

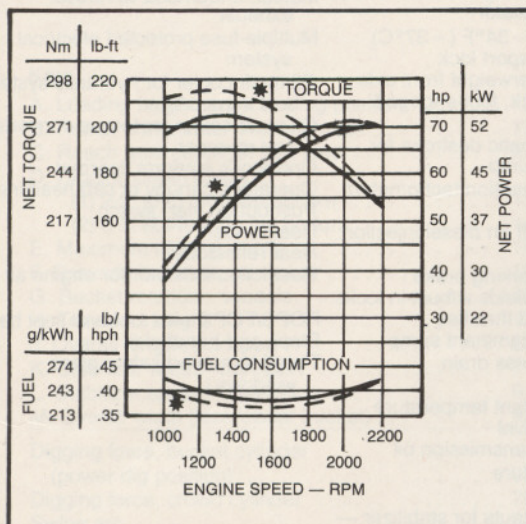


510B BACKHOE LOADER



Model shown may include options

ENGINE PERFORMANCE



* With optional turbocharger

FEATURES

- 70 SAE net hp (52.2 kW)
- Backhoe digging depth (SAE) 15 ft. 8 in. (4.78 m)
- Unitized frame
- Isolated engine and operator's station
- Walk-in front entry
- Designed for quietness
- Closed-center hydraulic system
- Weight distributed for working stability
- Self-adjusting hydraulic wet-disk brakes
- Inboard planetary final drives
- Transaxle 1st and 2nd collar shift, 3rd and 4th synchronized
- Full-power-shift reverser
- Torque converter
- Single-lever loader control
- Two-lever backhoe control
- Two-lever stabilizer control
- Stabilizer lockouts — raise and lower
- Multi-adjustable swing-around seat w/high backrest and armrests

- Hydrostatic power steering
- Soundproofed cab w/integral ROPS/FOPS
- Vandal protection w/built-in locks

ADD VERSATILITY WITH:

- Extendable dipperstick
- Mechanical front-wheel drive with:
 - Wet clutch—engage on the go
 - Offset driveshaft for better ground clearance

510B BACKHOE LOADER SPECIFICATIONS

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with SAE Standards. Except where otherwise noted, these specifications are based on a unit with 19.5L-24, 10 PR, R4 rear tires; 11L-16, 12 PR, F3 front tires; 1.3-cu.-yd. (1.00 m³) loader bucket; 24-in. (610 mm) high-capacity backhoe bucket; ROPS/FOPS, full fuel tank and 175-lb. (79 kg) operator.)

Rated Power @2200 rpm:	SAE	DIN 70 020
Net	70 hp (52.2 kW)	54.7 kW
Gross	76 hp (56.7 kW)	

Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan, at standard conditions per SAE J1349 and DIN 70 020, using No. 2-D fuel @35 API gravity. No derating is required up to 5000 feet (1500 m) altitude. (With optional ACT*, 10,000 feet (3050 m) altitude.) Gross power is without cooling fan.

*Altitude-compensating turbocharger

Engine: John Deere 4-276D

Type	4-stroke cycle, naturally aspirated diesel
Bore and stroke	4.19 x 5.00 in. (106 x 127 mm)
No. of cylinders	4
Displacement	276 cu. in. (4.524 L)
Maximum net torque @1300 rpm	204 lb-ft (277 Nm) (28.2 kg-m)
	22% torque rise
W/ACT	214 lb-ft (290 Nm) (29.6 kg-m)
	28% torque rise
Cooling fan	Suction
Compression ratio	16.8 to 1
Lubrication	Pressure system w/full-flow filter and cooler
Main bearings	5
Air cleaner	Dry
Electrical system	12 volt
Alternator	51 amps w/cab, 35 amps regular

Torque Converter:

Single stage, dual phase, overrunning stator, 11-in. (280 mm) diameter, stall torque ratio 2.83:1.

Reverser:

Modulated, full-power shift with multiple wet-disk clutches. Reverser operating lever at left of steering wheel.

Transmission:

Manual shift with first and second speeds having sliding collar engagement and third and fourth speeds engaged with cone-type synchronizers. Single shift lever, floor mounted.

