

# S1-S4 VANE IMPROVEMENTS

## FOR 7EA GAS TURBINES

7EA Heavy-Duty Gas Turbines shipped prior to late 2019 are suggested to replace stator rows 1 thru 4 (also referred to as S1-S4) with newer improved configuration. This helps to reduce the risk of an unplanned outage or emergent scope for a planned outage with significant schedule impact.

### Background

The original configuration of the 7EA Heavy-Duty Gas Turbine featured an assembly for S1-S4 compressor stator vanes supported with a backing ring machined from carbon steel.

GE Vernova now offers stator vanes featuring a backing ring machined from stainless steel alloy. This improvement helps to eliminate the risk of operational issues caused by corrosion and oxidation in the areas of contact with the stator vanes.

TILs 1884-R1 & 1980 call for inspection of the stage 1 & row 1 compressor airfoils for evidence of indications and/or clashing. A detailed technical background can be found within TILs 1884-R1 & 1980.

### Risk

Carbon steel backing rings are prone to corrosion and oxidation build up and can lead to clashing between the vane LE tip and the root of the row 1 rotation blade.

Clashing or other damage in S1-S4 vanes may lead to unplanned outages and pose a risk to the entire downstream section of the compressor if operation continues with observed damage.

GE Vernova strives to keep sufficient supply on-hand to support planned and emergent needs. However, supply can quickly become strained, driving lead time increases to several months up to 1 year.

### GE Vernova Recommendations

7EA units with the original configuration airfoils in S1-S4 are at significant risk, especially units in peaking or standby operating profiles and units located in cold and/or corrosive environments.

**TIL Guidance:** Please review and comply with TILs 1884-R1 & 1980 at your next opportunity. It is recommended to plan for replacement of the original configuration row 1 thru row 4 stator vanes at the next MI to eliminate future risk. These stator vanes may also be replaced in-situ during HGP or CI with additional scope to remove the upper-half compressor casing.

**Parts Planning:** Availability of S1-S4 stator vanes is variable with unpredictable support for emergent findings. It is recommended to have a set of these vanes on-hand leading up to the next MI. Moreover, it is prudent to have a set on-hand prior to an MI in case of findings during a borescope inspection.



Corrosion typical on carbon steel backing rings



S1 tip indication from deformation and clashing

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GEA35456 (03/2024)



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