General Aviation Fleet Modernization

Real and perceived barriers in current FAA regulations and policies make it difficult for the general aviation (GA) community to incorporate safety advancements. The Aircraft Certification Service (AIR) is developing and implementing solutions to break down those barriers, facilitate GA fleet modernization, and promote safety.

362,000 GA Aircraft Worldwide

(approximately 160,000 FAA-certificated)

- 137,600+ Piston Airplanes
- 9,600+ Turboprop Airplanes
- 11,600+ Business Jet Airplanes (part 23 and 25)

Top 4 Leading Causes of Accidents (2008-2015):

1. Loss of Control (LOC)
2. Controlled Flight Into Terrain (CFIT)
3. System Component Failure – Powerplant
4. Fuel Exhaustion

238 Fatal Accidents
384 Fatalities - in 2015

FOCUS AREAS for EXISTING FLEET (Retrofit):

Reorganizing Part 23 will facilitate the incorporation of new technologies on future fleet designs. For the current fleet, AIR is applying safety continuum principals and making risk-based decisions to support faster and easier incorporation of the safety features below.

PROPULSION ENHANCEMENTS

Benefits: Improves reliability, ease of maintenance & operation, reduces workload, helps prevent engine failure accidents.

ADVANCED FLIGHT DISPLAYS (PFD/MFD)

Benefits: Intuitive, integrated information for pilot, improves situational awareness, replaces obsolete equipment , helps prevent LOC and CFIT accidents.

AUTOPILOT & ENVELOPE PROTECTION SYSTEMS

Benefits: Reduces workload, helps prevent LOC and CFIT accidents.

ENGINE MONITORING SYSTEMS

Benefits: Allows better engine management, decreases maintenance costs, helps prevent engine failure accidents.

FUEL GAUGE SYSTEMS

Benefits: Provides low fuel warning, helps prevent fuel exhaustion accidents.

ADS-B IN/OUT

Benefits: Improves traffic & situational awareness, provides weather in the cockpit.

NON-REQUIRED SAFETY ENHANCING EQUIPMENT (NORSEE)

Benefits: Facilitates approvals, reduces equipment costs by removing excessive design assurance, supports modernization, reduces unnecessary regulatory barriers. (http://go.usa.gov/cuJPw)

ANGLE OF ATTACK (AOA)

Benefits: Increases pilot awareness and helps prevent LOC accidents. (http://go.usa.gov/cuJPe)

ATTITUDE INDICATORS

Benefits: Allows instrument replacement, improves reliability, lowers maintenance costs, helps prevent LOC accidents. (http://go.usa.gov/cuJEx)

Future (R&D) Efforts:

ADVANCED AUTOPILOTS (REFUSE TO CRASH)

Benefits: Reduces workload and pilot error, helps prevents of LOC and CFIT accidents.

FUTURE AUTOMATION

Benefits: Increases safety, simplifies operations and future flight operations.

Data presented obtained from GAMA's *2014 General Aviation Statistical Databook & 2015 Industry Outlook and NTSB.*

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