

**FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)**

Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

Reporting errors and recommending improvements. You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to publications and Blank Forms) direct to: Commander, U. S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-IM-OPIT, Warren, MI 48397-5000. A reply will be furnished to you.

Hard time intervals and related manhour times are based on normal operation. The manhour time specified is the time you need to do all the services prescribed for a particular interval. Change the interval if your lubricants are contaminated or if you are operating the equipment under adverse operating conditions, including longer-than-usual operating hours. You may extend the interval during periods of low activity, but you must take adequate preservation precautions.

Hard time intervals will be indicated by one of the following symbols as appropriate: Daily (D), Monthly (M), 1500 miles (2400 km), and Semi-annually (S). On condition (OC) intervals for oil changes shall be determined by the Army Oil Analysis Program (AOAP) laboratory, and shall be applied unless otherwise notified. OC intervals for lubrication of final drive yoke splines shall be determined by the removal and installation of the power unit.

Hard time oil change intervals will be applied in the event AOAP laboratory support is not available.

Lubricate all oil and grease fitting points that get wet after washing or fording.

Park vehicle on level ground to check oil levels. Clean fittings before lubricating. Clean parts with dry cleaning solvent (P-D-680), type II, or equivalent. Dry before lubricating. Drain oil when hot after operation.

On drawings, arrows with dotted lines indicate lubrication points on both sides of equipment. The lowest level of maintenance authorized to lubricate a point is indicated by one of the following symbols as appropriate: Operator/Crew (C) or Unit Maintenance (O).

A copy of this Lubrication Order will remain with the equipment at all times; instructions contained herein are mandatory.

By Order of the Secretary of the Army.

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

Distribution:

03291

To be distributed in accordance with the initial distribution number (IDN) 371295, requirements for LO 9-2350-284-12.

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**ARMY OIL ANALYSIS PROGRAM
(AOAP)**



WARNING

**hot parts can burn you.
Use care when you work
near hot power unit.**

**SAMPLING REQUIREMENTS FOR ENGINE AND
TRANSMISSION**

Samples may be taken without warming the power unit to operating temperature if the vehicle has been operated within the last 30 days. If the vehicle has not been operated within the last 30 days, operate vehicle until normal temperature is reached (see TM 9-2350-284-10-1). Stop engine (see TM 9-2350-284-10-1). Allow power unit to cool to a "safe to touch temperature" before taking samples. Oil samples must not be taken immediately after oil is added. Operate vehicle until normal operating temperature is reached to completely mix old and new oils (see TM 9-2350-284-10-1). Allow power unit to cool to a "safe to touch temperature" before taking samples.

**SAMPLING TECHNIQUE FORENGINE AND
TRANSMISSION**

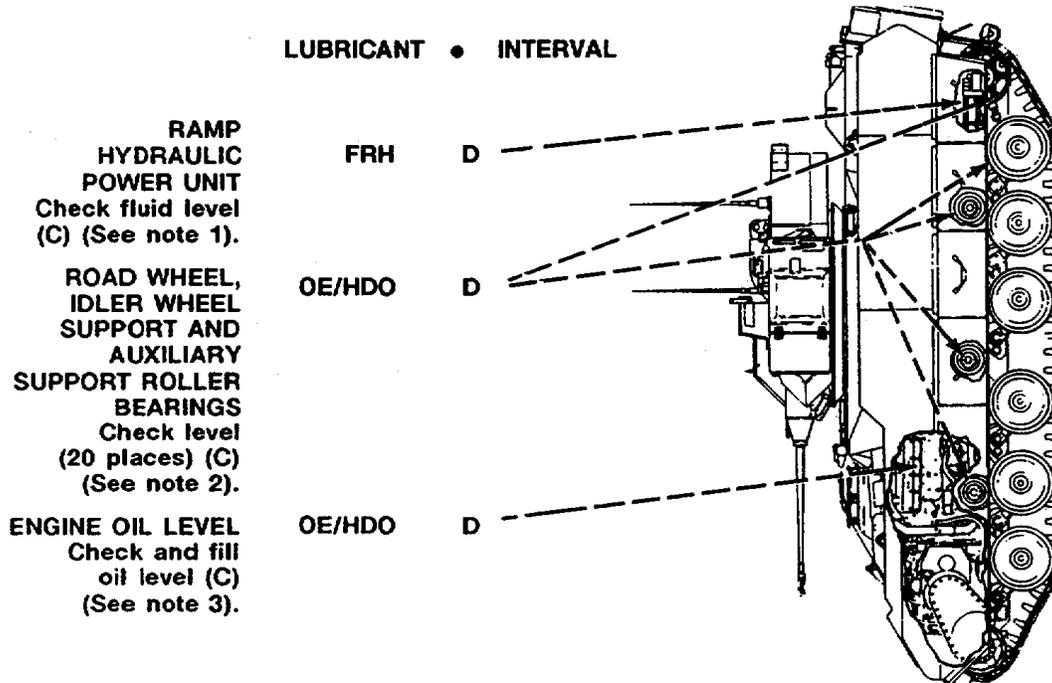
Valve method: Start engine. After engine has reached operating temperature, stop engine (see TM 9-2350-284-10-1). Open sampling valve and flush a small amount of oil into a waste container to clear valve. Fill the sample bottle to approximately 1/2 inch from top, close valve. When oil sampling valve is not used to take oil sample, use vacuum pump method (see DA PAM 738-750). Do not operate power unit while taking samples.

**FOR SHIPPING INSTRUCTIONS AND
COMPLETE INFORMATION ABOUT AOAP,
REFER TO DA PAM 738-750.**

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M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)

Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

DAILY: This card shows what must be lubricated each day when the equipment is operated.



WARNING



Hydraulic fluid is poisonous and can be absorbed through your skin. Never service hydraulic system when fluid is hot or under pressure. Avoid skin contact. Wash hands with soap immediately after servicing, and wash off any fluid which comes in contact with skin. If fluid gets into eyes, wash eyes immediately and get medical help.

TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.57

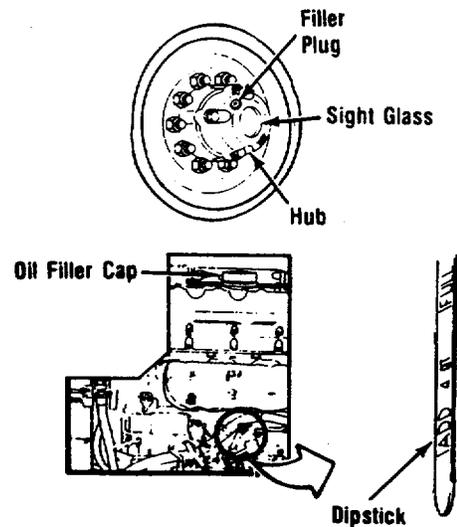
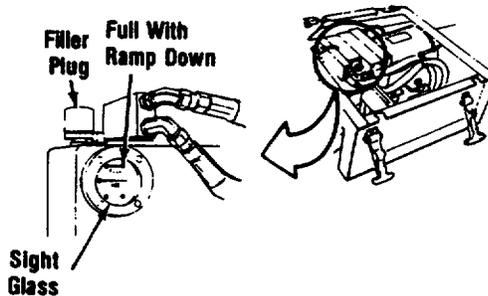
KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Engine	As Req	OE/HDO-15W-40	OEA	D -- Daily
	Road and Idler Wheel Support Roller	As Req	OE/HDO-15W-40		
FRH (MIL-H-46170) (81349)	HYDRAULIC FLUID SYNTHETIC BASE Ramp Hydraulic Power Unit	As Req	ALL TEMPERATURES		
OHT (MIL-H-6083) (81349)		As Req	-25°F TO -65°F		

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

NOTES

- RAMP HYDRAULIC POWER UNIT.** Lower ramp. Remove ramp hydraulic power unit cover and check sight glass. If fluid level is below ADD mark, add FRH as needed (see KEY). Never fill over halfway between ADD and FULL with ramp down. Ramp hydraulic power unit will be overfilled with ramp up. Install ramp hydraulic power unit cover. Raise ramp.
- ROAD WHEEL, IDLER WHEEL, AND SUPPORT ROLLER.** Check oil level of wheel hubs. Remove skirt armor plate to check roller hubs. Oil must fill all sight glasses. Fill with OE/HDO as needed (see KEY). Move vehicle, if needed, so one filler plug is at top of hub. Remove plug. Add oil to level of hole and install plug. After fording, check for water in oil. If oil looks milky or bubbly, it has water in it. Notify unit maintenance.
- ENGINE OIL LEVEL.** Remove power unit access panels. Check dipstick for level between ADD 4 OT and FULL marks. If oil looks milky or bubbly, it has water in it. Notify unit maintenance. If level is below ADD 4 OT mark, remove oil filler cap and add OE/HDO or OEA as needed (see KEY). Install oil filler cap. Recheck oil level. Install power unit access panels.



