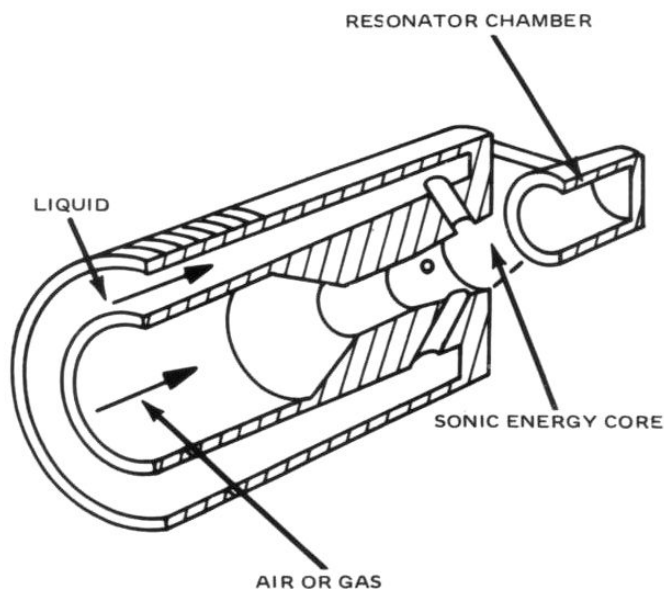
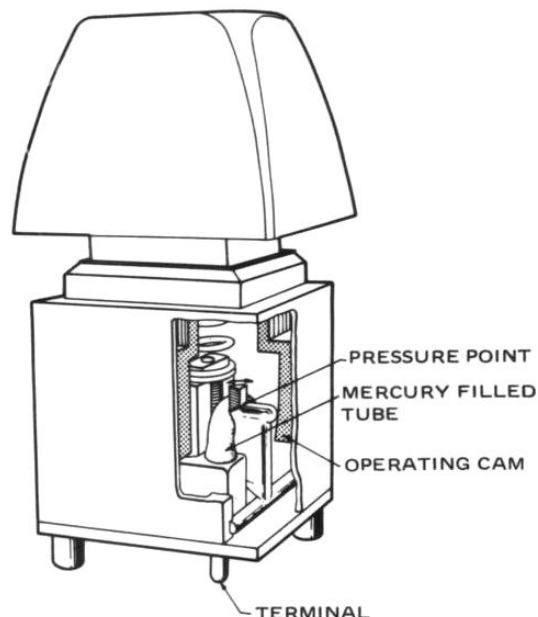


W1, in the watch's hour and minute adjustments and its demand switch. Claiming that the use of the MINI-2 reed switches lets the watch manufacturer completely seal the watch's case from dirt and moisture, Hamlin's Walter Bruenger describes how placing a small magnet — normally stored in the watchband — in the appropriate slot in the watch case closes one of two reed switches and activates the hour or minute display forward, allowing reset or adjustment. Pressing the watch's demand button activates the third reed switch and lights up the watch's LED time display. *For more information on the switches, Circle 108.*



It can also be used in equipment that provides humidity control, dehydration control for produce, and process control for heat treating and materials forming, according to the firm. A company spokesman adds that at least one large manufacturer has installed the nozzles in its heating equipment even though the process involved replacing "virtually new" burners.

Mercury Switch Survives Glop And Goo



If you design a keyboard for use in dirty applications, you want to make sure that dust, grit, chemical fumes and spilled coffee can't gum up its works. According to Guy Russell, production manager at Mechanical Enterprises, Springfield, VA, mechanical keyboard switches sometimes can't stand up to such assaults: contamination often interferes with their operation and cuts their life. And while solid-state switches that incorporate magnetically coupled switching mechanisms are totally sealed and resist contamination, they also cost a lot and require relatively high operating currents. Additionally, some Hall-effect switches require special sensing amplifiers, which increase the switches' cost and complexity.

To provide a keyboard switch that can stand up to its dirty surroundings without skyrocketing the price of the equipment it's designed into, designers at Russell's firm redesigned an earlier version of a mercury filled keyboard switch. Containing a mercury core housed in a flexible tube, the redesigned switch makes electrical contact when an operating cam actuated by its key reshapes the core and allows it to conduct.

Russell explains that the earlier versions of the mercury switch required pressure-mounting on a gold-plated PC board. The redesigned unit is solder-mounted and does not require gold-plated contacts. Its operation is independent of both switch attitude and acceleration, and it is totally sealed to foil potential contamination.

Rated for 40 million cycles, the M-5 switch conducts 200 mA at 24 V dc, according to the firm. Its contact bounce equals zero, and its rise and fall time measure less than 10 ns. It has been stored at from -30 to 70°C and can operate between -10 and 55°C. In its basic testing configuration, the unit operated without a miss while vibrating at 5-55 Hz @0.03 DA and at 56-500 Hz @ 5 g's. It also failed to miss while operating at altitudes up to 12,000 ft and survived storage for four hours at a simulated altitude of 50,000 ft. *For more information, Circle 109.*