$$
\begin{aligned}
&\Bigg[-4\dot{\tilde\alpha}_C^3 H^2\left(\dot{\tilde\alpha}_K + (-\tilde\alpha_A - 2\tilde\alpha_C + \tilde\alpha_K + \tilde\alpha_K\tilde\alpha_M)H\right)M_V^{2\,2} + \tilde\alpha_A\Bigg(4(1+\tilde\alpha_C)\dot H^3 M_V^{2\,2} - 2\dot H^2 M_V^2\Big(-2(1+\tilde\alpha_C)\dot\varphi^2 \\
&\quad + (-2 + 2\tilde\alpha_M + 6\tilde\alpha_C^2(1+\tilde\alpha_M) - 4\tilde\alpha_T + \tilde\alpha_V + \tilde\alpha_C(6\tilde\alpha_M - 6\tilde\alpha_T + \tilde\alpha_V))H^2 M_V^2\Big) + \\
&\quad \dot H\Big((1+\tilde\alpha_C)\dot\varphi^4 - \big(-4 + 6\tilde\alpha_C^2(1+\tilde\alpha_M) - 4\tilde\alpha_T + \tilde\alpha_V + \tilde\alpha_C(-4 + 2\tilde\alpha_M - 6\tilde\alpha_T + \tilde\alpha_V)\big)\dot\varphi^2 H^2 M_V^2 + 2H^3\big(-\tilde\alpha_M\dot{\tilde\alpha}_A + \tilde\alpha_T\dot{\tilde\alpha}_A - \dot{\tilde\alpha}_V - 4\tilde\alpha_M H - 2\tilde\alpha_M^2 H \\
&\quad + 4\tilde\alpha_C^3(1+\tilde\alpha_M)^2 H + 4\tilde\alpha_T H + 2\tilde\alpha_T^2 H + 2\tilde\alpha_C^2(1+\tilde\alpha_M)(-3 + \tilde\alpha_M - 4\tilde\alpha_T - \tilde\alpha_V)H + \tilde\alpha_V H + \tilde\alpha_T\tilde\alpha_V H \\
&\quad + \tilde\alpha_C\big((1+\tilde\alpha_M)\dot{\tilde\alpha}_A - \dot{\tilde\alpha}_V + (-4 - 4\tilde\alpha_M^2 + 4\tilde\alpha_T^2 + \tilde\alpha_V + 2\tilde\alpha_T(2 + \tilde\alpha_V) - \tilde\alpha_M(12 + 4\tilde\alpha_T + \tilde\alpha_V))H\big)\big)M_V^{2\,2}\Big) + H^2\Big((1 + 2\tilde\alpha_C)(1+\tilde\alpha_M)\dot\varphi^4 + \\
&\quad 2(1+\tilde\alpha_C)\tilde\alpha_V\dot\varphi\ddot\varphi H M_V^2 + \dot\varphi^2 H\big(-\tilde\alpha_M\dot{\tilde\alpha}_A + \tilde\alpha_T\dot{\tilde\alpha}_A - \dot{\tilde\alpha}_V - 4\tilde\alpha_M H - 4\tilde\alpha_M^2 H - 8\tilde\alpha_C^2(1+\tilde\alpha_M)^2 H + 4\tilde\alpha_T H + 4\tilde\alpha_M\tilde\alpha_T H + \tilde\alpha_V H \\
&\quad + \tilde\alpha_C\big((1+\tilde\alpha_M)\dot{\tilde\alpha}_A - \dot{\tilde\alpha}_V + (-12\tilde\alpha_M^2 + 2(-2 + 4\tilde\alpha_T + \tilde\alpha_V) + \tilde\alpha_M(-16 + 8\tilde\alpha_T + \tilde\alpha_V))H\big)\big)M_V^2 + \\
