

Operation internationalization

ALTHOUGH THERE ARE MORE OPPORTUNITIES THAN EVER IN TODAY’S GLOBAL ECONOMY, THERE ARE ALSO COMPLEXITIES THAT NEED TO BE RESOLVED WHEN BRINGING A NEW FORKLIFT TO THE GLOBAL MARKET

▶ In nations or regions where a vehicle manufacturer needs the detailed knowledge and understanding that comes from historical presence and deep local experience, realities such as variable market preferences and changing regulatory requirements can become obstacles.

The case study in this article describes how one large Asian manufacturer of forklift trucks has overcome some key challenges to bring modern electric-powered material handling vehicles to the European market by relying on one of its supply chain partners: Curtis Instruments, of Mount Kisco, New York, USA.

The companies’ partnership is a story of global cooperation and how a large and innovative manufacturer can extend its reach with the help of a company that, despite being much smaller, offers first-hand knowledge and experience in doing business on every continent. This is a story not only of globalization and collaboration between a supplier and a customer, but it is also within Curtis’s own international teams.

Curtis provides this manufacturer with a range of standard and/or customized motor speed controllers, steering controllers, and I/O expansion modules. Of course, each customer case – and indeed, each vehicle produced by any one customer – is different and requires its own solutions and responses. This is how Curtis has worked with one customer to bring a variety of vehicles to world markets.

Asia: The cycle begins

As with most projects for this particular customer, prototyping of the control systems for a range of new electric-powered forklift truck models destined for Europe began at Curtis China, where applications engineering manager Yugin Xue and his team reviewed each truck’s specifications to help the manufacturer’s design team select the Curtis controllers best suited for the project.

This same prototyping procedure is followed for upgrades to existing vehicles. When a specification requires a level of customization that can be accomplished with a modification to a product’s embedded software, the Curtis applications engineers will configure and program a device to meet the vehicle’s operating requirements.



ABOVE: Curtis Instruments wiring systems are tailored to the needs of the vehicle manufacturer

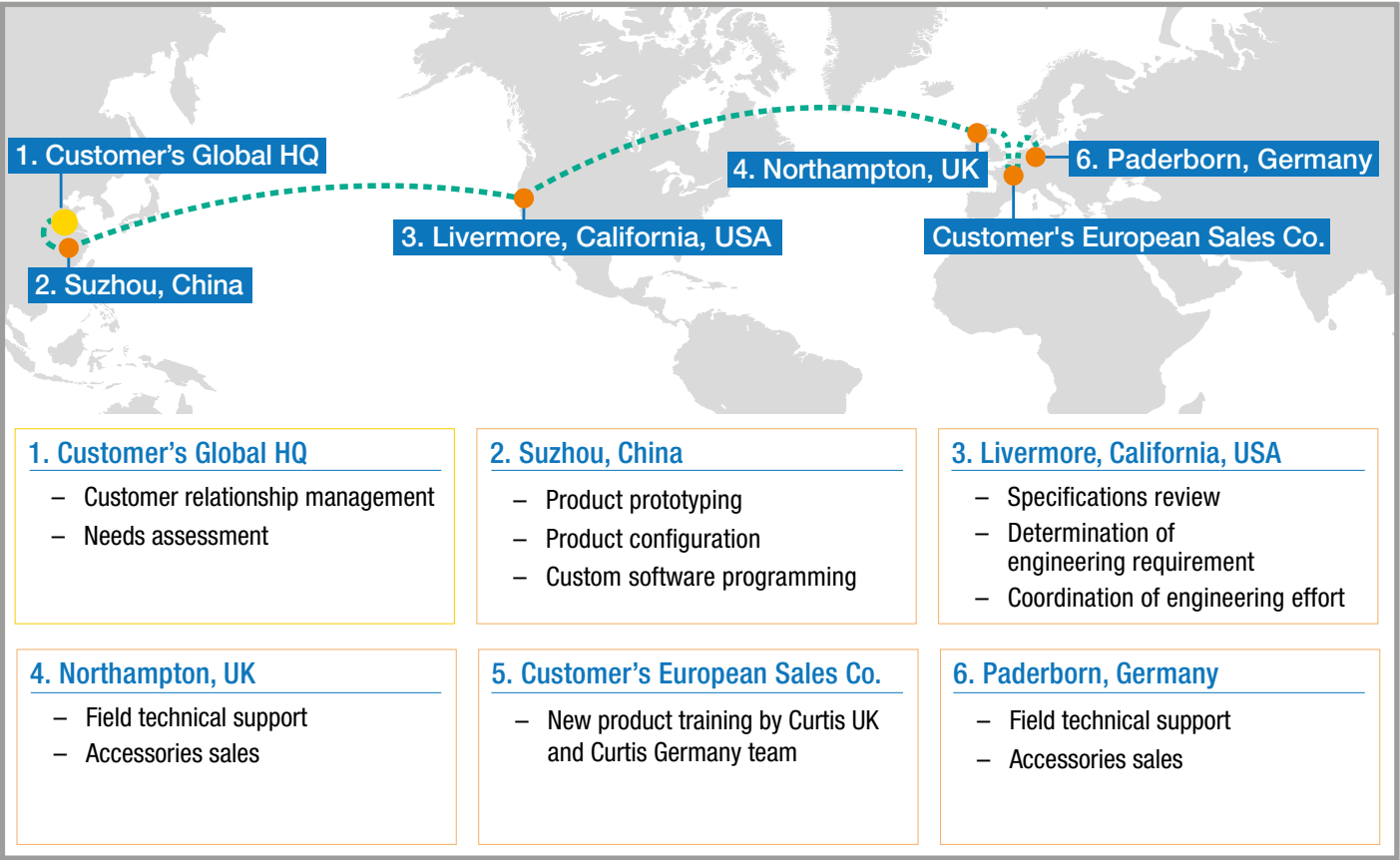
While software modifications alone often met the needs of trucks intended for the Chinese market, as the manufacturer’s horizons became increasingly global, so too did the company’s partnership with Curtis Instruments.

