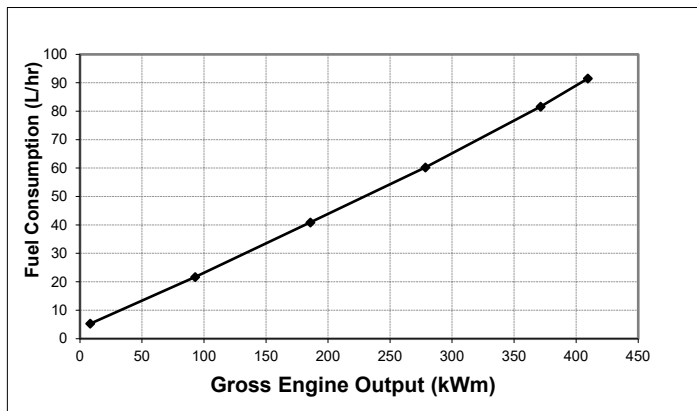


	Engine Performance Data Cummins Inc. Columbus, Indiana 47202-3005 http://www.cummins.com		G-Drive		Date 2-Sep-21				
			QSG12-G4 FR21318		Configuration D0S3006GX03		CPL 4773	Revision 1	
	Compression Ratio				17.0 : 1		Displacement		11.8 L (720.7 in³)
Fuel System		XPI		Aspiration		Turbocharged and Charge Air Cooled			
Aftertreatment		Not Applicable		Emission Certification		Non Certified			

Engine Speed		Standby Power		Prime Power		Continuous Power	
rpm		kWm	bhp	kWm	bhp	kWm	bhp
1500		409	549	371	498	334	448
1800		466	625	424	569	382	512

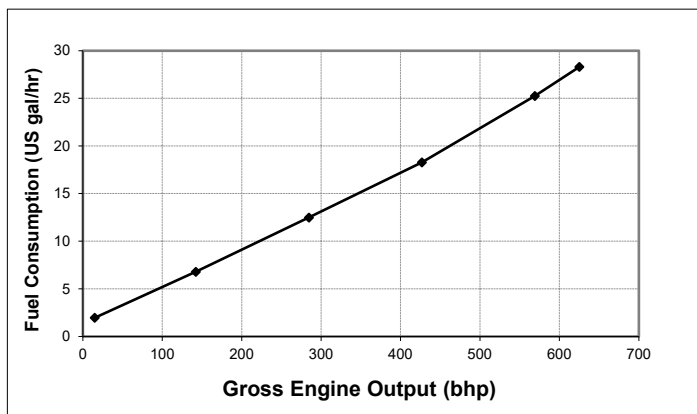
Engine Fuel Consumption @ 1500 rpm

Output Power			Fuel Consumption			
%	kWm	bhp	kg/kWm-hr	lb/bhp-hr	L/hr	US gal/hr
Standby Power						
100	409	549	0.190	0.312	92	24.2
Prime Power						
100	371	498	0.187	0.307	82	21.5
75	279	374	0.184	0.302	60	15.9
50	186	249	0.187	0.308	41	10.8
25	93	125	0.198	0.326	22	5.7
Continuous Power						
100	334	448	0.185	0.304	73	19.2



Engine Fuel Consumption @ 1800 rpm

Output Power			Fuel Consumption			
%	kWm	bhp	kg/kWm-hr	lb/bhp-hr	L/hr	US gal/hr
Standby Power						
100	466	625	0.196	0.321	107	28.3
Prime Power						
100	424	569	0.192	0.315	96	25.2
75	318	427	0.185	0.304	69	18.3
50	212	285	0.190	0.312	47	12.5
25	106	142	0.206	0.339	26	6.8
Continuous Power						
100	382	512	0.187	0.308	84	22.2



Data Subject to Change Without Notice

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations.

STANDBY POWER RATING: Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating. This rating should be applied where reliable utility power is available. A Standby rated engine should be sized for a Max of an 80% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating. Standby ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

PRIME POWER RATING: Applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories: **UNLIMITED TIME RUNNING PRIME POWER:** Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12-hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year. **LIMITED TIME RUNNING PRIME POWER:** Limited Time Prime Power is available for a limited number of hours in a non-variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at the Prime Power rating should use the Continuous Power rating. **CONTINUOUS POWER RATING:** Applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

Reference AEB 10.47 for determining Electrical Output.

