



# 310C

## BACKHOE LOADER



**SAE Net  
Horsepower**  
67 hp (50 kW)

**Digging  
Depth**  
14 ft. 3 in.  
(4.34 m)

**Operating  
Weight SAE**  
13,500 lb.  
(6124 kg)

Model shown may include options

## ENGINE

John Deere engineered and manufactured. Replaceable wet type cylinder liners provide superior heat dissipation, longer life. High strength alloy heads have replaceable valve seat inserts. The forged steel, 5-main bearing crankshaft is statically and dynamically balanced for smooth operation. Cast aluminum pistons provide good heat transfer and pistons are sprayed with cooling oil for longer life.

<b>Engine:</b> John Deere 4039D	
Rated power @ 2200 rpm	67 SAE net hp (50 kW)
	71 SAE gross hp (53 kW)
Turbocharger	optional
Cylinders	4
Displacement	239 cu. in. (3.917 L)
Fuel consumption, typical	1.0 to 2 gal/hr (4.7 to 7.6 L/h)
Torque rise, standard	20% at 1200 rpm, 192 lb-ft (260 Nm)
with optional turbocharger	25% at 1200 rpm, 200 lb-ft (271 Nm)
Lubrication	Pressure system w/full flow filter and cooler
Air cleaner	Dual stage dry type with safety element and precleaner
Electrical system	12 volt
Alternator	65 amps

## TRANSMISSION

John Deere designed and built 4-speed helical gear, synchronized, collar shift transmission with hydraulic reverser. Uses single stage, dual phase, 11-inch (280 mm) torque converter with 2.83:1 stall ratio.

### TRAVEL SPEEDS

	<b>Gear</b>	<b>Forward</b>		<b>Reverse</b>	
		<b>mph</b>	<b>(km/h)</b>	<b>mph</b>	<b>(km/h)</b>
With standard	1	3.3	5.3	3.0	4.8
17.5L-24 rear and	2	5.7	9.2	5.1	8.2
11L-15 front tires	3	12.3	19.8	11.1	17.9
	4	22.4	36.1	20.2	32.5
With MFWD and	1	3.4	5.5	3.1	5.0
required 19.5L-24	2	5.9	9.5	5.3	8.5
rear and 12.00-	3	12.6	20.3	11.3	18.2
16.5 front tires	4	23.0	37.0	20.7	33.3

## FINAL DRIVES

Heavy-duty, inboard mounted planetary type. Evenly distributes axle shock loads over three gears that run in a cooling oil bath.

## BRAKES

Hydraulic wet disk brakes are mounted inboard and are pressure cooled and lubricated. They're self-adjusting, self-equalizing, require no periodic service. Individual pedals allow them to be applied together or separately. Parking/emergency brake is an independent system that uses a mechanical V-groove band on differential ring gear.

## STEERING

Hydrostatic power steering gives superior control at all speeds. Excellent steering torque allows easy maneuvering with heavy loads.

Non-powered axle	
Curb turning radius with brakes	11 ft. 9 in. (3.57 m)
without brakes	13 ft. 3 in. (4.04 m)
Bucket clearance circle with brakes	31 ft. 6 in. (9.61 m)
without brakes	34 ft. 7 in. (10.55 m)
Steering wheel turns, stop to stop	2.2 to 2.9
Mechanical-front-wheel drive	
Curb turning radius with brakes	10 ft. 11 in. (3.34 m)
without brakes	13 ft. 8 in. (4.17 m)
Bucket clearance circle with brakes	29 ft. 9 in. (9.07 m)
without brakes	35 ft. 3 in. (10.74 m)
Steering wheel turns, stop to stop	2.5
Axle oscillation stop to stop, both axles	22 degrees

<b>Axle ratings:</b>	<b>Static</b>	<b>Dynamic</b>	<b>SAE J43</b>
Front	56,000 lb. (25,500 kg)	56,000 lb. (25,500 kg)	11,250 lb. (5,100 kg)
Rear	43,500 lb. (19,800 kg)	58,000 lb. (26,400 kg)	13,300 lb. (6,030 kg)

## HYDRAULICS

System	open center
Pressure, main relief	2700 psi (18 620 kPa)
Pump	gear type
Flow at 2200 rpm	35 gpm (133 L/min)
Filter, return oil	10 micron, spin-on replaceable element

