

Title (en)

COOLING SYSTEM FOR THE CONTROL APPARATUS OF AN INTERNAL COMBUSTION ENGINE

Publication

EP 0398011 B1 19930630 (DE)

Application

EP 90106563 A 19900405

Priority

DE 3915709 A 19890513

Abstract (en)

[origin: EP0398011A1] A cooling system for control apparatus has a control apparatus device (10) for an internal-combustion engine, which is set in operation by an ignition contact signal. The control apparatus device is cooled with the aid of a coolant circuit which has a pump motor (14). In the control apparatus device there is a self-latching circuit (21) which supplies voltage to the pump motor and to a voltage stabilising device (15), for operating a microprocessor (16), as soon as the ignition contact signal is present. If the ignition contact signal ceases, the cooling process of the control apparatus device is not terminated immediately, the pump motor continuing to run until it is ensured that components with a normal temperature resistance in the control apparatus device cannot be damaged by overheating as a result of any build-up of heat. The microprocessor determines when the switch-off condition is met. <??>The described system has the advantage that components having a normal temperature resistance can be used in the control apparatus device. In addition, there is the advantage that the microprocessor can carry out self-diagnosis procedures even while being operated temporarily after the ignition contact signal has ceased, which procedures cannot be carried out with conventional systems until the internal-combustion engine has started, which then leads to a delay during starting up of the internal-combustion engine. <IMAGE>

IPC 1-7

F01P 7/08; **F01P 7/16**; **F01P 11/14**; **F02D 41/00**

IPC 8 full level

F01P 7/14 (2006.01); **F01P 3/12** (2006.01); **F01P 7/08** (2006.01); **F01P 7/16** (2006.01); **F01P 11/14** (2006.01); **F02D 41/00** (2006.01)

CPC (source: EP US)

F01P 7/08 (2013.01 - EP US); **F01P 7/162** (2013.01 - EP US); **F01P 11/14** (2013.01 - EP US); **F01P 2025/08** (2013.01 - EP US); **F01P 2050/30** (2013.01 - EP US)

Cited by

EP1923555A1; EP0621399A1; FR2704185A1; WO2008077665A1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

EP 0398011 A1 19901122; **EP 0398011 B1 19930630**; DE 3915709 A1 19901115; DE 59001878 D1 19930805; JP 2824315 B2 19981111; JP H02305311 A 19901218; US 5042434 A 19910827

DOCDB simple family (application)

EP 90106563 A 19900405; DE 3915709 A 19890513; DE 59001878 T 19900405; JP 11188890 A 19900501; US 51946990 A 19900507