

$\Gamma_{00}^0$	$1/2(2g^{0m}\dot{g}_{m0} - g^{00}\dot{g}_{00} - g^{01}g'_{00})$
$\Gamma_{01}^0$	$1/2(g^{0m}g'_{m0} + g^{0m}\dot{g}_{m1} - g^{00}\dot{g}_{01} - g^{01}g'_{01})$
$\Gamma_{02}^0$	$1/2(g^{0m}\dot{g}_{m2} - g^{00}\dot{g}_{02} - g^{01}g'_{02})$
$\Gamma_{03}^0$	$1/2(g^{0m}\dot{g}_{m3} - g^{00}\dot{g}_{03} - g^{01}g'_{03})$
$\Gamma_{11}^0$	$1/2(2g^{0m}g'_{m1} - g^{00}\dot{g}_{11} - g^{01}g'_{11})$
$\Gamma_{12}^0$	$1/2(g^{0m}g'_{m2} - g^{00}\dot{g}_{12} - g^{01}g'_{12})$
$\Gamma_{13}^0$	$1/2(g^{0m}g'_{m3} - g^{00}\dot{g}_{13} - g^{01}g'_{13})$
$\Gamma_{22}^0$	$1/2(-g^{00}\dot{g}_{22} - g^{01}g'_{22})$
$\Gamma_{23}^0$	$1/2(-g^{00}\dot{g}_{23} - g^{01}g'_{23})$
$\Gamma_{33}^0$	$1/2(-g^{00}\dot{g}_{33} - g^{01}g'_{33})$
$\Gamma_{00}^1$	$1/2(2g^{1m}\dot{g}_{m0} - g^{10}\dot{g}_{00} - g^{11}g'_{00})$
$\Gamma_{01}^1$	$1/2(g^{1m}g'_{m0} + g^{1m}\dot{g}_{m1} - g^{10}\dot{g}_{01} - g^{11}g'_{01})$
$\Gamma_{02}^1$	$1/2(g^{1m}\dot{g}_{m2} - g^{10}\dot{g}_{02} - g^{11}g'_{02})$
$\Gamma_{03}^1$	$1/2(g^{1m}\dot{g}_{m3} - g^{10}\dot{g}_{03} - g^{11}g'_{03})$
$\Gamma_{11}^1$	$1/2(2g^{1m}g'_{m1} - g^{10}\dot{g}_{11} - g^{11}g'_{11})$
$\Gamma_{12}^1$	$1/2(g^{1m}g'_{m2} - g^{10}\dot{g}_{12} - g^{11}g'_{12})$
$\Gamma_{13}^1$	$1/2(g^{1m}g'_{m3} - g^{10}\dot{g}_{13} - g^{11}g'_{13})$
$\Gamma_{22}^1$	$1/2(-g^{10}\dot{g}_{22} - g^{11}g'_{22})$
$\Gamma_{23}^1$	$1/2(-g^{10}\dot{g}_{23} - g^{11}g'_{23})$
$\Gamma_{33}^1$	$1/2(-g^{10}\dot{g}_{33} - g^{11}g'_{33})$
$\Gamma_{00}^2$	$1/2(2g^{2m}\dot{g}_{m0} - g^{20}\dot{g}_{00} - g^{21}g'_{00})$
$\Gamma_{01}^2$	$1/2(g^{2m}g'_{m0} + g^{2m}\dot{g}_{m1} - g^{20}\dot{g}_{01} - g^{21}g'_{01})$
$\Gamma_{02}^2$	$1/2(g^{2m}\dot{g}_{m2} - g^{20}\dot{g}_{02} - g^{21}g'_{02})$
$\Gamma_{03}^2$	$1/2(g^{2m}\dot{g}_{m3} - g^{20}\dot{g}_{03} - g^{21}g'_{03})$
$\Gamma_{11}^2$	$1/2(2g^{2m}g'_{m1} - g^{20}\dot{g}_{11} - g^{21}g'_{11})$
$\Gamma_{12}^2$	$1/2(g^{2m}g'_{m2} - g^{20}\dot{g}_{12} - g^{21}g'_{12})$
$\Gamma_{13}^2$	$1/2(g^{2m}g'_{m3} - g^{20}\dot{g}_{13} - g^{21}g'_{13})$
$\Gamma_{22}^2$	$1/2(-g^{20}\dot{g}_{22} - g^{21}g'_{22})$
$\Gamma_{23}^2$	$1/2(-g^{20}\dot{g}_{23} - g^{21}g'_{23})$
$\Gamma_{33}^2$	$1/2(-g^{20}\dot{g}_{33} - g^{21}g'_{33})$
$\Gamma_{00}^3$	$1/2(2g^{3m}\dot{g}_{m0} - g^{30}\dot{g}_{00} - g^{31}g'_{00})$
$\Gamma_{01}^3$	$1/2(g^{3m}g'_{m0} + g^{3m}\dot{g}_{m1} - g^{30}\dot{g}_{01} - g^{31}g'_{01})$
$\Gamma_{02}^3$	$1/2(g^{3m}\dot{g}_{m2} - g^{30}\dot{g}_{02} - g^{31}g'_{02})$
$\Gamma_{03}^3$	$1/2(g^{3m}\dot{g}_{m3} - g^{30}\dot{g}_{03} - g^{31}g'_{03})$
$\Gamma_{11}^3$	$1/2(2g^{3m}g'_{m1} - g^{30}\dot{g}_{11} - g^{31}g'_{11})$
$\Gamma_{12}^3$	$1/2(g^{3m}g'_{m2} - g^{30}\dot{g}_{12} - g^{31}g'_{12})$
$\Gamma_{13}^3$	$1/2(g^{3m}g'_{m3} - g^{30}\dot{g}_{13} - g^{31}g'_{13})$
$\Gamma_{22}^3$	$1/2(-g^{30}\dot{g}_{22} - g^{31}g'_{22})$
$\Gamma_{23}^3$	$1/2(-g^{30}\dot{g}_{23} - g^{31}g'_{23})$
$\Gamma_{33}^3$	$1/2(-g^{30}\dot{g}_{33} - g^{31}g'_{33})$

