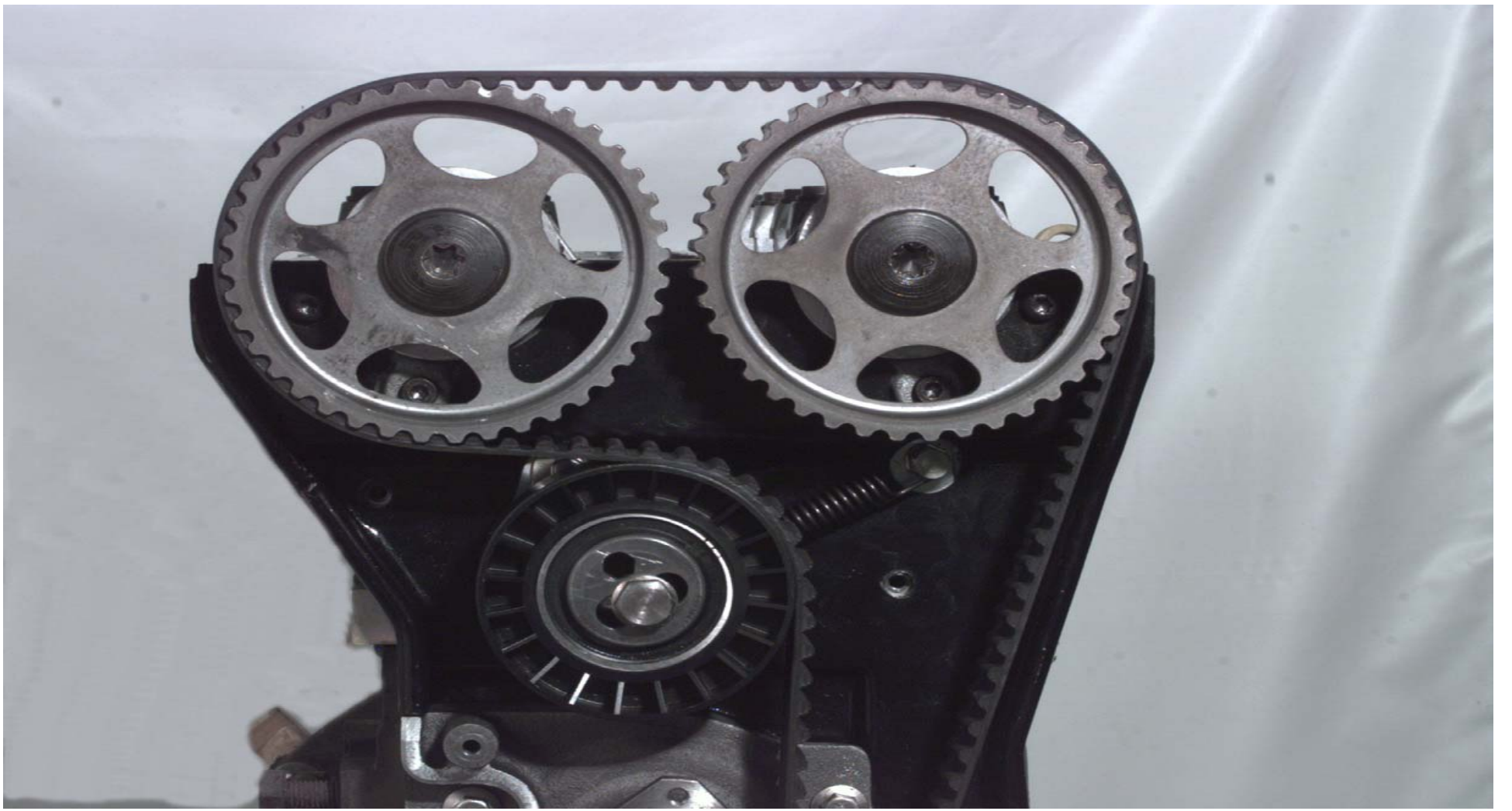
Service Bulletin - Timing Belts

Timing Components - Belt Drive:



