

**DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY ALASKA
Fort Richardson, Alaska 99505-7100**

United States Army Alaska Regulation 750-4

30 November 1996

Maintenance of Supplies and Equipment

Lubricants, Fuels, Fuel Additives, and Fluids for Ground Equipment

Summary. This regulation about lubricants, fuels, fuel additives, and fluids used in the United States Army Alaska (USARAK) ground vehicles has been revised. This regulation sets forth USARAK policies for using lubricants, fuels, fuel additives, hydraulic fluids, brake fluids, alcohol evaporator systems, and windshield washer fluids. This regulation has been revised to reflect the change to USARAK.

Applicability. This regulation is applicable to all organizations assigned or attached to USARAK.

Impact on New Manning System. This regulation does not contain information that effects the New Manning System.

Supplementation. Supplementation of this regulation is prohibited without prior approval from the Directorate of Logistics, Maintenance Division, APVR-RDL-M.

Interim changes. Interim changes to this regulation are not official unless they are authenticated by the director of information management. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

Suggested improvements. The proponent agency of this regulation is the Directorate of Logistics, Maintenance Division. Users are invited to send comments and suggested improvements on Department of the Army (DA) Form 2028 (Recommended Changes to Publications and Blank Forms) directly to APVR-RDL-M.

1. Purpose

This regulation's purpose is to provide command policy on lubricant, fuel, fuel additive, hydraulic fluid, brake fluid, alcohol evaporator system, and windshield washer fluid usage. This regulation pertains to both commercial- and military-designed equipment, except aircraft. Aircraft technical manuals and pertinent technical publications contain like-type information for aircraft.

2. References

a. Related publication. (A related reference is merely a source of additional information. The user does not have to read it to understand this regulation.) Field Manual (FM) 9-207 (Operation and Maintenance of Ordnance Materiel in Cold Weather (0 Degrees to Minus 65 Degrees Fahrenheit)) is a related publication.

b. Referenced form. DA Form 2028 (Recommended Changes to Publications and Blank Forms) is a referenced form. It is cited in the suggested improvements statement.

3. Explanation of abbreviations

The abbreviations used in this publication are listed in the glossary.

***This regulation supersedes 6th Infantry Division (Light) Regulation 750-4, dated 21 December 1989.**

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4. Responsibilities

a. The director of logistics is responsible for coordinating policy with higher headquarters and technical activities and publishing such policy to the command promptly.

b. Commanders at all levels are responsible for assuring that materials and procedures specified herein are used.

5. General

a. Alaska's extreme weather and the inability of technical publications to stay abreast of changes in technology dictate the need for a local policy that can be readily updated.

b. During the equipment manufacturer's warranty period, use manufacturer-specified products and procedures. After the warranty expires, use materials and procedures specified in this regulation.

c. This regulation addresses only the usual Alaskan climatic conditions. Units that must deploy to climatic conditions not common to Alaska must follow the equipment lubrication order.

d. This regulation's intent is to reduce oil and lubricant changes required by climatic conditions.

6. Policy

Appendixes A through D contain current the USARAK policy that supersedes all previous instructions.

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**Appendix A
Lubricants**

A-1. Gasoline, diesel, and multifuel engines

USARAK commanders have the option three different engine lubricants: oil, engine, arctic (OEA); oil, engine, 5W30; and oil, engine, 15W40. Use OEA or oil, engine, 5W30 year-round, however, do not use oil, engine, 15W40 from 15 October through 1 April. Table A-1 shows each lubricant’s temperature limitations for gasoline, diesel, and multifuel engine usage.

a. Army Oil Analysis Program. Vehicles and generators included in the Army Oil Analysis Program will change oil as directed by that program or per warranty requirements specified in paragraph 5b. Change filters at each oil change.

b. Non-Army oil analysis program.

(1) Change gasoline-engine-driven generator’s oil and filter every 50 operating hours.

(2) Change diesel-driven generator’s that are driven less than 15 kilowatt oil and filter every 300 operating hours.

(3) Follow manufacturer's published recommendations or special instructions published for snowmobiles.

