

High Temperature Monoclinic TlS Structure: AB_mC256_5_2a2b30c_32c-001

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<https://aflow.org/prototype-encyclopedia/J6WY>

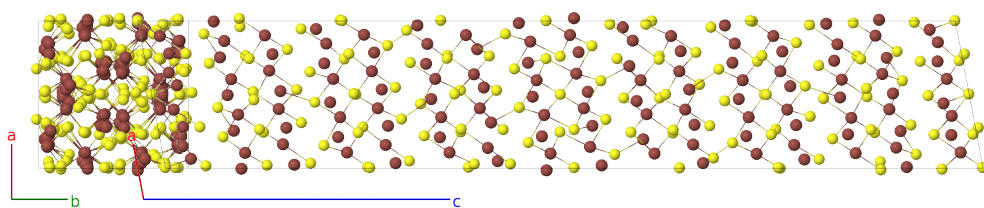
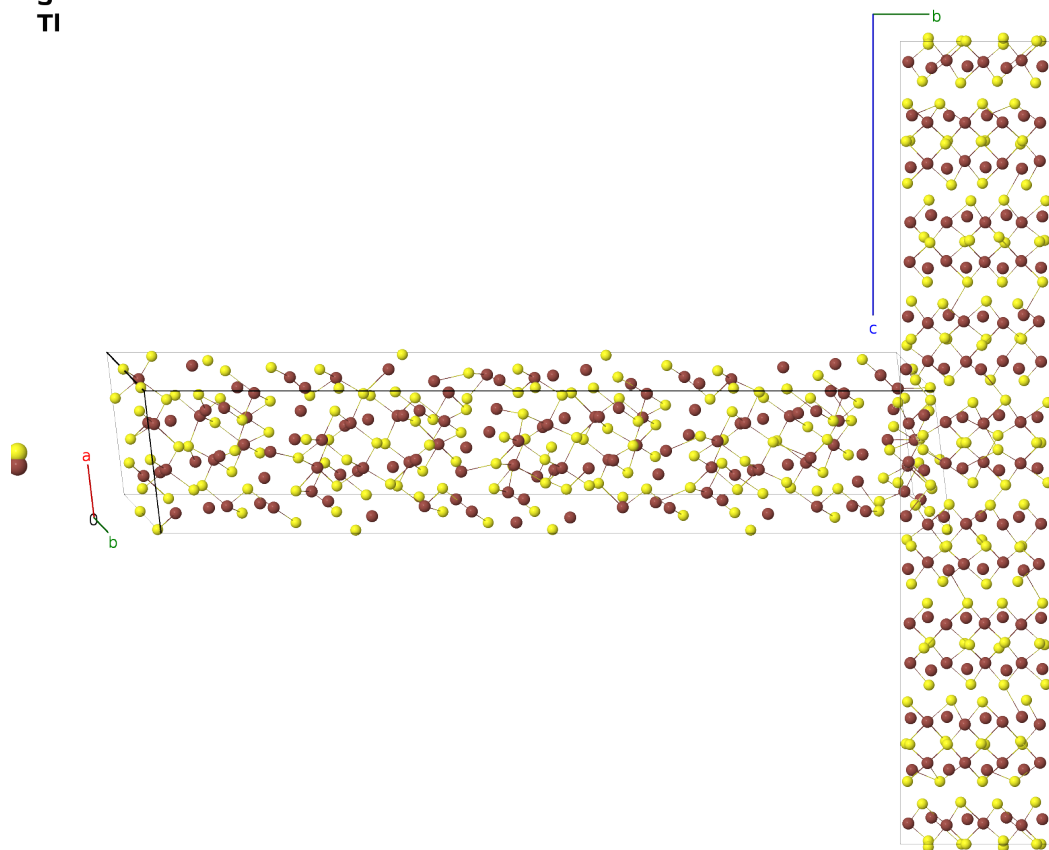
https://aflow.org/prototype-encyclopedia/AB_mC256_5_2a2b30c_32c-001

Prototype	STl
AFLOW prototype label	AB_mC256_5_2a2b30c_32c-001
ICSD	74446
CCDC	1635163
Pearson symbol	mC256
Space group number	5
Space group symbol	$C2$
AFLOW prototype command	<pre>aflow --proto=AB_mC256_5_2a2b30c_32c-001 --params=a, b/a, c/a, β, $y_1, y_2, y_3, y_4, x_5, y_5, z_5, x_6, y_6, z_6, x_7, y_7, z_7, x_8, y_8, z_8, x_9, y_9, z_9,$ $x_{10}, y_{10}, z_{10}, x_{11}, y_{11}, z_{11}, x_{12}, y_{12}, z_{12}, x_{13}, y_{13}, z_{13}, x_{14}, y_{14}, z_{14}, x_{15}, y_{15}, z_{15}, x_{16}, y_{16}, z_{16}, x_{17},$ $y_{17}, z_{17}, x_{18}, y_{18}, z_{18}, x_{19}, y_{19}, z_{19}, x_{20}, y_{20}, z_{20}, x_{21}, y_{21}, z_{21}, x_{22}, y_{22}, z_{22}, x_{23}, y_{23}, z_{23}, x_{24}, y_{24},$ $z_{24}, x_{25}, y_{25}, z_{25}, x_{26}, y_{26}, z_{26}, x_{27}, y_{27}, z_{27}, x_{28}, y_{28}, z_{28}, x_{29}, y_{29}, z_{29}, x_{30}, y_{30}, z_{30}, x_{31}, y_{31}, z_{31},$ $x_{32}, y_{32}, z_{32}, x_{33}, y_{33}, z_{33}, x_{34}, y_{34}, z_{34}, x_{35}, y_{35}, z_{35}, x_{36}, y_{36}, z_{36}, x_{37}, y_{37}, z_{37}, x_{38}, y_{38}, z_{38}, x_{39},$ $y_{39}, z_{39}, x_{40}, y_{40}, z_{40}, x_{41}, y_{41}, z_{41}, x_{42}, y_{42}, z_{42}, x_{43}, y_{43}, z_{43}, x_{44}, y_{44}, z_{44}, x_{45}, y_{45}, z_{45}, x_{46}, y_{46},$ $z_{46}, x_{47}, y_{47}, z_{47}, x_{48}, y_{48}, z_{48}, x_{49}, y_{49}, z_{49}, x_{50}, y_{50}, z_{50}, x_{51}, y_{51}, z_{51}, x_{52}, y_{52}, z_{52}, x_{53}, y_{53}, z_{53},$ $x_{54}, y_{54}, z_{54}, x_{55}, y_{55}, z_{55}, x_{56}, y_{56}, z_{56}, x_{57}, y_{57}, z_{57}, x_{58}, y_{58}, z_{58}, x_{59}, y_{59}, z_{59}, x_{60}, y_{60}, z_{60}, x_{61},$ $y_{61}, z_{61}, x_{62}, y_{62}, z_{62}, x_{63}, y_{63}, z_{63}, x_{64}, y_{64}, z_{64}, x_{65}, y_{65}, z_{65}, x_{66}, y_{66}, z_{66}$</pre>

- TlS occurs naturally in three forms (Villars, 2018):
 - The ground state is tetragonal in the TlSe ($B37$) structure which (Villars, 2018) calls “Tet-I” and (Kishida, 1994) calls “Type I.”
 - An intermediate tetragonal structure, which (Villars, 2018) calls “Tetragonal II,” and (Kashida, 1994) calls Type III.
 - A high temperature monoclinic structure, called “Mon” by (Villars, 2018) and “Type II” by (Kishida, 1994). (this structure)
- If we replaced the conventional cell primitive vector $\mathbf{a}_3$ used by (Nakamura, 1993) with $\mathbf{a}'_3 = \mathbf{a}_1 + \mathbf{a}_3$ both the conventional and primitive cells would be very close to tetragonal cells.

