

# Generic Contractor Scope for Planned Maintenance Outages

## 1. Gas Turbine SGT5-4000F

		1	2	3
<b>1 Minor Inspection</b>				
<b>2 extended Hot Gas Path Inspection</b>				
<b>3 Major Inspection</b>				
<b>Equipment</b>	<b>Activity</b>	<b>1</b>	<b>2</b>	<b>3</b>
	Visual inspection of exhaust gas diffuser up to and incl. first compensator, and compensator cover plate, transition to turbine vane carrier and seal rings	x	x	x
	NDE on casing liners		x	x
<b>Compressor</b>				
Casing	opening of manholes, inspection holes; visual inspection of first rows of vanes; if required with borescope	x	x	x
	visual inspection of inlet guide vane assembly		x	x
	opening of compressor vane carrier I and II		x	x
	removal of compressor vanes; cleaning, visual inspection and NDE of vanes; recoating of vanes acc. to maintenance concept; visual inspection of vane carrier and cross-shaped sealing plates; compressor diffuser		x	x
Bearing	visual inspection of compressor bearing / compressor bearing housing for leakages	x	x	x
	replacement of oil hose for lifting oil		x	x
	check axial and radial bearing, thrust bearing pads for wear, dress surface, NDE, Babbitt bonding		x	x
<b>Turbine</b>				
Casing	opening of manholes / inspection holes; visual inspection of first and last row of vanes; if required with borescope	x	x	x
	opening of casing III and turbine vane carrier		x	x
	as required: visual inspection, cleaning, removal, NDE or replacement of turbine vanes row 1 - 4; replacement or NDE of ring segments stage1 acc. to maintenance concept		x	x
	visual inspection and NDE of turbine vane carrier and components	x	x	x
Bearing	visual inspection of turbine bearing and oil box	x	x	x
	check turbine bearing pads for wear, dress surface, NDE, Babbitt bonding		x	x
<b>Rotor</b>				
Compressor	visual inspection of first rows of blades	x	x	x
	Inspect Compressor with borescope	x		
	cleaning, visual inspection and NDE of blades; recoating of blades acc. to maintenance concept		x	x
	Visual inspection and NDE on compressor discs (designated areas)		x	x
Turbine	visual inspection of row 1 and 4 blades; if required with borescope	x		
	as required: visual inspection, cleaning, removal, NDE or replacement of turbine blades row 1 - 4		x	x
	Visual inspection and NDE on turbine discs (designated areas)		x	x
	check of seal tips		x	x
Tie rod	Rotor Run-out check, measurement of radial blade clearances and axial shift rotor de-stacking		x	x
	visual inspection and NDE on tie rod incl. damping element seats; on front, middle and rear hollow shaft, inner and outer cooling air separation tube (designated areas)			x
	Visual inspection and NDE of Hirth-serration, thread for shaft nut and damping elements			x

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<b>Couplings</b>					
	opening of couplings, check of elongation of coupling bolts, alignment check, run-out check		x	x	
<b>Turning device</b>					
	visual check, check of oil supply	x	x	x	
	check of bearings or replacement acc. to maintenance concept		x	x	
<b>Combustion unit</b>					
	visual inspection of:				
	1. heat shields for cracks, breakings, erosion	x	x	x	
	2. transition of outer shell to hub and hub to turbine vane carrier				
	visual inspection on annular combustion chamber, center guide, supports, hold down devices, seal rings and manholes		x	x	
	visual inspection of stationary cooling air separation tube, shims, hold-down devices, supports		x	x	
<b>Burners</b>					
	visual inspection	x	x	x	
	Removal, cleaning of burners, axial/diagonal swirlers, igniters		x		
	Replace Burners			x	
<b>GT Auxillary systems</b>					
	Protection devices (emergency stop valves with actuator; shut-off valves with actuator; measuring equipment and blow-off system) – visual inspection and functional check		x	x	
	Regulation devices (control valves with actuator; actuator for IGVs) – visual inspection and functional check		x	x	
	Hydraulic system for fuel valves – visual inspection and functional check		x	x	
	Lube oil system – visual inspection		x	x	
	Purge water system – visual inspection		x	x	
	Fuel systems – visual inspection and functional check		x	x	
	separating of oil and oil analysis if required		x	x	

<b>Commissioning</b>					
	Control of setting values, control, regulation and protective device, measuring device		x	x	
	Checks for cleanliness (GT, filter house)		x	x	
	Commissioning of turning gear: Checks / adjustment of lube oil incl. lifting oil		x	x	
	1st starting converter operation		x	x	
	Leakage checks of fuel systems		x	x	
	Commissioning of 1st fuel - start up to nominal speed		x	x	
	Inspection after 1st hr of nominal speed operation (if expedient)		x	x	
	Optimization 1st fuel: change over, loading to base load, determination of base load temperature		x	x	
	If applicable: Optimization 2nd fuel: change over, loading to base load, determination of base load temperature		x	x	
	Final Inspection after base load (if expedient) - release for commercial operation		x	x	
	On-site balancing (only if necessary)		x	x	