P&WC SDR & CORRECTIVE ACTION PROCESS

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Ottawa, 14 November 2018
Export Classification

Check this box if presentation contains "no technical data" OR Summarize the export classifications of all slides in this presentation as instructed below:

<table>
<thead>
<tr>
<th>Instructions: Box 1 and one (1) of boxes 2-5 must be completed</th>
<th>Classification:</th>
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</thead>
<tbody>
<tr>
<td>1. Canadian ECL(s):</td>
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<td>2. ECCN(s) (EAR):</td>
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<td>3. P-ECCN(s):</td>
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<td>4. USML (ITAR):</td>
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<td>5. P-USML:</td>
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P&WC SDR PROCESS
ATTRIBUTES OF AN EFFECTIVE SDR PROCESS

Compliant to regulation

Connected with established company processes

- Field events
- Quality escape
- Manufacturing/Supplier Issue

Strong organisation culture which puts safety first

Timely, rigorous and auditable risk assessment
P&W Event Management

Events are categorized to ensure the timely identification and communication of incidents in service which (1) have affected or (2) have the potential to effect flight safety or aircraft availability.

Category per CSOP

Field event

1 (Hazardous)
2 (IFSD, LOTC, CAQ, etc)
3 (BUR)
4 (Scheduled)
5 (Shop Finding)

Reportable
P&WC Event Management

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Potential Precursors

Delegates fully leveraged to enhance event characterization
Daily Summary

1.0 NEW CATEGORY 1 EVENTS OR CATEGORY 2 SINGLE ENGINE EVENTS

The airplane is missing over the Atlantic Ocean. Search operations are being conducted east of Charleston Air Force Base/International Airport (KCHS), Charleston, South Carolina. On Sunday 28 October 2019 search operations were suspended. All occupants are deemed to have died in the crash. The air plane had taken off from Andrews, in Georgetown County, South Carolina.

2.0 UPDATES TO PREVIOUSLY REPORTED CATEGORY 1 or CATEGORY 2 SINGLE ENGINE EVENTS
Nothing to report.

3.0 CATEGORY 2 EVENTS

Pilot reported the aircraft was climbing through 2FL the right-hand engine issued a main oil pressure (MOP) warning light, and both N2 and ITT started winding down with the aircraft exhibiting yaw. The MOP went to the yellow region, and the throttle reduced to Flight Idle. Ignition was selected to “ON”, and two minutes later the MOP light was extinguished. N2 and ITT went back up to normal, and the aircraft made an eventful landing.

3.2 Cabin air contamination, 6 June. Aircraft model: Port Of Spain, Trinidad. Operator
Pilot reported, oil smell and light smoke in the cabin.

Aircraft was on a sky diving training mission and after airborne, the pilot noticed EEC 2 indication displayed on the Integrated Engine Data System (IEDS) and Maintenance light ON. The aircraft was reported yawing towards the right hand side. These were accompanied with “Wing Speed drop” aural sound. The pilot performed EEC Reset and the aircraft landed uneventful.

4.0 MISCELLANEOUS
Nothing to report.
Daily Summary Key Element of Compliance

1.0 NEW CATEGORY 1 EVENTS OR CATEGORY 2 SINGLE ENGINE EVENTS

1.1 09-021, Accident, 05 Mar., Cessna Caravan 208B, Tail # 5X-ASI, Sudan, Air Serv Limited (Uganda), PT6A-114A, S/N 17446, Times/Cycles Unk (0 Fatal)

Engine power loss occurred during T/O which was accompanied by a loud noise. The aircraft was unable to clear the tree line and contacted a mango tree with its left wing before crashing. There were no fatalities amongst the 4 on board (injury status unknown).

Preliminary inspection of engine/aircraft didn't reveal any obvious cause for the power loss; compressor and propeller were found free to rotate. P&WC has offered assistance.

2.0 UPDATES TO PREVIOUSLY REPORTED CATEGORY 1 or CATEGORY 2 SINGLE ENGINE EVENTS

Nothing to report.

