

Title (en)  
COOLING AND LUBRICATION SYSTEM FOR AN INTERNAL-COMBUSTION ENGINE

Publication  
**EP 0249776 A3 19881207 (DE)**

Application  
**EP 87107652 A 19870526**

Priority  
US 87490386 A 19860616

Abstract (en)  
[origin: US4708095A] An internal combustion engine includes separate engine cooling and engine lubrication circuits, both of which receive engine oil pumped from the oil sump. The cooling circuit flows oil around hot engine parts and then to a cab heater and to a heat exchanger or a bypass line to sump. A valve controls oil flow to the heat exchanger and to the bypass line as a function of oil temperature in a part of the lube circuit in the engine block. The heat exchanger has a pair of outlets which discharge oil at different temperatures and at different flow rates. Less oil flows from the cooler outlet and this lesser flow is communicated to sump via a charge air cooler. The hotter outlet communicates the larger oil flow directly to sump.

IPC 1-7  
**F01P 9/00**; **F01M 5/00**; **F01M 1/08**; **F01P 3/20**; **F01P 3/02**; **F01P 7/16**

IPC 8 full level  
**F01M 1/08** (2006.01); **F01M 5/00** (2006.01); **F01P 3/20** (2006.01); **F01P 7/16** (2006.01); **F01P 9/00** (2006.01); **F02B 29/04** (2006.01); **F01P 3/00** (2006.01); **F01P 3/02** (2006.01)

CPC (source: EP KR US)  
**F01M 5/007** (2013.01 - EP US); **F01P 3/02** (2013.01 - KR); **F01P 9/00** (2013.01 - EP US); **F01P 3/02** (2013.01 - EP US); **F01P 2003/006** (2013.01 - EP US)

Citation (search report)

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Designated contracting state (EPC)  
AT BE CH DE ES FR GB IT LI SE

DOCDB simple family (publication)  
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DOCDB simple family (application)  
**US 87490386 A 19860616**; AR 30787587 A 19870616; AT 87107652 T 19870526; AU 7428887 A 19870616; CA 539533 A 19870612; CN 87104711 A 19870616; DE 3773056 T 19870526; EP 87107652 A 19870526; ES 87107652 T 19870526; JP 15005487 A 19870616; KR 870006072 A 19870616; MX 695887 A 19870616