Title (en)

RECIPROCATING ENGINE WITH BURNT GAS RECIRCULATION, WHICH IS DESIGNED TO DRIVE A MOTOR VEHICLE, AND METHOD OF TURBOCHARGING SAID ENGINE

Title (de)

HUBMOTOR MIT ABGASRÜCKFÜHRUNG FÜR EIN KRAFTFAHRZEUG UND VERFAHREN ZUR TURBOAUFLADUNG DIESES MOTORS

Title (fr)

MOTEUR ALTERNATIF A RECIRCULATION DE GAZ BRULES DESTINE A LA PROPULSION DES VEHICULES AUTOMOBILES ET PROCEDE DE TURBOCOMPRESSION DE CE MOTEUR

Publication

EP 1606505 A2 20051221 (FR)

Application

EP 04742343 A 20040324

Priority

- FR 2004000735 W 20040324
- FR 0303728 A 20030326

Abstract (en)

[origin: WO2004088115A2] The invention relates to a reciprocating engine which is used between a minimum rotation speed Nmin and a maximum speed Nmax, comprising a turbocharging unit (2) which is dimensioned such as to operate autonomously when: (i) supplying air to the intake manifold (8) of the engine via a coolant, (ii) being supplied with gas by the exhaust manifold (9, CR and CT) of the engine at the exhaust temperature, and (iii) the turbine supply pressure (P3) is essentially equal to the compressor discharge pressure (P2). In this way, at a constant air temperature and with fixed geometry, the turbcharging system supplies an essentially-constant volume of cooled air Vc when the pressure varies, and volume Vc is essentially proportional to the discharge section Sd offered to the hot gases. The invention is characterised in that the turbine pressure (P3) is maintained essentially equal to the compressor pressure (P2) by an EGR bypass (3) between the intake manifold (8) and the exhaust manifold (9), the latter being dimensioned such as to transfer the exhaust gas flow towards the intake manifold without any significant pressure drop. Moreover, the volume of cooled air Vc is smaller than the volume ingested by the engine at speed Nmax, such that a hot gas flow is reingested by the engine via the bypass (3) above speed Na, known as the compression adaptation speed, where the ingested volume is equal to Vc, and an air flow is diverted towards the turbine below speed Na.

IPC 1-7

F02M 25/00

IPC 8 full level

F01L 1/34 (2006.01); **F01L 1/46** (2006.01); **F02B 37/013** (2006.01); **F02B 37/18** (2006.01); **F02B 37/24** (2006.01); **F02M 25/07** (2006.01)

CPC (source: EP US)

F01L 1/34 (2013.01 - EP US); **F01L 1/46** (2013.01 - EP US); **F02B 29/0475** (2013.01 - EP US); **F02B 37/004** (2013.01 - EP US); **F02B 37/013** (2013.01 - EP US); **F02B 37/02** (2013.01 - EP US); **F02B 37/18** (2013.01 - EP US); **F02B 37/24** (2013.01 - EP US); **F02M 26/05** (2016.02 - EP US); **F02M 26/08** (2016.02 - EP US); **F02M 26/10** (2016.02 - EP US); **F02M 26/28** (2016.02 - EP US); **F02M 26/30** (2016.02 - EP US); F01L 2800/00 (2013.01 - EP US); F02B 29/0425 (2013.01 - EP US); F02B 29/0437 (2013.01 - EP US); F02B 37/183 (2013.01 - EP US); F02M 26/25 (2016.02 - EP US); Y02T 10/12 (2013.01 - EP US)

Citation (search report)

See references of WO 2004088115A2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

FR 2853011 A1 20041001; **FR 2853011 B1 20060804**; EP 1606505 A2 20051221; US 2007271919 A1 20071129; US 7313918 B2 20080101; WO 2004088115 A2 20041014; WO 2004088115 A3 20041125

DOCDB simple family (application)

FR 0303728 A 20030326; EP 04742343 A 20040324; FR 2004000735 W 20040324; US 80860904 A 20040325