TM 9-2320-209-10-2

TO 36A12-1B-1091-2

TECHNICAL MANUAL Chapter 1 Preventive Maintenance SCHEDULED MAINTENANCE OPERATOR LEVEL Chapter 2 Checkout, 2½-TON 6X6, M44A1 AND M44A2 SERIES TRUCKS Alinement, and Adjustment (MULTIFUEL) Chapter 3 Lubrication TRUCK, CARGO: M35A1, M35A2, M35A2C, M36A2; TRUCK, Chapter 4 Scheduled TANK, FUEL: M49A1C, M49A2C; TRUCK, TANK, Maintenance of Material Used WATER: M50A1, M50A2, M50A3; TRUCK, VAN, in Conjunction with Major SHOP: M109A2, M109A3; TRUCK, REPAIR SHOP: Items MW5A2, M185A3; TRUCK, TRACTOR: M275A1, M275A2; TRUCK, DUMP: M342A2; TRUCK, MAINTENANCE, PIPELINE CONSTRUCTION: M756A2; TRUCK, MAINTENANCE, EARTH BORING AND POLESETTING: M764 This copy is a reprint which includes current pages from Change 1.

DEPARTMENTS OF THE ARMY AND THE AIR FORCE SEPTEMBER 1980

#### WARNING

#### EXHAUST GASES CAN BE DEADLY

Exposure to exhaust gases produces symptoms of headache, dizziness, loss of muscular control, apparent drowsiness, and coma. Permanent brain damage or death can result from severe exposure.

Carbon monoxide occurs in the exhaust fumes of fuel burning heaters and internal combustion engines, and becomes dangerously concentrated under conditions of inadequate ventilation. The following precautions must be observed to insure the safety of personnel whenever fuel burning heater(s) or engine of any vehicle is operated for maintenance purposes or tactical use.

Do not operate heater or engine of vehicle in an enclosed area unless it is adequately ventilated.

Do not idle engine for long periods without maintaining adequate ventilation in personnel compartments.

Do not drive any vehicle with inspection plates or cover plates removed unless necessary for maintenance purposes.

Be alert at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, immediately ventilate personnel compartments. If symptoms persist, remove affected personnel from vehicle and treat as follows: expose to fresh air; keep warm; do not permit physical exercise; if necessary, administer artificial respiration.

If exposed, seek prompt medical attention for possible delayed onset of acute lung congestion. Administer oxygen if available.

The best defense against exhaust gas poisoning is adequate ventilation.

#### WARNING

Serious or fatal injury to personnel may result if the following instructions are not complied with.

Use extreme care when removing radiator cap, especially when temperature gage shows above 180°F.

Always wear leather gloves when handling winch cable. Never allow cable to slip through hands. Do not operate winch with less than four turns of cable on drum.

Do not drive truck until the low air pressure warning buzzer is silent and the air pressure gage shows at least 65 PSI. This is the minimum pressure required for safe braking action.

Do not use hand throttle to drive the vehicle.

Do not park truck with front transmission gearshift lever in gear.

If your vehicle class number is greater than the bridge class number, do not cross.

**HEADQUARTERS** DEPARTMENT OF THE ARMY Washington D. C., 30 March 1992

#### SCHEDULED MAINTENANCE

#### OPERATOR LEVEL

#### 2 1/2-TON, 6X6, M44A1 , AND M44A2 SERIES TRUCKS (MULTIFUEL)

# TRUCK, CARGO: M35A1, M35A2, M35A2C, M36A2; TRUCK, TANK, FUEL: M49A1C, M49A2C; TRUCK, TANK, WATER: M50A1, M50A2, M50A3; TRUCK, VAN SHOP: M109A2, M109A3; TRUCK, REPAIR SHOP: M185A2, M185A3; TRUCK, TRACTOR: M275A1, M275A2; TRUCK, DUMP: M342A2; TRUCK, MAINTENANCE, PIPELINE CONSTRUCTION: M756A2; TRUCK, MAINTENANCE, EARTH BORING AND POLESETTING: M764

TM 9-2320-209-10-2/TO 36A1 2-1B-1091-2, 26 September 1980, is changed as follows:

1. Remove old pages and insert new pages as indicated below.

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Remove Pages a/(b blank) 1-5 through 1-12.2 1-5 through 1-12.2

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a and b

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

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CHANGE

**NO.2** 

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Distribution:

To be distributed in accordance with DA Form 12-38-E (Block 0185) Operator maintenance requirements for TM9-2320-209-10-2.

#### TM 9-2320-209-10-2 TO 36A12-1B-1091-2 C1

#### CHANGE

NO. 1

#### DEPARTMENTS OF THE ARMY AND THE AIR FORCE WASHINGTON, DC, 17 December 1982

# SCHEDULED MAINTENANCE OPERATOR LEVEL 21/2-TON, 6X6, M44A1, AND M44A2 SERIES TRUCKS

(MULTIFUEL)

#### TRUCK, CARGO: M35A1, M35A2, M35A2C, M36A2; TRUCK, TANK, FUEL: M49A1C, M49A2C; TRUCK, TANK, WATER: M50A1, M50A2, M50A3; TRUCK, VAN, SHOP: M109A2, M109A3; TRUCK, REPAIR SHOP: M185A2, M185A3; TRUCK, TRACTOR: M275A1, M275A2; TRUCK, DUMP: M342A2; TRUCK, MAINTENANCE, PIPELINE CONSTRUCTION: M756A2; TRUCK, MAINTENANCE, EARTH BORING AND POLESETTING: M764

Current as of 15 September 1982

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TM 9-2320-209-10-2/TO 36A 12-1B-1091-2

Remove Pages	Insert Pages
Delete WARNING, page 2 of cover	a
1–1 through 1–12 None 1–13 through 1–18 2–1/3–1/4–1 through 4–7/(4–8 blank)	1–1– through 1–12 1–12.1 and 1–12.2 1–13 through 1–18 2–1/3–1/4–1 through 4–7/(4–8 blank)

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Distribution:

To be distributed in accordance with DA Form 12-38, Operator's Maintenance requirements for Truck, 2-1/2 Ton, 6X6, M44A1 and M44A2 Series.

