

LUBRICATION ORDER

27 JUNE 83

TRUCK TRACTOR, LINE HAUL, 50, 000 GVWR, 6x4,
M915A1 (2320-01-125-2640)

REFERENCE: TM 9-2320-283-10 AND TM 9-2320-283-20

Intervals (on-condition or hard time) and the related man-hour times are based on normal operation. The man-hour time specified is the *time* you need 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 hard time interval if your lubricants are contaminated or if you are operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The hard time interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hard time intervals will be applied in the event AOAP laboratory support is not available.

Clean fittings before lubricating. Lubricate points indicated by dotted arrow points on both sides of equipment. Clean parts with dry cleaning solvent (SD), type II or *equivalent*. Dry before lubricating. The lowest level of maintenance authorized to lubricate a part is indicated by one of the following: (C) Operator/crew; or (O) Organizational Maintenance.

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: U.S. Army Tank - Automotive Command, ATTN: DRSTA-MB, Warren, Michigan 48090. A reply will be furnished to you.

TA 236727

- Key -

LUBRICANTS (SEE NOTE 20)	REFILL CAPACITY (APR.)	EXPECTED TEMPERATURES			INTERVALS		
		Above + 32°F	+ 40°F to - 15°F (See Note 19)	0°F To - 65°F			
OE/HDO, AND OEA (ARCTIC GRADE) - OIL ENGINE	11 GAL. WITH BOTH FILTERS	OE/HDO 30	OE/HDO 10	OEA	D - Daily W - Weekly, as required depending upon use 1 - 1,000 Miles or 1 month, whichever occurs first 3 - 3,000 Miles or 3 months, whichever occurs first 6 - 6,000 Miles or 6 months, whichever occurs first 12 - 12,000 Miles or 12 months, whichever occurs first 24 - 24,000 Miles or 24 months, whichever occurs first		
OE/HDO - 10, AND OEA (ARCTIC GRADE) - OIL (DEXRON* ATF PREFERRED) (SEE NOTE 11E) TRANSMISSION	32 QUARTS WITH EXTERNAL FILTER	OE/HDO 10	OE/HDO 10	OEA			
GO LUBRICANT, MULTIPURPOSE (EP 75W 90, SHC 75W 90, OR P.A.O. 75W 140 PER MIL-L-2105C) DIFFERENTIALS	SEE NOTE 7C	GO 85/140	GO 80/90	GO 75 (- 40°F LIMIT; (- 40°F to - 65°F)			
OE/HDO - 10, AND OEA (ARCTIC GRADE) - OIL (DEXRON* ATF PREFERRED) (SEE NOTE 4B) POWER STEERING	2 QUARTS	ALL TEMPERATURES					
GAA - GREASE AUTOMOTIVE & ARTILLERY	AS REQUIRED						
CWII-LUBR, CHAIN EXPOSED GEAR AND WIRE ROPE	AS REQUIRED						
TOTAL MAN-HOURS							
INTERVAL	D	W	1	3	6	12	24
MAN-HOURS	.3	.1	.7	.4	.6	.4	3.2

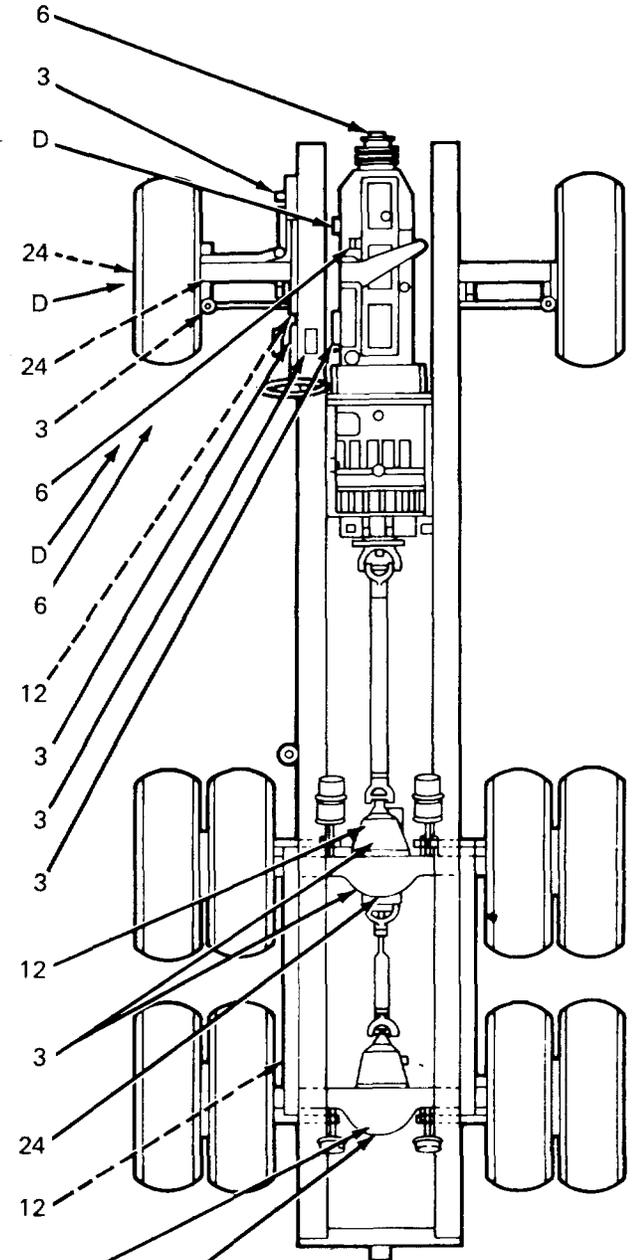
FOR ARCTIC OPERATION REFER TO FM 9 207

NOTE: The man-hours shown above have been established on an individual vehicle basis and hence are not applicable at maintenance facilities where production line methods are Employed.

