



# 320 N

## EXCAVATOR

### Maximums:

- Digging depth with:  
5675 mm/18'7" boom.....7580 mm/24'10"
- Reach at ground level with:  
5675 mm/18'7" boom .....10 630 mm/34'11"
- Bucket capacity ranges:  
Reach.....0.4-1.4 m<sup>3</sup>/0.52-1.88 yd<sup>3</sup>

### Cat® turbocharged

3116 Engine .....130 PS/96 kW/128 HP  
Transport width.....2495 mm/8 ft 2 in  
Maximum travel speed .....5.5 km/h/3.4 MPH  
Maximum drawbar pull .....177 kN/39,800 Lb

### Operating Weight:

320 N .....20 370 kg/44,900 Lb

Featured machines may include additional equipment applicable only for special applications.  
See your authorized Caterpillar dealer for available options.



# SPECIFICATIONS

## Caterpillar® Engine

Flywheel power  
at 1800 RPM.....130 PS/96 kW/**128 HP**

Kilowatts (kW) is the International System of Units equivalent to horsepower.

Net power at the flywheel of the machine engine is based on SAE J1349 standard conditions 25° C/77° F and 100 kPa/29.61 Hg. Fuel is 35° API (15.6° C/60° F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29.4° C/85° F and weighing 828.9g/L(7.001 lb/U.S. gal). Engine is equipped with fan, air cleaner, alternator, Water pump, fuel pump, muffler and lubricating oil pump. No derating required up to 2300 m/7,500 ft.

Caterpillar four-stroke-cycle, 3116 turbocharged diesel engine with six cylinders, 105 mm/4.13" bore, 127 mm/5.00" stroke and 6.6 liters/403 in<sup>3</sup> displacement.

Direct-injection fuel system with an individual, adjustment-free unit injector for each cylinder. Cam-turned 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, 24-volt starting system with a 55-amp alternator, 6 kW starter and two 12-volt, 100-amp-hour batteries.

## Hydraulic System

Two variable-displacement, axial-piston pumps power the boom, stick, bucket and travel circuits. One, single-section, gear-type pump powers the pilot circuit.

Main implement system:

Maximum flow .....2 X 185 liters/min/2 X **49 GPM**

Maximum pressure:

Implements.....320 bar/31.4 MPa/**4,550 psi**

Travel.....350 bar/34.3 MPa/**4,975 psi**

Pilot system:

Maximum flow .....20 liters/min/**5.3 GPM**

Maximum pressure.....35 bar/3.4 kPa/**500 psi**

Cylinders, bore and stroke:

Boom (2) .....120 X 1260 mm/**4.7" X 50"**

Stick (1) .....140 X 1430 mm/**5.5" X 56"**

Bucket (1):

B family.....120 X 1030 mm/**4.7" X 40.6"**

Snubbers are used at the rod ends of the boom cylinders and at both ends of the stick cylinders.

## Controls

Two joystick hand levers actuate boom, stick, bucket and swing. (SAE pattern.)

Right lever: Move forward and backward to lower and raise boom. Move left and right to control bucket curl and dump. Button on top is automatic engine control system's manual switch. Operator can increase or decrease engine speed by pushing the button.

Left lever: Move forward and backward to move stick out and in. Move left and right to control direction of swing. Button on top controls horn.

Oblique movement of either lever operates two functions simultaneously. Manually applied lever on left console cuts off pilot pressure for joysticks and travel controls and electrical power for engine starting circuit.

Easy Shift Control Pattern attachment allows operator to change from SAE to an alternate control pattern at the flip of a switch.

Monitor panel contains switches for power mode selector, work mode selector, automatic engine control, lights, windshield wiper, windshield washer, travel speed selector and alarm cancel. Blind switch for troubleshooting also is located on monitor panel.

## Steering

Two rocker pedals with detachable hand levers control steering and travel functions. Controls are pilot-operated for reduced efforts. Left pedal and lever control left track; right pedal and lever control right track. When idlers are in front: (1) Pushing both pedals or levers forward moves the excavator straight ahead. (2) Rocking both pedals or pulling both levers backward moves the excavator straight back. (3) Moving one pedal or lever more than the other, either forward or backward, results in a gradual turn. (4) Moving one pedal or lever forward and the other pedal or lever backward counter-rotates the tracks for spot turns.

## Brakes

Two wet, multiple-disc brakes are used on the final drive input shafts. Spring-applied, hydraulically released. Actuating a travel control simultaneously releases the brakes. When the controls are released, the brakes automatically apply.

