β-$Hg_3S_2Cl_2$ Structure: A2B3C2_cP224_223_abcdefk_j3k_il-001

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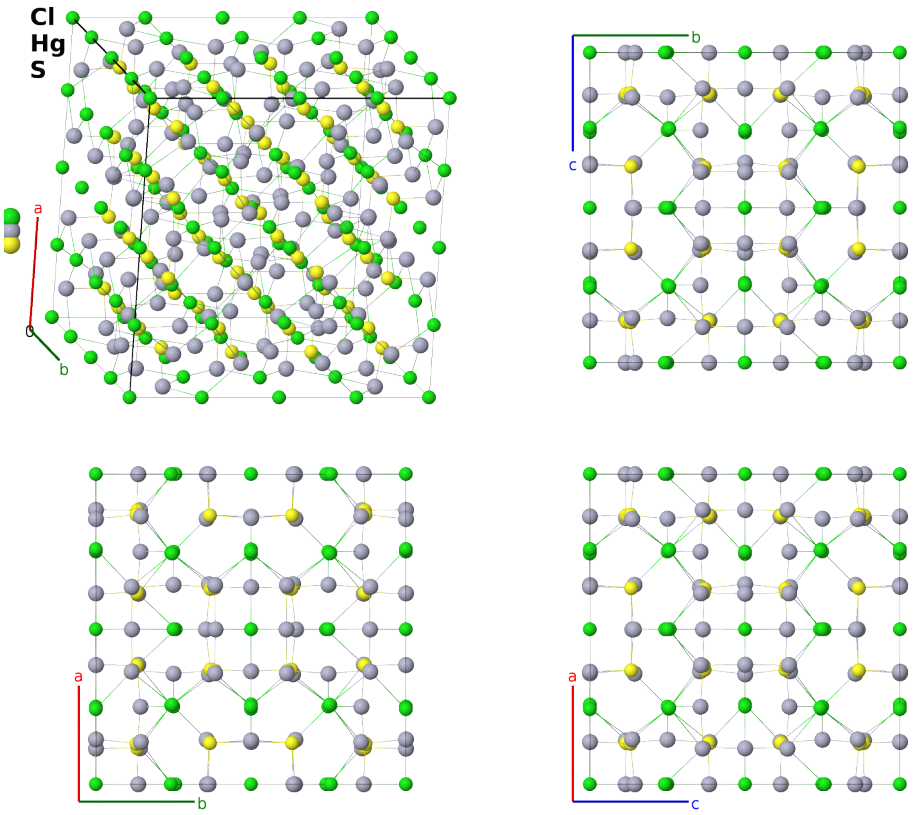
https://aflow.org/prototype-encyclopedia/UWQ4

https://aflow.org/prototype-encyclopedia/A2B3C2_cP224_223_abcdefk_j3k_il-001

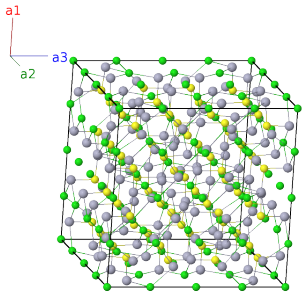


Prototype	$Cl_2Hg_3S_2$
AFLOW prototype label	A2B3C2_cP224_223_abcdefk_j3k_il-001
ICSD	83407
CCDC	1643454
Pearson symbol	cP224
Space group number	223
Space group symbol	$Pm\bar{3}n$
AFLOW prototype command	`aflow --proto=A2B3C2_cP224_223_abcdefk_j3k_il-001 --params=`$a, x_6, x_7, y_8, y_9, z_9, y_{10}, z_{10}, y_{11}, z_{11}, y_{12}, z_{12}, x_{13}, y_{13}, z_{13}$

- $Hg_3Cl_2S_2$ is found in three forms (Carlson, 1967):
  - Corderoite (α-$Hg_3Cl_2S_2$), the cubic ground state.
  - β-$Hg_3Cl_2S_2$, which appears above 340°C, another cubic phase with a much larger unit cell. (this structure)
  - Kenhsuite (γ-$Hg_3Cl_2S_2$), which on average has an orthorhombic lattice. This state is apparently metastable.

Simple Cubic primitive vectors

$$\begin{aligned}\mathbf{a_1} &= a\,\hat{\mathbf{x}}\\ \mathbf{a_2} &= a\,\hat{\mathbf{y}}\\ \mathbf{a_3} &= a\,\hat{\mathbf{z}}\end{aligned}$$



Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	0	=	0	(2a)	Cl I
$\mathbf{B_2}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(2a)	Cl I
$\mathbf{B_3}$	=	$\frac{1}{2}\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(6b)	Cl II
$\mathbf{B_4}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(6b)	Cl II
$\mathbf{B_5}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}}$	(6b)	Cl II
$\mathbf{B_6}$	=	$\frac{1}{2}\,\mathbf{a}_2$	=	$\frac{1}{2}a\,\hat{\mathbf{y}}$	(6b)	Cl II
$\mathbf{B_7}$	=	$\frac{1}{2}\,\mathbf{a}_1$	=	$\frac{1}{2}a\,\hat{\mathbf{x}}$	(6b)	Cl II
$\mathbf{B_8}$	=	$\frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{z}}$	(6b)	Cl II
$\mathbf{B_9}$	=	$\frac{1}{4}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(6c)	Cl III
$\mathbf{B_{10}}$	=	$\frac{3}{4}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(6c)	Cl III
$\mathbf{B_{11}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}}$	(6c)	Cl III
$\mathbf{B_{12}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}}$	(6c)	Cl III
$\mathbf{B_{13}}$	=	$\frac{1}{2}\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(6c)	Cl III
$\mathbf{B_{14}}$	=	$\frac{1}{2}\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(6c)	Cl III
$\mathbf{B_{15}}$	=	$\frac{1}{4}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}}$	(6d)	Cl IV
$\mathbf{B_{16}}$	=	$\frac{3}{4}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}}$	(6d)	Cl IV
$\mathbf{B_{17}}$	=	$\frac{1}{4}\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(6d)	Cl IV
$\mathbf{B_{18}}$	=	$\frac{3}{4}\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(6d)	Cl IV
$\mathbf{B_{19}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(6d)	Cl IV
$\mathbf{B_{20}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(6d)	Cl IV
$\mathbf{B_{21}}$	=	$\frac{1}{4}\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(8e)	Cl V
$\mathbf{B_{22}}$	=	$\frac{3}{4}\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(8e)	Cl V
$\mathbf{B_{23}}$	=	$\frac{3}{4}\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(8e)	Cl V

