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**RECIPROCATING INTERNAL COMBUSTION ENGINES
AIR GENERAL PERMIT REGISTRATION FORM**

RECEIVED

MAR 31 2010

Part II. Notification to Permitting Office
(Detach and submit to appropriate permitting office; keep copy onsite)

Instructions: To give notice to the Department of an eligible facility's intent to use this air general permit, the owner or operator of the facility must detach and complete this part of the Air General Permit Registration Form and submit it to the appropriate Department of Environmental Protection or local air pollution control program office which has permitting authority. Please type or print clearly all information, and enclose the appropriate air general permit registration processing fee pursuant to Rule 62-4.050, F.A.C. (\$100 as of the effective date of this form)

Bureau of Air Monitoring
Mobile Sources

0251323-001

Registration Type

Check one:

INITIAL REGISTRATION - Notification of intent to:

- Construct and operate a proposed new facility.
 Operate an existing facility not currently using an air general permit (e.g., a facility proposing to go from an air operation permit to an air general permit).

RE-REGISTRATION (for facilities currently using an air general permit) - Notification of intent to:

- Continue operating the facility after expiration of the current term of air general permit use.
 Continue operating the facility after a change of ownership.
 Make an equipment change requiring re-registration pursuant to Rule 62-210.310(2)(e), F.A.C., or any other change not considered an administrative correction under Rule 62-210.310(2)(d), F.A.C.

Surrender of Existing Air Operation Permit(s) - For Initial Registrations Only

If the facility currently holds one or more air operation permits, such permit(s) must be surrendered by the owner or operator upon the effective date of this air general permit. In such case, check the first box, and indicate the operation permits being surrendered. If no air operation permits are held by the facility, check the second box.

- All existing air operation permits for this facility are hereby surrendered upon the effective date of this air general permit; specifically permit number(s): _____
 No air operation permits currently exist for this facility.

General Facility Information

Facility Owner/Company Name (Name of corporation, agency, or individual owner who or which owns, leases, operates, controls, or supervises the facility.)

City of North Miami Beach

Site Name (Name, if any, of the facility site; e.g., Plant A, Metropolis Plant, etc. If more than one facility is owned, a registration form must be completed for each.)

Norwood-Oeffler Water Treatment Plant

Facility Location (Provide the physical location of the facility, not necessarily the mailing address.)

Street Address: 19150 NW 8 Avenue

City: Miami Gardens

County: Miami-Dade

Zip Code: 33169-3100

Facility Start-Up Date (Estimated start-up date of proposed new facility.) (N/A for existing facility)

N/A

Owner/Authorized Representative

Name and Position Title (Person who, by signing this form below, certifies that the facility is eligible to use this air general permit.)

Print Name and Title: Karl Thompson, Assistant Director of Public Services

Owner/Authorized Representative Mailing Address

Organization/Firm: City of North Miami Beach
Street Address: 17050 NE 19 Ave
City: North Miami Beach County: Miami-Dade Zip Code: 33162

Owner/Authorized Representative Telephone Numbers

Telephone: (305) 948-2983 Fax: (305) 957-3502
Cell phone (optional):

Facility Contact (If different from Owner/Authorized Representative)

Name and Position Title (Plant manager or person to be contacted regarding day-to-day operations at the facility.)

Print Name and Title: Godfrey Sooklal, Water Production Manager

Facility Contact Mailing Address

Organization/Firm: City of North Miami Beach , Norwood Water Treatment PLant
Street Address: 19150 NW 8 Ave
City: Miami Gardens County: Miami-Dade Zip Code: 33169 - 3100

Facility Contact Telephone Numbers

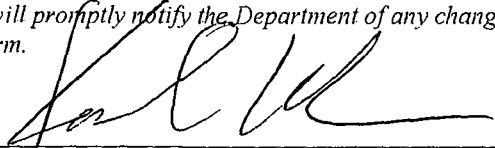
Telephone: (305) 650-0000 Fax: (305) 654-7136
Cell phone (optional):

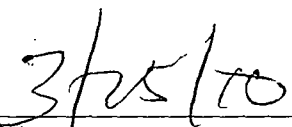
Owner/Authorized Representative Statement

This statement must be signed and dated by the person named above as owner or authorized representative

I, the undersigned, am the owner or authorized representative of the owner or operator of the facility addressed in this Air General Permit Registration Form. I hereby certify, based on information and belief formed after reasonable inquiry, that the facility addressed in this registration form is eligible for use of this air general permit and that the statements made in this registration form are true, accurate and complete. Further, I agree to operate and maintain the facility described in this registration form so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof.

I will promptly notify the Department of any changes to the information contained in this registration form.


Signature


Date

Fuel Consumption

If this is an **initial registration** for reciprocating internal combustion engine operations, provide an estimate of the total amount of fuel expected to be consumed over a 12-month period. Note: the general permit limits fuel consumption by all reciprocating internal combustion engines at the facility to 20,000 gallons per year of gasoline, 250,000 gallons per year of diesel fuel, 1.15 million gallons per year of propane, 40 million standard cubic feet per year of natural gas, or an equivalent prorated amount if multiple fuels are used

43,067 gallons of diesel per year based on 100 hours running time

If this is a **re-registration** for reciprocating internal combustion engine operations, provide the highest 12-month total fuel consumption amount, in appropriate units, for the last five years. Indicate the 12-month period over which this fuel consumption occurred.

Description of Facility

Below, or as an attachment to this form, provide a description of the reciprocating internal combustion engine operations at the facility in sufficient detail to demonstrate the facility's eligibility for use of this air general permit and to provide a basis for tracking any future equipment or process changes at the facility. Describe all air pollutant-emitting processes and equipment at the facility, and identify any air pollution control measures or equipment used.

See attachment.

H. Facility Description

The City of North Miami Beach Norwood-Oeffler Water Treatment Plant (WTP) is a lime softening water treatment facility that in 2001 expanded with addition of 15-MGD of membrane treatment capacity (9-MGD of Nanofiltration and 6-MGD Reverse Osmosis) and 2-MGD raw water blending. This expansion also included additional storage and pumping capacity and a concentrate disposal by deep injection well. This increased the WTP capacity to 32-MGD. The current water system contains 11 raw water supply wells.

Emergency power will be provided to the Norwood-Offler WTP by four (4) diesel powered generators. Two of the generators are existing and serve the off-site wellfield and lime softening side of the plant. The Wellfield generator is a 500kW Caterpillar and the Lime softening is a 1,500 kW Cummins generator.

Two (2) emergency generators were installed with the membrane treatment plant expansion however the switchgear was not installed at that time. This project proposes to install that switch gear and commission them to provide the required emergency power for the membrane side of the plant. The generators are Florida Detroit Diesel rated for 2,000 kW and 2,500 kW.

Area Map Showing Facility Location with Plot Plan

LIST OF DRAWINGS:

Architecture

- CV Cover Sheet
- A-1 Site Plan - Existing Building
- A-2 Existing Building #2
- A-3 Existing Building #4
- A-6.1 Existing Wellfield Elect. Building #6 (For Reference Only)

Structure - Existing Buildings - As Built Drawings

- S-2.2 Process Building #2
- S-2.3 Lower Foundation Plan (For Reference Only)
- S-2.3 Process Building #2
- S-2.3 Upper Foundation Plan (For Reference Only)
- S-2.5 Process Building #2
- S-2.5 Roof Framing Plan (For Reference Only)
- S-2.8 Process Building #2
- S-2.8 Sections (For Reference Only)
- S-2.9A Process Building #2
- S-2.9A Sections (For Reference Only)
- S-2.11 Process Building #2
- S-2.11 Sections (For Reference Only)
- S-2.12 Process Building #2
- S-2.12 Sections (For Reference Only)
- S-2.15 Process Building #2
- S-2.15 Sections (For Reference Only)

Electrical

- E-1 Electrical Symbols and Abbreviations
- E-2 Switchgear No. 1
- E-2 Single-Line Diagram High, Service Pump Building
- E-3 Switchgear No. 2
- E-3 Single-Line Diagram Process Building
- E-5 Process Building Electrical and Generator Rooms
- E-5 Power Plan
- E-6 High Service Pump Building Power Plan
- E-7 Process Building Reverse Osmosis Skids Power & Communication Plan
- E-8 Process Building Nonfiltration Skids Power & Communication Plan
- E-9 Process Building Electrical Room Power & Communication Plan
- E-10 High Service Pump Building Power & Communication Plan
- E-11 5 MG Ground Storage Tank/ Lime Softening HS Pump Building Power & Communication Plan
- E-12 Hypochlorite Building Power & Communication Plan
- E-13 Lighting Panel Schedules

