

1241 WEST 2ND STREET  
MAYSVILLE, KY 41056

T 606-564-0064  
F 606-564-2641

March 3, 2026

Ms. Michelle McCloskey  
KY Department for Environmental Protection  
Division for Air Quality  
Permit Review Branch  
300 Sower Blvd., 2nd Floor  
Frankfort, KY 40601

**RE: Title V Permit Renewal Application**  
*International Paper – Maysville, Kentucky Recycled Paper Mill*  
*Source ID 21-161-00032, Agency Interest #3008, Title V Permit V-20-009*

Dear Ms. McCloskey:

International Paper (IP) owns and operates a recycled linerboard and corrugated medium paper mill in Maysville, Kentucky (Maysville Mill). The plant is classified as a major source under the Title V operating permit program. The current Title V permit (V-20-009) was issued to the plant on September 12, 2021. As the permit expires on **September 12, 2026**, a renewal application for the Title V permit is due to be submitted by March 12, 2026 pursuant to Condition G.2.a of the permit. This letter and attached application form constitutes the required renewal application.

### **MAYSVILLE MILL SUMMARY**

#### **Facility Location**

The Maysville Mill, which began operation in October 1992, is located approximately 50 miles southeast of Cincinnati, Ohio on the Ohio River in Mason County. The Universal Transverse Mercator (UTM) coordinates of the Mill are (approximately) 255.9 kilometers (km) East and 4,286.5 km North (Zone 17).

#### **Facility Operations and Classification**

The Maysville Mill produces recycled linerboard and corrugated medium from old corrugated container (OCC) furnish via a twin-wire paper machine. The Mill consists of a stock preparation area, paper machine, effluent treatment plant, miscellaneous storage vessels storing process chemicals, and emergency use stationary engines for fire water protection and emergency power.

OCC furnish is taken from the incoming material storage area and loaded onto conveyors using clamp trucks. The OCC furnish is then fed by conveyor into a set of continuous pulpers. Following pulping, the stock is cleaned via a series of screens and cleaners. After conditioning,

the stock is split and treated separately in the base sheet and top sheet stock preparation systems. The top and base-ply sheet stock is sent through a decker, thickened in a press, and sent to high density storage. When needed, the top-ply stock undergoes an additional treatment in a thermal dispersion unit, which melts contaminants such as wax to thoroughly disperse them. This additional processing of the top sheet helps provide the top ply of the linerboard with the required qualities.

The paper machine area consists of operations involving the feeding of the stock, the forming of the sheet, moisture removal, and the winding of the sheet onto reels. There is a top and base Fourdrinier. On the Fourdrinier the stock is applied to a continuously moving porous wire mesh, termed the forming fabric. Here, free water is removed from the dilute slurry of pulp fibers creating a wet mat/sheet. Some of the water removal is via gravity. In addition, a vacuum is pulled on the underside of the forming fabric (via foils and vacuum blowers) to assist in water removal. After the top and base ply sheets are formed, they are combined to form a single sheet. The combined sheet passes through a press section, where additional water is removed. Water removed from the forming line, which contains some pulp, is sent to a saveall tank, where the fiber is recovered and reintroduced with fresh stock.

The Maysville Mill's primary NAICS Code is 322130, Paperboard Mills.

### **Emissions Profile**

Emissions from the Maysville Mill consist primarily of VOC and HAP emissions from the stock preparation and paper machine areas. Emissions from these areas of the plant are primarily released to the inside building space. Building vents and roof ventilation systems serve to exhaust air inside the building that is entrained with VOCs and HAPs released from the process areas. The exhaust flows from the roof stacks are large to ensure adequate air ventilation in the buildings. As a result, the concentrations in any individual stack are very small.

In the stock preparation area, roof ventilation emission points are situated above the area where the open-top stock preparation tanks are located in the building. The rest of the emission points are associated with the paper machine, a long, continuous piece of machinery that can be subdivided into two zones— a wet end and a dry end. The wet end encompasses all operations upstream of the dryer cans. Some of the emissions generated, such as from the vacuum pump, exhaust out dedicated stacks. Most others exhaust out one of several roof ventilation stacks. At the dry end, there are seven stacks that cover the exhaust from the dryer hoods and one roof vent stack.

Emissions from the stock preparation and paper machine areas are calculated by applying established emission factors to a Mill production rate. Emissions from the emergency use engines are calculated based on emission factors from AP-42 Chapter 3.3 for Gasoline and Diesel-Fired Industrial Engines and/or the emission standards for nonroad CI engines in 40 CFR 89.112. IP is not proposing any changes to the potential to emit at the Maysville Mill.

### **SOURCE CLASSIFICATION AND PERMITTING REQUIREMENTS**

The Maysville Mill is located in Mason County, which is designated as an attainment area for all regulated pollutants. As its operations are not covered on the list of 28 defined Prevention of Significant Deterioration (PSD) source categories, the major source threshold with respect to the PSD program is 250 tpy. The potential VOC emissions are well under 250 tpy and as such, the

Mill is an existing minor source under the PSD program, even in the absence of any constraints on operations.

As specified in 401 KAR 52:001, Section 1(46), a major source with respect to the Title V regulations encompasses facilities with potential emissions of 100 tpy of any regulated pollutant, 10 tpy of any single HAP and/or 25 tpy of any combination of HAPs. Potential VOC and HAP emissions for the Maysville Mill are calculated as exceeding 100 tpy and 25 tpy, respectively, as documented in prior Title V permit applications. Therefore, the Maysville Mill is classified as a Title V major source.

There are no unit-specific statutory requirements applicable to the primary operations (stock preparation and paper machines) at the Maysville Mill—no Kentucky State Implementation Plan (SIP) provisions, no New Source Performance Standards (NSPS), and no National Emission Standard for Hazardous Air Pollutants (NESHAP). The Mill as a whole is subject only to commonly applicable general provisions in Title 401, Chapters 50-100 of the Kentucky Administrative Regulations (KAR).

The emergency-use engines at the plant are subject to NSPS and NESHAP regulations. There are two minor updates to these applicable regulations that occurred during the permit term.

- On August 10, 2022, the U.S. Environmental Protection Agency (EPA) published amendments to NSPS Subpart IIII, NSPS subpart JJJJ, and NESHAP Subpart ZZZZ to reflect the 2015 court decision in *Delaware Department of Natural Resources and Environmental Control v. EPA*, vacating 40 CFR 60.4211(f)(2)(ii) and (iii), 60.4243(d)(2)(ii) and (iii), and 63.6640(f)(2)(ii) and (iii). IP's current Title V permit includes a note in the Applicable Regulations section of Section B for the emergency use engines referencing this court vacatur. IP presumes that the Kentucky Division for Air Quality (Division) will remove this note in the renewal permit in favor of updating the regulatory text in each permit section to match the updated regulation and eliminate the allowance for emergency engines to operate for demand response.
- On August 16, 2024, EPA finalized amendments to NSPS Subpart IIII, NSPS subpart JJJJ, and NESHAP Subpart ZZZZ to add electronic reporting requirements and to clarify and correct inadvertent and other minor errors in the Code of Federal Regulations. IP is requesting that the Division add the relevant electronic reporting requirements of 40 CFR 60.4214(f)-(i) in Section B for EU05 (Waste Water Treatment Operations Emergency Generator Engine), which is subject to NSPS Subpart IIII.

### **Scope and Contents of Renewal Application**

Pursuant to 401 KAR 52:020, Section 4(2)(c), applications for permit renewals only need to provide the information that is new or different from the most recent source-wide permit application and certification by a responsible official. During the current permit term, there have been no revisions to the Title V permit. Nor have there been any off-permit changes or Section 502(b)(10) notifications. The emission unit inventory from the prior application is unchanged and there have been no changes to any applicable requirements during the permit term, except for the two minor updates affecting emergency engines detailed above. The existing terms of the current Title V permit appropriately cover the operations at the Mill and no changes are being requested as part of this renewal action except in regard to the emergency use engines. Therefore, IP is only submitting this letter and the attached DEP7007AI Administrative Information form in Attachment 1 for this renewal.

Ms. Michelle McCloskey – Page 4  
March 3, 2026

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If you have any questions or need information as part of the agency's review, please do not hesitate to contact Mr. Paul Smith, P.E. of Trinity Consultants at (859) 341-8100, or me at (606) 564-2645.

Sincerely,

INTERNATIONAL PAPER

A handwritten signature in blue ink, appearing to read 'MT', is written over the printed name 'Michael Tumey'.

Michael Tumey  
EH&S Manager

Attachment

cc: Mr. Paul J. Smith, P.E., Trinity Consultants

## DEP7007AI Administrative Information Form

DEP7007AI Administrative Information Form

## Division for Air Quality

300 Sower Boulevard  
Frankfort, KY 40601  
(502) 564-3999

## DEP7007AI

## Administrative Information

- ☐ Section AI.1: Source Information  
☐ Section AI.2: Applicant Information  
☐ Section AI.3: Owner Information  
☐ Section AI.4: Type of Application  
☐ Section AI.5: Other Required Information  
☐ Section AI.6: Signature Block  
☐ Section AI.7: Notes, Comments, and Explanations

## Additional Documentation

☐ Additional Documentation attached

Source Name: International Paper

KY EIS (AFS) #: 21-161-00032

Permit #: V-20-009

Agency Interest (AI) ID: 3008

Date: 3/2/2026

## Section AI.1: Source Information

|                   |                     |                             |           |              |
|-------------------|---------------------|-----------------------------|-----------|--------------|
| Physical Location | Street:             | <u>1241 West 2nd Street</u> |           |              |
| Address:          | City:               | <u>Maysville</u>            | County:   | <u>Mason</u> |
|                   |                     |                             | Zip Code: | <u>41056</u> |
| Mailing Address:  | Street or P.O. Box: | <u>1241 West 2nd Street</u> |           |              |
|                   | City:               | <u>Maysville</u>            | State:    | <u>KY</u>    |
|                   |                     |                             | Zip Code: | <u>41056</u> |

## Standard Coordinates for Source Physical Location

Longitude: -83.80657 (decimal degrees)      Latitude: 38.69372 (decimal degrees)

Primary (NAICS) Category: Paperboard Mills      Primary NAICS #: 322130

## Classification (SIC) Category:

Paperboard Mills

Primary SIC #:

2631

## Briefly discuss the type of business conducted at this site:

The Maysville Mill produces recycled linerboard and corrugated medium from old corrugated container (OCC) furnish via a twin-wire paper machine. The Mill consists of a stock preparation area, paper machine, effluent treatment plant, and miscellaneous storage vessels storing various process chemicals.

## Description of Area Surrounding Source:

☒ Rural Area☐ Industrial Park☐ Residential Area

Is any part of the source located on federal land?

☐ Yes

Number of Employees:

~110☐ Urban Area☐ Industrial Area☐ Commercial Area☒ No

## Approximate distance to nearest residence or commercial property:

< 0.5 miles

Property Area:

~250 AcresIs this source portable? ☐ Yes ☒ No

What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

## NPDES/KPDES:

☒ Currently Hold☐ Need☐ N/A

## Solid Waste:

☐ Currently Hold☐ Need☒ N/A

## RCRA:

☒ Currently Hold☐ Need☐ N/A

## UST:

☐ Currently Hold☐ Need☒ N/A

## Type of Regulated Waste Activity:

☐ Mixed Waste Generator☒ Generator☐ Recycler☐ Other: \_\_\_\_\_☐ U.S. Importer of Hazardous Waste☐ Transporter☐ Treatment/Storage/Disposal Facility☐ N/A

**Section AI.2: Applicant Information****Applicant Name:** International Paper**Title: (if individual)** N/A**Mailing Address:** **Street or P.O. Box:** 1241 West 2nd Street**City:** Maysville **State:** KY **Zip Code:** 41056**Email: (if individual)** N/A**Phone:** (606) 564-0063**Technical Contact****Name:** Michael Tumey**Title:** EH&S Manager**Mailing Address:** **Street or P.O. Box:** 1241 West 2nd Street**City:** Maysville **State:** KY **Zip Code:** 41056**Email:** Michael.tumey@ipaper.com**Phone:** (606) 564-2645**Air Permit Contact for Source****Name:** Michael Tumey**Title:** EH&S Manager**Mailing Address:** **Street or P.O. Box:** 1241 West 2nd Street**City:** Maysville **State:** KY **Zip Code:** 41056**Email:** Michael.tumey@ipaper.com**Phone:** (606) 564-2645

**Section AI.4: Type of Application**

**Current Status:** ☒ Title V ☐ Conditional Major ☐ State-Origin ☐ General Permit ☐ Registration ☐ None

☐ Name Change ☐ Initial Registration ☐ Significant Revision ☐ Administrative Permit Amendment

**Requested Action:** ☒ Renewal Permit ☐ Revised Registration ☐ Minor Revision ☐ Initial Source-wide Operating Permit  
(check all that apply) ☐ 502(b)(10) Change ☐ Extension Request ☐ Addition of New Facility ☐ Portable Plant Relocation Notice

☐ Revision ☐ Off Permit Change ☐ Landfill Alternate Compliance Submittal ☐ Modification of Existing Facilities

☐ Ownership Change ☐ Closure

**Requested Status:** ☒ Title V ☐ Conditional Major ☐ State-Origin ☐ PSD ☐ NSR ☐ Other: \_\_\_\_\_

**Is the source requesting a limitation of potential emissions?**

☐ Yes ☒ No

**Pollutant:**

**Requested Limit:**

☐ Particulate Matter

\_\_\_\_\_

☐ Volatile Organic Compounds (VOC)

\_\_\_\_\_

☐ Carbon Monoxide

\_\_\_\_\_

☐ Nitrogen Oxides

\_\_\_\_\_

☐ Sulfur Dioxide

\_\_\_\_\_

☐ Lead

\_\_\_\_\_

**Pollutant:**

**Requested Limit:**

☐ Single HAP

\_\_\_\_\_

☐ Combined HAPs

\_\_\_\_\_

☐ Air Toxics (40 CFR 68, Subpart F)

\_\_\_\_\_

☐ Carbon Dioxide

\_\_\_\_\_

☐ Greenhouse Gases (GHG)

\_\_\_\_\_

☐ Other

\_\_\_\_\_

**For New Construction:**

**Proposed Start Date of Construction:**

(MM/YYYY)

na

**Proposed Operation Start-Up Date: (MM/YYYY)**

na

**For Modifications:**

**Proposed Start Date of Modification:**

(MM/YYYY)

na

**Proposed Operation Start-Up Date: (MM/YYYY)**

na

Applicant is seeking coverage under a permit shield. ☐ Yes ☒ No

Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.

**Section AI.3: Owner Information****X Owner same as applicant****Name:** \_\_\_\_\_**Title:** \_\_\_\_\_**Mailing Address:** **Street or P.O. Box:** \_\_\_\_\_  
**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip Code:** \_\_\_\_\_**Email:** \_\_\_\_\_**Phone:** \_\_\_\_\_**List names of owners and officers of the company who have an interest in the company of 5% or more.****Name****Position**

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

**Section AI.5 Other Required Information**

Indicate the documents attached as part of this application:

- |                                                                                            |                                                                                   |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <input type="checkbox"/> DEP7007A Indirect Heat Exchangers and Turbines                    | <input type="checkbox"/> DEP7007CC Compliance Certification                       |
| <input type="checkbox"/> DEP7007B Manufacturing or Processing Operations                   | <input type="checkbox"/> DEP7007DD Insignificant Activities                       |
| <input type="checkbox"/> DEP7007C Incinerators and Waste Burners                           | <input type="checkbox"/> DEP7007EE Internal Combustion Engines                    |
| <input type="checkbox"/> DEP7007F Episode Standby Plan                                     | <input type="checkbox"/> DEP7007FF Secondary Aluminum Processing                  |
| <input type="checkbox"/> DEP7007J Volatile Liquid Storage                                  | <input type="checkbox"/> DEP7007GG Control Equipment                              |
| <input type="checkbox"/> DEP7007K Surface Coating or Printing Operations                   | <input type="checkbox"/> DEP7007HH Haul Roads                                     |
| <input type="checkbox"/> DEP7007L Mineral Processes                                        | <input type="checkbox"/> Confidentiality Claim                                    |
| <input type="checkbox"/> DEP7007M Metal Cleaning Degreasers                                | <input type="checkbox"/> Ownership Change Form                                    |
| <input type="checkbox"/> DEP7007N Source Emissions Profile                                 | <input type="checkbox"/> Secretary of State Certificate                           |
| <input type="checkbox"/> DEP7007P Perchloroethylene Dry Cleaning Systems                   | <input type="checkbox"/> Flowcharts or diagrams depicting process                 |
| <input type="checkbox"/> DEP7007R Emission Offset Credit                                   | <input type="checkbox"/> Digital Line Graphs (DLG) files of buldings, roads, etc. |
| <input type="checkbox"/> DEP7007S Service Stations                                         | <input type="checkbox"/> Site Map                                                 |
| <input type="checkbox"/> DEP7007T Metal Plating and Surface Treatment Operations           | <input type="checkbox"/> Map or drawing depicting location of facility            |
| <input type="checkbox"/> DEP7007V Applicable Requirements and Compliance Activities        | <input type="checkbox"/> Safety Data Sheet (SDS)                                  |
| <input type="checkbox"/> DEP7007Y Good Engineering Practice and Stack Height Determination | <input type="checkbox"/> Emergency Response Plan                                  |
| <input type="checkbox"/> DEP7007AA Compliance Schedule for Non-complying Emission Units    | <input type="checkbox"/> Other: _____                                             |
| <input type="checkbox"/> DEP7007BB Certified Progress Report                               |                                                                                   |

**Section AI.6: Signature Block**

I, the undersigned, hereby certify under penalty of law, that I am a responsible official\*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.

  
 \_\_\_\_\_  
 Authorized Signature

3-6-26  
 \_\_\_\_\_  
 Date

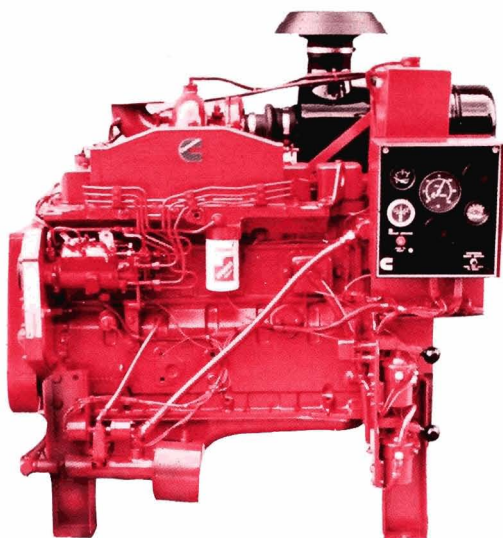
Christopher Wright  
 \_\_\_\_\_  
 Type or Printed Name of Signatory

Mill Manager  
 \_\_\_\_\_  
 Title of Signatory

\*Responsible official as defined by 401 KAR 52:001.

**Section AI.7: Notes, Comments, and Explanations**

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# 6BTA

## 6BTA5.9 F1

### FIRE PUMP ENGINE

## SPECIFICATIONS

Four Stroke Cycle, Turbocharged-Aftercooled,  
In-Line, 6 Cylinder Diesel Engine

|                                      |                 |              |
|--------------------------------------|-----------------|--------------|
| Bore and Stroke                      | 4.02 x 4.72 in. | (102x120 mm) |
| Displacement                         | 359 cu. in.     | (5.88 L)     |
| Oil System Capacity                  | 15 U.S. qts.    | (14.2 L)     |
| Engine Coolant Capacity              | 21.8 U.S. gal.  | (20.7 L)     |
| Dry Weight, With Std.<br>Accessories | 1,170 lb.       | (530 kg)     |

## INSTALLATION CONSIDERATIONS

Maximum raw water pressure must not exceed 20 PSI (137 kPa).  
Minimum acceptable raw water flow at 90° F (32° C) raw water  
temperature and 100° F (38° C) ambient air temperature should be  
at least 25 G.P.M. (68 L/min.) at the 2100 RPM listed rating.

