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TM 9-2320-246-10

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

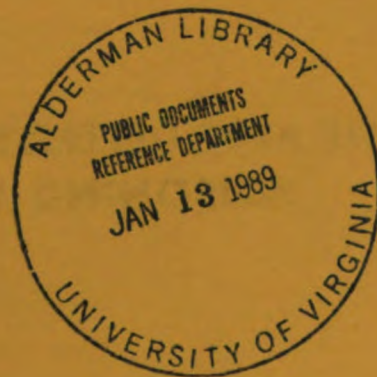
OPERATOR'S MANUAL FOR

TRUCK, PLATFORM UTILITY:

1/2 TON, 4 X 4,

M274A2 (2320-074-1167), M274A3 (2320-782-5792),

M274A4 (2320-782-5793), AND M274A5 (2320-930-1976)



This reprint includes all changes in effect at the time of publication; change 2.

HEADQUARTERS, DEPARTMENT OF THE ARMY
APRIL 1967

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WARNING

CARBON MONOXIDE POISONING CAN BE DEADLY

**DO NOT operate vehicle engine
in an enclosed area unless the area is
ADEQUATELY VENTILATED.**

**THE BEST DEFENSE AGAINST CARBON MONOXIDE
POISONING IS ADEQUATE VENTILATION.**

CHANGE }
No. 2 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 6 September 1973

Operators Manual
TRUCK, PLATFORM UTILITY: 1/2-TON, 4x4
M274A2, M274A3, M274A4, M274A5
Current as of 15 April 1973

TM 9-2320-246-10, 24 April 1967 is changed as follows:

Page 1-11, Add the following paragraphs:

1-11. Components of End Item (Non Authorized).

These items are listed in Table 0.1 and are installed in the vehicle at time of manufacture or rebuild. They are securely fastened, permanently attached, or placed behind cover.

1-12. Expendable Consumable Maintenance Supplies and Materials.

(Non Authorized).

Refer to Table 0.2 for supplies and materials required for maintenance support of the equipment covered herein. These items are authorized to be requisitioned by SB 700-50.

Page 1-12, Add Table 0.1 and 0.2 to read as follows:

Table 0.1. List of Component Items (Installed).

(2) Federal stock number	(3) Description Reference Number & Mfg Code Usable on code	(4) Unit of meas	(5) Qty auth
NON AUTHORIZED			

Table 0.2 Expendable Consumable Maintenance Supplies and Material

(2) Federal stock number	(3) Description Reference Number & Mfg Code Usable on code	(4) Unit of meas	(5) Qty auth
NON AUTHORIZED			

Page 3-4, Figure 3-4, Paragraph 1. of 1 is superseded as follows:

1. Air Cleaner

Replace air cleaner element every 50 hours. Daily inspect and remove all dust and dirt particles from air cleaner using a clean dry cloth. For desert or extremely dusty operation, replace element every 16 hours or frequently, if required.

Page 3-11, Table 2. Troubleshooting add h to item 1. under Probable cause to read as follows:

h. Electric hour meter shorted.

Add h. to item 1. under Corrective action to read as follows:

h. Replace hour meter.

Add c. to item 3. under Probable cause to read as follows:

c. Electric hour meter shorted

Add c. to item 3 under corrective action to read as follows:

c. Replace hour meter

Page B-1 Appendix B is superseded as follows:

*This change supersedes C1, 10 June 1968.

APPENDIX B BASIC ISSUE ITEMS LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED LIST

Section I. INTRODUCTION

1. Scope

This appendix provides a list of Basic Issue Items and Items Troop Installed or Authorized. These items are required to operate the equipment and enable it to perform its mission and function for which it was designed or intended.

2. General

This appendix is divided into the following sections:

a. Section II. Basic Issue Items List. A list of essential items which are furnished with the vehicle and not otherwise provided for in appropriate TOE and TDA.

b. Section III. Items Troop Installed or Authorized List. This is equipment not provided in TOE, TDA or Expendable Items. The common tools and equipment can be obtained from authorized supply sources at the discretion of the unit commander.

3. Explanation of Columns

The following provides an explanation of columns found in the tabular listings of Section II and Section III.

a. Source, Maintenance, and Recoverability Codes (SMR).

(1) *Source codes.* Source codes entered in the first and second position indicate the selection status and source for the listed item. Source Codes are:

<i>Code</i>	<i>Explanation</i>
PA	Items procured and stocked for anticipated or known usage.

(2) *Maintenance Code.* Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth position of the Uniform SMR Code format as follows:

USE (THIRD POSITION): The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace and use the support item. The maintenance code entered in the third position will indicate the following level of maintenance.

<i>Code</i>	<i>Explanation</i>
C	Crew or operator maintenance performed within organizational maintenance

REPAIR (FOURTH POSITION): The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following maintenance codes as assigned by the service(s) that require the code.

<i>Code</i>	<i>Explanation</i>
Z	Non-repairable. No repair is authorized.
(3) <i>Recoverability Code.</i> Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:	

<i>Recoverability Codes</i>	<i>Explanation</i>
Z	Nonrepairable item. When unserviceable.

b. Federal Stock Number. This column indicates the Federal Stock Number assigned to the item and will be used for requisitioning purposes.

c. Description. This column indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses. Repair parts quantities included in kits, sets, and assemblies are shown in front of the repair part name. Usable On Code identifies the vehicle model on which an item is used. Uncoded items are applicable to all models.

d. Unit of Measure. A two-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Furnished with Equipment. This column indicates the quantity of an item furnished with the equipment.

f. Illustration. This column is divided as follows:
(1) *Figure number.* Indicates the figure number of the illustration in which the item is shown.

(2) *Item number.* Indicates the number used to identify each item in the illustration.

g. Quantity Authorized. Indicates the quantity of

the item authorized to be used with the equipment.

4. Special Information

The following publications are packed with the equipment.

FSN	Publication
7510-889-3494	BINDER: Equip Log Book, Loose Leaf, 3-ring 7-3/4 in. x 10-1/4 in. (In Pam-plet Bag) 3052216-3 (92392) (Includes necessary DA Forms).
TM 9-2320-246-10	Operator's Manual for Truck, Platform Utility: 1/2-Ton, 4x4, M274A2 (2320-074-1167), M274A3 (2320-782-5792), M274A4 (2320-782-5793) and M274A5 (2320-930-1976), (operator's seat publications stowage bag).
LO 9-2320-246-12	Lubrication Order for Truck, Platform Utility: 1/2-Ton, 4x4, M274A4 (2320-

TM 9-2320-246-ESC

074-1167), M274A3, (2320-782-5792), M274A4 (2320-782-5793), and M274A5 (2320-930-1976), (operator's seat in publication stowage bag).
Equipment Serviceability Criteria for Truck, Platform Utility: 1/2-Ton, 4x4, M274A2 (2320-074-1167), M274A3 (2320-782-5792), M274A4 (2320-782-3793), and M274A5 (2320-930-1976), (operator's seat in publication stowage bag).

5. Abbreviations and Symbols

Abbreviations	Explanation
in.	inch(es)
lubr	lubrication
equip	equipment

Section II. BASIC ISSUE ITEMS LIST

(Non Authorized)

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

(1) SMR code	(2) Federal stock number	(3) Description Usable on code	(5) Unit of meas	(5) Qty with equip	(6) Illustration	
					(a) fig No.	(b) Item No.
PACZZ	2540-581-9126	TOW BAR: Military vehicle 8336026 (19206)	EA	1		
PACZZ	5120-832-9025	WRENCH: wheel stud 10944358 (19207)	EA	1		

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:

VERNE L. BOWERS
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-31, (qty rqr block No. 457) Operator maintenance requirements for Truck, Platform, Utility 1/2 Ton, 4x4, M274A2, M274A3, M274A4 and M274A5.



OPERATING PRECAUTIONS

CAUTION

Do not start engine with crankcase breather valves closed. Buildup of internal pressures will blow out seals and/or gaskets. (See TM 5-2805-213-14.)

CAUTION

DO NOT let go of starter handle when cable is pulled out to the limit of its travel. Rapid rewind may cause cable to snarl or snap and/or cause damage to other starter components.

CAUTION

The hand throttle is set in wide-open position during engine starting. When engine starts, close hand throttle sufficiently to prevent overspeeding engine during warmup.

WARNING

Exercise extreme care when first operating this vehicle. You may not be familiar with the operating controls. Operate vehicle slowly at first until you get the feel and are accustomed to the way the vehicle handles.

CAUTION

The transfer gears must not be shifted from neutral (N) into either HIGH or LOW range, except when vehicle is at a stand still and transmission shift lever is in neutral (N).

WARNING

When operating vehicle from standing position in front, transmission shift lever must be in reverse (R) position at all times. Transfer gearshift lever may be in either LOW range or HIGH range as desired. Maximum speed in low range will be held to a fast walk (approximately 4 mph) and maximum speed in high range will be held to a trot (approximately 8 mph).

CAUTION

Towing vehicle with gears engaged, for purposes other than starting engine, may turn engine crankshaft at a dangerous overspeed and cause engine failure.

CAUTION

It is imperative that the approved operating practices and precautions be followed. A detailed study of TM 21-300 and TM 21-305 is essential for use of this vehicle under unusual conditions.

CAUTION

Before turning vehicle on its side or back for any reason, close crankcase breather valves, fuel line shutoff valve and close fuel filler cap vent valve. On vehicle engines equipped with a fuel primer pump, close primer line shutoff valve (see TM 5-2805-213-14). After maintenance, lubrication or other reasons, return vehicle to normal position and if required, request organizational maintenance to accomplish the following:

- a. Remove spark plugs (see TM 5-2805-213-14).
- b. Pull starter handle, cranking engine several times in order to expel any oil that may have accumulated in the engine cylinders and reinstall spark plugs. Open crankcase breather valves, fuel

line shutoff valve and fuel tank filler cap vent valve. Open primer line shutoff valve on engines so equipped during extreme cold-weather operating conditions only.

CAUTION

It is imperative that the approved maintenance procedures be followed. TM 9-207 contains general information which is applicable to this vehicle as well as to all other vehicles. It must be considered an essential part of this technical manual, not merely an explanatory supplement to it.

DON'TS

- DO NOT operate vehicle at maximum speed over rough terrain.
- DO NOT coast (clutch disengaged) downhill.
- DO NOT ride engaged clutch.
- DO NOT fully accelerate (race) engine when engine is not under load.
- DO NOT "rev" engine and "slip" clutch to gain power.
- DO NOT rock vehicle by shifting from first to reverse gear or vice versa, especially when vehicle is stuck.
- DO NOT shift transfer to high or low while wheels are moving.
- DO NOT operate engine with fan louvers closed except for warmup in cold weather.

DO'S

- Operate with tires correctly inflated.
- Keep vehicle under control at all times.
- Stop completely before shifting into first or reverse.
- Shift to a lower gear before starting down hills or steep incline.
- When towing the vehicle or using it as a trailer, pull the steering gear quick-release pin and place the gear in the inoperative position. Make sure the steering linkage is in two-wheel steer and that both transmission and transfer shift levers are in NEUTRAL (N) positions.

TECHNICAL MANUAL
 No. TM 9-2320-246-10

HEADQUARTERS
 DEPARTMENT OF THE ARMY
 WASHINGTON, D.C., 24 April 1967

OPERATOR'S MANUAL
TRUCK, PLATFORM UTILITY M274A2, M274A3, M274A4 AND M274A5

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This technical manual contains instructions for operation and operator maintenance of the 1/2-ton, 4 x 4 Platform Utility Truck, M274A2, M274A3, M274A4 and M274A5 models.

b. Appendix A contains a list of current references, technical manuals, forms, and other available publications applicable to the 1/2-ton, 4 x 4, Platform Utility Truck, M274 series with A042 engines.

c. Appendix B contains the basic-issue items which accompany the platform utility truck, or are required for installation or operator's maintenance.

d. Notice of discrepancies or recommended changes should be forwarded on DA Form 2028 direct to the Commanding General, Headquarters, U.S. Army Tank-Automotive Command, Warren, Michigan 48090, ATTN: AMSTA-MT.

1-2. Maintenance Allocation

The prescribed operator maintenance responsibilities, as allocated in maintenance allocation charts, are reflected in this technical manual. In all cases where the nature of the repair, modification, or adjustment is beyond the scope or facilities of the operator, or user, the supporting unit should be informed in order that trained personnel with suitable tools and equipment may be provided or other instructions issued.

1-3. Forms, Records, and Reports

a. *Authorized Forms.* The forms generally applicable for maintaining and operating this materiel are listed in Appendix A. For a listing of all forms, refer to DA Pam 310-2. Instructions for use of forms are contained in TM 38-750.

b. *Field Report of Accidents.*

(1) The reports of the army safety program are listed in AR 385-40. These reports are required whenever accidents involving injury to personnel or damage to equipment occurs.

(2) Whenever an accident or malfunction occurs involving the use of ammunition, further firing of the lot which malfunctions will be immediately discontinued and reported in accordance with AR 700-1300-8.

c. *Equipment Improvement Recommendation.* Deficiencies detected in the equipment or materials should be reported using the Equipment Improvement Recommendation section of DA Form 2407 in accordance with TM 38-750.

1-4. Equipment Serviceability Criteria

Equipment Serviceability Criteria for the vehicles is found in TM 9-2320-246-ESC.

1-5. Abbreviations

The abbreviations listed herein are explanations of the abbreviations used on the vehicle data and service plates throughout this manual and in the Basic Issue Items List (Appendix B).

approx	-----	approximately
assy	-----	assembly (ies)
cap.	-----	capacity
cbr	-----	Chemical, biological, radiological (warfare)
cu ft	-----	cubic feet
D	-----	daily
DA	-----	Department of the Army
deg	-----	degree
del	-----	delivery
dia	-----	diameter
dim.	-----	dimension
i.e.	-----	that is
eqpd	-----	equipped

F	-----	Fahrenheit	rt	-----	combustion engine
Fig	-----	Figure	OES	-----	lubricating oil, internal combustion engine,
FM	-----	Field Manual		-----	subzero
ft	-----	feet (foot)	ord	-----	ordnance
GAA	-----	grease, automotive and artillery	oz	-----	ounce(s)
gal	-----	gallon(s)	para	-----	paragraph
GO	-----	lubricating oil, gear	psi	-----	pounds per square inch
hr	-----	hour(s)	pt	-----	pint(s)
in.	-----	inch(es)	qt	-----	quart(s)
lb	-----	pound(s)	qtr	-----	quater, quarterly
lg	-----	long or length	qty	-----	quantity
LO	-----	Lubrication Order	reg	-----	regular
lt	-----	light	S	-----	semiannually
M	-----	monthly	ser	-----	serial
max	-----	maximum	spec	-----	specification
mfg	-----	manufacturing	sq in.	-----	square inch(es)
mfr	-----	manufacturer	temp	-----	temperature
MIL	-----	military	TM	-----	technical manual
mm	-----	millimeter	T.N.T.	-----	trinitrotoluene
Min.	-----	minimum	wk	-----	week, weekly
mpg	-----	miles per gallon	w/o	-----	without
mph	-----	miles per hour	wt	-----	weight
N/A	-----	not applicable			
OE	-----	lubricating oil, internal			

Section II. DESCRIPTION AND DATA

1-6. Vehicle Description

a. The ½ ton, 4 x 4, Platform Utility Truck M274A2, figs. 1-1, 1-2, 1-3, 1-4), M274A3 (figs. 1-1, 1-2, 1-3, 1-5), M274A4 (figs. 1-1, 1-2, 1-3, 1-4), M274A5 (figs. 1-1, 1-2, 1-3, 1-6) are designed as infantry ammunition light cargo, personnel, and weapons carriers. These vehicles will operate over all types of roads, cross-country terrain, and in all types of weather. All vehicles will ford up to 18 inches of water.

b. These are basically the same in general appearance and are constructed of aluminum and magnesium alloys, making them light-weight and suitable for air lift operations. Each vehicle is essentially a platform (aluminum platform M274A5 only) mounted on two axles and four wheels. All models are powered by a two-cylinder, air-cooled, gasoline engine. The engine is mounted under the platform at the rear of the vehicle. There is no suspension on the vehicles. Shock is absorbed by the four low-pressure tires. All models are equipped with four-wheel drive, two-speed gear transfer, and a three-speed forward and one-reverse speed transmission. A quick change mechanism allows

for either two- or four-wheel steering on the M274A2, M274A3 and M274A4 models.

c. A handrail is attached to the platform and can be raised to accommodate payload or lowered for shipping or storage. Operator's seat and footrest may be detached and stowed beneath the platform when vehicle is disabled and being towed.

d. The vehicles can be manually turned on either side or upside down for ease of maintenance, repair, or lubrication operations.

e. The steering wheel, column, and gear assembly can be moved forward, lowered and secured so that the operator, on foot, can operate from a standing or crouching position.

Warning: When operating vehicle in standing or crouching position in front of vehicle transmission shift lever must be in REVERSE (R) position at all times.

1-7. Differences Between Models

a. *General.* Throughout this manual, where differences among vehicle models exist, the models as applicable will be cited. When no models are cited, it will be assumed that no difference exists among the models in the area,

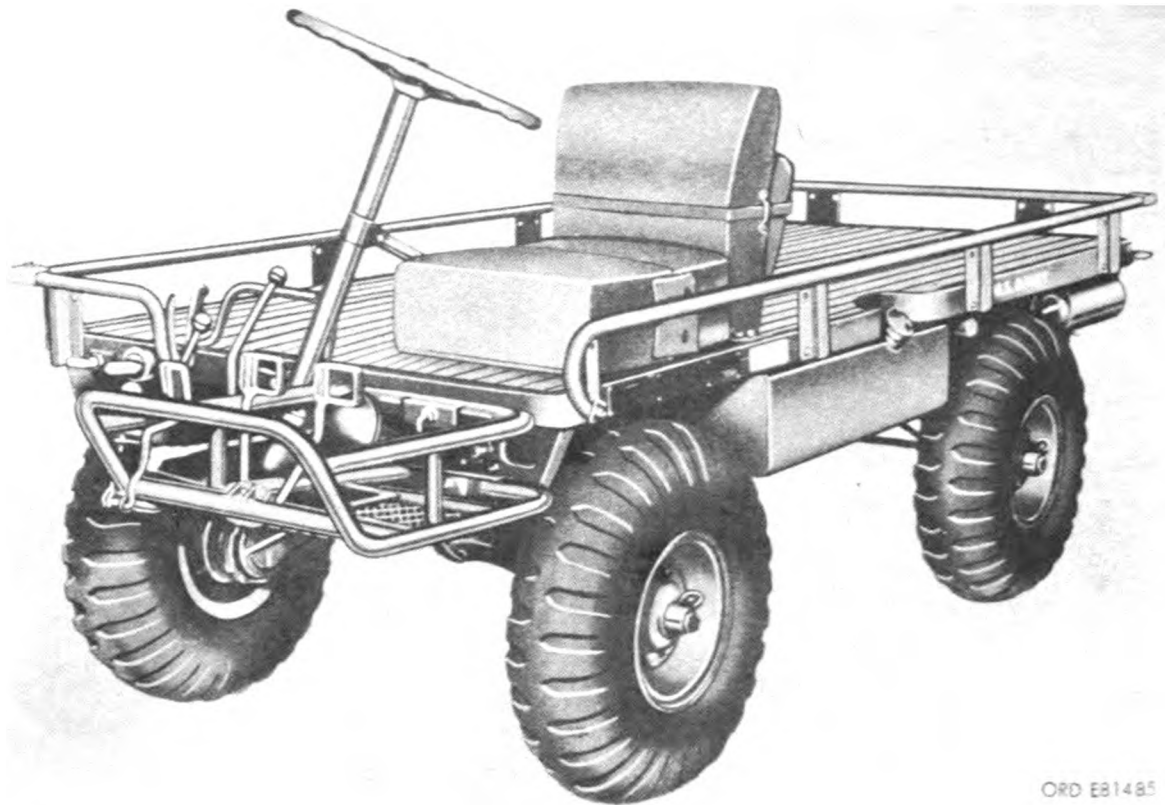


Figure 1-1. 1/2 ton, 4 x 4, platform utility truck—left front view.

and the instructions apply to all models of the vehicle models of the vehicle covered by this TM.

b. Illustrations. The illustrations throughout this manual depict the M274A2, M274A3, M274A4, and M274A5 models, and will be identified only when differences among vehicles are pertinent to the instruction procedure. Illustrations will also assist the organizational personnel in identifying their vehicle and its components.

c. Identification. The M274A2 (figs. 1-1, 1-2, 1-3, 1-4), the M274A3 (figs. 1-1, 1-2, 1-3, and 1-5), the M274A4 (figs. 1-1, 1-2, 1-3 and 1-4), and the M274A5 (figs. 1-1, 1-2, 1-3 and 1-6) differ in the following areas.

(1) Transmission and transfer gearshift levers are protected by a guard secured to platform which prevents cargo from bumping the shift levers during sudden stops. The M274A3 is

not equipped with the guard.

- (2) A floor of heavy gage expanded screen is welded to the bottom of the operator's footrest. The M274A3 does not have this screen.
- (3) The operator's seat can be adjusted to two positions and provides a publications stowage bag. The M274A3 has only one seat back position.
- (4) The wheel nut wrench is stowed in the publications bag. The combination wheel nut wrench and handcrank for the M274A3 is stowed in the operator's footrest (fig. 1-5). (Handcrank portion no longer required.)
- (5) The mechanical engine hour meter is located on the top of the engine. The electrical engine hour meter is fastened to the right rear of the platform when used (fig. 1-9).
- (6) The M274A2, M274A4 and M274A5

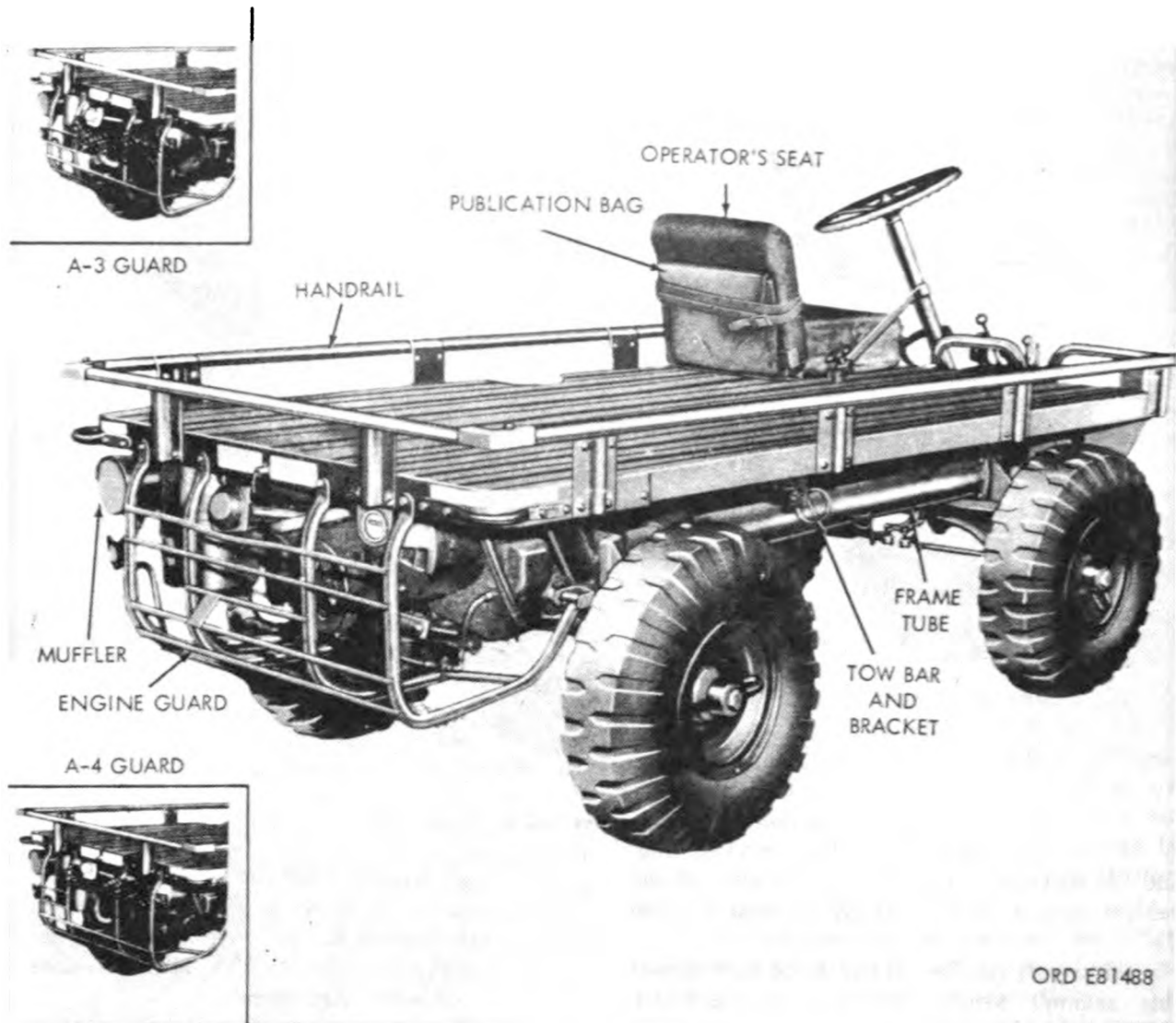


Figure 1-2. 1/2 ton, 4 x 4, platform utility truck—right rear view (M274A2 and M274A5).

vehicle brakes have two brakeshoes. The M274A3 has a one-band brake.

- (7) All models except the M274A5 may be operated with either two- or four-wheel steering. The M274A5 is equipped with only two-wheel steering.

d. *Component Part Nomenclature.* Nomenclature of the M274A2, M274A3, M274A4 and M274A5 Vehicle Components listed in TM 9-2320-246-20P and TM 9-2320-246-34P if referenced in this manual will be identified by the

basic noun or noun phrase. When two different components having the same noun such as brake are used, a suitable modifier like hand or foot will be added to differentiate between them. Some items having federal nomenclature, which is not normally used by maintenance personnel, will be changed for clarity and are listed below.