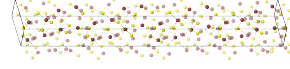
Base-centered Monoclinic primitive vectors

S
TI





$$\begin{aligned}
\mathbf{a}_1 &= \frac{1}{2}a \hat{\mathbf{x}} - \frac{1}{2}b \hat{\mathbf{y}} \\
\mathbf{a}_2 &= \frac{1}{2}a \hat{\mathbf{x}} + \frac{1}{2}b \hat{\mathbf{y}} \\
\mathbf{a}_3 &= c \cos \beta \hat{\mathbf{x}} + c \sin \beta \hat{\mathbf{z}}
\end{aligned}$$



Basis vectors

	Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B}_1$	$= -y_1 \mathbf{a}_1 + y_1 \mathbf{a}_2$	$=$	$by_1 \hat{\mathbf{y}}$	(2a)	S I
$\mathbf{B}_2$	$= -y_2 \mathbf{a}_1 + y_2 \mathbf{a}_2$	$=$	$by_2 \hat{\mathbf{y}}$	(2a)	S II
$\mathbf{B}_3$	$= -y_3 \mathbf{a}_1 + y_3 \mathbf{a}_2 + \frac{1}{2} \mathbf{a}_3$	$=$	$\frac{1}{2}c \cos \beta \hat{\mathbf{x}} + by_3 \hat{\mathbf{y}} + \frac{1}{2}c \sin \beta \hat{\mathbf{z}}$	(2b)	S III
$\mathbf{B}_4$	$= -y_4 \mathbf{a}_1 + y_4 \mathbf{a}_2 + \frac{1}{2} \mathbf{a}_3$	$=$	$\frac{1}{2}c \cos \beta \hat{\mathbf{x}} + by_4 \hat{\mathbf{y}} + \frac{1}{2}c \sin \beta \hat{\mathbf{z}}$	(2b)	S IV
$\mathbf{B}_5$	$= (x_5 - y_5) \mathbf{a}_1 + (x_5 + y_5) \mathbf{a}_2 + z_5 \mathbf{a}_3$	$=$	$(ax_5 + cz_5 \cos \beta) \hat{\mathbf{x}} + by_5 \hat{\mathbf{y}} + cz_5 \sin \beta \hat{\mathbf{z}}$	(4c)	S V
$\mathbf{B}_6$	$= -(x_5 + y_5) \mathbf{a}_1 - (x_5 - y_5) \mathbf{a}_2 - z_5 \mathbf{a}_3$	$=$	$-(ax_5 + cz_5 \cos \beta) \hat{\mathbf{x}} + by_5 \hat{\mathbf{y}} - cz_5 \sin \beta \hat{\mathbf{z}}$	(4c)	S V
$\mathbf{B}_7$	$= (x_6 - y_6) \mathbf{a}_1 + (x_6 + y_6) \mathbf{a}_2 + z_6 \mathbf{a}_3$	$=$	$(ax_6 + cz_6 \cos \beta) \hat{\mathbf{x}} + by_6 \hat{\mathbf{y}} + cz_6 \sin \beta \hat{\mathbf{z}}$	(4c)	S VI
$\mathbf{B}_8$	$= -(x_6 + y_6) \mathbf{a}_1 - (x_6 - y_6) \mathbf{a}_2 - z_6 \mathbf{a}_3$	$=$	$-(ax_6 + cz_6 \cos \beta) \hat{\mathbf{x}} + by_6 \hat{\mathbf{y}} - cz_6 \sin \beta \hat{\mathbf{z}}$	(4c)	S VI
$\mathbf{B}_9$	$= (x_7 - y_7) \mathbf{a}_1 + (x_7 + y_7) \mathbf{a}_2 + z_7 \mathbf{a}_3$	$=$	$(ax_7 + cz_7 \cos \beta) \hat{\mathbf{x}} + by_7 \hat{\mathbf{y}} + cz_7 \sin \beta \hat{\mathbf{z}}$	(4c)	S VII
$\mathbf{B}_{10}$	$= -(x_7 + y_7) \mathbf{a}_1 - (x_7 - y_7) \mathbf{a}_2 - z_7 \mathbf{a}_3$	$=$	$-(ax_7 + cz_7 \cos \beta) \hat{\mathbf{x}} + by_7 \hat{\mathbf{y}} - cz_7 \sin \beta \hat{\mathbf{z}}$	(4c)	S VII
$\mathbf{B}_{11}$	$= (x_8 - y_8) \mathbf{a}_1 + (x_8 + y_8) \mathbf{a}_2 + z_8 \mathbf{a}_3$	$=$	$(ax_8 + cz_8 \cos \beta) \hat{\mathbf{x}} + by_8 \hat{\mathbf{y}} + cz_8 \sin \beta \hat{\mathbf{z}}$	(4c)	S VIII
$\mathbf{B}_{12}$	$= -(x_8 + y_8) \mathbf{a}_1 - (x_8 - y_8) \mathbf{a}_2 - z_8 \mathbf{a}_3$	$=$	$-(ax_8 + cz_8 \cos \beta) \hat{\mathbf{x}} + by_8 \hat{\mathbf{y}} - cz_8 \sin \beta \hat{\mathbf{z}}$	(4c)	S VIII
$\mathbf{B}_{13}$	$= (x_9 - y_9) \mathbf{a}_1 + (x_9 + y_9) \mathbf{a}_2 + z_9 \mathbf{a}_3$	$=$	$(ax_9 + cz_9 \cos \beta) \hat{\mathbf{x}} + by_9 \hat{\mathbf{y}} + cz_9 \sin \beta \hat{\mathbf{z}}$	(4c)	S IX
$\mathbf{B}_{14}$	$= -(x_9 + y_9) \mathbf{a}_1 - (x_9 - y_9) \mathbf{a}_2 - z_9 \mathbf{a}_3$	$=$	$-(ax_9 + cz_9 \cos \beta) \hat{\mathbf{x}} + by_9 \hat{\mathbf{y}} - cz_9 \sin \beta \hat{\mathbf{z}}$	(4c)	S IX
$\mathbf{B}_{15}$	$= (x_{10} - y_{10}) \mathbf{a}_1 + (x_{10} + y_{10}) \mathbf{a}_2 + z_{10} \mathbf{a}_3$	$=$	$(ax_{10} + cz_{10} \cos \beta) \hat{\mathbf{x}} + by_{10} \hat{\mathbf{y}} + cz_{10} \sin \beta \hat{\mathbf{z}}$	(4c)	S X
$\mathbf{B}_{16}$	$= -(x_{10} + y_{10}) \mathbf{a}_1 - (x_{10} - y_{10}) \mathbf{a}_2 - z_{10} \mathbf{a}_3$	$=$	$-(ax_{10} + cz_{10} \cos \beta) \hat{\mathbf{x}} + by_{10} \hat{\mathbf{y}} - cz_{10} \sin \beta \hat{\mathbf{z}}$	(4c)	S X
$\mathbf{B}_{17}$	$= (x_{11} - y_{11}) \mathbf{a}_1 + (x_{11} + y_{11}) \mathbf{a}_2 + z_{11} \mathbf{a}_3$	$=$	$(ax_{11} + cz_{11} \cos \beta) \hat{\mathbf{x}} + by_{11} \hat{\mathbf{y}} + cz_{11} \sin \beta \hat{\mathbf{z}}$	(4c)	S XI

