



CLOSE-UP

Sam Wise looks at
Allen & Heath's new
Saber Mixers

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My visit to Allen and Heath to view the new Saber range of consoles was met by the smell of change - offices were being shuffled around and staff responsibilities were being altered. Further investigation revealed what looks like the return of customer as king at Allen and Heath.

For many years the company has carried on its business in virtual ignorance of its potential UK customer base, doing reasonably well on extensive US sales, where its products compete favourably with the likes of Peavey, sometimes entering the top 10 in small mixer sales. Allen and Heath will continue to retain strong US sales, but the attitude to the home market is changing and the new Saber console is only part of the story.

John Ball - a man with his roots in live entertainment via Rank Strand and Theatre Projects - joined in October 87 as chief executive officer and has been involved with the rest of the directors in the formulation of new strategies for growth in the competitive mixer market.

In recent months technical director Glenn Rogers has moved to company manufacturing headquarters near Falmouth in Cornwall, streamlining the introduction of new designs into production. His R&D colleague Ted Rook has remained in Brighton to become technical sales support engineer, with the goal of improving the UK and European product application knowledge and to link the technical requirements of the market efficiently to R&D.

Other changes are underway, many with the UK customer in mind. Saber is part of that package, and an interesting product for live sound use.

SABER Live Sound Console

The Saber mixing console is offered in two basic versions: recording and PA/sound reinforcement. Input modules are common to both versions, while the group and master sections differ. A useful selection of traditional facilities is offered at a competitive price, making Saber worth investigation against competitive models from DDA, Soundcraft and Soundtracs. In addition, all Saber consoles offer a well thought out Mute Memory system with MIDI control interface which brings with it many of the advantages of a programmable routing console five to 10 times the price.

Initial Impressions

Following my visit, a production prototype of a Saber recording version was delivered to my test lab on the Isle of Wight. On arrival, the packaging looked a bit dishevelled, but inside everything was perfectly intact. The packing was not the production version, I am told! The stand, optional on PA versions, was easy to assemble and quite rigid when installed onto the mixer chassis. All that remained was to plug-up the power supply and go. Though the test unit was a recording version, the PA model will be described here, obviously being of more interest to L+SI readers.

Construction

The chassis is quite rigid, formed from folded all-steel construction, so it should survive touring with little trouble. Visually the mixer is attractive, the controls are sensibly colour-coded for ease of location, and the legends are easy to identify and interpret. One initial confusion related to Allen & Heath's use of arrows to indicate switch up or switch down, and these can sometimes suggest a tie-up with nearby controls. Rotary controls, faders and switches have an acceptable feel to them, though it is sometimes difficult to discern



Allen & Heath's recording 'Saber' 32x8x16 MVU. Other sizes and live sound versions are also offered.

whether switches are in or out, a problem common to other manufacturer's products in this price range and many which are more expensive.

In all there is little to quibble about. I personally was pleasantly surprised by a sense of quality far beyond what I had come to expect from Allen & Heath in years gone by. The company has clearly made positive moves recently, in more than just organisational structures. The PA version is designed to be low profile - having an essentially flat surface - easing sight-line problems when used in the upper parts of a theatre. Standard console formats are 24, 32 or 40 input channels, in eight groups, though as you will see, additional line inputs abound, bringing the total available on the large frame version to 60.

Input Module M310

Standard on all versions, this module provides a useful range of facilities. Starting at the top, three alternative inputs are selectable: Mic, Line and Tape. The Tape In connector is wired in parallel to the Tape input on the group monitors 1-8, but is independent on inputs 9 and above. The console is designed for easy use with an 8 track recorder. If such a machine is not in use, Tape becomes an alternative line input. The usual +48 V phantom, 20dB PAD and phase reverse switches are also present. The Gain control is common to all inputs.

Next, the routing switches allow routing in pairs to groups 1-8 and directly to the L-R main stereo output. It would have been nice to see a Pan In/Out operating on the group selectors, allowing mixed mono and stereo routing. Being near the top of the module, the routing switches are somewhat distant for effects playback, but the programmable muting system described later more than compensates for this.

Auxiliary send controls follow, six in all. Two are switchable Pre/Post, while the remainder are set pre-eg, pre-fader or post-fader by internal links, a reasonable compromise. Below is a four band equaliser. The top and bottom bands have two switchable frequencies and a shelving filter shape. The upper and lower mid controls are peaking filters with frequency ranges of 1kHz to 10kHz and 200Hz to 2kHz respectively. All equalisers have a boost/cut range of +/-12dB. Equaliser In/Out and fixed 80Hz frequency 12dB/octave Low Cut switches complete the eq section.

