

## GEN SET PACKAGE PERFORMANCE DATA [DM8501]

SEPTEMBER 21, 2009

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Performance Number: DM8501

Change Level: 01

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**Sales Model:** C9 DITA    **Combustion:** DI    **Aspr:** TA  
**Engine Power:**  
 250 W/F    265 W/O F  
 EKW        EKW    **Speed:** 1,800 RPM    **After Cooler:** ATAAC  
 398 HP  
**Manifold Type:** DRY    **Governor Type:** ELEC    **After Cooler Temp(F):** 120  
**Turbo Quantity:** 1    **Engine App:** GP    **Turbo Arrangement:**  
**Hertz:** 60    **Application Type:** PACKAGE-DIE    **Engine Rating:** PGS    **Strategy:**  
**Rating Type:** STANDBY    **Certification:** EPA TIER-3 2005 - ----

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### General Performance Data 1

GEN W/F EKW	PERCENT LOAD	ENGINE POWER BHP	ENGINE BMEP PSI	FUEL BSFC LB/BHP-HR	FUEL RATE GPH	INTAKE MFLD TEMP DEG F	INTAKE MFLD P IN-HG	INTAKE AIR FLOW CFM	EXH MFLD TEMP DEG F	EXH STACK TEMP DEG F	EXH GAS FLOW CFM
250	100	398	326.05	0.34	19.36	122.36	77.94	879.34	1,145.48	853.88	2,242.48
225	90	359	294.14	0.35	17.73	121.64	74.33	854.62	1,096.88	824.9	2,129.48
200	80	321	262.81	0.35	16.25	122.18	70.86	829.9	1,052.06	801.32	2,023.53
187.5	75	302	247.58	0.36	15.53	122.54	69.15	815.77	1,031	791.42	1,974.09
175	70	284	232.21	0.36	14.77	122.36	66.75	798.11	1,012.1	784.22	1,914.06
150	60	247	202.04	0.37	13.18	122.18	60.77	748.67	974.84	770.18	1,776.33
125	50	211	172.45	0.38	11.57	121.82	53.36	688.64	938.48	756.5	1,613.88
100	40	177	144.6	0.39	9.93	121.28	43.5	607.41	902.66	743.18	1,412.59
75	30	142	116.03	0.4	8.16	120.92	32.6	519.13	861.08	728.78	1,190.11
62.5	25	124	101.38	0.41	7.26	120.56	27.04	473.22	837.86	720.86	1,077.1
50	20	106	86.44	0.42	6.31	120.38	21.38	423.78	813.02	712.76	957.03
25	10	69	56.13	0.45	4.36	120.38	11.99	346.08	669.2	610.52	716.89



## Engine Heat Rejection Data

GEN W/F EKW	PERCENT LOAD	REJ TO JW BTU/MN	REJ TO ATMOS BTU/MN	REJ TO EXHAUST BTU/MN	EXH RCOV TO 350F BTU/MN	FROM OIL CLR BTU/MN	FROM AFT CLR BTU/MN	WORK ENERGY BTU/MN	LHV ENERGY BTU/MN	HHV ENERGY BTU/MN
250	100	5,971.3	1,950.6	15,184.3	8,189.3	2,223.6	4,515.5	16,890.4	41,799.4	44,529.1
225	90	5,516.4	1,768.7	14,103.7	7,450.0	2,035.9	4,145.8	15,241.1	38,273.4	40,775.7
200	80	5,175.2	1,666.3	13,136.9	6,824.4	1,865.3	3,764.8	13,591.9	35,031.9	37,306.6
187.5	75	5,004.5	1,592.4	12,682.0	6,540.0	1,780.0	3,565.7	12,795.7	33,439.5	35,657.4
175	70	4,833.9	1,495.7	12,170.2	6,255.7	1,694.7	3,349.6	12,056.4	31,790.3	33,894.4
150	60	4,492.7	1,319.4	11,146.5	5,687.0	1,512.7	2,849.2	10,464.1	28,434.9	30,254.8
125	50	4,151.5	1,165.8	9,952.2	5,061.4	1,325.1	2,303.2	8,928.6	24,909.0	26,558.2
100	40	3,867.1	1,199.9	8,587.3	4,265.2	1,137.4	1,632.2	7,506.8	21,383.1	22,747.9
75	30	3,412.2	1,160.2	7,108.7	3,525.9	932.7	1,012.3	6,028.2	17,572.8	18,710.2
62.5	25	3,184.7	1,057.8	6,369.4	3,127.8	830.3	745.0	5,232.0	15,582.3	16,606.0
50	20	2,900.4	887.2	5,630.1	2,729.8	722.2	506.1	4,492.7	13,535.0	14,445.0
25	10	2,388.5	716.6	3,810.3	1,592.4	500.5	170.6	2,900.4	9,383.5	9,952.2

