CORDOVA
ELECTRIC
COOPERATIVE, INC
P.O. Box 20, 700 New England Cannery Road, Cordova,
Alaska 99574-0020 (907) 424-5555 Fax (907) 424-5527

January 8, 2025

Alaska Department of Environmental Conservation
Air Permit Program
555 Cordova Street
Anchorage, AK 99501

Attn: Title V Program

Re: Cordova Electric Cooperative, Orca Power Plant—Addendum #1 to the Application for Renewal of Operating Permit AQ0221TVP04, Rev. 1

To Whom It May Concern:

Cordova Electric Cooperative submits this addendum to the application for an Air Quality Operating Permit for the Orca Power Plant. The stationary source currently operates under Permit AQ0221TVP04, Rev.1 which expired on December 12, 2024, and is protected by a permit shield due to timely and complete application submittal. A minor permit application was submitted in September 2024 which requested several changes to the emission unit inventory and changes to the calculation method in the NOx Owner Requested Limit. Also, two Off Permit Change (OPC) notifications have also been submitted to ADEC and EPA to authorize replacements of certain equipment. Subsequently, CEC determined that the engine initially reserved for the EU ID 2a position was not compatible with Orca Power Plant's physical design. The utility selected two different units for the EU IDs 2a and 11 positions. While the OPC for EU ID 2a is being withdrawn, the newly proposed EU ID 2a is being authorized through a minor permit application.

This addendum revises certain application forms to ensure that the Operating Permit application forms agree with the requests submitted to ADEC in the minor permit application. These include:

- Form A1-R: Application Revision Form
- Revised Forms A-1 and A-2
- Revised Form B Emission Unit Inventory
- Added Form B-2 to summarize the applicable and non-applicable requirements that will apply to EU IDs 2a and 11 (identical units)
- Revised Form E-2 to summarize the revisions requested in the recent minor permit application

Regarding emission calculations, ADEC application instructions require three sets of calculations: Unrestricted Emissions, Potential to Emit (PTE), and Actual Emissions. This addendum includes revised Unrestricted Emissions and PTE calculations. Because Actual Emission calculations are based on 2023 operations, there is no need to revise this set of calculations. Please refer to the original application documents for Actual Emissions. Revised HAP emission calculations are also included in this submittal. Calculations are included in two separate MS Excel files.

Sincerely,

Clay Koplin
Chief Executive Officer

Attachment: Orca Power Plant Operating Permit Application Addendum #1
cc: EPA Region 10

Cordova Electric Cooperative
Orca Power Plant
Title V Renewal Application: Addendum #1
AQ0221TVP04, Rev. 1

January 2025

Prepared by:

HMH Consulting, LLC

Table of Contents

Form A1-R – Stationary Source Application Revision

FORM A1-R
Stationary Source Supplemental Information or Application Revision

Permit Number: AQ0221TVP04, Rev. 1

Permit Contact:	Name	Russel Goss
	Title	Manager of Generation and Distribution
	Mailing Address Line 1	PO Box 20
	Mailing Address Line 2	Cordova, Alaska 99574
	Phone Number	(907) 424-5044
	Email	rgoss@cordovaelectric.com

Brief Description of Supplemental Information or Application Revision:

The enclosed addendum addresses changes consistent with a recently submitted Minor Permit Application, Addendum #1 to the Minor Permit Application, and Off-Permit Change Notification for EU ID 3a:

1) Minor revisions to the language included in Forms A-2, A-3, and A-4
2) Update to Forms B-0 (emission unit inventory) and addition of B-2 forms (EU-specific forms)
3) Updates to the B-2 and E-2 forms to reflect CEC's request to change the NOx calculation method
4) Updated Unrestricted Emissions and Potential to Emit (PTE) calculations

Please note: Application Addendum #1 revised the inventory with newly-proposed engines in the EU ID 2a and 11 positions. The first proposed EU ID 2a was authorized with an OPC. The Addendum rescinds the OPC that was previously submitted for that unit.

Statement of Certification:

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Clay Koplin
Name of Responsible Official

Chief Executive Officer
Title

Clay R Koplin
Signature (blue ink)

1/8/2025
Date

Form A2 - Stationary Source Description

FORM A2
Stationary Source Description

Permit Number: AQ0221TVP04, Rev. 1

1.	Stationary Source Description (a thorough description of the stationary source, its processes, raw materials, operating scenarios, and other specific information that may be necessary to determine the applicability of Title V requirements.) The information may include property area or map, number of employees, maximum capacity, and other primary emission-generating activities co-located or on adjacent properties. Orca Power Plant is a diesel electric power utility that consists of six engines, including replacement units 2a (Generator 8), 3a (Generator 5a), and an additional unit EU ID 11 (Generator 9). In addition, insignificant emission units include two diesel fuel storage tanks. The facility combusts diesel fuel in reciprocating internal combustion engines to produce electricity. The application removes EU IDs 2 and 3 (Generators 4 and 5, respectively), and EU ID 9 (a lube oil tank).	
2.	Nonattainment area [yes/no; if yes, specify]	No
3.	Does the CAM rule [40 CFR Part 64] apply to any of the emissions units? [if yes, review the guidance provided for CAM in the Form A2 instructions for this item]	No
4.	Does the accidental release prevention regulation [40 CFR Part 68] apply to the facility? [if yes, provide the appropriate regulatory applicability document in detail.]	No

5. Attach plot plan.

6. Attach regional map.

7. Attach USGS map.

Form A3 - Operating Scenario Description

FORM A3
Operating Scenario Description

Permit Number: AQ0221TVP04, Rev. 1

1.	Operating scenario ID	1
2.	Operating scenario description: No seasonal variation, 8,760 hr/yr base operating scenario. Engine-specific limits apply. No alternative operating scenarios identified.	
3.	List the emissions units involved in this operating scenario.	1, 2a, 3a, 4a, 10, 11, 7-IEU (tank), 8-IEU (tank), 10-IEU (cyclonic burn barrel)
4.	Operating schedule: hours/day	24
	days/week	7
	weeks/year	365
5.	Seasonal variation (%): December - February	None
	March – May	None
	June - August	None
	September - November	None

6. Attach process flow diagram

Form B - Emission Unit Listing for this Application

FORM B
Emission Unit Listing For This Application

Permit Number: AQ0221TVP04, Rev. 1

EMISSION UNIT LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted					
Emission Unit ID Number	Emission Unit Name	Brief Emission Unit Description	Rating/Size	Construction Date	Notes
Emission Units To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)					
2a	Diesel Electric Generator #8	Caterpillar 3512C SN:EBG00834	2,008 bhp 1,360 ekW	~May 2025	Build Date: 08 Oct. 2010
11	Diesel Electric Generator #9	Caterpillar 3516C SN: SCJ00113	2,941 bhp 2,000 ekW	~May 2025	Build Date: 26 Apr. 2010
Note: Addendum #1 to the Minor Permit Application changed the make/model and assoc. emission factors for EU IDs 2a and 11. The original proposed EU 2a was authorized for installation with an OPC.					
Emission Units To Be MODIFIED By This Application					
None.					
Emission Units To Be DELETED By This Application					
2	Diesel Electric Generator #4	Fairbanks Morse 38TD8-1/8, diesel engine	2,403 kW 3,360 bhp	1984	
9-IEU	Lube Oil Storage Tank #3	NA-IEU	8,000 Gallons	1984	

SIGNIFICANT EMISSION UNIT LISTING: Title V permitted emission units that have not been modified				
Emission Unit ID Number	Emission Unit Name	Brief Emission Unit Description	Rating/Size	Installation Date
1	Diesel Electric Generator #3	GM EMD 20-645 E4, diesel engine	2,500 kW 3,600 bhp	1985
3a	Diesel Electric Generator #5a	Caterpillar 3508BDITA, diesel engine	1,000 kW 1,480 bhp	2023 (Mfg. 2004)
4a	Diesel Electric Generator #6a	Caterpillar 3512BDITA, diesel engine	1,620 kW 2,172 bhp	2024 (Mfg. 1999)
10	Diesel Electric Generator #7	GM EMD 20-710 GC-T2, diesel engine	3,580 kW 5,000 bhp	2009
Note: Emission Unit Name for EU ID 10 is "Generator 7." This unit is incorrectly named in the current permit.				

INSIGNIFICANT EMISSION UNIT LISTING: Insignificant Title V permitted emission units that have not been modified				
Emission Unit Name	Brief Emission Unit Description	Rating/Size	Construction Date	Basis for Insignificant Status
7-IEU	Diesel Fuel Storage Tank #1	15,000 Gallons	1984	18 AAC 50.326(g)(21)
8-IEU	Diesel Fuel Storage Tank #2	10,000 Gallons	1984	18 AAC 50.326(g)(21)
12-IEU	Smart Ash Cyclonic Burn Barrel	64 lb/hr	NA	18 AAC 50.326(e)
Note: The Smart Ash Cyclonic Burn Barrel was previously identified as 10-IEU in the list and as EU-11 in the HAP calculations. This was an error. After sequentially identifying the significant units 1 through 11, the Smart Ash Cyclonic Burn Barrel should be labeled as EU ID 12 (12-IEU). This change is not meaningful to the Title V permit itself, but will need to be addressed in the revised minor permit and in the Point Source Emission Inventory in order to clearly and correctly tag units to EU ID numbers without causing confusion.				

