

# 328D LCR

Hydraulic Excavator



## Engine

Engine Model	Cat® C7 ACERT™	
Net Flywheel Power	152 kW	204 hp

## Weights

Operating Weight	34 700 kg	76,500 lb
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- Reach boom, R3.2CB2 (10 ft 6 in) Stick, 1.2 m<sup>3</sup> (1.57 yd<sup>3</sup>) Bucket, 850 mm (34 in) Shoes.

# 328D LCR Hydraulic Excavator

*The D Series incorporates innovations for improved performance and versatility.*

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## C7 with ACERT™ Technology

- ✓ ACERT™ Technology works at the point of combustion to optimize engine performance and provide low exhaust emissions to meet U.S. EPA Tier 3 emission regulations, with exceptional performance capabilities and proven reliability. **pg. 4**

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## Versatility

Caterpillar offers a wide variety of factory-installed attachments that enhance performance and job site management. **pg. 11**

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## Hydraulics

The hydraulic system has been designed to provide reliability and outstanding controllability. An optional Tool Control System provides enhanced flexibility. **pg. 5**

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## Service and Maintenance

Fast, easy service has been designed in with extended service intervals, advanced filtration, convenient filter access and user-friendly electronic diagnostics for increased productivity and reduced maintenance costs. **pg. 12**

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## Operator Station

- ✓ Provides maximum space, wider visibility and easy access to switches. The monitor is a full-color graphical display that allows the operator to understand the machine information easily. Overall, the new cab provides a comfortable environment for the operator. **pg. 6**



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### Structures

Caterpillar® design and manufacturing techniques assure outstanding durability and service life from these important components. **pg. 8**

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### Booms, Sticks and Bucket Attachments

Designed for maximum flexibility, productivity and high efficiency on all jobs, the 328D LCR offers a range of configurations suitable for a variety of applications. **pg. 9**

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### Work Tools – Attachments

- ✓ A variety of work tools, including buckets, couplers, hammers, and shears are available through Cat® Work Tools. **pg. 10**

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### Complete Customer Support

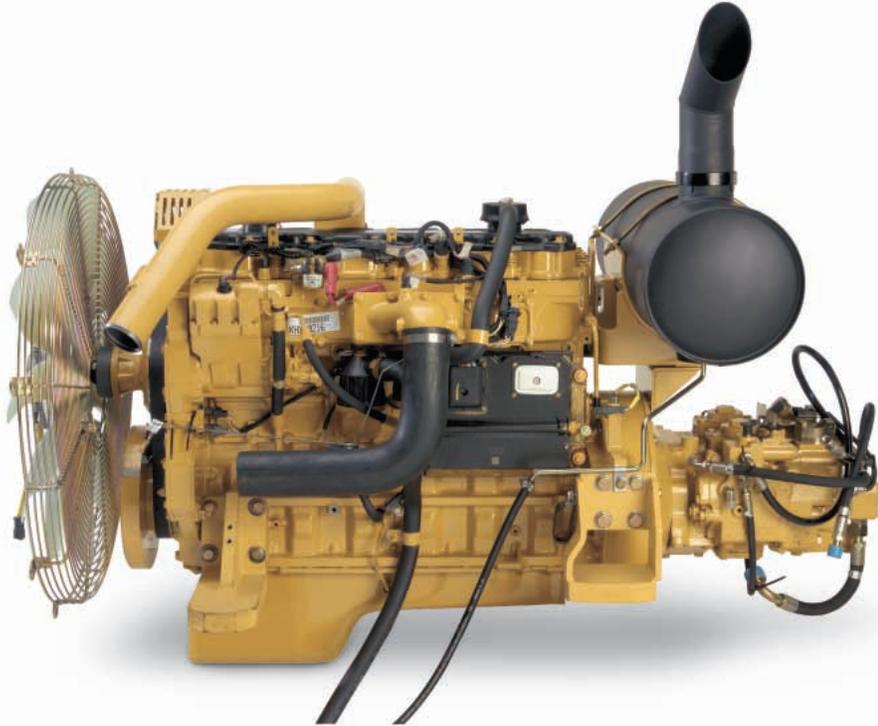
Your Cat® dealer offers a wide range of services that can be set up under a customer support agreement when you purchase your equipment. The dealer will help you choose a plan that can cover everything from machine configuration to eventual replacement. **pg. 13**



✓ *New Feature*  
*Image may contain optional attachments*

## C7 with ACERT™ Technology

*Built for power reliability, economy and low emissions.*



**Cat® C7 ACERT.** The Cat C7 with ACERT™ Technology introduces a series of evolutionary, incremental improvements that provide breakthrough engine technology. The building blocks of ACERT Technology are fuel delivery, air management and electronic control. ACERT Technology optimizes engine performance while meeting U.S. EPA Tier 3 engine emission regulations.

**Performance.** The 328D LCR, equipped with the C7 engine with ACERT Technology, provides 8% more horsepower as compared to the 3126B ATAAC HEUI in the 325C LCR.

### **Automatic Engine Speed Control.**

The two-stage, one-touch control maximizes fuel efficiency and reduces sound levels.

### **ADEM™ A4 Engine Controller.**

The ADEM A4 electronic control module manages fuel delivery to get the best performance per liter (gallon) of fuel used. The engine management system provides flexible fuel mapping, allowing the engine to respond quickly to varying application needs. It tracks engine and machine conditions while keeping the engine operating at peak efficiency.

**Electronic Control Module.** The Electronic Control Module (ECM) works as the “brain” of the engine’s control system, responding quickly to operating variables to maximize engine efficiency. Fully integrated with sensors in the engine’s fuel, air, coolant, and exhaust systems, the ECM stores and relays information on conditions such as rpm, fuel consumption, and diagnostic information.

**Fuel Delivery.** The Cat C7 features electronic controls that govern the fuel injection system. Multiple injection fuel delivery involves a high degree of precision. Precisely shaping the combustion cycle lowers combustion chamber temperatures, generating fewer emissions and optimizing fuel combustion. This translates into more work output for your fuel cost.

**Cooling System.** The cooling fan is directly driven from the engine. An electrically controlled viscous clutch fan is utilized to reduce fan noise. The optimum fan speed is calculated based on the target engine speed, coolant temperature, hydraulic oil temperature and actual fan speed. The 328D LCR incorporates side by side cooling, allowing easy access to keep the cooling cores free of debris.

**Air Cleaner.** The radial seal air filter features a double-layered filter core for more efficient filtration and is located in a compartment behind the cab. A warning is displayed on the monitor when dust accumulates above a preset level.

### **Noise Reduction Technologies.**

The engine mounts are rubber-isolating mounts matched with the engine package. Further noise reduction has been achieved through design changes to the isolated top cover, oil pan, multiple injection strategy, insulated timing cover, sculpted crankcase and gear train refinements.

