John Deere JD300-B Loader and Backhoe Loader





TECHNICAL MANUAL

JD300-B LOADER AND BACKHOE LOADER

Technical Manual TM-1087 (Dec-78)

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The specifications and design information contained in this manual were correct at the time it was printed. It is John Deere's policy to continually improve and update our machines. Therefore, the specifications and design information are subject to change without notice. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.

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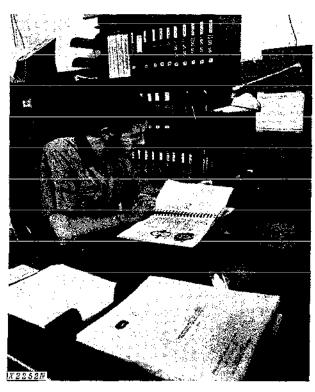
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Group 35 Specifications and Special Tools

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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 failures 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 TM to identify the reference.

•Technical Manuals-for actual service

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



Use Technical Manuals for Actual Service

This technical manual was planned and written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Some features of this manual:

- Inside front cover "Table of Contents" and "Maintenance Without Accident".
- · Section 10 General specifications and services.
- Sections 20 through 60 Removal, repair, testing (components removed), installation, and adjustment.
- Section 70 Detailed explanation of system operation, diagnosis, visual inspection, testing, and adjustments.
- Specifications grouped and illustrated at the end of each section.

Thanks very much for your reading,

Want to get more information,

Please click here, Then get the complete
manual



NOTE:

If there is no response to click on the link above, please download the PDF document first, and then click on it.

Have any questions please write to me: admin@servicemanualperfect.com

MAINTENANCE WITHOUT ACCIDENT WORK SAFELY



This safety alert symbol identifies important safety messages in this manual and on the loader and loader backhoe. 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!



Consult your shop foreman 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 vests, ear protectors, respirators.

Litho in U.S.A.



BE ALERT!

Plan ahead—work safely—know how to use a first-aid kit and a fire extinguisher—and where to get aid and assistance.



Maintenance Area

Make sure the maintenance area is adequately vented.

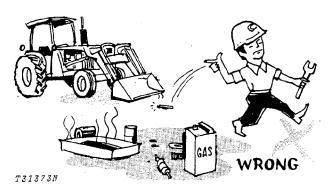
Keep maintenance area CLEAN AND DRY. Oily and wet floors are slippery; greasy rags are a fire hazard; wet spots are dangerous when working with electrical equipment.

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

MAINTENANCE WITHOUT ACCIDENT

AVOID FIRE HAZARDS—

Fuel Is Dangerous!



Don't smoke while refueling.

Don't smoke while handling highly flammable material.

Engine should be shut off when refueling.

Use care in refueling if the engine is hot.

Don't use open pans of gasoline or diesel fuel for cleaning parts. Good commercial, nonflammable solvents are preferred.

Battery Gas Is Highly Flammable!

Provide adequate ventilation when charging batteries.



Don't check battery charge by placing metal objects across the posts.

Don't allow sparks or open flame near batteries.

Don't smoke near battery.

Flame Is Not a Flashlight!

NEVER USE OPEN FLAME AROUND THE MA-CHINE.

KNOW WHERE FIRE EXTINGUISHERS ARE KEPT!

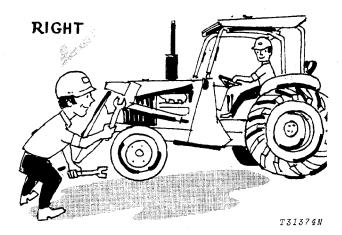
UNDER ALL MAINTENANCE CONDITIONS—

Do not perform any work on the equipment unless authorized to do so. Then be sure you know the safe and proper procedure.

Follow recommended procedures.

Never service the equipment while it is being operated.

Avoid working on equipment with the engine running.



If it is necessary to make checks with the engine running, **ALWAYS USE TWO** service technicians—one, the operator, at the controls, the other checking within sight of the operator.

KEEP HANDS AWAY FROM MOVING PARTS

Support all raised equipment.

Never work under raised bucket or backhoe.

Lower bucket and backhoe to ground.

If the machine is on an incline, block it securely.

Use hoisting equipment for lifting heavy parts.

