Meeting Details

- Date and Time: 6/25/2019
- Location: Telecon/Adobe Connect
- Agenda: Congressional Mandate Stakeholder Follow-up
- Adobe Recording: **https://connectdot.connectsolutions.com/phfbkeo804su/**

Attendees (27 Adobe Attendees)

Ann Azevedo	John Caldwell (FAA)
Ben Linder	Jon Oberdick
Bob Ganley	Julie Elpers
Chad Shackford	Mark Lopez (A4A)
Chip Queitzsch	Michael Haerr (R-R US)
Chris Parker	Phil Bailey (Alaska Airlines)
Dave Showers	Razaboni (Embraer)
David McDermott	Richard Williamson (Rolls Royce UK)
Douglas Zabawa	Ronal Naylor
J. Castillo (EASA)	Sarah Knife (GE)
A. Abrams (EASA)	Sara MacLeod
Fernando Lacerda (ANAC)	Bob Farinas (TCCA)
Ian Thatcher	Terry Tritz (Boeing)
James Gray (FAA) (PRESENTER)	Valerie Gros (SAFRAN AE)
Tom Stafford (FAA) (HOST)	

Announcements

- Meeting Purpose: Provide initial preliminary FAA Safety Trend data.
- There will be an Operator oriented meeting on Jul 10. Tom Matzen is the FAA focal for this meeting.
- The intent of this second stakeholder telecon is to share additional information that can mature our conversation for the October Summit.
- Reminder: Engine & Airframe-Engine Integration Safety Summit on October 24, 2019, in Washington D.C. Multiple representatives from your organization can attend.
    - Stakeholders can register at: https://www.faa.gov/aircraft/air_cert/design_approvals/engine_prop/engine_airframe_summit/

Discussion

- Today's telecon will focus on the CARB+ (Corrective Action Review Board) Approach conducted by FAA. Part 1, preliminary findings, which involves FAA CARB data analysis.
- The data set chosen was from the FAA's CARB meetings (often generically referred to as safety board meetings), reference FAA Order 8110.107A, *Monitor Safety/Analyze Data.* The team felt it was a smaller, significant data set that we could evaluate and extract trends and contributing factors for accidents between 2013-2018. This is consistent with the Congressional mandate language.
- The Engine & Airframe-Engine Integration Safety (EAEI) team reviewed individual CARB packages for 2013-2018 and extracted relevant event and causal information into database.
    - Review was limited to all part 33 engine and part 25 propulsion system items the team determined to be in-scope.
    - FAA subject matter experts reviewed the database for common themes, contributing factors, and trends.
- The EAEI team met face-to-face in Burlington, MA, June 10-14.
    - Team reviewed the compiled list of approximately 40 brainstorm items.
    - Team grouped and refined list of brainstorm items to help identify common themes and need for additional clarification.
    - Team reviewed list line-by-line and verified supporting event data, causal factors, and rules/policy/guidance potential for improvement.
    - There were approximately 116 line items in the data set. In some cases the below additional sources captured redundant data, but the team wanted to ensure that nothing was overlooked in relation to contributing factors.
        - Additional sources of data reviewed:
            - NTSB Accident/Incident List 2013-2018
            - NTSB safety records 2013-2018
            - FAA safety records 2013-2018
            - In-process Transport and Engine & Propeller rules/policy/guidance (Including EACTB, CAPP, CATA, AIA activity)
                - Chris Parker (FAA Transport Standard Section Manager) added we are trying to baseline our engine activities. The EAEI team took an inventory of all in-work activities that are going on in the Transport Airplane and Engine and Propeller Standards Branches. We also looked at ongoing activities between industry and FAA such as the Aircraft Certification Tracking Board, Certification Authorities for Transport Airplanes and Propulsion systems, and Commercial Aviation Safety Team. On the part 25 and 33 side, they had 70+ items. The idea is to identify any ongoing work that may address any existing gaps.
            - Current and recent CAST Safety Enhancements
            - CAAM 3 Committee Lessons Learned Activity
            - SAFO's/UPN's

