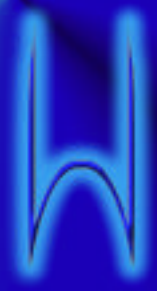

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THE CARIB THEATRE

BY

JOHN F. ALLEN

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THE CARIB THEATRE

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In anyone's estimation, this is one of the big ones. Opened on April 13, 1938, the Carib Theatre in Kingston, Jamaica was the largest building on the island. It boasted over 1700 seats, a large stage and was the very first air conditioned building in the entire West Indies. To this day it remains the largest theatre in the Caribbean.

The seats were originally divided among the first floor, one balcony and a small mezzanine area along the right wall. This area was about 18 feet above the first floor and extended 55 feet from the balcony. The distance from the projection booth to the screen is 180 feet. The room is 84 feet wide and over 45 feet high. Its volume is nearly one half million cubic feet.

1954 saw the first major renovation of the facilities. In order to make way for Cinemascope, the large proscenium arch was removed and a 58 foot wide screen was installed. Two Gaumont Kalee projectors complete with sound heads and a 50 Watt amplifier were installed along with a new speaker behind the screen. Since then, little has been done to upgrade the equipment with the exception of two 3000 Watt xenon lamphouses.

The Carib is part of a chain of theatres owned and operated by The Palace Amusement Company (1921) Ltd. Though the theatre does a healthy business, selling out as often as not, they did not want to lose their loyal clientele to television and a fast growing home video market. Their friend, and fellow theatre owner, Julian Rifkin, convinced them that clear images and state-of-the-art stereo sound would provide the edge they wanted.

Schneider lenses would take care of the picture but, unfortunately, like a lot of theatre owners, they discovered some disagreement among theatre supply dealers about what good sound would require in such a large room.

One suggestion was made that probably no sound system could really do the job and that tripling the theatre was the best way to go. Another proposed approach was for a system of three stage speakers, each powered by a 100 Watt amplifier, and ten small surround speakers all powered by a fourth 100 Watt unit. This system was also rather inexpensive.

Had they installed such an underpowered system with the relatively inefficient speakers

suggested, the results would have been awful, to say the least.

Armed with their hopes, fears and some misinformation, Managing Director Douglas Graham and Operations Director Bobby Brown attended last year's NATO convention to see if they could find some answers. When they stopped by my booth I outlined the type of speakers and amplifiers they would need. But I also felt they should hire a qualified sound system designer who would come see the theatre before doing anything else. Some weeks later, I happily found myself on my way to Jamaica.

The theatre is very well built and posed no structural problems for installing the speakers. However, I discovered that designing a proper surround array for the first floor would be impossible with the open mezzanine seating area located exactly where some of the speakers needed to be placed for proper coverage. The balcony would have a second surround array of its own and presented no difficulty. There was resistance to the idea of closing the mezzanine so I suggested that the wall be filled in and a second concession area be opened behind it to serve the balcony. This proved to be the solution the owners needed to justify giving up 25 seats and spending the additional sums required for a really good sound system.

There was considerable question about whether to use a mono enhancement system or a stereo processor. My feeling is that a modern theatre needs both. The presentation of monophonic films can be greatly improved with a good stereo synthesizer and stereo films ought to be played through a stereo decoder.

The Kintek system was chosen because it is the only mono enhancement system that provides bass enhancement and noise reduction as well as the derived left, right and surround channels. A Dolby CP-50 was chosen for the presentation of Dolby Stereo films. Dolby was also able to provide the split solar cells required for the Gaumont Kalee reverse scan sound heads.

For what was to be the most powerful system of its kind in the world, Kintek was asked to build the electronic portions. Their system model KT-30L can be shipped complete with the CP-50 and the necessary switching. Kintek also assembled and wired the amplifier racks and provided the system's documentation.

One has little choice about speakers in such a large room. You simply must use the biggest most efficient systems made. The Klipsch TMCM-3 filled the bill offering the additional advantage of eliminating the need for subwoofers during stereo operation as they include massive horn loaded woofers.

The screen speakers needed 750 Watts each to deliver the volume levels required at 180 feet from the screen. While there are amplifiers of that size available, they have apparently not held up well when plugged into Jamaica's sometimes unstable power company.

In movie theatres, I generally do not recommend bi-amplification or separate amplifiers for the woofer and high frequency sections. The TMCM's crossovers have a 1000 Watt capacity and an insertion loss of 1/2 dB or so,and so do not waste a significant amount of power. In this case, however, bi-amping seemed the best choice. We could build up the power we needed with smaller amplifiers. The Crown VFX-2 electronic crossovers were selected. These are placed ahead of the power amplifiers and were set to divide the low and high frequency bands at 400 Hertz.

Five BGW 750-C power amplifiers were chosen for their modular construction, clean sound and their reputation for working well when connected to Jamaica's power company. These units deliver 250 Watts into an 8 ohm load per channel. Each of the three TMCM's two woofer drivers were powered by one 250 Watt amplifier section. Each of the

three high frequency sections were also powered by a 250 Watt amplifier. This is permissible as the midrange driver assemblies are rated for 120 Watts, continuous operation and the woofer drivers each handle 150 continuous Watts.

As I pointed out in my April, 1982 BOXOFFICE article on power amplifier requirements, it is far safer to briefly exceed a speaker's continuous rating than to under-power it and force the amplifier to distort.

Chief engineer David Chong headed up the team of technicians that installed the system. The two surround arrays were put up, one for each floor, 24 speakers in all. Seven Kintek KT-100 amplifiers were used to provide the power.

Since the balcony is over 100 feet from the screen, its surround system needed more than the 100 milliseconds delay provided by by both the Dolby and Kintek systems. A Lexicon model 91 digital delay was installed to give the additional delay required for the balcony surrounds. The first floor surrounds were delayed the 100 milliseconds provided by the processors. When the levels are correctly set for the two surround arrays, one can not hear any overlap anywhere in the theatre.

The Allen Surround Array formulas once again proved useful in locating the surround speakers for optimum and even coverage. As has been the case in smaller theatres, the sound level was constant ±1/2 dB within the area surrounded, dropping slightly as you near the stage. The Klipsch Heresy speakers used give a surround sound comparable to the screen channels. So when we finally turned it all on and played "The Empire Strikes Back", the effect of the space ships flying through the theatre was enough to knock the chief engineer out of his chair.

If there would ever be the "Ten Commandments" of sound system design, "Thou shall not overdrive an amplifier" might be a good one. It is not our intention to blast an audience. In such a large theatre these power levels actually produce slightly lower acoustic levels than the 600 total Watts (into the same speakers) we installed in the Wellesley, Mass. Community Playhouse, described in last December's BOXOFFICE.

Mr. Brown reports that grosses are up and that audiences having already seen some films on television are coming to the Carib to "experience them."

John F. Allen is the founder and president of High Performance Stereo in Newton, Mass. He is also the inventor of the HPS-4000® cinema sound system and in 1984 was the first to bring digital sound to the cinema. John Allen can be reached by E-mail at JohnFAllen@aol.com.