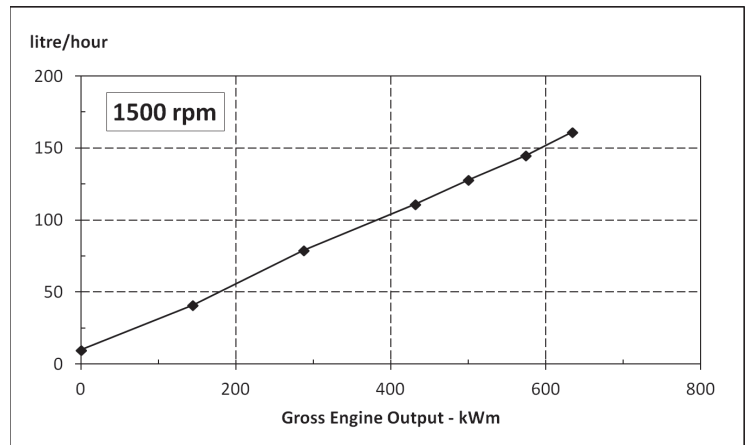
	康明斯公司 印第安纳哥伦布 47202-3005 发动机性能数据	机型: QSK19-G4	曲线编号: FR4580	G-驱 QSK 1
		发动机关键零件清单: CPL : 4270	日期: 2013/1/16	
压缩比: 15.0 : 1		排量: 1,150 in³ (18.9 L)		
燃油系统: Cummins MCRS		进气方式: 废气涡轮增压, 中冷		
排放认证: U.S. EPA Tier 2				

发动机转速		备用功率		常用功率		持续功率	
RPM	bhp	kWm	bhp	kWm	bhp	kWm	kWm
1500	850	634	770	574	670	500	
1800	850	634	750	559	615	459	

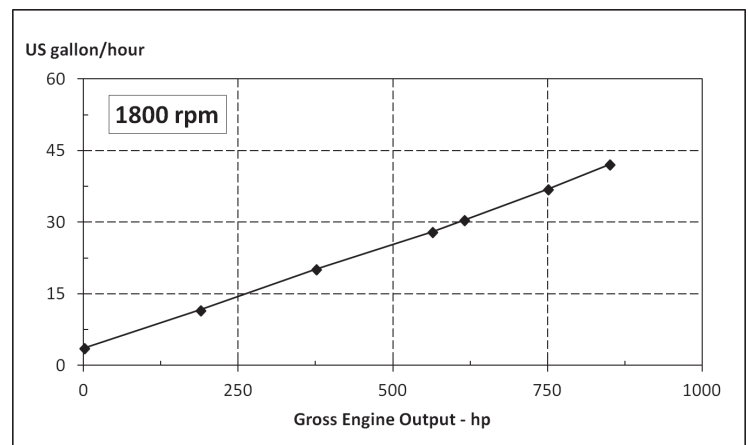
发动机性能数据 @ 1500 rpm

输出功率			燃油消耗			
%	bhp	kWm	lb/ hp·h	kg/ kWm·h	US gal/ hour	litre/ hour
备用功率						
100	850	634	0.355	0.216	42.5	161
常用功率						
100	770	574	0.354	0.215	38.4	145
75	578	431	0.360	0.219	29.2	111
50	385	287	0.384	0.234	20.8	79
25	193	144	0.400	0.243	10.8	41
持续功率						
100	670	500	0.357	0.217	33.7	128



发动机性能数据 @ 1800 rpm

输出功率			燃油消耗			
%	bhp	kWm	lb/ hp·h	kg/ kWm·h	US gal/ hour	litre/ hour
备用功率						
100	850	634	0.352	0.214	42.1	160
常用功率						
100	750	559	0.349	0.212	36.9	140
75	563	420	0.354	0.215	28.0	106
50	375	280	0.381	0.232	20.1	76
25	188	140	0.438	0.266	11.6	44
持续功率						
100	615	459	0.351	0.213	30.4	115



单位换算: (litres = US Gal x 3.785) (US Gal = litres x 0.2642)

本数据单可能随时更改, 恕不另行通知。

此指导说明是为了确保发电驱动用发动机在装配发电机组时的正确应用。

备用功率标定: 是在市电出现异常时作为应急电源使用时的瞬时最大功率, 该标定无超负荷能力, 且不能与市电并网运行。此标定只适用于有可靠市电之处, 采用备用功率标定的发动机平均负载不超过80%备用工况效率, 且每年运行时间不超过200小时, 这包括每年在备用功率下运行时间低于25小时, 除了确实失去市电的情况外, 不应使用备用标定。与供电方发生的协议停电不被认为是紧急情况。

常用功率标定: 是可以替代商业电网电力来使用的功率, 常用功率必须按下列两种类型之一来使用:
无时限运行常用功率: 按常用功率标定的发动机, 可有效地变负荷无时限使用。在每250小时的运行周期内, 可变负荷的均值不能超过所标定常用功率的70%, 一年内, 100%常用功率的整个运行时间不超过500小时, 每12小时允许1小时超负荷10%运行, 每年总的超负荷10%运行时间不超过25小时。

限时运行常用功率: 按常用功率标定的发动机, 可无时限运行于不变负荷用途, 诸如使用功率低而输出功率受限的场合。在功率决不会超过常用功率标定的前提下, 一年内可并网运行750小时, 无论如何应让用户明白, 长期高负荷运行, 将缩短发动机寿命。任何一年内并网运行超过750小时的场合, 请选用持续功率标定的发动机。

持续功率标定: 是可以按标定负荷、无时限持续使用的功率, 按持续功率标定的发动机无超负荷能力。

如需发电输出数据, 请参见应用公告 AEB 10.47.

