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Internal Magnetic and Temperature Measurements on the ZaP Experiment R.P. GOLINGO, U. SHUMLAK, B.A. NELSON, R.J. OBERTO, Aerospace and Energetics Research Program, University of Washington — The ZaP Flow Z-pinch experiment is studying the effect of sheared flows on gross plasma stability. During a quiescent period in the magnetic mode activity, a dense Z-pinch with a sheared flow is observed on the axis of the machine. A better comparison between the experimental and analytic results can be made once the pressure profile is known. Measurements of the electron temperature on the axis of the Z-pinch are made with a single point Thomson scattering system. The magnetic field is measured at the characteristic radius using Zeeman splitting. These diagnostics have been built using available components, reducing the cost. The local electron temperature is found by including all of the effects of the notch filters in the spectrometer. The local magnetic field is found by deconvolving the spectral intensity of the left and right circularly polarized line emission. The diagnostics, calibration, and analysis techniques will be described. The measurements show that the current is confined to the characteristic radius and that the temperature is consistent with that found using force balance.

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