



IS-BAO NEWSLETTER

MARCH 2006



This IS-BAO Newsletter contains contributions from both operators and auditors. Of special interest in this Newsletter is the piece on Operational Risk Analysis by Mark Gilson. Anyone who wishes to contribute a piece may send it to rayrohr@telusplanet.net.

Surface Contamination Training

In the January 1, 2006 revision to the IS-BAO the requirement for surface contamination recurrent training for flight crew and cabin crew was changed to every two years. Unfortunately, the recommended surface contamination training contained in Section 18 of AMC 5.1 was not revised. In order to maintain consistency that section should read as follows:

18. Aircraft Surface Contamination Training

Operating personnel should receive training in the following areas:

- a. ~~flight aircraft~~ crew initial de-icing/anti-icing training;
 - i. the effect of contamination on a critical surface;
 - ii. aircraft de-icing/anti-icing procedures; and
 - iii. aircraft inspection procedures;
- b. ~~flight aircraft~~ crew recurrent de-icing/anti-icing operational procedures training ~~on annual basis~~ every two years;
- c. initial de-icing/anti-icing, ground/maintenance personnel training; including:
 - i. the effect of contamination on critical surfaces;
 - ii. aircraft de-icing/anti-icing procedures; and
 - iii. aircraft inspection procedures; and
- d. recurrent de-icing/anti-icing ground maintenance procedures training ~~on annual basis~~ every two years.

This amendment is effective immediately and will be made formally in the January 1, 2007 amendment to the IS-BAO.

To view this and other current Bulletins go to http://www.ibac.org/is-bao/isbao_bulletins.htm.

MEL Issues

One issue that frequently generates a lot of discussion is the Minimum Equipment List (MEL). While there are a number of service providers that will assist operators to develop a MEL, a web site that may be of interest to US operators is <http://www.digiflite.com/compliance/solutions/catalog.html>, Digi Flight provides MEL training courses and one of those "Mastering the MEL" for Part 91 teaches the role of the MEL in today's corporate flight department. Regulatory background, structure of the MEL, how it is used, and sample procedures are presented through explanations, summaries, and quizzes.

IS-BAO Workshops

The first next IS-BAO Workshop is scheduled for St. Louis, MO on March 30, 2006. If you are not already registered for it you are too late as it is full and we have a waiting list. The next Workshops are in Geneva on May 2nd and Dulles, DC on June 9th. If you are considering attending one of those it is suggested that you get your registration in as soon as practicable. The full Workshop schedule and additional information is posted at <http://www.ibac.org/is-bao/Audit%20Workshop.htm>. Workshop registration forms can also be downloaded from that web page. The feedback that we receive indicates that those who attended a Workshop found that it made IS-BAO implementation significantly easier.



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FAA Publishes Updated Contingency Procedures for Oceanic Airspace

FAA's Flight Technologies and Procedures Division (AFS-400) recently updated their International Civil Aviation Organization (ICAO) compliant guidance to pilots for track offsets in contingency situations in oceanic airspace. The new guidance applies to oceanic operations (including Atlantic and Pacific airspace) effective February 16. The guidance, in the form of a NOTAM, provides oceanic contingencies that are published in ICAO Procedures for Air Navigation Services – Air Traffic Management, Doc 4444. The 15 nm contingency, track offset, is the only significant change from guidance previously published, but it also contains a good review of Oceanic Weather Deviation Procedures and Strategic Lateral Offsets. For more information, contact Roy Grimes at rgrimes@cssiinc.com or NBAA's Bill Stine at bstine@nbaa.org. Download the NOTAM at: <http://web.nbaa.org/public/ops/intl/oceanic/200601.php>

Operational Risk Analysis: A Vital Tool for Managing Aviation Safety

By Mark Gilson

Introduction

One of your primary responsibilities as the Manager or Chief Pilot of your corporation's Flight Department is managing a safe flight program. Your company has a stated Safety Policy implemented by your Safety Management System (SMS). Safety is always a factor when you are making operational decisions. Risk analysis, whether it is a formal or informal process, is an essential part of a sound SMS.