Table A-1 Gasoline, diesel, and multifuel engine lubricant temperature limitations		
Lubricant	Lower Limitation	Upper Limitation
15W40	0 degrees Fahrenheit	None
5W30	* -30 degrees Fahrenheit	+110 degrees Fahrenheit
OEA	-65 degrees Fahrenheit	+40 degrees Fahrenheit
*This temperature is without external heaters. With heat, oil is satisfactory at much lower temperatures.		

A-2. Transmissions, gear cases, and hydraulic and power steering systems

Table A-2 shows the temperature limitations for the lubricants used in this equipment.

a. Automatic transmissions and hydraulic and power steering systems. Use OEA in all automatic transmissions and hydraulic and power steering systems on a year-round basis. OEA is compatible with all types of automatic transmission fluids (including Dexron II). OEA can be mixed with other transmission fluids or other transmission fluids can be added to it.

b. Semiautomatic transmissions (including all Caterpillar and M915-20-ton series transmissions). When temperatures permit, 15W40 is the preferred oil for these transmissions.

Table A-2 Transmission, gear case, and hydraulic and power steering system lubricant temperature limitations		
Lubricant	Lower Limitation	Upper Limitation
15W40	-10 degrees Fahrenheit	None
OEA	-65 degrees Fahrenheit	+40 degrees Fahrenheit

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A-3. Gear cases

Manual transmissions, transfers, differentials, and final drives use oil, gear, 75W.

A-4. Chassis

Use grease, molybdenum, disulfide (GMD) for chassis lubrication, including wheel bearings.

A-5. Weapons

Table A-3 shows the temperature limitations for the lubricants used in weapons.

a. Small arms and machine guns.

(1) Use lubricating oil, weapon (LAW), lubricating oil, small arms (LSA), cleaner lubricant and preservative (CLP), and rifle bore cleaner (RBC) on your weapons. Table A-3 shows the temperature limitations for the lubricants used in weapons.

(2) Do not mix lubricants on the same weapon. Thoroughly clean the weapon when changing from one lubricant to another. Dry cleaning solvent (DSC) is recommended for cleaning when changing from one lubricant to another.

(3) Remove excessive lubricant from the bore and chamber before firing the weapon.

b. Crew served weapons. Do not use CLP on the M252, 81 millimeter mortar (improved). The recommended lubricant is LAW, LSA, or RBC.

c. Artillery. Use GMD instead of all grease, automotive and artillery (GAA) applications. Caution: use only hydraulic fluid (OHT) in the recoil mechanism.

Lubricant	Lower Limitation	Upper Limitation
LAW	None	+10 degrees Fahrenheit
LSA	-10 degrees Fahrenheit	None
CLP	-10 degrees Fahrenheit	None
RBC	None	None

6. Sighting and fire control equipment

Use only instrument lubricating oil (ILO) or grease instrument aircraft (GIA).

Note: Always keep weapons clean and use lubricant sparingly!

Appendix B
Fuels and Fuel Additives

B-1. Gasoline, automotive, unleaded or low-lead, VV-G-1690B

Unleaded gasoline is the only fuel authorized for gasoline-powered equipment.

B-2. Diesel fuel, arctic

Use diesel fuel, arctic (DFA) for all multifuel- and diesel-powered equipment.

B-3. Additives

a. Diesel. When ambient temperatures are expected to be below freezing (32 degrees Fahrenheit), add 1 pint fuel icing inhibitor to each 40 gallons of diesel fuel.

b. Motor gasoline. When ambient temperatures are expected to be below freezing (32 degrees Fahrenheit), add 1 pint methanol technical (OM 232) to each 40 gallons of motor gasoline (MOGAS). Do not use other types of icing inhibitors.

Note: It is extremely important that the 1 pint to 40 gallon ratio be maintained. When excessive amounts of icing inhibitor are added to fuels, damage to internal engine components is probable.

c. Ether. Using ether or a similar-type fluid as a starting aid is strictly prohibited, except when the equipment's original configuration includes such a system as a starting aid. The factory-installed systems meter a mixture into the engine that will not cause damage. Using a spray can or other means to inject a mixture into the engine is likely to cause internal damage and is extremely dangerous to personnel.

