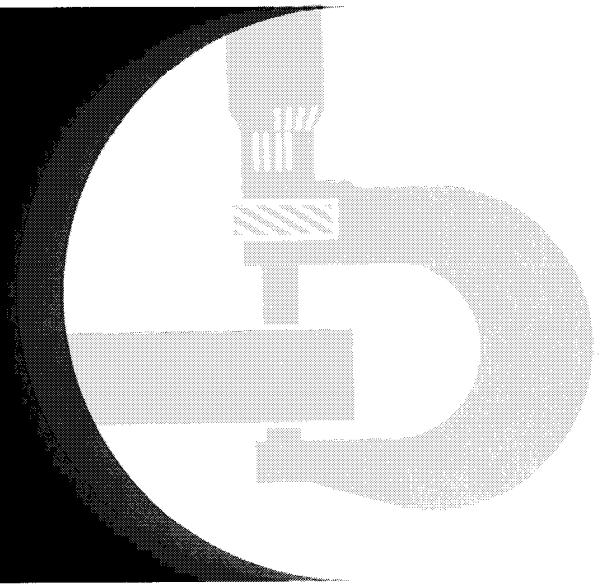


John Deere JD500-C Loader Backhoe



TECHNICAL MANUAL

TM-1038

Litho in U.S.A. (T) Revised

JD500-C Loader Backhoe TECHNICAL MANUAL

TM-1038 (Oct-79)

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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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INTRODUCTION



Use FOS Manuals for Reference



Use Technical Manuals for Actual Service

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

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

- **FOS Manuals—for reference**
- **Technical Manuals—for actual service**

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

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 service technicians and for reference by experienced service technicians.

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.



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 to identify the reference.

Some features of this technical manual:

- *Table of contents at front of manual*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications grouped for easy reference*

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. Read it when you need to know correct service procedures or specifications.

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The full manual is available for immediate download.

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Section 10 GENERAL

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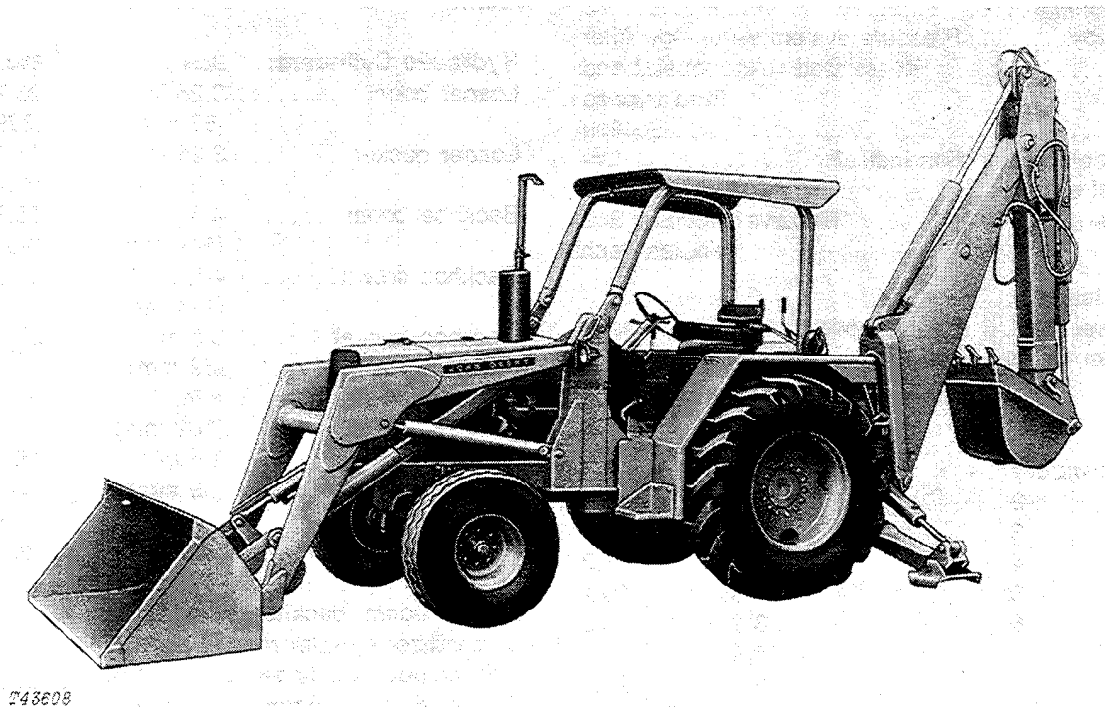


