

พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

## C615907 : MAJOR ENGINEERING

KEY WORD: HYDROGEN ENGINE/HYDROGEN PROPERTIES/MIXTURE FORMATION/  
ENGINE PERFORMANCE/FLASHBACK/HYDROGEN STOAGE SYSTEM  
KWANCHAI CHOICHAROEN : APPLICATION OF HYDROGEN AS A FUEL IN AN  
INTERNAL COMBUSTION ENGINE. THESIS ADVISOR : ASSO.PROF.KULTHORN  
SILAPABANLENG, Ph.D. THESIS COADVISOR : MR.CHATCHAI HONGUTEN, M.Eng.  
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An experimental investigation was carried out on Stratified Charge Spark Ignition Engine in order to obtain the optimum ignition timing when using hydrogen as a substitute fuel. A comparison study of speed and ignition timing was conducted using both gasoline (super) and hydrogen (industrial grade) as fuels.

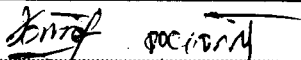
In each test, in order to obtain the optimum A/F ratio, the ignition timings were adjusted to obtain the maximum power without the engine knocking

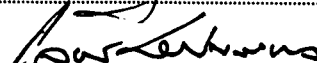
The results show that hydrogen can be used as fuel providing that ignition timing is lower than gasoline. The optimum ignition timing for gasoline engine using hydrogen is found to be close to 0° BTDC. At this ignition timing, the engine reached maximum power with a minimum rate of bsfc and no engine knocking observed. At other ignition timings, the use of hydrogen resulted in 43.04-63.26% less power, 54.55-60.60% lower rate of bsfc and 5 degree more advanced ignition timing respectively, when compared to running with gasoline. Further more, the use of hydrogen reduced the amount of HC by 97.77-98.04% and CO by 99.70-99.80 % in the exhaust emissions.

ภาควิชา วิศวกรรมเครื่องกล

สาขาวิชา วิศวกรรมเครื่องกล

ปีการศึกษา ๒๕๓๙

ลายมือชื่อนิสิต 

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