

Draft Questionnaire -

Subject - Multiple aircraft diversions and Single diversions that do not go according to plan.

Brief

Safety concern has been expressed regarding the current aviation industry growth rate when examined against the currently available and future capacity. Ensuring sufficient capacity to meet the challenges of the current unprecedented growth rate is a broad and far reaching issue that touches almost every corner of aviation. Some areas are obvious such as the amount of available airfield space and the number of runways. The availability of sufficient air space and the ability of the Air Traffic Service Providers to provide suitably qualified and experienced controllers to run the system are other vital areas within the system. The future instructor cadre is rightly seen as a critical area where growth may be limited and future safety standards threatened if the industry decreases the knowledge and experience requirements for future instructors. Several areas are already getting the attention they deserve yet there is no strategic plan to ensure that capacity will always lead growth in every area. As the broader intention is to draw the attention of rule makers, politicians and major stakeholders to the critical need to work together, it is planned to use a pilot project to demonstrate and make clear the seriousness of the issue. The pilot project will focus on Runway and Airfield capacity in the context of diversions with the primary emphasis on multiple diversion situations.

Dynamics in force regarding airfields and diversions.

- a) The excess airfield capacity that existed, primarily in Europe, immediately after WW2 has largely been used up or re-deployed as arable or building land. Some geographical areas only have relatively few fully capable airfields, whereas the only declared growth area is China.
- b) The drive for increasing efficiency at the remaining airfields is leaving little, if any, "reserve" capacity. Airfield owners are demanding more return from their assets and the operational models are being built around today's level of traffic and reliability. Even minor fluctuations of weather can and do cause significant disruptions to scheduled flights at some major airports, such that there is an immediate loss of flight slots. A loss of slot times may appear to be just an irritation but it starts the 'pressurisation' process of the whole system which in turn creates a commensurate increase in risk driven by the increased risk of human error due to fatigue, stress, and the use of 'work around' procedures. A smoothly operating system, if it is to retain resilience, in the face of common place or natural disruptors, like a tyre burst, a go around or the wind exceeding 15 knots, must build in the necessary capacity for such 'normal' events.

- c) Weather forecasting has improved enormously in terms of accuracy and “reliability” over the last 40 years but perversely this has generated an overconfidence amongst lesser experienced crews. Rare erroneous forecasts can generate serious mis-planning of fuel reserves for several aircraft at the same time. This is particularly true, especially when the forecast proves to be very wrong over a wide area. Turn this around and it can be said that such planning should be able to allow us to predict much more accurate maximum flow rates much further ahead in the schedule.
- d) Terrorist action has led to situations where several aircraft must find suitable diversion facilities at the same time.
- e) Crew experience of diversion situations is diminishing. A recent survey has shown that crews of short range aircraft experience about 2 to 3 diversions per year on average whereas long range pilots only experience 1 diversion every 2 to 3 years
- f) Communication about diversion between airfields and Air Traffic Service providers is variable (from non-existent to very good) and not well coordinated.

Therefore, the Flight Safety Foundation (FSF) has decided to carry out a survey as the first stage in trying to answer the question – “is there a case to answer regarding capacity and growth as we look forwards to the next 20 to 30 years”.

The survey and study will be run by Harry Nelson (Deputy Chair of the International Advisory Committee of the FSF) supported by several other members of the IAC and by many organisations which have expressed a wish to participate in the project.

Confidentiality

Information received will be treated in confidence but as it may be necessary for the research group to come back to participating individuals to understand a situation in more depth, participants will be asked to supply their name, a contact number and an e-mail address.

In any future report (written or verbally delivered) neither individuals nor airlines will be identified by name or by implication and whenever possible, actual situations, other stakeholders (airfields, meteorology agencies, OEM’s and ATM involved) will also be de-identified. It is the generic underlying nature of the issue that is the objective, not the specifics associated with individuals or individual events. Decisions made by individuals will not be criticised or analysed. But will be reported in a de-identified manner as possible. Should it later be felt that the report will be strengthened by using one or two detailed examples, then permission from those involved will be sought and if refused, then that case study will not be used.

The questionnaire

You will note that the questionnaire is divided into 7 sections.

These relate to:

1. The take-off situation.
2. The en-route situation
3. The destination and diversion situation
4. The “trigger” event
5. Event description
6. Post event situation
7. Final thoughts

1. The take-off situation

This should include the weather as known by the crew at the time of take-off, for the take-off airfield. The intention of this section is to understand the knowledge level, expectations and the operational context at the time of take-off for the crew. The fuel and diversion strategy (This may be company policy or individual pilot choice)

2. The en-route situation

Not only should this section reveal the weather experienced en-route but the dialogue with company and ANSP's regarding the changing situation and the level of appropriate awareness of lack thereof of the situation that was about to unfold.

3. The destination situation

This section should reveal clearly the nature of the risks and threats that were apparent at the destination. It should also show when those risks became apparent and what decisions were made by the crew and why. Those decisions cannot be examined without considering the diversion piece of the puzzle as they are often completely integrated in terms of pilot thinking.

4. The trigger event

This section should clearly indicate what the trigger to divert was. It could be anything from runway blockage to unacceptable levels of turbulence, from crosswind strength to an ATC instruction or airfield power failure to Bomb scare. Of course, it could simply be that the crew did not have the visual reference or approach stability that is required to carry out a safe final approach and landing.

5. Event description

This is the story of the event, ideally from those directly involved.

6. Post event situation

This section hopes to capture the end state. It will therefore cover final landing place, fuel states, knock on effects (if any) of multiple diversions with regards to pressure being created within the local system and beyond (aircraft in the wrong place for tomorrows schedule)

7. Final thoughts

This section will attempt to gather the final thoughts of those involved in multiple or single diversion events that did not go according to plan.

