreme Hot or Humid Weather.

a. Hot Weather. In hot weather, always keep a careful watch on coolant levels. Don't let the surge tank get low. Be especially careful to keep the radiator free of leaves or other debris. If the coolant level drops, look for leaks in the cooling system. When checking your tire pressures, make sure they are not overinflated. Have the cooling system, oil filter, and carburetor air cleaner checked and serviced frequently.

b. Humid Weather. In hot, damp climates be watchful for accelerated corrosion. Evidence of deteriorating materials includes rust and paint blisters on metal surfaces and fungus, mold, or mildew on fabrics and glass. Check the truck daily and act on these problems as soon as you notice them. If you find rusting metal or fungus, clean the affected area and protect it with a thin coat of light oil. (See paragraph 3-5 for cleaning procedures.)

3-13. After Operating on Unusual Terrain.

a. Mud. Clean off mud accumulations as soon as possible after operating in mud, particularly if it was thin or liquid mud. Pay careful attention to the radiator cooling fins; hose off the radiator if you find mud deposits. Check the air filter and have it replaced if necessary.

b. Sand or Dust. Clean out the engine compartment and have organizational maintenance schedule a complete lube job to force out lubricants contaminated by sand or dust. Make sure they know it's because of operation in sand or dust. Check your air filter and engine oil daily for dust and dirt. Have the air filter replaced if it's dusty, dirty, or sandy. Schedule a lube job whenever you find dirt in the oil. If the engine starts overheating, have organizational maintenance thoroughly clean the radiator cooling fins. Also be on the lookout for leaks in radiator tubes.

3-14. After Fording.

a. Fresh Water Fording. No special maintenance is required after fording fresh water 16 inches deep or less, but look for any deposits of sand or mud during your After-Operation PMCS. If you find any, clean it off. If the water you crossed was deeper than 16 inches, have organizational maintenance schedule the truck for a complete lube job. Make sure they know it's after-fording special maintenance.

b. Salt Water Fording. After operating in salt water, give the truck enough time to dry off (5 to 10 minutes of driving) and then check CAREFULLY for any sign of salt deposits. Salt causes almost immediate corrosion of metal surfaces. If you find any salt, clean it off immediately with a cloth. Then clean the entire truck (including underneath) with fresh

water as soon as possible. If the salt water was more than 16 inches deep, schedule an immediate, complete lube job with organizational maintenance; make sure they know it's an after-fording salt water special servicing.

CHAPTER 4

M886 AND M893 AMBULANCES

4-1. General Information.

a. Ambulance Cab. The ambulance cab is a standard M880 cab. It has been modified to add the additional controls for the ambulance. It is equipped with bucket seats to accommodate the driver and an assistant, and allow access to the litter compartment. Controls for the litter compartment power vent and for blackout operation are located on the dashboard (figure 4-1). A red warning light, located to the left of the power vent switch, flashes when the rear door is open. A spotlight centered above the windshield lights up the work area in front of the ambulance (figure 4-1.2). Small storage areas are located above the doors on each side of the cab. A sliding door separates the cab from the litter compartment (figure 4-1.2).

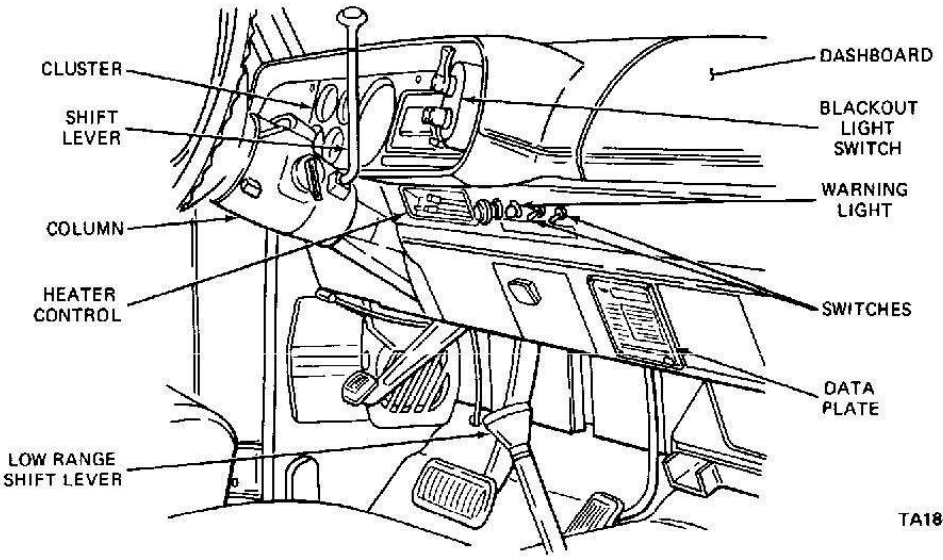


Figure 4-1. Dashboard of M886/M893 Ambulance.

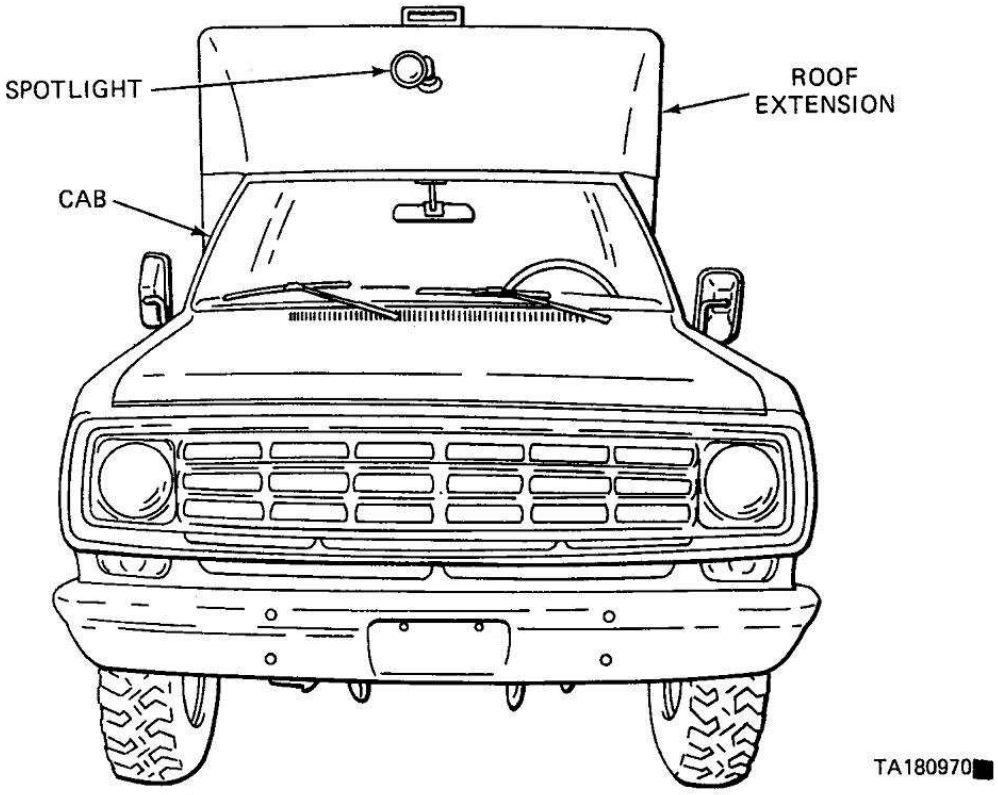


Figure 4-1.1 Spotlight.

