

Dongfeng Cummins Techical Operations



ENGINE MODEL: 6BTAA5.9-G2
Used for 163kVA generator

REV 00 15APR2009



Generator Engine Performance Data

DONGFENG CUMMINS ENGINE Co.,LTD

Xiangfan, Hubei Province, China
<http://www.dcec.com.cn>

Basic Engine Model:

6BTAA5.9-G2

FR9266-03

FR9266-03 @1500 RPM&1800RPM

Configuration

D403076GX03

CPL Code

CPL: 0425

Revision

2009-4-15

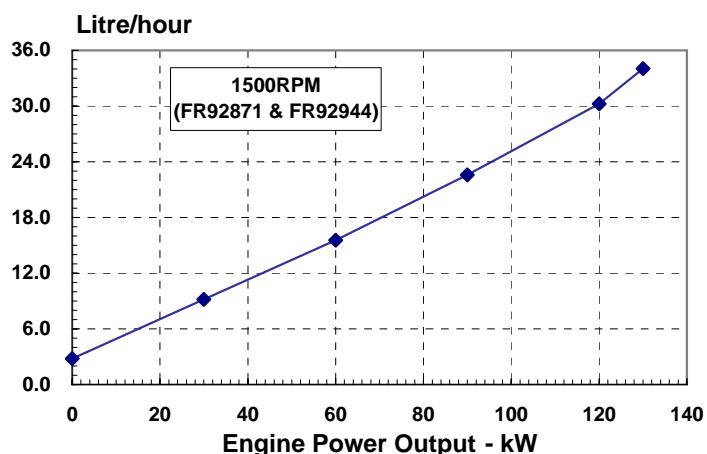
| | | | |
|----------------------|---------------|-------------------|---|
| Compression Ratio: | 17.3:1 | Aspiration: | Turbocharged and Charge Air Cooled |
| Bore: | 102 mm | Displacement: | 5.9 L |
| Stroke: | 120 mm | No. of Cylinders: | 6 |
| Governor Regulation: | ≤3% | Fuel System: | BYC PB/GAC 24V |

All data is based on the engine operating with fuel system, water pump, and 10 in H₂O (2.488 kPa) inlet air restriction with 5.98 in (152mm) inner diameter, and with 2.01 in Hg (7 kPa) exhaust restriction with 4.02 in (102 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

| Engine Speed RPM | Standby Power | | Prime Power | | Continuous Power | |
|---------------------|---------------|-----|-------------|-----|------------------|-----|
| | kW | HP | kW | HP | kW | HP |
| 1500 | 130 | 174 | 120 | 161 | 96 | 129 |
| 1800 | 145 | 194 | 132 | 177 | TBD | TBD |

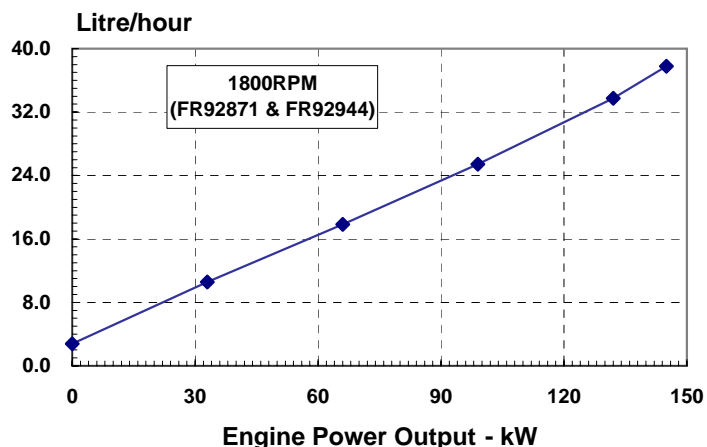
Engine Performance Data @ 1500 RPM

| OUTPUT POWER | | | FUEL CONSUMPTION | |
|-------------------------|-----|-----|------------------|-----|
| % | kW | HP | g/kW.h | L/h |
| STANDBY POWER | | | | |
| 100 | 130 | 174 | 216 | 34 |
| PRIME POWER | | | | |
| 100 | 120 | 161 | 208 | 30 |
| 75 | 90 | 121 | 207 | 23 |
| 50 | 60 | 80 | 214 | 16 |
| 25 | 30 | 40 | 252 | 9 |
| CONTINUOUS POWER | | | | |
| 100 | 56 | 75 | 208 | 24 |



Engine Performance Data @ 1800 RPM

| OUTPUT POWER | | | FUEL CONSUMPTION | |
|-------------------------|-----|-----|------------------|-----|
| % | kW | HP | g/kW.h | L/h |
| STANDBY POWER | | | | |
| 100 | 145 | 194 | 215 | 38 |
| PRIME POWER | | | | |
| 100 | 132 | 177 | 211 | 34 |
| 75 | 99 | 133 | 212 | 25 |
| 50 | 66 | 88 | 223 | 18 |
| 25 | 33 | 44 | 264 | 11 |
| CONTINUOUS POWER | | | | |
| TBD | TBD | TBD | TBD | TBD |



Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 100kPa (29.61 in. Hg) barometric pressure [80 m (263 ft.) altitude], 25°C (77°F) inlet air temperature, and 1 kPa (0.30 in. Hg) water vapor pressure with No.0 diesel fuel. The engine may be operated without changing the fuel setting up to 2200 m (7218ft.) altitude.