TA 236728

MODEL M915A1 LUBRICATION REQUIREMENTS

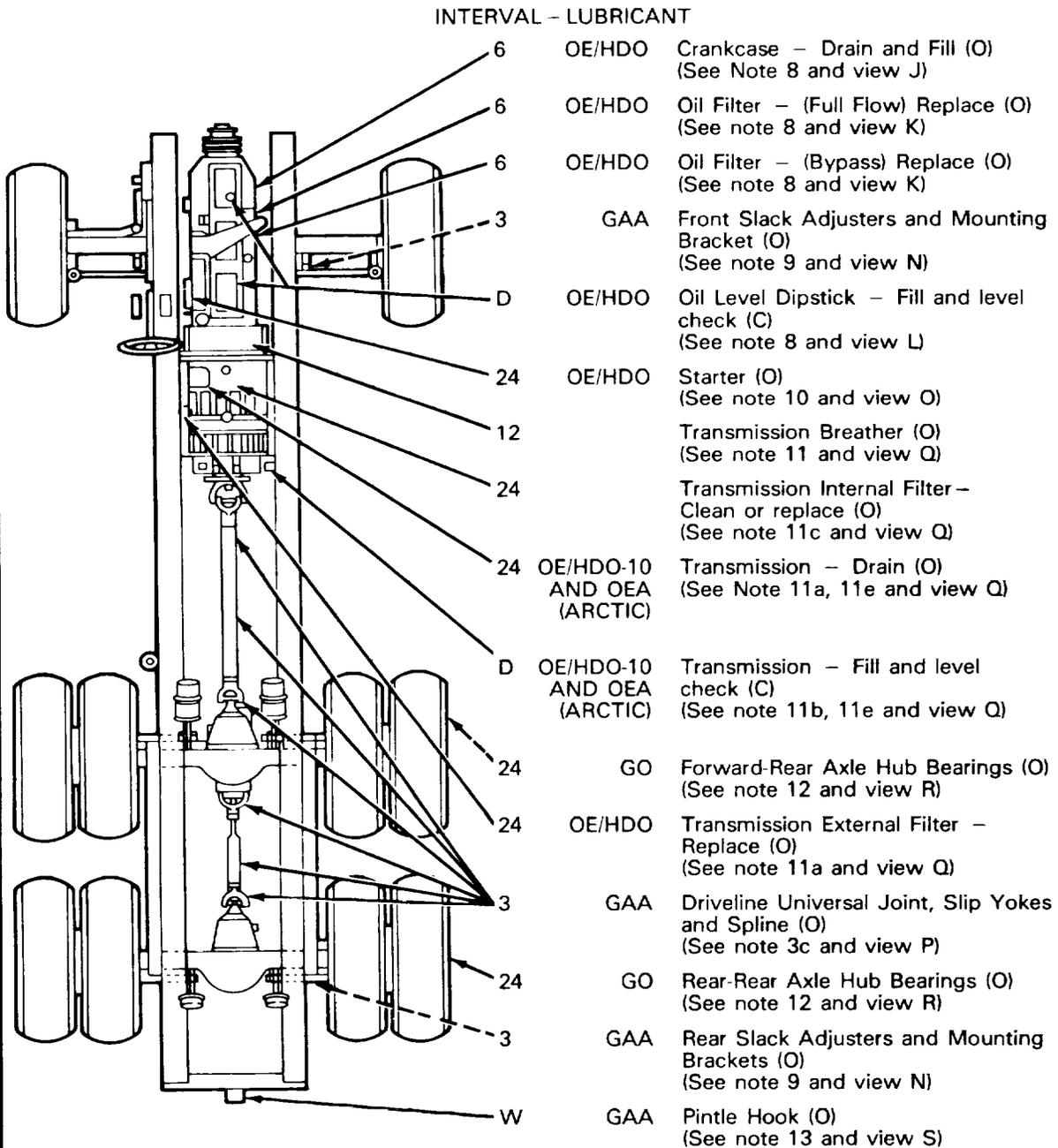
	LUBRICANT	INTERVAL
Fan Clutch (O) (See note 2 and view A)	GAA	6
Drag Link (O) (See note 3a and view B)	GAA	3
Power Steering Pump Fill and level check (C) (See note 4 and view C)	OE/HDO- 10 AND OEA	D
Front Wheel Bearings - Drain and Fill (O)	GO	24
Fill and Level Check (C) (See note 3b and view D)	GO	D
Front Wheel Knuckle (O) (See note 3a and view E)	GAA	24
Tie Rod (O) (See note 3a and view E)	GAA	3
Fuel Pump Screen - Clean (O) (See note 5 and view F)		6
Water Separator Fuel Filter - Drain Moisture (C) (See note 5 and view F)		D
Water Separator Fuel Filter - Change Element (O) (See note 5 and view F)		6
Front Axle Spring (O) (See note 3a and view B)	GAA	12
Steering Shaft Universals (O) (See note 3c and view B)	GAA	3
Brake Pedal (O) (See view H)	OE/HDO	3
Accelerator Pedal and Linkage (O) (See view H)	OE/HDO	3
Forward-Rear Axle Lube Pump and Magnetic Strainer (O) (See note 6 view G)	GO	12
Forward-Rear Axle Differential Check and Fill (O) (See note 7 and view G)	GO	3
Forward-Rear Axle Drain (O) (See note 7c and view G)	GO	24
Rear Axle Spring & Walking Beam (O) (See note 3a and view I)	GAA	12
Rear-Rear Axle Differential Check and Fill (O) (See note 7 and view M)	GO	3
Rear-Rear Axle Drain (O) (See note 7c and view M)	GO	24



NOTE: Dotted arrow points indicate lubrication on both sides of vehicle.

TA 236729

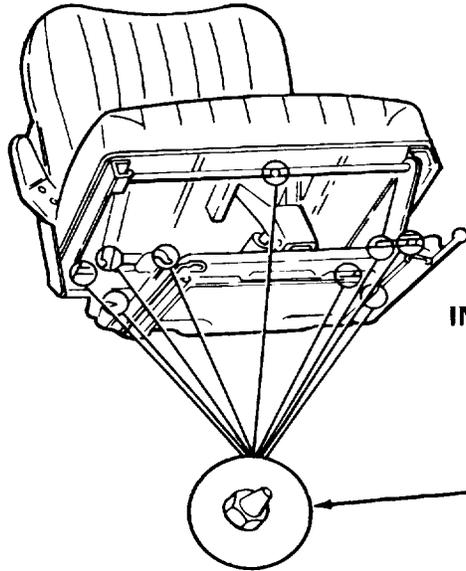
MODEL M915A1 LUBRICATION REQUIREMENTS



NOTE: Dotted arrow points indicate lubrication on both sides of vehicle.

TA 236730

**DRIVER'S SEAT
(SEE NOTE 17)**

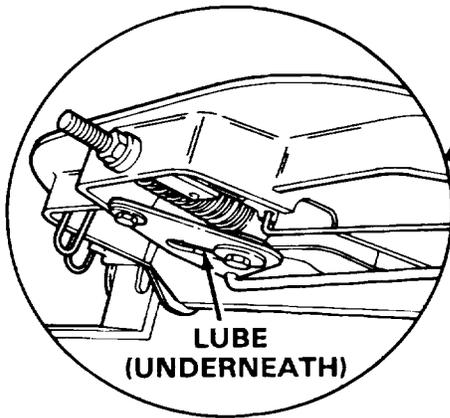


INTERVAL - LUBRICANT

12

**GAA Suspension Seat
Grease Fittings (O)**

**SLIDING FIFTH WHEEL
(SEE NOTE 15)**



**LUBE
(UNDERNEATH)**

INTERVAL - LUBRICANT

1

**GAA Kingpin Locking
Mechanism (C)**

LUBRICANT - INTERVAL

Grease Fitting (O)