$\mathbf{B_{24}}$	=	$\frac{1}{4}\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(8e)	Cl V
$\mathbf{B_{25}}$	=	$\frac{3}{4}\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(8e)	Cl V
$\mathbf{B_{26}}$	=	$\frac{1}{4}\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(8e)	Cl V
$\mathbf{B_{27}}$	=	$\frac{1}{4}\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(8e)	Cl V
$\mathbf{B_{28}}$	=	$\frac{3}{4}\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(8e)	Cl V
$\mathbf{B_{29}}$	=	$x_6\,\mathbf{a}_1$	=	$ax_6\,\hat{\mathbf{x}}$	(12f)	Cl VI
$\mathbf{B_{30}}$	=	$-x_6\,\mathbf{a}_1$	=	$-ax_6\,\hat{\mathbf{x}}$	(12f)	Cl VI
$\mathbf{B_{31}}$	=	$x_6\,\mathbf{a}_2$	=	$ax_6\,\hat{\mathbf{y}}$	(12f)	Cl VI
$\mathbf{B_{32}}$	=	$-x_6\,\mathbf{a}_2$	=	$-ax_6\,\hat{\mathbf{y}}$	(12f)	Cl VI
$\mathbf{B_{33}}$	=	$x_6\,\mathbf{a}_3$	=	$ax_6\,\hat{\mathbf{z}}$	(12f)	Cl VI
$\mathbf{B_{34}}$	=	$-x_6\,\mathbf{a}_3$	=	$-ax_6\,\hat{\mathbf{z}}$	(12f)	Cl VI
$\mathbf{B_{35}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \left(x_6 + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + a\left(x_6 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(12f)	Cl VI
$\mathbf{B_{36}}$	=	$\frac{1}{2}\,\mathbf{a}_1 - \left(x_6 - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} - a\left(x_6 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(12f)	Cl VI
$\mathbf{B_{37}}$	=	$\left(x_6 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$a\left(x_6 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(12f)	Cl VI
$\mathbf{B_{38}}$	=	$-\left(x_6 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$-a\left(x_6 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(12f)	Cl VI
$\mathbf{B_{39}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(x_6 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(x_6 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(12f)	Cl VI
$\mathbf{B_{40}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(x_6 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(x_6 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(12f)	Cl VI
$\mathbf{B_{41}}$	=	$x_7\,\mathbf{a}_1 + x_7\,\mathbf{a}_2 + x_7\,\mathbf{a}_3$	=	$ax_7\,\hat{\mathbf{x}} + ax_7\,\hat{\mathbf{y}} + ax_7\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{42}}$	=	$-x_7\,\mathbf{a}_1 - x_7\,\mathbf{a}_2 + x_7\,\mathbf{a}_3$	=	$-ax_7\,\hat{\mathbf{x}} - ax_7\,\hat{\mathbf{y}} + ax_7\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{43}}$	=	$-x_7\,\mathbf{a}_1 + x_7\,\mathbf{a}_2 - x_7\,\mathbf{a}_3$	=	$-ax_7\,\hat{\mathbf{x}} + ax_7\,\hat{\mathbf{y}} - ax_7\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{44}}$	=	$x_7\,\mathbf{a}_1 - x_7\,\mathbf{a}_2 - x_7\,\mathbf{a}_3$	=	$ax_7\,\hat{\mathbf{x}} - ax_7\,\hat{\mathbf{y}} - ax_7\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{45}}$	=	$\left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_1 + \left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_2 - \left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{46}}$	=	$-\left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_1 - \left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_2 - \left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{47}}$	=	$\left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_2 + \left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{48}}$	=	$-\left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_2 + \left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{49}}$	=	$-x_7\,\mathbf{a}_1 - x_7\,\mathbf{a}_2 - x_7\,\mathbf{a}_3$	=	$-ax_7\,\hat{\mathbf{x}} - ax_7\,\hat{\mathbf{y}} - ax_7\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{50}}$	=	$x_7\,\mathbf{a}_1 + x_7\,\mathbf{a}_2 - x_7\,\mathbf{a}_3$	=	$ax_7\,\hat{\mathbf{x}} + ax_7\,\hat{\mathbf{y}} - ax_7\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{51}}$	=	$x_7\,\mathbf{a}_1 - x_7\,\mathbf{a}_2 + x_7\,\mathbf{a}_3$	=	$ax_7\,\hat{\mathbf{x}} - ax_7\,\hat{\mathbf{y}} + ax_7\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{52}}$	=	$-x_7\,\mathbf{a}_1 + x_7\,\mathbf{a}_2 + x_7\,\mathbf{a}_3$	=	$-ax_7\,\hat{\mathbf{x}} + ax_7\,\hat{\mathbf{y}} + ax_7\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{53}}$	=	$-\left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_1 - \left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_2 + \left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{54}}$	=	$\left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_1 + \left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_2 + \left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{55}}$	=	$-\left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_2 - \left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{56}}$	=	$\left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_2 - \left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(16i)	S I
$\mathbf{B_{57}}$	=	$\frac{1}{4}\,\mathbf{a}_1 + y_8\,\mathbf{a}_2 + \left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + ay_8\,\hat{\mathbf{y}} + a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{58}}$	=	$\frac{3}{4}\,\mathbf{a}_1 - y_8\,\mathbf{a}_2 + \left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} - ay_8\,\hat{\mathbf{y}} + a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24j)	Hg I

