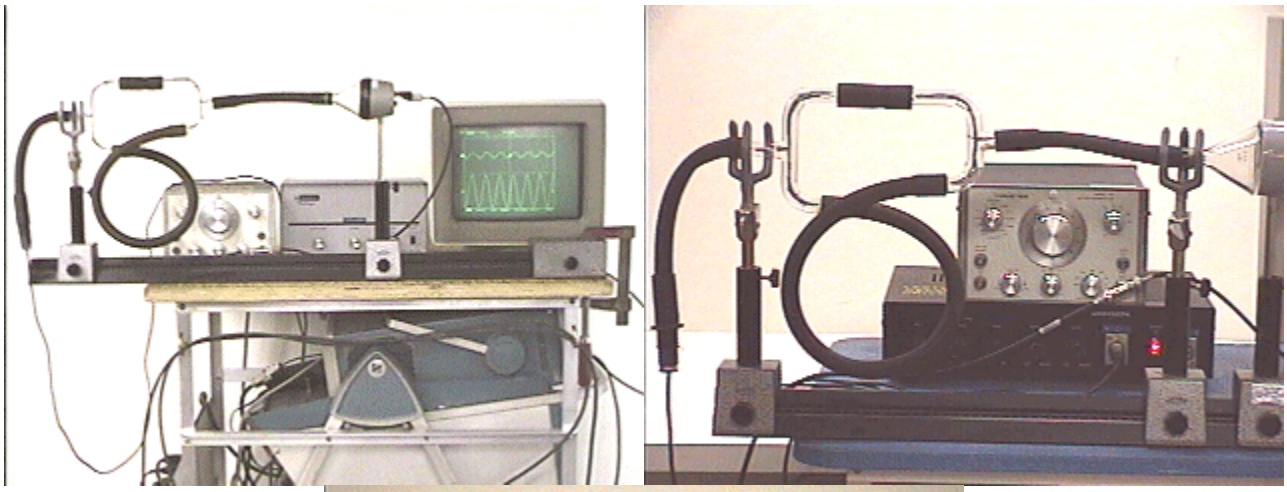
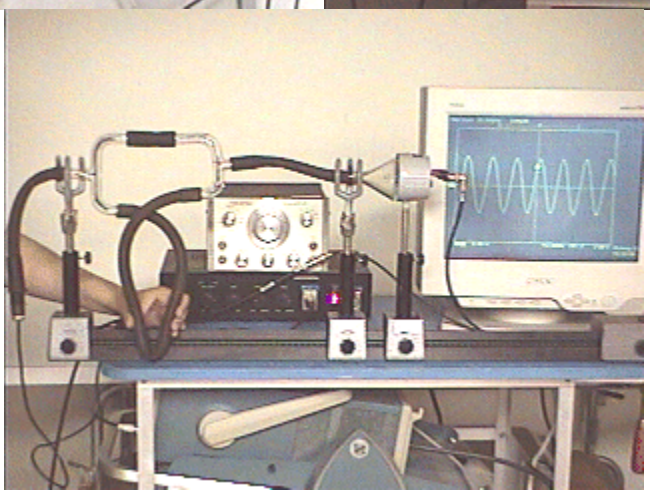
Question #142

The setup in the photograph at the left below is designed to separate and recombine a sound wave as follows: The sound is inserted by the loudspeaker through a glass funnel at the right end of the system. The sound then travels through a tube that splits into two paths, one of which is longer than the other, then recombines into a single tube. A microphone picks up the recombined sound and displays it on the oscilloscope (top trace), along with the original sound wave (bottom trace). The extra length of the circular loop of the second path is about 50 cm, the frequency used here is about 345 Hertz, and the speed of sound in the laboratory on this fine warm day was about 345 meters per second.





Suppose that the long loop path is pinched by Gwen so that sound can only reach the microphone by going through a *single* (shorter) route. This is seen in the photograph at the right, using only a single trace on the oscilloscope to see the sound picked up by the microphone. Now Gwen will release the pinch, allowing sound to travel through *both* paths.

What will happen to the sound picked up by the microphone after the pinch is released, so that the sound has two paths to the microphone?

- (a) The amplitude will become greater.
- (b) The amplitude will become less.

- (c) The amplitude will remain the same.

Click here for Answer #142 after March 10, 2002.

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.