GAA

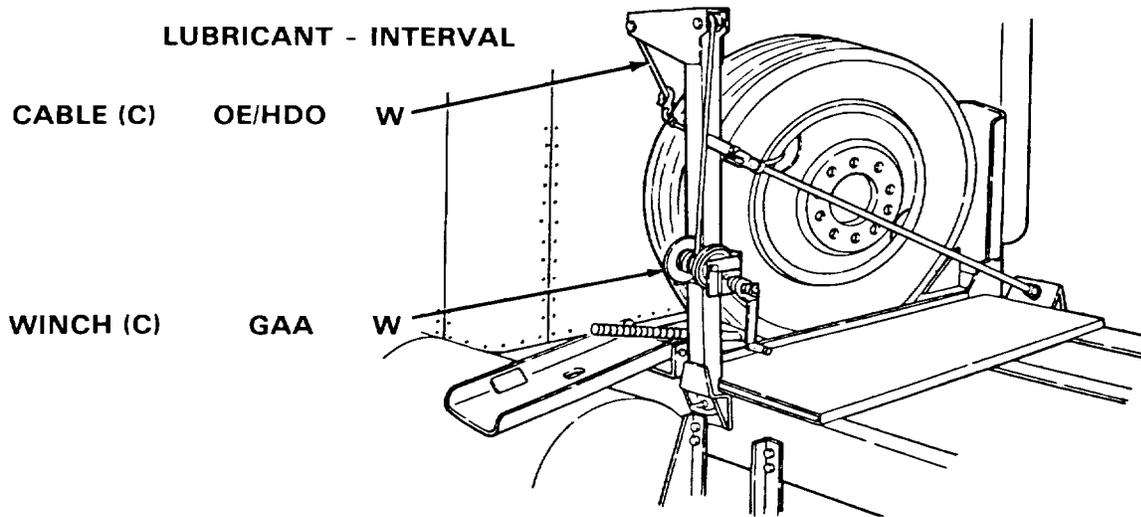
1

Slide Rack (O) OE/HDO-10

1

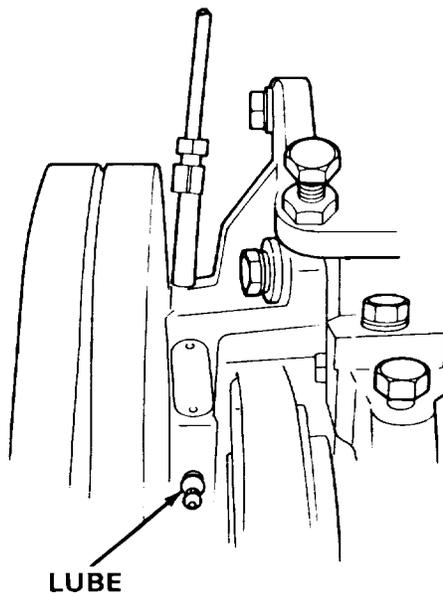
TA 236731

**TIRE HOIST
(SEE NOTE 16)**



A

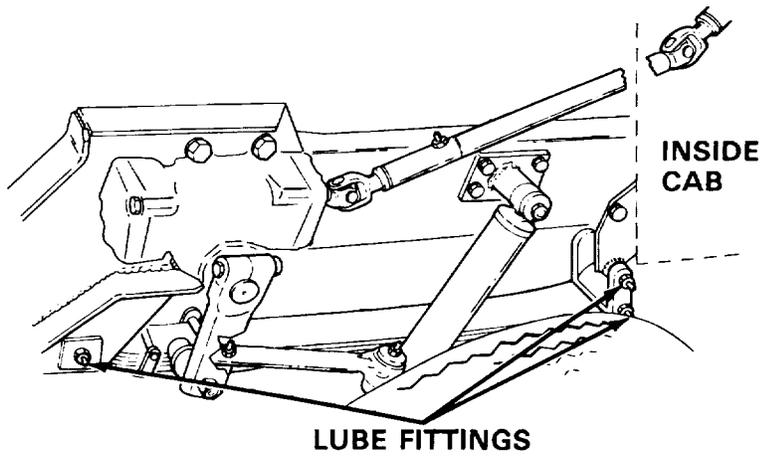
FAN CLUTCH



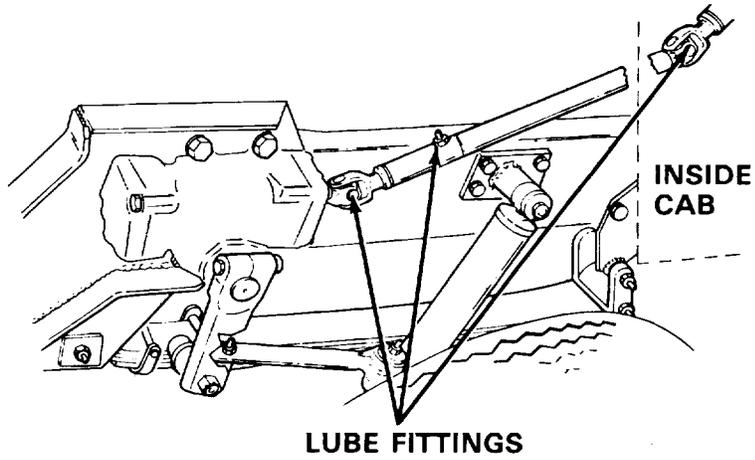
TA 236732

B

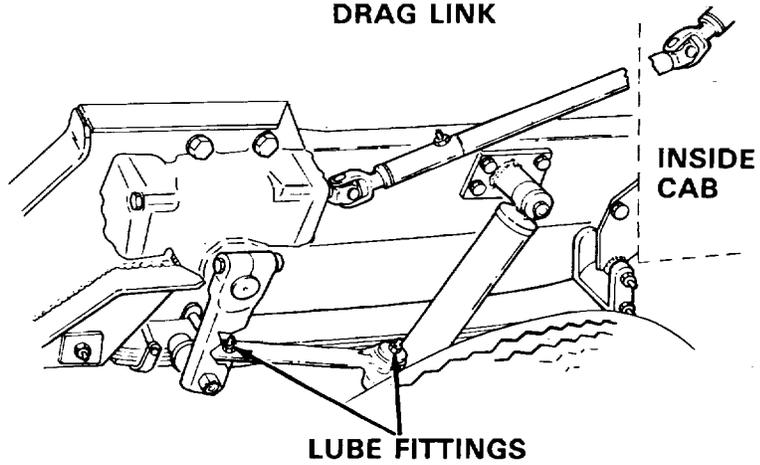
FRONT AXLE SPRING



STEERING SHAFT UNIVERSALS

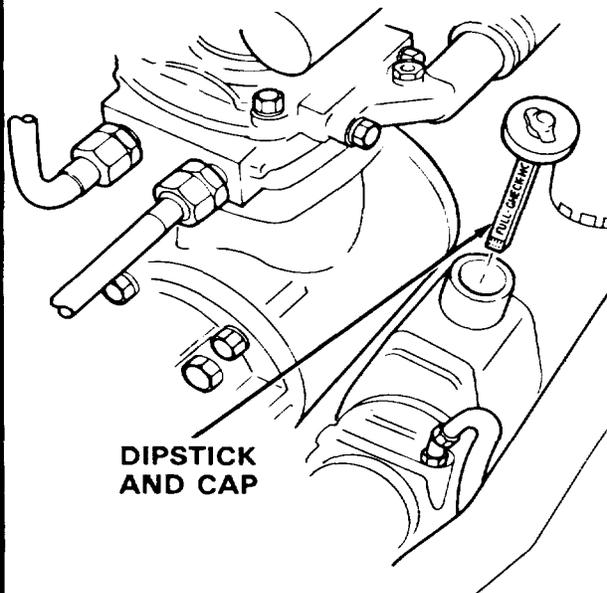


DRAG LINK

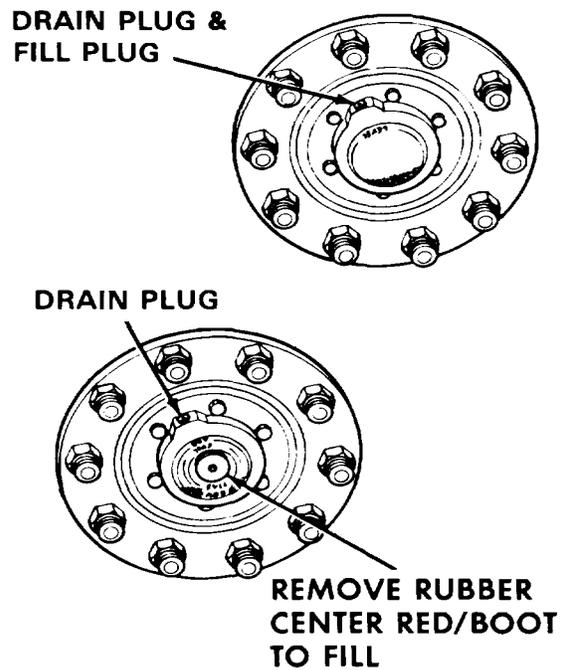


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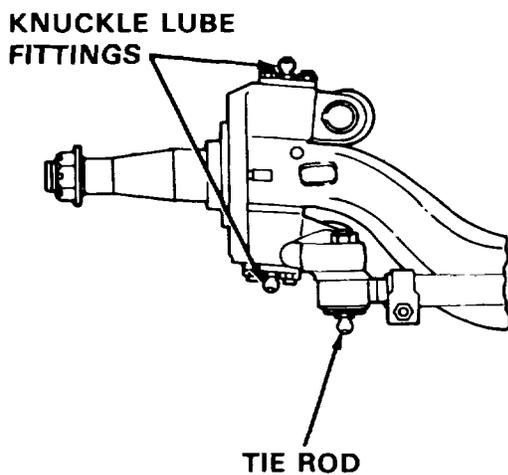
C POWER STEERING RESERVOIR



