

AIRMAN GENERATOR

100 KVA (80 KW)

(JAP)



SPECIFICATIONS

OF

DIESEL GENERATOR SET

Model : SDG100S-3A5

AIRMAN[®]

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1. GENERAL

1-1 Structure

The generator set is designed direct coupling with brushless type of generator and diesel engine. The A.C. generator and diesel engine are mounted on the robust steel skid frame with radiator, fuel tank and control panel.

It is provided large doors on both sides of unit and constructed to have easy daily maintenance works.

Moreover, it is put large inhalation of air and discharge duct on and make lining for sound absorption inside the unit. It is also installed large discharge silencer to have good effect of soundproof.

All control devices, operating switches and meters are positioned on a control panel so that it is easy to operate.

1-2 Applicable Standards

The generator is designed, manufactured and tested in accordance with the following standards.

JIS	Japanese Industrial Standards
JEM	Standard of the Japan Electrical Manufacturers' Association
JEC	Standard of the Japanese Electrotechnical Committee

1-3 Site Conditions

(Unless otherwise specified the generator shall be able to keep the performances.)

Temperature	-15°C ~ +40°C
Humidity	below 85%
Altitude	below 1,000m (Above sea level)

1-4 Standard condition

The rated output is assumed to be a value in a standard JIS atmospheric condition.

Atmospheric temp.	25 °C
Humidity	30%
Atmospheric pressure	100kPa

1-5 Strong point

The second exhaust gas restriction

Super low noise approval (less than 92 dB/sound power level)

Dual voltage switch equipment

(200/220(50Hz/60Hz) 3 Phase and 400/440(50Hz/60Hz) 3 phase)

Leakage protection device standard equipment

2. Specification

2-1 Dimensions & Weight

Model name	SDG100S-3A5
Overall length	Approx. 2,600 mm
Overall width	Approx. 1,000 mm
Overall height	Approx. 1,400 mm
Net dry mass	Approx. 1,640 kg
Operating mass	Approx. 1,870 kg

Allowable inclination of the machine below 5°

2-2 Capacity for Water, Oil, and Battery

Cooling water capacity	24	Liters
Fuel tank capacity	225	Liters
Lubricating oil capacity	18	Liters
Battery	95D31R-MF x 2	

2-3 Painting Color

External painting	Peaceful Green
	Kawakami SP-189
External painting of frame	Charcoal Gray
	Kansai paint NS-388-X31

3. Generator

3-1 A.C. Generator

		Dual Voltage type	
Type		Revolving field brushless type	
3P, 4W	Output	80/100 kVA (64/80 kW)	
	Voltage	200/220 V	400(380)/440 V
Current		231 / 262 A	115(122) / 131
Frequency		50/60 Hz	
No. of phases		3phase 4wire	
No. of poles		4	
Power factor		80%	
Rated revolution		1,500/1,800 min ⁻¹ (1,500/1,800 rpm)	
Class of insulation		Class F	
Class of rating		Continuous	
Driving system		Direct coupled to engine	
Connection		Star Connection	

3-2 Rise of Temperature

When the ambient temperature is 40°C, the temperature of the following components shall be within the limit of the following figure.

Armature winding	105K (105deg) (Insulation class F)
Field winding	110K (110deg) (Insulation class F)
Bearing	40K (40deg)

3-3 Dielectric test

An approximately sine wave form voltage of commercial frequency in the following table shall be applied for one minute.

Appropriate if no trouble takes place in such test.
(not include AVR)

Between armature winding and earth	AC 1500V	(one minute)
Between field winding and earth	AC 1500V	(one minute)
Between control panel and earth	AC 1500V	(one minute)

3-4 Steady state voltage regulation

The steady state voltage regulation shall be maintained between $\pm 0.5\%$ from full load to no load.

4 Diesel Engine

4-1 Specification

Maker	ISUZU MOTORS LIMITED
Model	DD-6BG1T
Type	Water-cooled 4 cycle, direct injection turbocharged
No. of cylinder	6
Bore dia. × stroke	105 mm × 125 mm
Total displacement	6.494 L (6,494 cc)
Compression ratio	18.5 : 1
Rated output	73.6 kW / 1,500 min ⁻¹ (100.1 ps / 1,500rpm) 91.2 kW / 1,800 min ⁻¹ (124 ps / 1,800rpm)
Dry weight	470 kg
Charging generator	12V, 25A
Starter motor	12V, 4.5 kW
Air cleaner	Dry type
Diesel fuel	Cetane Value over 45
Lubricating oil	CD class, SAE 10W-30

