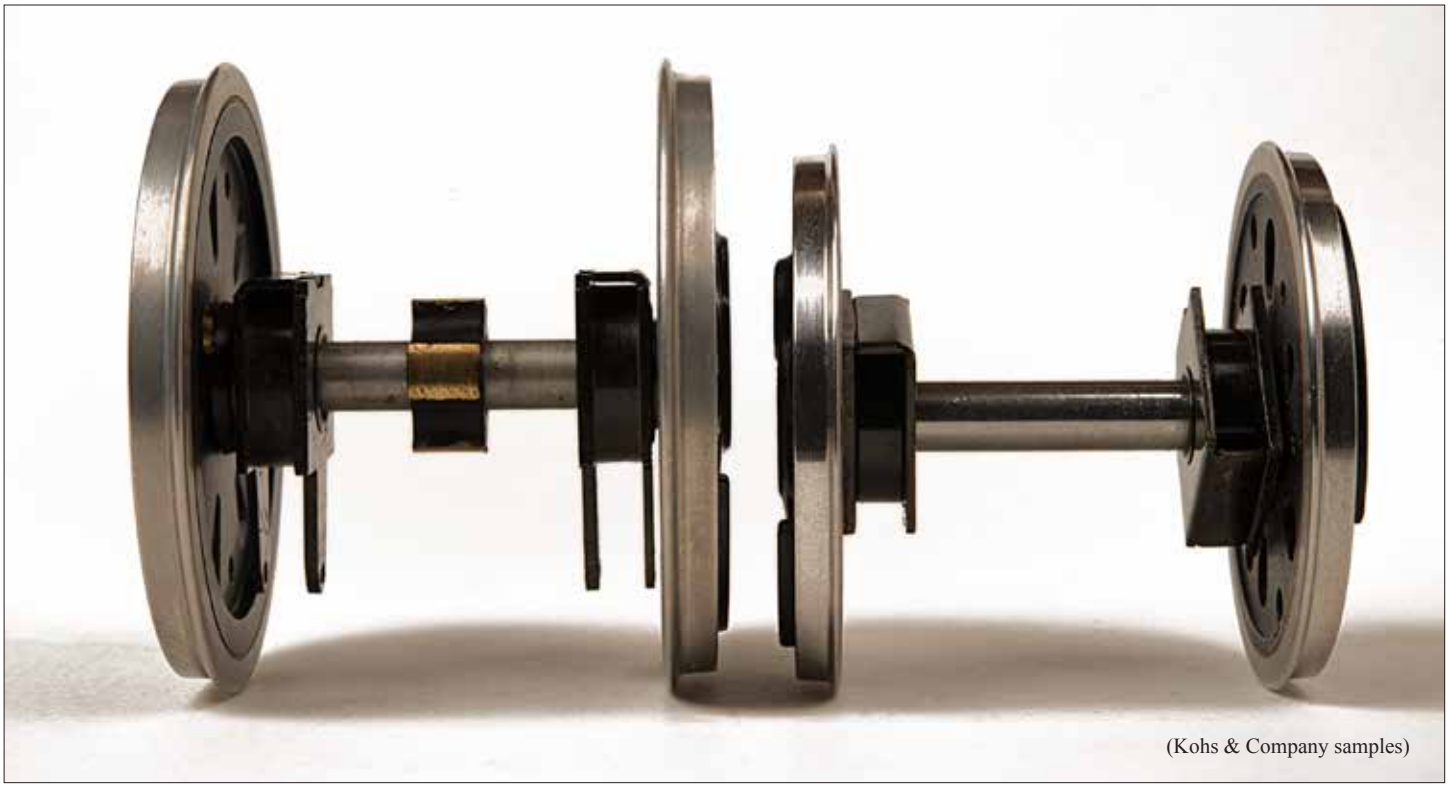
Union Pacific Challenger

September 2012 Project Update

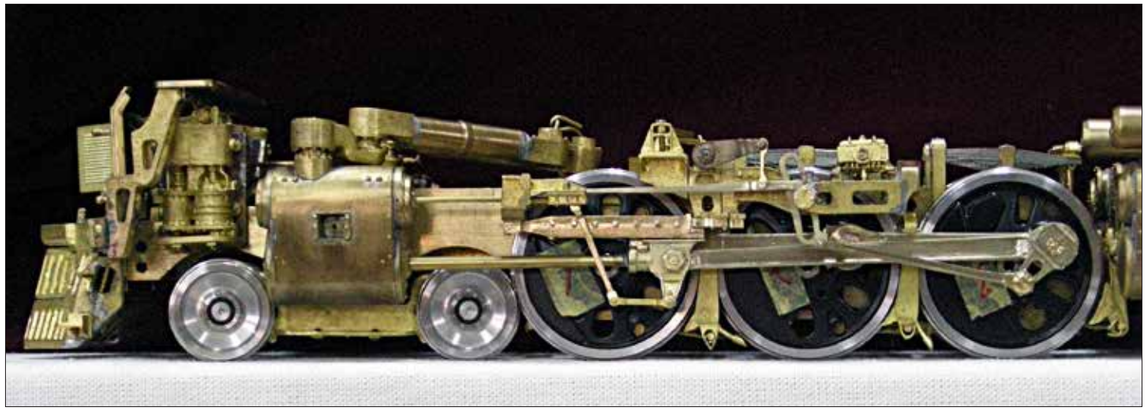
In this next installment of our Union Pacific Challenger project updates we'll be taking a look at another unique development aspect in our approach to O scale modeling. As I have previously explained, the developmental aspects that I choose to highlight in these printed updates are not accomplished in isolation, there are many aspects of the model development and creation that are happening simultaneously. To cover all aspects of the development would require a full volume which is impractical based on time and resources, but that is something that I am planning on for our 'Big Boy' project. As you probably already know, a more complete representation of this project is available online at our project web site, our printed updates are meant to be key snap-shots for those not accessing the Internet.

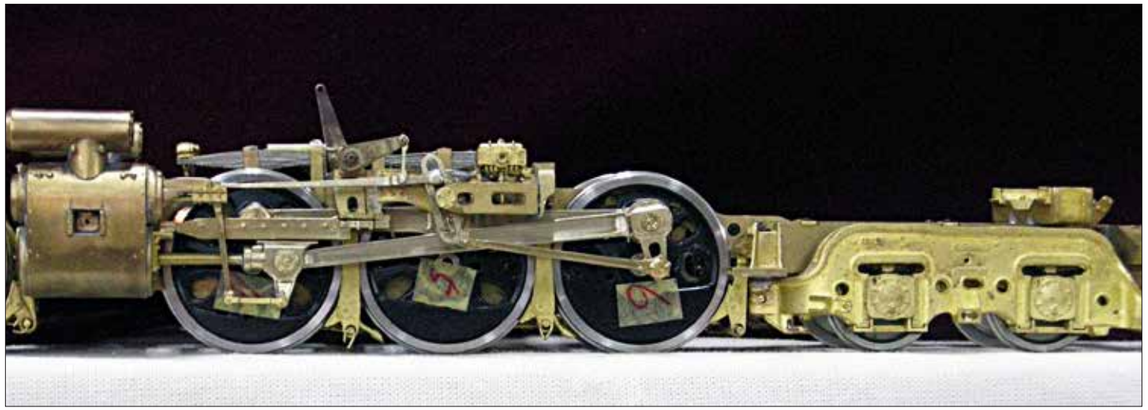
In recent months there has been an extended discussion within the O scale ranks about wheel profiles, wheelset gauging and how they relate to everyday operating experiences. With that in mind, I felt that a further update on this subject from the perspective of this project was important. In a past printed update I explained that I would be changing our specifications to include the use of scale wheel profiles on our Challenger, our previously used Kohs 145 specification was essentially what was adopted by the NMRA as their new standard. In addition to the profile specifications, there has been a great deal of effort to make the driver centers even more accurate and prototypical than on our previous projects which quite frankly were the best done to date. Now that Mr. Lee our builder has implemented our newly formulated specifications, it seemed appropriate to show you what this actually means in terms of our Challenger and the best way to do that is with photos and descriptions of the process.

The included photos highlight the use of 3D CAD modeling to miniaturize the prototypical wheel data, samples of the pattern making process used for the production, a close-up view of the never before produced detailing, some insight into the inspection process and most importantly, a comparison of a Kohs 145 wheelset (on the left below) to our new scale Challenger wheelset (on the right). While the specifications we previously use set a new standard, you can see with our new Challenger wheelset that the driver tires are narrower, the flanges are not as tall (or deep relative to the rail head) and the counterweight detail on the driver center face has greater relief. While the difference is subtle, on the next page you will see a full complement of scale wheelsets installed on the front and rear mainframes of a new Challenger sample model. Just as with all of our previous models, NMRA wheel gauges are not applicable with our new Challenger. I'll leave it to those copying our efforts to determine what our actual gauging specification is, but be assured that our new scale wheelsets are intended for use on standard O scale quality trackage.



