

Table 48 Input file, *.BEG, for the "BEGIN" processor for an **equivalent imperfect isogrid-stiffened ellipsoidal shell** in which there are four load sets:

Load set 1=+mode 1 and +mode 2 axisymmetric imperfections, one at a time
 Load set 2=-mode 1 and -mode 2 axisymmetric imperfections, one at a time
 Load set 3=+mode 3 and +mode 4 axisymmetric imperfections, one at a time
 Load set 4=-mode 3 and -mode 4 axisymmetric imperfections, one at a time.
 The buckling modal imperfection amplitude, Wimp = (+ or -) 0.2 inch.
 Compare with Table 35, for which there are two load sets, 1 and 2.

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      n      $ Do you want a tutorial session and tutorial output?
      13      $ number of x-coordinates: npoint
      13      $ Number Ixinput of rows in the array xinput: Ixinput
0.000000      $ x-coordinates for ends of segments: xinput( 1)
2.554500      $ x-coordinates for ends of segments: xinput( 2)
5.666450      $ x-coordinates for ends of segments: xinput( 3)
8.753630      $ x-coordinates for ends of segments: xinput( 4)
11.79770      $ x-coordinates for ends of segments: xinput( 5)
14.77232      $ x-coordinates for ends of segments: xinput( 6)
17.63477      $ x-coordinates for ends of segments: xinput( 7)
19.63631      $ x-coordinates for ends of segments: xinput( 8)
21.26065      $ x-coordinates for ends of segments: xinput( 9)
22.70426      $ x-coordinates for ends of segments: xinput(10)
23.86535      $ x-coordinates for ends of segments: xinput(11)
24.54286      $ x-coordinates for ends of segments: xinput(12)
24.75000      $ x-coordinates for ends of segments: xinput(13)
24.75000      $ length of semi-major axis: ainput
12.37500      $ length of semi-minor axis of ellipse: binput
      11      $ number of nodal points per segment: nodes
17.63477      $ max. x-coordinate for x-coordinate callouts: xlimit
0.400000      $ skin thickness at xinput: THKSKN( 1)
0.400000      $ skin thickness at xinput: THKSKN( 2)
0.400000      $ skin thickness at xinput: THKSKN( 3)
0.400000      $ skin thickness at xinput: THKSKN( 4)
0.400000      $ skin thickness at xinput: THKSKN( 5)
0.400000      $ skin thickness at xinput: THKSKN( 6)
0.400000      $ skin thickness at xinput: THKSKN( 7)
0.400000      $ skin thickness at xinput: THKSKN( 8)
0.400000      $ skin thickness at xinput: THKSKN( 9)
0.400000      $ skin thickness at xinput: THKSKN(10)
0.400000      $ skin thickness at xinput: THKSKN(11)
0.400000      $ skin thickness at xinput: THKSKN(12)
0.400000      $ skin thickness at xinput: THKSKN(13)
1.000000      $ height of isogrid members at xinput: HIGHST( 1)
1.000000      $ height of isogrid members at xinput: HIGHST( 2)
1.000000      $ height of isogrid members at xinput: HIGHST( 3)
1.000000      $ height of isogrid members at xinput: HIGHST( 4)
1.000000      $ height of isogrid members at xinput: HIGHST( 5)
1.000000      $ height of isogrid members at xinput: HIGHST( 6)
1.000000      $ height of isogrid members at xinput: HIGHST( 7)
1.000000      $ height of isogrid members at xinput: HIGHST( 8)
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1.000000    $ height of isogrid members at xinput: HIGHST( 9)
1.000000    $ height of isogrid members at xinput: HIGHST(10)
1.000000    $ height of isogrid members at xinput: HIGHST(11)
