Appendix B

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\begin{aligned}
\alpha_1 =& \frac{3}{4} b_3[(2-\kappa^2)A_X^2 - A_Z^2], \\
\gamma_1 =& \frac{3}{4} b_3 A_X^2 (2+\kappa^2), \\
\gamma_2 =& \frac{3}{4} b_3 A_Z^2, \\
\beta_1 =& \frac{3}{2} b_3 \kappa A_X^2, \\
\delta_1 =& \frac{3}{2} b_3 A_X A_Z, \\
\rho_{20} =& -\frac{\alpha_1}{\alpha + 2b_2}, \\
\rho_{21} =& \frac{4\lambda\beta_1 - \gamma_1(4\lambda^2 + \alpha - b_2)}{(4\lambda^2+\alpha)^2 + 4\lambda^2(b_2-4) + b_2(\alpha - 2b_2)}, \\
\rho_{22} =& \frac{-\gamma_2(4\lambda^2 + \alpha - b_2)}{(4\lambda^2+\alpha)^2 + 4\lambda^2(b_2-4) + b_2(\alpha - 2b_2)}, \\
\sigma_{21} =& \frac{4\lambda\gamma_1 - \beta_1(4\lambda^2 + \alpha + 2b_2)}{(4\lambda^2+\alpha)^2 + 4\lambda^2(b_2-4) + b_2(\alpha - 2b_2)}, \\
\sigma_{22} =& \frac{4\lambda\gamma_2}{(4\lambda^2+\alpha)^2 + 4\lambda^2(b_2-4) + b_2(\alpha - 2b_2)}, \\
\kappa_{21} =& -\frac{\delta_1}{3\lambda^2}, \\
\kappa_{22} =& \frac{\delta_1}{\lambda^2}, \\
\nu_1 =& -\frac{3}{2} b_3[A_X(2(2\rho_{20} + \rho_{21}) + \kappa\sigma_{21}) + A_Z(\kappa_{21} + \kappa_{22})] \\
& + 2b_4\left(-\frac{3}{4}A_X^3(2-\kappa^2) + \frac{3}{2}A_X A_Z^2\right),
\end{aligned}
$$

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\begin{aligned}
\gamma_3 =&\frac{3}{2}b_3A_X(\kappa\sigma_{21}-2\rho_{21})-\frac{1}{2}b_4A_X^3(2+3\kappa^2),\\
\gamma_4 =&\frac{3}{2}b_3(\kappa A_X\sigma_{22}-2A_X\rho_{22}+A_Z\kappa_{21})-\frac{3}{2}b_4A_XA_Z^2,\\
\gamma_5 =&\frac{3}{2}b_3(A_Z\kappa_{22}-2A_X\rho_{22}-\kappa A_X\sigma_{22})-\frac{3}{2}b_4A_XA_Z^2,\\
\nu_2 =&\frac{3}{2}b_3A_X(\sigma_{21}+\kappa(\rho_{21}-2\rho_{20}))-\frac{3}{8}b_4(\kappa A_X^3(4-3\kappa^2)-2\kappa A_XA_Z^2),\\
\beta_2 =&\frac{3}{2}b_3A_X(\sigma_{21}-\kappa\rho_{21})-\frac{3}{2}b_4\kappa A_X^3\left(1+\frac{1}{4}\kappa^2\right),\\
\beta_3 =&\frac{3}{2}b_3A_X(\sigma_{22}-\kappa\rho_{22})-\frac{3}{8}b_4\kappa A_XA_Z^2,\\
\beta_4 =&\frac{3}{2}b_3A_X(\sigma_{22}+\kappa\rho_{22})+\frac{3}{8}b_4\kappa A_XA_Z^2,\\
\nu_3 =&\frac{3}{2}b_3(A_X(\kappa_{21}+\kappa_{22})-A_Z(2\rho_{20}-\rho_{22}))-\frac{3}{2}b_4\left(2A_X^2A_Z-\frac{1}{2}\kappa^2A_X^2A_Z-\frac{3}{4}A_Z^3\right),\\
\delta_2 =&-\frac{3}{2}b_3A_Z\rho_{22}-\frac{3}{8}A_Z^3b_4,\\
\delta_3 =&\frac{3}{2}b_3(\kappa_{21}A_X-\rho_{21}A_Z)-\frac{3}{2}b_4A_X^2A_Z\left(1+\frac{1}{4}\kappa^2\right),\\
\delta_4 =&-\frac{3}{2}b_3(\kappa_{22}A_X-\rho_{21}A_Z)+\frac{3}{2}b_4A_X^2A_Z\left(1+\frac{1}{4}\kappa^2\right),\\
u_1 =&-\frac{3}{2}b_3\Bigg\{\frac{3b_3(\kappa^2-2)}{\alpha+2b_2}+\frac{12\lambda\kappa b_3-\frac{3}{2}b_3(\kappa^2+2)(4\lambda^2+\alpha-b_2)}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}\\
&+\frac{3\lambda\kappa b_3(2+\kappa^2)-\frac{3}{2}b_3\kappa^2(4\lambda^2+\alpha+2b_2)}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}\Bigg\}+\frac{3}{2}b_4(\kappa^2-2),\\
u_2 =&-\frac{3}{2}\kappa b_3\Bigg\{\frac{3\lambda b_3(2+\kappa^2)-\frac{3}{2}\kappa b_3(4\lambda^2+\alpha+2b_2)}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}\\
&+\frac{6\lambda\kappa^2b_3-\frac{3}{4}b_3\kappa(2+\kappa^2)(4\lambda^2+\alpha-b_2)}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}+\frac{\frac{3}{2}b_3(2-\kappa^2)\kappa}{\alpha+2b_2}\Bigg\}+\frac{3}{8}\kappa^2b_4(4-3\kappa^2),\\
u_3 =&-\frac{3}{2}b_3\left(\frac{3b_3}{\alpha+2b_2}+\frac{b_3}{\lambda^2}\right)+3b_4,\\
u_4 =&\frac{3}{2}b_3\left(\frac{\frac{3}{2}b_3\kappa^2}{\alpha+2b_2}-\frac{3}{4}\kappa^2b_4\right),\\
u_5 =&\frac{3}{2}b_3\Bigg(-\frac{3b_3}{2\lambda^2}-\frac{\frac{3}{2}b_3(4\lambda^2+\alpha-b_2)}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}\\
&+\frac{3\kappa\lambda b_3}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}\Bigg)+\frac{3}{2}b_4,\\
u_6 =&\frac{3}{2}\kappa b_3\left(\frac{3\lambda b_3-\frac{3}{4}\kappa b_3(4\lambda^2+\alpha-b_2)}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}\right)+\frac{3}{8}\kappa^2b_4,
\end{aligned}
$$