## Drive

Fully hydrostatic drive. Each track is driven by an independent, two-speed, axial-piston hydraulic motor. Triple-reduction, planetary final drives are splash lubricated. Track motors, brakes and final drives are integrated in the track roller frame for protection against contact damage.

Maximum drawbar pull .....177 nN/**39,800 lb**

Maximum travel speed.....5.5 km/h/**3.4 mph**



## Track

Caterpillar designed and built, track-type under-carriage. Robot-welded, pentagonal track roller frames with hydraulic adjusters. Sealed and lubricated rollers and idlers. Sealed Track with triple-grouser shoes.

|                                                   | <b>320 N</b>       |
|---------------------------------------------------|--------------------|
| Number of shoes,<br>each side .....               | 45                 |
| Number of track rollers,<br>each side .....       | 7                  |
| Overall track length .....                        | 4075 mm<br>(13'4") |
| Gauge .....                                       | 1995 mm<br>(6'7")  |
| Widths of available shoes<br>Triple grouser ..... | 500 mm<br>(19.7")  |
| Ground clearance<br>(from face of shoe) .....     | 475 mm<br>(19")    |

## Swing Mechanism

Fixed-displacement, axial-piston motor powers swing mechanism. Triple-planetary, double-reduction gear set drives pinion. Pinion is enclosed in grease bath to keep contaminants out and to extend service intervals. Releasing swing control cuts hydraulic power to swing motor and acts as a brake. Moving swing lever in opposite direction also will stop the swing. Hydraulics will hold upperstructure steady on a slope for limited time. Optional automatic swing brake is recommended for applications where loads are frequently handled on slopes or extended stops on slopes are necessary. Automatic, oil-disc brake (also optional) applies four seconds after swing control is released. Shipping lock pins upperstructure to carbody to prevent rotation during transport.

|                    |                        |
|--------------------|------------------------|
| Swing speed .....  | 10.7 RPM               |
| Swing torque ..... | 57,000 Nm/42,200 lb-ft |

## Service Refill Capacities

|                                           | <b>Liters</b> | <b>U.S. Gallons</b> |
|-------------------------------------------|---------------|---------------------|
| Fuel Tank .....                           | 290           | 77                  |
| Cooling System .....                      | 27            | 7.1                 |
| Lubrication:                              |               |                     |
| Engine oil .....                          | 21            | 5.5                 |
| Swing drive .....                         | 11            | 2.9                 |
| Final drives (each) .....                 | 10            | 2.6                 |
| Hydraulic System<br>(includes tank) ..... | 192           | 51                  |
| Hydraulic Tank .....                      | 136           | 36                  |

