THE STUDY OF THE DEAERATING DEVICE ON THE ENGINE COOLING SYSTEM

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ABSTRACT

SINCE THE ADVANCEMENT OF ENGINE TECHNOLOGY, NEW ENGINES CAN HAVE MUCH HIGHER POWER AND T] -HERMAL EFFICIENCY,AND ALSO MUCH HIGHER COMBUSTION TEMPERATURE AND PRESSURE INSIDE THE CYL -INDER THAN BEFORE.THE HIGHER COMBUSTION TEMPERATURE MAKES COOLANT TEMPERATURE HIGHER,WHIL -E THE HIGHER COMBUSTION PRESSURE POSSIBLY FORCES MORE GAS SEEP INTO THE COOLANT.HIGH COMB -USTION TEMPERATURE ALSO REQUIRES MORE RADIATOR PERFORMANCE,HOWEVER,MODERN VEHICLE PACKAGI -NG ONLY LEAVES VERY LIMITED SPACE FOR RADIATOR INSTALLATION.THESE LIMITATIONS ON RADIATOR MAKE THE ENGINE COOLING SYSTEM HAVE VERY HIGH INTERNAL FLOW RESISTANCE.ALL THE FACTORS MEN -TIONED ABOVE IMPLY THAT THE ENGINE COOLING SYSTEM IS GOING TO HAVE SERIOUS PROBLEMS OF WA -TER PUMP CAVITATION AND COOLANT BUBBLE FLOW IF THERE IS NO DEAERATION SYSTEM INSTALLED. THE FUNCTION OF DEAERATION SYSTEM IS TO CONTINUOUSLY REMOVE THE GAS FROM THE ENGINE COOLAN -T AND AVOID THE WATER PUMP CAVITATION.THIS STUDY HAS DISCLOSED THE MECHANISM OF THE WATER PUMP CAVITATION AND COOLANT BUBBLE FLOW, AND THEIR EFFECTS ON THE ENGINE SYSTEM.

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