(Supersedes LO 9-2350-284-12, 30 April 1992)

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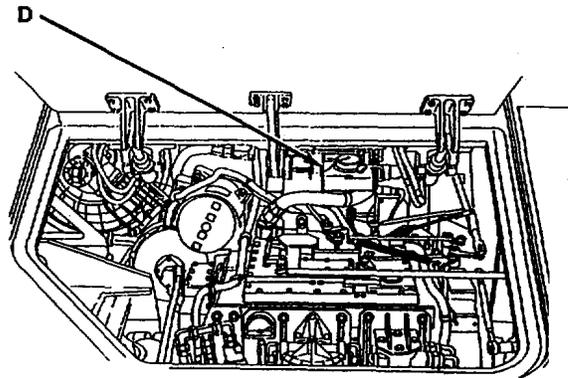
Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

DAILY: This card shows what must be lubricated each day when the equipment is operated.

LUBRICANT • INTERVAL

POWER UNIT
ACCESS
DOOR
HYDRAULIC
RESERVOIR
Check fluid level (C)
(See note 4).

FRH

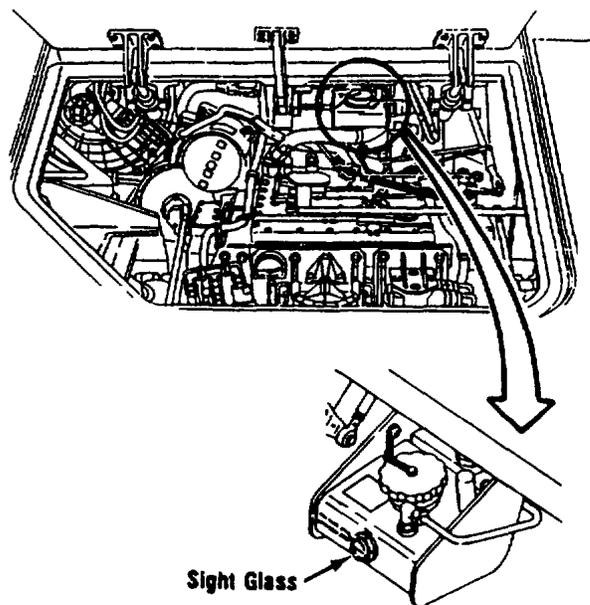


TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.10

KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
FRH (MIL-H-46170) (81349)	HYDRAULIC FLUID SYNTHETIC BASE Power Unit Access Door Hydraulic Reservoir	As Req	ALL TEMPERATURES		D — Daily
OHT (MIL-H-6083) (81349)		As Req	-25°F TO -65°F		

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3



NOTES (cont)



WARNING

Hydraulic fluid is poisonous and can be absorbed through your skin. Never service hydraulic system when fluid is hot or under pressure. Avoid skin contact. Wash hands with soap immediately

after servicing, and wash off any fluid which comes in contact with skin. If fluid gets into eyes, wash eyes immediately and get medical help.

CAUTION

Do not fill access door hydraulic reservoir above MAX FLUID LEVEL. Access door will not close if too much fluid is added.

4. POWER UNIT ACCESS DOOR HYDRAULIC RESERVOIR. Open power unit access door. Mount maintenance platform on vehicle. Check that fluid is visible in sight glass. If fluid is not visible in sight glass, add FRH to level line on reservoir. Stow maintenance platform. Close power unit access door.

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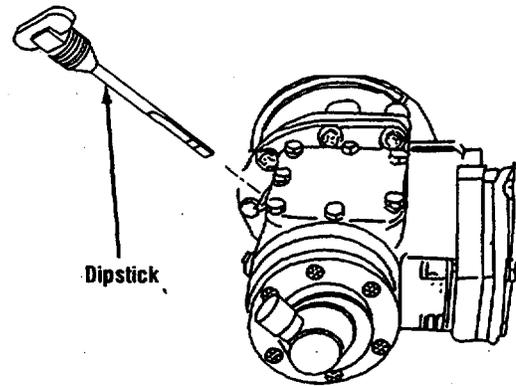
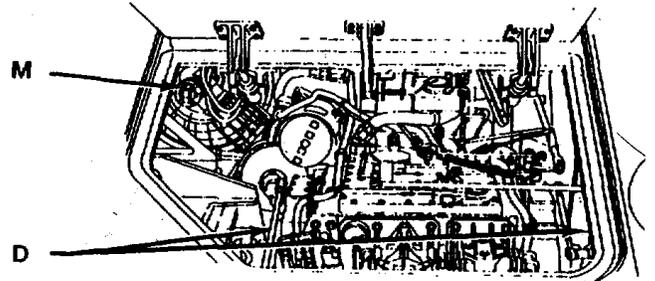
HARD TIME INTERVALS: This card shows what must be lubricated at specified hard time intervals.

LUBRICANT • INTERVAL

RIGHT ANGLE
FAN DRIVE
GEARBOX
Fill and level
(C) (See note 5).
FINAL DRIVE
Fill and level
(2 places)
(C) (See note 6).

OE/HDO

OE/HDO



TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.20
M	0.63

NOTES (cont)

- RIGHT ANGLE FAN DRIVE GEARBOX. Check oil level. Remove dipstick and wipe dry. Screw dipstick in gearbox finger tight and remove. Oil level must be at FILL TO HERE arrow. Add OE/HDO as needed (see KEY).

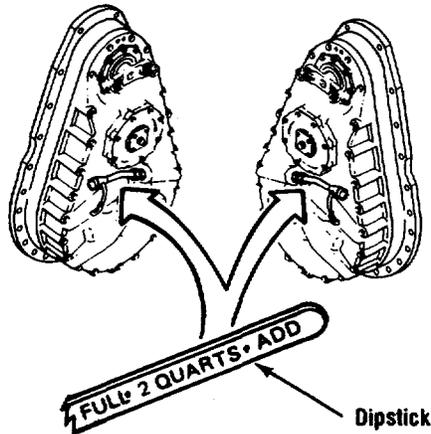
KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Final Drive	As Req	OE/HDO-15W-40	OEA	D — Daily
	Right Angle Fan Drive Gearbox	As Req	OE/HDO-15W-40	OEA	M — Monthly

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

NOTES (cont)

- FINAL DRIVES. Open power unit access door. Remove dipstick. Check oil level between ADD and FULL marks. If level is below ADD mark, add OE/HDO or OEA as needed (see KEY). If oil looks milky or bubbly, it has water in it. Notify unit maintenance. Install dipstick. Repeat steps above for other final drive. Close power unit access door.



(Supersedes LO 9-2350-284-12, 30 April 1992)

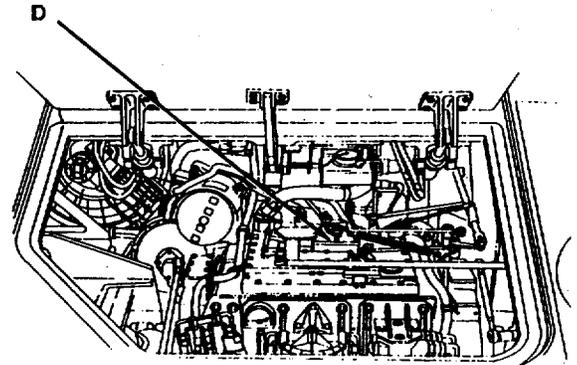
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HARD TIME INTERVALS: This card shows what must be lubricated at specified hard time intervals.