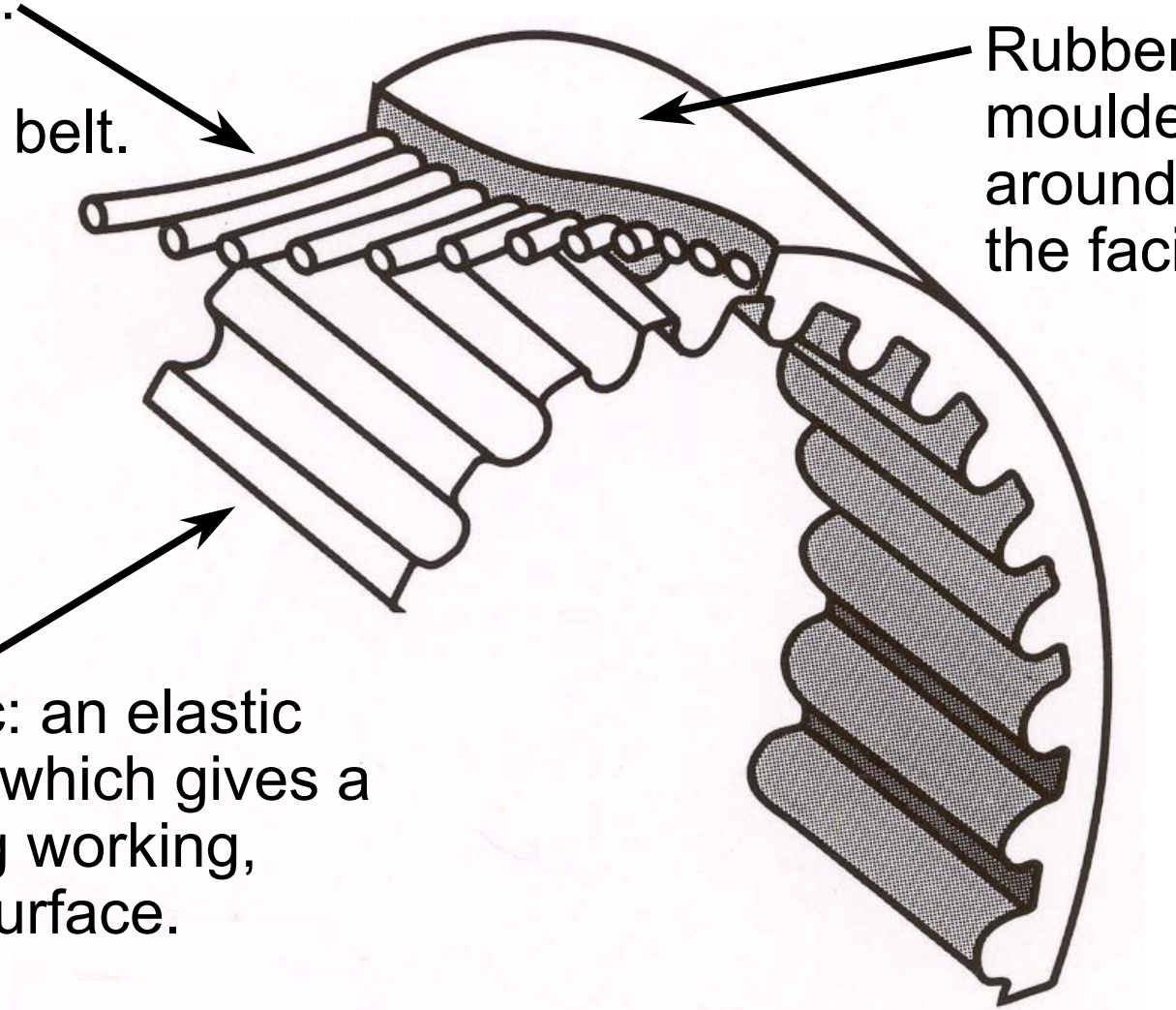
Service Bulletin - Timing Belts

Absolute Excellence

FEDERAL MOGUL

Timing Belt Construction.

Tension member: fibre-glass cord wound round the belt.



Rubber stock: moulded and cured around the cords and the facing fabric.

Facing fabric: an elastic nylon facing which gives a hard wearing working, low friction surface.

