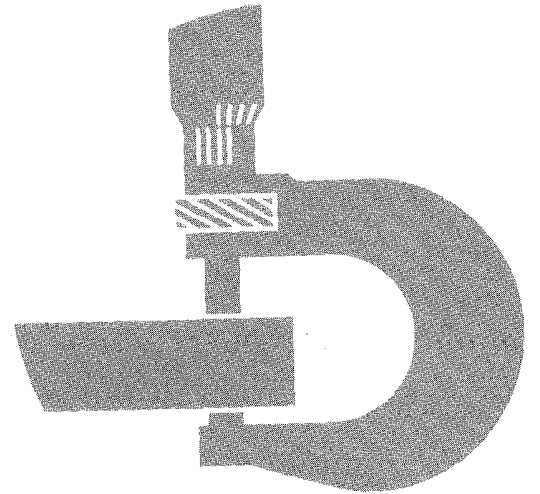


**John Deere
JD693-B
Feller-Buncher**



TECHNICAL MANUAL

TM-1170

Litho in U.S.A.

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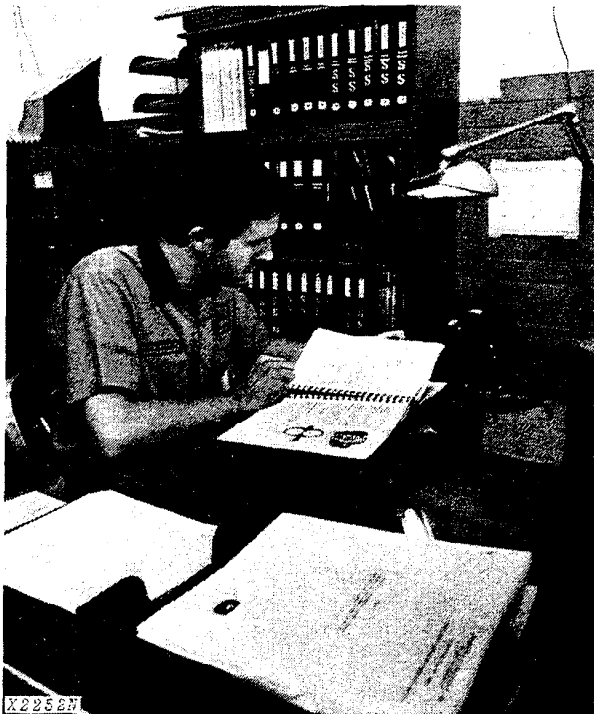
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INTRODUCTION



Use FOS Manuals for Reference

This technical manual is part of a twin concept of service:

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

•FOS Manuals—for reference

Fundamentals of Service (FOS) Manuals cover basic theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failure and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.



When a service technician should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the technical manual.

•Technical Manuals—for actual service

Technical Manuals are *concise* service guides for *specific* machines. Technical manuals are on-the-job guides containing only the vital information needed by a service technician.



Use Technical Manuals for Actual Service

This technical manual was written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Read it when you need to know correct service procedures or specifications.


Some features of this manual:

- Inside front cover - "Table of Contents".
- Section 1 - Contents, safety information, general specifications and general services.
- Sections 1 through 43 - Removal, repair, testing (components removed), installation, and adjustment.
- Section 90 - Detailed explanation of system operation, diagnosis, visual inspection, testing, and adjustments.
- Specifications are listed and illustrated at the end of each section.

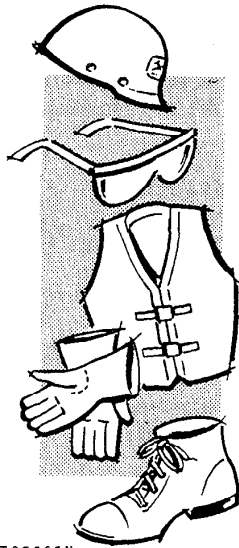
MAINTENANCE WITHOUT ACCIDENT WORK SAFELY



T27999N

 This safety alert symbol identifies important safety messages in this manual and on the feller-buncher. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

**EVERY EMPLOYER HAS A
SAFETY PROGRAM. KNOW
WHAT IT IS!**

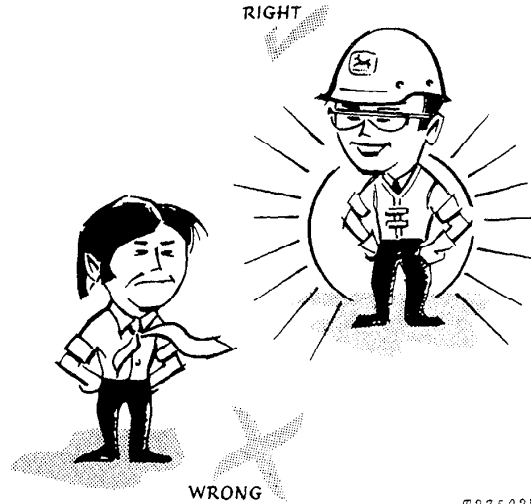


T27501N

See your shop supervisor for specific instructions on a job, and the safety equipment required.

