

## Appendix 3: updated Airbus SOPS post occurrence

Update of November 2022 (ex: A320)

# AIRBUS

# A320 FAMILY

Main FCOM / QRH / FCTM Changes

## 5. Altitude/Distance Crosscheck

### 5.1. Effect on the Manuals

- FCOM
  - Update of the *Procedure / Normal Procedures / Standard Operating Procedures / Approach / Aircraft Guidance Management / Approach using FINAL APP Guidance - Initial/Intermediate/Final Approach.*

### 5.2. Summary of the Modifications

The check of the altitude/distance in the final segment was historically included on approaches flown with FINAL APP to confirm that the vertical profile and guidance are in accordance with the chart.

Erroneous profile computations by the FMS can occur, and a confirmation of the VDEV is not sufficient, as VDEV is based on the computed profile.

In some procedures, as for example RNP AR procedures with curved final, or approaches where an altitude/distance table is not detailed in the chart, this confirmation can not be performed.

On approaches flown with FINAL APP guidance mode, the check of the altitude when crossing the FAF and waypoints of the final, as published on the chart, is sufficient to ensure that the FMS vertical profile is well computed.

On approaches flown with FLS function, a check of the altitude only at the FAF is sufficient, as there is only one segment (the F-G/S beam).

Figure 1: Main FCOM/QRH/FCTM Changes (Source: Airbus)

Appendix to BEA investigation report concerning the serious incident to the AIRBUS A320 registered 9H-EMU operated by Airhub Airlines on 23 May 2022 on approach to Paris-Charles de Gaulle airport

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Modification in FCOM PRO-NOR-SOP-APPROACH-APPROACH USING FINAL APP GUIDANCE: “Crosscheck distances versus altitudes as published on the charts” replaced by “Check altitude crossing at FAF and waypoints of the final, as published on the chart”:

**L1 At the Final Descent Point:**

FINAL APP.....	CHECK ENGAGED	PF
GO-AROUND ALTITUDE.....	SET	BOTH
FLIGHT PARAMETERS.....	MONITOR	PM

- L2**
- Monitor XTK error on ND
  - Monitor V/DEV on PFD
  - Check altitude crossing at FAF and waypoints of the final, as published on the chart
  - If approaching on a conventional radio NAVAID procedure, monitor the lateral and vertical guidance using raw data
  - The PM calls out if excessive deviation occurs:
    - XTK > 0.1 NM
    - V/DEV > ½ dot

*On the vertical scale, one dot corresponds to 100 ft. Thus ½ dot is 50 ft.*

*For additional information on the associated standard callouts, Refer to PRO-NOR-SCO Approach.*

Figure 2: FCOM PRO-NOR-SOP-APPROACH-APPROACH USING FINAL APP GUIDANCE  
November 2022 (Source: Airbus)

**AIRBUS**

**A320 FAMILY**

Main FCOM / QRH / FCTM Changes

## 6. Check of the Barometric Reference

### 6.1. Effect on the Manual

- FCOM
  - Update of the *Procedures / Normal Procedures / Standard Operating Procedures / Descent / EFIS CP*.

### 6.2. Summary of the Modifications

The use of an erroneous barometric setting during a barometric referenced approach can affect the safety of the flight, and may cause the aircraft to fly lower than the published approach path, and result in a risk of controlled flight into terrain in poor visibility conditions.

When cleared to an altitude, the flight crew should crosscheck the barometric reference provided by the ATC, with the barometric reference used for the approach preparation.

As a reminder, the barometric reference used for the approach preparation, that is set in the PERF APPR page, is always a QNH. For an altitude clearance in QFE, the flight crew should crosscheck with the QFE of the ATIS.

In the case of significant difference, the flight crew may suspect an error in the barometric reference. In this case, the flight crew should use all available means to confirm the barometric reference (check of the barometric reference of the ATIS, check of the METAR/TAF, confirmation with ATC).

Most of the events of a barometric reference value that is erroneously reported a difference of 10 hPa with the current barometric reference.


However, the barometric reference provided by the ATC, when cleared to an altitude, may be slightly different from the barometric reference of the ATIS, depending on the station used by the ATC. It does not always mean that there is a QNH error.

Therefore, Airbus does not provide any threshold of difference to detect a barometric reference error, and highlights that significant difference can be the symptom of a barometric reference error.

The purpose of this SOP update is to enhance the flight crew's awareness of the fact that this type of barometric reference errors may occur, and that vigilance is required to detect these errors.

Figure 3: Main FCOM/QRH/FCTM Changes (Source: Airbus)

Modification in FCOM PRO-NOR-SOP-DESCENT:

 <b>A318/A319/A320/A321</b> FLIGHT CREW OPERATING MANUAL	<b>PROCEDURES</b> <b>NORMAL PROCEDURES</b> STANDARD OPERATING PROCEDURES - DESCENT
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Ident.: PRO-NOR-SOP-17-A-00011546.0001001 / 03 NOV 22

Applicable to: ALL

**BAROMETRIC REFERENCE**

- **When the aircraft approaches the transition level, and when cleared for an altitude:**  
 BAROMETRIC REFERENCE..... SET/CROSSCHECK | PF-PM
- <sup>L2</sup> *Set QNH on the EFIS control panel and on the standby altimeter.  
 Crosscheck the barometric reference settings and the altitude indications.*
- <sup>L1</sup> *Note: The flight crew must take into account any QNH change on the EFIS control panels, standby altimeter and on the FMS PERF APPR Page.  
 The flight crew should pay attention to a barometric reference that significantly differs from the one used for approach preparation. That could be the symptom of a barometric reference error. In this case the flight crew should consider the confirmation of the barometric reference from all available sources.*

