

S. COMMERCIAL ENTERPRISE



Turbine Service & Supply of Spare Parts



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Solutions with a Difference

S. Commercial Enterprise headquartered in Bangladesh having global offices in Singapore and USA.

S. Commercial Enterprise staff consists of Expert Engineers, Technicians, and Support Personnel.

PowerServ is specialized in :

- Spare Parts Supply and Maintenance for GE Heavy Duty Gas Turbines.
- Spare Parts Supply and Maintenance for ALSTOM AND HITACHI Heavy Duty Gas Turbines.
- Design, Fabricate, supply, installation and commissioning of a New Solar Desalination Unit.

Our valued clientele list include **Sembcorp Engineering, Yamato engineering, Rotary Engineering, Singapore.**

We have designed a **New generation solar desalination unit (3000 Litre per day)** production capacity for King Abdullah University of Science and Technology, Saudi Arabia.

We are currently working with BPDB, DESCO, DPDC and PGCB. S. Commercial Enterprise provides all the spare parts, scheduled, and unscheduled inspection including overhauling.

S. Commercial Enterprise focuses on engineering and consulting services in power systems with special emphasis on feasibility studies, and reliability improvements.



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MAINTENANCE

- Focus on GE Turbines: Frame 5, 6B, 7 & 9E
- ALSTOM, WESTING HOUSE, HITACHI



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Item List to be Supply:

1. GE frame 5,6,7,9 Hot Gas Path Component (HGPC) and Combustion Inspection (CI) spares and consumables.
2. Alstom and Hitachi Gas Turbine HGPI and CI spare parts
3. Heavy Industrial Lube and sealant for GT.
4. Boiler Consumable Goods:
5. Compression tools.
6. Instrument Air Compressor
7. Air Dryer.
8. Flame detector.
9. Control system HFA card Mark IV,V
10. Auxiliary pumps
11. Control & Safety Valves
12. Hot line tools.
13. Power saw.
14. Hot stick.
15. Compression tools
16. Hand operated compression tools
17. Safety Belt
18. All Hot Lines Tools

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19. Electrical Low Voltage, Medium Voltage switchgear
 - a. Vacuum CB
 - b. Switchgear panel
 - c. Auxiliary Transformer/Station Transformer
20. Neutral Grounding Panel
21. Battery
22. Insulated ladder
23. Material Handling Equipment
24. Test Equipment
 - a. Megger
 - b. Vacuum Checker
 - c. Thermovision Camera
 - d. Cable Fault Locator

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1. SAMPLE LIST OF SPARE FOR COMBUSTION INSPECTION (CI)

SI No	Description
1	2
1	Nozzle Tip Assembly with Locking plate
2	T.P End Seal
3	Locking Plate for TP
4	Locking Plate for TP
5	Bolt for TP (Screw)
6	Locking Plate for Bull Horn
7	Locking Plate for stop block
8	Combustion can gasket (spiral wound)
9	Support Transition Piece (Bull horn)
10	Block Stop
11	Bolt for stop block
12	Flow sleeve combustion (forward)
13	Pigtail gasket (Spiral wound)1-1/4x600
14	Cross-fire tube outer Gasket (Carbon)
15	Lead Free Anticease compound (13000C), Lock tight

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SCOPE OF SUPPLY for 100MW HFO