1.000000    $ height of isogrid members at xinput: HIGHST(12)
1.000000    $ height of isogrid members at xinput: HIGHST(13)
3.000000    $ spacing of the isogrid members: SPACNG
0.1000000   $ thickness of an isogrid stiffening member: THSTIF
0.2000000   $ thickness of the cylindrical shell: THKCYL
24.75000    $ radius of the cylindrical shell: RADCYL
0.000000    $ length of the cylindrical segment: LENCYL
0.2000000   $ amplitude of the axisymmetric imperfection: WIMP
0.1600000E+08 $ elastic modulus: EMATL
0.2500000   $ Poisson ratio of material: NUMATL
0.4155000E-03 $ mass density of material: DNMATL
      2      $ strategy control for imperfection shapes: IMODE
      4      $ Number NCASES of load cases (environments): NCASES
460.0000    $ uniform external pressure: PRESS( 1)
460.0000    $ uniform external pressure: PRESS( 2)
460.0000    $ uniform external pressure: PRESS( 3)
460.0000    $ uniform external pressure: PRESS( 4)
550.0000    $ allowable pressure for axisymmetric collapse:CLAPS1A(1)
550.0000    $ allowable pressure for axisymmetric collapse:CLAPS1A(2)
550.0000    $ allowable pressure for axisymmetric collapse:CLAPS1A(3)
550.0000    $ allowable pressure for axisymmetric collapse:CLAPS1A(4)
1.000000    $ factor of safety for axisymmetric collapse: CLAPS1F( 1)
1.000000    $ factor of safety for axisymmetric collapse: CLAPS1F( 2)
1.000000    $ factor of safety for axisymmetric collapse: CLAPS1F( 3)
1.000000    $ factor of safety for axisymmetric collapse: CLAPS1F( 4)
1.000000    $ allowable general buckling load factor: GENBK1A(1)
1.000000    $ allowable general buckling load factor: GENBK1A(2)
1.000000    $ allowable general buckling load factor: GENBK1A(3)
1.000000    $ allowable general buckling load factor: GENBK1A(4)
1.000000    $ factor of safety for general buckling: GENBK1F( 1)
1.000000    $ factor of safety for general buckling: GENBK1F( 2)
1.000000    $ factor of safety for general buckling: GENBK1F( 3)
1.000000    $ factor of safety for general buckling: GENBK1F( 4)
      2      $ Number JSKNBK1 of columns in the array, SKNBK1: JSKNBK1
1.000000    $ allowable buckling load factor: SKNBK1A( 1, 1)
1.000000    $ allowable buckling load factor: SKNBK1A( 2, 1)
1.000000    $ allowable buckling load factor: SKNBK1A( 3, 1)
1.000000    $ allowable buckling load factor: SKNBK1A( 4, 1)
1.000000    $ allowable buckling load factor: SKNBK1A( 1, 2)
1.000000    $ allowable buckling load factor: SKNBK1A( 2, 2)
1.000000    $ allowable buckling load factor: SKNBK1A( 3, 2)
1.000000    $ allowable buckling load factor: SKNBK1A( 4, 2)
1.000000    $ factor of safety for skin buckling: SKNBK1F( 1, 1)
1.000000    $ factor of safety for skin buckling: SKNBK1F( 2, 1)
1.000000    $ factor of safety for skin buckling: SKNBK1F( 3, 1)
1.000000    $ factor of safety for skin buckling: SKNBK1F( 4, 1)
1.000000    $ factor of safety for skin buckling: SKNBK1F( 1, 2)
1.000000    $ factor of safety for skin buckling: SKNBK1F( 2, 2)
1.000000    $ factor of safety for skin buckling: SKNBK1F( 3, 2)

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| 1.000000 | \$ factor of safety for skin buckling: SKNBK1F(4, 2) |
| 1.000000 | \$ allowable for isogrid stiffener buckling : STFBK1A(1,1) |
| 1.000000 | \$ allowable for isogrid stiffener buckling): STFBK1A(2,1) |
