

SITUATION

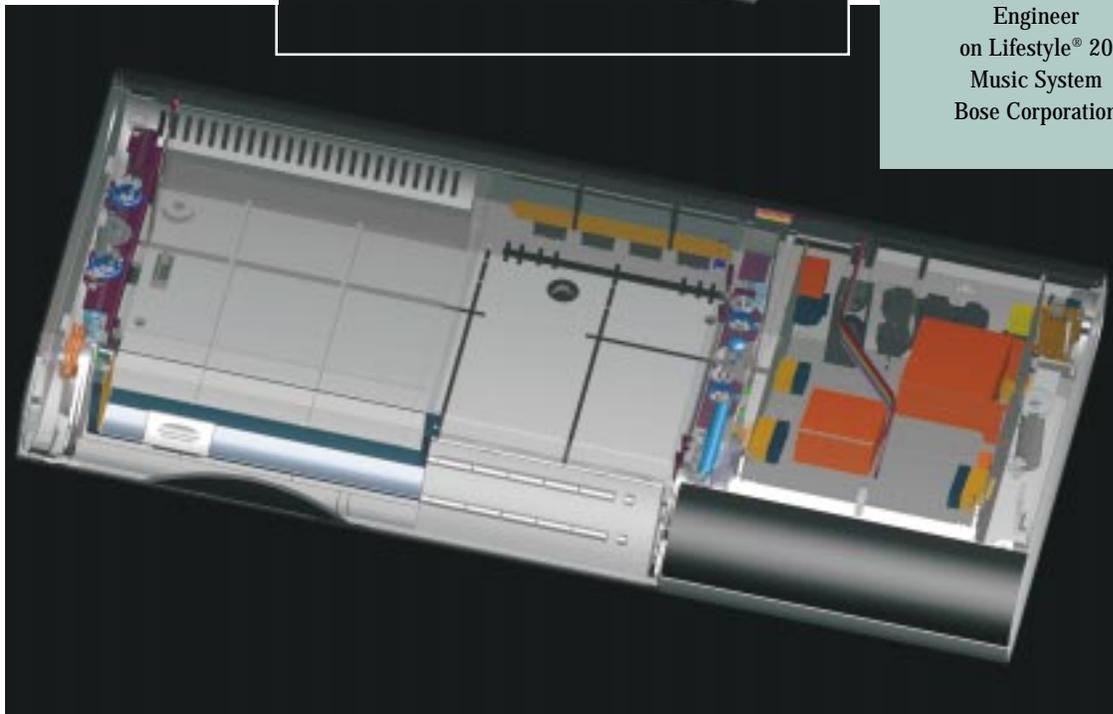
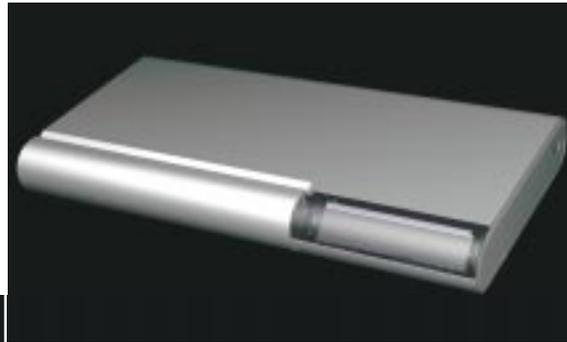
The challenge facing Bose® engineers was to fit an AM/FM tuner and six-disk CD player into an area that previously held only a single-disk CD player. Complicating the effort was that the final product was to be the smallest offering available on the market, yet needed to contain Bose's renowned styling and functionality. Time constraints mandated that the product be brought to market as quickly as possible.

OBJECTIVES

- ✓ Engineer the product such that the access door to the CD magazine was on the front of the console. Additionally, the door had to function smoothly and be a high-quality component.
- ✓ Fit the CD changer, AM/FM tuner, and all the electronics needed to drive the changer, tuner, and display into an enclosure measuring 15.5 inches long by 8 inches wide by 2.5 inches high.
- ✓ Bring the Bose Lifestyle® 20 music system to market in record time.

PROCESS VISION

- ✓ Demonstrate the effectiveness of its new 3D software system to speed the product development cycle.



3D DESIGN PAYS OFF FOR BOSE® CORPORATION

“Even though this was our first use of solid modeling, we completed the project nine months faster than it had taken us to produce the earlier, single-disk console. And I’d estimate that at least half the time we saved was due to our use of I-DEAS Master Series™ software.”

- Paul Warren
Lead Mechanical
Engineer
on Lifestyle® 20
Music System
Bose Corporation

3D DESIGN PAYS OFF FOR BOSE® CORPORATION

- ✓ The number one criteria for the new software: reducing time to market.
- ✓ Maintain the elegant design of Bose audio equipment, with a minimum of buttons and knobs cluttering the design.

ACTIONS:

- ✓ Migrated from an incumbent 2D CAD system to SDRC's I-DEAS Master Series software.
- ✓ Using I-DEAS™ software, Bose® engineers modeled each of the individual console components.
- ✓ The next step was to pull all the components into a master model of the assembly, so engineers could see how everything fit together.
- ✓ Then, the design team studied the fit of the components and assemblies within the enclosure. Shaded solid models made it easy to visualize the box and its many contents, and in many cases, this was all that was needed to spot problems and optimize the internal configuration. Designing the console door was next. I-DEAS Master Assembly™ software was employed to let the team examine the motion of the door directly from the solid model assembly, without creating special mechanism models.

RESULTS:

- ✓ By combining I-DEAS Master Series software with engineering and manufacturing expertise, Bose brought a superior product to market in record time.
- ✓ The Bose Lifestyle® 20 music system was the smallest multiple-disk CD player on the market.
- ✓ The final product contained the sleek, elegant design of all Bose audio equipment offerings.
- ✓ The use of I-DEAS-generated solid models made it much easier for the design team to communicate with electronics designers, manufacturing engineers, and vendors on the project. They conveyed design intent earlier and more accurately than previously possible. This enhanced communications reduced errors in downstream operations and also made it possible to perform analysis, get quotes, and make tools sooner because these processes didn't have to wait for drawings.

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