



Cat[®] 416F

BACKHOE LOADER

FEATURES:

- **Operator Station** – Air suspension seat and ergonomic controls provide a comfortable working environment.
- **Load Sensing Hydraulics** – Variable displacement piston pump and flow sharing hydraulic valves provide smooth control and optimized fuel efficiency.
- **Superior Power** – The 416F delivers excellent pushing power, aggressiveness in hard bank and fast roading and hill climbing.
- **Braking Performance** – New boosted hydraulic brakes improve braking performance with less operator effort.
- **Loader Performance** – New front loader arms deliver more reach, dump height and breakout.
- **Backhoe Design** – New beefier swing casting and double clevis design improves durability and reliability.
- **Versatility** – A wide array of Cat[®] Work Tools lets you do more jobs with one machine. A hydraulic thumb is also available. The hydraulic coupler makes work tool changes quick and easy.

Specifications

Engine

Engine Model	Cat [®] C4.4 ACERT [™]	
Gross Power		
SAE J1995	72 kW	97 hp
ISO 14396	70 kW	94 hp
Rated Net Power @ 2,200 rpm		
SAE J1349	65 kW	87 hp
ISO 9249	66 kW	88 hp
EEC 80/1269	66 kW	88 hp
Net Peak Power @ 1,800 rpm		
SAE J1349	67 kW	90 hp
ISO 9249	68 kW	91 hp
EEC 80/1269	68 kW	91 hp
Bore	105 mm	4.13 in
Stroke	127 mm	5 in
Displacement	4.4 L	268 in ³
Net Torque Rise @ 1,400 rpm	37%	
SAE J1349	405.8 N·m	299 lb·ft

Weights*

Operating Weight – Nominal	6750 kg	14,881 lb
Operating Weight – Maximum	11 000 kg	24,251 lb
Cab, ROPS/FOPS	260 kg	573 lb
Air Conditioning	39 kg	86 lb
Four Wheel Drive	155 kg	342 lb
MP Bucket (0.96 m ³ /1.25 yd ³) (no forks or teeth)	745 kg	1,642 lb
Extendible Stick	299 kg	659 lb
Counterweights (Option 1)	115 kg	255 lb
Counterweights (Option 2)	240 kg	530 lb
Counterweights (Option 3)	460 kg	1,015 lb

*Specifications shown are for machine equipped with 0.76 m³ (1.0 yd³) general purpose loader bucket, 610 mm (24 in) heavy duty backhoe bucket, 240 kg (550 lb) counterweight, 80 kg (176 lb) operator and full fuel tank.

- Engine meets U.S. EPA Tier 4 Interim/EU Stage IIIB emission standards.



416F Backhoe Loader

Transmission

Power Shuttle Transmission – Standard

Forward – 1st	6 km/h	3.7 mph
2nd	9.6 km/h	5.9 mph
3rd	20 km/h	12 mph
4th	40 km/h	25 mph
Reverse – 1st	6 km/h	3.7 mph
2nd	9.6 km/h	5.9 mph
3rd	20 km/h	12 mph
4th	40 km/h	25 mph

Axle Ratings

Front Axle, 2WD

Static	22 964 kg	50,582 lb
Dynamic	9186 kg	20,233 lb

Front Axle, 4WD

Static	22 964 kg	50,582 lb
Dynamic	9186 kg	20,233 lb

Rear Axle

Static	22 964 kg	50,582 lb
Dynamic	9186 kg	20,233 lb

Hydraulic System

Type	Closed Center	
Pump Type	Variable Flow, Axial Piston	
Pump Capacity @ 2,200 rpm	132 L/min	35 gal/min
System Pressure – Backhoe	23 000 kPa	3,300 psi
System Pressure – Loader	23 000 kPa	3,300 psi

Steering

Type	Front Wheel	
Power Steering	Hydrostatic	
Bore	65 mm	2.6 in
Stroke	120 mm	4.7 in
Rod Diameter	36 mm	1.4 in
Axle Oscillation	11°	
Turning Circle – 2WD/4WD (inner wheel not braked)		
Outside, Front Wheels	8.18 m	26'10"
Outside, Widest Loading Bucket	10.97 m	36'0"