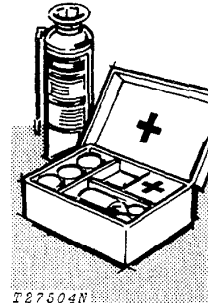
For instance, you may need: Hard hat, safety shoes, safety goggles, heavy gloves, reflector vest, ear protectors, respirator.

Litho in U.S.A.



BE ALERT!

Plan ahead. Work safely. Know how to use a first-aid kit and a fire extinguisher. Know where to get aid.



T27504N

Maintenance Area

Make sure the maintenance area has enough ventilation.

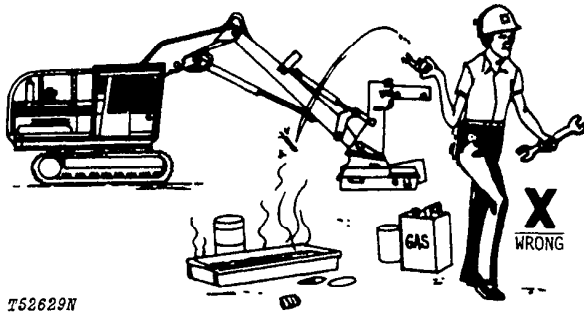
Keep the maintenance area CLEAN AND DRY. Oily and wet floors are slippery. Greasy rags are a fire hazard. Wet spots are dangerous when working with electrical equipment.

Keep starting aids in a cool, well-ventilated place, out of reach of unauthorized personnel.

MAINTENANCE WITHOUT ACCIDENT

AVOID FIRE HAZARDS -

Fuel Is Dangerous!



Do not smoke while putting fuel in the fuel tank.
Do not smoke while working with material that will start on fire easily.

Stop the engine before filling the fuel tank.
If the engine is hot, use care when putting fuel in the fuel tank.

Do not use gasoline or diesel fuel for cleaning parts.
Use solvents that will not start on fire.

Battery Gas Is Highly Flammable!

When charging batteries, be sure there is enough ventilation.



Do not check the battery charge by putting metal objects across the posts.

Do not let sparks or open flame near batteries.
Do not smoke near battery.

Flame Is Not a Flashlight!

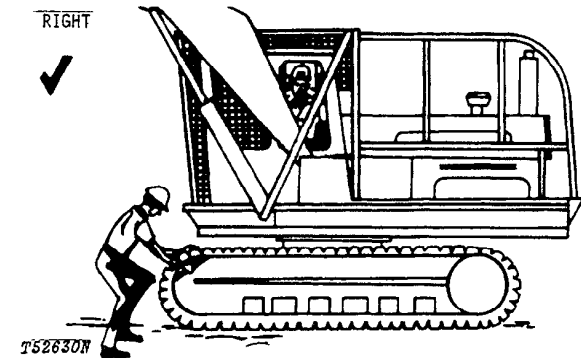
NEVER USE OPEN FLAME AROUND THE MACHINE.

KNOW WHERE FIRE EXTINGUISHERS ARE KEPT!

UNDER ALL MAINTENANCE CONDITIONS -

Do not work on the equipment unless you are approved to do so. Then be sure you know the safe and correct procedure.

Never work on equipment while it is being operated.



When the engine is running, avoid working on equipment.

If you must work on the machine with the engine running, ALWAYS USE TWO service technicians. One must be at the controls. The other must be within sight of the operator.

KEEP HANDS AWAY FROM MOVING PARTS.

Put a support under all raised equipment.

Never work under a raised shear.

Lower the shear to the ground.

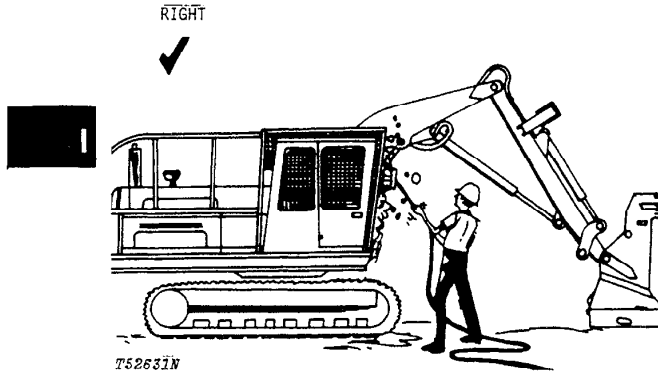
If the machine is on a slope, use blocks to hold it in place.

Do not lift heavy parts by yourself. Use hoisting equipment for this.

TAKE CARE! WATCH OUT FOR OTHER PEOPLE IN THE AREA.

When drilling, grinding, or hammering metal, wear safety glasses.

BE CAREFUL DURING SERVICE AND REPAIR



Keep ALL equipment free of dirt and oil.

Clean oil, grease, mud, ice or snow from the operator's station, steps and hand rails.

When getting the engine ready for storage, remember that inhibitor changes easily into gas and is dangerous. After adding the inhibitor, seal and tape openings. When you are not using the inhibitor, keep the can tightly closed.

Do not remove the radiator cap unless you can hold your hand on the radiator tank. First, loosen the cap slowly to the stop. Then release all pressure in the cooling system before removing the cap.

