REMANUFACTURING UPDATE MARCH 2013

RESEARCH & DEVELOPMENT NEWS FROM BAYREUTH

Editorial

Dear Readers,

today, on 1st March, while this our 8th R&D Newsletter goes public, I have the honour to welcome 92 registered guests from the German Remanufacturing Industry participating in a one day VMI - workshop on cleaning technologies - including hands-on experiences with cleaning machinery from leading industrial suppliers on display at my institute. In just a few weeks we are invited to contribute to the next APRA Europe Workshop.

So sincere thanks at this point for all the good partnerships with our Reman Trade Associations!

Rolf Steinhilper

→ ***Rolf Steinhilper***
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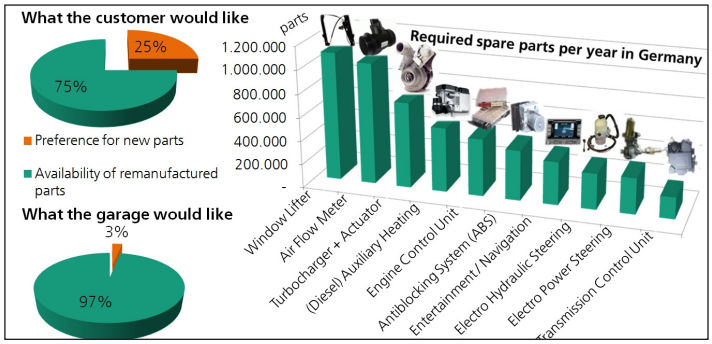
Save the Date

13 - 14/03/2013, Almelo (NL):
APRA Europe Workshop with plant visits
16 - 18/06/2013, Amsterdam (NL):
ReMaTec2013
The international trade fair for Remanufacturing
Visit us at our booth number 11.228!

Use of remanufactured parts in future car service

Automobiles in 2020 will differ radically from today's in some respects. The use of lightweight technologies (e.g. honeycomb design) and lightweight materials as well as the increasing amount of electronics in vehicles are main trends. Also electric vehicles and its related new technologies are still on the rise.
The remanufacturing industry as well as the car work shops are unable to elude these trends. To enable these players to face the new challenges, proper tools and know-how on the new technical service processes and the applied components are needed, in particular on components which are suitable for remanufacturing.
Improving technical car service processes including diagnosis and repair capabilities for electronic components as well as the development of new processes is the main objective of the German research project "Kfz-Service-Engineering 2020" (automotive service engineering 2020). The project´s main phase was launched on 1st August 2012 in Bayreuth, Germany by the Bavarian government. The "Handwerkskammer Oberfranken" (Chamber of Crafts), the Fraunhofer-Project Group Process Innovation and the University of Bayreuth form the project consortium.
Questions like which remanufactured parts are suitable for future service processes and what kind of tools and methods are needed to serve this market will be answered amongst others. A first step in the project was to find out what kind of and in what dimension replacement parts are currently requested from the market at all. The results are shown in the figure below.



Demand of spare parts and remanufactured parts in Germany, 2011

It can be assumed that in 2020 remanufactured components used in future service processes are as important as today. The following service processes are, among others, considered as interesting ones in the near future:

- Repair, maintenance and remanufacturing of battery systems and used spare parts
- Maintenance of lightweight materials, in particular the car body
- Remanufacturing of electronic control units (ECU's) and the use of remote diagnosis
- Retrofitting of diesel powered automobiles to LPG powered ones

Initial results in relation to remanufacturing are presented at the APRA Europe Workshop in Almelo. For more information please visit the APRA Europe web page.

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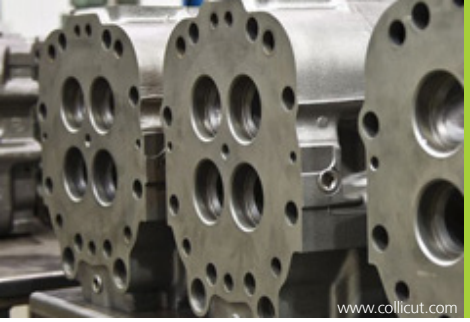

Development of a Methodology for the Ergonomic Assessment in Remanufacturing

Megatrends like globalization 2.0, demografic development and related changes in the work environment are challenging the companies of today and tomorrow.

