Gas Turbine Equivalent Operating Hours and Inspection Due

Equivalent operating hours from fired hours, starts, trips and peak-load hours with user weighting factors, and the time to the next inspection at the present duty.

Method: Equivalent operating hours concept

Input parameters

Unit system: SI

Parameter	Value	Unit
Fired operating hours	18,000	
Starts	250.00	
Equivalent hours per start	20.000	
Trips from high load	6.0000	
Equivalent hours per trip	100.00	
Hours at peak load	300.00	
Peak-load life factor	3.0000	
Inspection interval	24,000	
Fired hours per year	6,000.0	
Starts per year	80.000	

Calculated results

Parameter	Value	Unit
Equivalent operating hours	24,200	
Remaining to inspection	-200.00	
Years to inspection at present duty (no trips or peak)	0	
Share of EOH from starts	20.661	%

Notes for this case

• EOH = OH + k_s·N_s + k_t·N_t + (f_p − 1)·h_p: each start, trip and peak-load hour consumes hot-section life like extra running hours. The factors and the interval are the maker's, and some makers count starts and hours separately instead. Negative remaining EOH means the inspection is overdue (years then shows 0).

Formula and method

$$EOH = OH + k_s N_s + k_t N_t + (f_p - 1) h_p$$

Variables

OH	Fired operating hours	-
N_s	Starts	-
k_s	Equivalent hours per start	-
N_t	Trips from high load	-
k_t	Equivalent hours per trip	-
h_p	Hours at peak load	-
f_p	Peak-load life factor	-
EOH_i	Inspection interval	-
h_y	Fired hours per year	-
s_y	Starts per year	-

EOH	Equivalent operating hours	-
EOH_{rem}	Remaining to inspection	-
t_{insp}	Years to inspection at present duty (no trips or peak)	-
$\frac{k_s N_s}{EOH}$	Share of EOH from starts	-

Method and standards

Equivalent hours.

Assumptions and limits

- Linear damage accumulation; constant future duty.

References

Equivalent operating hours concept

Report details

Report reference	FCC-RSX6-AJ01 (the same inputs always give the same reference)
Generated	23 November 2026, 17:43 UTC
Calculator	Gas Turbine Equivalent Operating Hours and Inspection Due
Method last reviewed	17 November 2026
Software release	FireCAD Calc, release of 22 November 2026
Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/boilers-power-plant/gas-turbines-combined-cycle/gas-turbine-equivalent-operating-hours

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.