

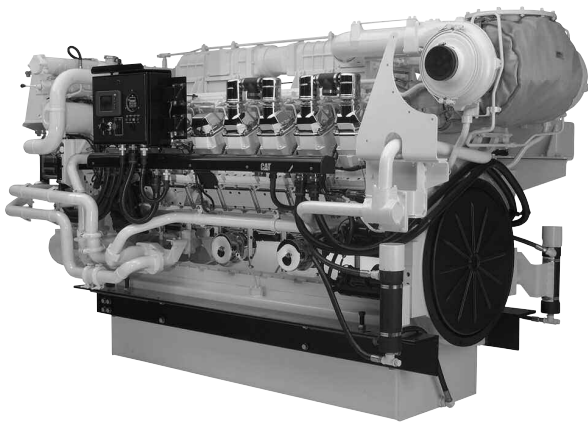


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reflect actual engine

SPECIFICATIONS

V-16, 4-Stroke-Cycle-Diesel

Emissions	IMO Compliant
Displacement	78.1 L (4,765.66 cu. in.)
Rated Engine Speed	1600
Bore	170.0 mm (6.69 in.)
Stroke	215.0 mm (8.46 in.)
Aspiration	Turbocharged-Aftercooled
Governor	Electronic
Cooling System	Heat Exchanger
Weight, Net Dry (approx)	8028 kg (17,699 lb)
Refill Capacity	
Cooling System	365.5 L (96.6 gal)
Lube Oil System	798.7 L (211.0 gal)
Oil Change Interval	1000 hr
Caterpillar Diesel Engine Oil 10W30 or 15W40	
Deep Sump Oil Pan	
Rotation (from flywheel end)	CCW or CW
Flywheel and Flywheel Housing	SAE No. 00
Flywheel Teeth	183

STANDARD ENGINE EQUIPMENT

Air Inlet System

Corrosion-resistant separate circuit aftercooler core, regular duty air cleaners with service indicator, dual turbochargers

Cooling System

Auxiliary fresh water pump (SCAC engines), centrifugal non-self-priming auxiliary sea water pump, gear driven centrifugal jacket water pump, expansion tank, engine oil cooler, thermostats and housing

Control System

Dual Caterpillar® A-III electronic engine control with Electronic Unit Injector fuel system, rigid wiring harness

Exhaust System

Dry gas tight manifolds with heat shields, dual turbochargers with watercooled bearings and heat shields, vertical exhaust outlet

Fuel System

Electronically controlled unit injectors, RH fuel filter with service indicators, fuel transfer pump

Instrumentation

Engine mounted instrument panel with four position engine control switch, alarm horn, overspeed shutdown notification light, emergency stop notification light, secondary ECU "Ready" light, secondary ECU "Active" light, graphical display unit for analog or digital display of: oil and fuel pressure, oil and fuel filter differential, system DC voltage, exhaust and water temperature, air inlet restriction, service meter, engine speed, fuel consumption (total and instantaneous)

Lube System

Top-mounted dual crankcase breathers, RH oil filter with service indicators, RH oil level gauge, RH oil filler, gear type oil pump, deep sump oil pan

Mounting System

Ledge type engine mounting rails

Power Take-Offs

Accessory drives — lower RH and lower LH for standard rotation; upper and lower RH, upper and lower LH for opposite rotation; two-sided front housing

Protection System

A-III electronic monitoring system with customer programmable engine deration strategies, emergency stop pushbutton, safety shutoff protection for oil pressure and water temperature, overspeed protection

