

Title (en)

LEARNING CONTROL PROCESS FOR AN INTERNAL COMBUSTION ENGINE AND DEVICE THEREFOR

Publication

EP 0366735 B1 19920617 (DE)

Application

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Priority

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Abstract (en)

[origin: WO8909331A1] Learning control process with pilot control for an internal combustion engine and device therefor comprising an adaptation value memory with a predetermined number of reference positions which can be addressed by sets of values of operating address quantities. When, during operation of the internal combustion engine, a reference position area is left after stationary operation, a learning process is triggered which modifies the adaptation value of said reference position if a control means gives a setting quantity differing from a desired regulated quantity. The difference in setting quantity is not used fully but only in a reduced way to modify the former adaptation value. This is done by reducing means which have as main function groups a learning intensity table (26), a meter reading memory (27) and a meter difference table (28). The meter reading memory memorizes the number of past occurrences of learning cases for each reference position. Depending on the meter reading and on the individual value of the difference in setting quantity, the learning intensity table gives a learning intensity value. Then the meter reading is modified by "1" if the difference in setting quantity is minimal, as long as a maximum value has not been reached. If however the difference in setting quantity is important and the meter reading is close to the maximum value, the meter difference table gives a negative meter difference value, so that the meter reading for the corresponding reference position is lowered, which in turn leads to an increased learning value for the same reference position in the next learning stage. The meter difference table makes it possible to modify the learning progress in both directions, i.e. to more advanced or easier learning. Such a fine adjustment reduces the vibrational tendency of the controlled system.

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Citation (examination)

SAE Papers 860594, 1986 Soc. of Automotive Engineers, Inc., N. Tomisawa et al.: "Development of a high-speed high-precision learning control system for the engine control", pages 3,733-3,741, 3,736: "Renewal of learning date-renewal of learning counter"

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