



GEN SET PACKAGE PERFORMANCE DATA [SYC00115]

DECEMBER 02, 2019

(SYC00115)-ENGINE (G5C00075)-GENERATOR (SXC00314)-GENSET

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Performance Number: DM7714

Change Level: ▼

| | | |
|---|--|----------------------------------|
| Sales Model: C32 DITA | Combustion: DI | Aspr: TA |
| Engine Power: 1000 W/F EKW 1042 W/O F EKW 1,502 HP | Speed: 1,800 RPM | After Cooler: ATAAC |
| Manifold Type: DRY | Governor Type: ELEC | After Cooler Temp(F): 120 |
| Turbo Quantity: 2 | Engine App: GP | Turbo Arrangement: |
| Hertz: 60 | Application Type: PACKAGE-DIE | Engine Rating: PGS |
| Rating Type: STANDBY | Certification: EPA TIER-2 2006 - ---- | Strategy: |

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 |
|-------------|--------------|------------------|-----------------|---------------------|---------------|------------------------|---------------------|---------------------|---------------------|----------------------|------------------|
| 1,000 | 100 | 1502 | 337.36 | 0.35 | 74.34 | 123.44 | 69.21 | 2,998.22 | 1,288.76 | 964.94 | 8,387.24 |
| 900 | 90 | 1358 | 305.02 | 0.34 | 66.44 | 110.66 | 61.18 | 2,789.86 | 1,218.74 | 923.36 | 7,560.88 |
| 800 | 80 | 1215 | 272.97 | 0.35 | 60.81 | 105.98 | 57.6 | 2,705.11 | 1,177.16 | 891.32 | 7,158.29 |
| 750 | 75 | 1145 | 257.01 | 0.35 | 58.01 | 103.64 | 55.82 | 2,662.73 | 1,156.64 | 875.84 | 6,957 |
| 700 | 70 | 1074 | 241.2 | 0.36 | 54.66 | 100.04 | 52.24 | 2,560.32 | 1,133.6 | 860.36 | 6,617.97 |
| 600 | 60 | 933 | 209.58 | 0.36 | 47.37 | 91.22 | 42.85 | 2,284.86 | 1,077.62 | 829.76 | 5,784.55 |
| 500 | 50 | 793 | 178.11 | 0.35 | 40.13 | 82.58 | 33.52 | 2,012.94 | 1,011.2 | 799.34 | 4,954.65 |
| 400 | 40 | 658 | 147.65 | 0.35 | 33.26 | 75.56 | 24.88 | 1,751.61 | 935.78 | 759.2 | 4,163.6 |
| 300 | 30 | 519 | 116.61 | 0.36 | 26.58 | 70.34 | 17 | 1,504.41 | 843.62 | 698.54 | 3,397.27 |
| 250 | 25 | 449 | 100.8 | 0.36 | 23.27 | 68.36 | 13.33 | 1,384.34 | 790.88 | 661.46 | 3,019.41 |
| 200 | 20 | 378 | 84.85 | 0.37 | 20 | 66.74 | 9.83 | 1,264.27 | 733.46 | 619.7 | 2,648.6 |
| 100 | 10 | 233 | 52.36 | 0.41 | 13.79 | 64.22 | 5.18 | 1,126.54 | 597.2 | 502.52 | 2,076.5 |

General Performance Data 2

| GEN W/F EKW | PERCENT LOAD | ENGINE POWER BHP | COMPRESS OUT PRESS IN-HG | COMPRESS OUT TEMP DEG F |
|-------------|--------------|------------------|--------------------------|-------------------------|
| 1,000 | 100 | 1502 | 74.24 | 416.84 |
| 900 | 90 | 1358 | 66.01 | 379.22 |
| 800 | 80 | 1215 | 62.31 | 363.38 |
| 750 | 75 | 1145 | 60.47 | 355.46 |
| 700 | 70 | 1074 | 56.68 | 340.52 |
| 600 | 60 | 933 | 46.76 | 301.64 |
| 500 | 50 | 793 | 36.93 | 262.94 |
| 400 | 40 | 658 | 27.78 | 225.68 |
| 300 | 30 | 519 | 19.46 | 188.42 |
| 250 | 25 | 449 | 15.55 | 169.7 |
| 200 | 20 | 378 | 11.87 | 150.98 |
| 100 | 10 | 233 | 7.11 | 125.06 |

