

## **New developments in Liebherr's 'Reman' program**

**March 2014 – At the 2014 Conexpo Con/Agg, Liebherr is presenting an expanded version of its component remanufacturing program (“Reman” for short) that was introduced at Bauma 2013. The program comprises up to three well defined reconditioning levels that offer customers the most suitable solution for every requirement. Depending on machine type, age, residual value and acceptable downtime, it is possible to choose between an as-new exchange component, a general overhaul or a component repair, in all cases at an economical cost and in accordance with the manufacturer’s quality standards. The procedure is coordinated regionally by local Liebherr dealers and service partners.**

### **Remanufacturing makes economical use of resources**

It is more than ten years since Liebherr introduced a component remanufacturing program. The Liebherr Reman Competence Centre in Ettlingen (Germany) reconditions used components from the Group’s construction and material handling machines, mining equipment, mobile cranes and ship cranes. Other versions of the “Reman” program geared to local needs are available at various Liebherr locations throughout the world.

The Reman program currently operating in Ettlingen processes hydraulic cylinders, pumps and motors, travel and slewing gears, rope winches, splitter boxes and axles as well as diesel engines. Compared with the production of new components, there is an average energy saving of 70 % if remanufacturing is chosen, and up to 75 % of the existing material can be re-used. This avoids unnecessary consumption of valuable resources and significantly reduces the environmental impact.

### **Exchange Components**

If the maximum in-depth reconditioning level, namely the “exchange component”, is chosen, the customer returns the used component and is supplied with one that complies with the latest technical standards, has been manufactured to new-product quality standards and carries the same warranty. If a preventive maintenance ordering policy is followed, the machine is out of action for less than 24 hours, since the used

item is not removed until the exchange component arrives. This reconditioning level is recommended if the machine's residual value is still high and whenever machine shutdown would involve very high costs. Customers also receive an attractive compensation for return of the used component. They are informed in advance of the fixed price for the exchange item and the sum credited to them for the returned component, and can thus calculate the cost of maintenance.

After return to Liebherr, the used component is completely dismantled. Wear parts are discarded and those that can be re-used have their paint finish removed and are cleaned and assessed according to strict standards. Machine tolerance measurements and crack testing determine whether the parts are suitable for remanufacturing. If so, they are restored to as-new quality by industrial machining and processing methods. They then undergo final inspection, using the same test procedure as for new components. Every remanufactured exchange component complies with the manufacturer's standards for new parts.

### **General Overhaul**

In contrast to the exchange procedure, a general overhaul is carried out on the actual component returned by the customer. It is stripped down completely and cleaned and all parts subject to wear are replaced, together with any that have been damaged. The component is then re-assembled to the same technical standard as before, repainted, inspected to the manufacturer's original standard and returned with a full warranty.

### **Repair**

If this level of remanufacturing is chosen, the damaged parts in the component are first identified, after which it is repaired, by replacing only those individual parts as necessary. Before return to the customer it is inspected in accordance with the manufacturer's test criteria and a limited warranty on the entire component is issued.

### **New Reman site in Burlington**

Due to increasing sales in the North American market, Liebherr Components decided to establish a regionally located Reman shop at the Liebherr Canada, Ltd. facility in

Burlington, Ontario. Remanufacturing started there at the beginning of 2014. At this year's Conexpo, Liebherr presents a cross-sectional model of a remanufactured V8 diesel engine.

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