



Fleet and Heavy Duty TECHTIPS



Early belt failure could indicate pulley incompatibility

Heavy-duty maintenance operators occasionally find that new belts they've installed on their rigs are failing early or jumping or flipping out of their pulley grooves. The preliminary conclusion might be that the failure originates with the belts. Often, it may be incompatibility between the pulleys that is the cause of the failure. Engineers with Gates Corporation have identified the symptoms and causes of pulley incompatibility, as well as solutions to keep your heavy-duty equipment operating at maximum performance.

A matter of size

There are two forms of pulley incompatibility: pulley size mismatch and pulley spacing mismatch.

Pulley size mismatch (Fig. 1) often occurs when an original component — an alternator, for example — is replaced in a vehicle. The new alternator may come with a pulley attached or a new pulley may be used to replace the old one. If the new pulley has a different sized top-width (a 1/2" replacing a 3/8", for instance), pulley size mismatch will occur.

In this case, because of the size mismatch, the belt will not seat properly in the drive. The result is excessive wear, belt squeal, belt turnover and premature failure.

A matter of space

Belts can take on early failure through pulley spacing mismatch (Fig. 2) as well.

Pulley spacing mismatch can occur in the construction of the vehicle. A fire truck may have a chassis manufactured by Freightliner, an engine

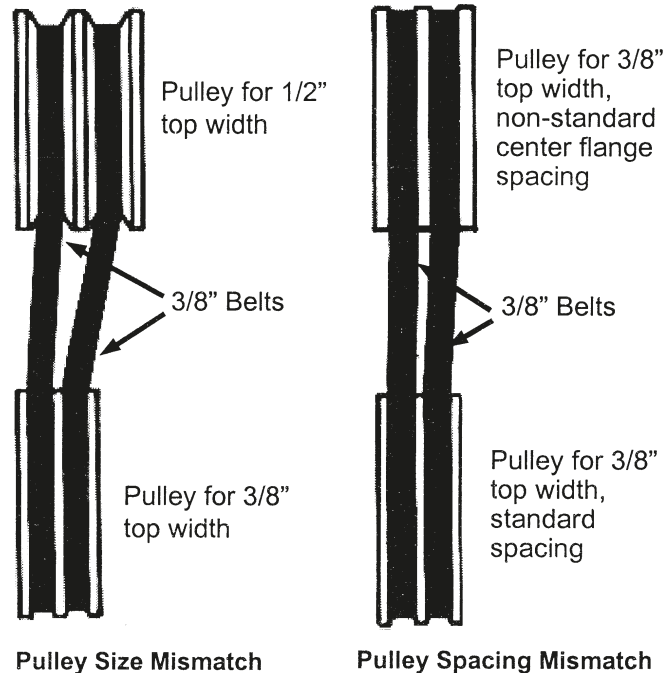


Figure 1

Figure 2

made by Detroit Diesel and the vehicle designer decides to incorporate an extra heavy-duty alternator and not consider a possible pulley mismatch which could result.

Dual-groove pulleys incorporate a ridge between grooves to separate the belts. The specifications set by the Rubber Manufacturers' Association, for example, call for a spacing of 16.5 mm. Other manufacturers may specify wider spacing.

To the untrained eye, two 3/8ths-inch belts can be installed side by side on seemingly compatible pulleys, but until a belt fails prematurely or flips out of the drive, the incompatibility might not be seen.

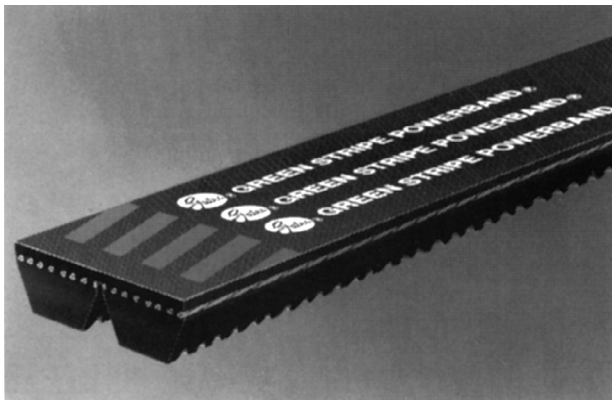
Pulley replacement

Obviously, frequent replacement of belts is not the solution to the problem. When installing a new component, or when replacing a belt after what seems to be an early demise, take time to assure pulley compatibility.

Should a pulley be out of size or spacing with the rest of the pulley and belt system, the proper pulley should be installed for the performance of the system.

To increase performance of the system and reduce maintenance downtime, consideration should be given to a specialized belt for the pulley drive.

Using single belts in dual-groove drives doubles the potential for belt turnover or failure. Using a joined V-belt, such as Gates Green Stripe®



Green Stripe PowerBand belts provide nearly twice the service life of conventional V-belts.

PowerBand®, eliminates many of those belt problems.

The PowerBand belt is actually two belts, joined together to provide greater stability and better shock load absorption than two single belts can provide. With its double construction, it is impossible for the PowerBand to flip or come off the drive. Its durable construction offers double the life of conventional V-belt sets.

Using the PowerBand belt immediately identifies pulley incompatibility as well. The belt will not seat properly in pulleys of different size, nor in two-groove pulleys with different spacings in the center ridge.



www.gatesaustralia.com.au/transportation