LUBRICANT • INTERVAL

TRANSMISSION
Fill and level
(C) OE/HDO
(See note 7 and 8).



TOTAL MAN-HR	
INTERVAL	MAN-HR
D	0.20

NOTES (cont)

- TRANSMISSION. Check hot oil level.

NOTE

Transmission oil level must be checked at normal operating temperature (engine cool-ant gage reads at least halfway into green zone) with parking brake applied.

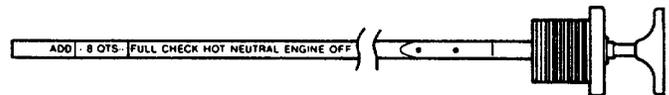
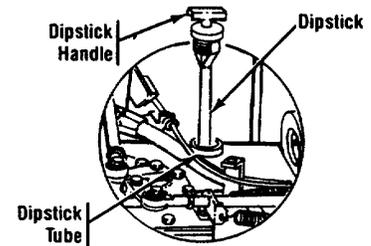
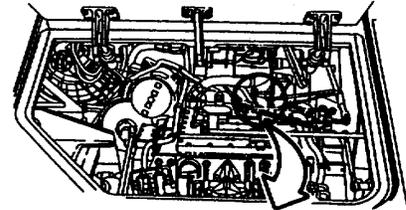
KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Transmission	As Req	OE/HDO-15W-40	OEA	D — Daily

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

NOTES (cont)

- a. Park vehicle on level ground. Set hand brake. Stop engine (see TM 9-2350-284-10-1).
- b. Open power unit access door (see TM 9-2350-284-10-1). Install maintenance platform (see TM 9-2350-284-10-1). Move MASTER POWER switch to ENGINE ON.
- c. Check engine coolant temperature gage. If engine coolant temperature gage pointer is halfway into green zone or above, check dipstick reading. If engine coolant temperature gage pointer does not point at least halfway into green zone, and engine has been started within the past six hours, start engine and warm up transmission (see TM 9-2350-284-10-1). Wait a minimum of two minutes after engine shut down before checking oil. Check dipstick reading.



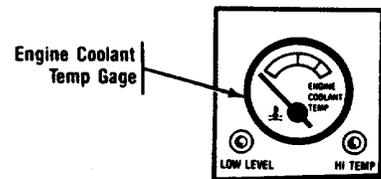
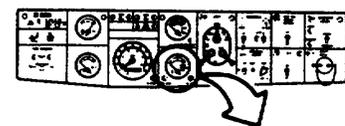
NOTE

Transmission dipstick has readings on both sides. Use side marked CHECK HOT NEUTRAL ENGINE OFF.

- d. Unscrew dipstick counterclockwise and remove. Wipe dipstick using clean wiping rag. Install dipstick, remove and check oil level.

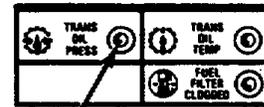
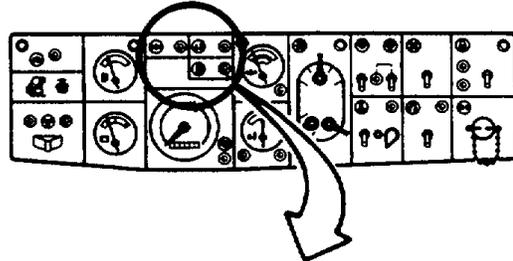
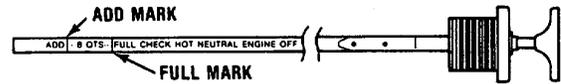
CAUTION

Transmission can get damaged when transmission is filled above FULL mark. Do not fill transmission above FULL mark.



NOTES (cont)

- e. If oil level is below ADD mark, inspect transmission for oil leaks. If leaks are found, install dipstick and notify unit maintenance. If no leaks are found, add transmission oil as needed.
- f. If oil level is above FULL mark, excess oil must be drained from transmission. Install dipstick and notify unit maintenance.
- g. If oil looks milky or bubbly, it has water in it. Install dipstick and notify unit maintenance.
- h. If oil level is between ADD and FULL mark, install dipstick. Start engine (see TM 9-2350-284-10-1).
- i. Check TRANS OIL PRESS indicator light. If TRANS OIL PRESS indicator light stays on, stop engine (see TM 9-2350-284-10-1). Notify unit maintenance. If TRANS OIL PRESS indicator light goes off, stop engine and close power unit access door (see TM 9-2350-284-10-1).



**TRANS OIL PRESS
Indicator Light**

- 8. TRANSMISSION
Check cold oil level

NOTE

Accurate transmission oil level checks can only be done using the Check Hot Oil Level procedure. The Check Cold Oil Level procedure is used only to provide an indication of adequate transmission oil necessary to safely operate vehicle until next scheduled hot level check can be performed.

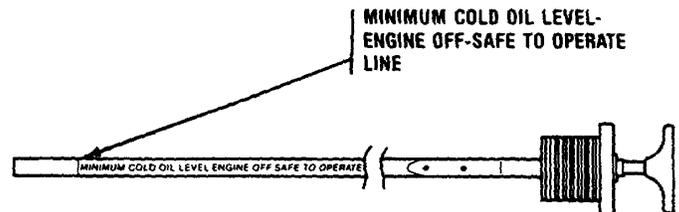
Use of the Check Cold Oil Level procedure should be avoided unless it has been at least six hours since engine was last started and there is doubt as to whether transmission has adequate oil to safely operate vehicle.

NOTES (cont)

NOTE

Transmission dipstick has readings on both sides. Use side marked **MINIMUM COLD OIL LEVEL-ENGINE OFF-SAFE TO OPERATE**.

- a. Unscrew dipstick counterclockwise and remove. Wipe dipstick using clean wiping rag. Install dipstick, remove and check oil level.
- b. If oil level is more than one *and* one-half inches above the **MINIMUM COLD OIL LEVEL-ENGINE OFF-SAFE TO OPERATE** line, install dipstick and notify unit maintenance.
- c. If oil level is at or less than one and one-half inches above the **MINIMUM COLD OIL LEVEL-ENGINE OFF-SAFE TO OPERATE** line, install dipstick. Screw dipstick handle down clockwise to secure. Start engine (see TM 9-2350-284-101).
- d. If oil looks milky or bubbly, it has water in it. Install dipstick and notify unit maintenance.



CAUTION

Transmission damage can result if overfilled with oil. If oil must be added, do not fill to more than one and one-half inch above the **MINIMUM COLD OIL LEVEL-ENGINE OFF- SAFE TO OPERATE** line on dipstick.

- e. If oil level is below the **MINIMUM COLD OIL LEVEL-ENGINE OFF-SAFE TO OPERATE** line, inspect transmission for leaks. If leaks are found, install dipstick and notify unit maintenance. If no leaks are found, add transmission oil as needed.
- f. Check dipstick reading. Repeat steps a thru e.
- g. Screw dipstick handle down clockwise to secure.
- h. Stow maintenance platform (see TM 9-2350-284-10-1).
- i. Close power unit access door (see TM 9-2350-284-10-1).

(Supersedes LO 9-2350-284-12, 30 April 1992)

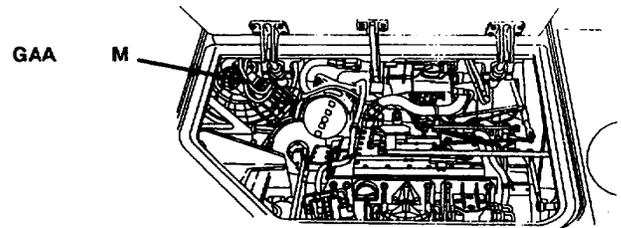
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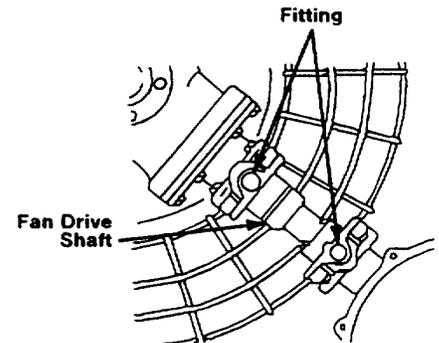
HARD TIME INTERVALS: This card shows what must be lubricated at specified hard time intervals.