Service Bulletin - Timing Belts

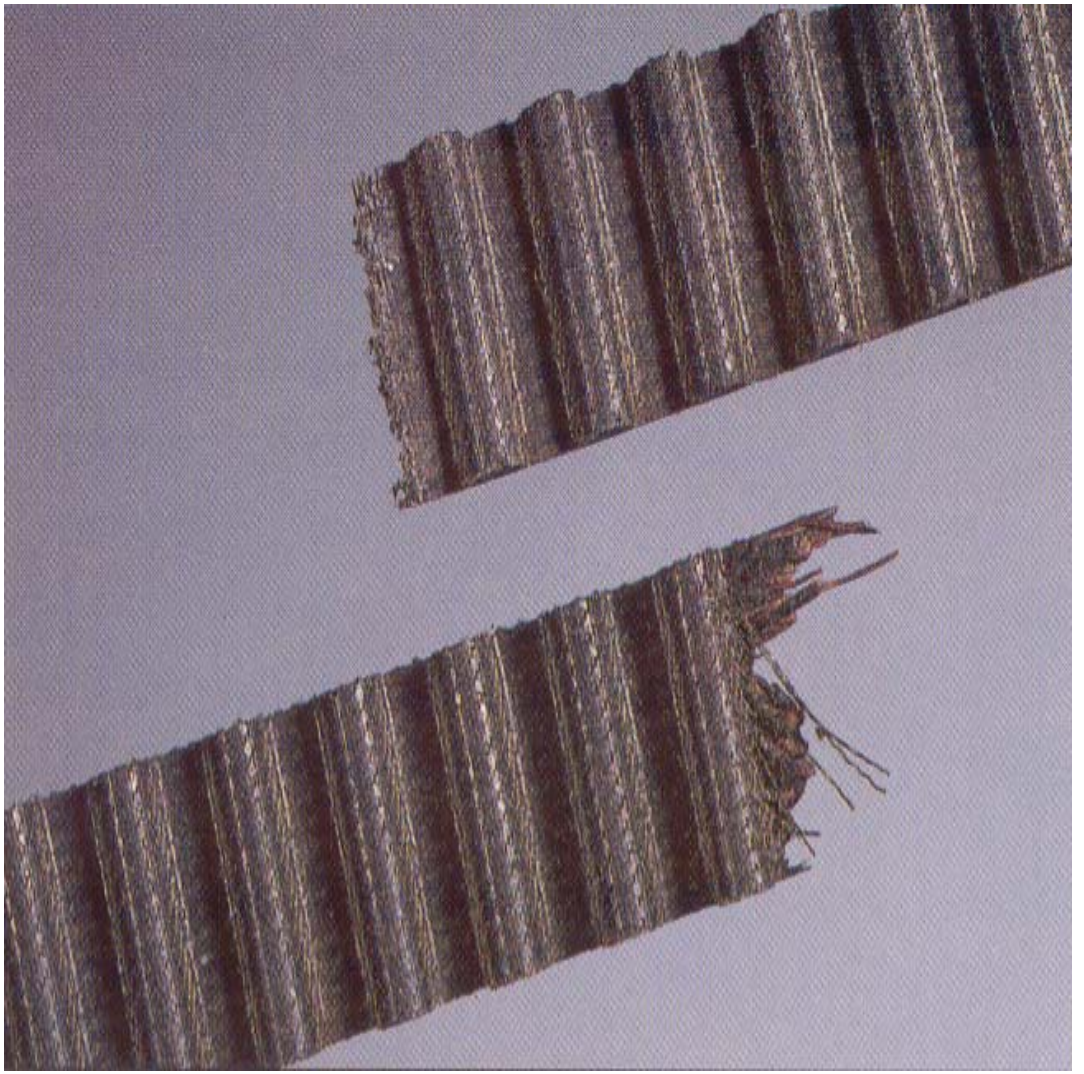
Absolute Excellence

FEDERAL MOGUL

Timing Belt - Failure Modes:

- Tooth Wear
- Tensile Failure
- Tooth Shear
- Land Wear
- Oil Contamination
- Edge Wear
- Hollowed Teeth
- Back Cracks

Service Bulletin - Timing Belts



Tensile failure:

Tensile breakage with a straight break

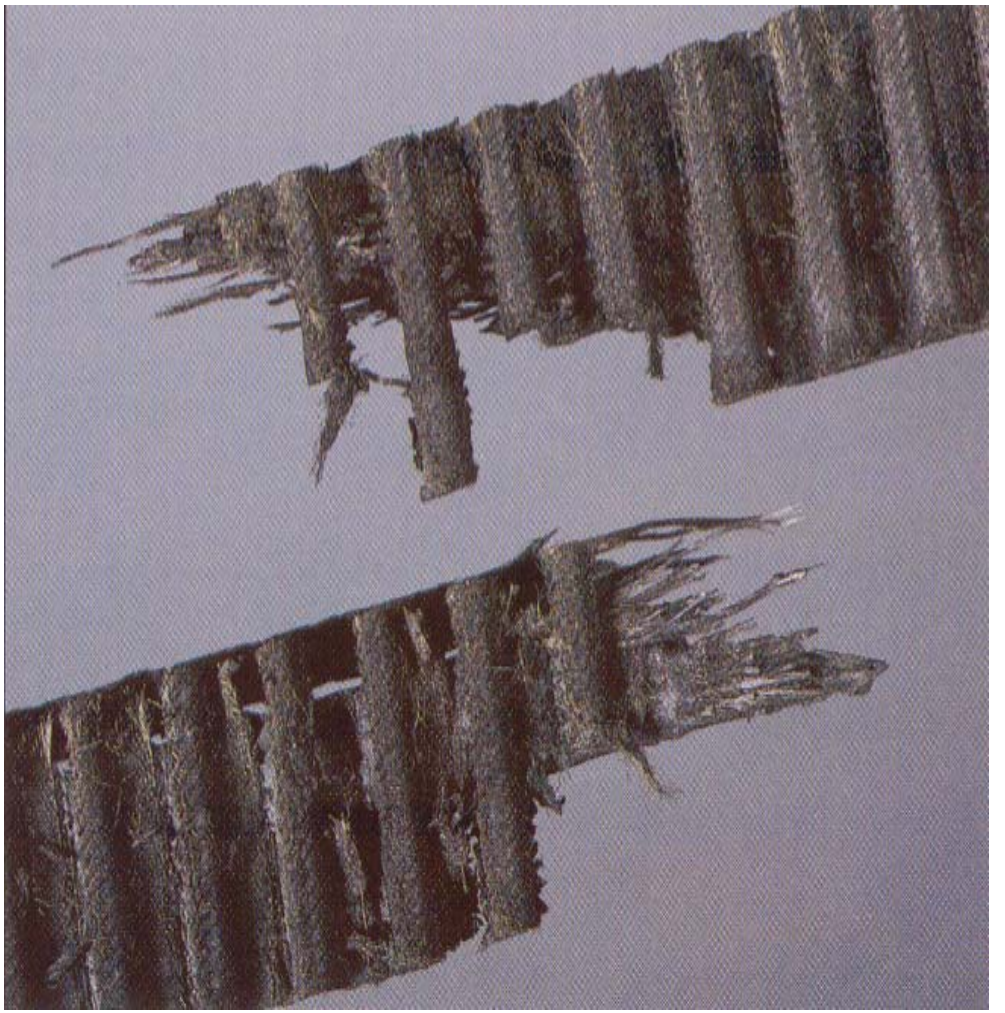
between two teeth.

