

Image is a representation only, and may show optional attachments.

CAT® ENGINE SPECIFICATIONS

I-6, 4-Stroke-Cycle-Diesel

Emissions	EPA and CARB Non-Road Mobile Tier 3, EU Stage IIIA
Peak Torque at Speed	2000 lbs-ft
Bore	145 mm (5.71 in.)
Stroke	183 mm (7.2 in.)
Displacement	18 L (1100 cu. in.)
Aspiration	Turbocharged-Aftercooled Governor and Protection Electronic (ADEM™ A3)
Engine Weight, net dry (approx)	1273 kg (2807 lb)
Capacity for Liquids	
Lube Oil System (refill)	34 L (9 gal)
Cooling System	50 L (13.2 gal)
Oil Change Interval	250 hours
Rotation (from flywheel end)	Counterclockwise
Flywheel and Flywheel	
Housing	SAE No. 0 or SAE No. 1
Flywheel Teeth	136 (SAE No. 0), 113 (SAE No. 1)

FEATURES

Engine Design

- Proven reliability and durability
- Robust diesel strength design prolongs life and lowers owning and operating costs
- Broad operating speed range
- High power density — lightweight engine for weight-sensitive applications
- PTO drive options provide flexible access to auxiliary power for pumps and other needs

Advanced Digital Engine Management

ADEM A3 control system providing integrated ignition, speed governing, protection, and controls, including detonation-sensitive variable ignition timing. ADEM A3 has improved: user interface, display system, shutdown controls, and system diagnostics.

Optional Attachments

- **Engine-Mounted Transmission Oil Cooler** — integration with engine cooling system allows ease of installation and a tighter overall engine package
- **Engine Brakes** — braking capabilities for mobile applications

Custom Packaging

For any petroleum application, trust Caterpillar to meet your exact needs with a factory custom package. Cat® engines, generators, enclosures, controls, radiators, transmissions — anything your project requires — can be custom designed and matched to create a one-of-a kind solution. Custom packages are globally supported and are covered by a one-year warranty after startup.

Transmissions

Caterpillar has a full line of engine-transmission packages that can be fully integrated with your axle, hydraulics, and operator interface. Cat transmissions deliver continuous operation under full load, smooth shifting at any speed, and maximum up time, with unmatched durability and easy maintenance.

Full Range of Attachments

Large variety of factory-installed engine attachments reduces packaging time

Testing

Every engine is full-load tested to ensure proper engine performance.

Product Support Offered Through Global Cat Dealer Network

- More than 2,200 dealer outlets
- Cat factory-trained dealer technicians service every aspect of your petroleum engine
- Cat parts and labor warranty
- Preventive maintenance agreements available for repair-before-failure options
- S•O•SSM program matches your oil and coolant samples against Caterpillar set standards

Over 80 Years of Engine Manufacturing Experience

- Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable products.
- Cast engine blocks, heads, cylinder liners, and flywheel housings
- Machine critical components
- Assemble complete engine

Web Site

For all your petroleum power requirements, visit www.catoilandgas.cat.com.

STANDARD EQUIPMENT

Air Inlet System

Single turbocharger, mid-mounted, inlet 152.4 mm (6 in), hose connection
Dual turbocharger, front and rear inlet 127.0 mm (5 in.), hose connection

Control System

Electronic governing, PTO speed control
Programmable ratings
Cold mode start strategy
Automatic altitude compensation
Power compensation for fuel temperature
Programmable low and high idle and TEL
Electronic diagnostics and fault logging
Engine monitoring and protection system (speed, temperature, pressure)
J1939 Broadcast (diagnostic, engine status, and control)

Cooling System

Thermostats and housing — outlet vertical
Jacket water pump — gear-driven, centrifugal
RH front water pump inlet
All plugs/fittings are STOR for lines gp water

Exhaust System

Exhaust manifold — dry
Single turbo — front-facing turbo exhaust, full marmon connection, maximum load 10 kg for direct connection to turbo
Dual turbo — exhaust elbow, dry 203 mm (8 in)

Flywheels and Flywheel Housings

See Mandatory Options

Fuel System

Electronic unit injector
Fuel filter, secondary, mid-mount (LH 2 micron high performance)
Fuel transfer pump, LH front
Fuel priming pump, LH mid-mount
Fuel sample valve, mounted on fuel filter base.

