

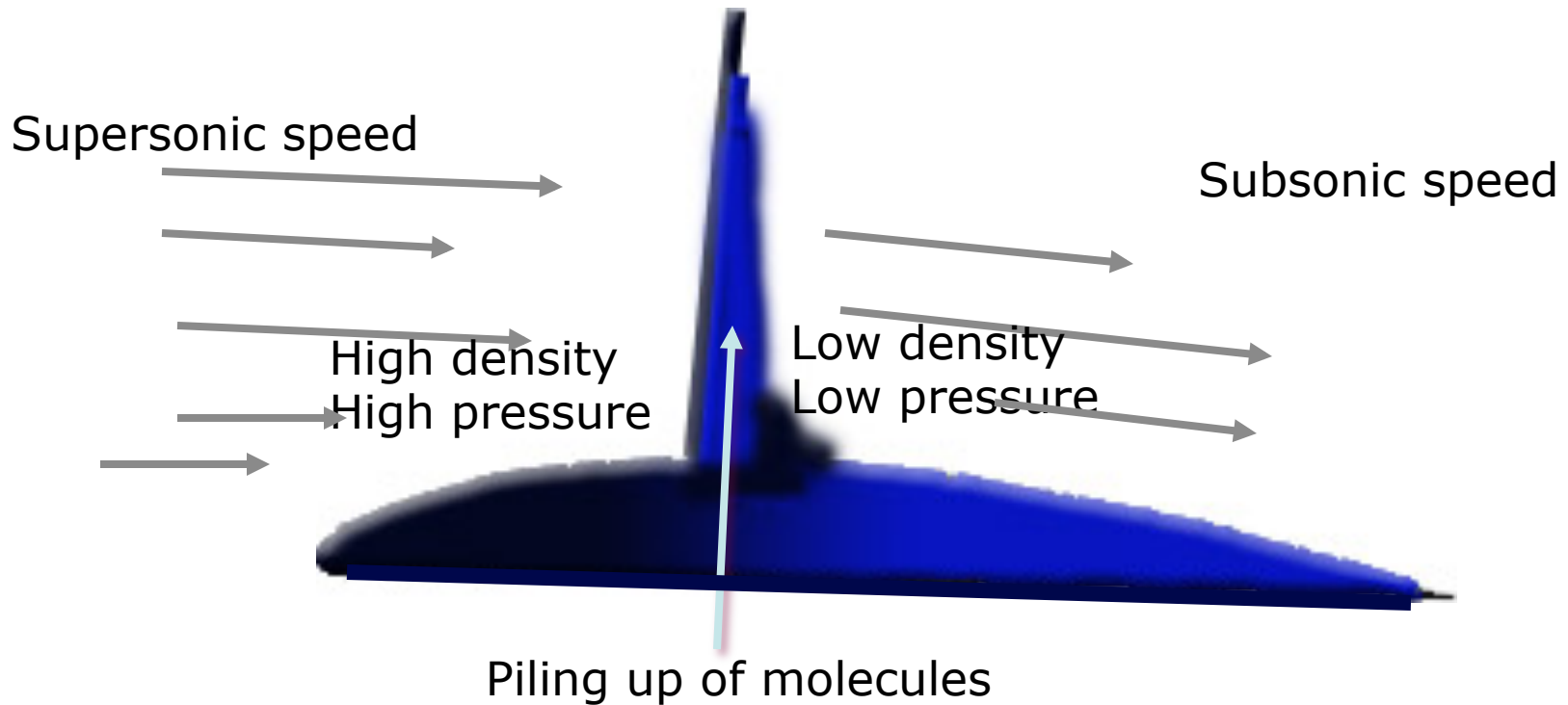
SHOCK WAVE



SHOCK WAVE

- Air is a compressible fluid.
- When speed of the airflow increases over an airfoil and approaching supersonic speed, the air molecules get compressed.
- Compressed air molecules over the airfoil increases the density and pressure instantly at a point (transition point) right angle to the airfoil surface.

SHOCKWAVE



SHOCK WAVE Cont..1

- Also immediately behind the transition point, the pressure drops drastically.
- This sudden decrease in density and pressure creates an instant drag force.
- The sudden increase and decrease in pressure before and after the transition point will generate a high amplitude wave known as shock wave

EFFECTS OF SHOCKWAVE

- Sudden increase in drag due to the breakaway of airflow from the surface.
- Sudden decrease in aircraft speed
- Instant loss of lift
- Center of pressure position changes and affects the pitching movement
- Severe buffeting
- Aircraft may stall which is known as shock stall