Ventilation air required for engine combustion is 385 CFM @ 208  
and 283 CFM @ 182 hp. This is for engine air combustion only and  
does not take into consideration additional air required for normal  
room cooling.



This symbol on the nameplate means the product is  
Listed by Underwriters' Laboratories, Inc.



This symbol on the nameplate means the product is  
approved by the Factory Mutual Research  
Corporation.



This symbol on the nameplate means the product is  
Listed by Underwriters' Laboratories of Canada.

## LISTED AGENCY RATINGS

182 HP @ 1760 RPM  
208 HP @ 2100 RPM

All of the above ratings are listed by the following agencies:

Underwriters' Laboratories Inc.

Factory Mutual

Underwriters' Laboratories of Canada

The agency-approved horsepower ratings published are already  
derated for fire pump service. The ratings show horsepower  
available for driving the fire pump at standard SAE J1995 conditions  
of 29.61 in. (752 mm) Hg barometer and 77° F (25° C) inlet air  
temperature (approximately 300 ft. [91.4 m] above sea level). The  
only additional deration necessary is for higher ambient  
temperatures and elevations as follows: 3% for each 1000 ft. (305 m)  
above 300 ft. (91.4 m) and 1% for each 10° F (5.6° C) above 77° F  
(25° C) in accordance with National Fire Association Pamphlet No.  
20.

# 6BTA

## 6BTA5.9 F1

### FIRE PUMP ENGINE

## DESIGN FEATURES

**Aftercooler:** Large capacity aftercooler results in cooler, denser air for more efficient combustion and reduced internal stress for longer life.

**Direct Fuel Injection System:** With high swirl intake ports for thorough mixing of air and fuel to provide low fuel consumption.

**Holset Exhaust Gas Driven Turbocharger:** Provides more power, improved fuel economy, altitude compensation, and lower smoke and noise levels.

**Compact Size:** For ease of installation and easy access for routine maintenance.

**Fewer Parts:** For less inventory and faster maintenance and repair. Parts simplicity also enables engines to be serviced and repaired with ordinary hand tools.

**Cast Iron Skirted Block:** With main bearing supports between each cylinder, for maximum strength and rigidity, low weight, and optimum crankshaft support.

**Forged Steel, I-beam Cross Section Connecting Rods:** With angle split cap-to-rod interface and capscrew attachment for maximum structural strength and ease of service.

**Side Mounted Gear Driven Camshaft:** For low engine height and minimum maintenance.

**Single Piece Cross Flow Cylinder Head:** For short length and maximum structural stiffness of the block/head assembly, for fewer head gasket problems.

**Two Valves Per Cylinder:** With single valve springs, for fewer parts.

**Single Belt Fan, Alternator, and Water Pump Drive:** With self-tensioning idler for minimum belt maintenance.

## STANDARD EQUIPMENT

**Air Cleaner:** 15 inch (318 mm) diameter dry air cleaner.

**Belt and Damper Shield Guard:** Protection from alternator, accessory drive, and water pump belts and vibration damper.

**Coolant Pump:** Belt driven, centrifugal type.

**Corrosion Resistor:** Mounted, checks rust and corrosion, controls acidity, and removes impurities from coolant.

**Electrical Equipment:** 12 volt negative ground system, including: a 12 volt starting motor; a 12 volt, 65 alternator; manually operable contactors; and a junction box with enclosed terminal strip.

**Engine Support:** Pedestal type, front and rear.

**Exhaust Manifold:** Wet.

**Exhaust Outlet:** 3 in. (76 mm) diameter, 90° elbow.

**Filters:** Spin-on, replaceable lubricating oil filter. Single spin-on, replaceable fuel filter.

**Flywheel:** Machined for stubshaft mounting.

**Flywheel Housing:** SAE No. 3 with industrial supports.

**Governor:** Mechanical flyweight, mechanical variable speed type.

**Heat Exchanger:** Copper nickel tube bundle, mounted.

**Instrument Panel:** Mounted. Electrical instruments only. Includes amp meter, tachometer, hour meter, water temperature gauge, and lubricating oil pressure gauge.

**Lubricating Oil Cooler:** Tubular type, jacket water cooled.

**Oil Pan:** Steel stamp, rear sump type, 15 U.S. quarts (14.2 litre) capacity. Provision for optional oil heater.

**Oil Pressure Switch:** Provides signal to activate alarm (not included) for low oil pressure.

**Overspeed Switch:** Mounted, overspeed shutdown with manual reset, stop crank contacts.

**Stubshaft:** Mounted on flywheel.

**Throttle Control:** Hydraulic, with no manual override.

**Vibration Damper:** Viscous type.

**Water Jacket Heater:** Mounted beside oil pan, 120/240 volt, 1000 watt.

**Water Temperature Switch:** Provides signal to activate alarm (not included) for high water temperature.

*Cummins has always been a pioneer in product improvement. Thus specifications may change without notice. Illustrations may include optional equipment.*



Cummins Engine Company, Inc.  
Box 3005  
Columbus, IN 47202-3005  
U.S.A.

**CUMMINS ENGINE COMPANY, INC.**  
**Engine Data Sheet**

Firepump  
Pg. No.

**FP**

**9**

**Engine Model:** FIREPUMP 6BTA5.9 F1  
**Gross Power BHP (kW):** 208 (155) @ 2100  
**Configuration Number:** D403018FX02

**Data Sheet:** DS-9374  
**Date:** 12May97  
**CPL Code:** 1165

**GENERAL ENGINE DATA**

Type..... 4 cycle, Inline, 6 cylinder  
Aspiration: ..... Turbocharged, Aftercooled  
Bore - in. (mm) & Stroke - in. (mm) ..... 4.02 (102) x 4.72 (120)  
Displacement - in.<sup>3</sup> (litre) ..... 359.0 (5.88)  
Compression Ratio ..... 15.5:1  
Valves per Cylinder:   - Intake ..... 1  
                              - Exhaust ..... 1  
Engine Weight & Center of Gravity (With Standard Accessories)  
    Reference Installation Diagram ..... 3884450  
    Dry Weight - lb. (kg) ..... 1170 (530)  
    Wet Weight - lb. (kg) ..... 1230 (561)  
    C.G. Distance from F.F.O.B. - in. (mm) ..... 18.375 (466.7)  
    C.G. Distance Above Crankshaft Centerline - in. (mm) ..... 12.52 (318.0)  
Maximum Allowable Bending Moment @ Rear Face of Block - lb.-ft. (N•m) ..... 1000 (1350)

**AIR INDUCTION SYSTEM**

Maximum Allowable Temperature Rise Between Ambient Air and Engine Air Inlet  
    (Ambients 32°F [0°C] to 100°F [38°C]) - °F (°C) ..... 30 (15)  
Maximum Allowable Intake Restriction With a Dirty Air Filter Element  
    in. H<sub>2</sub>O (mm H<sub>2</sub>O) ..... 25 (635)  
Part Number of Standard Air Filter Element (Dry Type) ..... 3915185

**LUBRICATION SYSTEM**

Oil Pressure @ Rated Speeds - PSI (kPa) ..... 40 - 60 (276 - 414)  
Oil Flow @ Maximum Rated Speeds (Nominal) - U.S. GPM (litre/s) ..... 15.5 (1.0)  
Oil Pan Capacity (High - Low) U.S. quarts (litre) ..... 15 - 13 (14.2 - 12.3)  
Full Flow Lube Oil Filter Capacity - U.S. gal (litre) ..... 0.25 (0.9)  
Part Number of Standard Oil Pan ..... 3915703  
Part Number of Standard Oil Filter Element ..... 3908615

**COOLING SYSTEM**

Heat Exchanger Cooled (Shell & Tube Type)  
    Part Number of Tube Bundle ..... 3911840  
Raw Water Working Pressure Range at Heat Exchanger - PSI (kPa) ..... 60 (414) MAX  
Recommended Minimum Water Supply Pipe Size to  
    Heat Exchanger (Reference Only) - in. (mm) dia ..... 0.75 (19.1)  
Recommended Minimum Water Discharge Pipe Size From  
    Heat Exchanger (Reference Only) - in. (mm) dia ..... 1.0 (30.1)  
Coolant Water Capacity (Engine Side) - U.S. gal (litre) ..... 5.5 (20.8)  
Standard Thermostat- Type ..... Modulating  
    - Range - °F (°C) ..... 181-203 (83-95)  
Minimum Raw Water Flow with Water  
    Temperatures to 90°F (32°C) - U.S. GPM (litre/s) ..... 25 (1.6)

A jacket water heater is mandatory on this engine. The recommended heater wattage is 1000 down to 40°F (4°C)

**EXHAUST SYSTEM**

Maximum Allowable Back Pressure Imposed by Piping &  
    Silencer - in. Hg (mm Hg) ..... 3 (75)  
Exhaust Pipe Size Normally Acceptable - in. (mm) dia ..... 3 (76)

**FUEL SYSTEM**

|                                                                                     |           |
|-------------------------------------------------------------------------------------|-----------|
| Supply Line Size - in. (mm) .....                                                   | 0.25 (6)  |
| Drain Line Size - in. (mm) .....                                                    | 0.125 (3) |
| Maximum Fuel Line Length Between Supply Tank & Fuel Pump - ft. m) .....             | 40 (12)   |
| Maximum Fuel Height Above CL Crankshaft - in. (mm) .....                            | 80 (2030) |
| Part Number of Standard Fuel Filter.....                                            | 3903640   |
| Part Number of Standard Fuel Filter Element .....                                   | 3903640   |
| Maximum Allowable Restriction to Fuel Pump with Dirty Filter - in. Hg (mm Hg) ..... | 3.5 (89)  |
| Maximum Allowable Return Line Restriction - in. Hg (mm Hg) .....                    | 5.0 (127) |

**ELECTRICAL SYSTEM**

|                                                                                  |          |
|----------------------------------------------------------------------------------|----------|
| Battery Voltage .....                                                            | 12       |
| Battery Cable Size (Maximum Cable Length Not to Exceed 10 ft. (3.0 m) AWG) ..... | 00       |
| Wiring for Automatic Starting (Negative Ground) .....                            | Standard |
| Alternator (Standard) 12 Volt, Internally Regulated - Ampere .....               | 53       |
| Manually Operable Contactors .....                                               | Standard |
| Minimum Recommended Battery Capacity                                             |          |
| 70°F (21°C) Minimum Temperature - CCA .....                                      | 450      |
| 32°F (0°C) Minimum Temperature - CCA .....                                       | 640      |
| Reference Wiring Diagram Number .....                                            | 3884450  |

**PERFORMANCE DATA**

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and alternator; not included are compressor, fan, optional equipment and driven components. Data is based on operation at SAE standard J1995 conditions of 300 ft. (91 m) altitude (29.61 in. [752mm] Hg dry barometer), 77° F (25° C) intake air temperature, using No. 2 diesel or a fuel corresponding to ASTM D2.