$\mathbf{B}_{18} =$	$-(x_{11} + y_{11}) \mathbf{a}_1 -$ $(x_{11} - y_{11}) \mathbf{a}_2 - z_{11} \mathbf{a}_3$	$=$	$-(ax_{11} + cz_{11} \cos \beta) \hat{\mathbf{x}} + by_{11} \hat{\mathbf{y}} -$ $cz_{11} \sin \beta \hat{\mathbf{z}}$	(4c)	S XI
$\mathbf{B}_{19} =$	$(x_{12} - y_{12}) \mathbf{a}_1 +$ $(x_{12} + y_{12}) \mathbf{a}_2 + z_{12} \mathbf{a}_3$	$=$	$(ax_{12} + cz_{12} \cos \beta) \hat{\mathbf{x}} + by_{12} \hat{\mathbf{y}} + cz_{12} \sin \beta \hat{\mathbf{z}}$	(4c)	S XII
$\mathbf{B}_{20} =$	$-(x_{12} + y_{12}) \mathbf{a}_1 -$ $(x_{12} - y_{12}) \mathbf{a}_2 - z_{12} \mathbf{a}_3$	$=$	$-(ax_{12} + cz_{12} \cos \beta) \hat{\mathbf{x}} + by_{12} \hat{\mathbf{y}} -$ $cz_{12} \sin \beta \hat{\mathbf{z}}$	(4c)	S XII
$\mathbf{B}_{21} =$	$(x_{13} - y_{13}) \mathbf{a}_1 +$ $(x_{13} + y_{13}) \mathbf{a}_2 + z_{13} \mathbf{a}_3$	$=$	$(ax_{13} + cz_{13} \cos \beta) \hat{\mathbf{x}} + by_{13} \hat{\mathbf{y}} + cz_{13} \sin \beta \hat{\mathbf{z}}$	(4c)	S XIII
$\mathbf{B}_{22} =$	$-(x_{13} + y_{13}) \mathbf{a}_1 -$ $(x_{13} - y_{13}) \mathbf{a}_2 - z_{13} \mathbf{a}_3$	$=$	$-(ax_{13} + cz_{13} \cos \beta) \hat{\mathbf{x}} + by_{13} \hat{\mathbf{y}} -$ $cz_{13} \sin \beta \hat{\mathbf{z}}$	(4c)	S XIII
$\mathbf{B}_{23} =$	$(x_{14} - y_{14}) \mathbf{a}_1 +$ $(x_{14} + y_{14}) \mathbf{a}_2 + z_{14} \mathbf{a}_3$	$=$	$(ax_{14} + cz_{14} \cos \beta) \hat{\mathbf{x}} + by_{14} \hat{\mathbf{y}} + cz_{14} \sin \beta \hat{\mathbf{z}}$	(4c)	S XIV
$\mathbf{B}_{24} =$	$-(x_{14} + y_{14}) \mathbf{a}_1 -$ $(x_{14} - y_{14}) \mathbf{a}_2 - z_{14} \mathbf{a}_3$	$=$	$-(ax_{14} + cz_{14} \cos \beta) \hat{\mathbf{x}} + by_{14} \hat{\mathbf{y}} -$ $cz_{14} \sin \beta \hat{\mathbf{z}}$	(4c)	S XIV
$\mathbf{B}_{25} =$	$(x_{15} - y_{15}) \mathbf{a}_1 +$ $(x_{15} + y_{15}) \mathbf{a}_2 + z_{15} \mathbf{a}_3$	$=$	$(ax_{15} + cz_{15} \cos \beta) \hat{\mathbf{x}} + by_{15} \hat{\mathbf{y}} + cz_{15} \sin \beta \hat{\mathbf{z}}$	(4c)	S XV
$\mathbf{B}_{26} =$	$-(x_{15} + y_{15}) \mathbf{a}_1 -$ $(x_{15} - y_{15}) \mathbf{a}_2 - z_{15} \mathbf{a}_3$	$=$	$-(ax_{15} + cz_{15} \cos \beta) \hat{\mathbf{x}} + by_{15} \hat{\mathbf{y}} -$ $cz_{15} \sin \beta \hat{\mathbf{z}}$	(4c)	S XV
$\mathbf{B}_{27} =$	$(x_{16} - y_{16}) \mathbf{a}_1 +$ $(x_{16} + y_{16}) \mathbf{a}_2 + z_{16} \mathbf{a}_3$	$=$	$(ax_{16} + cz_{16} \cos \beta) \hat{\mathbf{x}} + by_{16} \hat{\mathbf{y}} + cz_{16} \sin \beta \hat{\mathbf{z}}$	(4c)	S XVI
$\mathbf{B}_{28} =$	$-(x_{16} + y_{16}) \mathbf{a}_1 -$ $(x_{16} - y_{16}) \mathbf{a}_2 - z_{16} \mathbf{a}_3$	$=$	$-(ax_{16} + cz_{16} \cos \beta) \hat{\mathbf{x}} + by_{16} \hat{\mathbf{y}} -$ $cz_{16} \sin \beta \hat{\mathbf{z}}$	(4c)	S XVI
$\mathbf{B}_{29} =$	$(x_{17} - y_{17}) \mathbf{a}_1 +$ $(x_{17} + y_{17}) \mathbf{a}_2 + z_{17} \mathbf{a}_3$	$=$	$(ax_{17} + cz_{17} \cos \beta) \hat{\mathbf{x}} + by_{17} \hat{\mathbf{y}} + cz_{17} \sin \beta \hat{\mathbf{z}}$	(4c)	S XVII
