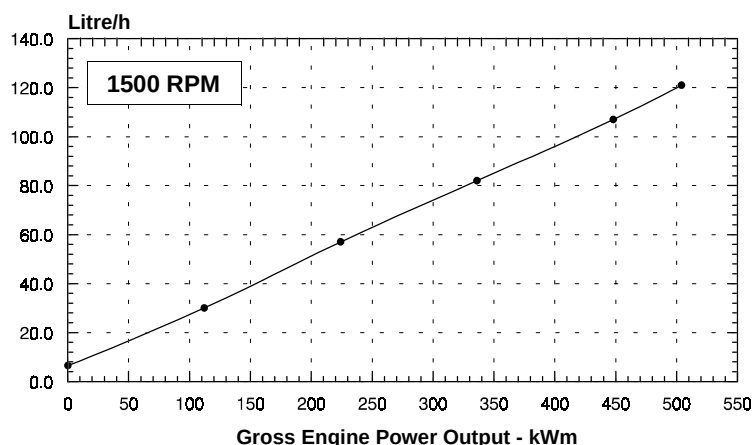


|                                                                                  |                                                                                         |                                                                                      |                                 |             |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|-------------|
|  | <b>CHONGQING CUMMINS<br/>ENGINE COMPANY Ltd.</b><br><br><b>ENGINE PERFORMANCE CURVE</b> | Basic Engine Model:<br><b>KTA19-G4</b>                                               | Curve Number:<br><b>FR-4212</b> | Page<br>No. |
|                                                                                  |                                                                                         | Engine Critical Parts List:<br><br><b>CPL: 4153</b>                                  | Date:<br><br><b>03JAN2004</b>   |             |
| Displacement : <b>18.9</b> litre ( <b>1150</b> in <sup>3</sup> )                 |                                                                                         | Bore : <b>159</b> mm ( <b>6.25</b> in.)    Stroke : <b>159</b> mm ( <b>6.25</b> in.) |                                 |             |
| No. of Cylinders : <b>6</b>                                                      |                                                                                         | Aspiration : <b>Turbocharged and Aftercooled</b>                                     |                                 |             |

| Engine Speed<br><br>RPM | Standby Power |            | Prime Power |            | Continuous Power |            |
|-------------------------|---------------|------------|-------------|------------|------------------|------------|
|                         | kWm           | BHP        | kWm         | BHP        | kWm              | BHP        |
| <b>1500</b>             | <b>504</b>    | <b>675</b> | <b>448</b>  | <b>600</b> | <b>355</b>       | <b>475</b> |
| <b>1800</b>             | <b>563</b>    | <b>755</b> | <b>507</b>  | <b>680</b> | <b>429</b>       | <b>575</b> |