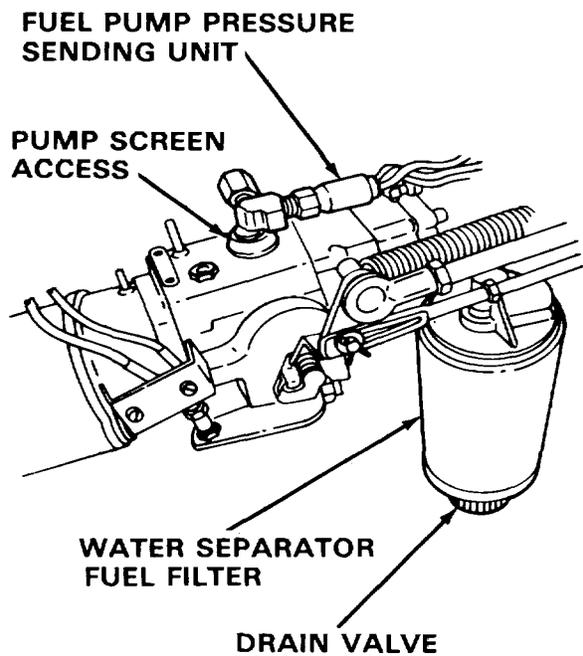
D FRONT AXLE HUB ASSEMBLY (TWO TYPES)