&\quad 2H\Big((\tilde\alpha_C + \tilde\alpha_M + \tilde\alpha_C\tilde\alpha_M - \tilde\alpha_T)H^2\big(\tilde\alpha_M\dot{\tilde\alpha}_A - \tilde\alpha_T\dot{\tilde\alpha}_A + \dot{\tilde\alpha}_V + 2\tilde\alpha_M H + 2\tilde\alpha_M^2 H + 4\tilde\alpha_C^2(1+\tilde\alpha_M)^2 H - 2\tilde\alpha_T H - 2\tilde\alpha_M\tilde\alpha_T H \\
&\quad + \tilde\alpha_C(-(1+\tilde\alpha_M)\dot{\tilde\alpha}_A + \dot{\tilde\alpha}_V + 2(1+\tilde\alpha_M)(1 + 3\tilde\alpha_M - 2\tilde\alpha_T)H)\big) + \\
&\quad \tilde\alpha_V\big((1+\tilde\alpha_C)\ddot H - H\big((1+\tilde\alpha_C)\ddot{\tilde\alpha}_C + H\big(\dot{\tilde\alpha}_M + 2\tilde\alpha_C\dot{\tilde\alpha}_M + \tilde\alpha_C^2\dot{\tilde\alpha}_M - \dot{\tilde\alpha}_T - \dot{\tilde\alpha}_C\dot{\tilde\alpha}_T + \tilde\alpha_C H + 2\tilde\alpha_C^2 H + (1 + 3\tilde\alpha_C + 2\tilde\alpha_C^2)\tilde\alpha_M^2 H \\
&\quad - \tilde\alpha_T(\dot{\tilde\alpha}_A + H + 2\tilde\alpha_C H) + \tilde\alpha_M(\dot{\tilde\alpha}_A + (1 + 2\tilde\alpha_C)(1 + 2\tilde\alpha_C - \tilde\alpha_T)H)\big)\big)\big)\Big)M_V^{2\,2}\Big)\Bigg) + \\
&\quad 2\dot{\tilde\alpha}_C^2 H M_V^2\Bigg(\dot{\tilde\alpha}_K\big(2\dot\varphi^2 + 4\dot H M_V^2 + (-4\tilde\alpha_M - 6\tilde\alpha_C(1+\tilde\alpha_M) + 4\tilde\alpha_T + \tilde\alpha_V)H^2 M_V^2\big) + H\big(2\tilde\alpha_K\dot\varphi^2 + 2\dot{\tilde\alpha}_K\dot\varphi^2 + 4\dot{\tilde\alpha}_K\dot H M_V^2 + 4\tilde\alpha_K\dot H M_V^2 + 2\dot{\tilde\alpha}_A H M_V^2 \\
&\quad - 4\tilde\alpha_K\tilde\alpha_M H^2 M_V^2 - 4\tilde\alpha_K\tilde\alpha_M^2 H^2 M_V^2 + \tilde\alpha_A^2(1+\tilde\alpha_M)H^2 M_V^2 + 4\tilde\alpha_K\tilde\alpha_T H^2 M_V^2 + 4\tilde\alpha_K\tilde\alpha_M\tilde\alpha_T H^2 M_V^2 - 2\tilde\alpha_V H^2 M_V^2 + \tilde\alpha_K\tilde\alpha_V H^2 M_V^2 + \tilde\alpha_K\tilde\alpha_M\tilde\alpha_V H^2 M_V^2 \\
&\quad + 4\tilde\alpha_C^2(\dot H + 3(1+\tilde\alpha_M)H^2)M_V^2 - \tilde\alpha_A\big(2\dot\varphi^2 + (2 - 4\tilde\alpha_C)\dot H M_V^2 + H(\dot{\tilde\alpha}_A + (-2 - 6\tilde\alpha_M - 8\tilde\alpha_C(1+\tilde\alpha_M) + 4\tilde\alpha_T + \tilde\alpha_V)H)M_V^2\big) \\
