

20-310 Viscofan coupling, temperature-controlled

Engine 116.980/990, 116.981/991

Function

The viscofan coupling is a service-free, hydraulic coupling which operates independent of temperature as well as infinitely variable.

When the engine is started (cold start), the fan will initially run at higher speed until the oil has flown back from the working chamber (16) into reservoir (15) (approx. 1–3 minutes). The fan coupling will then switch off. The fan speed in disconnected condition depends on engine speed, but a fan speed of approx. 2100/min should not be exceeded.

This condition remains in force, as long as the engine maintains its normal operating temperature.

If the coolant temperature increases as the result of a higher load or high ambient temperatures, the air which flows through the cooler and activates the bimetallic strip will become warmer. The bimetallic strip (10) changes its shape under the increasing heat and opens at approx. 73 °C a valve by means of a control pin (9) and thereby the path of the oil from the reservoir (15) to the work chamber (16) so that the fan will be additionally engaged.

During this control operation, the coolant temperature is between 90 and 95 °C.

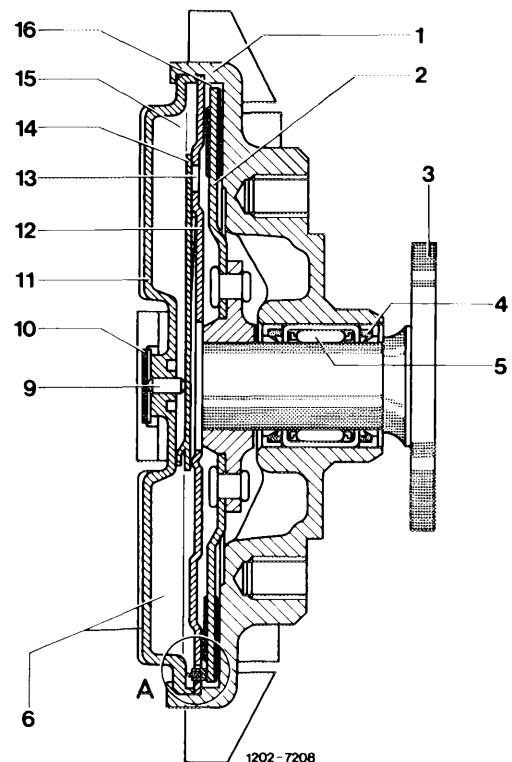
With the coupling engaged, the fan speed in lower speed range will increase approximately proportional with the increasing engine speed, but will not exceed 3500/min in upper speed range.

Checking connected temperature

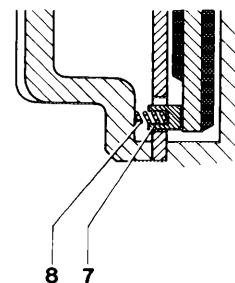
Run engine at 4000–4500/min. When a coolant temperature of 90 to 95 °C is attained, the fan speed should increase by approx. 1000/min, which can be clearly noticed acoustically.

Reconditioning

A defective coupling cannot be repaired with workshop equipment and a new coupling should be installed.



Detail A



- 1 Coupling body (secondary member)
- 2 Pulley (primary member)
- 3 Flange shaft
- 4 Sealing ring
- 5 Needle bearing
- 6 Cooling fins
- 7 Oil scraper
- 8 Compression spring
- 9 Control pin
- 10 Bimetallic member
- 11 Cover with holding clip
- 12 Intermediate washer
- 13 Feed hole
- 14 Valve lever
- 15 Reservoir
- 16 Work chamber

Transportation and storage

Temperature-controlled viscofan couplings should be transported and stored vertically. For short periods — e.g. during assembly — the coupling may rest on its flange end, but never on front end.