



TED B. MILLER CO., INC.
Hwy 92 East
P.O. Box 460
Gering, Nebr. 69341

310D

BACKHOE LOADER



**SAE Net
Horsepower**

67 hp (50 kW)

**Digging
Depth**

14 ft. 6 in.
(4.42 m)

**Loader
Lift**

5,700 lb.
(2582 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.

Engine: John Deere 4039D	
Rated power @ 2200 rpm	67 SAE net hp (50 kW)
	71 SAE gross hp (53 kW)
with optional turbocharger	72 SAE net hp (53.7 kW)
	76 SAE gross hp (56.7 kW)
Cylinders	4
Displacement	239 cu. in. (3.917 L)
Fuel consumption, typical	1.0 to 2.0 gal/hr (3.8 to 7.6 L/h)
Torque rise	20 percent
with optional turbocharger	25 percent
Maximum net torque	192 lb-ft (260 Nm)
with optional turbocharger	215 lb-ft (292 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 with 78-amp alternator

TRANSMISSION

John Deere designed and built 4-speed helical gear, synchronized in all four gears, 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

	Gear	Forward mph (km/h)	Reverse mph (km/h)
With 19.5L-24 rear tires	1	3.4 5.5	3.1 5.0
	2	5.9 9.5	5.3 8.5
	3	12.6 20.3	11.3 18.2
	4	20.8 33.5	18.8 30.3

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 service 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 is spring-applied, hydraulically released and controlled by an electric switch on the control console. A mechanical V-groove band applies pressure on differential ring gear. All brakes conform to SAE J1473.

CAPACITIES

	U.S.
Fuel tank	28 gal. (106 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)

STEERING

Hydrostatic power steering gives superior control at all speeds. Excellent steering torque allows easy maneuvering with heavy loads. Power steering conforms to SAE J1151 and emergency steering SAE J53.

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

Axle ratings:	Static	Dynamic	SAE J43
Front	56,000 lb. (25,300 kg)	56,000 lb. (25,300 kg)	18,800 lb. (8500 kg)
Rear	43,500 lb. (19,700 kg)	58,000 lb. (26,300 kg)	15,260 lb. (6900 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 enclosed replaceable element

CYLINDERS

	Bore		Stroke		Rod	
	in.	(mm)	in.	(mm)	in.	(mm)
Loader boom (2)	3.15	80	29.80	757	1.77	45
Loader bucket (1)	3.54	90	28.19	718	1.77	45
Backhoe boom (1)	4.53	115	38.54	979	2.20	56
Backhoe crowd (1)	3.94	100	32.24	819	2.20	56
Backhoe bucket (1)	3.54	90	31.00	788	1.97	50
Backhoe swing (2)	3.94	100	10.94	278	1.97	50
Backhoe extendable dipper (1)	2.50	64	48.00	1220	1.25	32
Backhoe stabilizer (2)	3.94	100	19.96	507	1.97	50
Steering (1) regular axle	1.97	50	9.49	241	0.98	25
Steering (1) MFWD	2.36	60	7.90	202	0.98	25

TIRES

Rear	Front
16.9-24, 8 PR R4	11L-15, 8 PR F3
16.9-24, 8 PR R4	11L-16, 12 PR F3
17.5L-24, 10 PR R4	11L-15, 8 PR F3
19.5L-24, 8 PR R4	11L-16, 12 PR F3
With mechanical-front-wheel drive	
19.5L-24, 8 PR R4	12-16.5, 8 PR
21L-24, 10 PR R4	14-17.5, 8 PR, NHS

OPERATING WEIGHTS

SAE	
310D	13,600 lb. (6169 kg)
cab adds	500 lb. (227 kg)
mechanical-front-wheel drive	
with tires adds	220 lb. (100 kg)
extendable dipperstick excluding required counterweight adds	430 lb. (195 kg)
optional front counterweight	370 lb. (169 kg)*
optional front counterweight	770 lb. (349 kg)*
backhoe bucket coupler adds	200 lb. (91 kg)

See backhoe and loader performance data for bucket weights

*Denotes 50 lb. (14 kg) weight reduction when front bumper removed.