Fig. 1-JD500-C Backhoe Loader

Group 5 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 18.4-28, 8 ply rating rear tires; 14.5/75-16, 10 ply rating front tires; 1 cu. yd. (0.76 m³) loader bucket, 24 in. (610 mm) standard backhoe bucket and standard equipment.)

Power (@ 2500 engine rpm):	SAE	DIN
Gross	83 hp (61.9 kW*)	
Net	80 hp (59.7 kW)	85.0 PS

Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator and muffler. Gross engine power is without fan. Flywheel power ratings are under SAE standard conditions of 500 ft. altitude and 85°F temperature and DIN 70 020 standard conditions of 760 mm Hg barometer (sea level) and 20°C temperature.

*In the International System of Units (SI), power is expressed in kilowatts (kW).

Engine: John Deere diesel, 4-cylinder, 4-stroke cycle
 Bore and stroke 4.25x4.75 in. (108x121 mm)
 Piston displacement 270 cu. in. (4425 cm³)
 Compression ratio 17.3 to 1
 Maximum torque
 @ 1300 rpm 202 lb-ft (274 Nm) (27.9 kg-m)
 NACC or AMA (U.S. Tax) horsepower 28.9
 Main bearings 5
 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 (two 6 volt) Reserve capacity: 340 minutes each

Transmission:
 Full Power Shift. 8 speeds forward, 4 reverse: Power Shift from forward to reverse in first 4 gears.

Gear:	Travel Speeds:	
	mph	kmh
Forward 1	1.7	2.7
2	2.4	3.9
3	3.8	6.1
4	4.9	7.9
5	6.3	10.1
6	8.1	13.0
7	10.8	17.4
8	18.0	29.0
Reverse 1	2.0	3.2
2	2.8	4.5
3	4.4	7.1
4	5.7	9.2

Final Drives Inboard, planetary
Brakes ...Hydraulically power actuated, full enclosed wet-disk. Self-equalizing. Foot-operated individually or simultaneously.

Steering: Power
 Turning radius (brake applied) .. 11 ft. 2 in. (3.40 m)
 Loader clearance (brake applied)... 33 ft. (10.06 m)
 Number of turns, far left to far right 5

