



## GEN SET PACKAGE PERFORMANCE DATA [7RN01429]

SEPTEMBER 13, 2012

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Performance Number: DM4501

Change Level:

<b>Sales Model:</b> 3516BDITA	<b>Combustion:</b> DI	<b>Aspr:</b> TA
<b>Engine Power:</b> 1825 W/F EKW 1880 W/O F EKW 2,628 HP	<b>Speed:</b> 1,800 RPM	<b>After Cooler:</b> SCAC
<b>Manifold Type:</b> DRY	<b>Governor Type:</b> ADEM	<b>After Cooler Temp(F):</b> 140
<b>Turbo Quantity:</b> 4	<b>Engine App:</b> GP	<b>Turbo Arrangement:</b> Parallel
<b>Hertz:</b> 60	<b>Application Type:</b> PACKAGE-DIE	<b>Engine Rating:</b> PGS
<b>Rating Type:</b> PRIME	<b>Certification:</b> 2000 EPA	<b>Strategy:</b>

### General Performance Data

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
1,825	100	2593	270.93	0.33	123.13	176	73.71	5,812.8	1,107.14	807.8	14,256.54
1,642.5	90	2338	244.25	0.33	111.61	170.96	66.96	5,487.9	1,063.4	782.24	13,172.38
1,460	80	2084	217.85	0.34	100.81	167.54	60.5	5,155.95	1,028.66	763.52	12,187.1
1,368.8	75	1958	204.51	0.34	95.42	165.74	57.09	4,972.31	1,011.74	757.04	11,682.1
1,277.5	70	1831	191.31	0.34	89.84	163.58	52.77	4,735.7	995	753.62	11,117.07
1,095	60	1579	165.06	0.35	78.62	159.44	44.18	4,258.95	961.52	746.96	9,955.21
912.5	50	1328	138.66	0.35	67.28	155.3	35.62	3,782.2	928.22	740.3	8,740.39
730	40	1080	112.84	0.36	56	151.7	27.33	3,308.99	879.26	721.94	7,497.31
547.5	30	830	86.73	0.38	44.57	148.82	19.16	2,828.71	813.38	689.72	6,240.11
456.3	25	704	73.54	0.39	38.78	147.38	15.13	2,588.57	773.78	668.3	5,604.44
365	20	576	60.19	0.4	33	146.48	11.82	2,362.55	721.4	633.02	4,968.78
182.5	10	320	33.36	0.47	21.32	145.4	6.37	1,938.78	588.92	535.1	3,690.39

### General Performance Data 2

GEN W/F EKW	PERCENT LOAD	ENGINE POWER BHP	COMPRESS OUT PRESS IN-HG	COMPRESS OUT TEMP DEG F
1,825	100	2593	73.74	418.82
1,642.5	90	2338	67.07	394.88
1,460	80	2084	60.74	371.66
1,368.8	75	1958	57.36	359.78
1,277.5	70	1831	53.04	345.38
1,095	60	1579	44.45	314.6
912.5	50	1328	35.89	281.12
730	40	1080	27.69	244.76
547.5	30	830	19.69	207.86
456.3	25	704	15.81	189.14
365	20	576	12.53	172.4
182.5	10	320	7.05	141.44

