



PHASE 1R RB211 Gas Turbine Package Familiarisation and Operation

Who should attend	: Personnel who support daily operation of the equipment.
Duration	: 5 days (between Mon-Fri)
Location	: RR Facility / Customer Facility on-shore
Class Size	: 12 Maximum
Course Identification	: Phase 1R (RB211).
Prerequisites:	: None

AIMS:

Attendees will learn about the equipment design, construction, basic engineering theory, operation and operator routines required for the equipment supplied.

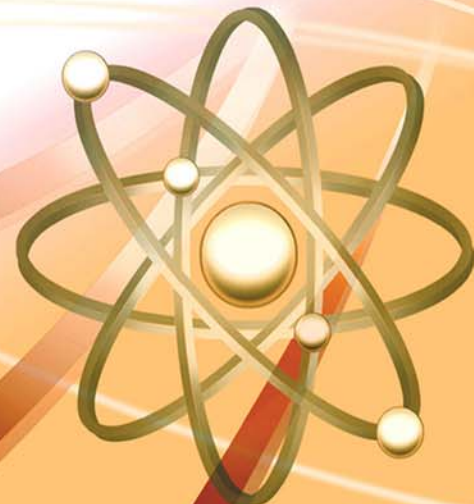
OBJECTIVES:

Upon successful completion of the course, the attendee should be able to:

- Describe the equipment and support systems supplied on this package
- Describe basic construction and operation of the Gas Generator and Power Turbine
- Locate devices on the system diagrams and determine proper settings
- Describe the proper start and stop sequences
- Locate devices appearing in HMI displays on the proper support system diagram
- Describe operator routines required on equipment and systems

COURSE CONTENT:

- Course Introduction
- Package introduction, unit specifications and support drawings
- Gas turbine driver theory, construction and basic operation
- Gear & driven equipment theory, construction and operation (if supplied by Rolls-Royce).
- Drawing Symbols and Instrumentation Diagrams
- Main Systems
 - Descriptions - diagrams - operator duties- problem diagnosis
 - Air system
 - Main lube oil system
 - Gas Generator oil system
 - Fuel system(s)
 - Fire and Gas System
- HMI overview and HMI displays
- Unit Control Panel features and operation within the HMI
- Condition alarm and shutdown matrix
- Unit starting, operating and stopping sequence
- Equipment knowledge exercise





PHASE 2R RB211 Gas Generator Familiarisation & Operation

Who should attend	: Operators, mechanics, technicians and supervisors who support daily operation of the equipment.
Duration	: 3 days (between Mon-Fri)
Location	: RR Facility / Customer Facility on-shore
Class Size	: 12 Maximum
Course Identification	: Phase 2R (RB211)
Prerequisites:	: Phase 1R recommended

AIMS:

The course is designed to give the attendee a detailed knowledge of the RB211 Gas Generator and required support systems.

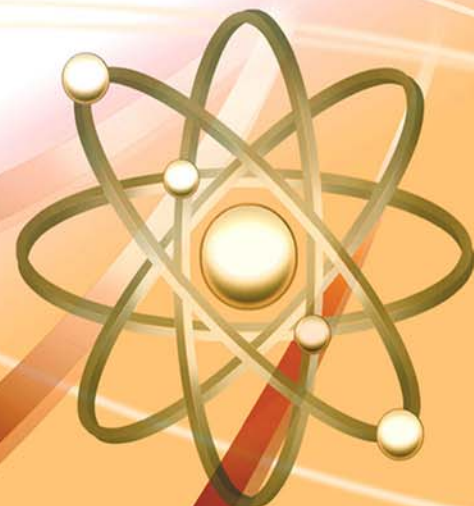
OBJECTIVES:

Upon successful completion of the course, the attendee should be able to:

- Describe the theory of gas generators
- List and describe the construction of the Gas Generator
- Identify the oil requirements of the Gas Generator
- Explain the airflow and airflow control of the Gas Generator
- Describe the operation of on engine ignition, fuel, oil and air flow devices
- Explain the operating limitations of the Gas Generator

COURSE CONTENT:

