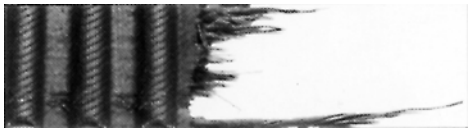
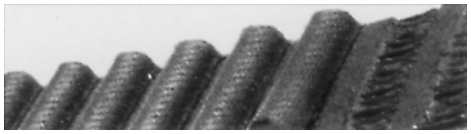
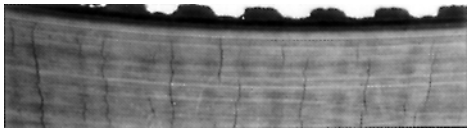
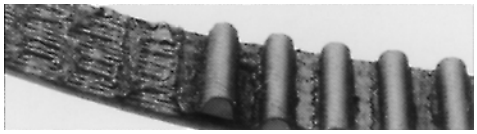
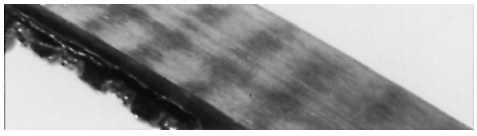
Timing Belt Troubleshooting

Whether your customer's vehicle utilizes a free-running or interference engine, timing belt failures can be avoided by adhering to the OEM recommended replacement intervals and preventive maintenance. Most OEM-quality belts can be expected to last at least 60,000 miles, as long as there are no problems found with the other components that may cause premature system failure. Also, severe conditions such as towing, aggressive driving and maintenance history need to be considered.

A timing belt should be replaced, regardless of mileage, if it has become contaminated with engine oil or if it shows signs of premature cracking, shredding or general wear.

Symptom	Probable Cause	Concern/ Corrective Action
Tensile Failure 	1. Excessive shock load. 2. Improper belt handling and storage prior to installation. 3. Debris or foreign object in drive. 4. Extreme pulley/sprocket run-out. 5. Extreme over-tension.	1. Excessive RPMs; modified engine. 2. Follow proper storage and handling procedures. 3. Remove objects; replace pulleys. 4. Replace pulley/sprocket. 5. Adjust tension to recommended value.
Tooth Shear 	1. Seized drive component(s). 2. Excessive shock loads. 3. Extreme sprocket run-out. 4. Worn sprocket. 5. Misaligned drive. 6. Belt under-tensioned.	1. Replace component(s): tensioner, idler/pulley, water pump, camshaft, oil pump. 2. Excessive RPMs; modified engine. 3. Check camshaft/crankshaft journals. 4. Replace sprocket. 5. Worn sprocket bearing: replace sprocket; bent bracket: improper sprocket installation. 6. Adjust tension to recommended value.
Tooth Wear	1. Too low or high belt tension. 2. Belt running partly off	1. Adjust tension to recommended value. 2. Correct alignment.

	unflanged sprocket. 3. Misaligned drive. 4. Worn sprocket.	3. Worn sprocket bearing: replace sprocket; bent bracket: improper sprocket installation. 4. Replace sprocket.
Backside Cracks 	1. Extreme high temperature. 2. Extreme low temperature at start-up. 3. Cocked sprocket. 4. Excessive tension.	1. Overheated engine; seized or partially-seized pulley. 2. Install engine heater. 3. Replace sprocket. 4. Adjust tension to recommended value.
Land Wear **(wear between teeth)** 	1. Excessive tension. 2. Worn sprocket.	1. Adjust tension to recommended value. 2. Replace sprocket.
Contamination 	1. Oil, fuel or coolant leak.	1. Replace faulty seals and/or gaskets; check timing cover for improper installation, replace if cracked or worn.
Edge Wear 	1. Damage due to handling. 2. Flange damage. 3. Belt tension too low. 4. Rough belt pulley flange. 5. Improper tracking. 6. Belt contacting engine, timing cover or other engine component.	1. Follow proper handling instructions. 2. Replace sprocket. 3. Adjust tension to recommended value. 4. Replace sprocket. 5. Correct alignment. 6. Remove obstruction or correct alignment.
Unusual Noise **(not shown)**	1. High tension. 2. Low tension. 3. Misalignment. 4. Damaged pulley flange.	1. Adjust tension to recommended value. 2. Adjust tension to recommended value. 3. Worn sprocket bearing: replace sprocket; bent bracket: improper sprocket installation. 4. Replace pulley(s).