

Business situation

Mars International client WaterRower of Warren, Rhode Island has been designing and manufacturing rowing machines for the personal and institutional health and fitness industry for more than 24 years. Their signature WaterRower rowing simulators are manufactured and assembled in Rhode Island with frames made from sustainable solid hardwood and electronic workout monitors assembled from components sourced throughout the globe. Specifically, WaterRower was sourcing components for the monitor, including the plastic enclosure, the LCD display, the rubber keypad, and the printed circuit board assembly, from a set of suppliers with locations in Taiwan, Hong Kong, the US, Spain and the UK. WaterRower desired a more streamlined and cost conscious approach for sourcing their Series IV (S4) performance monitor. They anticipated overall cost improvements along with more control and visibility into the supply chain, resulting in better product management and greater efficiencies in manufacturing.

Technical situation

Mars International was asked to analyze the monitor product specifications and to develop a product manufacturing proposal to improve the overall cost and delivery. WaterRower was looking for improvements primarily in the assembly and logistics associated with the main printed circuit board and the injection-molded plastic casing. The primary components on the main PCBA were a microprocessor, EEPROM, a piezo transducer, a switching regulator, a crystal, AA battery contacts, cable connectors, a USB port, and an Ethernet port. Mars was asked to design the mold for the plastic casing and to choose an appropriate material for manufacturing. WaterRower wished to maintain their specialty supplier for the LCD display, which was to be delivered to Mars for assembly as a daughter card to the main PCB. Because cable connections differed for the various rowing machine models, WaterRower chose to assemble the final monitor unit in their facility.

Solution & Benefits

Mars International developed a strategy for WaterRower which achieved their goal of a more streamlined and cost effective approach for manufacturing their S4 performance monitor. Analysis of the product led to a solution in which a sub-assembly is delivered to WaterRower that includes the main PCB, the LCD daughter card, conductive strips, and the rubber keypad, fully assembled in the front enclosure plastic and held together with screws. Each unit is programmed with the rowing fitness software and is tested in accordance with a test specification developed by Mars International's engineers. The final unit assembly is completed at WaterRower's manufacturing facility according to the rowing machine model being assembled and requires incorporation of the appropriate cable and the back enclosure plastic.

Overall, WaterRower was able to achieve the cost savings they expected on their monitor unit through reductions in both material costs and transportation costs. In addition, Mars provided a consolidated and streamlined materials and manufacturing flow removing the need for multi-point inventory of monitor components resulting in further cost improvements. WaterRower achieved better control and improved efficiencies in their rowing machine manufacturing facility leading to greater flexibility to meet the delivery needs of their end customers. The S4 performance monitor has been in production with Mars International for more than two years.

The WaterRower's design has been rewarded the accolade of being exhibited at London's Design Museum, and in 2008, was awarded the prestigious Plus X Award in sports & lifestyles for its design.

