

# POWER PLANT - FOR SALE

GE FRAME 6B



GE FRAME 6B

OEM: GE

MODEL FRAME 6B

DETAILS

GE MS 6001B TURBINE  
GENERATOR + HSRG

ISO RATING

**42** MW

FREQUENCY

50 Hz

EOH

68,448

STARTS

2,166

FUEL TYPE

Dual Fuel Capable

## POWER GENERATION: 42MW ISO

*GE FRAME 6B GAS TURBINE – HEAVY INDUSTRIAL TYPE*

*Turbine and Generator Package - Balance of Plant – Turbine Control System and Generator Controls - HRSR*

TECHNICAL SPECIFICATION OF THE ONE (1) UNIT OF FRAME 6B GAS TURBINE (34 MW) AND ITS RESPECTIVE ANCILLARIES AND SPARES, ONE (1) UNIT OF HEAT RECOVERY STEAM GENERATORS AND ITS RESPECTIVE ANCILLARIES AND SPARES

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## GE FRAME 6B

Introduction - The GE Frame 6 gas turbine was installed in 1998, with capacity output of 34 MW, with the main purpose to supply electricity, processed water and steam.

### Total Generation

The total Equivalent Operating Hours ("EOH") for the gas turbine at Plant A since commissioning until 2016 is as follows:

Unit	Commissioning Year	Total EOH
GT11	1998	68,448

### Total Starts

The total starts for the gas turbine since commissioning until 2016 is as follows:

Unit	Commissioning Year	Total Starts
GT11	1998	2,166

### FRAME 6B DETAILS

Serial No:	297158
Model	GE Frame 6 (6001B)
Make By	Scotland (K.E.L)
Year Make	1997
Turbine Stage	3
Compressor Stage	17
Rating	34,490 KW
Operating Speed	5114 rpm

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BEARING DETAILS		
BEARING No.	CLASS	TYPE
1	Loaded Thrust	Tilting Pad - Equalizing
1	Unloaded Thrust	Taper Land – Non Equalizing
1	Journal	Elliptical
2	Journal	Elliptical

TORQUE CONVERTER - TWIN DISC	
Model	4-SGE-2015-1
Type	Hydraulic Torque Converter
Number of stage	Single-stage

DIESEL ENGINE STARTER	
Original Manufacturer & Model	Detroit diesel 12V771T
Remanufacturer	<i>PowerForce</i>
Number of cylinders	12
Arrangements	v
Aspiration	Turbo-charged
Displacement CID. (Litres)	852 cu. ins. (13.97 L)
Bore X Stroke inches (Mm)	4.25'' X 5.0'' (108mm X 127mm)
Injectors	N75
Compression Ratio	18.7 : 1
Combustion Cycle	2-Cycle Detroit Diesel

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ACCESSORY GEARBOX DESIGN DATA MODEL A519-B41			
Location of Shaft	Driven Accessory	RPM	Approximate Load
No. 1 Outboard	Clutch	5100	---
No. 1 Inboard	Turbine Coupling	5100	---
No. 2 Outboard	Water Pump	3583	35 hp
No. 2 Inboard	(Machined to accept Brake)	3583	---
No. 3a Outboard	Fuel Pump	1814	108 hp
No. 3b Inboard	Atomizing Air Compressor	6003	380 hp
No. 4 Outboard	Hydraulic Supply Pump	1415	9 hp
No. 4 Inboard	Lube Oil Pump (Shaft Covered)	1415	31 hp

LOAD GEAR BOX	
Type	TRL65CV
Nominal rating	54000 kW
API 613/88 service factor	1.3
Input speed N1	5114 RPM
Output speed N2	3000 RPM
Ratio	1.7045

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GENERATOR	
Type	T190-240
Rated speed	3000 RPM
Rated active power	33.8 MW
Rated power factor (cos $\varphi$ )	0.8
Rated apparent power	42.25 MVA
Rated stator voltage	11 kV
Stator voltage variation	$\pm 5\%$
Rated stator current	2218 A
Rated frequency	50 Hz
Number of phases	3
Insulation class	F
Ambient air temperature	35 °C
Excitation system	TKJ 70/10
Type of cooling	air

