1 x GE LM2500+ SAC PK Model GenSet 30.3MW (60Hz. 13,8kV) for ISO Conditions

GT Operation Hours Since New ~48,000 Generator Operation Hours Since New “102,000”

Dual Fuel
Dual Frequency Generator sets

Manufacturer: Gas Turbine: General Electric, Generator: Brush BDAX 7-290PR, 59.500kVA

Model: LM2500+ SAC 7LM2500-PK-MD GE Gas Turbine Generator (GTG) Set

Mnf. Year: GT 1999, Generator 1997

Condition: Used and assembled, ready for operation, to be dismantled and packed for shipment after signing purchase agreement.

Fuel Type: Dual Fuel (Natural Gas and Liquid Fuel) with water injection **Frequency:** Dual 50/60Hz

GE LM2500+ Gas Turbine Generator Set consists of 1 x LM2500+ SAC PK Gas Turbine (7LM2500-PK-MD, SAC-Single Annular Combustor) and 1 x Brush Generator.

SCOPE OF SUPPLY Gas Turbine Generator Set – Consisting of the following components:

Gas Turbine:

The gas turbine is a **General Electric LM2500+ SAC PK** model ISO rated for continuous duty and configured for operation on either natural gas or liquid fuel. Each is configured for optional water injection for NOx reduction if required. Now the engine is installed in gas turbine package and ready for operation position, however production license of power plant has been terminated. Gas turbine bearing preservation is performed regularly and gas turbine requires major overhaul.

TASKS:

Gas turbine to be fully overhauled for next 50,000hr for safe and reliable operation (all bearings to be replaced, accessory gearbox, inlet gearbox to be overhauled).

Fuel System:

Dual Fuel Configuration Natural Gas fuel system using an electronically controlled fuel metering valve. For full-load operation, the gaseous fuel must be supplied to the fuel skid connection at: 320 MMBtu/hr Max; 180 °F [82 ° C]; Max; 520 +/- 20 PSIG (3,585 +/- 138 kPaG); and filtered to 5 or less Microns, to be compliant with General Electric specification MID-TD-0000-1.

TASKS:

Fuel metering valves and associated parts to be function checked and refurbished as necessary for safe and reliable operation.

Liquid Fuel System:

Typical liquid fuels include DF1, DF2, or JP4, to be compliant with General Electric specification MID- TD-0000-2. For full-load operation, the buyer must supply liquid fuel to the connection fuel skid at 40 GPM (151.4 L/min]), 30 ± 10 PSIG (207 ± 69 kPaG]), filtered to 5 Microns, and at least 20°F (11°C) above the wax point temperature.

All necessary shutoff valves, flow meters, piping, and instruments between the fuel skid connection and the engine are included. The buyer must provide supply piping with sampling ports, fuel system filtration, and applicable shut-off valves and containment per local codes and standards.

TASKS:

Liquid fuel redundant boost pump &electric motors, gearboxes will be refurbished (all bearings to be replaced and electric motor verified, rewind as/if necessary) for continuous and safe operation.

Water Injection System:

Capable of water injection for NOx reduction. For full-load operation, the demineralized water must be supplied to the Water Injection Skid connection at 28 GPM (106 L/min], 15 PSIG (103 kPaG] Minimum, 40 to 140 °F (4 to 60 °C) filtered to 10 Microns. The buyer must provide demineralized water that is clean, filtered, and compliant with General Electric specification MID-TD-0000-3.

TASKS:

Water injection redundant pump &electric motors, gearboxes will be refurbished (all bearings to be replaced and electric motor verified, rewind as/if necessary) for continuous and safe operation.

Switchgear:

Including a set of generator circuit breaker equipment, 2 sets of incoming line voltage monitoring equipment, a marshaling cabinet, and a set of switchgear accessories. Permanent cable terminations from the neutral and line side of the generator are also included.

TASKS:

All related equipment to be checked, verified and tested for proper operation.

Fire Protection System:

Installed fire protection system complete with hydrocarbon sensing and thermal detectors, piping, and nozzles in the engine compartment. The fire protection system includes cylinders containing CO2 mounted on the FFP Skid. Included 24 VDC battery and charger powers the fire protection system. All alarms and shutdowns are annunciated at the unit control panel. An alarm sounds at the turbine if the gas detectors detect high gas levels, or if the system is preparing to release the CO2. When activated, the package shuts down, and the primary CO2 cylinder is discharged into the turbine compartment via multiple nozzles, and the ventilation dampers automatically closed. After a time, delay and if required, the reserve supply of CO2 is discharged.

