The Guyana Civil Aviation Authority
82 Premniranjan Place
Prashad Nagar
Greater Geogetown

Telephone Nos. 227-5561, 2271219
Fax 225-6800

ADVISORY CIRCULAR

AIRWORTHINESS No. 10

Subject: COMPASS COMPENSATION

Date Initiated: 05/07/2005
Initiated by: DGCA

1. PURPOSE

This Advisory Circular (AC) provides information and guidance concerning an acceptable means of compliance with Regulation 44 of the Guyana Civil Aviation (Air Navigation) Regulations, and Part 7.1.2 of the Guyana Aviation Requirements, with regards to Minimum Aircraft Navigation Performance (systems/instruments), under which compasses form a part of the requirement.

2. CANCELLATION

This Advisory Circular (Airworthiness No. 10) cancels all previously issued Circulars/Publications relating to the subject.

3. Effectivity

This Advisory Circular affects all aircraft registered in Guyana and is effective September 01, 2005.

4. RELATED READING MATERIALS

a. GCARs - Regulation 44.

b. GARs - Part 7.1.2.

5. DIRECT READING MAGNETIC COMPASSES - ESTABLISHING AND MAINTAINING ACCURACY

5.1 Introduction

a. All aircraft registered in Guyana are required to have installed a serviceable, compensated, direct reading magnetic compass, whether that compass is intended for use as a primary or a standby heading indicator.

b. The purpose of this AC is to detail requirements relating to the deviation compensation (swinging) and checking of magnetic compasses for the purpose of establishing and ensuring compass accuracy, and the recording of residual deviation on a deviation card.

5.2 General

Depending on the purpose for which it is being conducted, there are two basic procedures which may be used to accomplish a compass swing, such as:

a. Compass Swinging and Deviation Compensation

This is a detailed procedure which is normally used for the purpose of compensating the compass to reduce residual deviation at all compass points to an acceptable level. The procedure involves observing the compass readings on different headings of the aircraft, calculating the deviation errors and determining coefficients, neutralizing the magnetic fields of the aircraft by adjustment of permanent-magnet compensator devices and recording any residual deviations on a deviation card.

b. Compass Check Swing

This is a less detailed procedure which is used to compare current compass readings with those recorded on the existing deviation card. The compass check swing requires that compass readings be observed only on the four cardinal compass points.

6. REQUIREMENT - COMPASS INSTALLATION, SWINGING AND COMPENSATING

6.1 Swinging and compensating of magnetic compasses, as outlined in paragraph 4.2 (a) above must be accomplished following:

a. Installation in new aircraft.

b. Replacement of existing compasses.

c. Installation or replacement of a separate deviation compensator device.

d. A compass check swing during which a difference was noted between the current deviation and that recorded on the deviation card.

6.2 Magnetic compass check swings as described in paragraph 4.2 (b) above are sufficient on occasions other than those detailed in paragraph 4.2 (a), and must be performed each 12 months and immediately following:

a. A check inspection if prescribed by the Maintenance Schedule, but in any case not to exceed 12 months.

b. Reported or suspected inaccuracies in heading indications.

c. Any modification or repair involving magnetic material.

d. Any significant repair to electrical or radio systems, particularly those in the vicinity of the compass.

e. Exposure of the compass to a shock, such as, that caused by a heavy landing.

f. Exposure to a severe electrical storm or lightning strike.

g. Exposure of the aircraft to a magnetic crack detection examination.

h. Long term storage of the aircraft.

i. Loading of the aircraft with a cargo that may have a magnetic influence on the compass.

6.3 The compass shall be installed such that following compensation, the residual deviation does not exceed 5^{o}. Also, the change in deviation resulting from movement of or interaction between other components such as control movement, or the worst likely combination of electrical interference shall not exceed 5^{o}.

6.4 After completion of each compass swing and deviation compensation procedure outlined in paragraph 2.1(a), a deviation card shall be compiled for installation on or near the magnetic compass and shall state the following information:

a. Deviation (errors) of the installation in level cruising flight with all engines operating. The deviations shall be stated clearly and shall be related to standard headings at intervals not exceeding 30^{o} for small aircraft or 45^{o} for large aircraft (Ref JAR 23 and JAR 25).

b. State whether the deviations were measured with the radio installation switched on or off.

7. RECORDING AND CERTIFYING COMPASS SWINGS

7.1 Following compass swinging and compensating, details shall be entered on the deviation card relating to aircraft type and registration, compass type and serial number, place and date of swing, signature and authority of compiler.

7.2 Following a compass swing and compensation, or a compass check swing, a record of the swing shall be entered and certified in the aircraft logbook by a person authorised to do so.

8. PROCEDURES FOR CONDUCTING COMPASS SWINGS

The procedures for performing compass swinging and compensating, and for compass check swings must be acceptable to the Director General of Civil Aviation. Acceptable procedures may be contained in the equipment or aircraft maintenance manuals, or in other documents such as the CAA Civil Aircraft Inspection Procedures.

C Ramphul
Director General of Civil Aviation