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Site Index

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Monster Garage

TV Schedule

Episode Guide

Jesse James

Photo Galleries

Video Gallery

Games/Cool Stuff

Builder Interviews

Get on the Show

Viewer Gallery

Message Boards

FAQs

Shop DVDs and Gear

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ON TV

Mondays at 9 p.m. ET/PT

Vehicle Specs

Episode 12: NASCAR Street Sweeper

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Some of you commented on the message board about this tendency of Jesse's: He likes to drive FAST. Remember watching the "ultimate" delivery truck careening down that ramp, with Jesse at the wheel?

Uh-huh.

So imagine how it went down when Monster Garage went on a road trip to Petty Industries in North Carolina in October 2002. That's right, it was MG meets NASCAR (for pictures from the high-speed challenge at Atlanta Motor Speedway, click here).

And for more behind-the-scenes action, check out our interview with Petty Enterprises' Jon Babek.

THE TEAM

- Jesse James, custom-bike builder/designer, West Coast Choppers, Long Beach, Calif.
• Kyle Petty, CEO, Petty Enterprises, and driver, Sprint Dodge car, Level Cross, N.C.
• Jon Babek, R&D engineering specialist, Petty Enterprises, Level Cross, N.C.
• James "Bobby" Brock, engineer, TYMCO, Waco, Texas
• David Jones, industrial artist and custom fabricator, New Design Customz, Walker, La.
• Laura Parker, art teacher and welder, Sacramento, Calif.
• Tom Prewitt, custom painter, Damon's Motorcycle Creations, Brea, Calif.



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- **Jim Reeves**, vice president of operations, FAA repair station, Carrollton, Texas
- **Albert Yu**, artist, designer and teacher, Pasadena Art Center College of Design, Pasadena, Calif.

#### Honorary Team Members:

- **Troy Martin**, head R &D fabricator, Petty Enterprises, Level Cross, N.C.
- **Corey Sain**, finish fabricator, Petty Enterprises, Level Cross, N.C.
- **Scott Spellman**, finish fabricator, Petty Enterprises, Level Cross, N.C.

**Make:** Dodge  
**Model:** Intrepid  
**Year:** 2002

#### VEHICLE SPECS

**Engine:** Dodge 358-cubic-inch V-8  
**Pistons:** custom JE forged pistons  
**Camshaft:** COMP Cams  
**Heads:** Dodge  
**Induction:** Holley 4-barrel  
**Ignition:** MSD (two systems)  
**Exhaust:** Pro-Fab and Dr. Gas  
**Cooling:** C&R custom-designed system

**Transmission:** Tex Racing 4-speed  
**Drive Shaft:** Dana Spicer  
**Rear Axle:** 4.64 ratio locker

**Steering:** Front  
**Suspension:** unequal length double wishbone  
**Rear Suspension:** truck arms and solid rear end  
**Brakes:** Brembo

**Tires:** Goodyear Eagles  
**Wheels:** AERO wheels

**Interior:** interior by Petty  
**Electronics:** racing radios

**Body:** Dodge by Petty custom-steel body  
**Paint:** House of Kolor red-flake flames with glossy black

**Height:** 51 inches  
**Height With Parts Extended:** 51 inches  
**Width:** 78.25 inches  
**Width With Parts Extended:** 86 inches  
**Length:** 207 inches  
**Length With Parts Extended:** 207 inches  
**Ground Clearance:** 3.5 inches  
**Weight:** 3,850 pounds

#### MONSTER SPECS

**Hydraulics:** TYMCO hydraulic pump powered by 24-horsepower Honda engine

**Moving Parts:** nose sweepers, vacuum deck, blower assembly

**Additional Acquired or Machined Parts:** Honda engine, blower assembly, vacuum deck, sweeper brushes, hydraulic motors, hydraulic pump and linear actuators

**Body Modifications:** moveable nose sections

**Biggest Challenges:** The biggest



#### Victory Junction Gang Camp

For more information on Petty Enterprises' Victory Junction Gang Camp, check out their Web site at [www.victoryjunction.org](http://www.victoryjunction.org).

challenge was being able to complete the project on time. Because of the speeds involved, the work could not be rushed from a safety standpoint. Getting the nose to operate properly needed several different approaches, each using many of our already taxed resources. Shoehorning the engine and blower in the passenger compartment proved difficult from a "what to cut, will it fit now?" perspective. Also, not getting the actuators in until the last day of the build created a mad thrash to hang the vacuum deck in the twilight hours of the last day.

### TRANSITION TECHNIQUE

Maybe you know a lot already about street sweepers, and maybe you don't. For those who don't, the *Monster* street-sweeper design is based on the latest air-blower system technology developed by TYMCO, a Texas company. The sweeper's heart is a giant fan, powered by a Honda 24-horsepower motor. On one side of the blower-housing unit, air is blasted onto the street like a giant blow-dryer. On the other side, the air is constantly being sucked back into the system, simultaneously picking up any debris caught in this jet stream. The debris travels into a vacuum-tight chamber, where it is deposited and stored. Think: Blow-dryer on one end and vacuum on the other.

To start, the team gutted the Winston Cup Series car of any extraneous material not pertinent to the build. Petty Team engineers oversaw each cut and weld so that the overall safety and design of the car would not be affected. Then the fuel cell was removed and the bottom rear trunk area exposed to make room for the blower-housing unit and the sweeper hopper (the debris-collection chamber).

The *Monster* mechanics also created space under the hood for the sweeper brushes, where they ran into a major obstacle: The hood and nose of racing cars are designed to be aerodynamic and to crush under heavy impact — this translates into zero support for a street sweeper's arms. They would solve this problem by fabricating a housing.

Next, the team mounted the sweeper broom mechanism and fabricated a new front hood assembly that would open up like a robotic transformer toy — not an easy feat, considering it would have to be able to withstand high speeds while in the open position. The team then installed the Honda motor, mounted the blower fan into a steel housing unit for safety, and designed and welded the pickup head (the mechanism, mounted below the truck space, that lifts the housing at high speeds).

But the team wasn't done yet: They had to attach the blower fan to 8-inch tubes, which are then attached to the blower housing and pickup head, install the Honda engine/pulley system that powers the hydraulics used to turn the

sweeper brushes, fabricate the hopper chamber (which turned out to be smaller than expected because they need to replace the fuel cell with one that NASCAR would approve), and hook up the hydraulic lines.

Last step: Petty engineers and mechanics do a complete nut-to-bolts on the car so that it will be ready for track testing, and Tom Prewitt does his magic, giving the car a glossy black base with red-metal flakes. Then we have our final *Monster* street sweeper.

NASCAR will never be the same — nor its raceways so clean — again.

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Pictures: DCI |

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