CUMMINS ENGINE COMPANY, INC Columbus, Indiana 47201 **ENGINE PERFORMANCE CURVE**	Basic Engine Model: **QST30-G10**	Curve Number: **FR-5198**	*G-DRIVE* **Q30** **1**
	Engine Critical Parts List: **CPL: 2949**	Date: **23Aug00**	

Displacement : **30.48** litre (**1860** in^3)	Bore : **140** mm (**5.51** in.) Stroke : **165** mm (**6.50** in.)
No. of Cylinders : **12**	Aspiration : **Turbocharged and Aftercooled**

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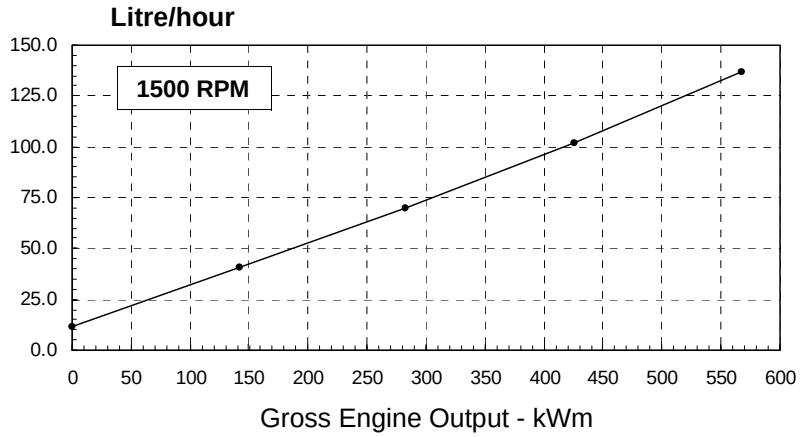
Engine Speed	Continuous Power	
RPM	kWm	BHP
1500	567	760
1800	567	760

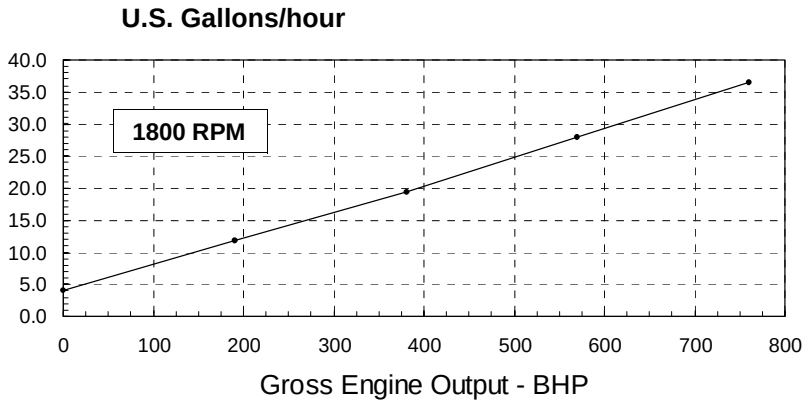
Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm·h	lb/ BHP·h	litre/ hour	U.S. Gal/ hour
CONTINUOUS POWER						
100	567	760	0.206	0.338	137	36.2
75	425	570	0.207	0.340	102	27.3
50	283	380	0.210	0.345	70	18.5
25	142	190	0.244	0.400	41	10.7



Engine Performance Data @ 1800 RPM

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm·h	lb/ BHP·h	litre/ hour	U.S. Gal/ hour
CONTINUOUS POWER						
100	567	760	0.208	0.342	139	36.6
75	425	570	0.211	0.348	106	27.9
50	283	380	0.222	0.365	74	19.5
25	142	190	0.270	0.443	45	11.9



CONVERSIONS: (litres = U.S. Gal x 3.785) (kWm = BHP x 0.746) (U.S. Gal = litres x 0.2642) (BHP = kWm x 1.34)

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations. Generator drive engines are not designed for and shall not be used in variable speed D.C. generator set applications.

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.

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.

See reverse side for application rating guidelines.

The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/litre (7.1 lbs/U.S. 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.