TASKS:

Thermal and heat detectors, gas sensors, to be refurbished and replaced if necessary. CO2 bottles, solenoid valves, shut-off valve, damper solenoids to be refurbished.

24VDC battery cells to be replaced and charger to be refurbished.

Auxiliary Skid:

The Auxiliary Skid includes fuel and water injection system components that are mounted on side of gas turbine generator package. The pumps, filters, and necessary instrumentation are connected to the gas turbine generator package components at the site with interconnect pipes. The Auxiliary Skid includes the hydraulic start and water wash systems described below.

Electro-Hydraulic Start System:

This is supplied with a hydraulic starting system, which includes an electric motor-driven hydraulic pump assembly, filters, and a fin/fan heat exchanger mounted on the auxiliary equipment module. A hydraulic motor is also mounted on the gas turbine accessory gearbox to turn the gas generator shaft. All piping and fittings on the base plates, plus hydraulic connections between the auxiliary equipment module and the main base plate are also furnished.

TASKS:

Electro-hydraulic starter pump, solenoid valve, gearbox &electric motor will be refurbished (all bearings to be replaced and electric motor verified, rewind as/if necessary), fin-fan heat exchanger to be tested, filters to be replaced for continuous and safe operation.

"Off-Line" Soak Wash System:

This is an "off-line" cleaning system with a water wash reservoir and all necessary filters and instrumentation supplied and installed on the side of turbine enclosure.

TASKS:

All filters to be replaced.

Fin Fan Cooler:

A 100% redundant dual fan, single core cooler with separate coils for the turbine, generator lube oil. The cooler is equipped with all interconnect piping and instrumentation necessary for the two circuits.

TASKS:

Fin-fan cooler blades, electric motors to be refurbished (all bearings to be replaced).

Digital Control System:

The control system features an integrated electronic fuel management system with a programmable sequencer, vibration monitor, fire system monitor, digital meter, and a digital generator protective relay module. A desktop or laptop PC with a separate workstation and chair is provided for HMI control. Alarm and shutdown events are displayed on the HMI automatically. A dedicated 24VDC and 125VDC battery system with a power charger is included.

TASKS:

Existing NT CPU Control System to be replaced with latest MicroNet control system with all field associated equipment such as Linknets, FTM's, I/O Modules etc. 125VDC and 24VDC battery chargers to be refurbished, all battery cells to be replaced with new for reliable operation.

Generator Protective Relays:

The equipment package is supplied with Digital Generator Protection System (DGPS) microprocessor- based relay modules mounted in the turbine control panel. The DGPS includes all functions necessary for protecting the generator.

TASKS:

DGPS to be function tested for safe and reliable operation.

Unit Motor Control Center:

A freestanding lineup of motor controls for all LM2500+ SAC PK GenSet motors is supplied.

TASKS:

All breakers, connectors, relays to be function and factory tested for proper and safe operation.

Battery and Charger System:

The equipment package is supplied with a 24 VDC NiCad battery system for control power and fire system and charger for each. In addition, a 125 VDC NiCad battery system with a charger is supplied for the generator DC lube oil pump. The 125VDC battery charger has a selector switch to receive power from either the MCC or an external generator to charge the batteries. The battery systems are fully wired, mounted in racks.

TASKS:

125VDC and 24VDC battery chargers to be refurbished for reliable operation.

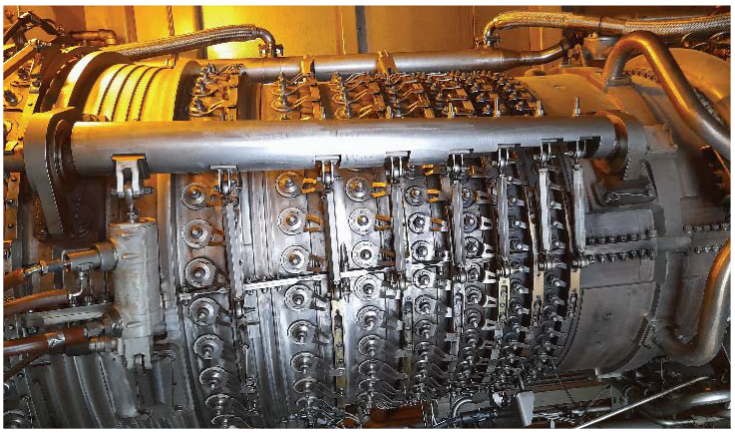
Gas Turbine Air Filter Assembly:

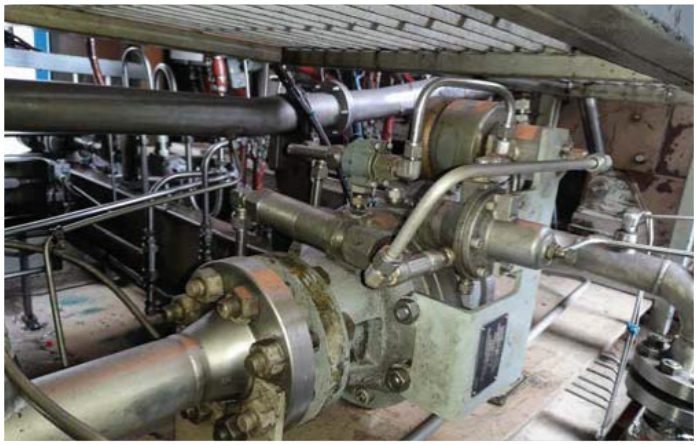
The air filter is equipped with a two-stg filtration system for both ventilation and combustion air with panel-type pre-filters housed in hinged doors and high-efficiency barrier filters. The air filter includes weather hoods installed in front of the filtration system and inlet silencers. An inlet plenum with a door is provided for access to the FOD screen for maintenance. Ventilation fans for the turbine enclosure are installed on the turbine enclosure. The fans are redundant and bypass dampers are installed. All of the items listed are housed in the filter house that is complete with an access door for maintenance, separate air paths and turning vanes and the necessary instrumentation. Also evaporative system is installed on air filter system for conditioning the inlet air in order to optimize the efficiency during operation, especially at hot and dry weathers.

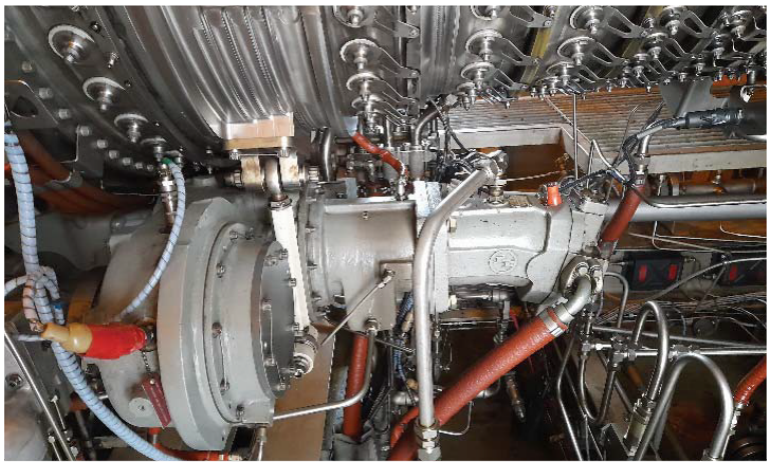
TASKS:

Existing air filters to be removed from filter house. New filters can be provided upon Buyer's request.