&\quad - 2\tilde\alpha_C\big(2\dot\varphi^2 + 2\dot H M_V^2 + H(-\dot{\tilde\alpha}_A + (-4\tilde\alpha_M + 3\tilde\alpha_K(1+\tilde\alpha_M)^2 + 4\tilde\alpha_T + 2\tilde\alpha_V)H)M_V^2\big)\big)\Bigg) + \\
&\quad \tilde\alpha_A^2 H^2 M_V^2\Bigg(2\tilde\alpha_C^2(1+\tilde\alpha_M)H^2\big(\dot H + \tilde\alpha_M\dot H + \dot{\tilde\alpha}_M H\big)M_V^2 + (\tilde\alpha_M - \tilde\alpha_T)\big(-2\dot H^2 M_V^2 - \dot H(\dot\varphi^2 + 2(1+\tilde\alpha_T)H^2 M_V^2) + H^2(-(1+\tilde\alpha_M)\dot\varphi^2 + H(\dot{\tilde\alpha}_V + (1+\tilde\alpha_M)(2\tilde\alpha_M - 2\tilde\alpha_T - \tilde\alpha_V)H)M_V^2)\big) + \\
&\quad \tilde\alpha_C(1+\tilde\alpha_M)\big(2\dot H^2 M_V^2 + \dot H(\dot\varphi^2 + 4(\tilde\alpha_M - \tilde\alpha_T)H^2 M_V^2) + H(-2\ddot\varphi\dot\varphi + 2\tilde\alpha_M^2 H^3 M_V^2 - 2(\ddot H + H(-\ddot{\tilde\alpha}_C + H(-\dot{\tilde\alpha}_M + \dot{\tilde\alpha}_T + \tilde\alpha_T H)))M_V^2 + \tilde\alpha_M H(\dot\varphi^2 - 2(-1 + \tilde\alpha_T)H^2 M_V^2))\big)\Bigg) - \\
&\quad \dot{\tilde\alpha}_C\Bigg(\dot{\tilde\alpha}_K\Big(\dot\varphi^4 + \dot\varphi^2\big(4\dot H + (-4\tilde\alpha_M - 8\tilde\alpha_C(1+\tilde\alpha_M) + 4\tilde\alpha_T + \tilde\alpha_V)H^2\big)M_V^2 + 2\big(2\dot H^2 + (-4\tilde\alpha_M - 8\tilde\alpha_C(1+\tilde\alpha_M) + 4\tilde\alpha_T + \tilde\alpha_V)\dot H H^2 + 2(3\tilde\alpha_C^2(1+\tilde\alpha_M)^2 + (\tilde\alpha_M - \tilde\alpha_T)^2 + \tilde\alpha_C(1+\tilde\alpha_M)(4\tilde\alpha_M - 4\tilde\alpha_T - \tilde\alpha_V))H^4\big)M_V^{2\,2}\Big) + \\
&\quad H\Big(\tilde\alpha_K\dot\varphi^4 + \tilde\alpha_K\tilde\alpha_M\dot\varphi^4 + 4\tilde\alpha_K\dot H\dot\varphi^2 M_V^2 + 4\tilde\alpha_K\tilde\alpha_M\dot H\dot\varphi^2 M_V^2 + 4\dot{\tilde\alpha}_A\dot\varphi^2 H M_V^2 - 4\tilde\alpha_K\tilde\alpha_M\dot\varphi^2 H^2 M_V^2 - 4\tilde\alpha_K\tilde\alpha_M^2\dot\varphi^2 H^2 M_V^2 + 4\tilde\alpha_K\tilde\alpha_T\dot\varphi^2 H^2 M_V^2 + 4\tilde\alpha_K\tilde\alpha_M\tilde\alpha_T\dot\varphi^2 H^2 M_V^2 - 4\tilde\alpha_V\dot\varphi^2 H^2 M_V^2 + \tilde\alpha_K\tilde\alpha_V\dot\varphi^2 H^2 M_V^2 + \\
