Reference

1. F. Stanley Nowlan and Howard F. Heap. Reliability-Centered Maintenance. United Airlines and Dolby Press, 1978.
2. Eschmann, et al, Ball and Roller Bearings: Theory, Design, & Application, John Wiley & Sons, 1985
3. Tedric A. Harris, Roller Bearing Analysis, Second Edition, John Wiley and Sons, New York, 1984
4. NASA NPG 8831.2, Facilities Maintenance Management Handbook

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Reliability & RCM

Reliability is the probability that an item will survive a given operating period, under specified operating conditions, without failure.

Reliability Centered Maintenance (RCM) is the process that is used to determine the most effective approach to maintenance. It involves identifying actions that, when taken, will reduce the probability of failure and which are the most cost effective.

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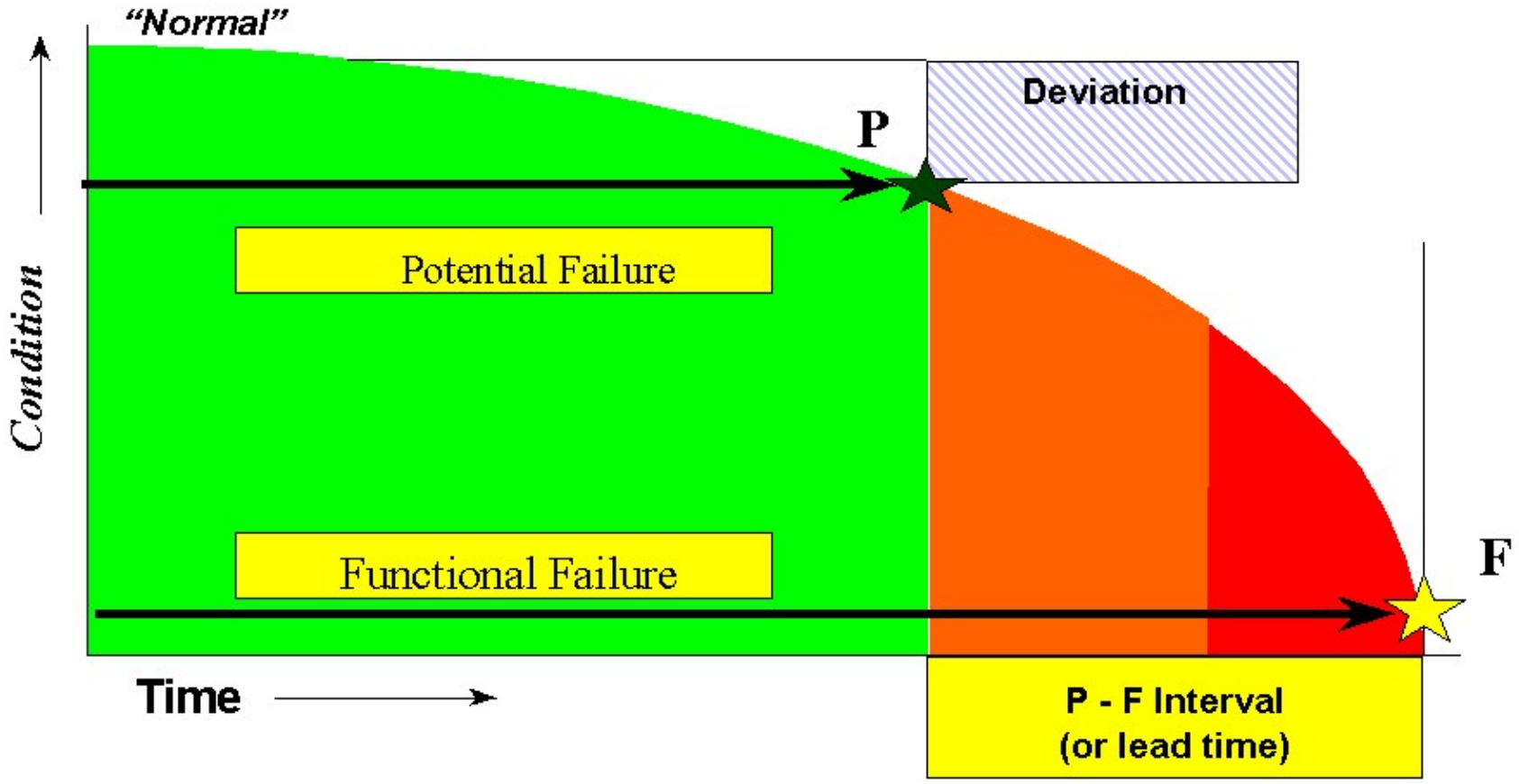
P-F Interval



The time from when a potential failure (**P**) is first detected on an asset or component using a selected predictive maintenance task, until the asset or component has failed (**F**)

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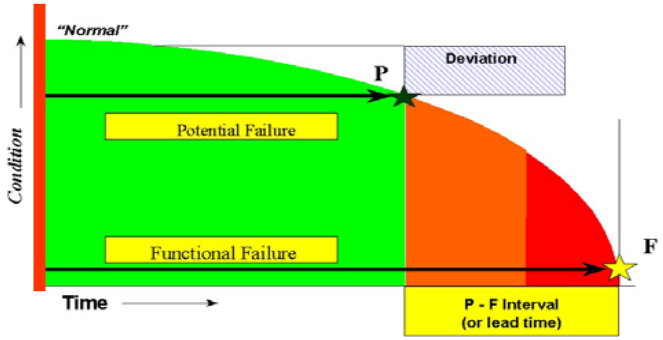
Compressors



