

Basic Competence for Optimum Performance

Competence Criteria
for Lufthansa Flight Crew Members.

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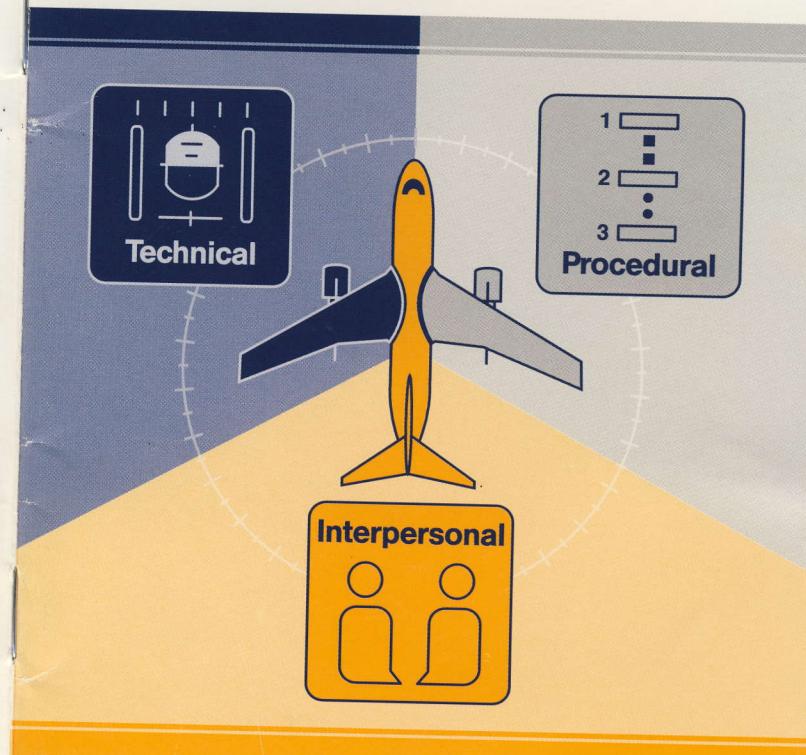
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All CRM skills required by JAR-OPS
and JAR-FCL are included.

Lufthansa Training Standards FRA NT ©



Lufthansa



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Vorwort des Postholders Training

Sehr geehrte Kolleginnen und Kollegen,

in dieser Broschüre finden Sie die im Operations Manual Part A verbindlich definierten Kompetenzkriterien für die Mitglieder der Lufthansa Cockpitesbesetzungen. Sie sind für jeden Kapitän, Copiloten und Flugingenieur Anspruch und Verpflichtung und gelten als Grundstock für eine sichere und erfolgreiche Arbeit im Team. Die Broschüre soll Ihnen als Nachschlagewerk und zur Vorbereitung für Ihre Trainings- und Checkflüge dienen.

Mit freundlichen Grüßen

Cpt. Werner Maas
FRA NT

FORDEC im Wandel

Eine im Jahr 2000 bei Lufthansa durchgeföhrte Studienarbeit erbrachte wichtige Erkenntnisse zum Entscheidungsverhalten von Cockpit Crews in zeitkritischen Situationen. Dies war der Anlass, das bei Lufthansa verwendete Entscheidungsmodell „FORDEC“ durch eine Variante für extrem zeitkritische Situationen, z.B. Feuer an Bord, zu ergänzen. Sie finden die parallele Darstellung des gewohnten Modells und der neuen Variante auf den Seiten 22 und 23.

Generell gilt:

1. Zu Beginn jeder Entscheidungsfindung steht immer eine Zeitanalyse.
2. Steht ausreichend Zeit zur Verfügung, werden zunächst möglichst

viele Optionen, erstellt und bewertet. Danach wird die beste Option mit den meisten Vorteilen und den geringsten Risiken ausgewählt.

3. Steht in kritischen Situationen, z.B. Feuer an Bord, extrem wenig Zeit zur Verfügung, werden grundsätzlich nur essentielle Kriterien bei der Erstellung der Optionen berücksichtigt. Die erste Option, welche diese Kriterien erfüllt, wird ausgewählt.

Dieses Modell soll Ihnen als Werkzeug dienen, um auch in extrem zeitkritischen Situationen eine analytisch fundierte und möglichst sichere Entscheidung herbeizuführen.

Cpt. Karl Heinz Burger
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Technical



Procedural



Interpersonal

Elements

Manual Aeroplane Control

Pilots are able to control the aeroplane in all maneuvers. They endeavor to make the flight as accurate and smooth as possible.

Descriptions

Ability

- Be able to control the aeroplane manually at all times
- Stabilize the aeroplane in all phases of flight
- Maintain horizontal and vertical profile
- Operate the aeroplane accurately and smoothly

Execution

- Apply basic pitch & power values
- Coordinate control inputs and trim
- Recognize trends by instrument scan and react as appropriate
- Adhere to applicable limitations and tolerances according to OM-B and OM-D

1

Technical Competence



Technical



Procedural



Interpersonal

Elements

Knowledge of Systems

Crew members know their aeroplane well, with special emphasis on operation, limits and interaction of systems.