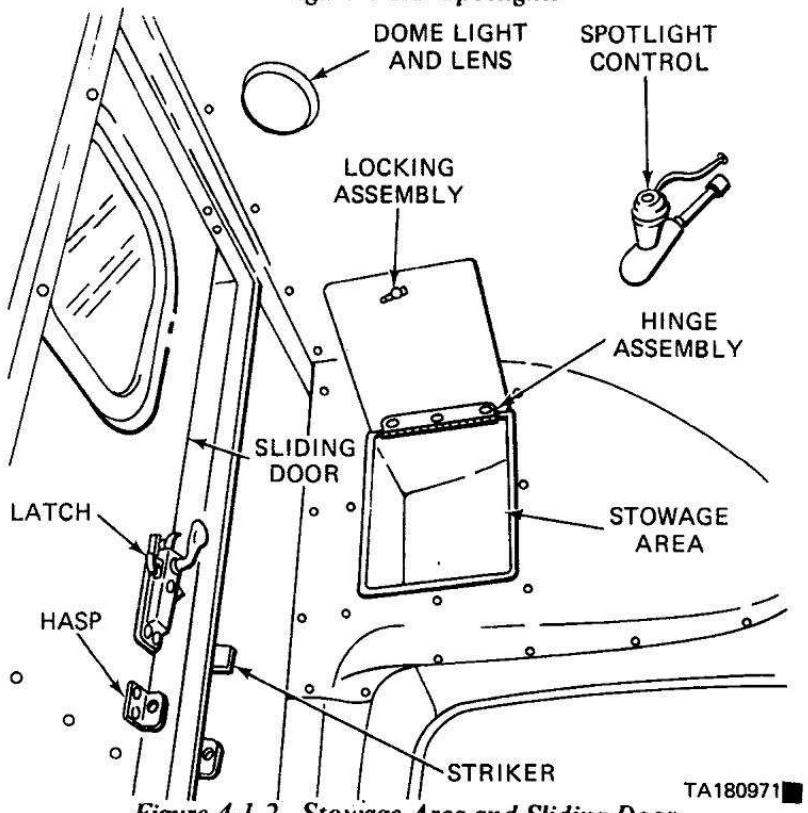


Figure 4-1.2. Stowage Area and Sliding Door.

b. Litter Compartment. A handle locks the sliding door to the litter compartment in either the open or the closed position. Direct access to the litter compartment from outside the truck is possible by use of the rear doors. On the outside of the rear doors, brackets are supplied to hold a spare gas can, and a water can.

CAUTION

The spare gas can should not be carried in the bracket on the left door, as this is above the litter compartment heater exhaust pipe.

The compartment itself is equipped with the following:

(1) Dome and blackout lights in the ceiling (figure 4-1.3).

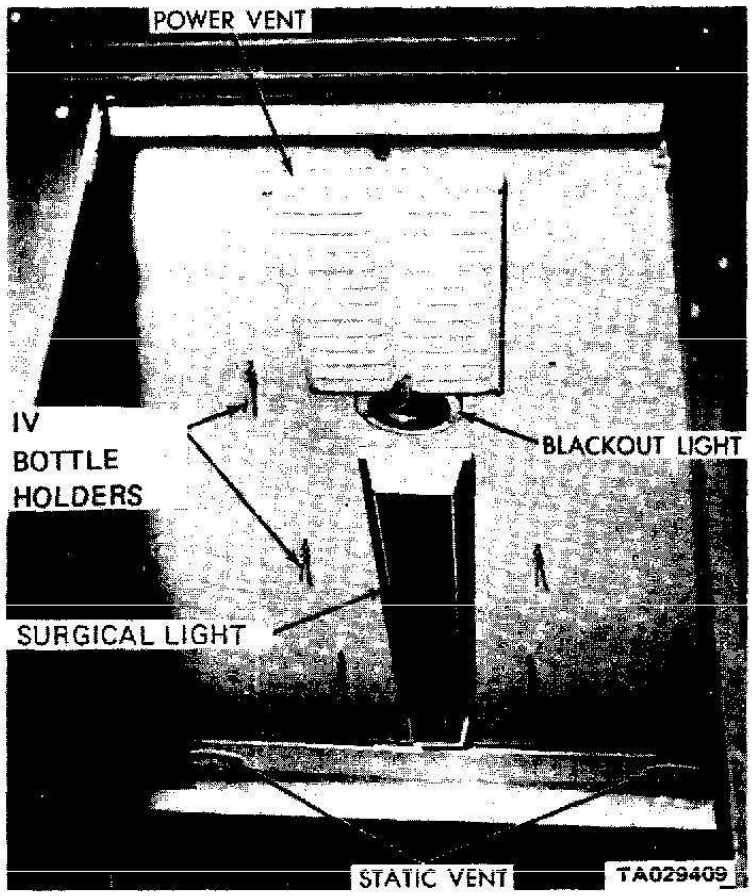


Figure 4-1.3. Litter Compartment Ceiling.

(2) Power vent and two static vents in the ceiling (figure 4-1.4).

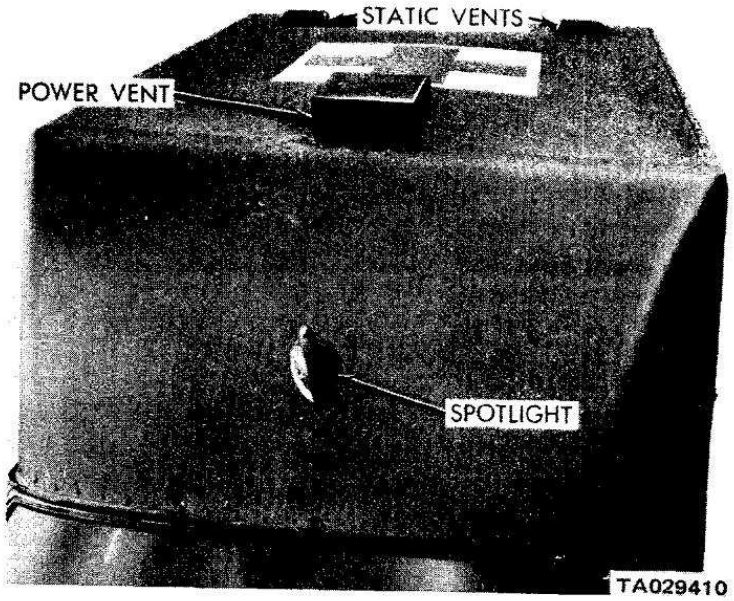


Figure 4-1.4. Ambulance Roof.

(3) Upper litter hanging brackets stowed in the ceiling (figure 4-1.5).

