



# Cat<sup>®</sup> 6020B

## HYDRAULIC SHOVEL

### FEATURES:

- Industry-leading efficiency with dedicated pump flow allocation technology
- Safety and productivity enhancing state-of-the-art operator's cab
- Class-leading visibility via cab floor window and large front and side windshields
- Easy serviceability and component accessibility via spacious walk-through engine module
- Fast field assembly via modular design
- Optimized hydraulic oil temperature and cooling flow control via independent cooling system
- Minimized regular service activities via automatic centralized lubrication system

## Specifications

### General Data

Operating Weight	224 tonnes	247 tons
Engine Output SAE J1995	778 kW	1,043 hp
Standard Bucket Capacity	12 m <sup>3</sup>	15.7 yd <sup>3</sup>

### Operating Weight – Backhoe

Standard Track Pads	800 mm	2 ft 7 in
Operating Weight	224 000 kg	493,830 lb
Ground Pressure	21.7 N/cm <sup>2</sup>	31.4 psi

### Diesel Engine

Make and Model	Cat <sup>®</sup> C32 (Tier 2)	
Rated Net Power ISO 3046/1	778 kW	1,043 hp, 1,800 min <sup>-1</sup>
Rated Net Power SAE J1349	778 kW	1,043 hp, 1,800 min <sup>-1</sup>
Rated Gross Power SAE J1995	778 kW	1,043 hp, 1,800 min <sup>-1</sup>
No. of Cylinders	12	
Bore	145 mm	5.71 in
Stroke	162 mm	6.38 in
Displacement	32 L	1,959 in <sup>3</sup>
Aspiration	Turbocharged and air-to-air aftercooled	
Maximum Altitude without Deration above sea level (a.s.l.)	2000 m	6,560 ft
Alternator	275A	
Emission Certification	U.S. EPA Flex	
Fuel Tank Capacity	3600 L	951 U.S. gal

- Hydraulically driven radiator fan with variable electronically controlled fan speed
- Reversible fan for self cleaning of engine radiator
- Micro processed engine management
- Heavy-duty air filters
- Two-stage fuel filter
- Additional high-capacity water separator including electric priming pump
- Large fuel tank allows for 24 hour machine operation

### Electrical System

System Voltage	24V
Batteries (12V each)	6 × 210 Ah
In Series/Parallel Installation	630 Ah – 24V
Battery isolation relays	manual lockable disconnect switch and automatic disconnect relay

- Emergency stop buttons inside cab, accessible from all seating locations, and engine module
- Additional ground-level emergency stop
- 8 LED high-brightness working flood lights
  - 6 for working area
  - 2 for rear end
- 2 LED high-brightness access flood lights
- 7 LED service lights
- 1 beacon lamp on cab roof

### Hydraulic System with Electronic Pump Management

Main Pumps	6 × variable swash plate pumps	
Maximum Total Oil Flow	2350 L/min	621 U.S. gal/min
Maximum Swing Oil Flow	783 L/min	216 U.S. gal/min
Maximum Pressure, Attachment	310 bar	4,495 psi
Maximum Pressure, Travel	310 bar	4,495 psi
Maximum Pressure, Swing	350 bar	5,080 psi

- Electronic pump management contains:
  - Electronic load limit control
  - Dedicated circuit pump allocation
  - Automatic return of main pumps to zero flow
  - Automatic rpm reduction of engine speed during working breaks
  - Reduced oil flow of main pumps at high hydraulic oil temperature and at high engine temperature
- Pressure cut-off function for all main pumps
- Cooling of pump transmission gear oil

(continued)

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## Hydraulic System with Electronic Pump Management *(continued)*

- Filters:
  - Full-flow high-pressure filters (100 µm) for main pumps, installed directly behind each pump
  - Full-flow filters (10 µm) for complete return circuit
  - Full-flow filters (10 µm) for cooling return circuit
  - Pressure filters (6 µm) for servo circuit
  - Transmission oil filter (40 µm)

## Hydraulic Oil Cooling

Oil Flow of Cooling Pumps	800 L/min	211 U.S. gal/min
Diameter of Fan	1500 mm	4 ft 11 in

- Cooling system fully independent of all main circuits, i.e. controlled cooling capacity available whenever engine is running
- Variable electronically controlled flow of oil through cooler and fan speed
- Reversible fan for self cleaning of oil cooler
- Superior cooling efficiency to ensure optimum oil temperature

## Swing System

Swing Drives	2 compact planetary transmissions with axial piston motors
Parking Brake	Wet multiple-disc brake, spring-loaded/hydraulically released
Maximum Swing Speed	4.9 rpm
Swing Ring	Triple-race roller bearing with sealed internal gearing

- Open swing circuit with auto slow down when joysticks in neutral
- All slew ring raceways and grease tub for internal gearing supplied by automatic, central lubrication system

## Centralized Service Area

Centralized service area accessible from ground level.

