



Technical Service Bulletin

AUTOMOTIVE <> PASSENGER CAR
SYNCHRONOUS BELT DRIVE SYSTEM

BULLETIN PA002-16

> PART NUMBER:

Applications Using
the Below Timing Belts:
T277
T304
T307
T328

> MAKE:

Saab
Subaru

> MODEL:

All

> YEAR:

1997-2014

> ENGINE:

2.0L
2.2L
2.5L

IMPORTANT: READ INSTRUCTIONS BELOW TO COMPLETE PROPER TIMING COMPONENT SETUP

Gates Engineers have determined that certain Subaru timing components demand special attention in order to complete proper setup and ensure timing component longevity.

These areas include:

- > Following the proper tensioner bleeding procedure. Please note that to ensure proper running: **ALL HYDRAULIC TENSIONERS MUST BE BLED BEFORE INSTALLATION.** Please reference the enclosed document regarding the proper bleeding procedure.
- > Inspecting the aluminum threads on the tensioner bracket for damage.
- > Applying Loctite® to the tensioner bolt and torquing all components properly.
- > Ensuring there is adequate clearance between the timing belt and timing belt guide.

New Tensioner Design:

Gates Engineers have identified certain aspects of the OE tensioner that would benefit from improvement and have recently introduced an OE-Improved, problem-solving tensioner with the following features:

- > A larger diameter hydraulic tensioner piston has been implemented to ensure proper contact is made between the tensioner and the tensioner bracket dowel pin during the service life of the tensioner. Gates has determined that in some cases extreme offset loading of the OE tensioner can cause the tensioner and/or the tensioner mounting bolt to fail prematurely.

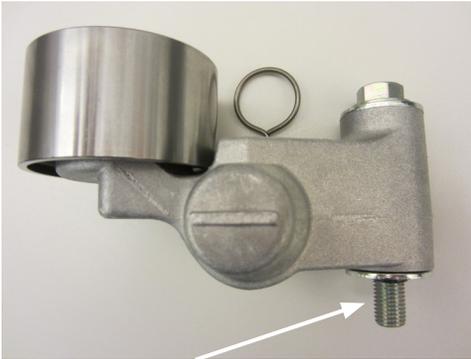


Proper Piston Alignment



Improper Piston Alignment

Hydraulic Timing Belt Tensioner

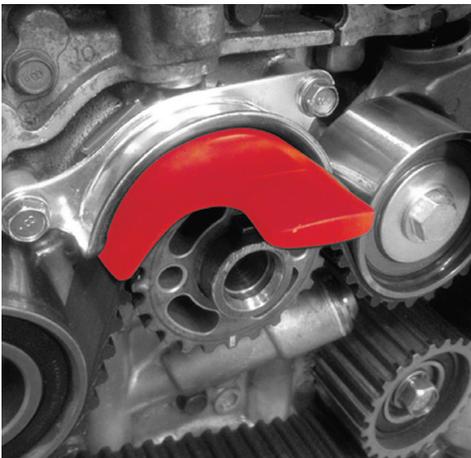


Apply Threadlocker to tensioner pivot bolt threads prior to installation.

- > The internal design of the tensioner has been improved to maintain proper operation during the life of the tensioner. This includes measures taken to help prevent the tensioner piston from sticking as well as to prevent oil leaks from the tensioner seal.
- > Measures have been taken to ensure the mounting bolt retains its strength for the service life of the tensioner. This has been accomplished by including a 30% stronger bolt with improved fatigue strength.
- > The bearing is a sealed heavy duty double row bearing which meets or exceeds the OE design.

Inspecting the Tensioner Bracket:

- > The tensioner bracket and threads for the tensioner mounting bolt are aluminum and easily damaged. Before installing the new tensioner, inspect the tensioner mounting threads and dowel pin for any signs of damage. If any damage is present it is advised to replace the bracket before continuing.
- > When installing the tensioner, place a few drops of the supplied Loctite® to the first few threads of the tensioner mounting bolt and torque the bolt to 29 Ft. Lbs.

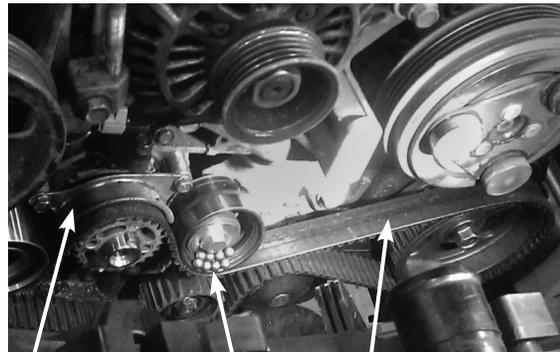


Proper belt clearance achieved using the Gates Spacer Tool Part No. 91052.

For Manual Transmission Equipped Vehicles; Ensure Proper Clearance Between the Timing Belt and the Timing Belt Guide Plate:

- > On manual transmission equipped vehicles, Subaru requires a clearance of 0.019" to 0.059" between the timing belt and the timing belt guide plate above the crankshaft sprocket. Failure to obtain this value will cause extreme belt overheating and catastrophic engine damage. To aid in achieving the specified clearance Gates supplies a special tool in each timing component kit.

- 1) Loosen the two bolts on the belt guide
- 2) Install the Gates spacer tool
- 3) Tighten the belt guide bolts to the recommended torque value [78-95 In. Lbs.]
- 4) Ensure that during tightening the belt guide did not move and the spacer tool can still be inserted and removed easily.



Belt contact

Resulting damage to tensioner and belt

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Gates products are trusted by professional technicians around the world.