

Title (en)
Engine braking methods and apparatus

Title (de)
Motorbremsverfahren und Einrichtung

Title (fr)
Procédés et appareils de freinage moteur

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Application
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Abstract (en)
[origin: EP1803913A2] Methods and apparatus for providing bleeder-type and compression-release engine braking in an internal combustion engine are disclosed. For bleeder-type engine braking, the exhaust valve is maintained at a small and relatively constant lift throughout all or much of the engine cycle. The engine braking may be combined with exhaust gas recirculation, variable exhaust brake, and/or operation of a variable geometry turbocharger.

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Cited by
CN111742130A; CN109804151A; FR2932535A1; EP2351922A4; CN108612590A; EP2693007A1; EP2693008A1; EP2693009A1; SE2150675A1; SE544927C2; US11512653B2; US8844480B2; US9175630B2; WO2009153440A1; WO2018065053A1; WO2014020454A1; US10859007B2; WO2022250597A1; EP3523527B1

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