

From Mocked to Mainstream

HOW JIM DOWNING'S HANS DEVICE REDEFINED RACING SAFETY

On the second lap of an HSR historic event at Road Atlanta, a car turned sideways in heavy traffic, leaving the rest of the pack scrambling through the high-speed turn to avoid hitting it. Jim Downing saw a hole in the chaos and went for it—but that stopped car started to roll, blocking Downing's escape route.

The resulting T-bone crash was a big one that did some damage to Downing's back but none to his head or neck thanks to his HANS Device. Downing, a celebrated, longtime racer in both the pro and amateur ranks, coined the now ubiquitous HANS Device and has been wearing one regularly since 1986.

"That was my first big frontal wreck in 61 years of racing," he says. "I hit his car dead center. And I felt the HANS work. It was odd for me to have that experience being the HANS guy, but there it was, and it paid off in this case."

"It was the second time a HANS has prevented a head or neck injury to Downing in a violent crash," Jonathan Ingram wrote soon after in *Autoweek*. "In June of 2012, a rear wing support collapsed on the back straight at Mid-Ohio during an SCCA club race."

In that incident, Downing's prototype racer flipped and slid off track into mud soft enough from a recent rain for the car's roll bar to dig in. "And when my head touched the dirt," Downing adds, "it rolled me into a ball and broke my back in two places."

Ingram's excellent 2019 book, "Crash! From Senna to Earnhardt—How the HANS Helped Save Racing," relates in great detail how Downing and Robert Hubbard—the Duke engineer/General Motors safety researcher/Michigan State University professor who married Jim's sister and helped with his racing for many years—co-invented and developed the head-and-neck restraint. After much initial resistance, the HANS Device, as well as follow-up units from other makers, have become not only common but often mandatory.

The device's lifesaving function is keeping the driver's head from snapping forward in a hard frontal crash while their body is tightly restrained by belts. When the head snaps forward like that, the potentially fatal result is a fracture at the base of the skull that



Gary Migrom photo

Today there's a good chance you have a HANS Device—or similar head-and-neck device—sitting in your equipment bag. Until Earnhardt's death, however, Jim Downing had a lot of trouble getting drivers to adopt his original concept.

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cuts an artery, causing the driver to quickly bleed to death. That's what happened to Ayrton Senna, Dale Earnhardt, Adam Petty and too many others through the years.

"The story really started when Patrick Jacquemart was killed at Mid-Ohio," Downing tells us. "That was a sad deal, he was a friend. And that was far from the first racing fatality from a basilar skull fracture. I brought the subject up to Bob and said, 'What can we do about this?'"

"He worked on it and came up with the idea of some kind of collar," Downing continues, "and we made prototypes and kept making changes. I had a composite shop and guys who worked there, and each time one of us thought we could do something better, we tried it. And we got a patent on it fairly early."

He tells of wearing one for the first time at the 1986 Daytona 24: "People were snickering and pointing and wondering what in the world I was doing. But I continued to wear it because we believed in it. There were a few other people who also saw the value of it and got them, and we just put up with the negative outside input."

In 1991, they publicly introduced a big wrap-around HANS and managed to build and sell roughly 250 of them in the next 10 years—losing money on each one of them—until Earnhardt's 2001 death.

Perceived discomfort was the main complaint from those who had never tried it. "They were not going to wear it because they just knew it was going to be uncomfortable," Downing explains. "And we just tried to assure them: 'Just give it a try. Quit talking and try it.'"

The FIA got interested, but the device was too big and bulky to fit into a Formula 1 car. "And Mercedes got interested after Senna's death in 1994," Downing continues. "We agreed to shrink it down to a more manageable size, and Mercedes did a ton of sled testing—which can cost \$2000 to \$3500 a run—in 1995 through 1999."

"We didn't have that kind of money," Downing recalls, "and I give them a lot of credit. Bob went over there; their engineer, Hubert Gramling, worked with him. They became friends and worked hard to get the best design they could." They did get a few NASCAR drivers to wear it.

"And after Earnhardt was killed," Downing recalls, "suddenly the world woke up. We had newspaper people here and got calls from all over the world. I took orders for 250 the next week but had just three on the shelf."

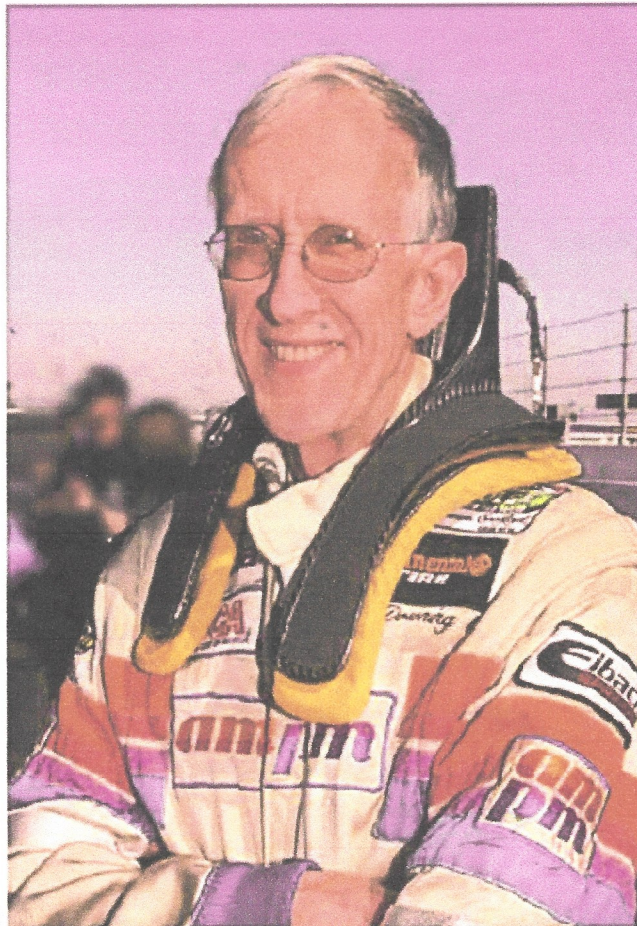
I had people unhappy with me for a year because it took that long to get the production going."

Hubbard sadly passed away in 2019, and Downing no longer makes or sells the device. "We just recertify them occasionally. Simpson bought me out in 2012, and Holley recently bought Simpson."

Three designs are available today that cover different angles of recline back to 30 degrees. "After that," Downing explains, "if you're lying on your back, it really doesn't help you much."

Looking back, how does Downing feel about the legacy that he and Hubbard created and the lives and serious injuries saved as a result? "I am thrilled," he says. "It was great and continues to be, and it is a thrill to have been a part of it."

"People say, 'You have saved hundreds and hundreds of lives.' Maybe so, but what it does on a more regular basis is keep people from being injured by having had their heads stretched hard one way or the other. There are all sorts of injuries that you can get that revolve around your torso and neck. So it has also saved a lot of folks from injuries that would require a long recovery process and not being able to race for a while. People come up to me on a regular basis and say nice things." —Gary Witzenburg



Jim Downing (pictured) had a valuable partner in creating the HANS Device: his brother-in-law, engineer, Robert Hubbard.