## TIRES

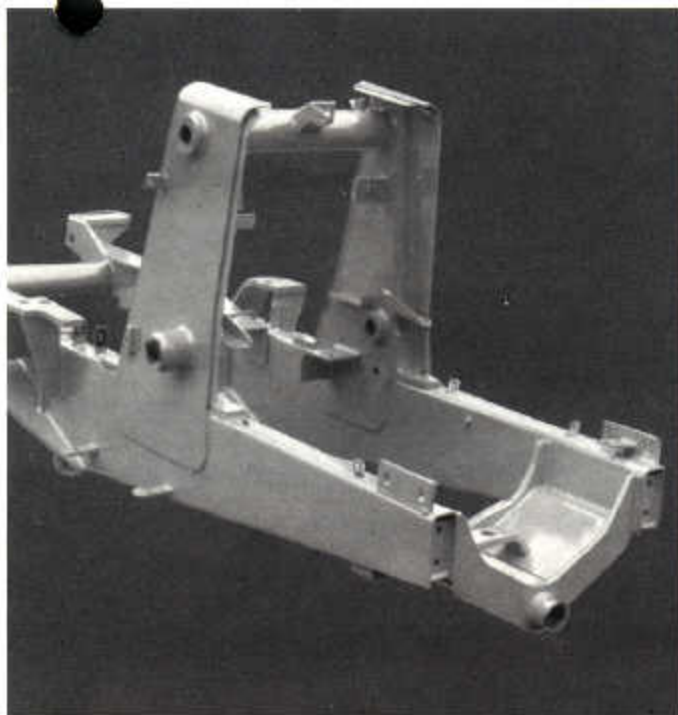
<b>Front</b>	<b>Rear</b>
11L-15, 8 PR, F3	16.9-24, 8 PR, R4
11L-16, 12 PR, F3	17.5L-24, 10 PR, R4
14.5/75 x 16.1, F3	19.5L-24, 8 PR, R4
	21L-24, 10 PR, R4
With mechanical-front-wheel drive	
12.00-16.5, 8 PR, R4	19.5L-24, 8 PR, R4
14 x 17.5, 8 PR, NHS	21L-24, 10 PR, R4

## CAPACITIES

Fuel tank	26 gal. (98 L)
Engine coolant	17 qt. (16 L)
Engine oil including filter	9 qt. (8.5 L)
Torque converter and reverser system	8 qt. (7 L)
Hydraulic system	21 gal. (79 L)
Transaxle with MFWD	6 gal. (23 L)

## OPERATING WEIGHTS

310C	13,500 lb. (6124 kg)
cab adds	420 lb. (190 kg)
mechanical-front-wheel drive adds	190 lb. (86 kg)
extendable dipperstick with	
required counterweight adds	1072 lb. (486 kg)
optional heavier front	
counterweight adds	435 lb. (197 kg)
reversible stabilizer pads add	120 lb. (54 kg)
See backhoe and loader performance data for bucket weights	



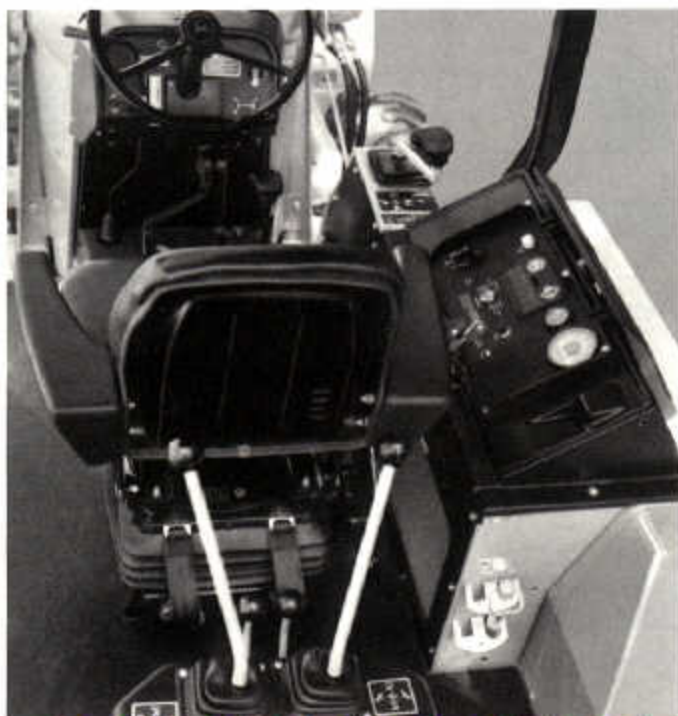
## MAINFRAME

All drivetrain components are mounted independently to the massive unitized mainframe where they are isolated from working stress and shock loads. And each drivetrain component can be removed independently of the others to speed repairs, reduce downtime.