California: New products take shape

Sometimes the performance objectives, features or functions for a new vehicle require more than can be accomplished by simply revising a

controller’s software with the Curtis Vehicle Control Language. This was the case for the new high-end industrial vehicles intended for demanding customers in European markets.

The manufacturer’s requirements traveled half-way around the world to the Curtis R&D center in Livermore, California, the company’s primary motor speed controller development site. Senior project leader Michael Bachman reviewed the new vehicle requirements to determine whether they could



ABOVE: One particular customer’s specifications meant that the Curtis Instruments product travelled to three different continents before it was ready for use

be fulfilled with an existing Curtis Instruments product modified either physically or with a deeper software rewrite, or if the vehicles called for custom development.

For some of the forklift trucks, Curtis California engineers modified the company’s model 1353 I/O expansion module to enable the manufacturer to provide the vehicles with an optional fingertip control system. This is integrated into the driver’s seat armrest, which incorporates all the joysticks and push buttons needed for the load-handling controls. Instead of wiring dozens of analog and digital signals back to a master controller 2m (6.5ft) away, everything connects to the 1353 locally and communicates via CANbus, so only four wires leave the armrest – the two CANbus lines, plus power and ground.

Though not needed in this case, there are other ways the Curtis California team can support this

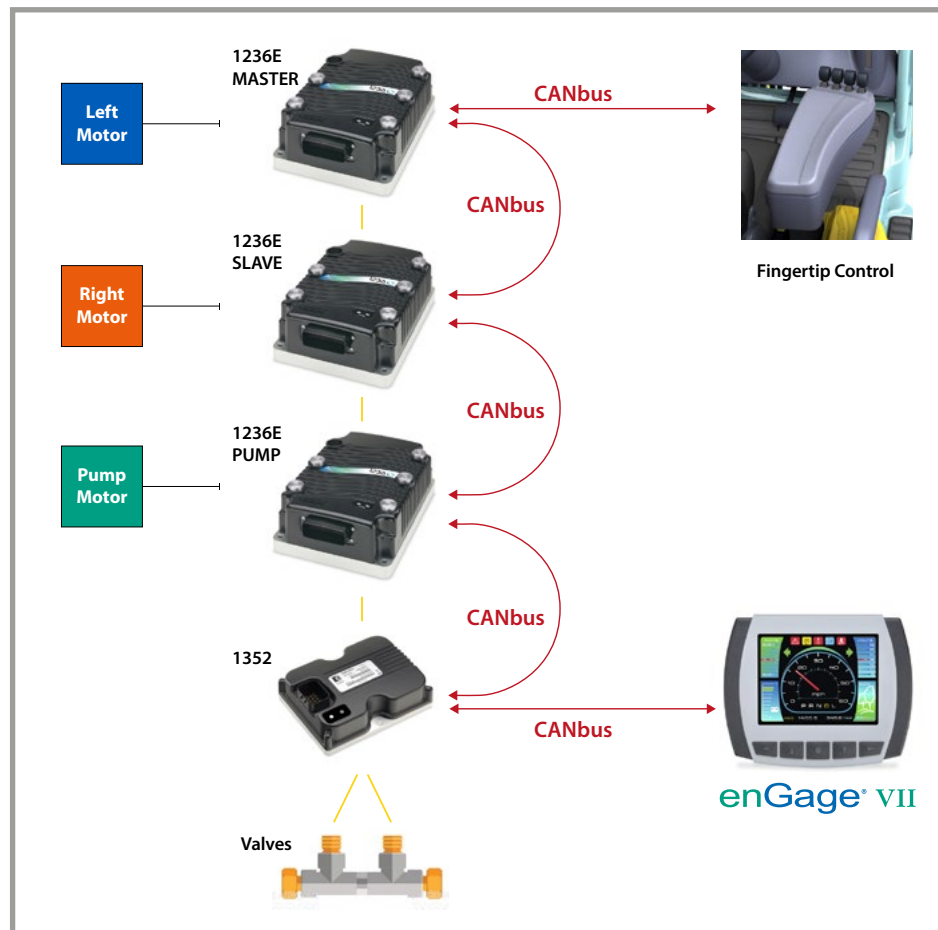
manufacturer. For example, a requirement may arrive at a time when Curtis already has a new product in development that comes very close to meeting the customer’s needs. “If it’s still in alpha or beta phase and we haven’t gone into production with it, we make modifications to that specification right then to accommodate the customer’s needs,” says Bachman. “It doesn’t become a unique product, but we incorporate the customer’s requirements into a new product available to them immediately.”