$\mathbf{B}_{30} =$	$-(x_{17} + y_{17}) \mathbf{a}_1 -$ $(x_{17} - y_{17}) \mathbf{a}_2 - z_{17} \mathbf{a}_3$	$=$	$-(ax_{17} + cz_{17} \cos \beta) \hat{\mathbf{x}} + by_{17} \hat{\mathbf{y}} -$ $cz_{17} \sin \beta \hat{\mathbf{z}}$	(4c)	S XVII
$\mathbf{B}_{31} =$	$(x_{18} - y_{18}) \mathbf{a}_1 +$ $(x_{18} + y_{18}) \mathbf{a}_2 + z_{18} \mathbf{a}_3$	$=$	$(ax_{18} + cz_{18} \cos \beta) \hat{\mathbf{x}} + by_{18} \hat{\mathbf{y}} + cz_{18} \sin \beta \hat{\mathbf{z}}$	(4c)	S XVIII
$\mathbf{B}_{32} =$	$-(x_{18} + y_{18}) \mathbf{a}_1 -$ $(x_{18} - y_{18}) \mathbf{a}_2 - z_{18} \mathbf{a}_3$	$=$	$-(ax_{18} + cz_{18} \cos \beta) \hat{\mathbf{x}} + by_{18} \hat{\mathbf{y}} -$ $cz_{18} \sin \beta \hat{\mathbf{z}}$	(4c)	S XVIII
$\mathbf{B}_{33} =$	$(x_{19} - y_{19}) \mathbf{a}_1 +$ $(x_{19} + y_{19}) \mathbf{a}_2 + z_{19} \mathbf{a}_3$	$=$	$(ax_{19} + cz_{19} \cos \beta) \hat{\mathbf{x}} + by_{19} \hat{\mathbf{y}} + cz_{19} \sin \beta \hat{\mathbf{z}}$	(4c)	S XIX
$\mathbf{B}_{34} =$	$-(x_{19} + y_{19}) \mathbf{a}_1 -$ $(x_{19} - y_{19}) \mathbf{a}_2 - z_{19} \mathbf{a}_3$	$=$	$-(ax_{19} + cz_{19} \cos \beta) \hat{\mathbf{x}} + by_{19} \hat{\mathbf{y}} -$ $cz_{19} \sin \beta \hat{\mathbf{z}}$	(4c)	S XIX
$\mathbf{B}_{35} =$	$(x_{20} - y_{20}) \mathbf{a}_1 +$ $(x_{20} + y_{20}) \mathbf{a}_2 + z_{20} \mathbf{a}_3$	$=$	$(ax_{20} + cz_{20} \cos \beta) \hat{\mathbf{x}} + by_{20} \hat{\mathbf{y}} + cz_{20} \sin \beta \hat{\mathbf{z}}$	(4c)	S XX
$\mathbf{B}_{36} =$	$-(x_{20} + y_{20}) \mathbf{a}_1 -$ $(x_{20} - y_{20}) \mathbf{a}_2 - z_{20} \mathbf{a}_3$	$=$	$-(ax_{20} + cz_{20} \cos \beta) \hat{\mathbf{x}} + by_{20} \hat{\mathbf{y}} -$ $cz_{20} \sin \beta \hat{\mathbf{z}}$	(4c)	S XX
$\mathbf{B}_{37} =$	$(x_{21} - y_{21}) \mathbf{a}_1 +$ $(x_{21} + y_{21}) \mathbf{a}_2 + z_{21} \mathbf{a}_3$	$=$	$(ax_{21} + cz_{21} \cos \beta) \hat{\mathbf{x}} + by_{21} \hat{\mathbf{y}} + cz_{21} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXI
$\mathbf{B}_{38} =$	$-(x_{21} + y_{21}) \mathbf{a}_1 -$ $(x_{21} - y_{21}) \mathbf{a}_2 - z_{21} \mathbf{a}_3$	$=$	$-(ax_{21} + cz_{21} \cos \beta) \hat{\mathbf{x}} + by_{21} \hat{\mathbf{y}} -$ $cz_{21} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXI
$\mathbf{B}_{39} =$	$(x_{22} - y_{22}) \mathbf{a}_1 +$ $(x_{22} + y_{22}) \mathbf{a}_2 + z_{22} \mathbf{a}_3$	$=$	$(ax_{22} + cz_{22} \cos \beta) \hat{\mathbf{x}} + by_{22} \hat{\mathbf{y}} + cz_{22} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXII
$\mathbf{B}_{40} =$	$-(x_{22} + y_{22}) \mathbf{a}_1 -$ $(x_{22} - y_{22}) \mathbf{a}_2 - z_{22} \mathbf{a}_3$	$=$	$-(ax_{22} + cz_{22} \cos \beta) \hat{\mathbf{x}} + by_{22} \hat{\mathbf{y}} -$ $cz_{22} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXII
$\mathbf{B}_{41} =$	$(x_{23} - y_{23}) \mathbf{a}_1 +$ $(x_{23} + y_{23}) \mathbf{a}_2 + z_{23} \mathbf{a}_3$	$=$	$(ax_{23} + cz_{23} \cos \beta) \hat{\mathbf{x}} + by_{23} \hat{\mathbf{y}} + cz_{23} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXIII

$\mathbf{B}_{42} =$	$-(x_{23} + y_{23}) \mathbf{a}_1 -$ $(x_{23} - y_{23}) \mathbf{a}_2 - z_{23} \mathbf{a}_3$	$=$	$-(ax_{23} + cz_{23} \cos \beta) \hat{\mathbf{x}} + by_{23} \hat{\mathbf{y}} -$ $cz_{23} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXIII
$\mathbf{B}_{43} =$	$(x_{24} - y_{24}) \mathbf{a}_1 +$ $(x_{24} + y_{24}) \mathbf{a}_2 + z_{24} \mathbf{a}_3$	$=$	$(ax_{24} + cz_{24} \cos \beta) \hat{\mathbf{x}} + by_{24} \hat{\mathbf{y}} + cz_{24} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXIV
$\mathbf{B}_{44} =$	$-(x_{24} + y_{24}) \mathbf{a}_1 -$ $(x_{24} - y_{24}) \mathbf{a}_2 - z_{24} \mathbf{a}_3$	$=$	$-(ax_{24} + cz_{24} \cos \beta) \hat{\mathbf{x}} + by_{24} \hat{\mathbf{y}} -$ $cz_{24} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXIV
$\mathbf{B}_{45} =$	$(x_{25} - y_{25}) \mathbf{a}_1 +$ $(x_{25} + y_{25}) \mathbf{a}_2 + z_{25} \mathbf{a}_3$	$=$	$(ax_{25} + cz_{25} \cos \beta) \hat{\mathbf{x}} + by_{25} \hat{\mathbf{y}} + cz_{25} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXV
$\mathbf{B}_{46} =$	$-(x_{25} + y_{25}) \mathbf{a}_1 -$ $(x_{25} - y_{25}) \mathbf{a}_2 - z_{25} \mathbf{a}_3$	$=$	$-(ax_{25} + cz_{25} \cos \beta) \hat{\mathbf{x}} + by_{25} \hat{\mathbf{y}} -$ $cz_{25} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXV
$\mathbf{B}_{47} =$	$(x_{26} - y_{26}) \mathbf{a}_1 +$ $(x_{26} + y_{26}) \mathbf{a}_2 + z_{26} \mathbf{a}_3$	$=$	$(ax_{26} + cz_{26} \cos \beta) \hat{\mathbf{x}} + by_{26} \hat{\mathbf{y}} + cz_{26} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXVI
$\mathbf{B}_{48} =$	$-(x_{26} + y_{26}) \mathbf{a}_1 -$ $(x_{26} - y_{26}) \mathbf{a}_2 - z_{26} \mathbf{a}_3$	$=$	$-(ax_{26} + cz_{26} \cos \beta) \hat{\mathbf{x}} + by_{26} \hat{\mathbf{y}} -$ $cz_{26} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXVI
$\mathbf{B}_{49} =$	$(x_{27} - y_{27}) \mathbf{a}_1 +$ $(x_{27} + y_{27}) \mathbf{a}_2 + z_{27} \mathbf{a}_3$	$=$	$(ax_{27} + cz_{27} \cos \beta) \hat{\mathbf{x}} + by_{27} \hat{\mathbf{y}} + cz_{27} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXVII
$\mathbf{B}_{50} =$	$-(x_{27} + y_{27}) \mathbf{a}_1 -$ $(x_{27} - y_{27}) \mathbf{a}_2 - z_{27} \mathbf{a}_3$	$=$	$-(ax_{27} + cz_{27} \cos \beta) \hat{\mathbf{x}} + by_{27} \hat{\mathbf{y}} -$ $cz_{27} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXVII
$\mathbf{B}_{51} =$	$(x_{28} - y_{28}) \mathbf{a}_1 +$ $(x_{28} + y_{28}) \mathbf{a}_2 + z_{28} \mathbf{a}_3$	$=$	$(ax_{28} + cz_{28} \cos \beta) \hat{\mathbf{x}} + by_{28} \hat{\mathbf{y}} + cz_{28} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXVIII
$\mathbf{B}_{52} =$	$-(x_{28} + y_{28}) \mathbf{a}_1 -$ $(x_{28} - y_{28}) \mathbf{a}_2 - z_{28} \mathbf{a}_3$	$=$	$-(ax_{28} + cz_{28} \cos \beta) \hat{\mathbf{x}} + by_{28} \hat{\mathbf{y}} -$ $cz_{28} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXVIII
$\mathbf{B}_{53} =$	$(x_{29} - y_{29}) \mathbf{a}_1 +$ $(x_{29} + y_{29}) \mathbf{a}_2 + z_{29} \mathbf{a}_3$	$=$	$(ax_{29} + cz_{29} \cos \beta) \hat{\mathbf{x}} + by_{29} \hat{\mathbf{y}} + cz_{29} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXIX
$\mathbf{B}_{54} =$	$-(x_{29} + y_{29}) \mathbf{a}_1 -$ $(x_{29} - y_{29}) \mathbf{a}_2 - z_{29} \mathbf{a}_3$	$=$	$-(ax_{29} + cz_{29} \cos \beta) \hat{\mathbf{x}} + by_{29} \hat{\mathbf{y}} -$ $cz_{29} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXIX
$\mathbf{B}_{55} =$	$(x_{30} - y_{30}) \mathbf{a}_1 +$ $(x_{30} + y_{30}) \mathbf{a}_2 + z_{30} \mathbf{a}_3$	$=$	$(ax_{30} + cz_{30} \cos \beta) \hat{\mathbf{x}} + by_{30} \hat{\mathbf{y}} + cz_{30} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXX
$\mathbf{B}_{56} =$	$-(x_{30} + y_{30}) \mathbf{a}_1 -$ $(x_{30} - y_{30}) \mathbf{a}_2 - z_{30} \mathbf{a}_3$	$=$	$-(ax_{30} + cz_{30} \cos \beta) \hat{\mathbf{x}} + by_{30} \hat{\mathbf{y}} -$ $cz_{30} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXX
$\mathbf{B}_{57} =$	$(x_{31} - y_{31}) \mathbf{a}_1 +$ $(x_{31} + y_{31}) \mathbf{a}_2 + z_{31} \mathbf{a}_3$	$=$	$(ax_{31} + cz_{31} \cos \beta) \hat{\mathbf{x}} + by_{31} \hat{\mathbf{y}} + cz_{31} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXXI
$\mathbf{B}_{58} =$	$-(x_{31} + y_{31}) \mathbf{a}_1 -$ $(x_{31} - y_{31}) \mathbf{a}_2 - z_{31} \mathbf{a}_3$	$=$	$-(ax_{31} + cz_{31} \cos \beta) \hat{\mathbf{x}} + by_{31} \hat{\mathbf{y}} -$ $cz_{31} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXXI
$\mathbf{B}_{59} =$	$(x_{32} - y_{32}) \mathbf{a}_1 +$ $(x_{32} + y_{32}) \mathbf{a}_2 + z_{32} \mathbf{a}_3$	$=$	$(ax_{32} + cz_{32} \cos \beta) \hat{\mathbf{x}} + by_{32} \hat{\mathbf{y}} + cz_{32} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXXII
$\mathbf{B}_{60} =$	$-(x_{32} + y_{32}) \mathbf{a}_1 -$ $(x_{32} - y_{32}) \mathbf{a}_2 - z_{32} \mathbf{a}_3$	$=$	$-(ax_{32} + cz_{32} \cos \beta) \hat{\mathbf{x}} + by_{32} \hat{\mathbf{y}} -$ $cz_{32} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXXII
$\mathbf{B}_{61} =$	$(x_{33} - y_{33}) \mathbf{a}_1 +$ $(x_{33} + y_{33}) \mathbf{a}_2 + z_{33} \mathbf{a}_3$	$=$	$(ax_{33} + cz_{33} \cos \beta) \hat{\mathbf{x}} + by_{33} \hat{\mathbf{y}} + cz_{33} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXXIII
$\mathbf{B}_{62} =$	$-(x_{33} + y_{33}) \mathbf{a}_1 -$ $(x_{33} - y_{33}) \mathbf{a}_2 - z_{33} \mathbf{a}_3$	$=$	$-(ax_{33} + cz_{33} \cos \beta) \hat{\mathbf{x}} + by_{33} \hat{\mathbf{y}} -$ $cz_{33} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXXIII
$\mathbf{B}_{63} =$	$(x_{34} - y_{34}) \mathbf{a}_1 +$ $(x_{34} + y_{34}) \mathbf{a}_2 + z_{34} \mathbf{a}_3$	$=$	$(ax_{34} + cz_{34} \cos \beta) \hat{\mathbf{x}} + by_{34} \hat{\mathbf{y}} + cz_{34} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXXIV
$\mathbf{B}_{64} =$	$-(x_{34} + y_{34}) \mathbf{a}_1 -$ $(x_{34} - y_{34}) \mathbf{a}_2 - z_{34} \mathbf{a}_3$	$=$	$-(ax_{34} + cz_{34} \cos \beta) \hat{\mathbf{x}} + by_{34} \hat{\mathbf{y}} -$ $cz_{34} \sin \beta \hat{\mathbf{z}}$	(4c)	S XXXIV
$\mathbf{B}_{65} =$	$(x_{35} - y_{35}) \mathbf{a}_1 +$ $(x_{35} + y_{35}) \mathbf{a}_2 + z_{35} \mathbf{a}_3$	$=$	$(ax_{35} + cz_{35} \cos \beta) \hat{\mathbf{x}} + by_{35} \hat{\mathbf{y}} + cz_{35} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl I

