



Flight Operations Briefing Notes

Standard Operating Procedures

Operating Philosophy

I Introduction

Strict adherence to suitable standard operating procedures (SOPs) and normal checklists is an effective method to :

- Prevent or mitigate crew errors;
- Anticipate or manage operational threats; and thus,
- Enhance ground and flight operations safety.

Without strict adherence to SOPs, the implementation of good crew resources management (CRM) practices is not possible.

This Flight Operations Briefing Note provides an overview of the following aspects:

- Establishment and use of (SOPs);
- Training aspects; and,
- Factors and conditions that may affect the compliance with published rules and procedures.



II Statistical Data

Factor	% of Events
Omission of action or inappropriate action	72 %
Non-adherence to criteria for stabilized approach	66 %
Inadequate crew coordination, cross-check and back-up	63 %
Insufficient horizontal or vertical situational awareness	52 %
Inadequate or insufficient understanding of prevailing conditions	48 %
Slow or delayed action	45 %
Deliberate non-adherence to procedures	40 %
Incorrect or incomplete pilot / controller communications	33 %
Interaction with automation	20 %
Absence of go-around when required	17 %

(Source : Flight Safety Foundation – 1998-1999)

Table 1

Causal Factors related to SOPs in Approach-and-Landing Accidents

III Airbus' SOPs

Standard Operating Procedures (SOPs) published by Airbus are designed to achieve the following objectives:

- Reflect the Airbus' cockpit design philosophy and operating philosophy;
- Promote the optimum use of aircraft-type design features; and,
- Apply to a broad range of airline operations and operating environments.

The initial SOPs for a new aircraft model are based on the above objectives and on the experience gained during the development and certification flight-test campaign and during the route-proving program.

After they are introduced into service, the initial SOPs are periodically reviewed and enhanced based on the feedback received from end users (i.e., feedback on use of SOPs in training and in line operations).

IV Operator' Customized SOPs

Airbus' SOPs can be adopted without change by an operator or used as the basis for the development of customized company' SOPs.

Customized company SOPs usually are established to assure standardization across the different aircraft fleets being operated by the airline.

Deviations from the Airbus' SOPs may be coordinated with Airbus, such deviations usually require approval by the airline's operational authority.

SOPs should be simple, clear, concise and directive; the level of expanded information should be tailored to reflect the airline's operating philosophy and training philosophy.

Operator's SOPs should be reviewed and reassessed periodically based on revisions of the Airbus' SOPs and on internal company feedback, to identify any need for change.

Line pilots and cabin crewmembers should be involved, along with the flight standards team, in the development and revision process of company SOPs to:

- Promote critical and constructive feedback; and,
- Ensure that rules and procedures, as well as reasons for their adoption are fully understood by end users.

V Scope of SOPs

V.1 General Principles

SOPs should identify and describe the standard tasks and duties of flight-crew for each flight phase (i.e., **what-to-do** and **when-to-do**).

SOPs should be accomplished by recall but critical tasks (e.g., selections of systems and changes of aircraft configuration) should be cross-checked by use of normal checklists (i.e., for error detection and correction), according to the phase of flight.

SOPs should be supplemented by information on specific operating techniques (e.g., adverse weather operation) and by operational recommendations for specific types of operations (e.g., operation on wet or contaminated runway, operation in ETOPS area and/or in RVSM airspace).

SOPs should assume that all aircraft systems operate normally and that all automatic functions are used normally.

Note :

A system may be partially or totally inoperative (i.e., in accordance with the company Minimum Equipment List [MEL] / Dispatch Deviation Guide [DDG]) without affecting the SOPs.

SOPs should address and emphasize the following aspects :

- Task sharing (i.e., **who-should-do**);
- Optimum use of automation (i.e., **how-to-use**);
- Operations Golden Rules;
- Standards calls (i.e., **what-to-expect**, **what-to-observe**);
- Use of normal checklists;
- Approach and go-around briefings;
- Altimeter setting and cross-check procedures;
- Descent profile management;
- Energy management;
- Terrain awareness;
- Threats and hazards awareness;
- Use of radio altimeter;
- Elements of a stabilized approach and approach gates;
- Approach procedures and techniques for various types of approaches;
- Landing and braking techniques for various types of runway and wind conditions; and,
- Readiness and commitment to go-around (e.g., GPWS warning, unstabilized approach, bounce recovery).

V.2 Regulatory Definition

The U.S. FAA defines the scope and contents of SOPs in Advisory Circular (AC) 120-71.

The SOPs defined in AC 120-71 includes items related to:

- General operations policies (i.e., non-type related); and,
- Airplane operating matters (i.e., type-related).

