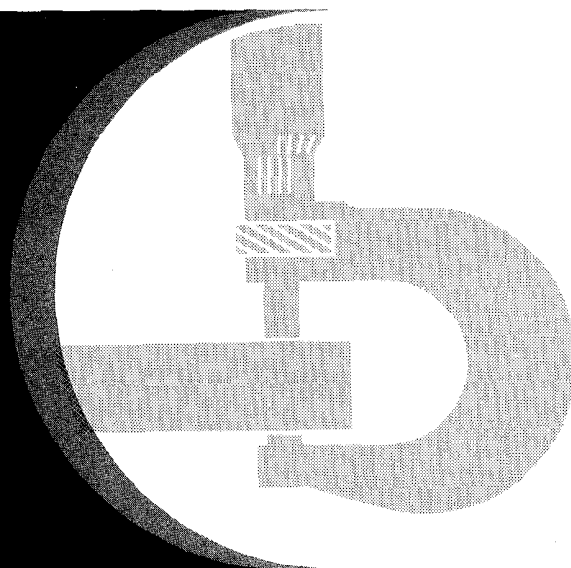


John Deere JD544 and JD544-A Loaders



Technical Manual

**John Deere Dubuque Works
TM-1002 (May-80)**



LITHO IN U.S.A.

JD544 AND JD544-A LOADERS

TECHNICAL MANUAL

TM-1002 (Apr-74)

CONTENTS

Section 10—GENERAL

- Group 5 Specifications
- Group 10 Predelivery, Delivery, and After-Sales Services
- Group 15 Tune-up and Adjustment
- Group 20 Lubrication
- Group 25 Loader Separation

Section 20—ENGINE

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

Section 30—FUEL SYSTEM

- Group 5 Diagnosis
- Group 10 Tank, Filters, and Transfer Pump
- Group 15 Air Intake System
- Group 20 Fuel Injection Pump
- Fuel Injection Nozzles (see SM-2045)

Section 40—ELECTRICAL SYSTEM

- Group 5 Wiring Diagrams
- Group 10 Charging System
- Group 15 Starting Circuit
- Group 20 Gauges and Switches

Section 50—POWER TRAIN

- Group 5 Damper and Drive Shafts
- Group 10 Transmission Assembly
- Group 11 Disconnect Output Shaft
- Group 15 Axle Assemblies
- Group 20 Differentials

Section 60—POWER STEERING AND BRAKE SYSTEMS

- Group 5 General Information, Testing, and Diagnosis
- Group 10 Hydraulic Pump (3.01 cu. in.)
- Group 15 Filters, Cooler, and Accumulators
- Group 20 Steering System
- Group 25 Brake System

Section 70—HYDRAULIC SYSTEM

- Group 5 General Information, Testing, and Diagnosis
- Group 10 Reservoir and Filters
- Group 15 Hydraulic Pump
- Group 20 Control Valve
- Group 25 Return-to-Dig Valve
- Group 30 Backhoe Control Valve
- Group 35 Cylinders
- Group 40 Backhoe Swing Cylinder

Section 80—MISCELLANEOUS COMPONENTS

- Group 5 Frames
- Group 10 Buckets
- Group 15 Drott 4-in-1 Buckets
- Group 20 9305 Backhoe
- Group 25 Specifications and Special Tools

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 IEMC standards.

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Section 10

GENERAL

CONTENTS OF THIS SECTION

GROUP 5 - SPECIFICATIONS	Page	GROUP 20 - LUBRICATION	Page
Machine Specifications	5-1	Lubrication Chart	20-1
		Engine Lubricating Oil	20-2
GROUP 10 - PREDELIVERY, DELIVERY, AND AFTER-SALES SERVICES		Loader Hydraulic Oil	20-2
Predelivery Service	10-1	Transmission-Hydraulic Oil	20-2
Delivery Service	10-3		
After-Sales Service	10-4	GROUP 25 - LOADER SEPARATION	
		Separating Loader and Engine Frames	25-1
GROUP 15 - TUNE-UP AND ADJUSTMENT		Removing Engine	25-2
Preliminary Engine Testing	15-1	Removing Transmission	25-4
Engine Tune-Up	15-1	Removing Axle Housing and Differential Assemblies	25-5
Engine Final Testing	15-3	Removing Hydraulic Oil Reservoir, Battery Box, and Canopy	25-7
Loader Adjustment	15-3		

Group 5

SPECIFICATIONS

ENGINE	JD544	JD544-A	ELECTRICAL SYSTEM	
Flywheel horsepower at 2500 rpm	94	94	Battery voltage (nominal)	12 volts
Number of cylinders	6	6	Battery specific gravity at full	1.260
Bore and stroke	3.86x4.33	4.02x4.33	charge (corrected to 80°F.)	±0.010
	in.	in.	Battery terminal grounded	Negative
Displacement	303 cu. in.	329 cu. in.	Alternator regulation	Voltage Regulator
Compression ratio	16.3 to 1	16.2 to 1		
Firing order	1-5-3- 6-2-4	1-5-3- 6-2-4	TRANSMISSION	
Intake valve clearance	0.014 in.	0.014 in.	Make	Allison
Exhaust valve clearance	0.018 in.	0.018 in.	Type	Torque converter and planetary gear
Slow idle	700 rpm	700 rpm	Converter oil pump	Input driven, gear type
Fast idle	2650 rpm	2650 rpm	Transmission clutches	Multi-disk, hy- draulically actu- ated, spring re- leased, oil cooled, self-adjusting type
Governed speed range	700 to 2650 rpm	700 to 2650 rpm		

TRAVEL SPEEDS (with 17.5-25 Tires)

Shift Lever Position	Speed
Low (L)	0 to 7 mph
High (H)	0 to 23 mph
Reverse (R)	0 to 9 mph

DIFFERENTIALS

Front Standard or optional "No Spin"
Rear Standard

DRIVE AXLES

Four-wheel drive with inboard mounted planetary gears on both axles.

Front Fixed
Rear Oscillating (11° from horizontal)

LOADER HYDRAULIC SYSTEM

Type Open center, constant volume system to operate loader boom and bucket
Pump Transmission-mounted, vane type

TIRE OPTIONS

13.00 - 24, 10 PLY RATING (Grader Tread)
14.00 - 24, 12 PLY RATING (Grader Tread)
15.5 - 25, 10 PLY RATING (Loader Tread)
15.5 - 25, 12 PLY RATING (Loader Tread) (Early Models)
17.5 - 25, 12 PLY RATING (Loader Tread)
14.00 - 24, 12 PLY RATING (Rock Grader) (Early Models)
17.5 - 25, 16 PLY RATING (Rock Tread)

POWER STEERING AND BRAKES HYDRAULIC SYSTEM

Type Closed center, constant pressure system. Includes power steering, power brakes, and transmission cooling.
Pump Engine-driven eight-piston pump.

STEERING

Full power steering.
Frame steered by two hydraulic cylinders.
Frame pivot from center. 40°
Clearance circle 32 ft.
Turning radius 13 ft. 10 in.

BRAKES

Hydraulic power-operated, inboard-mounted disk type brake for each wheel. Brake pedal control of transmission clutches.

Mechanical 10 x 1-1/2-inch expanding shoe parking brake on transmission output shaft.

CAPACITIES (U.S. Standard Measures)

Fuel tank 40 gal.
Cooling system 7-1/2 gal.
Engine crankcase 12 qt.
Transmission (includes steering and brakes hydraulic system). 10 gal. (approx.)
Transmission case and filters (after initial fill) 9-3/4 gal. (approx.)
Front differential
 "No Spin" option 4-1/4 gal.
 Regular 4-3/4 gal.
Rear differential. 4-3/4 gal.
Loader hydraulic sump. 12 gal.
Loader hydraulic system (sump, lines, and cylinders). 21 gal.

