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This paper examines the accelerated failure time competing risks model with missing cause of failure using the monotone class rank-based estimating equations approach. We handle the non-smoothness of the rank-based estimating equations using a kernel smoothed estimation method, and estimate the unknown selection probability and the conditional expectation by non-parametric techniques. Under this setup, we propose three methods for estimating the unknown regression parameters based on 1) inverse probability weighting, 2) estimating equations imputation and 3) augmented inverse probability weighting. We also develop the associated asymptotic theories and investigate the small sample behaviour of the estimators in a simulation study. Real data applications based on a bone marrow transplant study and a HIV vaccine efficacy trial study are considered.