$$\mathbf{Q_t} = \begin{pmatrix} \mathbf{H} & \mathbf{S1} & \mathbf{S2} & \mathbf{DOC} & \mathbf{DS} \\ \mathbf{H} & -(\mathbf{r}.\mathbf{HS1}_t + \mathbf{r}.\mathbf{HD}_t) & \mathbf{r}.\mathbf{HS1}_t & 0 & \mathbf{r}.\mathbf{HD}_t & 0 \\ \mathbf{S1} & \mathbf{r}.\mathbf{S1H}_t & -(\mathbf{r}.\mathbf{S1H}_t + \mathbf{r}.\mathbf{S1S2}_t + \mathbf{hr}.\mathbf{S1}_t \cdot \mathbf{r}.\mathbf{HD}_t) & \mathbf{r}.\mathbf{S1S2}_t & \mathbf{r}.\mathbf{HD}_t & \mathbf{hr}.\mathbf{S1}_t \cdot \mathbf{r}.\mathbf{HD}_t - \mathbf{r}.\mathbf{HD}_t \\ \mathbf{S2} & 0 & 0 & -(\mathbf{hr}.\mathbf{S2} \cdot \mathbf{r}.\mathbf{HD}_t) & \mathbf{r}.\mathbf{HD}_t & \mathbf{hr}.\mathbf{S2}_t \cdot \mathbf{r}.\mathbf{HD}_t - \mathbf{r}.\mathbf{HD}_t \\ \mathbf{DOC} & 0 & 0 & 0 & 0 & 0 \\ \mathbf{DS} & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$$

$$\mathbf{Q}_t = \begin{bmatrix} \mathbf{H} & \mathbf{S1} & \mathbf{S2} & \mathbf{D} & \text{trDS} \\ \mathbf{H} & \mathbf{S1} & \mathbf{S2} & \mathbf{D} & \text{trDS} \\ \mathbf{Q}_t = \begin{bmatrix} \mathbf{S1} \\ \mathbf{S2} \\ \mathbf{D} \\ \mathbf{D} \\ \mathbf{trDS} \end{bmatrix} \begin{bmatrix} -(\mathbf{r}.\mathbf{HS1}_t + \mathbf{r}.\mathbf{HD}_t) & \mathbf{r}.\mathbf{HS1}_t & \mathbf{0} & \mathbf{r}.\mathbf{HD}_t & \mathbf{0} \\ \mathbf{r}.\mathbf{S1H}_t & -(\mathbf{r}.\mathbf{S1H}_t + \mathbf{r}.\mathbf{S1S2}_t + \mathbf{hr}.\mathbf{S1}_t \cdot \mathbf{r}.\mathbf{HD}_t) & \mathbf{r}.\mathbf{S1S2}_t & \mathbf{hr}.\mathbf{S1}_t \cdot \mathbf{r}.\mathbf{HD}_t & \mathbf{hr}.\mathbf{S1}_t \cdot \mathbf{r}.\mathbf{HD}_t - \mathbf{r}.\mathbf{HD}_t \\ \mathbf{0} & \mathbf{0} & -(\mathbf{hr}.\mathbf{S2}_t \cdot \mathbf{r}.\mathbf{HD}_t) & \mathbf{hr}.\mathbf{S2}_t \cdot \mathbf{r}.\mathbf{HD}_t & \mathbf{hr}.\mathbf{S2}_t \cdot \mathbf{r}.\mathbf{HD}_t - \mathbf{r}.\mathbf{HD}_t \\ \mathbf{0} & \mathbf{0} & \mathbf{0} & \mathbf{0} & \mathbf{0} \end{bmatrix}$$