LUBRICANT • INTERVAL

FAN DRIVE
PROPELLER SHAFT
Lubricate fittings
(3 places) (0)
(See note 9).



TOTAL MAN-HR	
INTERVAL	MAN-HR
M	0.3



NOTES (cont)

9. FAN DRIVE PROPELLER SHAFT. Apply GAA to three lubrication fittings (see KEY on back of card). Raise propeller shaft guard before applying grease. Close guard after fittings are greased.

KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
GAA (MIL-G-10924)	GREASE, AUTOMOTIVE AND ARTILLERY Fan Drive Propeller Shaft	As Req	ALL TEMPERATURES		M — Monthly

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

(Supersedes LO 9-2350-284-12, 30 April 1992)

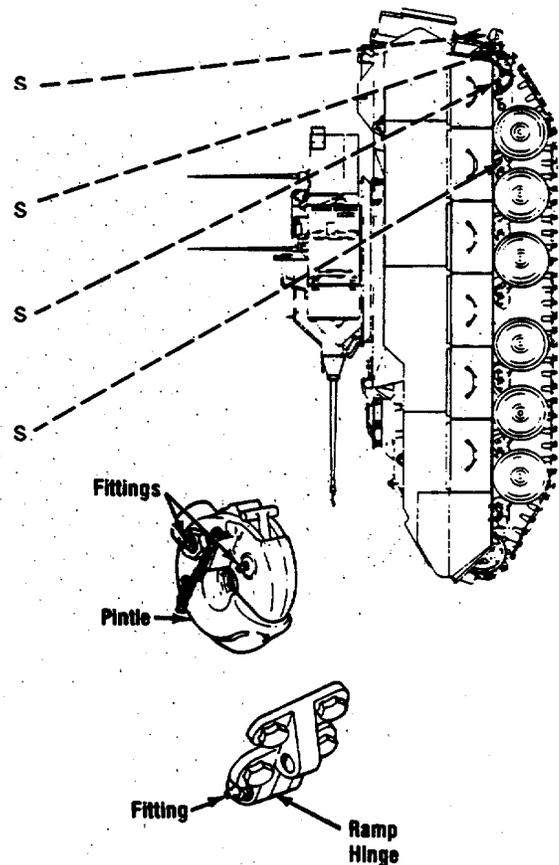
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HARD TIME INTERVALS: This card shows what must be lubricated at specified hard time intervals.

LUBRICANT • INTERVAL

TOWING PINTLE Grease towing pintle at two fittings (O) (See note 10).	GAA
RAMP HINGE Grease ramp hinge at two fittings (O) (See note 10)	GAA
IDLER WHEEL SUP- PORT ARM BEARINGS (OIL BEARINGS) Check level (0) (See note 11).	OE/HDO
ROAD WHEEL SUP- PORT ARM BEARINGS (OIL BEARINGS) Check level 12 places (O) (See note 12).	OE/HDO



TOTAL MAN-HR	
INTERVAL	MAN-HR
S	2.25

NOTES (cont)

- LUBRICATION FITTINGS AND OIL CAN POINTS. Apply GAA to lubrication fittings on towing pintle, ramp lock rod ends, and ramp hinge pins. Apply OE/HDO to oil can points on seat controls, hatch latches, driver control links, and door latches (see KEY on back of card).

KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Road and Idler Wheel Support Arm Bearings Oil Can Points	As Req	OE/HDO-15W-40		S — 1500 Miles (2400 km) or Semi-annually
GAA (MIL-G-10924)	GREASE, AUTOMOTIVE AND ARTILLERY Lubrication Fittings	As Req	ALL TEMPERATURES		

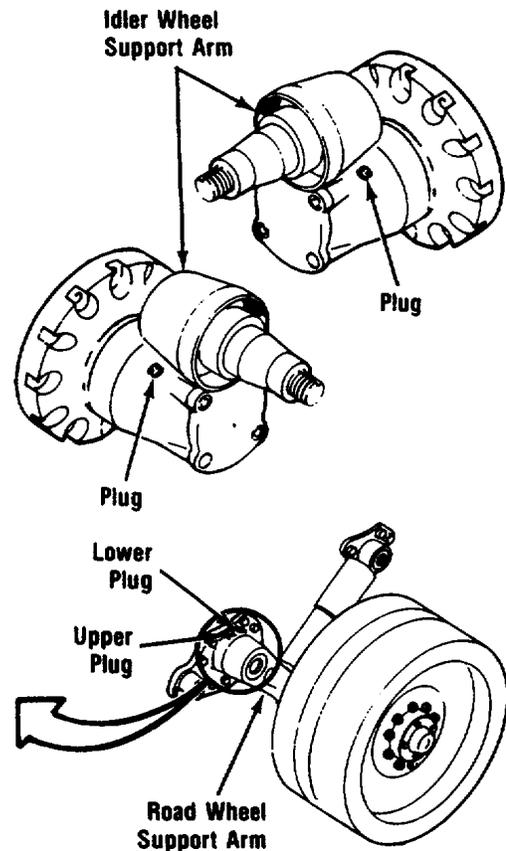
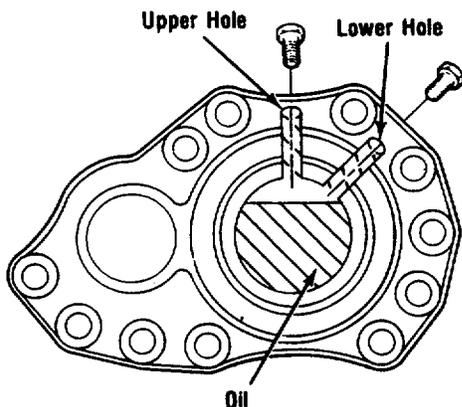
*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

NOTES (cont)

NOTE

Use the lube procedures below for support arms with hex head plugs installed.

11. IDLER WHEEL SUPPORT ARM BEARINGS (OIL BEARINGS). Remove top and lower plugs from idler wheel support arm. Oil must reach level of lower plug. Fill with OE/HDO as needed (see KEY). Wait 30 minutes and recheck oil level. Clean and install plugs.
12. ROAD WHEEL SUPPORT ARM BEARINGS (OIL BEARINGS). Remove top and lower plugs from road wheel support arm bearings. Oil must reach level of lower plug hole. Fill with OD/HDO (see KEY). Wait 30 minutes, and recheck oil level. Clean, apply sealant to threads, and install plugs



(Supersedes LO 9-2350-284-12, 30 April 1992)

**FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)**

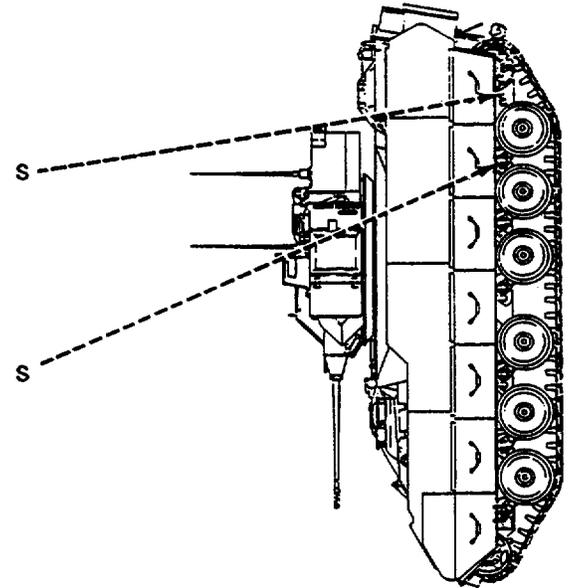
Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

HARD TIME INTERVALS: This card shows what must be lubricated at specified hard time intervals.

