

GIANT POST-SEASON MAINTENANCE ISSUE

CIRCLE TRACK



4 HUGE ARTICLES

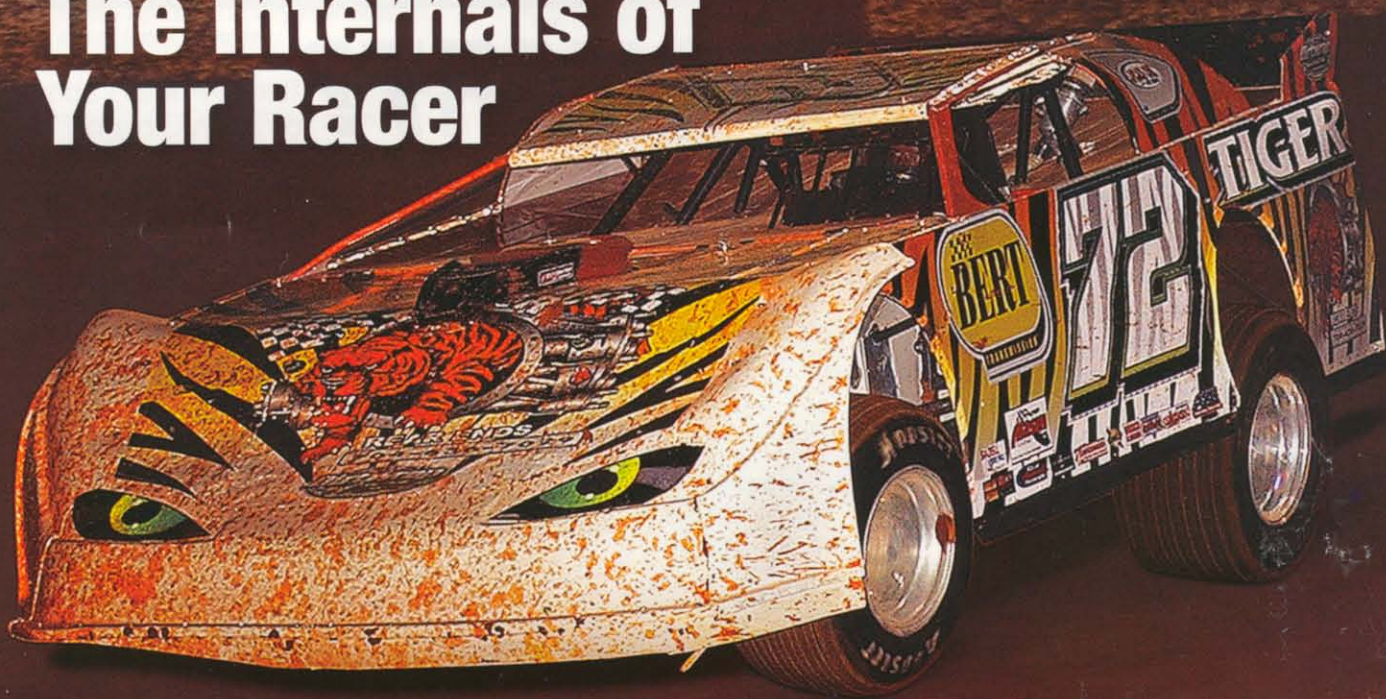
• BRAKES • SHOCKS
• DRIVESHAFTS • FUEL CELLS

THE #1 SOURCE FOR ADVANCED RACING TECHNOLOGY

REPRINTED FROM FEBRUARY 2009

Mud n'Guts!

Tips and Tricks For The Internals of Your Racer



PLUS...

- ▶ 1 Qt in Your Rearend? YES!
- ▶ Tune & Maintain Shocks Better
- ▶ Brake System Checklist
- ▶ Limited Late Model Engine Build - Part 3
- ▶ Fuel Cell Teardown - Alcohol & Gas
- ▶ Pit Pass: ASA Northwest Sprintcar Series

And Jim McFarland's New **ENGINEOLOGY** Column!

