

ES1015 501-KC second stage turbine enhancement

Upgraded materials increase power and extend hot section life

energy

Engineered solution purpose

This engineered solution increases power output and durability of the gas turbine.

Applicability

501-KC

Technical description

The enhancement replaces the second stage turbine blades and vanes with platinum aluminide (Pt-Al) coated components.

Benefits

Whilst this engineered solution can provide a 14% increase in horsepower on its own, simultaneous upgrading of the power turbine with a superior unit can realise a total power increase of 27%. If the 501 first stage turbine enhancement is also selected, a heat rate improvement of 2.7% can also be achieved.

The improved materials using the second stage turbine hardware extends the hot section life of the engine.

Experience

This enhancement is the current overhaul standard for all engines.



Scope of work

Replace second stage turbine blades and vanes

Replace thrust balance plate



Second stage turbine blade

Bill of materials

Second stage turbine blades, MAR-M247, Pt-Al

Second stage turbine vanes, MAR-M247LC, Pt-Al

Controls modification (digital control required)

Undertaken

At overhaul

Bundling opportunities

Power turbine upgrade

501 MGT thermocouple conversion [ES1016]

Complete package refurbishment [ES6001]

Healthcare Evaluation Legacy Programme [ES6002]

Controls upgrade [ES6006]