***Villa Real Acquisition and Restoration***

My Father-in-Law, Herman Page and I decided to bid on the car. However, the auction turned into a bidding frenzy and much of the equipment sold for two to ten times what it was worth. The final purchase price exceeded the credit line that had been established with the auction company in advance, so we didn't get the car.

I was president (and admittedly chief scrounger) for the North Alabama Railroad Museum in Huntsville at the time and was working with John Baker, Vice President of Public Relations for Norfolk Southern in Montgomery. I found out that John had purchased the car at the auction. He didn't have any plans for the car, only some passing dreams about setting it up as a private office car. I indicated to John that we would still be interested if he ever wanted to sell the car. Two weeks later, John called and offered the car for his purchase price. Herman and I sent a check and had the car delivered to Huntsville on Memorial Day 1995. A few weeks later, John got a call from one of the retired NS workers in Decatur, Illinois. It seems that Mr. Gillum was working for the Wabash in Decatur when the car was converted to a Wrecker Foreman Car in 1957 and salvaged the original Porter Call Box from the scrap pile. Mr. Gillum sent the call box as a donation for the cars restoration.

### **Restoration Summary**

Several publications indicate that the car was sold to Pennsy when it was converted to Tourist Car 5141. However, the Official Pullman record obtained from the Newberry Library indicates that Pullman still owned the car until 1953 when it was sold to the Wabash. During the restoration process, the layers of paint were removed one at a time to document the marking. The long sides of the car had been sandblasted clean and repainted Tuscan Red in 1953. There were four layers of Pullman Green paint found in the vestibules. The car had white Wabash lettering with the Flag emblem over each wheel set.

We did validate the Guadalajara service. While cleaning out the razor blade slot to replace some steel, two Mexican coins dated 1933 and 1954 were found along with a business card and ticket stubs from Guadalajara.

The car was placed on an active siding that was leased to the North Alabama Railroad Museum after purchase. There was an agreement that allowed the car to remain there lease free. The first order of business was to secure the car from leaks and vandals. All of the MoW interior and roof appurtenances were removed and repaired. Quarter inch thick Polycarbonate was added to the exterior sash rails of the windows to seal the car. The next step was to start the exterior restoration with complete removal of the old paint. In order to document the layers of paint, sanders and wire wheels were used rather than sand blasting.

There was also an extensive amount of ‘Pullman Disease’ where the body sides rust out from the inside. It took over a year to cut out the bad side steel, clean and prime the remaining steel and weld in 75 feet of new plate steel and sill frame along the sides.

A job change at the end of 1997 moved the car from Huntsville Alabama to Raleigh North Carolina in early 1998. We were able to move the car on rails. NS sent 3 different inspectors to look at the car before they would accept that the rail move was possible. The car is now located on a leased siding owned by CSX railroad adjacent to their Raleigh Yard Office. The Villa Real move is the ONLY railroad car move ever paid for by IBM, but that is another story.

The work of rebuilding the vestibules with Dutch doors, buffer plates and working traps is complete with some minor modifications. The car electrical wiring was completely replaced for 220VAC single phase using the original wire chase. The wall between Bedrooms A and B was restored with a working pocket door. The wall between the men’s room and Bedroom C has been restored. The doorway to Bedrooms C have been restored.

A lot of time has been spent gathering missing parts. Many parts were obtained from the scrapping of the Clover Lodge at the B&O Railroad Museum in 1996. Nearly all of the parts to restore the section areas as well as the restrooms, bedroom A and bedroom B were obtained from that car. Some were obtained when *Villa Roads* was scrapped several years ago in Norfolk, Nebraska. Bedroom C has been added back into the car but the plan is to use that room to house an HVAC plant. Since *Villa Real* currently doesn't have AC or heat, some level of comfort for either operation or show purposes is necessary so that the car can be further enjoyed. Only one other car in the series, *Villa Falls*, survives at the Illinois Railroad Museum at Union.

The trucks were upgraded to Hyatt roller bearings the summer of 2000 so that the car could continue to be moved by rail. The friction bearings were a limitation when the car was moved to Raleigh in early 1998. The Hyatt roller bearings and wheels came from a scrapped car in West Virginia.

Ebay has also been a great source of missing parts. When Herman and I acquired the car, there were only 20 of the original 89 light fixtures, 3 of the original 8 sinks, and none of the 5 toilets that had been on the car. All of the decorative brass shelving had been removed. The invention of 3-D printing has also been a great benefit for acquiring parts that are “non-collectable” such as seat end brackets, Garland vent covers, etc. Over the 24 years that the car has been under restoration, we have managed to re-acquire or make ALL of the hardware for the car.

