FY2013 Maintenance Cost Preliminary Analysis

Based on MCTF Data from 48 airlines
World Fleet (FY2013)

By Aircraft Type
- WB 20%
- NB 56%
- RJ 16%
- TP 8%

By Region
- North America 32%
- Europe 26%
- Pacific Rim 24%
- South America 7%
- Middle East 5%
- Africa 4%
- Asia 2%

Total World Fleet: 23,731 A/C

Source: ACAS 3.0 - June 2014
MCTF Data Collection (FY2013)

- 50 airlines submitted FY2013 data
  - 2 airlines could not be included due to incomplete data or tardiness

- 48 airlines included in this preliminary analysis
  - 40 airlines participated for 2 consecutive years
  - 31 for 3 consecutive years
  - 26 for 4 consecutive years
  - 21 for 5 consecutive years
MCTF Airlines – Summary (FY2013)

- 48 participating airlines
  - 12 airlines operate both pax and freighter aircraft
  - 2 airlines operate freighters only

- MCTF airlines by Region

N. Asia includes China
MCTF Airlines by Region

- **Americas**
  - AL: 8
  - AC: 1,364
  - Age: 8.8
  - Util.: 8.8

- **Europe**
  - AL: 17
  - AC: 712
  - Age: 8.9
  - Util.: 8.8

- **MENA**
  - AL: 6
  - AC: 434
  - Age: 6.9
  - Util.: 10.2

- **N. Asia**
  - AL: 9
  - AC: 895
  - Age: 9.7
  - Util.: 8.6

- **ASPAC**
  - AL: 5
  - AC: 346
  - Age: 8.2
  - Util.: 9.0

**Legend:**
- **AL** = # of Airlines
- **AC** = # of Aircraft
- **Age** = Average Fleet Age (years)
- **Util.** = Daily Utilisation (hours)
MCTF Fleet – Summary (FY2013)

- 3,779 total A/C count >> 16% of world fleet*
  - Large Fleet: (over 75 aircraft): 16 airlines (vs 14 in FY2012)
  - Medium Fleet (31-75 aircraft): 16 airlines (vs 18)
  - Small Fleet (up to 30 aircraft): 16 airlines (vs 14)

- Aircraft data
  - Average Fleet Age: 10.9 years (vs 10.8 in FY2012)
  - Average Daily Utilization: 8.94 hours (vs 8.92)

*Source: ACAS 3.0 – June 2014
MCTF Fleet Count (FY2013)

accessible By A/C Category

accessible By Manufacturer

Boeing includes MDD
MCTF A/C Families (FY2013)

Top 10: 3,255 A/C; 86% of MCTF fleet
Daily Utilization & Average Fleet Age

♀ By A/C Category

♀ By Manufacturer
Direct Maintenance Costs (FY2013)

- **DMC (Line/Base/Component/Engine) spend (USD):** $13.1B (vs 13.93B in FY2012)
  - Overhead (35 reported, 73% of MCTF airlines): $2.57B (vs $3.17B)

- **Average Unit Costs**
  - Average Cost per Flight Hour*: $1,063
  - Average Cost per Departure*: $2,562
  - Average Cost per Aircraft*: $3.5M/AC

* Direct cost only, excluding Overhead
Direct Maintenance Costs by Segments

Total FY2013 - 48 Airlines: $13.1 B
Direct Maintenance Costs by Segments

FY2013 Maintenance Cost Preliminary Analysis

10 September 2014
Direct Maintenance Costs by Elements

Total FY2013 - 48 Airlines: $13.1 B
Direct Maintenance Costs by Elements

Outsourced$/FH  Material$/FH  Labor$/FH
Total Spares & Inventory

35 airlines reported $11.1 Billion for Spares & Inventory

Avg.: $318M per Airline
Direct Mtce Unit Cost by A/C Family

- 13 A/C Families with at least 5 A/C and operated by more than 3 airlines

Total 3,313 A/C, 88% of MCTF fleet
Avg Age, Daily Utilization and FH/FC

13 A/C Families with at least 5 A/C and operated by more than 3 airlines
34 airlines (71%) reported Overhead (OH) data for FY2013
OH ranged from 2% to 55% of Tech. Division costs (direct mtce + OH)
39 airlines (81%) reported aircraft under operating lease:

- 8 lease their entire fleet (17%)
- 9 own their entire fleet (19%)

1,038 A/C are under operating lease, 27.5% of total MCTF fleet.
Aircraft Under Operating Lease

