Case study

on the restoration

of the

1735 Richard Bridge Organ

at

Christ Church Spitalfields

The Organ Case

WILLIAM DRAKE Ltd

Organ Builder

Chapel Street, Buckfastleigh, Devon TQ11 0AB

The Organ Case

General

The organ case seems to have been made as large and imposing as possible, in width actually causing the plaster cornices of the entablatures having to be sculpted away to allow its installation in 1735. There is only just enough room to get the front pipes of the side towers in and out for the voicing process. The lower section is taller than the usual. The front is made in solid mahogany though some veneer is used in the cornices and the serpentine mouldings at the top of the impost. The sides of the case are made in pine, painted to look like mahogany.

There is no building frame in the front section of the organ. The soundboard supports are dovetailed into large hanging brackets nailed and glued to the inside at impost level at the front and the back.

The reinstalled Great soundboards (note the dove tail brackets that are nailed onto the back rail of the impost)

The tower front pipe toe-boards are resting on the ends of three cantilevers running along the outside and in between the soundboards which are dovetailed into brackets fixed to the back rail of the impost. The weight of the front pipes is thereby not bearing down on the ornamental mouldings and carvings below.

The cantilevers were found in a very much weakened state. They had been severely structurally compromised to fit large pedal pipes in the Great case.

On the bass side, the connection with the back of the case was completely missing, because it had been sawn in half to allow the insertion of DDD and DDD# of the Pedal Open Diapason.

Reconstructed Bass side cantilever fixed with dovetails into the new rear bracket

A puzzling element is a door in the bass side of the top case which can never have been used because it is obstructed by the entablature next to the organ. It is nailed shut with nails that look to be 18th century.

The Choir soundboard supports are dovetailed at the front into similar hangers as the Great which are nailed and glued to the back of the impost back rail. The supports are at the back dovetailed into a top rail of a frame structure. This structure forms the back of the lower part of the organ. This back frame had been moved forward and lowered somewhat in 1852 to be able to fit in a then new 3 stop Pedal soundboard. This back frame was put back in its original position for which the Choir soundboard supports needed to be lengthened. The underneath of the high top rail showed original mortices which would be central to each of the original bellows. These uprights were reinstated and have been utilised for reconstructing a hand pumping mechanism using pulleys and rope.

What remained to be put back was the support structure of the Swell soundboard. This was originally situated over the Choir

The case itself had suffered from the ravages of time and adverse climatic conditions. At close inspection it became clear that the cornices of the towers and the serpentine shaped flats were in a condition that warranted their removal and

restoration in workshop conditions. In spite of the enormous and awkward size and the weight of the cornices they were removed, cradled up, hoisted out and taken to the workshop.

Exact fitting carrying cradles ware made in order to be able to transport the bulky but extremely fragile structures

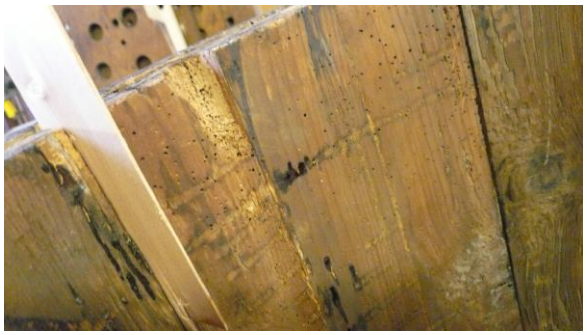
The immediately visible damage was in the condition of the veneers of the rounded parts of the frieze. They had been much patched and nailed back in places causing numerous splits. Only on one cornice this veneer could be saved. When the veneer was removed, the pine sub-structure which was coming adrift turned out to be severely affected by woodworm.

After treating the possibly still active woodworm the barrels were repaired by re-glueing and filling splicing in thin strips of pine. The by woodworm eaten away surface was filled in with a mixture of wood dust and glue and shaped to become suitable for glueing back the veneer. A semi-circular clamping-aid was made to be able to glue the veneer with hot glue against the barrel shape, using many blocks and wedges.

