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A Recalculation of the Angular Momentum Flux in the Pfirsch-Schluter Regime,* S.K. Wong, San Diego Mesa College, V.S. Chan, General Atomics – The toroidal angular momentum flux in the small rotation version of neoclassical transport theory in the Pfirsch-Schluter regime was calculated by Hazeltine [Phys. Fluids 17, 961 (1974)]. The validity of the drift-kinetic-equation-based approach employed in that reference has recently been questioned by Catto and Simakov, [Phys. Plasma 12, 012501 (2005)], who have also evaluated the flux from a fluid approach. We have found that Hazeltine's approach can be justified with the additional assumptions of a small poloidal field compared with the toroidal field and updown symmetric poloidal flux functions, besides the usual approximation of small gyroradius and large collisionality. We have revisited his calculations using an adjoint equation approach followed by expansions in Sonine polynomials, and have found substantial differences. We shall also compare the drift-kinetic and the fluid approaches.

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