Data shown above represent gross engine performance and capabilities obtained as per ISO-3046-1, obtained and corrected in accordance with ISO 15550, conditions of 100 kPa (29.53 in Hg) barometric pressure [110 m (361 ft) altitude], 25 °C (77 °F) air inlet temperature, and relative humidity of 30% with No. 2 diesel or a fuel corresponding to ASTM D2.

Derates shown are based on 15 in H2O air intake restriction and 3 in Hg exhaust back pressure.

The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/L (7.1 lbs/US gal). Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan, optional equipment and driven components.

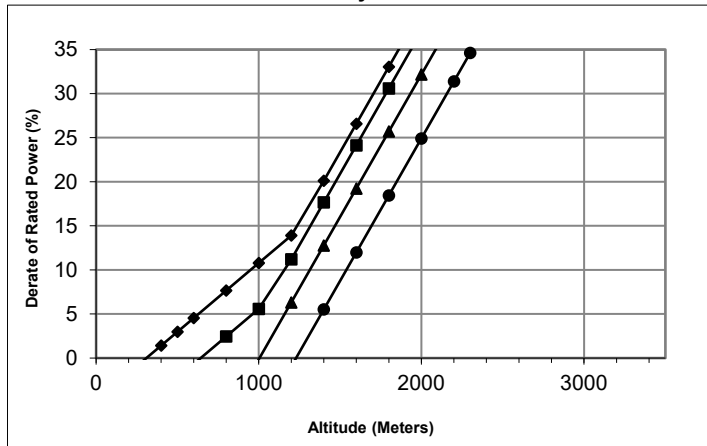
Data Status : Production

Tolerance : +/- 5%

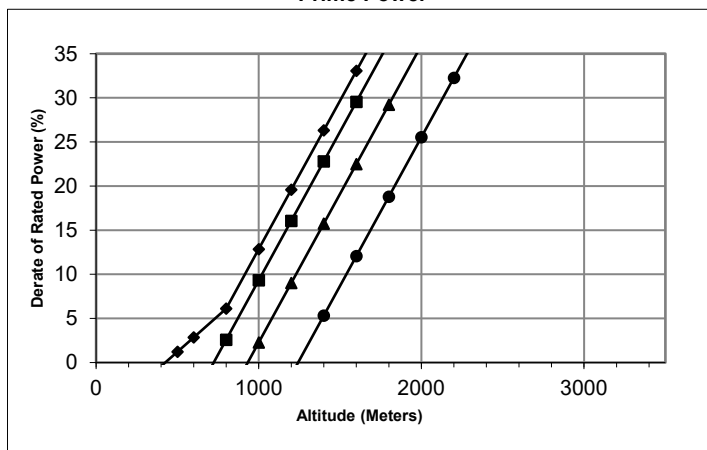
Chief Engineer : Michael P Hurt

1,500 rpm Power Derate Curves

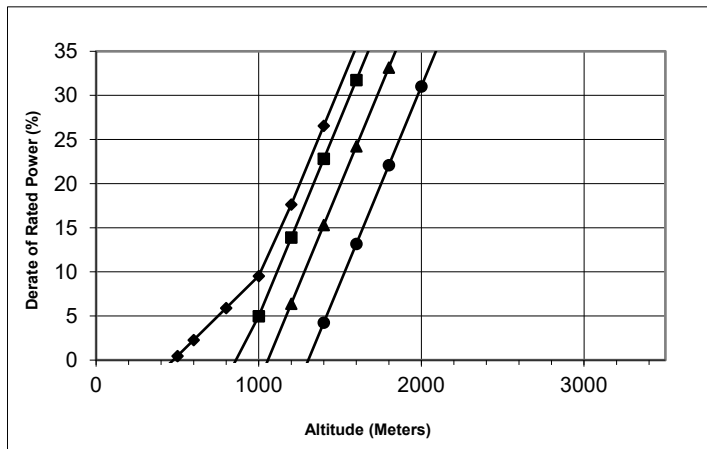
Standby Power



Prime Power

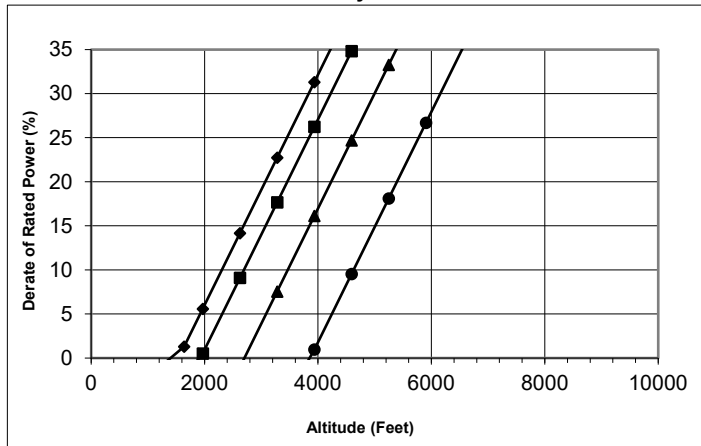


Continuous Power

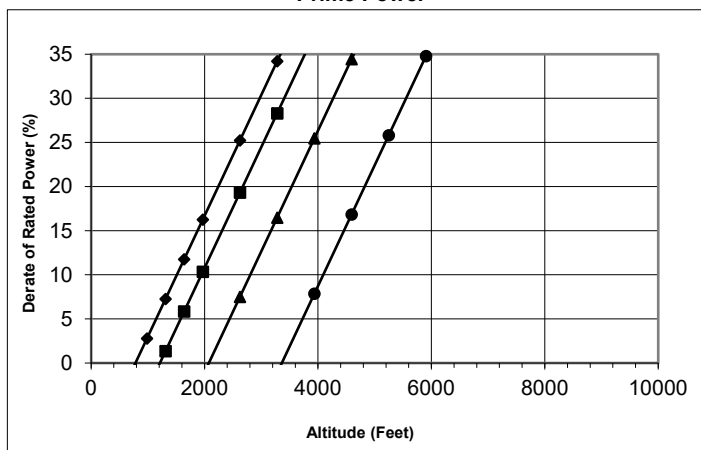


1,800 rpm Power Derate Curves

