by Andrew Martin

Rigging Loudspeaker Systems

A Serious Investment

A safe flying hardware system is an indispensable part of a safely operated sound reinforcement system. So there is no acceptable argument against appropriate funding for a loudspeaker flying hardware system that will insure safety and beneficial use.

It must also be remembered that a safe and competent flying system requires a considerable, but less obvious, planning and logistical investment. Still, when approaching the sound reinforcement system as a whole, the flying hardware system chosen for the loudspeakers is a relatively small part of the overall system cost.

The Right Thing to Do

The owner of the sound reinforcement system accepts the moral and legal responsibilities of flying loudspeaker enclosures when he/she employs the use of a loudspeaker flying hardware system. Be aware that any damage, injury, incident, or other misfortune that can be related to the flying hardware system will most likely result in litigation.

This is why loudspeaker flying hardware systems should not be purchased or employed unless the user is fully aware of the implications, and fully insured for damages resulting from rigging accidents. Assuming that the financial, logistical, and legal obligations of utilizing a loudspeaker flying system are addressed, safety becomes the primary concern for the flying hardware system.

When looking at the flying hardware system safety, start with the loudspeaker enclosure itself. Flyable loudspeaker enclosures are mandatory. Many loudspeaker manufacturers offer loudspeakers with some type of flying hardware in place. Most of these loudspeakers have been designed and constructed to be flown, and have been tested to insure their safety.

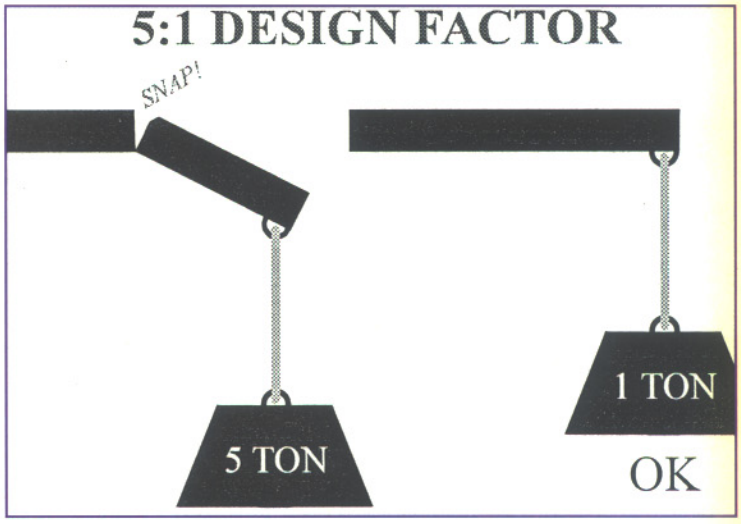
However, an engineering data sheet should always be kept on record that details the strength ratings of any manufacturer's flyable loudspeaker enclosures. Some non-flyable loudspeaker enclosures can be modified and suspended safely. Internal bracing and enclosure modifications can strengthen the enclosure sufficiently.

These types of modifications should only be made with the loudspeaker manufacturer's consent, and a rigging consultant should always be involved. The same applies to proprietary loudspeaker enclosures. In either case, structural testing and certifications must be obtained before the loudspeaker flying system can be used.

How to Think About It

There are many considerations when examining various types of loudspeaker enclosure flying hardware. At all times, a design factor must be exercised throughout the entire system.

A design factor is a factor of safety built into the system. The professional rigging industry's self-regulatory design factor is 5:1. (see Figure #1)



Graphic #1: The 5:1 Design Factor

A 5:1 design factor means that every component's yield strength or ultimate load strength is divided by a factor of 5; the resultant is the working load limit of the component. For instance a cabinet fitting with a yield strength (load at which the part begins to break) of 1,000lbs(454kg) would have a working load limit of 200lbs(91kg).

(Continued on page 22)