**EMISSIONS DATA**

EPA TIER-3 2005 - ---- \*\*\*\*\* G5  
 Gaseous emissions data measurement are consistent with those described in  
 in 40 CFR, EU 97/68/EC, ECE Regulation No. 96 and ISO 8178 for measuring  
 HC, CO, PM and NOx.

Gaseous emissions values are WEIGHTED CYCLE AVERAGES and are in compliance  
 with the following non-road regulations:

LOCALITY	AGENCY/LEVEL	MAX LIMITS - g/kw-hr		
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U. S. (incl Calif)	EPA/Tier 3	CO:3.5	NOx + HC:4.0	PM:0.2
Europe	EU/Stage-IIIA	CO:3.5	NOx + HC:4.0	PM:0.2

REFERENCE EXHAUST STACK DIAMETER	--
WET EXHAUST MASS	4,012.4 LB/HR
WET EXHAUST FLOW (852.80 F STACK TEMP )	2,245.31 CFM
WET EXHAUST FLOW RATE ( 32 DEG F AND 29.98 IN HG )	841.00 STD CFM
DRY EXHAUST FLOW RATE ( 32 DEG F AND 29.98 IN HG )	770.57 STD CFM
FUEL FLOW RATE	19 GAL/HR

**RATED SPEED "Not to exceed data"**

GEN PWR EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL NOX (AS NO2) LB/HR	TOTAL CO LB/HR	TOTAL HC LB/HR	PART MATTER LB/HR	OXYGEN IN EXHAUST PERCENT
250	100	398	3.1700	.6000	.1700	.1400	10.1000
187.5	75	302	1.8000	.6000	.2200	.1500	11.5000
125	50	211	1.1200	.4800	.2300	.1100	12.7000
62.5	25	124	.6900	.6100	.1800	.1000	13.6000
25	10	69	.5400	.5900	.1800	.0700	15.0000

**RATED SPEED "Nominal Data"**

GEN PWR EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL NOX (AS NO2) LB/HR	TOTAL CO LB/HR	TOTAL HC LB/HR	TOTAL CO2 LB/HR	PART MATTER LB/HR	OXYGEN IN EXHAUST PERCENT
250	100	398	2.6200	.3200	.0900	427.3	.0700	10.1000
187.5	75	302	1.4800	.3200	.1200	343.1	.0700	11.5000
125	50	211	.9300	.2500	.1200	255.3	.0600	12.7000
62.5	25	124	.5700	.3200	.1000	156.4	.0500	13.6000
25	10	69	.4500	.3200	.0900	93.8	.0400	15.0000

**Altitude Capability Data(Corrected Power Altitude Capability)**

<b>Ambient Operating Temp.</b>	<b>50 F</b>	<b>68 F</b>	<b>86 F</b>	<b>104 F</b>	<b>122 F</b>	<b>NORMAL</b>
<b>Altitude</b>						
0 F	398.28 hp	398.28 hp	398.28 hp	398.28 hp	398.28 hp	398.28 hp
984.25 F	398.28 hp	398.28 hp	398.28 hp	398.28 hp	398.28 hp	398.28 hp
1,640.42 F	398.28 hp	398.28 hp	398.28 hp	398.28 hp	388.9 hp	398.28 hp
3,280.84 F	398.28 hp	398.28 hp	390.24 hp	378.17 hp	366.1 hp	398.28 hp
4,921.26 F	392.92 hp	379.51 hp	367.44 hp	355.37 hp	344.64 hp	379.51 hp
6,561.68 F	370.12 hp	356.71 hp	344.64 hp	333.91 hp	323.19 hp	360.73 hp
8,202.1 F	347.32 hp	335.26 hp	324.53 hp	313.8 hp	304.41 hp	341.96 hp
9,842.52 F	325.87 hp	315.14 hp	304.41 hp	295.02 hp	285.64 hp	324.53 hp
11,482.94 F	305.75 hp	295.02 hp	285.64 hp	276.25 hp	268.2 hp	308.43 hp
13,123.36 F	286.98 hp	276.25 hp	268.2 hp	258.82 hp	250.77 hp	292.34 hp
14,763.78 F	268.2 hp	258.82 hp	250.77 hp	242.72 hp	234.68 hp	277.59 hp

