

15 JANUARY 1992

(Supersedes LO 5-4210-220-12, 26 February 1991)

**TRUCK, FIREFIGHTING,  
1000 GPM, MULTIPURPOSE,  
MODEL 2500L (Detroit Diesel V92 Engine)**

References: TM 5-4210-220-12 and C9100-IL

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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) directly to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MMTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished to you.

This LO is for operator/crew (C) or unit (0) maintenance. Lube intervals (on- condition or hard time) are based on normal operation. Lube during constant use, and less during inactive periods. Use correct grade of lubricant for seasonal temperature expected.

Intervals (on-condition or hard time) and the related task-hour times are based on normal operation. The task-hour specified is the time you need to do all the services prescribed for 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 or required.

All references to hours in the lubrication order refer to the Engine Running hours. All other times refer to calendar time.

Lubricate immediately fording, or as soon after as unit movement permits.

On the picture a dash line (--) means lube points on both sides.

Clean parts with dry cleaning solvent (SD), type II or equivalent. (D), type II, or equivalent. Dry before lubricating. Drain oils while they are warm.

Before you start your lube service.

**ALWAYS**

**NEVER**

- a. Clean grease fittings before lubrication
- b. Use the lubrication order as your guide.

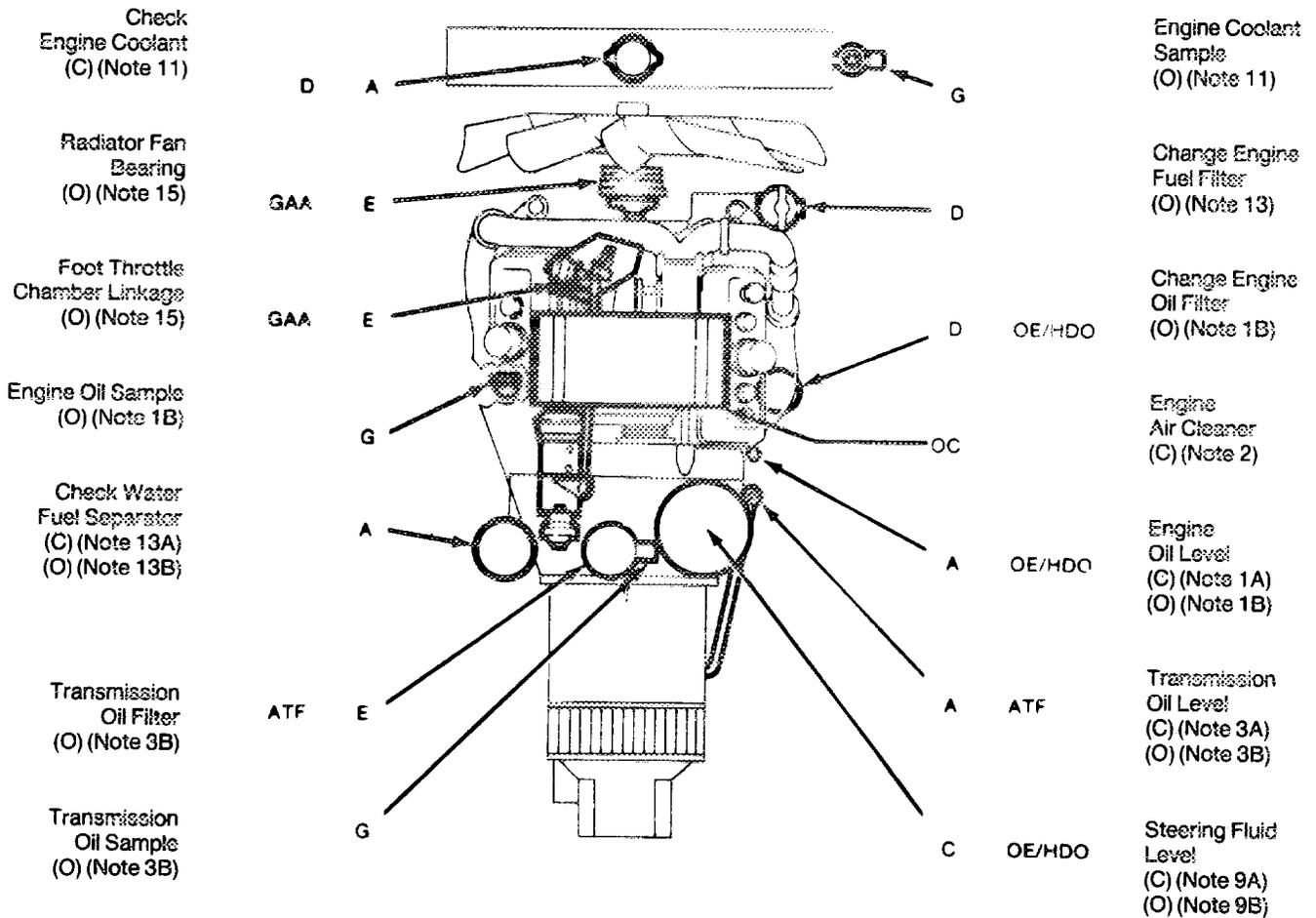
- a. Use wrong type/grade grease.
- b. Use too must lubricant.