Equipped with:

- Quick couplings for:
  - Diesel fuel
  - Engine coolant
  - Pump transmission gear oil
  - Engine oil (oil pan)
  - Hydraulic oil
- Cat jump-start socket
- Indicator light for hydraulic tank full

## Undercarriage

Travel Speed (2 Stages):		
1st Stage (maximum)	1.2 km/h	0.75 mph
2nd Stage (maximum)	2.7 km/h	1.68 mph
Maximum Tractive Force	1066 kN	239,560 lbf
Gradeability of Travel Drives	Approximately 56%	
Track Pads (each side)	49	
Bottom Rollers (each side)	8	
Support Rollers (each side)	2 plus slide	
Travel Drives (each side)	1 planetary transmission with 2 two-stage axial piston motors	
Parking Brakes	Wet multiple disc brake, spring loaded/hydraulically released	

- Forged double-grouser track pads
- Chain links connected by hardened pins and bushings

## Undercarriage *(continued)*

- All running surfaces of sprockets, idlers, rollers and track chain links hardened
- Fully hydraulic self-adjusting track tensioning system with accumulator
- Automatic hydraulic retarder valve to prevent overspeed on downhill travel
- Audible travel alarm

## Operator's Cab

Operator's Eye Level (approximate)	5.5 m	18 ft 1 in
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Internal Dimensions of Cab:

Length	2230 mm	7 ft 4 in
Width	1625 mm	5 ft 4 in
Height	2070 mm	9 ft 9 in

- Large cab floor window with removable grating for easy cleaning
- Pneumatically cushioned and multi-adjustable operator seat with lumbar support, safety belt, head- and armrests
- Safety switch in operator's seat for automatic motion shutdown
- Joystick integrated in adjustable seat armrest
- Full sized trainer seat with safety belt and work table
- Auxiliary fold-away seat with safety belt for 3rd person
- FOPS (rock guard; approved according to ISO 3449) compliant
- Windshield with parallel intermittent wiper/washer
- Roller blinds
- New Board Control System (BCS): Electronic monitoring, data logging and diagnostic system for vital signs and service data of engines, hydraulic and lubrication system, featuring:
  - Robust instrument panel including large (254 mm/10 in) color touch screen
  - On-screen PDF documentation (e.g. operating instructions, technical handbook, spare parts catalog, electric circuit diagram)
  - On-screen troubleshooting assistance
  - Graphical data logging
  - Fault memory capabilities
  - USB, Lan (TCP/IP) and CAN BUS interfaces for data export
- Machine access via retractable access stairway, stairway angle approximately 45°, hydraulically operated
- Additional emergency ladder in close proximity to emergency escape window

## Automatic Lubrication System

Capacity of Grease Barrel	205 L	54 U.S. gal
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- Single-circuit progressive system with hydraulically driven heavy-duty pump and electronic time control
- Grease supplied to swing roller bearing, all pivot points of attachment, and swing gearbox bearing
- System condition and failures displayed by Board Control System