TAKE CARE! WATCH OUT FOR OTHER PEOPLE IN THE VICINITY

Wear safety glasses when drilling, grinding, or hammering metal.

SERVICING PRECAUTIONS



Keep ALL equipment free of dirt and oil.

Be sure to clean any oil, grease, mud, ice, or snow from floor of operator's compartment and stepping points.

When preparing the engine for storage, remember that inhibitor is volatile and therefore dangerous. Seal and tape openings after adding the inhibitor. Keep container tightly closed when not in use.

Don't remove the radiator cap until coolant temperature is below the boiling point. Then loosen cap slowly to the stop to relieve pressure before removing.

Periodically check exhaust system for excessive leakage.

Relieve hydraulic pressure before working on hydraulic system: shut off engine, lower bucket and backhoe to ground, and move control levers and steering wheel until no response is felt.

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

PRECAUTIONS DURING REPAIR

Before working on hydraulic system relieve hydraulic pressure.

Before repairing the electrical system, or performing a major overhaul, disconnect batteries.

KNOW EQUIPMENT IS READY!

Check guards, canopies, safety guards — all protective devices installed on the unit. Every one should be in place and secure.

CHECK IT OUT!

- GUARDS
- □ CANOPIES
- ☐ SHIELDS
- □ PROTECTIVE DEVICES
- □ ROLL-OVER PROTECTIVE STRUCTURES
- SEAT BELTS, ETC.



Carefully inspect equipment for visual defects—leaks in fuel, lubrication, and hydraulic systems. Do not search for pressurized fluid leaks with your hands. Use cardboard or wood to search for leaks.

Section 10 GENERAL

CONTENTS OF THIS SECTION

Page	Page
GROUP 5 - SPECIFICATIONS	GROUP 15 - LUBRICATION
General Machine Specifications	Oils and Greases
GROUP 10 - PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES	- %
Temporary Machine Storage 10-1	
Predelivery Service 10-1	
Delivery Service	
After-Sale Inspection	

Group 5 GENERAL MACHINE SPECIFICATIONS

(Specifications and design subject to change without notice. Wherever applicable specifications are in accordance with ICED and SAE Standards. Except where otherwise noted, these specifications are based on a unit equipped with 14.9-24, 6 ply rating, R4 rear tires; 11L-15, 8 ply rating, F-3 front tires; 3/4 cu. yd. (0.57 m³) utility bucket, and standard equipment.)

	engine rpm):	SAE 46 hp (34.3 kW*)	DIN
Net	••••••	43 hp (32.1 kW)	45.7 PS
cleaner, wa muffler. Gro are under temperature	flywheel power is for ter pump, lubricating pass engine power is SAE standard cond e and DIN 70 020 s (sea level) and 20°C	oil pump, fuel pum without fan. Flywhe itions of 500 ft. a standard conditions	p, alternator, and eel power ratings altitude and 85°F
*In the Inte kilowatts (k	ernational System of W).	Units (SI), power	is expressed in
Engine: Joi	hn Deere 3-cylinder	diesel, valve-in-hea	id, 4-stroke cycle
Bore and s	troke		3.86 x 4.33 in. (98x110 mm)
Piston disp	lacement		152 cu. in. (2491 cm³)
Compression Maximum t	on ratioorque@		16.2 to 1
NACC or A Main bearin Lubrication Cooling Fan Air cleaner Electrical s Batteries (h	MA (U.S. Tax) hors ngs	Pressure system v d with thermostat a	
Engine Cli	utch Foot-ope with reverser; singl		· , ·

Transmission:

Constant mesh, 8 speeds forward, 8 reverse. Optional hydraulic direction reverser permits no-clutch reversing in all gears.

	•	Ŭ	•			
Gear:	Travel Speeds					
	mp	oh .	km/h	ı		
	Fwd.	Rev.	Fwd.	Rev.		
1	1.3	1.6	2.1	2.6		
2	1.9	2.2	3.1	3.5		
3	2.9	3.3	4.7	5.3		
4	4.0	4.7	6.4	7.6		
5	5.3	6.2	8.5	10.0		
6	7.6	8.8	12.2	14.2		
7	11,2	13.0	18.0	20.9		
8	15.7	18.3	25.3	29.4		
Final Drives			Inboard, p	lanetary		
Brakes Hydraulically actuated, fully enclosed wet-disk. Self-equalizing. Foot-operated individually or simultaneously						
Hydraulic System Max. pressure			350 psi (16 2	03 kPa		