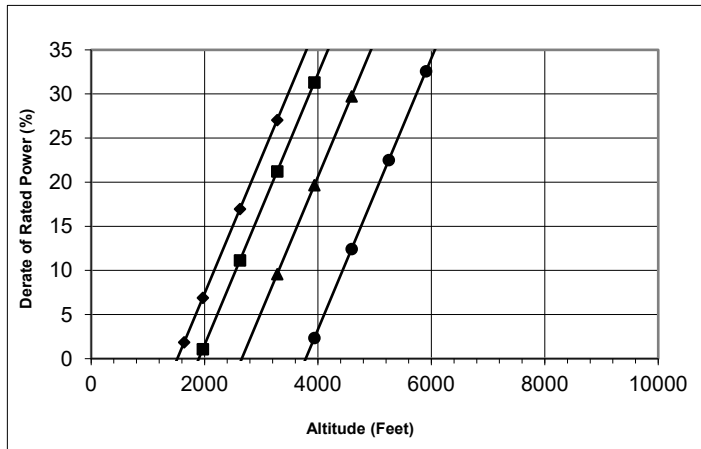
Standby Power



Prime Power



Continuous Power



- ◆ 131 °F (55 °C)
- 122 °F (50 °C)
- ▲ 104 °F (40 °C)
- 77 °F (25 °C)

Operation At Elevated Temperature And Altitude:

For **Standby Operation** above these conditions, derate by an additional 9.7% per 300m (1000 ft), and 10.4% per 10 °C (18 °F).
 For **Prime Operation** above these conditions, derate by an additional 10.1% per 300m (1000 ft), and 15% per 10 °C (18 °F).
 For **Continuous Operation** above these conditions, derate by an additional 13.4% per 300m (1000 ft), and 16% per 10 °C (18 °F).

Operation At Elevated Temperature And Altitude:

For **Standby Operation** above these conditions, derate by an additional 12.9% per 300m (1000 ft), and 10.1% per 10 °C (18 °F).
 For **Prime Operation** above these conditions, derate by an additional 13.5% per 300m (1000 ft), and 11.8% per 10 °C (18 °F).
 For **Continuous Operation** above these conditions, derate by an additional 15.1% per 300m (1000 ft), and 11.6% per 10 °C (18 °F).