**CAUTION**

To avoid premature drive line component failure, the drive line components shall be lubricated on return to base after fording or cross country travel.

LUBRICANT ● INTERVAL

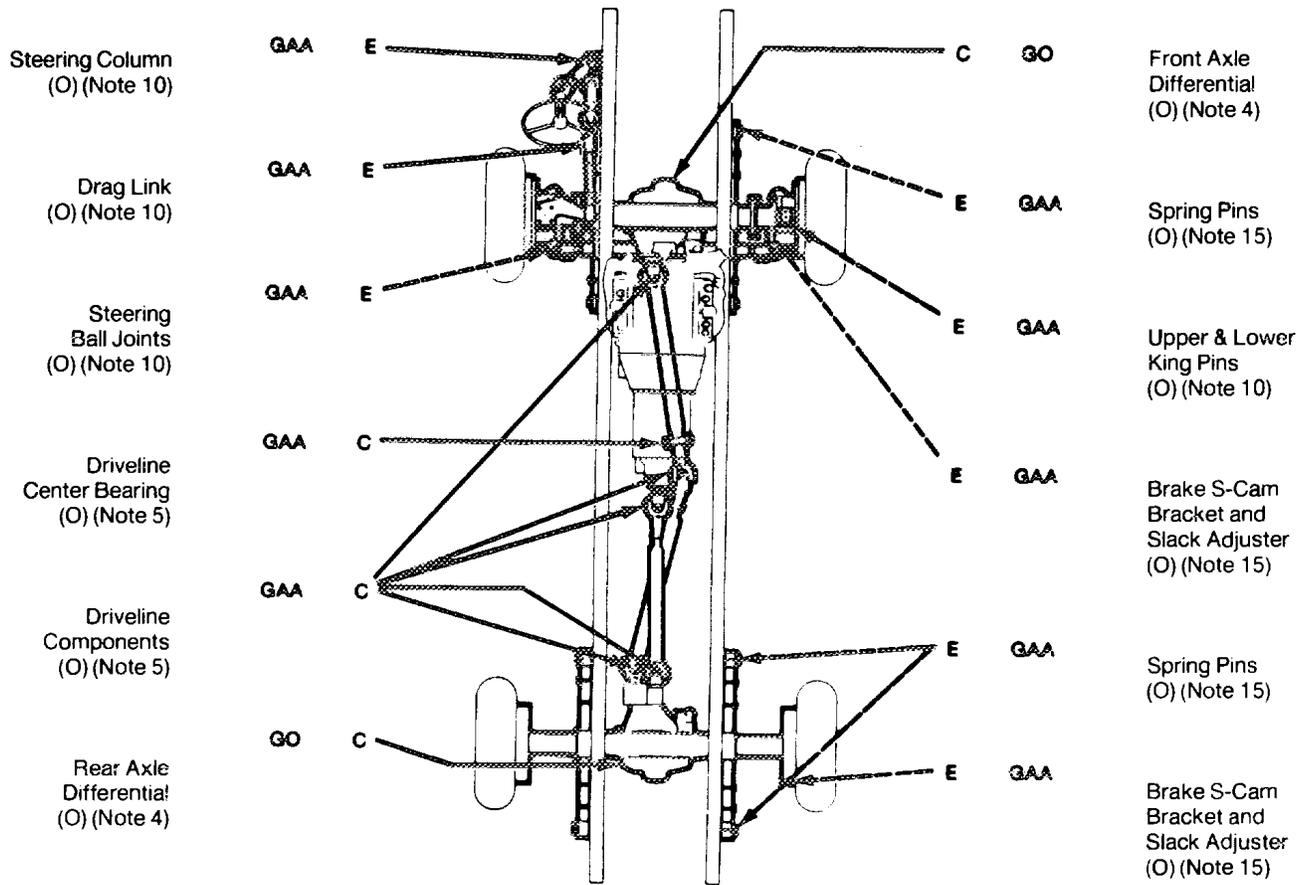
INTERVAL ● LUBRICANT



LUBRICATION CHART - MAIN ENGINE

LUBRICANT ● INTERVAL

INTERVAL ● LUBRICANT

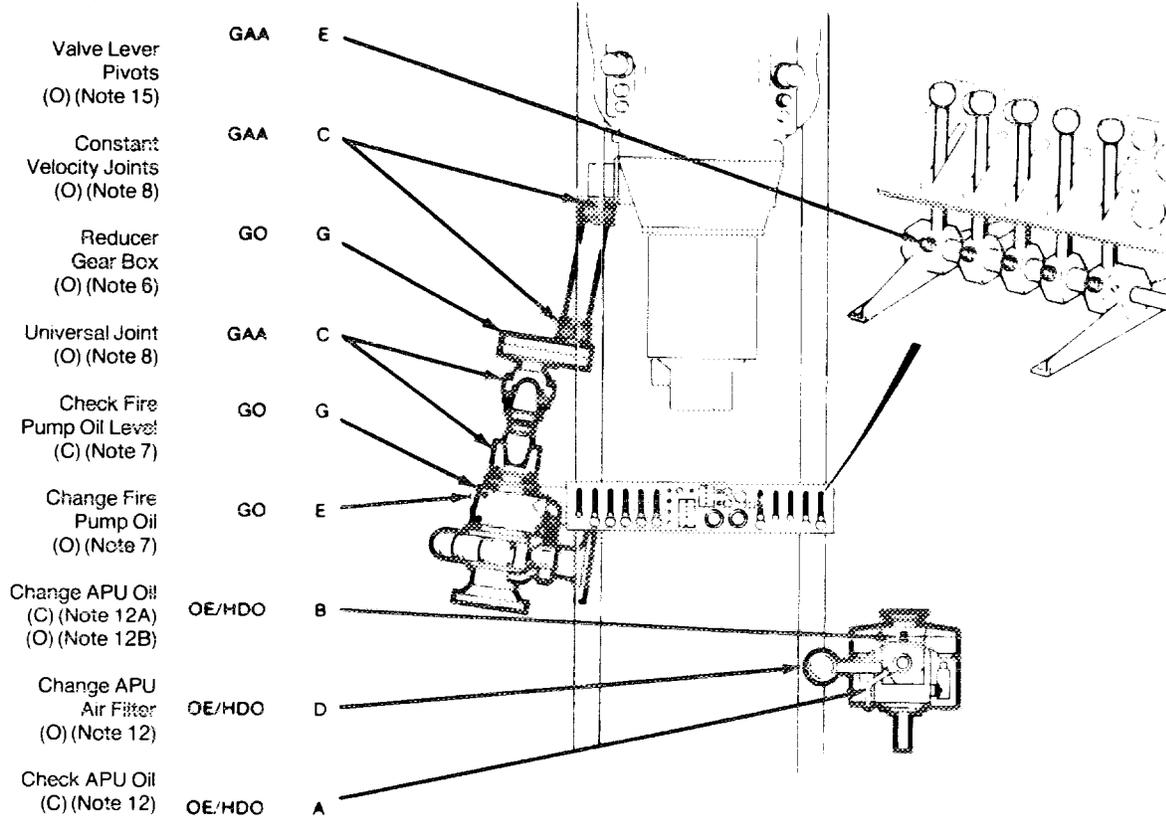


LUBRICATION CHART - CHASSIS

KEY (NOTE 16)

SYMBOL	INTERVAL	TASK-HOURS
A	DAILY	0.3
B	50 HRS	0.3
C	100 HRS	0.8
D	250 HRS	1.1
E	500 HRS	5.1
G	WEEKLY	1.3
OC	ON-CONDITION	0.2

LUBRICANT ● INTERVAL



LUBRICATION CHART - FIRE PUMP & APU

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above + 32° F	+ 40° F to -10° F	-10° F to -65° F	
OE/HDO - Oil Lubr. MIL-I-2104c Main Engine Apu Engine Steering Reservoir	20 Qt 1.2 Qt 11.5 Qt	40 10W/40 10W/40	40 10W/40 10W/40	10W/4 10W/40 10W/40	See Lubrication Chart
GO-Lubric. Oil, MIL-I-2105 Axle Differential Front And Rear Fire Pump Reducer Gearbox	20qt each 0.5 Qt 0.5 Qt	80W/90 80W/90 80W/90	80W/90 80W/90 80W/90	75 80W/90 80W/90	See Lubrication Chart
ATF-Dexron Fluid Auto Transmission	58 Qt	Dexron - All Temperatures			See Lubrication Chart
D-Engine Coolant MIL-A-46153	16 Gal	Ethyl Glycol/Water - All Temperatures See Note 11			
GAA-Grease MIL-G-10924		- All Temperatures.			
<b>NOTE</b> FOR ARCTIC OPERATION REFER TO FM 9-207					

## NOTES:

1A. ENGINE OIL - MAIN ENGINE. Check the engine oil level daily after the engine has stopped. Wait 20 minutes before checking level on the dipstick.

