

Specialist 9000

Diesel Fuel Injection Calibrating Stand



Features

- 20 HP AC Motor and Variable Frequency Controller
- Direct drive (no belts or gears) for increased efficiency
- Continuously variable speed 50–3500 RPM
- Rotary dial speed control, coarse and fine
- Drive and bedplate rubber mounted to reduce shock, vibration and noise
- Oil resistant, heavy-duty pushbutton switches
- Variable DC power supply for tests of solenoid operated shut-off devices
- Digital display, dual function: volts DC and calibration fluid temperature, °F/°C, Bulkhead or Reservoir
- Full complement of five pressure gauges to measure all test parameters
- Dual mode digital tachometer and stroke counter
- 12 acrylic pyramidal measuring graduates (160cc capacity)
- Zero backlash flexible coupling
- Integral pressurized lube oil system
- Regulated high pressure phasing and timing system
- Welded frame construction
- Two direct draw supplies for calibration fluid: one for injection pumps and one for Cummins PT pumps
- Return fuel flowmeter
- Swiveling accumulator, single block with individual injector clamping
- Tool trays with protective screens

Description

The SPECIALIST 9000 is a medium duty diesel fuel injection pump calibrating stand designed to calibrate a wide range of pumps used in agricultural, automotive, construction, marine and industrial applications. The 20 HP AC motor carries the flywheel and drives the pump directly. The adjustable frequency drive is efficient and provides quiet operation.

The front console provides fingertip control for most of the stand's functions: graduate fill/drain, calibration fluid system including temperature control, lube system, main drive and speed control, and variable DC supply.

The calibration fluid and lube oil reservoirs have fill spouts and fluid level gauges visible and accessible without opening doors or panels. The calibration fluid reservoir also pivots for ease of cleaning and filter replacement.

A digital backlit LCD display mounted on the front panel has five functions: it displays DC volts and calibration fluid temperature, selectable in °F or °C. Temperature is measured at the bulkhead and reservoir. A digital tachometer and stroke counter is mounted on the front panel

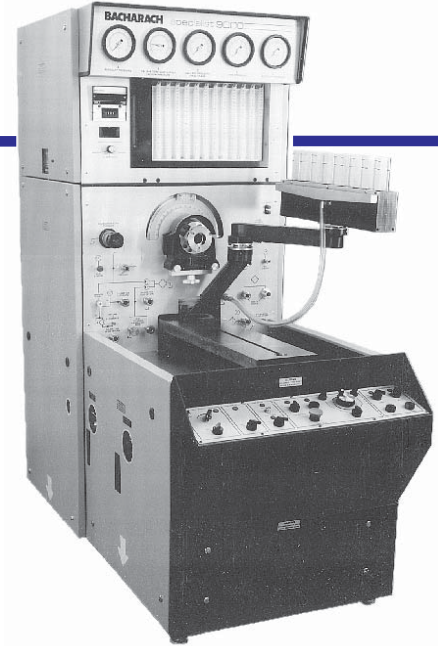
Technical Data

Drive

- Direct drive 20 HP AC motor
- Variable frequency AC motor controller with braking; field programmable with self diagnostics
- Speed control by rotary potentiometer for coarse and fine adjustment
- Speed range 50–3500 RPM
- Acceleration/Deceleration: factory set at 200 RPM/Sec
- Backlash free flexible coupling; ISO Rating: 629 mm³/Stroke; Sc (stiffness) = 3147 Nm/degree
- Flywheel Moment of Inertia: WR² = 2820 lbs in² (0.825 Kg m²) ISO rating 520 mm³/str @ 550 RPM
- Safety interlock and emergency shutdown

Calibration Fluid System

- Reservoir capacity 13 US Gallons (50 liters); 2 drain valves, fill spout, liquid level gauge.
 - Large 10 micron submerged primary filter; 3 micron final stage filter, spin-on type
 - Dual gear (tandem) pump for low and high pressure:
 - LP = 228 Gal/hr (14.7 lit/min) @ 0 psi, integral relief valve set at 75 psi (5.2 bar)
 - HP = 30 Gal/hr (1.9 lit/min) @ 0 psi, integral relief valve set at 700 psi (48.3 bar)
- pump operated by separate ½ HP electric motor.



