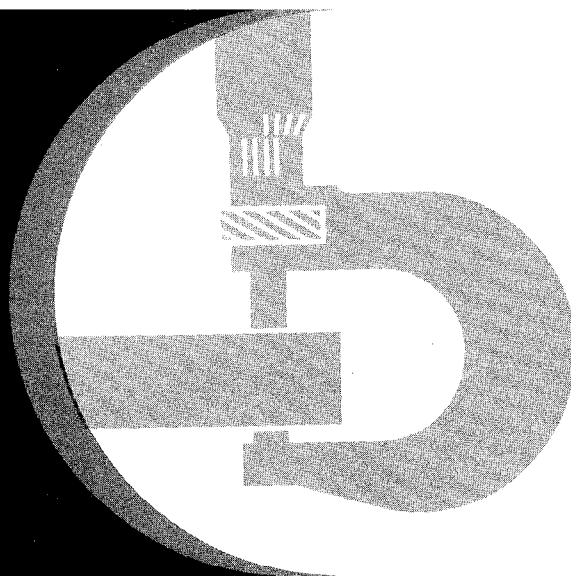


# 301-401 Tractors and Loaders



## TECHNICAL MANUAL

John Deere Dubuque Works  
TM-1034

LITHO IN U.S.A.

# JD301-JD401 Tractors and Loaders TECHNICAL MANUAL TM-1034 (Feb-74)

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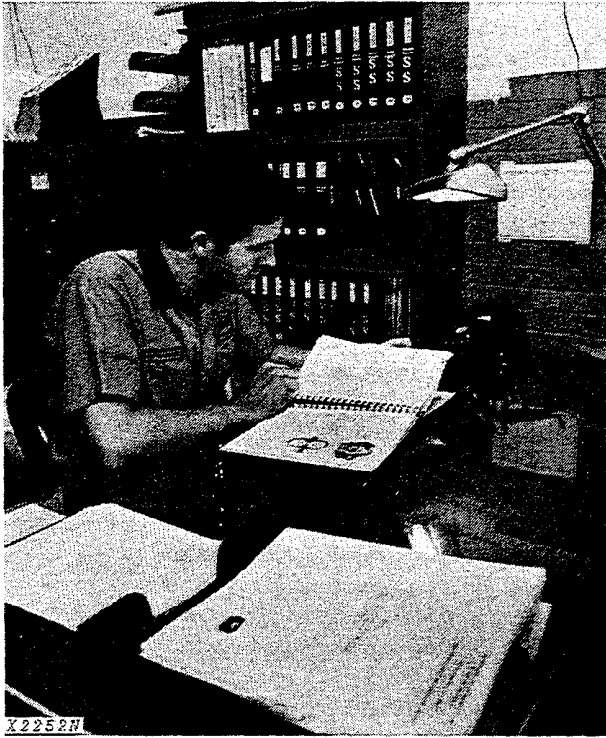
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## INTRODUCTION



Use FOS Manuals for Reference



Use Technical Manuals for Actual Service

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 men and for reference by experienced men.

*Technical Manuals* are concise service guides for a *specific* machine. Technical Manuals are on-the-job guides containing only the vital information needed by a journeyman mechanic.



When a serviceman 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.

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—a journeyman mechanic. 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.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



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.

# Section 10 GENERAL

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## Group 5 SPECIFICATIONS

	JD301 Gasoline	JD301 Diesel	JD401 Gasoline	JD401 Diesel
<b>ENGINE</b>				
Net flywheel horse- power (observed) at 2500 rpm	43.0	43.0	59.0	59.0
Gross flywheel horsepower	46	46	63	63
Maximum torque in ft-lbs at 1300 rpm (observed) (nominal)	110.0	110.0	145.0	145.0
Number of cylin- ders	3	3	4	4
Bore and stroke, inches	3.86x3.86	3.86x4.33	3.86x3.86	3.86x4.33
Displacement in cubic inches	135.0	152.0	180.0	202.0
Compression ratio	7.5 to 1*	16.2 to 1	7.5 to 1*	16.2 to 1
Firing order	1-2-3	1-3-4-2	1-3-4-2	1-2-3
N.A.C.C. or A.M.A. horse- power rating for tax purposes	17.88	17.88	23.84	23.84
Intake valve clearance	0.014-in.	0.014-in.	0.014-in.	0.014-in.
Exhaust valve clearance	0.022-in.	0.018-in.	0.022-in.	0.018-in.
Full engine power	2500 rpm		2500 rpm	
<b>CLUTCH</b>	Single stage spring-loaded, dry disk foot-operated.			
<b>ELECTRICAL SYSTEM</b>				
Battery voltage	12 volts			
Battery terminal grounded	Negative			
<b>TRANSMISSION</b>				
Type	Collar shift			
Gear selections	8 forward and 4 reverse			
Shifting	4 speeds each in high, low, and reverse ranges. Mechanical park lock included.			