Lube System

Crankcase breather — rear valve cover
Oil cooler — RH (dual)
Oil filter — RH, LH
Oil pan — front sump
Oil dipstick — LH front
Oil pump

Mounting System

Front support (shipping only)

Power Take-Offs

Crankshaft pulley, 203.2 mm (8 in), 3 grooves 292.1 mm (11.5 in) 1 groove, all 15.9 mm (.63 in) width
Hydraulic pump drive, SAE A, 11-tooth

General

Vibration damper
Paint — Cat yellow
Lifting eyes
Automatic variable timing, electronic
Electronic installation kit 70-pin connector (connectors, pins, sockets)

Mandatory Options

Throttle position sensor
Single turbo only — exhaust system (front or rear)
Flywheel housing or rear PTO
Primary filter/water separator

OPTIONAL ATTACHMENTS

Air Compressor

Air compressor governor
Expansion chambers

Air Inlet System

Air cleaners
Air lines

Charging System

Charging alternators
Alternator mountings
Alternator wiring
Circuit breakers and mountings
Alternator belt guard

Cooling System

Radiator
Fan drive with radiator packages
Fan height instructions
Vee belts
Aftercooler lines with Caterpillar installed radiator
Single turbo configuration rear-facing exhaust
Twin turbo configuration
Aftercooler lines
Suction fan adapters
Blower fan adapter
Blower fan
Suction fan
Fan belt
Coolant level sensor
Dry charge coolant conditioners

Exhaust System

Turbo exhaust connection
Flexible fittings
Elbows, flange, clamp, pipes
Exhaust adapters
Manifold
Mufflers

Fuel Systems

Flexible fuel lines
Fuel filter location
Fuel cooler
Water separator

Instrumentation

Gauges and instrument panels

Lube System

Oil pans
Drain and cover
Oil level gauge
Remote oil filters
Oil filters
Lubricating oils

Mounting System

Structural steel base
Front and rear engine support

Power Take-Offs

Rear enclosed clutches
Hydraulic pump drives
Hydraulics gear pumps
Clutch supports
Crankshaft pulleys

Protection System

Air shutoff

Starting System

Air starting motors
Air pressure regulator
Air silencer
Start switch
Electric starting motors — 12V, 24V
Battery sets — 24V
Battery cable and rack
Starting aids

