

Troubleshooting

1 Weep Hole Coolant Leak

Condition	<ul style="list-style-type: none">• The weep hole protects bearings from corrosion damage by preventing seepage of coolant into the pump body.• In normal operation, traces of dried coolant may be visible around the hole. Coolant leak may be occurring if there is fluid around the weep hole or if the reservoir tank reaches low coolant levels within about a month.
Cause	<ul style="list-style-type: none">• Contamination and sludge has damaged the mechanical seal, reducing sealing performance.
Cure	<ul style="list-style-type: none">• Before installing the new water pump, flush the cooling system 2 - 3 times and let engine idle for about 3 minutes with the old pump to remove any sludge deposit.• Replace the anti-freeze regularly at the specified mixture and fluid level.• Do not use sealants (RTV) when gaskets are supplied.• When sealants are necessary, apply evenly and do not allow excess to enter the water channel.

→ Coolant degradation



New



38,000 km (23,000 miles) 4 years old

ATTENTION

Older coolants have higher risks of leakage.

- Always flush the radiator and replace with new coolant.
- Replace coolant regularly.

→ Fair and Poor, leak from the weep hole



NORMAL

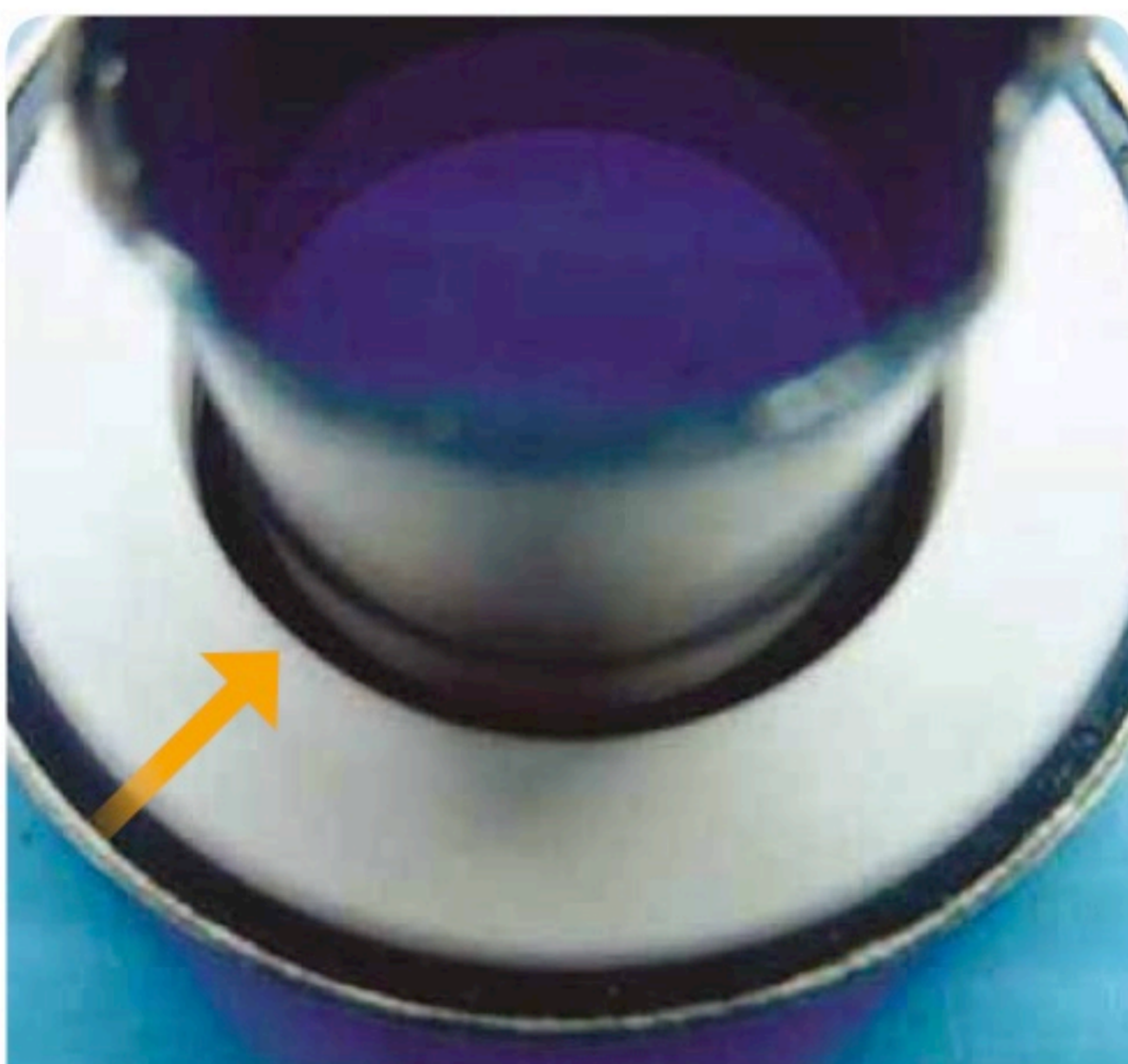
Dried coolant residue.



