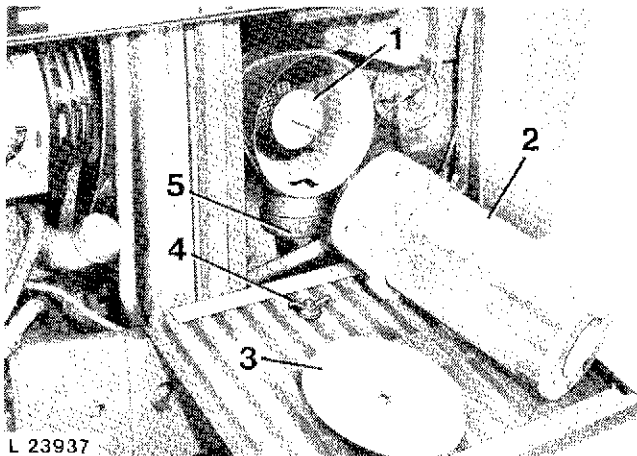


## Engine Shut-Off Cable

1. Check operation of shut-off cable. Move hand throttle lever completely forward and idle engine for 1 to 2 minutes.
2. Completely pull out shut-off knob, making sure engine stops immediately.
3. If necessary, adjust shut-off cable (see Section 30, Group 30).

## Air Cleaner and Safety Element



- |                       |                        |
|-----------------------|------------------------|
| 1—Safety Element      | 4—Wing Nut             |
| 2—Air Cleaner Element | 5—Dust Unloading Valve |
| 3—Cover               |                        |

Fig. 10 — Air Cleaner and Safety Element

1. Check air cleaner and safety elements for proper installation.
2. Make sure that dust unloading valve (5, Fig. 10) (rubber cap) is installed on air cleaner.

## Air Intake Connections

1. Check air intake connections for tightness. Tighten any loose clamps.

## Checking V-Belt Tension

### Fan Belt

1. The fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lbs) pull midway between crankshaft and alternator or water pump (use a spring scale).

## ELECTRICAL SYSTEM

### Batteries

1. Check battery terminals and battery cable ends. If they are corroded, clean and coat them with petroleum jelly.
2. Check specific gravity of battery cells. At an electrolyte temperature of 20°C (68°F), a fully charged battery should have a specific gravity of 1.28 under normal and arctic conditions and 1.23 in tropical areas.
3. Check electrolyte level in each battery cell. Add distilled water if necessary to bring level above cell plates.
4. If batteries are not fully charged, charge them. Remove battery caps when charging the battery.

### Important Notes

1. If the engine is to be run for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt the circuit by switching off the main switch before stopping the engine by means of the fuel pump shut-off cable. Further, it is recommended to use additional current (lights) while engine is running. Do not run engine at a speed above 1000 rpm. Insulate battery end of disconnected starter cable properly to avoid damage to alternator and regulator.
2. Connect batteries or battery charger in the proper polarity. If they are improperly connected, the rectifier diodes will be immediately destroyed.

## Start Safety Switch

1. Check operation of start safety switch.
2. If the starting motor does not work although the main switch is in starting position and the range shift lever is in neutral position, check the start safety switch by installing a new switch and check circuit (see Section 40, Group 15).

**IMPORTANT! Do not overtighten switch when installing it in the rockshaft housing. Tighten switch to maximum torque of 50 N•m (35 ft-lbs).**

## Lighting System

1. Check lighting system and repair as necessary. Replace any defective bulbs (see Section 40, Group 20).
2. Check headlight adjustment and correct, if necessary (see Section 40, Group 20).

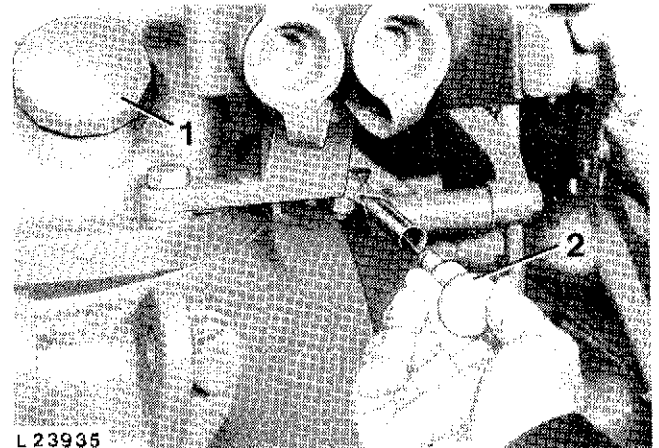
## Controls and Instruments

1. Check controls and instruments for proper operation.

## POWER TRAIN

### Checking Transmission/Hydraulic System Oil Level

1. With the tractor on level ground, run the engine 2 to 3 minutes.
2. Place range and gear shift lever in neutral position.
3. Apply handbrake.
4. Lower draft links.
5. Run engine at slow idle (800 rpm).