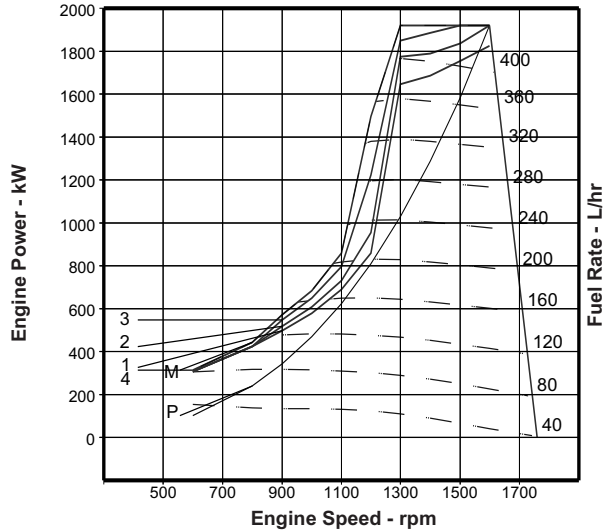
General

Vibration damper and guard, Caterpillar yellow paint, lifting eyes (engines for heat exchanger cooling do not include heat exchanger)

MARINE ENGINE PERFORMANCE

3516B DITA
B Rating (Heavy Duty) — DM6993-00

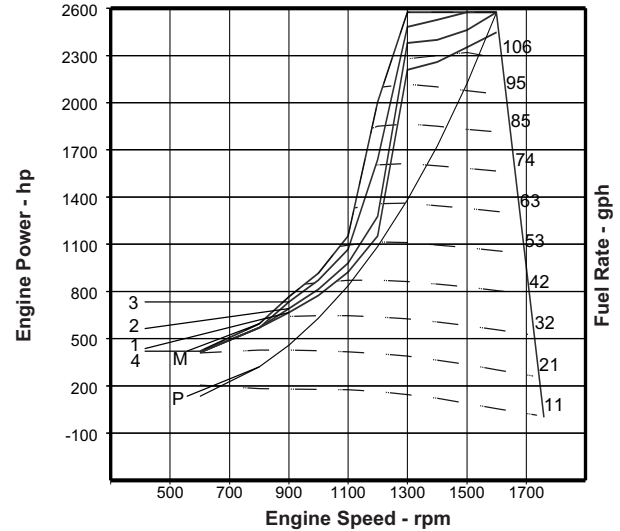
IMO Compliant — Aftercooler Temperature 60°C (140°F)



Performance Data

	Engine Speed rpm	Engine Power kW	BSFC g / kW-h	Fuel Rate L/hr	Boost Press kPa Gauge	Intake Air Flow m³/min	Exh Manif Temp °C	Exh Gas Flow m³/min
Zone Limit	1600	1825	196	426.9	231.9	157.5	556	383.2
Curve: 1	1400	1685	192	385.5	199.1	125.5	584	330.0
	1200	859	199	203.9	52.2	55.4	626	167.1
	1000	579	209	144.1	21.8	35.9	623	111.0
	800	424	214	108.3	11.4	25.5	612	78.1
	600	307	220	80.5	6.4	17.7	581	54.3
Zone Limit	1600	1920	196	447.9	244.5	163.6	563	399.2
Curve: 2	1400	1789	191	407.7	217.1	133.0	584	348.0
	1200	953	198	225.0	63.0	59.6	645	181.6
	1000	608	209	151.5	24.0	36.6	645	115.4
	800	424	215	108.5	11.4	25.5	612	78.1
	600	307	220	80.5	6.4	17.7	581	54.3
Zone Limit	1600	1920	196	447.9	244.5	163.6	563	399.2
Curve: 3	1400	1885	191	428.2	234.2	140.0	590	365.0
	1200	1222	196	285.8	100.0	73.8	675	225.5
	1000	650	210	162.4	27.3	37.6	676	121.8
	800	424	216	108.9	11.4	25.5	612	78.1
	600	307	220	80.5	6.4	17.7	581	54.3
Zone Limit	1600	1920	196	447.9	244.5	163.6	563	399.2
Curve: 4	1400	1920	191	436.2	240.8	142.7	592	371.7
	1200	1496	195	347.5	146.2	90.7	681	272.8
	1000	684	210	171.3	30.2	38.5	700	126.9
	800	443	217	114.5	12.4	25.7	637	80.9
	600	313	222	82.7	6.8	17.8	596	55.1
Max Power	1600	1920	196	447.9	244.5	163.6	563	399.2
Curve: M	1400	1920	191	436.2	240.8	142.7	592	371.7
	1200	1496	195	347.5	146.2	90.7	681	272.8
	1000	684	210	171.3	30.2	38.5	700	126.9
	800	443	217	114.5	12.4	25.7	637	80.9
	600	313	222	82.7	6.8	17.8	596	55.1
Prop Demand	1600	1920	196	447.9	244.5	163.6	563	399.2
Curve: P	1400	1286	196	300.0	129.9	97.2	575	261.1
	1200	810	202	194.9	47.0	53.4	613	159.6
	1000	469	208	116.4	14.6	33.6	539	94.6
	800	240	216	61.7	3.7	24.1	385	54.8
	600	101	238	28.7	.0	17.4	249	31.5

