

DELTA'S EXPERIENCE WITH EBT

ICAO/IATA Evidence-based training (EBT)
Regional Meeting
Lima, Peru
16 July 2014



Topics for the morning session

In this session I will cover:

- Why EBT for Delta?
- How is EBT like AQP?
- EBT Implementation precursors
- Pilot Competencies

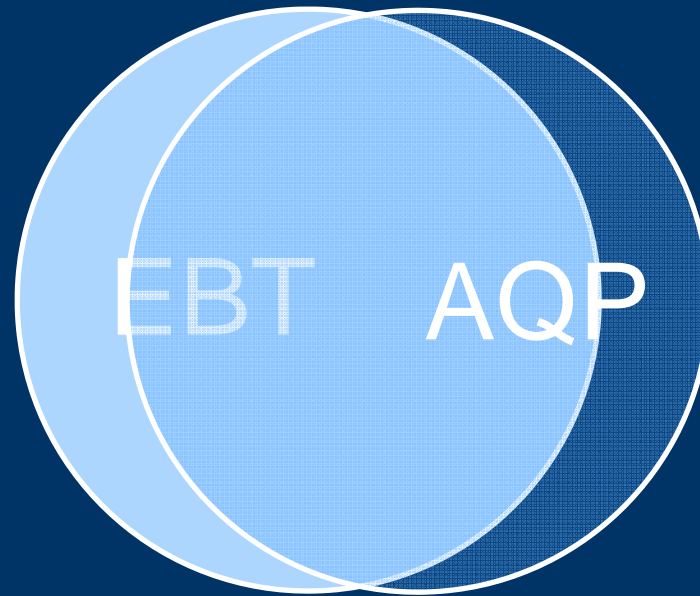
DELTA'S INVOLVEMENT WITH EBT

Airbus Training Symposium, Paris, 1-4 December 2008

- EBT would take the pilot training in the industry to the next level
- International collaboration would ensure valuable and widely applicable outcome
- Delta needed to be involved for the benefit of our training
- Our regulatory environment would allow us to participate and implement EBT



EBT/AQP RELATIONSHIP



Common attributes

- Operational data drives training
- Training can be better focused and more effective

Regulatory flexibility can enhance these attributes

EBT IMPLEMENTATION PRECURSORS

1. Development of competency framework and grading system
2. Instructor training to assess and train core competencies
3. Provision of information to pilots regarding performance criteria and core competencies
4. System of measurement for training system performance



CORE PILOT COMPETENCIES

EBT:

- Flight Path Mgmt – Manual
- Flight Path Mgmt – Auto
- Application of Procedures
- Communication
- Leadership & Teamwork
- Problem Solving & Decision Making
- Situation Awareness
- Workload Mgmt

DELTA:

- Flight Path Mgmt – Manual
- Flight Path Mgmt – Auto
- Application of Procedures
- CRM skills