The removal of a frieze veneer

Woodworm damage to the pine sub-structure

Repair of the barrel structure (woodworm damage evident)

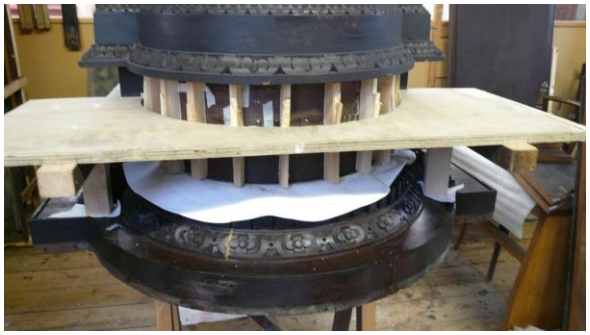


Woodworm damage filled in and surface prepared

Laminated moulding coming apart because of shrinkage

restoration of the top moulding

Clamping of the veneer



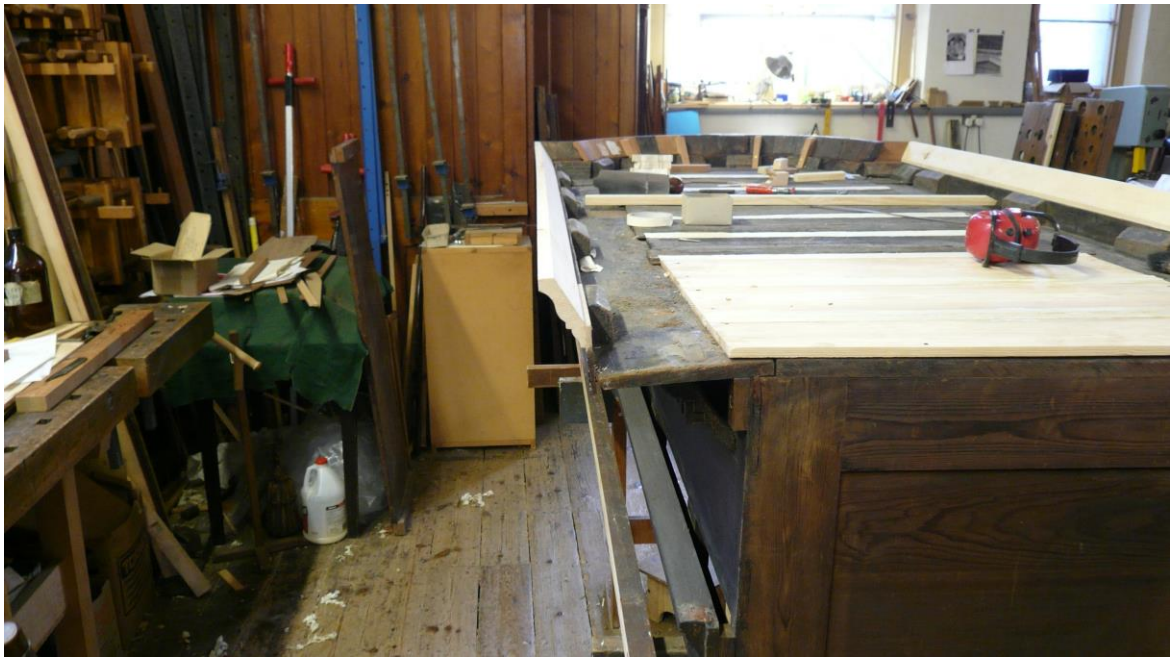
The veneer glued back in place

The Bass impost compromised by (historic) vermin attack

Compromised wood removed and replaced

The large top moulding consisting of segments and laminated strips of mahogany had come loose in many places. The top moulding of the cornice had been removed (or had fallen off) for the most part prior to dismantling. The segments were re-glued, in some cases also fastened with blind screws as there were already some present from very early days. Some very small open seams were left to allow for some future expansion room. Large gaps were filled with old matching wood. Some laminated pieces had to be cut and re-glued to make them fit against a shrunk background. The top most moulding was originally only fixed with very thin nails. To make this more secure and leave it removable for transport, this was now fitted with angled shaped blocks.

