

Performance Number:TM4587

Change Level: 11 ▼

Sales Model: 3508 DITA	Combustion: DI	Aspr: TA
Engine Power: 745 W/O F EKW 1,078 HP	Speed: 1,500 RPM	After Cooler: JWAC
Manifold Type: DRY	Governor Type: WDWRD	After Cooler Temp(F): 180
Turbo Quantity: Hertz: 50	Engine App: GS	Turbo Arrangement:
Rating Type: PRIME	Application Type: GEN SET-DIE	Engine Rating: GS
	Certification:	Strategy:

General Performance Data

GEN PWR 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
745	100	1065	267.16	0.34	51.94	202.28	67.96	2,256.61	1,187.06	854.6	5,731.58
670.5	90	955	239.61	0.34	46.49	198.86	58.93	2,058.85	1,142.96	834.62	5,145.35
596	80	847	212.48	0.34	41.29	196.7	50.02	1,854.02	1,101.92	815	4,562.66
558.8	75	794	198.99	0.34	38.83	195.98	45.72	1,755.14	1,081.4	806.72	4,294.27
521.5	70	740	185.65	0.34	36.4	195.26	41.58	1,659.79	1,060.7	798.44	4,032.94
447	60	634	158.96	0.35	31.62	194	33.73	1,476.15	1,019.3	782.06	3,538.53
372.5	50	529	132.57	0.36	26.95	192.74	26.44	1,306.64	977.54	765.68	3,082.97
298	40	426	106.89	0.37	22.43	191.48	20.23	1,161.85	912.56	728.96	2,666.26
223.5	30	322	80.64	0.39	17.88	190.22	14.95	1,034.72	815.36	665.06	2,263.67
186.3	25	269	67.44	0.41	15.59	189.68	12.59	981.75	759.2	626.9	2,069.44
149	20	216	54.24	0.43	13.31	188.96	10.39	928.78	698	584.6	1,885.81
74.5	10	109	27.27	0.56	8.72	187.88	6.63	836.96	559.58	486.5	1,529.13

Engine Heat Rejection Data

GEN PWR 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
745	100	25,705.2	7,279.3	40,491.4	21,383.1	5,914.5	7,450.0	45,154.7	111,465.0	118,744.3
670.5	90	23,032.3	6,824.4	36,055.5	18,653.3	5,288.9	5,743.9	40,548.2	99,806.6	106,289.8
596	80	20,416.3	6,426.3	31,790.3	16,094.2	4,720.2	4,151.5	35,941.8	88,660.1	94,404.0
558.8	75	19,108.3	6,198.8	29,742.9	14,956.8	4,435.9	3,469.1	33,667.0	83,371.2	88,773.9
521.5	70	17,857.1	5,971.3	27,752.5	13,876.2	4,151.5	2,843.5	31,392.2	78,139.2	83,200.6
447	60	15,411.7	5,573.2	23,885.3	11,885.8	3,582.8	1,706.1	26,899.4	67,845.8	72,281.6
372.5	50	13,023.2	5,175.2	20,188.8	10,066.0	3,014.1	739.3	22,406.7	57,836.7	61,590.1
298	40	10,748.4	4,777.1	16,776.6	8,075.5	2,502.3	.0	18,084.6	48,168.8	51,296.6
223.5	30	8,473.6	4,379.0	13,535.0	5,971.3	1,990.4	-511.8	13,648.8	38,387.2	40,889.4
186.3	25	7,393.1	4,151.5	11,885.8	4,890.8	1,763.0	-739.3	11,430.8	33,439.5	35,657.4
149	20	6,255.7	3,924.0	10,350.3	3,924.0	1,478.6	-853.0	9,156.0	28,548.7	30,425.4
74.5	10	4,094.6	3,525.9	7,279.3	1,990.4	966.8	-1,023.7	4,606.5	18,653.3	19,904.5

EXHAUST Sound Data: 4.92 FEET

GEN PWR 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
745	100	113	107	118	113	106	104	106	106	103
670.5	90	112	107	117	112	105	103	105	106	102
596	80	111	106	116	111	104	102	104	105	101
558.8	75	110	105	115	111	103	102	104	104	101
521.5	70	110	105	115	110	103	101	103	104	100
447	60	109	104	114	109	102	100	102	103	99