#### WARNING

#### EXHAUST GASES CAN BE DEADLY

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Do not operate heater or engine of vehicle in an enclosed area unless it is adequately ventilated.

Do not idle engine for long periods without maintaining adequate ventilation in personnel compartments.

Do not drive any vehicle with inspection plates or cover plates removed unless necessary for maintenance purposes.

Be alert at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, immediately ventilate personnel compartments. If symptoms persist, remove affected personnel from vehicle and treat as follows: expose to fresh air; keep warm; do not permit physical exercise; if necessary, administer artificial respiration.

If exposed, seek prompt medical attention for possible delayed onset of acute lung congestion. Administer oxygen if available.

The best defense against exhaust gas poisoning is adequate ventilation.

#### WARNING

Serious or fatal injury to personnel may result if the following instructions are not complied with.

Use extreme care when removing radiator cap, especially when temperature gage shows above 1800 F (82.20°C).

Always wear leather gloves when handling winch cable. Never allow cable to slip through hands. Do not operate winch with less than four turns of cable on drum.

Do not drive truck until the low air pressure warning buzzer is silent and the air pressure gage shows at least 85 PSI (586.075 kPa). This is the minimum pressure required for safe braking action.

Do not use hand throttle to drive the vehicle.

Do not park truck with front transmission gearshift lever in gear.

If your vehicle class number is greater than the bridge class number, do not cross.

# WARNING

Serious or fatal injury to personnel may result if the following instructions are not complied with.

Do not perform fuel filter checks, inspections, or draining, while smoking or near fire, flames, or sparks. Fuel may ignite, causing injury or death to personnel.

Wear safety glasses or goggles when checking batteries. Always check electrolyte level with engine stopped. Do not smoke or use exposed flame when checking battery; explosive gases are present and severe injury to personnel can result.

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery positive terminal and ground, a direct short will result in instant heating of tools, damage to equipment, and injury to personnel.

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions.

Do not touch hot exhaust pipes with bare hands.

\*TM 9-2320-209-10-2 TO 36A12-1B-1091-2

DEPARTMENTS OF THE ARMY AND THE AIR FORCE Washington, DC, 26 September 1980

TECHNICAL MANUAL NO. 9-2320-209-10-2 TECHNICAL ORDER NO. 36A12-1B-1091-2

TECHNICAL MANUAL

# SCHEDULED MAINTENANCE OPERATOR LEVEL 2½-TON, 6X6, M44A1 AND M44A2 SERIES TRUCKS (MULTIFUEL)

Model		<b>NSN without Winch</b>	NSN with Winch
Truck, Cargo	M35A1	2320-00-542-5633	2320-00-542-5634
C	M35A2	2320-00-077-1616	2320-00-077-1617
	M35A2C	2320-00-926-0873	2320-00-926-0875
	M36A2	2320-00-077-1618	2320-00-077-1619
Truck, Tank, Fuel	M49A1C	2320-00-440-3349	2320-00-440-3346
	M49A2C	2320-00-077-1631	2320-00-077-1632
Truck, Tank, Water	M50A1	2320-00-440-8307	2320-00-440-8305
	M50A2	2320-00-077-1633	2320-00-077-1634
	M50A3	2320-00-937-4036	2320-00-937-5264
Truck, Van, Shop	M109A2	2320-00-440-8313	2320-00-440-8308
-	M109A3	2320-00-077-1636	2320-00-077-1637
Truck, Repair Shop	M185A2	4940-40-987-8799	4940-00-987-8800
	M185A3	4940-00-077-1638	4940-00-077-1639
Truck, Tractor	M275A1	2320-00-446-2479	
	M275A2	2320-00-077-1640	2320-00-077-1641
Truck, Dump	M342A2	2320-00-077-1643	2320-00-077-1644
Truck, Maintenance, Pipeline Construction	M756A2		2320-00-904-3277
Truck, Maintenance, Earth Boring and Polesetting	M764		2320-00-937-5980

Current as of 15 February 1980

\*This manual supersedes TM 9-2320-209-ESC, 12 April 1973, and together with TM 9-2320-209-10-1, 26 September 1980; TM 9-2320-209-10-3, 26 September 1980; and TM 9-2320-209-10-4, 26 September 1980, supersedes TM 9-2320-209-10/1, 29 October 1976.

#### REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedure, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publication and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Tank Automotive Materiel Readiness Command, ATTN: DRSTA-MB, Warren, Michigan 48090. A reply will be furnished to you .

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# CHAPTER 1

# PREVENTIVE MAINTENANCE

1-1. GENERAL .

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

b. Preventive Maintenance Checks and Services. (Tables 1-1 to 1-9 and 4-1)

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

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

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

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

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

(6) If something doesn't work, troubleshoot it with the instructions in TM 9-2320-209-10-3 and notify your supervisor.

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

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

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

1-2. GENERAL MAINTENANCE PROCEDURES.

a. <u>Cleanliness</u>. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent Type II, Fed. Spec P-D-680, on all metal surfaces.

# WARNING

Dry cleaning solvent, Type II, Fed. Spec P-D-680, is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is  $139^{\circ}$  F (59.4° C).

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

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

d. Electric Wires and Connectors. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Check for loose connectors and make sure the wires are in good shape. Report loose connectors and bad wires to organizational maintenance.

e. <u>Hydraulic Lines and Fittings.</u> Look for wear, damage, leaks, and make sure clamps and fittings are tight. Wet spots show leaks, of course, but a stain around a fitting or connector can mean **a leak**. If a leak comes from a loose fitting or connector, report it to Organizational Maintenance. If something is broken or worn out, report it to Organizational Maintenance.

