

## Bruder Bell Organ

Dana Johnson

The Bruder organ presently in the collection of Jerry Doring started life as a “Bruder Elite Apollo” prior to World War I. There is very little documentation that survived with this machine, and through the years it has had some modifications, though the bulk of the original pipe work remains intact. Through research and careful observation, the following information should be relatively accurate.

The Organ started life as a 65-key keyless Bruder with delivery to the United States sometime around 1912, where it was destined for Coney Island. No serial number has been found on the organ or chassis. At some point in its working life, probably approximately 1922, it was converted by the B.A.B. (Ervista Bona, Andrew Antoniazzi and Dominic Brugnotti) Organ Company in New York to play their 66-key music rolls. Their scale fits this machine perfectly with the exception that the original Bruder scale has one additional note which is not used by B.A.B.. The original Bruder scale uses this melody note, which is also used on Wurlitzer's 165 scales. During the B.A.B. conversion, the roll mechanisms were relocated from the side of the case to the more conventional location inside the back of the organ (**Figure 1**). The wooden trumpets were replaced with metal oboe pipes, and the orchestra bells were replaced with real cast bronze bells (hand bells). These bells have a totally different character

than the usual bar style orchestra bell (glockenspiel). The only way to describe it is as a very unique and exceptional merry-go-roundish sound unlike the typical band organ sound.

One of the interesting features found in the Elite Apollo line is its switching mechanism, which allows a variety of instruments to play from the same holes. This switching function is controlled by the trombone register. When the trombone is off, the triangle plays the bass drum part, and the castanets play the snare drum part. When the louder trombone register is in use, the louder bass drum/cymbal and snare drum play their normal parts. There has been some discussion about the origin of this idea. Some believe it to be a B.A.B. innovation. The only documentation found to date has been from Bruder Elite tracker scale information. They show these items controlled by the same holes. On most rolls it is an interesting variation. On other rolls that use the trombones sparingly, the net effect is a lot of triangle.

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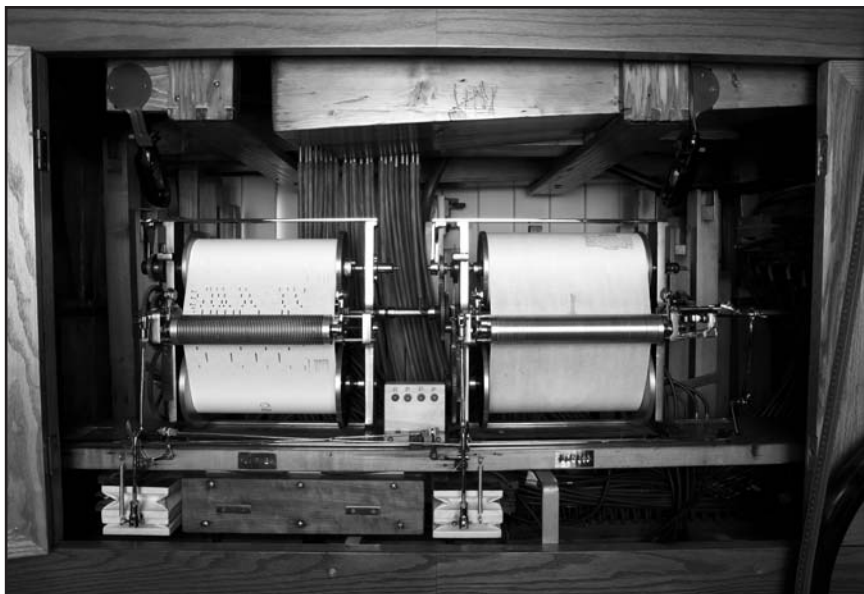


Figure 1. Revision of the organ showing dual roll frames: 66-key left and style 165 right. Note the center tubing for the bells.

During the restoration in the 1980s, the decision was made to modify one of the roll frames to accommodate Wurlitzer 165 rolls, a natural, since this organ is perfectly scaled for the Wurlitzer 165 roll. The restoration and mechanical changes were made at that time by Louis Suierveld from Norwalk, California. In the following years the exterior bells and action were removed (though not lost), and at that time a conventional set of orchestra bells were fabricated and installed.

One would think that because the 66-key B.A.B. scale and Wurlitzer 165 scale are nearly identical, there would be compatibility issues. Musically the notes are identical with the exception that the Wurlitzer scale has one additional melody note. Most of the registers work in the

B.A.B.	Wurlitzer 165
Swell shutter on; general cancel off	Swell shutters on; swell shutters off
No holes for castanets or triangle; these are used with shifter when trombone register is off; plays snare and bass drum parts	Separate holes for both castanets and triangle
Separate hole for rewind and replay	One hole only for rewind; mechanical unlatch for replay
Snare drum (castanets) two holes; two beaters each single stroke	Snare drum, one hole, two beaters reiterating.

Table 1. Comparison of functions of the B.A.B. and Wurlitzer 165 rolls.

same manner with a single hole to turn a register on and a general cancel hole which turns all the register off. (A register that is to remain on is simply reset back on with the register hole being present at the same time the general cancel hole is used.) There is always something that takes a straight forward conversion and complicates the issue. These items are best shown as listed in **Table 1**.

