

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

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Application
EP 04742343 A 20040324

Priority
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Abstract (en)
[origin: WO2004088115A2] The invention relates to a reciprocating engine which is used between a minimum rotation speed N_{min} and a maximum speed N_{max} , 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 V_c when the pressure varies, and volume V_c is essentially proportional to the discharge section S_d 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 V_c is smaller than the volume ingested by the engine at speed N_{max} , such that a hot gas flow is reingested by the engine via the bypass (3) above speed N_a , known as the compression adaptation speed, where the ingested volume is equal to V_c , and an air flow is diverted towards the turbine below speed N_a .

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