Manual nomenclature ----- Federal nomenclature

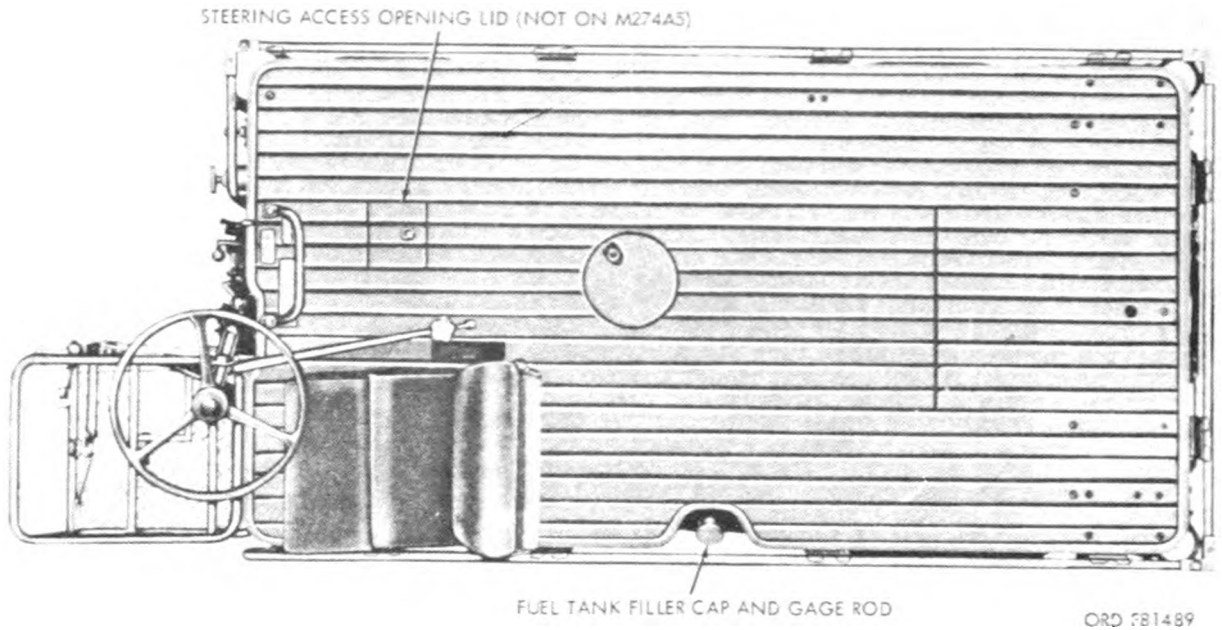


Figure 1-3. 1/2 ton, 4 x 4, platform utility truck—top view.

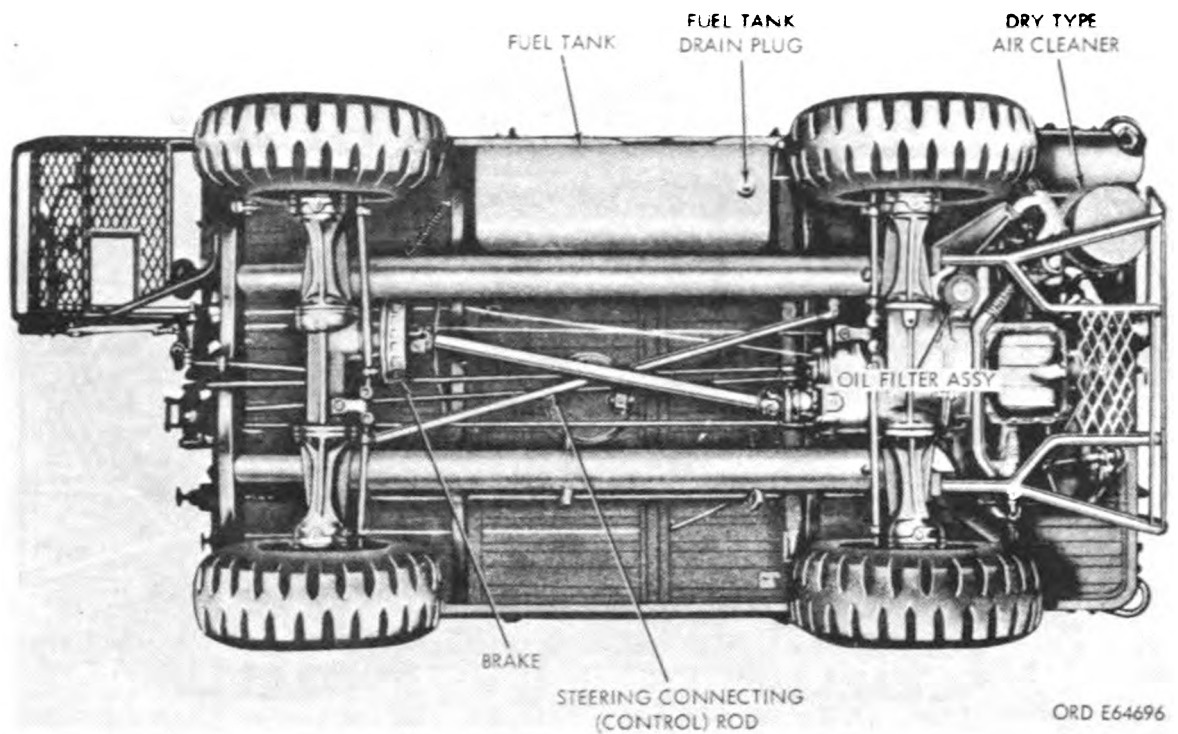


Figure 1-4. 1/2 ton, 4 x 4, platform utility truck—bottom view (M274A2 and M274A4 only).

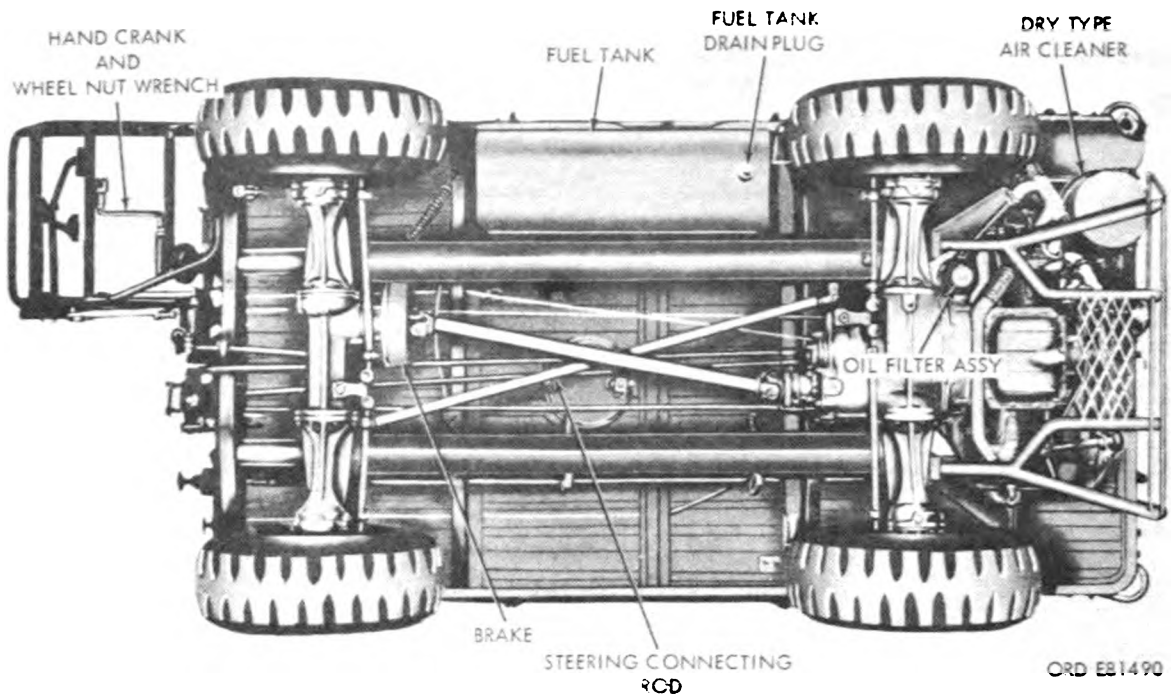


Figure 1-5. 1/2 ton, 4 x 4, platform utility truck—bottom view (M274A3 only).

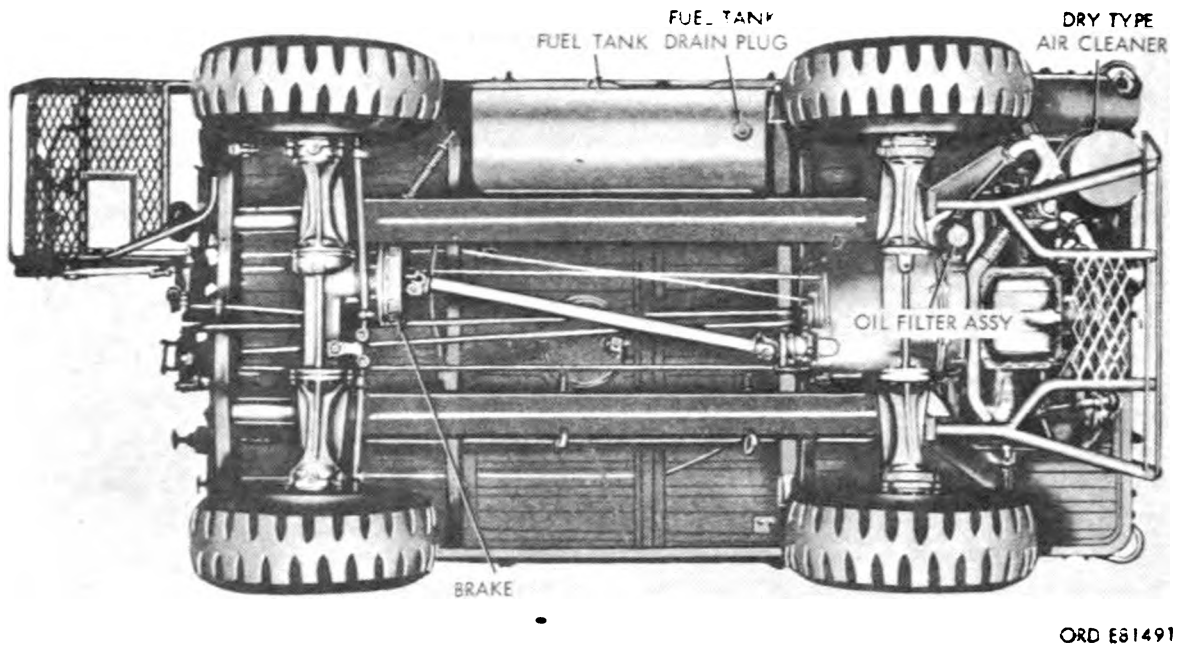


Figure 1-6. 1/2 ton, 4 x 4, platform utility truck—bottom view (M274A5 only).

- Brake pedal ----- brake pedal and shaft assembly
- Operator's seat ----- seat backrest assembly and vehicular seat cushion, front half and rear-half
- Wheel nut wrench (lug wrench) ----- starting and wheel nut handcrank assembly
- Engine hour meter ----- time totalizing meter
- Fuel shutoff valve ----- fuel line shutoff plug valve
- Fuel tank drain plug ----- pipe plug
- Hand throttle ----- hand throttle lever assembly, knob, spring tension clip and hexagon self-locking nut
- "T" handle-headed shoulder pin ----- headed shoulder pin and spring pin
- Oil level gage rod and cap ----- liquid level rod gage

1-8. Engine

a. *General.* This engine (AO42) is a two-

cylinder, four-stroke cycle, air-cooled, horizontal opposed, internal combustion type, with valves in the cylinder heads. The engine burns regular gasoline and is rated at 13.6 to 14 horsepower. It is lubricated by a force-feed system which includes an oil filter with a replacement-type element. It is cranked by a manual hand pull starter that is mounted on the rear axle transmission assembly housing and engages with the flywheel. For specific information about the engine or components listed below, refer to figures 1-7 and TM 5-2805-213-14.

b. *Cooling System.*

- (1) Fan assembly.
- (2) Fan belt.
- (3) Fan pulley.
- (4) Fan belt guard.
- (5) Fan louvers.

c. *Fuel System.*

- (1) Fuel lines and fittings.
- (2) Fuel pump assembly.
- (3) Carburetor.

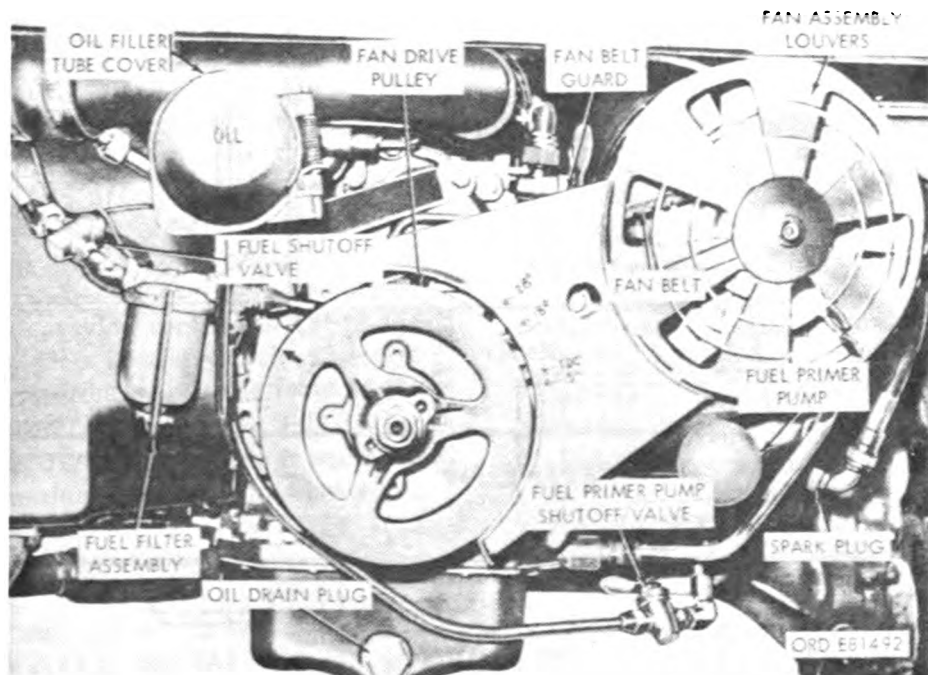


Figure 1-7. Rear view of engine and related parts.

- (4) Fuel filter assembly.
- (5) Fuel line shutoff plug valves.
- (6) Fuel primer pump (when applicable).

d. Engine Governor.

e. Hour Meter. A mechanical hour meter, engine mounted, is available on some models of the M274 series. Refer to paragraph 1-9 for electric hour meter.

f. Electrical System.

- (1) Sparks plugs.
- (2) Radio shielded ignition wiring.
- (3) Magneto.

1-9. Vehicle

a. General. The following descriptions cover areas of the vehicle platform, frame, and significant systems with components.

b. Fuel Tank and Lines. The fuel tank (fig. 1-8) is located on the left side of the vehicle and has a capacity of eight gallons. The fuel filler cap and gage rod (fig. 1-3) has a vent valve within the cap. This valve is to be closed only when vehicle is turned upside down or on its side. At the bottom of the fuel tank, a drain

plug (fig. 1-4) is provided for draining the tank. Two fuel lines (fig. 1-8) run from the fuel tank along the chassis, one going to the fuel filter, which is on the inlet side of the fuel pump; the other connects to the carburetor vapor return line located on top of the engine.

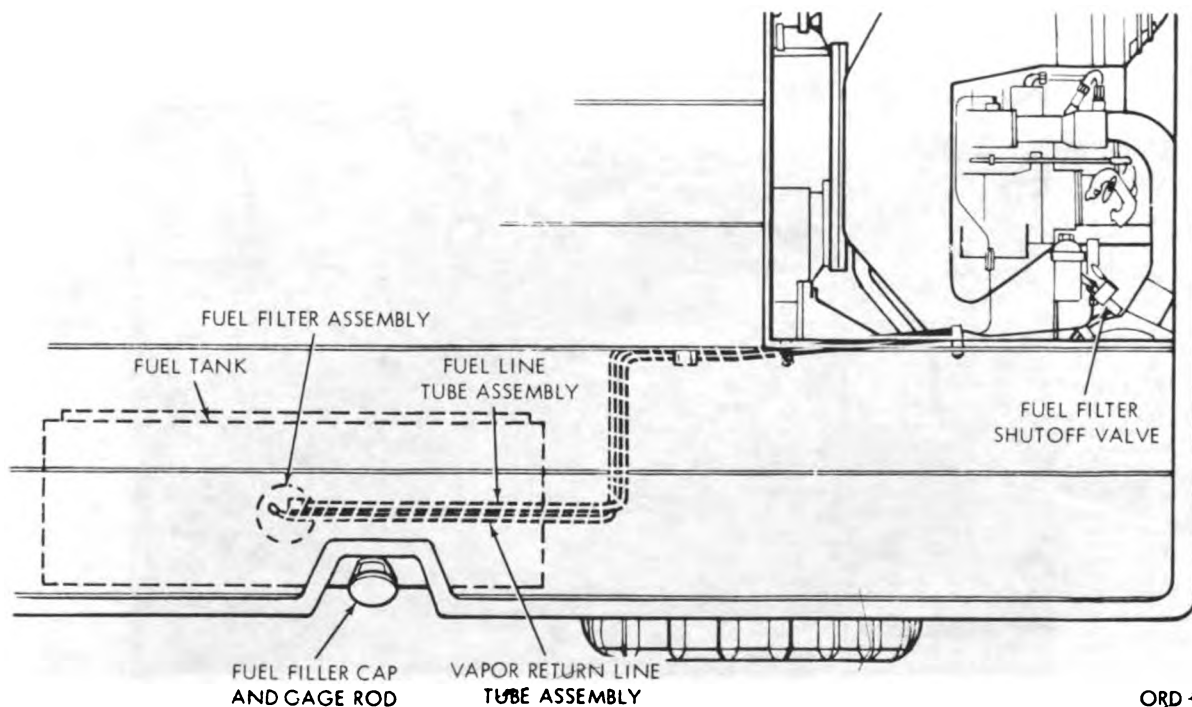
c. Vehicle Electrical System.

- (1) Service lights, blackout lights, or running lights are not provided for the M274 series vehicles.
- (2) The ignition switch (fig. 2-1) is located on the front of the vehicle on the driver's side.
- (3) An electric hour meter (fig. 1-9), installed on some models, is located on the right rear of the vehicle.

d. Air Cleaner. The air cleaner (fig. 1-4) is a dry type with a replaceable element, located under the vehicle platform at the left rear. Air entering the carburetor is filtered by the air cleaner.

e. Brake System.

- (1) On the M274A3 vehicle, a single brake (fig. 1-5) of the external expanding



ORD #81493

Figure 1-8. Fuel line routing.

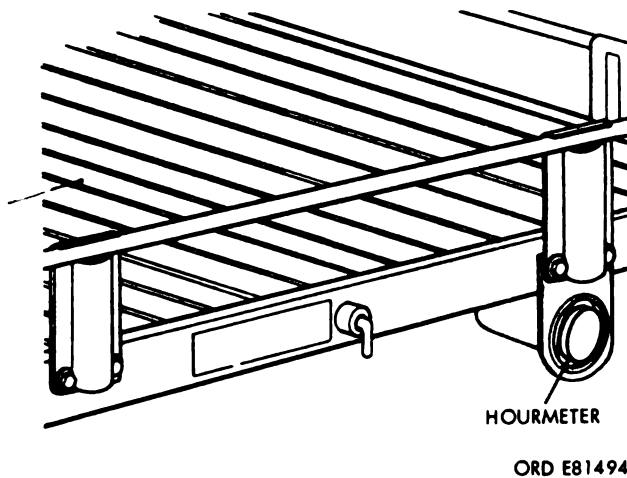


Figure 1-9. Location of electric hour meter.

type is used. It is located at the rear of the front axle. The brake is mechanically operated by either the foot pedal or the handbrake lever through cables and mechanical linkage.

- (2) The brake on all other vehicles is similar to the brake used on the M274A3 except that it is provided with two shoes which gives a larger braking area and improves braking ability.

f. Suspension. No suspension is used on the vehicles. Shock is absorbed by four low-pressure tires.

g. Steering System. On the M274A2, M274A3, and M274A4 vehicles four-wheel steering can be adapted if desired. (See paragraph 2-15 and figures 1-4 and 1-5.) The steering column is adjustable to provide for operation of the vehicle while sitting in the vehicle and also while standing or crouching at the front of the vehicle. (See paragraphs 2-13 and 2-14.)

h. Wheels and Tires. The vehicle is equipped with four magnesium or aluminum wheels and four low-pressure military thread-type tires with inner tubes, and liners.

i. Instruction Plates.

- (1) Five instruction plates are used on the M274A2, M274A3 and M274A4 vehicles (figs. 1-10 and 1-11), and

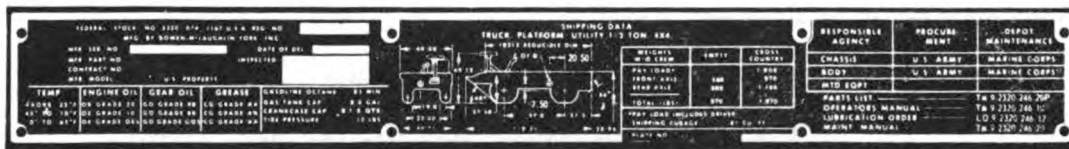
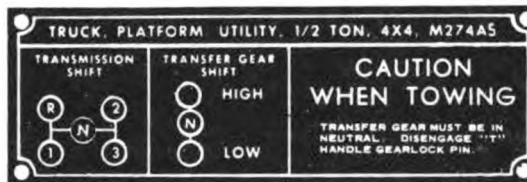
four instruction plates are used on the M274A5 vehicle (fig. 1-10).

- (2) The instruction plates (3 and 4, fig. 1-10) are mounted on top of the platform and provide official nomenclature of the vehicle, transmission shifting instructions, transfer shifting instructions, and a caution in regard to towing.
- (3) The instruction plate (5, fig. 1-10) is mounted on the left front edge of the platform and gives various identification numbers, lubrication data, vehicle dimensions, and other data.
- (4) Caution plate (2, fig. 1-10) located on top of the platform, at right of operator's seat on the M274A2, M274A3, and M274A4 vehicles, cautions maintenance personnel concerning explosive magnesium alloys of which vehicle is constructed.
- (5) The instruction plate (1, fig. 1-10) located on top of platform at right of operator's seat, provides operator with instructions for operating crankcase vent valve.
- (6) The instruction plate (fig. 1-11) located below the ignition switch, shows the position to which the switch lever must be moved to turn the ignition on or off.

1-10. Tabulated Data

a. General.

Operator	1
Tow capacity	N/A
Cruising range:	
5 mph in high gear on	
highway	approximately 150 mi
25 mph in high gear on	
highway	approximately 90 mi
Speeds: Transmission and Transfer	
Number	three forward, one
	reverse with high and
	low range
High (Third)	high range 25
	mph, low range 13 mph
Intermediate (Second)	high range
	14 mph, low
	range 7 mph



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Figure 1-10. Vehicle instruction plates.

CHAPTER 2

OPERATOR'S INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF VEHICLE

2-1. General

a. When new, used, or reconditioned materiel is first received by the using organization, it is the responsibility of the officer in charge to determine whether the materiel has been properly prepared for service by the supply organization and to be sure it is in condition to perform its function.

b. Services to be performed by organizational-maintenance personnel are designated in paragraph 2-1c below. Whenever practicable, the operator or user will assist organizational-maintenance personnel in the performance of these services.

c. The following services must be accomplished before placing the materiel into service, unless previously performed. Accomplishments will be indicated on DD Form 314 and DA Form 2408-2 which are the records of service.

- (1) Lubricate vehicle in accordance with Lubrication Order regardless of interval, excluding gearcase and engine. Check processing tag for gearcase and engine oil. If tag states that oil is suitable for 50 hours of operation and is of the proper viscosity for local climate operation, check the level but do not change the oil.
- (2) Schedule second "S" service on DD Form 314, Preventive Maintenance

Roster, and arrange for an oil change after 50 hours of operation.

2-2. Break-In Operation

a. General. Prior to operating the vehicle, the operator or user must become familiar with the vehicle controls and operation contained in paragraphs 2-4 through 2-7.

b. Break-In. When break-in of a new or overhauled vehicle is to be accomplished in normal service, the operator is cautioned to exercise special care in performing all before-operation checks and inspections (table 1). The following cautions must be exercised during break-in.

- (1) Avoid rapid acceleration and deceleration.
- (2) Avoid skipping the second speed gear range in shifting gears.
- (3) Avoid clashing of transmission and transfer gears.
- (4) Avoid sudden or forced engagement of operating controls.
- (5) Avoid sudden stops except in an emergency.
- (6) Avoid prolonged operation of vehicle under other than normal weather and terrain conditions.
- (7) Avoid turning wheels when vehicle is at a halt unless absolutely necessary.

Section II. CONTROLS AND INSTRUMENTS

2-3. General

This section describes location and operation of controls and instruments for the M274 series vehicles with A042 engines.

2-4. Operating Controls

a. General. Location of the various operating controls for the M274 series vehicles is shown in figures 2-1 and 2-2.

