PERFORMANCE DATA[EM1112]

November 7, 2023

Performance Number: EM1112 **Change Level: 06**

SALES MODEL:	C18	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
MACHINE SALES MODEL:		**HERTZ:**	60
ENGINE POWER (BHP):	708	**FAN POWER (HP):**	24.1
GEN POWER WITH FAN (EKW):	455.0	**ADDITIONAL PARASITICS (HP):**	2.7
COMPRESSION RATIO:	16	**ASPIRATION:**	TA
RATING LEVEL:	PRIME	**AFTERCOOLER TYPE:**	ATAAC
PUMP QUANTITY:	1	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
FUEL TYPE:	DIESEL	**INLET MANIFOLD AIR TEMP (F):**	127
MANIFOLD TYPE:	DRY	**JACKET WATER TEMP (F):**	192.2
GOVERNOR TYPE:	ELEC	**TURBO CONFIGURATION:**	SINGLE
ELECTRONICS TYPE:	ADEM4	**TURBO QUANTITY:**	1
CAMSHAFT TYPE:	STANDARD	**TURBOCHARGER MODEL:**	S430S 0.88 A/R VOF
IGNITION TYPE:	CI	**CERTIFICATION YEAR:**	2015
INJECTOR TYPE:	EUI	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	2,161.4
REF EXH STACK DIAMETER (IN):	6		
MAX OPERATING ALTITUDE (FT):	2,999		

INDUSTRY	SUBINDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
ELECTRIC POWER	RENTAL	PACKAGED GENSET

General Performance Data

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
500.5	110	736	293	0.348	0.345	36.1	35.8	0.512	0.507
455.0	100	672	267	0.349	0.345	33.0	32.7	0.515	0.510
409.5	90	607	241	0.348	0.345	29.8	29.5	0.516	0.511
364.0	80	542	216	0.349	0.346	26.7	26.5	0.521	0.516
341.2	75	510	203	0.351	0.347	25.2	25.0	0.524	0.519
318.5	70	478	190	0.352	0.349	23.7	23.5	0.529	0.524
273.0	60	414	165	0.357	0.354	20.9	20.7	0.542	0.537
227.5	50	351	140	0.365	0.361	18.1	17.9	0.563	0.558
182.0	40	289	115	0.376	0.373	15.3	15.2	0.597	0.591
136.5	30	226	90	0.396	0.392	12.6	12.5	0.656	0.649
113.8	25	194	77	0.412	0.408	11.3	11.2	0.703	0.696
91.0	20	162	64	0.436	0.431	9.9	9.8	0.775	0.767
45.5	10	95.6	38	0.539	0.534	7.3	7.2	1.132	1.121

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
500.5	110	736	68.8	122.2	1,255.8	85.9	832.7	75	399.6
455.0	100	672	63.7	122.1	1,208.0	79.6	799.3	70	381.8
409.5	90	607	58.3	122.1	1,156.9	72.6	764.9	64	362.1
364.0	80	542	52.6	122.1	1,108.7	65.7	733.1	58	341.9
341.2	75	510	49.7	122.1	1,085.5	62.2	718.1	55	331.6
318.5	70	478	46.8	122.0	1,062.0	58.7	703.1	52	321.1
273.0	60	414	40.9	122.0	1,013.0	51.7	672.3	46	299.4
227.5	50	351	34.7	121.8	958.5	44.9	638.3	39	274.4
182.0	40	289	28.4	121.4	896.5	38.1	600.2	32	247.8
136.5	30	226	22.5	121.0	825.7	31.4	557.4	26	222.0
113.8	25	194	19.8	120.6	786.4	28.0	533.8	23	209.9
91.0	20	162	17.4	118.8	738.8	26.0	505.9	21	199.2
45.5	10	95.6	13.2	113.7	629.0	23.1	442.3	17	179.4

General Performance Data (Continued)

PERFORMANCE DATA[EM1112]

