ABSTRACT

The present invention provide a feedback combined system of a reciprocating internal combustion engine, in which, in order to increase output and thermal efficiency by increasing fuel supply without increasing the maximum combustion temperature than the conventional level and concurrently reduce emissions such as NOx, a heat exchanger is provided downstream the exhaust turbine connected to the exhaust collector, sub-critical water of pressure of between 18MPa and 22.1 MPa(critical pressure) and temperature of between 250 ℃ and 580 ℃ or super-critical water is generated by the heat exchange of water supplied to the heat exchanger with the exhaust gas, said sub- or super-critical water is injected into the cylinder in the range of 90 ° before the top dead center and 30 ° after the top dead center and fuel is injected so that the air excess ratio at the maximum output is 1 ~ 2.5 and the maximum combustion temperature is 1600 ~ 2000 ℃.

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