

**shindaiwa<sup>®</sup>**

**SPECIFICATION**

**DGA12D**

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# **CHAPTER1: GENERALSTANDARDS & CONDITIONS**

## **1. DESIGN STANDARD**

The designs and the productions are in conformity with:

- (1) Japan Industrial Standards
- (2) The Institute of Electrical Engineering of Japan
- (3) The Japan Electric Manufactures Association
- (4) Japan Construction Mechanization Association

## **2. DESIGN CONDITION**

- (1) Installation Place: Inside/Outside
- (2) Ambient Temperature: -15°C to +35°C
- (3) Humidity: Less than 80%
- (4) Altitude: Below than three hundreds (300) meters above sea Level

## **3. FACTORY INSPECTION**

The inspection test shall be done for the complete unit of Diesel Engine and portable Generator Unit.

Inspection items

- (1) Insulation and Dielectric Tests
- (2) Starting ability
- (3) Protection Devices Working Test
- (4) Voltage Deviation and Speed Variation: 1/4, 2/4, 3/4 and 4/4 Load
- (5) Load Test: 4/4 Load 30 minutes

## **4. PAINTING PROCESS**

- (1)Painting process specifications and colors are based on the Manufacturer's standard

# CHAPTER 2: EQUIPMENT SPECIFICATIONS

## 1. OVERALL SPECIFICATION

Model	DGA12D-Ultra Quiet	
Item		
<b>ALTERNATOR</b>		
Generator Type	Brushless.3-Phase synchronous AC Generator	
Frequency (Allowance)	(Hz)	50+/-0.1Hz
Rated output	(kVA)	12
	(kW)	9.6
Rated voltage (1 phase)	(V)	240
(3 phase)		415
Rated amperage	(A)	15
(1phase, 240V)		16.7
(3phase, 415V)		
Voltage Allowance (1phase)	%	±2.5
Voltage Allowance (3phase)	%	±5.0
Rated speed(50/60Hz)	(min <sup>-1</sup> )	1500
Winding	—	3phase, 4-wire star with Neutral
Rated power factor	—	0.8 (Lagging)
Number of polarity	Poles	4
Sound level, No load at 23ft	dB(A)	51
<b>DIESEL ENGINE</b>		
Make, model, type	—	Kubota D1703, Water cooled 4cylinder
Design features	—	Swirl chamber
Displacement	(L)	1.647
Bore x stroke	(mm)	87x92.4
Continuous rated output	(kW)	12.4(1500 min <sup>-1</sup> )
Starting system	—	Electric 12V DC
Internal Fuel tank capacity	(L)	60
Fuel consumption, Full load	(L/hr)	3.31
3/4 load		2.61*
1/2 load		1.99*
1/4 load		1.45*
Fuel classification	—	Diesel fuel ASTM No. 2 or Equivalent
Lubricating oil type	—	Class CC or better, SAE30
Lubricating oil capacity	(L/Gal)	8.2/2.17
Coolant capacity	(L/Gal)	7.3/2.62
Battery	—	75D31R
5-hour capacity	(Ah)	60
Dimensions L×W×H	(mm)	1350×780×1140
Unit dry weight	(kg)	680

Note: The indicated values as (\*) were obtained under specified operating condition.

Use the numerical value as reference only

## 2. DIESEL ENGINE REMARKS

Make, model : KUBOTA D1703  
Fuel Filter : Paper Filter  
Automatic Air Extraction : Standard Accessory  
External Fuel Changeover : Standard Accessory

## 3. THREE PHASE GENERATOR REMARKS

### 1) Alternator

Model : Rotating Field, Self-Ventilation  
Exciting Method : Brushless, AC Exciter  
Wiring : Star, 3-Phase 4-Wire,  
Insulation : Stator Wiring Class F  
: Rotor Wiring Class F

### 2) Characteristic

Voltage Deviation : Less than  $\pm 1.0\%$  for the nominal value  
: Transient Values to be less than 20% (100%kVA, Power Factor 0.4)  
Over-speed Endurance : 2 minutes of 120% of the rated speed  
Wave Distortion : Less than 2% (3-Phase, Line to Line, No Load)  
Generator Efficiency : More than 85%  
Insulation Resistance : More than 5M $\Omega$   
Dielectric Insulation : 1500V for One (1) minute or 1800V for One (1) second

## 4. STRUCTURE

### 1) Beds (bottom columns) and Vibration Proof Device

Alternator is coupled directly with engine and they are installed on the bed through vibration proof device (Rubber Pad and Angle).

