Human Factors Activities in JALEC

Toshiyuki Yamagishi
General Manager, Quality Assurance Department
JAL Engineering Co., Ltd. (JALEC)
Introduction

- about Japan Airlines (JAL)
- about JAL Engineering (JALEC)
### about JAL

#### Aircraft Fleet (as of Oct-01-2012)

<table>
<thead>
<tr>
<th>Aircraft Type</th>
<th>Seats (typ)</th>
<th>Current Fleet</th>
</tr>
</thead>
<tbody>
<tr>
<td>787-8</td>
<td>186</td>
<td>6</td>
</tr>
<tr>
<td>777-300ER</td>
<td>292</td>
<td>13</td>
</tr>
<tr>
<td>777-300</td>
<td>470</td>
<td>7</td>
</tr>
<tr>
<td>777-200ER</td>
<td>302</td>
<td>11</td>
</tr>
<tr>
<td>777-200</td>
<td>389</td>
<td>15</td>
</tr>
<tr>
<td>767-300ER</td>
<td>237</td>
<td>32</td>
</tr>
<tr>
<td>767-300</td>
<td>261</td>
<td>16</td>
</tr>
<tr>
<td>737-800</td>
<td>165</td>
<td>9</td>
</tr>
<tr>
<td>MD90</td>
<td>166</td>
<td>7</td>
</tr>
<tr>
<td>[Total]</td>
<td></td>
<td>116</td>
</tr>
</tbody>
</table>

#### JAL Group Airlines

- ★ JAL Express (737-800 × 40)
- ★ J-Air (CRJ200 × 9, ERJ170 × 10)
- ★ Japan Air Commuter (DHC-8-400 × 11, SAAB340B × 11)
- ★ Japan Transocean Air (737-400 × 16)
- ★ Ryukyu Air Commuter (DHC-8-100/300 × 5)
- ★ Japan Airlines (above)
about JAL

- **Routes and Flights** (including Code Sharing, as of Apr-01-2012)

<table>
<thead>
<tr>
<th></th>
<th>Passenger Flight</th>
<th>Cargo Flight</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Route</td>
<td>287</td>
<td>2</td>
</tr>
<tr>
<td>Domestic Route</td>
<td>117</td>
<td></td>
</tr>
</tbody>
</table>

![Map of routes and flights](image_url)
about JALEC

- Maintenance Repair Overhauler/MRO established in 2009
- 100% owned subsidiary of JAL
- Approximately 3,000 skilled mechanics to provide JAL safety, comfortable and on-time flights
- Main Facilities in Haneda airport and Narita airport
about JALEC

• Wide range of capability under the certifications of major aviation authorities
  Aircraft Maintenance
    Line Maintenance
    Base Maintenance

Shop Maintenance
  Engine Overhaul
  Landing Gear Overhaul
  Component Maintenance
Human Factors

- Safety Management System
- Safety Culture
- Request for IAQG
Inseparable wheels to the destination

GOOD QUALITY

System  Culture
System - Requirements

• International Civil Aviation Organization requires its member to introduce Safety Management System /SMS, and provides Safety Management Manual /SMM as guidance for implementation.

• JAL and JALEC have introduced SMS accordingly.
Methods to managing safety

Reactive Method | Proactive Method | Predictive Method

Low | Medium | High

Safety Management Level

株式会社 JALエンジニアリング
JAL Engineering Co.,Ltd.
Hiyari-Hatto (Incident) Reporting System

1 Major Accident
29 Minor Accident
300 Incident (near miss)
Operation Monitoring System

1 Major Accident
29 Minor Accident
300 Incident (near miss)
Unsafe Condition/Act

株式会社 JALエンジニアリング
JAL Engineering Co., Ltd.
Safety Culture Maturity Model

Pathological:
- Who cares as long as we’re not caught

Reactive:
- Safety is important, we do a lot every time we have an accident

Calculative:
- We have the systems in place to manage all hazards

Proactive:
- We work on the problems that we still find

Generative:
- Safety is how we do business round here

Increasing informedness
Increasing trust

Safety Culture Model of Hudson
Safety Culture

• Increasing Trust
  ➢ Non-punishment
  ➢ Anonymity
  ➢ On-site activists
  ➢ Feedback

• Increasing Informedness
  ➢ Training
    - SMS Acknowledge
    - Human Resource Management
Request for IAQG

We expect IAQG member to help us reduce human errors which occur in L-H and L-S interfaces.

Typical contributing factors

- Central Liveware: knowledge, attitudes, cultures
- Hardware: aircraft, equipment, tools
- Software: manuals, procedures, rules, training
- Environment: temperature, vibration, noise
- Liveware: teamwork, communication, leadership
Thank you for your kind attention.
See you on JAL aircraft next time!