## 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
1,825	100	40,605.1	7,677.4	98,441.8	49,533.7	13,193.8	25,193.4	109,986.4	264,672.4	281,904.0
1,642.5	90	37,761.6	7,336.2	89,399.5	43,960.4	11,999.5	21,838.0	99,124.2	239,820.3	255,459.5
1,460	80	34,975.0	6,995.0	80,925.8	39,354.0	10,805.3	18,539.6	88,375.8	215,764.3	229,811.2
1,368.8	75	33,610.1	6,881.3	76,660.6	37,306.6	10,236.6	16,890.4	83,030.0	203,764.8	217,072.3
1,277.5	70	32,188.3	6,710.6	72,452.2	35,202.5	9,667.9	15,298.0	77,684.3	191,765.2	204,276.6
1,095	60	29,231.1	6,426.3	63,978.6	31,107.8	8,416.7	12,170.2	66,935.9	167,823.0	178,742.0
912.5	50	26,160.1	6,085.1	55,505.0	27,070.1	7,222.5	9,212.9	56,301.2	143,880.8	153,264.3
730	40	22,918.6	5,800.7	46,974.5	22,463.6	6,028.2	6,483.2	45,837.1	120,109.2	127,957.2
547.5	30	19,392.6	5,459.5	38,102.8	17,459.1	4,777.1	4,037.8	35,202.5	95,882.6	102,195.2
456.3	25	17,515.9	5,288.9	33,553.2	14,899.9	4,151.5	2,900.4	29,856.7	83,598.7	89,058.2
365	20	15,582.3	5,118.3	28,833.0	11,999.5	3,525.9	1,819.8	24,454.1	71,144.2	75,807.5
182.5	10	11,487.7	4,663.3	18,994.5	6,312.6	2,274.8	-56.9	13,535.0	45,723.4	48,737.5

## EXHAUST Sound Data: 4.92 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
1,825	100	115	106	120	116	108	107	108	108	106
1,642.5	90	115	105	120	116	108	106	107	107	105
1,460	80	114	104	119	115	107	105	106	106	104
1,368.8	75	113	103	118	114	106	105	106	106	104
1,277.5	70	113	103	118	114	106	104	105	105	103
1,095	60	111	102	116	112	104	103	104	104	102
912.5	50	110	101	115	111	103	102	103	103	101
730	40	109	99	114	110	102	100	102	102	100
547.5	30	108	98	113	109	101	99	100	100	98
456.3	25	107	97	112	108	100	98	99	99	97
365	20	106	96	111	107	99	97	99	98	96
182.5	10	104	94	109	105	97	95	96	96	94

**EXHAUST Sound Data: 22.97 FEET**

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
1,825	100	102	94	110	104	96	94	95	95	92
1,642.5	90	101	93	109	103	95	93	94	94	91
1,460	80	100	92	108	102	94	92	93	93	90
1,368.8	75	100	91	108	102	93	92	92	92	89
1,277.5	70	99	91	107	101	93	91	92	92	89
1,095	60	98	89	106	100	92	90	91	91	88
912.5	50	97	88	105	99	90	89	90	89	87
730	40	96	87	104	98	89	88	88	88	85
547.5	30	94	86	102	96	88	86	87	87	84
456.3	25	93	85	101	96	87	85	86	86	83
365	20	92	84	100	95	86	84	85	85	82
182.5	10	90	82	98	92	84	82	83	83	80

**EXHAUST Sound Data: 49.21 FEET**

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
1,825	100	95	87	103	98	89	87	88	88	85
1,642.5	90	95	86	103	97	88	87	87	87	84
1,460	80	94	85	102	96	87	86	86	86	83
1,368.8	75	93	84	101	95	87	85	86	86	83
1,277.5	70	93	84	101	95	86	85	85	85	82
1,095	60	91	83	99	94	85	83	84	84	81
912.5	50	90	82	98	92	84	82	83	83	80
730	40	89	80	97	91	83	81	82	82	79
547.5	30	88	79	96	90	81	80	80	80	77
456.3	25	87	78	95	89	80	79	79	79	76
365	20	86	77	94	88	79	78	78	78	76
182.5	10	84	75	92	86	77	76	76	76	73

**MECHANICAL Sound Data: 3.28 FEET**

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
1,825	100	111	113	123	114	105	101	101	99	103
1,642.5	90	111	113	123	114	105	101	101	99	103
1,460	80	111	113	123	114	105	101	101	99	103
1,368.8	75	111	113	123	114	105	101	101	99	103
1,277.5	70	111	113	123	114	105	101	101	99	103
1,095	60	111	113	123	114	105	101	101	99	103
912.5	50	111	113	123	114	105	101	101	99	103
730	40	111	113	123	114	105	101	101	99	103
547.5	30	111	113	123	114	105	101	101	99	103
456.3	25	111	113	123	114	105	101	101	99	103
365	20	111	113	123	114	105	101	101	99	103
182.5	10	111	113	123	114	105	101	101	99	103