Figure 4: FCOM PRO-NOR-SOP-APPROACH-DESCENT (Source: Airbus)

Update of November 2023 (ex: A320)

- **FCTM briefing threat**

<b>AIRBUS</b>  <b>A318/A319/A320/A321</b> FLIGHT CREW TECHNIQUES MANUAL	<b>AIRBUS OPERATIONAL PHILOSOPHY</b>  <b>TASKSHARING RULES AND COMMUNICATION</b>
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<b>HOW TO CONDUCT BRIEFINGS</b>
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**THREATS**

Threats are all of the following:

- Events or errors that occur beyond the influence of the flight crew
- Increased operational complexity
- Situations that must be managed to maintain the margin of safety.

There is no limit to the possible number of threats that may occur. Using a checklist-style tool to identify threats creates an obstruction to the open-mind setting and out-of-the-box consideration. To help with threat identification, memory aids may be of help, provided that they are not used in a checklist style manner. For example (not-exhaustive):

<b>AIRBUS</b>  <b>A318/A319/A320/A321</b> FLIGHT CREW TECHNIQUES MANUAL	<b>AIRBUS OPERATIONAL PHILOSOPHY</b>  <b>TASKSHARING RULES AND COMMUNICATION</b>		
<b>AIRPORT</b>	<b>ATC</b>	<b>AIRCRAFT</b>	<b>ENVIRONMENT</b>
<ul style="list-style-type: none"> <li>- Congestion</li> <li>- Construction</li> <li>- Hotspots</li> <li>- Infrastructure</li> <li>- Runway condition</li> </ul>	<ul style="list-style-type: none"> <li>- Challenging restrictions</li> <li>- Language</li> <li>- Phraseology</li> <li>- Short term changes of clearance</li> <li>- Barometric setting for approaches based on barometric guidance</li> </ul>	<ul style="list-style-type: none"> <li>- MEL/CDL</li> <li>- Aircraft defects</li> <li>- Supplementary procedures that are not routine</li> </ul>	<ul style="list-style-type: none"> <li>- Low visibility</li> <li>- Approach/runway lighting</li> <li>- Runway contamination</li> </ul>
<b>WEATHER</b>	<b>OPERATIONS</b>	<b>CREW</b>	<b>TERRAIN</b>
<ul style="list-style-type: none"> <li>- Windshear</li> <li>- Convective weather</li> <li>- Cold weather</li> <li>- Precipitation</li> <li>- Unreliable weather reports</li> </ul>	<ul style="list-style-type: none"> <li>- Schedule pressure</li> <li>- Delays</li> <li>- Late crew</li> <li>- Load issues</li> </ul>	<ul style="list-style-type: none"> <li>- Fatigue</li> <li>- Low experience</li> <li>- Complacency</li> <li>- Distraction</li> <li>- Training</li> <li>- Crew that is not standard</li> </ul>	<ul style="list-style-type: none"> <li>- High terrain</li> <li>- Unfamiliar environment</li> <li>- Complex visual approach</li> </ul>

Figure 5: FCTM Airbus operational Philosophy (Source: Airbus)



- **FCTM - creation of a specific chapter on Baro Setting**

<b>AIRBUS</b>  <b>A318/A319/A320/A321</b> FLIGHT CREW TECHNIQUES MANUAL	<b>PROCEDURES</b> <b>NORMAL PROCEDURES</b>  STANDARD OPERATING PROCEDURES - APPROACH
<b>General</b>	
<b>INTRODUCTION</b>	

**2 BAROMETRIC SETTING**

Approaches flown in FINAL APP or FLS requires a precise barometric setting. Wrong barometric setting leads to an incorrect vertical profile and potential obstacle clearance reduction. When changing from STD to QNH/QFE, the flight crew should pay attention to a barometric reference that significantly differs from the one used for approach preparation. That could be the symptom of a barometric reference error. In this case the flight crew should consider the confirmation of the barometric reference from all available sources. During final approach, Radio Altimeter unexpectedly decreasing to very low value could be the sign of wrong barometric reference setting.

Figure 6: FCTM PRO-NOR-SOP-Approach (Source: Airbus)

- **FCOM update for preset of QNH on ISIS when possible**

<b>AIRBUS</b>  <b>A318/A319/A320/A321</b> FLIGHT CREW OPERATING MANUAL	<b>PROCEDURES</b> <b>NORMAL PROCEDURES</b>  STANDARD OPERATING PROCEDURES - DESCENT PREPARATION
<b>DESCENT PREPARATION</b>	

Ident.: PRO-NOR-SOP-16-A-00027480.0001001 / 03 OCT 23 - CREATED  
 Criteria: (SA)

**BAROMETRIC REFERENCE**

BAROMETRIC REFERENCE.....PRESET | PF-PM  
 [L2] Preset the QNH (QFE  $\langle \text{✂} \rangle$ ) on the ISIS  $\langle \text{✂} \rangle$ .

Figure 7: FCOM PRO-NOR-SOP-Descent preparation (Source: Airbus)