Plumbing

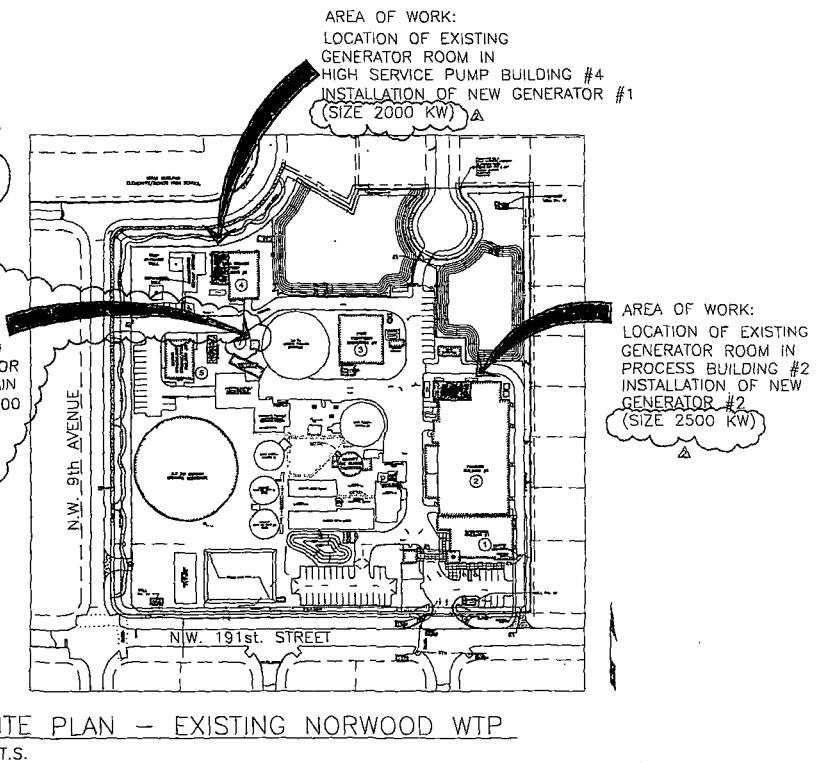
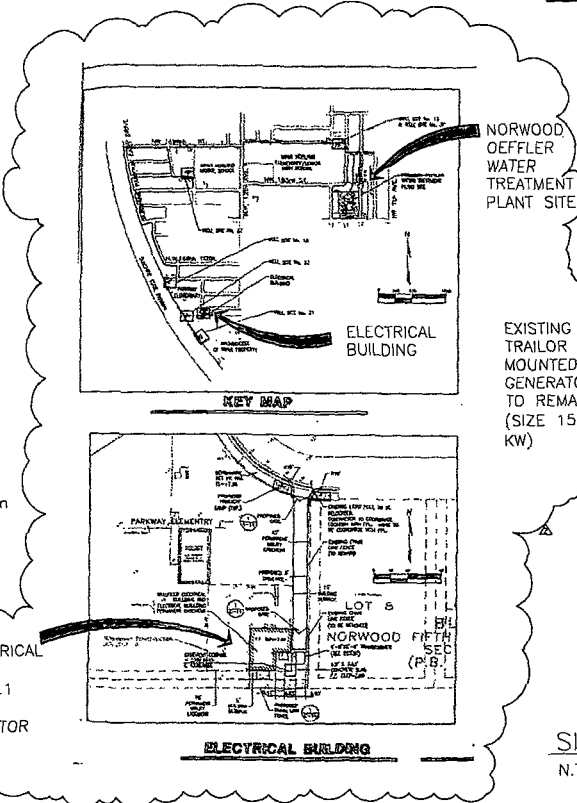
- P-1 Process Building First Floor Plumbing Plan
- P-2 High Service Pump Building Plumbing Plan
- P-3 Plumbing Details

PROJECT DATA

LOCATION: THE NORTHEAST CORNER OF N.W. 9 AVENUE AND NW 191 STREET, MIAMI DADE COUNTY FLORIDA.
 OWNER: CITY OF NORTH MIAMI BEACH
 USE: WATER TREATMENT PLANT FACILITY - EXPANSION OF EXISTING FACILITY
 FOLD NO.: 3021020010021
 ZONING: GP - GOVERNMENT PROPERTY ZONING RESOLUTION NO.2005-17-01

SCOPE OF WORK: INSTALLATION OF TWO NEW GENERATORS IN TWO EXISTING BUILDINGS: PROCESS BUILDING #2 AND HIGH SERVICE PUMP BUILDING #4 IN EXISTING GENERATOR ROOM

EXISTING BUILDINGS AND STRUCTURES	OCCUPANCY CLASSIFICATION	CONSTRUCTION TYPE	SQUARE FOOTAGE
OPERATIONS BUILDING #1	MIXED USE: GROUP B - BUSINESS	TYPE IV PROTECTED	14,233 S.F.
PROCESS BUILDING #2	GROUP F - SPECIAL PURPOSE FACTORY INDUSTRIAL GROUP I4 - HAZARDOUS	TYPE IV UNPROTECTED TYPE IV PROTECTED	20,183 S.F. 11,232 S.F.
HIGH SERVICE PUMP BUILDING #4	GROUP F - SPECIAL PURPOSE FACTORY INDUSTRIAL (FBC SECTION 307.1.3)	TYPE IV UNPROTECTED	2,380 S.F.



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 FL REGISTRATIONS: AAC002142 EB0005022



CITY OF NORTH MIAMI BEACH
 NORWOOD OEFFLER WTP
 GENERATOR INSTALLATION

**EXISTING SITE PLAN
 LIST OF DRAWINGS**

PERMIT DRAWING 01/2010

DATE	REVISIONS	REVISED	CHECKED	DATE	BY	DATE	PROJECT NO.
					DESIGNED	EN 01/10	01405-053
					DRAWN	EN 01/10	SCALE
					CHECKED	EN 01/10	
					QC APPROVAL	EN 01/10	

JAVIER F. SALMAN, P.E.
 REG. NO. AR0014410

A-1
 SHEET 05

Emergency Generator Fuel Consumption & Emissions Summary

City of North Miami Beach

Norwood-Offler Generator Emission Worksheet

Generator #1 Membrane System ~ 2500KW

Use: Emergency Generator

Estimated hours of use from Fuel consumption worksheet: 100 hours/year

Fuel Consumption (Diesel): 17,100 gal/year

Emissions at 100% load:

NO_x – 32,868 g/hr X 100 hr/year X 0.002205 g/lb /2000lb/ton = 3.62 tons/year

CO – 1,022 g/hr X 100 hr/year X 0.002205 g/lb /2000lb/ton = 0.11 tons/year

SO₂ w/ 0.05% sulfur fuel – 275 g/hr X 100 hr/year X 0.002205 g/lb /2000lb/ton = 0.03 tons/year

HC - 1018 g/hr X 100 hr/year X 0.002205 g/lb /2000lb/ton = 0.11 tons/year

Particulates - 206 g/hr X 100 hr/year X 0.002205 g/lb /2000lb/ton = 0.02 tons/year

Generator #2 Membrane System ~ 2000KW

Use: Emergency Generator

Estimated hours of use from Fuel consumption worksheet: 100 hours/year

Fuel Consumption (Diesel): 13,740 gal/year

Emissions at 100% load:

NO_x – 20,285 g/hr X 100 hr/year X 0.002205 g/lb /2000lb/ton = 2.24 tons/year

CO – 1,271 g/hr X 100 hr/year X 0.002205 g/lb /2000lb/ton = 0.14 tons/year

SO₂ w/ 0.05% sulfur fuel – 221 g/hr X 100hr/year X 0.002205 g/lb /2000lb/ton = 0.024 tons/year

HC - 711 g/hr X 100 hr/year X 0.002205 g/lb /2000lb/ton = 0.08 tons/year

Particulates - $176 \text{ g/hr} \times 100 \text{ hr/year} \times 0.002205 \text{ g/lb} / 2000\text{lb/ton} = 0.02 \text{ tons/year}$

Existing Lime Softening Generator– 1500KW

Use: Emergency Generator

Estimated hours of use from Fuel consumption worksheet: 100 hours/year

Fuel Consumption (Diesel): 8,600 gal/year

Emissions at 100% load:

NOx – $15,984 \text{ g/hr} \times 100 \text{ hr/year} \times 0.002205 \text{ g/lb} / 2000\text{lb/ton} = 1.76 \text{ tons/year}$

CO – $2,886 \text{ g/hr} \times 100 \text{ hr/year} \times 0.002205 \text{ g/lb} / 2000\text{lb/ton} = 0.32 \text{ tons/year}$

HC - $888 \text{ g/hr} \times 100 \text{ hr/year} \times 0.002205 \text{ g/lb} / 2000\text{lb/ton} = 0.1 \text{ tons/year}$

Particulates - $555 \text{ g/hr} \times 100 \text{ hr/year} \times 0.002205 \text{ g/lb} / 2000\text{lb/ton} = 0.06 \text{ tons/year}$

Existing Wellfield Generator–500KW

Use: Emergency Generator

Estimated hours of use from Fuel consumption worksheet: 100 hours/year

Fuel Consumption (Diesel): 3,627 gal/year

Emissions at 100% load:

NOx – $8.45 \text{ lb/hr} \times 100 \text{ hr/year} / 2000\text{lb/ton} = 0.42 \text{ tons/year}$

CO – $0.42 \text{ lb/hr} \times 100 \text{ hr/year} / 2000\text{lb/ton} = 0.021 \text{ tons/year}$

HC – $0.06 \text{ lb/hr} \times 100 \text{ hr/year} / 2000\text{lb/ton} = 0.003 \text{ tons/year}$

Particulates – $0.04 \text{ lb/hr} \times 100 \text{ hr/year} / 2000\text{lb/ton} = 0.002 \text{ tons/year}$

Generator– Emissions Summary

Use: Emergency Generators three (3)

Estimated hours of use from Fuel consumption worksheet: 100 hours/year (Each)

Total Fuel Consumption (Diesel): 43,067 gal/year

Emissions at 100% load:

NOx – 8.04 tons/year

CO –0.59 tons/year

SO2 w/ 0.05% sulfur fuel –0.054 tons/year* - no info from Existing Generators

HC - 0.29 tons/year

Particulates - 0.1 tons/year

GENERATOR FUEL CONSUMPTION WORKSHEET

Date: 2/18/10
Facility: Norwood Oeffler Water Treatment
Address: Plant
Permit Number: EL-2009-003348

Process No.:
Folio Number #: 3021020010021
Reviewed by:
Status:

GENERATOR

1. **Type of Fuel:** Diesel Gasoline Natural Gas or Propane

2. **# of Generators:** New: 2
(including new and existing for entire site) Existing:
Gen. #1-2500KW 171.0 Gallon/Hr Gen. #2- 2000KW 137.4 Gallon/Hr

3. **Average Fuel Consumption of
Emergency Generator:**
(gallon/hour)

Total Fuel Consumption = 308.4 Gallon/Hour

4. **Exercise time:**
(hour/week)
1 HR/Week

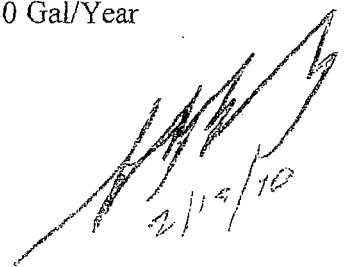
5. **Exercise Fuel Usage:**
(gallon/year)
= (3) x (4) x (52 weeks / yr)
308.4 Gal/HR x 1 HR/Week x 52 WK/Year = 16,036.8 Gal/Year

6. **Estimated Emergency Run Time:**
(hour / year)
48 Hours/Year

7. **Estimated Emergency Fuel Usage:**
(gallon / year)
= (6) x (3)
48 HR/Year x 308.4 Gal/Year = 14,803.2 Gal/Year

8. **Total Estimated Fuel Consumption:**
(gallon / year)
= (5) + (7)
16,036.8 Gal/Year + 14,803.0 Gal/Year = 30,840 Gal/Year

Stephen Bailey, P.E.



Handwritten signature and date: 2/18/10

Florida Detroit Diesel Emergency Generator

2500-kW Model 2500DSE



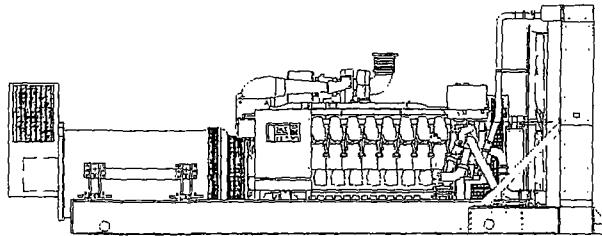
Model: **2500DSE**

380V-13.8kV Diesel



Ratings Range

	60 Hz	50 Hz
Standby: kW	2500	2240
kVA	3125	2800
Prime: kW	2250-2270	2000
kVA	2813-2838	2500



Standard Features

- Your DDC/MTU Power Generation product distributor provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- At 60 Hz, the generator set accepts rated load in one step.
- The generator set complies with ISO 8528-5, Class G3, requirements for transient performance.
- A one-year limited warranty covers all systems and components.
- Alternator features:
 - The pilot-excited, permanent-magnet (PM) alternator provides superior short-circuit capability.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
 - The generator set is direct-mounted to the skid.
 - Electronic engine controls manage the engine.

Generator Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
10M1003	277/480	3	60	2500/3125	3759	2250/2813	3383
10M1004	277/480	3	60	2500/3125	3759	2270/2838	3413
	220/380	3	50	2240/2800	4254	2000/2500	3798
10M1005	220/380	3	50	2240/2800	4254	2000/2500	3798
10M1014	347/600	3	60	2500/3125	3007	2270/2838	2730
10M1016	347/600	3	60	2500/3125	3007	2250/2813	2706
10M1204	1905/3300	3	50	2240/2800	490	2000/2500	437
10M1210	2400/4160	3	60	2500/3125	434	2250/2813	390
	2400/4160	3	60	2500/3125	434	2270/2838	394
10M1211	1905/3300	3	50	2240/2800	490	2000/2500	437
10M1316	3810/6600	3	50	2240/2800	245	2000/2500	219
10M1324	3810/6600	3	50	2240/2800	245	2000/2500	219
	7200/12470	3	60	2500/3125	145	2250/2813	130
10M1414	7620/13200	3	60	2500/3125	137	2250/2813	123
	7970/13800	3	60	2500/3125	131	2250/2813	118
10M1428	7200/12470	3	60	2500/3125	145	2270/2838	131
	7620/13200	3	60	2500/3125	137	2270/2838	124
10M1447	7970/13800	3	60	2500/3125	131	2270/2838	119
10M1447	6350/11000	3	50	2240/2800	147	2000/2500	131
10M1452	6350/11000	3	50	2240/2800	147	2000/2500	131

RATINGS: All three-phase units are rated at 0.8 power factor. **Standby Ratings:** Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. **Prime Power Ratings:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIS-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. **GENERAL GUIDELINES FOR DERATION:** ALTITUDE: Derate 1% per 100 m (328 ft.) elevation above 400 m (1312 ft.). TEMPERATURE: Derate 2.0% per 5°C (9°F) temperature above 40°C (104°F).

Alternator Specifications



Specifications	Generator
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H (380-4160 V), Class F (6600 V) Synthetic, Nonhygroscopic
Temperature rise	130°C Standby
Bearing: quantity, type	2, Sealed
Coupling	Flexible Coupling
Amortisseur windings	Full
Rotor balancing	125% 60 Hz, 150% 50 Hz
Voltage regulation, no-load to full-load (with <0.5% drift due to temp. variation)	3-Phase Sensing, ±0.25%
One-step load acceptance at 60 Hz	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480V 10M1003 (4 bus bar)	5656 (60 Hz), — (50 Hz)
480V, 380V 10M1004 (4 bus bar)	6269 (60 Hz), 4799 (50 Hz)
380V 10M1005 (4 bus bar)	— (60 Hz), 5931 (50 Hz)
600V 10M1014 (4 bus bar)	7112 (60 Hz), — (50 Hz)
600V 10M1016 (4 bus bar)	6300 (60 Hz), — (50 Hz)
3300V 10M1204 (6 lead)	— (60 Hz), 5247 (50 Hz)
4160V 10M1210 (6 lead)	5122 (60 Hz), — (50 Hz)
4160V, 3300V 10M1211 (6 lead)	6402 (60 Hz), 3935 (50 Hz)
6600V 10M1316 (6 lead w/4 bus bar)	— (60 Hz), 5412 (50 Hz)
6600V 10M1324 (6 lead w/4 bus bar)	— (60 Hz), 5141 (50 Hz)
12470V 10M1414 (6 lead w/4 bus bar)	5394 (60 Hz), — (50 Hz)
13200V 10M1414 (6 lead w/4 bus bar)	5822 (60 Hz), — (50 Hz)
13800V 10M1414 (6 lead w/4 bus bar)	6178 (60 Hz), — (50 Hz)
12470V 10M1428 (6 lead w/4 bus bar)	5737 (60 Hz), — (50 Hz)
13200V 10M1428 (6 lead w/4 bus bar)	6206 (60 Hz), — (50 Hz)
13800V 10M1428 (6 lead w/4 bus bar)	6591 (60 Hz), — (50 Hz)
11000V 10M1447 (6 lead w/4 bus bar)	— (60 Hz), 5412 (50 Hz)
11000V 10M1452 (6 lead w/4 bus bar)	— (60 Hz), 5104 (50 Hz)

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Superior voltage waveform from two-thirds pitch windings and skewed stator.
- Digital solid-state, volts-per-hertz voltage regulator with ±0.25% no-load to full-load regulation.
- Brushless alternator with brushless pilot exciter for excellent load response.



Application Data



Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Detroit Diesel/MTU	
Engine: model	20V4000 (T203-7M36)	20V4000 (T203-7M35)
Engine: type	4-Cycle, Turbocharged, Intercooled	
Cylinder arrangement	20V	
Displacement, L (cu. in.)	89.81 (5480)	
Bore and stroke, mm (in.)	165 (6.5) x 210 (8.3)	
Compression ratio	15.5:1	
Piston speed, m/min. (ft./min.)	756 (2480)	630 (2067)
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	2740 (3675)	2420 (3245)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve (exhaust) material	High Alloy Steel	
Governor: type, make/model	MDEC Electronic Control	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.25%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m ³ /min. (cfm)	558 (19705)	456 (16103)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	470 (878)	495 (923)
Maximum allowable back pressure, kPa (in. Hg)	5.1 (1.5)	
Exhaust outlet size at engine hookup, mm (in.)	2 @ 270 (10.63)	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	24	
Ampere rating	70	
Starter motor rated voltage (DC)	Dual, 24	
Battery, recommended cold cranking amps (CCA):		
Quantity, CCA rating each	Four, 1150	
Battery voltage (DC)	12	

Application Data

Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	20 (0.79)	
Fuel return line, min. ID, mm (in.)	20 (0.79)	
Max. fuel flow, Lph (gph)	1800 (475)	1440 (380)
Min./max. fuel pressure at engine supply connection, kPa (in. Hg)	-10/150 (-3/44)	
Fuel filter	2, Secondary	
Recommended fuel	#2 Diesel	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, dipstick mark max., L (qt.)	340 (359)	
Engine oil capacity, initial filling, L (qt.)	390 (412)	
Oil filter: quantity, type	4, Spin-On	
Oil cooler	Water-Cooled	

Cooling

Radiator System	60 Hz	50 Hz
Ambient temp., standby rating, °C (°F)	40 (104)	45 (113)
Ambient temp., prime rating, °C (°F)	45 (113)	50 (122)
Engine water capacity, L (gal.)	260 (69)	
Radiator system capacity, including engine, L (gal.)	757 (200)	
Engine jacket water flow, Lpm (gpm)	1665 (440)	1383 (365)
Charge cooler water flow, Lpm (gpm)	632 (167)	500 (132)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	1100 (62555)	930 (52888)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	650 (36964)	440 (25022)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	2362 (93)	
Fan, kWm (HP)	98 (131)	86 (115)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

Remote Radiator System*	60 Hz	50 Hz
Connection sizes:	Class 150 ANSI Flange	
Water inlet, mm (in.)	191 (7.5) Bolt Circle	
Water outlet, mm (in.)	191 (7.5) Bolt Circle	
Intercooler inlet/outlet, mm (in.)	152 (6.0) Bolt Circle	
Static head allowable above engine, kPa (ft. H ₂ O)	149 (50)	

* Contact your local distributor for cooling system options and specifications based on your specific requirements.

