

```

RETURN
END
SUBROUTINE B1INIT (S)
C THIS SUBROUTINE IS A DUMMY WHICH ALLOWS FOR FUTURE EXPANSION
GO TO 12
ENTRY B1EQST(S,J)
GO TO 101
12 CONTINUE
101 CONTINUE
RETURN
END
SUBROUTINE B3INIT (S)
C THIS SUBROUTINE IS A DUMMY WHICH ALLOWS FOR FUTURE EXPANSION
GO TO 14
ENTRY B3EQST(S,J)
GO TO 121
14 CONTINUE
121 CONTINUE
RETURN
END
SUBROUTINE B4INIT (S)
C THIS SUBROUTINE IS A DUMMY WHICH ALLOWS FOR FUTURE EXPANSION
GO TO 13
ENTRY B4EQST(S,J)
GO TO 90
13 CONTINUE
90 CONTINUE
RETURN
END
SUBROUTINE B5INIT(S)
C THIS SUBROUTINE IS WRITTEN SPECIFICALLY FOR IRON WITH A SHOCK-
C INDUCED PHASE TRANSITION.
C THE PARAMETERS ARE DEFINED IN APPENDIX II OF "EQUATION OF STATE
C IN SOLIDS," BY G. E. DUVALL, G. R. FOWLES, AND Y. HORIE, SUMMARY
C REPORT ON CONTRACT NO. DA-04-200-AMC-1702(X), BALLISTICS RESEARCH
C LABORATORY, ABERDEEN PROVING GROUND, MD., FEB., 1967.
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 /C5THER/ TMP(300),ENT(300)
COMMON /C6TEMP/ ET,PT
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 VP = SPECIFIC VOLUME AT WHICH HUGONIOT INTERSECTS PHASE BDRY
C
INTEGER H,BURN,S,S1,ZON,CYCLE,COUNTS,CYCLES,ALP,OPTION,H2,HS1,HS,
1 BURNS,HS2
REAL L,M,LINEAR,LEFTP
C
GO TO 14
ENTRY B5EQST(S,J)
GO TO 121

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C
C ENTRY POINT TO INITIALIZE BURN 5*****
C
C
14 RHO(S)=7.84
   A1=1.667
   A2=3.4
   A3=0.0
   DV(S)=-.004
   PM=.130
   CV1=.45E-05
   CVMIX=.46E-05
   GAMM1(S)=1.6
   EO=0.0
   TO=300.0
   DPDTMX=-6.5E-05
   TAUD=3.0
C
   VO(S)=1.0/RHO(S)
   VP=VO(S)/(1.0+(-A1+SQRT(A1**2.+4.0*A2*PM))/(2.0*A2))
   V2=VP+DV(S)
   WRITE(6,960) RHO(S),A1,A2,A3,DV(S),PM,CV1,DX(S),CVMIX,GAMM1(S),EO,
1  TO,DPDTMX,TAUD,H(S),L(S)
   CSPS=.5
   HS1=(H(S-1)+1)
   HS2=H(S)+2
   DO 39 J=HS1,HS2
   V(J)=VO(S)
33 U(J+1)=0.0
   Q(J)=0.0
   P(J)=1.0134E-6
   TLIMA(J)=DELT
   CSP(J)=CSPS
   V1(J)=VO(S)
   FRACT2(J)=0.0
   E(J)=0.0
   ENT(J)=0.0
   TMP(J)=TO
   NSA(J)=1
   XEQ(J)=0.0
39 CONTINUE
   RETURN
C
C ENTRY POINT TO SET EQUATIONS OF STATE FOR BURN5*****
C
C
121 NSW=NSA(J)
   GO TO (220,222),NSW
C-----MATERIAL IS IN PHASE 1
220 ETAM1=(VO(S)/VN)-1.0
   PT=A1*ETAM1+A2*ETAM1**2
   CSP(J)=(A1*VO(S)+2.*A2*VO(S)*(VO(S)/VN-1.)+3.*A3*VO(S)*(VO(S)/VN-
1  1.)**2.)**.5
   ET=E(J)-0.5*(P(J)+PT+QA+Q(J))*(VN-V(J))
   IF(ABS(PT).LT.1.0E-5)PT=0.0
   IF(PT.GE.PM)CALLZMIX(S,J)

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