Form B2.2 - EU Detail Form (Internal Combustion Equipment), EU ID 2a

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0221TVP04, Rev. 1

1.	Emission Unit ID Number // Operating Scenario	EU ID 2a
2.	Date installation/construction commenced[1]	Build Date: 08 Oct. 2010
3.	Date installed	~May 2025
4.	Emission Unit serial number	EBG00834
5.	Special control requirements? [if yes, describe]	
6.	Manufacturer and model number	Caterpillar 3512C
7.	Type of combustion device	Internal Combustion Engine
8.	Rated design capacity (horsepower rating for engines)	2,008 brake hp
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	1,360 ekW

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
ULSD Fuel	94.9 gph*

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: The original application indicated that EU IDs 2a and 11 would be the same make/model. In the final inspection prior to purchase, EU ID 2a was found to be incompatible with Orca Power Plant's physical design. The purchase was cancelled, and CEC selected two different engines to fill the positions for EU IDs 2a and 11. EU ID 2a and 11 will not be the same make and model, as previously asserted.

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
Please note: Title V conditions referenced below were amended in AQ0221MSS05 and adopted into the Title V permit by administrative amendment. Please refer to the minor permit for full language of revised conditions.					
AQ0221TVP04 Condition 1	18 AAC 50.055(a)(1)	Visible Emissions (Opacity)	20% opacity, 6-minute average	Yes	Conditions 2 through 4
AQ0221TVP04 Condition 5	18 AAC 50.055(b)(1)	Particulate Matter	0.05 gr/dscf	Yes	Condition 6 through 8
AQ0221TVP04 Condition 9	18 AAC 50.18 AAC 50.055(c)	Fuel Sulfur Standard	500 ppm, 3-hour average	Yes	Condition 10
AQ0221TVP04 Condition 12	AQ0221MSS05 Condition 14	SO_2 AAAQS, 3-hr and 24-hr standards	0.0015 wt%S	Yes	AQ0221TVP04 Conditions 12.1 through 12.3
AQ0221TVP04 Condition 13	AQ0221MSS05 Condition 15	NO_2 AAAQS, Annual standard	Refers to Condition 14	Yes	Compliance based upon reasonable inquiry.
AQ0221TVP04 Condition 14	AQ0221MSS05 Conditions 17-20	NOx PSD Avoidance	248 TPY NOx	Yes	AQ0221TVP04 Conditions 14.1 through 14.6, 15 and 16 Revisions requested to this condition. Please refer to Forms E-2. See also Addendum #1 to the Minor Permit Application.
AQ0221TVP04 Conditions 19-24	40 CFR 60, Subpart A	New Source Performance Standards	NSPS General Requirements	Yes	Based on reasonable inquiry.
New Conditions	40 CFR 60 Subpart IIII	New Source Performance Standards	Emission Standards Compression Ignition Internal Combustion Engines	Yes	Please refer to attached NSPS Subpart IIII Regulatory Summary for a complete description of the applicable requirements.

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
AQ0221TVP04 Condition 29.1	40 CFR 63 Subpart ZZZZ	Hazardous Air Pollutants	Work Practice	Yes	This unit will be subject to the requirement of 40 CFR 63.6590(c)(1), as described in Condition 29.1 to AQ0221TVP04

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis
None.	

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

EU ID 2a: NSPS Subpart IIII Regulatory Summary

40 CFR 60 Reference	Description of Requirement
§ 60.4200(a)(2)(i)	NSPS Subpart IIII applies to the stationary Compression Ignition (CI) Internal Combustion Engines (ICE) as units commencing construction after July 11, 2005 and manufactured after April 1, 2006. Engine serial number EBG00834 has a regulatory build date in 2010 as shown in the Engine Emissions Data sheet in Attachment A.
§ 60.4204(b) § 60.4201(a)	The Tier 2 emissions standards for new non-road CI engines rated >560 kW described in 40 CFR part 1039, Appendix I, Table 2 apply. See the performance data sheet in Attachment A and the section "Regulatory Information" for the applicable Tier 2 emissions standards for this engine.
§ 60.4206	The Tier 2 emissions standards apply for the life of the engines.
§ 60.4211(a)	The engines must be operated and maintained according to the manufacturer's emission-related written instructions. Any changes to emission-related settings must be permitted by the manufacturer. Applicable requirements of 40 CFR part 1068 must be met (General Compliance Provisions for Highway, stationary, and non-road programs).
§60.4211(c)	The engines must be certified to meet applicable NSPS Subpart IIII emission standards and installed and configured according to the manufacturer's emission-related specifications. The Certificate of Conformity under which this engine is certified is provided in Attachment A.
§60.4211(g) and §60.4211(g) (3)	If the engine is not installed, configured, operated, and maintained according to the manufacturer's emission-related written instructions, or if emission-related settings are changed in a way that is not permitted by the manufacturer: 1. A maintenance plan and associated recordkeeping are required 2. Operated in a manner consistent with good air pollution control practices for minimizing emissions. Initial and subsequent performance tests every 3 years or 8,760 hours (whichever comes first) are required to demonstrate compliance with emissions standards.
§60.4216(d)	The engine is exempt from the requirement to use ULSD fuel because it is situated in a remote area of Alaska and it was manufactured before 2014.

Notes:

1. EU ID 2a will not be equipped with a diesel particulate filter (DPF).

PERFORMANCE DATA [EBG00834]

(EBG00834)-ENGINE (G5H00883)-GENERATOR (SBG00888)-GENSET

DECEMBER 20, 2024

For Help Desk Phone Numbers Click here

Perf No: DM8261 **Change Level:** 05

General | Heat Rejection | Sound | Emissions | Regulatory | Altitude Derate | Cross Reference | Supplementary Data | Perf Param Ref

View PDF

SALES MODEL:	3512C	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
MACHINE SALES MODEL:		**HERTZ:**	60
ENGINE POWER (BHP):	2,012	**FAN POWER (HP):**	88.5
GEN POWER WITH FAN (EKW):	1,360.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	14.7	**AFTERCOOLER TYPE:**	ATAAC
RATING LEVEL:	PRIME	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
PUMP QUANTITY:	1	**INLET MANIFOLD AIR TEMP (F):**	117
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (F):**	210.2
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ADEM3	**TURBO QUANTITY:**	4
ELECTRONICS TYPE:	ADEM3	**TURBOCHARGER MODEL:**	GTB4708BN-52T-0.96
CAMSHAFT TYPE:	STANDARD	**CERTIFICATION YEAR:**	2006
IGNITION TYPE:	CI	**CRANKCASE BLOWBY RATE (FT3/HR):**	2,009.2
INJECTOR TYPE:	EUI	**FUEL RATE (RATED RPM) NO LOAD (GAL/HR):**	9.8
FUEL INJECTOR:	3920220	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	2,244.1
UNIT INJECTOR TIMING (IN):	64.34		
REF EXH STACK DIAMETER (IN):	10		
MAX OPERATING ALTITUDE (FT):	3,937		

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data Top

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
1,496.0	110	2,200	307	0.332	0.326	103.0	101.0	0.488	0.479
1,360.0	100	2,008	280	0.335	0.329	94.9	93.1	0.495	0.486

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
1,224.0	90	1,811	252	0.342	0.335	87.2	85.6	0.506	0.496
1,088.0	80	1,613	225	0.347	0.340	78.8	77.3	0.514	0.504
1,020.0	75	1,515	211	0.349	0.342	74.5	73.1	0.518	0.508
952.0	70	1,419	198	0.351	0.344	70.2	68.9	0.523	0.513
816.0	60	1,231	172	0.354	0.347	61.5	60.3	0.534	0.524
680.0	50	1,045	146	0.357	0.350	52.6	51.6	0.549	0.538
544.0	40	861	120	0.361	0.354	43.9	43.0	0.572	0.561
408.0	30	675	94	0.372	0.365	35.4	34.7	0.615	0.604
340.0	25	581	81	0.381	0.373	31.2	30.6	0.651	0.639
272.0	20	486	68	0.394	0.386	27.0	26.5	0.704	0.691
136.0	10	291	41	0.453	0.444	18.6	18.2	0.968	0.950