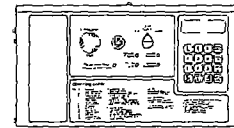
Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)†	3539 (125000)	3047 (107600)
Cooling air required for generator set when equipped with CWC or remote radiator, based on 14°C (25°F) rise, m ³ /min. (scfm)†	759 (26800)	
Combustion air, m ³ /min. (cfm)	228 (8052)	180 (6356)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	105 (5971)	
Generator, kW (Btu/min.)	107 (6084)	

† Air density = 1.20 kg/m³ (0.075 lbm/ft³).

Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	Standby Rating	
100%	647.3 (171.0)	551.4 (145.7)
75%	504.9 (133.4)	417.9 (110.4)
50%	352.8 (93.2)	287.1 (75.9)
25%	196.5 (51.9)	155.7 (41.1)
Diesel, Lph (gph) at % load	Prime Rating	
100%	593.9 (156.9)	498.7 (131.7)
75%	461.1 (121.8)	381.8 (100.9)
50%	327.8 (86.6)	263.6 (69.7)
25%	180.2 (47.6)	143.5 (37.9)

Controller



Digital 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability.
 Programmable microprocessor logic and digital display features.
 Safeguard circuit protection standard.
 24-volt engine electrical system capability.
 Remote start, remote annunciation, and remote communication options.
 Refer to M6-46 for additional controller features and accessories.



Gen Set	Emission Data
20V4000G42	20V4000 G42 3D

Standby Power Limit: 3674 BHP @ 1800 r/min

D2-Cycle Emissions

	Engine Load (g/hr)					(g/bhp-hr) Total Weighted
	10%	25%	50%	75%	100%	
NOx	2358	4974	9960	17639	32868	6.149
CO	1137	844	628	897	1022	0.474
HC	923	890	1067	1109	1018	0.575
SO ₂ w/ 0.5% Sulfur Content	450	836	1500	2147	2754	---
SO ₂ w/ 0.05% Sulfur Content	45	84	150	215	275	---
Particulates	194	267	316	234	206	0.150

Summary
 Rated Engine Speed, r/min 1800
 Certification Code (CWC) 5349
 US Nonroad Certification Yes
 TA LUFT Certification No
 Comments US Nonroad (Tier 1) certification

Inquiries should be sent to: Joanna.Vardas@ Detroitdiesel.com

Printed on: 8-Sep-03

The user is advised to check the Power Evolution Network for latest information.
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Florida Detroit Diesel Emergency Generator

2000 kW Model 2000DSEB



Model: **2000DSEB**

4-Cycle Diesel

380-4160 V

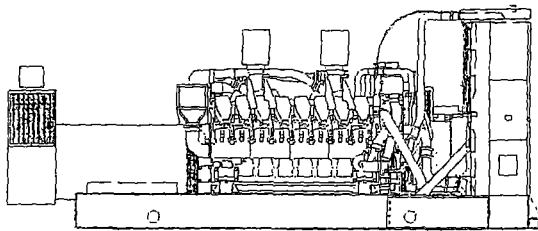


Standard Features

- Your DDC/MTU Power Generation product distributor provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- At 60 Hz, the generator set accepts rated load in one step.
- The generator set complies with ISO 8528-5, Class G3, requirements for transient performance.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Alternator features:
 - The brushless, rotating-field alternator has broadrange reconnectability.
 - The pilot-excited, permanent-magnet (PM) alternator provides superior short-circuit capability.
- Other features:
 - Controllers are available for all applications. See controller features inside.
 - The generator set-to-skid mounting on 60 Hz models is direct mounting. The 50 Hz model mounting options include integral vibration isolation or direct mounting with spring isolators.
 - Electronic engine controls manage the engine.

Ratings Range

	60 Hz	50 Hz
Standby: kW	1590-2000	1496-1760
kVA	1988-2500	1870-2200
Prime: kW	1440-1820	1376-1600
kVA	1800-2275	1720-2000



Generator Set Ratings

Alternator	Voltage	Ph	Hz	150°C Rise Standby Rating		130°C Rise Standby Rating		125°C Rise Prime Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
7M4054	220/380	3	60	1590/1988	3020	1590/1988	3020	1440/1800	2735	1440/1800	2735
	240/416	3	60	1840/2300	3192	1840/2300	3192	1800/2250	3123	1680/2100	2915
	277/480	3	60	2000/2500	3007	2000/2500	3007	1820/2275	2736	1820/2275	2736
	220/380	3	50	1584/1980	3008	1528/1910	2902	1496/1870	2841	1400/1750	2659
	230/400	3	50	1624/2030	2930	1536/1920	2771	1536/1920	2771	1424/1780	2569
7M4056	240/416	3	50	1608/2010	2790	1496/1870	2595	1496/1870	2595	1376/1720	2387
	220/380	3	60	1850/2313	3513	1790/2238	3400	1680/2100	3191	1630/2038	3096
	240/416	3	60	2000/2500	3470	1950/2438	3383	1820/2275	3157	1780/2225	3088
	277/480	3	60	2000/2500	3007	2000/2500	3007	1820/2275	2736	1820/2275	2736
	220/380	3	50	1760/2200	3343	1760/2200	3343	1600/2000	3039	1600/2000	3039
7M4058	230/400	3	50	1760/2200	3175	1760/2200	3175	1600/2000	2887	1600/2000	2887
	240/416	3	50	1760/2200	3053	1736/2170	3012	1600/2000	2776	1568/1960	2720
	220/380	3	60	2000/2500	3798	1950/2438	3703	1820/2275	3457	1790/2238	3400
	240/416	3	60	2000/2500	3470	2000/2500	3470	1820/2275	3157	1820/2275	3157
	277/480	3	60	2000/2500	3007	2000/2500	3007	1820/2275	2736	1820/2275	2736
7M4176	220/380	3	50	1760/2200	3343	1744/2180	3312	1600/2000	3039	1600/2000	3039
	230/400	3	50	1760/2200	3175	1760/2200	3175	1600/2000	2887	1600/2000	2887
	240/416	3	50	1760/2200	3053	1760/2200	3053	1600/2000	2776	1600/2000	2776
7M4292	220/380	3	60	2000/2500	3798	2000/2500	3798	1820/2275	3457	1820/2275	3457
7M4374	347/600	3	60	2000/2500	2406	2000/2500	2406	1820/2275	2189	1820/2275	2189
	2400/4160	3	60	2000/2500	347	2000/2500	347	1820/2275	316	1820/2275	316
	1905/3300	3	50	1744/2180	381	1600/2000	350	1600/2000	350	1448/1810	317

RATINGS: All three-phase units are rated at 0.8 power factor. **Standby Ratings:** Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. **Prime Power Ratings:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3049/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIS-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. **GENERAL GUIDELINES FOR DERATION: ALTITUDE:** Derate 1% per 100 m (328 ft.) elevation above 400 m (1312 ft.). **TEMPERATURE:** Derate 2.0% per 5°C (9°F) temperature above 40°C (104°F).