Cause: breakage of the tensile cord's due to crimping (folding) before or during assembly, creating a weak point.

A belt running over-tensioned may sometimes cause teeth to ride up onto the sprocket lands, resulting in vast over stretching and tensile failure.

Remedy: Replace belt without pinching or levering. Set new belt to correct tension and ensure tensioner mechanism operates correctly.

Foreign Body Entrapment



Belt breakage in a curved or ragged tear.

Cause: A foreign object has become trapped in the drive and has over-stretched and broken the tensile cords.

Remedy: Locate, remove and identify the offending object (nut, bolt, washer, stone etc.). Then ensure that repairs are carried out to any other damaged components.

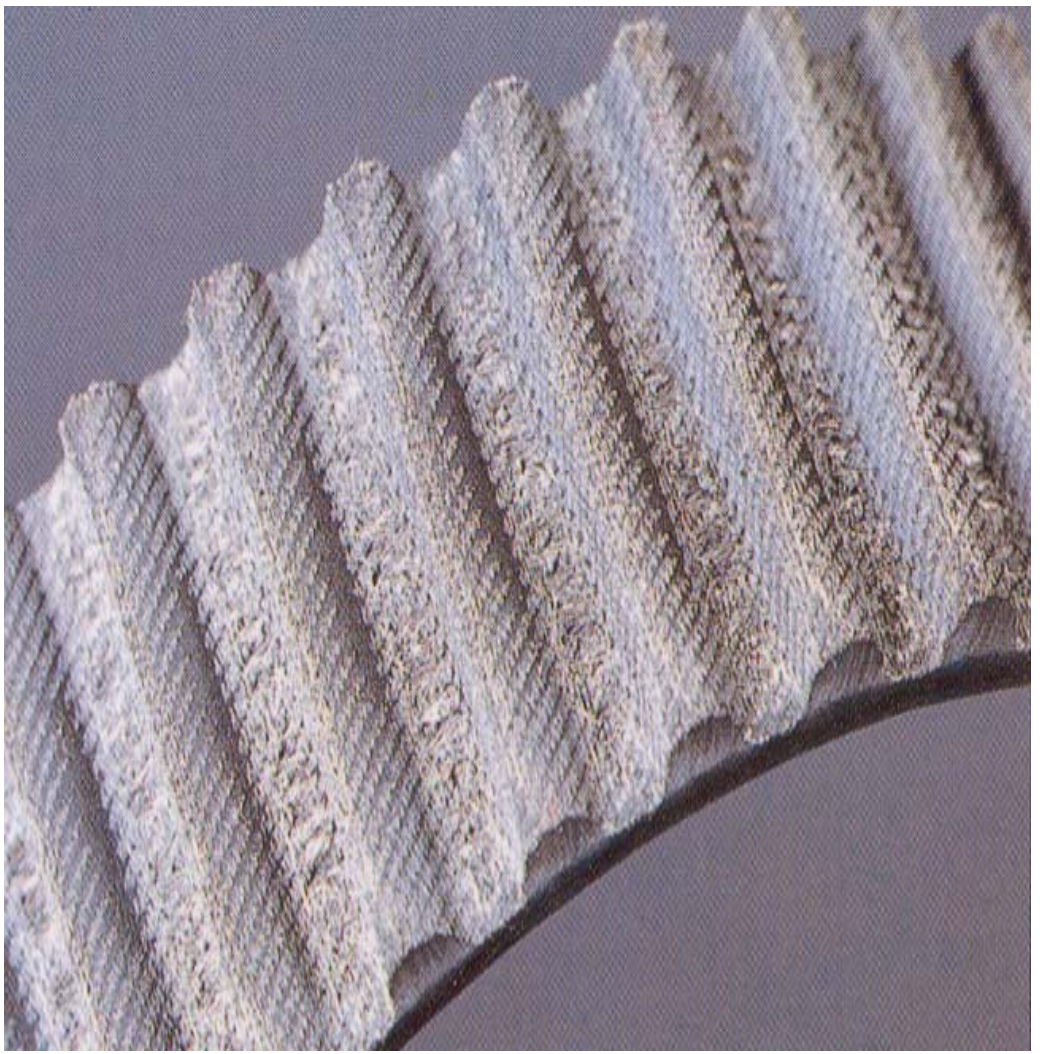
Set new belt to correct tension and ensure that the tensioner mechanism functions correctly.

