

The Report on LOSA Introduction and Asiana LOSA

LOSA 특성 및 아시아나항공 도입운영 소개

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I. WHAT IS LOSA?

LOSA is short for Line Operations Safety Audit. It is a flight safety program that analyses HUMAN ERRORS in normal operations. It utilises the technique of unobtrusive "fly-on-the-wall" flight observations by having LOSA-trained pilot observers in the flight. The observations are strictly confidential, and analysed by the LOSA Collaborative (TLC) and the University of Texas Human Factors Research Project.

- LOSA is a PRO-ACTIVE NON JEOPARDY DATA COLLECTION METHODOLOGY using THREAT AND ERROR MANAGEMENT as a framework
- Conventional SMS (Safety Management System) tools give data on WHAT is occurring LOSA gives data on HOW and WHY
- Only analysis of the management of these errors Will identify crew behaviours.

II. PILOT ASSOCIATION AND PARTICIPATED AIRLINES

1. WAS APU CONSULTED ABOUT LOSA?

APU(Asiana Pilot Union) is part of the LOSA Steering Committee, making LOSA a joint project between Asiana and APU. We will make efforts to achievesafety TOGETHER.

2. ARE OTHER AIRLINES DOING LOSA?

Yes. Around 20 airlines have. Air Mexico, Asiana Airlines, Delta(2nd LOSA), MAS, SIA,

Silk Air, Continental(3rdLOSA), China Airlines(Taiwan), Mt. Cook(New Zealand) are the most recent ones in 2004. The other airlines are Alaska Airlines, ANZ, Braathens(Norway), Cathay, Qantas, Delta, UNI(Taiwan), Frontier Airlines, and US Airways.

We have visited EVA, QF, ANZ, SIA and MAS to benchmark LOSA. We have good picture how to implement LOSA. All of them whom we visited are satisfied with LOSA to improve managing errors. JAL came to us to benchmark the preparation of LOSA.

III. THREAT AND ERROR

1. THREAT AND ERROR MANAGEMENT PHILOSOPHY

Over 90% of flights in the LOSA Archive encountered THREATS. There are average 3 threats per flight and 25% of the flights had a MISMANAGED THREATS that contributes to a crew error or undesired state.. 25% of flights in the LOSA Archive had an UNDESIREDCRAFT STATES. Mismanaged undesired aircraft states are as close to an ACCIDENTS.

There are many ERRORS we make in the cockpit. LOSA takes the view that ERRORS WILL OCCUR, because human is not perfect. Many of them we trap and avoid - because of our training and competence as pilots. But there are errors that we make that SLIP by unnoticed. In the past, most training has concentrated only on MIMISING ERROR.

Only analysis of the management of these errors will identify crew behaviours that lead to safe outcomes. LOSA helps in DETECTING THESE ERRORS in normal operations. If we learn from these errors, through LOSA, we shall have safer flight operations. LOSA help crew to avoid committing errors, manage operational complexity, manage their own errors, and manage induced aircraft deviations.

2. THE NATURE OF FLIGHT CREW ERROR

- Intentional Noncompliance violations
e.g. Performing a checklist from memory
- Procedural Followed procedures but wrong execution
e.g. Wrong altitude setting dialed into the MCP
- Communication Missing information or misinterpretation
e.g. Miscommunication with ATC
- Decision Decision that unnecessarily increased risk
e.g, Unnecessary navigation through adverse weather Procedural, Communication and Decision Errors may be due to a lack of technical skill or proficiency

3. THREAT CATEGORIES

- Environmental Threats
 - Adverse weather
 - ATC events / errors
 - Terrain
 - traffic
 - Airport conditions
- Airline Threats
 - Operational time pressure
 - Cabin events / errors
 - Maintenance events / errors
 - A/C malfunctions / MELs
 - Ground / Ramp events / errors
 - Dispatch events / errors
 - Ground crew events / errors

4. ERROR PREVALENCE (RECENT)

- Average 3 errors per flight.
- Over 75% of flights in LOSA had observable crew errors. Around 30% of errors are intentional noncompliance (Violations)
- Most often mismanaged errors
 - Aircraft handling hand flying, speed and vertical deviations
 - Decision errors mostly during descent / approach / land
 - Automation incorrect entries
- HALF OF THE ERRORS WENT UNDETECTED!

5. UNDESIRE AIRCRAFT STATE

- Most often mismanaged undesired aircraft states
 - Unstable approaches
 - Speed deviations in descent / approach / land
 - Over 25% of the flights had MISMANAGED ERROR that leads to an additional error or UNDESIRE STATE

6. THE BLUE BOX

- In LOSA this phase of flight is called Because most threats and errors occur during the Descent Approach and Landing Phase, we defined a target area to collect additional data

IV. 10 CHARACTERISTICS AND FINAL REPORTS

1. LOSA OPERATING CHARACTERISTICS

- Numerous observations during normal operations
- Anonymous and confidential data collection
- Voluntary crew participation
- Joint management / union sponsorship
- Trained and trained observers
- Safety-targeted data collection form

- Trusted data collection site
- Data cleaning roundtables
- Data-derived targets for enhancement
- Results feedback to line pilots

2. FINAL REPORT

- Most frequent and mismanaged threats
- Most frequent and mismanaged errors
- Strengths and weaknesses of CRM performance
- Fleet and operational differences
- Comparison to other airlines on LOSA safety indices
- RAW DATA
 - Phase of flight and overall text narratives
 - Listing and coding of every threat and error observed
 - Responses from an in-flight pilot interview

V. ASIANA LOSA 2004

1. CURRENT STATUS

Asiana Airlines are implementing the Line Operation Safety Audit (LOSA) from 16 OCT 2004 to 30 NOV 2004 according to Audit plan 2004 and ICAO Doc. 9803. Asiana LOSA committee has selected 14 internal observers for the LOSA and had training course by TLC.

2. THE PREPARATION

- Stage 1 - Initial Planning Stage : 2 MAR 2003
 - Opening committee office : 2 MAR 2003
 - Signing the protocol with pilot Association-APU: 27 FEB 2004
 - Signing the contract with TLC: 5 MAR 2004
- Stage 2 - Defining the LOSA : 18 JUN 2004
 - Observer Selection: 6 JUL ~ 21 JUL

2004

- Monthly Committee meeting
- Stage 3 - Logistics Planning : 19 JUL
 - Reserve hotels
 - Planning LOSA SKD
- Stage 4 Final Details : 20 SEP

3. TIMELINE OF ASIANA LOSA

- Observer Training: 18 OCT 2004
- 1ST LOSA (Data Collection): 16 OCT ~ 30 NOV 2004
- Data Verification and Round-tables: FEB 2005
- Final Report: APR 2005
- Safety Change Process: APR 2005 ~ SEP 2006
- The 2nd LOSA: OCT 2006 ~ NOV 2006

4. SIZE OF ASIANA LOSA 2004

- FULL LOSA
 - 747, 777, 767, A/B 321- 40 Sectors each
 - B 737- 70 Sectors
 - Total 230 Sectors
- Observers
 - Max 15 Sectors per the Observer
 - 14 Internal Observers
 - 4 External Observers-TLC

REFERENCES

Patrick Murray, Safety Seminar Material Presentation Material, TLC, 2004 (Major statistics and contents are done by Capt. Murray)

International Civil Aviation Organization, DOC 9803, LOSA, 2002