CRM COMPETENCIES

EBT Implementation Guide

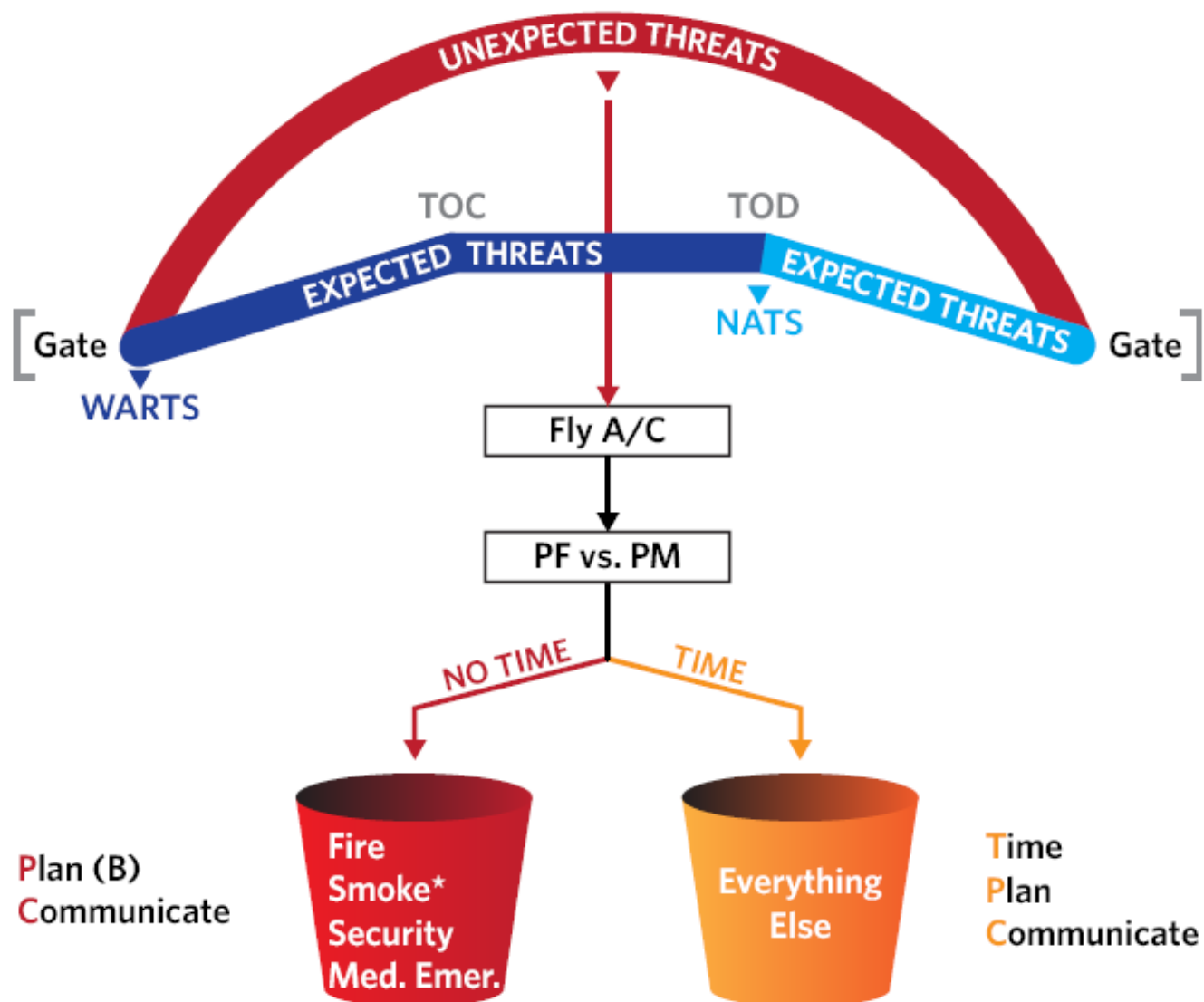
- Communication
- Leadership and teamwork
- Problem solving & decision making
- Situation awareness
- Workload management

DELTA

- Communication
- Professional management
- Decision making
- Situation awareness
- Workload management
- Planning
- Threat & Error Management



Threat & Error Management Model



The latest CRM addition - Pilot Monitoring

- What is pilot monitoring?
 - Effective Pilot Monitoring emphasizes achieving a desired outcome – not just watching
 - Goal is to recognize potential for flight path deviations
- How will it be trained?
 - Fleet Common Special Purpose Operational Training (SPOT)
 - Emphasizes Effective Monitoring skills
- How will it be evaluated?
 - Compliance with desired flight path
 - Situational awareness & flight mode awareness

The End

Implementation and Instructor Training in this afternoon's session

EBT IMPLEMENTATION AND INSTRUCTOR TRAINING



Topics for the afternoon session

In this session I will cover:

- Implementation & development
 - Inputs to CQ (recurrent) training
 - CQ curriculum elements
 - Example from A330 CQ
- Instructor training
 - Grading scale
 - Performance data
 - Instructor calibration