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,496.0	110	2,200	77.3	120.8	1,144.2	74.4	755.6	82	449.2
1,360.0	100	2,008	72.8	116.4	1,106.5	69.4	729.2	77	430.9
1,224.0	90	1,811	68.1	113.8	1,075.8	64.4	716.2	73	413.5
1,088.0	80	1,613	61.7	110.7	1,044.4	57.8	703.6	66	390.3
1,020.0	75	1,515	58.1	109.2	1,028.4	54.2	697.4	62	376.6
952.0	70	1,419	54.1	107.9	1,012.5	50.5	691.6	58	362.0
816.0	60	1,231	45.2	107.2	980.0	42.4	691.8	49	327.8
680.0	50	1,045	35.4	108.0	944.1	33.9	700.9	39	289.1
544.0	40	861	26.2	108.3	901.9	26.2	699.5	29	249.8
408.0	30	675	18.5	106.6	829.9	20.1	674.3	21	212.7
340.0	25	581	15.1	105.7	784.0	17.4	652.1	17	194.6
272.0	20	486	12.0	104.9	730.9	15.0	623.2	14	176.6
136.0	10	291	6.8	103.0	593.2	11.0	528.2	9	145.9

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,496.0	110	2,200	4,789.2	11,383.9	21,143.1	21,873.2	4,605.8	4,184.3
1,360.0	100	2,008	4,621.6	10,715.6	20,388.9	21,062.2	4,431.6	4,034.9
1,224.0	90	1,811	4,426.1	10,128.9	19,509.7	20,128.7	4,235.2	3,867.6
1,088.0	80	1,613	4,179.7	9,406.6	18,363.3	18,922.9	3,976.0	3,639.6
1,020.0	75	1,515	4,034.6	9,009.2	17,688.2	18,217.2	3,828.1	3,507.8
952.0	70	1,419	3,878.0	8,595.6	16,960.6	17,459.0	3,671.0	3,366.7
816.0	60	1,231	3,490.2	7,685.5	15,192.0	15,627.9	3,281.6	3,012.3
680.0	50	1,045	3,040.2	6,710.4	13,180.0	13,553.1	2,842.8	2,611.1
544.0	40	861	2,608.5	5,745.2	11,264.6	11,575.8	2,436.8	2,241.8
408.0	30	675	2,254.2	4,847.1	9,707.7	9,958.9	2,101.5	1,940.6

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
340.0	25	581	2,096.3	4,411.3	9,017.4	9,238.7	1,950.8	1,806.2
272.0	20	486	1,950.6	3,982.3	8,384.1	8,575.6	1,808.2	1,679.7
136.0	10	291	1,708.7	3,160.6	7,332.5	7,464.2	1,573.0	1,475.5

Heat Rejection Data Top

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
1,496.0	110	2,200	28,316	7,071	81,173	37,174	11,927	28,580	93,307	223,925	238,536
1,360.0	100	2,008	26,784	6,701	74,821	33,356	10,995	26,343	85,166	206,437	219,907
1,224.0	90	1,811	25,287	6,419	69,558	30,717	10,105	23,972	76,781	189,722	202,102
1,088.0	80	1,613	23,603	6,149	63,429	27,821	9,131	20,949	68,388	171,426	182,612
1,020.0	75	1,515	22,711	6,018	60,271	26,294	8,632	19,305	64,240	162,059	172,634
952.0	70	1,419	21,803	5,891	57,110	24,750	8,134	17,607	60,194	152,717	162,682
816.0	60	1,231	19,894	5,638	50,703	22,158	7,118	13,824	52,216	133,638	142,358
680.0	50	1,045	17,887	5,384	44,229	19,733	6,091	9,908	44,332	114,356	121,818
544.0	40	861	15,803	5,107	37,639	16,770	5,080	6,490	36,510	95,367	101,590
408.0	30	675	13,648	4,677	30,836	13,338	4,100	4,135	28,639	76,982	82,006
340.0	25	581	12,515	4,458	27,386	11,493	3,614	3,193	24,657	67,854	72,282
272.0	20	486	11,339	4,234	23,901	9,609	3,127	2,410	20,618	58,716	62,547
136.0	10	291	8,768	3,771	16,876	5,392	2,150	1,247	12,331	40,372	43,006

Sound Data Top

Note(s)
SOUND PRESSURE DATA FOR THIS RATING CAN BE FOUND IN PERFORMANCE NUMBER - DM8779.

Emissions Data Top

Units Filter All Units

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	1,496.0 2,200	1,360.0 2,008	1,020.0 1,515	680.0 1,045	340.0 581	136.0 291
PERCENT LOAD		**%**	**110**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	11,543	9,178	5,028	3,716	2,879	2,238
TOTAL CO		G/HR	1,013	843	607	1,040	1,025	1,039
TOTAL HC		G/HR	258	281	284	247	207	247
TOTAL CO2		KG/HR	1,061	975	762	535	319	188
PART MATTER		G/HR	67.6	66.3	70.4	121.2	122.0	73.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,293.9	1,961.1	1,356.4	1,402.9	1,863.8	2,455.7
TOTAL CO	(CORR 5% O2)	MG/NM3	229.6	207.3	190.4	480.1	829.8	1,359.5
TOTAL HC	(CORR 5% O2)	MG/NM3	50.6	59.8	77.7	92.6	137.6	281.1
PART MATTER	(CORR 5% O2)	MG/NM3	12.6	13.5	18.2	47.3	78.0	79.7
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	851.2	727.7	503.3	520.6	691.6	911.2
TOTAL CO	(CORR 15% O2)	MG/NM3	85.2	76.9	70.7	178.2	307.9	504.5
TOTAL HC	(CORR 15% O2)	MG/NM3	18.8	22.2	28.8	34.4	51.0	104.3
PART MATTER	(CORR 15% O2)	MG/NM3	4.7	5.0	6.8	17.6	28.9	29.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,117	955	661	683	908	1,196
TOTAL CO	(CORR 5% O2)	PPM	184	166	152	384	664	1,088
TOTAL HC	(CORR 5% O2)	PPM	94	112	145	173	257	525
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	415	354	245	254	337	444
TOTAL CO	(CORR 15% O2)	PPM	68	62	57	143	246	404
TOTAL HC	(CORR 15% O2)	PPM	35	41	54	64	95	195
TOTAL NOX (AS NO2)		G/HP-HR	5.30	4.62	3.35	3.58	4.98	7.74
TOTAL CO		G/HP-HR	0.46	0.42	0.40	1.00	1.77	3.59
TOTAL HC		G/HP-HR	0.12	0.14	0.19	0.24	0.36	0.85
PART MATTER		G/HP-HR	0.03	0.03	0.05	0.12	0.21	0.25
TOTAL NOX (AS NO2)		G/KW-HR	7.20	6.28	4.55	4.87	6.78	10.53
TOTAL CO		G/KW-HR	0.63	0.58	0.55	1.36	2.41	4.89
TOTAL HC		G/KW-HR	0.16	0.19	0.26	0.32	0.49	1.16
PART MATTER		G/KW-HR	0.04	0.05	0.06	0.16	0.29	0.35
TOTAL NOX (AS NO2)		LB/HR	25.45	20.23	11.09	8.19	6.35	4.93
TOTAL CO		LB/HR	2.23	1.86	1.34	2.29	2.26	2.29
TOTAL HC		LB/HR	0.57	0.62	0.63	0.54	0.46	0.54
TOTAL CO2		LB/HR	2,339	2,150	1,681	1,180	703	415
PART MATTER		LB/HR	0.15	0.15	0.16	0.27	0.27	0.16
OXYGEN IN EXH		%	10.9	11.4	12.3	12.7	13.9	15.8
DRY SMOKE OPACITY		%	1.0	1.2	1.5	3.4	4.9	2.8
BOSCH SMOKE NUMBER			0.77	0.78	0.81	1.11	1.29	1.00

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	1,496.0 2,200	1,360.0 2,008	1,020.0 1,515	680.0 1,045	340.0 581	136.0 291
PERCENT LOAD		**%**	**110**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	13,852	11,014	6,034	4,460	3,455	2,685
TOTAL CO		G/HR	1,824	1,517	1,093	1,872	1,844	1,869
TOTAL HC		G/HR	343	374	378	328	275	328
PART MATTER		G/HR	94.7	92.9	98.6	169.7	170.9	103.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,752.6	2,353.3	1,627.7	1,683.4	2,236.6	2,946.8
TOTAL CO	(CORR 5% O2)	MG/NM3	413.2	373.1	342.7	864.2	1,493.6	2,447.1
TOTAL HC	(CORR 5% O2)	MG/NM3	67.3	79.6	103.3	123.2	183.0	373.9
PART MATTER	(CORR 5% O2)	MG/NM3	17.7	18.9	25.5	66.3	109.2	111.5
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,021.4	873.2	604.0	624.7	829.9	1,093.5
TOTAL CO	(CORR 15% O2)	MG/NM3	153.3	138.4	127.2	320.7	554.2	908.0
TOTAL HC	(CORR 15% O2)	MG/NM3	25.0	29.5	38.3	45.7	67.9	138.7
PART MATTER	(CORR 15% O2)	MG/NM3	6.6	7.0	9.5	24.6	40.5	41.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,341	1,146	793	820	1,089	1,435
TOTAL CO	(CORR 5% O2)	PPM	331	298	274	691	1,195	1,958
TOTAL HC	(CORR 5% O2)	PPM	126	149	193	230	342	698
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	498	425	294	304	404	533
TOTAL CO	(CORR 15% O2)	PPM	123	111	102	257	443	726
TOTAL HC	(CORR 15% O2)	PPM	47	55	72	85	127	259
TOTAL NOX (AS NO2)		G/HP-HR	6.36	5.54	4.02	4.30	5.98	9.29
TOTAL CO		G/HP-HR	0.84	0.76	0.73	1.80	3.19	6.47