1-3. FLUID LEAKAGE. It is necessary for you to know how fluid leakage affects the status of the fuel, lubricating, coolant and hydraulic systems. The following are definitions of the types/classes of leakage you need to know to be able to determine the status of your vehicle. Learn, then be familiar with them and REMEMBER -- WHEN IN DOUBT, NOTIFY YOUR SUPERVISOR!

#### CAUTION

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

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

Class III leaks should be reported to your supervisor or to Organizational Maintenance.

- a. <u>Class I</u>. Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
- b. <u>Class II</u>. Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.
- c. Class III. Leakage of fluid great enough to form drops that fall from the item being checked /inspected.

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item		Interval		Interval Item to be Inspected Procedure: Check for and have repaired filled		Equipment is	
No.	В	D	A	W	М	or adjusted as needed	available if:
1	1					NOTE Perform Weekly (W) as well as Before (B) PMCS's if: a. You are the assigned operator but have not operated the vehicle since the last weekly. b. You are operating the vehicle for the first time. <u>MAKE THE FOLLOWING WALK AROUND</u> <u>CHECKS</u> : EXTERIOR OF VEHICLE a. Visually check for obvious damage to body and cab that would impair operation.	
	1					b. Check tires for cuts, gouges or cracks. Remove all penetrating objects.	Tires have cuts, gouges, or cracks which would result in tire failure dur- ing operation. Three or more tires missing or flat.
	1					<ul><li>c. Look under vehicle for evidence of fluid leakage (fuel, oil, coolant).</li><li>d. Check condition of:</li></ul>	Class III leakage of oil or coolant is evident. Any class [11 fuel leak. Any gasoline leak.
	1	1		1		<ol> <li>Windshield and windows.</li> <li>Windshield wiper arms anti blades.</li> <li>Mirrors.</li> <li>All locking and fastening devices.</li> </ol>	

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item	Interval			Item to be Inspected Equipment is		
No.	В	D	A	w	М	or adjusted as needed available if:
1 (cont)		•		•		<ul> <li>(5) Spare tire mounting.</li> <li>(6) Operation of doors and windows.</li> <li>(7) Operation of headlights, taillights, stoplights, turn signals, and blackout lights.</li> <li>(8) Steering knuckle boots (1). Check for tears.</li> </ul> TIRES TA 252430
				•		<ul> <li>a. Gage tires for correct air pressure using tire inflation gage and hose assembly. Adjust as necessary: For normal operation of vehicle, tire pressure for 9:00 x 20 tires, should be as follows:</li> <li>Road Cond Pressure (psi)</li> <li>Highway 50 (344.750 kPa) Crosscountry 35 (241.325 kPa) Mud, snow and sand 15 (103.425 kPa)</li> <li>b. Make sure that all wheel stud nuts are tight. If stud nuts are found loose, tighten and notify organizational maintenance.</li> </ul>

	B– D-1	Befo Duri	ore ing	ope ope	eratio erati	on A–After operation M on W–Weekly	A–Monthly
Item No.					М	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/ available if:
No. 3	<b>B</b>	D	Α	W	M	PRIMARY FUEL FILTER Check primary fuel filter (1) for water or dirt. If contaminated, notify organizational maintenance.	available if: Any Class III fuel leaks. Any gasoline leak.

B-Before operation	A–After operation	M–Monthly
D–During operation	W–Weekly	

Item		In	terv	/al		Item to be Inspected Procedure: Check for and have repaired, filled.	Equipment is not ready/
No.	В	D	A	w	М	or adjusted as needed	available if:
3.1						SECONDARY AND FINAL FUEL FILTERS	
						WARNING Do not perform fuel filter checks, inspec- tions, or draining, while smoking or near fire, flames, or sparks. Fuel may ignite, causing injury or death to personnel. <u>CAUTION</u> If one pint (0.473 L) of fuel is drained and fuel is still unclear, notify organiza- tional maintenance.	
4				•		Open draincocks (1) and (2) at bottom of secondary fuel filter (3) and final fuel filter (4). Drain approxi- mately one pint (0.473 L) of fuel from each into a con- tainer. If there are large amounts of water or impuri- ties, notify your supervisor. Close draincocks (1) and (2). Check for fuel leaks.	
				•	•	<ul><li>a. Inspect fuel tank for leaks or broken supports.</li><li>b. Check fuel lines and hoses for leakage and damage. Make sure all connections are secure.</li></ul>	Any Class III fuel leakage, any water or contaminates in final fuel filter.
							Fuel tank(s) or lines are damaged or any broken supports.

NOTE: These checks are to be made in the order listed, within designated interval.

B–Before	operation
D During	operation

A-After operation W-Weekly

M–Monthly

D–During operation

Item		Ir	terv	/al		Item to be Inspected Procedure: Check for and have repaired filled	Equipment is not ready/
No.	В	D	Α	w	М	or adjusted as needed	available if:
5						AIR RESERVOIR DRAIN COCK	
			•			Drain air reservoirs as follows:	Any reservoir line
						a. Turn petcocks (1) on bottom of tanks (2) to opened position.	leaking or dam- aged. Any broken
						b. Let air and condensation drain off.	supports.
						c. Turn petcocks (1) to closed position.	
6						Image: constraint of the constra	

B-Before operation	A-After operation	M–Monthly
D-During operation	W–Weekly	

-		_						
	Item No.	В	In D	terv	val W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/ available if
5	6 (cont)						NOTE Battery compartment is located on right side of truck between running board and cab door.	
-					•		<ul> <li>a. Check that fluid level is to split–ring. NOTE</li> <li>If fluid fluid level is below split–rings repeatedly or is boiling, notify organizational maintenance. When temperature drops below 32°F (0°C), run the engine 15 minutes to allow distilled water added to battery by organizational maintenance to mix with electrolyte.</li> </ul>	One or more miss- ing or unservice- able batteries or will not crank engine.
					•		b. Check terminals and posts for tightness, damage, and corrosion.	
					•		c. Check batteries for cracked or leaking casing, broken, burnt, or loose battery terminal posts.	
						•	d. Inspect battery compartment for corrosion. If excessively corroded, Notify Organizational Mainten a n c e .	
	7						UNDERBODY	
							FRAME	
							NOTE	
							If any of the following conditions are found, notify your supervisor.	
						•	Visually check frame side rails, crossmembers and underbody supports for broken/loose bolts or rivets, obvious cracks, broken welds, and rusted-through conditions.	Any obviously cracked, rusted– through, loose, or broken or missing side rails, cross– members, welds, bolts or rivets.

