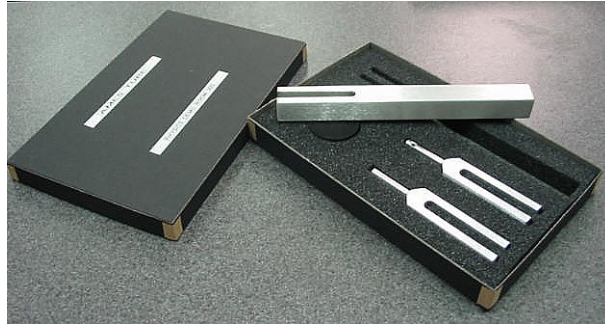


Ames Tube



Purpose: Demonstrates acoustical resonance and beats.

The Ames tube is a rectangular tube tuned to 880 Hz. It is essentially a tuning fork combined with a resonator cavity. The set comes with an 880 Hz tuning fork for demonstrating resonance when used in conjunction with the tube. The set also comes with an 883 Hz tuning fork which, when used with the excited tube, produces an audible 3 Hz beat.

Use the rubber striker pad!

Note: These are not very loud. For a normal-sized class you would need to use the microphone.

Extra Equipment Needed: None

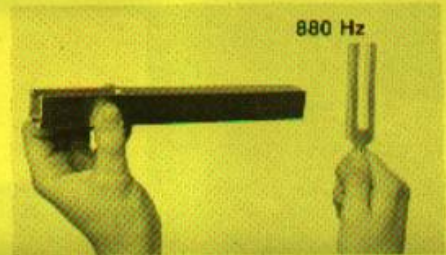
Location: Shelf D5

From the Manufacturer:

some of the many experiments possible with the **ames tube**

the tuned cavity

By holding the **ames tube** by the prong end and effectively clamping the prong, then activating the **880 Hz fork** and placing it at the mouth of the half-wave end of the **ames tube**, it is possible to demonstrate that the tube itself is a half-wave open pipe trimmed to 880 Hz. The fork end of the **ames tube** can also be activated and the pipe detuned by closing the half-wave pipe mouth effectively demonstrating that the unit is non-functional as a closed pipe.



sympathetic vibration

By holding the **ames tube** so that the fork is free to vibrate and placing the activated **880 Hz fork** at the open end of the tube, the forked end of the tube will sympathize with the **880 Hz fork**. Duplicating the experiment with the **883 Hz fork**, it will be noted that the fork portion of the ames tube will not sympathize even though the half-wave portion will amplify the 883 Hz frequency.



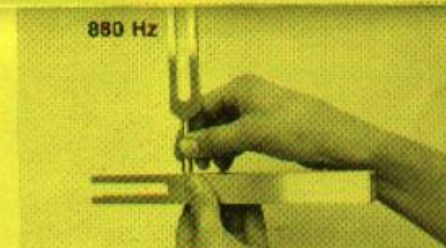
beat phenomena

By striking the **ames tube** and setting it into resonance at 880 Hz, plus striking the **883 Hz fork** and setting it into vibration, then placing the vibrating **883 Hz fork** at the mouth of the **ames tube** the 3 Hz/sec heterodyne can be heard.



mechanical coupling

By striking the **880 Hz fork**, then placing the handle end into mechanical contact with the **ames tube** as shown in the photograph, a *mechanical energy transfer point* is accomplished setting the **ames tube** into vibration.



doppler effect

The **883 Hz fork** is provided with a hole in the handle, through which a cord can be tied. The fork can be struck and then swung in a circle demonstrating to students, *outside the circle*, the doppler effect.

