

## ES1014 501-KC first stage turbine enhancement

Proven solution extends hot section life and increases power output



### Engineered solution purpose

This engineered solution increases the power output and in-service durability of the engine.

### Applicability

501-KC

### Technical description

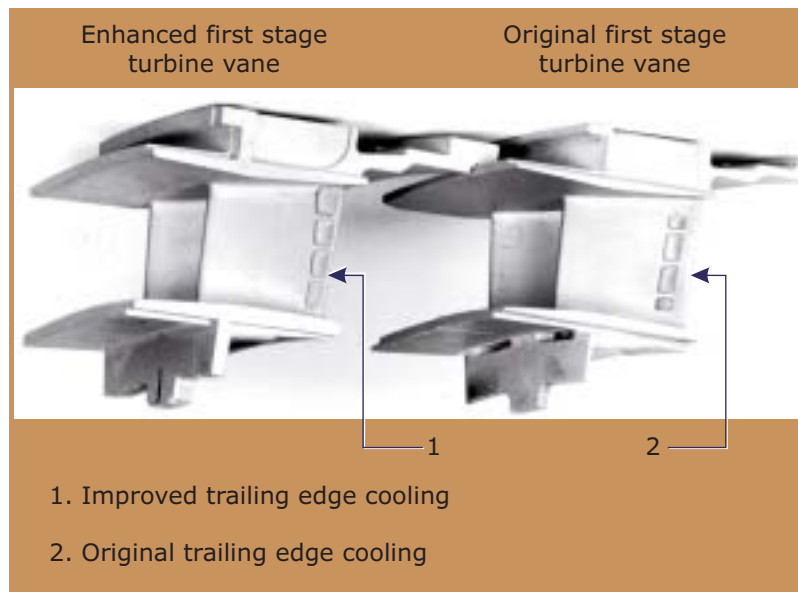
The enhancement replaces the first stage blades with new Directionally Solidified (DS) blades. The first stage vanes are replaced by new Thermal Barrier Coated (TBC) vanes. The thrust balance plate is also replaced.

### Benefits

The improved materials used in this engineered solution extend the hot section life of the gas turbine. By increasing the combustion firing temperature, a power increase can be achieved.

### Experience

The components utilised in this enhancement are all part of the current overhaul standard.



### Scope of work

- Replace first stage turbine blades and vanes
- Replace thrust balance plate
- Modify controls

### Bill of materials

- 1st stage turbine blades, MAR-M247, DS, platinum aluminide coated
- 1st stage turbine vanes, MAR-M247, TBC
- Thrust balance plate
- Controls modification (digital control required)

### Undertaken

At overhaul

### Bundling opportunities

- Power turbine upgrade
- 501 MGT thermocouple conversion [ES1015]
- Complete package refurbishment [ES6001]
- Healthcare Evaluation Legacy Programme [ES6002]
- Controls upgrade [ES6006]