

Mincomp's Corner

January, 95



Best of Bill

I attended a vintage race the other weekend and had a chance to talk to some of the Mini drivers about many different subjects. One conversation started out talking about what was causing a Mini to get a little weird coming out of a couple of fast turns. Of course there could be a lot of causes for this, but it did lead our conversation towards limited slip differentials (LSD)

He told me that he was using a Quaife type diff. When I said that I only use a clutch type, (i.e.: Salisbury, Tran-X) his comment to me was that they didn't give him a chance to rest. I had to bite my tongue; what I

wanted to say back to him was "do you want to go fast or rest?"

Now I know everybody has different opinions, but perhaps they make decisions on the LSD to use from advertisements rather than from experience. That's what I'm going to give you, my experience; I've tried all four types available for the Mini! I'm just going to go into how they work, just the reasons I like or don't like each unit as a racer.

• Salisbury Clutch Type

Indeed, this one will give your biceps a work out. They can have their preload adjusted by altering the clutch packs or by machining the case. I ran a Mini with 100 to 110lbs. Of preload. (Normal is 50-75 lbs.) This, LSD has a natural self straightening effect. Therefore you can run considerably less front castor, which in turn makes steering effort more pleasant, even at 110 lbs. of preload.

• Jack Night Pawl Type

This one is hardly worth considering. It is darty and twitchy. I have my doubts it was designed for a front wheel drive car. I've used them in rear wheel drive cars with no bad results, but not front wheel drive. Another negative is that they freewheel if you break an axel or CV joint.

• Quaife Torque Sensing Type

I have used this one a few times, as has Foretech, and we both took them out! This one allows you to rest, but my experience has been that they are less than confidence building. They seem inconsistent from turn to turn. They don't give the feeling of holding the car to the corner. I've told that the Quaife works best when new, but when worn, watch out! I was told to replace the diff every season to avoid this problem; that didn't sound too good to me! It was also suggested that I adjust the chassis around the LSD. Maybe, but not right now! This diff is also a freewheeler.

• Tran-X Clutch Type

This one is really a modern day Salisbury with improvement. It is pre-load adjustable and seems to be very well made. It seems to be better than the original Salisbury in that it can hold the car straight using much less pre-load, like half as much. This should waste less horsepower. It also has the ability to lock and unlock where the Salisbury does not. This feature makes corner entry and exit much nicer and it is easier on the biceps because you still use fewer castors. Depending on how you specify the diff set-up on delivery, it can be a little sensitive to getting on and off the throttle. It can be a little darty if you are too abrupt with the throttle. It just reminds you that smoother is faster!

1995 Update:

I now use the Tran-X diff exclusively, over all others. In fact, I have them set up especially for my needs. That's the other nicety about Tran-X...there's someone you can talk too!

Bill Gilmore