Alternator Specifications

Specifications	Alternator
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H, Synthetic, Nonhygroscopic
Temperature rise	130°C, 150°C Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Rotor balancing	125% 60 Hz, 150% 50 Hz
Voltage regulation, no-load to full-load (with <0.5% drift due to temp. variation)	3-phase sensing, ±0.25%
One-step load acceptance at 60 Hz	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
380 V	7M4176 (4 bus bar) 5400 (60 Hz)
480 V, 380 V	7M4054 (4 bus bar) 7000 (60 Hz), 4800 (50 Hz)
480 V, 380 V	7M4056 (4 bus bar) 7200 (60 Hz), 5200 (50 Hz)
480 V, 380 V	7M4058 (4 bus bar) 11000 (60 Hz), 6600 (50 Hz)
600 V	7M4292 (4 bus bar) 4250 (60 Hz)
4160 V, 3300 V	7M4374 (6 lead) 6200 (60 Hz), 3750 (50 Hz)

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and drip-proof construction.
- Superior voltage waveform from two-thirds pitch windings and skewed stator.
- Digital solid-state, volts-per-hertz voltage regulator with ±0.25% no-load to full-load regulation.
- Brushless alternator with brushless pilot exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Detroit Diesel/MTU	
Engine: model	16V4000 (T163-7M36)	16V4000 (T163-7M35)
Engine: type	4-Cycle, Turbocharged, Intercooled	
Cylinder arrangement	16V	
Displacement, L (cu. in.)	65 (3967)	
Bore and stroke, mm (in.)	165 (6.5) x 190 (7.5)	
Compression ratio	15.5:1	
Piston speed, m/min. (ft./min.)	684 (2244)	570 (1870)
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	2190 (2936)	1940 (2600)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve (exhaust) material	High Alloy Steel	
Governor: type, make/model	MDEC Electronic Control	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.25%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m ³ /min. (cfm)	426 (15044)	354 (12501)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	450 (842)	490 (914)
Maximum allowable back pressure, kPa (in. Hg)	5.1 (1.5)	
Exhaust outlet size at engine hookup, mm (in.)	2 @ 254 (10)	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		24
Ampere rating		70
Starter motor rated voltage (DC)		Dual, 24
Battery, recommended cold cranking amps (CCA):		
Quantity, CCA rating each		Four, 1150
Battery voltage (DC)		12

Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	20 (0.79)	
Fuel return line, min. ID, mm (in.)	20 (0.79)	
Max. fuel flow, Lph (gph)	1380 (364)	1260 (332)
Min./max. fuel pressure at engine supply connection, kPa (in. Hg)	10 (3)/150(44)	
Fuel filter	One, Secondary	
Recommended fuel	#2 Diesel	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, dipstick mark max., L (qt.)	230 (243)	
Engine oil capacity, initial filling, L (qt.)	290 (306)	
Oil filter: quantity, type	4, Spin-On	
Oil cooler	Water-Cooled	

Application Data

Cooling

Radiator System	60 Hz	50 Hz
Ambient temp., standby rating, °C (°F)	40 (104)	45 (113)
Ambient temp., prime rating, °C (°F)	45 (113)	50 (122)
Engine water capacity, L (gal.)	227 (60)	
Radiator system capacity, including engine, L (gal.)	625 (165)	
Engine jacket water flow, Lpm (gpm)	1268 (335)	1033 (273)
Charge cooler water flow, Lpm (gpm)	647 (171)	485 (128)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	991 (56350)	790 (44450)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	560 (31850)	331 (18800)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	2057 (81)	
Fan, kWm (HP)	86 (115)	68 (91)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

High Ambient Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)	50 (122)	—
Engine water capacity, L (gal.)	227 (60)	—
Radiator system capacity, including engine, L (gal.)	719 (190)	—
Engine jacket water flow, Lpm (gpm)	1268 (335)	—
Charge cooler water flow, Lpm (gpm)	647 (171)	—
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	991 (56350)	—
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	560 (31850)	—
Water pump type	Centrifugal	—
Fan diameter, including blades, mm (in.)	2362 (93)	—
Fan, kWm (HP)	86 (115)	—
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	—

Remote Radiator System*	60 Hz	50 Hz
Connection sizes:	Class 150 ANSI Flange	
Water inlet, mm (in.)	191 (7.5) Bolt Circle	—
Water outlet, mm (in.)	191 (7.5) Bolt Circle	—
Intercooler inlet/outlet, mm (in.)	152 (6.0) Bolt Circle	—
Static head allowable above engine, kPa (ft. H ₂ O)	149 (50)	

* Contact your local distributor for cooling system options and specifications based on your specific requirements.

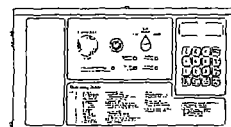
Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)†	2132 (75300)	1889 (66700)
High ambient radiator-cooled cooling air, m ³ /min. (scfm)†	3047 (107600)	—
Cooling air required for generator set when equipped with CWC or remote radiator, based on 14°C (25°F) rise, m ³ /min. (scfm)†	668 (23600)	
Combustion air, m ³ /min. (cfm)	174 (6145)	132 (4662)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	90 (5100)	
Alternator, kW (Btu/min.)	97 (5516)	

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

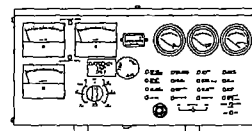
Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	Standby Rating	
100%	520.0 (137.4)	446.9 (118.1)
75%	395.8 (104.6)	328.4 (86.7)
50%	274.1 (72.4)	226.9 (59.9)
25%	154.4 (40.8)	127.7 (33.7)
Diesel, Lph (gph) at % load	Prime Rating	
100%	451.4 (119.3)	401.3 (106.0)
75%	342.1 (90.4)	299.4 (79.1)
50%	238.6 (63.0)	207.9 (54.9)
25%	135.1 (35.7)	117.4 (31.0)

Controllers



Digital 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Safeguard circuit protection standard. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to M6-46 for additional controller features and accessories.



Microprocessor-Plus, 16-Light Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Microprocessor logic, AC meters, and engine gauge features. 12- or 24-volt engine electrical system capability. Remote start, prime power, and remote annunciation options. Refer to M6-30 for additional controller features and accessories.

Standby Power Limit: 2936 bhp @ 1800 r/min

Summary	
UPC Option Group	06N04M1511
Standby Power Limit:	2937
Rated Power Speed, r/min	1800
Certification Code (CWC)	5319
US Nonroad Certification	Yes
EURO Nonroad (Stage 1) Certification	No
TA LUFT Compliance	No
IMO MARPOL 73/78 Annex VI Compliance	No
Comments	US Nonroad (Tier 1) certification.

D2 - Cycle Emissions						
Engine Load	10%	25%	50%	75%	100%	Total
	g/hr					g/bhp-hr
NO _x	2286	3570	8020	12722	20285	5.692
CO	898	893	868	904	1271	0.654
HC	536	554	629	698	711	0.446
SO ₂ - with .5% sulfur content fuel	358	658	1166	1684	2212	---
SO ₂ - with .05% sulfur content fuel	36	66	117	168	221	---
Particulates	101	195	178	145	176	0.120

Smoke Summary, Bosch No.	
Smoke	

Standby Power Limit: 2936 bhp @ 1800 r/min

Engine Load (%)	Power (BHP)	Fuel (gal/hr)
10	294	22.2
25	735	41.0
50	1468	72.7
75	2203	105.0
100	2937	138.0

This data is a sample from one engine and should not be used for performance guarantees.

Cummins Emergency Generator

1500kW Model KTA50-G9



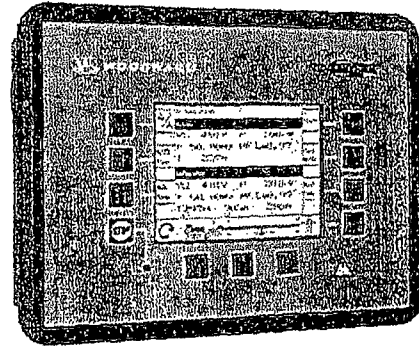
1500 kW Containerized Diesel Generator Set

Cooling System	
Exhaust Manifold Type	Dry
Radiator Design	Standard horizontal discharge
Coolant Capacity - Engine Only	11.5 gal. (43.5 L)
Coolant Capacity - Engine and Radiator	100 gal (378.5 L)
Water Pump Design/Type	Belt Driven, Centrifugal
Coolant Flow	524 gal/min (1983 L/min)
Engine Heat Rejection	35,100 BTU/min (616.6 kW)
Fan Horsepower	75.0 hp (56.0 kW)
Thermostat	180 °F (82 °C)

Fuel System		
Recommended Fuel	ASTM-D975/No.1 or No.2-D	
Fuel Pump Maximum Lift	6.0 ft. (1.8 m)	
Filter Micron Size - 98% Efficiency	2	
Total Fuel Flow	183 gal./hr. (692.5 L/hr.)	
Fuel Consumption		
Diesel at % of Load	gal/hr	L/hr
25%	30	113.5
50%	48	181.6
75%	68	257.3
100%	88	333.0

Lubrication System	
Type	Full Pressure System
Oil Filters	5 Spin-on Full Flow
Oil Pan Capacity	47 gal. (178 L)
Oil Capacity with Filters	54 gal. (204 L)
Oil Pressure At Rated Speed	70 psi

Derating		
Derating Factors (60 Hz)	Altitude	Temp.
Engine power available up to 3300 ft. altitude and 104°F ambient temperature at the standby rating, without derating. For operation at higher altitudes and ambient temperatures, the power should be derated according to the following factors:	Above 3300ft. derate at 4% per 1000 ft.	Above 104°F derate at 3% per 10°F



EASYGEN Digital Genset Controller

Digital Controller for Multiple Unit Operation

- Graphical, interactive LCD display 320x240 pixel resolution
- Flexible and multifunctional *DynamicsLCD* with soft keys
- *FlexApp 2* breaker control logic:
 - Isolated single and multiple-unit operation
 - Mains parallel single unit operation
 - Auto Mains Failure Operation
 - Stand-by operation
 - Open transition (break-before-make)
 - Closed transition (make-before-break)
- Complete engine, generator and mains protection in one unit
- *FlexRange* – Two separate sets of 3-phase true RMS voltage measuring inputs for the generator and mains
- True RMS current sensing
- Power/reactive power sensing
- kWh, kvarh meter
- Parameters adjustable via PC or front panel LC display
- *LogicsManager 12* programmable discrete outputs
- 10 configurable discrete alarm inputs
- *FlexIn* – 3 configurable analog inputs
- *FlexOut* – 2 configurable analog outputs
- *FlexCAN* – Two CAN bus communication networks
- Two serial ports supporting RS-485/422 and RS-232
- Modbus RTU Protocol
- Event recorder (200 events, FIFO) with real time clock
- Counters for engine starts, operating hours, maintenance call out
- Sealed membrane panel to IP66
- UL/cUL Listed

