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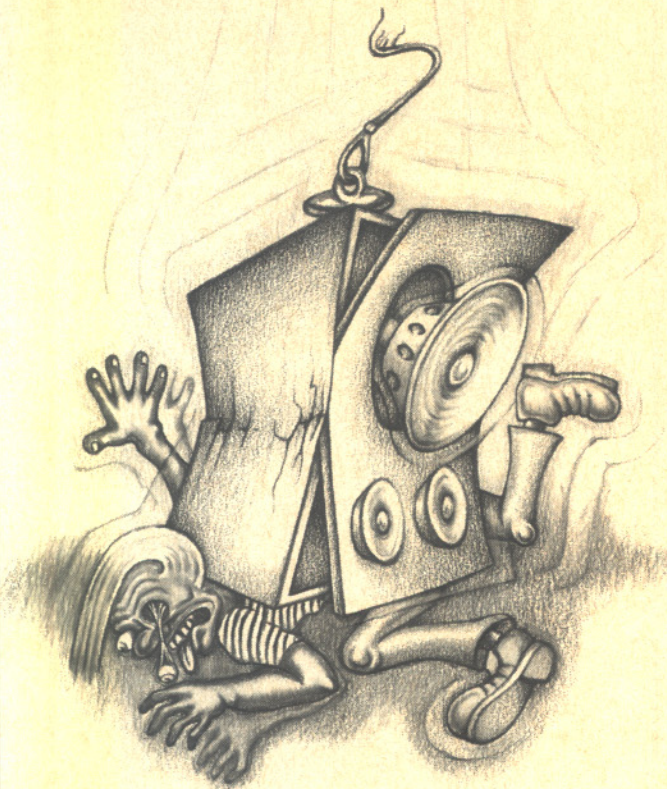
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# COME FLY WITH ME, PART 1

Illustration by Normal Rockhard



■ SOMETIMES YOU JUST gotta fly. The club you're playing can't accommodate your stage stacks. Or they just don't sound quite right. Unfortunately, it can be extremely difficult to fly portable sound reinforcement systems in club venues. It can be even more difficult to incorporate a flyable loudspeaker system into the club venue itinerary. A flying loudspeaker system involves a considerable investment — not only in the area of finance, but also in logistical planning, and in the considerable obligation for safe and competent operation.

There's only one way to

fly a portable band PA — the right way. There are no shortcuts or cheap and easy solutions. Logistically, a loudspeaker flying hardware system will increase the time necessary to load in the sound reinforcement system. Also, the venues being booked will need to have the appropriate facilities to fly the loudspeaker system in a timely and safe manner.

Remember that while a flying loudspeaker system will noticeably improve the performance of the sound system, there are added moral and legal responsibilities that come with safe and responsible flying prac-

tices. The owner of the sound reinforcement system accepts the responsibilities of flying loudspeaker enclosures when he or she employs the use of a loudspeaker flying system. Be aware that any damage, injury, incident, or other misfortune that can be related to the flying hardware system will usually be pursued.

## HAVE A SAFE FLIGHT

When looking at 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 ensure their safety. However, an engineering data sheet that details the strength ratings of any manufacturer's flyable loudspeaker enclosures should always be kept on hand.

Some nonflyable loudspeaker enclosures can be modified to be flown. 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 is used.

## GIMME FIVE

There are many considerations when studying the different types of loudspeaker

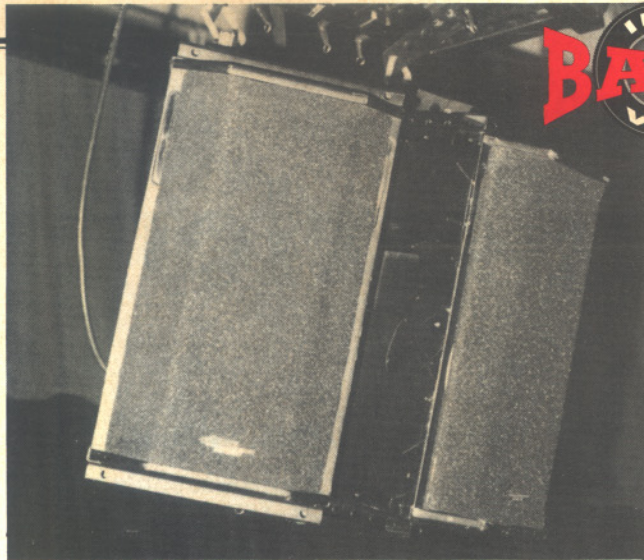
enclosure flying hardware. At all times, a design factor must be exercised throughout the entire system. A design factor is a factor of safety built into the system. The most common design factor is 5:1, which means that every component's yield strength or ultimate load strength is divided by a factor of 5; the result is the safe working load for the component.

For instance, a cabinet fitting with a yield strength (load at which the part bends) of 1000 lbs would have a safe working load of 200 lbs. With this in mind, differences between alloys become an important factor. Steel alloys have greater strength than aluminum alloys. Steel alloys, also, have a tendency to bend long before they break, while aluminum is brittle and can break suddenly. If the loudspeaker enclosure hardware is being borrowed from another industry, such as the aircraft or cargo-control industry, it is important to find out if the hardware is approved for overhead lifting applications. Much of the hardware that looks like standard aircraft or cargo-control hardware is not and cannot be used for overhead lifting purposes.

In almost all instances, flyable loudspeaker enclosures utilize some variation of internal bracing. Usually the internal bracing is fastened directly to the external flying hardware component, distributing some of the load throughout the loudspeaker enclosure and increasing the load capacity of the enclosure. The external part of the enclosure flying hardware system can take many different forms. Perhaps the most common systems are the nut plate

**ALL RIGHT ALL YOU LIVE GIG ENGINEERS,  
IT'S TIME TO STRAIGHTEN UP  
AND FLY RIGHT**

**BY ANDREW MARTIN**



(threaded plate), the pan fitting, the stud fitting, the cargo control track, and the increasingly popular threaded hole.

That's a start. You're not quite ready to fly. So keep your stacks stacked until next issue, when I'll be ready to issue your wings.

*Andrew Martin is president of ATM Fly-Ware.*

## GETTING HELP

When it comes time to fly, and you're looking for a little pro guidance, you can contact the author at 20960 Brant Avenue, Carson, CA 90810, tel: 310-639-8282. His company, ATM Fly-Ware, manufactures modular loudspeaker flying hardware systems, internal bracing hardware, and other rigging accessories, and serves as a consultant for loudspeaker rigging applications. AMFS Series modular loudspeaker flying hardware systems are presently available for Apogee Sound, Community Sound, EAWorks, Electro-Voice, JBL Architectural, Meyer Sound Labs, OAP Audio, Professional Audio Systems, and Renkus-Heinz. A complete series of loudspeaker enclosure internal bracing hardware is also available.

Or, if you're a do-it-yourselfer, the Master Class in Stage Rigging Level I is a seminar in rigging and rigging systems for any one who works with this type of equipment.

There will be three seminars held in 1993:

March 1 thru 8 — Edinburgh, Scotland

Contact: Celtech Events, P.O. Box 93, Edinburgh, Scotland EH3 8JG.

June 13 thru 20 — Louisville, Kentucky

Contact: Richard Nix, Musson Theatrical, Inc., tel: 502-367-1900.

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