Case Study

Altimetry System Error Report (ASE-R) 055

Presented to: Altimetry System Error (ASE) Workshop

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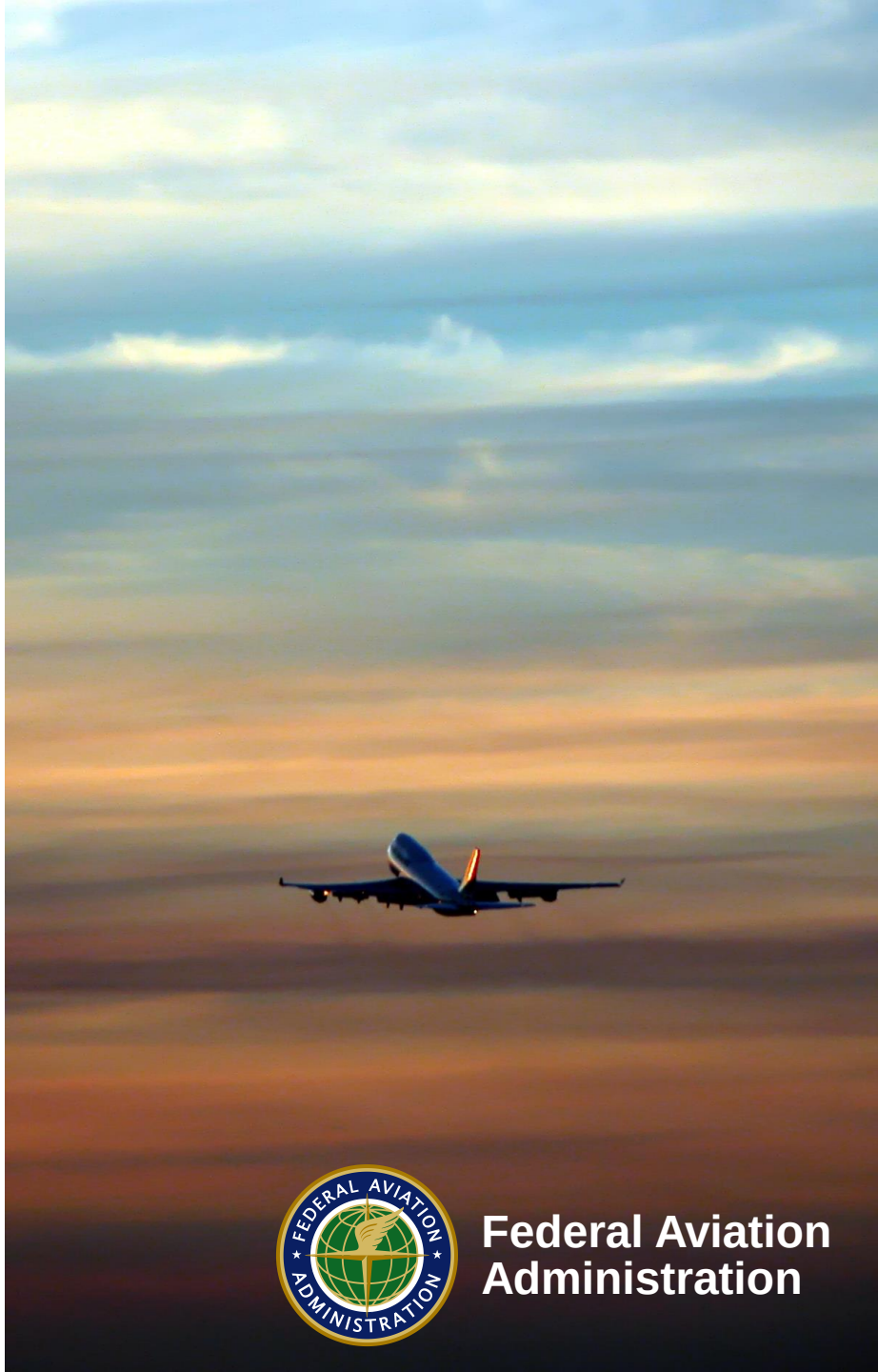


Case Study ASE-R 055

Why review this case?