### 2) Low Noise Sound-Proof Enclosure (Bonnet)

The structure is that the inside of the bonnet is sound-proof treated and you can lift up the alternator and the engine together with the beds by using a lifting lug.

### 3) Fuel Tank

The fuel tank is made of steel and incorporated with the electric type gauge.

**5. CONTROL DEVICES, GAUGES, and PROTECTIVE DEVICES**

**1) Control Device**

Breaker: Main Circuit Breaker (Rate 600V 30A)  
 3phase Circuit Breaker (Rate 415V 20A)  
 1phase Circuit Breaker (Rate 240V 16A)  
 Exciter Circuit: Automatic Voltage Regulator (F/V Characteristic)

**2) Gauges (Displays)**

AC Volt Meter : 0-600V  
 AC Ampere Meter : 0-75/150A  
 Frequency Meter : 45-65Hz  
 Hour Meter : 9999.9Hr (Max)  
 Oil Pressure Gauge  
 Water Temperature Gauge  
 Preheat Lamp  
 Warning Display Lamps: High Water Temperature, Low Oil Pressure,  
 Insufficient Charging  
 Voltage Adjuster: Adjustable Range; Below-10%- and over +5%  
 Panel Light  
 Voltmeter Change-over Switch  
 Ammeter Change-over Switch

**3) Protection Device**

Item	Set Value	Display	Trip	Shut-Down
Low Oil Pres.	98.1kPa	○	-	○
High Water Temp.	105°C	○	-	○
Insufficient Charging	-	○	-	○
Over Current (Thermal relay)	120%	-	○	-

**4) Output Terminals Plate**

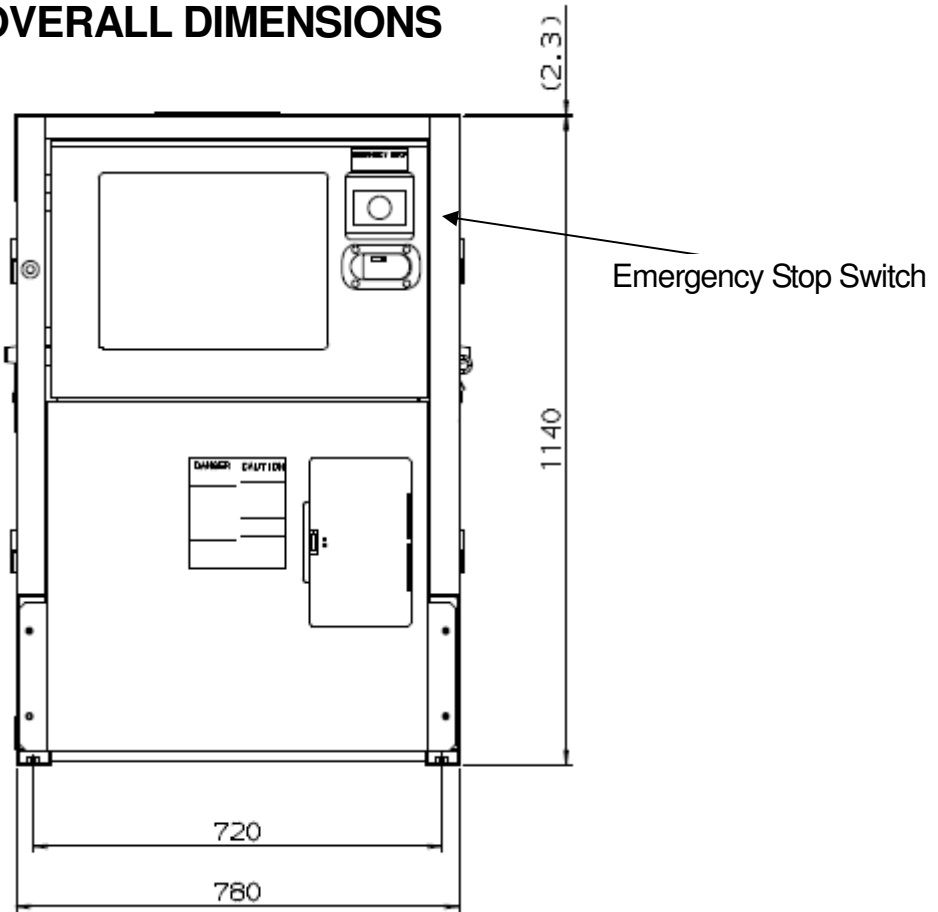
4 (four) receptacles of IP66, 3phase/15A X 1, 1phase/20A X 3  
 \*IP(Ingress Protection) of IEC (International Electro technical Commission)