1B. ENGINE OIL - MAIN ENGINE. Change the oil and oil filter every 12,500 miles or 250 hrs. or as required by AOAP. If under AOAP, sample oil once per week and change as notified. When operating in dusty areas change oil and oil filter every 6,000 miles or 75 hrs. in very cold temperatures, change the oil every 1000 miles. Always drain the oil when the engine is at operating temperature. Report any metal particles in the oil or present on the magnetic oil plug to unit maintenance immediately. After replacing the filter run the engine for 5 minutes checking the filter seal for leaks. Tighten or replace as required. Check oil level on dipstick and add oil as required.

2. ENGINE AIR CLEANER. Check the air cleaner gage each day, with the engine running and at operating temperature. Request Unit Maintenance, replace the air filter if the gage is in the red band. The filter and canister is replaced as a unit, it is not serviceable.

## 3A TRANSMISSION

### CAUTION

Do not add fluid when engine is running, but cold. The level of fluid will not show up on the dipstick. Adding fluid above the required level can cause overheating.

Check the transmission fluid level each day. To verify the level of fluid in the transmission, allow transmission to reach operating temperature of 180 to 200 degrees F. To achieve temperature rise to the normal operating range on the MACI Truck, the vehicle should be run at high idle for approximately 10 minutes (this assumes a normal ambient temperature). With the parking brake applied, shift the engine through all drive ranges prior to check. Then, shift to neutral. If the fluid registers in the HOT RUN band marked on the dipstick, the transmission may be operated safely. If it registers on or below the bottom line of the HOT RUN band, do not operate the truck.

### NOTE

If fluid is checked when engine is cold and not running, fluid should read 4 to 4 1/2 inches above the HOT RUN band of the dipstick.

3B. TRANSMISSION. If oil level is low, add the required amount of oil to bring the level up to the middle of the HOT RUN band. Approximately 1 quart of oil is required to move the oil level from the bottom to the middle of the HOT RUN band. Never overfill the transmission. Change the transmission fluid and filter every 500 hours or 6 months or when the AOAP requires. Sample the oil once/week. Always change the fluid and filter. If there is evidence of dirt or the fluid is discolored or has a strong odor. Whenever the oil is changed, clean pump suction filter screen in transmission sump. After the oil change, always recheck level when engine is running and all gears have been selected to be sure all oil spaces are filled in the transmission.

4. AXLE DIFFERENTIALS. Check fluid level in the axle differentials every 100 hours or each month whichever is sooner. Park truck on level surface, remove level plug on differential. Oil should be level with the hole. Add as required. Change oil every 500 hours or every 6 months or as directed by AOAP. Always drain when the oil is at operating temperature, i.e., just returned from a mission. Drain plug

is underneath the differential. Inspect magnetic drain plug for particles. Report any found to direct maintenance. Clean and refit plug. Remove filter/level plug. Fill differential until oil just flows out of hole. Replace plug. (For greasing of axles, see Note 10 and 15.) Remove plug from tee in vent pipe on diff. lock air cylinder. Check oil level. Change oil every 500 hours or every 6 months. Oil should be Dexron II as this is safe at all temperatures.

## 5. DRIVE LINE UNIVERSAL JOINTS AND BEARINGS.

### CAUTION

All components of the drive line should be regressed after each cross-country mission. Water/dirt could enter the components via the seals.

Grease all components every 100 hours or monthly whichever is sooner. The drive line has 5 universal joints, two slip joints and a center bearing. All components should be greased until grease appears out of the seals. Lubricate the slip joint until grease is expelled from the pressure relief hole in the Welch plug, then cover hole with finger and continue to apply grease until it appears at the dust cap.

6. REDUCER GEARBOX. Check oil level every week. Oil should be at the top of the level tube. Top up via the vent/fill plug as required. Change the oil every 500 hours or 6 months. Remove drain plug to drain oil. Replace and top up as noted above.

7. FIRE PUMP. Check oil level every week. Oil level should be at the neck of the oil level plug. Change oil every 500 hours or 6 months. Remove level plug (mounted directly below oil filler/breather) and the drain plug (below level plug). When oil has drained, refit the drain plug. Add oil via the oil filler/breather until oil flows out of oil level plug hole. Replace level and filler plugs and run pump for 10 minutes. Recheck oil level and top up as required.

