

**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)

CONTENTS

SECTION 10 - GENERAL

- Group 5 - Specifications
- Group 10 - Predelivery, Delivery, and After-Sale Services
- Group 15 - Tune-Up
- Group 20 - Lubrication
- Group 25 - Separation

SECTION 20 - ENGINE

- Group 5 - Diagnosis
- Group 10 - Basic Engine
- Group 15 - Lubrication System
- Group 20 - Speed Control Linkage
- Group 25 - Cooling System
- Group 30 - Specifications and Special Tools

SECTION 30 - FUEL SYSTEM

- Group 5 - Diagnosis
- Group 10 - Fuel Tank, Transfer Pump, and Filter
- Group 15 - Air Intake System
- Group 20 - Fuel Injection Pump

SECTION 40 - ELECTRICAL SYSTEM

- Group 5 - General Information and Wiring Diagrams
- Group 10 - Charging System
- Group 15 - Starting Circuit
- Group 20 - Lights, Accessories and Instruments

SECTION 50 - POWER TRAIN

- Group 5 - Diagnosis
- Group 10 - Clutches for Collar-Shift Transmission and PTO
- Group 15 - Collar Shift Transmission
- Group 20 - Collar Shift PTO
- Group 25 - Engine Disconnect Clutch
- Group 30 - Power Shift Transmission
- Group 35 - Power Shift PTO
- Group 40 - Differential
- Group 45 - Final Drive

SECTION 60 - STEERING AND BRAKES

- Group 5 - General Information

SECTION 70 - HYDRAULIC SYSTEM

- Group 5 - General Information, Diagnosis, and Tests
- Group 6 - System Testing (Analyzer)
- Group 10 - Hydraulic Components
- Group 15 - Hydraulic Pump
- Group 20 - Power Steering
- Group 25 - Power Brakes
- Group 30 - Loader Control Valve
- Group 35 - Backhoe Control Valve (9500 and 9705)
- Group 36 - Extendible Dipperstick Control Valve and Linkage
- Group 40 - Cylinders
- Group 45 - 9500 Backhoe Swing Cylinder

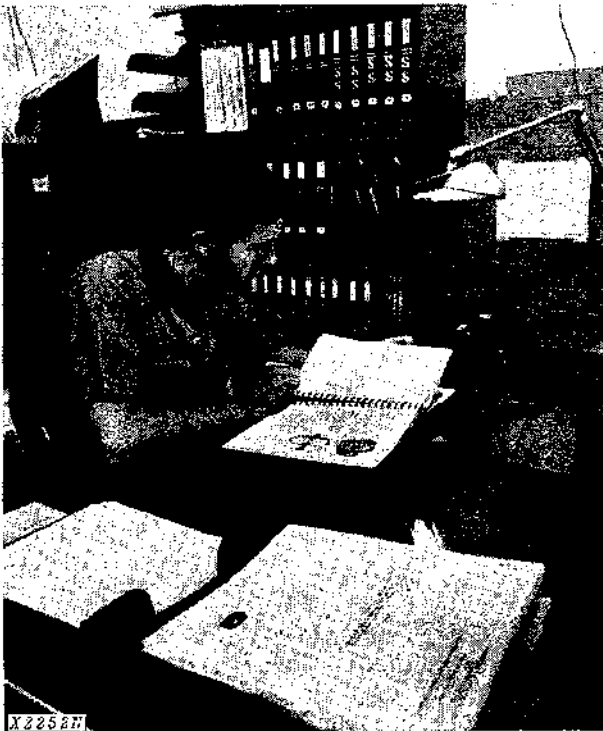
SECTION 80 - MISCELLANEOUS

- Group 5 - Front Axle and Pivot Bracket
- Group 10 - Loader Frame, Boom, and Bucket
- Group 15 - Drott 4-in-1 Bucket
- Group 20 - Backhoe Frame, Boom, and Bucket (9500 and 9705)
- Group 25 - Extendible Dipperstick

INDEX

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.


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.

