Table A12 List of the file, **equivellipse.CON.**
This is the completed file after the GENOPT user's completion of
the "GENTEXT" interactive session. The FORTRAN statements in this file
become part of the skeletal struct.new library, in particular, part of
SUBROUTINE STRUCT. GENOPT does this automatically.
==

```
C
C  Behavior and constraints generated next for CLAPS1:
C  CLAPS1 = collapse pressure with imperfection mode 1
C
      PHRASE =
     1 'collapse pressure with imperfection mode 1'
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(1  ).EQ.0) CALL BEHX1
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX   ,
     1 'collapse pressure with imperfection mode 1')
      IF (CLAPS1(ILOADX  ).EQ.0.)  CLAPS1(ILOADX  ) = 1.E+10
      IF (CLAPS1A(ILOADX  ).EQ.0.)  CLAPS1A(ILOADX  ) = 1.0
      IF (CLAPS1F(ILOADX  ).EQ.0.)  CLAPS1F(ILOADX  ) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =CLAPS1(ILOADX  )
      WORDCX= '(CLAPS1('//CIX//')/CLAPS1A('//CIX//
     1  ')) / CLAPS1F('//CIX//')'
      CALL CONX(CLAPS1(ILOADX  ),CLAPS1A(ILOADX  ),CLAPS1F(ILOADX  )
     1,'collapse pressure with imperfection mode 1',
     1 'allowable pressure for axisymmetric collapse',
     1 'factor of safety for axisymmetric collapse',
     1 2,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  collapse pressure with imperfection mode 1: '
         IENDP4 =46
         CODNAM ='CLAPS1('//CIX//')'
         MLET4 =6 + 4
         WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
         IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1     KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
      ENDIF
  125 CONTINUE
  126 CONTINUE
C
C  Behavior and constraints generated next for GENBK1:
C  GENBK1 = general buckling load factor, mode 1
C
      PHRASE =
     1 'general buckling load factor, mode 1'
      CALL BLANKX(PHRASE,IENDP4)
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```
      IF (IBEHV(2  ).EQ.0) CALL BEHX2
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX   ,
     1 'general buckling load factor, mode 1')
      IF (GENBK1(ILOADX  ).EQ.0.)  GENBK1(ILOADX  ) = 1.E+10
      IF (GENBK1A(ILOADX  ).EQ.0.)  GENBK1A(ILOADX  ) = 1.0
      IF (GENBK1F(ILOADX  ).EQ.0.)  GENBK1F(ILOADX  ) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =GENBK1(ILOADX  )
      WORDCX= '(GENBK1('//CIX//')/GENBK1A('//CIX//
     1 ')) / GENBK1F('//CIX//')'
      CALL CONX(GENBK1(ILOADX  ),GENBK1A(ILOADX  ),GENBK1F(ILOADX  )
     1,'general buckling load factor, mode 1',
     1 'allowable general buckling load factor (use 1.0)',
     1 'factor of safety for general buckling',
     1 2,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  general buckling load factor, mode 1: '
         IENDP4 =40
         CODNAM ='GENBK1('//CIX//')'
         MLET4 =6 + 4
         WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
         IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
      ENDIF
  140 CONTINUE
  141 CONTINUE
C
C  Behavior and constraints generated next for SKNBK1:
C  SKNBK1 = local skin buckling load factor, mode 1
C
      IF (JSKNBK1.EQ.0) GO TO 161
      IF (NPRINX.GT.0) THEN
         IF (JSKNBK1.GT.1) THEN
            WRITE(IFILE8,'(1X,A)')'  '
            WRITE(IFILE8,'(1X,A,$)')' BEHAVIOR OVER J = '
