



## Physics Division ESH Bulletin 95-7

# DANGEROUS DEFECT IN FLUKE METERS

**Lessons Learned Program RED ALERT**

**R-1995-OR-LBNL-0901**

This alert originated from Lawrence Berkeley National Laboratory. Due to the life-threatening potential it represents, it has been issued at Energy Systems as a RED ALERT. All Divisions must respond to this alert. Physics Division Facility Managers should survey their facilities to identify the named models and remove them from service immediately. For assistance with the coordinated return of company-owned meters, contact R. Alan Weaver in Procurement (576-1398). Facility Managers should report the results of their surveys (in writing) to the Physics Division ESH Officer by Monday, October 2, 1995.

**Lessons Learned:** All contractors are advised to return Fluke Series II, Model 21, 23, Kit-23, 70, 73, 75, and 77 Digital Multimeters to the factory for corrections. Affected serial numbers (imprinted on the case bottom) are between 60990000 and 63752000. If the serial number is preceded by a "9" or followed by an "R," this notice does not apply.

**Discussion:** While engaged in a normal test procedure involving 1000 volts direct current, the engineer noticed that his digital multimeter display would occasionally indicate zero volts. Further investigation revealed that this occurred when the test leads were connected to the power source in reverse polarity of the source itself; i.e., positive probe to negative contact and vice versa. Under these circumstances, the meter should properly read "-1000 volts," not zero volts. The factory was contacted, and soon confirmed that a previously unknown product defect was responsible, affecting a series of meters in manufacture since June 1994.

The malfunction may occur when a voltage input greater than 400 VDC is applied in either voltage functions, AC or DC. The meter may go into a lock-up state and will indicate a reading of (or near) zero volts. **WHEN THE MALFUNCTION OCCURS, THE METER MAY NOT INDICATE THAT HIGH VOLTAGE IS PRESENT, PLACING THE USER IN A POTENTIALLY HAZARDOUS SITUATION.** The failure mode commonly occurs when the positive lead (red) is connected first to a high voltage supply and then the common (black) lead is connected.

Additional questions may be directed to the Technical Support Group at 1-800-447-7940.