



# CAT<sup>®</sup> 651

## PARTIAL WHEEL TRACTOR-SCRAPER

Caterpillar offers partial wheel tractor-scraper power units designed for specialty machines that complement the traditional Cat<sup>®</sup> product line. These tractor-only configurations allow our construction, demolition, waste, material handling, and mining customers to purchase complete solutions from their Cat dealer, using Cat equipment every step of the way. These tractor-only power units can be leveraged for a variety of final machines, including water pulls, elevating scrapers, lowboy trailer power units, and more. With improvements in productivity combined with enhancements in operator comfort and new safety features – Powered Access System and effective wet disc brakes – this machine offers high returns on investment and time.

---

### BE MORE PRODUCTIVE

- » **The Advanced Productivity Electronic Control System (APECS)** allows the machine to better utilize engine power and torque.
- » Set the desired top speed with **Ground Speed Control**, and the machine will find the gear that works best for the engine and transmission, providing a lower fuel burn in speed reduced areas.
- » **The Machine Speed Limit** feature replaces Top Gear Selection.
- » **Auto-Stall** assists in quickly bringing the transmission to an operating temperature at start-up when working in colder climates.

---

### WORK IN COMFORT

- » Steer with less effort with the newly designed high-pressure steering system.
- » Enjoy interior improvements with a larger, more ergonomic work environment.
- » Intuitive, ergonomic controls with multifunction display keep operators focused on their work.
- » Maintain desired cab temperature with automatic temperature control.
- » Relocation of HVAC from front of the cab to below the cab improves visibility to the front and left side.

---

### DESIGNED FOR SAFETY

- » Get in and out of the cab easier with the new powered access ladder system.
- » Enhance the operator's awareness of site surroundings with the optional Work Area Vision System (WAVS).
- » Ground-level access to fuel fill and several maintenance points for easier and safer service.
- » Seat belt indicator provides visual and audible alerts when the seat belt is not in use.

---

### EASY TO OPERATE

- » Cat Advanced Ride Management (ARM) seat suspension reduces end stroke movement of the load cylinder for a smoother ride.
- » Engine overspeed protection will automatically engage with no operator input when the machine is in eighth gear. The machine will assist in slowing the machine speed by canceling the throttle command and engaging the engine compression brake.

---

### SUPPORTED BY THE CAT DEALER NETWORK

- » Full support of Cat dealer and parts network
- » Eligible for Equipment Protection Plans (EPP) & Customer Value Agreements (CVAs)



# 651 Wheel Tractor-Scraper Technical Specifications (partial machine)

Configurations and features may vary by region. Please consult your Cat® dealer for availability in your area.

## Engine

|   |           |        |
|---|-----------|--------|
| Engine Model  | Cat® C18  |        |
| Rated Engine Speed                                  | 2,000 rpm |        |
| Net Power (SAE J1349:2011/ISO 9249:2007)<br>Tractor | 436 kW    | 585 hp |
| Gross Power (SAE J1995:2014): Tractor               | 475 kW    | 637 hp |
| Engine Power (ISO 14396:2002): Tractor              | 469 kW    | 629 hp |

- Net power available at the flywheel when the engine is equipped with fan, air cleaner, aftertreatment, and alternator with engine speed at 2,200 rpm.
- Tractor – Two engine emission options are available: U.S. EPA Tier 4 Final and EU Stage V.

## Weights – Approximate

|            |                          |                       |
|------------|--------------------------|-----------------------|
| Unloaded   | 28 752 kg                | 63,388 lb             |
| Rated Load | 47 174 kg<br>46.4 tonnes | 104,000 lb<br>52 tons |

## Transmission

|           |           |          |
|-----------|-----------|----------|
| Forward 1 | 5.7 km/h  | 3.5 mph  |
| Forward 2 | 10.5 km/h | 6.5 mph  |
| Forward 3 | 12.5 km/h | 7.8 mph  |
| Forward 4 | 17.0 km/h | 10.6 mph |
| Forward 5 | 22.8 km/h | 14.2 mph |
| Forward 6 | 30.9 km/h | 19.2 mph |
| Forward 7 | 41.4 km/h | 25.7 mph |
| Forward 8 | 56.1 km/h | 34.9 mph |
| Reverse   | 10.8 km/h | 6.7 mph  |

## Service Refill Capacities

|                               |        |           |
|-------------------------------|--------|-----------|
| Crankcase: Tractor            | 38 L   | 10 gal    |
| Transmission System: Tractor  | 136 L  | 35.9 gal  |
| Cooling System: Tractor       | 88.6 L | 23.4 gal  |
| Fuel Tank                     | 1628 L | 430.1 gal |
| Hydraulic System              | 150 L  | 39.6 gal  |
| Diesel Exhaust Fluid: Tractor | 30.5 L | 8.1 gal   |

