

DCA24LA318

OPERATIONAL FACTORS

Attachment 6

Visual Approach Training (postincident)

May 12, 2024



Visual Approach Flight Training

ORF – ORD

Wrong Runway Landing

Training as of September 30, 2024

Visual Approach Training - Summary



Qualification Curriculum (Initial Training)

- Captain Leadership and Command Training
 - Flying with New First Officers – Planning and Flying Visual Approaches, Maintaining Runway Centerline and Touchdown Zone, FMS Programming
 - ASAP Event Review of Unstable Visual Approaches – Discussion: Visual Approach Descent and Planning
 - Review of Hot Topics – High Energy Unstable Approaches are Included
- Procedures Training Preparation Training
 - Review of Visual Approach Procedures Contained in AOM I
- Full Flight Simulator Training
 - Lessons Include Visual Approaches in Various Operational Conditions
 - Review of Hot Topics – High Energy Unstable Approaches are Included
- Operating Experience
 - IOE Check Pilot Review of Approach Concepts
 - Initial Descent Path on All Approaches
 - Discuss the switchover from Magenta via V/L Green Needles
 - Discuss the FPA Path Manual Management

Visual Approach Training - Summary



Upgrade to Captain Training

- Captain Leadership and Command Training
 - Flying with New First Officers – Planning and Flying Visual Approaches, Maintaining Runway Centerline and Touchdown Zone, FMS Programming
 - ASAP Event Review of Unstable Visual Approaches – Discussion: Visual Approach Descent and Planning
 - Review of Hot Topics – High Energy Unstable Approaches are Included
- Full Flight Simulator Training
 - Lessons Include Visual Approaches in Various Operational Conditions
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Visual Approach Training - Summary



Continuing Qualification

- Full Flight Simulator Training
 - Lessons Include Visual Approaches in Various Operational Conditions

AQP Manual (Vol 5, Qualification Std)



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Chapter 5 Qualification Standards REV 34 - 13 AUG 24

15.8.7 SPO 6.1.7 Visual Approach

Evaluation Strategy

E175				E175			
QUALIFICATION				CONTINUING QUALIFICATION			
Method	Media	I/E	Crit/Curr	Method	Media	I/E	Freq
MV	SIM D	SCP	N/Y	MV	SIM D	SCP	Cycle

Crew (Duty) Position

[CA] and [FO]

Conditions

Minimum Visibility: 3 sm
Crosswind: 10 kts
Ceiling: Equal to or greater than 1000'

Enabling Objectives, Skills and Standards

6.1.7.1	C	Make standard callouts <i>The crew will make all standard callouts IAW AOM1 profiles and FOM.</i>
6.1.7.2	P	Comply with stabilized approach criteria <i>Below 1000' AFL, a stabilized approach is:</i> <i>On the correct track</i> <i>At the proper sink rate (no greater than 1000 feet per minute)</i> <i>(If an unexpected, sustained rate of descent greater than 1000 fpm is encountered during the approach, a missed approach should be performed.)</i> <i>On approach speed</i> <i>Gear down and landing flaps set</i> <i>At a stabilized thrust setting</i>
6.1.7.3	S	Maintain proper lateral navigation <i>Heading within $\pm 10^\circ$. Maneuvering should not be excessive and bank angle should not exceed 30°.</i>
6.1.7.4	S	Maintain proper vertical navigation <i>Altitude within ± 100 ft. During final approach, vertical flight path does not exceed 1000 fpm or rates of descent ± 300 fpm deviation from target.</i>

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AQP Manual (Vol 6, Curriculum Outlines)



Chapter 6

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Curriculum Outlines

REV 29 – 13 AUG 24

6.11 QC SIM

Curriculum – Qualification

Segment – Flight Training

Module - Simulator

Lesson – Aircraft Operations and Procedures

Timeline – Qualification Training | SIM Days 1 - 8

Crew Position – Captain and/or First Officer

Aircraft – E175

TPO/SPO	Description
1.1	Preflight
1.1.1	Preflight Planning
1.1.2	Determine Aircraft Maintenance Status
1.1.3	Conduct Exterior Inspections
1.1.4	Conduct Flightdeck Scan/Searches
1.1.5	Flightdeck Documents and Equipment Storage
1.1.6	Establish Aircraft Power
1.1.7	FMS Initialization and Programming
1.1.8	Cabin Inspection
1.1.9	Receive ATC Clearance
1.1.10	Conduct Crewmember Briefings