**6. ACCESSORIES**

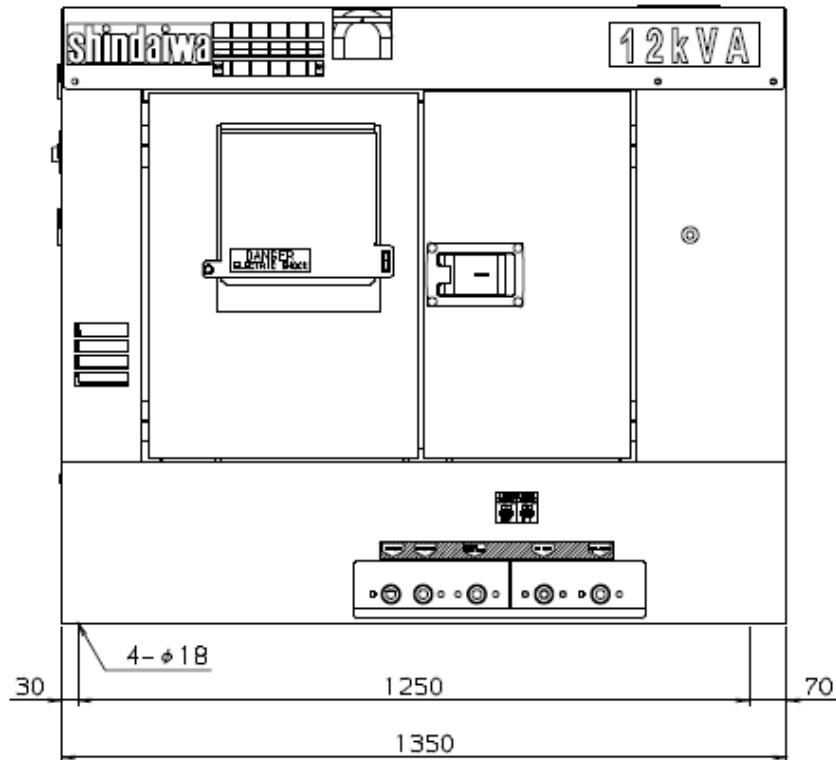
Fuse : 10A one piece  
 Instruction manual  
 Manual, engine

