Callsign Confusion

Suggested strategies to reduce the rate of occurrence and the resultant safety risk

Mike Edwards, Head of Incident Investigation, NATS

During the two-year period 2004 and 2005, National Air Traffic Services (NATS) received 437 reports from its Air Traffic Controllers regarding aircraft RTF Callsigns that were similar enough to cause confusion, communication error and increased workload for both pilots and controllers.

NATS has been in contact with operators with the aim of changing individual Callsigns that have been the subject of such reports. The response by the industry to these ad hoc requests has generally been very positive. The process is however reactive. In a positive safety culture we should share knowledge and consider strategies that prevent the occurrence.

A study of the 437 reports has revealed the Callsign formats that feature most consistently in Mandatory Occurrence Reports and Safety Observations. Adoption of operational processes that positively manage the allocation of Callsigns and avoid the formats and combinations identified in this paper will be a significant step in flight safety.

Headlines:

- 88% of reports concern Callsign allocation by the same operator.
- 81% of all reports contain only numbers in the Callsign. This type of Callsign format is carried by 65% of flights.
- The seven most common types of Callsign formats and combinations contain only numbers and account for 76% of all Callsign confusion reports.
- More numbers in the Callsign translates to more opportunity for error. Specifically, the use of four digit Callsigns has increased communication error.
- 15% of reports include the use of numbers plus <u>one</u> letter
- Only 4% of reports include formats with the use of <u>two</u> letters. This type of Callsign format is carried by 14% of flights.
- 4 % of reports are due to an operator adding one letter to the same trip number e.g. ABC401 /ABC401A or just adding a “P” for a positioning flight

It can be seen that up to 88% of the problem can be solved by positive action from within each operator. It is therefore no justification for inaction by reference to a need for an industry–wide plan.

CALLSIGN ALLOCATION AT THE STRATEGIC LEVEL.

Avoid allocating adjacent Callsigns that contain combinations of four and / or three numbers. The most common problems arise by use of the following combinations.

- 4 number Callsigns with 3 numbers being common – e.g. ABC6714 and ABC6514
- 4 numbers Callsigns with all the same numbers in a different order – e.g. ABC6714 and ABC7614
- 4 number Callsign conflicting with a 3 number Callsign with all 3 common – e.g. ABC3754 and ABC754
- 3 number Callsigns with 2 numbers common – e.g. ABC701 and ABC721
- 3 number Callsign with all the same numbers in a different order – e.g.ABC078 and ABC708
- 3 number Callsigns with the same letter as a suffix – e.g. ABC645A and ABC665A

Avoid the following letters as a suffix as they get confused in writing and on ATC displays:

V (VICTOR) or U (UNIFORM) confusion between the two
Z (ZULU) gets confused with 2 (TWO)
O (OSCAR) gets confused with 0 (ZERO)
I (INDIA) gets confused with 1 (ONE),
S (SIERRA) gets confused with 5 (FIVE)

Avoid suffixes that can be confused with a destination e.g. ABC478PH that may be going to Glasgow, but looks like it is going to Edinburgh (this has happened and was embarrassing all around)

Avoid Callsigns ending in 0 (ZERO) that could be confused with a Flight Level e.g. ABC360 can be confused in ATC clearances and offline co-ordination as a clearance to FL360.

Avoid scheduling similar aircraft Callsigns within 2 hours of the total planned flight time in UK airspace. Operators should seek to eradicate situations where two aircraft with similar Callsigns are in the same airspace at the same time. An allowance of 2 hours should be made to cope with operational delays.

Ensure that there is a proactive approach to a bulk Callsign review prior to the commencement of each season.
It is appreciated that many long-haul flights have Callsigns fixed by the overflight clearances received from nation states through whose airspace the flight passes.

CALLSIGN ALLOCATION AT THE TACTICAL STAGE.

Avoid the use of one suffix letter to add an additional flight. The most common example of this is the use of "P" for a positioning flight, whilst the scheduled flight is still airborne viz. ABC401 and ABC401P.

Ensure that Flight Operations have a copy of these guidelines available to assist tactical dispatch.

CALLSIGN COMPONENTS TO BE ENCOURAGED

The study shows a small gain above the statistical norm by the allocation of one letter as a suffix.

Encouraged is the use of two numbers followed by letters e.g. ABC65DM.
This format of Callsign is only involved in 4% of reports compared to 14% of the current traffic. Breaking up the sequence into two sets i.e. "65" and "DM" seems to work well.

It has been noted that some operators have begun to use a mix of numbers and letters e.g. ABC7C8. The use of such a format is very low and no view can yet be taken as to its impact on safety. Such Callsigns do however appear to be more difficult to enunciate and there is some evidence of increased RTF congestion associated with it.

INDUSTRY ACTION

In the medium term, there are various initiatives in Europe to harmonise the guidance given to operators. There is also some work in Europe aimed at the systematic deconfliction of Callsigns that breach set parameters at the Flight Planning stage. In the meantime, operators are urged to cooperate with NATS and with each other in the resolution of individual problems.

CONCLUSION

The evidence suggests that the risk of communication error can be mitigated by adopting the strategies described for the allocation of flight Callsigns.
There are a number of combinations that have been shown to increase the likelihood of communication error and thereby increase the risk in flight safety.
There is strong evidence that the use of a two-number plus two-letter alphanumeric is the optimum format.
Operators need to have proactive strategic and tactical processes to manage the allocation of flight Callsigns.
Initiatives include a project aimed at the systematic deconfliction of Callsigns at the Flight Planning stage. Operators are urged to cooperate with NATS and with each other in the resolution of individual problems.