GENERAL ENGINE DATA

| | | |
|--|--------------------|-------------|
| Approximate Engine Weight (wet)..... | -kg | 411 |
| Mass Moment of Inertia of Rotating Components (No Flywheel)..... | -kg·m ² | 0.25 |
| Center of Gravity from Front Face of Block..... | -mm | 391 |
| Center of Gravity above Crankshaft Centerline..... | -mm | 140 |
| Fire Order..... | | 1-5-3-6-2-4 |

ENGINE MOUNTING

| | | |
|--|------|------|
| Maximum (Static) Bending Moment at Rear Face of Block..... | -N.m | 1356 |
|--|------|------|

EXHAUST SYSTEM

| | | |
|----------------------------|------|----|
| Maximum Back Pressure..... | -kPa | 10 |
|----------------------------|------|----|

AIR INTAKE SYSTEM

| | | |
|---|--------|----|
| Maximum Intake Air Restriction with Heavy Duty Air Cleaner | | |
| — Dirty Element..... | -kPa | 6 |
| — Clean Element..... | -kPa | 4 |
| Minimum Dirt Holding Capacity with Heavy Duty Air Cleaner..... | -g/cfm | 53 |
| Maximum Temperature Rise from Ambient to the Inlet of the Turbocharger..... | -°C | 17 |
| Recommended intake piping size (inner diameter)..... | -mm | 76 |

CHARGE AIR COOLING SYSTEM

| | | |
|---|------|------|
| Maximum Temp. Rise Between Engine Air Intake and Intake Manifold | -°C | 25 |
| Maximum Air Pressure Drop from Turbo Air outlet to Intake Manifold | | |
| — 1500RPM..... | -kPa | 8.5 |
| — 1800RPM..... | -kPa | 13.5 |
| Maximum Intake Manifold Temperature Differential (Ambient to IMT) (IMTD)... | -°C | 50 |
| Maximum Intake Manifold Temperature for engine protection (Warning Thresh- | -°C | 93 |

LUBRICATION SYSTEM

| | | |
|--|--------|-------------|
| Minimum Engine Oil Pressure for Engine Protection Devices: | | |
| — Idle Speed..... | -kPa | 207 |
| — Governed Speed..... | -kPa | 345 |
| Maximum Oil Temperature..... | -°C | 121 |
| Oil Capacity with OP 9006 Oil Pan : High - Low..... | -litre | 14.2 - 12.3 |
| Minimum Required Lube System Capacity - Sump plus Filters..... | -litre | 16.4 |
| Angularity of Standard Oil Pan: (Values stated are for intermittent operation only): | | |
| — Front Down..... | -° | 40 |
| — Front Up..... | -° | 40 |
| — Side to Side..... | -° | 40 |

FUEL SYSTEM

| | | |
|--|-----------|-------------------------|
| Type Injection System..... | | BYC PB Direct Injection |
| Maximum Restriction at Lift Pump..... | -kPa | 13.6 |
| Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head) | | |
| | -kPa | 67.7 |
| Total Drain Flow (constant for all loads)..... | -litre/hr | 30 |

COOLING SYSTEM

| | | |
|---|--------|-----------|
| Coolant Capacity - Engine Only..... | -litre | 10 |
| Maximum Coolant Friction Head External to Engine...-1800 rpm..... | | |
| | -kPa | 35 |
|-1500 rpm..... | | |
| | -kPa | 28 |
| Maximum Static Head of Coolant Above Engine Crank Centerline..... | -m | 14 |
| Standard Thermostat (Modulating) Range..... | -°C | 82 - 95 |
| Minimum Pressure Cap..... | -kPa | 69 |
| Maximum Top Tank Temperature for Standby / Prime Power..... | -°C | 104 / 100 |

ELECTRICAL SYSTEM

| | | | |
|---|----------|---------|-------|
| Cranking Motor (Heavy Duty, Positive Engagement)..... | -volt | 12V | 24V |
| Battery Charging System, Negative Ground..... | -ampere | 63 | 40 |
| Maximum Allowable Resistance of Cranking Circuit..... | -ohm | 0.00075 | 0.002 |
| Minimum Recommended Battery Capacity | | | |
| • Cold Soak @ 10 °F (-12 °C) and Above..... | -0°F CCA | 800 | 400 |

Fuel Rating Option used for these Data: **FR9266-03**

| | |
|-----------------------------------|-------------|
| Governed Engine Speed..... | -rpm |
| Engine Idle Speed..... | -rpm |
| Gross Engine Power Output..... | -kW |
| Piston Speed..... | -m/s |
| Friction Horsepower..... | -kW |
| Engine Water Flow to Engine:..... | -litre/sec. |
| Intake Air Flow..... | -litre/sec. |
| Exhaust Gas Flow..... | -litre/sec. |
| Exhaust Gas Temperature..... | -°C |
| Air to Fuel Ratio..... | -air:fuel |
| Radiated Heat to Ambient..... | -kW |
| Heat Rejection to Coolant..... | -kW |
| Heat Rejection to Exhaust..... | -kW |

| STANDBY POWER | | PRIME POWER | |
|---------------|-----------|-------------|-----------|
| 1800 | 1500 | 1800 | 1500 |
| 750 - 850 | 750 - 850 | 750 - 850 | 750 - 850 |
| 145 | 130 | 132 | 120 |
| 7.2 | 6 | 7.2 | 6 |
| 16.4 | 12.7 | 16.4 | 12.7 |
| 2.4 | 2.0 | 2.4 | 2.0 |
| 142 | 120 | 135 | 114 |
| 401 | 328 | 369 | 295 |
| 570 | 540 | 540 | 500 |
| 21.0 : 1 | 20.0 : 1 | 22.5 : 1 | 21.5 : 1 |
| 20 | 18 | 18 | 16 |
| 71 | 66 | 63 | 59 |
| 112 | 94 | 96 | 82 |

ALL DATA CERTIFIED WITHIN 5%

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

All data is subject to change without notice, sorry for inform.

Dongfeng Cummins Engine Co., Ltd.