所有的性能数据均是基于 ISO-3046 标准规定的标准条件——大气压力 100 kPa (29.53 in Hg), 海拔 [110 m (361 ft)], 进气温度 25 °C (77 °F), 相对湿度 30%, 使用标准 2# 柴油或符合 ASTM D2 的柴油, 进行测试并修正获得。

降功率数据是基于 10/15 in H₂O 的进气阻力 @ 1500/1800 RPM, 和 1.5/2.0 in Hg 的排气背压给定的。

燃油消耗数据是基于比重为 0.85 kg/litre (7.1 lbs/US gal) 的 No.2 柴油而得到的, 功率输出曲线是基于发动机带燃油泵、水泵和机油泵时试验获得的, 而不包括 交流发电机、风扇、其它选用设备和被驱动的部件。

数据状态: --小批量生产--

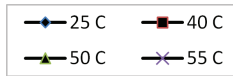
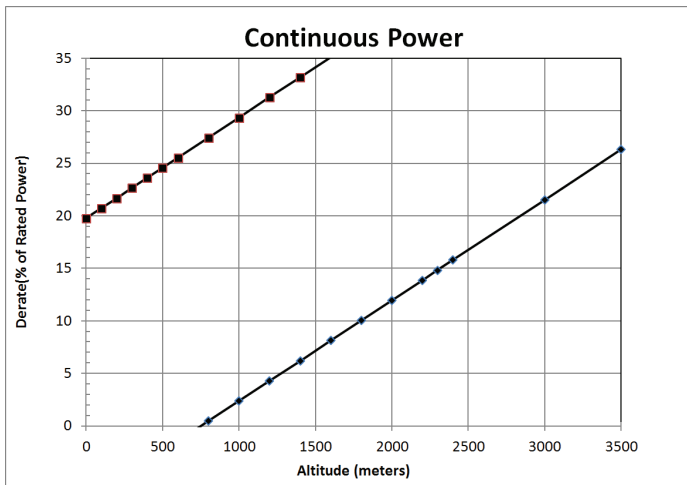
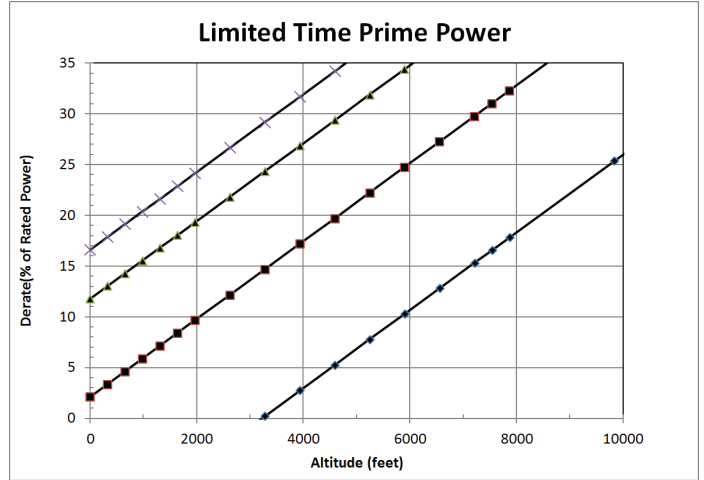
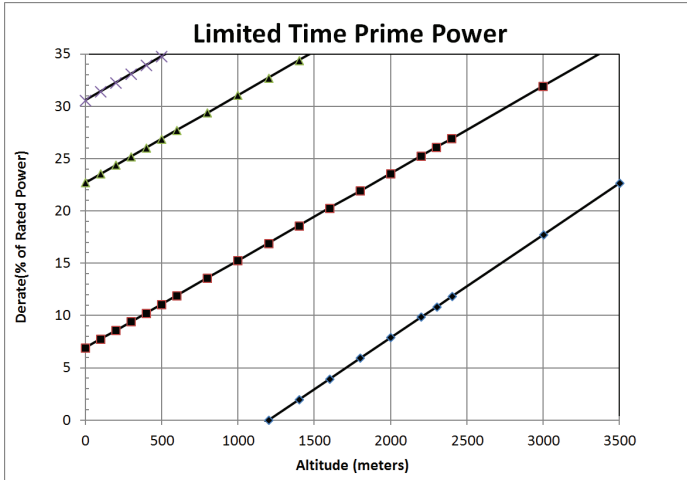
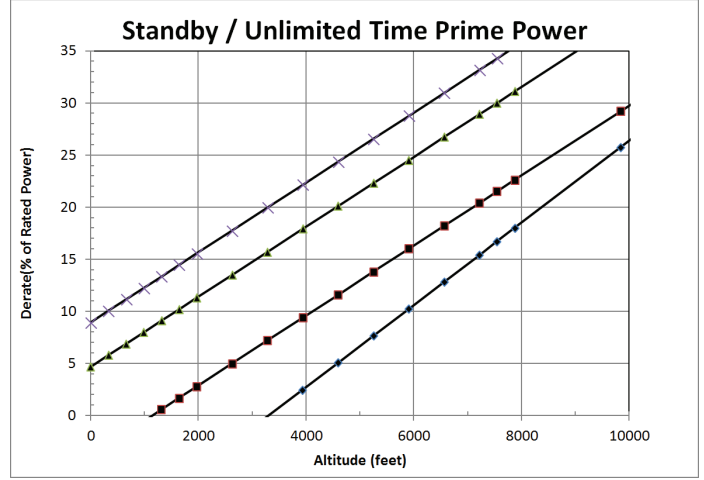
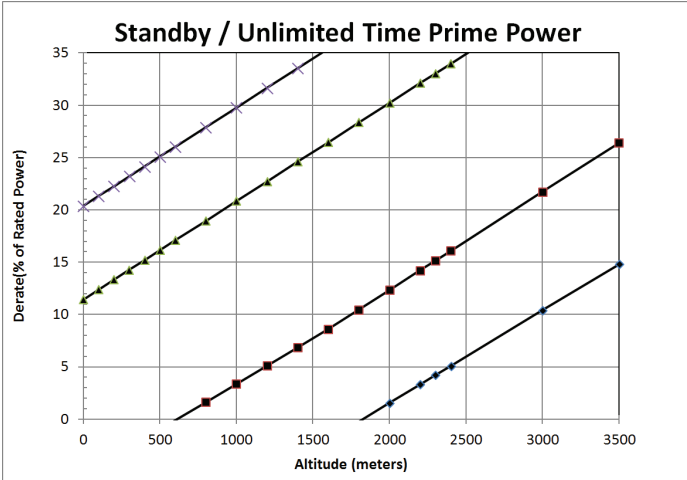
数据误差范围: ± 5%