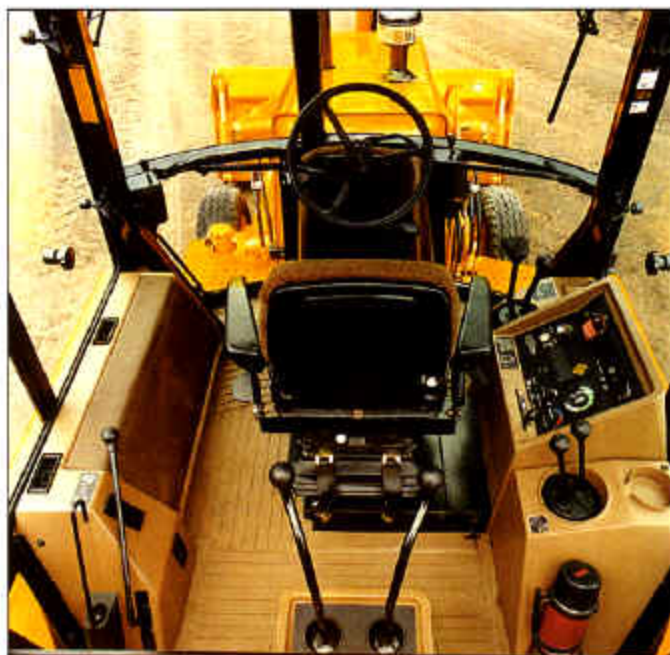
MAINFRAME

All drivetrain components are mounted independently to the massive one-piece 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 and reduce downtime.



VERTICAL BACKHOE

When locked for transport, the backhoe rides in a vertical position. Provides superior weight distribution for smooth transport and optimum performance when backfilling and truck loading. Bucket is stored high for good clearance when working in rough terrain or when loading and unloading from a trailer.



OPERATOR'S STATION

The industry standard. Large entrance doors on both sides allow convenient entrance and exit. Open within machine width so they aren't susceptible to damage. Electronic monitor provides audible and visible warnings. 4700 sq. in. (30 322 cm²) of window area opens for excellent ventilation.



LOADER DESIGN

A single dump cylinder on the loader bucket gives the operator an unobstructed view to the bucket. Simpler linkage, with one less cylinder and joint to lubricate and maintain, reduces time and expense.

BACKHOE PERFORMANCE

Backhoe*

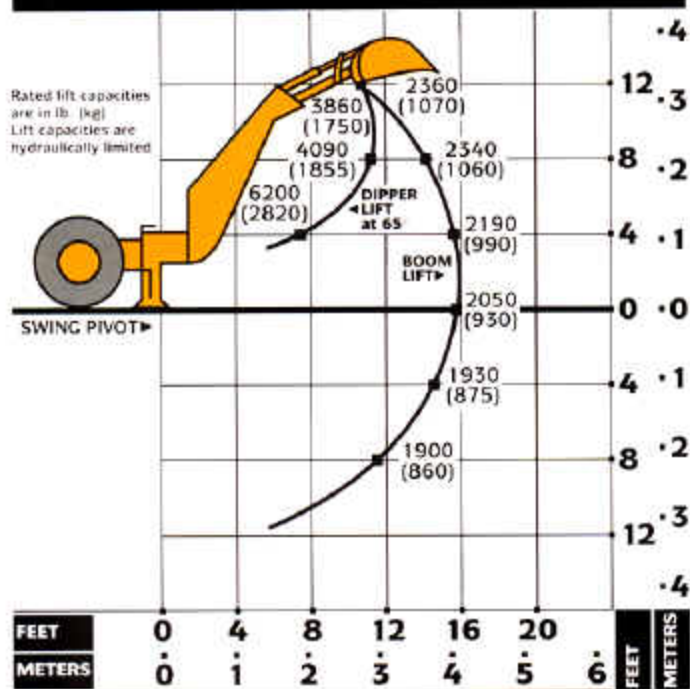
Digging force, bucket cylinder (power dig position)	11,570 lb. (51.5 kN)
Digging force, crowd cylinder	6650 lb. (29.6 kN)
Swing arc	180 degrees
Operator control	Two levers
Bucket positions	12 or 21 degree rollback
Stabilizer angle rearward	13 degrees
Lifting capacity, maximum, boom at 65 deg.	4600 lb. (2087 kg)
Leveling angle	14 degrees

* Backhoe specifications are with 24-in. x 7.5 cu. ft. (610 mm x 0.21 m³) bucket.