]	B–E D-D	Befo urin	re ( ng (	oper oper	atio atio	n A–After operation M n W–Weekly	1–Monthly
Item No.		In	terv	/al		Item to be Inspected Procedure: Check for and have repaired, filled,	Equipment is not ready/
	В	D	A	W	M	or adjusted as needed	avanable II.
						ENGINE COMPARTMENT	
7.1						AIR INTAKE SYSTEM	
						WARNING If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instruc- tions.	
						Check clamps (1) for tightness and hump hose (2), tube (3), hose (4), and air cleaner assembly (5) for openings which would allow foreign materials to en- ter engine.	Leaks or openings which will allow foreign material to enter engine are evident.
8				•		RADIATOR <u>WARNING</u> Use care when removing radiator filler cap. Coolant is under pressure, and can cause severe burns when cap is removed while engine is hot. a. Check to see that radiator is full. If low, notify organizational maintenance.	
					•	b. Check all hoses for deterioration, leakage and secure connections.	Any Class III leaks.

B-Before operation	A-After operation	M–Monthly
D–During operation	W–Weekly	

Item	Interval			Item to be Inspected Procedure: Check for and have repaired filled	Equipment is not ready/		
No.	в	D	A	w	M	or adjusted as needed	available if:
9						ENGINE OIL LEVEL	
	•					a. Check engine oil level. When checking COLD, oil level should be approximately $1'' - 1 \frac{1}{2''}$ (25.4 to 38.1 mm) above full mark. Add oil as necessary. Do not overfill.	
	•					b. When checking HOT, oil level should be be- tween the "ADD" and "FULL" marks. Add oil as necessary. Do not overfill.	
10						DRIVE BELTS	
					•	Check for missing belts, broken, cracking, or fraying.	Any drivebelt is missing, broken, cracked to the belt fiber, has more
11						AIR COMPRESSOR	than one crack (1/8 in. depth or 50% of belt thickness)
							within a 6 in. area, or has frays more than 2 in. long.
					•	Check compressor (1) for loose bolts and air leaks.	Any hose lines missing, leaking, or damaged. Any air leak.

	B- D-	Bef Dur	ore ing	ope ope	erati erati	on A-After operation on W-Weekly	M–Monthly	
Item		In	terv	val		Item to be Inspected Procedure: Check for and have repaired filled	Equipment is not ready/ available if:	
No.	В	D	A	w	M	or adjusted as needed		
12						<ul> <li>EXHAUST SYSTEM</li> <li>WARNING</li> <li>Exhaust gases can kill. Operate vehicle in a well-ventilated area. Failure to do this may result in injury or death to personnel.</li> <li>Do not touch hot exhaust pipes with bare hands. Injury to personnel may result.</li> <li>Start engine, and after system has warmed up, check exhaust pipes (1) and couplings (2) for leaks and loose clamps.</li> </ul>	Any cracked, bro- ken, or missing parts, and obvious exhaust leaks are evident.	
								1

	B–E D–E	Befo Duri	re ( ng c	oper oper	atio atio	n A-After operation M n W-Weekly	I–Monthly
Item		In	terv	al		Item to be Inspected Procedure: Check for and have repaired, filled,	Equipment is not ready/
INO.	В	D	А	W	М	or adjusted as needed	available if
13						INTERIOR OF VEHICLE INSTRUMENTS	
						If buzzer stops and air pressure reading is below 65 psi, there maybe no braking ac- tion. Shut down engine and check to see what is wrong. Failure to do so may re- sult in injury or death to personnel.	
		•				a. Start engine and run at idle speed (650 -850 RPM) to let it warm up. Listen for air buzzer.	Engine is inoperative. Air buzzer will not come on. Air buzzer will not shut off above 66 psi or will not come on at ap- proximately 60 psi and remain on with decreasing air pressure.
		•}				b. Listen for unusual noise or vibration.	There is unusual noise or vibration.

NOTE: These checks are to be made in the order listed, within designated interval.

	B–E D–E	Befo Duri	re ( ng (	opei opei	ratio ratio	n A-After operation n W-Weekly	M–Monthly
Item No.	В	In D	terv A	val W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/ available if
13 (cont)						<text><text><section-header><list-item><list-item><list-item></list-item></list-item></list-item></section-header></text></text>	

# Change 2 1-11

NOTE: These checks are to be made in the order listed, within designated interval.

B–Before operation D–During operation

A-After operation W-Weekly M–Monthly

Item		Ir	nterv	al	Item to be Inspected Procedure: Check for and have repaired, filled.	Equipment is not ready/
No.	В	D	A	W M	or adjusted as needed	available if
13 (cont)					c. Check engine instruments on instrument panel for steady, normal readings as follows:	Gages do not read within limits given.
		•			Oil pressure — 10-75 psi (69 -517.125 kPa)	Oil Pressure is less than 10 psi.
		•			Temperature — 180°- 200°F (82.3 - 93.3°C)	Temp. more than 210°F
		•			Air Pressure — 85-120 psi (585.775 -827.586 kPa) Battery/	Air pressure 60 psi or below.
					Generator — In green area	Gage needle reads in red area.
		•			TachometerIdle:650-850RPM—Max:2600-2900RPMF u e 1—Shows fuel level	Tach gage is not with in limits.
					NOTE	
					Inoperative fuel gage does not down vehicle.	
					SPEEDOMETER TACHOMETER	
			•		FUEL BATTERY/GENERATOR AIR d. Engine stop cable	Inoperative or will
					CAUTION	not lock in the out position
					Do not attempt to force cable handle in- ward while serrations are interlocked. This will strip the serrations on the cable and render the vehicle inoperative.	