Pump Piston, constant pressure, variable-displacement

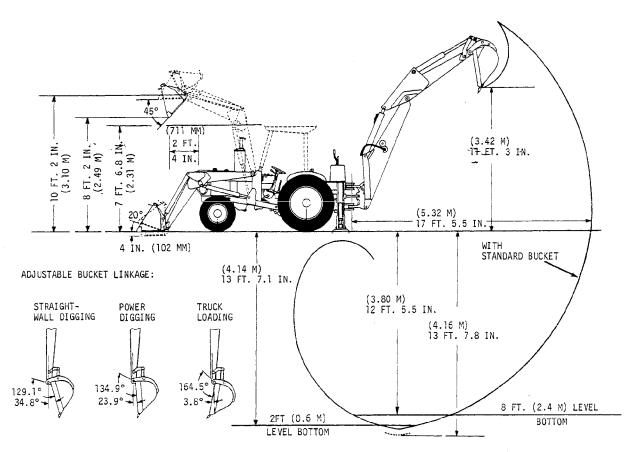
Filter 25 micron steel-enclosed paper cartridge in retur

28 gpm (106 L/min) at 2500 engine rpm

(165.2 kg/cm² Single-leve

.49		
Hydraulic	Capacities U.S. Lite	ers
Cylinders: Bore Stroke	Cooling system 3 gal. 11	1.4
Boom 2.75 in. (70 mm) 28.33 in. (720 mm)		3.8
Bucket 2.5 in. (64 mm) 27.25 in. (692 mm)	Engine lubrication, including	
Cylinder rods	filter	3.5
	system	7.9
Steering Power	Loader hydraulic system 2.5 gal. 9	9.5
Turning radius		
(brake applied) 10 ft. 1 in. (3.07 m)	Additional Standard Equipment:	
Loader clearance	Oil pressure indicator light	
(brake applied)	Alternator charge indicator_light	
Number of turns, far left to far right	Coolant temperature gaüge	
	Key switch safety start	
Tires Front Rear	Lights	
11L-15, 8 ply rating, F3 14.9-24, 6 ply rating, R3	Differential lock	
14.9-24, 6 ply rating, R4	Foot throttle	
7.50/8.00-16, 10 ply rating, F3 17.5L-24, 8 ply rating, R4	Bucket-level indicator	
	Fuel gauge	
Wheel Treads:	Antifreeze	
Front	Vertical muffler with rain cap	
Rear 60 in. (1.52 m)	Transistorized voltage regulator	
	Fenders	
Dimensions:	Fuel filter	
Height to top of hood	Cushioned seat	
Overall width without	Tachometer/hour meter	
bucket	Air cleaner restriction indicator	
Overall length	Cigar lighter	
Ground clearance (under	Cold weather starting aid	
front axle)	Horn	
Ground clearance, min 12 in. (305 mm)	CAP On another Mainta 7450 % /0.070 %	\
Overall length without	SAE Operating Weight 7450 lb. (3 379 kg	g)
3-pt. hitch	•	

LOADER BACKHOE DIMENSIONS (9250-A BACKHOE)



T43943N

Special Equipment

Backhoe

Collar shift transmission

Counterweights with bracket (without 3-point hitch or remote cylinder)

Deluxe seat

Single remote hydraulic cylinder control with quickdisconnect coupler

Swinging drawbar

3 inch seat belt

3-point hitch (Category 1 or 2 with sway blocks and regular or short links)

Front axle counterweights

Front grille guard

Parking brake

Rear PTO (continuous "live" 540 rpm)

Rear wheel weights

ROPS with canopy and seat belt

LOADER SPECIFICATIONS

Buckets:

Nominal Heaped Capacity

Width

3/4 cu. yd. (0.57 m³) 81.125 in. (2.06 m) 1 cu. yd. (0.76 m³) 81.125 in. (2.06 m)

Operating Information:

Rollback at ground level
Breakout force 5,000 lb. (22.41 kN) (2270 kg)
Lifting capacity, full height 3,300 lb. (1500 kg)
Maximum dump angle45 deg.
Reach at maximum height, bucket
dumped at 45 degrees 2 ft. 4 in. (711 mm)
Raising time to full height 3.7 sec.
Bucket dump time 1.6 sec.
Lowering time (power) 2.0 sec.
Minimum effective rear wheel counter-
weight required, except when used
with backhoe