**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

JustClickHere 

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**

**COMPLETE PAGE LISTING
 WITH LATEST DATE LINES**

1,2	(Oct-79)	30-5-1,2	(Jan-71)
3,4	(Dec-80)	30-10-1,2	(Jan-74)
		30-10-3,4	(Nov-78)
10-5-1,2	(Oct-79)	30-15-1,2	(May-77)
10-5-3,4	(Oct-79)	30-20-1,2	(Nov-78)
10-10-1,2	(Nov-78)	30-20-3,4	(Nov-78)
10-10-3,4	(Nov-78)		
10-10-5,6	(Nov-78)	40-5-1,2	(Oct-79)
10-10-7,8	(Nov-78)	40-5-3,4	(May-77)
10-10-9,10	(Dec-80)	40-5-5,6	(Dec-80)
10-10-11,12	(Dec-80)	40-5-7,8	(Dec-80)
10-10-13,14	(Nov-78)	40-5-9,10	(Oct-79)
10-10-15,16	(Dec-80)	40-5-11,12	(Dec-80)
10-10-17,18	(Nov-78)	40-5-13,14	(Oct-79)
10-10-19,20	(Dec-80)	40-5-15,16	(Dec-80)
10-10-21,22	(Nov-78)	40-5-17,18	(Dec-80)
10-10-23,24	(Nov-78)	40-10-1,2	(Nov-78)
10-10-25,26	(Nov-78)	40-10-3,4	(Oct-79)
10-10-27,28	(Dec-80)	40-10-5,6	(Jan-71)
10-10-29,30	(Oct-79)	40-15-1,2	(Dec-80)
10-10-31,32	(Nov-78)	40-15-3,4	(Jun-73)
10-10-33,34	(Dec-80)	40-15-5,6	(Aug-74)
10-15-1,2	(Dec-75)	40-15-7,8	(Sep-73)
10-15-3,4	(Oct-79)	40-15-9,10	(Dec-80)
10-20-1,2	(Nov-78)	40-15-11,12	(Sep-73)
10-25-1,2	(Dec-75)	40-15-13,14	(Feb-74)
10-25-3,4	(Jan-74)	40-15-15,16	(Dec-80)
10-25-5,6	(Nov-71)	40-15-17,18	(Oct-79)
10-25-7,8	(Feb-74)	40-15-19,20	(Nov-78)
		40-20-1,2	(May-77)
20-5-1,2	(Nov-71)	40-20-3,4	(May-77)
20-5-3,4	(Jan-71)	40-20-5,6	(Oct-79)
20-10-1,2	(Sep-73)	40-20-7,8	(May-77)
20-10-3,4	(Nov-78)	40-20-9,10	(Oct-79)
20-10-5,6	(Jun-73)	40-20-11,12	(May-77)
20-10-7,8	(Nov-78)		
20-10-9,10	(Nov-78)	50-5-1,2	(Nov-78)
20-10-11,12	(Nov-78)	50-10-1,2	(Jan-71)
20-10-13,14	(Nov-78)	50-10-3,4	(Oct-79)
20-10-15,16	(Nov-78)	50-10-5,6	(Jan-71)
20-15-1,2	(Nov-78)	50-10-7,8	(Dec-72)
20-15-3,4	(Nov-78)	50-10-9,10	(Oct-79)
20-20-1,2	(Nov-78)	50-15-1,2	(Jan-71)
20-25-1,2	(Nov-78)	50-15-3,4	(Nov-71)
20-25-3,4	(Nov-78)	50-15-5,6	(Jan-71)
20-30-1,2	(Nov-78)	50-15-7,8	(Mar-73)
20-30-3,4	(Nov-78)	50-15-9,10	(Dec-72)
20-30-5,6	(Nov-78)	50-15-11,12	(Feb-75)
20-30-7,8	(Nov-78)	50-15-13,14	(May-77)

| Vertical lines indicate pages included with this revision.

