

C12.9

MARINE PROPULSION ENGINE



1000 mhp (985 bhp) 735 kW @ 2300 rpm E Rating (High Performance)
Heat Exchanger Cooled Separate Circuit Aftercooler (SCAC)

Reference Data Only: Always consult your Caterpillar Marine Dealer
for the latest information from TMI prior to determining vessel specific calculations.

GENERAL ENGINE SPECIFICATIONS

Basic Engine Specifications

I-6, 4-Stroke-Cycle-Diesel

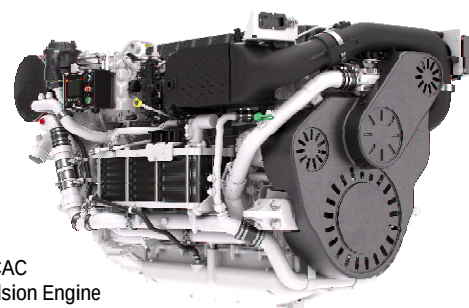
Displacement	12.88 L (in ³)
Rated engine speed	2300 rpm
High idle speed	2530 rpm
Low idle speed (programmable)	550 rpm
Peak torque	3,355 N•m @ 1200 rpm
Bore	135 mm (in)
Stroke	150 mm (in)
Aspiration	Supercharged-Turbocharged-Aftercooled
Governor	ECU
Fuel system type	Common Rail
Length	1960 mm (77.1 in)
Length to flywheel housing	1476 mm (58.1 in)
Width	1195 mm (47.0 in)
Height	1117 mm (43.9 in)
Weight, net dry (approx.)	1672 kg (3686 lb)
Rotation (from flywheel end)	Counterclockwise
Flywheel housing/flywheel	SAE No. 01M
Flywheel teeth	155

Tolerances

Power	+/- 3%
Exhaust Stack Temperature	+/- 8%
Inlet Air Flow	+/- 5%
Intake Manifold Pressure	+/- 10%
Exhaust Flow	+/- 6%
Specific Fuel Consumption	+/- 3%
Heat Rejection	+/- 5%
Fuel Rate	+/- 5%

Power Output Considerations

Power produced at the flywheel will be within standard tolerances up to 45°C (113°F) combustion air temperature measured at the turbocharger air compressor inlet, sea water temperature up to 32°C (89.6°F), and fuel temperature up to 50°C (122°F) measured at the engine inlet. Power rated in accordance with NMMA procedure as crankshaft power.



Cat® C12.9 SCAC
Marine Propulsion Engine
Image shown may not reflect actual engine

Emission Compliance

Recreational

EPA Tier 3 (E5 Cycle – Recreational Only)
IMO II (EPA, GLSeeBG)
Recreational Craft Directive (EU) RCD

Commercial

EU Stage IIIA
IMO II (GL, SeeBG)
CCNR Stage II through reciprocity with EU Stage IIIA

General Remarks

- For installation instructions refer to Project Guide LEBM0049.
- For general dimensions refer to drawing 498-5630.
- For detailed information about fuel, oil, and cooling water treatment, please refer to "Caterpillar Commercial Diesel Engine Fluids Recommendations" (SEBU6251).

AIR SYSTEM

Combustion Air Inlet System

Intake combustion air flow.....	45.7 m ³ /min (1612.6 cfm)
Intake combustion air temperature up to.....	45°C (113°F)
Max. allowable intake air restriction	5.0 kPa (20 in H ₂ O)

Engine Room Ventilation Air

Heat rejection to atmosphere	29.8 kW (1696 BTU/min) @ 25°C (77°F) ambient temperature
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COOLING SYSTEM

SCAC Cooled Engine. One cooling medium, two separate circuits

Cooling water refill capacity	60 L (15.9 gal)
Coolant medium	Cat® Extended Life Coolant (ELC) or equal
Expansion tank pressure cap.....	100 kPa (14.5 psi)

