

ROCKIN' AROUND THE CLOCK

Ruth Rossington reports on the new sound installation at London's Rock Circus

Piccadilly Circus is well-known for its technological displays; its high-rise electronic billboards have been beaming advertising messages to the traffic for many years. So it was only natural that Madame Tussauds should choose it as the home for one of its more ambitious projects, the Rock Circus, which took four years and a £10million investment to bring to life.

Based at the London Pavilion, which has assumed many mantles in its lifetime, Rock Circus, which opened in 1989, now keeps company with a mixture of tourist shops, cafes and virtual reality experiences.

For those who aren't familiar with the concept of Rock Circus, there's a heavy clue in the name. It presents its visitors with an encapsulated history of rock, from Buddy Holly to Madonna, relayed through a media mix of original footage, musical 'snapshots', waxworks, animatronics and a barrage of audio, video and lighting equipment. And even I, too young to remember the Old Grey Whistle Test, and too old to be a devotee of Top of the Pops, have to admit to a twinge of excitement at the prospect of coming face to face, albeit a wax one, with some of the legendary figures that have shaped the history of rock.

Such high expectations are not to be disappointed and whilst some might contend otherwise, I would be quite happy to stake my lot on the sound element of the presentation being the most crucial to the success of the venture. After all, it's what underpins the whole concept. Tussaud's are known for their innovative approach to entertainment, so it wasn't a surprise to learn that they had taken great pains to address the problem of sound at the exhibit.

As a result of this, the upstairs 360-seat revolving theatre has recently changed to 'live' sound with the installation of a new speaker-based sound system, featuring Meyer Sound cabinets and QSC amplifiers. The theatre itself is divided into three separate stages, each one seating just over 100 people. The captive audience then watches the show in one area and is then rotated to the next, for a second blast, before returning to the first stage for the finale.

The new system replaces the theatre's earlier Philips-based Synconore infra-red headphone installation which, although considered a good idea when first specified, eventually created



The star-studded first floor of Rock Circus, complete with fully equipped lighting rig and Electrosonic videowall.

more problems than it solved. One of the main reasons for change was the high incidence of theft, as the designer headphones rapidly became designer desirables. On one occasion Rock Circus waved goodbye to over 150 sets during a bomb scare evacuation. Just what people thought they'd do with infra-red headsets at home without the infra-red transmitters to go with them is anybody's guess.

A lesser problem, but still a thorn in the side, was that the headphone units required frequent battery changes which resulted in considerable wastage. The solution, in the form of a loudspeaker system which could provide the theatre area with more of a concert atmosphere, practically formed itself, and so Tussauds called in John Leonard, a freelance sound designer who'd consulted on earlier projects, and it was he who actively sought the involvement of sound specialists Autograph Sales at an early stage.

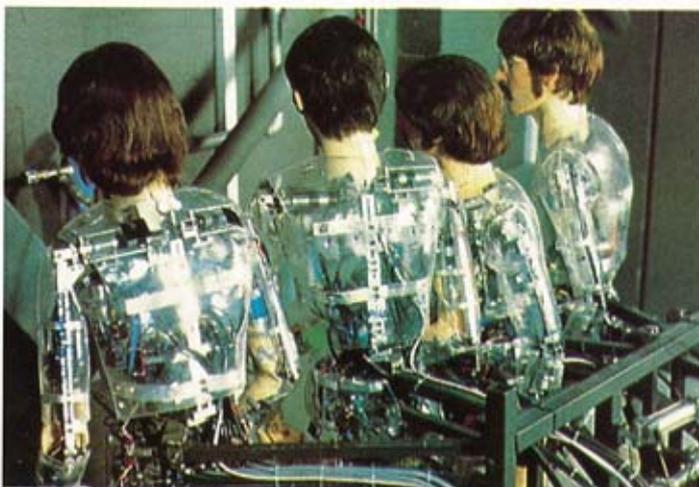
The changeover however was not an easy one. Because of Rock Circus's year round devotion to duty (10 hours a day, 363 days a year), the logistics of actually getting on site became an interesting equation for John Leonard, and left him and his team with no

option but to work overnight.