Transmission Arrangement

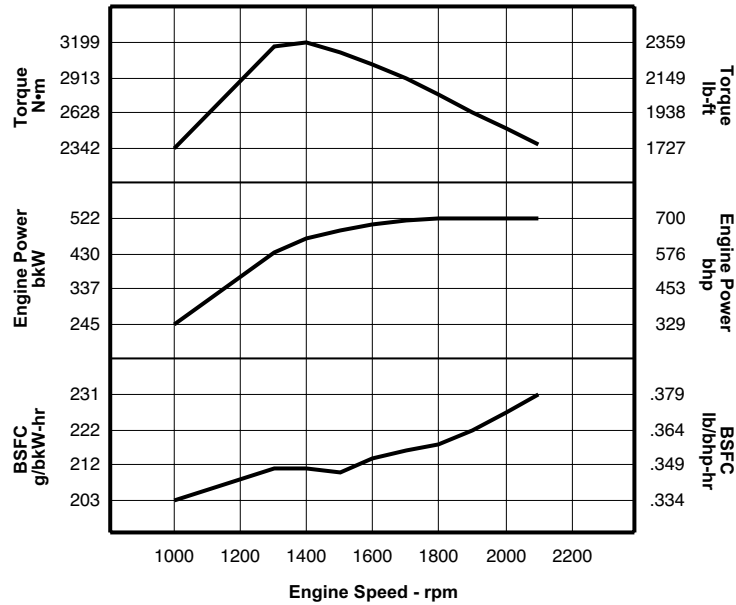
Transmission water lines

PERFORMANCE CURVES

Turbocharged-Aftercooled

C (Intermittent) Rating — 522 bkW (700 bhp) @ 2100 rpm*

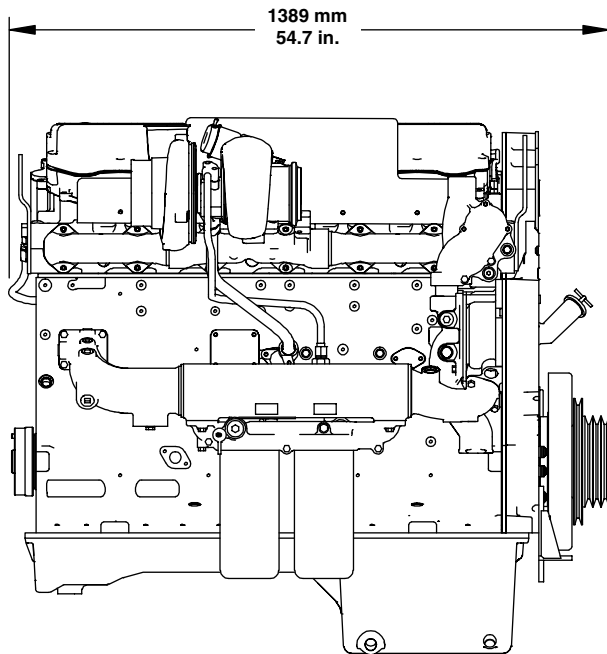
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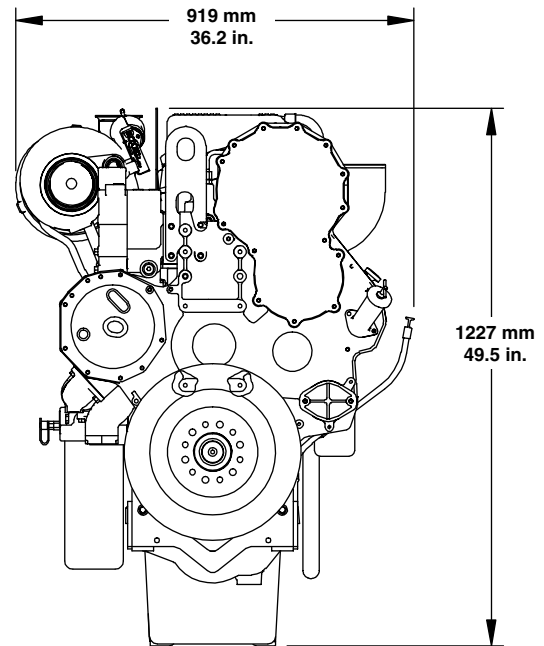
Heat Rejection Data										
Engine Speed rpm	Engine Power		Rej to JW		Rej to Atmos		Rej to Exh		From Aft Clr	
	bkW	bhp	bkW	Btu/min	bkW	Btu/min	bkW	Btu/min	bkW	Btu/min
2100	522.0	700.0	161	9156	128	7279	573	32586	146.0	8303.0
2000	522.0	700.0	154	8758	130	7393	560	31847	140.0	7961.8
1900	522.0	700.0	153	8701	121	6881	546	31051	131.0	7450.0
1800	522.0	700.0	155	8815	114	6483	533	30312	126.0	7165.6
1700	516.0	692.0	158	8985	108	6142	522	29686	120.0	6824.4
1600	505.0	677.2	151	8587	107	6085	505	28719	111.0	6312.6
1500	490.0	657.1	148	8417	98	5573	477	27127	101.0	5743.9
1400	469.0	628.9	146	8303	101	5744	458	26046	89.0	5061.4
1300	430.0	576.6	135	7677	107	6085	421	23942	73.0	4151.5
1000	245.2	328.8	105	5971	54	3071	217	12341	19.0	1080.5

*Other engine ratings are available. Please contact dealer for performance data.

PETROLEUM ENGINE



Right Side View



Front View

Engine Dimensions		
Length	1389 mm	54.7 in
Width	919 mm	36.2 in
Height	1227 mm	49.5 in
Engine Weight (dry)	1273 kg	2807 lb

Note: Do not use for installation design. See general dimension drawings for detail (Drawing #258-8747).

RATING DEFINITIONS AND CONDITIONS

Engine Performance is corrected to inlet air standard conditions of 99 kPa (29.31 in. Hg) dry barometer and 25°C (77°F) temperature. These values correspond to the standard atmospheric pressure and temperature as shown in SAE J1995.

Performance measured using a standard fuel with fuel gravity of 35 degrees API having a lower heating value of 42,780 kJ/kg (18,390 BTU/lb) when used at 29°C (84.2°F) where the density is 838.9 g/L (7.001 lb/U.S. gal).

The corrected performance values shown for Cat engines will approximate the values obtained when the observed performance data is corrected to SAE J1995, ISO 3046-2, ISO 8665, ISO 2288, ISO 9249, ISO 1585, EEC 80/1269, and DIN 70020 standard reference conditions.

IND-C (Intermittent)

Intermittent service where maximum power and/or speed are cyclic (time at full load not to exceed 50%).

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