PIARCO INTERNATIONAL NOTAM OFFICE

EASTERN CARIBBEAN ACAS POLICY AND IMPLEMENTATION SCHEDULE

REISSUE:-   Replaces AIC 02/00 dated 10th August 2000

PIARCO FIR

1.   **Introduction**

The objective of this AIC is to describe the E/CAR ACAS Policy. It also gives an overview of the ACAS implementation schedule adopted in the PIARCO FIR and the associated TMAs and CTRs.

2.   **ACAS Description**

ACAS is a safety equipment alerting pilots to the presence of transponder-equipped aircraft in the vicinity and providing assistance in the detection and resolution of potential conflict. The equipment is designed to operate independently of ground-based systems used by air traffic services for the prevention of collisions.
ACAS 2 provides two types of conflict advisories to the flight crew:

- Traffic Advisories (TAs) are indications showing the approximate position of transponding aircraft in the vicinity which may become a threat;

- Resolution Advisories (RAs) recommend manoeuvres or manoeuvre restrictions in the vertical plane to resolve conflicts with aircraft transponding SSR altitude reports.

ACAS 2, which is now available for implementation aboard aircraft, is known as TCAS 2. It is expected that TCAS 2 equipped aircraft will operate the equipment at all times when they are flying in PIARCO FIR and the associated TMAs and CTRs. Results of international safety studies show that there is a significant safety bebefit to be gained from a widespread carriage and operation of the Airborne Collision Avoidance System, TCAS 2. Operational experience in North America and in Europe shows that TCAS 2 perform effectively as an Airborne Avoidance System. In addition, new
TCAS 2 software (version 7) is being developed to further improve TCAS 2 operational acceptability.
Note: Compulsory carrying of transponders has been established in the E/CAR airspace.

ACAS POLICY AND IMPLEMENTATION SCHEDULE

Eastern Caribbean ACAS policy is to require the mandatory carriage and operation of an ACAS conforming to ICAO SARPs in the PIARCO FIR and the associated TMAs and CTRs. An implementation schedule has been adopted for mandatory carriage and operation of ACAS 2 such that:

1- With effect from 1st January 2002, all civil fixed-wing turbine-engine aircraft having a maximum take-off mass exceeding 15,000 kg, or a maximum approved passenger seating configuration of more than 30 shall be required to be equipped with ACAS 2.

2- With effect from 1st January 2005, all civil fixed-wing turbine-engine aircraft having a maximum take-off mass exceeding 5,700 kg, or a maximum approved passenger seating configuration of more than 19 shall be required to be equipped with ACAS 2, and,

3- In the interest of the earliest safety benefit, all aircraft operators are encouraged to equip with ACAS 2 compatible equipment as soon as possible in anticipation of any future compulsory date.

3. PROCEDURE TO BE FOLLOWED BY PILOTS

The ICAO provisions concerning the use of Airborne Collision Avoidance Systems indications are contained in PANS OPS (Doc 8168). Pilots shall comply with the operating procedures approved by the appropriate authority, in conformity with these provisions.

5. RESPONSIBILITY FOR SEPARATION OF AIRCRAFT DURING MANOEUVRES IN COMPLIANCE WITH A RESOLUTION ADVISORY.

For Air Navigation Services, the ICAO provisions in regard to aircraft equipped with Airborne Collision Avoidance Systems are contained in PANS- ATM (Doc 4444).
The use of ACAS does not alter the respective responsibilities of pilots and controllers for the safe operation of aircraft. On being notified that an aircraft under air traffic control is manoeuvring in accordance with a Resolution Advisory, a controller should not issue instructions to that aircraft, which are contrary to the resolution advisory as communicated by the pilot. Once an aircraft departs from an assigned ATC clearance in compliance with a Resolution Advisory, the Air Traffic Controllers within the whole airspace concerned by the manoeuvre induced by the Resolution Advisory, cease to be responsible for providing separation between that aircraft and other aircraft affected as a direct consequence of the manoeuvre. However, when circumstances permit, the controllers should endeavour to provide traffic information to aircraft affected by the manoeuvre and which may be known by the controllers. The controllers' responsibility for providing separation for all affected aircraft resumes when either:

a) The affected controller acknowledges a report from the pilot that the aircraft has resumed its assigned clearance, or

b) The affected controller acknowledges a report from the pilot that the aircraft is resuming its assigned clearance and issues an alternative clearance, which is acknowledged by the pilot.