## 8. FIRE PUMP DRIVE SHAFTS

### CAUTION

All components of the drive line should be regreased after each cross-country mission. Water/dirt could enter the components via the seals.

Lubricate every 100 hours or each month with grease. Each constant velocity joint and each universal joint should be lubricated. To lubricate a constant velocity joint, remove one of the pipe plugs from the face. Pump grease into the joint until grease first appears at the pipe plug. Replace pipe plug.

9A. STEERING FLUID. Check oil level daily via dipstick on top of reservoir.

9B. STEERING FLUID. If steering fluid level is below the low level mark, add oil until it is midway between the upper and lower marks. Change oil and oil filter once every 500 hours or 6 months. Remove the return hose from the steering gear and place a bucket beneath the gear. Start the engine and turn the steering wheel from left to right until all the oil has drained. Clean any dirt and grease from the reservoir cover. Remove the reservoir cover and filter element. Clean inside of reservoir with a lint free cloth. Install a new filter element and replace cover. Reconnect hose to steering gear. Refill steering fluid reservoir with engine running and turning steering wheel continuously from lock to lock until proper level is maintained.

10. STEERING LINKAGE. Lubricate all components every 500 hours or 6 months with grease. There are 4 universal joints on the column and two ball joints on the drag link. The miter box and steering gear are each fitted with a lube point. The front axle has lube points on the upper and lower king pin bearings and on each tie rod end. The lower king pins are fitted with pipe pugs. Install grease nipple to lubricate. Refit pipe plug when lubrication completed. All components except king pins should be greased until grease appears at the seals. King pins should be given 5 shots with a grease gun. Lubricate each axle bail with a film of grease.

11. COOLANT LEVEL.

**WARNING**

Do not remove radiator cap when the system is hot as this could result in injury to personnel. Do not add coolant directly to the radiator if the engine is hot.

Check engine coolant level daily. Constant level should be not more than 3 inches below top of radiator. When changing or adding coolant always use a glycol/water mixture as prescribed in TB 750-651. Drain, flush, and refill the cooling system in accordance with TB 750451.

1 2A. AUXILIARY POWER UNIT (APU). Check APU crank case oil level daily. Top up oil as required.

**CAUTION**

In the event the {PU is run continuously, change the oil every 50 hours and check the oil level every 8 hours.

12B. AUXILIARY POWER UNIT (APU). Take an oil sample every week for the AOAP. Change crankcase oil every 50 bows of APU engine operation or 6 months of as directed by AOAP. Change engine air cleaner and remove all dirt and grime from the engine cooling fins every 250 hours. Before replacing oil in engine, remove engine oil filter and breather and wash with dry cleaning solvent. Allow to air dry before replacing on engine. Inspect fuel filter weekly.

13A. FUELFILTERS.

**CAUTION**

JP-4 is highly volatile fuel. Extraordinary care must be taken when servicing components that use this fuel. The truck shall be grounded to an approved grounding point if it contains JP-4 fuel.

Inspect fuel/water separator each day. Drain any condensate collected in the bowl.

13B. FUEL FILTERS. Replace fuel/water separator filter and engine fuel filter every 250 bows. When filters replaced, disconnect one delivery line from filter and set PRIME switch to ON in cab until fuel flows from connection. Set switch to OFF, tighten coupling and attempt to start engine. Repeat procedure as required. Inspect all hoses/joints for leaks. Tighten as required.

14. OIL CAN POINTS. Every 500 hours or 6 months lubricate the following points, transmission shift linkage, cab heater cables, throttle pedal pivot, seat adjusters, APU shutdown cable and all compartment hinges, catches, and door handles, wiper arms and engine throttle linkage.

15. GREASE POINTS. Every 500 hours or 6 months lubricate the following points with a hand grease gun.

- a) Foot throttle linkage on engine
- b) Pivot points on structural panel valve control levers.
- c) Radiator fan bearing. d) Front and rear spring pins.
- e) Front and rear brake S-cam brackets and slack adjusters.

16. TOTAL TASK-HOURS. The Task-Hr. column in the key gives the time for execution of the specified interval service. When performing several of the services at the same time, e.g., intervals 50, 100, and 250, the times of all these intervals have been combined for the total task-hours. (See Card 3 of 5).

A copy of this lubrication order will remain with the vehicle at all times; instructions contained herein are mandatory.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN  
*General, United States Army*  
*Chief of Staff*

Official:

MILTON H HAMILTON  
*Administrative Assistant to the*  
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