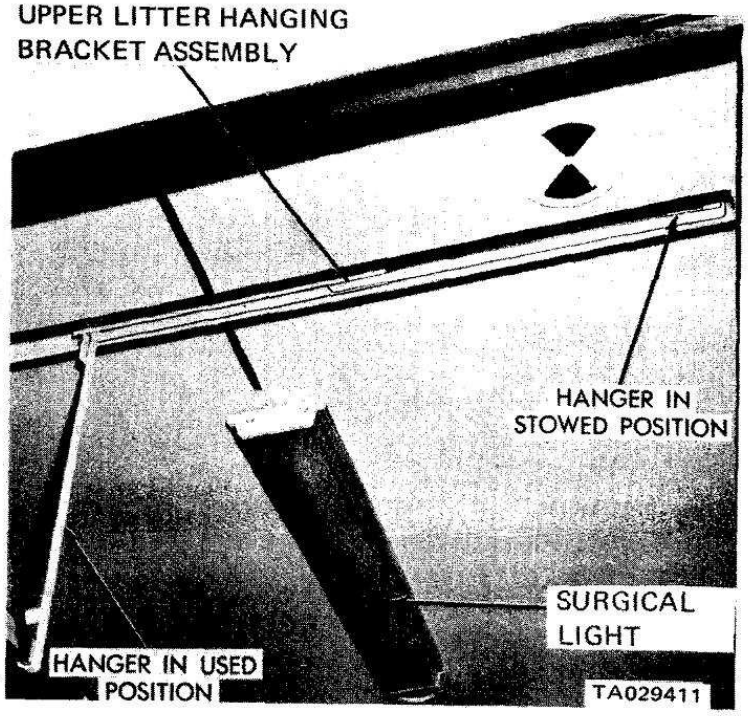


Figure 4-1.5. Ceiling Hanging Bracket.

(4) Rear wall brackets on the side of the compartment (figure 4-1.6).

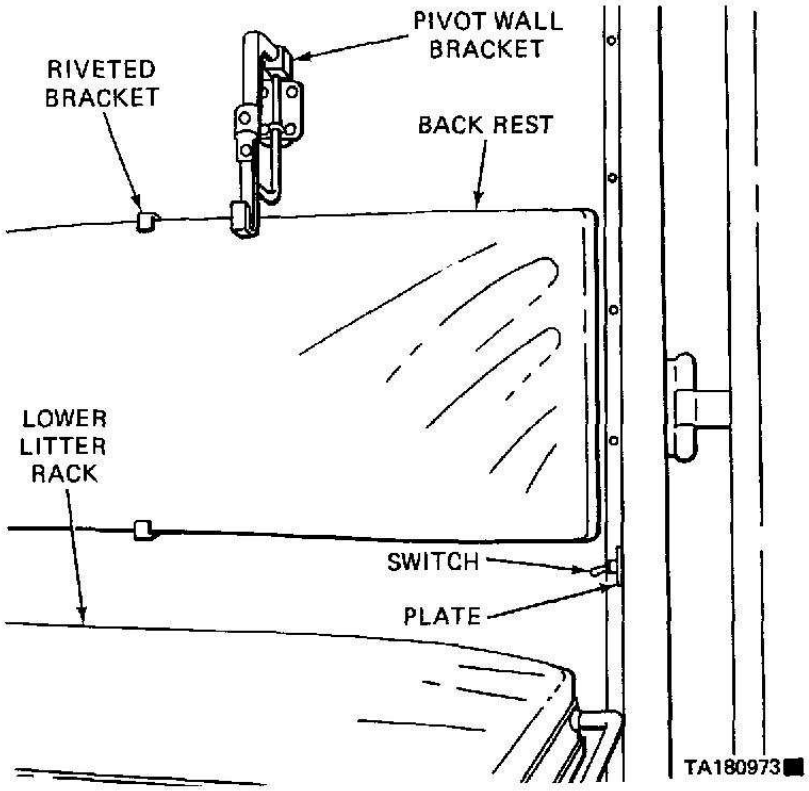


Figure 4-1.6. Rear Wall Bracket.

(5) Two upper litters that are stored in the tracks on the bench seats when not in use (figure 4-1.7). Snaps keep them in place.

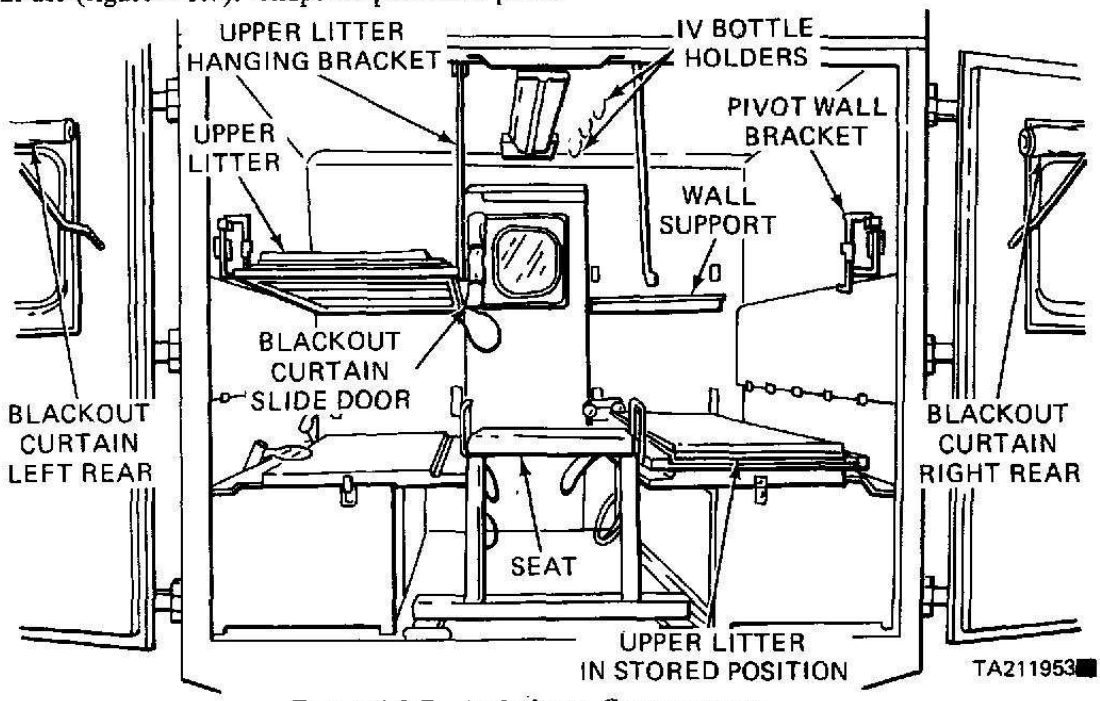


Figure 4-1.7. Ambulance Compartment.

(6) A heater located under the left bench seat at the back of the ambulance (figure 4-1.8).

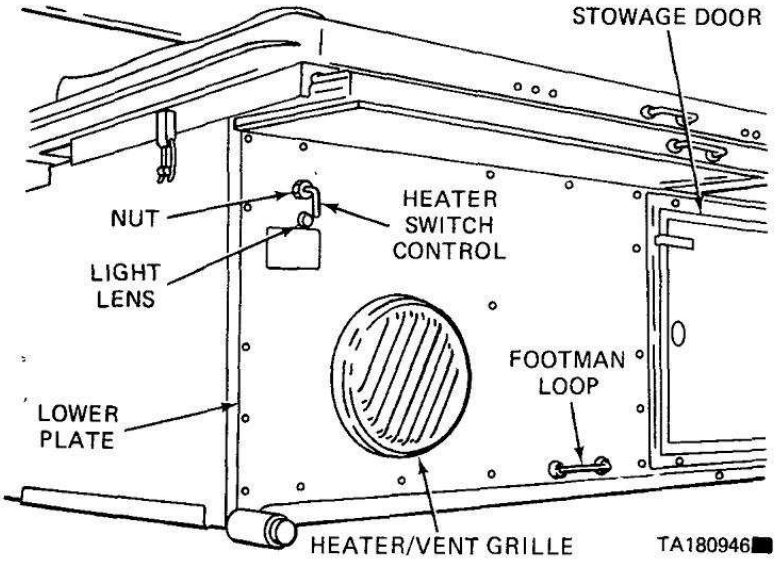


Figure 4-1.8. Litter Compartment Heater.

