Answer on Question #52809-Physics-Acoustics

When the speed of a source is less than the speed of sound in a medium, the wavefront of the wave is

A) Cylindrical B) Spherical C) Conical D) Plane

Answer

B) Spherical.

When the speed of the source is less than the sound speed of the medium in which it's travelling, the sound wavefronts are spherical.

When the speed of a source is GREATER than the speed of sound in a medium, the wavefront of the wave is

A) Cylindrical B) Spherical C) Conical D) Plane

Answer

C) Conical.

If a body travels with speed equal to or greater than the speed of sound, the body shall form behind it a cone of sonic boom, which was the case that was observed with supersonic flights.

When the speed of a source is EQUAL to the speed of sound in a medium, the wavefront of the wave is

A) Cylindrical B) Spherical C) Conical D) Plane

Answer

C) Conical.

As the speed of the source approaches the sound speed, the spherical wavefronts have a hard time staying ahead of the source itself (that part of the wavefront which travels in the direction of motion). The result is that the envelope of the wavefronts describes a cone, which is called as the Mach Cone.

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