

# Level Busts - Threat or Opportunity?

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What is a level bust?

A level bust is defined as '*Any deviation from an assigned level in excess of 300ft (or 200ft in RVSM airspace)*' (HEIDI).

Why is a level bust a threat?

The immediate answer is obvious. The more important issue is that despite a growing awareness of the problem – and the publicity that has accompanied this awareness – the absolute number of level busts has not declined significantly over the last 10 years.

Why do I claim in the title of this paper that level busts present us with an opportunity?

Because we can do something about improving our track record. That is 'we' as individuals, as co-pilots, as captains, as trainers, as managers, as a company and as an industry.

And we can do this without much effort and without much cost.

## **Why now?**

10 years ago the phenomenon of level busts was not a hot topic in Europe. UK NATS and UK CAA were the first significant European agencies to recognise the issue and to mount an initiative to counter the problem. You probably remember the posters and those early exhortations that resulted in changes to our SOPS – focused flight deck, r/t discipline and phraseology, proper confirmation of cleared levels by both pilots, etc.

Back then level busts were seen as a peculiarly British issue. They only happened in UK airspace – nowhere else in Europe! Who was kidding whom?

Happily that perspective has changed in the intervening years. The issue is now recognised, not only on a pan European, but on a global basis, as NASA, the FAA, Flight Safety Foundation, NATS and Eurocontrol exchange information, statistics, philosophy and effort, to combat the threat of level busts.

35% of all ASRs filed within the ECAC States are level bust related. That's a frightening number – over one third of all reported incidents.

Given that very nearly all of these events are avoidable on the one hand, but could be catastrophic on the other, I hope you begin to understand the need for positive action – and the threat that you pose to yourself, and those around you, if you don't aspire to 'best practice'.

## **And that is why there is an opportunity.**

Best practice will resolve very nearly all level bust scenarios. Eurocontrol, in association with IATA, have just launched a major new initiative directed at the level bust issue – The European Action Plan for the Prevention of Level Busts (they'll probably end up calling it EAPPL but so far they've resisted the temptation!). Within the documentation of this initiative they look at Aircraft Operator issues and they focus on 5 action points:-

### **1. Review SOPS to reduce the likelihood of level busts.**

Have we done this? - Yes.

Have we changed SOPS? -Yes.

Do we review SOPS? - Yes.  
Do you routinely stick to SOPS? - Yes!?

**2. Reduce flight deck workload by avoiding all activity not directly related to the safe conduct of the flight.**

Have we implemented this philosophy? - Yes - focused flight deck, Restriction of PAs, Descent check/briefing timings, etc.  
Have you taken this on board? - Yes!?

**3. Ensure clear procedures for altimeter cross-checking and approaching level calls.**

Do we have these in place? Yes.  
Do you follow them? - You bet!?

**4. Always confirm the clearance if any doubt exists on the flight deck.**

Is this enshrined in our SOPS? - Of course!  
And of course, you follow the rules?

**5. Always report the level cleared to when checking in on a new frequency whilst in the climb or descent.**

Do we require this discipline? - Yes, along with all r/t disciplines.  
Do you comply?

I list these five action points because they cut straight to the core of the problem. None of it is rocket science and much of it is little more than common sense. If you were to start with a blank sheet of paper and but 5 minutes to spare to produce a game plan to reduce level busts I doubt that you would come up with a set of guidelines that differed in any great detail.

*(If you do, please send them in and we'll forward them to Eurocontrol! Ed.).*

If the solution is that simple:-

1. Why is it that the industry is still generating a constant percentage of violations when measured against total movements?
2. And why is it that we as a company don't return an exemplary record in the level bust stakes when we operate to these 'best practice' standards?

As ever, the answer to these two questions is not to be found in one simple sentence. We can certainly influence the internal issues but there are also significant external factors over which we have no immediate control.

### **External Issues**

We have no control over airspace procedures and design, we have no control over ATC or controllers standards, we have no control over the technologies employed within the system, we have no control over chart design. Call sign confusion reigns supreme, language difficulties abound and r/t clutter only increases with traffic growth and ever more ATC sectors. SIDs and STARS become ever more complicated in striving to embrace both increasing traffic densities and environmental pressures. These all contribute to the level bust pool.

We can advise and object and consult and be consulted – and we do and we are - but we don't control these influences. The converse is true, they conspire against us which is why our first, and best, line of defence are the internal issues.

You should be pleased to know that these external factors are all also recognised by both IATA and Eurocontrol and form an integral part of this initiative. Mechanisms are in place, and continue to be put into place, to mitigate against a worsening trend and to create a climate where level bust reduction prevails. There is a strengthening partnership between the airlines, the ANSPs, the regulators and the equipment manufacturers, to reduce the adverse influence of these external factors.

We as a company play our part in this effort. For example, we are involved in the call sign confusion debate, in language issues, in procedure design, in controller familiarisation campaigns, in IATA forums, in NATS task groups etc, etc. In short we contribute energetically to the external debate. (And not just on level busts, but that's another story!).

The industry has developed ACAS, the regulators have mandated it and we use it. Similarly STCA (the controllers equivalent of ACAS.) is now in place in most EU States. These tools provide a safety net but that's the long stop, we need to work to achieve an environment where they're never brought into play. And that brings me neatly back to the internal issues raised by my second question.

