AWB 30-1 Issue 1, Pitot/Static and Venturi Care

Pitot/Static and Venturi Care

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Applicability

All aircraft incorporating a pitot-static and/or venturi systems.

Purpose

This Airworthiness Bulletin (AWB) is to emphasize to aircraft operators, ground servicing personnel and maintainers of the special care required for pitot/static and venturi system vents (or ports) during servicing events to:

- Avoid the ingress of moisture or foreign matter; and
- Prohibit induced pressure; and
- To illustrate correct utilisation of bungs, plugs and other covering techniques.

This AWB only refers to pitot-static and venturi systems, citing the responsibilities of personnel for ensuring the servicing of the aircraft does not adversely affect the sensing vents of an aircraft's instrumentation system.

Background

The importance of aircraft instruments for the safety of flight can never be overemphasized. The pitot-static and venturi instruments are vital in an aircraft, providing the flight crew with an accurate indication of an aircraft's height, velocity, attitude and direction essential for flight safety. These indications can be compromised by improper aircraft ground servicing techniques carried out by personnel affecting pitot/static and venturi systems, sometimes days or weeks before the intended flight.

Civil Aviation Regulations (1988) define servicing of aircraft as 'the preparation of the aircraft for flight, and includes providing the aircraft with fuel and other fluids that are necessary for its operation. This does not include any work that is defined as maintenance. Consequently, installation and removal of bungs, plugs and covers of sensing orifices (i.e. pitot-static ports) are categorised as servicing, not maintenance, and is the responsibility of the person accepting and certifying for the daily and pre-flight inspection of the aircraft.

Recommendations

Before any servicing is carried out on an aircraft, personnel must refer to the aircraft's Instructions for Continued Airworthiness (ICA). These instructions would be contained in the aircraft's maintenance manual, flight manual, CASA Airworthiness Directives (AD's) or the manufacturer's service bulletins.

Personnel should be able to identify all sensing orifices related to the aircraft's instrumentation systems, as well as any other external areas or components of the aircraft that may require special precautions. Some manufacturers placard vents to ensure that they are identified correctly and any special requirements pertaining to the vent. These placards are necessary for continued operation of the aircraft and should be correctly located and legible.

Pitot

There are many different types of pitot tube covers marketed, with the common theme for covers to be functional and highly visible. It is important when selecting a pitot cover that it doesn't form an airtight fit on the pitot head or tube, since entrapment of air within the pitot system could cause damage to the instruments within the system with extreme variations to ambient air temperatures. It is also important when installing pitot covers to verify that the pitot head is sufficiently cool to the touch if the pitot heat was used within the preceding hour or so.

There are many airflow-activated pitot covers that attach to pitot head/tube. If these are installed they must be operate correctly and should be regularly inspected in accordance with the aircraft's ICA.
WARNING: Do not apply suction to pitot lines.

Static

Static vents can be situated at various positions on an aircraft, from integration with the pitot head to individual vents located predominately on the vertical surfaces of the fuselage. As with heated pitot heads, caution is required if installing plugs in static vents that are heated. It is also important to ensure that the area surrounding the static vent is not distorted, particularly if heated, preventing accurate sensing.

If blanking static vents prior to washing or long term storage, it is suggested that black or contrasting tape is used in a big "X" over the vents so you will be remindful to remove it after washing or returning the aircraft to service. Never use transparent tape or small pieces of masking tape, as it is too easy to forget and leave it in place.

Venturi

Although manufacturers provide limited instructions regarding venturi maintenance and servicing, personnel should take extreme care with venturi's when pressure washing aircraft. Any pressure directed at either end of a venturi tube can damage the aircraft's instruments. Venturi systems operate on 2-6"Hg (1-3 psi) and inadvertent discharge from a pressure washer could damage delicate gyros or introduce foreign matter that could render the system either inaccurate or inoperable.

General

Aircraft manufacturers may also have additional instructions for pitot and static vents, such as ensuring that either the head or vent is not painted or that additional precautions be observed during pre-flight inspections because of associated systems integrated to the instrumentation system such as undercarriage, flight recording or avionic systems. In all circumstances reference to the aircraft's ICA should be sought.

Should servicing personnel or aircrew suspect a defect on any of the sensing orifices or ports, they should have the suspected area inspected by appropriately qualified maintenance personnel.