

D.I.Y. REFURBISHMENT (ENGLISH BELLS DE-RATTLED)

from Richard J Page, Frome Valley Handbell Ringers

We have all heard it at some time. Probably many have actually suffered with it, and continue to do so, but have put off attempting a cure because of the cost plus the fact it doesn't sound too bad really? (That is until you hear your bells played against some that haven't got it) However "THE RATTLE" does not have to be an accepted incurable disease. There is a comparatively cheap and relatively easy remedy.

First of all let me lay my cards on the table. I write this from the pious position of a Malmark Bell owner, but one who still has a great love for the sound of English Bells, without "THE RATTLE" of course.

My first introduction to the cure came when my sister asked if I thought I might be able to renew the felts and staple pins on the middle two octaves of her team's set. This was about two years ago. As a bit of a carrot to encourage me, the request was accompanied by the offer to house sit for her in sunny Devon whilst completing the task. How could I refuse?

My experiences are based entirely on a set of Whitechapel Bells, whose foundry now produce a very helpful maintenance leaflet which accompanies their spare parts, or if you are computer literate, is obtainable from their web site. In fact, it would be a good idea to obtain a copy before you commence any work or attempt to order parts, as reference to "one of those black bits that goes onto the twangy thing in the bottom of the bell," is not as concise as ordering a "spring felt". (You may be surprised to learn that they are in fact white in colour and it's only the two gallons of oil you've been bunging in over the last five years to cure the rattle that has caused them to look like that. Oh yes, they are supposed to be quite soft as well, not impacted rock hard.)

Now, where was I? Yes, let's cut out the waffle and get down to some facts. What I am going to attempt here is to explain some of the things I have learnt which the Whitechapel leaflet does not tell you. I'm not knocking it. It is an excellent reference and without it not all of this article will make sense—and I would not have made my attempt at the job. I started from scratch. What I am trying to do here is pass on the benefit of my experience so you can avoid some of the pitfalls I experienced and hopefully give you the confidence to refurbish your own bells at considerably reduced cost.

You do not have to have a workshop full of tools, but I would not encourage anyone to do this who is not reasonably happy to undertake most D.I.Y about the home, or has some inclination towards things practical. So, ladies this definitely does not exclude you.

This first attempt although successful in defeating "THE RATTLE" taught me a great deal, the main lesson being you need to use a tool known as a jeweller's brooch, not an engineers' reamer. More about that later.

Perhaps it would be better to start with an explanation of what the problem is that you are seeking to cure, and some of the ancillary areas of maintenance you can complete along the way

THE PROBLEM

The rattle is caused by wear in both the staple pin, clapper, and possibly even the staple. Whitechapel suggests you need to send the bells to them for major overhaul, if the wear cannot be rectified by replacing just the pin. You will not actually know it until you insert a new pin, but if the set I worked on is a guide, I believe that if the customary spot of oil on a cocktail stick won't cure it for more than an hour's ringing, you are probably into the next stage of the disease. Fear not, Whitechapel still helped me and did not call the bells in. To slightly mis-quote the person I spoke to. "If you totally botch the job up, we will be glad to sell you a new set of clappers". I think "botch" was the term used. It definitely started with a "B" anyway!

THE CURE

You will need to remove all the clapper assemblies from the bells and examine them closely and decide what parts you need to replace, other than just the clapper pins.

The first lesson I learnt was do not believe everything the leaflet tells you. True, long nosed pliers and fingers can remove some clappers. It is perfectly sound advice NOT to grip the felt and pegs to do this BUT a correctly positioned offset adjustable spanner was required on quite a few bells instead of having pliers slipping off and tearing springs from their rivets.

Can I suggest you do not become tight fisted at this point? You are going to be taking your bells out of action for a period of time. I cannot really say how long as this will depend on your level of competency (which rapidly improves the more you do), the amount of work you are going to carry out, and if you have a helper. As a very rough guide I would suggest with a helper, renewing everything bar the handles allow an hour per bell. So, plan an appropriate time when you are not going to be under pressure to complete things. Through the Summer Holidays perhaps, rather than 25th November.

