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**A pneumatic driver for shock wave production** MEGAN LEFTWICH, R. MEJILA-ALVAREZ, K. PRESTRIDGE, Los Alamos National Lab — We are presenting a novel technique to generate shock waves in shock tube experiments. Typically this is done with a high pressure driver section that is separated from the low pressure driven section by a physical membrane. The membrane is burst at a specific pressure and a shock wave is formed. This process limits the repetition of experiments, and membrane particles must be removed from the shock tube after each experiment. The driver presented here does not contain a membrane. Instead, it uses a series of high pressure chambers and fast-acting pistons to create the pressure jump between the high pressure driver section and low pressure driven section. The entire system is controlled remotely and requires no insertion or cleanup of membranes between experiments. The system is designed to achieve shock waves exceeding Mach 3 with air as the working fluid (higher Mach numbers can be generated with other working fluids). It will allow high repetition rates, even in challenging experimental environments (such as a vertical shock tube configuration). We present results from the initial characterization of this driver system.

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