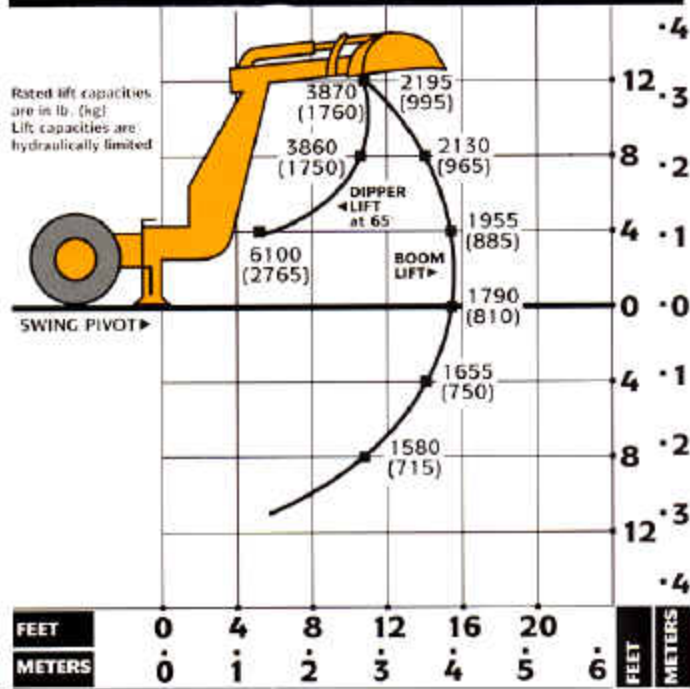
Extendable Dipperstick

Retracted	Extended
11,530 lb. (51.3 kN)	11,530 lb. (51.3 kN)
6700 lb. (29.8 kN)	4550 lb. (20.2 kN)
180 degrees	180 degrees
Right foot treadle	Right foot treadle
8 or 17 degree rollback	13 or 21 degree rollback
13 degrees	13 degrees
4400 lb. (1996 kg)	2700 lb. (1225 kg)
14 degrees	14 degrees

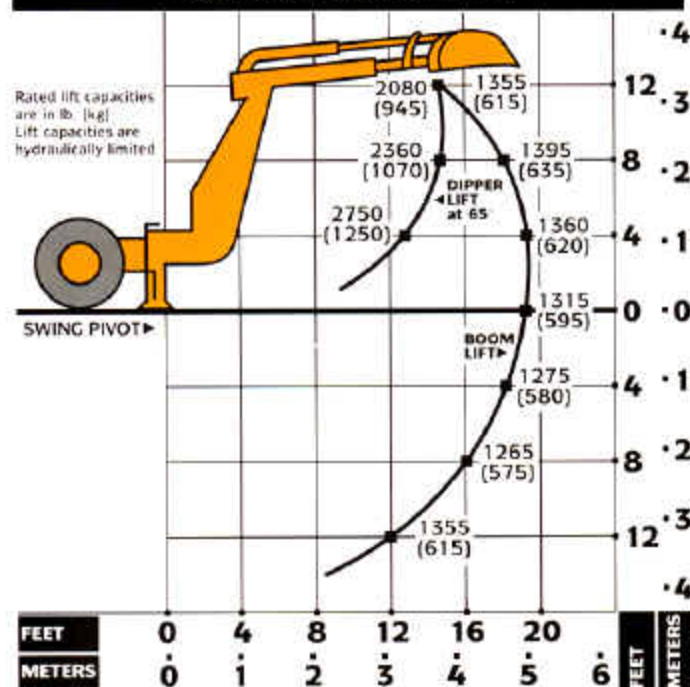
LIFT CAPACITY Backhoe with standard dipperstick. Based on SAE J31.



