Abstract Submitted
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On Investigations into the UK Large Scale Gap Test S.J. BURLEY, N.K. BOURNE, University of Manchester, J.C.F. MILLETT, Cranfield University, V. FUNG, R. HOLLANDS, BAE Land Systems, A.M. MILNE, Fluid Gravity Engineering Ltd — Knowledge of the sensitivity of high explosives to shock is important to avoid unwanted detonations in service. The large scale gap test (LSGT) is used in the UK as one of the key qualification tests for energetic materials. These tests consist of a donor charge, a PMMA attenuator (or gap) and a test or acceptor charge. The gap length is varied until 50% of test acceptors are detonated. In this work the shock to detonation behaviour of a UK secondary formulation was measured. Manganin pressure gauges were embedded at various radii in acceptor charges of varying lengths, and the charges were subjected to varying gap output pulses, characterized in earlier work. For longer acceptor lengths and higher gap output pressures, detonation was observed. Curvature was also measured. The test configurations were modelled using a reactive model derived from parallel work done using plate impact. The predications of the hydrocode and the results of the experiments are compared and comments are made on the applicability of the test.

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