

Engine Cooling

The cooling system components include the:

- block heater (optional)
- cylinder head temperature sensor
- fan blade, fan motor and fan shroud assembly
- radiator
- pressure relief cap
- degas bottle
- radiator draincock
- water pump
- oil cooler (optional)
- water thermostat

The water thermostat:

- controls the engine coolant temperature.
- allows quicker engine warm-up.

The degas bottle:

- provides a location for system fill.
- contains coolant expansion and system pressurization.
- provides air separation during operation.
- replenishes the engine coolant to the system.

The fan blade draws air through the radiator to help cool the engine coolant.

The fan motor:

- operates only when the engine is running.
- will not operate when the engine is off.

The engine coolant flows:

- from the lower radiator hose to the water pump.
- from the water pump to the engine block and the cylinder heads.

A closed water thermostat returns the engine coolant to the water pump. An open water thermostat allows the engine coolant to flow to the radiator.

Unsatisfactory coolant materials:

- Alcohol-type antifreeze does not provide adequate water pump lubrication.
 - has lower boiling point
 - reduced antifreeze protection
- Alkaline brine solutions will cause serious engine cooling system damage.

The cylinder head temperature sensor provides a signal to the temperature gauge.

- will invoke failsafe cooling.

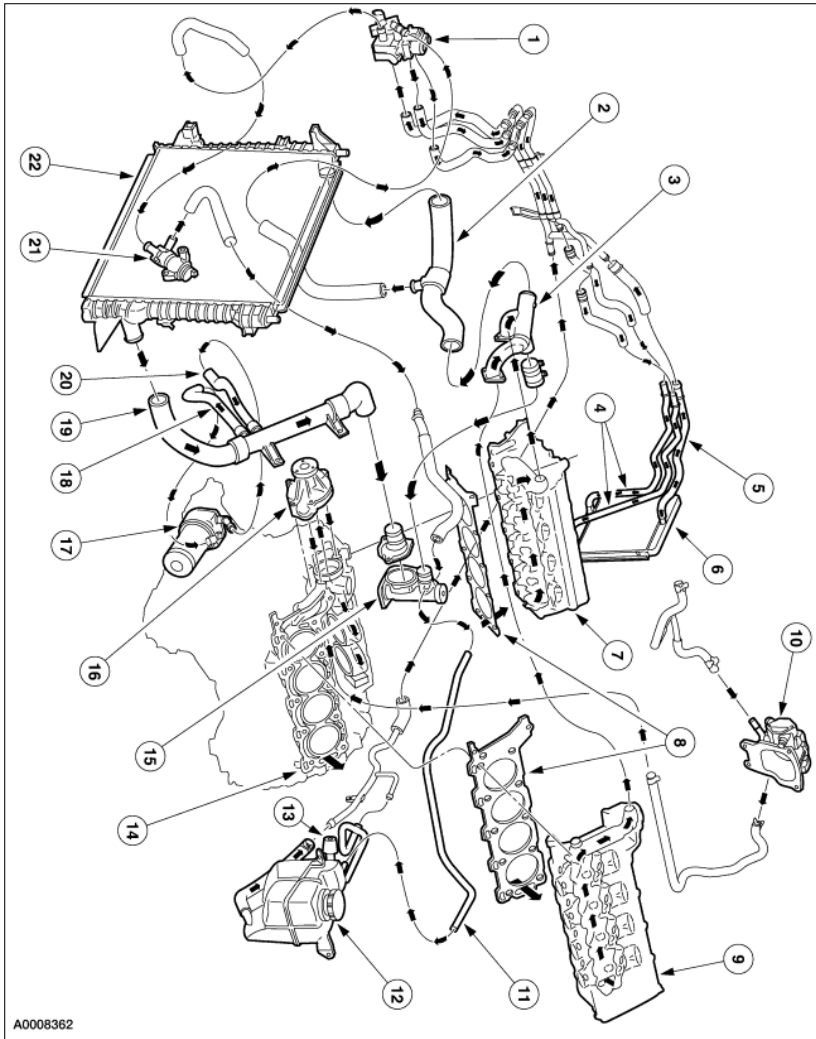
The optional block heater:

- electrical heating element is installed in the block cooling jacket.
 - uses a standard 110V (220V in Europe) electrical supply
- keeps the engine coolant warm during cold weather.

The auxiliary water pump (3.9L only):

- provides heater coolant flow boost.
- has a secondary function of providing engine-off cooling.

