N.T.S. Ultrasonics Pty Ltd is a Perth, Western Australia based business able to offer a range of engineering solutions to current and potential users of both high power and low power ultrasonic technologies.

N.T.S. Ultrasonics is able to offer a range of services to potential users including consulting, prototype development, the supply of custom built components and in some cases complete ultrasonic systems.

Technical solutions can be based on existing technology developed by N.T.S. Ultrasonics or upon design experience. Existing technology includes: ultrasonic wheel probe designs, electronic designs for flaw detection, preamplifiers, and flow measurement, and USB based computer controlled ultrasonic instrumentation for NDT applications.

N.T.S. Ultrasonics Pty Ltd services include consulting and custom design and manufacturing.

Consulting: N.T.S. ultrasonics has significant experience and expertise in a number of technical areas and this "know how" can be accessed by clients through a consulting contract.

There are several procedures available to cater for different types of enquiry:

- Scoping study: Many enquiries require significant technical work before any costs, or even feasibility, can be addressed. A scoping study is a short investigation that allows some research to be carried out: patent search, technical literature search, technical drawings, etc, which provides sufficient information to allow a more detailed development plan to be drawn up.
- Development plan: For projects where a customized technical solution or ongoing technical investigation is required, the work is done according to a development plan. A development plan can be applicable to consulting and also to custom design and manufacturing.

Examples of consulting work carried out by N.T.S. Ultrasonics:

- Wheel probe design issues for flaw detection in rail wagon wheels;
- Electronic hardware design of a DSP based ultrasonic rail flaw detection system;
- Use of ultrasonic vibration to prevent scale formation in pipes;
- Scoping study: applying phased array technology to flaw detection in tyres;
- Literature survey: application of ultrasonics to preventing bio-fouling;
- Literature survey: relation of overloading to damage in rail;
- Examine ultrasonic distillation of methanol;
- Monitoring third party ultrasonic NDT inspection of wharf tie rods;
- Establishing procedures for ultrasonic bond inspection and refractory brick inspection.

Custom design and manufacturing: Projects that require a physical system or component to be produced making use of N.T.S. Ultrasonics' specialized knowledge and experience.

Examples of custom design projects:

- Supply of electronics for a study of longitudinal stresses in rail;
- Supply of electronics, software, and probe system for measuring wear in conveyor belts;
- Supply of a portable rail flaw detection system;
- Supply of preamplifiers or pulser/preamplifiers;
- Development of ultrasonic C scan technology for flaw detection in tyres.

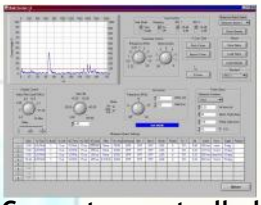
In addition to the supply of complete systems, N.T.S. Ultrasonics is able to design and supply ultrasonic probe assemblies such as:

- Wheel probes: clients in Australia, USA, and Italy;
- IRIS turbines;
- Bubblers and squirters;
- Boreprobes;
- Shear wave probes.

In-house technology: From various design projects N.T.S. Ultrasonics has developed several products and areas of expertise.

- Wheel probes: 70 mm diameter standard designs
- USB controlled ultrasonic flaw detector circuits: single channel or multi-channel configuration;
- Ultrasonic particle counting and size analysis

Ultrasonic wheel probe



Computer controlled ultrasonics

Preamplifier

Partial list of recent clients: Alcoa Australia, Public Transport Authority of WA, Westnet Rail, Applus RTD, Synergy, Gilardoni SpA, Scripps Oceanographic Institute San Diego, Gemco Rail. Goldcorp, Rail Technology International, Woodside Research Facility - Curtin University.

N.T.S. Ultrasonics Pty Ltd: The Director, John Norman, B.Sc Hons. (Physics), has been involved with ultrasonic technologies for nearly 30 years and has developed a wide range of technical knowledge and experience in many low and high power ultrasonic applications and also in electronic and systems design. In previous employment he has been involved in the design and manufacture of several rail flaw detections systems, several ultrasonic C scan systems for aerospace, and ultrasonic inspection systems for steel mills.

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