372.5	50	108	102	113	108	101	99	101	101	98
298	40	107	101	112	107	100	98	100	100	97
223.5	30	105	100	110	106	98	97	98	99	96
186.3	25	105	99	110	105	98	96	98	98	95
149	20	104	98	109	104	97	95	97	97	94
74.5	10	102	96	107	102	95	93	95	95	92

EXHAUST Sound Data: 22.97 FEET

GEN PWR 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
745	100	99	96	107	101	92	91	92	93	88
670.5	90	98	95	106	100	91	90	92	92	87
596	80	98	94	105	99	90	90	91	91	87
558.8	75	97	94	105	99	90	89	90	91	86
521.5	70	97	93	104	98	89	89	90	90	86
447	60	96	92	103	97	88	88	89	89	85
372.5	50	94	91	102	96	87	86	88	88	83
298	40	93	90	101	95	86	85	86	87	82
223.5	30	92	89	99	93	84	84	85	86	81
186.3	25	91	88	99	93	84	83	84	85	80
149	20	90	87	98	92	83	82	83	84	79
74.5	10	88	85	96	90	81	80	81	82	77

EXHAUST Sound Data: 49.21 FEET

GEN PWR 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
745	100	93	89	100	94	85	85	86	86	82
670.5	90	92	89	99	93	84	84	85	86	81
596	80	91	88	98	92	83	83	84	85	80
558.8	75	90	87	98	92	83	82	84	84	79
521.5	70	90	87	97	91	82	82	83	84	79
447	60	89	86	96	90	81	81	82	83	78
372.5	50	88	85	95	89	80	80	81	82	77
298	40	87	83	94	88	79	79	80	80	76
223.5	30	85	82	93	87	78	77	78	79	74
186.3	25	85	81	92	86	77	77	78	78	74
149	20	84	80	91	85	76	76	77	77	73
74.5	10	82	78	89	83	74	74	75	75	71

MECHANICAL Sound Data: 3.28 FEET

GEN PWR 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
745	100	101	93	97	96	93	96	96	94	98
670.5	90	101	93	97	96	93	96	96	94	98
596	80	101	93	97	96	93	96	96	94	98
558.8	75	101	93	97	96	93	96	96	94	98
521.5	70	101	93	97	96	93	96	96	94	98
447	60	101	93	97	96	93	96	96	94	98
372.5	50	101	93	97	96	93	96	96	94	98
298	40	101	93	97	96	93	96	96	94	98
223.5	30	101	93	97	96	93	96	96	94	98
186.3	25	101	93	97	96	93	96	96	94	98
149	20	101	93	97	96	93	96	96	94	98
74.5	10	99	91	95	94	91	94	94	92	96

MECHANICAL Sound Data: 22.97 FEET

GEN PWR	PERCENT LOAD	OVERALL SOUND	OBCF 63HZ	OBCF 125HZ	OBCF 250HZ	OBCF 500HZ	OBCF 1000HZ	OBCF 2000HZ	OBCF 4000HZ	OBCJ 8000HZ
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EKW		DB(A)	DB	DB	DB	DB	DB	DB	DB	DB
745	100	89	81	85	84	81	84	84	82	86
670.5	90	89	81	85	84	81	84	84	82	86
596	80	89	81	85	84	81	84	84	82	86
558.8	75	89	81	85	84	81	84	84	82	86
521.5	70	89	81	85	84	81	84	84	82	86
447	60	89	81	85	84	81	84	84	82	86
372.5	50	89	81	85	84	81	84	84	82	86
298	40	89	81	85	84	81	84	84	82	86
223.5	30	89	81	85	84	81	84	84	82	86
186.3	25	89	81	85	84	81	84	84	82	86
149	20	89	81	85	84	81	84	84	82	86
74.5	10	87	79	83	82	79	82	82	80	84

MECHANICAL Sound Data: 49.21 FEET

GEN PWR 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
745	100	83	75	79	78	75	78	78	76	80
670.5	90	83	75	79	78	75	78	78	76	80
596	80	83	75	79	78	75	78	78	76	80
558.8	75	83	75	79	78	75	78	78	76	80
521.5	70	83	75	79	78	75	78	78	76	80
447	60	83	75	79	78	75	78	78	76	80
372.5	50	83	75	79	78	75	78	78	76	80
298	40	83	75	79	78	75	78	78	76	80
223.5	30	83	75	79	78	75	78	78	76	80
186.3	25	83	75	79	78	75	78	78	76	80
149	20	83	75	79	78	75	78	78	76	80
74.5	10	81	73	77	76	73	76	76	74	78

EMISSIONS DATA

Certification:

To properly apply this data you must refer to performance parameter DM1176 for additional information...