Service Bulletin - Timing Belts

Absolute Excellence

FEDERAL MOGUL

Land Wear



Wear or polishing on the lands between the teeth, sometimes exposing the tension cords, with polishing on the tooth crests of trapezoidal tooth form belts.

Cause: Excessive tension, causing the belt to wear on the pulley lands or can be due to rough/worn gears abrading the belt.

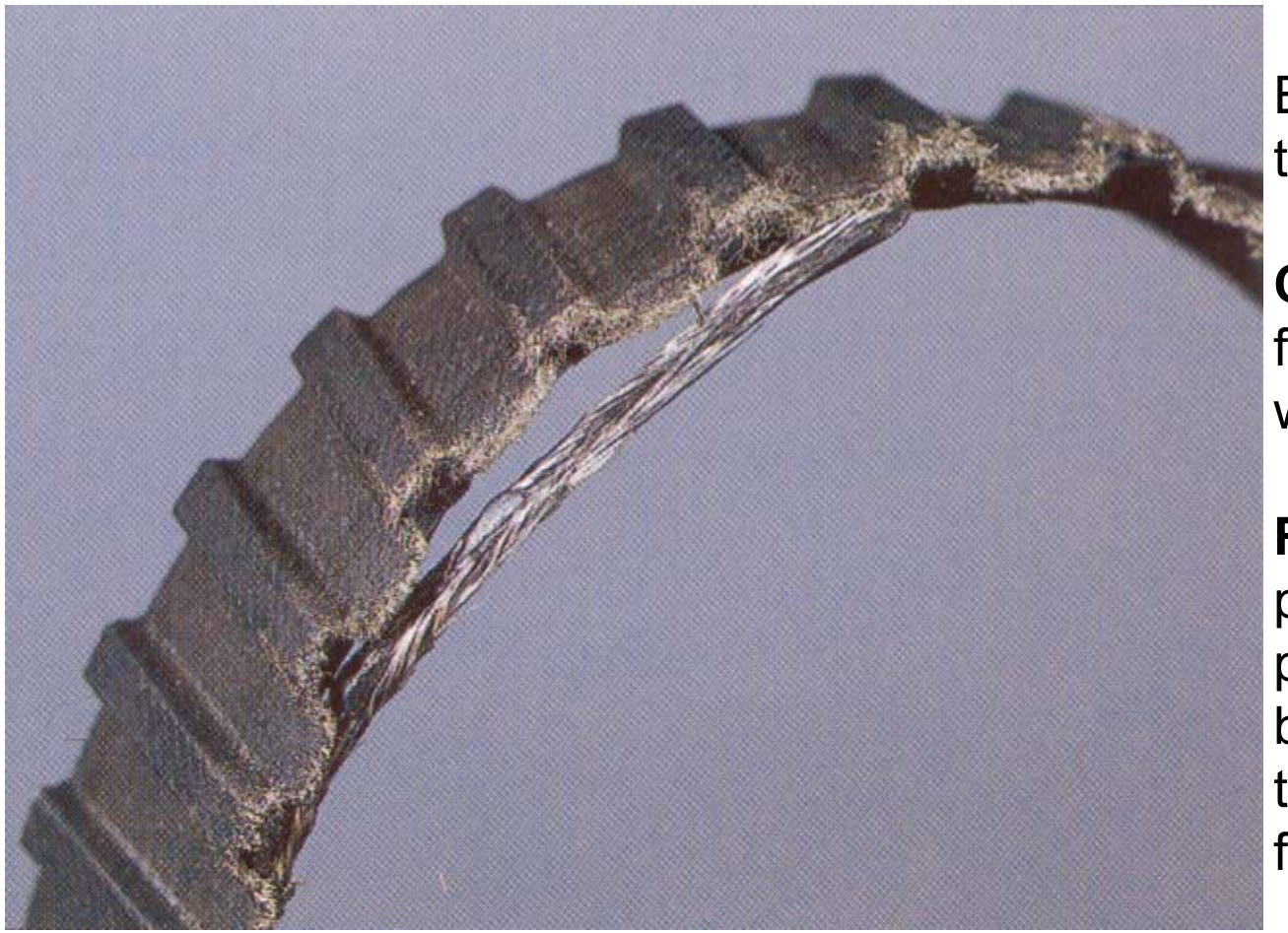
Remedy: Replace gears where necessary and set new belt to correct tension, ensuring that the tensioner mechanism functions correctly.

Service Bulletin - Timing Belts

Absolute Excellence

FEDERAL MOGUL

Edge Wear



Excessive wear or damage to the edges of the belt.

Causes: Damaged pulley flanges, misaligned pulleys and worn tensioner/pulley bearings.

