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## **Competence based Training**

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# Airline - Image



Imagine...





What do these aircraft have in common?



# Training



# What do we do today: Task Based Training and Evaluation... (PART-FCL Annex 9 ):

- Flight Preparation
- Before take-off checklist
- Engine failure between V1 and V2
- Rejected take-off before reaching V1
- Instrument departure and arrival procedures
- Engine-out Precision Approach to minima
- NDB/VOR/LOC approach to MDA
- Go-Around engine-out
- Landing critical engine inoperative

**Does one size fit all ?**

SECTION 2 EN-ROUTE PROCEDURES	
	and R/T procedures
	and level flight, with speed changes
	Climbing:
	i. best rate of climb;
	ii. climbing turns;
	iii. levelling off.
d	Medium (30 ° bank) turns
e	Steep (45 ° bank) turns (including recognition and recovery from a spiral dive)
f	Flight at critically low air speed with and without flaps
g	Stalling:
	i. clean stall and recover with power;
	ii. approach to stall descending turn with bank angle 20°, approach configuration;
	iii. approach to stall in landing configuration.
h	Descending:
	i. with and without power;
	ii. descending turns (steep gliding turns);
	iii. levelling off.
SECTION 3 EN-ROUTE PROCEDURES	
a	Flight plan, dead reckoning and map reading
b	Maintenance of altitude, heading and speed
c	Orientation, timing and revision of ETAs and log keeping

## Pilots job: Threat and Error Management

**Why does this happen?**



- Weather conditions
- ATC-induced Factors



- Inappropriate use of automation
- Poor energy management
- Non-adherence to SOP's
- Loss of Situation Awareness
- Inadequate Decision Making

It has been observed that as much as **70%** of the flight crew activities are **countermeasure - related activities**



## Tools for Threat and Error Management (TEM)

If Threat and Error Management (TEM) fails:  
potential for **Undesired Aircraft States (UAS)**

Flight crews must employ **countermeasures** to keep **threats, errors and undesired aircraft states** from reducing margins of safety in flight operations.



Pilots competencies are considered to be the countermeasures  
to Threats, Errors and Undesired Aircraft States!