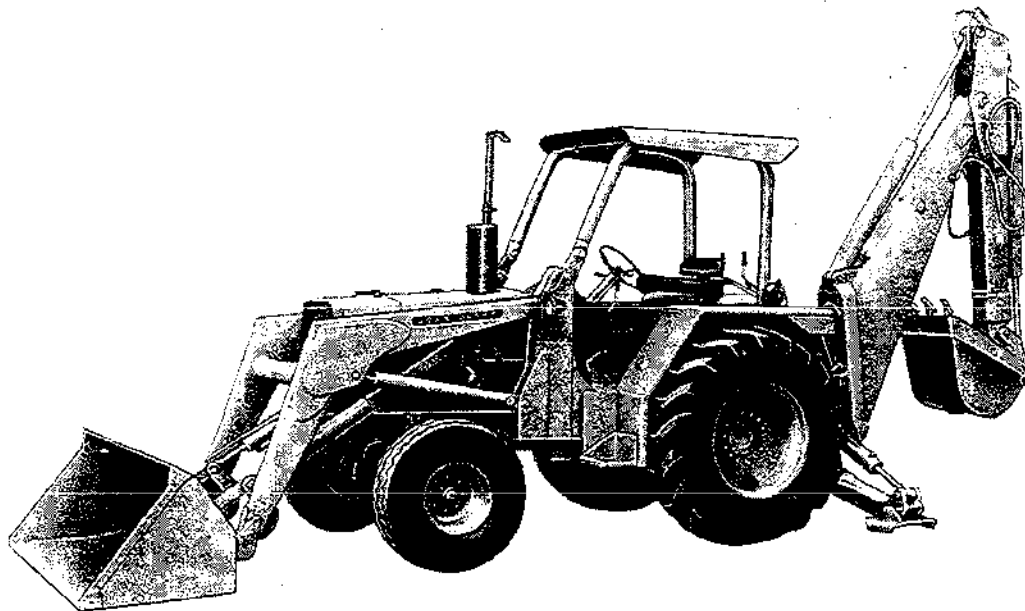
50-20-1,2	(Jan-71)	70-6-3,4	(Jul-77)	70-30-7,8	(Nov-78)
50-20-3,4	(Jan-71)	70-6-5,6	(Oct-79)	70-30-9,10	(Nov-78)
50-25-1,2	(May-77)	70-6-7,8	(Jul-77)	70-35-1,2	(Nov-71)
50-25-3,4	(Jan-74)	70-6-9,10	(Oct-79)	70-35-3,4	(Feb-75)
50-30-1,2	(Jan-71)	70-6-11,12	(Oct-79)	70-35-5,6	(Dec-80)
50-30-3,4	(Jan-71)	70-6-13,14	(Oct-79)	70-35-7,8	(Nov-78)
50-30-5,6	(Jan-71)	70-6-15,16	(Jul-77)	70-35-9,10	(Nov-78)
50-30-7,8	(Jan-71)	70-6-17,18	(Oct-79)	70-36-1,2	(Dec-75)
50-30-9,10	(Jan-71)	70-6-19,20	(Jul-77)	70-40-1,2	(Feb-75)
50-30-11,12	(Jan-71)	70-6-21,22	(Oct-79)	70-40-3,4	(Feb-75)
50-30-13,14	(Oct-79)	70-6-23,24	(Oct-79)	70-40-5,6	(Feb-75)
50-30-15,16	(Dec-80)	70-6-25,26	(Jul-77)	70-40-7,8	(Feb-75)
50-30-17,18	(Dec-80)	70-6-27,28	(Oct-79)	70-40-9,10	(Feb-75)
50-30-19,20	(Nov-78)	70-6-29,30	(Jul-77)	70-40-11,12	(Oct-79)
50-30-21,22	(Oct-79)	70-10-1,2	(Nov-78)	70-40-13,14	(Oct-79)
50-30-23,24	(Nov-78)	70-10-3,4	(Dec-80)	70-40-15,16	(Dec-75)
50-30-25,26	(Nov-78)	70-10-5,6	(Dec-80)	70-40-17,18	(Dec-75)
50-30-27,28	(Nov-78)	70-10-7,8	(Nov-78)	70-45-1,2	(Nov-71)
50-30-29,30	(Nov-78)	70-10-9,10	(Nov-78)	70-45-3,4	(Dec-80)
50-30-31,32	(Oct-79)	70-10-11,12	(Dec-80)	70-45-5,6	(Jan-74)
50-30-33,34	(Nov-78)	70-15-1,2	(Dec-80)		
50-30-35,36	(Nov-78)	70-15-3,4	(Oct-79)	80-5-1,2	(Dec-75)
50-30-37,38	(Nov-78)	70-15-5,6	(Dec-80)	80-5-3,4	(Nov-78)
50-35-1,2	(May-77)	70-15-7,8	(Dec-80)	80-5-5,6	(Oct-79)
50-35-3,4	(Nov-78)	70-15-9,10	(Dec-80)	80-5-7,8	(Oct-79)
50-40-1,2	(Dec-75)	70-20-1,2	(Dec-75)	80-10-1,2	(Jun-73)
50-40-3,4	(May-77)	70-20-3,4	(Nov-71)	80-10-3,4	(Jun-73)
50-40-5,6	(May-77)	70-20-5,6	(Jun-73)	80-15-1,2	(Jan-71)
50-40-7,8	(May-77)	70-20-7,8	(Mar-73)	80-20-1,2	(Jan-74)
50-40-9,10	(Nov-78)	70-20-9,10	(Mar-73)	80-20-3,4	(Jan-74)
50-40-11,12	(Nov-78)	70-20-11,12	(Nov-78)	80-20-5,6	(Nov-71)
50-45-1,2	(Dec-75)	70-20-13,14	(Dec-80)	80-20-7,8	(Nov-78)
		70-20-15,16	(Dec-75)	80-20-9,10	(Jun-73)
60-5-1,2	(Jan-71)	70-20-17,18	(Dec-80)	80-25-1,2	(Dec-75)
		70-20-19,20	(Nov-78)	80-25-3,4	(Dec-75)
		70-20-21,22	(Nov-78)		
70-5-1,2	(Dec-80)	70-25-1,2	(Jan-71)	Index-1,2	(Nov-78)
70-5-3,4	(Nov-78)	70-25-3,4	(Jan-71)	Index-3,4	(Dec-80)
70-5-5,6	(Dec-80)	70-25-5,6	(Jan-74)	Index-5,6	(Nov-78)
70-5-7,8	(Dec-80)	70-25-7,8	(Dec-80)	Index-7,8	(Nov-78)
70-5-9,10	(Dec-80)	70-30-1,2	(Jan-71)		
70-5-11,12	(Dec-80)	70-30-3,4	(Jan-71)		
70-5-13,14	(Dec-80)	70-30-5,6	(Jan-71)		
70-6-1,2	(Jul-77)				

| Vertical lines indicate pages included with this revision.

Section 10 GENERAL

CONTENTS OF THIS SECTION

	Page		Page
GROUP 5 - SPECIFICATIONS		Transmission Hydraulic Oils	20-2
General Machine Specifications	5-2	Greases	20-2
GROUP 10 - PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES		GROUP 25 - SEPARATION	
Predelivery Service	10-1	Removing and Installing	
Delivery Service	10-16	Backhoe	25-1
After-Sale Inspection	10-16	Removing and Installing	
GROUP 15 - TUNE-UP		Loader	25-2
Preliminary Engine Testing	15-1	Removing and Installing Engine	25-3
Engine Tune-Up	15-1	Removing and Installing Engine	
Final Engine Test	15-3	from Front End	25-4
Unit Tune-Up	15-3	Removing and Installing Clutch	
GROUP 20 - LUBRICATION		Housing	25-5
Lubrication Charts	20-1	Removing and Installing Final	
Engine Lubricating Oils	20-2	Drives	25-7
		Torque Values	25-8
		Special Tools	25-8



D43608

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.

