

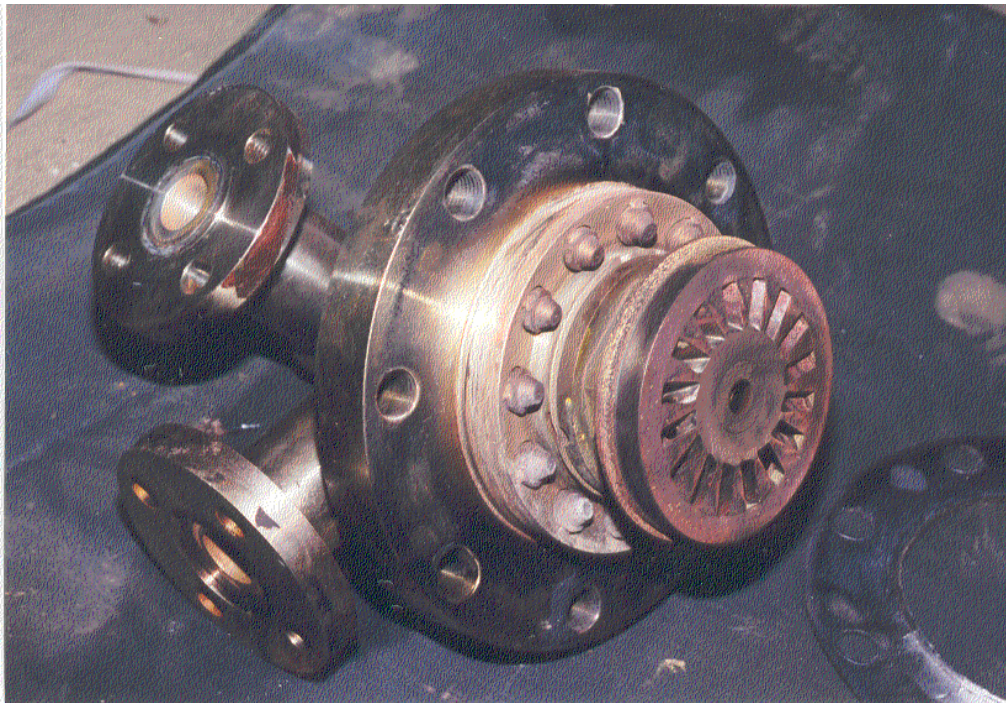
## CONVERSION OF DUAL FUEL NOZZLES TO GAS FUEL ONLY

Operators can assure trouble free operation with Fern Engineering's fuel nozzle modification. Our thirty-plus years of experience with design modifications, fuel nozzle reconditioning, and calibration ensures a safe and trouble free conversion. We also pressure check and calibrate the final product. Fern Engineering's modification design converts General Electric heavy industrial dual fuel nozzle assemblies to single fuel without the commonly associated problems.

The Fern Engineering design features a nozzle cap plug that is seal-welded to the nozzle body. The specially-designed nozzle cap replaces the existing outer tip and liquid fuel transition piece. It also replicates a crucial bearing surface of the outer tip that acts as an axial stop to correctly position the nozzle swirl tip. If required, the dual fuel capability can be easily restored by grinding the relatively light seal weld.

Seal welding the replacement cap eliminates any potential leak paths or accumulating pockets for the gas fuel, thereby providing the safest configuration. Other designs utilizing "transition piece plugs" are prone to reverse flow through the nozzles due to potential leakage paths. Reverse flow causes nozzle carbonizing or plugging and can eventually lead to burning and severe nozzle component damage.

Fern Engineering has modified several nozzle assemblies with this design and all have been operating trouble-free since being converted.



**Typical heavy frame gas turbine combustion fuel nozzle assembly before conversion and refurbishment. For conversion, cap plug is seal welded to the nozzle body to eliminate potential leak paths for gas fuel within the nozzle assembly.**