



Tech Tip

BELTS 152

INSTALLING STRETCH BELTS The Belts that Tension Themselves

How up-to-date is your belt knowledge? When the customer makes a belt noise complaint do you troubleshoot the noise condition or do you just throw a new belt at the symptom? Many design changes in the belts have been introduced to reduce belt noise complaints and provide longer life. Are you aware that some belts tighten themselves, once installed? These are specially made belts, designed to maintain the proper belt tension over the life of the belt. The components driven by these belts are not a part of the automatic tensioner driven components. Special care must be taken when installing these belts to prevent permanent damage to the belt. Before we cover the installation procedures, let's consider some belt noise complaints and how some concerns must be dealt with prior to considering a new belt installation.

BELT NOISE COMPLAINTS

Take the necessary time to troubleshoot the reason for a belt noise condition rather than just throwing a new belt at the symptom. The last thing you want is a customer returning with the same complaint. Make certain the correct belt has been installed, as it can affect belt tension. Check the pulleys for alignment and make certain the belt is properly tensioned. Examine the tensioner for wear, as it can have an effect on belt tension and alignment. Pulley placement on the power steering pump shaft has been a major contributor to belt noise symptoms and premature belt wear. This condition has prompted GM to recommend the use of a laser alignment tool to achieve proper pulley alignment on their vehicles. The belt must run true in the pulleys to eliminate premature wear and noise.

When you encounter a recurring belt noise condition, check for factory service bulletins. Belt noise and pulley/tensioner noise complaints have created a major warranty expense for some of the vehicle manufacturers. In many cases you will identify a factory solution for that frustrating noise complaint. For example: GM has recommended a PCM program update to solve a belt noise chirp or a thumping/grinding noise condition on 2007–2008 Cadillac Escalade, Avalanche, Silverado, Tahoe, GMC Sierra and Yukon vehicles. The noise condition resulted from the A/C compressor trying to move liquid refrigerant through the system during start-up with ambient temperatures above 95 degrees F. Many compressors, clutches and belts have been replaced in a futile effort to quieten the

noise. Obviously, no amount of alignment or components replaced would solve this noise condition. The solution requires a factory software modification.

If the engine is fitted with a belt tensioner, release the tensioner and check the pulley for freedom of movement. Cycle the tensioner its full limit of travel. Any resistance requires a tensioner replacement. Examine the tensioner arm and spring case for metal-to-metal contact that would indicate bushing wear. Check for evidence of rust deposits on the pulleys or belts, which indicates a bearing failure.

BELTS THAT SELF TENSION

The belt drive system has long relied on tensioners to properly tighten the belts and prevent slippage and noise related concerns. The tensioner may be a fixed belt tensioner that locks in a fixed position once the proper belt tension has been set. Some systems incorporate automatic tensioners that maintain a constant pressure on the belt to achieve and maintain the desired tightness.

The latest in achieving the proper belt tension is a new belt design that self-tightens once installed. The cord in the self-tightening belt is designed to stretch in order to make the installation, and then recover and apply the proper tension once installed. The construction of the belt incorporates the latest OEM technology in EPDM compounds and a polyamide tensile cord. The stretch belts are slightly shorter than the fit length so that they will set the proper tension once they are installed, and they will maintain the correct tension for the life of the belt. The belts can be identified by an S suffix on the part number. It is imperative that your technicians are aware of this new belt design and the proper procedure for belt installation. Failure to follow the proper installation procedure guarantees belt-related noises and premature belt failure.

