Instructions for Use

MOD Form 712A - Compass Calibration Log

1.   **General.** The MOD Form 712A is used to record and calculate figures taken during a compass swing. The instructions are based on a generic procedure and personnel should always refer to their associated Air System Document Set for specific instructions.

Notes:

1.   Great care must be taken by the compass swing team to ensure that both the datum instrument and aircraft compass systems are read simultaneously, to their limits of accuracy.

2.   The compass system must be allowed to settle after each change of heading before the actual reading is taken, since one inaccurate reading may necessitate the whole swing being repeated.

3.   The current limits of accuracy for individual systems are detailed in the relevant aircraft maintenance manual.

4.   For the refined compass swing, the Watts Datum Compass must be used in accordance with AP3456 Volume 5.

2.   **Insertion and Removal.** MOD Forms 712A are to be inserted into and removed from, the MOD Form 700C iaw the instructions for controlled forms, as detailed on the MOD Form 799/1 - General Instructions for Use.

3.   **Corrective Swing.** The purpose of the correcting swing is to reduce all the correctable coefficients to within the limits set. This swing may have to be repeated several times to achieve the required accuracy. Each correcting swing must be entered in sequential blocks on the front page of the MOD Form 712A. The procedure is as follows (all headings must be within SE of those stated):

   a.   Head the aircraft on South; record the aircraft and datum compass readings.

   b.   Head the aircraft on West; record the aircraft and datum compass readings.

   c.   Head the aircraft on North; record the aircraft and datum compass readings.

   d.   Head the aircraft on East; record the aircraft and datum compass readings.

   e.   Calculate and record the deviations (datum heading minus compass heading).

4.   Sum the deviations algebraically and divide by 4 to find coefficient A.

5.   Apply coefficient A to the compass reading (SIGN UNCHANGED) and correct the compass.

6.   Calculate coefficient B:

$$B = \frac{(\delta E - \delta W)}{(2)}$$

7.   Apply coefficient B (SIGN UNCHANGED) to the resultant compass reading after correcting for coefficient A and, with the aircraft still on EAST, correct the compass.

8.   Calculate coefficient C:

$$C = \frac{(\delta N - \delta S)}{(2)}$$

9.   Turn the aircraft to South, record new aircraft compass heading, apply coefficient C (SIGN UNCHANGED) to this reading and correct the compass.

Note: When there are no coefficients to be corrected, the calibration swing may start (see **Para 10**).

10.   **Calibration Swing.** The purpose of the calibration swing is to ensure that coefficient A has been removed and that the residual deviation is within the limits laid down in the relevant aircraft maintenance manual.

11.   **Standard Swing.** The following procedure must be used for the standard swing:

   a.   In the 'Aircraft Approx Heading' column of the calibration swing, record the aircraft heading at 45-degree intervals, on successive lines, beginning at SW (225 degrees).

   b.   Place the aircraft on each of these heading intervals in turn, and record readings in the deviation columns.

   c.   Check coefficient A by calculating the algebraic sum of the deviations recorded and dividing by eight.

d.   If the deviation figures are within tolerance and no further adjustment is required for coefficient A, the swing can be terminated, and the residual deviation graph interpolated.

12. **Refined Swing.** The following procedure must be used for the refined swing:

a.   In the 'Aircraft Approx Heading' column of the calibration swing, record the aircraft heading at 30-degree intervals, on successive lines, beginning at SSW (210 degrees).

b.   Place the aircraft on each of these heading intervals in turn and record the aircraft and datum compass readings in columns (d), (e) and (f) as necessary.

c.   Calculate the deviation on each heading and record in the deviation columns.

d.   Check coefficient A by calculating the algebraic sum of the deviations recorded and divide by twelve.

e.   If the deviation figures are within tolerance and no further adjustment is required for coefficient A, the swing can be terminated, and the results used to produce the Fourier Analysis.

13. **Retention and Disposal.** MOD Forms 712A are category D documents and are to be retained in accordance with MAM-D PART 1 Ch 2.3.