

KNC Model 3688-A Portable Air Data Calibrator



Product Description

The Model 3688-A Portable Air Data Calibrator by King Nutronics Corporation is a MIL-T-28800C qualified instrument that provides regulated static (P_S) and total (P_T) pressure/vacuum output, simulating altitudes and airspeeds for the purpose of testing aircraft altimeters, airspeed indicators, and rate-of-climb indicators. Regulated pressure/vacuum can also be supplied using in-Hg, mm-Hg, in-H₂O, psi, and millibar units, enabling laboratory standards, master gauges, and pneumatic recording devices to be tested and calibrated using the same equipment.

During operation, externally supplied pressure and vacuum is metered by servo valves for the P_S and P_T channels, then routed through a system of control valves to the item being tested. The pressure or vacuum is monitored by two precision pressure transducers dedicated to the P_S and P_T channels located downstream of the control valves. The pressure transducers are used to monitor the actual pressure or vacuum being supplied to the test item, and send signals to the system electronics that control the operation of the servo valves and the altitude and airspeed or pressure/vacuum readings appearing on the display.

An automated leak test mode allows the operator to easily assess the condition of the items being tested and all interconnecting lines and connections inside an aircraft, or verify the integrity of the pneumatic lines inside the air data calibrator when performing troubleshooting and maintenance procedures. The unit also executes a self-test at startup and indicates the cause and location of any problems that are detected, simplifying repair procedures in the field.

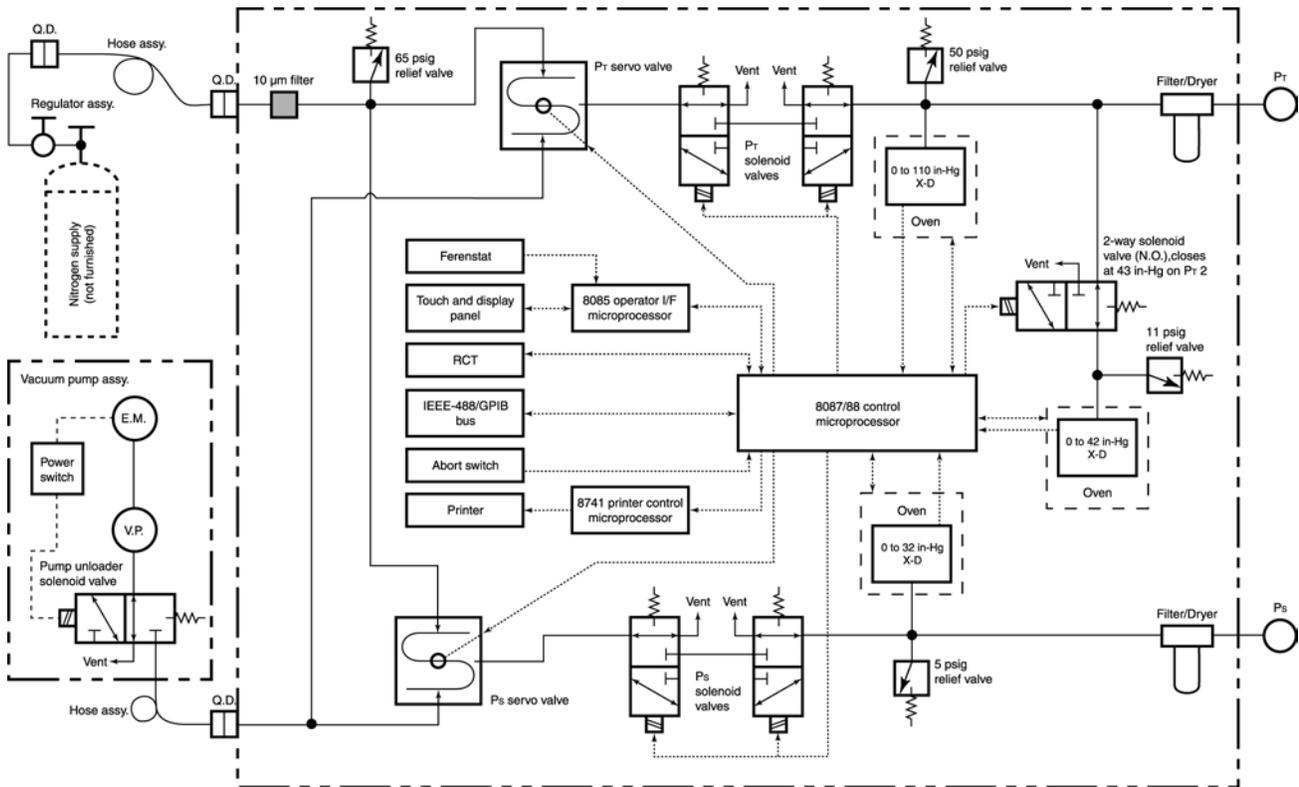
When the leak test mode is selected, the control valves isolate the servo valves from the pressure transducers and the test items. Leakdown is monitored by the pressure transducers, and can be timed to calculate the leak rate.



