

CAT

446

BACKHOE LOADER

- **Load-Sensing Hydraulics** — maximum hydraulic force to cutting edges at all engine speeds.
- **Reliable/Durable** — built to withstand severe working conditions.
- **Operating Ease** — convenient, easy-to-reach, low-effort controls.
- **Service and Maintenance Ease** — conveniently located service points, all accessible from the ground.
- **Total Customer Support System** — unmatched in the industry!

Flywheel Power 70.8 kW/95 HP
Operating Weight 8781 kg/19,358 LB
Backhoe digging depth up to..... 6528 mm/21'5"

Model shown may include optional equipment.



SPECIFICATIONS



Engine

Gross power at 2200 RPM 76.8 kW/103 HP
Flywheel power at 2200 RPM 70.8 kW/95 HP
(Kilowatt (kW) is the International System of Units equivalent of horsepower.)

Net power at the flywheel of the vehicle engine is based on SAE J1349 standard conditions of 25°C/77°F and 100 kPa/29.61" Hg. Power is based on using 35° API (15.6°C/60°F) gravity fuel having an LHV of 42 780 kJ/kg (10,390 Btu/lb) when used at 28°C/83°F and with a density of 838.9 g/L (7.001 lb/U.S. gal). Power rating is adjusted for vehicle equipped with fan, air cleaner, alternator, water pump, fuel pump, muffler and lubricating oil pump. No derating is required up to 3050 m/10,000 ft altitude.

These additional ratings also apply at 2200 RPM

	kW	HP
ISO 1585	70.8	95.0
ISO 3046-1	69.6	93.3
EEC 80/1269	70.8	95.0
	kW	PS
DIN 6271-1	69.6	94.6
DIN 70020	72.5	73.9

Caterpillar four-stroke-cycle, 3114 turbocharged diesel Engine with four cylinders, 105 mm/4.13" bore, 127 mm/5.0" stroke and 4.40 liter/268 cu. in. displacement.

Direct-injection fuel system with an individual, adjustment-free unit injector for each cylinder. Cam-ground and tapered, aluminum-alloy pistons have three rings each and are oil cooled. Connecting rods are tapered. Uniflow cylinder head design eliminates crossover manifold piping. Internal fuel, oil and water passages used instead of external lines. Deep-skirted, cast cylinder block. Induction-hardened, forged crankshaft. Steel camshaft is fully journaled at every block bulkhead. Oscillating roller followers and short pushrods for precision engine timing. Two alloy-steel valves per cylinder.

Direct-electric, 12-volt starting system with a 55-amp alternator and two 12-volt, 100-amp-hour batteries. Ether starting aid is standard.



Brakes

Service — Two fully enclosed, hydraulically actuated, self-energizing, oil-disc brakes on final drive input shaft. Foot-operated pedal interlock for roading or independently for working applications.

Parking/Secondary — Sliding-caliper disc brake on rear axle yoke. Operator applies manually.



Transmission

Power shift transmission with four speeds forward and reverse. Constant-mesh gears permit on-the-go shifting in all gears — up or down. Conveniently placed, hand-operated lever allows instant speed and direction changes with power hydraulic clutches. Neutral start provision prevents starting machine in gear.

Transmission Disconnect

Hand-operated power disconnect -- no clutch -- for faster cycle times.

Torque Converter

Single stage. 2.09:1 stall ratio.

Travel Speeds

Travel speeds of two-wheel drive backhoe loader at full throttle when equipped with 21L-24 rear tires.

	1st	2nd	3rd	4th
	Km/H MPH	Km/H MPH	Km/H MPH	Km/H MPH
Forward	6.6 4.1	12.1 7.5	21.7 13.5	33.0 20.5
Reverse	7.3 4.5	13.4 8.3	24.1 15.0	36.5 22.7



Axles

Axle rating, two-wheel drive

Front axle rating

SAE J43 10 182 kg/22,447 lb
Dynamic 40 728 kg/89,788 lb

Rear axle rating

SAE J43 8495 kg/18,728 lb
Dynamic 33 980 kg/74,912 lb

Rear Axle

Heavy duty, fixed axle with inboard planetary reduction and differential lock.

Front Axle (with standard two-wheel drive, or optional four-wheel drive)

Trunnion-mounted, cast axle with 11° oscillation each direction from centerline.

Switch on instrument panel engages four-wheel drive on-the-move, in any gear, forward or reverse.

Drive from differential to front wheels via planetary reduction in each wheel. On-the-go shifting -- up or down, forward or reverse -- in all gears is retained in four-wheel drive.



Standard Equipment

NOTE: Standard and optional equipment may vary. Consult your Caterpillar dealer for specifics.