DAMAGED

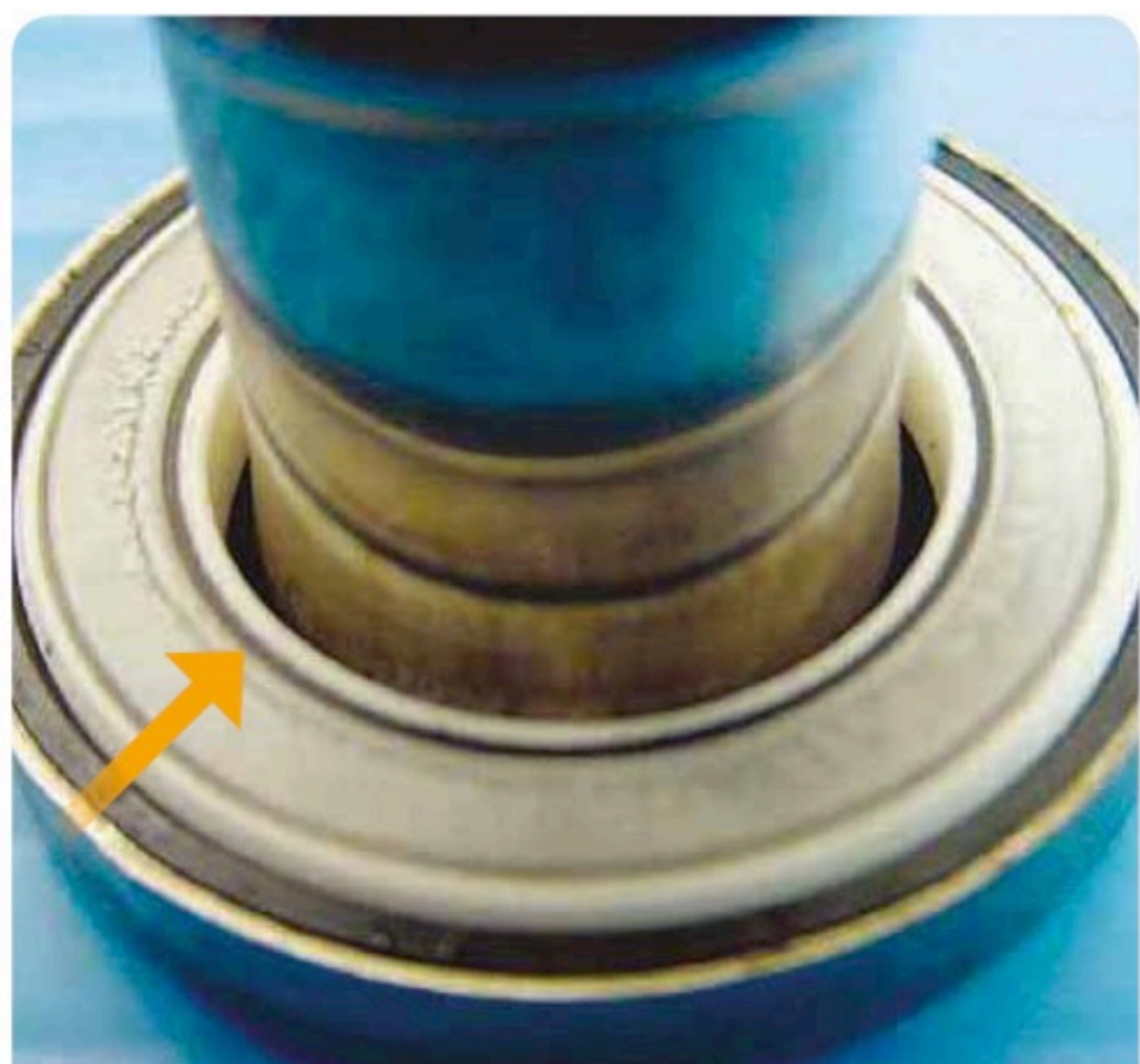
Large coolant bleed mark, dampness or dripping.

