

A JBL INSTALLATION

JBL and the Los Angeles Sports Arena

The Los Angeles Sports Arena is located in Exposition Park adjacent to the Memorial Coliseum. Both venues were hosts to several competitions during the 1984 Los Angeles Olympics, and a new JBL sound system was installed in the Sports Arena at that time.

The Sports Arena was designed by the noted architectural firm, Welton Becket and Associates of Los Angeles, and was opened in 1959. It is a multipurpose facility and can be configured for the following major activities: ice events, basketball,

arena football, boxing, conventions, trade shows, rock concerts, and circuses. Fixed tiered seating capacity is 12,389, with additional arena level seating capacity, dependent on the event, up to 3880. Presently, the Sports Arena is home for the Los Angeles Clippers of the National Basketball Association, USC men's and women's basketball, and the Los Angeles Cobras arena football team. The Sports Arena has served as performing venue on numerous occasions for Bruce Springsteen, Pink Floyd, David Bowie, Styx, Jethro Tull, and The Who, to name only a few.

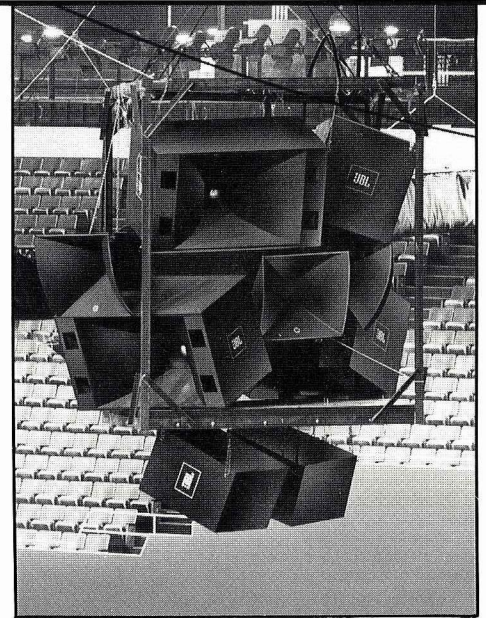
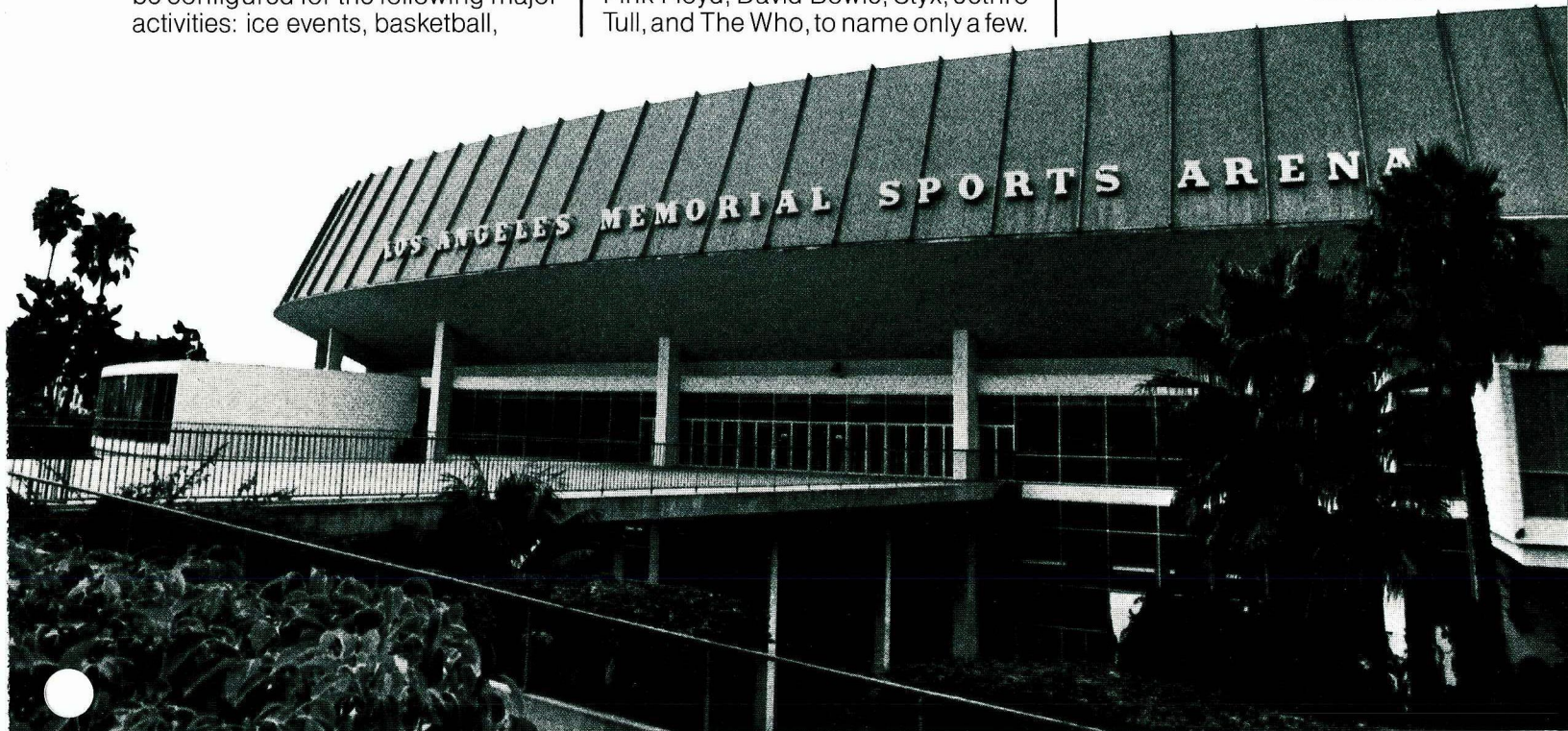