$\Gamma_{00}^0$	$\left(\frac{1}{2}\gamma\dot{\alpha} - \beta\dot{\beta} + \frac{1}{2}\beta\alpha'\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{01}^0$	$\left(\frac{1}{2}\gamma\alpha' - \frac{1}{2}\beta\dot{\gamma}\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{11}^0$	$\left(\gamma\beta' - \frac{1}{2}\gamma\dot{\gamma} - \frac{1}{2}\beta\gamma'\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{22}^0$	$\left(-\frac{1}{2}\gamma\dot{\omega} + \frac{1}{2}\beta\omega'\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{33}^0$	$\left(-\frac{1}{2}\gamma\dot{\omega} + \frac{1}{2}\beta\omega'\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{00}^1$	$\left(\alpha\dot{\beta} - \frac{1}{2}\alpha\alpha' - \frac{1}{2}\beta\dot{\alpha}\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{01}^1$	$\left(-\frac{1}{2}\beta\alpha' + \frac{1}{2}\alpha\dot{\gamma}\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{11}^1$	$\left(-\beta\beta' - \frac{1}{2}\alpha\gamma' + \frac{1}{2}\beta\dot{\gamma}\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{22}^1$	$\left(\frac{1}{2}\beta\dot{\omega} - \frac{1}{2}\alpha\omega'\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{33}^1$	$\left(\frac{1}{2}\beta\dot{\omega} - \frac{1}{2}\alpha\omega'\right) / (\alpha\gamma - \beta^2)$
$\Gamma_{02}^2$	$\frac{1}{2} \frac{\dot{\omega}}{\omega}$
$\Gamma_{12}^2$	$\frac{1}{2} \frac{\omega'}{\omega}$
$\Gamma_{03}^3$	$\frac{1}{2} \frac{\dot{\omega}}{\omega}$
$\Gamma_{13}^3$	$\frac{1}{2} \frac{\omega'}{\omega}$

