Initiatives for Strengthening Competitiveness for Sustainable Growth

October 31, 2018

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Business Environment and Direction of Initiatives

Automotive Industry

Time of major changes once in 100 years

<table>
<thead>
<tr>
<th>Environmental regulations</th>
<th>Technological innovation</th>
<th>Change in users’ needs and values</th>
</tr>
</thead>
</table>

Direction of initiatives

I Electrification

(1) Improving lineup of electrified products
(2) Establishment of joint venture
(Electric Driving module /Integrated ECU)

- Vehicle Dynamics Control
- Automated Valet Parking, Driver Monitoring System

II Automated driving

- Hospitality Services (Example: Smart Door Safety Function)
- Local Contribution Measures (Example: Shared transportation service)

III Reinforcing foundation

(3) Business structural change

Explained today
Electrification

(1) Improving lineup of electrified products

Forecast of Global Market Trend of Powertrain

<table>
<thead>
<tr>
<th>Pattern 1</th>
<th>Pattern 2</th>
<th>Pattern 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Ratio of EVs in 2030: 10%)</td>
<td>(Ratio of EVs in 2030: 20%)</td>
<td>(Ratio of EVs in 2030: 30%)</td>
</tr>
</tbody>
</table>

| (10 million units) | (10 million units) | (10 million units) |

- **'17 '20 '25 '30** (FY)

<table>
<thead>
<tr>
<th>eAxle / 2-motor HY</th>
<th>10% BEV/FCEV</th>
<th>Strong HEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild HEV</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>AT/CVT</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>DCT</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>MT</td>
<td>10%</td>
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</table>

Market for the Automatic Transmission-based powertrains does not change drastically regardless of the changes in the ratio of EVs in 2030.
Electrification

(1) Improving lineup of electrified products

We will advance product development omnidirectionally by utilizing the technological bases which were developed for Automatic Transmission and the 2-motor Hybrid transmission.

<table>
<thead>
<tr>
<th>Market</th>
<th>Product lineup</th>
<th>Status of development</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEV•FCEV</td>
<td>eAxle</td>
<td>Being developed</td>
</tr>
<tr>
<td>PHEV•HEV</td>
<td>eAxle</td>
<td>Being mass produced / Being developed</td>
</tr>
<tr>
<td>Strong HEV</td>
<td>2-Motor Hybrid</td>
<td>Being mass produced</td>
</tr>
<tr>
<td></td>
<td>Transmission</td>
<td></td>
</tr>
<tr>
<td>Mild HEV</td>
<td>1-Motor Hybrid</td>
<td>Start of mass production is slated from Jan. 2019</td>
</tr>
<tr>
<td></td>
<td>Transmission</td>
<td></td>
</tr>
<tr>
<td>Gasoline-powered vehicle, etc.</td>
<td>AT</td>
<td>Being considered</td>
</tr>
</tbody>
</table>
(1) Improving lineup of electrified products

We will provide the products for major four fields for electrification of vehicles.

1. Electric driving module
2. Electric pumps
3. Cooperative regenerative brake system
4. Lightweighting
Electrification

(1) Improving lineup of electrified products

1. Electric driving module

1-Motor Hybrid Transmission

Mounted on Groupe PSA’s DS7 CROSSBACK (PHEV model)

Paris Motor Show

(Press conference at Paris Motor Show) (Aisin Group’s booth)
By combining motors, gearboxes, and power control units (PCUs), we will promote development of the products that can be used for various vehicle types from cars to buses and trucks.
(1) Improving lineup of electrified products

**1. Electric driving module**

**eAxle**

By combining motors, gearboxes, and power control units (PCUs), we will promote development of the products that can be used for various vehicle types from cars to buses and trucks.
1. Electrification

(1) Improving lineup of electrified products

2. Electric pumps
   • Cooling/Lubricating motors, PCUs and batteries

3. Cooperative regenerative brake system
   • Preparing two types to respond to different vehicle types and needs

4. Lightweighting
   • Rough shape materials and chemical products for high strength and lightweighting
     → Reducing vehicles’ energy consumption
(2) Establishment of joint venture

1) Overview of the joint venture for development and sales of driving modules

- **Joint venture for development and sales of driving modules**
  - **Invested shares**
    - **AISIN**: 50%
    - **DENSO**: 50%
  - Production subcontracting
  - Supply of components
  - Powertrain specification
  - Sales of driving modules

2) Overview of the joint venture for development of integrated ECU software

- **Joint venture for development of integrated ECU software**
  - **Invested shares**
    - **DENSO**: 65%
    - **AISIN**: 25%
    - **ADVICS**: 5%
    - **JTEKT**: 5%
  - Consignment of development of integrated ECU software
  - Supply of integrated ECU software
  - Specification of systems for automated driving, etc.
  - Systems for automated driving, etc.
We will implement business reorganization steadily.
Business integration of AISIN AW and AISIN AI in April 2019

Reinforcing preparations for electrification by optimizing resources in the powertrain field

Making the “virtual” company system real and expediting structural change in an integrated manner

- Reorganizing and aggregating MT production
- Changing to production of AT and Hybrid transmission
[Brake business] Improving efficiency of development and production systems and focusing on the growing field

Integrating the drum brake development systems of ADVICS, Hosei Brake, and AH Brake and shifting the streamlined human resources to development of electric parking and control brakes.

AH Brake: Acquired from Nisshinbo Brake in April 2018

Electric parking brake (MOC)
We will achieve further growth by responding securely to the demands for control brakes and electric parking brakes that are expected to grow.

ADVICS Handa Plant is expanded for increase of the control brake production capability.

※Start of operation in the expanded area is slated for Mar. 2019.
※Transfer of production from DENSO is planned to complete before the end of 2020.
(3) Business structural change - Enhancing collaboration and improving efficiency -

**Strengthening the VC system**
(Breaking down the walls of organization)
- Unification of sales activities in China
  (Sale of other products by using the sales routes for AT)
- Aftermarket VC
- Unifying the administration functions into the Group’s head office
- Shifting resources from the unprofitable businesses to the growing businesses
  Taking into consideration the products’ competitiveness, market size, and yieldability

**Scrap & build work with no exceptions**

**Selection from existing products and intensive investment**
- Increasing sales of the power sliding doors
- Intensive investment of resource in the products with the biggest and second biggest market shares

**Improving efficiency of business operations**
- Improving productivity by utilizing the IoT and AI in the production lines
- Increased utilization of RPA in offices and engineering departments
Achieving outstanding quality and productivity and securing customers’ trust

Improving productivity by utilizing the IoT in the production lines

- **Batch monitoring of operations**
  1. Visualization of operational situations
     (No stoppage due to malfunction. No defectives.)

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- **Introduced bases**
  - [Now]
    - 27 bases
    - (14 domestic + 13 overseas bases)
  - [End of FY 2018]
    - 46 bases
    - (14 domestic and 32 overseas bases)
  - [Final goal]
    - 120 bases

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- **Expected effects**
  - 20% increase in output
  - 50% reduction in Discarded defectives
  - 80% reduction in Long-hour stoppage due to malfunction
  - 20% reduction in maintenance and inspection staff

- Domestic and overseas production bases