Aerospace Business Operation

June 4, 2009

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2. Key Strategies for the Major Aerospace Business Areas

3. Key Initiatives of the Major Aerospace Business Areas
   • Defense
   • Commercial
   • Space

4. Summary
Aerospace, today a growth area, is poised to become a strong earnings generator.

**FY2008 Overview (vs. FY2007)**
- Sales up ¥11.7 billion
- Income down ¥24.9 billion
* Factors:
  - The appreciation of the yen
  - Accounting standards for measurement of inventories

**FY2009 Outlook (vs. FY2008)**
- Income up ¥4.3 billion
* Factors:
  - Bolstering earning capabilities
     - Improvement in productivity (lean activities, etc.)
  - Production system innovations (standardization, etc.)
1. Current Position of the Aerospace Business (2)

Current Position of Major Business Areas

**Defense**
- Mainstay business of Aerospace Division
- Market outlook: Steady performance or gradual downtrend
- 60% share

**Commercial**
- Slump in orders amid global economic doldrums
- Market outlook: Long-range expansion
- 30% share

**Space**
- Key business based on strength in advanced technology
- Response to Basic Space Law, Strategic Headquarters for Space Policy
- 10% share
Aerospace Headquarters

2. Key Strategies for the Major Aerospace Business Areas

- BMD
- Future Combat Aircraft

Defense

- BMD: Ballistic Missile Defense

Commercial
- Composite Wing Box
- MRJ

Space
- H-ⅡA
- HTV/H-ⅡB
3. Key Initiatives of the Major Aerospace Business Areas - Defense

Defense

■ BMD

- Sustained BMD business involving PAC-3 and Config.3, etc.
- U.S.-Japan Co-Development of Next Generation Program.

BMD: Ballistic Missile Defense

■ Future Combat Aircraft

- Promote future combat aircraft business.

- Defense

BMD (PAC-3) Operations support

BMD: Ballistic Missile Defense

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

Defense

The F-4 Fighter
Model selected in 1966

In service for over 40 years

F-4EJ

The successor to the F-4 Fighter

Expectation for early model selection
3. Key Initiatives of the Major Aerospace Business Areas – Commercial Aircraft

The Boeing 787
- Focus on critical subsystem: composite wing box production

MRJ
- Promote with the establishment of a new company
  → Establish a position as a manufacturer capable to complete commercial aircraft
3. Key Initiatives of the Major Aerospace Business Areas – Commercial Aircraft: 787

- Producing composite wing box for the Boeing 787
  - Since May 2007, shipments have been completed for 9 aircraft.

◆ Boeing 787 development schedule

Plan announcement ▼| ATO ▼| Official launch ▼
---|---|---
2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009~

Design | Basic design | Detailed design/Prototype manufacture | Flight testing | Manufacture Support

#1 (May)
3. Key Initiatives of the Major Aerospace Business Areas – Commercial Aircraft: MRJ (1)

MRJ (Mitsubishi Regional Jet): First flight in 2011; entry into service in 2013

- Low noise
- Low CO₂ emissions
- Low fuel consumption

Airlines are showing strong interest

Airline Advisory Group meeting
(March 26-27, 2009)
3. Key Initiatives of the Major Aerospace Business Areas – Commercial Aircraft: MRJ (2)

**MRJ (Mitsubishi Regional Jet):**
Detailed design & preliminary testing are now under way

- Structural design of MRJ (example)
- Preliminary testing of emergency disembarkation

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<tr>
<th>~2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tr>
<td>▼ATO</td>
<td>▼Official launch (March 28)</td>
<td>▼Full-scale operation by establishing operation company (April 1)</td>
<td>\begin{itemize} \item \textbf{First Flight} \item Aircraft delivery \end{itemize}</td>
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<td>Conceptual design</td>
<td>Joint conceptual design</td>
<td>Joint detail design</td>
<td>Manufacturing design</td>
<td>Aircraft manufacture</td>
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**MRJ development schedule**
3. Key Initiatives of the Major Aerospace Business Areas – Space

■ H-IIA Launch Services
  - Securing several launches through commercial satellite orders
  ⇒ Establish a stable operating base
  ⇒ Maintain high launch success rates

■ HTV/H-ⅡB
  - Materials transport for the International Space Station
  ⇒ Expand scope of operations with the completion of development

■ Propose new projects associated with the enactment of the Basic Space Law
3. Key Initiatives of the Major Aerospace Business Areas – Space: H-IIA Launch Services

Launch services started in 2007

Successful launch of H-IIA #15

- #13 “KAGUYA”:
  (September 14, 2007)
- #14 “KIZUNA”:
  (February 23, 2008)
- #15 “IBUKI”
  (January 23, 2009)

World-class launch success rate: 93.3%
(H-II A Only)

First overseas order
Multipurpose satellite of Korea Aerospace Research Institute (KARI)

Expansion of market for launch service business

**HTV**
- Launch slated for Sept 2009
- 9.2m tall

**H-II B**
- Uses two LE-7A engines
- H-IIB’s first-stage tank combustion test was carried out successfully (April 22, 2009)
- 4.4m tall

Photo: JAXA
4. Summary

- Aerospace business, an important growth area, is poised to become a strong earnings generator.

**Present**
- Undergoing medium/long-term strategic investment
- Business structure being strengthened through manufacturing improvements and production system innovation activities

**Future**
- Highly profitable business area