

# Incorrect Landing Altimeter

American Airlines Flight Safety

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# Background

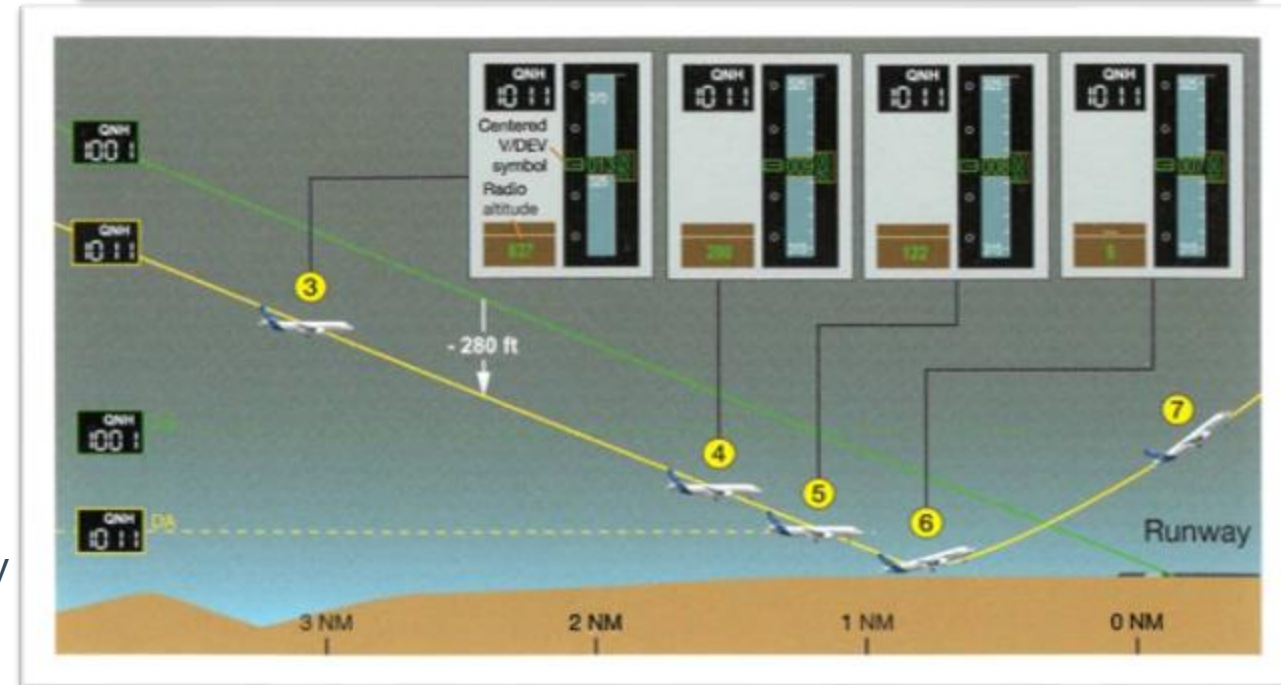
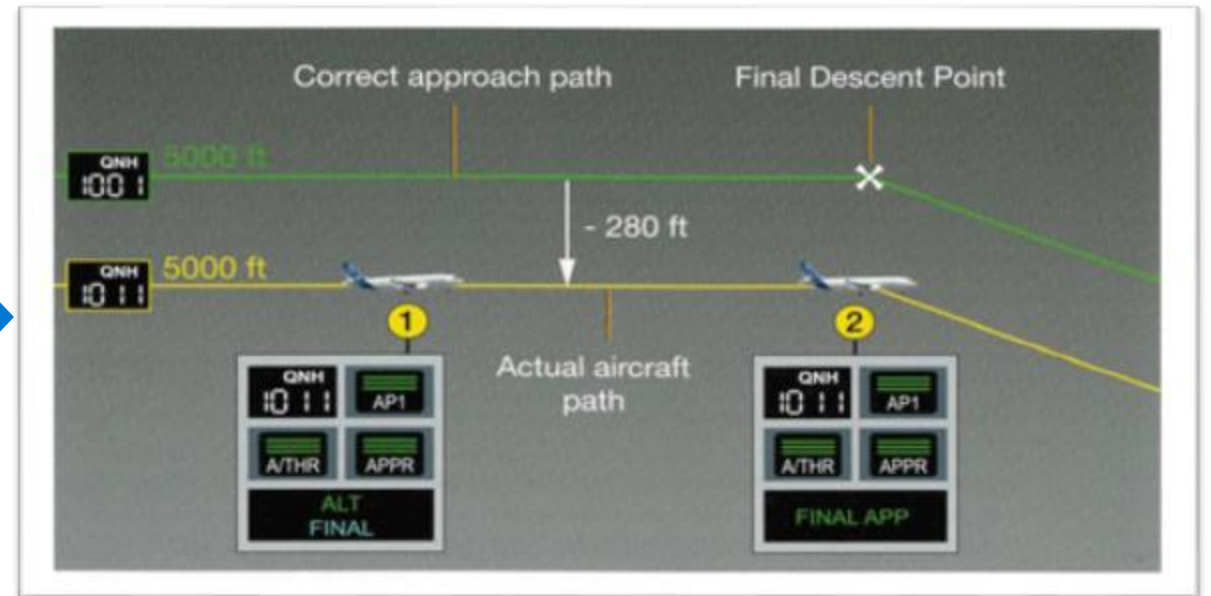
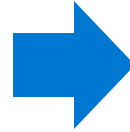
- May 2022 - A320 RNP with LNAV/VNAV minima
- ATIS – Airport QNH of 1001 hPa
- ATC – Descend to 6000ft QNH 1011 hPa
- ATC – Clearance down to 5000ft QNH 1011 hPa

