

ULTRASONIC INSPECTIONS AIRCRAFT & GROUND SUPPORT



DESCRIPTION

Aircraft have many systems that can be checked ultrasonically. Some of the more common applications include:

- Locate cabin pressure leaks**
- Locate leaks in oxygen systems**
- Locate tire leaks**
- Locate problems in hydraulic system, valves and actuators**
- Locate leaks in cockpit windows & doors**
- Locate problems with bearings, pumps, motors and gears**
- Locate leaks in floatation devices (seaplane floats)**
- Locate leaks in fuel cells**
- Detect & locate corona affecting electronics**
- Detect & locate arcing & sparking in electrical systems**

How Ultrasonic Detection Works

Operating systems such as compressed gas systems, valves, motors, pumps, etc., all produce ultrasound. Some high frequency sounds are generated from turbulence, others from friction. As components begin to wear, fail or leak, there is a change in the normal ultrasonic pattern. This can be detected as an increase in amplitude, a change in sound quality or a change in sound pattern. Since ultrasound is a high frequency, short wave signal, it will isolate the signal by localizing the problems and detect subtle changes for early warning detection.

The Ultrasonic test unit detects minute changes in ultrasound and converts these signals so that they may be heard through headphones, and observed as intensity increments on a meter. By using plug-in modules for either a scanning mode or a contact mode, equipment may be inspected for leakage or for mechanical problems. Due to its portability and its' rating of Intrinsically Safe, class 1, Division 1, Groups A, B, C, & D, the Ultrasonic unit may be used all around the aircraft.

Detection Methods

For general leak detection, in a scanning mode, move along the area to be tested with the sensitivity at high and, using a slight waving motion, listen for the loudest "hissing" sound and follow the sound to the loudest point. Use the patented Tone Generator to test for cabin pressure and cockpit window leaks in the same manner. The only difference will be the sound, which is heard as a distinctive tone, with graduating intensity. For valves and actuators, touch upstream and reduce the sensitivity to a mid-line reading. Compare with the downstream reading. Test bearings and mechanical equipment by reducing the sensitivity first and then tune the frequency until the desired mechanical sound is heard. Compare readings over time for trending. **It's that simple.**

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