

MITSUBISHI MGS SERIES

DIESEL GENERATOR SET
MGS2500C



MGS SERIES DIESEL ENGINE: MITSUBISHI S16R-PTAA2

V-16, 4 stroke-cycle water-cooled, turbocharged and air-to-air cooling system

ENGINE SPECIFICATIONS & TECHNICAL DATA

Bore	mm	170
Stroke	mm	180
Displacement	L	65.4
Piston speed	m/sec.	9.0
Compression ratio		13.5
Lubricating oil capacity	L	230
Coolant capacity without radiator	L	170
Coolant pump external resistance	m water	5.0
Coolant pump flow rate	L/min	1650
Cooling fan airflow rate	m ³ /min	2500
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

		PRIME 2000 kVA
Gross Engine Power*	kWm	1684
Brake mean effective pressure	MPa	2.1
Regenerative absorption	kW	140
Noise Level at 1 m (excluding: intake, exhaust & fan)	dB(A)	111
Fuel consumption load 100%*	L/hr.	408
Fuel consumption load 75%*	L/hr.	310
Combustion air inlet flow rate	m ³ /min	140
Exhaust gas flow rate	m ³ /min	369
Exhaust gas temperature	°C	550
Heat rejection to coolant	kW	528
Heat rejection to exhaust	kW	1273
Heat rejection to atmosphere from engine	kW	122
Heat rejection to atmosphere from generator	kW	54

* WITH FAN basis.

Deration for engine

Note: Please consult with your nearest Mitsubishi MGS dealer

ENGINE STANDARD EQUIPMENT

Aftercooler
Air filter, paper element type
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, 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 and LED Indicators

High engine temperature, Low oil pressure, Fail to start, Generator Over Speed/Frequency, Generator Under Speed/Frequency

Generator High Voltage, Generator Low Voltage, Oil pressure sender circuit, Loss of Speed signal, Emergency stop, High crankcase internal pressure (MGS-C continuous only)

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)
- LCD display accessed by scroll pushbutton
 - Generator volts L1-N, L2-N, L3-N
 - Generator volts L1-L2, L2-L3, L3-L1
 - Generator amps L1, L2, L3
 - Generator Earth Current
 - Generator Frequency Hz
 - Engine speed RPM
 - Engine oil pressure (PSI & Bar)
 - Stop/Reset button (Manual only)
 - Mute/Lamp test button (Manual only)
 - Voltage adjusting trimmer
 - Speed adjusting trimmer
 - Emergency stop pushbutton
- Visual indicators on LCD display
 - Shutdown alarm
 - Warning alarm
 - High coolant temperature
 - High exhaust gas temperature
 - Low oil pressure
 - Charge fail
 - Over-speed
 - Under-speed
 - Electrical trip
 - Fail to stop
 - Engine cooling water temperature (°C & °F)
 - Engine Lub. Oil temperature (°C & °F)
 - Battery volts
 - Engine hours run
 - Generator Load kW, kVA, kVar
 - Generator Load kWh, kVAh, kVarh
 - Power Factor
 - Generator Phase Sequence
- Visual indication alarm and automatically shutdown
 - High engine temperature
 - Low oil pressure
 - Fail to start
 - Over-speed
 - High voltage
 - Low voltage
 - Generator high current
 - Over voltage (AC)
 - Under voltage (AC)
 - Over voltage (DC)
 - Under voltage (DC)
 - Auxiliary indication
 - Auxiliary alarm (warning or shutdown)
 - Common alarm
 - Over frequency
 - Under frequency
- Operation status indicated by LED
 - Remote start present
 - Generator ready
 - Lubrication oil filter clogged
 - Electrical trip
- Pre-Programmed Starting Unit
 - Automatic start/stop sequence timing and delay systems configured via MS-Windows based software.

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MGS SERIES AC GENERATOR MODEL: MG- KT83

Type & Design

MGS original design, single bearing, 4 pole, screen protected, selfexciting, 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: Class 'F'

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



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Therefore specification and some materials will be changed without notice.

The International System of units (SI) is used in this publication.