EQUIPMENT VISUALS



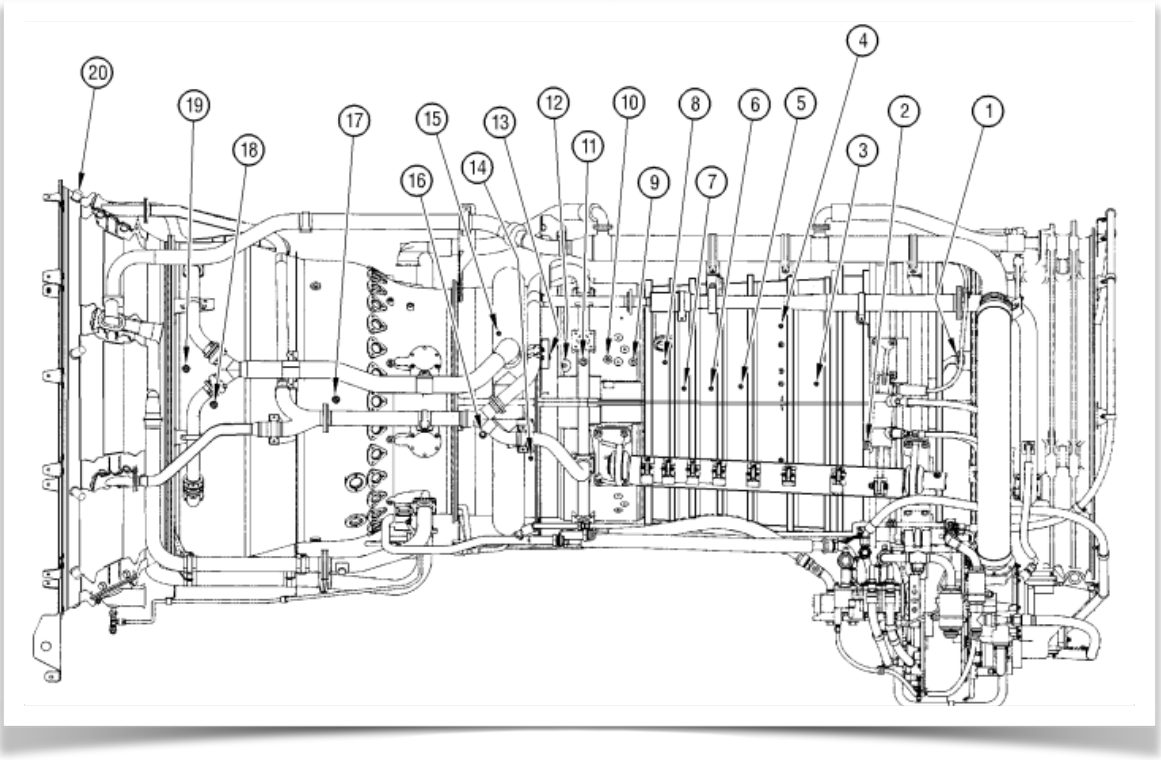




BORESCOPE REPORT
(Performed March 2024)

Introduction

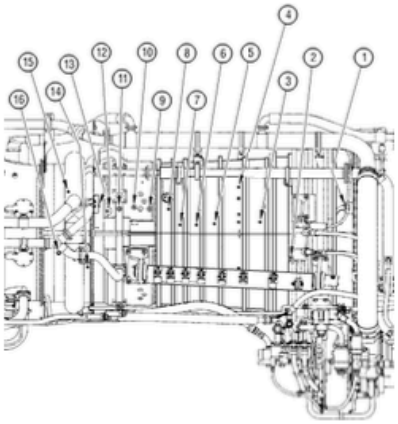
Borescope Inspection was performed on all sections on LM2500+ GT w/ ESN 557-XXX as per GEK 105054 WP 40600.

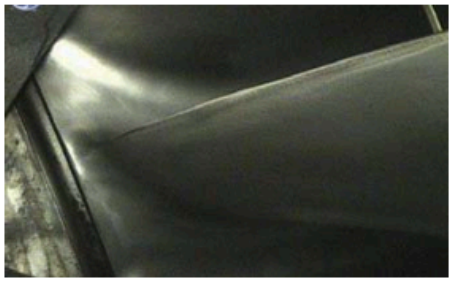


LEGEND:

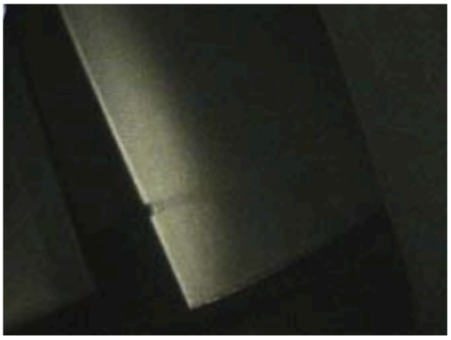
1. IGV BORESCOPE PORT
2. STAGE 0 BORESCOPE PORT
3. STAGE 1 BORESCOPE PORT
4. STAGE 2 BORESCOPE PORT
5. STAGE 3 BORESCOPE PORT
6. STAGE 4 BORESCOPE PORT
7. STAGE 5 BORESCOPE PORT
8. STAGE 6 BORESCOPE PORT
9. STAGE 7 BORESCOPE PORT
10. STAGE 8 BORESCOPE PORT
11. STAGE 9 BORESCOPE PORT
12. STAGE 10 BORESCOPE PORT
13. STAGE 11 BORESCOPE PORT
14. STAGE 12 BORESCOPE PORT
15. STAGE 14 BORESCOPE PORT
16. STAGE 15 BORESCOPE PORT
17. CRF BORESCOPE PORTS
18. HPT STAGE 1 BORESCOPE PORT
19. HPT STAGE 2 BORESCOPE PORT
20. TMF BORESCOPE PORTS (THERMOCOUPLE AND PRESSURE PROBE PORTS)

