Rolls-Royce

ES4005 RT56 to RT62 upgrade

Increased horsepower, improved heat and zero hour component life option

energy

Engineered solution purpose

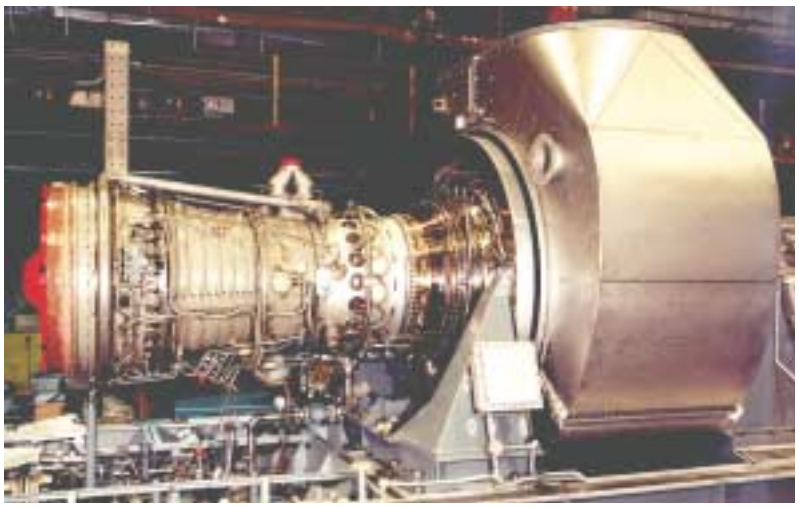
All RT56 power turbines driven by RB211 gas generators can be upgraded to the RT62. By undertaking this engineered solution with its use of the latest components and technologies, available horsepower can be increased and heat rate can be improved. Some minimal degree of package modification may be required.

Applicability

This engineered solution applies to all RT56 power turbines driven by RB211 gas generators. For RB211 packages utilising power turbines not of Rolls-Royce design, an engineered study is recommended to ascertain the full scope of work needed to upgrade to the RT62 power turbine.

Technical description

Along with the capability of increased power and improved heat rate, this upgrade can provide the customer with all the benefits of the "Zero Hour" option where the unit is returned to an "as-new" condition. While this option can be implemented at any point of the unit's life cycle, when it coincides with the 100,000-hour inspection, the customer can realise multiple benefits from the one overhaul.



Benefits

Increased power and improved heat rate. Components with high life are replaced by the current design standard. Conversion of open bladed RT48 to RT48S shrouded blade design provides better efficiency and improved blade vibration damping. Rated speed can be increased to realis full efficiency and power increase.

These benefits can be appreciated for Avon 1533, 1534 and 1535 gas generators provided the appropriate proper vane match is used. The RT48S power turbine fits into the same bearing case configuration and exhaust hood of the RT48.

Experience

A partial list of customers who have selected this engineered solution includes:

Brunei Shell Petroleum - 2 units

Great Lakes Gas Transmission - 7 units

ONGC BHN - 2 units

PG&E- 2 units

Fact sheet

Scope of work

Rotor change

Match first stage vanes to turbine

Casing changes

A review of driven equipment would need to be undertaken and the overall scope will vary depending on existing power turbine configuration.

Bill of materials

Rotor

First stage vanes

Turbine casings

Exhaust diffuser

Fasteners and seals

Undertaken

Stationary components can be upgarded in the berth. The rotor is upgraded at overhaul.