## FRONT-WHEEL DRIVE

This rugged, industrial-duty axle can be engaged under load on-the-go. A limited slip differential is mounted to the side to provide maximum ground clearance. The axle's sealed design prevents entry of water and mud. Turning radius remains near that of a two-wheel drive.



## OPERATOR'S STATION

The industry standard. Large entrance door swings open to the front, can be left open during operation. Sixty-six percent of the glass area opens for superior ventilation. Electronic monitor provides audible and visible warnings for vital functions. There are four seat options and three control options.



## LOADER DESIGN

A single dump cylinder on the loader bucket gives the operator an unobstructed view to the bucket. Simpler linkage and one less cylinder reduces weight. It also means there are fewer pivot points and fewer lubrication points reducing maintenance time and expense.

# BACKHOE PERFORMANCE

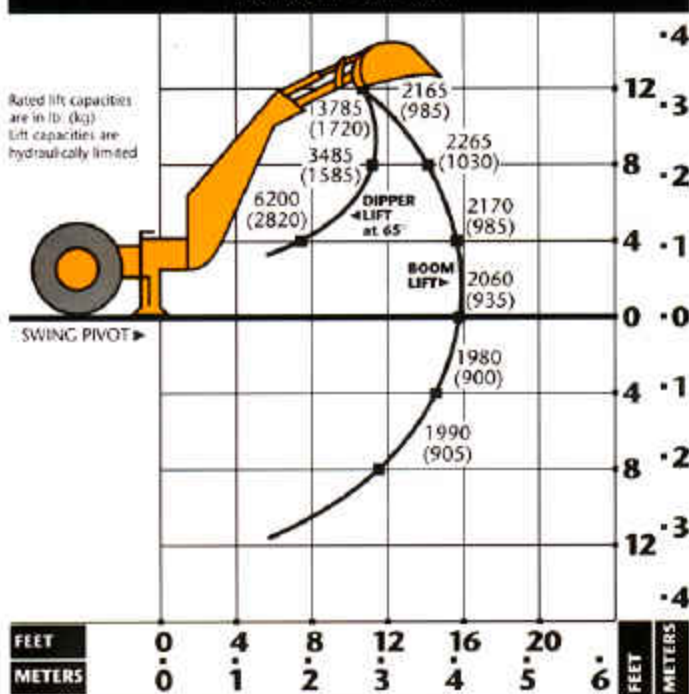
Backhoe*	
Digging force, bucket cylinder (power dig position)	11,570 lb. (51.5 kN)
Digging force, crowd cylinder	6650 lb. (29.6 kN)
Swing arc	180 degrees
Operator control	Two levers
Bucket positions	12 or 21 deg. rollback
Stabilizer angle rearward	13 degrees
Lifting capacity, maximum, boom at 65 deg.	4000 lb. (1820 kg)
Leveling angle	14 degrees

\*Backhoe specifications are with 24-in. x 7.5 cu. ft. (610 mm x 0.21 m<sup>3</sup>) bucket.