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\begin{aligned}
s_1 &= \frac{1}{2\lambda(\lambda(\kappa^2+1)-2\kappa)}(u_1+u_2),\\
s_2 &= \frac{1}{2\lambda(\lambda(\kappa^2+1)-2\kappa)}(u_3+u_4+u_5+u_6),\\
u_7 &= \frac{3}{2}b_3\left(\frac{b_3}{\lambda^2}+\frac{\frac{3}{2}b_3(2-\kappa^2)}{\alpha+2b_2}\right)-\frac{3}{2}b_4\left(2-\frac{1}{2}\kappa^2\right),\\
u_8 &= -\frac{3}{2}b_3\left(\frac{3}{2\lambda^2}b_3+\frac{-6\lambda\kappa b_3+\frac{3}{4}b_3(2+\kappa^2)(4\lambda^2+\alpha-b_2)}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}\right)+\frac{3}{2}b_4\left(1+\frac{1}{4}\kappa^2\right),\\
u_9 &= -\frac{3}{2}b_3\left(\frac{\frac{3}{2}b_3}{\alpha+2b_2}+\frac{\frac{3}{4}b_3(4\lambda^2+\alpha-b_2)}{(4\lambda^2+\alpha)^2+4\lambda^2(b_2-4)+b_2(\alpha-2b_2)}\right)+\frac{9}{8}b_4,\\
l_1 &= 2\lambda^2 s_1+u_7-u_8,\\
l_2 &= 2\lambda^2 s_2+u_9,\\
\rho_{31} &= \frac{6\lambda(\beta_2-\beta_3)+(b_2-\alpha-9\lambda^2)(\gamma_3-\gamma_4)}{(9\lambda^2+\alpha)^2+9\lambda^2(b_2-4)+b_2(\alpha-2b_2)},\\
\sigma_{31} &= \frac{6\lambda(\gamma_3-\gamma_4)-(9\lambda^2+\alpha+2b_2)(\beta_2-\beta_3)}{(9\lambda^2+\alpha)^2+9\lambda^2(b_2-4)+b_2(\alpha-2b_2)},\\
\sigma_{32} &= -\frac{\kappa\beta_5}{2\lambda},\\
\kappa_{31} &= \frac{\delta_2-\delta_3}{8\lambda^2}.
\end{aligned}
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