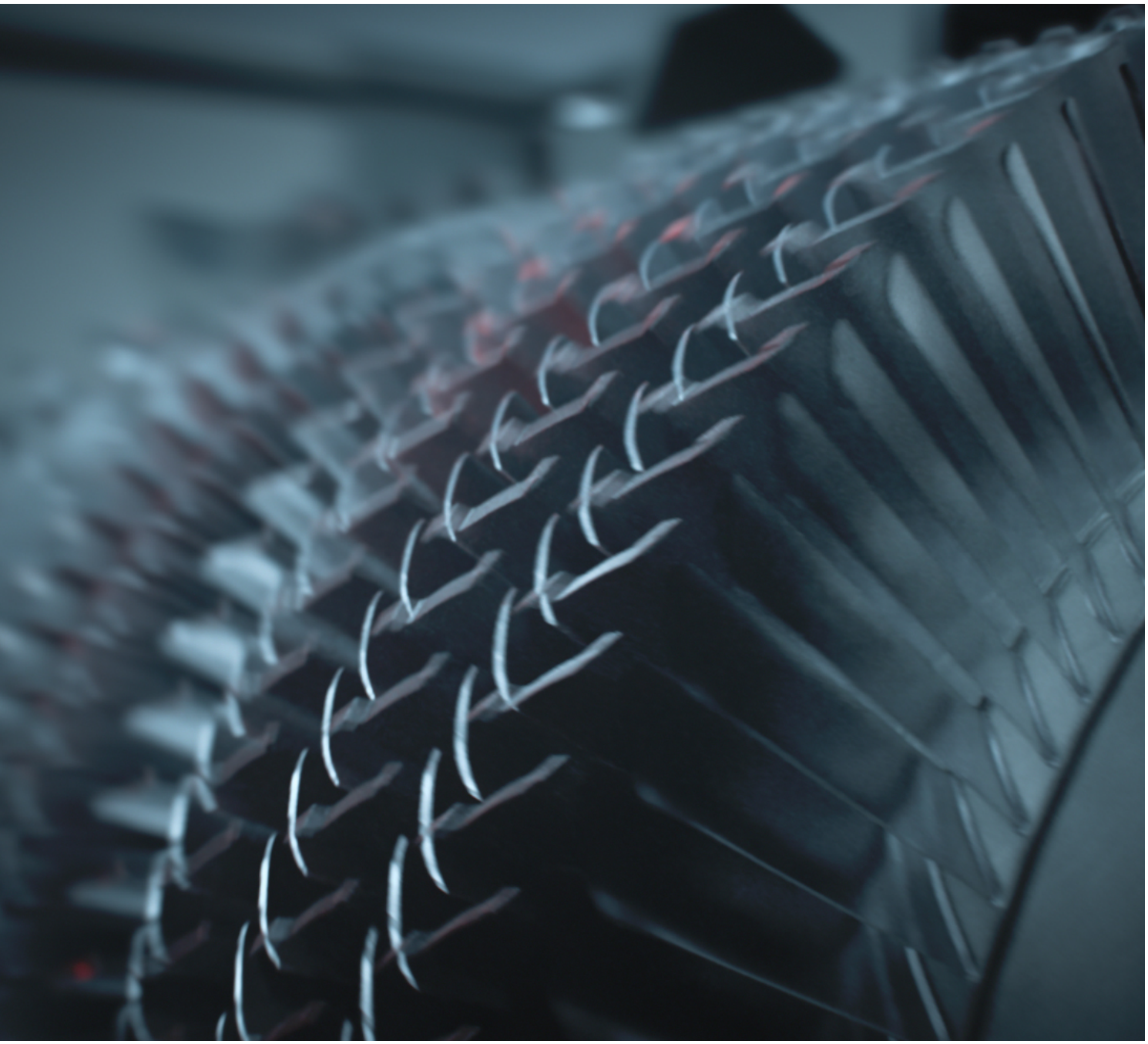
TotalCare

Your ultimate PARTnership

Critical parts and preventative maintenance
to eliminate unnecessary downtime



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Bringing clean air to life.®

AAF Total Care

AAF International has been providing gas turbine packages to Siemens for several decades. These installations cover a wide variety of environments and as the Technical Authority for these systems AAF offers the support you need to avoid unplanned downtime. AAF Total Care is a service designed to increase the reliability and performance of your GT package.

Total Care will highlight the critical parts you need in stock on-site and support you to identify a proactive preventative maintenance schedule. This includes upgrading obsolete parts to superior modern equivalents. Total Care is designed to reduce risk, eliminate unnecessary downtime and optimize performance.