G-DRIVE
Q30
2

QST30-G10 Derate Curves @ 1500 RPM

CURVE NO: FR-5198
DATE: 23Aug00

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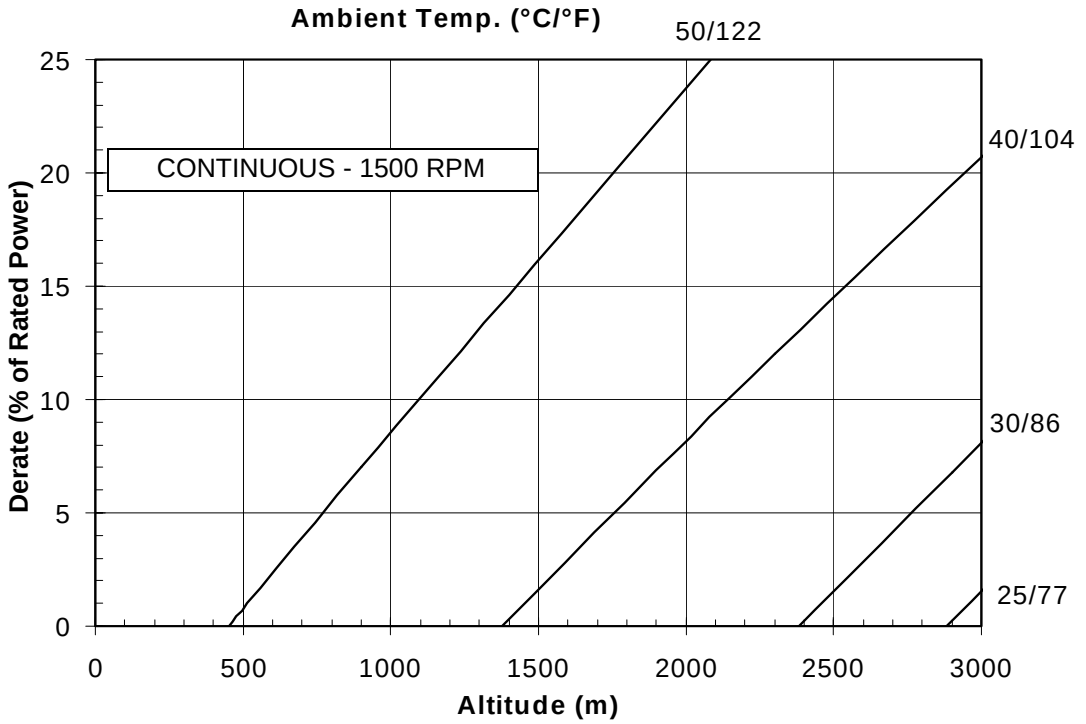