$\mathbf{B_{59}}$	=	$\frac{3}{4}\,\mathbf{a}_1 + y_8\,\mathbf{a}_2 - \left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} + ay_8\,\hat{\mathbf{y}} - a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{60}}$	=	$\frac{1}{4}\,\mathbf{a}_1 - y_8\,\mathbf{a}_2 - \left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} - ay_8\,\hat{\mathbf{y}} - a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{61}}$	=	$\left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + y_8\,\mathbf{a}_3$	=	$a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} + ay_8\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{62}}$	=	$\left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 - y_8\,\mathbf{a}_3$	=	$a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}} - ay_8\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{63}}$	=	$-\left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + y_8\,\mathbf{a}_3$	=	$-a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}} + ay_8\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{64}}$	=	$-\left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 - y_8\,\mathbf{a}_3$	=	$-a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} - ay_8\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{65}}$	=	$y_8\,\mathbf{a}_1 + \left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$ay_8\,\hat{\mathbf{x}} + a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{66}}$	=	$-y_8\,\mathbf{a}_1 + \left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$-ay_8\,\hat{\mathbf{x}} + a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{67}}$	=	$y_8\,\mathbf{a}_1 - \left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$ay_8\,\hat{\mathbf{x}} - a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{68}}$	=	$-y_8\,\mathbf{a}_1 - \left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$-ay_8\,\hat{\mathbf{x}} - a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{69}}$	=	$\frac{3}{4}\,\mathbf{a}_1 - y_8\,\mathbf{a}_2 - \left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} - ay_8\,\hat{\mathbf{y}} - a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{70}}$	=	$\frac{1}{4}\,\mathbf{a}_1 + y_8\,\mathbf{a}_2 - \left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} + ay_8\,\hat{\mathbf{y}} - a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{71}}$	=	$\frac{1}{4}\,\mathbf{a}_1 - y_8\,\mathbf{a}_2 + \left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{4}a\,\hat{\mathbf{x}} - ay_8\,\hat{\mathbf{y}} + a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{72}}$	=	$\frac{3}{4}\,\mathbf{a}_1 + y_8\,\mathbf{a}_2 + \left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{3}{4}a\,\hat{\mathbf{x}} + ay_8\,\hat{\mathbf{y}} + a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{73}}$	=	$-\left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 - y_8\,\mathbf{a}_3$	=	$-a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}} - ay_8\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{74}}$	=	$-\left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 + y_8\,\mathbf{a}_3$	=	$-a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} + ay_8\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{75}}$	=	$\left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{4}\,\mathbf{a}_2 - y_8\,\mathbf{a}_3$	=	$a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{4}a\,\hat{\mathbf{y}} - ay_8\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{76}}$	=	$\left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{3}{4}\,\mathbf{a}_2 + y_8\,\mathbf{a}_3$	=	$a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{3}{4}a\,\hat{\mathbf{y}} + ay_8\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{77}}$	=	$-y_8\,\mathbf{a}_1 - \left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$-ay_8\,\hat{\mathbf{x}} - a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{78}}$	=	$y_8\,\mathbf{a}_1 - \left(y_8 - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$ay_8\,\hat{\mathbf{x}} - a\left(y_8 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{79}}$	=	$-y_8\,\mathbf{a}_1 + \left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{4}\,\mathbf{a}_3$	=	$-ay_8\,\hat{\mathbf{x}} + a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{4}a\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{80}}$	=	$y_8\,\mathbf{a}_1 + \left(y_8 + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{3}{4}\,\mathbf{a}_3$	=	$ay_8\,\hat{\mathbf{x}} + a\left(y_8 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{3}{4}a\,\hat{\mathbf{z}}$	(24j)	Hg I
$\mathbf{B_{81}}$	=	$y_9\,\mathbf{a}_2 + z_9\,\mathbf{a}_3$	=	$ay_9\,\hat{\mathbf{y}} + az_9\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{82}}$	=	$-y_9\,\mathbf{a}_2 + z_9\,\mathbf{a}_3$	=	$-ay_9\,\hat{\mathbf{y}} + az_9\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{83}}$	=	$y_9\,\mathbf{a}_2 - z_9\,\mathbf{a}_3$	=	$ay_9\,\hat{\mathbf{y}} - az_9\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{84}}$	=	$-y_9\,\mathbf{a}_2 - z_9\,\mathbf{a}_3$	=	$-ay_9\,\hat{\mathbf{y}} - az_9\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{85}}$	=	$z_9\,\mathbf{a}_1 + y_9\,\mathbf{a}_3$	=	$az_9\,\hat{\mathbf{x}} + ay_9\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{86}}$	=	$z_9\,\mathbf{a}_1 - y_9\,\mathbf{a}_3$	=	$az_9\,\hat{\mathbf{x}} - ay_9\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{87}}$	=	$-z_9\,\mathbf{a}_1 + y_9\,\mathbf{a}_3$	=	$-az_9\,\hat{\mathbf{x}} + ay_9\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{88}}$	=	$-z_9\,\mathbf{a}_1 - y_9\,\mathbf{a}_3$	=	$-az_9\,\hat{\mathbf{x}} - ay_9\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{89}}$	=	$y_9\,\mathbf{a}_1 + z_9\,\mathbf{a}_2$	=	$ay_9\,\hat{\mathbf{x}} + az_9\,\hat{\mathbf{y}}$	(24k)	Cl VII
$\mathbf{B_{90}}$	=	$-y_9\,\mathbf{a}_1 + z_9\,\mathbf{a}_2$	=	$-ay_9\,\hat{\mathbf{x}} + az_9\,\hat{\mathbf{y}}$	(24k)	Cl VII
$\mathbf{B_{91}}$	=	$y_9\,\mathbf{a}_1 - z_9\,\mathbf{a}_2$	=	$ay_9\,\hat{\mathbf{x}} - az_9\,\hat{\mathbf{y}}$	(24k)	Cl VII
$\mathbf{B_{92}}$	=	$-y_9\,\mathbf{a}_1 - z_9\,\mathbf{a}_2$	=	$-ay_9\,\hat{\mathbf{x}} - az_9\,\hat{\mathbf{y}}$	(24k)	Cl VII
$\mathbf{B_{93}}$	=	$\left(y_9 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(z_9 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_9 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(z_9 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{94}}$	=	$-\left(y_9 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(z_9 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_9 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(z_9 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{95}}$	=	$\left(y_9 + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(z_9 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_9 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(z_9 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{96}}$	=	$-\left(y_9 - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(z_9 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_9 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(z_9 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{97}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \left(z_9 + \frac{1}{2}\right)\,\mathbf{a}_2 - \left(y_9 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + a\left(z_9 + \frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(y_9 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Cl VII
$\mathbf{B_{98}}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \left(z_9 + \frac{1}{2}\right)\,\mathbf{a}_2 + \left(y_9 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + a\left(z_9 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(y_9 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Cl VII

