

Advanced Turbine Support

MS7001FA S-1 Stator Vane Failure

PURPOSE

To inform users of potential stator vane cracking due to high-cycle fatigue or impact damage.

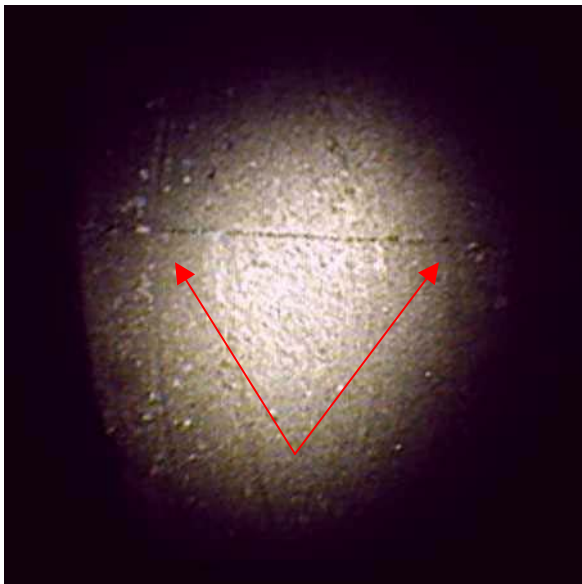
UNIT TYPE: MS7001FA.

HISTORY

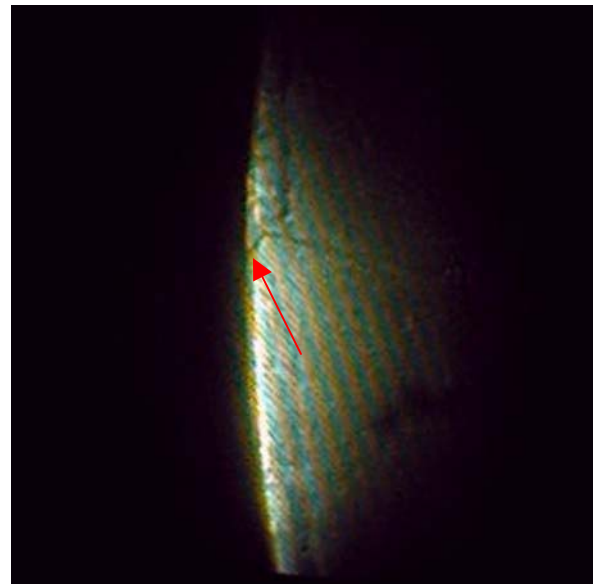
There have numerous total compressor failures related to S-1 stator vane tip liberations. The root cause of these failures appears to be locking up of the stator vanes in the lower half of the unit due to corrosion or impact damage. The “lock-up” is causing high-cycle fatigue near the vane tip. A second method of cracking is related to small impact damage located near the vane tips. (This type of small impact damage is found on the majority of the units we inspect)

RECOMMENDATION

Users should have ATS perform Eddy Current Inspections of the S-0 and S-1 stator vanes as soon as possible. The inspection time is approximately 12 hours.



This photograph shows a crack in an S-1 stator vane located approximately 2.2” below the tip. This unit had approximately 500 starts and 6000 hours at the time of inspection.



This shows a crack extending into an S-1 stator vane that initiated at minor impact damage. Minor impact damage is seen on the majority of the compressors we inspect using the high-resolution inspection.