

# GEN SET PACKAGE PERFORMANCE DATA [3FZ04726]

AUGUST 23, 2021

(3FZ04726)-ENGINE (AFE00402)-GENERATOR (9EP02579)-GENSET

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Performance Number: DM3428

Change Level:

<b>Sales Model:</b> 3412CDITA	<b>Combustion:</b> DI	<b>Aspr:</b> TA
<b>Engine Power:</b>		
550 W/F EKW 574 W/O F EKW 823 HP	<b>Speed:</b> 1,800 RPM	<b>After Cooler:</b> JWAC
<b>Manifold Type:</b> DRY	<b>Governor Type:</b> HYDRA	<b>After Cooler Temp(F):</b> --
<b>Turbo Quantity:</b> 2	<b>Engine App:</b> GP	<b>Turbo Arrangement:</b>
<b>Hertz:</b> 60	<b>Application Type:</b> PACKAGE-DIE	<b>Engine Rating:</b> PGS
<b>Rating Type:</b> STANDBY	<b>Certification:</b>	<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
550	100	824	219.59	0.35	40.66	193.46	49.42	1,755.14	1,138.1	893.48	4,654.48
495	90	745	198.7	0.34	36.69	190.94	42.94	1,628.01	1,100.48	879.44	4,269.55
440	80	666	177.67	0.35	32.92	188.6	36.48	1,500.87	1,063.94	865.22	3,888.15
412.5	75	627	167.23	0.35	31.09	187.52	33.26	1,433.78	1,046.66	858.02	3,690.39
385	70	588	156.64	0.35	29.3	186.44	30.03	1,363.15	1,029.2	850.82	3,492.62
330	60	509	135.76	0.35	25.73	184.64	23.6	1,228.95	994.46	835.52	3,097.1
275	50	430	114.73	0.36	22.19	183.02	17.44	1,091.22	956.48	816.26	2,701.57
220	40	355	94.57	0.37	18.81	181.58	12.82	974.69	894.2	771.98	2,330.77
165	30	277	73.97	0.39	15.37	180.32	8.82	865.21	814.1	711.32	1,963.5
137.5	25	238	63.38	0.4	13.63	179.78	7.08	812.24	767.12	674.24	1,783.39
110	20	198	52.79	0.42	11.89	179.24	5.48	773.39	713.84	632.12	1,620.94
55	10	116	30.89	0.5	8.35	178.52	2.78	713.36	588.92	532.22	1,349.02

## 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
550	100	20,245.7	6,369.4	32,017.7	17,686.5	2,826.4	4,179.9	34,918.1	87,807.1	93,551.0
495	90	18,312.1	5,516.4	29,060.5	15,923.6	2,667.2	3,230.2	31,562.8	79,276.6	84,451.8
440	80	16,435.4	4,833.9	26,217.0	14,274.3	2,496.6	2,365.8	28,264.3	71,144.2	75,750.7
412.5	75	15,582.3	4,663.3	24,795.3	13,421.3	2,405.6	1,962.0	26,615.1	67,163.3	71,599.2
385	70	14,672.4	4,492.7	23,316.7	12,568.2	2,320.3	1,586.7	24,909.0	63,296.2	67,390.8
330	60	12,909.5	4,151.5	20,530.0	10,919.0	2,149.7	915.6	21,610.6	55,561.9	59,144.7
275	50	11,203.4	3,867.1	17,686.5	9,269.8	1,979.1	358.3	18,255.2	47,941.3	51,012.3
220	40	9,554.1	3,924.0	14,786.2	7,450.0	1,785.7	-45.5	15,070.5	40,605.1	43,278.0
165	30	7,791.2	3,867.1	11,885.8	5,630.1	1,558.2	-352.6	11,772.1	33,155.1	35,373.1
137.5	25	6,938.1	3,810.3	10,464.1	4,720.2	1,444.5	-472.0	10,066.0	29,401.7	31,335.3
110	20	6,085.1	3,696.5	9,156.0	3,867.1	1,325.1	-563.0	8,359.9	25,648.3	27,354.4
55	10	4,265.2	3,241.6	6,710.6	2,274.8	1,063.5	-699.5	4,947.7	18,027.8	19,222.0

