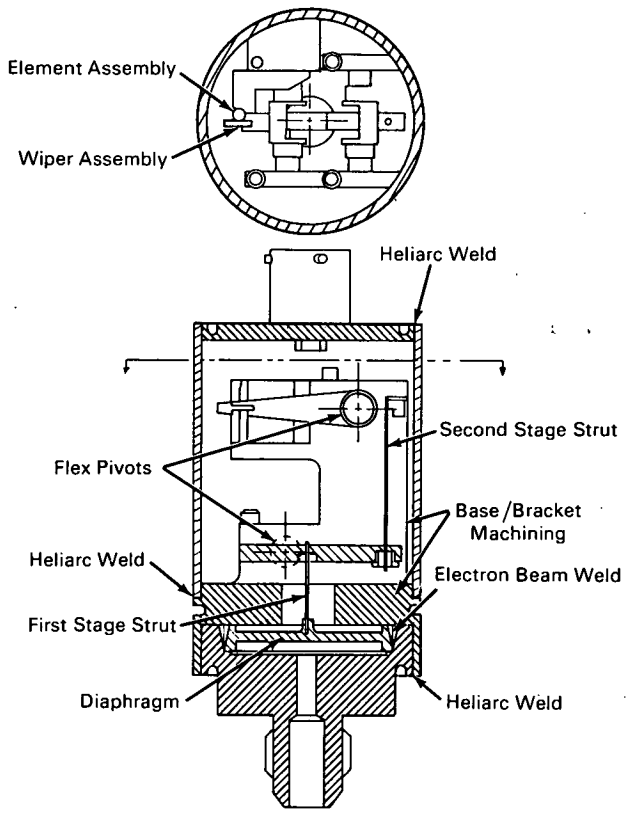
NASA TECH BRIEF

Cryogenic Pressure Transducer



The transducer described in this Tech Brief utilizes a diaphragm which is electron beam-welded to a fitting. This assembly is then heliarc welded to the main body of the transducer. The diaphragm pressure deflection, about .003 to .005 inch, is transmitted to a first stage amplifier through a strut wire brazed at both amplifier and sensor ends. The amplifier multiplies sensor travel by a factor of 4.5 to 6 and feeds this motion to the wiper assembly through a second stage strut wire (see Figure).

The second amplifier arm further multiplies motion to produce .150 inch wiper travel at the potentiometer. The transducer requires no damping oil, and thus is capable of operating at both cryogenic and high temperatures. The flex pivots provide frictionless bearings, high lateral stiffness, and low torsional stiffness.

Notes:

1. The information contained in this Tech Brief may be of interest to designers and users of process control instrumentation and cryogenic equipment.
2. No further documentation is available. Technical questions may be directed to:
   Technology Utilization Officer
   Manned Space Flight Center
   Huntsville, Alabama 35812
   Reference: B69-10601

Patent status:

No patent action is contemplated by NASA.

Source: J. M. Hendrix of
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Category 01