

# MITSUBISHI MGS SERIES

## DIESEL GENERATOR SET

50Hz/1500 rpm/380V



### MG2700B

|                                |                 |                   |
|--------------------------------|-----------------|-------------------|
| <b>POWER RATING (0.8 P.F.)</b> |                 | <b>MODEL CODE</b> |
| <b>STAND-BY</b>                | <b>2500 kVA</b> | <b>5S-KT84</b>    |
| <b>PRIME</b>                   | <b>2250 kVA</b> | <b>5P-KT84</b>    |



MG2700B with typical options

### Voltage Variation

- Standard Voltage 3Phase 4 Wires  
380V
- Voltages Available 3Phase 4 Wires  
380, 400, 415 and 440V

Note: Outputs for optional voltages may differ from standard output mentioned above.

### CONDITIONS & DEFINITIONS

#### Stand-by: Code: S

Applicable for supplying emergency power at varying load in the event of the normal utility power interruption.

Fuel stop power in accordance with ISO15550, ISO3046/1, JISB8002-1, DIN6271 and BS5514.

#### Prime: Code: P

Applicable for supplying power to a constant electrical load for limited hours.

Limited-Time Running Power (LTP) in accordance with ISO8528.

#### Conditions:

Engine ratings are based on SAE J1349 standard conditions and also apply at ISO3046/1, DIN6271 & BS5514 standard conditions.

Fuel rates: based on ASTM D975, BS2869 and on fuel oil of 35° API (16°C or 60° F) gravity having a LHV of 42,780 kJ/kg (18,390 Btu/lb.) when used at 29°C (85° F) and weighing 838.9 g/liter (7.001lbs./U.S. gal.).

### DIMENSION (Reference Data)

|                    |            |    |       |
|--------------------|------------|----|-------|
| Overall dimensions | L : Length | mm | 6420  |
|                    | W : Width  | mm | 2825  |
|                    | H : Height | mm | 3365  |
| Total Weight (Dry) |            | kg | 18600 |
| Total Weight (Wet) |            | kg | 19600 |

**MGS SERIES DIESEL ENGINE: MITSUBISHI S16R2-PTAW**

V-16, 4 stroke-cycle water-cooled, turbocharged and aftercooled

**ENGINE SPECIFICATIONS & TECHNICAL DATA**

|   |                     |      |
|---|---------------------|------|
| Bore                                    | mm                  | 170  |
| Stroke                                  | mm                  | 220  |
| Displacement                            | L                   | 79.9 |
| Piston speed                            | m/sec.              | 11.0 |
| Compression ratio                       |                     | 14.0 |
| Lubricating oil capacity                | L                   | 290  |
| Coolant capacity without radiator       | L                   | 190  |
| Coolant pump external resistance        | m water             | 5.0  |
| Coolant pump flow rate                  | L/min               | 1650 |
| Cooling fan airflow rate                | m <sup>3</sup> /min | 2760 |
| Cooling fan air flow restriction        | kPa                 | 0.1  |
| Ambient air temperature                 | °C                  | 40   |
| Allowable exhaust back pressure         | kPa                 | 6.0  |
| Exhaust flange size (internal diameter) | mm                  | 350  |

**ENGINE OPERATING DATA**

|  |                     | STAND-BY | PRIME    |
|--|---------------------|----------|----------|
|  |                     | 2500 kVA | 2250 kVA |
| Gross Engine Power*                                      | kWm                 | 2110     | 1903     |
| Brake mean effective pressure                            | MPa                 | 2.17     | 1.96     |
| Regenerative absorption                                  | kW                  | 152      | 152      |
| Noise Level at 1 m<br>(excluding: intake, exhaust & fan) | dB(A)               | 130      | 128      |
| Fuel consumption load 100%*                              | L/hr.               | 535      | 478      |
| Fuel consumption load 75%*                               | L/hr.               | 401      | 362      |
| Combustion air inlet flow rate                           | m <sup>3</sup> /min | 183      | 164      |
| Exhaust gas flow rate                                    | m <sup>3</sup> /min | 483      | 432      |
| Exhaust gas temperature                                  | °C                  | 530      | 520      |
| Heat rejection to coolant                                | kW                  | 826      | 738      |
| Heat rejection to air cooler                             | kW                  | 533      | 476      |
| Heat rejection to exhaust                                | kW                  | 1474     | 1299     |
| Heat rejection to atmosphere from engine                 | kW                  | 160      | 143      |
| Heat rejection to atmosphere from generator              | kW                  | 103      | 93       |

\* WITH FAN basis.

