

MITSUBISHI MGS SERIES

DIESEL GENERATOR SET

50Hz/1500 rpm/380V



MGS2000B

POWER RATING (0.8 P.F.)		MODEL CODE
STAND-BY	2235 kVA	5S-KT83
PRIME	2030 kVA	5P-KT83



MGS2000B 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.

Overload: not allowed

Prime: Code: P

Applicable for supplying emergency power at varying load in the event of normal utility power interruption. + 10% overload in accordance with ISO3046/1. Overload power in accordance with ISO15550, ISO3046/1, JIS8002-1, DIN6271 and BS5514.

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.).

Note: * Please contact our MHIESA office to consult in detail.

DIMENSION (Reference Data)

Overall dimensions	L : Length	mm	5675
	W : Width	mm	2250
	H : Height	mm	2880
Total Weight (Dry)		kg	14400
Total Weight (Wet)		kg	15110

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MGS SERIES DIESEL ENGINE: MITSUBISHI S16R-PTAH-S

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

ENGINE SPECIFICATIONS & TECHNICAL DATA

Bore	mm	170
Stroke	mm	180
Displacement	L	65.37
Piston speed	m/sec.	9.0
Compression ratio		14.0
Lubricating oil capacity	L	230
Coolant capacity without/with radiator	L	170/416
Coolant pump external resistance	m water	3.5
Coolant pump flow rate	L/min	1650
Cooling fan airflow rate	m ³ /min	2090
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
		2235 kVA	2030 kVA
Gross Engine Power*	kWm	1850	1679
Brake mean effective pressure	MPa	2.3	2.1
Regenerative absorption	kW	140	140
Noise Level at 1 m (excluding: intake, exhaust & fan)	dB(A)	114	113
Fuel consumption load 100%*	L/hr.	452	415
Fuel consumption load 75%*	L/hr.	350	322
Combustion air inlet flow rate	m ³ /min	163	147
Exhaust gas flow rate	m ³ /min	431	389
Exhaust gas temperature	°C	550	550
Heat rejection to coolant	kW	1188	1073
Heat rejection to exhaust	kW	1542	1382
Heat rejection to atmosphere from engine	kW	143	129
Heat rejection to atmosphere from generator	kW	75	68

* WITH FAN basis.

Deration for engine

Note: Please consult with your nearest Mitsubishi MGS dealer

ENGINE STANDARD EQUIPMENT

Aftercooler
Turbocharger filter (For MGS-B, HV stand-by and prime)
Paper element type filter (For MGS-C, HV PRP continuous)
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

* Depending on the model, it becomes optional setting.

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MGS SERIES 7310 MK II GENERATOR CONTROL PANEL

Features

MGS standard 7310 MK II programmable microprocessor generator control panel provides the following functions

- ◆ Start and stop control
- ◆ Engine and generator measurement items on LCD display and LED on the front panel for operation status indication
- ◆ Engine and generator shutdown and warning protection
- ◆ Generator breaker control
- ◆ Expansion module for additional output and input
- ◆ RS485 and RS232C communication for remote monitoring

Mounting

Fabricated cubicle mounted on individual bracket with anti-vibration isolator

Instrument and control accessories

- Generator running indicator
- Manual button
- Auto button
- CB open button (Manual only)
- CB close button (Manual only)
- Manual start button
- Manual Stop/Reset button
- Selector switch (ACTIVE, PANEL LOCK, STOP/RESET)
- Mute alarm button
- Menu navigation button
- Common alarm indicator
- Voltage adjuster
- Speed adjuster
- Emergency stop pushbutton

Measured items on LCD display

- Generator volts L1-N, L2-N, L3-N
- Generator volts L1-L2, L2-L3, L3-L1
- Generator amps L1, L2, L3
- Generator Frequency Hz
- Engine speed RPM
- Engine oil pressure (PSI & Bar & kPa)
- Engine cooling water temperature (°C & °F)
- Battery volts
- Engine hours run
- Generator Load kW, kVA, kVar
- Generator Load kWh, kVAh, kVarh
- Power Factor
- Generator Phase Sequence

Shutdown and Warning items on LCD display

- High coolant temperature : shutdown and warning
- Low oil pressure : shutdown and warning
- Fail to start : shutdown
- Over-speed : shutdown and warning
- Under-speed : shutdown and warning
- Loss of speed signal : shutdown
- Fail to stop : warning
- Over voltage (DC) : warning
- Under voltage (DC) : warning
- Lubrication oil filter clogged : warning
- High oil temperature : shutdown and warning *1 *2
- Oil pressure sender open circuit : shutdown
- Charge fail : warning
- Exhaust gas temperature high : warning *1
- Coolant level low : warning *1
- High crankcase internal pressure : shutdown *1
- Generator high current : shutdown (IDMT) and warning
- Over voltage (AC) : shutdown and warning
- Under voltage (AC) : shutdown and warning
- Over frequency : warning
- Under frequency : warning
- Overload : warning
- Winding temperature high (U, V, W) : warning *1
- Bearing temperature high : warning *1
- Electrical trip
- Emergency stop : shutdown

*1 : MGS-C, HV continuous are applicable as standard. The others are applicable as option.

*2 : MGS2700 and MGS2800 are applicable as standard. The others are applicable as option.

Operation status indicated by LED

- Remote start present
- Generator ready
- Lubrication oil filter clogged
- Electrical trip

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MGS SERIES AC GENERATOR MODEL: MG-KT83

Features

MGS original design, single bearing, 4 pole, screen protected, self excited, 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.

Compliance to 100% step load.

Quick start option available (less than 10 sec) with lubrication oil pump and jacket water heater.

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'

Temperature rise: 150°C(Stand-by),125°C(Prime)

Voltage Regulator

Fully sealed, 3 phase RMS sensing AVR with built-in protection against sustained over-excitation.

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)

Separately excited system which provide isolated power supply for the AVR – sustain short circuit current approximately 250-300% under fault condition.

Electrical Design

In accordance with ISO 8528-3, IEC60034-1/BS EN60034-1, BS5000 Part 3, VDE0530, NEMA MG1-32, CSA22-2-100, AS1359 and UL1446.

Telephone Harmonic factor (THF): Less than 2.5%

Gen Set Option Features

■ ENGINE

Air Cleaner, paper element dry type
(For MGS-B, HV stand-by and prime only)
Battery Kit
Battery Charger
Anchor Bolts

■ FUEL

Fuel Day Service Tank

■ COOLING

Oversize radiator
Heat Exchanger
Expansion Tank
Removal STD Radiator, Fan & Fan Drive

■ LUBRICATION

Lub. Oil Level Regulator

■ EXHAUST

Exhaust Silencer
Exhaust Flexible Pipe

■ GENERATOR

Space Heater
Power Factor Regulator

■ CONTROL PANEL

Diesel Generator Integrated Communication Synthesizer (DGICS-MII)
Auxiliary Control Panel
Cross Current Compensate Transformer (CCT)
Remote Monitor Interface
2157 expansion unit (Output signal module)
2130 expansion unit (Input signal module)
2133 expansion unit (RTD/Thermocouple input module)

■ SWITCHGEAR

Circuit Breaker MCCB & ACB
Reverse Power Relay



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