	B–E D-D	Befo Jurir	re ng (	oper oper	ratio atio	n A–After operation M n W–Weekly	I–Monthly
Item No.	В	In D	A	val W	M	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/ available if:
14						AIR FILTER INDICATOR	
15				•		WARNINGWARNINGIf NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instruc- tions.Check air filter indicator (1) at bottom of instrument panel. A red band means filter element needs to be cleaned or replaced.Image: Image: Imag	Red is seen on indi- cator with engine running.
					•	<ul><li>(1) Air reservoirs for leaks.</li><li>(2) All brake lines and hoses (air and hydraulic) for deterioration chafing, binding, and leaks.</li></ul>	Any reservoir, line, or hose missing, leaking, or dam- aged.
	•			:		c. Operate service brakes to determine stopping ability. Check for any pulling to one side, grabbing or other abnormal operation.	Service brakes do not operate prop- erly. Brake pedal goes to within 2 in. (51 mm) of floor- board.

NOTE: These checks are to be made in the order listed, within designated interval.

B–Before operation D–During operation

A–After operation W–Weekly M–Monthly

Item No.		In	terv	val		Item to be Inspected Procedure: Check for and have repaired, filled.	Equipment is not ready/
	В	D	A	W	М	or adjusted as needed	available if:
	•					d. Restart the vehicle and ensure that the air pres- sure is up to normal operating pressure. Determine the parking brake ability to hold the vehicle by first engaging the hand brake, then engage the transmis- sion in 5th gear position. The vehicle should not move when clutch is slowly released	Parking brake is inoperative or defective.
		•				e. Adjust hand brake as required by moving knob on top of brake handle (1) clockwise to increase brak- ing action, counterclockwise to decrease braking ac- tion.	Parking brake can- not be adjusted or does not hold prop- erly after being ad- justed.
	•					f. Check seatbelts for proper operation and security of mounting.	

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

Item		Ir	nterv	<i>r</i> al		Item to be Inspected Procedure: Check for and have repaired, filled.	Equipment is not ready/ available if
No.	В	D	А	w	Μ	or adjusted as needed	
16						STEERING SYSTEM	
		•				Check for unusual free play, binding, wander, or shimmy.	Loose or binding steering action, steering inoperative.
17						TRANSMISSION	
		•				Shift transmission in all ranges observing any unusual stiffness or binding of shifting linkage.	Transmission is inoperative.
18						CLUTCH	
		•				Check for drag, noise, chatter, grab, slippage, and clashing of gears.	Clutch is in- operative, slip- ping, or has definite grab or chatter.
19						TRANSFER	
		•				Check shifting operation for unusual noises, stiffness, or jumping out of gear.	Transfer is inoperative.
20						HORNS	
		•				Check for operation if tactical situation permits.	
21		•				FRONTAND REAR DRIVE AXLES AND PROPELLER SHAFTS	
						Listen for unusual noises or vibrations. Vibrations, clicking, or clunking noises indicate worn U-joints or damaged propeller shafts.	Unusual noises or vibrations evident.

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

A-After operation W-Weekly M-Monthly

Item			Ir	ter	val		Item to be Inspected Procedure: Check for and have repaired filled	Equipment is not ready/
	No.	B	D	A	w	М	or adjusted as needed	available if:
							SPECIAL BODY EQUIPMENT	
	22						FRONT WINCH (For vehicles where winch is required for mission completion.)	
			•				a. Check all winch controls for operation.	No control response.
			•				b. Check cable for kinks, frays, and breaks.	Evidence of frays or breaks.
							The second sec	
							Continue checks of SPECIAL EQUIPMENT as listed in Tables 1-2 through 1-9.	

Table 1-2. Operator/Crew Preventive Maintenance Checks and Services for M35A1, M35A2, M35A2C and M36A2 Cargo Trucks

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item		Iı	nter	val		Item to be Inspected Procedure: Check for and have repaired filled	Equipment is not ready/
No.	B	D	A	w	М	or adjusted as needed	available if:
1						SIDE AND END PANELS, AND ACCESSORIES	

# Table 1-3.Operator/Crew preventive Maintenance Checks and Services<br/>for M49AlC and M49A2C Fuel Tank Trucks

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

#### W-W

Item		Ir	nter	val		Item to be Inspected Procedure: Check for and have repaired, filled,	Equipment is not ready/
NO.	B	D	Α	w	М	or adjusted as needed	available if:
1						REAR COMPARTMENT	
	•					Open rear doors and check that the following items are not loose or obviously damaged.	Delivery pump, strainer, fuel lines, controls, or ground wire
	••••					Delivery pump (1) Strainer (2) Fuel lines (3) Controls (4) Ground wire reel (5)	reel loose or unserviceable.
						<b>NOTE</b> Controls for both fuel tonk trucks	
						are the same except as shown.	
						ON M49A1C TRUCK	
						ON M49A2C TRUCK	

Table 1-3. Operator/Crew Preventive Maintenance Checks and Services for M49A1C and M49A2C Fuel Tank Trucks - Cont

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item		Ir	nter	val		Item to be Inspected	Equipment is
No.	В	D	A	w	М	or adjusted as needed	available if:
No. 2 3	•	D	A	W	M	or adjusted as needed SUCTION HOSES Check both suction hoses in suction hose compartments (1) for damaged or missing parts. If the provide of the provi	available if: Dispenser line or nozzle missing or
	•••					Dispenser line (1) Dispenser line nozzle (2) Bracket (3) Nozzle ground clip (4)	unserviceable.