9250-A WHEEL BACKHOE SPECIFICATIONS (24 in. [610 mm] STANDARD BUCKET)

Operating Information: Digging depth (ICED): Maximum							
Max. Pressure							
(165.2 kg/cm²) Pump							
Hydraulic							
Cylinders: Bore	Stroke	Rod Diameter					
Boom4 in.	32.38 in.	2 in.					
(102 mm)							
Crowd 3.5 in.	31.25 in.	1.75 in.					
(89 mm)	(794 mm)	(44 mm)					
Bucket3 in.	26.5 in.	1.75 in.					
(76 mm)	(673 mm)	(44 mm)					
Swing 3.5 in.	8.88 in.	1.75 in.					
(89 mm)	(226 mm)	(44 mm)					
Stabilizer3.5 in.	15.5 in.	1.75 in.					
(89 mm)							
Cylinder rods. Ground,	heat-treated,	chrome-plated, polished					
		polistied					

Stablizer Width:

Transport	position		6	ft.	8	in.	(2.03)	m)
Operating	position	(overall)	. , 9	ft.	8	in.	(2.95)	m)
Operating	position	(ICED)	8	ft.	6	in.	(2.59	m)

Buckets

Buckets:				
	Width		Struck 0	Capacity
	in.	_ mm	cu. ft.	m³
Standard	12	305	1.6	0.045
	16	406	2.6	0.074
	18	457	3.6	0.102
	24	610	4.8	0.136
	30	762	6.0	0.170
	36	914	7.2	0.204
Uman and about	10	457	2.6	0.100
Heavy-duty	18	457	3.6	0.102
	24	610	4.8	0.136
Ejector	24	610	4.2	0.119
Cemetery Special	36	914	. 7.2	0.204

Attachments:

Ripper tooth replaces backhoe bucket. Cast steel; 225 lb. (102 kg) tooth has hardened replaceable tip. Bolt-on rubber street pads for stabilizer pads.

Shipping weight:

With mounting parts,					
without bucket	2,550	lb.	(1	157	kg)

Group 10 PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

TEMPORARY UNIT STORAGE

After receiving your unit from the factory and before putting the machine into temporary storage, perform the following checks and services.

For long term storage (over 30 days) information, consult your JD300-B operator's manual.

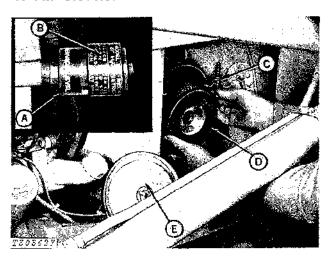
- 1. Check battery electrolyte level and charge the battery, if necessary.
- 2. Check engine coolant level. Maintain midway between the radiator core and filler neck.
 - 3. Fill the fuel tank.
- 4. Check crankcase oil level. Oil must be between marks on dipstick after machine has been shut down for 10 minutes.
- 5. Relieve hydraulic pressure by stopping engine, lowering bucket and backhoe and operating control levers and steering wheel until system fails to respond.
- 6. Reduce shipping pressure of all tires to the inflation pressure listed on page 10-10-2.

PREDELIVERY SERVICE

Because of the shipping factors involved, plus extra finishing touches that are necessary to promote customer satisfaction, proper predelivery service is of prime importance to the dealer and the customer.

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

1. Air Cleaner



A—Restriction Indicator

B-Red Signal C-Wing Nut

D-Element E---Cover

Fig. 1-Air Cleaner

Check air filter restriction indicator (A). If red signal can be fully seen, remove element (D) and clean. Install a new element if necessary.

Element checked

No

2. Radiator

Check engine coolant level.

CAUTION: Do not remove radiator filler cap unless the engine is cool. Then loosen the cap slowly to the stop to release pressure before removing the cap.

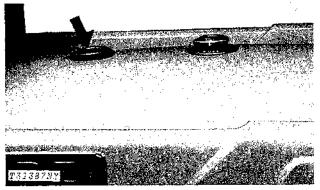


Fig. 2-Radiator Filler Cap

Maintain coolant level midway between the radiator core and the filler neck. If needed add clean soft water for warm weather or a solution of 50% clean water and 50% ethylene glycol (permanent type antifreeze with approved rust inhibitor) for cold weather. Tighten the filler cap.

