

Calibrator CD3

Cummins and Detroit Diesel
Injector Calibrator



Features

- Digital Fuel Delivery display; 0.1 mm³/stroke resolution; updated continuously
- 5 horsepower synchronous drive motor
- Dual Cummins, Detroit Diesel capability
- Delivery selectable over 50 or 100 strokes
- Two handed clamping system for operator safety
- Patented* Positive Displacement Flowmeter
- Quick speed change: Cummins 1050 RPM, Detroit Diesel 2000 RPM
- Thermostatically controlled calibration fluid reservoir
- Positive clamping device ensures proper body-to-seat and plunger-to-body clamping for Cummins; body-to-support clamping for Detroit Diesel
- Accessories available for the following injectors: Cummins flanged H, NH, J, C and cylindrical PTB, C, D, Top Stop, K, K-HVT, L10 and STC; Detroit Diesel 53, 71, 92, 149 and 8.2 liter
- Full welded frame construction, cabinetry with accessory storage

Description

The Bacharach Calibrator CD3 provides the diesel fuel injection specialist with a fast, safe and extremely accurate means of calibrating Cummins and Detroit Diesel injectors to achieve peak engine operating efficiency. This floor standing unit is the only calibrator available that can accommodate both Cummins and Detroit Diesel injectors. Accessories are available to mount and calibrate a full range of these injectors.



Operation

To ensure fast and accurate operation; the following features are incorporated in the Calibrator CD3:

Digital Fuel Delivery Display

Fuel delivery is measured using the patented* positive displacement flowmeter. The fuel delivery display has a 0.1 mm³/stroke resolution and is updated continuously to enhance test repeatability and speed of operation.

Drive System

The stand is driven by a 5 horsepower synchronous motor with flywheel that ensures uniform cam rotation maintaining speed at ± 1 RPM. Precision ground cams used to actuate the injector have exact profiles, as specified by the injector manufacturer. Speed change is achieved by switching the drive belt between two pulley sets. Cast iron cam box features tapered roller bearings and permits quick changeover of cams.

Calibration Fluid System

The fluid reservoir is thermostatically controlled to plus or minus 1°F. Filtration is through one primary and one final stage filter with an additional screen at the transducer.

Clamping Devices

A hydraulic clamping device is used for plunger-to-body clamping on Cummins injectors and body-to-support clamping on Detroit Diesel injectors. A clamp monitor gauge and timing light indicate when the injector is properly clamped. Dual air cylinders achieve the body-to-seat clamping of Cummins injectors and a monitor indicates proper clamping.

Injector Supply (Rail) Pressure

This critical parameter is monitored by a precise 0–200 psi gauge. The pressure is adjusted by using a precision regulator on the front panel.

*U.S. Patent Number 4141243

Specifications

Injector Supply Pressure Gauge

- 0–200 psi, accuracy $\pm \frac{1}{4}\%$ FS
- 4½ inch dial
- Mirror scale to avoid parallax

Calibration Fluid Temperature Gauge

- 40° to 140°F (5 to 60°C) $\pm 1^\circ\text{F}$
- 3½ inch dial

Fuel Delivery Measurement

- 4 digit LED display
- 0.1 mm³/stroke resolution
- Accuracy: $\pm 0.75\%$ of reading

Calibration Fluid System

- 8 U.S. Gallons (30 liters) reservoir capacity
- Temperature controlled $\pm 1^\circ\text{F}$
- 10 micron primary filter
- 5 micron final stage filter

Fluid Supply Regulator

- Range: 20–150 psi, ± 1 psi

Dimensions/Weight

- Width: 50" (1.27m)
- Height: 56" (1.42m)
- Depth: 30" (0.76m)
- Weight: 1200 lbs (544 kg)

Services Required

- Power Supply: 230V, 3 phase, 60 Hz 30 Amps (standard); other voltages and frequencies available
- Air Pressure: 80–120 psi (2 CFM)
- Water: Cold tap, approximately 1.2 GPM (4.5 liter/min)



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Ordering Information

67-7622 Calibrator CD3, 230V, 3 Phase, 60 Hz

67-7623 Calibrator CD3, 460V, 3 Phase, 60 Hz

67-7624 Calibrator CD3, 208V, 3 Phase, 60 Hz

67-7625 Calibrator CD3, 220V, 3 Phase, 50 Hz

67-7626 Calibrator CD3, 380V, 3 Phase, 50 Hz

67-7632 Detroit Diesel Accessories including manifold blocks, front supports, discharge heads and cams for 53, 71, 92, 149 and 8.2 liter injectors.

67-7633 Cummins Accessories including discharge head, push rod links, adapters and four cams for

flanged injectors H-NH, J-C and cylindrical injectors PTB, PTC, PTD, PTD-K, PTD-K-HVT, PTD-Top Stop, PTD-Top Stop L10, PTD, STC.

67-7707 Calibrator Audit Kit for periodic calibration and audit of the CD3. Includes: Dead weight tester, test gauge set, viscosity cup, dummy injector, digital force and temperature indicator, temperature transducer, load cell, rail pressure gauge adjusting tool and graduated cylinder.



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