How to find the inverse in $\boldsymbol{M_{VC\leftarrow WC}}$

The matrix is in a special form which makes the inverse finding easy.

$$M_{VC\leftarrow WC} = \begin{pmatrix} X_{VC} & Y_{VC} & Z_{VC} & VRP \\ & & & \\ 0 & 0 & 0 & 1 \end{pmatrix}^{-1}$$

$$= \left[\begin{pmatrix} 1 & 0 & 0 & \\ 0 & 1 & 0 & VRP \\ 0 & 0 & 1 & \\ 0 & 0 & 0 & \end{pmatrix}\begin{pmatrix} & & & 0 \\ X_{VC} & Y_{VC} & Z_{VC} & 0 \\ & & & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}\right]^{-1}$$

$$= \begin{pmatrix} & X_{VC} & & 0 \\ & Y_{VC} & & 0 \\ & Z_{VC} & & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}\begin{pmatrix} 1 & 0 & 0 & \\ 0 & 1 & 0 & -VRP \\ 0 & 0 & 1 & \\ 0 & 0 & 0 & \end{pmatrix} \qquad [\quad (AB)^{-1} = B^{-1}A^{-1} \quad]$$

This is so since

$$\begin{pmatrix} & & & 0 \\ X_{VC} & Y_{VC} & Z_{VC} & 0 \\ & & & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

is a rotation, and we make use of $R^{-1} = R^T$

Thus,

$$M_{VC\leftarrow WC} = \begin{pmatrix} & X_{VC} & & -X_{VC}\cdot VRP \\ & Y_{VC} & & -Y_{VC}\cdot VRP \\ & Z_{VC} & & -Z_{VC}\cdot VRP \\ 0 & 0 & 0 & 1 \end{pmatrix}$$