

N S ENERGY

Gas Turbine Model: GE Frame 5 (PG5361)

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Description

(3)

Frame 5 Complete GT

Power Gen Units



GENERAL SCOPE OF SUPPLY & DESCRIPTION

- Gas Turbine Model: GE Frame 5 (PG5361)
- Gas Turbine Maker: Alstom (France)
- **Gas Turbine Generator Unit Packager: Alstom (France)**
- Operation Hours: 24,405/25,738/22,887 (Till 12/31/2002, Approximately)
- Capacity: 25,240KW (Simple Cycle, Base Load, Gas Fuel)
- (ISO Conditions) 25,920KW (Simple Cycle, Peaking, Distillate Fuel)
- Heat Rate: 13,010KJ/KWHr (Simple Cycle, Base Load, Gas Fuel)
- 13,190KJ/KWHr (Simple Cycle, Base Load, Distillate Fuel)
- Year of First Operation: 1985
- Frequency: 50Hz

Frame 5 Complete GT Power Gen Units

GENERAL SCOPE OF SUPPLY & DESCRIPTION

Each unit consists of all the parts/components and all the auxiliaries necessary for the power generation, which includes following major equipment:

- 1xPG5361 Gas Turbine Alstom (France)
- 1xGenerator Alstom (France)
- 1xMain Transformer 35KV/11KV Alstom (France)
- 1xComplete Mark II Control System GE (USA)

Frame 5 Complete GT Power Gen Units

GENERAL SCOPE OF SUPPLY & DESCRIPTION

- **Frame 5 Gas Turbine**

- 1) Compressor: 17 stages, pressure ratio 9, axial type, 95CM/s air inlet, controllable inlet guide vane
- 2) Turbine: single shaft, 2 stage, horizontal layout
- 3) Combustor: annular, 10 combustion chambers
- 4) Bearings: 2

Frame 5 Complete GT Power Gen Units

GENERAL SCOPE OF SUPPLY & DESCRIPTION

Start System

- 1). Diesel Engine: 368KW, 2300rpm, 18.7 pressure ratio
- 2). Start Motor: 295KW, 380V, 532.5A, 3-phase

Lubrication System

- 1). Lub Oil Tank Capacity: 6500L
- 2). Main Lub Oil Pump: 1445rpm, exhaust pressure 630kpa, 1741L/min
- 3). Auxiliary Lub Oil Pump: 2930rpm, exhaust pressure 140kpa, 795L/min
- 4). Lubrication Heat Exchanger: quantity 1, water cooling

Control System

Complete Mark II control system

Fuel System

Heavy Fuel Right Now, Can Be Converted to Gas Fuel, Distillate Fuel, or Dual Fuel Easily by GE

Frame 5 Complete GT Power Gen Units

GENERAL SCOPE OF SUPPLY & DESCRIPTION

Main Transformer

Nominal capacity 30,000KVA,
Nominal current 455.8/1574.6A,
Nominal voltage 38KV, 3-phase, 50Hz

In Plant Transformer

Nominal capacity 1250KVA, nominal voltage 11,000/400V, Nominal
current 65.61/1804A, 3-phase, 50Hz

Main Switchgears for Generator and Main Transformer

FC4-315SF6 Seal Type,
Nominal voltage 36KV,
Nominal current 1250A

Batteries & Chargers

Complete system ready for power generation

Water Cooling System

Complete system necessary for power generation



GENERAL SCOPE OF SUPPLY & DESCRIPTION

Load Gear Box

Speed ratio: 5100/3000

Other Control Systems

Over Heat System,
Over Vibration System,
Over Speed System.

AC Generator

Open air cooling, brushless,
30,862KVA nominal rating,
11,000KV, 1620A, 0.8 power
factor, 50Hz, 3-phase, 3000rpm



Frame 5 Complete GT Power Gen Units

GENERAL SCOPE OF SUPPLY & DESCRIPTION

ALSTOM FRAME 5 HISTORIC DATA

	Unit 1	Unit 2	Unit 3
• Ignition Times (Till 12/31/2002)	2281	2332	1994
• Operation Hours (Till 12/31/2000)	24,405	25,738	22,887
• (Till 9/30/2002)	24,789	26,092	23,284
• 1990	3269	3404	2826
• 1991	3959	4397	3260
• 1992	3615	3542	4215
• 1993	3715	4253	4148
• 1994	3637	3823	3484
• 1995	2354	2024	1818
• 1996	714	1570	950
• 1997	1367	1290	1481
• 1998	806	386	271
• 1999	233	290	188
• 2000	736	727	247
• 2001	384	386	396
• Operation Hours Since Last Major Overhaul	4233 1/19/96	6044 4/11/95	1102 4/11/98

Frame 5 Complete GT Power Gen Units

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GENERAL SCOPE OF SUPPLY & DESCRIPTION

FRAME 5 TEST & REPAIR HISTORY

	Unit 1	Unit 2	Unit 3
• Scheduled Test & Repair		1993,8	1992,9 1994,2
• Hot Section Repair/Replacement 1995,2			1992,1 1992,3
	1993,12	1993,12	1996,3
	1995,11	1995,2	1997
• Operation Hours (Till 12/31/2002) 22,887			24,405 25,738

Approximately

Frame 5 Complete GT Power Gen Units

North South Energy

GENERAL SCOPE OF SUPPLY & DESCRIPTION



Frame 5 Complete GT Power Gen Units

North South Energy