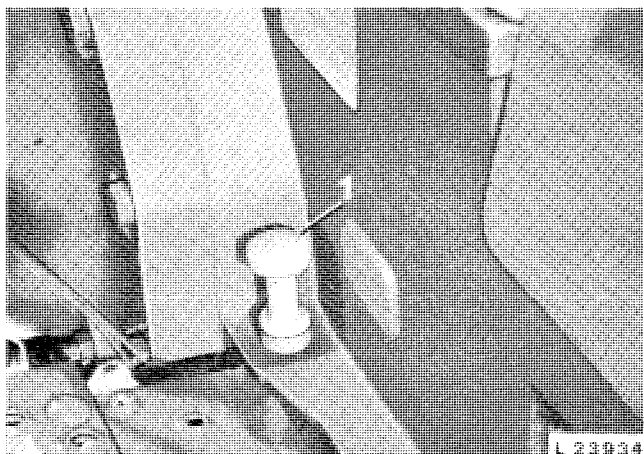
L 23935

- 1—Filler Cap  
2—Dipstick

*Fig. 11 — Transmission/Hydraulic System Dipstick and Filler Cap on Tractor with Synchronized Transmission*

6. Pull out dipstick and wipe clean.
7. Insert dipstick. Remove dipstick and check oil level.
8. If necessary, add John Deere HY-GARD Transmission and Hydraulic Oil or equivalent oil to bring oil level to top mark on dipstick.

*NOTE: Types of oil not meeting our specifications will not give satisfactory service and may result in eventual damage.*



1—Dipstick

Fig. 12 — Transmission/Hydraulic System Dipstick  
on Tractors with Collar Shift Transmission

## Transmission

1. Check transmission for proper operation.
2. While driving tractor, shift transmission through all gears. If transmission does not function properly, refer to Section 50, Group 20 or 25.

## Differential Lock

1. Check differential lock for proper operation. If you find any problem, refer to Section 50, Group 30.

## PTO

1. Check PTO operation. For this purpose, run engine and move PTO control lever to engaged and disengaged position. If PTO does not operate properly, refer to Section 50, Group 40 or 45.

## Hi-Lo Shift Unit

### Check Hi-Lo Shift Unit as Follows:

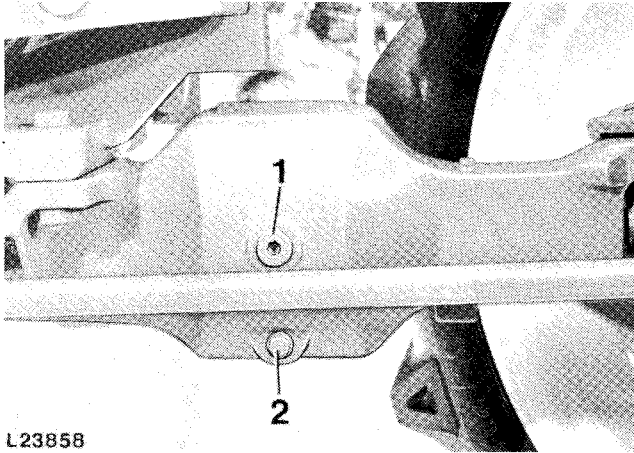
1. Operate tractor in both high and low range, carefully observing both operations.
2. Use the brakes to simulate a load condition on the tractor.
3. Low oil pressure will be indicated by disk pack slippage, which causes the clutch pack to become noisy.
4. A mechanical failure in the Hi-Lo shift unit will also be indicated by unusual noise.
5. If you find any problems, refer to Section 50, Group 10.

## Clutch Pedal

1. Check clutch pedal free travel. It should be approx. 25 mm (1 in.).
2. Make sure that clutch is fully disengaged before pedal contacts stop bracket. Adjust clutch pedal free travel, if necessary (see Section 50, Group 05).