"The limited access was obviously a major problem during the installation, as we had to ensure that the change from headphones to loudspeakers was as seamless as possible," he explained. This wasn't the only hurdle that required surmounting.

"The acoustics of the theatre had been designed with headphones in mind and no allowances had been made for future upgrade to loudspeakers."

John Leonard certainly had his work cut out. The answer lay with the use of small, highly directional speakers which could provide a high degree of audio quality and be tucked away into relative oblivion. For Leonard, it was no contest and he opted for Meyer units having had considerable prior experience of them. Naturally enough, because the system is under such continual use, it also has to offer a very determined level of reliability. "The combination of Meyer Sound UPA and UPM models provides for excellent performance in both speech and music, with the units' small size rendering the installation practically invisible and their inherent reliability meeting the brief for almost continuous heavy duty



Above, a rare view of the Beatles, stripped down to their animatronic essentials and (right) ready for the go at the start of the theatre revolve sequence.



A Meyer cabinet (centre bottom) adorns the boudoir of a reclining Madonna and friend.

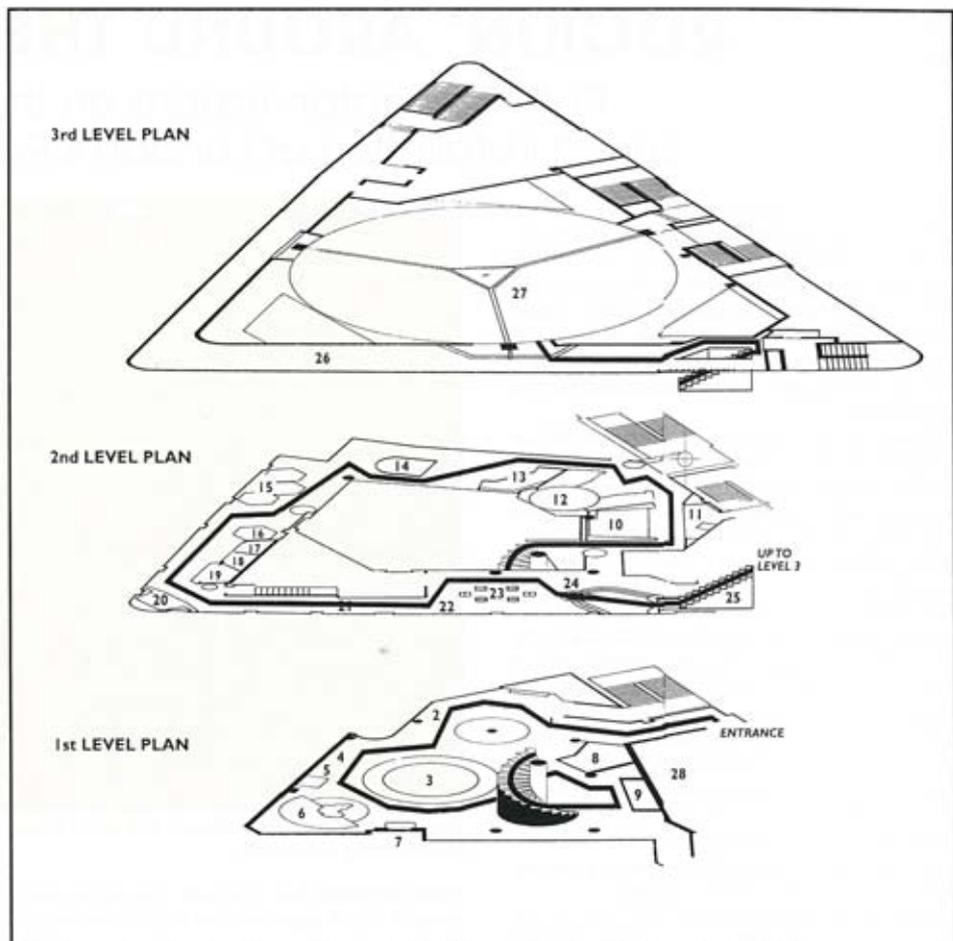
usage," said Leonard.