## Airbus competencies (in alphabetical order)

Application of Procedures

Communication

Flight path management - automation

Flight path management - manual

Knowledge

Leadership & teamwork

Problem solving & decision-making

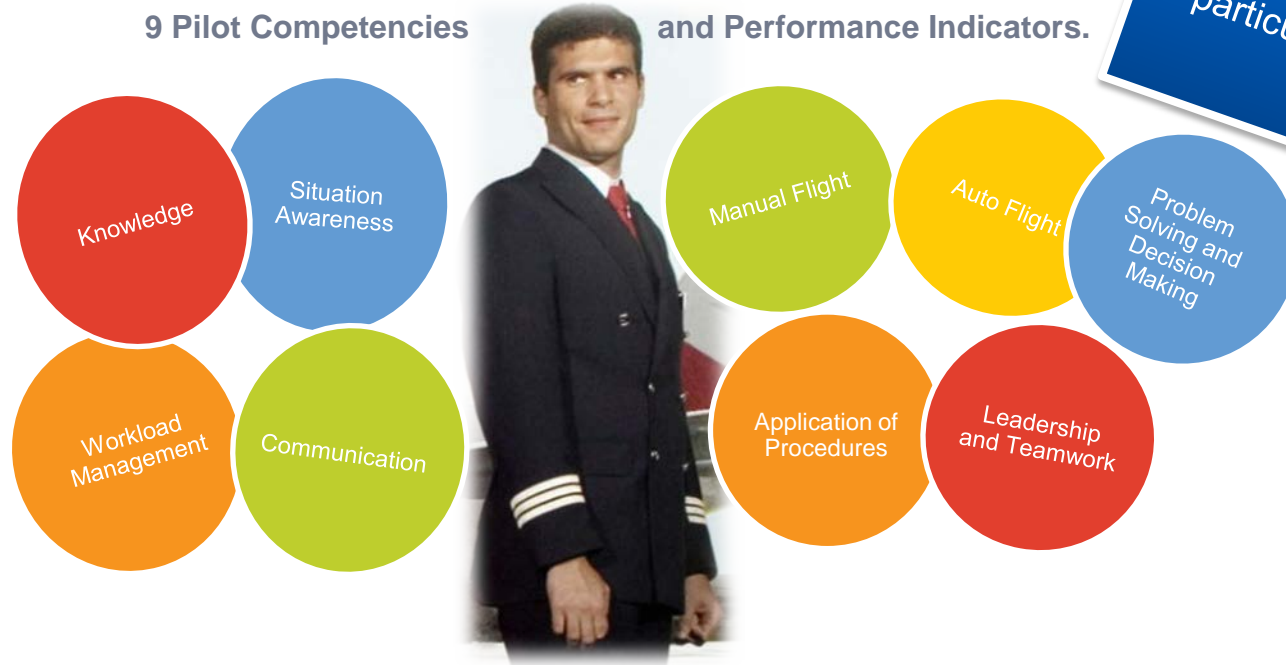
Situation awareness

Workload management





# Competency Based Training in Airbus and the regulations



“Train the **reason** for the outcome of a particular area of performance, not the outcome itself.”

- Based on **ICAO regulation** (Doc 9868 and Doc 9995) introduced 2013
- Airbus decided to **add elements** of the ICAO regulations while still keeping the current regulatory framework.
- **Competency Based Grading System** introduced in AIRBUS in 2013
- A350 XWB Flight Crew Training program is based on **developing of competencies**

# EBT – Principle: “Train Competencies!”

Application  
of  
Procedures

## New ICAO regulation (Doc 9995):

Competency		Competency Description	Performance Criteria
Demonstrates the application of procedures		Applies procedures according to published operating instructions	Follows SOP's unless a higher degree of safety dictates otherwise Identifies and applies all (operating instructions) in a timely manner Correctly uses aircraft systems, controls and instruments Safely manages the aircraft to achieve best value for the operation, including fuel efficiency
Demonstrates effective communication	Demonstrates effective use of language, responsiveness to feedback and that plans are stated and ambiguities resolved.	Checks that the other person has the correct understanding when passing important information Listens actively, patiently and demonstrates understanding when receiving information Asks relevant and effective questions, and offers suggestions Uses appropriate body language, eye contact and tone, and correctly interprets non-verbal communication of other crew members Is receptive to other people's views and is willing to compromise	
Demonstrates effective flight path management, through proper use of flight management system guidance and automation	Demonstrates proficient and appropriate use of flight management, guidance and automation including transitions between modes, monitoring, mode awareness and vigilance and flexibility needed to change from one mode to another.	Knows how and when to use flight management, guidance and automation Demonstrates correct methods for engagement and disengagement of auto flight system(s) Demonstrates appropriate use of flight guidance, auto thrust and other automation systems Maintains mode awareness of auto flight system(s), including engagement and automatic transitions Reverts to different modes when appropriate Detects deviations from the desired aircraft state (flight path, speed, attitude, thrust, etc.) and takes appropriate action	
Demonstrates knowledge	Demonstrates knowledge and understanding of relevant information, operating instructions, aircraft systems and the operating environment.	Demonstrates practical and applicable knowledge of limitations and systems and of their interaction Demonstrates required knowledge of published operating instructions Demonstrates knowledge of the physical environment, the air traffic environment including routings, weather, airports and the operational infrastructure Demonstrates knowledge of and compliance with applicable legislation. Knows where to source required information	
Demonstrates leadership and teamwork	Uses appropriate authority to ensure focus on the task. Supports others in completing tasks.	Agrees with and is clear about the team's objectives and the crew members' roles Is approachable, positive, motivating and considerate of others Uses initiative, gives direction and takes responsibility when required Anticipates other crew members' needs and carries out instructions when directed Is open and honest about thoughts, concerns and intentions Gives and receives both criticism and praises well, and admits mistakes Confidently says and does what is important Demonstrates empathy, respect and tolerance for other people Involves others in planning and allocates activities fairly and appropriately to abilities	
Demonstrates manual aircraft control	Maintains control of the aircraft in order to assure the successful outcome of a procedure or manoeuvre.	Demonstrates manual aircraft control skills with smoothness and accuracy as appropriate to the situation Detects deviations through instrument scanning Maintains spare mental capacity during manual aircraft control Maintains the aircraft within the flight envelope	

## Change in philosophy

“Train the **reason** for the outcome of a particular area of performance, not the outcome itself.”