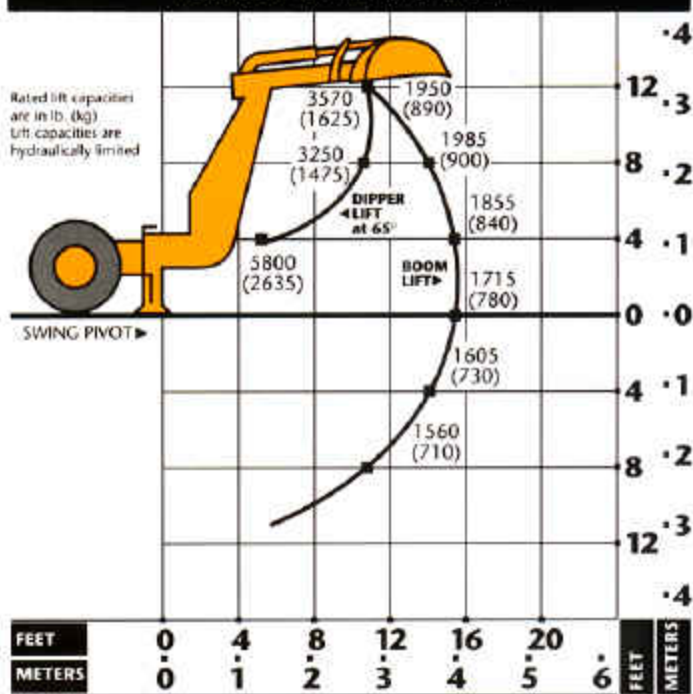
## Extendable Dipperstick

Retracted	Extended
11,400 lb. (50.9 kN)	11,400 lb. (50.9 kN)
6650 lb. (29.6 kN)	4540 lb. (20.2 kN)
180 degrees	180 degrees
Right foot treadle	Right foot treadle
8 or 17 deg. rollback	12 or 22 deg. rollback
13 degrees	13 degrees
3700 lb. (1680 kg)	2400 lb. (1090 kg)
14 degrees	14 degrees

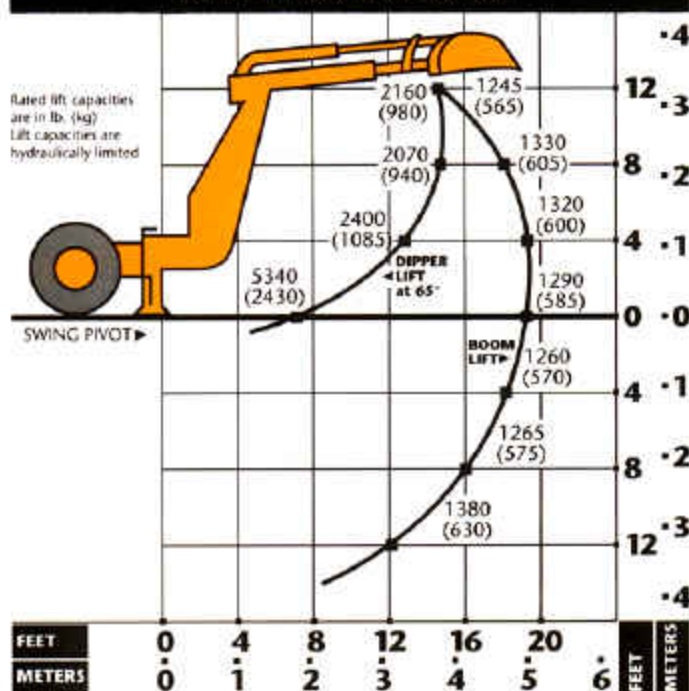
### LIFT CAPACITY Backhoe with standard dipperstick, Based on SAE J31



### LIFT CAPACITY Backhoe with extendable dipperstick retracted. Based on SAE J31



### LIFT CAPACITY Backhoe with extendable dipperstick, extended. Based on SAE J31



## BACKHOE BUCKETS

	Width		Capacity		Weight	
	in.	(mm)	cu. ft.	(m <sup>3</sup> )	lb.	(kg)
Standard-duty	12	(305)	2.5	(0.07)	247	(112)
	16	(406)	3.6	(0.10)	270	(122)
	18	(457)	5.1	(0.14)	338	(153)
	24	(610)	7.5	(0.21)	378	(171)
	30	(762)	10.0	(0.28)	428	(194)
	36	(914)	10.0	(0.28)	432	(196)
Heavy-duty	36	(914)	14.5	(0.41)	674	(306)
	18	(457)	5.1	(0.14)	348	(158)
	24	(610)	7.5	(0.21)	400	(181)
	24	(610)	8.8	(0.25)	460	(209)
	30	(762)	10.0	(0.28)	472	(214)