Condition Measures	Performance Measures
–Leaking valves and rings	–Horsepower
–Rider band wear	–Capacity
–Crosshead wear	–Efficiency
–Liner damage	–Valve dynamics
–Excessive frame vibration	–Gas pulsations
–Lack of Rod reversal	
–Foundation or grout damage	

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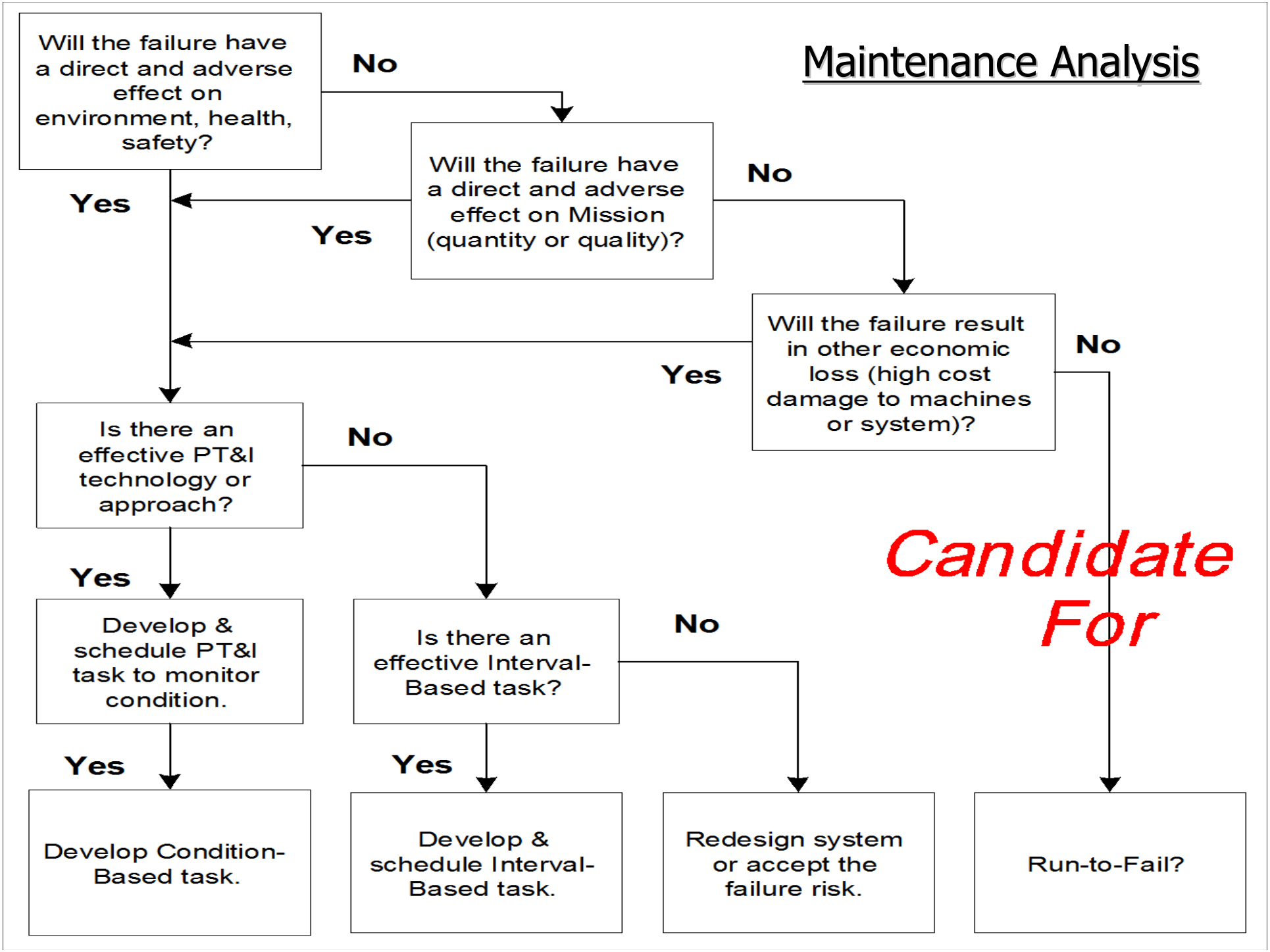
MTBF= (4+2+3+1+1) / 5

MTTR= (2+1+0.5+1) / 4

	Even	Duration (hour)
1	Normal work	4
2	Stop	2
3	Normal work	2
4	Change over or setup	0.5
5	Normal work	3
6	Failure	1
7	Normal work	1
8	Breakdown	0.5
9	Normal work	1
10	Stop	1

Maintenance Analysis



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Criticality and Probability Ranking

Ranking	Effect	Comment
1	None	No reason to expect failure to have any effect on Safety, Health, Environment or Mission.
2	Very Low	Minor disruption to facility function. Repair to failure can be accomplished during trouble call.
3	Low	Minor disruption to facility function. Repair to failure may be longer than trouble call but does not delay Mission.
4	Low to Moderate	Moderate disruption to facility function. Some portion of Mission may need to be reworked or process delayed.
5	Moderate	Moderate disruption to facility function. 100% of Mission may need to be reworked or process delayed.
6	Moderate to High	Moderate disruption to facility function. Some portion of Mission is lost. Moderate delay in restoring function.
7	High	High disruption to facility function. Some portion of Mission is lost. Significant delay in restoring function.
8	Very High	High disruption to facility function. All of Mission is lost. Significant delay in restoring function.
9	Hazard	Potential Safety, Health or Environmental issue. Failure will occur with warning.
10	Hazard	Potential Safety, Health or Environmental issue. Failure will occur without warning.

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THE END

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