Tires:

Front	Rear
14.5/75-16.1, 10 ply rating F3	18.4-28, 8 ply rating, R4
	18.4-28, 12 ply rating, R4

Wheel Treads:

Front	66 in. (1.68 m)
Rear	65.5 in. (1.66 m)

Capacities:	U.S.	Imp.	Liters
Cooling system	4.75 gal.	4.0 gal.	18.0
Fuel tank	34 gal.	28.3 gal.	128.7
Engine lubrication, including filter	8 qt.	6.7 qt.	7.6
Transmission and hydraulic system	21.5 gal.	18.0 gal.	81.4

OPERATING INFORMATION

BACKHOE:

Digging depth (ICED):

Maximum	15 ft. 1 in. (4.60 m)
2 ft. (610 mm) flat bottom	15 ft. (4.57 m)
8 ft. (2.44 m) flat bottom	14 ft. (4.27 m)

Swing arc.....180 deg.

Lifting capacity:

Boom at full reach and full height	1950 lb. (884 kg)
Dipper lifting, boom holding, full height	3300 lb. (1497 kg)

Digging force (bucket cylinder
in power-dig
position)..... 9650 lb. (43.25 kN) (4377 kg)

Digging force,
crowd cylinder 7158 lb. (32.08 kN) (3247 kg)

Reach from center of swing
mast 18 ft. 7 in. (5.66 m)

Reach from center of rear
axle 22 ft. 1 in. (6.73 m)

Loading height
(truck-loading position) 11 ft. 8 in. (3.56 m)

Transport height 11 ft. 8 in. (3.56 m)

Bucket rotation . Adjustable for 123, 126 or 154 deg.

Bucket positions... Adjustable for 22 or 13 deg. roll-
back and 2 deg. forward

Stabilizer Width:

Transport position	7 ft. 3 in. (2.21 m)
Operating position (overall)	10 ft. 2 in. (3.10 m)
Operating position (ICED)	8 ft. 9 in. (2.67 m)

LOADER:

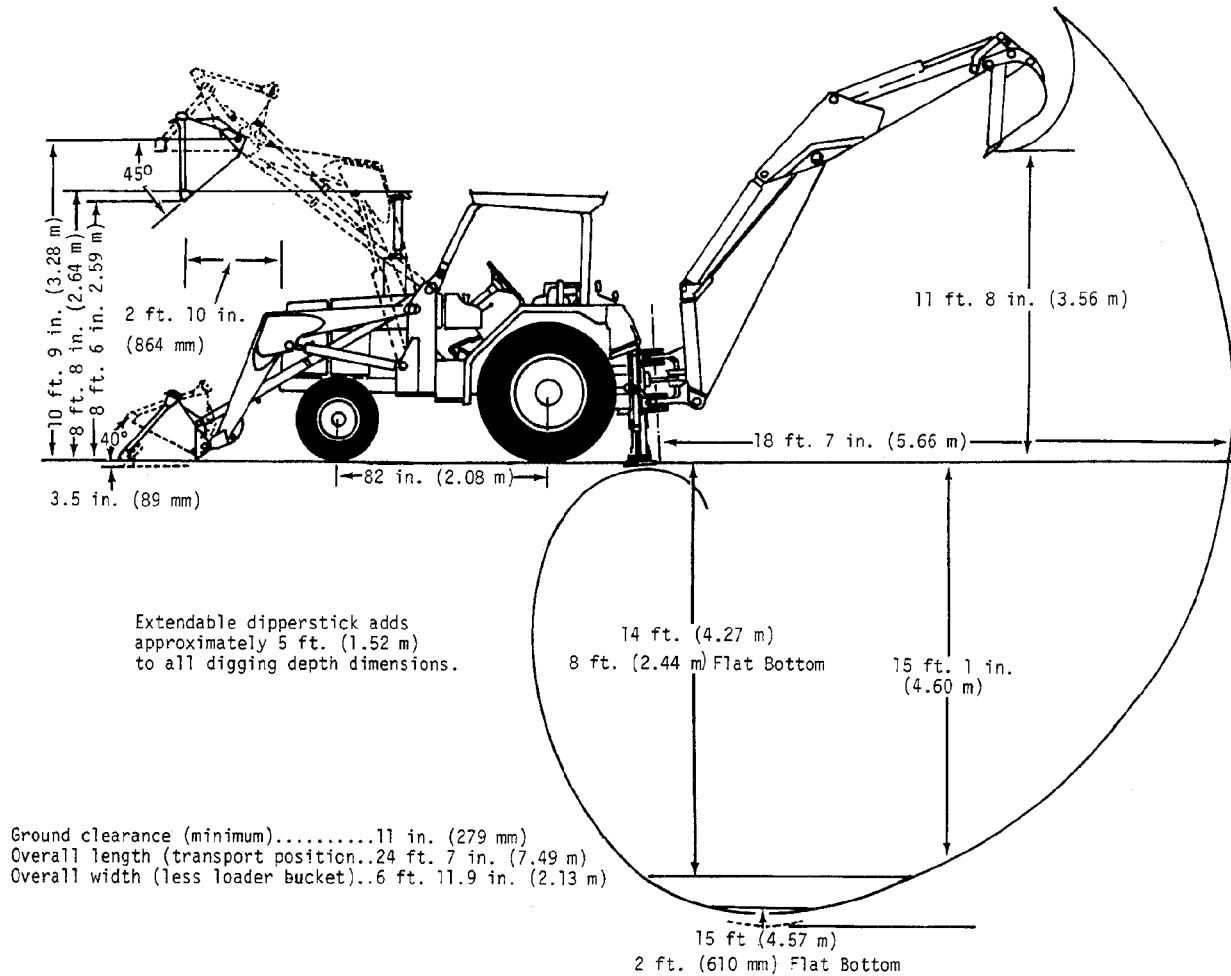
Rollback at ground level	40 deg.
Breakout force	7800 lb. (34.96 kN) (3538 kg)
Digging depth below ground level (with bucket level)	3.5 in. (89 mm)
Lifting capacity, full height	5300 lb. (2404 kg)
Height to bucket hinge pin	10 ft. 9 in. (3.28 m)
Maximum dump angle	60 deg.
Clearance, bucket dumped at 45 degrees	8 ft. 6 in. (2.59 m)
Reach at maximum height, bucket dumped at 45 degrees	2 ft. 10 in. (864 mm)
Raising time to full height	4.5 sec.
Bucket dump time	1.5 sec.
Lowering time (power)	3.0 sec.