4-2 Fuel consumption (reference value)

Frequency	50 / 60	Hz
Full load	19.5 / 25.2	L/Hr
75% load	14.5 / 19.0	L/Hr

5. Protection

	Engine stop	Breaker trip	Warning lamp on	Actuating
Engine oil pressure	○	○	○	Engine oil pressure drop Actuating pressure 0.1 MPa
Engine water temp.	○	○	○	Engine water temp. rise Actuating temp. 105 °C
Overcurrent, Short circuit		○		Overcurrent and Short circuit
Leakage		○	○	Leakage Actuating current 30mA
Battery			○	not charging
Air filter			○	clogging of air filter

This machine have above devices which are equipped to protect from each trouble during operation. The mark ○ means to function for each kind of trouble.

6 Control Panel

6-1 Control panel for A.C. generator

1) Voltmeter	1pc.
2) Ammeter	1pc.
3) Frequency meter	1pc.
4) Voltage regulator	1pc.
5) Ammeter change-over switch	1pc.
6) Leakage relay	1pc.
7) Circuit breaker	1pc.
8) Circuit breaker to single phase	1pc.
9) Output indicator lamp (200V - 400V)	1pc.

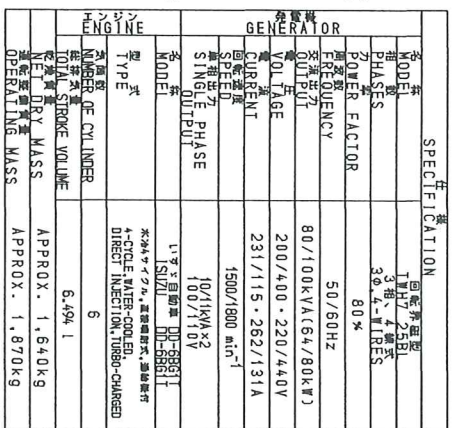
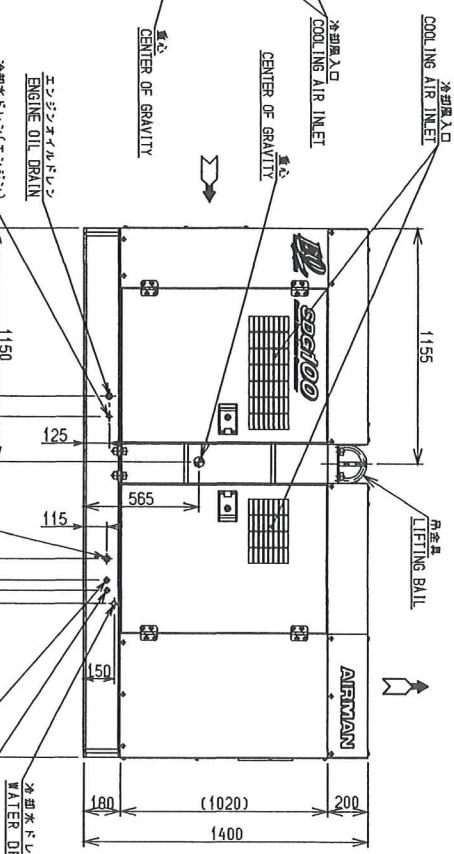
6-2 Control panel for engine

1) Starter switch	1pc.
2) Speed control knob	1pc.
3) Glow lamp/warning lamp	1pc.
4) Engine tachometer current (with hour meter)	1pc.
5) Fuelmeter	1pc.
6) Coolant temperature gauge	1pc.
7) Oil pressure gauge	1pc.
8) Panel light	1pc.
9) Panel light switch	1pc.