→ Fair and Poor, mechanical seal ceramic



NORMAL

Clean ceramic.



DAMAGED

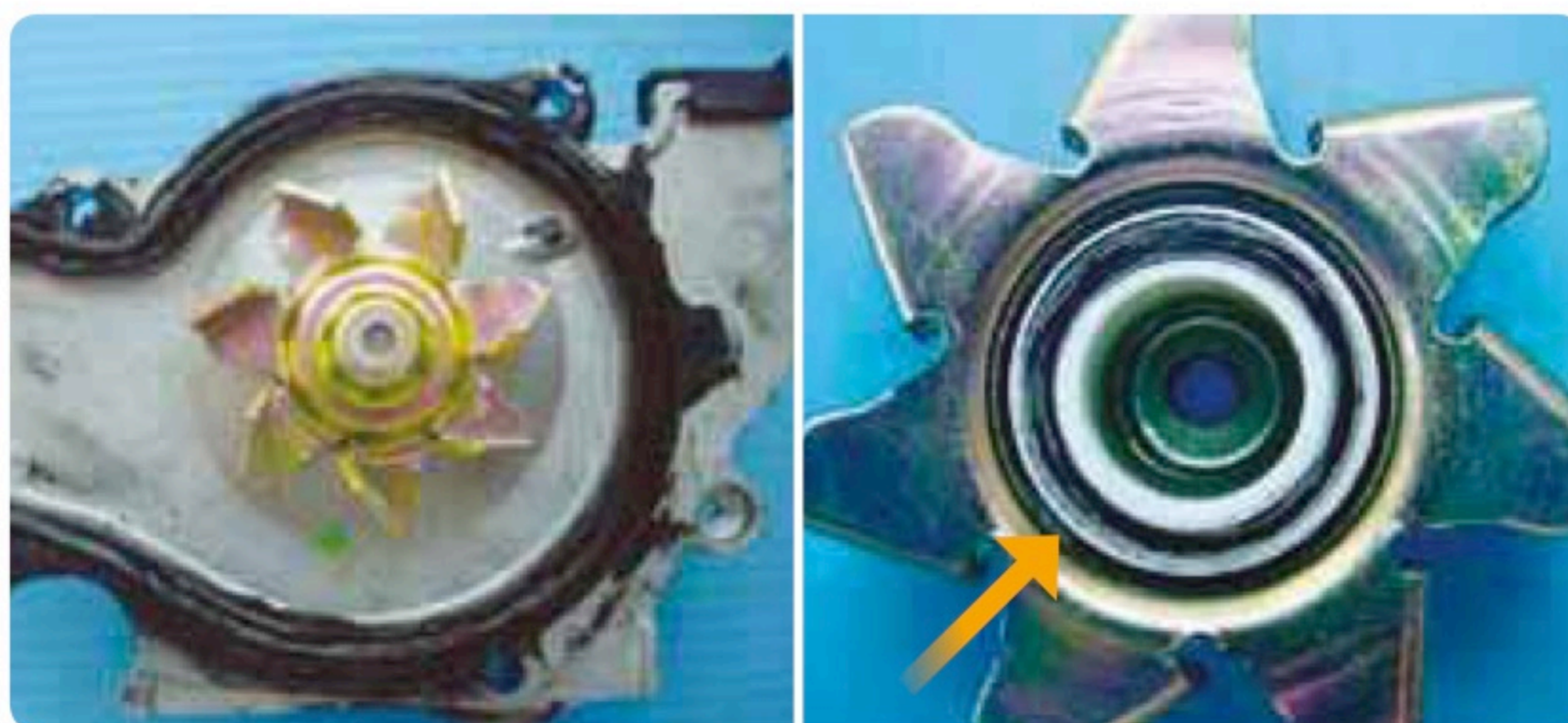
Accumulated sludge (Contaminated coolant).