**REVERSER (OPTIONAL)**  
Type ..... Planetary gear and wet clutch  
Number reverse  
speeds ..... 4 (in low range speeds only)

**DIFFERENTIAL AND FINAL DRIVES**  
Type ..... Planetary reduction final  
drives wet spiral bevel  
gear drive differential

Differential Lock ... JD301 . Foot operated mech-  
anical lock, spring-  
loaded out of engage-  
ment

JD401 . . . Foot-operated  
mechanical lock,  
spring-loaded out  
of engagement.

**POWER TAKE-OFF**  
Type ..... Continuous running  
or transmission-  
driven types avail-  
able in 540 and/or  
1000 rpm options

**HYDRAULIC SYSTEM**  
Type ..... Closed-center,  
constant-pressure

**BRAKES** ..... Hydraulically ac-  
tivated wet-disk  
types

\* 8.6 to 1 High Altitude Pistons

**CAPACITIES (U.S. Standard Measures)**

	JD301	JD401
Fuel Tank . . . . .	16-1/2 gals.	19-1/2 gals.
Engine cooling system . . . . .	2.75 gals.	3 gals.
Engine crankcase (including filter) . . . . .	1.5 gals.	1.5 gals. (401) 1.75 gals. (401-A)
Transmission-hydraulic system . . . . .	10 gals.	10 gals.

**TRACTOR DIMENSIONS**

**JD301 Tractor Dimensions with 11.2-24, 4-ply Rear Tires, and 5.00-15, 4-ply Front Tires.**

Height to top of hood . . . . .	4 ft. 0.9 in.
Clearance (front axle) . . . . .	1 ft. 5 in.
Over-all width, min. . . . .	6 ft.
Over-all length (with 3-point hitch) . . . . .	11 ft. 1.4 in.
Wheelbase . . . . .	74.4 in.
Turning radius (with brakes applied) . . . . .	10 ft. 2 in.
Curb clearance circle . . . . .	20 ft. 9 in.
Operating weight (approx.) (gasoline) . . . . .	3,740 lbs.
(diesel) . . . . .	3,860 lbs.

**JD401 Tractor Dimensions with 11.2-24 Rear Tires, and 5.00-15 Front Tires.**

Height to top of hood . . . . .	4 ft. 4.3 in.
Clearance (front axle) . . . . .	1 ft. 4.8 in.
Over-all width . . . . .	6 ft.
Over-all length (with 3-point hitch) . . . . .	11 ft. 6.9 in.
Wheelbase . . . . .	79.4 in.
Turning radius (with brakes applied) . . . . .	10 ft. 7 in.
Curb clearance circle . . . . .	22 ft. 7 in.
Operating weight (approx.) (gasoline) . . . . .	4,100 lbs.
(diesel) . . . . .	4,170 lbs.

**JD401-A Loader Dimensions with 16.9-24, 6-ply Rear Tires, and 7.50-16, 6-ply Front Tires.**

Height to top of hood . . . . .	4 ft. 7.3 in.
Over-all height to top of canopy . . . . .	7 ft. 3.3 in.
Over-all width . . . . .	6 ft. 8 in.
Over-all length (with 3-point hitch) . . . . .	14 ft. 9.25 in.
Ground clearance (minimum) . . . . .	1 ft. 1.25 in.
Turning radius (brakes applied) . . . . .	11 ft. (approx.)
Curb clearance circle . . . . .	22 ft. 8 in.
Operating weight (approx.) (gasoline) . . . . .	7,600 lbs.
(diesel) . . . . .	7,700 lbs.
Wheelbase . . . . .	82 in.

**7310 LOADER OPERATING INFORMATION**

Pump capacity (2500 engine rpm) . . . . .	13 gpm
System pressure . . . . .	2350 psi
Bucket capacity . . . . .	5/8 or 3/4 cu. yd.
Breakout force . . . . .	3600 lbs.
Lift (full height) . . . . .	2500 lbs.
Raising time . . . . .	4.5 sec.
Lowering time (power) . . . . .	2.6 sec.
Dumping time . . . . .	2.6 sec.
Bucket rollback time . . . . .	2.6 sec.

**JD401-A LOADER OPERATING INFORMATION**

Pump capacity (2500 engine rpm) . . . . .	28 gpm
System pressure (stand by) . . . . .	2350 psi
Bucket capacity . . . . .	5/8, 3/4 and 1 cu. yd.
Breakout force . . . . .	4800 lbs.
Lift (full height) . . . . .	3200 lbs.
Raising time . . . . .	3.5 sec.
Lower time (power) . . . . .	2.3 sec.
Dumping time . . . . .	1.3 sec.