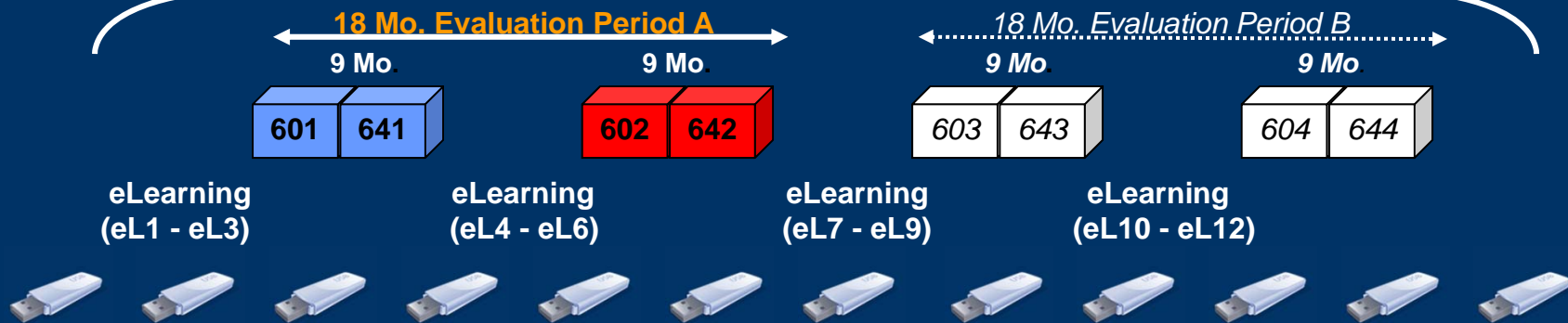
Inputs to CQ training

By-Fleet Analysis

- Aviation Safety Action Program (ASAP) reports
 - Event Review Committee participants
 - Fleet Leadership
- Flight Ops Quality Assurance (FOQA) data
 - Fleet Reps for each aircraft
- Flight Ops Incident reports
 - Line Operations
 - Flight Safety
- LOSA/Line Check Blitz
 - Flight Standards
 - Flight Ops Quality Assurance

Delta Pilot CQ (1 Jan 14 - 30 Jun 15)

36 Month Cycle



18 Month Evaluation Period A

Jan 14 – Sep 14 Return

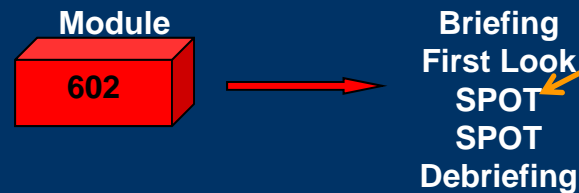
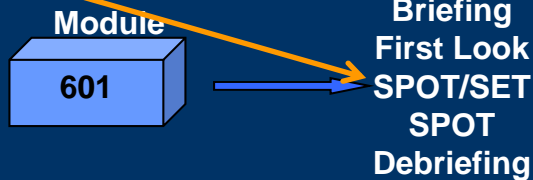
Oct 14 – Jun 15 Return