# Hydraulics

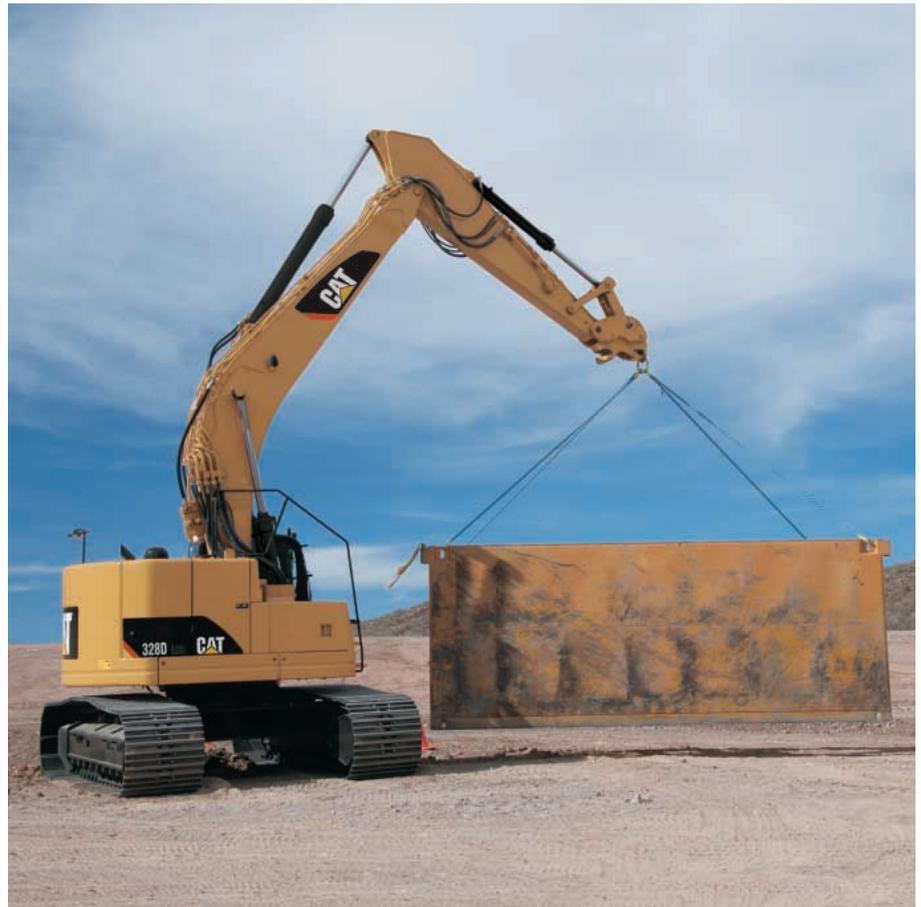
*Cat® hydraulics deliver power and precise control to keep material moving.*

**Component Layout.** The hydraulic system and component locations have been designed to provide a high level of system efficiency. The main pumps, control valves and hydraulic tank are located close together. This allows for shorter tubes and lines between components, which reduce friction loss, and pressure drops in the lines. The layout further provides greater operator comfort by placing the radiator on the cab side of the upper structure. This allows incoming air to enter the engine compartment from the operator side. Hot air and corresponding engine sound exits on the opposite side away from the operator. This reduces engine compartment heat and sound being transmitted to the operator.

**Pilot System.** The pilot pump is independent from the main pumps and controls the front linkage, swing and travel operations.

**Hydraulic Cross Sensing System.** The hydraulic cross sensing system utilizes each of two hydraulic pumps to 100 percent of engine power, under all operating conditions. This improves productivity with faster implement speeds and quicker, stronger pivot turns.

**Boom and Stick Regeneration Circuit.** Boom and stick regeneration circuit saves energy during boom-down and stick-in operation. This increases operator efficiency, reduces cycle times and pressure loss. Benefits include higher productivity, lower operating costs and increased fuel efficiency.



**Auxiliary Hydraulic Valve.** The auxiliary valve is standard on the 328D LCR. Control Circuits are available as attachments, allowing for operation of high and medium pressure tools. These include shears, grapples, hammers, pulverizers, multi-processors and vibratory plate compactors.

**Hydraulic Cylinder Snubbers.** Snubbers are located at the rod-end of the boom cylinders and both ends of the stick cylinders. Benefits include reducing sound levels, cushion shocks while extending component life.

## Operator Station

*Designed for comfort, simple and easy operation, the 328D LCR allows the operator to focus on production.*



**Operator Station.** The workstation is spacious, quiet and comfortable, assuring high productivity during a long workday. The attachment switches, key switch and throttle dial are conveniently located on the right-hand wall. The monitor is easy to see and maximizes visibility.



**Monitor.** The monitor is a full color 400x234 pixels Liquid Crystal Display (LCD) graphic display.

The angle can be adjusted to minimize sun glare and has the capability of displaying information in twenty-seven different languages.

**Pre-Start Check.** Prior to starting the machine, the system will check for low fluid levels. These include engine oil, hydraulic oil and engine coolant. The event display area warns the operator if one of the conditions exists.

**Gauge Display.** Three analog gauges, fuel level, hydraulic oil temperature and coolant temperature, are displayed in this area.

**Event Display.** Machine information is displayed in this area with the icon and language.

**Multi-information Display.** This area is reserved for displaying various information which is convenient for the operator. The “CAT” logo is displayed when no information is available to be displayed.

**Standard Cab Equipment.** To enhance operator comfort and productivity, the cab includes a drink holder, coat hook, service meter, literature holder and magazine rack.



**Console.** Redesigned consoles feature a simple, functional design to reduce operator fatigue, ease of switch operation and excellent visibility. Both consoles have attached armrests with height adjustments.

**Seat.** A new optional air suspension seat is available in the 328D LCR. The standard and optional seats provide a variety of adjustments to suit the operator’s size and weight including fore/aft, height and weight. Wide adjustable armrests and a retractable seat belt are also included.

**Joystick Control.** The joystick controls are designed for low lever effort and match operator’s natural wrist and arm position. The operator can operate the joystick controls with an arm on the armrest. Horizontal and vertical strokes have been designed to reduce operator fatigue.

**Hydraulic Activation Control Lever.** For added safety, this lever must be in the operate position to activate the machine control functions.

**Automatic Climate Control.** Fully automatic climate control adjusts temperature and flow, and determines which air outlet is best in each situation with a touch of a button.

**Cab Exterior.** The exterior design uses thick steel tubing along the bottom perimeter of the cab, improving the resistance of fatigue and vibration. This design allows the FOGS to be bolted directly to the cab, at the factory or as an attachment later, enabling the machine to meet specifications and job site requirements.

**Cab Mounts.** The cab shell is attached to the frame with viscous rubber cab mounts, which dampen vibrations and sound levels while enhancing operator comfort.

**Windows.** All glass is affixed directly to the cab for excellent visibility eliminating window frames. The upper front windshield opens, closes and stores on the roof above the operator with a one-touch action release system.

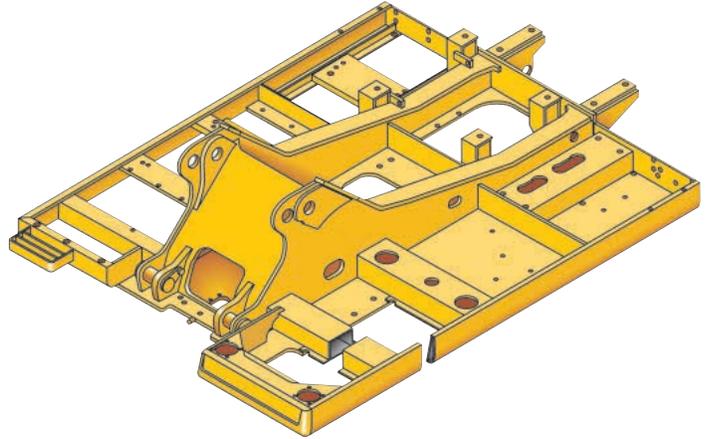
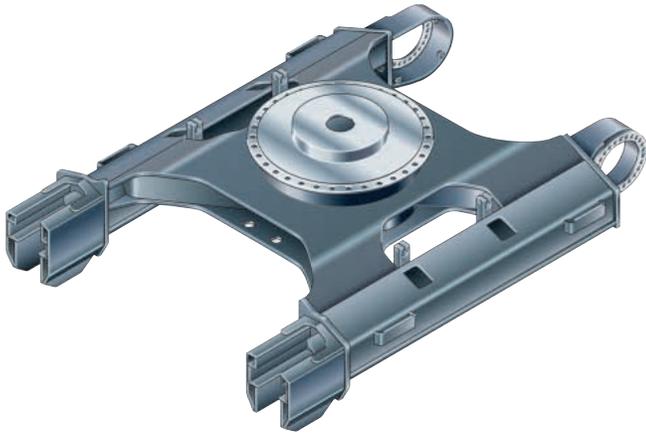
**Wipers.** Pillar-mounted wipers increase the operator’s viewing area and offer continuous and intermittent modes.