Air cleaner, dry-type.	Indicators:	Mirror, rear view.
Alternator, 55-amp, 12-volt.	Air cleaner service.	Seat, suspension, vinyl, fully adjustable, with armrests.
Backhoe, center-pivot, two-lever control.	Clock hour meter.	Seat belt. (76 mm/3").
Brakes:	Coolant light, with audible alarm.	Starting aid, ether.
Oil-disc, service.	Hydraulic oil level sight gauge.	Starting system, electric.
Parking.	Oil pressure light, with audible alarm.	Steering, power.
Canopy, ROPS, dual-access.	Lights:	Tires:
Cooler, hydraulic oil.	Hazard/signal, flashing.	Front 14.5/75-16.1, 10 PR
Enclosure, engine.	Instrument panel.	Rear 21L-24, 12 PR
Fan, suction.	Stop and tail, two.	Throttles, hand and foot.
Fenders, rear.	Working, front and rear halogen, four.	Tool box.
Generator:	Loader, self-leveling with Return to Dig and transmission disconnect switch on single-lever control.	Torque converter.
Fuel level.	Lock, differential.	Transmission, four-speed, power shift.
Voltmeter.		Vandalism protection.
Tachometer.		Warning horn, front (electric).
Coolant temperature.		
Torque converter oil temperature.		
Grill, front, impact-absorbing.		



Optional Equipment

(with approximate change in operating weights)

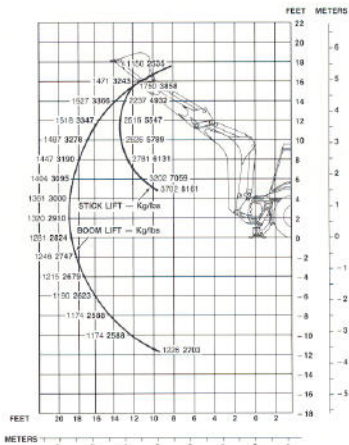
	kg	lb		kg	lb
Air conditioner	103	227	Floor mat, ROPS canopy	5	11
Alarm, back-up (required in U.S.A.)	1	2	Four-wheel drive	196	432
Armrests, for static seat	4.5	10	Guards:		
Backhoe control lever options (each)	9	20	Stabilizer cylinders	29	65
Buckets, backhoe:			4wd drive shaft	36	80
Heavy duty			Hydraulic arrangement:		
457 mm/18"	-36	-79	3rd valve (for loader)	23	50
610 mm/24"	0	0	7th valve (backhoe) for		
762 mm/30"	19	42	stick-mounted attachments	8.6	19
914 mm/36"	47	104	7th & 8th valve (backhoe)		
Extreme Service:			for additional circuits on std. stick	17	38
600 mm/23.6"	11	24	8th valve (backhoe) for unit		
760 mm/30"	31	68	equipped with extendable		
Bucket, loader, 1.1 m ³ /1.5 yd ³	604	1332	stick and second additional circuit	8.6	19
Cab, ROPS (includes heater, defroster and pressurizer).	251	553	Additional hydraulic line to boom	9	20
Counterweight	455	1003	Mirrors, outside mounted	12	27
Counterweight	680	1500	Rotating beacon	2	5
Extendable stick (without counterweight)	210	463	Stabilizer street pads	37	82
Fan, operator's compartment	2	4	Stabilizer street pads (flip)	68	150
			Static seat, vinyl	-16	-35
			Supplemental steering	20	45
			Suspension seat, fabric	0	0

SPECIFICATIONS

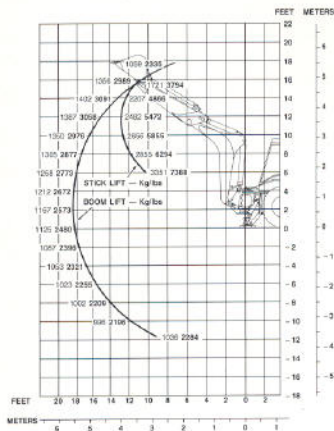
446 BACKHOE LIFT CAPACITIES

NOTE: Lift capacities as per SAE J31 with loader bucket on ground and boom at 65° from horizontal.

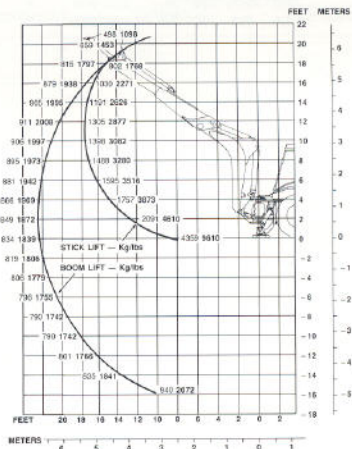
Standard Stick



Extendable Stick, Retracted



Extendable Stick, Extended



Loader Dimensions and Bucket Capacities

(SAE J732c, SAE J742)

