



Application story

Calibrating to the stratosphere

Druck's customer, based in Germany, are one of the largest flight-ambulance operators worldwide. Within their fleet, the customer offers business jets including the Bombardier Global Express, Bombardier Challenger 604 and Bombardier Learjet aircraft.



Industry supplied
Aerospace



Application
Testing aircraft pitot static systems



Product/service
Druck's ADTS 542F/ADTS 552F air data test sets



Customer type
Supplier of mission critical aviation services

Customer's challenge

Air Data Test Sets (ADTS), also referred to as pitot static testers, are used for testing and calibrating the airspeed and altitude indicators on the aircraft pitot-static systems (known as air data systems). In the aviation industry, testing is required whenever on-board instruments are manufactured, repaired, calibrated or integrated into the aircraft.

Within their fleet, the customer operates a substantial number of small jets and helicopters, which are more compact in size than commercial airframes. In most cases, smaller jets and helicopters have a piston-powered engine which prevents these smaller aircraft from reaching the same altitudes as commercial aircraft. Therefore, a smaller, lightweight ADTS providing ultra-low speed and altitude readings was essential.

For many years the customer had been using Druck's ADTS 505. The launch of the new ADTS 55x family (in particular the ADTS 552) allowed Druck to phase out the ageing ADTS 505 as it reached the end of its product life cycle. In light of this, the customer considered upgrading their ADTS fleet in order to continue to perform critical pitot static measurements, which play an integral role in the safe operation of their aircraft and are therefore used regularly as part of their routine maintenance schedule.



Picture 1: ADTS 552F

Druck's solution

Following a detailed review of the customer's technical requirements and aircraft fleet, the Druck team recommended the upgrade of their preexisting ADTS' to Druck's wireless ADTS 500 series of pitot static testers. Druck's ADTS 500 series provides a smarter way to perform aircraft maintenance, troubleshooting, fault finding and aircraft instrument calibration, whether the aircraft is in a scheduled maintenance window or in an emergency aircraft on the ground (AOG) condition – where the maintenance that is required is unscheduled.

Part of the wireless ADTS 500 series, the ADTS 542F is a small and lightweight portable two-channel flight line pitot static tester, providing the accuracy and versatility required for fast and efficient flight line ground support. Ideally used with light aircraft, the ADTS 542F incorporates Druck's advanced TERPS (Trench Etched Resonant Pressure Sensor) technology, together with innovative Druck proportional pressure control to ensure a level of calibration accuracy that ensures the aircraft is RVSM compliant.

Together with the customer's technicians, Druck connected our small, lightweight ADTS 542F to test the maximum altitude and airspeed requirements of their Ambulance jet. The industrial Bluetooth wireless ADTS remote hand terminal has a range of up to 30 meters. The wireless hand terminal was demonstrated in the jet's cabin, enabling one technician to perform all tests and calibrations that were required on his own. The reliable interface allowed quick and efficient testing of the pilot's most important air data instruments, including altitude and air speed indicators. Evidently, accurate and reliable air data is critical for the customer in order to guarantee the safety and performance of their aircraft.

During the review of the customer's requirements, Druck's ADTS 552F was also demonstrated by the Druck team to the customer. Despite the capabilities of the ADTS 542F, the customer eventually favored Druck's ADTS 552F as it allowed quicker calibration checks due to the larger capacity of the pressure and vacuum pump.

The ADTS 552F air data test set is a portable two-channel flight line pitot static tester with larger pitot static volume capability for use on a wide range of aircraft, from light aircraft to wide body passenger aircraft.

Druck also offers the ADTS 553F (three-channel variant for angle-of-attack sensor validation) or the ADTS 554F (four-channel variant that allows independent validation of pilot and co-pilot systems as well as critical alarm systems that monitor pilot/co-pilot air data differences).

Druck's added value

Druck's customer required pitot static testers that maintain aircraft RVSM compliance, thus ensuring their aircraft instrumentation is sufficiently calibrated and therefore safe to fly in close proximity to other aircraft.

The introduction of Druck's ADTS 552F provided the following benefits:

A high quality and robustly designed instrument with several safety features to protect aircraft instrumentation in the event of user error.

The easy to use wireless remote hand terminal with an operating range of up to 300 meters ensured a reduction in the time required to calibrate, as set up involving cables to the hand terminal were not required. As a result of not using a wired hand terminal levels of safety improve due to there being a reduction in potential trip hazards.

Druck's global service network ensures that local support for instrument maintenance can be provided anywhere in the world, providing peace of mind to the customer.

Industry leading speed-to setpoint when using the larger pump in the ADTS 552F leads to faster calibration and maintenance and reduced AOG condition time during unscheduled aircraft maintenance periods.

TERPS technology is housed within the ADTS5xxF family, providing industry leading measurement accuracy (0.1mbar) which includes NLHR (Non linearity, hysteresis and repeatability) effects as well as immunity to density or humidity changes. This sensing technology within Druck's Air Data Test Sets ensure that aircraft using them are able to not just to comply, but to exceed the industry's RVSM requirements This provides peace of mind that aircraft can fly closer together and greatly reduces the risk of a catastrophic mid-air incident.

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