$\mathbf{B_{99}}$ = $\frac{1}{2}\,\mathbf{a}_1 - \left(z_9 - \frac{1}{2}\right)\,\mathbf{a}_2 - \left(y_9 - \frac{1}{2}\right)\,\mathbf{a}_3$ = $\frac{1}{2}a\,\hat{\mathbf{x}} - a\left(z_9 - \frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(y_9 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Cl VII

$\mathbf{B_{100}}$ = $\frac{1}{2}\,\mathbf{a}_1 - \left(z_9 - \frac{1}{2}\right)\,\mathbf{a}_2 + \left(y_9 + \frac{1}{2}\right)\,\mathbf{a}_3$ = $\frac{1}{2}a\,\hat{\mathbf{x}} - a\left(z_9 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(y_9 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Cl VII

$\mathbf{B_{101}}$ = $\left(z_9 + \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_9 + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$ = $a\left(z_9 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(y_9 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Cl VII

$\mathbf{B_{102}}$ = $\left(z_9 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_9 - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$ = $a\left(z_9 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(y_9 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Cl VII

$\mathbf{B_{103}}$ = $-\left(z_9 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_9 + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$ = $-a\left(z_9 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(y_9 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Cl VII

$\mathbf{B_{104}}$ = $-\left(z_9 - \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_9 - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$ = $-a\left(z_9 - \frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(y_9 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Cl VII

$\mathbf{B_{105}}$ = $y_{10}\,\mathbf{a}_2 + z_{10}\,\mathbf{a}_3$ = $ay_{10}\,\hat{\mathbf{y}} + az_{10}\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{106}}$ = $-y_{10}\,\mathbf{a}_2 + z_{10}\,\mathbf{a}_3$ = $-ay_{10}\,\hat{\mathbf{y}} + az_{10}\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{107}}$ = $y_{10}\,\mathbf{a}_2 - z_{10}\,\mathbf{a}_3$ = $ay_{10}\,\hat{\mathbf{y}} - az_{10}\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{108}}$ = $-y_{10}\,\mathbf{a}_2 - z_{10}\,\mathbf{a}_3$ = $-ay_{10}\,\hat{\mathbf{y}} - az_{10}\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{109}}$ = $z_{10}\,\mathbf{a}_1 + y_{10}\,\mathbf{a}_3$ = $az_{10}\,\hat{\mathbf{x}} + ay_{10}\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{110}}$ = $z_{10}\,\mathbf{a}_1 - y_{10}\,\mathbf{a}_3$ = $az_{10}\,\hat{\mathbf{x}} - ay_{10}\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{111}}$ = $-z_{10}\,\mathbf{a}_1 + y_{10}\,\mathbf{a}_3$ = $-az_{10}\,\hat{\mathbf{x}} + ay_{10}\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{112}}$ = $-z_{10}\,\mathbf{a}_1 - y_{10}\,\mathbf{a}_3$ = $-az_{10}\,\hat{\mathbf{x}} - ay_{10}\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{113}}$ = $y_{10}\,\mathbf{a}_1 + z_{10}\,\mathbf{a}_2$ = $ay_{10}\,\hat{\mathbf{x}} + az_{10}\,\hat{\mathbf{y}}$ (24k) Hg II

$\mathbf{B_{114}}$ = $-y_{10}\,\mathbf{a}_1 + z_{10}\,\mathbf{a}_2$ = $-ay_{10}\,\hat{\mathbf{x}} + az_{10}\,\hat{\mathbf{y}}$ (24k) Hg II

$\mathbf{B_{115}}$ = $y_{10}\,\mathbf{a}_1 - z_{10}\,\mathbf{a}_2$ = $ay_{10}\,\hat{\mathbf{x}} - az_{10}\,\hat{\mathbf{y}}$ (24k) Hg II

$\mathbf{B_{116}}$ = $-y_{10}\,\mathbf{a}_1 - z_{10}\,\mathbf{a}_2$ = $-ay_{10}\,\hat{\mathbf{x}} - az_{10}\,\hat{\mathbf{y}}$ (24k) Hg II