**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
550	100	109	98	108	109	108	101	99	97	88
495	90	108	97	107	108	107	100	98	97	87
440	80	107	97	107	107	107	100	97	96	86
412.5	75	107	96	106	107	106	99	97	96	86
385	70	106	96	106	106	106	99	96	95	85
330	60	106	95	105	106	105	98	96	94	85
275	50	105	94	104	105	104	97	95	94	84
220	40	104	93	103	104	103	96	94	93	83
165	30	103	92	102	103	102	95	93	92	82
137.5	25	102	92	102	103	102	95	93	91	82
110	20	102	91	101	102	101	94	92	91	81
55	10	101	90	100	101	100	93	91	90	80

**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
550	100	95	89	98	93	93	88	87	87	79
495	90	94	88	98	93	92	87	86	86	78
440	80	94	87	97	92	92	86	85	85	77
412.5	75	93	87	97	92	91	86	85	85	77
385	70	93	87	96	91	91	86	85	85	77
330	60	92	86	95	90	90	85	84	84	76
275	50	91	85	94	89	89	84	83	83	75
220	40	90	84	94	89	88	83	82	82	74
165	30	90	83	93	88	87	82	81	81	73
137.5	25	89	83	92	87	87	82	81	81	73
110	20	89	82	92	87	86	81	80	80	72
55	10	87	81	91	86	85	80	79	79	71

**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
550	100	89	82	92	87	86	81	80	80	72
495	90	88	81	91	86	86	80	79	79	71
440	80	87	81	90	85	85	80	79	79	71
412.5	75	87	80	90	85	85	79	78	78	70
385	70	86	80	89	84	84	79	78	78	70
330	60	86	79	89	84	83	78	77	77	69
275	50	85	78	88	83	83	77	76	76	68
220	40	84	77	87	82	82	76	75	75	67
165	30	83	76	86	81	81	75	74	74	67
137.5	25	82	76	86	81	80	75	74	74	66
110	20	82	76	85	80	80	75	74	74	66
55	10	81	74	84	79	79	73	72	72	64

**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
550	100	105	104	113	104	101	99	97	82	78
495	90	105	104	113	104	101	99	97	82	78
440	80	105	104	113	104	101	99	97	82	78
412.5	75	105	104	113	104	101	99	97	82	78
385	70	105	104	113	104	101	99	97	82	78
330	60	105	104	113	104	101	99	97	82	78
275	50	105	104	113	104	101	99	97	82	78
220	40	105	104	113	104	101	99	97	82	78
165	30	105	104	113	104	101	99	97	82	78
137.5	25	105	104	113	104	101	99	97	82	78
110	20	105	104	113	104	101	99	97	82	78
55	10	105	104	113	104	101	99	97	82	78

**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
550	100	92	92	100	92	87	86	86	79	70
495	90	92	92	100	92	87	86	86	79	70
440	80	92	92	100	92	87	86	86	79	70
412.5	75	92	92	100	92	87	86	86	79	70
385	70	92	92	100	92	87	86	86	79	70
330	60	92	92	100	92	87	86	86	79	70
275	50	92	92	100	92	87	86	86	79	70
220	40	92	92	100	92	87	86	86	79	70
165	30	92	92	100	92	87	86	86	79	70
137.5	25	92	92	100	92	87	86	86	79	70
110	20	92	92	100	92	87	86	86	79	70
55	10	92	92	100	92	87	86	86	79	70

**MECHANICAL 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
550	100	86	86	94	87	82	80	79	74	63
495	90	86	86	94	87	82	80	79	74	63
440	80	86	86	94	87	82	80	79	74	63
412.5	75	86	86	94	87	82	80	79	74	63
385	70	86	86	94	87	82	80	79	74	63
330	60	86	86	94	87	82	80	79	74	63
275	50	86	86	94	87	82	80	79	74	63
220	40	86	86	94	87	82	80	79	74	63
165	30	86	86	94	87	82	80	79	74	63
137.5	25	86	86	94	87	82	80	79	74	63
110	20	86	86	94	87	82	80	79	74	63
55	10	86	86	94	87	82	80	79	74	63

**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	8,044.7 LB/HR
WET EXHAUST FLOW (892.40 F STACK TEMP )	4,654.48 CFM
WET EXHAUST FLOW RATE ( 32 DEG F AND 29.98 IN HG )	1,666.00 STD CFM
DRY EXHAUST FLOW RATE ( 32 DEG F AND 29.98 IN HG )	1,525.95 STD CFM
FUEL FLOW RATE	40 GAL/HR