## Evolving together towards excellence...

- Safety comes from training ...
- Great training comes from great trainers ....
- Trainers need to lead; they must be able to analyse, correct and record observations of competency – consistently!
- New grading concept – to be developed for all training levels



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# Grading Today



12 MONTHS

DATE: \_\_\_\_\_ AIRMAN NAME: \_\_\_\_\_  
DESIGNATOR: \_\_\_\_\_ CERTIFICATE: \_\_\_\_\_

( ) -REQUIRED EVENT

AIRMAN BEING CHECKED

KNOWLEDGE  
ABILITY/PROFICIENCY  
QUAL/CURRENT  
CERT/RATINGS  
BRIEFINGS  
MANUAL CURRENT  
USE OF CHECKLISTS  
( ) NORMAL PROC.  
( ) ABNORMAL PROC.  
( ) EMERGENCY  
( ) SYSTEM KNOWLEDGE  
( ) CREW MANUAL

PROFICIENCY

EQUIPMENT  
(Oral or Written)  
PREFLIGHT  
(w) Preflight  
( ) Starting  
( ) Radio Checks  
( ) Nav/Comm Setup  
( ) Flight Control Checks  
( ) Starting Procedures  
( ) Abnormal Starts  
( ) TAXIING  
( ) TAKEOFF-Normal  
( ) Smooth Power Application  
( ) Centerline Tracking  
( ) Callouts  
( ) Adherence to T/O Speeds  
( ) Use of Flight Director  
( ) TAKEOFF (INSTMT)  
# At or Before 100 Feet HAA  
# Heading Control

CAP FORM 5, MAR 11 Previous Editions Will Not Be Used After 31 Jan 2012

CONT-  
# Engine y-  
Before FAF  
# Procedures  
( ) MAP (FROM ILS)  
# Complete Procedure  
( ) NONPRECISION APPROACH (1ST)  
( ) NONPRECISION APPROACH (SUBS)

DATE: \_\_\_\_\_  
DESIGNATOR: \_\_\_\_\_

( ) -REQUIRED

AIRMAN BEING CHECKED

KNOWLEDGE  
ABILITY/PROFICIENCY  
QUAL/CURRENT  
CERT/RATINGS  
BRIEFINGS  
MANUAL CURRENT  
USE OF CHECKLISTS  
( ) NORMAL PROC.  
( ) ABNORMAL PROC.  
( ) EMERGENCY  
( ) SYSTEM KNOWLEDGE  
( ) CREW MANUAL

PROFICIENCY

EQUIPMENT  
(Oral or Written)  
PREFLIGHT  
(w) Preflight  
( ) Starting  
( ) Radio Checks  
( ) Nav/Comm Setup  
( ) Flight Control Checks  
( ) Starting Procedures  
( ) Abnormal Starts  
( ) TAXIING  
( ) TAKEOFF-Normal  
( ) Smooth Power Application  
( ) Centerline Tracking  
( ) Callouts  
( ) Adherence to T/O Speeds  
( ) Use of Flight Director  
( ) TAKEOFF (INSTMT)  
# At or Before 100 Feet HAA  
# Heading Control

L 111/124 [ EN ] Official Journal of the European Union

MULTI-PILOT AIRCRAFT AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AIRCRAFT

PRACTICAL TRAINING

ATPL/MP/TYPE RATING  
SKILL TEST OR PROF. CHECK

Manoeuvres/Procedures

OTD FTD FTS A Instructor initials when training completed Child in FTS A Examiner initials when test completed

SECTION 1

1. Flight preparation

1.1 Performance calculation P

1.2 Aeroplane external visual inspection: location of each item and purpose of inspection P

1.3 Cockpit inspection P

1.4 Use of checklist prior to starting engines, starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies P M

1.5 Taxiing in compliance with air traffic control or instructions of P

( ) Prestart Checks --  
( ) Radio Checks --  
( ) Nav/Comm Setup --  
( ) Flight Control Checks --  
( ) Starting Procedures --  
( ) Abnormal Starts --  
( ) TAXIING --  
( ) TAKEOFF-Normal --  
( ) Smooth Power Application --  
( ) Centerline Tracking --  
( ) Callouts --  
( ) Adherence to T/O Speeds --  
( ) Use of Flight Director --  
( ) TAKEOFF (INSTMT) --  
# At or Before 100 Feet HAA  
# Heading Control --

( ) Procedures --  
( ) Wind Correction --  
( ) ILS (NORMAL) --  
# Procedures --  
# Loc/GS Tracking --  
# Callouts --  
# Speed Control --  
# Actions at DH --  
( ) ILS (ENG-OUT) 733  
# Manually Controlled --  
# Engine Failure Before FAF --  
# Procedures 733  
( ) MAP (FROM ILS) --  
# Complete Procedure --  
# Procedures 733  
( ) NONPRECISION APPROACH (1ST) 733  
( ) NONPRECISION APPROACH (SUBS) 733

