

ULTRASONIC INSPECTION MARITIME REPAIRS & MAINTENANCE



DESCRIPTION

Ultrasonic inspection can be used in practically every phase of the maritime industry. There are application for marine vessels, dry docks, ship repair and shipbuilding.

Some of the major areas of inspection:

- Bulkheads for water tightness integrity
- Hatch leak detection
- Vapor recovery system
- Condensers
- Steam systems (Valves, Traps, Gaskets, Deals, Boilers, Condensers)
- Pressure & Vacuum systems (Gas, Air, Nitrogen, etc)
- Motors, Pumps, Gears, Gear Boxes, Compressors (for internal wear)
- Dry dock usage not only includes all of the above, but also extremely large energy savings through compressed air leak detection.

How Ultrasonic Detection Works

High frequency sounds are produced by operating equipment and fluid flows. The Ultrasonic unit detects subtle changes in mechanical equipment and turbulence produced by leakage to provide early warning. Ultrasounds are translated into the audible range where the sound quality is easily recognized through acoustically isolating headphones. The headphones are designed to be used in the extremely noisy environment of the engine room. Intensity levels are read on a meter for trending, diagnosis and trouble shooting purposes. A patented Tone Generator can be used to test for leaks in lieu of pressure by flooding an area with intense ultrasound. The sound will deflect off a solid surface and penetrate leak sites.

Detection Methods

To locate leaks around pressure or vacuum systems simply scan the area while listening for a "hissing" sound and follow it to the loudest point. Vapor recovery systems can be checked on-line in this manner. Hatches and bulkheads may be tested with the patented ultrasonic Tone Generator. Place the generator on one side (i.e. of the bulkhead) and scan the other side for sonic penetration, which will have a distinctive tone sound. Scan the area to the loudest point of emission, which will indicate the leak site. For valves, touch upstream and reduce the sensitivity to get a mid-line reading on the meter, then touch downstream and compare intensity levels. A more intense reading downstream indicates leakage. No sound indicates blockage. Set a baseline by selecting one test/reference point, touch that point with the contact probe, and reduce the sensitivity to obtain a low dB level. An increase of 8 dB indicates "pre-failure" or lack of lubrication, while an increase of 12-16 dB over baseline indicates the beginning of the failure mode. **It's that simple.**

TO FIX IT.....FIRST YOU HAVE TO FIND IT!