Table 1-3. Operator/ Crew Preventive Maintenance Checks and Services for M49A1C and M49A2C Fuel Tank Trucks - Cont

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item	Interval m			Item to be Inspected Procedure: Check for and have repaired filled	Equipment is not ready/			
No.	В	D	A	w	М	or adjusted as needed	available if:	
4	•					TANK BODY a. Visually check that tank body is not leaking.	Tank body leaks gasoline or has class III diesel fuel leak.	
				•		b. Check that the tank body mounting bolts are not broken or missing. (See location illustrations below).	Two or more mount- ing bolts broken or missing.	
						TA 045524-1		
						Right side tank body front (1) and center (2) mounting bolts		

Table 1-3. Operator/Crew Preventive Maintenance Checks and Services for M49A1C and M49A2C Fuel Tank Trucks - Cont

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item		Ir	iter	val		Item to be Inspected Procedure: Check for and have repaired filled	Equipment is
No.	B	D	A	w	М	or adjusted as needed	available if:
No. 4 (cont)	В	D	A	W	Μ	Procedure: Check for and have repaired, filled, or adjusted as needed	not ready/ available if:
						Left-side tank body front (4), center (5), and rear (6) mounting bolts	

Table 1-4. Operator/Crew Preventive Maintenance Checks and Services for M50A1, M50A2, and M50A3 Water Tank Trucks

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item		Ir	nter	val		Item to be Inspected Procedure: Check for and have renaized filled	Equipment is
No.	B	D	Α	W	М	or adjusted as needed	available if:
1						REAR COMPARTMENT a. Visually check that the following items are not damaged or missing: Delivery pump (1) Delivery strainer (2) Water lines (3) Controls (4) Six suction hoses (5) Three discharge hoses (6) Dispenser nozzle (7) Water suction strainer (8) $\int 0 + \frac{1}{2} + \frac{1}{$	Items missing or unserviceable.

Table 1-4. Operator /Crew Preventive Maintenance Checks and Services for M50A1, M50A2, and M50A3 Water Tank Trucks - Cont

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item		II	nterv	val		Item to be Inspected Procedure: Check for and have repaired, filled.	Equipment is not ready/
NO.	В	D	A	W	М	or adjusted as needed	available if:
2	•			•		<pre>TANK BODY a. Check that tank body is not leaking. b. Check that the body mounting bolts are not broken or missing (locations illustrated below).</pre>	Two or more mounting bolts broken or missing.
						TA 045312	
						Right-side tank body front (1), center (2), and rear (3) mounting bolts.	

Table 1-4. Operator/Crew Preventive Maintenance Checks and Services for M50A1, M50A2, and M50A3 Water Tank Trucks - Cont

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item		Ir	ter	/al		Item to be Inspected Procedure: Check for and have repaired filled	Equipment is
No.	В	D	A	W	М	or adjusted as needed	available if:
2 (cont)						Left-side tank body front (1), center (2) and rear (3) mounting bolts.	
3		•				CONTROLS AND RELATED EQUIPMENT Monitor controls and related equipment	Improper oper-
						for proper operation. Listen for unusual noises.	ation or un- usual noises.

Table 1-5. Operator/Crew Preventive Maintenance Checks and Services for M109A2, M109A3, M185A2 and M185A3 Shop Van and Instrument Repair Trucks

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly

M-Monthly

Item		Ir	iterv	ral	Item to be Inspected Procedure: Check for and have repaired filled	Equipment is not ready/
No.	В	D	D A W M or adjusted as needed	available if:		
1		• • •			INTERIOR LIGHTS, SWITCHES, AND ACCESSORIES a. Turn on the following switches, lights, and accessories to check that they operate properly: Dome light toggle switch (1) and dome light Blackout dome light toggle switch (2) and dome light Rear door blackout switches (3 and 4) and dome lights Exhaust blower switch and exhaust blower. Output Out	

Table 1-5. Operator/ Crew Preventive Maintenance Checks and Services for M109A2, M109A3, M185A2 and M185A3 Shop Van and Instrument Repair Trucks - Cont

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly **M-Monthly** 

Item Inter			val		Item to be Inspected Procedure: Check for and have repaired filled	Equipment is	
No.	В	D	A	W	М	or adjusted as needed	available if:
1 (cont)				• • • • • •		b. Check that the following front panel items are not loose or damaged: Dome light switch (1) Converter selector switch (2) Exhaust blower switch (3) Red light (4) Power switch handle (5) Circuit breaker box (6)	

Table 1-5. Operator/Crew Preventive Maintenance Checks and Services for M109A2, M109A3, M185A2 and M185A3 Shop Van and Instrument Repair Trucks - Cont

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

tem	Interval			Item to be Inspected Procedure: Check for and have repaired filled	Equipment is		
No.	В	D	A	w	М	or adjusted as needed	available if:
2				•		ELECTRICAL CONNECTORS Check that electrical connectors (1 and 2) are not loose or damaged.	
						Image: Constrained state stat	
3						BODY MOUNTING BOLTS Check to see if body mounting bolts are broken or missing.	Two or more body mounting bolts broken or missing.

Table 1-6. Operator/Crew Preventive Maintenance Checks and Services for M275A1 and M275A2 Tractor Trucks

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item No.	5	Ir	nterv	7al	Ι.,	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as peeded	Equipment is not ready/ available if
Item No.	В	Ir		•	<u>M</u>	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed TRAILER AIR BRAKE HOSES AND ELECTRICAL CABLE Check trailer air brake hoses (1) and electrical cable (2) for missing or damaged parts.	Equipment is not ready/ available if: Brake hoses / electrical cable <b>are</b> missing or unserviceable.
						(1) (2) TA 045339	

Table 1-6. Operator /Crew Preventive Maintenance Checks and Services for M275A1 and M275A2 Tractor Trucks - Cont

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

em		Ir	nter	val		Item to be Inspected Procedure: Check for and have repaired, filled.	Equipment is not ready/
10.	В	D	A	w	М	or adjusted as needed	available if:
2		•		•		<ul> <li>FIFTH WHEEL ASSEMBLY</li> <li>a. Check operation of coupler jaws (1).</li> <li>b. Check that fifth wheel assembly mounting bolts (2) and locking plunger (3) are not missing or damaged.</li> </ul>	Coupler jaws do not operate.

