Traction Control REVISITED

Does it work?

Joel Brown tests traction control in a Late Model fitted with a crate engine and eight-inch tires. He had positive results.

story by Craig Murto

Traction control is a hot topic. Four years ago we tested the devices, and it's worth taking another look at that test, as well as a recent test with a crate engine and eight-inch tires.

A lot of traction control exists, but nobody admits to having it. There's little doubt that some racers have won because of it. It's also possible – probable, actually – that at some point a racer's lost because they used it improperly.

Tech officials hate it. There aren't very many series or tracks where it's legal (although some parts of the dirt-racing world are turning a blind eye to it), but there are even fewer places where there are enough officials to find every unit in use.

But for those who know nothing or little about it, it's a big mystery. Is it the Holy Grail, the device that will win every race? Or is it the reason a guy who runs 20th every week suddenly pulls a top 10 out of his hat?

To find out we took a trip in the summer of 2005 to North Carolina and convinced Shannon Davis of Davis Technologies to meet with us and bring some traction control units with him so we could sneak a peak at these magical devices. After some conversation, Davis agreed to drop by Hickory Motor Speedway with us and see if anything was happening at the track.

We hit the jackpot. Cars were testing. Quite a few cars, actually, and not all the same type.

Most people wanted nothing to do with us; nobody wants to be seen near traction control. Nobody wants to have their name associated with something that is illegal in the racing world, so we can't even tell you everybody who turned down our proposed test.

Actually we can tell you two of the drivers, because a little bit of begging finally got us the go-ahead. Jeff Myers agreed to give us a few runs in his Late Model Stock Car, as did Johnny Rumley, who was testing with the Pro Cup team for which he drove in those days.

"Well I guess what I know about it so far is just speculation," Rumley said. "Until you try something you don't know. I'm real curious about what it is, how it works, and whether it makes some of these guys look like heroes. I've never run it before and never had any dealings with it, so I'm curious. Maybe it'll show me something, and if it does, then maybe there are some issues that tech people need to work on; make it legal, or go after it and try to find it. You know, you just hear all

kinds of stuff week in and week out about it. I know about eight years ago I think I heard it at a NASCAR Truck race at Martinsville.

"I just have an open mind right now," Rumley continued. "It's like trying something new to eat; I try not to form an opinion until I get a taste of. So once we get a taste of it maybe I can tell what's going on."

Any time a racer wins a lot of races, whether it's in a series or at a local track, somebody whispers "traction control."

"Oh yeah, I hear that all the time," Rumley, a veteran racer and winner in NASCAR's Busch Series, admitted. "That's one of the reasons I want to find out – we'll see. If it's making some of these guys look like heroes, maybe they need to be brought down a couple notches and do it the old-timey way."

Rumley was shaking down a car that hadn't been run since it was wrecked late the previous season. Myers was testing to prepare for some upcoming UARA events.

"I'd just like to see if it makes a big difference or not in the car," said Myers, a former NASCAR Southeast Series competitor and former Newport (Tenn.) track champion. "I'd like to see how much better it is in a long run, see if it really makes a difference."

Davis said as we prepared to hook the devices in the cars – a task that took a whopping two minutes – "We'll give them a chance to go ahead and run some stuff. It's hot, and I imagine the track's getting slick. We'll see if we can get a little bit better tire wear if we can get some long runs in. Hopefully it'll improve lap times. I'd like to thank them for allowing us to drag their good names through the mud and letting us use their cars, which'll give them the opportunity to see just what it is they think they're running against anyway."

It was hot. At 1 p.m. the air temperature was 91 degrees and the hot pavement was 150. The temperature would continue to go up as the afternoon unfolded.

"They should find that the car's not as twitchy," Davis answered when asked what the drivers could expect to experience with traction control. "It'll be better on the setup. Hopefully we'll see one or two 10ths a lap. And in this

heat it'll increase tire life. I don't know what they've got on for tires, or how much time they've got to dedicate to this, but if they want to run a little bit we'll see if we can compare with and without."

Rumley had scuffed BFGoodrich radials used for practice at a previous Pro Cup event. Myers had scuffed Goodyear bias-plys, made domestically rather than Chilean imports Goodyear sold at the time, and made specifically for UARA Late Models.

The traction-control units we tested were adjustable in two ways: One setting made the unit more or less sensitive; another setting adjusted how much horsepower was affected by retarding timing. The first driver out with any traction control was Myers. Davis said that he put him on an "aggressive" setting.

"It's not stomp-and-steer," Myers said when he returned to the pits. "I drove through it. I guess I tried too hard to make it work, because it would catch it, but it would catch it later. I was actually accelerating the problem; I wouldn't normally drive like that. We need to go five laps and then take it off, unplug it, and see if I can go fast again. We went backwards with it I think, because the racetrack's going to slow down; it's getting greasier and in worse shape."

