

# 4/28 MERGER

by George Allen  
Photos by George Timanus

## PART II

*In the first installment, unable to find a complete instrument, Mr. Allen described how he assembled an organ from choice parts of three Wurlitzers and installed it in a special building attached to his home. As the installment closed he was ready to fire up the blower for the initial shakedown.*

The time had finally arrived for our first air test which would, I hoped, bring 12 tons of inert wood, metal, leather and wire to life in a glorious crescendo of music. A push on the console "start" button stirred up a distant rumble as the blower sprung into action, and suddenly we had what sounded like a full-blown hailstorm on our hands. Air was leaking from hundreds of chest valves and no amount of adjusting could stop them. They wouldn't seat. Dropping a bottom board, I pulled a valve and examined it closely. The two leather valves were tightly seized to the rod due to years of verdigris that thrives on the leather nuts, so that they couldn't "flex" and make a tight seal. Sadly, I switched the blower off. The task ahead would be enormous. We had to remove all bottom boards, every valve, polish every rod, replace all nuts and felt washers and install 3,500 new valves. To this day I cannot figure how they got by our rigid

Extra heavy bass strings are strung on the Hardman player piano by Steinway-tuner Dave Miller. Piano was completely rebuilt with soft and loud expression, sustain and a near-authentic harpsichord.



rebuild procedure initially, unless we weren't getting enough pressure from the vacuum cleaner we used as a wind source during the early test stages. It was my first big boner and shot the whole summer.

Air capacity can be just as important as air pressure. I had a 7½ hp blower but needed 10 hp to handle the present 28 ranks, which included those enormous air-guzzling 16' Tibia Clausas. After a fruitless

After arrival from factory, the 1360 lb. 10-hp blower was completely disassembled before it was skidded across lawn and down incline into blower room. George Allen works on blocking while George Timanus gets his back into it.

Spencer Orgoblo No. 30466, built June, 1970. Duct at left carries 15" wind and large overhead line 10" wind. Starter controls and silicon rectifier on wall at right with transfer switches for 54 amp generator (below). Rectifier is cut in, in event of generator breakdown.



search for a large blower I drove up to see the Spencer people in Hartford. They custom-built a 3-stage "Orgoblo" with 10" and 15" pressure outlets utilizing the new-type wind vanes which scoop more air. The delivery rate is 2100 cfm at 10" and 350 cfm at 15" after regulation. The motor is a slow speed 1150 rpm, 220-volt, 3-phase unit designed to cut down on wind turbulence.

Also, the 10" pressure metal output line is led into a big 18-cubic foot muffler chest before entering the chambers to further reduce wind noise. The chest has three staggered baffles to slow down the air stream and all inside surfaces are covered with heavy felt glued into place. The blower motor is the enclosed cage type and has no dripping oil or grease cups. There are just the two Alemite fittings which are filled

with a grease gun only once a year. Keying voltage is supplied by a 54-amp, 12-volt generator driven by a 2 hp, 220-volt motor and there's a standby Durst 35-ampere silicon emergency rectifier in case of breakdown.

Of all rebuild jobs the console is the most formidable and should be approached with reverence and loving care. In this plastic age mine is an honest example of hand craftsmanship and skilled knowhow. One can only imagine what it would cost to produce such consoles today. I spent one entire winter carefully taking it down and wound up with a sheaf of notes and wiring diagrams that filled a binder. The empty shell was stripped of its heavy cream paint and I had a refinisher bring the richly-grained mahogany veneer back to its original state.

Pneumatics were releathered, the brittle silver stopkey contacts replaced and handmade bridles installed. Black and white keys were balanced, rebushed and recovered with a plastic imported from England by Pratt & Read of Ivorytown, Conn. Stopkeys for the new ranks were added in family order, and every stop was re-engraved and polished by Hesco of Hagerstown. Three small pilot lights for Generator, Crescendo and Sforzando were installed on the backboard. Also an ON-OFF switch for the piano and a SOFT piano switch for long-term use (the piano pedal is for short-period use). The only non-Wurlitzer items on the console are five cancels for the four manuals and pedal, using electric switches wired in tandem with the stop magnet chests.