Table 1-7. Operator/Crew Preventive Maintenance Checks and Services for M342A2 Dump Truck

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation



Table 1-8. Operator/Crew Preventive Maintenance Checks and Servicesfor M756A2PipelineConstructionTruck

NOTE : These checks are to be made in the order listed, within designated interval.

B-B efore operation D-During operation A-After operation M-M W-Weekly

M-Monthly

em		Iı	nterv	val		Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/ available if:
١o.	В	D	A	W	М		
1					•	BODY Check that mounting bolts (1) are not broken or missing.	Two or more mounting bolts broken or missing.
						TA 080612	
2		•				CONTROLS AND RELATED EQUIPMENT Monitor cent rols and related equipment for proper operation. Listen for unusual noises.	Improper operation or unusual noises.

Table 1-8.Operator/Crew Preventive Maintenance Checks and Services<br/>for M756A2 Pipeline Construction Truck - Cent

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

Item No.	B	Ir D	nterv A	val W	М	Item to be Inspected Procedure: Check for and have repaired, tilled, or adjusted as needed	Equipment is not ready/ available if:
3				•		REAR WINCH a. Visually check rear winch drive chain (1) for damage.	
	Þ					b. Check that rear winch shear pin (2) is in place and serviceable (located on back side of sprocket).	
4	•					A FRAME Check that A-Frame parts are not missing, broken, or damaged.	A-Frame cannot be used due to damaged or missing parts.

Table 1-9. Operator/ Crew Preventive Maintenance Checks and Services for M764 Earth Boring Machine and Pole setter Truck

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

em		Ir	nter	val		Item to be Inspected Procedure: Check for and have repaired, filled	Equipment is
<b>√</b> 0.	В	D	A	W	М	or adjusted as needed	available if:
1		•				CONTROLS AND RELATED EQUIPMENT Monitor controls and related equipment for proper operation. Listen for unusual noises.	Improper operation or unusual noises.
2						REAR WINCH a. Push in on rear winch drive chain (1) at its midpoint and check that there is no slack. b. Check that rear winch shear pin (2) is in place and is not damaged.	

Table 1-9. Operator/Crew Preventive Maintenance Checks and Servicesfor M764 Earth Boring Machine and Polesetter Truck - Cent

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

Item No.	В	Ir D	nterv A	val W	М	Item to be Inspected Procedure: Check for and have repaired, tilled, or adjusted as needed	Equipment is not ready/ available if:
3	•		•	_		POLE LIFTING JACK Visually check pole lifting jack (1) for missing parts and damage.	
						Image: constraint of the second sec	

Table 1-9. Operator/Crew Preventive Maintenance Checks and Services for M764 Earth Boring Machine and Polesetter Truck - Cent

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

Item	Item Interval Item to be Inspected					Equipment is	
No.	В	D	A	w	М	or adjusted as needed	available if:
4	•					EARTH BORING MACHINE DERRICK Check earth boring machine derrick (1) for missing parts and damage.	
						<image/> <image/>	
5	•					COLLAPSIBLE CABLE REEL Check that collapsible cable reel (2) is not damaged.	

Table 1-9. Operator/Crew Preventive Maintenance Checks and Services for M764 Earth Boring Machines and Polesetter Truck - Cent

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation

	I	-					
tem No.	В	Ir D	nter A	val W	м	Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/ available if:
<u> </u>							
6						EARTH AUGERS	
	•					Check that earth augers (1) are not damaged. Auger tips should be seated in floor brackets (2) with locking pins (3) in place.	
						Image: state of the state of	

# CHAPTER 2

# CHECKOUT, ALINEMENT, AND ADJUSTMENT

2-1. There are no scheduled checkout, **alinement**, or adjustment procedures, to be done at the operator's level of maintenance.

# CHAPTER 3

# LUBRICATION

3-1. GENERAL. Refer to LO 9-2320-209-12/1 for lubrication of the vehicle.

3-2. SPECIAL INSTRUCTIONS. Special Instructions for lubrication of the vehicle by the operator are found in LO 9-2320-209-12/1, in instructions for service on receipt of equipment (Vol 1, para 3-1), and in instructions for operation of vehicle under unusual conditions (Vol 1, para 4-22 and 4-25e).

# CHAPTER 4

# SCHEDULED MAINTENANCE OF MATERIAL USED IN CONJUNCTION WITH MAJOR ITEMS

**4-1.** GENERAL These preventive maintenance checks and services (**PMC** S) cover the special purpose kits supplies as part of the vehicle. The special purpose kits include the arctic winterization kit, deep water fording kit, and A-frame kit. Table 4-1 gives **PMSC** procedures and location of kit components.

4-2. PMCS PROCEDURES. Refer to chapter 1, para 1-1 for the purpose and use of the interval columns in the PMCS table.

2--1/ 3-1/4-1

#### TM 9-2320 -209 -10-2/TO 36A 12-1B-1091-2

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services for Special Purpose Kits

NOTE : These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly

M-Monthly

Item		I	nter	val		Item to be Inspected Procedure: Check for and have repaired filled	Equipment is not ready/ available if:	
No.	B	D	A	w	М	or adjusted as needed		
1						ARTIC WINTERIZATION KIT		
						as follows:		
		•				Check that heater fuel lines (1) and fittings are not leaking.	Any Class III leakage.	
	•					Check that exhaust tube (2) is not loose or damaged.		
		•				Check that coolant hose and fittings (3) are not leaking.	Class III leakage	
						<image/>		

NOTE: These checks are to be made in the order listed, within designated interval.

