



Active Loudspeaker system

ARX SPL12

Reviewed by Dirk Wedell

When I was a young man, I used to think that Australians did nothing besides drink beer and stand on their heads. In the course of this loudspeaker test, it turns out that at least some Australians can build loudspeakers!

ARX sent us a complete Plug 'n ' Play system called the SPL 12 (full-range) and SPL 18 (bass). SPL normally stands for Sound Pressure Level, but in this case stands for "Self Powered Loudspeaker".

We had previously tested an ARX loudspeaker system with excellent results (tested in PROSOUND Nr.4 '99) which used external power amplifiers. The SPL12/18 is a further development of this system with built-in amplifiers and control circuitry stages.

Design and mechanics

The SPL 12 is a two-way-box with onboard bi-amped amplifiers; one for Hi-Mid and one for the Low Frequencies, which allow it to be used without a Sub if necessary. A 12" cone driver handles low frequencies, with a 90° x 40° horn for the Hi-Mids. The enclosure is manufactured from 18mm structural grade birch plywood.

The front of the SPL 12 full-range box is curved. All screws and connectors are recessed into the cabinet, so it can be moved around on

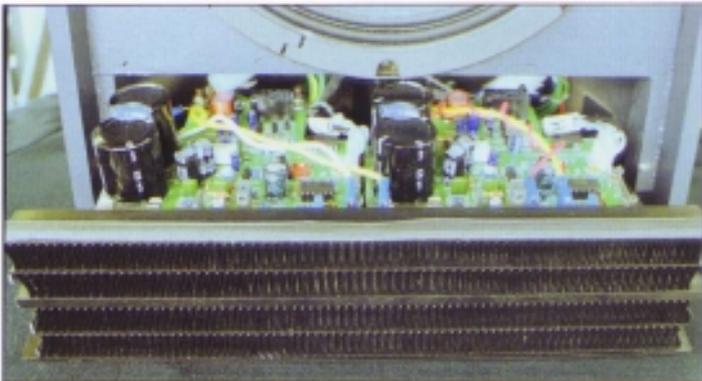
the smooth surface of a Truck floor without causing any damage.

The box is equipped with the usual stand-mounting hole with a wide flange. For flying, there are three points on the top and bottom. The flying points are internally connected to the back and sides of the cabinet with heavy steel angles for safety. Since the handles are recessed, the wood they are mounted on is thinner and has less strength, so there is a warning on them to only use the handles for carrying, not for flying. That message is reinforced on the rear panel as well.

This is the first time I have seen this useful warning, even though many systems have recessed handles. The steel mesh grille is strong enough to withstand most dangers, although there is no foam underneath it.

The High frequency horn has a rectangular mouth, and fits neatly between the sides of the cabinet, thus making it as big as possible for the best dispersion control.

The output stages are based on two side by side circuit boards. Bolted to these circuit boards is a heatsink similar to an air-conditioning heat exchanger, to transfer the heat of the output transistors (MOSFET) to the outside air. The whole appliance is installed in the low part of the box in the bass-reflex-opening. (see Photos)



This type of cooling does raise one question: The air movement in the bass-reflex-opening does not actually flow but swings back and forth in the opening. This movement is strongest near the resonance frequency, and becomes weaker over it. If the box is part of a system with a Subwoofer, there is no longer much signal below 100Hz. Therefore, the cooling effect is lessened as the air vibrates back and forth.

ARX discusses this question as follows: The cooling-system heat exchanger comes from an amplifier with three times the power output of the amplifier in these speaker boxes. It doesn't reach heat saturation even at maximum output under full load.

