

320D FM

Forest Machine



Engine

Engine model	Cat® C6.4 ACERT	
Net Flywheel Power	117 kW	157 hp

Operating Weight (w/ front linkage, w/out bucket or grapple):

General Forestry (HW)	26 900 kg	59,315 lb
Log Loader (U/U)	30 300 kg	66,812 lb
Log Loader (HD/LC)	25 500 kg	56,228 lb

320D FM Forest Machines

The D Series incorporates innovations for improved performance, rugged durability and maximum productivity.

Power Train

The Cat® C6.4 with ACERT™ Technology gives the 320D FM exceptional power and fuel efficiency unmatched in the industry. The C6.4 meets U.S. EPA Tier 3 emissions requirements. **pg. 4**

Hydraulics

Forest Machine hydraulic systems are designed to provide reliability, outstanding controllability and proven performance in various forestry applications. **pg. 5**

Operator Comfort

Spacious purpose built forestry cab with excellent sightlines to the work area with 8 lights and all scratch resistant polycarbonate windows. Certified FOPS to ISO 8084 and SAE 1084, certified OPS to ISO 8083 and SAE J231, certified FOGS to ISO 10262 and SAE J1356, certified TOPS to OR-OSHA code 437-007-0775 TOPS and WCBG602/G603/G604/G608 compliant. **pg. 6**

Structures

Purpose-built carbody design uses the most advanced manufacturing processes, ensuring durability and reliability in the most rugged forestry applications. **pg. 8**

Guarding

Factory forestry cab guarding, shoe support guards and heavy-duty access doors help extend component life, reduces downtime and helps to protect your forestry machine investment. **pg. 8**

Undercarriage

Heavy Duty link assemblies provide toughness and durability. The FM track will maximize undercarriage life and minimize operating costs. **pg. 9**



Versatility

Designed and purpose-built to meet diverse forestry applications, the 320D FM can help improve productivity in various forestry and millyard applications. **pg. 9**

Caterpillar Grapples

Cat Log Loading Grapples combined with Cat Forest Machines make the 320D FM flexible, versatile and efficient enough, allowing you to maximize productivity on your forestry job. **pg. 10**

Serviceability

The new FM cooling package provides easy access to all radiator cores for faster cleanouts. Regularly scheduled maintenance extends machine service life and lowers overall operating costs. **pg. 11**

Owning and Operating Costs

Proven fuel efficiency combined with easier access and extended service intervals maximize uptime, reduce operating costs and maximize productivity. **pg. 11**

Customer Focus

Down time is minimized by the utilization of a worldwide computer network that can help find in-stock parts and minimize your down time. Your Cat dealer can also offer a wide range of other services that can be set up to meet your equipment needs. The dealer will help choose the plan that can cover everything from machine and attachment selection to replacement. **pg. 12**



Power Train

The Cat® C6.4 has exceptional power and fuel efficiency unmatched in the industry for consistently high performance in both forestry and millyard applications.



Cat C6.4 ACERT. The Cat® C6.4 with ACERT™ Technology gives the 320D FM exceptional power and fuel efficiency unmatched in the industry. The C6.4 meets U.S. EPA Tier 3 emissions requirements. The forestry designed hydraulics give the 320D FM exceptional power, efficiency and controllability unequalled in the industry for consistently high performance in all forestry applications.

Performance. The 320D FM is equipped with the C6.4 ACERT engine, which provides 7% more horsepower as compared to the Cat 3066 T engine.

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 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 C6.4 ACERT 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 optional programmable reversible fan allows for radiator blowout, to increase service intervals and to maintain engine operational temperatures. The optimum fan speed is calculated based on the target engine speed, coolant temperature, hydraulic oil temperature and actual fan speed. The Cat C6.4 ACERT delivered a completely new layout that separates the cooling system from the engine compartment.

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 provide the power and control needed for a variety of applications.



Component Layout. The 320D FM 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 to allow for shorter tubes and lines between components that 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 and hot air and corresponding engine sound to exit 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 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 which increases efficiency, reduces cycle times and pressure loss for higher productivity, lower operating costs and increased fuel efficiency.

Fine Swing Control. Standard fine swing control cushions start and stop for better implement control.

Controllability. The hydraulic system offers precise control to the 320D FM reducing operator fatigue, improving operator effectiveness and efficiency, which ultimately translates into enhanced performance.

Auxiliary Hydraulic Valve. The auxiliary valve is standard on the 320D FM. Control Circuits are available as attachments, allowing for operation of high and medium pressure tools such as grapples.

Hydraulic Cylinder Snubbers. Snubbers are located at the rod-end of the boom cylinders and both ends of the stick cylinders to cushion shocks, reduce sound and increase cylinder life, increasing uptime and productivity.

Operator Comfort

The purpose built forestry cab interior layout maximizes operator space, provides exceptional comfort, provides excellent sightlines and reduces operator fatigue.



