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VEHICLE TECHNOLOGY M4X00394

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Page 7 of 8

- ⑤ (i) Air interacts with a vehicle by applying pressure to its surfaces. This pressure always produces a force that is perpendicular to the surface that it acts on. Bernoulli's equation states that an increase in air velocity leads to a decrease in pressure acting on the surface.

(ii) Total downforce = $1115 + 1485 = 2600 \text{ N}$

$\therefore \text{Lift force} = -2600 \text{ N}$

$$\text{Lift} = C_L \times \frac{1}{2} \rho V^2 \times A$$

$$C_L = \frac{\text{Lift force}}{\frac{1}{2} \rho V^2 \times A}$$

$$C_L = \frac{-2600}{\frac{1}{2} \times 1.223 \times 35^2 \times 1.1}$$

$$\underline{\underline{C_L = -3.16}}$$