**Skylight.** An enlarged skylight with sunshade provides excellent visibility and ventilation.

**Door.** The 328D LCR features a curved sliding door. This feature is ideal for those situations when space is restricted and opening a conventional door is not permissible.

## Structures

*328D LCR structural components and undercarriage are the backbone of the machine's durability.*



**Robotic Welding.** Up to 95% of the structural welds on a Caterpillar® Excavator are completed by robots. Robotic welds achieve over three times the penetration of manual welds.

**Carbody Design and Track Roller Frames.** X-shaped, box-section carbody provides excellent resistance to torsional bending. Robot-welded track roller frames are press-formed, pentagonal units to deliver exceptional strength and service life.

**Main Frame.** Rugged main frame is designed for maximum durability and efficient use of materials.

**Swing Bearing.** The swing bearing utilizes cross roller bearings versus the traditional ball bearing design. The cross roller bearing design allows for more surface contact to absorb the stresses that are a result of the high swing torque that Cat offers. It provides exceptional machine stability and reduces machine pitching during boom down operation.

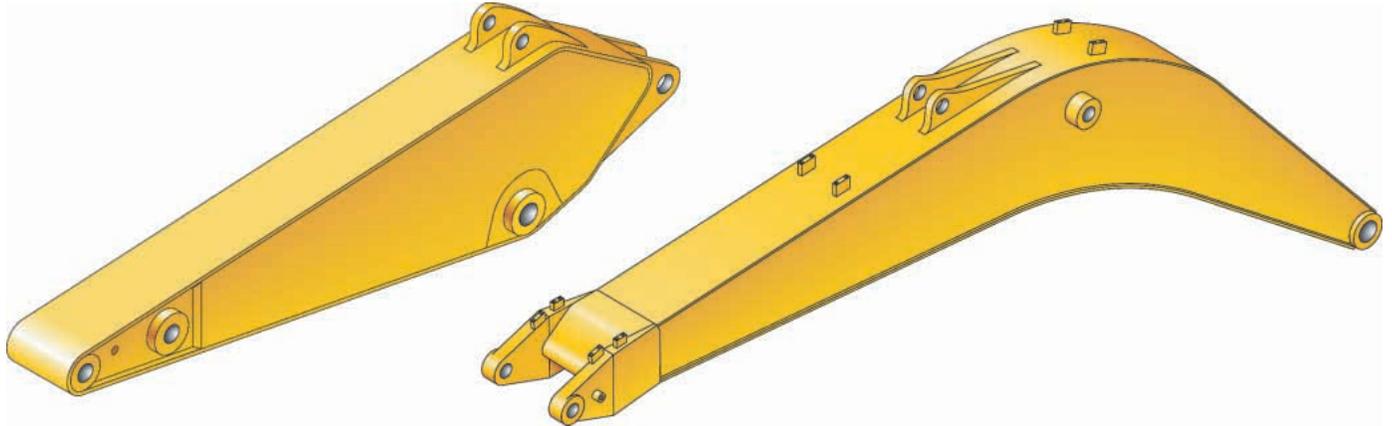
**Undercarriage.** Durable Cat undercarriage absorbs stresses and provides excellent stability.

**Rollers and Idlers.** Sealed and lubricated track rollers, carrier rollers, and idlers provide excellent service life, to keep the machine in the field longer.

**Long Undercarriage.** The long (L) undercarriage maximizes stability and lift capacity. Two additional track links have been added to the 328D LCR. This long, wide, and sturdy undercarriage offers a very stable work platform.

## Booms, Sticks and Bucket Attachments

*Designed for maximum flexibility, productivity and high efficiency on all jobs, the 328D LCR offers a wide range of configurations suitable for a variety of applications.*



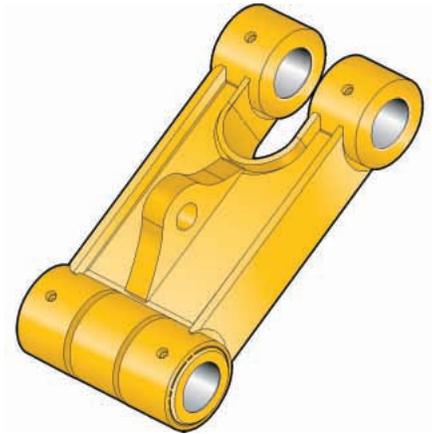
**Reach Boom.** The reach boom features an optimum design that maximizes digging envelopes with three stick choices:

**R3.2CB2 Stick.** The CB-family buckets associated with these sticks have enough capacity for excellent reach and depth in trenching and general construction applications.

**R2.65CB2 Stick.** Stick is suited to high-capacity buckets used in trenching, excavation, and other general construction work. It has been designed with enough reach and depth to match a large-capacity bucket and high digging force.

**Linkage Pins.** The bucket linkage pins have been enlarged to improve reliability and durability. All the pins in the front linkages have thick chrome plating, giving them high wear and corrosion resistance.

**Bucket Linkage.** The power link improves durability, increases machine-lifting capability in key lifting positions and with the integrated lift-eye it is easier to use than compared to the previous power link.



## Work Tools – Attachments

The 328D LCR has an extensive selection of work tools to optimize machine performance.



**Heavy Duty Buckets.** Heavy-duty (HD) buckets are used for a wide range of moderately abrasive applications such as mixed dirt, clay and rock. HD buckets have best loading and dumping characteristics and will empty easier in cohesive material. More robust construction than the GP buckets.

**General Purpose Capacity (GP-C) Buckets.** General Purpose Capacity Buckets are best for digging in soft to hard ground with low to moderately abrasive materials.

**Heavy-Duty Power (HDP) Buckets.** For use in moderately abrasive applications where breakout force and cycle times are critical. Maximizes tip force and improves cycle times in most materials.

**Heavy-Duty Rock Buckets.** Heavy-duty rock for aggressive bucket loading in highly abrasive application such as shot rock and granite. Features include:

- Thicker wear plates to extend the life of bucket in severe applications
- Side wear plated extend further up the side of the bucket for maximum protection in rocky soils
- Buckets accept sidebar protectors for best sidebar protection, or side cutters for best fill characteristics and bucket wear protection

### Ditch Cleaning (DC) Buckets.

These wide shallow buckets are best for bank forming, ditch cleaning, and finishing.

**Caterpillar Ground Engaging Tools (GET).** All bucket in the CB Family utilize the Caterpillar K Series™ GET. This GET system uses a vertical retainer that is easier to remove and install than the Cat J Series pin. The tip shapes are more aggressive and offer better penetration than the previous generation of tips. There are also a variety of side cutters and sidebar protectors to match operating conditions.



