

## Industrial Avon

Modification A5000 – Swirler burner kit for gas fuel only gas generators

*energy*



### Avon unit

In 1994 Rolls-Royce introduced a swirler burner into dual fuel Avon Gas Generators. The swirler burner was initially introduced in response to specific Customer issues relating to frequent high ECT spread and premature engine removals as a result of combustion distress and rejection of turbine components, at overhaul, due to High Cycle Fatigue (HCF) damage. The cause was identified as heavy hydrocarbon content in the gas fuel resulting in carbon formation on the burner nozzle exit faces.

Since its introduction the dual fuel swirler burner has been very successful in coping with heavy hydrocarbons and liquids in the fuel gas. Rolls-Royce has therefore now introduced a version

for gas fuel only Gas Generators. The benefits include improvements in combustion hardware and turbine lives, less down time for maintenance, increased overhaul lives and reduced fired/hour costs.

This has been introduced as modification No.A5000.

### Technical justification

The introduction of the swirler burner system helps reduce combustion instability associated with liquid hydrocarbon carry over from the gas fuel. The system works by flowing compressor delivery air through the burner nozzle exit faces and flame tube swirler. This effectively reduces the possibility of liquids

forming on the nozzle face and atomises the liquids into fine particles thereby preventing the formation of carbon.

Since its introduction the dual fuelled Avon swirler burner modification has completed over 200,000 hours of operation. Burner cleaning periods were extended from a weekly to yearly bases reducing engine down time, increasing reliability & availability and reducing maintenance costs. There have been no reported combustion hardware failures or distress. Overhaul lives of 30,000 hours are now being realised without any HCF damage reported at overhaul.

# Fact sheet

## New parts

Modification A5000 introduces new flame tubes, burners and flexible fuel feed pipes (pigtailed) and must be fitted as a complete modification kit. It is not possible to intermix these parts with other existing systems.

Location pins and inlet snouts are not included in the modification kit as these are generally reusable at overhaul. A5000 modification kits will be available from September 2002.

## Introducing the modification

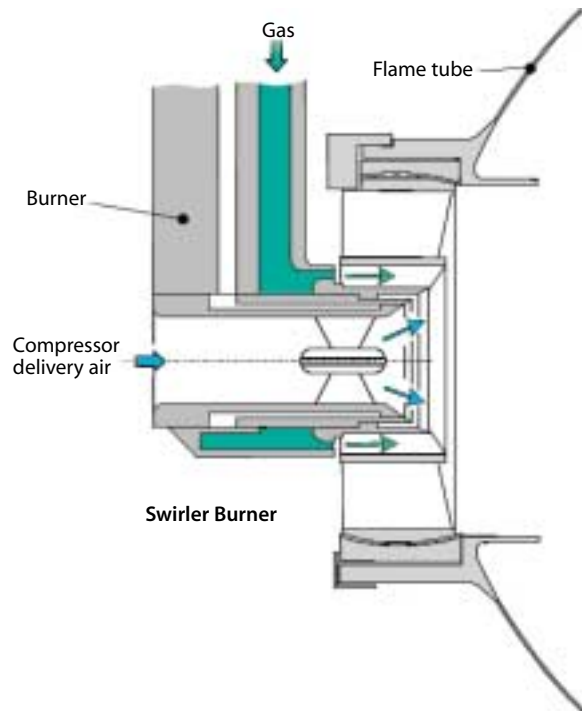
The introduction of modification A5000 requires the Gas Generator to be inducted into a Heavy Maintenance or Overhaul Facility. Embodiment can be carried out at any time, but it is probably most cost effective at overhaul or during a repair activity where the extent of Gas Generator strip makes it easy to embody.

## Operating parameters and control system

No changes are required to the control system in terms of starting and controlling the engine. There are no changes required to the installation because all parts associated with the modification are on-engine.

## Full List of Parts included in Modification A5000 Kit

Description	Qty
Swirler burner	8
Flame tubes (male interconnectors)	3
Flame tube (left hand igniter)	1
Flame tube (female interconnectors)	3
Flame tube (right hand igniter)	1
Information plate	1
Flex pigtailed	8
Screw	16
Bolt	16
Washer	16
Gasket	8
Shim	8
Bridge unit (Cooper beams)	8
Ignitor	2



For detailed discussion on incorporation of this upgrade package please contact your regional sales office.

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