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# United States Patent [19]

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Hollis

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[54] **SYSTEM FOR MAINTAINING ENGINE OIL AT A DESIRED TEMPERATURE**

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[21] Appl. No.: **593,993**

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[51] Int. Cl.<sup>6</sup> ..... **F02N 17/02**

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[52] U.S. Cl. .... **123/41.08; 123/41.2**

[58] Field of Search ..... **123/41.01, 41.08, 123/41.05, 41.2, 41.21, 41.42**

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### [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 and the temperature of the temperature control fluid. An engine computer receives signals from the sensors and compares the signals to one or more predetermined values. In one embodiment, the engine computer compares the engine oil temperature signal to a predetermined value to control actuation of the valve. In another embodiment, the engine computer compares the engine oil temperature signal to a predetermined engine oil temperature value. The engine computer adjusts a predetermined temperature control fluid temperature value based on the comparison of the engine oil temperature signal to the predetermined engine oil temperature value. The engine computer then compares the temperature control fluid temperature signal to the adjusted temperature control fluid temperature. The engine computer actuates the flow control valve based on the comparison of the temperature control fluid temperature signal to the adjusted temperature control fluid temperature.

**43 Claims, 59 Drawing Sheets**