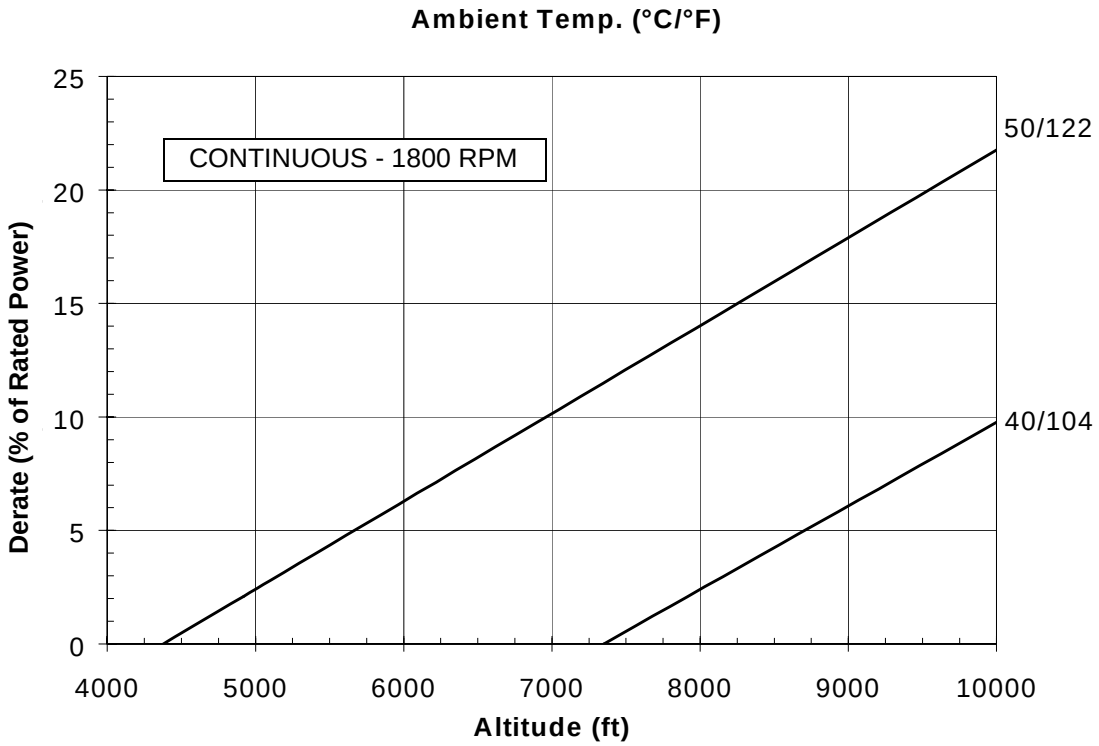

Reference Standards:
BS-5514 and DIN-6271 standards are based on ISO-3046.

Note: Derates shown are based on 15 in H_20 air intake restriction and 2 in Hg exhaust back pressure.

Operation At Elevated Temperature And Altitude
This engine may be operated at:
1500 RPM up to 1375 m (4500 ft) and 40°C (104°F) without Power Deration.
1800 RPM up to 2210 m (7500 ft) and 40°C (104°F) without Power Deration.

For sustained operation above these conditions, derate by an additional 4% per 300 m (1000 ft), and 2% per 11^{o} C (1% per 10^{o} F).

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Cummins Engine Company, Inc.

Engine Data Sheet

ENGINE MODEL : QST30-G10 **CONFIGURATION NUMBER :** D573001GX03

DATA SHEET : DS5198
DATE : 23Aug00
PERFORMANCE CURVE : FR5198

INSTALLATION DIAGRAM
• Fan to Flywheel : 3170342

CPL NUMBER
• Engine Critical Parts List : 2949

GENERAL ENGINE DATA

Type	4-Cycle; 50° Vee; 12-Cylinder Diesel	
Aspiration	Turbocharged and Aftercooled	
Bore x Stroke — mm x mm (in x in)	140 x165 (5.51 x 6.50)	
Displacement — litre (in^3)	30.48 (1860)	
Compression Ratio	14.0	
Dry Weight		
Fan to Flywheel Engine — kg (lb)	2967	(6540)
Wet Weight		
Fan to Flywheel Engine — kg (lb)	3062	(6750)
Moment of Inertia of Rotating Components		
• with FW 5050 Flywheel — kg • m^2 (lb_m • ft^2)		
Center of Gravity from Rear Face of Flywheel Housing (FH 5031) — mm (in)	845	(33.3)
Center of Gravity above Crankshaft Centerline — mm (in)	195	(7.7)
Maximum Static Loading at Rear Main Bearing — kg (lb)	950	(2100)

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block — N • m (lb • ft)	3100	(2286)

EXHAUST SYSTEM

Maximum Back Pressure — mm Hg (in Hg)	76	(3.0)

AIR INDUCTION SYSTEM

Maximum Intake Air Restriction		
• with Dirty Filter Element — mm H_2O (in H_2O)	635	(25)
• with Normal Duty Air Cleaner and Clean Filter Element — mm H_2O (in H_2O)	254	(10)
• with Heavy Duty Air Cleaner and Clean Filter Element — mm H_2O (in H_2O)	381	(15)

COOLING SYSTEM

Coolant Capacity — Engine Only — litre (US gal)	85	(22.4)
Maximum Coolant Friction Head External to Engine — 1800 rpm — kPa (psi)	69.0	(10.0)
— 1500 rpm — kPa (psi)	48.0	(7.0)
Maximum Static Head of Coolant Above Engine Crank Centerline — m (ft)	14	(46)
Standard Thermostat (Modulating) Range — °C (°F)	82 - 95	(180 - 203)
Minimum Pressure Cap — kPa (psi)	69.0	(10)
Maximum Top Tank Temperature — °C (°F)	100	(212)

