引擎冷卻系統除氣裝置之研究

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摘 要

隨著引擎科技的進步，引擎的熱效率越高，汽缸內的燃燒溫度及壓力也越大，對散熱水箱的性能要求 也越高，但引擎蓋下的配置空間有限，要求散熱水箱的體積越小越好，造成引擎冷卻系統內部水流的阻 力很大。這些技術的演進，使得引擎水幫浦更易產生空蝕現象，氣泡也更容易滲入冷卻液中，使得引擎 性能、可靠度、壽命都受到極大的損害。氣泡及水幫浦空蝕現象也常在老化及設計不當的引擎系統中出 現，造成日常維修保養上的許多困難及盲點。 由於氣泡及水泵浦的空蝕現象關係著冷卻系統能否正常運作，且影響深遠，而目前已有一些針對消除 冷卻系統中氣泡的裝置問世。除氣系統的工作就是在不增加冷卻系統及引擎負荷下將冷卻系統內部的氣 泡主動且連續性地排出系統之外，並避免水幫浦在極惡劣的操作狀況下也不會發生空蝕現象，使冷卻系 統維持高效能。但現今各除氣裝置尚有缺失。 本研究將使用全滿式除氣水箱來改良現有水箱的缺失，並提高冷卻系統的可靠度，進而使引擎各機件 壽命增長、能源使用效率提高及降低製造成本等。研究中將探討水幫浦空蝕現象及氣泡流的產生、運動 機制及對引擎系統的影響；並探討全滿式除氣水箱對冷卻系統性能的影響。

關鍵詞 : 無

目錄

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