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[54] **TEMPERATURE CONTROL SYSTEM UTILIZING AN ELECTRONIC ENGINE TEMPERATURE CONTROL VALVE**

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Related U.S. Application Data

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

[52] **U.S. Cl.** **123/41.1**; 123/41.33

[58] **Field of Search** ..... 123/41.1, 41.33, 123/196 AB

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[57] **ABSTRACT**

A valve is employed to control the flow of temperature control fluid to a radiator in an internal combustion engine. The valve is hydraulically actuated by a pair of hydraulic fluid injectors to move between a first position for preventing the flow to a second position for allowing the flow. The valve reciprocates within a valve housing. The fluid injectors cause pressurized hydraulic fluid to be delivered to and removed from a chamber in the valve housing. The fluid pressure in the chamber pushes against a valve diaphragm or piston to cause the diaphragm or piston to move from a first state to a second state, thereby causing a valve member or valve piston shaft to move from the first position to the second position. The valve can also control the flow of temperature control fluid through the oil pan and around the intake manifold.

4 Claims, 34 Drawing Sheets