Remaking a Nicholson Console for use with Hauptwerk

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For a couple of years I have been experimenting with Hauptwerk, the computer based organ sampler software. As I have always had an interest in electronics I have particularly enjoyed building circuits to interface Hauptwerk with reclaimed organ parts.

I began by converting an old pedalboard to play with my digital piano. I then found a way to 'MIDIfy' old organ keyboards so that they could be used with Hauptwerk and this was followed by a number of projects which gave a new lease of life to bits of old organ which would probably otherwise have ended up on an organ builder's bonfire.

Before long, I had built up my own practice organ which, though it worked well, lacked something in the cosmetic department. Fortunately I was able to acquire the console from an organ built in 1954 by Nicholsons for Oldbury Grammar School, Worcestershire. This is a made of good quality components and is close match to the 1956 Walker I play at church – just right for a home practice instrument.

The Nicholson had been dismantled and in storage for several years – latterly in less than ideal conditions. When I went to collect the dismantled parts, the seller was busy burning the rest of the structure of the organ and I suspect that if I hadn't purchased the console it would have suffered the same fate.

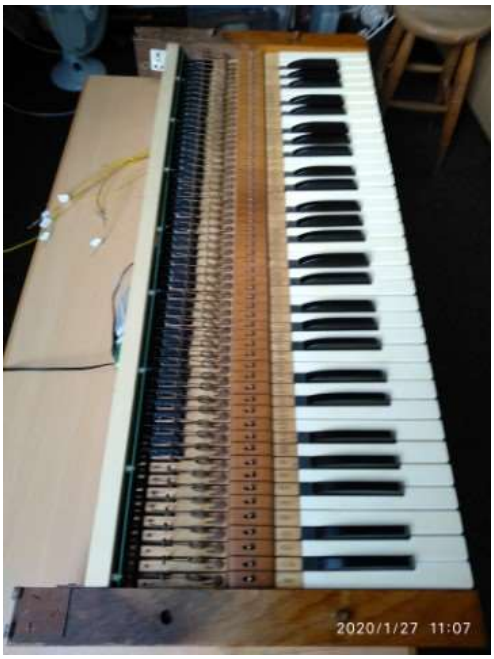
Having got the parts home, I had the task of trying to piece them all together – rather like a large three-dimensional jigsaw puzzle. To make matters more complicated, the console was not free standing but had been built into the structure of the organ. Basically I had a lot of good quality components (plus quite a lot of the oak panelling which had formed the organ case) and I had to devise a way of turning it all into a free-standing console.

The refurbishment involved three stages: restoration, MIDIfication and remodelling.

The first step was to clean and repair the various components. The pedalboard had broken where the tension of the pedal springs had found a weakness in one of the joints. The pedals were also very dirty – I suspect years of spilled school dinners! After dismantling the pedalboard and cleaning and repairing it, everything was

reassembled and - apart from a small water stain on one of the keys – now looks as good as new.

The toe pistons were cleaned and, as I had several matching spares, I brought the number up to eight for each division. A second expression pedal was made to match the original and both were converted into what are, in effect, giant volume knobs.



The keyboards (by Clarke) required careful cleaning. Several of the coverings required re-gluing and a few keys needed to be re-bushed. The thumb pistons were cleaned and rewired. One is missing its push button end – I am still trying to source material to make a replacement. The stop action motors were dismantled and cleaned. They showed signs of old repairs which were themselves starting to fail. The double touch action had clearly proved an annoyance in the past and had been physically deactivated! While the unit was in pieces it was possible to make proper repairs. The original wire loom was removed as it is not required by the new control system.

The heart of the new console is the electronics which reads the state of the keys, pedals and stops and communicates with Hauptwerk. For this conversion I have used an Arduino – a programmable microprocessor board very popular with electronics hobbyists. The Arduino sees each key, pedal, tab or piston as a switch. Its software scans all these switches many thousands of times a second detecting presses and releases. The console still had its original wire switches, but after sixty-five years they were dirty and corroded and coming to the end of their life. I replaced them with a 5 volt optical system which I had used in earlier projects and for which I had already designed printed circuit boards.

The pedalboard also had wire switches, which were replaced with reed switches and magnets.

The final casing of the console was developed around the pedal section which already formed a fairly solid unit. Two of the surplus oak panels from the organ casework were chosen as end panels and horizontal members were fixed between them to carry the keyboards. The sides of the upper section had to be completed where they had previously become a part of the main organ. All was then sanded down and given a new finish with french polish.

The picture below shows the almost finished console which now plays and is currently being used for the virtual services being streamed from St Chad's, Pattingham. The computer speakers - shown here during initial testing - have been replaced with a pair of active monitor speakers. The coronavirus outbreak has prevented the final part of the conversion from being completed as the printed circuit boards for operating the tab stops are quarantined somewhere between China and Bridgnorth! Hopefully I will be able to add them soon.

A more detailed account of this and other Hauptwerk projects can be seen on my website: http://www.greglewin.co.uk/organ2/index.htm