

$$V = 340 \text{ m/s}$$

$$V_s = \frac{130 \text{ km}}{\text{hr}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} = 36 \text{ m/s}$$

$$V_o = \frac{90 \text{ km}}{\text{hr}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} = 25 \text{ m/s}$$

$$f_0 = 500 \text{ Hz}$$

$$f = f_0 \cdot \frac{(V + V_o)}{(V - V_s)}$$

$$= 500 \text{ Hz} \cdot \frac{(340 \text{ m/s} + 36 \text{ m/s})}{(340 \text{ m/s} - 25 \text{ m/s})}$$

$$f = 597 \text{ Hz}$$