A SOURCE INTERLINK MEDIA PUBLICATION

www.circletrack.com



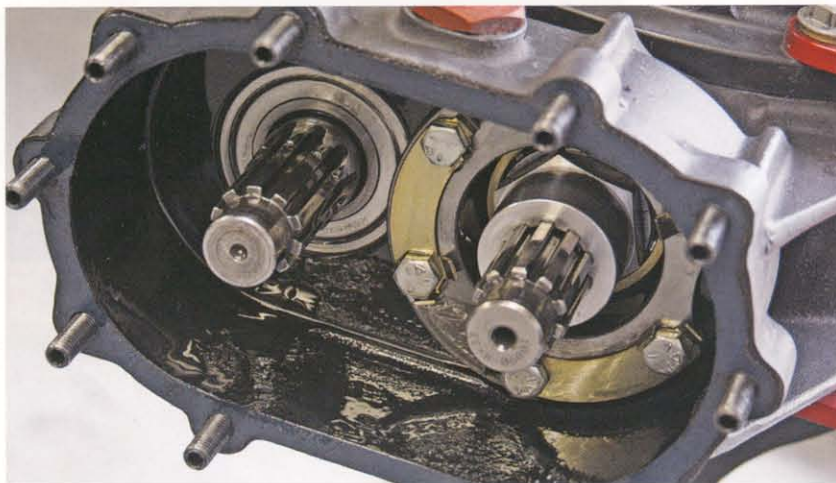
Davin Scites leads the field at the Bailey's 300 in Martinsville, VA. Tiger Rearends had been working closely with Davin to test out the new RF85 metal treatment.

JUST ONE QUART? Text & Photography by John Gibson

Tiger Rear Ends' new metal treatment changes the way you look at rearend lubrication

Every once in a while there's an advancement in technology that changes the face of racing; the production of fiberglass bodies to replace the boxy steel bodies is one that comes to mind. But recently I ran across one that was right in my backyard.

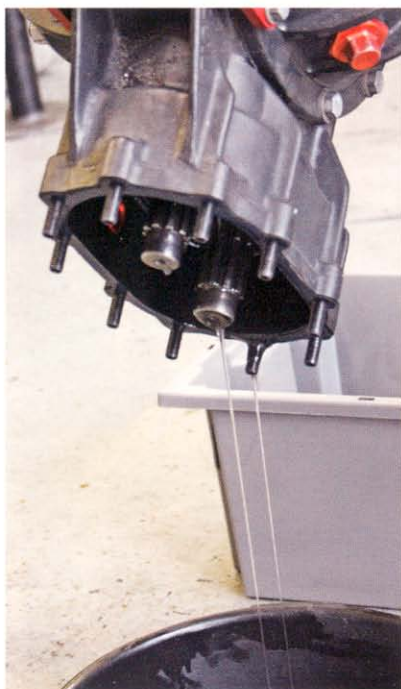
Mooresville, NC-based Tiger Rearends has become well known for developing an extremely durable quick change rearend that can be found in dirt and asphalt cars alike around the country. The durability is a big reason why Late Model teams like JR Motorsports (owned by Dale Earnhardt Jr.) are bolting on the Tiger rearend underneath their cars. Recently at the Bailey's



Davin's rearend has more than 5,000 laps and it looks like it's brand-new.

300 in Martinsville, VA, one of the largest pavement Late Model races of the year, Davin Scites, driver for JR Motorsports sat on the pole for the second year in a

row. This year, the team broke the track record it set last year with a time of 20.316 at 93.207 mph. Impressive to say the least when you consider 112 cars tried to



The RF85 treatment is so successful that Davin and Tiger Rear Ends have discovered that the rearend only needs one quart of rearend oil once the locker has been treated.

qualify for a 43 car field. Unfortunately for Davin, a broken sway bar component would relegate him to a 25th place finish.

The Wednesday after that event, I received a phone call from Gerald Williams, the owner of Tiger Rear Ends. He said he had something to show me. He mentioned that he was now applying something called RF85 to his rearends. So, we set an appointment for me to head over to his shop. I'd heard of RF85 because CIRCLE TRACK'S Project Dirt Late Model has "an RF85 rear," but I didn't know a lot about it. As luck would have it, I arrived at Tiger about the same time Davin Scites was dropping off the rearend he had in the car at the Bailey's 300.

"I left the rearend oil in it, I didn't know if you guys wanted to see it or not," said Scites, as Tiger's people started draining



The RF85 metal treatment has been applied to this particular asphalt Late Model but it will also work on the spool-type or rearends that Dirt Late Models utilize.

the oil out of it. Davin and all of JR Motorsports use Tiger's Synthetic HP Rear End oil, a 100 percent synthetic base with additives that prevent rust, oxidation, and corrosion, as well as an anti-foaming agent.