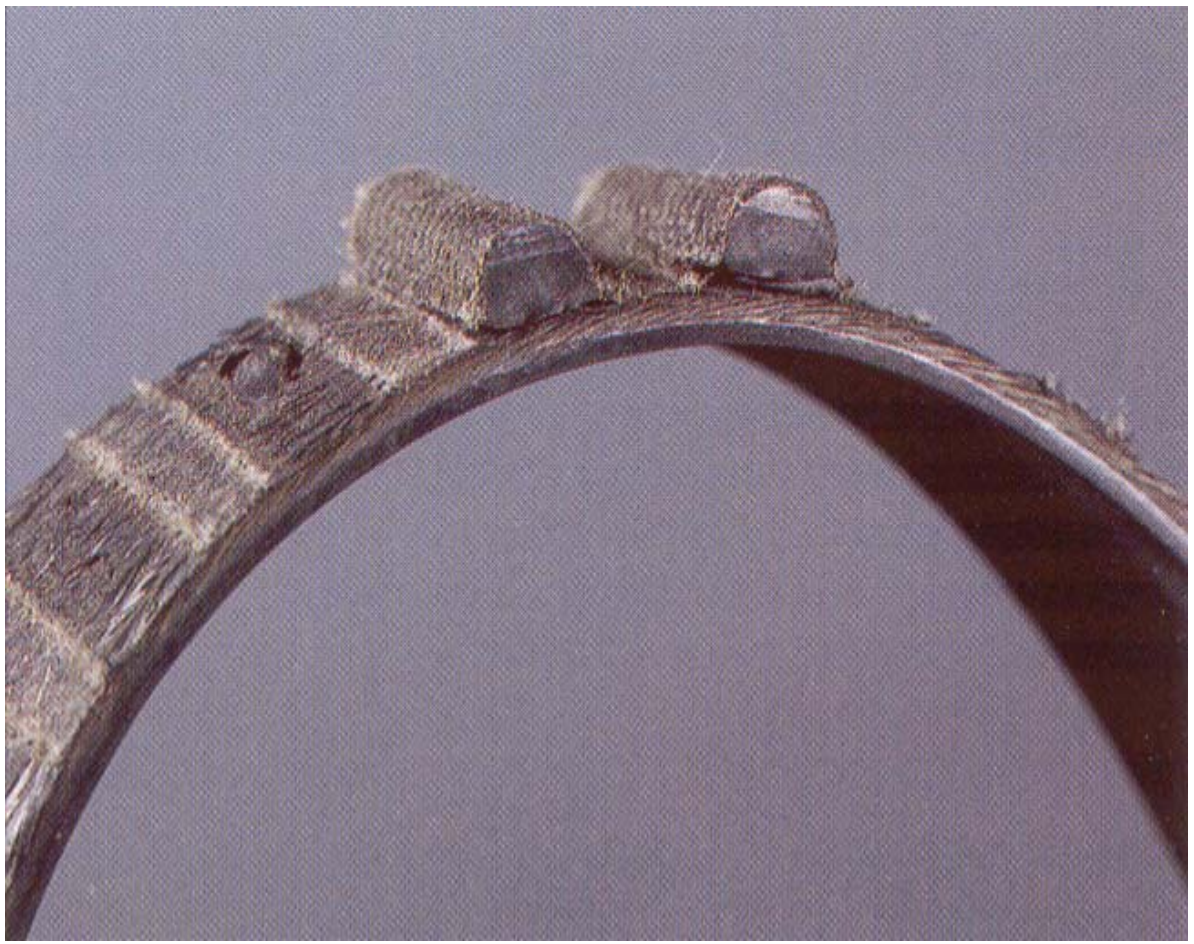
Remedy: Replace damaged pulleys and ensure correct pulley/belt alignment. Set new belt to correct tension, ensuring that the tensioner mechanism functions correctly.

Service Bulletin - Timing Belts

Absolute Excellence

FEDERAL MOGUL

Tooth Shear



Six or more teeth missing, often with cracking in roots of the teeth.

Causes: Damaged sudden overload of the drive resulting from seizure of a driven part, such as the water pump. Can also be due to low tension, which allows the belt to ride high on the gears, producing excessive bending moments and deflection of the teeth until cracks form.

Remedy: Replace Ensure all driven items rotate freely and set new belt to correct tension, ensuring that the tensioner mechanism functions correctly.

Tooth Peel

Teeth peeling, emanating from root cracks. Often present together with tooth shear.

Causes: Very low tension allowing the belt to jump teeth.