We also found that the sidewalls were not the only exterior steel with “Pullman Disease”. The rounded lower edge of the clearstory roof was also found to contain pin holes through the paint that would allow water into the car. A process was created to cut out the old steel, restore the exposed steel wall/roof support interface, remove & replace insulation, bend and shape new steel and weld it back in place. Over 90 feet of roof steel edge was replaced. All of the window frame were also found to require attention to the steel in each of the lower corners. The corners had to be cut out, cleaned and appropriate new steel applied and then welded back together.

A goodly number of years has been spent removing old paint from the interior of the car. There were 13 coats of paint on the walls at the thickest point. We did cross section some of the paint chips to determine the colors used on the car at the different stages of operation. We also tested the paint and found that the bottom 4 layers were lead based, which required special handling for disposal. We swept the paint chips and dust into 5 gallon buckets and turned them in as hazardous waste.

The men’s room, ladies room, Bedrooms A & B, and the long and short hallways have all been repainted. The section area faux woodgrain finish that was original to the car has been restored and the pin striping added.

The original 38 Mahogany window sashes are restored and reinstalled in the car. The original poured glass was used wherever possible.

The exterior of the car was painted back to Pullman Green with Pullman gold lettering in 2001. However with subsequent findings of continue rust issues, it was necessary to make additional repairs. The exterior Pullman Green has now been applied a 2nd time.

The Porter Call box and First Aid box have been restored and reinstalled in the car.

**Restoration Details**

**Men’s Room** – All of the additions for MOW had to be removed which included 6 wall locker, hot water heater, 2ea 120 gallon water tanks suspended from the ceiling and a shower with a concrete filled base. The wall separating the men’s room from Bedroom C was restored with flat steel and the trim molding salvaged from the Clover Lodge. The large mirror frame and couch were also salvaged from the Clover Lodge. A settee was never found and a replacement was built based upon builder’s photos and dimension from hole patterns in the wall. A replacement corner and dental sink were obtained from Illinois Transit Assembly. The men’s room hopper had been replaced with a modern house toilet. The hole thru the floor was moved to accomplish this. Replacement hoppers for the men’s and ladies rooms were obtained from the Age of Steam Museum. The hole in the floor for the hopper had to be restored. The drain from one of the sinks had been allowed to drain into the subfloor and there was failure of both the steel and concrete. The floor was cut out, new flat steel was applied, support members, insulation, more flat steel and finally 2” of new concrete.

**Wall Paint** – The interior walls were found to have 13 layers of paint that was failing throughout the car. All of the old paint was mechanically removed rather than sandblasting. The new paint was a layer of red oxide primer, grey automotive primer and Centari automotive urethane gloss paint. Some of the colors selected were based upon paint chips from the car that were cross sectioned and splayed out to expose their colors. Other colors were based upon greyscale variations of the Pullman interior photos and extrapolations from known colors in the photos.

**Rubber Tile Flooring** – This flooring is in the men’s room, ladies room and both hallways. The original tile was still on the floor of the ladies room, but was covered with several layers of paint. The paint was sanded off to expose the original 3” green and black checked tile. There was a PBS special on the restoration of the Badger#2 for the Mid-Continent Railway Museum that detailed their work to create a custom pattern and replace that linoleum. PBS and Mid-Continent reported that Forbo Flooring Systems had made the custom pattern. Apparently Forbo had a bad experience from this restoration as they refused to discuss making a custom pattern for the Villa Real. Forbo did have roll material that was the correct colors of green and black. Two rolls of 20’ x 6.5’ were purchased. Fixturing was created to allow the 3” square tiles to cut. 4700 total tiles were cut. The cut tiles were still curved to match the roll and had to be pressed in an oven at 200F for 2 hours to take out the curve. Mapei Ultrabond G21 2 part urethane adhesive as selected for it adherence at extreme temperatures. 12 oz beer bottles filled with water and capped were used to hold down each individual tile to allow the adhesive to cure.

**Wall Fans** – The original fans were 32VDC fans from Diehl Co. Diehl also made table fans for 110VAC at the same time period that were similar to the Pullman fans, but the cages were not as robust. To accommodate the 110VAC, Diehl table fans were obtained and modified to mount in the Pullman fan brackets.

**Electrical Wiring** - The original wiring in the car was cloth covered that had dry rotted. For MOW service, conduit was surface mounted throughout the car. This was accomplished by cutting holes through walls. The main electrical feed was from a connector in the ceiling of one of the vestibules. All of the surface conduit wiring was removed. The original wiring was pulled out and replaced with wear and oil resistant 12 AWG stranded wiring. A 100A circuit breaker with line side connector were added under the car and connected to the original conduit for the battery boxes. A new 100A 220 VAC 2 phase circuit breaker box replace the original fuse panel. All of the original wiring in the roof access was replace. The battery/generator switching mechanism had long been removed.

