

发电

## 电站辅机缺陷更换部件解体检查间隔优化

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摘要

在电站辅机中存在一类对设备安全有重要影响的劣化部件,其劣化过程没有相应的监测手段,解体检查中采取“缺陷更换”的维修策略;在维修历史记录中,有缺陷更换记录,而无功能故障记录。该文采用延迟时间模型,解决了因缺乏由缺陷状态至功能故障状态转移的概率值而无法计算功能故障费用期望值的问题,并建立了一种针对此类维修策略的解体检查间隔优化模型。缺陷更换部件可能采取3类维修策略:现行的最小机会检查间隔下的初始缺陷更换,优化检查间隔下的初始缺陷更换,传统的定龄更换。为比较以上3类维修策略的优化效果,还研究了评价其优化效果的计算方法。最后,以DGT 750-180给水泵耦合器轴承为对象进行实例研究。结果表明,优化效果良好,并具有实用价值。

关键词 [电站辅机](#) [缺陷更换](#) [解体检查间隔](#) [延迟时间](#)

分类号 [TB114](#); [TK37](#)

## Optimization on Disassembly Inspection Interval for Defect-found Replacement Components of Power Plant Auxiliaries

Abstract

Among power plant auxiliaries, there is a kind of deteriorated components with critical effect on equipment safety. The deteriorating course of these components cannot be monitored. The maintenance policy of these components is defect-found replacement. In the maintenance history records, replacement because of defect can be found, but replacement because of function failure can never be found. By utilizing delay time model, the problem that the expecting cost on function failure cannot be calculated because of absence of transferring possibility from defect to failure is solved, and an optimizing model is set up for the maintenance policy to determine these components' disassembly inspection interval. There are three possible maintenance policies for defect-found replacement components. The current policy is that inspection is done at every possible chance, and the component is replaced whenever the defect is found. The optimized policy is that inspection is done at optimal interval, and the component is replaced whenever the defect is found. The traditional policy is age-replacement. In order to compare these three policies, the algorithm to estimate the optimizing effect is studied. At last, the DGT750-180 feed pumps' coupler bearing is studied as a case. The result manifests that the optimizing effect is quite well. The model set up is of practical value.

Key words [power plant auxiliaries](#) [defect-found replacement](#) [disassembly inspection interval](#) [delay time](#)

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