$$TB = ar{B} \stackrel{?}{=} \left[egin{array}{c|ccc} 0 & & & & \\ \hline \vdots & 0 & 0 & & \\ \hline 1 & & & & \\ \hline & 0 & & & \\ \hline & 0 & & & \\ \hline & 1 & & & \\ \hline & 0 & & & \\ \hline & 1 & & & \\ \hline & 0 & 0 & & \\ \hline & 1 & & & \\ \hline & 0 & 0 & & \\ \hline & 1 & & & \\ \hline \end{pmatrix}
ight\} k_1$$