Compass Calibration Log

Aircraft Type and Mark _____ **Aircraft Serial No** _____ **Work Order SNOW / Date** _____ **Sheet No** _____

Variation = True - Magnetic **Swing Commenced** _____ **Swing Completed** _____ **Date of Swing** _____

Place of Swing _____ **Reason for Swing** _____ **Surface Windspeed** _____

Navigator IC Swing _____ **Datum Compass Operator** _____

Compass Amp. Ser No. _____ **Start of Swing:** dc volts_____ ac volts_____ Frequency_____ **End of Swing:** dc volts_____ ac volts_____ Frequency_____

Correcting Swing

Main Compass

Approx Heading	Mag Hdg + Cor'n or Ins Hdg - Var'n (see Note)		Datum Heading (a)	Compass Heading (b)	Deviation (a - b)
South					
West					
North					
East					
Coefficient A					A = ____ / 4 =
Make Compass Read					
Coefficient B					B = ____ / 2 =
Make Compass Read					
South					
Coefficient C Sign Changed					C = ____ / 2 =
Make Compass Read					
South					
West					
North					
East					
Coefficient A					A = ____ / 4 =
Make Compass Read					
Coefficient B					B = ____ / 2 =
Make Compass Read					
South					
Coefficient C Sign Changed					C = ____ / 2 =
Make Compass Read					

Standby Compass

Datum Heading (a)	Compass Heading (c)	Deviation (a - c)
Coeff A		A = ____ / 4 =
Make Comp		
Coeff B		B = ____ / 2 =
Make Comp		
South		
C Sign Ch		C = ____ / 2 =
Make Comp		
Coeff A		A = ____ / 4 =
Make Comp		
Coeff B		B = ____ / 2 =
Make Comp		
South		
C Sign Ch		C = ____ / 2 =
Make Comp		

Calibration Swing

Main Compass

Approx Heading	Mag Hdg + Cor'n or Ins Hdg - Var'n (see Note)	Datum Heading (d)	Compass Heading (e)	Deviation (d - e)

Standby Compass

Datum Heading (d)	Compass Heading (f)	Deviation (d - f)

Note: Datum headings obtained from Watts Datum compass are to be entered in the **Datum Headings** columns.

Residual Coefficients:

$$A = \frac{Dev\ N + Dev\ E + Dev\ S + Dev\ W}{4}$$

$$B = \frac{Dev\ E - Dev\ W}{2}$$

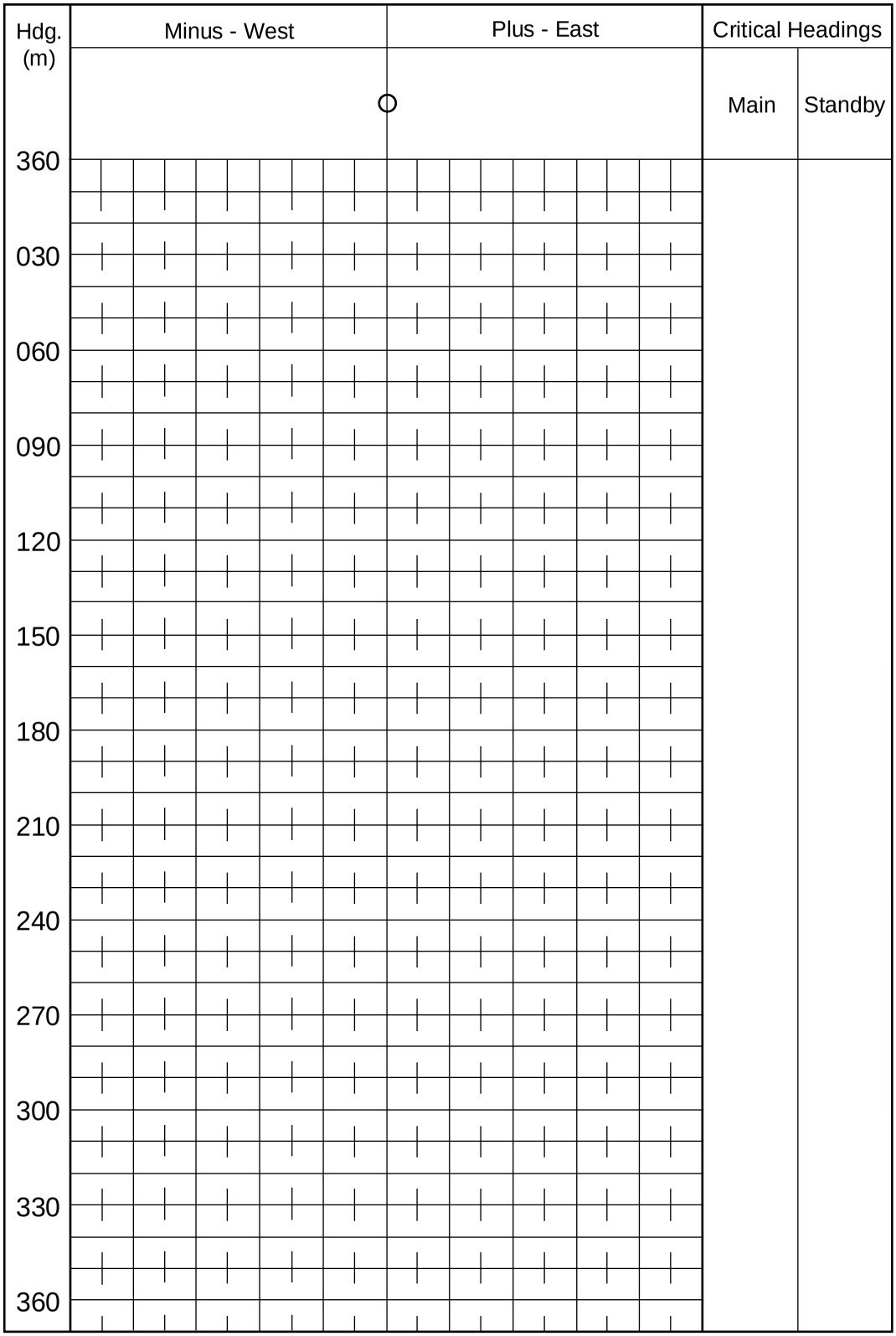
$$C = \frac{Dev\ N - Dev\ S}{2}$$

$$D = \frac{(Dev\ NE + Dev\ SW) - (Dev\ NW + Dev\ SE)}{4}$$

$$E = \frac{(Dev\ N + Dev\ S) - (Dev\ E + Dev\ W)}{4}$$

Corrector Current / Voltage as applicable	
'B'	'C'

Fourier/Residual Deviation Curve



Fourier Analysis (to be completed for refined swings only)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Comp Hdg	Dev Obs	Dev Calc	Diff	Diff Sqr'd	A	d_o (Col.2)	B	Sin θ	d_o (Col.2)	C	Cos θ	d_o (Col.2)	Diff	Sin 2θ	d_o (Col.2)	E	Cos 2θ
θ	± d_o	± d_c	d_o - d_c	Col 4 Sqr'd		X Sin θ			X Cos θ			X Sin 2θ			X Cos 2θ		
360								0			+1.0			0			+1.0
030								+0.5			+0.87			+0.87			+0.5
060								+0.87			+0.5			+0.87			- 0.5
090								+1.0			0			0			-1.0
120								+0.87			- 0.5			- 0.87			- 0.5
150								+0.5			- 0.87			- 0.87			+0.5
180								0			- 1.0			0			+1.0
210								- 0.5			- 0.87			+0.87			+0.5
240								- 0.87			- 0.5			+0.87			- 0.5
270								-1.0			0			0			-1.0
300								- 0.87			+0.5			- 0.87			- 0.5
330								- 0.5			+0.87			- 0.87			+0.5
Sums																	
Divi.	12					6			6			6			6		
Coeff.	A = ±					B = ±			C = ±			D = ±			E = ±		

Analysis Results:

50% Deviation Error _____ 50% A Error _____ 50% B - E Error _____

Calculated Coefficients:

A _____ B _____ C _____ D _____ E _____

Instructions for Fourier Analysis

1. Complete column 2 from the calibration log.

2. Divide sum of column 2 entries by 12 to get coefficient A.

3. Enter coefficient A in all lines of column 6.

4. Complete columns 7, 10, 13 and 16 by multiplying residual deviations in column 2 by sin θ, cos θ, sin 2θ and cos 2θ respectively. (The values of these functions are given in columns 9, 12, 15 and 18.)

5. Summate each of columns 7, 10, 13 and 16 and divide sums by 6 to obtain coefficients B, C, D and E.

6. Complete columns 8, 11, 14 and 17 by multiplying coefficients B, C, D and E by the sin θ, cos θ, sin 2θ and cos 2θ.

7. Line by line for each heading summate the figures in columns 6, 8, 11, 14 and 17 and enter in column 3. (The sum of column 3 should be equal to the sum of column 6).

8. Complete columns 4 and 5. (The sum of column 4 should differ from zero by only a small amount).

9. Enter table 3 with the sum of column 5 to obtain the 50% errors.

10. Draw up deviation curve on reverse of sheet 1 using values of calculated deviation from column 3.

Comments:

Checked by: _____

Signature: _____