总工程师:



1500 rpm 降功率曲线

1800 rpm 降功率曲线



在高海拔和高环境温度下的运行:

对 **备用/不限时常用功率** 标定, 在超过上图的环境条件时, 海拔每升高1000英尺(300米), 再降低功率 3%, 大气温度每升高 18 °F (10 °C), 再降低功率18%。
 对 **限时常用功率** 标定, 在超过上图的环境条件时, 海拔每升高1000英尺(300米), 再降低功率 3%, 大气温度每升高 18 °F (10 °C), 再降低功率16%。
 对 **持续功率** 标定, 在超过上图的环境条件时, 海拔每升高1000英尺(300米), 再降低功率 3%, 大气温度每升高 18 °F (10 °C), 再降低功率20%。

在高海拔和高环境温度下的运行:

对 **备用/不限时常用功率** 标定, 在超过上图的环境条件时, 海拔每升高1000英尺(300米), 再降低功率 4%, 大气温度每升高 18 °F (10 °C), 再降低功率9%。
 对 **限时常用功率** 标定, 在超过上图的环境条件时, 海拔每升高1000英尺(300米), 再降低功率 4%, 大气温度每升高 18 °F (10 °C), 再降低功率10%。
 对 **持续功率** 标定, 在超过上图的环境条件时, 海拔每升高1000英尺(300米), 再降低功率 7%, 大气温度每升高 18 °F (10 °C), 再降低功率17%。

康明斯公司

发动机数据单

机型: QSK19-G4

特征编号: D193103GX03

数据单: FR4580

日期: 2013/1/16

安装图

- 风扇飞轮: 待定

CPL号

- 发动机关键零件清单: 4270

整机数据

型式.....	四冲程、直列、六缸	
进气方式.....	涡轮增压, 空空中冷	
缸径 x 行程.....	6.25 x 6.25	159 x 159
排量.....	1150	18.9
压缩比.....	15.0 : 1	
发动机干重(近似值), 包括风扇飞轮.....	4190	1901
发动机湿重(近似值), 包括风扇飞轮.....	4350	1973
旋转部件的转动惯量		
• 带飞轮 FW 4023	195	8.2
发动机重心距缸体后端面距离.....	23.55	598
发动机重心在曲轴中心线以上.....	11.1	282
后主轴承允许的最大静态载荷.....	2000	907

发动机悬置

缸体后端面允许的最大弯矩.....	1000	1356
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排气系统

允许的最大背压 @ 1500 / 1800 RPM.....	1.5 / 2	5.1 / 6.8
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进气系统

允许的最大进气阻力		
• 脏滤芯.....	25	6.2
• 普通干净滤芯 @ 1500 / 1800 RPM.....	10 / 15	2.5 / 3.7

冷却系统

冷却液容量 — 仅发动机.....	11	41.6
允许的最小压力盖压力	15	103
发动机曲轴中心线以上允许的最大冷却液静压	60	18.3
允许的冷却液最高温度(顶部水箱最高温度), 备用功率/常用功率	220 / 212	104 / 100
节温器温度调节范围	181 - 203	83 - 95

冷却水套回路要求

允许最大的发动机外部冷却液阻力 @ 1500 / 1800 RPM.....	5 / 5	34.5 / 34.5
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空空中冷要求

相对于发动机进气口, 进气歧管的最大温升 - 1500/1800 rpm	38 / 53	21 / 29
增压器压气机出口到进气歧管的最大压降 - 1500/1800 rpm	3 / 4	10.2 / 13.5
在 77 °F (25 °C) 环境温度下的最大进气歧管温度 - 1500/1800 rpm	115 / 130	46 / 54
发动机保护允许的最大进气歧管温度(停机阈值)	180	82

