

Title (en)

Cooling system for an internal combustion engine.

Title (de)

Kühlungssystem für eine Brennkraftmaschine.

Title (fr)

Système de refroidissement pour moteur à combustion interne.

Publication

EP 0653553 A3 19950628 (EN)

Application

EP 95101307 A 19900627

Priority

- EP 93105961 A 19900627
- JP 18661489 A 19890719
- JP 17467589 A 19890706
- JP 18661689 A 19890719
- JP 17467689 A 19890706

Abstract (en)

[origin: EP0415022A1] The present invention relates to an internal combustion engine for automotive vehicles comprising a cylinder block (7) and a cylinder head (11), said engine being disposed transversely in an engine compartment with the crankshaft (6) extending perpendicularly to the traveling direction of the vehicle, wherein a water pump drive shaft (121) for driving a water pump (120) is rotatably supported on a forwardly facing front side of the cylinder block in parallel to the crankshaft and the water pump is mounted within the extent of the crankshaft facing to a radiator.

IPC 1-7

F01P 3/02; F02F 1/36; F02F 7/00

IPC 8 full level

F01L 1/02 (2006.01); **F01L 1/053** (2006.01); **F01P 3/02** (2006.01); **F01P 5/12** (2006.01); **F02B 67/06** (2006.01); **F02F 1/10** (2006.01); **F02F 1/40** (2006.01); **F02F 1/42** (2006.01); **F01M 1/12** (2006.01); **F02B 1/04** (2006.01); **F02B 75/18** (2006.01); **F02B 75/20** (2006.01); **F02F 1/24** (2006.01)

CPC (source: EP)

F01L 1/02 (2013.01); **F01L 1/022** (2013.01); **F01L 1/024** (2013.01); **F01L 1/026** (2013.01); **F01L 1/0532** (2013.01); **F01P 3/02** (2013.01); **F01P 5/12** (2013.01); **F02B 67/06** (2013.01); **F02F 1/108** (2013.01); **F02F 1/40** (2013.01); **F02F 1/4221** (2013.01); **F01L 2001/0537** (2013.01); **F01L 2003/251** (2013.01); **F01M 2001/126** (2013.01); **F02B 1/04** (2013.01); **F02B 75/20** (2013.01); **F02B 2075/1824** (2013.01); **F02B 2275/08** (2013.01); **F02B 2275/18** (2013.01); **F02F 2001/245** (2013.01); **F05C 2201/021** (2013.01)

Citation (search report)

- [X] US 4690104 A 19870901 - YASUKAWA MASAO [JP]
- [X] GB 1014291 A 19651222 - RICARDO & CO ENGINEERS
- [AP] EP 0367055 A2 19900509 - BAYERISCHE MOTOREN WERKE AG [DE]
- [A] DE 803449 C 19510402 - BUESSING NUTZKRAFTWAGEN G M B
- [A] US 4569313 A 19860211 - NOBU HABUO [JP]
- [A] US 4635591 A 19870113 - HLEDIN ALEXANDER S [CA]

Cited by

FR2812030A1; EP1039098A1; EP4328426A1; US6295959B1; EP0923459B1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

EP 0415022 A1 19910306; **EP 0415022 B1 19940323**; DE 69007576 D1 19940428; DE 69007576 T2 19940630; DE 69030111 D1 19970410; DE 69030111 T2 19970612; DE 69032625 D1 19981008; DE 69032625 T2 19990128; EP 0560402 A1 19930915; EP 0560402 B1 19970305; EP 0653553 A2 19950517; EP 0653553 A3 19950628; EP 0653553 B1 19980902; ES 2054159 T3 19940801

DOCDB simple family (application)

EP 90112308 A 19900627; DE 69007576 T 19900627; DE 69030111 T 19900627; DE 69032625 T 19900627; EP 93105961 A 19900627; EP 95101307 A 19900627; ES 90112308 T 19900627