are given below with the associated manufactured interferences. The press loads were estimated by assuming an interface coefficient of friction of 0.1.

Ring	Load, tons	Manufactured Interference, inch/inch
Sleeve 2 into container housing	1500	0.00208
Sleeve 1 into assembly	1040	0.00443
Liner into assembly	1130	0.00443

It is important to note that all the interferences given above are as manufactured and not as generated during assembly. The assembly interference achieved in pressing the liner into position was 0.0092 inch/inch. It was not possible to determine the actual press loads required because in each case, the rings were pressed home in a continuous stroke up to the press capacity of 2200 tons.

By measuring the liner bore diameter before and after its assembly, the actual surface hoop prestress was calculated to be -255,000 psi. This is lower than the design prestress of -268,000 psi. While the maximum pressure capability of the container remains at 250,000 psi, the effect of the reduction in prestress obtained is expected to marginally reduce the fatigue life (10^6 cycles) compared to the design value.

APPENDIX I

ELASTICITY SOLUTION FOR A RING SEGMENT

A ring segment is shown in Figure 77. Its geometry is defined by the radii r_1 and r_2 and the angle α. The loading of the segment is a pressure p_1 at r_1 and p_2 at r_2. For equilibrium, p_2 is related to p_1 by Equation (21) in the text; i.e.,

$$p_2 = \frac{p_1}{k_2} \qquad (92)$$

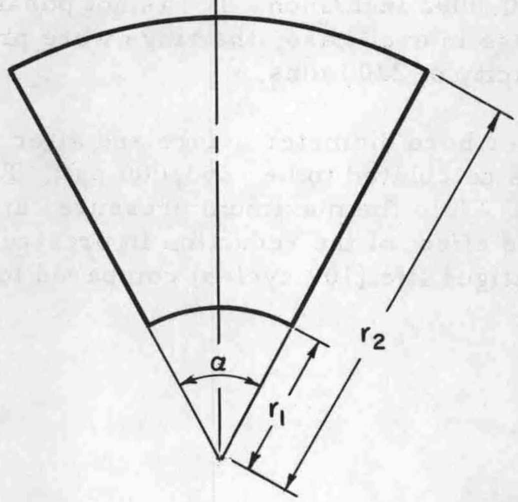

FIGURE 77. GEOMETRY OF RING SEGMENT

The solution for the stresses within the segment is found by superposition of two solutions: The Lamé solution for a cylinder, Equations (13a-c) and (14a, b) in the text, plus a bending solution, Equations (48) and (53) in Reference (41). The bending solution removes the moment from the sides of the segment that exists in the Lamé solution. The latter equations for the bending solution are written as

$$(\sigma_r)_b = \frac{4M_1 p_1}{\beta_1} f_1(r), \quad (\sigma_\theta)_b = \frac{4M_1 p_1}{\beta_1} f_2(r), \quad (\tau_{r\theta})_b = 0 \qquad (93a\text{-}c)$$

and