润滑系统

机油压力 @ 怠速.....	20	138
@ 标定转速	40 - 60	275.8 - 413.7
最大机油温度.....	250	121
带机油盘 OP 4084 时的容量: 高 - 低.....	19 - 17	71.9 - 64.4
机油总容量(包含滤清器).....	22.3	84.4

燃油系统

喷油系统型式.....	Cummins MCRC5	4
至输油泵允许的最大供油阻力(干净/脏滤清器)..... — in Hg (kPa)	5 / 9 16.9 / 30	
允许的最大回油阻力(包括摩擦阻力和静压)..... — in Hg (kPa)	10 34	
最大进油温度..... — °F (°C)	160 71	
最大供油流量 @ 1500 / 1800 RPM..... — US gph (litre/hr)	120 / 124 454 / 469	
最大回油流量 @ 1500 / 1800 RPM..... — US gph (litre/hr)	75 / 78 284 / 295	

电气系统

系统电压(重载, 正极啮合)..... — volt	24
最小推荐电池容量	
• 环境温度 @ 50 °F (10 °C) 及以上..... — °F CCA	600
• 环境温度 @ 32 °F 至 50 °F (0 °C 至 10 °C)..... — °F CCA	640
• 环境温度 @ 0 °F 至 32 °F (-18 °C 至 0 °C)..... — °F CCA	900
允许的最大起动电阻..... — Ohm	0.002

冷起动能力

无辅助冷起动

最低曲轴转速..... — RPM	150
无辅助条件下的最低冷起动温度..... — °F (°C)	10 -12.2

性能数据

所有数据均基于：
 • 发动机带燃油系统、水泵、机油泵、空滤器和消声器运行时获得的，而不包括交流发电机、风扇和其它选用设备和被驱动的部件。

- 测试时使用符合ASTM D975 的标准2#柴油。
- ISO 3046标准测试条件：

大气压力: 100 kPa (29.53 in Hg) 进气温度: 25 °C (77 °F)
 海 拔: 110 m (361 ft) 相对湿度: 30%

任意负荷下的转速率..... — % +/- 0.25

估计的典型机组噪声自由场声压级


不包括排气噪声；在额定工况，距离 7.5 m (24.6 ft)处：@ 1500 / 1800 RPM..... — dBA	90.2 / 93.3
在排气管中心线水平面上距离 1 米处朝上 45°方向的排气噪声：@ 1500 / 1800 RPM..... — dBA	118 / 118.9

	备用功率		常用功率	
	60 hz	50 hz	60 hz	50 hz
标定转速..... rpm	1,800	1,500	1,800	1,500
怠速..... rpm	700 - 900	700 - 900	700 - 900	700 - 900
输出总功率..... hp (kW)	850 (634)	850 (634)	750 (559)	770 (574)
平均有效压力..... psi (kPa)	325 (2,241)	390 (2,689)	287 (1,979)	354 (2,441)
活塞平均速度..... ft/min (m/s)	1,875 (9.5)	1,562 (7.9)	1,875 (9.5)	1,562 (7.9)
摩擦损失功率..... hp (kW)	79 (59)	57 (43)	79 (59)	57 (43)
在一定外部阻力情况下的发动机冷却水流量:				
• 在2.5 psi 流动阻力时..... US gpm (litre/min)	196 (742)	162 (613)	196 (742)	162 (613)
• 在最大外部流动阻力时..... US gpm (litre/min)	175 (662)	145 (549)	175 (662)	145 (549)
发动机数据				
进气流量..... cfm (litre/s)	2,198 (1,037)	1,857 (876)	2,057 (971)	1,707 (806)
排气温度..... °F (°C)	821 (438)	961 (516)	777 (414)	953 (512)
排气流量..... cfm (litre/s)	4,940 (2,331)	4,674 (2,206)	4,477 (2,113)	4,287 (2,023)
空燃比..... 空气: 燃油	31.5 : 1	26.4 : 1	33.7 : 1	26.8 : 1
热辐射损失的热量..... BTU/min (kW)	3,649 (64)	3,678 (65)	3,194 (56)	3,329 (59)
冷却液带走的热量..... BTU/min (kW)	12,691 (223)	13,313 (234)	11,966 (217)	12,632 (222)
排气带走的热量..... BTU/min (kW)	25,889 (455)	27,238 (479)	21,778 (383)	24,655 (434)
*燃油带走的热量..... BTU/min (kW)	252 (4.4)	232 (4.1)	252 (4.4)	232 (4.1)
空空中冷器				
中冷器散失的热量..... BTU/min (kW)	12,676 (223)	11,435 (201)	10,832 (190)	9,700 (171)
增压空气流量..... lb/min (kg/min)	157 (71)	133 (60)	147 (67)	122 (55)
增压器压气机出口压力..... in Hg (kPa)	94 (316)	90 (304)	84 (283)	80 (271)
增压器压气机出口温度..... °F (°C)	468 (242)	466 (241)	432 (222)	434 (223)

* 这是散失到燃油的最大热量。

N.A. - Not Available 暂无
 N/A - Not Applicable to this Engine 不适用
 TBD - To Be Determined 待定