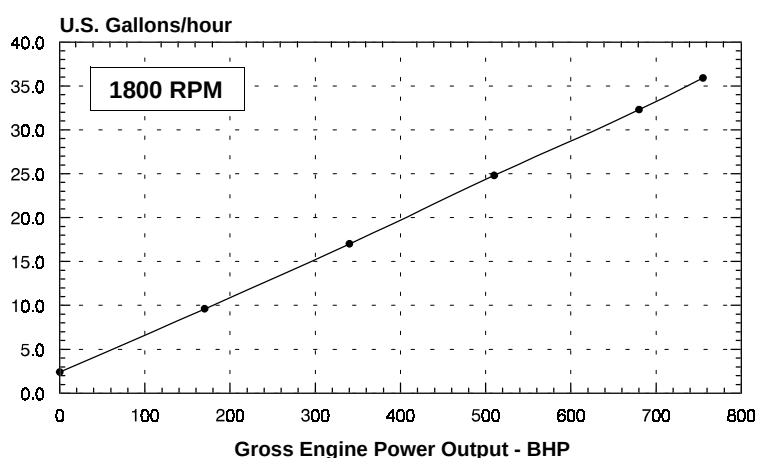
## Engine Performance Data @ 1500 RPM

| OUTPUT POWER            |     |     | FUEL CONSUMPTION |              |                |                   |
|-------------------------|-----|-----|------------------|--------------|----------------|-------------------|
| %                       | kWm | BHP | kg/<br>kWm·h     | lb/<br>BHP·h | litre/<br>hour | U.S. Gal/<br>hour |
| <b>STANDBY POWER</b>    |     |     |                  |              |                |                   |
| 100                     | 504 | 675 | 0.204            | 0.336        | 121            | 31.9              |
| <b>PRIME POWER</b>      |     |     |                  |              |                |                   |
| 100                     | 448 | 600 | 0.203            | 0.336        | 107            | 28.4              |
| 75                      | 336 | 450 | 0.207            | 0.341        | 82             | 21.6              |
| 50                      | 224 | 300 | 0.216            | 0.353        | 57             | 14.9              |
| 25                      | 112 | 150 | 0.228            | 0.383        | 30             | 8.1               |
| <b>CONTINUOUS POWER</b> |     |     |                  |              |                |                   |
| 100                     | 355 | 475 | 0.207            | 0.340        | 86             | 22.8              |



## Engine Performance Data @ 1800 RPM

| OUTPUT POWER            |     |     | FUEL CONSUMPTION |              |                |                   |
|-------------------------|-----|-----|------------------|--------------|----------------|-------------------|
| %                       | kWm | BHP | kg/<br>kWm·h     | lb/<br>BHP·h | litre/<br>hour | U.S. Gal/<br>hour |
| <b>STANDBY POWER</b>    |     |     |                  |              |                |                   |
| 100                     | 563 | 755 | 0.206            | 0.338        | 136            | 35.9              |
| <b>PRIME POWER</b>      |     |     |                  |              |                |                   |
| 100                     | 507 | 680 | 0.205            | 0.337        | 122            | 32.3              |
| 75                      | 380 | 510 | 0.210            | 0.346        | 94             | 24.8              |
| 50                      | 254 | 340 | 0.218            | 0.355        | 65             | 17.0              |
| 25                      | 127 | 170 | 0.241            | 0.401        | 36             | 9.6               |
| <b>CONTINUOUS POWER</b> |     |     |                  |              |                |                   |
| 100                     | 429 | 575 | 0.207            | 0.340        | 104            | 27.5              |



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

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.

# Chongqing Cummins Engine Company Ltd.

## Engine Data Sheet

ENGINE MODEL : **KTA19-G4**

CONFIGURATION NUMBER : D193091DX02

DATA SHEET : DS-4212-A

DATE : 03JAN2004

PERFORMANCE CURVE : FR-4212

### INSTALLATION DIAGRAM

- Fan to Flywheel : 3003983
- Heat Exchanger Cooled :

### CPL NUMBER

- Engine Critical Parts List : 4153

## GENERAL ENGINE DATA

|                         |                                     |
|-------------------------|-------------------------------------|
| Type .....              | 4 Cycle; In-line; 6 Cylinder Diesel |
| Aspiration .....        | Turbocharged and Aftercooled        |
| Bore x Stroke .....     | 6.25 x 6.25 (159 x 159)             |
| Displacement .....      | 1150 (18.9)                         |
| Compression Ratio ..... | 13.9 : 1                            |

### Dry Weight

|                                    |           |      |        |
|------------------------------------|-----------|------|--------|
| Fan to Flywheel Engine .....       | — lb (kg) | 4085 | (1855) |
| Heat Exchanger Cooled Engine ..... | — lb (kg) | 4572 | (2076) |

### Wet Weight

|                                    |           |      |        |
|------------------------------------|-----------|------|--------|
| Fan to Flywheel Engine .....       | — lb (kg) | 4245 | (1927) |
| Heat Exchanger Cooled Engine ..... | — lb (kg) | 4808 | (2183) |

### Moment of Inertia of Rotating Components

|                                                                      |                                                            |      |       |
|----------------------------------------------------------------------|------------------------------------------------------------|------|-------|
| • with FW 4001 Flywheel .....                                        | — lb <sub>m</sub> • ft <sup>2</sup> (kg • m <sup>2</sup> ) | 170  | (7.2) |
| • with FW 4006 Flywheel .....                                        | — lb <sub>m</sub> • ft <sup>2</sup> (kg • m <sup>2</sup> ) | 199  | (8.4) |
| Center of Gravity from Rear Face of Flywheel Housing (FH 4018) ..... | — in (mm)                                                  | 28.4 | (721) |
| Center of Gravity above Crankshaft Centerline .....                  | — in (mm)                                                  | 9.0  | (229) |
| Maximum Static Loading at Rear Main Bearing .....                    | — lb (kg)                                                  | 2000 | (908) |

