

The Study of Electrical Energy System for Parallel Hybrid Golf Vehicle

林晉興、張舜長

E-mail: 9419908@mail.dyu.edu.tw

ABSTRACT

The purpose of this study is to develop the electrical energy system for parallel hybrid golf vehicle. Because nowadays use in golf vehicle lead-acid battery all act for the hermetically style lead-acid battery, so that can not directly take advantage of lead-acid battery electrolyte specific gravity to estimation the hermetically style lead-acid battery state of charge. Dissertation to understand lead-acid battery characteristic, at first research aim for 12V/26Ah open style lead-acid battery, by means of by research open style lead-acid battery state of charge, let us towards lead-acid battery characteristic have certain acquaintance. Go on exist research object change for 12V/135Ah hermetically style lead-acid battery. Because hermetically style lead-acid battery discharge time of internal resistance with battery state of charge have close correlation, And then this dissertation then battery internal resistance makes research with unfasten to lead-acid, and direct to all sorts of lead-acid battery state of charge estimation means go to make unfasten, final this dissertation takes advantage of improve style internal resistance method estimation hermetically style lead-acid battery state of charge, because should battery material relation, we estimate the internal resistance and divide big and small current two part, overcome hermetically style lead-acid battery nature can not as specific gravity method estimation state of charge. Using LabVIEW to design parallel hybrid golf vehicle electrical energy system, use to PCI-6024E data extract card to extract 12V/135Ah hermetically style lead-acid battery signal, obturate signal by PCI-6024E biography to parallel hybrid golf vehicle electrical -venergy system. Let battery user can know battery's condition clearly, as avoid hermetically style lead-acid battery over discharge, damage to use life. And towards alternator output efficiency relation makes to exciting current, state of charge lack time at battery, can proceed charge to battery.

Keywords : state of charge, internal resistance method, parallel hybrid golf vehicle electrical energy system

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system 被引用次數: 0 [摘要] 本論文旨在研究並聯式混合動力高爾夫球車電能系統。由於現今使用於高爾夫球車之鉛酸電池皆為密閉式鉛酸電池，以至於無法直接利用鉛酸電池電解液比重來估測密閉式鉛酸電池殘電量。本論文為了解鉛酸電池特性，在一開始研究的目標為12V/26Ah 開放式鉛酸電池，藉由研究開放式鉛酸電池殘電量，讓吾人對於鉛酸電池特性有一定的認識。接著把研究的對象換為12V/135Ah 密閉式鉛酸電池。因為密閉式鉛酸電池放電時內阻與電池殘電量有著密切地關連，於是本論文便對鉛酸電池內阻做研究與了解，並針對各種鉛酸電池殘電量之估測方法去做了解，最後本論文利用改良式內阻法來加以估測密閉式鉛酸電池殘電量，因為該電池材質的關係，吾人在估測內阻與殘電量皆分為大小電流兩部分，克服密閉式鉛酸電池先天無法以比重法估測殘電量。並使用LabVIEW來撰寫並聯式混合動力高爾夫球車電能系統，透過PCI-6024E 資料擷取卡來擷取12V/135Ah 密閉式鉛酸電池訊號，將訊號經由PCI-6024E 傳至並聯式混合動力高爾夫球車電能系統。讓電池使用者可以清楚地知道電池的狀態，以避免密閉式鉛酸電池過度放電，損及使用壽命。並對激磁電流對於交流發電機輸出效率關係做一討論，在電池殘電量不足時，能對電池進行充電。

[英文摘要] The purpose of this study is to develop the electrical energy system for parallel hybrid golf vehicle. Because nowadays use in golf vehicle lead-acid battery all act for the hermetically style lead-acid battery, so that can not directly take advantage of lead-acid battery electrolyte specific gravity to estimation the hermetically style lead-acid battery state of charge. Dissertation to understand lead-acid battery characteristic, at first research aim for 12V/26Ah open style lead-acid battery, by means of by research open style lead-acid battery state of charge, let us towards lead-acid battery characteristic have certain acquaintance. Go on exist research object change for 12V/135Ah hermetically style lead-acid battery. Because hermetically style lead-acid battery discharge time of internal resistance with battery state of charge have close correlation, And then this dissertation then battery internal resistance makes research with unfasten to lead-acid, and direct to all sorts of lead-acid battery state of charge estimation means go to make unfasten, final this dissertation takes advantage of improve style internal resistance method estimation hermetically style lead-acid battery state of charge, because should battery material relation, we estimate the internal resistance and divide big and small current two part, overcome hermetically style lead-acid battery nature can not as specific gravity method estimation state of charge. Using LabVIEW to design parallel hybrid golf vehicle electrical energy system, use to PCI-6024E data extract card to extract 12V/135Ah hermetically style lead-acid battery signal, obturate signal by PCI-6024E biography to parallel hybrid golf vehicle electrical -venergy system. Let battery user can know battery's condition clearly, as avoid hermetically style lead-acid battery over discharge, damage to use life. And towards alternator output efficiency relation makes to exciting current, state of charge lack time at battery, can proceed charge to battery.

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