Travel Speeds:

	Gear	Forward		Reverse	
		mph	(km/h)	mph	(km/h)
With standard 19.5L-24 rear and 11L-15 front tires	1	3.2	5.1	3.7	6.0
	2	5.5	8.9	6.4	10.3
	3	11.7	18.8	13.6	21.9
	4	21.4	34.4	24.9	40.1
With MFWD and 21L-24 (required) rear and 12-16.5 front tires	1	3.3	5.3	3.8	6.1
	2	5.7	9.2	6.6	10.6
	3	12.1	19.5	14.1	22.7
	4	22.1	35.6	25.7	41.4

Final Drives Planetary, inboard

Service Brakes:

Hydraulic, applied with separate pedals; hydraulically equalized when both pedals are depressed. Wet disks and facings are fully enclosed and self-adjusting.

Secondary Brake Mechanical "V" groove band located on differential ring gear

Steering: Hydrostatic power

Steering, regular axle:	
Turning radius (brake applied)	10 ft. 3 in. (3.12 m)
Clearance circle	29 ft. 6 in. (9 m)
Steering wheel turns, left to right	2.9
right to left	3.9
Axle oscillation stop to stop	22 deg.
Mechanical front-wheel drive:	
Turning radius (brake applied)	12 ft. 10 in. (3.91 m)
Clearance circle	30 ft. 6 in. (9.30 m)
Steering wheel turns, left to right	3.2
right to left	4.2
Axle oscillation stop to stop	22 deg.

Hydraulic System: Closed-center (variable-flow, constant pressure)

Pressure	2500 psi (17 238 kPa) (175.8 kg/cm ²)
Pump	8 radial pistons, variable flow
Flow @2200 psi (15 170 kPa) (154.7 kg/cm ²)	35 gpm (2.21 L/s)
Filter, return oil	10 micron, steel-enclosed replaceable element
Screen, pressure oil	50/in. (20/cm) mesh

Hydraulic Cylinders:

	Bore		Stroke		Rod	
	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)
Loader boom (2)	3.5	89	30	762	1.75	44
Loader bucket (1)	4.0	102	24.4	620	2.0	51
Backhoe boom (1)	5.0	127	42.7	1085	2.5	64
Backhoe crowd (1)	4.5	114	34.5	876	2.25	57
Backhoe bucket (1)	3.5	89	27.4	696	2.25	57
Backhoe swing (2)	4.0	102	9.5	241	2.0	51
Backhoe extendable dipper (1)	2.5	64	60	1524	1.25	32
Backhoe stabilizers (2)	4.0	102	20.3	516	2.0	51
Steering (1) regular axle	2.0	51	9.5	241	1.0	25.4
Steering (1) MFWD	2.0	51	12.6	320	2.0	51

Tires:

	Front	Rear
11L-16, 12 PR, F3		19.5L-24, 10 PR, R4
11L-16, 12 PR, F3 w/calcium chloride		19.5L-24, 12 PR, R4
14.5/75-16.1, 10 PR, F3		21L-24, 10 PR, R4
14.5/75-16.1, 10 PR, F3 w/calcium chloride		
MFWD	12.00-16.5, 8 PR, R4	21L-24, 10 PR, R4

Wheel Treads:

Front	69 in. (1750 mm)
Rear	66 in. (1675 mm)
MFWD — Front	68 in. (1727 mm)
— Rear	69 in. (1750 mm)

Wheelbase	82.7 in. (2100 mm)
MFWD	83.3 in. (2116 mm)

Axle Ratings: Static Rating Dynamic Rating SAE J43

Front	56,000 lb. (25 450 kg)	56,000 lb. (25 450 kg)	10,500 lb. (4760 kg)
Rear	51,000 lb. (23 180 kg)	68,000 lb. (30 900 kg)	13,400 lb. (6080 kg)

Capacities:

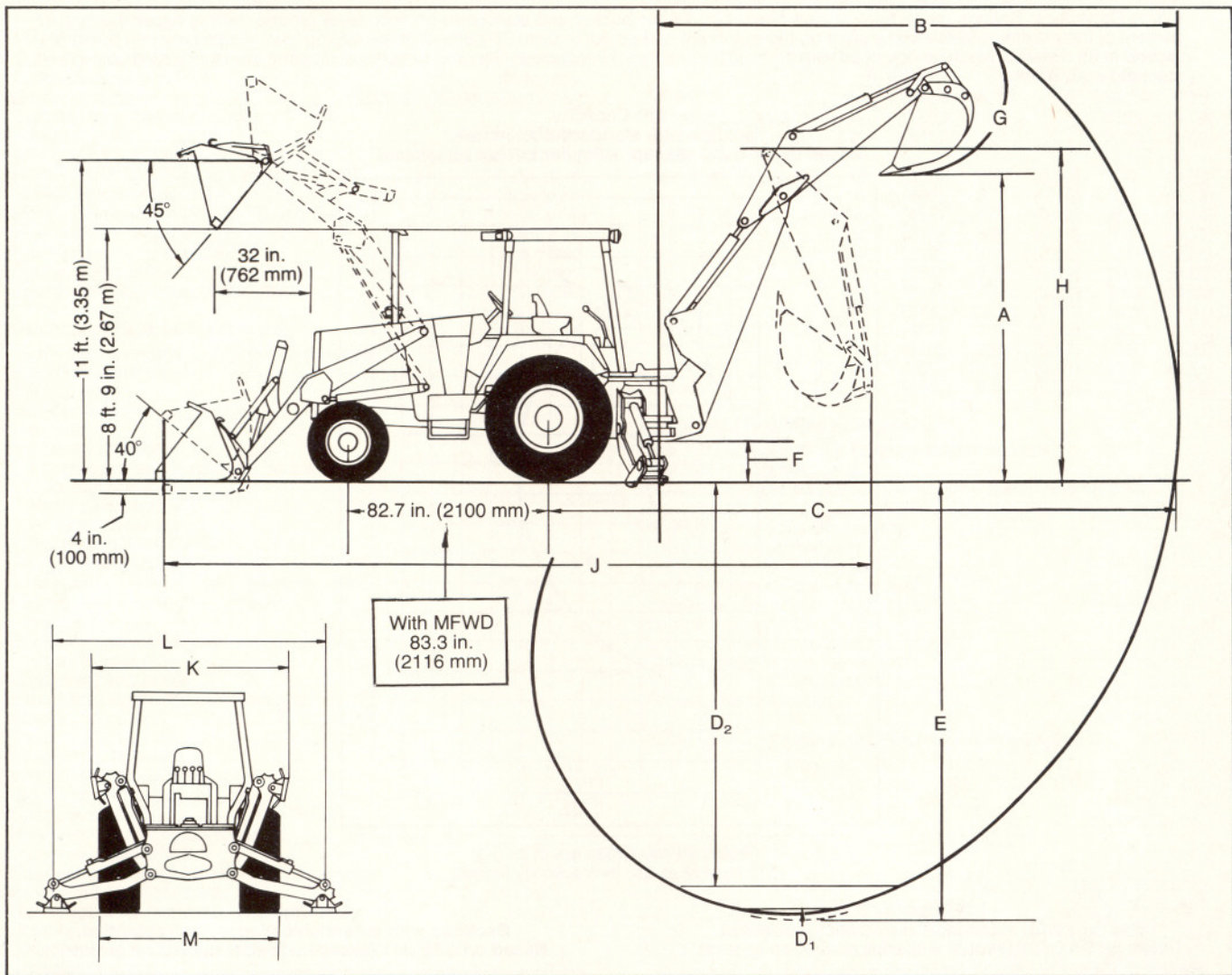
	U.S.	Liters
Fuel tank	23 gal.	87.1
Engine coolant	17 qt.	16.1
Engine oil including filter	9 qt.	8.5
Torque converter and reverser system	14 qt.	13.2
Transaxle and hydraulic system	21 gal.	79.5

Additional Standard Equipment:

Air precleaner	Loader bucket automatic hydraulic self-leveling
Air cleaner, dry type w/safety element	Loader bucket level indicator
Alternator, 35 amp w/transistorized voltage regulator	Muffler, underhood w/vertical exhaust
Antifreeze to -34°F (-37°C)	Multiple-fuse protected electrical system
Backhoe transport lock	Oil-to-air cooler for hydraulic system and transaxle
Cast-in-counterweight front axle	Oil-to-air cooler for torque converter and reverser
Differential lock, foot-engaged collar	Operator's platform floor mat
Electric automatic destroke for hydraulic pump	Operator's canopy or cab headliner
Electric combination tachometer/hourmeter	Pushbutton start switch
Electric shutoff on diesel injection pump	Rear fenders
Emergency/parking brake	Rear reflectors
Engine sideshields w/built-in locks	Restriction indicator for engine air cleaner
Foot and hand throttles	ROPS/FOPS with roof and seat belt
Fuel tank contaminant sump w/easy access drain	Steps and handholds
Gauges for:	Tinted tempered safety glass windows
Engine coolant temperature	
Fuel tank level	
Hydraulic/transmission oil temperature	
Horn	
Hydraulic lockouts for stabilizer — raise and lower	
Indicator lights:	
Alternator	
Engine oil pressure	
Parking brake	
Turn signals	
Lights:	
Halogen driving lights	
Halogen work lights	
Turn signal lights	
Tail and brake lights	
Flashing hazard lights	

