

$$\sigma_z = \frac{\sigma_0}{3\sqrt{\alpha_1}} (2a_1 - 3a_2) \operatorname{Ln} \left\{ \frac{2\alpha_1 r^2 + \beta_1 + 2\sqrt{\alpha_1} [\alpha_1 r^4 + \beta_1 r^2 + \gamma_1]^{1/2}}{2\alpha_1 R^2 + \beta_1 + 2\sqrt{\alpha_1} [\alpha_1 R^4 + \beta_1 R^2 + \gamma_1]^{1/2}} \right\}$$

$$+ \frac{\sigma_0 z (3a_2 - 4a_1)}{3(\beta_1^2 - 4\alpha_1 \gamma_1)} \left\{ \frac{(\beta_1 \beta_1' - 2\alpha_1 \gamma_1') r^2 - (\beta_1 \gamma_1' - 2\gamma_1 \beta_1')}{[\alpha_1 r^4 + \beta_1 r^2 + \gamma_1]^{1/2}} \right. \quad (40)$$

$$\left. - \frac{(\beta_1 \beta_1' - 2\alpha_1 \gamma_1') R^2 - (\beta_1 \gamma_1' - 2\gamma_1 \beta_1')}{[\alpha_1 R^4 + \beta_1 R^2 + \gamma_1]^{1/2}} \right\} - \frac{2\sigma_0}{3} \left\{ \frac{7a_1 r^2 + 9a_2 z^2 + 3a_3}{[\alpha_1 r^4 + \beta_1 r^2 + \gamma_1]^{1/2}} \right\}$$

$$- \frac{2}{3} a_1 b (6r^2 + R^2) - a_2 b (r^2 - R^2) - 6a_2 b z^2 - 2a_3 b - P_1$$