



Fig. 180 Optimized unstiffened equivalent ellipsoidal shell with thick apex,  $t(\text{apex})=0.4$  inch;  $W_{\text{imp}}=0.2$  inch; the optimum design is listed in Table 78. Shown here are three load cycles for load set B (load factor PB) that produce residual dents of three different depths. The load set B consists of a number of normal concentrated loads applied along the junction of shell segments 3 and 4 that has a  $\cos(\theta)$  circumferential distribution from  $\theta = 0$  to 90 degrees. (Figs. 2, 169, 190, 191; See Shell units 11 and 12 listed in Table a40, except that the input datum, LT, in Load Set B is +1 instead of -1). This “ $\cos(\theta)$ ” loading produces a more harmful dent than that produced by a pressure applied to a single finite element, as is demonstrated in Fig. 188. Compare with Fig. 175.