



New Territory:

Hilliard's Karting Endeavor a Different Kind of Challenge

By Jeff Castellano

As a 107-year-old manufacturer of state-of-the-art motion control products and filtration systems, the Hilliard Corporation has made expanding into new markets its way of life. With 40 engineers and drafters supplemented by over 550 workers, it's simply the nature of their business – as technologies advance, Hilliard adapts its capabilities and further diversifies.

But unlike most of their new undertakings, the company's foray into kart racing has demanded a different approach. Like other forms of



Shop photo from the 1920's



The Hilliard shop in 1929.

motorsport, karting is a highly specialized entity. Every part and piece of a kart is designed to work, last and perform for the specific type of racing for which it's being used. And, of course, most racers are out to win, so only the best parts will do.

So when Hilliard rolled out its Inferno karting clutches in 2007, the challenge wasn't whether the company could leverage its expertise to design a good product. Instead, the key was whether it understood the sport well enough to jump into the ring with established names like MaxTorque, Titan, Horstman, Noram and Bully – and whether they could earn the respect of the karters themselves.

It's an evolving process. "It blew our mind that you'd look in a kart catalog and they had six different clutches based on what class you're trying to set up for. We were like, 'What in the world do you need that for?'" said Brent Barron, Engineering Manager for Hilliard's Motion Control Division and the chief inventor/designer of the company's kart racing clutches. "We struggled for the first three years and almost made the

decision that it wasn't a market we should even go after. But we knew we had a great product. We just didn't know how to sell it in that market.

"Two years ago, Briggs & Stratton didn't know who we were. Now that we're in the market, our name is growing pretty rapidly."

Being in the market means attending trade shows, sponsoring tracks and classes, raffling off hats and t-shirts at races, and most significantly, doing some racing themselves.



ASME Code Weld Shop



Robotic Lathe Cell.

methodology is disciplined – instead of diving straight into national competition, it is building itself through the club system, sprinkling in a handful of trade shows for good measure. It's an intriguing story. For the first 90 years of its existence, Hilliard carried on with little interest in motorsports of any kind, let alone kart racing. And yet here they are – and it seems they're here to stay.

THE DEEPEST OF ROOTS

To understand why and how Hilliard has the ability to design a karting clutch, you must first understand the company's rich engineering and manufacturing history. To do that, you must go

Barron's daughter, Isabel, began karting in 2010, giving him the opportunity to test his newest clutch developments while promoting the Inferno brand. It's all about getting an education while maintaining a constant presence, an effort that's a bit foreign to the other arms of Hilliard's business – some of which feature contracts with giants such as General Electric, Caterpillar, Rolls Royce, Polaris, and Toro.

"Our technical salespeople can size a brake for a downhill conveyor that's four miles long, based on the inertia, the conveyor, the friction in the rollers, how big the drive is," Barron said. "On a regular basis, we build and sell brake systems that are hundreds of thousands of dollars. Our salespeople are highly technical, but they don't know the racing market. If you're not involved in the market, you can't talk to a racer."

While Hilliard's involvement in karting is still in its infancy, it's clear the company is investing in karting for the long-term. Its



Cartridge Production Pleating Machine.

WHAT HILLIARD MANUFACTURERS

The Hilliard Corporation is a 500+ person industrial parts designer and manufacturer based on Elmira, New York. While relatively new to kart racing, Hilliard is known for supplying many Fortune 500 companies with products such as:

- Industrial & Drive-train clutches: overrunning, intermittent-motion, torque limiting, and centrifugal
- Electric, Magnetic and Caliper Brakes: industrial and commercial
- Filter Housings and Accessories
- Reclaimers and Reclamation Systems
- Filter Cartridges
- Turbine & Reciprocating Engine Starters
- Plate and Frame Filter Presses
- Transfer Valves
- Storage Tanks
- Vent Mist Eliminators
- Fluid Filtration and Conditioning Systems

HILLIARD'S KARTING ENDEAVOR:

INFERNO CLUTCHES



THE FLAME



THE FURY



THE BLAZE

back to the very beginning – back to 1905, in fact, when William Hilliard of Elmira, N.Y. designed one of country's earliest motion control devices.

In the early 20th century, machine shops featured one power unit to actuate tools such as drill presses or laths. Conveyed through a complex system of pulleys, the power was sent to all of the machines simultaneously, meaning that all of the machines were turned on even if only one was needed. William Hilliard had a solution: The friction disconnect clutch, which

INFERNO

Kart Racing Clutches

INFERNO
FLAME

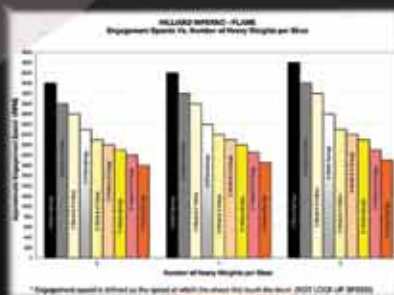


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1907 shop photo.

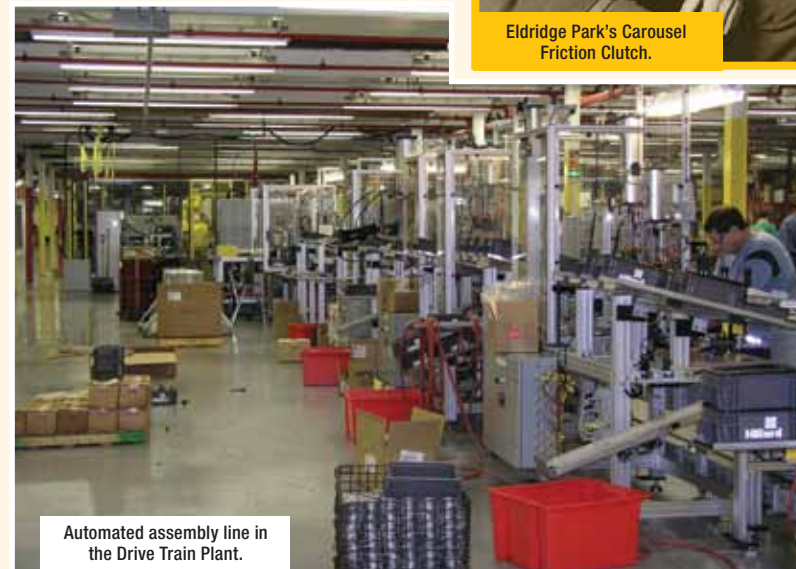
allowed workers to turn the power on and off to individual machines. Thus, the company that was to become known as the Hilliard Corporation was born.

By the late 1920s, machine tools came with their own power sources, which rendered the friction disconnect clutch obsolete. But by then, the company was in the capable hands of Chemical Engineer Edward Mooers, and he had set the company on a sustainable course.

The Hilco Division, under which the company's industrial filtration systems are built, was formed, and Hilliard's overrunning clutch was developed and sold. The former was buoyed by a partnership with GE to design a wind reclaimer, while the latter became popular for use on conveyor systems used in factories and mines.



Eldridge Park's Carousel
Friction Clutch.



Automated assembly line in
the Drive Train Plant.

a wide range of products across its Motion Control, Hilco, Star Filter, and Engine Starter Divisions. The company has two main manufacturing plants, a drivetrain manufacturing facility and a cartridge manufacturing plant, as well as distribution facilities in Europe, South America, India, and Asia.

While its main office and manufacturing facilities remain in Elmira – in the exact same building where it was founded – Hilliard's diversity has developed into its greatest asset.

"We do over 30 tradeshows a year, but because we sell to so many different industries, it's hard to market because our products overlap in different industries," Doud said. "It's kind of been the strength of the company over the years. We don't have all of our eggs in one basket. So if one segment of the industry is down, something else may be up to counter that."

The company's evolution from the early days of the friction disconnect clutch speaks as much to its engineering and manufacturing prowess as to its innovative spirit. Almost every product Hilliard has become known for began with a problem that led to a customized solution.

That's how Hilliard decided to build karting clutches, too. "People have come to us with a need, and we've adapted our products to fill the need that they have," Doud said. "We're all over the map. That's how we got into the karting. It was the same sort of thing."

1990 WKA event, Pocono
International Raceway. Arie J.
van den Blink with his 125cc
Shifter Kart, a ZIP Bandit.



Hilliard also mobilized its resources during wartime, manufacturing parts for American's P-40 fighter planes while making a large number of reclaimers for the Manhattan project, which developed the world's first atomic bomb. Furthermore, the company made thousands of clutches during World War II for the U.S. Navy. It's clutch was part of a transmission that absorbed recoil on turret guns and greatly lessened injuries and deaths.

In the mid-1980s, they partnered with Polaris Industries to develop a clutch for their All-Terrain vehicles, which quickly became a cornerstone product of the company's Motion Control Division. Since then, Polaris has become one of Hilliard's biggest customers, according to Marketing Manager Rob Doud.

Such is the groundwork for the company today, which offers

New Kid on the Block

Hilliard's clutch business, which encompasses overrunning clutches, intermittent motion clutches, torque limiting clutches, centrifugal clutches, and various specialty products, falls under the Motion Control Division. The Division has designed clutches for so many different industries and applications that the means to build a clutch for kart racing have existed for over a century. The "need," however, was missing.

That changed in the late 1990s. A few of Hilliard's employees came forth to see if the company could design a better clutch for their fun karts, and after performing due diligence, it discovered that clutch failure on fun karts was a common problem because of the amount of heat transferred to the springs. So Hilliard built one to solve that issue, and did so successfully – except, the market for fun kart clutches was much smaller than they'd expected, and they were back to square one.

Or were they? After attending a few national trade shows, Hilliard's clutch attracted interest from those involved in motorsports, specifically youth-model snowmobile racing. The fun kart clutch wasn't designed for performance, but the feedback they'd received convinced Barron and others to pursue racing markets. So after years of research and development, Hilliard unveiled its first purpose-built racing drum clutches, known as the Fury and the Blaze, in 2007. *It was a slow and humbling process.*

Paul Webb (former President and COO) with Isabel after a feature win at CMK Speedway.



"We took those two clutches to market, and it was hard to convince people that the Fury was not the same one you could buy at the Tractor Supply," Doud said. "We sent samples out to people to test, basically to get exposure. We kept being there year after year, talking to the people and talking to the distributors, promoting it to end users and getting them asking for the clutch when they went to their dealers."

Snowmobile racing was an initial target,

but it wasn't the sensation the company had hoped it would be. Snowmobiles are only raced in colder climates and during the winter season, which considerably narrows the market for the racing clutch that had been developed. So it turned its attention to kart racing, according to Barron, but was again stymied.

"We had this product, and we tried to take that same product and sell it in the kart racing market," Barron said, "but nobody at Hilliard knew the market. Nobody knew what a [Briggs & Stratton] Animal motor was, what a flathead was. It's kind of funny that at an engineering company doesn't know that, but if you're not in the market..."

The turning point came as a result of hard work and a dose of good fortune. In 2009, after three years of struggles, Hilliard considered abandoning the kart racing market altogether, but felt strongly enough about the quality of its clutches to instead dive in and market the product by learning what karting was all about. Barron began going to local tracks – dirt ovals such as Moe's Karting World in Addison, N.Y. and Cook Mountain Speedway in Lawrenceville, Pa. – to promote the clutches and talk to racers about their needs.

Barron's daughter's decision to go racing took his understanding of the sport a notch forward. As a competitor rather than a spectator, he became more attuned to what was important to karters, and now had the

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opportunity to test his newest developments on her kart.

"The first season Isabel got into racing, we grew our business 400 per cent, and last season we grew it another 200 per cent," Barron said. "Our sales numbers are pretty good now with the racing product, where when we started they were a very low number. So it was beneficial for the company and beneficial for me since I'm pushing these products as the designer."

