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Three-Axis Magnetic Field Measurements in the TCSU RMF Current Drive Experiment K.M. VELAS, R.D. MILROY, J.A. GROSSNICKLE, A.L. HOFFMAN, K.E. MILLER, Redmond Plasma Physics Laboratory — Detailed magnetic measurements of Field-Reversed Configurations (FRC) from the Translation Confinement and Sustainment Upgrade (TCSU) experiment will be presented. A new 3-axis probe with 90 windings that can simultaneously measure B_r , B_θ , and B_z at 30 radial positions has been installed. This probe is axially translatable and can be moved to any axial position, allowing for a full r-z map of the magnetic field by taking multiple repeatable shots. The probe is BN clad with a 5 mm outside diameter, is UHV compatible, and can be baked to 200 degrees C. Data from this new probe will be combined with data from the current 48 winding 2-axis probe that measures B_θ , and B_z as a function of radius at the axial midplane. Measurements and analysis will be presented, and a comparison will be made with 3D NIMROD simulations of RMF current drive in the TCSU device [R.D. Milroy, C.C. Kim and C.R. Sovinec, “Extended MHD simulations of FRC formation and sustainment with RMF current drive,” *Phys. Plasmas*, **17**, 062502 (2010)].

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