Photo: Pete Bleyer Studio, Inc.

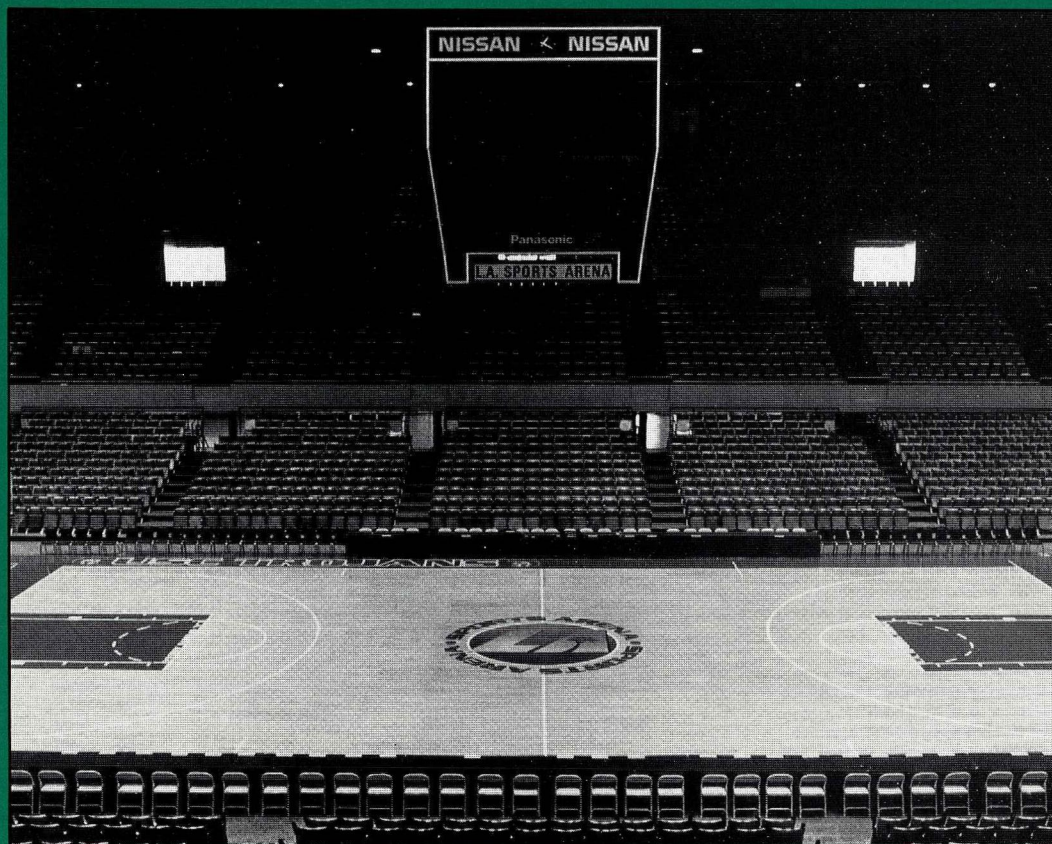


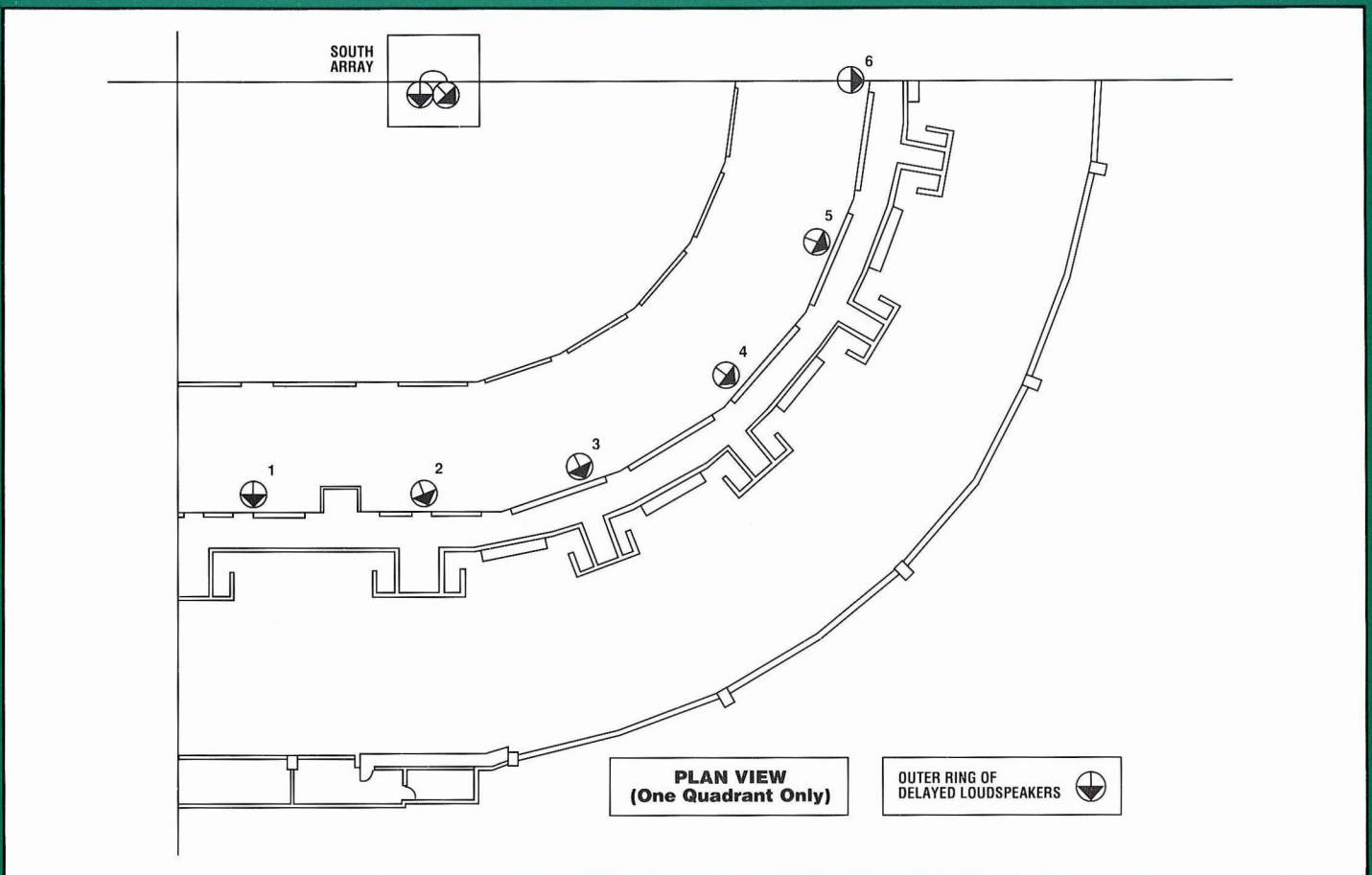
The structure is oval shaped, and the interior length and width are, respectively, 132.4 meters (437 ft) and 96 meters (317 ft). Vertical clearance over the arena floor to the first girder is 22.7 meters (75 ft).

Sound system design was carried out by Marshall Long Acoustics of Sherman Oaks, California. Long opted for two central arrays, each located at the center, or focus, of each circular end section of the space. Each array then covers half of the space. The system requirements were for excellent speech intelligibility, with generous output level capability so that the system could be heard over high audience noise levels.

In addition to the two main arrays, there is an oval ring of 22 loud-speaker systems covering the upper balcony section of the arena. These are delayed either 90 or 100 milliseconds, depending on their distance from the main arrays. The distributed array maintains a favorable direct-to-reverberant ratio in the upper balcony area and was deemed essential by the system designer for intelligibility requirements. In a space with more absorption, the dual central arrays themselves would have sufficed. The main arrays were carefully configured so that direct sound level, in the playing area directly below would be minimal, thus minimizing feedback for speech originating at the arena level.

Marshall Long made use of a proprietary sound system design program in laying out the central arrays. The program can best be described as a tabular version of JBL's Central Array Design Program. The user enters horn location, rotation, and aiming point. Then, the level is calculated for any receiving point the user wishes to enter. For this job, analyses were made on octave centers of 125, 250, and 500 Hz for the low-frequency components and at 1, 2 and 4 kHz for the high frequency components. The direct field summation at each receiving point can be compared with the overall reverberant level in the space. Analyses were made for 49 discrete locations in each quadrant of the arena.





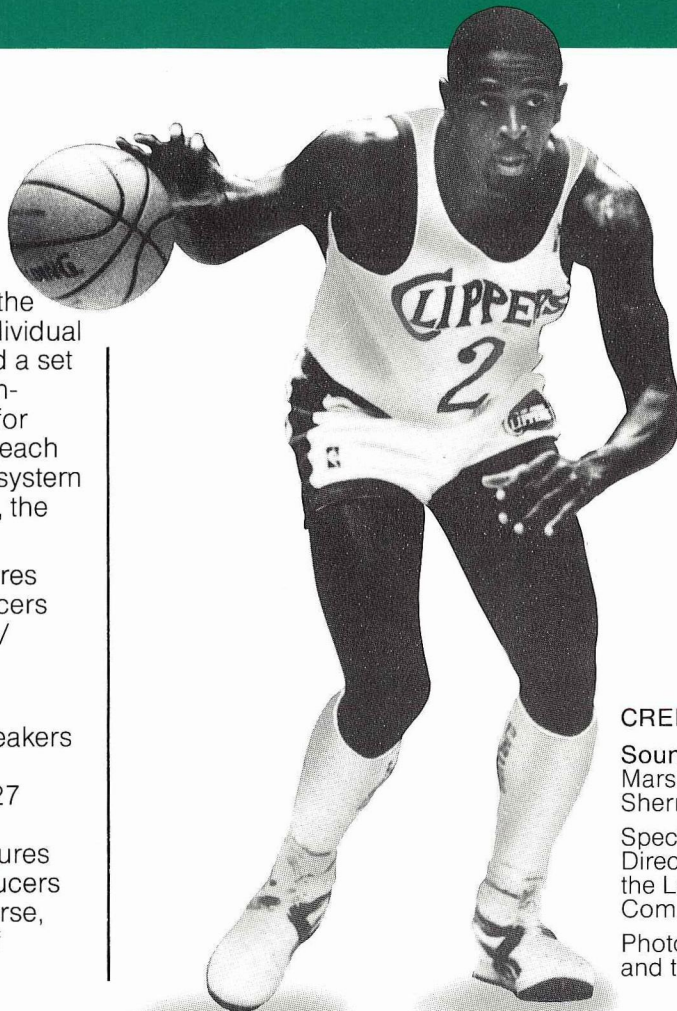
Marshall Long specified bi-amplification for all elements in the dual central arrays in order to keep distortion at a minimum. As can be seen in the electrical flow diagram, the individual amplifier gains were fixed, and a set of 1.2k ohm audio taper potentiometers were placed in line for trimming out the system. For each half of the system (the "south" system is shown in the flow diagram), the central array consists of:

- 4—JBL 4550 LF enclosures
- 8—JBL E140 LF transducers
- 4—JBL 2365/2445 horn/drivers
- 2—JBL 4663 systems

The delayed ring of loudspeakers consists of:

- 11—JBL 2360/2425/2327 horn/drivers
- 11—JBL 4560 LF enclosures
- 11—JBL E140 LF transducers

The same system is, of course, duplicated at the north end of the arena.



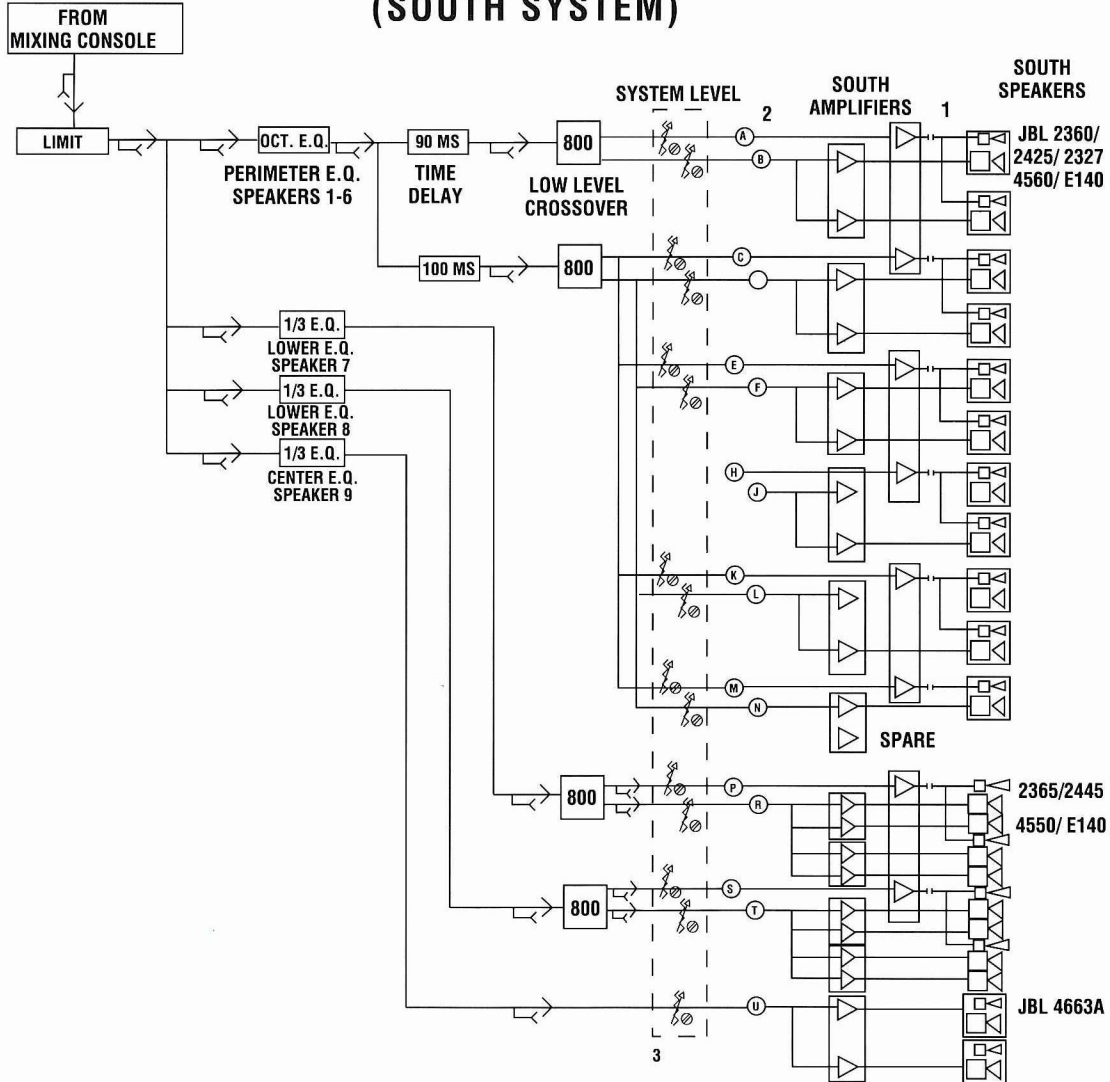
CREDITS:

Sound System Design:
Marshall Long Acoustics
Sherman Oaks, California

Special thanks to Scott Carmichael,
Director of Marketing/Publicity for
the Los Angeles Memorial Coliseum
Commission.

Photos courtesy of Andrew Bernstein
and the Los Angeles Sports Arena

ELECTRICAL LINE DRAWINGS (SOUTH SYSTEM)



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