MITSUBISHI MGS SERIES

DIESEL GENERATOR SET
50Hz/1500 rpm/380V

MGS0700B

POWER RATING (0.8 P.F.)		MODEL CODE
STAND-BY	**880 kVA**	**5S-H6H**
PRIME	**800 kVA**	**5P-H6H**

MGS0700B with typical options

Voltage Variation

- Standard Voltage 3Phase 4 Wires
  380V
- Voltages Available 3Phase 4 Wires
  380, 400, 415, 440, 190, 200, 208 and 220V

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: * For conditions of prime power (P.R.P.) and additional rating requirements, please consult your nearest Mitsubishi MGS dealer.

DIMENSION (Reference Data)

Overall dimensions	L : Length	mm	4025
	W : Width	mm	1810
	H : Height	mm	1955
Total Weight (Dry)		kg	5700
Total Weight (Wet)		kg	6000

MGS SERIES DIESEL ENGINE: MITSUBISHI S6R2-PTAA-S

L6, 4 stroke-cycle water-cooled, turbocharged and air-to-air cooling system

ENGINE SPECIFICATIONS & TECHNICAL DATA

Bore	mm	170
Stroke	mm	220
Displacement	L	30
Piston speed	m/sec.	11
Compression ratio		14
Lubricating oil capacity	L	100
Coolant capacity without radiator	L	55
Coolant pump external resistance	m water	5.0
Coolant pump flow rate	L/min	670
Cooling fan airflow rate	m^3/min	720
Cooling fan air flow restriction	kPa	0.1
Ambient air temperature	℃	40
Allowable exhaust back pressure	kPa	6.0
Exhaust flange size (internal diameter)	mm	200

ENGINE OPERATING DATA

		STAND-BY 880 kVA	PRIME 800 kVA
Gross Engine Power*	kWm	746	678
Brake mean effective pressure	MPa	2.0	1.9
Regenerative absorption	kW	64	64
Noise Level at 1 m (excluding: intake, exhaust & fan)	dB(A)	106	104
Fuel consumption load 100%*	L/hr.	189	170
Fuel consumption load 75%*	L/hr.	138	127
Combustion air inlet flow rate	m^3/min	65	59
Exhaust gas flow rate	m^3/min	171	154
Exhaust gas temperature	℃	520	520
Heat rejection to coolant	kW	245	220
Heat rejection to exhaust	kW	610	542
Heat rejection to atmosphere from engine	kW	56	51
Heat rejection to atmosphere from generator	kW	42	37

* WITH FAN basis.

Deration for engine
Altitude: 2.5% per 300m (1000ft) above 1,500m
Temperature: 2% per 5℃ (9˚ F) above 40℃

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 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, 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,

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

- 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)
- 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

■ Visual indicators on LCD display

- Shutdown alarm
- Warning alarm
- High coolant temperature
- Low oil pressure
- Charge fail
- Over-speed
- Under-speed
- Electrical trip
- Fail to stop
- 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

■ Visual indication alarm and automatically shutdown

- High engine temperature
- Low oil pressure
- Fail to start
- Over-speed
- High voltage
- Low voltage
- Over frequency
- Under frequency
- Oil pressure sender open circuit
- Loss of speed signal
- High Crankcase internal pressure (MGS-C Continuous only)
- Emergency Stop

■ 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.

MGS SERIES AC GENERATOR MODEL: MG-HC6H

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 pre-lubricated maintenance free bearing, direct drive centrifugal blower.

Enclosure: Drip-proof IP23

Winding System

Standard 12 wire reconnectable winding provides a wide range of 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 'H'

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%
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

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