## Mechanical Front Wheel Drive

### Checking Axle Housing Oil Level



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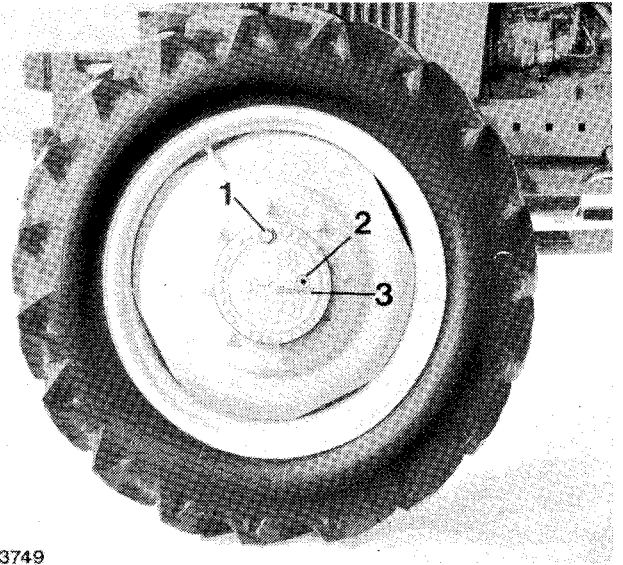
- 1—Level Plug  
2—Drain Plug

*Fig. 13 — Checking Axle Housing Oil Level*

1. Remove level plug (1, Fig. 13). Oil should be level with plug bore.

2. If necessary, top up with oil, using EP transmission oil (SAE 90) according to specification MIL-L-2105 B.

### Checking Final Drives Oil Level



L23749

- 1—Drain Plug  
2—Level Plug  
3—Oil Level Mark

*Fig. 14 — Checking Final Drives Oil Level*

1. Turn wheel until mark (3, Fig. 14) is in level position.

2. Remove level plug (2). Oil should be level with plug bore.

3. Add oil, if necessary, using EP transmission oil (SAE 90) according to specification MIL-L-2105 B.

### MFWD Operation

1. Check MFWD for proper operation. If you find any problems, refer to Section 50, Group 50.

**STEERING AND BRAKES****Steering**

1. Check steering system for proper operation. In case of a malfunction, refer to Section 60, Group 05.

**Brakes**

1. Check footbrakes and handbrake for proper operation. Adjust brakes, if necessary. Refer to Section 60, Group 10 if a malfunction occurs.

**HYDRAULIC SYSTEM****Rockshaft**

1. Check rockshaft operation. In case of a malfunction, refer to Section 70, Group 20.

**Selective Control Valves**

1. Check operation of selective control valves.

**Leaks**

1. Check entire hydraulic system for leaks. Repair or replace components as necessary.

**MISCELLANEOUS****Guards**

1. Check all guards for proper installation.

**ROLL-GARD**

1. Check ROLL-GARD for proper installation.
2. Tighten cap screws to specified torque (see Section 80, Group 15).

**Operator's Seat**

1. Check whether operator's seat can be adjusted properly.
2. Check seat belt for proper condition and correct installation.

# Group 10 LUBRICATION AND SERVICE

Effective use of lubricating oils and greases is perhaps the most important step toward low upkeep cost, long tractor life, and satisfactory service. Use only lubricants specified in this section. Apply them at intervals and according to the instructions in the operator's manual.

## ENGINE LUBRICATING OIL

Choice of oil is first determined by the operating conditions (see chart below).

### OIL SPECIFICATIONS

Operating Conditions	API Specification SAE J 183 a	MIL Specification
For light and medium operating conditions and when using fuel with less than 0.5% sulphur content	CC	MIL-L-46152 MIL-L-2104 B
For heavy operating conditions and when using fuel with more than 0.5% sulphur content	CD	MIL-L-2104 C

*NOTE: Use of SAE 5 W or SAE 5 W-20 may cause some increase in oil consumption. Check oil level more frequently when using these oils.*

*Depending on the lowest expected atmospheric temperature at start for the fill period, use oil of viscosity as shown in Fig. 1.*



L12122

John Deere TORQ-GARD SUPREME engine oil or other noted brands of oil that meet the specifications are recommended for use in the engine crankcase.