Operator Station. The workstation is spacious, quiet and comfortable, assuring high productivity during a long work day. Controls, joysticks and an ergonomically designed seat reduces operator fatigue.



Monitor. The monitor is a full color 400 × 234 pixels Liquid Crystal Display (LCD) graphic display. The monitor 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 for the engine oil, hydraulic oil and engine coolant and warn the operator through the monitor in the event display area.

Gage 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.



Seat. Seat provides 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. Joystick controls have low lever effort and are designed to match the operator’s natural wrist and arm position. The operator can operate joystick controls with an arm on the armrest and the horizontal and vertical strokes have been designed to reduce operator fatigue. Exclusive proportional control and push buttons are programmable to operator personal preferences, allowing maximum productivity.

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

Console. Redesigned consoles feature a simple, functional design to reduce operator fatigue, ease of switch operation and excellent visibility.



Skylight. An enlarged skylight with sunshade provides excellent upwards visibility.



Viewing. Cab design optimizes post structures, and scratch-resistant polycarbonate window placement to provide excellent operator visibility to front, sides and rear. Forestry cab is designed with heavy-duty guarding, meeting FOPS/OPS/FOGS/TOPS and CB requirements.

Structures

Purpose-built forest applications with reinforced carbody, rugged swing bearing, heavy doors and extra guarding.



Rugged main frame design maximizes durability.

- Outer frame utilizes curved side rails, which are di-formed for excellent uniformity and strength.
- Box-section channels improve upper frame rigidity under the cab.

- Inverted U-channels span the width of the main frame and are formed, rather than fabricated, for superior strength and reduced weight.
- Boom tower and main rails are constructed of solid, high-tensile strength, steel plates.
- Boom foot and engine mount areas are reinforced for additional strength.
- Sheet metal supporting structure is improved by integrating the mounting into the upper frame structure.

Carbody Design. Advanced, reinforced, purpose-built carbody design stands up in the toughest forest applications.

Carbody Structure. Wide, tall, and thick carbody structure provides operating stability and durability while improving operation's effectiveness.

- Upper structure weight and stresses are distributed evenly across the full length of the track roller frame.
- Smooth transitions and long welds help reduce stresses at the carbody-to-roller frame junctions for excellent durability.
- Robot welding helps ensure consistent, high-quality welds throughout the manufacturing process.

Guarding

Caterpillar guarding protects your forestry machine investment.



Shoe Support Guards. Standard full-length track shoe support guards help protect rollers and provide increased rigidity to track links in rough underfoot conditions.



Factory Forestry Cab. Caterpillar factory forestry designed and built FOPS cab has options for windshield guard and window guards to meet local guarding requirements. The right side and rear windows are made from impact-resistant polycarbonate.

Heavy-Duty Access Doors.

Heavy-duty access doors are standard on the 320D FM and are made from 6 mm (0.24 in), high-strength, low alloy steel. Positive locking latch stays closed in forestry applications. Hinges have larger diameter pins over standard doors. The smooth door profile enhances machine appearance.

Undercarriage

Durable undercarriage absorbs stresses and provides excellent stability.



Heavy Duty Top Rollers. Track rollers with dual supports replace carrier rollers to assure superior endurance.

Heavy Duty Track Rollers. Heavy duty track rollers stand up to the toughest forest applications. Features include greater sealability, higher resistance to deformation and greater load carrying capacity.

Heavy Duty Grease Lubricated Track. The 325 HD Track Link with 8 inch pitch and 8 bottom rollers is standard on the 320D FM.

1) Grease Lubricated Track.

- Extends internal bushing wear life
- Reduces noise
- Provides more usable horsepower because of decreased internal friction
- Reduces chance for frozen track joints

2) 10% Larger Bushing Diameter.

- Extends external bushing wear life

3) Greased Pin and Larger Bushing Combined.

- Extends system life
- Reduces sprocket wear because the system stays matched longer
- Improves balance in component wear life

4) 15% Increase in Link Height.

- Increases link wear life

5) 36% Wider Bushing Strap.

- Improves bushing-to-link retention

6) Unique Pin Retention System.

- Locks the pin to the link

Versatility

A wide selection of Forest Machine configurations meet diverse forestry applications and improve your productivity.

The Caterpillar Log Loader is Purpose Built. The Caterpillar log loader is purpose built for forest applications. Completely assembled, heel-type log loaders (including grapple) are available from the factory.

The Caterpillar Heel-Type Loader Arrangements. The Caterpillar heeltype loader arrangements fit a wide variety of log handling and loading applications in the woods and millyards. Heel booms are especially well-suited for use with large diameter sawlogs and tree length loads.

Caterpillar Roadbuilders. Caterpillar Roadbuilders can be equipped with buckets, thumbs, clamshells and clearing grapples to fit a wide range of forest road jobs.

Applications Include. Moving right-of-way logs, stumping, pioneering, stripping organic material, excavating shot rock, truck loading, back sloping, ditching, finish grading and slash piling.

The Caterpillar 320D FM Delimber Carrier. The Caterpillar delimber carrier can be fit with a variety of AEM delimiters.

Caterpillar Grapples

Caterpillar Forest Machines combined with Cat Log Loading Grapples mean optimal performance, reliability and on-the-job productivity.



Cat 360 Degree Continuous Rotating Log Loading Grapples for Forestry Machines are high capacity tools, built for endurance in high-volume logging applications. GLL grapple legs are made of high-strength alloy steel with unique leg profiles for maximum performance in picking/sorting, bunching/loading or shoveling applications. Large bunches of stems or single large logs are easily handled by the wide grapple opening (60"/1524 mm), while interlocking legs close down to 5"/127 mm for picking and sorting. Cat grapples have bolt-on access panels allowing for easy serviceability and are backed by the world-class Caterpillar Dealer Network.

360-Degree Continuous Rotation.

High torque hydraulic motor positions the grapple precisely for rapid sorting and loading.

Hydraulic Cylinders. Heavy-duty wall construction delivers durability and maximum closing power move the maximum amount of wood per pass.

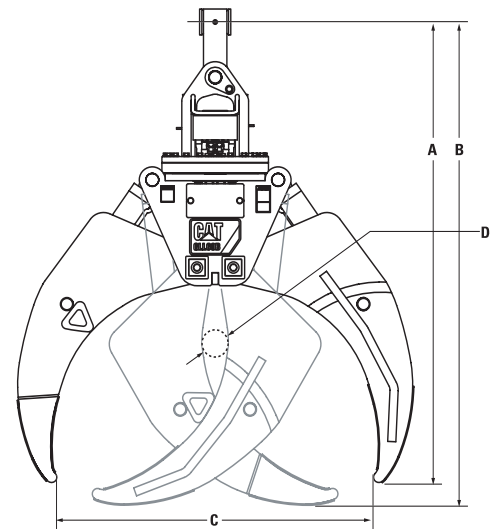
Legs. Built with high-strength alloy steel for maximum durability. Optimized profile performs equally well whether sorting, bunching or shoveling.

Pins. Induction-hardened alloy pins float, decreasing wear.

Serviceability. Bolt-on access panels protect the grapples internal components, while providing easy access. Long service intervals and infield servicing result in more uptime and lower operating costs.

GLL Specifications/Dimensions

	GLL52B	GLL55B	GLL60B
Weight (kg/lb)	1255/2,767	1291/2,840	1344/2,965
Width (mm/in)	1725/68	1765/70	1935/76
A Height, open (mm/in)	2134/84	2184/86	2261/89
B Height, closed (mm/in)	2159/85	2210/87	2286/90
C Maximum Opening (mm/in)	1321/52	1397/55	1524/60
D Minimum Opening (mm/in)	127/5	127/5	127/5
Rotation, continuous	360°	360°	360°
Rotation torque at 1,200 psi (N·m/ft lb)	1153/850	1153/850	1153/850



Matching Guide

	GLL52B	GLL55B	GLL60B
320 FM	●	○	
324 FM	●	●	
325 FM	○	●	●
330 FM	○	●	●

- Provides optimum machine match.
- Provides acceptable machine match.

Owning and Operating Costs

Caterpillar Forest Machines provide the best value for your forestry and millyard applications.



ACERT™ Technology Fuel Economy. Based on Caterpillar testing, the fuel economy of Cat engines with ACERT technology is 3 to 5 percent better than current competing technologies. This fuel economy is directly related to the complete combustion of fuel due to the integration between the electronic control that monitors conditions, the air management system that controls air volume and the fuel injection system that delivers just the right amount of fuel as needed.

Radiator Compartment. The radial air filter has a double layered filter core for more efficient filtration and is located in a compartment behind the cab. Easy access doors allows for easy, faster cleanout minimizing down time. Heavy-duty screen filters assembled on the door keep debris away from the radiator compartment, extending service intervals.

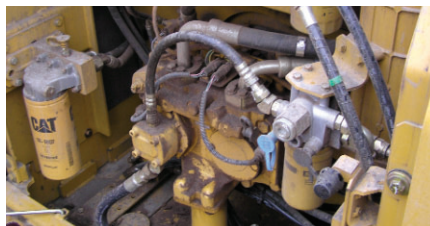
Serviceability

Simplified service and maintenance features save you time and money.

Ground Level Service. The design and layout of the 320D FM 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 aftercooler. A reserve tank and drain cock are attached to the radiator for simplified maintenance.

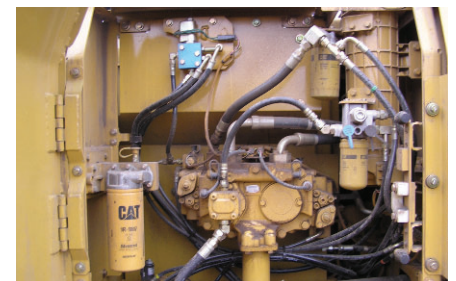
Grease Lubricated Track. Grease lubricated seals protect the track link and deliver long track pin and bushing inner wear life. **Capsule Filter.** The hydraulic return filter, a capsule filter, is situated outside the hydraulic tank. This filter prevents contaminants from entering the system when hydraulic oil is changed and keeps the operation clean.