REFERENCE EXHAUST STACK DIAMETER	8 IN
WET EXHAUST MASS	10,260.3 LB/HR
WET EXHAUST FLOW (854.60 F STACK TEMP)	5,735.11 CFM
WET EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	2,156.00 STD CFM
DRY EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	1,975.50 STD CFM
FUEL FLOW RATE	52 GAL/HR

RATED SPEED "Potential site variation"

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
745	100	1065	29.2000	1.5000	.3800	.2200	10.2000	.9000	1.2800
558.8	75	955	23.0800	1.6400	.3800	.1900	10.7000	1.0000	1.2800
372.5	50	847	16.7100	1.4200	.2500	.1700	11.4000	1.3000	1.2800
186.3	25	794	9.9500	1.2900	.2200	.1300	13.9000	1.3000	1.2800
74.5	10	740	5.5000	1.2700	.2600	.1000	16.4000	1.2000	1.2800

RATED SPEED "Nominal Data"

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
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745	100	1065	24.3400	.8300	.2800	1,102.4	.1600	10.2000	.9000	1.2800
558.8	75	794	19.2300	.9100	.2900	825.7	.1300	10.7000	1.0000	1.2800
372.5	50	529	13.9200	.7900	.1900	571.2	.1200	11.4000	1.3000	1.2800
186.3	25	269	8.2900	.7200	.1700	327.1	.1000	13.9000	1.3000	1.2800
74.5	10	109	4.5800	.7100	.1900	178.4	.0700	16.4000	1.2000	1.2800

Altitude Capability Data(Corrected Power Altitude Capability)

Ambient Operating Temp. Altitude	50 F	68 F	86 F	104 F	122 F	NORMAL
0FT	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp
984.25FT	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp
1,640.42FT	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp
3,280.84FT	1,078.18hp	1,078.18hp	1,078.18hp	1,078.18hp	1,044.65hp	1,078.18hp
4,921.26FT	1,078.18hp	1,078.18hp	1,048.68hp	1,015.15hp	982.97hp	1,078.18hp
6,561.68FT	1,055.38hp	1,019.18hp	985.65hp	953.47hp	923.96hp	1,028.56hp
8,202.1FT	991.01hp	957.49hp	925.3hp	895.8hp	868.98hp	977.6hp
9,842.52FT	930.67hp	898.48hp	868.98hp	842.16hp	815.34hp	927.99hp
10,498.69FT	907.87hp	877.03hp	847.52hp	820.7hp	795.22hp	909.21hp

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

Identification Reference and Notes

Engine Arrangement:	2W8406	Lube Oil Press @ Rated Spd(PSI):	64.5
Effective Serial No:	23Z06681	Piston Speed @ Rated Eng SPD(FT/Min):	1,870.1
Primary Engine Test Spec:	2T9143	Max Operating Altitude(FT):	5,029.5
Performance Parm Ref:	TM5738	PEEC Elect Control Module Ref	
Performance Data Ref:	TM4587	PEEC Personality Cont Mod Ref	
Aux Coolant Pump Perf Ref:			
Cooling System Perf Ref:	TD3095	Turbocharger Model	UTV8302-1.08
Certification Ref:		Fuel Injector	1111775
Certification Year:		Timing-Static (DEG):	--
Compression Ratio:	13	Timing-Static Advance (DEG):	--
Combustion System:	DI	Timing-Static (MM):	--
Aftercooler Temperature (F):	180	Unit Injector Timing (MM):	88.3
Crankcase Blowby Rate(CFH):	540.3	Torque Rise (percent)	--
Fuel Rate (Rated RPM) No Load(Gal/HR):	4.2	Peak Torque Speed RPM	--
Lube Oil Press @ Low Idle Spd(PSI):	20.0	Peak Torque (LB.FT):	--

Reference

Number: 23Z03951 --

Parameters

Reference: TM5738 **GEN SET - 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 Exceptions

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 J1995. 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 J1995, 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 KW 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

Caterpillar Confidential: **Green**
Content Owner: Commercial Processes Division
Web Master(s): [PSG Web Based Systems Support](#)
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