# PIT PASS

CONVERSATIONS BEHIND THE WALL | BY BOB CHABOT

# Sucking Amps

Saddle up 374 volts at 2000 amps and hang on for the ride of your life. For John Wayland, shop and life experience working with electric motors have brought both insight and innovation to the street and his sport. Wayland, owner of Plasma Boy Racing and an electric car drag racer with the National Electric Drag Racing Association (www.nedra.com) – where racing classifications for street vehicles are determined by voltage – shared with Motor Age his passion for his sport and the thrill that these street vehicles provide builders, drivers and enthusiasts.

**"I've pulled up alongside a spit-polished 455-big block, knowing I am gonna blow them away. I'll even offer to give them a headstart.**

— John Wayland, Plasma Boy Racing

**Q: How does electric vehicle drag racing fit and into the world of motorsports?**

**A:** NEDRA was born in March of 1997, so we're new compared to other types of racing. The association is a coalition of amp-heads – comprised of drag racing fans, electric drag racing vehicle owners and drivers, individuals interested in promoting the sport of electric vehicle (EV) drag racing, EV parts suppliers and manufacturers as well as environmentally concerned companies and individuals. In our first decade, NEDRA has focused on increasing public awareness of EV performance and to grow the sport by implementing advances in EV technology in organized drag racing events across the nation.

**Q: In traditional drag racing, the amateur sportsman class is augmented by the professional top fuel, funny car, prostock, and motorcycle classes. How is electic drag racing structured?**

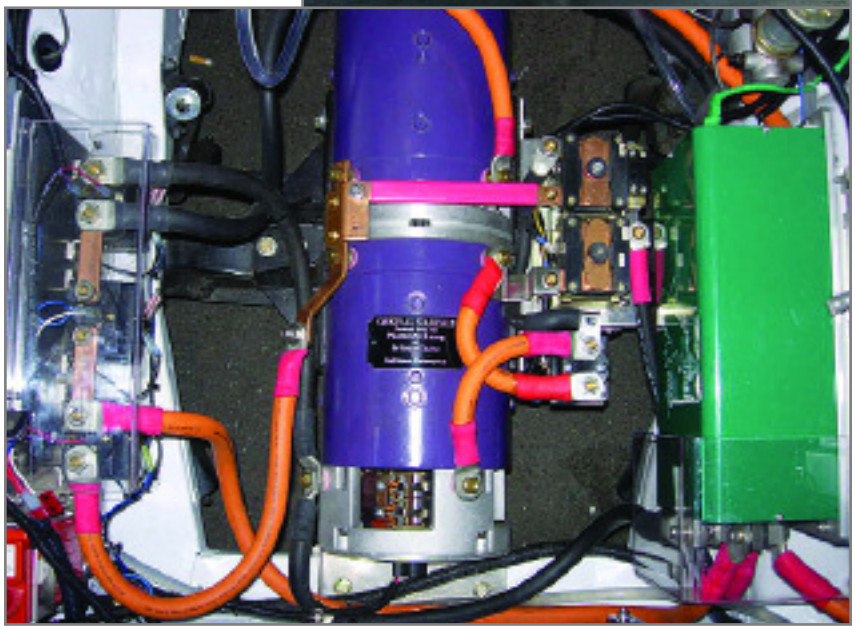
**A:** NEDRA vehicles are categorized by Class and Voltage. There are four classes, each determined by the extent of the vehicle's modification from daily drivers. Three are for street-drivable vehicles, while one is for all out race cars. For each class, there are 12 stepped-voltage categories, ranging from "Below 24V " to "over 348V."

**Q: What automotive background did you bring to racing electric street vehicles?**

**A:** I didn't have any formal automotive background. I was interested in cars and electricity when I was young. Ihad a hot 289 cubic inch Mustang, but gravitated to smaller rides, and then smaller electric cars, like my "White Zombie," a 1972 Datsun 1200 electric conversion that I drive today on the street and at the track. It's interesting how life and work interact. My interest in electric vehicles led to my current work servicing electric forklifts and providing training to other technicians. In fact, when I tried to get into the electric forklift business with Crown Forklifts, I was asked for my resumé when I applied for my first job. I just told them my resumé was sitting in their parking lot. They hired me on the spot. Going full circle, experiences in working in our shop and training in the classroon have both sparked improvements in on-track performance.