The target and actual altitude and airspeed, pressure/vacuum values, and leak rates appear on a user-friendly 480-character touch-sensitive display panel. The display also prompts the operator through the measurement process and provides setup menus and other information that reduces the likelihood of operator error. Test parameters can be entered and modified at any point of the test process by simply touching items appearing on the front panel display. A second touch-sensitive pad on the front panel permits fine pressure/vacuum adjustments when testing and calibrating laboratory standards and other pressure/vacuum measurement instruments.

The Model 3688-A Portable Air Data Calibrator can be controlled from a remote computer over the integral IEEE-488/GPIB interface with simple commands, or using the included handheld remote control module, shown above, which duplicates many of the front panel controls and displays for convenient observation of instruments under test up to 10 feet away. A convenient built-in dot-matrix printer can be used to generate hard copies of test and calibration data, eliminating the need for tedious manual logging. The printer uses standard adding machine paper for simple field maintenance.

The Model 3688-A Portable Air Data Calibrator is housed in a compact, rugged, and weatherproof aluminum case with a removable lid for rapid, worry-free field deployment. A vacuum pump, pressure regulator kit, supply and test hoses, and all required interconnecting cables are included with the system. The handheld remote control module, test hoses and interconnecting cables are stored in the case lid for convenient transport and storage.



General Specifications

Characteristics	Specifications
Operational modes	Air Data Control, Air Data Monitor, PS Control, PT Control, Gauge Test, Leak Test, IEEE-488/GPIB Control, TTU-205 Test.
Units of measure: Altitude Airspeed Pressure	Feet, meters Knots, Km/hr, Mach no. in-Hg, psi, mm-Hg, in-H ₂ O, millibars
Display: Type Characters	AC plasma 12-line, 40 characters per line
Touch panel: Type Material	Resistance actuated Filtered transparent sensitive plastic
Case dimensions, inches (W x H x D)	21.5 x 12 x 15
Weight	65 lbs.
Pressure medium	Dry air or nitrogen
Vacuum pump	50 L/M free air
Power requirements	115 VAC, 50 to 60 Hz, 2 Amps

Performance Specifications

Characteristics	Specifications	
Channel	PS	PT
Transducers: Range Accuracy	0 to 32 in-Hg ±0.002 in-Hg	0.5 to 110 in-Hg ±0.002 in-Hg (from 0.5 to 42 in-Hg) ±0.004 in-Hg (from 42 to 110 in-Hg)
Resolution	0.001 in-Hg	0.001 in-Hg
Control: Range Stability Max. slew rate Altitude slew rate Airspeed slew rate	0.3 to 32 in-Hg ±0.001 in-Hg 100 in-Hg per minute 0 to 35,000 ft-min Not applicable	0.5 to 110 in-Hg ±0.002 in-Hg 100 in-Hg per minute Not applicable 0 to 750 kt-min