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 ³)	lb.	(kg)
Standard-duty	12	(305)	2.5	(0.07)	244	(111)
	16	(406)	3.6	(0.10)	268	(122)
	18	(457)	5.1	(0.14)	322	(146)
	24	(610)	7.5	(0.21)	370	(168)
	30	(762)	10.0	(0.28)	410	(186)
	36	(914)	10.0	(0.28)	430	(195)
Heavy-duty	36	(914)	14.5	(0.41)	556	(252)
	12	(305)	2.5	(0.07)	258	(117)
	18	(457)	5.1	(0.14)	334	(151)
	24	(610)	7.5	(0.21)	396	(180)
	24	(610)	8.8	(0.25)	476	(216)
	30	(762)	10.0	(0.28)	444	(201)
Extra heavy-duty	36	(914)	10.0	(0.28)	480	(217)
	18	(457)	5.1	(0.14)	362	(164)
	24	(610)	7.5	(0.21)	424	(192)
	30	(762)	10.0	(0.28)	474	(215)

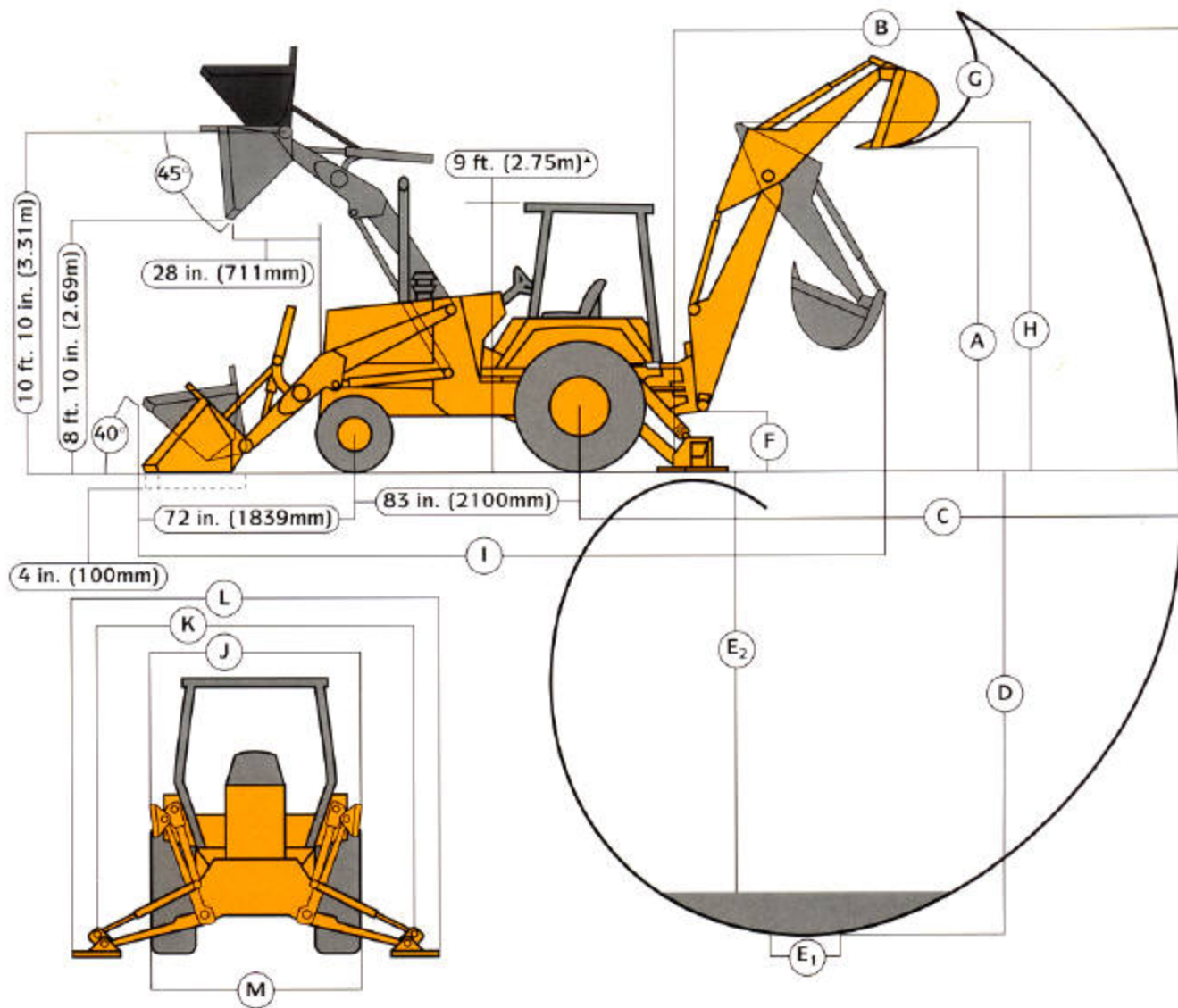
LOADER PERFORMANCE

Operator control	single lever
Breakout force	9550 lb. (41.6 kN)
Lifting capacity, full height	5700 lb. (2585 kg)
Raising time to full height	4.0 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 ³)	lb.	(kg)
General purpose	92	(2340)	1.0	(0.76)	760	(345)
	92	(2340)	1.3	(1.00)	800	(363)
Long lip	89	(2270)	1.25	(0.96)	750	(340)
Multipurpose	92	(2340)	1.25	(0.96)	1560	(708)

DIMENSIONS



▲ ROPS and cab

Key:

A. Loading height, truck loading position	11 ft. 4 in. (3.45 m)
B. Reach from center of swing mast	17 ft. 7 in. (5.36 m)
C. Reach from center of rear axle	21 ft. (6.40 m)
D. Maximum digging depth	14 ft. 6 in. (4.42 m)
E. Digging depth (SAE):	
(1) 2-ft. (610 mm) flat bottom	14 ft. 4 in. (4.37 m)
(2) 8-ft. (2440 mm) flat bottom	13 ft. 2 in. (4.02 m)
F. Ground clearance, minimum	13 in. (330 mm)
G. Bucket rotation	160 or 180 degrees
H. Transport height	12 ft. (3.67 m)
I. Overall length, transport	22 ft. 7 in. (6.88 m)
J. Stabilizer width – transport w/ROPS	7 ft. (2.12 m)
K. Stabilizer spread – operating	10 ft. (3.05 m)
L. Stabilizer overall width – operating	11 ft. 6 in. (3.50 m)