And that’s just the hardware. The manufacturer also wanted a suite of PC software tools that their field technicians and service engineers could use to configure and troubleshoot the trucks. This requirement lead to a joint effort between software engineers from Curtis Instruments California and Curtis Instruments China to develop a custom software toolset to meet that requirement exactly, delivered on a very tight schedule.

For the new vehicles being designed for European customers, even the most advanced product development was not enough to get them ready for the market.

Europe: New rules, potential roadblock

In this century’s first decade, the European Community’s functional safety standards for electronic control systems were in a state of flux, driven by the new Machinery Directive 2006/42/EC. This culminated in the revised standards EN1175-1:1998+A1:2010 and EN (ISO) 13849-1:2009, which took full effect at the end of 2011. These new functional safety standards ensure that embedded software in control devices, such as those used in forklift trucks, is designed, validated, tested, documented and maintained throughout a product’s life in order to mitigate the risk of physical injury or property damage from an equipment failure.



ABOVE: Product training is provided to explain the workings of components of the wiring system

But as Curtis vice president of product management Mark Ankers says, "The new functional safety requirements were quite different, but Curtis had already updated our products to comply. The customer reached out to Curtis and we provided advice and assistance as needed."

As Ankers explains, the trucks were nearing completion and about to transition from prototype to production when the manufacturer began to ask about the conformance and compliance requirements to legally put them on the market in Europe. "I had direct dialog with the team in Asia, answering their questions about what the functional safety standards actually meant for them, how our products comply and how best to configure them to make sure there would be no problems. They were on the right track, but wanted some reassurance and confirmation as to the best approach."

In addition, Curtis provided comprehensive test documentation as well as the certification required for its products, enabling the entire truck to be quickly certified and marked as CE compliant – vital for the trucks to be launched in Europe.

Once the trucks arrived in Europe, Ankers says the remaining stages were "almost like a relay race. The baton got passed to colleagues at Curtis UK and Curtis Germany."

Germany and UK: Race to the finish

To provide shorter delivery times than can be achieved by filling orders from Asia, the manufacturer keeps new lift trucks in inventory at a central facility in Europe. When it introduces a new truck, the company brings together representatives from across Europe for several days of product familiarization and in-depth training.

The Curtis Germany and Curtis UK teams have participated in these events, explaining the workings of the Curtis components, how to use the PC software tool to configure, tune and calibrate truck performance to suit a particular user, and how to read, interpret and use the diagnostic codes from the Curtis system. They have also provided training on how to support vehicles in the field and in use.

But Curtis does not leave this – or any – manufacturer to its own devices in supporting vehicles after they have been delivered to customers. If a company's technicians encounter difficulties they know they can call the engineers at Curtis Germany or Curtis UK for local assistance.

"They trust us well enough that they engage with us, when they would otherwise have to go to the other side of the world," says Thomas Hetmeier, technical support and sales director at Curtis Germany. His UK colleague, director of European support engineering Kerry Green, agrees. "The local staff will find it quicker to come to a local Curtis office for answers than to go back through their entire supply chain and have to deal with translation issues," says Green. Likewise, back in Asia, the Curtis China team has also helped test the performance and functions of new vehicles in the field and sent engineers to end users' sites to diagnose and troubleshoot problems or repair failed devices.

Information received from the manufacturer's own service technicians is fed back into the Curtis organization and reflected in product adjustments and improvements. "We're helping the manufacturer achieve continuous improvement," says Yuguin Xue.

A final example of multi-tier support for the Asian company is Curtis UK's role in providing OEM branded, customized battery chargers, plus other accessories such as warning beacons, safety devices and work lamps.

The process of Curtis's worldwide teamwork must be working to the manufacturer's benefit as the company today relies exclusively on Curtis controllers. As Joseph Kim, Curtis's representative in Asia, says, it all started from a customer's need that required extra effort beyond an off-the-shelf product. "I talked with our top executives in the USA and the UK and they told me to take care of my customers," he says. Since then Kim has believed in a simple philosophy for maintaining solid customer relationships: "Whatever the customer needs, I also need." **ALT**

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