### OIL VISCOSITY

Single Viscosity

Multi Viscosity

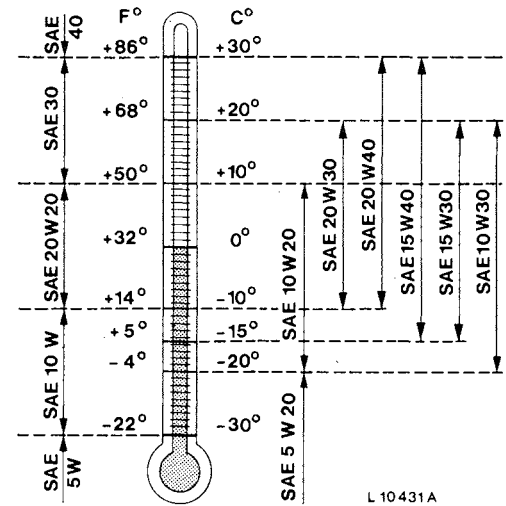


Fig. 1 — Oil Viscosity at Temperature Expected

## TRANSMISSION-HYDRAULIC OIL

Use John Deere HY-GARD Transmission and Hydraulic Oil (JDM J 20 A) or equivalent oil in the transmission and hydraulic system.

Other types of oil will not give satisfactory service and may result in eventual damage.

## OIL FOR MECHANICAL FRONT WHEEL DRIVE

Use an EP-transmission oil (SAE 90) according to specification MIL-L-2105 B.

**GREASE**

Lithium saponified multipurpose grease (JDM J13 C3) or its equivalent is recommended for all grease fittings. Grease must be free of dust and other contamination.

Grease the tractor only when the engine is not running!

Clean grease fittings prior to greasing!

**STORING LUBRICANTS**

The tractor can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contamination.

**GENERAL INFORMATION**

Carefully written and illustrated instructions are included in the tractor operator's manual. Remind your customer to follow the recommendations in these instructions.

For your convenience when servicing the tractor, the following chart shows capacities for the various components.

Component	Capacity	Service Interval
Engine crankcase	Without filter change: 6.5 liters (1.70 U.S. gal.) With filter change: 7.0 liters (1.80 U.S. gal.)	Every 10 operating hours: check oil level Every 100 operating hours: oil change Every 200 operating hours: filter change*
Transmission/hydraulic system (including oil reservoir and oil cooler)		
Synchronized Transmission .....	Dry system: 57.0 liters 15.10 U.S. gal. Oil change: 49.0 liters 12.90 U.S. gal.	Every 50 operating hours: check oil level Every 500 operating hours: filter change** Every 1000 operating hours: oil change
Collar Shift Transmission ..... (without reverser)	Dry system: 41 liters 10.80 U.S. gal. Oil change: 33.0 liters 8.70 U.S. gal.	Every 1000 operating hours: Clean hydraulic pump stroke control valve filter
Collar Shift Transmission ..... (with reverser)	Dry system: 36.0 liters 9.5 U.S. gal. Oil change: 28.0 liters 7.4 U.S. gal.	
Oil Reservoir .....	4.0 liters (1.10 U.S. gal.)	
Oil Cooler .....	2.0 liters (0.50 U.S. gal.)	

\*Replace crankcase filter element after the first 100 hours of operation. Thereafter replace filter element after every 200 hours of operation.

\*\*Replace transmission/hydraulic filter element after the first 50 hours of operation, after the first 500 and thereafter every 500 hours of operation.

Component	Capacity	Service Interval
Mechanical front wheel drive	Axle housing: 5.3 liters (1.4 U.S. gal.) Final drives: 0.75 liters (0.2 U.S. gal.) each	Every 50 operating hours: check oil level Every 1000 operating hours: oil change

Component	Lubricant	Service Interval
Front wheel bearings	Wheel bearing grease	Every 1000 operating hours: clean and pack with grease
Grease fittings	Lithium saponified multipurpose grease (JDM J13 C3)	
Front axle and front wheels.....		Every 10 operating hours: lubricate
Rear axle bearings.....		In extremely wet and muddy conditions: lubricate every 10 operating hours. Under normal conditions: lubricate every 500 operating hours
Three-point hitch.....		Every 200 operating hours: lubricate

