From Lockheed Missiles & Space Company, Inc. report LMSC-D407166, December, 1974

(This is an abridged version. See the full-length paper for more: bosor5.papers/1974.usersmanual.pdf. Also see the following: bosor5.abstracts/b5endshort.pdf, bosor5.abstracts/b5packet.pdf, bosor5.abstracts/bosor.caution.pdf, bosor5.abstracts/bosor.caution2.pdf, bosor5.abstracts/bosor.caution3.pdf, bosor5.abstracts/bosor5.scope.txt, and bosor5.abstracts/case1.readme.txt.)

BOSOR5 – A COMPUTER PROGRAM FOR BUCKLING OF ELASTIC-PLASTIC COMPLEX SHELLS OF REVOLUTION INCLUDING LARGE DEFLECTIONS AND CREEP

VOL. 1: USER'S MANUAL, INPUT DATA

By
DAVID BUSHNELL

ABSTRACT

This volume contains the instructions to the user for constructing data decks for the BOSOR5 computer program. BOSOR5 runs on the UNIVAC 1108 and the CDC 6600. (2011 NOTE: BOSOR5 runs on LINUX.) It is divided into three separate programs, a pre-processor, a main-processor, and a post-processor. These programs may be run as one job in a run stream or separately. The program includes a restart capability. BOSOR5 can handle segmented and branched shells with discrete ring stiffeners, meridional discontinuities, and multi-material construction. The shell wall can be made up of as many as six layers, each of which is of a different nonlinear material. In the pre-buckling analysis axisymmetric behavior is presumed. Bifurcation buckling loads are computed corresponding to axisymmetric or non-axisymmetric buckling modes. The strategy for solving the nonlinear pre-buckling problem is such that the user obtains reasonably accurate answers