Service Refill Capacities

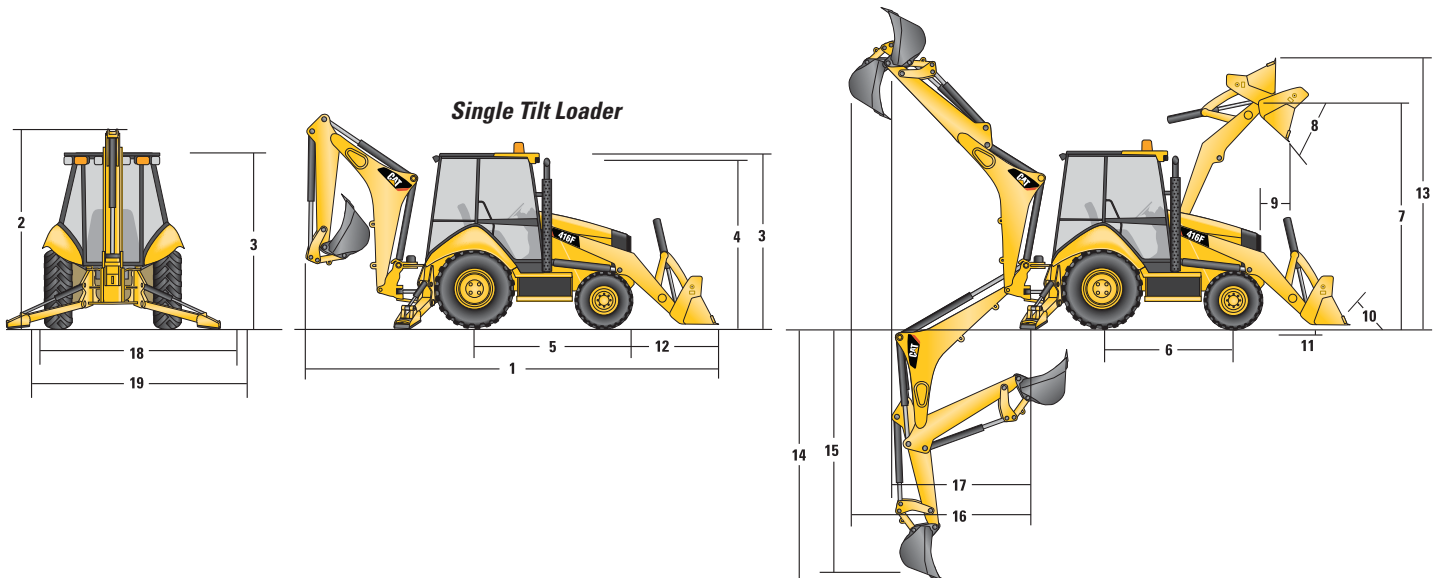
Cooling System with Air Conditioning	22 L	5.8 gal
Fuel Tank	170 L	45 gal
Engine Oil with Filter	7.6 L	2.0 gal
Transmission – Power Shuttle		
2WD	18.5 L	4.9 gal
4WD	18.5 L	4.9 gal
Rear Axle	16.5 L	4.4 gal
Planetaries	1.7 L	0.4 gal
Front Axle (4WD)	11.0 L	2.9 gal
Planetaries	0.7 L	0.2 gal
Hydraulic System	90.0 L	23.8 gal
Hydraulic Tank	42.0 L	11.1 gal

- Requires ultra-low sulfur fuel \leq 15 ppm fuel sulfur

Tires

Choices listed as combination of front/rear tires:

- 11L-16 (12 ply) F-3/19.5L-24 (12 ply) R4 ATU
- 12.5/80-18 (12 ply) 1-3/19.5L-24 (12 ply) ATU
- 12.5/80-18 NHS (12 ply) 1-3/21L-24 (16 ply) R4 ATU
- 340/80R 18/19.5L-24 (12 ply) R4 ATU