&\quad \tilde\alpha_K\tilde\alpha_M\tilde\alpha_V\dot\varphi^2 H^2 M_V^2 + 4\tilde\alpha_K\dot H^2 M_V^{2\,2} + 4\tilde\alpha_K\tilde\alpha_M\dot H^2 M_V^{2\,2} + 8\dot{\tilde\alpha}_A\dot H H M_V^{2\,2} - 8\tilde\alpha_K\tilde\alpha_M\dot H H^2 M_V^{2\,2} - 8\tilde\alpha_K\tilde\alpha_M^2\dot H H^2 M_V^{2\,2} + 8\tilde\alpha_K\tilde\alpha_T\dot H H^2 M_V^{2\,2} + 8\tilde\alpha_K\tilde\alpha_M\tilde\alpha_T\dot H H^2 M_V^{2\,2} - 8\tilde\alpha_V\dot H H^2 M_V^{2\,2} + 2\tilde\alpha_K\tilde\alpha_V\dot H H^2 M_V^{2\,2} + \\
&\quad 2\tilde\alpha_K\tilde\alpha_M\tilde\alpha_V\dot H H^2 M_V^2 - 8\tilde\alpha_M\dot{\tilde\alpha}_A H^3 M_V^2 + 8\tilde\alpha_T\dot{\tilde\alpha}_A H^3 M_V^2 + 2\tilde\alpha_V\dot{\tilde\alpha}_A H^3 M_V^2 + 4\tilde\alpha_K\tilde\alpha_M^2 H^4 M_V^2 + 4\tilde\alpha_K\tilde\alpha_M^3 H^4 M_V^2 - 8\tilde\alpha_K\tilde\alpha_M\tilde\alpha_T H^4 M_V^2 - 8\tilde\alpha_K\tilde\alpha_M^2\tilde\alpha_T H^4 M_V^2 + 4\tilde\alpha_K\tilde\alpha_T^2 H^4 M_V^2 + \\
&\quad 4\tilde\alpha_K\tilde\alpha_M\tilde\alpha_T^2 H^4 M_V^2 + 8\tilde\alpha_M\tilde\alpha_V H^4 M_V^2 - 8\tilde\alpha_T\tilde\alpha_V H^4 M_V^2 - 2\tilde\alpha_V^2 H^4 M_V^2 - 8\tilde\alpha_C^3(1+\tilde\alpha_M)H^2(2\dot H + 3(1+\tilde\alpha_M)H^2)M_V^{2\,2} - 2\tilde\alpha_C\big(\dot\varphi^4 + \dot\varphi^2 H(-2\dot{\tilde\alpha}_A + (-4\tilde\alpha_M + 4\tilde\alpha_K(1+\tilde\alpha_M)^2 + 4\tilde\alpha_T + 3\tilde\alpha_V)H)M_V^2 + \\
&\quad (-4\dot H^2 + 2\dot H H(-2\dot{\tilde\alpha}_A + (4\tilde\alpha_K(1+\tilde\alpha_M)^2 + \tilde\alpha_V)H) + H^3((4 + 8\tilde\alpha_M - 4\tilde\alpha_T - \tilde\alpha_V)\dot{\tilde\alpha}_A + (4\tilde\alpha_M^2 + 4\tilde\alpha_T^2 - 2\tilde\alpha_K(1+\tilde\alpha_M)^2(4\tilde\alpha_M - 4\tilde\alpha_T - \tilde\alpha_V) - 4\tilde\alpha_V + 4\tilde\alpha_T\tilde\alpha_V + \tilde\alpha_V^2 - 8\tilde\alpha_M(\tilde\alpha_T + \tilde\alpha_V))H))M_V^{2\,2}\big) - \\