## ENGINE MOUNTING

|                                                    |                   |      |        |
|----------------------------------------------------|-------------------|------|--------|
| Maximum Bending Moment at Rear Face of Block ..... | — lb • ft (N • m) | 1000 | (1356) |
|----------------------------------------------------|-------------------|------|--------|

## EXHAUST SYSTEM

|                                                     |                 |   |      |
|-----------------------------------------------------|-----------------|---|------|
| Maximum Back Pressure at Standby Power Rating ..... | — in Hg (mm Hg) | 3 | (76) |
|-----------------------------------------------------|-----------------|---|------|

## AIR INDUCTION SYSTEM

### Maximum Intake Air Restriction

|                                                               |                                             |    |       |
|---------------------------------------------------------------|---------------------------------------------|----|-------|
| • with Dirty Filter Element .....                             | — in H <sub>2</sub> O (mm H <sub>2</sub> O) | 25 | (635) |
| • with Normal Duty Air Cleaner and Clean Filter Element ..... | — in H <sub>2</sub> O (mm H <sub>2</sub> O) | 10 | (254) |
| • with Heavy Duty Air Cleaner and Clean Filter Element .....  | — in H <sub>2</sub> O (mm H <sub>2</sub> O) | 15 | (381) |

## COOLING SYSTEM

|                                      |                  |      |      |
|--------------------------------------|------------------|------|------|
| Coolant Capacity — Engine Only ..... | — US gal (liter) | 8.0  | (30) |
| — with HX 4073 Heat Exchanger .....  | — US gal (liter) | 17.5 | (66) |

|                                                                    |                        |           |             |
|--------------------------------------------------------------------|------------------------|-----------|-------------|
| Maximum Coolant Friction Head External to Engine — 1800 rpm .....  | — psi (kPa)            | 10        | (69)        |
| — 1500 rpm .....                                                   | — psi (kPa)            | 8         | (55)        |
| Maximum Static Head of Coolant Above Engine Crank Centerline ..... | — ft (m)               | 60        | (18.3)      |
| Standard Thermostat (Modulating) Range .....                       | — °F (°C)              | 180 - 200 | (82 - 93)   |
| Minimum Pressure Cap .....                                         | — psi (kPa)            | 10        | (69)        |
| Maximum Top Tank Temperature for Standby / Prime Power .....       | — °F (°C)              | 220 / 212 | (104 / 100) |
| Minimum Raw Water Flow @ 90°F to HX 4073 Heat Exchanger .....      | — US gpm (liter / min) | 54        | (204)       |
| Maximum Raw Water Inlet Pressure at HX 4073 Heat Exchanger .....   | — psi (kPa)            | 50        | (345)       |

## LUBRICATION SYSTEM

|                                                       |                  |          |             |
|-------------------------------------------------------|------------------|----------|-------------|
| Oil Pressure @ Idle Speed .....                       | — psi (kPa)      | 20       | (138)       |
| @ Governed Speed .....                                | — psi (kPa)      | 50 - 70  | (345 - 483) |
| Maximum Oil Temperature .....                         | — °F (°C)        | 250      | (121)       |
| Oil Capacity with OP 4019 Oil Pan : High - Low .....  | — US gal (liter) | 10 - 8.5 | (38 - 32)   |
| Total System Capacity (Including Bypass Filter) ..... | — US gal (liter) | 13.2     | (50)        |
| Angularity of OP 4019 Oil Pan — Front Down .....      |                  | 30°      |             |
| — Front Up .....                                      |                  | 30°      |             |
| — Side to Side .....                                  |                  | 30°      |             |

