



Enhanced Compressor for the 9FA Flared and 9FB Fleets

GE has developed compressor enhancements for the 9FA flared and 9FB compressors. Developed based upon available fleet experience, these enhancements are aimed both at responding to all known fleet events and at improving the operating stress margins of certain components.

Rugged Enhancements

The new compressor system will include enhancements to numerous components, including the inlet guide vanes (IGV), forward (R0) and mid-stage rotating blades, forward stage stator vanes (S1 & S3), and aft stage vanes (S14-S16). For example, enhancements of the IGV, R0, S1, S3 & S14-S16 components have reduced both degradation effects and relevant stress drivers with their corresponding responses. Features such as dovetail undercuts on R0-R5 blades and dovetail slot coatings on compressor wheels 0-3 also have been added, reducing fretting wear at the rotating blade interfaces. In addition, certain airfoils have been retuned to move natural frequencies for vibratory margin, and tip features have been added to improve rub characteristics. Material treatments have been applied to augment durability and longevity. The materials for the forward stage stator rings have been upgraded. Finally, for the aft stage stators, geometric changes to the vane bases improve loading and durability.

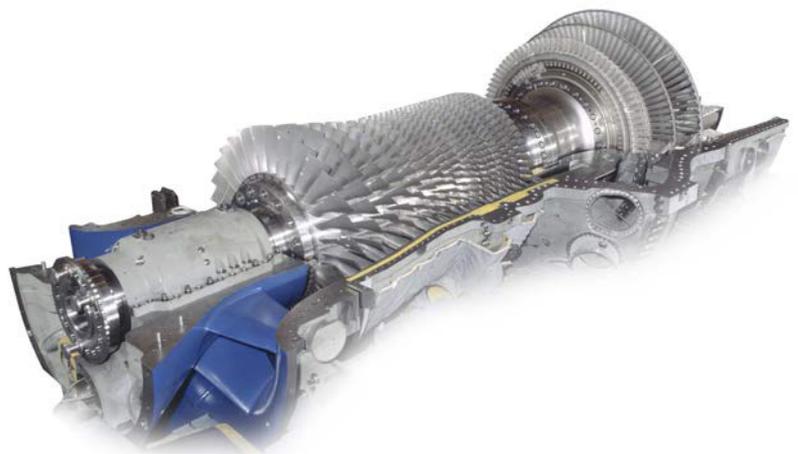
Increased Robustness and Damage Tolerance for Improved Reliability and Availability

GE expects that the increased stress margins, reduced wear characteristics and greater damage tolerance from these enhancements will translate into improvements to both system reliability and availability.

These enhancements should also result in a compressor that is both more tolerant to a broad range of fleet-wide operating environments, and capable of operating with a reduced likelihood of service interruptions and unplanned maintenance over the life of the gas turbine. As a result, we expect many customers will experience reductions in periodic inspections and supplemental maintenance.

Reduced Unplanned Maintenance and Inspection Requirements

While fleet leader inspections can be expected for upgrades applied in the first year after introduction, the long-term expectation is that the maintenance plan for the new configuration will be simplified. The long-term maintenance plan for the new configuration is intended to be limited to the standard protocols for annual borescopic inspection (as stated in GER-3620) and major overhaul inspections (as outlined in GE's Operations & Maintenance manuals).



Scoped Packages for Field Installation

To facilitate field installation, and customer outage schedules, pre-scoped enhancement packages have been developed to complement standard planned maintenance outage durations. These scoped packages range from a GE control change requiring only a single day to implement, to aft stator casing groove modifications implemented at a planned major inspection.

Package Overview		Targeted Outage Duration
Package 1	Controller modification	1 day outage
Package 2	R0 replacement†	Long weekend outage
Package 3	IGV/R0 and forward stators	2 week outage (HGPI/MI)
Package 4	IGV/R0, forward stators and aft stators	4 week outage (MI)
Package 5	IGV/R0, forward stators, forward blades, aft stators	4 week outage with “pre-staged” rotor (MI)

† Original uncambered IGV design required.

Importance of Regular Inlet and Filter Maintenance

Forthcoming GER-3620 revisions, the new GE air quality specification (GEK 116269), and other relevant GE maintenance publications highlight that inlet and filter maintenance are essential to sustaining a unit that remains highly reliable and operational. Many of the aggravating factors related to known fleet issues from the original 9F flared compressor fleet relate back to contaminants ingested by virtue of poor filter or inlet maintenance. Proper maintenance is an essential aspect of preserving the reliability and availability of any equipment, regardless of its durability. For specific estimates relative to individual units, please contact your Product Service representative.

The GE advantage – our fleet

Most available fleet in the industry

Per recent ORAP^{††} data, GE's Frame 9F gas turbine is the most reliable machine in its technology class.

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To learn more about this offering, contact your GE sales representative or visit powergen.gepower.com.