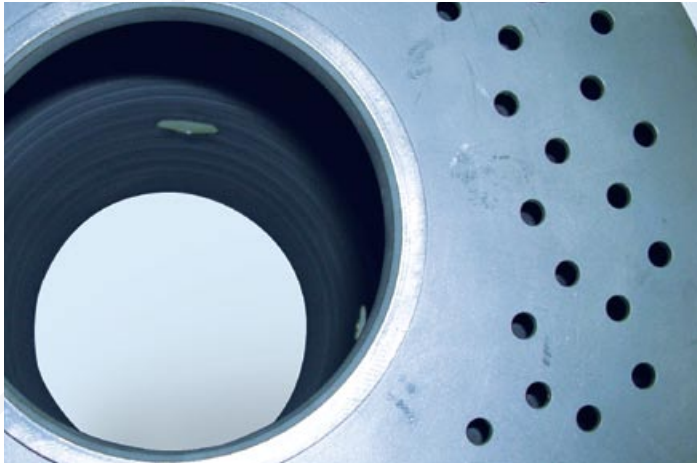




Frame 9001E Combustion System



Turbine Services offers the complete standard combustion system for the Frame 9E gas turbine (model 9171). The combustion system consists of 14 reverse flow combustion chambers evenly distributed around the compressor discharge casing. Our experience in repairing and servicing combustion hardware has provided a unique insight into designing a high quality product that is directly interchangeable with the original equipment.

Liners

Liners are made from Hastelloy-X, a nickel-based alloy that is used successfully in many types of gas turbine. They are slot-cooled, to provide an even distribution of cooling airflow on the inside of the liner body.

Turbine Services Thermal Barrier Coat (TBC) the liners to provide an insulation layer between the base metal and the combustion gases. Application of TBC significantly reduces the base metal temperature, leading to a reduction in liner cracking and an overall reduction in thermal stress.

TBC is applied by robot using an Air Plasma Spray (APS) process. It consists of a MCrAlY bond coat and an Yttria Stabilized Zirconia (YSZ) Ceramic topcoat.

Cross Fire Tubes

Cross fire tubes and retainers are also available from Turbine Services.

Transition Pieces

Transition Pieces (TP's) have Nimonic – 263 bodies and end frames. Nimonic-263 is a precipitation strengthened, nickel-based alloy with higher strength capability than earlier Hastelloy-X TP's.

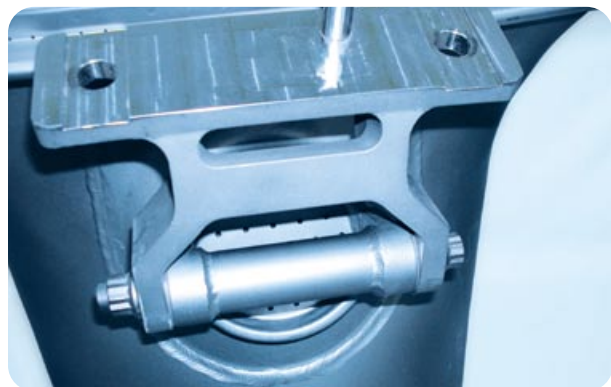
The TP's also have a Thermal Barrier Coating (TBC) that significantly reduces base metal temperature. This helps to reduce creep deformation of TP body, ensuring good service life and reduced seal wear.

The TP's come complete with inner and outer floating seals.

CIEK

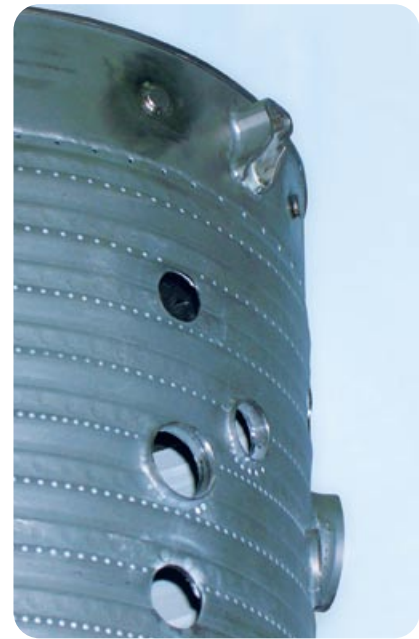
A Combustion Inspection Elimination Kit (CIEK) is also available from Turbine Services. This kit can be applied to new components or during repair.

This technology greatly increases the availability of the GT by eliminating combustion inspections, allowing GT to run to next HGP inspection without being shut down.



Liners - Standard Design

Firing Temp	2055° F
Cooling	Slot Cooled
Material	Hastalloy - X
Coating	Class B Bond Coat - MCrAlY Top Coat - Yttria Stabilized Zirconia Ceramic



TP - Standard Design

Firing Temp	2055° F
Material	Body - Nimonic 263 End Frame - Nimonic 263
Coating	Class B Bond Coat - MCrAlY Top Coat - Yttria Stabilized Zirconia Ceramic



TURBINE SERVICES is a global provider to owners and operators of industrial gas turbines, offering an employee skill-base in excess of 2,000 man-years of experience in gas turbine maintenance solutions. With our heritage in John Brown Engineering, our primary specialization is in the heavy duty frame range of GE designed gas turbines.

Our business is founded on the strength of our technical and engineering capability, reinforced by our commitment to quality and customer satisfaction that is demonstrated by our accreditations (ISO 9001:2000) and registrations (Achilles, Supply Line, FPAL and Repro).

In addition to our extensive experience, our customers also benefit from the high-tech capabilities of our parent company, Chromalloy. Leading the industry in advanced technology derived from 50 years of aero and industrial gas turbine component experience, we offer state-of-the-art component, repair, coating and manufacturing technologies.



CHROMALLOY



Turbine Services is a division of Chromalloy Gas Turbine Corporation with interests in the Aero & Industrial Gas Turbine in the European, Americas, Far East and Pacific Rim market sector. MJB International, with facilities in Dubai and Abu Dhabi is a joint venture company between Al Masaood, UAE and Turbine Services Ltd, UK providing shared technology to the Middle East, Africa and Indian Sub Continent market sector.

Services include:

- Plant operation & maintenance
- Field & engineering support
- Component refurbishment
- Replacement spare parts
- Turbine control systems
- Plant operator training
- Rotor Overhaul
- Condition Monitoring
- Long Term Service Agreements
- Turbine Refurbishment



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