Product Specifications For 990

Engine

Engine Power - ISO 14396:2002	586 kW
Engine Model	Cat® C27
Emissions	Option 1 - U.S. EPA Tier 4 Final/EU Stage V
Rated Speed	1800 r/min
Gross Power - SAE J1995:2014	597 kW
Net Power - SAE J1349:2011 - Standard Ambient	546 kW
Net Power - SAE J1349:2011 - High Ambient	508 kW
Emissions	Option 2 - Emits equivalent to U.S. EPA Tier 2
Rated Speed	1800 r/min
Engine Power - ISO 14396:2002	561 kW
Gross Power - SAE J1995:2014	571 kW
Net Power - SAE J1349:2011 - Standard Ambient	521 kW
Net Power - SAE J1349:2011 - High Ambient	483 kW
Bore	137.2 mm

Stroke	152.4 mm
Displacement	27.03 l
Peak Torque - 1,200 rpm	3557 N·m
Torque Rise	18 %
Note	Net power advertised is the power available at the flywheel when the engine is equipped with fan at minimum speed, air intake sytstem, exhaust system, and alternator.

Operating Specifications

Operating Weight - Standard	80974 kg
Bucket Capacity Range	8.6 m³ – 10.0 m³ (11.25 yd³ – 13.0 yd³)
Rated Payload - Standard	15.9 t
Rated Payload - High Lift	15.9 t
Cat Truck Match - Standard	773-775
Cat Truck Match - High Lift	775-777

Transmission

Transmission Type	Cat planetary power shift
Forward - 1	7.4 km/h
Forward - 2	13.2 km/h
Forward - 3	23.3 km/h
Reverse - 1	8.15 km/h
Reverse - 2	14.6 km/h

Reverse - 3	25.7 km/h
Direct Drive - Forward 1	Lock-up disabled
Direct Drive - Forward 2	13.2 km/h
Direct Drive - Forward 3	23.3 km/h
Direct Drive - Reverse 1	8.15 km/h
Direct Drive - Reverse 2	14.6 km/h
Direct Drive - Reverse 3	25.7 km/h
Note	Travel speeds based on Michelin 45/65R39 LD D2**L5 tires.

Hydraulic System - Lift/Tilt

Lift/Tilt System - Circuit	Positive flow control
Lift/Tilt System	Variable displacement piston
Maximum Flow at 1,800 rpm	910 L/min
Relief Valve Setting - Lift/Tilt	33000 kPa
Cylinders, Double Acting - Lift, Bore and Stroke	235 mm × 1287 mm (9.3 in × 50.7 in)
Cylinders, Double Acting - Tilt, Bore and Stroke	292.1 mm × 820 mm (11.5 in × 32.3 in)
Pilot System	Open loop and pressure reducing
Pilot Relief Setting	3500 kPa

Hydraulic Cycle Times

Rack Back	4.3 s
Raise	8.6 s

Dump	2.9 s
Lower	3.7 s
Lower Float Down	3.7 s
Total Hydraulic Cycle Time - Empty Bucket	13.8 s

Hydraulic System - Steering

Steering System - Circuit	Pilot, load sensing
Steering System - Pump	Piston, variable displacement
Maximum Flow at 1,400 rpm	364 L/min
Relief Valve Setting - Steering	34500 kPa
Total Steering Angle	70°

Air Conditioning System

Air Conditioning	• The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a or R1234yf. See the label or instruction manual for identification of the gas. • If equipped with R134a (Global Warming Potential = 1430), the system contains 2.7 kg (5.9 lb) of refrigerant which has a CO2 equivalent of 3.861 metric tonnes (4.256 tons).

Axles

Front	Fixed
Rear	Trunnion
Oscillation Angle	8.5°

Brakes

Brakes	ISO 3450: 2011

Service Refill Capacities

Fuel Tank	1064 l
Cooling System	208 l
Engine Crankcase	75.7 l
Transmission	110 l
Differential - Final Drives - Front	271 l
Differential - Final Drives - Rear	261 l
Hydraulic System Factory Fill	795 l
Hydraulic Tank - Implement and Hydraulic Fan	261 l
Hydraulic Tank - Steering and Braking	132 l
Note	Cat U.S. EPA Tier 4 Final/EU Stage V diesel engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) or ULSD blended with the following lower-carbon intensity fuels** up to: • 20% biodiesel FAME (fatty acid methyl ester)* • 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels Refer to guidelines for successful application. Please consult your Cat dealer or “Caterpillar Machine Fluids Recommendations” (SEBU6250) for details. * Engines with no aftertreatment devices can use higher blends, up to 100% biodiesel (for use of blends higher than 20% biodiesel, consult your Cat dealer). ** Tailpipe greenhouse gas emissions from lower-carbon intensity fuels are essentially the same as traditional fuels. – Cat DEO-ULS™ or oils that meet the Cat ECF-3, API CJ-4, API CK-4, and/or ACEA E9 specifications are required. – Diesel Exhaust Fluid (DEF) that meets all requirements defined in ISO 22241-1:2006.