Bundling opportunities

Compressor re-aero [ES5001]

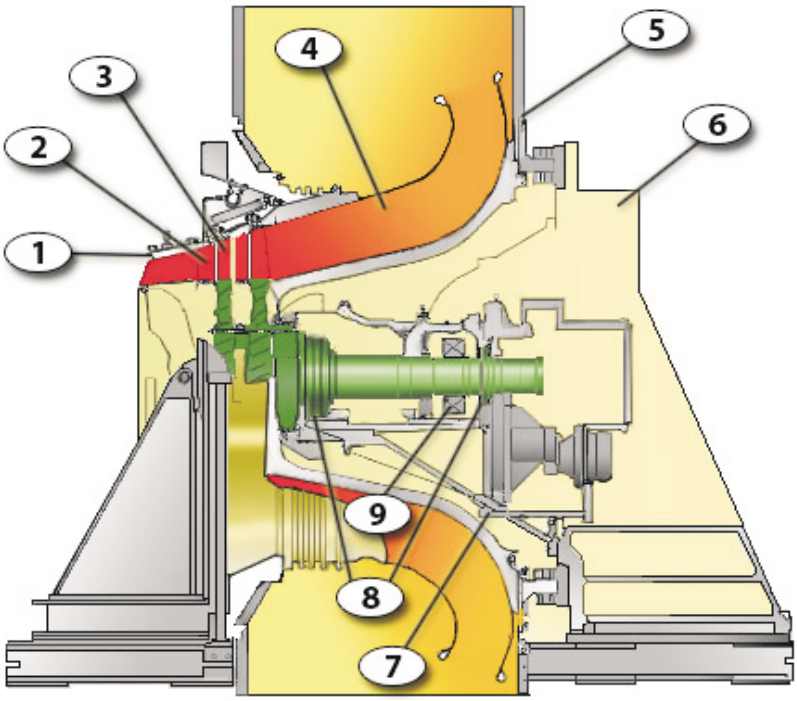
Dry diaphragm coupling conversion [ES5002]

Complete package refurbishment [ES6001]

Avon 1533/1534 to 1535 upgrade [ES2001]

Avon swirler burner kit [ES2003]

Power turbine bearing upgrade [ES4014]



Power turbine major components

1: Inlet diffuser casing

2: 2 stage nozzle vane

3: 2 stage rotor system

4: Exhaust diffuser

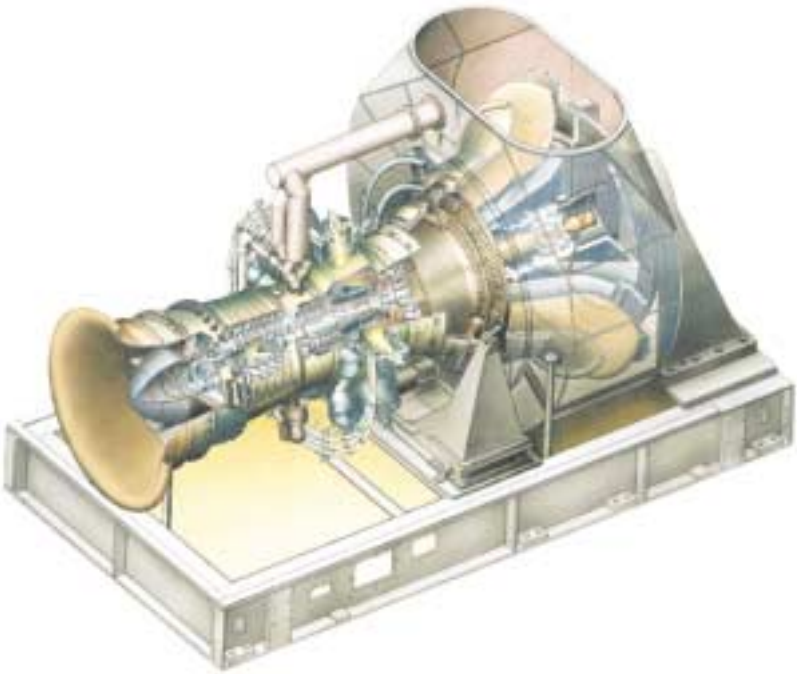
5: Exhaust hood

6: Turbine support

7: Bearing casing

8: Journal bearings

9: Thrust bearing



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