B-B **efore** operation D-During operation

Item		Ir	Interval Item to be Inspected Procedure: Check for and have repaired filled	Equipment is			
No.	В	D	A	w	м	or adjusted as needed	not ready/ available if:
1 ont)		•				b. Check personnel heater as follows: NOTE	
						Personnel heater is mounted on left side of engine compartment.	
						Check that heater fuel line (1) and fittings are not leaking.	Any Class III leakage.
						<image/>	

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly

M-Monthly

Item		Ir	nterv	al	1	Item to be Inspected Procedure: Check for and have repaired, filled.	Equipment is not ready/
No.	В	D	A	W	М	or adjusted as needed	available if:
No.	•	D	A	W	М	Freedult: Circle for and note repared, find, or adjusted as needed c. Check alcohol evaporator (cold weather only) as follows: NOTE Alcohol evaporator is mounted in left front area of engine compartment, near air compressor. Unscrew filler cap (1) and check alcohol level in alcohol evaporator (2). Evaporator should be full. Fill as necessary.	available if:

NOTE : These checks are to be made in the order listed, within designated interval.

B-B efore operation D-During operation

1

**-**

T

available if:
es
(3)

NOTE : These checks are to be made in the order listed, within designated interval.

B-B efore operation D-During operation

Т

A-After operation W-Weekly M-Monthly

1

Item		In	terv	al		Item to be Inspected Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/ <sup> </sup> available if:
No.	В	D	A	W	М		
2 cent )	•					c. Check that flywheel housing drain plug (1) (mounted behind and below engine) is in place as shown.	
						<image/>	

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

Item		In	nterv	al		Item to be Inspected Procedure: Check for and have repaired, filled.	Equipment is
No.	В	D	А	w	М	or adjusted as needed	available if:
3	B	•	A	W	M	A-FRAME KIT a. Before operating A-frame (1) , make sure it is positioned at about a 60° angle and is securely attached to the front bumper and the inverted pintle hook (2) . Also check that: Cable clamps (3) are not loose Cable assembly (4) is not frayed or broken	Cable is frayed or broken.
				•		WARNING Use leather gloves when checking winch cable. Injury to hands may result if gloves are not worn. b. Inspect A-frame ( 1) for bends and winch cable (5) for kinks, frays, and breaks.	TA 045372

By Order of the Secretaries of the Army and the Air Force:

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Official:

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

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To be distributed in accordance with DA Form 12-38, Operator Maintenance requirements for 2-1/2 Ton Truck Cargo, and 2-1/2 Ton Truck Cargo.

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ATTN: DRSTA-MB

Warren, Michigan 48090

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Commander US Army Tank-Automotive Materiel Readiness Command ATTN: DRSTA-MB Warren, Michigan 48090

#### THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

l Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 I riches 1 Meter = 100 Centimeters = 1,000 Millimeters = 39,37 I riches

1 Meter = 100 Centimeters = 1,000 Minimeters = 37.57 Tric

1 Kilo Meter = 1,000 Meters = 0.621 Miles

WEIGHTS

- 1 Gram = 0.001 Kilograms' 1,000 Milligrams= 0.035 Ounces
- 1 Kilogram = 1,000 Grams= 2.2 Lb
- 1 Metric Ton= 1 ,000 Kilograms <sup>-</sup>1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters= 0.0338 Fluid Ounces

1 Liter = 1,000 Milliliters= 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155Sq Inches 1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet

1 Sq Kilometer = 1,000,000 Sq Meters= 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches 1 Cu Meter = 1,000,000 Cu Centimeters= 35.31 Cu Feet

TEMPERATURE

5/9 (°F -32) = °C

2 12" Fahrenheit is equivalent to  $100^{\circ}$  Celsius 90° Fahrenheit is equivalent to  $32.2^{\circ}$  Celsius

32° Fahrenheit is equivalent to O" Celsius

#### APPROXIMATE CONVERSION FACTORS

TO CHANGE	ТО	MULTIPLY BY	
Inches	Centimeters	2.540	
Feet	Meters	0.305	l ≈–E ∞
Yards	Meters	0.914	
Miles	Kilometers	1.609	
Square Inches	Square Centimeters	6.451	2
Square Feet	Square Meters	0.093	
Square Yards	Square Meters	0.836	
Square Miles	Square Kilometers ,	2.590	
Acres	Square Hectometers	0.405	
Cubic Feet	Cubic Meters	0.028	~
Cubic Yards	Cubic Meters	0.765	- <b>F</b>
Fluid Ounce	Milliliters	29 573	<del>   </del>
Pints	Liters	0.473	
Quarts	Liters	0.946	
Gallons	Liters	3 785	
	Grams	28 349	≏- <b>E</b> ▼
Pounds	Kilograms	0.454	
Short Tong	Matrie Tons	0.454	
Dound Fast	Newton Motors	0.907	~
Pounda Daz Sayara Inah		1.300	
Nor De Caller		0.890	I I-
	Kilometers Per Liter	0.425	∞
Mues rer Hour	Kilometers Per Hour	1.609	
TO CHANGE	TO	MULTIPLY BY	~
Centimeters	Inches	0.394	
Meters	Peet.	3.280	-
Vilemeters	Miles	1.094	•
Squara Continuators	Square Inches	0.021	-
Square Meters	Square Feet	10.764	
Square Meters	Square Yards	1 196	·
Square Kilometers	Square Miles	0.386	
Square Hectometers	Acres	2.471	
Cubic Meters	Cubic Feet	35.315	4
Cubic Meters	Cubic Yards	1.308	
Millimeters	Fluid Ounces	0.034	
Liters	Pints	2.113	~
Liters	Quarts	1.057	
Liters	Gallons	0.264	
Grams	Ounces	0.035	S - N
Kılograms	Pounds	2.205	i <b>έ</b> .≓ Ψ
Metric Ions	Short Tons	1.102	_ <b>1 1 1</b>
	Pound-Feet	0.738	
Kilopascais	Nilas Per Caller	0.145	
Kilometers Per Hour	Miles Per Gallon	∠.354 0.621	
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<sup>9/5</sup> Co +32= F";