It only took a matter of minutes to install traction control in the cars of our volunteer test drivers. Of course, you would not normally run traction control in the open such as this, but its size allows it to be hidden by those who do use the device on a regular basis.

Rumley went out with a less-aggressive setting.

"I could tell little pieces of it there – not what I thought we needed to have," Rumley said. "I could still spin it

out if I wanted to."

Myers was then sent onto the track without the unit turned on.

"You can tell quite a bit of difference," Myers said after the runs. "The car's tight and when you pick the throttle up it wants to spin the rear wheels. And it helps it even when it's tight. I think it'd make a big difference on a long run or on restarts, as far as spinning the rear wheels ... taking off on a restart, I can see where it'd be a big benefit there. Probably on a 30-lap run it would probably show up a lot, just because of being able to be a lot smoother with the throttle and taking the spin out of it."

There are a number of types of traction control. Some sense wheel spin at the wheel, some actually sense motion from the racetrack. According to Davis' own website, www.moretraction.com, Davis Technologies' units monitor the rotation of the crankshaft through the distributor signal. The distributor fires every 90 degrees of crank rotation (V-8), and with a 1.1 top gear you can measure tire rotation within a quarter of a turn. Now factor in a 5.1 final drive (rear end) ratio and tire rotation can be measured within 1/20 of a turn (that is about four-five inches on most tires). The fact that the engine is turning much faster than the wheels, amplifies the slip at the crankshaft,

Reluctantly at first, Johnny Rumley agreed to take our test after his planned testing was complete. In the end he agreed that traction control can be a useful racing tool, especially to save tires on longer runs.

making Davis' systems very sensitive. Typically, sensor-based systems measure tire rotation no more than every quarter of a turn. The front and rear are compared to each other to check for slip. With a margin of error of a quarter of a turn at each wheel, it may take as much as half-of-a-turn of tire slip for the system to react. If a tire is allowed to slip a half a turn before a correction is made, it is very hard to stop the slip.

Davis observed that "the mental factor is a large part of it" when it comes to guys who try traction control for the first time. So Davis sent Myers out again, this time believing the unit was turned off.

"You could definitely tell it was on," Myers said upon his return. "The last time we ran without it we spun the wheels far down the straightaway, but this time I could pick the throttle up and the wheels stayed straight. Before I had to be working the steering wheel trying to catch the back end, and this time it didn't do that as bad. We've got a push-loose, and it helps that condition a ton – imagine what it'd do with a loose racecar.

"You still need to work on the racecar, but it helps when it's bad, so it'd really help with a good racecar. It doesn't do a thing for entering, but it helps the center off."

Thunderstorms were predicted for the afternoon, and while they stayed mostly away, a few showers did stop testing in its tracks and change track conditions.

Rumley was sent out with a more aggressive setting than he had on the car previously.

"In the middle of the chute it was actually hesitating a little bit," Rumley said. "That wasn't good. It was hesitating, like in the motor – but that might relate to wheel spin, too. This thing isn't going to make you fast off the get-go, but a 50-lap green-flag run? That's when the mechanical part overtakes our brain, 'cause our brain doesn't always work with our foot. It's 90 degrees, hotter than hell, and you're racing three other people ... that might help you. It'll definitely help you more on a long run than a short run. I wouldn't even want to hook it up for qualifying; I'd rather get the spin, I think you'd be quicker for two laps."

Art Elm photo

Jeff Myers coming off turn four at Hickory. Though he had a push entering the corner that resulted in a loose-off due to the driver steering to compensate for the push, Myers said that traction control helped keep his right rear from spinning. Imagine what it'd do for a car with a good setup.

Rumley went out and ran 15.64, 15.60, 15.97 and 15.88 with traction control on, then ran 15.85, 15.95, 15.88 and 16.17 with traction control turned off. Then he ran a 15.72, 15.77, 15.82 and 15.86 without it, and a 15.95, 15.99, 16.16 and 16.25 on an aggressive traction-control setting. It appeared that although he could run a faster initial lap or two without the traction control, with the unit on the laps were more consistent and didn't fall off as much.

Now that he's tried it, does Rumley think it's beaten him in the past?

"I think I'd have to run a long green-flag run to answer that," he said. "I'm suspecting there are guys who are

running it and there are guys who have benefited from it. It's too small, too simple, too easy to take in and take out. And you don't have enough officials to look for it."

The question had to be asked. Should it be legal?

"I'm all for it;" Rumley said. "It's just like shocks. That's all it is, a tool. It's a tool that can make a car stay faster longer, so you'd have to work with it week in and week out to perfect everything with it. I don't think it's a deal where you can run 50 laps and say, 'Oh yeah, we've got this thing down-pat.' I don't think you can do that.

"(If everybody had it) it would be the same opportunity for everybody. I mean, you give certain people opportunities and they can still screw it up. We've had several opportunities this year and we screwed them up. It can be used for your benefit, but if you don't use it right ... you've got springs, you've got shocks, you've got air pressure and you've got tires, and when we get down to the nitty-gritty of this deal it's about those four things that hit the racetrack. A place like Jennerstown has good grip, and I wouldn't really want it there to be honest. I bet I could run faster longer without it. But that's one place where you just lay in the gas and just lay it down, you don't have to worry about it – 100 laps into a run you can still lay it down. But Hickory ... this is a tough racetrack to get a hold of. And Myrtle Beach – I'll take one at Myrtle Beach any day of the week. Lap three and you'll be spinning tires down there. I'd love to have one.

Traction-control devices are small. This is, of course, out of necessity, as in most racing series the penalty for getting caught with one can be huge.

"I'm glad ya'll showed up," Rumley said. "You want to learn something new everyday, and I just learned something. I think it works."

Davis Technologies makes a number of models. In Myers' Late Model a TM-5000SL was tested. The unit's smaller than a pack of cigarettes and sold for about $6,500 in 2005. The Pro Cup car was fitted with a TM-9000SL, which cost about $7,500 and is about the size of a disposable cigarette lighter.

"The only difference is the size," Davis said. "The performance is the same, they have all the same features; one's just smaller."

With the 5,000 and 9,000 models you can adjust the amount of timing retard "which is a big deal, particularly on the higher horsepower stuff and changing conditions," Davis said. "If it's real slick we'll take out more timing. If it's fairly hooked up and it's not too hot you don't want to take as much out – you don't want to take out 100 horsepower if you make a 50-horsepower mistake, so you can adjust that."

Davis makes less expensive, non-adjustable units (TM-500 and TM-500SL), which cost about $1,900 and $3,400 respectively in 2005.

"(With those units) you're stuck with what you've got, but what you've got is what we've found that most people like," Davis said. "You'll be in the ballpark, but you're not optimum; if it gets real hot like it is here today, you're stuck with what you've got."

But if you've got it, you've got something.

Huff observed, "I think it works, and if you've got the rest of the package together it helps tremendously to be able to run fast longer. It'll save tires and make average racecar drivers better."

Boyd Sult, who owned the Pro Cup car Rumley drove, said, “Definitely it works, it’s just a matter of being able to run it or not being able to run it. We’re in a tight situation with our budget, and we can’t afford to give up a dime due to a disqualification and be able to come back and race the next week. Besides, Johnny won’t get in the car if there’s anything illegal on it; he said he’d rather quit racing than be called a cheater.”

Should it be legal?

“If it’s going to save tires and motors and make it cheaper to race, sure,” Sult said.

Myers observed, “The racetrack’s getting in really bad shape and these tires are in really bad shape. It’s definitely a whole lot easier to drive with it than without it. It’s not going to drive the car for you, but it’s a big help. It’s real easy to adjust.”

Rumley had time to think about what he’d experienced while he cleaned himself up before his drive home from the track.

“It really didn’t help where I thought it was going to help,” he said. “At Hickory it helps you once you get on the straightaway to the flat part, where most of those guys like to hammer it to get our speed and we’d slip the right rear. It doesn’t slip the right rear with that deal. You can give it to me with hot or cold tires any day, I’ll take that. You could see the car stepping out from the corner to the flag stand, but with that deal it wouldn’t do it. It’s not on initial throttle, it’s on past that where it really makes a difference. I’m pretty much a believer in it right now.

“You could still spin it out,” Rumley said. “Like I said, on initial throttle it’s not going to help you much. It’s as your rpm’s start coming up. At Hickory you don’t really get straight, you’re in the gas. Kil-Kare – the perfect place.”

Regarding whether traction control should be permitted, Rumley stated, “The less rules and laws you have in anything, the better off we’re all going to be. Every time you make a rule or a law you have to have somebody to enforce it. The sad part’s when they make a rule and nobody enforces it.”

Davis observed that a couple of years prior to our test he was approached by a number of sanctions that indicated traction control could become legal if it were more affordable. Now he has units available for less than $2,000, and he has devices being used today that are 7 years old.

“It’s affordable,” he said.

Our 2005 traction control test came to an end. We weren’t able to get the long runs in that we had hoped, but being that we just showed up unannounced we’re lucky we got any testing in at all. Plus deteriorating track conditions caused by the extreme heat and a couple of rain showers

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and running the same used tires all day wouldn't give us the same results as, say, an official traction-control test during optimum conditions with fresh tires every time out.

So, what did we learn on that hot afternoon in 2005? Veteran racers such as Myers and Rumley could click off two or three laps quicker without traction control. Rumley even stated he wouldn't use it for qualifying. But after those initial laps the right rear got hot and lap times fell off quite a bit.