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 320D FM is equipped with S•O•SSM sampling ports 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. 320D FM service and maintenance intervals have been extended to reduce machine service time and increase machine availability.

Customer Focus

Caterpillar 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 the 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.

SAFETY.CAT.COM™.

Engine

Engine Model Cat®	C6.4 ACERT™	
Net Flywheel Power	117 kW	157 hp
ISO 9249	110 kW	147 hp
J1349	110 kW	147 hp
EEC 80/1269	110 kW	147 hp
Bore	102 mm	4.02 in
Stroke	130 mm	5.12 in
Displacement	6.4 L	390 in ³

- The 320D FM meets U.S. EPA Tier 3 and EU Stage IIIa 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 required below 2300 m (7,500 ft) altitude.

Weights

General Forestry (HD/LC)	25 500 kg	56,228 lb
General Forestry (HW)	26 900 kg	59,315 lb
Log Loader (U/U)	30 300 kg	66,812 lb

- Operating weight with front linkage, with 18 inch riser and without bucket.
- Operating weight with front linkage, with 48 inch riser and without grapple.

Service Refill Capacities

Fuel Tank	410 L	108.3 gal
Fuel Tank – Optional Auxiliary Right Front	410 L	108.3 gal
Maximum Fuel with all Optional Tanks	820 L	216.6 gal
Cooling System	25 L	6.6 gal
Engine Oil	30 L	7.9 gal
Swing Drive	8 L	2.1 gal
Hydraulic System (including tank)	260 L	68.7 gal
Hydraulic Tank	125 L	33.0 gal
Final Drive (each) – (HD/LC)	10 L	2.6 gal
Final Drive (each) – (HW)	13 L	3.4 gal

Standards

Brakes	SAE J1026 APR90
Cab/FOGS/OPS/TOPS/FOPS	SAE J1356 FEB88 ISO 10262/ SAE J1084/ISO 8084/ OR-OSHA 437-007-0775/ WCB G602, G603, G604, G608

Hydraulic System

Main Implement System – Maximum Flow (2x)	205 L/min	54.2 gal/min
Max. pressure – Implements	35 000 kPa	5,075 psi
Max. pressure – Travel	35 000 kPa	5,075 psi
Max. pressure – Swing	25 000 kPa	3,625 psi
Pilot System – Maximum flow	41 L/min	10.8 gal/min
Pilot System – Maximum pressure	4,120 kPa	600 psi
Boom Cylinder – Bore	120 mm	4.7 in
Boom Cylinder – Stroke	1260 mm	49.6 in
Stick Cylinder – Bore	140 mm	5.5 in
Stick Cylinder – Stroke	1500 mm	59.3 in

Excavator Linkage

Boom Cylinder – Bore	120 mm	4.7 in
Boom Cylinder – Stroke	1260 mm	49.6 in
Stick Cylinder – Bore	140 mm	5.5 in
Stick Cylinder – Stroke	1500 mm	59.05 in
B1 Family Bucket Cylinder – Bore	120 mm	4.7 in
B1 Family Bucket Cylinder – Stroke	1100 mm	43.3 in

Log Loader Linkage

Boom Cylinder – Bore	140 mm	5.5 in
Boom Cylinder – Stroke	1160 mm	45.7 in
Stick Cylinder – Bore	150 mm	5.9 in
Stick Cylinder – Stroke	1470 mm	57.9 in
Under/Under Heel Cylinder – Bore	130 mm	5.1 in
Under/Under Heel Cylinder – Stroke	1156 mm	45.5 in

Drive

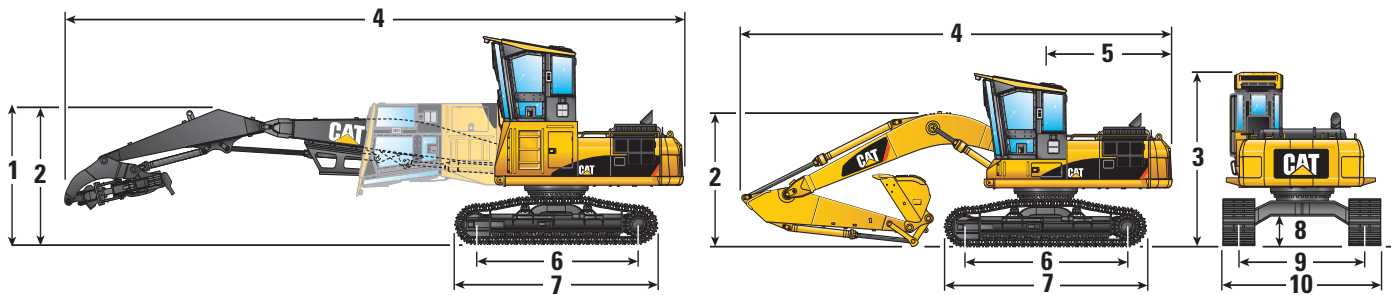
Maximum Travel Speed (HD/LC)	5.3 km/h	3.3 mph
Maximum Drawbar Pull (HD/LC)	188 kN	46,300 lb
Maximum Travel Speed (HW)	4.3 km/h	2.6 mph
Maximum Drawbar Pull (HW)	248 kN	55,700 lb

Swing Mechanism

Swing Torque	61.8 kN-m	45,611 lb ft
Swing Speed	11.5 rpm	11.5 rpm

Dimensions

All dimensions are approximate.