Dimensions

	Single Tilt Loader							
	0.76 m ³ (1.0 yd ³) GP Bucket		0.96 m ³ (1.25 yd ³) GP Bucket		1.0 m ³ (1.31 yd ³) MP Bucket		1.00 m ³ (1.31 yd ³) MP Bucket with Forks	
1 Overall Length (Loader on Ground) – Standard Stick	7027 mm	23' 1"	7140 mm	23' 5"	7057 mm	23' 2"	7057 mm	23' 2"
Overall Length (Loader on Ground) – Extendible Stick	7100 mm	23' 4"	7213 mm	23' 8"	7131 mm	23' 5"	7131 mm	23' 5"
Overall Transport Length – Standard Stick	7085 mm	23' 3"	7168 mm	23' 6"	7132 mm	23' 5"	7132 mm	23' 5"
Overall Transport Length – Extendible Stick	7146 mm	23' 5"	7241 mm	23' 9"	7205 mm	23' 8"	7205 mm	23' 8"
2 Overall Transport Height – Standard Stick	3577 mm	11' 9"	3577 mm	11' 9"	3577 mm	11' 9"	3577 mm	11' 9"
Overall Transport Height – Extendible Stick	3631 mm	11' 11"	3631 mm	11' 11"	3631 mm	11' 11"	3631 mm	11' 11"
Overall Width	2322 mm	7' 7"	2322 mm	7' 7"	2322 mm	7' 7"	2322 mm	7' 7"
3 Height to Top of Cab/Canopy	2819 mm	9' 3"	2819 mm	9' 3"	2819 mm	9' 3"	2819 mm	9' 3"
4 Height to Top of Exhaust Stack	2744 mm	9' 0"	2744 mm	9' 0"	2744 mm	9' 0"	2744 mm	9' 0"
Height to Loader Hinge Pin (Transport)	381 mm	1' 3"	381 mm	1' 3"	432 mm	1' 5"	432 mm	1' 5"
Ground Clearance (minimum)	320 mm	1' 1"	320 mm	1' 1"	320 mm	1' 1"	320 mm	1' 1"
5 Rear Axle Centerline to Front Grill	2705 mm	8' 10"	2705 mm	8' 10"	2705 mm	8' 10"	2705 mm	8' 10"
Front Wheel Tread Gauge	1895 mm	6' 3"	1895 mm	6' 3"	1895 mm	6' 3"	1895 mm	6' 3"
Rear Wheel Tread Gauge	1714 mm	5' 7"	1714 mm	5' 7"	1714 mm	5' 7"	1714 mm	5' 7"
6 Wheelbase 2WD/4WD	2200 mm	7' 3"	2200 mm	7' 3"	2200 mm	7' 3"	2200 mm	7' 3"