机型: QSK19-G4
 数据单: FR4580
 日期: 2013/1/16

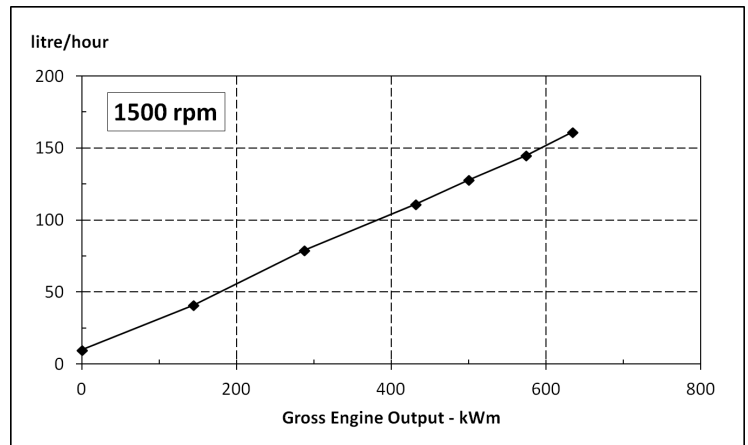
	Cummins Inc. Columbus, Indiana 47202-3005 ENGINE PERFORMANCE DATASHEET	Basic Engine Model: QSK19-G4	Curve Number: FR4580	G-DRIVE QSK 1
		Engine Critical Parts List: CPL : 4270	Date: 16 JAN 13	

Compression Ratio : 15.0 : 1	Displacement : 1,150 in³ (18.9 L)
Fuel System : Cummins MCRS	Aspiration : Turbocharged and Charge Air Cooled
Emission Certification : U.S. EPA Tier 2	

Engine Speed	Standby Power		Prime Power		Continuous Power	
	RPM	bhp	kWm	bhp	kWm	bhp
1500	850	634	770	574	670	500
1800	850	634	750	559	615	459

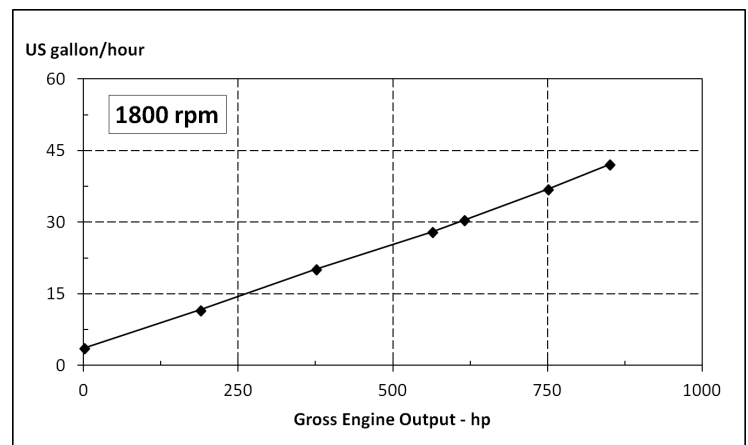
Engine Performance Data @ 1500 rpm

OUTPUT POWER			FUEL CONSUMPTION			
%	bhp	kWm	lb/ hp-h	kg/ kWm-h	US gal/ hour	litre/ hour
STANDBY POWER						
100	850	634	0.355	0.216	42.5	161
PRIME POWER						
100	770	574	0.354	0.215	38.4	145
75	578	431	0.360	0.219	29.2	111
50	385	287	0.384	0.234	20.8	79
25	193	144	0.400	0.243	10.8	41
CONTINUOUS POWER						
100	670	500	0.357	0.217	33.7	128



Engine Performance Data @ 1800 rpm

OUTPUT POWER			FUEL CONSUMPTION			
%	bhp	kWm	lb/ hp-h	kg/ kWm-h	US gal/ hour	litre/ hour
STANDBY POWER						
100	850	634	0.352	0.214	42.1	160
PRIME POWER						
100	750	559	0.349	0.212	36.9	140
75	563	420	0.354	0.215	28.0	106
50	375	280	0.381	0.232	20.1	76
25	188	140	0.438	0.266	11.6	44
CONTINUOUS POWER						
100	615	459	0.351	0.213	30.4	115



CONVERSIONS:(litres = US Gal x 3.785) (US Gal = litres x 0.2642)

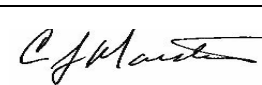
Data Subject to Change Without Notice

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 maximum 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 10/15 in H₂O air intake restriction and 1.5/2.0 in Hg exhaust back pressure @ 1500/1800 RPM.

