PERFORMANCE DATA[EM1365]

September 22, 2023

Performance Number: EM1365 **Change Level: 06**

SALES MODEL:	C175-20	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,500
MACHINE SALES MODEL:		**HERTZ:**	50
ENGINE POWER (BKW):	3,064.0	**FAN POWER (KW):**	84.0
GEN POWER WITH FAN (EKW):	2,800.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	15.3	**AFTERCOOLER TYPE:**	SCAC
RATING LEVEL:	STANDBY	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC+1AC, 2AC
PUMP QUANTITY:	2	**AFTERCOOLER TEMP (C):**	46
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (C):**	99
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ADEM4	**TURBO QUANTITY:**	4
ELECTRONICS TYPE:	ADEM4	**TURBOCHARGER MODEL:**	GTB6251BN-48T-1.38
CAMSHAFT TYPE:	STANDARD	**COMBUSTION STRATEGY:**	LOW EMISSION
IGNITION TYPE:	CI	**FUEL RATE (RATED RPM) NO LOAD (L/HR):**	70.5
INJECTOR TYPE:	CR	**PISTON SPD @ RATED ENG SPD (M/SEC):**	11.0
FUEL INJECTOR:	4439454		
REF EXH STACK DIAMETER (MM):	356		

INDUSTRY	SUBINDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data

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	%	BKW	KPA	G/BKW-HR	G/BKW-HR	L/HR	L/HR	G/EKW-HR	G/EKW-HR
2,800.0	100	3,064	2,316	206.9	202.9	745.7	731.5	226.4	222.1
2,520.0	90	2,765	2,090	212.4	208.3	691.0	677.8	233.1	228.6
2,240.0	80	2,467	1,865	216.9	212.8	629.6	617.6	238.9	234.3
2,100.0	75	2,318	1,752	218.5	214.4	595.9	584.6	241.2	236.6
1,960.0	70	2,169	1,640	219.0	214.9	558.9	548.3	242.4	237.8
1,680.0	60	1,871	1,414	219.0	214.8	482.2	473.0	243.9	239.3
1,400.0	50	1,573	1,189	218.8	214.6	405.0	397.3	245.9	241.2
1,120.0	40	1,275	964	224.8	220.5	337.3	330.9	256.0	251.1
840.0	30	978	739	236.1	231.6	271.6	266.4	274.8	269.6
700.0	25	829	626	244.8	240.2	238.7	234.1	289.8	284.3
560.0	20	680	514	256.3	251.4	204.9	201.0	311.0	305.1
280.0	10	382	289	302.9	297.1	136.1	133.5	413.1	405.2

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	%	BKW	KPA	DEG C	DEG C	KPA	DEG C	KPA	DEG C
2,800.0	100	3,064	273.6	49.5	608.1	209.7	447.4	275	212.8
2,520.0	90	2,765	261.0	48.6	595.7	198.5	440.1	263	206.3
2,240.0	80	2,467	240.6	47.9	580.8	182.1	434.1	242	195.3
2,100.0	75	2,318	227.1	47.6	572.5	171.7	431.9	229	187.5
1,960.0	70	2,169	209.8	47.4	564.0	158.7	431.4	211	176.7
1,680.0	60	1,871	171.8	47.0	544.4	130.6	429.5	174	155.4
1,400.0	50	1,573	132.6	46.4	521.2	102.5	424.0	134	134.4
1,120.0	40	1,275	100.3	44.9	492.7	81.0	411.9	102	113.5
840.0	30	978	71.6	43.5	454.3	62.2	389.1	73	93.0
700.0	25	829	58.5	43.0	431.4	53.8	373.7	60	83.0
560.0	20	680	46.4	42.8	399.0	45.8	348.8	48	73.2
280.0	10	382	25.1	43.0	310.5	31.1	275.3	27	54.6

General Performance Data (Continued)