*Thumbs*

Cat thumbs multiply the capabilities of your excavator. This Highly versatile tool works in conjunction with the bucket to transform an excavator into a versatile material-handling machine.



*Hammers*

Cat Hydraulic Hammers are precisely matched to Cat machines for optimum performance in a wide variety of demolition and construction applications.



*Vibratory Plate Compactor*

Caterpillar® Vibratory Plate Compactors provide superior compaction force in a reliable, low-maintenance package. These units produce high-power impulses at a rate of 2,200 impacts per minute. The forces generated by this vibration drive soil particles close together for solid, stable compactions. Whether in a trench or on a slope, driving sheeting or posts, Cat Compactors are the superior choice for any job site's compaction tasks.

## Versatility

*A wide variety of optional factory-installed attachments to enhance performance and improve job site management.*



**Tool Control System.** This system offers the most flexibility and versatility of the auxiliary options offered. The system is available in two configurations, as a stand-alone system or with a medium pressure circuit and third pump. This system handles either single or double function, one or two pump tools. Additionally, the medium pressure circuit allows use of tools that rotate such as grapples, shears or multi-processors. Up to 10 different tool settings can be pre-programmed and selected through the monitor.

**Auxiliary Hydraulics Options.** There are four different options that can be factory installed to meet the various demands for hydra-mechanical tools.

- Single-Function
- Double-Function
- Tool Control System
- Medium Pressure

### **Single-Function Auxiliary Hydraulics.**

This single-function circuit utilizes one-way flow action with two pumps. The circuit can run tools such as hammers and vibratory plate compactors.

### **Double-Function Auxiliary Hydraulics.**

The double-function circuit utilizes two-way flow and one pump. It is capable of running tools such as a thumb, tilt-bucket or non-rotating grapples or shears.

**Product Link.** The 328D LCR is pre-wired at the factory to accept Product Link. The system can be installed in the field or as a factory-installed attachment. Product Link can assist with Fleet Management that will keep track of hours, location, security and product health.



**Machine Security.** An optional Machine Security System is available from the factory. Utilization of specific keys prevents unauthorized machine use and is a theft deterrent.



*Pin Grabber Plus Hydraulic Pin Grabber*

**Hydraulic Quick Coupler.** Increases versatility of the excavator by allowing the machine to pick up a wide variety of work tools without leaving the cab.

## Service and Maintenance

*Simplified service and maintenance features save you time and money.*



**Ground Level Service.** The design and layout was made with the service technician in mind. Many service locations are easily accessible at ground level allowing critical maintenance to get done quickly and efficiently.

**Air Filter Compartment.** The air filter features a double-element construction for superior cleaning efficiency. When the air cleaner plugs, a warning is displayed on the monitor screen inside the cab.

**Pump Compartment.** A service door on the right side of the upper structure allows ground-level access to the pump and pilot filter.

**Radiator Compartment.** The left rear service door allows easy access to the engine radiator, oil cooler and air-to-air-after-cooler. A reserve tank and drain cock are attached to the radiator for simplified maintenance.



**Greasing Points.** A concentrated remote greasing block on the boom delivers grease to hard-to-reach locations on the front.

**Fan Guard.** Engine radiator fan is completely enclosed by fine wire mesh, reducing the risk of an accident.

**Anti-Skid Plate.** Anti-skid plate covers top of storage box and upper structure to prevent slipping during maintenance.



**Diagnostics and Monitoring.** The 328D LCR is equipped with S•O•S<sup>SM</sup> sampling and hydraulic test ports for the hydraulic system, engine oil, and for coolant. A test connection for the Cat Electronic Technician (Cat ET) service tool is located in the cab.

**Extended Service Interval.** 328D LCR service and maintenance intervals have been extended to reduce machine service time and increase machine availability.

## Complete Customer Support

*Cat® dealer services help you operate longer with lower costs.*



**Product Support.** You will find nearly all parts at our dealer parts counter. Cat® dealers utilize a worldwide computer network to find in-stock parts to minimize machine down time. Save money with remanufactured components.

**Machine Selection.** Make detailed comparisons of the machines you are considering before you buy. What are the job requirements, machine attachments and operating hours? What production is needed? Your Cat dealer can provide recommendations.

### **Customer Support Agreements.**

Cat dealers offer a variety of product support agreements, and work with customers to develop a plan that best meets specific needs. These plans can cover the entire machine, including attachments, to help protect the customer's investment.

**Operation.** Improving operating techniques can boost your profits. Your Cat dealer has videotapes, literature and other ideas to help you increase productivity, and Caterpillar offers certified operator training classes to help maximize the return on your investment.

**Maintenance Services.** Repair option programs guarantee the cost of repairs up front. Diagnostic programs such as Scheduled Oil Sampling, Coolant Sampling and Technical Analysis help you avoid unscheduled repairs.

**Replacement.** Repair, rebuild, or replace? Your Cat dealer can help you evaluate the cost involved so you can make the right choice.

## Engine

Engine Model	Cat® C7 ACERT™	
Net Flywheel Power	152 kW	204 hp
Net Power – ISO 9249	152 kW	204 hp
Net Power – SAE J1349	151 kW	202 hp
Net Power – EEC 80/1269	152 kW	204 hp
Bore	110 mm	4.3 in
Stroke	127 mm	5 in
Displacement	7.2 L	440 in <sup>3</sup>

- The 328D LCR meets U.S. EPA Tier 3 emissions and EU Stage IIIa engine emissions requirements.
- Net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.
- No engine derating needed up to 2300 m (7,500 ft).

## Weights

Operating Weight	34 700 kg	76,500 lb
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- Reach boom, R3.2CB2 (10 ft 6 in) Stick, 1.2 m<sup>3</sup> (1.57 yd<sup>3</sup>) Bucket, 850 mm (34 in) Shoes.

## Service Refill Capacities

Fuel Tank Capacity	406 L	106 gal
Cooling System	32 L	8.5 gal
Engine Oil	32 L	8.5 gal
Swing Drive	10 L	2.6 gal
Final Drive (each)	8 L	2.1 gal
Hydraulic System (including tank)	290 L	76.6 gal
Hydraulic Tank	153 L	40.4 gal

## Track

Optional	850 mm	34 in
Optional	600 mm	24 in
Optional	700 mm	28 in
Number of Shoes Each Side – Long Undercarriage	49	
Number of Track Rollers Each Side – Long Undercarriage	9	
Number of Carrier Rollers Each Side – Long Undercarriage	2	

## Swing Mechanism

Swing Speed	10.2 RPM	
Swing Torque	82.2 kN·m	60,628 lb ft

## Drive

Maximum Drawbar Pull	300 kN	67,443 lb
Maximum Travel Speed	4.2 km/h	2.6 mph

## Hydraulic System

Main Implement System – Maximum Flow (2x)	235 L/min	62 gal/min
Max. pressure – Equipment	35 000 kPa	5,076 psi
Max. pressure – Equipment – Heavy	36 000 kPa	5,221 psi
Max. pressure – Travel	35 000 kPa	5,076 psi
Max. pressure – Swing	27 500 kPa	3,989 psi
Pilot System – Maximum flow	32.4 L/min	8.6 gal/min
Pilot System – Maximum pressure	3900 kPa	566 psi
Boom Cylinder – Bore	140 mm	5.5 in
Boom Cylinder – Stroke	1407 mm	55.4 in
Stick Cylinder – Bore	150 mm	5.9 in
Stick Cylinder – Stroke	1646 mm	64.8 in
CB2 Family Bucket Cylinder – Bore	135 mm	5.3 in
CB2 Family Bucket Cylinder – Stroke	1156 mm	46 in
DB Family Bucket Cylinder – Bore	150 mm	5.9 in
DB Family Bucket Cylinder – Stroke	1156 mm	46 in

