THE EFFECTS OF EXPLOSIONS IN SLIGHTLY BURIED CONCRETE STRUCTURES - MODEL TESTS

MERZ,H.A.

Model tests in the scale of 1:10 with slightly buried reinforced concrete structures, in which TNT charges between 0.05 kg and 50 kg were detonated, have been performed in a joint Swiss-Swedish project. The test set-up and the test program is shortly discussed and illustrated with a film and slides.

Measurements of air blast, debris density and crater dimensions of 14 tests are presented and compared with detonations of surface and buried charges. The effects of the decoupling of charges, of the concrete struc-ture and of a small earth cover are shown. From these results conclusions are drawn with respect to the safety of ammunition magazines of this type. Specifically, it is shown that in evaluating the risks in the case of ac-cidental explosions debris throw is more dangerous to persons in the vicinity of such magazines than in air blast. The problem of debris throw is therefore discussed in detail. In addition, recommendations for separation distances between magazines are given.