MAKING THE INSTALLATION

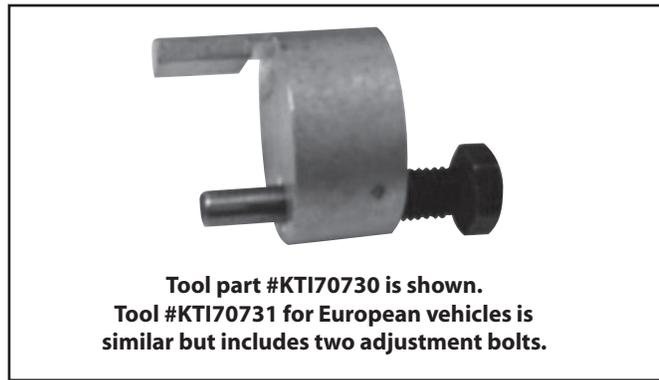
Think safety when making the installation. It is recommended that the keys be removed from the ignition switch and placed on the roof of the vehicle. This will prevent anyone from starting the engine while your hands are in the close proximity of the belts and pulleys. Some belt suppliers recommend removing a battery cable to accomplish the same safety concerns. The problem with this is the memory loss that can affect the engine idle

quality, radio stations, memory seats, etc. While a memory saver tool can prevent the memory loss, be aware that the use of the tool on some applications can result in a loss of dash lights or instrument illumination on digital dash equipped vehicles. While it is rare to encounter this condition, it can certainly create tension with the customer and rearrange your work schedule when it occurs.

The installation procedures for the stretch belts vary with the different vehicle manufacturers. Some installations require the use of an installation tool, while others can be performed with the aid of a tie strap. Never attempt to install a belt by prying the belt over a pulley with the use of a screwdriver, as permanent damage to the belt can be incurred. On some applications it may be necessary to release a tensioner and remove a belt to gain access to the stretch belt. The stretch belts have a dedicated drive assembly and cannot be used on other components that incorporate belt tensioners. Furthermore, conventional belts cannot be used on drive assemblies that require stretch belts.

Installation Tool: On some applications, the use of an installation tool may be required. Tool part number KT170730 (see illustration) is required for certain domestic vehicles and tool number KT170731 will fit European vehicles. The tools will prevent damage to the belts during installation and will prevent the belt from twisting.

- a) On some applications, it may be necessary to remove the main drive belt to gain access to the stretch belt.
- b) Cut the existing stretch belt to remove it from the pulleys. The vehicle manufacturers do not recommend reusing a stretch belt once it has been removed.
- c) Place the new stretch belt onto the accessory pulley.
- d) Position the installation tool on the crankshaft pulley, allowing the flange of the tool to overhang the pulley groove. The adjustment bolt on the installation tool should rest against the side of the pulley to stabilize the tool.
- e) Manually rotate the crankshaft and pull the belt into the pulley groove.
- f) Check to be certain the belt is properly seated in the pulley grooves.
- g) Remove the installation tool.
- h) Reinstall the main drive belt (if removed).



Tie Strap: Securing the belt to the accessory pulley with a tie strap may be necessary when installing a stretch belt on some vehicles.

- a) It may be necessary to remove the main drive belt to gain access to the stretch belt.
- b) Cut the existing stretch belt to remove it from the pulleys. Remember, stretch belts cannot be reinstalled, once removed.
- c) Position the stretch belt on the accessory pulley.
- d) Secure the belt in the accessory pulley groove with a tie strap.
- e) Position the belt onto the crankshaft pulley and engage the belt partially into the pulley groove.
- f) Manually rotate the crankshaft approximately ½ turn to fully engage the belt with the crankshaft pulley.
- g) Thoroughly inspect the belt to be certain it is properly seated in both the accessory and crankshaft pulley grooves.
- h) Remove the tie strap.

When you see the S suffix on the belt part number, be prepared for some special installation procedures. Being familiar with the stretch belt design and making the proper installation is imperative to achieve maximum life of the belt. Make certain to inspect all belts, pulleys and tensioners for wear or evidence of belt misalignment. Performing a thorough inspection can save your customer an unnecessary breakdown at the worst possible time and location. If your inspection reveals something that needs attention and they elect not to have the repair done, make certain that you document the recommendation on the repair ticket. That can save you a lot of grief, especially when the component fails on the highway and the vehicle has to be towed.

LARRY HAMMER
Technical Services
Mighty Distributing System of America



MIGHTY: THE PMPROS www.mightyautoparts.com