Brake Mean Effective Pressure 1844 kPa
Heat Rejection to Coolant (total) 631 kW
Heat Rejection to Aftercooler 405 kW
Heat Rejection to Exhaust (total) 1661 kW
Heat Rejection to Atmosphere from Engine 124 kW



Performance Data

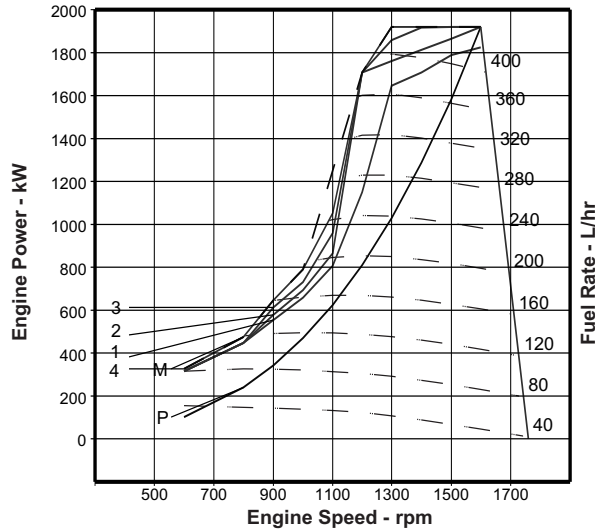
	Engine Speed rpm	Engine Power hp	BSFC lb/ hp-h	Fuel Rate gph	Boost Press in-hg Gauge	Intake Air Flow cfm	Exh Manif Temp °F	Exh Gas Flow cfm
Zone Limit	1600	2447	.322	112.8	68.7	5562	1033	13533
Curve: 1	1400	2260	.316	101.8	59.0	4432	1083	11654
	1200	1152	.327	53.9	15.5	1956	1159	5901
	1000	776	.344	38.1	6.5	1268	1153	3920
	800	569	.352	28.6	3.4	901	1134	2758
	600	412	.362	21.3	1.9	625	1078	1918
Zone Limit	1600	2575	.322	118.3	72.4	5777	1045	14098
Curve: 2	1400	2399	.314	107.7	64.3	4697	1087	12290
	1200	1278	.326	59.4	18.7	2105	1193	6413
	1000	815	.344	40.0	7.1	1293	1193	4075
	800	569	.353	28.7	3.4	901	1134	2758
	600	412	.362	21.3	1.9	625	1078	1918
Zone Limit	1600	2575	.322	118.3	72.4	5777	1045	14098
Curve: 3	1400	2528	.314	113.1	69.4	4944	1094	12890
	1200	1639	.322	75.5	29.6	2606	1247	7963
	1000	872	.345	42.9	8.1	1328	1249	4301
	800	569	.355	28.8	3.4	901	1134	2758
	600	412	.362	21.3	1.9	625	1078	1918
Zone Limit	1600	2575	.322	118.3	72.4	5777	1045	14098
Curve: 4	1400	2575	.314	115.2	71.3	5039	1098	13126
	1200	2006	.321	91.8	43.3	3203	1258	9634
	1000	917	.345	45.3	8.9	1360	1292	4481
	800	594	.357	30.2	3.7	908	1179	2857
	600	420	.365	21.8	2.0	629	1105	1946
Max Power	1600	2575	.322	118.3	72.4	5777	1045	14098
Curve: M	1400	2575	.314	115.2	71.3	5039	1098	13126
	1200	2006	.321	91.8	43.3	3203	1258	9634
	1000	917	.345	45.3	8.9	1360	1292	4481
	800	594	.357	30.2	3.7	908	1179	2857
	600	420	.365	21.8	2.0	629	1105	1946
Prop Demand	1600	2575	.322	118.3	72.4	5777	1045	14098
Curve: P	1400	1725	.322	79.3	38.5	3433	1067	9221
	1200	1086	.332	51.5	13.9	1886	1135	5636
	1000	629	.342	30.7	4.3	1187	1002	3341
	800	322	.355	16.3	1.1	851	725	1935
	600	135	.391	7.6	.0	614	480	1112