November 7, 2023

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
500.5	110	736	1,334.9	2,454.1	5,794.4	6,050.6	933.6	842.4
455.0	100	672	1,281.3	2,349.7	5,551.9	5,785.6	917.6	831.4
409.5	90	607	1,217.2	2,232.4	5,263.5	5,474.6	896.4	815.4
364.0	80	542	1,148.5	2,111.7	4,956.5	5,145.9	870.5	794.6
341.2	75	510	1,113.1	2,049.8	4,799.0	4,977.8	855.7	782.4
318.5	70	478	1,076.9	1,986.3	4,638.7	4,807.0	839.9	769.2
273.0	60	414	1,002.5	1,854.8	4,309.5	4,457.5	805.6	740.4
227.5	50	351	914.9	1,700.0	3,924.5	4,052.5	761.3	702.3
182.0	40	289	826.3	1,534.4	3,536.9	3,645.4	711.8	659.7
136.5	30	226	750.9	1,373.9	3,207.6	3,297.0	664.2	619.0
113.8	25	194	721.5	1,298.8	3,079.2	3,159.1	642.7	600.9
91.0	20	162	703.5	1,232.8	3,000.2	3,070.6	627.7	589.6
45.5	10	95.6	687.0	1,112.1	2,927.6	2,979.2	606.2	575.8

Heat Rejection Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
500.5	110	736	15,857	5,698	24,504	12,423	4,186	6,438	31,225	78,594	83,722
455.0	100	672	14,546	5,351	22,306	11,007	3,823	5,773	28,490	71,782	76,466
409.5	90	607	13,309	4,887	20,032	9,575	3,451	5,058	25,740	64,798	69,026
364.0	80	542	12,157	4,467	17,896	8,278	3,094	4,363	22,996	58,088	61,878
341.2	75	510	11,607	4,276	16,880	7,678	2,921	4,027	21,630	54,842	58,421
318.5	70	478	11,069	4,092	15,886	7,098	2,751	3,697	20,271	51,645	55,015
273.0	60	414	10,021	3,757	13,946	5,983	2,418	3,062	17,571	45,396	48,358
227.5	50	351	8,981	3,621	11,931	4,845	2,091	2,398	14,886	39,257	41,818
182.0	40	289	7,961	3,500	9,985	3,764	1,774	1,789	12,241	33,303	35,476
136.5	30	226	6,949	3,162	8,235	2,805	1,461	1,298	9,578	27,432	29,222
113.8	25	194	6,444	2,882	7,451	2,375	1,305	1,101	8,231	24,509	26,108
91.0	20	162	5,853	2,617	6,720	1,948	1,151	965	6,862	21,608	23,018
45.5	10	95.6	4,550	2,073	5,368	1,107	841	771	4,052	15,784	16,814

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		EKW	500.5	455.0	341.2	227.5	113.8	45.5
PERCENT LOAD		%	110	100	75	50	25	10
ENGINE POWER		BHP	736	672	510	351	194	95.6
NON-ETHANE HC	(CORR 15% O2)	PPM	2.3620987	1.9313166	0.83507067	0.0	0.0	0.0
TOTAL NOX (AS NO2)		G/HR	164	177	125	34	16	42
TOTAL CO		G/HR	0	0	0	0	0	0
TOTAL HC		G/HR	9	7	2	0	0	0
TOTAL CO2		KG/HR	371	338	258	185	115	74
PART MATTER		G/HR	4.0	2.8	1.7	1.2	0.8	0.5
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	103.5	122.8	109.0	44.1	34.4	153.4
TOTAL CO	(CORR 5% O2)	MG/NM3	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL HC	(CORR 5% O2)	MG/NM3	4.8	3.9	1.6	0.0	0.0	0.0
PART MATTER	(CORR 5% O2)	MG/NM3	2.0	1.6	1.3	1.3	1.4	1.5
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	38.4	45.6	40.5	16.4	12.8	56.9
TOTAL CO	(CORR 15% O2)	MG/NM3	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL HC	(CORR 15% O2)	MG/NM3	1.8	1.4	0.6	0.0	0.0	0.0

PERFORMANCE DATA[EM1112]