- Typical cause of altimetry system error :
  - Component drift
  - Component wear / erosion
  - Modification

- This case was different

Introduction

- **Case Study**
  - Identification of unsatisfactory ASE / Notification
  - Identification of probable cause
  - Resolution
  - Verification
- **Lessons Learned**
  - Authorization process
  - Interface and coordination
  - ASE-R trigger criteria

Identification of Unsatisfactory ASE

Table 2. Recent ASE Performance of Subject Aircraft

AGHME Identification	Date of Measurement	ASE	Flight Level
ACLE	6/27/2008	203	350
ACLE	5/13/2009	264	380
AICT	3/18/2011	291	410
ACLE	4/25/2011	258	370
ACLE	4/25/2011	274	380
ACLE	4/28/2011	331	370
AICT	2/17/2012	233	400
AICT	2/17/2012	265	400
ACLE	9/28/2012	231	330
ACLE	9/28/2012	204	350
ACLE	10/15/2012	213	300
ACLE	10/19/2012	169	370
AICT	10/22/2012	329	340
AACY	4/18/2013	233	370
AACY	4/29/2013	225	390
ACLE	9/27/2013	314	360
AICT	1/7/2014	292	410
AICT	1/7/2014	237	410
ACLE	6/19/2014	428	410
AICT	2/27/2015	354	400

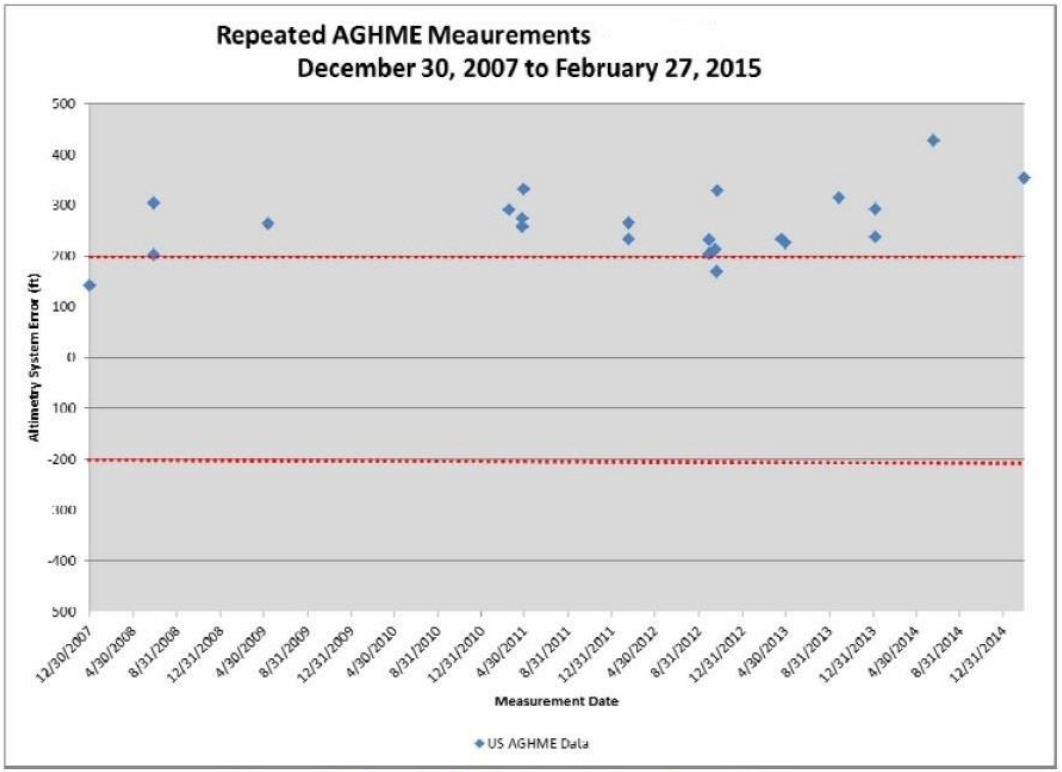


Figure 1. Aircraft Altimetry System Error History

Operator Notification

- **Prepared ASE-R sent to operator's CMO**
- **Team Airworthiness POC offered assistance**
- **Recommended approach**

  Review:

  - RVSM Design Implementation
  - Conformity
  - Airworthiness

Identification of Probable Cause

- **Cessna 560 Encore sn 560-05XX**
  - TCDS lists S/N 560-0539 through 560-0750
  - Owner purchased new in 2004
  - RVSM authorized since 2005
  - In design, all required maintenance performed
  - No damage or modification history