A) Please answer the questions as fully and accurately as possible. Where something is not known simply leave it blank.

B) The questionnaire results will be added to other sources such as ATC and Meteorology Office records of specific events to try to gain a complete picture of the actual risk levels associated with each event

C) If you know someone else who has been involved in a multiple diversion event, please encourage them to fill in this questionnaire. The more data we can gather the better the result.

Flight Safety Foundation - Questionnaire about Multiple Diversions (and single diversions) resulting in low fuel situations

Name and position

- e.g. Harry Nelson – Captain

Contact telephone number

- e.g. 0033 603 17 22 55

Contact e-mail

- e.g. harrynelson@hotmail.com

Section 1. Take-off situation

Q 1.1 Was the flight?

- Day only
- Night only
- Day into night
- Night into day

Q 1.2 Was the flight

- Short haul (Less than 2:30 planned duration)
- Medium (2:30 to 6:00 hrs)
- Long haul (Above 6:00 hrs)

Q 1.3 What was the aircraft type?

[Text Box]

Q 1.4 What was the take-off airfield?

[Text Box]

Q 1.5 What was the take-off forecast

[Text Box]

Q 1.6 What were the en-route and landing forecasts at the time of take off

[Text Box]

Q 1.7 What were the en-route and destination diversions at take-off

[Text Box]

Q 1.8 What was the planned fuel at arrival based on? (Tick all that apply)

- Standard fuel reserves for your airline
- Met Forecast at destination
- Met forecast at diversion
- A minimum fuel carry policy

- Other [Text Box]

Q 1.9 Were there any MEL items that later effected the way the diversion unfolded? If so what were they?

[Text Box]

Section 2. – The en route situation

Q 2.1 What meteorological updates were received en-route of the destination or diversion airfields?

[Text Box]

Q 2.2 If the operational situation at the destination was deteriorating or degrading in some way, was this information transmitted to the crew

[Text Box]

Q 2.3 Was an en-route diversion considered at any time? If it was, why was it accepted or discounted?

[Text Box]

Section 3. – The destination situation

Q 3.1 What was the destination airfield meteorological actual?

- Visibility
- Cloud base
- Wind values
- Rain/Snow
- Any specific warnings i.e. Thunderstorms etc.

Q 3.2 Had the initial forecast been updated in flight?

If so please describe the changes

[Text Box]

Q 3.3 Where any other operational warnings transmitted to the crew such as 'other aircraft diverting due to strong crosswinds'?

- Yes
Q 3.4 If so, was this information transmitted by ATC, by Company, or by other aircraft. [Text Box]
- No

Q 3.4 Was the meteorological situation a local or widespread area phenomena?

[Text Box]

Section 4. – The trigger event

Q 4.1 What triggering event caused the diversion?

- Runway blocked
- Runway still occupied
- Airfield shutdown
- Terrorist action
- Earlier go around ATC or Company instruction
- Unacceptable weather conditions

Note – if the weather was “unacceptable” was this because the weather was outside official limits or the crews personal limits[Text Box]

Q 4.2 Regarding the diversion decision.

- Who made the decision?
- The commander
- The crew jointly
- ATC instruction
- Company instruction
- Other [Text Box]

Q 4.3 Was a Mayday or other emergency state declared?

- Yes
- No

Section 5 – The event description

Q 5.1 Please describe the event from your viewpoint. Please include any intermediary or approach or diversion attempts and the number of other aircraft involved in the diversion. This is your opportunity to describe not only what happened from your point of view but the way you felt about it.

[Text Box]

Please include any changes of plan that may have taken place and the progression of the fuel situation as well as any passenger considerations. (Like overnighing at Goose Bay)

[Text Box]

In this section please avoid opinion and where possible present only facts as accurately as you can remember them. Section 7 will provide an opportunity to capture your other thoughts, opinions and ideas.

[Text Box]

Section 6 Post event situation

Q 6.1 What was the end fuel state on your aircraft?

[Text Box]

Q 6.2 Where did you eventually land?

[Text Box]

Q 6.3 Were there any parking slots still available at your final destination when you landed?

[Text Box]

Q 6.4 Were there any parking slots available at your initial primary diversion?

- Yes
- No

Q 6.5 Were there many parking slots available at the airfield where you landed?

- Yes
- No

Note- We have all faced and will face situations where a strict following of “the rules” is extremely challenging. The regulations allow commanders to make exceptional judgements that secure a higher level of safety. Multiple diversions tend to generate such situations. This is why we are researching this topic and wish to understand what can be put in place in the future to embrace such situations.

Q 6.6 Did you have to exceed company limits to achieve a successful landing?

- Duty time?
- Wind
- Visibility
- Approach stability
- Other [Text Box]

Q 6.4 Did you exceed any personal limits to achieve a successful landing?

If yes, please describe.

[Text Box]

Section 7. Final Situation

Q 7.1 Looking back at the event, how well did you feel that “the system” supported you through this challenging event. e.g Communication, information, management support?

[Text Box]

Q 7.2 How do you think the system could be improved?

[Text Box]

Q 7.3 What did you learn from this event that you have and we can use in the future?

[Text Box]

Q 7.4 What if anything caused you surprise during the event?

e.g. the speed with which the situation changed from 'normal' to critical

[Text Box]

Q7.5 Any other thoughts or ideas?

[Text Box]

THANK YOU for your participation and your valuable time spent in completing this survey. It will be examined closely and each participant will receive a personal copy of the final report.