China Embraces the Future of Remanufacturing

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China Embraces the Future of Remanufacturing

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I. The Evolution of China’s Reman and History Status

Reman Industry Status

- Reman developed from equipment maintenance and surface treatment
- Started late 20 century and be in fast development in 21 century
- Ji’nan Fuqiang Power Co., Ltd., China Heavy-Truck; Shanghai VW and etc.
Ji’Nan FuQiang Power Co., Ltd.

- Formed in 1994
- 1998 in operation
- Moved in new facilities in 2006. Construction are of 35000m², 560 employees, annual capacity 30,000 units of Remanned engines
- Shareholders:
  - Chinese: China Heavy-Truck Co., Ltd. 51%
  - British: R.A. LISTER PETTER, 49%

Shanghai VW Reman Facilities

- A Sino-German JV company formed in March, 1985
- Started to reman engine in 1998
- In line with Germany VW reman standards for engine reman for Santana JV series, AFE electronic jet, AJR electric jet
Reman Technique R&D — Advanced Surface Salvage Technique

- Key National Reman Lab formed
- Breakthrough in surface salvage

Laser Cladding
Nano electro-brush plating
High Speed Arc Spray

Milestones of Reman Development

- In 2000, China Academy Of Engineering -- “Green Reman & Its Prospects in China”
- In 2002, National Natural Science Foundation funded research project “Remanufacturing Fundamental Theory & Key Techniques”
- In 2003, China Academy Of Engineering -- “Scrapped & Used Mechanical-Electrical As Resources”
- In 2005, NDRC -- “The Promotion and Execution of Reman Industry Development”
Milestones of Reman Development

- In 2005, Chinese Academy Of Engineering -- “Establishment of A Conservative Society”
- In 2005, NDRC–Jinan Fuqiang Co.,Ltd. for engine reman
- In 2005, the State Council issued documents to encourage remanufacturing scrapped & used mechanical-electrical equipment
- In 2006, Ministry of Science & Technology -- remanufacturing as one of top 24 technologies to be promoted
- In 2008, NDRC –Pilot Program launched and 14 enterprises were selected

International Cooperation

NDRC Signed MOU with Caterpillar To Promote Reman In China, September 2006
II. Pilot Program Of Automotive Component Remanufacturing

Overview of Pilot Program

- Launched in March 2008
- Draw lessons on used components recovery, remanufacturing and reman components circulation
- 14 enterprises selected
- Products: engine, transmission, steering, generator, start motor
Purpose of Pilot Program

- Lay a good foundation
- Further study on the policy, administration and supervision for automotive components reman
- Policy and regulation update; technical standards, market access criteria and trade supervision system

Principles Of Pilot Program

- **Enterprises**: Automotives and components manufacturers or authorized reman facilities
- **Core Source**: Used automotive components from used cars (not from scrapped cars)
- **Authorization**: Can only remanufacture automotives and components authorized by OEMs
**Principles Of Pilot Program**

- **Circulation in Market**: Reman products to be sold through after-sales channel
- **Quality Standards & Responsibility**: Adopt same standards for reman products as for the new ones
- **Trademark**: OEM trade mark, or together with Reman enterprise trade mark
- **Product Identity**: Label with “Reman”

**Issues Emerged**

- Not enough cores
- **Reman goods** circulation on the market face a challenge
- Tax is too high
- The value of reman goods are not recognized by consumers
Essential to Engine Reman-- Cores

Cores sources ---
• End-users
• Cores vendors
• Overseas

Operation Models

- Owned or authorized by automotive manufacturers (OEMs)
- Self-dependent remanufacturers
- Remanufacturers for small engines

<table>
<thead>
<tr>
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<th>Remanufacturers for OEMs</th>
<th>Self-dependent Remanufacturer</th>
<th>Remanufacturers for Small Engine</th>
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</thead>
<tbody>
<tr>
<td><strong>Cores Source</strong></td>
<td>OEM after-sale service shop</td>
<td>Demolition Depot, after sales, repair</td>
<td>Automotive Repair Shop or End User</td>
</tr>
<tr>
<td><strong>Sales to</strong></td>
<td>OEM accessories network</td>
<td>After sales market or end users</td>
<td>End user</td>
</tr>
<tr>
<td><strong>Production</strong></td>
<td>Limited variety Large quantity</td>
<td>Rich varieties Large quantity</td>
<td>Rich varieties single unit</td>
</tr>
<tr>
<td><strong>Sales Price</strong></td>
<td>60-70% of new</td>
<td>50-60% of new</td>
<td>&lt; 50% of new</td>
</tr>
<tr>
<td><strong>Resources Utilization</strong></td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>
Reman Goods Circulation & Supervision

- Market access for Reman Goods
- Reman Goods Identity
- Computerized Information Management System
- Quality and Technical Standards
- Tax Related

III. Reman Industry’s Prospects in China
Energy Conservation & Emission Reduction in '11-5' Year Plan

Energy Consumption CO\textsubscript{2} COD Emission Per Unit GDP

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<tbody>
<tr>
<td>Tonnage Coal/10,000 Yuan</td>
<td>↓ 20%</td>
<td>↓ 20%</td>
<td>↓ 10%</td>
<td>↓ 10%</td>
<td>↓ 10%</td>
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<tr>
<td>2005</td>
<td>20%</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
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<tr>
<td>2010</td>
<td>20%</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
</tr>
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What Does Remanufacturing Mean for China

Reman is
- A resources conservative advanced manufacturing
- Reusing of used & scrapped products
- Contributing to economy, environment and society

- Reman is encouraged in “11-5” year plan outline
- Chinese top leaders’ support on reman development
Potentiality of Reman Industry

- Annual automotive output - 10 million units. About 64 million cars by the end of 2008
- Large quantity of used mechanical-electrical products

Key Industries for Reman

To Be Improved

- Reman is new to China
- No clear definition for Reman (Reman v.s. Recondition)
- Many administration bodies overlapped
- Consumers’ do not recognize the value of reman goods

What is “Remanufacturing”

- Reman: A process to resume old products to as-new
- Need to have a clear definition
- Reman v.s Recondition
- Reman = Recondition = Low Quality Products
Doubts about Reman

- Reman v.s Recondition
- Reman goods = Reconditioned Goods
- Reman goods = Goods at low price without quality guarantee
- Reman products compete with OEM new products

Suggestions on Further Education

- A clear definition of "reman"
- Education on enterprises/industries
- Education on consumers
- Media campaign
Pilot Program To Be Expanded

- Deepen “Automotive Components Reman Pilot Program”
- Plan to launch reman pilot program in other industries
- Pilot Enterprises for engineering machinery, railway locomotive, machine tool, mining machinery

Reman Industry Development Plan

- Industry Development Plan for automotive components, engineering machinery, railway equipment, machine tool, mining machinery, etc.
- Establish reman base
- Support key reman enterprises
Administrative Policies for Reman

- Same as-new --- Might be more strict at enterprise access threshold.
- **Protect consumers’ rights**
- **IP protection**

Further Study on Reman Administration

- Cores free circulation
  - Mechanism from waste/used goods claim to remanufacturing
  - Cores movement cross borders (encouraged)
  - Reverse logistic system
  - Designing supervision system

- A better tax policy for reman
Legislation for Reman

- Encourage and promote Reman development through legislative efforts
  - Long-term: Sustainable development
  - Reman is a key piece in several Chinese laws and regulations
  - Decree 307 to be revised
  - Regulations of enterprises access to reman business and reman finished goods sales

International Communication, Cooperation & Training

- Investigation and training
- Collaboration with multinational companies
- Credibility
Thank You!!

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Thank You!