$\mathbf{B}_{66} =$	$-(x_{35} + y_{35}) \mathbf{a}_1 -$ $(x_{35} - y_{35}) \mathbf{a}_2 - z_{35} \mathbf{a}_3$	$=$	$-(ax_{35} + cz_{35} \cos \beta) \hat{\mathbf{x}} + by_{35} \hat{\mathbf{y}} -$ $cz_{35} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl I
$\mathbf{B}_{67} =$	$(x_{36} - y_{36}) \mathbf{a}_1 +$ $(x_{36} + y_{36}) \mathbf{a}_2 + z_{36} \mathbf{a}_3$	$=$	$(ax_{36} + cz_{36} \cos \beta) \hat{\mathbf{x}} + by_{36} \hat{\mathbf{y}} + cz_{36} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl II
$\mathbf{B}_{68} =$	$-(x_{36} + y_{36}) \mathbf{a}_1 -$ $(x_{36} - y_{36}) \mathbf{a}_2 - z_{36} \mathbf{a}_3$	$=$	$-(ax_{36} + cz_{36} \cos \beta) \hat{\mathbf{x}} + by_{36} \hat{\mathbf{y}} -$ $cz_{36} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl II
$\mathbf{B}_{69} =$	$(x_{37} - y_{37}) \mathbf{a}_1 +$ $(x_{37} + y_{37}) \mathbf{a}_2 + z_{37} \mathbf{a}_3$	$=$	$(ax_{37} + cz_{37} \cos \beta) \hat{\mathbf{x}} + by_{37} \hat{\mathbf{y}} + cz_{37} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl III
$\mathbf{B}_{70} =$	$-(x_{37} + y_{37}) \mathbf{a}_1 -$ $(x_{37} - y_{37}) \mathbf{a}_2 - z_{37} \mathbf{a}_3$	$=$	$-(ax_{37} + cz_{37} \cos \beta) \hat{\mathbf{x}} + by_{37} \hat{\mathbf{y}} -$ $cz_{37} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl III
$\mathbf{B}_{71} =$	$(x_{38} - y_{38}) \mathbf{a}_1 +$ $(x_{38} + y_{38}) \mathbf{a}_2 + z_{38} \mathbf{a}_3$	$=$	$(ax_{38} + cz_{38} \cos \beta) \hat{\mathbf{x}} + by_{38} \hat{\mathbf{y}} + cz_{38} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl IV
$\mathbf{B}_{72} =$	$-(x_{38} + y_{38}) \mathbf{a}_1 -$ $(x_{38} - y_{38}) \mathbf{a}_2 - z_{38} \mathbf{a}_3$	$=$	$-(ax_{38} + cz_{38} \cos \beta) \hat{\mathbf{x}} + by_{38} \hat{\mathbf{y}} -$ $cz_{38} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl IV
$\mathbf{B}_{73} =$	$(x_{39} - y_{39}) \mathbf{a}_1 +$ $(x_{39} + y_{39}) \mathbf{a}_2 + z_{39} \mathbf{a}_3$	$=$	$(ax_{39} + cz_{39} \cos \beta) \hat{\mathbf{x}} + by_{39} \hat{\mathbf{y}} + cz_{39} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl V
$\mathbf{B}_{74} =$	$-(x_{39} + y_{39}) \mathbf{a}_1 -$ $(x_{39} - y_{39}) \mathbf{a}_2 - z_{39} \mathbf{a}_3$	$=$	$-(ax_{39} + cz_{39} \cos \beta) \hat{\mathbf{x}} + by_{39} \hat{\mathbf{y}} -$ $cz_{39} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl V
$\mathbf{B}_{75} =$	$(x_{40} - y_{40}) \mathbf{a}_1 +$ $(x_{40} + y_{40}) \mathbf{a}_2 + z_{40} \mathbf{a}_3$	$=$	$(ax_{40} + cz_{40} \cos \beta) \hat{\mathbf{x}} + by_{40} \hat{\mathbf{y}} + cz_{40} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl VI
$\mathbf{B}_{76} =$	$-(x_{40} + y_{40}) \mathbf{a}_1 -$ $(x_{40} - y_{40}) \mathbf{a}_2 - z_{40} \mathbf{a}_3$	$=$	$-(ax_{40} + cz_{40} \cos \beta) \hat{\mathbf{x}} + by_{40} \hat{\mathbf{y}} -$ $cz_{40} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl VI
$\mathbf{B}_{77} =$	$(x_{41} - y_{41}) \mathbf{a}_1 +$ $(x_{41} + y_{41}) \mathbf{a}_2 + z_{41} \mathbf{a}_3$	$=$	$(ax_{41} + cz_{41} \cos \beta) \hat{\mathbf{x}} + by_{41} \hat{\mathbf{y}} + cz_{41} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl VII
$\mathbf{B}_{78} =$	$-(x_{41} + y_{41}) \mathbf{a}_1 -$ $(x_{41} - y_{41}) \mathbf{a}_2 - z_{41} \mathbf{a}_3$	$=$	$-(ax_{41} + cz_{41} \cos \beta) \hat{\mathbf{x}} + by_{41} \hat{\mathbf{y}} -$ $cz_{41} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl VII
$\mathbf{B}_{79} =$	$(x_{42} - y_{42}) \mathbf{a}_1 +$ $(x_{42} + y_{42}) \mathbf{a}_2 + z_{42} \mathbf{a}_3$	$=$	$(ax_{42} + cz_{42} \cos \beta) \hat{\mathbf{x}} + by_{42} \hat{\mathbf{y}} + cz_{42} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl VIII
$\mathbf{B}_{80} =$	$-(x_{42} + y_{42}) \mathbf{a}_1 -$ $(x_{42} - y_{42}) \mathbf{a}_2 - z_{42} \mathbf{a}_3$	$=$	$-(ax_{42} + cz_{42} \cos \beta) \hat{\mathbf{x}} + by_{42} \hat{\mathbf{y}} -$ $cz_{42} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl VIII
$\mathbf{B}_{81} =$	$(x_{43} - y_{43}) \mathbf{a}_1 +$ $(x_{43} + y_{43}) \mathbf{a}_2 + z_{43} \mathbf{a}_3$	$=$	$(ax_{43} + cz_{43} \cos \beta) \hat{\mathbf{x}} + by_{43} \hat{\mathbf{y}} + cz_{43} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl IX
$\mathbf{B}_{82} =$	$-(x_{43} + y_{43}) \mathbf{a}_1 -$ $(x_{43} - y_{43}) \mathbf{a}_2 - z_{43} \mathbf{a}_3$	$=$	$-(ax_{43} + cz_{43} \cos \beta) \hat{\mathbf{x}} + by_{43} \hat{\mathbf{y}} -$ $cz_{43} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl IX
$\mathbf{B}_{83} =$	$(x_{44} - y_{44}) \mathbf{a}_1 +$ $(x_{44} + y_{44}) \mathbf{a}_2 + z_{44} \mathbf{a}_3$	$=$	$(ax_{44} + cz_{44} \cos \beta) \hat{\mathbf{x}} + by_{44} \hat{\mathbf{y}} + cz_{44} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl X
$\mathbf{B}_{84} =$	$-(x_{44} + y_{44}) \mathbf{a}_1 -$ $(x_{44} - y_{44}) \mathbf{a}_2 - z_{44} \mathbf{a}_3$	$=$	$-(ax_{44} + cz_{44} \cos \beta) \hat{\mathbf{x}} + by_{44} \hat{\mathbf{y}} -$ $cz_{44} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl X
$\mathbf{B}_{85} =$	$(x_{45} - y_{45}) \mathbf{a}_1 +$ $(x_{45} + y_{45}) \mathbf{a}_2 + z_{45} \mathbf{a}_3$	$=$	$(ax_{45} + cz_{45} \cos \beta) \hat{\mathbf{x}} + by_{45} \hat{\mathbf{y}} + cz_{45} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XI
$\mathbf{B}_{86} =$	$-(x_{45} + y_{45}) \mathbf{a}_1 -$ $(x_{45} - y_{45}) \mathbf{a}_2 - z_{45} \mathbf{a}_3$	$=$	$-(ax_{45} + cz_{45} \cos \beta) \hat{\mathbf{x}} + by_{45} \hat{\mathbf{y}} -$ $cz_{45} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XI
$\mathbf{B}_{87} =$	$(x_{46} - y_{46}) \mathbf{a}_1 +$ $(x_{46} + y_{46}) \mathbf{a}_2 + z_{46} \mathbf{a}_3$	$=$	$(ax_{46} + cz_{46} \cos \beta) \hat{\mathbf{x}} + by_{46} \hat{\mathbf{y}} + cz_{46} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XII
$\mathbf{B}_{88} =$	$-(x_{46} + y_{46}) \mathbf{a}_1 -$ $(x_{46} - y_{46}) \mathbf{a}_2 - z_{46} \mathbf{a}_3$	$=$	$-(ax_{46} + cz_{46} \cos \beta) \hat{\mathbf{x}} + by_{46} \hat{\mathbf{y}} -$ $cz_{46} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XII
$\mathbf{B}_{89} =$	$(x_{47} - y_{47}) \mathbf{a}_1 +$ $(x_{47} + y_{47}) \mathbf{a}_2 + z_{47} \mathbf{a}_3$	$=$	$(ax_{47} + cz_{47} \cos \beta) \hat{\mathbf{x}} + by_{47} \hat{\mathbf{y}} + cz_{47} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XIII