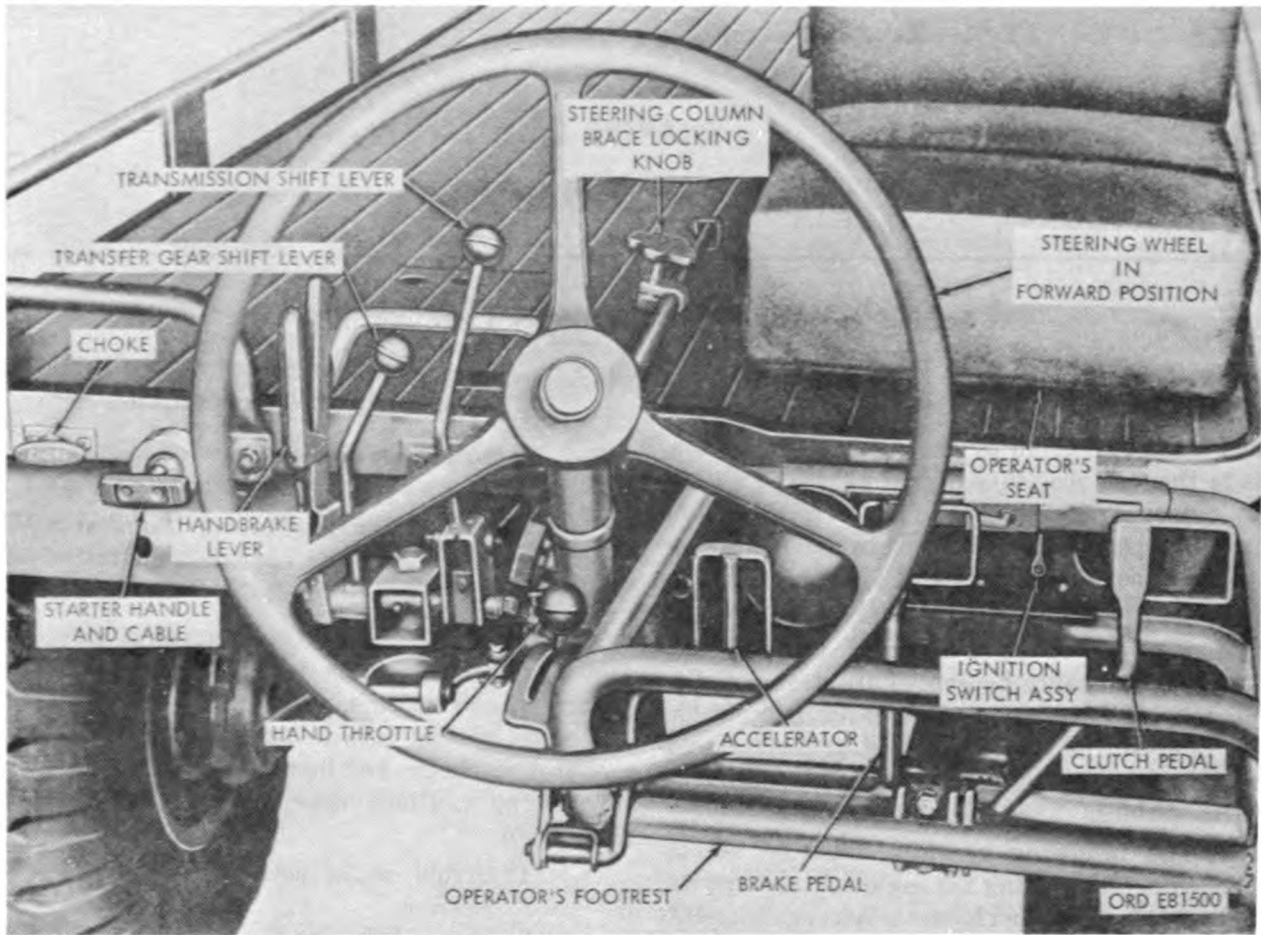


Figure 2-1. Operating controls as viewed from crouching or standing position on the ground in front of the vehicle.

b. Steering Wheel and Column. The steering wheel is mounted at the upper end of the steering column, at the front end of the vehicle. To provide for vehicle steering while seated in the vehicle or from a standing or crouching position on the ground, the column may be secured in any one of three positions. Figure 2-3 shows steering wheel and column in the rear position used in normal operation; in intermediate position for operating from standing position on the ground; and in forward position for operating from a crouching position.

c. Steering Linkage. The vehicles may be used with either two- or four-wheel steering. The four-wheel steering access lid on these vehicles is located to the right of the operator's

seat. Four-wheel steering is to be used only under unusual operating conditions. (The M274A5 vehicle is two-wheel steer only.)

d. Transmission Gearshift Lever. This is the first shift lever (figs. 2-1 and 2-2), located at front of platform at operator's right, and allows for shifting the transmission into reverse or first, second, and third forward gears. Refer to figure 2-6 shifting diagram for transmission shift lever positions.

e. Transfer Gearshift Lever. This is the second gearshift lever (figs. 2-1 and 2-2), located at front of platform at operator's right, and enables the operator to select either a high-speed range for use during normal operation, or a low-speed range for rough or hilly operat-

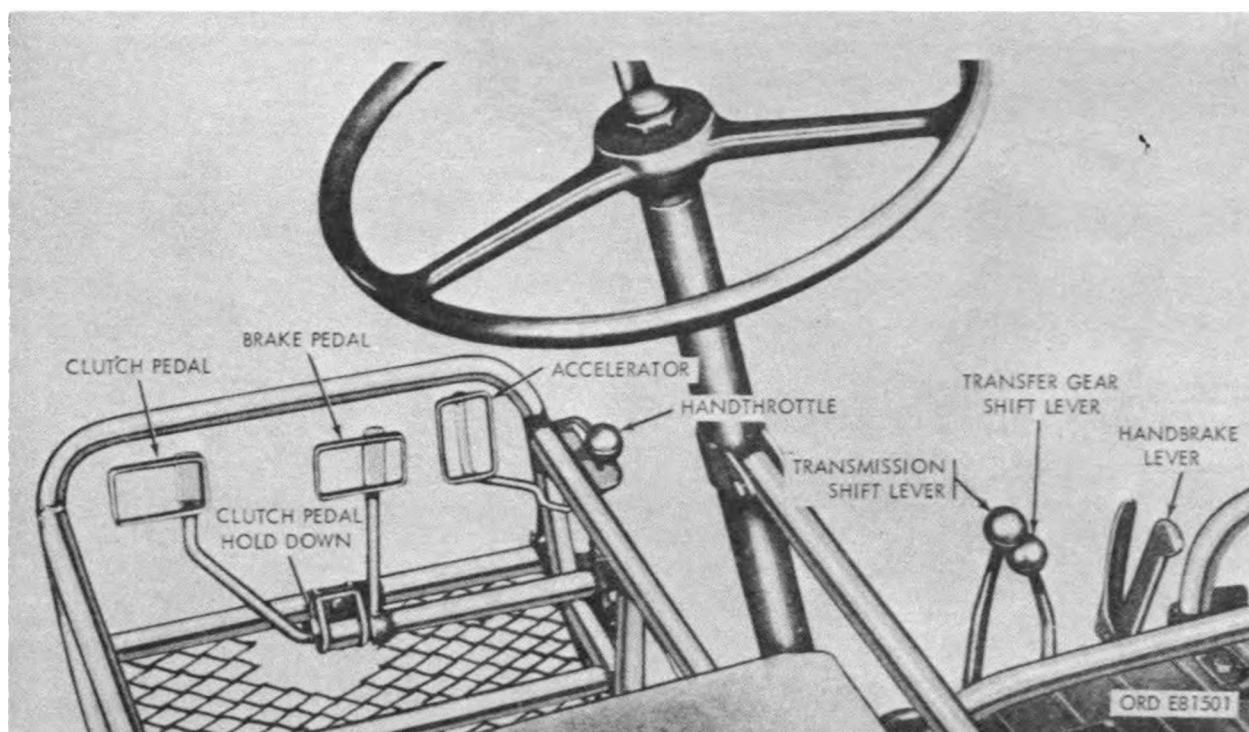


Figure 2-2. Operating controls as viewed from operator's seat.

ing conditions. The gears are in low-speed range when the shift lever is in the extreme rear position (LOW) (fig. 2-6); in high-speed range when lever is in extreme forward position (HIGH); and in neutral (N) when in the center position.

f. Handbrake Lever. The handbrake lever (figs. 2-1 and 2-2), located at the front of the platform to operator's right, is used to prevent movement of vehicle while parked. The handbrake is also used to slow or stop the vehicle when operating from standing or crouching position off the vehicle.

g. Brake Pedal. The brake (figs. 2-1 and 2-2) is operated by the right foot and is used to slow or stop the vehicle. Depressing the brake pedal applies the brake. When pressure is released, a spring pulls pedal back to brake-released position. The brake pedal can also be operated by hand by pulling pedal toward the operator when operating from a standing or crouching position off the vehicle.

h. Clutch Pedal. The clutch pedal (figs. 2-1

and 2-2) is operated by the left foot and is used to disengage clutch for transmission gear shifting. Depressing the pedal releases or disengages the clutch. When pressure on the clutch pedal is released, a spring forces the clutch back into engagement. Smoothly engage the clutch by gradually releasing the pedal. The clutch pedal may also be operated by hand to disengage clutch.

i. Hand Throttle. The hand throttle (figs. 2-1 and 2-2) is used to control engine speed while operating vehicle in reverse from a standing or crouching position in front of the vehicle. The hand throttle employs a friction device to hold the throttle open to any desired position. It must be returned to closed position manually. Moving the hand throttle forward increases engine speed, and moving it rearward decreases engine speed.

j. Accelerator. The accelerator (figs. 2-1 and 2-2) is operated by the operator's right foot to control speed from the seated position. Depressing the accelerator increases the engine

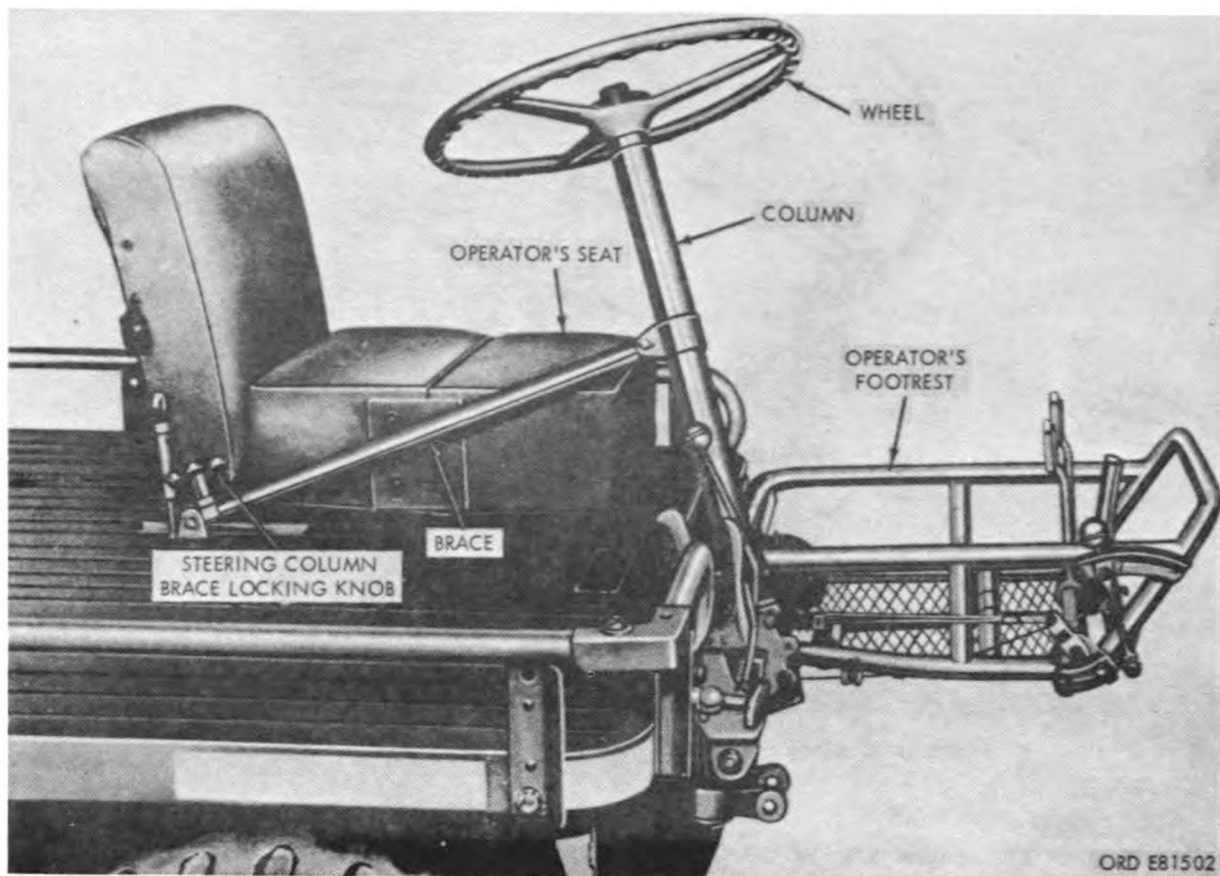


Figure 2-3. Steering wheel and column in rear position.

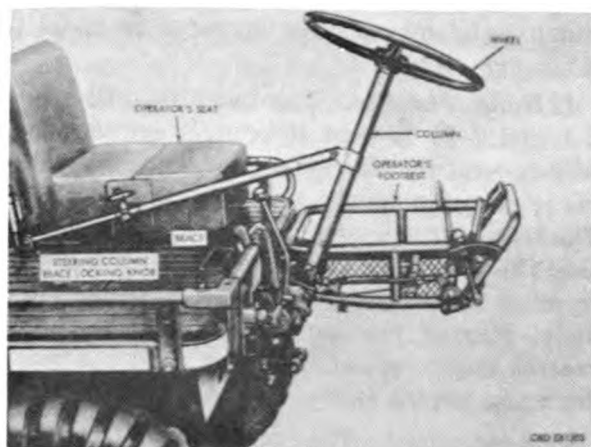


Figure 2-4. Steering wheel and column in intermediate position.

speed. Releasing the pressure on the accelerator decreases the engine speed. A spring returns the accelerator to idle position when pressure is released. The accelerator may also be operated by hand while operating from a standing or crouching position on the ground in front of vehicle.

k. Starter Handle and Cable. The starter handle (fig. 2-1) is attached to a cable that runs through a tube to the rear of the vehicle. The starter handle when pulled, turns the engine crankshaft several revolutions, cranking the engine.

l. Choke Control. The choke control knob (fig. 2-1) is located at the front edge of the platform near the right corner. It is connected to the choke valve of the carburetor by a control wire and operates the valve for starting

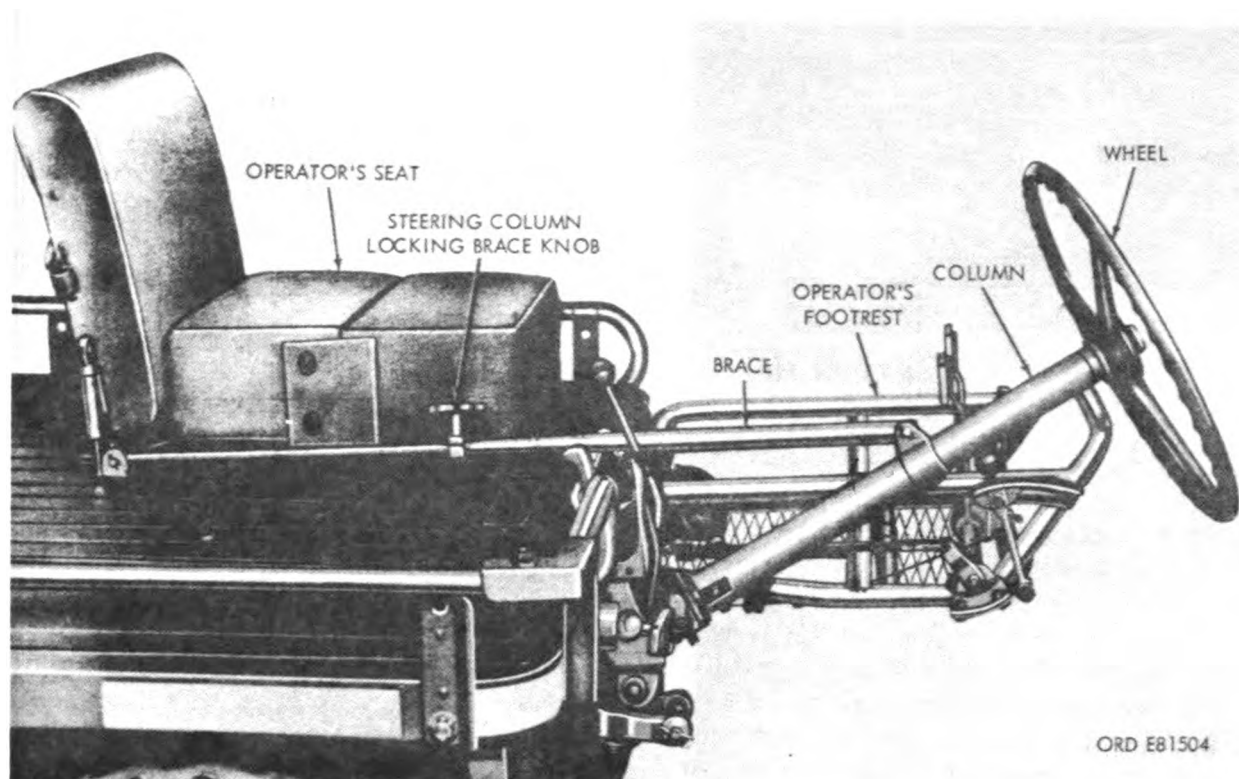
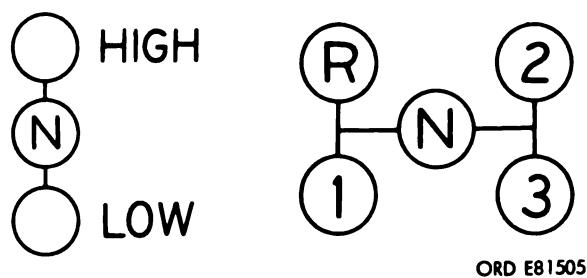


Figure 2-5. Steering wheel and column in forward position.



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Figure 2-6. Shifting diagram for transmission shift lever and transfer gearshift lever.

purposes. Pulling the knob out closes the choke valve; pushing the control knob in opens the choke valve. A friction device is employed to automatically hold the choke valve at the opening for which the control is set.

m. Ignition Switch. The ignition switch (figs. 2-1 and 2-15) is located on the front bed support crossmember, below the front edge of

the platform, near the center of the operator's seat. The switch is turned ON to the left, and OFF to the right.

n. Fuel Shutoff Valve. The fuel shutoff valve is located in approximately the same position near the fuel filter assembly on all models. When the valve handle is parallel to the fuel line and valve body, the valve is open (fig. 2-7).

o. Engine Crankcase Breather Shutoff Valves. The vehicle is equipped with breather shutoff valves. One is located between the crankcase and the carburetor or air cleaner adapter. The other is located to the right of the air cleaner assembly directly over the fuel filter. The breather shutoff valves are closed by turning the handle to a position at a right angle to the valve body. The breather shutoff valve must be open for normal operation (fig. 2-7), and closed before the vehicle is turned over, or on its side for lubrication or maintenance.

p. Fuel Primer Pump Shutoff Valve. The

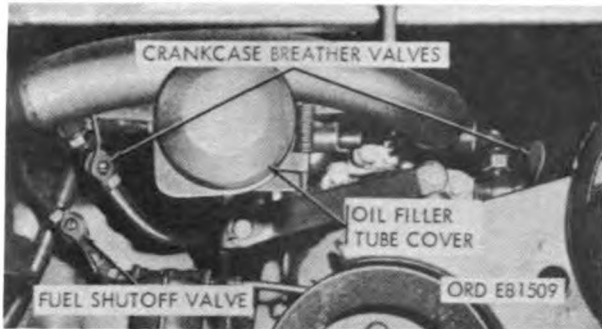


Figure 2-7. Location of fuel shutoff valve, crankcase breather valves, and oil filler tube cover.

fuel primer pump shutoff valve is located just under the fuel primer pump and is used to shut off the fuel supply to the pump. When the valve handle is parallel to the valve body and tubing, the valve is open. When the valve handle is at a right angle to the valve body and tubing, the valve is closed (fig. 1-7).

q. Fan Assembly Louvers. The fan guard is equipped with adjustable louvers that permit the operator to increase or decrease the engine cooling airflow in order to maintain the engine at proper operating temperature. The louvers must be adjusted to the full-open position for operation in air temperatures above 32 degrees F. The louver openings may be closed for operation in temperatures below 32 degrees F. Remove leaves, debris, or any obstruction from engine guard or fan guard louvers that may affect flow of cooling air to the engine (fig. 1-7).

2-5. Instruments (Gages)

a. Fuel Filler Cap and Gage Rod. The fuel filler cap and gage rod (fig. 2-8) consist of a metal gage rod attached to the underside of the fuel tank filler cap. The gage rod is graduated and marked $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and FULL.

b. Oil Level Gage Rod and Cap. The oil level gage rod and cap (fig. 2-9) is located on the engine at the rear of the vehicle. The gage consists of a metal gage rod attached to the underside of the oil filler tube cap (see par. 1-8).

c. Engine Hour Meter. Both of the engine

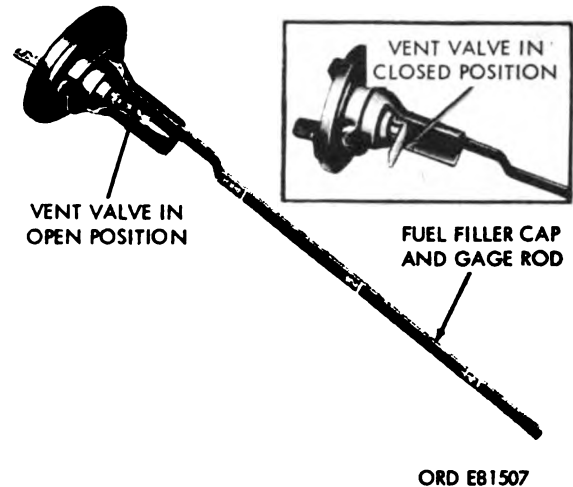


Figure 2-8. Fuel filler cap and gage rod.

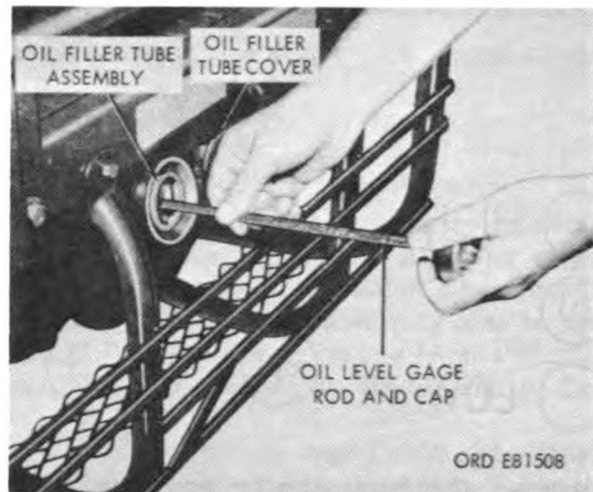


Figure 2-9. Oil level gage rod and cap.

hour meters record the number of hours the engine has been operated. The electric hour meter is located at the rear of the vehicle on the right-hand side (fig. 1-9). The mechanical engine hour meter is located on top of the engine (see par. 1-8).

Section III. OPERATION UNDER USUAL CONDITIONS

2-6. General

This section contains instructions for the mechanical steps necessary to operate the M274 series of vehicles under conditions of moderate temperature, humidity, and terrain. For operation under unusual conditions see paragraphs 2-20 through 2-26.

2-7. Operating Precautions

Refer to operating precautions, Do's and Dont's at the front of the manual.

2-8. Before Starting Operations

Before starting engine, perform before-operation checks and services shown in table 1.

2-9. Starting the Engine

Given below is the recommended sequence of events for starting the engine.

Step No. 1. Fuel Shutoff Valve. Make sure that the fuel shutoff valve is open as shown in figure 2-7.

Step No. 2. Crankcase Breather Valves. Remove engine access cover and make sure both engine crankcase breather valves are turned to OPEN position as shown in figure 2-7.

Step No. 3. Handbrake. Make sure that handbrake lever is applied as shown in figure 2-10.

Step No. 4. Transmission and Transfer Shift Levers. Place the transmission shift lever and transfer gearshift lever in neutral as shown in figure 2-11.

Step No. 5. Hand Throttle. The hand throttle must be in the START position as shown in figure 2-12.

Step No. 6. Choke and Starter Controls (Fig. 2-13). If the engine is cold, pull the choke control out to the full-choke position, and pull out on the starter twice, rapidly. Allow the starter cable to rewind slowly each time. If engine is warm, do not use step 6.

Caution: Do not let go of starter handle when it is pulled out. Rapid rewind may cause cable to snap, twist or break.

Step No. 7. Choke Control. Reset choke to within $\frac{1}{4}$ inch of the OFF position as shown

in figure 2-14.

Step No. 8. Ignition Switch. Turn the knob of the ignition switch to the ON position as shown in figure 2-15 and pull the starter rapidly to start engine.



Figure 2-10. Handbrake in applied position.

Caution: The hand throttle is set in START position during engine-starting. When engine is started, close hand throttle sufficiently to prevent overspeeding engine during warmup.

Step No. 9. Choke Control. When engine is running smoothly, which indicates normal operating temperature, push choke control to OFF position as shown in figure 2-16.

Step No. 10. Hand Throttle. When engine is running smoothly, push the hand throttle to the IDLE position shown in figure 2-17.

2-10. Engine-Starting Hints

a. If engine fails to start after following engine-starting procedures, engine may have

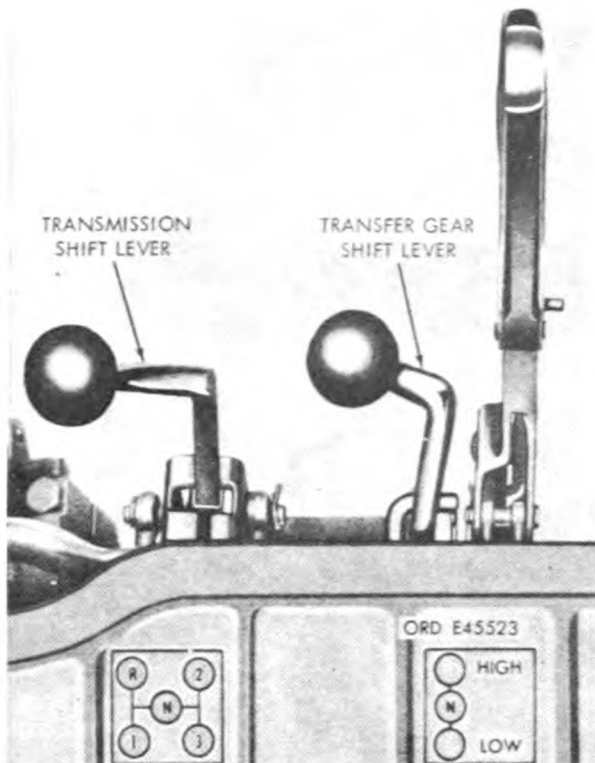


Figure 2-11. Transmission and transfer gearshift levers in NEUTRAL (N) positions.

become flooded with fuel caused by overchoking. If flooding occurs as a result of overchoking, push choke to OFF position. Pull starter handle rapidly five to ten times to start engine.

b. Operators must adjust the choke and hand throttle simultaneously when engine starts. Pushing the choke all the way to the OFF position as soon as engine starts will stop the engine during cold weather. Abrupt acceleration may also stop the engine during warmup periods when choke is in OFF position.

