$$\frac{\partial \rho}{\partial t} = -\nabla \cdot \rho \vec{v},$$

$$\begin{aligned} \frac{\partial \rho \vec{v}}{\partial t} = & - \nabla \cdot (\rho \vec{v}\vec{v} + \underline{I}P) \\ & - \nabla \cdot \left(\underline{I}\frac{B^2}{8\pi} - \frac{\vec{B}\vec{B}}{4\pi} \right), \end{aligned}$$

$$\begin{aligned} \frac{\partial E_P}{\partial t} = & - \nabla \cdot \left(\vec{v}\left(\rho v^2/2 + \frac{\gamma}{\gamma - 1} P \right) \right) \\ & - \vec{v} \cdot \nabla \cdot \left(\underline{I}\frac{B^2}{8\pi} - \frac{\vec{B}\vec{B}}{4\pi} \right), \end{aligned}$$

$$\frac{\partial \vec{B}}{\partial t} = \nabla \times (\vec{v} \times \vec{B}),$$

where $E_P = \rho v^2/2 + \dfrac{P}{\gamma - 1}$.