

ES3004 RB211 Dual Fuel conversion

Increase RB211 operational flexibility by adding dual fuel technology



Engineered solution purpose

This engineered solution increases the operational flexibility of RB211 units operating in power generation and oil and gas applications. It also provides a black start capability.

Applicability

All RB211 gas generators not employing Dry Low Emissions combustion technology.

Technical description

By converting to Dual Fuel, the option to run the engine on either gas or liquid fuel is provided. The fuel type selected can be readily changed during steady state operation of the gas generator. This changeover can occur with equal simplicity from liquid to gas or gas to liquid.

Benefits

Interruption or depletion in the gas generator's fuel supply can obviously result in sustained periods of unit unavailability. This possibility is removed by the provision of an additional fuel type. Overall package operating costs can also be reduced by allowing interruptible clauses to be included in gas supply contract.

Experience

There are currently 83 units operating on Dual Fuel with a combined experience well in excess of 3 million hours. Saudi Aramco currently operate 3 RB211 engines that have been converted to Dual Fuel.

Scope of work

Install dual fuel swirler burner kit (if gas only burners are currently installed).

Phase 2 combustor will be required if converting a Package 1 configured engine.

Install liquid fuel manifold

Install fuel valves

HP Fuel forwarding

Control system modification

Bill of materials

Dual fuel swirler burner kit (Mod 1114)

Phase 2 combustor will be required if converting a Package 1 configured engine (Mod 1168).

Liquid fuel manifold

Fuel valves

HP Fuel forwarding

Modify or replace control system

Liquid fuel drain and associated hardware

Undertaken

At overhaul



Bundling opportunities

Controls upgrade [\[ES6006\]](#)

Complete package refurbishment [\[ES6001\]](#)

Instrumentation upgrade [\[ES6007\]](#)

RB211 T6 thermocouple conversion [\[ES3013\]](#)

RB211 closed loop VIGV control upgrade [\[ES3009\]](#)

RB211 IP compressor life improvement package [\[ES3005\]](#)

DS IP turbine blade (Mod 1206)

Single skin nose bullet (Mod 1191)

Solid VIGV (Mod 1165)