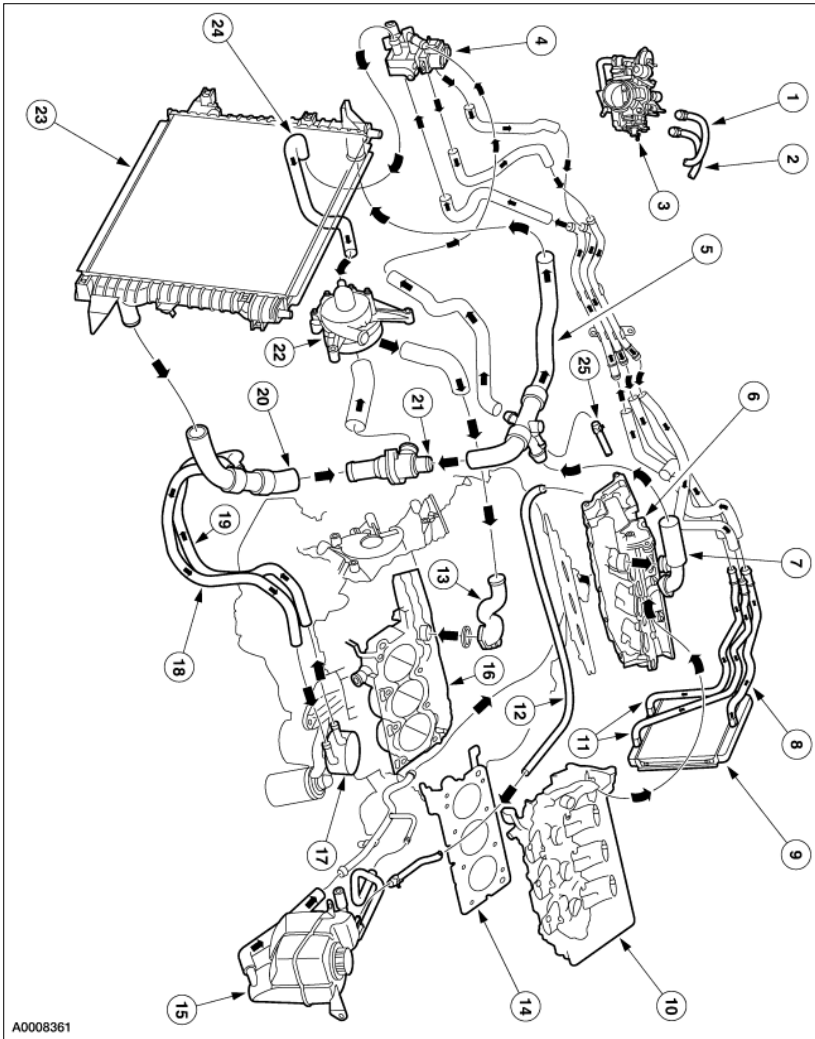
Coolant Flow 3.9L



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Item	Part Number	Description
1	—	Coolant control valve
2	8260	Upper radiator hose
3	8A520	Coolant outlet tube
4	18472	Heater inlet hoses (2 req)
5	18472	Heater outlet hose
6	18476	Heater core
7	6049	Cylinder head RH
8	—	Cylinder head gasket (2 req)
9	6050	Cylinder head LH
10	—	Throttle body adapter
11	—	Engine vent hose
12	—	Degas bottle
13	—	Relief valve
14	6015	Cylinder block
15	8A587	Thermostat housing
16	8501	Water pump
17	6A642	Oil cooler
18	—	Oil cooler inlet hose
19	8286	Lower radiator hose
20	—	Oil cooler outlet hose
21	—	Auxiliary coolant pump
22	8005	Radiator

Coolant Flow 3.0L



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Item	Part Number	Description
1	—	From degas vent
2	—	From upper radiator inlet
3	9E926	Throttle body
4	—	Coolant control valve
5	—	Upper radiator hose
6	6051	Cylinder head RH
7	8555	Coolant outlet tube
8	18472	Heater outlet hose
9	18476	Heater core
10	6049	Cylinder head LH
11	18472	Heater inlet hoses (2 req)
12	—	Engine vent hose (to throttle body)
13	—	Coolant outlet tube
14	—	Cylinder head gasket (2 req)
15	—	Degas bottle
16	6015	Cylinder block
17	6A642	Oil cooler
18	—	Oil cooler inlet hose
19	—	Oil cooler outlet hose
20	—	Lower radiator hose
21	8A857	Thermostat housing
22	8501	Water pump
23	8005	Radiator
24	—	Water pump inlet hose
25	—	To throttle body
26	—	Vent hose (to throttle body)

