



KTA38-G9 Advantage Data Sheet

Cummins Inc. Columbus, Indiana 47201

Curve Number: FR- 6454	Engine Critical Parts List: CPL -8586	Date: 12May04
Displacement : 37.8 litre (2300 in³)	Bore : 159 mm (6.25 in.)	Stroke : 159 mm (6.25 in.)
No. of Cylinders : 12	Aspiration : Turbocharged and Aftercooled	

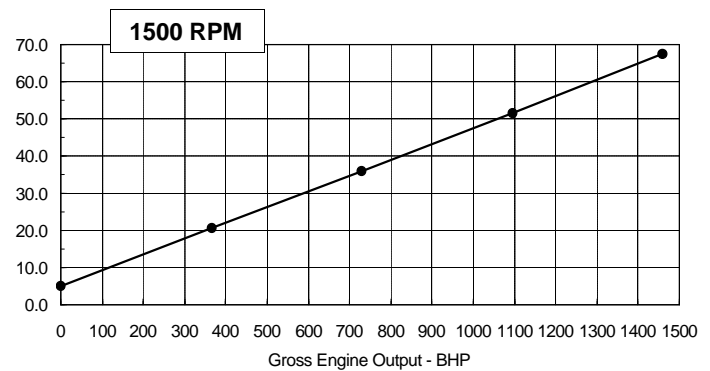
Emergency Standby Ratings for Application in Corporate Generator Sets Only

Engine Speed RPM	Standby Power	
	kWm	BHP
1500	1089	1460

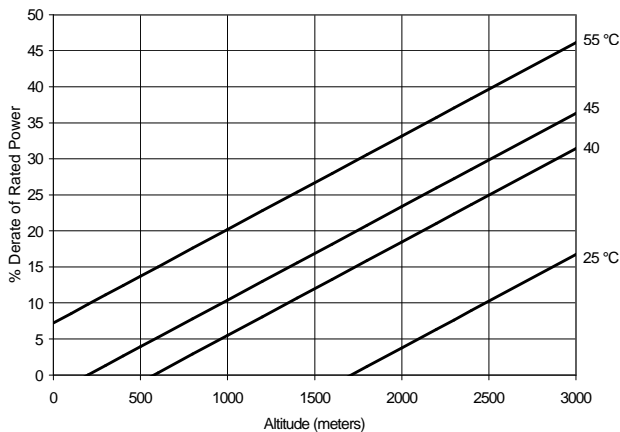
Engine Performance Data @ 1500 RPM:

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm-h	lb/ BHP-h	Litre/ hour	U.S. Gal/ hour
STANDBY POWER						
100	1089	1460	0.199	0.328	256	67.4
75	817	1095	0.204	0.335	196	51.7
50	545	730	0.213	0.350	137	36.0
25	272	365	0.246	0.403	79	20.7

Liter / hour



Power Derate Curve @ 1500 RPM:



Operation At Elevated Temperature and Altitude:

For sustained operation above these conditions, derate by an additional 4% per 300 m (1000 ft), and 10% per 10° C (5.5% per 10 deg F).

CONVERSIONS:(litres = U.S. Gal x 3.785) (U.S.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 70% average load factor and 200 hours of operation per year. This includes less than 5 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.

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/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.

Data Status: Pre- Production

Data Tolerance:

Chief Engineer:



KTA38-G9 Advantage Data Sheet

Cummins, Inc. Columbus, Indiana 47201

Cummins, Inc. Engine Data Sheet

ENGINE MODEL : KTA38-G9 CONFIGURATION NUMBER: D233031DX02

DATA SHEET : DS-6454

Date : 12May04

PERFORMANCE CURVE : FR-6454

INSTALLATION DIAGRAM

• Fan to Flywheel : 3383897

CPL NUMBER

• Engine Critical Parts List : 8586

GENERAL ENGINE DATA

Type.....	4-Cycle; 60° Vee; 12-Cylinder Diesel
Aspiration.....	Turbocharged and Aftercooled
Bore x Stroke	159 x 159 (6.25 x 6.25)
Displacement	2300 (37.8)
Compression Ratio	13.9 : 1
Dry Weight	
Fan to Flywheel Engine	4300 (9482)
Wet Weight	
Fan to Flywheel Engine	4536 (10002)
Moment of Inertia of Rotating Components	
• with FW 6001 Flywheel	10.4 (248)
• with FW 6011 Flywheel.....	20.8 (493)
Center of Gravity from Front Face of Block.....	980 (38.6)
Center of Gravity Above Crankshaft Centerline.....	279 (11)
Maximum Static Loading at Rear Main Bearing	908 (2000)

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block..... — N • m (lb • ft) 6100 (4500)

EXHAUST SYSTEM

Maximum Back Pressure at 1500 RPM (Standby Power)..... — mm Hg (in Hg) 76 (3)

AIR INDUCTION SYSTEM

Maximum Intake Air Restriction	
• with Dirty Filter Element	6.2 (25)
• with Clean Filter Element	3.7 (15)

COOLING SYSTEM

Coolant Capacity — Engine only	124 (32.7)
— with HX 6076 Heat Exchanger	199 (52.7)
Minimum Pressure Cap (for Cooling Systems with less than 2m [6 ft.] Static Head).....	69 (10)
Maximum Static Head of Coolant Above Engine Crank Centerline	18.3 (60)
Thermostat (Modulating) Range	82-93 (180-200)
Maximum Coolant Friction Head External to Engine — 1500 rpm	48 (7)
Maximum Top Tank Temperature for Standby.....	104 (220)
Maximum Raw Water Flow @ 90 F to HX6076 Heat Exchanger	409 (108)
Maximum Raw Water Inlet Pressure at HX 6076 Heat Exchanger	345 (50)

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed.....	138 (20)
@ Governed Speed.....	310-448 (45-65)
Maximum Oil Temperature	121 (250)
Oil Capacity with OP6023 Oil Pan: Low - High.....	114-87 (30-23)
Total System Capacity (with Combo Filter).....	135 (35.7)

FUEL SYSTEM

Type Injection System		Direct Injection Cummins PT	
Maximum Restriction at PT Fuel Injection Pump — with Clean Fuel Filter..... — mm Hg (in Hg)		102	(4.0)
— with Dirty Fuel Filter..... — mm Hg (in Hg)		203	(8.0)
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head)..... — mm Hg (in Hg)		165	(6.5)
Maximum Fuel Inlet Temperature		70	(160)
Maximum Fuel Flow to Injection Pump..... — litre / hr (US gph)		428	(113)

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement)..... — volt		24
Battery Charging System, Negative Ground..... --- ampere		35
Maximum Allowable Resistance of Cranking Circuit..... — ohm		.002
Minimum Recommended Battery Capacity		
• Cold Soak @ 10 °C (50 °F) 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 Unaided Cold Start to Idle Speed..... — °C (°F)		7	(45)
Minimum Ambient Temperature for NFPA 110 Cold Start (90° F Minimum Coolant Temperature)..... — °C (°F)		10	(50)

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

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 rpm

Exhaust Noise at 1 m Horizontally from Centerline of Exhaust Pipe Outlet Upwards at 45°.....

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

Engine Data

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

STANDBY POWER

	50 hz	
	1500	
	725-775	
	1089	(1460)
	2296	(333)
	7.9	(1562)
	86	(115)
	19.6	(310)
	17.7	(280)
Not Applicable for 60 Hz Operation	1309	(2775)
	529	(985)
	3540	(7500)
	24.8:1	
	154	(8764)
	672	(38243)
	652	(37082)

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

ENGINE MODEL : KTA38-G9
DATA SHEET : DS-6454
DATE : 12May04
CURVE NO. : FR-6454