The cornice re-assembled in the workshop



The roof of the organ is made of the roughest thin tongue and groove planks nailed down across the top edge. Some of the planks needed to be repaired and additional sections made. The joints were glued over with strips of linen to keep out dust in the future. The insides were treated with thinned linseed oil as an attempt to stabilise the rough surfaces with loose crumbly fibres. Finally the decision was taken that the finish should be removed at this stage as this would be an almost impossible task with the case re-assembled. This was done with de-natured alcohol.

A broken roof plank

Angled shaped fixing blocks and the taped over joints

Casework of console area

The large panels either side of the console

At some stage during the history of the organ these panels were removed by breaking open the groove in the framing from the back leaving a very untidy rebate. This was presumably done for easier access to be able to make significant changes to the original organ in the 19th century. The panels were then put back with a series of nails holding them against the rebate from the back.

The very thin edge of these panels (80 ½'' x 31 ½'' or 2045mm x 800mm) was badly splintered and broken.

Stripping the finish

The woodwork had been covered with a thick treacly dark varnish which was quite irregular in thickness.

It was decided to Strip the polish from the panels to be able to see the grain properly and to be able to cut the new repairs flush with the old surfaces without damaging them.

The stripping was done with denatured alcohol aggravated with fine bronze wool. The mixture of alcohol and dissolved polish was mopped up with paper towel. The nearly clean surface was then rubbed in the direction of the grain with linen cloth soaked in alcohol until no more shellac came off.

At this stage very small droplets or spatters of a light coloured paint were detected, a colour very close to the original paint on the carvings. Carefully scraping these off revealed that the wood surface under the paint splatters revealed no different finish than the areas already cleaned. This would support the conclusion about the first finish applied originally to the casework, that the mahogany was given several applications of oil and nothing else.

The gilding was also stripped from the carved moulding around the panel above the music desk. This revealed that the first layer of gilding was applied straight on the wood without any gesso.

Repair of the large panels

After glueing the surviving old fragments back in their original places, there remained a number of edges to be reconstructed with “new” wood.

It is very difficult to find a source of donor mahogany that matches the old mahogany used for the Spitalfields case closely enough. This mahogany has to have a very straight almost stripy grain that does not deflect. There does not seem to be any cross grain effect anywhere. The character of the grain is not very decorative but the 1735 wood is of a very high quality indeed.

New wood to reconstruct the edges was sourced from an old table of which the condition was beyond restoration. Also some old bed-ends found their way into being used to complete missing parts of the top cornices.

Repair of splits in edge of panels

Restoration of the Console

The original width of the stop jambs is 8'' or 203mm. The space in between allows for a keyboard stack of 840mm wide. These jambs are connected by a top rail and a rail above the music desk panel. The Treble jamb had been cut narrower to allow for an increase in manual compass from top d''' to top f'''.

The rail above the music desk panel has had two letterbox shaped slots cut away possibly to allow for some form of early electric lighting or perhaps to increase the amount of sound reaching the organist's ears.

