

Polar $\delta G_{\mu\nu}$ SVT

Metric

$$h_{\theta\theta} = -2\phi$$

$$h_{\theta i} = \nabla_i B + B_i$$

$$h_{ij} = -2\psi + 2\nabla_i \nabla_j E + \nabla_i E_j + \nabla_j E_i + 2E_{ij}$$

Conditions

$$\nabla^i E_{i1} = \frac{2 E_{11}}{r} + \frac{\text{Cot}[\theta] E_{12}}{r^2} - \frac{E_{22}}{r^3} - \frac{\text{Csc}[\theta]^2 E_{33}}{r^3} + \partial_1 E_{11} + \frac{\partial_2 E_{12}}{r^2} + \frac{\text{Csc}[\theta]^2 \partial_3 E_{13}}{r^2} = 0$$

$$\nabla^i E_{i2} = \frac{2 E_{12}}{r} + \frac{\text{Cot}[\theta] E_{22}}{r^2} - \frac{\text{Cot}[\theta] \text{Csc}[\theta]^2 E_{33}}{r^2} + \partial_1 E_{21} + \frac{\partial_2 E_{22}}{r^2} + \frac{\text{Csc}[\theta]^2 \partial_3 E_{23}}{r^2} = 0$$

$$\nabla^i E_{i3} = \frac{2 E_{13}}{r} + \frac{\text{Cot}[\theta] E_{23}}{r^2} + \partial_1 E_{31} + \frac{\partial_2 E_{23}}{r^2} + \frac{\text{Csc}[\theta]^2 \partial_3 E_{33}}{r^2} = 0$$

$$\nabla^i E_i = \frac{2 E_1}{r} + \frac{\text{Cot}[\theta] E_2}{r^2} + \partial_1 E_1 + \frac{\partial_2 E_2}{r^2} + \frac{\text{Csc}[\theta]^2 \partial_3 E_3}{r^2} = 0$$

$$g_{\text{polar}}^{\mu\nu} E_{\mu\nu} = E_{11} + \frac{E_{22}}{r^2} + \frac{\text{Csc}[\theta]^2 E_{33}}{r^2} = 0$$

Scalar Laplacian

$$\nabla^2 = \frac{2 \partial_1}{r} + \partial_1 \partial_1 + \frac{\text{Cot}[\theta] \partial_2}{r^2} + \frac{\partial_2 \partial_2}{r^2} + \frac{\text{Csc}[\theta]^2 \partial_3 \partial_3}{r^2}$$

$$\delta G_{\mu\nu} \Omega = 1$$

Simplified Laplacian:

00	$(-2 \nabla^2 \psi) + (\theta) + (\theta)$
11	$(-\nabla^2 \phi + \nabla^2 \psi - \nabla^2 \partial_\theta \mathbf{B} + \nabla^2 \partial_\theta \partial_\theta \mathbf{E} - 2 \partial_\theta \partial_\theta \psi + \partial_1 \partial_1 \phi - \partial_1 \partial_1 \psi + \partial_1 \partial_1 \partial_\theta \mathbf{B} - \partial_1 \partial_1 \partial_\theta \partial_\theta \mathbf{E}) + (\partial_1 \partial_\theta \mathbf{B}_1 - \partial_1 \partial_\theta \partial_\theta \mathbf{E}_1)$ $) + (-\frac{4 \mathbf{E}_{11}}{r^2} + \nabla^2 \mathbf{E}_{11} - \frac{4 \text{Cot}[\theta] \mathbf{E}_{12}}{r^3} + \frac{2 \mathbf{E}_{22}}{r^4} + \frac{2 \text{Csc}[\theta]^2 \mathbf{E}_{33}}{r^4} - \partial_\theta \partial_\theta \mathbf{E}_{11} - \frac{4 \partial_2 \mathbf{E}_{12}}{r^3} - \frac{4 \text{Csc}[\theta]^2 \partial_3 \mathbf{E}_{13}}{r^3})$
22	$(-r^2 \nabla^2 \phi + r^2 \nabla^2 \psi - r^2 \nabla^2 \partial_\theta \mathbf{B} + r^2 \nabla^2 \partial_\theta \partial_\theta \mathbf{E} - 2 r^2 \partial_\theta \partial_\theta \psi + r \partial_1 \phi - r \partial_1 \psi + r \partial_1 \partial_\theta \mathbf{B} - r \partial_1 \partial_\theta \partial_\theta \mathbf{E} +$ $\partial_2 \partial_2 \phi - \partial_2 \partial_2 \psi + \partial_2 \partial_2 \partial_\theta \mathbf{B} - \partial_2 \partial_2 \partial_\theta \partial_\theta \mathbf{E}) + (r \partial_\theta \mathbf{B}_1 - r \partial_\theta \partial_\theta \mathbf{E}_1 + \partial_2 \partial_\theta \mathbf{B}_2 - \partial_2 \partial_\theta \partial_\theta \mathbf{E}_2) + ($ $2 \mathbf{E}_{11} - \frac{2 \text{Cot}[\theta]^2 \mathbf{E}_{22}}{r^2} + \nabla^2 \mathbf{E}_{22} + \frac{2 \text{Cot}[\theta]^2 \text{Csc}[\theta]^2 \mathbf{E}_{33}}{r^2} - \partial_\theta \partial_\theta \mathbf{E}_{22} - \frac{4 \partial_1 \mathbf{E}_{22}}{r} + \frac{4 \partial_2 \mathbf{E}_{12}}{r} - \frac{4 \text{Cot}[\theta] \text{Csc}[\theta]^2 \partial_3 \mathbf{E}_{23}}{r^2})$
33	$(-r^2 \text{Sin}[\theta]^2 \nabla^2 \phi + r^2 \text{Sin}[\theta]^2 \nabla^2 \psi - r^2 \text{Sin}[\theta]^2 \nabla^2 \partial_\theta \mathbf{B} +$ $r^2 \text{Sin}[\theta]^2 \nabla^2 \partial_\theta \partial_\theta \mathbf{E} - 2 r^2 \text{Sin}[\theta]^2 \partial_\theta \partial_\theta \psi + r \text{Sin}[\theta]^2 \partial_1 \phi - r \text{Sin}[\theta]^2 \partial_1 \psi +$ $r \text{Sin}[\theta]^2 \partial_1 \partial_\theta \mathbf{B} - r \text{Sin}[\theta]^2 \partial_1 \partial_\theta \partial_\theta \mathbf{E} + \text{Cos}[\theta] \text{Sin}[\theta] \partial_2 \phi - \text{Cos}[\theta] \text{Sin}[\theta] \partial_2 \psi +$ $\text{Cos}[\theta] \text{Sin}[\theta] \partial_2 \partial_\theta \mathbf{B} - \text{Cos}[\theta] \text{Sin}[\theta] \partial_2 \partial_\theta \partial_\theta \mathbf{E} + \partial_3 \partial_3 \phi - \partial_3 \partial_3 \psi + \partial_3 \partial_3 \partial_\theta \mathbf{B} - \partial_3 \partial_3 \partial_\theta \partial_\theta \mathbf{E}) + ($ $r \text{Sin}[\theta]^2 \partial_\theta \mathbf{B}_1 + \text{Cos}[\theta] \text{Sin}[\theta] \partial_\theta \mathbf{B}_2 - r \text{Sin}[\theta]^2 \partial_\theta \partial_\theta \mathbf{E}_1 - \text{Cos}[\theta] \text{Sin}[\theta] \partial_\theta \partial_\theta \mathbf{E}_2 + \partial_3 \partial_\theta \mathbf{B}_3 - \partial_3 \partial_\theta \partial_\theta \mathbf{E}_3$ $) + (2 \text{Sin}[\theta]^2 \mathbf{E}_{11} + \frac{4 \text{Cos}[\theta] \text{Sin}[\theta] \mathbf{E}_{12}}{r} + \frac{2 \text{Cos}[\theta]^2 \mathbf{E}_{22}}{r^2} + \frac{2 \text{Csc}[\theta]^2 \mathbf{E}_{33}}{r^2} +$ $\nabla^2 \mathbf{E}_{33} - \partial_\theta \partial_\theta \mathbf{E}_{33} - \frac{4 \partial_1 \mathbf{E}_{33}}{r} - \frac{4 \text{Cot}[\theta] \partial_2 \mathbf{E}_{33}}{r^2} + \frac{4 \partial_3 \mathbf{E}_{13}}{r} + \frac{4 \text{Cot}[\theta] \partial_3 \mathbf{E}_{23}}{r^2})$
01	$(-2 \partial_1 \partial_\theta \psi) + ($ $-\frac{\mathbf{B}_1}{r^2} + \frac{\nabla^2 \mathbf{B}_1}{2} - \frac{\text{Cot}[\theta] \mathbf{B}_2}{r^3} + \frac{\partial_\theta \mathbf{E}_1}{r^2} - \frac{1}{2} \nabla^2 \partial_\theta \mathbf{E}_1 + \frac{\text{Cot}[\theta] \partial_\theta \mathbf{E}_2}{r^3} - \frac{\partial_2 \mathbf{B}_2}{r^3} + \frac{\partial_2 \partial_\theta \mathbf{E}_2}{r^3} - \frac{\text{Csc}[\theta]^2 \partial_3 \mathbf{B}_3}{r^3} + \frac{\text{Csc}[\theta]^2 \partial_3 \partial_\theta \mathbf{E}_3}{r^3}) + (\theta)$
02	$(-2 \partial_2 \partial_\theta \psi) + (-\frac{\text{Csc}[\theta]^2 \mathbf{B}_2}{2 r^2} + \frac{\nabla^2 \mathbf{B}_2}{2} + \frac{\text{Csc}[\theta]^2 \partial_\theta \mathbf{E}_2}{2 r^2} - \frac{1}{2} \nabla^2 \partial_\theta \mathbf{E}_2 -$ $\frac{\partial_1 \mathbf{B}_2}{r} + \frac{\partial_1 \partial_\theta \mathbf{E}_2}{r} + \frac{\partial_2 \mathbf{B}_1}{r} - \frac{\partial_2 \partial_\theta \mathbf{E}_1}{r} - \frac{\text{Cot}[\theta] \text{Csc}[\theta]^2 \partial_3 \mathbf{B}_3}{r^2} + \frac{\text{Cot}[\theta] \text{Csc}[\theta]^2 \partial_3 \partial_\theta \mathbf{E}_3}{r^2}) + (\theta)$
03	$(-2 \partial_3 \partial_\theta \psi) + (\frac{\nabla^2 \mathbf{B}_3}{2} - \frac{1}{2} \nabla^2 \partial_\theta \mathbf{E}_3 - \frac{\partial_1 \mathbf{B}_3}{r} + \frac{\partial_1 \partial_\theta \mathbf{E}_3}{r} -$ $\frac{\text{Cot}[\theta] \partial_2 \mathbf{B}_3}{r^2} + \frac{\text{Cot}[\theta] \partial_2 \partial_\theta \mathbf{E}_3}{r^2} + \frac{\partial_3 \mathbf{B}_1}{r} + \frac{\text{Cot}[\theta] \partial_3 \mathbf{B}_2}{r^2} - \frac{\partial_3 \partial_\theta \mathbf{E}_1}{r} - \frac{\text{Cot}[\theta] \partial_3 \partial_\theta \mathbf{E}_2}{r^2}) + (\theta)$
12	$(-\frac{\partial_2 \phi}{r} + \frac{\partial_2 \psi}{r} - \frac{\partial_2 \partial_\theta \mathbf{B}}{r} + \frac{\partial_2 \partial_\theta \partial_\theta \mathbf{E}}{r} + \partial_2 \partial_1 \phi - \partial_2 \partial_1 \psi + \partial_2 \partial_1 \partial_\theta \mathbf{B} - \partial_2 \partial_1 \partial_\theta \partial_\theta \mathbf{E}$ $) + (-\frac{\partial_\theta \mathbf{B}_2}{r} + \frac{\partial_\theta \partial_\theta \mathbf{E}_2}{r} + \frac{1}{2} \partial_1 \partial_\theta \mathbf{B}_2 - \frac{1}{2} \partial_1 \partial_\theta \partial_\theta \mathbf{E}_2 + \frac{1}{2} \partial_2 \partial_\theta \mathbf{B}_1 - \frac{1}{2} \partial_2 \partial_\theta \partial_\theta \mathbf{E}_1$ $) + (-\frac{4 \mathbf{E}_{12}}{r^2} - \frac{\text{Csc}[\theta]^2 \mathbf{E}_{12}}{r^2} + \nabla^2 \mathbf{E}_{12} - \frac{2 \text{Cot}[\theta] \mathbf{E}_{22}}{r^3} + \frac{2 \text{Cot}[\theta] \text{Csc}[\theta]^2 \mathbf{E}_{33}}{r^3} -$ $\partial_\theta \partial_\theta \mathbf{E}_{12} - \frac{2 \partial_1 \mathbf{E}_{12}}{r} + \frac{2 \partial_2 \mathbf{E}_{11}}{r} - \frac{2 \partial_2 \mathbf{E}_{22}}{r^3} - \frac{2 \text{Cot}[\theta] \text{Csc}[\theta]^2 \partial_3 \mathbf{E}_{13}}{r^2} - \frac{2 \text{Csc}[\theta]^2 \partial_3 \mathbf{E}_{23}}{r^3})$
13	$(-\frac{\partial_3 \phi}{r} + \frac{\partial_3 \psi}{r} - \frac{\partial_3 \partial_\theta \mathbf{B}}{r} + \frac{\partial_3 \partial_\theta \partial_\theta \mathbf{E}}{r} + \partial_3 \partial_1 \phi - \partial_3 \partial_1 \psi + \partial_3 \partial_1 \partial_\theta \mathbf{B} - \partial_3 \partial_1 \partial_\theta \partial_\theta \mathbf{E}) + ($ $-\frac{\partial_\theta \mathbf{B}_3}{r} + \frac{\partial_\theta \partial_\theta \mathbf{E}_3}{r} + \frac{1}{2} \partial_1 \partial_\theta \mathbf{B}_3 - \frac{1}{2} \partial_1 \partial_\theta \partial_\theta \mathbf{E}_3 + \frac{1}{2} \partial_3 \partial_\theta \mathbf{B}_1 - \frac{1}{2} \partial_3 \partial_\theta \partial_\theta \mathbf{E}_1) + (-\frac{4 \mathbf{E}_{13}}{r^2} + \nabla^2 \mathbf{E}_{13} -$ $\frac{2 \text{Cot}[\theta] \mathbf{E}_{23}}{r^3} - \partial_\theta \partial_\theta \mathbf{E}_{13} - \frac{2 \partial_1 \mathbf{E}_{13}}{r} - \frac{2 \text{Cot}[\theta] \partial_2 \mathbf{E}_{13}}{r^2} - \frac{2 \partial_2 \mathbf{E}_{23}}{r^3} + \frac{2 \partial_3 \mathbf{E}_{11}}{r} + \frac{2 \text{Cot}[\theta] \partial_3 \mathbf{E}_{12}}{r^2} - \frac{2 \text{Csc}[\theta]^2 \partial_3 \mathbf{E}_{33}}{r^3})$
23	$(-\text{Cot}[\theta] \partial_3 \phi + \text{Cot}[\theta] \partial_3 \psi - \text{Cot}[\theta] \partial_3 \partial_\theta \mathbf{B} + \text{Cot}[\theta] \partial_3 \partial_\theta \partial_\theta \mathbf{E} + \partial_3 \partial_2 \phi - \partial_3 \partial_2 \psi + \partial_3 \partial_2 \partial_\theta \mathbf{B} - \partial_3 \partial_2 \partial_\theta \partial_\theta \mathbf{E}$ $) + (-\text{Cot}[\theta] \partial_\theta \mathbf{B}_3 + \text{Cot}[\theta] \partial_\theta \partial_\theta \mathbf{E}_3 + \frac{1}{2} \partial_2 \partial_\theta \mathbf{B}_3 - \frac{1}{2} \partial_2 \partial_\theta \partial_\theta \mathbf{E}_3 + \frac{1}{2} \partial_3 \partial_\theta \mathbf{B}_2 - \frac{1}{2} \partial_3 \partial_\theta \partial_\theta \mathbf{E}_2$ $) + (-\frac{4 \text{Cot}[\theta] \mathbf{E}_{13}}{r} + \frac{4 \mathbf{E}_{23}}{r^2} - \frac{3 \text{Csc}[\theta]^2 \mathbf{E}_{23}}{r^2} + \nabla^2 \mathbf{E}_{23} - \partial_\theta \partial_\theta \mathbf{E}_{23} - \frac{4 \partial_1 \mathbf{E}_{23}}{r} +$ $\frac{2 \partial_2 \mathbf{E}_{13}}{r} - \frac{2 \text{Cot}[\theta] \partial_2 \mathbf{E}_{23}}{r^2} + \frac{2 \partial_3 \mathbf{E}_{12}}{r} + \frac{2 \text{Cot}[\theta] \partial_3 \mathbf{E}_{22}}{r^2} - \frac{2 \text{Cot}[\theta] \text{Csc}[\theta]^2 \partial_3 \mathbf{E}_{33}}{r^2})$