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	ENGINE OUTLET WET EXH VOL FLOW RATE (0 DEG C AND 101 KPA)	ENGINE OUTLET DRY EXH VOL FLOW RATE (0 DEG C AND 101 KPA)

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EKW	%	BKW	M3/MIN	M3/MIN	KG/HR	KG/HR	M3/MIN	M3/MIN
2,800.0	100	3,064	290.2	655.7	18,283.1	18,916.6	248.6	228.3
2,520.0	90	2,765	282.5	630.4	17,788.1	18,375.1	241.4	222.6
2,240.0	80	2,467	267.9	591.7	16,856.7	17,391.5	228.5	211.3
2,100.0	75	2,318	257.8	566.7	16,203.3	16,709.6	219.5	203.2
1,960.0	70	2,169	244.4	535.5	15,343.0	15,817.9	207.6	192.3
1,680.0	60	1,871	214.5	466.8	13,424.8	13,834.7	181.5	168.2
1,400.0	50	1,573	183.4	394.9	11,431.8	11,776.2	154.7	143.5
1,120.0	40	1,275	157.5	333.5	9,799.4	10,086.0	133.0	123.6
840.0	30	978	134.3	274.5	8,345.5	8,575.8	113.2	105.5
700.0	25	829	123.6	245.8	7,682.0	7,884.6	103.8	97.0
560.0	20	680	113.7	217.4	7,066.2	7,240.4	95.5	89.5
280.0	10	382	96.2	161.3	5,973.9	6,089.6	80.3	76.1

Heat Rejection Data

PUMP POWER IS INCLUDED IN HEAT REJECTION BALANCE, BUT IS NOT SHOWN.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXH RECOVERY TO 177C	FROM OIL COOLER	FROM 2ND STAGE AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BKW	KW	KW	KW	KW	KW	KW	KW	KW	KW
2,800.0	100	3,064	1,592	187	2,759	1,506	401	328	3,064	7,533	8,025
2,520.0	90	2,765	1,518	186	2,580	1,420	372	298	2,765	6,980	7,435
2,240.0	80	2,467	1,413	183	2,366	1,310	339	266	2,467	6,360	6,775
2,100.0	75	2,318	1,347	181	2,245	1,247	321	250	2,318	6,020	6,413
1,960.0	70	2,169	1,266	179	2,107	1,178	301	232	2,169	5,646	6,014
1,680.0	60	1,871	1,092	175	1,817	1,022	259	196	1,871	4,870	5,188
1,400.0	50	1,573	915	169	1,521	850	218	161	1,573	4,091	4,358
1,120.0	40	1,275	781	161	1,269	691	181	134	1,275	3,408	3,630
840.0	30	978	656	151	1,020	528	146	108	978	2,744	2,923
700.0	25	829	594	146	891	449	128	95.1	829	2,411	2,568
560.0	20	680	529	141	755	358	110	81.0	680	2,070	2,205
280.0	10	382	395	131	467	170	73.2	51.1	382	1,374	1,464

Sound Data

SOUND DATA REPRESENTATIVE OF NOISE PRODUCED BY THE "ENGINE ONLY"

EXHAUST:SOUND POWER(1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,800.0	100	3,064	128.0	94.0	113.5	107.0	108.2	111.5	111.0	112.0	115.4	114.0	112.2
2,520.0	90	2,765	126.7	94.3	112.6	106.3	107.7	111.3	110.3	111.0	114.9	112.7	111.2
2,240.0	80	2,467	125.2	93.2	109.9	105.6	107.4	109.6	108.8	110.5	113.7	111.5	110.3
2,100.0	75	2,318	124.6	92.0	108.5	105.0	106.9	107.7	107.7	109.5	113.2	111.0	110.1
1,960.0	70	2,169	124.0	91.9	108.5	104.7	106.3	106.5	107.2	109.3	113.1	110.6	109.8
1,680.0	60	1,871	123.1	91.1	108.7	105.1	105.2	106.6	107.6	109.6	112.3	110.2	109.5
1,400.0	50	1,573	121.9	89.8	107.3	105.7	105.0	106.2	107.9	109.3	111.0	109.3	108.5
1,120.0	40	1,275	120.4	90.9	103.0	105.8	103.5	104.9	107.9	108.2	109.9	108.1	107.2
840.0	30	978	119.0	92.4	102.6	104.7	101.9	104.5	107.8	105.6	108.2	107.2	106.4
700.0	25	829	118.4	92.9	104.6	103.2	101.4	103.5	107.3	105.3	107.4	106.7	106.1
560.0	20	680	118.2	89.0	109.7	100.4	103.6	102.8	104.8	105.1	107.5	106.3	106.1
280.0	10	382	116.2	83.6	105.4	101.7	100.4	100.0	101.2	102.2	105.4	105.4	105.0