Preliminary repairs to the console area before stripping took place

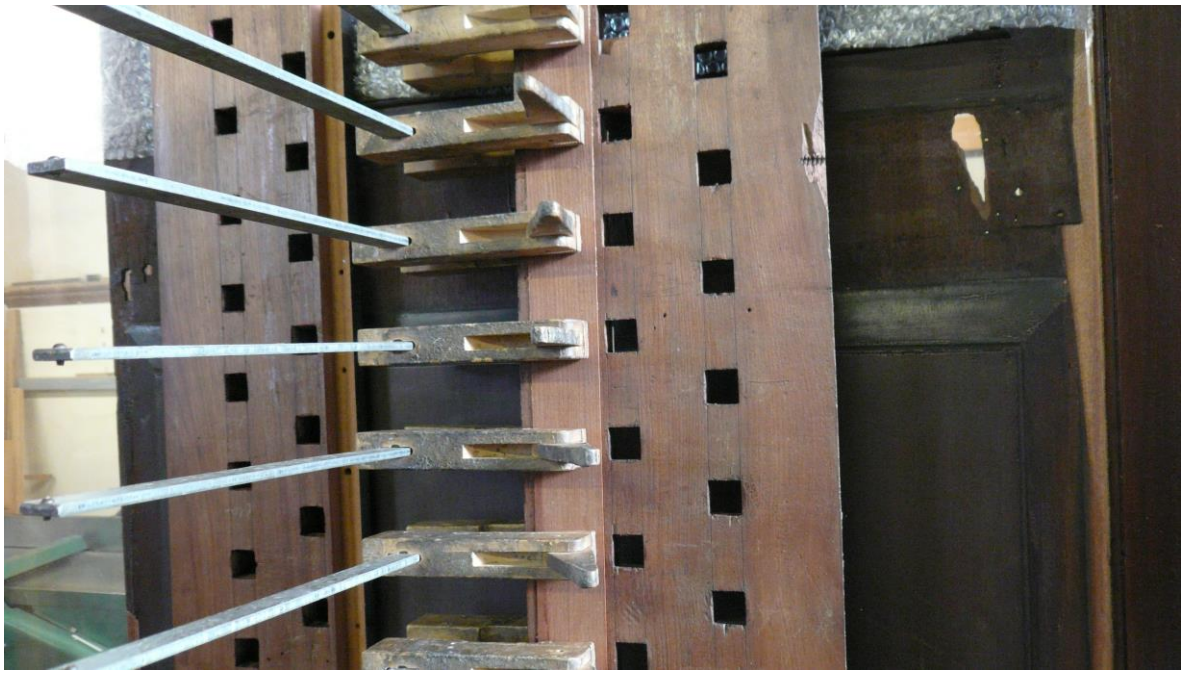
Rail with two letterbox-slots prepared for closing up with a thick veneer

This whole assembly of frame and panel is held in place by two returns, nailed against the side of the framework, which are in return nailed against the back of the case uprights either side of the console. The assembly was dismantled and stripped in the same manner of the large panels either side of the console.

The Treble stop jamb was restored to its original width by using a thick veneer grafted from the back of the right hand return. The return was restored to its original thickness with replacement Mahogany veneer.

The stop jambs standing up-side-down prepared for fitting in the veneers

Veneer on Bass jamb being glued



The stop jambs on both sides were peppered with extra holes for added stops and couplers. It was quite easy though to identify which holes belonged to the original specification. They identify themselves by their placement in long routed grooves in the back of the jambs with reasonably tidy chamfers. These grooves reduce the thickness of the jambs from approx.1 ¼'' (32mm) to about $^{7}/_{8}$'' (22mm). This was most likely done to avoid binding of the trace rods, through sideways swing caused by the trundles behind the jambs.

In the Bass jamb nine extra holes had been made next to the original holes. These were closed up by routing a slot, which was filled in with the grafted wood from the treble return. Above the original bass holes, five later added holes have been filled in and below the originals, one.

In the Treble jamb six extra holes had been cut above the Great stops, of which the lowest one was filled in. This would prepare the right number of holes to allow for the three stop Pedal Organ and its two couplers and it would conveniently separate the Pedal Department from the original Great stops on the jamb.

The Bass jamb being restored to the original number of holes

It was found that in the 19th century the original stop holes were made larger to allow them to be bushed with cloth. The cloth has now been removed and replaced with firm brown leather. This is chamfered so that its thickness can't be detected easily with the stop trace rods in place.

Stop labels

During the stripping-process paper fibres were found stuck to the jamb next to the Choir Stop Diapason. A shadow of about 22mm high and 54mm long was found next to other stops.

A fragment of a stop label was found under the floor by Red Mason during his survey in 1997. This fragment (24mm high) is made of laid-paper.

The surviving calligraphy shows the final three letters of a stop name “URE” in a gothic font.

The label fragment fixed to a piece of mahogany

These three letters are sufficiently spaced away from the side of the label (the name furniture would take up more space on the label), that one could be led to believe that this is a fragment of the original label for the Choir Mixture.