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 |
|----------------|-----------------|------------------------|---------------------------|-----------------------------|----------------------------------|---------------------------|---------------------------|--------------------------|----------------------|----------------------|
| 1,000 | 100 | 21,212.5 | 12,227.0 | 59,940.9 | 34,520.0 | 8,587.3 | 14,843.0 | 63,694.3 | 161,396.7 | 171,917.7 |
| 900 | 90 | 19,222.0 | 10,919.0 | 52,945.9 | 29,799.8 | 7,677.4 | 12,625.1 | 57,609.2 | 143,880.8 | 153,264.3 |
| 800 | 80 | 17,459.1 | 10,464.1 | 48,908.1 | 27,070.1 | 6,995.0 | 11,772.1 | 51,524.1 | 131,540.0 | 140,070.5 |
| 750 | 75 | 16,549.1 | 10,122.8 | 46,974.5 | 25,818.9 | 6,653.8 | 11,317.1 | 48,510.0 | 125,398.1 | 133,530.5 |
| 700 | 70 | 15,639.2 | 10,009.1 | 44,244.8 | 24,056.0 | 6,312.6 | 10,407.2 | 45,552.8 | 118,118.7 | 125,796.2 |
| 600 | 60 | 13,876.2 | 9,497.3 | 37,818.5 | 20,075.1 | 5,459.5 | 8,132.4 | 39,581.4 | 102,252.0 | 108,905.8 |
| 500 | 50 | 12,283.9 | 8,246.1 | 31,847.1 | 16,492.3 | 4,606.5 | 6,142.0 | 33,610.1 | 86,442.2 | 92,129.2 |
| 400 | 40 | 10,862.2 | 7,051.9 | 26,046.4 | 12,966.3 | 3,810.3 | 4,435.9 | 27,866.2 | 71,599.2 | 76,262.5 |
| 300 | 30 | 9,497.3 | 6,085.1 | 20,302.6 | 9,383.5 | 3,071.0 | 3,014.1 | 22,008.6 | 57,154.2 | 60,850.8 |
| 250 | 25 | 8,814.8 | 5,573.2 | 17,515.9 | 7,677.4 | 2,672.9 | 2,388.5 | 19,051.4 | 49,988.6 | 53,287.1 |
| 200 | 20 | 8,189.3 | 5,004.5 | 14,786.2 | 6,028.2 | 2,274.8 | 1,819.8 | 16,037.3 | 42,993.6 | 45,780.2 |
| 100 | 10 | 6,085.1 | 4,322.1 | 10,122.8 | 3,014.1 | 1,592.4 | 1,137.4 | 9,895.4 | 29,629.2 | 31,562.8 |

EMISSIONS DATA

EPA TIER-2 2006 - ---- ***** B5

Gaseous emissions data measurements are consistent with those described in
EPA 40 CFR PART 89 SUBPART D 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 | | |
|-------------------|--------------|----------------------|--------------|--------|
| U.S. (incl Calif) | EPA/TIER-2 | CO:3.5 | NOx + HC:6.4 | PM:0.2 |

| | |
|--|------------------|
| REFERENCE EXHAUST STACK DIAMETER | -- |
| WET EXHAUST MASS | 13,789.9 LB/HR |
| WET EXHAUST FLOW (964.40 F STACK TEMP) | 8,390.77 CFM |
| WET EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG) | 2,840.00 STD CFM |
| DRY EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG) | 2,601.63 STD CFM |
| FUEL FLOW RATE | 74 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 |
|-------------------|-----------------|------------------------|-----------------------------------|----------------------|----------------------|-------------------------|------------------------------------|
| 1,000 | 100 | 1502 | 19.3300 | 1.1800 | .0800 | .1500 | 9.2000 |
| 750 | 75 | 1145 | 11.6600 | .6400 | .1900 | .1100 | 10.8000 |
| 500 | 50 | 793 | 7.2700 | 1.2300 | .2200 | .1800 | 11.7000 |
| 250 | 25 | 449 | 4.9500 | 1.8500 | .1900 | .2400 | 13.2000 |
| 100 | 10 | 233 | 3.1600 | 2.8000 | .3400 | .2000 | 15.3000 |