# CHAPTER 3: OVERALL DIMENSIONS

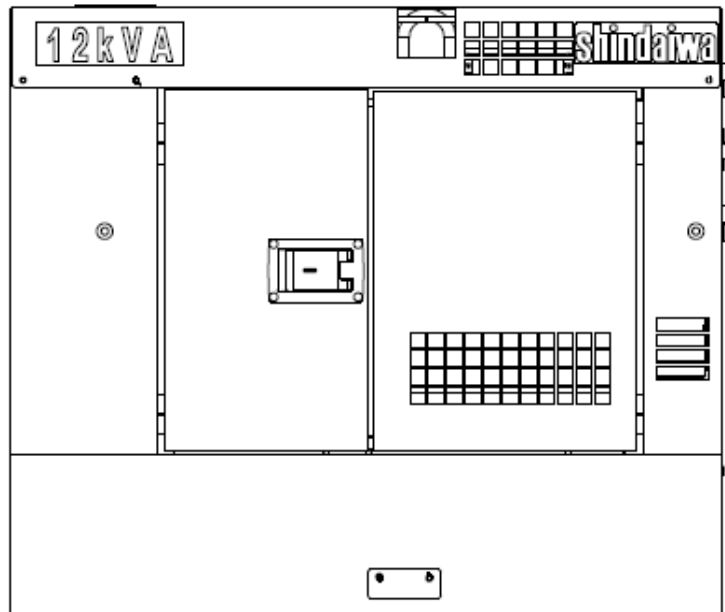
## 1. FRONT VIEW



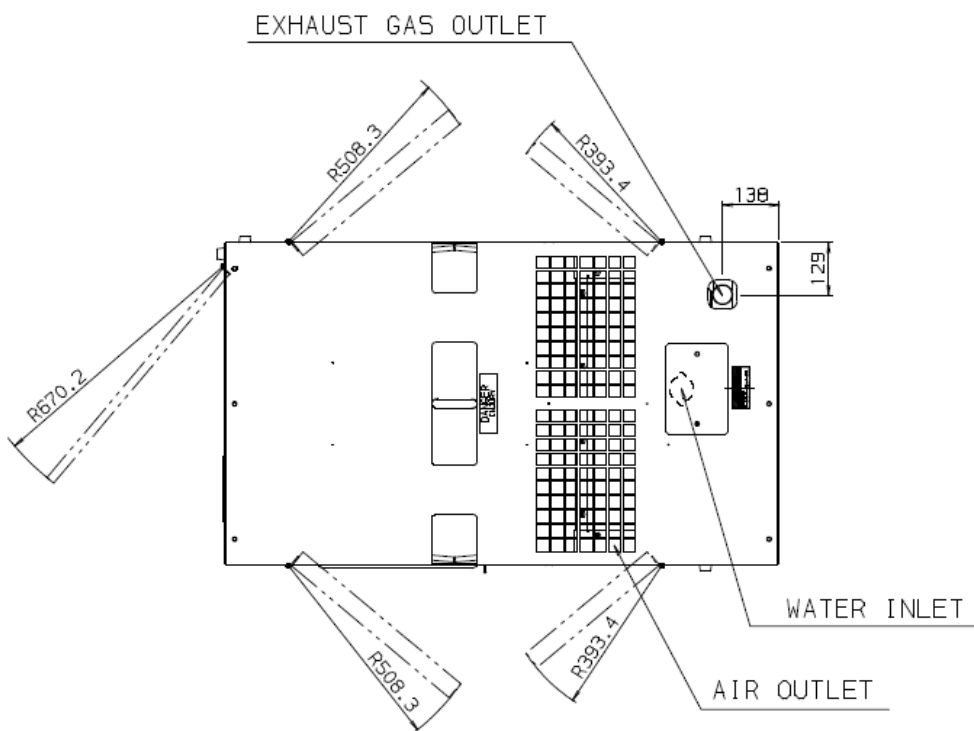
## 2. RIGHT SIDE VIEW



### 3. LEFT SIDE VIEW



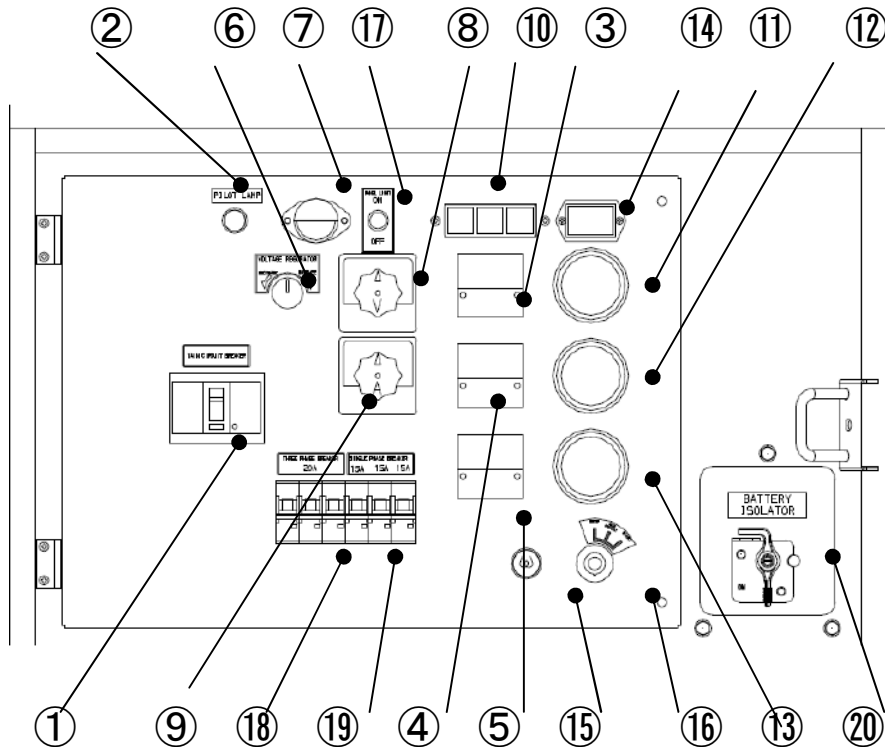
### 4. TOP VIEW



~1

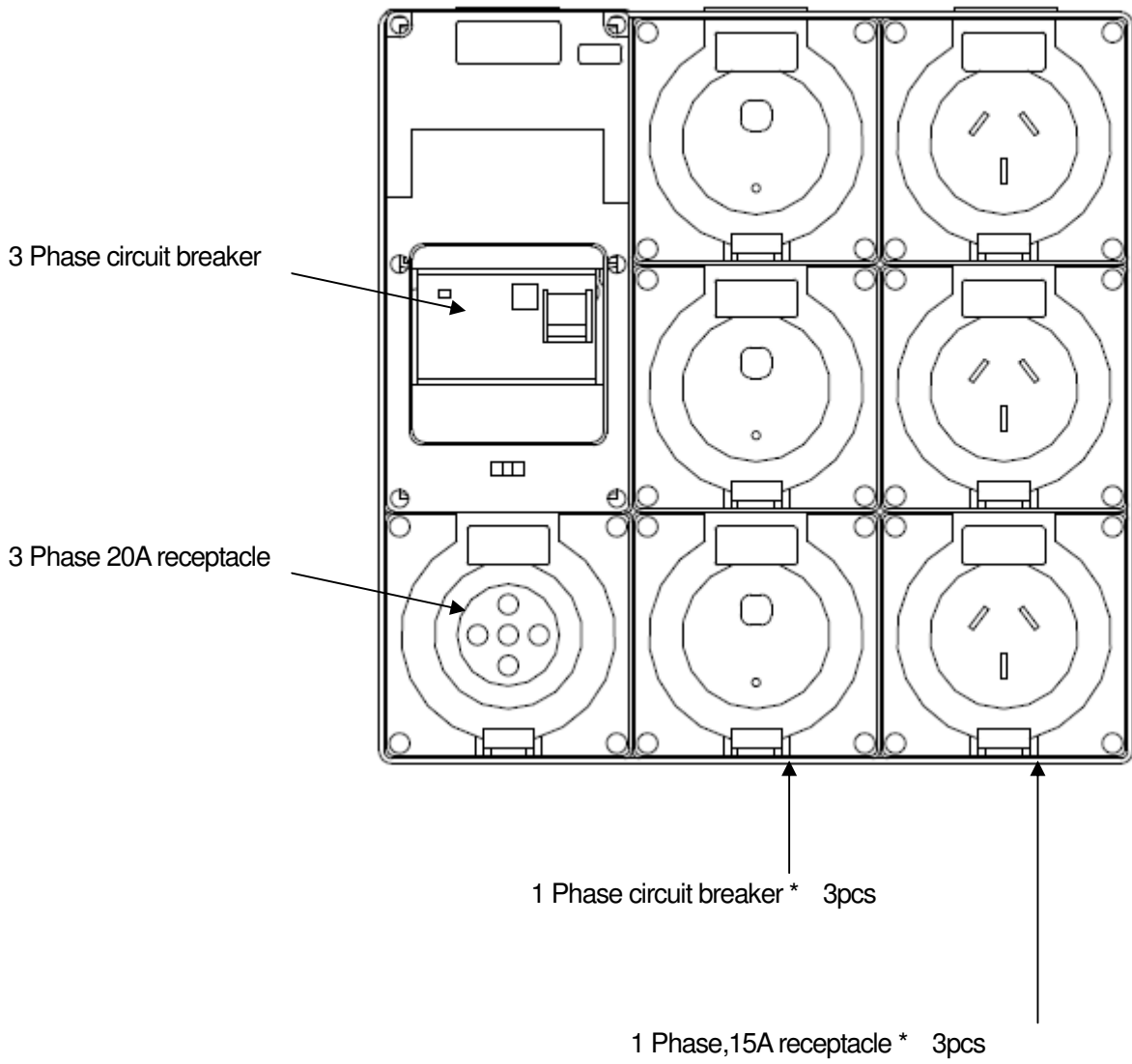


## 5. CONTROL PANEL

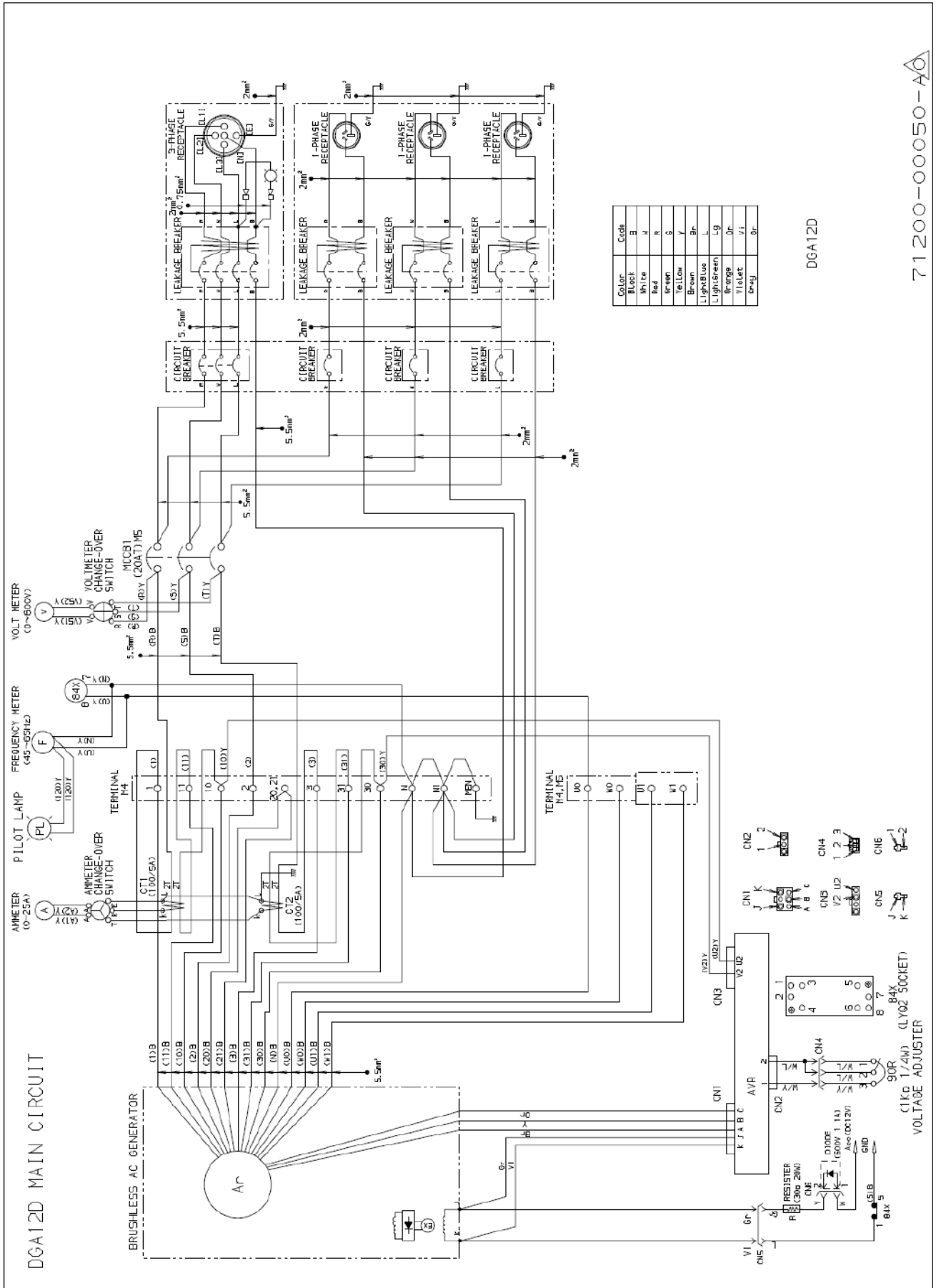


NO.	Name	Description of function
1	3-phase circuit breaker	Turns the power supply to load equipment ON (closed) and OFF (open).
