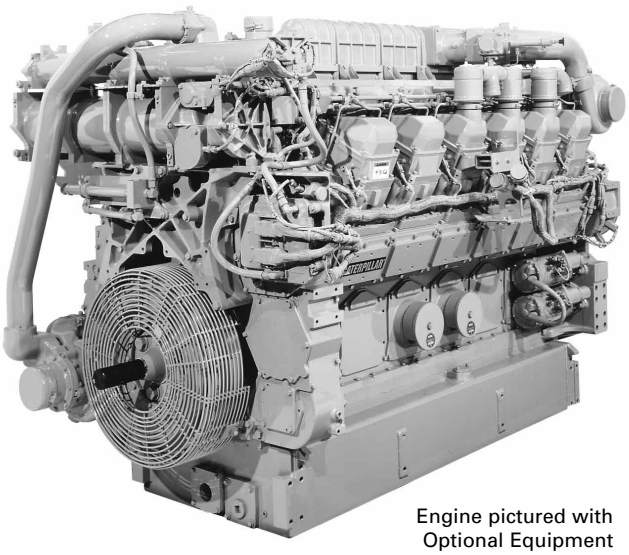
CATERPILLAR®

Locomotive Engine 3512B

1082-1455 bkW
1450-1950 bhp



Engine pictured with Optional Equipment

CATERPILLAR® ENGINE SPECIFICATIONS

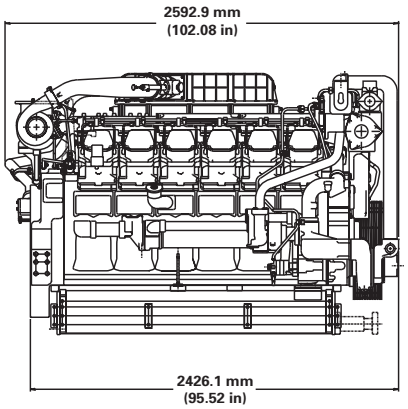
12 Cylinder, Four-Stroke-Cycle Diesel
Bore — mm (in) 170 (6.7)
Stroke — mm (in) 190 (7.5)
Displacement — L (cu in) 51.8 (3,158)
Aspiration . . . . . Turbocharged-Aftercooled
Rotation (from flywheel end) . . Counterclockwise
Capacity for Liquids — L (U.S. gal)
Cooling System 157 (41)
Lube Oil System (refill) 310 (82)

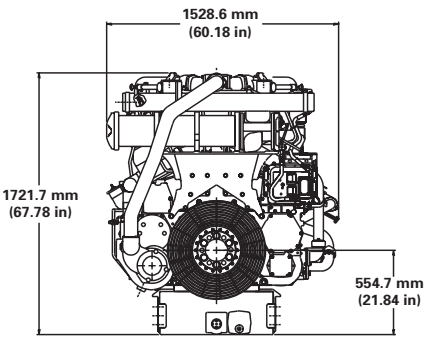
Weight, Net Dry (approximate) — kg (lb)
including flywheel 6240 (13,750)
Cold Start Capability . . . . . 10° C (50° F)
Compression Ratio 14:1
Electronic fuel injection

Meets current EPA/ERRI exhaust emissions levels

For additional information on all your power requirements, visit www.cat.com.