Troubleshooting

2 Seepage

Condition	<ul style="list-style-type: none">• Seepage from the mounting surface• Fractured/deformed gasket• Unevenly tightened bolts (one side)
Cause	<ul style="list-style-type: none">• Deterioration of the sealing performance caused by unevenly applied sealant (RTV)• Deterioration of the sealing performance caused by the use of adhesives• Sealants used on the O-ring deteriorated the elasticity of the rubber• Bolts tightened unevenly• Contamination (dirt/grime) on mounting surface• Mounting surface dented caused by mishandling
Cure	<ul style="list-style-type: none">• Use manufacturer specified sealant• Do not use sealants when gaskets are supplied• Do not use adhesives in place of sealants or gaskets• Install the new water pump in a diagonal (star) pattern and apply torque specified by the vehicle manufacturer• Clean mounting surface free of contaminants• Do not re-use old gaskets and previously applied sealant

→ Poor application of sealant

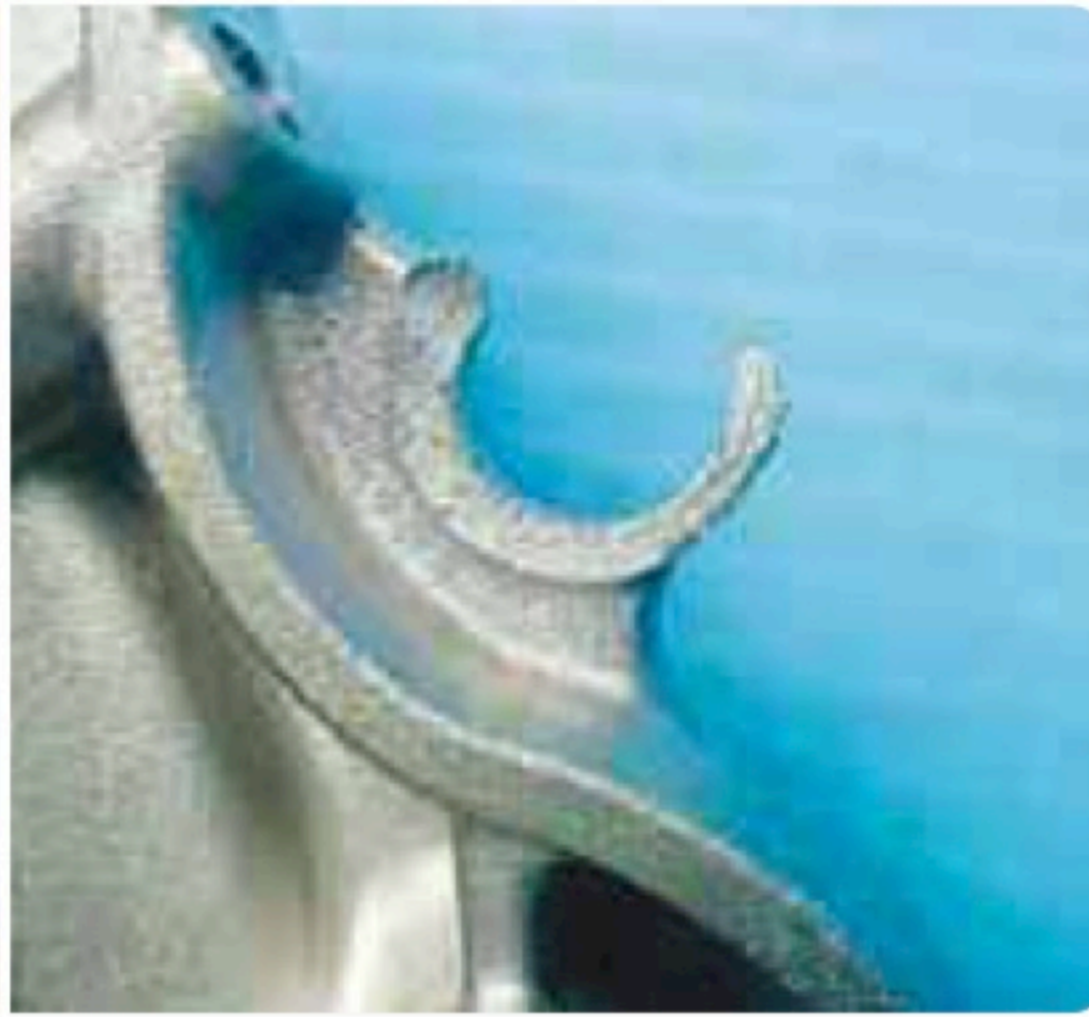


Sealant has interfered with the mechanical seal causing leaks.