General Purpose Bucket

Width	2432 mm/96"
Heaped capacity	1.1 m ³ /1.5 yd ³
Lift capacity at full height	3932 kg/8,668 lb
Breakout force	5684 kg/55.8 kN/12,530 lb
Hinge pin height (full height).....	3486 mm/11'5"
Dump angle.....	45°
Dump height @ 45°	2729 mm/8'11"
Reach @ full height/45°	720 mm/28"
Maximum rollback at ground.....	40°
Digging depth	146 mm/5.9"
Grading angle	131°
Weight	604 kg/1,332 lb

Backhoe Bucket Dimensions and Capacities

(SAE J296)

		Capacities				
		Width	Heaped	Weight	No. of	
		mm	L	kg	Teeth	
Heavy Duty		in	cu ft	lb		
	457	18	190	6.5	173 381	3
	610	24	280	10	209 461	4
	762	30	380	13	228 503	5
	914	36	480	17	256 564	6
Extreme Service						
	600	23.6	270	9	220 485	4
	760	30	370	13	240 529	5

NOTE: All specification dimensions are rounded.

Machine Dimensions

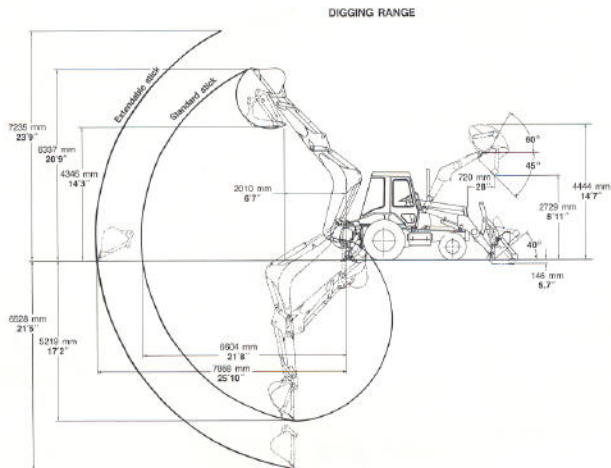
(SAE J49 and J732c)

	mm	ft-in
Overall transport length	7531	24'8"
Overall length (loader on ground) ...	7507	16'7"
Overall transport height	4157	13'8"
Overall width with loader bucket	2432	8'
Height to top of canopy	2914	6'5"
Height to top of cab	2914	6'5"
Height to top of exhaust stack	2979	9'9"
Height to top of steering wheel	2102	6'10"
Height to loader hinge pin, transport position	459	18"
Ground clearance to machine main frame.....	330	13"
Rear axle to front grill	2752	9'
Front wheel tread	1969	6'5"
Rear wheel tread	1870	6'1"
Wheel base, two-wheel drive	2231	7'4"
four-wheel drive	2231	7'4"

NOTE: Specifications shown with 14.5/75 X 16.1, 10 PR front tires, 21L-24, 12 PR rear tires, ROPS canopy, 5219 mm/17'2" backhoe with 610 mm/24" trenching bucket, loader with 2432 mm/96", 1.1 m³/1.5 yd³ General Purpose bucket and standard equipment unless otherwise specified.

SPECIFICATIONS

Backhoe Operating Specifications



	Standard stick	Extendable stick—	
		Retracted	Extended
Digging depth - SAE (max)	5219 mm/17'2"	5182 mm/17'	6528 mm/21'5"
610 mm/2' flat bottom ...	5173 mm/17'	5134 mm/16'10"	6429 mm/21'1"
2438 mm/8' flat bottom...	4884 mm/16'	4844 mm/15'11"	6264 mm/20'7"
Overall reach from rear axle centerline at groundline	7866 mm/25'10"	7825 mm/25'8"	9130 mm/29'11"
Overall reach from swing pivot at groundline	6604 mm/21'8"	6563 mm/21'6"	7868 mm/25'10"
Overall operating height — fully raised.	6337 mm/20'9"	6293 mm/20'8"	7235 mm/23'9"
Loading height	4346 mm/14'3"	4105 mm/13'3"	4772 mm/15'8"
Loading reach	2010 mm/6'7"	2215 mm/7'3"	3417 mm/11'3"
Swing arc	180°	180°	180°
Bucket rotation			
Position #1	169°	155°	155°
Position #2	169°	155°	155°
Stabilizer spread - operating position ..	4062 mm/13'4"	4062 mm/13'4"	4062 mm/13'4"
Stabilizer spread - transport position ..	2403 mm/7'11"	2403 mm/7'11"	2403 mm/7'11"
Digging force, bucket cylinder, SAE	59.3 kN/13,343 lb	58.3 kN/13,178 lb	58.3 kN/13,178 lb
Digging force, dipper cylinder, SAE	41.7 kN/9,383 lb	42.5 kN/9,563 lb	30.5 kN/6,863 lb
Leveling angle (maximum slope on which backhoe will make vertical cut)	11°	11°	11°



Steering

Turning radius, two-wheel drive, wheels not braked
4204 mm/13'10"
 TypeFront wheel
 PowerHydrostatic
 Cylinderone double-acting, bore 82.55 mm/3.25",
 stroke 281 mm/11.06", rod 53.98 mm/2.13"
 Supplemental steering available as an option.