## Sound Performance

Performance	ANSI/SAE
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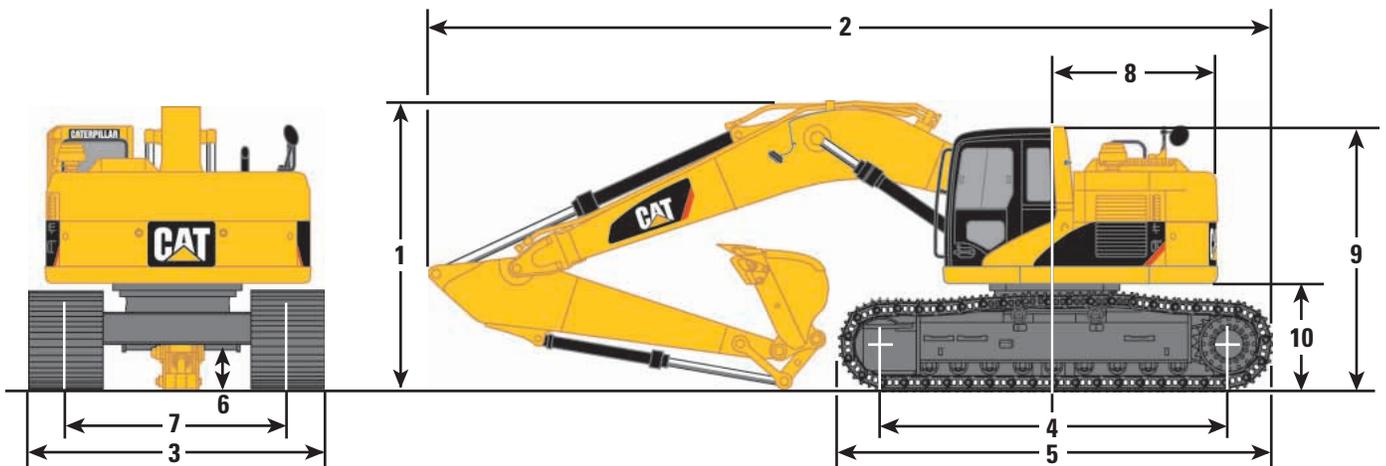
- When properly installed and maintained, the cab offered by Caterpillar, when tested with doors and windows closed according to ANSI/SAE J1166 OCT 98, meets OSHA and MSHA requirements for operator sound exposure limits in effect at time of manufacture.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.

## Standards

Brakes	SAE J1026 APR90
Cab/FOGS	SAE J1356 FEB88 ISO 10262

## Dimensions

All dimensions are approximate.

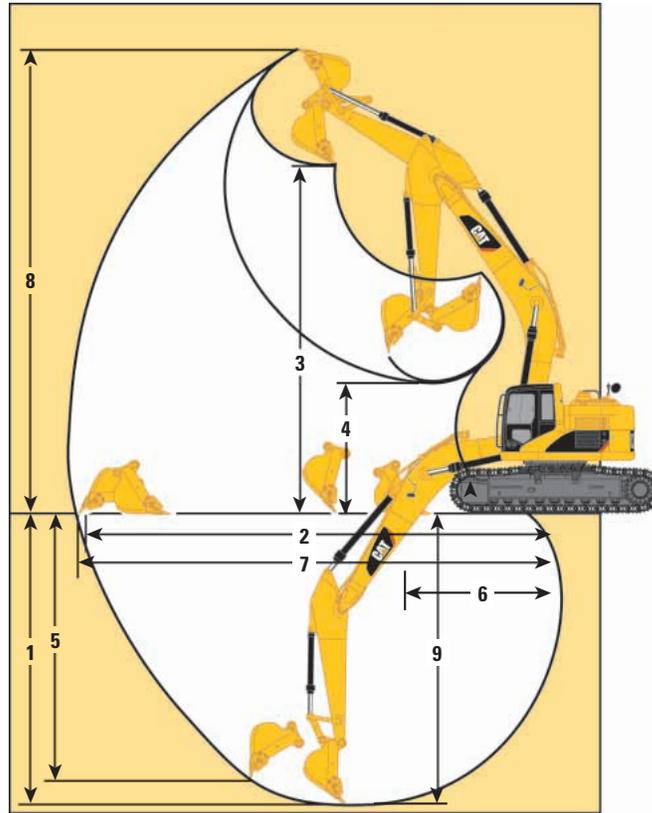


### Boom Options

	Reach 6.15 m (20'2")	Reach 6.15 m (20'2")
<b>Stick Options</b>	<b>R3.2CB2 m (10'6")</b>	<b>R2.65CB2 m (8'8")</b>
<b>1</b> Shipping Height	3370 mm (11'1")	3400 mm (11'2")
<b>2</b> Shipping Length	9820 mm (32'3")	9830 mm (32'3")
<b>3</b> Tail Swing Radius	1900 mm (6'3")	1900 mm (6'3")
<b>4</b> Length to Center of Idler and Sprocket	4040 mm (13'3")	4040 mm (13'3")
<b>5</b> Track Length	5020 mm (16'6")	4860 mm (16'6")
<b>6</b> Ground Clearance	510 mm (1'8")	510 mm (1'8")
<b>7</b> Track Gauge	2590 mm (8'6")	2590 mm (8'6")
<b>8</b> Transport Width		
850 mm (34") shoes	3440 mm (11'3")	3440 mm (11'3")
700 mm (28") shoes	3290 mm (10'10")	3290 mm (10'10")
600 mm (24") shoes	3190 mm (10'6")	3190 mm (10'6")
<b>9</b> Cab Height	3190 mm (10'0")	3190 mm (10'0")
<b>10</b> Counterweight Clearance	1200 mm (3'11")	1200 mm (3'11")

Note: All numbers are approximate.

# Working Ranges



Boom	Reach 6.15 m (20'2")	Reach 6.15 m (20'2")
Stick Length	R3.2CB2 m (10'6")	R2.65CB2 m (8'8")
Bucket	HD 1.2 m <sup>3</sup> (1.57 yd <sup>3</sup> )	HD 1.2 m <sup>3</sup> (1.57 yd <sup>3</sup> )
1 Maximum Digging Depth	6920 mm (22'8")	6370 mm (20'11")
2 Maximum Reach at Ground Level	10 560 mm (34'8")	10 080 mm (33'1")
3 Maximum Loading Height	8040 mm (26'5")	7820 mm (25'8")
4 Minimum Loading Height	2990 mm (9'10")	3560 mm (11'8")
5 Maximum Vertical Wall Digging Depth	6260 mm (20'6")	5730 mm (18'10")
6 Minimum Front Swing Radius	3400 mm (11'2")	3380 mm (11'1")
7 Maximum Reach	10 770 mm (35'4")	10 310 mm (33'10")
8 Maximum Cutting Height	11 110 mm (36'5")	10 910 mm (35'10")
9 Maximum Depth Cut for 2440 mm (8') Level Bottom	6760 mm (22'2")	6190 mm (20'4")