Flight Path Management

Day 1

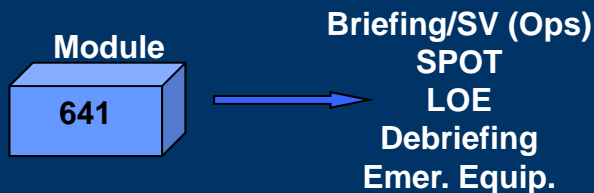
Day 1

Flight Path Management



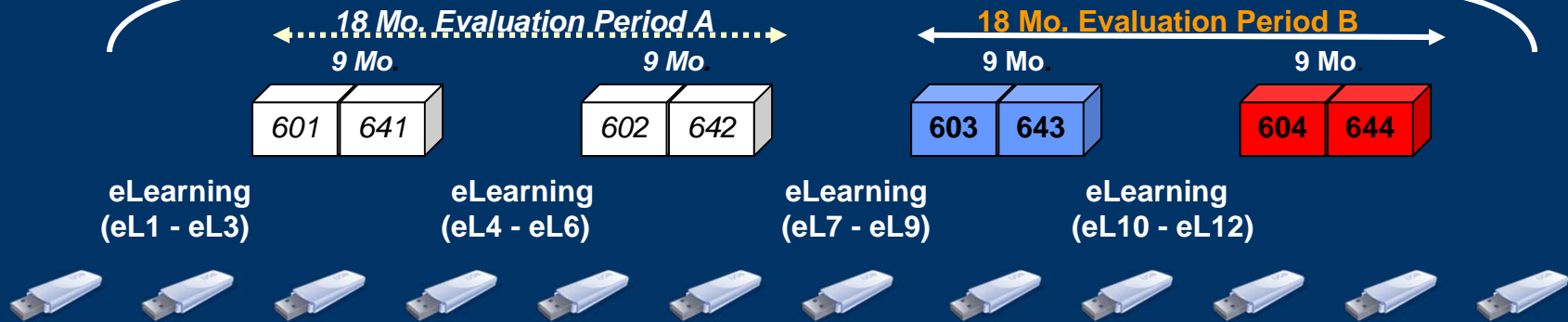
Day 2

Day 2



Pilot CQ (1 Jul 15 - 31 Dec 16)

36 Month Cycle



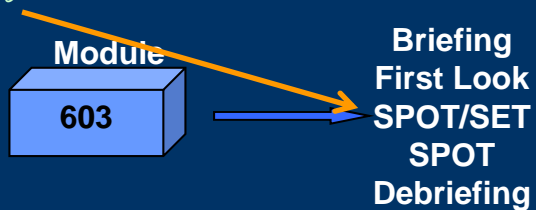
18 Month Evaluation Period B

Jul 15 – Mar 16 Return

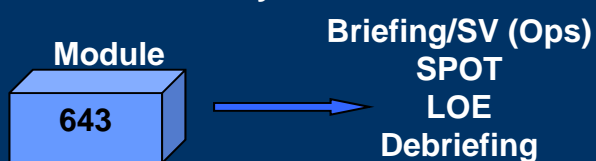
Apr 16 – Dec 16 Return

Flight Path Management

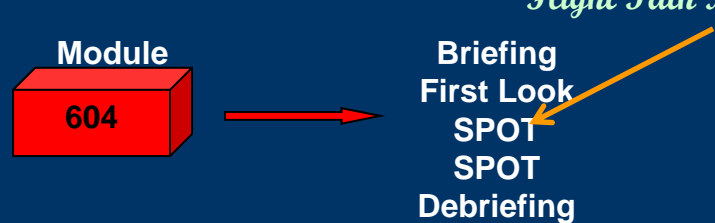
Day 1



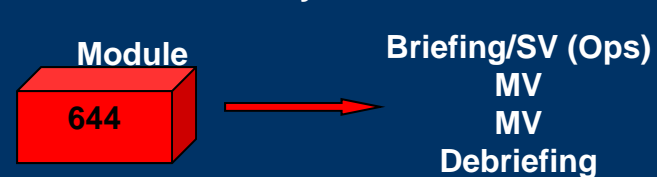
Day 2



Day 1



Day 2



A330 CQ Day 1

First Look Maneuvers – not briefed, flown for program validation

Operational Training

- Ground Ops Procedures
 - Questions asked in briefing
 - Event “flown” in simulator
- High Crosswinds
 - 32 knot crosswind takeoff & landing
- JFK
 - VOR Rwy 13L to rejected landing
 - RNAV Visual Rwy 13L to landing

A330 CQ Day 1 (continued)

Operational Training (continued)