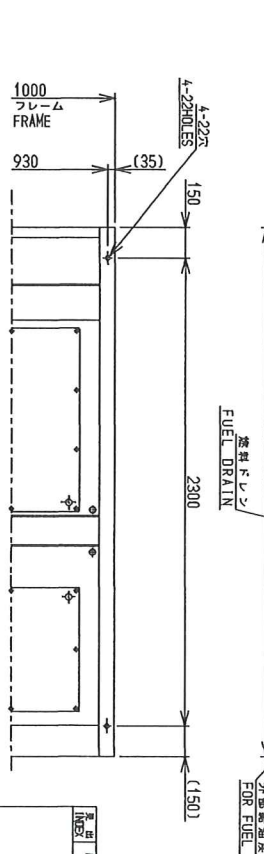
※Warning lamps

Engine oil pressure drop Engine water temperature rise Leakage Not charging Air filter clogging	1 set
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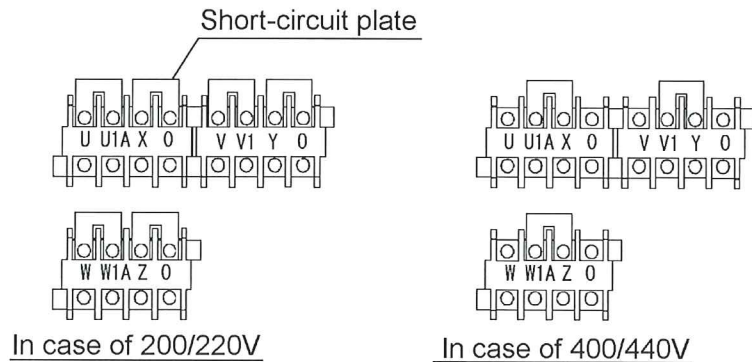
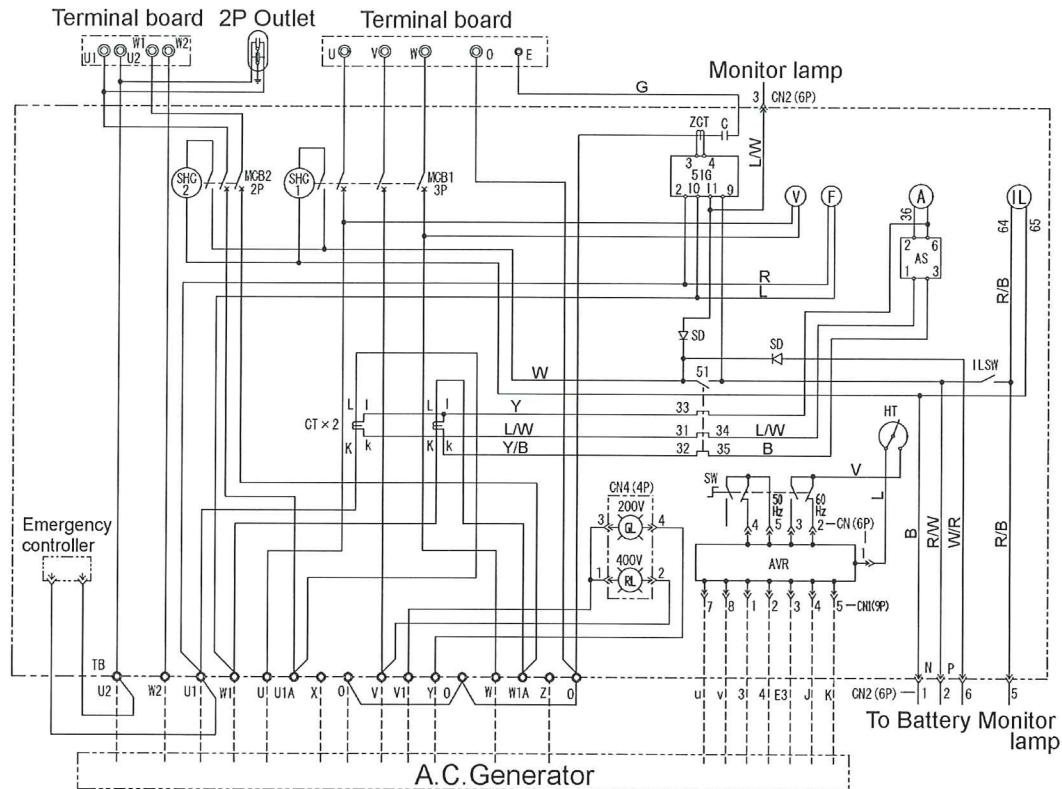
Technical drawing of the engine compartment showing dimensions in millimeters. The drawing includes labels for "WATER DRAIN(ENGINE)", "FOR FUEL", and "外部給油口" (External oil inlet). Dimensions are indicated with arrows and numbers: 825, 699, 100, 105, 65, 2600, and 50.

