

Level Busts - Considerations for Controllers and Pilots

by ***P Tring and D Coxon, Principal Inspectors of Air Traffic Services***

In these days of high traffic volumes, maintaining the intense vigilance required to guard against level busts can be very stressful for the controllers involved. It is, however, important to maintain a sense of perspective. During 1996 there were 172 level busts reported in the UK - a small number given the millions of flights within UK airspace. There is no room for complacency though. The overall trend is a gradual rise in level bust incidents as traffic increases but, even if we maintain the same percentage of level busts per flights operated, the increasing number of incidents may be unacceptable. Therefore, we must reduce the number of level busts. There is also no room for finger pointing. Level busts can stem from any number of causes and in all phases of flight. It is not for pilots or controllers to blame each other; instead they should work together to reduce and, if possible, eliminate level busts.

This article aims to give an insight into some of the techniques being adopted by controllers as “best practice” to try and reduce level busts. As a pilot reading this you will hopefully understand why controllers operate in particular ways, and therefore increase your own awareness of the situation. As a controller meeting these ideas for the first time you will perhaps discover some techniques to enhance your controlling. Some of them may seem blindingly obvious but it does no harm to remind ourselves of what good technique is: sadly, all too often it is found to be lacking when incidents are investigated.

Firstly, communication! Since controllers and pilots communicate verbally, it is vital both parties understand what is being said. Sometimes, for perhaps one or both parties, English is NOT the first language. If we do both speak English then avoid going “native” and using colloquialisms that are often more likely to be misunderstood, and do nothing to help third parties using the same frequency maintain some degree of situational awareness. So let us ALL use clear unambiguous STANDARD PHRASEOLOGY.

If somebody is having trouble understanding, then treat them with more care. Be alert for strangers to your airport or airspace, alert colleagues and adjacent units to the potential problem. If you work at an airfield why not try and make contact with new operators, perhaps via the handling

agent, to describe ATC procedures in use and highlight possible difficulties? As a pilot why not visit air traffic to discuss your operations and learn how the local airspace is managed?

Continuing on the theme of communication, controllers should avoid multiple messages and be aware of the pilots' circumstances. Imagine yourself with a B747 strapped to your posterior having been up all night, perhaps having crossed three time zones before staring into a blinding sunrise and, to cap it all, a controller tells you to descend to this level, by this DME distance, fly that heading and this speed and by the way there will be a forty minute hold for landing! There are just too many numbers, just too much opportunity for confusion, it is just too easy get figures mixed up and have an aircraft descend to your heading! Split instructions into two or more transmissions with instructions paired unambiguously and, having heard a correct readback, allow the pilots enough time to implement those instructions before passing more.

“Traffic information”, or is it “information on traffic”? Experience has shown that reference to the level of conflicting traffic, often given in response to a request from an aircraft for further climb or descent clearance, can be mis-interpreted and result in the aircraft continuing to the level of the conflicting traffic. Many controllers now often respond to requests for further climb or descent with, “Roger, maintain flight level, traffic, a thousand above or, a thousand below”, as appropriate. This information is not strictly, “traffic information”, as described in the Manual of Air Traffic Services, but “information on traffic”. There are plans to amend the manual so that this difference is recognised and reflected in standard phraseology.

Remaining with the theme of requests for further climb or descent clearance, the only response to such a request should be “Roger, maintain flight level/ altitude (*actual cleared level*), (with information on traffic if appropriate) or a further climb or descent clearance. NOT some slick sounding reply like, “Coming soon, further in 5 miles inbound company traffic crossing etc., etc.”! Such verbosity uses up valuable R/T time and can create further opportunities for mis-understanding.

Controllers within LACC Area Control, and elsewhere, often find themselves, having given initial climb clearance, asking pilots for their requested cruising level. The opportunities for mis-interpreting what is a question and what is a clearance are easy to appreciate. Good practice is that following the question the controller should acknowledge the level requested and then RESTATE the current cleared level. Example,

Controller - “Big Jet 101 climb FL 280, what is your requested cruising level”

Pilot - “Roger, Big Jet 101 cleared FL 280 and we are requesting flight level 350”

Controller - “Roger Big Jet 101, maintain FL 280 on reaching”

It may sound really obvious, but you might be surprised how often the result of similar exchanges has been the aircraft continuing climb to the requested level, sometimes even with English speaking crews!