Appendix C
Miscellaneous Fluids

C-1. Brake fluid

The only brake fluid authorized for use or stockage is brake fluid, silicone (BFS) MIL-B-46176. Do not add any other type of brake fluid to hydraulic brake systems.

C-2. Alcohol evaporator systems

Vehicles equipped with air braking systems must have an operable alcohol evaporator system installed during cold weather (0 degrees to -65 degrees Fahrenheit). This system draws vaporized alcohol into the compressed system to prevent condensation from freezing and resulting in malfunctions. A missing, cracked, empty, or inoperable alcohol evaporative system from 1 October through 31 April renders the vehicle not mission capable.

a. A bolt-on type evaporator kit is available under national stock number 2530-00-859-7335. This is the preferred system for USARAK usage.

b. Use only methanol technical, type OM232 in this system.

Appendix D

Antifreeze material, fuel, hydraulic fluids, and cold weather lubricants (0 to -65 degrees Fahrenheit)

Table D-1 lists lubricants and miscellaneous fluids used in cold weather (0 to -65 degrees Fahrenheit).

Table D-1 Lubricants and miscellaneous fluids used in cold weather		
Item	National Stock Number(s)	Container Size
Antifreeze: Ethylene Glycol, Inhibited (MIL-A-46153)	6685-00-181-7929 6850-00-181-7933 6850-00-181-7940	1-gallon can 5-gallon can 55-gallon drum
Brake Fluid, Silicone (BFS) (MIL-B-46176)	9150-01-059-2586 9150-01-102-9455 9150-01-072-8379	1-gallon metal can 1-gallon plastic container 55-gallon drum
Cleaner, Lubricant Preservative	9150-01-053-6688 9150-01-054-6453 9150-01-079-6123 9150-01-079-6124 9150-01-079-6125 9150-01-079-6126	1-gallon drum 1-pint container with trigger sprayer 1-ounce liquid 4-ounce liquid 16-ounce aerosol 3-ounce aerosol
Cleaner, Rifle Bore Preservative (CLP) (MIL-B-63460)	6850-00-224-6656 6850-00-224-6657 6850-00-224-6658 6850-00-224-6663 6850-00-249-8029 6850-01-753-4806	2-ounce bottle 8-ounce can 1-quart can 1-gallon can 5-gallon can 55-gallon drum
Dry Cleaning Solvent (DSC), SD (MIL-P-D-680)	6850-00-664-5685 6850-00-281-1985	1-quart can 1-gallon can
Compound, Windshield Clean (MIL-I-27686)	6850-00-926-2275	1-pint can
Inhibitor Icing (Diesel Additive) (MIL-I-27686)	6850-00-082-2522 6850-00-753-5061 6850-00-753-5061	1-gallon can 5-gallon can 55-gallon drum
Fluid, Washer, Windshield (MIL-O-C-1901) (50:50 mix)	6850-00-926-2275	1 pint
Gasoline, Automotive Leaded or Unleaded Volatility Class E: (1) Limited, Unleaded (VV-G-1690) (2) Limited, Leaded (VV-G-1690) (3) Regular, Unleaded (VV-G-1690) (4) Regular, Unleaded (VV-G-1690) (5) Premium, Unleaded (VV-G-1690)	9120-00-148-7102 9120-00-148-7102 9130-00-148-7102 9130-00-135-2507 9130-00-148-7102	All bulk