M. Width over tires	85 in. (2.15 m)

*See backhoe performance

Extendable Dipperstick

Retracted

11 ft. 8 in. (3.55 m)
17 ft. 7 in. (5.36 m)
21 ft. (6.40 m)
14 ft. 6 in. (4.42 m)
14 ft. 4 in. (4.37 m)
13 ft. 2 in. (4.02 m)
13 in. (330 mm)
12 ft. 2 in. (3.72 m)
22 ft. 7 in. (6.88 m)
7 ft. (2.12 m)
10 ft. (3.05 m)
11 ft. 6 in. (3.50 m)
85 in. (2.15 m)

Extended

13 ft. 11 in. (4.24 m)
21 ft. 3 in. (6.47 m)
24 ft. 7 in. (7.50 m)
18 ft. 3 in. (5.56 m)
18 ft. 2 in. (5.53 m)
17 ft. 4 in. (5.28 m)
13 in. (330 mm)
12 ft. 2 in. (3.72 m)
22 ft. 7 in. (6.88 m)
7 ft. (2.12 m)
10 ft. (3.05 m)
11 ft. 6 in. (3.50 m)
85 in. (2.15 m)

ADDITIONAL STANDARD EQUIPMENT

Engine:

Enclosed safety fan guard
Conforms to SAE J1308
Engine coolant to -34°F (-37°C)
Oil-to-water engine oil cooler
Under hood muffler with vertical curved end exhaust stack

Power Train:

Cooler, oil-to-air for reverser/torque converter system, transaxle and brakes
Electric shuttle control
Electric clutch cutoff
Differential lock with padded pedal

Backhoe:

Dirt foot stabilizer pad
Independent side console mounted stabilizer control
Patented high penetration, high wear resistant bucket tooth
Remote backhoe transport lock
Two-lever backhoe control

Loader:

Bucket level indicator

Built-in lift hooks on bucket
Hydraulic self-leveling
Return to dig
Single lever control with electric clutch cutoff

Operator's Station:

Built-in Operator's Manual storage compartment and manual
Built-in beverage and Thermos bottle holder
Coat hook
Electronic monitor system with audible and visual warning
Air cleaner restriction
Alternator
Coolant temperature
Engine oil pressure
Hydraulic filter indicator
Torque converter temperature
Fuel gauge
Hand throttle and padded foot throttle
Headliner
Horn
Hourmeter

