



Cat® 6020B

HYDRAULIC SHOVEL

6020B FEATURES:

When we invited you to help us design the first B Series Cat® Hydraulic Mining Shovel, you gave us three top priorities: Make it safe, keep it simple and make it reliable. We responded by developing the 6020B, a brand new, clean-sheet design that delivers the simplicity and reliability you desire, with valuable modern design features that set it apart from the competition:

- Safety-enhancing state-of-the-art operator's cab with class-leading visibility.
- Ready serviceability with a unique walk-through and exchangeable power module.
- Industry-leading efficiency with dedicated pump flow allocation technology.
- Quick field assembly via its modular design.

Specifications

General Data

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

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 ²	31.4 psi

Diesel Engine

Make and Model	Cat C32 (Tier 2)	
Rated Net Power ISO 3046/1	778 kW	1,043 hp, 1,800 min ⁻¹
Rated Net Power SAE J1349	778 kW	1,043 hp, 1,800 min ⁻¹
Rated Gross Power SAE J1995	778 kW	1,043 hp, 1,800 min ⁻¹
No. of Cylinders	12	
Bore	145 mm	5.71 in
Stroke	162 mm	6.38 in
Displacement	32 L	1,959 in ³
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

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

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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
- 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

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
- 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

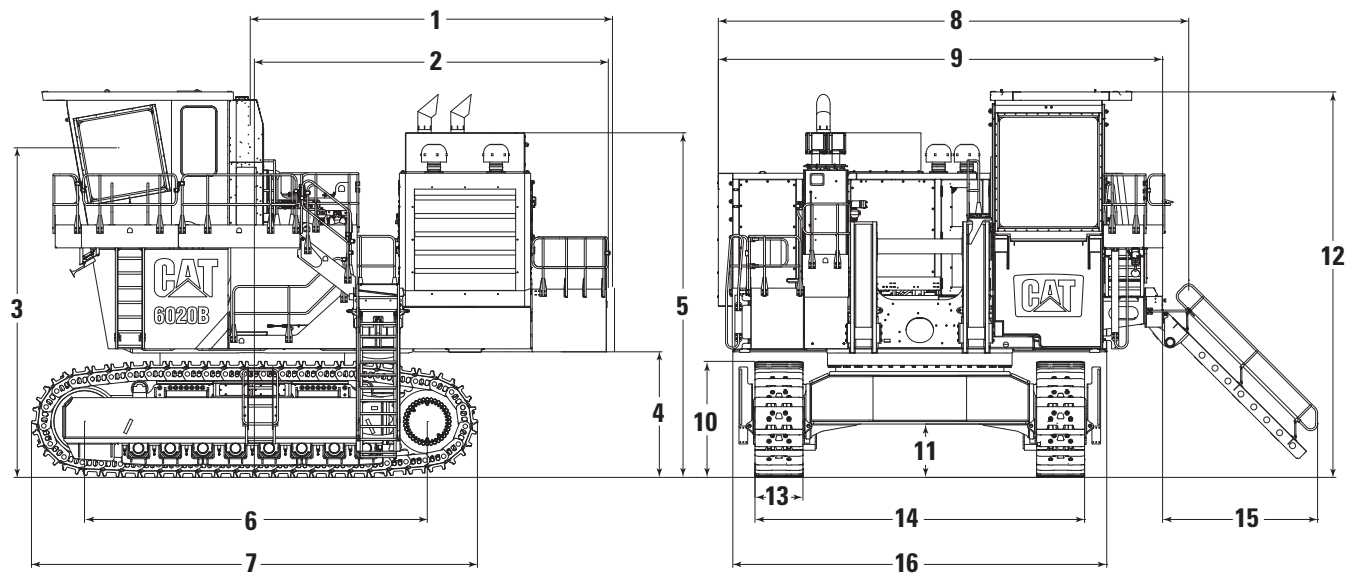
- Large cab floor window with removable grating for easy cleaning
- Pneumatically cushioned and multi-adjustable operator seat with lumbar support, safety belt, head- and armrests
- Safety switch in operator's seat for automatic motion shutdown
- Joystick integrated in adjustable seat armrest
- Full 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 Barrel205 L54 U.S. gal
- 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



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

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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 m³ (15.7 yd³) backhoe with abrasive wear package for 1.8 t/m³ (3,030 lb/yd³) 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

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