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Table D-1 Lubricants and miscellaneous fluids used in cold weather—Continued		
Item	National Stock Number(s)	Container Size
Grease, Aircraft Instrument (GIA) (MIL-G-23827)	9150-00-985-7245 9150-00-985-7246 9150-00-985-7247 9150-00-935-4017 9150-00-984-7284	8-ounce tube 1.75-pound can 6.5-pound can 4.5-ounce cartridge 35-pound pail
Grease, Molybdenum Disulfide (GMD) (MIL-G-21164)	9150-00-935-4018 9150-00-754-2595 9150-00-223-4004 9150-00-965-2003	14-ounce cartridge 1.5-pound can 5-pound can 35-pound pail
Hydraulic Fluid, Petroleum Base (OHT) (MIL-H-6083C)	9150-00-935-9807 9150-00-935-9808 9150-00-935-9809 9150-00-935-9810	1-quart can 1-gallon can 5-gallon can 55-gallon drum
Inhibitor, Corrosion (Antifreeze Extender) (MIL-A-53009)	6850-01-160-3868	1 quart
Methanol Technical (MOGAS Additive and Air Brake Evaporative System) (OM-232)	6810-00-597-3608 6810-00-275-6010 6850-00-224-8353	1-gallon can 5-gallon can 55-gallon drum
Fuel Oil, Diesel Arctic Fuel (DFA) (MIL-V-F-800)	9140-00-286-5283 9140-00-286-5284 9140-00-286-5285	Bulk 55-gallon drum 55-gallon drum
Oil, Engine Arctic (OEA) (MIL-L-46167) (*Note 1)	9150-00-402-4478 9150-00-402-2372 9150-00-491-7197	1-quart can 5-gallon can 55-gallon drum
Oil Engine (Synthetic) (0W30) (MIL-L-46167) (*Note 2)	9150-00-Z27-5844 9150-00-Z27-7434	1-gallon can 55-gallon drum
Oil, Engine, 15W40 (MIL-L-2104D)	9150-01-178-4725 9150-01-152-4117 9150-01-152-4118 9150-01-152-4119	1-quart plastic bottle 1-quart can 5-gallon can 55-gallon drum
Lubricating Oil Gear (GO 75W) (MIL-L-2105C)	9150-01-035-5390 9150-01-048-4593 9150-01-035-5391	1-quart can 1-gallon can 5-gallon can
Lubricating Oil Gear (Synthetic), 75W90 (MIL-L-2105D) (*Note 2)	Local Purchase	Depending upon need
Lubricating Oil Gear Oil Go 80-90 (MIL-L-2105C)	9150-01-035-5392 9150-01-035-5393 9150-01-035-5394	1-quart can 5-gallon can 55-gallon drum

Table D-1 Lubricants and miscellaneous fluids used in cold weather—Continued		
Item	National Stock Number(s)	Container Size
Lubricating Oil Aircraft Turbine, Synthetic (MIL-L-7808) (*Note 3)	9150-00-782-2627 9150-00-270-4057 9150-00-782-2679	1-quart can 1-gallon can 55-gallon drum
Lubricating Oil Aircraft (Instrument) (OAI) (MIL-L-60)	9150-00-247-5449 9150-00-223-4129	4-ounce can 1-quart can
Oil, Lubricating Small Arms (LSA) (MIL-L--46000)	9150-00-935-6597 9150-00-889-3522 9150-00-687-4241	2-ounce bottle 4-ounce bottle 1-quart can
Lubricating, Oil Weapon (LAW) (MIL-L--14107A)	9150-00-292-9689 9150-00-292-9687	1-quart can 1-gallon can
Rifle Bore Cleaner (RBC) (MIL-C-372)	6850-00-224-6656 6850-00-224-6657 6850-00-224-6658 6850-00-224-6663	2-ounce bottle 8-ounce can 1-quart can 1-gallon can
Dry Cleaning Solvent (SD) (MIL-P-D-680)	6850-00-281-1985	1-gallon can
<p>Note 1. Requisitions may be filled with different brand name products such as DN-600 or Frigid-Go. Note 2. Not available from the supply system, local purchase must comply with military specifications. Note 3. For use in QRG Generators</p>		

Glossary

BFS..... brake fluid, silicone
CLP cleaner lubricant and preservative
DA..... Department of the Army
DFA..... Diesel fuel, arctic
DSC dry cleaning solvent
FM..... field manual
GAA grease, automotive and artillery
GIA..... grease instrument aircraft
GMD grease, molybdenum, disulfide
ILO instrument lubricating oil
LAW lubricating oil, weapon
LSA lubricating oil, small arms
MOGAS motor gasoline
OEA oil, engine, arctic
OHT hydraulic fluid
RBC rifle bore cleaner
USARAK..... United States Army Alaska