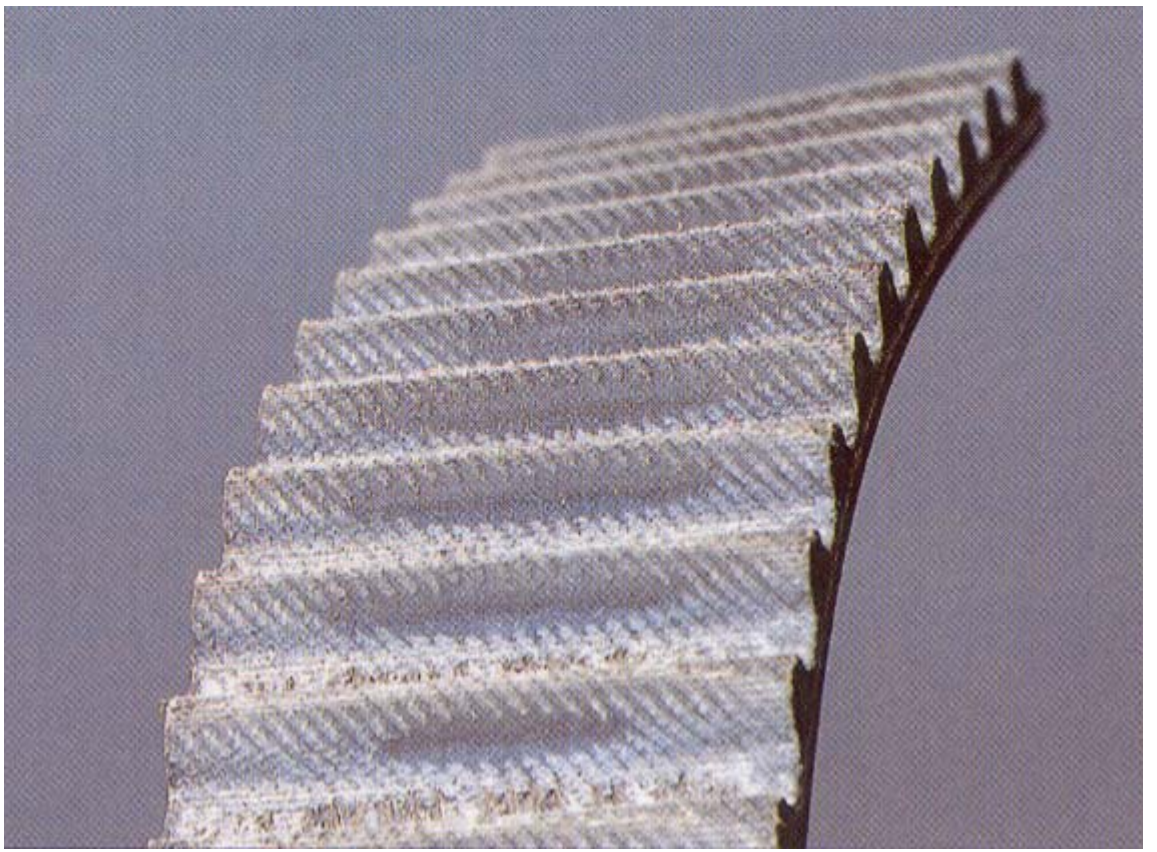
Remedy: Set new belt to correct tension, ensuring that the tensioner mechanism functions correctly.

Service Bulletin - Timing Belts

Absolute Excellence

FEDERAL MOGUL

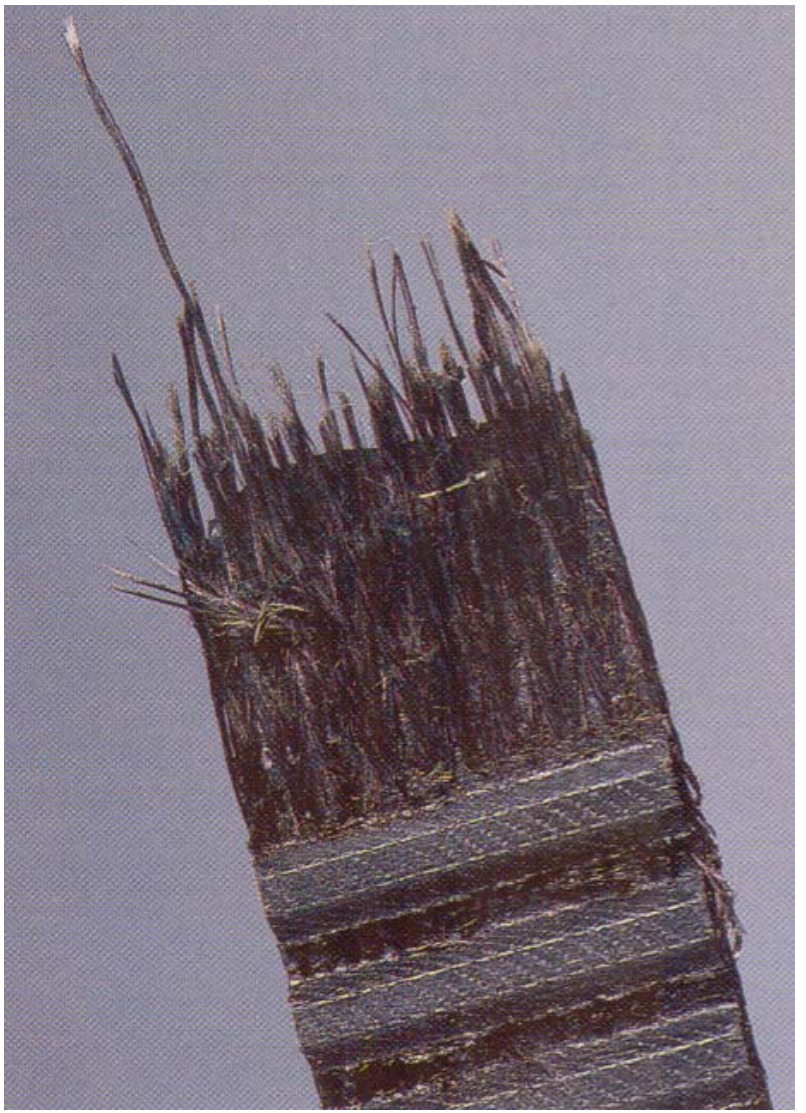
Tooth Wear



Hollows through the facing fabric.