Descriptions

System Design

- Know the structure and function
- Know the limitations
- Be familiar with the documentation

Application

- Know how to operate systems
- Know the behaviour and interaction of systems

2



Technical



Procedural



Interpersonal

Elements

Use of Automation

Crew members are proficient in operating their aeroplane in all modes of automation. They have the flexibility needed to change from one level of automation to another.

Descriptions

Handling

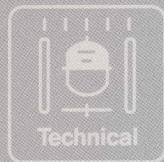
- Be able to manage all modes of automation
- Use optimum mode of automation
- Use automation to reduce workload

Monitoring

- Be aware of active mode of automation
- Be aware of mode changes
- Be flexible in changing level of automation

3

Procedural Competence



Technical



Procedural



Interpersonal

Elements

Knowledge of Procedures

It is essential for crew members to be thoroughly familiar with published procedures.

Descriptions

Normal procedures

- Know normal procedures for all phases of flight
- Be thoroughly familiar with all relevant standard operating procedures

Abnormal procedures

- Know how to handle an abnormal situation
- Know memory actions by heart
- Be familiar with relevant abnormal procedures

Procedural Competence



Technical



Procedural



Interpersonal

Elements

Adherence to Procedures

Disciplined and accurate application of procedures is vital. Only if a higher degree of safety is achieved, deviation from standard procedures might be necessary.

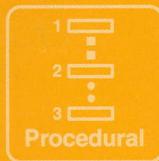
Descriptions

Discipline

- Strictly apply required published procedures
- Perform procedures disciplined and accurately
- Deviate from procedures only if a higher degree of safety is achieved



Technical



Procedural



Interpersonal

Elements

Communication

Generally, communication includes information transfer and social aspects. Crew members share information, and assure reception and understanding. Suggestions of other crew members are considered, even if one does not agree. Ambiguities and uncertainties are announced.

Descriptions

Atmosphere

- encourage open and honest communication
- achieve a positive first impression
- listen actively
- consider suggestions

Information Transfer

- share information
- assure reception
- assure understanding

Information Management

- clearly state plans and intentions
- announce ambiguities
- announce uncertainties
- speak frankly about problems within the crew



Technical



Procedural



Interpersonal

Elements

Leadership and Teamwork

Led by the commander, the crew achieves a safe and efficient performance in a climate, that is rational and free of intimidation.

Social interaction conflicts have to be addressed and managed. Every crew member takes initiative to be an active and constructive part of the team.

Descriptions

Commandability

- ➔ take the lead of the crew as commander
- ➔ establish goals, control outcome and correct
- ➔ consider condition of others

Team Ability

- ➔ act as a constructive member of a team
- ➔ take initiative
- ➔ encourage others to cooperate
- ➔ support others
- ➔ seek ideas and views from others
- ➔ present own point of view
- ➔ provide appropriate feedback
- ➔ propose alternative ideas if appropriate

Conflict Management

- ➔ address and manage conflicts
- ➔ achieve rational climate
- ➔ avoid intimidation
- ➔ adopt assertive behaviour if appropriate and persist until attention of others is gained or corrective action taken
- ➔ accept appropriate criticism
- ➔ avoid competition between crew members



Technical



Procedural



Interpersonal

Elements

Workload Management

Crew members clearly prioritize operational tasks and distribute them appropriately. Available external and internal resources are used to accomplish task completion in good time. Stress and error are inherent factors of flight, and crew members aim to minimize their negative effects.

3

Descriptions

Task

- prioritize operational tasks
- distribute tasks appropriately
- complete tasks in good time
- use external and internal resources

Time

- plan ahead
- allocate time to task appropriately

Stress and Error

- aim to minimize negative effects of stress
- aim to minimize effects of error



Technical



Procedural



Interpersonal

Elements

Situation Awareness and Decision Making

Crew members recognize and anticipate factors affecting the flight. After these factors are evaluated, they choose the appropriate course of action. To achieve a favourable out-come, crew members actively monitor execution and development of the situation.

4

Descriptions

Preparation

- act with respect to time available
- avoid distractions
- anticipate factors affecting the flight
- recognize factors affecting the flight

Processing

- evaluate factors affecting the flight
- choose appropriate course of action
- monitor execution
- monitor development of the situation
- apply FOR-DEC for complex decisions:
F-Facts, O-Options, R-Risks & Benefits,
D-Decision, E-Execution, C-Check

Interaction

- involve others in the process
- discuss discrepancies

Situation Awareness
and Decision Making

Time assessment



Not time critical

aim for **best** solution

F **O** **R** **D** **E** **C**

Facts					
Options		O ₁	O ₂	O ₃	O ₄
Risks/Benefits					
Essential Criteria	a	-	+	+	+
	b	+	+	+	-
e.g. RWY, W/X, ILS	c	-	+	+	+
Additional Criteria	d	-	-	+	+
e.g. Maintenance, PAX handling	e	-	+	+	-

Decision

Execution

Check

Time critical

aim for **first suitable** solution

F **O** **R** **D** **E** **C**

Facts					
Options		O ₁	O ₂	O ₃	O ₄
Risks/Benefits					
Essential Criteria	a	-	+	+	+
	b	+	+	+	-
e.g. RWY, W/X, ILS	c	-	+	+	+
Additional Criteria	d	-	-	+	+
e.g. Maintenance, PAX handling	e	-	+	+	-

Decision

Execution

Check