All data is subject to change without notice.

|                                                                  |          |
|------------------------------------------------------------------|----------|
| Altitude Above Which Output Should be Limited - ft. (m) .....    | 300 (91) |
| Correction Factor per 1000 ft. (300 m) above Altitude Limit..... | 3%       |
| Temperature Above Which Output Should be Limited - °F (°C) ..... | 77 (25)  |
| Correction Factor per 10°F (11°C) Above Temperature Limit.....   | 1% (2%)  |

**FM Approved and UL Listed Ratings For: 6BTA5.9F1**

| Listed/<br>Approved<br>Ratings<br>BHP (kW) | Engine<br>Speed<br>RPM | Ventilation Air<br>Required for<br>Combustion<br>CFM (litre/s) | Heat Rejection<br>to Coolant<br>BTU/min (kW) | Heat Rejection<br>to Ambient<br>Air*<br>BTU/min (kW) | Exhaust Gas           |                  | Fuel<br>Consumption<br>Gal/h (litre/h) |
|--------------------------------------------|------------------------|----------------------------------------------------------------|----------------------------------------------|------------------------------------------------------|-----------------------|------------------|----------------------------------------|
|                                            |                        |                                                                |                                              |                                                      | Flow<br>CFM (litre/s) | Temp.<br>°F (°C) |                                        |
| 208 (155)                                  | 2100                   | 385 (181)                                                      | 7280 (128)                                   | 955 (27)                                             | 953 (449)             | 815 (435)        | 10.4 (39.4)                            |
| 182 (136)                                  | 1760                   | 283 (133)                                                      | 6279 (110)                                   | 715 (20)                                             | 745 (351)             | 890 (476)        | 9.2 (35)                               |

\* - Does not include exhaust piping.

All Data is Subject to Change Without Notice

Data Sheet : DS -9374

CUMMINS ENGINE COMPANY, INC., Columbus, IN 47202-3005 U.S.A.

# Cummins Engine Company, Inc.

## Exhaust Emissions Data Sheet

Firepump

Pg. No.

FP

11

Data Sheet: DS-9374

Date: 12May97

### Engine

|                                  |                                     |                        |                          |
|----------------------------------|-------------------------------------|------------------------|--------------------------|
| <b>Model:</b>                    | 6BTA5.9-F1                          | <b>Application:</b>    | Firepump                 |
| <b>Type:</b>                     | 4 cycle, In-Line, 6 Cylinder Diesel | <b>Config. Number:</b> | D403018FX02              |
| <b>Aspiration:</b>               | Turbocharged and Aftercooled        | <b>Bore:</b>           | 4.02 in. (102 mm)        |
| <b>Compression Ratio:</b>        | 15.5:1                              | <b>Stroke:</b>         | 4.72 in. (120 mm)        |
| <b>Emissions Control Device:</b> | Turbo, Aftercooling                 | <b>Displacement:</b>   | 359 cu. in. (5.9 liters) |

### Performance Data

|                                        | <u>2100 RPM</u> | <u>1760 RPM</u> |
|----------------------------------------|-----------------|-----------------|
| <b>BHP</b>                             | 208             | 182             |
| <b>Fuel Consumption</b> (gallons/hour) | 10.4            | 9.0             |
| <b>Air to Fuel Ratio</b>               | 23.0            | 19.1            |
| <b>Exhaust Gas Flow</b> (CFM)          | 953             | 745             |
| <b>Exhaust Gas Temperature</b> (°F)    | 815             | 890             |

### Exhaust Emissions Data

(All values are grams/hp-hour)

| <u>Component</u>                                               | <u>2100 RPM</u> | <u>1760 RPM</u> |
|----------------------------------------------------------------|-----------------|-----------------|
| <b>HC</b> (Total Unburned Hydrocarbons)                        | 1.13            | 0.77            |
| <b>NO<sub>x</sub></b> (Oxides of Nitrogen as NO <sub>2</sub> ) | 4.58            | 4.94            |
| <b>CO</b> (Carbon Monoxide)                                    | 2.60            | 1.31            |
| <b>PM</b> (Particulate Matter)                                 | 0.25            | 0.25            |
| <b>SO<sub>2</sub></b> (Sulfur Dioxide)                         | 0.62            | 0.63            |
| <b>CO<sub>2</sub></b> (Carbon Dioxide)                         | 510             | 520             |
| <b>N<sub>2</sub></b> (Nitrogen)                                | 2800            | 2400            |
| <b>O<sub>2</sub></b> (Oxygen)                                  | 320             | 180             |
| <b>H<sub>2</sub>O</b> (Water Vapor)                            | 190             | 190             |

### Test Conditions

Data was recorded during steady-state rated engine speed ( $\pm 25$  RPM) with full load ( $\pm 2\%$ ). Pressures, temperatures, and emission rates were stabilized.

|                                |                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------|
| <b>Fuel Specification:</b>     | ASTM D975 No. 2-D diesel fuel with 0.2% sulfur content (by weight) and 42-50 cetane number. |
| <b>Fuel Temperature:</b>       | 99°F $\pm$ 9° (at fuel pump inlet)                                                          |
| <b>Intake Air Temperature:</b> | 77°F $\pm$ 9°                                                                               |
| <b>Barometric Pressure:</b>    | 29.6 in. Hg $\pm$ 1 in. Hg                                                                  |
| <b>Humidity:</b>               | NO <sub>x</sub> measurement corrected to 75 grains H <sub>2</sub> O/lb. dry air             |

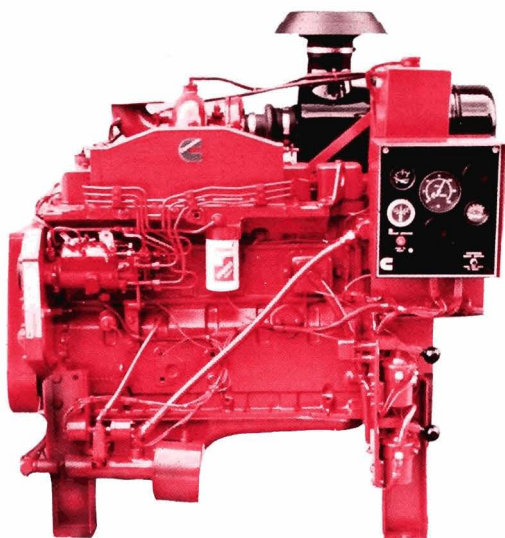
The HC, NO<sub>x</sub>, and CO emissions data tabulated here were taken from a single engine under the test conditions shown above. Data for the other components are estimates. This data is subject to instrumentation, measurement, and engine-to-engine variability. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

All Data is Subject to Change Without Notice

Data Sheet : DS -9374

CUMMINS ENGINE COMPANY, INC., Columbus, IN 47202-3005 U.S.A.

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# 6BTA

## 6BTA5.9 F1

### FIRE PUMP ENGINE

## SPECIFICATIONS

Four Stroke Cycle, Turbocharged-Aftercooled,  
In-Line, 6 Cylinder Diesel Engine

|                                      |                 |              |
|--------------------------------------|-----------------|--------------|
| Bore and Stroke                      | 4.02 x 4.72 in. | (102x120 mm) |
| Displacement                         | 359 cu. in.     | (5.88 L)     |
| Oil System Capacity                  | 15 U.S. qts.    | (14.2 L)     |
| Engine Coolant Capacity              | 21.8 U.S. gal.  | (20.7 L)     |
| Dry Weight, With Std.<br>Accessories | 1,170 lb.       | (530 kg)     |

## LISTED AGENCY RATINGS

182 HP @ 1760 RPM  
208 HP @ 2100 RPM

All of the above ratings are listed by the following agencies:

Underwriters' Laboratories Inc.

Factory Mutual

Underwriters' Laboratories of Canada

## INSTALLATION CONSIDERATIONS

Maximum raw water pressure must not exceed 20 PSI (137 kPa).  
Minimum acceptable raw water flow at 90° F (32° C) raw water  
temperature and 100° F (38° C) ambient air temperature should be  
at least 25 G.P.M. (68 L/min.) at the 2100 RPM listed rating.

Ventilation air required for engine combustion is 385 CFM @ 208  
and 283 CFM @ 182 hp. This is for engine air combustion only and  
does not take into consideration additional air required for normal  
room cooling.



This symbol on the nameplate means the product is  
Listed by Underwriters' Laboratories, Inc.



This symbol on the nameplate means the product is  
approved by the Factory Mutual Research  
Corporation.



This symbol on the nameplate means the product is  
Listed by Underwriters' Laboratories of Canada.

The agency-approved horsepower ratings published are already  
derated for fire pump service. The ratings show horsepower  
available for driving the fire pump at standard SAE J1995 conditions  
of 29.61 in. (752 mm) Hg barometer and 77° F (25° C) inlet air  
temperature (approximately 300 ft. [91.4 m] above sea level). The  
only additional deration necessary is for higher ambient  
temperatures and elevations as follows: 3% for each 1000 ft. (305 m)  
above 300 ft. (91.4 m) and 1% for each 10° F (5.6° C) above 77° F  
(25° C) in accordance with National Fire Association Pamphlet No.  
20.

# 6BTA

## 6BTA5.9 F1

### FIRE PUMP ENGINE

## DESIGN FEATURES

**Aftercooler:** Large capacity aftercooler results in cooler, denser air for more efficient combustion and reduced internal stress for longer life.

