

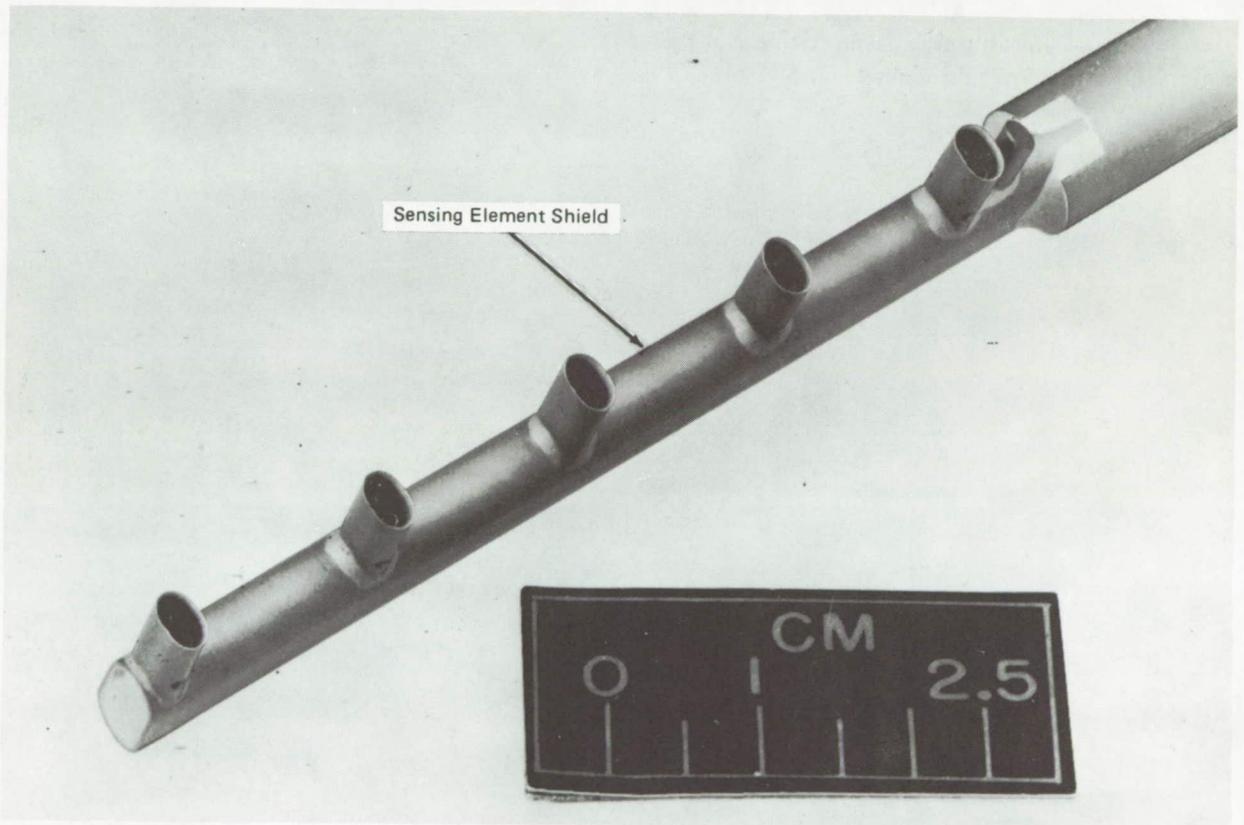
NASA TECH BRIEF

Lewis Research Center



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A Multielement Probe for Coincident Temperature and Pressure Measurements



The problem:

Total pressure and temperature measurements for compressor and turbine research and other general studies in experimental fluid mechanics are conventionally made using probes located at different points in the gas stream. This introduces problems in data reduction and means for obtaining such measurements simultaneously at the same points in the gas stream are desirable.

The solution:

A small, multielement probe which measures total pressure and temperature coincidentally at one or several points in a gas stream.

How it's done:

The basic embodiment of the probe is the installation of both a bare-wire thermocouple (0.3 mm diameter wire) and a total-head tube (1 mm O.D.) inside a small

(continued overleaf)

oval-shaped shield tube (about 2.5 by 5 mm inlet opening) which itself acts in part as a total-head tube. A photograph of a probe with five such elements is shown in the figure.

Notes:

1. Although this probe was developed primarily for use in rotating machinery research, it is applicable wherever requirements for multiple measurement exist.
2. The following documentation may be obtained from:
National Technical Information Service
Springfield, Virginia 22151
Single document price \$3.00
(or microfiche \$0.95)

Reference: NASA TM-X-2577 (N72-26351),
A Probe for Measuring Temperature and Pressure at the Same Points in a Gas Stream

3. Technical questions may be directed to:
Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135
Reference: B72-10716

Patent status:

NASA has decided not to apply for a patent.

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