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	1,496.0 2,200	1,360.0 2,008	1,020.0 1,515	680.0 1,045	340.0 581	136.0 291
PERCENT LOAD		**%**	**110**	**100**	**75**	**50**	**25**	**10**
TOTAL HC		G/HP-HR	0.16	0.19	0.25	0.32	0.48	1.13
PART MATTER		G/HP-HR	0.04	0.05	0.07	0.16	0.30	0.36
TOTAL NOX (AS NO2)		G/KW-HR	8.64	7.53	5.46	5.84	8.13	12.63
TOTAL CO		G/KW-HR	1.14	1.04	0.99	2.45	4.34	8.79
TOTAL HC		G/KW-HR	0.21	0.26	0.34	0.43	0.65	1.54
PART MATTER		G/KW-HR	0.06	0.06	0.09	0.22	0.40	0.49
TOTAL NOX (AS NO2)		LB/HR	30.54	24.28	13.30	9.83	7.62	5.92
TOTAL CO		LB/HR	4.02	3.35	2.41	4.13	4.07	4.12
TOTAL HC		LB/HR	0.76	0.82	0.83	0.72	0.61	0.72
PART MATTER		LB/HR	0.21	0.20	0.22	0.37	0.38	0.23

Regulatory Information Top

EPA TIER 2	**2006 - 2010**	

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 89 SUBPART D AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 2	CO: 3.5 NOx + HC: 6.4 PM: 0.20

EPA EMERGENCY STATIONARY	**2011 - ----**	

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data Top

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012
1,000	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	1,990	2,012
2,000	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	1,985	1,951	1,919	2,012
3,000	2,012	2,012	2,012	2,012	2,012	2,012	2,012	1,982	1,947	1,913	1,881	1,849	2,012
4,000	2,012	2,012	2,012	2,012	2,012	1,980	1,944	1,910	1,876	1,844	1,812	1,782	2,008
5,000	2,012	2,012	2,012	1,981	1,944	1,908	1,873	1,840	1,807	1,776	1,746	1,717	1,948
6,000	1,996	1,985	1,946	1,908	1,872	1,837	1,804	1,772	1,741	1,711	1,682	1,630	1,889

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
7,000	1,935	1,911	1,873	1,837	1,803	1,769	1,737	1,706	1,676	1,647	1,569	1,469	1,831
8,000	1,876	1,839	1,803	1,769	1,735	1,703	1,672	1,642	1,613	1,585	1,429	1,308	1,774
9,000	1,806	1,770	1,735	1,702	1,670	1,639	1,609	1,580	1,553	1,526	1,268	1,167	1,719
10,000	1,738	1,703	1,669	1,637	1,606	1,577	1,548	1,520	1,494	1,468	1,127	1,026	1,666
11,000	1,529	1,529	1,529	1,529	1,529	1,489	1,388	1,268	1,167	1,086	1,006	905	1,529
12,000	1,489	1,489	1,489	1,489	1,429	1,328	1,227	1,127	1,046	966	885	825	1,489
13,000	1,429	1,429	1,429	1,388	1,288	1,187	1,086	1,006	926	845	805	744	1,429
14,000	1,388	1,388	1,348	1,247	1,147	1,046	966	885	825	765	724	684	1,388
15,000	1,348	1,288	1,187	1,107	1,006	926	845	805	744	704	664	624	1,348

Cross Reference Top

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
0K7017	GG0290	2673949	GS335	-	EBG00001	EBG01331
4183067	GG0761	3869723	GS656	LS	CT200001	CT200374
4183067	GG0761	4869923	PG242	-	LYH00001	
4183067	GG0761	5387621	PG242	-	LYH00001	

Supplementary Data Top

Type	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779

Performance Parameter Reference Top

Parameters Reference: DM9600 - 15

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION: Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS: Power +/- 3% Torque +/- 3% Exhaust stack temperature +/- 8% Inlet airflow +/- 5% Intake manifold

pressure-gage +/- 10% Exhaust flow +/- 6% Specific fuel consumption +/- 3% Specific fuel consumption (C7-C18) +/- 4% Fuel rate +/- 5% Specific DEF consumption +/- 3% DEF rate +/- 5% Heat rejection +/- 5% Heat rejection exhaust only +/- 10% Heat rejection CEM only +/- 10%
Heat Rejection values based on using treated water.
Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.
On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.
On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.
These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS: Heat rejection +/- 10% Heat rejection to Atmosphere +/- 50% Heat rejection to Lube Oil +/- 20% Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS: Torque +/- 0.5% Speed +/- 0.2% Fuel flow +/- 1.0% Temperature +/- 2.0 C degrees Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.
FOR 3600 ENGINES Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL DIESEL Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal).
GAS Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.
Standard temperature values versus altitude could be seen on TM2001.
When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.
Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.
Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded

EMISSIONS DEFINITIONS: Emissions : DM1176

EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500

RATING DEFINITIONS: Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037
Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038

SOUND DEFINITIONS: Sound Power : DM8702
Sound Pressure : TM7080

Date Released : 03/12/24

ENG CERTIFICATION STATUS [EBG00834]

(EBG00834)-ENGINE (G5H00883)-GENERATOR (SBG00888)-GENSET

DECEMBER 20, 2024

For Help Desk Phone Numbers Click here (/tmi/tmihome/TMIContactInfo.htm)

Emissions Certificates Search (https://emissions.cat.com/publicSearch)

Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC Request Portal (https://ercrequestspilotprogram.atlassian.net/servicedesk/customer/portal/2)

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	**EBG00834**
Generator Number	G5H00883
Genset Number	SBG00888

Sales Model	3512
Regulatory Build Date	08-OCT-2010
As Shipped Data	
Engine Arrangement Number	2673949
Certification Arrangement	2801098
Test Spec Number	0K7017
Regulatory Status	EPA/CARB @ Constant Speed W/ NOx & PM FEL
EPA Family Code	ACPXL58.6T2X (https://cat-cert-repo-prod-cdn.azureedge.net/archive/ACPXL58.6T2X_CPX-NRCI-10-21.1_COC.pdf?BSiI8sovqtsC7aP_0AiVBA4uBKZPNRQIc2gAa_KULtVh0CvhdavDMBr42GP_re0F)
EPA Emissions Level	2
As-Shipped Flash File	3513559
CORR FL Power at RPM	2,253 HP (1,680.0 KW)1800 RPM

Advertised Power	2,012 HP 1,800RPM
Total Displacement	51.8 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or validity of the information and is not liable for any errors or omissions contained therein. All information provided should be independently verified and confirmed, including by examining the emissions label located on the engine.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF TRANSPORTATION AND AIR QUALITY
WASHINGTON, DC 20460

CERTIFICATE OF CONFORMITY
2010 MODEL YEAR

Manufacturer:	**CATERPILLAR, INC.**
Engine Family:	**ACPXL58.6T2X**
Certificate Number:	**CPX-NRCI-10-21.1**
Intended Service Class:	**NR 9 (>560)**
Fuel Type:	**DIESEL**
FELs: g/kW-hr	NMHC + NOx: **6.1** NOx: **NA** PM: **0.18**
Effective Date:	**6/18/2010**
Date Issued:	**6/18/2010**

Karl J. Simon, Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60 and Part 89, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following stationary and nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and 89, and produced in the stated model year.

This certificate of conformity covers only those new stationary and nonroad compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and 89 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60 and 89.

This certificate of conformity is conditional upon compliance of said manufacturer with the averaging, banking and trading provisions of 40 CFR Part 89, Subpart C. Failure to comply with these provisions may render this certificate void ab initio.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 89.129-96 and 89.506-96 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to a revocation or suspension of this certificate for reasons specified in 40 CFR Part 89. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 89.

This certificate does not cover stationary and nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Form B2.3 - EU Detail Form (Internal Combustion Equipment), EU ID 11

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0221TVP04, Rev. 1

1.	Emission Unit ID Number // Operating Scenario	EU ID 11
2.	Date installation/construction commenced[1]	Build Date: 26 Apr. 2010 Model Year: 2013
3.	Date installed	~May 2025
4.	Emission Unit serial number	SCJ00113
5.	Special control requirements? [if yes, describe]	
6.	Manufacturer and model number	Caterpillar 3516
7.	Type of combustion device	Internal Combustion Engine
8.	Rated design capacity (horsepower rating for engines)	2,941 brake hp
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	2,000 ekW

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
ULSD Fuel	137.6 gph*

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: The original application indicated that EU IDs 2a and 11 would be the same make/model. In the final inspection prior to purchase, EU ID 2a was found to be incompatible with Orca Power Plant's physical design. The purchase was cancelled, and CEC selected two different engines to fill the positions for EU IDs 2a and 11. EU ID 2a and 11 will not be the same make and model, as previously asserted.

