General Machinery & Special Vehicles
Business Operation

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   - Special Vehicle Division
1. Business Outline

Intelligent Technology for Vehicles & Energies
– Contributing to social infrastructure development and the environment/energy sectors

Main Products

<table>
<thead>
<tr>
<th>Turbochargers</th>
<th>Forklift Trucks (Material Handling Equipment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>For diesel vehicles</td>
<td>Internal combustion trucks</td>
</tr>
<tr>
<td>For gasoline vehicles</td>
<td>Electric trucks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engines</th>
<th>Special Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIKI (Light-weight) 1 to 10 kW</td>
<td>Type 10 tank (Experimental vehicle)</td>
</tr>
<tr>
<td>Diesel engines ~3,800 kW</td>
<td></td>
</tr>
</tbody>
</table>

Breakdown of sales for FY2010

- Turbochargers: 14%
- Engines & Equipment: 28%
- Forklift Trucks Material Handling Equipment: 30%
- Consolidated Net Sales: 343 billion yen
- Others: 17%
- Special Vehicles: 11%

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1. Business Outline - Business Standing -

Consolidated net sales • Operating profit/loss

(billion yen)

- Turbo-charger
- Engines
- Forklifts
- Material handling equipment
- Special vehicles
- Other
- Net sales

---|---|---|---|---|---|---|---|---|---|---|---|---
285.2 | 308.3 | 363.0 | 393.2 | 431.1 | 474.4 | 432.7 | 286.8 | 343.0 | 360.0 | 450.0 | 520.0

Operating P/L

-1.3
-16.6
-23.2

Return to black is imperative

3 consecutive years in red

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1. Business Model Turnaround

Business structure reforms

1. Thoroughly investigate customer needs

2. Top in the world for performance and quality

3. Global network (Production/service)

2. Business Revival

Corporate culture reforms

1. Sense of urgency

2. Customer viewpoint

3. Speed

Tactics for RE-BIRTH 11
2-(2) Business Model Turnaround

Thoroughly investigate customer needs

- Product planning that sells well
- Narrow down to strong-selling product lines

Top in the world for performance and quality

- Speed up development
- Swift response to switch to electric (lithium-ion batteries)

Global network (Production/service)

- Accelerate and intensify shift to overseas production
- Enhance functionality at overseas plants
- Full-fledged entry into service business

Reform the business structure to turn around the business model!
2-(3) Reasons for Business Slump

Defeating the Big Company Syndrome

- Lack pursuit of profit
- No ability to get things done
- Product development for own satisfaction
  (Unconvincing pursuit of customer values)
- No direct communication with customers
- Spending time on internal adjustments
  (No delegation of authority)
- Development is slow

Business revival through corporate culture reforms!
Shift to 4-division system as of April 1, 2011. Centralize management responsibility and authority for each business Division including Group Companies; speed up decision-making and implementation
Armed with performance and quality recognized worldwide, aim for top market share (by FY2016)

### Policy

**Porsche Panamera**
- 550 HP V8- 4.8ℓ gasoline engine

**BMW X1, X3 / 1, 3, 5 series**
- 240 HP L4- 2.0ℓ gasoline engine

### Downsize engines to improve fuel consumption effect

<table>
<thead>
<tr>
<th>Engine Type</th>
<th>Horsepower</th>
<th>Fuel Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2.0ℓ unsupercharged&gt;</td>
<td>160 HP</td>
<td></td>
</tr>
<tr>
<td>&lt;1.6ℓ + turbo-charged&gt;</td>
<td>160 HP</td>
<td>3% improvement (compared to 2.0ℓ unsupercharged)</td>
</tr>
<tr>
<td>&lt;1.2ℓ + electric turbo&gt;</td>
<td>160 HP</td>
<td>8% improvement (compared to 2.0ℓ unsupercharged)</td>
</tr>
</tbody>
</table>

### Market Environment

- **For diesel engines:** Demand is rising in Europe with stronger emission controls and orientation toward low fuel consumption
- **For gasoline engines:** Installation rates are increasing with rise in environmental awareness in Japan, North America, Asia

### Sales volume / share trend (Passenger vehicles)

- **2003-2016**
  - Asia: MHI share 23%
  - North America: MHI share 16%
  - Europe: MHI share 17%