Check cooling system for loose connections and leaks.

Coolant level checked ___ Yes Ni

3. Batteries

Check battery electrolyte level. If distilled water is not available, use clean soft water. Avoid use of hard water. Remove foreign material from top of battery and coat terminals with petroleum jelly. Check vent holes in battery caps.

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

Punch date code on battery.

Batteries checked

Yes No

4. Tires

Check tire pressure with an accurate gauge having 1 psi (0.07 bar) graduations.

Inflate tires according to the chart below.

FRONT TIRES

Tire Size	Туре	Ply Rating	Inflation Pressure psi (bar)
11L-15	J-1A	8	40 (2.8)
7.50/8.00-16	F-3	10	56 (4)

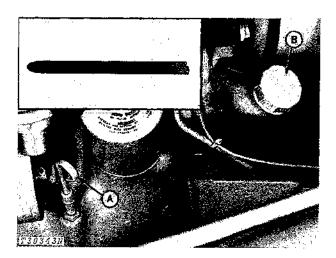
REAR TIRES

			Infia	tion Pressure	
			With	With	With
			Little	Moderate	Maximum
			Ballast or	Bailast or	Ballast or
Tire Size	Туре	PA	No Rear- Mounted Equipment	Light Rear- Mounted Equipment	Heavy Rear- Mounted Equipment
14,9-24	R-3	6	20 psi (1.4 bar)	22 psi (1.5 bar)	24 psi (1.7 bar)
14.9-24	R-4	6	20 psi (1.4 bar)	22 psi (1.5 bar)	24 psi (1.7 bar)
17.5L-24	R-4	8	20 psi (1.4 bar)	22 psi (1.5 bar)	24 psi (1.7 bar)

Tire pressure checked

'es No

5. Crankcase Oil Level



A-Dipstick

B-Oil Filler Cap

Fig. 3-Crankcase Oil Level

Check crankcase oil level with machine on level ground. (Allow a minimum of 10 minutes for the oil to drain down before checking.) If oil level is at or below bottom mark on dipstick, add oil specified on page 10-15-1 to bring oil level to between marks on dipstick. Do not operate engine with oil level below the bottom mark.

Crankcase oil level checked Yes No Oil added qts (L)

6. Transmission-Hydraulic Oil Level

Check transmission-hydraulic oil level.



Fig. 4-Transmission-Hydraulic System Dipstick Resting On Top Threads



Fig. 5-Transmission-Hydraulic System Filler Cap

Run engine two to three minutes to fill oil circuits. Check oil level with machine on level ground, engine running at slow idle, rockshaft and any equipment lowered, reverser lever (if equipped) locked in neutral, parking brake engaged (if equipped), range shift lever in park, and clutch engaged. Remove dipstick and wipe oil off. Insert dipstick with cap resting on threads of tube (not screwed in place). If oil level is down to bottom mark on dipstick, add oil. Remove filler cap on rockshaft housing and add oil specified on page 10-15-1 to bring oil level to top mark on dipstick.

Oil level checked Yes No Oil added qts. (L)

7. Fuel Tank

Fill fuel tank with correct fuel. Check action of fuel gauge.

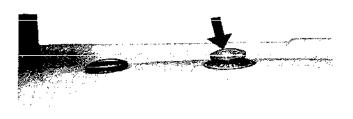




Fig. 6-Fuel Tank Filler Cap

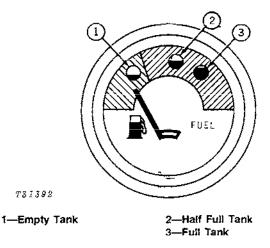


Fig. 7-Fuel Gauge

Fuel tank filled	Yes	No
Fuel gauge checked	Yes	No

8. Grease Fittings

T31392

All grease fittings were lubricated and checked before the unit left the factory. However, to insure customer satisfaction, check each fitting shown on the following pages. Lubricate, if necessary, with John Deere Multi-Purpose Grease or an equivalent.