November 7, 2023

PART MATTER	(CORR 15% O2)	MG/NM3	0.8	0.6	0.5	0.5	0.5	0.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	50	60	53	21	17	75
TOTAL CO	(CORR 5% O2)	PPM	0	0	0	0	0	0
TOTAL HC	(CORR 5% O2)	PPM	9	7	3	0	0	0
FORMALDEHYDE	(CORR 5% O2)	PPM	0.00	0.00	0.00	0.02	0.08	0.02
ACROLEIN	(CORR 5% O2)	PPM	0.24	0.14	0.78	1.38	0.97	1.86
ACETALDEHYDE	(CORR 5% O2)	PPM	0.37	0.30	1.01	0.81	0.41	2.27
METHANOL	(CORR 5% O2)	PPM	0.00	0.06	0.16	0.07	0.00	0.00
NON-METHANE HC	(CORR 5% O2)	PPM	6.37	5.20	2.25	0.00	0.00	0.00
NON-ETHANE HC	(CORR 5% O2)	PPM	6.37	5.20	2.25	0.00	0.00	0.00
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	19	22	20	8	6	28
TOTAL CO	(CORR 15% O2)	PPM	0	0	0	0	0	0
TOTAL HC	(CORR 15% O2)	PPM	3	3	1	0	0	0
TOTAL NOX (AS NO2)		G/HP-HR	0.22	0.26	0.25	0.10	0.08	0.45
TOTAL CO		G/HP-HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		G/HP-HR	0.01	0.01	0.00	0.00	0.00	0.00
PART MATTER		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.01
TOTAL NOX (AS NO2)		G/KW-HR	0.31	0.36	0.34	0.13	0.12	0.61
TOTAL CO		G/KW-HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		G/KW-HR	0.02	0.01	0.01	0.00	0.00	0.00
PART MATTER		G/KW-HR	0.01	0.01	0.00	0.00	0.01	0.01
TOTAL NOX (AS NO2)		LB/HR	0.36	0.39	0.28	0.08	0.04	0.09
TOTAL CO		LB/HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.02	0.01	0.00	0.00	0.00	0.00
TOTAL CO2		LB/HR	817	745	569	407	253	163
PART MATTER		LB/HR	0.01	0.01	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	7.7	8.4	10.0	11.5	13.6	16.1

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**500.5**	**455.0**	**341.2**	**227.5**	**113.8**	**45.5**
PERCENT LOAD		**%**	**110**	**100**	**75**	**50**	**25**	**10**
ENGINE POWER		**BHP**	**736**	**672**	**510**	**351**	**194**	**95.6**
TOTAL NOX (AS NO2)		G/HR	237	254	181	50	24	61
TOTAL CO		G/HR	0	0	0	0	0	0
TOTAL HC		G/HR	19	14	5	0	0	0
PART MATTER		G/HR	15.5	10.9	6.7	4.6	3.0	2.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	149.1	176.9	157.0	63.5	49.5	220.9
TOTAL CO	(CORR 5% O2)	MG/NM3	0.0	0.0	0.0	0.0	0.0	0.1
TOTAL HC	(CORR 5% O2)	MG/NM3	10.3	8.3	3.5	0.0	0.0	0.0
PART MATTER	(CORR 5% O2)	MG/NM3	7.9	6.3	5.1	4.9	5.4	5.9
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	55.3	65.6	58.3	23.6	18.4	82.0
TOTAL CO	(CORR 15% O2)	MG/NM3	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL HC	(CORR 15% O2)	MG/NM3	3.8	3.1	1.3	0.0	0.0	0.0
PART MATTER	(CORR 15% O2)	MG/NM3	2.9	2.3	1.9	1.8	2.0	2.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	73	86	76	31	24	108
TOTAL CO	(CORR 5% O2)	PPM	0	0	0	0	0	0
TOTAL HC	(CORR 5% O2)	PPM	19	16	6	0	0	0
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	27	32	28	11	9	40
TOTAL CO	(CORR 15% O2)	PPM	0	0	0	0	0	0
TOTAL HC	(CORR 15% O2)	PPM	7	6	2	0	0	0
TOTAL NOX (AS NO2)		G/HP-HR	0.32	0.38	0.36	0.14	0.12	0.64
TOTAL CO		G/HP-HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		G/HP-HR	0.03	0.02	0.01	0.00	0.00	0.00
PART MATTER		G/HP-HR	0.02	0.02	0.01	0.01	0.02	0.02
TOTAL NOX (AS NO2)		G/KW-HR	0.44	0.52	0.48	0.19	0.17	0.87
TOTAL CO		G/KW-HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		G/KW-HR	0.04	0.03	0.01	0.00	0.00	0.00
PART MATTER		G/KW-HR	0.03	0.02	0.02	0.02	0.02	0.03
TOTAL NOX (AS NO2)		LB/HR	0.52	0.56	0.40	0.11	0.05	0.13
TOTAL CO		LB/HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.04	0.03	0.01	0.00	0.00	0.00
PART MATTER		LB/HR	0.03	0.02	0.01	0.01	0.01	0.00

