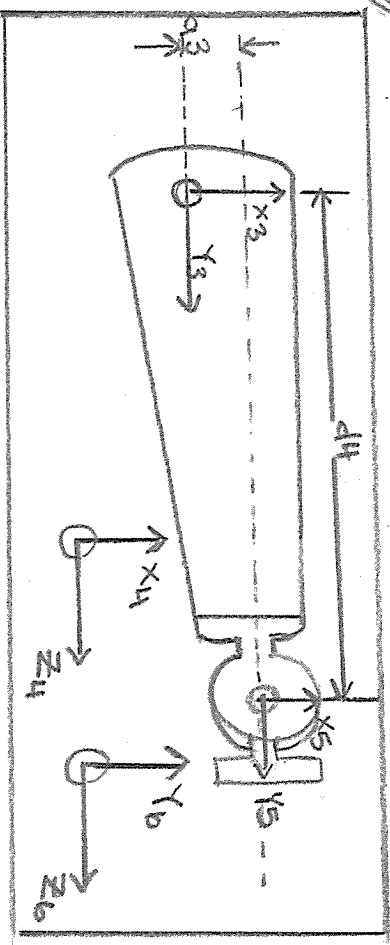
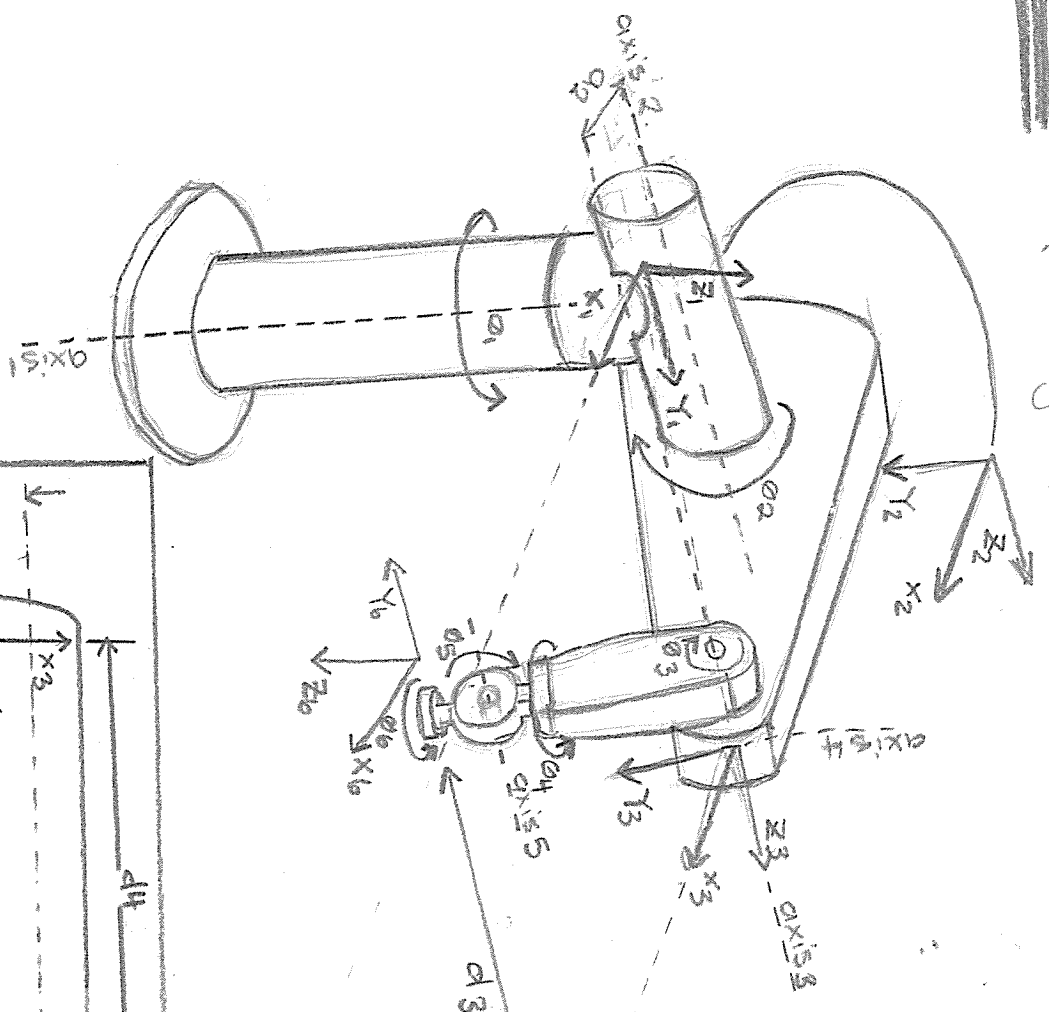