Some controllers often omit repeating the level when it is given by a pilot establishing first contact. The potential for an incident if the controller should mis-hear or make a mistake when acknowledging the level was illustrated in the Aircraft Proximity Reports Airprox (C) Vol. 12, report 24/96. Some pilots from states where a non-standard form of ICAO phraseology is used can interpret the expression, for example “maintain FL310” as clearance to climb or descend to that level if not already maintaining it.

Pilots may have noticed that controllers often now come back and confirm the cleared level and give “information on traffic” as the cleared level is approached. This has developed in response to the activation of the Short Term Conflict Alert (STCA) available on some radar displays. The controller will, if workload allows, reiterate the cleared level if the radar indicates that no horizontal separation will exist between aircraft, i.e. only vertical separation, a situation where failure to maintain the cleared level could become immediately critical.

The opportunity for level and heading instructions to become transposed has long been appreciated. A technique being used to help reduce this is to try and use, if the tactical and airspace situation allows, headings that end in increments of “5” degrees. Another is to use the word “degrees” at the end of a heading instruction. These are most effective in airspace where headings and levels are in a similar banding. There are sectors, for example, where the most commonly used levels are FLs 100, 110 and 120 and the most common headings are from 090 degrees to 120 degrees. The potential for confusion is obvious!

There have been cases of aircraft, after flying a standard instrument departure (SID), climbing above the highest SID altitude directly to their requested cruise level without ATC clearance. The aim is to change the UK Air Pilot (AIP) requiring pilots to state their cleared level or altitude on first contact with departure radar. If this information is not given then the controller is responsible for confirming the level. In the case of those UK airports with “stepped” SIDs, then the controller must confirm that the aircraft is/or will follow the correct profile. Due to an embargo at present on changes to the UK AIP, because of a major re-write, this change will initially appear as an Aeronautical Information Circular (AIC).

If as a pilot or controller you should be unlucky and be involved in a level bust incident what should you do? Firstly, whether you are a pilot or controller, make the situation safe, then make other parties involved aware that reporting action will be taken even if only one aircraft is involved. Do not become embroiled in discussion and argument over responsibility on the frequency! Such unprofessional action is a distraction from primary tasks and could lead to another unrelated incident. Safeguard the evidence for those reports and then get back to concentrating on your job. If you feel discussion would be of benefit then arrange quickly to make contact later. R/T and radar recordings will normally provide all the information required to investigate the incident. We in the Safety Regulation Group rely on your full, prompt and honest reports to identify causal factors and thus improve air safety for everyone’s sake.

We hope the preceding has been of interest to you and that it will set you thinking about your own technique whether pilot or controller. The best way to beat level busts is to increase our awareness of the problem, educate ourselves about best technique, and then maintain our professional discipline to make sure we always do things the best way. If this all encourages you do that then it has been worthwhile, and if it stops even one level bust it will have been even more worthwhile, because that could be a tragedy averted.

Finally, for pilots, if you have any doubt whatsoever about an ATC clearance then seek confirmation. That does not mean repeating the clearance in a quizzical, questioning tone. Such subtle intonation cannot be guaranteed to be recognised by controllers, especially if they are busy. The sure method is to clearly state, “**CONFIRM** that was for (*callsign*)”, or, “**SAY AGAIN** our

cleared (*flight level/ altitude/height*)". For controllers, listen to those readbacks! If in doubt, **RESTATE** the clearance and **ASK** for clear confirmation. Do not use readback time for getting on with the next task., Remember, failure to spot an incorrect readback was cited as the biggest single cause of controller derived level busts during 1994!

GOOD PRACTICE TO AVOID LEVEL BUSTS

◆ ALL

- Increase vigilance, particularly in TMAs and where traffic density may be high
- If in doubt, **confirm** on the **RT**, *not* with your colleague

◆ PILOTS

- Seek confirmation from ATC if in any doubt about a clearance
- Follow SOPs for vertical clearances in their entirety - they are your first 'defence' against busting a cleared level.

◆ CONTROLLERS

- Handle unfamiliar operators with care.
- Use clear and unambiguous standard phraseology
- Avoid multiple instructions
- Pay particular reference to readbacks
- Awareness - contact operators via handling agent/airline operations
- Restate cleared level when asking requested level
- Restate cleared level - if no horizontal separation
- Avoid reference to level if giving "information on traffic"
- Consider using heading instructions that end in "5"
- Confirm cleared SID level or altitude at departure
- Alert colleagues to potential problems