UCRL-16004

University of California

Ernest O. Lawrence Radiation Laboratory

HELIUM LEAK DETECTOR PROBE

Berkeley, California

DISCLAIMER

Helium Leak Detector Probe

F. L. Reynolds

Lawrence Radiation Laboratory
University of California
Berkeley, California

March 18, 1965

A helium leak detector probe for use with detector equipment confines the applied helium over a relatively small area. This is accomplished by building a small valve at the tip of the probe. The valve is opened by applying pressure on the probe tip and is closed upon releasing. The helium is confined for the flow period by a small rubber hood which makes a seal to the surface being tested. By having an auxiliary air supply present this small volume of helium can be quickly dispersed and false drift signals are largely eliminated.

The valve is one normally used on a tubeless tire stem. The stem is first cleaned of all rubber material and then machined to the dimensions shown in Fig. 1. This dimension allows the normal valve core tip to extend about 1/16 inch out of the brass stem housing. The stem unit is then hard soldered to a 1/4-inch diameter stainless tube. The stainless tube offers the necessary stiffness needed in the probe. An additional small Hoke valve was attached to the other end of the stainless steel tube so that the probe could be used in a regular fashion by removing the valve stem core.

To complete the probe a small piece of soft gum rubber tubing is slipped over the valve end having just the proper length to first make a pressure seal to the work and with additional depression allowing a little helium to flow into the cavity. The completed probe is shown in the photograph.

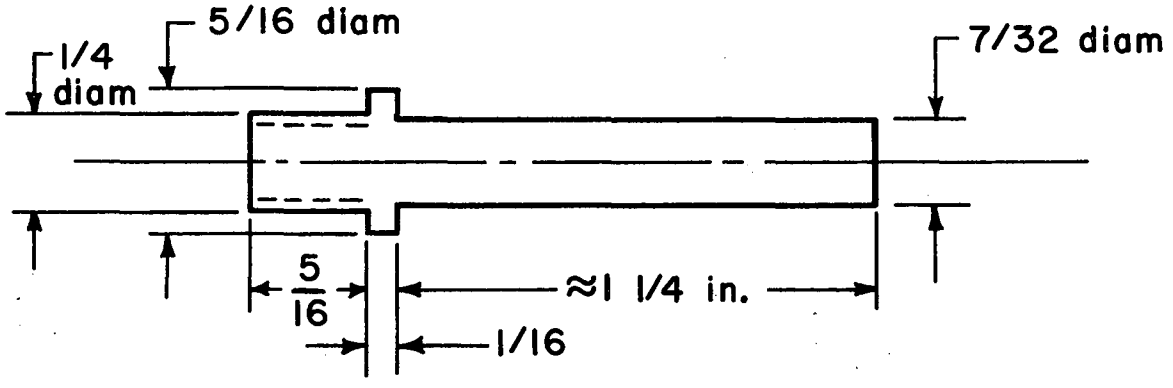
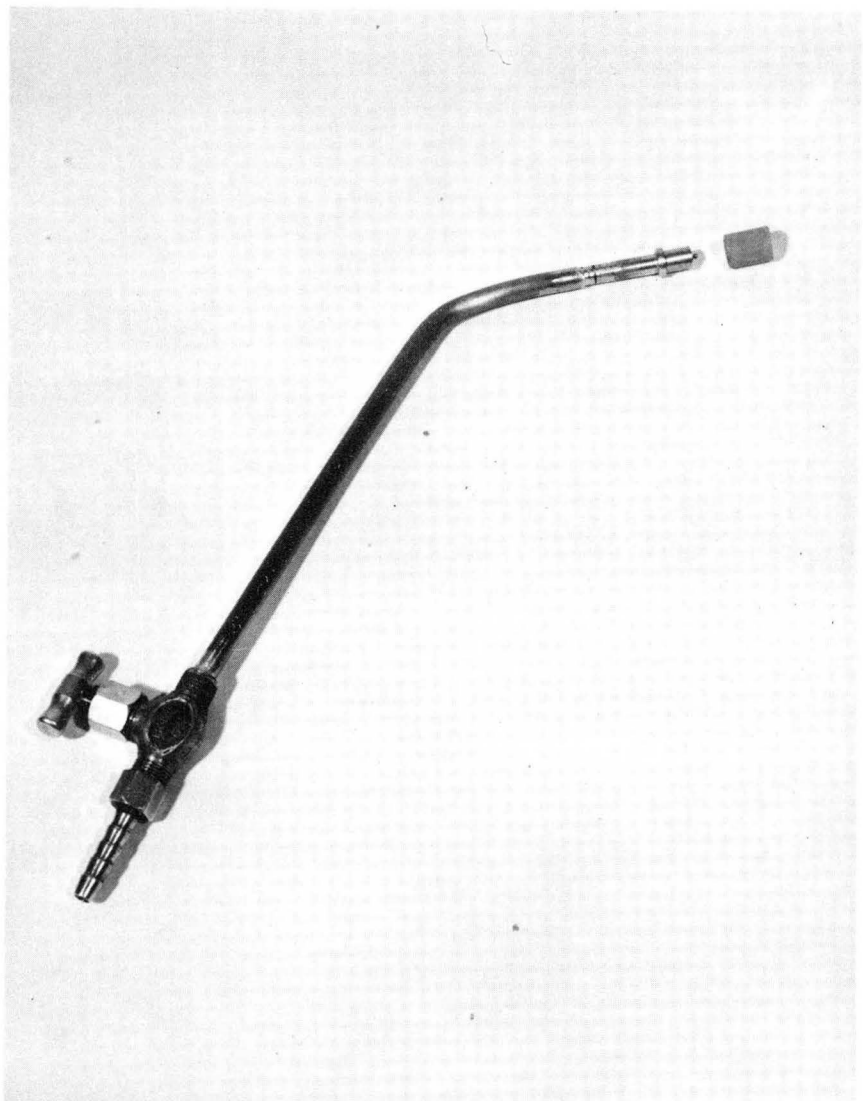


Fig. 1. Dimensions of modified valve stem.



ZN-4853

Fig. 2. Completed probe showing position of valve core and attachable rubber hood.