

รายการอ้างอิง

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ภาคผนวก

ภาคผนวก ก

ตัวอย่างข้อมูลดิบที่ได้จากการวัดความดันในระบบอกสูบ 1 cycle

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End of Data

ภาคผนวก ข

โปรแกรมที่ใช้คำนวณหา Mass Fraction burned

โปรแกรมที่ใช้ในการคำนวณหา Mass Fraction burned เขียนขึ้นด้วยภาษา Fortran และ compiler ด้วยโปรแกรม Fortran 77 มีรายละเอียดโปรแกรมหาดังต่อไปนี้

```
C*****
C*****
C***** PROGRAM TO COMPUTE MASS FRACTION BURNED *****
C*****
C*****
      dimension angle(720)
      real P(720),vol(720),MFB(720)
      open (7,file='data.txt',status='old',form='formatted',recl=720)
C***** Engine's specification *****
      rc=8.0
      R=234.3/55.0
C***** Input Spark Advance *****
      read (*,*) xx1
      SA=-1.*xx1
C***** Read Data File *****
      do 10 i=1,720
      read(7,*) angle(i),P(i)
10 continue
C***** Find Peak Pressure and It's Angle *****
      sump=0.0
      peaksump=0.0
      peakP=0.
      peaktheta=0.
```



```

do 30 i=1,720
MFB(i)=0.
if (P(i).gt.peakP) then
peakP=P(i)
peaktheta=angle(i)
endif
30 continue
c***** Compute Percent Volume *****
do 40 i=1,720
rad=angle(i)*4.*atan(1.)/180.
vol(i)=(1.+5*(rc-1.)*(R+1.-cos(rad)-sqrt(R*R-sin(rad)*sin(rad)))
~/rc*100.
c*****
c*****Find mass burned fraction*****
c*****
if (angle(i).gt.SA) then
if (angle(i).lt.0.) then
dPv=P(i-1)*((vol(i-1)/vol(i))**1.3-1.)
else
dPv=P(i-1)*((vol(i-1)/vol(i))**1.33-1.)
endif
dP=P(i)-P(i-1)
dPc=dP-dPv
if (angle(i).lt.0.) then
if (dPc.lt.0.001) then
dPc=0.0
endif
endif
if (angle(i).gt.0.) then
if (dPc.lt.0.001) then
finxb=sump

```

```

    finang=angle(i-1)
    nfin=i-1
  endif
endif
endif

sump=sump+dPc
MFB(i)=sump
40 continue
c*****
c***** Write the Result *****
c*****
do 50 i=1,720
  if (i.le.finang) then
    write (*,*) angle(i),MFB(i)
  else
    write (*,*) angle(i)
  endif
50 continue
write (*,*) ' '
write (*,*) 1,peaktheta
write (*,*) 2,peakP
write (*,*) 3,finang
write (*,*) 4,finxb
stop
end

```



ประวัติผู้เขียนวิทยานิพนธ์

นาย ธนกร สุไวยวรรณ เกิดเมื่อวันที่ 16 เมษายน 2519 ที่กรุงเทพมหานคร สำเร็จการศึกษาระดับปริญญาตรี หลักสูตรวิศวกรรมศาสตรบัณฑิต สาขาวิศวกรรมเครื่องกล จาก จุฬาลงกรณ์มหาวิทยาลัย ในปีการศึกษา 2539 และเข้าศึกษาต่อในหลักสูตรวิศวกรรมศาสตรมหาบัณฑิต ที่จุฬาลงกรณ์มหาวิทยาลัย ในปีการศึกษา 2540