2-11. Operating Vehicle from Seated Position

Instructions for operation of vehicle from operator's seat are given in steps 1 thru 6 below.

Warning: Exercise extreme caution when first handling this vehicle, as you may not be familiar with the controls. Operate vehicle

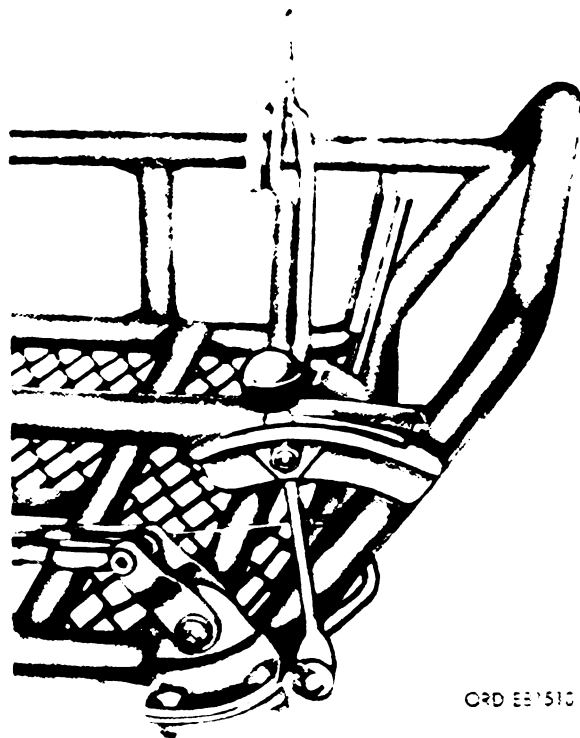


Figure 2-12. Hand throttle in START position.

slowly, at first, until you are accustomed to the way it handles.

Step No. 1. Starting Engine and Seat Adjustment. Start engine as directed in paragraph 2-9 and while engine is warming up, adjust the operator's seat (fig. 2-18) to forward or rearward hole location provided in the platform (all models except M274A3 which is not adjustable).

a. Unhook operator's seat fastener.

b. To adjust seat to forward position, locate seat into forward position holes in platform and hook seat fastener into seat back catch bracket.

c. To adjust seat to rearward position, locate seat into rearward position holes in platform and hook seat fastener into catch retainer loop.

Step No. 2. Clutch Pedal. Depress clutch pedal (fig. 2-19).

Step No. 3. Transfer and Transmission Gearshift Operation (Figure 2-20). Position transfer gearshift lever into HIGH or LOW

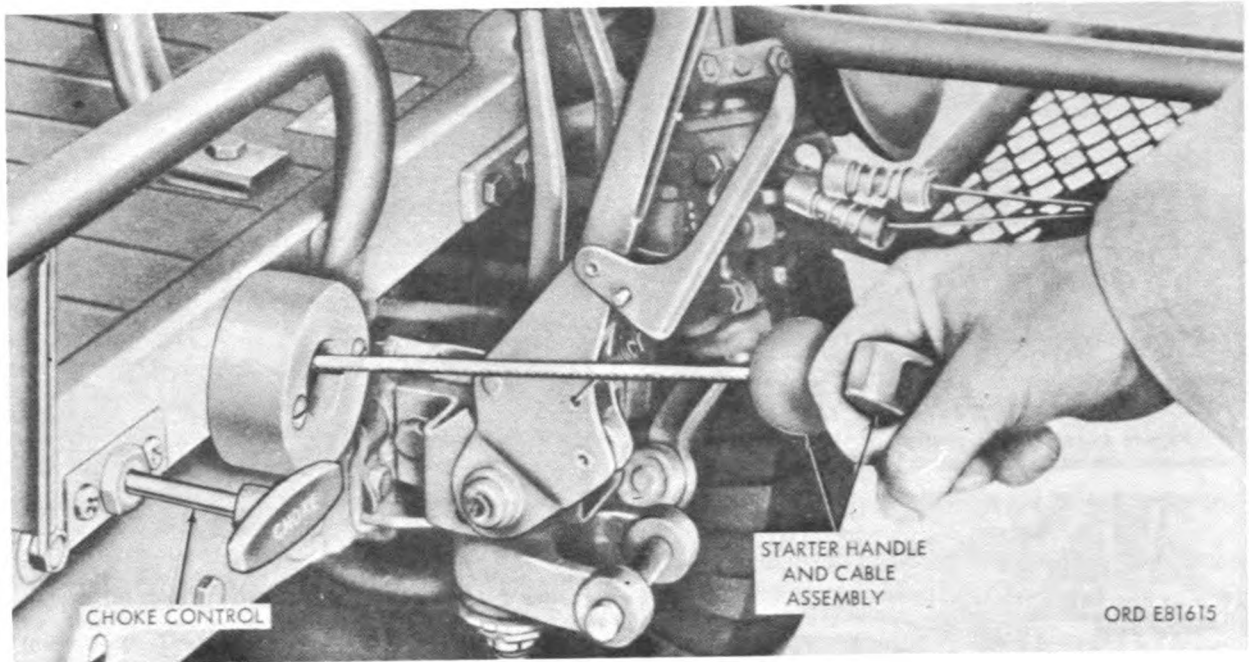


Figure 2-13. Engine-starting controls.

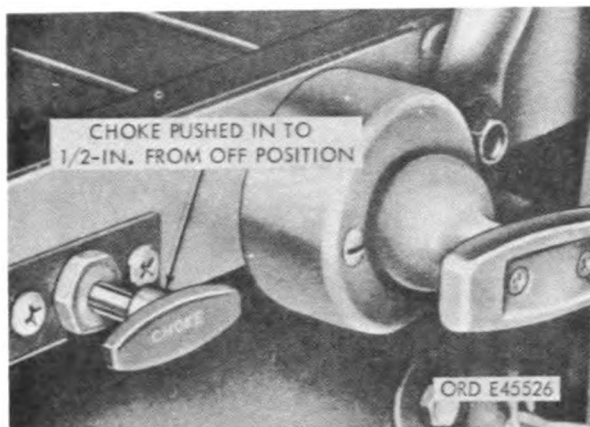


Figure 2-14. Choke control in $\frac{1}{2}$ OFF position.

range and position transmission shift lever in FIRST GEAR, or REVERSE GEAR (if backing).

Caution: The transfer gears shall not be shifted from NEUTRAL (N) into either HIGH (H) or LOW (L) range, except when vehicle is at a standstill and transmission shift lever is in NEUTRAL (N).

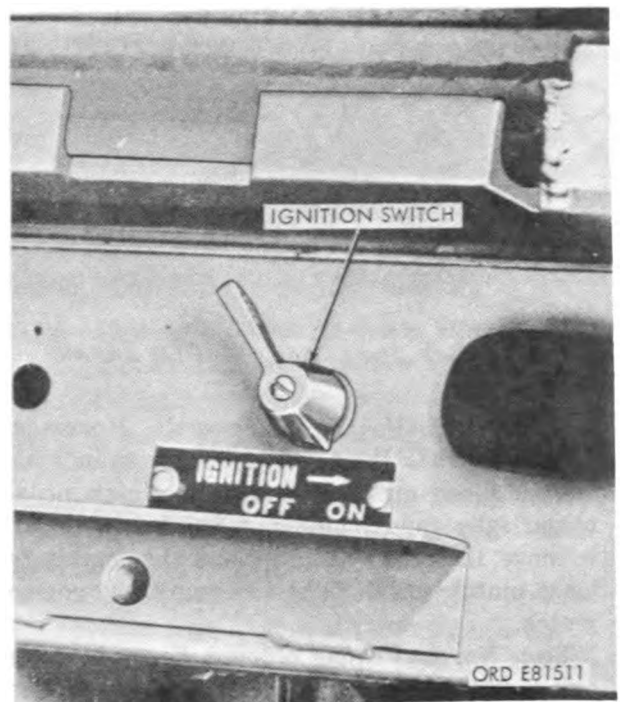


Figure 2-15. Ignition switch in ON position.

Step No. 4. Handbrake. Release handbrake lever to position shown in figure 2-21.

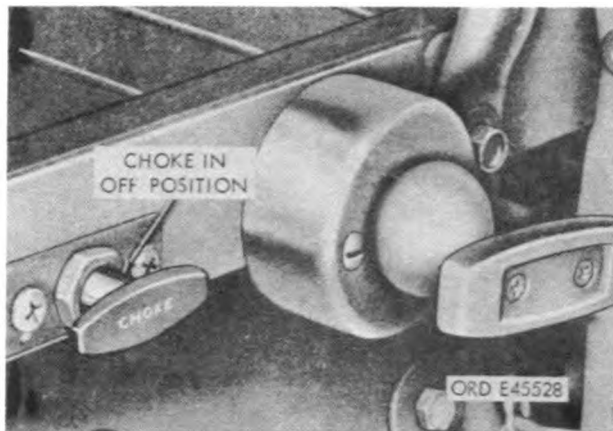


Figure 2-16. Choke control in OFF position.

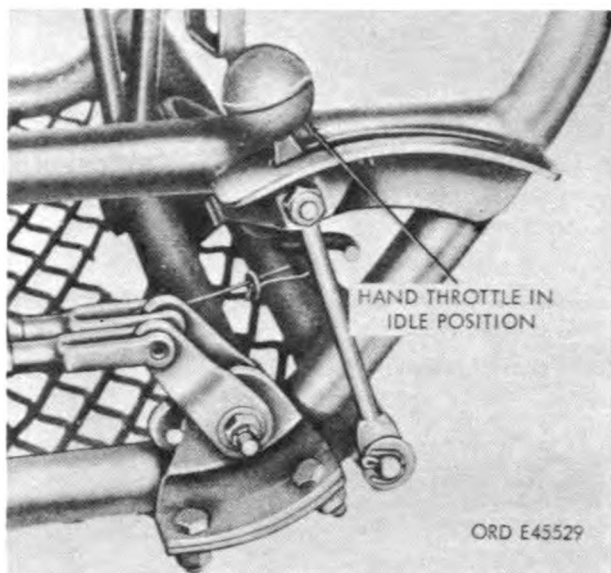


Figure 2-17. Hand throttle in IDLE position.

Step No. 5. Vehicle Forward Movement (Figure 2-19). Depress accelerator to increase engine speed and slowly release clutch pedal, to partially engage clutch. When vehicle starts to move, increase engine speed and smoothly release clutch pedal fully to completely engage clutch.

Step No. 6. Vehicle Moving Forward (Figure 2-22). As vehicle speed increases in first gear, do these things at the same time; release accelerator, depress clutch pedal, and move transmission shift level into neutral position.

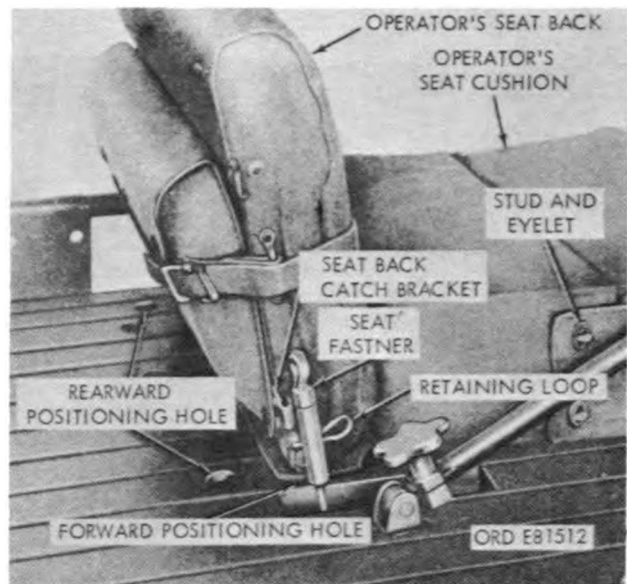


Figure 2-18. Location of operator's seat fastener and positioning holes.

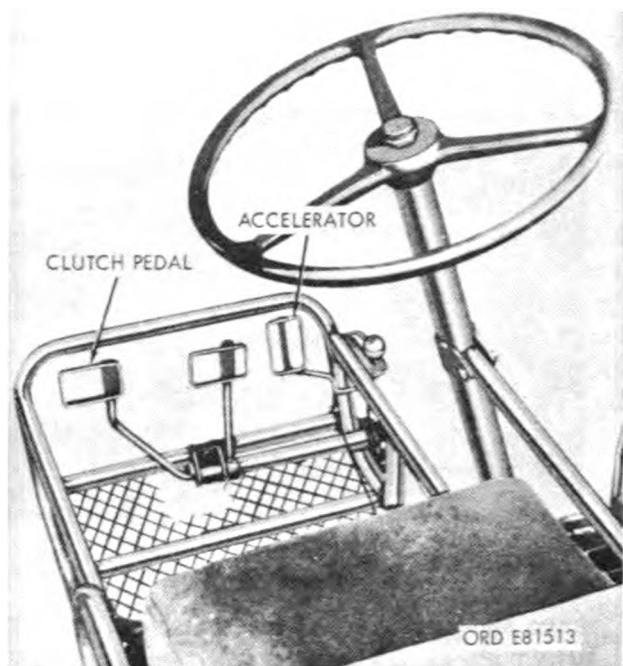


Figure 2-19. Clutch pedal.

Then carefully shift transmission shift lever from neutral to second-speed gear. Accelerate, and as vehicle speed increases, shift from second-speed gear to third-speed gear in the same

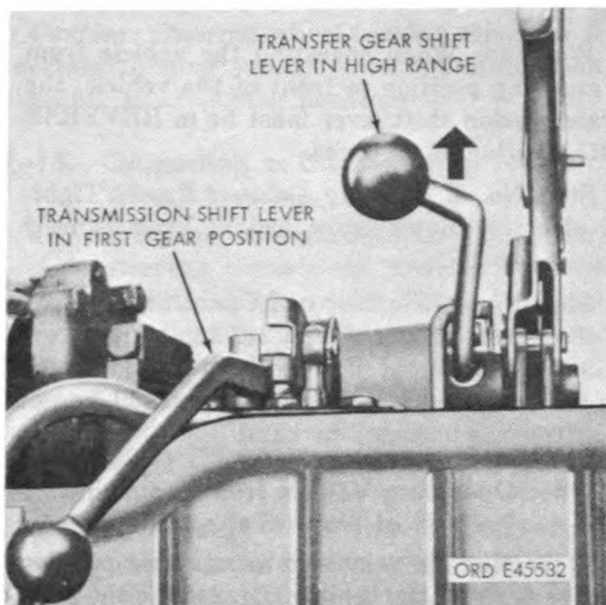


Figure 2-20. Transmission gearshift lever in first (low) gear position.

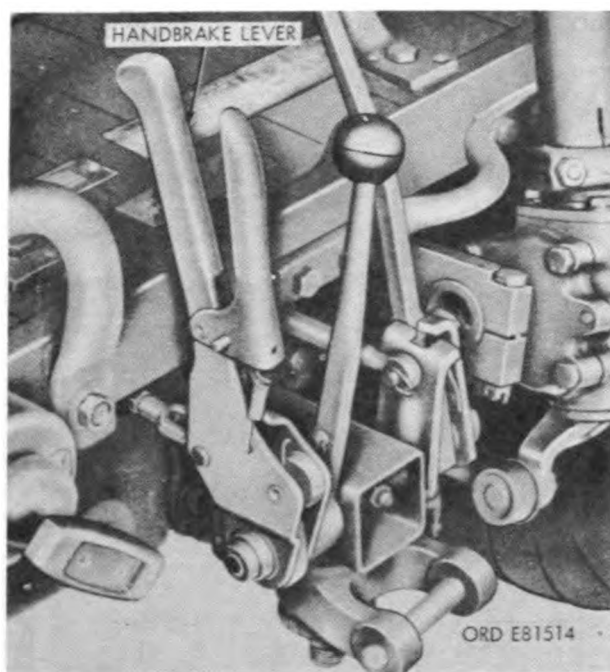


Figure 2-21. Handbrake lever.

manner, placing transmission shift lever in third-speed gear position, not necessarily hesi-

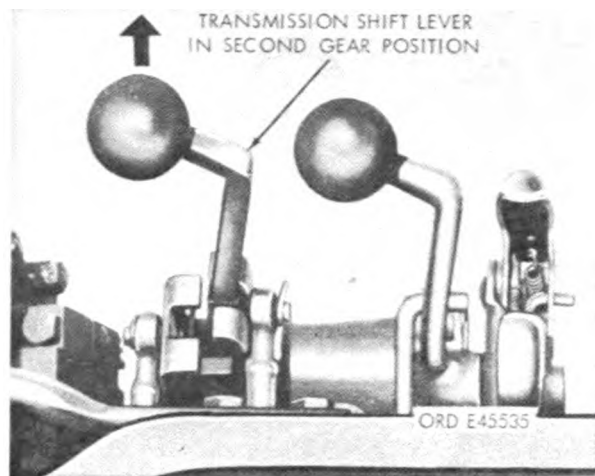


Figure 2-22. Vehicle moving forward—second gear.

tating in neutral position (fig. 2-23). Carefully operate vehicle, at desired speed.

2-12. Stopping Vehicle and Engine

- a. Release the accelerator and apply the brake pedal (figs. 2-1 and 2-2) until vehicle is nearly stopped. Depress clutch pedal and continue brake application to stop vehicle.
- b. Place transmission and transfer gearshift levers in neutral (N) position.
- c. Apply handbrake lever.
- d. Turn ignition switch to OFF position.
- e. Release clutch and brake pedals.

Caution: Chock wheels if parking on a steep grade; avoid parking in mud or water.

2-13. Operating Vehicle from Standing Position at Front of the Vehicle

Instructions for operating vehicle from standing position at front of vehicle are given in steps 1 thru 4 below.

Step No. 1. Steering Column. Loosen steering column brace knob by turning knob counterclockwise (fig. 2-1).

Step No. 2. "T" Handle Shoulder Headed Pin (Figure 2-24). Pull out "T" handle shoulder headed pin while pulling steering column to intermediate position as shown in figure 2-4. Release shoulder headed pin and move steering column forward or backward slightly to allow

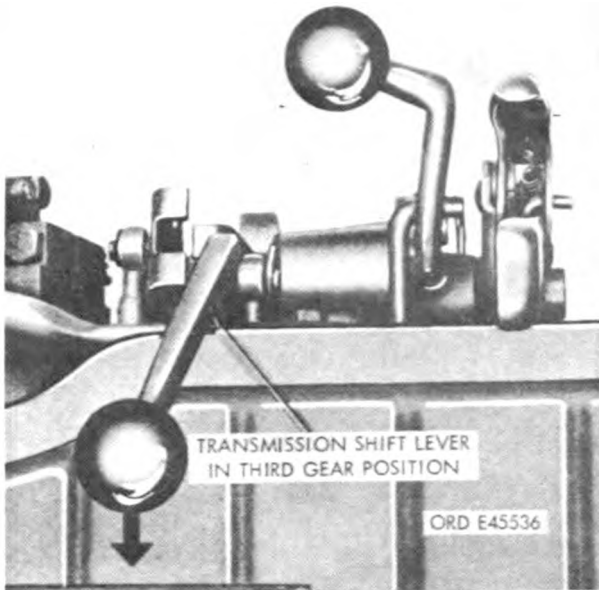


Figure 2-23. Vehicle moving forward—third gear.

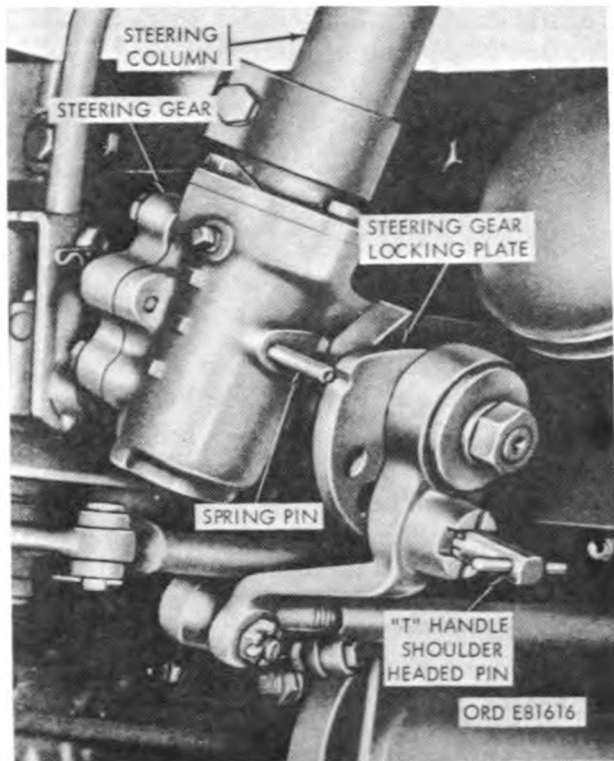


Figure 2-24. Location of steering gear locking plate and "T" handle shoulder headed pin.

pin to enter center hole in steering gear locking plate.

Warning: When operating the vehicle from a standing position in front of the vehicle, the transmission shift lever must be in REVERSE (R) position at all times.

Step No. 3. Steering Column Brace. Tighten steering column brace, locking knob securely (see fig. 2-1).

Step No. 4. Starting and Operating Vehicle. Follow steps in paragraph 2-9 for starting engine. Operation of the accelerator and clutch is the same as given in paragraph 2-11 except controls are operated by hand.

2-14. Operating Vehicle from Crouching Position at Front of the Vehicle

Operating the vehicle in a crouching position at the front of the vehicle (fig. 2-5) is the same as operating the vehicle from a standing position except the steering wheel and column must be placed in the forward position. Lower steering column in the same way as instructed in paragraph 2-13, placing the "T" handle should-

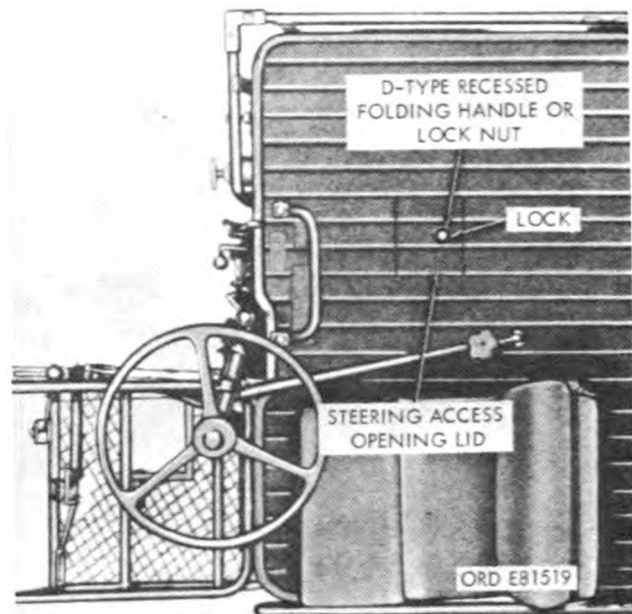


Figure 2-25. Location of two- or four-wheel steering access lid.

der headed pin in the upper hole in the steering gear locking plate.

Caution: Steering wheel turning direction is reversed to steer vehicle when operating from standing or crouching position.

2-15. Connecting or Disconnecting Four-Wheel Steering

a. Steering Access Opening Lid. To gain access to steering connections, remove steering access opening lid by turning D-type recessed folding handle (fig. 2-25) or, if applicable, by turning locknut using wheel nut wrench (fig. 1-5 or 3-1) and remove lid.

b. Changing from Two- or Four-Wheel Steering.

- (1) To change from two- to four-wheel steering, turn steering wheel in direction necessary to place front wheels in a straightahead position. Pull out quick-release pin securing front end of steering connection rod to anchor.

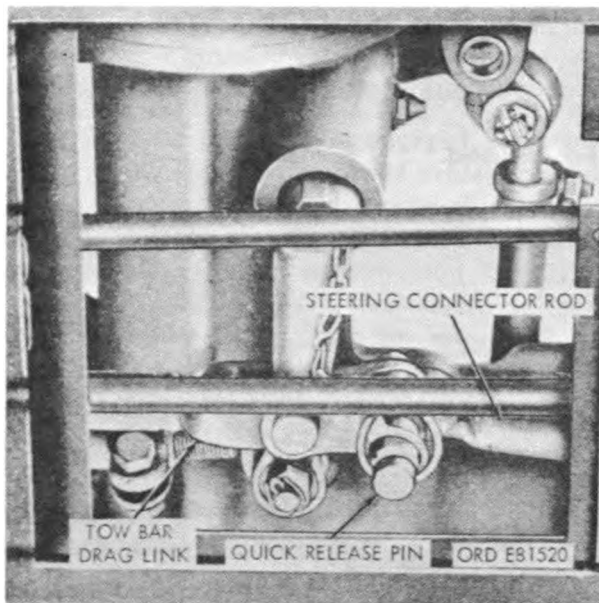


Figure 2-26. Steering access lid removed showing four-wheel steering connected.

Swing the end to align with hole through rear end of tow bar drag link

and insert pin. The pin is held in place by a spring-loaded ball (fig. 2-26).

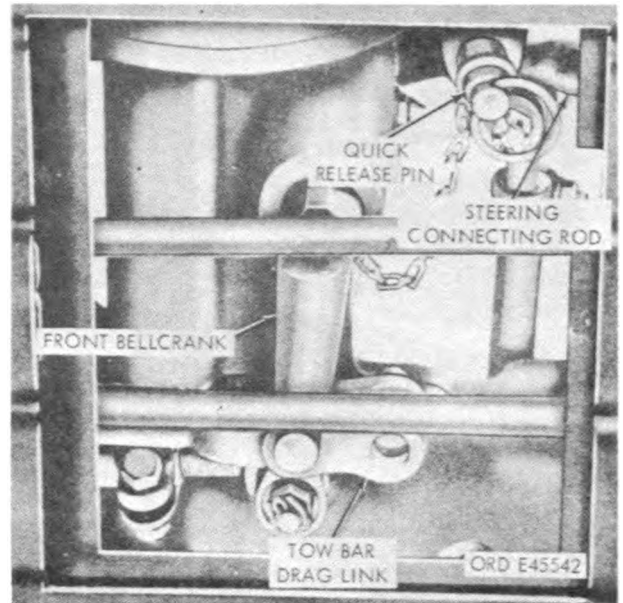


Figure 2-27. Steering access lid removed showing two-wheel steering connected.