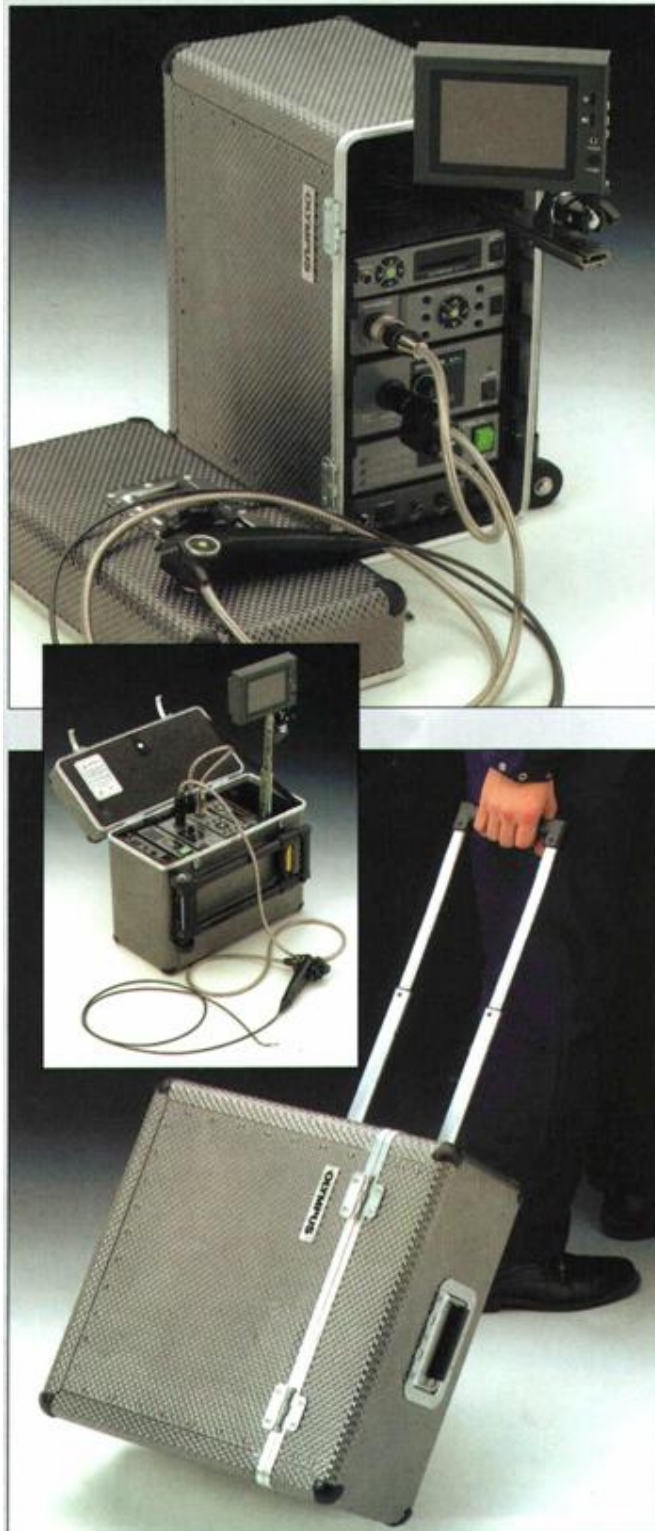
Item	Descriptions
1	11KV 50KA 3S switchgear No.1
1.1	1250A Generator Incoming panel
1.2	1250A Spare Feeder Panel
1.3	4000A outgoing Feeder Panel
1.4	1250A Station Transformer Feeder
1.5	Bus PT & Metering Panel
1.6	Accessories
2	11KV 50KA 3S switchgear No.2
2.1	1250A Generator Incoming panel
2.2	4000A outgoing Feeder Panel
2.3	1250A Station Transformer Feeder
2.4	Bus PT & Metering Panel
2.5	Accessories
3	Neutral Grounding Panel
3.1	11KV Neutral Grounding panel
4	110V DC Battery Panel
4.1	110V DC Battery Panel
5	Unilib Low Voltage Switchboard
5.1	Low Voltage Main Switchboard 400V 3 Phase 50HZ 6300A
5.2	Low Voltage Station Auxiliaries Board 400V 3 Phase 50HZ 3000A
6	Low Volatge Engine Motor Controls
6.1	Engine MCC 400V 3 Ph 50HZ
7	Fuel Treatment Panel
7.1	Fuel Treatment panel 1200A
8	Power & Lighting Board
8.1	Fuel Treatment panel 1200A
9	Station Transformer
9.1	4000KVA Station Transformer

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Item No.	Descriptions
1	1260-1350C ceramic fiber paper,
2	1000-1800C ceramic fiber board,
3	650-1000C calcium silicate board
4	1000-1800C vacuum form shapes
5	1260-1600C ceramic fiber bulk,
6	1260-1600C ceramic fiber module,
7	650-1260C ceramic fiber cloth, tape, rope and wire,
8	1260-1650C insulating firebrick, Fireclay Brick and High Aluminum and mortar.
9	1260-1350C ceramic fiber paper,

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BOROSCOPE INSPECTIONS

With our “state of the art“ digital Boroscope equipment, we can survey and record, in situ, components located in the hot gas path of the combustion and turbine areas of the machine. We are also able to examine the variable inlet guide vanes, and the first stage rotor and stator vanes of the compressor. We can also view the internal condition of pipework, specifically flexible units, to diagnose any internal corrosion or collapse.

