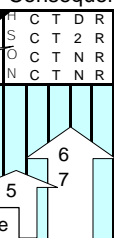


Item Number: Built-in test equipment:  
 Item Description: Can equipment be operated with item inoperative? Describe limitations:  
 Redundancies and Protective Features: Operating phases:  
 Reliability Data (if available): Operating context:

RCMREF	Function Statements (Quantitative Performance Requirements)	Failed States (Ways Performance is Lost)	Failure Causes	Local and Global Effects	Consequences - Decisions - Tasks		
					H S O N	C T 2 R	Maintenance Tasks (materials, tools, procedures, other requirements)

The decision algorithm. Upon determination of the consequences (H, S, O, or N) proceed from left to right by answering the questions:  
 C: Can CBM reliably detect the 'failing' state early enough to reduce the failure's probability and/or its consequences to a tolerable level? Does it make economic sense to perform this task at the frequency required?  
 T: Is there an age (useful life) at which the probability of failure due to this failure mode increases rapidly, and do most items survive to this age? Can a routine (TBM) task reduce the failure's probability and/or its consequences to a tolerable level?  
 D: Is a detection task applicable? Will it reduce the multiple failure's probability to a tolerable level. Is it effective? Is it practical to do the task at the required interval?  
 2: Can a combination of 2 or more TBM and CBM tasks be effective (avoid or reduce the safety consequences to a tolerable level)? Are they applicable (practical)?  
 N: No time nor condition based activities need be scheduled.  
 R: Redesign compulsory (H or S), optional (O or N)

Consequences:  
 H = Hidden  
 S = Safety/Environment  
 O = Operational  
 N = Non-operational



Additional columns as required, for example, hazops, criticality analysis, risk priority number, standard work order references, standard operating procedures, functional locations, ISO 14224, reliability data, mtbf, and so on.

- record the consequence
- record the most noble task that is applicable and effective.
- what sequence of events (component level to organization) could be touched off by the failure mode?
- how does the failure make itself known? What observable events lead up to the failure?
- how is safety or the environment impacted? (without mentioning the words "safety" or "environment")
- how is production impacted? (quality, cost, customer service)
- is there any additional damage caused? Are there currently any mitigating circumstances or tasks?
- how long will it take and what actions must be accomplished to correct the failure?
- How does the likelihood of this failure depend on deeper causes? Has it happened before? How often? Under what circumstances? How likely or unlikely is this failure mode considered to be?

- usually written as a noun followed by a verb and a *due-to* clause - deterioration (fatigue, abrasion, erosion, corrosion, etc.), lubrication, dirt, incorrect process / materials, incorrect assembly / setup / operation, etc.
- it is the event that causes the loss in functionality (i.e. the failed state)
- decide how many reasonably likely failure modes (per failed state) to include (balance likelihood and consequences)
- decide how low on the causality chain to go (to the level that can be addressed by a suitable task).

2 • in what way may each performance requirement (implicit or explicit) in the function statement be compromised?

- how does the physical asset fulfill all the requirements of the user? (in its current operating context)
- usually starts with the word "to" and contains at least one (preferably more) quantitative performance standards
- list the actual user/owner/society requirements, not the asset's design or initial capability.
- use code phrases to imply a hidden function (e.g. to be capable of, to be able to, ...to heat to 140C in the presence of a standby heater.)
- secondary: Protection-Environment-Appearance-Control/contain/comfort-Health&safety-Efficiency-Structure/superfluous
- specify the mission phase (during startup, during operation, during shutdown, during specified operating context)
- decide whether the function is more simply represented as a failure mode of some more "primary" function

• Provide as much detail and clarity as possible so as to make subsequent transcription to SOPs and CMMS PM work orders quick and easy but ... do not spend valuable analysis time on redesign at this time! (Mainly specify the redesign requirements.)