7th Incident Review Meeting (IRM) Bulletin

Introduction from the Safety Group Chairman

The IATA IRM in Frankfurt was well attended by airlines from across the globe, which clearly supports the fact that despite the desperate economic climate facing the airlines, safety remains a priority.

Safety has always been a priority in IATA and our drive to expand the IRM to a wider group of members and supply the IATA Safety Group (IATA SG) with recommendations on which to build a safety strategy has proved successful.

I am very grateful for those who shared incidents at the IRM. Discussing these incidents in a wide group of experts from our industry provides value for all of us. The enhanced learning gained during the subsequent discussions and question sessions provides useful nuggets for individual airlines to take home and focus on, thereby allowing us all to continually improve our own processes and procedures, where required.

After the IRM, the IATA SG discussed a number of the points raised. My chairmanship has now come to the end of its terms and Rick Howell from Cathay Pacific has taken over as the Chairman of the IATA SG. I would like to wish him all the best and I know that he will steer us all in the right direction and lead the strategy forward. This will therefore be my last introduction as the Chairman of the IATA SG, although I will continue to chair the IRM.

Rick Howell can be contacted by e-mail on richard_howell@cathaypacific.com if you wish to highlight a safety concern that you feel needs to be considered by the SG - or similar.

Once again thank you for your excellent support at the IRM and I wish you a safe future ahead and look forward to seeing you at the next meeting.