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
Please note: Title V conditions referenced below were amended in AQ0221MSS05 and adopted into the Title V permit by administrative amendment. Please refer to the minor permit for full language of revised conditions.					
AQ0221TVP04 Condition 1	18 AAC 50.055(a)(1)	Visible Emissions (Opacity)	20% opacity, 6-minute average	Yes	Conditions 2 through 4
AQ0221TVP04 Condition 5	18 AAC 50.055(b)(1)	Particulate Matter	0.05 gr/dscf	Yes	Condition 6 through 8
AQ0221TVP04 Condition 9	18 AAC 50.18 AAC 50.055(c)	Fuel Sulfur Standard	500 ppm, 3-hour average	Yes	Condition 10
AQ0221TVP04 Condition 12	AQ0221MSS05 Condition 14	SO_2 AAAQS, 3-hr and 24-hr standards	0.0015 wt%S	Yes	AQ0221TVP04 Conditions 12.1 through 12.3
AQ0221TVP04 Condition 13	AQ0221MSS05 Condition 15	NO_2 AAAQS, Annual standard	Refers to Condition 14	Yes	Compliance based upon reasonable inquiry.
AQ0221TVP04 Condition 14	AQ0221MSS05 Conditions 17-20	NOx PSD Avoidance	248 TPY NOx	Yes	AQ0221TVP04 Conditions 14.1 through 14.6, 15 and 16 Revisions requested to this condition. Please refer to Forms E-2. See also Addendum #1 to the Minor Permit Application.
AQ0221TVP04 Conditions 19-24	40 CFR 60, Subpart A	New Source Performance Standards	NSPS General Requirements	Yes	Based on reasonable inquiry.
New Conditions	40 CFR 60 Subpart IIII	New Source Performance Standards	Emission Standards Compression Ignition Internal Combustion Engines	Yes	Please refer to attached NSPS Subpart IIII Regulatory Summary for a complete description of the applicable requirements.

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
AQ0221TVP04 Condition 29.1	40 CFR 63 Subpart ZZZZ	Hazardous Air Pollutants	Work Practice	Yes	This unit will be subject to the requirement of 40 CFR 63.6590(c)(1), as described in Condition 29.1 to AQ0221TVP04

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis
None.	

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

EU ID 11: NSPS Subpart IIII Regulatory Summary

40 CFR 60 Reference	Description of Requirement
§ 60.4200(a)(2)(i)	NSPS Subpart IIII applies to the stationary Compression Ignition (CI) Internal Combustion Engines (ICE) as units commencing construction after July 11, 2005 and manufactured after April 1, 2006. Engine serial number SCJ00113 has a regulatory build date in 2010 and is certified to Model Year 2013 as shown in the Engine Emissions Data sheet in Attachment A.
§ 60.4204(b) § 60.4201(a)	Tier IVi emissions standards for new non-road CI engines rated >560 kW described in 40 CFR part 1039, Table 7 (generator sets). See the performance data sheet in Attachment A and the section "Regulatory Information" for the applicable Tier IVi emissions standards for this engine.
§ 60.4206	The Tier IVi emissions standards apply for the life of the engines.
§ 60.4209(b)	The engine is equipped with a diesel particulate filter. A backpressure monitor must be installed that notifies the owner/operator when the high backpressure limit of the engine is approached.
§ 60.4211(a)	The engines must be operated and maintained according to the manufacturer's emission-related written instructions. Any changes to emission-related settings must be permitted by the manufacturer. Applicable requirements of 40 CFR part 1068 must be met (General Compliance Provisions for Highway, stationary, and non-road programs).
§60.4211(c)	The engines must be certified to meet applicable NSPS Subpart IIII emission standards and installed and configured according to the manufacturer's emission-related specifications. The Certificate of Conformity under which this engine is certified is provided in Attachment A.
§60.4211(g) and §60.4211(g) (3)	If the engine is not installed, configured, operated, and maintained according to the manufacturer's emission-related written instructions, or if emission-related settings are changed in a way that is not permitted by the manufacturer: 1. A maintenance plan and associated recordkeeping are required 2. Operated in a manner consistent with good air pollution control practices for minimizing emissions. Initial and subsequent performance tests every 3 years or 8,760 hours (whichever comes first) are required to demonstrate compliance with emissions standards.
§60.4214(c)	Keep records of any corrective action taken after the backpressure monitor has notified the owner/operator that the high backpressure limit of the engine is approached.
§60.4216(d)	The engine is exempt from the requirement to use ULSD fuel because it is situated in a remote area of Alaska and it was manufactured before 2014.

PERFORMANCE DATA [DM9368]

NOVEMBER 07, 2024

For Help Desk Phone Numbers Click here

Perf No: DM9368 **Change Level:** 04

General | Heat Rejection | Sound | Emissions | Regulatory | Altitude Derate | Cross Reference | Supplementary Data | Perf Param Ref

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SALES MODEL:	3516C	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
MACHINE SALES MODEL:		**HERTZ:**	60
ENGINE POWER (BHP):	2,944	**FAN POWER (HP):**	130.1
GEN POWER WITH FAN (EKW):	2,000.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	14	**AFTERCOOLER TYPE:**	ATAAC
RATING LEVEL:	STANDBY	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
PUMP QUANTITY:	1	**INLET MANIFOLD AIR TEMP (F):**	113
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (F):**	210.2
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ADEM4	**TURBO QUANTITY:**	4
ELECTRONICS TYPE:	ADEM4	**TURBOCHARGER MODEL:**	GTB6041BN-48T-1.04
CAMSHAFT TYPE:	STANDARD	**CERTIFICATION YEAR:**	2011
IGNITION TYPE:	CI	**FUEL RATE (RATED RPM) NO LOAD (GAL/HR):**	16.1
INJECTOR TYPE:	EUI	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	2,539.4
REF EXH STACK DIAMETER (IN):	12		
MAX OPERATING ALTITUDE (FT):	9,022		

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data Top

Note(s)

THE INLET MANIFOLD AIR TEMP LISTED IN THE HEADER, AND IN THE GENERAL PERFORMANCE DATA, IS THE AVERAGE INLET MANIFOLD TEMP FRONT TO REAR ON THE ENGINE.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
2,000.0	100	2,941	272	0.332	0.325	137.6	135.0	0.488	0.479
1,800.0	90	2,660	246	0.333	0.326	124.8	122.4	0.492	0.482
1,600.0	80	2,382	220	0.335	0.329	112.5	110.3	0.499	0.489
1,500.0	75	2,243	207	0.337	0.331	106.6	104.6	0.504	0.495
1,400.0	70	2,104	194	0.341	0.334	101.1	99.2	0.512	0.502
1,200.0	60	1,828	169	0.350	0.343	90.1	88.4	0.532	0.522
1,000.0	50	1,552	143	0.354	0.347	77.5	76.0	0.550	0.539
800.0	40	1,282	118	0.361	0.354	65.3	64.0	0.579	0.568
600.0	30	1,010	93	0.375	0.368	53.4	52.4	0.631	0.619
500.0	25	872	81	0.384	0.376	47.1	46.2	0.669	0.656
400.0	20	731	67	0.392	0.384	40.4	39.6	0.716	0.702
200.0	10	438	40	0.445	0.437	27.5	26.9	0.974	0.956

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
2,000.0	100	2,941	58.4	111.5	1,204.7	49.7	916.8	63	370.0
1,800.0	90	2,660	51.5	108.3	1,175.1	44.3	910.4	56	346.3
1,600.0	80	2,382	45.0	105.5	1,144.6	39.3	898.3	49	322.3
1,500.0	75	2,243	42.0	104.3	1,129.6	37.0	891.6	46	310.4
1,400.0	70	2,104	39.4	103.4	1,114.9	34.9	884.8	43	299.9
1,200.0	60	1,828	34.3	102.1	1,086.2	31.1	869.9	38	278.9
1,000.0	50	1,552	27.6	99.2	1,039.8	26.3	841.7	31	249.0
800.0	40	1,282	21.5	98.6	981.3	21.9	807.4	24	220.0
600.0	30	1,010	16.1	97.7	904.6	18.2	760.3	18	191.9
500.0	25	872	13.4	96.3	850.1	16.2	717.9	16	176.6
400.0	20	731	10.3	94.7	778.0	13.9	657.1	12	158.5
200.0	10	438	5.6	92.5	616.7	10.5	529.7	7	131.6