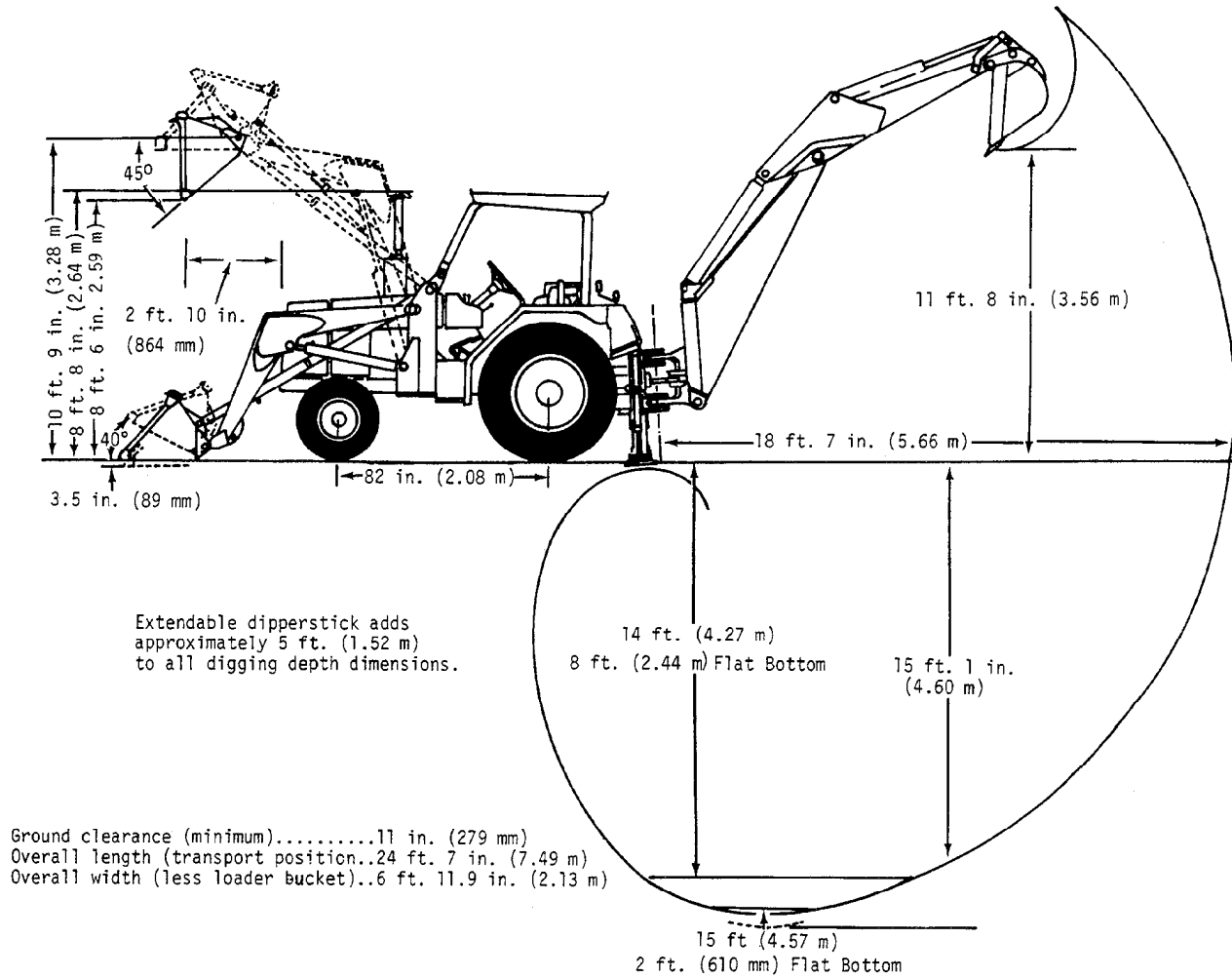
Hydraulic System: Closed-center

Pressure 2350 psi (16 203 kPa) (165.2 kg/cm²)
 Loader control..... Single-lever
 Backhoe control Two-lever
 Pump... Piston, constant pressure, variable-displacement, 38 gpm (144 L/min) @ 2500 engine rpm
 Filter...25 micron steel-enclosed paper cartridge in return

Hydraulic Cylinders:	Bore	Stroke
Loader boom	3.25 in. (83 mm)	28.7 in. (729 mm)
Loader bucket.....	3.25 in. (83 mm)	16.7 in. (424 mm)
Backhoe boom	4.5 in. (114 mm)	36.7 in. (932 mm)
Backhoe crowd.....	4.5 in. (114 mm)	35.5 in. (902 mm)
Backhoe bucket	3.5 in. (89 mm)	27.37 in. (695 mm)
Backhoe swing	4 in. (102 mm)	9.31 in. (237 mm)
Stabilizer	3.5 in. (89 mm)	16.9 in. (429 mm)

Cylinder rods.. Ground, heat-treated, chrome-plated, polished
 Loader boom, backhoe swing and stabilizer cylinder rods 1.75 in. (44 mm) dia.
 Loader bucket cylinder rods .. 1.50 in. (38 mm) dia.
 Backhoe crowd, boom and bucket cylinder rods 2.25 in. (57 mm) dia.

