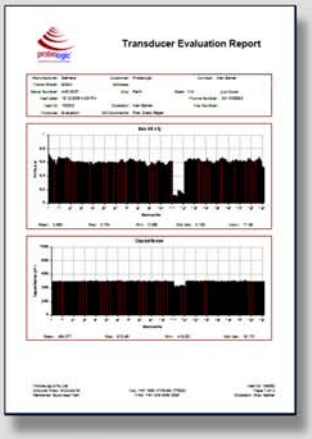
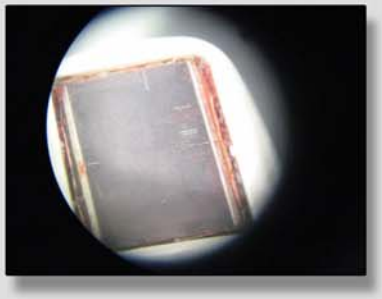
saving your transducers





For many years owners and operators of diagnostic ultrasound equipment have become accustomed to simply purchasing new transducers to replace those that have failed due to damage or deterioration. Failures usually manifest in transducers in the form of shadows (image dropout), reduced sensitivity or excessive acoustic noise (speckle artefact). Replacing transducers can be a costly exercise whether they are purchased individually or whether the ultrasound system service contract has been adjusted to included probe failure and even then the coverage usually excludes damage caused by misuse or incorrect sterilization techniques.

The predominant cause of general transducer failure is impact damage resulting from the probe having been dropped or hit against a solid object such as the ultrasound couch or system chassis. Less known, is that the principal cause of failure of intracavitary transducers is due to incorrect cleaning or sterilization techniques. Incorrect sterilization techniques include using agents not recommended by the transducer manufacturer and exceeding recommended immersion times. Both of these handling errors result in delamination of the acoustic lens and structural decay of the polymer transducer casing.

Fluid ingress or impact damage may not be immediately apparent by a cursory visual examination of the transducer. Only by means of microscopy and interrogation on a digital analyzer, may internal damage or deterioration be detected. Experience has revealed that a single damaged crystal wafer in the acoustic array results in rapid deterioration of the adjoining wafers. The effect of this to the Sonographer will initially be a black line or shadow in the longitudinal axis, which increases in thickness over time.

In most cases, these types damage can be successfully repaired in Probelogic's repair lab, however by adopting simple 'housekeeping techniques', probe mortality can be considerably reduced. Immense savings can be achieved by practices with multiple systems however smaller operators with only a few systems will also considerably reduce costs. [see: Transducer Housekeeping – Basic Quality Control for Intracavitary Transducers – a printable PDF A4 sized checklist that can be laminated and displayed in the ultrasound room]

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smart transducer technology