- (2) To change from four- to two-wheel steering, turn steering wheel in direction necessary to place front wheels in a straightahead position. Pull out quick-release pin securing front end of steering connecting rod to tow bar drag link (fig. 2-27). Swing the end to the right to align with the hole in the anchor bracket on the right frame tube. Replace quick-release pin.

Note. It is not practical to attempt to connect four-wheel steering when vehicle platform is loaded.

2-16. Tow Bar Installation and Stowage

a. General. The tow bar (fig. 2-28) is used as a tongue when the vehicle needs towing or is used as a trailer. When not in use the tow bar is stowed beneath the platform just forward of the rear wheels (fig. 2-29). The attaching end of the tow bar is held in a tube fastened to the underside of platform and the handle end is held to a bracket by a hook bolt, plate, and cotter pin.

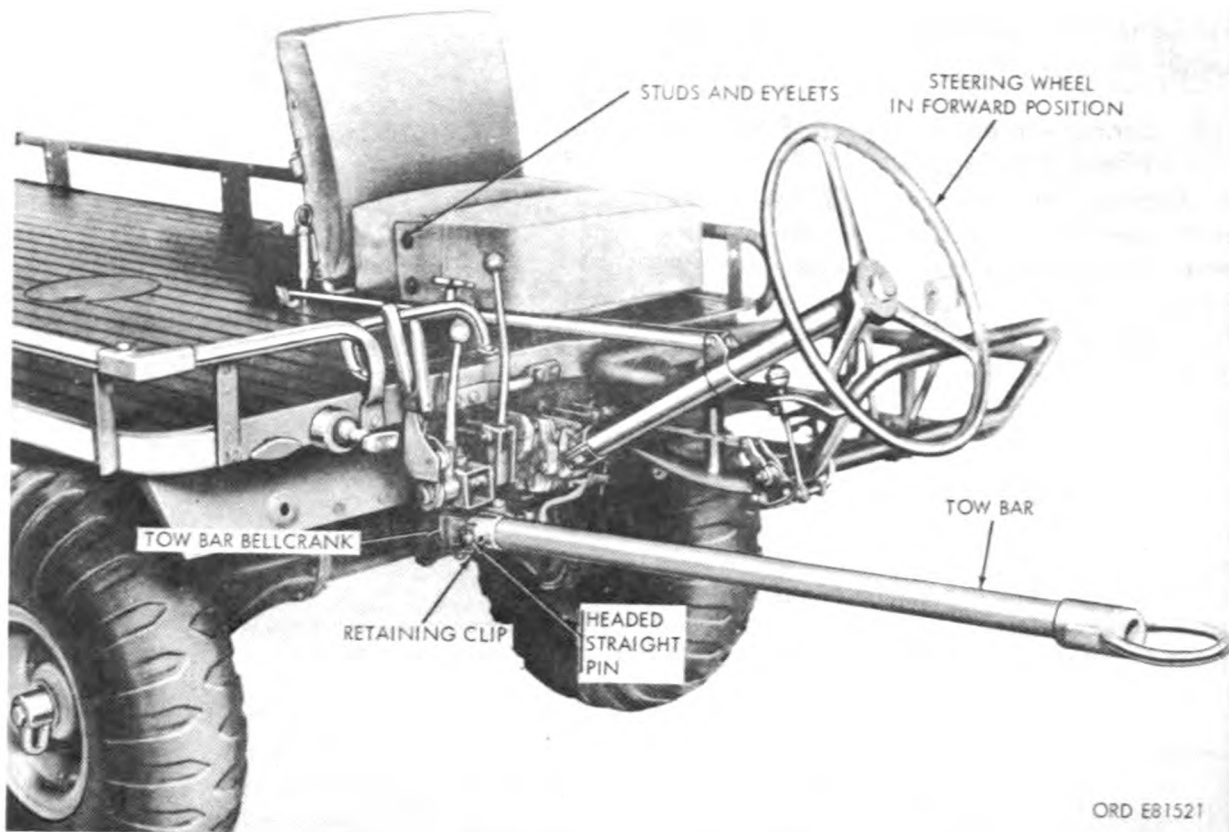


Figure 2-28. Tow bar connected.

b. Installation. To install tow bar in towing position on tow bar bellcrank, loosen hook bolt (fig. 2-29), turn locking plate 180 degrees, and remove tow bar from beneath platform. Tighten hook bolt on bracket. Remove retaining clip from headed-straight pin (fig. 2-28) in tow bar bellcrank and remove pin. Position tow bar on tow bar ballcrank as shown. Push headed-straight pin through tow bar and bellcrank and secure with retaining clip.

c. Stowage. To stow tow bar, remove retaining clip (fig. 2-28), from headed-straight pin securing tow bar to tow bar bellcrank and remove pin and tow bar. Install pin in bellcrank and secure with retaining clip. Loosen tow bar hook bolt (fig. 2-29), and turn the locking plate until the long end is pointing down. Slide at-

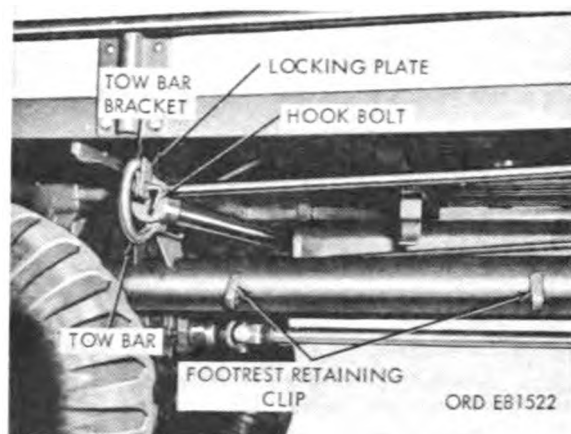


Figure 2-29. Tow bar stowed under platform.

taching end of tow bar into tube provided under left side of vehicle, position handle of tow bar on bracket under right side of platform, turn long end of plate up, and tighten hook bolt.

Caution: When stowing tow bar, be sure attaching end of tow bar goes under and clears throttle control wire.

2-17. Towing Vehicle

a. Towing to Start Engine.

- (1) Make sure vehicle to be towed is in two-wheel steer (fig. 2-27).
- (2) Pull out and disengage "T" handle shoulder headed pin (fig. 2-24) which locks position of steering gear.
- (3) Install tow bar in towing position (par. 2-15).
- (4) Check to see that fuel line shutoff valve and crankcase breather valves are open (fig. 2-7).
- (5) Turn ignition switch ON (fig. 2-15).
- (6) Place towed vehicle's transfer gearshift lever in high-range position and transmission shift lever in third-speed gear position. Refer to figure 2-6.
- (7) With the clutch disengaged, start towing. As soon as towed vehicle reaches operating speed, gradually engage clutch. When engine starts, disengage clutch, shift transmission lever into NEUTRAL (N) position and stop both vehicles. Shift transfer gearshift lever into NEUTRAL (N), apply handbrake lever.
- (8) Disconnect and stow tow bar.

b. Towing as a Trailer or Disabled Vehicle.

Caution: Towing vehicle with gears engaged, for purposes other than starting engine, may turn engine crankshaft at a dangerous over-speed and cause serious engine damage.

- (1) Put vehicle in two-wheel steer (par. 2-15) and remove and stow footrest, seat back and seat, if necessary (par. 2-18).

- (2) Install tow bar in towing position (par. 2-16b).
- (3) Make sure that transmission and transfer gears are in NEUTRAL (N) position. Refer to figure 2-6.
- (4) Pull out and disengage "T" handle shoulder headed pin to render steering gear inoperative.

2-18. Removing, Installing and Stowing Operator's Footrest, Seat Back, and Seat

a. *General.* When vehicle is to be towed, prepared for shipment, or stored, the operator's footrest, seat back, and seat should be stowed under the platform on the right frame tube.

b. Removing Footrest.

- (1) Apply handbrake to add slack to footbrake cable.
- (2) Separate brake cable quick disconnect coupling by pushing sleeve at front end toward sleeve at rear end against the pressure of the spring; this will uncover socket in connector and expose ball on end of linkage. Lift ball end of linkage out of socket and allow sleeve to snap back into original position (fig. 2-30).
- (3) Separate clutch and throttle control cables in the same manner.

Note. Always disconnect cables from front end of couplings separating quick disconnect couplings (fig. 2-30).

- (4) To remove footrest on M274A3, loosen footrest clamp bolt, which secures lower portion of footrest to platform, until threads of bolt are free. Clamp bolt will remain with footrest (fig. 2-31). On other vehicles loosen second clamp bolt securing top portion of footrest frame to platform. Lift up on footrest and remove from vehicle footrest supports (fig. 2-32).

c. *Removing Seat and Seat Back.* Unhook operator's seat back fastener (fig. 2-18) from retaining loop or bracket. Lift up on seat back frame and remove from locating holes in platform. Remove seat cushion. Separate front half

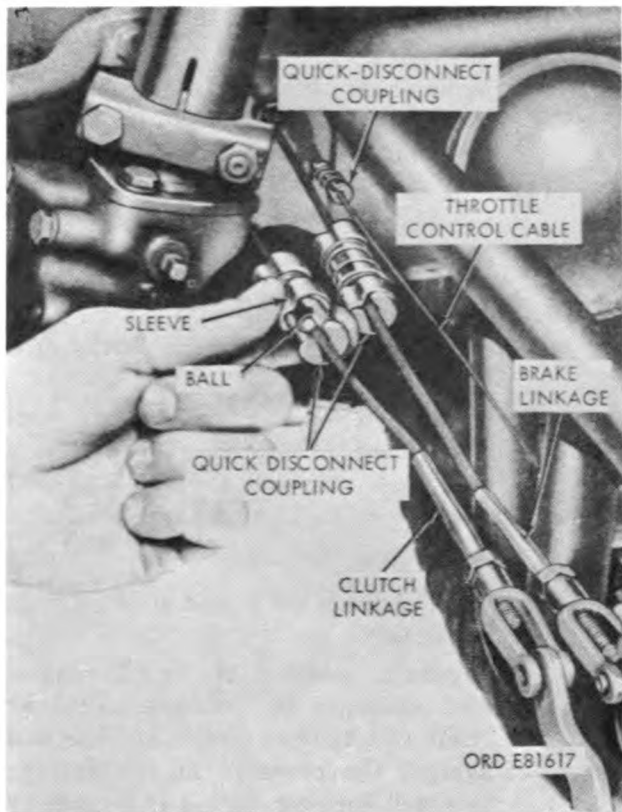


Figure 2-30. Clutch, brake and throttle quick-disconnect couplings.

of cushion from rear half of cushion by unhooking four studs and eyelets.

d. Stowing Footrest, Seat Back and Cushions.

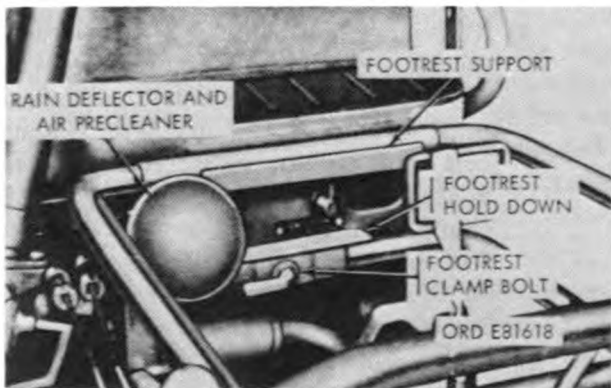


Figure 2-31. Removing or installing operator's footrest—M274A3 vehicle.

(1) Positioning seat back and seat cushion. Position front half of the seat

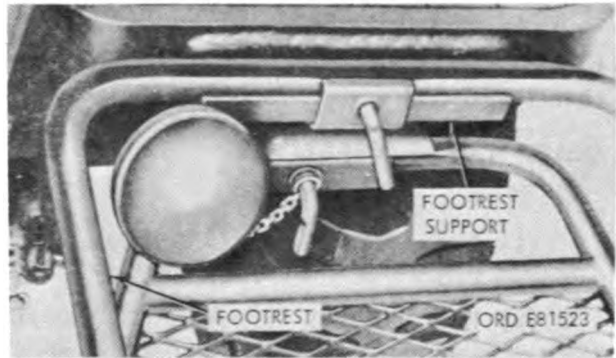


Figure 2-32. Removing or installing operator's footrest—M274A2, M274A4 and M274A5 vehicles.

cushion against pedals at the front end of the footrest. Put the seat back on top of front half of seat cushion with the bottom end of seat back toward the rear of the footrest. Loosen straps attached to seat back and around publications bag (fig. 1-2). Put long strap under footrest and push through the footman loop, and arrange as shown in figure 2-33.

(2) Stowage clips. Turn the two footrest retaining clips on the right frame tube to a vertical position (fig. 2-29). Slide footrest with front half of seat cushion and seat back over the tube between the clips (fig. 2-34). Pull out clips, turn 90 degrees and hook over the vertical tubes of the footrest (fig. 2-36).

Caution: Exercise care not to damage starter cable tube while positioning operator's footrest and seat back on right frame tube.

(3) Rear half of seat cushion. Position rear half of seat cushion next to the footrest and seat back and push end of long strap through slot in holddown flap of cushion (fig. 2-35). Tighten

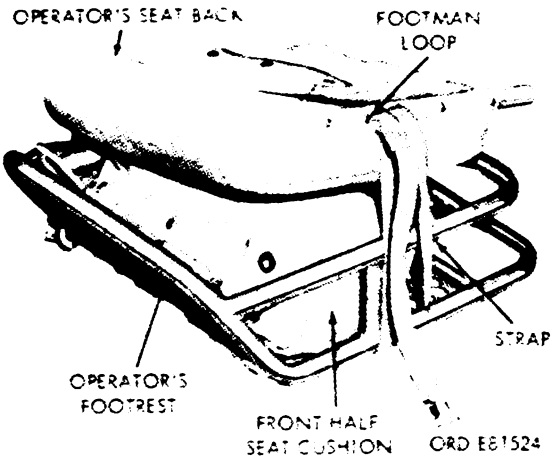


Figure 2-33. Positioning operator's seat back and front half of seat cushion in footrest.

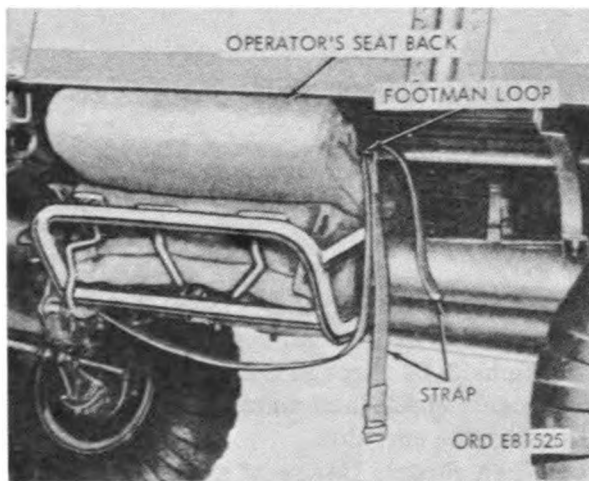


Figure 2-34. Partial stowage of footrest.

strap securely and place loose end of strap through buckle as shown in figure 2-36.

e. Installation of Seat Back and Seat.

- (1) Fasten the front half of the seat cushion to the rear half by hooking the four eyelets over the studs (fig. 2-18).

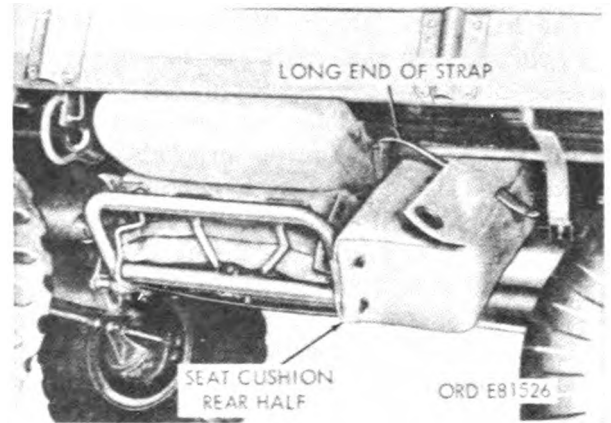


Figure 2-35. Positioning rear half of operator's seat cushion.

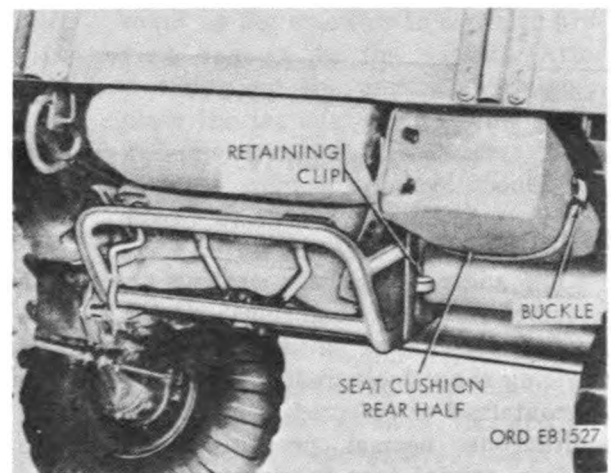


Figure 2-36. Securing straps and rear half of operator's seat cushion.

- (2) Fasten the flap on the rear half of the seat cushion to the seat back by fitting the two eyelets in the flap onto the frame posts of the seat back.
- (3) Position the seat back into the proper locating holes on the platform and hook the seat back fastener into the retaining loop.

f. Installation of Footrest. To install footrest, reverse the procedures for removing footrest, as given in paragraph 2-18b.

2-19. Lowering Handrail

The handrails for the M274 series vehicle are held together and secured to the edge of the vehicle platform by bolt-assembled washers. Two sets of screw holes are provided in the handrail upright mounting brackets for attachment. The lower screw holes are used to attach the handrail in raised position as shown in figures 1-1 and 1-2. The upper screw holes are used to attach the handrail in a lowered position as shown in figure 2-37. To change position of handrail, use the wheel nut wrench to loosen or tighten assembling or mounting bolts.

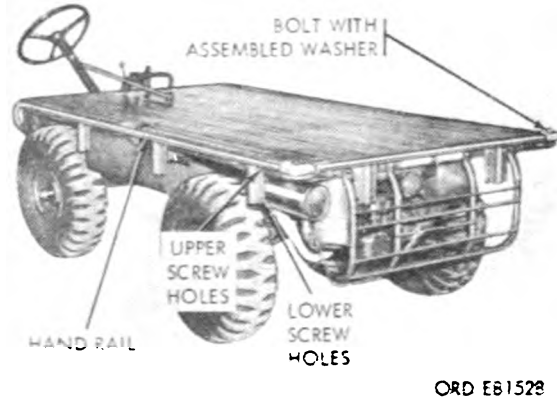


Figure 2-37. Handrail in lowered position.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-20. General

a. In addition to the operating procedures described for usual conditions, special instructions of a technical nature for operating and servicing the vehicle under unusual conditions are contained or referred to in this section. In addition to normal preventive-maintenance services, special care in cleaning and lubrication must be observed where extremes of temperature, humidity, and terrain conditions are present or are anticipated. Proper cleaning, lubrication, and storage and handling of fuels not only ensure proper operation and function, but also guard against excessive wear of the working parts and deterioration of the vehicle.

b. TM 21-300 contains very important instruction on selection, training and supervision of operators of wheeled vehicles. TM 21-305 prescribes special instructions for operating wheeled vehicles under unusual conditions.

Caution: It is imperative that the approved practices and precautions be followed. A de-

tailed study of TM 21-300 and TM 21-305 is essential for use of this vehicle under unusual conditions.

c. Refer to LO 9-2320-246-12, LO 5-2805-213-12 and to paragraphs 3-7 through 3-10 for lubrication under unusual conditions; refer to paragraphs 3-23 through 3-26 for preventive-maintenance checks and maintenance to be performed by the operator.

d. When chronic failure of materials results from subjection to extreme conditions, report of condition should be made on DA Form 2407, Maintenance Request.

2-21. Extreme Cold-Weather Conditions

a. General.

- (1) Extensive preparation of material scheduled for operation in extreme cold weather is necessary. Extreme cold will cause lubricants to thicken or congeal, crack insulation, and cause electrical short circuits, prevent fuel from vaporizing or properly combining with air to form a combustible

mixture for starting, and will cause various materials to become hard, brittle, easily damaged or broken.

- (2) For description of operation in extreme cold, refer to FM 31-70, FM 31-71, and TM 9-207.

b. Cold-Weather Engine Starting Procedures.

- (1) Before starting engine, with temperature below 32°F., close louvers on engine fan assembly. Refer to paragraph 2-4q.
- (2) Depress clutch pedal and position clutch pedal holddown against operator's footrest crossbar as shown in figure 2-38. The holddown will hold clutch pedal in released position and disengage engine from transmission to improve starting ease during cold weather.

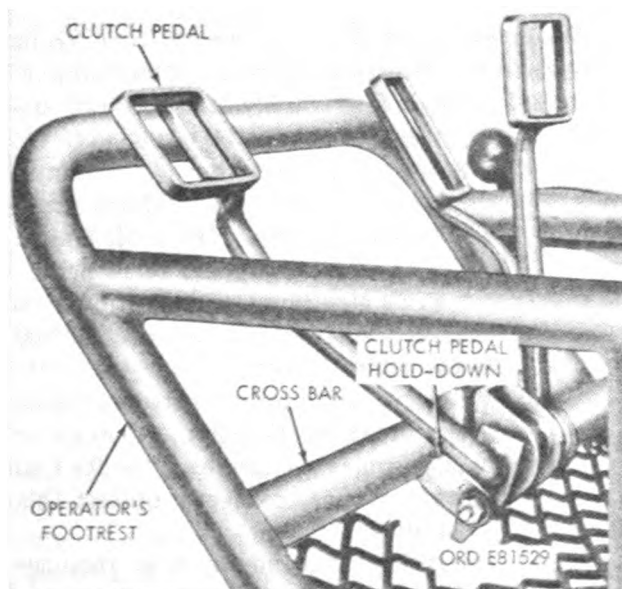


Figure 2-38. Clutch pedal holddown holding clutch pedal in released position.

- (3) Start engine as directed in paragraph 2-9.
- (4) If engine fails to start after the first attempt, repeat procedures in paragraph 2-9, figure 2-13.

c. Winterization Equipment. TM 9-207 con-

tains general information on winterization equipment and vehicle processing.

d. Fuels and Lubricants. Refer to TM 9-207 for detailed information on storage, handling and use.

2-22. Extreme Cold-Weather Operation

a. General.

- (1) The operator must be very cautious when starting or operating vehicle after a shutdown. Congealed lubricants may cause failure of parts. Tires frozen to the ground or frozen in the shape of a flat spot, while under-inflated, must be considered. The brake band or shoes may be frozen to the drum and require preheating to avoid damage to the clutch surfaces. Each condition must be taken into account by the operator in order to prevent damage to the vehicle. After warming up the engine thoroughly, place the transfer gear in low range and the transmission in first gear. Operate vehicle slowly about 100 yards, being careful not to stall the engine. This should heat gears to a point where normal operation can be expected.
- (2) The operator should refer to TM 21-305 for special instructions on operating hazards in snow, ice, and unusual terrain encountered under extreme cold-weather conditions.

b. At Halt or Parking.

- (1) When halted for short shutdown periods, park the vehicle in a sheltered spot out of the wind. If no shelter is available, park so that the engine does not face into the wind. For long shutdown periods, if high, dry ground is not available, prepare a footing of planks or brush. Chock in place if necessary.
- (2) When preparing the vehicle for shutdown period, place the shifting control levers in NEUTRAL (N) position to prevent possible freezing in an engaged position.

Note. Freezing may occur when water has accumulated due to condensation.

- (3) Remove snow, mud, and ice from vehicle as soon as possible after operation. Refer to table 2 for detailed "after-operation procedures."
- (4) Refuel immediately in order to reduce condensation in the fuel tank. Prior to refueling, remove fuel tank drain plug (fig. 1-4) and drain off any accumulated water.
- (5) Make sure tires are fully inflated. The correct tire pressure is 12 psi.

2-23. Extreme Hot-Weather Operations

a. General. Continuous operation of vehicle at high speeds, long hard pulls, or in low gear ratios on steep grades or soft terrain, may cause the vehicle to overheat.

b. At Halt or Parking.

- (1) Do not park the vehicle in the sun for long periods, as heat and sunlight will shorten the life of the tires.
- (2) Cover inactive vehicles with tarpaulins if no other suitable shelter is available.
- (3) When entire vehicle cannot be covered, protect engine against entry of sand.
- (4) Vehicles inactive for long periods in hot, humid weather are subject to rapid rusting and accumulation of fungus growth. Make frequent inspections, and clean and lubricate to prevent excessive deterioration.

2-24. Operation on Desert or in Extreme Dust Conditions

Observe the precautions given for extreme hot weather conditions (par. 2-23), and in addition inspect and service engine oil filter, carburetor, air cleaners, breathers, and vents, frequently.

2-25. Operation on Unusual Terrain

a. General.

- (1) Select a gear ratio low enough to maintain engine speed without causing the wheels to spin. To maintain

vehicle momentum through or over difficult terrain, transfer must be placed in low range before attempting to operate vehicle on ice, snow, or in deep mud. Place in high range as soon as conditions permit.

- (2) If one or more wheels become mired or bogged, it may be necessary for the vehicle to be winched, or towed by a companion vehicle, or it may be necessary to jack up the mired wheel and insert planking or matting under it.

Caution: Do not jam sticks or stones under spinning wheel, as this only forms an effective block and will wear the tire tread unnecessarily.

- (3) Skidding and loss of steering or traction, are the chief difficulties encountered on icy roads.

Note. Use two-wheel steering on slippery terrain.

When rear end skidding occurs, turn front wheels in the direction the rear end is skidding. Decelerate engine gradually and do not de-clutch. Apply brakes gradually.

- (4) The operator must know at all times the exact direction in which front wheels are steering. The vehicle may, on ice-covered or slippery terrain, continue in a straightahead direction even though the front wheels are turned to the right or left.
- (5) When traveling over crusted surfaces, avoid breaking through. Canvas or planking may be used as a roadbed on short stretches to ensure against this possibility.
- (6) Operating in sand or dust requires daily cleaning of carburetor, air cleaner, and engine oil filter.

b. Recommended Tire Pressure. 12 psi.

c. After-Operation Procedures. Remove accumulation of ice, snow, and mud, from under platform, steering knuckles and arms, brakes, transmission breather, air cleaner, and ignition switch electrical connections.