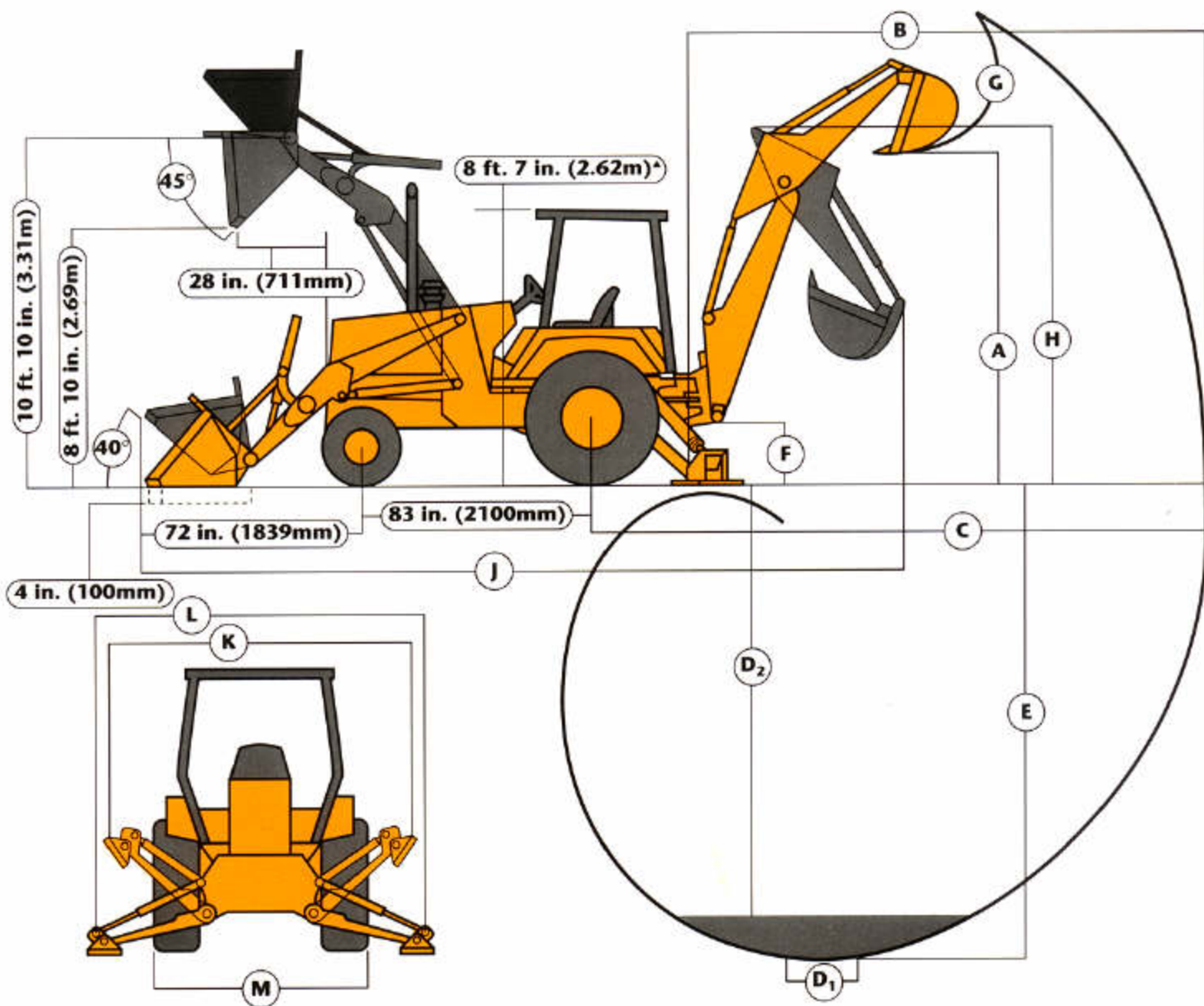
## LOADER PERFORMANCE

Operator control	single lever
Breakout force	9350 lb. (41.6 kN)
Lifting capacity, full height	5700 lb. (2585 kg)
Raising time to full height	3.3 sec.
Bucket dump time	1.1 sec.
Bucket lowering time (power down)	2.3 sec.