**The powers listed above and all the Powers displayed are Corrected Powers**

**Identification Reference and Notes**

<b>Engine Arrangement:</b>	2575707	<b>Lube Oil Press @ Rated Spd(PSI):</b>	49.5
<b>Effective Serial No:</b>	S9L00001	<b>Piston Speed @ Rated Eng SPD (FT/Min):</b>	1,592.5
<b>Primary Engine Test Spec:</b>	0K6612	<b>Max Operating Altitude(FT):</b>	3,280.8
<b>Performance Parm Ref:</b>	TM5739	<b>PEEC Elect Control Module Ref</b>	
<b>Performance Data Ref:</b>	DM8501	<b>PEEC Personality Cont Mod Ref</b>	
<b>Aux Coolant Pump Perf Ref:</b>			
<b>Cooling System Perf Ref:</b>		<b>Turbocharger Model</b>	S310-1.25 VTF
<b>Certification Ref:</b>	EPA TIER 3	<b>Fuel Injector</b>	
<b>Certification Year:</b>	2005	<b>Timing-Static (DEG):</b>	--
<b>Compression Ratio:</b>	16.1	<b>Timing-Static Advance (DEG):</b>	--
<b>Combustion System:</b>	DI	<b>Timing-Static (MM):</b>	--
<b>Aftercooler Temperature (F):</b>	120	<b>Unit Injector Timing (MM):</b>	--
<b>Crankcase Blowby Rate(CFH):</b>	--	<b>Torque Rise (percent)</b>	--
<b>Fuel Rate (Rated RPM) No Load (Gal/HR):</b>	--	<b>Peak Torque Speed RPM</b>	--
<b>Lube Oil Press @ Low Idle Spd(PSI):</b>	42.5	<b>Peak Torque (LB/FT):</b>	--

**Reference  
Number: DM8501**

EPA TIER-3 2005----G5

**Parameters  
Reference: TM5739**

GEN SET - PACKAGED - DIESEL

TOLERANCES:

AMBIENT AIR CONDITIONS AND FUEL USED WILL AFFECT THESE VALUES.  
EACH OF THE VALUES MAY VARY IN ACCORDANCE WITH THE FOLLOWING  
TOLERANCES.

ENGINE POWER	+/-	3%
EXHAUST STACK TEMPERATURE	+/-	8%
GENERATOR POWER	+/-	5%
INLET AIR FLOW	+/-	5%
INTAKE MANIFOLD PRESSURE - GAGE	+/-	10%
EXHAUST FLOW	+/-	6%
SPECIFIC FUEL CONSUMPTION	+/-	3%
FUEL RATE	+/-	5%
HEAT REJECTION	+/-	5%
HEAT REJECTION EXHAUST ONLY	+/-	10%

CONDITIONS:

ENGINE PERFORMANCE IS CORRECTED TO INLET AIR STANDARD CONDITIONS  
OF 99 KPA (29.31 IN HG) AND 25 DEG C (77 DEG F).

THESE VALUES CORRESPOND TO THE STANDARD ATMOSPHERIC PRESSURE AND  
TEMPERATURE IN ACCORDANCE WITH SAE J1349. ALSO INCLUDED IS A  
CORRECTION TO STANDARD FUEL GRAVITY OF 35 DEGREES API HAVING A  
LOWER HEATING VALUE OF 42,780 KJ/KG (18,390 BTU/LB) WHEN USED AT  
29 DEG C (84.2 DEG F) WHERE THE DENSITY IS 838.9 G/L (7.002  
LB/GAL).