NOTE

Bushings, relief valves, and grease fittings should be installed for lubrication only.

	LUBRICANT	•	INTERVAL
IDLER WHEEL SUPPORT ARM BEARINGS (GREASE BEARINGS) Lubricate fittings (12 places) (O) (See note 13).	GAA		S
ROAD WHEEL SUPPORT ARM BEARINGS (GREASE BEARINGS) Lubricate fittings (12 places) (O) (See note 13).	GAA		S



TOTAL MAN -HR	
INTERVAL	MAN-HR
S	.7

KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
GAA (MIL-G-10924)	GREASE, AUTOMOTIVE AND ARTILLERY Road and Idler Wheel Support Arm Bearing	As Req	ALL TEMPERATURES		S — 1500 Miles (2400 km) or Semi-annually

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

NOTES (cont)

NOTE

Use the lube procedures below for support arms with countersunk hex head plugs.

13. TO LUBRICATE SUPPORT ARM BEARINGS WITH GREASE SEE TM 9-2350-284-20-1-2.

(Supersedes LO 9-2350-284-12, 30 April 1992)

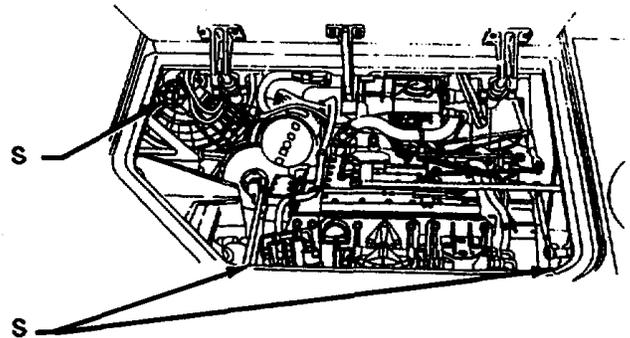
**FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)**

Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

HARD TIME INTERVALS: This card shows what must be lubricated at specified hard time intervals.

LUBRICANT• INTERVAL

RIGHT ANGLE FAN
DRIVE GEARBOX
Drain and refill
(O) (See note 14). OE/HDO
FOOT BRAKE
TORQUE ROD
BEARINGS
Lubricate fittings
(2 places)
(O) (See note 15). GAA



TOTAL MAN -HR	
INTERVAL	MAN-HR
S	1.0

KEY

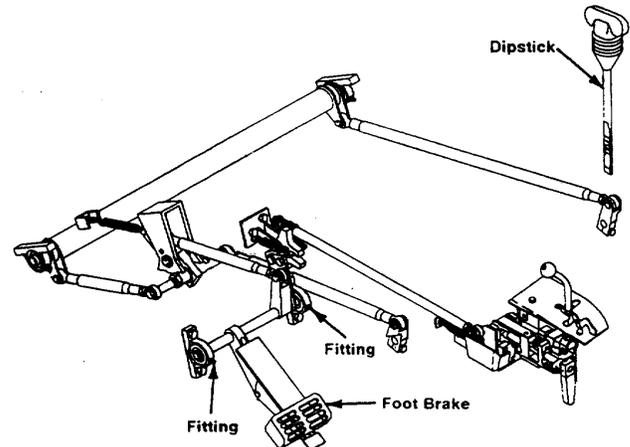
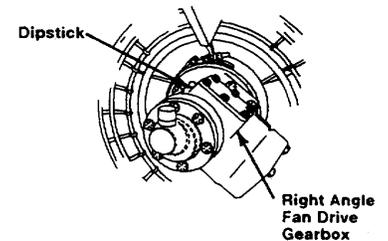
LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Right Angle Fan Drive Gearbox	As Req	OE/HDO-15W-40	OEA	S — 1500 Miles (2400 km) or Semi-annually
GAA (MIL-G-10924)	GREASE, AUTOMOTIVE AND ARTILLERY Foot Brake Torque Rod Bearings	As Req	ALL TEMPERATURES		

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

NOTES (cont)

14. RIGHT ANGLE FAN DRIVE GEARBOX. Remove and drain gearbox. Check oil for metal chips. If metal chips are found, write up DA Form 2404 on contaminated gearbox. If no metal chips are found, install gearbox. Fill with OE/HDO (see KEY). Check oil level. Wipe dipstick. Screw dipstick in gearbox finger tight and remove. Oil level must be at FILL TO HERE arrow. Add OE/HDO as needed (see KEY).

15. FOOT BRAKE TORQUE ROD BEARINGS. Apply GAA grease to two lubrication fittings (see KEY). Foot brake bearing fittings are at front of driver's station.



**FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)**

Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

HARD TIME INTERVALS: This card shows what must be lubricated at specified hard time intervals.

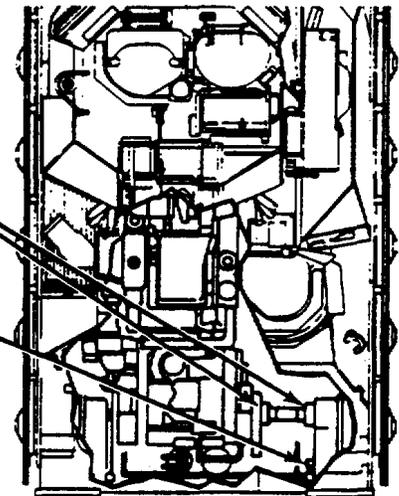
NOTE: All lubrication tasks on this card are performed with power unit access door opened and maintenance platform installed.

LUBRICANT•INTERVAL

PROPELLER SHAFT
UNIVERSAL JOINTS
Lubricate fittings
(4 places) (O)
(See note 16).
SPEEDOMETER/
DUAL ADAPTER
Lubricate fittings
(O) (See note 17).

GAA

GAA



TOTAL MAN -HR	
INTERVAL	MAN-HR
S	0.10

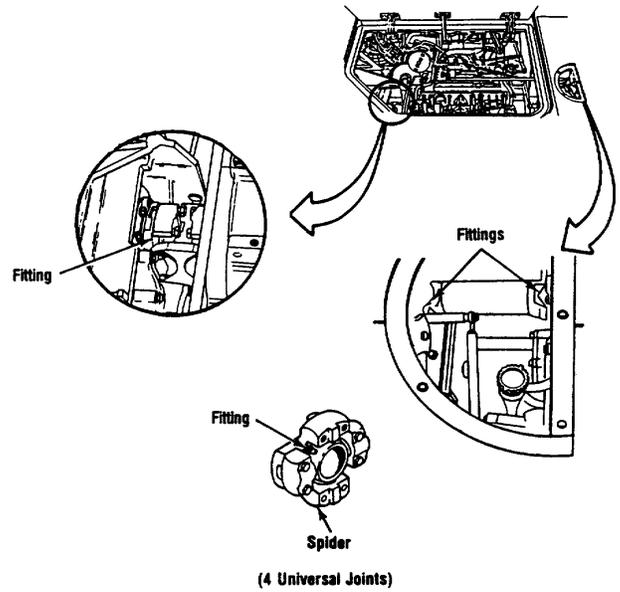
KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
GAA (MIL-G-10924)	GREASE, AUTOMOTIVE AND ARTILLERY Propeller Shaft U-Joints Speedometer Adapter	As Req	ALL TEMPERATURES		S — 1500 Miles (2400 km) or Semi- annually

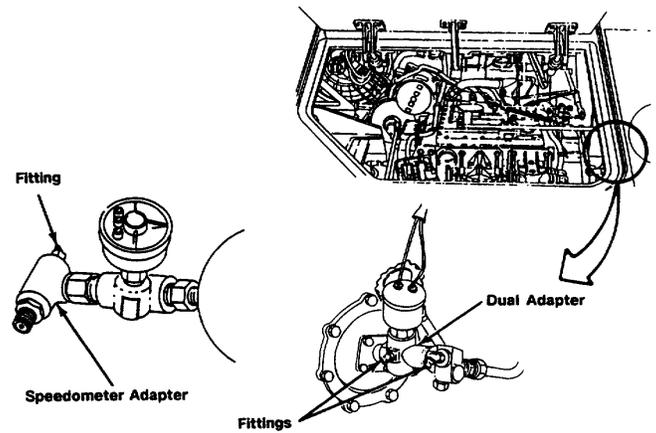
*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

NOTES (cont)

16. PROPELLER SHAFT UNIVERSAL JOINTS. If lubrication fitting cannot be accessed, start engine (see TM 9-2350-284-10-1) and drive vehicle forward 23 feet. Stop engine (see TM 9-2350-284-10-1). Apply GAA (see KEY) to four lubrication fittings. Two fittings are on left universal joints, two are on right universal joints.