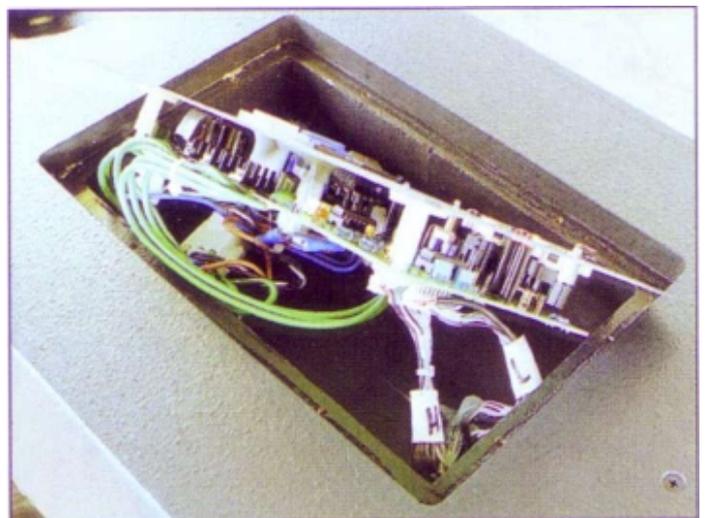
We checked this statement by testing, and it seems to be true!

A fan can be a problem in this type of speaker box, because these systems are often put into theaters where they are installed in the Front of House area. Any fan noise out there is very disturbing. I once had an amplifier that put out a continuous mechanical drone when idling, which was unacceptable for professional equipment.

By not having a fan, the ARX boxes are very qui-

et in this context, since the mechanical sound of a single cooling fan can disturb a playgoer.

Audio access to the SPL 12 Full range box consists of two XLR connectors, a female In and a male Loop out. Behind the rear panel is the amplifier control circuitry PCB. There are also two lockable Neutrik 'Powercon' AC Power connectors and a



resettable circuit breaker. Altogether, the boxes are well labelled and supplied with all necessary controls and connectors.

The bass-box SPL 18 is equipped with one 18" Bass Speaker in all plywood cabinet. A slightly different heat exchanger is installed in the port opening, just like the full-range cabinet. The box has a pole-mounting flange on top.

Both the Bass and the Full range cabinet have two Powercon AC Power connectors. One is a power Input, and the other is a Power Output, which can be connected to the Power Input of a second cabinet. These are fully electrical safety authority approved lockable connectors, since if an AC connector vibrates out of its socket on a system that is being flown, it is a major problem.

Installation and sound

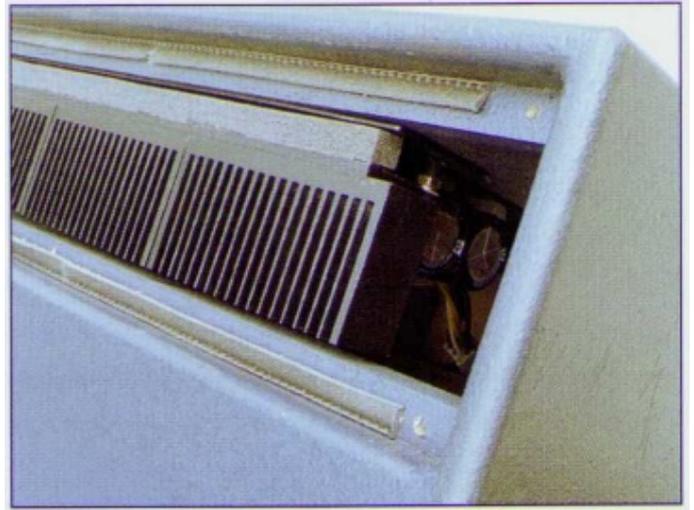
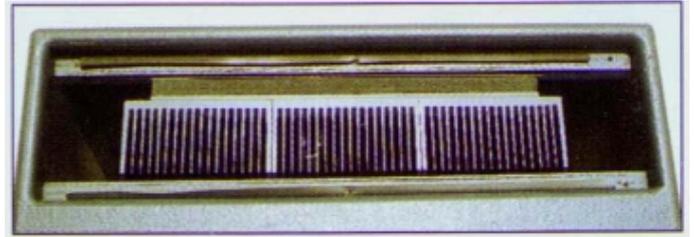
The loudspeaker system was operational a few minutes after unpacking. No problems, no puzzling instructions or labels on the connector panel, nothing. Plug'n'Play in the best sense of the word!

My first tonal impression when setting it up was that of a Rap/HipHop or techno installation. That was because the bass response was set, in my opinion, at too loud a level. However, this may be normal to a large percentage of the population! There is a level control on the rear of the Bass cabinet, so when I backed off the bass from where it was initially set, I immediately had a balanced and transparent audio response.

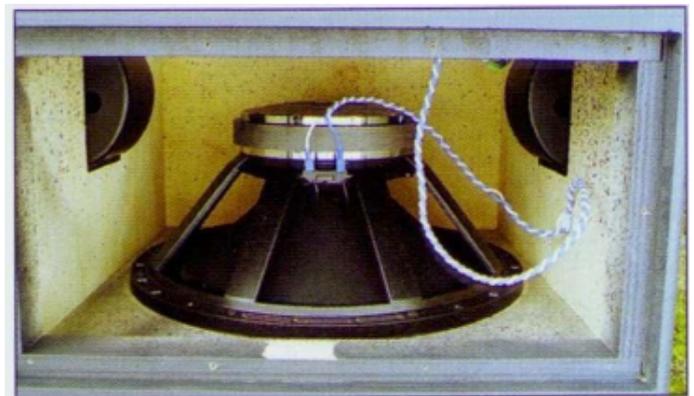
After I had set the bass to suit my taste, I definitely had the feeling that I could immediately go on tour with this system without a second thought.

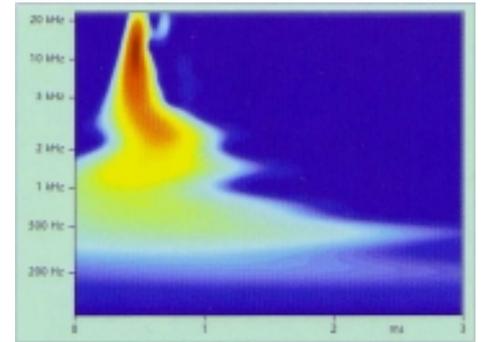
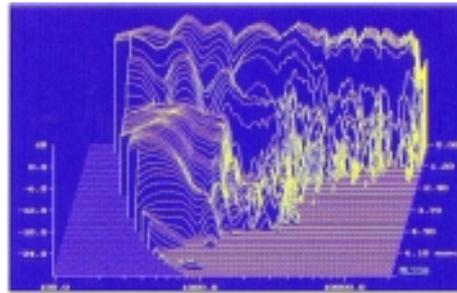
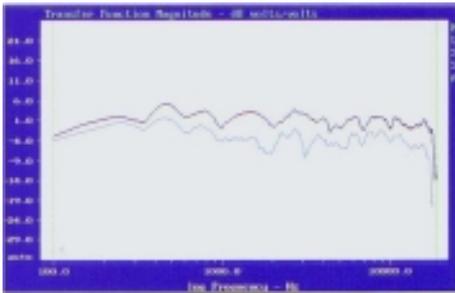
The sound had no unpleasant surprises, and extensive testing work with console EQ and parametric EQs showed no unexpected problems. I am sure that this box will be the forerunner of a complete range of active self-powered cabinets from ARX. When I previously tested one of their unpowered cabinets, I noted that from the first "Check 1 – 2" the vocal sound was superb when first connecting without requiring any EQ tweaking.

I can now underline that comment!



"I could immediately go on tour with this system without a second thought"





The box has a tonally accurate sound, which doesn't require continually re-adjusting the bass, low mids, presence or highs until the mix falls apart. Instruments that cover the range from low frequencies to highs are reproduced without any tonal breakdown.

In fact, one doesn't need to talk about the sound of this box at all, because it accurately reproduces whatever you send to it. The maximum sound pressure level is far more than is required in our test venue.

We drove it hard during our testing, at levels which were expected to do some damage, but thanks to the 12" and horn combination, the powerful built-in amplifiers, and the smooth action of the protection Limiters in the control electronics, this extremely useful speaker system safely looked after itself.

Translated from the original German by ARX. We have endeavored to maintain the same 'feel' as the original review

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