



SPECIFICATIONS

Four Stroke Cycle, Naturally Aspirated,
In-Line, 6 Cylinder Diesel Engine.

Bore and Stroke	140 x 152 mm	(5½ x 6 in.)
Displacement	14 L	(855 cu. in.)
Lube System Oil Cap.	30 L	(8 U.S. gals.)
Engine Coolant Cap.	34 L	(9 U.S. gals.)
Net weight, with Std. Accessories, Dry	1 270 kg	(2,800 lbs.)

LISTED AGENCY RATINGS

- 162 HP @ 1460 RPM
- 192 HP @ 1750 RPM
- 203 HP @ 1900 RPM
- 218 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 345 kPa (50 PSI). Minimum acceptable raw water flow at 32°C (90°F) raw water temperature and 38°C (100°F) ambient air temperature should be at least 132 L/min. (35 G.P.M.) at the 2100 RPM listed rating.

Ventilation air required for engine combustion is 448 L/sec. (950 CFM) at 2100 RPM rating. This is for engine air combustion only and does not take into consideration additional air required for normal room cooling.

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 J1349 conditions of 7 521 mm (29.61 in.) Hg barometer and 25°C (77°F) inlet air temperature (approximate 91.4 m [300 ft.] above sea level). The only additional deration necessary is for higher ambient temperatures and elevations as follows: 3% for each 305 m (1000 ft.) above 91.4 m (300 ft.) and 1% for each 5.6°C (10° F) above 25°C (77°F) in accordance with National Fire Association Pamphlet No. 20.



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.

DESIGN FEATURES

Bearings: Replaceable, precision type, steel backed inserts. Seven main bearings, 114 mm (4.5 in.) diameter.

Connecting rod bearings 79 mm (3.125 in.) diameter.

Camshaft: Single large diameter camshaft precisely controls valve and injector timing. Lobes are induction hardened for long life. Seven replaceable precision type bushings 64 mm (2.5 in.) diameter.

Camshaft Followers: Induction hardened, roller type for long cam and follower life.

Connecting Rods: Drop forged, I-beam section 305 mm (12 in.) center to center length. Rifle drilled for pressure lubrication of piston pin. Rod is tapered on piston pin end to reduce unit pressures.

Cooling System: Belt driven centrifugal water pump. Large volume water passages provide even flow of coolant around cylinder liners, valves, and injectors. Modulating by-pass thermostat regulates coolant temperature. Spin-on corrosion resistor checks rust and corrosion, controls acidity, and removes impurities.

Crankshaft: Fully counterweighted high tensile steel forging with induction hardened fillets and journals.

Cylinder Block: Alloy cast iron with removable wet liners.

Cylinder Heads: Alloy cast iron. Each head serves two cylinders. Drilled fuel supply and return lines. Valve seats are replaceable corrosion resistant inserts. Valve guides and cross head guides are replaceable inserts.

Cylinder Liners: Replaceable wet liners dissipate heat faster than dry liners and are easily replaced without reboring the block.

Fuel System: Cummins exclusive low pressure PT™ system with wear compensating pump and integral dual flyweight governor. Camshaft actuated fuel injectors give accurate metering and timing. Fuel lines are internal drilled passages in cylinder heads. Spin-on fuel filter.

Gear Train: Timing gears and accessory drive gears are induction hardened helical gears driven from crankshaft and located at front of block.

Lubrication: Large capacity gear pump provides pressure lubrication to all bearings. All pressure lines are internal drilled passages in block and heads.

Pistons: Aluminum alloy, cam ground and barrel shaped to compensate for thermal expansion assures precise fit at operating temperatures. CeCorr™ grooved skirt finish provides superior lubrication. Oil cooled for rapid heat dissipation. Three compression and one oil ring.

Valves: 48 mm (1.875 in.) diameter poppet type intake and exhaust valves. Wear resistant face on exhaust valves.

STANDARD EQUIPMENT

Air Cleaner: 305 mm (12 inch) diameter, dry type, mounted.

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.

Crankcase Breather: Dry type element.

Electrical Equipment: 24 volt negative ground system. 24 volt starting motor; 24 volt, 18 ampere alternator; voltage regulator; manually operable contacters; junction box with enclosed terminal strip.

Engine Support: Pedestal type, front and rear.

Exhaust Manifold: Water cooled.

Exhaust Outlet: 102 mm (4 inch) NPTF.

Filters: Lubricating oil, full flow, replaceable paper element, mounted. Fuel, paper element, throwaway type, mounted.

Flywheel: Machined for stub shaft mounting.

Flywheel Housing: SAE No. 1.

Governor: Mechanical flyweight, variable speed type.

Heat Exchanger: Tubular type, mounted, copper nickel element.

Instrument Panel: Mounted. Includes ammeter, combination tachometer and hourmeter, water temperature gauge, lubricating oil pressure gauge.

Lubricating Oil Cooler: Tubular type, jacket water cooled.

Oil Pan: Cast aluminum, rear sump type, 26.5 litre (7 U.S. gallon) 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: Vernier throttle control.

Vibration Damper: Rubber isolator.

Water Jacket Heater: Mounts on right side of engine.

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

OPTIONAL EQUIPMENT

Oil Heater: Mounted in pan. 110 volt, 2500 watt.

Cummins has always been a pioneer in product improvement. Thus specifications may change without notice. Illustrations may include optional equipment. See specific proposal bill of material for actual equipment being furnished.



Cummins Engine Company, Inc.
Columbus, Indiana 47202
U.S.A.

CUMMINS ENGINE COMPANY, INC.