&\quad \tilde\alpha_A\big(\dot\varphi^4 + \dot\varphi^2(H(\dot{\tilde\alpha}_A + (-4 - 8\tilde\alpha_M + 4\tilde\alpha_T + \tilde\alpha_V)H) - 6\tilde\alpha_C(\dot H + 2(1+\tilde\alpha_M)H^2))M_V^2 - 2((2 + 6\tilde\alpha_C)\dot H^2 + \dot H H(-\dot{\tilde\alpha}_A + (4 + 4\tilde\alpha_M - 8\tilde\alpha_C^2(1+\tilde\alpha_M) - \tilde\alpha_V + \tilde\alpha_C(8 + 8\tilde\alpha_T + \tilde\alpha_V))H) - H^3 \\
&\quad (\dot{\tilde\alpha}_V + 4\tilde\alpha_M H + 6\tilde\alpha_M^2 H + 10\tilde\alpha_C^2(1+\tilde\alpha_M)^2 H - 4\tilde\alpha_T H - 8\tilde\alpha_M\tilde\alpha_T H + 2\tilde\alpha_T^2 H - 2\tilde\alpha_V H - 3\tilde\alpha_M\tilde\alpha_V H + \tilde\alpha_T\tilde\alpha_V H + \tilde\alpha_C(-2(1+\tilde\alpha_M)\dot{\tilde\alpha}_A + \dot{\tilde\alpha}_V + 4(1+\tilde\alpha_M)(1 + 4\tilde\alpha_M - 3\tilde\alpha_T - \tilde\alpha_V)H)))M_V^{2\,2}\big) + \\
&\quad 4\tilde\alpha_C^2 M_V^2\big(4\dot H^2 M_V^2 + 2\dot H(\dot\varphi^2 + (2 + 2\tilde\alpha_T + \tilde\alpha_V)H^2 M_V^2) + (1+\tilde\alpha_M)H^2(4\dot\varphi^2 + H(-2\dot{\tilde\alpha}_A + (-8\tilde\alpha_M + 3\tilde\alpha_K(1+\tilde\alpha_M)^2 + 8\tilde\alpha_T + 4\tilde\alpha_V)H)M_V^2)\big) - \\
&\quad \tilde\alpha_A^2 M_V^2\big(2\dot H^2 M_V^2 + \dot H(\dot\varphi^2 + 2(\tilde\alpha_C + 2\tilde\alpha_M + \tilde\alpha_C\tilde\alpha_M - 2\tilde\alpha_T)H^2 M_V^2) + H(-2\ddot\varphi\dot\varphi + \tilde\alpha_M\dot\varphi^2 H - 2\ddot H H M_V^2 + 2(1+\tilde\alpha_C)\tilde\alpha_M^2 H^3 M_V^2 + 2\tilde\alpha_M(1 + 2\tilde\alpha_C - \tilde\alpha_T)H^3 M_V^2 + 2H(\ddot{\tilde\alpha}_C + H(\dot{\tilde\alpha}_M + \tilde\alpha_C\dot{\tilde\alpha}_M - \dot{\tilde\alpha}_T + \tilde\alpha_C H - \tilde\alpha_T H))M_V^2)\big)\Big)\Bigg) + \\
&\quad \big(\dot\varphi^2 + 2\dot H M_V^2 + (-2\tilde\alpha_M - 2\tilde\alpha_C(1+\tilde\alpha_M) + 2\tilde\alpha_T + \tilde\alpha_V)H^2 M_V^2\big)\Bigg(-4\tilde\alpha_C^3(1+\tilde\alpha_M)H^2(\dot H + (1+\tilde\alpha_M)H^2)M_V^2 + \\
&\quad 2\tilde\alpha_C^2\big(2\dot H^2 M_V^2 + \dot H(\dot\varphi^2 + (-2\tilde\alpha_M + 2\tilde\alpha_T + \tilde\alpha_V)H^2 M_V^2) + (1+\tilde\alpha_M)H^2(\dot\varphi^2 + H(-\dot{\tilde\alpha}_A + (1+\tilde\alpha_M)\dot{\tilde\alpha}_K + (-2\tilde\alpha_M + \tilde\alpha_K(1+\tilde\alpha_M)^2 + 2\tilde\alpha_T + \tilde\alpha_V)H)M_V^2)\big) + \\