JD500-C BACKHOE LOADER DIMENSIONS



T57849N

Additional Standard Equipment:

- Differential lock
- Vertical muffler w/rain cap
- Fuel gauge
- Oil pressure indicator light
- Alternator charge indicator light
- Water temperature gauge
- Trans. lube pressure indicator light
- Flat deck w/skid-proof platform
- Rear reflector
- Transistorized voltage regulator
- Key switch w/push-button safety start
- Lights

- Cold weather starting aid
- Fenders
- Horn
- Bucket-level indicator
- Electric hour meter
- Foot throttle
- Cigar lighter
- Trans. temp. gauge
- Tachometer
- Hand throttle
- Antifreeze
- Deluxe swing-around seat
- Vandal protection

Special Equipment:

- Exhaust extension
- ROPS w/canopy and seat belt
- Steel bucket teeth for loader
- Cab (includes ROPS, front windshield wiper, seat belt and exhaust extension)
- Cab pressurizer
- Cab heater
- Cab defroster
- Ripper tooth for backhoe
- Bolt-on stabilizer street pads
- Extendable dipperstick
- Parking brake w/warning system
- ADCO buckets for backhoes
- Back-up alarm
- Counterweights
- Seat belt - 3 in. (76 mm)
- Reversible stabilizer pads

SAE Operating Weight.....15,660 lb. (7 103 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 JD500-C operator's manual.

1. Check battery electrolyte level and charge the battery, if necessary.
2. Check coolant level. Maintain 1-1/2 in. above header plate in tank top.
3. Fill the fuel tank.
4. Check crankcase oil level. Oil should be between marks on dipstick after machine has been shut down for 10 minutes.
5. Relieve hydraulic pressure by stopping engine, lowering backhoe and loader to ground, and operating control levers and steering wheel until system fails to respond.
6. Reduce shipping pressure of all tires to inflation pressure shown on page 10-10-14.
7. Cover unit for protection and cleanliness.

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.

If adjustments are required, procedures are found in the after-sale section.

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

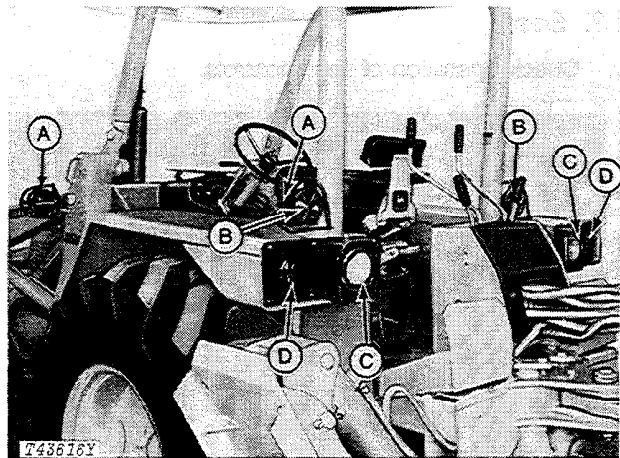
1. Cab Accessories

Check operation of windshield wiper, horn, seat belt, pressurizer, heater, defroster, dome light, etc.

Cab accessories checked Yes No

2. Lights

Check operation of all lights.



