



Union Pacific Challenger Project Update Number One

Most owners of Kohs & Company models consider their prototypical accuracy to be one of the most important and 'standout' characteristics and that assessment remains as a driving force in our project development. We started our Union Pacific Challenger project with a very strong sample model to exhibit our intent to again make this project our best yet. Changes have been and are being made to the sample model not only based on version differences, but also based on a greater knowledge of the prototype achieved through continuing research and follow up development. Our updates for previous projects have typically highlighted corrections made to early sample models with an accompanying explanation for the changes. With our first Challenger update I would like to take a step back and explain how the correction process actually evolves and provide more insight into how I approach the research and development required to deliver the anticipated accuracy of our models.

Each project that I have chosen to undertake has required a 'ground up' development plan in order to meet our accuracy objectives. The reference to 'ground up' means that I do not start with a pre-existing data set that was used for another model or project. Some importers/builders like to use existing data packages to shortcut the process in an effort to save time and money in developing their projects. It has been a common practice to take existing HO scale designs and simply scale them up to O scale proportions, but it is not difficult to figure out the problem in doing this; the detail possibilities in O scale are far greater than in HO, so the up scaled design comes up short in detail and the ever necessary compromises are made in all the wrong places because of the scale differences. It is also not unheard of for an importer to simply take a preexisting model and ship it to Korea or China to have it used as the 'data package' for a new project, either of these approaches would answer the often asked question of why the same mistakes keep being made by builders in producing like projects. I seldom ever look at previously produced models by other companies for guidance unless there is significant feedback regarding some special feature or characteristic that others feel that I should be aware of. Previously produced models are never provided to my builders, if we make a mistake it should be our own, but no mistakes is certainly the goal!

At the outset of every project, my goal has been to gather as much relevant reference material and knowledge as possible to make the development as accurate and efficient as possible. Reference relied on includes: prototype drawings, photos, first-hand interaction with existent prototypes and input from known experts on specific pro

(Below - Builder's photo of locomotive 3977)



totypes. To better understand the development process, it helps to understand why each type of reference is important and from my perspective indispensable. The obvious need for prototype drawings is the dimensional data used to accurately scale the 1:48 proportions of our models. The drawings also provide a rough time line for construction changes, but they cannot be absolutely relied on for this purpose. The builder's photos provide the basic visual reference for how the locomotives were constructed and because these groups of photos include numerous detail and assembly shots, they offer information that is seldom available from any other source. A large selection of in-service photos, preferably with accurate date information, provides a time line for modifications that always took place in the service life of any locomotive class. Although the drawings have dates, they seldom reflect when the changes actually saw the light of day, so cross referencing the two date sources provides a more accurate development 'picture'. Not being an 'expert' myself on any particular prototype, but working with a strong general knowledge of locomotives, my job is to sort and integrate the various sources of information and make sure that the conclusions reached are incorporated into our finished models. The plan seems straight forward, but it seldom ever works that smoothly!

I believe that there is a research threshold that must be surpassed before a project should be started and can be effectively developed. My starting point with the Challenger project was: 3,158 prototype drawings (far more than usual), over 200 official builder's photos taken by the American Locomotive Company photographers, over 300 in-service photos plus a copy of every book published that had the Union Pacific Challenger as its subject. In addition to this in-hand material, I have developed three previous projects that had ALCO as the prototype builder and believe it or not, this does make a difference even in developing a model project. As you work with the designs of various builders you start to develop a sense of how each builder approached their locomotive construction and that can help answer questions that arise on model projects. These 'standard practices' were so routinely followed that each of the big three builders had shop volumes which organized these construction techniques for every day application. I have been lucky enough in my research efforts over the years to locate copies of the 'standards' from ALCO, Lima and Baldwin.