Caution: Exercise care when removing such accumulations in order to prevent damage to the affected parts.

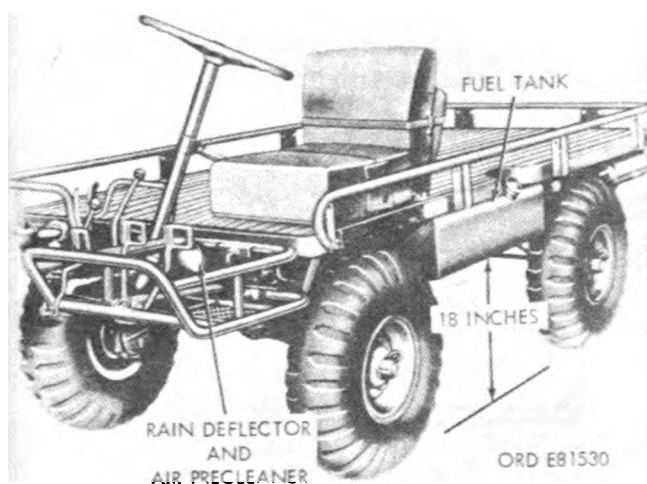


Figure 2-39. Determining depth of water.

2-26. Fording Operations

a. General. In fording, vehicles may be subjected to water of varying depths. Factors to be considered are normal fording capabilities, spray-splashing precautions, and accidental complete submersion. It is important that water does not enter the rain deflector and air precleaner (fig. 2-39) during fording operations. Submersion of the rain deflector and air precleaner would allow water to enter the air intake system and stall the engine.

b. Normal Fording. Fording of bodies of water up to maximum depth of 18 inches (fig. 2-39) is based on the standard vehicle with normal waterproofing protection provided for units as manufactured, without a deep-water fording kit. Observe the following precautions:

- (1) Do not exceed known fording limits of vehicle (*b*, above).
- (2) The engine must be operating at maximum efficiency before attempting to ford.
- (3) Shift transmission and transfer into lowest speed position; speed up engine overcome the possibility of a stall.
- (4) All normal fording should be at

speeds that will avoid forming a bow wave. Enter the water slowly, avoid using the clutch, if possible, because frequent use while submerged may cause the clutch to slip. Should engine stall for reasons other than water contamination, try to restart in usual manner specified in paragraph 2-9.

c. After-Fording Operation. At the earliest opportunity, check engine oil level and check for presence of water in the crankcase. Heat generated by driving will evaporate or force out most water which may have entered at various points. Applying the brake a few times after dry land has been reached will help dry out brake lining. Refer to paragraph 3-26 for maintenance operation after fording.

d. Accidental Fording Over 18 Inches. During fording operation the vehicle may be driven accidentally into water over 24 inches deep, and rain deflector and air precleaner (fig. 2-39) may have been momentarily under water, allowing water to enter the air intakes system in the frame tube. In this event, as a precaution, remove drain plugs from the frame tubes using the wheel nut wrench, drain accumulated water and install plugs (fig. 2-40). If complete submersion occurs, the vehicle must be salvaged, temporary preservation applied, as in *c* above, and then sent to organizational maintenance as soon as possible for required maintenance.

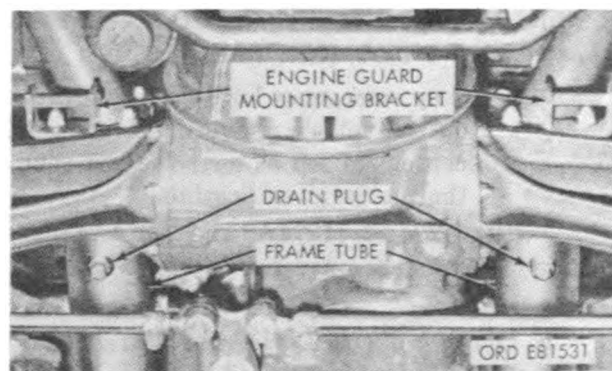
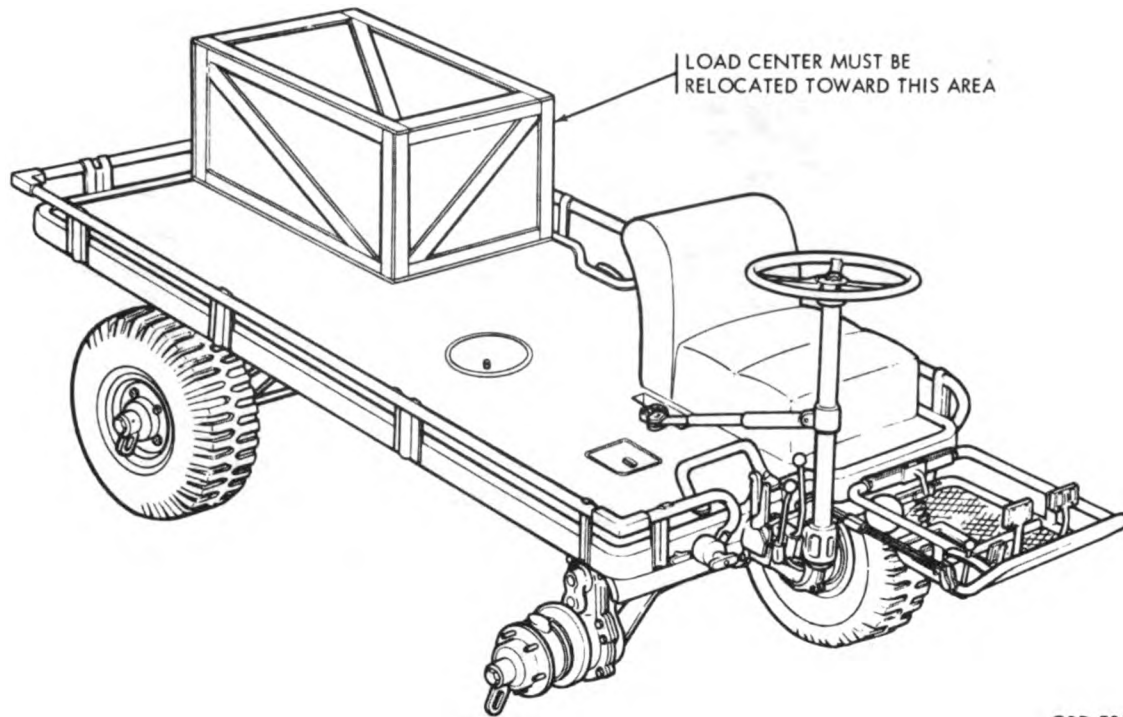


Figure 2-40. Location of water drain plugs at rear end of frame tubes.



ORD E81541

Figure 2-41. Operation of vehicle with right front wheel missing.

2-27. Emergency Operation with Three Wheels

a. Operating with Right Front Wheel Missing. The vehicle will operate with the right front wheel missing and the operator in the operator's seat (fig. 2-41).

Warning: Extreme caution must be exercised while braking or turning. Vehicle speed should not exceed 5 mph (fast walk).

- (1) Any emergency load that must remain on the vehicle should have its weight center shifted as near the left rear of the platform as possible.
- (2) M274A2, M274A3 and M274A4 models must be operated in two-wheel steering.

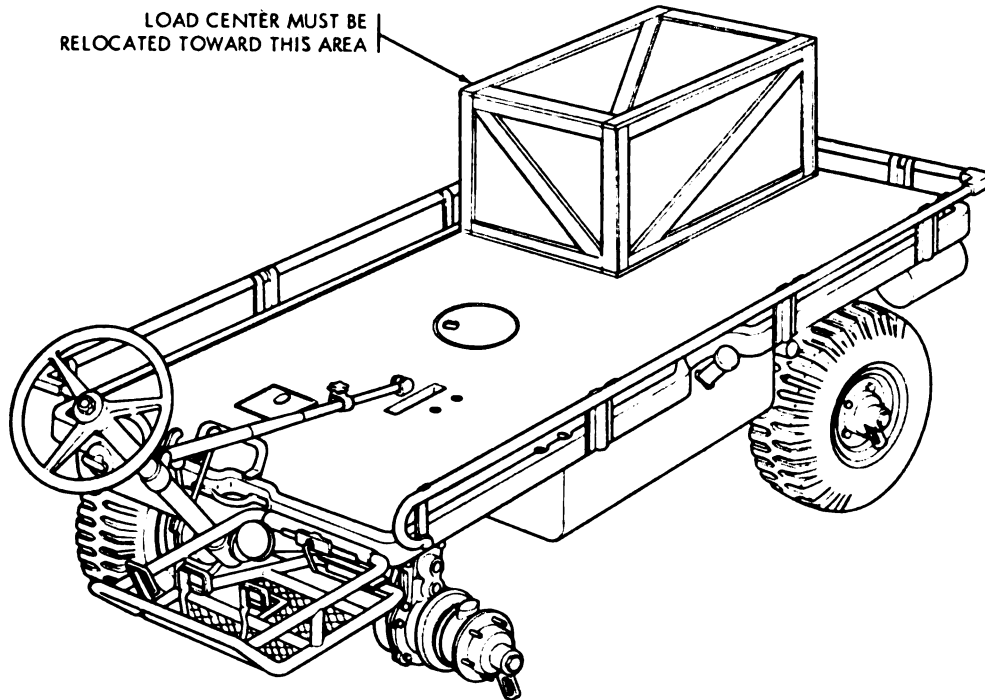
b. Operating with Left Front Wheel Missing. The vehicle may be operated with the left front wheel missing only from the crouching or standing position (fig. 2-42).

Warning: Caution must be exercised while braking or turning. Speed shall not exceed 3 mph (normal walk).

- (1) Any emergency load that must remain on the vehicle should have its weight shifted as near the right rear of the platform as possible.
- (2) Remove seat and move toward rear of vehicle.
- (3) M274A2, M274A3 and M274A4 models must be operated in two-wheel steering.

c. Operating with Rear Wheel Missing.

Warning: Do not operate vehicle with either rear wheel missing. The rear end weight causes too much of an imbalance. If vehicle loses a rear wheel or has a flat, it is recommended that action be taken to relocate a wheel so that the right front is the location of the flat or missing wheel.



LOAD CENTER MUST BE
RELOCATED TOWARD THIS AREA

ORD E81542

Figure 2-42. Operation of vehicle with left front wheel missing.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. TOOLS, EQUIPMENT, AND REPAIR PARTS

3-1. General

Tools and equipment are issued to the operator, crew, or user, for operating or maintaining the materiel. Tools and equipment should not be used for purposes other than prescribed, and when not in use they should be properly stored.

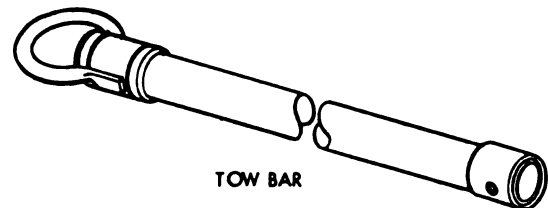
3-2. Common Tools

Standard and commonly used tools and equipment having general application to this materiel are authorized for issue by tables of allowances and tables of organization and equipment.

3-3. Special Tools and Equipment

The only tool allocated for performance of operator maintenance on the vehicle is the wheel nut wrench (fig. 3-1). The wheel nut wrench is designed with a hexagon socket on one end and is used to install or remove wheel nuts; to operate locks on two access lids and engine access cover; to loosen or tighten bolts securing the handrails; to remove or install drain plugs in frame tube and fuel tank, etc. When this tool is not in use, it should be stowed

in the publication stowage bag. The M274A3 Model still uses the combination wheel nut wrench and handcrank (fig. 1-5) which is stowed in the operator's footrest and used as a foot support. The only special equipment allocated is the tow bar (fig. 3-1) which is stowed under the platform (fig. 2-29).



ORD E81532

Figure 3-1. Wheel nut wrench and tow bar.

3-4. Repair Parts

No repair parts are authorized for operator maintenance on the M274 series vehicles.

Section II. LUBRICATION

3-5. Lubrication

Note. Lubrication procedures are performed by organizational maintenance personnel. Operators may assist at prerogative of Commanders.

Caution: Before turning the vehicle on its side or back for lubrication, close crankcase breather valves (fig. 2-7) and close fuel filler cap vent valve (fig. 3-2). On engines equipped

with fuel primer pump, close primer line shut-off valve (refer to TM 5-2805-213-14). After lubrication return vehicle to normal position and remove spark plugs; crank engine several revolutions in order to expel any oil that may have accumulated in the engine cylinders. Install spark plugs. Open crankcase breather valves and fuel filter cap vent valve.

a. *General.* The vehicle must be serviced to ensure operation at peak-performance levels. Keeping the vehicle as clean as possible at all times will aid performance and facilitate lubrication procedures.

b. *Lubrication Chart.* The lubrication chart (figs. 3-3 and 3-4) prescribes cleaning and lubricating procedures as to locations, intervals, and proper materials for the M274 series vehicles with A042 engines.

c. *Specific Lubrication Instructions.* Specific instructions and that lubrication which is performed by supporting-maintenance personnel are listed on the lubrication chart and lubrication order (see LO 9-2320-246-12) under the heading "Notes."

d. *Lubrication Order.* A lubrication order (LO 9-2320-246-12) is issued with each vehicle and is to remain with it at all times. In the event the vehicle is received without a copy, the using organization shall immediately requisition one.

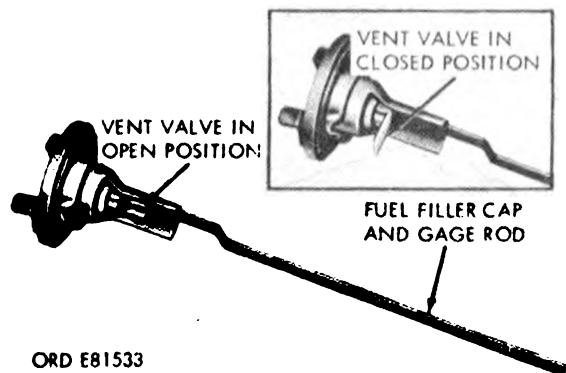


Figure 3-2. Fuel filler cap vent valve.

3-6. Lubrication Instructions Under Usual Conditions

a. *Service Intervals.* Service intervals specified on the lubrication chart are for normal operation where moderate temperature, humidity, and atmospheric conditions prevail.

b. *Special Lubrications.* Any special lubricating instructions required for specific mechanisms or parts are covered in the pertinent section.

c. *Lubricating.* Lubrication fittings and oil holes are shown in figures 3-5, 3-6 and 3-7. Wipe these devices and surrounding surfaces clean before and after lubricant is applied.

d. *Reports and Records.*

(1) Report unsatisfactory performance of petroleum fuels, lubricants, or preserving material on maintenance request, DA Form 2407.

(2) Maintain a record of lubrication of the vehicle in the equipment log book on DA Form 2408-2.

3-7. Lubrication Instructions Under Unusual Conditions

a. *Service Intervals.* Intervals specified on the lubrication chart must be changed to fit the condition, i.e., lubricate more frequently, to compensate for abnormal or extreme conditions, such as high or low temperatures, prolonged periods of high-speed operation, exposure to moisture, continued operation in sand or dust, or immersion in water. Any one of these operations or conditions may cause contamination and quickly destroy the protective qualities of the lubricants. To compensate for inactive periods, intervals may be extended if vehicle has adequate preservation.

b. *Grades of Lubricants.* Lubricants are prescribed in the lubrication chart key (fig. 3-5) in accordance with expected temperature ranges. Change the grade of lubricants whenever the weather forecast data indicate that air temperatures will be consistently in the next higher or lower temperature range, or when sluggish starting caused by lubricant thickening occurs.

c. *Maintain Levels.* Lubricant levels must be maintained by close observation and steps taken to replenish lubricants as required.

d. *Lubrication for Continued Operation Below 0° F.* Refer to TM 9-207 for instructions on necessary lubrication of vehicles for operation in extreme cold weather.

e. *Lubrication After-Fording Operations.*

Notes. Regardless of temporary measures taken, the vehicle must be delivered as soon as practicable to organizational maintenance.

After any fording operation in water 12

LUBRICATION CHART

TRUCK, PLATFORM UTILITY:
1/2-TON, 4x4, M274A2, M274A3, M274A4 AND M274A5
 References: TM 9-2320-246-10, TM 9-2320-246-20, TM 5-2805-213-14, LO 5-2805-213-14

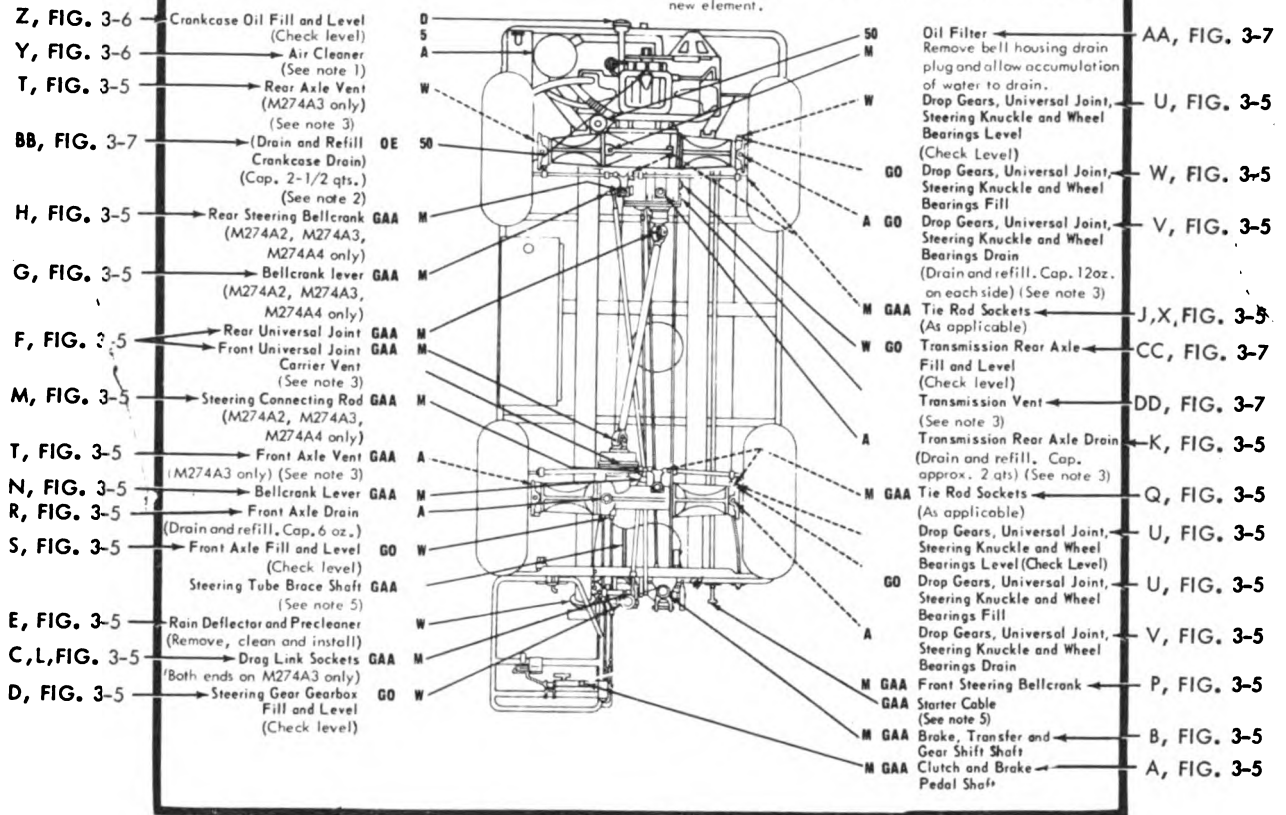
Lubrication will be performed only as prescribed by this order except as required under unusual conditions as described in referenced technical manuals.

Clean fittings before lubricating. Clean parts with THINNER, PAINT MINERAL SPIRITS (TPM) or DRYCLEANING SOLVENT (SD). Dry before lubricating. Lubricate dotted arrow points on both sides of equipment.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

OIL FILTER - Every 50 hours while crankcase is being drained, remove element; clean inside of filter case and install new element.



ORD E81534

Figure 3-3. Lubrication chart—front.

inches or over, all chassis points must be lubricated to cleanse bearings of water or grit as well as any other point required in accordance with paragraph 3-6c.

(1) If vehicle has been in deep water for

a considerable length of time or was submerged beyond its fording capabilities, precautions must be taken as soon as practicable to avoid damage to engine and other vehicle components as follows:

KEY

LUBRICANTS	EXPECTED TEMPERATURES			FOR ARCTIC OPERATION Refer to TM 9-207	LUBRICANTS	INTERVALS
	above +32 F	+40 F to -10 F	0 F to -65 F			
OE —Lubricating oil, internal combustion engine, transmission	OE 30	OE 10	OES		OES —Lubricating oil, internal combustion engine	D —Daily W —Weekly M —Monthly A —Annually or 2d semiannual (S) P.M. service whichever occurs first 5 — 5 Hours 50 — 50 Hours
GO —Lubricating oil, gear	GO 90	GO 75	GO S		GO S —Lubricating oil, gear	
GAA —Grease, automotive and artillery	GAA	GAA	GAA			

NOTES

CAUTION: Before turning vehicle on its side or back to be lubricated, close crankcase breather valves, fuel line shut-off valve, and close filler cap vent valve. On engines equipped with a fuel primer pump, close primer line shut-off valve. After lubrication return vehicle to normal position and remove spark plugs. Crank engine several times in order to expel any oil that may have accumulated in engine cylinders. Install spark plugs. Open crankcase breather valves, fuel line shut-off valve, and fuel filler cap vent valve.

1. AIR CLEANER - Annually replace air cleaner element. Weekly inspect and remove all dust and dirt particles from air cleaner using a clean dry cloth. For desert or extreme dusty operation, replace element monthly or more frequently, if required.

2. CRANKCASE - Drain crankcase every 50 hours. Drain only after engine has been running previously and is at operating temperature. Refill to FULL mark on oil level gage. Run engine a few minutes to fill oil passages, stop engine, recheck oil level and add oil if necessary.

3. GEARCASES - Drain annually. Drain only when hot after operation. Fill to level plug before operation. Clean transmission vent and front axle carrier vent weekly and after operation in mud and water. Clean axle housing vent weekly (M274A3 only) and after operation in mud and water.

4. OILCAN POINTS— Weekly, lubricate brake clutch throttle disconnects and cables, hand throttle, shifting control rods and support brackets, steering locking and sector joints, storage clips, access cover locks, clamp screw tow bar, steering column brace, tow bar bellcrank, and tow bar drag link with OE.

5. LUBRICATED AT TIME OF DISASSEMBLY BY MAINTENANCE PERSONNEL - Steering tube inner brace shaft. Starter cable.

6. TRANSMISSION - New transmissions are delivered with preservative engine oil, PE-1. Except for the preservative additive in PE-1, it is the same oil as EO-10. Use PE-1 in the same manner as EO-10 with the first scheduled 2,000-mile or semiannual oil change. OE-10 may be added to PE-1 to maintain proper oil level.

7. REPORTING OF EQUIPMENT LUBRICATION ORDER IMPROVEMENT - The direct reporting of errors, omissions, and recommendations for improving this equipment lubrication order by the individual user is authorized and encouraged. DA Form 2028 will be used for reporting these improvements. This form may be completed using pencil, pen or typewriter. DA Form 2028 will be completed and forwarded, by the individual using this manual, directly to:

Commanding General
 U.S. Army Tank-Automotive Command
 ATTN: AMSTA-TP
 Warren, Michigan 48090

ORD E81535

Figure 3-4. Lubrication chart—rear.

