$$\tau_m := \left(\begin{array}{ccccccc}
0 & 0 & \dots & 0 & 01 & 0 & \dots \\
0 & 0 \dots & \dots & \dots & \dots & \dots & 1 & 1 \\
\dots & 0 & 01 & 1 & \dots & 1 & 0
\end{array}\right).$$