| 1.000000 | \$ allowable for isogrid stiffener buckling): STFBK1A(3,1) |
| 1.000000 | \$ allowable for isogrid stiffener buckling): STFBK1A(4,1) |
| 1.000000 | \$ allowable for isogrid stiffener buckling: STFBK1A(1,2) |
| 1.000000 | \$ allowable for isogrid stiffener buckling: STFBK1A(2,2) |
| 1.000000 | \$ allowable for isogrid stiffener buckling: STFBK1A(3,2) |
| 1.000000 | \$ allowable for isogrid stiffener buckling: STFBK1A(4,2) |
| 1.000000 | \$ factor of safety, isogrid stiffner bucklng:STFBK1F(1,1) |
| 1.000000 | \$ factor of safety, isogrid stiffner bucklng:STFBK1F(2,1) |
| 1.000000 | \$ factor of safety, isogrid stiffner bucklng:STFBK1F(3,1) |
| 1.000000 | \$ factor of safety, isogrid stiffner bucklng:STFBK1F(4,1) |
| 1.000000 | \$ factor of safety, isogrid stiffner bucklng:STFBK1F(1,2) |
| 1.000000 | \$ factor of safety, isogrid stiffner bucklng:STFBK1F(2,2) |
| 1.000000 | \$ factor of safety, isogrid stiffner bucklng:STFBK1F(3,2) |
| 1.000000 | \$ factor of safety, isogrid stiffner bucklng:STFBK1F(4,2) |
| 120000.0 | \$ allowable stress for the shell skin: SKNST1A(1, 1) |
| 120000.0 | \$ allowable stress for the shell skin: SKNST1A(2, 1) |
| 120000.0 | \$ allowable stress for the shell skin: SKNST1A(3, 1) |
| 120000.0 | \$ allowable stress for the shell skin: SKNST1A(4, 1) |
| 120000.0 | \$ allowable stress for the shell skin: SKNST1A(1, 2) |
| 120000.0 | \$ allowable stress for the shell skin: SKNST1A(2, 2) |
| 120000.0 | \$ allowable stress for the shell skin: SKNST1A(3, 2) |
| 120000.0 | \$ allowable stress for the shell skin: SKNST1A(4, 2) |
| 1.000000 | \$ factor of safety for skin stress: SKNST1F(1, 1) |
| 1.000000 | \$ factor of safety for skin stress: SKNST1F(2, 1) |
| 1.000000 | \$ factor of safety for skin stress: SKNST1F(3, 1) |
| 1.000000 | \$ factor of safety for skin stress: SKNST1F(4, 1) |
| 1.000000 | \$ factor of safety for skin stress: SKNST1F(1, 2) |
| 1.000000 | \$ factor of safety for skin stress: SKNST1F(2, 2) |
| 1.000000 | \$ factor of safety for skin stress: SKNST1F(3, 2) |
| 1.000000 | \$ factor of safety for skin stress: SKNST1F(4, 2) |
| 120000.0 | \$ allowable stress in isogrid stiffeners: STFST1A(1, 1) |
| 120000.0 | \$ allowable stress in isogrid stiffeners: STFST1A(2, 1) |
| 120000.0 | \$ allowable stress in isogrid stiffeners: STFST1A(3, 1) |
| 120000.0 | \$ allowable stress in isogrid stiffeners: STFST1A(4, 1) |
| 120000.0 | \$ allowable stress in isogrid stiffeners: STFST1A(1, 2) |
| 120000.0 | \$ allowable stress in isogrid stiffeners: STFST1A(2, 2) |
| 120000.0 | \$ allowable stress in isogrid stiffeners: STFST1A(3, 2) |
| 120000.0 | \$ allowable stress in isogrid stiffeners: STFST1A(4, 2) |
| 1.000000 | \$ factor of safety, stress in isogrid member:STFST1F(1,1) |
| 1.000000 | \$ factor of safety, stress in isogrid member:STFST1F(2,1) |
| 1.000000 | \$ factor of safety, stress in isogrid member:STFST1F(3,1) |
| 1.000000 | \$ factor of safety, stress in isogrid member:STFST1F(4,1) |
| 1.000000 | \$ factor of safety, stress in isogrid member:STFST1F(1,2) |
| 1.000000 | \$ factor of safety, stress in isogrid member:STFST1F(2,2) |
| 1.000000 | \$ factor of safety, stress in isogrid member:STFST1F(3,2) |
| 1.000000 | \$ factor of safety, stress in isogrid member:STFST1F(4,2) |
