



ES6002 Health Evaluation Legacy Programme (HELP)

Extract the maximum potential from your installation by determining its true condition



Engineered solution purpose

The Drive Train Healthcare Evaluation Legacy Programme (HELP) is designed for customers operating established equipment that is critical to their production activities for the next several years. This mature equipment is typically outdated and in need of repair and upgrading to ensure continuous availability and reliability. The customary approach to maintaining equipment availability/reliability is to conduct annual inspections and repair components on an 'as required' basis. This is an acceptable practice for the initial years of operation. However, to protect the operator's long-term investment and revenue stream, a drive train evaluation is recommended to assess the actual condition of the overall system and offer opportunities for product/performance enhancements.

Applicability

All Rolls-Royce gas turbine driven packages

Technical description

HELP is used to assist our customers in establishing the current equipment (baseline) condition and compare it against the (installed) equipment baseline. Once the current equipment baseline is known, HELP defines problem areas that require attention on an urgent basis and identifies available product/performance enhancements that can be introduced into operation over the next couple of years, to enhance equipment performance and sustain or increase equipment availability/reliability. HELP is conducted by a Rolls-Royce mechanical and a control technician, as well as a Rolls-Royce technical support engineer, working together with the customer's operations personnel. The field evaluation requires approximately four days per drive train and can be scheduled around major shutdown periods. Following the field evaluation, a complete evaluation report, including recommendations, is prepared and submitted to the customer, typically two weeks following completion of the Field Evaluation.



Fact sheet

Benefits

The evaluation results and report provide the operator the following benefits:

Identifies short-term actions requiring immediate attention

Provides the customer with a (baseline) equipment assessment (including vibration baseline, performance data, equipment condition)

Provides recommendations on how to improve equipment availability/reliability

Provides a recommended schedule of inspections and routine maintenance activities, including the identification of when drive train elements are due for their next major overhaul

Provides guidelines on how to reduce operating costs, eliminate obsolete parts, improve ease of operation, reduce risk of unplanned maintenance, simplify troubleshooting efforts, and improve overall equipment performance

Provides recommendations on potential performance enhancements (i.e. compressor re-aero's, gas turbine, controls, and package upgrades) and an integrated financial program to implement these longer-term performance enhancement

Scope of work

The following is a generic listing of the activities that Rolls-Royce will perform as part of the Drive Train Healthcare Evaluation

Legacy Programme:

Gas Turbine:

Gas Turbine Performance Test per Rolls-Royce Standard Procedure

Boroscope inspection in accordance with the Rolls-Royce Maintenance Manual. Comment on cleanliness of gas generator and effectiveness of detergent wash

Vibration analysis (spectrum) using existing accelerometer installed at load condition

Record rundown time from load (normally following emergency shutdown)

Record start-up speed (plot gas generator and power turbine speed against time)

During operation, take note on exhaust gas temperature differential temperature and other control parameters

Detergent wash gas generator

Compressor:

Compressor Performance Test per Rolls-Royce Standard Procedure

Vibration analysis (spectrum) using existing proximeter probe at load condition

Surge valve open and close simulation record time

Power turbine:

Record second stage axial and blade tip clearance from exhaust end

Perform static seal air test per Rolls-Royce Engineering Standard and check again while running

Gearbox (if applicable):

Vibration Analysis

Package and Auxiliary systems:

Gas Generator Lube Oil System

Compressor/Power Turbine/Gearbox (if applicable) Mineral Lube Oil System

Compressor Seal Oil System (if applicable)

Control System Check

Fuel Gas System Check

Air Intake System Inspection

General Package Condition Inspection

Observe pressure differential of all filters

Observe general condition of skid

Visual inspection on all valves

The above scope of work can only be accomplished if the customer operations personnel and Rolls-Royce work as a team. The customer's operations personnel play an integral part in the drive train evaluation. A customer action plan will be prepared by Rolls-Royce Technical Support and it will outline the actions, information, and equipment/tools required from the customer in order to ensure that the evaluation is completed within the time period specified and that accurate data is taken and included in the evaluation. In addition, it will identify the specific Rolls-Royce deliverables associated with each action.



Rolls-Royce

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