You may or may not have an established risk analysis procedure, but risk analysis is assuredly a fundamental function in your operation. Whether your operation is part 135 or corporate, this article describes an easy to use tool for assessing the risks associated with your daily flight schedule. This tool will allow you to make informed recommendations to your boss or customers concerning a subject near and dear to their hearts – flight safety. This system was developed for T-Bird Aviation, Inc., an aircraft management and air charter company located at DuPage Airport in West Chicago, Illinois.

What is Risk Analysis?

Risk analysis boils down to answering this question. "How much risk will I accept in order to accomplish what is being asked of me?" It is a question that is an integral and fundamental part of flying airplanes. Aviators and flight departments that continually ask themselves this question come out way ahead in the safety department. This pattern of questioning and thinking is the basis of risk analysis.

Undoubtedly, you are already conducting some form of risk analysis while making everyday decisions about your flying operations. For example, you probably would not schedule a PIC who graduated yesterday from an initial course as the Captain on a demanding flight into Aspen, Colorado. Of course, you would also think twice about booking a winter trip at night into an uncontrolled airport where the useable runway was only marginally longer than your airplane's capability. These type of decisions are inherent in running a flight department, but are you sure you are covering all the bases all the time? This simple Risk Analysis Tool will help insure that you do.

The Traditional Risk Analysis Process

The International Business Aviation Council (IBAC) defines Risk Analysis as a "...simple tool to help make good decisions. It is used so that the chance of loss of life in a business aviation operation is minimized." IBAC goes on to state that to conduct a Risk Analysis the following steps are required:

1. Identify accident scenarios
2. Identify the associated hazards
3. Determine the severity and likelihood
4. Decide how to manage the hazard and associated risks
5. Document the process and the decisions arising from the analysis



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The following terms are associated with a Risk Analysis

- Hazard – The condition or circumstance that can lead to physical injury or damage
- Risk – The consequences of a hazard measured in terms of severity and likelihood
- Mitigation – The measures taken to eliminate a hazard, or to reduce the severity and likelihood of one or more of the risks

The structure and magnitude of a specific risk analysis can vary. At one end of the scale are risk analyses involving a number of people analyzing a specific issue; like potential flights being conducted 24 hours per day into a mountainous airport. This type of analysis would take some time and could involve a formal report that includes identified hazards, associated risks and recommended mitigation being forwarded to decision makers.

At the other end of the scale are informal risk analyses accomplished by as few as one individual to determine the hazards, risks and mitigation of a much less complicated issue.

Regardless of the size or complexity of your operation, you are continually making decisions based on some form of risk analysis. T-Bird Aviation's Risk Analysis Tool provides a simple structure and format to conduct a risk analysis for each of your scheduled flights.

T-Bird Aviation's Risk Analysis Tool

T-Bird Aviation, Inc. is a small, all jet aircraft management and international air charter company based at KDPA. T-Bird's fleet includes G-IVs, G-200, G-100, CE-X, CE-VII and CE-550 aircraft. T-Bird has held a part 135 certificate since 1998 and averages 2-3 charter operations per day. Hanging on T-Bird's wall are a Wyvern Wingman Certificate, an ARG/US Platinum Rating and an IS-BAO Registration certificate. T-Bird Aviation's number one operational priority is safety.

Corporate Aviation Operational Risk Analysis

T-Bird Aviation is using a two-staged Risk Analysis Tool for every scheduled flight operation. The dispatcher or sales person booking the trip accomplishes the first stage, and, if applicable, management accomplishes the second stage. The Tool is a two-sided checklist accomplished during the booking and scheduling processes associated with every trip. The dispatcher or sales person enters data on the Tool's front side based on the listed parameters. If pre-established risk parameters are exceeded, it is forwarded to management for review. This checklist is accomplished twice for each flight, once during the Initial Analysis and once during the 12-Hour Analysis.

Initial Analysis. (Fig. 1) Hazard items #1 through #26 are completed at the time of the initial booking of a trip. The process begins by entering numeric values in the Initial Score Column. The values in the Initial Score column are totaled and the result is entered in row 41. The initial analysis should take no longer than ten minutes.