The other thing you may not realise is just how worn, or hard, or stiff, a certain piece of leather or felt has become until you compare it alongside a new one. Replacing the hardened old staple washer for example, can make the difference between unscrewing it with the fingers instead of the adjustable spanner. As for the clapper pegs and felts, well your ringers will think they've got new bells upon which they can produce the full range of dynamics, from *pp.* to *ff.*

If it helps the decision process, I suggest you draw up a list of all the bits you need and get a quote for the cost of parts. Then ask the Foundry for a quote to do the job for you.

I rest my case.

THE TOOLS

1. Working Area. A bench is the ideal, but a 3 ft x 2 ft work top or old table should be sufficient.
2. A vice is a must. One of those cheap little 3-inch jaw variety that has its own screw clamp fitting is ideal. If it also has a lockable twisting base even better. (I found attaching the vice to an old wooden box about 12ins. x 12ins. x 12ins. raised it to a convenient height above the work surface so I could sit on a stool and have all the bits and tools easily to hand)

3. Block of wood 3ins. x 2ins. x12ins. with a couple of holes 3/8 ins. dia. by 1 ins. deep located 3/8 ins. in from one of the long edges. (To act as a firm base for punching the old pins out and for cutting the pins to length on.)
4. Two craft knives. (One for scraping, one for cutting)
5. 1/16 ins. nail punch.
6. Long nosed pliers.
7. Offset adjustable spanner.
8. Old 1/2 ins paint brush. (For brushing swarf and old sealing wax out of staple)
9. Sealing Wax.
10. Small electrical soldering iron
11. Large margarine tub. (For the rubbish)
12. Strong cardboard box cut with sufficient holes (octave at a time) duly marked to receive the clappers AS YOU REMOVE THEM.
13. Insulation tape.
14. Jeweller's brooch. (Depending on your bell sizes you may require two sizes. Be guided by the Foundry's advice.) You will also need to purchase a file handle from your local hardware shop to fit this.
15. A good lighting system for the bench area.
16. No tool list would be complete without one. A HAMMER. (Small 3-4 ounce.)

You will also need things like files, electric drills, and larger hammers if you are going to attempt replacing broken springs or old handles, but I have no experience of this and the Whitechapel leaflet covers this quite comprehensively.

THE METHOD

You cannot go far wrong by following the Whitechapel leaflet as it gives you a very sound knowledge base to carry out renewal of all parts you are likely to have identified for replacement. All I shall attempt to do here is to impart the extra little things I learnt through my experiences which the leaflet did not highlight. In particular my belief that you can safely be trusted with the dreaded "brooch".

Clapper Removal

No real comments here other than to reiterate care with the pliers.

Staple Pin Removal

I preferred my block of wood with the hole as it was quicker than tightening and loosening the vice, and much more solid, particularly if using only a small vice positioned as described earlier. It is important to have the hole drilled only 3/8 ins. in from the edge, as this enables the spring and clapper to stand well clear of the block and not get bent sideways.

You may be surprised to find some of the PTFE material which modern staple pins are made from, has peeled back as the original pin was driven through and formed a sort of washer between the face of the clapper and the staple. Don't worry all it's been doing is preventing side play in the clapper, and the same thing will probably happen when you drive your new pin in. Unless it makes the clapper too tight to ring, I suggest you leave it.

BEFORE you actually remove the clapper from the staple and AFTER you have knocked the pin out, pass the brooch through both parts still in situ. You will note that it passes further in from one side than the other.

Make a small scribe mark on the side it penetrates the greatest length from, on BOTH the staple pin and the clapper.

Spring Felts

If you are going to be using the brooch DO NOT REPLACE felts at this stage.
By all means cut them off and scrape the springs clean now, but complete the other jobs first.

Springs

Hopefully this will not be one of your jobs but if you do find the odd problem, follow the leaflet.

The Clapper Pegs and Felts

If you already have nylon or polythene at the top end it is unlikely you will be replacing these but if you are thinking of doing some sort of upgrade you will need to talk to the Foundry.

Your most likely task will be replacing either the leather pegs or the leather and felt combinations. This is the point in the operation to do it as you have just the clapper, (no staple attached) and you can hold it firmly in the vice to carry out your knot tying etc., etc.

