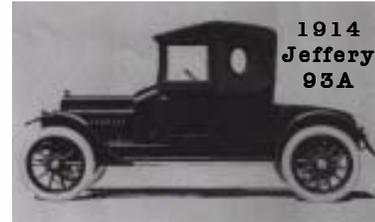


What's Old is Made New Again

Thanks to Investment Casting & Modern Technology



Finding parts for a car that's almost 100 years ago is no easy task, especially if there are only six of the automobile models left in the world. But thanks to investment casting and modern technology, a 1913 Jeffery is back in business.

Aristo Cast, Inc., an award-winning investment caster located in Almont, MI, was contracted by HP Auto Tech of Poughkeepsie, NY, a machine shop that restores gasoline engines for antique automobiles. Their problem was that the engine they were restoring for a 1913 Jeffery needed a new four-blade cooling fan. All the customer could supply was the existing fan which had two blades missing, one severely damaged, and one blade that they considered good. There lies the challenge.

Aristo Cast used its CMM to inspect the good blade and established dimensional data. The data was then transferred to CAD. This file was exported to one of their three 3D Thermojet machines to build wax patterns of the individual blade. The Thermojet machine constructed four identical blades to be assembled into a one-piece wax pattern.

The original fan was sand cast from aluminum. Back in 1913, they probably made about 500 of these, which would have

warranted going to a wood pattern, but a great deal of hand finishing would have been required. The new investment cast fan was produced in A356-T3 to allow the machine shop to tweak the blades if required.

Larry Blum, chief engineer at Aristo Cast, indicated that while the fan is not a typical project for them, it illustrates what can be done with modern technology and the investment casting process. He noted it is not unusual for a customer to order a single casting using this technology. It is fairly common for a customer to come with part in hand and say, "I need another one of these," but with no ability to give dimensional numbers on the specific part.



Working with CMM and laser scanning, these numbers can be generated, and rapid prototyping technology allows the creation of a single part without the cost of creating a die.

Aristo Cast manufactures investment castings in aluminum alloys, carbon & low alloy steels, 400 series stainless steel, 300 series stainless steel, precipitation hardening stainless steel, tool steels, cobalt-base alloys, nickel-base alloys (airmelt), copper-base alloys, and magnesium alloys.

The company is one of just a handful of investment casting companies making magnesium alloy prototypes and production. Main products include electronic chassis, general trucks/tractors, marine applications, general engineering, medical instruments, golf clubs, automotive, diesel engines, food products, pumps and valves.



Finished 1913 Jeffery cooling fan (left) and original part (above) from which the new design was made.