



Cat[®] 6020B

HYDRAULIC SHOVEL

PRELIMINARY

FEATURES:

- Industry-leading efficiency with dedicated pump flow allocation technology
- Safety and productivity enhancing state-of-the-art operator's cab
- Class-leading in-pit 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 | 220 tonnes | 240 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 | 220 000 kg | 485,000 lb |
| Ground Pressure | 21.3 N/cm ² | 30.9 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 Tier 4 Capable 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 |
| Working Spotlights | 6 high brightness LED lights 4 × front/2 × rear |
| 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

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)



6020B Hydraulic Shovel

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 | 1052 kN | 107 t = 236,420 lbf |
| Gradeability of Travel Drives | Approximately 54% | |
| 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 |
| 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 DIN ISO) 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
- Retractable, hydraulically operated boarding ladder
- Additional emergency ladder in close proximity to emergency escape window

Automatic Lubrication System

| | | |
|---------------------------|-------|-------------|
| Capacity of Grease Barrel | 205 L | 54 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

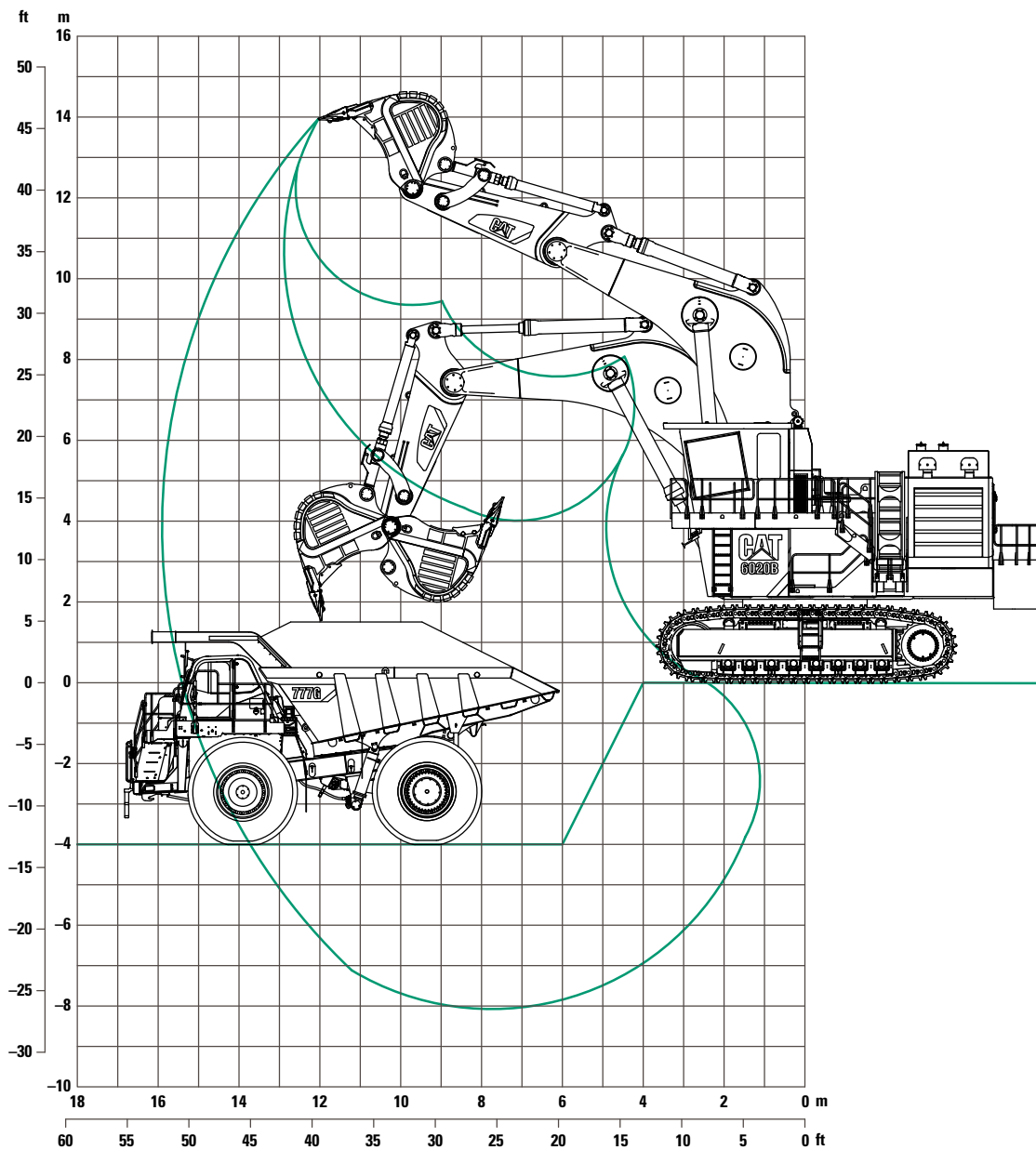
Attachment

- 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

6020B Hydraulic Shovel

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 |

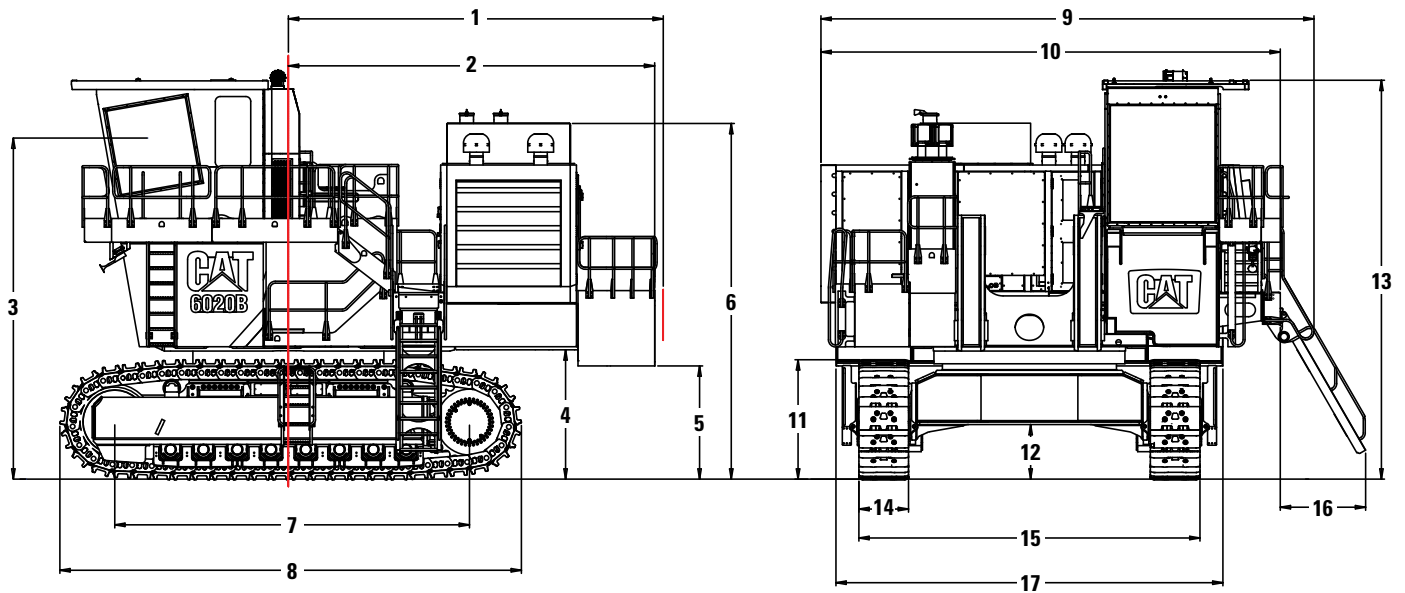
Digging Forces

| | | |
|------------------------|--------|------------|