Check the exhaust system regularly for leaks.

Release hydraulic pressure before working on the hydraulic system. Stop the engine. Lower the shear to the ground. Move the control levers until the boom and shear do not move.

When checking hydraulic pressure, be sure to use the correct test gauge.

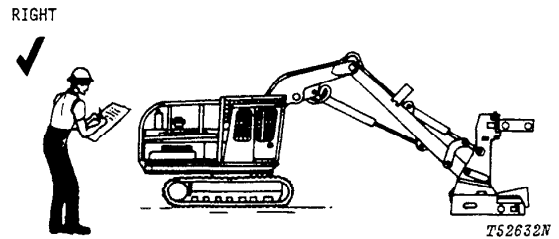
Before working on the fuel system, close the fuel shutoff valve.

Before working on the electrical system, or making a major overhaul, disconnect the batteries.

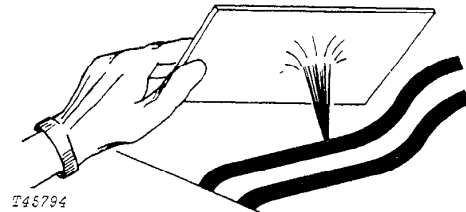
Before working on the hydraulic system release hydraulic pressure. Remove the hydraulic reservoir filler cap slowly. Open the diffuser vent.

KNOW EQUIPMENT IS READY!

All parts must be in good condition and fastened in place.



Carefully inspect all systems for leaks.



Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

Escaping fluid under pressure can penetrate the skin.

If injured by escaping fluid, see a doctor at once.

Group III

GENERAL SPECIFICATIONS

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with SAE Standards. Except where otherwise noted, these specifications are based on a unit equipped with Rome Tree Shear and standard equipment.)

Power (at 2400 engine rpm):	SAE	DIN
Gross	141 hp (105.1 kW)	
Net	131 hp (97.7 kW)	133 PS

Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator, and muffler. The gross engine power is without fan. Flywheel power ratings are under SAE standard conditions of 500 ft. (152 m) altitude and 85°F (29°C) temperature, and DIN 6270 conditions (non-corrected). No derating is required up to 10,000 ft. (3 000 m) altitude.

Engine: John Deere turbocharged diesel, vertical 6-cylinder, valve-in-head, 4-stroke cycle.

Bore and stroke 4.25x4.75 in. (108x121 mm)
 Piston displacement 404 cu. in. (6 620 cm³)
 Compression ratio 15.5 to 1
 Maximum torque

 @ 1600 rpm 375 lb-ft (508 Nm) (51.8 kg-m)
 NACC or AMA (U.S. Tax) horsepower 43.3
 Lubrication Pressure system w/full-flow filter
 Cooling . Pressurized w/thermostat and fixed bypass
 Fan Suction
 Air cleaner w/restriction indicator Dry
 Electrical system 12 volt w/alternator
 Batteries (2) 12 volt . Reserve capacity: 420 minutes

Hydraulic System:

Two open-center pumps mounted in tandem are coupled directly to the flywheel.
 Total flow is 84 gpm (5.3 L/s) at rated engine rpm.
 System operating pressure is 2500 psi (17 238 kPa) (175.7 kg/cm²).

Relief valves:

Boom (2)	3000 psi (20 685 kPa)	(210.9 kg/cm ²)
		3750 psi (25 856 kPa)
		(263.6 kg/cm ²)
Crowd (2)	3000 psi (20 685 kPa)	(210.9 kg/cm ²)
Tilt (2)	3000 psi (20 685 kPa)	(210.9 kg/cm ²)
Clamps (2)	3000 psi (20 685 kPa)	(210.9 kg/cm ²)
Shear (1)	3000 psi (20 685 kPa)	(210.9 kg/cm ²)

Oil filtration Three 10 micron filter elements in return lines

Cylinders	Bore	Rod Diameter
Boom (2)	5 in. (127 mm)	2.75 in. (70 mm)
Crowd and tilt	5.5 in. (140 mm)	3.25 in. (83 mm)

All cylinders have phenolic wear rings. Boom and crowd cylinders have a built-in hydraulic cushion at each end of the stroke. Tilt cylinder has hydraulic cushion at rod end. Full-frontal hydraulic oil cooler is in front of engine coolant radiator.

Swing Mechanism:

Swing 360-degree, continuous
 Turntable bearing Single row, ball.
 Case-hardened ring and pinion gears run in lubricant.

Undercarriage:

Propel motors (one for each track) ... High-torque 2-speed hydraulic motors with planetary drives. Wet multiple-disk brakes automatically release while propelling, and apply when stationary. Independent drive to each track permits counter-rotation.
 Undercarriage, car body, and track frame ... Each track frame is a formed, reinforced U-channel. Track frames are joined by reinforced boxed car body with swing bearing mount.
 A full-length combination chain guide and track support keep the rollers on the track chain and help prevent track shoe bending. Track motors and plumbing are completely enclosed to prevent damage.