THE CORRECTED PERFORMANCE VALUES SHOWN FOR CATERPILLAR ENGINES WILL  
APPROXIMATE THE VALUES OBTAINED WHEN THE OBSERVED PERFORMANCE  
DATA IS CORRECTED TO SAE J1349, ISO 3046-2 & 8665 & 2288 & 9249 &  
1585, EEC 80/1269 AND DIN70020 STANDARD REFERENCE CONDITIONS.

ENGINES ARE EQUIPPED WITH STANDARD ACCESSORIES; LUBE OIL, FUEL  
PUMP AND JACKET WATER PUMP. THE POWER REQUIRED TO DRIVE  
AUXILIARIES MUST BE DEDUCTED FROM THE GROSS OUTPUT TO ARRIVE AT THE  
NET POWER AVAILABLE FOR THE EXTERNAL (FLYWHEEL) LOAD. TYPICAL  
AUXILIARIES INCLUDE COOLING FANS, AIR COMPRESSORS, AND CHARGING  
ALTERNATORS.

RATINGS MUST BE REDUCED TO COMPENSATE FOR ALTITUDE AND/OR AMBIENT  
TEMPERATURE CONDITIONS ACCORDING TO THE APPLICABLE DATA SHOWN ON  
THE PERFORMANCE DATA SET.

GEN SET - PACKAGED - DIESEL

ALTITUDE:

ALTITUDE CAPABILITY - THE RECOMMENDED REDUCED POWER VALUES FOR  
SUSTAINED ENGINE OPERATION AT SPECIFIC ALTITUDE LEVELS AND AMBIENT  
TEMPERATURES.

COLUMN "N" DATA - THE FLYWHEEL POWER OUTPUT AT NORMAL AMBIENT  
TEMPERATURE.

AMBIENT TEMPERATURE - TO BE MEASURED AT THE AIR CLEANER AIR INLET  
DURING NORMAL ENGINE OPERATION.

NORMAL TEMPERATURE - THE NORMAL TEMPERATURE AT VARIOUS SPECIFIC  
ALTITUDE LEVELS IS FOUND ON TM2001.

THE GENERATOR POWER CURVE TABULAR DATA REPRESENTS THE NET  
ELECTRICAL POWER OUTPUT OF THE GENERATOR.

GENERATOR SET RATINGS  
EMERGENCY STANDBY POWER (ESP)

OUTPUT AVAILABLE WITH VARYING LOAD FOR THE DURATION OF AN EMERGENCY OUTAGE. AVERAGE POWER OUTPUT IS 70% OF THE ESP RATING. TYPICAL OPERATION IS 50 HOURS PER YEAR, WITH MAXIMUM EXPECTED USAGE OF 200 HOURS PER YEAR.

STANDBY POWER RATING

OUTPUT AVAILABLE WITH VARYING LOAD FOR THE DURATION OF AN EMERGENCY OUTAGE. AVERAGE POWER OUTPUT IS 70% OF THE STANDBY POWER RATING. TYPICAL OPERATION IS 200 HOURS PER YEAR, WITH MAXIMUM EXPECTED USAGE OF 500 HOURS PER YEAR.

PRIME POWER RATING

OUTPUT AVAILABLE WITH VARYING LOAD FOR AN UNLIMITED TIME. AVERAGE POWER OUTPUT IS 70% OF THE PRIME POWER RATING. TYPICAL PEAK DEMAND IS 100% OF PRIME RATED EKW WITH 10% OVERLOAD CAPABILITY FOR EMERGENCY USE FOR A MAXIMUM OF 1 HOUR IN 12. OVERLOAD OPERATION CANNOT EXCEED 25 HOURS PER YEAR.

CONTINUOUS POWER RATING

OUTPUT AVAILABLE WITH NON-VARYING LOAD FOR AN UNLIMITED TIME. AVERAGE POWER OUTPUT IS 70-100% OF THE CONTINUOUS POWER RATING. TYPICAL PEAK DEMAND IS 100% OF CONTINUOUS RATED EKW FOR 100% OF OPERATING HOURS.

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