Deration for engine

Note: Please consult with your nearest Mitsubishi MGS dealer

**ENGINE STANDARD EQUIPMENT**

- Aftercooler
- Turbocharger filter
- Structure steel base
- Crankcase breather
- Charging alternator
- Lubricating oil cooler
- Fuel filters, full flow paper element
- Fuel transfer pump, gear driven, plunger type
- Electronic type governor
- Jacket water heater
- Jacket water pump, gear driven
- Lubricating oil filter, full flow paper element
- Lubricating oil pump, gear driven
- Exhaust dry manifold
- Radiator, blower fan, fan drive
- Manual shutoff
- 24V DC electric starting motor

### MGS SERIES 7310 GENERATOR CONTROL PANEL

#### Type & Design

MGS standard 7310 programmable microprocessor control-automatic start/stop panel, generator breaker control, indicating the operational status and fault conditions; automatically shutting down the engine and indicating the engine failure by means of LCD display and LEDs on the front panel.

#### Controls & Monitoring

- ◆ Mode selection & start engine button with interlock key switch system
- ◆ Menu navigation button
- ◆ LCD display for: AC amperage-each phase and earth current, AC voltage-each phase and neutral, Frequency Hz, Operation hours run, Lub. Oil pressure, Lub. Oil Temperature, DC Battery Voltage, Cooling water temperature, Generator Load kW/kVA/kVar, Generator Load kWh/kVAh/kVarh
- ◆ Operation status LED indicators
- ◆ CB control buttons
- ◆ Mute/Lamp test button
- ◆ Voltage adjuster
- ◆ Speed adjuster
- ◆ Emergency stop pushbutton
- ◆ Provided 5 outputs for status as standard equipment (Programmable 8 outputs available as option)

#### Safety Shutdown Protection

High engine temperature, Low oil pressure, Fail to start, Generator Over Speed/Frequency, Coolant high temperature, Generator Under Speed/Frequency, Generator High Voltage, Generator Low Voltage, Oil pressure sender circuit, Loss of Speed signal, Emergency stop.

#### Mounting

Fabricated cubicle mounted on individual bracket with anti-vibration isolator

#### Electrical Design

In accordance with BS EN 60950 Low Voltage Directive, BS EN 61006-2 and 61006-4 EMC Directive. The optional interface can provide real time diagnostic facilities.

#### Generator Control Panel Description

- 3 position operation mode control key switch (ACTIVE, PANEL LOCK, STOP/RESET)
  - Manual button
  - Auto button
  - CB open button (Manual only)
  - CB close button (Manual only)
  - Start engine button (Manual only)
  - Stop/Reset button (Manual only)
  - Mute/Lamp test button (Manual only)
  - Voltage adjusting trimmer
  - Speed adjusting trimmer
  - Emergency stop pushbutton
- LCD display accessed by scroll pushbutton
 

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>Generator volts L1-N, L2-N, L3-N</li> <li>Generator volts L1-L2, L2-L3, L3-L1</li> <li>Generator amps L1, L2, L3</li> <li>Generator Earth Current</li> <li>Generator Frequency Hz</li> <li>Engine speed RPM</li> <li>Engine oil pressure (PSI &amp; Bar)</li> </ul> | <ul style="list-style-type: none"> <li>Engine cooling water temperature (°C &amp; °F)</li> <li>Battery volts</li> <li>Engine hours run</li> <li>Generator Load kW, kVA, kVar</li> <li>Generator Load kWh, kVAh, kVarh</li> <li>Power Factor</li> </ul> |
|--|--|
- Visual indicators on LCD display
 