Track Rollers and Idlers:

9 rollers and 1 idler per track. All rollers and idlers have metal-faced seals. Idlers have heavy-duty spring recoil mechanisms. Through-hardened steel slides support and guide upper track.

Track Shoes:	Ground Contact	Ground Pressure
Width	Shoes	
24 in. (608 mm)	Triple open-center semi-grousers	6136 sq. in. (39 577 cm ²) 8.0 psi (55.2 kPa) (0.56 kg/cm ²)
24 in. (608 mm) (optional)	Single-bar open-center	6136 sq. in. (39 577 cm ²) 8.0 psi (55.2 kPa) (0.56 kg/cm ²)
30 in. (762 mm) (optional)	Triple open-center semi-grousers	7670 sq. in. (49 472 cm ²) 6.4 psi (44.1 kPa) (0.45 kg/cm ²)

Track adjustment Hydraulic

Cab:

Steel, with urethane soundproofing on ceiling and walls and cushioned neoprene floor mat. Safety glass on all sides and top. Front and rear windows open. Front window is removable.

Seat:

Fully adjustable, foam rubber cushioned seat.

Controls:

Two levers for boom, crowd, tilt, and swing. Two levers control forward and rearward movement of right and left tracks. Two pedals control shear and clamps. Toggle switch controls tree accumulator.

Servicing and Vandal Protection:

Swingaway service doors expose built-in platforms for easy access to engine and hydraulic systems. Crank-operated bolts secure service doors. Cab and access covers to fuel tank, radiator, and air filters lock with ignition key.

Operating Information:

Width	9 ft. 5-1/2 in. (2.88 m)
Swing speed	7 rpm
Gradability	70 percent
Travel (2-speed)	0 to 0.9 mph (1.45 km/h) 0 to 1.7 mph (2.74 km/h)

Rome Shear

Maximum cutting radius (from center of swing)	27 ft. 6 in. (8.38 m)
Minimum cutting radius (from center of swing)	12 ft. (3.66 m)
Total cutting area	1923 sq. ft. (178.6 m ²)
Lift at 25 ft. (7.62 m)	3000 lb. (1 361 kg)
Maximum tree butt diameter	20 in. (51 cm)
Base width	41 in. (1.04 m)
Top grab opening	48 in. (1.22 m)
Blade thickness	0.75 in. (19 mm)
Weight	4500 lb. (2 041 kg)

John Deere Shear:

Maximum tree radius (from center of swing)	27.6 ft. (8.4 m)
Minimum cutting radius (from center of swing)	13.9 ft. (4.25 m)
Total cutting area	625 sq. ft. (58.1 m ²)
Lift at 25 ft.	3300 lb. (1 485 kg)
Maximum tree butt diameter	18 in. (46 cm)
Top grab opening	19 in. (48 cm)
Blade thickness	0.625 in. (16 mm)
Weight	3400 lb. (1 530 kg)

Capacities:

	U.S.	Imp.	Liters
Fuel tank	60 gal.	50.0 gal.	227.1
Cooling system	11.25 gal.	9.4 gal.	42.6
Engine lubrication	18 qt.	15.0	17.0
Engine lubrication, including filter	20 qt.	16.7 qt.	18.9
Hydraulic system	80 gal.	66.7 gal.	302.8
Planetary propel drive	10 qt.	8.3 qt.	9.4
Swing drive	8 qt.	6.7 qt.	7.5

Additional Standard Equipment:

- Electric hour meter
- Alternator charge indicator light
- Hydraulic oil filter pressure warning light
- Engine coolant temperature gauge
- Fuel gauge
- Hydraulic oil temperature gauge
- Engine oil pressure gauge
- Key switch
- Cold weather starting aid
- Horn
- Deluxe seat
- Positive-position hand throttle
- Counterweight 4200 lb. (1 906 kg) each
- Cab with heater and soundproofing