For example:

- If the associated trip is classified as a "pop-up" (less than four hour notice for the crew), a value of 3 is entered in row 1 of the Initial Score column. A 0 would be entered if the trip is not a "pop-up"
- If it is known that there will be poor access to weather information at either the departure or destination airport, a value of 3 is entered in row 2 of the Initial Score column. Otherwise a 0 is entered
- If the best available instrument approach at the destination airport is an ILS then a 0 is placed in row 2 of the Initial Score column
- If the best available instrument approach at the destination airport is a circling approach a 4 is placed in row 5 of the Initial Score column



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If the total Initial Score exceeds a value of 7, the Director of Operations or Chief Pilot is notified. If the total Initial Score is 7 or less, the initial Risk Analysis Tool is merely placed with the associated trip's paperwork.

12-Hour Analysis. The checklist is accomplished a second time by a licensed dispatcher twelve hours prior to the trip's scheduled departure time. The first 26 items are quickly reviewed, but this time the emphasis is on the forecasted weather. If the dispatcher records a 12-Hour Score totaling greater than 18, the DO or Chief Pilot is notified. Scores less than 18 are considered routine and not worth special management review. The 12-Hour Analysis should be accomplished within 15 to 20 minutes.

Management Action

After receiving either the Initial or 12-Hour checklist, the Director of Operations and/or the Chief Pilot accomplish the management action listed on the backside of the Risk Analysis Tool (Fig. 2). Their responsibility is to assess the risk, determine the root cause, identify possible risk controls (mitigation) and decide what action is necessary.

Assessing the Risk. Management assesses the risk by analyzing the probability and severity of each of the risk factors listed on the front side of the Risk Analysis Tool. Probability is defined as the likelihood that an individual factor will cause an accident or incident to occur. Severity is the degree of loss resulting from an accident or incident.

- Step 1 Assign a relative probability score to each factor.
Highly likely = 0.8
Probable = 0.6
Less Likely = 0.4
Unlikely = 0.2
- Step 2 Assign a relative severity score to each factor.
Negligible aircraft damage or very minor injury = 1
Minor aircraft damage or minor injury = 2
Major aircraft damage or serious injury = 3
Aircraft destruction or loss of life = 4
- Step 3 Multiply each probability score times each severity score resulting in a Risk Quotient. Each quotient is entered in the Risk Quotient column.
- Step 4 Add all the resulting Risk scores to obtain an overall Risk Assessment Quotient. Enter this Total Risk Assessment Quotient in line 41.

By completing this risk assessment, T-Bird Management quantifies the risk associated with a particular set of circumstances. This allows for a better understanding of the overall risk and also aids in the effort of identifying its root cause.

Determining Root Cause. T-Bird Aviation's Risk Analysis Tool quantifies the various risks, making it easy to establish a priority of the various risk factors. This also aids in determining root cause of the problem. Identification of the root cause of the various risks is a critical step in managing any aviation safety program. Unless you know what is causing the risks associated with your operation it will be impossible to apply solutions to a particular safety problem. Determination of root cause is essential in reducing the probability and severity of any potential accidents or incidents.

Identifying Risk Controls. Risk control (mitigation) can now be accomplished by identifying solutions to the situation. The associated hazards have been highlighted and the severity and likelihood of the risks has been analyzed. Now it is time to decide how to manage these hazards and associated risks.



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Possible solutions are too numerous to mention. Examples could be delaying or canceling the flight, changing the destination, changing the crew or even accepting the identified risk as being OK. The aviation manager is now in a position to make an informed recommendation to his boss, or customer, regarding a safety situation that may be serious in nature.

T-Bird includes a copy of the completed Risk Analysis Tool in the trip paperwork given to the Captain. The aircrew is thereby alerted to any unusual hazards and risks associated with each individual trip and that management is aware of these hazards and risks.

Summary

This Risk Analysis Tool provides a built-in process for management review and analysis of various flight scenarios under varying parameters. It will enhance your flight department's safety program by providing managers an easy to use tool for assessing risk, determining root causes, and applying corrective actions prior to each flight's departure. In addition the greatest benefit of this system may be the increased overall safety awareness that it provides to the entire flight department. Your flight operations will be safer after you initiate this method of risk analysis.