→ Excess torque of the mounting bolt



Threads have been stripped.



Unevenly tightened or over torqued.

→ Poor cleaning of the mounting surface



Insufficient accuracy on the mounting surface.

→ Sealant used on supplied gasket



Gasket performance has degraded.

Troubleshooting

3 Overheating

Condition	<ul style="list-style-type: none">• Corrosion of the impeller• Fracture of the bearing• Internal corrosion of the water pump body
Cause	<ul style="list-style-type: none">• Old/used coolant• Coolant deterioration• Insufficient flushing of the radiator
Cure	<ul style="list-style-type: none">• Discontinue use of old coolant• Fully flush the radiator• Replace coolant with manufacturer's specified mixture and fluid level

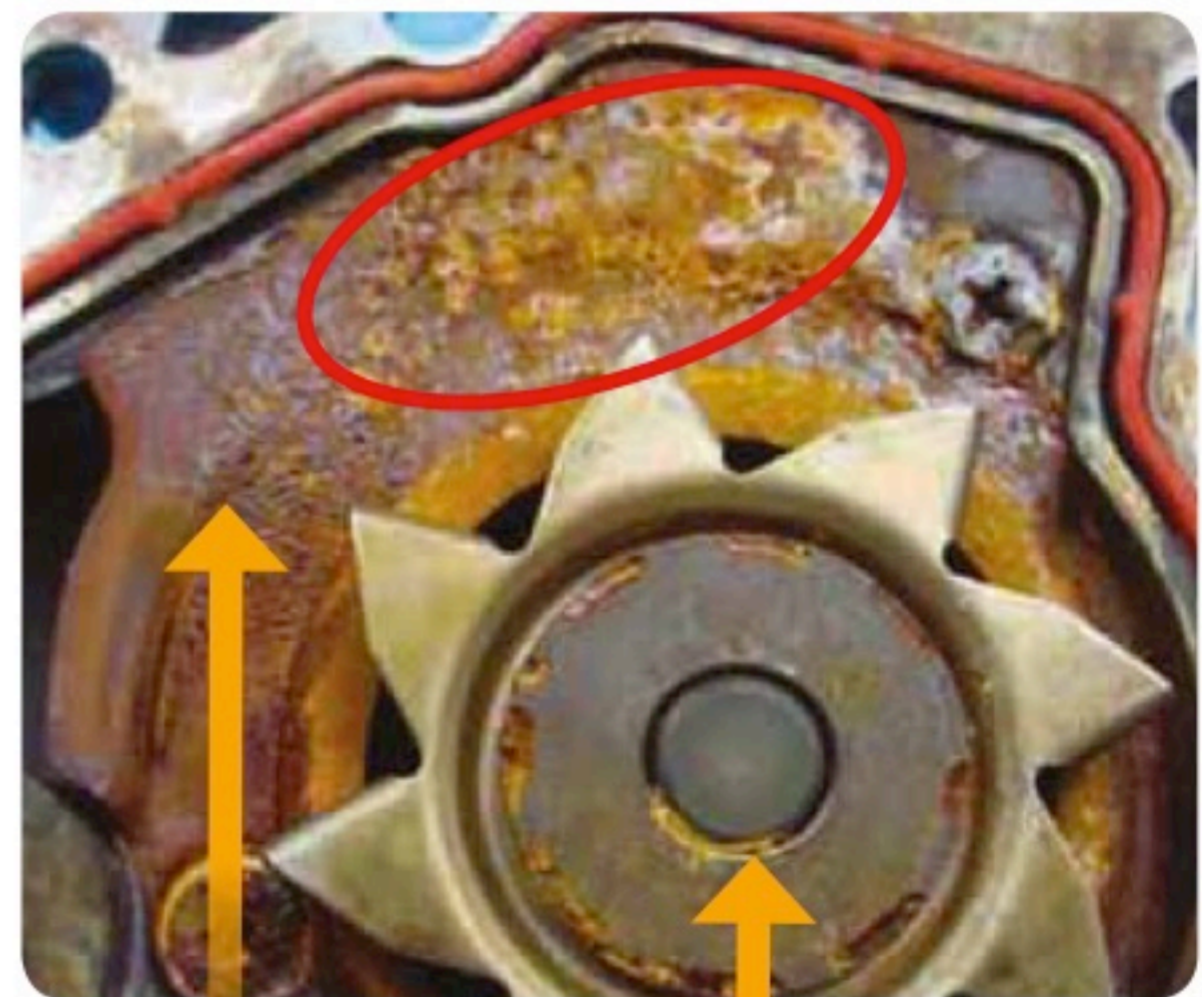
→ Coolant degradation



Contamination
of water pump body

Impeller
corrosion

→ Cavitation



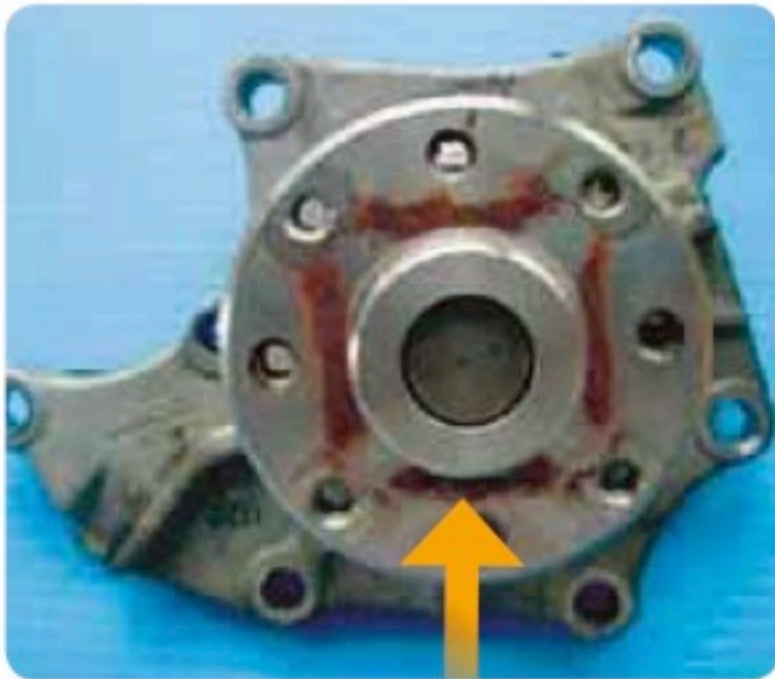
