

Chrysler's NAG1 and Mercedes' 722.6

Recognizing the Difference in Their Torque Converters



by Joe Rivera



If you place the Chrysler NAG1 transmission side by side with a Mercedes 722.6, you might start to wonder, “What’s the difference?” And, when it comes to the transmission itself, the answer is “not much.” In fact, the two are virtually identical.

What is different is the torque converter, and it’s those differences we’re going to examine in this issue.

If you haven’t seen the NAG1 in your shop yet, get ready; it won’t be long before they become commonplace. They fit a wide range of vehicles, including the Sprinter, the Jeep Grand Cherokee, and the very popular RWD LX Platform Dodge Magnum Charger and Chrysler 300. And keep an eye out for them in the hot-as-a-rocket Dodge Challenger... can you say “Muscle Car Heaven”?

At first glance, the Chrysler and Mercedes converters look the same, but the two are really quite different. And there are several different converters for the Chrysler product line; without careful comparison, you could end up creating some serious troubles for yourself.

The major outward differences between the Chrysler and Mercedes converters are the pilots and bolt circles. The pilots on all of the Chrysler converters 1.335” — the Mercedes pilots are about 1.375”, or about 0.040” larger.

The Mercedes converters are available with 9”, 9¼” and 10-3/4” bolt circles. Chrysler converters (with the exception of the 3.0L diesel, which will be available in the Grand Cherokee in 2007) use a 10-3/8” bolt circle.

The best place to start is to check

Chrysler Built Torque Converter Assembly Part Numbers per Model Years						
2007		135K		175K		175K
		with turbine damper		w/o turbine damper		with turbine damper
		(28.5 Nm/deg)				(35 Nm/deg)
2006		Obsolete		Obsolete		Obsolete
		Start of production		Start of production		Start of production
		135K		175K		175K
2005		with turbine damper		w/o turbine damper		with turbine damper
		(20 & 70 Nm/deg)				(20 & 70 Nm/deg)
		Obsolete		Obsolete		Obsolete
2004		Start of production		Start of production		Start of production
		135K		150K		150K
		with turbine damper		w/o turbine damper		with turbine damper
2003		(20 & 70 Nm/deg)		(20 & 70 Nm/deg)		(20 & 70 Nm/deg)
		Start of production		Start of production		Start of production
		135K				
2002		with turbine damper				
		(20 & 70 Nm/deg)				
		Start of production		Start of production		Start of production
2001		5137631AA	4752580AB	5143212AA	5174299AA	4736478AA
		5.7L & 6.1L	5.7L & 6.1L	3.5L	3.5L AWD	3.7L
		3.0L				3.7L & 4.0L
2000		300				
		300 & 300SRT		AWD 300		Grand Cherokee
1999		300				Grand Cherokee
		European 300		European 300		Commander
		SRT		Cad Cherokee SRT		
1998		European 300 SRT		European 300 SRT		
1997		300		300		Grand Cherokee
		European 300		European 300		European 300
		China 300		China 300		Commander
1996		300SRT		Cad Cherokee SRT		Dodge Nitro
		European 300 SRT		European 300 SRT		Jeep Patriot

Figure 1



Figure 2

There are different parts combinations for each converter, with variations in the impeller, stator and dampener assembly. The differences are subtle, but they exist, and knowing the difference provides you with a valuable way of making sure you have the right converter for the unit.



Figure 3



Figure 4



Figure 5



Figure 6

the part number on the converter as you're taking it out of the vehicle. Figure 1 is a chart from Chrysler that will help you identify which converter you're dealing with. The part number is on the white bar code tag, and is dot peened into the impeller.

Figure 2 shows a typical OEM sticker; if that's unreadable or has fallen off, look for the part number stamped into the converter (figure 3). With this information and some communication with your torque converter supplier, you should be able to make sure you have the right part for your application.

Physical Differences

Now let's look at the physical differences in the converters themselves.

There are different parts combinations for each converter, with variations in the impeller, stator and dampener assembly. The differences are subtle, but they exist, and knowing the difference provides you with a valuable way of making sure you have the right converter for the unit.

Here are the different components, shown side by side:

Pump Impeller (figure 4) — At first glance these impellers look the same, but a closer examination reveals some slight differences between the 175K impeller (high stall; right) and the 135K (low stall; left).

Stator (figure 5) — Again at first glance these two stators look the same, but careful inspection shows that one has 17 blades (high stall; right) and the other has 16 blades (low stall; left). By all accounts most stator differences in other converters are more dramatic and

much easier to identify with a quick visual inspection.

Dampener Assembly — Some units have a dampener assembly; others don't. Figure 6 shows the turbine engaged to the lockup clutch without any dampening springs. Figure 7 shows the converter with dampening springs. These vehicles have different clutch strategies and load capacities, so it's important to match the system with the vehicle.