PERFORMANCE DATA[EM1112]

November 7, 2023

Regulatory Information

EPA TIER 4 FINAL		2015 - ----		
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.				
Locality	**Agency**	**Regulation**	**Tier/Stage**	**Max Limits - G/BKW - HR**
U.S. (INCL CALIF)	EPA	NON-ROAD GENSET	TIER 4 FINAL	CO: 3.5 NOx: 0.67 HC: 0.19 PM: 0.03

EU STAGE V		2019 - ----		
GASEOUS EMISSION DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN EU 2016/1628, ECE REGULATION NO. 96 AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. GASEOUS EMISSION VALUES ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.				
Locality	**Agency**	**Regulation**	**Tier/Stage**	**Max Limits - G/BKW - HR**
EUROPE	EU	GENSET	STAGE V	CO: 3.5 NOx: 0.67 HC: 0.19 PM: 0.035

Altitude Derate Data

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)											
0	708	708	708	708	708	708	708	708	576	516	708
1,000	708	708	708	708	708	708	708	699	557	511	708
2,000	708	708	708	708	708	708	708	593	529	501	708
3,000	708	708	708	708	708	651	571	543	516	489	708
4,000	708	708	708	708	674	582	552	526	501	476	708
5,000	708	708	708	669	602	557	533	509	485	462	708
6,000	708	679	653	604	560	536	514	492	470	449	704
7,000	648	592	577	560	537	515	495	474	454	435	648
8,000	585	567	553	538	516	495	475	456	437	418	595
9,000	557	544	531	516	496	476	456	436	418	400	573
10,000	533	522	508	494	474	454	431	404	380	362	555
11,000	514	503	495	487	462	431	398	373	358	357	534
12,000	495	485	483	471	445	417	384	372	371	369	514
13,000	473	463	461	444	412	381	379	378	376	374	495
14,000	449	434	420	392	381	379	378	376	374	372	470
15,000	397	379	367	381	379	377	376	374	372	370	442

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4150866	PP7130	4190902	PS072	LS	CM800001	
4150866	PP7130	4190904	GS759	LS	CM800001	
4150866	PP7130	5194410	PS072	LS	CM800001	
5526360	PP7991	5424853	EE545	-	TC400001	

Performance Parameter Reference

Parameters Reference:DM9600-14

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600
APPLICATION:
Engine performance tolerance values below are representative of a

typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS:
Power +/- 3%
Torque +/- 3%
Exhaust stack temperature +/- 8%
Inlet airflow +/- 5%
Intake manifold pressure-gage +/- 10%
Exhaust flow +/- 6%
Specific fuel consumption +/- 3%
Fuel rate +/- 5%
Specific DEF consumption +/- 3%
DEF rate +/- 5%
Heat rejection +/- 5%
Heat rejection exhaust only +/- 10%
Heat rejection CEM only +/- 10%
Heat Rejection values based on using treated water.
Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.
On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.
On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.
These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS:
Heat rejection +/- 10%
Heat rejection to Atmosphere +/- 50%
Heat rejection to Lube Oil +/- 20%
Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS:
Torque +/- 0.5%
Speed +/- 0.2%
Fuel flow +/- 1.0%
Temperature +/- 2.0 C degrees
Intake manifold pressure +/- 0.1 kPa

OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR
FOR 3500 ENGINES AND SMALLER
SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.

FOR 3600 ENGINES
Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE
Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER
The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL
DIESEL
Reference fuel is #2 distillate diesel with a 35API gravity;
A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal).

GAS
Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD
Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel)

load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY

Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.

Standard temperature values versus altitude could be seen on TM2001.

When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.

Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.

Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE

TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.

Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS:

Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

WET & DRY EXHAUST/EMISSIONS DESCRIPTION:

Wet - Total exhaust flow or concentration of total exhaust flow

Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded

EMISSIONS DEFINITIONS:

Emissions : DM1176

EMISSION CYCLE DEFINITIONS

1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets
test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS:

Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS:

3500: EM1500

RATING DEFINITIONS:

Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037
Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038

SOUND DEFINITIONS:

Sound Power : DM8702
Sound Pressure : TM7080
Date Released : 10/27/21