AUTOPSY

8" Ring Shell

Manufacturer:	*Sunny*
Shell Weight:	*2208g*
Lift Charge:	*200g 3FA black powder*
Burst Charge:	*1125g BP on small cotton seed*
Stars:	*3/4" dia. round stars*
Hemi I.D.:	*7"*
Hemi O.D.:	*7-1/4"*
Case Thickness:	*3/16"*
Time Fuse:	*Dual chinese time fuse, 6 sec delay time*

Figure 1: Ring stars, surprisigly not rolled in tissue paper.

Figure 2: Stars are wedged tightly into a tissue paper trough.

Autopsy Report:
As a hobbyist, the thought of an 8" ring shell seems rather silly to me. Why spend all the materials and time pasting in a big shell to get a ring, then have some spectator say "all I saw was a line in the sky!"

But apparently these shells are cheaper on the commercial market than other large shells with single and double petal star effects. So perhaps this is one method display operators use to increase the larger caliber shell count in their shows without raising the price too much.

Given the number of ring and pattern shell construction techniques that have already been investigated on this site, I didn't really expect to find anything new here. But to my surprise, this shell packed a few tricks I have not seen before.

The first thing you notice in Figure 1 is that the ring stars were not rolled up in tissue paper, which seems the be the standard method of packaging ring stars used by the Chinese. The stars were also not attached to the case or each other in any way. The case was first lined with tissue paper which was then filled with burst charge until level with the top. The paper was then folded over into the center and the stars were wedged into place around the perimeter, as seen in Figure 2.

Like many Chinese shells I have examined, the contents seem to have been loaded in a damp state. The tissue paper had tell-tale wrinkles that indicate that it was wet when loaded. Since the Chinese use a type of tissue paper similar to coffee filter paper, it does not tare when damp. The burst charge also has the characteristic of a solid clump that was packed in a slightly damp

Figure 3: Inert filler used at both ends of the hemispheres to reduce the volume of burst charge.

Figure 4: Thickness of filler was measured to be 1-1/4" deep at center.

Figure 5: Closeup of filler reveals some sort of ground cotton seed material.

Figure 6: Burst charge was black powder on smaller variety of cotton seed.

state. It is hard to say just how damp the components are when loaded, or how they are dried afterwards, but this method seems to result in very tightly packed contents that do not even spill out of the case when inverted.

It is also interesting to see just how much tissue paper can be piled up at the center of a shell without causing a fire block. From Figure 1 it can be seen that both halves of the shell had several layers of paper overlapping at the center, yet the fire propagates through this without any problems.

The other trick used in this shell can be seen in Figure 3. Because the volume occupied by the burst charge is so large in an 8" ring shell, some of the empty space was filled with an inert filler to reduce the amount of burst charge used to break the shell. Figure 5 shows a close-up of the filler, which is some kind of soft, fluffy material that looks like ground up cotton seeds. The filler was packed into each end so that it was about 1-1/4" deep at the center, then the tissue liner was placed over this and loaded with the burst charge.

The burst charge was black powder coated onto a smaller size of cotton seed that had a large range of particle sizes. Figure 6 shows the granular nature of this material, which almost looked like rough powder.

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