Remanufacturing in the Automotive Industry

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Automotive Remanufacturing History

- Remanufacturing is not a new concept in the Automotive industry.
- The process is well established in the USA and many European Countries.
- Remanufacturing is supported by many OE Component manufacturers and Vehicle manufacturers.
- USA Remanufacturing Started in 1940.
- UK Remanufacturing Started in 1940.
- Germany Remanufacturing Started in 1947.
Remanufactured Units Volume

- **1995**: 10,000,000 units
- **2000**: 15,000,000 units
- **2005**: 20,000,000 units
- **2015**: 30,000,000 units

**2005 USA Reman Production**: 60,000,000 units
Environmental Benefits

Worldwide Energy Savings by Remanufacturing

350 Tankers of Crude Oil

Worldwide Material Savings by Remanufacturing:
A Fully Loaded Train
3,000 km/1,600 miles Long

7,000 miles
Components Remanufactured Today

- Alternators
- Drive Shafts
- ABS Units
- Instrument Clusters
- ECU's
- Clutch and Drive Plates
- Brake Callipers
- Mass Air Meters
- Throttle Bodies
- Audio Units
- Turbo Chargers
- Water Pumps
- Power Steering Pumps
- Diesel Injectors
- Distributors
- Navigation Systems
- Gearboxes
- Wiper Motors
- Starter Motors
- Diesel Pumps
- Steering Racks
- AC Compressors
- Engines
- Master Cylinders
Commercial Vehicle Components

- AC Compressors
- Hydraulic Pumps
- Flywheels
- Gearboxes
- Brake valves
- Steering Boxes
- Air Dryers
- Tachographs
- Axles and Differentials
- Engines
- Alternators
- Clutches
- Air Valves
- Air Chambers
- Prop Shafts
- Brake Callipers
- Starter Motors
- Air Compressors
Remanufacturing Process For Automotive Components

Quality Assurance

1. Complete Disassembly of the Product
2. Thorough Cleaning of all Parts
3. Inspection and Sorting of all Parts
4. Reconditioning of Parts and/or Replenishing by new Parts
5. Product Reassembly

Final Testing
Traditional Automotive Remanufacturing

Two Remanufacturing Segments

Mechanical Components

- Starter Motors and Alternators
- Clutches
- Turbo Chargers
- Hydraulic Steering Racks
- Gearboxes
- Engines

Electronic Components

- Electronic Control Units
- Audio Systems
- Instrument Clusters
Changing Product Designs

A Challenge for Automotive Parts Remanufacturers

Electro-mechanical Parts require a combination of existing Mechanical and Electronic Remanufacturing skills.

New Generation of Products

- Turbo Chargers with Electronic waste Gates
- Electronic Power Assisted Steering
- Electronic Diesel Injectors
- Electronic Throttle Bodies
Future Products

Combined Starter Alternator
Hybrid Engines
Electronic Power Assisted Steering
Electronic Brake Calipers
Climate Control Systems
End of Life Vehicles

Approximately 2 Million Vehicles are Scrapped in the UK each Year

European Directive 2000/53/EC

OBJECTIVES

- To reduce or prevent waste from ELV’s
- Increase recycling or other forms of recovery
- Improve the environmental performance of Operators involved in ELV treatment
- Vehicle producers to be responsible for the cost of take back
End of Life Vehicles

Producer Responsibility

- Limit the use of Hazardous substances
- Increase the use of recycled material in vehicle manufacture
- Mark components to aid recycling
- Design vehicles for easy recycling
- Organise ELV car collection systems
- Pay all or significant part of the cost of free take back
- Meet recycling targets
ELV Treatment Facilities
End of Life Vehicles

Used Spare Parts for the Aftermarket

For sale direct to the consumer
- Concerns for Safety critical parts
- Coded Parts

Parts for Remanufacturing
- No Safety Concern
- Ability to de-code and re-code parts
Conclusions

- Automotive remanufacturing is big business and will continue to grow
- Combining mechanical and electronic expertise is essential for the future
- Huge environmental benefits
- Changes in technology will continue to create challenges for Remanufacturers