**ENGINE CRANKCASE**

**Checking Oil Level**

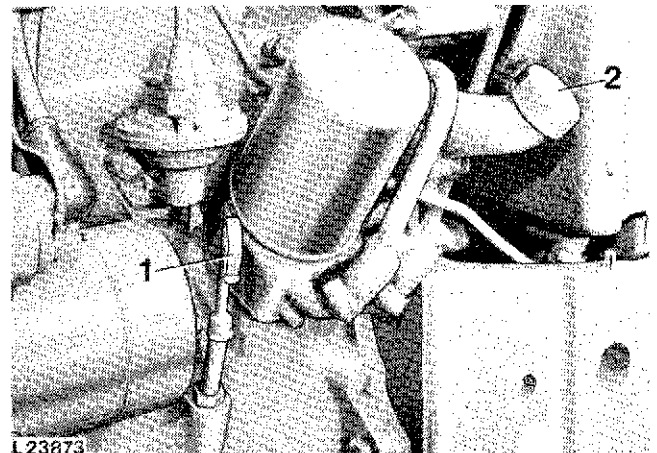
With the tractor on level ground and the engine stopped for 10 minutes or more, check crankcase oil level. If the oil level is down to the lower mark on the dipstick, add sufficient John Deere TORQ-GARD SUPREME Engine Oil or its equivalent of the proper viscosity to bring the level to the upper mark.

**Service Interval:** At predelivery and after every 10 hours.

**Oil and Filter Change**

*NOTE: Drain oil with engine shut off, however with engine oil warm.*

1. Remove drain plug.
2. While oil is draining, replace filter element (every 200 hours).



1—Dipstick  
2—Filler Cap

Fig. 2 — Engine Oil Dipstick and Filler Cap

3. Remove filter element (turn counterclockwise) and clean mounting surface.





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4. Apply a thin film of oil to sealing ring of new filter. Tighten filter element until sealing ring touches mounting surface, then turn an additional 3/4 to 1-1/4 turns. Do not overtighten.

5. Reinstall drain plug.

6. Fill crankcase with fresh oil of the proper viscosity.

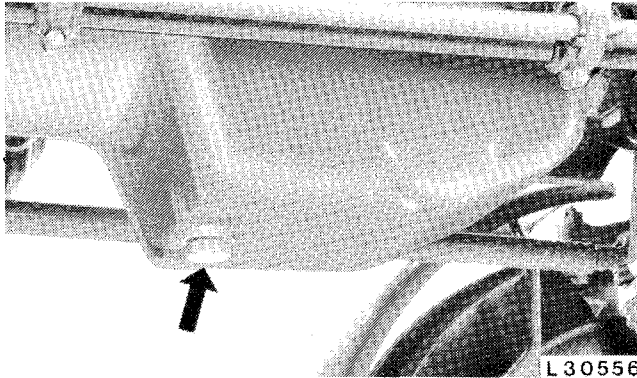


Fig. 3 — Crankcase Drain Plug

7. Crankcase capacity without filter change 6.5 liters (1.7 U.S. gal.), with filter change 7.0 liters (1.8 U.S. gal.).

8. Run engine for a short time and check for leaks at filter base and drain plug.

9. Stop engine.

10. Check oil level.

**IMPORTANT!** During cold weather operation with temperature below freezing point, change oil every 100 hours or every six weeks, whichever occurs first. Also change oil at any seasonal change in temperature when oil of a new viscosity is required.

**Service Interval:** Every 100 hours.

## TRANSMISSION/HYDRAULIC SYSTEM

### Checking Oil Level

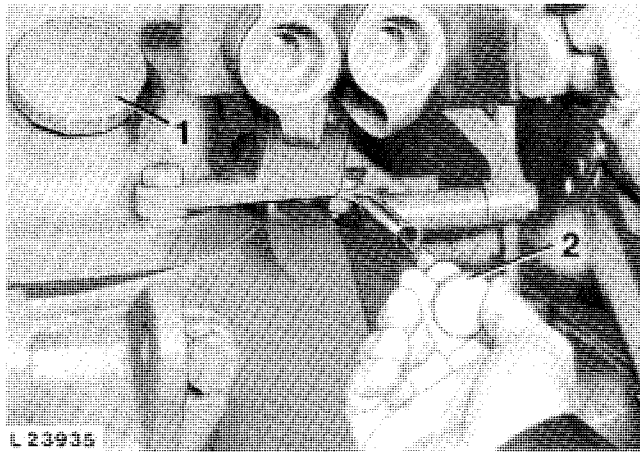
1. With the tractor on level ground, run the engine 2 to 3 minutes.

2. Place range and gear shift lever in neutral position.

3. Apply handbrake.

4. Lower draft links.

5. Run engine at slow idle (800 rpm).



1—Filler Cap  
2—Dipstick

Fig. 4 — Transmission/Hydraulic System Dipstick and Filler Cap

6. Pull out dipstick and wipe clean.

7. Insert dipstick. Remove dipstick and check oil level.

8. If necessary, add John Deere HY-GARD Transmission and Hydraulic Oil or equivalent oil to bring oil level to top mark on dipstick.