The European JAA defines the scope and contents of SOPs in JAR-OPS 1.1045 and associated Appendix 1.

The scope of SOPs defined in the FAA AC 120-71 is allocated by the JAA to the Part A and Part B of the Operations Manual, as follows:

- Part A : General operational policies (i.e., non-type-related matters); and,
- Part B : Aeroplane operating matters (i.e., type-related matters).

V.3 Safeguards

SOPs should contain safeguards in order to minimize the potential for inadvertent deviation from procedures, particularly when operating under abnormal or emergency conditions or following interruptions or distractions.

Safeguards include:

- **Triggers:**
 - Events or actions initiating groups of actions (called **action-blocks**);
- **Action blocks:**
 - Groups of actions being accomplished in sequence as a group;
- **Action patterns:**
 - Flightdeck panel scanning sequences or patterns supporting the flow and sequence of action blocks; and,
- **Standard calls:**
 - Standard phraseology and terms used for effective intra-crew communication.

V.4 Standardization

SOPs (including standard calls) constitute the reference for crew standardization and provide the working environment required for enhanced and efficient crew communication and coordination.

V.5 Task Sharing

The following rules apply to any flight phase but are particularly important in the high-workload phases associated with takeoff, departure, climb and approach-and-landing.

The flying-pilot is usually referred to as the PF (pilot-flying) whereas the non-flying-pilot is referred as the PNF (pilot-not-flying).

The **pilot flying** is responsible for controlling the vertical flight path and horizontal flight path and for energy management, by either:

- Supervising the auto pilot (AP) vertical guidance and lateral guidance and the autothrust (A/THR) operation (i.e., awareness of modes being armed or engaged, of mode changes through mode transitions and reversions and of selected guidance targets); or,
- Hand flying the aircraft, with or without flight director (FD) guidance and with or without autothrottle / autothrust (A/THR) assistance.

The **non-flying-pilot** has a **dual role** as **pilot-not-flying** and **pilot monitoring**; he/she is responsible for systems-related and monitoring tasks and for performing the actions requested by the PF; this includes:

- Radio communications;
- Systems selection / configuration;
- AP / FD and FMS mode selections and target entries, when PF is hand flying;
- Monitoring the status of the aircraft (e.g., configuration, attitude, speed, trajectory);
- Performing the actions called by the electronic and/or paper checklists, in abnormal and emergency conditions; and,
- Monitoring the PF to provide effective cross-check and backup, as required (i.e., standard calls and excessive deviation callouts).

Note:

The non-flying-pilot should inquire PF actions that are not understood or considered inappropriate. He/she should also demonstrate assertiveness and express advocacy to share any concern on the flight progress.

The industry recognizes that both the flying-pilot and the non-flying-pilot have a monitoring role.

V.6 Sterile Cockpit Rule

Adhering to the Sterile Cockpit rule (defined in the *Flight Operations Briefing Note **Intra-Cockpit Communications - Managing Interruptions and Distractions***) may be mandated by operational authorities (e.g., U.S. FAR – Part 121.542) or adopted per company policy.

Airbus encourages adherence to the Sterile Cockpit rule, regardless of applicable national requirements.

V.7 Silent Cockpit

The Sterile Cockpit rule and the Silent Cockpit concept often are misunderstood as referring to the same operating policy.

When adhering to a Silent Cockpit policy, standard calls are minimized; FCU selections, FMA changes and target confirmations on PFD and ND are not announced loudly but included in the instruments scan.

Airbus acknowledges that variations may exist in airline operating policies but however encourages operators to adopt and adhere to a Standard Calls policy, as defined in the *Flight Operations Briefing Note* **Standard Calls**.

V.8 Use of Automation

With higher levels of automation available on modern-technology aircraft, flight crews are offered an increasing number of options and strategies to choose for the task to be accomplished.

The company SOPs should accurately define the options and strategies selected by the airline for the various flight phases and for the various types of approaches.

The *Flight Operations Briefing Note* **Optimum Use of Automation** provides expanded information on the use of AP/FD, A/THR and FMS.

VI Scope and Use of Normal Checklists

The *Flight Operations Briefing Note* **Normal Checklists** provides a detailed overview on the scope and use of normal checklists.

VII Training Aspects

Disciplined use of SOPs and normal checklists should begin during the transition training course, because **habits and routines acquired during transition training have a proven lasting effect.**

Transition training and recurrent training provide a unique opportunity to discuss the reasons for the rules and procedures and to discuss the consequences of failing to comply with them.