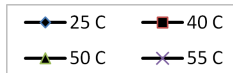
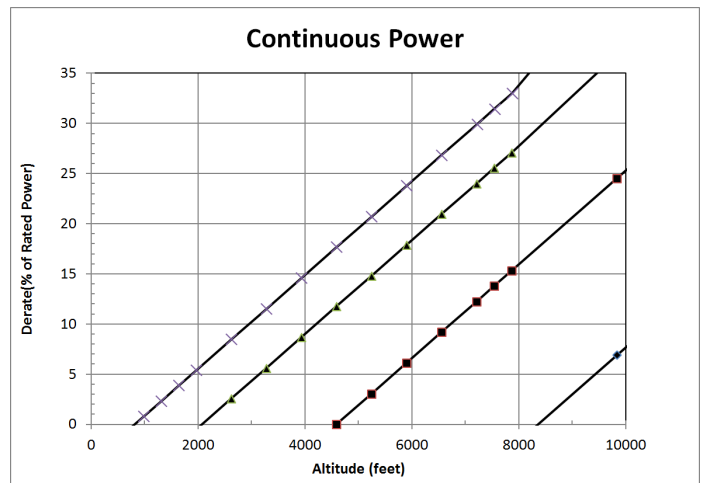
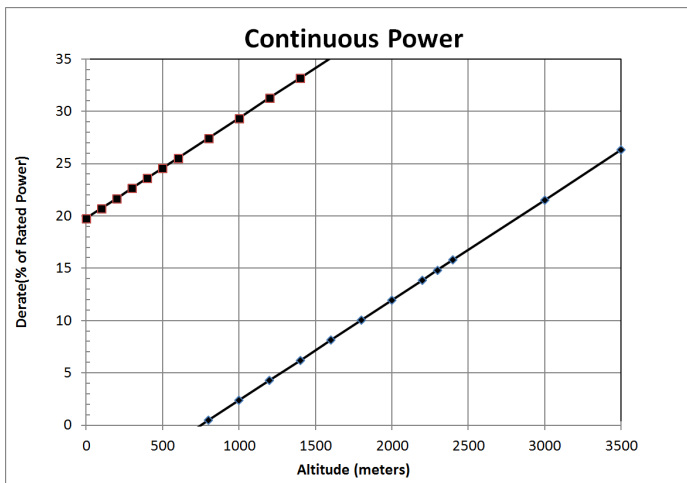
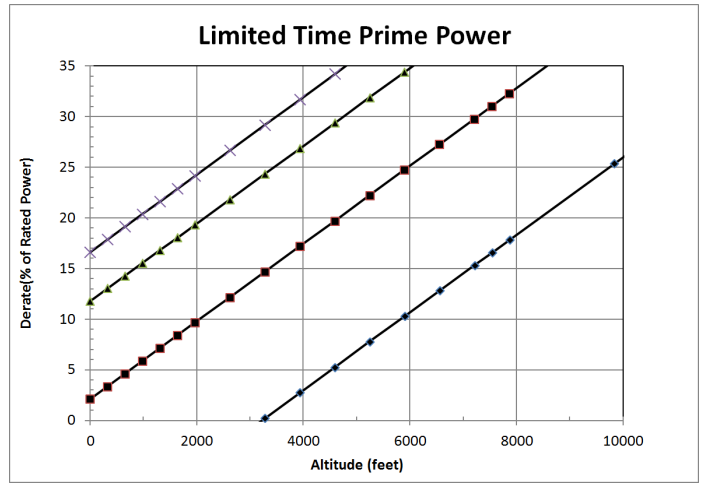
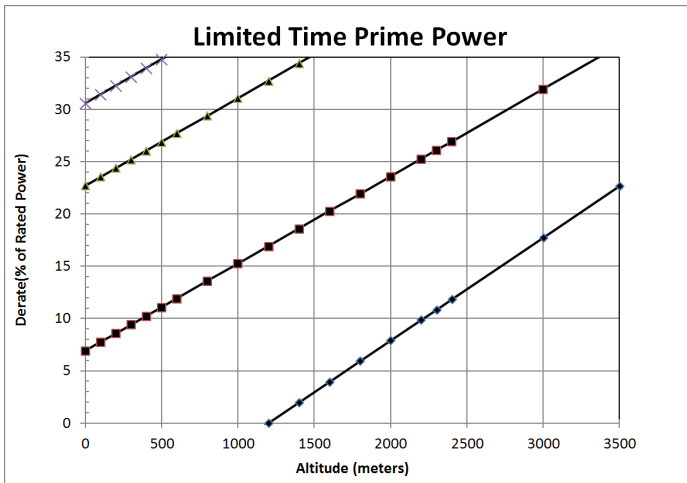
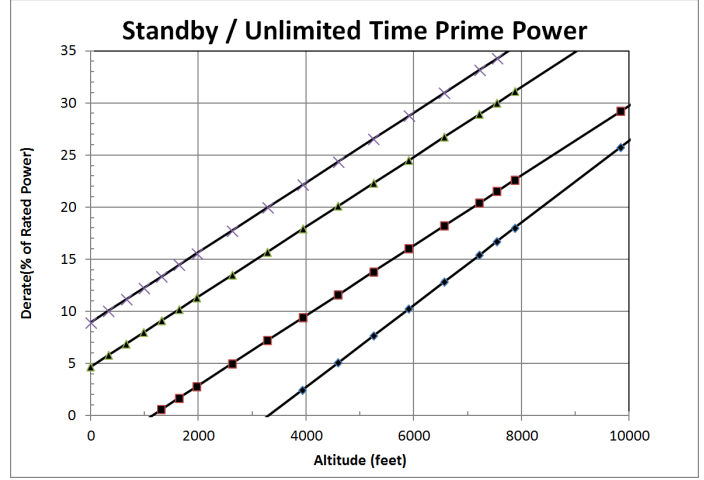
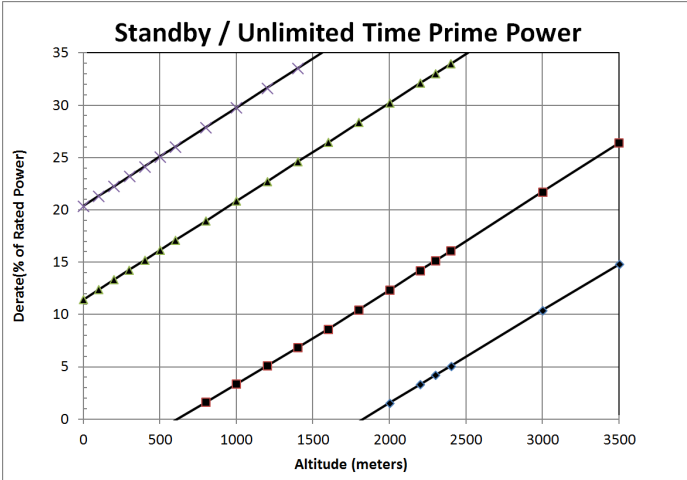
The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/litre (7.1 lbs/US gal). Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan, optional equipment and driven components.

