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# Repairable Systems—No Longer the Stepchild of Reliability!!!

## Repairable System Reliability Modeling Using PROC RELIABILITY in SAS/QC® 9.3

Deovrat Kakde, Kavi Associates  
Vijitha Kaduwela, Kavi Associates

### ABSTRACT

Most assets are repairable in nature. These assets include transportation systems such as trucks and locomotives, oil and gas drilling equipment, and heavy engineering equipment such as earthmoving equipment. When assets break down, they are repaired rather than replaced. The measurement and characterization of repairable system reliability requires a different set of statistical techniques as compared to a system that cannot be repaired. The RELIABILITY procedure in SAS/QC® 9.2 allowed modeling of repairable system reliability using the nonparametric mean cumulative function (MCF). In SAS/QC 9.3, PROC RELIABILITY offers a much-needed functionality to model recurrent event data by fitting a nonhomogeneous Poisson process (NHPP). This paper illustrates the use of nonparametric MCF and parametric NHPP to model reliability of critical subsystems of a repairable system.

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### CONTACT INFORMATION

Deovrat Kakde  
Kavi Associates  
deovrat.kakde@kaviglobal.com

Vijitha Kaduwela  
Kavi Associates  
vijitha.kaduwela@kaviglobal.com

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