Cavitation

Corrosion around
crimp

4 Abnormal Noises

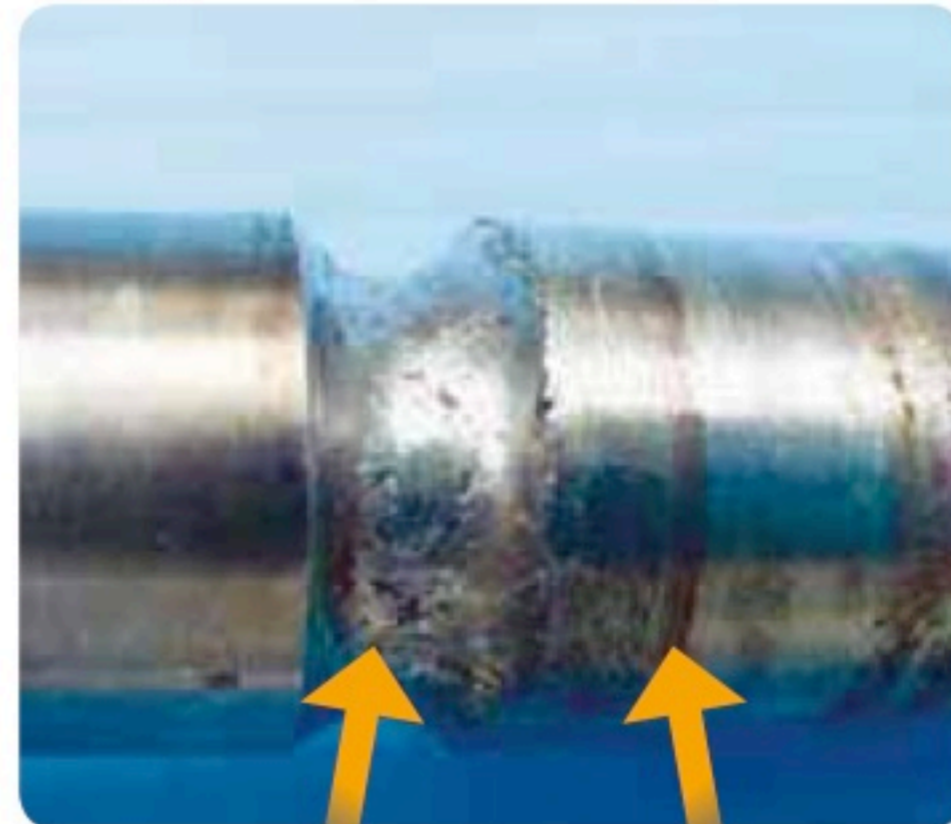
Condition	<ul style="list-style-type: none">• Rumbling sound heard when manually turning the pulley• Abnormal wear at the base of the stud bolts• Scratches and flecks found around the bearing during disassembly• Contamination of the pulley seat
Cause	<ul style="list-style-type: none">• Bearing fracture caused by excess belt tension• Bearing was fractured due to excess vibrations caused by misalignment of parts such as the fan coupling pulley• Uneven torque of bolts resulted in bearing failure• Contamination of the pulley seat
Cure	<ul style="list-style-type: none">• Tighten belt tension to vehicle manufacturer specifications• If the fan coupling pulley is reused, confirm the run-out with a dial indicator• Replace fan coupling pulley with new on older vehicles or high mileage engines• Confirm that the bearing is lubed and free of rust, and replace if necessary