## Major Component Weights

### Upperstructure

Without counterweight, with operator &  
full fuel ..... 5620 kg/12,400 lb

### Counterweight

Standard ..... 4650 kg/10,240 lb

### Undercarriage

with 500 mm/19.7" shoes ..... 6130 kg/13,500 lb

### Boom

Without cylinders  
5675 mm/18'7" ..... 1360 kg/3,000 lb

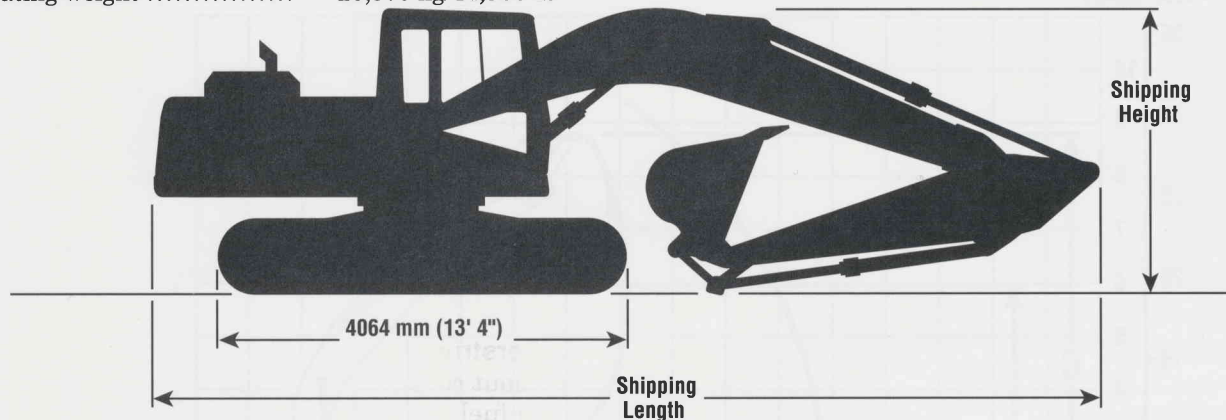
### Stick

Without cylinder  
R2.9B ..... 620 kg/1,370 lb

# SPECIFICATIONS

## Shipping Dimensions and Weights (approximate)

|                        |                     |
|------------------------|---------------------|
|                        | <b>R2.9B</b>        |
| Stick .....            | 2920 mm/9'7"        |
| Shipping height .....  | 2920 mm/9'7"        |
| Shipping length .....  | 9440 mm/31'0"       |
| Shipping width .....   | 2495 mm/8'2"        |
| Shipping weight .....  | 20,090 kg/44,300 lb |
| Operating weight ..... | 20,370 kg/44,900 lb |



## Standard Equipment

Alternator, 55-amp.  
Automatic engine control.  
Cab, sound-suppressed, includes:  
Ash tray.  
Cigar lighter.  
Coat hook.  
Compartments:  
Literature.  
Storage, lunch box.  
Floor mat.  
Handrails.  
Heater with defroster.  
Horn, signaling/warning.  
Hydraulic/starting systems lock lever.  
Lights, interior.  
Joysticks, pilot-operated, adjustable.  
Radio mount.  
Seat belt, retractable.  
Seat, four-way adjustable suspension with arm and head rests.

Skylight, opening.  
Travel controls, pedals with removable levers.  
Ventilation, positive-filtered.  
Windows:  
Windshield, upper retractable, laminated safety glass.  
Windshield, lower removable, clear, tempered safety glass.  
Cab door window, sliding, clear, tempered safety glass. All other windows are tempered safety glass.  
Fine swing control.  
High Ambient Cooling System  
Hydraulic valve port, auxiliary (with Rexroth pump only).  
Instrument panel with LCD gauges.  
Lights, working:  
Frame mounted.  
Boom, left/right side  
Cab mounted

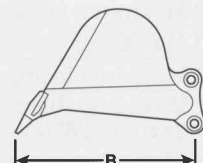
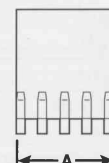
Locks, door and cap, one-key system.  
Mirrors:  
Right side.  
Cab.  
Power Mode Selector.  
Work Mode Selector.  
Starting aid-ether  
Steps.  
Straight travel circuit.  
Swing brake, automatic.  
Travel, two-speed with vandalism protection automatic shift.  
Tow eyes.  
Undercarriage:  
Narrow gauge with 500 mm/19.7" triple grouser shoes.  
Windshield wiper and washer.  
Water separator.

## Bucket Options

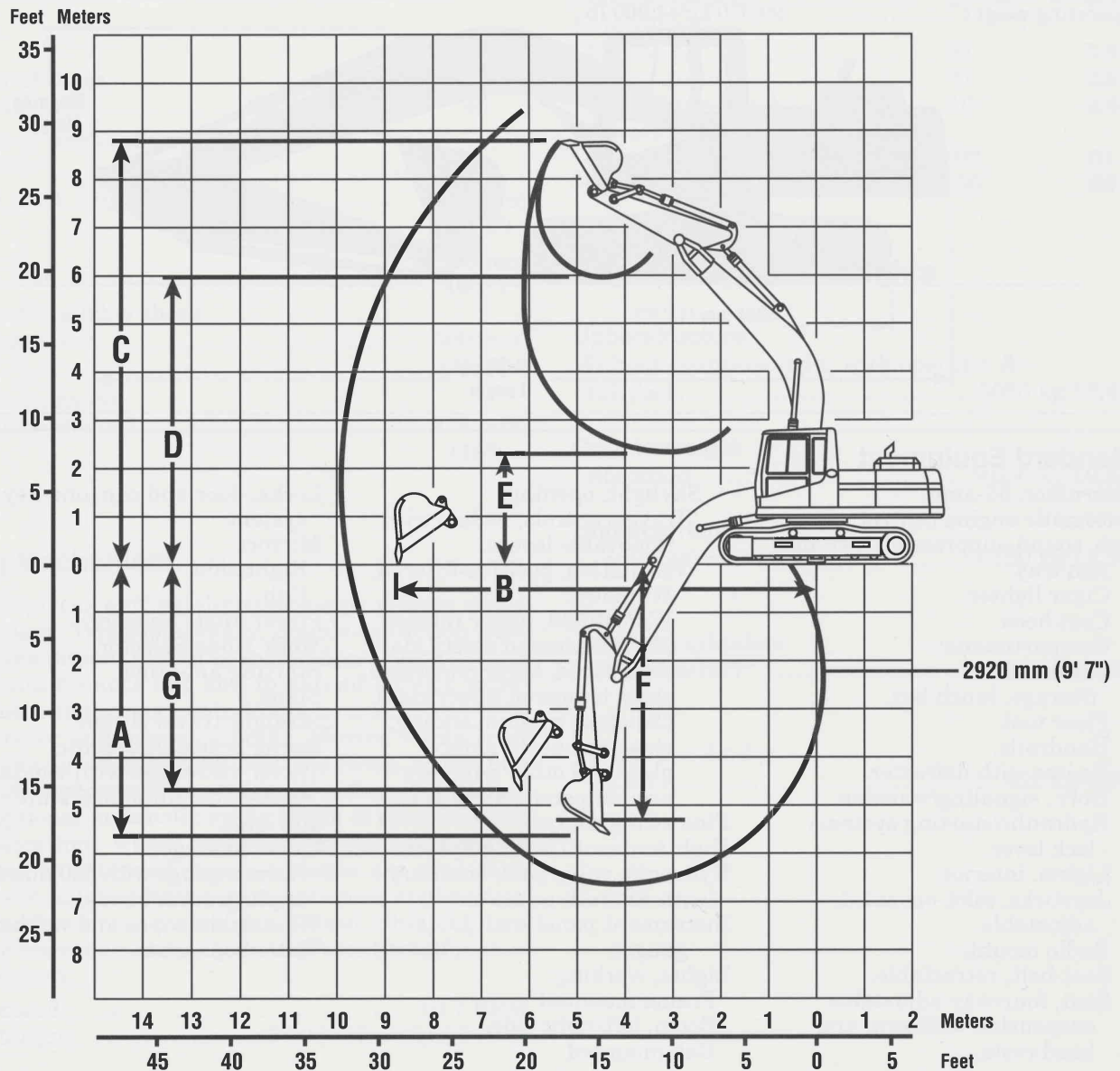
Caterpillar buckets are designed for excellent load retention and easy digging under obstructions.