 $\delta G_{\mu\nu} \Omega=1$

Non-simplified:

00	$(-\frac{4 \partial_1 \psi}{r} - 2 \partial_1 \partial_1 \psi - \frac{2 \text{Cot}[\theta] \partial_2 \psi}{r^2} - \frac{2 \partial_2 \partial_2 \psi}{r^2} - \frac{2 \text{Csc}[\theta]^2 \partial_3 \partial_3 \psi}{r^2}) + (\theta) + (\theta)$
11	$(-2 \partial_\theta \partial_\theta \psi - \frac{2 \partial_1 \phi}{r} + \frac{2 \partial_1 \psi}{r} - \frac{2 \partial_1 \partial_\theta \mathbf{B}}{r} + \frac{2 \partial_1 \partial_\theta \partial_\theta \mathbf{E}}{r} - \frac{\text{Cot}[\theta] \partial_2 \phi}{r^2} + \frac{\text{Cot}[\theta] \partial_2 \psi}{r^2} - \frac{\text{Cot}[\theta] \partial_2 \partial_\theta \mathbf{B}}{r^2} + \frac{\text{Cot}[\theta] \partial_2 \partial_\theta \partial_\theta \mathbf{E}}{r^2} -$ $\frac{\partial_2 \partial_2 \phi}{r^2} + \frac{\partial_2 \partial_2 \psi}{r^2} - \frac{\partial_2 \partial_2 \partial_\theta \mathbf{B}}{r^2} + \frac{\partial_2 \partial_2 \partial_\theta \partial_\theta \mathbf{E}}{r^2} - \frac{\text{Csc}[\theta]^2 \partial_3 \partial_3 \phi}{r^2} + \frac{\text{Csc}[\theta]^2 \partial_3 \partial_3 \psi}{r^2} - \frac{\text{Csc}[\theta]^2 \partial_3 \partial_3 \partial_\theta \mathbf{B}}{r^2} + \frac{\text{Csc}[\theta]^2 \partial_3 \partial_3 \partial_\theta \partial_\theta \mathbf{E}}{r^2}$ $) + (\partial_1 \partial_\theta \mathbf{B}_1 - \partial_1 \partial_\theta \partial_\theta \mathbf{E}_1) + (-\frac{4 \mathbf{E}_{11}}{r^2} - \frac{4 \text{Cot}[\theta] \mathbf{E}_{12}}{r^3} + \frac{2 \mathbf{E}_{22}}{r^4} + \frac{2 \text{Csc}[\theta]^2 \mathbf{E}_{33}}{r^4} - \partial_\theta \partial_\theta \mathbf{E}_{11} +$ $\frac{2 \partial_1 \mathbf{E}_{11}}{r} + \partial_1 \partial_1 \mathbf{E}_{11} + \frac{\text{Cot}[\theta] \partial_2 \mathbf{E}_{11}}{r^2} - \frac{4 \partial_2 \mathbf{E}_{12}}{r^3} + \frac{\partial_2 \partial_2 \mathbf{E}_{11}}{r^2} - \frac{4 \text{Csc}[\theta]^2 \partial_3 \mathbf{E}_{13}}{r^3} + \frac{\text{Csc}[\theta]^2 \partial_3 \partial_3 \mathbf{E}_{11}}{r^2})$