(7) Blackout curtains over the windows (figure 4-1.9).

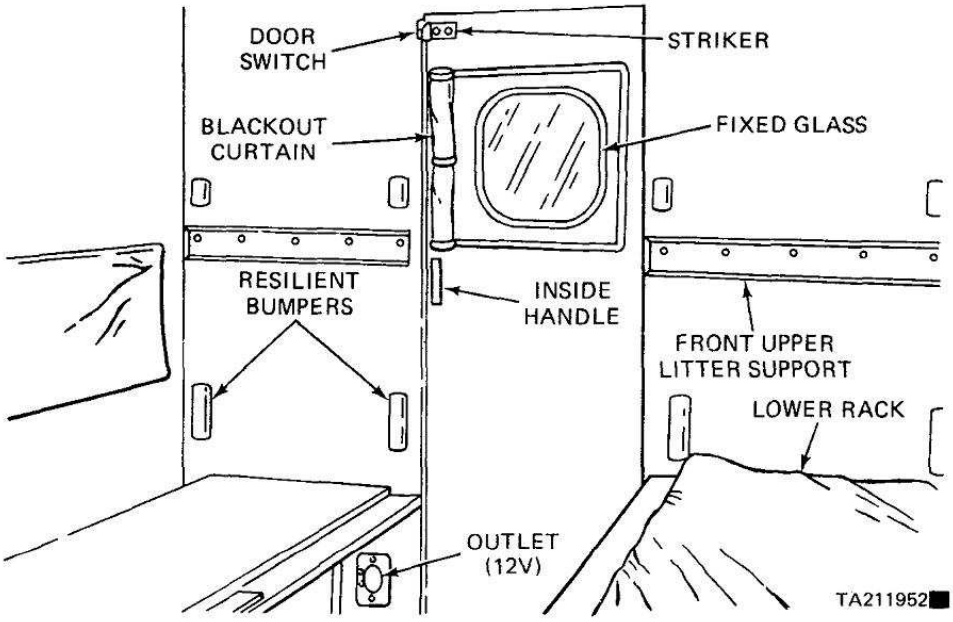


Figure 4-1.9. Litter Compartment Front Wall.

(8) Access steps that fold into the compartment and act as a seat for the rear attendant (figure 4-2).

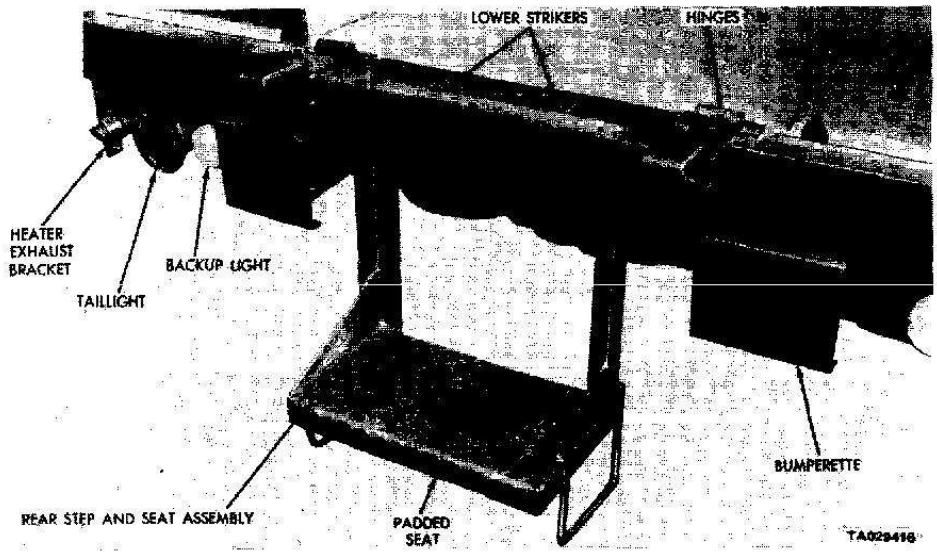


Figure 4-2. Litter Compartment Access Steps.

(9) IV unit hooks (see figure 4-1.3).

c. Fire Extinguisher. The fire extinguisher is located behind the attendant's seat (figure 4-3). To operate the extinguisher, remove it from the bracket. Read the instructions carefully. For best results, direct the discharge toward the base of the flames. To extinguish burning liquid in a container, direct the discharge against the inside of the container just above the burning liquid. Each time the extinguisher is used, replace the 2½ pound cartridge. Keep the extinguisher clean, fully charged, and properly stowed.

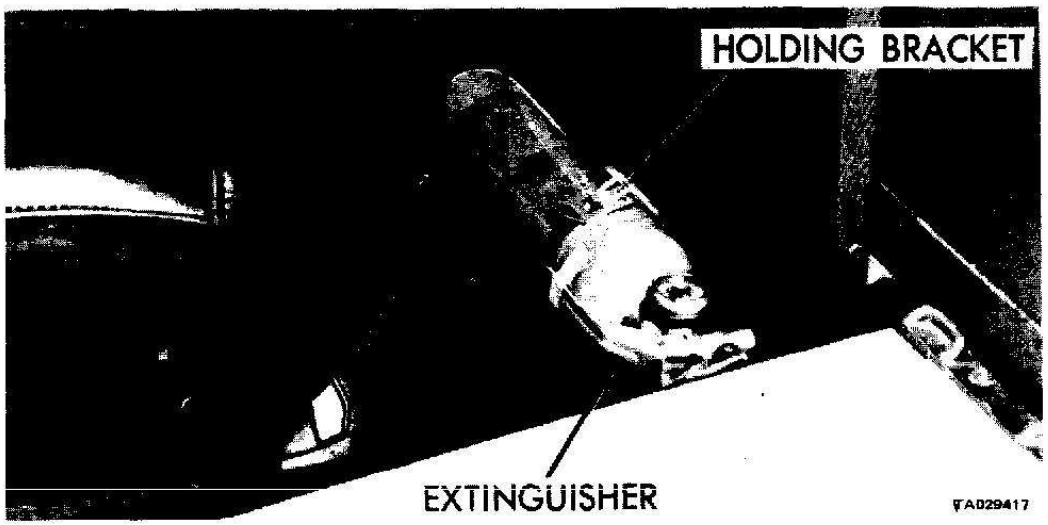


Figure 4-3. Fire Extinguisher.

d. Decontaminating Apparatus. The decontamination apparatus is located in the cab. The instructions for its use are on the bottle. For futher information, see TM 3-4230-204-13.

4-2. Litter Operation and Set-Up.

a. The litter compartment can hold five litter patients, or six sitting patients with the upper litters in the stored position. When loading a litter patient, tie him securely to a litter with the straps on the side of the stretcher to keep him as still as possible when the ambulance is moving.

b. Two attendants are required to set up an upper litter as follows:

(1) Raise the front end of the litter and attach it to the wall supports in the front of the compartment (figure 4-4).

