



# Technical Service Bulletin

## AUTOMOTIVE <> PASSENGER CAR SYNCHRONOUS BELT DRIVE SYSTEM

### BULLETIN PA001-14

#### > PART NUMBER:

T43138

#### > MAKE:

Saab  
Subaru

#### > MODEL:

All

#### > YEAR:

1997 - 2012

#### > ENGINE:

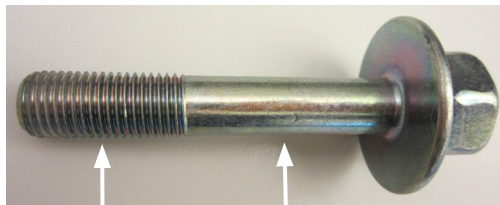
2.0L  
2.2L  
2.5L

### TIMING SYSTEM FAILURE DUE TO IMPROPER SERVICING

Extensive research on these applications has led Gates Engineers to identify multiple mistakes to avoid when inspecting and servicing any timing system components. In addition to observing the following precautions, Gates is now including a tube of Loctite® 243™ Medium Strength Threadlocker with all Timing Component Kits [with and without Water Pump] as well as with individual hydraulic timing belt tensioners [Gates T43138.] Prior to reassembly of the timing belt drive system, it is vital to inspect the following components.

First, carefully inspect the crankshaft pulley bolt shank and threads for any indication of stretching or “necking”. The bolt’s profile should be unchanged along the entire length of the bolt.

**Crankshaft Pulley Bolt**

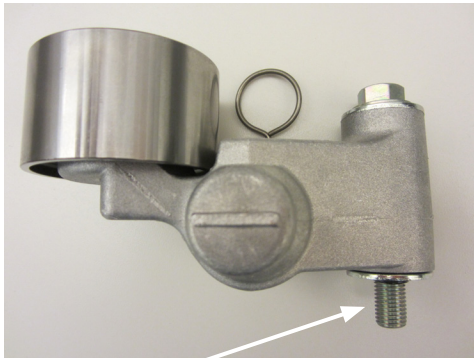


**Inspect the crankshaft pulley bolt and threads for ANY Indication of Stretching!**

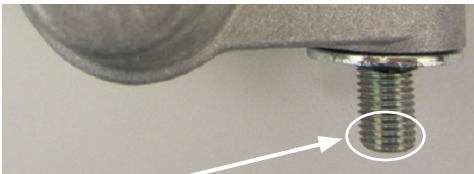
The crankshaft pulley bolt on these applications is a Torque to Yield Bolt which means that it is torqued in two stages. The first stage requires the technician to torque the bolt to a nominal foot pound specification. This torque spec identifies the bolt’s elastic deformation point, or the point at which the shape or length of the bolt has not been changed. The second stage requires the technician to observe the degree of rotation the bolt turns while torquing to an increased foot pound specification. If the bolt does not turn the required number of degrees prior to the torque spec being reached, then the bolt has entered a state of plastic deformation. Plastic deformation is the permanent change of the bolt’s shape or length which requires that the bolt be replaced as it cannot be reused.

**It is imperative to follow the manufacturer's recommended torque procedures!**

#### Hydraulic Timing Belt Tensioner



**Apply Threadlocker to tensioner pivot bolt threads prior to installation.**



**Apply several drops of Threadlocker to the first few threads.**

**For vehicles with the 2.0L or the 2.2L engine the torque procedure is as follows:**  
Oil the threads and face of the crankshaft pulley bolt and torque to 33 ft. lbs. Then torque bolt to 94 ft. lbs. checking that the bolt turns 45°-60°, if not, remove and fit new bolt.\*

**For vehicles with the 2.5L engine the torque procedure is as follows:**  
Oil the threads and face of the crankshaft pulley bolt and torque to 33 ft. lbs. Then torque bolt to 133 ft. lbs. checking that the bolt turns 65°-75°, if not, remove and fit new bolt.\*

Failure to follow these manufacturer recommended torque procedures for the crankshaft pulley bolt may result in timing belt drive failure and catastrophic engine damage!

In addition to the inspection of the crankshaft pulley bolt, the timing belt tensioner bracket needs to be examined as well. This bracket is constructed of aluminum and as a result the threads are considerably softer than a cast version. This means that the threads are easily susceptible to damage and deformation. It is prudent to thread the tensioner pivot bolt in by hand to ensure the threads are not damaged or deformed. If the pivot bolt will not thread in by hand then the threads will have to be repaired or the bracket will have to be replaced before installing the hydraulic tensioner. Furthermore, the bracket must be properly secured and flush up against the engine block prior to installation of the hydraulic timing belt tensioner.

Once the tensioner bracket is carefully inspected, the hydraulic timing belt tensioner may be installed. **It is essential for the pivot bolt as well as the bracket threads to be CLEAN & DRY before continuing!** Proceed by applying several drops of Loctite® 243™ Medium Strength Threadlocker to the first few threads of the tensioner pivot bolt and immediately install the bolt by hand.

The tensioner pivot bolt **MUST** be torqued to 29 ft. lbs. **NEVER USE ANY AIR TOOLS TO TIGHTEN THE PIVOT BOLT!**

Although this bulletin outlines the procedures for inspecting and servicing various components in the timing system, always follow all manufacturer recommended procedures and torque specifications.

\*Autodata Tech Series – Timing Belts Including Serpentine Belts Replacement, 2010 Edition, 10-180.

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