Data Status: --Limited Production--
 Data Tolerance: ± 5%
 Chief Engineer: 

QSK19-G4

1500 rpm Derate Curves

1800 rpm Derate Curves



Operation at Elevated Temperature and Altitude:

For **Standby/Unlimited Time Prime** operation above these conditions, derate by an additional 3% per 1000 ft (300 m), and 18% per 18 delta deg F (10 delta deg C)
 For **Limited Time Prime** operation above these conditions, derate by an additional 3% per 1000 ft (300 m), and 16% per 18 delta deg F (10 delta deg C)
 For **Continuous** operation above these conditions, derate by an additional 3% per 1000 ft (300 m), and 20% per 18 delta deg F (10 delta deg C)

Operation at Elevated Temperature and Altitude:

For **Standby/Unlimited Time Prime** operation above these conditions, derate by an additional 4% per 1000 ft (300 m), and 9% per 18 delta deg F (10 delta deg C)
 For **Limited Time Prime** operation above these conditions, derate by an additional 4% per 1000 ft (300 m), and 10% per 18 delta deg F (10 delta deg C)
 For **Continuous** operation above these conditions, derate by an additional 7% per 1000 ft (300 m), and 17% per 18 delta deg F (10 delta deg C)

Cummins Inc.

Engine Data Sheet

ENGINE MODEL : QSK19-G4

CONFIGURATION NUMBER : D193103GX03

DATA SHEET: FR4580

DATE: 16 JAN 13

INSTALLATION DIAGRAM• Fan to Flywheel: **TBD****CPL NUMBER**

• Engine Critical Parts List: 4270

GENERAL ENGINE DATA

Type	Four Cycle; Inline; 6 Cylinder	
Aspiration	Turbocharged and Charge Air Cooled	
Bore x Stroke	6.25 x 6.25	159 x 159
Displacement	1150	18.9
Compression Ratio	15.0 : 1	
Dry Weight (Approximate), Fan to Flywheel Engine	4190	1901
Wet Weight (Approximate), Fan to Flywheel Engine	4350	1973
Moment of Inertia of Rotating Components • with FW 4023 Flywheel	195	8.2
Center of Gravity from Rear Face of Block	23.55	598
Center of Gravity Above Crankshaft Centerline	11.1	282
Maximum Static Loading at Rear Main Bearing	2000	907

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block	1000	1356
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EXHAUST SYSTEM

Maximum Back Pressure @ 1500 / 1800 RPM	1.5 / 2	5.1 / 6.8
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AIR INDUCTION SYSTEM

Maximum Intake Air Restriction • with Dirty Filter Element	25	6.2
• with Normal Duty Air Cleaner and Clean Filter Element @ 1500 / 1800 RPM	10 / 15	2.5 / 3.7

COOLING SYSTEM

Coolant Capacity — Engine Only	11	41.6
Minimum Pressure Cap	15	103
Maximum Static Head of Coolant Above Engine Crank Centerline	60	18.3
Maximum Coolant Temperature (Max Top Tank Temp) for Standby / Prime Power	220 / 212	104 / 100
Thermostat (Modulating) Range	181 - 203	83 - 95

Jacket Water Circuit Requirements

Maximum Coolant Friction Head External to Engine @ 1500 / 1800 RPM	5 / 5	34.5 / 34.5
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Charge Air Cooler Requirements

Maximum Temp. Rise Between Engine Air Intake and Intake Manifold - 1500/1800 rpm	38 / 53	21 / 29
Maximum Air Pressure Drop from Turbo Air Outlet to Intake Manifold - 1500/1800 rpm	3 / 4	10.2 / 13.5
Maximum Intake Manifold Temperature @ 77 °F (25 °C) Ambient - 1500/1800 rpm	115 / 130	46 / 54
Maximum Intake Manifold Temperature for Engine Protection (Shut Down Threshold)	180	82

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed	20	138
@ Governed Speed	40 - 60	275.8 - 413.7
Maximum Oil Temperature	250	121
Oil Capacity with OP 4084 Oil Pan : High - Low	19 - 17	71.9 - 64.4
Total System Capacity (Including Filter)	22.3	84.4

FUEL SYSTEM

Type Injection System	Cummins MCERS	4
Maximum Restriction at Lift Pump(clean/dirty filter)..... — in Hg (kPa)	5 / 9 16.9 / 30	
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head) — in Hg (kPa)	10 34	
Maximum Fuel Inlet Temperature	160 71	
Maximum Supply Fuel Flow @ 1500 / 1800 RPM..... — US gph (litre/hr)	120 / 124 454 / 469	
Maximum Return Fuel Flow @ 1500 / 1800 RPM..... — US gph (litre/hr)	75 / 78 284 / 295	