EXHAUST:SOUND POWER(1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ

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EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,800.0	100	3,064	117.6	119.1	119.2	119.1	117.1	114.1	110.0	107.0	104.5	102.9	118.8
2,520.0	90	2,765	116.3	117.7	118.1	118.2	116.2	113.1	109.1	106.0	103.7	101.9	113.6
2,240.0	80	2,467	114.8	116.4	116.5	117.0	115.5	112.3	108.3	105.0	103.1	101.7	106.4
2,100.0	75	2,318	113.9	115.7	115.9	116.4	115.1	111.9	107.9	104.6	102.8	102.1	102.7
1,960.0	70	2,169	113.1	115.1	115.2	115.7	114.6	111.5	107.5	104.1	102.7	102.6	99.1
1,680.0	60	1,871	111.8	113.9	113.7	114.0	113.5	110.4	106.5	103.1	102.4	102.6	95.4
1,400.0	50	1,573	110.7	112.5	112.0	112.1	112.1	108.8	105.2	102.0	102.3	100.4	93.9
1,120.0	40	1,275	109.3	110.7	110.1	110.5	110.4	107.2	103.7	100.9	102.2	97.1	92.7
840.0	30	978	107.8	109.6	108.4	108.9	108.6	105.6	102.1	100.3	99.7	95.5	91.4
700.0	25	829	107.0	108.9	107.4	108.2	107.7	104.8	101.4	100.5	98.1	95.1	91.0
560.0	20	680	106.5	108.2	106.5	107.5	107.1	104.2	100.8	100.3	96.8	94.8	90.7
280.0	10	382	105.9	107.4	105.6	105.9	105.6	102.0	101.3	96.6	95.7	94.2	89.3

MECHANICAL:SOUND POWER(1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,800.0	100	3,064	126.4	90.0	99.2	97.8	103.0	102.1	110.0	109.6	111.2	111.9	113.4
2,520.0	90	2,765	125.6	89.7	98.1	97.5	102.2	102.0	109.2	109.2	110.9	111.8	113.0
2,240.0	80	2,467	124.6	89.5	97.1	97.4	101.7	102.4	108.9	109.5	110.9	111.9	112.7
2,100.0	75	2,318	124.3	89.4	96.4	97.3	101.4	102.5	108.5	109.9	110.8	111.9	112.5
1,960.0	70	2,169	124.1	89.3	96.4	97.4	101.4	102.6	108.0	110.1	110.6	111.8	112.4
1,680.0	60	1,871	123.6	88.5	96.5	97.7	101.1	102.5	107.5	109.8	110.3	111.7	112.1
1,400.0	50	1,573	122.8	87.8	96.8	98.3	100.3	102.2	107.2	109.1	110.0	111.5	111.5
1,120.0	40	1,275	122.2	86.9	97.0	99.4	99.8	102.6	106.5	108.8	110.0	111.0	110.4
840.0	30	978	121.8	86.0	95.9	99.3	99.0	103.0	106.3	108.8	110.5	111.5	109.9
700.0	25	829	121.7	85.5	94.7	98.6	98.3	103.2	106.6	108.9	111.0	112.2	110.1
560.0	20	680	121.9	85.0	94.0	97.8	97.4	103.0	106.7	109.3	111.7	113.0	110.9
280.0	10	382	121.9	84.9	94.1	99.1	94.5	102.4	105.6	109.1	111.4	113.4	111.5

