WELLWORX
ENERGY WITH INTEGRITY

12.9 Mega Watt Heavy Fuel Oil Power Plant

(Including HFO Gas Turbine Engine Generator Sets)

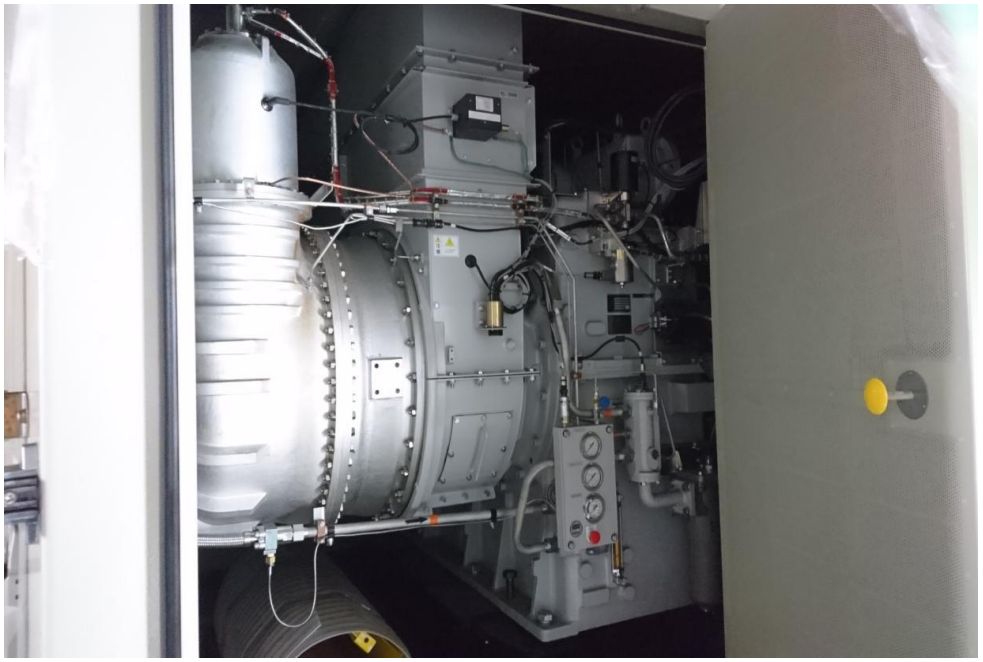
Gas Turbine Engines(3 Units)