            WRITE(IFILE8,'(1X,A)')
     1       'number of regions for computing behavior'
         ENDIF
      ENDIF
      DO 160  J=1,JSKNBK1
      CALL CONVR2(J,CJX)
      PHRASE =
     1 'local skin buckling load factor, mode 1'
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(3  ).EQ.0) CALL BEHX3
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX,J,
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```
      1 'local skin buckling load factor, mode 1')
       IF (SKNBK1(ILOADX,J).EQ.0.)  SKNBK1(ILOADX,J) = 1.E+10
       IF (SKNBK1A(ILOADX,J).EQ.0.)  SKNBK1A(ILOADX,J) = 1.0
       IF (SKNBK1F(ILOADX,J).EQ.0.)  SKNBK1F(ILOADX,J) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =SKNBK1(ILOADX,J)
      WORDCX= '(SKNBK1('//CIX//','//CJX//')/SKNBK1A('//CIX//','//CJX//
      1  ')) / SKNBK1F('//CIX//','//CJX//')'
       CALL CONX(SKNBK1(ILOADX,J),SKNBK1A(ILOADX,J),SKNBK1F(ILOADX,J)
      1,'local skin buckling load factor, mode 1',
      1 'allowable buckling load factor',
      1 'factor of safety for skin buckling',
      1 2,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
      1 WORDMX,PCWORD,CPLOTX,ICARX)
       IF (IMODX.EQ.0) THEN
          CODPHR =
      1 '  local skin buckling load factor, mode 1: '
          IENDP4 =43
          CODNAM ='SKNBK1('//CIX//','//CJX//')'
          MLET4 =6 + 7
          WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
          IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
      1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
       ENDIF
  160 CONTINUE
  161 CONTINUE
C
C  Behavior and constraints generated next for STFBK1:
C  STFBK1 = buckling load factor, isogrid member, mode 1
C
       IF (JSKNBK1.EQ.0) GO TO 176
       IF (NPRINX.GT.0) THEN
          IF (JSKNBK1.GT.1) THEN
             WRITE(IFILE8,'(1X,A)')'  '
             WRITE(IFILE8,'(1X,A,$)')' BEHAVIOR OVER J = '
             WRITE(IFILE8,'(1X,A)')
      1         'number of regions for computing behavior'
          ENDIF
       ENDIF
       DO 175  J=1,JSKNBK1
       CALL CONVR2(J,CJX)
       PHRASE =
      1 'buckling load factor, isogrid member, mode 1'
       CALL BLANKX(PHRASE,IENDP4)
       IF (IBEHV(4  ).EQ.0) CALL BEHX4
      1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX,J,
      1 'buckling load factor, isogrid member, mode 1')
       IF (STFBK1(ILOADX,J).EQ.0.)  STFBK1(ILOADX,J) = 1.E+10
```

```
       IF (STFBK1A(ILOADX,J).EQ.0.)  STFBK1A(ILOADX,J) = 1.0
       IF (STFBK1F(ILOADX,J).EQ.0.)  STFBK1F(ILOADX,J) = 1.0
       KCONX = KCONX + 1
       CARX(KCONX) =STFBK1(ILOADX,J)
       WORDCX= '(STFBK1('//CIX//','//CJX//')/STFBK1A('//CIX//','//CJX//
     1  ')) / STFBK1F('//CIX//','//CJX//')'
       CALL CONX(STFBK1(ILOADX,J),STFBK1A(ILOADX,J),STFBK1F(ILOADX,J)
     1,'buckling load factor, isogrid member, mode 1',
     1 'allowable for isogrid stiffener buckling (Use 1.)',
     1 'factor of safety for isogrid stiffener buckling',
     1 2,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
        IF (IMODX.EQ.0) THEN
          CODPHR =
     1 '  buckling load factor, isogrid member, mode 1: '
          IENDP4 =48
          CODNAM ='STFBK1('//CIX//','//CJX//')'
          MLET4 =6 + 7
          WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
          IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1       KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
       ENDIF
  175 CONTINUE
  176 CONTINUE
C
C  Behavior and constraints generated next for SKNST1:
C  SKNST1 = maximum stress in the shell skin, mode 1
C
       IF (JSKNBK1.EQ.0) GO TO 191
       IF (NPRINX.GT.0) THEN
          IF (JSKNBK1.GT.1) THEN
             WRITE(IFILE8,'(1X,A)')'   '
             WRITE(IFILE8,'(1X,A,$)')' BEHAVIOR OVER J = '
             WRITE(IFILE8,'(1X,A)')
     1        'number of regions for computing behavior'
          ENDIF
       ENDIF
       DO 190  J=1,JSKNBK1
       CALL CONVR2(J,CJX)
       PHRASE =
     1 'maximum stress in the shell skin, mode 1'
       CALL BLANKX(PHRASE,IENDP4)
        IF (IBEHV(5  ).EQ.0) CALL BEHX5
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX,J,
     1 'maximum stress in the shell skin, mode 1')
       IF (SKNST1(ILOADX,J).EQ.0.)  SKNST1(ILOADX,J) = 1.E-10
       IF (SKNST1A(ILOADX,J).EQ.0.)  SKNST1A(ILOADX,J) = 1.0
       IF (SKNST1F(ILOADX,J).EQ.0.)  SKNST1F(ILOADX,J) = 1.0
```

```
      KCONX = KCONX + 1
      CARX(KCONX) =SKNST1(ILOADX,J)
      WORDCX= '(SKNST1A('//CIX//','//CJX//')/SKNST1('//CIX//','//CJX//
     1  ')) / SKNST1F('//CIX//','//CJX//')'
      CALL CONX(SKNST1(ILOADX,J),SKNST1A(ILOADX,J),SKNST1F(ILOADX,J)
     1,'maximum stress in the shell skin, mode 1',
     1 'allowable stress for the shell skin',
     1 'factor of safety for skin stress',
     1 3,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  maximum stress in the shell skin, mode 1: '
         IENDP4 =44
         CODNAM ='SKNST1('//CIX//','//CJX//')'
         MLET4 =6 + 7
         WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
         IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
      ENDIF
  190 CONTINUE
  191 CONTINUE
C
C  Behavior and constraints generated next for STFST1:
C  STFST1 = maximum stress in isogrid stiffener, mode 1
C
      IF (JSKNBK1.EQ.0) GO TO 206
      IF (NPRINX.GT.0) THEN
         IF (JSKNBK1.GT.1) THEN
            WRITE(IFILE8,'(1X,A)')'  '
            WRITE(IFILE8,'(1X,A,$)')' BEHAVIOR OVER J = '
            WRITE(IFILE8,'(1X,A)')
     1        'number of regions for computing behavior'
         ENDIF
      ENDIF
      DO 205  J=1,JSKNBK1
      CALL CONVR2(J,CJX)
      PHRASE =
     1 'maximum stress in isogrid stiffener, mode 1'
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(6  ).EQ.0) CALL BEHX6
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX,J,
     1 'maximum stress in isogrid stiffener, mode 1')
      IF (STFST1(ILOADX,J).EQ.0.)  STFST1(ILOADX,J) = 1.E-10
      IF (STFST1A(ILOADX,J).EQ.0.)  STFST1A(ILOADX,J) = 1.0
      IF (STFST1F(ILOADX,J).EQ.0.)  STFST1F(ILOADX,J) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =STFST1(ILOADX,J)
```

```
      WORDCX= '(STFST1A('//CIX//','//CJX//')/STFST1('//CIX//','//CJX//
     1  ')) / STFST1F('//CIX//','//CJX//')'
      CALL CONX(STFST1(ILOADX,J),STFST1A(ILOADX,J),STFST1F(ILOADX,J)
     1,'maximum stress in isogrid stiffener, mode 1',
     1 'allowable stress in isogrid stiffeners',
     1 'factor of safety for stress in isogrid member',
     1 3,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  maximum stress in isogrid stiffener, mode 1: '
         IENDP4 =47
