Table 3 Portion of the **equivellipse.DAT** file relating to some Role 1 and Role 2 variables established and defined and explained in "help" paragraphs by the GENOPT user during the first part of **interactive "GENTEXT" session.** (**"equivellipse"** is the generic name selected by the GENOPT user for the class of objects to be optimized). After the GENOPT user has completed the "GENTEXT" interactive session the completed equivellipse.DAT file becomes a file that is called **equivellipse.INP.** See the appendix for a list of equivellipse.INP (Table a1). In the following list in this table the GENOPT user's **responses** to the prompting phrases issued by GENOPT are in **boldface.** The part of the glossary of variables that corresponds to the GENOPT user's input listed here appears in Table 4, and the part of the prompting file automatically generated by GENOPT during this partial GENTEXT interactive session appears in Table 5. See Table 1 for definitions of "Role of the variable in the users program".

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      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
 npoint   $ Name of a variable in the users program (defined below)
      2  $ Role of the variable in the users program
      1  $ type of variable:  1 =integer,  2 =floating point
 n         $ Is the variable  npoint  an array?
 number of x-coordinates      $ one-line definition of npoint
 y         $ Do you want to include a "help" paragraph?
 The ellipse is simulated by a number of shell segments (try 10)
 y         $ Any more lines in the "help" paragraph?
 each of which has constant meridional curvature (toroidal).
 y         $ Any more lines in the "help" paragraph?
 npoint is the number of x-coordinates corresponding to the
 y         $ Any more lines in the "help" paragraph?
 ends of the toroidal segments that make up the equivalent
 y         $ Any more lines in the "help" paragraph?
 ellipse. You might try to simulate the ellipse by using 10
 y         $ Any more lines in the "help" paragraph?
 toroidal segments. Then the value of npoint would be 11
 y         $ Any more lines in the "help" paragraph?
 npoint includes the apex of the ellipse (x = 0) and the equator
 y         $ Any more lines in the "help" paragraph?
 of the ellipse (x = a, in which a = semimajor axis length).
 n         $ Any more lines in the "help" paragraph?
 y         $ Any more variables for role types  1  or  2   ?    $10
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
 xinput    $ Name of a variable in the users program (defined below)
      2  $ Role of the variable in the users program
      2  $ type of variable:  1 =integer,  2 =floating point
 y         $ Is the variable  xinput  an array?
 y         $ Do you want to establish new dimensions for xinput ?
      1  $ Number of dimensions in the array,  xinput
 vector element number for xinput
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     21  $ Max. allowable number of rows NROWS in the array, xinput
x-coordinates for ends of segments     $ one-line definition of xinput
y         $ Do you want to include a "help" paragraph?
Please make sure to include x = 0 and x = a (equator) when
y         $ Any more lines in the "help" paragraph?
you provide values for xinput.
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $20
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
ainput    $ Name of a variable in the users program (defined below)
      2  $ Role of the variable in the users program
      2  $ type of variable:  1 =integer,  2 =floating point
n         $ Is the variable  ainput  an array?
length of semi-major axis         $ one-line definition of ainput
y         $ Do you want to include a "help" paragraph?
ainput is the maximum "x=dimension" of the ellipse.
y         $ Any more lines in the "help" paragraph?
The equation for the ellipse is x^2/a^2 + y^2/b^2 = 1.0
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $25
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
binput    $ Name of a variable in the users program (defined below)
      2  $ Role of the variable in the users program
      2  $ type of variable:  1 =integer,  2 =floating point
n         $ Is the variable  binput  an array?
length of semi-minor axis of ellipse   $ one-line definition of binput
y         $ Do you want to include a "help" paragraph?
binput is the y-dimension of the ellipse, the equation for which
y         $ Any more lines in the "help" paragraph?
is x^2/a^2 + y^2/b^2 = 1.0.
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $30
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
nodes     $ Name of a variable in the users program (defined below)
      2  $ Role of the variable in the users program
      1  $ type of variable:  1 =integer,  2 =floating point
n         $ Is the variable  nodes  an array?
number of nodal points per segment     $ one-line definition of nodes
y         $ Do you want to include a "help" paragraph?
If you have about 10 segments, use a number less than 31.
y         $ Any more lines in the "help" paragraph?