**RATED SPEED "Potential site variation"**

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
550	100	824	13.8000	.4900	.1300	.8700	10.0000	4.9000	1.5700
412.5	75	627	11.1900	.2900	.1600	.4200	10.4000	3.5000	1.3600
275	50	430	8.5100	.1600	.1900	.3200	11.2000	2.6000	1.2800
137.5	25	238	5.7200	.1400	.1800	.2600	13.4000	1.7000	1.2800
55	10	116	3.6200	.1500	.2700	.2200	15.8000	1.4000	1.2900

**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
550	100	824	11.4000	.2600	.0700	911.1	.4400	10.0000	4.9000	1.5700
412.5	75	627	9.2500	.1600	.0900	695.2	.2200	10.4000	3.5000	1.3600
275	50	430	7.0300	.0900	.1000	494.5	.1600	11.2000	2.6000	1.2800
137.5	25	238	4.7300	.0800	.1000	307.9	.1300	13.4000	1.7000	1.2800
55	10	116	3.0000	.0800	.1400	189.2	.1100	15.8000	1.4000	1.2900

### Altitude Capability Data(Corrected Power Altitude Capability)

Ambient Operating Temp.	50 F	68 F	86 F	104 F	122 F	NORMAL
<b>Altitude</b>						
0 FT	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp
984.25 FT	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp
1,640.42 FT	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp
3,280.84 FT	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp
4,921.26 FT	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp	823.39 hp
6,561.68 FT	823.39 hp	823.39 hp	823.39 hp	809.98 hp	784.5 hp	823.39 hp
8,202.1 FT	823.39 hp	812.66 hp	785.84 hp	760.36 hp	737.56 hp	823.39 hp
9,842.52 FT	789.86 hp	763.04 hp	737.56 hp	714.76 hp	691.97 hp	787.18 hp
11,482.94 FT	741.58 hp	716.1 hp	691.97 hp	670.51 hp	649.05 hp	746.95 hp
13,123.36 FT	694.65 hp	670.51 hp	649.05 hp	627.6 hp	608.82 hp	708.06 hp
14,763.78 FT	650.39 hp	628.94 hp	607.48 hp	588.71 hp	569.93 hp	671.85 hp
16,404.2 FT	608.82 hp	587.37 hp	568.59 hp	549.82 hp	533.73 hp	635.64 hp
18,044.62 FT	568.59 hp	549.82 hp	531.04 hp	513.61 hp	498.86 hp	602.12 hp
19,685.04 FT	531.04 hp	512.27 hp	496.18 hp	480.09 hp	465.33 hp	569.93 hp

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

#### Identification Reference and Notes

<b>Engine Arrangement:</b>	1483598	<b>Lube Oil Press @ Rated Spd(PSI):</b>	63.8
<b>Effective Serial No:</b>	3FZ00384	<b>Piston Speed @ Rated Eng SPD(FT/Min):</b>	1,773.6
<b>Primary Engine Test Spec:</b>	2T9814	<b>Max Operating Altitude(FT):</b>	8,366.1
<b>Performance Parm Ref:</b>	TM5739	<b>PEEC Elect Control Module Ref</b>	
<b>Performance Data Ref:</b>	DM3428	<b>PEEC Personality Cont Mod Ref</b>	
<b>Aux Coolant Pump Perf Ref:</b>			
<b>Cooling System Perf Ref:</b>		<b>Turbocharger Model</b>	TV8112-1.08VO
<b>Certification Ref:</b>		<b>Fuel Injector</b>	4W7020
<b>Certification Year:</b>		<b>Timing-Static (DEG):</b>	30.00
<b>Compression Ratio:</b>	14.5	<b>Timing-Static Advance (DEG):</b>	3.50
<b>Combustion System:</b>	DI	<b>Timing-Static (MM):</b>	13.00
<b>Aftercooler Temperature (F):</b>	--	<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>	60.6	<b>Peak Torque (LB.FT):</b>	--

Reference  
Number: DM3428

EMODEL GS014  
THIS DATA CURVE IS APPLICABLE TO TEST SPEC 0K0510  
WITH ENGINE ARRANGEMENT 148-3599.

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THIS PERFORMANCE CURVE IS ALSO APPLICABLE WITH TEST SPECS  
0K0525 (HYDRA) AND 0K0527 (PSG) ON ENGINE ARRANGEMENTS  
7E0159 (H) AND 7E0160 (P).

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.

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**

<b>C15:</b> Power Tolerance	+4% , -0%
<b>C27:</b> 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](#)

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Caterpillar Confidential: **Green**

Content Owner: Commercial Processes Division

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

Current Date: 8/23/2021, 10:58:52 AM

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