## Aircraft Levelled off at 5000ft QNH 1011 hPa

- Aircraft was configured and stable at 1000ft above the airfield altitude
- ATC received a Minimum Safety Altitude Warning (MSAW) at 1.53NM from the runway
- ATC alerted crew as passing through Decision Altitude
- Aircraft started go around – Radio altitude indicated 6ft

## Second Approach

- Erroneous 1011 QNH
- ATC got MASW alert
- A/P disconnected – PAPI indication to correct the trajectory

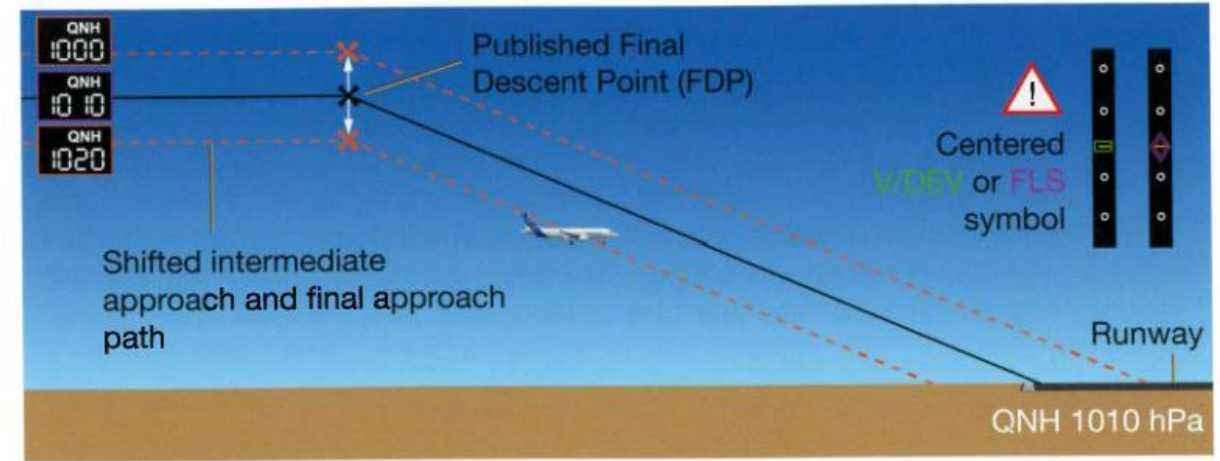


# Background

## Event Analysis

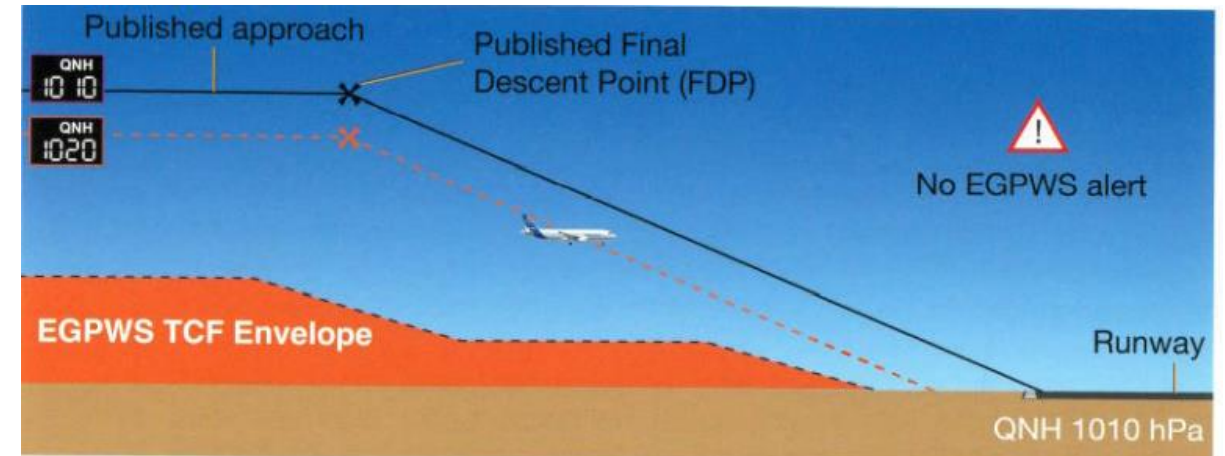
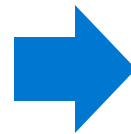
- The vertical deviation symbol was centered
- Altitude vs. distance checks were correct
- RA auto-callouts – cockpit voice recorder (CVR) data not available
- Poor weather condition and runway approach lights were not turned ON during first approach

A320 Family Aircraft



## There was no Terrain Avoidance Warning System (TAWS) alert

Path Remained outside of the Terrain Clearance Floor (TCF) envelope



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Photo from Airbus Safety First #35 – January 2023

# FOQA Monitoring

Not limited to transition from standard to QNH FL180

## Accuracy of the set altimeter

- Monitor during Approach phase – below FL180
- Compare – Set Altimeter from the recorded flight data vs METAR Altimeter information captured from the weather data
