From the Appendix of Rindler

Ricci tensor for a diagonal metric.

The appendix of Rindler (p.419-421) deals with the metric

$$d\vec{s}^2 = a\,(dx^1)^2 + b\,(dx^2)^2 + c\,(dx^3)^2 + d\,(dx^4)^2\,, \tag{1}$$

where a, b, c, d are functions of the coordinates. Further notation is

$$\alpha = \frac{1}{2a}\,,\quad \beta = \frac{1}{2b}\,,\quad \gamma = \frac{1}{2c}\,,\quad \delta = \frac{1}{2d}\,, \tag{2}$$

and

$$a_i = \frac{\partial a}{\partial x^i}\,,\qquad a_{ij} = \frac{\partial^2 a}{\partial x^i\,\partial x^j}\,,\quad \text{and so on,} \tag{3}$$

where we allow $i, j = 1, 2, 3, 4$. From the definitions of the Christoffel symbols

$$\Gamma_{ijk} = \frac{1}{2}\,(g_{ij,k} + g_{ik,j} - g_{jk,i})\,,\qquad \Gamma^i{}_{jk} = g^{ih}\,\Gamma_{hjk} \tag{4}$$

[Rindler (10.13) and (10.14), p.206] one finds

$$\Gamma^1{}_{23} = 0\,,\quad \Gamma^1{}_{22} = -\alpha\,b_1\,,\quad \Gamma^1{}_{1i} = \alpha\,a_i\,. \tag{5}$$

From these trheee typical Γs all other can be obtained by the obvious permutations. For example, $\Gamma^2{}_{33} = -\beta\,c_2$, $\Gamma^4{}_{44} = -\delta\,d_2$.

After calculating the Riemann curvature tensor first, the Ricci tensor R_{ij} as defined by Rindler (10.68), p.219 becomes

$$\begin{aligned} R_{11} = &+ \beta\,a_{22} + \gamma\,a_{33} + \delta\,a_{44} \\ &+ \beta\,b_{11} + \gamma\,c_{11} + \delta\,d_{11} \\ &- \beta^2\,b_1^2 - \gamma^2\,c_1^2 - \delta^2\,d_1^2 \\ -\alpha\,a_1\,(&+ \beta\,b_1 + \gamma\,c_1 + \delta\,d_1\ ) \\ -\beta\,a_2\,(\ \alpha\,a_2 &+ \beta\,b_2 - \gamma\,c_2 - \delta\,d_2\ ) \\ -\gamma\,a_3\,(\ \alpha\,a_3 &- \beta\,b_3 + \gamma\,c_3 - \delta\,d_3\ ) \\ -\delta\,a_4\,(\ \alpha\,a_4 &- \beta\,b_4 - \gamma\,c_4 + \delta\,d_4\ ) \end{aligned} \tag{6}$$

$$\begin{aligned} R_{12} = &+ \gamma\,c_{12} + \delta\,d_{12} \\ &- \gamma^2\,c_1\,c_2 - \delta^2\,d_1\,d_2 \\ &- \alpha\,\beta\,a_2\,c_1 - \alpha\,\delta\,a_2\,d_1 \\ &- \beta\,\gamma\,b_1\,c_2 - \beta\,\delta\,b_1\,d_2 \end{aligned} \tag{7}$$