## Attachment

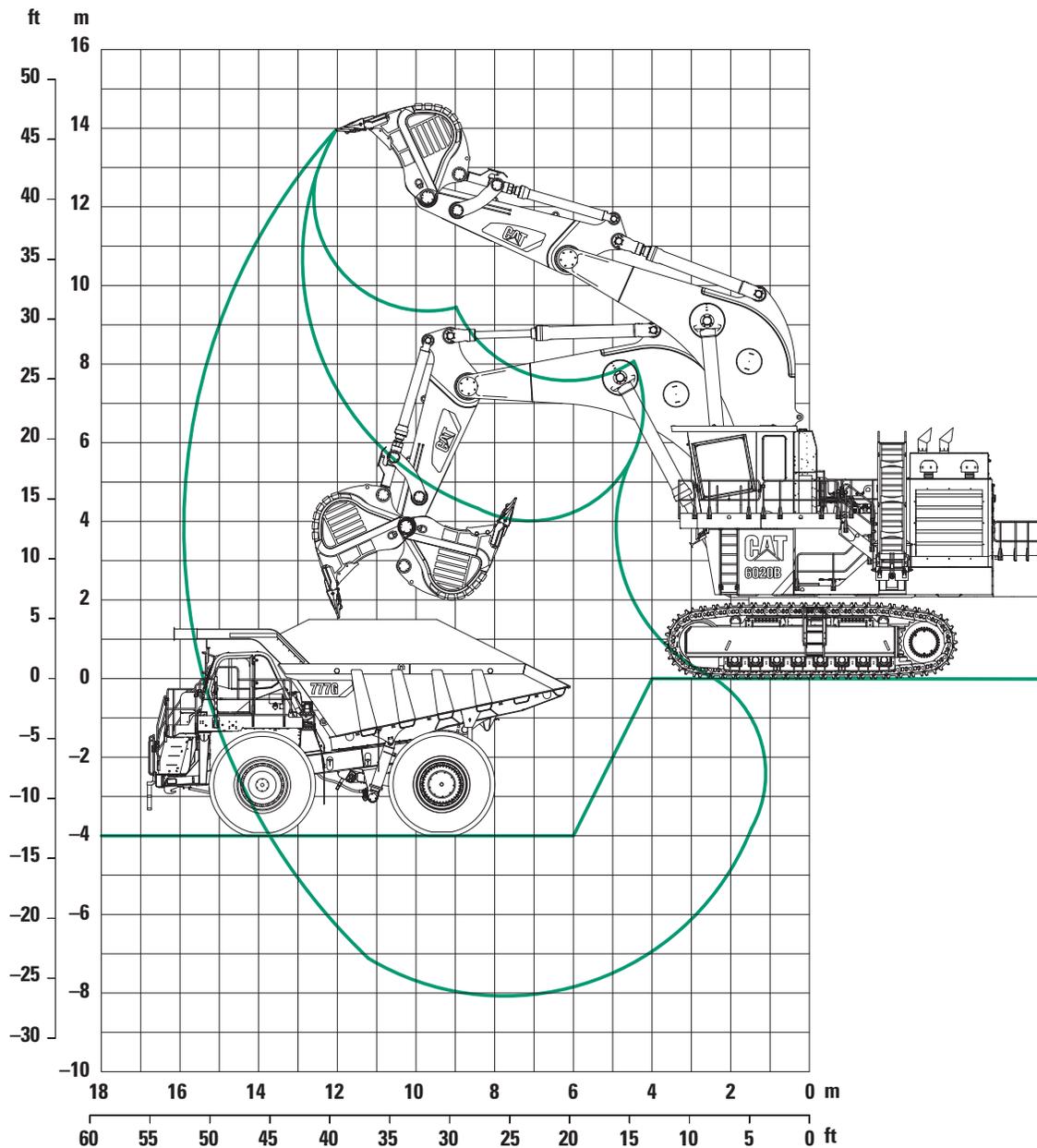
- Boom and stick torsion-resistant with welded box design
- High-tensile steel with solid steel castings at pivot areas
- Boom and stick stress-relieved after welding
- Catwalks with rails at boom
- Float valve for boom down function
- Buckets equipped with:
  - Special liner material covering main wear areas inside and outside
  - Lip shrouds
  - Wing shrouds
  - Heel shrouds

*(continued)*

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## Backhoe Attachment (BH)

Working Diagram – Boom 8.7 m (28 ft 7 in) – Stick 3.9 m (12 ft 10 in)



### Working Range

Maximum Digging Depth	8.1 m	26 ft 7 in
Maximum Digging Reach	15.9 m	52 ft 2 in
Maximum Digging Height	13.9 m	45 ft 7 in

