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

Calibration Swing

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

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

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

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

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

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

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

Fourier/Residual Deviation Curve

Hdg. (m)	Minus - West	Plus - East	Critical Headings	
			Main	Standby
360				
030				
060				
090				
120				
150				
180				
210				
240				
270				
300				
330				
360				

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	$\pm d_o$	$\pm d_c$	$d_o - d_c$	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 = ±		

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.

Analysis Results:

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

Calculated Coefficients:

A _____ B _____ C _____ D _____ E _____

Comments:

Checked by:

Signature: