



## PARADE AFLOAT

Leaving its familiar National Stadium, Singapore's National Day Parade found a very different venue on the water in Marina Bay, as **Richard Lawn** discovers

**WHEN THE FIRST PIECES OF AN** ambitious floating platform arrived in Marina Bay in Singapore in early January 2007, it marked the start of preparations for the 2007 National Day Parade (NDP) eight months later. The stage was initially constructed from two large concrete slabs that were towed into the bay, and is the largest performance floating platform in the world – designed with a number of innovative features such as an internal drainage system, cabling systems and lightning conductors that can safely dissipate the charge from a lightning strike, to make it an efficient and safe venue for hosting the various events that would make up the spectacle.

The decision to use the platform followed the recent closure of Singapore's National Stadium, which has hosted the Parade for over three decades but is now due for demolition. It may prove to be a temporary venue for the forthcoming National Day Parades, but its statistics are impressive, including the provision of a 200m-long seated gallery for more than 27,500 spectators along the shoreline. The process of constructing the entire platform consisted of four stages. Once within the bay, the concrete slabs were floated into precise position before being locked into place with their counterparts using a system

of specially designed joints and connections. Pylons driven into the seabed serve as the foundations for the structure, and the platform is connected to the shore via three link ways, designed with joints that can move up and down with the platform as it follows the rising and falling tides of the bay.

This year's Parade was christened PossibiCity and comprised five segments – Sea, Earth, Sky, People and Fire – all of which symbolised specific ideals of the Singaporean way of living. The Sea segment portrayed the discovery of the Singaporean identity, while the Earth segment illustrated the preservation of Singapore as a garden city even as the country pursues technological advancements. Sky portrayed Singaporeans' pursuit of their dreams and aspirations and People paid tribute to the country's pioneers. Finally, Fire represented the passion in every Singaporean. Talent and performers in this year's NDP also come from wide and diverse backgrounds, with a 240-strong orchestra, drawing members from the Singapore Symphony Orchestra, the Singapore Chinese Orchestra, Malay and Indian Ensembles, the Singapore Armed Forces (SAF) Central. Together with a military theme provided by parades of boats, helicopters and fighter jets, plus the firework finale, the NDP proved to be a huge

spectacle over the three hours it ran.

No aspect of the event could be left to chance, and the Singapore Government contracted the best consultants in the business well in advance of the NDP, in order to host what would be the best audio and lighting extravaganza in the Republic's 42-year history. Having been appointed technical director, Nick Eltis recruited assistance from

lighting designer Paul Collison and audio designer Scott Willsallen. Mr Willsallen runs Auditoria in his native Australia, and gained notoriety for his work on the 2006 Asian Games in Doha: 'The task was quite immense given the challenges,' he says. 'First, there is a 200m length of seating which goes back 70m and so the coverage area is extensive and is going to be tricky from the floating

platform. Then there is the problem posed by the rising and falling tide in Marina Bay, which will also affect sound coverage patterns. I looked at all the possible suppliers, but concluded that the Adamson Y10 loudspeaker system would provide the broad, deep coverage pattern required for this application.'

The Y10 is not just another line array – rather it is a line source array, with the source distinction being the proprietary co-linear drive module. The 'sound chamber within a sound chamber' design produces a curved iso-phase, co-linear sound source of mid- and high-frequency energy, with all the frequency range leaving the cabinet at precisely the same time, eliminating time smear, mid-lobing and comb filtering. The Y10 combines a 10-inch Kevlar cone with neodymium driver, giving 100° horizontal coverage together with impressively high SPLs.

The 110m-wide, 80m-deep floating stage, is set back 30m from the seated promenade. Four ground-stacked arrays were placed at the front, each consisting of eight Y10 cabinets supplemented by two tower-hung arrays at the front ends of the platform, each with 24 Y10 cabinets. Local supplier Showtec, which also provided the majority of lighting equipment, required the assistance of Australian specialist Norwest Productions to supply the majority



Rigging the Adamson line array system.

of Adamson Y10 speakers, in addition to the other audio equipment specified by Mr Willsallen. Norwest Productions had to increase its own inventory of Y10 speakers, having used 24 of the cabinets for the Doha 2006 Asian Games. The two central ground-stacked Y10 clusters were supplemented by 12 Electro-Voice X-Subs per side in a tapered array, while the outer clusters were joined by six Adamson T21 dual 21-inch subwoofers per side. Adamson Shooter software was used to configure the set-up.

The central X-Sub tapered bass arrays were required to cover a limited horizontal audience area as, given the significant horizontal scale of the seating area, it was important to deliver bass energy with directionality so that the bass was not smeared by late arrivals from distant arrays. Each of these tapered bass arrays consisted of 12 subwoofers stacked five wide and two high, with a single cabinet at each end of the array. The tapering of the array ensured that

its width varied with frequency allowing the only highest frequencies to be reproduced by the central pair, and the lowest frequencies being reproduced by the entire array. In addition to the tapering, the arrays were also steered 5° out from the centre to avoid 'pooling' of bass energy in the centre. This is done in the time domain by progressively adding

delay to each element from the zero time onstage cabinet to the most delayed outer cabinet.

The entire system was powered by 75 Lab.gruppen fP6400 amplifiers and controlled by nine Dolby Lake Processors, managing the signal chain's signal processing needs. One Yamaha PM1D and two Yamaha PM5D consoles were used, together with

32-channels of Shure UHF-R wireless microphones. Showtec also provided 24 Nexo PS15 speakers as monitor wedges, and Norwest Productions supplied two 48-track Merging Pyramix replay systems, which were used for the precise time coding of the performance.

Martin Professional Mac2K washes and profiles made up the

majority of the lighting equipment used together with DTS XR8 and XR850 washes and Varilight VL3K units, controlled from two GrandMA consoles.

Alongside Mr Willsallen, the audio team for NDP07 consisted of both local and Australian engineers and technicians including audio project manager Chandra Mohan, FOH mix engineer Ian Shapcott, monitor mix engineer Ewan McDonald, replay systems operator Trevor Beck, patch/RF systems engineer Amy McDonald, chief comms systems engineer Kamal Adam Litak, and chief systems techs Mohamad Shah Ridzal (Control Systems) and Mohammad Nurhisham (Field Systems). All could count the 2007 National Day Parade as a job particularly well done.



**Ewan McDonald (monitor engineer), Amy McDonald (head system and RF engineer), Scott Willsallen (designer), Ian Shapcott (FOH engineer) and Trevor Beck (replay engineer).**

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