

Reliability Centered Maintenance

Automatizing the reliability centered maintenance analysis with functional modeling and reasoning technique

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Reliability Centered Maintenance (RCM) is a systematic analysis approach for planning and optimizing the complete Preventive Maintenance (PM) regime. There is an revolutionary transformation in maintenance mindset by RCM, that maintenance is not about protecting equipment but should be used to preserve functions. Therefore, function and functional failure analysis play an fundamental role for effective maintenance decision-making. In this work, a model-based RCM framework is proposed. Multilevel Flow Modeling (MFM) is used to establish the basic functional knowledge for the RCM analysis, and the built-in intelligent causal reasoning solution in MFM can automatically indicate the failure consequences of all equipment failure modes on the defined system functions. The results can lead to asset classifications in accordance with the RCM decision logic, which will help to decide the specific maintenance actions.