

REDD®

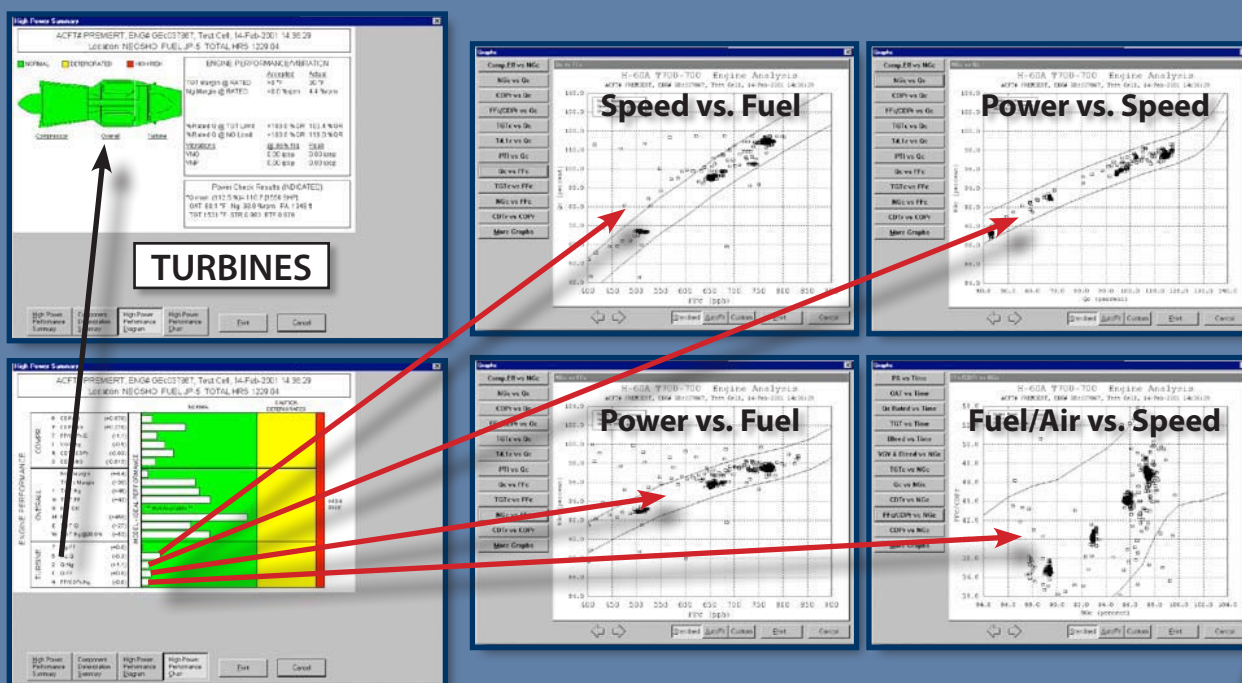
Referred Engine Diagnostic Data® Analysis Program

Howell Instruments, Inc. has developed a turbine engine diagnostic tool known as Referred Engine Diagnostic Data® (REDD) analysis program. The REDD® analysis program is a comprehensive thermodynamic analysis program that identifies abnormal engine operation by comparing actual engine performance with expected engine performance. Users of REDD® software will realize the following benefits:

- Simplified diagnostics
- Improved analysis and fault isolation
- Data for tuning the engine for optimum performance

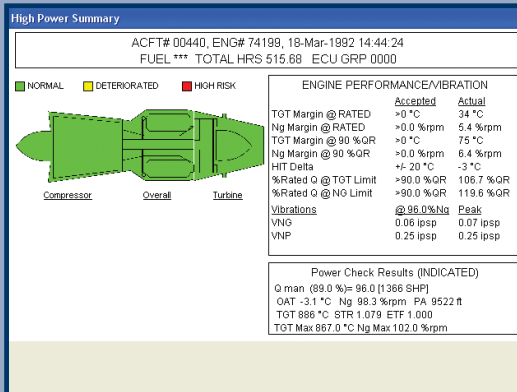
- Identification of deteriorated/failed components.
- Verification and validation of repairs
- Reduction in false removals
- Ease of use

Summarized performance reports make engine condition determination easy. Good engine performance tracking is simplified with a quantified ranking of engine condition. Weak engines are highlighted for attention. Probable causes of substandard performance are identified, providing the mechanic with a logical path for repair.