Tires

Type	Size	Ply Rating
Front		
Standard 2wd	14.5/75-16.1, F3	10
Standard 4wd	12.5-20, R4	10
Rear		
Standard 2wd	21L-24, R4	12
Standard 4wd	21L-24, R4	12



Hydraulic system

Variable-flow, load-sensing, pressure-compensating design provides efficient use of power.

TypeClosed-center, load-sensing
 Pump typeVariable-flow, axial-piston
 Pump capacity162 l/min/42.8 gpm at 2200 RPM
 System pressure20 000 kPa/200 bar/2900 psi



Service Refill Capacities

	Liters	U.S. Gallons
Cooling system	30	7.9
Fuel tank	125	33
Engine oil, with filter	11	2.9
Transmission	26	6.9
Rear axle	31	8.2
Hydraulic reservoir	57	15.1
Hydraulic system	154	41
Four-wheel drive front axle	9.25	2.4
Front planetary (each, 4wd only)	0.80	0.21



ROPS

ROPS canopy is standard in U.S.A.
 ROPS (Rollover Protective Structure) offered by Caterpillar for this machine meets criteria SAE J394, SAE J1040c and ISO 3471-1986. It also meets FOPS (Falling Object Protective Structure) criteria SAE J231 and ISO 3449-1984. Cab offered by Caterpillar, when tested with doors and windows closed according to ANSL/SAE J1166 FEB87, meets OSHA and MSHA requirements for operator sound exposure limits in effect at the time of manufacture.



Weights

Shipping weight 8606 kg/18,973 lb
 Operating weight - standard two-wheel drive backhoe loader with additional: 1.1 m³/1.5 yd³ general purpose loader bucket, 610 mm/24" backhoe bucket, 80 kg/176 lb operator, full fuel tank8781 kg/19,358 lb (SAE).

The Competitive Edge

Performance

- **Load-sensing hydraulic system** — full hydraulic force to cutting edges at all engine speeds.
- **Cat power shift transmission** — on-the-go shifting in all four gears, two- or four-wheel drive.
- **5684 kg/55.8 kN/12,530 lb loader bucket breakout force** — excellent production capabilities.
- **Automatic bucket leveling/Return to Dig** — improved operator efficiency, lower cycle times, increased productivity.
- **Versatile, two-position bucket linkage** — maximum digging force in either pin position for best match to job.

Reliable/Durable

- **Main frame** — fully welded, one-piece frame designed to absorb stress and minimize shock loads to the power train.
- **Integral backhoe** — reduces maintenance and service ... for a true backhoe loader.
- **Load-sensing hydraulic system** — proven reliable, on-demand hydraulics.
- **Caterpillar XT-3 hose and O-ring face seal couplings** — provide a virtually dry machine.
- **Sure Seal connectors** — on electrical system, moisture proof and positive locking for a reliable, long life.

Maintenance/Repair

- **Modular components** — remove as single units for simpler, quicker repairs, less downtime.
- **Superior hose routing** — reduces hose damage, easily accessible for service.
- **Service points** — conveniently located, all accessible from the ground.
- **Built-in lift cylinder brace** — suspends loader arms for engine servicing.

Operating Ease

- **Conveniently placed, precise, low-effort controls** — increase operator efficiency.
- **Adjustable suspension seat** — for added operator comfort.
- **Hydrostatic steering** — effortless control, even at low idle.
- **Excellent visibility** — outstanding forward and rear view from the operator's seat to the loader and backhoe.

Total Customer Support

- **Parts availability** — most Cat parts on dealer's shelf when you need them — computer-controlled, emergency search system backup.
- **Service capability** — dealer's shop or fast field service — trained servicemen — latest tooling and technology.
- **Machine management services** — effective preventive maintenance programs, diagnostic programs (Scheduled Oil Sampling, Technical Analysis), cost-effective repair options, customer meetings, operator and mechanic training.
- **Exchange components for quick repairs** — choose remanufactured products or rebuilt components for maximum availability and lower costs.
- **Literature support** — easy-to-use operation, maintenance guides help you get the maximum value out of your equipment investment.
- **Flexible financing** — your dealer can arrange attractive financing on the entire line of Cat equipment. Terms structured to meet your cash flow requirements. See how affordable and easy it is to own Cat equipment.

Custom Machine Products

- In addition to the standard range of optional equipment, special attachments and machine configurations to suit particular customer applications can be made. Contact your Caterpillar dealer for details on matching the Caterpillar product to your special applications.

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