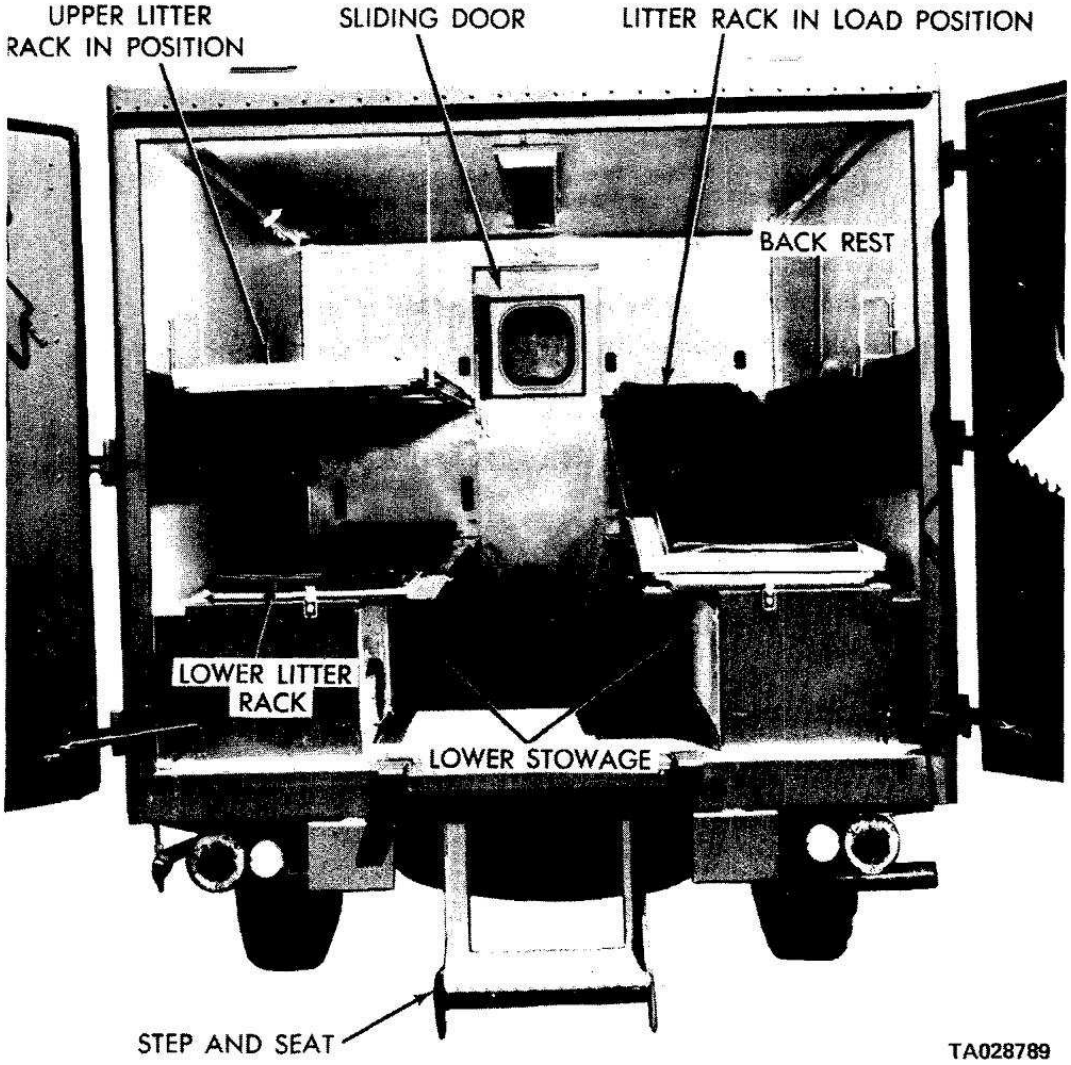


Figure 4-4. Litter Rack in Load Position.

(2) Place the patient on a stretcher and secure him on the litter.

(3) While one attendant pulls the telescopic handle out of the litter bed (figure 4-5) and raises the bed to a horizontal position, the other attendant fastens the rear wall and hanging brackets to the bed.

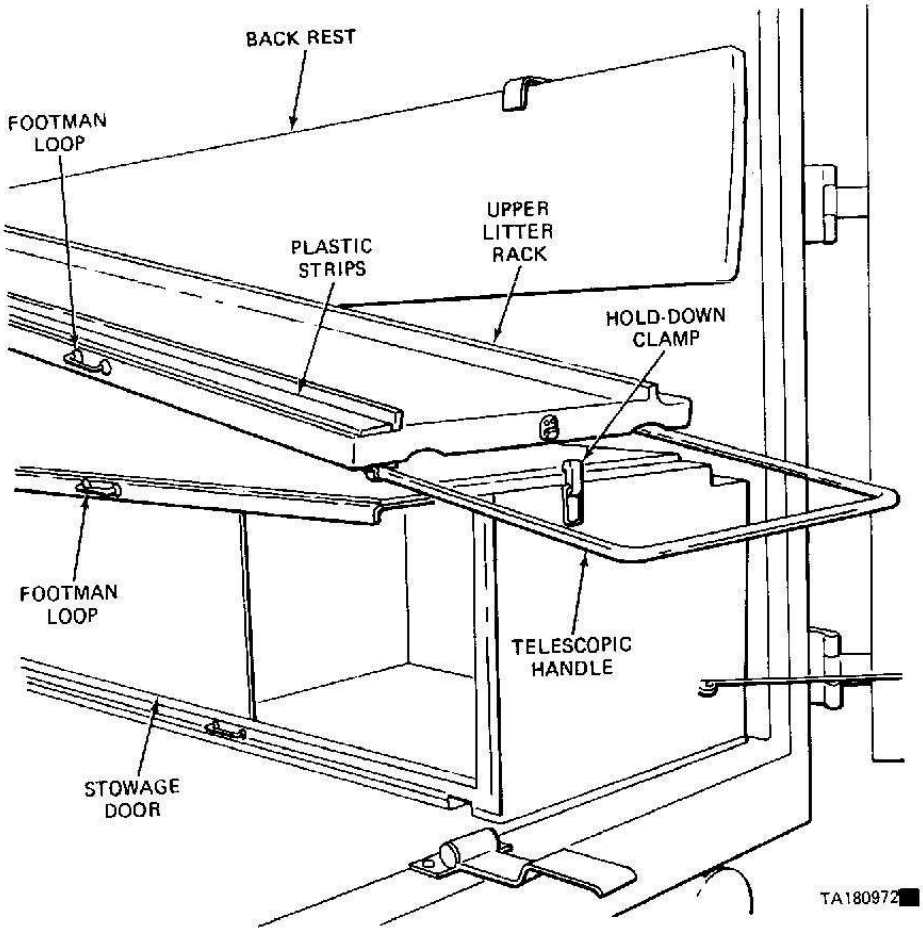


Figure 4-5. Telescopic Handle.

(4) When the bed is secure, push the telescopic handle back into the litter.

4-3. Floodlight Operation.

A small thumb-operated lever turns the floodlight on the front of the ambulance on and off. The light beam is directed to the work areas from the inner cab roof by moving the spotlight control to the left, right, or in a circular motion.