Traction control saves the right rear. Even as tires and conditions worsened, lap times didn't fall off as much with traction control enabled. But it only seems to work from the center off; it's not going to keep you from overdriving a corner by getting in too deep.

Is it going to help the Super Late Model competitor in Wisconsin who runs 25- or 35-lap features? Maybe. But where it's really going to show up is on longer runs, 50 laps or more.

Does traction control "taint" racing, take some of the sport out of it by replacing driving skill with a mechanical device? That's an ongoing debate. Rumley did state that he can still spin the car out if he desires. And don't 10-inch slicks, racing shocks and springs, etc., take away from the driver as well?

Fast forward a few years. More and more series are springing up that put Late Models on eight-inch slicks, and series are either mandating crate engines or allowing them as an option.

Enter Joel Brown. He gets on the track – a lot – but he usually isn't competing. He develops chassis kinematic software and shock valvings for oval track cars, and has worked with Late Models, Pro Cup, ARCA, Camping World Trucks, Nationwide, and Sprint Cup Series teams. Information on all the services Brown provides is available at his website, www.BrownPerformanceEngineering.com.

In 2008 we hooked Joel Brown up with Shannon Davis to test traction control in a NASCAR-style Late Model with a crate engine on eight-inch tires.

"People always talk about it, some may have tried it, and a number of people are accused of running it," Brown said. "It's definitely a hot topic and I was very impressed with how well it worked.

"The unit, from Davis Technologies, took about five minutes to install. I'm not going to go into details about how and where it's hooked up, but it couldn't be easier. You'll definitely spend more time trying to hide it than getting it to work. The unit has two settings to configure: One is for the amount of timing to retard; and the other is for the rpm range that it works in. I left it at the default settings.

"The track I tested on is bumpy, not much grip, drives different at each end, and even has slightly different banking at each end," Brown observed. "I picked a scorching hot humid day with track temps about 135 degrees. The tires I used had approximately 80 laps and a couple heat cycles from a previous test session three weeks before. My thought was, if it's going to work, this will be the most demanding situation - a hot, slick, greasy, bumpy track.

"I unloaded the car, warmed it up, and did a base line run with the traction control unit turned off," Brown continued. "The car drove well for a hot miserable day, and lap times were as expected. I had the typical complaints about not enough bite coming out of the turn and had to really work the wheel through the corners due to the slick track. I came in and let the car, plus myself, cool down a few minutes."

Unlike the 2005 test, we relied on Brown to test and report his results. Brown knows how to test, for one thing – he does a lot of testing as part of his job – and the media presence would have drawn unwanted attention.

"On the second run I turned the traction control unit on," Brown said. "The first time using it I had to tell myself it'll work, just mash the gas and see what happens. This is hard to do the first time when you know the car should break loose and spin. My first lap I was hesitant mashing the gas - this is something you just can't do normally. I got up the nerve on the second lap coming out of turn four, grabbed tight on the wheel, and put it to the floor. All I could do was grin and say, 'Wow.' The car never wiggled. You could feel the unit working the engine power and accelerate smoothly out of the corner. I didn't have to do any steering corrections or work the gas pedal. Lap times picked up a between one and two 10ths per lap on a track where lap times on a hot day with old-but-decent tires are in the mid-16s. It may not sound like much, but this is comparing my best lap times without the unit to any of the lap times with the unit. Something else that stood out was how easy the car was to drive. I could do virtually perfect laps every time and not wear myself or my tires out. In longer races this could be an even bigger advantage.

"I came in, took a break, and did another run. This thing (at the time it was a prototype unit for crate engines using HEI ignitions) works flawlessly," Brown continued.

"I didn't use the unit in a race and only tried it during testing at a track by myself. But it was obvious that it's a big advantage, especially on tracks where you have a tough time getting forward bite out of the corners. I'm not saying this will make any car a winner - depending on your setup, track conditions, and driving skill, you're results will vary. I will say you should gain a definite advantage and should finish a lot better."

There you have it. Joel Brown was satisfied with traction control on a crate engine-powered car riding on eight-inch tires. I'll ask again: Does traction control taint the sport?

Does it taint the sport that some people may be using it to their advantage and winning races without getting caught? Do local tracks and every touring series really have enough officials to find this device in every car? It's not a matter of whether those hardworking officials are doing their jobs; it's just the fact that there aren't enough officials to go around.

Which is more fair, to legalize traction control for everybody, or race knowing that these units are selling like hotcakes and people are getting away with using them despite the fact that they're against the rules? Should it be made legal but kept away from the driver, so that any adjustments need to be made on a pit stop, much like taking out a spring rubber or making a wedge adjustment?

Answer those questions for yourself. Traction control works, but it's not the Holy Grail. It's a tool which, like shocks or springs or air pressure, can hurt you more than help you if you apply it improperly. But when used correctly it can give you more consistent lap times and the tires to win at the end of a long run.