Optional Features and Accessories

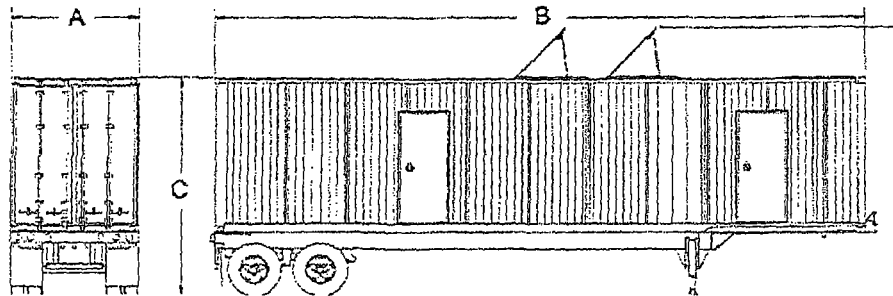
Generator Set

- ▣ Custom Outlet Panels
- ▣ Rotary Voltage Selector Switch (High Wye/Low Wye Voltages)
- ▣ Auxiliary Oil Reservoir with Level Control (15-gallon)
- ▣ Centrifugal Oil Filter System
- ▣ Oil Pan Heater with Thermostat
- ▣ Alternator Strip Heater
- ▣ AC Battery Charger with Shore Power Receptacle
- ▣ Rotary Voltage Selector Switch
- ▣ 120VAC Convenience Receptacle

Container

- ▣ ISO Trailer Chassis (40 ft.)
- ▣ Double-wall Fuel Tank (900-gallon capacity)
- ▣ Day Tank Pump and Controls
- ▣ Fluid Containment
- ▣ Manual Fuel Valves (For Internal or External Fuel Supply)
- ▣ Entrance Ladder (6-Step, Aluminum Construction)
- ▣ Fueling Ladder (Aluminum Step Construction with Hand Rail)
- ▣ Interior Lights (AC Work lights)
- ▣ Custom Paint Colors (Artic White is Standard)

SPECIAL OPTIONS AVAILABLE UPON REQUEST



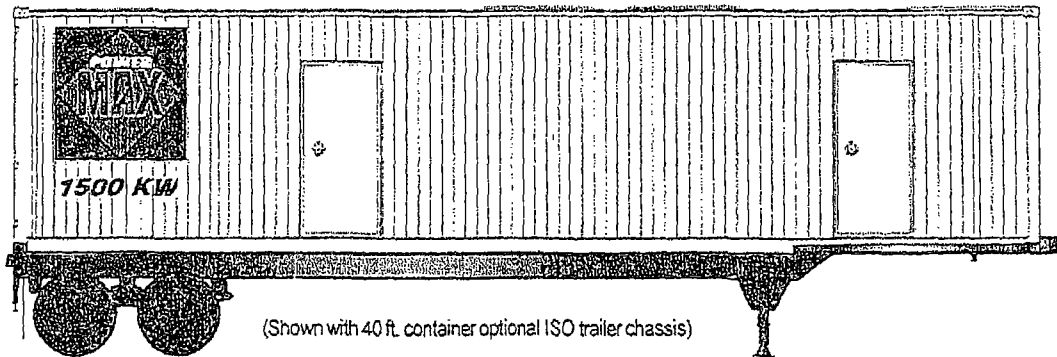
40 ft. Container

Weight and Dimensions			
A	B	C	D
96 in. (2,438 mm)	480 in. (12,192 mm)	163 in. (4,137 mm)	199 in. (5,054 mm)
Weight (Net)*		46,480 lbs (21,083 kg)	
Weight (Net with trailer)*		53,220 lbs (24,140 kg)	

Back-feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device. Features and specifications are subject to change without notice.

POWERMAX
 8375 NW 56th Street
 Miami, FL 33166
 305-392-4550 Ph
 305-392-4551 Fax
 sales@getpowermax.com
 www.getpowermax.com

EGC-1500C	EPA-MCH Certified		
		1500kW (1875kVA)	1250kW (1562kVA)



(Shown with 40 ft. container optional ISO trailer chassis)

Standard Features

Cummins Heavy Duty Diesel Engine

- 4-cycle design, turbocharged, aftercooled, direct injection
- Polymide blade cooling fan
- Engine coolant heater
- Meets EPA emissions standards for mobile off-highway

Fuel System

- 1000 gallon, single wall fuel tank
- Fuel priming system
- Fuel/water separators & drip pan
- Electric fuel pump
- External fuel fill
- 30 micron Racor® fuel filter system

Alternator

- Brushless, 4-pole, synchronous, WYE connection
- Class H insulation system conforms to NEMA MG1-22, BS5000, CSA-C22-2, IEC-34-1 standards for temperature rise
- Drip-proof, self-venting, amortisseur windings
- Epoxy impregnated windings with tropical insulation for increased environmental protection and long life

Electronic Voltage Regulator

- Electronic automatic voltage regulator provides precise regulation
- Separate three-phase excitation for fast recovery from block loads and motor starting

Full Load Acceptance

- Accepts 100% of standby nameplate rating in one step, in compliance with NFPA, para 5-13.2.6

Generator Control Panel

- EASYGEN™ vibration-isolated controller
- Manual or remote engine start/stop
- Genset-to-Genset paralleling control
- Base Load-to-Utility paralleling control
- Generator mainline circuit breaker, 100% rated, electronically operated, UL listed

Specially Designed Container

- 40 ft. ISO container, sound-attenuated, foam-lined for extremely quiet operation
- Isolated operator control room
- Solidly mounted battery rack and cooling system
- Integral vibration isolators
- Exterior polyurethane coating system provides long life in extreme operating conditions
- Interior DC lights and timer switch
- Crankcase filtration system
- Critical grade silencer with heat blankets

Warranty

- Engine-generator sets are covered by an express written, one-year limited warranty

APPLICATION DATA

Alternator Specifications	
Make/Model	Marathon Magna Max 572RSL4050
Type	Rotating Field
Number of Leads	4 bar
Generator Type	Rotating Field, PMG
Voltage Regulator	Solid State, Digital, Model DVR2000
Insulation	NEMA MG1-1.66
Material	Class H
Temperature Rise	105 °C
Bearing: Number, Type	Single Sealed
Coupling	Flexible Disk
Amortisseur Windings	Full
Voltage Regulation (no load to full load)	2% Maximum
One Step Load Acceptance % of rating per NFPA-110	100
Peak Motor Starting HP	750
Generator Efficiency at Full Load	94%
Phase Sequence	ABC (L1, L2, L3)
L-L Harmonic Max Total	5.0%
L-L Harmonic Max Single	3.0%
Voltage Dip Upon Full Load Application (1 Step)	12.5% for 0.4 sec.
Voltage Rise Upon Full Load Rejection (1 Step)	17% for 0.7 sec.

The EGC1500C Sound Attenuated Generator is configured for standard 60 Hz, 480V output. Special voltage outputs are available (special order).

Alternator Features

- All ratings tested per MIL-STD-705 as applicable
- Protection for overload and short circuit
- Designed and built within NEMA, IEEE and ANSI standards for temperature rise
- PMG exciter for superior regulation and response
- Three-phase sensing on regulator with EMI protection
- Skewed rotor for smooth voltage wave form
- Vacuum impregnated epoxy varnish - Fungus resistant per MIL-I-24092
- Sustain short circuit current at 300% of rated current up to 10 seconds

Engine Specifications	
Manufacturer/Model	Cummins KTA50-G3
Engine Type	4-cycle, Turbocharged, Watercooled, Aftercooler
Cylinder Arrangement	16 In-Line
Displacement	3067 cu in (50.3 L)
Bore	6.25 in. (159 mm)
Stroke	6.25 in. (159 mm)
Compression Ratio	14.9:1
Piston Speed (60Hz)	1875/sec. @ 60 Hz
Bearing Maint: Number	9
Bearing Maint: Type	Replaceable, Precision
Cylinder Block	Cast iron with wet, replaceable cylinder liners
Cylinder Head Material	Cast iron
Crankshaft Material	Forged steel
Brake Mean Effective Pressure (BMEP)	318.0 psi (2192.5 kPa)
Rated RPM (60Hz)	1800 RPM
Max. Power At Rated RPM (with fan)	2250 hp (1703 kW)
Governor: Type: Make/Model	Electronic
Frequency Regulation: No load to full load	Isosynchronous under varying loads from no load to 100% rated load
Frequency Regulation: Steady State	±0.25% of mean value for constant loads from no load to full load
Air Cleaner Type - All Models	Dry, Dual Element

Amperage				
Voltage	Phase	Power Factor	Continuous Amperes	
			Standby	Prime
277/480 Volt	3	0.8	2255	1879

Engine Electrical System	
Battery Charging Alternator Ground Type	Negative
Volts	24 VDC
Ampere Rating	45A
Starter Motor Rated Voltage	24 VDC
Minimum Recommended Battery for 0 °C / Cold Cranking Performance	1800 CCA

