

Low Temperature Fluidity and Performance Evaluation for Sensor Unified Fuel Heater

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Abstract— This paper has developed the low temperature fluidity and its performance evaluation for sensor unified fuel heater. In order to overcome an initial start problem of the diesel engine, the sensor unified fuel heater in waxing material like paraffin which may be generated at extremely low temperature in winter can decide the car's life. Such a sensor unified fuel heater is suggested to improve the efficiency as well as robustness of heater by combining a fuel filter with a heater and is compared to previous heaters. The proposed sensor unified fuel heater consists of plastic body including lower/upper plates, stopper, PTC-based heater and heater/water sensors. Also, in order to evaluate the performance of the proposed car's goods, a performance evaluation system is constructed, which can check the operation of fuel heater at room temperature as well as at extremely low and high temperatures and to measure delay times of resistance and current according to test resistances, delay time of bimetal according to temperature change and current/resistance of fuel heater.

Keywords : sensor unified fuel heater, diesel engine, low temperature fluidity test, performance evaluation , efficiency



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