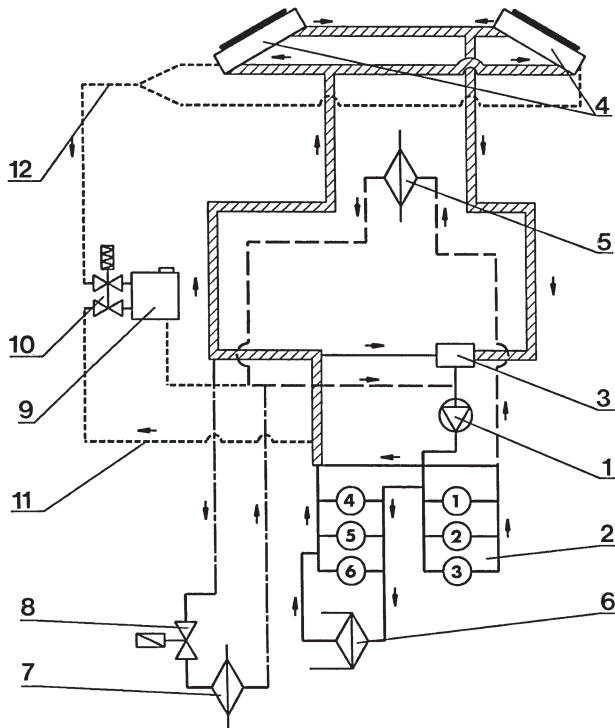


# 911 Carrera (1996) & Boxster (1986) Engine

## Cooling System (Boxster/Boxster S)

The principle of cross-flow cooling with integrated cooling-water channeling was implemented to ensure that the cooling water is distributed evenly to all of the cylinders. A temperature drop between the individual cylinders is thus prevented. The cooling fluid is supplied through integrated lines.

As already described in the casting techniques under oil circulation, all of the cooling channels in the engine are produced in the casting process. Additional lines or hoses in the engine are no longer required which, in turn, results in high reliability and low servicing requirements.



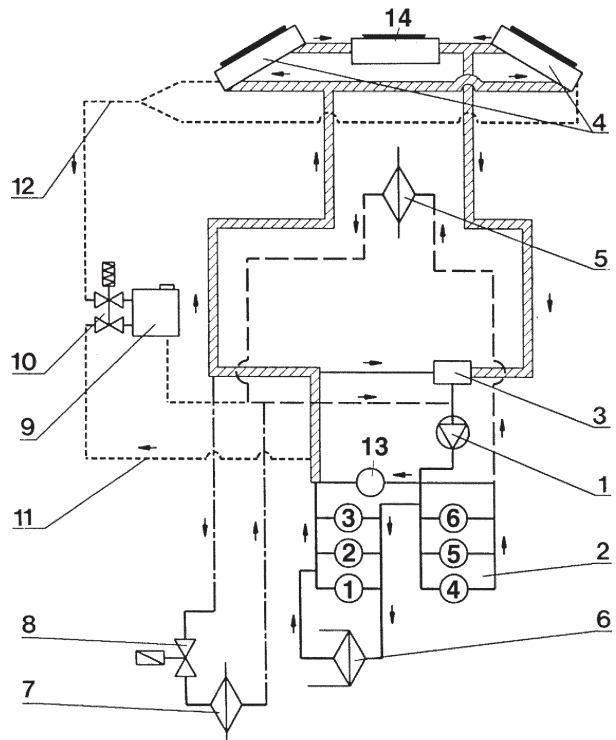
Boxster (1986) Cooling System Layout

- 1 - Water pump
- 2 - Crankcase
- 3 - Thermostat
- 4 - Radiator
- 5 - Heat exchanger, heating
- 6 - Oil-to-water heat exchanger
- 7 - ATF heat exchanger (Tiptronic only)
- 8 - Electric shut-off valve (Tiptronic only)
- 9 - Expansion tank
- 10 - Shut-off valve
- 11 - Venting line (engine)
- 12 - Venting line (radiator)

## Cooling System (911 Carrera (1996))

To achieve uniform distribution of coolant for all cylinders, the same principle of cross-flow cooling circuit with fully integrated coolant ducting is used on the 911 Carrera (1996). This prevents temperature differences between the individual cylinders. The coolant is fed through integral lines.

On models with manual transmission, the cooling takes place via two coolers (4). These are fitted in the wings in front of the front wheels. On models with Tiptronic transmission, an additional 3rd cooler (14) is located in the front of the vehicle. This facilitates cooling of the ATF via an additional oil/water heat exchanger in the common water circuit. To avoid icing up of oil separator at low temperatures, the oil separator is flushed with coolant. Because of the special coolant, a coolant change on the 911 Carrera (1996) is also not necessary. Ensure to fill up or top-up only with the coolant specified by Porsche.



911 Carrera (1996) Cooling System Layout

- 1 - Water pump
- 2 - Crankcase
- 3 - Thermostat
- 4 - Radiator
- 5 - Heat exchanger, heating
- 6 - Oil/water heat exchanger
- 7 - ATF heat exchanger (only Tiptronic)
- 8 - Electric shut-off valve (only Tiptronic)
- 9 - Expansion tank
- 10 - Shut-off valve
- 11 - Bleeder pipe (engine)
- 12 - Bleeder pipe (radiator)
- 13 - Oil separator
- 14 - Cooler (only Tiptronic)