Siemens demonstrates predictive maintenance at mock-up depot and support center

Rail vehicles have to prove maximum reliability and availability during daily operation. Every disruption or failure causes delays, loss of revenue, a loss of image and operational bottlenecks. This is why defined punctuality values and availability rates of almost 99 percent are the standard in operator agreements. To fulfill these requirements, there is a need for efficient, sustainable and reliable maintenance of vehicles and permanent-way installations. A specially built ultra-modern and realistically simulated mock-up depot located at outdoor Stand F1/20 at Innotrans 2014, as well as a model Support Center on Stand 203 in Hall 4.2, will be demonstrating how rail systems and railway vehicles can achieve such high availability values with Siemens service.

Reliability through predictive maintenance

The focus will be on the move away from reactive maintenance towards predictive, efficient service provision. There will be a demonstration showing how train status data is sent online, evaluated by diagnostic systems, visualized and translated into defined instructions for workshop personnel. With the aid of such data, pending maintenance work is already defined before the train enters the depot. At the indoor stand, Siemens will show how the information transmitted from rail vehicles, infrastructure and tracks is analyzed at the Siemens support center (Remote Diagnosis Services).

This analysis forms the basis for predictive maintenance. For example, wear and tear can be concluded from the temperature profiles in the drives and the vibrations of a bogie, and it is possible to estimate when a failure can be expected. These components can be preventively replaced and then repaired while the train is in service. Thus, disruptions, failures and prolonged standstill times at the depot can be avoided from the very outset.
Efficiency through IT support

Siemens will demonstrate augmented reality on a real Vectron locomotive front end. For example concealed wiring, components and their arrangement can be displayed on a tablet PC when it is passed over the driver's cab, thus dispensing with the need to remove the paneling. Moreover, the tablet PC can be used to run and test diverse functionalities; for example the "Light on", "Light off" and "Build up brake pressure" functions can be run without the need for the vehicle to be started and powered up.

Sustainability through innovative spare part supply

Also at the depot located on the outdoor stand, Siemens will be showing how various spare parts subject to more demanding requirements can be manufactured using modern production methods, contributing to improved protection against failures. Parts that could formerly only be produced from a number of components, for example for manufacturing reasons, and then glued together, can now be created in one operation and as a single unit. This avoids potential points of fracture. Moreover, even the smallest quantities or custom-made designs can be produced. In this way, even parts that are no longer available on the market can be produced.

Siemens ensures decade-long availability of rail vehicles and railway systems worldwide with efficient, sustainable and reliable service provision. Around 3,000 employees specialize in service for railway operations. They support over 3,500 customers in more than 50 countries.

For further information on this subject see