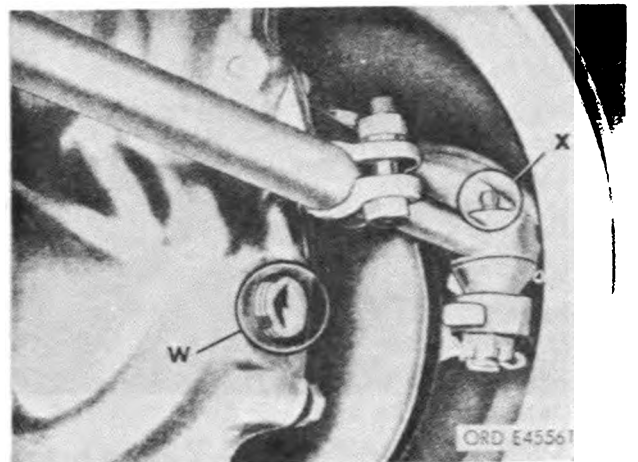
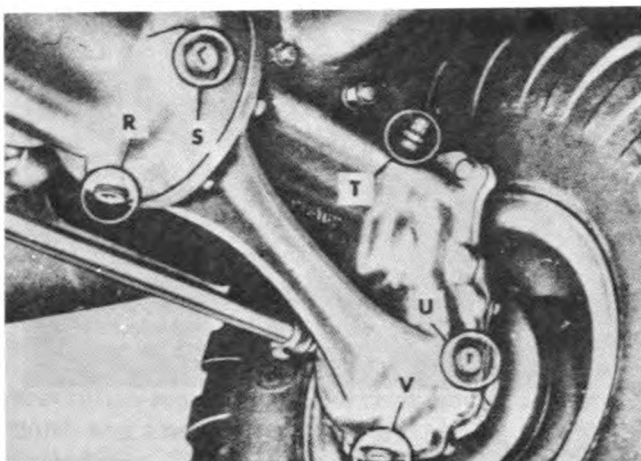
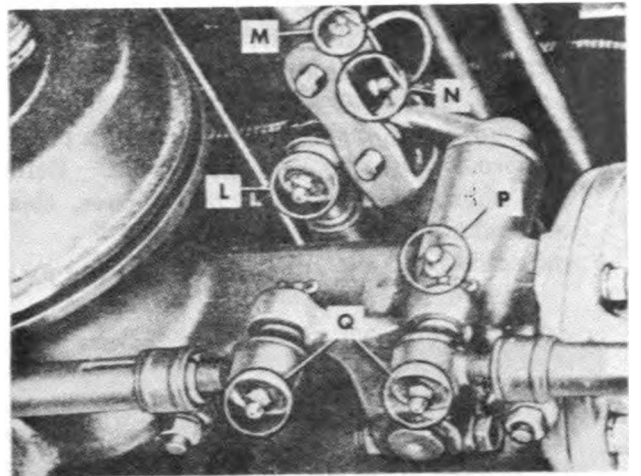
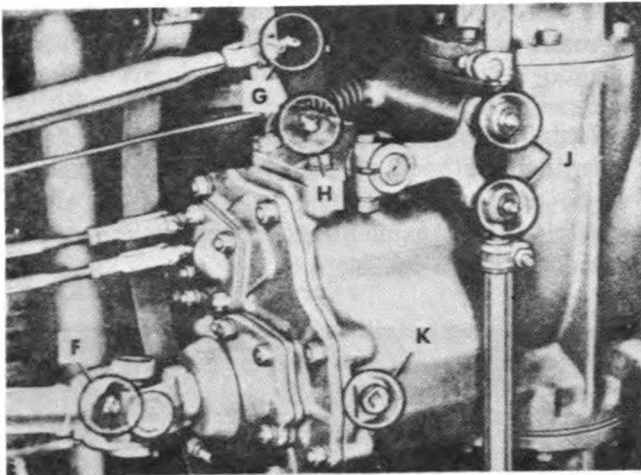
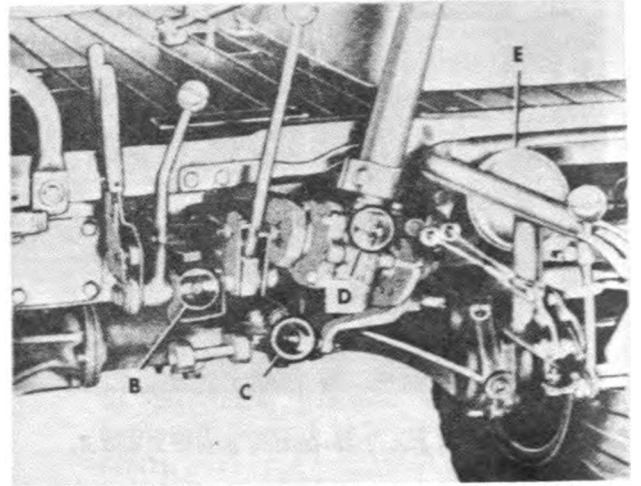
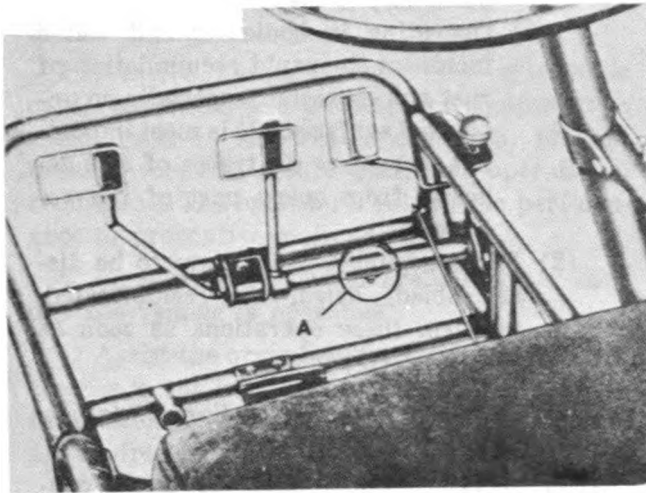


Figure 3-5. Lubrication points A to X.

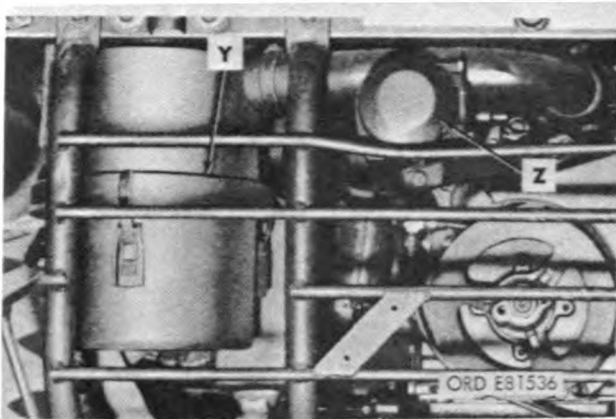


Figure 3-6. Lubrication points Y and Z.

- (a) Performance of a complete lubrication service regardless of time interval (par. 3-5).
- (b) When engine oil is drained, check for presence of water or sludge; if found, flush the engine with preservative engine oil PE-30. Before putting in new oil, remove, clean, and install filter element.

Notes. If preservative engine oil PE-30

is not available, engine lubricating oil OE-30 may be used.

- (c) Operating in bodies of salt water increases the rapid accumulation of rust and corrosion, especially on unpainted surfaces. It is most important to remove all traces of salt deposits from every part of the vehicle.
- (2) For assemblies which have to be disassembled, dried, and relubricated, perform these operations as soon as the situation permits.

3-8. Lubrication After Operation Under Dusty or Sandy Conditions

After operation under dusty or sandy conditions, clean and inspect all points of lubrication for fouled lubricants and relubricate as necessary.

3-9. Painting

Instructions for preparation of materiel for painting, methods of painting, and materials to be used are contained in TM 9-213. Instructions for camouflage painting are contained in FM 5-20.

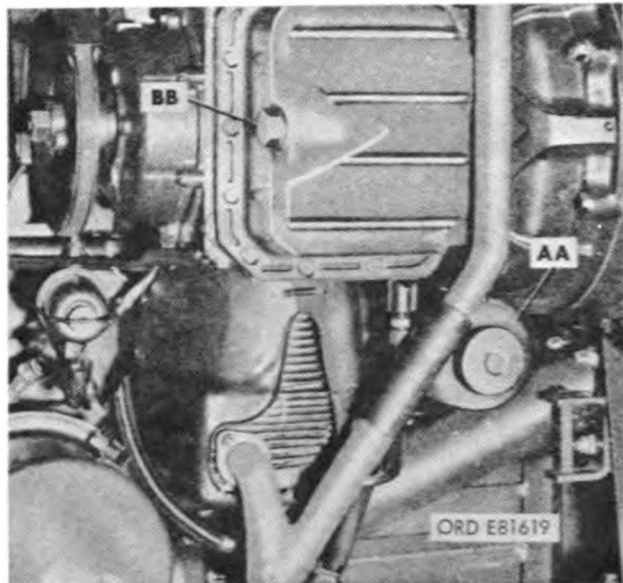
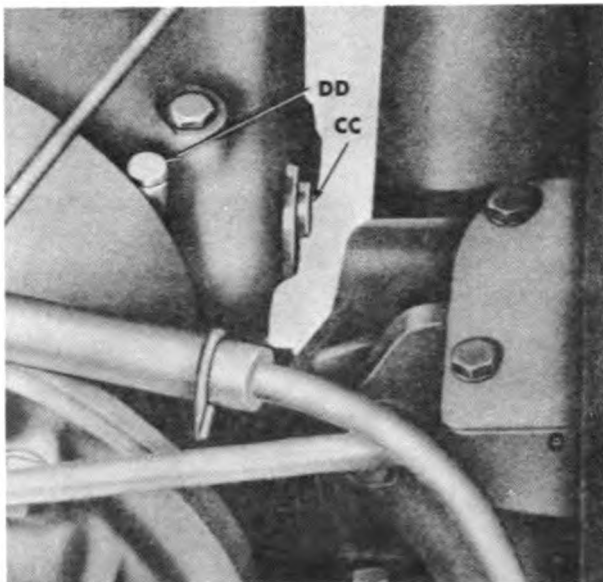


Figure 3-7. Lubrication points AA to DD.

Section III. PREVENTIVE-MAINTENANCE SERVICES

3-10. General

Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational readiness. The operator's role in the performance of preventive maintenance is:

- a. Be sure daily services are performed each day the vehicle is operated.
- b. Assist the organizational-maintenance mechanics in the lubrication of equipment or performance of other scheduled periodic services as required by commanders.

3-11. Responsibility

Operators are personally responsible for assigned vehicles. Squad, section, and platoon leaders are charged with supervisory responsibility for vehicles pertaining to their commands. Unit and organization commanders are required to ensure that vehicles issued or assigned to their commands are maintained in a serviceable condition and properly cared for and used.

3-12. Recording Repairs

Repairs accomplished will be in accordance with procedures and standards prescribed in appropriate technical manuals. The army equipment record system provides for recording repairs required on specific items of equipment. This will include, but is not limited to, inspecting, cleaning, adjusting and replacing. Faults discovered before, during, and after operation that cannot be corrected by the operator will be entered on DA Form 2404. Faults corrected by the operator are not recorded except when such corrections are made by replacing parts, which constitute repairs by organizational maintenance.

3-13. General Procedures for Services and Inspections

- a. The following general procedures apply to preventive-maintenance services and to inspections, and are just as important as the specific procedures.
- b. Inspection to determine if items are in

good condition, correctly assembled or stowed, secure, not excessively worn, not leaking, and adequately lubricated apply to most items in the preventive-maintenance and inspection procedures. Any or all of these checks that are pertinent to any item (including supporting, attaching, or connecting members) will be performed automatically, as general procedures, in addition to any specific procedures given.

- (1) Inspection for "good condition" is usually an external visual inspection to determine whether the unit is damaged beyond safe or serviceable limits.
- (2) Inspection of a unit to see that it is correctly assembled or stowed is usually a visual examination.
- (3) Inspection of a unit to determine if it is "secure" is usually an external visual examination or check by hand or wheel nut wrench for looseness. Such inspection must include any brackets, lockwashers, locknuts, locking wires, or cotter pins as well as any connecting tubes, hoses, or wires.
- (4) Excessively worn, meaning worn beyond serviceable limits or to a point likely to result in failure if the unit is not replaced before the next scheduled inspection. Excessive wear of mating parts of linkage connections is usually evidenced by too much play (lash or lost motion). It includes legibility of markings, data plates, caution plates, and printed material.
- (5) Where instruction "tighten" appears in the procedure, it means tighten with the lug wrench even if item appears to be secure.
- (6) Such expressions as "adjust if necessary" or "replace if necessary" are not used in the specific procedures. It is understood that whenever inspection reveals the need of adjustment, repair, or replacement, the necessary action will be taken to report the condition on DA Form 2404.

c. Any special cleaning instructions required on specific mechanisms or parts are contained in the pertinent section. General cleaning instructions are as follows:

- (1) Use drycleaning solvent or mineral spirits paint thinner to clean or wash grease or oil from all metal parts, except those exposed to powder fouling during firing. This solvent will not readily dissolve corrosion from powder and primer compositions.
- (2) Use rifle-bore cleaner to clean all armament parts which have been exposed to powder fouling during firing.

Note. Rifle-bore cleaner is not a lubricant. Parts which require lubrication will be wiped dry and oiled.

- (3) A solution of one part grease-cleaning compound to four parts drycleaning solvent or mineral spirits paint thinner may be used for dissolving grease and oil from engine blocks, chassis, and other parts. After cleaning, use cold water to rinse off any solution which remains.
- (4) After parts are clean, rinse and dry them thoroughly. Apply a light grade of oil to all polished surfaces to prevent rusting.

d. General precautions in cleaning are as follows:

- (1) Drycleaning solvent or mineral spirits paint thinner is flammable and should not be used near an open flame. Fire extinguishers should be provided when these materials are used. Use only in well-ventilated places.
- (2) These cleaners evaporate quickly and have a drying effect on the skin. If used without gloves they may cause some individuals to develop a mild irritation and/or inflammation.
- (3) Avoid getting petroleum products, such as drycleaning solvent, mineral spirits paint thinner, engine fuels or lubricants, on rubber parts as they will deteriorate the rubber.

Warning: The use of diesel fuel oil, gasoline or benzene (Benzol) for cleaning is prohibited.

e. To prevent formation of damaging mildew, shake out and air the canvas seat cushion covers for several hours periodically. Have any loose grommets or rips in the canvas repaired without delay. Failure to make immediate repairs may allow a minor defect to develop into major damage. Mildewed canvas is best cleaned by scrubbing with a dry brush. If water is necessary to remove dirt, it must not be used until mildew has been removed. If mildew is present, examine fabric carefully by stretching or pulling for evidence of rotting or weakening of fabric. If fabric shows indication of loss of tensile strength, it is probably not worth re-treatment. If it is not damaged notify organizational-maintenance personnel so that steps can be taken to have canvas re-treated.

f. Nameplates, caution plates, and instruction plates made of steel rust very rapidly. When they are found to be in rusty condition, they should be thoroughly cleaned and coated with preservative oil.

3-14. Preventive Maintenance by Operator

a. *Purpose.* To assure maximum operational readiness, it is necessary that the vehicle be systematically inspected every day it is operated, so that defects may be discovered before they result in serious damage or failure. Certain scheduled maintenance services will be performed at designated intervals. Any faults discovered that cannot be corrected by cleaning, or tightening with the wheel lug wrench, will be reported in remarks on DA Form 2400 or on DA Form 2404.

b. *Daily Preventive-Maintenance Service.* Definitions of these services appear in (1) through (3) below.

- (1) *Before-operation service.* This is a brief service to determine if the vehicle is ready for operation; it is mainly a check to see if conditions affecting the vehicle's readiness have changed since the last after-operation service.
- (2) *During-operation service.* This service consists of detecting unsatisfactory performance. While operating

the vehicle, the operator or crew should be alert for any unusual noises or odors, steering irregularities, or any indication of malfunction of any part. Every time he applies the brakes, shifts gears or turns the vehicle, the operator should instinctively consider it a test and note any unusual performance.

- (3) *After-operation service.* This is a basic daily service for tactical vehicles. It consists of correcting as much as possible, any operational faults. Thus, the vehicle is prepared to operate on a moment's notice.

3-15. Operator Participation in Performance of Organizational-Preventive Maintenance (Commander's Prerogative)

When practical the operator will accompany the vehicle when it is returned to the organizational-maintenance unit for the semiannual (S) preventive-maintenance service. He may thus relate to organizational-maintenance personnel, firsthand information on any unusual noise or peculiar operating conditions. Also, the operator may assist organizational-maintenance personnel in the performance of periodic maintenance services at Commander's prerogative.

Table 1. Preventive—Maintenance Checks and Services

Interval and sequence no.			Item to be inspected	Procedure	Par. ref.
Operation					
Before	During	After			
1			Oil level	Check engine oil level and add as required to correspond with expected temperatures. See lubrication chart. Inspect for oil leaks around engine. Report any oil leaks to unit maintenance personnel.	3-7b
2			Fuel leaks	Check for fuel leaks around fuel filter and connecting lines and fittings, and fuel shutoff valves. Report any fuel leaks to unit maintenance personnel.	1-9b
3			Crankcase breather	Check to affirm breather valves are open.	2-4r
4			Engine cooling	Check that the fan louvers are open and clear of any dirt, brush, leaves or foreign materials.	2-4q
5			Spark plug wiring	Remove engine access cover and inspect spark plug shielded conduits for frayed insulation and make sure they are properly secured by electrical clamps.	1-8c
6			Hourmeter	Clean the hourmeter sight window and record engine operating hours.	1-9c 2-5c
7			Tires	Visually inspect tires for sufficient inflation. Remove penetrating objects such as nails, glass, etc. Check for missing valve cap or unusual tire wear. Report any unusual condition to unit maintenance personnel.	3-18 and 3-19
8			Fuel level	Check fuel level in fuel tank, using fuel filter cap and gage rod. Replenish fuel tank to FULL mark on gage.	1-9b
9			Vent valve	Check to make sure fuel filler cap and gage rod vent valve (fig. 3-2) is in OPEN position as shown.	3-5 Caution
10			Rain deflector and air precleaner	Check rain deflector and air precleaner for any obstructions which may interfere with passage of air to engine.	2-26 3-23

Table 1. Preventive—Maintenance Check and Services—Continued

Interval and sequence no.			Item to be inspected	Procedure	Par. ref.
Operation					
Before	During	After			
11			Underbody oil and fuel leaks	Check under vehicle for axle, transmission, transfer, and drop gear housing oil leaks and fuel tank or fuel line gasoline leaks. Look for fresh oil or fuel spots on ground which will help in determining possible location of leak. Some seepage around oil seals is normal. Remove any debris from under vehicle, especially around drive shaft, brakedrum and controls. Report leaks to unit maintenance personnel.	1-6
12			Platform assembly publications and misc. items	Visually inspect the following for secureness of mounting or damage: platform assembly, handrail, operator's seat, publications and forms, wheel lug nuts, wheel lug nut wrench, and stowage of tow bar.	1-6 1-7 2-11 3-3 2-16c
	13		Steering, brakes and clutch	Check operation of steering, foot and handbrakes and clutch. Be alert for any unusual noises and operating faults such as wheel shimmy or wander.	2-4b and 2-4c 2-4f and 2-4g 2-4h
	14		Shift levers	Check for operation of transfer and transmission shift levers. Make sure levers do not bind and selection of gears can be made in an easy manner.	2-4d 2-4e 2-11
		15	Undercarriage	Check for damage under the vehicle, especially for bent tie rods and exhaust pipes. Check for oil and grease leaks. Remove any accumulation of mud, brush or debris from under vehicle. Investigate and correct or report any faults noted during operation.	1-6
		16	Platform	Check general condition of platform. Check security of all locking and fastening devices. Wash or wipe off exterior of vehicle with clean soft cloth.	3-22 3-24

Section IV. TROUBLESHOOTING

3-16. Scope

a. This section contains troubleshooting information for locating and correcting some of the troubles which may develop in the vehicle. Troubleshooting is the systematic isolation of defective components by means of analysis of trouble symptoms, testing to determine the defective component, and applying the remedies. In the majority of cases the operator can only note trouble symptoms by detecting strange or unusual noises or other irregularities and re-

port them to unit-maintenance sergeant or dispatcher for further action.

b. Standard automotive theories and principles of operation apply in troubleshooting this vehicle. The operator should pay close attention to any symptoms of trouble, unusual noise, odors, or any observable defective condition, and report them to unit-maintenance personnel if the remedy is beyond the responsibility of the operator. The greater the number of symptoms of trouble that can be detected and

evaluated, the easier the defect can be isolated and corrected.

3-17. Troubleshooting Table

The troubleshooting malfunction (symptom), probable cause, or corrective action that can be performed by the operator are listed in table 2.

Table 2. Troubleshooting

Malfunction	Probable cause	Corrective action
ENGINE		
1. Engine fails to start -----	a. Fuel tank empty ----- b. Fuel shutoff valves turned to OFF position. c. Ignition switch in OFF position -- d. Rain deflector and air precleaner clogged. e. Defective magneto ----- f. Engine cylinders flooded with fuel caused by overchoking. g. No fuel reaching carburetor, plugged fuel lines, or other causes.	a. Fill tank with fuel. b. Turn fuel shutoff valve to ON position (par. 2-9, step 1). c. Turn ignition switch to ON position (par. 2-9, step 8). d. Clean, if necessary, rain deflector and air precleaner (table 1, item 10). e. Notify unit maintenance personnel. f. Open throttle wide and pull starter cable with ignition switch turned to ON position. If necessary to clean or replace spark plugs, notify unit maintenance personnel. g. Notify unit maintenance personnel.
2. Engine fails to stop when ignition switch is turned OFF.	a. Engine overheated ----- b. Ignition switch defective or other causes.	a. Push hand throttle to idle position. Position transfer case gear lever in HIGH range, disengage clutch, shift to third gear, apply brake, and engage clutch to stall engine. b. Notify unit-maintenance personnel.
3. Engine misfires or stalls at idle speed.	a. Fouled spark plugs. Incorrect ignition firing order. Spark plug shielded conduit connected wrong at magneto cap or other causes. b. Contaminated fuel -----	a. Notify unit-maintenance personnel. b. Drain fuel tank and refill with clean supply of correct fuel.
4. Loss of power -----	a. Late ignition timing. Usually determined by engine ping. b. Incorrect governor setting or other causes.	a. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel.
<i>Note.</i> For further engine troubleshooting information refer to TM 5-2805-213-14.		
FUEL SYSTEM		
5. Fuel not reaching carburetor.	a. Fuel tank empty ----- b. Other causes -----	a. Fill fuel tank with proper fuel. b. Notify unit-maintenance personnel.
6. Leak in fuel systems -----	Loose fuel line connection, or other causes.	Notify unit-maintenance personnel.

Table 2. Troubleshooting—Continued

Malfunction	Probable cause	Corrective action
7. Excessive exhaust noise ----	a. Loose exhaust pipe connection ---- b. Defective muffler or other causes ----	a. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel.
COOLING SYSTEM		
8. Engine runs too hot -----	a. Engine shroud assembly dirty or damaged. b. Fan belt loose, self-adjusting pulley frozen, damaged fan blades, or other causes. c. Fan guard louvers closed -----	a. Clean if dirty. If damaged, notify unit-maintenance personnel. b. Notify unit-maintenance personnel. c. Open louvers.
STARTING SYSTEM		
9. Starter cable fails to re-wind.	a. Rewind spring broken -----	a. Notify unit-maintenance personnel.
	b. Starter cable kinked, frayed, or broken.	b. Notify unit-maintenance personnel.
10. Pulling starter cable fails to start engine.	a. Pawl broken or stuck -----	a. Notify unit-maintenance personnel.
	b. Starter cable kinked, frayed, broken, or other causes.	b. Notify unit-maintenance personnel.
11. Ignition faulty while engine is running.	a. Faulty spark plugs -----	a. Notify unit-maintenance personnel.
CLUTCH		
12. Clutch slips -----	a. Improper clutch pedal adjustment-- b. Clutch-driven disk facings burned or worn or other causes.	a. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel.
13. Clutch grabs -----	a. Clutch-driven disk facings saturated with oil, grease, or water. b. Clutch pressure plate out of adjustment or other causes.	a. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel.
14. Clutch rattles -----	a. Clutch release bearing carrier return spring unhooked or broken. b. Clutch driven disk torsion drive springs broken or other causes.	a. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel.
AXLES, INCLUDING TRANSMISSION		
15. Excessive noise -----	a. Insufficient or incorrect lubricant -- b. Broken or worn parts in transmission, transfer drop gear assemblies and/or other causes.	a. Coordinate with organizational maintenance personnel and check transmission and drop gear housing lubricant level. Fill to correct level with lubricant specified in lubrication chart. b. Notify unit-maintenance personnel.
16. Slips out of gear -----	a. Damaged transmission poppets, springs or interlock. b. Misalignment between engine flywheel housing and transmission housing mating surfaces or other causes.	a. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel.

Table 2. Troubleshooting—Continued

Malfunction	Probable cause	Corrective action
17. Hard shifting -----	a. Controls binding ----- a. b. Clutch-driven disk binding on transmission input shaft splines, or pressure plate faulty. Check other causes. b.	a. Check under vehicle and inspect for bent shift rods and binding condition. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel.
18. Excessive vibration or noise -----	<p style="text-align: center;">PROPELLER SHAFT</p> a. Foreign material on shaft ----- a. b. Universal joint bearings lack lubricant. b. c. Other causes ----- c.	a. Clean propeller shaft. b. Coordinate with organizational-maintenance personnel and lubricate bearings as specified in lubrication chart or LO 9-2320-246-12. c. Notify unit-maintenance personnel.
19. Brake drags -----	<p style="text-align: center;">BRAKES</p> a. Improper brake cable adjustment -- a. b. Brake cable return spring broken or missing and/or other causes. b.	a. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel.
20. Brakes fail to hold -----	a. Brake lining saturated with water-- a. b. Brake adjustment too loose or other causes. b.	a. Move vehicle slowly and apply and release brake pedal several times to dry brake lining. If brakes fail to hold after drying, notify unit-maintenance personnel. b. Notify unit-maintenance personnel.
21. Wheel wobbles -----	<p style="text-align: center;">WHEELS AND TIRES</p> a. Wheel bent ----- a.	a. Notify unit-maintenance personnel, replace wheel and tire assembly (par. 3-18). b. Tighten wheel nuts (par. 3-3).
22. Abnormal tire wear -----	a. Excessive use of four-wheel steering and four-wheel drive on hard-surfaced roads. a. b. Wheels out of alinement or other causes. b.	a. Do not use four-wheel steering unless when required and necessary. b. Notify unit-maintenance personnel.
23. Steering difficult -----	<p style="text-align: center;">STEERING</p> a. Lack of lubrication ----- a. b. Low tire pressure (below 12 psi) -- b. c. Steering gear damaged or other causes. c.	a. Coordinate with organizational-maintenance personnel and lubricate vehicle as specified in lubrication chart (figs. 3-3 and 3-4). b. Coordinate with organizational-maintenance personnel and inflate tires to 12 psi. c. Notify unit-maintenance personnel.
24. Not operating -----	<p style="text-align: center;">ENGINE HOUR METER</p> a. Internal damage ----- a. b. Drive gear damaged ----- b. c. Electric hour meter. Quick-disconnect connections loose or wires broken. c.	a. Notify unit-maintenance personnel. b. Notify unit-maintenance personnel. c. Check connections and notify unit-maintenance personnel.

Section V. CORRECTIVE MAINTENANCE

(INSTRUCTIONS FOR OPERATOR)

3-18. Changing Wheel and Tire Assembly

a. The M274 series vehicles are not equipped with a spare wheel and tire assembly.

b. When a damaged wheel or tire requires replacement, obtain a wheel and tire assembly. Secure wheel to wheel hub using the five.

c. Raise vehicle so damaged wheel clears the ground and remove five hexagon nuts and washers retaining the wheel by using the wheel nut wrench (fig. 3-1). Remove damaged wheel and install replacement wheel and tire assembly from organizational maintenance. Tighten nuts.

3-19. Correcting Tire Valve Leaks

When tire valve continuously leaks air, check valve with a drop of water or saliva for leakage. If leaking, co-ordinate with organizational maintenance and obtain from them a screw-driver-type cap or valve core tool to tighten or replace core if necessary; then inflate tire to 12 psi.

3-20. Fan Belt Replacement

To replace a defective or worn fan belt, co-ordinate with organizational-maintenance personnel and refer to TM 5-2805-213-14.

Section VI. MAINTENANCE UNDER UNUSUAL CONDITIONS

3-21. Extreme Cold-Weather Maintenance Problems

a. The importance of maintenance must be impressed on all concerned. Maintenance of mechanical equipment in extreme cold is exceptionally difficult in the field. Even shop maintenance cannot be completed with normal speed, because the equipment must be allowed to thaw out and warm up before the mechanic can make satisfactory repairs. In the field, maintenance must be accomplished under the most difficult conditions. Bare hands stick to cold metal. Fuel in contact with skin results in supercooling due to rapid evaporation, and skin can become painfully frozen in a matter of minutes. Engine oils, except subzero grade, are unpourable and ordinary greases become solid at temperatures below -40° F. These difficulties and the conditions mentioned in paragraph b below increase the time required to perform maintenance.

b. At temperatures below 40° F., maintenance requires up to five times the normal amount of time. The time required to warm up the vehicle so that it is operable at temperatures as low as -50° F. may approach two hours. Vehicles in poor mechanical condition probably will not start at all, or only after hours of laborious maintenance and heating.

c. Complete winterization, diligent maintenance and well-trained crews are the key to efficient arctic-winter operations. Refer to TM 9-207 for a general discussion of extreme cold maintenance procedures.