MECHANICAL:SOUND POWER(1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,800.0	100	3,064	114.5	114.4	114.6	115.1	114.1	113.6	111.3	111.8	113.1	112.3	121.2
2,520.0	90	2,765	114.2	114.0	114.3	114.6	113.7	112.6	111.0	111.1	112.4	111.4	119.5
2,240.0	80	2,467	113.9	114.1	114.3	114.5	113.5	111.9	110.4	110.3	111.8	110.6	114.7
2,100.0	75	2,318	113.9	114.2	114.4	114.3	113.4	111.6	110.2	110.0	111.4	110.7	112.1
1,960.0	70	2,169	113.8	114.3	114.4	114.1	113.3	111.4	110.0	109.7	111.3	111.0	109.6
1,680.0	60	1,871	113.2	114.4	113.9	113.5	112.7	110.9	109.4	109.0	110.8	110.9	107.0
1,400.0	50	1,573	112.3	113.3	112.8	112.5	111.6	110.1	108.6	108.1	110.6	108.7	105.6
1,120.0	40	1,275	111.9	112.5	112.1	111.7	110.6	109.5	107.8	107.3	109.9	106.3	104.0
840.0	30	978	111.3	112.6	111.7	111.2	109.9	109.0	107.1	106.7	107.9	104.7	102.2
700.0	25	829	111.3	112.4	111.4	111.1	109.7	108.9	106.7	106.4	106.4	104.3	101.8
560.0	20	680	111.9	112.4	111.3	110.9	109.8	109.0	106.0	105.6	105.0	104.1	101.5
280.0	10	382	112.5	112.7	111.8	110.6	110.2	108.3	105.9	103.6	104.1	103.3	100.1

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1500 RPM

GENSET POWER WITH FAN	EKW	2,800.0	2,100.0	1,400.0	700.0	280.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BKW	3,064	2,318	1,573	829	382
TOTAL NOX (AS NO2)	G/HR	20,101	10,935	8,148	4,159	3,291
TOTAL CO	G/HR	2,912	3,901	2,024	1,427	1,224
TOTAL HC	G/HR	507	539	682	837	912
TOTAL CO2	KG/HR	1,992	1,590	1,077	612	343
PART MATTER	G/HR	86.4	154.7	159.9	138.1	69.9

