

A BLAST SIMULATOR FOR MISSILE WARHEADS AGAINST AIRCRAFT FUEL TANKS

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Anti-aircraft missile warheads pose a severe threat to aircraft even when the missile misses the aircraft. The threat from missile warheads can be divided in two primary areas for proximity detonation: fragments and blast. This paper describes the development, calibration, and testing of a blast simulator capable of varying the blast parameters (i.e. pressure, impulse, and time duration) which simulate those obtained at various standoff distances from prototype warhead detonation. The simulator consists of one-faced, variably vented, cubic chamber to which a simulated fuel tank can be attached. Small quantities of sheet explosives were detonated inside the blast simulator to achieve the desired range of blast parameters to load aluminum walls simulating the fuel tank. Experiments were conducted to check out and calibrate the blast simulator. Also, tests were conducted to determine the level of structural damage to walls of empty, half-full, and full fuel tanks. The results of the blast calibration of the simulators are presented.