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
2,000.0	100	2,941	6,117.8	16,296.7	26,679.4	27,655.5	5,821.1	5,313.4
1,800.0	90	2,660	5,649.7	14,919.1	24,540.7	25,426.4	5,353.9	4,890.6
1,600.0	80	2,382	5,233.5	13,623.3	22,636.4	23,434.5	4,932.6	4,514.1
1,500.0	75	2,243	5,044.5	13,036.8	21,779.2	22,536.4	4,743.5	4,345.6
1,400.0	70	2,104	4,872.6	12,509.4	21,010.6	21,728.4	4,574.6	4,195.7
1,200.0	60	1,828	4,529.8	11,461.7	19,497.9	20,136.8	4,238.6	3,897.3
1,000.0	50	1,552	4,081.8	10,058.8	17,503.2	18,052.8	3,800.4	3,505.0
800.0	40	1,282	3,648.3	8,709.5	15,591.9	16,054.7	3,379.6	3,128.5
600.0	30	1,010	3,264.0	7,477.9	13,930.3	14,309.0	3,013.6	2,804.2
500.0	25	872	3,074.2	6,792.8	13,112.0	13,446.6	2,836.3	2,648.4
400.0	20	731	2,849.6	5,937.6	12,132.8	12,419.2	2,614.1	2,450.9

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
200.0	10	438	2,527.3	4,684.4	10,754.6	10,949.4	2,327.8	2,206.2

Heat Rejection Data Top

Note(s)

HEAT REJECTION TO ATMOSPHERE SHOWN HERE IS ENGINE ONLY. CEM HEAT REJECTION TO ATMOSPHERE SHOWN IN THE SUPPLEMENTARY DATA IS THE ADDITIONAL HEAT REJECTED TO ATMOSPHERE FROM THE CEM. THIS ADDIT

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
2,000.0	100	2,941	40,137	8,595	117,592	66,550	15,934	27,755	124,739	299,165	318,686
1,800.0	90	2,660	37,265	8,230	107,071	60,439	14,452	23,576	112,812	271,341	289,046
1,600.0	80	2,382	34,765	7,921	96,968	54,405	13,027	19,880	100,998	244,583	260,543
1,500.0	75	2,243	33,626	7,807	92,267	51,635	12,352	18,062	95,121	231,910	247,042
1,400.0	70	2,104	32,494	7,660	88,043	49,106	11,709	16,552	89,226	219,828	234,172
1,200.0	60	1,828	30,269	7,310	79,707	44,130	10,432	13,963	77,505	195,863	208,643
1,000.0	50	1,552	27,435	6,926	68,593	37,291	8,972	10,585	65,823	168,453	179,445
800.0	40	1,282	24,601	6,521	58,060	30,727	7,559	7,637	54,383	141,923	151,184
600.0	30	1,010	21,553	6,025	47,781	24,426	6,182	5,286	42,840	116,063	123,636
500.0	25	872	20,101	5,692	42,164	20,481	5,460	4,213	36,971	102,516	109,205
400.0	20	731	18,971	5,327	35,071	15,693	4,675	3,089	30,983	87,777	93,505
200.0	10	438	14,511	4,702	24,157	7,981	3,182	1,703	18,564	59,734	63,631

Sound Data Top

Note(s)

SOUND DATA REPRESENTATIVE OF NOISE PRODUCED BY THE "ENGINE AND CEM" AS A UNIT WITHOUT A MUFFLER INSTALLED

EXHAUST:SOUND POWER(1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,000.0	100	2,941	97.8	68.7	75.2	74.3	82.8	87.5	87.1	84.5	88.6	88.2	91.2
1,800.0	90	2,660	95.8	67.9	74.7	72.8	80.9	85.7	85.4	83.1	86.6	86.1	88.8
1,600.0	80	2,382	94.0	67.4	74.6	71.3	79.2	84.1	84.0	82.4	85.0	84.3	86.7
1,500.0	75	2,243	93.2	67.2	74.7	70.6	78.4	83.4	83.5	82.1	84.2	83.4	85.6
1,400.0	70	2,104	92.3	67.0	74.7	69.8	77.5	82.7	82.8	81.8	83.4	82.5	84.6
1,200.0	60	1,828	90.7	66.6	74.9	68.3	75.7	81.2	81.5	81.3	81.8	80.8	82.6
1,000.0	50	1,552	89.4	64.9	75.8	67.5	74.6	79.5	79.8	80.5	80.4	79.6	81.1
800.0	40	1,282	88.0	65.1	75.5	65.7	72.7	78.2	78.9	80.2	78.9	77.6	78.8
600.0	30	1,010	86.6	64.6	75.5	64.9	70.8	76.6	77.4	79.4	77.3	75.9	76.8
500.0	25	872	86.2	62.8	76.3	65.9	70.4	75.4	75.9	78.6	76.4	75.6	76.5
400.0	20	731	85.9	60.9	77.1	67.0	70.1	74.4	74.5	77.8	75.5	75.5	76.4
200.0	10	438	85.8	60.5	77.3	67.2	70.0	74.2	74.2	77.6	75.3	75.5	76.3

EXHAUST:SOUND POWER(1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,000.0	100	2,941	90.3	85.2	82.8	79.8	77.1	73.8	69.3	63.6	63.3	55.1	61.1
1,800.0	90	2,660	87.9	82.9	80.7	77.9	75.4	72.0	67.7	62.3	62.1	55.2	61.1
1,600.0	80	2,382	85.5	80.4	78.5	76.3	74.0	70.6	66.5	61.7	61.7	55.6	58.4
1,500.0	75	2,243	84.3	79.1	77.4	75.6	73.3	70.0	66.0	61.5	61.6	56.0	56.6
1,400.0	70	2,104	83.1	77.9	76.3	74.9	72.6	69.3	65.5	61.3	61.5	56.3	54.9
1,200.0	60	1,828	80.7	75.5	74.1	73.5	71.2	67.9	64.5	60.9	61.3	57.0	51.4
1,000.0	50	1,552	79.5	74.8	73.0	73.1	70.8	67.4	63.5	60.8	61.4	55.0	49.7
800.0	40	1,282	76.6	71.5	70.3	71.3	69.0	65.7	62.5	60.2	61.1	56.8	45.4
600.0	30	1,010	74.2	69.3	68.4	69.9	67.7	64.5	61.7	59.8	60.8	57.3	42.4
500.0	25	872	74.5	70.6	69.2	70.2	68.2	65.0	61.6	59.9	60.9	54.2	43.5
400.0	20	731	75.0	72.2	70.2	70.8	68.9	65.6	61.5	60.1	61.0	51.2	45.0
200.0	10	438	75.1	72.5	70.4	70.9	69.0	65.7	61.5	60.1	61.0	50.5	45.2

MECHANICAL:SOUND POWER(1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,000.0	100	2,941	123.0	89.3	107.2	96.2	99.4	100.3	102.8	101.0	105.5	106.8	108.7
1,800.0	90	2,660	122.2	88.6	106.6	95.4	98.5	99.4	102.5	100.9	105.4	106.5	108.6
1,600.0	80	2,382	121.4	88.1	106.0	94.6	97.5	98.5	102.0	100.9	104.7	106.1	108.6
1,500.0	75	2,243	121.1	88.0	105.7	94.1	97.0	98.1	101.8	100.8	104.2	106.0	108.6
1,400.0	70	2,104	120.8	87.8	105.4	93.5	96.3	97.5	101.4	100.5	103.8	105.9	108.4
1,200.0	60	1,828	120.3	87.7	104.7	92.0	94.5	96.2	100.4	99.7	103.4	106.1	107.7
1,000.0	50	1,552	119.9	87.8	104.3	91.0	93.7	95.8	99.7	101.4	103.4	106.2	107.3
800.0	40	1,282	119.5	87.9	103.9	90.9	93.3	95.6	98.5	101.6	103.9	106.0	107.7
600.0	30	1,010	119.3	87.6	103.4	90.9	93.6	95.3	97.8	100.6	105.1	106.1	108.3
500.0	25	872	119.1	87.1	103.3	90.5	94.3	95.2	98.2	100.3	105.9	106.6	108.6
400.0	20	731	119.0	86.5	103.1	90.2	94.9	95.0	98.8	100.2	106.6	107.1	109.0
200.0	10	438	119.0	85.8	102.4	90.0	94.7	95.5	99.2	101.4	106.4	107.7	109.7

MECHANICAL:SOUND POWER(1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,000.0	100	2,941	112.2	113.0	111.8	111.5	110.6	110.0	109.1	108.6	107.3	106.4	117.7
1,800.0	90	2,660	112.1	112.5	111.3	111.2	110.3	109.7	108.8	108.3	106.8	106.2	115.9
1,600.0	80	2,382	111.8	111.9	110.9	110.7	109.8	109.2	108.2	107.8	106.2	106.4	113.6
1,500.0	75	2,243	111.6	111.6	110.7	110.3	109.6	109.0	107.9	107.5	105.9	106.8	112.4
1,400.0	70	2,104	111.4	111.3	110.5	109.9	109.4	108.7	107.5	107.2	105.7	108.0	110.7
1,200.0	60	1,828	111.1	110.8	110.3	109.5	109.0	108.2	106.9	106.6	105.4	111.2	106.5
1,000.0	50	1,552	110.9	110.7	110.0	109.4	108.8	108.1	106.5	106.2	105.2	109.7	102.5
800.0	40	1,282	110.9	110.6	109.5	109.1	108.7	107.7	106.0	105.9	107.0	105.7	100.0
600.0	30	1,010	110.8	110.2	108.8	108.8	108.4	107.3	105.4	105.6	107.7	101.8	98.3
500.0	25	872	110.7	109.9	108.6	108.7	108.3	107.0	105.1	105.7	106.0	100.6	97.5
400.0	20	731	110.7	109.7	108.4	108.6	108.2	106.8	104.8	105.7	104.0	99.7	96.6
200.0	10	438	110.3	109.8	108.1	108.4	108.1	106.8	105.7	104.9	102.0	98.7	95.0

Emissions Data Top

Units Filter All Units

Note(s)

EMISSIONS VALUES ARE TAILPIPE OUT WITH AFTERTREATMENT. VALUES SHOWN AS ZERO MAY BE GREATER THAN ZERO BUT WERE BELOW THE DETECTION LEVEL OF THE EQUIPMENT USED AT TIME OF MEASUREMENT.