$$\Delta = \alpha\gamma - \beta^2$$

$$R_{00} = \frac{d\Gamma_{00}^1}{dx} - \frac{d\Gamma_{01}^1}{dt} - 2 \frac{\Gamma_{02}^2}{dx} + \Gamma_{01}^1 \Gamma_{00}^0 + 2\Gamma_{02}^2 \Gamma_{00}^0 + \Gamma_{11}^1 \Gamma_{00}^1 + 2\Gamma_{12}^2 \Gamma_{00}^1 - \Gamma_{01}^0 \Gamma_{00}^1 - 2\Gamma_{02}^2 \Gamma_{02}^2$$

$$R_{01} = \frac{d\Gamma_{01}^0}{dt} - \frac{d\Gamma_{00}^0}{dx} - 2 \frac{\Gamma_{02}^2}{dx} + 2\Gamma_{02}^2 \Gamma_{01}^0 + \Gamma_{01}^0 \Gamma_{01}^1 + 2\Gamma_{12}^2 \Gamma_{01}^1 - \Gamma_{11}^0 \Gamma_{00}^1 - 2\Gamma_{12}^2 \Gamma_{02}^2$$

$$R_{11} = \frac{d\Gamma_{11}^0}{dt} - \frac{d\Gamma_{01}^0}{dx} - 2 \frac{\Gamma_{12}^2}{dx} + \Gamma_{00}^0 \Gamma_{11}^0 + 2\Gamma_{02}^2 \Gamma_{11}^0 + \Gamma_{01}^0 \Gamma_{11}^1 + 2\Gamma_{12}^2 \Gamma_{11}^1 - \Gamma_{01}^1 \Gamma_{01}^1 - \Gamma_{11}^0 \Gamma_{01}^0 - 2\Gamma_{12}^2 \Gamma_{12}^2$$

$$R_{22} = R_{33} = \frac{d\Gamma_{22}^0}{dt} - 2 \frac{\Gamma_{22}^1}{dx} + \Gamma_{00}^0 \Gamma_{22}^0 + \Gamma_{01}^1 \Gamma_{22}^0 + \Gamma_{01}^0 \Gamma_{22}^1 + \Gamma_{11}^1 \Gamma_{22}^1$$

Ненулевые компоненты тензора Риччи в случае равенства нулю производных по  $x^0$  (одномерный стационарный случай).

$$R_{00} = \frac{1}{2} \left( \frac{1}{\Delta} \right)^2 \left\{ \alpha \alpha' \left[ \beta \beta' + \frac{1}{2} \alpha \gamma' - \frac{1}{2} \gamma \alpha' - \frac{\omega'}{\omega} \right] \right\} - \frac{1}{2} \left( \frac{1}{\Delta} \right)^2 (\beta \alpha')^2 - \frac{1}{2} \left\{ \frac{1}{\Delta} \alpha \alpha' \right\}'$$

$$R_{01} = \frac{1}{2} \left( \frac{1}{\Delta} \right)^2 \left\{ \alpha \alpha' \left[ \gamma \beta' - \frac{1}{2} \beta \gamma' \right] \right\} - \frac{1}{2} \left( \frac{1}{\Delta} \right)^2 \left\{ \beta \alpha' \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{\Delta} \frac{\omega'}{\omega} \right] \right\} - \frac{1}{2} \left\{ \frac{1}{\Delta} \beta \alpha' \right\}'$$

$$R_{11} = \left( \frac{1}{\Delta} \right)^2 \left\{ \beta \alpha' \left[ \gamma \beta' - \frac{1}{2} \beta \gamma' \right] \right\} - \frac{1}{\Delta} \left\{ \frac{\omega'}{\omega} \right\} \left\{ \beta \beta' + \frac{1}{2} \alpha \gamma' \right\} - \\ - \frac{1}{2} \left\{ \frac{\omega'}{\omega} \right\} \left\{ \frac{\omega'}{\omega} \right\} - \frac{1}{2} \left( \frac{1}{\Delta} \right)^2 \left\{ \gamma \alpha' \left[ \frac{1}{2} \gamma \alpha' + \beta \beta' + \frac{1}{2} \alpha \gamma' \right] \right\} - \left\{ \frac{\omega'}{\omega} \right\}' - \frac{1}{2} \left\{ \frac{1}{\Delta} \gamma \alpha' \right\}'$$

