

Shown with  
Accessory Equipment

### SPECIFICATIONS

#### In-Line 8, 4-Stroke-Cycle-Diesel

Emissions	IMO II/EPA Tier 2 compliant
Displacement	148 L (9,031 cu. in.)
Low Idle Speed	350 rpm
Rated Speed	1000 rpm
Bore	280 mm (11.0 in.)
Stroke	300 mm (11.8 in.)
Compression Ratio	13:1
Aspiration	Turbocharged-Aftercooled Governor
Cooling System	Keel or Heat Exchanger
Weight, Dry	19,000 kg (41,800 lbs)
Refill Capacities	
Cooling System	1030-1205 L (272-318 gal)
Lube Oil System	760 L (201 gal)
Oil Change Interval*	925 hours
Rotation (from flywheel end)	CCW or CW
Serial Number Prefix	PKA

\*A new S•O•S<sup>SM</sup> analysis must be done to determine actual oil change intervals.

### STANDARD ENGINE EQUIPMENT

#### Air Intake and Exhaust System

Charge air cooler, air inlet shutoff, high flow turbocharger, dry manifold with soft or hard shielding

#### Basic Engine Arrangement

In-line engine with one-piece grey iron cylinder block, individual cylinder heads with four intake/exhaust valves, right- or left-hand service side available

#### Control System

Dual ADEM™ A3 electronic engine control unit (ECU) with electronic unit injector fuel system, rigid wiring harness (10 amp, 24 volt power required to drive ECU)

#### Cooling System

Single or combined system, engine mounted freshwater and seawater pumps, engine coolant water drains

#### Fuel System

Engine operates on MDO; fuel injection system consists of engine-driven fuel transfer pump and an electronic unit injector for each cylinder, engine-mounted duplex fuel filters, and flexible connections

#### Lube Oil System

Top-mounted crankcase breather, two centrifugal oil filters with single shutoff, gear-driven pump, duplex oil filter, crankcase explosion relief, oil filler and dipstick

#### Monitoring, Alarm, and Safety Control System

Alarms and shutdowns provided as required by marine society for unmanned machinery spaces. Marine Monitoring System II [listed as Programmable Logic Control (PLC) in the Price List] or Engine Control Panel are available; systems include temperature, pressure, and speed sensors; optional: oil mist detector or particle detector available

#### ECU Functions

Key-switch, desired engine speed, programmable low idle, SAE J1939 data link, Cat® data link, Messenger (displays engine data, diagnostics, etc.), diagnostics, general alarm, programmable parameters (system, application, and tattletales), Cat ET service tool interface, remote shutdown, shutdown notify, load feedback, overspeed shutdown, overspeed verify, engine power correction, droop, dual dynamics

#### General

Four lifting eyes mounted to cylinder heads, Cat yellow paint, parts books and maintenance manuals, shrink wrap

#### Optional Supplied Equipment

Torsional coupling, fresh water heat exchanger, fuel cooler, expansion tank, emergency pumps and connections, jacket water heater, flexible connections, and anti-vibration isolators

### MARINE ENGINE PERFORMANCE

## C280-8

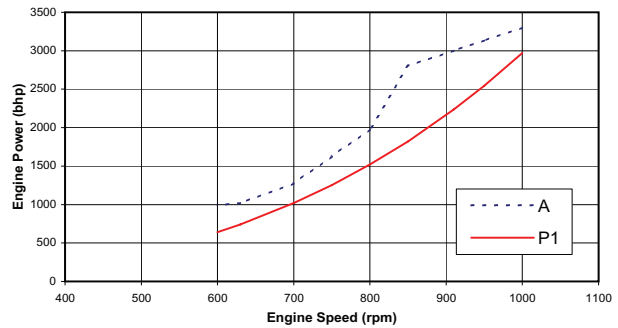
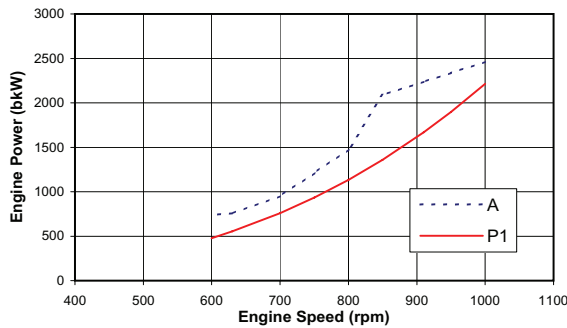
### DIESEL ENGINE TECHNICAL DATA



RATED SPEED (RPM): 1000  
 RATED POWER<sup>1</sup> (bkW): 2460  
 BMEP @ 100% LOAD (kPa): 1998  
 COMPRESSION RATIO: 13:1  
 AFTERCOOLER WATER (°C): 32  
 JACKET WATER INLET (°C): 90  
 IGNITION SYSTEM: EUI  
 FIRING PRESSURE, MAXIMUM (kPa): 16200