Upon completion of the survey, the results can be reviewed at site to take further action on the turbines, if required. Our full engineers report, containing the digital photographs, would normally be issued within one week of the inspection.

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Maintenance for G.E. Heavy Duty Gas Turbines

1- Disassembly Inspections

- Combustion Inspection (CI)
 - Concentrates on the combustion liners, transition pieces, and fuel nozzles
 - Crossfire tubes, retainers, spark plug assemblies, flame detectors, combustion covers, and flow sleeves are the other key hardware
 - Recommended inspection for MS6B Hours / starts is 12000 / 800
- Hot Gas Path Inspection (HGPI)
 - Full scope of combustion inspection, in addition, a detailed inspection of the turbine nozzles, stationary stator shrouds, and turbine buckets
 - IGVs, bushings, and compressor blading are the other key hardware
 - Recommended inspection for MS6B Hours / starts is 24000 / 1200
- Major Inspection (MI)
 - Examine all of the internal rotating and stationary components from the inlet of the machine through the exhaust section of the machine
 - Recommended inspection for MS6B Hours / starts is 48000 / 2400

2- Running Inspection

- Full scope of speed, load, fired starts, fired hours, start up time, coast down time, and vibration data
- Concentrates on;
 - Temperatures of inlet ambient, turbine exhaust, turbine wheelspace, lube oil header, lube oil tank, exhaust spread, and bearing drains
 - Pressures of compressor discharge, lube pump, cooling water, fuel, bearing header, and filters
 - Generator of output voltage, vars, loads, field current, field voltage, vibration, stator temperature, and phase current

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AFTER MARKET SERVICES

First Stage Turbine Enhancements

- Extended first stage turbine hardware life
- Reduced cost on commonly replaced parts
- Increased first stage turbine blade cooling for engines operating at 1935°F
- Omega seals for improved fit around liner combustion chamber
- Honeycomb seals for improved fit and increased rub tolerance
- Can be used with other kits to increase firing temperature

Second Stage Turbine Enhancements

- DS second stage turbine blades extend service life
- Z-shroud design adds dynamic stability to blades
- New blade profile improves aerodynamics
- Advanced vane material and coating extends vane life
- New spacer improves dynamic stability
- Can be used with other kits to increase firing temperature

Thermocouple Conversions

- Extended thermocouple service life
- Value pricing yields for an economical conversion
- Reduced operating cost when firing temperature is increased
- Can be used with other kits to increase firing temperature

Rear Turbine Bearing Support Conversion

- Lower operating temperature at current power output extends hot section life
- Power output increases at current operating temperature without changes in hardware life
- Value pricing significantly reduces conversion cost
- Can be used with other kits to increase firing temperature

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AFTER MARKET SERVICES

Power Turbine Overhaul Set

- Complete power turbine overhaul kit combined into one part number
- Complete kit reduces total conversion cost

Dry Low Emission Conversion

- Guaranteed emission levels of 25 ppm NO_x and 50 ppm CO at full power
- Kit pricing significantly reduces conversion cost
- Separate combustion liner kit reduces operating cost when installed
- Actual emission levels may vary

Compressor Extension Shaft Bearing Modification

- Larger bearings extend service life
- Complete modification kit combined into one part number
- Package pricing enhances conversion economics

Pilotless Dual Fuel Nozzle 6-Pack

- No pilot to clog
- Reduces combustion liner distress
- Significantly reduces carbon formation
- Improved fuel atomization

Combustion Liner Clamping Set

- Significantly reduced kit price enhances conversion economics
- Complete set of combustion liner clamping hardware under a single part number

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