$$R_{22} = R_{33} = \frac{1}{2} \left( \frac{1}{\Delta} \right)^2 \left\{ \alpha \omega' \left[ \beta \beta' - \frac{1}{2} \gamma \alpha' + \frac{1}{2} \alpha \gamma' \right] \right\} - \frac{1}{2} \left\{ \frac{1}{\Delta} \alpha \omega' \right\}'$$









$$R_{22} = R_{33} =$$

$$\begin{aligned} & \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\}^* + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\}' + \\ & + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \dot{\alpha} - \beta \dot{\beta} + \frac{1}{2} \beta \alpha' \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\} + \\ & + \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\} + \\ & + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\} + \\ & + \left\{ \frac{1}{\Delta} \left[ -\beta \dot{\beta}' - \frac{1}{2} \alpha \gamma' + \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\} \end{aligned}$$

$$R_2^2 = R_3^3 =$$

$$\begin{aligned} & \omega \left( \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\}^* + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\}' + \right. \\ & + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \dot{\alpha} - \beta \dot{\beta} + \frac{1}{2} \beta \alpha' \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\} + \\ & + \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\} + \\ & + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\} + \\ & \left. + \left\{ \frac{1}{\Delta} \left[ -\beta \dot{\beta}' - \frac{1}{2} \alpha \gamma' + \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\} \right) \end{aligned}$$





$$\begin{aligned}
& + \gamma \left( \left\{ \frac{1}{\Delta} \left[ \gamma \dot{\beta}' - \frac{1}{2} \gamma \dot{\gamma}' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\}^* - \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\}' - \left\{ \frac{\omega'}{\omega} \right\}' + \right. \\
& + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \dot{\alpha}' - \beta \dot{\beta}' + \frac{1}{2} \beta \alpha' \right] \right\} \left\{ \frac{1}{\Delta} \left[ \gamma \dot{\beta}' - \frac{1}{2} \gamma \dot{\gamma}' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\} + \\
& + \left\{ \frac{\dot{\omega}}{\omega} \right\} \left\{ \frac{1}{\Delta} \left[ \gamma \dot{\beta}' - \frac{1}{2} \gamma \dot{\gamma}' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\} + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\beta \dot{\beta}' - \frac{1}{2} \alpha \dot{\gamma}' + \frac{1}{2} \beta \dot{\gamma}' \right] \right\} + \\
& + \left\{ \frac{\omega'}{\omega} \right\} \left\{ \frac{1}{\Delta} \left[ -\beta \dot{\beta}' - \frac{1}{2} \alpha \dot{\gamma}' + \frac{1}{2} \beta \dot{\gamma}' \right] \right\} - \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\} - \\
& - \left. \left\{ \frac{1}{\Delta} \left[ \gamma \dot{\beta}' - \frac{1}{2} \gamma \dot{\gamma}' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma}' \right] \right\} - \frac{1}{2} \left\{ \frac{\omega'}{\omega} \right\} \left\{ \frac{\omega'}{\omega} \right\} \right) + \\
& + 2\omega \left( \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega}' + \frac{1}{2} \beta \omega' \right] \right\}^* + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega}' - \frac{1}{2} \alpha \omega' \right] \right\}' + \right. \\
& + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \dot{\alpha}' - \beta \dot{\beta}' + \frac{1}{2} \beta \alpha' \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega}' + \frac{1}{2} \beta \omega' \right] \right\} + \\
& + \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma}' \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega}' + \frac{1}{2} \beta \omega' \right] \right\} + \\
& + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma}' \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega}' - \frac{1}{2} \alpha \omega' \right] \right\} + \\
& + \left. \left\{ \frac{1}{\Delta} \left[ -\beta \dot{\beta}' - \frac{1}{2} \alpha \dot{\gamma}' + \frac{1}{2} \beta \dot{\gamma}' \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega}' - \frac{1}{2} \alpha \omega' \right] \right\} \right)
\end{aligned}$$



