



National Transportation Safety Board

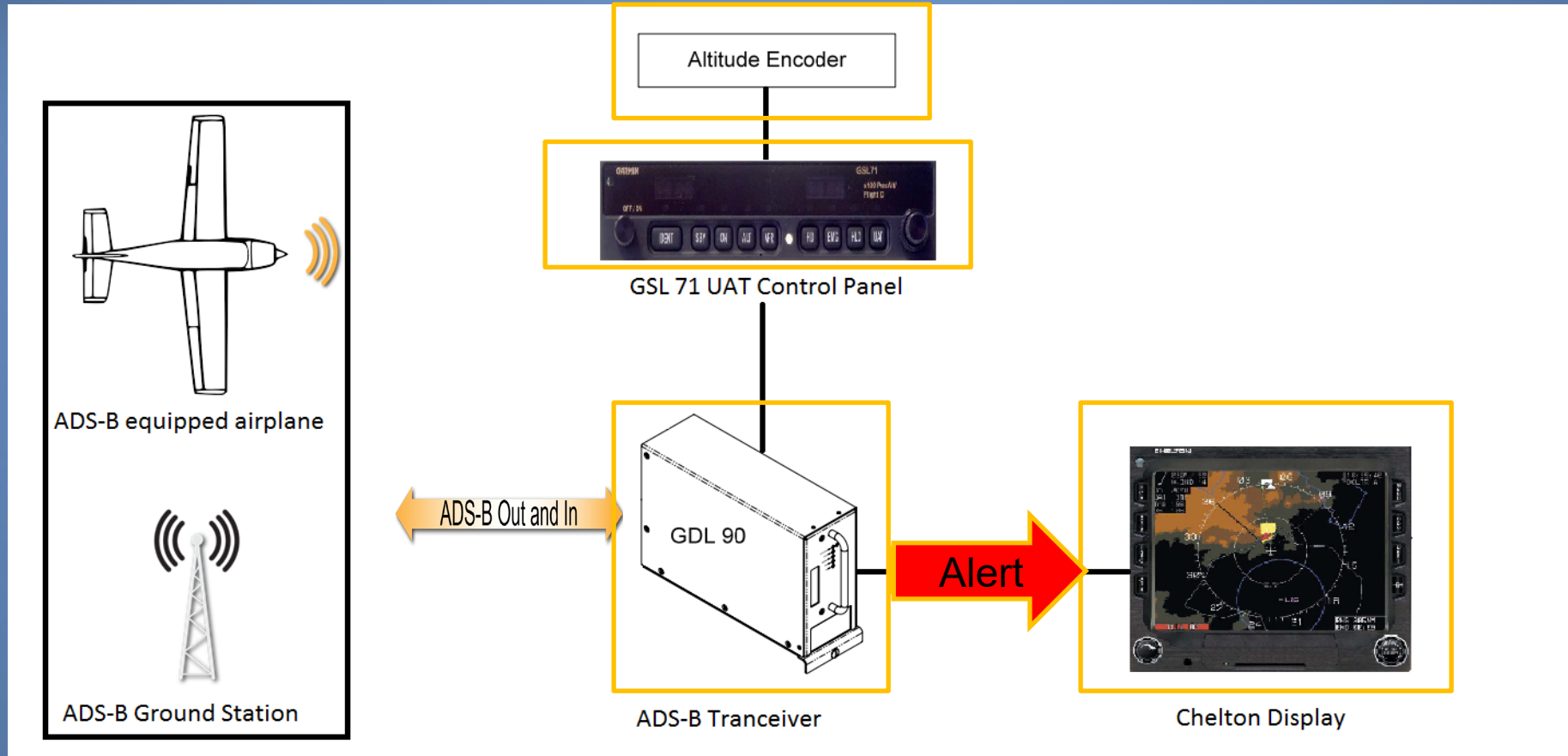


Systems

ADS-B History – The Capstone Program

- FAA responded to a 1995 NTSB recommendation to improve aviation safety in Alaska
- Goals to reduce CFIT, midair collisions, and weather related accidents
- Between 1999 and 2006, FAA and industry installed ADS-B transceivers and electronic displays at no cost to operators
- The Otter had Capstone equipment installed in 2005

