Title (en)

Method and apparatus to purify the exhaust gas of an internal combustion engine

Title (de)

Verfahren und Einrichtung zum Reinigen von Abgasen eines Verbrennungsmotors

Title (fr)

Procédé et dispositif d' épuration de gaz d' échappement d'un moteur à combustion interne

Publication

EP 0931922 A3 20000426 (DE)

Application

EP 98123165 A 19981204

Priority

DE 19802631 A 19980124

Abstract (en)

[origin: EP0931922A2] A parameter correlating with SOx storage capacity of catalyst (9) is determined, using sensors of the engine management unit (3). Should this undershoot a given value, de-sulfatization is initiated, by changeover from lean to rich burn. Controlled secondary air is introduced ahead of the lambda sensor (8), just after the engine. The exhaust : secondary air ratio is monitored by the sensor; and controlled (3) to a given value. A temperature sensor (10) is used to infer SOx storage catalyst temperature controlled to a given value. When the parameter reaches a satisfactory level, lean burn is resumed. An Independent claim is included for the corresponding equipment and instrumentation. Preferred Features: During desulfatization, exhaust air ratio is controlled by the secondary air addition and/or by combustion stoichiometry. A bypass (13) around the NOx storage catalyst (11) is activated during desulfatization only. Suitable branching, and remotely operated valves or dampers are provided. A similar procedure is used to regenerate the NOx storage catalyst, once the SOx catalyst has been restored. For desulfatization, lambda = 0.75 - 0.99. The temperature in the SOx storage catalyst exceeds 550 degrees C during this process. A remotely controlled engine choke effects lean to rich burn changeover. The control aims at constant engine torque or constant power.

IPC 1-7

F02D 41/02; F01N 3/08; F01N 3/22

IPC 8 full level

F01N 3/08 (2006.01); **F01N 3/20** (2006.01); **F01N 3/22** (2006.01); **F01N 3/24** (2006.01); **F01N 9/00** (2006.01); **F02D 41/02** (2006.01); **F02D 41/04** (2006.01); F02B 1/04 (2006.01)

CPC (source: EP US)

F01N 3/0842 (2013.01 - EP US); **F01N 3/085** (2013.01 - EP US); **F01N 3/0878** (2013.01 - EP US); **F01N 3/0885** (2013.01 - EP US); F01N 3/22 (2013.01 - EP US); F02B 1/04 (2013.01 - EP US)

Citation (search report)

- [A] EP 0625633 A1 19941123 - TOYOTA MOTOR CO LTD [JP]
- [A] US 5657625 A 19970819 - KOGA KAZUO [JP], et al
- [A] EP 0814242 A1 19971229 - JOHNSON MATTHEY PLC [GB]
- [A] EP 0582917 A1 19940216 - TOYOTA MOTOR CO LTD [JP]

Cited by

CN105179050A; DE10044411A1; DE19935341A1; DE19939050A1; DE19939050B4; EP1559880A1; EP1101908A3

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

DE 19802631 C1 19990722; DE 59805965 D1 20021121; EP 0931922 A2 19990728; EP 0931922 A3 20000426; EP 0931922 B1 20011024; JP H11280456 A 19991012; US 6119450 A 20000919; US 6318073 B1 20011120

DOCDB simple family (application)

DE 19802631 A 19980124; DE 59805965 T 19981204; EP 98123165 A 19981204; JP 5133599 A 19990122; US 23608999 A 19990125; US 59000900 A 20000609