The provision of shelving equalisers is encouraging, especially at the bass end. The trend has been to use peaking shapes everywhere and to count on a low-cut filter or natural roll-off to reduce the bottom end. In practice this often results in the kick drum or bass guitar harmonics being attenuated while the fundamental leaks everywhere. The end result sounds like pigs rolling in the mud. Saber got this one right. The frequency and boost/cut controls worked well with good control laws as shown in Fig. 1.

Just above the fader are the Pan, Check and Mute switches and a peak overload indicator. These are explained in detail later. Mute has the obvious function of turning off all channel post-fader audio paths, but it is also part of the console programmable muting system - one of the more exciting features of the console. Both Check and Mute have adjacent LED indicators. The Peak LED is connected to the pre-fader audio path, illuminating at levels about 4-5dB before clipping. It would have been safer to include a post-fader connection as well, since this can be higher in level.

A scribble strip is provided just above the fader which is removable for cleaning or module extraction. Lastly, the fader is a long travel type made by Alps with a nice feel and noise-free operation.

PA Group Module M325

To keep the mixer profile flat, the meter is fitted at the top of the module, a two colour type with a very useful display range exceeding 50dB. Again, it is encouraging to see that a mixer manufacturer has finally noticed the live sound engineer's need to see low level signals on his meter. The meter has a fast rise and slower fall time, but is not a true PPM.

Moving down the module we find a Line Input complete with Level, Pan, Check and programmable Mute controls. The signal from this input is sent only to the L-R master outputs, providing a further 8 line inputs on the mixer, one on each group module.

Below this is the Group Monitor Section with a basic two band equaliser, four auxiliary sends, Level, Pan, Check and programmable Mute controls. This section serves multiple purposes according to the setting of its input selection switches, its output always going to the L-R master mix.

When both selector switches are released, the Group Output is routed through to the L-R master bus. During multi-track recording, this allows the groups to be monitored using L-R as a stereo monitor. If the L-R outputs are instead being used for the main stereo array during sound reinforcement use, this enables the group to be considered a sub-group of the stereo output.

Pressing the top Tape button selects the Tape Input instead onto the L-R bus, in multi-track recording this provides monitoring of the recorder output. During PA use, this allows an additional line source to be input to the Tape In connector and routed through to the L-R stereo output. The group meter follows this switch, so that if Tape is selected, then Tape is displayed on the meter. No matter what monitor source is selected, the Group Output continues to function and could, for example, be used for a sound effect or fill loudspeaker. However, unless selected, the group cannot be monitored.

The second monitor Select button reverses the Line and Tape inputs over, making the more sophisticated facilities of the monitor section available to the group monitor Line Input.

Just above the group fader are the Fader Reverse and Group Mute switches. Fader Reverse swaps the function of the group fader and the group monitor level control - most useful when recording. Group mute allows the group output to be turned off, but it is not a part of the programmable muting system.

This collection of group module functions is both functional and versatile. My only criticism is that Fader Reverse seems less useful on a PA desk than a group PFL or Check function allowing the group to be monitored when necessary while leaving the group monitor inputs free as extra line inputs. The terminology of 'Group Monitor' left over from recording applications is perhaps out of place in a PA desk.

PA Monitor Module M355

This takes up four frame module spaces and contains the auxiliary master controls; a further four routable line inputs intended principally as effects returns; the L-R and Mono Master Faders; plus master controls for console monitoring, external intercom, talkback, Check and Mute Processor.

The left half of the module begins with six sets of Aux Send Master controls, each consisting of Level pot and PFL and Mute (not programmable) switches. Below this are Returns 1 and 2, each routable in pairs to groups 1-8 and L-R; and Returns 3 and 4, only routable to L-R. All four returns also include auxiliary send pots for Aux 1 and 2 (normally intended as Stage Monitor/Foldback sends), plus Level, Pan, PFL and Mute (programmable). The Returns are not muted by the operation of Solo in Place, allowing reverb and other effects to remain active on Solo'd sources.

At the bottom of the module are Left and Right peak overload indicators, the stereo L-R master fader and the Mono fader. Mono is always the sum of the L-R outputs and is mastered by the L-R fader.

Moving to the top of the right side of the module we find a Talkback Mic socket with phantom powering. Below this are the internally illuminated L and R VU meters. Next, the Talkback Preselect switches allow talkback to be preset to any or all of Aux 1, Aux 2 and L-R outputs. Talkback is actually activated by a large red button near the bottom of the module.