17. SPEEDOMETER/DUAL ADAPTER. If speedometer adapter on vehicle has a lubrication fitting, apply GAA grease sparingly (see KEY). If speedometer does not have a lubrication fitting, it is a sealed unit. No lubrication is required. If dual adapter has a lubrication fitting, apply GAA grease sparingly.



(Supersedes LO 9-2350-284-12, 30 April 1992)

**FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)**

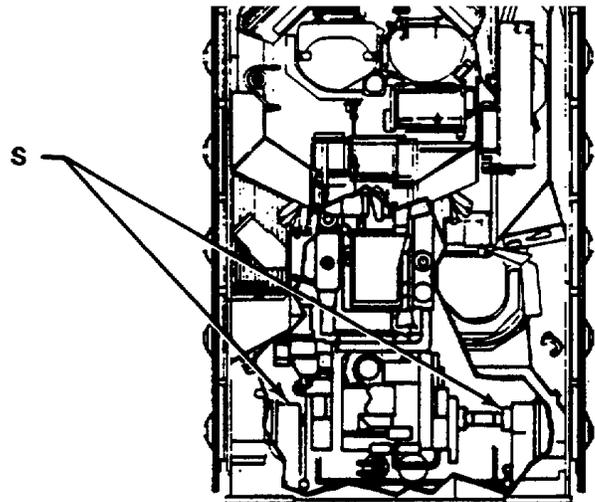
Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

HARD TIME INTERVALS: This card shows what must be lubricated at specified hard time intervals.

NOTE: Lubrication task on this card is performed with access cover removed, power unit access door opened, and maintenance platform installed.

LUBRICANT•INTERVAL

FINAL DRIVE
Drain and refill
(O) (See note 18). OE/HDO



TOTAL MAN -HR	
INTERVAL	MAN-HR
S	1.0

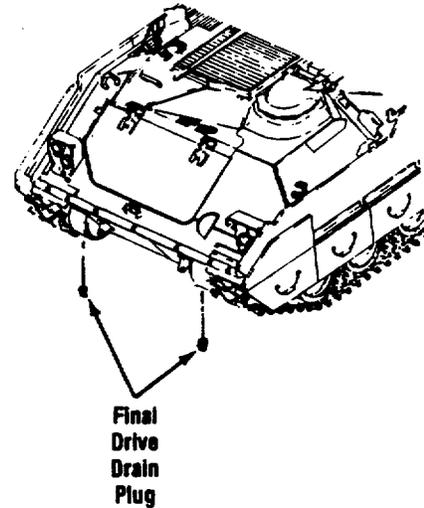
KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Final Drive	5 qt (ea)	OE/HDO-15W-40	OEA	S — 1500 Miles (2400 km) or Semi-annually

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

NOTES (cont)

18. FINAL DRIVES. Drain and refill final drives every 1500 miles (2400 km) or 6 months.
 - a. Drain oil when hot after operation
 - b. Place suitable container (at least 2 gallons) under drain hole.
 - c. Remove final drive drain plug.
 - d. Check final drive drain plug and oil for metal chips and/or water. If water or metal chips are found in oil, notify unit maintenance.
 - e. Clean drain plug. Apply antiseize compound sparingly to threads of drain plug and install in final drive.
 - f. Repeat steps b thru e above for other final drive.
 - g. Fill final drives with OE*HDO or OEA (see KEY).
 - h. Drive vehicle (see TM 9-2350-284-10-1).
 - i. Check final drive oil level (see Card 4).

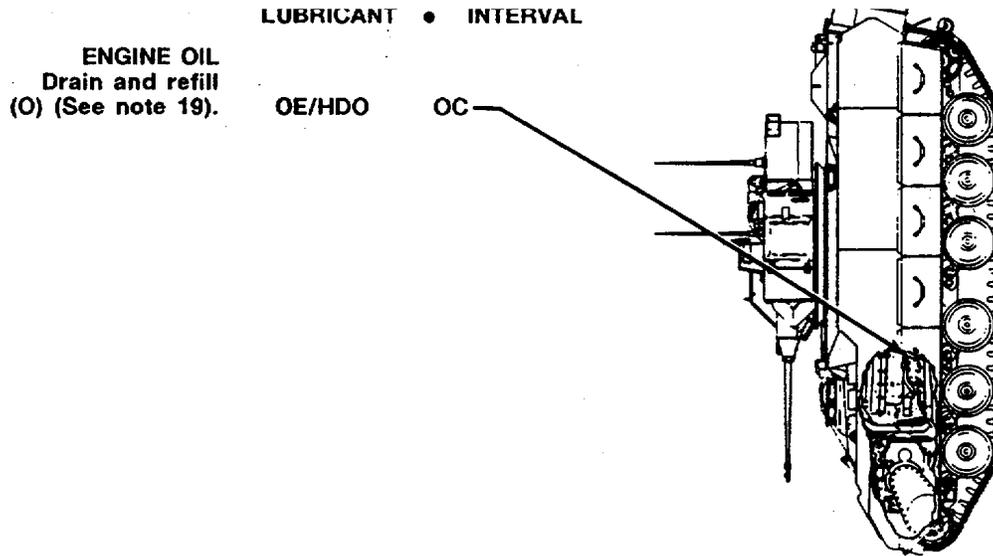


(Supersedes LO 9-2350-284-12, 30 April 1992)

FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)

Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

OC (On Condition) INTERVALS: This card shows what must be lubricated when instructed by AOAP laboratory, as a result of oil analysis.



TOTAL MAN -HR	
INTERVAL	MAN-HR
OC	0.75

KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE	20 qt	OE/HDO-15W-40	OEA	OC — On Condition, service when directed by AOAP laboratory

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3



Hot parts can burn you. Use care when you work near hot power unit.



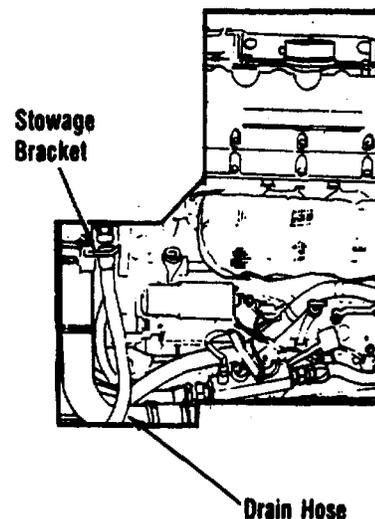
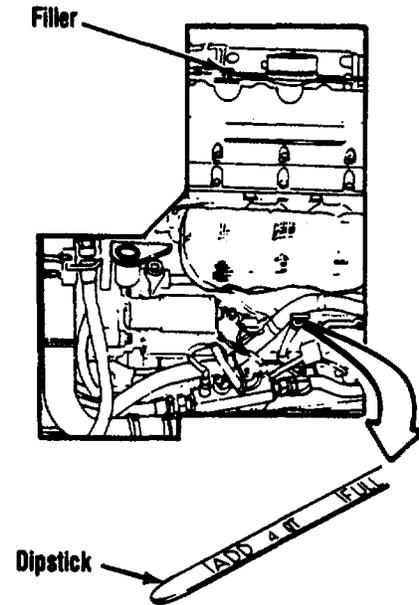
Power unit parts could injure you. Stay clear of moving parts when power unit is running.