         CODNAM ='STFST1('//CIX//','//CJX//')'
         MLET4 =6 + 7
         WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
         IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
      ENDIF
  205 CONTINUE
  206 CONTINUE
C
C  Behavior and constraints generated next for WAPEX1:
C  WAPEX1 = normal (axial) displacement at apex, mode 1
C
      PHRASE =
     1 'normal (axial) displacement at apex, mode 1'
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(7  ).EQ.0) CALL BEHX7
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX   ,
     1 'normal (axial) displacement at apex, mode 1')
      IF (WAPEX1(ILOADX  ).EQ.0.)  WAPEX1(ILOADX  ) = 1.E-10
      IF (WAPEX1A(ILOADX  ).EQ.0.)  WAPEX1A(ILOADX  ) = 1.0
      IF (WAPEX1F(ILOADX  ).EQ.0.)  WAPEX1F(ILOADX  ) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =WAPEX1(ILOADX  )
      WORDCX= '(WAPEX1A('//CIX//')/WAPEX1('//CIX//
     1  ')) / WAPEX1F('//CIX//')'
      CALL CONX(WAPEX1(ILOADX  ),WAPEX1A(ILOADX  ),WAPEX1F(ILOADX  )
     1,'normal (axial) displacement at apex, mode 1',
     1 'allowable normal (axial) displacement at apex',
     1 'factor of safety for WAPEX',
     1 3,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  normal (axial) displacement at apex, mode 1: '
         IENDP4 =47
         CODNAM ='WAPEX1('//CIX//')'
```

```
            MLET4 =6 + 4
            WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
            IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
          ENDIF
  220 CONTINUE
  221 CONTINUE
C
C  Behavior and constraints generated next for CLAPS2:
C  CLAPS2 = collapse pressure with imperfection mode 2
C
        PHRASE =
     1 'collapse pressure with imperfection mode 2'
        CALL BLANKX(PHRASE,IENDP4)
        IF (IBEHV(8  ).EQ.0) CALL BEHX8
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX   ,
     1 'collapse pressure with imperfection mode 2')
        IF (CLAPS2(ILOADX  ).EQ.0.)  CLAPS2(ILOADX  ) = 1.E+10
        IF (CLAPS2A(ILOADX  ).EQ.0.)  CLAPS2A(ILOADX  ) = 1.0
        IF (CLAPS2F(ILOADX  ).EQ.0.)  CLAPS2F(ILOADX  ) = 1.0
        KCONX = KCONX + 1
        CARX(KCONX) =CLAPS2(ILOADX  )
        WORDCX= '(CLAPS2('//CIX//')/CLAPS2A('//CIX//
     1  ')) / CLAPS2F('//CIX//')'
        CALL CONX(CLAPS2(ILOADX  ),CLAPS2A(ILOADX  ),CLAPS2F(ILOADX  )
     1,'collapse pressure with imperfection mode 2',
     1 'allowable pressure for axisymmetric collapse',
     1 'factor of safety for axisymmetric collapse',
     1 2,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
        IF (IMODX.EQ.0) THEN
           CODPHR =
     1 '  collapse pressure with imperfection mode 2: '
           IENDP4 =46
           CODNAM ='CLAPS2('//CIX//')'
           MLET4 =6 + 4
           WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
           IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
          ENDIF
  235 CONTINUE
  236 CONTINUE
C
C  Behavior and constraints generated next for GENBK2:
C  GENBK2 = general buckling load factor, mode 2
C
        PHRASE =
     1 'general buckling load factor, mode 2'
```

```
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(9  ).EQ.0) CALL BEHX9
   1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX   ,
   1 'general buckling load factor, mode 2')