E FRONT WHEEL KNUCKLE AND TIE ROD



F FUEL PUMP

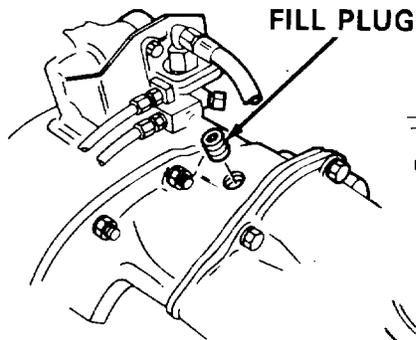


TA 236734

G

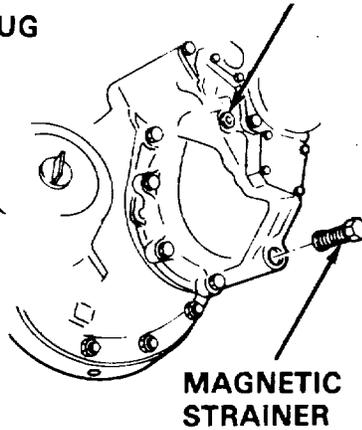
FORWARD-REAR AXLE

POWER DIVIDER COVER

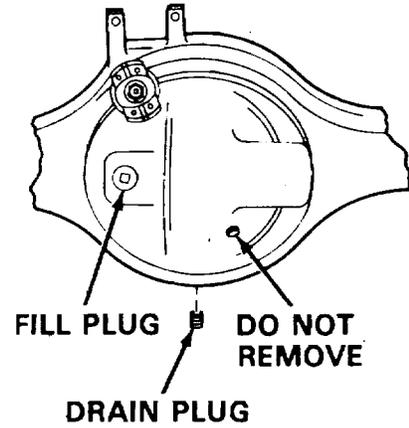


LUBE PUMP AND MAGNETIC STRAINER

DO NOT REMOVE

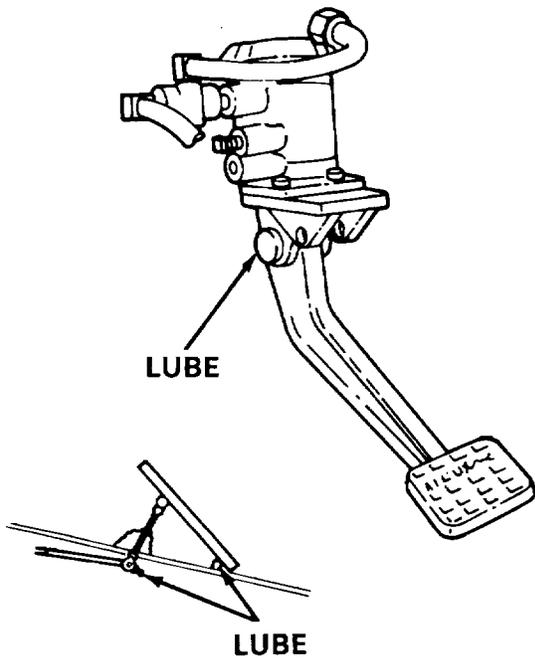


FORWARD-REAR AXLE DIFFERENTIAL



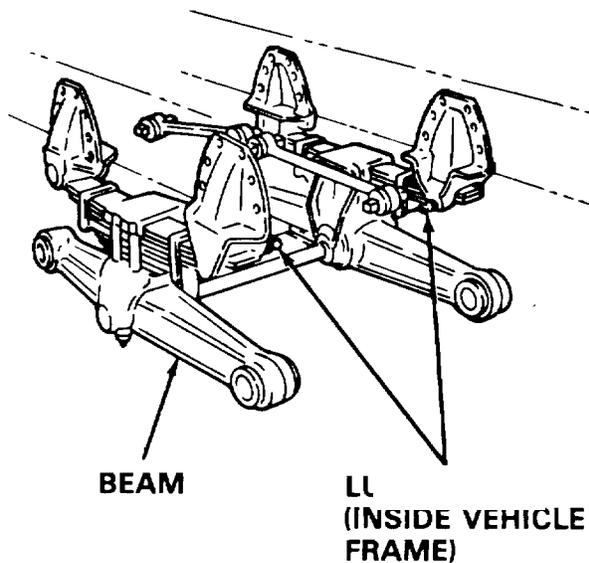
H

BRAKE PEDAL AND ACCELERATOR PEDAL



I

REAR AXLE SPRING AND WALKING BEAM



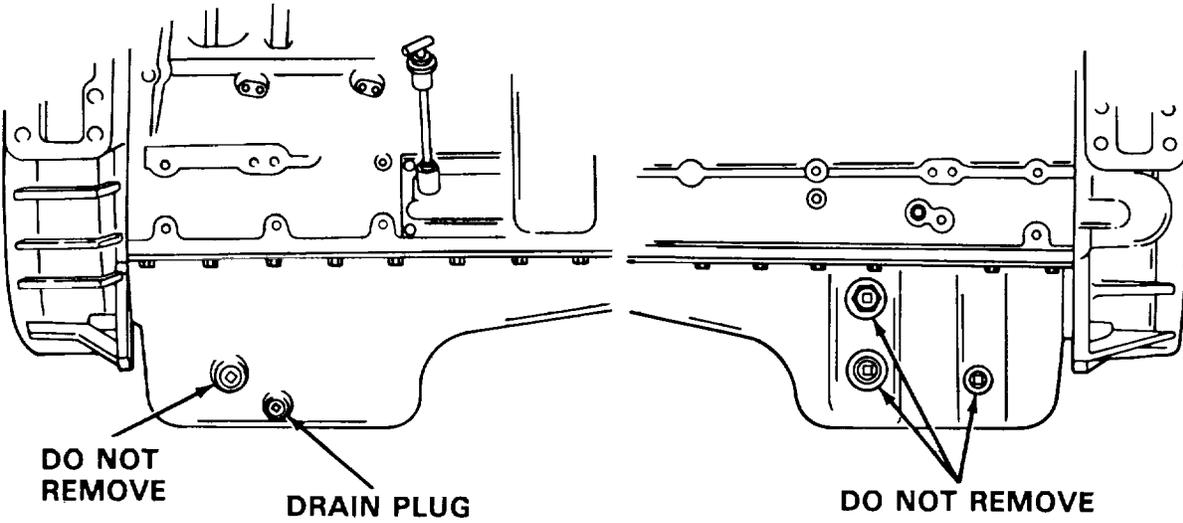
TA 236735

J

CRANKCASE

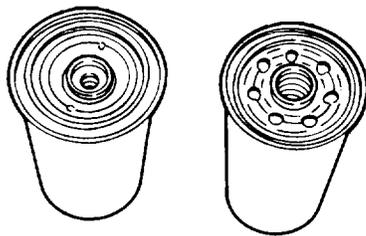
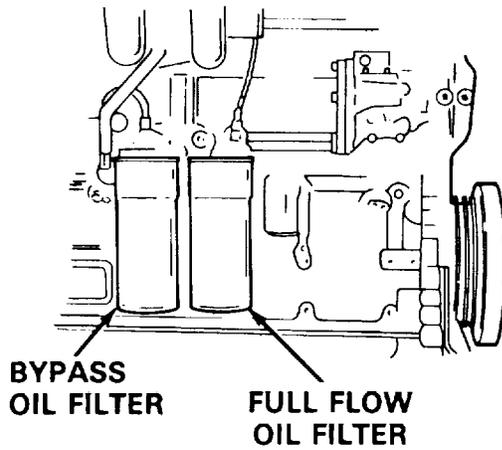
**CRANKCASE RIGHT-HAND
SIDE (PASSENGER)**

**CRANKCASE LEFT-HAND
SIDE (DRIVER)**



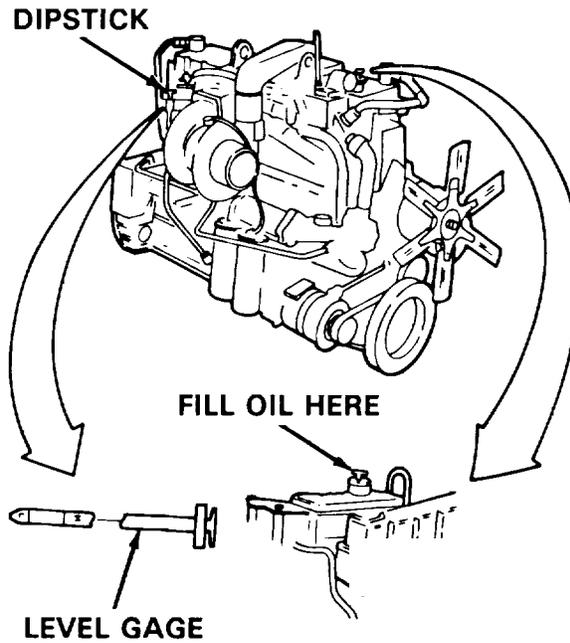
K

OIL FILTERS



L

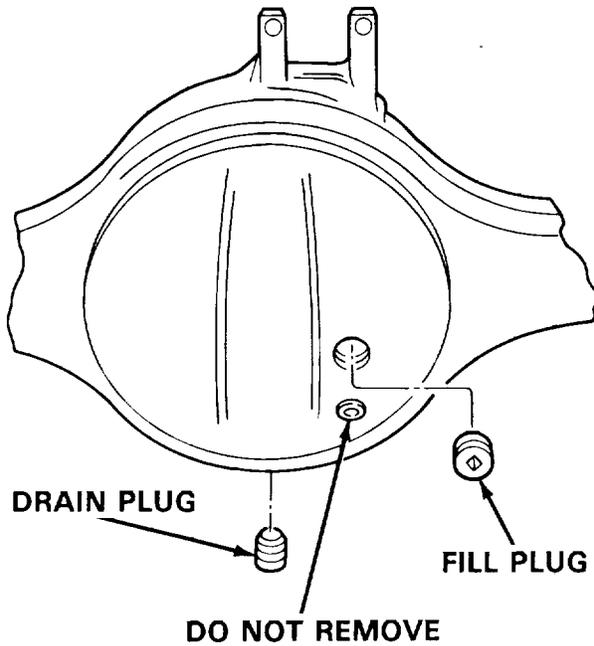
ENGINE OIL LEVEL



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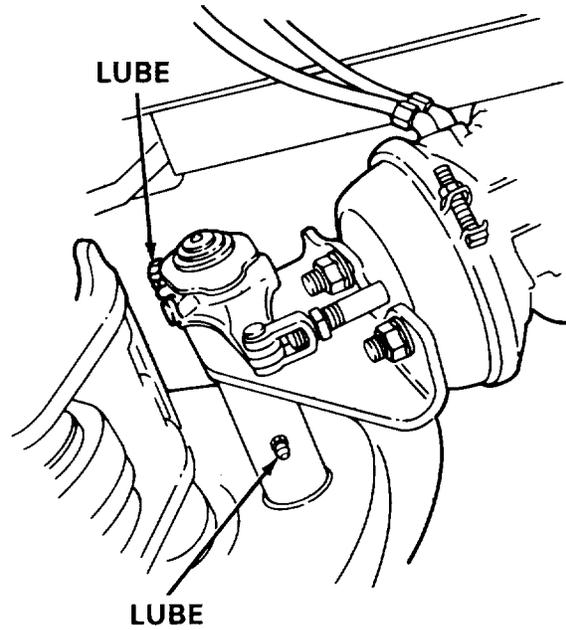
M