# PUMA 560 - (6 degrees of freedom, rotational joints OR)



	Displacement $x$	rotation $x$	Displacement $z$	rotation $z$
N	$a(i-1)$	$x(i-1)$	$d_i$	$\theta_i$
1	0	0	0	$\theta_1$
2	0	$270^\circ$	0	$\theta_2$
3	$a_2$	0	$d_3$	$\theta_3$
4	$a_3$	$270^\circ$	$d_4$	$\theta_4$
5	0	$90^\circ$	0	$\theta_5$
6	0	$270^\circ$	0	$\theta_6$

## Puma 560 transformations:

$${}^{i-1}_i T = \begin{bmatrix} \cos \theta_i & -\sin \theta_i & 0 & a_{i-1} \\ \sin \theta_i \cos x_{i-1} & \cos \theta_i \cos x_{i-1} & -\sin x_{i-1} & -\sin x_{i-1} l_{di} \\ \sin \theta_i \sin x_{i-1} & \cos \theta_i \sin x_{i-1} & \cos x_{i-1} & \cos x_{i-1} l_{di} \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^0_1 T = \begin{bmatrix} \cos \theta_1 & -\sin \theta_1 & 0 & 0 \\ \sin \theta_1 \cos 0 & \cos \theta_1 \cos 0 & -\sin 0 & -\sin 0 \\ \sin \theta_1 \sin 0 & \cos \theta_1 \sin 0 & \cos 0 & \cos 0 \times 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^1_2 T = \begin{bmatrix} \cos \theta_2 & -\sin \theta_2 & 0 & 0 \\ \sin \theta_2 \cos 270 & \cos \theta_2 \cos 270 & -\sin 270 & -\sin 270 \times 0 \\ \sin \theta_2 \sin 270 & \cos \theta_2 \sin 270 & \cos 270 & \cos 270 \times 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^2_3 T = \begin{bmatrix} \cos \theta_3 & -\sin \theta_3 & 0 & a_2 \\ \sin \theta_3 \cos 0 & \cos \theta_3 \cos 0 & -\sin 0 & -\sin 0 d_3 \\ \sin \theta_3 \sin 0 & \cos \theta_3 \sin 0 & \cos 0 & \cos 0 d_3 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^3_4 T = \begin{bmatrix} \cos \theta_4 & -\sin \theta_4 & 0 & a_3 \\ \sin \theta_4 \cos 270 & \cos \theta_4 \cos 270 & -\sin 270 & -\sin 270 d_4 \\ \sin \theta_4 \sin 270 & \cos \theta_4 \sin 270 & \cos 270 & \cos 270 d_4 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^4_5 T = \begin{bmatrix} \cos \theta_5 & -\sin \theta_5 & 0 & 0 \\ \sin \theta_5 \cos 90 & \cos \theta_5 \cos 90 & -\sin 90 & -\sin 90 \times 0 \\ \sin \theta_5 \sin 90 & \cos \theta_5 \sin 90 & \cos 90 & \cos 90 \times 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^5_6 T = \begin{bmatrix} \cos \theta_6 & -\sin \theta_6 & 0 & 0 \\ \sin \theta_6 \cos 270 & \cos \theta_6 \cos 270 & -\sin 270 & -\sin 270 \times 0 \\ \sin \theta_6 \sin 270 & \cos \theta_6 \sin 270 & \cos 270 & \cos 270 \times 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$