$\mathbf{B}_{90} =$	$-(x_{47} + y_{47}) \mathbf{a}_1 -$ $(x_{47} - y_{47}) \mathbf{a}_2 - z_{47} \mathbf{a}_3$	$=$	$-(ax_{47} + cz_{47} \cos \beta) \hat{\mathbf{x}} + by_{47} \hat{\mathbf{y}} -$ $cz_{47} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XIII
$\mathbf{B}_{91} =$	$(x_{48} - y_{48}) \mathbf{a}_1 +$ $(x_{48} + y_{48}) \mathbf{a}_2 + z_{48} \mathbf{a}_3$	$=$	$(ax_{48} + cz_{48} \cos \beta) \hat{\mathbf{x}} + by_{48} \hat{\mathbf{y}} + cz_{48} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XIV
$\mathbf{B}_{92} =$	$-(x_{48} + y_{48}) \mathbf{a}_1 -$ $(x_{48} - y_{48}) \mathbf{a}_2 - z_{48} \mathbf{a}_3$	$=$	$-(ax_{48} + cz_{48} \cos \beta) \hat{\mathbf{x}} + by_{48} \hat{\mathbf{y}} -$ $cz_{48} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XIV
$\mathbf{B}_{93} =$	$(x_{49} - y_{49}) \mathbf{a}_1 +$ $(x_{49} + y_{49}) \mathbf{a}_2 + z_{49} \mathbf{a}_3$	$=$	$(ax_{49} + cz_{49} \cos \beta) \hat{\mathbf{x}} + by_{49} \hat{\mathbf{y}} + cz_{49} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XV
$\mathbf{B}_{94} =$	$-(x_{49} + y_{49}) \mathbf{a}_1 -$ $(x_{49} - y_{49}) \mathbf{a}_2 - z_{49} \mathbf{a}_3$	$=$	$-(ax_{49} + cz_{49} \cos \beta) \hat{\mathbf{x}} + by_{49} \hat{\mathbf{y}} -$ $cz_{49} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XV
$\mathbf{B}_{95} =$	$(x_{50} - y_{50}) \mathbf{a}_1 +$ $(x_{50} + y_{50}) \mathbf{a}_2 + z_{50} \mathbf{a}_3$	$=$	$(ax_{50} + cz_{50} \cos \beta) \hat{\mathbf{x}} + by_{50} \hat{\mathbf{y}} + cz_{50} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XVI
$\mathbf{B}_{96} =$	$-(x_{50} + y_{50}) \mathbf{a}_1 -$ $(x_{50} - y_{50}) \mathbf{a}_2 - z_{50} \mathbf{a}_3$	$=$	$-(ax_{50} + cz_{50} \cos \beta) \hat{\mathbf{x}} + by_{50} \hat{\mathbf{y}} -$ $cz_{50} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XVI
$\mathbf{B}_{97} =$	$(x_{51} - y_{51}) \mathbf{a}_1 +$ $(x_{51} + y_{51}) \mathbf{a}_2 + z_{51} \mathbf{a}_3$	$=$	$(ax_{51} + cz_{51} \cos \beta) \hat{\mathbf{x}} + by_{51} \hat{\mathbf{y}} + cz_{51} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XVII
$\mathbf{B}_{98} =$	$-(x_{51} + y_{51}) \mathbf{a}_1 -$ $(x_{51} - y_{51}) \mathbf{a}_2 - z_{51} \mathbf{a}_3$	$=$	$-(ax_{51} + cz_{51} \cos \beta) \hat{\mathbf{x}} + by_{51} \hat{\mathbf{y}} -$ $cz_{51} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XVII
$\mathbf{B}_{99} =$	$(x_{52} - y_{52}) \mathbf{a}_1 +$ $(x_{52} + y_{52}) \mathbf{a}_2 + z_{52} \mathbf{a}_3$	$=$	$(ax_{52} + cz_{52} \cos \beta) \hat{\mathbf{x}} + by_{52} \hat{\mathbf{y}} + cz_{52} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XVIII
$\mathbf{B}_{100} =$	$-(x_{52} + y_{52}) \mathbf{a}_1 -$ $(x_{52} - y_{52}) \mathbf{a}_2 - z_{52} \mathbf{a}_3$	$=$	$-(ax_{52} + cz_{52} \cos \beta) \hat{\mathbf{x}} + by_{52} \hat{\mathbf{y}} -$ $cz_{52} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XVIII
$\mathbf{B}_{101} =$	$(x_{53} - y_{53}) \mathbf{a}_1 +$ $(x_{53} + y_{53}) \mathbf{a}_2 + z_{53} \mathbf{a}_3$	$=$	$(ax_{53} + cz_{53} \cos \beta) \hat{\mathbf{x}} + by_{53} \hat{\mathbf{y}} + cz_{53} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XIX
$\mathbf{B}_{102} =$	$-(x_{53} + y_{53}) \mathbf{a}_1 -$ $(x_{53} - y_{53}) \mathbf{a}_2 - z_{53} \mathbf{a}_3$	$=$	$-(ax_{53} + cz_{53} \cos \beta) \hat{\mathbf{x}} + by_{53} \hat{\mathbf{y}} -$ $cz_{53} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XIX
$\mathbf{B}_{103} =$	$(x_{54} - y_{54}) \mathbf{a}_1 +$ $(x_{54} + y_{54}) \mathbf{a}_2 + z_{54} \mathbf{a}_3$	$=$	$(ax_{54} + cz_{54} \cos \beta) \hat{\mathbf{x}} + by_{54} \hat{\mathbf{y}} + cz_{54} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XX
$\mathbf{B}_{104} =$	$-(x_{54} + y_{54}) \mathbf{a}_1 -$ $(x_{54} - y_{54}) \mathbf{a}_2 - z_{54} \mathbf{a}_3$	$=$	$-(ax_{54} + cz_{54} \cos \beta) \hat{\mathbf{x}} + by_{54} \hat{\mathbf{y}} -$ $cz_{54} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XX
$\mathbf{B}_{105} =$	$(x_{55} - y_{55}) \mathbf{a}_1 +$ $(x_{55} + y_{55}) \mathbf{a}_2 + z_{55} \mathbf{a}_3$	$=$	$(ax_{55} + cz_{55} \cos \beta) \hat{\mathbf{x}} + by_{55} \hat{\mathbf{y}} + cz_{55} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXI
$\mathbf{B}_{106} =$	$-(x_{55} + y_{55}) \mathbf{a}_1 -$ $(x_{55} - y_{55}) \mathbf{a}_2 - z_{55} \mathbf{a}_3$	$=$	$-(ax_{55} + cz_{55} \cos \beta) \hat{\mathbf{x}} + by_{55} \hat{\mathbf{y}} -$ $cz_{55} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXI
$\mathbf{B}_{107} =$	$(x_{56} - y_{56}) \mathbf{a}_1 +$ $(x_{56} + y_{56}) \mathbf{a}_2 + z_{56} \mathbf{a}_3$	$=$	$(ax_{56} + cz_{56} \cos \beta) \hat{\mathbf{x}} + by_{56} \hat{\mathbf{y}} + cz_{56} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXII
$\mathbf{B}_{108} =$	$-(x_{56} + y_{56}) \mathbf{a}_1 -$ $(x_{56} - y_{56}) \mathbf{a}_2 - z_{56} \mathbf{a}_3$	$=$	$-(ax_{56} + cz_{56} \cos \beta) \hat{\mathbf{x}} + by_{56} \hat{\mathbf{y}} -$ $cz_{56} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXII
$\mathbf{B}_{109} =$	$(x_{57} - y_{57}) \mathbf{a}_1 +$ $(x_{57} + y_{57}) \mathbf{a}_2 + z_{57} \mathbf{a}_3$	$=$	$(ax_{57} + cz_{57} \cos \beta) \hat{\mathbf{x}} + by_{57} \hat{\mathbf{y}} + cz_{57} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXIII
$\mathbf{B}_{110} =$	$-(x_{57} + y_{57}) \mathbf{a}_1 -$ $(x_{57} - y_{57}) \mathbf{a}_2 - z_{57} \mathbf{a}_3$	$=$	$-(ax_{57} + cz_{57} \cos \beta) \hat{\mathbf{x}} + by_{57} \hat{\mathbf{y}} -$ $cz_{57} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXIII
$\mathbf{B}_{111} =$	$(x_{58} - y_{58}) \mathbf{a}_1 +$ $(x_{58} + y_{58}) \mathbf{a}_2 + z_{58} \mathbf{a}_3$	$=$	$(ax_{58} + cz_{58} \cos \beta) \hat{\mathbf{x}} + by_{58} \hat{\mathbf{y}} + cz_{58} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXIV
$\mathbf{B}_{112} =$	$-(x_{58} + y_{58}) \mathbf{a}_1 -$ $(x_{58} - y_{58}) \mathbf{a}_2 - z_{58} \mathbf{a}_3$	$=$	$-(ax_{58} + cz_{58} \cos \beta) \hat{\mathbf{x}} + by_{58} \hat{\mathbf{y}} -$ $cz_{58} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXIV
$\mathbf{B}_{113} =$	$(x_{59} - y_{59}) \mathbf{a}_1 +$ $(x_{59} + y_{59}) \mathbf{a}_2 + z_{59} \mathbf{a}_3$	$=$	$(ax_{59} + cz_{59} \cos \beta) \hat{\mathbf{x}} + by_{59} \hat{\mathbf{y}} + cz_{59} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXV

$\mathbf{B}_{114} =$	$-(x_{59} + y_{59}) \mathbf{a}_1 -$ $(x_{59} - y_{59}) \mathbf{a}_2 - z_{59} \mathbf{a}_3$	$=$	$-(ax_{59} + cz_{59} \cos \beta) \hat{\mathbf{x}} + by_{59} \hat{\mathbf{y}} -$ $cz_{59} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXV
$\mathbf{B}_{115} =$	$(x_{60} - y_{60}) \mathbf{a}_1 +$ $(x_{60} + y_{60}) \mathbf{a}_2 + z_{60} \mathbf{a}_3$	$=$	$(ax_{60} + cz_{60} \cos \beta) \hat{\mathbf{x}} + by_{60} \hat{\mathbf{y}} + cz_{60} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXVI
$\mathbf{B}_{116} =$	$-(x_{60} + y_{60}) \mathbf{a}_1 -$ $(x_{60} - y_{60}) \mathbf{a}_2 - z_{60} \mathbf{a}_3$	$=$	$-(ax_{60} + cz_{60} \cos \beta) \hat{\mathbf{x}} + by_{60} \hat{\mathbf{y}} -$ $cz_{60} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXVI
$\mathbf{B}_{117} =$	$(x_{61} - y_{61}) \mathbf{a}_1 +$ $(x_{61} + y_{61}) \mathbf{a}_2 + z_{61} \mathbf{a}_3$	$=$	$(ax_{61} + cz_{61} \cos \beta) \hat{\mathbf{x}} + by_{61} \hat{\mathbf{y}} + cz_{61} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXVII
$\mathbf{B}_{118} =$	$-(x_{61} + y_{61}) \mathbf{a}_1 -$ $(x_{61} - y_{61}) \mathbf{a}_2 - z_{61} \mathbf{a}_3$	$=$	$-(ax_{61} + cz_{61} \cos \beta) \hat{\mathbf{x}} + by_{61} \hat{\mathbf{y}} -$ $cz_{61} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXVII
$\mathbf{B}_{119} =$	$(x_{62} - y_{62}) \mathbf{a}_1 +$ $(x_{62} + y_{62}) \mathbf{a}_2 + z_{62} \mathbf{a}_3$	$=$	$(ax_{62} + cz_{62} \cos \beta) \hat{\mathbf{x}} + by_{62} \hat{\mathbf{y}} + cz_{62} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXVIII
$\mathbf{B}_{120} =$	$-(x_{62} + y_{62}) \mathbf{a}_1 -$ $(x_{62} - y_{62}) \mathbf{a}_2 - z_{62} \mathbf{a}_3$	$=$	$-(ax_{62} + cz_{62} \cos \beta) \hat{\mathbf{x}} + by_{62} \hat{\mathbf{y}} -$ $cz_{62} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXVIII
$\mathbf{B}_{121} =$	$(x_{63} - y_{63}) \mathbf{a}_1 +$ $(x_{63} + y_{63}) \mathbf{a}_2 + z_{63} \mathbf{a}_3$	$=$	$(ax_{63} + cz_{63} \cos \beta) \hat{\mathbf{x}} + by_{63} \hat{\mathbf{y}} + cz_{63} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXIX
$\mathbf{B}_{122} =$	$-(x_{63} + y_{63}) \mathbf{a}_1 -$ $(x_{63} - y_{63}) \mathbf{a}_2 - z_{63} \mathbf{a}_3$	$=$	$-(ax_{63} + cz_{63} \cos \beta) \hat{\mathbf{x}} + by_{63} \hat{\mathbf{y}} -$ $cz_{63} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXIX
$\mathbf{B}_{123} =$	$(x_{64} - y_{64}) \mathbf{a}_1 +$ $(x_{64} + y_{64}) \mathbf{a}_2 + z_{64} \mathbf{a}_3$	$=$	$(ax_{64} + cz_{64} \cos \beta) \hat{\mathbf{x}} + by_{64} \hat{\mathbf{y}} + cz_{64} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXX
$\mathbf{B}_{124} =$	$-(x_{64} + y_{64}) \mathbf{a}_1 -$ $(x_{64} - y_{64}) \mathbf{a}_2 - z_{64} \mathbf{a}_3$	$=$	$-(ax_{64} + cz_{64} \cos \beta) \hat{\mathbf{x}} + by_{64} \hat{\mathbf{y}} -$ $cz_{64} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXX
$\mathbf{B}_{125} =$	$(x_{65} - y_{65}) \mathbf{a}_1 +$ $(x_{65} + y_{65}) \mathbf{a}_2 + z_{65} \mathbf{a}_3$	$=$	$(ax_{65} + cz_{65} \cos \beta) \hat{\mathbf{x}} + by_{65} \hat{\mathbf{y}} + cz_{65} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXXI
$\mathbf{B}_{126} =$	$-(x_{65} + y_{65}) \mathbf{a}_1 -$ $(x_{65} - y_{65}) \mathbf{a}_2 - z_{65} \mathbf{a}_3$	$=$	$-(ax_{65} + cz_{65} \cos \beta) \hat{\mathbf{x}} + by_{65} \hat{\mathbf{y}} -$ $cz_{65} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXXI
$\mathbf{B}_{127} =$	$(x_{66} - y_{66}) \mathbf{a}_1 +$ $(x_{66} + y_{66}) \mathbf{a}_2 + z_{66} \mathbf{a}_3$	$=$	$(ax_{66} + cz_{66} \cos \beta) \hat{\mathbf{x}} + by_{66} \hat{\mathbf{y}} + cz_{66} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXXII
$\mathbf{B}_{128} =$	$-(x_{66} + y_{66}) \mathbf{a}_1 -$ $(x_{66} - y_{66}) \mathbf{a}_2 - z_{66} \mathbf{a}_3$	$=$	$-(ax_{66} + cz_{66} \cos \beta) \hat{\mathbf{x}} + by_{66} \hat{\mathbf{y}} -$ $cz_{66} \sin \beta \hat{\mathbf{z}}$	(4c)	Tl XXXII

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