Interior mounted rearview mirror
Conforms to SAE J985
Key start switch with electric fuel shutoff
Lights, halogen driving/working
33,000 candlepower (575 757 lux)
Two front, two rear
Stop and tail (two rear)
Flashing and turn signals, two front, two rear
Conforms to SAE J99
Modular design ROPS/FOPS canopy
Conforms to SAE J1040
Molded floor mat
Non-suspension seat
Flip up armrests
Conforms to SAE J899
Park brake indicator
Rear reflectors
Slip resistant safety steps and ergonomically located handrails
Conforms to SAE J185
2-in. (51 mm) seat belt with retractors
Conforms to SAE J386

Overall Vehicle:

Built-in tie downs
Dent resistant rear fenders
Engine side shields with convenient "tip up" service access
Remote grease bank for front axle
Rigid supported front bumper
Vandal protection, locking provision for
Engine access doors
Fuel tank cap
Instrument panel

Electrical:

Blade-type multi-fused circuits
Bypass start safety cover at starter
Positive terminal battery covers
Single battery, 180-min. reserve capacity

Hydraulics:

Independent hydraulic reservoir
Independent isolation mounted stabilizer valve
Two direction stabilizer anti-drift valves
"O" ring face seal connectors

OPTIONAL OR SPECIAL EQUIPMENT

Engine:

John Deere Model 4059T
3.9 liter 72 hp (53.7 kW)
turbocharged engine
Engine coolant heater
1000 watts
Remote mounted ether starting aid

Power Train:

Mechanical-front-wheel drive
Driveshaft guard
Electric on/off control
Heavy wall driveshaft
Limited slip differential

Backhoe:

Alternate stabilizer pads
Auxiliary function backhoe hydraulics
Backhoe bucket coupler
Backhoe controls
Case pattern with three-lever foot swing
Ford pattern with four levers
SAE excavator pattern*

Extendable dipperstick
Four-foot extension
Lifetime wearstrips
Extra function backhoe valve and controller
Heavy-duty and extra heavy-duty backhoe buckets
Built-in lift eyes

Ripper tooth
Stabilizer cylinder guards*

Loader:

Alternate buckets
Higher capacity general purpose
Long-tip configuration
Multipurpose
Auxiliary function loader hydraulics
Bolt-on auxiliary cutting edge
Third function loader hydraulics
Loader boom service lock*

Operator's Station:

Cab
Cab pressurizer
25-in. Hg pressurization
Deluxe headliner
Deluxe "eyeball" dome light
Doors that open within vehicle width
Fresh air intake heater/defroster/pressurizer
40,000 Btu/hr (11.7 kW) heater
Conforms to SAE J1503, J1535D
Fresh air pre-cleaner
Front and rear wipers
Pre-wired for radio
Windshield washers
Air conditioning
27,000 Btu/hr (7.9 kW) capacity
Conforms to SAE J1503
Deluxe suspension seat
Front quarter cab
Front doors only

Radio
Tachometer/hourmeter
3-in. (76 mm) seat belt

Overall Vehicle:

Dual batteries
Fan blast dust shields
Fire extinguisher
Front counterweights
400 lb. (181 kg)
800 lb. (363 kg)
High-flotation tires
Front grille guard*
Front grille screens*
Reverse alarm
Conforms to SAE J994, J1446
Rotating beacon
SMV emblem
Special color paint*
Toolbox

* See your John Deere dealer for further information.

THE JDAvantEDGE

JDAvantEdge is a wealth of support programs, parts systems and dealer resources, all designed to give you the edge. This package of special benefits is a major reason why John Deere offers the "best value" for your equipment dollar.

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 are 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 is an important contributor to the JDAvantEdge. He or she is committed to being the best equipment supplier you can work with.

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 55 API gravity. No derating is required up to 5000 feet (1500 m) altitude. With optional altitude compensating turbo-charger 10,000 feet (3050 m). Gross power is without cooling fan.

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.

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. More solid benefits of the JDAvantEdge.

Best protection—In addition to the new equipment warranty that meets or exceeds the competition, SECLURE® extended coverage, an optional service product for John Deere equipment, is available for repair coverage after the warranty concludes. Full machine or power train coverage is available for a variety of time periods to meet your needs. Consult your dealer for availability and details.

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 m³) loader bucket, 24-in. x 7.5 cu. ft. (610 mm x 0.21 m³) backhoe bucket.