→ Flecking at the pulley seat



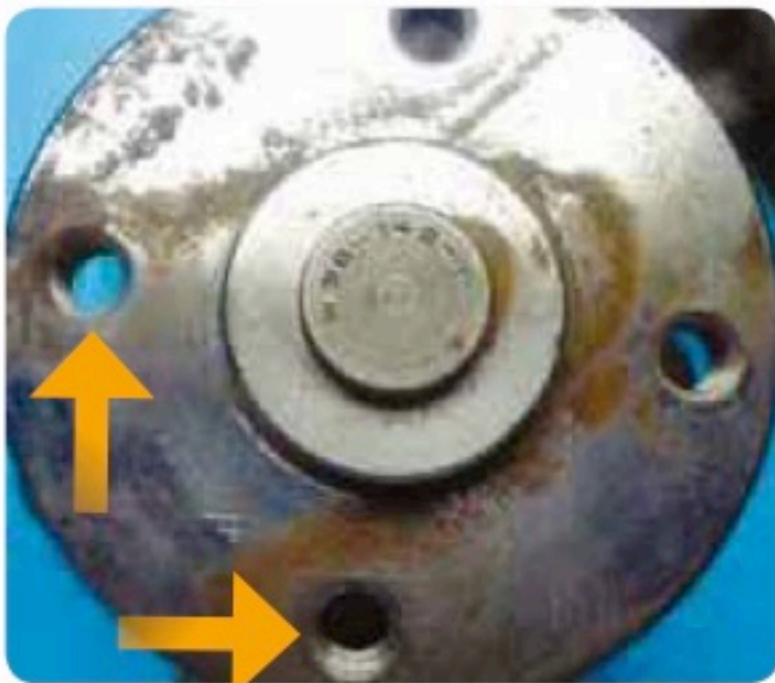
Flecking at the pulley seat

→ Flecking at the bearing



Damage due to overload and seepage

Damage due to excess backlash



Damage at the stud bolt ends

Troubleshooting

5 Other

→ Failure arisen from coolant

Condition	<ul style="list-style-type: none">• Corrosion of the water pump due to poor flushing of the radiator, lack of regular replacement or reuse of old coolant
Cause	<ul style="list-style-type: none">• Insufficient flushing of the radiator• Coolant was not replaced or had been reused• Incorrect coolant mixture or fluid level
Cure	<ul style="list-style-type: none">• Fully flush the radiator• Replace with new coolant when changing the water pump• Use correct coolant mixture• Fill system to the correct fluid level• Bleed cooling system of air