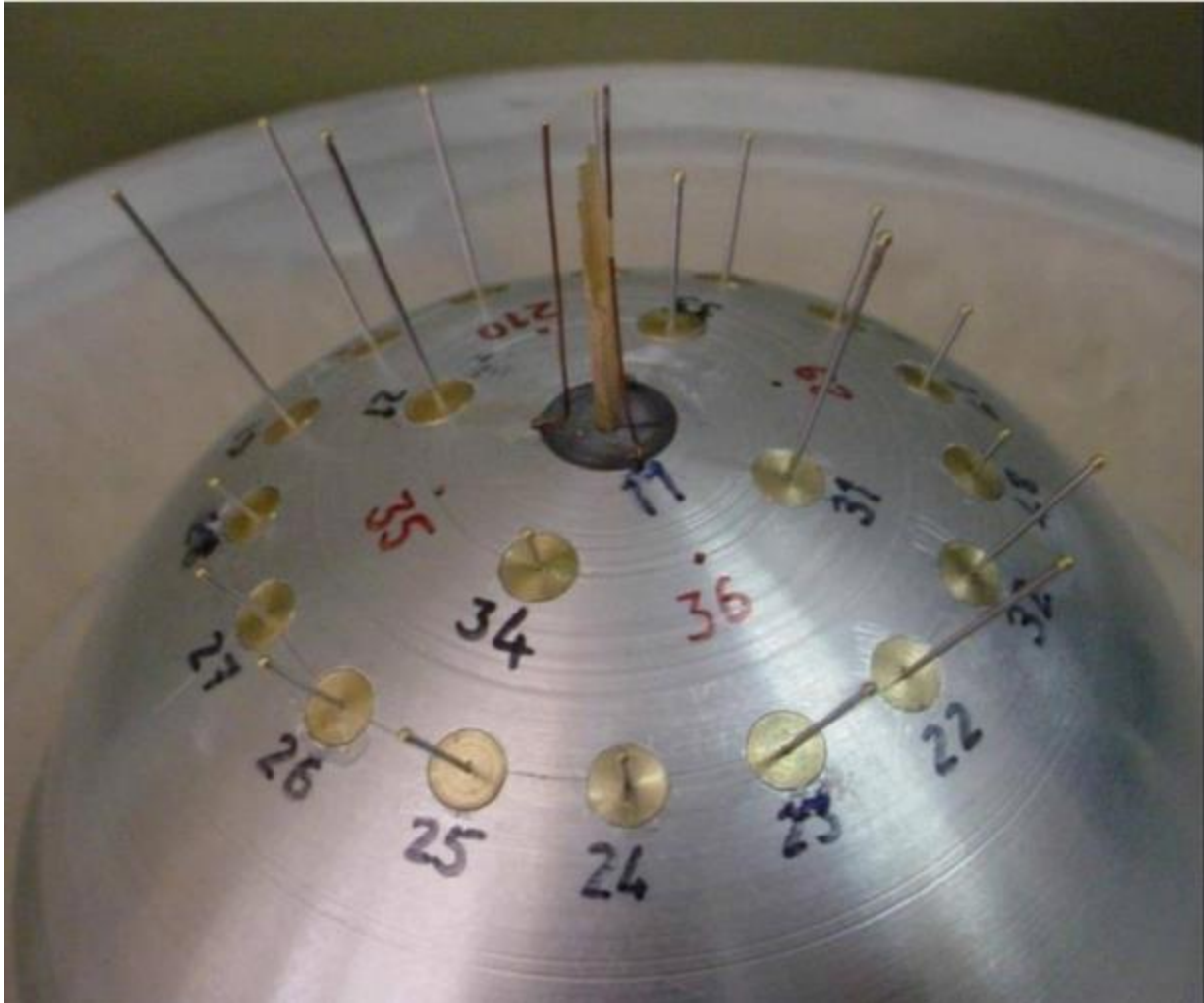




**From Iran's Nuclear Archive, a significant portion of which was seized  
by Israel in Tehran in January 2018:**

**Image of Pin Dome Used in Hydrodynamic Testing of a Nuclear  
Weapon.**

**May 16, 2019**



**Figure.** An image of a “pin dome” from the Iranian Nuclear Archive showing part of an apparatus used to measure changes in the behavior of an implosion system. In other words, the pin dome is part of a hydrodynamic test that simulates conditions of an actual nuclear weapon. The whole test apparatus assembly includes several main components: a pin dome assembly, a shell of heavy metal—likely uranium metal in the Iranian case—, electronics and recording equipment, and high explosives that accelerate the heavy metal toward the pin dome. The test measures the elapsed time from the initiation of the high explosives until the shock wave drives the heavy metal shell into the array of timing pins of known length and location. The test measures the velocity and time of arrival of the heavy metal shell, providing key data on the spatial uniformity of the compression of a core. Nonuniformity of the shock wave can be caused by the high explosive if it has variations in density or voids. In addition, there can be imperfections in the heavy metal shell. The pin dome itself, and the electronics, can also fail. As a result, multiple tests would be expected, requiring the production or acquisition of many pin domes and a safe, secure location to conduct the tests. Where Iran carried out these tests, if it did, is currently unknown.