



US005507251A

# United States Patent [19]

[11] Patent Number: **5,507,251**

Hollis

[45] Date of Patent: **Apr. 16, 1996**

[54] **SYSTEM FOR DETERMINING THE LOAD CONDITION OF AN ENGINE FOR MAINTAINING OPTIMUM ENGINE OIL TEMPERATURE**

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[21] Appl. No.: **469,957**

[22] Filed: **Jun. 6, 1995**

[51] Int. Cl.<sup>6</sup> ..... **F01P 7/14**

[52] U.S. Cl. .... **123/41.1**

[58] Field of Search ..... 123/41.08, 41.09, 123/41.1, 41.29, 41.31, 196 AB

### [57] ABSTRACT

A temperature control system, in a liquid cooled internal combustion engine equipped with a radiator, controls the state of a flow control valve for controlling flow of a temperature control fluid through a passageway in the engine. Sensors detect the engine oil temperature, the temperature of the temperature control fluid, and the ambient air temperature. An engine computer receives signals from the sensors, produces control signals based on the sensor signals, and sends the control signals to the flow control valve to control the state of the valve. A set of predetermined values defining a temperature control curve are utilized to determine the desired state of the valve. An optimum engine oil temperature curve is utilized to determine the temperature state and load condition of the engine. The temperature control curve is adjusted based on the temperature state and/or the load condition of the engine.

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**32 Claims, 57 Drawing Sheets**