**Light Fixtures** – Most of the original light fixtures had been removed. Only some of the upper berth fixtures remained. Ebay was the best source for replacement light fixtures. Some were obtained from Illinois Transit Assembly, IRM, Doug Brown and Ed Joslyn. All of the light fixtures were rewired to replace the old cloth covered wiring. For the cast lights in the Section area, a tool was made and additional housing were cast using aluminum and then painted to match. Pullman typically used lower quality metals in their castings and all of their light fixtures were painted. The light fixtures are painted with red oxide primer, grey automotive primer, 2 coats of gold paint and 2 coats of clear lacquer.

**Bedrooms A & B** – The original couches upholstery was threadbare wool. They were reupholstered using a cotton polyester fabric that has a pattern similar to those found on Pullmans. The wall between A & B had been removed for MOW service. The pocket door, wall trim moldings and bedroom hoppers were salvaged from the Clover Lodge. The floors of the bedrooms had been re-concreted for MOW service and the hopper holes filled. A new hole had to be cut through the car floor and a PVC/fiberglass liner was fabricated and installed to interface to the hopper and provide sealed containment under the car. The sink spigot assemblies were obtained from Doug Brown and the Villa Roads car. The sink basins were obtained from Ed Joslyn. The hopper frames were from the Clover Lodge.

**Section Area** – 3 of the sections were removed to make way for an oil fired furnace that was later replaced with a propane fired furnace. The propane tank is still on the car. Ducting was fastened to the ceiling and extended the length of the car with holes cut high in the walls. A 13’ diameter hole was cut through to the roof for the vent stack. Replacement upper berths, seat end frames and section divider walls were obtained from the Clover Lodge. The seat end frames were modernized with the cast scroll work and traded to IRM for those with round ends to match the other seat frames in the Villa. The double window where the furnace was located was welded over with plate steel. The center beam had also been removed. All of the lower berth light fixtures had been removed and the locations welded over with sheet steel. Only 1 of the original wooden mirrors that were mounted to the center beam remained. Replacement seats were also obtained from the Clover Lodge, but were heavily infested with carpet beetles. All of the ducting was removed and the holes repaired. The vent hold through the ceiling was repaired with new steel welded in place. The light fixture openings were uncovered. The seat end frames and section divider walls were installed. All visible surfaces of the section area received faux woodgrain application. The surface is coated with red oxide primer, grey automotive primer, pumpkin orange oil base paint, 2 coats of walnut stain and 1 coat of Carrington stain. One of the original berths was found to have the original faux woodgrain intact under several layers of paint. The paint could be removed by chipping away the paint under cold conditions (lower than freezing). Once exposed, the graining patterns and pinstripe information was obtained and used for reproduction. The upper berths have a 4’ x 5’ piece of curved Masonite between the 2 ends. 8 of the 10 berths had damaged Masonite. In order to replace the Masonite, the upper berths had to be removed. A drywall lift was purchased and modified for the task. The upper berth light fixtures and safety switches were removed, restored and re-installed. The mirrors were restored and new glass added. The original mattresses and springs that were present were kept, cleaned up and placed back in the berths. Porter plaques were created from artwork supplied to a trophy supplier. The section seats were re-upholstered by B&G Upholstery in Wake Forest and are now reinstalled in the car.

**Window Sashes** – There are 38 window openings on the car, but only 33 of the original interior sashes were present. They had varying degrees of dry rot, missing wood, and physical damage. All 33 of the original sashes were able to be restored. Two sashes were obtained from other sources and 3 sashes were built using the originals as a pattern.

**Long Hallway (bedroom end)** – The long hallway still had the fire extinguisher holder, track rack, first aid locker, tool locker and the original wooden trim under multiple layers of paint. All of these items were restored and reinstalled back into the car. The tool locker was populated with a Pullman sledge hammer, an Erie saw, and an ATSF axe. The water cabinet at the end of the car was recreated using the hole patterns and examples measured in photographed in other cars as a reference for construction. The small cylinder sink under the water cabinet was reproduced using 3D printing technology. The water cabinet waste basket was provided by IRM. The water cabinet does NOT contain a water tank, it is representative only.

**Short Hallway** **(ladies room end)** – This hallway had the original wooden trim and a plated over hole where a fire extinguisher was mounted. The wooden trim was restored and reinstalled. The fire extinguisher frame was manufactured and a replacement fire extinguisher and bracket were obtained from eBay.

**Ladies Room** – The floor of the ladies room was original tile covered with paint. There was a large damaged area in the center over the area of the truck pin. Apparently at some time during MOW service somebody wanted to pull the truck pin and thought that the concrete floor needed to be broken through to gain access. The sinks and shelves were gone as were the free standing chairs and toilet. The sinks were obtained from Illinois Transit Assembly and toilet from the Age of Steam Museum. The large shelf was built using information provided by IRM and builders photos. The curved curtain rod was fabricated using 3D printed parts. The corner water cabinet was also fabricated. However, the door to this cabinet was obtained from eBay.

