

# Testing with System Multimeters

## Enough Juice for Aunt Ju & Co.



With its integrated memory and an IR interface, the handheld system multimeter even executes special recording and documentation tasks.



The battery of the Ju 52, affectionately known as "Aunt Ju" which was first built in 1930, is tested with multimeters on a regular basis. Lufthansa is now operating the last specimen of the world's first mass produced aircraft in Germany.

**Almost all vehicles have a battery, whose failure results in consequences of varying severity. Especially in the case of airplanes, the power supply plays a critical role, and their batteries must be subjected to regular maintenance for this reason. While this kind of work is quite arduous with standard multimeters, handheld system multimeters from Gossen-Metrawatt make measuring easier.**

Regardless of whether a Boeing, a Lear jet or a Ju 52 is involved, power failure in the air usually has catastrophic consequences for the aircraft's instrumentation and maneuverability. It is thus imperative that, in addition to the generators, emergency power functions reliably under any conceivable conditions via the batteries, and can deliver enough "juice". For this reason, rechargeable aircraft batteries are subjected to careful testing on a regular basis.

### Time-Consuming Battery Test

There are no special measuring instruments or systems for testing the condition of the rechargeable batteries. Testing is generally conducted manually with the usual panel-mount measuring instruments, multimeters, laboratory recorders and other devices. The battery is loaded with a constant current for the discharge voltage test. Battery voltage is logged with a laboratory recorder during discharging. An unsteady charging voltage curve indicates that one or several cells are defective. The voltage of the individual cells must thus be measured in addition to overall battery voltage. The inspector records the respective results to the test report with the designations "OK" or "fail". In the event of a "fail", he removes the defective cell and replaces it with a new one. The discharge voltage and cell voltage tests must then be repeated. Finally, the temperature sensors have to be checked. Recording of on and off temperatures for the thermal circuit breaker was especially time-consuming. In order to be able to accurately read the temperature value at the test instrument and record it to the report, the switching thresholds had to be continuously observed at a heat block during warm-up and cool-down. The results were then manually entered to the required report templates.

### Including Documentation

The MetraHit 27 I handheld system multimeter with infrared interface simplifies the battery test with appropriate software. Not only is it an inexpensive, highly flexible and accurate measuring and test instrument, it offers users the functionality of a PC-based measuring system as well. Thanks to PC-supported measured value recording based upon an integrated 128 kB memory, the multimeter replaces high-maintenance laboratory recorders. After testing has been completed, the measurement results which have been saved to internal memory can be transferred to a PC, greatly simplifying subsequent processing and documentation. The data hold function allows for quick recording of cell voltages after the voltage value has settled in. The MetraHit 27 I is capable of automatically recording temperature threshold values and contact voltage at the temperature sensors, without the service technician having to continuously monitor the measurement sequence. Measuring and documentation tasks are not only simplified for battery service applications through the use of multimeters with integrated memory and multifaceted PC recording software. This well coordinated team reduces the number of possible errors, shortens the measuring procedure and accelerates evaluation of the measured values. The battery powered, compact hardware can be used in a wide variety of applications, independent of the PC as well.

### MetraHit 27 I System Multimeter

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