

15 DECEMBER 1998

**M977 SERIES, 8 X 8 HEAVY EXPANDED
MOBILITY TACTICAL TRUCKS (HEMTT)**

**TRUCK, CARGO, WITH WINCH M977
(NSN 2320-01-097-0260)**

**TRUCK, CARGO, WITHOUT WINCH M977
(NSN 2320-01-099-6426)**

**TRUCK, TANK, FUEL WITH WINCH M978
(NSN 2320-01-097-0249)**

**TRUCK, TANK, FUEL WITHOUT WINCH M978
(NSN 2320-01-1 00-7672)**

**TRUCK, TRACTOR, WITH WINCH, WITHOUT
CRANE M983 (NSN 2320-01-097-0247)**

***TRUCK WRECKER-RECOVERY M984
(NSN 320-01-097-0248)**

**TRUCK, WRECKER-RECOVERY M984A1
(NSN 2320-01-1 95-7641)**

**TRUCK, CARGO, WITH WINCH M985
(NSN 2320-01-097-0261)**

*** * TRUCK CARGO, WITH WINCH M985E1
(NSN 2320-01-194-7032)**

*** * TRUCK CARGO WITHOUT WINCH M985E1
(NSN 2320-01-194-7031)**

This lubrication order supersedes LO 9-2320-279-12 dated 8 December 1987.

Distribution Statement A.

Approved for public release; distribution is unlimited.

* Chassis lubrication instructions only. Refer to LO 9-2320-354-20 for lubrication instructions for HIAB Model 8109 crane.

** Chassis lubrication instructions only. Refer to LO 9-2320-355-20 for lubrication instructions for HIAB Model 8108 crane.

Reference: TM 9-2320-279-10, TM 9-2320-279-20-1, TM 9-2320-279-20-2, TM 9-2320-279-20-3, TM 9-2320-355-10, TM 9-2320-354-10, TM 9-2320-355-24&P, TM 9-2320-354-24&P, LO 9-2320-355-20, LO 9-2320-354-20, and TB 750-651.

M983 with crane and M985E1 without winch are no longer in the fleet. Ignore all references to these vehicles. The M984E1 and M984A1 are the same vehicle. All references to M984E1 shall be interpreted as the M984A1 model.

Intervals (on-condition or hardtime) and the related man-hour times are based on normal operation. The man-hour time specified is the time needed to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals shall be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hardtime interval if lubricants are contaminated or if operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The calendar interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hardtime intervals will be applied in the event AOAP laboratory support is not available. Hardtime intervals must be applied during the warranty period.

Intervals shown in this lubrication order are based on calendar and hourly times or calendar times and mileage. An example of a calendar and hourly lubrication interval is: **M/60 HR**, in which **M** stands for monthly and **60 HR** stands for 60 hours of vehicle operation. An example of a mileage and calendar interval is: **1.5/Q**, in which **1.5** stands for **1,500** miles (2400 km), and **Q** stands for quarterly (every three months). The lubrication is to be performed at whichever interval occurs first for the vehicle. Special lubrication intervals and services are shown by the use of asterisk (*) symbols.

Determination of operating hours. The reading on the vehicle hourmeter, which is part of the tachometer in the driver's instrument panel, is the basis of all lubrication intervals that are based on hours of operation. When hour-based intervals are shown for components that are operated for only part of the vehicle operating time, use the hourmeter reading to determine the interval, because the proportions of component vs vehicle operating time have already been figured into the intervals shown in the lubrication order.

Example: Lift Cylinder Pivot of M977 and M985 crane shows lubrication interval of Q/250 HR. This means that the lift cylinder pivot is to be lubricated every three months or every 250 hours of vehicle operation, whichever comes first.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

Cleaning fittings before lubrication. Clean parts with dry cleaning solvent (SD P-D-680) or equivalent. Dry before lubricating. Dotted arrow points indicate lubrication on both sides of the equipment.

Lubrication after fording. If fordings occur, lubricate all fittings below fording depth and check submerged gearboxes for presence of water.

Lubrication after high-pressure washing. After a thorough washing, lubricate all grease fittings and oilcan points outside and underneath vehicle.

Level of maintenance. The lowest level of maintenance authorized to lubricate a point is indicated by either Operator/crew (C) or Organizational Maintenance (O). Operator/crew (C) may lubricate points authorized for Organizational Maintenance (O) when authorized by Organizational Maintenance (O). Notes are located on cards 32 through 35.

Localized views. A reference to the appropriate localized view is given after most lubrication entries. Localized views begin on card 18.

Reporting errors and recommending improvements. You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedure, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank forms) direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-AC-NML, Rock Island, IL 61299-7630. A reply will be furnished direct to you.

INSERT LATEST UPDATED PAGES/WORK PACKAGES, DESTROY SUPERSEDED DATE

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: The portion of text affected by the updates is indicated by a vertical line in the outer margins of the page. Updates to illustrations are indicated by miniature pointing hands. Updates to wiring diagrams are indicated by shaded areas.

Dates of issue for original and updated pages/work packages are:

Original ... 0 December 1998 Change ... 2 15 March 2003
 Change ... 1 15 February 2002

**TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 35
 CONSISTING OF THE FOLLOWING:**

Page/WP No.	*Change No.	Page/WP No.	*Change No.	Page/WP No.	*Change No.
Card 1	1	Card 4 - Card 5	0	Card 32 - Card 33	1
Card 2	0	Card 6	1	Card 34 - Card 35	0
Card 3	2	Card 7 - Card 31	0	Blank	1

* Zero in this column indicates an original page.