The use of a revolve leads to many problems and sound spillage between the three sections of the theatre, especially at low frequencies, has to be kept under strict control. This is where the directional characteristics of the Meyer speakers will earn their bread and butter. During our run-through in the theatre, the spillage, as far as I could tell, was non-existent. The obvious benefits have already made themselves felt, but what of others? For one, the infra-red headphones, still in use in the rest of the exhibit, are slightly rough around the edges with poor pick-up and occasional interference from other signals. Any improvement on that is worth having. For two, it creates a shared experience for the visitors who for the rest of the exhibit, whilst buckled in to their headphones, are actually wandering round in individual isolation. The only losers in all this are those who actually operate the revolve, and who previously enjoyed their work in peace and quiet. They now have the dubious honour of listening to musical classics ad nauseum.

The soundtracks used in the theatre are derived from laser discs, with the replay sequences referenced to SMPTE timecode. Autograph's equipment racks include a Fostex 4020 SMPTE/MIDI event controller, which produces switching codes to synchronise the loudspeaker sources with the theatre's 'animatronic' waxwork figures.

Clearly, the most challenging aspect of this is lip sync and John Leonard admits that this was a frustrating and time-consuming process, mainly because each time a slight adjustment was necessary, the engineer made the change, ran upstairs to the theatre, progressed the show to the relevant point (which could take anything up to half an hour) and if not completely satisfied was forced to repeat this procedure until entirely happy.

Producing a new laser master disc each time the sound track needs updating is an expensive proposition and as part of this project, John Leonard also installed an Akai S1100 sampler. This allows updates and additions to be loaded in directly from a DAT tape, drastically cutting



The three tiers of Rock Circus with the revolving theatre (top), and the two floors of waxwork exhibits below.

the turnaround time and expense of laser discs. The sampler responds to the system's timecode signals and is used for replaying Tim Rice's animatronic commentary.

Final switching of the loudspeaker, control electronics and amplifier combinations is performed by Autograph's custom Switcher Rack, which incorporates eight high performance relays, each capable of two million operations. (Sound for the rest of the exhibition comes from compact disc stereo sound which is fed into a transmitter and a modulator converts the sound into infra-red signals picked up by the special headsets.)

There are two large computers operating the theatre show. One operates the figures and the other controls the massive and complex system of lifts backstage, together with the lighting, slide projection and smoke generators.

The audio animatronic technology has been developed by The Tussauds Group and the figures have acrylic body shells surrounding the working electronics. Each movement is

individually computer programmed into the figures. A number of servo pneumatic valves within each provide the power to move the limbs, head, lips etc.

Taking all this into account and the fact that Tussauds are acknowledged pioneers in this field I have to admit that the appearance of the animatronics was a lot less sophisticated than I expected. It may be that as a frequenter of highly technical presentations my expectations have been falsely elevated to an unrealistic level. Of course, it's only a theory and the one I prefer is that Madame Tussaud's have not quite executed effectively what is potentially a very good concept. At the recent IAAPA amusement show in Dallas, it was very clear that animatronics have advanced to such a high degree of fluidity of movement and expression, that it actually made you look twice - and that is some feat. However, that being said, it didn't actually detract from the enjoyment. And that was down to the music and the improved means through which it was delivered.

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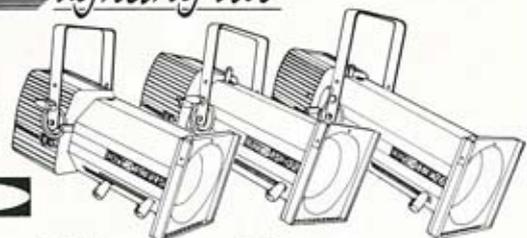
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