$$m = 530 \text{ kg}$$
$$h = R_T$$
$$V_P = 1{,}25 \sqrt{\frac{GM}{2R_T}}$$

$\triangleright$ $\quad L_P = m \cdot V_P \cdot 2R_T \cdot \sin 90$

$\quad\quad E_P = \frac{1}{2} m V_P^2 - G \frac{mM}{2R_T}$

$\triangleright$ $\quad \frac{1}{2} m V_P^2 - G \frac{mM}{2R_T} = - \frac{GmM_T}{2\alpha}$

$\quad\quad m V_P^2 - \cancel{2} G \frac{\cancel{m} M_T}{\cancel{2} R_T} = - \frac{G \cancel{m} M_T}{\alpha}$

$\quad\quad V_P^2 - G \frac{M_T}{R_T} = - \frac{GM_T}{\alpha}$

$\quad\quad \alpha \left(V_P^2 - G \frac{M_T}{R_T} \right) = - GM_T$

$$\alpha = \frac{-GM_T}{V_P^2 - G \frac{M_T}{R_T}} = \frac{-GM_T}{\frac{25}{16} \frac{GM_i}{2R_T} - G \frac{M_T}{R_T}}$$

$$= - \frac{1}{\frac{25}{32R_T} - \frac{1}{R_T}} = - \frac{1}{\frac{25 - 32}{32R_T}} = - \frac{1}{-\frac{7}{32R_T}}$$

$$= -\frac{32 R_T}{-7} = \frac{32}{7} R_T$$