**MECHANICAL Sound Data: 22.97 FEET**

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCJ 8000HZ DB
1,825	100	98	100	109	100	92	89	90	87	91
1,642.5	90	98	100	109	100	92	89	90	87	91
1,460	80	98	100	109	100	92	89	90	87	91
1,368.8	75	98	100	109	100	92	89	90	87	91
1,277.5	70	98	100	109	100	92	89	90	87	91
1,095	60	98	100	109	100	92	89	90	87	91
912.5	50	98	100	109	100	92	89	90	87	91
730	40	98	100	109	100	92	89	90	87	91
547.5	30	98	100	109	100	92	89	90	87	91
456.3	25	98	100	109	100	92	89	90	87	91
365	20	98	100	109	100	92	89	90	87	91
182.5	10	98	100	109	100	92	89	90	87	91

**MECHANICAL Sound Data: 49.21 FEET**

<b>GEN W/F EKW</b>	<b>PERCENT LOAD</b>	<b>OVERALL SOUND DB(A)</b>	<b>OBCF 63HZ DB</b>	<b>OBCF 125HZ DB</b>	<b>OBCF 250HZ DB</b>	<b>OBCF 500HZ DB</b>	<b>OBCF 1000HZ DB</b>	<b>OBCF 2000HZ DB</b>	<b>OBCF 4000HZ DB</b>	<b>OBCF 8000HZ DB</b>
1,825	100	92	94	103	94	86	84	84	82	86
1,642.5	90	92	94	103	94	86	84	84	82	86
1,460	80	92	94	103	94	86	84	84	82	86
1,368.8	75	92	94	103	94	86	84	84	82	86
1,277.5	70	92	94	103	94	86	84	84	82	86
1,095	60	92	94	103	94	86	84	84	82	86
912.5	50	92	94	103	94	86	84	84	82	86
730	40	92	94	103	94	86	84	84	82	86
547.5	30	92	94	103	94	86	84	84	82	86
456.3	25	92	94	103	94	86	84	84	82	86
365	20	92	94	103	94	86	84	84	82	86
182.5	10	92	94	103	94	86	84	84	82	86

**EMISSIONS DATA****Certification:** 2000 EPA

REFERENCE EXHAUST STACK DIAMETER	8 IN
WET EXHAUST MASS	26,433.4 LB/HR
WET EXHAUST FLOW (807.80 F STACK TEMP )	14,267.14 CFM
WET EXHAUST FLOW RATE ( 32 DEG F AND 29.98 IN HG )	5,559.00 STD CFM
DRY EXHAUST FLOW RATE ( 32 DEG F AND 29.98 IN HG )	5,092.38 STD CFM
FUEL FLOW RATE	123 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	DRY SMOKE OPACITY PERCENT	BOSCH SMOKE NUMBER
1,825	100	2593	52.6900	.9700	.9700	.4800	11.0000	1.4000	1.2800
1,368.8	75	1958	29.3600	1.0900	.9600	.4900	12.0000	1.7000	1.2800
912.5	50	1328	17.6600	1.3700	.7600	.4300	12.7000	2.5000	1.2800
456.3	25	704	9.4800	1.4400	.5300	.3000	14.0000	2.1000	1.2800
182.5	10	320	6.7300	2.0500	.5200	.1800	15.9000	1.5000	1.2800