## Steering

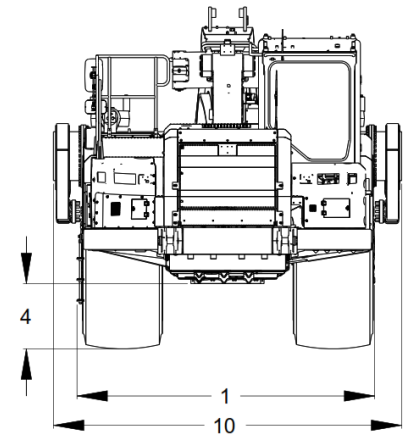
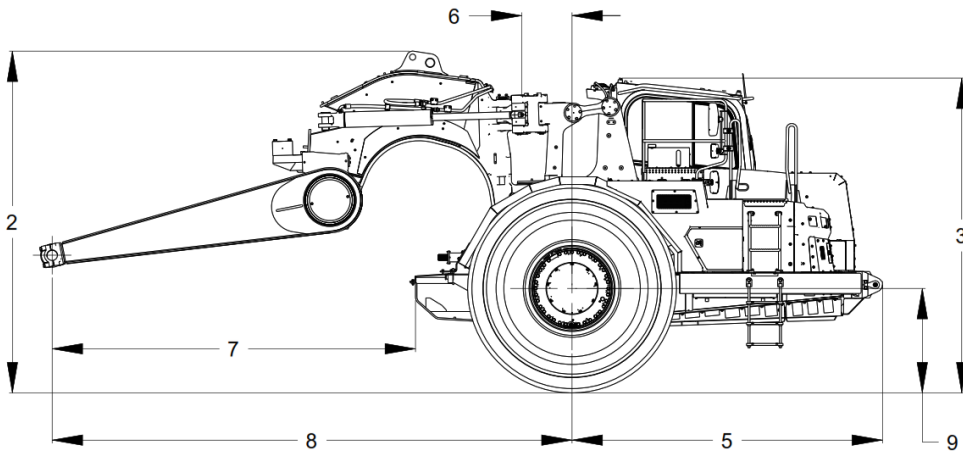
|   |        |         |
|---|--------|---------|
| 180° Curb-to-Curb Turning Width (Right) | 13.6 m | 44.6 ft |
|---|--------|---------|

## Safety Criteria Compliance Standards

|  |  |
|--|--|
| Rollover Protection Structure (ROPS)               | ISO 3471:2008 for up to<br>26 600 kg (58,643 lb) |
| Falling Object Protective Structure (FOPS)         | ISO 3449:2005 Level II                           |
| Brakes   | ISO 3450:2011                                    |
| Steering System                                    | ISO 5010:2007                                    |
| Seat Belt  | SAE J386:AUG2012                                 |
| Forward Horn and Reverse Alarm                     | ISO 9533:2010                                    |
| Exterior Sound power level<br>for standard machine | ISO 6393:2008 is 116 dB(A)                       |

- Note: Welding on ROPS or making modifications to the ROPS may void the ROPS certification.
- Please contact Caterpillar OEM Solutions if the application requires welding on the machine frame.

# 651 Wheel Tractor-Scraper Technical Specifications (partial machine)



## Dimensions

|    |   |       |         |
|----|---|-------|---------|
| 1  | Tractor Width   | 3.7 m | 12.2 ft |
| 2  | Overall Machine Height (with gooseneck)               | 4.2 m | 14.0 ft |
| 3  | Height to Top of Cab                                  | 3.9 m | 12.9 ft |
| 4  | Tractor Ground Clearance                              | 0.8 m | 2.7 ft  |
| 5  | Front of Tractor to Front Axle                        | 3.9 m | 12.7 ft |
| 6  | Axle to Vertical Hitch Pin                            | 0.6 m | 2.1 ft  |
| 7  | Draft Arm Pivot Point to Rear Tractor Bumper          | 4.5 m | 14.9 ft |
| 8  | Centerline of Wheel Hub to Rear Draft Arm Pivot Point | 6.5 m | 21.3 ft |
| 9  | Height of front bumper attachment pin                 | 1.3 m | 4.3 ft  |
| 10 | Width of Draft Arms                                   | 4.4 m | 14.3 ft |

\*\* These dimensions may vary based on tire size, pressure and load. All dimensions are for reference only and may change for different machine configurations.

# 651 Wheel Tractor-Scraper Technical Specifications (partial machine)

## Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat dealer for details.

