

Abstract Submitted
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Release and recompression measurements of multiple component reservoirs for strength drive experiments on the NIF¹ S.T. PRISBREY, H.-S. PARK, C.E. WEHREBERG, C.M. HUNTINGTON, B. MADDOX, R. BENEDETTI, Lawrence Livermore National Laboratory, P. GRAHAM, Atomic Weapons Establishment, T. BAUMANN, M. WILSON, R. RUDD, A. ARSENLIS, B.A. REMINGTON, Lawrence Livermore National Laboratory — The ability to infer strength in materials driven with staged shocks requires the development and accurate measurement of a multiple-shock drive. We have developed such a drive for use in Ta strength experiments up to ~ 5 Mbar [1], which utilizes an initial shock which is large enough to theoretically generate dislocations within the Ta itself. Our desire to investigate other materials, which melt at a lower pressure on their principle Hugoniot, along with the desire to have a drive with an initial shock below the homogeneous nucleation threshold of ~ 660 kbar [2] has prompted us to design and develop a different ~ 5 Mbar drive with a different initial shock. We report here on the proposed design and experimental results achieved at the National Ignition Facility of several of the new components of the drive – specifically the lower density foam layer, an iodinated plastic layer, and an aluminum layer.

[1] PoP **19**, 056311 (2012).

[2] AIP Conf. Proceedings **1426**, 1379 (2012).

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