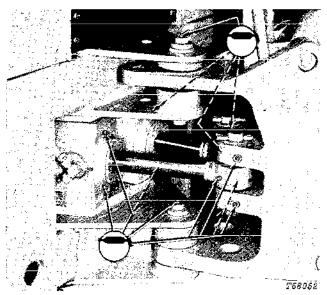


Fig. 8-Backhoe Pivot Points (12 points)

Lubrication required No

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Fig. 9-Backhoe Boom Pivots (11 points)

Lubrication required

Yes

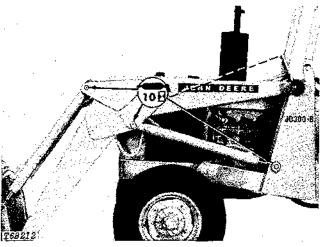


Fig. 10-Loader Pivot Points (4 points)

Lubrication required

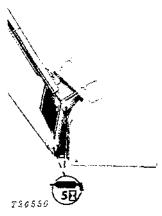


Fig. 11-Bucket Pivots (4 points)

Lubrication required

Yes No

Yes

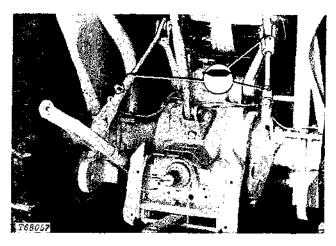


Fig. 12-3-Point Hitch (3 points)

Lubrication required

Yes

No

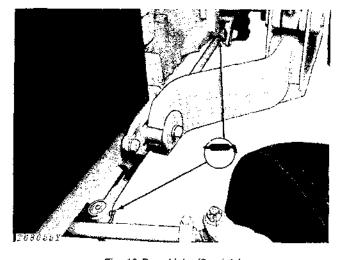


Fig. 13-Drag Links (2 points)

Lubrication required

Yes

No

Fig. 14-Front Axle Pivot Points (8 points)

Lubrication required

Yes

No

.

9. Air Intake Hoses

Check clamps on hoses connecting air cleaner and engine. Tighten hose clamps where necessary. Inspect hoses for cracks.

Intake hoses checked

Yes No

10. Alternator-Fan Belt Tension

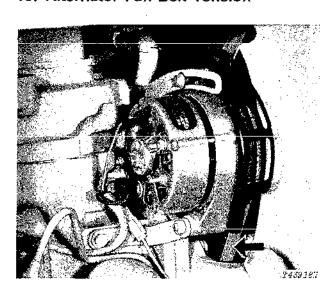


Fig. 15-Alternator-Fan Belt Tension

Check alternator belt tension. Loosen the alternator bracket and adjusting cap screws. Apply outward force to the FRONT alternator frame until 20 lb (9 kg) force on the belt midway between the pulleys will deflect the belt 3/4 inch (19 mm). If a strand tension gauge is used, strand tension must be 90 lb. (41 kg).

IMPORTANT: Do not pry on the rear half of the alternator housing.

Belt tension checked

res No

11. Engine Speeds

Check engine speeds.

Slow idle - 825 rpm

Fast idle - 2650 rpm hand throttle

2800 rpm foot throttle

If adjustment is needed, see page 10-10-20.

Engine speeds checked

Yes No

12. Fuel Filter

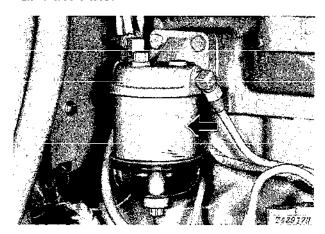


Fig. 16-Fuel Filter

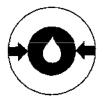
Check fuel filter for sediment and drain if necessary.

Fuel filter checked

Yes No

13. Indicator Lights and Gauges

Check operation of indicator lights.



722738

Fig. 17-Engine Oil Pressure Indicator Light

If light glows red when engine is running, stop engine immediately and determine cause.



T22737

Fig. 18-Alternator Indicator Light

Light glows red when alternator is not charging. When light goes on with engine running, stop engine and determine cause.

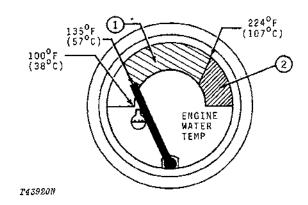


T52798N

Fig. 19-Parking Brake Indicator

Indicator light will_glow when key switch is on and parking brake is engaged.