Raw Water Cooling System

Flow raw water pump 447-3071 at rated 2300 RPM	max.....	560 L/min @ 3.4 m H ₂ O
	min.	411 L/min @ 23.4 m H ₂ O
Raw water pump maximum inlet restriction.		3 m (9.8 ft) H ₂ O
Raw water temperature engine out to gear oil cooler (max.)		51.9°C (125°F)
Raw water temperature from gear oil cooler 474-7150 if equipped (max.)		52.4°C (126°F)
Gear oil cooler 474-7150 heat rejection capability		10.4 kW (591.4 BTU/min)
Raw water connection engine inlet	76 mm (2.99 inch) SAE J1231 Hose Connection	
Raw water connection engine outlet	63 mm (2.48 inch) SAE J1231 Hose Connection	
Gear oil cooler inlet and outlet connections	63 mm (2.48 inch) SAE J1231 Hose Connection	
Sea water strainer mesh hole diameter (max)		1.6 mm (0.063 in)

EXHAUST SYSTEM

Exhaust Gas Data

Exhaust gas flow (total)	3,903.4 kg/hr (8,605.4 lb/hr)
Exhaust stack temperature	491.1°C (916°F)
Engine exhaust connection V-band clamp.....	131 mm (5.16 in)
Max. allowable system backpressure	10 kPa (40.1 in H ₂ O)
Max. allowable static weight on turbine outlet.....	0 kg (0 lb)
Max. allowable static bending moment on turbine outlet	0 Nm (0 ft-lbs)

Specified system backpressure shall not be exceeded in any circumstances. Caterpillar advises to limit value of maximum allowable backpressure to 50% for new (clean) installations. Minimum diameter of customer piping should be according to "Customer piping diameter overview for Caterpillar engines."

FUEL SYSTEM

Fuel flow supply line (max.)	870 L/hr (229.8 gal/hr)
Fuel flow return line (max.)	850 L/hr (224.5 gal/hr)
Fuel rate at rated speed	191.8 L/hr (50.7 gal/hr)
Total fuel supply restriction (max.)	60 kPa (17.7 in Hg) (7.3 psi)
Fuel restriction across priming pump and clean filter	15 kPa (4.3 in Hg) (2.2 psi)
Allowable fuel restriction of OEM supplied components	45 kPa (13.4 in Hg) (5.1 psi)
Fuel temperature engine inlet (max.)	50°C (122°F)
Fuel return line restriction (max.)	50 kPa (14.8 in Hg) (7.3 psi)
Fuel supply connection	7/8-14 SAE J514 (-10), 37° FLARE
Fuel return connection	3/4-16 SAE J514 (-8), 37° FLARE
Minimum fuel supply line inside diameter	SAE -10 (15.9mm) (5/8 in)
Electric fuel priming pump inlet/outlet connection	7/8-14 SAE J1926-1 (No. 10) STOR
Diesel fuel grade	US Diesel #2 / EN590 / Biodiesel 7% max

LUBE SYSTEM

Sump type	Center Sump
Sump capacity	47 L (12.4 gal)
Oil change interval	250 Hr
Max. installation angle (fore-aft)	10 degrees
Max. operating angle (fore-aft)	20 degrees
Max. operating angle (athwart ship)	22.5 degrees
Quality diesel engine oil (min.)	CI-4 10W30 or 15W40 (compliant with Caterpillar specification ECF-2)

STARTING SYSTEM

Electrical Starting System (24V)

Electrical starting motor	24 VDC
Cold starting	670 CCA [at 0°C (32°F) ambient temperature]
Recommended battery capacity	2 x 88 Ah, series

Electrical Starting System (12V)

Electrical starting motor	12 VDC
Cold starting	670 CCA [at 0°C (32°F) ambient temperature]
Recommended battery capacity	2 x 88 Ah, parallel

SOUND DATA

Exhaust Sound Power Level Overall – Grade 3 environment
..... 130 dB(A)

Mechanical Sound Pressure Level Overall – grade 3 environment
At distance 1.0 m (3.28 ft) 122 dB(A)

Performance data is calculated in accordance with tolerances and conditions stated in this specification sheet and is only intended for purposes of comparison with other manufacturers' engines. Actual engine performance may vary according to the particular application of the engine and operating conditions beyond Caterpillar's control.

Power produced at the flywheel will be within standard tolerances up to 45°C (113°F) combustion air temperature measured at the air cleaner inlet, and fuel temperature up to 50°C (122°F) measured at the engine inlet. Power rated in accordance with NMMA procedure as crankshaft power. Reduce crankshaft power by 3% for propeller shaft power.

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Performance No : EM0872

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