CATERPILLAR EMISSIONS CERTIFIED ENGINES TESTED WITHIN EPA SPECIFIED TEST CONDITIONS, AND USING TITLE 40 CFR PART 1065 TEST PROTOCOL, MEET THE NEW SOURCE PERFORMANCE STANDARDS. POTENTIAL SITE VAI

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	2,000.0 2,941	1,500.0 2,243	1,000.0 1,552	500.0 872	200.0 438
PERCENT LOAD		%	100	75	50	25	10
METHANOL	(CORR 15% O2)	PPM	0.001	0.0019063154	0.001	0.0017393932	0.010328611
TOTAL NOX (AS NO2)		G/HR	1,117	775	462	274	336
TOTAL CO		G/HR	72	49	32	20	16
TOTAL HC		G/HR	21	24	23	18	22
TOTAL CO2		KG/HR	1,445	1,110	805	489	287
PART MATTER		G/HR	26.7	26.2	23.6	21.3	9.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	168.4	151.9	125.6	123.1	268.6
TOTAL CO	(CORR 5% O2)	MG/NM3	11.4	10.1	9.1	9.3	12.8
TOTAL HC	(CORR 5% O2)	MG/NM3	2.9	4.3	5.6	7.3	15.2
PART MATTER	(CORR 5% O2)	MG/NM3	3.5	4.5	5.7	8.6	6.9
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	62.5	56.4	46.6	45.7	99.7
TOTAL CO	(CORR 15% O2)	MG/NM3	4.2	3.8	3.4	3.4	4.8
TOTAL HC	(CORR 15% O2)	MG/NM3	1.1	1.6	2.1	2.7	5.7
PART MATTER	(CORR 15% O2)	MG/NM3	1.3	1.7	2.1	3.2	2.5
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	82	74	61	60	131
TOTAL CO	(CORR 5% O2)	PPM	9	8	7	7	10
TOTAL HC	(CORR 5% O2)	PPM	5	8	10	14	28
FORMALDEHYDE	(CORR 5% O2)	PPM	0.05	0.05	0.05	0.11	0.37
ACROLEIN	(CORR 5% O2)	PPM	0.01	0.00	0.00	0.00	0.01
ACETALDEHYDE	(CORR 5% O2)	PPM	0.01	0.01	0.01	0.01	0.02
METHANOL	(CORR 5% O2)	PPM	0.00	0.01	0.00	0.00	0.03
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	30	27	23	22	49
TOTAL CO	(CORR 15% O2)	PPM	3	3	3	3	4
TOTAL HC	(CORR 15% O2)	PPM	2	3	4	5	11
TOTAL NOX (AS NO2)		G/HP-HR	0.38	0.35	0.30	0.32	0.77
TOTAL CO		G/HP-HR	0.02	0.02	0.02	0.02	0.04
TOTAL HC		G/HP-HR	0.01	0.01	0.01	0.02	0.05
PART MATTER		G/HP-HR	0.01	0.01	0.02	0.02	0.02
TOTAL NOX (AS NO2)		G/KW-HR	0.52	0.47	0.41	0.43	1.05
TOTAL CO		G/KW-HR	0.03	0.03	0.03	0.03	0.05
TOTAL HC		G/KW-HR	0.01	0.01	0.02	0.03	0.07
PART MATTER		G/KW-HR	0.01	0.02	0.02	0.03	0.03
TOTAL NOX (AS NO2)		LB/HR	2.46	1.71	1.02	0.60	0.74
TOTAL CO		LB/HR	0.16	0.11	0.07	0.04	0.03
TOTAL HC		LB/HR	0.05	0.05	0.05	0.04	0.05
TOTAL CO2		LB/HR	3,185	2,447	1,776	1,077	632
PART MATTER		LB/HR	0.06	0.06	0.05	0.05	0.02
OXYGEN IN EXH		%	9.6	10.3	11.4	13.2	15.5
DRY SMOKE OPACITY		%	0.0	0.0	0.5	1.4	0.6
BOSCH SMOKE NUMBER			0.66	0.67	0.73	0.80	0.73

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	2,000.0 2,941	1,500.0 2,243	1,000.0 1,552	500.0 872	200.0 438
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	1,788	1,240	740	438	537
TOTAL CO		G/HR	367	251	165	102	81
TOTAL HC		G/HR	95	108	102	81	99
PART MATTER		G/HR	69.3	68.2	61.4	55.3	24.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	269.4	243.1	200.9	196.9	429.7
TOTAL CO	(CORR 5% O2)	MG/NM3	58.0	51.6	46.6	47.3	65.3
TOTAL HC	(CORR 5% O2)	MG/NM3	12.9	19.3	25.0	32.6	68.5
PART MATTER	(CORR 5% O2)	MG/NM3	9.1	11.8	14.8	22.4	17.8
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	100.0	90.2	74.5	73.1	159.5
TOTAL CO	(CORR 15% O2)	MG/NM3	21.5	19.2	17.3	17.5	24.2
TOTAL HC	(CORR 15% O2)	MG/NM3	4.8	7.1	9.3	12.1	25.4
PART MATTER	(CORR 15% O2)	MG/NM3	3.4	4.4	5.5	8.3	6.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	131	118	98	96	209
TOTAL CO	(CORR 5% O2)	PPM	46	41	37	38	52
TOTAL HC	(CORR 5% O2)	PPM	24	36	47	61	128
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	49	44	36	36	78
TOTAL CO	(CORR 15% O2)	PPM	17	15	14	14	19
TOTAL HC	(CORR 15% O2)	PPM	9	13	17	23	47
TOTAL NOX (AS NO2)		G/HP-HR	0.61	0.56	0.48	0.50	1.23
TOTAL CO		G/HP-HR	0.13	0.11	0.11	0.12	0.19
TOTAL HC		G/HP-HR	0.03	0.05	0.07	0.09	0.23
PART MATTER		G/HP-HR	0.02	0.03	0.04	0.06	0.06
TOTAL NOX (AS NO2)		G/KW-HR	0.83	0.76	0.65	0.69	1.68
TOTAL CO		G/KW-HR	0.17	0.15	0.15	0.16	0.25
TOTAL HC		G/KW-HR	0.04	0.07	0.09	0.13	0.31
PART MATTER		G/KW-HR	0.03	0.04	0.05	0.09	0.08
TOTAL NOX (AS NO2)		LB/HR	3.94	2.73	1.63	0.96	1.18
TOTAL CO		LB/HR	0.81	0.55	0.36	0.22	0.18
TOTAL HC		LB/HR	0.21	0.24	0.22	0.18	0.22
PART MATTER		LB/HR	0.15	0.15	0.14	0.12	0.05

Regulatory Information Top

EPA TIER 4 FINAL	2015 - ----			
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS BY PARTICIPATING IN THE AVERAGE, BANKING, AND TRADING PROGRAM.				
Locality	**Agency**	**Regulation**	**Tier/Stage**	**Max Limits - G/BKW - HR**
U.S. (INCL CALIF)	EPA	NON-ROAD GENSET	TIER 4 FINAL	CO: 3.5 NOx: 0.67 HC: 0.19 PM: 0.03

EPA TIER 4 INTERIM	2011 - 2014			
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.				
Locality	**Agency**	**Regulation**	**Tier/Stage**	**Max Limits - G/BKW - HR**
U.S. (INCL CALIF)	EPA	NON-ROAD GENSET	TIER 4 INTERIM	CO: 3.5 NOx: 0.67 HC: 0.4 PM: 0.10

EPA NON-EMERGENCY STATIONARY GENSET	2015 - ----			
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-EMERGENCY STATIONARY REGULATIONS BY PARTICIPATING IN THE AVERAGE, BANKING, AND TRADING PROGRAM.				
Locality	**Agency**	**Regulation**	**Tier/Stage**	**Max Limits - G/BKW - HR**
U.S. (INCL CALIF)	EPA	STATIONARY	NON-EMERGENCY STATIONARY GENSET	CO: 3.5 NOx: 0.67 HC: 0.19 PM: 0.03