Below this is a feature which we have all been wanting for years - a built-in ring intercom compatible with TecPro/Clearcom standards integrated into the console monitor. Either or both of two external intercom channels can be selected and are thereby mixed onto the console monitor loudspeaker and headset outputs. Each has an adjacent Call LED indicating operation of an external call button. A momentary switch just below the two station selectors mutes the incoming intercom audio and sends the output of the talkback microphone onto the selected ring, allowing the sound engineer an easy means of talking to the rest of the crew. Gone are the days of wearing two headsets at once. The intercom facility was not tested but I am told that it functions perfectly.

Monitor master controls follow, including an EXT switch to bring in an external source such as a dummy head show relay (for those control rooms

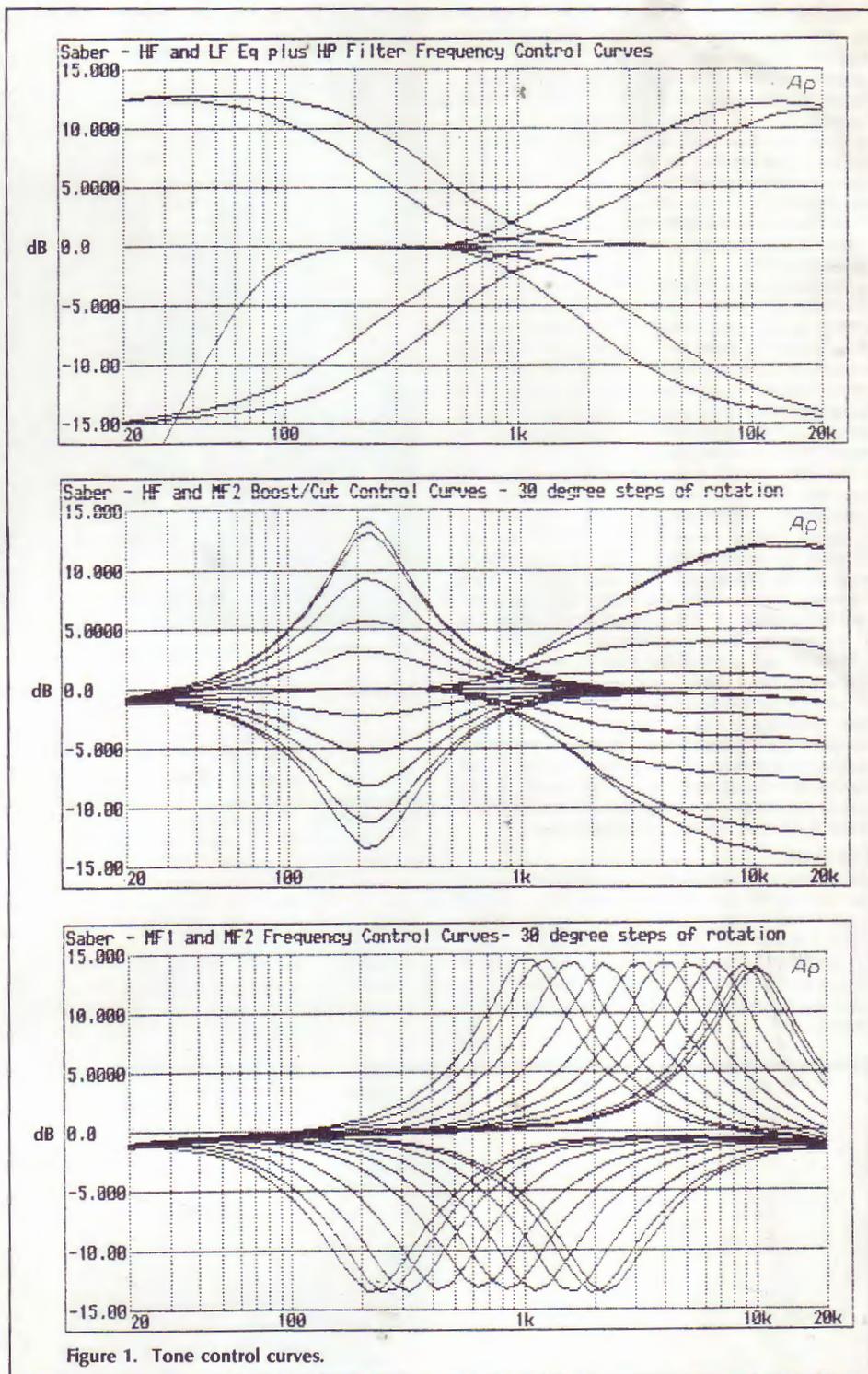


Figure 1. Tone control curves.

with sealed windows) or a stereo tape return. There are separate loudspeaker and headset level controls.