**Direct Fuel Injection System:** With high swirl intake ports for thorough mixing of air and fuel to provide low fuel consumption.

**Holset Exhaust Gas Driven Turbocharger:** Provides more power, improved fuel economy, altitude compensation, and lower smoke and noise levels.

**Compact Size:** For ease of installation and easy access for routine maintenance.

**Fewer Parts:** For less inventory and faster maintenance and repair. Parts simplicity also enables engines to be serviced and repaired with ordinary hand tools.

**Cast Iron Skirted Block:** With main bearing supports between each cylinder, for maximum strength and rigidity, low weight, and optimum crankshaft support.

**Forged Steel, I-beam Cross Section Connecting Rods:** With angle split cap-to-rod interface and capscrew attachment for maximum structural strength and ease of service.

**Side Mounted Gear Driven Camshaft:** For low engine height and minimum maintenance.

**Single Piece Cross Flow Cylinder Head:** For short length and maximum structural stiffness of the block/head assembly, for fewer head gasket problems.

**Two Valves Per Cylinder:** With single valve springs, for fewer parts.

**Single Belt Fan, Alternator, and Water Pump Drive:** With self-tensioning idler for minimum belt maintenance.

## STANDARD EQUIPMENT

**Air Cleaner:** 15 inch (318 mm) diameter dry air cleaner.

**Belt and Damper Shield Guard:** Protection from alternator, accessory drive, and water pump belts and vibration damper.

**Coolant Pump:** Belt driven, centrifugal type.

**Corrosion Resistor:** Mounted, checks rust and corrosion, controls acidity, and removes impurities from coolant.

**Electrical Equipment:** 12 volt negative ground system, including: a 12 volt starting motor; a 12 volt, 65 alternator; manually operable contactors; and a junction box with enclosed terminal strip.

**Engine Support:** Pedestal type, front and rear.

**Exhaust Manifold:** Wet.

**Exhaust Outlet:** 3 in. (76 mm) diameter, 90° elbow.

**Filters:** Spin-on, replaceable lubricating oil filter. Single spin-on, replaceable fuel filter.

**Flywheel:** Machined for stubshaft mounting.

**Flywheel Housing:** SAE No. 3 with industrial supports.

**Governor:** Mechanical flyweight, mechanical variable speed type.

**Heat Exchanger:** Copper nickel tube bundle, mounted.

**Instrument Panel:** Mounted. Electrical instruments only. Includes amp meter, tachometer, hour meter, water temperature gauge, and lubricating oil pressure gauge.

**Lubricating Oil Cooler:** Tubular type, jacket water cooled.

**Oil Pan:** Steel stamp, rear sump type, 15 U.S. quarts (14.2 litre) capacity. Provision for optional oil heater.

**Oil Pressure Switch:** Provides signal to activate alarm (not included) for low oil pressure.

**Overspeed Switch:** Mounted, overspeed shutdown with manual reset, stop crank contacts.

**Stubshaft:** Mounted on flywheel.

**Throttle Control:** Hydraulic, with no manual override.

**Vibration Damper:** Viscous type.

**Water Jacket Heater:** Mounted beside oil pan, 120/240 volt, 1000 watt.

**Water Temperature Switch:** Provides signal to activate alarm (not included) for high water temperature.

*Cummins has always been a pioneer in product improvement. Thus specifications may change without notice. Illustrations may include optional equipment.*



Cummins Engine Company, Inc.  
Box 3005  
Columbus, IN 47202-3005  
U.S.A.

**CUMMINS ENGINE COMPANY, INC.**  
**Engine Data Sheet**

Firepump  
Pg. No.

**FP**

**9**

**Engine Model:** FIREPUMP 6BTA5.9 F1  
**Gross Power BHP (kW):** 208 (155) @ 2100  
**Configuration Number:** D403018FX02

**Data Sheet:** DS-9374  
**Date:** 12May97  
**CPL Code:** 1165

**GENERAL ENGINE DATA**

|                                                                            |                             |
|----------------------------------------------------------------------------|-----------------------------|
| Type.....                                                                  | 4 cycle, Inline, 6 cylinder |
| Aspiration: .....                                                          | Turbocharged, Aftercooled   |
| Bore - in. (mm) & Stroke - in. (mm) .....                                  | 4.02 (102) x 4.72 (120)     |
| Displacement - in. <sup>3</sup> (litre) .....                              | 359.0 (5.88)                |
| Compression Ratio.....                                                     | 15.5:1                      |
| Valves per Cylinder:   - Intake .....                                      | 1                           |
| - Exhaust.....                                                             | 1                           |
| <b>Engine Weight &amp; Center of Gravity (With Standard Accessories)</b>   |                             |
| Reference Installation Diagram .....                                       | 3884450                     |
| Dry Weight - lb. (kg) .....                                                | 1170 (530)                  |
| Wet Weight - lb. (kg).....                                                 | 1230 (561)                  |
| C.G. Distance from F.F.O.B. - in. (mm).....                                | 18.375 (466.7)              |
| C.G. Distance Above Crankshaft Centerline - in. (mm).....                  | 12.52 (318.0)               |
| Maximum Allowable Bending Moment @ Rear Face of Block - lb.-ft. (N•m)..... | 1000 (1350)                 |

**AIR INDUCTION SYSTEM**

|                                                                                                                                      |          |
|--------------------------------------------------------------------------------------------------------------------------------------|----------|
| Maximum Allowable Temperature Rise Between Ambient Air and Engine Air Inlet<br>(Ambients 32°F [0°C] to 100°F [38°C]) - °F (°C) ..... | 30 (15)  |
| Maximum Allowable Intake Restriction With a Dirty Air Filter Element<br>in. H <sub>2</sub> O (mm H <sub>2</sub> O) .....             | 25 (635) |
| Part Number of Standard Air Filter Element (Dry Type) .....                                                                          | 3915185  |

**LUBRICATION SYSTEM**

|                                                                      |                       |
|----------------------------------------------------------------------|-----------------------|
| Oil Pressure @ Rated Speeds - PSI (kPa).....                         | 40 - 60 (276 - 414)   |
| Oil Flow @ Maximum Rated Speeds (Nominal) - U.S. GPM (litre/s) ..... | 15.5 (1.0)            |
| Oil Pan Capacity (High - Low) U.S. quarts (litre).....               | 15 - 13 (14.2 - 12.3) |
| Full Flow Lube Oil Filter Capacity - U.S. gal (litre).....           | 0.25 (0.9)            |
| Part Number of Standard Oil Pan .....                                | 3915703               |
| Part Number of Standard Oil Filter Element .....                     | 3908615               |

**COOLING SYSTEM**

|                                                                      |                 |
|----------------------------------------------------------------------|-----------------|
| <b>Heat Exchanger Cooled (Shell &amp; Tube Type)</b>                 |                 |
| Part Number of Tube Bundle .....                                     | 3911840         |
| Raw Water Working Pressure Range at Heat Exchanger - PSI (kPa) ..... | 60 (414) MAX    |
| <b>Recommended Minimum Water Supply Pipe Size to</b>                 |                 |
| Heat Exchanger (Reference Only) - in. (mm) dia .....                 | 0.75 (19.1)     |
| <b>Recommended Minimum Water Discharge Pipe Size From</b>            |                 |
| Heat Exchanger (Reference Only) - in. (mm) dia .....                 | 1.0 (30.1)      |
| Coolant Water Capacity (Engine Side) - U.S. gal (litre).....         | 5.5 (20.8)      |
| Standard Thermostat- Type.....                                       | Modulating      |
| - Range - °F (°C) .....                                              | 181-203 (83-95) |
| <b>Minimum Raw Water Flow with Water</b>                             |                 |
| Temperatures to 90°F (32°C) - U.S. GPM (litre/s) .....               | 25 (1.6)        |

A jacket water heater is mandatory on this engine. The recommended heater wattage is 1000 down to 40°F (4°C)

**EXHAUST SYSTEM**

|                                                                |        |
|----------------------------------------------------------------|--------|
| <b>Maximum Allowable Back Pressure Imposed by Piping &amp;</b> |        |
| Silencer - in. Hg (mm Hg).....                                 | 3 (75) |
| Exhaust Pipe Size Normally Acceptable - in. (mm) dia .....     | 3 (76) |

**FUEL SYSTEM**

|                                                                                     |           |
|-------------------------------------------------------------------------------------|-----------|
| Supply Line Size - in. (mm) .....                                                   | 0.25 (6)  |
| Drain Line Size - in. (mm) .....                                                    | 0.125 (3) |
| Maximum Fuel Line Length Between Supply Tank & Fuel Pump - ft. m) .....             | 40 (12)   |
| Maximum Fuel Height Above CL Crankshaft - in. (mm) .....                            | 80 (2030) |
| Part Number of Standard Fuel Filter.....                                            | 3903640   |
| Part Number of Standard Fuel Filter Element .....                                   | 3903640   |
| Maximum Allowable Restriction to Fuel Pump with Dirty Filter - in. Hg (mm Hg) ..... | 3.5 (89)  |
| Maximum Allowable Return Line Restriction - in. Hg (mm Hg) .....                    | 5.0 (127) |

**ELECTRICAL SYSTEM**

|                                                                                  |          |
|----------------------------------------------------------------------------------|----------|
| Battery Voltage .....                                                            | 12       |
| Battery Cable Size (Maximum Cable Length Not to Exceed 10 ft. (3.0 m) AWG) ..... | 00       |
| Wiring for Automatic Starting (Negative Ground) .....                            | Standard |
| Alternator (Standard) 12 Volt, Internally Regulated - Ampere .....               | 53       |
| Manually Operable Contactors .....                                               | Standard |
| Minimum Recommended Battery Capacity                                             |          |
| 70°F (21°C) Minimum Temperature - CCA .....                                      | 450      |
| 32°F (0°C) Minimum Temperature - CCA .....                                       | 640      |
| Reference Wiring Diagram Number .....                                            | 3884450  |

**PERFORMANCE DATA**

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and alternator; not included are compressor, fan, optional equipment and driven components. Data is based on operation at SAE standard J1995 conditions of 300 ft. (91 m) altitude (29.61 in. [752mm] Hg dry barometer), 77° F (25° C) intake air temperature, using No. 2 diesel or a fuel corresponding to ASTM D2.