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2-(5) Turbocharger Division

**Development / Orders strategy**

**Europe: Expand market share**
- Customer-oriented support: Increase permanent engineers
- Swift response to application design
- Use Group companies in India, Philippines
- Reinforce test & inspection facilities at European facilities (*MEE)

*MEE: MHI Equipment Europe (Netherlands)*

**China: Expand new orders**
- Leverage partnership with China’s largest automobile maker (Shanghai Automotive Industry Corporation)

**N. America: Full-fledged entry into US market**
- Consider local production tailored to customer demand

**Capture service business**

**Increase profitability and make full-scale entry into the automotive after market**

**PRESENT**

**STEP1**

*Direct sales to garages*

**STEP2**

Direct sales to end user

*Garage: Automotive service & remodel business

The figures indicate selling price when the user price is 100.

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Tactics for RE-BIRTH 11

2-(6) Engine Division

**Policy**
Change into highly profitable structure with consistent selection and concentration

**Market Environment**

**Small-sized engine**
Promising orders for equipping construction machinery for China

**Medium/ large-sized engines**
Promising orders for generator sets because of power shortages due to economic development in China and Indonesia, and the Great East Japan Earthquake

**Sales volume/Share trend (Medium/large-sized engines)**

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1. **Consolidate models**  
   (Aim to reduce by half)  
   *Narrow down to models with strong points*  
   - From emergency use to daily use  
   - From diesel to natural gas

2. **Expand service business**  
   - Customer retention with long-term maintenance contracts  
   - Expand service points (establish/acquire)

3. **Development**  
   - Enhance development for the next step in emission regulations (Tier 4)  
   - Development to achieve world’s lowest fuel consumption

### Responses to rolling blackouts and power shortages

<table>
<thead>
<tr>
<th>Model</th>
<th>2010 all year (Delivery record)</th>
<th>May 2011 (Orders / No. of enquiries)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gas cylinder generator 900 W</strong></td>
<td>1,398</td>
<td>4,465</td>
</tr>
<tr>
<td><strong>Portable diesel generator 16~700 kW</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gas engine cogeneration systems 210~1,000 kW</strong></td>
<td>43</td>
<td>216</td>
</tr>
<tr>
<td><strong>Diesel generators ~3,800 kW</strong></td>
<td>9</td>
<td>129</td>
</tr>
</tbody>
</table>
Policy

Promote switch to electric, strengthen global collaborative structure and service business
Build solid structure globally

Market Environment

Internal combustion trucks: A major market shift from US and Europe to emerging countries

Electric trucks: In Europe where we have more than 50% of the market, demand will rise with the increase in volumes of commodity distribution in the future

Sales volume / Share trend

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Reform business model

Switch to electric

- Install high-capacity MHI lithium-ion batteries
- Focus European business on *Rocla, a maker of indoor materials handling equipment

Global collaborative structure

- Expand product lineup
- Enhance cost competitiveness by sharing production with collaborating partners

Full-scale advance on service business

- Develop strengths of North American service business (*RPI) on a global scale
- Expand points of contact with customers by developing direct sales model

* RPI: Rapidparts Inc. (United States) • • • A company selling and servicing parts for forklifts
* Rocla (Finland) • • • A European manufacturer of indoor materials handling equipment acquired in 2008
2-(8) Special Vehicle Division

Policy

Expand business domain (develop disaster response vehicles in addition to defense vehicles)

Special vehicle lineup

Market Environment

1. Defense products
   With national defense budgets under constraint, respond to diversifying defense needs

2. Motor graders
   Demand in emerging markets is increasing with intensifying improvements to infrastructure

3. Special vehicles for disaster response
   Supply radiation shielded control rooms in response to accident at Fukushima Daiichi nuclear plant

Exclusive response system with special vehicles for disaster response

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**Expand business domain to special vehicles for emergency response**

- **Apply special vehicles technologies**
  - Technologies for special environments
  - Heavy plate welding technologies

- **Apply nuclear technologies**
  - Radiation shield technologies

**Radiation shielded models**

- Forklift trucks
- Hydraulic excavators
- Containers for residential use

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Summary

Implement tactics for RE-BIRTH 11

- Reform business structure to turn around the business model
- Business revival through reforms of corporate culture
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