| 0.7000000 | \$ allowable normal displacement at apex: WAPEX1A(1) |
| 0.7000000 | \$ allowable normal displacement at apex: WAPEX1A(2) |
| 0.7000000 | \$ allowable normal displacement at apex: WAPEX1A(3) |

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0.7000000    $ allowable normal displacement at apex: WAPEx1A( 4)
1.0000000    $ factor of safety for WAPEx: WAPEx1F( 1)
1.0000000    $ factor of safety for WAPEx: WAPEx1F( 2)
1.0000000    $ factor of safety for WAPEx: WAPEx1F( 3)
1.0000000    $ factor of safety for WAPEx: WAPEx1F( 4)
550.0000     $ allowable pressure for axisymmetric collapse:CLAPS2A(1)
550.0000     $ allowable pressure for axisymmetric collapse:CLAPS2A(2)
550.0000     $ allowable pressure for axisymmetric collapse:CLAPS2A(3)
550.0000     $ allowable pressure for axisymmetric collapse:CLAPS2A(4)
1.0000000    $ factor of safety for axisymmetric collapse: CLAPS2F( 1)
1.0000000    $ factor of safety for axisymmetric collapse: CLAPS2F( 2)
1.0000000    $ factor of safety for axisymmetric collapse: CLAPS2F( 3)
1.0000000    $ factor of safety for axisymmetric collapse: CLAPS2F( 4)
1.0000000    $ allowable general buckling load factor: GENBK2A( 1)
1.0000000    $ allowable general buckling load factor: GENBK2A( 2)
1.0000000    $ allowable general buckling load factor: GENBK2A( 3)
1.0000000    $ allowable general buckling load factor: GENBK2A( 4)
1.0000000    $ factor of safety for general buckling: GENBK2F( 1)
1.0000000    $ factor of safety for general buckling: GENBK2F( 2)
1.0000000    $ factor of safety for general buckling: GENBK2F( 3)
1.0000000    $ factor of safety for general buckling: GENBK2F( 4)
      2       $ Number JSKNBK2 of columns in the array, SKNBK2: JSKNBK2
1.0000000    $ allowable skin buckling load factor: SKNBK2A( 1, 1)
1.0000000    $ allowable skin buckling load factor: SKNBK2A( 2, 1)
1.0000000    $ allowable skin buckling load factor: SKNBK2A( 3, 1)
1.0000000    $ allowable skin buckling load factor: SKNBK2A( 4, 1)
1.0000000    $ allowable skin buckling load factor: SKNBK2A( 1, 2)
1.0000000    $ allowable skin buckling load factor: SKNBK2A( 2, 2)
1.0000000    $ allowable skin buckling load factor: SKNBK2A( 3, 2)
1.0000000    $ allowable skin buckling load factor: SKNBK2A( 4, 2)
1.0000000    $ factor of safety for local skin buckling: SKNBK2F(1,1)
1.0000000    $ factor of safety for local skin buckling: SKNBK2F(2,1)
1.0000000    $ factor of safety for local skin buckling: SKNBK2F(3,1)
1.0000000    $ factor of safety for local skin buckling: SKNBK2F(4,1)
1.0000000    $ factor of safety for local skin buckling: SKNBK2F(1,2)
1.0000000    $ factor of safety for local skin buckling: SKNBK2F(2,2)
1.0000000    $ factor of safety for local skin buckling: SKNBK2F(3,2)
1.0000000    $ factor of safety for local skin buckling: SKNBK2F(4,2)
1.0000000    $ allowable for isogrid stiffener buckling: STFBK2A(1,1)
1.0000000    $ allowable for isogrid stiffener buckling: STFBK2A(2,1)
1.0000000    $ allowable for isogrid stiffener buckling: STFBK2A(3,1)
1.0000000    $ allowable for isogrid stiffener buckling: STFBK2A(4,1)
1.0000000    $ allowable for isogrid stiffener buckling: STFBK2A(1,2)
1.0000000    $ allowable for isogrid stiffener buckling: STFBK2A(2,2)
1.0000000    $ allowable for isogrid stiffener buckling: STFBK2A(3,2)