&\quad H\big(\tilde\alpha_V H(-\dot\varphi^2 - 2\dot H M_V^2 + (\tilde\alpha_M - \tilde\alpha_T)H(\dot{\tilde\alpha}_K + (2 + \tilde\alpha_K + \tilde\alpha_K\tilde\alpha_M)H)M_V^2) + \dot{\tilde\alpha}_A(\dot\varphi^2 + 2(\dot H + (-\tilde\alpha_M + \tilde\alpha_T)H^2)M_V^2)\big) + \\
&\quad \tilde\alpha_C\big(4\dot H^2 M_V^2 + 2\dot H(\dot\varphi^2 - H(-\dot{\tilde\alpha}_A + (1+\tilde\alpha_M)\dot{\tilde\alpha}_K + \tilde\alpha_K(1+\tilde\alpha_M)^2 H + 2(\tilde\alpha_M - \tilde\alpha_T)H)M_V^2) + \\
&\quad H(\dot{\tilde\alpha}_A(\dot\varphi^2 + 2(-1 - 2\tilde\alpha_M + \tilde\alpha_T)H^2 M_V^2) - (1+\tilde\alpha_M)\dot{\tilde\alpha}_K(\dot\varphi^2 + 2(-\tilde\alpha_M + \tilde\alpha_T)H^2 M_V^2) + H(\tilde\alpha_V(-\dot\varphi^2 + 2(1+\tilde\alpha_M)H^2 M_V^2) - \tilde\alpha_K(1+\tilde\alpha_M)^2(\dot\varphi^2 + 2(-\tilde\alpha_M + \tilde\alpha_T)H^2 M_V^2)))\big)\Bigg)\Bigg]\Bigg/ \\[4pt]
&\Bigg(\Bigg(\big(\dot\varphi^2 + 2\dot H M_V^2 + H(-2\dot{\tilde\alpha}_C + (-2\tilde\alpha_M - 2\tilde\alpha_C(1+\tilde\alpha_M) + 2\tilde\alpha_T + \tilde\alpha_V)H)M_V^2\big)\big(-4\tilde\alpha_C^3(1+\tilde\alpha_M)^2\dot H H^2 M_V^2 - 4\tilde\alpha_C^2(1+\tilde\alpha_M)\dot H H(2\dot{\tilde\alpha}_C + H + 2\tilde\alpha_M H - \tilde\alpha_T H)M_V^2 + \\
&\quad H(\dot{\tilde\alpha}_A - \tilde\alpha_V H)((1+\tilde\alpha_T)\dot\varphi^2 + 2(1+\tilde\alpha_T)\dot H M_V^2 - 2(1+\tilde\alpha_M)H(\dot{\tilde\alpha}_C + (\tilde\alpha_M - \tilde\alpha_T)H)M_V^2) + \\
&\quad 2\tilde\alpha_C((1+\tilde\alpha_T)\dot H\dot\varphi^2 + 2(1+\tilde\alpha_T)\dot H^2 M_V^2 + (1+\tilde\alpha_M)^2 H^3(-\dot{\tilde\alpha}_A + \tilde\alpha_V H)M_V^2 + \dot H(-2\dot{\tilde\alpha}_C^2 - 2(1 + 2\tilde\alpha_M - \tilde\alpha_T)\dot{\tilde\alpha}_C H + (-2\tilde\alpha_M^2 + 2\tilde\alpha_M(-1 + \tilde\alpha_T) + \tilde\alpha_V + \tilde\alpha_T(2 + \tilde\alpha_V))H^2)M_V^2) + \\