% of Leased Aircraft by Region

<table>
<thead>
<tr>
<th>Region</th>
<th>Airline Count</th>
<th>Aircraft Count</th>
<th>Aircraft under Ops Lease</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>3</td>
<td>26</td>
<td>21</td>
<td>81%</td>
</tr>
<tr>
<td>Americas</td>
<td>6</td>
<td>764</td>
<td>230</td>
<td>30%</td>
</tr>
<tr>
<td>ASPAC</td>
<td>6</td>
<td>454</td>
<td>211</td>
<td>47%</td>
</tr>
<tr>
<td>Europe</td>
<td>14</td>
<td>617</td>
<td>323</td>
<td>52%</td>
</tr>
<tr>
<td>MENA</td>
<td>5</td>
<td>302</td>
<td>175</td>
<td>58%</td>
</tr>
<tr>
<td>N. Asia</td>
<td>5</td>
<td>182</td>
<td>77</td>
<td>42%</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>2,346</td>
<td>1,038</td>
<td>44%</td>
</tr>
</tbody>
</table>

% of Leased Aircraft by A/C Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Airline Count</th>
<th>Aircraft Count</th>
<th>Aircraft under Ops Lease</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB</td>
<td>33</td>
<td>1,330</td>
<td>538</td>
<td>40%</td>
</tr>
<tr>
<td>RJ</td>
<td>6</td>
<td>128</td>
<td>63</td>
<td>49%</td>
</tr>
<tr>
<td>TP</td>
<td>8</td>
<td>114</td>
<td>98</td>
<td>86%</td>
</tr>
<tr>
<td>WB2</td>
<td>23</td>
<td>591</td>
<td>263</td>
<td>44%</td>
</tr>
<tr>
<td>WB3+</td>
<td>11</td>
<td>184</td>
<td>76</td>
<td>41%</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>2,346</td>
<td>1,038</td>
<td>44%</td>
</tr>
</tbody>
</table>

FY2013 Maintenance Cost Preliminary Analysis
Maintenance Reserves

- Total MR reported: $388 Mill.
Trends (2010-2013) – 26 Airlines

- Fleet Size: +26%
- Average Fleet Age: +26%
- Direct Maintenance Cost: +32%
Trends (2010-2013) – 26 Airlines
Trends (2010-2013) – 26 Airlines

Direct Maintenance Cost per FH
- Year 2010: $1,032
- Year 2011: $1,049
- Year 2012: $1,079
- Year 2013: $1,067

Change: +3.4%

Direct Maintenance Cost per FC
- Year 2010: $2,486
- Year 2011: $2,544
- Year 2012: $2,664
- Year 2013: $2,652

Change: +6.7%

Direct Maintenance Cost per A/C
- Year 2010: $3.37M
- Year 2011: $3.39M
- Year 2012: $3.52M
- Year 2013: $3.55M

Change: +5.3%
Direct Maintenance Cost Breakdown (2010-2013)

 Midlands

 By Cost Segments

<table>
<thead>
<tr>
<th>Year</th>
<th>Engine$/FH</th>
<th>Airframe $/FH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$187</td>
<td>$184</td>
</tr>
<tr>
<td>2011</td>
<td>$212</td>
<td>$192</td>
</tr>
<tr>
<td>2012</td>
<td>$214</td>
<td>$169</td>
</tr>
<tr>
<td>2013</td>
<td>$205</td>
<td>$158</td>
</tr>
</tbody>
</table>

 By Cost Elements

<table>
<thead>
<tr>
<th>Year</th>
<th>Outsourced $/FH</th>
<th>Material $/FH</th>
<th>Labor $/FH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$207</td>
<td>$216</td>
<td>$227</td>
</tr>
<tr>
<td>2011</td>
<td>$184</td>
<td>$214</td>
<td>$204</td>
</tr>
<tr>
<td>2012</td>
<td>$210</td>
<td>$206</td>
<td>$210</td>
</tr>
<tr>
<td>2013</td>
<td>$196</td>
<td>$197</td>
<td>$197</td>
</tr>
</tbody>
</table>
Next Steps

- More airline participation: sky is the limit!
- The bigger the sample, the better the stats

Airline participation chart: 2007-2014

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10 September 2014
Next Steps

- More airline participation: sky is the limit!
  - The bigger the sample, the better the stats

- Better data quality and depth: win-win situation
  - Ensure data check before submission ⇒ use built-in tools
  - Respect timeline ⇒ less time to validate, more time to analyze

- 4 different MCTF Reports to meet your airline’s needs
4 MCTF Reports to Meet Your Needs

- **Annual Executive Commentary**
  - Free download from MCTF webpage: [www.iata.org/mctf](http://www.iata.org/mctf)

- **Maintenance Cost Report**
  - Define your own queries, export your own graphs

- **Maintenance KPIs by aircraft family/version**
  - Main KPIs for specific aircraft: Mtce $/FH, $/FC, $/AC, inventory level

- **Customized Reports**
  - Personalized analysis
  - For MCTF airlines that reported data for at least 3 consecutive years, free of charge
Any questions?

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More information on MCTF?

- Visit www.iata.org/mctf
- Contact mctf@iata.org