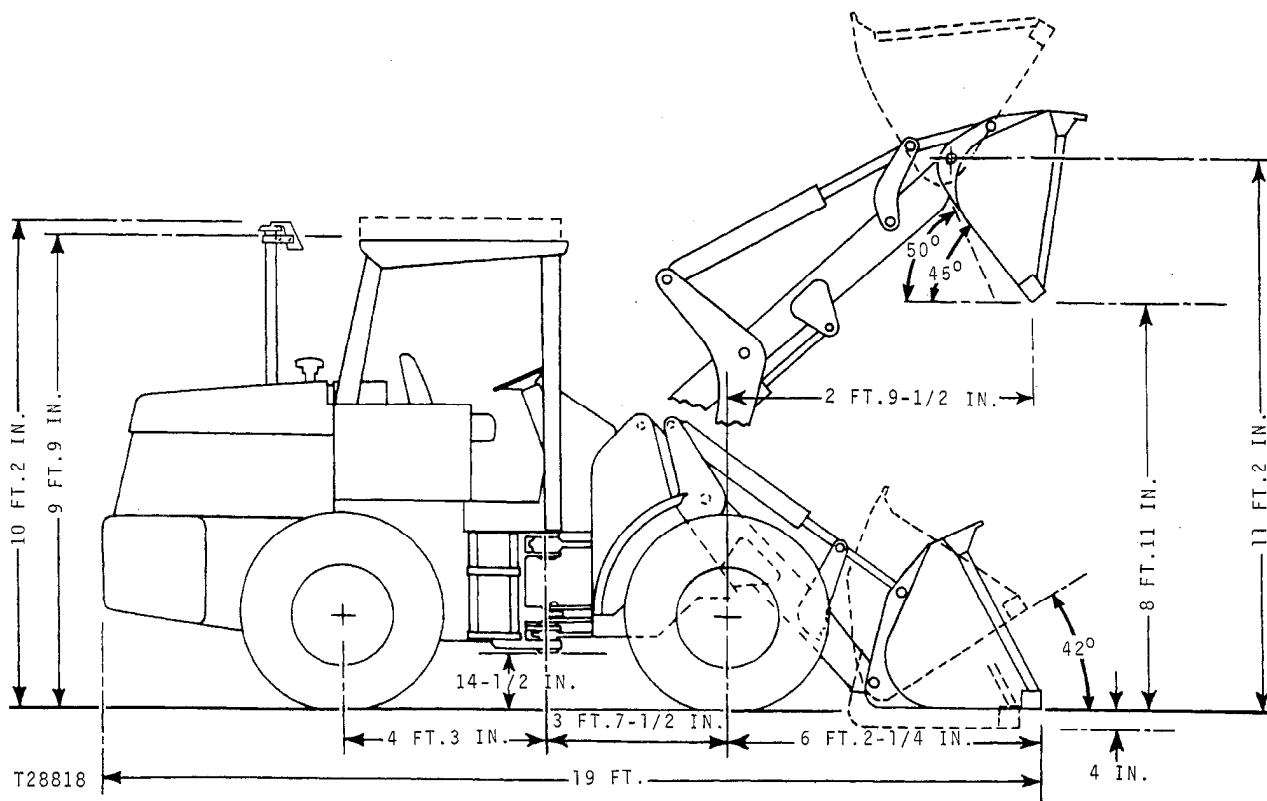


Fig. 1-Loader Dimensions

LOADER DIMENSIONS (with 17.5-25 tires and 1-1/2 yd. Bucket)

Overall height (to top of Cab) . . .	10 ft. 2 in.
Height to top of canopy	9 ft. 9 in.
Overall width	7 ft. 4 in.
Overall length (bucket level, no bucket teeth)	19 ft.
Ground clearance	14-1/2 in.
Wheel base	7 ft. 10-1/2 in.
Maximum bucket dump angle (full height)	50°
Dumping reach (full height) (bucket at 45° angle)	2 ft. 9-1/2 in.
Dumping clearance (full height) (bucket at 45° angle)	8 ft. 11 in.
Maximum lift (bucket at full height) (at pivot pin)	11 ft. 2 in.
Digging depth below ground (bucket level)	4 in.