Howell Instruments, Inc.
8945 South Freeway
Fort Worth, Texas 76140
www.howellinst.com
817-336-7411
Fax: 817-336-7874
info@howellinst.com

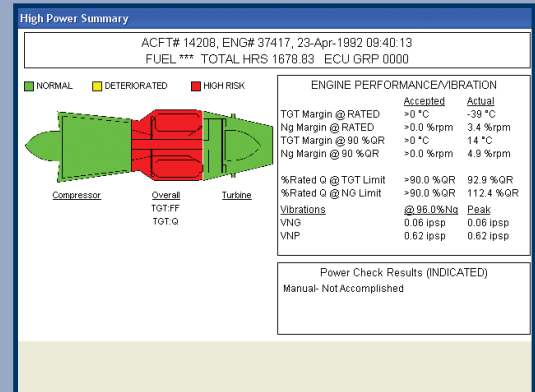
Good Engine



High Power Performance Diagrams

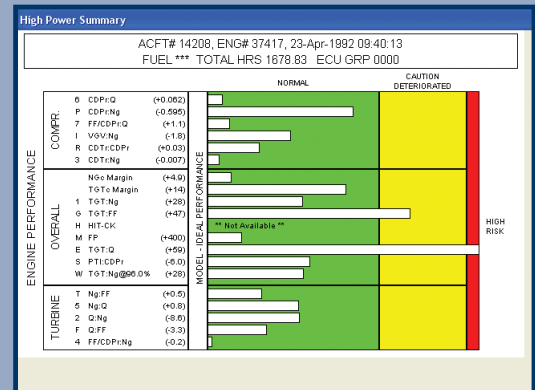
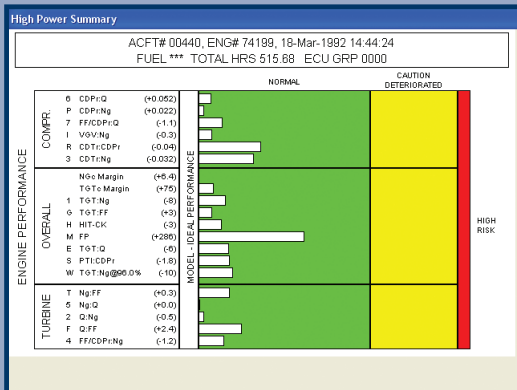
For easy interpretation, engine performance information is divided into compressor, turbine, and overall sections. Color-coding gives the user a tool for determining engine performance at a glance. Clicking on the listed parameters takes the user directly to the supporting performance graph.

Bad Engine



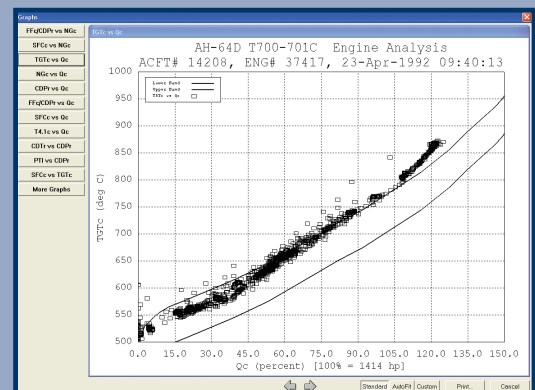
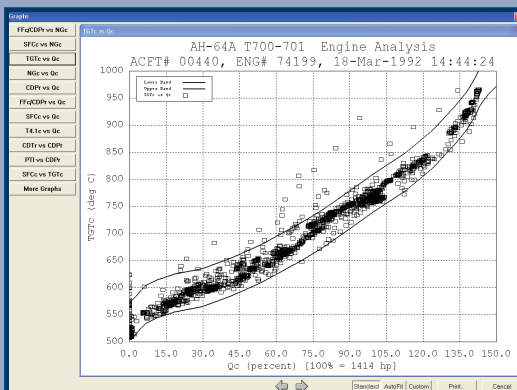
High Power Performance Charts

Color-coded bar charts graphically depict the relationship between measured and expected engine performance. Clicking on the horizontal bar takes one directly to the supporting performance graph.



REDD® Analysis Graphs

Graphs of each REDD® parameter used to analyze engine performance are available. Data points are plotted against a model of expected performance. Clicking on the resident icons enables alternate data display.



Component Deterioration Summary

Probable faults are listed providing an alternative to "trouble-shooting trees". High-risk items point to abnormal engine performance with increased probability for component failure.



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www.howellinst.com • 817-336-7411 • Fax: 817-336-7874 • info@howellinst.com

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