Buckets:

	Nominal Heaped Capacity	Width
Loader		
General		
Purpose	1 cu. yd. (0.76 m ³)	89.4 in. (2.27 m)
Light		
Materials	1-1/4 cu. yd. (0.96 m ³)	89.4 in. (2.27 m)

	Struck Capacity	Width
Backhoe:		
Standard		
	2.5 cu. ft. (0.071 m ³)	12 in. (305 mm)
	3.6 cu. ft. (0.102 m ³)	16 in. (406 mm)
	4.4 cu. ft. (0.125 m ³)	18 in. (457 mm)
	6.0 cu. ft. (0.170 m ³)	24 in. (610 mm)
	7.6 cu. ft. (0.215 m ³)	30 in. (762 mm)
	7.2 cu. ft. (0.204 m ³)	36 in. (914 mm)
Heavy-duty		
	4.4 cu. ft. (0.125 m ³)	18 in. (457 mm)
	6.0 cu. ft. (0.170 m ³)	24 in. (610 mm)
	7.6 cu. ft. (0.215 m ³)	30 in. (762 mm)
Ejector		
	4.2 cu. ft. (0.119 m ³)	24 in. (610 mm)

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.

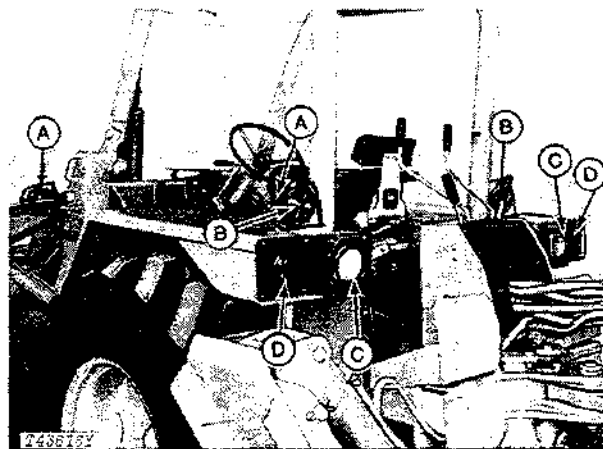
1. Cab Accessories

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

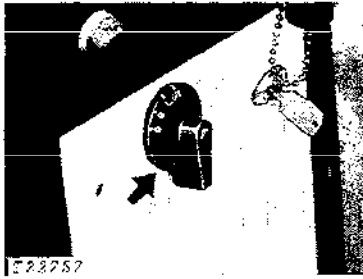


Fig. 2-Light Switch

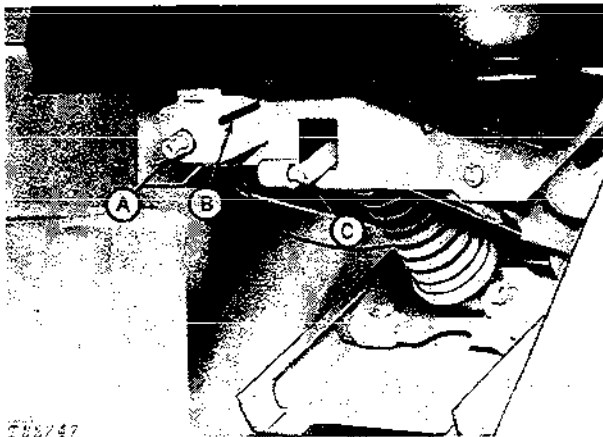
When key switch is turned clockwise to ON, light switch will turn on all machine lights. The light switch has four positions:

- "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

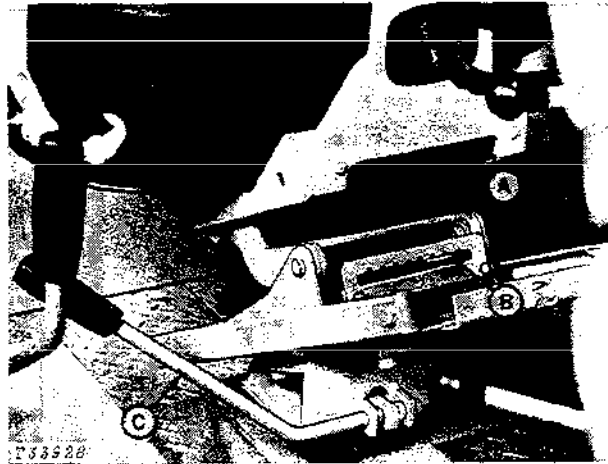
Check operation of seat controls.



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.

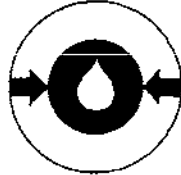
To change position of seat for either backhoe or loader operation, raise pivot release lever and turn seat until it locks into new position.

