

Title (en)

AIR/FUEL MIXTURE RATIO CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE WITH FEATURE OF LEARNING CORRECTION COEFFICIENT INCLUDING ALTITUDE DEPENDENT FACTOR

Publication

EP 0292973 B1 19920722 (EN)

Application

EP 88108437 A 19880526

Priority

- JP 12989387 A 19870528
- JP 13182687 A 19870529

Abstract (en)

[origin: EP0452996A2] A method for controlling a mixture ratio of an air/fuel mixture for an engine, comprises the steps of: monitoring (1002) preselected basic first engine operation parameter to produce a first sensor signal indicative thereof; monitoring (1204) an air/fuel mixture ratio indicative parameter (V_{ox}) for producing a second sensor signal indicative of a deviation of the air/fuel mixture from a stoichiometric value; deriving (1002, 1006) a basic fuel metering amount (T_p) on the basis of said first sensor signal value; deriving (1008) an air/fuel ratio dependent correction factor (COEF) from said second sensor signal value; deriving (1610) a first correction coefficient (K_{ALT}) on the basis of said air/fuel ratio dependent correction factor (COEF), which first correction coefficient is commonly applicable for correcting said basic fuel metering amount (T_p) in all engine driving ranges, said step (1610) comprising the updating of the first correction coefficient (K_{ALT}) when a feedback condition is satisfied; deriving (1012) a second correction coefficient (K_{MAP}) which is variable depending upon the engine driving range on the basis of said air/fuel ratio dependent correction factor (COEF) and setting a plurality of second correction coefficients (K_{MAP}) for respective engine driving ranges and updating each of said second correction coefficients with an instantaneous value derived based on said air/fuel ratio dependent correction factor in the corresponding engine driving range; detecting (1002-1014) an engine driving condition on the basis of said first sensor values and governing said steps (1610, 1012) of deriving said first and second correction coefficients (K_{ALT} , K_{MAP}) depending upon the detected engine driving condition; and correcting (1018, 1020) said basic fuel metering amount (T_p) with said first and second correction coefficients (K_{ALT} , K_{MAP}). For achieving an enhanced accuracy in determining the fuel metering amount the step of deriving the first correction coefficient (K_{ALT}) further comprises the steps of determining (1724) a first component ratio indicative value (k_1) based on at least one of an engine load indicative signal (α , Q), a basic fuel injection amount (T_p) and the engine speed (N); determining a predetermined number of engine driving ranges for which the second correction coefficient (K_{MAP}) was recently updated; detecting (1726) for each range the difference between a present second correction coefficient (K_{MAP}) and a previous one for distinguishing between positive difference regions, where the difference between the present and the previous second correction coefficient (K_{MAP}) for this region is positive, and negative difference regions; determining (1726-1732) a second component ratio indicative value (k_2) based on the number of positive and/or negative difference regions; and modifying (1732-1736) the first correction coefficient (K_{ALT}) based on said first and second component ratio indicative values (k_1 , k_2).

IPC 1-7

F02D 41/04; **F02D 41/14**; **F02D 41/26**; **F02D 41/34**

IPC 8 full level

F02D 41/14 (2006.01)

CPC (source: EP)

F02D 41/2441 (2013.01); **F02D 41/2454** (2013.01); **F02D 41/1456** (2013.01); **F02D 41/2448** (2013.01); **F02D 41/248** (2013.01)

Cited by

CN112780420A

Designated contracting state (EPC)

DE GB

DOCDB simple family (publication)

EP 0452996 A2 19911023; **EP 0452996 A3 19911121**; **EP 0452996 B1 19930929**; DE 3872948 D1 19920827; DE 3872948 T2 19930114; DE 3884630 D1 19931104; DE 3884630 T2 19940203; EP 0292973 A2 19881130; EP 0292973 A3 19890927; EP 0292973 B1 19920722

DOCDB simple family (application)

EP 91111421 A 19880526; DE 3872948 T 19880526; DE 3884630 T 19880526; EP 88108437 A 19880526