2	Pilot lamp indicator	Turn on when the engine is running
3	Voltage meter	Indicates voltage.
4	AC ampere meter	Indicates phase current.
5	Frequency meter	Indicates electricity frequency.
6	Voltage selector dial	Enable to select from three positions to change the generator output voltage. Never operate while engine is running.
7	Panel light	Illuminates control panel surface and gauges
8	Voltmeter selector switch	Used to select from one of five positions for voltage. in each phase with OFF position
9	Ammeter selector switch	Used to select from one of five positions for amperage. in each phase with OFF position
10	Warning indicator	Turn on when an equipment malfunction occurs.
11	Coolant temperature gauge	Indicates temperature of the engine coolant.
12	Oil pressure. gauge	Indicates lubricating oil pressure.
13	Fuel meter	Indicates internal fuel tank remaining level.
14	Hour meter	Indicates operating hours of the generator unit.
15	Glow lamp indicator	The indicator lights when the key switch is set to the [ON] position, and starts pre-heating.
16	Starter switch	OFF: stops engine operation. START: starts an engine operation ON: supplies electricity for control operation, and starts pre-heating.
17	Panel light switch	Turn the panel light ON and OFF
18	1 Phase circuit breaker	Turns the power supply to load equipment ON (closed) and OFF (open).
19	3 Phase circuit breaker	Turns the power supply to load equipment ON (closed) and OFF (open).
20	Battery Isolator	Turn the lever to right for power supply.