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

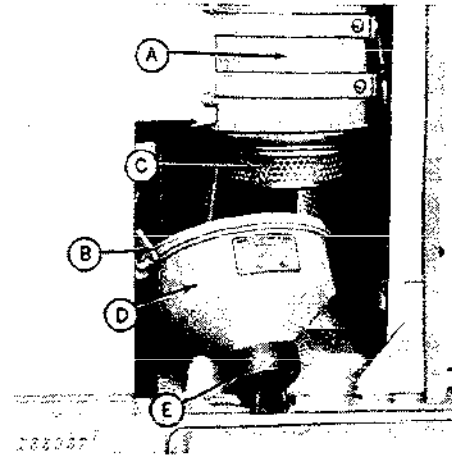
Light glows red when alternator is not charging. When light goes on with engine running, stop engine and determine cause.



T22739

Fig. 8-Air Filter Indicator Light

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



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.



T52798N

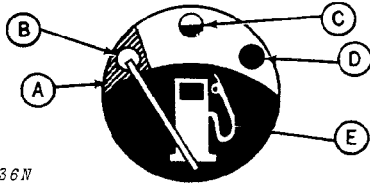
Fig. 10-Parking Brake Indicator Light

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.



T22736N

- 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.

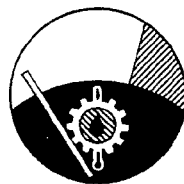
Open fuel tank drain cock. Drain liquid for several seconds. Close drain cock.



T22741

Fig. 12-Engine Coolant Temperature Gauge

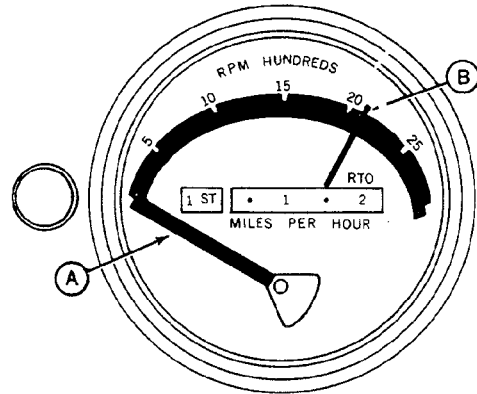
White zone shows normal operating temperature. If indicator hand enters red-orange warning zone (striped area in Fig. 12), stop engine and determine cause.



T22742

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.



T57845N

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.

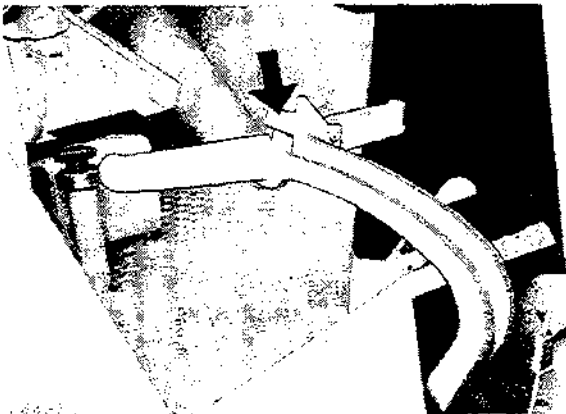


Fig. 16-Brake Pedals and Pedal Bar

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).

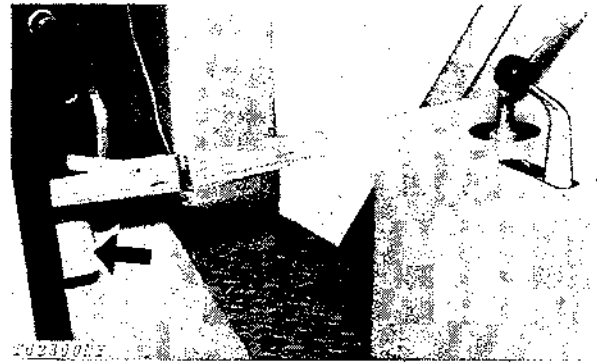


Fig. 17-Foot Throttle

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

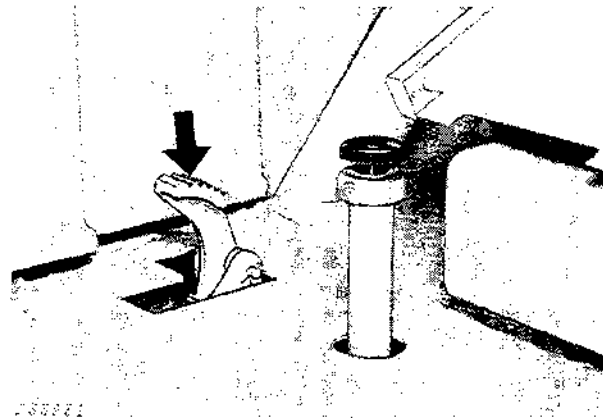


Fig. 18-Differential Lock Pedal

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

7. Hand Controls

Check operation of all hand controls.