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9. Wiring Diagram

9.1 Generator wiring Diagram

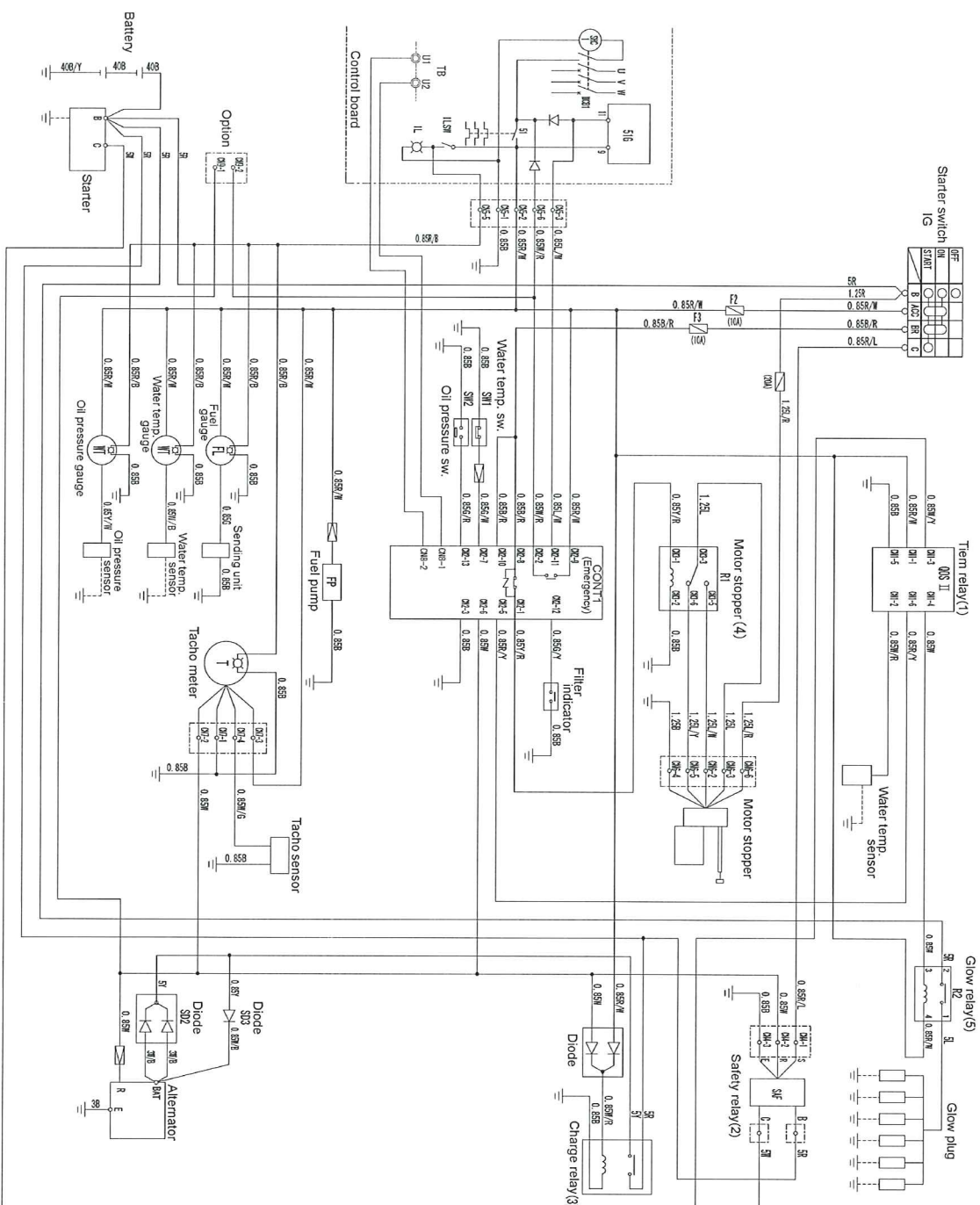


B	Black
Y	Yellow
L	Blue
G	Green
R	Red
W	White
V	Violet

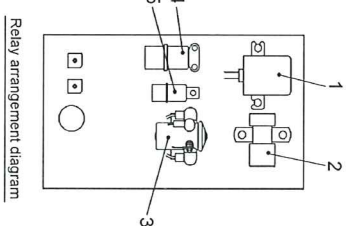
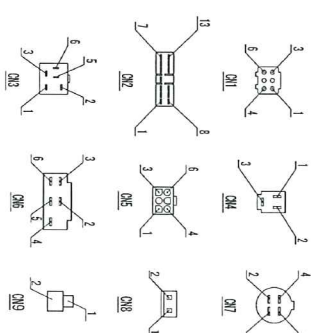
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9. Wiring Diagram

9.2 Engine Wiring Diagram



Connector terminal arrangement
The following arrangement is seen from
the side of the connector inserting point.



Relay arrangement diagram