ENGINE RATING: **Marine CSR**  
 CERTIFICATION<sup>2</sup>: IMO II/EPA MARINE TIER II  
 TURBOCHARGER PART #: 284-8276  
 COMBUSTION: DI  
 FUEL TYPE: Distillate  
 EXHAUST MANIFOLD: DRY  
 MEAN PISTON SPEED (m/s): 10

#### Engine Performance



#### ZONE LIMIT DATA

Engine Speed rpm	Power bkW	Fuel Cons <sup>3</sup> g/kW-hr	Fuel Rate L/hr	Boost Press kPa Gauge	Air Flow <sup>4</sup> cu m/Min	Exh Temp to Turbo C	Exh Stack Temp C	Exh Flow cu m/min
1000	2460	213	624.4	268	274.1	543	375	587.4
950	2337	212	589.8	258	263.3	541	368	557.9
910	2239	211	562.6	243	247.8	544	374	530.6
850	2091	210	523.3	213	216.7	562	405	487.0
800	1474	212	372.7	115	139.6	584	466	343.0
750	1212	217	313.7	77	105.2	615	509	274.5
700	950	223	252.1	47	78.5	628	536	212.2
630	760	227	205.8	29	59.5	634	545	163.2
600	741	229	202.1	26	55.4	654	561	155.3
500	532	236	149.8	12	38.9	616	523	104.3

#### ZONE LIMIT DATA

Engine Speed rpm	Power bhp	Fuel Cons <sup>3</sup> lb/hp-hr	Fuel Rate gal/hr	Boost Press in Hg-Gauge	Air Flow <sup>4</sup> cfm	Exh Temp to Turbo F	Exh Stack Temp F	Exh Flow cfm
1000	3299	0.351	164.9	79	9680	1010	707	20743
950	3134	0.349	155.7	76	9297	1006	694	19702
910	3002	0.347	148.5	72	8751	1011	706	18739
850	2804	0.346	138.2	63	7652	1043	762	17200
800	1976	0.349	98.4	34	4929	1082	872	12112
750	1625	0.357	82.8	23	3717	1138	948	9693
700	1274	0.367	66.6	14	2772	1163	996	7494
630	1019	0.374	54.3	9	2101	1172	1013	5762
600	994	0.377	53.4	8	1956	1210	1042	5484
500	714	0.389	39.6	4	1375	1141	973	3685

#### PROPELLER DEMAND DATA

Engine Speed rpm	Power bkW	Fuel Cons <sup>3</sup> g/kW-hr	Fuel Rate L/hr	Boost Press kPa Gauge	Air Flow <sup>4</sup> cu m/Min	Exh Temp to Turbo C	Exh Stack Temp C	Exh Flow cu m/min
1000	2214	215	567.6	247	268.3	523	361	562.0
950	1898	216	489.1	204	230.7	524	378	495.6
910	1668	214	425.5	160	192.2	529	402	428.8
850	1360	214	347.2	104	140.8	550	446	335.6
800	1134	218	294.7	71	109.1	571	479	272.9
750	934	222	247.0	48	85.5	585	501	220.5
700	759	225	203.6	31	68.0	579	501	175.5
630	554	229	150.8	16	50.6	528	458	123.4
600	478	230	131.3	11	44.9	496	429	105.1
500	277	237	78.2	3	31.7	370	320	62.3

#### PROPELLER DEMAND DATA

Engine Speed rpm	Power bhp	Fuel Cons <sup>3</sup> lb/hp-hr	Fuel Rate gal/hr	Boost Press in Hg-Gauge	Air Flow <sup>4</sup> cfm	Exh Temp to Turbo F	Exh Stack Temp F	Exh Flow cfm
1000	2969	0.354	149.9	73	9474	973	683	19847
950	2546	0.356	129.1	60	8148	974	712	17502
910	2237	0.352	112.3	47	6787	983	756	15143
850	1823	0.353	91.7	31	4974	1022	835	11853
800	1520	0.359	77.8	21	3854	1060	895	9638
750	1253	0.365	65.2	14	3019	1085	935	7789
700	1018	0.370	53.8	9	2400	1074	934	6198
630	742	0.376	39.8	5	1788	982	857	4360
600	641	0.379	34.7	3	1586	924	805	3711
500	371	0.390	20.6	1	1119	698	607	2199

#### Heat Rejection @ 100% Load and 25° C Air

Lube Oil Cooler	kW ( Btu/min )	271 ( 15420 )
Jacket Water	kW ( Btu/min )	499 ( 28393 )
AfterCooler	kW ( Btu/min )	626 ( 35619 )
Total Heat Rejection to Raw Water	kW ( Btu/min )	1396 ( 79432 )
Exhaust Gas <sup>2</sup>	kW ( Btu/min )	2056 ( 116986 )
Radiation	kW ( Btu/min )	125 ( 7113 )