Loader Bucket Dimensions and Performance

	Single Tilt Loader							
	0.76 m ³ (1.0 yd ³) GP Bucket		0.96 m ³ (1.25 yd ³) GP Bucket		1.0 m ³ (1.31 yd ³) MP Bucket		1.00 m ³ (1.31 yd ³) MP Bucket with Forks	
Capacity (SAE Rated)	0.76 m ³	1.0 yd ³	0.96 m ³	1.25 yd ³	1.0 m ³	1.31 yd ³	1.0 m ³	1.31 yd ³
Overall Bucket Width	2262 mm	89 in	2262 mm	89 in	2279 mm	90 in	2279 mm	90 in
Lift Capacity at Maximum Height	3062 kg	6,751 lb	2964 kg	6,535 lb	2771 kg	6,108 lb	2656 kg	5,855 lb
Lift Breakout Force	47 919 N	10,772 lb	45 326 N	10,189 lb	44 392 N	9,979 lb	42 904 N	9,645 lb
Tilt Breakout Force	54 629 N	12,281 lb	45 993 N	10,339 lb	52 674 N	11,841 lb	51 760 N	11,636 lb
Tipping Load at Breakout Point	6798 kg	14,986 lb	6326 kg	13,947 lb	6396 kg	14,100 lb	6253 kg	13,787 lb
7 Maximum Hinge Pin Height	3474 mm	11' 5"	3474 mm	11' 5"	3474 mm	11' 5"	3474 mm	11' 5"
8 Dump Angle at Full Height	44°		44°		44°		44°	
Dump Height at Maximum Angle	2824 mm	9' 3"	2746 mm	9' 0"	2798 mm	9' 2"	2798 mm	9' 2"
9 Dump Reach at Maximum Angle	727 mm	2' 5"	808 mm	2' 8"	716 mm	2' 4"	716 mm	2' 4"
10 Maximum Bucket Rollback at Ground Level	37°		37°		38°		38°	
11 Digging Depth	83 mm	3"	83 mm	3"	110 mm	4"	110 mm	4"
Maximum Grading Angle	116°		112°		116°		116°	
Width of Dozer Cutting Edge	N/A		N/A		2262 mm	7' 5"	2262 mm	7' 5"
12 Grill to Bucket Cutting Edge, Carry Position	1404 mm	4' 7"	1487 mm	4' 11"	1451 mm	4' 9"	1451 mm	4' 9"
13 Maximum Operating Height	4206 mm	13' 10"	4355 mm	14' 3"	4404 mm	14' 5"	4878 mm	16' 0"
Jaw Opening Maximum	N/A		N/A		790 mm	2' 7"	790 mm	2' 7"
Bucket Jaw Clamping Force	N/A		N/A		50 600 N	11,375 lb	50 600 N	11,375 lb
Weight (does not include teeth or forks)	384 kg	847 lb	451 kg	994 lb	745 kg	1,642 lb	915 kg	2,017 lb

Backhoe Dimensions and Performance

	Standard Stick		E-Stick Retracted		E-Stick Extended	
14 Digging Depth, SAE (max.)	4360 mm	14' 4"	4389 mm	14' 5"	5441 mm	17' 11"
15 Digging Depth, 610 mm (2 ft) Flat Bottom	4309 mm	14' 2"	4350 mm	14' 4"	5404 mm	17' 10"
Reach from Rear Axle Centerline at Ground Line	6702 mm	22' 1"	6738 mm	22' 2"	7742 mm	25' 6"
16 Reach from Swing Pivot at Ground Line	5612 mm	18' 5"	5648 mm	18' 7"	6652 mm	21' 10"
Maximum Operating Height	5525 mm	18' 2"	5549 mm	18' 3"	6286 mm	20' 8"
Loading Height	3643 mm	11' 11"	3600 mm	11' 9"	4170 mm	13' 7"
17 Loading Reach	1838 mm	6' 0"	1925 mm	6' 4"	2840 mm	9' 4"
Swing Arc	180°		180°		180°	
Bucket Rotation	205°		205°		205°	
18 Stabilizer Spread, Operating Position (center)	3310 mm	10' 10"	3310 mm	10' 10"	3310 mm	10' 10"
Stabilizer Spread, Operating Position (outside)	3770 mm	12' 4"	3770 mm	12' 4"	3770 mm	12' 4"
Stabilizer Spread, Transport Position	2322 mm	7' 7"	2322 mm	7' 7"	2322 mm	7' 7"
Bucket Dig Force	57 709 N	12,973 lb	56 898 N	12,791 lb	56 898 N	12,791 lb
Stick Dig Force	32 378 N	7,279 lb	32 421 N	7,289 lb	23 796 N	5,350 lb

