Jeffery Thomas Neugebauer* (jeffrey.neugebauer@eku.edu), Department of Mathematics and Statistics, 521 Lancaster Ave., 313 Wallace Building, Richmond, KY 40475. A Singular Fractional Boundary Value Problem.

For $\alpha \in (1,2]$, the singular fractional boundary value problem $D_{0+}^{\alpha}x + f(t,x) = 0$, 0 < t < 1, satisfying the boundary conditions $x(0) = D_{0+}^{\beta}x(1) = 0$, where $\beta \in (0, \alpha - 1]$, and D_{0+}^{α} and D_{0+}^{β} are Riemann-Liouville derivatives of order α and β respectively, is considered. Here we assume f(t,x) is singular at the value x = 0. Using fixed point methods, we show the existence of a positive solution of this boundary value problem. (Received February 21, 2017)