



# MITSUBISHI MGS SERIES

## DIESEL GENERATOR SET MGS2800B

### MGS2800B /50Hz

POWER RATING (0.8 P.F.) / Alternator Model

STANDBY : 2750 kVA / L52UL16

(ESP) : Emergency Standby Power

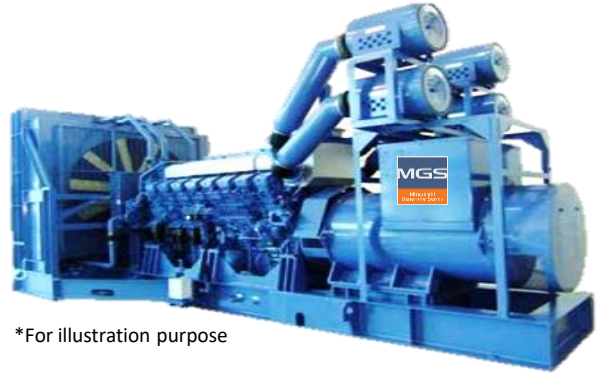
PRIME (PRP) : 2500 kVA / L52UL16

: Prime Power

#### Voltage Variation

■ Standard Voltage 3Phase 4 Wires  
380V

■ Voltages Available 3Phase 4 Wires  
380, 400, 415 and 440V



\*For illustration purpose

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

### CONDITIONS & DEFINITIONS

SYM	NAME OF RATING	DEFINITION	LOAD/OPERATING HOUR*		
			AVE. LOAD FACTOR /24hr	AVE. LOAD /yr	OPERATING Hr/yr
STANDBY (ESP)	Emergency Standby Power	Rated power of an emergency generator as Stand-by that supplies power in case of a failure of main power source or commercial power.	Maximum 80%. (100% in emergency)	Maximum 70%	Maximum 500Hr
PRIME (PRP)	Prime Power	For generators with variable load and unlimited operating hour.	Maximum 80%. Overload operation ( $\leq 110\%$ ) is limited to a max. of 1 hour per 12 hours. Over 90% load operation is limited to a max. of 3 hours per 12 hours	Maximum 70%	Unlimited

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

Conditions are consistent with the requirements under ISO 8528-1:2018

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	6605
	W : Width	mm	2490
	H : Height	mm	3640
Total Weight (Dry)		kg	18800
Total Weight (Wet)		kg	19900





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### MGS SERIES DIESEL ENGINE: MITSUBISHI S16R2-PTAW2-S

V-16, 4 stroke-cycle water-cooled, turbocharged and two way cooling system

### 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 / with radiator	L	157 / 716
Air Cooler Coolant Capacity without radiator	L	33
Coolant pump external resistance	PSI	5.0
Coolant pump flow rate	L/min	1650
Air cooler coolant flow rate	L/min	920
Cooling fan airflow rate	m3/min	3480
Cooling fan air flow restriction	kPa	0.1
Ambient air temperature	°C	40
Allowable exhaust back pressure	kPa	6.0
Exhaust flange size		JIS 350A

### ENGINE OPERATING DATA

		STANDBY(ESP)	PRIME(PRP)
		2750 kVA	2500 kVA
Gross Engine Power*	kWm	2330	2109
Brake mean effective pressure	MPa	2.4	2.2
Regenerative absorption	kW	152	152
Noise Level at 1 m (excluding: intake, exhaust & fan)	dB(A)	116	115
Fuel consumption load 100%*	L/hr.	598	541
Fuel consumption load 75%*	L/hr.	445	406
Combustion air inlet flow rate	m3/min	212	191
Exhaust gas flow rate	m3/min	560	506
Exhaust gas temperature	°C	510	510
Heat rejection to coolant	kW	952	860
Heat rejection to air cooler	kW	686	620
Heat rejection to oil cooler	kW	173	156
Heat rejection to exhaust	kW	1756	1572
Heat rejection to atmosphere from engine	kW	186	168
Heat rejection to atmosphere from generator	kW	101	95

