FACTSHEET

SECONDARY LIQUID FUEL SYSTEM - CRITICAL SPARES

Applicability:
7E/9E Gas Turbines

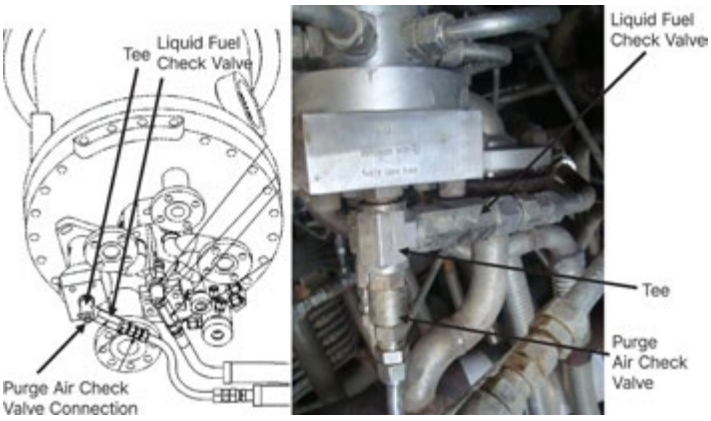
GE Vernova gas turbines have dual fuel technology that enables the use of liquid and gas fuels as needed. The dual fuel system for a gas turbine is a complex arrangement of tubing, valves, and several support systems.

There may be different issues that can cause failures in the in the secondary liquid fuel system as outlined in detail in GEK111717 (reference page 4).

Some of these failure modes include:

- **Admission of air** into the liquid fuel lines during gas fuel operation, primarily caused by leaking check/ 3-way valves at the end covers.
- **Coking:** Hydrocarbon fuels will tend to oxidize over time at elevated temperatures.
- **Individual components failure:** Failure of a purge air valve limit switch to function correctly. The typically large number of these valves in the system makes their individual reliability key.
- **Corrosion of flow divider** and other components due to water content in the liquid fuel.
- **Filter life or filter integrity** issues due to high particle content in the liquid fuel.

There are various upgrades available for these parts that may be evaluated. Refer to GEK111717 for further details.



End-cover configuration with a liquid fuel purge check valve, with a Tee connection to the purge air check valve

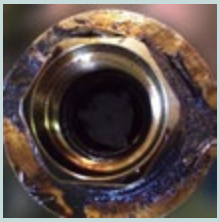
As these units continue to age, the uncommonly replaced components & assemblies within this complex dual fuel system can become vulnerable to failure. This situation can be exacerbated when preventative maintenance is not performed.

The inability to switch to secondary fuel when needed may lead to burdensome costs and long downtime to the operators, as the failed parts may have long lead times. It is recommended to be prepared with spare parts to minimize downtime in the event of liquid fuel system failure between scheduled outages.

GE VERNOVA

Parts Recommended for Stock

- **Liquid Fuel Check Valves:**
  Problems can cause high spreads, trips, high differential pressures observed at the flow divider selector valve and poor light off. Reverse leakage can result in purge air pushing back into the liquid system.



Example of liquid fuel check valve coking at the valve outlet (left). A picture of a clean outlet is shown (right) for comparison

- **Flow Divider:**
  High water content can settle out of the fuel during long periods of idle time causing corrosion. These accessories are high speed, close clearance devices that do not like dirt, water or any other types of contamination. The flow divider must remain free of air and stay lubricated, otherwise a trip may occur.

Liquid fuel flow divider coking

- **Strainer Fuel Oil Filter Element:**
  High particle count in fuel can cause low filter life or filter integrity issues.

Examples of liquid fuel suction strainer coking at the valve outlet

- **By-pass Fuel Oil Valve Assembly:**
  Leakage can be caused by the formation of coking or high particle count in the fuel. If actual flow lags the reference by a certain amount this can eventually lead to insufficient fuel flow for light off.

Example of by-pass fuel oil valve assembly

- **Filter Transfer HP Valve:**
  These valves can also be affected by coking.

GE VERNOVA

TO LEARN MORE ABOUT THIS OFFERING, CONTACT YOUR SALES REPRESENTATIVE OR VISIT

gevernova.com

GEA35367 (11/2023)