All data is subject to change without notice.

|                                                                  |          |
|------------------------------------------------------------------|----------|
| Altitude Above Which Output Should be Limited - ft. (m) .....    | 300 (91) |
| Correction Factor per 1000 ft. (300 m) above Altitude Limit..... | 3%       |
| Temperature Above Which Output Should be Limited - °F (°C) ..... | 77 (25)  |
| Correction Factor per 10°F (11°C) Above Temperature Limit.....   | 1% (2%)  |

**FM Approved and UL Listed Ratings For: 6BTA5.9F1**

| Listed/<br>Approved<br>Ratings<br>BHP (kW) | Engine<br>Speed<br>RPM | Ventilation Air<br>Required for<br>Combustion<br>CFM (litre/s) | Heat Rejection<br>to Coolant<br>BTU/min (kW) | Heat Rejection<br>to Ambient<br>Air*<br>BTU/min (kW) | Exhaust Gas           |                  | Fuel<br>Consumption<br>Gal/h (litre/h) |
|--------------------------------------------|------------------------|----------------------------------------------------------------|----------------------------------------------|------------------------------------------------------|-----------------------|------------------|----------------------------------------|
|                                            |                        |                                                                |                                              |                                                      | Flow<br>CFM (litre/s) | Temp.<br>°F (°C) |                                        |
| 208 (155)                                  | 2100                   | 385 (181)                                                      | 7280 (128)                                   | 955 (27)                                             | 953 (449)             | 815 (435)        | 10.4 (39.4)                            |
| 182 (136)                                  | 1760                   | 283 (133)                                                      | 6279 (110)                                   | 715 (20)                                             | 745 (351)             | 890 (476)        | 9.2 (35)                               |

\* - Does not include exhaust piping.

All Data is Subject to Change Without Notice

Data Sheet : DS -9374

CUMMINS ENGINE COMPANY, INC., Columbus, IN 47202-3005 U.S.A.

# Cummins Engine Company, Inc.

## Exhaust Emissions Data Sheet

Firepump

Pg. No.

FP

11

Data Sheet: DS-9374

Date: 12May97

### Engine

|                                  |                                     |                        |                          |
|----------------------------------|-------------------------------------|------------------------|--------------------------|
| <b>Model:</b>                    | 6BTA5.9-F1                          | <b>Application:</b>    | Firepump                 |
| <b>Type:</b>                     | 4 cycle, In-Line, 6 Cylinder Diesel | <b>Config. Number:</b> | D403018FX02              |
| <b>Aspiration:</b>               | Turbocharged and Aftercooled        | <b>Bore:</b>           | 4.02 in. (102 mm)        |
| <b>Compression Ratio:</b>        | 15.5:1                              | <b>Stroke:</b>         | 4.72 in. (120 mm)        |
| <b>Emissions Control Device:</b> | Turbo, Aftercooling                 | <b>Displacement:</b>   | 359 cu. in. (5.9 liters) |

### Performance Data

|                                        | <u>2100 RPM</u> | <u>1760 RPM</u> |
|----------------------------------------|-----------------|-----------------|
| <b>BHP</b>                             | 208             | 182             |
| <b>Fuel Consumption</b> (gallons/hour) | 10.4            | 9.0             |
| <b>Air to Fuel Ratio</b>               | 23.0            | 19.1            |
| <b>Exhaust Gas Flow</b> (CFM)          | 953             | 745             |
| <b>Exhaust Gas Temperature</b> (°F)    | 815             | 890             |

### Exhaust Emissions Data

(All values are grams/hp-hour)

| <u>Component</u>                                               | <u>2100 RPM</u> | <u>1760 RPM</u> |
|----------------------------------------------------------------|-----------------|-----------------|
| <b>HC</b> (Total Unburned Hydrocarbons)                        | 1.13            | 0.77            |
| <b>NO<sub>x</sub></b> (Oxides of Nitrogen as NO <sub>2</sub> ) | 4.58            | 4.94            |
| <b>CO</b> (Carbon Monoxide)                                    | 2.60            | 1.31            |
| <b>PM</b> (Particulate Matter)                                 | 0.25            | 0.25            |
| <b>SO<sub>2</sub></b> (Sulfur Dioxide)                         | 0.62            | 0.63            |
| <b>CO<sub>2</sub></b> (Carbon Dioxide)                         | 510             | 520             |
| <b>N<sub>2</sub></b> (Nitrogen)                                | 2800            | 2400            |
| <b>O<sub>2</sub></b> (Oxygen)                                  | 320             | 180             |
| <b>H<sub>2</sub>O</b> (Water Vapor)                            | 190             | 190             |

### Test Conditions

Data was recorded during steady-state rated engine speed ( $\pm 25$  RPM) with full load ( $\pm 2\%$ ). Pressures, temperatures, and emission rates were stabilized.

|                                |                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------|
| <b>Fuel Specification:</b>     | ASTM D975 No. 2-D diesel fuel with 0.2% sulfur content (by weight) and 42-50 cetane number. |
| <b>Fuel Temperature:</b>       | 99°F $\pm$ 9° (at fuel pump inlet)                                                          |
| <b>Intake Air Temperature:</b> | 77°F $\pm$ 9°                                                                               |
| <b>Barometric Pressure:</b>    | 29.6 in. Hg $\pm$ 1 in. Hg                                                                  |
| <b>Humidity:</b>               | NO <sub>x</sub> measurement corrected to 75 grains H <sub>2</sub> O/lb. dry air             |

The HC, NO<sub>x</sub>, and CO emissions data tabulated here were taken from a single engine under the test conditions shown above. Data for the other components are estimates. This data is subject to instrumentation, measurement, and engine-to-engine variability. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

All Data is Subject to Change Without Notice

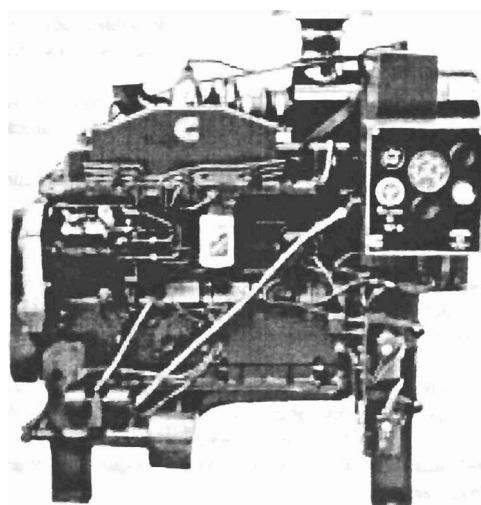
Data Sheet : DS -9374

CUMMINS ENGINE COMPANY, INC., Columbus, IN 47202-3005 U.S.A.

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## 6BTA5.9 F4 FIRE PUMP ENGINE



### SPECIFICATIONS

**Four Stroke Cycle, Turbocharged,  
In-line, 6 Cylinder Diesel Engine**

|                         |                                |
|-------------------------|--------------------------------|
| Bore and Stroke         | 4.02 x 4.72 in. (102 x 120 mm) |
| Displacement            | 359 cu.in. (5.88 L)            |
| Oil System Capacity     | 15 U.S. qts. (14.2 L)          |
| Engine Coolant Capacity | 5.5 U.S. gal. (20.7 L)         |

Net Weight, with Std.

Accessories, Dry 1,170 lb.

(530 kg)

### LISTED AGENCY RATINGS

140 HP @ 1760 RPM  
160 HP @ 2100 RPM

All of the above ratings are listed by the following agencies:

Underwriters' Laboratories Inc.

Factory Mutual

Underwriters' Laboratories of Canada

### INSTALLATION CONSIDERATIONS

Maximum raw water pressure must not exceed 60 PSI (414 kPa). Minimum acceptable raw water flow at 90° F (32° C) raw water temperature and 100° F (38° C) ambient air temperature should be at least 25 G.P.M. (1.6 L/sec.) at the 2100 RPM listed rating.

Ventilation air required for engine combustion is 370 CFM (175 L/sec.) at 2100 RPM rating. This is for engine air combustion only and does not take into consideration additional air required for normal room cooling.



This symbol on the nameplate means the product is Listed by Underwriters' Laboratories, Inc.



This symbol on the nameplate means the product is approved by the Factory Mutual Research Corporation.



This symbol on the nameplate means the product is Listed by Underwriters' Laboratories of Canada.

The agency-approved horsepower ratings published are already derated for fire pump service. The ratings show horsepower available for driving the fire pump at standard SAE J1995 conditions of 29.61 in. (752 mm) Hg barometer and 77° F (25° C) inlet air temperature (approximately 300 ft. [91.4 m] above sea level). The only additional deration necessary is for higher ambient temperatures and elevations as follows: 3% for each 1000 ft. (305 m) above 300 ft. (91.4 m) and 1% for each 10° F (5.6° C) above 77° F (25° C) in accordance with National Fire Association Pamphlet No. 20.

# 6BTA5.9 F4

## FIRE PUMP ENGINE

### DESIGN FEATURES

**Direct Fuel Injection System:** With high swirl intake ports for thorough mixing of air and fuel to provide low fuel consumption.

**Holset Exhaust Gas Driven Turbocharger:** Provides more power, improved fuel economy, altitude compensation, and lower smoke and noise levels.

**Compact Size:** For ease of installation and easy access for routine maintenance.

**Fewer Parts:** For less inventory and faster maintenance and repair. Parts simplicity also enables engines to be service and repaired with ordinary hand tools.

**Cast Iron Skirted Block:** With main bearing supports between each cylinder, for maximum strength and rigidity, low weight, and optimum crankshaft support.

**Forged Steel, I-beam Cross Section Connecting Rods:** With angle split cap-to-rod interface and capscrew attachment for maximum structural strength and ease of service.

**Side Mounted Gear Driven Camshaft:** For low engine height and minimum maintenance.

**Single Piece Cross Flow Cylinder Head:** For short length and maximum structural stiffness of the block/head assembly, for fewer head gasket problems.