*From the onset of this project the bar bells always had a muted sound due to their location behind the solid portion of the façade in the belly of the organ. The decision was made to reinstall the original cast bells on the top façade of the organ.*

During the original restoration, the decision was made to have the B.A.B. roll operate all of the functions available in the 66 note scale. The 165 roll was utilized as



Figure 2. A top view looking down on the bronze bells on the façade with corresponding backboard with mounted pneumatic and valve chest.

much as possible where there was no mechanical conflict. The mechanical replay for the Wurlitzer roll was accomplished by utilizing the unused stop hole for the replay function. This requires all the stop holes between selections to be taped over on the Wurlitzer rolls.

In 2006, interest developed in investigating the possibility of integrating as many of the Wurlitzer functions as possible into the organ's operation and possibly reinstalling the original cast bells, action and associated façade parts. This is when the project started out simple, and gradually became more complicated and larger in scope.

The original plan was to tune the organ, verify that all the B.A.B. functions worked correctly, and document how the organ had been tubed along with other items, most of which were straight forward repairs. It was found that the errant high F used in the Wurlitzer scale had been sealed off by B.A.B.. The 165 roll tubing had been T-connected to the next lower F to make up for the lost note. It was decided to return as many parts back to their original pre-B.A.B. configuration. In this style Bruder mechanism, the register box controls a large rectangular pouch, which operates a register pallet in each chest below the pipe toe. Fortunately, these repairs did not required removal or disassembly of the main chest. The original unused melody was still intact and had not been removed or discarded. Once this task was completed, the registers were retubed to utilizing valves and routing more in line with Bruder's original layout.

From the onset of this project the bar bells always had a muted sound due to their location behind the solid portion of the façade in the belly of the organ. The decision was made to reinstall the original cast bells on the top façade of the organ (previously, Johnny Verbeeck had rebuilt the valve chest for the bells with the thought of someday putting the bells back in place). **Figure 2** The original cast bells, which came with the organ, were sent off to be cleaned, polished, and returned by Malmark in Plumsteadville, Pennsylvania, a company specializing in bell restoration. When the bells were examined, it was determined that the old bells had deteriorated to such an extent due to corrosion, cracking, and aging, that it was not practical to refurbish them. Therefore a new replacement set of bronze bells were custom made by Malmark and purchased for installation on the organ.

Prior to the new bronze bells being installed, all the tubing that controlled the bells was rerouted from the belly to a new manifold block. This



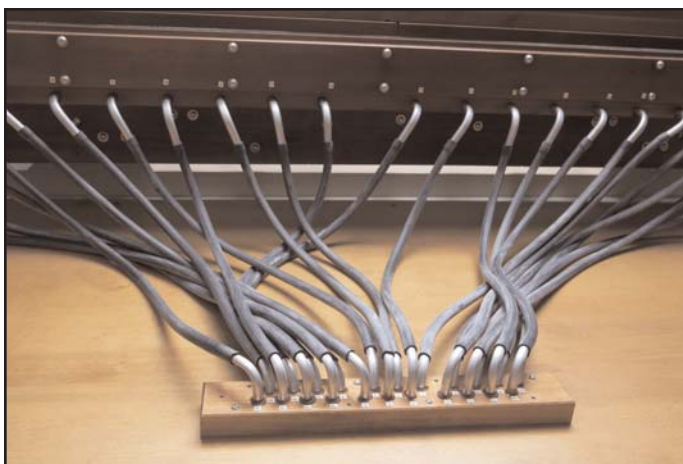


Figure 3. The top case junction block to bell valve box.

manifold was built to route the tubing through the top of the organ and to facilitate easy removal of the façade and valve chest without having to disconnect the tubing (Figure 3).

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As the project progressed, it became apparent that in order to have dissimilar roll coding operate the same

Dana Johnson began his life long love of mechanical music, as an infant listening to a style 38 Ruth organ located on the Loff Carousel, adjacent to his grandparents house in Riverside, Rhode Island. Dana presently divides his time between working as a full time restorer, part time ME, researching historical information related to Wurlitzer Band Organs and as a CV K9 handler for the Los Angeles Sheriff Dept.

devices, it would require additional valves not present with the original mechanism along with other pneumatic logic devices. A new auxiliary valve box was constructed to implement the extra Wurlitzer functions along with pneumatic relays (valves) to provide the logic network. In an early sample device, it was discovered that the usual lock out pouch method, commonly used to build logic networks in mechanical instruments, did not work well in this application. Consequently, various styles of small pouch operated valve boxes were constructed to provide positive control of their designated function. Although this requires more moving parts, the basic design has worked well.

To date, almost all of the design issues have been overcome. The only items remaining are a snare drum and castanet action which will work as two single-stroke beaters from the B.A.B. side and as a repeating action from the Wurlitzer side. The current fix has been to utilize two separate and independent drum actions, one for each roll scale.

In conclusion the final outcome has been exceptionally good. This project has turned out very well and provides the opportunity to compare two different styles of music rolls to be played on the same organ.

Photographs for this article and the preceding article by Jerry Doring were provided by Chuck Gallyon.

### Waynesville, Ohio Rally

**Friday Aug. 14**  
Organs start at 12 Noon till 7 PM at *Der Dutchman* and hand-cranked organs on Main St. till 5 PM. Open house at the Barnhart's from 8-10 PM.

**Saturday, Aug. 15**  
Organs start at 10 AM till 5 P.M. Dinner 5:30 P.M. at *Der Dutchman*. Large organs at *Der Dutchman* play for 7 P.M. till 8 or 9 P.M.

**Sunday, August 16**  
Organs play on Main St. from 12 Noon to 4 P.M. (Those large organs that wish may move onto Main St. to play).