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FLUCTUATING LIFT FORCE ON GROUPS OF CIRCULAR CYLINDERS IN A TURBULENT BOUNDARY LAYER

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ABSTRACT

An experimental study of the fluctuating lift force on groups of two and three cylinders of finite height immersed in a turbulent boundary layer at subcritical Reynolds number has been carried out in a laboratory wind tunnel.

A technique which makes use of a pneumatic averaging manifold system has been used to measure the fluctuating force at various levels on an instrumented cylinder. Measurements of RMS lift coefficients and mode generalized lift force spectra in a range of spacing and angle attack are presented. The interference levels depend strongly on the spacing and angle attack.