

NASA TECH BRIEF

Langley Research Center

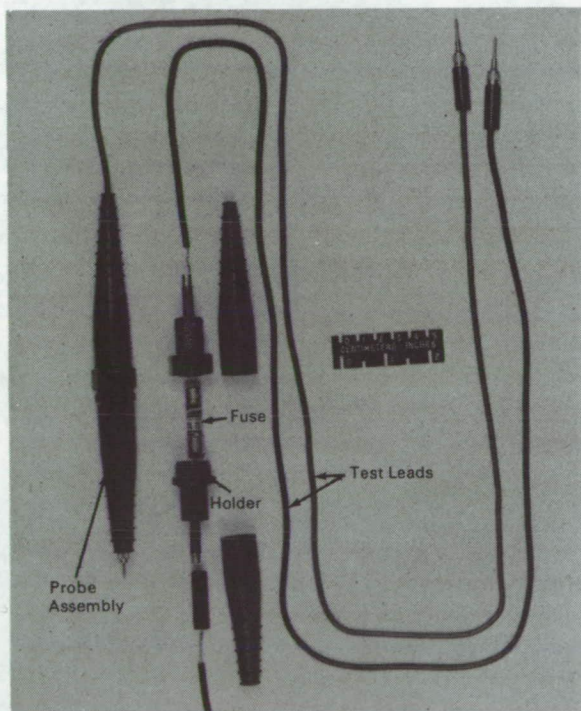


NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

New Meter Probes Provide Protection From High Current Power Sources at Potentials Up to 600 Volts

The problem:

If a faulty test instrument or improper operational procedure is used in testing high current power sources, the test instrumentation can draw an ex-



remely high current, resulting in an arc across the test lead tips. This arc can initiate ionization which can short-circuit the power source; the short-circuit can become self-propagating; and the high current can severely burn operating personnel. Though fuses are used on some conventional multimeters, they do not have the interruption rating required to limit the short-circuit current from the power source when high current is involved.

The solution:

Use meter probes which incorporate fuses with an interruption rating that is high enough to open the meter circuit prior to ionization and before the short-circuit condition can occur.

How it's done:

The meter probes incorporate an integral fuse-holder which contains a limitation fuse of 600 V, 5A, with an interruption rating of 50,000 kVA. An analysis of test data on this probe indicates that it provides the required protection and minimizes the danger incurred by a defective or improperly operated meter. Meter accuracy is unaffected within the normal range of the instrument, but a current range of over 5 A is not usable.

Note:

No additional documentation is available. Specific questions, however, may be directed to:
Technology Utilization Officer
Langley Research Center
Hampton, Virginia 23365
Reference: B72-10455

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to:
Patent Counsel
Mail Code 173
Langley Research Center
Langley Station
Hampton, Virginia 23365

Source: H. Long and J. Getsug
Langley Research Center
(LAR-10804)
Category 01