Activity Guide
for
Ripple Tank
Item No. RPLTNK

1. Applications

The Ripple Tank (Item No. RPLTNK) is designed to demonstrate the generation, propagation, reflection, interference and diffraction of waves. The unit can be used for student labs and classroom demonstrations with an overhead projector.

The Unit comes complete with all necessary accessories for the above experiments. It requires 6V DC power to operate.

2. Identification

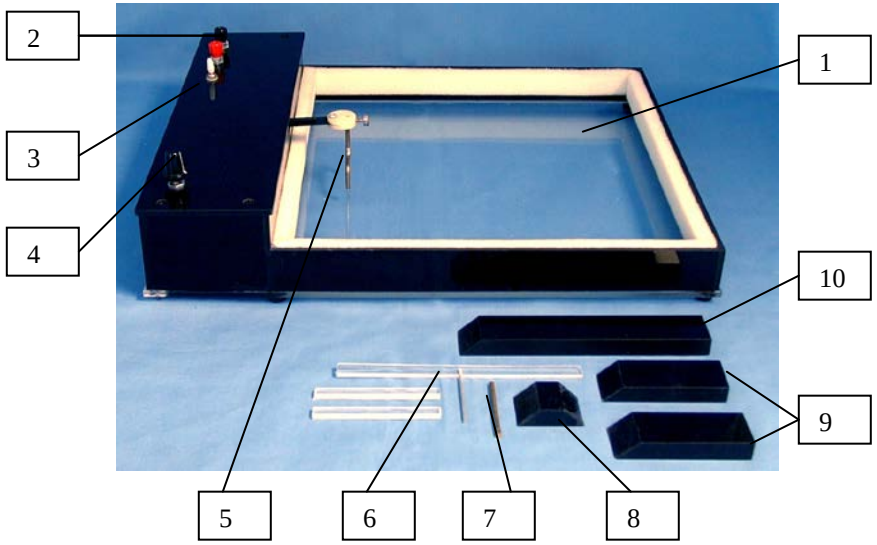

Fig.1

1 Water Tank	2 Terminals	3 Switch	4 Control
5 Dual Pin	6 Plane Wave Bar	7 Single Pin	8 Block
9 Short Bars	10 Long Bar		

3. Specifications

1. Dimensions of Water Tank: 27x27x3cm.
2. Dimensions of Block: 2.5x3.5x1cm.
3. Dimensions of Shor Bars: 7.2x2.5x1cm
4. Dimensions of Long Bar: 14.8x2.5x1cm.
5. Weight: 5.2 lbs.
6. Dimension: 38x31x9cm

4. Theory

A wave is a disturbance from an equilibrium condition that travels or propagates with time from one region of space to another. The distance between two successive points in the same phase (e.g. two successive maxima) is defined as the wavelength λ. The speed of propagation v equals the product of frequency f and wavelength:

$$v = f \lambda$$

Wavefront is the surface over which particles are vibrating in the same phase. In a wave spreads out in all directions from a point source (such as sound wave), the wavefronts are spherical surfaces concentric with the source. At a great distance from the source where the radii of the spheres become very large, the spherical surfaces can be considered planes and we have a plane wave.

Reflection, refraction, interference and diffraction are a few features of waves. When a wave is incident on a boundary surface between two media, it is reflected and the wave travels in the negative direction through the incident medium with the same velocity as it approaches the boundary. The phenomenon in which the velocity of the wave changes when it enters another medium is called refraction.

The superposition of two or more waves originating from a common source, but traversing different paths, results in regions in the transmitting medium at which there is a minimum intensity and in other regions at which there is a maximum intensity. This phenomenon is called interference.

When a wave passes through a slit of large dimension compared with its wavelength, the wave will only cast sharp shadows. However, when the slit is less than the wavelength, the wave will re-radiated from the slit with uniform intensity in all direction. This phenomenon is called diffraction.