

Title (en)
APPARATUS FOR CONTROLLING AN INTERNAL COMBUSTION ENGINE HAVING AN EXHAUST-GAS TURBOCHARGER AND AN EXHAUST-GAS RECIRCULATION APPARATUS

Title (de)
VORRICHTUNG ZUM STEuern EINER BRENNKRAFTMASCHINE MIT ABGASTURBOLADER UND ABGASRÜCKFÜHRVORRICHTUNG

Title (fr)
SYSTEME DE COMMANDE D'UN MOTEUR A COMBUSTION INTERNE DOTE D'UN TURBOCOMPRESSEUR ET D'UN DISPOSITIF DE RECYCLAGE DES GAZ D'ECHAPPEMENT

Publication
EP 1815117 A1 20070808 (DE)

Application
EP 06725368 A 20060328

Priority
• EP 2006061107 W 20060328
• DE 102005015609 A 20050405

Abstract (en)
[origin: WO2006106058A1] An internal combustion engine has an exhaust-gas turbocharger which comprises an exhaust-gas turbocharger actuator. Furthermore, it has an exhaust-gas recirculation device which comprises an exhaust-gas recirculation valve. An apparatus for controlling the internal combustion engine comprises an exhaust-gas turbocharger regulator which, as a function of the setpoint boost pressure (BP_SP) and an actual boost pressure (BP_AV), determines a controlled actuating-variable exhaust-gas back-pressure (FB_SG_PEXH). An exhaust-gas recirculation regulator is provided which, as a function of a setpoint air mass flow (MAF_SP) and an actual air mass flow (MAF_AV), determines a controlled actuating-variable exhaust-gas recirculation mass flow (FB_SG_EGR). A first decoupling unit is configured to determine a decoupling mass flow (MF_DEC) in an exhaust-gas section upstream of a branch of the exhaust-gas recirculation device, to be precise as a function of the pilot-control actuating-variable exhaust-gas recirculation mass flow (PRE_SG_EGR) and the controlled actuating-variable exhaust-gas recirculation mass flow (FB_SG_EGR). A second decoupling unit is provided which determines a decoupling exhaust-gas back-pressure (PEXH_DEC), to be precise as a function of the pilot-control actuating-variable exhaust-gas back-pressure (PRE_SG_PEXH) and the controlled actuating-variable exhaust-gas back-pressure (FB_SG_PEXH). A first conversion unit is configured to determine an actuating signal (ATL_S_SIG) for the exhaust-gas turbocharger actuator as a function of the pilot-control actuating-variable exhaust-gas back-pressure (PRE_SG_PEXH), the controlled actuating-variable exhaust-gas back-pressure (FB_SG_PEXH) and the decoupling mass flow (MF_DEC). A second conversion unit is provided which determines an actuating signal (S_SIG_EGR) for the exhaust-gas recirculation valve as a function of the pilot-control actuating-variable exhaust-gas recirculation mass flow (PRE_SG_EGR), the controlled actuating-variable exhaust-gas recirculation mass flow (FB_SG_EGR) and the decoupling exhaust-gas back-pressure (PEXH_DEC).

IPC 8 full level
F02D 23/00 (2006.01); **F02B 37/24** (2006.01); **F02D 21/08** (2006.01); **F02D 35/00** (2006.01)

CPC (source: EP US)
F02B 37/18 (2013.01 - EP US); **F02B 37/24** (2013.01 - EP US); **F02D 23/00** (2013.01 - EP US); **F02D 41/0007** (2013.01 - EP US); **F02D 41/0052** (2013.01 - EP US); **F02D 41/0065** (2013.01 - EP US); **F02B 29/0406** (2013.01 - EP US); **F02D 2041/1418** (2013.01 - EP US); **F02D 2041/1427** (2013.01 - EP US); **F02D 2041/1432** (2013.01 - EP US); **F02M 26/05** (2016.02 - EP US); **F02M 26/10** (2016.02 - EP US); **F02M 26/23** (2016.02 - EP US); **F02M 26/48** (2016.02 - EP US); **Y02T 10/12** (2013.01 - EP US); **Y02T 10/40** (2013.01 - EP US)

Citation (search report)
See references of WO 2006106058A1

Designated contracting state (EPC)
DE FR

DOCDB simple family (publication)
WO 2006106058 A1 20061012; CN 101107435 A 20080116; CN 101107435 B 20100602; DE 102005015609 A1 20061019; DE 102005015609 B4 20080117; EP 1815117 A1 20070808; US 2008104957 A1 20080508; US 7770392 B2 20100810

DOCDB simple family (application)
EP 2006061107 W 20060328; CN 200680002846 A 20060328; DE 102005015609 A 20050405; EP 06725368 A 20060328; US 81423306 A 20060328