4-4. Operation Under Blackout Conditions.

a. Lower and secure the curtains over all litter compartment windows during a blackout (see figure 4-1.7).

b. Turn the dome switch on the dashboard to the blackout mode. The dome light will now go out when the front or rear doors are opened.

4-5. Heater Operation.

WARNING

There should be no odor of gasoline or exhaust gas in the passenger compartment. If you notice evidence of either of these, stop the heater immediately by turning the switch lever 1/8-turn counterclockwise. Then, ventilate the area to remove the fumes.

NOTE

The heater might smoke slightly the first couple of times it is used. This is normal, and is caused by the preservative coatings burning off the metal parts.

a. Pull the control switch lever out. This raises the setting of the temperature control thermostat.

b. Turn the control switch lever 1/8-turn clockwise to turn the heater on. The red indicator light will come on.

NOTE

If the red indicator light does not come on, turn the heater off immediately by turning the control switch lever 1/8-turn counterclockwise. Then, notify organizational maintenance.

c. To lower the temperature of the heater, push the control switch lever in. To raise the temperature, pull the control switch lever out.

d. Push the control switch lever in and turn it 1/8-turn counterclockwise to stop the heater.

CHAPTER 5

M888 TELEPHONE MAINTENANCE TRUCK

5-1. General.

The M888 is an M880 series vehicle with a telephone maintenance body in place of the cargo box (figure 5-1).

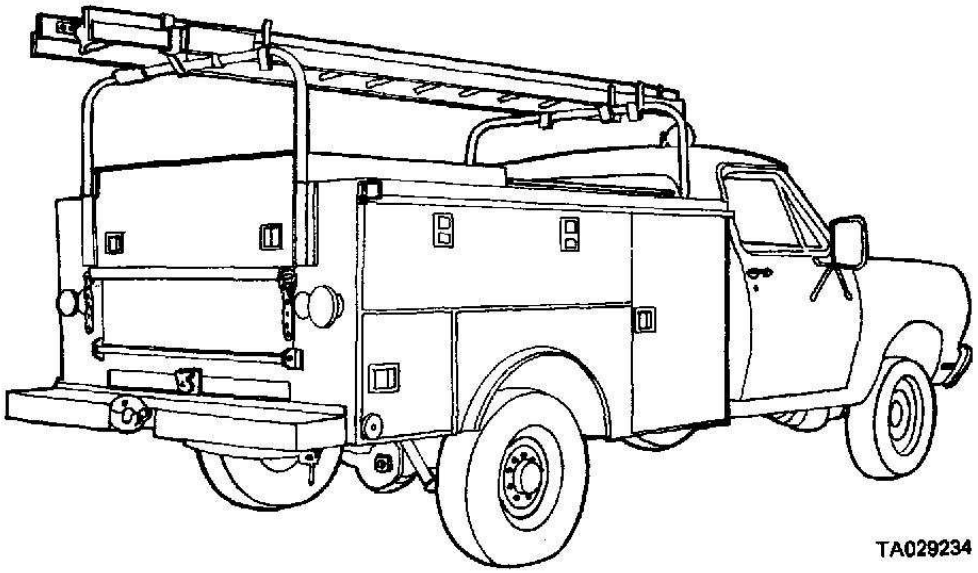


Figure 5-1. M888 Maintenance Body.

5-2. Cab.

The cab is the same as the cargo models with the addition of a spotlight handle located in the center of the roof (figure 5-2).

5-3. Spotlight.

The spotlight is located on the roof of the cab. A small thumb-operated lever turns the light on and off. You can direct the light beam anywhere you need it by twisting and turning the handle.

5-4. Storage Compartments.

a. Doors.

(1) Unlock with key (if locked).

(2) To open, pull out on latch.

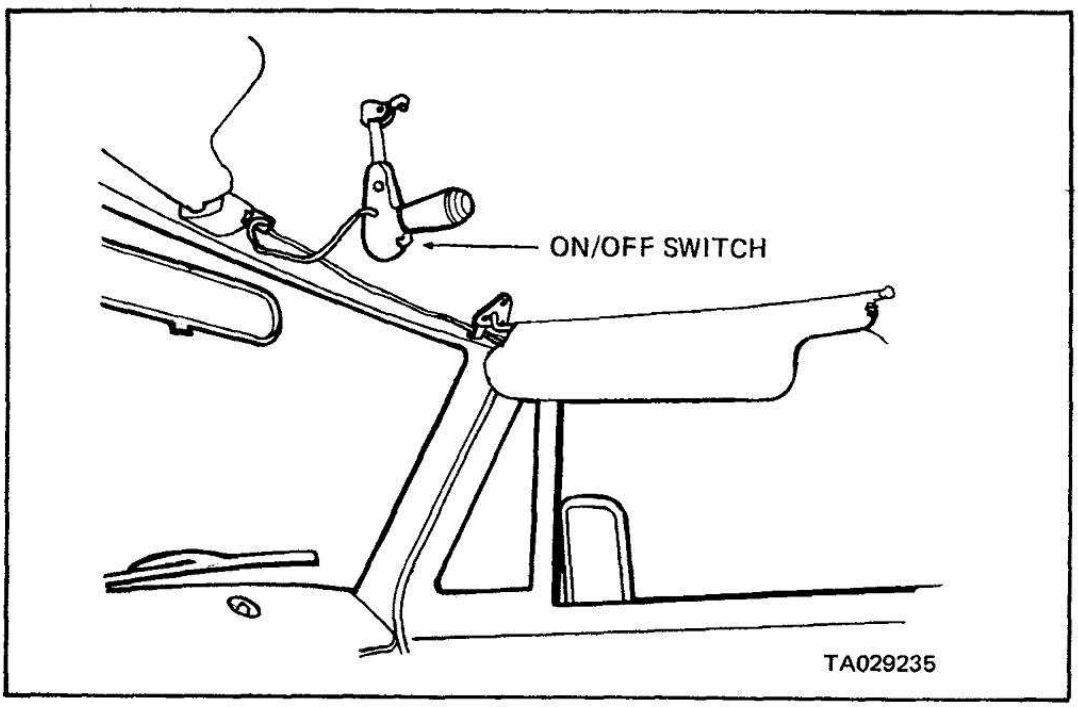


Figure 5-2. Spotlight Control Handle.

b. Shelves.

(1) Bin dividers in upper rear compartments lift out and slide in.

(2) Shelves in front compartment are adjustable (figure 5-3). Just lift one end of shelf. Pull it out, and install at new height.