And while all of this was happening, the Clone engine, a spec 4 cycle kart racing power plant designed for the cost-conscious racer, was introduced. The Clone gained instant popularity, particularly at the local level, because of the performance it delivered at its reasonable price point. Many karting clubs and sanctioning bodies began pairing the Clone with a drum clutch to further control costs, and before Hilliard knew it, the demand for their clutches had accelerated.

"It was dumb luck," Doud said. "We didn't predict there was going to be the size of market that there is now for it. We just came out with our drum clutch, and the Clones hit it big."

The stars had aligned for Hilliard's kart racing clutch program. The foundation has been poured, the frame erected. Next on the list: Widespread brand recognition.

Escaping Anonymity

When you flip the pages of a karting catalog, you may or may not notice the Hilliard



Arie J. van den Blink
Chairman and CEO of Hilliard.

Brent Barron
discussing clutches
at Penns Creek
Raceway Park.



name. There are two possible explanations. First, you may not be looking for it, and you'll skip over their product or advertisement. Second, it may not be there at all, since Hilliard is marketing its kart racing clutches under the name "Inferno."

"Our fun kart clutches were the Extreme Duty. The racing clutches were Inferno. So in the beginning it was called, 'Hilliard Extreme Duty Inferno Blaze' – it was like, geez, how long is this name going to be?" Doud said. "So we cut it down. Hilliard is the Hilliard Corporation, and Inferno is a division of Hilliard Corporation."

What most karters don't yet appreciate, according to Barron, is Hilliard's pedigree. The company is still too new to the sport to garner serious recognition – which is an obstacle he's working hard to overcome.

"Most people think, well, MaxTorque, okay, they've been around the longest. They're the oldest clutch company," Barron said. "Well, we're probably three times older than MaxTorque, but for this market, for what people are used to, we're the new people and it's difficult to get people to get excited about it or understand it."

Regardless, it's doubtful that Hilliard will remain anonymous in the karting industry for

very long. Thanks to the efforts of Barron, co-inventor Steve Averill and others, the product is solid and is undergoing constant refinement. In fact, Hilliard recently introduced a third model, the Flame, to offer a broader range of options. All three – the Fury, Flame or Blaze – can be used for any class, depending on how much available tuning you're after.

On the marketing front, Hilliard maintains its measured approach. The company promotes its Inferno product at local, smaller karting events and shows in upstate New York and Pennsylvania through billboards, class sponsorships and technical support to racers. Achieving a national presence with its Inferno line is something that will remain on the horizon, at least for now.

The company is also active in promoting karting itself. Elmira-area tracks hold an annual Mall Show for local karters to show off their karts, display their trophies and talk to patrons, and Hilliard sponsored this year's event. They have also sponsored classes at Sunshine Kartway in South Carolina, in addition to the local tracks.

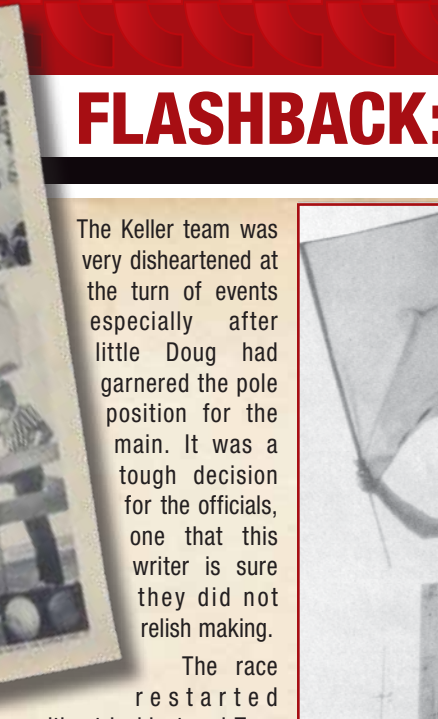
"This is something we'll be in for the long haul," Doud said. "We're going to continue along with the sport and try to promote it any way we can. We support some of our local guys who, from the beginning, went and tested our product, so they've been great support to us and we try to help them in any way we can."