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>Shutdown alarm</li> <li>Warning alarm</li> <li>High coolant temperature</li> <li>Low oil pressure</li> <li>Charge fail</li> <li>Over-speed</li> <li>Under-speed</li> <li>Electrical trip</li> <li>Fail to stop</li> </ul> | <ul style="list-style-type: none"> <li>Generator high current</li> <li>Over voltage (AC)</li> <li>Under voltage (AC)</li> <li>Over voltage (DC)</li> <li>Under voltage (DC)</li> <li>Auxiliary indication</li> <li>Auxiliary alarm (warning or shutdown)</li> <li>Common alarm</li> <li>Over frequency</li> <li>Under frequency</li> </ul> |
|--|--|
- Visual indication alarm and automatically shutdown
 

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>High engine temperature</li> <li>Low oil pressure</li> <li>Fail to start</li> <li>Over-speed</li> <li>High voltage</li> <li>Low voltage</li> </ul> | <ul style="list-style-type: none"> <li>Over frequency</li> <li>Under frequency</li> <li>Oil pressure sender open circuit</li> <li>Loss of speed signal</li> <li>Emergency Stop</li> </ul> |
|---|---|
- Operation status indicated by LED
 

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>Remote start present</li> <li>Generator ready</li> </ul> | <ul style="list-style-type: none"> <li>Lubrication oil filter clogged</li> <li>Electrical trip</li> </ul> |
|---|---|
- Pre-Programmed Starting Unit
  - Automatic start/stop sequence timing and delay systems configured via MS-Windows based software.

### MGS SERIES AC GENERATOR MODEL: MG-KT84

#### Type & Design

MGS original design, single bearing, 4 pole, screen protected, self-exciting, self-regulating and brushless with fully connected damper windings, salient pole rotors, A.C. exciter and rotating rectifier unit. Direct coupled to engine and regreaseable bearing, direct drive centrifugal blower.

Enclosure: Drip-proof IP23

#### Winding System

Standard 6 wire winding provides 3 phase voltage. All windings are impregnated in vacuum pressure impregnated with a special polyester resin.

Overspeed capability: 125% for 2 minutes

Insulation: Class 'H' of IEC

Temperature rise: 150° C (Stand-by)

Temperature rise: 125° C (Prime)

#### Voltage Regulator

Fully sealed, 3 phase RMS sensing AVR with built-in protection against sustained over-excitation. This de-excites the generator after a minimum of 5 seconds.

Voltage regulation: Less than +/- 0.5% from no load to full load at any power factor between 0.8 lagging and 1.0 allowing for a 4% engine speed variation

Voltage adjustment: +/- 6%

Wave form: Less than 5% deviation

#### Permanent Magnet Generator (PMG)

Electrically isolated from the main alternator stator windings powers AVR - sustaining approx. 250~300% of short circuit current at the AC generator output terminals for not more than 10 seconds by means of excitation voltage via AVR

#### Electrical Design

In accordance with BS5000 Part 3, VDE0530, UTE51100, NEMA MG1-22, CEMA, IEC34-1, CSA22.2, AS1359 and JEC2100.

Telephone Influence Factor (TIF): Less than 50

Telephone Harmonic factor (THF): Less than 2.5%

Radio interference: Suppression is in line with the provision of BS800 and VDE Class G and N

#### Gen Set Option Features

- ENGINE
  - Air Cleaner, paper element dry type
  - Battery Kit
  - Battery Charger
  - Anchor Bolts
- FUEL
  - Fuel Day Service Tank
- LUBRICATION
  - Lub. Oil Priming Pump
- EXHAUST
  - Exhaust Silencer
  - Exhaust Flexible Pipe
- GENERATOR
  - Space Heater
  - 3 phase Sensing Auto Voltage Regulator
  - Power Factor Regulator
- CONTROL PANEL
  - Diesel Generator Integrated Communication Synthesizer (DGICS-MII)
  - Auxiliary Control Panel
  - Remote Monitor Interface
- SWITCHGEAR
  - Circuit Breaker MCCB & ACB
  - Reverse Power Relay

See your distributor for more information:  
 Nguyen Gia Equipment and Technology Co., Ltd  
 Web: <http://mayphatdiendiesel.vn>  
 Email: [sales.vinpower@gmail.com](mailto:sales.vinpower@gmail.com)  
 TEL: 84.024.668.270.66 FAX: 84.024.3212.3880

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