Tips for Converter Rebuilders

Here are a few very important rebuilding techniques for converter rebuilders. The most important point is to start the process correctly, right from the beginning: Make sure you have the right arbor for the person in charge of cutting the torque converter open. If you use too large an arbor and too much force, you'll crack the aluminum piston at the bottom of the converter (figure 8).

These aren't your average, run-of-the-mill converters, and they'll require more time, energy, parts and labor. The usual practices apply to the rebuilding process for this converter except for a few specific points:

This converter has a clutch pack installed in the front cover similar to those in the transmission. These clutch packs are known to fail and should be replaced along with the clutches and o-rings (figure 9).

Figure 10 (page 42) shows a set of failed lockup clutches. You'll need to determine proper clearances because they come in different sizes. The typical recommendation is 0.008" – 0.009" clearance for each clutch plate.

Be careful not to overlook the o-ring in the bottom of the aluminum piston (figure 11, page 42). You'll need to make a tool to install this o-ring (figure 12, page 42). Many builders don't even know it's there and forget to replace it. This o-ring seals lockup pressure and is very important. Forgetting to replace this seal can cause lockup chatters and outright lockup failure.

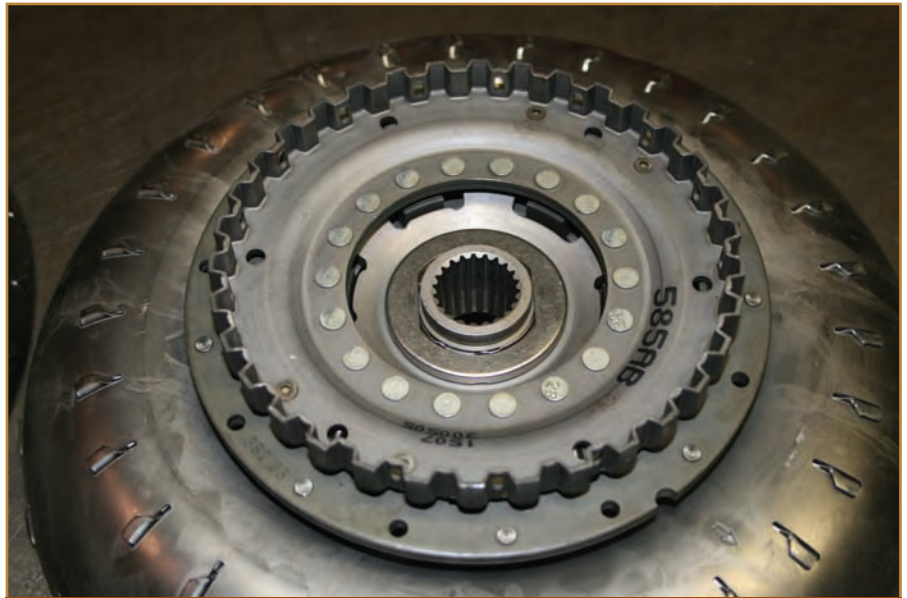


Figure 7



Figure 8



Figure 9

Many shops have seen the Sprinter torque converter because they've been out there for a while. And some shops are starting to see Jeeps as they come out of warranty. There have been many Jeeps repaired under warranty because of water contamination caused by a faulty fill tube seal. Service Bulletin 21-011-05 Rev A calls for replacing the seal and installing a water shield above the seal. Make sure this modification has been made before installing a rebuilt transmission or torque converter.

If you're a converter rebuilder, be careful; there are a lot of cores floating around that were replaced under warranty. Those units need to be inspected carefully for water damage. If you don't replace the parts we've discussed, you can count on a premature failure.

One final thing to consider is the performance market for these vehicles. With a handheld tuner, an exhaust system and the right modifications, these converters can make your 13-second grocery wagon into a rocket ship!

As you can see, there are a number of differences between the Chrysler and Mercedes converters, but one thing remains the same: At some point, they'll all need to be repaired. The good news is this transmission is showing up in a lot of different vehicles. And while there are minor differences between them, they're all likely to experience the same types of problems, which means a lot of work coming to your door.

So whether it's a fleet with Sprinters, Jeeps that are out of warranty and need to be repaired, or the local hot-rodder looking for performance improvements, you'll be ready serve their needs.

You can find this article and other important information about torque converters at the TCRA web site: www.tcraonline.com.

Joe Rivera is president of TCRA board of directors where his primary goal is for the TCRA to improve relations between the torque converter and transmission industry. His shop, ProTorque, is located on Long Island, NY and can be reached at www.protorque.com. Joe will be presenting at this year's Expo.