**Two Valves Per Cylinder:** With single valve springs, for fewer parts.

**Single Belt Fan, Alternator, and Water Pump Drive:** With self-tensioning idler for minimum belt maintenance.

### STANDARD EQUIPMENT

**Air Cleaner:** 15 inch (318 mm) diameter dry air cleaner.

**Belt and Damper Shield Guard:** Protection from alternator, accessory drive, and water pump belts and vibration damper.

**Coolant Pump:** Belt driven, centrifugal type.

**Corrosion Resistor:** Mounted, checks rust and corrosion, controls acidity, and removes impurities from coolant.

**Electrical Equipment:** 12 volt negative ground system, including: a 12 volt starting motor; a 12 volt, 65 alternator; manually operable contactors; and a junction box with enclosed terminal strip.

**Engine Support:** Pedestal type, front and rear.

**Exhaust Manifold:** Wet.

**Exhaust Outlet:** 3 in. (76 mm) diameter, 90° elbow.

**Filters:** Spin-on, replaceable lubricating oil filter. Single spin-on, replaceable fuel filter.

**Flywheel:** Machined for stubshaft mounting.

**Flywheel Housing:** SAE No. 3 with industrial supports.

**Governor:** Mechanical flyweight, mechanical variable speed type.

**Heat Exchanger:** Copper nickel tube bundle, mounted.

**Instrument Panel:** Mounted. Electrical instruments only. Includes amp meter, tachometer, hour meter, water temperature gauge, and lubricating oil pressure gauge.

**Lubricating Oil Cooler:** Tubular type, jacket water cooled.

**Oil Pan:** Steel stamp, rear sump type, 15 U.S. quarts (14.2 litre) capacity. Provision for optional oil heater.

**Oil Pressure Switch:** Provides signal to activate alarm (not included) for low oil pressure.

**Overspeed Switch:** Mounted, overspeed shutdown with manual reset, stop crank contacts.

**Stubshaft:** Mounted on flywheel.

**Throttle Control:** Hydraulic, with no manual override.

**Vibration Damper:** Viscous type.

**Water Jacket Heater:** Mounted beside oil pan, 120/240 volt, 1000 watt.

**Water Temperature Switch:** Provides signal to activate alarm (not included) for high water temperature.

*Cummins has always been a pioneer in product improvement. Thus specifications may change without notice. Illustrations may include optional equipment.*



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U.S.A.

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*Firepump*  
*Pg. No.*

5

**Data Sheet: DS-90306**  
**Date: 12May97**  
**CPL Code: 1165**

## GENERAL ENGINE DATA

|                                                                            |                             |
|----------------------------------------------------------------------------|-----------------------------|
| Type.....                                                                  | 4 cycle, Inline, 6 cylinder |
| Aspiration: .....                                                          | Turbocharged, Aftercooled   |
| Bore - in. (mm) & Stroke - in. (mm) .....                                  | 4.02 (102) x 4.72 (120)     |
| Displacement - in. <sup>3</sup> (litre).....                               | 359.0 (5.88)                |
| Compression Ratio.....                                                     | 15.5:1                      |
| Valves per Cylinder:   - Intake .....                                      | 1                           |
| - Exhaust.....                                                             | 1                           |
| Engine Weight & Center of Gravity (With Standard Accessories)              |                             |
| Reference Installation Diagram .....                                       | 3884450                     |
| Dry Weight - lb. (kg) .....                                                | 1170 (530)                  |
| Wet Weight - lb. (kg).....                                                 | 1230 (561)                  |
| C.G. Distance from F.F.O.B. - in. (mm).....                                | 18.375 (466.7)              |
| C.G. Distance Above Crankshaft Centerline - in. (mm).....                  | 12.52 (318.0)               |
| Maximum Allowable Bending Moment @ Rear Face of Block - lb.-ft. (N•m)..... | 1000 (1350)                 |

## AIR INDUCTION SYSTEM

|                                                                                                                                      |          |
|--------------------------------------------------------------------------------------------------------------------------------------|----------|
| Maximum Allowable Temperature Rise Between Ambient Air and Engine Air Inlet<br>(Ambients 32°F [0°C] to 100°F [38°C]) - °F (°C) ..... | 30 (15)  |
| Maximum Allowable Intake Restriction With a Dirty Air Filter Element<br>in. H <sub>2</sub> O (mm H <sub>2</sub> O) .....             | 25 (635) |
| Part Number of Standard Air Filter Element (Dry Type) .....                                                                          | 3915185  |

## LUBRICATION SYSTEM

|                                                                      |                       |
|----------------------------------------------------------------------|-----------------------|
| Oil Pressure @ Rated Speeds - PSI (kPa).....                         | 40 - 60 (276 - 414)   |
| Oil Flow @ Maximum Rated Speeds (Nominal) - U.S. GPM (litre/s) ..... | 15.5 (1.0)            |
| Oil Pan Capacity (High - Low) U.S. quarts (litre).....               | 15 - 13 (14.2 - 12.3) |
| Full Flow Lube Oil Filter Capacity - U.S. gal (litre).....           | 0.25 (0.9)            |
| Part Number of Standard Oil Pan .....                                | 3915703               |
| Part Number of Standard Oil Filter Element.....                      | 3908615               |

## COOLING SYSTEM

|                                                                      |                 |
|----------------------------------------------------------------------|-----------------|
| Heat Exchanger Cooled (Shell & Tube Type)                            |                 |
| Part Number of Tube Bundle .....                                     | 3911840         |
| Raw Water Working Pressure Range at Heat Exchanger - PSI (kPa) ..... | 60 (414) MAX    |
| Recommended Minimum Water Supply Pipe Size to                        |                 |
| Heat Exchanger (Reference Only) - in. (mm) dia .....                 | 0.75 (19.1)     |
| Recommended Minimum Water Discharge Pipe Size From                   |                 |
| Heat Exchanger (Reference Only) - in. (mm) dia .....                 | 1.0 (30.1)      |
| Coolant Water Capacity (Engine Side) - U.S. gal (litre) .....        | 5.5 (20.8)      |
| Standard Thermostat- Type .....                                      | Modulating      |
| - Range - °F (°C) .....                                              | 181-203 (83-95) |
| Minimum Raw Water Flow with Water                                    |                 |
| Temperatures to 90°F (32°C) - U.S. GPM (litre/s) .....               | 25 (1.6)        |

A jacket water heater is mandatory on this engine. The recommended heater wattage is 1000 down to 40°F (4°C)

## EXHAUST SYSTEM

|                                                                                       |        |
|---------------------------------------------------------------------------------------|--------|
| Maximum Allowable Back Pressure Imposed by Piping &<br>Silencer - in. Hg (mm Hg)..... | 3 (75) |
| Exhaust Pipe Size Normally Acceptable - in. (mm) dia .....                            | 3 (76) |

**FUEL SYSTEM**

|                                                                                    |           |
|------------------------------------------------------------------------------------|-----------|
| Supply Line Size - in. (mm) .....                                                  | 0.25 (6)  |
| Drain Line Size - in. (mm).....                                                    | 0.125 (3) |
| Maximum Fuel Line Length Between Supply Tank & Fuel Pump - ft. (m) .....           | 40 (12)   |
| Maximum Fuel Height Above Crankshaft - in. (mm).....                               | 80 (2030) |
| Part Number of Standard Fuel Filter .....                                          | 3903640   |
| Part Number of Standard Fuel Filter Element .....                                  | 3903640   |
| Maximum Allowable Restriction to Fuel Pump with Dirty Filter - in. Hg (mm Hg)..... | 3.5 (89)  |
| Maximum Allowable Return Line Restriction - in. Hg (mm Hg) .....                   | 5.0 (127) |

**ELECTRICAL SYSTEM**

|                                                                                  |          |
|----------------------------------------------------------------------------------|----------|
| Battery Voltage .....                                                            | 12       |
| Battery Cable Size (Maximum Cable Length Not to Exceed 10 ft. (3.0 m) AWG) ..... | 00       |
| Wiring for Automatic Starting (Negative Ground) .....                            | Standard |
| Alternator (Standard) 12 Volt, Internally Regulated - Ampere .....               | 53       |
| Manually Operable Contactors.....                                                | Standard |
| Minimum Recommended Battery Capacity                                             |          |
| 70°F (21°C) Minimum Temperature - CCA.....                                       | 450      |
| 32°F (0°C) Minimum Temperature - CCA.....                                        | 640      |
| Reference Wiring Diagram Number .....                                            | 3884450  |

**PERFORMANCE DATA**

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and alternator; not included are compressor, fan, optional equipment and driven components. Data is based on operation at SAE standard J1995 conditions of 300 ft. (91 m) altitude (29.61 in. [752mm] Hg dry barometer), 77°F (25° C) intake air temperature, using No. 2 diesel or a fuel corresponding to ASTM D2.

**All data is subject to change without notice.**

|                                                                  |          |
|------------------------------------------------------------------|----------|
| Altitude Above Which Output Should be Limited - ft. (m) .....    | 300 (91) |
| Correction Factor per 1000 ft. (300 m) above Altitude Limit..... | 3%       |
| Temperature Above Which Output Should be Limited -°F (°C) .....  | 77 (25)  |
| Correction Factor per 10°F (11°C) Above Temperature Limit.....   | 1% (2%)  |

**FM Approved and UL Listed Ratings For: 6BTA5.9F4**

| Listed/<br>Approved<br>Ratings<br>BHP (kW) | Engine<br>Speed<br>RPM | Ventilation Air<br>Required for<br>Combustion<br>CFM (litre/s) | Heat Rejection<br>to Coolant<br>BTU/min (kW) | Heat Rejection<br>to Ambient<br>Air*<br>BTU/min (kW) | Exhaust Gas           |                  | Fuel<br>Consumption<br>Gal/h (litre/h) |
|--------------------------------------------|------------------------|----------------------------------------------------------------|----------------------------------------------|------------------------------------------------------|-----------------------|------------------|----------------------------------------|
|                                            |                        |                                                                |                                              |                                                      | Flow<br>CFM (litre/s) | Temp.<br>°F (°C) |                                        |
| 160 (119)                                  | 2100                   | 370 (175)                                                      | 5680 (100)                                   | 734 (21)                                             | 843 (398)             | 763 (406)        | 8.2 (31.0)                             |
| 140 (104)                                  | 1760                   | 235 (111)                                                      | 4970 (87)                                    | 550 (16)                                             | 559 (264)             | 818 (437)        | 6.9 (26.1)                             |

\* - Does not include exhaust piping.