| Maximum Crowd Force | 640 kN | 143,830 lb |
| Maximum Breakout Force | 665 kN | 149,450 lb |

Backhoes

| | | |
|--|---|--------------------------|
| Type | Standard rock bucket | |
| Tooth System | Cat C85 penetration tip with CapSure lock | |
| Capacity 1:1 | 12.0 m ³ | 15.7 yd ³ |
| Capacity 2:1 | 10.5 m ³ | 13.8 yd ³ |
| Capacity Struck | 9 m ³ | 11.8 yd ³ |
| Total Width | 3410 mm | 11 ft 2 in |
| Inner Width | 3000 mm | 9 ft 10 in |
| No. of Teeth | 6 | |
| Weight including standard wear package | 12 400 kg | 27,340 lb |
| Maximum Material Density (loose) | 1.8 t/m ³ | 3,030 lb/yd ³ |

6020B Hydraulic Shovel



Dimensions (All dimensions are approximate.)

| | | | | | |
|---|---------|-------------|----|---------|------------|
| 1 | 6045 mm | 19 ft 10 in | 10 | 7414 mm | 24 ft 4 in |
| 2 | 5907 mm | 19 ft 4 in | 11 | 1925 mm | 6 ft 4 in |
| 3 | 5500 mm | 18 ft 0 in | 12 | 880 mm | 2 ft 10 in |
| 4 | 2085 mm | 6 ft 10 in | 13 | 6430 mm | 27 ft 1 in |
| 5 | 1825 mm | 5 ft 11 in | 14 | 800 mm | 2 ft 7 in |
| 6 | 5735 mm | 18 ft 9 in | 15 | 5500 mm | 18 ft 0 in |
| 7 | 5720 mm | 18 ft 9 in | 16 | 1370 mm | 4 ft 6 in |
| 8 | 7445 mm | 24 ft 5 in | 17 | 6240 mm | 20 ft 6 in |
| 9 | 7950 mm | 26 ft 1 in | | | |

OPTIONAL EQUIPMENT

SUPERSTRUCTURE

- Cold-weather package

CAB

- Redundant HVAC system
- Camera system

UNDERCARRIAGE

- Track pad width 1000 mm (3 ft 3 in)
- Carbody protection kit including belly plate and rear plumbing guard

ATTACHMENT

- Work lights on boom
- High-abrasive wear package for bucket

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

AEHQ7001 (04-13)

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