22	$ \begin{aligned} & (-2 r^2 \partial_{\theta} \partial_{\theta} \psi - r \partial_1 \phi + r \partial_1 \psi - r \partial_1 \partial_{\theta} B + r \partial_1 \partial_{\theta} \partial_{\theta} E - r^2 \partial_1 \partial_1 \phi + r^2 \partial_1 \partial_1 \psi - \\ & r^2 \partial_1 \partial_1 \partial_{\theta} B + r^2 \partial_1 \partial_1 \partial_{\theta} \partial_{\theta} E - \cot[\theta] \partial_2 \phi + \cot[\theta] \partial_2 \psi - \cot[\theta] \partial_2 \partial_{\theta} B + \cot[\theta] \partial_2 \partial_{\theta} \partial_{\theta} E - \\ & \csc[\theta]^2 \partial_3 \partial_3 \phi + \csc[\theta]^2 \partial_3 \partial_3 \psi - \csc[\theta]^2 \partial_3 \partial_3 \partial_{\theta} B + \csc[\theta]^2 \partial_3 \partial_3 \partial_{\theta} \partial_{\theta} E) + (\\ & r \partial_{\theta} B_1 - r \partial_{\theta} \partial_{\theta} E_1 + \partial_2 \partial_{\theta} B_2 - \partial_2 \partial_{\theta} \partial_{\theta} E_2) + (2 E_{11} - \frac{2 \cot[\theta]^2 E_{22}}{r^2} + \frac{2 \cot[\theta]^2 \csc[\theta]^2 E_{33}}{r^2} - \partial_{\theta} \partial_{\theta} E_{22} - \\ & \frac{2 \partial_1 E_{22}}{r} + \partial_1 \partial_1 E_{22} + \frac{4 \partial_2 E_{12}}{r} + \frac{\cot[\theta] \partial_2 E_{22}}{r^2} + \frac{\partial_2 \partial_2 E_{22}}{r^2} - \frac{4 \cot[\theta] \csc[\theta]^2 \partial_3 E_{23}}{r^2} + \frac{\csc[\theta]^2 \partial_3 \partial_3 E_{22}}{r^2}) \end{aligned} $
33	$ \begin{aligned} & (-2 r^2 \sin[\theta]^2 \partial_{\theta} \partial_{\theta} \psi - r \sin[\theta]^2 \partial_1 \phi + r \sin[\theta]^2 \partial_1 \psi - r \sin[\theta]^2 \partial_1 \partial_{\theta} B + r \sin[\theta]^2 \partial_1 \partial_{\theta} \partial_{\theta} E - \\ & r^2 \sin[\theta]^2 \partial_1 \partial_1 \phi + r^2 \sin[\theta]^2 \partial_1 \partial_1 \psi - r^2 \sin[\theta]^2 \partial_1 \partial_1 \partial_{\theta} B + r^2 \sin[\theta]^2 \partial_1 \partial_1 \partial_{\theta} \partial_{\theta} E - \\ & \sin[\theta]^2 \partial_2 \partial_2 \phi + \sin[\theta]^2 \partial_2 \partial_2 \psi - \sin[\theta]^2 \partial_2 \partial_2 \partial_{\theta} B + \sin[\theta]^2 \partial_2 \partial_2 \partial_{\theta} \partial_{\theta} E) + (\\ & r \sin[\theta]^2 \partial_{\theta} B_1 + \cos[\theta] \sin[\theta] \partial_{\theta} B_2 - r \sin[\theta]^2 \partial_{\theta} \partial_{\theta} E_1 - \cos[\theta] \sin[\theta] \partial_{\theta} \partial_{\theta} E_2 + \partial_3 \partial_{\theta} B_3 - \partial_3 \partial_{\theta} \partial_{\theta} E_3 \\ &) + (2 \sin[\theta]^2 E_{11} + \frac{4 \cos[\theta] \sin[\theta] E_{12}}{r} + \frac{2 \cos[\theta]^2 E_{22}}{r^2} + \frac{2 \csc[\theta]^2 E_{33}}{r^2} - \partial_{\theta} \partial_{\theta} E_{33} - \\ & \frac{2 \partial_1 E_{33}}{r} + \partial_1 \partial_1 E_{33} - \frac{3 \cot[\theta] \partial_2 E_{33}}{r^2} + \frac{\partial_2 \partial_2 E_{33}}{r^2} + \frac{4 \partial_3 E_{13}}{r} + \frac{4 \cot[\theta] \partial_3 E_{23}}{r^2} + \frac{\csc[\theta]^2 \partial_3 \partial_3 E_{33}}{r^2}) \end{aligned} $
