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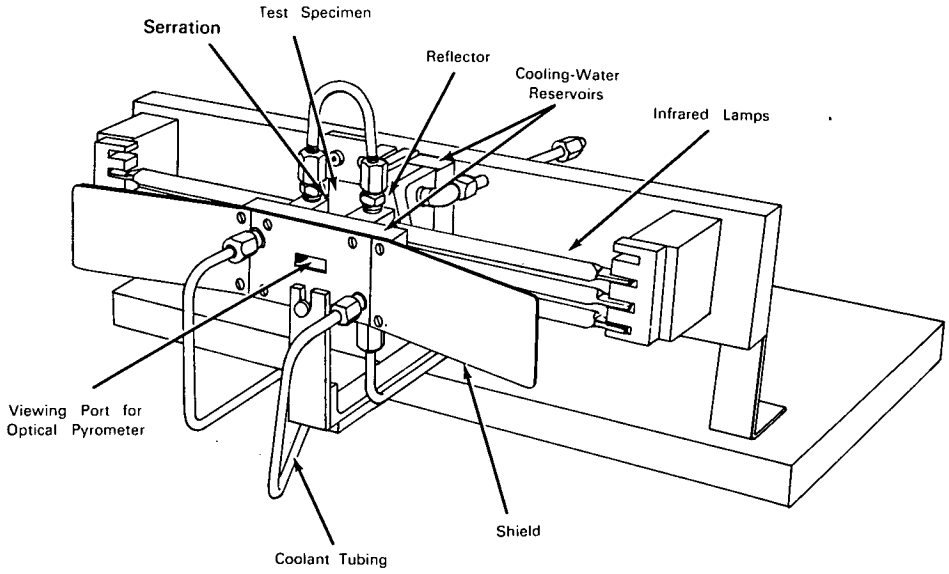
Brief 65-10272

NASA TECH BRIEF

Infrared Shield Facilitates Optical Pyrometer Measurements



The problem: Accurately measuring the temperature of small sheet metal specimens which are subjected to tensile stresses in fatigue tests at 2,000° to 3,000° F. An optical pyrometer is a preferred instrument for measuring such high temperatures. To ensure accurate measurements, this instrument must view only the infrared radiation from the heating source or other surfaces. None of the heating or temperature-sensing components must come in contact with the test specimen.

The solution: A water-cooled shield to exclude direct or reflected radiation from one face of the metal specimen and to permit viewing of this face of the specimen by an optical pyrometer.

How it's done: A water-cooled reflector and quartz lamp are used to heat the specimen on one side and the shield is used to permit pyrometer measurements on the other side. The shield assembly is water-cooled and has a viewing port for the optical pyrometer. The test specimen is placed between the infrared source (lamps and reflector) and the shield. A 1/32-inch gap is maintained between the specimen and shield. Serrated radiation traps are provided on the edges of the shield-assembly reservoir to prevent radiation leakage through the gap.

(continued overleaf)

Note:

A related invention is described in NASA Tech Brief B63-10345, June 1964. Inquiries may also be directed to:

Technology Utilization Officer
Langley Research Center
Langley Station
Hampton, Virginia, 23365
Reference: B65-10272

Patent status: NASA encourages the immediate commercial use of this invention. Inquiries about obtaining rights for its commercial use may be made to NASA, Code AGP, Washington, D.C., 20546.

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