KEY

LUBRICANTS		CAPACITIES	EXPECTED TEMPERATURES			DESERT CONDITIONS	INTERVALS
			Above + 15°F (Above -9°C)	+40°F to -15°F (+4°C to -26°C)	+40°F to -50°F (+4°C to -46°C)		
OE/HDO (MIL-L-2104)	LUBRICATING OIL ICE, TACTICAL Engine W/O Filter (Mechanical)	28 Qt (27 L)	OE/ HDO-15W40	OE/ HDO-15W/40 or OEA See notes 1 and 7	OE/ HDO-15/W40 or OEA See note 2.	OE/ HDO 40	OC - On-conditions service when directed by AOAP laboratory D - Daily (Operator) W - Weekly M - Monthly Q - Quarterly (3 Months) S - Semiannually (6 Months) A - Annually B - Biennially (2 Years) 0.5 - 500 Miles 1 - 1,000 Miles 1.5 - 1,500 Miles 2 - 2,000 Miles 3 - 3,000 Miles 6 - 6,000 Miles 12 - 12,000 Miles 20 - 20,000 Miles 60 Hr* 100 Hr* 200 Hr* 400 Hr* 800 Hr*
OEA (MIL-L-46167)	LUBRICATING OIL ICE, ARCTIC Engine W/Filter (Mechanical)	30 Qt (28.4 L)					
	LUBRICATING OIL ICE, TACTICAL Engine W/O Filter (Electronic)	28 Qt (27 L)	OE/ HDO-15W40	OE/ HDO-15W/40 or OEA See notes 1 and 7.	OE/ HDO-15/W40 or OEA	OE/ HDO 40	
	LUBRICATING OIL ICE, ARCTIC Engine W/Filter (Electronic)	30 Qt (28.4 L)					
	Transmission (Mechanical)	31Qt (29 L)	OE/ HDO-15W40	OE/ HDO-15W40	OE/ HDO-15W40		
	Transmission (Electronic) W/O Filter	37Qt (35 L)					
	W/Filter	38Qt (36 L)	OE/ HDO-15W40	OE/ HDO-15W40	OE/ HDO-15W40		
	Transfer Case	5 Qt (5 L)	OE/HDO 40	OEA/HDO 40 or OEA See note 3.	OEA/HDO 40 or OEA See note 3.		
OE/HDO (MIL-L-2104)	Hydraulic Reservoir M984E1 W/Filter	180 Qt (171 L)	OE/HDO-30 or OE/HDO-10 See note 4.	OE/HDO-10	OEA		
OEA (MIL-L-46167)	Models except M984E1 W/Filter	120 Qt (114 L)					
	Oil Can Points	As req	OE/HDO-30	OE/HDO-10	OEA		
GO (MIL-L-2105)	LUBRICATING OIL GEAR MULTIPURPOSE					For arctic operation, refer to FM 9-207.	
	Crane Rotation Gearbox (M977)	1 Pt (0.5 L)	GO-80W/90	GO-80W/90	GO-75		
	Crane Rotation Gearbox (M984E1, M985)	2.5 Pt (1.2 L)					
	Crane Hoist (M977, M985, M984E1)	1 Pt (0.5 L)					
	No. 1 Axle	See table 1					
	No. 2 Axle and Power Divider	See table 1					
	No. 3 Axle and Power Divider	See table 1	GO-85W/140	GO-85W/140 or GO-80W/90 See note 5.	GO-80W/90 or GO-75 See note 6.		
	No. 4 Axle	See table 1					
	Oil Lubed Wheel Bearings						
	Heavy Duty Winch Gearbox (M984, M984E1)	12 Qt (11 L)	GO-85W/140	GO-75 or GO-80W/90	GO-75		
	Self-Recovery Winch Gearbox	2 Qt (2 L)					
	DRY CLEANING SOLVENT SD-II (P-D-680)		SD-II All temperatures				
	ANTIFREEZE ETHYLENE GLYCOL INHIBITED, HEAVY DUTY, SINGLE PACKAGE (MIL-A-46153)	80 Qt (76 L)	Use above -50 F (-46 C)				
	ANTIFREEZE, ARCTIC-TYPE (MIL-A-11755)	80 Qt (76 L)	Use when extended periods of -40 F (-40 C) and below are encountered.				
	CORROSION INHIBITOR	2.4 Qt (2.28 L)					

* Hours of operation as shown on vehicle hourmeter.

KEY NOTES:

1. OEA must be used when temperatures are consistently below 0°F (-18°C).
2. OE/HDO-15W/40 must be used when temperatures are consistently above 0°F (-18°C).
3. OE/HDO-40 must be used when temperatures are consistently above 0°F (-18°C).
4. OE/HDO-30 must be used only when temperatures are consistently above 60°F (16°C).
5. GO-85W/140 must be used when temperatures are consistently above 30°F (-1°C).
6. GO-80W/90 must be used when temperatures are consistently above -15°F (-26°C).
7. After changing to OEA, drain 1 pint of oil from Oil Sampling valve.