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'AVOIDING ACTION' – PILOT RESPONSE TO AIR TRAFFIC CONTROL

1 Introduction

1.1 The purpose of this Circular is to promulgate best practice procedures for pilots when the words 'Avoiding Action' are used by an Air Traffic Controller.

1.2 The Circular also seeks to address some of the issues that can affect the rate at which these instructions are acted upon, for the benefit of pilots and controllers alike.

1.3 Although the advice contained in this Circular is orientated towards aeroplane operations, the principles apply equally to pilots of other classes of aircraft in receipt of an air traffic service.

2 Expected Response to 'Avoiding Action'

2.1 The term 'Avoiding Action' is used infrequently, so pilots should be alert to the possibility of manoeuvring at any time when so directed by Air Traffic Control (ATC). 'Expectation Bias' and 'Complacency' have been suggested as causal factors preventing pilots from taking timely action in recent Airprox reports.

Note: *The current UK phraseology 'Avoiding Action' prior to 'turn left immediately heading …' is at variance with ICAO standard (details in ICAO PANS-ATM Doc 4444 paragraph 12.4.1.8 and UK AIP GEN 1.7 (Doc 4444 Table) Reference 12.4.1.8 (e) & (f))*

2.2 Operators should ensure their Operations Manual includes Standard Operating Procedures for action to be taken by flight crew in response to an 'Avoiding Action' instruction. These should include at least the following (this list is not exhaustive):

(a) That an immediate response will be initiated and the manoeuvre executed promptly (but not so abruptly that there is a risk of losing control, of exceeding performance margins, or of exposing occupants to unnecessary hazards).

(b) How the flight profile should be managed including recommended autopilot (AP) / Flight Director (FD) modes and/or recommended aircraft attitude (bank angle) for manual manoeuvring.

(c) That the cleared level must be maintained unless otherwise instructed by ATC.

3 Airborne Collision Avoidance System (ACAS) Resolution Advisory (RA)

3.1 **An ACAS RA instruction MUST ALWAYS TAKE PRIORITY over an ATC instruction,** regardless of whether the pilot believes he is visual with the traffic. Even if an ATC avoiding action manoeuvre has been commanded, the RA supersedes this and takes priority.

3.2 On receiving an 'ACAS RA' call ATC will acknowledge this and not issue any further instructions until the pilot announces 'clear of conflict returning to (assigned clearance)'.

3.3 The following is 'ACAS/TCAS RA' phraseology reproduced from CAP 413 Radiotelephony Manual:

'ACAS/TCAS' Phraseology

5.28 ACAS/TCAS equipment reacts to transponders of other aircraft in the vicinity to determine whether or not there is a potential confliction. The warning (Traffic Advisory), based on the time to an assumed collision, enables the pilot to identify the conflicting traffic and, if necessary, take avoiding action (Resolution Advisory). In the UK, this equipment is mainly referred to as 'TCAS'; however, the use of 'ACAS' is an acceptable alternative in phraseology terms.

5.29 Pilots should report TCAS manoeuvres.

Aircraft: BIGJET 347, TCAS RA

Ground Station: BIGJET 347, Roger

5.30 The pilot should report when returning to the assigned clearance or when the assigned clearance has been resumed.

Aircraft: BIGJET 347, clear of conflict, returning to (assigned clearance)

Ground Station: BIGJET 347, Roger

or

Aircraft: BIGJET 347, clear of conflict, (assigned clearance) resumed

Ground Station: BIGJET 347, Roger

(Controllers may issue a revised clearance at this point.)

5.31 Pilots should report that they are unable to comply with a clearance as a result of a TCAS alert.

Aircraft: BIGJET 347, unable TCAS RA

Ground Station: BIGJET 347, Roger

In these circumstances the pilot should report when clear of the TCAS conflict.

5.32 The pilot should report a TCAS manoeuvre even if it was not possible to notify the controller that a resolution advisory had occurred.'

4 Operating Considerations

4.1 When in receipt of a Deconfliction Service (DS), in Class F or G Airspace, controllers may issue advice on avoiding action. A pilot who does not wish to comply with this advice then becomes responsible for his own separation and any avoiding action that may subsequently become necessary. CAUTION when executing a visual manoeuvre: traffic observed from the flight deck may not be the aircraft against which the avoiding action was given.

4.2 Pilots in receipt of a Radar Control Service (RCS) in Classes A, C and D Airspace MUST comply with avoiding action, which will be issued as a mandatory instruction.

4.3 Pilots of IFR flights in Class E Airspace must also comply with ATC instructions.

4.4 In Class E Airspace VFR flight without an ATC clearance is permitted; VFR pilots are encouraged to contact ATC and comply with instructions.

4.5 Class E Airspace is notified at UK AIP ENR 1-4, paragraph 2.5 and within this airspace controllers will pass traffic information unless the primary function of sequencing and separating IFR flights is likely to be compromised.

4.6 Pilots within Class E Airspace may request avoiding action and it will be provided to the extent determined by the radar controller.

4.7 Avoiding action will also be issued to IFR flights in Class E Airspace if radar derived or other information indicates than an aircraft is lost or has experienced radio failure.

Note: *Controllers are trained to give 'Avoiding Action' primarily in order to prevent a collision but also to maintain separation.*

4.8 Note the following for Rate of Turn Calculations:

$$\text{ROT} = 1{,}091 \times \frac{\text{tangent of the bank angle}}{\text{Airspeed (kt)}}$$

$$\text{e.g. } 1{,}091 \times \frac{0.5773\ (=\tan 30°) = 5.25° \text{ per second}}{120 \text{ kt}}$$

5 Conclusion

5.1 'Avoiding Action' instructions are used infrequently, but when pilots do receive them they should initiate their response without delay, appreciating the greater distances required at higher altitudes to ensure collision avoidance.

6 Guidance Material

6.1 Guidance material is available in the follow publications:

- ICAO PANS-ATM (Doc 4444), paragraph 12.4.1.8
- UK AIP GEN 1.7 (Doc 4444 Table), Reference 12.4.1.8 (e) & (f)
- CAP 413 'Radiotelephony Manual', paragraph 5.21(2)
- CAP 493 'Manual of Air Traffic Services Part 1'
  - Section 1, Chapter 6, paragraphs 6.46, 6.84 and 6.85 at Edition 5 (paragraphs 5C.4, 15.2 and 15.3 at Edition 6)
  - Section 1, Chapter 11, paragraph 11.1 at Edition 5 (paragraph 1.1 at Edition 6)
  - Section 1, Chapter 12, paragraph 12.44 at Edition 5 (paragraph 4G.1 at Edition 6)
- Eurocontrol ACAS Bulletin No. 6 (http://www.skybrary.aero/bookshelf/books/101.pdf)
- AIC P 079/2011 'Airborne Collision Avoidance System (ACAS) and non-ACAS Traffic Proximity Alerting Systems (TPAS) – Pilot and Air Traffic Service Provider Responsibilities'