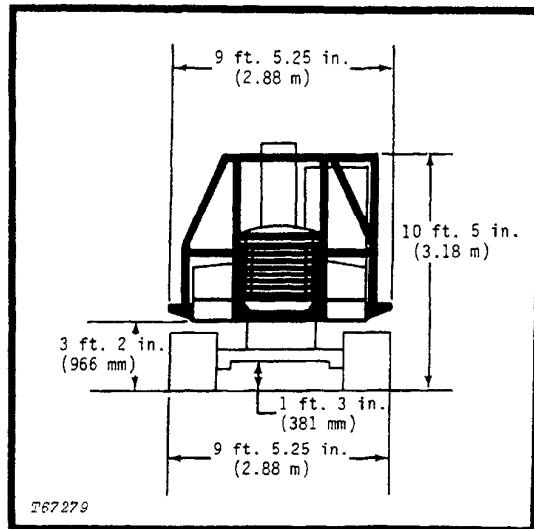
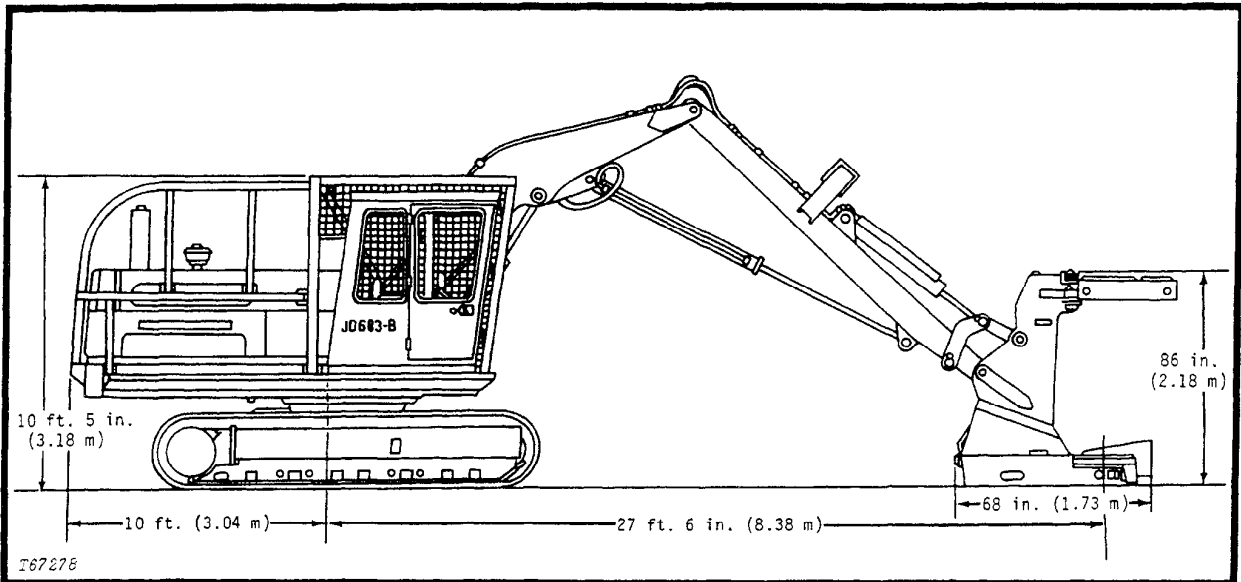
Operating weight w/boom and Rome shear

49,000 lb. (22 226 kg)

Special Equipment:

- 2000 lb. (907 kg) counterweight
- 24 in. (609 mm) single-bar open-center grouser
- 30 in. (762 mm) triple open-center semigrousers
- Air conditioner-heater
- Defroster fan
- Engine coolant heater

JD693-B FELLER-BUNCHER OPERATING DIMENSIONS



Group IV PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

TEMPORARY FELLER-BUNCHER STORAGE

After receiving your feller-buncher from the factory and before putting the machine into temporary storage, perform the following checks.

1. Check battery electrolyte level. Charge the battery, if necessary.
2. Check engine coolant level. Keep coolant 1 in. (25.4 mm) below filler neck.
3. Fill fuel tank.
4. Check crankcase oil level. Oil must be between marks on dipstick after machine has been shut down for 10 minutes.
5. Release hydraulic pressure by stopping engine, lowering tree shear and operating control levers until the boom or shear does not move.

PREDELIVERY SERVICE

The service technician must carefully check and service the machine before the dealer delivers it to the customer. When the customer receives a machine that is correctly prepared, the customer is well-satisfied. For these reasons, correct predelivery service is very important to the dealer and the customer.

If adjustments are needed, see procedures in the After-Sale section.

Use the following list when getting a unit ready for delivery to the customer.

1. Crankcase Oil Level

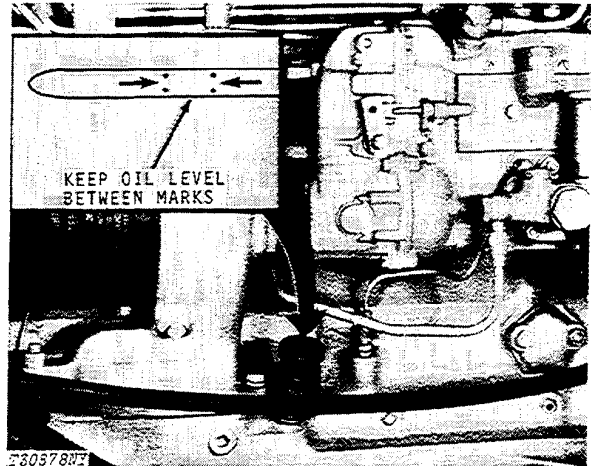


Fig. 1-Crankcase Dipstick

Check crankcase oil level when unit is on level ground and engine off.

Wait for 10 minutes after shutdown for oil to drain down.

Keep oil level between marks on dipstick.

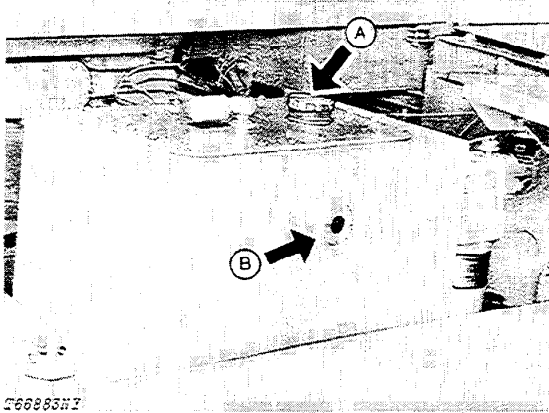
Do not operate engine with oil level below bottom mark.

NOTE: There is a two-quart (1.89 L) difference between the bottom mark and the top mark on the dipstick.

Crankcase oil level checked Yes No

Oil added _____ qts. (L)

2. Hydraulic System Oil Level



A—Reservoir Breather-Filler Cap B—Oil Level Window

Fig. 2-Hydraulic Reservoir

Check reservoir oil level when machine is on level ground.

Oil level must be to middle of oil level window when boom, secondary boom, and tilt cylinders are extended approximately halfway.

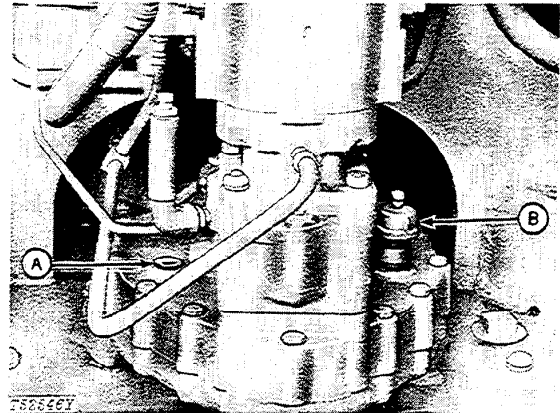
Add 2-1/2 gallons (9.5 L) of oil to raise oil level in reservoir 1" (25.4 mm).

If oil is needed, add oil specified on page I-V-2.

Oil level checked Yes No

Oil added _____ qts. (L)

3. Swing Gearbox Oil Level



A—Check Plug B—Pipe Cap

Fig. 3-Swing Gearbox

Check oil level.

Remove check plug.

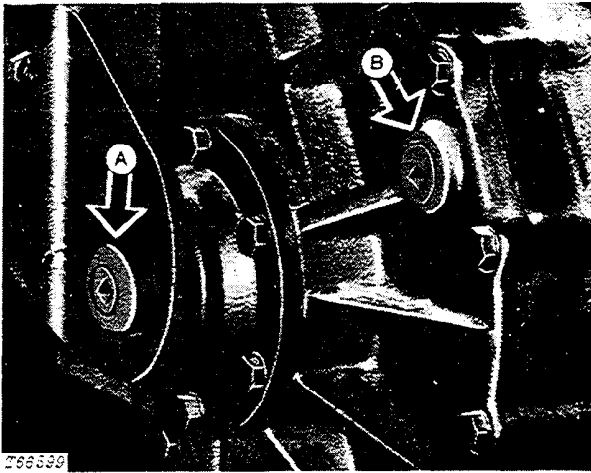
Oil must be to bottom of check plug hole. If not, remove pipe cap. Add oil specified on page I-V-2.

Install check plug and pipe cap.

Swing gearbox oil level checked Yes No

Oil added _____ qts. (L)

4. Track Gearbox Oil Level



A—Check Plug B—Fill Plug

Fig. 4-Track Gearbox

Remove check plug.

Oil must be to check plug hole.

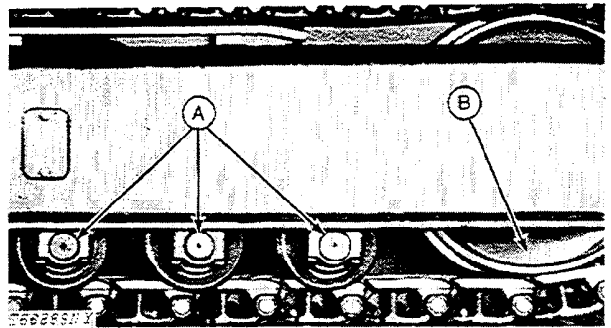
If not, remove fill plug. Add oil specified on page I-V-2.

Install fill plug and check plug.

Check other gearbox in same manner.

Track gearbox oil level checked	Yes	No
Oil added	_____ qts. (L)	

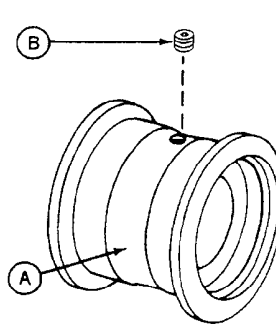
5. Track Rollers and Idlers Oil Level



A—Track Rollers B—Front Idler

Fig. 5-Track Rollers and Idler

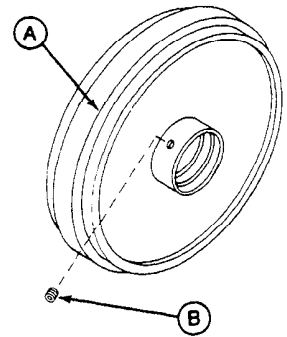
Check oil level of rollers and idlers.