**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	DRY SMOKE OPACITY PERCENT	BOSCH SMOKE NUMBER
1,825	100	2593	43.9000	.5400	.7300	2,571	.3400	11.0000	1.4000	1.2800
1,368.8	75	1958	24.4700	.6000	.7300	1,984.3	.3500	12.0000	1.7000	1.2800
912.5	50	1328	14.7200	.7600	.5700	1,392.4	.3100	12.7000	2.5000	1.2800
456.3	25	704	7.9000	.8000	.4000	803.3	.2100	14.0000	2.1000	1.2800
182.5	10	320	5.6100	1.1400	.3900	428.4	.1300	15.9000	1.5000	1.2800

## Altitude Capability Data(Corrected Power Altitude Capability)

Ambient Operating Temperature	50 F	68 F	86 F	104 F	122 F	NORMAL
Altitude						
0 F	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp
984.25 F	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp
1,640.42 F	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp
3,280.84 F	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,628.4 hp
4,921.26 F	2,628.4 hp	2,628.4 hp	2,628.4 hp	2,593.53 hp	2,513.07 hp	2,628.4 hp
6,561.68 F	2,628.4 hp	2,604.26 hp	2,518.44 hp	2,437.97 hp	2,362.88 hp	2,628.4 hp
8,202.1 F	2,534.53 hp	2,447.36 hp	2,366.9 hp	2,290.46 hp	2,220.73 hp	2,496.98 hp
9,842.52 F	2,378.97 hp	2,297.17 hp	2,222.07 hp	2,151 hp	2,083.95 hp	2,370.92 hp
10,498.69 F	2,318.62 hp	2,239.5 hp	2,165.75 hp	2,097.36 hp	2,031.65 hp	2,322.65 hp

Theoretical Power and all the Power Data are Corrected Power

## Identification Reference and Note

Engine Arrangement:	1736942	Lube Oil Pressure	Rated Spd(PS):	55.8
Effective Serial No:	7RN01092	Piston Speed	Rated Eng SPD(FT Min):	2,244.1
Primary Engine Test Spec:	0K2410	Maximum Operating Altitude(FT):		6,561.7
Performance Parm Ref:	TM5739	PEEC Elect Control Module Ref		
Performance Data Ref:	DM4501	PEEC Personality Cont Mod Ref		
Auxiliary Coolant Pump Perf Ref:	DM1286			
Cooling System Perf Ref:	DM1299	Turbocharger Model		BTV8501-1.23
Certification Ref:	EPA	Fuel Injector		1008774
Certification Year:	2000	Timing Static (DEG):		--
Compression Ratio:	14.0	Timing Static Advance (DEG):		--
Combustion System:	DI	Timing Static (MM):		--
Aftercooler Temperature (F):	140	Injector Timing (MM):		64.3
Crankcase Blowby Rate(CFH):	2,627.4	Torque Rise (percent)		--
Fuel Rate (Rated RPM) No Load(Gal HR):	14.5	Peak Torque Speed RPM		--
Lube Oil Pressure Low Idle Spd(PS):	20.0	Peak Torque (L FT):		--



Reference  
Number: DM4501

Parameter  
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.

Power	+/- 3%
Exhaust Stack Temperature	+/- 8%
Generator Power	+/- 5%
Inlet Airflow	+/- 5%
Intake Manifold Pressure-gage	+/- 10%
Exhaust Flow	+/- 6%
Specific Fuel Consumption	+/- 3%
Fuel Rate	+/- 5%
Heat Rejection	+/- 5%
Heat Rejection - Exhaust Only	+/- 10%

### T4i Tolerance E ce tion

**C15:** Power Tolerance +4% , -0%

**C27:** Power Tolerance +0% , -4%

### 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.

### 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.

#### **SOUND DEFINITIONS:**

Sound Power : [DM8702](#)

Sound Pressure : [TM7080](#)

Date Released : 03/14/12

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Caterpillar Confidential: **Green**

Content Owner: Shane Gilles

Web Master(s): [PSG Web Based Systems Support](#)

Current Date: Thursday, September 13, 2012 10:36:38 AM

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