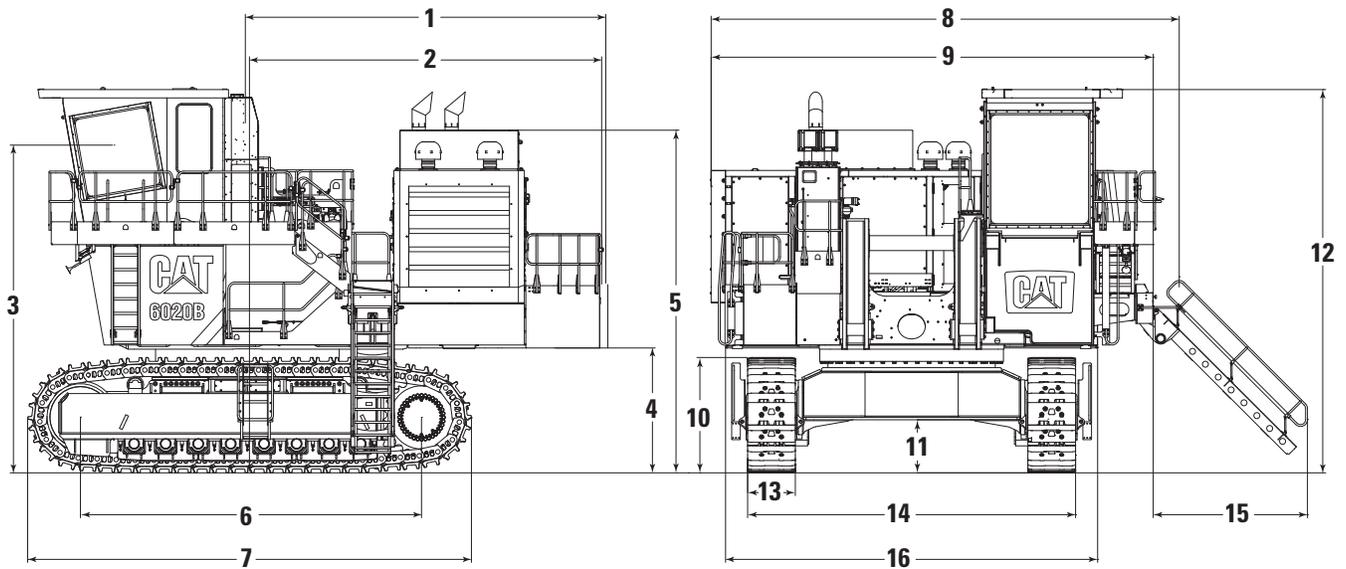
### Digging Forces

Maximum Tearout Force	650 kN	146,125 lb
Maximum Breakout Force	730 kN	164,050 lb

### Backhoes

Type	Standard rock bucket	
Tooth System	Cat C85 system	
Capacity 1:1	12.0 m <sup>3</sup>	15.7 yd <sup>3</sup>
Capacity 2:1	10.6 m <sup>3</sup>	13.8 yd <sup>3</sup>
Capacity Struck	9.2 m <sup>3</sup>	12 yd <sup>3</sup>
Total Width	3450 mm	14 ft 6 in
Inner Width	3000 mm	9 ft 10 in
No. of Teeth	6	
Weight including standard wear package	12 800 kg	28,220 lb
Maximum Material Density (loose)	1.8 t/m <sup>3</sup>	3,030 lb/yd <sup>3</sup>

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## Dimensions (All dimensions are approximate.)

1	6045 mm	19 ft 10 in	9	7405 mm	24 ft 4 in
2	5905 mm	19 ft 4 in	10	1870 mm	6 ft 2 in
3	5450 mm	17 ft 11 in	11	825 mm	2 ft 8 in
4	2030 mm	6 ft 8 in	12	6370 mm	20 ft 11 in
5	5680 mm	18 ft 8 in	13	800 mm	2 ft 7 in
6	5720 mm	18 ft 9 in	14	5500 mm	18 ft 1 in
7	7445 mm	24 ft 5 in	15	2400 mm	7 ft 10 in
8	7850 mm	25 ft 9 in	16	6240 mm	20 ft 6 in

## OPTIONAL EQUIPMENT

### SUPERSTRUCTURE

- Cold-weather package

### CAB

- Redundant HVAC system
- Camera system
- Cat MineStar ready (Health, Fleet, Terrain, and Detect)

### UNDERCARRIAGE

- Rough terrain undercarriage protection kit including belly plate and rear plumbing guard

### ATTACHMENT

- Work lights on boom

### BUCKETS

- 12.0 m<sup>3</sup> (15.7 yd<sup>3</sup>) backhoe with abrasive wear package for 1.8 t/m<sup>3</sup> (3,030 lb/yd<sup>3</sup>) density
- Additional buckets available, based on application, through your local Cat dealer

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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