DIMENSIONS



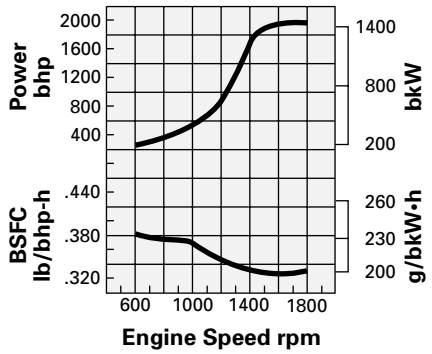


FACTORY INSTALLED STANDARD AND OPTIONAL EQUIPMENT

SYSTEM	STANDARD EQUIPMENT	OPTIONAL EQUIPMENT
Air Inlet	Aftercooler core, material: copper nickel Two rear-mounted turbochargers	Air cleaners — single or dual element Air inlet adapters for air cleaners
Control System	ADEM control, electronic engine control, requires isolated 10 amps at 24 volts DC for operation	Customer Control Module (CCM) (shipped loose) provides interface between engine control and customer control Throttle position signal conversion module (shipped loose) — provides PWM signal to engine control Instrument panel for remote mounting
Cooling System	Thermostats and housing. Full open temperature 92° C (198° F) for engine jacket water Jacket water and separate circuit pumps, gear driven, centrifugal Separate Circuit Aftercooler (SCAC) cooling circuit contains a thermostat to maintain the aftercooler water temperature. Requires customer supplied cooling system to supply 50° C (122° F) water to achieve maximum performance Connections: jacket water — single inlet, dual outlet, hose type; separate circuit — flange type with companion flange	Jacket water conversion — converts standard separate circuit aftercooled engine to jacket water aftercooling Jacket water connections — flange connections for cooling water inlet and outlet Connections (shipped loose) — flexible hose and mechanical connections for cooling water
Exhaust System	Exhaust manifold, dry, gas tight	Exhaust fittings — flexible connections, flanges, and elbows (shipped loose) Exhaust port thermocouples Heat shields
Flywheels and Flywheel Housings	Flywheel, SAE No. 00, 183 teeth Flywheel housing, SAE No. 00 SAE standard rotation	Flywheel and housing SAE No. 0 Flywheel SAE No. 0
Front Housing	Two-sided front housing	
Fuel System	Fuel filters, cartridge type, RH service Fuel transfer pump Electronically controlled unit injectors	Fuel priming pumps (manual) Flexible fuel lines (shipped loose) Hard fuel return line includes flexible hose connections Primary fuel filter (shipped loose) Water/fuel separator (shipped loose) Fuel filter with left side service Fuel cooler (shipped loose)
Lube System	Crankcase breathers, top mounted, 51 mm (2 in) OD outlet Oil cooler Oil filler, RH, with chained stopper LH and RH dipstick Oil filter, RH Oil pump, gear type Shallow oil pan	Oil pan accessories: oil pan capacities, oil pan drain cover, filler, sampling and drain valve Oil filter with left side service Fumes disposal (shipped loose) — provides hard fumes disposal tube and flexible hose to route fumes out of the engine compartment Lubricating oil
Power Take-Offs	Accessory driven, lower LH, used to drive SCAC pump	Front accessory drives Auxiliary drive shafts and pulleys Front stub shafts and pulleys
Protection System	Safety shutoff protection, electrical, energized to shutoff Air shutoff, hydraulic actuation, ADEM control Protection override	Remote air shutoff control Programmable relay control — provides control of 7 relays and 6 alarm fault LEDs for customer use Explosion relief valves
Mounting System		Rails (ledge type)
Starting System		Electric starting motors (dual) Electric starting motor magnetic switch enclosure Air starter
General	Paint — Caterpillar yellow Vibration damper and guard Lifting eyes	
Special Locomotive Equipment	Electrical interface Remote junction box provides normal and emergency shutoff Customer connection to ADEM control including: throttle, speed signal, General Alarm Relay (NC or NO contacts) (GAR), Shut Down Notify Relay (NC or NO contacts (SDNR), Start Enable Relay (NC or NO contacts (SER), Cat Data Link, load feedback, torque limiting, remote emergency and normal shutdown switch connections, engine electrical power connections	

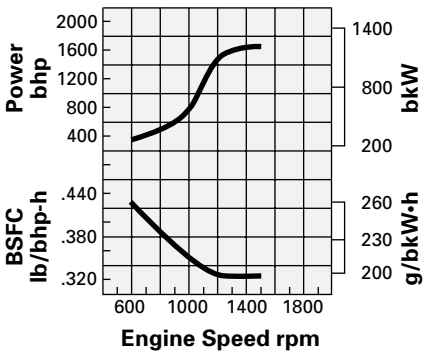
PERFORMANCE CURVES AND DATA

Separate Circuit Aftercooled (SCAC)*



DM4438-01

Rated bkW (bhp) flywheel 1455 (1950)
Full Load — rpm 1800
Low Idle — rpm 600
Operating Range — rpm 600-1800
Altitude Capability — m (ft)
max operating altitude 800 (2,625)
Fuel Consumption — L/hr (gal/hr)
Idle (600 rpm) 10.6 (2.8)
Full Load (1800 rpm)..... 351.5 (92.9)
BSFC — g/bkW-hr (lb/bhp-hr)
minimum value (@1500 rpm) .... 198.9 (.327)

