

AIR-BLAST AND GROUND-SHOCK SIMULATION TESTING OF MASSIVE EQUIPMENT BY PULSE TECHNIQUES

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A new simulation technique was developed for testing of massive equipment to closely approximate air-blast and ground-shock-induced motions by application of a series of force pulses. The characteristics of the train of pulses used are a function of the test article system function (impedance) and the predicted response motion to be duplicated. The mechanical pulse generator developed consists of a cutting tool that is connected to an energy source and is drawn over a work piece. As the cutting tool shears off projections on the work piece, prescribed force pulses are transmitted to the test article. A computer algorithm is used to optimally select the series of force pulses to generate oscillations in the test article to match predicted threat-induced motions.