

Just when you think things are going pretty good, life has a way of throwing you a curve. Such is the case with last week. If you remember in one of my previous weekly updates, I was having problems with the electricity service to my facility and thought that the problem had been solved. Last Saturday the CNC machining center gave me several visual alarms on the screen and decided it was not going to do anything. Obviously Fanuc was not open until Monday so I spent the remainder of the weekend doing other things for the engine production. What I hoped would be a short fix when talking with Fanuc, became a Pandora's Box situation and the gremlins that were created are not to be believed. Keep in mind, if I am spending time on the phone, parts are not getting made. I also spoke at length with a transformer manufacturer and it was decided that installing a couple of Buck/Boost transformers (\$487.00) would help and hopefully solve my problem. These are transformers that either "buck" which lower the voltage or "boost" which raise the voltage. Using a combination of these should have solved the difficulty. It did resolve the "leg to leg" voltage problem but created other voltage discrepancies that the machine did not like. I spoke with another machine repair service and had a technician bring a replacement Servo drive system, exactly like the one that was giving me the problems. Three hours later and \$225.00 – no luck. The remainder of the week was spent on phone calls to anyone and everyone who might have an answer or offer some kind of help. There is simple no magic solution. After ever option had been checked and re-checked, I finally made the ultimate decision to have the electricity upgrade done. This is not a simple operation, the power company needs to do an engineering proposal of what is needed - basically they will have to to run a complete additional line for about 2/3rds block to the pole outside my facility which entails one new pole, several supports and brackets, tension cables, one additional transformer on the pole, and finally the cost to me of about \$10,000.00. Unfortunately, there is no way out of this situation but in the future all the time that was wasted trying to fix something that was non-fixable will not happen. This is not to say that there will not always be machine maintenance that must be performed, but it will certainly remove a big obstacle, which in turn eliminates a lot of pressure and anxiety. As you can plainly see, this was something that was totally out of my control and unfortunately there is not contingency plan for something like this.

So much for the not so good news-as you can see from the pictures, the heads are completely finished and ready for installation. Finally! It started out with about 1 3/4 hours per head and now only takes an average of about one hour per head to lap the valves and assemble everything. Not setting the world on fire with this one! Once the valves were lapped, the heads were then thoroughly washed and inspected to make sure every valve seat was perfect. If there was the slightest imperfection then that valve was lapped a little more until the seat was perfect.

Because of the complexity and the limited amount of material on the castings for the intake manifolds, several were scrapped and I was forced to have some new castings made. This will not hold up production because by the time I am ready to install the existing intake manifolds, the new castings will be ready at the same time.

As a matter of fact, the new castings are finished and will be sent to be heat-treated next week. The jig remains in the indexing fixture, the program has been written and proofed, and all that will be needed is to set all the tool offsets. If you look closely at picture #3 you will notice the intake runner seams to have what looks like a machining mistake or off-center. This is in all actuality was a significant find. When the jigs were made it is extremely difficult to get the core of the intake to match perfectly with the intake port on the head. For those of you who are into full sized racing you have heard the term “blueprinting”. If so, one of the critical areas is the mating of the intake manifold with the port on the head. A lot of time is spent to make sure that all surfaces align perfectly and the air-fuel has a smooth passage with no edges to inhibit the flow. Although not exactly like “blueprinting”, the concept is similar, in that I used a ball end mill to insure there is a very close alignment. Was it necessary, not really, and in all actuality no one would have ever known, but it was an area that took very little time but will result in a better performing engine. After all, isn't that the name of the game!

Pic #1 (Completely finished heads, ready for installation)



Pic #2 (Completely finished heads, ready for installation)



Pic #3 (Bottom on intake manifold)



Pic #4 (Finished intake manifolds)