Capstone ADS-B Equipment on Otter in 2005

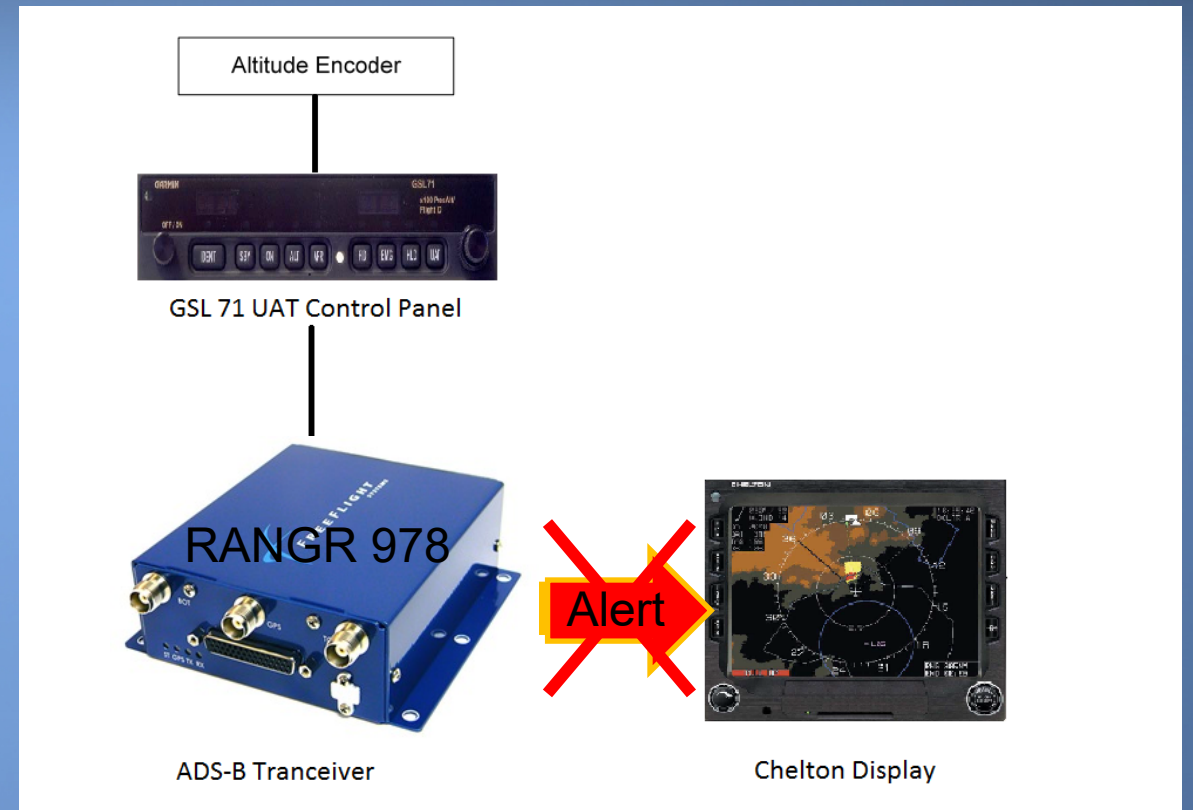


Otter ADS-B Upgrade and Loss of Alerting

- In December 2006, the FAA announced integration of Capstone into the national SBS program office
- ADS-B Out standard updated in December 2009
- In 2012 the FAA initiated an upgrade to Capstone ADS-B equipment to comply with new ADS-B Out requirement
- 2012 ADS-B In DO-317A standard had no requirement for aural or visual traffic alerting
- All Capstone aircraft were upgraded to FreeFlight RANGR 978 transceivers

Otter ADS-B Upgrade and Loss of Alerting

- Otter upgraded in 2015
- RANGR 978 replaced GDL-90
- Sent traffic but no alerting
- Not necessary to turn on GSL 71 for RANGR to power up
- With GSL 71 OFF no pressure altitude sent to ADS-B



Otter ADS-B Accident Data

- Otter ADS-B was not broadcasting pressure altitude
- GSL 71 control panel found in OFF position
- Airplane Flight Manual supplement stated that the GSL 71 must be in the ALT mode

Beaver Lack of Alerting

- Beaver not part of Capstone, but had RANGR 978
- Used an Apple iPad with ForeFlight for traffic display
- ForeFlight application has its own traffic alerting feature
 - The lack of pressure altitude from the Otter inhibited the traffic alerts
- Current ForeFlight feature “Hide Distant Traffic” hides even close targets without altitude

ADS-B In Standards Development

- FAA Modernization and Reform Act of 2012 required aircraft in capacity constrained airspaces be equipped with ADS-B In by 2020
- In June 2014 the RTCA released DO-317B, which had an optional application for traffic alerting
- FAA Reauthorization Act of 2018 repealed the 2012 requirement.



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