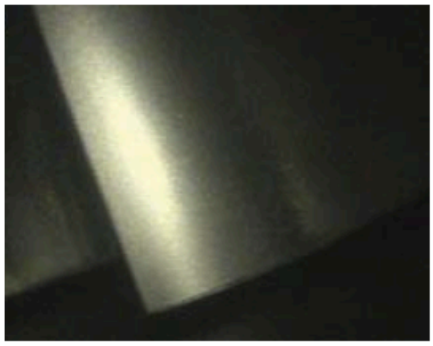
1. High Pressure Compressor

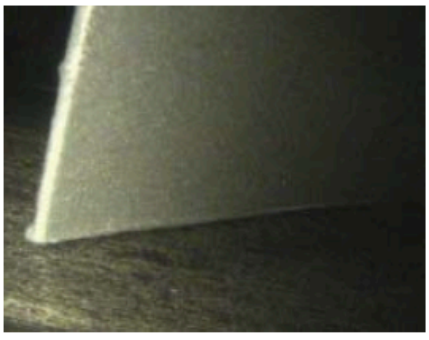


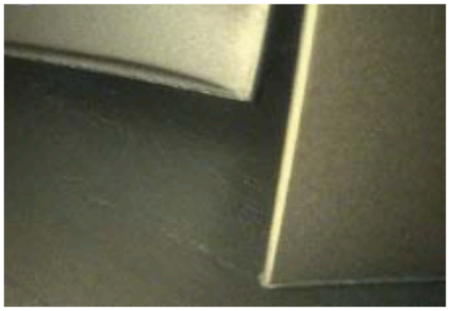
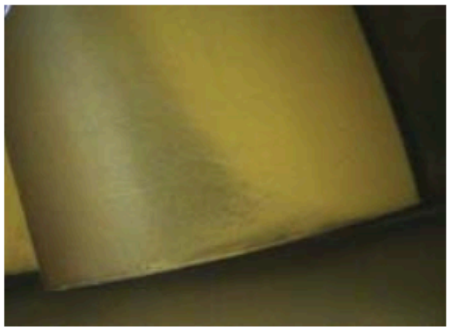


IGV Port — BSI ports 1..... *No Remarks*
Stage 0 — BSI ports 2..... *No Remarks*
Stg1 Blades (Qty 26) & Vanes, BSI ports 3..... *No Remarks*
Stg2 Blades (Qty 26) & Vanes, BSI ports 4..... *No Remarks*
Stg3 Blades (Qty 42) & Vanes, BSI ports 5..... *No Remarks*
Stg4 Blades (Qty 45) & Vanes, BSI ports 6..... *No Remarks*
Stg5 Blades (Qty 48) & Vanes, BSI ports 7..... *1 ea Nick on L/E side (Serviceable Limits)*
Stg6 Blades (Qty 54) & Vanes, BSI ports 8..... *No Remarks*
Stg7 Blades (Qty 56) & Vanes, BSI ports 9..... *No Remarks*
Stg8 Blades (Qty 64) & Vanes, BSI ports 10..... *No Remarks*
Stg9 Blades (Qty 66) & Vanes, BSI ports 11..... *No Remarks*
Stg10 Blades (Qty 66) & Vanes, BSI ports 12..... *No Remarks*
Stg11 Blades (Qty 76) & Vanes, BSI ports 13..... *1 ea Nick on L/E side (Serviceable Limits)*
Stg12 Blades (Qty 76) & Vanes, BSI ports 14..... *2 ea Missing on T/E Side (Serviceable Limits)*
1 ea Damage on Tip Cord (Serviceable Limits)
1 ea Dent on L/E (Serviceable Limits)
Stg13 Blades (Qty 76) & Vanes, BSI ports 14..... *No Remarks*
Stg14 Blades (Qty 76) & Vanes, BSI ports 15..... *No Remarks*
Stg15 Blades (Qty 76) & Vanes, BSI ports 16..... *No Remarks*
Stg16 Blades (Qty 76) & Vanes, BSI ports 16..... *No Remarks*