Best regards,

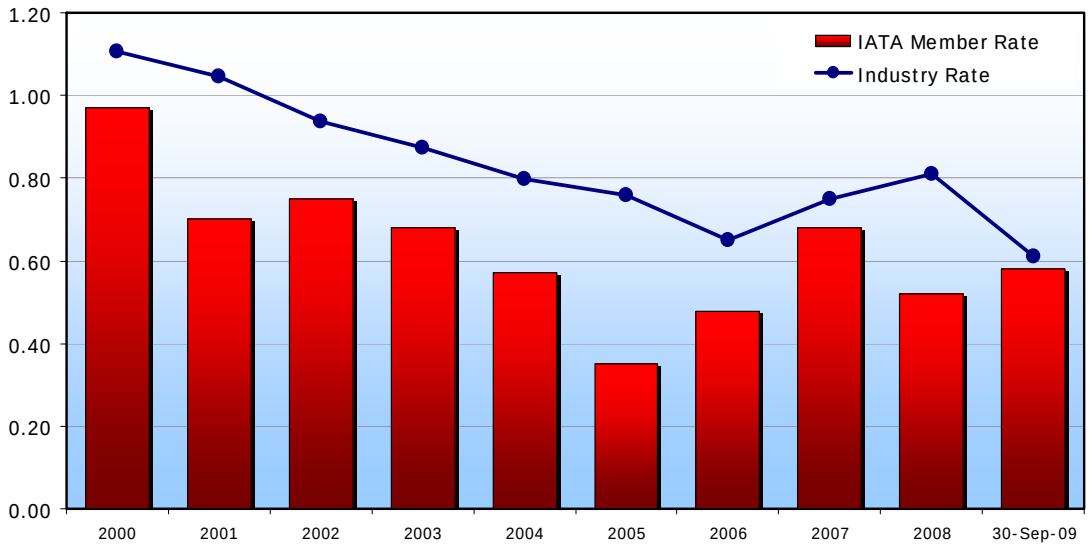
Captain Rod Young

Head of Aviation Safety, British Airways
IATA Safety Group Chairman

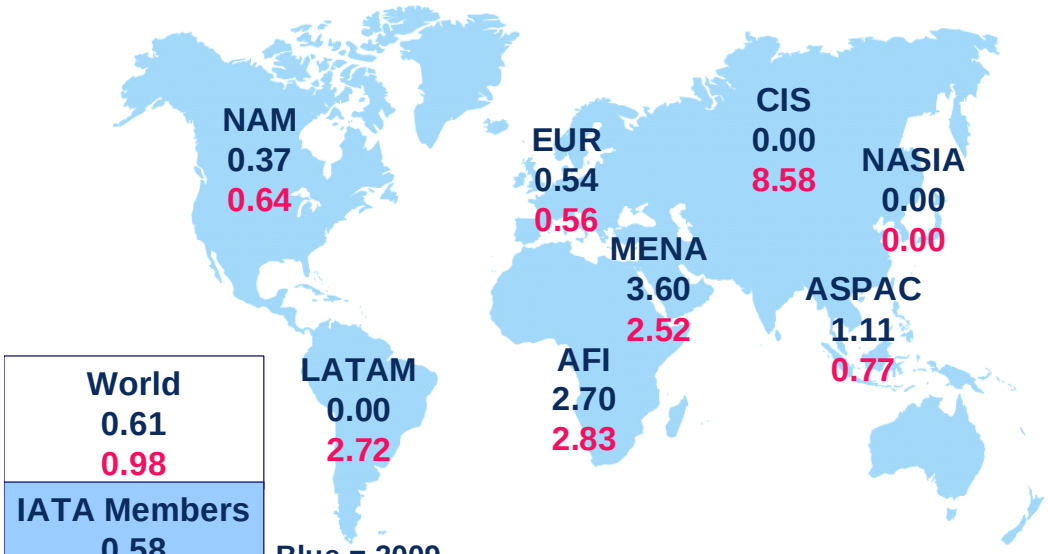
Outcomes of IRM/07 Session

Accident Rate Update: Year-to-date 2009 in Review (as at 30 September)

Western-built Jet Hull Loss and Passenger Fatality Rates (2000-YTD 2009)



Western-built Jet Aircraft Hull Loss Rate per Operator Region (YTD 2009)



All Accidents: Year-to-date 2009 (as at 30 September)

	As at 30 Sept. 2009	As at 30 Sept. 2008
Total Accidents	54	93
Accidents with IATA Members	22	30
Western-built Jet Hull Losses	13	20
Fatal	12	22
Fatalities	669	495

Overview of all Accidents: Year-to-date 2009 (as at 30 September)

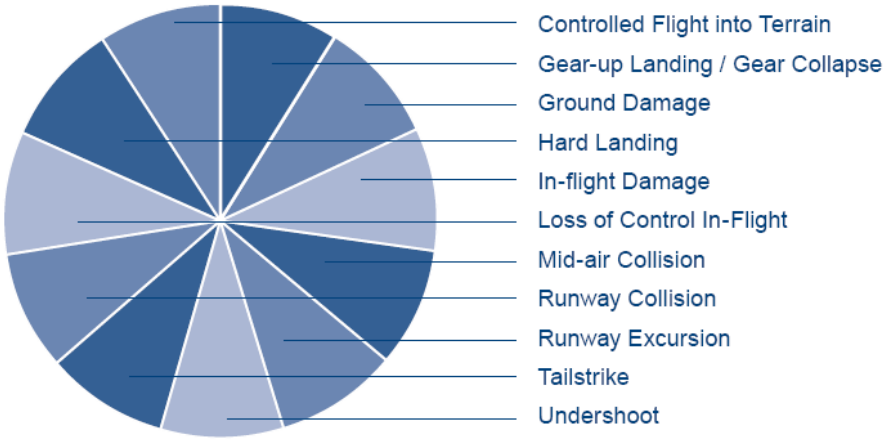
- Number of accidents is lower for YTD, in comparison to 2008
- 41% of all accidents so far involved members
  - versus 32% at the same time last year
- 24% of all accidents involved Western-built Jet Hull Losses
  - versus 22% at the same time last year
- 22% of all accidents were fatal so far
  - versus 24% at the same time last year
- The number of fatalities is higher than last year's at this time
  - 174 more fatalities

Main Issues from Incident Review Meeting

During each IRM meeting, member airlines discuss incident, accidents or any occurrence with the potential risk of causing an accident. IATA and the member airlines classify accidents as per the following categories, presented below.

The following section presents the issues discussed at the IRM, in some of these accident categories, and the recommendations noted during the meeting. The occurrences presented at the IRM either resulted in these types of accidents (e.g. CFIT) or had the potential risk of resulting in them.

Accident Categories



Stall and upset recovery

Issues:

- IATA conducted a STEADES analysis on stalls, which revealed that stalls occur most frequently during the cruise phase, and most often caused by weather.
- Special software is necessary in the Simulator to do high level cruise stall / upset recovery. All other simulators will not accurately reflect actual aircraft handling.
- Incidents represented at the IRM highlighted the following common problems:
    - Inadequate monitoring during critical phases of flight.
    - Beware max firewall thrust usage during go-around due to aircraft pitch-up that will follow and subsequent lack of elevator control.
    - Power management during go-around.
    - Full stall and pre-stall recovery are different and some airline pilots are only trained for pre-stall recovery. Simulators again unable to replicate properly.
    - Auto-throttle disconnect recognition – monitoring is required.
    - Ensure this is documented correctly (difference between FCTM and QRH).