- Did the review of events include only what happened or what could have happened?
    - ANSWER: Both. The CARB data includes all items that could potentially involve an airworthiness directive, which include those items that did occur and did not occur, but potentially could have occurred.
- The team further refined table.
    - Initial prioritization based on CAAM Level Events and events where driving malfunction occurred (i.e. – uncontained)
- The previously described process led to the team to identify approximately 20 contributing factors. These factors range from *specific technical issues* to *process issues* to *broad topics* that may warrant further consideration by the industry. We would prefer to get these 20 contributing factors into smaller subsets for good areas for discussion at the October summit. We certainly want to identify areas that would have the greatest amount of traction. In other words, factors that we all can get behind and would have the most impact on safety. From this smaller subset of the 20 contributing factors, a smaller subset will likely make it to the Congressional report.
- The team is currently reviewing and refining the full list internally and developing initial recommendations.
- Refer to slide 8 in the attached presentation for preliminary areas for discussion based on our initial data review (i.e., 2013-2018 data set). These areas are broken down by contributing factor, potential airframe/engine integration contributing factor, and team-identified area where there is no existing rule/policy/guidance activity that would address the issue (see legend key in slide 8).
- Refer to slides 9-14 for a high-level description for each preliminary area of discussion. This data is still a work in process. Each preliminary area for discussion on slides 9-14 provides some basic information, engine generation that the contributing factor relates to, causal (i.e., Design, Manufacturing, Maintenance, and Operations), most severe event type, highest CAAM level, and data substantiation source.
- An objective of this team is not only to identify possible safety gaps, but also to highlight ongoing efforts to Congress, such as the Ni Melt Defect study effort.
- Did we parse down LLP failures to causes (e.g., some may be materials; some may be design misses, etc.)?
    - ANSWER: We do have that data. The right side of the slide shows high-level causal information (i.e., Design, Manufacturing, Maintenance, and Operations).
- Is the CAAM level 4 event for the "Manufacturing Quality Escapes/Supplier Oversight" different from the "Ni Melt Defects" CAAM Level 4 event?

        - ANSWER: Not necessarily. There might be issues that span multiple areas. This area probably needs some refinement. There would be benefits in calling out areas that are and are not in work.
    - What is the definition of the Gen 1-4 in the green box on the right of the slides?
        - ANSWER: The definitions come from the CAAM report, which are industry-accepted classifications for engines.
    - Would it be helpful to add to these charts (slides 9-14) some additional contributing factors such as size of fleet, the turn over between regional airlines and commercial airlines, etc.?
        - ANSWER: These are good suggestions. Our goal is to generate areas for further discussions within this group and at the October summit where we get into more of the detail of these discussion areas. A goal of the October summit is we collectively (as a group) determine where we should focus our safety efforts coming out of the summit. Sarah Knife pointed out they are seeing similar things the FAA is seeing in the "Maintenance Challenges with Aging and Transitioning Fleets." For example, airplanes moving from larger airlines to smaller airlines with limited capabilities and very basic maintenance approaches. In this case, it is not new technology, but the same product being used in a different way. Sara Macleod from ARSA thinks for maintenance challenges; pick the highest risk probability for a joint team to work on. That may be aging/transitioning fleet or technology. New technologies may bring its own challenges, so we may want to do the risk analysis and hit the highest risk area. Sarah Knife clarified that her observation was based on actual events. James stated that our team is focused on areas of interest based on actual event data. However, these are the types of discussions we need to have leading up to and at the summit.
    - The "Engine Health Condition Monitoring Systems" is a bit different from the other areas. The team felt it might be an area worth some additional discussion. These systems provide real-time engine conditions and alerts to flightcrew that may prevent an event. There were precursor events in the data set that could have potentially been identified with these systems.
- In conclusion, the next steps are to :
    - Continue refining the list of contributing factors.
    - Review data internally (FAA) with leadership.
    - Set-up follow-on teleconference with authorities.
    - Continue sharing developing information and data at this stakeholder forum.
- Tom Matzen provided a synopsis of the on-going effort with the operators.
    - Discussion with the following airlines has begun to determine topics for discussion at the October summit.

        - American Airlines
        - United Airlines
        - Alaska Airlines
        - Southwest Airlines
    - One topic among these operators that has come up is maintenance instructions surrounding certain critical maintenance activities and inspections. Details in-process.
    - The next FAA-operators meeting is scheduled for July 10.
- Our FAA goal, by the end of July, is to publish a revised agenda for the October summit. We will likely be reaching out to you for input on the agenda.
- Sarah Knife provided a brief status where the CAAM team is on their output (refer to the attached MS Excel Workbook).
    - The team is analyzing in-flight shutdown data. Some of the team members have provided their data to the FAA. The team will then look at the overall safety. The consensus is that they can take this data back to the 1970s.
    - Next, the team will look at the CAAM level events from when CAAM reporting started. They think it practicable to use CAAM 3 definitions. This will involve reclassifying some old events.
    - The CAAM team is looking to provide all data to the FAA by mid-July.
- Tom Stafford noted that SAFRAN indicated to FAA leadership that they could do more to help the effort. Sarah Knife indicated the CAAM team is coordinated through SAFRAN so GE/CFM is speaking with one voice. The Engine and Airframe-Engine Integration Safety Team has been reaching out to ensure anyone who wants to contribute to this effort has the opportunity to do so, but please contact Tom Stafford if anyone feels that they could be contributing more or in a different way.

Meeting Attachments

1. Presentation (See Calendar notification for:)

<<EAEI Safety Review Team_CARB data review (003.pdf>>

<<Engine and Airframe-Engine Safety Review Team_data template.xlsx>>

Next Meeting

- Date and Time: Last week in July
- Location: Telecon/Adobe Connect
- Agenda: Data collection follow-up