      IF (GENBK2(ILOADX  ).EQ.0.)  GENBK2(ILOADX  ) = 1.E+10
      IF (GENBK2A(ILOADX  ).EQ.0.)  GENBK2A(ILOADX  ) = 1.0
      IF (GENBK2F(ILOADX  ).EQ.0.)  GENBK2F(ILOADX  ) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =GENBK2(ILOADX  )
      WORDCX= '(GENBK2('//CIX//')/GENBK2A('//CIX//
   1  ')) / GENBK2F('//CIX//')'
      CALL CONX(GENBK2(ILOADX  ),GENBK2A(ILOADX  ),GENBK2F(ILOADX  )
   1,'general buckling load factor, mode 2',
   1 'allowable general buckling load factor (use 1.0)',
   1 'factor of safety for general buckling',
   1 2,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
   1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
   1 '  general buckling load factor, mode 2: '
         IENDP4 =40
         CODNAM ='GENBK2('//CIX//')'
         MLET4 =6 + 4
         WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
         IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
   1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
      ENDIF
  250 CONTINUE
  251 CONTINUE
C
C  Behavior and constraints generated next for SKNBK2:
C  SKNBK2 = local skin buckling load factor, mode 2
C
      IF (JSKNBK2.EQ.0) GO TO 271
      IF (NPRINX.GT.0) THEN
         IF (JSKNBK2.GT.1) THEN
            WRITE(IFILE8,'(1X,A)')'  '
            WRITE(IFILE8,'(1X,A,$)')' BEHAVIOR OVER J = '
            WRITE(IFILE8,'(1X,A)')
   1         'number of regions for computing behavior'
         ENDIF
      ENDIF
      DO 270  J=1,JSKNBK2
      CALL CONVR2(J,CJX)
      PHRASE =
   1 'local skin buckling load factor, mode 2'
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(10 ).EQ.0) CALL BEHX10
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      1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX,J,
      1 'local skin buckling load factor, mode 2')
       IF (SKNBK2(ILOADX,J).EQ.0.)  SKNBK2(ILOADX,J) = 1.E+10
       IF (SKNBK2A(ILOADX,J).EQ.0.)  SKNBK2A(ILOADX,J) = 1.0
       IF (SKNBK2F(ILOADX,J).EQ.0.)  SKNBK2F(ILOADX,J) = 1.0
       KCONX = KCONX + 1
       CARX(KCONX) =SKNBK2(ILOADX,J)
       WORDCX= '(SKNBK2('//CIX//','//CJX//')/SKNBK2A('//CIX//','//CJX//
      1  ')) / SKNBK2F('//CIX//','//CJX//')'
       CALL CONX(SKNBK2(ILOADX,J),SKNBK2A(ILOADX,J),SKNBK2F(ILOADX,J)
      1,'local skin buckling load factor, mode 2',
      1 'allowable skin buckling load factor (use 1.0)',
      1 'factor of safety for local skin buckling',
      1 2,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
      1 WORDMX,PCWORD,CPLOTX,ICARX)
       IF (IMODX.EQ.0) THEN
          CODPHR =
      1 '  local skin buckling load factor, mode 2: '
          IENDP4 =43
          CODNAM ='SKNBK2('//CIX//','//CJX//')'
          MLET4 =6 + 7
          WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
          IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
      1     KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
       ENDIF
  270 CONTINUE
  271 CONTINUE
C
C  Behavior and constraints generated next for STFBK2:
C  STFBK2 = buckling load factor for isogrid member, mode 2
C
      IF (JSKNBK2.EQ.0) GO TO 286
      IF (NPRINX.GT.0) THEN
         IF (JSKNBK2.GT.1) THEN
            WRITE(IFILE8,'(1X,A)')'  '
            WRITE(IFILE8,'(1X,A,$)')' BEHAVIOR OVER J = '
            WRITE(IFILE8,'(1X,A)')