Bucket breakout force (SAE)

1-1/2 yd.	16,105 lbs.
1-3/4 yd.	14,875 lbs.
2 yd.	14,260 lbs.
3 yd.	10,650 lbs.
Bucket width (1-1/2 yd.)	7 ft. 4 in.
(1-3/4 yd.)	7 ft. 8 in.
(2 yd.)	8 ft.
(3 yd.)	8 ft.
Drott-4-in-1	8 ft.
Bucket roll-back (ground level)	42°
Bucket reach (bucket on ground).	6 ft. 2-3/4 in.
Operating weight (with cab)	20,430 lbs.

LOADER OPERATING INFORMATION

Bucket capacities 1-1/2, 1-3/4, 2 or 3 cu. yd.	
Lift (full height)	8374 lbs.
Raising Time	5.7 sec.
Lower Time (power down)	4.5 sec.
Dumping Time	1.6 sec.

(Specifications and design subject to change without notice. Whenever applicable, specifications are in accordance with IEMC and SAE Standards)

LOG AND LUMBER FORK

Lift capacity (full height stability limited)
(with two sets side counterweights)
Fork with single clamp 10,040 lbs.
Fork with double clamp 9,792 lbs.
Basic lumber fork 11,410 lbs.
Maximum clamp diameter 9 ft. 1/2 in.
Minimum clamp diameter 28 in.
Length of tines (heel-to-toe) 4 ft.
Maximum tine width (center-to-center) 5 ft. 11 in.
Minimum tine width (center-to-center) 15 in.
Raising time 5.7 sec.
Lowering time (power down) 4.5 sec.
Dumping time 1.6 sec.
Maximum unloading (dump) angle.. 40 degrees

9305 BACKHOE

Bucket retract 2.0 sec.
Bucket extend 3.0 sec.
Digging depth (IEMC) 13 ft. 5 in.
Digging force 10,500 lbs.
Reach from center of swing mast.. 17 ft. 1 in.
Transport height 12 ft. 1 in.
Stabilizer width
Transport 7 ft. 3 in.
Operating position (IEMC) 8 ft. 7 in.

LOG LOADER

Fork capacity (8-foot wood) 0.9 cord
Lift capacity (with two sets side counterweights)
(full height stability limited) 9290 lbs. |
Maximum clamp diameter 6 ft. 2 in. |
Minimum clamp diameter 15-3/8 in. |
Length of tines (heel-to-toe) 4 ft. 2 in. |
Tines width (center-to-center) 5 ft. |
Raising time 5.5 sec. |
Lowering time (power down) 4.5 sec. |
Dumping time 1.2 sec. |
Maximum unloading (dump) angle.. 40 degrees |

Group 15 TUNE-UP AND ADJUSTMENT

GENERAL INFORMATION

Before tuning up an engine, determine if it is in condition so that performance can be restored by tune-up. Perform the following tests:

PRELIMINARY ENGINE TESTING

Operation	Specification	Reference
Vacuum test (at air cleaner)	8-25 inches of water at fast idle	.....
Intake manifold pressure (diesel engine with altitude compensating turbocharger)	6 to 8 psi at 2500 rpm, full load	Section 30, Group 15
Check radiator for air bubbles and indication of oil	.....	Section 20, Group 25
Cylinder compression	300 psi*	Section 20, Group 10
Engine power output (at flywheel) (use dynamometer)	Note hp. output and compare with output after tune-up	.....

ENGINE TUNE-UP

AIR INTAKE SYSTEM

Air cleaner - clean primary element and dust cup	.....	Section 30, Group 15
Check breather pipe for restrictions	.....	.....
Retighten cylinder head cap screws	110 ft-lbs	Section 20, Group 10
Check valve clearance	0.018 in. -Exhaust 0.014 in. -Intake	Section 20, Group 10

BATTERY

Check electrolyte level	.....	.....
Clean cables, terminals and box	.....	.....
Tighten cable clamps	.....	.....