320D FM General Forestry

	HD/LC*	HW**
1 Shipping height. (All risers with cab tilted)	3000 mm (9'10")	3185 mm (10'5")
2 Boom height	3040 mm (10'0")	3060 mm (10'0")
3 Overall height	3713 mm (12'2")	4657 mm (15'3")
4 Shipping length	9460 mm (31'0")	9410 mm (30'10")
5 Tail swing radius	2774 mm (9'1")	2774 mm (9'1")
6 Length to centers of rollers	3650 mm (12'0")	3715 mm (12'2")
7 Track length	4480 mm (14'8")	4555 mm (14'11")
8 Ground clearance	475 mm (1'7")	650 mm (2'2")
9 Track gauge	2380 mm (7'10")	2590 mm (8'6")
10 Transport width with 700 mm (27.5") shoes (DG)	3080 mm (10'1")	3290 mm (10'10")

320D FM Log Loaders

	Under/Under
1 Shipping height. (All risers with cab tilted)	3185 mm (10'5")
2 Boom height	2980 mm (9'9")
3 Overall height	4657 mm (15'3")
4 Shipping length	13 620 mm (44'8")
5 Tail swing radius	2774 mm (9'1")
6 Length to centers of rollers	3715 mm (12'2")
7 Track length	4555 mm (14'11")
8 Ground clearance	650 mm (2'2")
9 Track gauge	2590 mm (8'6")
10 Transport width with 700 mm (27.5") shoes (DG)	3290 mm (10'10")

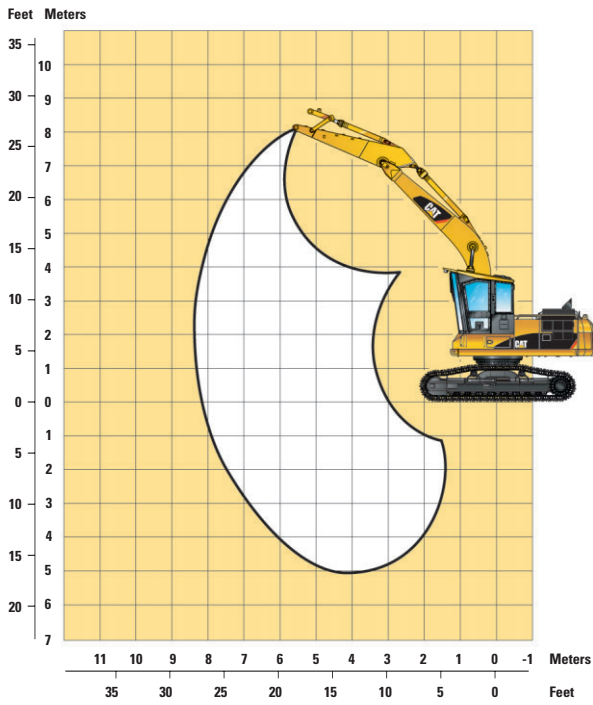
*HD/LC = Heavy Duty/Long Undercarriage

**HW = High Wide Undercarriage

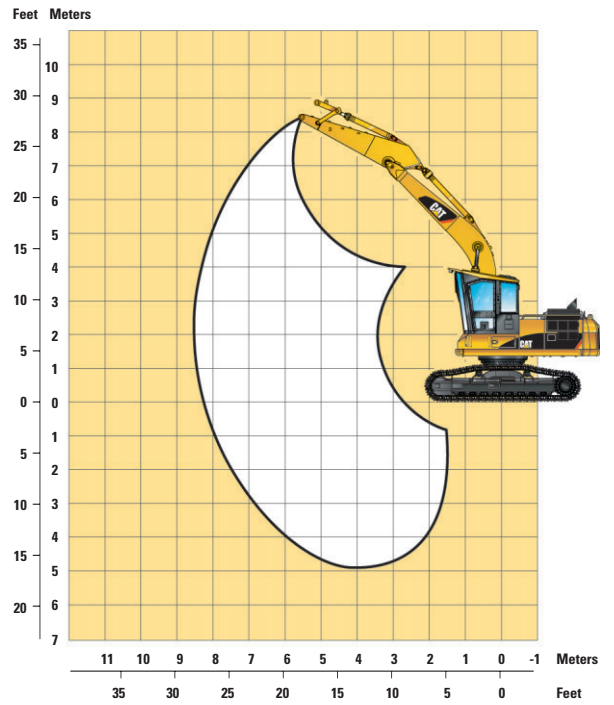
320D FM Working Ranges

General Forestry (HD/LC and HW), Heel Boom (Under/Under) reach ranges.