### B Family Buckets (for R3.9B, R2.9B and R2.5B)

| Type                                | A<br>Bite Width |    | B<br>Tip Radius |      | SAE<br>Capacity |      | Weights<br>without tips |      |
|-------------------------------------|-----------------|----|-----------------|------|-----------------|------|-------------------------|------|
|                                     | mm              | in | mm              | in   | m³              | yd³  | kg                      | lbs  |
| Excavation .....                    | 1260            | 50 | 1409            | 55   | 0.9             | 1.13 | 702                     | 1545 |
|                                     | 1370            | 54 | 1409            | 55   | 1.0             | 1.25 | 734                     | 1615 |
| Extreme Service<br>Excavation ..... | 1115            | 43 | 1431            | 56   | 0.8             | 1.00 | 952                     | 1655 |
| Trenching .....                     | 925             | 36 | 1548            | 61   | 0.8             | 1.00 | 673                     | 1480 |
|                                     | 1075            | 42 | 1548            | 61   | 1.0             | 1.25 | 709                     | 1560 |
| Extreme Service<br>Trenching .....  | 625             | 24 | 1563            | 61.5 | 0.4             | 0.50 | 605                     | 1330 |
|                                     | 775             | 30 | 1563            | 61.5 | 0.6             | 0.62 | 663                     | 1460 |



## 320 N Reach Excavator Working Ranges



|                                                                    |                                     |
|--------------------------------------------------------------------|-------------------------------------|
|                                                                    | <b>R2.9B</b><br><b>2920 mm/9'7"</b> |
| <b>Sticks</b>                                                      |                                     |
| <b>Bucket</b>                                                      | <b>0.8 m³/1.0 yd³</b>               |
| <b>A</b> Maximum digging depth.....                                | 6640 mm/ <b>21'9"</b>               |
| <b>B</b> Maximum reach at ground level .....                       | 9775 mm/ <b>32'1"</b>               |
| <b>C</b> Maximum cutting height .....                              | 9415 mm/ <b>30'11"</b>              |
| <b>D</b> Maximum loading height.....                               | 6575 mm/ <b>21'7"</b>               |
| <b>E</b> Minimum loading height.....                               | 2255 mm/ <b>7'5"</b>                |
| <b>F</b> Maximum digging depth at<br>2440 mm/8' level bottom ..... | 6295 mm/ <b>20'8"</b>               |
| <b>G</b> Maximum vertical wall digging depth ...                   | 6050 mm/ <b>19'10"</b>              |
| <b>Bucket forces</b> .....                                         | 11 730 kg/ <b>25,860 lb</b>         |
| <b>Stick forces</b> .....                                          | 9180 kg/ <b>20,240 lb</b>           |