6.1	Approach Operations
6.1.1	Approach Procedures
6.1.2	Precision Approach
6.1.3	ILS PRM
6.1.4	CAT II ILS (As Applicable)
6.1.5	Non-Precision Approach (Conventional NAV)
6.1.6	RNAV (GPS) and RNAV (GNSS) Approach
6.1.7	Visual Approach
7.1	Missed Approach / Rejected Landing Operations
7.1.1	Missed Approach / Rejected Landing
7.1.2	Breakout From PRM Approach
8.1	Landing Operations
8.1.1	Before Landing Checklist
8.1.2	Normal Landing
8.1.3	Zero or Reduced Flap Configuration Landing
9.1	Taxi In Operations
9.1.1	Taxi In Procedures
9.1.2	After Landing Flow
9.1.3	After Landing Checklist
9.2	Parking
9.2.1	Parking Operations
9.2.2	Shutdown Flow
9.2.3	Shutdown Checklist
9.2.4	Secure Checklist
9.2.5	Post Flight Procedures
10.1	Single Engine Operations
10.1.1	Engine Failure On Takeoff
10.1.2	Single Engine Approach
10.1.3	Single Engine Missed Approach/Rejected Landing
10.1.4	Single Engine Landing

Captain DNR and LCM Briefing



Captain Duties and Responsibilities

New Pilot Issues –

- IOE training
 - Common errors
 - New FO's – planning and flying visual approaches, maintaining centerline and landing in the touchdown zone, FMS programming
 - New CA's – AML, MEL/CDL and application of *Flight Operations Manual*
 - Probationary Reports
 - Restricted to Captains Only
 - Probationary Report is accessible using your iPad
 - Please be truthful...don't just give out all 5's.
 - **Found on Flight Ops – Line Page, under CA Neider's Hot Topics**
 - Monitor your consolidation hours
 - 100 flight hours in 120 days. (yes, IOE counts)
 - Fly, fly, fly!

Leadership and Command

Objective 6

Understand the need to clarify roles and expectations for other crewmembers

ASAP event –

- The flight was conducted during night VMC – mountainous terrain:
 - The flight was on the RNAV approach into the destination airport and cleared for the visual by ATC. The crew found themselves high on the VASI.
 - The crew decided to perform an unannounced 360 turn for altitude loss with less than 3 miles from the terrain that was above their aircraft.
- Discussion:
 - Visual approach procedures – approach planning
 - Situational awareness with mountainous terrain
 - ATC communications
 - Judgement
 - CRM

Qualification Curriculum PT Prep Day



Approaches

References

- AOM 1
- FOM
- Normal Checklist
- Jeppesen FD PRO – Approach Plates

Discuss

- Approach Set Up / Review / Briefing
- Visual Approaches
- ILS CAT I
- ILS CAT II
- ILS PRM Procedures
- Non Precision Approaches
- Go Arounds

Additional Considerations

- ILS CAT II Limitations
- Flight Confidence Check
- 7P Pages
- SARA Airports
- Single Engine Landing
- Single Engine Go Around

AQP E175 QC PT PREP

REV 07 – 03SEP24

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CA & FO Qualification Curriculum ILPs



AQP E175 Qualification Advanced Simulator Training - ILP

REV 37 – 20 JUL 24

Lesson 1 Overview

1. Preflight, First flight of the day with GPU available
2. Normal Checklists and Flows from Safety & Power ON Checklist to Before Takeoff Checklist
3. Takeoff 18L and RNAV SID to FL190
4. FGC familiarization during climb
 - o Lateral Modes
 - o Vertical Modes
5. QRH – IDG Fail
6. TSDEL RNAV Arrival into OKC
7. Manually Controlled Slow Flight
8. Clean Impending Stall Recovery
9. Visual Approach 17L to land
10. Instrument Takeoff 17L and climb
11. ILS 17L CAT I to Missed Approach
12. Holding
13. Vectors to ILS 17L CAT I to land
14. After Landing, Taxi In, Parking
15. Secure Checklist
16. Repeat for Session 2



AQP E175 Qualification Advanced Simulator Training - ILP

REV 37 – 20 JUL 24

Lesson 1			
TPO	SPO / Maneuver	Setup	
			• Contact OKC Approach 120.45 • Envoy 5501 • OKC Approach • Direct ZEMMA • Maintain FL190
After QRH complete, Clear malfunction and return to normal operation			
5.1	Descent and Arrival	ATC CLEARANCE	• Envoy 5501 • OKC Approach • Descend via TSDEL arrival • Expect 17L Visual Approach
		Tasks	• Approach Setup • Approach Briefing • Descent Checklist
Begin maneuvers after completing arrival at 5,000 — issue headings as required			

Begin maneuvers after completing arrival at 5,000 – Issue headings as required

CA Upgrade ILP



Lesson 1 Overview

- Preflight, not First Flight of the day, aircraft already powered on GPU
- Aircraft came from Maintenance
- Normal Start
- Pushback from Gate
- Normal checklists and flows from Before Start Checklist to Before Takeoff Checklist
- Standard taxi with Crossbleed Start
- Takeoff runway 4 and CONV NAV departure
- Manually Controlled slow flight at 5,000'
- Clean stall recovery at 5,000'
- Low altitude Upset Recovery
- High altitude Upset Recovery
- High altitude Manually Controlled Slow Flight
- High altitude Impending Stall Recovery
- High altitude Full Stall Recovery
- Emergency Descent to 8,000
- Manually Controlled Instrument STAR