\*WITH FAN basis

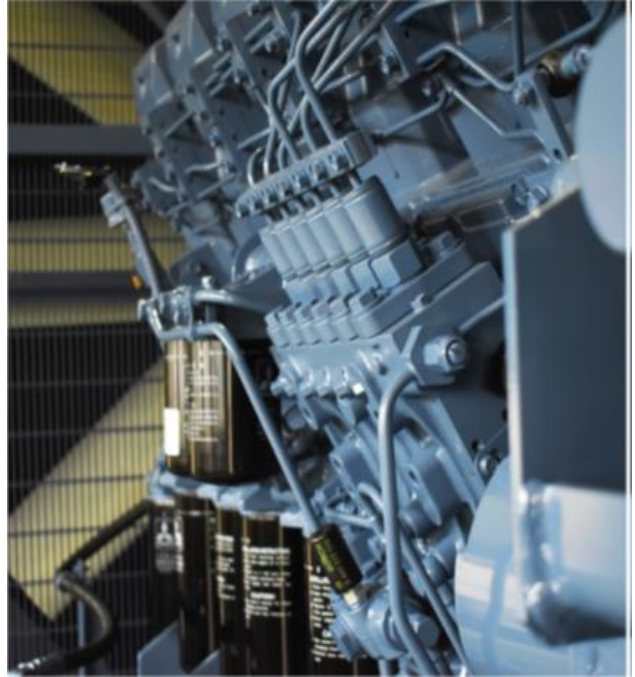


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### ENGINE STANDARD EQUIPMENT

- After-cooler
- Structure steel base
- Crankcase breather
- Charging alternator
- Lubricating oil cooler
- Manual shutoff
- Fuel transfer pump, gear driven, plunger type
- Digital Electric Type Governor (Woodward ProAct)
- 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
- 24V DC electric starting motor



### MGS DC SERIES 7310 MKII GENERATOR CONTROL PANEL

#### Features

MGS standard 7310 MKII 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

#### Shutdown and Warning items on LCD display

- 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

#### 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



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### 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

- Over-speed : shutdown and warning
- Under-speed : shutdown and warning
- Emergency stop pushbutton
- 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
- 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
- High coolant temperature : shutdown and warning
- Low oil pressure : shutdown and warning
- Fail to start : shutdown

\*1: As Option

### Operation status indicated by LED

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

### Gen Set Option Features

- GENERATOR
  - Power Factor Regulator
  - Generator Space Heater
  - Winding / Bearing RTD
- ENGINE
  - Dual starter (24V DC electric starting system)
  - Battery Kit
  - Battery Charger
  - Air Cleaner, paper element dry type
  - Anchor Bolts
- CONTROL PANEL
  - Auxiliary Control Panel
  - 2157 expansion unit (Output signal module)
  - 2130 expansion unit (Input signal module)
  - 2133 expansion unit (RTD/Thermocouple module)
- LUBRICATION
  - Lub. Oil Level Regulator
  - Lube oil Priming Pump
- FUEL
  - Fuel Day Service Tank
- COOLING
  - Heat Exchanger
  - Expansion Tank
- EXHAUST
  - Exhaust Silencer
  - Exhaust Flexible Pipe
- SWITCHGEAR
  - Reverse Power Relay



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### MGS SERIES AC GENERATOR MODEL: MG-L52UL16

#### Features

MGS original design, double bearing, 4 pole, screen protected, 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.

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.

Over speed capability: 125% for 2 minutes

Insulation: Class 'H'

Temperature rise: Class H Peak (Standby), Class H (Prime(PRP))

#### Voltage Regulator

Fully sealed, three phase RMS sensing DAVR 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: No load <1.5% Non-distorting balanced linear load <5.0%

#### AREP and PMI

Self-excited system which provide isolated power supply for the DAVR – 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%



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