

$$\begin{aligned}
& \left[\begin{array}{ccccccc}
(1.0 \sin(\theta_1) \cos(\theta_2) + 1.0 \sin(\theta_2) \cos(\theta_1)) \sin(\theta_5) + (-1.0 (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \sin(\theta_3) \sin(\theta_4) + (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \cos(\theta_3) \cos(\theta_4)) \cos(\theta_5) & (1.0 \sin(\theta_1) \cos(\theta_2) + 1.0 \sin(\theta_2) \cos(\theta_1)) \cos(\theta_5) - 1.0 (-1.0 (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \sin(\theta_3) \sin(\theta_4) + (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \cos(\theta_3) \cos(\theta_4)) \sin(\theta_5) & 1.0 (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \sin(\theta_3) \cos(\theta_4) + 1.0 (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \sin(\theta_4) \cos(\theta_3) & 10.0 (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \sin(\theta_3) \cos(\theta_4) + 10.0 (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \sin(\theta_4) \cos(\theta_3) + 5.74 (-1.0 \sin(\theta_1) \sin(\theta_2) + \cos(\theta_1) \cos(\theta_2)) \cos(\theta_3) - 9.15 \sin(\theta_1) \sin(\theta_2) + 9.15 \cos(\theta_1) \cos(\theta_2) + 9.28 \cos(\theta_1) & \\
(1.0 \sin(\theta_1) \sin(\theta_2) - 1.0 \cos(\theta_1) \cos(\theta_2)) \sin(\theta_5) + (-1.0 (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \sin(\theta_3) \sin(\theta_4) + (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \cos(\theta_3) \cos(\theta_4)) \cos(\theta_5) & (1.0 \sin(\theta_1) \sin(\theta_2) - 1.0 \cos(\theta_1) \cos(\theta_2)) \cos(\theta_5) - 1.0 (-1.0 (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \sin(\theta_3) \sin(\theta_4) + (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \cos(\theta_3) \cos(\theta_4)) \sin(\theta_5) & 1.0 (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \sin(\theta_3) \cos(\theta_4) + 1.0 (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \sin(\theta_4) \cos(\theta_3) & 10.0 (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \sin(\theta_3) \cos(\theta_4) + 10.0 (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \sin(\theta_4) \cos(\theta_3) + 5.74 (\sin(\theta_1) \cos(\theta_2) + \sin(\theta_2) \cos(\theta_1)) \cos(\theta_3) + 9.15 \sin(\theta_1) \cos(\theta_2) + 9.28 \sin(\theta_1) + 9.15 \sin(\theta_2) \cos(\theta_1) & \\
(1.0 \sin(\theta_3) \cos(\theta_4) + 1.0 \sin(\theta_4) \cos(\theta_3)) \cos(\theta_5) & -1.0 (1.0 \sin(\theta_3) \cos(\theta_4) + 1.0 \sin(\theta_4) \cos(\theta_3)) \sin(\theta_5) & 1.0 \sin(\theta_3) \sin(\theta_4) - 1.0 \cos(\theta_3) \cos(\theta_4) & 10.0 \sin(\theta_3) \sin(\theta_4) + 5.74 \sin(\theta_3) - 10.0 \cos(\theta_3) \cos(\theta_4) + 16.39 & \\
0.0 & 0.0 & 0.0 & 1.0 &
\end{array} \right] \\
\theta_1 = \arcsin \left(\frac{-Q_{23}d_5 - \frac{Q_{23}l_2}{\sin(\theta_3 + \theta_4)} - \frac{Q_{23}l_3 \cos \theta_3}{\sin(\theta_3 + \theta_4)} + Q_{24}}{l_1} \right) \\
\theta_2 = -\theta_1 + \arcsin \left(\frac{Q_{23}}{\sin(\theta_3 + \theta_4)} \right) \\
\theta_3 = \arcsin \left(\frac{-Q_{33}d_5 + Q_{34} - d_1}{l_3} \right) \\
\theta_4 = -\theta_3 + \arcsin(Q_{33}) \\
\theta_5 = \arctan \left(\frac{-Q_{32}}{Q_{31}} \right)
\end{aligned}$$