&\quad \tilde\alpha_A\Big(4(1+\tilde\alpha_T)\dot H^3 M_V^{2\,2} + 2\dot H^2 M_V^2\big(2(1+\tilde\alpha_T)\dot\varphi^2 + H(2(-2 + \tilde\alpha_C + \tilde\alpha_C\tilde\alpha_M - 2\tilde\alpha_T)\dot{\tilde\alpha}_C + (2 - 2\tilde\alpha_M^2 + 2\tilde\alpha_C^2(1+\tilde\alpha_M)^2 + 2\tilde\alpha_M(-1 + \tilde\alpha_T) + 6\tilde\alpha_T + 2\tilde\alpha_T^2 - 4\tilde\alpha_C(1+\tilde\alpha_M)(1+\tilde\alpha_T) - \tilde\alpha_V - \tilde\alpha_T\tilde\alpha_V)H)M_V^2\big) + \\
&\quad \dot H\big((1+\tilde\alpha_T)\dot\varphi^4 + \dot\varphi^2 H(2(-2 + \tilde\alpha_C + \tilde\alpha_C\tilde\alpha_M - 2\tilde\alpha_T)\dot{\tilde\alpha}_C + (4 - 2\tilde\alpha_M^2 + 2\tilde\alpha_C^2(1+\tilde\alpha_M)^2 + 8\tilde\alpha_T + 4\tilde\alpha_M\tilde\alpha_T + 2\tilde\alpha_T^2 - 4\tilde\alpha_C(1+\tilde\alpha_M)(1+\tilde\alpha_T) - \tilde\alpha_V - \tilde\alpha_T\tilde\alpha_V)H)M_V^2 + \\
&\quad 2H(2\dot{\tilde\alpha}_C^3 + 2(2 + 4\tilde\alpha_M + 3\tilde\alpha_C(1+\tilde\alpha_M) - 2\tilde\alpha_T)\dot{\tilde\alpha}_C^2 H + 2\ddot{\tilde\alpha}_C(\dot{\tilde\alpha}_C + \tilde\alpha_C(1+\tilde\alpha_M)H) + \\
&\quad \dot{\tilde\alpha}_C H(2(1+\tilde\alpha_C)\dot{\tilde\alpha}_M - 2\dot{\tilde\alpha}_T + (-4 + 4\tilde\alpha_M^2 + 6\tilde\alpha_C^2(1+\tilde\alpha_M)^2 + 2\tilde\alpha_C(1+\tilde\alpha_M)(3 + 7\tilde\alpha_M - 4\tilde\alpha_T) - 6\tilde\alpha_T + 2\tilde\alpha_T^2 - \tilde\alpha_T\tilde\alpha_V + \tilde\alpha_M(-2 - 10\tilde\alpha_T + \tilde\alpha_V))H) + H^2(2\tilde\alpha_C^3(1+\tilde\alpha_M)^3 H + 2\tilde\alpha_C^2(1+\tilde\alpha_M)(\dot{\tilde\alpha}_M + (1+\tilde\alpha_M) \\
&\quad (1 + 3\tilde\alpha_M - 2\tilde\alpha_T)H) + (1+\tilde\alpha_T)(-\dot{\tilde\alpha}_V + (-4\tilde\alpha_M^2 + 4\tilde\alpha_M(-1 + \tilde\alpha_T) + \tilde\alpha_V + \tilde\alpha_T(4 + \tilde\alpha_V))H) + \tilde\alpha_C(1+\tilde\alpha_M)(2\dot{\tilde\alpha}_M - 2\dot{\tilde\alpha}_T + (-4 + 4\tilde\alpha_M^2 + 2\tilde\alpha_T^2 - 2\tilde\alpha_M(1 + 5\tilde\alpha_T) - \tilde\alpha_V - \tilde\alpha_T(6 + \tilde\alpha_V))H))\big)M_V^{2\,2}\big) + \\