- p. Install hull drain plug, and close access door in driver's station floor plate (see TM 9-2350-284-in-11).
- q. Install power unit access panels (see TM 9-2350-284-10-1).
- r. Stow maintenance platform (see TM 9-2350-284-10-1).
- s. Close power unit access door (see TM 9-2350-284-10-1).

NOTES (cont)

19. ENGINE OIL An oil sample shall be taken and sent to an AOAP laboratory for analysis at intervals of every 30 days. Oil will be changed when directed by the AOAP laboratory (see Card 1 Backup for oil sampling methods and requirements). If AOAP laboratory support is not available, drain and refill crankcase every 1500 miles of operation or 6 months. Replace oil filter element when oil is changed.

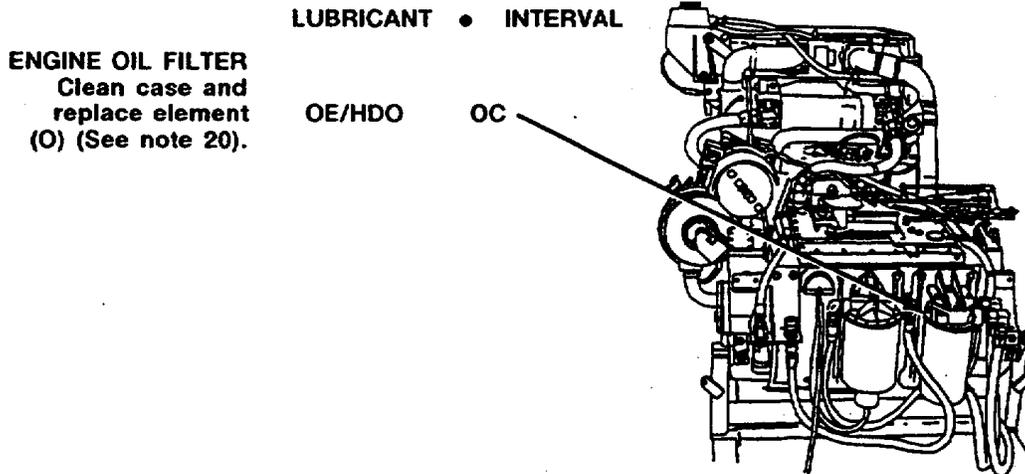
- a. Drain oil when hot after operation.
- b. Place suitable container (at least 5 gallon) under hull drain hole
- c. Remove the power unit access panel (see TM 9-2350-284-10-1).
- d. Open access door in driver station floor plate, and remove hull drain plug.
- e. Remove oil filler cap.
- f. Unstow engine oil drain hose.
- g. Put end of hose through hull drain hole. Remove hose plug and allow engine oil to drain.
- h. Wipe end of drain hose clean. Install hose plug, and stow drain hose.
- i. Check drained oil. If you find metal chips or engine coolant, stop lubrication. Notify unit maintenance.
- j. Replace oil filter element (see Card 14).
- k. Fill engine with OE-HDO or OEA (see KEY on front of card).
- l. Install oil filler cap.
- m. Start engine and check for oil leaks (see TM 9-2350-284-10-1). Report any leaks. If oil is to be changed from OE/HDO to OEA, steps a thru i above and k thru m above must be repeated after first fill.
- n. Stop engine (see TM 9-2350-284-10-1).
- o. When engine is warm, remove dipstick and check oil level. Add oil as needed. Install dipstick.



FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)

Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

OC (On Condition) INTERVALS: This card shows what must be lubricated when instructed by AOAP laboratory, as a result of oil analysis.



TOTAL MAN -HR	
INTERVAL	MAN-HR
OC	0.75

KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Oil Filter	Part of engine oil capacity (Card 13)	OE/HDO- 15W-40	OEA	OC — On Condition, service when directed by AOAP laboratory
P-D-680 (MIL-C-18718)	SOLVENT, CLEANING	As Req	ALL TEMPERATURES		

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3



WARNING

Cleaning solvent is poisonous and can burn. Continued exposure to solvent can cause skin problems.

- Always use in area away from heat or flames.
- Do not breathe solvent fumes.
- Wear rubber gloves when using solvent.
- Apply Solvent with brush.
- If solvent gets on hands, wash them.
- If solvent gets in eyes, flush with fresh water and get medical help.
- Keep fire extinguisher nearby.



NOTES (cont)

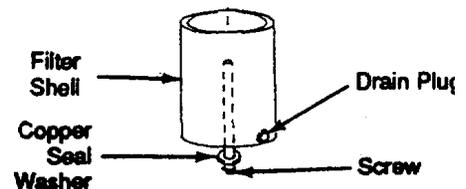
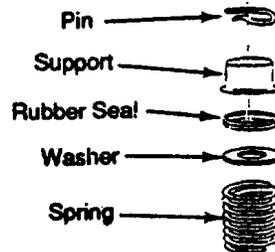
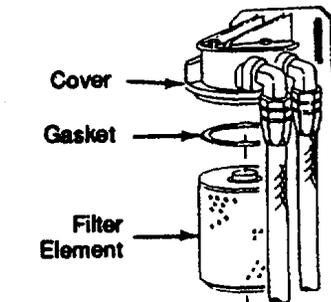
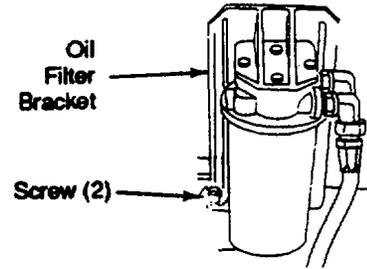
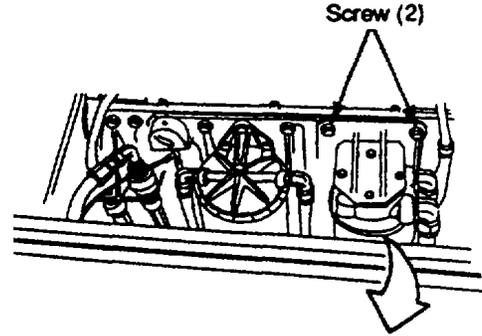
CAUTION

Damage may result to new gasket or filter shell if not properly seated. Rim of filter shell and new gasket must seat tightly in recess of cover to ensure proper seating occurs.

20. ENGINE OIL FILTER. Install new oil filter element when it is known to be contaminated or clogged, service is recommended by AOAP analysis, or after 1500 miles (2400 km) of operation or 6 months.

- Open power unit access door.
- Loosen two screws, raise oil filter bracket, and hook two J-slots on screws. Tighten screws.
- Remove drain plug and drain oil from shell.
- Remove screw and shell from cover.
- Remove gasket from cover.
- Remove filter element from shell.
- Remove pin, support, rubber seal, washer, and spring from screw.
- Remove screw from shell and remove copper seal washer from screw.
- Discard gasket, oil, filter element, rubber Seal, and copper seal washer.
- Clean cover, filter shell, pin, and support with brush and cleaning solvent. Allow to air dry.
- Install new copper seal washer on screw and install screw in filter shell.
- Install spring, washer, new rubber seal, support, and pin on screw.
- Install new filter element in shell.
- Apply lube oil to new gasket and install on cover.

- Install shell on cover and tighten screw.
- Tighten screw an additional 1/2 turn after gasket makes contact.
- Install drain plug in shell.
- Loosen two screws, unhook to J-slots from screws, and lower oil filter bracket. TORQUE TWOSCREWSTO264-288IN-LB (304-332 CMKG).
- Close power unit access door.
- Go to Card 13 Backup, steps k thru s.