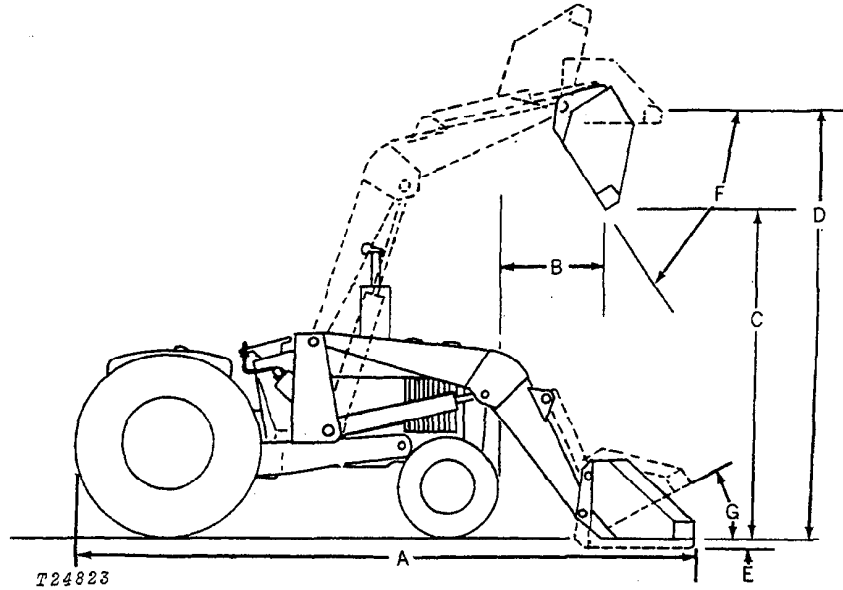


Fig. 1-Loader Operating Dimensions

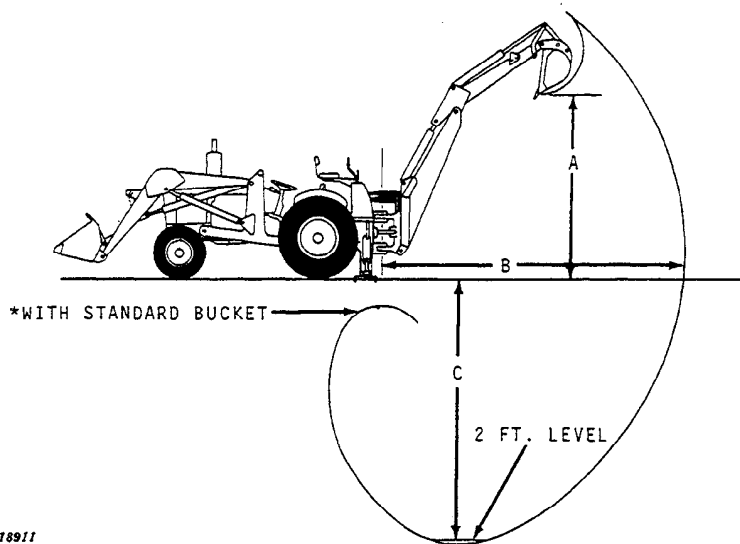
**LOADER DIMENSIONS**

	7310 (JD301)	7310 (JD401)	JD401-A
A. Over-all length	15 ft. 5 in.	15 ft. 1 in.	14 ft. 9-1/4 in.
B. Dumping reach (full height)	2 ft. 6.3 in.	2 ft. 6.3 in.	2 ft. 5 in.
C. Dumping clearance (full height)	7 ft. 4.5 in.	7 ft. 4.5 in.	8 ft. 3 in.
D. Height to bucket pivot pin (maximum lift)	9 ft. 9 in.	9 ft. 9 in.	10 ft. 2 in.
E. Digging depth below ground (bucket level)	11.8 in.	11.8 in.	4 in.
F. Dump angle (full height)	41°	41°	45°
G. Bucket roll-back (ground level)	16°	16°	30°
H. Maximum height (excluding muffler) (not illustrated)	4 ft. 0.9 in.	4 ft. 10 in.	6 ft. 8.25 in.
I. Operating weight (without counterweights) (not illustrated)			
Gasoline	5230 lbs.	5580 lbs.	7600 lbs.
Diesel	5350 lbs.	5650 lbs.	7700 lbs.
J. Bucket width (not illustrated)			
(5/8 cu. yd.)	73.8 in.	73.8 in.	65.5 in.
(3/4 cu. yd.)	86.0 in.	86.0 in.	81.125 in.
(1 cu. yd.)	---	---	81.125 in.

