Although decentralized support with equipment upgrades offers some advantages, spare LRU requirements must be included when comparing this option with centralized support. For this assessment, we assumed that additional pods are not purchased. Starting with the SPO pod availability goal of 85 percent in peacetime and our 80 percent goal in wartime, we calculated the LRU investment requirement across the three primary operational scenarios. We used pre-AWOS removal rate data and focused on the wartime requirements during a two-MTW halt-phase operation. As discussed earlier, cost comparisons across options are not significant, so the main point of our discussion is the relative difference between centralized and decentralized spares requirements. Because additional LRUs may be purchased, we split the investment requirement into two elements. First, using a 1998 snapshot of serviceable and unserviceable LRU inventories, we assessed the total repair costs needed to bring the required number of LRUs to operating condition. Next, we calculated the number that would need to be purchased to support each scenario if there were insufficient LRUs available systemwide. We used a total loop time range of 15–30 days for the time associated with depot repair processes plus transportation and order processing.

The curves in Figure E.1 represent LRU investment as a function of total loop time for the MTW scenarios. The solid curve corresponds to a decentralized system during the MTWs and the dashed curve represents centralized support requirements. Note that decentralized support requires more than two times the investment in LRUs to support a two-MTW scenario. Data from the Warner Robins
SPO in 1998 indicate that depot repair time alone averaged about 34 days, so we can expect that the total loop time was over 40 days. This point would fall well beyond the rightmost extreme of the figure. As of June 1999, depot repair times had dropped to about 26 days, or to a point within the 1999 Depot Repair Time shown on the chart.

Furthermore, depot repair process data collected during the AWOS indicate that process times can be significantly lower given adequate resources and prioritization rules.

In assessing a decentralized structure, regardless of SE investment, we estimated that between $5 million and $25 million may be needed in LRU spares investment depending on supply system performance. Centralized support may require between $250,000 and $10 million in LRU investments. These values may be significantly understated because we did not apply AWOS removal rates for this computation. Although the centralization option investment appears lower, recall the sensitivity of this logistics structure to
transportation times. If pipeline times are not carefully controlled, insufficient LRU and pod spares inventories will significantly affect pod availability.