Couplers and unification give greater flexibility and now was the time to make just one addition to the superb coupler arrangement with which the Publix No. 1 console was already endowed. A 6-2/5' (major third) coupler was added to the Solo manual. This is the final coupler setup:

**PEDAL:** Acc. to Pedal, Great to Pedal, Solo to Pedal.

**ACCOMP:** Octave, Solo to Acc. Solo to Acc. 2nd Touch, Solo to Acc. Pizzicato.

**GREAT:** Sub-Octave, Octave, Solo to Great Sub-Octave, Solo to Great 2nd Touch, Solo to Great Pizzicato.

**BOMBARDE:** Octave, Great to Bombarde, Octave, Solo to Bombarde, Sub-Octave.

**SOLO:** Octave, 6-2/5' Third.

The Solo to Great Bombarde Sub-Octaves enrich the sound tremendously, of course. And the 6-2/5' coupler on the Solo has several advantages including that of making fast single note chromatic runs along the scale in thirds, quite a difficult feat even for a young Crawford. Two mutations, a Fifth and a Tenth were wired into the Solo Tibia which broadened its range to: 16', 8', 5-1/3', 4', 3-1/5', 2-2/3' and 2'. Stopkeys were also installed to control special features such as String Chorus, Fanfare Trumpets, Solo String Celeste Off, and similar combinations.

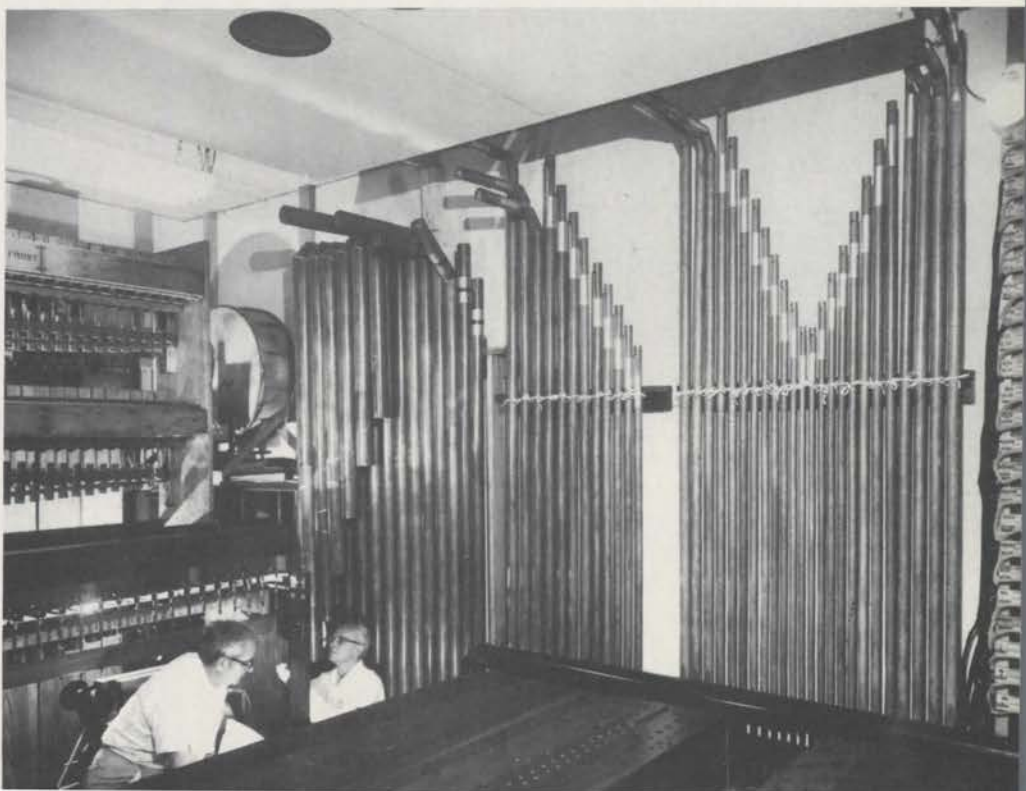
My second big boner was miscalculating the space needed for the relays and switch stacks. I thought they'd fit nicely into the blower room, certainly by double-decking. But when everything was unpacked and laid out, the units stretched over half the basement. And that's where they remained. This meant running nearly a hundred 80 ft. cables from the chambers through two 25 ft. cement ducts buried in the ground. Ringing out junctions between these isolated areas was accomplished by means of intercoms