## 328D LCR Bucket and Stick Forces

### Power Buckets

Stick	R3.2CB2		R3.2CB2 w/Coupler		R2.65CB2		R2.65CB2 w/Coupler	
	kN	lb	kN	lb	kN	lb	kN	lb
Bucket Digging Force (ISO)	200	44,962	162	36,419	201	45,187	162	36,419
Stick Digging Force (ISO)	133	29,900	125	28,101	152	34,171	142	31,923
Bucket Digging Force (SAE)	176	39,566	157	35,295	176	39,566	157	35,295
Stick Digging Force (SAE)	129	29,000	124	27,876	147	33,047	141	31,698

### HD and HDR Buckets

Stick	R3.2CB2		R3.2CB2 w/Coupler		R2.65CB2		R2.65CB2 w/Coupler	
	kN	lb	kN	lb	kN	lb	kN	lb
Bucket Digging Force (ISO)	179	40,241	155	34,845	180	40,466	155	34,845
Stick Digging Force (ISO)	130	29,225	123	27,651	149	33,497	139	31,248
Bucket Digging Force (SAE)	159	35,745	142	31,923	159	35,745	142	31,923
Stick Digging Force (SAE)	126	28,326	120	26,977	143	32,148	136	30,574

## Major Component Weights

Base machine with counterweight (without front linkage)	with 850 mm (34") shoe	29 700 kg	65,477 lb
Two boom cylinders (each)		240 kg	529 lb
Counterweight			
Standard counterweight		7720 kg	17,020 lb
Boom (includes lines, pins and stick cylinder)			
Reach boom 6.15 m (20'2")		2300 kg	5,071 lb
Stick (includes lines, pins, bucket cylinder and linkage)			
R3.2CB2 m (10'6")		1390 kg	3,064 lb
R2.65CB2 m (8'8")		1300 kg	2,866 lb

\* All weights are approximate.

## 328D LCR Bucket Specifications and Compatibility

Bucket Type	Adaptor	Capacity		Width		Tip Radius		Teeth Qty	Total Weight		Reach Stick	
		m <sup>3</sup>	yd <sup>3</sup>	mm	in	mm	in		kg	lb	R3.2CB2	R2.65CB2
<b>CB2 Buckets</b>												
General Purpose	K90	0.63	0.82	610	24	1656.3	65.2	3	729	1606	●	●
	K90	0.86	1.12	762	30	1656.3	65.2	4	847	1868	●	●
	K90	1.09	1.43	914	36	1656.3	65.2	5	951	2097	●	●
	K90	1.34	1.75	1067	42	1656.3	65.2	5	1024	2258	●	●
	K90	1.58	2.07	1219	48	1656.3	65.2	6	1121	2471	●	●
	K90	1.83	2.39	1372	54	1656.3	65.2	7	1218	2684	◐	●
Heavy Duty	K100	0.53	0.69	610	24	1686.3	66.4	3	780	1720	●	●
	K100	0.73	0.95	762	30	1686.3	66.4	3	858	1891	●	●
	K100	0.93	1.22	914	36	1686.3	66.4	4	982	2165	●	●
	K100	1.14	1.49	1067	42	1686.3	66.4	5	1073	2365	●	●
	K100	1.35	1.77	1219	48	1686.3	66.4	5	1143	2519	●	●
	K100	1.57	2.05	1372	54	1686.3	66.4	6	1238	2730	●	●
	K100	1.78	2.33	1524	60	1686.3	66.4	7	1334	2941	◐	●
	K100	1.99	2.60	1676	66	1686.3	66.4	7	1406	3101	○	◐
Heavy Duty Rock	K100	0.73	0.95	762	30	1686.3	66.4	3	965	2127	●	●
	K100	0.93	1.22	914	36	1686.3	66.4	4	1073	2365	●	●
	K100	1.14	1.49	1067	42	1686.3	66.4	5	1174	2588	●	●
	K100	1.35	1.77	1219	48	1686.3	66.4	5	1259	2775	●	●
Heavy Duty Power	K100	1.12	1.46	1067	42	1592.1	62.7	5	1060	2337	●	●
	K100	1.33	1.74	1219	48	1592.1	62.7	5	1137	2507	●	●
	K100	1.53	2.00	1372	54	1592.1	62.7	6	1237	2727	●	●
Ditch Cleaning	—	1.25	1.63	1524	60	1262.0	49.7	—	739	1629	●	●
	—	1.53	2.00	1830	72	1262.0	49.7	—	837	1845	●	●

Assumptions for maximum material density rating:

1. Front linkage fully extended at ground line
2. Bucket curled
3. 100% bucket fill factor

\* Capacities based on SAE J296. Some calculations of capacity fall on borderlines.

Rounding may allow two buckets to have the same English rating but different metric ratings.

- 2100 kg/m<sup>3</sup> (3,500 lb/yd<sup>3</sup>) max material density
- ◐ 1800 kg/m<sup>3</sup> (3,000 lb/yd<sup>3</sup>) max material density
- 1500 kg/m<sup>3</sup> (2,500 lb/yd<sup>3</sup>) max material density
- ∴ 1200 kg/m<sup>3</sup> (2,000 lb/yd<sup>3</sup>) max material density
- Not Available

## 328D LCR Work Tool Matching Guide

<b>Boom Options</b>	<b>Reach Boom 6.15 m (20'2")</b>	
<b>Stick Options</b>	<b>R3.2CB2 m (10'6")</b>	<b>R2.65CB2 m (8'8")</b>
Hydraulic Hammer	H120Cs/ H130Cs/ H140Cs	H120Cs/ H130Cs/ H140Cs
Vibratory Plate Compactor	CVP110	CVP110
Multi-Processor	MP15/MP20	MP15/MP20
360 Scrap Shear	S320	S320/S325
Trash Grapple	3.1 m <sup>3</sup> /4 yd <sup>3</sup>	3.1 m <sup>3</sup> /4 yd <sup>3</sup>
Contractors' Grapple	yes	yes
Hydraulic Thumb	yes	yes
Dedicated Quick Coupler	yes	yes
Pin-Grabber Quick Coupler	yes	yes