Exhaust System	
Exhaust Temperature at Rated kW (Dry Exhaust)	800°F (471°C)
Exhaust Flow at Rated kW (Standby)	10650 cfm (301.4 m³/min)
Silencer Type	Critical
Maximum Allowable Backpressure	2 in/Hg (51 mmHg)
Exhaust Outlet Size at hook-up	8 in. (203 mm)

Test Information Form

Manufacturer: **Cummins Inc**

Engine category: **Nonroad CI**

Cert contact: **Don R Welliver**

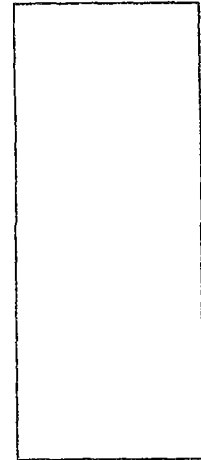
- | | | | |
|--|------------------------------------|---|---------------------------------------|
| 1. EPA Standard Engine Family: 5CEXL050.ABA | 9. Torque (ft-lb) @
Engine RPM: | N/A | @ |
| 2. Process Code: New Submission | | N/A | |
| 3. Test Data Set: 1 | 10. WAIVERS: | <u>CO</u> | <u>PM</u> <u>Smoke</u> <u>Idle Co</u> |
| 4. Engine Code: CPL 2527 | | NA | NA NA NA |
| 5. Engine Model: KTA50-G9 | | | |
| 6. Displacement(s)
(cid Or Liters): 50 L | 11. Cold Start? | No | |
| 7. Engine I.d. Number: 3314359 | 12. Certification Fuel: | Diesel (Part 89, Sub D, Appdx A, Table 5) | |
| 8. Rated HP @
Rated RPM: 2220
1800 | 13. Special Test Device | No | |
| | 14 Test Procedure: | Nonroad, D2 (Special Procedure) | |

15. Official Test Results

Date: **10/4/1999**

	Test 1	Test 2	Test 3
HC/OMHCE	0.37		
NMHC/OMNMHCE			
HC + NOx			
CARBON MONOXIDE	1.32		
OXIDE OF NITROGEN	7.20		
PARTICULATE	0.247		
FORMALDEHYDE			
ACCELERATION (%opacity)			
LUGGING (Gen) (%opacity)			
PEAK (%opacity)			
IDLE CO %			
CO2			

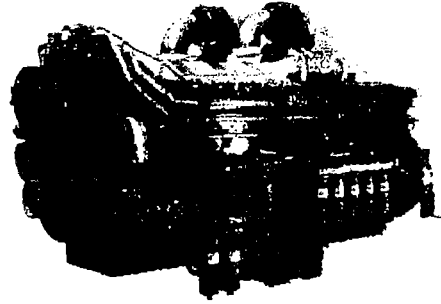
16. Deterioration Factors



**17. Certification Levels
(Rounded Test Results)**

	Units--	g/kW-hr	--Units	STDs	FELs
				g/BHP-hr	g/kW-hr
HC/OMHCE		0.4		1.0	1.3
NMHC/OMNMHCE				--	--
NMHC + NOx				--	
CARBON MONOXIDE		1.3		8.5	11.4
OXIDE OF NITROGEN		7.2		6.9	9.2 7.6
PARTICULATE		0.25		0.40	0.54
FORMALDEHYDE				--	--
ACCELERATION (%opacity)				20	
LUGGING (Gen) (%opacity)				15	
PEAK (%opacity)				50	
IDLE CO%				--	

KTA50-G9



> Specification sheet



Our energy working for you.™

Description

The KTA50-Series benefits from years of technical development and improvement to bring customers an innovative and future proof diesel engine that keeps pace with ever changing generator set requirements.

Recognised globally for its performance under even the most severe climatic conditions, the KTA50-Series is widely acknowledged as the most robust and cost-effective diesel engine in its power range for the generator set market.



This engine has been built to comply with CE certification.



This engine has been designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.

Features

Coolpac Integrated Design - Products are supplied complete with cooling package and air cleaner kit for a complete power package. Each component has been specifically developed and rigorously tested for G-Drive products, ensuring high performance, durability and reliability.

Aftercooler – Large capacity integral aftercoolers are supplied with cooling water separate from the engine jacket. This provides cooler, denser intake air for more complete combustion and reduced engine stresses for longer life.

Cooling System – A one pump, two loop system must be employed; i.e. the engine jacket is cooled by one radiator or heat exchanger and the aftercoolers are cooled by a separate radiator or heat exchanger.

Pistons – Pistons are a dual Ni-resist, aluminium alloy, ground and shaped to compensate for thermal expansion, which assures a precise fit at all normal operating temperatures.

Service and Support - G-Drive products are backed by an uncompromising level of technical support and after sales service, delivered through a world class service network.

1800 rpm (60 Hz Ratings)

Gross Engine Output			Net Engine Output			Typical Generator Set Output					
Standby	Prime	Base	Standby	Prime	Base	Standby (ESP)		Prime (PRP)		Base (COP)	
kWm/BHP			kWm/BHP			kWe	kVA	kWe	kVA	kWe	kVA
1656/2220	1384/1855	1224/1640	1605/1252	1349/1809	1189/1594	1500	1875	1295	1619	1141	1427

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www.cumminsgdrive.com

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General Engine Data

Type	4 cycle, in line, Turbocharged and After-cooled
Bore mm	158.8
Stroke mm	158.8
Displacement Litre	50
Cylinder Block	16-cylinder, direct injection, 4-cycle diesel engine
Battery Charging Alternator	55A
Starting Voltage	24V
Fuel System	Direct injection
Fuel Filter	Dual spin on paper element fuel filters with standard water separator
Lube Oil Filter Type(s)	Spin on full flow filter
Lube Oil Capacity (l)	204
Flywheel Dimensions	SAE 0

Coolpac Performance Data

Cooling System Design	2 pump - 2 loop
Coolant Ratio	50% ethylene glycol; 50% water
Coolant Capacity (l)	240.0
Limiting Ambient Temp (°C)**	50.0
Fan Power (kWm)	33.0
Cooling System Air Flow (m ³ /s)**	28.2
Air Cleaner Type	Dry replaceable element with restriction indicator

** @ 13 mm H₂O

Weight & Dimensions

Length	Width	Height	Weight (dry)
mm	mm	mm	kg
3497	2000	2703	6565

Fuel Consumption 1800 rpm (60 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	1656	2220	392	103.6
Prime Power				
100	1384	1855	330	87.3
75	1038	1391	257	68
50	692	928	180	47.6
25	346	463	111	29.2
Continuous Power				
100	1224	1640	299	79

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Fax 1 763 574 5298

Ratings Definitions

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Limited-Time Running Power (LTP):
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN6271 and BS 5514.

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Caterpillar Emergency Generator

500kW Model 7WG04047

GEN SET PACKAGE PERFORMANCE DATA
[7WG04047]

MARCH 12, 2010

(7WG04047)-ENGINE (G6B01688)-GENERATOR (C3G00686)-
 GENSET

For Help Desk Phone Numbers [Click here](#)

Performance Number: DM6341

Change Level: 01



Sales Model: 3456 DITA Combustion: DI

Aspr: TA

Engine Power:

500 W/F 521 W/O F
 EKW EKW

Speed: 1,800 RPM

After Cooler: ATAAC

764 HP

Manifold Type: DRY

Governor Type: ELEC

After Cooler Temp(F): --

Turbo Quantity: 1

Engine App: GP

Turbo Arrangement:

Hertz: 60

Application Type: PACKAGE-DIE Engine Rating: PGS

Strategy: Low BSFC Strategy

Rating Type: STANDBY Certification:

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
500	100	764	349.69	0.33	36.27	120.92	70.09	1,384.34	1,300.46	979.88	3,902.27
450	90	681	311.4	0.33	31.94	115.7	64.88	1,334.9	1,189.94	885.56	3,527.94
400	80	602	275.43	0.32	27.34	108.68	56.35	1,218.36	1,080.14	815.54	3,047.66
375	75	565	258.17	0.31	25.33	105.08	51.79	1,158.32	1,039.1	795.02	2,832.24
350	70	528	241.49	0.31	23.59	101.66	47.23	1,094.76	1,009.94	782.24	2,645.07
300	60	456	208.71	0.31	20.34	95	38.32	978.22	952.88	757.22	2,298.99
250	50	387	176.8	0.31	17.36	88.52	29.7	861.68	897.26	732.56	1,995.28
200	40	318	145.48	0.32	14.56	86.18	22.83	762.8	836.96	699.98	1,719.83
150	30	248	113.57	0.33	11.73	84.02	16.64	670.98	768.02	656.42	1,454.97
125	25	213	97.32	0.34	10.33	83.12	13.83	625.07	730.04	630.5	1,327.83
100	20	177	80.79	0.35	8.9	82.04	11.19	586.22	682.34	595.22	1,200.7
50	10	103	47.28	0.41	6.02	80.24	6.43	515.59	552.38	491.72	946.43

General Performance Data 2

GEN W/F EKW	PERCENT LOAD	ENGINE POWER BHP	COMPRESS OUT PRESS IN-HG	COMPRESS OUT TEMP DEG F
500	100	764	73.86	429.62
450	90	681	68.26	392.9
400	80	602	59.4	348.44
375	75	565	54.7	327.56
350	70	528	49.96	308.12
300	60	456	40.72	271.58
250	50	387	31.72	238.1
200	40	318	24.58	207.32
150	30	248	18.15	178.16
125	25	213	15.22	164.3