EXCITER	
Excitation	Rotating diode
Type	TKJ 70/10
Rated speed	3000 RPM
Overspeed	3600 RPM
Excitation power	226 kW
Rated power factor (cos $\varphi$ )	0.8
Rated voltage	248 V
Rated current	513 A
Frequency	200 Hz
Number of poles	8

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MAIN TRANSFORMER	
UNIT	F6T1
MFG	HAWKER
MFG DATE	1998
MAIN TANK S/N	971292
KVA	46000
VOLT PRI	33000
VOLT SEC	11000
KILOGRAMS	68090
CLASS	ONAN/ONAF
IMPEDENCE	12.30%
LIQ TYPE	OIL (NYNAS Nytro 10 GBN)
LITERS LIQUID	18300
RADIATORS	YES
FANS	YES
H2O COOLED	NO
OIL PUMPS	NO
TOP FPV	1.75" FLANGE
BOTTOM FPV	1.75" FLANGE
BULCHOZ	YES
CONSERVATOR	YES
LTC COMPARTMENT	NO
BUSHING LOC	SIDE/ENCLOSED
FREE BREATHER	YES
HOSE LENGTH	55 M
POWER AVAILABLE	YES

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GENERATOR CIRCUIT BREAKER	
Circuit breaker	GT11 GCB
Year	1998
Model	HPA 12/3140C
Name	1MO
Rated Voltage	12KV
Rated normal current	3150A
Insulation level	28KV
Rated lightning impulse voltage	75KV
Rated duration of short circuit current	1s
Rated short circuit breaking current	40KA
Making capacity	100KA
Rated Operating sequence	O-0.3s-CO-3min-CO
Mass	225Kg
Shunt release on voltage	125VDC
Shunt release off voltage	125VDC
Charging motor voltage	125VDC
SF6 indication	110VDC
SF6 mass	0.627KG
SF6 pressure	250KPa

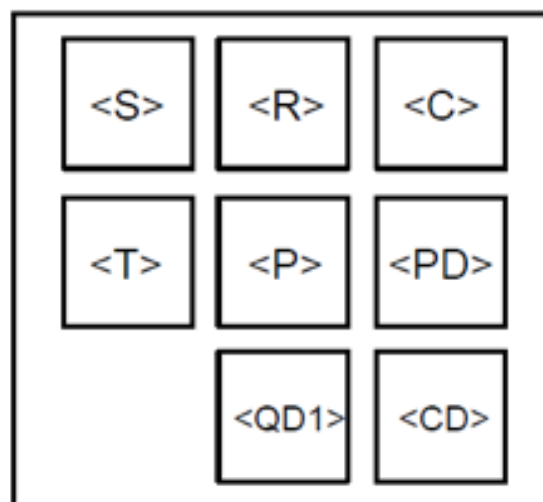
HSRG	
Maker	Alstom
Design Pressure	77.9 BAR
Year of Manufacture	1995
Capacity	79200 KG / HR at 480 Deg C
Total Heating Surface	30,516 Sq Meter

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## MARK V CONTROL SYSTEM CONFIGURATION

GT11 Mark V Configuration



Mark V TMR Control Panel

<C> - Communicator Core

<S> - Redundant Control Processor Core

<P> - Protective Core

<QD1>- Digital I/O Core for Control Processor(s)

<R> - (Redundant) Control Processor Core

<T> - Redundant Control Processor Core

<PD> - Power Distribution Core

<CD> - Communicator Digital I/O Core



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SCHEDULED MAINTENANCE HISTORY	
<b>Frame 6</b>	<b>Frame 6 Generator</b>
CI (Nov 2000)	MI (April 2005)
HGPI (July 2002)	MI (June 2014)
MI (April 2005)	
CI (June 2007)	
HGPI (April 2012)	
CI (Oct 2013)	

MAJOR PLANT UPGRADES			
No	Date of Modification	Description	Upgrade Works
1	June 2009	GT12 High Flow GTD450 IGV upgrade	Replacement of end of life VIGV blades with higher flow upgraded material blades for power upgrade.
2	June 2009	GT12 CO2 Fire Protection System Upgrade	Upgrade obsolete system with new and more reliable CO2 circuit, heat detectors and cylinders.
3	Dec 2013	GT11 & GT12 Gas Detection System Upgrade	Upgrade of obsolete Crowcon system

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