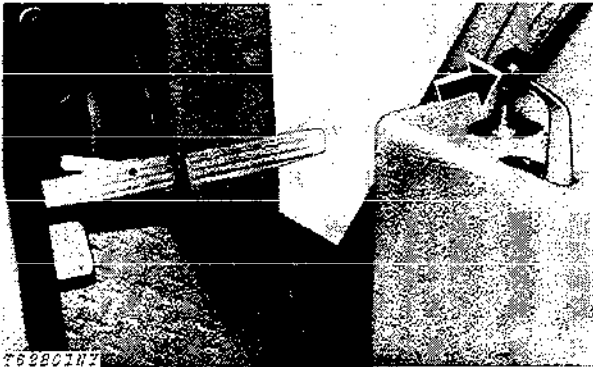
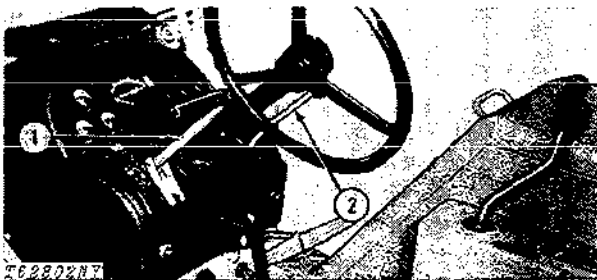


Fig. 19-Hand Throttle

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.

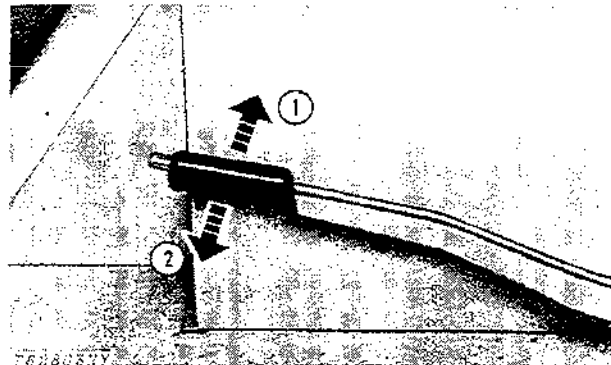
To move forward, push reverser lever into forward position and move shift lever to desired gear. Shift one gear at a time.

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

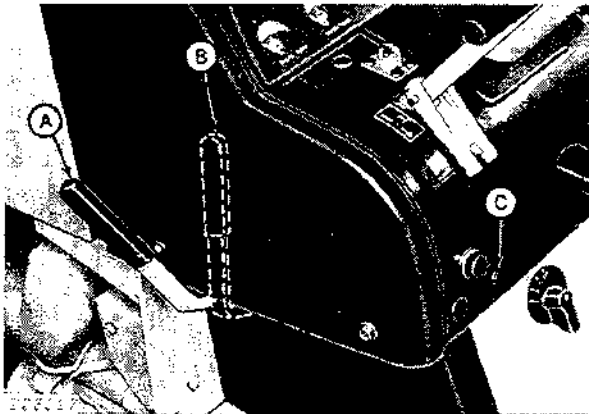
2—Disengaged

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.



A—Engaged
 B—Disengaged
 C—Release Button

Fig. 22-Transmission Disconnect Lever

During cold weather, increase engine cranking speed by disengaging transmission from engine. Pull disconnect lever rearward until it is latched in disengaged position.

IMMEDIATELY after engine starts, engage lever by pulling it slightly rearward. Push release button in and allow lever to move forward to engaged position.

IMPORTANT: To avoid damage to main hydraulic pump, engage the disconnect clutch as soon as the engine starts.

Hand controls checked Yes No

8. Loader Control

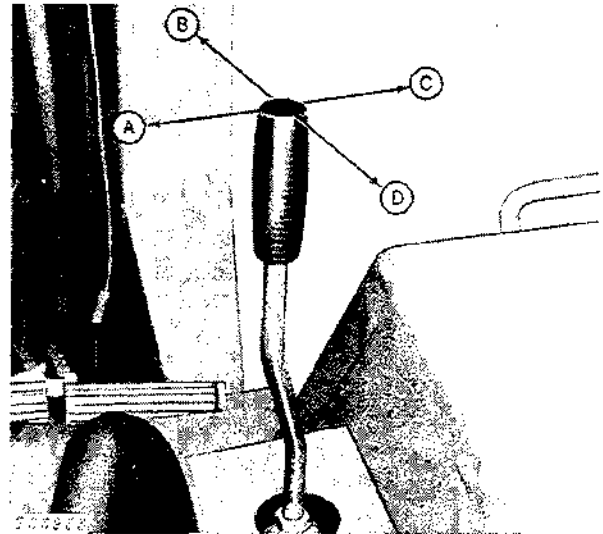
Check operation of boom and bucket lever.

Boom and bucket lever operates when engine is running.

If the lever is released at any time during normal loader operation, it will return to neutral and the boom and bucket will be held in position reached at that time.

Push control lever all the way forward for float position. Lever will stay in this position until it is manually returned to neutral.

When lever is in float position, boom moves freely up or down as bucket follows contour of ground.



A—Retract Bucket
 B—Lower Boom
 C—Dump Bucket
 D—Raise Boom

Fig. 23-Boom and Bucket Control Lever

Push lever to right to dump bucket. Push lever beyond stop for maximum speed.

For most accurate control and maximum power of the bucket cutting edge, do not move control lever beyond the stop.

When retracting the bucket, move lever all the way left for maximum power.