REAR-REAR AXLE



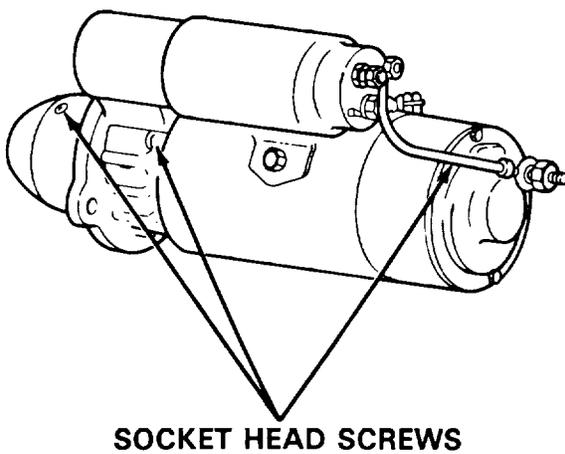
N

FRONT AND REAR SLACK ADJUSTERS AND MOUNTING BRACKET



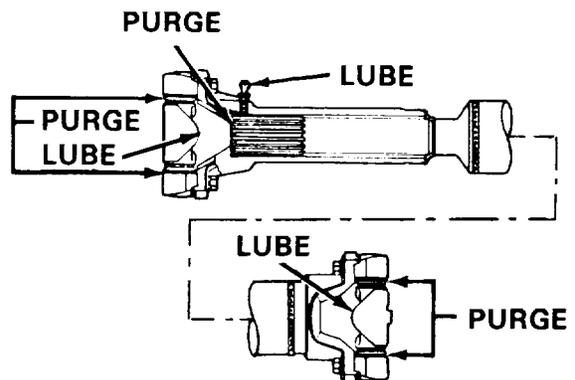
O

STARTER



P

DRIVE LINE UNIVERSAL JOINT, SLIP YOKES AND SPLINES



TA 236737

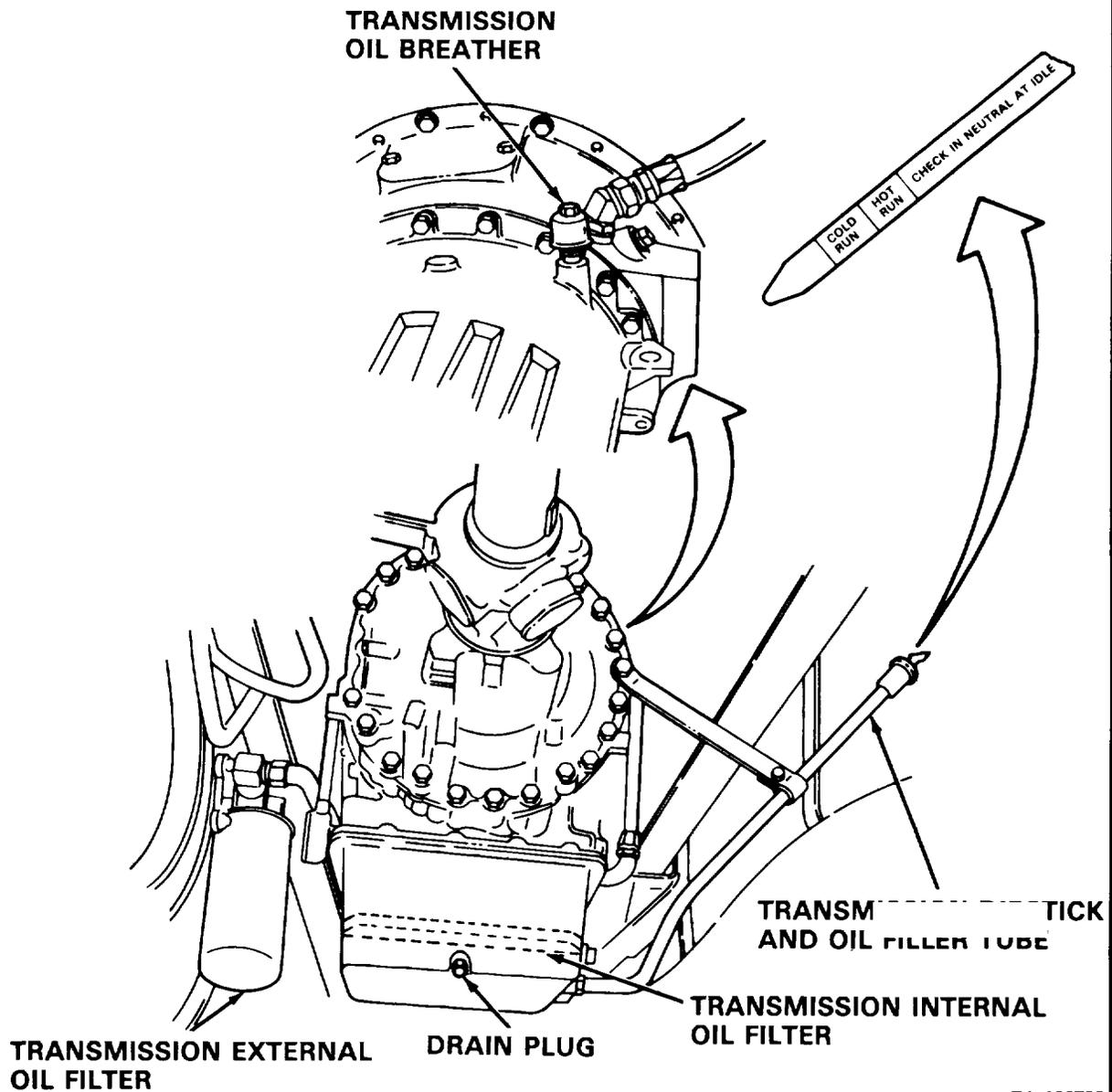
Q

TRANSMISSION

PROCEDURE FOR READING TRANSMISSION DIPSTICK

USE HOT RUN BAND FOR TRANSMISSION OIL TEMPERATURE GAGE READINGS OF 120°F OR ABOVE.

USE COLD RUN BAND FOR TRANSMISSION OIL TEMPERATURE GAGE READINGS BELOW 120°F

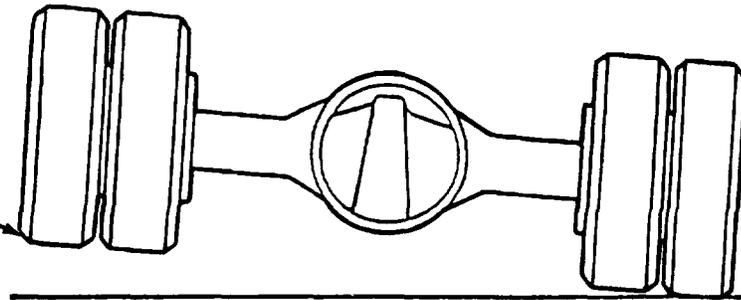


TA 236738

(R)

FORWARD-REAR AND REAR-REAR HUB BEARING FILL PROCEDURE

RAISE TO 4" ABOVE
GROUND LEVEL
FOR TWO MINUTES.
REPEAT FOR
OTHER SIDE.



(S)