&\quad H\big((1+\tilde\alpha_M)(1+\tilde\alpha_T)\dot\varphi^4 H - 2\ddot\varphi\dot\varphi(2\tilde\alpha_C^2 + 2(\tilde\alpha_M + 2\tilde\alpha_C(1+\tilde\alpha_M) - \tilde\alpha_T)\dot{\tilde\alpha}_C H + (2\tilde\alpha_C^2(1+\tilde\alpha_M)^2 + 2\tilde\alpha_C(1+\tilde\alpha_M)(\tilde\alpha_M - \tilde\alpha_T) - (1+\tilde\alpha_T)\tilde\alpha_V)H^2)M_V^2 + \\
&\quad \dot\varphi^2(2\ddot{\tilde\alpha}_C(\dot{\tilde\alpha}_C + \tilde\alpha_C(1+\tilde\alpha_M)H) + H((2 + 4\tilde\alpha_M)\dot{\tilde\alpha}_C^2 + 2\dot{\tilde\alpha}_C((1+\tilde\alpha_C)\dot{\tilde\alpha}_M - \dot{\tilde\alpha}_T + (-2 + \tilde\alpha_C - 3\tilde\alpha_M + 4\tilde\alpha_C\tilde\alpha_M + 3\tilde\alpha_C\tilde\alpha_M^2 - \tilde\alpha_T - 2\tilde\alpha_M\tilde\alpha_T)H) + H \\
&\quad (-(1+\tilde\alpha_T)\dot{\tilde\alpha}_V + (-6\tilde\alpha_M^2 - 2\tilde\alpha_M^3 + 2\tilde\alpha_T^2 + 2\tilde\alpha_M(-2 + 2\tilde\alpha_T + \tilde\alpha_T^2) + \tilde\alpha_V + \tilde\alpha_T(4 + \tilde\alpha_V))H + 2\tilde\alpha_C^2(1+\tilde\alpha_M)(\dot{\tilde\alpha}_M + \tilde\alpha_M(1+\tilde\alpha_M)H) - 2\tilde\alpha_C(1+\tilde\alpha_M)(-\dot{\tilde\alpha}_M + \dot{\tilde\alpha}_T + (2 + 3\tilde\alpha_M + \tilde\alpha_T + 2\tilde\alpha_M\tilde\alpha_T)H)))M_V^2 - \\
&\quad 2(\ddot H(2\dot{\tilde\alpha}_C^2 + 2(\tilde\alpha_M + 2\tilde\alpha_C(1+\tilde\alpha_M) - \tilde\alpha_T)\dot{\tilde\alpha}_C H + (2\tilde\alpha_C^2(1+\tilde\alpha_M)^2 + 2\tilde\alpha_C(1+\tilde\alpha_M)(\tilde\alpha_M - \tilde\alpha_T) - (1+\tilde\alpha_T)\tilde\alpha_V)H^2) - (1+\tilde\alpha_M)H^3((\dot{\tilde\alpha}_C + (\tilde\alpha_C + \tilde\alpha_M + \tilde\alpha_C\tilde\alpha_M - \tilde\alpha_T)H) \\
&\quad (2(1+\tilde\alpha_M)\dot{\tilde\alpha}_C + \dot{\tilde\alpha}_V + 2(1+\tilde\alpha_M)(\tilde\alpha_C + \tilde\alpha_M + \tilde\alpha_C\tilde\alpha_M - \tilde\alpha_T)H) - \tilde\alpha_V(\ddot{\tilde\alpha}_C + H(2(1+\tilde\alpha_M)\dot{\tilde\alpha}_C + \dot{\tilde\alpha}_M + \tilde\alpha_C\dot{\tilde\alpha}_M - \dot{\tilde\alpha}_T + \tilde\alpha_C H + \tilde\alpha_M H + 2\tilde\alpha_C\tilde\alpha_M H + \tilde\alpha_M^2 H + \tilde\alpha_C\tilde\alpha_M^2 H - \tilde\alpha_T H - \tilde\alpha_M\tilde\alpha_T H)))\big)M_V^{2\,2}\big)\Big)\Bigg)\Bigg)
\end{aligned}
$$