**Vestibules** – The floor of each vestibule had been replace by open grid roof walk grating. The Dutch doors, traps and buffer plates, and diaphragms had been removed. Gridded deck plate steel was used to fabricate new floors with a hinged buffer step plate. Replacement Dutch doors were obtained from North Alabama Railroad Museum and Ed Joslyn. All of the lower doors required significant steel work to restore them. Stainless Steel traps from light weight cars were obtained from Illinois Transit Assembly and modified to match the Heavyweight outline. The original trap springs were still in place, but the interface to the trap had deteriorated beyond use or was cut off with a torch. New shafts were fabricated to interface to the modified traps. Improved step trap latches were obtained from Illinois Transit Assembly. The buffer plates were obtained from the State of Alabama and were located on 2 ex-Pullman Cars that were used as a B-52 simulator retired from the Air Force and located at the Space & Rocket Center in Huntsville. These buffer plates had the 2 outside support arms, where those originally on the Villa Real did not. The support arm brackets were mounted onto the car using 1’ diameter bolts. The diaphragm curtains on the B-52 cars were dried and inflexible. New diaphragm curtains were made using ¼ thick conveyor belt material using the originals as a pattern.

**External Car Body** – The car had a lot of extensive “Pullman disease” where moisture and dirt would collect in the horsehair insulation and cause the wall to rust away from the inside of the car. In all locations, the bad sheet steel and support steel were cut out and replaced with new steel. Any rivets that were removed were replaced with 3/8” round head screws with the slots filled with fiberglass putty. When the car was converted from a 12-1-1 to a 10-3 by Pullman, they used the same technique. The areas around the windows that had been the source of the moisture penetration also had issues with rust heave. These were also cut out and replaced with new steel. The seams that allowed the moisture penetration were welded closed. Any place that the wall was repaired the horsehair insulation behind it was removed or pushed up out of the way so that welding could be accomplished without catching the car on fire. The car was received with “trailer house” aluminum frame windows fastened to the outer sash guide. We replaced all of these aluminum windows with ¼” clear polycarbonate for security and weather sealing. A decision was made to NOT replace the outer sashes. The exterior of the car is painted with red oxide primer, Axalta Tufcote primer and Imron Pullman Green paint.

The roof also suffered from the same “Pullman Disease” as the walls. The bottom few inches was riddled with pinholes where it has rusted from inside. A bending jig was created to allow for radius application to flat steel to match the curve of the original plate. This was 16 gauge steel and highly susceptible to warping when welded. Additional 1” angle iron was added at the underside of the weld interface to provide stiffening and heat distribution. The interface to the car sides was “U” shaped channel of riveted steel. The “U” shape was flooded with marine epoxy to prevent further rust damage from any moisture build up. Rivets were replace with ¼” round head screws with the slots filled with fiberglass epoxy. The large holes in the roof from the water tanks, vent holes, vent stacks, etc. were plated over using screwed down steel plate over each of the holes.

**Trucks** – The car was received with the original bolted pedestal trucks with 5’ x 9” friction bearing journal boxes. The pedestal under the men’s room hopper had a cracked journal wear plate and the keeper plate bracket was severely rusted due to its location. In 2000, replacement wheels and bearings were found at a railroad museum in upper West Virginia that had gone defunct and they were selling their assets. The wheels and bearings were sent to Ohio Valley Rail Car to have the wheels trued and the bearings disassembled and recertified. Once received in Raleigh, the local Amtrak service crew was hired to lift the car and swap the wheels and bearings. The damaged wear plate and keeper plate bracket were replaced at this same time. A spare pedestal and truck leaf spring were obtained from West Virginia in case it was determined that the one under the men’s hopper had too much damage. Fortunately it did not. The new bearings are Hyatt oil box roller bearings.

**Brakes** – The car was received with a single 12” brake cylinder and ABD brake valve. The brake valve and conductor’s valves were last replaced in 2007. The brake cylinder also received COT&S to replace all seals, O rings, & filters. The brakes are periodically aired and cycled.

**Underbody** – The underbody of the car had been thickly coated with tar as a rust preventative. However, there were areas where it did not adhere to the dirty surface it was applied over and was allowed to be trapped between the tar and the underlying steel. All of the tar has been removed, except for the areas around the bolster that are impossible to reach without pulling the truck. Most of the original steam line was removed except for a straight length between the center beams and between the two trucks. The propane tank from MOW days was removed cleaned, repainted and reinstalled in case it would be needed for future use with a generator or air conditioner.

**Couplers** – The couplers are still the original. The cut levers have been replaced with ones that have locking tabs.