6. REPORTING PHRASEOLOGY FOR RESOLUTION ADVISORY

Standard phraseology has been agreed internationally and recommended for adoption by ICAO. The phraseology to be used for the notification of manoeuvres in response to a Resolution Advisory is contained in appendix A of this circular.

7. ACAS II IMPLEMENTATION MONITORING

The contribution of operational personnel who take the time to complete Resolution Advisory report forms is essential because it provides a reliable means to monitor the ACAS implementation and to analyse ATS incidents with the aim of improving service quality.
For these reasons, flight crew are encouraged to report all TCAS resolution advisories including those which occur in the PIARCO FIR and associated TMAs/CTRs.
A copy of the ACAS Resolution Advisory report form is contained in appendix B of this circular.

8. RESOLUTION ADVISORY REPORTING PROCEDURE

Aircraft operators should dispatch all completed pilot report forms as soon as possible to the ATC unit responsible for providing ATS at the occurrence of the RA. A copy of the ACAS Resolution Advisory report form is contained in appendix B of this circular.

APPENDIX A
PHRASEOLOGY FOR ACAS
(Doc 4444 Ch 12 §3.1)

Circumstances	Phraseologys
After modifying vertical speed to comply with an ACAS Resolution Advisory (pilot and controller interchange)	*f) TCAS CLIMB (or DESCENT): g) (acknowledgement)
After ACAS 'Clear of Conflict' is announced (pilot and controller interchange)	*t) RETURNING TO (assigned clearance): u) (acknowledgement) (or alternative instructions)
After the response to an ACAS Resolution Advisory is completed (pilot and controller interchange)	*v) TCAS CLIMB (or DESCENT) RETURNING TO (assigned clearance): w) (acknowledgement) (or alternative instructions)
After returning to clearance after responding to an ACAS Resolution Advisory (pilot and controller interchange)	*x) TCAS CLIMB (or DESCENT) COMPLETED, (assigned clearance) RESUMED: y) (acknowledgement) (or alternative instructions)
When unable to comply with a clearance because of an ACAS Resolution Advisory (pilot and controller interchange)	*z) UNABLE TO COMPLY< TCAS RA aa) (acknowledgement):

- Denotes pilot transmission

APPENDIX B
ACAS RESOLUTION ADVISORY PILOT REPORT FORM

(Fill in blanks/circle correct answers)	

Aircraft Operator	

Name	Telephone
(optional information)	

Aircraft ID	Registration	Type

Aerodrome of Departure	Destination

Own altitude (when RA issued	ft/FL	Clearance ft/FL

Own aircraft position FIR:	VOR:	Radial:	DME:

Or	LAT:		LONG:

Or	TMA SID/STAR Procedure:

Or	Radar Vectoring:

ATC Unit:	Frequency:	SSR Code:

Phase of flight: Take-off/Climb/Cruise/Initial Descent/Hold/Approach/Final/Missed Approach

TA Information(before RA)	TA Issued?: YES/NO	Visual contact Following TA?: YES/NO

RA Information

(Intruders Information)	Bearing	O'Clock	Range	NM
	Relative altitude		ft above/below Climb/Level/Descent	

Original RA	Reduce Climb/Reduce Descent/Monitor Vertical Speed
	If Reduce/Monitor Vertical Speed, limits fpm to fpm

Subsequent Message (s)	Climb Now/Descend Now/Increase Climb/Increase Descent/Monitor Vertical Speed/ Clear of Conflict.

Did you follow the RA?	YES/NO	If YES, estimated deviation from clearance

Was RA ?	Necessary/Useful/Nuisance

Traffic information from ATC?	YES/NO

ATC avoidance manoeuvre?	YES/NO	If yes, compatible with RA?	YES/NO

Flight conditions	IMC/VMC	Day/Night	Visibility	NM