$\mathbf{B_{117}}$ = $\left(y_{10} + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(z_{10} - \frac{1}{2}\right)\,\mathbf{a}_3$ = $a\left(y_{10} + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(z_{10} - \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{118}}$ = $-\left(y_{10} - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(z_{10} - \frac{1}{2}\right)\,\mathbf{a}_3$ = $-a\left(y_{10} - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(z_{10} - \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{119}}$ = $\left(y_{10} + \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(z_{10} + \frac{1}{2}\right)\,\mathbf{a}_3$ = $a\left(y_{10} + \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(z_{10} + \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{120}}$ = $-\left(y_{10} - \frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(z_{10} + \frac{1}{2}\right)\,\mathbf{a}_3$ = $-a\left(y_{10} - \frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(z_{10} + \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{121}}$ = $\frac{1}{2}\,\mathbf{a}_1 + \left(z_{10} + \frac{1}{2}\right)\,\mathbf{a}_2 - \left(y_{10} - \frac{1}{2}\right)\,\mathbf{a}_3$ = $\frac{1}{2}a\,\hat{\mathbf{x}} + a\left(z_{10} + \frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(y_{10} - \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{122}}$ = $\frac{1}{2}\,\mathbf{a}_1 + \left(z_{10} + \frac{1}{2}\right)\,\mathbf{a}_2 + \left(y_{10} + \frac{1}{2}\right)\,\mathbf{a}_3$ = $\frac{1}{2}a\,\hat{\mathbf{x}} + a\left(z_{10} + \frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(y_{10} + \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{123}}$ = $\frac{1}{2}\,\mathbf{a}_1 - \left(z_{10} - \frac{1}{2}\right)\,\mathbf{a}_2 - \left(y_{10} - \frac{1}{2}\right)\,\mathbf{a}_3$ = $\frac{1}{2}a\,\hat{\mathbf{x}} - a\left(z_{10} - \frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(y_{10} - \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{124}}$ = $\frac{1}{2}\,\mathbf{a}_1 - \left(z_{10} - \frac{1}{2}\right)\,\mathbf{a}_2 + \left(y_{10} + \frac{1}{2}\right)\,\mathbf{a}_3$ = $\frac{1}{2}a\,\hat{\mathbf{x}} - a\left(z_{10} - \frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(y_{10} + \frac{1}{2}\right)\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{125}}$ = $\left(z_{10} + \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{10} + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$ = $a\left(z_{10} + \frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(y_{10} + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{126}}$ = $\left(z_{10} + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{10} - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$ = $a\left(z_{10} + \frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(y_{10} - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{127}}$ = $-\left(z_{10} - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{10} + \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$ = $-a\left(z_{10} - \frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(y_{10} + \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{128}}$ = $-\left(z_{10} - \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{10} - \frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$ = $-a\left(z_{10} - \frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(y_{10} - \frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Hg II

$\mathbf{B_{129}}$ = $y_{11}\,\mathbf{a}_2 + z_{11}\,\mathbf{a}_3$ = $ay_{11}\,\hat{\mathbf{y}} + az_{11}\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{130}} = -y_{11}\,\mathbf{a}_2 + z_{11}\,\mathbf{a}_3 = -ay_{11}\,\hat{\mathbf{y}} + az_{11}\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{131}} = y_{11}\,\mathbf{a}_2 - z_{11}\,\mathbf{a}_3 = ay_{11}\,\hat{\mathbf{y}} - az_{11}\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{132}} = -y_{11}\,\mathbf{a}_2 - z_{11}\,\mathbf{a}_3 = -ay_{11}\,\hat{\mathbf{y}} - az_{11}\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{133}} = z_{11}\,\mathbf{a}_1 + y_{11}\,\mathbf{a}_3 = az_{11}\,\hat{\mathbf{x}} + ay_{11}\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{134}} = z_{11}\,\mathbf{a}_1 - y_{11}\,\mathbf{a}_3 = az_{11}\,\hat{\mathbf{x}} - ay_{11}\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{135}} = -z_{11}\,\mathbf{a}_1 + y_{11}\,\mathbf{a}_3 = -az_{11}\,\hat{\mathbf{x}} + ay_{11}\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{136}} = -z_{11}\,\mathbf{a}_1 - y_{11}\,\mathbf{a}_3 = -az_{11}\,\hat{\mathbf{x}} - ay_{11}\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{137}} = y_{11}\,\mathbf{a}_1 + z_{11}\,\mathbf{a}_2 = ay_{11}\,\hat{\mathbf{x}} + az_{11}\,\hat{\mathbf{y}}$ (24k) Hg III

$\mathbf{B_{138}} = -y_{11}\,\mathbf{a}_1 + z_{11}\,\mathbf{a}_2 = -ay_{11}\,\hat{\mathbf{x}} + az_{11}\,\hat{\mathbf{y}}$ (24k) Hg III

$\mathbf{B_{139}} = y_{11}\,\mathbf{a}_1 - z_{11}\,\mathbf{a}_2 = ay_{11}\,\hat{\mathbf{x}} - az_{11}\,\hat{\mathbf{y}}$ (24k) Hg III

$\mathbf{B_{140}} = -y_{11}\,\mathbf{a}_1 - z_{11}\,\mathbf{a}_2 = -ay_{11}\,\hat{\mathbf{x}} - az_{11}\,\hat{\mathbf{y}}$ (24k) Hg III