- Tactical Cost Index, Oceanic Clearance Request & Verification, Amended clearance (Route Change), Waypoint Crossing Procedure, Don Oxygen masks, establish communications.
- Manual Flight Path Management
 - Descent, approach, miss, approach, landing with F/Ds, A/P and A/THR OFF.
 - Early flap retraction on T/O (Alpha floor event)
 - Windshear encounter
- Critical Terrain Box
- EGPWS terrain avoidance and recovery
- TCAS RA maneuver and recovery

Instructor Assessment

Observe performance

Note the good and the bad

Relate performance to core competencies

- Provides context for debrief
- Reinforces performance assessment criteria for pilot



Performance Based Grade Scale

		PERFORMANCE DESCRIPTION					
PERFORMANCE DIMENSION	STICK & RUDDER	Unsafe Performance	Tolerance Exceeded. No Timely Correction	Tolerance Exceeded. Timely Correction	Within Maneuver Tolerance	Within 50% Maneuver Tolerance	
	PROCEDURES	Procedural Error with Consequence	Procedural Error Not Managed	Procedural Error Managed	No Procedural Error		
	AUTOMATION PROFICIENCY	Automation Error with Consequence	Automation Error Not Managed	Automation Error Managed	No Automation Error		
	CRM/TEM	CRM/TEM Error with Consequence	CRM/TEM Error Not Managed	CRM/TEM Error Managed	Reactive Threat Management No Error	Proactive Threat Management No Error	