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement)	— volt	24
Minimum Recommended Battery Capacity		
• Cold Soak @ 50 °F (10 °C) and above	— °F CCA	600
• Cold Soak @ 32 °F to 50 °F (0 °C to 10 °C)	— °F CCA	640
• Cold Soak @ 0 °F to 32 °F (-18 °C to 0 °C)	— °F CCA	900
Maximum Starting Circuit Resistance.....	— Ohm	0.002

COLD START CAPABILITY

Unaided Cold Start

Minimum Cranking Speed.....	— RPM	150
Minimum Ambient Temperature for Unaided Cold Start.....	— °F (°C)	10 -12.2

PERFORMANCE DATA

- All data is based on:
- Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan, and optional driven components.
 - Engine operating with fuel corresponding to grade No. 2-D per ASTM D975.
 - ISO 3046, Part 1, Standard Reference Conditions of:

Barometric Pressure	: 100 kPa (29.53 in Hg)	Air Temperature	: 25 °C (77 °F)
Altitude	: 110 m (361 ft)	Relative Humidity	: 30%

Steady State Stability Band at Any Constant Load	— %	+/-	0.25
Estimated Free Field Sound Pressure Level of a Typical Generator Set;			
Excludes Exhaust Noise; at Rated Load and 7.5 m (24.6 ft); @ 1500 / 1800 RPM	— dBA		90.2 / 93.3
Exhaust Noise at 1 m Horizontal from Centerline of Exhaust Pipe Outlet Upwards at 45° @ 1500 / 1800 RPM...—	dBA		118 / 118.9

Governed Engine Speed	rpm
Engine Idle Speed.....	rpm
Gross Engine Power Output.....	hp (kW)
Brake Mean Effective Pressure.....	psi (kPa)
Piston Speed	ft/min (m/s)
Friction Horsepower.....	hp (kW)
Engine Water Flow at Stated Friction Head External to Engine:	
• 2.5 psi Friction Head.....	US gpm (litre/min)
• Maximum Friction Head	US gpm (litre/min)

	STANDBY POWER		PRIME POWER	
	60 hz	50 hz	60 hz	50 hz
Governed Engine Speed	1,800	1,500	1,800	1,500
Engine Idle Speed.....	700 - 900	700 - 900	700 - 900	700 - 900
Gross Engine Power Output.....	850 (634)	850 (634)	750 (559)	770 (574)
Brake Mean Effective Pressure.....	325 (2,241)	390 (2,689)	287 (1,979)	354 (2,441)
Piston Speed	1,875 (9.5)	1,562 (7.9)	1,875 (9.5)	1,562 (7.9)
Friction Horsepower.....	79 (59)	57 (43)	79 (59)	57 (43)
Engine Water Flow at Stated Friction Head External to Engine:				
• 2.5 psi Friction Head.....	196 (742)	162 (613)	196 (742)	162 (613)
• Maximum Friction Head	175 (662)	145 (549)	175 (662)	145 (549)
Intake Air Flow	2,198 (1,037)	1,857 (876)	2,057 (971)	1,707 (806)
Exhaust Gas Temperature	821 (438)	961 (516)	777 (414)	953 (512)
Exhaust Gas Flow	4,940 (2,331)	4,674 (2,206)	4,477 (2,113)	4,287 (2,023)
Air to Fuel Ratio.....	31.5 : 1	26.4 : 1	33.7 : 1	26.8 : 1
Radiated Heat to Ambient	3,649 (64)	3,678 (65)	3,194 (56)	3,329 (59)
Heat Rejection to Jacket Coolant.....	12,691 (223)	13,313 (234)	11,966 (217)	12,632 (222)
Heat Rejection to Exhaust	25,889 (455)	27,238 (479)	21,778 (383)	24,655 (434)
Heat Rejected to *Fuel.....	252 (4.4)	232 (4.1)	252 (4.4)	232 (4.1)
Heat Rejected to Aftercooler.....	12,676 (223)	11,435 (201)	10,832 (190)	9,700 (171)
Charge Air Flow.....	157 (71)	133 (60)	147 (67)	122 (55)
Turbocharger Compressor Outlet Pressure	94 (316)	90 (304)	84 (283)	80 (271)
Turbocharger Compressor Outlet Temperature.....	468 (242)	466 (241)	432 (222)	434 (223)

Engine Data

Intake Air Flow	cfm (litre/s)
Exhaust Gas Temperature	°F (°C)
Exhaust Gas Flow	cfm (litre/s)
Air to Fuel Ratio.....	air : fuel
Radiated Heat to Ambient	BTU/min (kW)
Heat Rejection to Jacket Coolant.....	BTU/min (kW)
Heat Rejection to Exhaust	BTU/min (kW)
Heat Rejected to *Fuel.....	BTU/min (kW)

ATA CAC

Heat Rejected to Aftercooler.....	BTU/min (kW)
Charge Air Flow.....	lb/min (kg/min)
Turbocharger Compressor Outlet Pressure	in Hg (kPa)
Turbocharger Compressor Outlet Temperature.....	°F (°C)

* This is the maximum heat rejection to fuel.

- N.A. - Not Available
- N/A - Not Applicable to this Engine
- TBD - To Be Determined

ENGINE MODEL : QSK19-G4
DATA SHEET : FR4580
DATE : 16 JAN 13