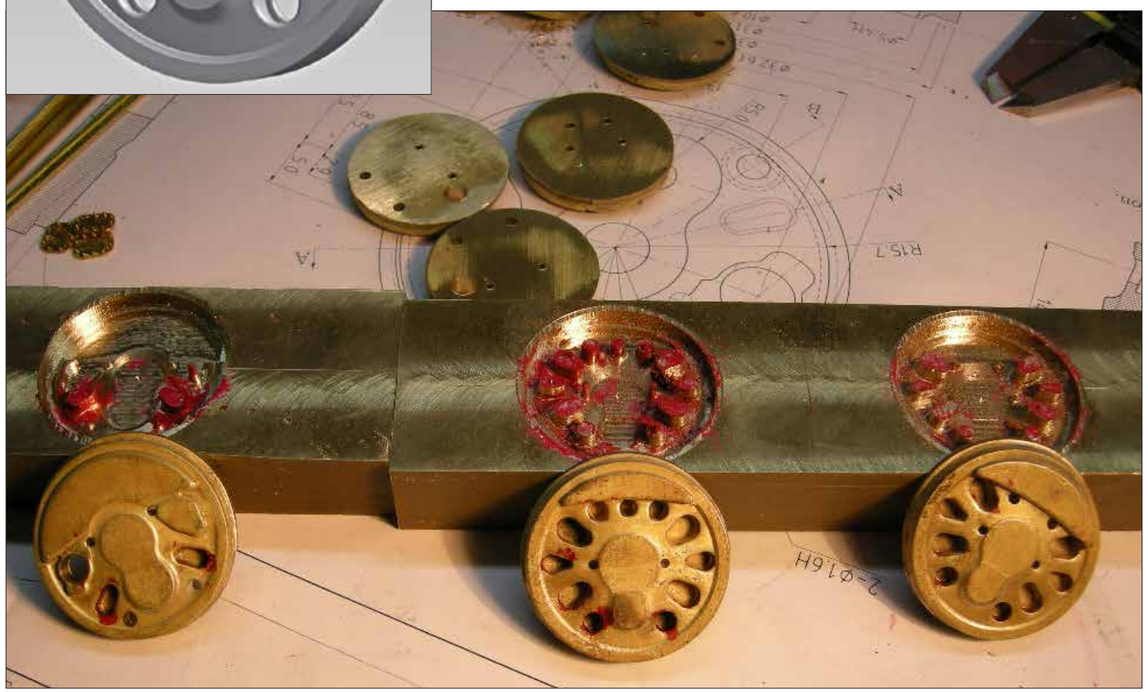
(Kohs & Company samples)





Shown at left is just one of the 3D CAD solid models that were used to finalize the driver center design, making them the most accurate ever produced regardless of scale. Not only are the driver faces accurately sculpted, we have for the first time been able to include the hollow core detail of the prototypical Boxpok drivers. The hollow core is not visible in all of the openings in the driver center, but if you compare the 3D image at the left with the actual sample part on the right page, you will see where the core detail has been appropriately modeled. A great deal of credit must be given to Mr. Lee, my builder since day one, for his commitment to excellence and willingness to work with my 'crazy' ideas.

In the photo at the bottom left, you can see the production patterns that are an incremental step toward producing the full production quantity. With each step there needs to be calculations made about dimensions used in the process to make certain that the final dimensions match those of the scaled down prototypical components.



The two photo spread across the top of these pages show a newly fabricated Challenger mainframe and front engine sample assembly that incorporates a full compliment of scale wheelsets. Some important details in addition to the wheelsets that I will highlight more appropriately in the next update are, the 'German Silver' running gear and the lack of visible mechanical fasteners holding the running gear together (a feature started in part with previous models and fulfilled here). You should also notice that there are different alloys of material used where moving components meet to provide for long-term endurance, that is illustrated by the different hue some parts have such as the crosshead guides.

The photos above and below left show an optical comparator in use to assure that our parts match our new specification tolerances which must be held closer than ever before.

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