Caution: It is imperative that the approved maintenance procedures be followed. TM 9-207 contains general information which is specifically applicable to this vehicle. It must be considered an essential part of this technical manual, not merely an explanatory supplement to it.

3-22. Extreme Hot-Weather Maintenance

a. *Cooling System.* Clean all leaves, paper, and debris from around fan louvers, fan drive belt guard, and engine guard. Clean between engine and shroud if dirt has accumulated. Remove all mud from cylinder cooling fins.

b. Platform and Underbody.

- (1) In hot, damp climates, corrosive action will occur on all parts of the vehicle and will be accelerated during the rainy season. Evidences will appear in the form of rust and paint blisters on metal surfaces; and mildew, mold, or fungus growth on fabrics and glass.

- (2) Protect all exposed, unpainted, machined metal surfaces, with a film of engine lubrication oil. Cables and terminals should be protected by ignition-insulation compound, or grease as applicable.
- (3) Make frequent inspections of idle, inactive vehicles. Remove corrosion from exterior metal surfaces, with abrasive paper or cloth and apply a protective coating of paint, oil, or suitable rust preventive.

3-23. Maintenance of Materiel After Operation on Unusual Terrain

a. Mud. Thorough cleaning and lubrication of all parts affected must be accomplished as soon as possible after operation in mud, particularly when the mud was of liquid consistency. Clean air-precleaner and engine cooling fins. Clean entire engine compartment and all exposed components therein.

b. Sand or Dust. Clean engine and engine compartment. Have vehicle lubricated completely to force out lubricants contaminated by sand or dust. Air cleaners and fuel and oil filters must be cleaned frequently. The air precleaner and engine-cooling fins must be checked often when operating in dusty terrain. The engine-cooling fins should be cleaned by organizational-maintenance personnel, with compressed air if engine overheating indicates that the air flow is restricted. All vents on the vehicle must be covered with a cloth at all times, if practicable. When halted, the engine compartment openings should be covered to protect the engine against entrance of sand or dust.

3-24. Maintenance of Materiel After Fording

a. General. Although most of the vehicle unit housings are sealed to prevent the free flow of water into the housings, it must be realized that, due to the necessary design of these assemblies, some water may enter, especially during submersion. The following services should be accomplished on all vehicles that have been exposed to some depth of water or com-

pletely submerged, especially in salt water. Precautions should be taken as soon as practicable to halt deterioration and avoid damage before the vehicle is driven extensively in regular service. Maintenance personnel must remove the flywheel housing drain plug to drain the accumulation of water.

b. Platform and Underbody. Remove frame tube drain plugs (fig. 2-45) and drain water. Clean all exposed painted surfaces and report touch-up paint requirements. Coat unpainted metal parts with preservative lubrication oil. Maintenance personnel must lubricate vehicle thoroughly as directed in the lubrication chart (figs. 3-3 and 3-4) or LO 9-2320-246-12, but do more than the usual lubrication job, making sure lubricant is forced into each lubrication point to force out any water that accumulated.

c. Engine, Transmission, Carrier, Axles, and Drop Gear Housings. Check engine oil level and request that maintenance personnel check the lubricant level in transmission, carrier, axles, and drop gear housings. If there is evidence that water has entered, have them remove oil filter and drain plugs; drain, flush and replace oil filter and drain plugs. Refill with correct lubricant.

d. Condensation. Although most units are sealed, the sudden cooling of the warm interior air upon submersion may cause condensation of moisture within the cases of instruments. A period of exposure to warm air after fording should eliminate this condition. Cases which can be opened may be uncovered and dried.

e. Aluminum or Magnesium Parts. If materiel remains in salt water for any appreciable length of time, aluminum or magnesium parts which were exposed to the water will probably be unfit for further use and must be replaced. Notify organizational-maintenance personnel for necessary replacement action.

f. Other Organizational-Maintenance Actions Following Accidental Submersion. As soon as practicable and before extensive further use, the vehicle must be delivered to organizational-maintenance personnel who will accomplish the following: (coordinated with direct support maintenance where required).

- (1) *Wheels and brakes.* All sealed joints will be inspected for evidence of water seepage and if found, complete disassembly, cleaning, relubrication and assembly must be accomplished. The brake system will be inspected for presence of water. Dry out brake linings and clean out rust and scum from the brakedrum faces.
- (2) *Fuel system.*
 - (a) If water is found in the fuel tank, remove drain plug, and drain tank. Remove, clean, dry and install fuel tank filter assembly. Install new filter if required.

Note. Fuel tank fuel filter assembly has a paper filter.
 - (b) Remove fuel lines to the fuel filter, clean, dry and reinstall.
 - (c) Remove fuel filter bowl and element, clean, dry and reinstall.
 - (d) Replace drain plug in fuel tank.
- (3) *Magneto.* Remove the magneto cap and check to determine if any water is present. If necessary, drain, clean thoroughly, dry, and lubricate magneto as required.
- (4) *Air cleaner.* If water has entered the air cleaner, remove the air cleaner and discard the filter element. Clean balance of parts, dry, and reinstall using new filter element.

CHAPTER 4

MATERIEL USED IN CONJUNCTION WITH MAJOR ITEM

Section I. GENERAL

4-1. General

This chapter provides description of the

Armament Kit, and the Litter Kit for the M274 series vehicles.

Section II. ARMAMENT KIT

4-2. General

a. The Armament Kit provides for the adaptation of M274 series vehicle for installation of the 106-MM rifle.

b. Use rifle-bore cleaner to clean all arma-

ment kit parts which have been exposed to powder fouling during firing.

c. For installation procedures and data on the Armament Kit coordinate with organizational-maintenance personnel.

Section III. LITTER KIT

4-3. General

The Litter Kit provides for the transportation of one, two, three, or four litters on the M274 series vehicle.

4-4. Installation

a. For installation procedures and data, coordinate with organizational-maintenance personnel.

b. To attach or remove litters:

(1) Disconnect litter-retaining pin from rail assembly (fig. 4-1) by depressing spring-loaded ball detent and pulling pin from bracket.

(2) Position desired number of litters on vehicle and secure with locks and retaining pins shown in figure 4-2.

Note. Litter one should be positioned across and at rear of vehicle.

(3) Coordinate with unit maintenance personnel and install clamp (fig. 4-1) on left hand rail to secure litter(s).

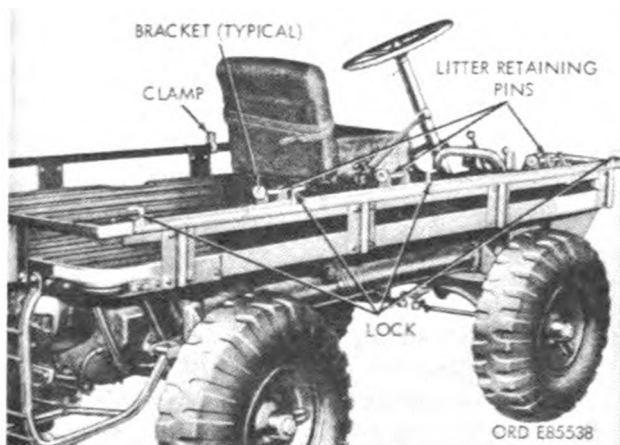


Figure 4-1. Location of litter-retaining pins, locks, and clamp.

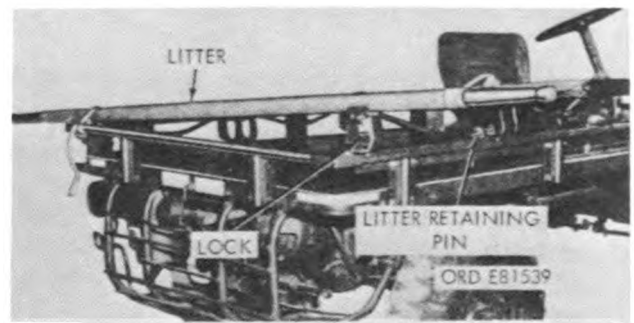


Figure 4-2. Securing litter with retaining pin.

CHAPTER 5

SHIPMENT AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT

5-1. Domestic Shipping Instructions

When shipping the M274 series vehicles, the officer in charge of preparing shipments will be responsible for the vehicle's being shipped in a serviceable condition and properly processed for shipment, including preparation of army shipping documents.

Note. The instructions on the processing and deprocessing record for shipment, storage and issue of

vehicles and spare engine tag (DA 1397) should be read and followed and the tag should be in an envelope in the operator's publication bag or attached to the vehicle. Coordinate with organizational maintenance for complete instructions.

5-2. Loading and Blocking Instructions

The operator may assist, as required, in loading and blocking the vehicle on railroad cars.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

5-3. General

a. Destruction of the M274 series vehicles, when subject to capture or abandonment in the combat zone, will be undertaken by the using organization only when, in the judgment of the unit commander, such action is necessary in accordance with orders of, or policy established by, the army commander.

b. The information which follows is for guidance only. Certain procedures outlined below require the use of explosives and incendiary grenades which normally may not be authorized items for the vehicle. The issue of these and related materiel, and the conditions under which destruction will be effected, are command decisions in each case, according to the tactical situation. In general, destruction of essential parts, followed by burning, will usually be sufficient to render the vehicle useless. However, selection of the particular method of destruction requires imagination and resourcefulness in the utilization of the facilities at hand under the existing conditions. Time is usually critical. Of the several methods of destruction, those most generally used are:

(1) *Burning*

Requires gasoline, oil, incendiary grenades, or other flammables.

(2) *Demolition*

Requires suitable explosives or ammunition. Refer to TM 5-25.

(3) *Gunfire*

Includes artillery, machineguns, rifles using rifle grenades, and some launchers using antitank rockets. Under some circumstances hand grenades may be used.

(4) *Mechanical*

Requires an axe or similar implement.

Note. For details of methods see paragraph 5-4.

c. If destruction to prevent enemy use is required, the vehicle must be so badly damaged that it cannot be restored to a usable condition in the combat zone, either by repair or by cannibalization. Adequate destruction requires that all parts essential to the operation of the vehicle, including essential repair parts on hand, be destroyed or damaged beyond repair. However, when lack of time and personnel

prevents destruction of all parts, priority is given to the destruction of those parts most difficult to replace. On the M274 Series Vehicles the priority order for destruction of components is as follows: carburetor, magneto, fuel pump, fuel tank, engine crankcase, tires, axle gears, and frame. The essential parts must be destroyed on all like vehicles so the enemy cannot construct one complete unit from several damaged units.

d. If destruction is directed, due consideration must be given to:

- (1) Selection of point of destruction that will cause greatest obstruction to enemy movement but also prevent hazard to friendly troops from ricocheting projectiles or fragments which may occur incidental to the destruction.
- (2) Observation of appropriate safety precautions.

5-4. Methods of Destruction with Details

a. Method No. 1—by Burning.

- (1) Using an axe, or pick mattock, sledge or other heavy implement, smash all vital elements such as distributor, carburetor, generator, ignition coil, fuel pump, spark plugs, air cleaner and controls. If time permits and a sufficiently heavy instrument is available, smash the engine cylinder block and head, crankcase, and transmission.
- (2) Puncture fuel tank at the bottom, collecting gasoline for use as stated in (5).
- (3) Slash tires. If tires are inflated, use care to prevent injury should the tire blow out while being slashed. When time permits it is preferable to deflate tires before slashing.
- (4) Explosive ammunition, if available, should be placed in and about the vehicle so that it will be fully exposed to the fire and in locations where greatest damage to vehicle will result from its detonation. Remove any safety devices from ammunition.
- (5) Pour gasoline and oil in and over the entire vehicle. Ignite by means of an

incendiary grenade fired from a safe distance, a burst from a flame thrower, a combustible train of suitable length, or other appropriate means. Take cover immediately. If gasoline or oil is not available, use other flammables such as oily rags, waste, wood, or paper.

Warning: Cover must be taken without delay since an early explosion of explosive ammunition, if present, may occur. Due consideration must be given to the highly flammable nature of gasoline and its vapor.

Elapsed time: approx. 6 minutes.

b. Method No. 2—by Demolition.

- (1) Prepare two, 2-pound charges of EXPLOSIVE, TNT (two 1-pound blocks, or equivalent, per charge, together with the necessary detonation cord to make up each charge). Set the charges as follows:
 - (a) Place one charge on top of clutch housing.
 - (b) Place one charge as low on the left side of the engine as possible.
 - (c) Connect the two charges for simultaneous detonation with detonating minimize the possibility of a miscord. Provide for dual priming to fire.

Warning: Keep the blasting caps, detonating cord, and safety fuse separated from charges until required for use.

- (d) For priming, either a nonelectric blasting cap crimped to at least 5 feet of safety fuse (safety fuse burns at a rate of approximately 1 ft. per 40 seconds) or an electric blasting cap and firing wire may be used. The safety fuse may be ignited by a fuse lighter or a match; the electric blasting cap requires a blasting machine or the equivalent source of electricity.

Note. For the successful execution of methods of destruction involving the use of demolition materials, all personnel concerned must be thoroughly familiar with provisions of TM 5-25. Training and thoughtful planning are essential.

- (2) Destroy the tires as described in paragraph 5-4a (3).
- (3) Detonate the charges. If primed with nonelectric blasting cap, and fuse, ignite and take cover. If primed with electric blasting cap, take cover before firing the charge. The danger zone is approximately 200 yards.
Elapsed time: about 5 minutes.

c. Method No. 3—by Gunfire.

- (1) Destroy the tires as directed in paragraph 5-4a (3).
- (2) Destroy the vehicle by gunfire using artillery, machineguns, rifles using rifle grenades, or launchers using anti-

tank rockets. Fire on the vehicle aiming at the engine axles, body, and wheels. Although one direct hit may destroy the vehicle, several hits are usually required, unless an intense fire is started in which case the vehicle may be considered destroyed.

Warning: Firing artillery at ranges of 500 yards or less should be from cover. Firing rifle grenades or antitank rockets should also be from cover.

Elapsed time: about 5 minutes.

d. Method No. 4—by Mechanical Means. Perform operations prescribed in paragraph 5-4a (1) through (5).



APPENDIX A

REFERENCES

1. Publication Indexes and General References

Indexes should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to materiel covered in this technical manual. Refer to TM 9-2320-246-20 for complete listing of applicable references.

Dictionary of United States Army Terms	AR 320-5
Index of Army Motion Pictures, Film Strips, Slides and Phono-Recordings	DA Pam 108-1
Military Publication Indexes (As applicable)	DA Pam 310-series
Military Symbols	FM 21-30
The Army Equipment Record System and Procedures	TM 38-750
Military Terms, Abbreviations and Symbols:	
Authorized Abbreviations and Brevity Codes	AR 320-50
Military Training	FM 21-5
Techniques of Military Instructions	FM 21-6

Also, publications involving units of regimental, battalion, or company size will contain a reference to AR 600-20.

2. Forms

The following forms pertain to this materiel. (Refer to DA Pamphlet 310-2 for index of blank forms.)

Standard Form 46, U. S. Government Motor Vehicle Operator's Identification Card	
Standard Form 91, Operator's Report of Motor-Vehicle Accident (Card)	
Standard Form 94, Statement of Witness	
Claim for Personal Property	DA Form 1089
Recommended Changes to DA Technical Manual	
Parts List or Supply Manual 7, 8, or 9 (Cut sheet)	DA Form 2028
Equipment Utilization Record	DA Form 2400
Organizational Control Record for Equipment	DA Form 2401
Equipment Inspection and Maintenance Worksheet	DA Form 2404
Maintenance Request Register	DA Form 2405
Equipment Status and Deadline Report	DA Form 2406
Maintenance Request	DA Form 2407
Equipment Log Book Assembly—Instructions for General Equipment	DA Form 2408
Equipment Daily or Monthly Log	DA Form 2408-1
Equipment Maintenance Record (Organizational)	DA Form 2408-3-1
Equipment Modification Record	DA Form 2408-5
Equipment Maintenance Record (Support Echelons—Field and Depot)	DA Form 2408-6
Equipment Transfer Record	DA Form 2408-8
Equipment Component Register	DA Form 2408-10
Accident Identification Card	DA Form 518

3. Other Publications

The following publications contain information pertinent to major item materiel and associated equipment.

<i>a. Camouflage.</i>	
Camouflage, Basic Principles	FM 5-20
Camouflage of Vehicles	FM 5-20B
<i>b. Decontamination.</i>	
Decontamination	TM 3-220
Defense Against CBR Attack	FM 21-40
<i>c. Demolition of Materiel to Prevent Enemy Use.</i>	
Demolition Materials	TM 9-1946
Explosives and Demolition	FM 5-25
<i>d. General.</i>	
Basic Arctic Manual	FM 31-70
Driver's Manual	TM 21-305
Driver's Selection and Training	TM 21-300
Operation and Maintenance of Ordnance Materiel in Extreme Cold Weather (0° to -65° F.)	TM 9-207
Lubrication of Ordnance Materiel	TM 9-273
Motor Transportation, Operations	FM 55-35
Mountain Operations	FM 70-10
Operations in the Arctic	FM 31-71
Use of Anti-Freeze Solutions in Engine Cooling System in Operating Vehicles	TB ORD 651
Equipment Serviceability Criteria	TM 9-2320-246-ESC
<i>e. Maintenance and Repair.</i>	
Care and Maintenance of Pneumatic Tires	TM 9-1870-1
Cleaning of Ordnance Materiel	TM 9-208-1
Cooling Systems: Vehicles and Powered Ground Equipment	TM 9-2858
Lubrication Order for Truck, Platform Utility, 1/2-Ton, 4 x 4, M274A2, A3, A4, and A5	LO 9-2320-246-12
Materials Used for Cleaning, Preserving, Abrading and Cementing Ordnance Materiel and Related Materials including Chemicals	TM 9-247
Organizational Maintenance for Truck, Platform, Utility 1/2-ton, 4 x 4, M274A2, A3, A4 and A5	TM 9-2320-246-20
Painting Instructions for Field Use	TM 9-2851
Deep-Water Fording of Ordnance Materiel	TM 9-238
Storage Batteries, Lead-Acid Type	TM 9-6140-200-15
Organizational, Direct and General Support Maintenance Manual— Engine Gasoline, 14 HP, Military Standard—Model A042	TM 5-2805-213-34

APPENDIX B

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. Scope

This appendix lists items which accompany Platform Utility Truck or are required for installation, operation, or operator's maintenance.

2. Explanation of Columns

The following provides an explanation of columns in the tabular lists in Sections II and III:

a. Source, Maintenance, and Recoverability Codes, Column 1.

- (1) Source code, column 1, indicates the selection status and source for the listed item.
Source code applicable:

Code	Explanation
P	Material with parts

- (2) Maintenance code, column 1b, indicates the lowest category of maintenance authorized to the listed item. The maintenance-level code is:

Code	Explanation
C	Operator or crew
0	Organizational maintenance

- (3) Recoverability code, column 1c.

Note. When no code is indicated in the recoverability column the item or material will be considered expendable.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number for the item.

c. Description, Column 3. This column indicates the Federal item name and any additional description required. A manufacturer's code or other service code and part number are included in parentheses for reference.

d. Unit of Issue, Column 4. This column indicates the unit used as a basis for issue, e.g., ea, pr, ft, yd, etc.

e. Quantity Incorporated in Unit Pack, Column 5. This column indicates the actual quantity contained in the unit pack.

f. Quantity Incorporated in Unit, Column 6. This column indicates the total quantity of the listed item used on the vehicle.

g. Quantity Authorized, Column 7. This column indicates the total quantity of an item required to be on hand and necessary for operation and maintenance of the equipment. Items to be requisitioned as required are indicated by an asterisk (*).

h. Illustration, Column 8.

- (1) Figure number, column 8a, indicates the figure number of the illustration in which the item is shown.

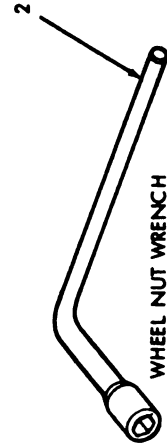
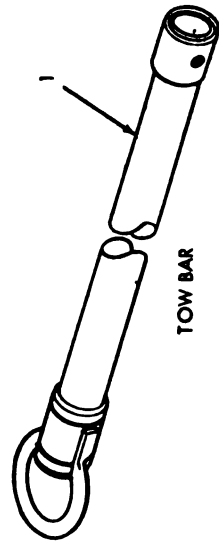
TM 9-2320-246-10

(2) Item or symbol number, column 8b, indicates the callout number used to reference the item in the illustration.

3. Federal Supply Code	Manufacturer
19207	U. S. Army Tank-Automotive Command

SECTION II

(1) Source, maint. and recov. code		(2) Federal Stock Number	(3) Description	(4) Unit of issue	(5) Qty inc in unit pack	(6) Qty inc in unit	(7) Qty auth	(8) Illustration		
(a) Source	(b) Maint.							(c) Recov.	(a) Fig. No.	(b) Item or sym. No.
P	O	1015-722-8906	<p>GROUP-31—BASIC ISSUE ITEMS, MANUFACTURER—INSTALLED</p> <p>3100—BASIC ISSUE ITEMS, MANUFACTURER OR DEPOT—INSTALLED</p> <p>COVER: weapons log book (binder) and publication ---</p> <p>CRANK, HAND: starting, wheel and nut assembly (8836133) (M274-A3 only).</p> <p>EQUIPMENT LOG BOOK: (binder) (appropriate forms listed in TM 38-750, Appendix 2, are to be provided with this binder).</p> <p>EQUIPMENT SERVICEABILITY CRITERIA: TM 9- 2320-246-ESC (equipment log book binder).</p> <p>MANUAL, TECHNICAL: (operator's) TM 9-2320- 246-10 (operator's seat publication stowage bag).</p> <p>ORDER, LUBRICATION: LO 9-2320-246-12 (opera- tor's seat publication stowage bag).</p> <p>TOW BAR: military vehicle (8836026) ---</p> <p>WRENCH: wheel stud nut (10944358) ---</p>	ea						
P	C	2990-630-5593		ea		1	1	1		
P	O	7510-889-3494		ea		1	1	1	1-5	
P	O			ea		1	1	1		
P	C			ea		1	1	1		
P	O			ea		1	1	1		
P	C	2540-561-9126		ea		1	1	1	B	1
P	C			ea		1	1	1	B	2



ORD E81540

SECTION III

(1) Source, maint. and recov. code			(2) Federal Stock Number	(3) Description	(4) Unit of issue	(5) Qty inc in unit pack	(6) Qty inc in unit	(7) Qty auth	(8) Illustration	
(a) Source	(b) Maint.	(c) Recov.							(a) Fig. No.	(b) Item or sym. No.
				GROUP-90—MAINTENANCE AND OPERATING SUPPLIES The following items are requisitioned as required. For usage see TM 9-247 and TM 9-208-1. GREASE, AUTOMOTIVE AND ARTILLERY: (military symbol GAA) Spec MIL-G-10924A efficient temperature range -65 deg F to +125 deg F; for chassis wheel bearings, water pumps and all automotive and artillery components. 1-lb can, Type V, Class 2 or Type III ----- 5-lb can, Type V, Class 2 ----- Spec MIL-G-10924 Amend 2; for chassis lubrication only. 1-lb can	ea ea ea					
P	C		9150-190-0904							
P	O		9150-190-0905							
P	O		9150-248-3476							
				OIL, LUBRICATING, GENERAL PURPOSE: preservative, Spec MIL-L-644; whenever general purpose low-temperature lubricating oil is required (military symbol PL-special). 2-oz can, Type V, Class 6 ----- 1-qt can, Type V, Class 4 ----- 55-gal drum (18 gage) Type II -----	ea ea ea					
P	C		9150-185-0629							
P	O		9150-231-6689							
P	O		9150-281-2060							
				OIL, LUBRICATING, INTERNAL COMBUSTION ENGINE: Spec MIL-L-2014; for crankcase lubrication of internal combustion engine under all conditions of service when ambient temperatures are above -20 deg F. 1-qt can, Type (Military Symbol OE-10) ----- 1-qt can, Type 1 (Military Symbol OE-30) -----	ea ea					
P	O		9150-265-9425							
P	O		9150-65-9438							
				OIL, LUBRICATING, INTERNAL COMBUSTION ENGINE: sub-zero; Spec MIL-L-10295; in lubrication of internal combustion engines operating in tem-	ea					

P	O	9150-242-7602	perature from 0 deg F to -65 deg F and whenever a general purpose, low-temperature lubricating oil is required.	ea	*
			1-qt can, Type 1 (Military Symbol OES) ----- OIL, LUBRICATING, GEAR: Spec MIL-L-2015; universal gear type; for lubrication of automotive gear units, steering gears and fluid lubricated universal joints of automotive equipment. Grade 75: for general use below 0 deg F (military symbol GO-75).		
P	O	9150-240-2242	5-gal drum -----	ea	*
P	O	9150-240-2244	55-gal drum (18 gage) ----- Grade 90: for general use above 0 deg F (military symbol GO-90).	ea	*
P	O	9150-240-2250	5-gal drum -----	ea	*
P	O	9150-240-2252	55-gal drum (18 gage) ----- OIL, LUBRICATING, GEAR: sub-zero, Spec MIL-L-10324, for lubrication of automotive gear units of automotive equipment operating in temperature ranges from 0 deg F to -65 deg F (military Symbol GOS).	ea	*
P	O	9150-261-7904	1-qt can, Type V, Class 4 -----	ea	*
			55-gal drum (18 gage) Type II ----- SOLVENT, DRYCLEANING: petroleum distillate, Fed P-S-61, Type 1, 100 deg F flash point, standard solvent for drycleaning clothes and washing and cleaning machine parts.	ea	*
P	C	6850-281-1985	1-gal can -----	ea	*
P	O	6580-285-8012	55-gal drum ----- THINNER, PAINT, MINERAL SPIRITS: (Spec FED TT-T-291, Grade 1).	ea	*
P	O	8010-242-2089	1-gal can -----	ea	*
P	O	8010-246-6116	55-gal drum -----	ea	*



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