



19 Shot Chinese Cake

by "Big G"



Figure 1: A generic 19 shot round cake.

Manufacturer:	<i>Chinese, Unknown</i>
Type:	<i>19 shot repeater cake</i>
Mortar I.D.:	<i>1/2" (12 mm)</i>
Isert I.D.:	<i>5/16" (8 mm)</i>
Insert O.D.:	<i>7/16" (11 mm)</i>
Insert Wt.:	<i>6 g</i>
Lift Charge:	<i>1 g 2Fg</i>
Effect:	<i>alternating whistles & color comets</i>



Figure 2: Bundle of 19 tubes inside a large outer tube.

Construction:

The cake dissected in this article was bought in a small fireworks outlet in Nevada, while the cake shown in Figure 1 (which looked better from the outside) was bought in East UK. The appearance and performance of each was so similar they might have been manufactured by the same factory.

Stripping the outer wrapper in Figure 2 reveals a large spiral tube used as a container for nineteen 1/2" I.D. (12mm) convolute tubes. The spiral tube is somewhat larger than the bundle of 19 tubes, so a few turns of cardboard was wrapped around the bundle so that it would fit tight into the outer tube. All the tubes are held in place by a bit of glue.

In Figure 3 we can see that all of the tubes are mounted on a single long piece of 2mm fast burning Visco type fuse. The tubes are threaded onto the visco one at a time, then rolled up into a bundle. This is a much faster method of fusing cakes than inserting small fuse links between each pair of tubes. Rolling the tubes into a round cake insures that the opening of one tube does not face the opening of the next tube, thus avoiding the chain-reaction problem that can occur when the lift gas from one shot fires through the hole of the next shot.



Figure 3: Shot tubes threaded onto long strand of Visco.

This cake used two pieces of Visco to build the complete chain, where the end of one Visco was pushed into the same hole as the start of the second Visco as seen in Figure 4. This was probably done to save time, since the longer the tube chain is, the longer it takes to thread each tube into place. Stringing two smaller chains is thus faster than stringing one long chain.

Each shot fires a 5/16" I.D. (8 mm) convolute tube which is held in place with a plug glued into the mortar above it. The insert is filled half way with 1g of 2Fg lifting charge, rather than placing the lift in the bottom of the shot tube. This technique has advantages, such as avoiding the tedious task of keeping track of which tubes have been "lifted" when loading a round style cake. Each insert is a self contained unit that is simply dropped into each shot tube.



Figure 4: Two smaller chains used to make complete chain.

A central clay plug separates the lift charge from the rising effect. Above the clay plug, the inserts are charged with either whistle or colored star composition, then primed with BP. Upon ignition, lift gases are confined long enough to ignite the prime on the top side of the insert before firing it a good 30 feet into the air.

Such simple cakes aren't that impressive by themselves, but they can be effective in large numbers or when used in conjunction with other effects. Letting them fire while shooting rockets in your backyard garden display is a good way to avoid dead sky! 🔥

Editor's Note: using the fast burning Visco type fuse is essential when using the "threaded" method of fusing cakes. Standard visco results in too much delay between shots, and raw black match will side-ignite and cause the whole cake to fire in rapid succession.



Figure 5: Insert components.

