APPENDIX III

COMPUTER PROGRAMS

The analyses described in the text were programmed in the FORTRAN IV alogarithmic language for calculation on Battelle's CDC 3400 and 6400 computers.* The following is a list of programs which includes a brief description of each:

PROGRAM COMPST1 – Analysis of compound (multi-ring) cylinder based upon static shear strength. Calculation of pressure-to-strength ratio p/2S in Figure 43 in the text.

PROGRAM COMPFG1 – Analysis of compound cylinder based upon shear fatigue strength. Calculation of pressure-to-strength ratio p/σ shown in Figure 44.

PROGRAM SEGMENT1 – Analysis of ring segment under radial pressures. Some results given in Appendix I.

PROGRAM SEGM2N – Analysis of pin segment under radial pressures and shear. Some results given in Appendix I.

PROGRAM COMPHS1 – Analysis of compound cylinder with high-strength liner. Calculations of pressure-to-strength ratios p/σ_1 and p/σ shown in Figures 45, 46, 47, and 48.

PROGRAM COMPHS2 – Analysis of compound cylinder with high-strength liner. Calculation of shrink-fit interferences, operating stresses, and prestresses.

PROGRAM PLTR1 – Analysis of Poulter (ring-segment) cylinder with high-strength liner. Calculation of pressure-to-strength ratios p/σ_1 and p/σ shown in Figures 49, 50, 51, and 52.

PROGRAM PLTR2 – Analysis of Poulter cylinder or pressure support cylinder (inner part of ring-fluid-segment container). Calculation of interferences, operating stresses, and prestress.

PROGRAM PSCYL1 – Analysis of pressure support cylinder (inner part of ring-fluid-segment container). Calculation of pressure-to-strength ratios p/σ_1 and p/σ_3 shown in Figures 53, 54, 55, 56, and 57.

PROGRAM PGSPNCYL – Analysis of segmented shear-pin (pin-segment) cylinder with high-strength liner. Calculation of pressure-to-strength ratio p/σ_1 and p_1/p shown in Figures 58 and 59.

PROGRAM MULTIR – General analysis of compound (multiring) cylinder based on fatigue-strength criterion. The program may be used interchangeably for the ring-fluid-ring design concept.

*Since writing the early programs, the CDC 3400 computer has been superceded by the more versatile CDC 6400 computer. The codes have been modified accordingly.

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