

70. We orient $+x$ along the direction of motion (so a will be negative-valued, since it is a deceleration), and we use Eq. 2-7 with $a_{\text{avg}} = -3400g = -3400(9.8) = -3.33 \times 10^4 \text{ m/s}^2$ and $v = 0$ (since the recorder finally comes to a stop).

$$a_{\text{avg}} = \frac{v - v_0}{\Delta t} \implies v_0 = \left(3.33 \times 10^4 \text{ m/s}^2 \right) (6.5 \times 10^{-3} \text{ s})$$

which leads to $v_0 = 217 \text{ m/s}$.