The beginning of sprag vs. spragless started in the late 70’s/early 80’s and was a terrible time for performance torque converter manufacturers. Many of their products were literally exploding at their customers’ feet. It was an industry-wide problem. No converter design was immune to the destruction because torque converter technology had not caught up with another new technology - “The Trans-Brake.”

As we all know, a sprag is a one-way clutch, functioning just as a ratchet does in your tool box. It is locking in one direction and freewheeling in the other direction. In a race car there are several factors necessary to achieve maximum MPH and deadly consistent ETs (elapsed times) on every run. Most important of these is proper core size, correct fin angle and stator combination. Whether the converter is spragless or has a sprag, neither will influence the stall speed “if” the sprag is functioning properly. The problems all occur when the converter experiences sprag failure.

One of the biggest problems in racing converters is that most sprag assemblies are often damaged during the initial tire shake as the car goes through the burnout. The sprag is rapidly loaded and un-loaded during the tire shake, causing the sprag to wear unevenly. A worn sprag is actually worse than a broken sprag as the customer has no idea why the vehicle is so inconsistent! He will then spend countless hours checking everything and or changing everything on his car but the torque converter, because the converter has only 5-10 passes on it.

A sprag assembly that intermittently slips will usually not be apparent until the unit generates some heat in the transmission fluid. Often in the first couple rounds, the reaction times seem okay, but by the 3rd or 4th round the vehicle reaction time falls off. The 0.01 light turns into a 0.04. This happens due to the fact the car rolls through the stage beam slower, resulting in poor vehicle reaction times. When the sprag slips and allows the stator in the converter to move, the converter “loads” the engine harder and the car comes out of the staging beam slower. At this time your customer is really pulling his hair out and is looking for answers.

If the sprag in the stator slips on the shift change, the RPMs will fall back to something lower than the normal stall speed of the converter. For example, the RPM after the shift change will be 200-300 lower if the sprag is slipping. This will slow the ET .02-.03 plus a MPH loss. A quality playback equipped car will show this problem.

OK, now that that’s been said, do sprag type converters work? Absolutely yes! Are they good in all classes of drag racing? Definitely not! Do spragless converters work? Absolutely yes! Are they good in all classes of racing? No. It is well known that the higher the HP, the higher probability the sprag will eventually fail. With 550 HP, it is rare that a well built sprag will fail. If you are building a street strip converter that is a frequent street driver and weekend racer, then a sprag is an absolute necessity, and a spragless style torque converter would generate too much heat to drive on the street therefore not recommended. Also, a spragless converter would not be feasible in a low 400 HP race car but where a sprag failure potentially results in a costly warranty repair. The end result is this: Listen to your customer’s complaints! See what the car is doing, and determine what the best course of action should be. Just because he only has 10 passes on the converter you just built does not mean he is not experiencing some of the problems listed above.

Ken Kelly
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October mystery converter needs identification

We are still looking for a resolution to September’s newsletter, but here is another one thanks to Marcin at Florida Torque Converters. Remember to submit your answers to tcranewsletter@comcast.net or any board member.

OA/HT: 6.040
Pilot: 0.825
Bolt Circle: 9.75
Pads: 6
Hub Height: 2.250
Hub Diameter: 1.833 / 1.828
Torque Diameter: 10.75

Volunteers needed for technical committee

Each month the technical committee meets for a 30-minute telephone meeting, and they are looking for additional members to bring new ideas to the table. If you are able to commit to a short conference call once or twice a month, and are willing to share what problems and solutions you have, how best to serve and advise the TCRA members with this information, and how we can better promote the TCRA agenda, please join the technical committee. Present members include Larry St. Amand, Ed Lee, Don Randolph, Mike Souza, and others.

If you are interested in joining this lively discussion, call Len Wack at 973-293-8925 or email lenw@embarqmail.com to get the details and to be added to the meeting notifications email.

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