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NASA TECH BRIEF



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System Remotely Inspects, Measures, and Records Internal Irregularities in Piping

A video electromechanical probe has been designed to enter relatively large (7 to 8 inches) piping and tubing to visually inspect and measure offset and peaking of welds. Irregularity dimensions are recorded on peripheral equipment consisting of video tape and an X-Y plotter.

The probe was designed for inspection of vacuum-jacketed liquid lines that cannot be inspected externally. The visually controlled electromechanical probe enters the fuel line with a minimum of contamination to perform a profiling of the welds. The radial welds are located by a closed circuit TV system that uses a fixed camera located in the forward section of the probe and aligned with a scanning mirror that is rotatable through 360°. When a weld is sighted, the probe is moved into position and locked in place by a segmented shoe that is expanded by a pneumatically inflated bladder. A profile tracing tool is then extended to the surface of the weld and caused to rotate through 360°, its shaft's axial motion being

translated into a signal whose amplitude variations represent the weld profile. The signal is recorded on an X-Y plotter and a video tape records the weld surface for visual examination and comparison with the X-Y plot.

Note:

Inquiries concerning this innovation may be directed to:

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Reference: B68-10149

Patent status:

No patent action is contemplated by NASA.

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