- Course Introduction
- Gas Turbine Theory and Construction
- Gas Generator Introduction, detailed description and Operating Limitations
- Gas Generator compressor air flow control and surge prevention
- Gas Generator bearing design and operation
- Gas Generator mounted instrumentation and sensors
- Required Gas Generator support services.
 - Fuel system – Lubricating scavenge and hydraulic oil
 - Instrument, bleed, and seal air - Ignition
- Gas Generator compressor washing procedures and intervals
- Basic Gas Generator removal and installation procedures
- Equipment knowledge exercise





PHASE 10R **RB211 Operators Course** **RB211 Application ONLY**

Who should attend	: Engineering/Operating staff responsible for operating and testing of the Fuel Control Systems.
Duration	: 2 days (between Mon-Fri)
Location	: RR Facility / Customer Facility on-shore
Class Size	: 8 Maximum
Course Identifications	: Phase 10R
Prerequisites	: Phase 1R Rolls-Royce training and or equivalent experience on Rolls-Royce designed equipment

AIMS:

Attendees will gain the knowledge of using the HMI (FT210) control System. To give tuition in respect of setting-up, operation and identifying Operational parameters. of the of the operation of this software package, its features and the application of the Rolls-Royce design of the display screens and there operation.

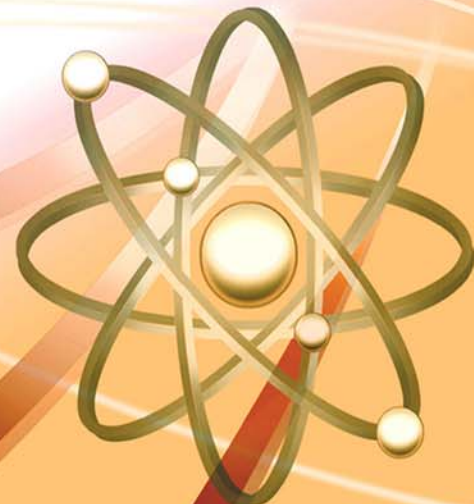
OBJECTIVES:

The attendee will have a clear and precise overview of the control system. Upon the successful completion of the course the attendee will be able to :

- Start and shutdown RB211 Unit through the HMI
- Carry out correct start and shutdown of the RB211 unit
- Identify faults and alarms

COURSE CONTENTS:

- Introduce/reaffirm the Controls System Architecture
- State the HMI operations capabilities
- Brief description of the customer's controls equipment
- Safe Start up and shutdown of HMI Screens.
- Detailed description of the control screens
- Start up and shutdown of RB211 unit
- Start up of local valves/pumps/fans/motors from auto to Manual
- Controlled and ESD shutdowns.
- Identify Faults
- Set up Trends





PHASE 11R Supervisory Training RB211 Package Familiarisation

Who should attend	: Personnel who require a familiarisation and basic knowledge of the package [Supervisors, etc.].
Duration	: 2 days (between Mon-Fri)
Location	: RR Facility / Customer facility on-shore
Class Size	: 12 Maximum
Course Identification	: Phase 11R (RB211)
Prerequisites:	: None

AIMS:

The course provides the production operation supervisors with an overview of the RB211 gas turbine package and systems to support safe and reliable operation of the equipment purchased.

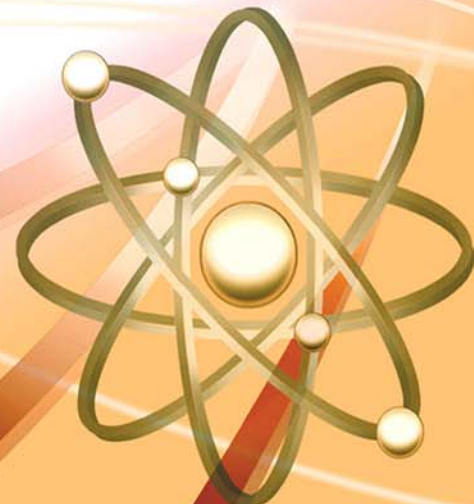
OBJECTIVES:

Upon successful completion of the course, the attendee should be able to:

- List and describe the major components of the package
- List and describe the support systems of the Gas Turbine package
- Describe the operator duties Gas Turbine package
- Identify the proper starting sequence

COURSE CONTENT:

- Course Introduction
- Package introduction -- Unit specifications
- Gas turbine driver theory - construction - basic operation
- Gear & driven equipment basic theory - construction - operation if supplied by Rolls-Royce
- Main Systems
- Descriptions -- Operator duties
- Air system
 - Main lube oil system
 - Gas Generator oil system
 - Fuel system(s)
 - Fire and Gas System
- HMI overview and HMI displays
- Unit starting sequence





PHASE 13R

RB211 Gas Generator Boroscope Inspection Course

Who should attend	: Operators, mechanics, technicians and supervisors who support daily
Duration	: 2 days (between Mon-Fri)
Location	: Customer Facility on-shore
Class Size	: 6 Maximum or less recommended
Course Identifications	: Phase 13R
Prerequisites	: Phase 2R recommended.

AIMS:

Attendees will gain knowledge, understanding and experience of the borescope inspection equipment, procedure and analysis of the inspection.

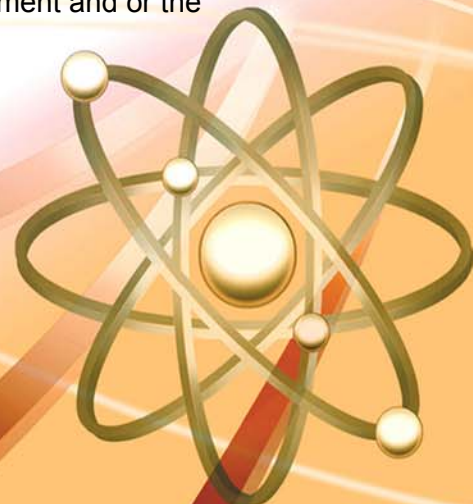
OBJECTIVES:

Upon completion of this course, attendees will have experienced and be able to borescope the industrial RB211 and record and analyse the inspection in a safe and proper manner.

COURSE CONTENTS:

- RB211 Gas Turbine Overview
- Introduction to Endoscopy
- Typical borescope equipment and systems.
- Proper use and care of borescopes.
- Setting up of equipment
- RB211 access locations for monitoring.
- Identification of damage and assessment for future running.
- Inspection of: IP Compressor
 - Intermediate Casing
 - HP Compressor
 - Combustion System
 - HP Turbine
 - IP Turbine
- Video and Video capture practices
- Logging and storage of results.

N.B: Access to an RB211 Gas Turbine and borescope equipment is essential. The customer is responsible for any damage to the borescope equipment and or the gas generator that occurs during the training exercise.





PHASE 13RDLE

RB211 DLE Gas Generator Boroscope Inspection Course

Who should attend	: Operators, mechanics, technicians and supervisors who support daily
Duration	: 2 days (between Mon-Fri)
Location	: Customer Facility on-shore
Class Size	: 6 Maximum or less recommended
Course Identifications	: Phase 13RDLE
Prerequisites	: Phase 2R recommended.

AIMS:

Attendees will gain knowledge, understanding and experience of the borescope inspection equipment, procedure and analysis of the inspection.

OBJECTIVES:

Upon completion of this course, attendees will have experienced and be able to borescope the industrial RB211 DLE and record and analyse the inspection in a safe and proper manner.

COURSE CONTENTS:

- RB211 DLE Gas Turbine Overview
- Introduction to Endoscopy
- Typical borescope equipment and systems.
- Proper use and care of borescopes.
- Setting up of equipment
- RB211 DLE access locations for monitoring.
- Identification of damage and assessment for future running.
- Inspection of:
 - IP Compressor
 - Intermediate Casing
 - HP Compressor
 - Combustion System
 - HP Turbine
 - IP Turbine
- Video and Video capture practices
- Logging and storage of results.

N.B: Access to an RB211 DLE Gas Turbine and borescope equipment is essential. The customer is responsible for any damage to the borescope equipment and or the gas generator that occurs during the training exercise.

