



CASE STUDY

END MARKET INDUSTRY

Heavy-Duty Fleet

BACKGROUND

In 2009, Gates engineers began working on an alternative tensioner to the OE for DD series engines to improve the design and their performance. A new tensioner was developed and fleet tested. This case study provides the background to the new tensioner design and the results of fleet testing.

APPLICATION

- Detroit Diesel, DD13 and DD15 engines.
- Tensioners applied on Freightliner, Cascadia, Coronado and more.
- Two tensioners in each application.

DESIGN

- Gates new Heavy-Duty Tensioner, part number 38667, is designed to replace both the OE tensioners.
- The unique design of 38667 Tensioner combines the fan and accessory belt drive tensioners on a common bracket.
- An advanced OE replacement tensioner with heavy duty performance with 550,000 kilometers saves both downtime and money.
- The accessory tensioner arm, due to the lifting feature, had to be designed and optimised to ensure it was robust enough for repeated belt installations.



Gates® DriveAlign™
Heavy-Duty
Tensioner

OE
Tensioner

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FLEET TESTING

The 38667 Tensioner was trialed and tested by having it fitted to a high kilometer fleet. Upon return from the fleet test the tensioners had accumulated 716,000 kilometers. There was no noise, no misalignment and no failures reported. The results of the fleet test indicated that the tensioner assembly was fully functional with plenty of remaining life. The load and damping were within specification and there was minimal wear on pivot bushings, damping mechanisms and shafts.

BENEFITS OF GATES PRODUCT

Advantages of Gates 38667 tensioner over the OE:

- Larger pivot bushing – Prolongs tensioner life.
- Longer tensioner arm – Reduces pivot bushing wear.
- Balance of loads – Ensures proper alignment of the tensioner.
- Double row pulley bearings – Proven to last longer than other bearings.
- Higher damping – Reduces arm movement.
- Easier to install.

The Original Equipment tensioner design:

- Utilises smaller pivot bushings – that wear out sooner and make it difficult to maintain alignment.
- Uses hydraulic struts – that make it slower to react to the constant changes caused by the fluctuating power requirements of the accessories which lead to belt flutter and wear.

Gates 38667 tensioner is real world tested and boasts true heavy-duty performance up to 550,000 kilometres. This advanced solution avoids unnecessary maintenance while lowering cost per kilometre.