310 BACKHOE LOADER 12,519 lb (5678 kg)

Transport Height.....11 ft 5 in. (2.9 m)
Transport Length.....12 ft 5 in. (3.05 m)
Machine Width .....6 ft 5 in. (1.9 m)

ENGINE.....John Deere 300 Series

Number of Cylinders and Displacement:
- Gasoline .....3 cylinders, 164 cu in. (2.7 L)
- Diesel .....3 cylinders, 164 cu in. (2.7 L)

Air Intake System.....Naturally aspirated
Bore and Stroke.....4.02 x 4.33 in. (102 x 110 mm)
Net hp at 2500 rpm.....50 SAE hp (37.4 kW) DIN 39.1 kW
Maximum Torque at 1300 rpm.....129 lb-ft (175 N•m)
Nozzle Opening Pressure:
- New .....3200 ± 50 psi (22 065 ± 345 kPa)
- Used .....3000 ± 50 psi (20 685 ± 345 kPa)

Valve Clearance (Cold):
- Intake.....0.014 in. (0.36 mm)
- Exhaust:
  - Diesel.....0.018 in. (0.6 mm)
  - Gasoline .....0.022 in. (0.56 mm)

Oil pressure at 2500 rpm .....50 ± 15 psi (345 ± 105 kPa)
Static Injection Pump Timing .....Timing lines aligned w/ flywheel located at TDC
Dynamic Timing at Rated Load rpm*.....16 + 0 - 1° BTDC
Speeds:
- Slow Idle:
  - Diesel.....800 ± 25 rpm
  - Gasoline .....600 ± 25 rpm
- Fast Idle.....2675—2700 rpm
- Full Load Rating .....2500 rpm

Cylinder Pressure Hot (Min) .....120 psi (830 kPa) cranking w/ injectors removed
Flywheel Teeth.....142

*Note: *For latest information, see Dealer Technical Assistance Center (DTAC) Solution K000413.*

TRANSMISSION

Model and Speeds.....Collar shift w/ hydraulic reverser: 8 forward, 4 reverse
Pump Flow (Min) Used at 150 psi (1035 kPa) and 2200 rpm.....10.5 gpm (0.66 L/s)
Reverser System Pressure at Fast Idle.....155—165 psi (1070—1140 kPa)
Lube Pressure (Clutch Pedal Depressed).....8—10 psi (55—69 kPa)
Clutch Operating Pressure .....155—16 psi (1070—1140 kPa)
Filter Relief Pressure .....50 psi (345 kPa) differential

Continued on next page

HYDRAULIC SYSTEM—Close-Center

Pump:	
Size	3.0 cu in. (49.2 cm^3)
Flow (Min)	23 gpm (1.45 L/s) used at 2000 psi (13 790 kPa) and 2200 rpm
Standby Pressure	2300—2400 psi (15 860—16 550 kPa)
Charge Pressure at Fast Idle	55—130 psi (380—900 kPa)
Accumulator Charge Pressure	500 psi (3450 kPa)
Surge Relief Pressure	150 psi (1035 kPa)
Filter Relief Pressure	50 psi (345 kPa) differential
Priority Valve Setting at 1000 rpm	1300 ± 50 psi (8965 ± 345 kPa)
Cooler Bypass Valve:	
Relieves to Lubrication at	70 psi (485 kPa)
Relieves to Sump at	100 psi (690 kPa)

RELIEF VALVE SETTINGS

Loader Circuit Relief Valve:	
Auxiliary	2500 psi (17 240 kPa)
Bucket Dump	1500 psi (10 305 kPa)
Bucket Rollback	2750 psi (18 960 kPa)
9405 Backhoe Circuit Relief Valve:	
Boom Lower	2375 psi (16 375 kPa)
Boom Raise (Early Units)	3000 psi (20 685 kPa)
Boom Raise (Later Units)	3500 psi (24 135 kPa)
Crowd	2375 psi (16 375 kPa)
Swing Right and Left	2375 psi (16 375 kPa)
9500 Backhoe Circuit Relief Valve:	
Boom Lower	2375 psi (16 375 kPa)
Boom Raise (Early Units)	3000 psi (20 685 kPa)
Boom Raise (Later Units)	3000 psi (20 685 kPa)
Crowd	2375 psi (16 375 kPa)
Swing Right and Left	1625 psi (11 205 kPa)

CYCLE TIMES (Fast Idle and Hot Oil)

Loader Function:	
Boom Down (Power)	2.9 sec
Boom Down (Float)	3.5 sec
Boom Raise	4.1 sec
Bucket Dump (Boom at Full Height)	1.8 sec
Bucket Rollback (Flat on Ground)	0.8 sec
Bucket Rollback (From Maximum Dump Position and Boom at Full Height)	1.5 sec
Backhoe Functions:	
Boom Lower (Full Height to Maximum Depth)	4.1 sec
Boom Lower (Full Height to Ground)	1.9 sec
Boom Raise (Ground to Full Height)	2.1 sec
Boom Raise (Max Depth to Full Height)	4.5 sec
Bucket Curl	2.3 sec
Bucket Dump	1.9 sec
Dipperstick In	3.6 sec
Dipperstick Out	3.3 sec
Swing (180°)	3—5 sec

Continued on next page

LUBRICANTS

See front of this book for the codes [ ].

CAPACITIES	U.S.	Imp.	Metric
Engine:			
Cooling System [N] (Early Units)	7 qt	2.1 gal	6.62 L
Cooling System [N] (Later Units)	9 qt	2.7 gal	8.5 L
Crankcase w/ Filter [E]	3 gal	3.6 gal	11.3 L
Transmission and Hydraulic System [C]	20.5 gal	17.1 gal	77.6 L
Fuel Tank	19.5 gal	16.3 gal	73.8 L

TIRE PRESSURE (Cold Inflation)

Tire Size	Type	Rating	Normal Pressure
Front:			
7.50-16	F3	10 ply	60 psi (415 kPa)
11L-15	F3	8 ply	44 psi (305 kPa)
Rear:			
16.9-24	R4	8 ply	28 psi (195 kPa)
19.5L-24	R4	8 ply	24 psi (165 kPa)