Staying on Top of Clutched Alternator Pulleys

COLUMN BY AL STEADMAN

As you probably already know, clutched alternator pulleys are being utilized more and more by the OE vehicle manufacturers. In fact, the majority of 2007-onward Toyota/Lexus vehicles will come equipped with the latest clutched pulley technology, a Litens Isolating Decoupling Pulley (IDP).

It is important that rebuilders, front counter staff and buyers stay properly trained on the new industry trends. Lack of proper training will result in your business being left behind. Informing your customers of exactly why the correct clutched alternator pulley is needed and when they should replace it, is going to be key to alternator sales in today's ever changing rebuilding world.

As I write this article I am reminded of a couple of motivational poster quotes that I have seen in the past.

"If you can see change not as an enemy, but as a welcome friend, you will secure the most valuable prize of all - The Future." – Unknown

"If you are not riding the wave of change, you will find yourself beneath it." - Unknown

These quotes definitely ring true for the alternator rebuilding companies across North America and Europe. The alternator rebuilding industry seems to be seeing less and less profit every year. Too many rebuilders are watching their market share be whittled away by big box stores selling brand new alternators. Rebuilders need to utilize their best asset…intelligence. To do this, you need to stay on top of the latest technology trends, and be able to properly inform customers when it comes to the use of clutched alternator pulleys.

Let's look at an example: A potential customer is calling around for the best price on a Lester no. 13870 alternator. You quote him your price and state that it comes with a brand new IDP. He asks why your remanufactured alternator costs more than a new one at that big box store down the street.

This is a great time to put your knowledge to good use. You inform the customer that the big box store is most likely selling you an alternator with either the wrong pulley (solid or one way clutch) or no pulley at all and that they will have to pay someone to install/swap the pulley for them. You tell your customer that you only sell a quality product and don't settle for anything less than what is required to make their vehicle run properly. Inform them that installing solid pulleys or inferior clutch pulleys, in place of the IDP will only cause problems to the vehicle down the road and may lead to replacement of other costly items. What looked like a good deal in the beginning, actually ended up costing more in the long run.

In an industry that has seen the solid alternator pulley work just fine for a century or more, many rebuilders question, "So why now?" The answer is simply vehicle requirements have changed dramatically. One could say the bar has been significantly raised.

Many vehicles today have increased electrical power requirements due to onboard GPS, DVD players, MP3 players, heated seats, heated windshields, etc. This electrical demand calls for larger and larger output alternators to be used. Couple that with engine displacements which are getting smaller (rougher 4cyl engines), lower idle speeds for fuel economy, direct injection diesel engines, increased durability and NVH requirements…well something just has to give.

This scenario is exactly why vehicle manufacturers are continually choosing to install a Litens IDP on their alternators. It is a wearable item that absorbs the vibration from the engine and accessories. Think of it as a shock absorber for the alternator! It cushions the effects of the above harshness on the vehicle's serpentine belt system.

The next question one would ask is, "Why the alternator?" The reason why the alternator requires vibration isolation (a Litens IDP) is because of its large internal rotor. The alternator rotor has the highest amount of rotating inertia (mass) of all the belt drive system components, therefore it has the most influence on how the system behaves. Torsional vibration that comes from the crankshaft pulley is transmitted directly into the alternator via the belt. It is this vibration that is constantly trying to speed up and slow down the alternator rotor every time a cylinder fires. This action shows up as a real vibration that you can feel in the steering wheel or the driver's seat. Now remember, typically there is a 3:1 diameter ratio of crankshaft pulley to the alternator pulley. This 3:1 ratio not only increases the alternator speed by three times, it also amplifies the vibration emitted by the crankshaft by three times. So you can see, the alternator makes the most sense as to where the vibration isolation device (a Litens IDP) must reside.

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