



Top Performance for Perfect Engine Operation

Damage symptom	Damage picture	Possible causes	Solution
Traces of condensation at leakage boring		<ul style="list-style-type: none"> Slight leaking of coolant as the gasket settles 	<ul style="list-style-type: none"> Observe for 1 - 3 operating hours
Coolant leaking from leakage boring		<ul style="list-style-type: none"> Corrosion in cooling system Operating with clean water 	<ul style="list-style-type: none"> Clean the cooling system
Broken housing		<ul style="list-style-type: none"> Incorrect fitting Damaged in transport 	<ul style="list-style-type: none"> Replace water pump
Excess sealing compound		<ul style="list-style-type: none"> Incorrect fitting 	<ul style="list-style-type: none"> Re-seal
Debris contamination		<ul style="list-style-type: none"> Incorrect cleaning of the cooling/lubrication system 	<ul style="list-style-type: none"> Flush cooling/lubrication system again
Uneven tooth-profile		<ul style="list-style-type: none"> Timing belt over-tensioned 	<ul style="list-style-type: none"> Change auxiliary belt and set correctly
Water leaking from hose connector/housing gasket		<ul style="list-style-type: none"> Sealing compound incorrectly applied Gasket has been fitted incorrectly 	<ul style="list-style-type: none"> Use sealing compound according to manufacturers' instructions Use gasket according to manufacturers' instructions
Pitting corrosion on impeller		<ul style="list-style-type: none"> High chloride concentration in water/coolant 	<ul style="list-style-type: none"> Flush cooling system Use recommended coolant
Corrosion in the entire cooling system		<ul style="list-style-type: none"> Faulty cylinder head gasket Use of coolant not compliant with manufacturers' specifications 	<ul style="list-style-type: none"> Replace cylinder head gasket Clean cooling system
Faulty gasket		<ul style="list-style-type: none"> Contamination of cooling system Use of unsuitable fluids / wrong mixing proportions applied Too much pressure in cooling system Faulty cylinder head gasket Wear 	<ul style="list-style-type: none"> Replace water pump
Faulty water pump bearing		<ul style="list-style-type: none"> Strong vibrations caused by faulty fan coupling Incorrect belt tension Sealing compound incorrectly applied Wear 	<ul style="list-style-type: none"> Replace water pump
Cavitation in the water pump housing		<ul style="list-style-type: none"> Wrong coolant Wrong water/coolant mixture Pressure in the cooling system is too high 	<ul style="list-style-type: none"> Check and flush the cooling system thoroughly Change the water pump Use the recommended coolant in the right mixing ratio

Recommended Installation of Water Pumps

- Do not carry out repair work while the engine is running.
- Before removing the water pump, allow the cooling system to cool down and then drain completely. After removing the coolant pump, all sealing surfaces must be thoroughly cleaned of seal residues or engine sealant. Cleaning and flushing of the coolant circuit is also recommended. All components and units of the cooling system must be checked and replaced if necessary.
- Attention: drained coolant must not be reused. Coolant is classified as hazardous waste.
- Fit the new water pump, which includes the seal, and fasten the screws. Tighten the fixing screws to the tightness specified by the vehicle manufacturer. Check the freewheel of the pump.

- Attention: If a silicone gasket has been used, the prescribed vulcanisation time must be observed before the cooling system is filled with coolant.
- The fan must be checked for damage and replaced if necessary. In the case of vehicles which have a viscous fan coupling, their function must be checked.
 - Attention: a defective viscous fan coupling results in premature failure of the new water pump.
 - Check the drive belt(s) for wear, deformation, and hardening - replace if necessary. However, it is recommended to use a new drive belt when replacing the water pump. The tension specified by the vehicle manufacturer must be observed to avoid damaging the bearings of the driven units.
 - Attention: it is therefore essential to check the tensioner assembly for proper functioning and replace it if necessary.

- Ensure that all radiator hoses and hose clamps are in order and correctly fitted.
- Refill with new coolant.
- Attention: the cooling system may only be filled with coolants approved by the manufacturer.
- The cooling system must be ventilated in accordance with the vehicle manufacturer specifications.
- Attention: during this phase, it is possible that a slight leak may appear from the leakage boring at the water pump shaft.
- After the test drive, the entire cooling system must be checked for proper tightness and all radiator hoses and hose clamps must be checked for correct positioning. When the engine has cooled down, check the cooling water level again.

