Update on Tucson Children's Museum
September, 2011

A. Background

On July 27, Kevin Mills, the TCM facilities manager called and asked for help. According to Kevin both engines were stalling on the corners though they restarted again with a gentle push. He also suggested that the power pack was making some noise. I told him we would take a look at the problem. I discussed this with Nick Buchholz who was familiar with the layout and we agreed that if both engines were involved it was probably an electrical problem. Nick also mentioned that UMC had a problem and that Glenn Mitchell had diagnosed wheel problems.

Accordingly, I contacted Glenn and asked him to take a look. He obligingly stopped by TCM and reported that he thought the problem was wear on the pickups that was exacerbated on the curves. This sounded reasonable as the locomotives have had heavy usage and have been in service for about three years. I checked the Aristocraft web site and found the cost of repair parts and asked Kevin to see if the museum still had funds from the Union Pacific grant. I suspected, but didn't tell Kevin, that TGRS would probably pay to repair the locomotives if the funds were exhausted. In that case I would have had to come to the club to request authorization. Further discussions with Nick suggested that Gary might have replacement Aristocraft trucks that had been purchased for our FA/FB locomotives. In fact Gary had 4 power trucks, enough to repair two locomotives. Confirming timing with Gary, I made arrangements to pick up the worst of the locomotives for repair.

On the 28th I picked up the RS-3 to take to Gary's for repair. While there, I checked out the otherlocomotive. It seemed to run fine, if very slowly. The television feed seemed to be a bit high and perhaps not as well focused. Kevin confirmed that they had been running the RS-3 most of the time because they liked the TV camera view better.

Gary and I repaired the RS-3 and returned it to the museum. It ran, but very slowly. The first circuits were marred by derailments but I suspect that this was due to Kevin not getting the trucks properly on the rails. After correction the derailments were cured but the slow speed still left it vulnerable to stalls when the load increased as the train cornered. I checked the power supply and found it set to 11 volts. Remembering that Glenn had told me that there was some voltage drop through the motion circuit I increased the output to 14 volts. The train now operated at reasonable speed smoothly all around the loop. Whistle (horn) and bell as well as motor sounds and cab, marker and head lights were all fine. A number of the railings have disappeared but this isn't very visible to the museum patrons.

After some discussion with Willis Fagg I have invoiced the museum $170 being the current price for the two replacement trucks. I noted that because we had them on hand there was no shipping charge and that the labor was donated by TGRS. A copy of the invoice was sent to Ruth so she will know what the check is for when it is (eventually) received.

B. Recommendations

As a result of the above three suggestions have arisen, two relatively short term and one with longer term implications.

First, I think Nick should stop in and try to adjust the camera in the U-25. At the same time lens cleaner and focus should be adjusted.

Secondly, I think Nick should change the pin switches so that both cameras broadcast on the same receiver frequency. (We had initially gone with different channels to prevent interference from one locomotive camera with the other but in our current arrangement only one camera can be powered from the battery and there is no possibility of interference.) This change would eliminate having to adjust the receiver channel each time a locomotive is changed and along with the adjustment above might help to promote more even usage and wear on the two locomotives.

Finally, Gary suggested (and Glenn and I agreed) that TGRS should form one or more small maintenance groups responsible for visiting each public layout (currently TCM and UMC but to include TCM, VA, and Southern Arizona Transportation Museum layouts if TGRS builds them) once a month. At that time the maintenance group would perform routine maintenance such as lubricating the freight car trucks and the locomotive trucks. This group could also inspect for wear and, if necessary, reverse power trucks to ensure even wear.