$\mathbf{B_{141}} = \left(y_{11}+\frac{1}{2}\right)\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(z_{11}-\frac{1}{2}\right)\mathbf{a}_3 = a\left(y_{11}+\frac{1}{2}\right)\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(z_{11}-\frac{1}{2}\right)\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{142}} = -\left(y_{11}-\frac{1}{2}\right)\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(z_{11}-\frac{1}{2}\right)\mathbf{a}_3 = -a\left(y_{11}-\frac{1}{2}\right)\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(z_{11}-\frac{1}{2}\right)\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{143}} = \left(y_{11}+\frac{1}{2}\right)\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(z_{11}+\frac{1}{2}\right)\mathbf{a}_3 = a\left(y_{11}+\frac{1}{2}\right)\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(z_{11}+\frac{1}{2}\right)\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{144}} = -\left(y_{11}-\frac{1}{2}\right)\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(z_{11}+\frac{1}{2}\right)\mathbf{a}_3 = -a\left(y_{11}-\frac{1}{2}\right)\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(z_{11}+\frac{1}{2}\right)\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{145}} = \frac{1}{2}\,\mathbf{a}_1 + \left(z_{11}+\frac{1}{2}\right)\mathbf{a}_2 - \left(y_{11}-\frac{1}{2}\right)\mathbf{a}_3 = \frac{1}{2}a\,\hat{\mathbf{x}} + a\left(z_{11}+\frac{1}{2}\right)\hat{\mathbf{y}} - a\left(y_{11}-\frac{1}{2}\right)\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{146}} = \frac{1}{2}\,\mathbf{a}_1 + \left(z_{11}+\frac{1}{2}\right)\mathbf{a}_2 + \left(y_{11}+\frac{1}{2}\right)\mathbf{a}_3 = \frac{1}{2}a\,\hat{\mathbf{x}} + a\left(z_{11}+\frac{1}{2}\right)\hat{\mathbf{y}} + a\left(y_{11}+\frac{1}{2}\right)\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{147}} = \frac{1}{2}\,\mathbf{a}_1 - \left(z_{11}-\frac{1}{2}\right)\mathbf{a}_2 - \left(y_{11}-\frac{1}{2}\right)\mathbf{a}_3 = \frac{1}{2}a\,\hat{\mathbf{x}} - a\left(z_{11}-\frac{1}{2}\right)\hat{\mathbf{y}} - a\left(y_{11}-\frac{1}{2}\right)\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{148}} = \frac{1}{2}\,\mathbf{a}_1 - \left(z_{11}-\frac{1}{2}\right)\mathbf{a}_2 + \left(y_{11}+\frac{1}{2}\right)\mathbf{a}_3 = \frac{1}{2}a\,\hat{\mathbf{x}} - a\left(z_{11}-\frac{1}{2}\right)\hat{\mathbf{y}} + a\left(y_{11}+\frac{1}{2}\right)\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{149}} = \left(z_{11}+\frac{1}{2}\right)\mathbf{a}_1 + \left(y_{11}+\frac{1}{2}\right)\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3 = a\left(z_{11}+\frac{1}{2}\right)\hat{\mathbf{x}} + a\left(y_{11}+\frac{1}{2}\right)\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{150}} = \left(z_{11}+\frac{1}{2}\right)\mathbf{a}_1 - \left(y_{11}-\frac{1}{2}\right)\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3 = a\left(z_{11}+\frac{1}{2}\right)\hat{\mathbf{x}} - a\left(y_{11}-\frac{1}{2}\right)\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{151}} = -\left(z_{11}-\frac{1}{2}\right)\mathbf{a}_1 + \left(y_{11}+\frac{1}{2}\right)\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3 = -a\left(z_{11}-\frac{1}{2}\right)\hat{\mathbf{x}} + a\left(y_{11}+\frac{1}{2}\right)\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{152}} = -\left(z_{11}-\frac{1}{2}\right)\mathbf{a}_1 - \left(y_{11}-\frac{1}{2}\right)\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3 = -a\left(z_{11}-\frac{1}{2}\right)\hat{\mathbf{x}} - a\left(y_{11}-\frac{1}{2}\right)\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$ (24k) Hg III

$\mathbf{B_{153}} = y_{12}\,\mathbf{a}_2 + z_{12}\,\mathbf{a}_3 = ay_{12}\,\hat{\mathbf{y}} + az_{12}\,\hat{\mathbf{z}}$ (24k) Hg IV

$\mathbf{B_{154}} = -y_{12}\,\mathbf{a}_2 + z_{12}\,\mathbf{a}_3 = -ay_{12}\,\hat{\mathbf{y}} + az_{12}\,\hat{\mathbf{z}}$ (24k) Hg IV

$\mathbf{B_{155}} = y_{12}\,\mathbf{a}_2 - z_{12}\,\mathbf{a}_3 = ay_{12}\,\hat{\mathbf{y}} - az_{12}\,\hat{\mathbf{z}}$ (24k) Hg IV

$\mathbf{B_{156}} = -y_{12}\,\mathbf{a}_2 - z_{12}\,\mathbf{a}_3 = -ay_{12}\,\hat{\mathbf{y}} - az_{12}\,\hat{\mathbf{z}}$ (24k) Hg IV

$\mathbf{B_{157}} = z_{12}\,\mathbf{a}_1 + y_{12}\,\mathbf{a}_3 = az_{12}\,\hat{\mathbf{x}} + ay_{12}\,\hat{\mathbf{z}}$ (24k) Hg IV

$\mathbf{B_{158}} = z_{12}\,\mathbf{a}_1 - y_{12}\,\mathbf{a}_3 = az_{12}\,\hat{\mathbf{x}} - ay_{12}\,\hat{\mathbf{z}}$ (24k) Hg IV

$\mathbf{B_{159}} = -z_{12}\,\mathbf{a}_1 + y_{12}\,\mathbf{a}_3 = -az_{12}\,\hat{\mathbf{x}} + ay_{12}\,\hat{\mathbf{z}}$ (24k) Hg IV

$\mathbf{B_{160}} = -z_{12}\,\mathbf{a}_1 - y_{12}\,\mathbf{a}_3 = -az_{12}\,\hat{\mathbf{x}} - ay_{12}\,\hat{\mathbf{z}}$ (24k) Hg IV

$\mathbf{B_{161}} = y_{12}\,\mathbf{a}_1 + z_{12}\,\mathbf{a}_2 = ay_{12}\,\hat{\mathbf{x}} + az_{12}\,\hat{\mathbf{y}}$ (24k) Hg IV