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TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,264.7	1,567.7	1,714.3	1,491.5	2,200.2
TOTAL CO	(CORR 5% O2)	MG/NM3	337.0	551.0	421.8	519.6	805.1
TOTAL HC	(CORR 5% O2)	MG/NM3	49.1	65.9	123.6	265.7	522.6
PART MATTER	(CORR 5% O2)	MG/NM3	8.3	18.8	28.8	44.9	38.0
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	840.4	581.7	636.1	553.4	816.4
TOTAL CO	(CORR 15% O2)	MG/NM3	125.1	204.5	156.5	192.8	298.8
TOTAL HC	(CORR 15% O2)	MG/NM3	18.2	24.5	45.8	98.6	193.9
PART MATTER	(CORR 15% O2)	MG/NM3	3.1	7.0	10.7	16.7	14.1
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,103	764	835	726	1,072
TOTAL CO	(CORR 5% O2)	PPM	270	441	337	416	644
TOTAL HC	(CORR 5% O2)	PPM	92	123	231	496	975
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	409	283	310	270	398
TOTAL CO	(CORR 15% O2)	PPM	100	164	125	154	239
TOTAL HC	(CORR 15% O2)	PPM	34	46	86	184	362
TOTAL NOX (AS NO2)		G/HP-HR	4.88	3.51	3.85	3.73	6.40
TOTAL CO		G/HP-HR	0.71	1.25	0.96	1.28	2.38
TOTAL HC		G/HP-HR	0.12	0.17	0.32	0.75	1.77
PART MATTER		G/HP-HR	0.02	0.05	0.08	0.12	0.14
TOTAL NOX (AS NO2)		G/KW-HR	6.64	4.77	5.23	5.07	8.70
TOTAL CO		G/KW-HR	0.96	1.70	1.30	1.74	3.24
TOTAL HC		G/KW-HR	0.17	0.23	0.44	1.02	2.41
PART MATTER		G/KW-HR	0.03	0.07	0.10	0.17	0.18
TOTAL NOX (AS NO2)		LB/HR	44.31	24.11	17.96	9.17	7.26
TOTAL CO		LB/HR	6.42	8.60	4.46	3.15	2.70
TOTAL HC		LB/HR	1.12	1.19	1.50	1.84	2.01
TOTAL CO2		LB/HR	4,392	3,504	2,375	1,350	757
PART MATTER		LB/HR	0.19	0.34	0.35	0.30	0.15
OXYGEN IN EXH		%	10.6	11.6	12.0	13.3	15.4
DRY SMOKE OPACITY		%	0.6	2.0	3.1	4.1	1.5
BOSCH SMOKE NUMBER			0.72	0.86	0.96	1.05	0.81

RATED SPEED POTENTIAL SITE VARIATION: 1500 RPM

GENSET POWER WITH FAN		**EKW**	**2,800.0**	**2,100.0**	**1,400.0**	**700.0**	**280.0**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
ENGINE POWER		**BKW**	**3,064**	**2,318**	**1,573**	**829**	**382**
TOTAL NOX (AS NO2)		G/HR	24,121	13,122	9,777	4,991	3,950
TOTAL CO		G/HR	5,242	7,023	3,643	2,569	2,204
TOTAL HC		G/HR	674	717	907	1,113	1,213
PART MATTER		G/HR	120.9	216.6	223.8	193.4	97.8
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,717.7	1,881.2	2,057.1	1,789.7	2,640.2
TOTAL CO	(CORR 5% O2)	MG/NM3	606.6	991.9	759.3	935.3	1,449.2
TOTAL HC	(CORR 5% O2)	MG/NM3	65.3	87.6	164.3	353.4	695.0
PART MATTER	(CORR 5% O2)	MG/NM3	11.6	26.3	40.3	62.9	53.2
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,008.5	698.1	763.3	664.1	979.7
TOTAL CO	(CORR 15% O2)	MG/NM3	225.1	368.1	281.7	347.1	537.8
TOTAL HC	(CORR 15% O2)	MG/NM3	24.2	32.5	61.0	131.1	257.9
PART MATTER	(CORR 15% O2)	MG/NM3	4.3	9.8	14.9	23.3	19.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,324	916	1,002	872	1,286
TOTAL CO	(CORR 5% O2)	PPM	485	793	607	748	1,159
TOTAL HC	(CORR 5% O2)	PPM	122	164	307	660	1,297
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	491	340	372	323	477
TOTAL CO	(CORR 15% O2)	PPM	180	294	225	278	430
TOTAL HC	(CORR 15% O2)	PPM	45	61	114	245	481
TOTAL NOX (AS NO2)		G/HP-HR	5.86	4.21	4.62	4.47	7.68
TOTAL CO		G/HP-HR	1.27	2.25	1.72	2.30	4.28
TOTAL HC		G/HP-HR	0.16	0.23	0.43	1.00	2.36
PART MATTER		G/HP-HR	0.03	0.07	0.11	0.17	0.19
TOTAL NOX (AS NO2)		G/KW-HR	7.96	5.72	6.28	6.08	10.44
TOTAL CO		G/KW-HR	1.73	3.06	2.34	3.13	5.82
TOTAL HC		G/KW-HR	0.22	0.31	0.58	1.36	3.21
PART MATTER		G/KW-HR	0.04	0.09	0.14	0.24	0.26
TOTAL NOX (AS NO2)		LB/HR	53.18	28.93	21.55	11.00	8.71
TOTAL CO		LB/HR	11.56	15.48	8.03	5.66	4.86
TOTAL HC		LB/HR	1.49	1.58	2.00	2.45	2.67
PART MATTER		LB/HR	0.27	0.48	0.49	0.43	0.22

