

By Doug Taylor

Dance to the Music



Whether it is music to make us move on the dance floor or fireworks dancing across the sky, music enhances the experience. Having been on a dance floor, I know that my movements and those of other dancers are not very exacting. When fireworks are choreographed to music, the coordination between the effect and the music can be refined down to as little as 100th of a second. Fireworks choreography is based on the artistic interpretation by the designer of how to portray the music visually. The goal is to provide another layer of sensorial input to the spectator that enhances the experience.

So, How Does that all Happen?

Let's look at several simple examples:

- *Hearts on Fire* – you can all guess that you will see hearts in the sky when this song is played. This image, though very effective does not require close timing.
- *The 1812 Overture* – when the finale of this traditional music is building, the flashes in the sky must occur when the spectator hears the music – a boom in the music is synchronized with a boom and a flash in the sky. Exactness is important here – if the flash occurs a second later than the boom in the music – you will notice. The chance to enhance your experience as a spectator will be lost.
- *It's a Wonderful World* – This song by Louis Armstrong is used in many July 4th shows. The tone of the music is pastoral rather than pounding and has many color images with which to work. When Louis sings "I see leaves of green, red roses too," the choreographer must not only place the colors to match the words but the effects have to be pastoral in nature, as well – a hanging waterfall or a soft breaking kamuro shell that droops down to the ground.

What About the Technology?

Both the manufacturing of the shell and the equipment that is used to choreograph and then fire the display play significant roles in exacting choreography. Remember, the shell must be ignited and climb to the peak of its travel up into the sky before the burst appears. If it takes 3.8 seconds for a specific shell from a specific manufacturer to rise, then every shell of that type must be the same – not 3.6 seconds and not 4.0 seconds. The accuracy of the timing of the rise depends on both the amount of lift charge and the timing fuse.

The equipment used to choreograph fireworks to music has to offer the designer the ability to precisely place the burst of the effect at the right time and incorporate the data about rise time into its database. The firing system must then eliminate any hesitation in the electrical impulse that ignites the shell. Yes, electricity moves quicker than the 40 mile per hour fuse we discussed in the last column but the more sophisticated equipment is designed to eliminate any delay that might occur as the electricity travels through 100's of feet of wire.

Well manufactured shells and highly sophisticated equipment are tools – the true artistry comes from the designer. So, the next time you hear Louis sing, think of the picture you would paint in the sky – you may have what it takes.

If you have fireworks questions you would like us to address in our column, please email me, Doug Taylor, President/CEO Zambelli Fireworks at doug.taylor@zambellifireworks.com.

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