

## **REMANUFACTURED product as good as or better than NEW? Are you CRAZY? Maybe not.**

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New products give us a sense that they will always be the better option when compared to a refurbished product - and in many cases this is true. For instance, who would ever say they would prefer the same model used car over a new one? Or choose a retread tire over one straight from the factory? Almost no one. However, the choice can get much grayer when you consider other products like industrial automation.

Let's first define the difference in "refurbishment" types. When it comes to industrial automation products, you have a couple of basic options: **repair or remanufacturing**.

**REPAIR** is generally performed at independent shops by electronic technicians attempting to identify and replace failed components. The components may or may not be OEM approved and many times salvaged from surplus inventory. Once the component replacement is performed, the unit may or may not undergo testing. If the unit does get tested, in most cases it likely tested in a suboptimal fixture not designed or validated by the OEM. Best case testing is generally not full function and/or load tested, worst case is an uncontrolled test which can actually cause further damage to the product. Many times these independent repair shops will not even physically repair product, they merely swap a unit for a similar one from used surplus.

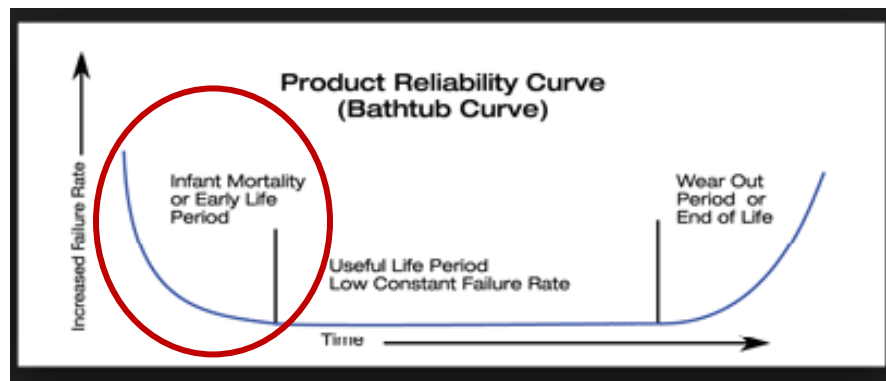
Industrial automation repair is generally performed at a lower price point than remanufacturing, but that price comes with an *increased reliability risk*. This risk is many times masked with an attractive warranty that is easily forgotten and up to the customer to track and process when the unit fails. Unless the repair provider has an association with an OEM or access to OEM methodologies, we would NEVER consider a REPAIRED product as good as, or better than, new.

**REMANUFACTURING** is a process conducted by an OEM, or an OEM authorized service provider. The technicians are certified and have access to proprietary tools, schematics and documented procedures to follow. The remanufacturing process not only replaces what has failed but adds reliability enhancements to extend the life of the product further. These enhancements include proactive component replacement and firmware updates that improve product performance and longevity. Lastly, the remanufactured product is validated by OEM-designed test equipment using ISO procedures ensuring full functionality. The warranty on remanufactured product is generally the same as, if not better than, new product.

### ***When a remanufactured product is almost AS GOOD as new product...***

**Initial Quality** – Believe it or not, remanufactured failure PPMs (parts-per-million) are almost equivalent to those of new product. Since the unit has already been operational for a period of time, the product infant mortality failure mode has already been overcome. The bathtub curve, displayed below, does not

depict the failure rate of a single component but describes the relative failure rate of an entire population of components, that make up the product, over time. Some individual components may fail relatively early (infant mortality failures), others will last until wear-out, and some will fail during the relatively extended period typically called the normal life. Failures in infant mortality are often caused by manufacturing defects: material defects, design issues, errors in assembly, and so on. A remanufactured product has already experienced the initial installation period, so the only potential "infant mortality" risks are the component(s) that were replaced during the remanufacturing process. These risks are further mitigated during post remanufacturing testing. ADVANTAGE: NEW



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**Updates** – A firmware update is a software program used to update the existing firmware in microprocessor-based industrial automation. Firmware updates are used to either enhance a product or fix issues. This software is protected intellectual property (IP) and can only be installed by the authorized service provider. Firmware updates are deployed simultaneously in both the manufacturing and remanufacturing of the product. ADVANTAGE: TIE

### ***When a remanufactured product is AS GOOD AS or BETTER than new product...***

**Longevity** – Over time, OEM service centers will receive product returns for both warranty and post-warranty remanufacturing support. As return volumes grow, failure trends are identified and documented. This valuable information can be leveraged to not only help make the new product better but also to improve the original product during remanufacturing process. In the case of remanufacturing, technician procedures can be modified to include proactive replacement of components that have not yet failed, but have been identified as a potential future failure. Only with a volume of returns and a connection with the product engineering design team can these improvements be identified and implemented. ADVANTAGE: PRODUCT DEPENDENT

**Turnaround Time** – While you may have immediate access to a majority of new product, sometimes a configured or unique model could require a wait. With remanufacturing you may have the option of an equivalent remanufactured unit already available or the ability to have your existing failed unit serviced as a rush item. **ADVANTAGE: PRODUCT DEPENDENT**

### ***When a remanufactured product is BETTER than new product...***

**Reliability Program Data** – If you deploy a reliability program, you understand the critical value of failure data. If a system failure is remediated with a new product replacement, limited reliability data is captured. However, if the failed product is returned to an authorized service provider that service provider can provide failure data, you may then identify the initial cause of the failure and make necessary improvements to your operations. Merely replacing the failed product with a new product does not yield actionable corrections for the future. **ADVANTAGE: REMANUFACTURING**

## **SUMMARY**

When you combine near equivalent Quality PMMs, proactive replacement of components yet to fail, firmware updates and actionable reliability data at a 40 to 50% discount, you have a good argument that remanufacturing is, at minimum, a great value to new and in some cases even better. If you haven't tried it, maybe it is time to see how **REMANUFACTURING** can benefit your organization.



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