### **Internal Issues**

The more observant of you will have noticed a question mark at the end of each of my 'responses' to the 5 Eurocontrol/IATA recommendations. My query is deliberate because we pretty much have these preventative measures already covered and yet we still manage to feature in level bust stats, (albeit we have far from the worst record, indeed we fare reasonably well). Even so, this year we have so far recorded 7 events which means that not all of us are following SOPS with the tireless and professional zeal necessary to eliminate the problem.

Of course, no-one sets out on a day's work with the intention of becoming involved in a level bust, or indeed any other incident. When it happens it's always a case of a 'gottcha!' and then a review - with hindsight almost always being a wonderful tool. It's easy to fall into the trap and difficult to shake off the remorse and the hurt pride. The best policy is obviously to prevent the occurrence in the first place. Staying firmly within the designed framework of SOPS will greatly help to resolve most incidents before they become a statistic or an incident.

UK CAA studies have shown that over 70% of level busts fall into 6 general categories:-

1. Operation on SIDS.
2. Autopilot problems.
3. Failure to follow ATC instructions.
4. Altimeter mis-setting
5. Pilot handling.
6. Confusion over cleared level.

Our level bust history follows a similar trend. We've also had a lightning strike induced incident (a bit of a 'one off', that one) and I would now add another issue which is the 'late re-clearance' instruction - when existing high rates of climb/descent are involved – more a controller issue really but we're still the victim. Also reflected

in our history is the FAA observation that some 40% of level busts occur because of confusion between FL110 and FL100 – a more specific example of the CAA item 6.

### **The Opportunity**

If you look at these major causal factors and then set them against the script of our SOPS I think you'll find that we've already gone a long way to providing operational procedures designed to greatly reduce, if not eliminate, these issues (insofar as is possible). Not just with the baselines that the SOPS themselves provide, but also within the training process too (remember the highlights of the level bust training and videos that we featured this summer?).

We need to remain active in improving techniques further and to providing robust and relevant refresher training. But we also need to create a culture that actively encourages our pilots to use the defensive armour that we provide to best advantage and to fully understand both why the SOP exists and why it's in the best interests of all to use it.

And that is probably the most important message in this article.

To take just one of these items – 'autopilot problems' – our SOPS require us to call 'one to go' and also to monitor the FMA and to call/cross check 'Alt Star' (or 'Delta', depending on fleet). If you only follow the rule on check flights no one will catch you out - as long as you're smart enough to remember not to revert to type when a training captain is looking over your shoulder. But the autopilot will get you every time, when, very occasionally, it doesn't work as advertised. As they say - it's your call! You can apply the same analysis to the other 5 causal factors listed here.

There has to be a lesson in that simple, single, example.

It has surely got to be easier to comply all the time rather than only to order? And that's why there is an opportunity in all this. The SOPS are there to help prevent you getting caught out, not to cause you to be caught out – think about it, neither difficult, nor expensive either!

The definition of a level bust is very clear – it requires a deviation from an '*assigned level*'. By definition then, the violation occurs from within the aircraft, it is a deviation from the level that the controller has instructed us to maintain. There may be many and various mitigating and extraneous circumstances but it is the crew who deviate and it is the SOPS which try to prevent you from failing!

### **Conclusion.**

I attended a workshop earlier this month hosted by Eurocontrol and IATA on the subject of level busts. Many of the speakers at this meeting were clear in their view that there is no 'quick fix' to the level bust problem. The issues, the causes and the remedies are many and complex. This was a common theme throughout the day and I lost count of how many times we were told that there was no 'silver bullet' solution.

I can see their point and it has considerable merit but actually I don't fully subscribe to this prognosis.

I have a more simple and a more optimistic view:-

Good SOPS, well designed, justified and understood, good flightdeck discipline, robust training and a clear understanding within the pilot community of the necessity to implement these SOPS – and all that they imply – will get us pretty close to the elusive 'silver bullet' for which everyone seems to be searching.

Like you, I am but a pilot, is it really that difficult?

Finally I offer you a hypothetical challenge:-

I would be prepared to offer each pilot in the company £10 if we have no level busts in 2005. The other side of the deal is that each pilot in the company gives me £10 if we do have any. I could win a fortune, you could win a little. Actually, I'd love to lose because it would mean that you'd all got the message and I'd have done a good job!

The reality however, is that the bottom line of a level bust is about much more than a gamble, and the stakes are just too high for any of us to want to play. Stay safe, stay SOP.

### **The Level Bust Tool Kit.**

The Level Bust Tool Kit can be downloaded from the following web site:-

[http://www.eurocontrol.int/safety/gallery/content/public/Level\\_bust/menuindex.html](http://www.eurocontrol.int/safety/gallery/content/public/Level_bust/menuindex.html)

It is well worth a visit. There is considerable detail available that is relevant to the pilot community, as well as the other agencies and players who make our business a safe one.

ACAS Airborne Collision Avoidance System  
ANSP Air Navigation Service Providers  
ASR. Air Safety Report  
ECAC. European Civil Aviation Conference  
HEIDI. Eurocontrol Harmonisation of European Incident Definitions Initiative  
IATA. International Air Transport Association  
NATS National Air Traffic Service (UK)  
SOP Standard Operating Procedure  
STCA Short Term Conflict Alert