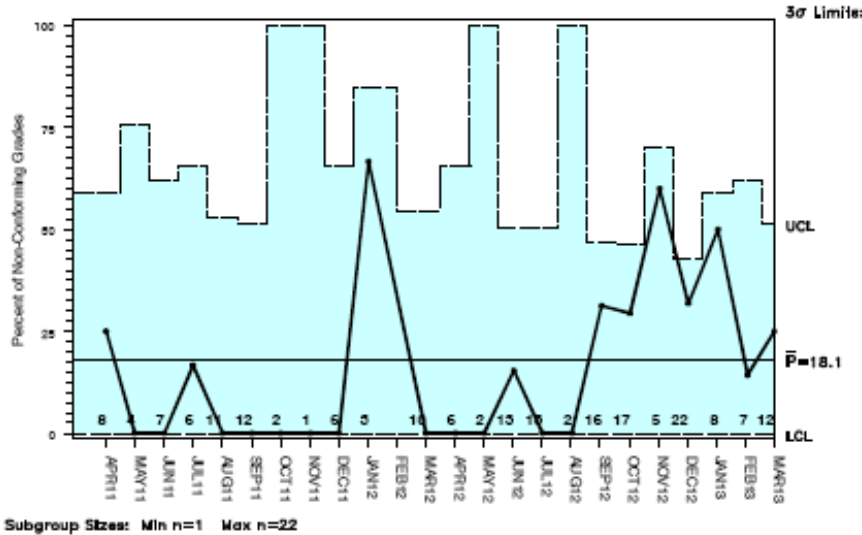
Pilot Performance Data Reporting

CQ FL

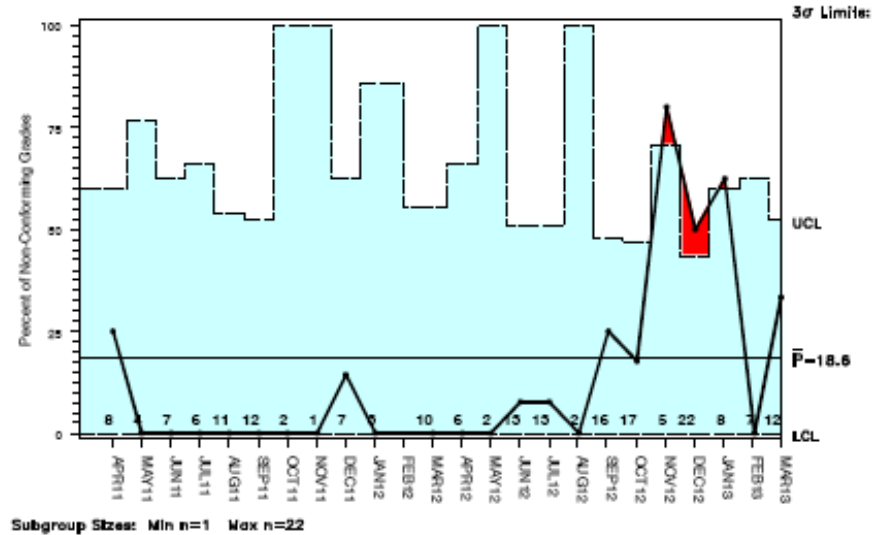
10:36 Monday, April 8, 2013 2

	320	330	737	744	764	767	777	DC9	M88
52B -F/L: 2.2 INSTRUMENT TAKEOFF		R					R		
52C -F/L: 2.3 ENG FAILURE AFTER V1	R					R			
52D -F/L: 2.4 RTO									R
55B -F/L: 5.2 HOLDING							R		R
56A -F/L: 6.1 VISUAL APP							R		
56B -F/L: 6.2 NON-ILS APP						R	R		
56B01B-F/L:LOC APP									
56B011-6.2 F/L:RNAV RNP APPROACH (VNAV)									
56B03 -F/L: 6.9 RNAV APP									
56C02 -F/L: 6.4 CAT 2 ILS APP		R					R		
56C03 -F/L: 6.5 CAT 3 ILS APP				R					
56F -F/L: 6.6 ENG-OUT ILS APP					R	R			
56G -F/L: MISSED APPROACH									
56G01 -F/L: PERF MISSED APPROACH OPS		R							
56G02 -F/L: AUTO MISSED APPROACH									
56G04 -F/L: 6.7.4 REJECTED LANDING									
57B -F/L: 7.2 ENG-OUT LDG									
61E03 -F/L:WINDSHEAR DURING T/O						R			
61E04 -F/L:WINDSHEAR AFTER LIFTOFF				R					
61E05 -F/L:WINDSHEAR DURING APP									R