**Q: The automakers once tried electric cars before, then killed them off. What kept you going when they quit?**

**A:** I was involved with electric cars before the automakers were, and seriously so since 1980. The automakers were forced to make them because of California mandates, but as soon as their lobbyists were



**TOP: Wayland's 1972 Datsun 1200, the "White Zombie," set a world record 114.805 mph / 11.466 second quarter-mile run last month. Wayland engineered the Zilla DC Drive, which can harness 375 Volts at 2,000 amps to produce a launching force 772 foot-pounds of instant torque, available from 0- through 3000-RPMs. BOTTOM: Wayland's Datsun is powered by the Original Siamese-8 electric drive, built by Hi-Torque Electric using two 8-inch motors laid head to head, which are then skewered by a custom steel driveshaft from Dutchman Motorsports Inc.**

able to get those mandates rolled back, they stopped making them and crushed all the lease returns and those already made but unsold. Today, with some automakers pushing hydrogen, people don't understand that the cost of using fuel cells to produce hydrogen is three to five times what it takes to charge a battery.

**Q: What's the thrill for you as a driver, your teammates and enthusiasts?**

**A:** Today, I could tell you I'm in it for clean air and oil independence. I am, but it's always been more than that. It's still a sport where many participants drive to the drag strip with the very car they're going to race with. For instance, I drive and race the same car, complete with street tires, against "gassers" that come in on trailers. I've raced with the new Chevrolet Corvette Z06, which can do 0 – 60 mph in 3.6 flat,and by 60 mph we're multiple car lengths ahead. I call it the 1-2-3 punch: I show up with my Datsun, blow their doors off, then tell them it runs on batteries.

**Q: How affordable is electric drag racing?**

**A:** From today's modern electric forklifts to new all-electric vehicles such as the Tesla sports car, they all use state-of-the-art instruments and gauges, controllers and alternating current (AC) drive motors, because they're more efficient, powerful and safer, as there is no risk of arcing. To get the performance we need for EV drag racing from modern AC technology, the cost-per-vehicle would exceed $100,000. As a result, we use a lot of basic electric forklift parts, as well as "caveman" direct current (DC) drive motors, because that technology is more affordable. Similar to old starters, however, we have the same wear problems with worn brushes and other bits, as well as the risk of arcing – 374 volts at 2,000 amps will do that.

**Q: For you, similar to automotive technicians, technology has become more complex over time. How have you adapted to change?**

**A:** From a technology perspective, I've learned to do everything from the ground up. Back in the beginning, that meant everything. Today, some of that load has eased, with some suppliers providing reliable components. We built great relationships with some folks who have been with us for years, such as Dick Brown, who provides us with Enersys lead-acid battery packs; Cafe Electric who builds the Zilla 2000-amp motor controller; Hi Torque Electric, who built the Siamese 8 electric racing motor; Manzanita Micro, who equips us with powerful quick-charge battery chargers and A123Systems, who supplied us with the battery pack that we set our world record with in July.

**Q: How have driving skills changed over time?**

**A:** From a skill point of view, we've gotten faster and more important, quicker off the line – with seat-dropping acceleration. When we stomp the pedal, our vision goes blurry and we can't see our gauges for an instant. It's a ferocious launch – 772 ft-lbs of instant

torque at 0 rpm will do that. I now have a primary driver, Tim Brehm, who races the car while I do PR, but the thrill of being part of this is always amazing. Electric vs. gas "heads-up" drag racing still has that old-time feel. In July, for example, we set the world record and were going nearly 115 mph when the car didn't shut down at the end of the quarter-mile, due to a stuck throttle. Under hard braking we laid down 550 feet of rubber, and ground the tires to the cords. Then we had to pull the "Oh Shit!" disconnect handle, which shuts down everything. It's just like pulling a plug, but with a light show from the arcing going on inside the car.

**Q: What has been the key to your success?**

**A:** When the automakers gave up, we stuck with EV technology and found a way to make it work - on the street and at the drag strip. There's lots of ways to quit early – that's easy – but only a few that lead to success. We persevered. I've been fortunate to surround myself with good quality people, such as Marko Mongillo, a maestro metal shop artisan; Jim Husted, an expert in DC motor design and repair; Tim Brehm, a brilliant mechanic and driver; and the rest of our "Geek Squad."

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**Q: How does innovation happen in your sport?**

**A:** Just like a shop tech can be working with a tool, find a better way and modify it, we're the same. People often mistakenly assume that it takes big money and big companies for technology to make the leap from track to streets. It's the other way around in our sport. We're like NASCAR and the NHRA in their early days - we've gotten better over the years because we take what we've learned driving on the street and working in our shop to the track.

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