## FUEL SYSTEM

|                                                                                                                   |                             |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Type Injection System.....                                                                                        | Direct Injection Cummins PT |
| Maximum Restriction at PT Fuel Injection Pump — with Clean Fuel Filter..... — in Hg (mm Hg)                       | 4.0 (102)                   |
| — with Dirty Fuel Filter..... — in Hg (mm Hg)                                                                     | 8.0 (203)                   |
| Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head)..... — in Hg (mm Hg) | 6.5 (165)                   |
| Maximum Fuel Flow to Injection Pump..... — US gph (liter / hr)                                                    | 58 (220)                    |

## 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 @ 50 °F (10 °C) and Above..... — 0°F CCA         | 600   |
| • Cold Soak @ 32 °F to 50 °F (0 °C to 10 °C)..... — 0°F CCA  | 640   |
| • Cold Soak @ 0 °F to 32 °F (-18 °C to 0 °C)..... — 0°F CCA  | 900   |

## 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)
    - Altitude : 110 m (361 ft)
    - Air Temperature : 25 °C (77 °F)
    - 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 (25 ft); 1800 rpm / 1500 rpm .....                                 | — dBA | 91 / 89     |
| Exhaust Noise at 1 m Horizontally from Centerline of Exhaust Pipe Outlet Upwards at 45°; 1800 rpm / 1500 rpm ..... | — dBA | 119 / 118.5 |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Governed Engine Speed.....                                    | — rpm                    |
| Engine Idle Speed .....                                       | — rpm                    |
| Gross Engine Power Output.....                                | — BHP (kW <sub>m</sub> ) |
| Brake Mean Effective Pressure.....                            | — psi (kPa)              |
| Piston Speed.....                                             | — ft / min (m / s)       |
| Friction Horsepower .....                                     | — HP (kW <sub>m</sub> )  |
| Engine Water Flow at Stated Friction Head External to Engine: |                          |
| • 3 psi Friction Head .....                                   | — US gpm (liter / s)     |
| • Maximum Friction Head.....                                  | — US gpm (liter / s)     |

### Engine Data with Dry Type Exhaust Manifold

|                                 |                                |
|---------------------------------|--------------------------------|
| Intake Air Flow .....           | — cfm (liter / s)              |
| Exhaust Gas Temperature.....    | — °F (°C)                      |
| Exhaust Gas Flow .....          | — cfm (liter / s)              |
| Air to Fuel Ratio .....         | — air : fuel                   |
| Radiated Heat to Ambient .....  | — BTU / min (kW <sub>m</sub> ) |
| Heat Rejection to Coolant ..... | — BTU / min (kW <sub>m</sub> ) |
| Heat Rejection to Exhaust ..... | — BTU / min (kW <sub>m</sub> ) |

| STANDBY     |             | PRIME POWER |             |
|-------------|-------------|-------------|-------------|
| 60 hz       | 50 hz       | 60 hz       | 50 hz       |
| 1800        | 1500        | 1800        | 1500        |
| 675 - 775   | 675 - 775   | 675 - 775   | 675 - 775   |
| 755 (563)   | 675 (504)   | 680 (507)   | 600 (448)   |
| 287 (1979)  | 310 (2137)  | 260 (1793)  | 275 (1896)  |
| 1875 (9.5)  | 1562 (7.9)  | 1875 (9.5)  | 1562 (7.9)  |
| 85 (63)     | 60 (45)     | 85 (63)     | 60 (45)     |
| 196 (12.4)  | 162 (10.2)  | 196 (12.4)  | 162 (10.2)  |
| 175 (11.0)  | 145 (9.1)   | 175 (11.0)  | 145 (9.1)   |
| 1517 (716)  | 1226 (579)  | 1455 (687)  | 1126 (532)  |
| 939 (504)   | 1034 (557)  | 898 (481)   | 1000 (538)  |
| 3945 (1862) | 3400 (1604) | 3673 (1734) | 3100 (1463) |
| 25.5:1      | 22.5:1      | 27.2:1      | 23.2:1      |
| 4700 (83)   | 4100 (72)   | 4200 (74)   | 3645 (64)   |
| 16350 (287) | 15340 (270) | 14350 (252) | 13660 (240) |
| 24000 (423) | 20530 (361) | 21500 (378) | 18125 (319) |

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

**ENGINE MODEL : KTA19-G4**  
**DATA SHEET : DS-4212-A**  
**DATE : 03JAN04**  
**CURVE NO. : FR-4212**