Aircraft maintenance is viewed as a critical safety component in general and military aviation industries, and thus it is crucial to identify the factors that may affect aircraft maintenance. Because the safety climate is a leading indicator of safety performance and safety outcomes, the current research utilized this approach to develop a model which can assist in explaining employee turnover, safety motivation, self-reported unsafe acts, reporting unsafe behaviors, incidents, and injuries in the aviation maintenance environment. This study included a sample of 283 technicians in military aircraft maintenance units who participated in a cross-sectional random survey. Data collected were analyzed using Exploratory Factor Analysis (EFA) and Structural Equation Modeling (SEM) techniques. A structural model that fitted the data was developed which predicted 64% of the variance in employee turnover, 7% of the variance in safety motivation, 19% of the variance in unsafe acts, 41% of the variance in reporting unsafe behavior, and 19% of the variance in workplace injuries. Results indicate employees who report a perception of high turnover exhibit decreased safety motivation and increased unsafe acts which lead to higher levels of workplace injuries. The perception of safety climate was identified as an antecedent to safety performance and safety outcomes. Additionally, the effects of control variables such as age and education were tested. The implications for safety management in aircraft maintenance were also discussed. The study’s results provide directions for future research on the turnover of aircraft maintenance technicians, safety performance, and safety outcomes.