

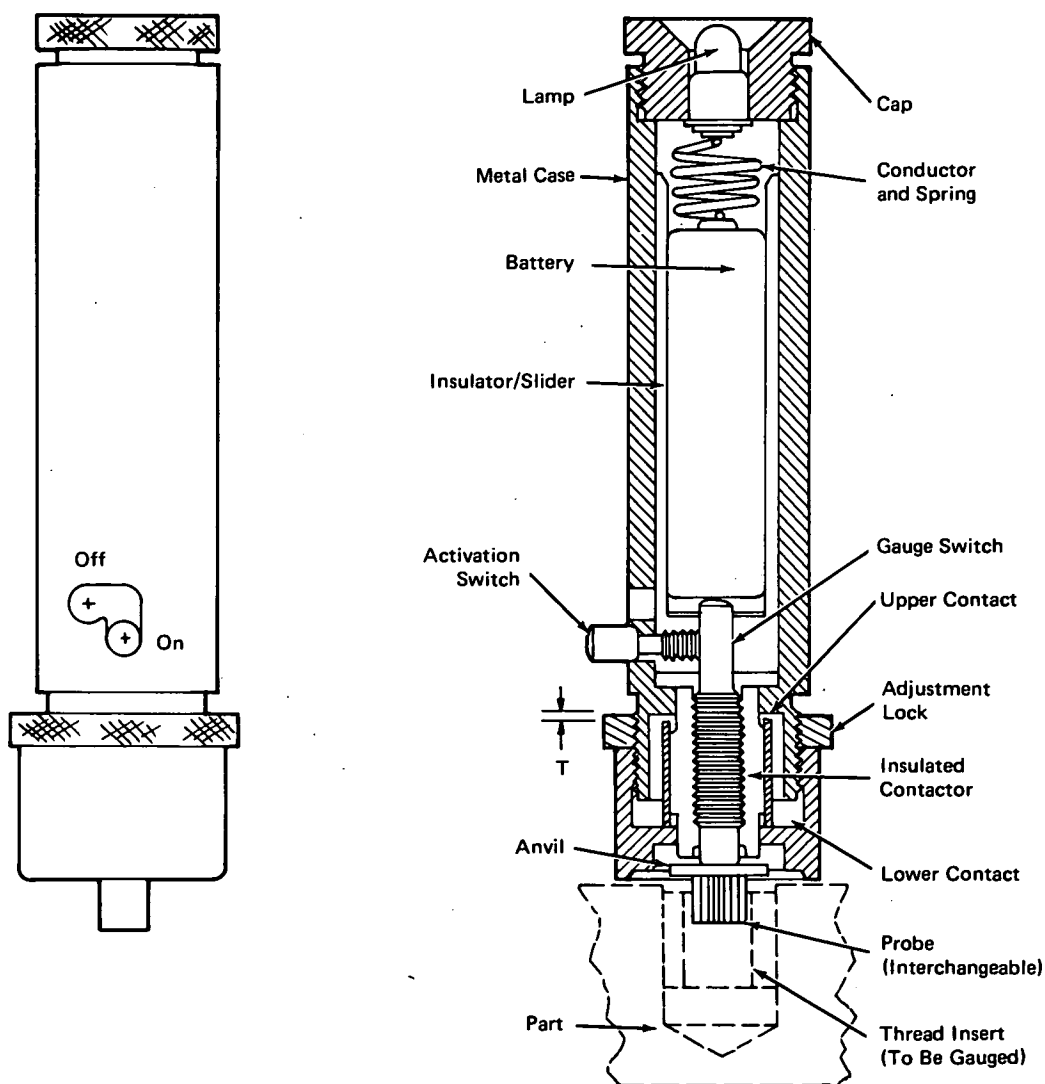
NASA TECH BRIEF

Lyndon B. Johnson Space Center



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A Simple, Accurate Depth Check Gauge



Depth Check Gauge

(continued overleaf)

The problem:

Present methods used to measure the depth of recesses in parts during quality control inspections involve the use of depth calipers, micrometers, or complex indicators. These methods are time consuming, and their reliability is dependent upon the person making the test.

The solution:

An easily made, pen-light-battery operated production check gauge has a probe-activated switch with fail-safe features to insure proper operation. With this gauge, parts can be more reliably and quickly checked.

How it's done:

The figure shows the check gauge as it is used to inspect a typical part. To ready the gauge for use, the activation switch is turned on. This releases the battery so that the gauge indicator light remains on except during use. Then the nylon probe is inserted into the recess to be measured, with the base of the gauge held flat against the part.

If the hole being tested is too deep, the gauge switch, which is attached to the probe, touches the lower contact points; the circuit is complete; and the light is on. This is the case shown in the illustration.

If, however, the hole is within tolerance limits, the switch button will be held between the upper and lower contacts, and the light will remain off. Thus, when the light is off, the measured recess is within the tolerance. An "on" light indicates rejection.

When the gauge is removed from the recess, the light goes on to indicate that the gauge is operative. After use, the activation switch may be turned off for storage of the gauge.

The gauge is equipped with a tolerance band adjustment and can use interchangeable probes for different applications. An accompanying tester permits frequent checks of the calibration. Recalibration, or the installation of different probes, requires precision depth gauge measurement. Calibration seals should be applied on the tester.

The gauge has been used to check that thread inserts are installed within 0.020 inch (0.05 cm) of being flush. The tester was set at 0.001/0.019 inch (0.025/0.048 cm). Closer tolerances could be held with more precisely machined switch parts.

Notes:

1. The versatility of this device may be increased through the addition of a micrometer scale to permit adjustment of the tolerance levels.
2. No additional documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer
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Houston, Texas 77058
Reference: B73-10150

Patent status:

NASA has decided not to apply for a patent.

Source: E. P. Rauch of
Rockwell International Corp.
under contract to
Johnson Space Center
(MSC-17166)