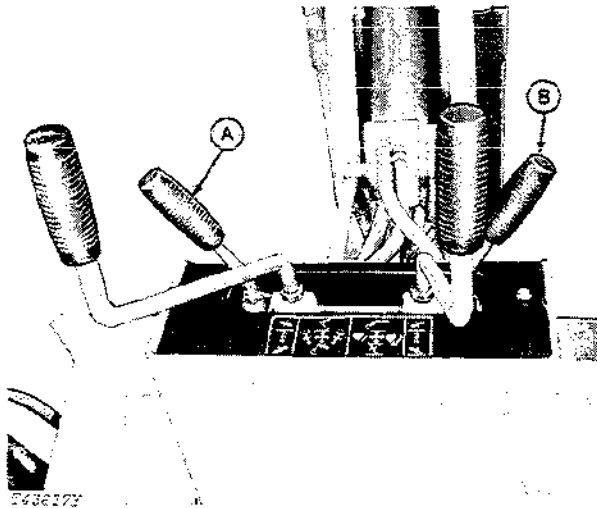
IMPORTANT: Do not hold lever in power position A or C after cylinder has completed its stroke.

Loader control lever checked Yes No

9. Backhoe Controls

Check operation of backhoe control levers.

CAUTION: Operate backhoe from operator's seat only.



A—Left Stabilizer Lever B—Right Stabilizer Lever

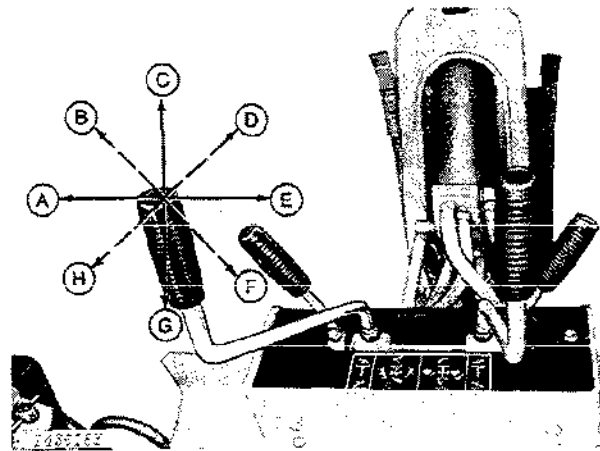
Fig. 24-Stabilizer Control Levers

The right and left stabilizer legs on each side of the main frame are individually controlled by two levers. The stabilizers may be raised or lowered individually, or at same time.

To lower stabilizers, move control levers forward. To raise them, pull levers rearward.

CAUTION: To avoid tipping when operating backhoe, extend stabilizer legs to widest position.

CAUTION: Use caution when raising the stabilizers. Remember that the stabilizers may be the only restraint preventing the machine from rolling into the excavation.



A—Left
B—Left and Down
C—Down
D—Right and Down
E—Right
F—Right and Up
G—Up
H—Left and Up

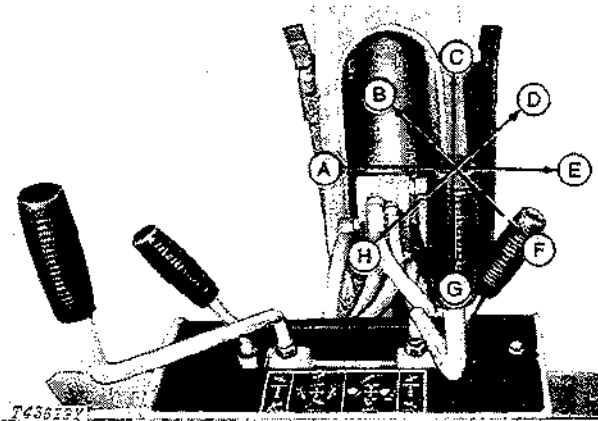
Fig. 25-Boom Control Lever

Boom control lever raises or lowers boom, and swings it to left or right.

To lower boom push control lever forward. To raise boom move lever rearward. To swing left move lever left; to swing right move lever right.

Move lever to an intermediate position to swing boom left or right at same time it is being raised or lowered.

A swing brake, built into the swing cylinder, automatically slows boom before it strikes stops on main frame.



- | | |
|----------------|---------------|
| A—Load | E—Dump |
| B—Out and Load | F—In and Dump |
| C—Bucket Out | G—Bucket In |
| D—Out and Dump | H—In and Load |

Fig. 26—Bucket and Dipperstick Control Lever

To extend dipperstick (move bucket out) move control lever forward, to retract it (move bucket in) move lever rearward.

To dump bucket move control lever to right; to load it move lever to left.

Move lever to an intermediate position, to extend or retract dipperstick at same time bucket is being loaded or dumped.

Backhoe controls checked Yes No

10. Cycle Times

Check backhoe and loader hydraulic function cycle times.

NOTE: Operate each hydraulic control function until all air has been bled from the hydraulic system. Check for freedom of movement of all controls and proper direction of travel before checking cycle times.

The following times should be used as a guide. If cycle times vary greatly from those listed, trouble shoot the hydraulic system. Check cycle times with oil warm and engine at 2500 rpm.

Backhoe cycle times:

- | | |
|---------------------------|--------------------|
| Bucket curl | 3.5 seconds max. |
| Bucket dump | 2.5 seconds max. |
| Swing (180 degrees) | 3.0 to 5.0 seconds |

Loader cycle times:

- | | |
|-----------------------------------------|------------------|
| Boom raise | 4.8 seconds max. |
| Boom lower (power) | 4.0 seconds max. |
| Boom lower (float) | 5.5 seconds max. |
| Bucket dump (boom at full height) | 2.3 seconds max. |

Cycle times checked Yes No