

# 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								Calibration Swing							
Main Compass					Standby Compass			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)	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)
South															
West															
North															
East															
Coefficient A				A = _____	Coeff A	A = _____									
Make Compass Read				= 4	Make Comp	= 4									
Coefficient B				B = _____	Coeff B	B = _____									
Make Compass Read				= 2	Make Comp	= 2									
South					South										
Coefficient C Sign Changed				C = _____	C Sign Ch	C = _____									
Make Compass Read				= 2	Make Comp	= 2									
South															
West															
North															
East															
Coefficient A				A = _____	Coeff A	A = _____									
Make Compass Read				= 4	Make Comp	= 4									
Coefficient B				B = _____	Coeff B	B = _____									
Make Compass Read				= 2	Make Comp	= 2									
South					South										
Coefficient C Sign Changed				C = _____	C Sign Ch	C = _____									
Make Compass Read				= 2	Make Comp	= 2									

**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 <sub>o</sub> (Col.2)	B	Sin θ	d <sub>o</sub> (Col.2)	C	Cos θ	d <sub>o</sub> (Col.2)	Diff	Sin 2θ	d <sub>o</sub> (Col.2)	E	Cos 2θ
θ	± d <sub>o</sub>	± d <sub>c</sub>	d <sub>o</sub> - d <sub>c</sub>	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:

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Checked by:

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Signature: