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PCjr INTERVIEW:

Chairman of

Nothing is black-and-white in this world, not even Junior's keyboard. So we asked the man behind the keys to illuminate the gray area.

"If you think of how to reconfigure a keyboard very inexpensively, I can only think of one way of doing it: with templates."



There's a wall of silence surrounding the PCjr keyboard, as there is around every IBM product. But you can easily find a crack in this particular wall because the works inside the PCjr standard keyboard bear an uncanny resemblance to those inside the EK-184 keyboard. On the surface, the biggest difference between these two members of the same product family is the shape of the keys. The EK-184 has round, dish-shaped keytops unlike the PCjr's rectangular keys with raised left-and-right edges.

Though the EK-184 is not slated as a replacement for the PCjr's standard keyboard, its use as a keyboard for so-called PCjr clones is certainly a possibility. John Overby, president of Advanced Input Devices (AID), which manufactures the PCjr keyboard, recently discussed the EK-184 and its similarity to Junior's freeboard.

Mustachioed and gregarious, Overby has a degree in electrical engineering and experience as an engineer at both General Instrument and Key Tronic. He eventually became dissatisfied working for someone else and wanted to start his own company. The choice of making keyboards was natural—"Keyboards are all I know how to do," he explains—and he had fresh ideas for products in a unique market niche.

A gentleman, Overby's sense of competition with the other keyboard companies in the valley is chivalrous. He will talk about the technical aspects of the competition's latest and why his product is better, but like a gentleman, never say an unkind word about his competitors. They all make a good product, he admits, but it's just that AID's is better. In this interview, he tells you why. You may find the reasons surprising.

PCjr Magazine: *Probably the most criticized aspect of keyboards similar to the EK-184 is the shape of the keys—typists feel that the key tops are too small and their fingers have a tendency to slide off. Why did you choose that shape?*

Overby: The keys are shaped that way for only one reason—so

the Keyboard

you can put an overlay or removable template on them. To serve multi-users in multi-markets, you have to change the legends often. If you think of how to reconfigure a keyboard very inexpensively, I can only think of one way of doing it: with templates.

PCjr: *I note that your key tops have a dish shape, while the keys of other keyboards you make are curved only in one direction. Why?*

Overby: Our key top was designed by George Nelson in New York, the largest industrial design firm in the world. That's why it looks good. The surface area of this key is the same size as a normal key. But it's small enough to allow legending.

PCjr: *A term that's been bandied about by the press quite a lot recently is Chiclet keyboard. Your EK-184 has keys about the same shape that critics of the IBM PCjr were calling Chiclet. What's your reaction to your product being called a Chiclet keyboard?*

Overby: My reaction would be, I thought Chiclets were square. Our key tops are rectangular.

PCjr: *Using templates does not dictate that the keys have to be rectangular. Why did you choose that particular shape and size?*

Overby: There are two reasons why our keys are rectangular. The shape approximates some European designs. If you look at the European key top designs, you'll see that they have a round circle with the edge away from the typist flattened. In fact, the first ones were totally round at the top, but then there was one ergonomic guy in Italy who said a fingernail could get caught on a round key on the front ridge, so they flattened it off. [Ergonomics is the science of matching machines to human needs and convenience.] In effect, our rectangular shape serves the same function, a fingernail relief.

The reason our keys are rectangular and not square is to allow a lot of surface and yet still provide enough room that you can read template legends.

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PCjr: *One criticism I've heard from other keyboard companies is that your product is not a full-travel keyboard. Is it? [Full travel refers to the distance a key moves when pushed.]*

Overby: The specification for our product is 150 thousandths of an inch travel. The DIN [the Deutsche Industrie Norman, which is the German industry standard] specification for full travel is between one-eighth inch (125 thousands) and 156. So we are actually at the upper end of the specification that defines full travel.

PCjr: *Then why do so many people say that your design is not full travel?*

Overby: People assume because the key has that [rectangular] shape, then it must be short travel.

PCjr: *Companies that are making keyboards with full-sized keys as a more typeable alternative to keyboards with keys like yours are saying their designs are more ergonomic. Is Advanced Input Device concerned with the ergonomics of its keyboards?*

Overby: Actually our first product, which we call Panelkey, was developed because of ergonomic concerns. It uses dome switch technology—a small metal dome is snapped down to make the circuit contact—with a printed plastic overlay on the top. It looks like a membrane switch, but the unique thing that we brought to the product was a very good, crisp tactile feel.

PCjr: *How did you become involved in making keyboards that are more typeable? Where did the idea for the EK-184 design and its underlying technology come from?*

Overby: About two years ago, Crawford Byxbee, AID engineering director, and I decided that the full-travel market needed a better way to do things.

One of the things we were privileged to learn about was the DIN profile which requires that key tops be no more than 30 millimeters above the desktop. The whole ra-

Chairman of the Keyboard

tionale behind that is that if your wrists are too high, you're going to suffer from fatigue from typing that way all day long. It requires a very low profile switch design which our earlier product, Microkey, had. A lot of people were talking to us about buying Microkey. It turned out that they wanted something under 30 millimeters to meet the DIN standard, and we had the only solution around.

"Our keys are rectangular to allow a lot of surface and provide enough room to read template legends on the templates."

At that time we also thought that if the ergonomic thing caught on, maybe keyboards would become detachable. That's specified in the DIN standard, too. There have always been a few detachable keyboards, but the DIN standard was a stimulant to the market.

We also said that the whole industry has been trying to develop a true tactile feel, so we decided to add that to our list of design specifications.

Then we looked at life a little more and asked ourselves whether the world really needs to get 100 million cycles from a keyboard. For our original specification, we thought maybe 50 was reasonable.

PCjr: *According to most engineers, hard contacts don't last as long as capacitive and other sophisticated designs. How long will the contacts in the EK-184 last?*

Overby: It's probably going to be well over 100 million operations. Our latest readings are 64 million and inspections reveal virtually no wear. Normally switches degrade slowly over life. You start to see a wearing pattern. This stuff actually wears in and gets better than the original specs. That's part of this material—it does not fall apart, while silicone inherently falls apart.

PCjr: *What other advantages does your Ergokey have?*

Overby: We have very, very few parts. We have a printed circuit board. A very simple one. The elastomer, we call it a rubber matrix, replaces all the switches in a normal keyboard. The only thing left is the key top.

PCjr: *Which size keys do you think will be used in business applications—the smaller rectangular or full typewriter size?*

Overby: Interestingly enough, it's being done with both key top shapes. Our customers that understand the power of the overlay are going with the smaller key shape. In terms of trends, I think you're going to see two markets emerging: Those who want a reprogrammable keyboard and those that don't. Don't ask me what the ratio is going to be. I don't think more than 50-50, probably. The ability to reprogram keyboards with a simple template is very, very exciting.

PCjr: *How peanut-butter-proof is your keyboard design?*

Overby: You can pour a cup of coffee in it. It goes in the top and runs out the slots at the bottom and it still works.

PCjr: *Can you take it apart to clean it if it gets gummed up?*

Overby: Not recommended, but Crawford Byxbee did run one through a dishwasher. That cleaned it up, but it took several days for it to dry out.

PCjr: *Do you think people are underestimating your keyboard design? Is there something about it we don't know?*

Overby: I think the template thing got by most people. If you take what's right about the PC keyboard, it's a long-life, high-performance, high-speed keyboard. So is ours. The PC keyboard has a tactile feedback. Ours has a tactile feedback. That's why it does, because we want it to be like a PC.

Let's look at how they're different. Ours is lighter, so you can put it in your lap, and a lot of people do. They sit there and run this cord around and put it on their laps. Then again, you might find someone who wants one heavier like a battleship. Once you take the cord off, however, light weight becomes a big advantage. The other major benefit is a major advance in cost structure. I would call them equal performance but ours costs a whole lot less money and has the option of the overlay. □