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AQP E175 Qualified Upgrade Simulator - ILP

REV 15 – 20 JUN 24

			Turn right direct LBRTY Expect River Visual 13
		Tasks	• Approach Setup • Approach Briefing • Descent Checklist

6.1	Approach Operations Visual Approach	Approach	Session 1 Park Visual 31 Session 2 River Visual 13
		Weather	Clear
		Wind	040 @ 10
		Clearance	Visual approach clearance Switch to tower

8.1	Landing Operations Normal Landing	Clearance	Landing clearance
		Tasks	• Landing Checklist • Stop on runway

12.1	Miscellaneous Emergency / Abnormal Ground Evacuation	Malfunction	CRG AFT SMOKE
		Trigger	During landing rollout
		ATC	Advise of smoke coming from tail

Repo to D10 for session #2

CQ ILP



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AQP E175 CQ R12 2023 SIM - Instructor Lesson Plan

REV 11 - 21 AUG 23

RAD Session

The following will be repeated for each crewmember as the Pilot Flying. Either Crewmember may go first.

SPO	Description	Details
14.1.3	High Density Altitude Operations	The temperature is 40°C. Discuss the extended takeoff roll that will be required plus the engine performance degradation. Look at an ECS OFF takeoff to see the differences in weight limitations.
14.1.8	Manually Controlled Instrument Departure	Instruct crew to hand fly this departure. Ensure proper callouts are made and that the PF command all mode changes to the PM.
14.1.4	Ground Proximity Warning System (GPWS)	Issue heading and altitude toward terrain Instruct PF to wait until EGPWS issues a climb instruction
14.1.6	Manually Controlled Slow Flight - Low	Flaps 5 landing speeds (134, 139, 160, 194). Slow to V _{APP} while configuring for Flaps 5 landing, then induce "S-turns", then climbing and descending with "S-turns". Recover back to S&L at 10,000', Heading North
14.1.2	Stall Recovery - Low	Clean Configuration: AP On, holding 10,000' with TL's to IDLE Takeoff Configuration (with bank): Set MTOW with AFT CG and set T/O speeds (140,145,147,202). AP Off, FD Available, 20° bank left or right.
14.1.10	Full Stall Recovery - Low	Select FLIGHT CONTROLS to DIRECT MODE Clean Configuration: AP Off, holding altitude with TL's to IDLE, induce stall by turning, guide student through Stick Shaker on to stall, then recover and reselect NORMAL MODE
14.1.1	Upset Recovery - Low	For CAE SIM: Nose High, Wings Level - 40° NU; No Bank Nose Low, Wings Level - 25° ND; No Bank Nose High, High Bank - 30° NU; 60° Bank (L or R) Nose Low, High Bank - 20° ND; 65° Bank (L or R) Nose Low, Inverted - 20° ND; 125° Bank (L or R) For FSI SIM: Nose High, Wings Level - 40° NU; No Bank Nose Low, Wings Level - 25° ND; No Bank Nose High, High Bank - 30° NU; 50° Bank (L or R) Nose Low, High Bank - 20° ND; 65° Bank (L or R) Nose Low, Inverted - 5° ND; 125° Bank (L or R)
14.1.7	Manually Controlled Loss of Reliable Airspeed	Issue additional altitude and speed restrictions on NORKD# STAR for Attitude/Thrust practice (WEBER@12,000). Regain airspeed indications after exiting IMC then vector for Visual Approach to 16L.
13.1.4	Windshear / Microburst During Landing	APPR/RWY Visual Approach RWY 16L Wind 130 @ 15 G 25 Ceiling 0500VC Visibility 15 SM

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QC, Upgrade - Visual Approach Briefing



Visual Approaches

AOM Vol

Visual Approaches: Pattern Setup Continued

Use the most precise navigation and visual aids available (i.e., select and monitor an ILS to the landing runway)

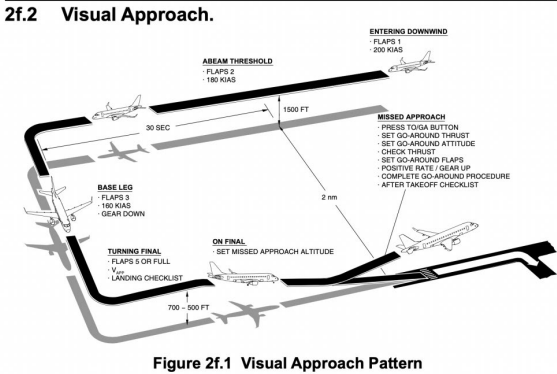
Pattern Configuration:

Entering Downwind → Flaps 1 & 200kt
Abeam Threshold → Flaps 2 & 180kt
Base → Flaps 3 & 160kt
Final → Flaps 4 & 140kt

VREF or VAPP may be used instead of Green Dot if on final

Visual Approaches: Pattern Setup

Visual Approach. 01 Feb 22



AQP E175 QC SIM BRIEFING

REV33 - 15MAY24

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Visual Approaches: Descent Setup

Plan to arrive at 250 KIAS or less

Plan to arrive at 200 KIAS or less

40 nm
10000'

Downwind or
base leg pattern
200 KIAS

nm = flying distance

Visual Approaches

If the Autothrottles are used, both pilots need to verify SPD_T mode is ON when the Autopilot is OFF during a Visual Approach. (i.e. No FLCH)

If Flight Director isn't used turn it off by pressing the PF FD.

Fly at an altitude of 1,500' AFE is based on an approximate 5 NM reference. (5NM = 1,500')

If Green Dot is not available use the following airspeeds for flap settings



Visual Approaches

2f.2.7 Visual Approach Callouts.

Trigger	Visual Approach Callouts	
	PF	PM
When autopilot off with autothrottles on	"Autopilot off" If applicable - "Flight Director off" ¹ ♦ Verify SPD _T annunciated	♦ Select Flight Director off, if requested ¹ ♦ Verify SPD _T annunciated
1000 ft. AFE	♦ Verify altitude	"1000" (auto callout)
500 ft. AFE	♦ Verify altitude, speed and sink rate	"500" (auto callout) "+/- V _{App} , Sink ____"

¹If the flight director is not being followed it should be turned off by pushing the FD button on the PF side (SRC selected side). If the FD is turned off on the SRC side the FMA FD modes will be removed, the FD displays on the PFDs will be removed, and the autothrottles will default to SPD_T mode.

AQP E175 QC SIM BRIEFING

REV33 - 15MAY24

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CA & FO Operating Experience Workbook



AQP IOE and SLF Workbook

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Original Issue – 20 JAN 23
REV 01 – 28 FEB 23

11. Approach, Go-Around and Landing

Approach Phase

- ☐ Prior traffic awareness – wake turbulence avoidance
 - ☐ Not descending quickly to cleared approach altitude, unless requested
 - ☐ Staying above or upwind of heavy/larger aircraft path
- ☐ Weather Radar
 - ☐ On Approach
 - ☐ 40-50 NM Range
 - ☐ Tilt NAP until closer to the Airport
 - ☐ Then Tilt +5
 - ☐ Reduce GAIN to halfway down
 - ☐ Any Red Echoes within 3 NM of the Runway
 - ☐ Intense Rain
 - ☐ Hydroplaning
 - ☐ Possible Microbursts during Approach and/or Landing
 - ☐ Consider Holding vs. continuing
 - ☐ Plan Go-Around or Missed Approach
 - ☐ If inclement weather in the area, prepare and communicate avoidance or escape plan while on the Approach
 - ☐ Preplan and communicate with the ATC in case of a Go A due to inclement weather

- ☐ Environmental Factors for the Approach - monitor weather from available resources such as weather radar, ACARS, visual observation, PIREPS, ATC communications, etc.
- ☐ Approach General - Comply with FOM and AOM VOL 1 Approach and Landing guidance
- ☐ Ensure that the FMA displays adequate Approach Capability throughout the Approach
- ☐ The PF will determine prior to starting an ILS Cat I or CAT II Approach that Localizer, Glide Slope, Outer Marker or FAF, Approach Light System, Runway Markings and Centerline Lights are sufficient and operational
- ☐ Maintain Position and Terrain Awareness by using published charts and NAVAIDS
 - ☐ Select TERR ON when operating in areas of high terrain
 - ☐ Hands and feet on flight controls to maintain tactile contact below a specified altitude (consider environment)
- ☐ Discuss Approach Concepts
 - ☐ Initial Descent Path on all Approaches is managed just like an Arrival
 - ☐ Discuss the switchover from Magenta via V/L Green Needles where applicable
 - ☐ Discuss the FPA Path Manual Management
- ☐ Precision Approaches – V/L Green Needles and APP Mode
 - ☐ Consider practicing NPAs as a back-up to visuals when available, to maintain proficiency
- ☐ Non-Precision Approaches
 - ☐ VOR, GPS/RNAV Approaches

Hot Topics Briefing Content

High Energy Unstable Approaches

- **Initial Findings**

1. VFR/Visual Approaches
2. Long runways
3. Error Recovery – Pilots have a land, land mentality. Make the decision to correct the error.
4. Deliberate choice to continue