*All Data is Subject to Change Without Notice*

*Data Sheet : DS-90306*

**CUMMINS ENGINE COMPANY, INC., Columbus, IN 47202-3005 U.S.A.**

# Cummins Engine Company, Inc.

## Exhaust Emissions Data Sheet

Firepump

Pg. No.

FP

7

Data Sheet: DS-90306

Date: 12May97

### Engine

|                                  |                                     |                        |                          |
|----------------------------------|-------------------------------------|------------------------|--------------------------|
| <b>Model:</b>                    | 6BTA5.9-F4                          | <b>Application:</b>    | Firepump                 |
| <b>Type:</b>                     | 4 cycle, In-Line, 6 Cylinder Diesel | <b>Config. Number:</b> | D403018FX02              |
| <b>Aspiration:</b>               | Turbocharged and Aftercooled        | <b>Bore:</b>           | 4.02 in. (102 mm)        |
| <b>Compression Ratio:</b>        | 15.5:1                              | <b>Stroke:</b>         | 4.72 in. (120 mm)        |
| <b>Emissions Control Device:</b> | Turbo, Aftercooling                 | <b>Displacement:</b>   | 359 cu. in. (5.9 liters) |

### Performance Data

|                                                  | <u>2100 RPM</u> | <u>1760 RPM</u> |
|--------------------------------------------------|-----------------|-----------------|
| <b>BHP</b>                                       | 160             | 140             |
| <b>Fuel Consumption</b> (gallons/hour)           | 8.2             | 6.9             |
| <b>Air to Fuel Ratio</b>                         | 25.5            | 20.9            |
| <b>Exhaust Gas Flow</b> (CFM)                    | 843             | 559             |
| <b>Exhaust Gas Temperature</b> ( <sup>o</sup> F) | 763             | 818             |

### Exhaust Emissions Data

(All values are grams/hp-hour)

| <u>Component</u>                                               | <u>2100 RPM</u> | <u>1760 RPM</u> |
|----------------------------------------------------------------|-----------------|-----------------|
| <b>HC</b> (Total Unburned Hydrocarbons)                        | 1.64            | 1.12            |
| <b>NO<sub>x</sub></b> (Oxides of Nitrogen as NO <sub>2</sub> ) | 3.97            | 5.38            |
| <b>CO</b> (Carbon Monoxide)                                    | 2.87            | 1.49            |
| <b>PM</b> (Particulate Matter)                                 | 0.25            | 0.25            |
| <b>SO<sub>2</sub></b> (Sulfur Dioxide)                         | 0.64            | 0.63            |
| <b>CO<sub>2</sub></b> (Carbon Dioxide)                         | 525             | 515             |
| <b>N<sub>2</sub></b> (Nitrogen)                                | 3150            | 2600            |
| <b>O<sub>2</sub></b> (Oxygen)                                  | 410             | 240             |
| <b>H<sub>2</sub>O</b> (Water Vapor)                            | 195             | 190             |

### Test Conditions

Data was recorded during steady-state rated engine speed ( $\pm 25$  RPM) with full load ( $\pm 2\%$ ). Pressures, temperatures, and emission rates were stabilized.

|                                |                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------|
| <b>Fuel Specification:</b>     | ASTM D975 No. 2-D diesel fuel with 0.2% sulfur content (by weight) and 42-50 cetane number. |
| <b>Fuel Temperature:</b>       | 99 <sup>o</sup> F $\pm$ 9 <sup>o</sup> (at fuel pump inlet)                                 |
| <b>Intake Air Temperature:</b> | 77 <sup>o</sup> F $\pm$ 9 <sup>o</sup>                                                      |
| <b>Barometric Pressure:</b>    | 29.6 in. Hg $\pm$ 1 in. Hg                                                                  |
| <b>Humidity:</b>               | NO <sub>x</sub> measurement corrected to 75 grains H <sub>2</sub> O/lb. dry air             |

The HC, NO<sub>x</sub>, and CO emissions data tabulated here were taken from a single engine under the test conditions shown above. Data for the other components are estimates. This data is subject to instrumentation, measurement, and engine-to-engine variability. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

All Data is Subject to Change Without Notice

Data Sheet : DS-90306

CUMMINS ENGINE COMPANY, INC., Columbus, IN 47202-3005 U.S.A.

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# Cat® D175 GC

## Diesel Generator Sets



Standby : 60 Hz



Image shown may not reflect actual configuration

|                       |                                     |
|-----------------------|-------------------------------------|
| Engine Model          | Cat® C7.1 In-line 6, 4-cycle Diesel |
| Bore x Stroke         | 105 mm x 135 mm (4.1 in x 5.3 in)   |
| Displacement          | 7.01 L (428 in³)                    |
| Compression Ratio     | 16.7:1                              |
| Aspiration            | Turbocharged Air-to-Air-Aftercooled |
| Fuel Injection System | Electronic, Common Rail             |
| Governor              | Electronic                          |

| Model   | Standby | Emission Strategy |
|---------|---------|-------------------|
| D175 GC | 175 ekW | EPA TIER III      |

### PACKAGE PERFORMANCE

| Performance                                                       | Standby      |
|-------------------------------------------------------------------|--------------|
| Frequency                                                         | 60 Hz        |
| Genset Power Rating                                               | 219 kVA      |
| Genset power rating with fan, 3p@ 0.8 power factor                | 175 ekW      |
| Performance Number                                                | P4378A       |
| Fuel Consumption                                                  |              |
| 100% load with fan, L/hr (gal/hr)                                 | 51.2 (13.5)  |
| 75% load with fan, L/hr (gal/hr)                                  | 41.9 (11.1)  |
| 50% load with fan, L/hr (gal/hr)                                  | 28.6 (7.6)   |
| Cooling System¹                                                   |              |
| Radiator air flow restriction (system), kPa (in. water)           | 0.12 (0.48)  |
| Engine coolant capacity, L (gal)                                  | 9.5 (2.5)    |
| Radiator coolant capacity, L (gal)                                | 11.5 (3.0)   |
| Total coolant capacity, L (gal)                                   | 21 (5.5)     |
| Inlet Air                                                         |              |
| Combustion air inlet flow rate, m³/min (CFM)                      | 15.4 (543.8) |
| Max. Allowable Combustion Air Inlet Temp, °C (°F)                 | 51 (124)     |
| Exhaust System                                                    |              |
| Exhaust stack gas temperature, °C (°F)                            | 509 (948)    |
| Exhaust gas flow rate, m³/min (CFM)                               | 34.8 (1229)  |
| Exhaust system back pressure (maximum allowable), kPa (in. water) | 15.0 (60.2)  |
| Heat Rejection                                                    |              |
| Heat rejection to exhaust (total), kW (BTU/min)                   | 159.0 (9042) |
| Heat rejection to aftercooler, kW (BTU/min)                       | 37.0 (2104)  |
| Heat rejection to atmosphere from engine, kW (BTU/min)            | 32.0 (1820)  |
| Emissions (Nominal)²                                              |              |
| NOx + HC, g/kW-hr                                                 | 4.0          |
| CO, g/kW-hr                                                       | 1.0          |
| PM, g/kW-hr                                                       | 0.2          |

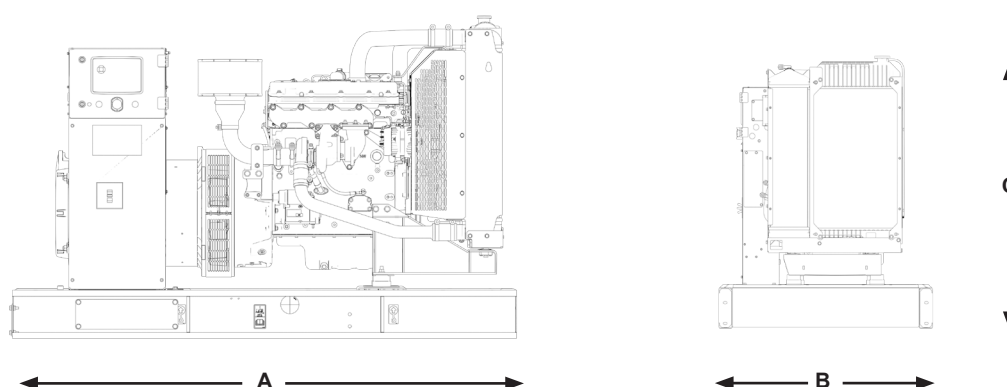
# D175 GC Diesel Generator Sets

## Electric Power



| Alternator <sup>3</sup>                           |         |         |         |
|---------------------------------------------------|---------|---------|---------|
| Voltages                                          | 480V    | 208V    | 600V    |
| Motor starting capability @ 30% Voltage Dip, skVA | 361     | 333     | 738     |
| Current, Amps                                     | 263     | 607     | 211     |
| Frame Size                                        | M2294L4 | M2736L4 | M2294L4 |
| Excitation                                        | SE      | SE      | AREP    |
| Temperature Rise, °C                              | 105     | 105     | 130     |

## WEIGHTS & DIMENSIONS



| Dim "A"<br>mm (in) | Dim "B"<br>mm (in) | Dim "C"<br>mm (in) | Dry Weight<br>kg (lb) |
|--------------------|--------------------|--------------------|-----------------------|
| 2634 (103.7)       | 1300 (51.2)        | 1492 (58.7)        | 1697 (3741)           |

**Note:** General configuration not to be used for installation. See general dimension drawings for detail.

### APPLICABLE CODES AND STANDARDS:

CSA C22.2 No 100-04, UL142, UL489, UL869, cUL/UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO 3046, ISO 8528, NEMA MG 1-33.

Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

**STANDBY:** Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

**RATINGS:** Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

### DEFINITIONS AND CONDITIONS

<sup>1</sup> For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

<sup>2</sup> Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 BTU/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

<sup>3</sup> UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

# LET'S DO THE WORK.™

LEHE2667-02 (06/22)

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