Causes: Extremely low tension allowing the belt to ride out on the gear, causing localised wear on the edge of the thrust face of the teeth. Can also result from excessive tension, pulling the belt up the land. Often precedes tensile failure.

Remedy: Set new belt to correct tension, ensuring that the tensioner mechanism functions correctly.



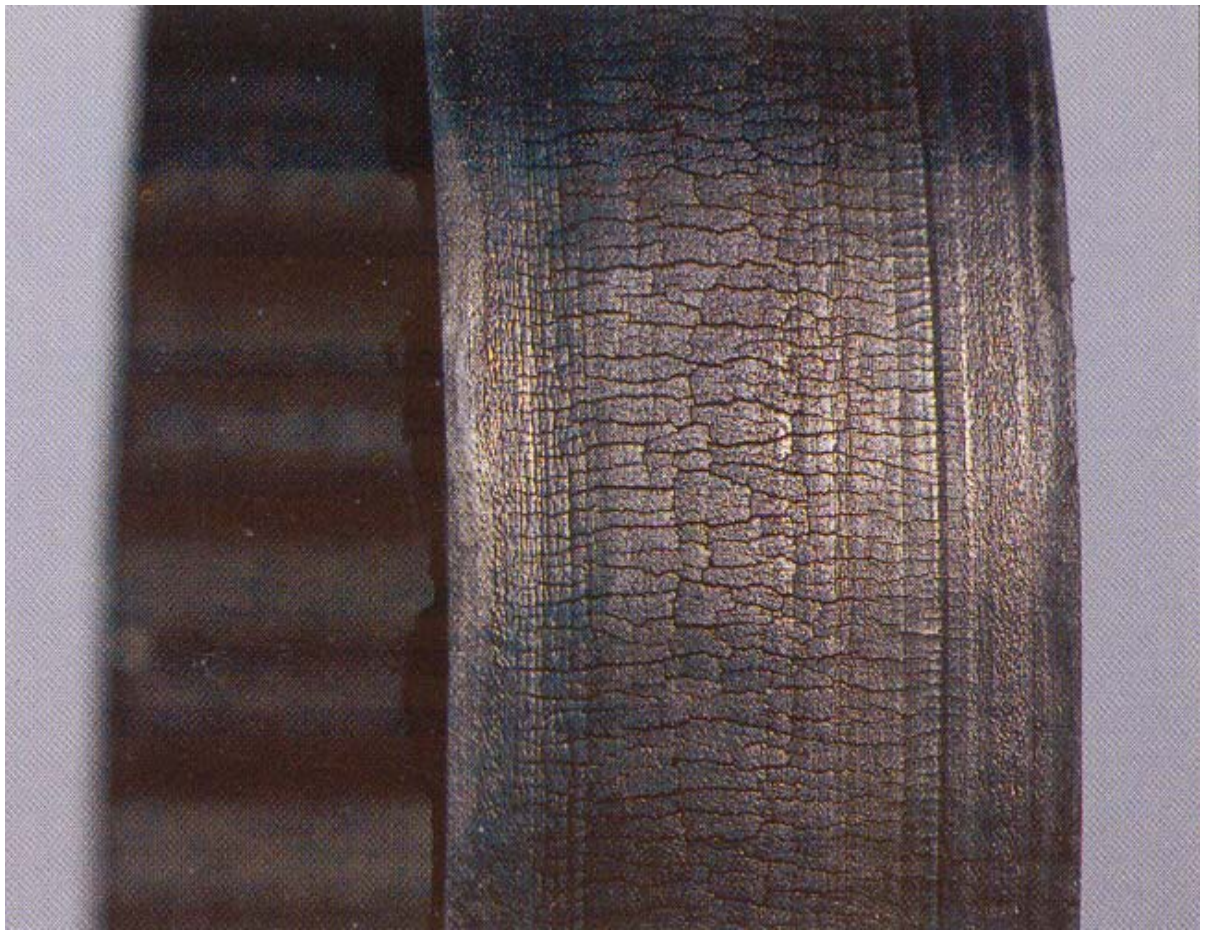
Oil Contamination

Dirty belt which feels spongy, often with a ragged tear and has strong odour.

Causes: Contamination by prolonged contact with oil or diesel, breaks down the adhesion of the rubber, Swelling can also occur and cause mis-meshing leading to other types of failure.

Remedy: Rectify the cause of the contamination, install and set new belt to correct tension, ensuring that the tensioner mechanism functions correctly.

Back Cracks



A series of cracks across the back of the rubber stock.

Causes: The rubber has been overheated and has degraded, possibly from friction on a seized idler or water pump.

Remedy: Ensure all components that are driven off the back of the belt rotate freely. Install and set new belt to the correct tension, ensuring that the tensioner mechanism functions correctly.