General Engine Data

Installation Drawing Number	4361030		
Type	Four-Cycle; Inline; 6 Cylinder; Diesel		
Aspiration	Turbocharged and Charge Air Cooled		
Bore x Stroke	in x in (mm x mm)	5.20 x 5.67	(132 x 144)
Displacement	in ³ (L)	721	(11.8)
Compression Ratio	17.0 : 1		
Dry Weight (Approximate)	lbm (kg)	1731	(785)
Wet Weight (Approximate)	lbm (kg)	1830	(830)
Aftertreatment Weight (Approximate)	lbm (kg)	N/A	(N/A)
Moment of Inertia of Rotating Components			
with FW 2364 Flywheel, SAE 1	in • lbf • sec ² (kg • m ²)	21.8	(2.46)
Center of Gravity from Rear Face of Block	in (mm)	19.6	(498)
Center of Gravity Above Crankshaft Centerline	in (mm)	7.7	(196)

Engine Mounting

Max Bending Moment at Rear Face of Block	lb • ft (N • m)	1000	(1356)
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Exhaust System

Max Allowable Static Bending Moment @ Exhaust Outlet Flange	lb • ft (N • m)	10	(14)
Max Back Pressure, Standby Power, Turbo Outlet (1500/1800rpm)	in Hg (kPa)	3.0 / 3.0	(10.2 / 10.2)

Air Induction System

Max Intake Air Restriction			
With Normal Duty Air Cleaner and Clean Filter Element	in H ₂ O (kPa)	N/A	(N/A)
With Heavy Duty Air Cleaner and Clean Filter Element	in H ₂ O (kPa)	15	(3.7)
With Dirty Filter Element	in H ₂ O (kPa)	25	(6.2)

Cooling System**Jacket Water/ High Temperature Circuit Requirements**

Max Coolant Friction Head External to Engine (1500/1800 rpm)	psi (kPa)	5.0 / 5.0	(34.5 / 34.5)
Engine Water Flow at Stated Friction Head External to Engine:			
2.5 psi Friction Head (1500/1800 rpm)	US gpm (L/m)	69 / 86	(261 / 326)
Maximum Friction Head (1500/1800 rpm)	US gpm (L/m)	61 / 80	(231 / 303)
Coolant Capacity - Engine	US gal (L)	3.8	(14)
Minimum Pressure Cap Rating at Sea Level	psi (kPa)	15.0	(103.4)
Max Static Head of Coolant Above Crankshaft Centerline	ft (m)	46	(14)
Max Coolant (Top Tank) Temperature for Standby/Prime Power	°F (°C)	219 / 219	(104 / 104)
Thermostat (Modulating) Range	°F (°C)	180 - 202	(82 - 94)
Max Intake Manifold Temp Warning/Shutdown	°F (°C)	199 / 235	(93 / 113)

Low Temperature Circuit (LTC) Requirements

Max Coolant Friction Head External to Engine (1500/1800 rpm)	psi (kPa)	N/A / N/A	(N/A / N/A)
Aftercooler Water Flow at Stated Friction Head External to Engine:			
2.5 psi Friction Head (1500/1800 rpm)	US gpm (L/m)	N/A / N/A	(N/A / N/A)
Maximum Friction Head (1500/1800 rpm)	US gpm (L/m)	N/A / N/A	(N/A / N/A)
Max Coolant Temp into LTC @ 77°F (25°C) Ambient	°F (°C)	N/A	(N/A)
Max Coolant Temperature into LTC @			
Limiting Ambient Conditions for Standby/Prime Power	°F (°C)	N/A / N/A	(N/A / N/A)
Thermostat (Modulating) Range	°F (°C)	N/A - N/A	(N/A - N/A)
Coolant Capacity - Aftercooler	US gal (L)	N/A	(N/A)

Charge Air Cooler Requirements

Max Allowable Pressure Drop Across Charge Air Cooler and OEM CAC piping (1500/1800 rpm)	in Hg (kPa)	4.0 / 4.0	(13.5 / 13.5)
Max Charge Air Cooler Outlet to Ambient at 77°F (25°C)(CAC dT)	Δ°F (Δ°C)	45	(25)
Max CAC Outlet Temperature at <=25 °C (77 °F) Ambient	°F (°C)	122	(50)

Lubrication System

Oil Pressure at Minimum Idle Speed	psi (kPa)	7.0	(48.3)
Oil Pressure at Governed Speed (1500/1800 rpm)	psi (kPa)	36 / 37	(246 / 254)
Max Oil Temperature	°F (°C)	265	(129)
Oil Capacity with OP 2228: Low - High	US gal (L)	7.0 - 9.0	(26.5 - 34.1)
Total System Capacity (With Combo Filter)	US gal (L)	9.0	(34.1)