( ) LANDING (NORMAL) 735  
# Conditions Permitting --  
# Wind Technique 735  
( ) LANDING-ENG-OUT --  
# On 3-Eng A/C, 2 Eng's Sim Failed --  
# On All Other A/C 50 % Failure on One Side --  
( ) LANDING (REJ) --  
# 50' Over Rwy Thld --

CHECK AIRMAN

( ) BRIEFINGS  
( ) CONDUCT  
( ) COACHING  
( ) EVALUATION





## How to grade the competencies

	<b>GRADE</b>				
<b>Competency*</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Application of procedures</b>					
<b>Communication</b>					
<b>Flight path management - automation</b>					
<b>Flight path management - manual</b>					
<b>Knowledge</b>					
<b>Leadership and teamwork</b>					
<b>Problem solving and decision making</b>					
<b>Situational awareness</b>					
<b>Workload management</b>					

# Performance Indicators

## Airbus Pilot Competencies and Performance Indicators

Competency*	Competency Description	Performance indicator
Application of Procedures	Identifies and applies procedures in accordance with published operating instructions and applicable regulations, using the appropriate knowledge.	Follows SOP's unless a higher degree of safety dictates otherwise Identifies and applies all (operating instructions) in a timely manner Correctly uses aircraft systems, controls and instruments Safely manages the aircraft to achieve best value for the operation, including fuel, the environment, passenger comfort and punctuality Identifies the source of operating instructions
Communication	Demonstrates effective oral, non-verbal and written communications, in normal and non-normal situations.	Knows what, when, how much and with whom he or she needs to communicate Ensures the recipient is ready and able to receive the information Passes messages and information clearly, accurately, timely and adequately Checks that the other person has the correct understanding when passing important information Listens actively, patiently and demonstrates understanding when receiving information Asks relevant and effective questions, and offers suggestions Uses appropriate body language, eye contact and tone, and correctly interprets non-verbal communication of other crew members Is receptive to other people's views and is willing to compromise
Aircraft Flight Path Management, automation	Controls the aircraft flight path through automation, including appropriate use of flight management system(s) and guidance.	Controls the aircraft using automation with accuracy and smoothness as appropriate to the situation Detects deviations from the desired aircraft trajectory and takes appropriate action Contains the aircraft within the normal flight envelope Manages the flight path to achieve optimum operational performance Maintains the desired flight path during flight using automation whilst managing other tasks and distractions Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload Effectively monitors automation, including engagement and automatic mode transitions
Aircraft Flight Path Management, manual control	Controls the aircraft flight path through manual flight, including appropriate use of flight management system(s) and flight guidance systems.	Controls the aircraft manually with accuracy and smoothness as appropriate to the situation Detects deviations from the desired aircraft trajectory and takes appropriate action Contains the aircraft within the normal flight envelope Controls the aircraft safely using only the relationship between aircraft attitude, speed and thrust Manages the flight path to achieve optimum operational performance Maintains the desired flight path during manual flight whilst managing other tasks and distractions Selects appropriate level and mode of flight guidance systems in a timely manner considering phase of flight and workload Effectively monitors flight guidance systems including engagement and automatic mode transitions
Knowledge	Knowledge and understanding of relevant information, operating instructions, aircraft systems and the operating environment	Demonstrates practical and applicable knowledge of limitations and systems and their interaction Demonstrates required knowledge of published operating instructions Demonstrates knowledge of the physical environment, the air traffic environment including routings, weather, airports and the operational infrastructure Demonstrates knowledge of applicable legislation. Knows where to source required information

\* Alphabetical order

## Performance indicators – how to use them

e.g. Application of procedures

Follows SOP's unless a higher degree of safety dictates otherwise

Identifies and applies all operating instructions in a timely manner

Correctly uses aircraft systems, controls and instruments

Safely manages the aircraft to achieve best value for the operation, including fuel, the environment, comfort and punctuality

Identifies the source of operating instructions



## How to use the word pictures to grade

e.g. Application of procedures

- 1. The pilot did not apply procedures correctly, by rarely demonstrating any of the performance indicators when required, which resulted in an unsafe situation.**
- 2. The pilot applied procedures at the minimum acceptable level, by only occasionally demonstrating some of the performance indicators when required, but which overall did not result in an unsafe situation.**
- 3. The pilot applied procedures adequately, by regularly demonstrating most of the performance indicators when required, which resulted in a safe operation.**
- 4. The pilot applied procedures effectively, by regularly demonstrating all of the performance indicators when required, which enhanced safety.**
- 5. The pilot applied procedures very effectively, by always demonstrating all of the performance indicators to an exemplary standard when required, which significantly enhanced safety.**