

AN EXPERIMENTAL STUDY OF DAMAGE TO SCALE MODEL CYLINDERS FROM NEAR FIELD UNDERWATER EXPLOSIONS

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An important facet of submarine vulnerability is the study of hull deformation arising from a near field underwater explosion. The mechanisms causing this damage can be broadly characterized as shock wave response and hydrodynamic loading due to the expansion of the bubble of detonation products and its possible collapse onto the hull. The total amount of deformation and the contribution made to it by each damage mechanism will depend on charge size, charge standoff and charge and target orientation. To investigate these aspects of the damage process we have conducted an experimental study with small scale cylinders and charges at our underwater test site. This paper describes the experiment and presents a preliminary analysis of the results.