416F Backhoe Loader

STANDARD EQUIPMENT

- Air cleaner
- Alarm, back-up
- Audible system fault alarm
- Backhoe position footrest
- Battery, maintenance-free, 880 CCA
- Battery disconnect switch
- Battery remote jumpstart
- Boom transport lock
- Brace, lift cylinder
- Brake, secondary parking
- Brakes, hydraulically boosted, oil disc, dual pedals, interlocking
- Bucket level indicator
- Canopy, ROPS/FOPS
- Coat hook
- Coolant/antifreeze, extended life
- Counterweight, bumper
- Diesel particulate filter, long life
- Dome light (cab only)
- Diagnostic port for engine
- Differential lock
- Engine, Cat C4.4 ACERT (Direct Injection Turbocharged), meets U.S. EPA Tier 4 Interim/EU Stage IIIB emission standards
- Engine enclosure
- Face seals, O-ring
- Fan, suction and guard
- Fast reversing shuttle, all gears
- Fenders, rear
- Filters, spin-on: fuel, engine oil, transmission oil, water separator
- Filters, bowl and cartridge: hydraulic fluid
- Flashing hazards/signal lights
- Floor mat
- Fully hinged front grill for cooling package cleaning access
- Gauge Cluster:
 - Gauges: coolant temperature, fuel level, tachometer
 - LCD screen: hour meter, torque converter oil temperature, hydraulic oil temperature, operator settings, service mode diagnostics
- Ground level fuel fill
- Guard, fuel tank bottom
- High ambient cooling package
- Hood lock
- Hydraulic hose, XT™
- Hydraulic oil cooler
- Hydraulic oil level sight gauge
- Hydraulic valve, hydrostatic steering
- Hydraulic valves, loader 2 function
- Hydraulic valves, backhoe 4 function
- Hydraulics, load sensing with variable displacement piston pump
- Indicators: air cleaner service, water separator service, engine coolant, oil pressure
- Instrument panel lights
- Key start/stop system
- Lights, working (2 front, 2 rear)
- Loader, self-leveling, return-to-dig and transmission disconnect switch
- Loader, single tilt
- Lunch box and drink holder
- Mirror, rearview
- Open circuit breather
- Power receptacle, 12 volt, 2 internal, 1 external
- Power steering, hydrostatic
- Seat belt, retractable, 51 mm (2 in)
- Stabilizer shoes, street
- Steering knob
- Seat, air suspension, fabric or vinyl cover, with armrest
- Starting system, glow plugs
- Steering, hydrostatic
- Storage compartment, internal
- Stop and tail lights
- Swing transport lock
- Tires
- Toolbox, external, lockable
- Torque converter
- Throttle, hand and foot, electronic
- Transmission, four speed, syncromesh
- Transmission neutralizer switch
- Transport tie-downs
- Two Wheel Drive
- Vandalism locks
- Warning horn, electric

OPTIONAL EQUIPMENT

- Battery, additional, 880 CCA
- Cab, standard
- Cab, standard with air conditioning
- Cold weather fuel (-30° C/-22° F)
- Cold weather package, including additional battery, engine block heater, radiator antifreeze (-50° C/-58° F), cold weather fuel (-30° C/-22° F) and mounting for an ether bottle
- Counterweights, 115 kg (255 lb), 240 kg (530 lb) or 460 kg (1,015 lb)
- Fenders, front with integral steps
- Fenders, rear extensions
- Four Wheel Drive
- Guard, boom protection plate
- Guard, stabilizer, rock
- Guard, fuel tank front and rear
- Hydraulic valves, loader (3rd valve for GP, MP or Quick Coupler)
- Hydraulic valves, backhoe (5th and 6th function)
- Hydraulic lines, combined function auxiliary
- Machine Security System
- Product Link
- Quick Coupler, manual, dual lock
- Quick Coupler, pin lock
- Ride Control
- Rotating beacon, magnetic mount
- Seat belt, 75 mm (3 in)
- Stabilizer pads, grouser type
- Stabilizer pads, reversible
- Stick, extendible
- Storage box
- Vandalism protection, gauge cover
- Work Tool Attachments such as buckets, forks, material handling arms, augers, hammers, brooms, cold planers and vibratory plate compactors. See your Cat dealer for more information.

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com

AEHQ6734 (04-12)

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