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APPENDIX A

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13. ABSTRACT			
<p>Consideration is given to the critical loads on ships' hulls, as indicated by possible modes of structural damage and/or failure. An ultimate load criterion is then set up involving the following bending moments:</p> <p>Quasi-static wave-induced, vertical and lateral combined. Still water, including effect of ship's own wave. Dynamic loads, including slamming, whipping, and springing. Thermal effects.</p> <p>The determination of each of these loads is discussed in detail, and the need for further clarification of dynamic loads is brought out. Methods of combining these loads, all expressed in probability terms, are considered.</p> <p>A criterion for cyclic loading is discussed, involving the prediction of the expected number of combined loads of different levels, as well as the expected shifts of mean value. A criterion for brittle fracture is also discussed.</p> <p>Attention is given to estimating an acceptable probability of failure for use in design. Finally, calculations of loads are carried out for a typical cargo ship, the S.S. <u>Wolverine State</u>. The loads are then combined in accordance with the proposed ultimate load criterion and compared with the standards under which the ship was designed.</p>			

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Bending moments Wave loads Still water loads Thermal effects Cyclic loads Dynamic loads Combining loads Design of hull girder						

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## SHIP STRUCTURE COMMITTEE PUBLICATIONS

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- SSC-227, *Tanker Transverse Strength Analysis - User's Manual* by R. Nielsen, P. Y. Chang, and L. C. Deschamps. 1972. AD 752771.
- SSC-228, *Tanker Transverse Strength Analysis - Programmer's Manual* by R. Nielsen, P. Y. Chang, and L. C. Deschamps. 1972. AD 752742.
- SSC-229, *Evaluation and Verification of Computer Calculations of Wave-Induced Ship Structural Loads* by P. Kaplan and A. I. Raff. 1972. AD 753220.
- SSC-230, *Program SCORES - Ship Structural Response in Waves* by A. I. Raff, 1972. AD 752468.
- SSC-231, *Further Studies of Computer Simulation of Slamming and Other Wave-Induced Vibratory Structural Loadings on Ships in Waves* by P. Kaplan and T. P. Sargent. 1972. AD 752479.
- SSC-232, *Study of the Factors which Affect the Adequacy of High-Strength, Low Alloy, Steel Weldments for Cargo Ship Hulls* by E. B. Norris, A. G. Pickett, and R. D. Wylie. 1972. AD 752480.
- SSC-233, *Correlation of Model and Full-Scale Results in Predicting Wave Bending Moment Trends* by D. Hoffman, J. Williamson, and E. V. Lewis, 1972. AD 753223.
- SSC-234, *Evaluation of Methods for Extrapolation of Ship Bending Stress Data* by D. Hoffman, R. van Hooff, and E. V. Lewis. 1972. AD 753224.
- SSC-235, *Effect of Temperature and Strain Upon Ship Steels* by R. L. Rothman and R. E. Monroe. 1973.
- SSC-236, *A Method for Digitizing, Preparing and Using Library Tapes of Ship Stress and Environment Data* by A. E. Johnson, Jr., J. A. Flaherty, and I. J. Walters. 1973.
- SSC-237, *Computer Programs for the Digitizing and Using of Library Tapes of Ship Stress and Environment Data* by A. E. Johnson, Jr., J. A. Flaherty, and I. J. Walters. 1973.
- SSC-238, *Design and Installation of a Ship Response Instrumentation System Aboard the SL-7 Class Containership S. S. SEA-LAND McLEAN* by R. A. Fain. 1973.
- SSC-239, *Wave Loads In a Model of the SL-7 Containership Running At Oblique Headings in Regular Waves* by J. F. Dalzell and M. J. Chiocco. 1973.