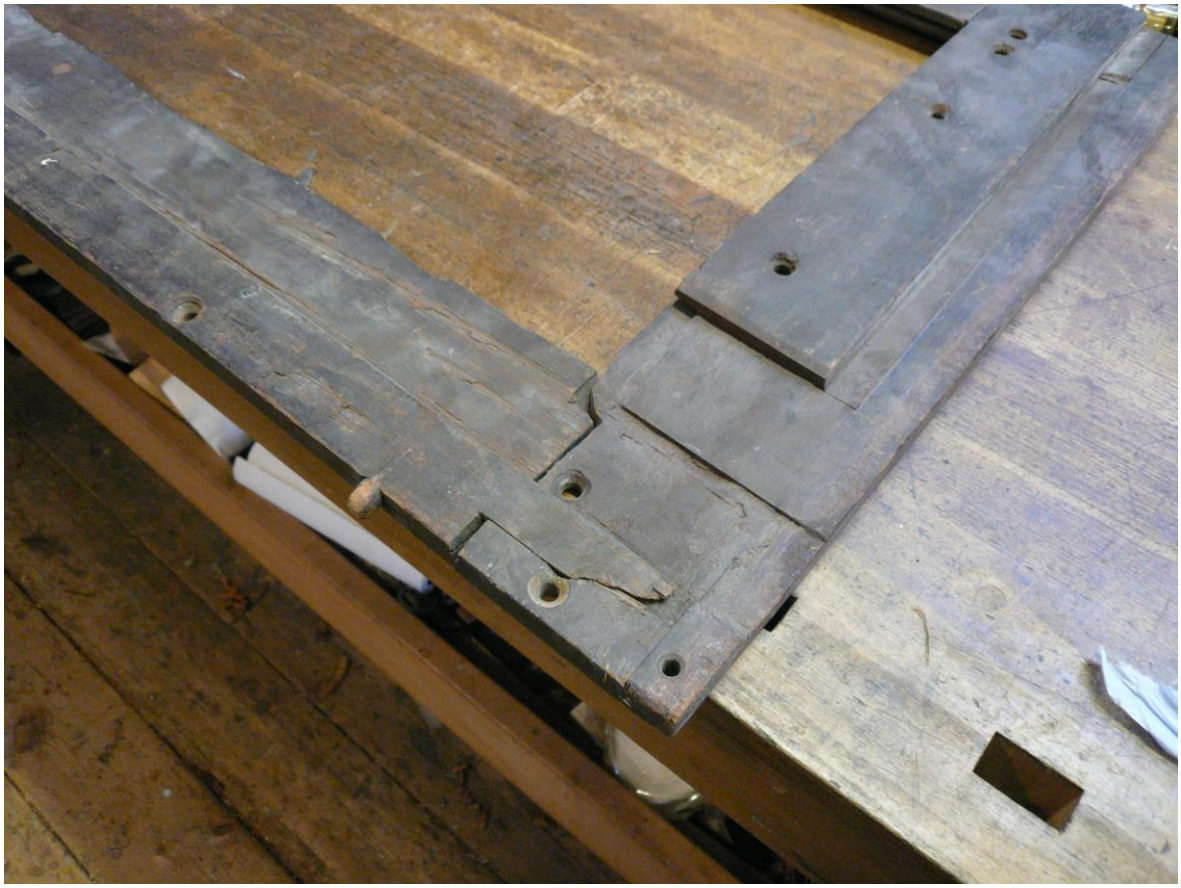
Music Desk Frame

The parts of the original music desk frame were very cut about and sadly much drilled into. The uprights had been shortened by 17/19mm and the top rail narrowed by as much, and gouged out in two places. The edge of the ogee moulding was splintered away in several places. The panel filling had been cut out altogether (there was one fragment found, still stuck deep in the groove of the top rail).

The parts of the frame in a very sorry state

At face value, the original material looked like a write-off. The repair to fill in the holes and gouged out pieces was undertaken nevertheless. Once this process was on the way, things looked much more in favour of including the old material into a reconstruction of the music desk panel. The restored music desk panel was eventually used in up-side-down position. This way, the narrowed (originally) top rail (now bottom rail) was visually widened by sitting it on a cock-beaded rail on top of the keyboards. The visual effect is such, that one is no longer aware of the fact that this rail has been cut narrower.