SAE Operating Weight 15,400 lb. (7000 kg)

510B BACKHOE LOADER SPECIFICATIONS AND DIMENSIONS



Key:

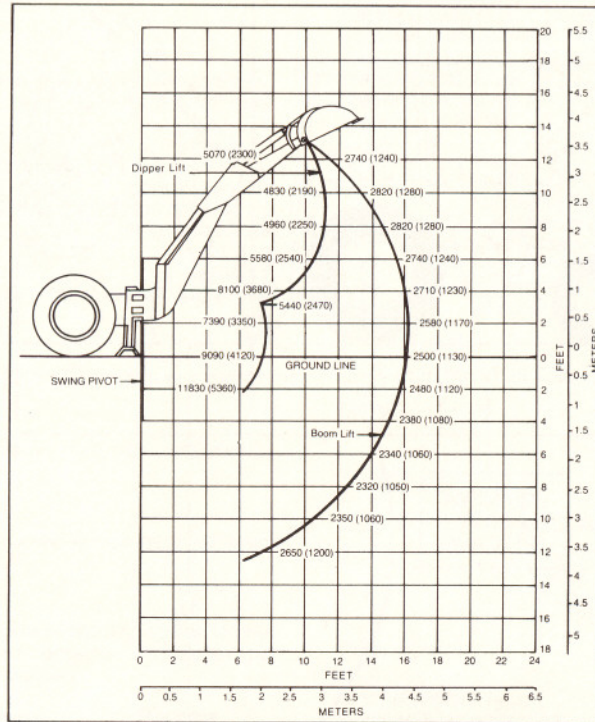
	Backhoe*	Extendable Dipperstick	
		Retracted	Extended
A. Loading height, truck loading position	12 ft. 10 in. (3.91 m)	11 ft. 4 in. (3.45 m)	13 ft. 10 in. (4.22 m)
B. Reach from center of swing mast	19 ft. 2 in. (5.84 m)	19 ft. 0 in. (5.80 m)	24 ft. (7.32 m)
C. Reach from center of rear axle	22 ft. 2 in. (6.75 m)	22 ft. 11 in. (7.0 m)	27 ft. 11 in. (8.5 m)
D. Digging depth (SAE):			
(1) 2-ft. (610 mm) flat bottom	15 ft. 6 in. (4.72 m)	15 ft. 7 in. (4.75 m)	20 ft. 9 in. (6.33 m)
(2) 8-ft. (2440 mm) flat bottom	14 ft. 5 in. (4.40 m)	14 ft. 6 in. (4.43 m)	19 ft. 10 in. (6.05 m)
E. Maximum digging depth	15 ft. 8 in. (4.78 m)	15 ft. 6 in. (4.73 m)	20 ft. 8 in. (6.30 m)
F. Ground clearance, minimum	13 in. (330 mm)	13 in. (330 mm)	13 in. (330 mm)
G. Bucket rotation	123, 127/155 degrees	123, 127/155 degrees	123, 127/155 degrees
H. Transport height	12 ft. (3.65 m)	12 ft. (3.65 m)	12 ft. (3.65 m)
J. Overall length, transport	22 ft. 11.5 in. (7.0 m)	22 ft. 11.5 in. (7.0 m)	22 ft. 11.5 in. (7.0 m)
K. Stabilizer width—transport	7 ft. 8 in. (2.34 m)	7 ft. 8 in. (2.34 m)	7 ft. 8 in. (2.34 m)
L. Stabilizer spread—operating	9 ft. 10 in. (3 m)	9 ft. 10 in. (3 m)	9 ft. 10 in. (3 m)
M. Overall width (less loader bucket)	92.1 in. (2340 mm)	92.1 in. (2340 mm)	92.1 in. (2340 mm)
Digging force, bucket cylinder (power dig position)	9800 lb. (43.6 kN) (4445 kg)	9800 lb. (43.6 kN) (4445 kg)	9800 lb. (43.6 kN) (4445 kg)
Digging force, crowd cylinder	7500 lb. (33.4 kN) (3402 kg)	7570 lb. (33.7 kN) (3434 kg)	4935 lb. (21.9 kN) (2238 kg)
Swing arc	180 degrees	180 degrees	180 degrees
Operator control	Two levers	Right foot treadle	Right foot treadle
Bucket positions	12 or 20 deg. rollback/ 6 deg. forward	12 or 20 deg. rollback/ 6 deg. forward	12 or 20 deg. rollback/ 6 deg. forward
Stabilizer angle rearward	13 degrees	13 degrees	13 degrees
Lifting capacity, maximum boom @65°	5550 lb. (2523 kg)	5410 lb. (2460 kg)	1735 lb. (790 kg)