Like most racers, I've drained plenty of rearend oil, but here's where it started getting a little strange. Instead of pulling the drain plug, they just pulled off the back cover plate from the rearend, and then turned it upside down to let it drain. I thought to myself, *This is going to take forever.*

No sooner than I had thought it, the oil stopped draining out of the rearend. I leaned over to Davin and asked him, "How much oil do you guys have in this thing?"

"Just a quart," he replied. I looked at the rearend in disbelief.

"So you mean you have one quart in the gear casing and then the front case is full right?" I asked.

"No, we just have one quart in the entire rearend," Davin laughed.

So let's get this right. Davin started on the pole of the Bai-

ley's 300 with a rearend that only had one quart of oil in it. Now they had my attention. Gerald went on to explain that what Tiger has been testing for a couple years now is a new metal treatment called RF85. Unlike a traditional coating like Teflon that sits on top of the metal, RF85 actually treats the metal. RF85 stands for reduced friction 85 percent, which was derived from frictional behavioral test results performed by Oak Ridge National Laboratory. Tiger has led the RF85 charge into racing to collect data for the domestic automotive market. The technology is derived from cutting tools, medical devices, aerospace, and



Tiger Rear Ends performed many tests on the oil to ensure the viscosity of the oil was not breaking down. This particular oil has more than 250 laps on it.

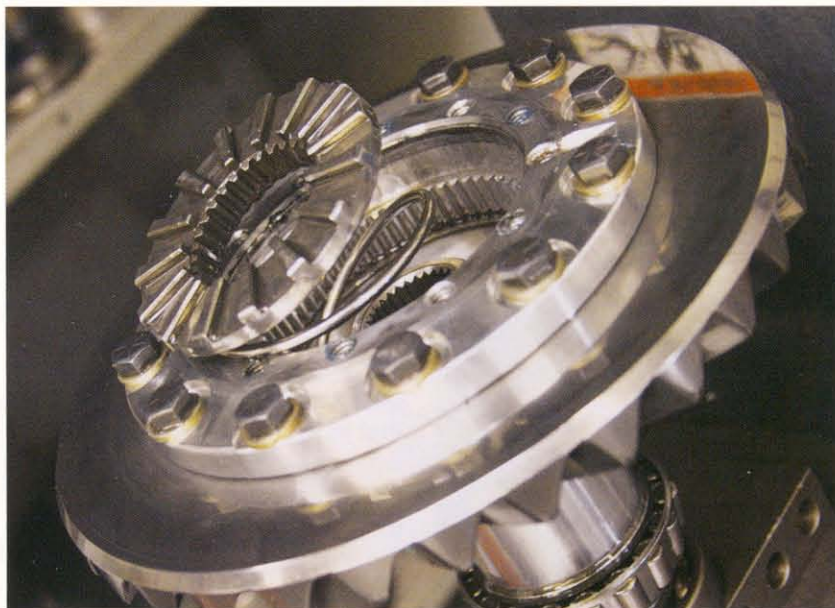
industrial applications, but the company that produces RF85 firmly believes its true potential lies within domestic car or truck applications where oil needs could be reduced significantly. Imagine running just one quart of oil in the rearend of your F-150.

Davin's locker rearend had been treated with RF85 from one end to the other, including the gears, axles, and bearings. It was simply amazing to me how little oil was in the rearend. But what was even more amazing was the fact that it didn't smell burnt, or look in bad shape. I have an untreated Tiger rearend in my Hooter's Pro Cup car and I wouldn't dare try running just one quart in it.

TESTING "We did an absolute ton of testing with Davin," Gerald says. "When we first had this treatment performed on the rearend, we started with three quarts of oil in the rearend, and we ran a 200-lap race with it." After the race, they sent the oil off to get it tested to ensure it was still in good shape. The tests came back and basically demonstrated that the oil was like brand-new. From there, they started reducing the amount of oil in the rearend.

"We ran a temperature gauge from the rearend to Davin's dash so he could keep an eye on whether the rearend was overheating," he continued. "We went from two quarts, to one quart, to ½ quart. Once we reached half a quart, that is when we started to see a little bit of heat buildup in the rearend."

