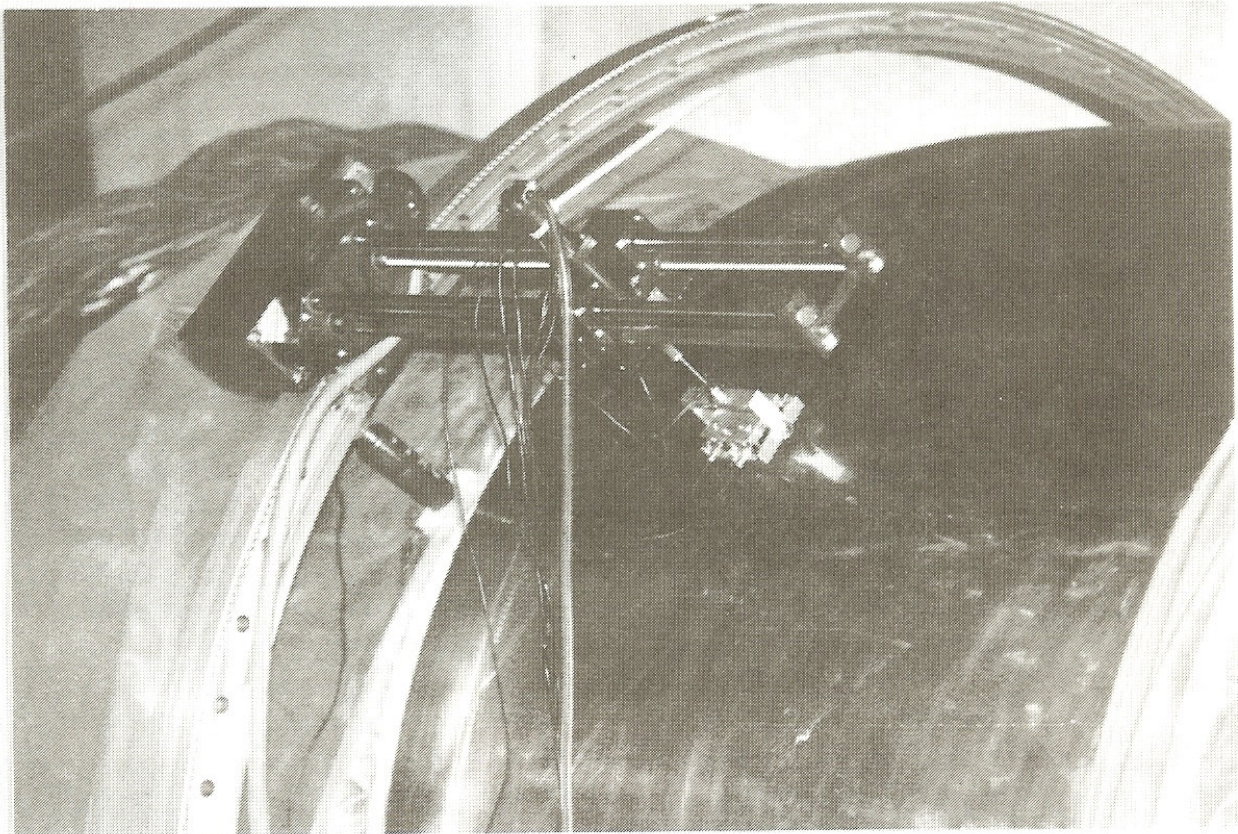


Mechanized Ultrasonic & Eddy Current Inspection of Retaining Rings

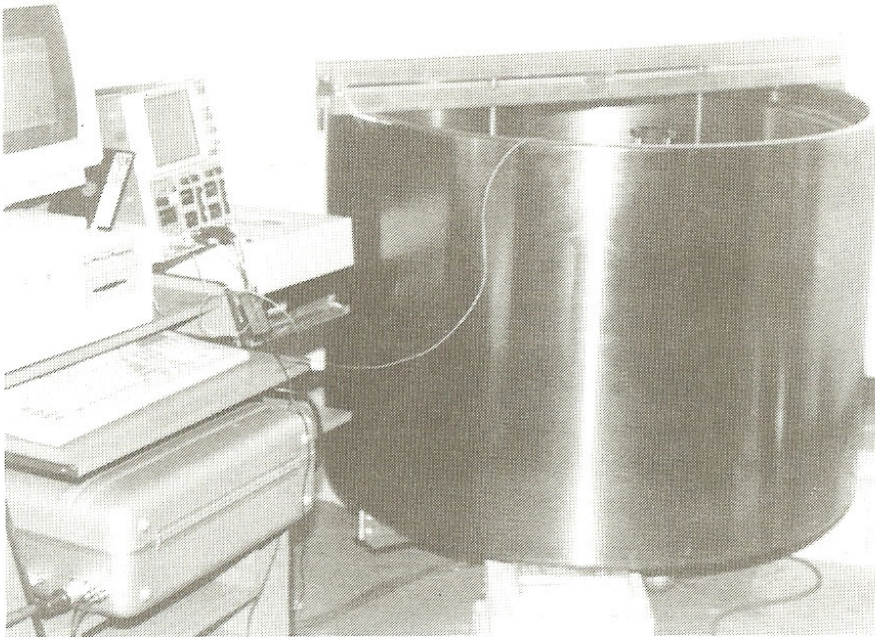
REINHART & ASSOCIATES, INC. (R&A) is pleased to announce that the new ALARA II, from The Virginia Corporation of Richmond, Virginia, is now incorporated into the mechanized ultrasonic scanning system used to inspect generator retaining rings from the outside surface for detection of flaws on the inside surface. In addition to its high scanning accuracy and unique manipulation features, this scanner has been qualified at EPRI for detection of intergranular stress corrosion cracking (IGSCC) in stainless steel piping.

The system has also detected IGSCC in nuclear steam piping in recent tests at an operating nuclear power plant. The ALARA II, combined with R&A's special retaining ring detection and discrimination transducers provides the utility industry with one of the most advanced ultrasonic inspection systems to detect defects in retaining rings. The mechanized scanner is shown below. Automated eddy current of retaining rings from the outside or inside surface (with rings removed) can also be performed.

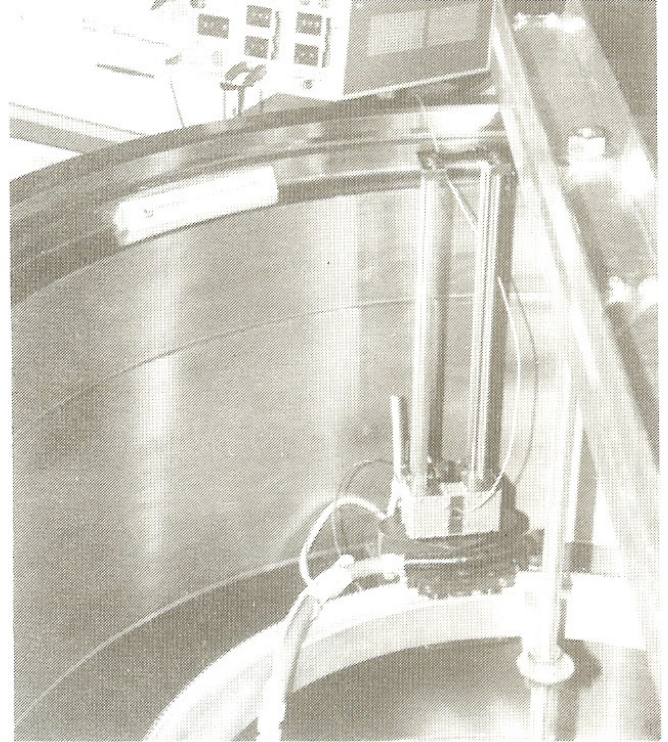


Computer controlled mechanical scanner on a circular track attached to generator rotor.

AUTOMATED EDDY CURRENT INSPECTION



Laboratory testing of the automated eddy current retaining ring inspection system for inside surface scans of removed retaining rings is shown above. The computerized eddy current data acquisition and analysis system is also shown. Scanner position and speed is computer controlled.



The scanner is shown inside a generator retaining ring containing natural and artificial flaws.

EVALUATION OF FORM REFLECTORS

When conventional pulse-echo techniques and search units are used to examine the inside ring surfaces from the outer cylindrical surface of the rings, the boundaries of inside surface shrink-fit, high contact pressure areas can act as form reflectors, producing anomalous ultrasonic signals that may be mistakenly identified as defect indications. The presence of form reflector indications can also mask flaw indications if the flaws and form reflectors are located in close proximity, as in the instance of pitting of the internal ring surfaces along the boundary lines of contact of rotor winding teeth with the inner walls of the retaining rings. To alleviate these problems, R&A has developed a specialized ultrasonic technique to discriminate flaw signals from the press fit form reflectors and other extraneous signals. This technique combined with the other nondestructive testing methods provides the utility clients with data that can be used for life assessment of the retaining rings and to assist in run, repair, retire decisions.



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