May 2006

Loss of Control
Joint Safety Implementation Team

Implementation Plan
For
Human Factors and Automation

Statement of Work

To reduce loss of control accidents, Part 121 air carriers will be encouraged to adopt consensus policies and procedures relating to mode awareness and energy state management, as appropriate to their respective operations.

This is a revision of a previously approved DIP. Incident data has shown that flight deck automation is a core issue that needs to be addressed. Accordingly, the PARC/CAST Flight Deck Automation Working Group has been formed to develop recommendations for training, design change, and automation philosophies. This activity is expected to take approximately three years to complete. To enhance safety in the interim, the CAST recommended a tactical approach to develop and distribute policies and procedures relating to mode awareness and energy state management, and thereby realize the short-term benefits from the Loss of Control JSAT/JSIT. This revised SE-30 DIP addresses the approved tactical approach.

Safety Enhancement: To improve the overall performance of flight crews to recognize and prevent loss of control accidents, through effective use of automation.

Lead Organization for Overall Safety Enhancement Completion (LOOSEC): **Air Transport Association (ATA)**

Score: 2007-(0.7)   2020-(0.7)   100%-(0.8)

Resource Requirements:

ATA, FAA, RAA, NACA, ALPA, AIA/manufacturers.

The total estimated cost would be 2 person-years.

Completion Date: G + 4 months

Output 1/SE 30:

A compilation of industry automation policies and procedures dealing with mode awareness and energy state management.

Resources: ATA (LOOC), AIA/Manufacturers, RAA, NACA. The estimated cost would be 1/4 person-years.

Timeline: Completed.

Actions:

ATA will request that operators and manufacturers provide copies of their current policies and procedures pertaining to the use of automation for mode awareness and energy state management.

Output 2/SE 30:

An analysis of incident data to identify gaps in current industry policies and procedures pertaining to mode awareness and energy state management.

Resources: ATA (LOOC), AIA/manufacturers, FAA, ALPA. The estimated cost would be 1 person-year.

Timeline: 2 month

Actions:
ATA will convene a team to analyze incident data to identify factors that contribute to the loss of mode and energy state awareness, and identify inadequacies in current industry policies and procedures.

Output 3/SE 30:
Data driven improved automation policies

Timeline: 2 months after completion of Output 2

Actions:
ATA will convene a SME review process to develop industry consensus, data driven, improved automation policies.

Resources: ATA (LOOC), AIA/manufacturers, FAA, ALPA, RAA, and NACA. The estimated cost would be ½ person-year.

Output 4/SE 30:
Distribution of improved automation policies to operators and manufacturers.

Timeline: 1 month after completion of Output 3

Resources: ATA (LOOC), The estimated cost would be 1/4 person-year.

Actions:
ATA will disseminate a consensus, data based, improved automation policy/policies to operators and manufacturers.

ATA, NACA, RAA, AIA/manufacturers will encourage operators to review the generic automation policies and implement them as appropriate.

Relationship of Project Outcome to Current Aviation Community Initiatives:

The following are some of the activities related to this project:

- PARC/CAST Flight Deck Automation Working Group has been formed to recommend and prioritize actions to address, for current and projected operational use, the safety and efficiency of modern flight deck systems for flight path management (including energy state management).

- Information and data gathered under this SE will be provided to the PARC/CAST Automation Working Group.

- The Human Factors and Pilot Training Group of the ALPA, Air Safety Structure has already produced its positions regarding CRM and Human Factors with respect to the use of automation.

- SAE G10, Aerospace Behavioral Engineering Technology (ABET) Committee, deals with the philosophies, principles and criteria by which designers, engineers, pilots and behavioral scientists structure systems to achieve maximum human workload compatibility for automation efficiency. The committee has several subcommittees with on-going work into human factors and automation.

Performance Goals & Indicators for Outcome/Outputs:

- Goal: Mitigate the effects of mode confusion and energy state management as contributing factors in loss of control accidents.

  - Indicator: A measurable reduction of loss of control incidents and accidents related to automation.

Risk Evaluation:

Impact on Non - Part 121 or International Applications:

The materials developed by this project will be made available to the JSC and to international organizations, thereby enhancing safety of the overall aviation community.