Recommendations:

- Training in stall warnings and recovery from stalls is necessary.
- Slow speed and approach to stall training is necessary.
- It is important for pilots to manually fly aircraft at a high altitude and know how to recover from any upset.
- STEADES members may obtain a copy of the IATA stall analysis by contacting: steades@iata.org

FMS input errors

Issues:

- Members discussed incidents involving wrong FMS inputs.
- In some instances, this type of event can result in a tail-strike on take-off.
- Flight crews operating aircraft variants under the same fleet can enter the GW for the wrong variant.

Recommendations:

- In some aircraft, a software defense is available (Gross Weight inhibit available).
- Any performance data request makes electronic comparison and highlights errors.
- FMS Gross Weight (GW) inhibit function should be standard & a check of the GW used for performance calculations versus the estimated take-off GW should have an automatic electronic crosscheck.
- IATA will conduct a survey of its member airlines to determine how they capture FMS input errors.

Braking and Deceleration Devices

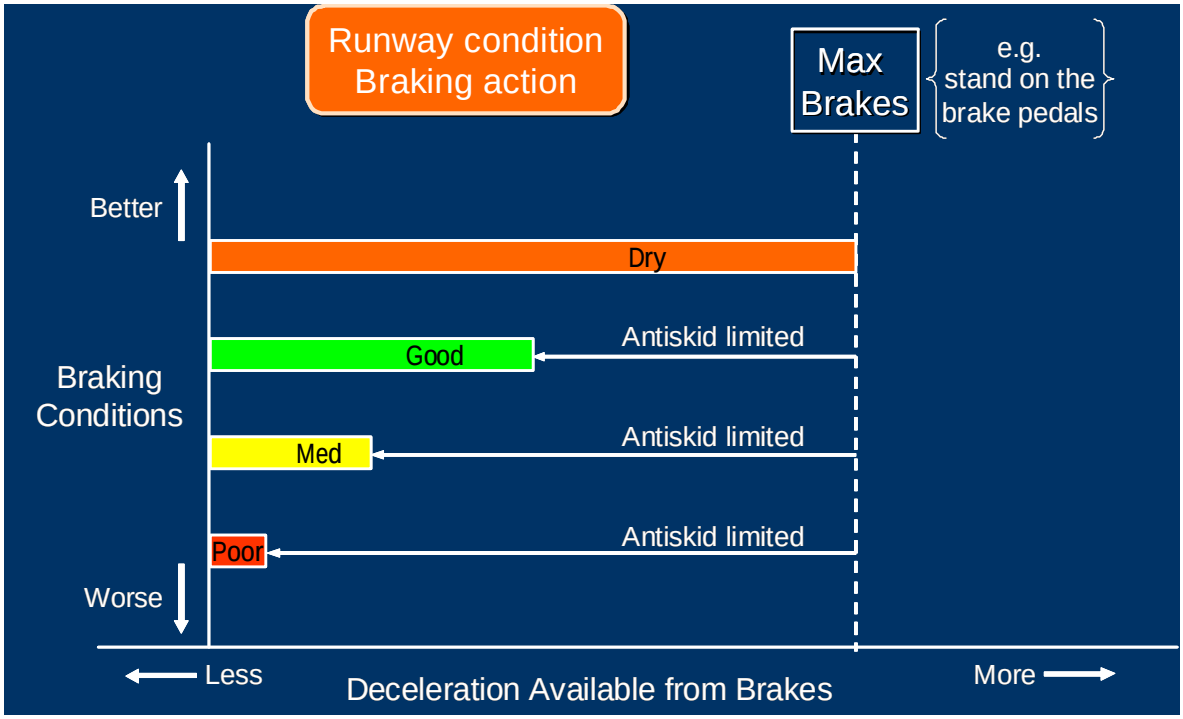
Issues:

- Incidents discussed indicated that deceleration devices are not being used correctly.

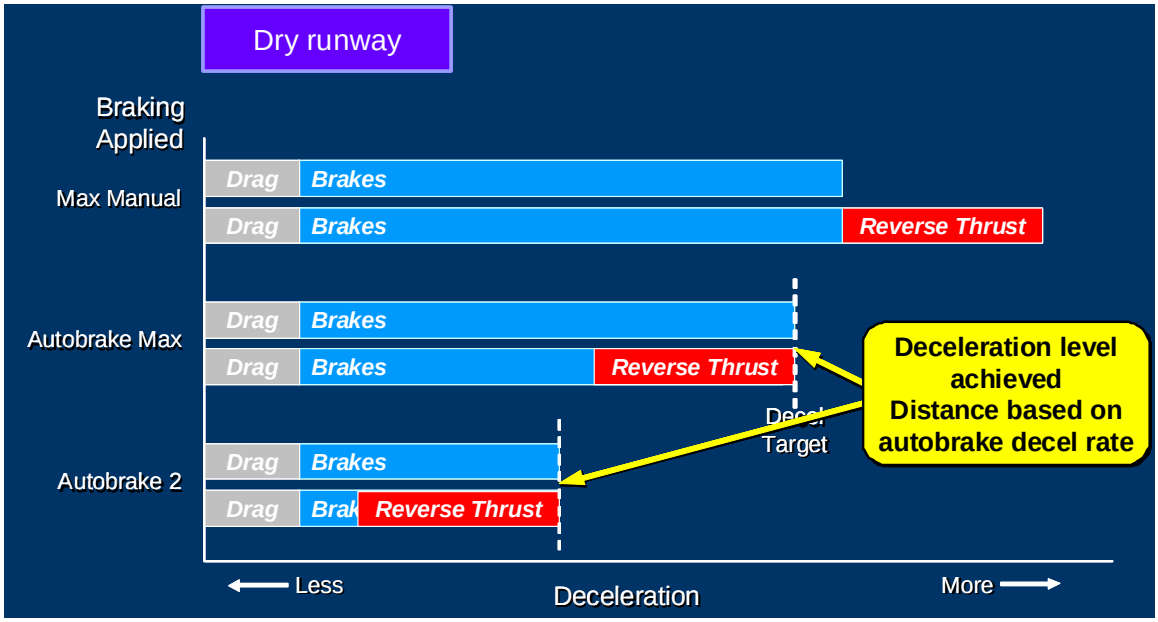
Recommendations:

- The following material is presented courtesy of The Boeing Company.

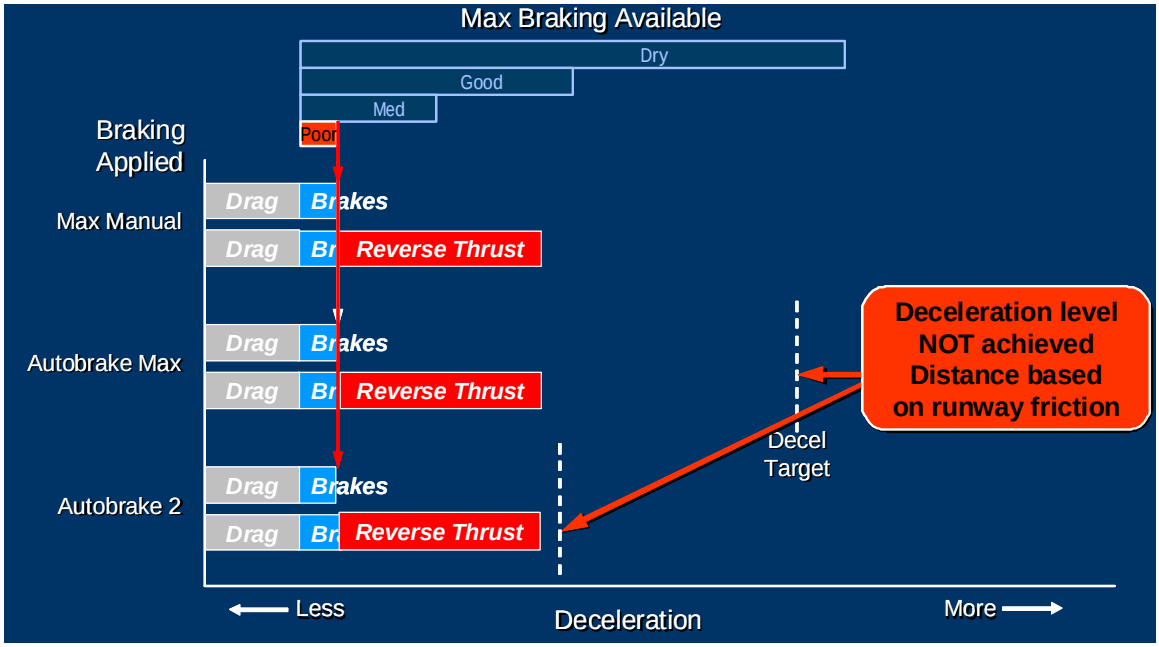
Maximum Deceleration Available from Brakes



Maximum Deceleration: Manual versus Autobrakes



Maximum Deceleration: Poor Braking



Ground handling issues

Issues:

- Members discussed several cases of damage to aircraft during ground operations.
- Ramp personnel's experience is often extremely limited.
- In some ground handling companies, there is a high turnover rate for ground personnel.
- Other cases discussed related to systemic infrastructure problems and non-conformance to ICAO standards.
- Hazards noted at aerodromes often involved construction and equipment in close proximity to active runways or taxiways.

Recommendations:

- Raise awareness of ground crews with regards to operational risks.
- Vehicles that operate in the vicinity of active runways / taxiway should have identification lighting for improved visibility.
- Compliance with ICAO Annex 14 standards, particularly during periods of construction work in progress.

ATC Terminology Errors in North America

Issues:

- One airline shared an event of note on a B747 taking off from ORD.
- The departure runway had work in progress in place that reduced the TODA.
- This was published correctly and the crew made the correct FMS inputs.
- However, during taxi ATC gave the airline permission to 'line up and take-off full length' which gave the crew the impression that the full length of runway was now available and consequently they changed their RTOW data accordingly.
- During the take-off they noticed that the WIP was still in place, fire-walled the throttles, and just cleared the obstacles.
- On questioning ATC, they were told that 'full length' refers to the point that the take-off is commenced from and not that the full runway length is available.
- No signage was apparent.

Recommendations:

- IATA is following-up accordingly, to include a review of the approved ICAO verbiage.

High Altitude & Very Low Temperature "Icing"

Issue:

- A significant number of IAS anomalies were reported by airlines around the world during cruise at low temperature.
- At the IRM, airlines discussed a phenomenon known as 'ice particle icing', which unlike classic icing (supercooled liquid), is accretion caused by ice particles that exist alone (dry ice) or in combination with supercooled liquid.
- Very small ice particles in high quantity melt and may refreeze downstream on parts of the aircraft where the temperature is close to the freezing point, such as heated probes or engine compressor section.
- Unlike classic ice which exists in a liquid form, dry ice (ice particle icing) exists in atmospheric conditions where classic icing would not be present and furthermore it cannot be detected by weather radar with the current technology.
- Consequently the question of how pilots can identify (and avoid) regions of potentially high ice particle concentration needs to be considered.
- This phenomena has been seen before (and some research done with regard to engine icing) but never really considered further.
- Ice crystals "icing" is not covered by certification, which considers that there is no icing below -40 C. Nearly all IAS and engine events where reported at temperatures below -40C.

Recommendations:

- This phenomena is often associated with large TAT changes and it is recommended that airlines start to record a new FDAP (FDA/FOQA) event (sudden TAT change) that may well be indicative of these dry ice particles.

- Airlines may used this sudden increase in TAT to retroactively diagnosis these conditions following un-explain engine rollback events
- The Boeing Company has conducted studies on convective weather containing ice crystals associated with engine power loss and damage. The attached presentation describes this study. Below is a summary.

Summary - Indicators of Ice Crystal Encounters:

- Flights in visible moisture near deep convective weather, without radar returns, and at temperatures below freezing are very likely in ice crystal conditions.
- These conditions may also include:
    - Flying in the vicinity of a convective weather system / thunderstorm and above a region of heavy rain.
    - No significant airframe icing.
    - TAT probe frozen.
    - Ice detector not detecting ice (when installed).
    - Appearance of rain on the windshield.
    - Light to moderate turbulence.

Recommendations:

- It is not practical to avoid all ice crystal conditions; crystals may not be detected by aviation radar.
- Normal thunderstorm avoidance procedures may help avoiding high ice crystal content regions.
- These include:
    - Plan a flight path that avoids storm cells by at least 20 nautical miles.
    - Fly upwind of the storm.
    - Avoid flying over a storm cell. A fully developed thunderstorm can reach altitudes of more than fifty thousand feet.
    - Even when there are no radar returns, there may be significant moisture in the form of ice crystals at high altitudes.
    - Utilize the radar antenna tilt function to scan the reflectivity of storms ahead.
    - Recognize that heavy rain below indicates likely high concentrations of ice crystals above.
    - ATC permitting, make a continuous descent at idle thrust. This decreases the exposure time to the ice crystal conditions.

Next Incident Review Meeting – IRM/08

The dates and venue of the next IRM will be announced shortly.