

310A BACKHOE LOADER

12,519 lb (5678 kg)

Transport Height.....11 ft 3 in. (3.43 m)

Transport Length.....23 ft 7 in. (7.19 m)

Machine Width6 ft 10 in. (2.08 m)

ENGINE.....John Deere 300 Series

Number of Cylinders and Displacement4 cylinders, 219 cu in. (3.6 L)

Air Intake System.....Naturally aspirated

Bore and Stroke4.02 x 4.33 in. (102 x 110 mm)

Net hp at 2500 rpm58 SAE hp (43 kW) DIN 45 kW

Maximum Torque at 1300 rpm150 lb-ft (203 N•m)

Nozzle Opening Pressure:

New3200 ± 50 psi (22 065 ± 345 kPa)

Used3000 ± 50 psi (20 685 ± 345 kPa)

Valve Clearance (Cold):

Intake0.014 in. (0.36 mm)

Exhaust0.018 in. (0.45 mm)

Oil Pressure at 2500 rpm50 ± 15 psi (345 ± 105 kPa)

Static Injection Pump TimingTiming lines aligned w/ flywheel located at TDC

Dynamic Injection Pump Timing at Rated Load rpm*17 + 0 - 1° BTDC

Speeds:

Slow Idle800 ± 25 rpm

Fast Idle2675—2700 rpm

Full Load Rating2500 rpm

Cylinder Pressure Hot (Min)350 psi (2415 kPa) cranking w/ injectors removed

Flywheel Teeth142

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

TRANSMISSION

Model and SpeedsCollar shift w/ hydraulic reverser:
8 forward, 8 reverse

Pump Flow (Min)10.5 gpm (0.66 L/s) used at 150 psi
(1035 kPa) and 2200 rpm

Reverser System Pressure at Fast Idle155—165 psi (1070—1140 kPa)

Lube Pressure (Clutch Pedal Depressed)8—10 psi (55—69 kPa)

Clutch Operating Pressure155—16 psi (1070—1140 kPa)

Filter Relief Pressure50 psi (345 kPa) differential

HYDRAULIC SYSTEM—Close-Center

Pump:

Size3.0 cu in. (49.2 cm³)

Flow (Min)23 gpm (1.45 L/s) used at 2000 psi
(13 790 kPa) and 2200 rpm

Standby Pressure2300—2400 psi (15 860—16 550 kPa)

Charge Pressure at Fast Idle55—130 psi (380—900 kPa)

Accumulator Charge Pressure500 psi (3450 kPa)

Surge Relief Pressure150 psi (1035 kPa)

Filter Relief Pressure50 psi (345 kPa) differential

Priority Valve Setting at 1000 rpm1300 ± 50 psi (8965 ± 345 kPa)

Cooler Bypass Valve (S.N. —282490):

Relieves to Lubrication at70 psi (485 kPa)

Relieves to Sump at100 psi (690 kPa)

Cooler Bypass Valve (S.N. 282491—):

Relieves to Lubrication at120 psi (830 kPa)

Relieves to Sump130 psi (895 kPa)

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RELIEF VALVE SETTINGS

Loader Circuit Relief Valve:

Auxiliary	2500 psi (17 240 kPa)
Bucket Dump (S.N. 259738—)	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	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	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 (Float)	3.5 sec
Boom Down (Power)	2.9 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 Ground)	1.9 sec
Boom Lower (Full Height to Maximum Depth)	4.1 sec
Boom Raise (Ground to Full Height)	2.1 sec
Boom Raise (Maximum 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

LUBRICANTS

See front of this book for the codes [].

CAPACITIES

	U.S.	Imp.	Metric
Engine:			
Cooling System [N]	4 gal	2.5 gal	11.4 L
Crankcase w/ Filter [E]	9 qt	7.5 qt	8.5 L
Transmission (Refill) [C]	8.5 gal	7.1 gal	32.0 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)