  - 1 hPa difference in the QNH/QFE = 28ft shift (above or below)
- Except B777, selected altimeter captured in the flight data
- Altimeter captured from multiple sources in the flight data – worst case scenario

## Event severity level

- Caution +/- 75 feet
- Warning +/- 100 feet
- Alert +/- 150 feet

# SMS Risk Assessment

- Risk that we see in our data is aircraft getting below the desired path -> risk of CFIT
- missing the altitude constraints during RNAV approaches -> altitude deviation / loss of separation
- Some cases even above the desired path and not being stable during approach phase -> unstable approach
- Unnecessary missed approaches on ILS appr due to misrepresented barometric minimums

## Causes

- Altimeter for wrong airport (majority of it)
  - Using departure field data (not updating)
  - Requesting /Receiving wrong field
- ATC transmitting wrong setting
- Flight Crew understanding wrong setting

# Safety Enhancements

## COMMUNICATION - TRAINING

Safety Publication - Q2 2022

Presented at the Standardization  
meetings

Human Factor course training

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# Safety Enhancements

## Airbus - AltSM

- Altimeter Setting Monitor
- Compares Captain's altimeter output to GPS derived altitude

## LPV Approaches

- Build the vertical path from the Threshold Crossing Height
- Using a Glide Path Angle back from the runway
- GP is defined in space