

Table 91 Summary of the maximum effective stress in each segment of the **optimized imperfect unstiffened equivalent ellipsoidal shell with the apex (Shell Segment 1) of uniform thickness,  $t = 0.47183$  inch.** The optimum design was obtained with the axisymmetric imperfection amplitude, **Wimp = 0.1 inch.** These are the stresses at the design pressure,  $p = 460$  psi. Critical and near-critical stresses are in bold face. This list is abstracted from the GENOPT output file, eqellipse.OPM, for the user-selected case name, "eqellipse". The output here corresponds to the optimum design listed in Table 89. Critical and near-critical stresses are in bold face. **Locations of shell segments are indicated in Fig. 2. These are BIGBOSOR4 predictions.**

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*** Start nonlinear axisymmetric stress,+(mode 1) imperfection
skin maximum effective stress, SKNMAX=2.7795E+04 Segment 1, point 13
skin maximum effective stress, SKNMAX=3.8428E+04 Segment 2, point 13
skin maximum effective stress, SKNMAX=4.4620E+04 Segment 3, point 13
skin maximum effective stress, SKNMAX=8.1476E+04 Segment 4, point 12
skin maximum effective stress, SKNMAX=8.0352E+04 Segment 5, point 1
skin maximum effective stress, SKNMAX=1.0464E+05 Segment 6, point 9
skin maximum effective stress, SKNMAX=8.9472E+04 Segment 7, point 1
skin maximum effective stress, SKNMAX=9.0253E+04 Segment 8, point 11
skin maximum effective stress, SKNMAX=8.9363E+04 Segment 9, point 1
skin maximum effective stress, SKNMAX=1.2515E+05 Segment 10, point 13
skin maximum effective stress, SKNMAX=1.2605E+05 Segment 11, point 3
skin maximum effective stress, SKNMAX=9.9798E+04 Segment 12, point 1
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*** Start nonlinear axisymmetric stress,+(mode 2) imperfection
skin maximum effective stress, SKNMAX=3.6857E+04 Segment 1, point 3
skin maximum effective stress, SKNMAX=3.4771E+04 Segment 2, point 7
skin maximum effective stress, SKNMAX=4.9353E+04 Segment 3, point 12
skin maximum effective stress, SKNMAX=4.9137E+04 Segment 4, point 3
skin maximum effective stress, SKNMAX=1.0450E+05 Segment 5, point 12
skin maximum effective stress, SKNMAX=1.0321E+05 Segment 6, point 1
skin maximum effective stress, SKNMAX=1.2521E+05 Segment 7, point 7
skin maximum effective stress, SKNMAX=1.0678E+05 Segment 8, point 1
skin maximum effective stress, SKNMAX=8.8730E+04 Segment 9, point 11
skin maximum effective stress, SKNMAX=8.7806E+04 Segment 10, point 1
skin maximum effective stress, SKNMAX=1.1831E+05 Segment 11, point 10
skin maximum effective stress, SKNMAX=1.1486E+05 Segment 12, point 2
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*** Start nonlinear axisymmetric stress,-(mode 1) imperfection
skin maximum effective stress, SKNMAX=3.7813E+04 Segment 1, point 1
skin maximum effective stress, SKNMAX=7.4018E+04 Segment 2, point 13
skin maximum effective stress, SKNMAX=7.3989E+04 Segment 3, point 1
skin maximum effective stress, SKNMAX=6.8042E+04 Segment 4, point 10
skin maximum effective stress, SKNMAX=6.6354E+04 Segment 5, point 1
skin maximum effective stress, SKNMAX=1.0759E+05 Segment 6, point 11

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**skin maximum effective stress, SKNMAX=1.0374E+05 Segment 7, point 1**  
**skin maximum effective stress, SKNMAX=1.2377E+05 Segment 8, point 9**  
**skin maximum effective stress, SKNMAX=1.1915E+05 Segment 9, point 1**  
 skin maximum effective stress, SKNMAX=7.7208E+04 Segment 10, point 8  
 skin maximum effective stress, SKNMAX=9.5081E+04 Segment 11, point 13  
**skin maximum effective stress, SKNMAX=1.2338E+05 Segment 12, point 8**

\*\*\* Start nonlinear axisymmetric stress, -(mode 2) imperfection  
 skin maximum effective stress, SKNMAX=4.5526E+04 Segment 1, point 13  
 skin maximum effective stress, SKNMAX=4.7902E+04 Segment 2, point 13  
 skin maximum effective stress, SKNMAX=8.2009E+04 Segment 3, point 12  
 skin maximum effective stress, SKNMAX=8.0648E+04 Segment 4, point 1  
 skin maximum effective stress, SKNMAX=9.1348E+04 Segment 5, point 9  
 skin maximum effective stress, SKNMAX=8.6123E+04 Segment 6, point 1  
 skin maximum effective stress, SKNMAX=9.7498E+04 Segment 7, point 9  
 skin maximum effective stress, SKNMAX=8.8314E+04 Segment 8, point 1  
**skin maximum effective stress, SKNMAX=1.2277E+05 Segment 9, point 11**  
**skin maximum effective stress, SKNMAX=1.2313E+05 Segment 10, point 2**  
 skin maximum effective stress, SKNMAX=9.4445E+04 Segment 11, point 13  
 skin maximum effective stress, SKNMAX=9.4306E+04 Segment 12, point 1

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**NOTE: The maximum allowable stress during optimization is 120000 psi.**