$T_{tank} := 100K$ $p_{tank} := 6bar$ $\rho_{tank} := 3\frac{kg}{m^3}$ $R_{H2} := 4124\frac{J}{kg \cdot K}$ $\kappa := 1.410$

$T_1 := 200K$ $p_1 := 1 \cdot 10^6 Pa$ $\rho_1 := 5\frac{kg}{m^3}$ $Ma_1 := 0.6$

Given

$$T_1 = \frac{T_{tank}}{1 + \frac{\kappa - 1}{2} \cdot Ma_1} \qquad p_1 = \frac{p_{tank}}{\left(1 + \frac{\kappa - 1}{2} \cdot Ma_1^2\right)^{\frac{\kappa}{\kappa - 1}}}$$

$$\rho_1 = \frac{\rho_{tank}}{\left(1 + \frac{\kappa - 1}{2} \cdot Ma_1^2\right)^{\frac{\kappa}{\kappa - 1}}} \qquad p_1 = \rho_1 \cdot R_{H2} \cdot T_1$$

$$\begin{pmatrix} T_1 \\ p_1 \\ \rho_1 \\ Ma_1 \end{pmatrix} := \text{Find}\left(T_1, p_1, \rho_1, Ma_1\right)$$

$T_1 = 48.497K$ $p_1 = 9.597 \times 10^{-3} bar$ $\rho_1 = 4.799 \times 10^{-3}\frac{kg}{m^3}$ $Ma_1 = 5.18$