Figure 10



Figure 11

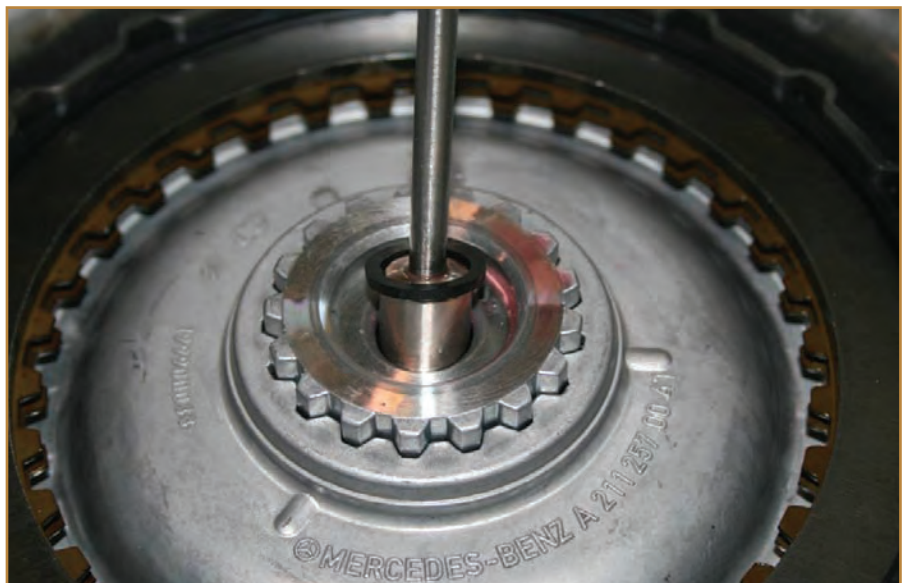


Figure 12

TCRA SEMINAR 2008

O M A H A N E B R A S K A

May 16, 2008
May 17, 2008

Tour of Certified Transmission
Expert Speakers and Technical Presentations

TCRA

(Torque Converter Rebuilders Association) has announced the venue and program for their 11th Annual 2008 meeting and seminar. This major industry event will be held in Omaha, Nebraska on May 16 and 17, 2008. Mark your calendars for this important happening and make plans now to attend.

On Friday, May 16th, there will be buses available to take attendees from the host hotel, the "Embassy Suites, Omaha Downtown / Old Market" to Certified Transmission in Omaha for a tour of their facilities and a chance to see a successful, volume transmission and converter rebuilding facility first hand.

After a catered luncheon at Certified Transmissions, a bus will take us on a visit to the unique "Bill Smith Museum of American Speed", an hour away in Lincoln. This side trip is awesome and should not be missed, and the seminar tuition cost is worth this trip alone. As a preview of

this exciting side trip, log on to their web site at "museumofamericanspeed.com", to see a hint of all the "speed related" nostalgia that we will see.

The Saturday, May 17th class room format seminar will include presentations by the usual "Big Three" representatives, along with timely updates and interesting

Registration Cost:

\$225. for Members

\$175. each additional member from the same company

\$275. Non-Members

\$250. each additional member from the same company

PRICE INCLUDES ALL TCRA FUNCTIONS

Sign-ups after April 7th will be an additional \$20.00

inputs from vendor experts

and speakers from

the various technical organiza-

tions. A sit-down

steak luncheon and

morning and afternoon coffee break refreshments are

included in the fee. Expect other surprises including

vendor sponsored receptions, give-aways and door

prizes.

The TCRA annual meeting and seminar continues to

be the torque converter rebuilders event of the year. Don't miss this opportunity to meet with old friends and fellow rebuilders at this classic annual industry get together. The tuition, which will include all of the above listed meals and events, will be considerably less for members, so consider joining TCRA now

to save. Program updates, including fees, reduced hotel rates

and the specific program will be available soon. Check

out the TCRA web site at "tcraonline.com" or contact

Len Wack at 802-885-2292 for further information.

Whatever your connection to the torque converter

industry, you should make plans to be there. This

promises to be the best Torque Converter Rebuilders

Association meeting and seminar ever.

Congratulations to Mark Ballsmeyer
of Jasper Engines
who won free attendance
to the 2008 TCRA Seminar



MAKE YOUR HOTEL RESERVATIONS SOON, THIS EVENT IS COMING UP FAST!

Embassy Suites - Omaha Downtown/Old Market • 1-402-346-9000 • Fax: 402-346-6156

SPECIAL RATE OF \$144.00 PER NIGHT UNTIL APRIL 7TH

You must tell them you are with TCRA when making reservations to get this special rate • Shuttle service is available from the airport

Become a TCRA Member and save on registration!

When you join the TCRA you have numerous benefits that only members receive. A monthly technical newsletter is mailed to you with common problems and resolutions, organization updates and is available to you as a forum to discuss your concerns. You also have the ability to advertise to

many other transmission shop owners and conerter rebuilders in this newsletter, which is also posted online at our website. Be granted "members only" access to our website, and join a group of elite industry experts. Receive discounted seminar costs and low pricing from sponsor suppliers.

Visit www.tcraonline.com for more information on membership!