*Note: Backhoe specifications are with 24-in. (610 mm) 8.8 cu. ft. (.25 m³) bucket. With 24-in. (610 mm) standard-duty bucket, the digging forces increase and the depth and reach decrease.

510B BACKHOE LOADER LIFTING CAPACITIES

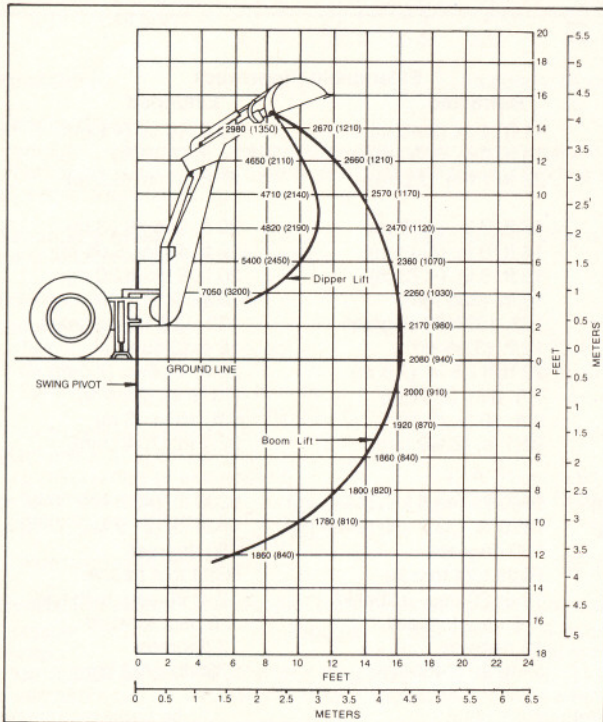
Lifting Capacities: Ratings made from bucket hinge pin, loader bucket and stabilizers on firm, level ground. Lifting capacities are 87 percent of the maximum lift over any point on the swing arc and do not exceed 75 percent of the tipping load. Angle between boom and ground at 65 degrees. Machine equipped with 24-in. (610 mm) trenching bucket, standard or optional dipperstick (as indicated below) and standard equipment.

Lift Capacity
Backhoe with standard dipperstick.
 Based on SAE J31 (except w/loader bucket on ground*).



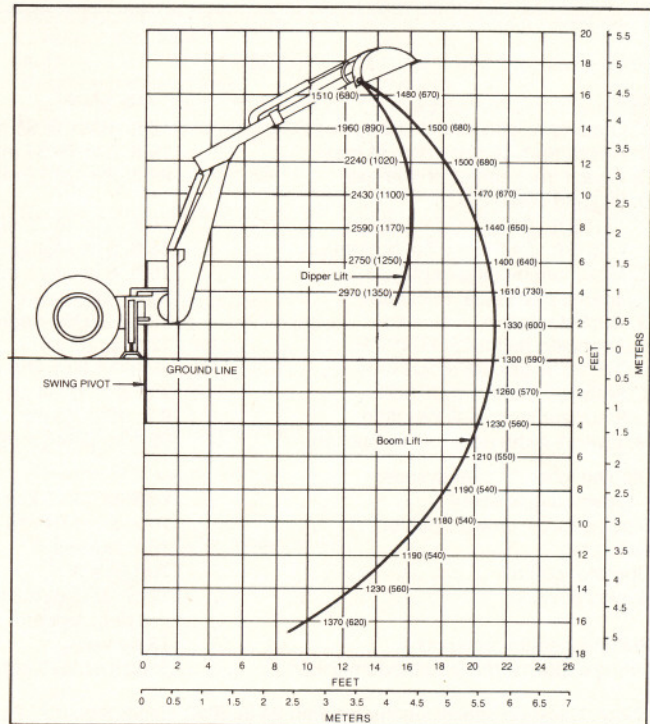
Rated lift capacities are in lb. (kg)
 Lift capacities are hydraulically limited.