Besides the competitive markets and the steadily increasing product variety the companies have to cope with elder and often highly stressed labor force.

Under these circumstances topics like sustainable workplace design and its effects on safety and health are becoming more and more important.

Industries which show a high degree of manual labor like remanufacturing have to ensure the lowest possible physical stress for their employees and therefore have a need for ergonomic designed workplaces.

Whilst there are several tools to asses the physical strain in manufacturing processes there is a lack of those tools in remanufacturing. Due to the unique requirements of remanufacturing like high variety, low level of automation and handling of contaminated components the existing tools cannot be applied. Therefore a suitable methodology for the assessment of physical strain in remanufacturing will be developed.

The newly developed methodology will combine and expand proved methodolgies such as the "LMM" tailored to the needs of remanufacturing. Furthermore a tool is programmed to ensure a quick and easy application for the companies.

Based on the results of an ergonomic evaluation and the following risk assessment recommendations for the mostly small and medium sized remanufacturing companies can be derived by the user of the methodology.

In addition to the described method work equipment and handling devices will be designed and optimization measures for organizational aspects such as workflow and employee qualification will be planned.

This will be the last task in the field of remanufacturing for our long-time colleague and expert for factory planning and workstation design in remanufacturing Verena Wiegaertner. She changes her job in April and will then work for a regional automotive supplier named Klubert & Schmidt.

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Cleaning: Follow-up Project eCleanER

The Chair Manufacturing and Remanufacturing Technology was approved a new research project in the field „cleaning in remanufacturing" titled„eCleanER".

Initial searches in the predecessor project CleanER revealed numerous potentials like lack of specifications, non-established analytical methods and improvable process efficiency in the remanufacturing of electronic components, especially in terms of meeting the requirements of technical cleanliness.

Function critical electronic components are cleaned in different cleaning steps like spray or immersion cleaning and mechanical removal of silicone potting compounds and gels. However, there is a high scrap rate and thus low core efficiency which means increased costs for the remanufacturer.

eCleanER aims at developing innovative solutions, new processes and technical services for more efficiency in cleaning of electronic components. Read more about eCleanER in the next newsletter.

eCLEANER
electronic Component Cleaning Engineering for Remanufacturing

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Meet one of our Experts - Today: M.Sc. Hans-Henrik Westermann

Today we would like to introduce M.Sc. Hans-Henrik Westermann to you. Hans has expert knowledge in process optimization as well as production technology (machine tools, reverse engineering).

Hans-Henrik Westermann

Age: 30
Nationality: German

Career: 2000-2005 Precision mechanics in apparatus manufacturing, **2005-2011** Studies and Master-degree in industrial engineering, since **2011** research assistant at Prof. Steinhilper´s Chair Manufacturing & Remanufacturing Technology (Team Technology Management)

What are your activities in remanufacturing research?
Currently I am engaged within the European research project reCORE which deals with complexity management in remanufacturing. Furthermore I work on solutions for the application of reverse engineering processes in remanufacturing using optical metrology and CAD/CAM-technologies.

How did you come to remanufacturing?
I carried out my master thesis at Bosch and spent 6 months at their main plant for starter motors and generators. During that time I learned a lot about remanufacturing of automotive components. After I had finished my thesis I started working at Prof. Steinhilper´s Chair.

What do you do in your free time?
I enjoy hunting, fishing and being outdoors and play the piano for relaxation.

What gives you pleasure?
Be a jack of all trades and doing a good job in business. Gain new insights and engage in lively discussions while meeting friends.

What are your wishes for the reman branch?
That the great idea of remanufacturing will become a matter of course for many more products and companies in future.

Imprint

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