## LOADER BUCKETS

Loader:	Width		Heaped Capacity		Weight	
	in.	(mm)	cu. yd.	(m <sup>3</sup> )	lb.	(kg)
General purpose	92	(2340)	1.0	(0.76)	706	(320)
	92	(2340)	1.3	(1.00)	796	(361)
Long lip	89	(2270)	1.25	(0.96)	750	(340)

# DIMENSIONS



▲ ROPS and cab

## Key:

	Backhoe*
A. Loading height, truck loading position	10 ft. 10 in. (3.30 m)
B. Reach from center of swing mast	17 ft. 6 in. (5.34 m)
C. Reach from center of rear axle	20 ft. 10 in. (6.35 m)
D. Digging depth (SAE):	
(1) 2-ft. (610 mm) flat bottom	14 ft. 2 in. (4.32 m)
(2) 8-ft. (2440 mm) flat bottom	13 ft. (3.96 m)
E. Maximum digging depth	14 ft. 3 in. (4.34 m)
F. Ground clearance, minimum	13 in. (330 mm)
G. Bucket rotation	160 or 180 degrees
H. Transport height	11 ft. 5 in. (3.48 m)
J. Overall length, transport	22 ft. 11 in. (7.01 m)
K. Stabilizer width — transport	7 ft. 3 in. (2.21 m)
L. Stabilizer spread — operating	9 ft. 10 in. (3.0 m)
M. Overall width (less loader bucket)	82 in. (2080 mm)

\*See backhoe performance

## Extendable Dipperstick

	Retracted	Extended
A. Loading height, truck loading position	11 ft. 1 in. (3.38 m)	13 ft. 1 in. (3.99 m)
B. Reach from center of swing mast	17 ft. 7 in. (5.36 m)	21 ft. 1 in. (6.43 m)
C. Reach from center of rear axle	20 ft. 10 in. (6.35 m)	24 ft. 5 in. (7.44 m)
D. Digging depth (SAE):		
(1) 2-ft. (610 mm) flat bottom	14 ft. 2 in. (4.32 m)	18 ft. (5.49 m)
(2) 8-ft. (2440 mm) flat bottom	13 ft. (3.96 m)	17 ft. 1 in. (5.21 m)
E. Maximum digging depth	14 ft. 3 in. (4.34 m)	18 ft. 2 in. (5.58 m)
F. Ground clearance, minimum	13 in. (330 mm)	13 in. (330 mm)
G. Bucket rotation	160 or 180 degrees	160 or 180 degrees
H. Transport height	11 ft. 7 in. (3.53 m)	11 ft. 7 in. (3.53 m)
J. Overall length, transport	22 ft. 11 in. (7.01 m)	22 ft. 11 in. (7.01 m)
K. Stabilizer width — transport	7 ft. 3 in. (2.21 m)	7 ft. 3 in. (2.21 m)
L. Stabilizer spread — operating	9 ft. 10 in. (3.0 m)	9 ft. 10 in. (3.0 m)
M. Overall width (less loader bucket)	82 in. (2080 mm)	82 in. (2080 mm)

## ADDITIONAL STANDARD EQUIPMENT

Air cleaner restriction indicator	Engine fan guard	Flashing/turn signals, front and rear (2)	Oil-to-air cooler for hydraulic system
Air cleaner, dry type w/safety element and precleaner	Engine side shields	Rear halogen work (2)	Oil-to-air cooler for reverser/torque converter system
Alternator — 65 amp, w/transistorized voltage regulator	Floor mat	Stop/tail (2)	Oil-to-air cooler for transaxle and brakes
Antifreeze to —34° (—37°C)	Foot and hand throttles	Loader bucket level indicator	Rear fenders
Automatic loader return-to-dig	Front counterweight, 415 lb. (188 kg)	Monitor for	Rear reflectors
Backhoe boom transport lock	Fuel gauge	Alternator	Rearview mirror (inside)
Battery, 180-minute reserve capacity	Fuel tank sump w/easy access drain	Engine coolant temperature	Reverse neutral latch
Built-in chain hooks on loader bucket	Headliner	Engine oil pressure	ROPS/FOPS canopy, isolation mounted with roof and seat belt
Differential lock	Horn	Hydraulic filter	Starter terminal covers
Electric fuel shutoff	Hourmeter	Parking brake	Steps and handholds
Emergency parking brake, independent	Hydraulic self-leveling loader	Torque converter temperature	Swivel seat, fully adjustable
	Hydrostatic power steering	Muffler, under hood w/vertical exhaust	Torque converter
	Key start switch	Multiple fuse protected electrical system — 12 volt	Vandal protection with built-in locks for engine access door and fuel tank cap
	Lights:	Neutral start safety switch	
	Front halogen driving/work (2)		

