

Chapter 15Problem 53

If a car's suspension has $k = 5.00 \times 10^4 \text{ N/m}$,
how much energy must be removed by
The shocks?

$$\Delta x = 0.0750 \text{ m}$$

With this amplitude, The energy in The
oscillation is

$$U = \frac{1}{2} k x^2 = \frac{1}{2} (5.00 \times 10^4 \frac{\text{N}}{\text{m}}) (0.0750 \text{ m})^2$$
$$= \boxed{141 \text{ J}}$$

Once 141 J are damped by The shocks,
The suspension will no longer be oscillating.