    -Perform altimeter accuracy testing-

Identification of Probable Cause

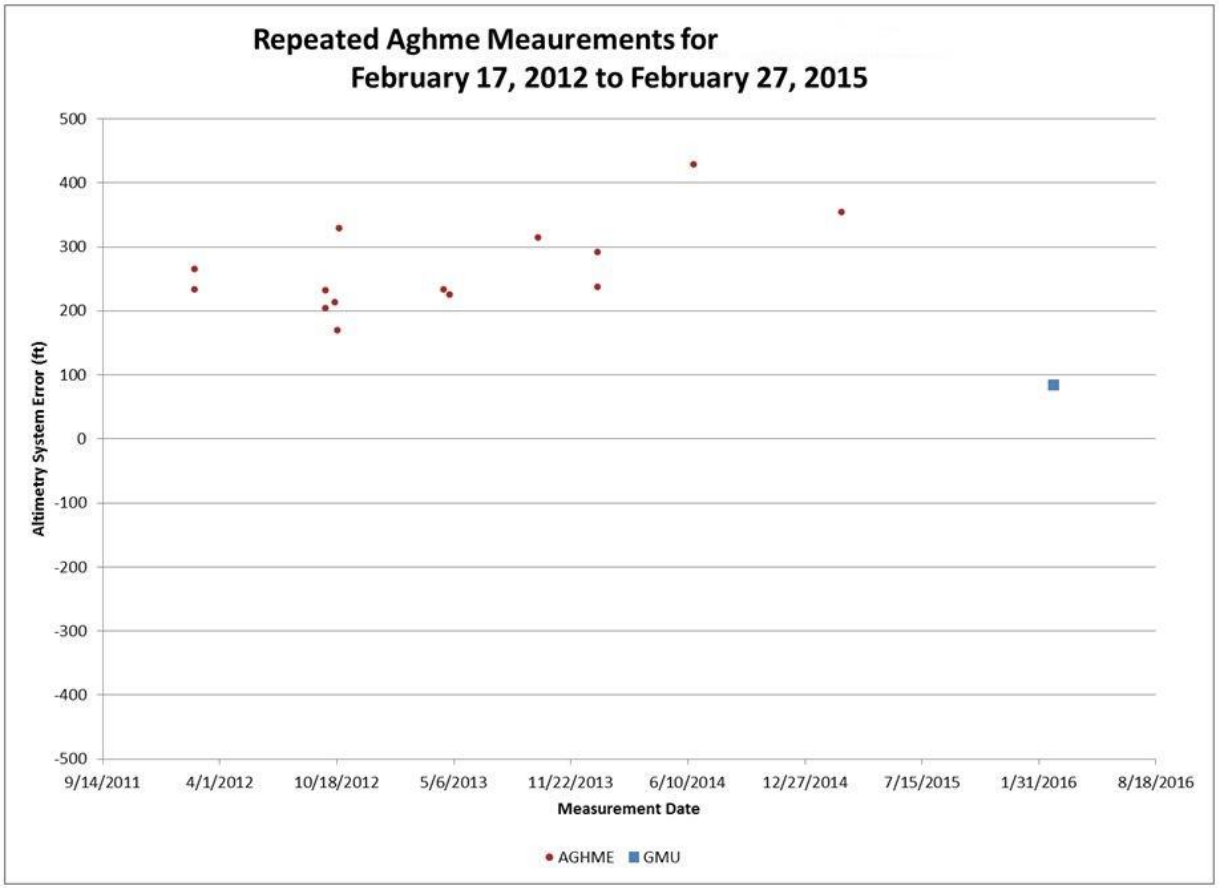
- **Contacted current design-holder (Textron)**
  - Aircraft had been customized and did not meet RVSM design requirements
  - Modification performed prior to issuance of Certificate of Airworthiness
  - Camera provisions had been added

Identification of Probable Cause

Resolution

- **Airplane taken to factory service center**
- **Returned to standard configuration**

Verification of Successful Resolution



ASE-R 055

- 11/5/2015 - Unsatisfactory ASE Identified
- 11/10/2015 - ASE-R Issued
- 11/10/2015 - Airplane Removed from Authorization
- 11/19/2015 - Service Center for Modification
- 2/25/2016 - Successful Monitoring
- 3/15/2016 - Airplane Back on Authorization

Lessons Learned

- **Time Frame 2004-2016**
  - Prior to implementation of domestic RVSM
  - Changes in manufacturing controls and processes
  - Evolution of LASER/ASE-R process

Lessons Learned

- **Authorization Process – Inspector Guidance**
  - FAA PAI makes determination aircraft meets requirements
  - Aircraft TCDS declaration acceptable
  - PAI checks for changes to type design

-Maintenance records begin at Standard Certificate of Airworthiness

Lessons Learned

- **Interface and Coordination - Validation**
  - Now send ASE-R to operator through CMO
  - CMO is FAA representative
  - Support from RVSM program office

Lessons Learned

- **ASE-R Trigger Criteria**
  - On-going refinement
  - Escape would not happen today

- **Questions?**

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