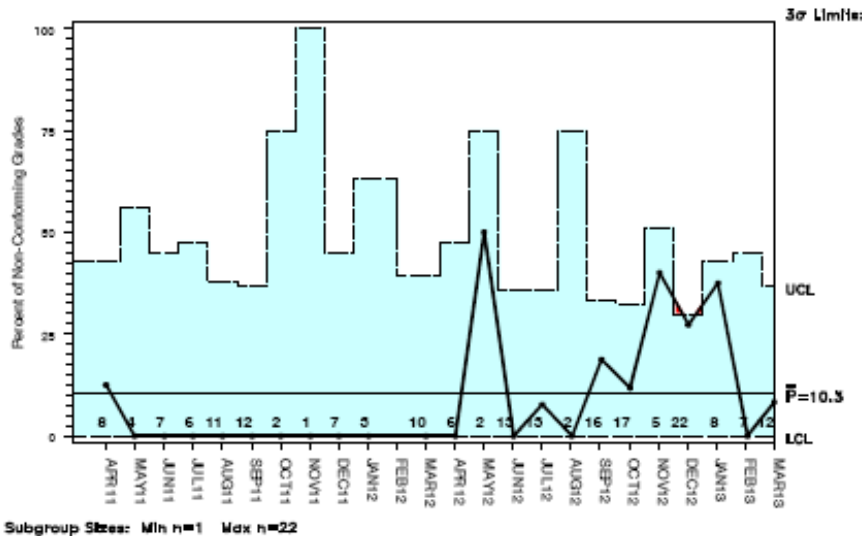
Stick & Rudder



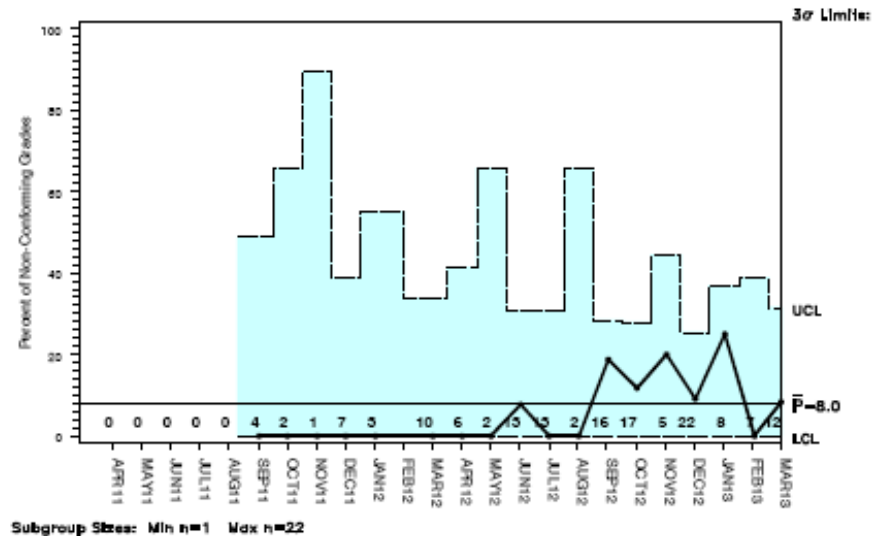
Procedures



Automation Proficiency



CRM



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Instructor Comments

CQ FL 777 56A -F/L: 6.1 VISUAL APP

714
10:36 Monday, April 8, 2013

SR PD AP CRM	Comment
4 2 4 4	Too fast in final approach to be stabilized, executed missed approach
3 3 3 3	CLEANED UP TO RWY IN FMS. CONFUSED OVER VDI DISPLAY AND LINKAGE WITH DME. WONDERED WHY A/C WAS GETTING HIGH - HE WAS FOLLOWING PITCH GUIDANCE WHICH WAS STILL IN ALT BECAUSE HE DIDNT' PUT A LOWER ALTITUDE IN MCP
4 3 4 4	Did not utilize any a/c based backup or MCP guidance (V/S or V/P). Used pilot eye.
3 3 4 4	HIGH ON APPROACH; WELL AWARE OF STABILIZED APP CRITERIA. EXECUTED A SAFE AND WELL DONE GA AND SET UP FOR A VISUAL PATTERN
3 4 3 4	HIGH TURNING BASE. STABILIZED BY 1000. COULD HAVE USED MORE AUTOMATION TO HELP WORKLOAD BUT KEPT IN FLT DIR THROUGHOUT, WHICH OVERTASKED PM
3 3 4 4	No Comments
3 4 4 4	high steep final
4 3 4 4	initially lined up on incorrect runway; flew tight and steep final approach not meeting stabilized criteria and resulting in "sink rate" GPWS alert. 2nd approach within tolerance.
4 3 4 4	initially started a turn toward the wrong runway
4 4 4 4	No Comments

Instructor Calibration

- Instructor's grades of pilot evaluations are stored
- Data is analyzed and quarterly reports are provided to Fleet Captains
- Instructors that are identified as "outliers" are counseled

Instructor Calibration – B-767 Initial Qual.

Grading Dimension	I/E ID	12 Mo. Total	%1	%2	%3	%4	%5	Term
AUTOMATION	0167480	83	0	0	2	98	0	Easy
CRM		72	0	0	0	7	93	Easy
PROCEDURE		72	0	0	0	100	0	Easy
STICK & RUDDER		10	0	0	10	50	40	
AUTOMATION	0336209	147	0	1	14	65	0	Hard
CRM		168	0	2	17	80	1	Hard
PROCEDURE		165	0	1	11	88	0	
STICK & RUDDER		26	0	0	8	92	0	
AUTOMATION	0323310	70	0	0	6	94	0	
CRM		80	0	0	6	75	19	
PROCEDURE		60	0	0	9	91	0	
STICK & RUDDER		20	0	0	20	50	30	

The End

Do we have time for a video grading exercise?