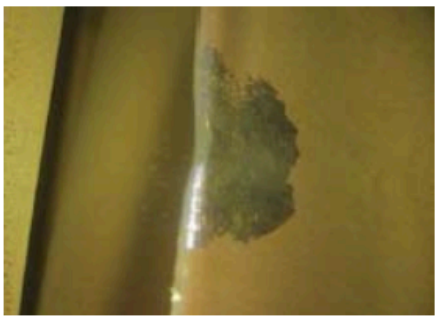






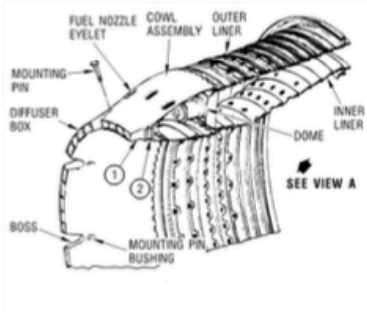




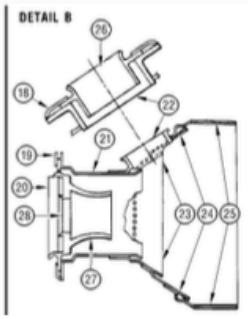


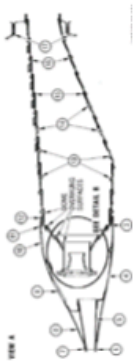





2. Combustion Chamber

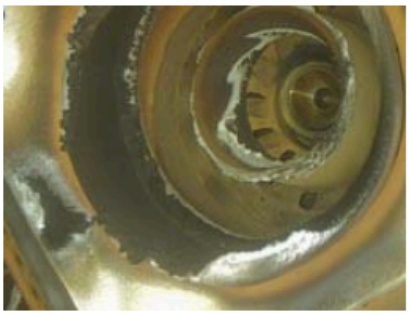


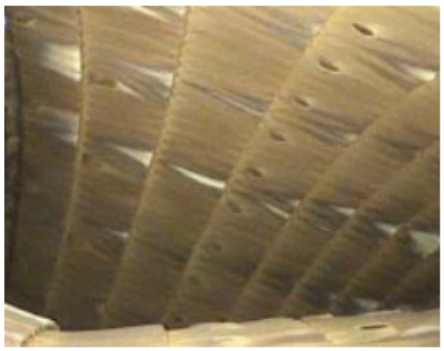


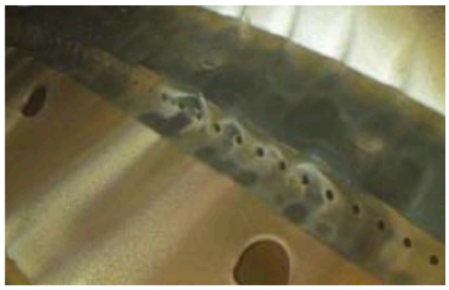


Notes:
CC Found in serviceable conditions.

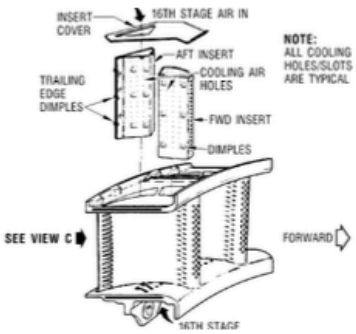
Swirlers.....*Deposits*
Venturi's.....*Deposits, TBC*
Missing on Splash Plate
Trumpets.....*Deposits*
Dome Plate.....*No remarks*
Inner/Outer Liners.....*Discoloration*
1st Stage Nozzle.....*Deposits*
Igniter Tube Area.....*No remarks*

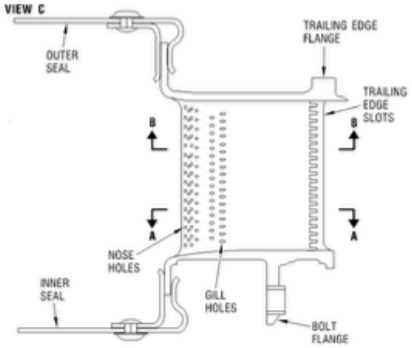






3. HPT STG1 Nozzle Assy.





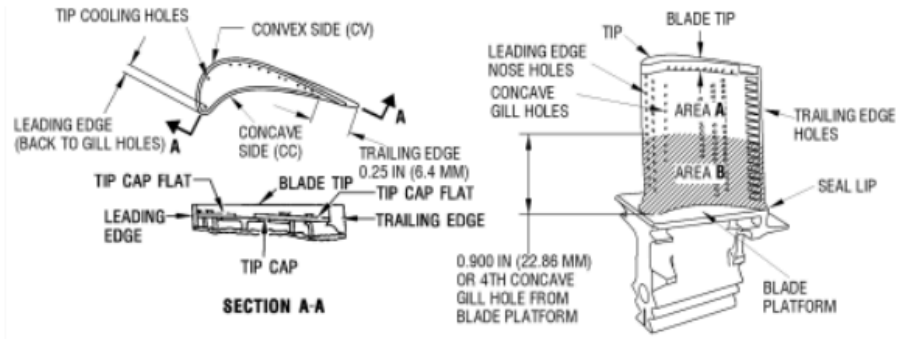
Notes:

Found in serviceable conditions

LE..... *No Remarks*

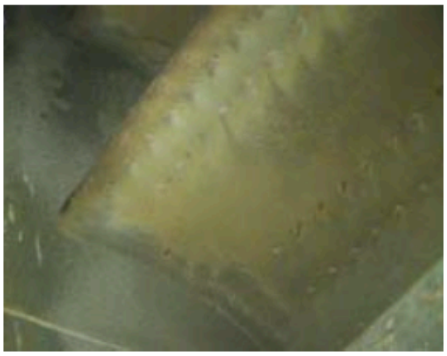
TE..... *Erosions on two nozzles*

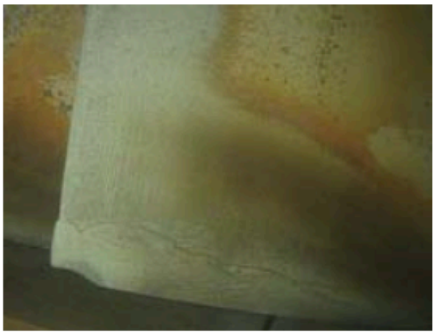
4. HPTR STG1 Blade



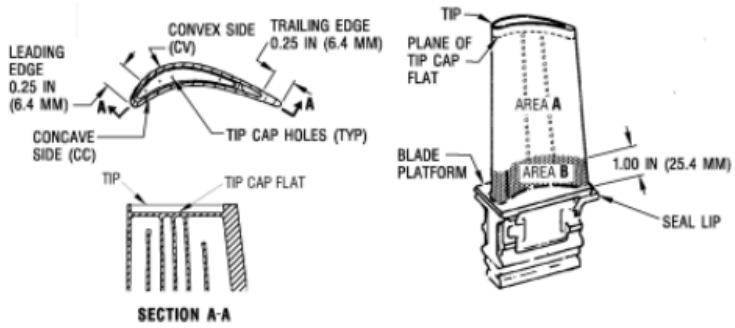
Notes:
Found in serviceable conditions

LE (18))..... *Discoloration, TBC Missing*
TE (19)..... *Discoloration, Missing on Tip Cap (1 blade)*