Brake Mean Effective Pressure 267 psi
Heat Rejection to Coolant (total) 35885 btu/min
Heat Rejection to Aftercooler 23032 btu/min
Heat Rejection to Exhaust (total) 94461 btu/min
Heat Rejection to Atmosphere from Engine 7052 btu/min

MARINE ENGINE PERFORMANCE

3516B DITA
B Rating (Heavy Duty) — DM6992-00

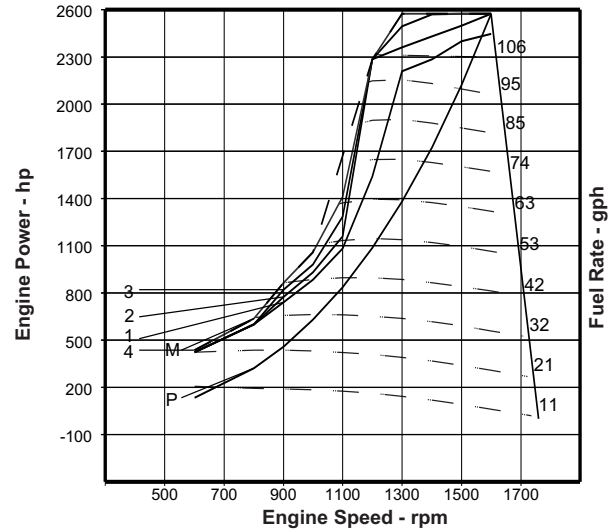
IMO Compliant — Aftercooler Temperature 30°C (86°F)



Performance Data

	Engine Speed rpm	Engine Power kW	BSFC g / kW-h	Fuel Rate L/hr	Boost Press kPa Gauge	Intake Air Flow m³/min	Exh Manif Temp °C	Exh Gas Flow m³/min
Zone Limit	1600	1825	196	425.4	215.5	157.5	540	374.9
Curve: 1	1400	1706	189	383.8	192.3	133.4	554	327.0
	1200	1149	192	263.4	84.7	71.8	625	207.3
	1000	659	203	159.1	26.7	39.5	626	119.2
	800	447	209	111.1	13.5	27.7	597	79.8
	600	316	212	79.7	6.6	18.6	558	49.1
Zone Limit	1600	1920	195	446.7	226.6	161.6	550	389.6
Curve: 2	1400	1813	188	406.6	209.0	140.8	560	344.4
	1200	1706	190	387.0	177.5	107.8	642	301.9
	1000	694	203	167.6	29.5	40.4	646	124.2
	800	447	209	111.3	13.5	27.7	597	79.8
	600	316	212	79.7	6.6	18.6	558	49.1
Zone Limit	1600	1920	195	446.7	226.6	161.6	550	389.6
Curve: 3	1400	1917	188	429.5	225.5	148.2	566	361.8
	1200	1706	190	385.7	177.5	107.8	642	301.9
	1000	731	203	176.6	32.5	41.4	666	129.4
	800	447	210	111.7	13.5	27.7	597	79.8
	600	316	212	79.7	6.6	18.6	558	49.1
Zone Limit	1600	1920	195	446.7	226.6	161.6	550	389.6
Curve: 4	1400	1920	188	430.3	225.9	148.2	567	362.4
	1200	1706	189	385.0	177.5	107.8	642	301.9
	1000	790	203	190.7	37.6	43.0	699	137.5
	800	475	211	119.7	15.3	28.1	636	83.8
	600	326	214	83.0	7.1	18.7	580	50.2
Max Power Curve: M	1600	1920	195	446.7	226.6	161.6	550	389.6
	1400	1920	188	430.2	225.9	148.2	567	362.4
	1200	1706	191	388.3	177.5	107.8	642	301.9
	1000	790	202	190.5	37.6	43.0	699	137.5
	800	475	212	119.7	15.3	28.1	636	83.8
	600	326	214	83.0	7.1	18.7	580	50.2
Prop Demand Curve: P	1600	1920	195	446.7	226.6	161.6	550	389.6
	1400	1286	193	295.1	125.4	103.4	535	257.0
	1200	810	197	190.6	44.9	55.9	569	156.3
	1000	469	203	113.7	14.2	35.6	494	92.6
	800	240	212	60.5	4.2	25.7	352	53.6
	600	101	234	28.3	.2	18.2	230	28.4