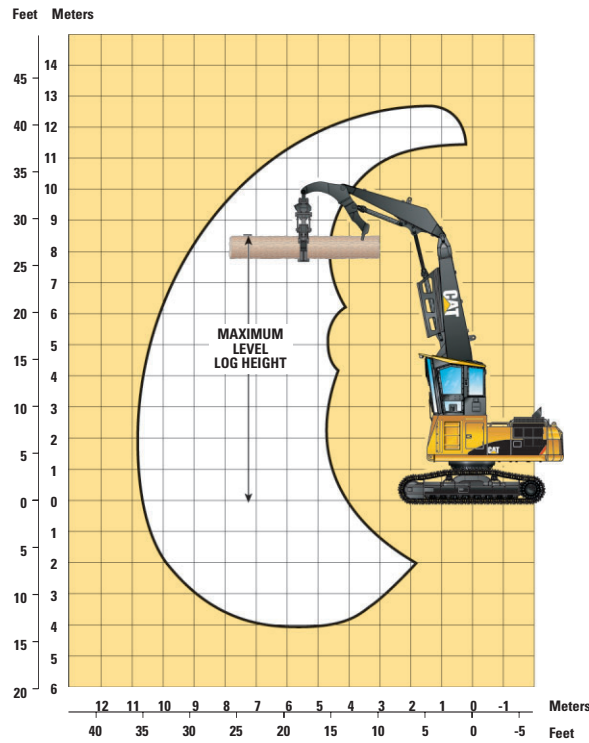
**General Forestry
HD/LC 5.9 m (19'4") Boom
with R2.9B1 (9'6") Stick**



**General Forestry
HW 5.9 m (19'4") Boom
with R2.9B1 (9'6") Stick**



**Heel Boom
(Under/Under)**



320D FM General Forestry – Reach Boom Lift Capacities

BOOM – 5.9 m (19'4")
STICK – R2.9B1 (9'6")

SHOES – 700 mm (28") Double Grouser
UNDERCARRIAGE – HD/LC

Lift Point Height		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		Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
7.5 m 25 ft	kg lb							*4450	*4450			*3900 *8,700	*3900 *8,700	6.16 19.82
6.0 m 20 ft	kg lb							*4900 *10,700	*4900 *10,700			*3650 *8,000	*3650 *8,000	7.29 23.73
4.5 m 15 ft	kg lb							*5350 *11,650	*5350 *11,650	*5050 *11,050	4200 8,950	*3550 *7,800	*3550 *7,800	7.99 26.12
3.0 m 10 ft	kg lb					*7800 *16,800	*7800 *16,800	*6150 *13,300	5650 12,100	*5350 *11,650	4050 8,750	*3650 *8,000	3450 7,600	8.35 27.39
1.5 m 5 ft	kg lb					*9450 *20,350	7950 17,150	*6950 *15,050	5350 11,550	*5750 *12,500	3950 8,450	*3850 *8,450	3300 7,300	8.44 27.70
Ground Line	kg lb			*6250 *14,350	*6250 *14,350	*10 350 *22,350	7650 16,450	*7550 *16,300	5150 11,100	*6050 *13,100	3850 8,250	*4250 *9,400	3400 7,400	8.25 27.08
-1.5 m -5 ft	kg lb	*6700 *14,900	*6700 *14,900	*10 800 *24,500	*10 800 *24,500	*10 400 *22,550	7550 16,250	*7700 *16,650	5100 10,950	*6000 *12,950	3800 8,200	*5000 *11,050	3650 8,000	7.77 25.47
-3.0 m -10 ft	kg lb	*11 450 *25,650	*11 450 *25,650	*13 800 *29,850	*13 800 *29,850	*9750 *21,050	7600 16,400	*7250 *15,550	5100 11,000			*5950 *13,050	4250 9,450	6.94 22.64
-4.5 m -15 ft	kg lb			*10 950 *23,400	*10 950 *23,400	*7900 *16,750	7850 *16,750					*5950 *13,100	5850 *13,100	5.58 18.04

* Limited by hydraulic capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567. 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.

