

Improved Pulling through deep Cryogenic tempering

Team#1: Hey. Did you get that new treatment done to your competition engine last Winter?

Team#2: "What new treatment? I haven't heard anything about a new treatment."

Team#1: "They call it 300 or Cryo or something like that."

Team#2: "Never heard of it. Tell me about it."

That conversation often takes place in the motorsports community where keeping a secret can give a team an edge over their competition that they often just aren't willing to give up and they'll often deny even knowing anything about it.

Enter Bob Reed, Motorsports Division Manager for 300 Below CryoMotorSports in Decatur, Illinois, the Bollinger Gang from Stonington, Illinois, with "Another Money Pit" and "Top Gun," and the Littles, Lance and Chris, owners of Tantrum Enterprises at Tuscola, Illinois. Steve and Tom Bollinger have built a reputation running Allison power, while Lance and Chris Little, have become known not only for successfully campaigning "War Wagon" and "Gang Green," but also for building and selling competition John Deere engines and turn-key pulling tractors. Bob Reed is a former tractor puller with nearly 20 years experience pulling John Deere, IHC, and Massey Harris, and placing 3rd in the M & W World Championship Tractor Pull.

How do you stay at the top in a sport? You have to be open to change and be willing to try new ideas. Bob Reed and Tom Bollinger, Sr., had competed against each other with turbocharged John Deere diesels during the '60's and Bob had helped Chris Little when he first started pulling many years ago with "Black Jack," Chris' s John D 4020. All this resulted in the engine for the new "Gang Green" being put through the computer-controlled Deep Cryogenic Tempering at Decatur, Illinois. The Bollingers, running Allisons, that haven't been built for a half a century, were interested in improved performance, but especially interested in increasing the life of the hard to find Allison engines. Since the Bollingers were running two very equal modifieds, each with twin Allisons, they could "Cryo" the two engines in one of the their tractors, not "Cryo" the other, and see what difference occurred running at the same pulls and pulling against each other during the 1997 pulling season. What a baseline for a test to determine the effects of the stress relief and dimensional stabilization brought about through Deep Cryogenic Tempering.

What happened? "Gang Green" was awesome during 1997 and nothing "Cryo'd" suffered breakage during the entire season. Tantrum Enterprises is now a regular customer at 300 Below CryoMotorSports having parts treated for their customers and they are getting ready for their second year of pulling the "Cryo'd" "Gang Green." Although the non-treated "Top Gun" ran well during 1997, it was apparent that "Another Money Pit" was clearly stronger. What have Bollingers done since their successful test? Isn't it easy to guess that "Top Gun" is now running two Allisons that have made the trip to the Decatur facility for the same treatment as "Another Money Pit"and just to be sure

they are "covered" in the future, Bollingers have two more "Cryo'd" Allisons sitting in their shop.

Deep Cryogenic Tempering, a one-time, dry process, has been done at Decatur, Illinois, since the early '90's, when Pete Paulin, the owner of the company, first harnessed the process through the use of computer control. The computer control allows successful treatments to occur time after time, giving each engine the same advantage as the previous. Properly done, Deep Cryogenic Tempering makes parts stronger, not harder, as items that become too hard can also become brittle. Also, the stress relief and stabilization that occurs helps to prevent parts from shifting and moving and distorting and thus helps to keep parts in proper alignment. Pistons that have not been "Cryo'd" become oval instead of stayin round, the large diameter of the "oval" results in premature cylinder wear and takes horsepower from the engine. The small diameter of the oval results in not having a good seal between the pistons and cylinders and blow-by occurs. Blow-by is compression loss and that results in lost horsepower and torque.

The stress relief and stabilization that occurs through Deep Cryogenic Tempering normally results in keeping the pistons round, increases horsepower and torque, and reduces wear and breakage. Another direct gain is normally longer time between rebuilds and reduced motorsports costs as a direct result. Tractor pulling has now joined other motorsports applications such as drag racing, circle track, road course, and enduro, in utilizing Deep Cryogenic Tempering as a whole variety of engines are being treated.....engines being used in Midgets, Mini-Sprints, etc. Complete engines are being used in tractors, trucks, automobiles, motorcycles, snowmobiles, Jet-Skis, ATV's, Go-Karts, Quarter Midgets, Mini-Sprints, etc. Complete engines are being done as well as sleeve and piston sets and engine components for tractors and trucks when it would be very difficult to send a big, heavy engine block for treatment.

300 Below CryoMotorSports is also successful treating transmissions, ring and pinions, and brake rotors. 300 Below, Inc., the parent company, also has other divisions treating tooling for manufactures, bits used in crushing coal and rock and cutting through concrete in highway construction, and bucket teeth for loaders. Stress-relieved rifle barrels are enabling competition shooters to set records all over the US. Golf clubs, golf balls, and aluminum softball bats are showing improvement, and musical instruments are able to hit notes not otherwise possible. R & D is continually going on as Deep Cryogenic Tempering moves into more and more areas. Just as the Bollingers and the Littles were open minded and willing to try something new, others in other applications are also able to reap the rewards of being innovative. The big benefit for Bob Reed is that Bollingers and Littles are willing to share their success with their competitors. Their feeling is that since Deep Cryogenic Tempering improved their pulling effort and reduced their expenses, other pullers should be able to do likewise. Kinda nice to compete against pulling teams that are willing to help other pullers. That's a refreshing idea isn't it. ☐

Call CryoMotorSports at 1-800-550-CRYO.