Brake Mean Effective Pressure 1844 kPa
Heat Rejection to Coolant (total) 584 kW
Heat Rejection to Aftercooler 491 kW
Heat Rejection to Exhaust (total) 1609 kW
Heat Rejection to Atmosphere from Engine 122 kW

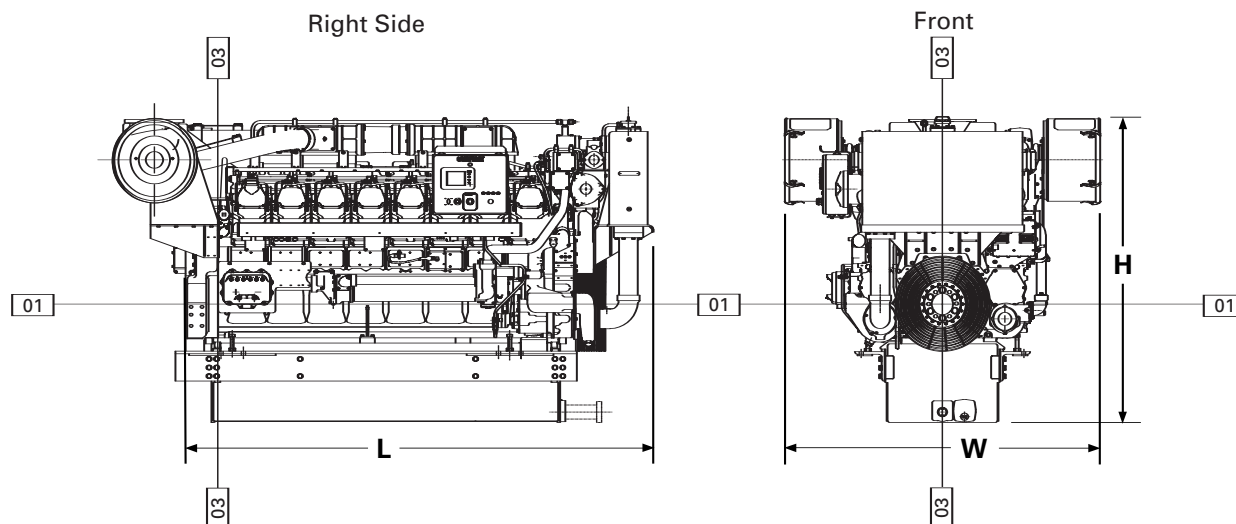


Performance Data

	Engine Speed rpm	Engine Power hp	BSFC lb / hp-h	Fuel Rate gph	Boost Press in.-hg Gauge	Intake Air Flow cfm	Exh Manif Temp °F	Exh Gas Flow cfm
Zone Limit	1600	2447	.322	112.4	63.8	5562	1004	13239
Curve: 1	1400	2288	.311	101.4	56.9	4711	1029	11548
	1200	1541	.316	69.6	25.1	2536	1157	7321
	1000	884	.334	42.0	7.9	1395	1159	4210
	800	599	.344	29.3	4.0	978	1107	2818
	600	424	.349	21.1	2.0	657	1036	1734
Zone Limit	1600	2575	.321	118.0	67.1	5707	1022	13759
Curve: 2	1400	2431	.309	107.4	61.9	4972	1040	12162
	1200	2288	.312	102.2	52.6	3807	1188	10662
	1000	931	.334	44.3	8.7	1427	1195	4386
	800	599	.344	29.4	4.0	978	1107	2818
	600	424	.349	21.1	2.0	657	1036	1734
Zone Limit	1600	2575	.321	118.0	67.1	5707	1022	13759
Curve: 3	1400	2571	.309	113.5	66.8	5227	1051	12777
	1200	2288	.312	101.9	52.6	3807	1188	10662
	1000	980	.334	46.7	9.6	1462	1231	4570
	800	599	.345	29.5	4.0	978	1107	2818
	600	424	.349	21.1	2.0	657	1036	1734
Zone Limit	1600	2575	.321	118.0	67.1	5707	1022	13759
Curve: 4	1400	2575	.309	113.7	66.9	5234	1053	12798
	1200	2288	.311	101.7	52.6	3807	1188	10662
	1000	1059	.334	50.4	11.1	1519	1290	4856
	800	637	.347	31.6	4.5	992	1177	2959
	600	437	.352	21.9	2.1	660	1076	1773
Max Power Curve: M	1600	2575	.321	118.0	67.1	5707	1022	13759
	1400	2575	.309	113.6	66.9	5234	1053	12798
	1200	2288	.314	102.6	52.6	3807	1188	10662
	1000	1059	.332	50.3	11.1	1519	1290	4856
	800	637	.349	31.6	4.5	992	1177	2959
	600	437	.352	21.9	2.1	660	1076	1773
Prop Demand Curve: P	1600	2575	.321	118.0	67.1	5707	1022	13759
	1400	1725	.317	78.0	37.1	3652	995	9076
	1200	1086	.324	50.4	13.3	1974	1056	5520
	1000	629	.334	30.0	4.2	1257	921	3270
	800	322	.349	16.0	1.2	908	666	1893
	600	135	.385	7.5	.1	643	446	1003