Sound Performance - Tier 4 Final / Stage V

Operator Sound Pressure Level (ISO 6396:2008)	72 dB(A)

Machine Sound Power Level (ISO 6395:2008)	116 dB(A)
Operator Sound Pressure Level (ISO 6396:2008)*	72 dB(A)
Machine Sound Power Level (ISO 6395:2008)*	114 dB(A)
Note (1)	*Sound suppression equipped
Note (2)	The machine sound power level was measured according to ISO 6395:2008. The measurement was conducted at 70 percent of the maximum engine cooling fan speed.
Note (3)	The operator sound pressure level was measured according to ISO 6396:2008. The measurement was conducted at 70 percent of the maximum engine cooling fan speed.
Note (4)	Hearing protection may be needed when the machine is operated with a cab that is not properly maintained or when the doors or windows are open for extended periods or in a noisy environment.

Sound Performance - Tier 2

Operator Sound Pressure Level (ISO 6396:2008)	72 dB(A)
Machine Sound Power Level (ISO 6395:2008)	116 dB(A)
Operator Sound Pressure Level (ISO 6396:2008)*	72 dB(A)
Machine Sound Power Level (ISO 6395:2008)*	114 dB(A)
Note (1)	*Sound suppression equipped
Note (2)	The machine sound power level was measured according to ISO 6395:2008. The measurement was conducted at 70 percent of the maximum engine cooling fan speed.

Note (3)	The operator sound pressure level was measured according to ISO 6396:2008. The measurement was conducted at 70 percent of the maximum engine cooling fan speed.
Note (4)	Hearing protection may be needed when the machine is operated with a cab that is not properly maintained or when the doors or windows are open for extended periods or in a noisy environment.

Dimensions (Approximate) - Standard Lift Linkage

Ground to Top of ROPS	5240 mm
Ground to Top of Exhaust Stacks	5049 mm
Ground to Top of Hood	3862 mm
Ground to Bumper Clearance	1079 mm
Rear Axle - Centerline to Bumper	3795 mm
Front Axle Centerline to Bucket Tip	4689 mm
Wheel Base	4600 mm
Maximum Overall Length	13084 mm
Ground to Lower Hitch Clearance	596 mm
Ground to Center of Front Axle	1290 mm
Clearance at Maximum Lift	4044 mm
Rack Back Angle at Ground Level	40.4°

Rack Back Angle at Carry	48.8°
B-Pin Height - Maximum Lift	6009 mm
Maximum Overall Height - Bucket Raised	8281 mm
Rack Angle at Maximum Lift	63.7°
Dump Angle at Maximum Lift	45°
Reach - Maximum Lift	2194 mm
Note	Specifications are calculated with 9 m3 (11.8 yd3) rock bucket and Bridgestone 45/65R39 VSDL One Star tires.

Dimensions (Approximate) - High Lift Linkage

Ground to Top of ROPS	5240 mm
Ground to Top of Exhaust Stacks	5049 mm
Ground to Top of Hood	3862 mm
Ground to Bumper Clearance	1079 mm
Rear Axle - Centerline to Bumper	3795 mm
Front Axle Centerline to Bucket Tip	5425 mm
Wheel Base	4600 mm
Maximum Overall Length	13820 mm
Ground to Lower Hitch Clearance	596 mm

Ground to Center of Front Axle	1290 mm
Clearance at Maximum Lift	4521 mm
Rack Back Angle at Ground Level	39.9°
Rack Back Angle at Carry	49.3°
B-Pin Height - Maximum Lift	6470 mm
Maximum Overall Height - Bucket Raised	8742 mm
Rack Angle at Maximum Lift	60.6°
Dump Angle at Maximum Lift	51°
Reach - Maximum Lift	2583 mm
Note	Specifications are calculated with 9 m3 (11.8 yd3) rock bucket and Bridgestone 45/65R39 VSDL One Star tires.