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed — kPa (psi)	166	(24.0)
@ Governed Speed — kPa (psi)	310 - 386	(45.0 - 56.0)
Maximum Oil Temperature — °C (°F)	121	(250)
Oil Capacity with OP 5133 Oil Pan : High - Low — litre (US gal)	133 - 114	(35 - 30)
Total System Capacity (Including Bypass Filter) — litre (US gal)	154	(40.7)
Angularity of OP 5133 Oil Pan — Front Down	35°	
— Front Up	17°	
— Side to Side	35°	

FUEL SYSTEM

Type Injection System		Bosch P7100 Direct Injection	
Maximum Restriction at Lift Pump — with Clean Fuel Filter	— mm Hg (in Hg)	102	(4)
— with Dirty Fuel Filter	— mm Hg (in Hg)	203	(8)
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head)	— mm Hg (in Hg)	508	(20)
Maximum Fuel Flow to Injection Pumps (LB and RB Combined) — 1800 RPM	— litre / hr (US gph)	367	(97)
— 1500 RPM	— litre / hr (US gph)	360	(95)
Maximum Drain Flow (@ Minimum load) — 1800 RPM	— litre / hr (US gph)	550	(145)
— 1500 RPM	— litre / hr (US gph)	530	(140)
Maximum Fuel Inlet Temperature	— °C (°F)	66	(150)

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement)	— volt	24
Battery Charging System, Negative Ground	— ampere	35
Maximum Allowable Resistance of Cranking Circuit	— ohm	0.002
Minimum Recommended Battery Capacity		
• Cold Soak @ 10 °C (50 °C) and Above	— 0°F CCA	1200
• Cold Soak @ 0 °C to 10 °C (32 °F to 50 °F)	— 0°F CCA	1280
• Cold Soak @ -18 °C to 0 °C (0 °F to 32 °F)	— 0°F CCA	1800

COLD START CAPABILITY

Minimum Ambient Temperature for Aided (with Coolant Heater) Cold Start within 10 seconds to Rated Speed	— °C (°F)	10	(50)
Minimum Ambient Temperature for Aided (with Grid Heater) Cold Start	— °C (°F)	-10	(14)
Minimum Ambient Temperature for Unaided Cold Start	— °C (°F)	0	(32)

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	:	99 kPa (29.3 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); 1800 / 1500 rpm	— dBA	96.5 / 92.9 (est.)
Exhaust Noise at 1 m Horizontally from Centerline of Exhaust Pipe Outlet Upwards at 45°; (1800 / 1500 rpm)	— dBA	113.1 / 112.4 (est.)

	STANDBY		CONTINUOUS POWER	
	60 hz	*50 hz*	*60 hz*	*50 hz*
Governed Engine Speed — rpm			1800	1500
Engine Idle Speed — rpm			700 - 900	700 - 900
Gross Engine Power Output — kW_m (BHP)			567 (760)	567 (760)
Brake Mean Effective Pressure — kPa (psi)			1241 (180)	1517 (220)
Piston Speed — m / s (ft / min)			9.9 (1949)	8.3 (1634)
Friction Horsepower — kW_m (HP)	**Not Available for Standby Applications**		82 (110)	58 (78)
Engine Water Flow at Stated Friction Head External to Engine:				
• 5 psi Friction Head — litre / s (US gpm)			15.5 (246)	12.5 (198)
• Maximum Friction Head — litre / s (US gpm)			15.0 (238)	12.0 (190)
Engine Data with Dry Type Exhaust Manifold				
Intake Air Flow — litre / s (cfm)			835 (1770)	655 (1390)
Exhaust Gas Temperature — °C (°F)			470 (880)	538 (1000)
Exhaust Gas Flow — litre / s (cfm)			1967 (4170)	1750 (3710)
Air to Fuel Ratio — air : fuel			31:1	25:1
Radiated Heat to Ambient — kW_m (BTU / min)			93 (5320)	86 (4910)
Heat Rejection to Coolant — kW_m (BTU / min)			300 (17090)	302 (17200)
Heat Rejection to Exhaust — kW_m (BTU / min)			491 (27925)	476 (27100)

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

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ENGINE MODEL : **QST30-G10**
DATA SHEET : DS-5198
DATE : 23Aug00
CURVE NO. : FR-5198