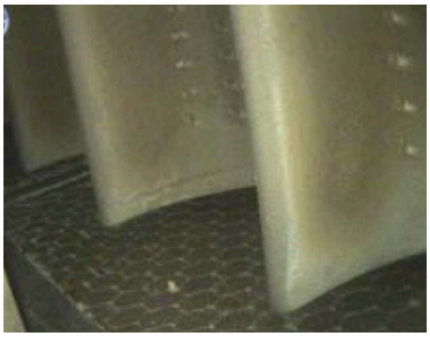


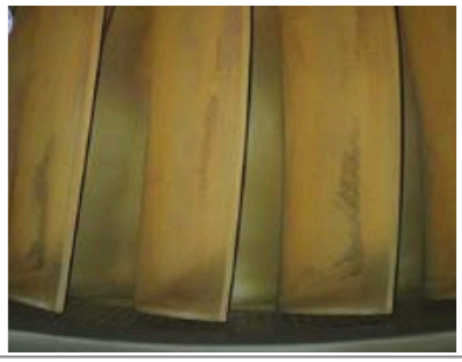
5. HPTR STG2 Blade

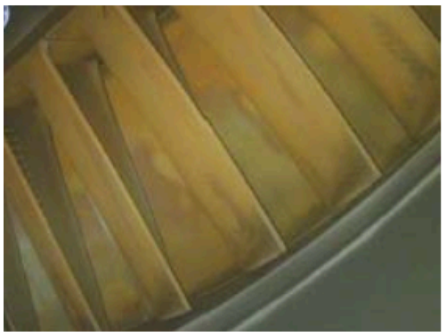


Notes:
Found in servicable conditions

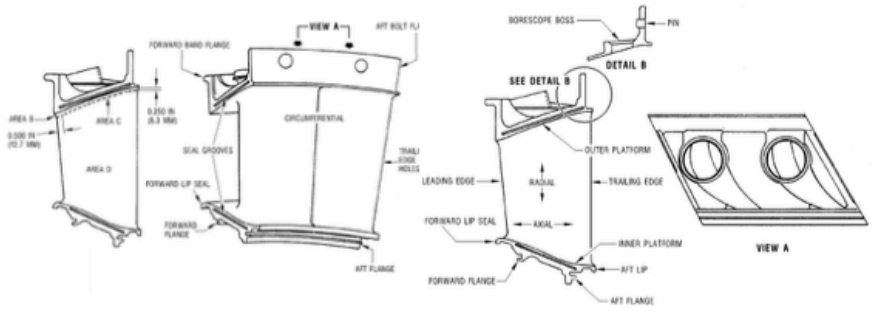
LE (90ea., port 19)... *No Remarks*





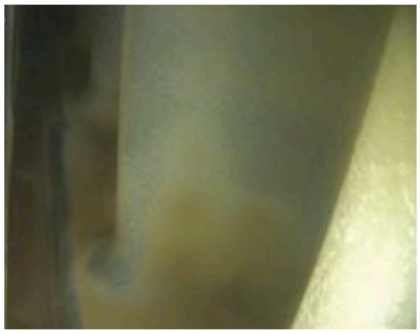


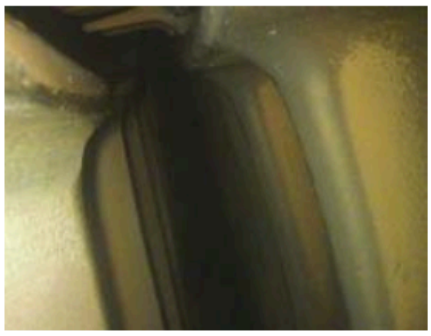
6. HPT STG2 Nozzle Assy.



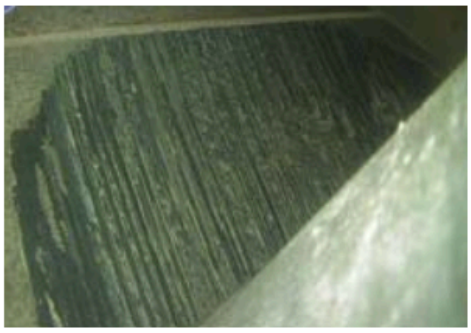
Notes:
Found in serviceable conditions

STG2N..... *Discoloration*





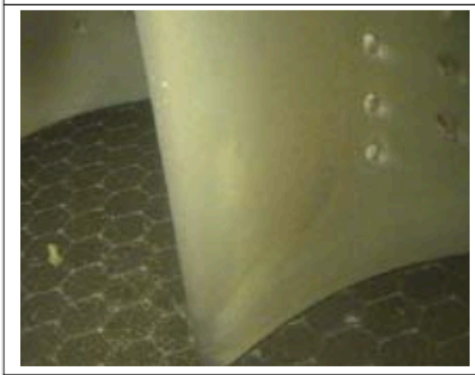
7. HPT STG1&2 Shrouds

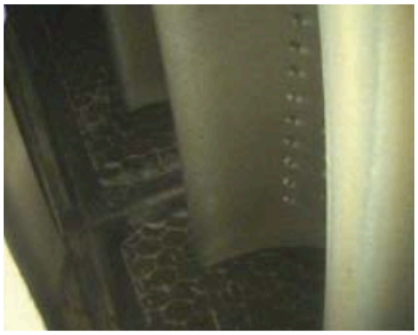


Notes:
Found in serviceable conditions

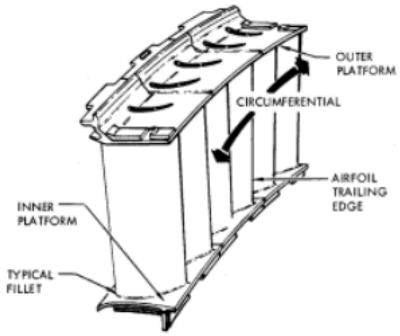
STG1S..... *Rubbing and Corrosion*

STG2S..... *No Remarks*





2.8. PT



Notes:
Found in serviceable conditions

T 5.4 Port.....*No Remarks*