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Visualisation of the Two-Phase Gasoline/Air Flow Around Engine Intake Valves using Back-Lit Photography Techniques

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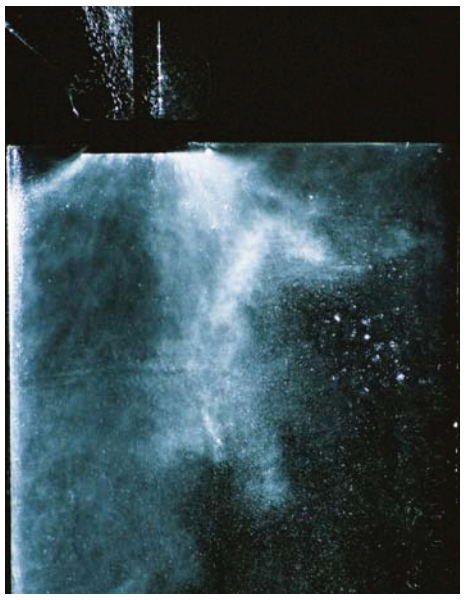
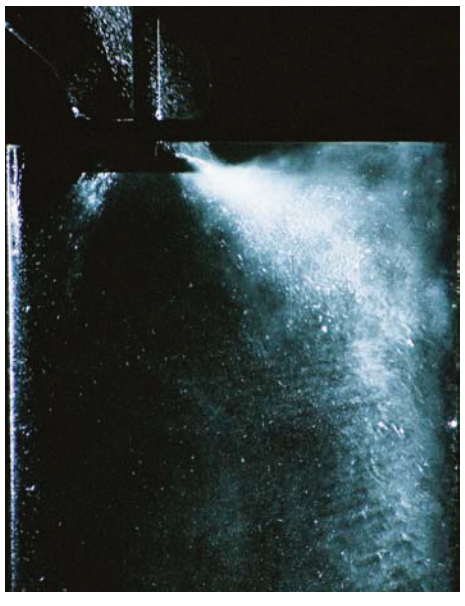


a) L = 1.75 mm

b) L = 3.25 mm

c) L = 4.75 mm



d) L = 6.23 mm

Figures a) - d) show the two-phase flow around an engine intake valve. Injection commences at the camshaft angle of 20° after the valve begins to open and the engine speed is 400rpm. The two-phase flow is drawn through the experimental apparatus by a vacuum pump. The atomisation of the gasoline is more pronounced at low valve lifts due to the faster flow of air through the valve gap. With an increase in valve lift, the flow through the valve gap decreases in magnitude resulting in a reduced amount of gasoline being atomised.