### 9250 BACKHOE SPECIFICATIONS

Maximum swing .....	180 deg.
Bucket rotation .....	138, 136, or 164 deg.
Bucket rollback .....	26 or 11 deg. rollback and 11 deg. forward
Digging force (bucket cylinders) .....	6750 lbs.
Controls .....	Two-lever
Transport height .....	11 ft. 2 in.
Shipping weight less bucket (approx.) (JD401-A) .....	2680 lbs.
Loading height (IEMC) .....	11 ft. 3 in.
Reach from center of rear axle (IEMC) .....	17 ft. 5 in.
Reach from center of rear axle (JD401-A) .....	20 ft. 5-1/4 in.
Digging depth maximum .....	13 ft. 10 in.
Digging depth (IEMC) .....	13 ft. 4 in.
Stabilizer width	
Transport position .....	6 ft. 8 in.
Operating position (overall) .....	9 ft. 8 in.
Operating position (IEMC) .....	8 ft. 6 in.
Hydraulic system	
System pressure .....	2250 psi
Pump (2500 engine rpm) .....	28 gpm

### OPERATING DIMENSIONS



9250 Backhoe

- "A" ... 11 ft. 3 in.
- "B" ... 17 ft. 5 in.
- "C" ... 13 ft. 4 in.

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Fig. 2-Backhoe Operating Dimensions

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



## Group 10

# PREDELIVERY, DELIVERY, AND AFTER-SALES SERVICES

### 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.

A tag pointing out the factory-recommended procedure for predelivery service is attached to each new machine before it leaves the factory.

After completing the factory-recommended dealer checks and services listed on the predelivery tag, remove the tag from the machine and file it with the shop order for the job. The tag will then serve as a basis for certifying that the unit has received the proper predelivery service when that portion of the customer's John Deere Delivery Receipt is completed.

### TEMPORARY STORAGE

Service	Specifications	Reference
Check radiator for coolant loss and antifreeze protection.	Midway between core and filler neck.	----
Drain fuel system (gasoline).	----	Operator's manual.
Remove and store battery.	Store at room temperature.	----
Reduce shipping pressure of tires.	----	Operator's manual.
Cover machine and tires for protection and cleanliness.	----	----

### PREDELIVERY INSPECTION

#### Cooling System

Inspect radiator for coolant loss.	Midway between core and filler neck.	----
Check antifreeze protection.	----	Operator's manual.

#### Electrical System

Charge batteries and check terminals to be sure they are tight.	----	Operator's manual
Punch warranty tag on top of battery.	----	----
Check alternator belt tension.	----	Operator's manual

#### Tires and Wheels

Adjust pressure of tires.	----	Operator's manual.
Check front and rear wheel retainers for tightness.	----	Operator's manual.

Service	Specifications	Reference
<b>Lubrication</b>		
Check crankcase oil level.	To upper marks on dipstick.	Operator's manual.
Check transmission-hydraulic system oil level.	----	Operator's manual.
Lubricate grease fittings.	----	Operator's manual.
Check distributor lubrication (gasoline).	----	Operator's manual.
<b>Engine</b>		
Check air cleaner oil level (oil bath).	Oil to "OIL LEVEL" line on cup.	Operator's manual.
Check air cleaner (dry type).	----	Operator's manual.
Fill fuel tank and start engine.	Capacity - U.S. gallons. JD301 - 16-1/2 gals. JD401 - 19-1/2 gals	Operator's manual.
Check operation of lights, gauges, and indicator lights.	----	Operator's manual.
Check speed control and governor linkage for free operation.	----	Section 20, Group 20.
Check engine idle speeds.	----	Section 20, Group 20.
<b>Operation</b>		
Check engine clutch operation (without reverser).	1 in. free travel.	Section 50, Group 10.
Clutch pedal wear adjustment (with reverser).	----	Section 50, Group 20.
Check Hi-Lo shift unit operation.	----	Section 50, Group 25.
Shift transmission through all gears.	----	Operator's manual.
Check power take-off operation.	----	Operator's manual.
Check differential lock operation.	----	Operator's manual.
Check operation of 3-point hitch.	----	Operator's manual.
Check hydraulic system operation.	----	Section 70, Group 5.
Check brake operation.	----	Section 60, Group 5.
Check steering operation.	----	Section 60, Groups 10 and 15.
Check seat operation.	----	Operator's Manual.
<b>General</b>		
Tighten accessible nuts and cap screws.	Torque Chart	Section 10, Group 25.
Clean machine and touch up paint.	----	----



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