

(02 Dec 2007):





This is the first installment of hopefully a weekly event. What you are seeing is just a sample of the castings and waxes. For those of you who are not familiar with the lost wax casting process, here is a brief explanation. A master part is produced and can be made from a variety of materials. From the original and mold is then fabricated. Wax is injected into the mold, then the mold is opened and the wax removed. This can be done thousands of times from a single mold. The wax is then sent to a foundry where it is dipped in an investment solution then into aerated sand. This process is repeated several times making a thick coating on the wax. There may be several pieces placed on a common "tree". Once dried it is put into a furnace and heated, where the wax is melted away. This is where the name "lost wax" casting originates. When all the wax has been removed the "tree" is brought slowly up to about 1100 degrees, at the same time the aluminum is being melted in another furnace. After both critical temperatures have been met the "tree" is removed from the furnace and the melted aluminum is poured in the void left from the "lost wax". This is allowed to cool and the mixture of investment and sand is broken from around the casting, you now have a cast part. This method of casting is very labor intensive, but the quality of the casting can be extremely intricate. Getting the intake

and exhaust passages cast in the head is a little more difficult. The "runners" as we call them must be designed to allow for the proper wall thickness. Once this is done a mold is made. One for the intake runner and another for the exhaust runner. A special wax is used which is water soluble and is injected into the two molds. When cooled, these runners are placed inside the head mold and the normal wax is injected around the water soluble wax. When the entire head wax is removed from the mold it is placed in a low acid water, where the water soluble wax is dissolved. When the head is dipped into the investment solution for casting, it then fills up the void created by the dissolved wax. Because this process is so labor intensive, the cost of each component can get rather expensive. Unfortunately, small parts do not necessarily mean cheaper parts. Currently, this engine has over 52 individual cast components. So much for your lesson on casting.

The center picture shows heat treated head castings ready for the machining process to begin. A partially machined head is also visible. The injection of waxes and casting of parts is an ongoing process. Currently, I have almost all the castings in stock to produce about 45 engines. The waxes you are seeing are for the next run of about 50 engines and will be taken to the foundry in the very near future. Stay tuned. Also, if there is a particular process, item, or part that you would like to see, please let me know and I will try to include it in a future update.