

Title (en)

Method for detecting and characterising abnormal combustion in internal combustion engines

Title (de)

Verfahren zur Erkennung und Charakterisierung einer anormalen Verbrennung für Verbrennungsmotoren

Title (fr)

Procédé de détection et de caractérisation de combustion anormale pour moteurs à combustion interne

Publication

**EP 2549087 B1 20180117 (FR)**

Application

**EP 12290215 A 20120629**

Priority

FR 1102275 A 20110721

Abstract (en)

[origin: EP2549087A1] The method involves selecting combustion indicators e.g. crank angle position (CA10), and defining a multidimensional space in which each dimension corresponds to one of the indicators and combustion is represented by a point. A closed surface surrounding the points corresponding to normal combustions, which does not surround points corresponding to abnormal combustions is defined in the space. Combustion of a cycle is represented by a point in the space by determining the indicators. A position of the point is determined relative to the surface to deduce an abnormal nature of combustion. The distance between the point and the surface is determined to deduce a severity of the abnormal nature of the combustion. The progress of the abnormal combustion is controlled as a function of the severity of the abnormal nature of the combustion.

IPC 8 full level

**F02D 35/02** (2006.01); **F02D 41/14** (2006.01)

CPC (source: EP US)

**F02D 35/02** (2013.01 - EP US); **F02D 35/023** (2013.01 - EP US); **F02D 35/028** (2013.01 - EP US); **F02D 41/22** (2013.01 - EP US); **F02D 2041/1433** (2013.01 - EP US)

Citation (examination)

ANONYMOUS: "Mahalanobis distance - Wikipedia, the free encyclopedia", 11 July 2014 (2014-07-11), XP055216158, Retrieved from the Internet <URL:https://en.wikipedia.org/w/index.php?title=Mahalanobis\_distance&oldid=616538879> [retrieved on 20150925]

Designated contracting state (EPC)

AL 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 RS SE SI SK SM TR

DOCDB simple family (publication)

**EP 2549087 A1 20130123**; **EP 2549087 B1 20180117**; FR 2978209 A1 20130125; FR 2978209 B1 20130712; JP 2013024247 A 20130204; JP 6085430 B2 20170222; US 2013024087 A1 20130124

DOCDB simple family (application)

**EP 12290215 A 20120629**; FR 1102275 A 20110721; JP 2012161695 A 20120720; US 201213547205 A 20120712