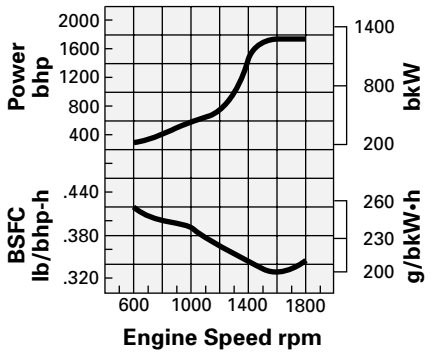


DM4441-00

Rated bkW (bhp) flywheel 1230 (1650)
Full Load — rpm 1500
Low Idle — rpm 600
Operating Range — rpm 600-1500
Altitude Capability — m (ft)
max operating altitude 800 (2,625)
Fuel Consumption — L/hr (gal/hr)
Idle (600 rpm) 10.6 (2.8)
Full Load (1800 rpm)..... 289.4 (76.5)
BSFC — g/bkW-hr (lb/bhp-hr)
minimum value (@1400 rpm) .... 195.1 (.321)

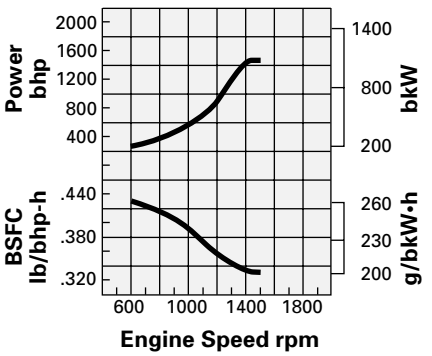
* SCAC performance data is based on 55° C (131° F) cooling water. Automatic power derate for higher cooling water temperatures.

Jacket Water Aftercooled (JWAC)*



DM4440-00

Rated bkW (bhp) flywheel 1305 (1750)
Full Load — rpm 1800
Low Idle — rpm 600
Operating Range — rpm 600-1800
Altitude Capability — m (ft)
max operating altitude 800 (2,625)
Fuel Consumption — L/hr (gal/hr)
Idle (600 rpm) 10.6 (2.8)
Full Load (1800 rpm)..... 325.3 (85.9)
BSFC — g/bkW-hr (lb/bhp-hr)
minimum value (@1600 rpm) .... 201.4 (.331)



DM4443-00

Rated bkW (bhp) flywheel 1082 (1450)
Full Load — rpm 1500
Low Idle — rpm 600
Operating Range — rpm 600-1500
Altitude Capability — m (ft)
max operating altitude 800 (2,625)
Fuel Consumption — L/hr (gal/hr)
Idle (600 rpm) 10.6 (2.8)
Full Load (1800 rpm)..... 262.2 (69.3)
BSFC — g/bkW-hr (lb/bhp-hr)
minimum value (@1400 rpm) .... 202.9 (.334)

* JWAC performance data is based on 90° C (194° F) cooling water.

RATING DEFINITIONS AND CONDITIONS

Performance obtained and corrected in accordance with ISO3046/2 standard atmospheric conditions of 99 kPa (29.31 in Hg) and 25° C (77° F). These values correspond to the standard atmospheric pressure and temperature as shown on SAE J1995.

Performance and fuel consumption are based on 35 API 15° C (60° F) gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) where the density is 839.9 g/liter (7.001 lb/U.S. gal).

Engine equipped with fuel, lube oil, and water pumps.

TMI Reference No.: DM4438-01, DM4441-00, DM4440-00, DM4443-00
Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.
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