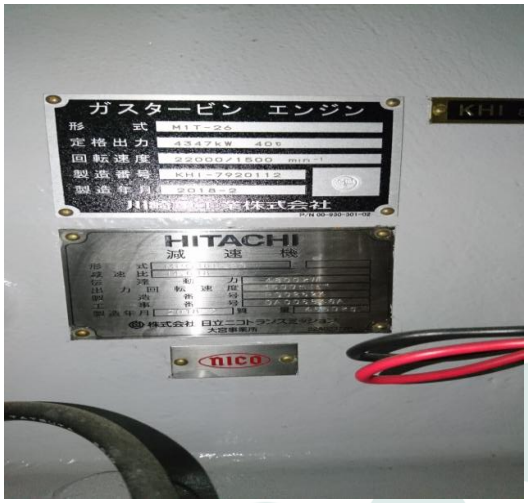
Kawasaki Heavy Industries, Ltd

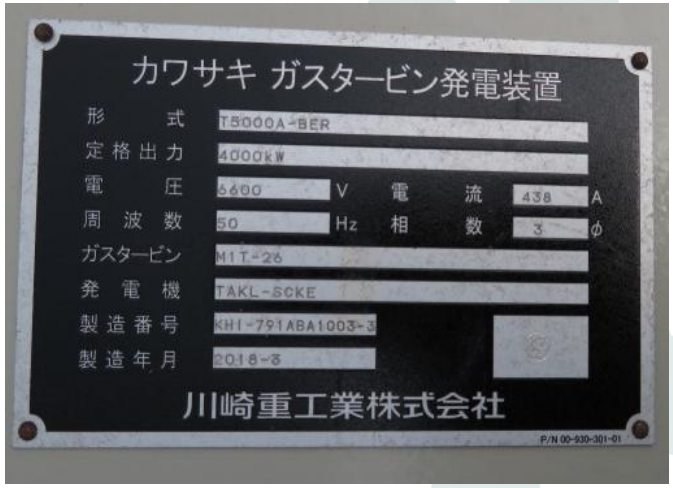
- Model MIT-26
- Rated output 4347 KW 40 ° C
- Rotational speed 22000/1500 min-1
- Serial number KHI-790112
- Month of production 2018-2
- Kawasaki Heavy Industries, Ltd.
- Hitachi
- Decelerator
- Model MPG160-23
- Reduction ratio 14.618
- Transmission power 4800KW
- Output rotational speed 1500 min-1
- Serial number PG02524
- construction number 0A006846A
- Manufacturing date 2018/2
- T5000A-BER
- Rated output 4000kW
- Voltage 6600v
- Frequency 50Hz
- gas turbine MIT-26
- Generator TAKL-SCKE
- Serial number KHI-791ABA1003-3
- Manufacturing date 2018-3
- Current 438A
- Number of phases 3 ϕ
- Height 3800 × width 3500 × depth 8500

As per below this slide you will see the pictures of these specifications/details

Gas Turbine Engines(3 Units)







Toshiba Emergency Synchronous Generators 3 units

- Phase number 3
- Number of poles 4
- Voltage 6600V
- Power factor 0.8
- Rated continuous
- Number of poles 4
- Voltage 6600V
- Power factor 0.8
- Rated continuous
- Output 5000KVA
- Current 438A
- Field voltage 70V
- Annual operation time 1000 hours
- Rotation speed 1500 min-1
- Frequency 50Hz
- Field current 455A
- Output 5000KVA
- Current 438A
- Field voltage 70V
- Annual operation time 1000 hours
- Rotation speed 1500 min-1
- Frequency 50Hz
- Field current 455A
- Refrigerant temperature 40 ° C
- Field winding 155 (F)
- Heat resistant class; Armature winding 155 (F)
- AC exciter: Output 39 KVA
- Voltage 55V
- Current 410A
- Field voltage 90V
- Protection method IP20
- Cooling method ICO 1
- Mass 9660 Kg
- Serial number 7154498BQA2000
- Standard JEC-2130-2016
- As per below pictures of the specs/details

Toshiba Emergency Synchronous Generators 3 units

Toshiba Emergency Synchronous Generators 3 units

Toshiba Emergency Synchronous Generators 3 units

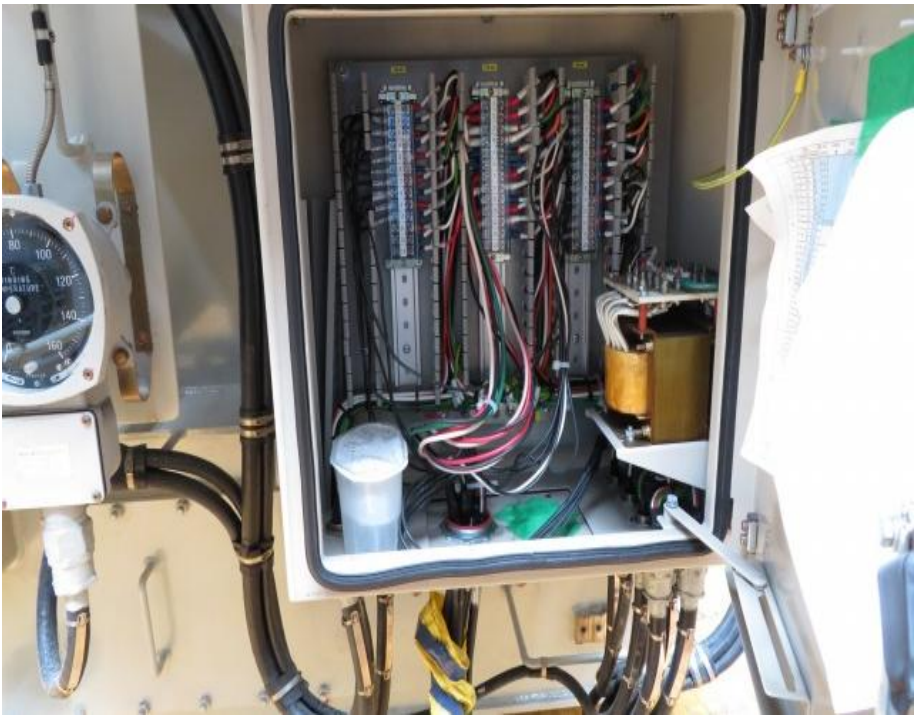
Transformers (2 Units)