Lift Capacity
Backhoe with extendable dipperstick, retracted.
 Based on SAE J31 (except w/loader bucket on ground*).



Rated lift capacities are in lb. (kg)
 Lift capacities are hydraulically limited.

Lift Capacity
Backhoe with extendable dipperstick, extended.
 Based on SAE J31 (except w/loader bucket on ground*).



Rated lift capacities are in lb. (kg)
 Lift capacities are hydraulically limited.

*Loader bucket on ground significantly improves side stability, therefore improving lift capacity to the side. Lift capacity over the rear is not affected.

510B BACKHOE LOADER

LOADER:

Operator control	Single lever
Rollback at ground level	40 degrees
Breakout force	9200 lb. (40.9 kN) (4173 kg)
Digging depth below ground, bucket level	4 in. (100 mm)
Lifting capacity, full height	6180 (2810 kg)
Height to bucket hinge pin, max.	11 ft. (3.35 m)
Bucket dump angle, max.	45 degrees
Dump clearance, bucket @ 45 degrees	8 ft. 9 in. (2.67m)
Reach at full height, bucket @ 45 degrees	30 in. (762 mm)
Raising time to full height	4.5 sec.
Bucket dump time	1.0 sec.
Bucket lowering time (power down)	3.0 sec.

Optional or Special Equipment:

Altitude-compensating engine turbocharger
Automatic return-to-dig
Backup alarm
Cab pressurizer
Cab with:
51-amp alternator
Fabric-covered swivel seat, suspension or non-suspension
Front defroster fan
Front and rear wipers
Integral ROPS/FOPS
Standard heater — 19,000 Btu (5.6 kW)
Cold-weather starting aid, remote mounted
Deluxe heater w/fresh air intake — 40,000 Btu (11.7 kW)
Economy seat, vinyl covered, suspension or rigid mounted
Engine coolant heater
Extendable dipperstick for backhoe
Fire extinguisher
Front counterweight
Heavy-duty batteries
Instrument panel vandal cover
Mechanical front-wheel drive
Rear defroster fan
Rear-view mirror, inside mounted, curved, heavy-duty
Rear wheel spacers for tire chain clearance
Reversible stabilizer pads
Ripper tooth for backhoe, 24 in. (610 mm)
Rotating beacon light
Swivel seat, vinyl covered, suspension or non-suspension
SMV emblem
3-in. (76 mm) seat belt
Three- or four-lever, pedal-swing backhoe controls
Toolbox

BUCKETS

Loader:	Width		Struck Capacity		Heaped Capacity	
	In.	(mm)	Cu. Ft.	(m ³)	Cu. Yd.	(m ³)
General purpose	92	(2340)			1.25	(1.00)
Long lip	89.4	(2270)			1.25	(1.00)
Backhoe:						
Standard-duty	12	(305)	2.6	(0.07)	3.0	(0.08)
	16	(406)	3.7	(0.10)	4.5	(0.13)
	18	(457)	4.2	(0.12)	5.1	(0.14)
	24	(610)	5.9	(0.17)	7.5	(0.21)
	24	(610)	7.2	(0.20)	8.8	(0.25)
	30	(762)	7.5	(0.21)	10.0	(0.28)
	36	(914)	7.5	(0.21)	10.0	(0.28)
	36	(914)	11.2	(0.32)	14.5	(0.41)
Heavy-duty	18	(457)	4.2	(0.12)	5.1	(0.14)
	24	(610)	5.9	(0.17)	7.5	(0.21)
	30	(762)	7.5	(0.21)	10.0	(0.28)
Ejector	24	(610)	4.6	(0.13)	5.7	(0.16)

Additional Available Equipment:*

Auxiliary bolt-on cutting edge for loader buckets
Auxiliary fuel tank
Auxiliary hydraulic valves and circuit for loader and backhoe
Backhoe lift eye
Bolt-on teeth for loader bucket
Front windshield and door kit
Grille guard
Lateral slides for operator's seat
Loader bucket chain hooks, outer
Longer dippersticks
Light materials/snow loader buckets
Multipurpose loader buckets
1½ cu. yd. (1.15 m³) bucket
Radio or radio cassette

*See your John Deere dealer for further information.

Extendable dipperstick

