

Wave Demonstrator



Wave Machine (Slow Section)



Coupling Two Sections

Purpose: Demonstrates “all” aspects of transverse wave propagation.

Pasco’s “complete wave demonstrator” consists of three sections, each a collection of rods soldered to a wire. The rod ends are painted bright colors, so that torsion waves along the wire show as transverse waves. The wave speed depends on the rods’ lengths. Pasco supplies a fast (short rod) and slow (long rod) track.

Used singly, these tracks can be used to show a variety of wave phenomena: Propagation of pulses, pulse reflection with ends free or clamped, standing waves, etc....

If you couple the fast and slow track (photo), you can demonstrate reflection and transmission of pulses through a discontinuity.

Finally, the third section consists of rods whose lengths change smoothly from fast to slow. By coupling in this section between the fast and slow sections you can demonstrate impedance matching, wherein a pulse is transmitted with no reflection (see photo below).



Illustrating $f\lambda = c$. Standing waves of frequency f are produced on the right (fast track, long λ) which couple through the central 'impedance matching' section to the left section (slow track, short λ).

Note: The sections are stored flat in a drawer for safety. To erect them you fold the base sides together and connect the clasps at both ends. It's easy! Please store them away again carefully, using the cardboard separators.

Extra Equipment: None (you might want to experiment with the stroboscope if you are doing standing waves).

Location: A labeled drawer all of its own, in the table at the rear of the demo room (305).

See the Pasco Wave Motion Demonstrator Manual.