      1      'number of regions for computing behavior'
         ENDIF
      ENDIF
      DO 285  J=1,JSKNBK2
      CALL CONVR2(J,CJX)
      PHRASE =
      1 'buckling load factor for isogrid member, mode 2'
       CALL BLANKX(PHRASE,IENDP4)
       IF (IBEHV(11 ).EQ.0) CALL BEHX11
      1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX,J,
      1 'buckling load factor for isogrid member, mode 2')
```

```
      IF (STFBK2(ILOADX,J).EQ.0.)  STFBK2(ILOADX,J) = 1.E+10
      IF (STFBK2A(ILOADX,J).EQ.0.)  STFBK2A(ILOADX,J) = 1.0
      IF (STFBK2F(ILOADX,J).EQ.0.)  STFBK2F(ILOADX,J) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =STFBK2(ILOADX,J)
      WORDCX= '(STFBK2('//CIX//','//CJX//')/STFBK2A('//CIX//','//CJX//
     1  ')) / STFBK2F('//CIX//','//CJX//')'
      CALL CONX(STFBK2(ILOADX,J),STFBK2A(ILOADX,J),STFBK2F(ILOADX,J)
     1,'buckling load factor for isogrid member, mode 2',
     1 'allowable for isogrid stiffener buckling (Use 1.)',
     1 'factor of safety for isogrid stiffener buckling',
     1 2,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  buckling load factor for isogrid member, mode 2: '
         IENDP4 =51
         CODNAM ='STFBK2('//CIX//','//CJX//')'
         MLET4 =6 + 7
         WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
         IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
      ENDIF
  285 CONTINUE
  286 CONTINUE
C
C  Behavior and constraints generated next for SKNST2:
C  SKNST2 = maximum stress in the shell skin, mode 2
C
      IF (JSKNBK2.EQ.0) GO TO 301
      IF (NPRINX.GT.0) THEN
         IF (JSKNBK2.GT.1) THEN
            WRITE(IFILE8,'(1X,A)')'  '
            WRITE(IFILE8,'(1X,A,$)')' BEHAVIOR OVER J = '
            WRITE(IFILE8,'(1X,A)')
     1        'number of regions for computing behavior'
         ENDIF
      ENDIF
      DO 300  J=1,JSKNBK2
      CALL CONVR2(J,CJX)
      PHRASE =
     1 'maximum stress in the shell skin, mode 2'
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(12 ).EQ.0) CALL BEHX12
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX,J,
     1 'maximum stress in the shell skin, mode 2')
      IF (SKNST2(ILOADX,J).EQ.0.)  SKNST2(ILOADX,J) = 1.E-10
      IF (SKNST2A(ILOADX,J).EQ.0.)  SKNST2A(ILOADX,J) = 1.0
```

```
      IF (SKNST2F(ILOADX,J).EQ.0.)  SKNST2F(ILOADX,J) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =SKNST2(ILOADX,J)
      WORDCX= '(SKNST2A('//CIX//','//CJX//')/SKNST2('//CIX//','//CJX//
     1  ')) / SKNST2F('//CIX//','//CJX//')'
      CALL CONX(SKNST2(ILOADX,J),SKNST2A(ILOADX,J),SKNST2F(ILOADX,J)
     1,'maximum stress in the shell skin, mode 2',
     1 'allowable stress for the shell skin',
     1 'factor of safety for skin stress',
     1 3,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  maximum stress in the shell skin, mode 2: '
         IENDP4 =44
         CODNAM ='SKNST2('//CIX//','//CJX//')'
         MLET4 =6 + 7
         WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
         IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
      ENDIF
  300 CONTINUE
  301 CONTINUE
C
C  Behavior and constraints generated next for STFST2:
C  STFST2 = maximum stress in isogrid stiffener, mode 2
C
      IF (JSKNBK2.EQ.0) GO TO 316
      IF (NPRINX.GT.0) THEN
         IF (JSKNBK2.GT.1) THEN
            WRITE(IFILE8,'(1X,A)')'  '
