Recommendation 15-11: Guidance Material Addressing Auto Flight Mode Training

I. Submission

The recommendation below was submitted by the Flight Path Management Workgroup (FPM WG) for consideration by the Air Carrier Training Aviation Rulemaking Committee (ACT ARC) Steering Committee at F2F-6. The ACT ARC Steering Committee adopted the recommendation with unanimous consent, and the recommendation is submitted to the Associate Administrator for Aviation Safety (AVS-1) as ACT ARC Recommendation 15-11.

II. Background & Statement of the Problem

The Federal Aviation Administration (FAA) posed questions to the ACT ARC to obtain industry input on mode awareness issues, including the following:

- Identify the academic and the flight training elements required to reinforce pilot mode awareness principles.

After the ACT ARC Steering Committee assigned the task to the FPM WG, the FPM WG formed the Mode Awareness & Confirmation Action Team, which included industry subject matter experts to review, discuss, and propose recommendations in response to the questions posed.

III. Recommendation

The ACT ARC submits the following recommendation for FAA consideration:

> The Air Carrier Training Aviation Rulemaking Committee (ACT ARC) recommends the FAA develop advisory guidance for industry stakeholders (e.g., operators and 142 training centers) and inspector guidance for FAA personnel to strongly encourage incorporating the auto flight mode training using the following Performance Statement:
>
> The pilot will demonstrate the knowledge and skill to correctly select, interpret, and anticipate normal Auto Flight Modes, and demonstrate appropriate remedial actions for inappropriate or unexpected Auto Flight Modes. Proficiency objectives include but are not limited to:
>
> - Correctly interpret individual flight mode annunciations (FMA) (autopilot, autothrust/autothrottle, flight director) [CS]
> - Describe the respective mode's impact on the related systems and aircraft operation [K]
> - Identify autothrottle system mode annunciations and its effects on aircraft performance [CS]
> - Describe autothrottle system effects on related system operation [K]
> - Identify pitch mode annunciations and their relationship to autothrottles and Flight Director [CS]
>   - Identify the Speed on Pitch Vertical modes and their relationship to autothrottles and Flight Director. [CS]
>
> Legend: [K] = Knowledge & [CS] = Cognitive Skill

IV. Rationale

Incidents, Line Operations Safety Assessments (LOSA), Flight Operational Quality Assurance (FOQA) and Aviation Safety Action Program (ASAP) data have shown that there is a lack of pilot understanding and awareness in FMA modes.

Training device/media is at the air carrier's discretion. However, data collection is required to verify effectiveness.

V. Background Information

ACT ARC Initiatives:

ACT ARC Recommendation 15-11 partially addresses the following initiative assigned to the FPM WG:

Initiative #35: Develop training/qualification to improve knowledge and skills for successful flight path management, to include:

- Manual flight operations, including training, practice, and checking.
- Management of automated systems for flight path management, especially autoflight mode awareness.
- Pilot monitoring and intervention for flight path management.
- Instructors/evaluator training for the development of skills and knowledge to teach and evaluate airplane flight path management, including use of automated systems.

Source Report:

Operational Use of Flight Path Management Systems: Final Report of the Performance-Based Aviation Rulemaking Committee (PARC)/Commercial Aviation Safety Team (CAST) Flight Deck Automation Working Group (FltDAWG), September 5, 2013 at pgs. 55-56, 68-75, 99-101. (See Finding 9 - Operator Policies for Flight Path Management; Finding 12 - Current Training Time, Methods, and Content; and, Finding 24 - Organizing and Analyzing Operations Data).