# Reach Boom Lift Capacities



Load Point Height



Load Radius Over Front



Load Radius Over Side



Load at Maximum Reach

**R2.65CB2 STICK** – 2650 mm (8'8")  
**BUCKET** – 1.2 m<sup>3</sup> (1.57 yd<sup>3</sup>)

**UNDERCARRIAGE** – Long  
**SHOES** – 850 mm (34") triple grouser

**BOOM** – Reach  
**HEAVY LIFT** – Off

	3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)				m ft	
														
9.0 m 30.0 ft	kg lb											*3950 *8,750	*3950 *8,750	7.16 22.96
7.5 m 25.0 ft	kg lb				*6900 *15,200	*6900 *15,200						*3600 *7,950	*3600 *7,950	8.48 27.56
6.0 m 20.0 ft	kg lb				*7350 *16,000	*7350 *16,000	*6800 *14,900	5350 11,400				*3500 *7,700	*3500 *7,700	9.30 30.37
4.5 m 15.0 ft	kg lb		*10 550 *22,600	*10 550 *22,600	*8350 *18,050	7600 16,300	*7200 *15,650	5250 11,200				*3500 *7,750	3300 7,250	9.76 31.97
3.0 m 10.0 ft	kg lb		*13 050 *28,050	11 200 24,100	*9550 *20,600	7200 15,450	*7750 *16,850	5050 10,800	*5150 3650	3650		*3650 *8,050	3100 6,850	9.93 32.58
1.5 m 5.0 ft	kg lb		*14 700 *31,750	10 450 22,500	*10 500 *22,650	6850 14,700	*8250 *17,850	4850 10,400	*5800 3600	3600		*3950 *8,650	3100 6,850	9.83 32.26
Ground Line	kg lb		*15 000 *32,550	10 150 21,800	*10 900 *23,600	6600 14,200	8450 18,100	4750 10,150				*4350 *9,600	3300 7,250	9.45 31.00
-1.5 m -5.0 ft	kg lb	*9900 *22,500	*9900 *22,500	*14 300 *30,950	10 100 21,700	*10 650 *22,950	6500 14,000	*8150 *17,450	4700 10,050			*5100 *11,200	3750 8,300	8.75 28.66
-3.0 m -10.0 ft	kg lb	*16 750 *36,350	*16 750 *36,350	*12 550 *27,150	10 250 22,000	*9450 *20,300	6600 14,150					*5350 *11,650	4750 10,550	7.63 24.90
-4.5 m -15.0 ft	kg lb	*12 150 *25,950	*12 150 *25,950	*9350 *19,850	*9350 *19,850	*6400 *6400	*6400 *6400					*6150 *13,450	*6150 *13,450	6.09 19.72

\* Limited by hydraulic capacity rather than tipping load. The above loads are in compliance with SAE hydraulic excavator lift capacity rating standard J1097. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be deducted from the above lifting capacities.

**R2.65CB2 STICK** – 2650 mm (8'8")  
**BUCKET** – 1.2 m<sup>3</sup> (1.57 yd<sup>3</sup>)

**UNDERCARRIAGE** – Long  
**SHOES** – 850 mm (34") triple grouser

**BOOM** – Reach  
**HEAVY LIFT** – On

	3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)				m ft	
														
9.0 m 30.0 ft	kg lb											*4050 *9,050	*4050 *9,050	7.16 22.96
7.5 m 25.0 ft	kg lb				*7150 *15,750	*7150 *15,750						*3750 *8,250	*3750 *8,250	8.48 27.56
6.0 m 20.0 ft	kg lb				*7650 *16,600	*7650 *16,600	*7050 *15,450	5350 11,400				*3650 *8,000	*3650 *8,000	9.30 30.37
4.5 m 15.0 ft	kg lb		*10 900 *23,400	*10 900 *23,400	*8650 *18,700	7600 16,300	*7450 *16,250	5250 11,200				*3650 *8,050	3300 7,250	9.76 31.97
3.0 m 10.0 ft	kg lb		*13 500 *29,050	11 200 24,100	*9900 *21,350	7200 15,450	*8050 *17,450	5050 10,800	*5350 3650	3650		*3800 *8,350	3100 6,850	9.93 32.58
1.5 m 5.0 ft	kg lb		*15 250 *32,900	10 450 22,500	*10 900 *23,500	6850 14,700	*8550 *18,450	4850 10,400	*6000 3600	3600		*4100 *8,950	3100 6,850	9.83 32.26
Ground Line	kg lb		*15 550 *33,700	10 150 21,800	*11 300 *24,450	6600 14,200	8450 18,100	4750 10,150				*4500 *9,950	3300 7,250	9.45 31.00
-1.5 m -5.0 ft	kg lb	*10 250 *23,250	*10 250 *23,250	*14 800 *32,100	10 100 21,700	*11 000 *23,850	6500 14,000	8400 18,050	4700 10,050			*5250 *11,600	3750 8,300	8.75 28.66
-3.0 m -10.0 ft	kg lb	*17 150 *37,700	*17 150 *37,700	*13 050 *28,150	10 250 22,000	*9800 *21,050	6600 14,150					*5550 *12,150	4750 10,550	7.63 24.90
-4.5 m -15.0 ft	kg lb	*12 650 *27,000	*12 650 *27,000	*9750 *20,650	*9750 *20,650	*6700 *6700	*6700 *6700					*6400 *14,000	*6400 *14,000	6.09 19.72

\* Limited by hydraulic capacity rather than tipping load. The above loads are in compliance with SAE hydraulic excavator lift capacity rating standard J1097. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be deducted from the above lifting capacities.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

# Reach Boom Lift Capacities



Load Point Height



Load Radius Over Front



Load Radius Over Side



Load at Maximum Reach

**R3.2CB2 STICK** – 3200 mm (10'6")  
**BUCKET** – 1.2 m<sup>3</sup> (1.57 yd<sup>3</sup>)

**UNDERCARRIAGE** – Long  
**SHOES** – 850 mm (34") triple grouser

**BOOM** – Reach  
**HEAVY LIFT** – Off

		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)				m ft		
																		
9.0 m 30.0 ft	kg lb															*3000 *6,650	*3000 *6,650	7.85 25.27
7.5 m 25.0 ft	kg lb									*4850 *10,690	*4850 *10,690					*2800 *6,170	*2800 *6,170	9.05 29.43
6.0 m 20.0 ft	kg lb							*6650 *14,450	*6650 *14,450	*6200 *13,660	5400 11,550					*2700 *5,950	*2700 *5,950	9.80 32.04
4.5 m 15.0 ft	kg lb					*9400 *20,200	*9400 *20,200	*7650 *16,600	*7650 *16,600	*6700 *14,550	5250 11,250	*4700 *10,360	3750 8,260			*2750 *6,060	*2750 *6,060	10.24 33.55
3.0 m 10.0 ft	kg lb					*12 050 *25,850	11 400 24,550	*8950 *19,300	7250 15,550	*7350 *15,900	5050 10,800	*6150 *13,550	3650 8,040			*2850 *6,300	2800 6,200	10.40 34.12
1.5 m 5.0 ft	kg lb					*14 100 *30,400	10 550 22,750	*10 050 *21,750	6850 14,700	*7950 *17,200	4850 10,350	6350 13,650	3550 7,820			*3100 *6,800	2800 6,200	10.30 33.82
Ground Line	kg lb			*5700 *13,000	*5700 *13,000	*14 900 *32,250	10 100 21,750	*10 700 *23,150	6550 14,050	*8300 *17,950	4650 10,000	*6300 *12,700	3500 7,710			*3450 *7,600	2950 6,500	9.94 32.62
-1.5 m -5.0 ft	kg lb	*6150 *13,700	*6150 *13,700	*9700 *21,950	*9700 *21,950	*14 600 *31,600	10 000 21,450	*10 700 *23,100	6400 13,750	*8200 *17,700	4600 9,800					*4050 *8,950	3300 7,300	9.29 30.43
-3.0 m -10.0 ft	kg lb	*10 400 *23,300	*10 400 *23,300	*15 000 *34,100	*15 000 *34,100	*13 300 *28,700	10 050 21,600	*9900 *21,250	6450 13,800	*7350 *15,650	4600 9,900					*5100 *11,300	4100 9,050	8.26 26.97
-4.5 m -15.0 ft	kg lb			*14 500 *31,050	*14 500 *31,050	*10 700 *22,850	10 300 22,150	*7800 *16,450	6600 14,250							*4350 *9,590	*4350 *9,590	6.66 21.59

\* Limited by hydraulic capacity rather than tipping load. The above loads are in compliance with SAE hydraulic excavator lift capacity rating standard J1097. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be deducted from the above lifting capacities.