|   | Standard | Optional |
|---|----------|----------|
| <b>POWERTRAIN</b>   |          |          |
| Cat C18   | •        |          |
| Cat engine brake  | •        |          |
| Electric start, 24V   | •        |          |
| Air cleaner, powered precleaner   |          | •        |
| Fan, hydraulic  | •        |          |
| Ground level engine shutdown  | •        |          |
| Radiator  | •        |          |
| Guard, crankcase  | •        |          |
| Starting aid, ether   | •        |          |
| Braking system: primary and secondary, wet disc, hydraulic; parking, hydraulic-released, spring-applied   | •        |          |
| Throttle lock   | •        |          |
| Transmission: 8-speed planetary powershift, ECPC control, APECS software, programmable top gear selection, transmission hold, differential lock, guard – power train, ground speed control, machine speed limit | •        |          |

|   |   |  |
|---|---|--|
| <b>ELECTRICAL</b>   |   |  |
| Alarm, backup   | • |  |
| Alternator, 115 ampere  | • |  |
| Batteries (4), 12V, 1,000 CCA, maintenance free                                 | • |  |
| Electrical system, 24V  | • |  |
| Lighting system: headlights – halogen, turn signals with hazard functions – LED | • |  |
| Turn signals with hazard function   | • |  |
| Starting/charging receptacle  | • |  |

|                                      |   |  |
|--------------------------------------|---|--|
| <b>OPERATOR ENVIRONMENT</b>          |   |  |
| HVAC system, heat, AC, defrost       | • |  |
| Thermostat control of HVAC system    | • |  |
| Coat hook                            | • |  |
| Lunchbox platform with holding strap | • |  |
| Diagnostic connection (2)            | • |  |
| 12V power ports (2)                  | • |  |
| Differential lock (1)                | • |  |
| Dome courtesy light                  | • |  |
| Horn, electric                       | • |  |
| T-handle implement control           | • |  |
| Radio ready                          | • |  |
| ROPS/FOPS cab, pressurized           | • |  |

|   | Standard | Optional |
|---|----------|----------|
| Keypad switches: rear engine start; throttle lock; wipers/washers; hazard lights; worklights on, off; information mode; messenger display; safety tab rocker switches, parking brake  | •        |          |
| Seat belt, static two-piece   | •        |          |
| Windows, sliding  | •        |          |
| Windows, laminated, zipped in   | •        |          |
| Windshield wipers, front and rear windows, includes washers   | •        |          |
| Door lock   | •        |          |
| Messenger display gauges, warnings include: coolant temp; engine oil temp; hydraulic oil temp; DPF temp; fuel level; park brake; implement lockout; brake system, regeneration required; throttle lock; system voltage; secondary steering; bail down; differential lock; apron float; transmission hold; high beam lights; action lamp; engine speed, rpm; gear selection; DPF fill levels | •        |          |
| Powered access ladder   |          | •        |
| Safety tab rocker switches  | •        |          |
| Seat – Cat Advanced Ride Management (ARM), Cat Comfort Series III, rotates 30 degrees   | •        |          |
| Steering wheel, tilt, telescoping, padded   | •        |          |
| Windows, right side emergency egress  | •        |          |
| Messenger display   | •        |          |

|  |   |  |
|--|---|--|
| <b>FLUIDS</b>                            |   |  |
| Extended life coolant to -37° C (-34° F) | • |  |

# 651 Wheel Tractor-Scraper Technical Specifications (partial machine)

## Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat dealer for details.

|  | Standard | Optional |
|--|----------|----------|
| <b>CAT TECHNOLOGY PRODUCTS</b>         |          |          |
| Cat Production Measurement             | •        |          |
| Product Link™                          | •        |          |
| Sequence Assist with Payload Estimator | •        |          |

|  |   |  |
|--|---|--|
| <b>OTHER EQUIPMENT</b>   |   |  |
| Accumulators (brake and cushion hitch) with Canadian Registration Number (CRN) | • |  |
| Fast oil change  | • |  |
| Vandalism locks  | • |  |
| Steering locks   | • |  |
| Heater, engine coolant 120V  | • |  |

|   |  |   |
|---|--|---|
| <b>OTHER ATTACHMENTS</b>                            |  |   |
| Camera arrangement – Work Area Vision System (WAVS) |  | • |
| Cab beacon  |  | • |
| Air horn  |  | • |
| Air horn and beacon                                 |  | • |
| Kingbolt housing                                    |  | • |
| Rear wheel arrangement (set of 2)                   |  | • |
| Scraper draft arm package                           |  | • |
| Steering cylinder group (set of 2)                  |  | • |
| Wiring group  |  | • |

|                                    |   |  |
|------------------------------------|---|--|
| <b>STEERING ARRANGEMENTS</b>       |   |  |
| Secondary steering (ground driven) | • |  |

|  |   |  |
|--|---|--|
| <b>SERVICE INSTRUCTIONS</b>            |   |  |
| Film arrangement – U.S. (ANSI)         | • |  |
| Film arrangement – International (ISO) | • |  |

**For more information on Cat partial machines, contact OEM Solutions:**

[oem\\_solutions@cat.com](mailto:oem_solutions@cat.com) | [www.cat.com/oemsolutions](http://www.cat.com/oemsolutions)

© 2022 Caterpillar

All rights reserved

Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

CAT, CATERPILLAR, LET'S DO THE WORK, their respective logos, "Caterpillar Corporate Yellow," the "Power Edge" and Cat "Modern Hex" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

AEXJ0121 (04-2022)

Build Number: WSJ

(Global except Japan and China)