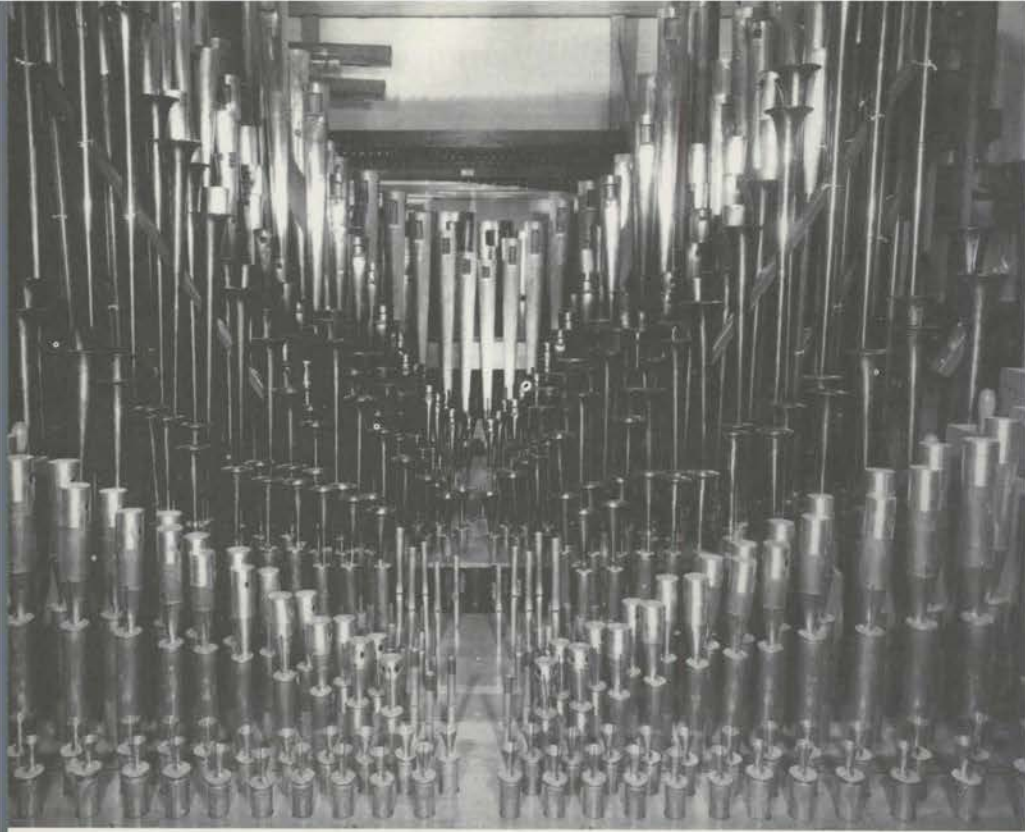
which are now permanently installed.

Just what do we mean when we talk about that enthralling "theatre organ sound?" It's probably a combination of many things, many sounds, that once surrounded us in a warm envelope of pure joy as we sat in the lush perfumed twilight of a movie palace during the organ interlude. The throbbing Tibias, the cutting edge of Brass, the shimmering Strings, and a tiny man or woman in the far distance bringing all this forth from a huge white console under a brilliant arc spotlight. There were other sounds too: the tinkling Bells, the Chimes, the Xylophone, the Marimba, the Piano, the Drums. Percussive sounds; the icing on the cake. They were part of the reason those consoles carried brass plates which read: "Wurlitzer Hope-Jones Unit Orchestra."

This is why I would like to go into more detail concerning our tonal and non-tonal percussions. After much trial and error certain locations for each device were finally arrived at. Even then, the Xylophone and Glockenspiel were only recently brought closer to the Solo shutters. There are actually five toy counters at various spots. In the Solo Chamber: Snare Drum, small Tom Tom, Fire Gong, Temple Blocks and two

Ed Dornfeld, right, and Joe James check out junctions in main chamber. On wall, left to right: Solo String 16', Solo String 8' and Viol d'Orchestre and Celeste 8'. Hanging from ceiling is the 64 sq. ft. baffle for electronic string bass, with 3 speakers visible.





Solo chamber, front to rear: Kinura, Vox Humana, Tibia Clausa, Saxophone, Brass Trumpet, French Trumpet, Oboe Horn, Post Horn, Tuba, Violin, Violin Celeste, Cello, Musette and 16' Oboe Horn offset. Tibia Plena was installed later.

Joe James tests marimba magnets. His son, Dennis, and daughter-in-law, Heidi, are making quite a name for themselves in the concert field. Pipes are: front, French Horn, Concert Flute, Solo String, Solo String Celeste, Open Diapason and 8' French Horn offset.



Rain Machines (one for light rain, the other for a downpour). In the Main Chamber: Band Drum, Tympani, Klaxon, Bird, Doorbell, Train Whistle, Horse Hoofs and three Cow Bells. Behind the mixing chamber in studio: Maracas, Castanets, Tambourine and Triangle. On the overhead platform: 18" Zildjian Crash Cymbal, Snare Drum with wire brushes, 18" Chinese Gong, 11" Sizzle Cymbal, 10" High Hat (a standard dance band item fitted to a large pneumatic action), 20" Persian Gong, large Tom Tom and Shuffle. And on the wall near the Piano: Orchestral Drum, Kettle Drum and an unusually large airmotor operated Surf with a metal barrel full of dried peas which sound very wet when activated.

