



**CIVIL AVIATION DIRECTION GENERAL
AIR NAVIGATION DEPARTMENT
AIS/MAP**

AIC

AFS: MROCYOYX
TEL/FAX: (506)220-0923
Mail Box: 5026-1000, San José, Costa

**AERONAUTICAL INFORMATION
CIRCULAR**

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Web page: www.dgac.go.cr
e-mail: aiscr@dgac.go.cr

A. T. S.

**GUIDES FOR USE OF TCAS II (ACAS II)
ON COSTA RICA AIR SPACE**

The Civil Aviation Direction General, based on circular AN 11/19-02/82 of International Civil Aviation Organization (I.C.A.O.) related "ACAS Dispositions and Operational Procedures", reminds pilots and aircraft operating companies, the guides and operation warnings of TCAS II (ACAS II : (Airborne Collision Avoidance system).

1. INTRODUCTION

- 1.1 The purpose of this circular is to offer the guides and operation warning TCAS II, (ACAS II) and the use of indications of Traffic Warnings and Resolutions Advisories that this can generate. The observance of these guides, will improve the operative procedures of pilots and controllers.
- 1.2 The operator won't manage a turbine airplane over 15.000 kg maximum certified take-off mass and any turbojet airplane, after January 01 2003, unless it is equipped at least with an ACAS II Collision Avoidance System, which will work pursuant with pertinent dispositions of Annex 10 Aeronautical Telecommunications -, Volume IV–Surveillance Radar and Collision Avoidance System - (RAC OPS Part I Section OPS 1668– Airborne Collision Avoidance System –ACAS II)

2.- AVOIDANCE SYSTEM PROCEDURES

- 2.1- **Procedures for Air Navigation Services –Air Traffic Management** (PANS-ATM, Doc. **4444**) paragraph 15.6.3.2, is required that "When pilot notifies maneuver performing due to a resolution warning ACAS (RA), the controller won't try to modify the flight path of the aircraft until receiving the pilot's indication understanding that this again adheres to the terms of the instruction or authorization in force of air traffic control, but it will provide information on traffic, as appropriate"



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-02-

- 2.2- Also, in the instruction objectives for pilots about ACAS based on the performance (that figures in E attachment to communication AN 7/1.3.72-97/77, dated 1997 August 08) it is declared in clause 12) of paragraph b) of item 3.2.3 that "if the pilots receive instructions simultaneously for maneuvers of ATC and from RA that are in conflict, the pilot should follow the RA." The reason of this declaration consists that perhaps the ATC do not have knowledge of a RA and it can emit instructions that are contrary to the RA.

- 2.3- In application of the procedures, the following aspects are emphasized:

Traffic Advisories.

Pilots won't maneuver by themselves, based on information of a Warning Traffic.

The TCAS II (ACAS II) it is not able to solve accurately the traffic conflicts because of headings or bearings.

Also, the information shown in a traffic Warning, or vertically conflicting traffic, it is not enough accurate to allow the execution of maneuvers of vertical avoid. The information of Traffic Warning shall be used to attend the positive visual identification of the conflicting traffic and alert the pilot that there might exist, a reduction on safety minimums

- 2.4- Resolution Advisories)

a)- **All resolution advisories shall be followed**, unless the pilot can identify visually, conflicting traffic and decide that it is not necessary a deviation of the flight course in which he is. When subsequently, the Advisory Resolution changes, the pilot shall respond quickly in compliance with indications. Fails in the execution of a resolution advisory, it can result in a vertical separation smaller than the desired.

b) -Vertical speeds higher than those demanded by the Resolution Advisory must be avoided. This will reduce the excessive altitude deviations, between the aircraft in conflict and the others.



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-03-

c) - If it chooses not to follow the Resolution Advisory, maneuvers never shall be done in the opposite direction to that indicated on Resolution Advisory. This is particularly important so the system can coordinate, unknowing the pilot, with another equipped aircraft.

d) - Recuperative maneuvers shall be adopted to resume the authorization assigned by Air Traffic Services, immediately after the system announces "**clear of conflict.**"

3. **AIRCRAFT SEPARATION RESPONSIBILITY DURING MANEUVERS IN COMPLIANCE OF A RESOLUTION ADVISORY.**

3.1 Use of TCAS II (ACAS II), doesn't exempt of their respective responsibilities, pilots and controllers, of the safe operation of the aircraft. Once notified that an aircraft under Air Traffic control is maneuvering in compliance of a resolution advisory, the controller shall not offer instructions to that aircraft contrary to the Resolution Advisory notified by the pilot. Once an aircraft leave a clearance of Air Traffic services, in compliance of a Resolution Advisory, **the controller stops of being responsible to offer separation between that aircraft and another aircraft affected as direct consequence of maneuver induced by a Resolution Advisory.** Nevertheless, when circumstances allow it, the controller will offer information to aircrafts affected by maneuvers, the controller's responsibility to offer separation to all the aircrafts affected is given when.

a) - The controller collates a pilot's report that the aircraft has renewed their assigned clearance, or

b) - The controller collates a pilot's report that the aircraft is assuming their assigned clearance and performs an alternative clearance, which is collated by the pilot.



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-04-

4 RADIO-TELEPHONIC REPORT PROCEDURES

- 4.1 Particular reference to TCAS (ACAS) system shall not be made, in a possible request of traffic information following a Traffic Warning. These requests shall be the minimum strict and they shall be limited to possible targets that cannot be seen and may cause anxiety.
- 4.2 A Resolution Advisory shall be notified to Air Traffic Services, only when the maneuver induced by the system, induces the pilot deviate from assigned clearance. The pilot shall notify the controller the heading given by the Resolution Advisory and its conclusion. Nevertheless it is not required the pilot to notify to the controller before responding the Resolution Advisory.
- 4.3 The reports that the pilot shall perform when a Resolution Advisory induces to a deviation from a clearance of Air Traffic Services, shall contain:
- a) - Name of ATC unit.
 - b) - Registration of the aircraft
 - c) - Specific Indication of deviation.

NOTE: An incident report sheet is attached, which shall be delivery as soon as possible to Civil Aviation Direction General in a term not longer than seventy two hours from the incident (RAC OPS I, Section OPS 1420– Incidences Communication, c).

THE AIC 98/A04 IS REPLACED WITH MODIFICATIONS