The two remaining sections contain the most interesting and potentially useful facilities on the console - Check Mode and Mute Processor.

Check Mode

Every 'check' button has two possible functions - PFL and SOLO - which are selected on the master controls on the Monitor module. The function of Check on the channels and group monitors is independently selectable and can be linked or left to operate separately. When PFL mode is active, operation of a Check button latches the pre-fader signal of the selected module onto the monitor inputs and onto the L and R meters. Any other non-PFL source is taken off of the monitors. Several modules can be PFL'd together if required, allowing the operator to listen to the selected module and to observe the pre-fader operating level on the meters.

When SOLO is selected, operation of Check on one or more modules causes all of the other modules to mute, leaving only the Solo'd module(s) routed through the console. This

displays the operating level of the selected source(s) on the L-R meter, and enables them to be heard with all effects etc. operating, and on the performance loudspeaker system. This is useful, not only as a quality check, but also makes it easier to debug a touring system. By selection of the master Check Mode switches, Solo can be made operative on the channels or group monitors separately, or they can be linked to operate as a unified system. Because Solo has a destructive potential during actual performance, Allen and Heath have provided a master solo enable which operates beneath a protective cover, preventing accidental operation.

Mute Processor

Doing sound effects or pre-setting multiple mics during a major musical? The mute processor provides at least one extra hand, possibly two. Mute switches on the input modules and group monitor sources are coupled to the mute processor which can memorise 32 complete sets of console module set-ups. Manually, it is easy to use, with battery-backed memory. There is not room here to describe its uses fully, but here are some application examples.

Suppose you require a sound source to appear at different times with completely different sounds e.g. normal voice, telephone voice, and a voice from 'heaven'. It might also be routed to different loudspeakers on these different occasions as well. One way to do this is to put it through a channel and then reset between every operation, perhaps the traditional way of doing the job. Another way might be to send the signal through several channels in parallel and then to enable the right channel at the right time. This latter method could be automated by the use of the mute processing system.

Another example is a multi-mic'd musical, where different groups of mics are used at different points in the production. Traditionally this has meant clearing down the whole console between scenes, or manually muting the unused mics - an effort which is distracting and prone to error. The programmable muting system allows 32 different set-ups used, randomly or sequentially, to be stored for error-free recall.

But Saber doesn't stop there: the mute programmer also operates over MIDI. For example, this could allow a keyboard player who issues a MIDI Program Change to alter the voicing of his synthesiser to simultaneously recall a new muting pattern. Or the sound tech could issue a Mute Memory recall which also alters MIDI programmable equalisers or digital effects units connected to his system. The possibilities are endless.

Want to go further? The MIDI interface allows the whole set of mute memories to be stored on a sequencer for future use; very useful in a rep situation. Would you like your effects tape to control its own routing around the theatre in real-time? Add a synchroniser and sequencer and using the above techniques recall an infinite variety of set-ups in real time. Set your minds to work fellows, there is a lot of creative opportunity here.

Last details

All connections on a Saber PA console are located on the rear of the mixer as either XLR's or 1/4" jacks. Insert points are included on inputs, groups and L-R master outputs. The recording model can be purchased with a built-in patchfield. There is also a stereo line input module M360 which can take you up over 60 inputs in the large frame if required.



Lenny Henry with the P.A. Saber used on his 88/89 UK tour.

Summary

The performance of Saber was checked thoroughly and meets its published specifications. If you are working with only a few inputs in use, the noise is in excess of some other types of design since it is fixed at its maximum mixing noise, but with 20 or more sources active at once, there's not much in it between this and other similarly priced consoles - one noisy source will swamp the lot anyway. The facilities offered in terms of equalisers or the quantity of auxiliary sends can be beaten by some others, but usually at the expense of those hateful dual concentric controls. Headroom is 2 or 3dB better than that of several well-known manufacturers, but still too low for my liking for live sound use. However, the majority have been living with this for years. Still,

if I had the budget for a medium-priced replacement console for my theatre or hire company, Saber would certainly be worth serious consideration - it looks tough, performs well and is provided with some unusual but useful features. Keep your eye on Allen and Heath. They may be a new dark horse in the UK mixer market.

Stop Press

Since writing this article, I have heard rumours of a new Saber development - a real theatre/sound reinforcement group module. It is said to have matrix sends, programmable muting on group and matrix output and improved metering selection.

Contact Allen & Heath for further details.

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