# 320 N EXCAVATOR

## Lift Capacities

### 320N EXCAVATOR















BOOM – Reach 5675 mm/18'7"

STICK – R2.9B 2920 mm/9'7"

BUCKET – 0.8 m³/1.00 yd³

SHOES – 500 mm/19.7"

UNDERCARRIAGE – Standard

|  |          | 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                                                                     |                                                                                   |  |                                                                                     | m<br>ft       |
|-----------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|
|                                                                                   |          |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 7.5 m<br>25.0 ft                                                                  | kg<br>lb |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | *3640<br>*7100                                                                    | *3640<br>*7100                                                                    |                                                                                   |                                                                                   | *1810<br>*4000                                                                      | *1810<br>*4000                                                                      | 7.72<br>24.98 |
| 6.0 m<br>20.0 ft                                                                  | kg<br>lb |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | *8100<br>*8100                                                                    |                                                                                   | *2430<br>*2430                                                                    |                                                                                   | *1710<br>*3800                                                                      | *1710<br>*3800                                                                      | 8.74<br>28.51 |
| 4.5 m<br>15.0 ft                                                                  | kg<br>lb |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | *4170<br>*9100                                                                    | 4000<br>8600                                                                      | *3880<br>*8500                                                                    | 2680<br>5700                                                                      | *1700<br>*3700                                                                      | *1700<br>*3700                                                                      | 9.34<br>30.58 |
| 3.0 m<br>10.0 ft                                                                  | kg<br>lb |                                                                                   |                                                                                   | *10 130<br>*21,500                                                                | *10 130<br>*21,500                                                                | *6310<br>*13,600                                                                  | 5930<br>12,800                                                                    | *4900<br>*10,600                                                                  | 3790<br>8200                                                                      | *4210<br>*9200                                                                    | 2600<br>5600                                                                      | *1750<br>*3900                                                                      | 1680<br>3700                                                                        | 9.62<br>31.54 |
| 1.5 m<br>5.0 ft                                                                   | kg<br>lb |                                                                                   |                                                                                   |                                                                                   |                                                                                   | *7830<br>*16,900                                                                  | 5440<br>11,700                                                                    | *5670<br>*12,300                                                                  | 3560<br>7700                                                                      | 4240<br>9100                                                                      | 2490<br>5300                                                                      | *1880<br>*4100                                                                      | 1640<br>3600                                                                        | 9.60<br>31.50 |
| Ground<br>Line                                                                    | kg<br>lb |                                                                                   |                                                                                   | *4860<br>*11,200                                                                  | *4860<br>*11,200                                                                  | *8740<br>*18,900                                                                  | 5140<br>11,100                                                                    | 5850<br>12,600                                                                    | 3390<br>7300                                                                      | 4140<br>8900                                                                      | 2400<br>5200                                                                      | *2100<br>*4600                                                                      | 1710<br>3800                                                                        | 9.29<br>30.47 |
| -1.5 m<br>-5.0 ft                                                                 | kg<br>lb | *4780<br>*10,700                                                                  | *4780<br>*10,700                                                                  | *8150<br>*18,500*                                                                 | *8150<br>*18,500                                                                  | *8940<br>*19,400                                                                  | 5040<br>10,800                                                                    | 5750<br>12,400                                                                    | 3300<br>7100                                                                      | 4100<br>8800                                                                      | 2360<br>5100                                                                      | *2480<br>*5500                                                                      | 1920<br>4300                                                                        | 8.65<br>28.35 |
| -3.0 m<br>-10.0 ft                                                                | kg<br>lb | *8410<br>*18,900                                                                  | *8410<br>*18,900                                                                  | *12 280<br>*26,700                                                                | 9670<br>20,800                                                                    | *8460<br>*18,300                                                                  | 5070<br>10,900                                                                    | 5760<br>12,400                                                                    | 3310<br>7100                                                                      |                                                                                   |                                                                                   | *3160<br>*7000                                                                      | 2410<br>5400                                                                        | 7.60<br>24.80 |
| -4.5 m<br>-15.0 ft                                                                | kg<br>lb |                                                                                   |                                                                                   | *10 040<br>*21,500                                                                | *10 000<br>21,500                                                                 | *7040<br>*15,000                                                                  | 5240<br>11,300                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |               |

\* Indicates the load is limited by hydraulic capacity rather than tipping capacity. Lift Capacity Ratings are based on SAE Standard J1097. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity.

# CATERPILLAR®