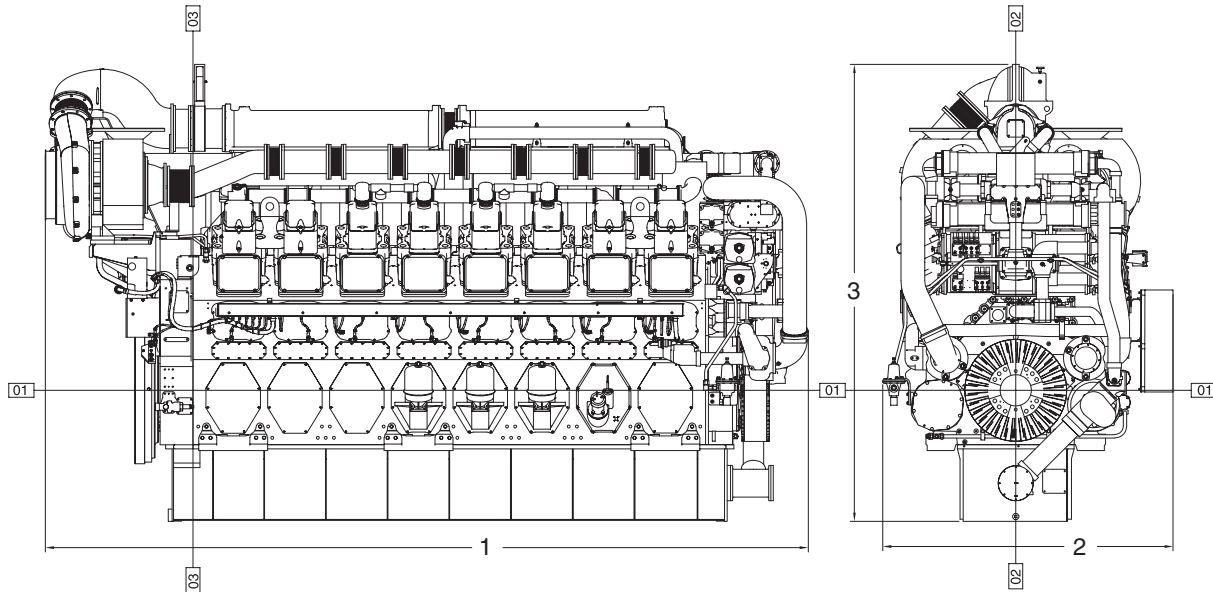
#### Notes

- 1 Ratings are based on ISO 3046/1 and SAE J1995 Jan 90 standard reference conditions of 100 kPa, 25° C, and 30% relative humidity at the stated aftercooler water temperature.
- 2 Exhaust Heat rejection is based on fuel LHV and is not normally recoverable in total
- 3 At 100% load with JW and Oil pumps, without seawater pump, +/- 3%. Performance and fuel consumption are based on 35 API, 16°C fuel having a lower heating value of 42,780 kJ/kg used at 29°C with a density of 838.9 g/liter.
- 4 Air flows are shown for 25°C air inlet to the turbocharger and 32°C cooling water to the charge air cooler.
- 5 This engine's exhaust emissions are in compliance with the INTERNATIONAL MARINE ORGANIZATION'S (IMO) standard as described in REGULATION 13 of ANNEX VI of MARPOL 73/78 and ISO 8178 for measuring HC, CO, PM, and NOx.

DM8398-02

3/4/10

### ENGINE DIMENSIONS



Engine Dimensions		
<b>(1) Overall Length</b>	4958 mm	195.2 in.
<b>(2) Overall Width</b>	1804 mm	71.0 in.
<b>(3) Overall Height</b>	2648 mm	104.2 in.

Note: Do not use for installation design. See general dimension drawings for detail.

Engine Weights		
<b>Engine Dry Weight</b>	19,000 kg	41,800 lb
<b>Shipped Loose Items</b>		
Torsional Coupling	319 kg	702 lb
Plate-Type Heat Exchanger	420 kg	924 lb
Instrument/Alarm Panel	200 kg	440 lb
<b>Fluids</b>		
Lube Oil	691 kg	1,520 lb
Jacket Water	530 kg	1,166 lb
Heat Exchanger (FW, SW, LO)	70 kg	154 lb

## RATING DEFINITIONS AND CONDITIONS

---

**Continuous Service Rating** — 100% of the engine operating hours at 100% of rated power.

**Ratings** are based on SAE J1995/ISO3046 standard conditions of 100 kPa (29.61 in. Hg), 25°C (77°F), and 30% relative humidity at the stated charge air cooler water temperature. Ratings also meet classification society maximum temperature requirements of 45°C (113°F) air temperature to the turbocharger and 32°C (90°F) seawater temperature without derate.

Additional ratings may be available for specific customer requirements. Consult your Cat representative for additional information.

**Fuel rates** are based on 35° API, 16°C (60°F) fuel used at 29°C (85°F) with a density of 838.9 g/liter (7.001 lbs/U.S. gal). Lower Heat Value (LHV) of 42 780 kJ/kg (18,390 Btu/lb). Tolerance is +5%. Includes all engine mounted pumps. BSFC without pumps is 3% less.

**Marine Certification** — Ratings are marine classification society approved by ABS, BV, CCS, DnV, GL, KR, LRS, NKK, RINA, and RS. These societies have also granted C280 factory line production approval which eliminates requirement for society surveyor witness test.

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.

CAT, CATERPILLAR, their respective logos, ADEM, S•O•S, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.