320D FM General Forestry – High Wide Lift Capacities

BOOM – 5.9 m (19'4")
STICK – R2.9B1 (9'6")

SHOES – 700 mm (28") Double Grouser
UNDERCARRIAGE – High Wide

Lift Point Height		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		Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
7.5 m 25 ft	kg lb							*4950 *9,750	*4950 *9,750			*3850 *8,550	*3850 *8,550	6.33 20.40
6.0 m 20 ft	kg lb							*4900 *10,750	*4900 *10,750			*3600 *7,950	*3600 *7,950	7.40 24.09
4.5 m 15 ft	kg lb							*5450 *11,850	*5450 *11,850	*5050 *11,100	4850 10,350	*3550 *7,800	*3550 *7,800	8.05 26.33
3.0 m 10 ft	kg lb					*8050 *17,300	*8050 *17,300	*6250 *13,500	*6250 *13,500	*5400 *11,750	4700 10,100	*3650 *8,000	*3650 *8,000	8.38 27.47
1.5 m 5 ft	kg lb					*9600 *20,700	9350 20,100	*7050 *15,250	6200 13,400	*5800 *12,600	4550 9,850	*3900 *8,550	3900 8,550	8.43 27.67
Ground Line	kg lb			*6750 *15,450	*6750 *15,450	*10 400 *22,450	9050 19,450	*7600 *16,400	6050 13,000	*6050 *13,150	4450 9,650	*4350 *9,550	3950 8,700	8.21 26.94
-1.5 m -5 ft	kg lb	*7250 *16,200	*7250 *16,200	*11 450 *25,950	*11 450 *25,950	*10 400 *22,450	8950 19,250	*7700 *16,600	5950 12,850	*5950 *12,800	4450 9,600	*5150 *11,350	4300 9,500	7.69 25.20
-3.0 m -10 ft	kg lb	*12 100 *27,100	*12 100 *27,100	*13 500 *29,250	*13 500 *29,250	*9600 *20,700	9050 19,450	*7100 *15,250	6000 12,950			*5950 *13,100	5150 11,350	6.80 22.20
-4.5 m -15 ft	kg lb			*10 450 *22,300	*10 450 *22,300	*7500 *15,900	*7500 *15,900					*5950 *13,050	*5950 *13,050	5.36 17.29

* Limited by hydraulic capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567. 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.

320D FM LL – Heel Boom Under/Under Lift Capacities

BOOM – 5.94 m (19'6") – Under/Under Log Loader
STICK – 3.51 m (11'6") – Under/Under Log Loader

SHOES – 700 mm (28") Double Grouser

Lift Point Height		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft		10.5 m/35.0 ft		Maximum Reach		
		Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	m ft
12.0 m 40 ft	kg lb											*8920 *22,150	*8950 *22,150	4.20 12.09
10.5 m 35 ft	kg lb			*6150 *17,050	*6150 *17,050							*5650 *12,900	*5650 *12,900	6.60 21.57
9.0 m 30 ft	kg lb			*8450 *18,550	*8450 *18,550	*7500 *15,650	5900 12,600					*4650 *10,550	*4650 *10,550	8.37 27.04
7.5 m 25 ft	kg lb			*8300 *18,200	*8300 *18,200	*7600 *16,600	6000 12,850	6350 12,450	4400 9,350			*4100 *9,100	4000 8,850	9.44 30.75
6.0 m 20 ft	kg lb			*8650 *18,800	8500 18,200	*7700 *16,800	5950 12,800	6350 13,650	4450 9,500			*3800 *8,450	3550 7,800	10.19 33.29
4.5 m 15 ft	kg lb	*7200 *16,100	*7200 *16,100	*9350 *20,250	8250 17,800	*8050 *17,450	5850 12,600	6300 13,550	4400 9,400	4950 10,550	3400 7,250	*3700 *8,100	3300 7,250	10.67 34.94
3.0 m 10 ft	kg lb			*10 200 *22,100	7950 17,150	8250 17,700	5700 12,250	6250 13,400	4300 9,250	4900 10,550	3400 7,250	*3600 *7,950	3150 6,950	10.92 35.81
1.5 m 5 ft	kg lb			*10 900 *22,550	7650 16,400	8050 17,300	5500 11,850	6150 13,200	4250 9,050	4900 10,500	3350 7,200	*3650 *8,050	3150 6,900	10.96 35.96
Ground Line	kg lb	*14 550 *32,650	11 150 23,950	11 000 23,650	7350 15,800	7900 16,950	5350 11,550	6050 13,000	4150 8,900	*4800 *9,650	3350 7,150	*3750 *8,300	3200 7,050	10.97 35.40
-1.5 m -5 ft	kg lb	*10 800 *25,600	*10 800 23,350	*10 350 *22,400	7200 15,450	7800 16,750	5250 11,350	*6000 *12,700	4100 8,650			*3750 *8,300	3450 7,600	10.25 33.57
-3.0 m -10 ft	kg lb	*11 350 *24,400	10 800 23,250	*8700 *18,600	7150 15,350	*6500 *13,850	5250 11,300					*4450 *9,900	4200 9,300	8.90 28.99

* Limited by hydraulic capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567. 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.