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 |
|-------------------|-----------------|------------------------|-----------------------------------|----------------------|----------------------|-----------------------|-------------------------|------------------------------------|
| 1,000 | 100 | 1502 | 15.9700 | .6300 | .0400 | 1,675.8 | .0700 | 9.2000 |
| 750 | 75 | 1145 | 9.6400 | .3400 | .1000 | 1,299.5 | .0600 | 10.8000 |
| 500 | 50 | 793 | 6.0100 | .6600 | .1200 | 890.2 | .0900 | 11.7000 |
| 250 | 25 | 449 | 4.0900 | .9900 | .1000 | 511.4 | .1200 | 13.2000 |
| 100 | 10 | 233 | 2.6100 | 1.5000 | .1800 | 301.2 | .1000 | 15.3000 |

Altitude Capability Data(Corrected Power Altitude Capability)

| Ambient Operating Temp. | 50 F | 68 F | 86 F | 104 F | 122 F | NORMAL |
|--------------------------------|-------------|-------------|-------------|--------------|--------------|---------------|
| Altitude | | | | | | |
| 0 FT | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp |
| 984.25 FT | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp |
| 1,640.42 FT | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp |
| 3,280.84 FT | 1,501.94 hp | 1,501.94 hp | 1,501.94 hp | 1,497.92 hp | 1,450.98 hp | 1,501.94 hp |
| 4,921.26 FT | 1,501.94 hp | 1,501.94 hp | 1,455.01 hp | 1,409.41 hp | 1,365.16 hp | 1,501.94 hp |
| 6,561.68 FT | 1,465.73 hp | 1,414.78 hp | 1,367.84 hp | 1,324.93 hp | 1,283.36 hp | 1,428.19 hp |
| 8,202.1 FT | 1,375.89 hp | 1,328.95 hp | 1,286.04 hp | 1,244.47 hp | 1,205.58 hp | 1,357.11 hp |
| 9,842.52 FT | 1,292.74 hp | 1,248.49 hp | 1,206.92 hp | 1,168.03 hp | 1,131.82 hp | 1,287.38 hp |
| 11,482.94 FT | 1,212.28 hp | 1,170.71 hp | 1,131.82 hp | 1,095.61 hp | 1,062.09 hp | 1,221.67 hp |
| 13,123.36 FT | 1,135.84 hp | 1,096.95 hp | 1,060.75 hp | 1,027.22 hp | 995.04 hp | 1,158.64 hp |
| 14,763.78 FT | 1,064.77 hp | 1,027.22 hp | 993.7 hp | 961.51 hp | 932.01 hp | 1,098.3 hp |

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

Identification Reference and Notes

| | | | |
|---|------------|--|-----------|
| Engine Arrangement: | 2537557 | Lube Oil Press @ Rated Spd(PSI): | 58.6 |
| Effective Serial No: | SYC00001 | Piston Speed @ Rated Eng SPD(FT/Min): | 1,909.4 |
| Primary Engine Test Spec: | 0K6255 | Max Operating Altitude(FT): | 4,921.3 |
| Performance Parm Ref: | TM5739 | PEEC Elect Control Module Ref | |
| Performance Data Ref: | DM7714 | PEEC Personality Cont Mod Ref | |
| Aux Coolant Pump Perf Ref: | | | |
| Cooling System Perf Ref: | | Turbocharger Model | GTA5518BS |
| Certification Ref: | EPA TIER 2 | Fuel Injector | |
| Certification Year: | 2006 | Timing-Static (DEG): | -- |
| Compression Ratio: | 15.0 | Timing-Static Advance (DEG): | -- |
| Combustion System: | DI | Timing-Static (MM): | -- |
| Aftercooler Temperature (F): | 120 | Unit Injector Timing (MM): | -- |
| Crankcase Blowby Rate(CFH): | -- | Torque Rise (percent) | -- |
| Fuel Rate (Rated RPM) No Load(Gal/HR): | -- | Peak Torque Speed RPM | -- |
| Lube Oil Press @ Low Idle Spd(PSI): | 37.4 | Peak Torque (LB.FT): | -- |

**Reference
Number: DM7714**

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**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

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