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An Idea for Small Shows

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One problem commonly faced by smaller display operators is the sponsor of an inexpensive show ($1000 to $5000) who wants a longer show than he has money for. The obvious solution, slowing down the firing, is usually a poor choice. Some slowing may be practical, but often the sponsor of these small shows wants about twice as much show as they have money. If you slow things down that much, you are guaranteed to disappoint the audience.

Almost all the displays we do are small shows. As the result, we have spent considerable time trying to come up with ways to give more show for the same money. One idea that has worked particularly well, when circumstances allow, is to interrupt the show with a short fireworks demonstration. Two benefits are achieved by doing this. First, during the demonstration relatively inexpensive fireworks are shot at a very slow pace (without boring the audience). In the demonstration described below, only 11 three-inch shells, 1 five-inch shell and a few festival balls are fired over a period of about six minutes. This would seem intolerably slow if it were part of the show, yet as a demonstration of aerial fireworks it is most enjoyable for the audience. Second, after the interruption of the show for the demonstration, relatively small fireworks will again appear impressive to the audience. Generally, as one progresses through the firing of a display, in order to continue to impress the audience, it is necessary to gradually increase the size of shells being fired. However, if the audience's attention is diverted for five or six minutes by the demonstration, subconsciously they "forget" that five minutes earlier it took a relatively large aerial shell to impress them. Thus small shells can again be used in the show, making the show still longer, for the same money and without disappointing the audience.

Before giving the text of the demonstration, a few words of explanation and caution are appropriate. First, in order to do this type of demonstration it is necessary to have someone and some way to communicate with the audience. In the past we have used both PA equipment (when the audience is seated in bleachers) and local radio broadcasts (when the audience is in parked cars). Second, for the demonstration described below, it is necessary for the audience to have a fairly clear view of the shooting site. Third, our shows are fired (usually electrically) from individually loaded paper tubes above ground; this facilitates the inclusion of ascending flowers and mine effects, but is probably inappropriate for conventionally fired shows. In the text below, when reference is made in parenthesis to a specific size and type aerial shell, that is the point in the demonstration when that shell is fired.

Fireworks Demonstration

We are going to try something a little different tonight; we are going to spend a few minutes demonstrating and explaining basic aerial fireworks. We are trying this new idea because we think it will be interesting for you and because we believe that your enjoyment of fireworks will be increased when you better understand what you are seeing. If you enjoy this little demonstration, let us know and we may be able to include lesson number two as part of next year's show.

1) What you have been seeing tonight are aerial shells, not sky rockets. Sky rockets are unstable which makes them too dangerous and they carry too little payload into the air. As a result, sky rockets have not been used to any great extent in fireworks shows for at least 30 years.

2) Aerial shells are fired out of a tube in the ground using a small lifting charge of Black Powder. When the shells are fired, you will notice a flash near the ground as the lifting charge propels the shell into the air. (3" spherical shell) The fire from the lifting charge also lights a time delay fuse which

burns as the aerial shell rises into the air. You may be able to spot a faint trail of sparks from the fuse as it is burning on the way up. (3" canister shell) When the delay fuse burns through the wall of the aerial shell, a second explosive charge is ignited, bursting open the shell and igniting and dispersing the shell's contents. (3" canister shell)

3) There are two basic varieties of aerial shells. One type is a cylindrical or canister shell. This type was developed by the Italians and for several hundreds of years was the only type of shell. The shell is basically can shaped with a fuse on one end. Typically, when the shell breaks, the contents are propelled out through one end in a sort of fan shape. (3" canister shell) The other primary type of shell is a spherical or ball shell. These were developed by the Japanese. The shell is ball shaped with the fuse on the bottom. Typically this type of shell breaks much more violently and the contents are propelled out spherically like a giant expanding hollow ball. (3" spherical shell) Look once more to see the difference; first a cylindrical shell (3" canister shell); now a spherical shell (3" canister shell).

4) All of the shells fired tonight have been one of these two types. However, to make the shells appear more interesting, most have had a couple of additions. First has been the addition of a few smaller aerial shells fired into the air at the same time from the same tube on the ground. These smaller aerial shells are sometimes called ascending flowers. (3" spherical shell plus 3 Festival Balls) Second has been the addition of what is called "mine" effects. This is accomplished by adding "stars" to the lifting charge of Black Powder. Stars are chemical formulations that burn with different colors and/or leave a trail of sparks when they burn. The aerial shells you have been watching have been filled with a few of the many different kinds of stars. When these same stars are added to the lifting charge, the result is a firework mine. (3" canister shell plus mine effect) When both ascending flowers and a mine effect are added, the result is considerably more attractive than just a single aerial shell. (3" spherical shell plus festival balls plus mine effect)

5) By way of concluding this little demonstration, let's say something about the size of aerial shells. The shells we were firing for the demonstration have all been 3" in diameter, excepting the ascending flowers which were only 1-3/4" In diameter. In the show thus far, we have fired shells of less than 1" in diameter, up to shells that are 6" in diameter. Later in the show we will fire two 8" shells. To give you some idea of the effect size has, first, look at another three-inch shell. This shell is called "Winter Rose". (3" spherical shell) Now let's fire the 5" version of the same "Winter Rose" (5" spherical shell)

Now, let's get back to the show.