01	$ \begin{aligned} & (-2 \partial_1 \partial_{\theta} \psi) + (-\frac{B_1}{r^2} - \frac{\cot[\theta] B_2}{r^3} + \frac{\partial_{\theta} E_1}{r^2} + \frac{\cot[\theta] \partial_{\theta} E_2}{r^3} + \frac{\partial_1 B_1}{r} - \frac{\partial_1 \partial_{\theta} E_1}{r} + \\ & \frac{1}{2} \partial_1 \partial_1 B_1 - \frac{1}{2} \partial_1 \partial_1 \partial_{\theta} E_1 + \frac{\cot[\theta] \partial_2 B_1}{2 r^2} - \frac{\partial_2 B_2}{r^3} - \frac{\cot[\theta] \partial_2 \partial_{\theta} E_1}{2 r^2} + \frac{\partial_2 \partial_{\theta} E_2}{r^3} + \frac{\partial_2 \partial_2 B_1}{2 r^2} - \\ & \frac{\partial_2 \partial_2 \partial_{\theta} E_1}{2 r^2} - \frac{\csc[\theta]^2 \partial_3 B_3}{r^3} + \frac{\csc[\theta]^2 \partial_3 \partial_{\theta} E_3}{r^3} + \frac{\csc[\theta]^2 \partial_3 \partial_3 B_1}{2 r^2} - \frac{\csc[\theta]^2 \partial_3 \partial_3 \partial_{\theta} E_1}{2 r^2}) + (\theta) \end{aligned} $
02	$ \begin{aligned} & (-2 \partial_2 \partial_{\theta} \psi) + (\\ & -\frac{\csc[\theta]^2 B_2}{2 r^2} + \frac{\csc[\theta]^2 \partial_{\theta} E_2}{2 r^2} + \frac{1}{2} \partial_1 \partial_1 B_2 - \frac{1}{2} \partial_1 \partial_1 \partial_{\theta} E_2 + \frac{\partial_2 B_1}{r} + \frac{\cot[\theta] \partial_2 B_2}{2 r^2} - \frac{\partial_2 \partial_{\theta} E_1}{r} - \frac{\cot[\theta] \partial_2 \partial_{\theta} E_2}{2 r^2} + \\ & \frac{\partial_2 \partial_2 B_2}{2 r^2} - \frac{\partial_2 \partial_2 \partial_{\theta} E_2}{2 r^2} - \frac{\cot[\theta] \csc[\theta]^2 \partial_3 B_3}{r^2} + \frac{\cot[\theta] \csc[\theta]^2 \partial_3 \partial_{\theta} E_3}{r^2} + \frac{\csc[\theta]^2 \partial_3 \partial_3 B_2}{2 r^2} - \frac{\csc[\theta]^2 \partial_3 \partial_3 \partial_{\theta} E_2}{2 r^2}) + (\theta) \end{aligned} $
03	$ \begin{aligned} & (-2 \partial_3 \partial_{\theta} \psi) + (\frac{1}{2} \partial_1 \partial_1 B_3 - \frac{1}{2} \partial_1 \partial_1 \partial_{\theta} E_3 - \frac{\cot[\theta] \partial_2 B_3}{2 r^2} + \frac{\cot[\theta] \partial_2 \partial_{\theta} E_3}{2 r^2} + \frac{\partial_2 \partial_2 B_3}{2 r^2} - \\ & \frac{\partial_2 \partial_2 \partial_{\theta} E_3}{2 r^2} + \frac{\partial_3 B_1}{r} + \frac{\cot[\theta] \partial_3 B_2}{r^2} - \frac{\partial_3 \partial_{\theta} E_1}{r} - \frac{\cot[\theta] \partial_3 \partial_{\theta} E_2}{r^2} + \frac{\csc[\theta]^2 \partial_3 \partial_3 B_3}{2 r^2} - \frac{\csc[\theta]^2 \partial_3 \partial_3 \partial_{\theta} E_3}{2 r^2}) + (\theta) \end{aligned} $
12	$ \begin{aligned} & (-\frac{\partial_2 \phi}{r} + \frac{\partial_2 \psi}{r} - \frac{\partial_2 \partial_{\theta} B}{r} + \frac{\partial_2 \partial_{\theta} \partial_{\theta} E}{r} + \partial_2 \partial_1 \phi - \partial_2 \partial_1 \psi + \partial_2 \partial_1 \partial_{\theta} B - \partial_2 \partial_1 \partial_{\theta} \partial_{\theta} E \\ &) + (-\frac{\partial_{\theta} B_2}{r} + \frac{\partial_{\theta} \partial_{\theta} E_2}{r} + \frac{1}{2} \partial_1 \partial_{\theta} B_2 - \frac{1}{2} \partial_1 \partial_{\theta} \partial_{\theta} E_2 + \frac{1}{2} \partial_2 \partial_{\theta} B_1 - \frac{1}{2} \partial_2 \partial_{\theta} \partial_{\theta} E_1) + (\\ & -\frac{4 E_{12}}{r^2} - \frac{\csc[\theta]^2 E_{12}}{r^2} - \frac{2 \cot[\theta] E_{22}}{r^3} + \frac{2 \cot[\theta] \csc[\theta]^2 E_{33}}{r^3} - \partial_{\theta} \partial_{\theta} E_{12} + \partial_1 \partial_1 E_{12} + \frac{2 \partial_2 E_{11}}{r} + \\ & \frac{\cot[\theta] \partial_2 E_{12}}{r^2} - \frac{2 \partial_2 E_{22}}{r^3} + \frac{\partial_2 \partial_2 E_{12}}{r^2} - \frac{2 \cot[\theta] \csc[\theta]^2 \partial_3 E_{13}}{r^2} - \frac{2 \csc[\theta]^2 \partial_3 E_{23}}{r^3} + \frac{\csc[\theta]^2 \partial_3 \partial_3 E_{12}}{r^2}) \end{aligned} $
13	$ \begin{aligned} & (-\frac{\partial_3 \phi}{r} + \frac{\partial_3 \psi}{r} - \frac{\partial_3 \partial_{\theta} B}{r} + \frac{\partial_3 \partial_{\theta} \partial_{\theta} E}{r} + \partial_3 \partial_1 \phi - \partial_3 \partial_1 \psi + \partial_3 \partial_1 \partial_{\theta} B - \partial_3 \partial_1 \partial_{\theta} \partial_{\theta} E) + (\\ & -\frac{\partial_{\theta} B_3}{r} + \frac{\partial_{\theta} \partial_{\theta} E_3}{r} + \frac{1}{2} \partial_1 \partial_{\theta} B_3 - \frac{1}{2} \partial_1 \partial_{\theta} \partial_{\theta} E_3 + \frac{1}{2} \partial_3 \partial_{\theta} B_1 - \frac{1}{2} \partial_3 \partial_{\theta} \partial_{\theta} E_1) + (-\frac{4 E_{13}}{r^2} - \frac{2 \cot[\theta] E_{23}}{r^3} - \partial_{\theta} \partial_{\theta} E_{13} + \\ & \partial_1 \partial_1 E_{13} - \frac{\cot[\theta] \partial_2 E_{13}}{r^2} - \frac{2 \partial_2 E_{23}}{r^3} + \frac{\partial_2 \partial_2 E_{13}}{r^2} + \frac{2 \partial_3 E_{11}}{r} + \frac{2 \cot[\theta] \partial_3 E_{12}}{r^2} - \frac{2 \csc[\theta]^2 \partial_3 E_{33}}{r^3} + \frac{\csc[\theta]^2 \partial_3 \partial_3 E_{13}}{r^2}) \end{aligned} $
23	$ \begin{aligned} & (-\cot[\theta] \partial_3 \phi + \cot[\theta] \partial_3 \psi - \cot[\theta] \partial_3 \partial_{\theta} B + \cot[\theta] \partial_3 \partial_{\theta} \partial_{\theta} E + \partial_3 \partial_2 \phi - \partial_3 \partial_2 \psi + \partial_3 \partial_2 \partial_{\theta} B - \partial_3 \partial_2 \partial_{\theta} \partial_{\theta} E \\ &) + (-\cot[\theta] \partial_{\theta} B_3 + \cot[\theta] \partial_{\theta} \partial_{\theta} E_3 + \frac{1}{2} \partial_2 \partial_{\theta} B_3 - \frac{1}{2} \partial_2 \partial_{\theta} \partial_{\theta} E_3 + \frac{1}{2} \partial_3 \partial_{\theta} B_2 - \frac{1}{2} \partial_3 \partial_{\theta} \partial_{\theta} E_2 \\ &) + (-\frac{4 \cot[\theta] E_{13}}{r} + \frac{4 E_{23}}{r^2} - \frac{3 \csc[\theta]^2 E_{23}}{r^2} - \partial_{\theta} \partial_{\theta} E_{23} - \frac{2 \partial_1 E_{23}}{r} + \partial_1 \partial_1 E_{23} + \frac{2 \partial_2 E_{13}}{r} - \\ & \frac{\cot[\theta] \partial_2 E_{23}}{r^2} + \frac{\partial_2 \partial_2 E_{23}}{r^2} + \frac{2 \partial_3 E_{12}}{r} + \frac{2 \cot[\theta] \partial_3 E_{22}}{r^2} - \frac{2 \cot[\theta] \csc[\theta]^2 \partial_3 E_{33}}{r^2} + \frac{\csc[\theta]^2 \partial_3 \partial_3 E_{23}}{r^2}) \end{aligned} $