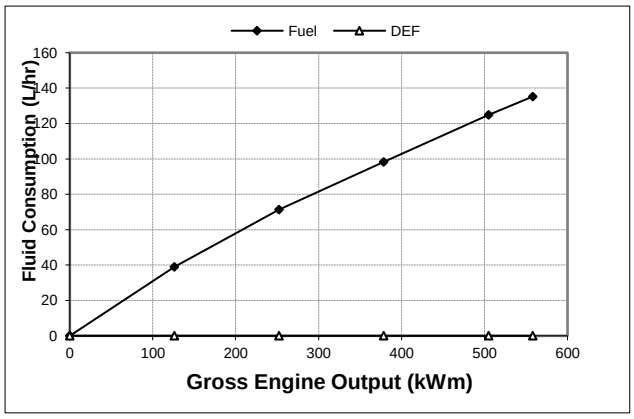
Engine Performance Data	G-Drive	Date		
Cummins Inc.	**QSK19-G17**	14-Mar-22		
Columbus, Indiana 47202-3005		**Configuration**	**CPL**	**Revision**
http://www.cummins.com	**FR 4772**	D193110GX03	5723	2

Compression Ratio	15.8: 1	**Displacement**	1153 in³ (18.9 L)
Fuel System	Cummins YZ	**Aspiration**	Turbocharged and Charge Air Cooled
Aftertreatment	N/A	**Emission Certification**	China CSIII

Engine Speed	Standby Power		Prime Power		Continuous Power	
rpm	**kWm**	**bhp**	**kWm**	**bhp**	**kWm**	**bhp**
1500	**558**	**748**	**505**	**677**	**N/A**	**N/A**
1800	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Engine Fluid Consumption @ 1500 rpm

Output Power			Fuel			
%	**kWm**	**bhp**	**kg/kWm-hr**	**lb/bhp-hr**	**L/hr**	**US gal/hr**
Standby Power						
100	558	748	0.206	0.339	135	35.7
Prime Power						
100	505	677	0.210	0.345	125	32.9
75	379	508	0.220	0.362	98	25.9
50	252	339	0.240	0.395	71	18.8
25	126	169	0.263	0.432	39	10.3



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 capabilities obtained and corrected in accordance with ISO-3046 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 2 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.

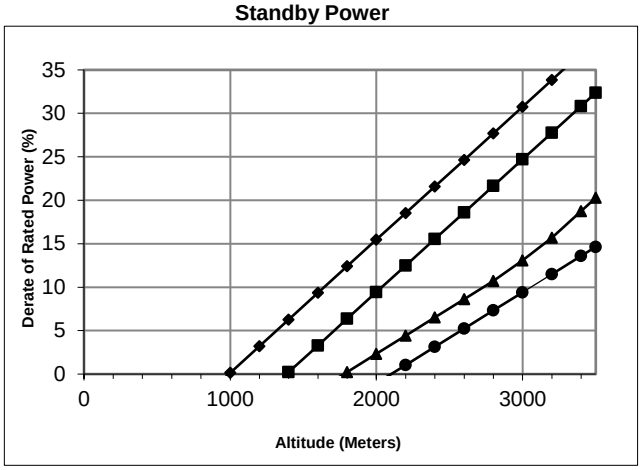
Data Status : Production

Tolerance : +/- 5%

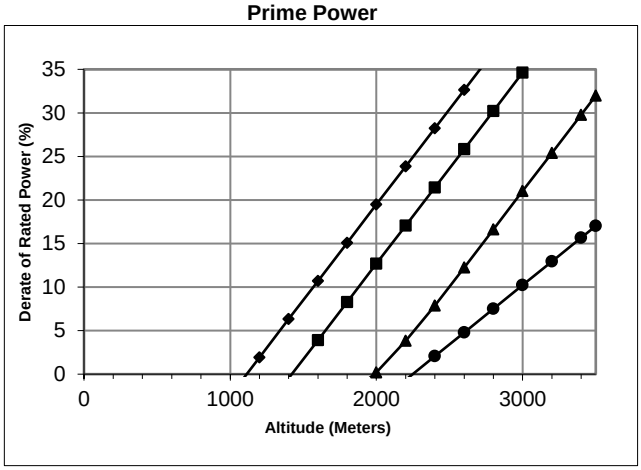
Chief Engineer: Abhishek Mehrotra

1,500 rpm Power Derate Curves

Standby Power



Prime 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 4.6% per 1,000 ft (305 m), and 12.1% per 18 °F (10 °C).
For **Prime Operation** above these conditions, derate by an additional 6.6% per 1,000 ft (305 m), and 13.6% per 18 °F (10 °C).
For **Continuous Operation** above these conditions, derate by an additional N/A% per 1,000 ft (305 m), and N/A% per 18 °F (10 °C).

Operation At Elevated Temperature And Altitude:

For **Standby Operation** above these conditions, derate by an additional N/A% per 1,000 ft (305 m), and N/A% per 18 °F (10 °C).
For **Prime Operation** above these conditions, derate by an additional N/A% per 1,000 ft (305 m), and N/A% per 18 °F (10 °C).
For **Continuous Operation** above these conditions, derate by an additional N/A% per 1,000 ft (305 m), and N/A% per 18 °F (10 °C).

