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# United States Patent [19] Hollis

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[54] **SYSTEM FOR DITHERING SOLENOIDS OF HYDRAULICALLY OPERATED VALVES AFTER ENGINE IGNITION SHUT-OFF**

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[57] **ABSTRACT**

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A system for controlling the flow of hydraulic fluid in lines leading to and from a solenoid injector which actuates a temperature control valve. The solenoid injector controls the actuation a temperature control valve between a first state for inhibiting flow of temperature control fluid and a second state for allowing flow of a temperature control fluid. The solenoid injector receives a flow of pressurized hydraulic fluid along the hydraulic line from a fluid reservoir. In order to drain the hydraulic fluid from the hydraulic line after engine shut-off, the hydraulic line is dithered in accordance with a predetermined schedule. An engine computer determines when the engine has been shut-off. After determining that the engine has been shut-off, the engine computer sends signals to the solenoid injector causing it to actuate between its open and closed positions in accordance with a predetermined schedule.

[51] Int. Cl.<sup>6</sup> ..... **F01P 7/14**  
[52] U.S. Cl. .... **123/41.1**  
[58] Field of Search ..... 123/41.08, 41.1

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**9 Claims, 11 Drawing Sheets**