Our 3 Step Commitment:

1. Survey the site
2. Propose and supply the critical parts you need in stock
3. Complete the site specific installation or maintenance

How to Reduce Operational Risk

- **Stock Critical Parts**
- **Schedule Maintenance**
- **Optimize Performance**
- **Eliminate Downtime**

Critical Parts for your GT Package

Downtime for any gas turbine is specific to the size of the engine, the location, the operational conditions and the wider environment. However, as a guide downtime of a peaker unit in a power plant is likely to result in $125,000 in lost output per day. This rises to approx. $450,000 per day in oil and gas production.

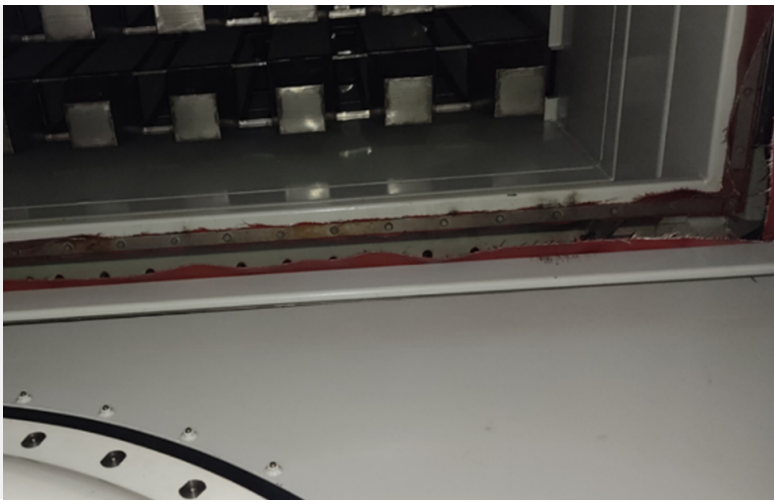
Critical Parts required in stock for combustion intake equipment

Equipment	Operational Risk	
	Lead Time*	Potential Lost Revenue*
Gas Detectors and Sub-components	7 – 8 weeks	**$5.6m in lost revenue**
ASC Pulse System Sub-assembly Parts		
Differential Pressure Switch (Emerson/Dwyer)	8 – 10 weeks	**$7m in lost revenue**
Differential Pressure Transmitter	8 – 10 weeks	**$7m in lost revenue**
Interface to GT Enclosure		
Combustion Intake Flexible *(Typical operational life of 7 years)*	8 – 10 weeks	**$7m in lost revenue**
Ventilation Intake Equipment in Direction of Airflow		
Proprietary Design of Gas Detection	7 – 8 weeks	**$5.6m in lost revenue**
Vent-fan Replacement Motor including Sub-components and Ancillaries	24 – 26 weeks	**$18.2m in lost revenue**
Interface to GT Enclosure		
Vent-fan Flexible Assembly *(Typical operational life of 7 years)*	8 – 10 weeks	**$7m in lost revenue**
Vent Inlet Fire Dampers Actuator	8 – 10 weeks	**$7m in lost revenue**
Exhaust equipment		
Exhaust Outlet Flexible Connection	8 – 10 weeks	**$7m in lost revenue**
Exhaust Fire Dampers Proximity Switches	6 – 8 weeks	**$5.6m in lost revenue**

Potential lost revenue calculation is based on a conservative **$100,000 for every day the GT is shutdown. Lead time is delivered to AAF. Onward delivery to site/storage facility, plus on-site installation time have **not** been taken into consideration in the above table and would be **additional** delays/cost. To eliminate risk these **critical parts must be in stock on-site.***

Case Study: Combustion Intake Seal Damage, Chile

In January 2022, a Siemen's customer in Chile had to shut down due to a GT surge. Visual inspection showed an approx. 50cm section of the air intake flexi was missing and an engine borescope showed signs of Ti fire on HPC1 blades.



Root Cause

There was no defined service life of the air intake flexi (OEM ISL), and only periodic inspections were conducted. Failure occurred between November 2021 (maintenance records show it was in good condition) and January 2022.

Resolution

AAF International sourced a suitable standard seal with a responsible lead time to resolve this matter but to truly mitigate future risk the AAF Total Care service would ensure future issues are prevented.

Future Proofing

To eliminate future operational risk the AAF Total Care service should be implemented. The site would be surveyed to assess the GT package and filter system. Opportunities to upgrade the system will be highlighted and the necessary maintenance can be completed. Critical parts will then be placed in stock on-site to mitigate operational risk.

AAF Total Care will ensure critical parts are stocked on-site to reduce operational risk and eliminate unnecessary downtime.

Optimize™

Regardless of your GT location in most cases air quality is likely to change over time. AAF Optimize evaluates your current filters and explores how different options will impact performance. By understanding your operational goals AAF will ensure the filters selected offer the most favourable outcome. This will ensure gas turbine reliability, availability and efficiency are all optimized.

Speak to your AAF Representative to find out more.

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