General Engine Data

Installation Drawing Number		5598274	
Type		Four Cycle; Inline; 6 Cylinder	
Aspiration		Turbocharged and Charge Air Cooled	
Bore x Stroke	in x in (mm x mm)	6.26 x 6.26	(159 x 159)
Displacement	in^3 (L)	1153	(18.9)
Compression Ratio		15.8: 1	
Dry Weight (Approximate)	lbm (kg)	4400	(1996)
Wet Weight (Approximate)	lbm (kg)	4597	(2085)
Aftertreatment Weight (Approximate)	lbm (kg)	N/A	(N/A)
Moment of Inertia of Rotating Components			
with FW 4015 Flywheel, SAE 0	in • lbf • sec^2 (kg • m^2)	72.6	(8.2)
Center of Gravity from Rear Face of Block	in (mm)	23.24	(590.347)
Center of Gravity Above Crankshaft Centerline	in (mm)	11.54	(293)

Engine Mounting

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

Exhaust System

Max Allowable Static Bending Moment @ Exhaust Outlet Flange	lb • ft (N • m)	124	(168)
Max Back Pressure, Standby Power, Turbo Outlet (1500/1800rpm)	in Hg (kPa)	2.0 / N/A	(6.8 / N/A)

Air Induction System

Max Intake Air Restriction			
With Normal Duty Air Cleaner and Clean Filter Element	in H_2O (kPa)	15	(3.7)
With Heavy Duty Air Cleaner and Clean Filter Element	in H_2O (kPa)	15	(3.7)
With Dirty Filter Element	in H_2O (kPa)	25	(6.2)
Maximum allowable air temperature rise over ambient at Turbo Compressor inlet (Turbo-charged Engines):	Δ°F (Δ°C)	5	(3)

Cooling System

Jacket Water/ High Temperature Circuit Requirements			
Max Coolant Friction Head External to Engine (1500/1800 rpm)	psi (kPa)	5.0 / N/A	(34.5 / N/A)
Engine Water Flow at Stated Friction Head External to Engine:			
2.5 psi Friction Head (1500/1800 rpm)	US gpm (L/m)	105 / N/A	(396 / N/A)
Maximum Friction Head (1500/1800 rpm)	US gpm (L/m)	97 / N/A	(366 / N/A)
Coolant Capacity - Engine	US gal (L)	11.0	(41.6)
Minimum Pressure Cap Rating at Sea Level	psi (kPa)	7	(48.3)
Max Static Head of Coolant Above Crankshaft Centerline	ft (m)	60	(18.3)
Max Coolant (Top Tank) Temperature for Standby/Prime Power	°F (°C)	219 / 212	(104 / 100)
Thermostat (Modulating) Range	°F (°C)	181 - 203	(83 - 95)
Max Intake Manifold Temp Warning/Shutdown	°F (°C)	190 / 208	(87.7 / 98)
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	in Hg (kPa)	3.0 / N/A	(10 / N/A)
Max Charge Air Cooler Outlet to Ambient at 77°F (25°C)(CAC dT)	Δ°F (Δ°C)	52	(29)

Lubrication System

Oil Pressure at Minimum Idle Speed	psi (kPa)	20	(138)
Oil Pressure at Governed Speed	psi (kPa)	40 - 60	(276 - 414)
Max Oil Temperature	°F (°C)	250	(121)
Oil Capacity with OP4084: Low - High	US gal (L)	16.9 - 19.0	(64 - 72)
Total System Capacity (With Combo Filter)	US gal (L)	22.2	(84)

Fuel System

Max Fuel Supply Restriction at Fuel Pump Inlet (clean/dirty filter)	in Hg (kPa)	7.7 / 11.8	(26 / 40)
Max Allowable Head on Injector Return Line			
(Consisting of Friction Head and Static Head)	in Hg (kPa)	10	(35)
Max Fuel Inlet Temperature	°F (°C)	158	(70)
Max Supply Fuel Flow (1500/1800 rpm)	US gph (L/hr)	88 / N/A	(334 / N/A)
Max Return Fuel Flow (1500/1800 rpm)	US gph (L/hr)	52 / N/A	(197 / N/A)

Electrical System

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

Cold Start Capability

Unaided Cold Start			
Minimum Cranking Speed	rpm	110	
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		1500		1500		
Engine Idle Speed	rpm		700-1200		700-1200		
Gross Engine Power Output	bhp (kWm)		748 (558)		677 (505)		
Brake Mean Effective Pressure	psi (kPa)		343 (2362)		310 (2137)		
Friction Power	hp (kWm)		58 (43)		58 (43)		
Intake Air Flow	ft^3/min (L/sec)		1600 (755)		1532 (723)		
Exhaust Gas Temp	°F (°C)		903 (484)		889 (476)		
Exhaust Gas Flow	ft^3/min (L/sec)		3959 (1869)		3758 (1773)		
Air:Fuel Ratio			26.6:1		27.7:1		
Radiated Heat to Ambient	BTU/min (kWm)		3092 (54)		2853 (50)		
Heat to JW Radiator	BTU/min (kWm)		10845 (191)		10111 (178)		
Heat to Exhaust	BTU/min (kWm)		24285 (427)		22998 (404)		
* Heat to Fuel	BTU/min (kWm)		0 (0)		0 (0)		
Heat to Aftercooler Radiator	BTU/min (kWm)		7319 (129)		6653 (117)		
Charge Air Flow	lb/min (kg/min)		113 (51)		108 (49)		
Turbo Comp Outlet Pressure	psi (kPa)		40 (275)		37 (257)		
Turbo Comp Outlet Temp	°F (°C)		405 (207)		388 (198)		

* This is the maximum heat rejection to fuel.

Noise Emissions

Frequency (Hz) Sound Power dB(A)[123]		63	125	250	500	1000	2000	4000	8000	Overall
1500 rpm 50 Hz	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 60 Hz	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).