

## LM5000 Value Packs

### LM Reduced Emissions (Wet)

GE Aero Energy offers both water and steam injection systems for reducing NOx and other exhaust gas components that can be installed on existing field units. Conversions include on-engine modifications as well as package and control system modifications.

### LM5000 to LM6000 Conversion

GE Aero Energy offers a package retrofit program to replace the LM5000 gas turbine with a new LM6000PC engine (hot end drive) within the existing package. Modifications to the existing package include a new turbine controls system, turbine mounting system, inlet bellmouth and variable bleed ducting redesign.

### Inlet Conditioning Systems

GE Aero Energy offers a variety of inlet conditioning systems that can be installed in the field. These products include inlet chilling/heating systems and fine mist or traditional evaporative cooling systems. Increased engine performance is obtained by optimizing the compressor inlet air temperature to the gas turbine.

### T54 Probes

For the LM5000, GE Aero Energy offers individual readout capability for units which currently have only an averaging system for improved monitoring and troubleshooting capability. In addition, GE Aero Energy offers an individually replaceable probe system, which allows replacement of single probes instead of the need to replace an entire quadrant.

### Fuel System Upgrades

GE Aero Energy can convert any type of fuel system including single to dual fuel, fuel additions such as naphtha, and single fuel to single fuel. Complete system conversions include on engine hardware changes, package piping and wiring, controls software modifications, fuel pump skids and all associated F&ID hardware.

### Remote Monitoring and Diagnostics

GE Aero Energy offers Remote Monitoring and Diagnostic Services to enable aeroderivative turbine plant operators to improve availability, reliability, operating performance, and maintenance effectiveness. Monitoring of key parameters by factory experts leads to early warning of equipment problems and avoidance of expensive secondary damage. Diagnostic programs seek out emerging trends and alert monitoring personnel, enabling proactive intervention to avoid forced outages and extended downtime. GE is currently monitoring over 50 LM series gas turbine installations worldwide.

### MetalSCAN

For all LM Series gas turbines, GE offers a real-time oil debris monitoring system. MetalSCAN monitors the accumulation of mass of ferrous material in the fluid lines and initially warns the operators of any abnormal activity. Once certain thresholds have been attained, MetalSCAN triggers an alarm to indicate significant wear component damage. This sensor provides early warning of bearing and gear damage, reducing the occurrences of unplanned outages.

### HMI Upgrades

As older model HMI (Human Machine Interface) systems become obsolete, replacement parts are becoming difficult to obtain and more expensive. These older HMI systems can be upgraded to the latest Windows graphical based applications available and are installed in Pentium Desktop PC's or Panel mounted PC's. These upgrades may be installed on older systems without a program change to the turbine control panel.

### Water Wash Systems

GE Aero Energy offers portable water wash systems that can be rolled into place and used to water wash gas turbines. This portable systems is especially useful for multiple unit sites.

### Halon to CO2 Fire System Conversion

GE Aero Energy offers replacement fire protection systems utilizing CO2 in place of Halon. Halon is becoming expensive procure and may no longer be allowed in certain geographic areas. In addition, many older fire protection systems use panels and components that are no longer manufactured, making replacement parts difficult to find or unavailable.

### Liquid Fuel Treatment Systems

GE Aero Energy offers centrifugal liquid fuel treatment systems for use with all LM series gas turbines, Avon and GG4 gas turbines. These systems significantly improve the quality of the fuel entering the gas turbine.

(Continued on other side)



## LM5000 Value Packs



(Continued from other side)

### Inlet Filtration Systems

Undersized or improperly designed inlet filtration systems can result in restricted power output due to increase drops, higher maintenance costs, and reduced availability of the unit. GE Aero Energy can replace and upgrade existing inlet filtration systems to mini-mize air inlet problems.

### Vibration System Upgrades

As older model vibration monitoring systems are phased out of production, maintenance and spare parts become increasingly difficult to obtain. GE can upgrade older systems to the latest available vibration monitoring systems, and possible integrate the display into the customer's HMI computer.

### Lube Oil Chip Detectors and Oil Monitoring System

For all LM series gas turbines, GE offers an electronic chip detector system, or a lube oil monitoring system that continuously monitors the number of metallic and non-metallic particles in the gas turbine lube oil. Both of these systems allow early detection of potential bearing problems.

### Fuel Heating System

For improved performance, GE offers both gas and liquid fuel heating systems for all LM series gas turbines.

### Anti-Icing Systems

GE Aero Energy offers several anti-icing systems for use in areas where icing conditions could exist. Systems offered include bleed air systems, exhaust air heat exchanger systems and hot water systems using inlet chiller coils installed in the inlet plenums.