EGYPTIAN CIVIL AVIATION TRAINING STANDARD

The training and standardizing of LOSA observers. THIS Training Standard and draws that information
together and provides more in-depth information.

OBSERVER TRAINING

Observer training typically requires two to three days of classroom training, with a follow-up session after one or two line observations. There are five topics that need to be covered in Observer Training:
1. LOSA rationale and etiquette
2. Company policies and procedures
3. Observation form
4. Threat and Error Management concepts
5. Narratives

1. LOSA rationale and etiquette

Observers will likely have a rudimentary understanding of LOSA when selected for the project; however, they will need to fully understand the safety rationale for conducting a LOSA at their airline. A "big picture" perspective will help observers understand the "why" of LOSA and will underscore the importance of their role in the LOSA process. Also, the observers will be ambassadors for LOSA while observing on the line, and it is important that they be able to explain the process fully, to answer any questions that the line pilots may have, and allay any fears or concerns.

Specifically, the observers need to understand the safety rationale for normal operations monitoring—a discussion of proactive vs. reactive safety strategies is recommended. The observers also need to know how the data collected from the LOSA will be used to understand strengths and weaknesses in the operations. An overview of the whole process from observations to data cleaning and analysis, to the diagnostic report and the development of targets for enhancement is recommended.

Of course, the observers will also need to know the "how" of LOSA, specifically the etiquette associated with being a LOSA observer. An observer needs to learn how to approach a crew, how to ask permission to observe a flight, how to walk away so that the crew can discuss it, and to accept without question any crew's decision to deny access to the cockpit. The observer should also carry a copy of the letter of endorsement jointly signed by management and pilots' association to show any interested crew.

On the jumpseat, the observer's behavior is best summarized as "a fly on the wall". The observer needs to be unobtrusive, yet responsive to any queries the crew may have. The observer does not complete the observation form on the jumpseat—this would be a disconcerting distraction to the crew. Instead, the observer is encouraged to carry a small pocket notebook or legal pad to jot down minimalist notes, just enough to jolt the memory when outside the cockpit and completing the full observation form.

LOSA observers should be trained to accept their role as observers, not evaluators—they are not Check Airmen. LOSA observers will observe errors and undesired aircraft states as part of their observations; however, they should only interrupt and take an active role if they perceive the safety of the flight to be seriously and immediately endangered. A

helpful rule of thumb is to ask observers to think of themselves as a guest riding in the jumpseat of another airline. This seems to help distance the observer from the flight crew while still being able to politely point out safety concerns if they come about.

The LOSA observer is the only person in the whole LOSA process who has access to crew identities. It is essential therefore, that observers are reminded throughout the training of their responsibilities in this regard. Confidentiality is paramount and observed crew behavior should not be discussed with anyone—not even other observers. Experience has shown that at the end of a flight, crews will often ask the observer to "debrief" their performance. In these circumstances, it is essential that the observer politely decline the invitation. This emphasizes the concept that the observer is not there to evaluate the crew, merely to record events.

LOSA observers should act in an unobtrusive and consistent manner so that line pilots have a similarly positive experience of LOSA, which in turn will favorably affect their receptivity to the final results and outcomes.

2. Company policies and procedures

Observers need to be current with company policies and procedures so as to observe procedural adherence on the line and detect any deviations. Selecting line pilots and other airline employees is one way to ensure this; recently retired pilots can also be recruited. Spending some time in the classroom reviewing procedures across fleets allows all observers to get "up to speed" on the fleets they will be observing. All observers should also be encouraged to review the manuals as homework.

3. Observation form

This sub-section refers to the mechanics of correctly completing and submitting a LOSA observation form. During the training, the observers work to develop the needed competencies as defined by the observation form. Hence, observers should see the observation form as soon as possible after the training begins so that they have a clear sense of what is expected of them. With the observation form in hand, the observers can be led through the various sections, and then practice using case studies (see next subsection).

If the observation form is software-based, time should be spent ensuring that all observers have the necessary computer skills to open the form, enter and edit data, and submit the observation. Mastering these skills in the classroom will avoid potential loss of data later in the LOSA due to computer error. Observers should have the name of a contact person in case of computer problems.

4. Threat and Error Management concepts

If the airline is using Threat and Error Management as the basis of its LOSA, observers need to receive training in the framework. Specifically, observers need to be able to define, distinguish, and identify threats, errors, and undesired aircraft states. This is best achieved with a mixture of lecture, case studies, and review. Lecture material should include multiple examples of each type of threat, error, and undesired aircraft state, and case studies can take the form of scripted vignettes and/or actual accident and incident report excerpts. The distinction between threats, errors, and undesired aircraft states becomes clear with practice and observers are usually able to correctly distinguish

examples of all three categories in two days or less of classroom involvement. Some training examples are provided in THIS TRAINING STANDARD

5. Narratives

Observers need training in writing the flight narrative. If they understand the concepts underlying the observation form as well as the diagnostic rationale for conducting a LOSA, the observers will realize that a good-quality narrative is imperative. The observation form should contain several prompts to help the observer provide sufficient detail, and observers should be encouraged to "overwrite" the flight rather than provide too little detail. In particular, observers need to record events that happened, such as threats, errors or undesired aircraft states, the context in which they happened, and the crew's response and management of the event. Observers are selected because they are experts at understanding flight operations and this expertise is best expressed in detailed narratives. As long as the observer provides a detailed narrative of the flight, any coding oversights can be remedied later in the data-cleaning process.

Training Objectives

In sum, at the end of LOSA observer training, an observer should be able to:
1. Knowledgeably and confidently explain the rationale and process for conducting a LOSA at the airline
2. Enact the LOSA observer etiquette in a professional and consistent manner
3. Demonstrate knowledge of company policies and procedures
4. Use the observation form accurately and comprehensively
5. Understand the theoretical framework of the observation form. If the tool is based on Threat and Error Management concepts, the observer should be able to define, distinguish, and identify threats, errors, and undesired aircraft states.
6. Write detailed and comprehensive flight narratives from which others will be able to understand the full context of the flight and related events.
Members of the LOSA steering committee may want to attend LOSA observer training at another airline or attend an industry-sponsored LOSA Conference for further guidance before designing the training.

OBSERVER STANDARDIZATION

Standardization refers to the need to be sure that flight details are recorded in a systematic and consistent fashion. In LOSA, standardization is a multi-step process that involves standardizing the observers, and conducting follow-up data-cleaning and coding of completed observations.
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The first step in any observer standardization is good-quality training. To be sure observers are understanding the concepts, group discussions are encouraged. Focusing on the finer points of the model and the observation form, these discussions help calibrate the observers to a common standard. A test can be administered at the end of the training to be sure that all observers have grasped the necessary knowledge and can demonstrate the required competencies as specified by the training objectives. If observers complete this test satisfactorily, they can be released to the line to complete one or two "trial" observations.

The LOSA project coordinator or trainer should schedule time with each observer to discuss their trial observations. If the observer does a good job, as evidenced particularly by the quality of the narrative, the observations can be retained and used in the LOSA, and the observer can be sent back out to complete their observations. If the quality of the narrative is poor, e.g., lacking sufficient detail, the trainer can work with the observer to help draw out missing information. If the observer has forgotten details and cannot recreate the flight, the observation must be discarded, and the observer sent out to complete another trial observation. It is the LOSA coordinator's decision to drop any observer from the observation team if that person fails to meet the required standard. For this reason, it can be a good idea to initially recruit and train more observers than needed, to allow for attrition, illness, and scheduling conflicts.

Data standardization

There are several supplementary techniques that ensure good-quality standardized data are used in a LOSA.

First, observers are not asked to evaluate performance, but simply to observe it. From a data standpoint, this is the distinction between subjective judgment and objective observation. For example, observers are asked to note threats without any subjective judgment—if there is a thunderstorm, record it; if there is an aircraft malfunction or ground maintenance problem, record it. It is the same for errors and undesired aircraft states. Observers also note the crew's response to the threats, errors, and undesired aircraft states and the outcome. The observer is not assessing crew performance or providing a subjective evaluation—the observer is telling the story of the flight.

Second, observation forms submitted by observers are always checked by the data analyst against the narrative. Observers are expert at describing a flight—they are not necessarily expert at assigning codes to the various threats, errors, etc. especially if it is their first time as a LOSA observer. While training is given in the codes, nonetheless it is realistic to accept that observers won't necessarily retain this information perfectly. The narrative is the "fail-safe" in the system in that it allows the analyst to read the events of the flight and match them to the observer's codes. Because the analyst *is* the expert with the codes, he or she can add any codes that were missed and recode anything that might not be quite correct. Hence, a good-quality narrative is the ultimate key to standardized data. Observers provide a comprehensive narrative, and the analyst ensures consistent and accurate coding.

A third step in standardizing the LOSA data prior to analysis involves verifying the data with a team of local experts—airline personnel familiar with the operation of each fleet (possibly fleet managers or representation of the airline's operations, member of the 29 steering committee, but not any of the observers). The group's task is to review and verify the observations against current manuals, policies, and procedures. For example, an observer might log a procedural error for failure to make an approach callout when in fact there is no written procedure in the airline's flight operations manual. The "error" would then be deleted from the database. The data verification group acts as a check on the analyst's coding, ensuring events are correctly recorded in line with each fleet's procedures and policies. It also builds ownership in the results and dispels any later criticism that the coding was not accurate.

In sum, there are several methods that ensure that LOSA data are consistently and

accurately recorded:

a) · Observers are trained, calibrated, tested, and recalibrated;
b) · Objective observation, not subjective evaluation, is the basis and outcome
c) of the observation;
d) · The narrative is stressed as key to high-quality data;
e) · The data analyst applies consistent coding to the observations;
f) · The data verification group checks the analyst's coding against specific
procedures

Following the above steps will ensure reliability and validity of the data analyzed from LOSA observations.

APPENDIX E: SAMPLE LETTER TO THE LINE PILOTS

To: All XX Airline Pilots

From: (Name) Senior Director, Flight Operations

(Name) Director, Flight Training and Standards

(Name) Director, Flight Safety and Quality Assurance

(Name) Chairman, Pilots' association Safety Committee

Subject: Line Operations Safety Audit (LOSA)

Beginning mid-October and continuing for approximately five weeks, this airline will conduct a Line Operations Safety Audit (LOSA). LOSA observations are no-jeopardy events, and all data are confidential and de-identified. LOSA data go directly to the XX Research Program for data entry and analysis.

We will use our own pilots to conduct cockpit jumpseat observations. Be assured that these observations are not checkrides. Although some LOSA observers may be check airmen, they are not there to critique your performance - their mission is to be an unobtrusive observer and to fill out data collection forms after the flight is completed. The ultimate customer of the audit is you, the line pilot. The audit should help us identify problem areas so that we can correct them and make your job easier. Did you ever see a procedure that could be done better, but didn't feel like you had a way to feed that idea into the system for possible change? Are some procedures better than others as far as helping avoid, trap and mitigate errors? LOSA should help us identify the strengths and weaknesses of our crew procedures, and with that information, management is committed to making necessary changes to continually improve the way that we do business.

In short, we're doing a LOSA so that we can improve the system to better support you. After the audit is completed, we're committed to telling you how it went, and how we plan to make improvements.

Please extend your usual professional courtesies to the LOSA observation team, and thank you for your unfailing cooperation.

Sincerely,

(Name), Senior Director, Flight Operations

(Name), Director, Flight Training and Standards

(Name), Director, Flight Safety and Quality Assurance

(Name), Chairman, Pilots' association Safety Committee

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APPENDIX F: SAMPLE VIGNETTES FOR OBSERVER TRAINING

Case Study One – Read the following and list all threats, errors, and undesired aircraft states as well as the flight crew response and outcome..

Predeparture / Taxi-out – The Captain requested an extra 5000 pounds of fuel to be loaded. After ground confirmed the fueling, the First Officer alerted the Captain that they were 2000 pounds off. The Captain radioed back to ground and the missing 2000 pounds was loaded.

Solution – One threat, no errors or undesired aircraft states

Threat #1 – Ground Handling Threat – The ground crew failed to load the all 5000 lbs of requested fuel – The flight crew response was the First Office detecting and correcting the shortage. The outcome was inconsequential.

Case Study Two – Read the following and list all threats, errors, and undesired aircraft states as well as the flight crew response and outcome.

Descent / Approach - While descending through 18000 feet, the First Officer performed the entire descent checklist from memory, which is against standard operating procedures. The Captain noticed the First Office doing it but chose to ignore it. In the end, everything was set correctly.

Solution – No threats, one error and no undesired aircraft states

Error #1 – Checklist Error – The FO performed the descent checklist from memory. The flight crew response was the captain detecting the error but failing to correct (ignored). The outcome was inconsequential

Case Study Three – Read the following and list all threats, errors, and undesired aircraft states as the flight crew response and outcome.

Descent / Approach / Land – During a 30-degree bank on a visual approach, the Captain unwillingly allowed the aircraft to get 15 knots below minimum maneuvering speed. While it should have been detected sooner, the low speed was eventually pointed out by the First Officer. The Captain said thanks and immediately increased the speed.

Solution – No threats, one error and one undesired aircraft state

Error #1 – Aircraft Handling Error – The Captain allowed the speed to decay during a bank turn. No one detected the decay before it dropped below minimum maneuvering speed. Therefore, the error was undetected and linked to an undesired aircraft state.

Undesired Aircraft State #1 - As soon as the speed went below minimum maneuvering speed, the aircraft was in an undesired aircraft state that was detected by the First Officer and corrected by the Captain. The final undesired aircraft state outcome was inconsequential.