PINTLE HOOK

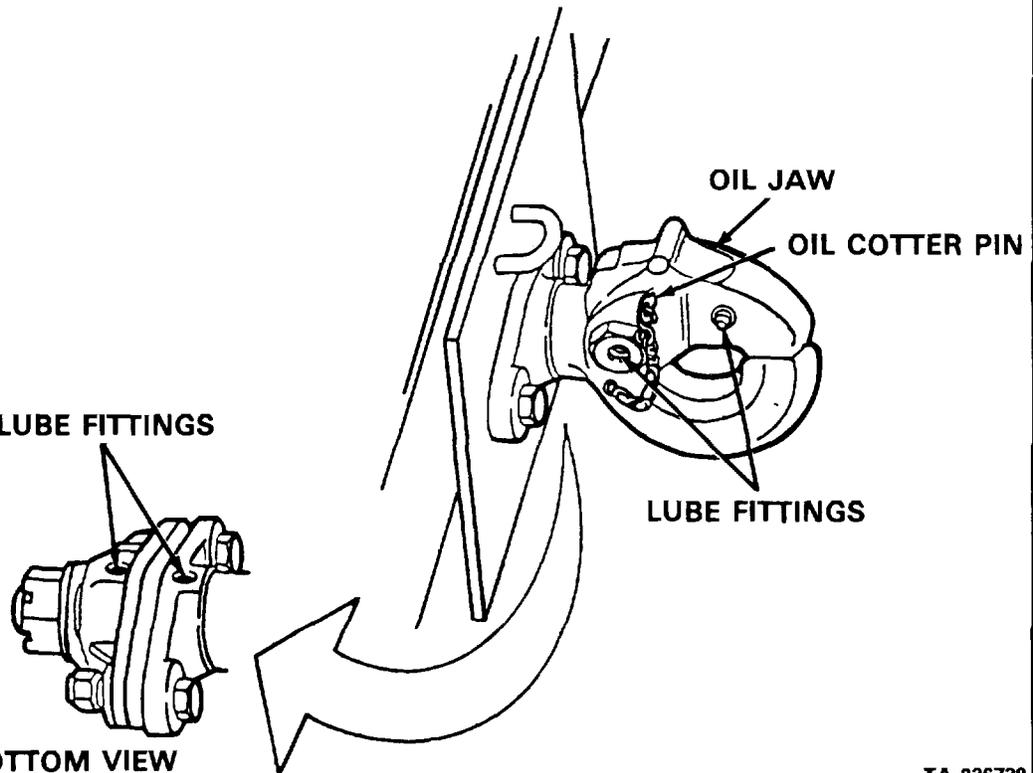
LUBE FITTINGS

OIL JAW

OIL COTTER PIN

LUBE FITTINGS

BOTTOM VIEW



TA 236739

NOTES

1. INTERVALS.

This LO complies with the new DA Program to extend intervals to conserve lubricants. This instruction applies only to vehicles in normal operation. Lubricate more frequently to compensate for abnormal or extreme conditions, such as high or low temperatures, immersion in water or exposure to sand or dust.

Lubricants which have become contaminated will be changed regardless of scheduled intervals. Intervals for items under warranty will not be changed from those recommended by the manufacturer until after the warranty has expired. Points requiring lubrication at 1, 000 or 3, 000 miles on vehicles not accumulating that amount in a six month period will be lubricated at time of semi-annual Preventive Maintenance Checks **and** Services (PMCS). Points requiring lubrication at 12, 000 or 24, 000 miles, not accumulating that amount in a twelve month period will be lubricated annually. When practicable, lubrication services will be made to coincide with the vehicle organizational PMCS. For this purpose a 10% tolerance (variation) in specified lubrication point mileage is permissible.

NOTE: Do not lubricate spring leaves, alternator, starter wiring, drive belts and shock absorbers.

2. FAN CLUTCH.

CAUTION: Apply lubricant sparingly to the fan clutch fitting. Excessive use of lubricant may cause grease to enter in the fan pulley grooves causing slippage of the fan belts.

Every 6, 000 miles or 6 months, whichever occurs first, apply GAA lubricant to the fan clutch grease fitting.

3. LUBRICATION POINTS.

(a) Application of Grease.

The pressurized grease gun should be held on the fittings until new grease appears. This will assure that all the contaminated grease has been forced out.

(b) Front Wheel Bearings.

(1) Check daily for oil seal leakage, hub cap damage or missing drain/fill plugs. Check for metal particles or contamination.

CAUTION: Before installing wheel bearings onto spindle, coat bearing journals with a film of gear oil to prevent premature damage.

(2) Every 24, 000 miles or 24 months, whichever occurs first, the wheel bearings should be disassembled, cleaned, and inspected. New oil seals must then be installed and lubricant brought to full mark.

(c) Steering Shaft Universals, Drive Line Universals, Slip Yokes and Splines. Lubrication should be performed every 3, 000 miles or 3 months, whichever occurs first.

(1) Check for looseness.

(2) Apply grease.

(3) Observe contaminated grease purging from all seals. Continue until new grease is exposed.

(4) If the grease does not purge, rotate the universal joint until purging occurs.

(5) If grease fails to purge after performing the above, remove the grease fitting and bearing cup. Inspect each and repair or replace as needed.

4. POWER STEERING PUMP.

(a) Check daily with fluid hot and engine off. Filter should be changed when contamination is suspected or when system has to be repaired.

CAUTION: NEVER MIX OIL GRADES OR TYPES. If fluid level is low, bring to proper level with same oil grade or type. Mixing of oil grade or type will cause damage to internal power steering.

TA 236740

NOTES (CONTUNUED)

ing system components. If changing oil grade or type, drain and flush system completely before refilling.

(b) OE/HDO-10 or OEA (Arctic Grade) is acceptable for use, but Dexron® ATF is preferred.

5. FUEL PUMP SCREEN AND WATER SEPARATOR FUEL FILTER.

WARNING: Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

(a) Screen - Clean by soaking in a carbon dissolving agent, followed by flushing in a sonic cleaner unit; or clean the screen in fuel oil and dry with compressed air. Visually inspect screen for holes or embedded metal particles in mesh. Discard if damaged or worn and replace with new part.

(b) Drain Moisture - Open drain valve and drain fuel for several seconds to allow water to escape. Close drain valve.

6. FORWARD-REAR AXLE WITH LUBE PUMP AND MAGNETIC STRAINER.

(a) Initially the magnetic strainer should be checked and cleaned the first 1,000 miles of operation. After that, check and clean the magnetic strainer every 24,000 miles or 12 months, whichever occurs first.

WARNING: Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

(b) To check and clean the magnetic strainer, remove the strainer from the power divider cover and inspect for wear material. Wash the magnetic strainer in solvent and blow dry with compressed air to remove oil and metal particles and reinstall.

7. FORWARD-REAR AXLE AND REAR-REAR AXLE.

(a) Initial Operation - After the initial 1,000 miles of operation, drain the differentials while the assembly is still warm from operation. Inspect the magnetic drain plug for signs of excessive metal particle buildup and notify Direct Support Maintenance if this condition exists. Clean the magnetic drain plugs and magnetic fill plugs and replace when lubricant has stopped draining. Axles must not be flushed with any solvent such as kerosene.

(b) Check Level - Check at 1,000 mile intervals and maintain lube level with bottom of filler hole.

NOTE: When a safe level of lubricant within a gear housing is indicated at the time of scheduled lubrication, the lubricant retaining seal is considered functional, even though the seal may indicate questionable leakage. Frequent observation of seal as a potential problem area is recommended. When seepage or leakage of lubricant adversely affects the proper functions of parts within the area (e.g., brakes), the retaining seal must be replaced.

(c) Drain and fill the forward-rear axle and rear-rear axle lubricant, including axle hubs, every 24,000 miles or 24 months, whichever occurs first.

CAUTION: Prior to filling the forward-rear axle, remove the filler plug at the top of the differential carrier near the power divider cover and add two pints of gear lube. Reinstall fill plug. Add the remaining 38 pints to the forward-rear axle differential housing.

The following list of capacities should be used as a guide only. Do not overfill.

(1) Forward-Rear Axle. Fill forward-rear axle with 38 pints.

(2) Rear-Rear Axle. Fill rear-rear axle with 36 pints.

TA 236741

NOTES (CONTINUED)

(3) Power Divider. Fill power divider with 2 pints.

Also see note 12.

8. CRANKCASE.

NOTE: Bring engine up to operating temperature before draining oil.

(a) Check oil level daily. For accurate readings, wait at least one minute after engine shutdown for checking oil level. If on or below LOW mark, add 2 quarts and recheck.

CAUTION: Oil filter leaks will develop if the filters are not properly tightened. The tightening requirement for the full-flow and bypass oil filter is one turn after oil filter gasket contact. Hand tightening may not be sufficient to achieve proper tightness. Therefore, the use of an oil filter wrench is required to properly tighten the filters to prevent leaks.

(b) Change oil, full flow oil filter and bypass filter every 6, 000 miles or 6 month intervals based on whichever occurs first.