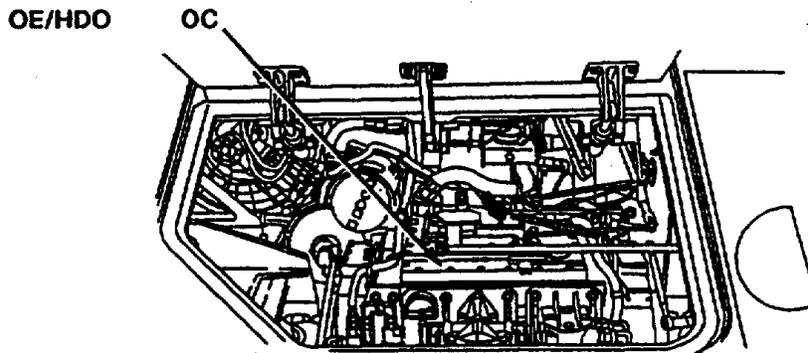
(Supersedes LO 9-2350-284-12, 30 April 1992)

**FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)**

Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

OC (On Condition) INTERVALS: This card shows what must be lubricated when instructed by AOAP laboratory, as a result of oil analysis.

LUBRICANT • INTERVAL



TOTAL MAN -HR	
INTERVAL	MAN-HR
OC	0.45

KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Transmission	14 gal	OE/HDO-15W-40	OEA	OC — On Condition, service when directed by AOAP laboratory

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

**WARNING**

Hot parts can burn you. Use care when you work near hot power unit.



Power unit parts could injure you. Stay clear of moving parts when power unit is running.

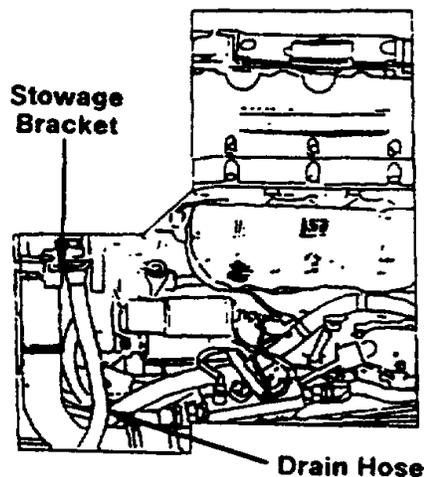
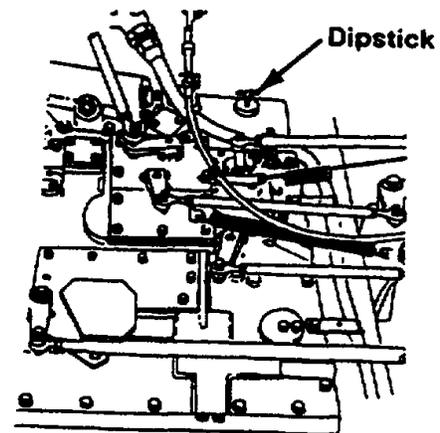
NOTES (cont)

21. TRANSMISSION OIL. An oil sample shall be taken and sent to an AOAP laboratory for analysis at intervals of every 30 days. Oil will be changed when directed by the AOAP laboratory (see Card 1 Backup for oil sampling methods and requirements). If AOAP laboratory support is not available, drain and refill transmission every 1500 miles (2400 km) of operation. Install new oil filter element when it is known to be contaminated or clogged, service is recommended by AOAP analysis, or after 1500 miles (2400 km) of operation or 6 months.

- a. Drain oil when hot after operation.
- b. Place suitable container (at least 16 gallon) under hull drain hole.
- c. Open power unit access door (see TM 9-2350-284-10-1).
- d. Install maintenance platform (see TM 9-2350-284-10-1).
- e. Remove power unit access panels (see TM 9-2350-284-10-1).
- t. Open access door in driver's station floor plate, and remove hull drain plug.
- g. Unstow transmission drain hose.
- h. Put end of hose through hull drain hole and remove hose plug. Allow transmission oil to drain.
- i. Wipe end of drain hose clean. Install hose lug, and stow drain hose.
- j. Check drained oil. If you find metal chips or engine coolant, stop lubrication. Notify unit maintenance.
- k. Install new transmission oil filter element. (see TM 9-2350-284-20-1).
- l. Remove dipstick.
- m. Fill transmission with OE/HDO or OEA (see KEY on front of card).
- n. Install dipstick.
- o. Start engine and check for oil leaks. Report any leaks. If oil is to be changed from

OE/HDO to OEA, drive vehicle for 15 minutes to warm the oil. Repeat steps a thru j above and l thru n above. After the second oil change, drive vehicle a minimum of one kilometer to thoroughly mix the new oil with any of the remaining oil (see TM 9-2350-284-10-1).

- p. If indicator button is out, push it in. If it pops out again, notify unit maintenance.
- q. Stop engine (see TM 9-2350-284-10-1).
- r. When engine is warm, remove dipstick and check oil level. Add oil as needed.
- s. Install hull drain plug, and close access door in driver's station floor plate (see TM 9-2350-284-10-1).
- t. Install the power unit access panels (see TM-2350-284-10-1).
- u. Stow vehicle maintenance platform (see TM 9-2350-284-10-1).
- v. Close the power unit access door (see TM 9-2350-284-10-1).



FIGHTING VEHICLE, INFANTRY
M2A2 (2350-01-248-7619) (EIC: ALG) AND
M2A2 ODS (2350-01-405-9886) (EIC: ALG)
FIGHTING VEHICLE, CAVALRY
M3A2 (2350-01-248-7620) (EIC: ALH) AND
M3A2 ODS (2350-01-405-9887) (EIC: ALH)

Reference: TM 9-2350-284-10-1, TM 9-2350-284-20-1, DA PAM 738-750, FM 9-207, FM 90-3

OC (On Condition) INTERVALS: This card shows what must be lubricated when instructed by AOAP laboratory, as a result of oil analysis.

LUBRICANT • INTERVAL

TRANSMISSION
OIL FILTER

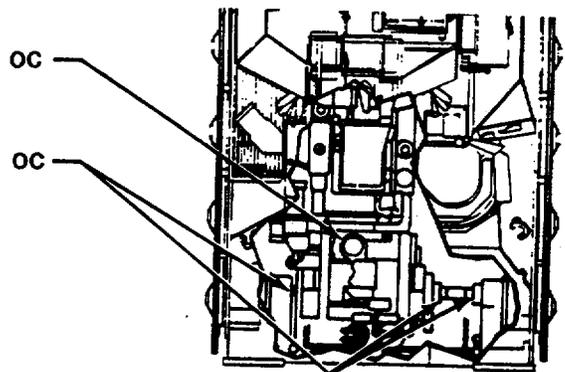
Clean cavity and
Install new filter
element (0)
(See note 22).

OE/HDC

YOKE SPLINES

Lubricate (0)
(See note 23).

GMD



TOTAL MAN -HR	
INTERVAL	MAN-HR
OC	0.7



WARNING

Cleaning solvent is poisonous and can burn. Continued exposure to solvent can cause skin problems.

- Always use in area with good air flow away from heat or flames.
- Do not breathe solvent fumes.
- Wear rubber gloves when using solvent.
- Apply solvent with brush.
- If solvent gets on hands, wash them.
- If solvent gets in eyes, flush with fresh water and get medical help.
- Keep fire extinguisher nearby.



KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +125°F	+20°F to -70°F	
OE/HDO (MIL-L-2104) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE Transmission Oil Filter	Part of transmission oil capacity (Card 15)	OE/HDO-15W-40	OEA	OC — On Condition, service when directed by AOAP laboratory
GMD (MIL-G-21164)	GREASE, MOLYBDENUM DISULFIDE Yoke Splines	As Req	ALL TEMPERATURES		OC — On Condition
P-D-680 (MIL-C-18718)	SOLVENT, CLEANING				

*FOR ARCTIC OPERATION SEE FM 9-207; FOR DESERT OPERATION SEE FM 90-3

CAUTION

Make sure no dirt or cleaning solvent gets into oil filter cavity. Transmission can get damaged.

NOTES (cont)

22. TRANSMISSION OIL FILTER. Install new transmission oil filter when AOAP analysis or Hard Time oil change interval requires transmission oil change, or when transmission oil filter indicator shows a new filter is needed.

a. Remove oil filter. If filter comes out with cover, separate filter from cover (see TM 9-2350-28420-1).

23. YOKE SPLINES. When power unit or final drive is removed or installed coat splines on yokes with GMD (see KEY on front of card).