Fuel System

Max Fuel Supply Restriction at Fuel Pump Inlet (clean/dirty filter)	in Hg (kPa)	6.0 / 12.0	(20.3 / 40.6)
Max Allowable Head on Injector Return Line			
(Consisting of Friction Head and Static Head)	in Hg (kPa)	15	(50)
Max Fuel Inlet Temperature	°F (°C)	160	(71)
Max Supply Fuel Flow	US gph (L/hr)	48	(182)
Max Return Fuel Flow	US gph (L/hr)	26	(100)

Electrical System

System Voltage	volts	24	
Minimum Recommended Battery Capacity			
Cold Soak @ 0 °F (-18 °C)	CCA	900	
Max Starting Circuit Resistance	ohm	0.002	
Max Current Draw of the System	Amps	900	

Cold Start Capability

Unaided Cold Start			
Minimum Cranking Speed	rpm	150	
Minimum Ambient Temp for Unaided Cold Start	°F (°C)	10	(-12)

Performance Data

		STANDBY		PRIME		CONTINUOUS	
		60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz
Governed Engine Speed	rpm	1800	1500	1800	1500	1800	1500
Engine Idle Speed	rpm	700 - 900	700 - 900	700 - 900	700 - 900	700 - 900	700 - 900
Gross Engine Power Output	bhp (kWm)	625 (466)	549 (409)	569 (424)	498 (371)	512 (382)	448 (334)
Brake Mean Effective Pressure	psi (kPa)	382 (2634)	402 (2772)	347 (2393)	365 (2517)	313 (2159)	328 (2262)
Friction Power	hp (kWm)	75 (56)	48 (36)	75 (56)	48 (36)	75 (56)	48 (36)
Intake Air Flow	ft ³ /min (L/sec)	1096 (518)	898 (424)	1058 (500)	820 (387)	1016 (480)	744 (352)
Exhaust Gas Temp	°F (°C)	990 (533)	974 (524)	904 (485)	944 (507)	802 (428)	925 (497)
Exhaust Gas Flow	ft ³ /min (L/sec)	2699 (1274)	2179 (1029)	2457 (1160)	1982 (936)	2204 (1041)	1796 (848)
Air:Fuel Ratio		23.4:1	22.4:1	25.3:1	23:1	27.7:1	23.5:1
Radiated Heat to Ambient	BTU/min (kWm)	1559 (28)	1756 (31)	1324 (24)	1425 (26)	1283 (23)	1243 (22)
Heat to JW Radiator	BTU/min (kWm)	8999 (159)	8120 (143)	8082 (142)	7264 (128)	7200 (127)	6667 (118)
Heat to Exhaust	BTU/min (kWm)	20078 (353)	16226 (286)	17345 (305)	13889 (245)	14394 (253)	12326 (217)
* Heat to Fuel	BTU/min (kWm)	N/A	N/A	N/A	N/A	N/A	N/A
Heat to Aftercooler Radiator	BTU/min (kWm)	4948 (87)	4033 (71)	4478 (79)	3536 (63)	4095 (72)	2816 (50)
Charge Air Flow	lb/min (kg/min)	78 (36)	64 (30)	76 (35)	59 (27)	73 (34)	53 (25)
Turbo Comp Outlet Pressure	psi (kPa)	38 (263)	36 (249)	36 (249)	32 (221)	34 (235)	27 (187)
Turbo Comp Outlet Temp	°F (°C)	396 (203)	392 (200)	381 (194)	363 (184)	366 (186)	332 (167)

* This is the maximum heat rejection to fuel. If "N/A", the heat rejection was not available at time of data collection.

Noise Emissions

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Overall
Sound Power dB(A) ¹²³										
1500 rpm	Engine ⁴	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Exhaust ⁵	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1800 rpm	Engine ⁴	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Exhaust ⁵	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

1. The test figures quoted are from a single gen-set test and do not constitute a guarantee of performance for any particular engine. The data is subject to instrumentation, measurement, and engine to engine variability.

2. Test reference procedures ISO 3744 and ANSI S12.34-1998 as applicable.

3. All data are "A" weighted and are rounded to the nearest dB.

4. Engine with "typical Radiator and fan", Sound Power (dB).

5. Engine Exhaust at 1 Meter from open stack, Sound Pressure (dB).