(c) Oil Filter Installation Procedures:

(1) Clean the mounting surface and apply a light coat of clean lubricating oil to the filter gasket surface.

(2) Fill both filters with OE/HDO oil or OEA as required at key (See note 19).

(3) Tighten the filters until the gaskets contact the filter head surface. Use a filter wrench to tighten the filters one additional turn.

(d) Check and clean crankcase breather and attaching hoses whenever oil and filters are changed.

(e) Capacity:

Oil Pan - 9 Gallons
Bypass Oil Filter - .70 Gallon
Full-Flow Oil Filter - .93 Gallon

9. FRONT AND REAR SLACK ADJUSTERS AND CAM LEVERS.

Lubricate until grease purges.

10. STARTER.

Remove starter for lubrication every 24, 000 miles or 24 months, whichever occurs first (Refer to TM 9-2320-283-20).

Remove three socket head screws (See View 0) and add three to five drops of OE/HDO-30 oil to each reservoir and lubricate the bushing of drive and drive spline. Clean with solvent, then apply a thin coat of graphite grease (Specification GAA) so the pinion will move freely.

11. TRANSMISSION.

(a) Initial Operation - Change the transmission oil and external transmission oil filter after the initial 3, 000 miles or 3 months, whichever occurs first. Discard the external transmission oil filter. Thereafter, the oil and external filter should be changed every 24, 000 miles or 12 months, whichever occurs first.

NOTE: The automatic transmission should be at operating temperature when the transmission oil is drained. This will ensure quicker and better drainage.

Replace the external transmission oil filter and fill the transmission through the dipstick opening with 7.80 gallons.

(b) Oil Level Check Procedure:

(1) Check the oil while the vehicle is on level ground and the parking brake applied. Start the engine and shift the transmission through all drive ranges to fill the clutch cavities and oil passages; then shift to neutral.

TA 236742

NOTES (CONTINUED)

(2) Run the engine for at least one minute at 1, 000 - 1, 200 rpm's to clear the system of air.

CAUTION: Do not overfill the transmission. Overfilling can cause aeration of the oil (milky appearance). If overfilling occurs, drain oil as required to bring it to the proper level.

(3) Hot Oil Check (HOT RUN band). Be sure the temperature of the transmission oil has reached 1200F or above. With the engine idling and the transmission in NEUTRAL, remove the dipstick from the oil filler tube and check the oil level. If the oil level registers in the HOT RUN band, the quantity of oil in the transmission is safe for operating the vehicle. If it registers on or below the bottom line of the HOT RUN band, add the required amount of oil necessary to bring the oil level to the middle of the HOT RUN band (Approximately one quart of oil is required to move oil level from the bottom line of the HOT RUN band to the middle of the HOT RUN band).

(4) Cold Oil Check (COLD RUN band). Run the engine for one minute at 1, 000 rpm to charge the system. With the transmission oil temperature gage reading below 1200F, and the engine idling with the transmission in NEUTRAL, remove the dipstick from the oil filler tube and check the oil level. If the oil level registers in the COLD RUN band, the quantity of oil in the transmission is safe for operating the vehicle. If it registers on or below the bottom line of the COLD RUN band, add the required amount of oil necessary to bring the oil level to the middle of the COLD RUN band (Approximately one quart of oil is required to move the oil level from the bottom line of the COLD run band to the middle of the COLD RUN band).

Internal Oil Filter - The transmission internal oil filter should be changed every 24, 000 miles or 24 months, whichever occurs first.

(d) Transmission Breather - The presence of dust and dirt will determine the frequency at which the breather requires cleaning.

CAUTION: NEVER MIX OIL GRADES OR TYPES. If fluid level is low, bring to proper level with same oil grade or type. Mixing of oil grade or type will cause damage to internal transmission components. If changing oil grade or type, drain and flush completely before refilling.

(e) OE/HDO-10 or OEA (Arctic Grade) is acceptable for use, but Dexron® ATF is preferred.

12. HUB BEARINGS.

CAUTION: If maintenance or new hub bearings are required in either the forward-rear axle or rear-rear axle, it will be necessary to tilt each side of the rear axles to assure that adequate gear lube is supplied to the individual hub bearings after installation.

The following fill procedure is recommended:

(a) Fill forward-rear axle and rear-rear axle with proper gear lube and replace filler plugs (See note 7c and view G and M).

(b) Raise left side of rear axles approximately 4 inches above the ground. Maintain this position for two minutes to allow gear lube to flow into hub bearings at the opposite or right side (See view R).

(c) Repeat this procedure for the opposite or right side (See view R).

(d) With vehicle level again, add additional gear lube through the differential cover filler hole. The forward-rear axle and the rear-rear axle should require two pints each.

13. PINTLE HOOK.

Lubricate all fittings with GAA and the cotter

TA 236743

NOTES (CONTINUED)

pin and latch with a light oil. Perform this maintenance weekly.

14. ALTERNATOR.

Inspect unit at 24, 000 mile intervals. No lubrication is required. Bearings are factory sealed.

15. SLIDING FIFTH WHEEL.

(a) Latch Mechanism - Apply a liberal amount of GAA lubricant to the top and bottom latch mechanisms every 1, 000 miles or each month, whichever occurs first.

(b) Wheel Plate Surface - Apply a liberal amount of GAA lubricant to the wheel plate surface every 1, 000 miles or each month, whichever occurs first.

(c) Sliding Fifth Wheel Bracket - Apply a film of OE/HDO-10 lubricant on the rack and slide path of the bracket on the sliding fifth wheel.

16. TIRE HOIST WINCH.

The following steps should be performed on a weekly basis:

WARNING: Do not get oil or grease on the fiber brake face or slippage resulting in personal injury could result.

(a) All gears should have a film of grease at all times.

(b) The two bushings at both ends of the drum shaft, the ratchet pawl, threads on the pinion shaft and the steel handle disk should be wet with oil.

(c) Apply GAA to cable.

17. DRIVER'S SEAT.

Apply chassis grease (GAA) to lube fittings, weight adjuster, and slide rails at 12, 000 mile intervals.

18. OIL CAN POINTS.

Every 1, 000 miles or each month, whichever occurs first, lubricate door, hood and side panel hinges, and latches.

19. FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -150F.

Remove lubricants prescribed in key for temperatures above -150F. Prelubricate with lubricants specified in key for temperatures below -150F. If OEA lubricant is required to meet the temperature ranges prescribed ; , , the key, OEA lubricant is to be used in place of OEI/HDO-10 lubricant for all temperature ranges where OE/HDO-10 is specified in the key.

20. MILITARY SYMBOLS FOR LUBRICANTS.

The following references are lubrication symbols used within this Lubrication Order to the appropriate specification:

OE/HDO	Lubricating Oil, Internal Combustion Engine, Tactical Service, MIL-L-21 04C
OEA	Lubricating Oil, Internal Combustion Engine, Arctic, MIL-L-46167
GO	Lubricating Oil, Gear, Multipurpose, MIL-L-2105C
GAA	Grease, Automotive and Artillery, MIL-G-10924C
ATF	Fluid, Transmission (Dexron®)
CW II	Lubricant, Chain, Exposed Gear, and Wire Rope, W-L-751 D

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NOTES (CONTINUED)

21. STORAGE AND USE OF LUBRICATION ORDER.

By Order of the Secretary of the Army:

A copy of this Lubrication Order will remain with the vehicle at all times. Instructions contained herein are mandatory and supersede all conflicting lubrication orders dated prior to the date of this publication.

E. C. MEYERS
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

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