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K-L turbulence model for Rayleigh-Taylor and Richtmyer-Meshkov instabilities GUY DIMONTE, LANL, Los Alamos, NM 87545, ROBERT TIPTON, LLNL, Livermore, CA — A turbulence model is developed to describe the self-similar growth of the Rayleigh-Taylor (RT) and Richtmyer-Meshkov (RM) instabilities. The model describes the evolution of the dominant eddies in the mixing zone with a dimension L and a specific energy $K \equiv V^2/2$. The equations are based on the successful buoyancy-drag models [1] for RT and RM flows, but constructed only with local parameters so that it can robustly describe multi-dimensional flows with multiple shells of materials. The model has several unknown coefficients that are determined by comparing analytical and numerical solutions with RT and RM experiments [2]. [1] Guy Dimonte, Phys. Plasmas 7, 2255 (2000) [2] Guy Dimonte and M. Schneider, Phys Fluids 12, 304 (2000).

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