**R3.2CB2 STICK** – 3200 mm (10'6")  
**BUCKET** – 1.2 m<sup>3</sup> (1.57 yd<sup>3</sup>)

**UNDERCARRIAGE** – Long  
**SHOES** – 850 mm (34") triple grouser

**BOOM** – Reach  
**HEAVY LIFT** – On

		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)				m ft		
																		
9.0 m 30.0 ft	kg lb															*3100 *6,900	*3100 *6,900	7.85 25.27
7.5 m 25.0 ft	kg lb									*5000 *9,950	*5000 *9,950					*2900 *6,350	*2900 *6,350	9.05 29.43
6.0 m 20.0 ft	kg lb							*6900 *15,000	*6900 *15,000	*6450 *13,950	5400 11,550					*2800 *6,200	*2800 *6,200	9.80 32.04
4.5 m 15.0 ft	kg lb					*9700 *20,900	*9700 *20,900	*7950 *17,200	7650 16,500	*6950 *15,100	5250 11,250	*4900 *10,800	3750 8,260			*2850 *6,250	*2850 *6,280	10.24 33.55
3.0 m 10.0 ft	kg lb					*12 450 *26,750	11 400 24,550	*9250 *20,000	7250 15,550	*7650 *16,550	5050 10,800	*6350 *13,650	3650 8,040			*3000 *6,610	2800 6,200	10.40 34.12
1.5 m 5.0 ft	kg lb					*14 600 *31,500	10 550 22,750	*10 450 *22,550	6850 14,700	*8250 *17,850	4850 10,350	6350 13,650	3550 7,820			*3200 *7,050	2800 6,150	10.30 33.82
Ground Line	kg lb			*5900 *13,450	*5900 *13,450	*15 450 *33,400	10 100 21,750	*11 100 *24,000	6550 14,050	8400 18,000	4650 10,000	*6300 *13,100	3500 7,710			*3600 *7,900	2950 6,500	9.94 32.62
-1.5 m -5.0 ft	kg lb	*6350 *14,200	*6350 *14,200	*10 000 *22,650	*10 000 *22,650	*15 100 *32,750	10 000 21,450	*11 100 *23,950	6400 13,750	8300 17,800	4600 9,800					*4200 *9,250	3300 7,300	9.29 30.43
-3.0 m -10.0 ft	kg lb	*10 750 *24,050	*10 750 *24,050	*15 500 *35,150	*15 500 *35,150	*13 750 *29,750	10 050 21,600	*10 250 *22,100	6450 13,800	*7650 *16,300	4600 9,900					*5300 *11,700	4100 9,050	8.26 26.97
-4.5 m -15.0 ft	kg lb			*15 050 *32,250	*15 050 *32,250	*11 100 *23,750	10 300 22,150	*8100 *17,100	6600 14,250							*4550 *10,030	*4550 *10,030	6.66 21.59

\* Limited by hydraulic capacity rather than tipping load. The above loads are in compliance with SAE hydraulic excavator lift capacity rating standard J1097. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be deducted from the above lifting capacities.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

## Standard Equipment

*Standard equipment may vary. Consult your Caterpillar dealer for details.*

### Electrical

- 65 Ampere alternator
- Base machine light (frame)
- Horn
- Pre-Start monitoring system – checks for low fluids (engine oil, coolant, hydraulic oil) prior to starting machine

### Operator Environment

- Air conditioner, heater, defroster with automatic climate control
- AM/FM Radio with antenna and 2 speakers
- Ashtray
- Beverage/cup holder
- Bolt-on Falling Object Guarding System (FOGS) capability
- Cab Glass
  - Openable and retractable two-piece front windshield
  - Sky-light, pop-up, polycarbonate
  - Rear window, emergency exit
- Coat Hook
- Floor mat
- Instrument panel and gauges
- Joysticks, console mounted, pilot operated
- Light, interior
- Literature compartment
- Monitor, full graphic color display
- Neutral lever (lock out) for all controls
- Polycarbonate side windows
- Positive filtered ventilation
- Pressurized cab
- Seat, suspension, with high back and head rest
- Seat belt, retractable — 76 mm (3")
- Sun shade (for skylight)
- Travel control pedals with removable hand levers
- Windshield wiper and washer

### Engine/Power Train

- Cat® C7 ACERT™
  - Air Intake Heater
  - Air-to-air Aftercooler (ATAAC)
  - 24V Electric Starting
  - Hydraulic electronic unit injectors (HEUI)
  - 2300 m (7,500 ft) Altitude capability without derate
- Automatic engine speed control with one touch low idle

### Cooling

- Protection of 43° C to -18° C (109° F to 0° F) at 50% concentration

### Electric Priming Pump

- Straight line travel
- Two speed auto-shift travel
- Water separator in fuel line
  - Water level indicator for water separator

### Undercarriage

- Grease lubricated track
- Heavy-duty rollers
- Hydraulic track adjusters
- Idler and center section track guards

### Other Standard Equipment

- Automatic swing parking brake
- Auxiliary hydraulic valve
- Capability of stackable valves (max of 2) for main valve
- Capability of auxiliary circuit
- Counterweight – 7720 kg (17,020 lb)
- Door locks, cap locks and Caterpillar one key security system
- Fine swing control
- Fully pressurized hydraulic system
- Heavy Lift
- Mirrors (upper frame, rear)
- S•O•S<sup>SM</sup> quick sampling valves for engine and hydraulic oil
- Travel Alarm
- Wiring provision for Product Link

## Optional Equipment

*Optional equipment may vary. Consult your Caterpillar dealer for details.*

### Front Linkage

#### Booms

Reach 6.15 m (20 ft 2 in)

#### Sticks

Reach 3.2 m (10 ft 6 in)

Reach 2.65 m (8 ft 8 in)

#### Bucket Linkage

CB1 Family

#### Boom Lowering Control Device

### Electrical

Light, cab mounted (one)

Machine Security System (MSS)

Power Supply (12V-5 Amp)

Product Link (PL121SR/PL321SR)

### Guarding

Falling Object Guarding System (FOGS)

Either as a system or separate (Top/Bottom)

Front windshield guard

Full length, wire mesh

Heavy-Duty Bottom Guards

Rubber Bumpers (side)

Track Guiding Guards

Sprocket End, Idler end guard

Two-piece full length (center guard removed)

Vandalism Guards

### Operator Environment

Hand Control Pattern Changer (ISO-SAE)

Rear window, secondary exit (hinged)

Seat, high back with air suspension and heater

### Engine/Power Train

Prefilter, Air

Starting, Cold Weather Package

Two additional maintenance free batteries

High capacity starter motor

Heavy-duty cable

Jump-start receptacle

Ether aid

Block heater

### Undercarriage

Track Shoes (mandatory attachment)

600 mm (24") double grouser

600 mm (24") triple grouser

700 mm (28") triple grouser

850 mm (34") triple grouser

### Auxiliary Hydraulics

Hammer Circuit

For single function (1 way/2 pump) hydraulic tools

Thumb Circuit

For double function (2 way/1 pump) hydraulic tools

Tool Control System

For single or double function, (1 or 2 way/1 or 2 pump) hydraulic tools

Joysticks with additional switches

Program up to 10 tools in memory

Capability of adding medium pressure

Medium Pressure Circuit for tools requiring medium pressure

Hydraulic Pin Grabber Quick Coupler and controller

Lines for Booms and Sticks

### Work Tools

Wide Offering of Buckets, Tips and sidecutters available through Cat Work Tools directly

# 328D LCR Hydraulic Excavator

AEHQ5706-01 (3-07)

Replaces AEHQ5706

NACD/LACD

For more complete information on Cat products, dealer services,  
and industry solutions, visit us on the web at [www.cat.com](http://www.cat.com)

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See your Caterpillar dealer for available options.

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