Use an odd number, greater than or equal to 11
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $35
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
xlimit    $ Name of a variable in the users program (defined below)
      2  $ Role of the variable in the users program
      2  $ type of variable:  1 =integer,  2 =floating point
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n         $ Is the variable  xlimit  an array?
max.x-coordinate for x-coordinate callouts $one-line definition of xlimit
y         $ Do you want to include a "help" paragraph?
xlimit has two functions:
y         $ Any more lines in the "help" paragraph?
1. a delimiter for the definition of callouts:
y         $ Any more lines in the "help" paragraph?
for x < xlimit callouts are x-coordinates.
y         $ Any more lines in the "help" paragraph?
for x > xlimit callouts are y-coordinates.
y         $ Any more lines in the "help" paragraph?
Set xlimit equal to about a/2, where a = length of the
y         $ Any more lines in the "help" paragraph?
semi-major axis of the ellipse.
y         $ Any more lines in the "help" paragraph?
2. a delimiter for the boundary between Region 1
y         $ Any more lines in the "help" paragraph?
and Region 2. Design margins for maximum stress and
y         $ Any more lines in the "help" paragraph?
minimum buckling load in the shell skin and in the
y         $ Any more lines in the "help" paragraph?
isogrid stiffeners can be computed in two regions,
y         $ Any more lines in the "help" paragraph?
Region 1: 0 < x < xlimit, and
y         $ Any more lines in the "help" paragraph?
Region 2: xlimit < x < semi-major axis.
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $40
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
THKSKN    $ Name of a variable in the users program (defined below)
      1  $ Role of the variable in the users program
y         $ Is the variable  THKSKN  an array?
n         $ Do you want to establish new dimensions for THKSKN ?
skin thickness at xinput          $ one-line definition of THKSKN
y         $ Do you want to include a "help" paragraph?
xinput is the vector of x-coordinate callouts for
y         $ Any more lines in the "help" paragraph?
thickness of the shell skin and height of the
y         $ Any more lines in the "help" paragraph?
isogrid stiffeners.
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $45
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
HIGHST    $ Name of a variable in the users program (defined below)
      1  $ Role of the variable in the users program
y         $ Is the variable  HIGHST  an array?
n         $ Do you want to establish new dimensions for HIGHST ?
height of isogrid members at xinput    $ one-line definition of HIGHST
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y         $ Do you want to include a "help" paragraph?
xinput is the vector of x-coordinate callouts for
y         $ Any more lines in the "help" paragraph?
thickness of the shell skin and height of the
y         $ Any more lines in the "help" paragraph?
isogrid stiffeners.
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $50
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
SPACNG    $ Name of a variable in the users program (defined below)
      1  $ Role of the variable in the users program
n         $ Is the variable  SPACNG  an array?
spacing of the isogrid members    $ one-line definition of SPACNG
y         $ Do you want to include a "help" paragraph?
SPACNG = altitude of the equilateral triangle between adjacent
y         $ Any more lines in the "help" paragraph?
isogrid members, measured to middle surfaces of isogrid members.
y         $ Any more lines in the "help" paragraph?
SPACNG = (length of side of triangle)*sqrt(3)/2.
y         $ Any more lines in the "help" paragraph?
SPACNG is constant over the entire shell.
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $55
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
THSTIF    $ Name of a variable in the users program (defined below)
      1  $ Role of the variable in the users program
n         $ Is the variable  THSTIF  an array?
thickness of an isogrid stiffening member $one-line definition of THSTIF
y         $ Do you want to include a "help" paragraph?
THSTIF is constant over the entire shell.
n         $ Any more lines in the "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $60
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
THKCYL    $ Name of a variable in the users program (defined below)
      2  $ Role of the variable in the users program
      2  $ type of variable:  1 =integer,  2 =floating point
n         $ Is the variable  THKCYL  an array?
thickness of the cylindrical shell     $ one-line definition of THKCYL
n         $ Do you want to include a "help" paragraph?
y         $ Any more variables for role types  1  or  2   ?    $65
      1  $ Type of prompt: 0="help" paragraph, 1=one-line prompt
RADCYL    $ Name of a variable in the users program (defined below)
      2  $ Role of the variable in the users program
      2  $ type of variable:  1 =integer,  2 =floating point
n         $ Is the variable  RADCYL  an array?
radius of the cylindrical shell   $ one-line definition of RADCYL
n         $ Do you want to include a "help" paragraph?
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