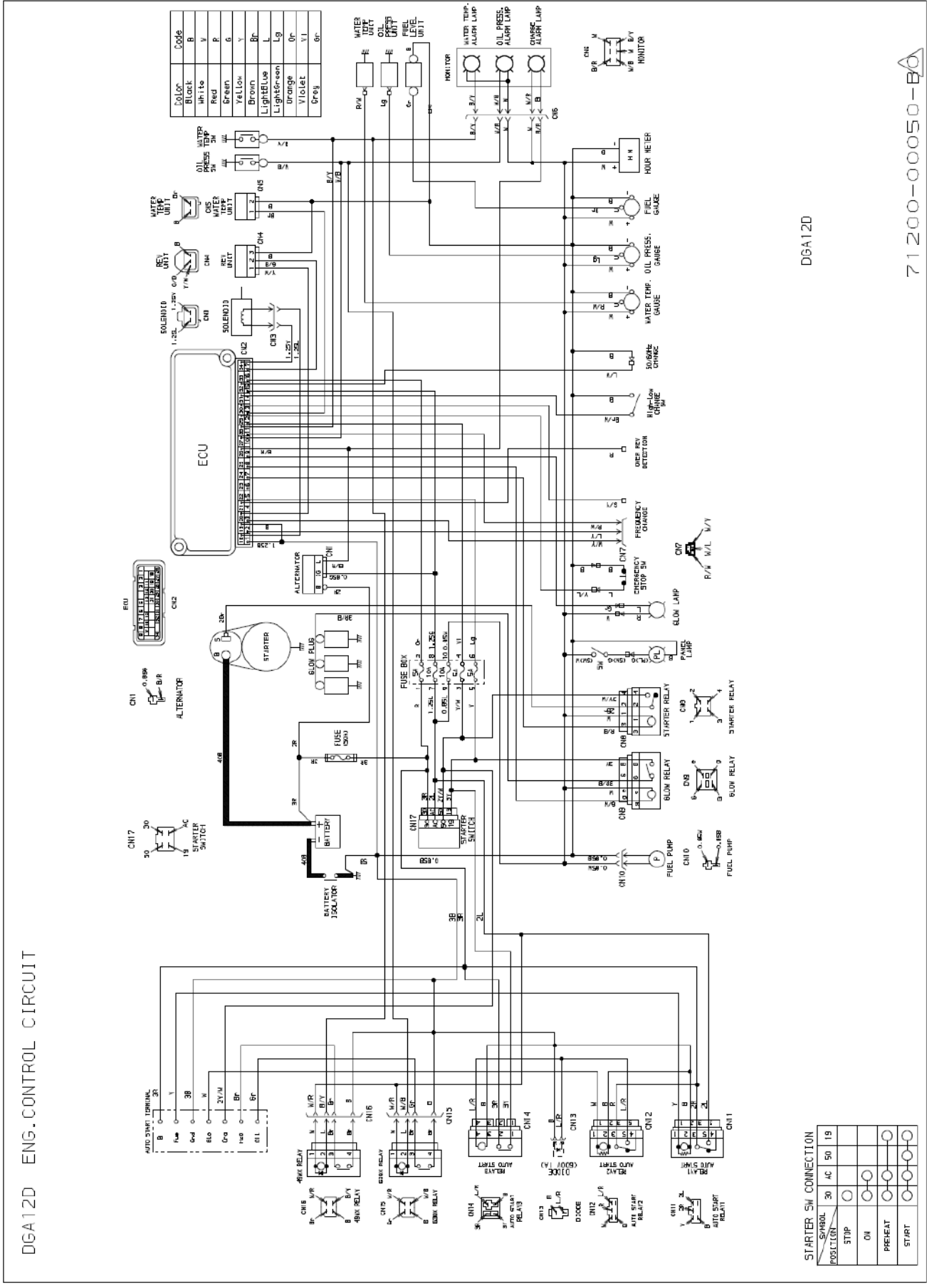
## 6. RECEPTACLE PANELS



# 7. GENERATOR WIRING DIAGRAM



# 8. ENGINE WIRING DIAGRAM



DGA120 ENG. CONTROL CIRCUIT

DGA120

71200-00050-BA

STARTER SW CONNECTION

SYMBOL POSITION	30	AC	50	19
STOP	○	○	○	○
ON	○	○	○	○
PREHEAT	○	○	○	○
START	○	○	○	○

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