Rhythm music and orchestral effects are further heightened with the help of three electronic circuits. One is the upbeat relay, designed by Joe James, which brings in a choice of five rhythm devices on the after-beat of the pedal. These same devices can also be played on the down-beat either on 1st or 2nd Touch pedal. The second is the flip-flop circuit for the Marimba and Master Xylophone which drives them in alternate reiterating fashion rather than two notes simultaneously, which was Wurlitzer's practice. And last, the 8-foot electronic String Bass.

No organ pipe can give the sharp cut-off of a plucked bass viol string, yet it is a beautiful rhythm backup for popular music. I wanted a deep bass, one with authority, and George Denham set to work to build just that. Instead of a speaker or two in a small cabinet George took another approach. Four 1/2 inch thick, 4 x 8-foot sheets of plywood were criss-crossed, glued and spot nailed to form a solid sandwich one inch thick and 8 feet square. Near the center were mounted four heavy duty permanent magnet 12-inch speakers with special heavy mesh cones, and the 64 square foot baffle board was hung by chains from the main chamber ceiling, speakers facing downward. Either a slap or bowed string bass note can be produced by a switch at the console.

At one time I considered putting the tonal percussions under expression in a separate chamber but this was rejected for several reasons.

First, it eliminated "another" expression pedal. And second, only a few percussions really needed control of volume. Therefore, in the Solo Chamber we mounted the 25-note Xylophone, the 25-note Tuned Sleighbells and 30-note Glockenspiel (the low octave was rewired a sub-octave below to increase its range). In the Main Chamber we erected the 49-note Marimba and over this the 25-note Cathedral Chimes, the 49-note Master Xylophone and above the console, on a platform, the large scale 49-note Deagan metal bar Celeste. All organ tonal work and regulation, incidentally, was done by Dave Davis who is a specialist in this field.

Some of you may have Ray Bohr's great RCA disc *THE BIG SOUND*, recorded on the Paramount Wurlitzer in 1956. One number, *Melody of Love*, is particularly interesting; it features a wonderful pizzicato Tuba over a sustained melody. Then again you've probably heard it done on some of George Wright's recordings. Wurlitzer's pizzicato relay was an ingenious thing in its time, yet it is rarely heard today. Found only in the large organs, I imagine many are just not in working order. Seldom used over the years, they gradually deteriorated. Unlike the common relay, the pizzicato relay is sensitive to adjustment and when rebuilt should be rebuilt from the ground up. Thin membrane must be used for the pneumatics (as the factory did) which I learned after recovering them with brown leather. It was too stiff. I had to remove all leather and redo the pneumatics with membrane. Two adjustments are necessary, the contact finger clearance and air valve escape. Once these are balanced the relay works consistently with just the right amount of "pizz."

Then, of course, there is the Piano. The sustained tones of the organ form a perfect backdrop for the percussive quality of this instrument. The organ piano is an upright Hardman player that was rebuilt by Dave Miller, including heavy bass strings that add more fortissimo to the lower octaves. The pneumatic layer action works from the organ relays by means of Reisner magnets, using special armatures to insure positive cut-off. There is a sustain, two stages of expression and a Harpsichord



George Allen and his "4/28 Merger" console. It was a long haul, but now — "...life can be beautiful."

effect has been incorporated.

The studio grand piano is not connected to the console but is used when several artists are featured. I discovered it in a small antique shop in upper New York state, hidden in a corner and covered with years of grime and neglect. I did not get involved in its rebuild (ask anyone who has tried it) but had a professional take it completely down and restore it to top condition. This piano is a Weber with Aeolian Duo-Art reproducing action. The price in 1924 according to a New York retail price card I have was listed at \$2,500, or about \$5,000 in today's cheaper dollars. That was why these pianos were found mostly in the homes of the wealthy.

Wurlitzer shipped over 2,200 Unit Orchestras to all parts of the world during the 33 golden years of their manufacture and the era abruptly ended during the late 1930's when their complete inventory of organ parts — jigs, cabinetry, chests, pipes, keyboards, everything — was piled high in the yard at the rear of the factory at North Tonawanda and went up in the smoke of a huge bonfire.

The story could have ended there, but a small group of enthusiasts shared a vision back in the mid-'50s. A legion of organ enthusiasts banded

together and many an organ was saved because ATOS (then ATOE) members arrived before the junkman. Or better still, they brought many slumbering giants back to life in their natural environment, the motion picture palace. Yes, a new era has been born, and with it has flowered a new generation of fine organists. And many console veterans are still with us. Life can be very wonderful, after all! □

Since the first "4/28 Merger" installment appeared in the June issue, the organ has been dismantled and readied for shipment to California. George Allen has moved to Altadena, near Los Angeles, and plans to install the organ there.

Needless to say, the many people who helped on the project are deeply disappointed at this turn of events.