When to Check Serpentine Belts for Replacement

When Making Other Accessory Drive Repairs

If you're already making an accessory drive repair, it makes sense to replace a belt with significant mileage, you won't be adding to your downtime because the belt is already off the engine. If the belt has over 80,000 kilometres of service, use the Belt Wear Gauge to estimate material loss to determine if belt replacement is needed.

At Scheduled Preventive Maintenance

The Belt Wear Gauge provides a fast and simple way to estimate the remaining life of a serpentine belt, without the need to remove the belt from the engine. So, if one of your vehicles is already in the shop for any reason, it takes just a few minutes to make sure the belt will get you through the next maintenance cycle.

When You See Obvious Signs of Wear

If the belt shows signs of pilling, glazing, cracking or misalignment damage, it needs to be replaced immediately. These symptoms may indicate problems with other drive components, so be sure to locate the cause of the belt damage before putting the vehicle back in service.

For more information about serpentine belt diagnostics, talk to your Gates Representative or visit:
www.gatesbeltwear.com

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New Belt Technology Requires a New Diagnostic Approach

Over the last decade, EPDM (Ethylene Propylene Diene Monomer) has replaced Neoprene as the preferred material for serpentine belt construction. Due to improved load, wear and heat resistance, these belts can last significantly longer than the older Neoprene versions. This improved construction also allows the belt to resist rib cracking, which has been the traditional indicator that a belt needs to be replaced. With this new belt technology comes…

A NEW ERA OF DIAGNOSING BELT WEAR.

Today, belt wear detection requires different tools and techniques. Gates wants to help you correctly diagnose serpentine belt wear so you can keep your fleet vehicles working, and your cost-per-kilometre as low as possible.

To help you accurately diagnose belt wear in EPDM belts, Gates has developed a Belt Wear Gauge so you can make belt replacements at the appropriate time.

GET YOUR BELT WEAR GAUGE FREE!

Ask your Gates Representative for your free Belt Wear Gauge or email southpacsales@gates.com. This simple gauge will help you easily determine if a belt is past its service life—so you can keep your fleet on the road.

A New Era Begins: Heavy-Duty Serpentine Belt Diagnostics

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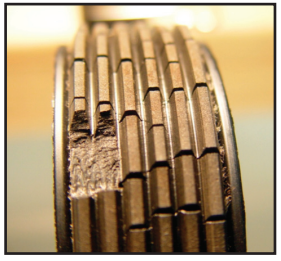
A New Era Begins: Heavy-Duty Serpentine Belt Diagnostics

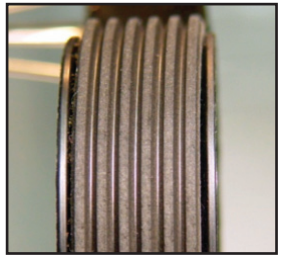
NEOPRENE VS. EPDM

Older Neoprene belts have a life expectancy of 80,000-100,000 kilometres, and as they wear out, cracks and chunk-outs will occur, as shown below. EPDM belts rarely show these symptoms, even at very high mileage.

As newer technology belts like EPDM age, they gradually lose rubber material, similar to the way tyres wear out. Over a period of 160,000 kilometres, a belt can lose up to 10% of its rib material. While this may not seem like a lot, the consequences can be significant.



Neoprene belt with 160,000 kilometres

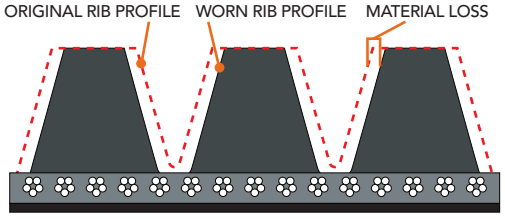


EPDM belt with 160,000 kilometres

EPDM: SIGNS OF WEAR

The diagram below shows how EPDM belts wear as they age. Although the ribs have not become shorter, material has been lost in the valleys of the ribs (indicated in red), making the space between ribs wider. As more material is lost, the pulleys ride deeper into the belt valleys resulting in slip, noise and hydroplaning.

With sufficient material loss, the pulley ribs "bottom out" in the valleys and ride on the belt cord. This reduces the surface contact on the valley sides, where the traction is generated. Wear also increases the effective belt length, lowering the tension in the system, which also reduces traction.

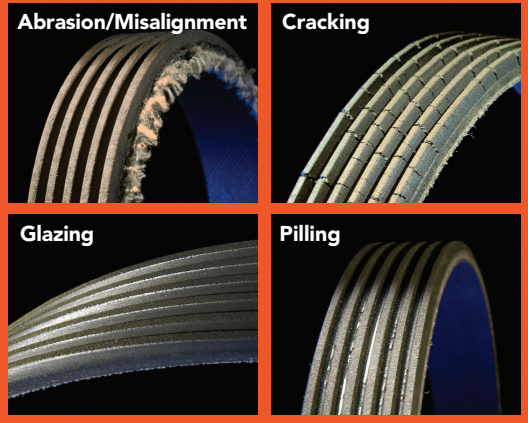


Enlarged Rib Cross-section

OBVIOUS SIGNS OF WEAR

Although EPDM belts do not tend to crack with age, they can still exhibit other symptoms that are caused by problems with the accessory drive, such as tensioner misalignment or failure, pulley misalignment, excessive heat, or bearing failure in one of the other components.

If the belt exhibits one or more of the symptoms depicted, it needs to be replaced. If it fails, it could damage other system components in addition to stranding the motorist. Many warranty-claim failures on alternators and other parts are actually caused by worn or improperly adjusted belts.



OTHER BELT WEAR SYMPTOMS

When a belt wears out, several problems can occur that reduce performance of the Accessory Belt Drive System.

BELT SLIP–LOSS OF TRACTION

Like a tyre, a worn belt can lose traction (slip) on the pulleys, particularly in high-load and/or wet conditions. Slip can cause belt/pulley temperatures to rise by up to 50%, leading to early accessory bearing failure.

HYDROPLANING

This occurs when water cannot be effectively channeled away between a worn belt and the pulleys. The belt then "hydroplanes" on a film of water, resulting in loss of power transmission to the accessories. This can often result in the "Check Engine" or "Alternator Charging" warning lights to come on.

ELONGATION

Material loss can also cause a change in the effective length of the belt, which can move the tensioner beyond its take-up range. This will reduce overall system tension, also lowering accessory performance.

MISALIGNMENT

Misalignment wear can also be an indication that the internal components of the tensioner have failed. Material loss and subsequent changes to effective length on belts can also cause belt slip, resulting in noise,vibration and high heat, which can damage accessory bearings and cause accessories to fail.