

## **Zelocity™ Golf Performance Monitor Swings into Higher Quality, Lower Cost Production with TDP**

### ***Background***

Zelocity Corporation offers golf enthusiasts portable Golf Performance Monitors for analyzing and improving their game. These products employ sophisticated radar technology and mathematical algorithms to display data such as ball velocity, and club head speed. Depending on the model, additional information is available, and shot data can also be transferred to a personal computer for analysis and results tracking.

### ***Situation***

In 1998, DistanceCaddy LLC (acquired by Zelocity in 2004) approached TDP to assist them with the company's original golf performance monitor, now called PureFlight™. The tooling for the monitor's external case had broken. DistanceCaddy needed to ship product sooner than the timeframe to replace the tooling allowed.

### ***Solution***

In response to DistanceCaddy's original need, TDP, a product engineering and manufacturing company, designed a new external case, using sheet-forming processes instead of an extruded aluminum case. TDP also changed the product's multi-part bezel from cast metal to a single part injection-molded plastic design. This part is used for both the front and back bezels, thus simplifying the product. Further, TDP designed the case to incorporate a leg mount, thus eliminating a separate, expensive machined part.

Upon assuming manufacturing responsibility for PureFlight™, TDP implemented a custom-tailored cost reduction program to streamline engineering and manufacturing costs without compromising product precision. TDP implemented further cost reductions by identifying and employing newer materials, saving about 10 percent of the monitor's material costs.

A major redesign of the Printed Circuit Assembly (PCA) and use of more cost-effective electronic components created the next significant cost reduction. In conjunction with the PCA redesign, TDP integrated a newer, more cost effective radar transceiver—reducing costs on that single component by 73%.

### **TDP Creativity Equals Client Loyalty: Zelocity's Story**

When Zelocity owners Ken Starr and Kay Comaford acquired DistanceCaddy in 2004, their due diligence led them to TDP.

"We stayed with TDP due to the company's creativity and high-quality engineering and manufacturing," says Kay.

Kay and Ken were particularly impressed with state-of-the-art quality assurance and manufacturing processes that TDP employs to ensure production standards are consistently met -- regardless of assembly line changes or product volume demands.

"The nature of our products requires precision accuracy," explains Ken. "TDP initiated two rounds of cost-reduction. Those combined with TDP's emphasis on quality assurance dramatically decreased labor costs, ensured a defect-free product -- without affecting product precision."

Sums up Kay: "We've found TDP to be extremely responsive. They figure out how to reduce costs and evolve the product at the same time.

"TDP has a level of precision and process that we haven't seen in other similar operations. The knowledge TDP brings to product engineering and manufacturing ultimately reduces the time and money it takes to get a better-priced, better-engineered product."

## ***Outcome***

Using the original 1998 production cost as a basis, TDP has reduced production costs by nearly 60 percent. Factoring in all development costs over the entire five years of the cost-reduction program, the Return On Investment (ROI) was achieved in 5 months.

In addition to reducing costs, TDP's design activities resulted in added functions for PureFlight™, and led to development work on two other Zelosity products – PureLaunch™, and PureContact™.

PureContact™, the newest Zelosity golf performance product, is a TDP-developed derivative product, and has a manufacturing cost that is nearly one-third that of the current PureFlight™ monitor, and one-sixth that of the original. PureContact™ is targeted at the personal use segment of the market. ROI on this entirely new product was achieved in the first year.



## **Benefits of TDP's Cost Reduction Program**

Cost reduction strategies may involve something as simple as finding lower cost components by thorough research with our suppliers. Dramatic cost reduction strategies will involve more complex processes, such as redesigning a mechanical enclosure to eliminate costly machining, or redesigning a circuit board to modernize the design and layout, and to reduce overall part count. And cost reduction often involves a combination of simplification steps, all of which add up to produce a less costly, easier to manufacture product, and one that is more reliable as well.

This is precisely the tactic employed with the PureFlight™ cost reduction program. Different strategies were employed in several cost reduction phases, yielding savings for each phase.

## ***About TDP***

TDP has been providing innovative product design and manufacturing services to customers since 1995. Located in Loveland, Colorado, our modern 43,000 square foot facility offers customers:

- Complete Product Design encompassing electronics hardware, mechanical design and packaging, and firmware development
- Contract Manufacturing capability for turnkey PCB Assembly, Box Build, and System Integration Services
- Warranty and Repair Service for complete product lifecycle support

Quality drives every aspect of design and manufacturing at TDP:

- ISO 9001:2000 certified for design and contract manufacturing services for Commercial, Aerospace, and Medical Device Industries
- IPC-A-610 certified for workmanship standards

For more information on Zelosity, and their line of golf performance monitors, please visit their website at [www.zelosity.com](http://www.zelosity.com)

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