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(54) **Engine cooling apparatus**

(57) An engine cooling apparatus that is capable of suppressing cavitation in a high rotation region while achieving an increase in a circulation flow rate of cooling water in a low/medium rotation region. The engine cooling apparatus includes: a main cooling water circuit that circulates the cooling water between an engine and a radiator; a branch portion provided between the engine and the radiator; a thermostat; temperature detecting means; a first bypass flow passage; a second bypass flow passage that connects the engine to the branch portion; a control valve; a bypass convergence portion; a water pump; valve opening control means; and engine rotation speed detecting means. predetermined rotation speed, the opening of the control valve is controlled in a fully closed direction from the fully open state.

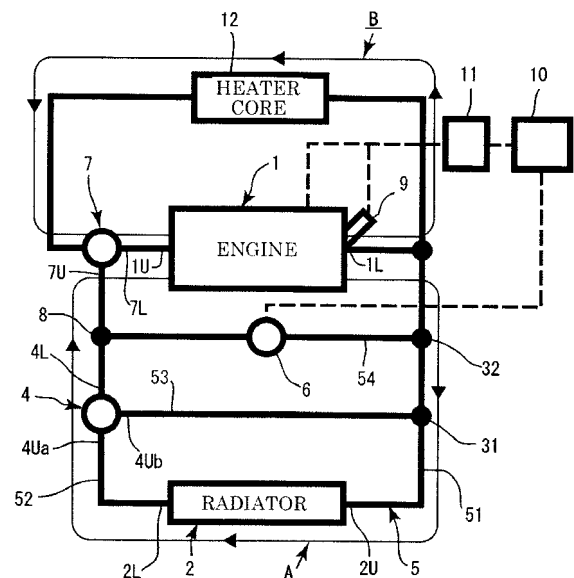


Fig. 1



## EUROPEAN SEARCH REPORT

Application Number  
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			TECHNICAL FIELDS SEARCHED (IPC)
			F01P
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 29 January 2013	Examiner Matray, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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