T52540

A—Roller
 B—Pipe Plug

Fig. 6-Track Roller



T52541

A—Idler
 B—Pipe Plug

Fig. 7-Idler

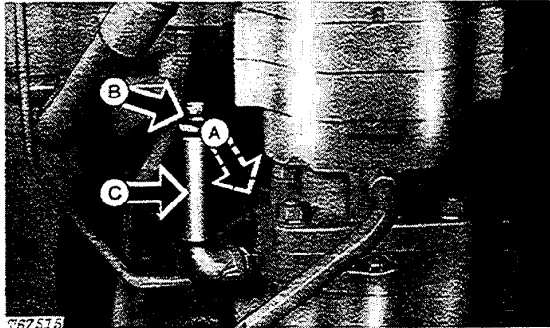
To check the oil level, turn the roller or idler so the pipe plug is at a 45° angle from the top. Remove the pipe plug. Oil must be to the bottom of the plug hole. If not, fasten a plastic tube to an oil can. Add oil through the plug hole. Use oil specified on page I-V-2.

Capacity of roller or idler is 11.5 ounces (0.34 L).

Put Loctite sealant on pipe plug. Install plug flush with surface.

Rollers and idlers oil level checked	Yes	No
Oil added	_____ qts. (L)	

6. House Lock Oil Level



A—Pipe Plug C—Coupling
 B—Vent and Bushing

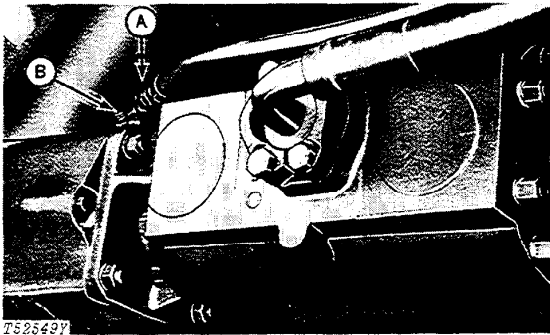
Fig. 8—House Lock Oil Level

Stop the engine. Remove the pipe plug (A). Oil must be at the bottom of the pipe plug hole. If not, remove the vent and bushing (B). Add oil specified on page I-V-2 through the coupling (C).

Install the pipe plug, vent, and bushing.

House lock oil level checked Yes No
 Oil added _____ qts. (L)

7. Propel Brake Oil Level



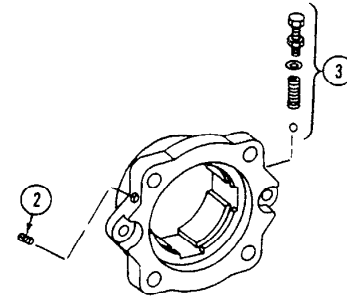
A—Pipe Plug B—Vent Tube

Fig. 9—Propel Brake

Check the oil level as follows:

1. Remove the cap screw from the propel motor cover. Pull the cover to the rear.
2. Remove the pipe plug. Oil must come out of the pipe plug hole.

Litho in U.S.A.



T63778N

Fig. 10—Propel Brake Oil Level

3. If not, remove the breather vent, washer, spring, and steel ball. Put these parts in a safe place. Add oil specified on page I-V-2.

4. Install all parts.

IMPORTANT: If the breather vent is dirty, flush it with fuel oil or solvent. Use compressed air to clean the breather vent.

Propel brake oil level checked Yes No
 Oil added _____ qts. (L)

8. Pre-Cleaner

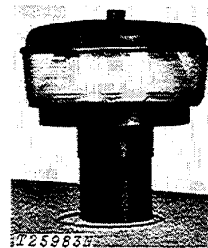


Fig. 11—Pre-Cleaner

Check pre-cleaner bowl. Clean it, if necessary.

Pre-cleaner checked Yes No

9. Air Cleaner

Check air filter indicator light. If the indicator light glows red, clean primary element. Install new primary and safety elements, if necessary.

Air cleaner checked Yes No

10. Air Intake Hoses

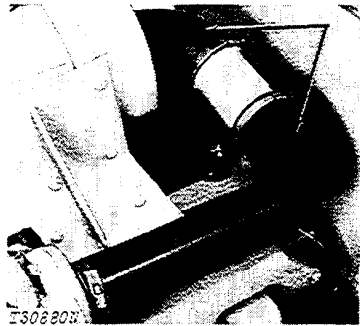


Fig. 12-Air Intake Hoses

Check hose clamps. Tighten, if necessary. Inspect hoses for cracks.

Air intake hoses checked Yes No

11. Radiator

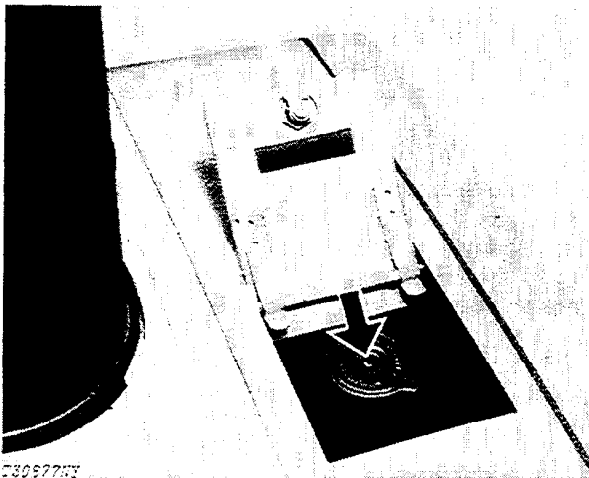


Fig. 13-Radiator Cap

CAUTION: Do not remove the radiator filler cap unless you can hold your hand on the radiator tank. First, loosen the cap slowly to the stop. Then release all pressure in the cooling system before removing the cap.

