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Minimizing masses in explosively driven two-shockwave physics applications WILLIAM BUTTLER, FRANK CHERNE, MICHAEL FURLANETTO, JEREMY PAYTON, JOSEPH STONE, LEONARD TABAKA, SAMUEL VINCENT, Los Alamos National Laboratory — We have experimentally investigated different two-shockwave high-explosives (HE) physics package designs to maximize the variability of the second shockwave peak stress, while minimizing the total HE load of the physics tool. A critical requirement is to also have a large radial diameter of the second shockwave to maintain its value as an HE driven two-shockwave drive. We have previously shown that we could vary the peak-stress of the second-shockwave with a 76 mm diameter HE lens driving different composite boosters of PBX 9501 and TNT. Here we report on our results with a 56- and 50-mm diameter HE lens driving Baritol. The results indicate that the 56-mm diameter HE lens works well, as does the Baritol, giving total HE loads of about 250 mg TNT equivalent explosives.

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