## OPTIONAL OR SPECIAL EQUIPMENT

Altitude-compensating engine turbocharger	Front defroster fan	Engine coolant heater	Reversible stabilizer pads
Auxiliary hydraulic valves and circuit for loader and backhoe	Front and rear wipers	Extendable dipperstick for backhoe	Rotating beacon light
Backup alarm	Integral ROPS/FOPS	Fire extinguisher	Tachometer/hourmeter
Cab with:	Standard heater — 19,000 Btu/hr (5.6 kW)	Heavy-duty batteries	SMV emblem
Deluxe cab interior trim	Cab, quarter (front windshield and door)	Mechanical-front-wheel drive	3-in. (76 mm) seat belt
Fabric-covered swivel seat, suspension or non-suspension	Cold-weather starting aid, remote mounted	Quick-hitch backhoe bucket system	Three- or four-lever, pedal-swing backhoe controls
	Front counterweight, 850 lb. (385 kg) or 415 lb. (188 kg)	Rear defroster fan	Toolbox
		Rear wheel spacers for tire chain clearance	

## ADDITIONAL AVAILABLE EQUIPMENT\*

Auxiliary bolt-on cutting edge for loader buckets	Deluxe heater w/fresh air intake — 40,000 Btu/hr (11.7 kW)	Lateral slides for operator's seat	Radio or radio cassette
Backhoe lift eye	Air conditioner, 24,000 Btu/hr (7.0 kW)	Longer dippersticks	Special paint
Weld-on teeth for loader bucket	Front windshield and door kit	Light materials/snow loader buckets	3-point hitch and hydraulics
Cab pressurizer	Grille guard	Multipurpose loader buckets	* See your John Deere dealer for further information

## JOHN DEERE 'BEST VALUE' EXTRAS

**Best parts support**—Twelve regional parts depots in North America and others around the world put parts support near your job no matter where in the world it is.

A computerized FLASH™ parts locating system linking these depots to dealerships can find out-of-stock parts in a hurry and get them into your hands fast. Usually within 24 hours.

**Best service backup**—Dealer service technicians are regularly schooled, at our modern facility in Davenport, Iowa, or by professionals in the field, to diagnose quickly and repair efficiently.

If they're stumped, a phone call to DTAC (Dealer Technical Assistance Center), puts them in touch with a staff of pros at the factory who help them find a solution quickly.

**Best dealers**—Your John Deere dealer has made a significant commitment to being the best equipment supplier you can work with.

This is a dollars and cents commitment in parts inventory, in service facilities, in field service trucks. It's a sweat and

blood commitment in dedicated, skilled and highly trained and motivated personnel in each and every department at the dealership.

But what sets John Deere dealers apart from all the rest is something more, a factor somewhat difficult to measure... a caring attitude, and a sincere desire to be the best at meeting the needs of each individual customer he serves.

**John Deere Finance Plans**—Whether you rent, lease or buy John Deere equipment, your dealer can explain the John Deere options available. One-stop options that let you free up operating capital, keep other lines of credit open.

**Best warranty protection**—All John Deere construction equipment has a 6-month warranty on the entire machine and a full 24-month warranty on the power train. SECURE, a John Deere service product, is offered for repair coverage after warranty concludes. Full machine or power train coverage is available for a variety of time periods to meet your needs. Your dealer will explain the details.

FED B. MILLER CO., INC.

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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 17.5L-24, 10 PR, R4 rear tires, 11L-15, 8 PR F3 front tires, 1.0 cu. yd. (0.76 m<sup>3</sup>) loader bucket, 24 in. x 7.5 cu. ft. (610 mm x 0.21 m<sup>3</sup>) backhoe bucket.



Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan, at standard conditions per SAE J1549 and DIN 70 020, using No. 2-D fuel at 35 API gravity. No derating is required up to 5000 feet (1500 m) altitude. With optional altitude compensating turbocharger 10,000 feet (3050 m). Gross power is without cooling fan.