Conversely, allowing a relaxed adherence to SOPs and/or a relaxed use of normal checklists during initial or recurrent simulator training may encourage corresponding deviations during line operations.

In a nutshell ... **Train as you fly, Fly as you train!**

VIII Factors Involved in Deviations from SOPs

To ensure effective compliance with published SOPs, it is important to understand why pilots intentionally or inadvertently deviate from rules or standards.

In most cases of deviation from SOPs, the procedure that was followed in place of the published procedure seemed to be appropriate for the prevailing situation, considering the information available at the time.

The following factors and conditions are cited often in discussing deviations from SOPs:

- Corporate culture (i.e., absence of company management's clear commitment to SOP's, standardization, ...);
- Inadequate knowledge of or failure to understand the rule, procedure or action (e.g., quality of wording or phrasing, rule or procedure or action being perceived as inappropriate);
- Insufficient emphasis on strict adherence to SOPs during transition and recurrent training;
- Insufficient vigilance (i.e., fatigue);
- Distractions (e.g., due to intra-cockpit activity);
- Interruptions (e.g., due to ATC communication);
- Task saturation (i.e., degraded multi-tasking ability or task overload);
- Incorrect management of priorities (e.g., lack of or incorrect decision-making model for time-critical situations);
- Reduced attention (tunnel vision) in abnormal or high-workload conditions;
- Incorrect CRM techniques (e.g., absence of cross-checking, crew coordination or effective backup);
- Company policies (e.g., regarding schedules, costs, go-around and diversion);
- Other policies (e.g., crew duty time);
- Personal desires or constraints (e.g., personal schedule, mission completion);
- Complacency; and,
- Overconfidence.

The awareness of these factors may be used to assess company and/or personal exposure, and to develop corresponding **prevention strategies** and **lines-of-defense**.

IX Summary of Key Points

SOPs should include and emphasize aspects that are involved frequently in incidents and accidents.

Company policies, technical training and CRM training programs, line checks and line audits should:

- Promote strict adherence to SOPs; and,
- Identify and address the reasons for intentional or inadvertent deviations from SOPs.

X Associated Flight Operations Briefing Notes

The following Flight Operations Briefing Notes should be reviewed along with the above general information in order to revisit all the aspects associated with standard operating procedures:

- **Optimum Use of Automation**
- **Operations Golden Rules**
- **Standard Calls**
- **Use of Normal Checklists**
- **Conducting Effective Briefings**
- **HF Issues in Operational Incidents and Accidents**
- **CRM Issues in Operational Incidents and Accidents**

XI Regulatory References

- ICAO – Annex 6 – Operation of Aircraft, Part I – International Commercial Air transport – Aeroplanes, Appendix 2, 5.9.
- ICAO – Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS, Doc 8168), Volume I – Flight procedures (Post Amendment No 11, applicable Nov.1/2001).
- ICAO – Manual of All-Weather Operations (Doc 9365).
- ICAO – Preparation of an Operations Manual (Doc 9376).
- FAR 91.3 – Responsibility and authority of the pilot-in-command (emergency authority).
- FAR 121.133 – Preparation of Manuals,
- FAR 121.135 – Contents of Manuals,
- FAA AC 120-71 - Standard Operating Procedures for Flightdeck Crew Members (Draft).
- FAA AC 120-48 – Communications and Coordination between Flight Crewmembers and Flight Attendants.
- FAA AC 120-51 – Crew Resource Management Training.
- FAA AC 120-54 – Advance Qualification Training.
- FAA AC 120-71 – Standard Operating Procedures for Flight Deck Crewmembers.
- FAA AC 121-32 – Dispatch Resource Management Training.
- JAR-OPS 1.1040 and associated Interpretative and Explanatory Material (IEM) – General Rules for Operations Manuals.

This Flight Operations Briefing Note (FOBN) has been adapted from the corresponding ALAR Briefing Note developed by Airbus in the frame of the Approach-and-Landing Accident Reduction (ALAR) international task force led by the Flight Safety Foundation.

This FOBN is part of a set of Flight Operations Briefing Notes that provide an overview of the applicable standards, flying techniques and best practices, operational and human factors, suggested company prevention strategies and personal lines-of-defense related to major threats and hazards to flight operations safety.

This FOBN is intended to enhance the reader's flight safety awareness but it shall not supersede the applicable regulations and the Airbus or airline's operational documentation; should any deviation appear between this FOBN and the Airbus or airline's AFM / (M)MEL / FCOM / QRH / FCTM, the latter shall prevail at all times.

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Airbus Customer Services
Flight Operations Support and Services

1 Rond Point Maurice Bellonte - 31707 BLAGNAC CEDEX FRANCE

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