Regulatory Information

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September 22, 2023

NON-CERTIFIED	1970 - 2100
THIS ENGINE RATING IS NOT EMISSIONS CERTIFIED BY ANY DOMESTIC OR FOREIGN AGENCY.	

Altitude Derate Data

ALTITUDE DERATE DATA IS BASED ON THE ASSUMPTION OF A 20 DEGREES CELSIUS(36 DEGREES FAHRENHEIT) DIFFERENCE BETWEEN AMBIENT OPERATING TEMPERATURE AND ENGINE INLET SCAC TEMPERATURE. AMBIENT OPERATING TEMPERATURE IS DEFINED AS THE AIR TEMPERATURE MEASURED AT THE TURBOCHARGER COMPRESSOR INLET.

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BKW)

AMBIENT OPERATING TEMP (C)	0	5	10	15	20	25	30	35	40	45	50	55	60	NORMAL
ALTITUDE (M)														
0	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	2,857	2,361	3,064
250	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,052	3,005	2,757	2,403	3,064
500	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,015	2,813	2,609	2,552	3,064
750	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	2,979	2,765	2,609	2,533	3,064
1,000	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	2,907	2,711	2,587	2,487	3,064
1,250	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	2,799	2,662	2,546	2,421	3,064
1,500	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	3,064	2,777	2,603	2,475	2,367	3,064
1,750	3,036	3,036	3,036	3,036	3,036	3,036	3,036	3,036	3,036	2,688	2,532	2,425	2,341	3,036
2,000	3,002	3,002	3,002	3,002	3,002	3,002	3,002	3,002	2,992	2,590	2,488	2,416	2,349	3,002
2,250	2,821	2,821	2,821	2,820	2,820	2,819	2,818	2,817	2,776	2,520	2,437	2,374	2,322	2,821
2,500	2,579	2,579	2,578	2,577	2,575	2,574	2,573	2,567	2,507	2,448	2,386	2,330	2,277	2,578
2,750	2,557	2,557	2,556	2,555	2,554	2,553	2,552	2,545	2,496	2,437	2,379	2,324	2,233	2,556
3,000	2,486	2,487	2,486	2,485	2,485	2,484	2,483	2,477	2,438	2,387	2,336	2,272	2,174	2,486
3,250	2,367	2,367	2,367	2,367	2,366	2,366	2,366	2,361	2,340	2,314	2,280	2,207	2,129	2,367
3,500	2,258	2,258	2,258	2,258	2,258	2,258	2,258	2,255	2,244	2,232	2,209	2,153	2,093	2,258
3,750	2,170	2,170	2,170	2,170	2,170	2,170	2,170	2,168	2,162	2,156	2,145	2,117	2,055	2,170
4,000	2,110	2,110	2,110	2,111	2,111	2,112	2,112	2,110	2,104	2,096	2,087	2,064	2,015	2,109
4,250	2,044	2,045	2,046	2,046	2,047	2,048	2,048	2,046	2,039	2,031	2,023	2,008	1,973	2,044
4,500	1,980	1,981	1,982	1,983	1,984	1,984	1,985	1,982	1,975	1,968	1,960	1,950	1,926	1,979

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4577024	LL6688	4806566	GS269	-	BXR00001	
4577024	LL6687	5683573	PG325	-	TZ800100	
4577024	LL6688	5683573	PG325	-	TZ800100	

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%

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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.

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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