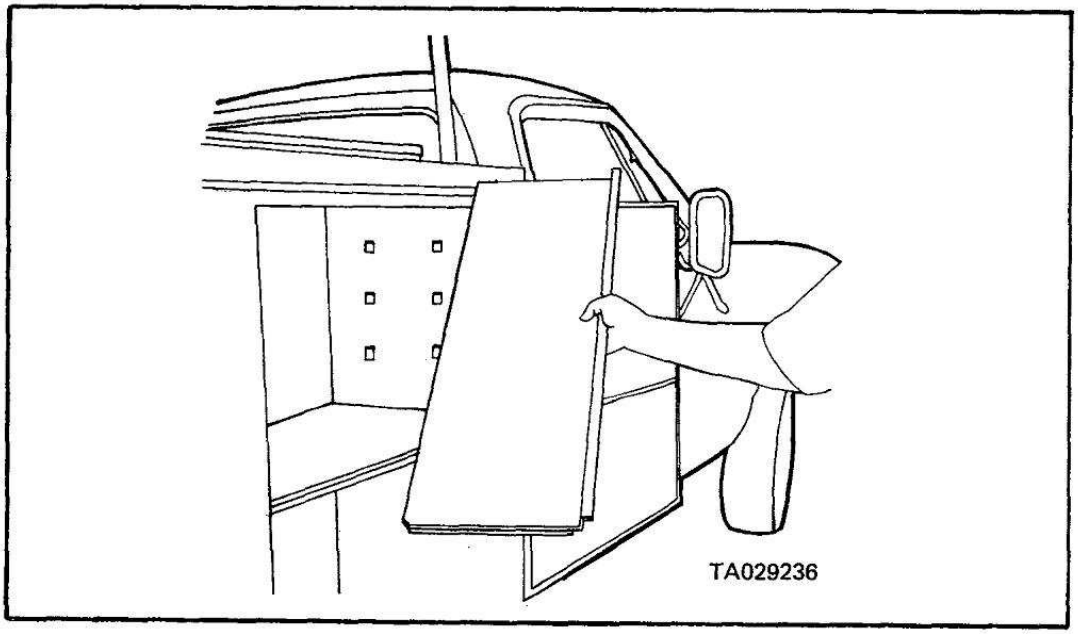


Figure 5-3. Storage Compartment Shelves.

5-5. Tailgate.

a. General. The tailgate is a two-piece door that completely encloses the back of the cargo area.

b. Top Section.

(1) Unlock with key (if locked).

(2) To open, pull out on both latches.

(3) Open and fold back to allow easy access to cargo area.

(4) When both top and bottom sections of the tailgate are closed, the top section secures the bottom section.

c. Bottom Section.

(1) The top section must be open to open the bottom section.

(2) When open, secure with two support chains (figure 5-4).

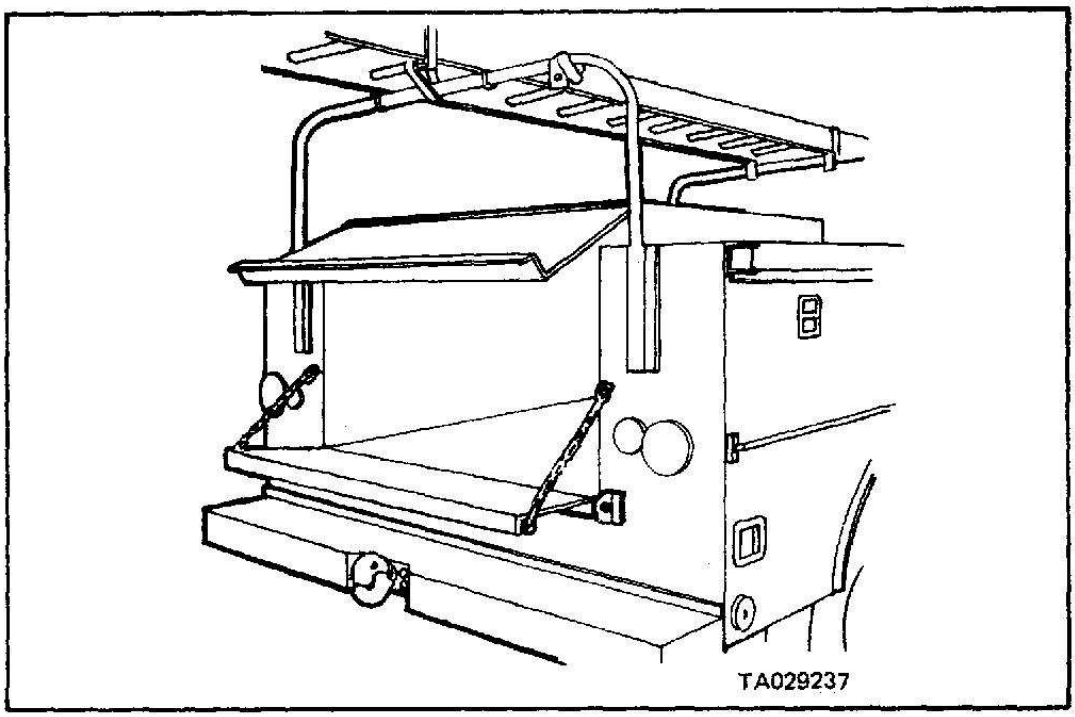


Figure 5-4. Tailgate Bottom Section Opened.

(3) To secure closed when leaving top open, slide hook at ends of both support chains through first links of chains.

5-6. Ladder.

a. General. A 24-foot, two-section ladder is mounted on top of the bows (figure 5-5).

b. Removal.

(1) Unfasten straps that secure ladder to front and rear bows.

(2) Slide ladder off bows, from the rear.

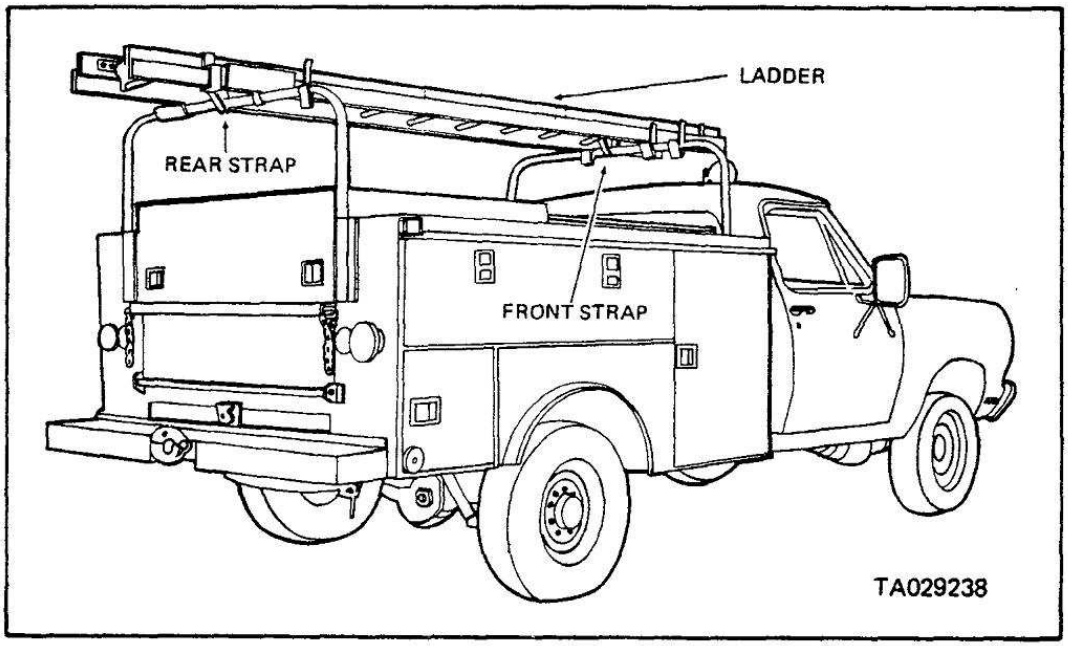


Figure 5-5. Ladder.

WARNING

Ensure that ladder is secure in bows.

c. Installation.

(1) Slide ladder on bows.

(2) Fasten straps on front and rear bows.