The back of the bottom rail cut away for the addition of an extra Swell coupler



Case Rail under Console Doors

The case rail under the tall console doors was found much chopped about. Only short stumps from either ends of the rail were found with the tenons still intact.

Also had the structural beam supporting the keyboards been sawn out, leaving the console structurally rather compromised. The long pivot boards supporting the stop action trundles, which were originally dovetailed into this, were now lacking sufficient support.

It was decided to reinstate both the supporting beam and the case rail. The latter was done mostly for aesthetic reasons.

Restoring the Case Rail

The exact length needed for the restored rail was measured between the shoulders of the join with the uprights next to the console. The width, thickness and the dimensions of the cocked beads of the rail were measured from the existing stumps.

New case rail next to old stump

The installation of the new rail presented us with a problem though. A new rail with tenons already attached, could not have been inserted without taking down the whole organ case, in order to be able to spread the uprights far enough apart.

The old tenon inserted into the back of the new case rail

New mitres on the cocked beads to fit the old join

A new rail was made without tenons. The old stumps were cut to allow the original tenons to be inserted into a new rail from the back.

The rail was installed by first glueing the old tenons back into the old mortices, and then followed with glueing the new rail around the tenons flush with the front of the old uprights straight away afterwards.

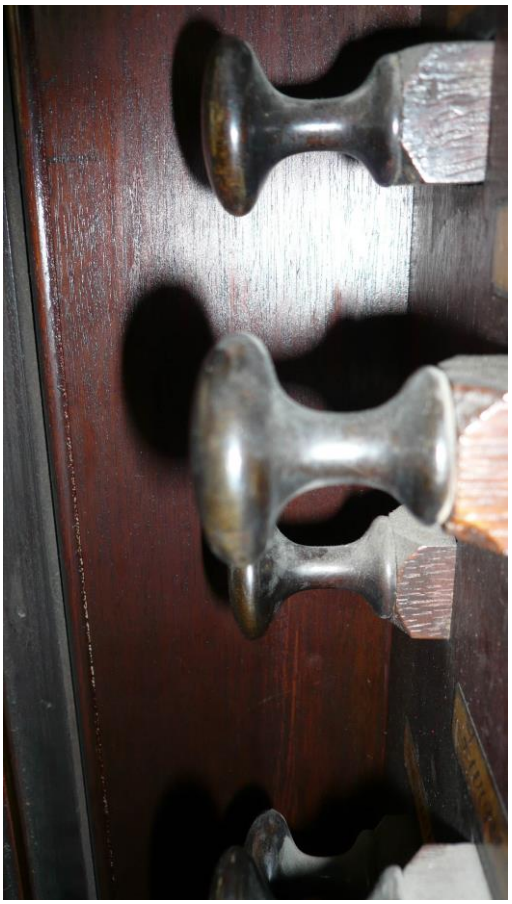
The structural beam supporting the keyboards and stop action re-instated (note the original roundhead screw at the top)

The case rail is glued back in place (note the dove-tail fitting of the stop action pivot boards)

Keyboards and stop knobs

The details for the keyboards and the stop knobs have been copied from the 1756 Richard Bridge organ in Shoreditch. (see action)

The Shoreditch stop knobs in Ebony



The key levers in Shoreditch are made in pine. In Spitalfields many of the action components (even the trackers) are executed in oak. We therefore argued that there was a strong case here, for making the key levers in oak instead of pine. The naturals are covered in ebony and the sharps are in Skunk-tail fashion, a sandwich of two pieces of bone (ivory in Shoreditch) with ebony in the middle.

The keyboard cheeks of the Shoreditch Bridge organ are cleverly made up of a pine core clad with thick mahogany veneers which are mitred blind on the corners. The keyboard cheeks for Spitalfields were carried out in the same manner but with an oak core instead.

David Frostick at the almost complete reconstructed console during the finishing of the reed stops