even if he or she uses very large load or time steps. BOSOR5 has been checked by means of numerous runs in which the results have been compared to other analyses and to tests.
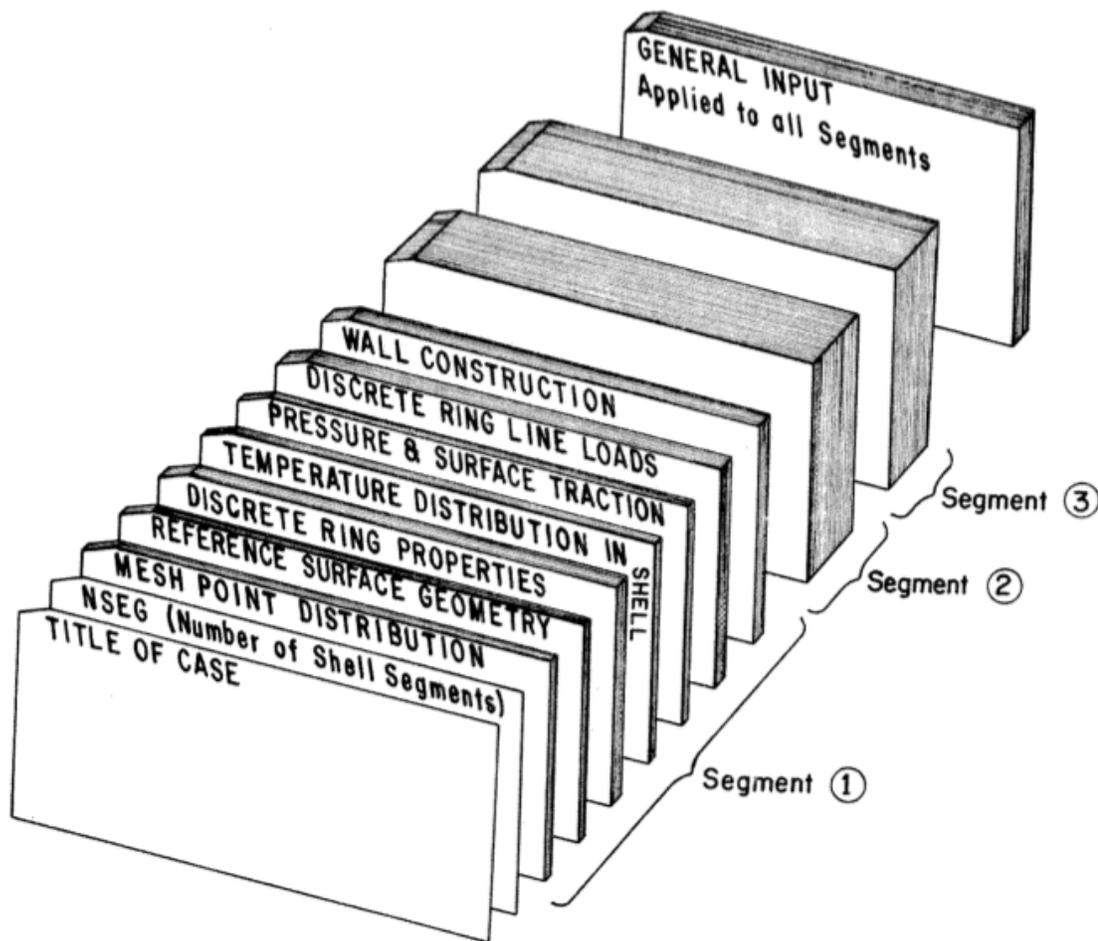
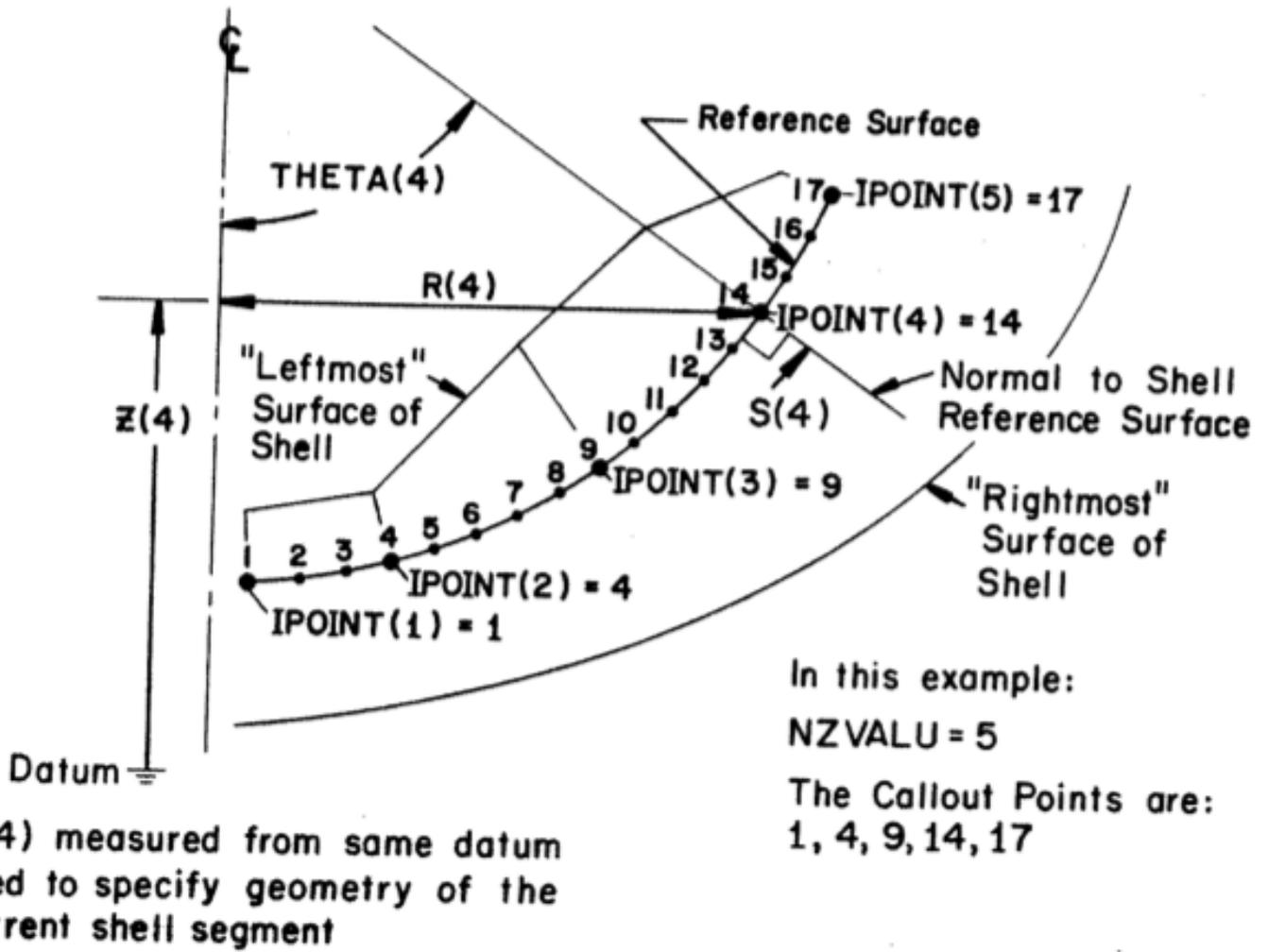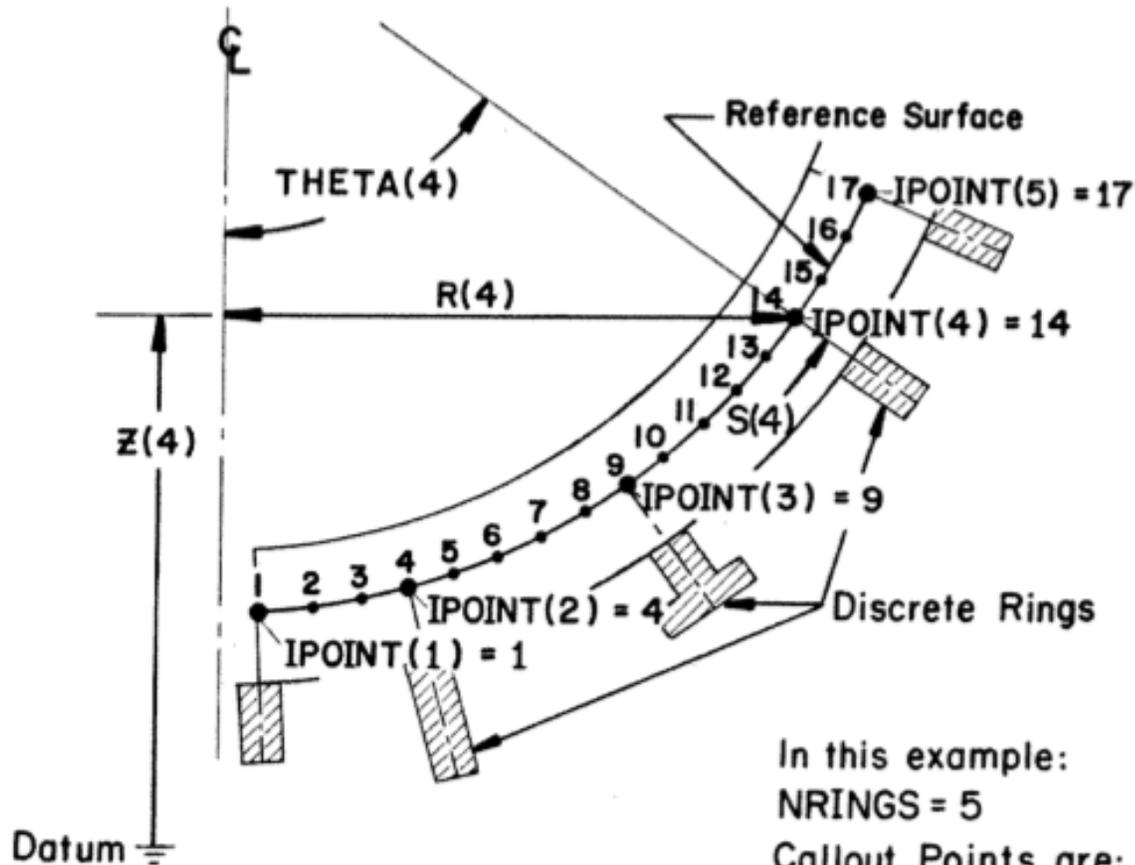Fig. x Input deck for the BOSOR5 pre-processor (called BOSORREAD). (from the report, LMSC-D407166, December, 1974)

Fig. y BOSOR5 input data pertaining to the location of the shell reference surface relative to the material of the wall of a shell segment. (from the report, LMSC-D407166, December, 1974)

Fig. z, BOSOR5 input data pertaining to the locations of the points on the reference surface of a shell segment to which discrete rings are attached. (from the report, LMSC-D407166, December, 1974)