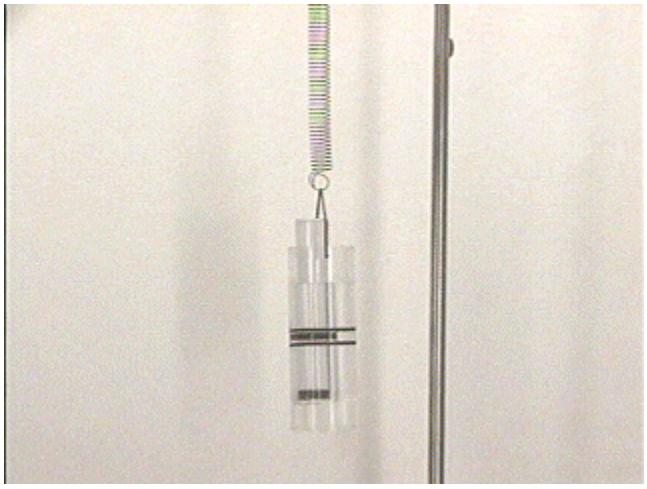
Answer #69

The answer is (d): there is no motion of the floater at all with respect to the container as the container executes SHM., as can sort of be seen in an mpeg video by clicking on the photograph below. You may want to go frame-by-frame to see the action with less blurring, especially at the extremes of the motion.



The reason for this is that the buoyancy of the floater is a function of the ratio of the weight density of the floater relative to that of the water in the tank. As the system oscillates the (apparent) weight density (in the oscillating frame of reference) changes for both the floater and the water, but in the same ratio, so their buoyant condition remains the same as the oscillation proceeds.

This leads to the next "*Question of the Week*," dealing with what happens when the motion of the container is stopped **very quickly.**

Archive 4

Question of the Week

Outreach Index Page

Lecture-Demonstration Home Page

For questions and comments regarding the *Question of the Week* contact
Dr. Richard E. Berg by e-mail or using phone number or regular mail address
given on the Lecture-Demonstration Home Page.