

DUVALL

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      P(J)=PT
      E(J)=ET
      RETURN
222 CALL ZMIX(S,J)
      E(J)=ET
      P(J)=PT
      RETURN
C
960 FORMAT(1H0,5X,3HRHO,12X,2HA1,12X,2HA2,12X,2HA3,12X,2HDV,12X,2HPM,
1 11X,3HCV1,12X,5HDX(S),/1X,8E14.6,/1H0,4X,5HCVMIX,9X,5HGAMM1,11X,
2 2HEO,12X,2HTO,10X,6HDPDTMX,11X,4HTAUD,11X,4HH(S),11X,4HL(S),/
3 6E14.6,4X,I7,3X,E14.6)
      END
      SUBROUTINE ZMIX(S,J)
C
C      THIS SUBROUTINE SUITABLE FOR COMPRESSION PHASE ONLY
C
      COMMON /C1ZON/ H(9),BURN(9),L(9),DX(9),S1,RHO(9)
      COMMON /C2TIME/ TIMES,CYCLE,DELT,DTN,DTMX,TLIMA(300),JCRIT,
1  TQUIT,TAU
      COMMON /C4FLOW/ U(300),V(300),X(300),Q(300),P(300),E(300),QA,VN,
1  MASS(300),CSP(300)
      COMMON /C6TEMP/ ET,PT
      COMMON /B5DATA/ VN(9),A1,A2,A3,DV(9),TAUD,NSA(300),PM,GAMM1(9),
1  FRACT2(300),V1(300),XEQ(300),VP,V2
C
      INTEGER H,BURN,S,S1,ZON,CYCLE,COUNTS,CYCLES,ALP,OPTION,H2,HS1,HS,
1  BURNS,HS2
      REAL L,MASS,LINEAR,LEFTP
C
C
      NSA(J)=2
      XO=FRACT2(J)
      XEQO=XEQ(J)
      CA=TAUD*DELT
      IF(VN.GT.VP) GO TO 2
      IF (VN.GT.V2) GO TO 3
      XEQN=1.0
      GO TO 6
2  XEQN=0.0
      GO TO 6
3  XEQN=1.0+(VN-V2)/DV(S)
6  CONTINUE
      XN=(XO*(1.0-CA/2.0)+0.5*(XEQO+XEQN)*CA)/(1.0+CA/2.0)
      IF(XN.LT.0.0) XN=0.0
      VT= VN-XN*DV(S)
      EMU1=(VO(S)/VT)-1.0
      PT=A1*EMU1+A2*EMU1**2.
      CSP(J)=(A1*VO(S)+2.*A2*VO(S)*(VO(S)/VN-1.)+3.*A3*VO(S)*(VO(S)/VN-
1  1.)**2.)**0.5
      ET=E(J)-0.5*(PT+P(J)+QA+Q(J))*(VN-V(J))
      V1(J)=VT
      FRACT2(J)=XN
      XEQ(J)=XEQN
      RETURN

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END
SUBROUTINE WRITE
COMMON /C1ZON/ H(9),BURN(9),L(9),DX(9),S1,RHO(9)
COMMON /C2TIME/ TIMES,CYCLE,DELT,DTN,DTMX,TLIMA(300),JCRIT,
1 TQUIT,TAU
COMMON /C3CTRL/ COUNTS,JSTAR,JPE,JPB,JQUIT,LAST,CYCLES
COMMON /C4FLOW/ U(300),V(300),X(300),Q(300),P(300),E(300),QA,VN,
1 MASS(300),CSP(300)
COMMON /C5THER/ TMP(300),ENT(300)
COMMON /C7GNRL/ ALP,OPTION,CONA,CQ,LEFTP
COMMON /B5DATA/ VO(9),A1,A2,A3,DV(9),TAUD,NSA(300),PM,GAMM1(9),
1 FRACT2(300),V1(300),XEQ(300),VP,V2
C
INTEGER H,BURN,S,S1,ZON,CYCLE,COUNTS,CYCLES,ALP,OPTION,H2,HS1,HS,
1 BURNS,HS2
C
REAL L,MASS,LINEAR,LEFTP
C
GO TO 14
ENTRY WRITE1
GO TO 121
14 WRITE(6,302)
WRITE(6,304)TIMES,DELT,DTN,CYCLE,JCRIT
WRITE(6,306)
S=2
IF( JPB.EQ.1 .AND. JSTAR.GT.H(2)+10 ) JPB=H(2)
DO 330 J=JPB,JPE
IF(J.GT.H(S)) S=S+1
310 WRITE(6,318)J,U(J),V(J),P(J),E(J),Q(J),FRACT2(J),V1(J),X(J),TMP(J)
1,TLIMA(J)
330 CONTINUE
C-----NEXT TWO STATEMENTS (COMMENTS) ARE TO BE USED IF GRAPHING IS DESIRED
CALL MANUAL(1.25*LEFTP,0.)
CALL GRAPH1(P,JPE)
IF(LAST.EQ.1)CALL EXIT
RETURN
121 WRITE(6,862)
DO 46 J =1,2
46 WRITE(6,962)J,U(J),V(J),P(J),E(J),Q(J),FRACT2(J),V1(J),X(J), T
-MP(J),TLIMA(J)
DO 57 S=2,S1
HS1=H(S)-1
HS2=H(S)+2
DO 57 J=HS1,HS2
57 WRITE(6,962)J,U(J),V(J),P(J),E(J),Q(J),FRACT2(J),V1(J),X(J), T
-MP(J),TLIMA(J)
RETURN
302 FORMAT(1H1)
304 FORMAT(10X,6HTIME= ,E14.8,4X,6HDELT= ,E14.8,4X,5HDTN= ,E14.8,4X,7H
-CYCLE= ,15,4X,7HJCRIT= ,15/5X)
306 FORMAT(2X,1HJ,6X,1HU,9X,1HV,9X,1HP,9X,1HE,9X,1HQ,7X,6HFRACT2,6X,
1 2HV1,9X,1HX,9X,3HTMP,6X,5HTLIMA//5X)
318 FORMAT(I4,8F10.6,F7.1,E13.5)
862 FORMAT(2X,1HJ,6X,1HU,9X,1HV,9X,1HP,9X,1HE,9X,1HQ,7X,6HFRACT2,6X,
1 2HV1,9X,1HX,9X,3HTMP,6X,5HTLIMA//2X)

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