Stability criteria for MHD equilibrium configurations with flows: a Hamiltonian approach[1] P.J. MORRISON, The University of Texas at Austin, T. ANDREUSSI, F. PEGORARO, Alta Space Pisa, Italy — Stability criteria for equilibrium MHD configurations with flows can be obtained by exploiting the Hamiltonian structure of the magnetohydrodynamics (MHD) equations by referring to three different kinds of energy principles. Following up on previous work [Phys. Plasmas 19, 052102 (2012); 20, 092104 (2013)] we compare the Lagrangian, Eulerian, and Dynamically Accessible stability criteria of a simple set of MHD equilibria. These criteria differ because of the different constraints that are imposed on the variations of the equilibrium quantities in the stability analyses. We illustrate these constraints along with the corresponding stability criteria for cylindrical magnetized plasma configurations with flows.

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