- Separate direct supply line for injection pumps drawing fluid from reservoir.
- Separate direct supply line for Cummins PT pump inlet providing low restriction for all pumps including KV16
- Four (4) separate return lines to route fluid to reservoir
- All panel connections have “straight-thru” quick connects for full flow and minimum restrictions and quick hose hookup. One way shutoff quick connect provided for high pressure.
- Automatic temperature control to ± 1°C (±1.8°F); heating by submersible electric heaters; cooling via cold tap water flowing through submerged copper finned tubing in reservoir.

Lube Oil System

- Reservoir capacity: 4 US Gallons (15 liters); drain valve, fill spout liquid level gauge
- Gear pump, 150 GPH (9.5 lit/min) @ 0 psi, integral relief valve set at 75 psi (5.2 bar) driven by separate ¼ HP motor
- Pressure regulation by adjustable relief valve
- Drain by gravity with no restrictions
- Filter, 10 micron, spin-on type

Calibration Fluid Collection and Measuring System

- Single block accumulator accommodates 8 test injectors; suitable for mounting all "S" and "T" size test injectors; extension blocks for 12 injectors available as option
- Injectors can be installed/removed individually
- Accumulator block swivels and rotates from side to side
- 12 graduates, 160cc; subdivision of 0.5cc in the range 0–35cc; subdivision of 1cc in the range of 35–160cc.
- Graduates are top fill, bottom drain type; drain time is adjustable 1–60 seconds (factory pre-set @ 30 seconds)

Instrumentation

- Dual mode digital tachometer and stroke counter; LED display 0–9999; pre-selectable counter 0–9999. Parallel controls for fill/ interrupt; resolution ± 1 digit.
- Digital LCD for DC voltage, calibration fluid temperature measuring from reservoir and directly behind bulkhead (front panel), selectable in °F and °C; resolution of display 0.1
- Return flowmeter, 60–600 cc/min
- Degree wheel 10" dia, recessed for safety; cursor with vernier, readable to $\frac{1}{4}$ degree (15 minutes); no parallax

- Pressure gauges: 4" dial, accuracy 1% FS (ANSI, Grade 1A), all dampened and dual scale psi/bar (in Hg/mm Hg vacuum):
 - Supply vacuum/pressure ... 30" Hg, 0–60 psi
 - Final Stage/Gallery 0–100 psi
 - Lube Pressure 0–100 psi
 - Auxiliary 0–160 (transfer pump
0–30 psi
(housing/cambox))
- Hourmeter: indicates operation of calibration fluid system pump and heating/cooling - useful for periodic maintenance, inspection and replacement of fluid, filter, etc.
- Variable DC supply 0–24V @ 5 Amps
- Shop air pressure quick connect on front panel
- Waste oil level (fluid from drain trays) visible without opening or removal of doors or panels. Waste reservoir removable for easy and quick disposal of fluid
- Most electrical components easily accessible when console swings forward (after removal of 2 screws)
- Common bulkhead for water in, out and shop compressed air
- Control panel circuit is 120VAC max.

Dimensions/Weight

- Width: 30" (0.76m)
- Height: 73" (1.85m)
- Depth: 67" (1.70m)
- Weight (dry): 2000 lbs (907.2 Kg)

Services Required

- Power Supply: 230V, 3 Phase, 60 Hz, 100 Amps service (standard).
- Compressed Air: 80–125 psi (2 CFM)
- Water: cold tap, approximately 1.0 GPM (3.8 liter/min).

Accessories

- Common hardware, fittings and hoses included
- Accessories consisting of mounting brackets, fuel lines, adapter rings, drive hubs and fittings are available for a wide range of fuel pumps. Consult the Accessory Set and Fuel Line Summaries for specific requirements

Ordering Information

77-7081 Specialist 9000, 230V, 3 Phase, 60 Hz

77-7082 Specialist 9000, 460V, 3 Phase, 60 Hz

77-7083 Specialist 9000, 208V, 3 Phase, 60 Hz

77-7085 Specialist 9000, 220V, 3 Phase, 50 Hz

77-7086 Specialist 9000, 380V, 3 Phase, 50 Hz



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