

Title (en)
INTERNAL-COMBUSTION ENGINE COMPRISING A CENTRAL ELECTRONIC CONTROL APPARATUS

Publication
EP 0090984 B1 19871119 (DE)

Application
EP 83102687 A 19830318

Priority
DE 3212504 A 19820403

Abstract (en)
[origin: US4487169A] A reciprocating piston internal combustion engine having a plurality of heads, a glow plug associated with each one of the pistons, a source of DC voltage, and a control for providing heating power to the glow plugs. The engine also has engine oil and transmission oil flowing therethrough, and a fan for cooling the oil. A first switch turns the fan on and off. There is included a central electronic control which includes thermistors for sensing a temperature related to the temperature of the engine and for providing a connection from the source of DC voltage to the glow plugs when the sensed temperature is below a predetermined value and for disconnecting the source when the sensed temperature is above the predetermined value. A duty cycle rate generator alternately connects and disconnects the source of DC voltage to the glow plugs above the preset value at a duty cycle rate which ranges from 0 to 100 percent and which depends on the voltage level of the source of DC voltage. The thermistors are disposed to measure the temperature of the first and eighth heads and the engine and transmission oil, and a second controller controls the first switch to turn the fan on and off depending on the temperature sensed by the temperature sensors. The control includes a second duty cycle rate generator, also ranging from 0 to 100 percent, but dependent on the magnitude of the most significant sensed temperature.

IPC 1-7
F02P 19/02

IPC 8 full level
F02P 19/02 (2006.01)

CPC (source: EP US)
F02P 19/02 (2013.01 - EP US)

Citation (examination)

- DE 2743059 A1 19790405 - BERU WERK RUPRECHT GMBH CO A
- US 4307689 A 19811229 - RAESKE FRANK J, et al
- EP 0042333 A1 19811223 - PEUGEOT ACIERS ET OUTILLAGE [FR]

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DE3502966A1

Designated contracting state (EPC)
AT DE FR GB IT SE

DOCDB simple family (publication)
EP 0090984 A2 19831012; EP 0090984 A3 19840411; EP 0090984 B1 19871119; AT E30937 T1 19871215; CA 1194183 A 19850924; DE 3212504 A1 19831013; DE 3374577 D1 19871223; JP S5941675 A 19840307; US 4487169 A 19841211; YU 74283 A 19871031

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EP 83102687 A 19830318; AT 83102687 T 19830318; CA 411889 A 19820921; DE 3212504 A 19820403; DE 3374577 T 19830318; JP 5532683 A 19830401; US 41802882 A 19820914; YU 74283 A 19830329