APPENDIX A
REFERENCES

1. Publication Indexes

The following indexes should be consulted frequently for the latest changes or revisions and for new publications relating to materiel covered in this technical manual.

Index of Administrative Publications . . . . . DA Pam 310-1
Index of Blank Forms . . . . . DA Pam 310-2
Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, 9), Supply Bulletins, and Lubrication Orders . . . DA Pam 310-4
US Army Equipment Index of Modification Work Orders . . . DA Pam 310-7

2. Forms

Refer to DA Pam 310-2 for a current and complete list of blank forms. TM 38-750, The Army Maintenance Management Systems (TAMMS), contains instructions on the use of maintenance forms pertaining to this materiel.

3. Other Publications

a. Decontamination.

Chemical, Biological and Radiological (CBR) Decontamination . . . . . TM 3-220
Operator's and organizational maintenance manual (including repair parts and special tools lists): Decontaminating apparatus, portable, DS2, 1-½ quart, ABC-M11 (NSN 4230-00-720-1618) . . . . . TM 3-4230-204-12&P

b. General.

Manual for the Wheeled Vehicle Driver. . . . . F M 21-305
Basic Cold Weather Manual . . . . . FM 31-70
Northern Operations. . . . . FM 31-71
Operation and Maintenance of Ordnance Materiel in Cold Weather (0° to -65° F) (To 36-I-40). . . . . TM 9-207
Driver Selection and Training (Wheeled Vehicles) . . . . . TM 21-300

c. Maintenance.

Lubrication Order for Truck, Cargo, 1¼ Ton, M880 Series Vehicles . . . . . LO 9-2320-266-12
Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use . . . . . TM 750-244-6
Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems . . . . . TB 750-651

APPENDIX B

BASIC ISSUE ITEMS LIST

SMR	Reference no.	Description	Unit of measure	Quantity furnished	Figure no.
PFCFF	(86403)3634004	Jack	Each	1	3-7
PFCZZ	5120-00-152-2308	Jack handle	Each	1	3-7
PFCZZ	(86403)3634409	Lug wrench	Each	1	3-7
PFCZZ	4210-00-889-2221	Fire extinguisher, portable with mounting bracket (ambulance and telephone maintenance only)	Each	1	4-3
PFCFF	(45826) SEL 24	Ladders (set) (M888 only)	Each	1	5-5

APPENDIX C
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. Scope.

This appendix lists additional items you are authorized for the support of the M880 series vehicles.

C-2. General.

This list identifies items that do not have to accompany the vehicle and that do not have to be turned in with it. These items are authorized to you by CTA, MTOE, TDA, or JTA.

C-3. Explanation of Listing.

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. If item required differs for different models of this equipment, the model is shown under the "Usable on" heading in the description column. These codes are identified as:

Code	Used On
T06	Model M880
T07	Model M881
T08	Model M882
T09	Model M883
T10	Model M884
T12	Model M885
T13	Model M890
T14	Model M891
T15	Model M892
T17	Model M886
T18	Model M893
U95	Model M888

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION	USEABLE ON	(3) U/M	(4) QTY AUTH
2540-00-057-0204	Chain, Tire	T-06, T-07, T-08, T-09, T-10, T-12, T-17, U-95	Pair	2
2540-00-057-0204	Chain, Tire	T-13, T-14, T-15, T-18	Pair	1

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. Scope.

This appendix lists expendable supplies and materials you will need to operate and maintain the vehicle. These items are authroized to you by CTA 50-970, Expendable Items.

D-2. Explanation of Columns.

a. Column 1 – Item Number. This number is assigned to the entry in the listing.

b. Column 2 – Level. This column identifies the lowest level of maintenance that requires the listed item.

C – Operator/Crew

c. Column 3 – National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column 4 – Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. Column 5 – Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements

Section II. EXPENDABLE SUPPLIES AND MATERIALS

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	9150-00-698-2382	Fluid, Transmission, Automatic, Dextron	Qt

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
2	C	6850-00-181-7929	Anti-freeze ethylene-glycol, 1-gal can	Gal
3	C	6850-00-926-2275	Cleaning compound, windshield washer, 1-pt can.	Can
4	C	9150-00-190-0905	GAA, grease Lubr. Automotive and artil-lery, 5-lb can.	Can
5	C	9150-00-190-0907	GAA, grease Lubr. Oil Preservative, 1-pt can.	Can
6	C	9150-00-186-6681	Lubricating Oil (OE 30 above +32°F)	Qt
7	C	9150-00-189-6727	Lubricating Oil (OE 10 + 40°F to -10°F).	Qt
8	C	9150-00-242-7603	Lubricating Oil (OES 0°F to -65°F).	Qt
9	C	9150-01-102-3658	Brake Fluid, Silicone(BFS)	Qt

INDEX

By Order of the Secretary of the Army:

FRED C. WEYAND
General, United States Army
Chief of Staff

Official:
PAUL T. SMITH
Major General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-38, (qty rqr block No. 25) Operator maintenance requirements for 1-1/4 Ton Truck, Cargo: 1-1/4 Ton, 4 x 4 M715, Ambulance: M725, Maintenance: M726.

★ U.S. GOVERNMENT PRINTING OFFICE: 1987 201-421/70984

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)
CDR, 1st Bn, 65th ADA
ATTN: SP4 John Doe
Key West, FL 33040

DATE 14 January 1975

PUBLICATION NUMBER	DATE	TITLE
TM 9-1430-550-34-1	7 Sep 72	Unit of Radar Set AN/MPQ-50 Tested at the HFC

BE EXACT. . .PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.	
9-19		9-5		"B" Ready Relay K11 is shown with two #9 contacts. That contact which is wired to pin 8 of relay K16 should be changed to contact #10.
21-2	step 1C		21-2	Reads: Multimeter B indicates 600 K ohms to 9000 K ohms. Change to read: Multimeter B indicates 600 K ohms minimum. Reason: Circuit being checked could measure infinity. Multimeter can read above 9000 K ohms and still be correct.

SAMPLE

NOTE TO THE READER:

Your comments will go directly to the writer responsible for this manual, and he will prepare the reply that is returned to you. To help him in his evaluation of your recommendations, please explain the reason for each of your recommendations, unless the reason is obvious.

All comments will be appreciated, and will be given immediate attention. Handwritten comments are acceptable.

For your convenience, blank "tear out" forms, preprinted, addressed, and ready to mail, are included in this manual.

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE:
SP4 John Doe, Autovon 222-2222	John Doe

DA FORM 1 AUG 74 2028-2 (TEST)

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR MANUAL "FIND," MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Your mailing address

DATE SENT
Date you filled out form.

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-2320-266-10	12 Oct 82	Operator's Manual

BE EXACT .PIN-POINT WHERE IT IS

PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO
400		183	
512		191	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Change illustration. Reason: Tube end shown assembled on wrong side of lever cam.

Figure 191, item 3 has the wrong NSN. Supply rejects orders for this item. The NSN shown here is not listed in the AMDF or the MCRL.

Please give us the correct NSN and P/N.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
John Smith, S. SGT. 793/XXXX

SIGN HERE
John Smith

DA FORM 1 JUL 79 2028-2 PREVIOUS EDITIONS ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

TEAR ALONG PERFORATED LINE

REVERSE OF DA FORM 2028-2

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

U.S. MAIL

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
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DETACH ALONG PERFORATED LINE

Commander
US Army Tank-Automotive Command
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