*The most important factor in compression readings is the difference between cylinders. This difference should be no more than 50 psi.

ENGINE TUNE-UP—Continued

Operation	Specification	Reference
ALTERNATOR		
Check belt tension	20 lb. at 3/4 in. deflection.	
FUEL SYSTEM		
Check fuel tank and lines for leaks or restrictions		
Clean fuel transfer pump bowl and strainer		
Replace fuel filter elements		
Time injection pump		Section 30, Group 25
Check injection pump advance		Section 30, Group 25
Bleed fuel system		
Adjust speed control linkage and check engine speeds		Section 20, Group 20
ENGINE LUBRICATION SYSTEM		
Check engine oil pressure	45-65 psi at 2500 rpm. (180° to 220° F.)	Section 20, Group 15
COOLING SYSTEM		
Clean and flush system		
Inspect hoses		
Clean trash from radiator		
EXHAUST SYSTEM		
Check system for leaks		FOS 30 - ENGINES
Check muffler and exhaust pipe for restrictions.		FOS 30 - ENGINES

FINAL ENGINE TESTING

Use a dynamometer in final testing to determine if engine is performing at rated horsepower. Compare output of engine with horsepower delivered prior to tune-up.

LOADER ADJUSTMENTS

Make the following loader adjustments whenever the engine is tuned up.

Operation	Specification	Reference
BRAKES		
Bleed brakes	.....	Section 60, Group 25
Check action of brake accumulator	.....	Section 60, Group 5
Check mechanical parking brake	.....	Section 60, Group 25
POWER STEERING		
Bleed steering system	.....	Section 60, Group 20
Check time cycle (limit to limit) at 1000 rpm engine speed	4.0 seconds	Section 60, Group 5
Check steering system accumulator	.....	Section 60, Group 15
HYDRAULIC SYSTEM		
Check boom raise cycle time	5.7 to 6.2 seconds	Section 70, Group 5
Check boom lower cycle time (power down)	4.5 to 5.0 seconds	Section 70, Group 5
Check bucket dump cycle time	1.6 to 2.0 seconds	Section 70, Group 5
Bleed bucket return-to-dig valve	.....	Section 70, Group 25
TIRES		
Check tire inflation	.....	See Operator's Manual
TIGHTEN ACCESSIBLE HARDWARE	See torque chart.	Section 10, Group 25

Group 20 LUBRICATION

GENERAL INFORMATION

Carefully written and illustrated lubrication instructions are included in the operator's manual furnished with your customer's machine. A periodic service chart is also mounted on the loader battery box for operator convenience on later model loaders.

For your convenience, the following chart shows capacities and type of lubricants for the loader components and systems. Specifications for lubricants follow the chart.

Remind him to follow these instructions.

	Capacity	Type of Lubricant
Engine crankcase	12 U.S. quarts (including filter)	See page 20-2.
Transmission, steering and brakes system	10 U.S. gallons (after initial fill 9-3/4 gallons)	J.D. Torque Converter Fluid Type C-2
Loader hydraulic system sump	12 U.S. gallons	J.D. Type 303 Special-Purpose Oil or an equivalent.
Return-to-dig valve	To level of filler plug	J.D. Type 303 Special-Purpose Oil or an equivalent.
Differentials	4-3/4 U.S. gallons (4-1/4 for "No Spin" option)	J.D. Type 303 Special-Purpose Oil or an equivalent.
Grease fittings	.....	John Deere Multi-Purpose Lubricant or an equivalent.
Axle bearings	10 to 20 shots	John Deere Multi-Purpose Lubricant or an equivalent.
Starter	Saturate wicks (3)	Engine crankcase oil (SAE10W)
	Lubricate armature shaft splines during assembly	Engine crankcase oil (SAE10W)
Loader Hydraulic system (sump, lines and cylinders)	21 U.S. gallons	J.D. Type 303 Special-Purpose Oil or an equivalent.