

ENGINE TIMING AND ACCESSORY **MAJOR CAUSES OF TIMING AND ACCESSORY BELT FAILURES**



With You

WORN OR DAMAGED BELTS

EVIDENCE

• Material is worn and torn away from the belt and normally accumulates in around the engine and timing covers

TIMING

CAUSES

Excessive tension. Worn or damaged pulleys.

High operating temperatures caused by friction or insufficient cooling.



CAUSES

- Sticking of belt particles to the pulleys. This causes abnormal noise from the belt when the engine is operating.
- Misalignment of pulleys.
- · Worn or damaged pulleys.

NTN-SNR RECOMMEND

- Check the vehicle's cooling system is operating correctly.
- Check for wear or damage to the systems pulleys.
- Replace the belt and check the tensioner is tensioning correctly.
- The belt must be kept dry and free from grease or oil contamination.
- Closely follow the manufacturer's fitting instructions and guidelines.

CRACK S ON THE BELT

EVIDENCE Small visible cracks all over the belt.





AN UNEVEN BREAK ACROSS THE BELT

TIMING

EVIDENCE

- A transverse tear across the belt.
- Damage to the back of the belt, normally small holes and fraying.





- CAUSES Debris entering the belt system due to damaged or missing covers.
- CAUSES • Excessive tension. An defective external component. Solid or liquid contamination.

NTN-SNR RECOMMEND

- Replace the belt, check the length and the number of teeth are correct.
- Check the engine for oil or coolant leaks and repair.
- Check all the systems pulleys for wear or damage.
- Closely follow the manufacturer's fitting instructions and guidelines.

A CLEAN BREAK IN THE BELT

EVIDENCE

• The belt is ripped apart.







CAUSES • Over heating of the belt caused by friction. An over tightened belt causing it to stretch and crack. CAUSES • Too low or too high working temperature. • Ageing of the belt. Contact with a foreign element or a misalignment issue.

NTN-SNR RECOMMEND

- Replace the belt, check the length and the number of teeth are correct.
- Tension the belt to the manufacturer's recommended tensions.
- The use of an electronic tensiometer is sometimes needed to achieve the correct tension.
- Check other connected parts for any signs of heat damage.
- Check the engine for any signs of damage around the pulley and belt areas.
- Check the engine coolant levels.

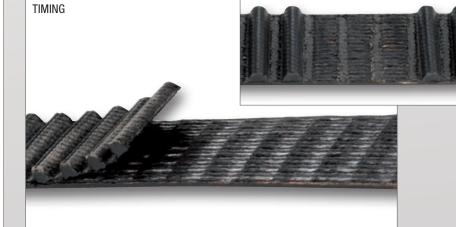
DAMAGED TEETH ON THE BELT

EVIDENCE

• Teeth being torn from the belt.



- CAUSES • Accelerated deterioration caused by heat or incorrect operation. · Foreign objects such as nuts or bolts entering teeth of
- the belt.



- CAUSES
- Teeth have detached from the belt.
- Partial or total seizure of a timing system component such as the
- water pump.
- Teeth are torn away from the belt frame whilst under-tension. Liquid contamination such as oil or coolant.
- **NTN-SNR RECOMMEND**
- Replace the belt, check the length and the number of teeth are correct.
- Check for any oil or coolant leaks and repair.
- Closely follow the manufacturer's fitting instructions and guidelines.



- Foreign object stuck between the belt and the pulley(s).
- Excessive tension.
- Damage to the internal material of the belt (fiberglass cord).
- Incorrect tools such as screwdrivers being used whilst fitting the belt.



- CAUSES Defective material. • Incorrect tools such as screwdrivers being used whilst fitting the belt. • The belt being folded before fitment or when in use. • Solid or liquid contamination.
- **NTN-SNR RECOMMEND**
- Replace the belt, check the length and the number of teeth are correct.
- Check the engine for oil or coolant leaks and repair.
- Check for wear or damage on the pulleys.
- Closely follow the manufactures fitting instructions and guidelines.

MELTED BELT OR AN EXTERNAL COMPONENT PROBLEM

EVIDENCE

The back of the belt may show signs of melting or excessive wear.





CAUSES • The belt slipping over the tensioner, due to low tension on the belt when in operation.

• Defective over running alternator pulley (OAP).

External components seized or broken (defective water pump or

seized pulley)

NTN-SNR RECOMMEND

- Replace the belt and check all pulleys and tensioners are operating correctly.
- Check the tensioner is adjusted to the correct tension.
- Closely follow the manufacturer's fitting instructions and guidelines.

WEAR ON THE EDGES OF THE BELT





EVIDENCE

- Premature wear on the edge of the belt may expose the cords of the belt, the belt may be noisy when in operation.
- CAUSES Excessive tension.

ACCESSORY

CAUSES (Accessory)

• Fitting the kit using the incorrect tools such as screwdrivers. • The belt moving on the pulleys during the fitting process.

CAUSES (Timing)

• Misalignment of the pulleys or tensioners. • Contact with a foreign body such as outer engine covers.

NTN-SNR RECOMMEND

• Replacing the belt and re-aligning all the pulleys. • Check all the components of the auxiliary and timing systems.

• Closely follow the manufacturer's fitting instructions and guidelines.