A—Loader Frame Headlights C—Combination Rear Lamps
B—Warning Lamps D—Reflectors

Fig. 1-Backhoe Loader Lights

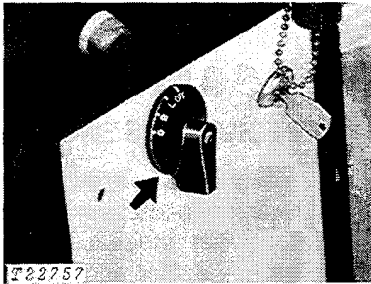


Fig. 2-Light Switch

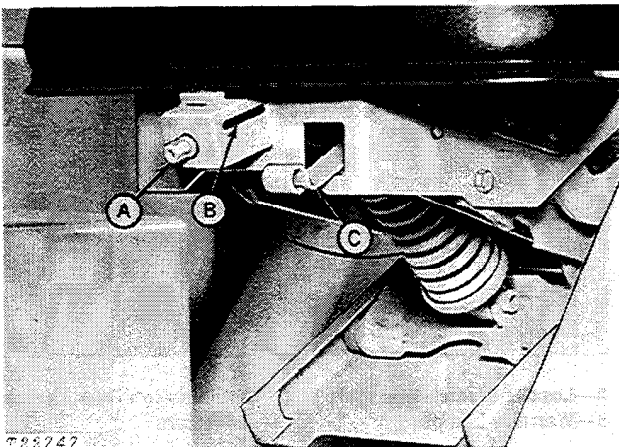
When key switch is turned clockwise to ON, light switch will turn on all machine lights. The light switch has four positions:

- "L" - To turn on all headlights (High) and rear work lights.
- "B" - To turn on all headlights (High), tail lights and flashing warning lamps.
- "D" - To turn on headlights (Dim), tail lights and flashing warning lamps.
- "OFF" - To turn off all lights.

Lights checked	Yes	No
----------------	-----	----

3. Seat

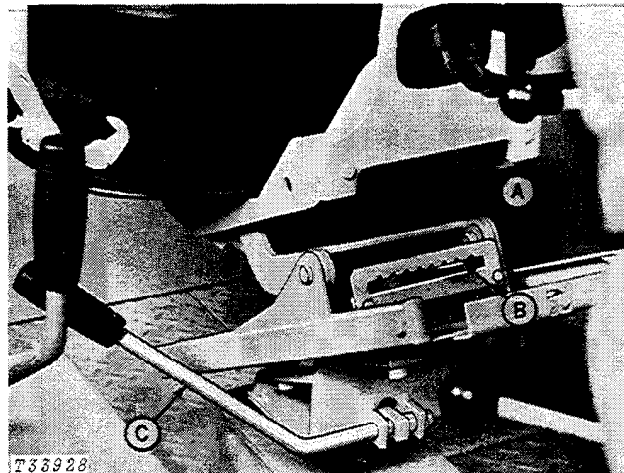
Check operation of seat controls.



A—Weight Adjusting Screw
 B—Indicator
 C—Seat Release Latch

Fig. 3-Seat Controls

To move the seat up and back, stand up and lift seat release latch. The seat will move automatically to upper rear position. Sit down to return seat to preset operating position.



A—Counterbalance Shaft
 B—Seat Position Selector Lever
 C—Seat Pivot Release Lever

Fig. 4-Seat Controls

To adjust for height, move seat to upper, rear position. Then shift seat position selector lever between "short" and "tall" until pedals and levers can be operated comfortably when you are seated. The seat will always return to this position when you sit down after having moved the seat up to the rear.

To adjust for weight, turn weight-adjusting screw clockwise or counterclockwise until indicator conforms to your weight.

To change position of seat for either backhoe or loader operation, raise pivot release lever and turn seat until it locks into new position.

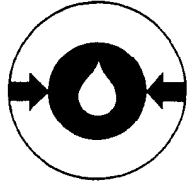
To change position of seat for either backhoe or loader operation, raise pivot release lever and turn seat until it locks into new position.

If seat does not move fully to rear when unlatched, adjust counterbalance spring as follows: Move seat to upper rear position. Insert a screwdriver in slot in counterbalance shaft, push in to unlatch shaft, and turn shaft counterclockwise. Align latch in end of shaft with one of the pairs of slots in the side of seat support and pull screwdriver outward to latch shaft.

Seat operation checked	Yes	No
------------------------	-----	----

4. Indicator Lights

Check operation of indicator lights. All four indicator lights (Figs. 5-8) glow when key switch is turned to ignition.



T22738

Fig. 5-Engine Oil Pressure Indicator Light

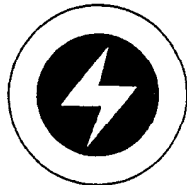
If light glows red when engine is running, stop engine immediately and determine cause.



