Checklist Use and Procedural Noncompliance

Human Performance presentation

Photograph used by permission of Mr. Jerry Search. Obtained via Airliners.net.
Flight Crew

• Pilot-in-command
  - More than 11,000 total flight hours
  - More than 1,600 hours on G-IV

• Second-in-command
  - More than 18,000 total flight hours
  - More than 3,000 hours on G-IV

• Had flown together for about 12 years
Key Flight Crew Errors

• Neglected to release and stow gust lock

• Neglected to perform flight control check
Neglected to Release Gust Lock

• Error of omission
• Common form of error
• Checklists important defense
Flight Crew’s Use of Checklists

• Did not call for checklists

• Did not verbalize checklist items

• Executing checklists silently and from memory removes many benefits
Standardized Use of Checklists

• Assists flight crews with
  - Recall of steps
  - Logical sequence and distribution of workload
  - Enhanced cross-checking
  - Shared awareness
## Challenge-Verification-Response Method of Checklist Completion

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Crewmember</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pilot monitoring</td>
<td>Reads item aloud</td>
</tr>
<tr>
<td>2</td>
<td>Both pilots</td>
<td>Verify action was performed</td>
</tr>
<tr>
<td>3</td>
<td>Pilot flying</td>
<td>Provides standardized verbal response</td>
</tr>
</tbody>
</table>
Company Checklist Policy

• SK Travel flight operations manual required flight crews to complete all appropriate checklists

• Company policy did not specify preferred method of checklist completion

• 2012 independent safety audit concluded company checklists were appropriate and used during checks

• Safety audit did not examine whether company policy specified method of checklist completion
Neglected Flight Control Check

• After Starting Engines checklist required flight control check

• No check performed before accident takeoff, and no complete check performed before 98% of flight crew’s 175 previous takeoffs

• Pattern of procedural noncompliance
Procedural Noncompliance

- Can increase likelihood of subsequent errors
- Many reasons for procedural noncompliance
- Explanations have included personality, workload, and goal conflicts
- Consistency of accident flight crew’s noncompliance suggests development of shared attitudes
Procedural Drift

- When checks reveal no problems, crews may begin to regard them as less important.
- Over time, actual operating practices can diverge from published procedures.
- Small operators with consistent crew pairings and less oversight may have increased risk.
Noncompliance in Corporate Aviation

• Extent of noncompliance with required flight control checks unknown

• If rate is high, boost compliance or reconsider assumptions about protection such procedures provide, particularly among small operators

• Analysis of corporate flight operations data could help scope problem and guide safety initiatives