Plasma Parking into Off-axis Storage Traps J.R. DANIELSON, N.C. HURST, C.J. BAKER, C.M. SURKO, University of California - San Diego — Advanced uses of positrons benefit by the development of efficient techniques for particle accumulation, storage and delivery. The multicell Penning-Malmberg trap is being developed as a way to obtain high-capacity antimatter traps. The multicell test structure at UCSD consists of multiple aligned storage cells, with one cell on the magnetic axis, and three off-axis. Described here are tests of the process by which plasma, first located in a large diameter master cell, is autoresonantly excited into a large amplitude diocotron mode and then transferred into off-axis cells. Through the use of bounce-average orbits and other manipulation techniques, the plasma position during transfer can be controlled precisely, and the plasma can be “parked” at any radial or azimuthal location within a storage cell. Other experiments in the test structure, including plasma lifetime studies and experiments with large space charge, will also be described.