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$h_0 = h_1 = -0.010$ in H_2O $\quad V_0 = V_1 = 3.000$ V

$h_2 = 0.500$ in H_2O $\quad V_2 = 3.586$ V

1) $\Delta h = 1.020$ in H_2O ↑ relative units of pressure $\quad \Delta V = 0.586$ V

(or $\Delta h = 2 \cdot (h_2 - h_1)$)

2) $y = mx + b$ $\quad$ y is Voltage, x is pressure (P_a)

3) $m = \frac{\Delta y}{\Delta x} = \frac{\Delta V}{\Delta P} = \frac{0.586\text{ V}}{1.020\text{ in } H_2O} \cdot \left(\frac{249.174\ P_a}{\text{in } H_2O}\right) = \boxed{0.0023 \frac{V}{P_a}}$

↑ unit Conversion from inches H_2O to Pascal with $P = \rho g h$

4) $y = mx + b = V = m\Delta P + b$

when $\Delta P = 0$ (fan is off) $\quad V = m(0) + b = \boxed{3.00\text{ V}}$ (V_1, when fan is off)

from 3 & 4 5) $\boxed{V = 0.0023 \frac{V}{P_a} \cdot \Delta P + 3.00\text{ V}}$

from 5 6) $\Delta P = \frac{V - 3.00\text{ V}}{0.0023 \frac{V}{P_a}} = \boxed{\frac{V - 3.00}{0.0023} P_a}$