Having built clutches and other complex mechanical systems for decades, Hillard was equipped to respond when a need for a new karting clutch arose, while also being prepared to learn about and invest in the sport. As a company that prides itself on quality, flexibility and problem solving, and with extensive professional resources supported by 353,000 square feet of manufacturing space, The Inferno clutch line has the potential to not only be a player, but a force in coming years.



Race 3 - Rookie Junior

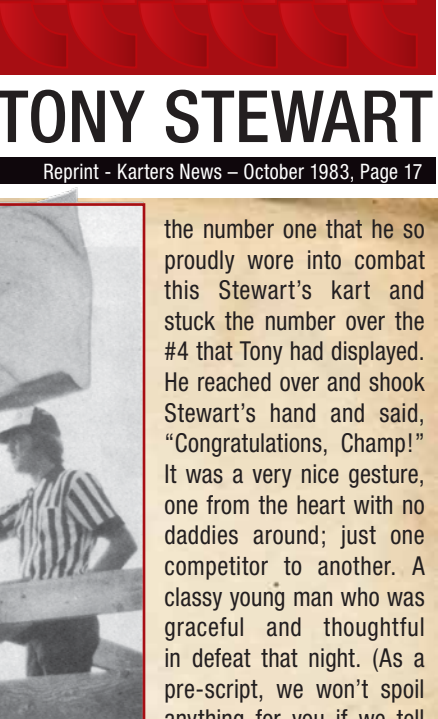
A couple of false starts, followed by a crunch and a shaky start give us the "wee ones" . . . It is at night, very late but hopefully everyone is playing with the same deck by tonight and knew that this one was going to require some changes of sleeping habits etc. for everyone concerned . . . Multi-titled Grand National Champ Mike Berg leads this one off with Tony Stewart in the #4 machine right behind. Then a tire problem on young Doug Keller's kart combined mid-pack hi jinks sets off an unfortunate string of events that leads to Keller's DQ for working on his machine during the red flag . . .



The Keller team was very disheartened at the turn of events especially after little Doug had garnered the pole position for the main. It was a tough decision for the officials, one that this writer is sure they did not relish making. The race restarted without incident and Tony Stewart from Columbus, Indiana jumped into the lead followed by Berg, Chris Decker, fast time-setter Ben VanZee, Rod Welsher, Jeff Banks and Chad Waller. Stewart and Berg slowly but surely put distance on the following groups with Berg himself loosing a bit of ground to the sizzling Stewart as they started to knife through lapped traffic at the halfway point.



Stewart continued to extend his lead over Berg and Trevor McAlister moved up to challenge Berg. The Rookies put on a terrific show out on the track but that show was matched at the scales by the very sporting gesture that young Mike Berg made . . . As he got off the scales, obviously 2nd to Stewart, he hopped out of his kart and peeled of



the number one that he so proudly wore into combat this Stewart's kart and stuck the number over the #4 that Tony had displayed. He reached over and shook Stewart's hand and said, "Congratulations, Champ!" It was a very nice gesture, one from the heart with no daddies around; just one competitor to another. A classy young man who was graceful and thoughtful in defeat that night. (As a pre-script, we won't spoil anything for you if we tell you that Berg went on to Quincy where he captured the Rookie Junior 2-Cycle Sprint titles.)

RESULTS:

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ROOKIE JUNIOR (14 entries)

1. #04-Tony Stewart, Columbus, IN
2. #01-Mike Berg, Downey, CA
3. #11-Trevor McAlister, Dallas, TX
4. #12-Ben Van Zee, Iowa City, IA
5. #22-Rod Welsher, Des Moines, IA
6. #77x-Chris Decker, Corydon IA
7. #38-Jeff Banks, Chariton, IA
8. #13-Dana Waldron, Kearney, NF
9. #55-Wendy Shear, Newalla, OK
10. #66-Chad Waller, Traer, IA

Fast Time: Ben Van Zee 13.59