Forestry Grapples

Specification	GLL 52	GLL 55
Part #	271-1533	271-1534
For use with	320D FM, 324D FM	320D FM, 324D FM, 325D FM
Rotation	Continuous	Continuous
Rotation torque	1153 N·m (850 ft-lb)	1153 N·m (850 ft-lb)
Max. Opening	1321 mm (52")	1397 mm (55")
Min. Opening	126 mm (5")	126 mm (5")
Weight	1255 kg (2,767 lb)	1291 kg (2,840 lb)
Width	673 mm (26.5")	673 mm (26.5")
Height, open	2134 mm (84")	2184 mm (86")

Standard Equipment

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

Electrical

- 80 Ampere alternator
- 4 Front working lights, cab top mounted
- 2 Front working lights, riser mounted
- 1 Left side working light, cab mounted
- 1 Rear working light, cab mounted

Horn

Operator Environment

- Purpose built forestry cab with 8 lights and all scratch resistant polycarbonate windows
- Seat, four-way adjustable suspension seat with adjustable armrest, retractable seatbelt, headrest and lumbar support
- Integrated seat, console and joystick type controls
- Language display monitor with gauges
- Warning information
 - Filter/fluid change information
 - working hour information
 - machine condition
 - error code and tool mode setting information
 - start up level check for hydraulic oil, engine oil and engine coolant

Full time clock on monitor (2 weeks)

- Seat mounted joystick with extra functions for grapple
- Fixed polycarbonate skylight with retractable sun shade
- Interior lighting
- Lower and upper windshield wipers and washer
- Positive filtered ventilation, pressurized cab with bi-level air conditioner, heater and defroster with manual control
- Forced air fan
- 2 post mounted fresh air vents
- Behind seat storage tray with tie down points
- 2 CB radio mounts
- 1 Fire extinguisher mount
- 1 Attachment computer control mount
- Secondary roof exit openable from inside and outside
- 2 Coat hooks
- Ashtray with lighter
- Literature holder
- Cup holder
- Neutral lever for all controls
- Travel control pedals with removable hand levers
- Washable floor mat
- Radio/CD player (12V)
- 1 Converter/2 sockets – 12V-10A power supply

Power Train

- Cat C6.4 with ACERT™ Technology U.S. EPA Tier 3 emissions compliant with 24-volt electric starting and air intake heater
- Automatic engine speed control with one touch low idle
- Easy clean swing-out condenser
- Easy clean swing out radiator
- Muffler
- Two speed auto-shift travel
- Water separator in fuel line

Undercarriage

- Hydraulic track adjusters
- Track type undercarriage with grease lubricated seals
- Idler and full-length track shoe support
- 700 mm (28") Double grouser shoes with trap holes

Other Standard Equipment

- Heavy-duty upper frame with catwalks, bottom guard, heavy-duty side doors
- Core hydraulic lines and controls with standard main valves on upper structures
- Door locks, cap locks and Caterpillar one key security system
- Automatic swing parking brake
- Travel alarm
- Counterweight with lifting eye
- Right front corner guard

320D FM General Forestry Arrangement also includes:

- Forestry cab, hydraulic tilt 457 mm (18") riser
- High-wide undercarriage or heavy-duty long undercarriage
- Heavy-Duty recoil springs
- Heavy-Duty track roller frame
- Heavy-Duty travel motor covers
- Straight travel third pedal
- Heavy-Duty swivel guard
- Forestry Heavy-Duty upper frame with catwalk
- Heavy-Duty bottom guard
- Heavy-Duty side doors
- Right front corner guard
- Travel alarm

320D FM Log Loader Arrangement also includes:

- Forestry cab
- Hydraulic tilt 1219 mm (48") riser
- High-wide undercarriage
- Heavy-Duty recoil springs
- Heavy-Duty track roller frame
- Heavy-Duty travel motor covers
- Straight travel third pedal
- Grapple/rotator hydraulic arrangement
- Heavy-Duty swivel guard
- Forestry Heavy-Duty upper frame with catwalk
- Heavy-Duty bottom guard
- Heavy-Duty side doors
- Right front corner guard
- Travel alarm

Optional Equipment

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

5.7 m (18'8") Reach Boom for General Forestry

2.9 m (9'6") B1 Stick for General Forestry

Air suspension seat

Auto-reverse fan

Auxiliary Lines For:

Reach front

Auxiliary Pump Driver

Boom lowering device

B1 Family bucket linkage

Cold Weather Starting Aid

Electric re-fueling pump

Extended life coolant with 50% concentration for protection
of -34° C (-30° F)

GLL family grapples

Heavy Counterweight for General Forestry

Standard on Log Loader

Hydraulic Arrangements: General Forestry

Rotating grapple

Harvesting head

Thumb

Hydraulic Arrangements: Log Loader

Ground saw slasher

Log Loader Linkage

Stick cylinder guard

Maintenance service lights for pump and
battery compartment

Pre filter

Right front corner fuel tank [additional 409 L (108 gal)]

Rubber guard for boom foot

Track:

600 mm (24") double grouser shoes with trap holes

700 mm (28") Heavy-Duty triple grouser shoes
with trap holes

700 mm (28") double grouser shoes

Vacuum pump

320D FM

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

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See your Caterpillar dealer for available options.

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