            WRITE(IFILE8,'(1X,A,$)')' BEHAVIOR OVER J = '
            WRITE(IFILE8,'(1X,A)')
     1      'number of regions for computing behavior'
         ENDIF
      ENDIF
      DO 315  J=1,JSKNBK2
      CALL CONVR2(J,CJX)
      PHRASE =
     1 'maximum stress in isogrid stiffener, mode 2'
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(13 ).EQ.0) CALL BEHX13
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX,J,
     1 'maximum stress in isogrid stiffener, mode 2')
      IF (STFST2(ILOADX,J).EQ.0.)  STFST2(ILOADX,J) = 1.E-10
      IF (STFST2A(ILOADX,J).EQ.0.)  STFST2A(ILOADX,J) = 1.0
      IF (STFST2F(ILOADX,J).EQ.0.)  STFST2F(ILOADX,J) = 1.0
      KCONX = KCONX + 1
```

```
      CARX(KCONX) =STFST2(ILOADX,J)
      WORDCX= '(STFST2A('//CIX//','//CJX//')/STFST2('//CIX//','//CJX//
     1  ')) / STFST2F('//CIX//','//CJX//')'
      CALL CONX(STFST2(ILOADX,J),STFST2A(ILOADX,J),STFST2F(ILOADX,J)
     1,'maximum stress in isogrid stiffener, mode 2',
     1 'allowable stress in isogrid stiffeners',
     1 'factor of safety for stress in isogrid member',
     1 3,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  maximum stress in isogrid stiffener, mode 2: '
         IENDP4 =47
         CODNAM ='STFST2('//CIX//','//CJX//')'
         MLET4 =6 + 7
         WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
         IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
      ENDIF
  315 CONTINUE
  316 CONTINUE
C
C  Behavior and constraints generated next for WAPEX2:
C  WAPEX2 = normal (axial) displacement at apex, mode 2
C
      PHRASE =
     1 'normal (axial) displacement at apex, mode 2'
      CALL BLANKX(PHRASE,IENDP4)
      IF (IBEHV(14 ).EQ.0) CALL BEHX14
     1 (IFILE8,NPRINX,IMODX,IFAST,ILOADX   ,
     1 'normal (axial) displacement at apex, mode 2')
      IF (WAPEX2(ILOADX  ).EQ.0.)  WAPEX2(ILOADX  ) = 1.E-10
      IF (WAPEX2A(ILOADX  ).EQ.0.)  WAPEX2A(ILOADX  ) = 1.0
      IF (WAPEX2F(ILOADX  ).EQ.0.)  WAPEX2F(ILOADX  ) = 1.0
      KCONX = KCONX + 1
      CARX(KCONX) =WAPEX2(ILOADX   )
      WORDCX= '(WAPEX2A('//CIX//')/WAPEX2('//CIX//
     1  ')) / WAPEX2F('//CIX//')'
      CALL CONX(WAPEX2(ILOADX  ),WAPEX2A(ILOADX  ),WAPEX2F(ILOADX  )
     1,'normal (axial) displacement at apex, mode 2',
     1 'allowable normal (axial) displacement at apex',
     1 'factor of safety for WAPEX',
     1 3,INUMTT,IMODX,CONMAX,ICONSX,IPOINC,CONSTX,WORDCX,
     1 WORDMX,PCWORD,CPLOTX,ICARX)
      IF (IMODX.EQ.0) THEN
         CODPHR =
     1 '  normal (axial) displacement at apex, mode 2: '
         IENDP4 =47
```

```fortran
            CODNAM ='WAPEX2('//CIX//')'
            MLET4 =6 + 4
            WORDBX(KCONX)= CODPHR(1:IENDP4)//CODNAM(1:MLET4)
            IF (NPRINX.GT.0) WRITE(IFILE8,'(I5,6X,G14.7,A,A)')
     1      KCONX,CARX(KCONX),CODPHR(1:IENDP4),CODNAM(1:MLET4)
          ENDIF
  330 CONTINUE
  331 CONTINUE
C
C  NEXT, EVALUATE THE OBJECTIVE, OBJGEN:
        IF (ILOADX.EQ.1) THEN
            PHRASE ='weight of the equivalent ellipsoidal head'
            CALL BLANKX(PHRASE,IENDP4)
            CALL OBJECT(IFILE8,NPRINX,IMODX,OBJGEN,
     1      'weight of the equivalent ellipsoidal head')
        ENDIF
        NCONSX = ICONSX
================================================================
```