

# Fifty Years of Building a Circular Parts Supply Chain

**Circularity does not start in the remanufacturing workshop, but in reverse logistics. After all, without a well-organized return flow of used parts, there is nothing to remanufacture. At DAF, that return chain has formed the foundation of PACCAR Parts' remanufacturing program for more than fifty years, processing hundreds of thousands of components every year.**

"The first step in circularity is not remanufacturing," says Teun Dingen, Program Manager Remanufacturing. "You first have to make sure the parts come back to you."

That may sound obvious, but in practice it requires a carefully organized process. When a dealer replaces a turbocharger, starter motor or gearbox, for example, the old component is immediately registered. During the next delivery run, DAF collects the defective part and takes it back. This marks the start of a second logistics chain, operating alongside the regular distribution network for new parts.



## SLF themes

Although Dingen is not personally involved in the Service Logistics Forum (SLF), remanufacturing aligns perfectly with the themes that have brought together companies, researchers and knowledge institutions through SLF for the past thirty years: reverse logistics, extending product lifecycles, and organizing circular service supply chains. For this reason, PACCAR Parts Europe has been closely involved with SLF for many years.

## Core deposit system

PACCAR Parts uses a core deposit system to encourage dealers to return used components. Dealers pay a deposit when purchasing a part and receive it back once the old component is returned within the specified timeframe and in acceptable condition. "That's the incentive that encourages people to return parts," explains Dingen. "But just as importantly, we make the return process as easy as possible. If customers have to make extra effort or incur additional costs to send parts back, the system simply won't work." The approach has proven highly effective. PACCAR Parts receives approximately 450,000 returned components annually, providing a nearly continuous stream of used parts that can either be remanufactured or recycled.

## More than a repair

A common misconception is that remanufacturing is simply another form of repair. According to Dingen, the difference is fundamental. "With a repair, you only replace the faulty component. In remanufacturing, you repair

or replace the defective element and thoroughly inspect the entire product. Every component is tested against the same technical specifications as a new product. If a part does not meet those standards, it is replaced. In the end, the remanufactured product must offer the same quality and warranty as a new component.”

That quality assurance is precisely what makes the remanufacturing program attractive to transport operators. They receive a component that is technically equivalent to a new one, but at a lower cost. According to Dingen, customers almost always switch to the remanufactured option once it becomes available.

### A logistics challenge

Behind the scenes, remanufacturing is, above all, a logistics challenge. After returned parts arrive, they are inspected, administratively processed and temporarily stored. They are then sent either to an internal remanufacturing facility or to specialized remanufacturing partners. Only after complete disassembly, inspection, replacement of wear parts, reassembly and extensive final testing do they return to the warehouse for redistribution to dealers.

“Retrieving the parts is really only the start of a new cycle,” says Dingen. “After that, the entire process begins again.” This requires a dedicated logistics organization. In the so-called Core Warehouse alone, several dozen employees are involved every day in receiving, inspecting, registering and distributing returned components.

### The business case

While sustainability now plays an important role in the strategy of PACCAR Parts, remanufacturing

was never driven solely by environmental considerations.

The program has existed for more than fifty years and was originally developed because it made economic sense. That remains the case today. Before a component is added to the remanufacturing program, PACCAR Parts evaluates it against three criteria: Is it technically feasible? Is there a sound business case? And is there sufficient market demand?



“If remanufacturing becomes more expensive than producing a new part, that’s where it stops,” says Dingen. “Legislation and regulations certainly provide additional incentives, but ultimately a program must be economically self-sustaining.” According to him, it is precisely this combination of sustainability and economic logic that makes remanufacturing so powerful.

### New technologies, new opportunities

The remanufacturing program continues to evolve. Where mechanical components once dominated, the focus is increasingly shifting toward electronic parts. Circuit boards and electronic control units present significant opportunities, although proving that a remanufactured electronic component is as

reliable as a new one is technically more challenging.

The rise of electric trucks is also expected to further increase the importance of remanufacturing. While electric vehicles contain fewer moving parts, many of their components are considerably more expensive. “That actually creates an attractive business case,” says Dingen. “If such a costly component can be remanufactured, it delivers substantial value for both the customer and the manufacturer.”

According to Dingen, the underlying principle extends well beyond the truck industry. Machinery manufacturers, industrial equipment producers and agricultural machinery suppliers can implement similar systems, provided there is a sufficient circulation of maintenance parts and a viable business case. “If you want to operate in a circular way, don’t start with remanufacturing. Start with a solid return strategy. Without a reliable flow of used parts, you cannot build a circular system.”

Text: Pieter Pulleman

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**Teun Dingen** | Program Manager Remanufacturing  
PACCAR Parts Europe