1.0000000    $ allowable for isogrid stiffener buckling: STFBK2A(4,2)
1.0000000    $ factor of safety, isogrid stiffner bucklng:STFBK2F(1,1)
1.0000000    $ factor of safety, isogrid stiffner bucklng:STFBK2F(2,1)
1.0000000    $ factor of safety, isogrid stiffner bucklng:STFBK2F(3,1)
1.0000000    $ factor of safety, isogrid stiffner bucklng:STFBK2F(4,1)
1.0000000    $ factor of safety, isogrid stiffner bucklng:STFBK2F(1,2)
1.0000000    $ factor of safety, isogrid stiffner bucklng:STFBK2F(2,2)

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1.000000    $ factor of safety, isogrid stiffner bucklng:STFBK2F(3,2)
1.000000    $ factor of safety, isogrid stiffner bucklng:STFBK2F(4,2)
120000.0    $ allowable stress for the shell skin: SKNST2A( 1, 1)
120000.0    $ allowable stress for the shell skin: SKNST2A( 2, 1)
120000.0    $ allowable stress for the shell skin: SKNST2A( 3, 1)
120000.0    $ allowable stress for the shell skin: SKNST2A( 4, 1)
120000.0    $ allowable stress for the shell skin: SKNST2A( 1, 2)
120000.0    $ allowable stress for the shell skin: SKNST2A( 2, 2)
120000.0    $ allowable stress for the shell skin: SKNST2A( 3, 2)
120000.0    $ allowable stress for the shell skin: SKNST2A( 4, 2)
1.000000    $ factor of safety for skin stress: SKNST2F( 1, 1)
1.000000    $ factor of safety for skin stress: SKNST2F( 2, 1)
1.000000    $ factor of safety for skin stress: SKNST2F( 3, 1)
1.000000    $ factor of safety for skin stress: SKNST2F( 4, 1)
1.000000    $ factor of safety for skin stress: SKNST2F( 1, 2)
1.000000    $ factor of safety for skin stress: SKNST2F( 2, 2)
1.000000    $ factor of safety for skin stress: SKNST2F( 3, 2)
1.000000    $ factor of safety for skin stress: SKNST2F( 4, 2)
120000.0    $ allowable stress in isogrid stiffeners: STFST2A(1,1)
120000.0    $ allowable stress in isogrid stiffeners: STFST2A(2,1)
120000.0    $ allowable stress in isogrid stiffeners: STFST2A(3,1)
120000.0    $ allowable stress in isogrid stiffeners: STFST2A(4,1)
120000.0    $ allowable stress in isogrid stiffeners: STFST2A(1,2)
120000.0    $ allowable stress in isogrid stiffeners: STFST2A(2,2)
120000.0    $ allowable stress in isogrid stiffeners: STFST2A(3,2)
120000.0    $ allowable stress in isogrid stiffeners: STFST2A(4,2)
1.000000    $ factor of safety, stress in isogrid member:STFST2F(1,1)
1.000000    $ factor of safety, stress in isogrid member:STFST2F(2,1)
1.000000    $ factor of safety, stress in isogrid member:STFST2F(3,1)
1.000000    $ factor of safety, stress in isogrid member:STFST2F(4,1)
1.000000    $ factor of safety, stress in isogrid member:STFST2F(1,2)
1.000000    $ factor of safety, stress in isogrid member:STFST2F(2,2)
1.000000    $ factor of safety, stress in isogrid member:STFST2F(3,2)
1.000000    $ factor of safety, stress in isogrid member:STFST2F(4,2)
0.700000    $ allowable normal displacement at apex: WAPEx2A(1)
0.700000    $ allowable normal displacement at apex: WAPEx2A(2)
0.700000    $ allowable normal displacement at apex: WAPEx2A(3)
0.700000    $ allowable normal displacement at apex: WAPEx2A(4)
1.000000    $ factor of safety for WAPEx: WAPEx2F( 1)
1.000000    $ factor of safety for WAPEx: WAPEx2F( 2)
1.000000    $ factor of safety for WAPEx: WAPEx2F( 3)
1.000000    $ factor of safety for WAPEx: WAPEx2F( 4)
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