Now, with all of the aforementioned research material at hand, what else could possibly be needed? In the case of the 'late' Challengers, the first major issue was the data for the conversion of the locomotives to oil fired burners that were all originally built as coal burning locomotives. Included in the 3,158 drawings we started with were many drawings that covered major design factors for the conversion, but I soon found it would not be the major components that would create the problems for us. Often times, it's not the major components that are easily visible, it's the finishing details that are so meticulously scrutinized by modeling aficionados. As it often happened, major assemblies or components were thoroughly designed, documented and reflected in the prototype drawings cataloged by the builders, but details of lesser importance to the prototype locomotive, but critical to a successful O scale model, were left to the shop crews to 'workout' as needed when the time came. More often than not, what the shop crews developed were not cataloged or included in the shops 'standard practices', this is why you will often times notice subtle detail differences between locomotives, even after being freshly shopped. Unlike the Locomotive builders, the shop crews doing the conversion work typically did not take the time to photograph their work so there are no builder's photos of the conversions to rely either. So what do you do when you are designing a model and you encounter an undocumented design element?

This is when those individuals knowledgeable on particular prototypes and the actual surviving prototypes themselves, if any are available, come into play. Having worked with John Bush from the Union Pacific Historical Society on our UP 'type' project, John was my first contact. John is a great source of information, because he not only is knowledgeable, he understands the research process having coauthored the beautiful two-volume set of books on the Union Pacific 'type' locomotives. I mentioned to John that I felt it would be necessary to visit Challenger 3985 located in Cheyenne, Wyoming to photograph and document the areas of the locomotive and tender that were in question. I have seen the 3985 on several occasions and even photographed her, but not with the intention of building a model, so my existing coverage was not adequate for the purpose. John provided some initial feedback and suggested that I contact Mr. Lynn Nystrom who fires 3985 on a regular basis. Following John Bush's lead, I placed a call to Mr. Nystrom who was more than gracious in explaining that 3985 was in the shop for major refitting, but I was welcome to visit and gather what I needed, but then came the twist. Mr. Nystrom informed me that the better option for my purposes was to visit locomotive 3977 located in North Platte, Nebraska where she sits since leaving service. It was explained that 3977 was actually converted to oil firing during her active service days and as a result would be more reflective of the actual shop practices employed in the conversion process. Mr. Nystrom went on to explain that 3985 was actually converted to oil fire after her active services days were over and it was decided to use her for the excursion service operated by the Union Pacific Railroad. As a result of her late conversion, the locomotive does not represent the work done by the shop crews of the day, but rather, a more utilitarian approach to just



(Photo of 3985 courtesy of Neil Boggiano)

making 3985 serviceable. I was told that the only parts or components missing from 3977 were the tender bunker oil tank and the burner assembly from the firebox, they were used in the conversion of 3985 to oil.

All factors considered, a visit to North Platte, Nebraska seemed in order. A three hour flight into Denver, Colorado followed by a 3-1/2 hour drive to North Platte brought me face to face so to speak with 3977. It was further explained during my visit that 3977 served out her final days as a 'switch melter' in the North Platte area and when she was finally retired, the locomotive was offered to the City of North Platte by the Union Pacific Railroad. 3977 sits today in Cody Park freshly repainted in the classic two-tone gray passenger paint scheme and resides next to one of the Union Pacific's huge 'Centennial' DD-40 diesels. After a quick walk around her, 3977 did appear to be very complete, even retaining her builder's plates which often turn up missing in action. There were disturbing observations as well, it was readily apparent that there were a number of new issues to consider. Were the new issues representative of in-service modifications or were they unique to 3977 resulting from her service history and/or preparation for donation to North Platte, that was the big question. After a solid day and a half of shooting over three hundred photos, taking measurements and filling the better part of a legal pad with notes and sketches, it was time to head back home to more thoroughly evaluate what I had just documented.

I am often asked why my model development takes so long and why it seems that my projects take longer than other importers' models to produce, the process that I just described is in large part the reason and this scenario may reoccur multiple times during the development of a project. It seems that in an effort to answer one question additional questions always arise as the base of knowledge expands. I do not believe that there is any other importer going to the extent or expense with research that Kohs & Company does with it's projects. The next project update will highlight many of the lessons learned during the North Platte visit and you'll see what changes are reflected in the model as a result. I hope that this first Challenger update has provided a little more insight into what our development process is and how the questions that arise from the development are dealt with. If there is specific information that you would like to see included in the next update, please let me know and I will do my best to see that it is included.



(Above - 3977 today in North Platte, Nebraska)

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