- Load tap switching transformer
- Standard JEC-220-2014
- Phase number 3
- Rated frequency 50Hz
- Cooling method ONAN / ONAF
- Rated Capacity (KVA) Primary 20000/22000 Secondary 20000/22000
- Rated voltage (V) primary 66000 secondary 6600
- Rated current (A) primary 175/192 secondary 1750/1925
- Test voltage value (KV) primary L1 350 AC 140 secondary L1 60 AC22
- Temperature rise limit
- Number of turns 65K Oil 60K
- 23T each in weight
- As per below this slide you will see the pictures of these specifications/details

Transformers (2 Units)

Transformers (2 Units)

Transformers (2 Units)



More Information On The HFO Plant

Power generator

- The power generator consists of a gas turbine, AC generator, and auxiliary equipment necessary for operation. It shall be mounted on a common base and housed inside an outer case.
- The outer box has a door attached with HINGE and shall be lockable.
- The numbers indicate per unit
- (**1**) format T5000A-BER(PU5000B-ER)
- (**2**) Exhaust system - Single exhaust system
- (**3**) Construction
- In the outside box The main equipment to be installed is as follows:

1. Gas turbine (including reduction gear) 3 units
2. Alternator 3 units
3. Starter motors
4. Fuel supply system
5. Lubricant oil supply device

- (**4**) Coupling method
- The gas turbine main shaft is coupled with the generator through the reduction gear and the coupling
- (**5**) Startup method DC motor start powered by storage battery
- (**6**) Speed characteristics Isochronous control
- Constant speed fluctuation rate ±0.3% At constant load Within
- Instantaneous speed fluctuation rate ±5% Full load on / off
- (**7**) Fuel consumption 1750L/h (+5%Margin)
- (**8**) Start time Within 40 seconds
- (**9**) Load input capacity 100%
- (**10**) Restart time Within 40 seconds by restart command after stop command

More Information On The HFO Plant

The key points of the gas turbine that drives the generator are as follows:

1. format Simple release cycle 1 axis type
2. Construction Consists of a centrifugal two-stage compressor, an axial flow four-stage turbine, a single-tube can combustor and a reduction gear
3. Output 4,347kw(40℃)
4. Rotational speed - Turbine main shaft 22,000min^{-}1 = Output axis 1,500min^{-}1
5. Reduction gear - Planetary + Parallel gear reducer
6. Starter motor - Electric type
7. Fuel controller Electric type - A heavy oil No. 1 (JIS K 2205)
8. Oil type: Synthetic base oil (AERO SHELL ASTO-500) Oil amount: 240L

More Information On The HFO Plant

Fuel Properties:

1. Dynamic viscosity (50 ° C): 2.0 to 2.8 mm2 / s
2. Sulfur content: 0.5% wt or less
3. 10% residual oil residual carbon content: 0.55% wt or less
4. Density (15 ° C): 865 kg / mm3 or less

More Information On The HFO Plant

The main points of the alternator are as follows:

- Format: Protective type, free air flow type (IP22)
- Construction: Horizontal axis type, rotating field type
- Rated capacity: 5000kv
- Rated output: 4000kw
- Rated voltage: 6,600V
- Rated current: 437A (reference)
- Rated power factor: 0.8(delay)
- Rated continuous
- Frequency 50Hz

WELLWORX
ENERGY WITH INTEGRITY

WELLWORX
ENERGY WITH INTEGRITY

WELLWORX
ENERGY WITH INTEGRITY

WELLWORX
ENERGY WITH INTEGRITY

WELLWORX
ENERGY WITH INTEGRITY

WELLWORX
ENERGY WITH INTEGRITY