About the author:

Mark Gilson served in the U.S. Air Force flying F-4s and F-16s. After retiring as a Colonel with 26-years of active service, he flew corporate aircraft for nine years. He has accumulated more than 6,000 flight hours and holds G-IV, CL-600, G-100 and Learjet type ratings. He is currently an Aviation Safety Consultant living in Florida. He can be reached at markgilson@earthlink.net.



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T-Bird Aviation Risk Analysis Tool

Trip/Quote Number _____
 Crew _____
 Aircraft _____
 Airports _____

Date _____
 Accomplished by _____
 Reviewed by _____
 Management _____

	Remarks	Value	Initial Score	12-Hour Score	Prob	Sev	Risk Quot
Pre Flight							
1	Pop-Up trip (< 4 hour Crew notice)	3					
2	Poor Access to WX Information	3					
Approach and Landing Facilities (Select best available approach)							
3	ILS	0					
4	VOR/GPS/LOC/ADF	3					
5	Circling Approach	4					
6	No Published Approaches	4					
Departure/Destination Airport							
7	Elevation (<4000=0/<5000=2/<6000=3/>6000=4>7000=5)	0/2/3/4/5					
8	Useable Rwy Length < 5000 ft	5					
9	Useable Rwy Length > 5000 ft but < 5500 ft	3					
10	Mountainous Airport	5					
11	High Density Airport	3					
12	Control Tower Not Operational at ETA or ETD	3					
13	Winter Operations	3					
14	Twilight Operation	2					
15	Night Operation	3					
International Operations							
16	Canada	2					
17	Europe or Pacific	3					
18	Mexico/Caribbean/South America	3					
19	Africa	4					
Maintenance Factors							
20	Extended Service and/or Maintenance Items	2					
21	MEL Items (Flight Safety Related)	2					
Flight Crew Experience							
22	Low Time Captain	3					
23	SIC has less than 50 hours in Type	2					
Flight Crew Duty Day							
24	Duty Day greater than 12 hours less than 13	2					
25	Duty Day greater than 13 hours less than 14	3					
Additional Factors							
26							
Weather Forecast							
27	No Weather Reporting	4					
28	Thunder Storms	3					
29	Turbulence (Light/Mod/Severe)	0/2/4					
30	Ceiling & Vis < 1000/3, > 500/2	2					
31	Ceiling & Vis < 500/2, > 300/1	3					
32	Ceiling & Vis < 300/1	5					
33	Rain (Light/Moderate/Heavy)	1/3/5					
34	Snow (Light/Moderate/Heavy)	1/3/5					
35	Sleet (Light/Moderate/Heavy)	1/3/5					
36	Hail	4					
37	Icing (Trace/Lt/Mod/Sev)	0/1/3/5					
38	Surface Winds > 30 Knots	3					
39	Runway Braking Action (Fair/Poor/Nil)	1/3/5					
40	NOTAMS (Score 0-5, higher score = more risk)	0 thru 5					
41	Total						

1. Contact Chief Pilot or DO if:
 - a. Initial Total exceeds 7
 - b. 12-Hour Total exceeds 18
2. Shaded area to be completed by Management

Figure 1



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Assess Risk (shaded area on front side of form)

1. Enter scores for Severity and Probability

Probability - The likelihood of an Accident/Incident

- Highly Likely = 0.8
- Probable = 0.6
- Less Likely = 0.4
- Unlikely = 0.2

Severity - The severity of loss resulting from an Accident/Incident

- Negligible aircraft damage or very minor injury = 1
- Minor aircraft damage or minor injury = 2
- Major aircraft damage or serious injury = 3
- Aircraft destruction or loss of life = 4

2. Multiply each Probability score by the applicable Severity score to obtain Risk score

3. Total all the resulting Risk scores and enter it below

Total Risk Assessment Quotient = _____

Determine Root Cause

Identify Possible Risk Controls (Mitigation)

Action Taken

Signature _____

Date _____