$\mathbf{B_{162}}$ =	$-y_{12}\,\mathbf{a}_1 + z_{12}\,\mathbf{a}_2$	=	$-ay_{12}\,\hat{\mathbf{x}} + az_{12}\,\hat{\mathbf{y}}$	(24k)	Hg IV
$\mathbf{B_{163}}$ =	$y_{12}\,\mathbf{a}_1 - z_{12}\,\mathbf{a}_2$	=	$ay_{12}\,\hat{\mathbf{x}} - az_{12}\,\hat{\mathbf{y}}$	(24k)	Hg IV
$\mathbf{B_{164}}$ =	$-y_{12}\,\mathbf{a}_1 - z_{12}\,\mathbf{a}_2$	=	$-ay_{12}\,\hat{\mathbf{x}} - az_{12}\,\hat{\mathbf{y}}$	(24k)	Hg IV
$\mathbf{B_{165}}$ =	$\left(y_{12}+\frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(z_{12}-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_{12}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(z_{12}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{166}}$ =	$-\left(y_{12}-\frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - \left(z_{12}-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_{12}-\frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - a\left(z_{12}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{167}}$ =	$\left(y_{12}+\frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(z_{12}+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_{12}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(z_{12}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{168}}$ =	$-\left(y_{12}-\frac{1}{2}\right)\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + \left(z_{12}+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_{12}-\frac{1}{2}\right)\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + a\left(z_{12}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{169}}$ =	$\frac{1}{2}\,\mathbf{a}_1 + \left(z_{12}+\frac{1}{2}\right)\,\mathbf{a}_2 - \left(y_{12}-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + a\left(z_{12}+\frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(y_{12}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{170}}$ =	$\frac{1}{2}\,\mathbf{a}_1 + \left(z_{12}+\frac{1}{2}\right)\,\mathbf{a}_2 + \left(y_{12}+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + a\left(z_{12}+\frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(y_{12}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{171}}$ =	$\frac{1}{2}\,\mathbf{a}_1 - \left(z_{12}-\frac{1}{2}\right)\,\mathbf{a}_2 - \left(y_{12}-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} - a\left(z_{12}-\frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(y_{12}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{172}}$ =	$\frac{1}{2}\,\mathbf{a}_1 - \left(z_{12}-\frac{1}{2}\right)\,\mathbf{a}_2 + \left(y_{12}+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} - a\left(z_{12}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(y_{12}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{173}}$ =	$\left(z_{12}+\frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{12}+\frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$a\left(z_{12}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(y_{12}+\frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{174}}$ =	$\left(z_{12}+\frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{12}-\frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$a\left(z_{12}+\frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(y_{12}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{175}}$ =	$-\left(z_{12}-\frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{12}+\frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$-a\left(z_{12}-\frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(y_{12}+\frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{176}}$ =	$-\left(z_{12}-\frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{12}-\frac{1}{2}\right)\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$-a\left(z_{12}-\frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(y_{12}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + \frac{1}{2}a\,\hat{\mathbf{z}}$	(24k)	Hg IV
$\mathbf{B_{177}}$ =	$x_{13}\,\mathbf{a}_1 + y_{13}\,\mathbf{a}_2 + z_{13}\,\mathbf{a}_3$	=	$ax_{13}\,\hat{\mathbf{x}} + ay_{13}\,\hat{\mathbf{y}} + az_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{178}}$ =	$-x_{13}\,\mathbf{a}_1 - y_{13}\,\mathbf{a}_2 + z_{13}\,\mathbf{a}_3$	=	$-ax_{13}\,\hat{\mathbf{x}} - ay_{13}\,\hat{\mathbf{y}} + az_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{179}}$ =	$-x_{13}\,\mathbf{a}_1 + y_{13}\,\mathbf{a}_2 - z_{13}\,\mathbf{a}_3$	=	$-ax_{13}\,\hat{\mathbf{x}} + ay_{13}\,\hat{\mathbf{y}} - az_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{180}}$ =	$x_{13}\,\mathbf{a}_1 - y_{13}\,\mathbf{a}_2 - z_{13}\,\mathbf{a}_3$	=	$ax_{13}\,\hat{\mathbf{x}} - ay_{13}\,\hat{\mathbf{y}} - az_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{181}}$ =	$z_{13}\,\mathbf{a}_1 + x_{13}\,\mathbf{a}_2 + y_{13}\,\mathbf{a}_3$	=	$az_{13}\,\hat{\mathbf{x}} + ax_{13}\,\hat{\mathbf{y}} + ay_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{182}}$ =	$z_{13}\,\mathbf{a}_1 - x_{13}\,\mathbf{a}_2 - y_{13}\,\mathbf{a}_3$	=	$az_{13}\,\hat{\mathbf{x}} - ax_{13}\,\hat{\mathbf{y}} - ay_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{183}}$ =	$-z_{13}\,\mathbf{a}_1 - x_{13}\,\mathbf{a}_2 + y_{13}\,\mathbf{a}_3$	=	$-az_{13}\,\hat{\mathbf{x}} - ax_{13}\,\hat{\mathbf{y}} + ay_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{184}}$ =	$-z_{13}\,\mathbf{a}_1 + x_{13}\,\mathbf{a}_2 - y_{13}\,\mathbf{a}_3$	=	$-az_{13}\,\hat{\mathbf{x}} + ax_{13}\,\hat{\mathbf{y}} - ay_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{185}}$ =	$y_{13}\,\mathbf{a}_1 + z_{13}\,\mathbf{a}_2 + x_{13}\,\mathbf{a}_3$	=	$ay_{13}\,\hat{\mathbf{x}} + az_{13}\,\hat{\mathbf{y}} + ax_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{186}}$ =	$-y_{13}\,\mathbf{a}_1 + z_{13}\,\mathbf{a}_2 - x_{13}\,\mathbf{a}_3$	=	$-ay_{13}\,\hat{\mathbf{x}} + az_{13}\,\hat{\mathbf{y}} - ax_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{187}}$ =	$y_{13}\,\mathbf{a}_1 - z_{13}\,\mathbf{a}_2 - x_{13}\,\mathbf{a}_3$	=	$ay_{13}\,\hat{\mathbf{x}} - az_{13}\,\hat{\mathbf{y}} - ax_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{188}}$ =	$-y_{13}\,\mathbf{a}_1 - z_{13}\,\mathbf{a}_2 + x_{13}\,\mathbf{a}_3$	=	$-ay_{13}\,\hat{\mathbf{x}} - az_{13}\,\hat{\mathbf{y}} + ax_{13}\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{189}}$ =	$\left(y_{13}+\frac{1}{2}\right)\,\mathbf{a}_1 + \left(x_{13}+\frac{1}{2}\right)\,\mathbf{a}_2 - \left(z_{13}-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_{13}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + a\left(x_{13}+\frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(z_{13}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{190}}$ =	$-\left(y_{13}-\frac{1}{2}\right)\,\mathbf{a}_1 - \left(x_{13}-\frac{1}{2}\right)\,\mathbf{a}_2 - \left(z_{13}-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(y_{13}-\frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(x_{13}-\frac{1}{2}\right)\,\hat{\mathbf{y}} - a\left(z_{13}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(48l)	S II
$\mathbf{B_{191}}$ =	$\left(y_{13}+\frac{1}{2}\right)\,\mathbf{a}_1 - \left(x_{13}-\frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_{13}+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(y_{13}+\frac{1}{2}\right)\,\hat{\mathbf{x}} - a\left(x_{13}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + a\left(z_{13}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(48l)	S II

