

Abstract Submitted  
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**Ventilated Supercavities**<sup>1</sup> ELLISON KAWAKAMI, University of Minnesota, ROGER ARNDT, University of Minnesota — The topic of supercavitation is of considerable interest to drag reduction and/or speed augmentation in marine vehicles. Supercavitating vehicles need to be supplied with an artificial cavity through ventilation until they accelerate to conditions at which a natural supercavity can be sustained. A study has been carried out in the high-speed water tunnel at St. Anthony Falls Laboratory to investigate some aspects of the flow physics of such a supercavitating vehicle. During the present experimental work, the ventilated supercavity formed behind a sharp-edged disk was investigated utilizing several different configurations. Results regarding cavity shape, cavity closure and ventilation requirements versus cavitation number and Froude number are presented. Additionally, effects related to flow choking in a water tunnel test section are discussed. Results obtained are similar in character to previously reported results, but differ significantly in measured values. Cavity shape, particularly aft of the maximum cavity diameter, is found to be a strong function of the model support scheme chosen.

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