Altitude Derate Data Top

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944
1,000	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944
2,000	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944
3,000	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944
4,000	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944
5,000	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944
6,000	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,935	2,885	2,837	2,944
7,000	2,944	2,944	2,944	2,944	2,944	2,944	2,944	2,926	2,874	2,825	2,777	2,730	2,944
8,000	2,944	2,944	2,944	2,944	2,944	2,919	2,866	2,815	2,766	2,718	2,672	2,627	2,944
9,000	2,944	2,944	2,944	2,916	2,861	2,808	2,757	2,708	2,660	2,614	2,570	2,527	2,944
10,000	2,944	2,916	2,859	2,804	2,751	2,700	2,651	2,604	2,558	2,514	2,471	2,430	2,853
11,000	2,861	2,804	2,749	2,696	2,645	2,596	2,549	2,503	2,459	2,417	2,376	2,336	2,762
12,000	2,750	2,695	2,642	2,591	2,542	2,495	2,449	2,406	2,363	2,323	2,283	2,245	2,673
13,000	2,642	2,589	2,539	2,490	2,443	2,397	2,354	2,312	2,271	2,232	2,194	2,157	2,587
14,000	2,539	2,488	2,439	2,392	2,347	2,303	2,262	2,221	2,182	2,144	2,108	2,073	2,504
15,000	2,439	2,390	2,343	2,298	2,255	2,213	2,173	2,134	2,096	2,060	2,025	1,991	2,423

Cross Reference Top

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
3704798	LL6338	3709874	GS538	-	SCJ00001	SCJ00114
3704981	GG0624	3994250	GS718	-	DD700001	
3704981	GG0624	5075758	GS538	-	SCJ01000	
4581574	LL6763	5157722	PG238	-	LY600001	
4581574	LL8887	5157722	PG238	-	LY600001	

Supplementary Data Top

Type	Classification	Performance Number
AFTERTREATMENT	SCR	DM8842

Performance Parameter Reference Top

Parameters Reference: DM9600 - 15

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION: Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS: Power +/- 3% Torque +/- 3% Exhaust stack temperature +/- 8% Inlet airflow +/- 5% Intake manifold pressure-gage +/- 10% Exhaust flow +/- 6% Specific fuel consumption +/- 3% Specific fuel consumption (C7-C18) +/- 4% Fuel rate +/- 5% Specific DEF consumption +/- 3% DEF rate +/- 5% Heat rejection +/- 5% Heat rejection exhaust only +/- 10% Heat rejection CEM only +/- 10%

Heat Rejection values based on using treated water.
Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.
On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.
On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.
These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS: Heat rejection +/- 10% Heat rejection to Atmosphere +/- 50% Heat rejection to Lube Oil +/- 20% Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS: Torque +/- 0.5% Speed +/- 0.2% Fuel flow +/- 1.0% Temperature +/- 2.0 C degrees Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.
FOR 3600 ENGINES Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL DIESEL Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal).
GAS Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.
Standard temperature values versus altitude could be seen on TM2001.
When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.
Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.
Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded

EMISSIONS DEFINITIONS: Emissions : DM1176

EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500

RATING DEFINITIONS: Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037
Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038

SOUND DEFINITIONS: Sound Power : DM8702
Sound Pressure : TM7080

Date Released : 03/12/24

ENG CERTIFICATION STATUS [SCJ00113]

(SCJ00113)-ENGINE (4GN01106)-GENERATOR

DECEMBER 20, 2024

For Help Desk Phone Numbers Click here (/tmi/tmihome/TMIContactInfo.htm)

Emissions Certificates Search (https://emissions.cat.com/publicSearch)

Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC Request Portal (https://ercrequestspilotprogram.atlassian.net/servicedesk/customer/portal/2)

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	**SCJ00113**
Sales Model	3516
Regulatory Build Date	26-APR-2010
As Shipped Data	
Engine Arrangement Number	3709874
Certification Arrangement	

Test Spec Number	3704798
Regulatory Status	EPA/CARB @ Constant Speed
Labeled Model Year	2013
EPA Family Code	DCPXL78.1NSA
EPA Emissions Level	EPA TIER 4i
As-Shipped Flash File	394-6297
CORR FL Power at RPM	No Power Available1800 RPM
Advertised Power	2,937 HP 1,800RPM
Total Displacement	78.1 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or validity of the information and is not liable for any errors or omissions contained therein. All information provided should be independently verified and confirmed, including by examining the emissions label located on the engine.

ENG CERTIFICATION STATUS [SCJ00113]

(SCJ00113)-ENGINE (4GN01106)-GENERATOR

NOVEMBER 15, 2024

For Help Desk Phone Numbers Click here (/tmi/tmihome/TMIContactInfo.htm)

Emissions Certificates Search (https://emissions.cat.com/publicSearch)

Engine Emissions Data

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This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	**SCJ00113**
Sales Model	3516
Regulatory Build Date	26-APR-2010
As Shipped Data	
Engine Arrangement Number	3709874
Certification Arrangement	
Test Spec Number	3704798
Regulatory Status	EPA/CARB @ Constant Speed
Labeled Model Year	2013
EPA Family Code	DCPXL78.1NSA
EPA Emissions Level	EPA TIER 4i
As-Shipped Flash File	394-6297

CORR FL Power at RPM	No Power Available1800 RPM
Advertised Power	2,937 HP 1,800RPM
Total Displacement	78.1 L

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2013 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT OF 1990

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Caterpillar Inc.**
(U.S. Manufacturer or Importer)

Certificate Number: DCPXL78.1NSA-026

Effective Date: 10/05/2012

Expiration Date: 12/31/2013

Byron J. Bunker, Acting Division Director
Compliance Division

Issue Date: 10/05/2012

Revision Date: N/A

Model Year: 2013
Manufacturer Type: Original Engine Manufacturer
Engine Family: DCPXL78.1NSA

Mobile/Stationary Indicator: Both
Emissions Power Category: kW>900
Fuel Type: Diesel
After Treatment Devices: Diesel Oxidation Catalyst, Selective Catalytic Reduction, Ammonia Slip Catalyst
Non-after Treatment Devices: Engine Design Modification, Electronic Control

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Parts 60 and 1039, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Parts 60 and 1039 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 60 and 1039 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 60 and 1039.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Parts 60 and 1039. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Parts 60 and 1039.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Forms D1 & D2 - Please see attached MS Excel File for Pollutant Emission Calculations

Form E2 - Permit-to-Operate and Minor Permit Condition Change Request

FORM E2

Permit-to-Operate and Minor Permit Condition Change Request

Permit Number: AQ0221TVP04, Rev. 1

Permit-to-Operate and Minor Permit Information (*attach additional sheets as needed*):

Permit-to-Operate or Minor Permit Number	Condition Number	Type of change (revise or remove)	Reason for change	Requested Alaska Title V Operating Permit Condition
AQ0221MSS05	Table A – EU Inventory	Revise	9-IEU is removed from the EU Inventory as described in this application addendum. EU IDs 2a replaced EU ID 2. The original proposed unit was authorized in an OPC submitted 09 Sep 2024, but was later found to be incompatible with the physical design of Orca Power Plant. A different unit has been purchased, and will be installed in the 2a position. This addendum #1 addresses this change. EU ID 3a replaces EU ID 3, as authorized in an OPC submitted 01 May 2024. EU ID 11 is added, as requested in the minor permit application submitted 20 Sep 2024. The original proposal was to procure a unit identical to EU ID 2a, but as a result of the 2a incompatibility, a different unit was selected and purchased. The details are included in the Minor Permit Application Addendum #1.	Table A to AQ0221TVP04, Rev. 1.

FORM E2

Permit-to-Operate and Minor Permit Condition Change Request

Permit-to-Operate or Minor Permit Number	Condition Number	Type of change (revise or remove)	Reason for change	Requested Alaska Title V Operating Permit Condition
AQ0221MSS05	Table C – NOx emission factors	Revise	CEC applied to revise the minor permit, which includes a request to incorporate the NOx emission factor for EU IDs 2a, 3a, and 11 into Table C of the minor permit. The installation and operation of EU ID 3a was authorized through an OPC, with the understanding that emission factors for EU ID 3 (which are higher) will be used to calculate NOx emissions until such time that the table is formally revised. The same reasoning was applied at the time that the OPC for EU ID 2a was submitted. EU ID 11 is further being added to the inventory. Thus, a minor permit application was submitted under separate cover. The minor permit application does not include a request for integrated review. Subsequently, on January 3, 2025, an Addendum to the Minor Permit application revised the factors for EU IDs 2a and 11 after different purchasing decisions were made.	Condition 14
AQ0221MSS05	Conditions 17	Revise	In the same application described above, CEC requested to change the method of calculation in the NOx ORL. Please refer to the application to review AQ0221MSS05 for more detail.	Condition 14