3.0 CATEGORY 2 EVENTS

3.1 IFSD, 05 Mar., Piaggio P180, Tail # Unk, Trapani, Italy, Foxair, PT6A-66, S/N RK0176

Times/Cycles Unk

After take off from Trapani in climb at 28000ft pilot had a fire warning indication on the left hand engine. Engine parameters were normal pilot saw no signs of fire. Engine was shutdown and after a few seconds the fire warning indication went away. Aircraft returned to Trapani for an uneventful landing.

On ground oil was seen at the exhaust, on the propeller and nacelle. There were no visible signs of fire.

3.2 IFSD, 05 Mar., Gulfstream G200, Tail # N479PR, Peachtree, Atlanta, GA, Dupage Aerospace, PW306A, S/N CC0016, Times/Cycles Unk

During flight from Chicago to Florida pilot observed a drop in oil pressure. Crew elected to shutdown the engine and completed an uneventful single engine landing.

4.0 MISCELLANEOUS

Nothing to report.

SDR reporting per CAR521

TCCA Sets Agenda for Quarterly Reviews

TCCA Concurrs with Item Closure

SDR closure per CAR521
SDR Reviews

Quarterly Meeting

TCCA with FAA and EASA as standing invitees

2 day review of all Cat 1, 2 events

Transparent Discussion

Direct interaction with Engineering, Customer Service Delegates
P&W CORRECTIVE ACTION PROCESS
CORRECTIVE ACTIONS

Event

Cat 1 (Hazardous)
Cat 2 (IFSD, LOTC, CAQ, etc)
Quality Escape/Process Defect

Assess Risk, Guide & Concur

Accident Investigation
PMT
Quality Escape

Concurrence

TCCA
SMS Team
SMS Board

Inspect Replace Re-Design

Event
SMS FOLDERS

Auditable procedure to:

identify

communicate

resolve

record

P&WC’s handling of safety significant items
SMS FOLDER STATISTICS

2005 - Current

287 Folders raised to date
228 Folders closed
116 Reactive
171 Proactive
103 Non CE generated
23 Procedural

2015 212 SMS Meetings held
2016 430 SMS Meetings held
2017 329 SMS Meetings held
2018 315 SMS Meetings held

59 active folders
SMS FOLDER REVIEWS
Typical Conduct

1: Explore
  - Open Discussion
  - Understand Event(s)
  - Safety Consideration?

2: Characterize
  - No. Of events
  - Suspect Population
  - History
  - Nature of issue

3: Assess
  - Statistical analysis
  - Risk Assessment (CAAM)
  - Actions:
    - Field, Engr, Ops, OEM

4 – Follow Up
  - Action Status
  - New Events
  - New Findings

5 – Close
  - Action Complete

6 – Monitor
SMS FOLDER REVIEWS
Benefits

Forum focussed on safety

Empowered Team

Enterprise & System View

Open discussion & collaboration

Training and exposure

Cross-Polineation of Lessons Learned
AC39-8 ASSESSMENT - EXAMPLE

Example of acceptable Level 3 Risk exposure with time
## Risk Assessment

<table>
<thead>
<tr>
<th>Hazard Probability</th>
<th>Catastrophic Level - 1</th>
<th>Critical Level - 2</th>
<th>Significant Level - 3</th>
<th>Negligible Level - 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent Level - A</td>
<td>1A = EXTREMELY HIGH</td>
<td>2A = EXTREMELY HIGH</td>
<td>3A = HIGH</td>
<td>4A = MEDIUM</td>
</tr>
<tr>
<td>Probable Level - B</td>
<td>1B = EXTREMELY HIGH</td>
<td>2B = HIGH</td>
<td>3B = MEDIUM</td>
<td>4B = LOW</td>
</tr>
<tr>
<td>Occasional Level - C</td>
<td>1C = HIGH</td>
<td>2C = HIGH</td>
<td>3C = MEDIUM</td>
<td>4C = LOW</td>
</tr>
<tr>
<td>Remote/Seldom Level - D</td>
<td>1D = MEDIUM</td>
<td>2D = MEDIUM</td>
<td>3D = MEDIUM</td>
<td>4D = LOW</td>
</tr>
<tr>
<td>Improbable/Unlikely Level - E</td>
<td>1E = LOW</td>
<td>2E = LOW</td>
<td>3E = LOW</td>
<td>4E = LOW</td>
</tr>
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