Gas Turbine LM2500 Engine
Familiarization

Course Duration: 5 days
Course Overview

Basic Gas turbine theory and operation and the knowledge required to ensure consistent, trouble-free performance from the engine and its associated equipment. This course is intended for owners, operators and customer personnel concerned with the day-to-day operations and maintenance of the GE LM2500 Aeroderivative gas turbine.

Course Objective:

This course will provide fundamental knowledge on the operation and maintenance of the LM2500 aeroderivative Gas Turbine. The purpose of the training is to provide the knowledge required to ensure consistent, trouble-free operation of the engine and its associated auxiliary systems.

This also includes:

- Terminology and abbreviations used in the Aero-derivative Gas turbines.
- GT frames, cases and rotors (High Pressure Compressor (HPC), High Pressure Turbine (HPT), etc.)
- VSV control system philosophy overview (Variable Geometry)
- Air systems (primary, secondary and parasitic)
- Combustion System (SAC, DLE)

Pre-requisites

This course requires at least some basic knowledge of Gas Turbines and in particular, Industrial Gas turbines.

- HP recoup and thrust balance
- Bearings and sump pressurization (Philosophy of a sump, The A, B, C and D sumps)
- The Inlet Gearbox (IGB), Radial Drive Shaft, Transfer Gearbox (TGB) and Accessory Gearbox (AGB)
- Fuel system
- Lube / Hydraulic Oil systems
- Sensors and instrumentation (Flow & Instrument Diagrams (F&iD’s) and Device List,
- Gas Turbine Operation, General operating instructions, Gas turbine performance calculations, Start and stop curves.
- Gas Turbine Maintenance, LM2500 maintenance philosophy, Levels of maintenance, Maintenance manuals
- Introduction to the LM2500 Control Systems Gas turbine control system.
Course Outline

Day 1: General Introduction to the course and the equipment
- Introduction and History of the LM2500/lineage
- Discussion of different levels of maintenance
- Use of applicable Operations and Maintenance manuals
- Preventative maintenance and servicing

Day 2: GT LM2500 Major Components & Anatomy
- Major Components of the LM2500, LM2500+, LM2500+G4
  - Inlet Section
  - High Pressure Compressor (HPC)
- Principle of operation, Rotor parts, Stator parts
  - Control system compressor (VGC)
- Principle of operation, Details of the VSV system
- Combustion system (SAC & DLE)
  - Principle of operation, Details of the combustion system
- High Pressure Turbine (HPT)
  - Principle of operation, Rotor parts, Stator parts
- Power Turbine (PT), type GE 6 Stage
  - Principle of operation, Rotor parts, Stator parts
- Bearings, sumps and frames
  - The bearings, Principle of a sump, The A, B, C and D sumps
- Accessory Drive Assembly & Accessories
  - The Inlet Gearbox (IGB), Radial Drive Shaft, Transfer Gearbox (TGB) and Accessory Gearbox (AGB)

Day 3: Auxiliaries & Instrumentation
- Auxiliary Equipment & Systems of the gas turbine
  - Introduction
  - Flow & Instrument Diagrams (F&ID's) and Device List
  - Instrumentation on/around the gas turbine
    - Hydraulic starting system
    - Gas turbine lube oil system
    - Generator/load gearbox lube oil system
    - Hydraulic oil system
    - Fuel systems (SAC & DLE)
    - Inlet air and ventilation system
    - Fire protection system
    - Compressor water wash system

Day 4: Operation & Maintenance philosophy
- Gas Turbine Operation
  - General operating instructions
  - Gas turbine performance calculations
  - Start and stop graphs
- Gas Turbine Maintenance
  - LM2500 maintenance philosophy
  - Levels of maintenance
  - Maintenance manuals

Day 5: Control and troubleshooting
- Introduction to the LM2500 Control Systems
- Gas turbine control system, general
  - Principle of fuel control (including DLE)
  - Protection systems
- Troubleshooting and Cases
  - Troubleshooting principles
  - Practical cases