100	20	177	12.47	150.98
50	10	103	7.58	126.14

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
500	100	11,089.6	4,418.8	28,434.9	16,435.4	4,179.9	7,222.5	32,415.8	78,480.4	83,598.7
450	90	8,928.6	4,970.4	24,340.3	13,250.7	3,668.1	6,255.7	28,889.9	68,869.4	73,362.1
400	80	7,848.0	4,288.0	20,188.8	10,407.2	3,139.2	4,947.7	25,534.6	58,974.1	62,841.2
375	75	7,450.0	3,833.0	18,653.3	9,440.4	2,911.7	4,322.1	23,942.2	54,595.1	58,177.9
350	70	7,108.7	3,560.1	17,288.4	8,644.2	2,707.0	3,810.3	22,406.7	50,841.7	54,140.1
300	60	6,426.3	3,116.5	14,843.0	7,222.5	2,331.7	2,900.4	19,335.8	43,789.8	46,633.3
250	50	5,857.6	2,815.1	12,568.2	5,971.3	1,990.4	2,161.1	16,378.5	37,363.5	39,752.1
200	40	5,288.9	2,536.4	10,520.9	4,833.9	1,666.3	1,535.5	13,478.2	31,335.3	33,382.6
150	30	4,720.2	2,115.6	8,473.6	3,696.5	1,347.8	1,080.5	10,520.9	25,250.2	26,899.4
125	25	4,379.0	1,842.6	7,506.8	3,127.8	1,182.9	853.0	9,042.3	22,236.1	23,657.9
100	20	4,094.6	1,575.3	6,540.0	2,559.1	1,018.0	682.4	7,506.8	19,165.2	20,416.3
50	10	3,525.9	1,006.6	4,492.7	1,251.1	688.1	398.1	4,379.0	12,909.5	13,762.5

EMISSIONS DATA**Certification:**

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

REFERENCE EXHAUST STACK DIAMETER	5 IN
WET EXHAUST MASS	6,364.7 LB/HR
WET EXHAUST FLOW (978.80 F STACK TEMP)	3,905.81 CFM
WET EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	1,309.00 STD CFM
DRY EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	1,199.64 STD CFM
FUEL FLOW RATE	36 GAL/HR

RATED SPEED "Not to exceed data"

GEN PWR EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL NOX (AS NO ₂) LB/HR	TOTAL CO LB/HR	TOTAL HC LB/HR	PART MATTER LB/HR	OXYGEN IN EXHAUST PERCENT
500	100	764	10.2200	.7800	.1000	.0900	8.6000
375	75	565	10.1400	.4900	.1000	.0700	10.7000
250	50	387	11.4500	.3200	.0900	.0500	11.6000
125	25	213	5.7300	.3600	.1000	.0500	13.4000
50	10	103	2.9500	.5300	.1100	.0500	15.6000

RATED SPEED "Nominal Data"

GEN PWR EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL NOX (AS NO ₂) LB/HR	TOTAL CO LB/HR	TOTAL HC LB/HR	TOTAL CO ₂ LB/HR	PART MATTER LB/HR	OXYGEN IN EXHAUST PERCENT
500	100	764	8.4500	.4200	.0600	820.4	.0400	8.6000
375	75	565	8.3800	.2600	.0500	581.6	.0400	10.7000
250	50	387	9.4600	.1700	.0500	401.3	.0200	11.6000
125	25	213	4.7300	.1900	.0500	237.2	.0300	13.4000
50	10	103	2.4400	.2800	.0600	138.1	.0200	15.6000

Altitude Capability Data(Corrected Power Altitude Capability)

Ambient Operating Temp.	50 F	68 F	86 F	104 F	122 F	NORMAL
A l t i t u d e						
0 F	764.38 hp	764.38 hp	764.38 hp	764.38 hp	764.38 hp	764.38 hp
984.25 F	764.38 hp	764.38 hp	764.38 hp	764.38 hp	764.38 hp	764.38 hp
1,640.42 F	764.38 hp	764.38 hp	764.38 hp	764.38 hp	748.29 hp	764.38 hp
3,280.84 F	764.38 hp	764.38 hp	750.97 hp	726.83 hp	705.38 hp	764.38 hp
4,921.26 F	756.34 hp	730.86 hp	706.72 hp	683.92 hp	662.46 hp	729.51 hp
6,561.68 F	712.08 hp	687.94 hp	665.15 hp	643.69 hp	623.57 hp	693.31 hp
8,202.1 F	669.17 hp	646.37 hp	624.92 hp	604.8 hp	586.03 hp	658.44 hp
9,842.52 F	627.6 hp	606.14 hp	586.03 hp	567.25 hp	549.82 hp	624.92 hp
10,498.69 F	611.51 hp	591.39 hp	571.27 hp	553.84 hp	536.41 hp	612.85 hp

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

Identification Reference and Notes

Engine Arrangement:	1923493	Lube Oil Press @ Rated Spd(PSI):	67.7
Effective Serial No:	7WG00197	Piston Speed @ Rated Eng SPD (FT/Min):	1,974.4
Primary Engine Test Spec:	0K2703	Max Operating Altitude(FT):	3,395.7
Performance Parm Ref:	TM5739	PEEC Elect Control Module Ref	
Performance Data Ref:	DM6341	PEEC Personality Cont Mod Ref	
Aux Coolant Pump Perf Ref:			
Cooling System Perf Ref:		Turbocharger Model	GT500802 1.60VTF
Certification Ref:		Fuel Injector	
Certification Year:		Timing-Static (DEG):	--
Compression Ratio:	16.1	Timing-Static Advance (DEG):	--
Combustion System:	DI	Timing-Static (MM):	--
Aftercooler Temperature (F):	--	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):	63.7	Peak Torque (LB/FT):	--

**Reference
Number: DM6341**

ALSO APPLICABLE TO GS070 CEA# 192-3496
CORE ARRANGEMENT: 192-6490 AND ENGINEERING
MODEL GS209/ENGINE ARRANGEMENT 237-9565.

**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.

Caterpillar Confidential: **Green**
Content Owner: Shane Gilles
Web Master(s): [PSG Web Based Systems Support](#)
Current Date: Friday, March 12, 2010 11:25:39 AM
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 www.gaiconsultants.com

To: **FDEP**
3800 Commonwealth Blvd, MS -77
Tallahassee Florida 32399

Date: **March 26, 2010**

Project No.: **A060022.00**

Attn: **Mr. Dixon Dibble**

Re: **City of North Miami Beach Norwood-Oeffler WTP VOC
 Removal Project AIR GENERAL PERMIT-GENERATORS**

VIA:

Anticipated Arrival Date:

- | | | | |
|--|---|---|---|
| <input type="checkbox"/> Next Morning Delivery | <input checked="" type="checkbox"/> Next Day Delivery | <input type="checkbox"/> Two-Day Delivery | |
| <input type="checkbox"/> Ground Service | <input type="checkbox"/> Regular U.S. Mail | <input type="checkbox"/> Hand Delivered | <input type="checkbox"/> Guaranteed |
| <input type="checkbox"/> Other: _____ | | | <input type="checkbox"/> Not Guaranteed |

Action:

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> For Approval | <input type="checkbox"/> For Review & Comment | <input type="checkbox"/> Resubmit _____ Copies for Approval |
| <input type="checkbox"/> For Your Use | <input type="checkbox"/> Returned for Corrections | <input type="checkbox"/> Submit _____ Copies for Distribution |
| <input type="checkbox"/> As Requested | <input type="checkbox"/> Returning After Loan to Us | <input type="checkbox"/> Return _____ Corrected Prints |
| <input type="checkbox"/> Other: _____ | | <input type="checkbox"/> For Bids Due: _____ |

We are sending you the materials listed below:

Copies	Dated	Description
1	03/25/10	FDEP Air General Permit Application
1	3/25/10	Check for \$100.00 Permit Registration Processing Fee

CC:
 Karl Thompson, P.E. W/enclosure
 Rick Garcia/DERM
 Anthony Radhay/DERM
 File

Remarks:

Signed: _____

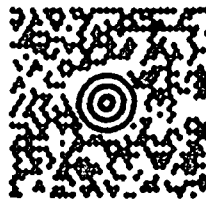
Name: **Jules J. Ameno, Jr., P.E.**

Rev: 6/09 Title: **Senior Engineering Manager**

Transmittal Form

LTR 1 OF 1

FROM:
JAY AMENO
(561) 698-8261
GAI CONSULTANTS, INC.
2255 GLADES ROAD
BOCA RATON FL 33431



FL 323 0-01



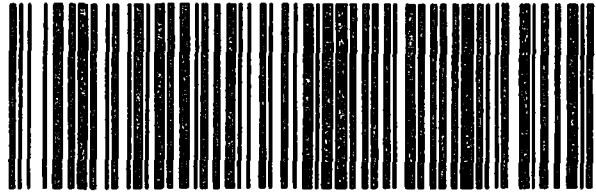
SHIP TO:

MR. DIXON DIBBLE
FDEP
MS-77
3800 COMMONWEALTH BLVD
TALLAHASSEE FL 32399

UPS NEXT DAY AIR

TRACKING #: 1Z R09 6E4 01 4901 9065

1



REF 1:A060022.00

BILLING: P/P

WS 12.0.12 EPSON Arzen 00.0A 01/2010

Fold here and place in label pouch