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By S. Fisher	Job No.	Rev.
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PT6 IFSD (In-flight shut down)

Failure rate is published at .01 - .003 per 1000 hrs

Given two engines per aircraft and a one hr flight
(Warmed to MSP ~ 1 hr 10 min)

Find the probability of losing both engines

$$R(t) = \sum_{k=0}^{N-1} \frac{(\lambda t)^k \exp(-\lambda t)}{k!} \quad \text{gamma reliability}$$

0 failures $R(t) = \exp(-.000010 (1)) = .999990$

1 failure $R(t) = .000010 \exp(-.000010) = .000010$

2 failures $R(t) = \frac{(.000010)^2 \exp(-.000010)}{2} = 4.999950 \times 10^{-11}$

1 in 100,000
hrs

1 in 20 billion hrs ANS

Failure to fuel (or similar) more likely
than a dual engine failure