

Title (en)  
Control apparatus for internal combustion engine

Title (de)  
Steuervorrichtung für einen Verbrennungsmotor

Title (fr)  
Appareil de contrôle pour moteur à combustion interne

Publication  
**EP 2143920 A2 20100113 (EN)**

Application  
**EP 09008868 A 20090707**

Priority  
JP 2008177195 A 20080707

Abstract (en)  
A control apparatus (100) for an internal combustion engine (1) is disclosed. When the engine (1) is started, the apparatus (100) executes starting control in accordance with the stopped crank position. The control apparatus (100) includes inclination state detecting means (40,58,80), shift position detecting means (53), rotation direction determining means (40), and stopped crank position updating means (40). The shift position detecting means (53) detects whether the shift position of a transmission (30) mounted on the vehicle while the engine (1) is off is a neutral position, an advancing position, or a reverse position. The rotation direction determining means (40) determines the direction of rotation of the crankshaft accompanying rotation of the vehicle wheels (34) while the engine (1) is off. When an output signal of the crank angle sensor (50) is detected, the stopped crank position updating means (40) updates the stopped crank position, which is stored in the stopped crank position storing means (41), in accordance with the direction of rotation determined by the rotation direction determining means (40).

IPC 8 full level  
**F02D 41/06** (2006.01); **F02D 41/02** (2006.01); **F02N 11/08** (2006.01)

CPC (source: EP)  
**F02D 41/009** (2013.01); **F02D 41/0225** (2013.01); **F02D 41/065** (2013.01); **F02D 41/042** (2013.01); **F02D 2041/0095** (2013.01); **F02D 2200/701** (2013.01); **F02D 2200/702** (2013.01); **F02D 2250/06** (2013.01)

Citation (applicant)  
JP 2005351210 A 20051222 - DENSO CORP

Cited by  
CN102628417A; CN106499532A

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

Designated extension state (EPC)  
AL BA RS

DOCDB simple family (publication)  
**EP 2143920 A2 20100113**; **EP 2143920 A3 20100908**; **EP 2143920 B1 20110831**; AT E522715 T1 20110915; JP 2010014096 A 20100121; JP 4591564 B2 20101201

DOCDB simple family (application)  
**EP 09008868 A 20090707**; AT 09008868 T 20090707; JP 2008177195 A 20080707