Check operation of the engine coolant temperature gauge.



1-Operating Range

2-Overheat Range

Fig. 20-Water Temperature Gauge

NOTE: Fuel gauge is on page 10-10-3.

Indicator lights and gauges checked

Yes No

14. Reverser

The reverser unit allows the operator to change the direction of travel "on the go" without declutching or shifting gears.

Note and correct any reverser malfunctions.

See page 10-10-22 for reverser speed of shift adjustment.

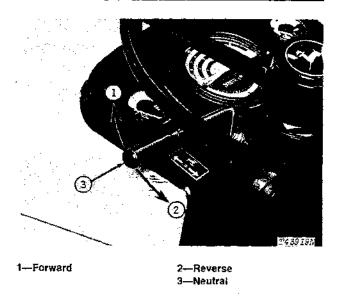


Fig. 21-Reverser Lever

Reverser checked

Yes No

15. Differential Lock

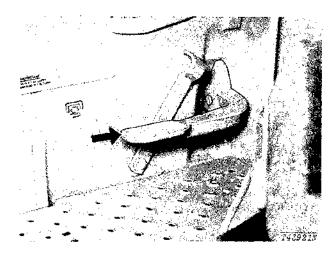


Fig. 22-Differential Lock Pedal

Check the differential lock operation.

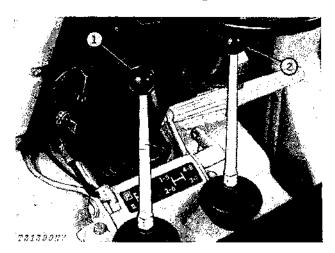
While driving straight ahead push down the differential lock pedal. Hold the pedal down. Turn the steering wheel slightly. The operator will feel steering resistance if differential lock is working correctly.

The differential lock will automatically disengage when the pedal is released if traction for both rear wheels is equal. Unequal traction will keep the lock engaged.

Differential lock checked

Yes

16. Transmission Shifting



1-Range Shift Lever

2-Gear Shift Lever

Fig. 23-Transmission

Check the operation of the unit in all ranges and gears.

Correct any malfunctions.

Transmission shifting checked

Yes No

17. Brakes

Check operation of brakes.

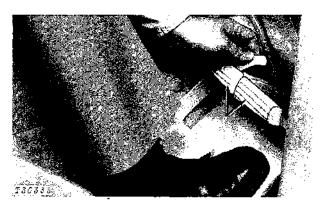


Fig. 24-Hydraulic Brakes

To stop the machine, push down both brake pedals. The machine must not pull to one side when stopping.

Turn to the left (L.H.). Push down the left (L.H.) brake pedal as you turn. Turn to the right (R.H.), Push down the right (R.H.) pedal as you turn.

The operator must feel the braking action pulling the machine to the left (L.H.) or right (R.H.). Brake action must be the same for both brakes.

Hydraulic brakes checked

es No

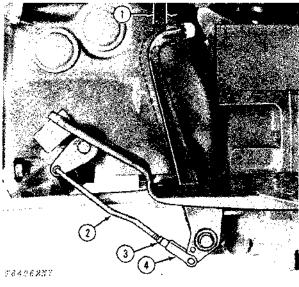
18. Clutch Pedal Free Travel

Without Reverser

Check the free travel of the clutch pedal. Free travel (1, Fig. 25) must be 1/2 in. (13 mm) to 1 in. (25 mm).

IMPORTANT: Do not operate the machine when the free travel of the clutch pedal is less than 1/2 inch (13 mm).

See page 10-10-25 for adjustment of free travel.



1—Specified Free Travel 2—Clutch Rod 3—Jam Nut 4—Yoke

Fig. 25-Clutch Pedal Free Travel (Without Reverser)

With Reverser

Check the free travel of the clutch pedal. Push the pedal down to the bottom of the first stage detent. In this position the throwout bearing will be against the clutch fingers. The top right (R.H.) edge of the rear of the pad of the clutch pedal must be 5-1/4 in. (133 mm) to 5-3/4 in. (146 mm) from the front of the bolting flange of the clutch housing. See 1, Fig. 26.

If free travel is more than 5-3/4 in. (146 mm), see page 10-10-25 for adjustment.