Engine Data Sheet

Fire Pump Engine Model: N-855-F
(for listed/approved ratings see tabulation)

Date: June, 1980

Data Sheet: DS-3549-A
SMALL CAM

General Engine Data

Type:	=4-Cycle; In-Line; 6 Cylinder
Aspiration:	Natural
Bore — in. (mm)	5.5 (140)
Stroke — in. (mm)	6.0 (152)
Displacement — in. ³ (litre)	855 (14)
Compression Ratio:	15.8:1
Valves per Cylinder: — Intake	2
— Exhaust	2
Engine Weight & Center of Gravity (With Standard Accessories)	
Reference Installation Diagram	218146
Dry Weight — lb. (kg)	2800 (1 270)
Wet Weight — lb. (kg)	2876 (1 305)
C.G. Distance From F.F.O.B. — in. (mm)	n.a.
C.G. Distance Above Crankshaft — in. (mm)	n.a.
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 ₂ O (mm H ₂ O)	20 (500)
Part Number of Standard Air Filter Element (Dry Type)	n.a.

Lubrication System

Oil Pressure @ Rated Speeds — PSI (kPa)	55-75 (380-520)
Oil Flow @ Maximum Rated Speeds (Nominal) — U.S. GPM (litre/s)	20 (1.3)
Oil Pan Capacity (High — Low) U.S. gal. (litre)	7-4 (26.5-15.0)
Full Flow Lube Oil Filter Capacity — U.S. gal. (litre)	8 (30.0)
Part Number of Standard Oil Pan	203562
Part Number of Standard Oil Filter Element	LF-516

Application Note: When ambient temperatures will be lower than 70°F (21°C) an oil heater is required. The recommended heater wattage for this engine is 300 down to 40°F (4°C).

Cooling System

Heat Exchanger Cooled (Shell & Tube Type)	
Part Number of Tube Bundle	194730
Raw Water Working Pressure Range at Heat Exchanger — PSI (kPa)	65 (450) Max.
Recommended Minimum Water Supply Pipe Size to Heat Exchanger (Reference Only) — in. (mm) dia.	1.25 (30)
Recommended Minimum Water Discharge Pipe Size From Heat Exchanger (Reference Only) — in. (mm) dia.	1.5 (40)
Coolant Water Capacity (Engine Side) — U.S. gal. (litre)	9 (34)
Standard Thermostat — Type	Modulating
— Range — °F (°C)	170-185 (77-85)
Minimum Raw Water Flow with Water Temperatures to 90°F (32°C) — U.S. GPM (litre/s)	34 (2.1)

Note: Minimum raw water requirement is based on water flow required to minimize tube fouling in the heat exchanger tube bundle.

A jacket water heater is mandatory on this engine. The recommended heater wattage is 2500 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.	4 (100)

Fuel System

Supply Line Size — in. (mm)	0.625 (16) O.D. Tube
Drain Line Size — in. (mm)	0.625 (16) O.D. Tube
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	156171
Part Number of Standard Fuel Filter Element	FF-105-D
Maximum Allowable Restriction to Fuel Pump With Dirty Filter — in. Hg (mm Hg)	8 (200)
Maximum Allowable Return Line Restriction — in. Hg (mmHg)	4 (100)

Electrical System

Battery Voltage	24	
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) 24 Volt, Internally Regulated — Ampere		
Manually Operable Contactors	Standard	
Minimum Recommended Battery Capacity —	<u>Amp-hr.</u>	<u>°F CCA</u>
70°F (21°C) Minimum Temperature	100	450
32°F (0°C) Minimum Temperature	150	640
Reference Wiring Diagram Number	218147	

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 J816b conditions of 500 feet (150 m) altitude (29.00 in. [736 mm] Hg dry barometer), 85°F (29°C) intake air temperature and 0.38 in. (9.6 mm) Hg water vapor pressure, 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)	500' (150m)
Correction Factor per 1000 ft. (300 m) above Altitude Limit	3%
Temperature Above Which Output Should be Limited — °F (°C)	85 (29)
Correction Factor per 10°F (11°C) Above Temperature Limit	1% (2%)

Listed/Approved Ratings BHP (kW)	Speed RPM	Ventilation Air Req'd. For Combustion CFM (litre/s)	Heat Rejection to Cooling Water BTU/min. (kW)	Heat Rejection to Ambient Air* BTU/min. (kW)	Exhaust Gas Flow CFM (litre/s)	Temp. °F (°C)	Fuel Consumption gal./hr. (litre/h)
UL LISTED RATINGS							
218 (162)	2100	478 (226)	8400 (147)	1010 (17.8)	1271 (600)	985 (530)	11.7 (44.3)
203 (151)	1900	436 (206)	7455 (130)	907 (16.0)	1228 (580)	940 (506)	10.5 (39.8)
192 (143)	1750	394 (186)	7350 (129)	846 (14.9)	1024 (483)	950 (511)	9.8 (37.1)
162 (121)	1460	331 (157)	6300 (110)	717 (12.6)	819 (387)	880 (473)	8.3 (31.4)
FM APPROVED RATINGS							
206 (154)	2100	455 (215)	8000 (140)	800 (14.1)	1210 (571)	980 (526)	11.7 (44.3)
192 (143)	1900	415 (196)	7100 (125)	700 (12.3)	1170 (552)	935 (502)	10.5 (39.8)
182 (136)	1750	375 (177)	7000 (123)	600 (10.5)	975 (460)	945 (507)	9.8 (37.1)
153 (114)	1460	315 (149)	6000 (105)	500 (8.8)	780 (368)	875 (468)	8.3 (31.4)

*Does not include exhaust piping.

Fire Pump Engine Model: N-855-F
 Data Sheet No.: DS-3549-A
 Date: June, 1980
 Bulletin No.: 3383353