$$\mathbf{B_{192}} = -\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_1+\left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{193}} = \left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_1+\left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_2-\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{194}} = -\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_1+\left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_2+\left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{195}} = -\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_1-\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_2-\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{196}} = \left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_1-\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_2+\left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{197}} = \left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_2-\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{198}} = \left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_2+\left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{199}} = -\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_2+\left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{200}} = -\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_2-\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{201}} = -x_{13}\,\mathbf{a}_1-y_{13}\,\mathbf{a}_2-z_{13}\,\mathbf{a}_3 = -ax_{13}\,\hat{\mathbf{x}}-ay_{13}\,\hat{\mathbf{y}}-az_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{202}} = x_{13}\,\mathbf{a}_1+y_{13}\,\mathbf{a}_2-z_{13}\,\mathbf{a}_3 = ax_{13}\,\hat{\mathbf{x}}+ay_{13}\,\hat{\mathbf{y}}-az_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{203}} = x_{13}\,\mathbf{a}_1-y_{13}\,\mathbf{a}_2+z_{13}\,\mathbf{a}_3 = ax_{13}\,\hat{\mathbf{x}}-ay_{13}\,\hat{\mathbf{y}}+az_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{204}} = -x_{13}\,\mathbf{a}_1+y_{13}\,\mathbf{a}_2+z_{13}\,\mathbf{a}_3 = -ax_{13}\,\hat{\mathbf{x}}+ay_{13}\,\hat{\mathbf{y}}+az_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{205}} = -z_{13}\,\mathbf{a}_1-x_{13}\,\mathbf{a}_2-y_{13}\,\mathbf{a}_3 = -az_{13}\,\hat{\mathbf{x}}-ax_{13}\,\hat{\mathbf{y}}-ay_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{206}} = -z_{13}\,\mathbf{a}_1+x_{13}\,\mathbf{a}_2+y_{13}\,\mathbf{a}_3 = -az_{13}\,\hat{\mathbf{x}}+ax_{13}\,\hat{\mathbf{y}}+ay_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{207}} = z_{13}\,\mathbf{a}_1+x_{13}\,\mathbf{a}_2-y_{13}\,\mathbf{a}_3 = az_{13}\,\hat{\mathbf{x}}+ax_{13}\,\hat{\mathbf{y}}-ay_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{208}} = z_{13}\,\mathbf{a}_1-x_{13}\,\mathbf{a}_2+y_{13}\,\mathbf{a}_3 = az_{13}\,\hat{\mathbf{x}}-ax_{13}\,\hat{\mathbf{y}}+ay_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{209}} = -y_{13}\,\mathbf{a}_1-z_{13}\,\mathbf{a}_2-x_{13}\,\mathbf{a}_3 = -ay_{13}\,\hat{\mathbf{x}}-az_{13}\,\hat{\mathbf{y}}-ax_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{210}} = y_{13}\,\mathbf{a}_1-z_{13}\,\mathbf{a}_2+x_{13}\,\mathbf{a}_3 = ay_{13}\,\hat{\mathbf{x}}-az_{13}\,\hat{\mathbf{y}}+ax_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{211}} = -y_{13}\,\mathbf{a}_1+z_{13}\,\mathbf{a}_2+x_{13}\,\mathbf{a}_3 = -ay_{13}\,\hat{\mathbf{x}}+az_{13}\,\hat{\mathbf{y}}+ax_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{212}} = y_{13}\,\mathbf{a}_1+z_{13}\,\mathbf{a}_2-x_{13}\,\mathbf{a}_3 = ay_{13}\,\hat{\mathbf{x}}+az_{13}\,\hat{\mathbf{y}}-ax_{13}\,\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{213}} = -\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_1-\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{214}} = \left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_1+\left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{215}} = -\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_1+\left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{216}} = \left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_1-\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{217}} = -\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_1-\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_2+\left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{218}} = \left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_1-\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_2-\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{219}} = \left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_1+\left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_2+\left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{220}} = -\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_1+\left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_2-\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{221}} = -\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_2+\left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{222}} = -\left(z_{13}-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_2-\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(z_{13}-\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{223}} = \left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_{13}-\tfrac{1}{2}\right)\mathbf{a}_2-\left(x_{13}-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}-a\left(y_{13}-\tfrac{1}{2}\right)\hat{\mathbf{y}}-a\left(x_{13}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

$$\mathbf{B_{224}} = \left(z_{13}+\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_{13}+\tfrac{1}{2}\right)\mathbf{a}_2+\left(x_{13}+\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(z_{13}+\tfrac{1}{2}\right)\hat{\mathbf{x}}+a\left(y_{13}+\tfrac{1}{2}\right)\hat{\mathbf{y}}+a\left(x_{13}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (48l) \quad \text{S II}$$

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