990 Standard Equipment

NOTE

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

OPERATOR ENVIRONMENT

Air conditioner and heater with automatic temperature control
Cab, sound-suppressed and pressurized, rollover protective structure/falling objects protective structure (ROPS/FOPS)
Cat Vision, rear vision camera system
12-volt power port
Coat hook
Cab precleaner, powered
Electro-hydraulic tilt and lift controls (seat mounted)
Flip-up armrest
Heater and defroster
CB radio ready

Horn, electric
Implement hydraulic lockout
Instrumentation, gauges:
– Engine coolant temperature
– Fuel level
– Ground speed
– Gear
– Hydraulic oil temperature
– Speedometer/tachometer
– Torque converter temperature
Instrumentation, warning indicators:
– Action alert system, three category
– Automatic transmission model enable status
– Brake malfunction
– Bucket float status
– Delayed engine shutdown status
– Engine idle shutdown status
– Engine malfunction
– Fuel economy mode enable status
– Hydraulic lockout
– Lockup clutch enable status
– Low fuel level
– Parking brake status
– Rimpull control enable status
– Seatbelt warning
– Secondary steering (if equipped)
– Throttle lock status
– Transmission gear
Keypad, control with indicator lights:
– Auto trans mode speed range
– Auto/manual transmission mode
– Fuel economy mode
– Implement kickout
– Lockup clutch
– Reduced rimpull
– Throttle lock
Light, dome (cab)
Lunchbox and beverage holders
Mirrors, rearview (externally mounted)
Premium seat with heated and actively cooled leather, adjustable lumbar support, air adjustable bolsters on the seat and backrest, seat cushion tilt adjustment, and adjustable-length seat cushion
Seat belt, retractable, 76 mm (3 in) wide
Steering and Transmission Integrated Control (STIC™) system with steering lock
Tinted glass
Trainer seat with lap belt
Vital Information Management System (VIMS™) with graphical information display: external data port, customizable operator profiles, cycle timer, and integral Cat Production Measurement
– Wet-arm wipers/washers (front, rear and corner) intermittent front wiper

POWERTRAIN

Brakes, full hydraulic, enclosed, oil-disc
Axle-shaft oil-disc service brake
Electro hydraulic parking brake
Case drain screens
Cat clean emission module (CEM) - (Tier 4 only)
Demand fan
Engine Cat C27
Fuel priming pump (electric)
Ground level shutdown switch
Mufflers (under hood) (Tier 2 equivalent only)
Precleaner, engine air intake
Radiator, Aluminum Modular (AMR)
Separated cooling system
Starting aid, (ether) manual override
Throttle Lock
Torque Converter, Impeller Clutch (ICTC) with lock-up clutch (LUC), and rimpull control system
Transmission, 534 mm (21 in) planetary power shift (electronic) (3F/3R)

ELECTRICAL

Alarm, back-up
Alternator, 150 amp
Batteries, maintenance free (2 – 1,400 CCA)
Converter, 10/15 amp, 24V to 12V
Deutsch component connectors
Electrical system, 24V
Electronic transmission control
Lighting system, halogen (front and rear) lighting, access stairway, engine compartment
Starter, electric
Auxiliary start receptacle

OTHER

Automatic bucket lift kickout/positioner
Axle temperature sensor
Battery disconnect and jump start receptacle, bumper
Coupling, Caterpillar O-ring face seals
Economy mode with on demand throttle
Emergency platform exit
Engine, crankcase, 500 hour interval with CH4
Engine idle management features:
– Auto idle kickdown
– Delayed engine shutdown
– Engine idle shutdown
Fenders, steel (front)
Guards, crankcase and powertrain
Ground level lockable battery disconnect switch

Grouped/labeled lube points
Hitch, drawbar with pin
Hoses, Cat XT™
Oil sampling valves
Positive flow control hydraulic system
Product Link™
Sight Gauges: hydraulic tanks, steering/fan and implement/brake, and transmission
Stairway, left and right rear access
Steering, load sensing
Toe kicks
Vandalism protection caplocks
Venturi stack
Premixed 50% concentration of extended life coolant with freeze protection to –34° C (–29° F)

990 Optional Equipment

NOTE

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

POWERTRAIN

–50° C (–58° F) antifreeze
Engine oil change system, high speed, Wiggins
Engine block heater 120V or 240V
High ambient cooling – software

OPERATOR ENVIRONMENT

Cat Detect, object detection system
AM/FM/CD/MP3 radio
Satellite Sirius radio with Bluetooth®
LED warning strobe
Mirrors heated
Window pull-down visor

OTHER

Front and rear roading fenders
Fast fill fuel system (Shaw-Aero)

OTHER OPTIONAL CONFIGURATIONS

Millyard
Steel Mill