$$\begin{aligned}
& + \beta \left( \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\}^* - \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \dot{\alpha} - \beta \dot{\beta} + \frac{1}{2} \beta \alpha' \right] \right\}' - \left\{ \frac{\dot{\omega}}{\omega} \right\}' + \right. \\
& + \left\{ \frac{\dot{\omega}}{\omega} \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma} \right] \right\} + \\
& + \left\{ \frac{\omega'}{\omega} \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma} \right] \right\} - \\
& - \left. \left\{ \frac{1}{\Delta} \left[ \gamma \beta' - \frac{1}{2} \gamma \dot{\gamma} - \frac{1}{2} \beta \gamma' \right] \right\} \left\{ \frac{1}{\Delta} \left[ \alpha \dot{\beta} - \frac{1}{2} \alpha \alpha' - \frac{1}{2} \beta \dot{\alpha} \right] \right\} - \frac{1}{2} \left\{ \frac{\omega'}{\omega} \right\} \left\{ \frac{\dot{\omega}}{\omega} \right\} \right) + \\
& + \gamma \left( \left\{ \frac{1}{\Delta} \left[ \gamma \beta' - \frac{1}{2} \gamma \dot{\gamma} - \frac{1}{2} \beta \gamma' \right] \right\}^* - \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\}' - \left\{ \frac{\omega'}{\omega} \right\}' + \right. \\
& + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \dot{\alpha} - \beta \dot{\beta} + \frac{1}{2} \beta \alpha' \right] \right\} \left\{ \frac{1}{\Delta} \left[ \gamma \beta' - \frac{1}{2} \gamma \dot{\gamma} - \frac{1}{2} \beta \gamma' \right] \right\} + \\
& + \left\{ \frac{\dot{\omega}}{\omega} \right\} \left\{ \frac{1}{\Delta} \left[ \gamma \beta' - \frac{1}{2} \gamma \dot{\gamma} - \frac{1}{2} \beta \gamma' \right] \right\} + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\beta \beta' - \frac{1}{2} \alpha \gamma' + \frac{1}{2} \beta \dot{\gamma} \right] \right\} + \\
& + \left\{ \frac{\omega'}{\omega} \right\} \left\{ \frac{1}{\Delta} \left[ -\beta \beta' - \frac{1}{2} \alpha \gamma' + \frac{1}{2} \beta \dot{\gamma} \right] \right\} - \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} - \\
& - \left. \left\{ \frac{1}{\Delta} \left[ \gamma \beta' - \frac{1}{2} \gamma \dot{\gamma} - \frac{1}{2} \beta \gamma' \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma} \right] \right\} - \frac{1}{2} \left\{ \frac{\omega'}{\omega} \right\} \left\{ \frac{\omega'}{\omega} \right\} \right) + \\
& + 2\omega \left( \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\}^* + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\}' + \right. \\
& + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \dot{\alpha} - \beta \dot{\beta} + \frac{1}{2} \beta \alpha' \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\} + \\
& + \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\} + \\
& + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\} + \\
& + \left. \left\{ \frac{1}{\Delta} \left[ -\beta \beta' - \frac{1}{2} \alpha \gamma' + \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\} \right) \Bigg]
\end{aligned}$$





$$\begin{aligned}
& + \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \beta \alpha' + \frac{1}{2} \alpha \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ -\frac{1}{2} \gamma \dot{\omega} + \frac{1}{2} \beta \omega' \right] \right\} + \\
& + \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \gamma \alpha' - \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\} + \\
& + \left. \left\{ \frac{1}{\Delta} \left[ -\beta \beta' - \frac{1}{2} \alpha \gamma' + \frac{1}{2} \beta \dot{\gamma} \right] \right\} \left\{ \frac{1}{\Delta} \left[ \frac{1}{2} \beta \dot{\omega} - \frac{1}{2} \alpha \omega' \right] \right\} \right) \Big]
\end{aligned}$$