Brake Mean Effective Pressure 267 psi
Heat Rejection to Coolant (total) 33212 btu/min
Heat Rejection to Aftercooler 27923 btu/min
Heat Rejection to Exhaust (total) 91504 btu/min
Heat Rejection to Atmosphere from Engine 6938 btu/min

DIMENSIONS



Engine Dimensions		
Length (flywheel housing)	3186.1 mm	125.4 in
Width	1703.0 mm	67.05 in
Height	2091.0 mm	82.32 in
Weight, Net Dry (approx)	8028 kg	17,699 lb

Note: Do not use for installation design.

RATING DEFINITIONS AND CONDITIONS

B Rating (Heavy Duty)

% Load Factor: 40 to 80

% Time at Rated RPM: up to 80

Typical Time at Full Load: 10 hours out of 12

Typical Hour/Year: 3,000 to 5,000

Typical Applications: For vessels operating at rated load and rated speed up to 80% of the time with some load cycling (40% to 80% load factor). Typical applications could include but are not limited to vessels such as mid-water trawlers, purse seiner, crew and supply boats, ferries, or towboats. Typical operation ranges from 3000 to 5000 hours per year.

Power at declared engine speed is in accordance with ISO8665. Caterpillar maintains ISO9000 approved engine test facilities to assure accurate calibration of test equipment. Electronically controlled engines are set at the factory at the advertised power corrected to standard ambient conditions. The published fuel consumption rates are in accordance with ISO3046-1.

Fuel rates are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/L (7.001 lb/U.S. gal). Additional ratings may be available for specific customer requirements. Consult your Caterpillar representative for additional information.

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 49°C (120°F) combustion air temperature measured at the air cleaner inlet, and fuel temperature up to 52°C (125°F) measured at the fuel filter base. Power rated in accordance with NMMA procedure as crankshaft power. Reduce crankshaft power by 3% for propeller shaft power.

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