Check the coolant level. Keep the level 1 in. (25 mm) below the bottom of the filler neck when the engine is cold.

Use clean water for warm weather. Use a solution of 50% clean water and 50% permanent antifreeze (ethylene glycol with approved rust inhibitor) for cold weather.

DO NOT overfill the radiator.

Tighten the filler cap.

Check for leaks or loose connections. Clean radiator fins, if necessary.

Coolant level checked Yes No

12. Batteries

Check the electrolyte level of the batteries. If distilled water is not available, use clean soft water. Do not use hard water. Remove dirt from the top of the batteries with a damp cloth. Put petroleum jelly on terminals.

IMPORTANT: Never add water to the batteries in freezing weather unless the engine will be run 2 or 3 hours.

Check battery connections.

Punch date code on batteries.

Batteries checked Yes No

13. Fuel Filters

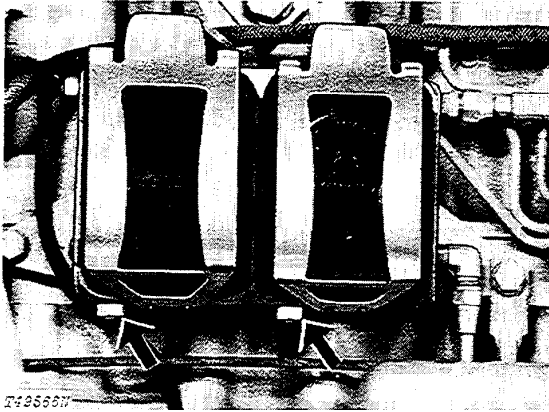


Fig. 14-Fuel Filter Drain Screws

Check fuel filters. Drain sediment, if necessary.

Loosen drain screws on bottom of fuel filters. Allow all water and sediment to drain. Tighten drain screw.

Remove air from the fuel system. See page I-IV-28.

Fuel filters checked Yes No

14. Fuel Supply Pump Sediment Bowl

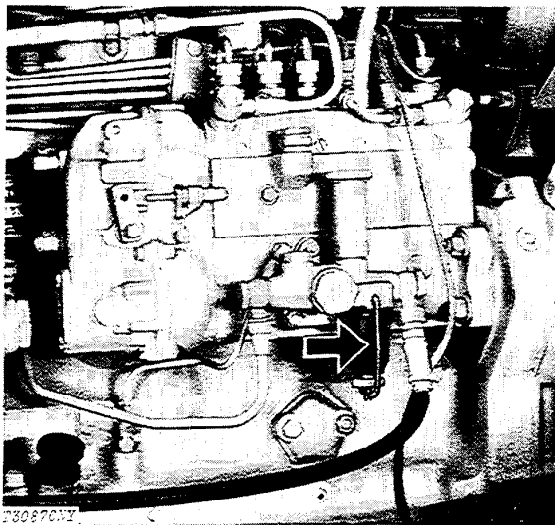


Fig. 15-Fuel Supply Pump Sediment Bowl

Remove fuel supply pump sediment bowl by releasing clamp from pump body.

Remove filter screen from inside bowl. Clean it with diesel fuel.

Clean sediment bowl. Install screen.

Install sediment bowl.

Remove air from fuel system. See page I-IV-28.

Sediment bowl checked Yes No

15. Fan Belt Tension

Check the tension of the fan belts.

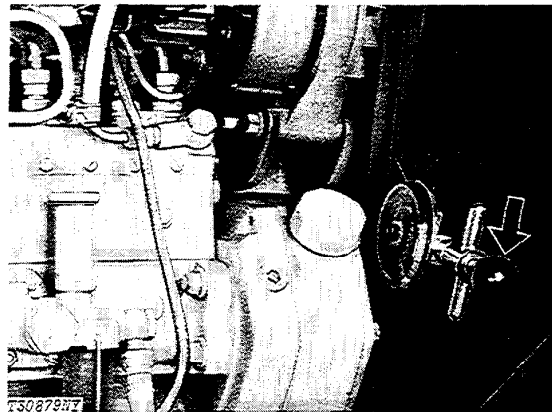


Fig. 16-Strand Tension Gauge

Strand tension gauge: Immediately after the engine stops (run the engine 5 minutes or more), check the belt tension. If strand tension is less than 50 lb. (223 N), let the engine cool 10 to 15 minutes. Then make tension 90 lb. (400 N). Check the front belt only.

Tension tester: A force of 20 lb. (89 N) halfway between the pulleys must move the belt 3/4 in. (19 mm).

Adjustment: Loosen the alternator bracket and adjusting cap screws.

**Thank you very much
for your reading.**

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**Then Get More
Information.**