



Civil Aviation Authority

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'AVOIDING ACTION' - WHAT THIS INSTRUCTION SHOULD MEAN TO PILOTS

1 Introduction

1.1 The purpose of this Circular is to remind pilots of what an air traffic controller expects when the words 'Avoiding Action' are used, and to address - for the benefit of pilots and controllers alike - some of the issues that can affect the rate at which these instructions are acted upon.

1.2 This follows an investigation into a recent AIRPROX, where it appeared that the crews of both aeroplanes involved responded more slowly than had been expected by the controller who had given turn instructions - one of them preceded by the words, 'Avoiding Action'.

1.3 In that AIRPROX, the situation was complicated to some extent by the correct and compatible operation of Airborne Collision Avoidance System (ACAS) in both aeroplanes.

1.4 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, but when a pilot receives such an instruction it is expected that he or she will **initiate a response immediately** and **execute the manoeuvre briskly** (but not so abruptly that there is a risk of losing control, of exceeding performance margins, or of exposing occupants to unnecessary hazards).

2.2 Initiation

2.2.1 With few exceptions, the fastest way to initiate a turn or to initiate a change in pitch angle is to do so manually, applying control wheel or side-stick inputs, as appropriate, after disengaging the autopilot. Consequent action should be to adjust the power as necessary: whilst in many aeroplanes it will not be necessary to disengage the autothrottles, in others it may be.

2.2.2 Responses to 'Avoiding Action' instructions should not be made via autopilot vertical or lateral flight path control selectors because, due to the design of this equipment, the turn, climb or descent that the air traffic controller has requested and expects to see actioned will be initiated too slowly to serve the needs of the moment.

2.3 Execution

2.3.1 Turns

If the instruction demands a turn, the pilot will need to ensure that the rate at which the aeroplane is banked towards the optimal angle is brisk but not harsh, and that it is checked when the desired angle is reached. Care should be taken not to exceed a safe angle of bank - which should nevertheless be sufficient to result in a high rate of turn - and that any short-term excursions from the aeroplane's cleared cruising altitude or flight level are quickly corrected.

2.3.2 Changes in Altitude or Flight Level

If the instruction demands a change of altitude or flight level, the pilot will need to ensure that the pitch angle selected is sufficient to achieve what has been asked without being excessive. The rate of climb or descent resulting from any change of pitch angle will be dependent upon the True Air Speed at which the aeroplane is flying. For an aeroplane operating at about 10,000 ft, a 1500 ft per minute rate of climb or descent will result from a pitch angle change of about 4 degrees when the Indicated Air Speed is 250 kts.

3 Exceptions

3.1 In most circumstances, upon receiving an 'Avoiding Action' instruction from ATC, the pilot should stop whatever else he or she may have been doing, and give priority attention to initiating and executing the required manoeuvre.

3.2 One exception to this will be where the pilots have good visual contact with the conflicting traffic and circumstances dictate that a visual avoiding manoeuvre is the safest course of action. A good lookout must, of course, be maintained at all times.

3.3 Another exception will be when the pilot receives simultaneously an instruction from the controller and an ACAS Resolution Advisory (RA), and both conflict. In such circumstances, pilots have been taught to follow the advice given by the RA.

3.4 In the AIRPROX that caused this Circular to be written, both pilots were either about to respond or were responding to the RAs posted by the ACAS in their aircraft when ATC instructions to both crews to turn onto new headings were issued (one of which was not prefixed by the words 'Avoiding Action'). The pilots' preoccupation with ACAS may have had some effect upon their apparently slow response to the controller's instructions, notwithstanding that there would seem to have been no conflict between the heading changes requested and the sense of either RA.

3.5 With regard to training given to pilots on how they should respond to ACAS RAs, no guidance is offered concerning levelling the wings. However, a pitch manoeuvre is easier to perform than a roll manoeuvre, and each is easier to perform separately rather than simultaneously. Therefore, if a pilot understands that he or she is expected to change the pitch angle in response to an RA and to change heading in response to an ATC instruction (and both demands are received simultaneously), the pilot will probably attempt the pitch manoeuvre first. Because 'straightforward' RAs require a change of pitch of only a few degrees, the desired rate of climb or descent can be accomplished much faster than a change of heading of, say, 20 or 30 degrees.

4 Conclusion

4.1 'Avoiding Action' instructions are issued infrequently, but when pilots do receive them they should initiate their response without delay and maintain the required rate of turn, climb or descent until the requested heading, altitude or flight level has been attained. Care must be taken not to exceed any limitations or to risk injury to any occupants, and if ACAS RAs exist these must also be followed.

4.2 Exceptions to this guidance should be confined to when the safest course of action is to execute a visual avoiding manoeuvre, keeping good visual contact with the conflicting traffic, and to when there is a need to respond to an ACAS RA.



This Circular is issued for information, guidance and necessary action.