T22740

Fig. 6-Transmission Oil Filter Indicator Light

After engine starts, light may glow while transmission oil is cold. If light glows when oil is warm, stop engine and change transmission filter element.



T22737

Fig. 7-Alternator Indicator Light

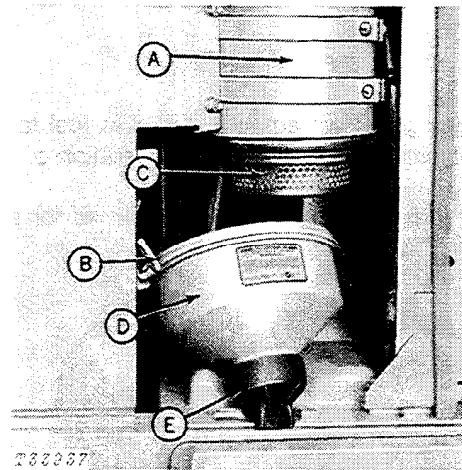
Light glows red when alternator is not charging. When light goes on with engine running, stop engine and determine cause.



T22739

Fig. 8-Air Filter Indicator Light

If light stays on after engine starts, clean and service air cleaner element.



T22337

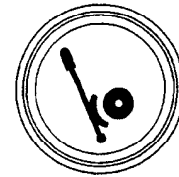
A—Air Cleaner Body
 B—Clamp
 C—Element

D—Dust Cup
 E—Unloader Valve

Fig. 9-Air Cleaner

Check for restrictions. Replace element if necessary.

NOTE: Indicator light will not signal correctly if the element is ruptured or improperly sealed in air cleaner housing.



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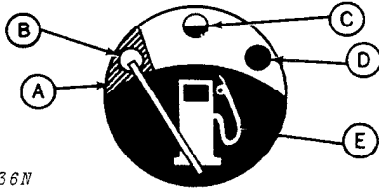
Fig. 10-Parking Brake Indicator Light

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

Indicator lights checked	Yes	No
Air filter element cleaned	Yes	No

5. Gauges

Check operation of gauges.



T 22736N

A—Warning Zone
 B—Empty Tank
 C—Half-Full Tank

D—Full Tank
 E—Fuel

Fig. 11-Fuel Gauge

Fuel gauge shows amount of fuel in fuel tank. Fill fuel tank with proper fuel. Check operation of gauge.

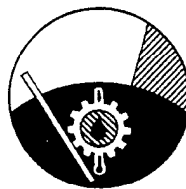
Open fuel tank drain cock. Drain liquid for several seconds. Close drain cock.



T 22741

Fig. 12-Engine Coolant Temperature Gauge

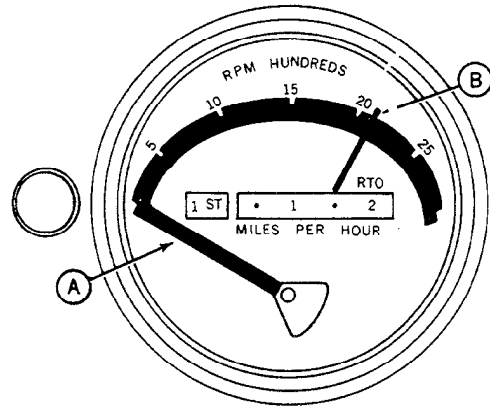
White zone shows normal operating temperature. If indicator hand enters red-orange warning zone (striped area in Fig. 12), stop engine and determine cause.



T 22742

Fig. 13-Transmission Oil Temperature Gauge

White zone shows normal operating temperature. If indicator hand enters red-orange warning zone (striped area in Fig. 13), stop engine and determine cause.



T 57845N

Fig. 14-Tachometer

Pointer A shows miles per hour up to 22 mph.

Pointer B shows rpms up to 2650 rpm (fast idle).

Warm up engine and check engine speeds. Slow idle should be 800 rpm. Fast idle 2650 rpm.

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

Gauges checked	Yes	No
Fuel tank filled	Yes	No
Fuel tank sediment drained	Yes	No
Engine speeds checked	Yes	No

6. Foot Controls

Check operation of all foot controls.

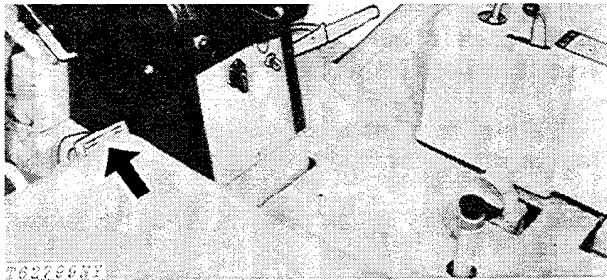


Fig. 15-Inching Pedal

While driving the backhoe loader, depress the inching pedal completely. The transmission should disengage the drive wheels.

If adjustment is needed see page 10-10-21.

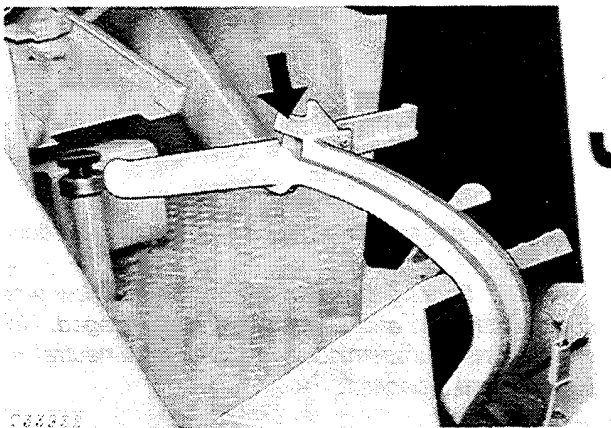


Fig. 16-Brake Pedals and Pedal Bar

Check brake system for leaks or improper operation.

Put backhoe loader in gear and depress brake pedal. Moderate pedal force should hold backhoe loader in place.

If pedal force does not hold backhoe loader in place, pedal feels spongy or bottoms out, repair is required, or system may require bleeding (page 10-10-21).

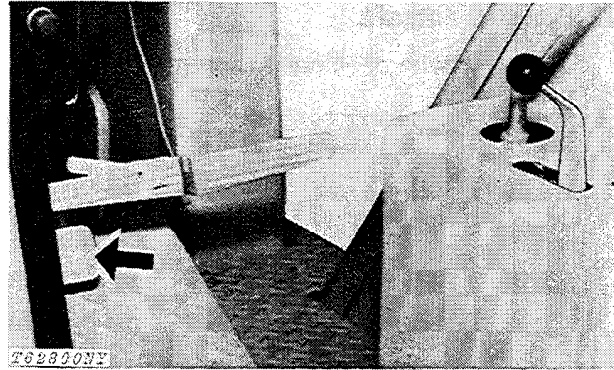


Fig. 17-Foot Throttle

Use foot throttle to speed up engine quickly. When foot throttle is released, engine speed returns to hand throttle setting.

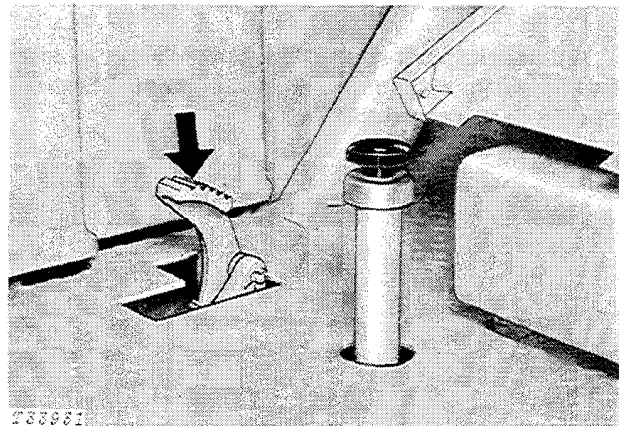


Fig. 18-Differential Lock Pedal

Run the engine. Put the transmission in park. Engage the differential lock. Turn the steering wheel. If the differential lock is working correctly, resistance will be felt.

To disengage differential lock, depress one or both brake pedals.

CAUTION: Do not attempt to turn or operate at high speed with differential lock engaged.

Foot controls checked

Yes No



Suggest:

If the above button click is invalid.

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7. Hand Controls

Check operation of all hand controls.

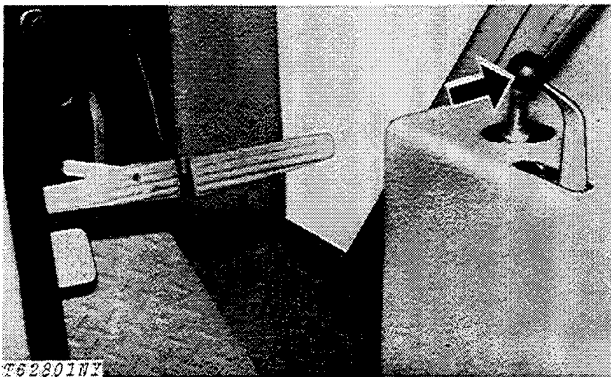
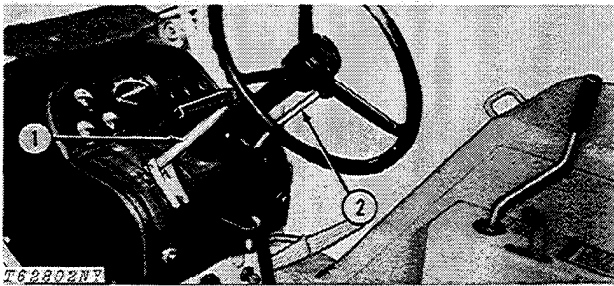


Fig. 19-Hand Throttle

Push throttle forward to speed up engine.

An adjustable throttle stop on the throttle lever bracket limits engine speed to 2200 rpm. The hand throttle can override this stop.



1—Reverser Lever 2—Transmission Shift Lever

Fig. 20-Transmission Shift Controls

Check operation of transmission in all gears.

The power shift transmission can be shifted "on the go" or when the machine is stopped by moving the shift lever and reverser lever to the desired position. It is not necessary to use inching pedal when starting out or when shifting.

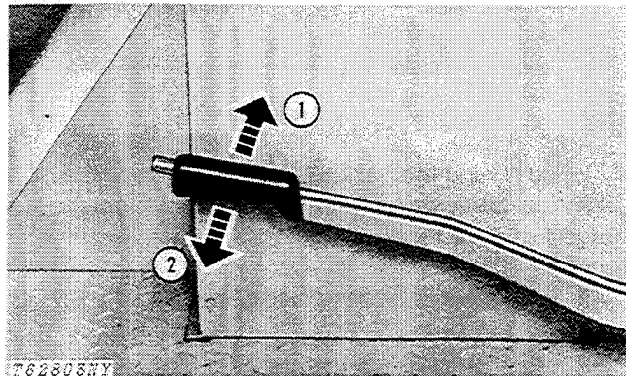
To move forward, push reverser lever into forward position and move shift lever to desired gear. Shift one gear at a time.

To reverse the machine when operating in one of the first four gears, pull the reverser lever rearward to the reverse (R) position. When shift lever is in 5th gear or higher, the reverser lever cannot be put in reverse.

A backup alarm sounds at intervals when machine is operated in reverse.

Reduce engine speed before making sudden speed changes. Use hand rail beside shift lever to aid shifting when traveling over rough ground.

The transmission speed of shift may be adjusted for rapid shift or smooth shift. See page 10-10-23.



1—Engaged

2—Disengaged

Fig. 21-Parking Brake

1. To engage, pull up.
2. To disengage, press button and push lever down.

NOTE: Parking brake warning light will glow when key switch is on and parking brake is engaged. Horn will blow also if transmission is shifted from neutral with parking brake applied.

If adjustment is needed, see page 10-10-23.

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