During the Scites testing, Tiger built a rearend for Mason Racine Inc., and driver John Mason. Mason runs an 800hp Dirt Late Model. Tiger treated the parts for Mason, but as most of the read-



The RF85 treatment will actually extend the life of the ratchet springs because of the reduced heat.

ers know, a dirt car uses a spool-type rearend whereas asphalt Late Models use a locker-style. The dirt car saw the same results; in fact, Mason was so impressed with the results that the team tore down its engine and had the RF85 treatment performed to all of the moving parts of the engine.

The team had great results from having the treatment per-

formed on the engine. Without giving away its numbers, the team saw an increase in horsepower and fuel mileage, and a reduction in oil and water temperature.

The pavement testing continued for more than 2 years with spectacular results. "We wanted to make sure we did plenty of testing on pavement and dirt to



The pinion does not show any type of wear or heat discoloration. All the more impressive considering that the locker, ring, and pinion all have more than 5,000 laps on them.



Notice how there is very little wear on any of these pictures.

rule out any problems before we went public with this," says Gerald. "Tiger is our name and when we release a product or process, we want to make certain that it is ready, because our reputation is on the line."

"I was kind of the guinea pig there for a while," jokes Davin. "We once went 900 laps on one quart of gear oil before we changed it and we noticed some discoloration but it wasn't burnt." In fact, the oil was sent off, and the results came back and said it could still be used again. The locker-style rearend they had at their shop outside of Mooresville had more than 5,000 laps on it. You can see from the pictures we've provided of the rearend, it looks like it's brand-new.

"The only thing we have done to this rearend," says Gerald, "is change ratchet springs when it needs it, and pack the wheel bearings for every race." The team has never seen any excess wear or any heat discoloration.

RESULTS "Any time you can get less oil in the rearend, you will see an increase in horsepower," Davin explains. "The Cup chassis dynos have proven that over and over again."

The horsepower advantage is what we all want, but having this treatment done will also save you money. Any time I fill up the rearend in our Pro Cup car, I put somewhere between five and six quarts of oil in it. If I could reduce that to one quart every time, it would save me a lot of money. Plus, this treatment will extend the life of the locker or spool in the rearend.

Gerald went on to say that there were some results that they didn't expect to have.

"We have actually found that we could extend the life of the ratchet springs because of the



Once the bearings have had the treatment performed to them, it will actually take less bearing grease to pack the bearings.

lower heat buildup." Anyone who has ever had the ratchet springs lose compression in the middle of the race can appreciate that.

PRICE OK, I can hear all of the readers now saying, this is all great, but ultimately it comes down to one question, "How much is all of this going to cost me?" It will run you around \$600, and that includes treat-



The gears and wheel bearings can have the RF85 treatment performed to them as well.

ing everything in the rearend from the locker or spool to the quick-change bearings. The only things that will be excluded are the quick-change gears and the wheel bearings. To me, \$600 seems like an extremely fair price considering how much money you're going to save from not having to purchase as much gear oil, and if you can extend the life of the locker or spool.

CONCLUSION The off season is the time to make your car better. Only you can decide where you want to invest your money and time to improve your car. This off season, take a hard look at your results, especially your DNFs. Were they rearend-related problems? Have you noticed that burnt smell when you're changing gears? If your program is firing on all cylinders, then the RF85 treatment is an easy way to better your finishes, add horsepower, and most importantly, save you that valuable money. **CT**

TIGER

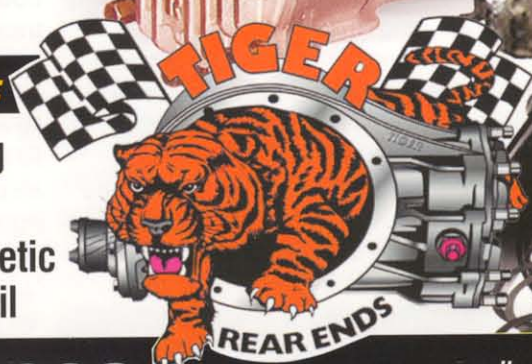
LOW-DRAG PERFORMANCE REAR ENDS

Check Out These **TIGER** Advantages

- More HP... *less drag*
- High strength to weight ratio
- Advanced design lockers
- Aluminum and magnesium units in stock
- Complete line of parts
- UPS shipping daily

MORE TIGER PRODUCTS:

- Complete low-drag bearing and seal kit
- **NEW!** Tiger synthetic high viscosity gear oil



704-636-7029

Visit Tiger Online:

email: gerald@tigerrearend.com
www.tigerrearend.com