



Active Noise and Vibration Control

Increasing Aircraft Passenger Comfort

Features

- Controls noise and vibration from propellers and engine fans
- Adapts to changes in engine RPM
- Controls noise and vibration throughout the entire flight
- Actuators and sensors discretely mounted behind trim
- Works with any passenger configuration
- Optional built in propeller balance system

Aircraft propellers, engine compressors and engine turbines create noise and vibration within the cabin and cockpit. This can be uncomfortable for the people on-board, increasing fatigue, reducing crew performance, and over long periods can be damaging to hearing.

Ultra Electronics has developed a system to cancel this unwanted low frequency propeller, turbine and compressor noise and vibration.

The system reduces the noise and vibration throughout the entire cabin, performing significantly better than noise reduction headsets at these low frequencies.

The system uses an array of actuators to generate noise and vibration that is opposite to the noise and vibration present in the cabin. The noise from the actuators interferes with the noise in the cabin and the

result is that the noise is significantly reduced. The system uses inputs from an array of sensors that listen to the noise and vibration in the cabin. The signals from these sensors are used by the Active Noise Control Unit (ANCU) to determine the necessary outputs from the system's actuators.

Existing applications

Ultra is the world's leading supplier of active noise and vibration control products for aircraft, and has an unrivalled 17 years' experience supplying systems to over 1200 aircraft. These aircraft include:

- Bombardier Q100, Q200, Q300 and Q400
- Bombardier Challenger 604
- Saab 340 and 2000
- Hawker King Air
- Lockheed C-130 Hercules
- Airbus A400M





Ultra's Noise and Vibration Control Products

The Active Noise Control Unit (ANCU)

The ANCU is environmentally qualified to RTCA DO-160. Its outputs can drive vibration actuators and loudspeakers, and its inputs can monitor microphones or accelerometers.

Features:

- Up to 96 sensor inputs
- Up to 48 actuator outputs
- Weight 4 Kg



Loudspeaker

Ultra's loudspeakers are specially designed to operate reliably at low frequency.

Features:

- Custom enclosures to fit the aircraft
- Weight 0.5 Kg



Active Tuned Vibration Absorbers

Ultra's actuators are designed for high reliability and efficiency. Versions with built in control are available

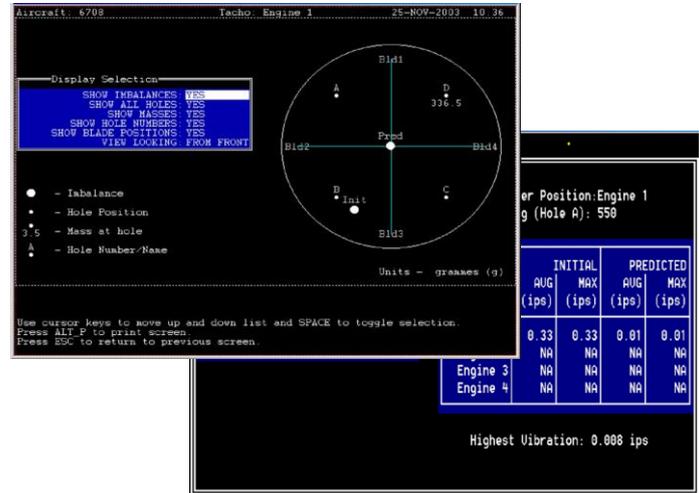
Features:

- Tuned for optimum electrical efficiency
- Weight 0.5 – 1.2 Kg



Sensors

Ultra's microphones and accelerometers are designed for high reliability, light weight and ease of installation.



Propeller Balance Monitor System (PBMS)

Ultra's ANCU is capable of monitoring the vibration caused by propeller imbalance. It monitors this during normal service flying. The PBMS can be installed in conjunction with active noise and vibration control, or as a stand-alone system. To add PBMS to the ANVC system requires the addition of a single accelerometer per engine. The operator determines the balance solution using an intuitive user interface.

Features:

- Uses in-flight data for the optimum balance solution
- Capable of monitoring four engines simultaneously
- No requirement for dedicated balance flights or ground runs.

Full Design, Supply and Support Service

Ultra offers customers a full design, development, qualification, supply and worldwide support service.

Production Lead Time

Products are normally produced within 6 months from receipt of orders.



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