DO NOT HOLD IT BY THE FLATS WHICH GO INTO THE STAPLE. Use jaw pads or cloth and hold it by the shank and follow the Whitechapel instructions.

The Mystery Of The Brooch and How to Use It

This is the proverbial square peg in a round hole! What you have is a hand tool (no it won't fit in your cordless drill. I tried.) which is square in section and gradually tapered throughout its entire length.

Offer it through the clapper and staple referring to the marks you made above.

With the insulation tape, mark a point on the brooch at least the width of the staple further up the brooch towards the handle.

Now, GENTLY pushing and rotating the brooch, cut the staple pin hole through both the staple and clapper together in their correctly assembled position until you reach your tape mark.

Take a length of the PTFE rod which is of the approximate diameter for the hole you have just enlarged and BEFORE you cut it off the length, pair off a very slight chamfer on the end. THEN cut a length a ¼ inch longer than required.

NOTE: It is well worth being gentle and patient at this stage. There are various sizes of PTFE

rod which you will be supplied with. What you are seeking to do is to create a hole removing the least amount of metal, which nevertheless is large enough to accept the next size up of PTFE, from that which formed the old pin.

The new pin when knocked in should fit snugly into the staple on BOTH sides but allow the clapper to gently drop from spring to spring with no side play and of course **NO RATTLE.**

DEEP JOY!

By making your first mark on the brooch with the insulating tape only a staple's width, you should have erred on the side of caution, and the first attempt will be too tight. You can therefore move the tape up a little further and slightly enlarge the hole to get the perfect fit.

Remember you can't put metal back in, you will have to go to the next size of rod. This will ultimately reduce the number of refurbishments possible.

The good news is of course you don't have to go through this set up procedure with every bell, as once you have the correct setting on the brooch this will be good for an octave or so.

WARNING: DO NOT REFIT THE PEGS AT THIS STAGE.

You still have the spring felts to refit. This is best done with the clappers out, as by leaving this 'til now, you will have avoided getting your nice new pads covered in swarf, and it will give you more room to work, particularly on the small bells.

Fitting Spring Felts

Having made sure that the spring is clean of old sealing wax and oil, and ruffed up a bit by scratching with the knife or coarse sand paper, here is where I disagree with Whitechapel as to the heat source for melting the sealing wax.

I found the soldering iron ideal. It was small and controllable, particularly on the smaller bells where my first attempts with a flame resulted in the pad on the opposite spring getting severely singed. Like most things this requires a bit of practice. To get the right amount of wax applied, no words from me will impart this art. You have just got to do it.

One tip though: while gripping the staple in the vice with the spring angled flat towards you heat the spring with the soldering iron from underneath while touching the wax onto the top, this way you can build up a GENEROUS amount of wax which the hot metal will keep fluid long enough for the pad to be positioned. BEWARE even though the metal is very hot, (NOT JUST THE BIT YOU ARE HEATING) the wax hardens very quickly.

BE CAREFUL. ANY PART OF THIS OPERATION CAN GIVE YOU A NASTY BURN

NOTE: Most felts have a taper on the side nearest the base of the spring. Cut this **BEFORE** fitting it to the spring using the old felt as a template.

RE-ASSEMBLY

You really are nearly there.

Remembering to check your scribe marks, place the clappers back in the staples, cut off the PTFE rod with the chamfered end $\frac{1}{4}$ inch over length, and placing the staple over the hole in the block lightly tap home the pin leaving a little excess either side.

For safety place the thread of the clapper in the hole and trim off the excess with the knife downward into the block.

Fit a new staple washer of the correct size and screw the assembly back into the bell.

YOU HAVE NOW FINISHED.

DISCLAIMER

The writer can accept no personal liability if the procedures above fail to give a satisfactory result. The methods described are offered in good faith and it is left to the readers own judgement to decide if they feel competent to attempt this work.

The writer would also like to point out that he will be taking a two-year sabbatical in some obscure part of the globe where there is no postal service, telephone or fax system and beyond the reach of satellite communication. Oh yes there will be no extradition treaty in force with this country either!

GOOD LUCK. YOU SHOULD NOT NEED IT!