DATE:
TO:

ISO 9001
CERTIFIED

shindaiwa

LOW-NOISE DIESEL-POWERED AC GENERATOR

DG600UMI-D (200/400)

SPECIFICATIONS
CHAPTER 1: GENERAL
CHAPTER 2: EQUIPMENT SPECIFICATIONS
ATTACHED DRAWINGS
- APPEARANCE
- GENERATOR WIRING
- ENGINE WIRING

SHINDAIWA Corporation
6-2-11, Ozuka-Nishi, Asaminami-Ku, Hiroshima, 731-3167, Japan

Chapter 1 General

1. Standards
   The designs and the productions are in conformity with:
   (1) Japan Industrial Standards
   (2) Electricity Academy Corporation - Electricity Standard Research Association Standard (JEC)
   (3) Japan Electric Industries Corporation Standard (JEM)
   (4) Japan Combustion Generating Equipment Corporation
   (5) Ministry of Construction (Low Noise Type Construction Machinery Standard)
   (6) Ministry of Construction (Construction Machinery Gas Emission Regulation Standard)

2. Design Conditions
   (1) Installation Place: Inside/Outside
   (2) Ambient Temperature: -15-+40℃
   (3) Humidity: Less than 80%
   (4) Altitude: Less than 300meter (Sea Level)

3. Test and Check
   The test shall be done for the complete workable unit of Diesel Engine and Portable Generating Unit.
   (1) Checking Items
      a) Insulation and Dielectric Tests
      b) Starting
      c) Protection Devices Working Test
      d) Voltage Deviation and Speed Variation: 1/4, 2/4, 3/4 and 4/4 Load
      e) Load Test: 4/4 Load 30 minutes

4. Painting
   (1) Painting specifications and color are the manufacturer’s standard

SPECIFICATION

Item \ Model		DG600UMI-D400	
AC generator		Brushless, 3-Phase synchronous AC generator	
Frequency		(Hz)	50/60
Rated output		(k VA)	50/60
		(kW)	40/48
Rated voltage		(V)	200/220, 400/440
Rated amperage		(A)	144/157, 72/79
Number of polarity		—	4
Rated power factor		—	0.8 (lagging)
Single Phase output		(V)	100/110
		(A)	Terminal 90, 45x2
		(A)	Receptacle 15Ax4
Engine Model		—	ISUZU BB-4BG1T
Type		—	4-cycle,water-cooled,direct injection type
Air induction system			Exhaust turbocharger
Number of cylinder		—	4
Bore x stroke		(mm)	105 x 125
Displacement		(L)	4.329
Rated output		(kW)	48.5/58.1
Rated revolution speed		(min^{-1})	1500/1800
Fuel		—	Diesel fuel (JIS K2204,class 1 to 3)
Fuel consumption Note1		(L/hour)	8.6/10.7
Lubricating oil type		—	Class CD or better, SAE30
Lubricating oil capacity		（L）	10 (Effective 3)
Lubricating oil consumption Note2		（L/hour)	0.045
Coolant capacity		（L）	17
Battery		—	95D31Rx2
5-hour capacity		(Ah)	64
Fuel tank capacity		(L)	160
Equipment dimension L×W×H		(mm)	2000×950×1430
Mass	Dry weight	(kg)	1420
	Amount weight		1600

Note1, 2: The indicated values were obtained under normal operating condition at 75% load.
Use the numerical value as reference.

Chapter 2 Equipment Specifications

1. Diesel Engine
   Model: ISUZU BB-4BG1T
   Displacement: 6.494 L
   Rated Output/Rated Speed: 48.5kW /58.1kW
   : 1500/1800min^{-1}{rpm}
   Fuel: Diesel Fuel ASTM No. 2 or Equivalent
   Fuel Filter: Paper Filter
   Automatic Air Extraction: Standard Accessory
   External Fuel Changeover: Standard Accessory
   Battery: 95D31R (12V-64AH) x2

2. 3-Phase Synchronous Generator
   1) Alternator
      Model: Rotating Field, Self-Ventilation (JCO), Protection (JP20)
      Output: 50/60kVA (40/50kW)
      Rate: Continuous
      Voltage: 200/220, 400/440V
      Current: 144/157, 72/79A
      Frequency: 50/60Hz
      Speed: 1500/1800min^{-1}
      Pole: 4 Poles
      Power Factor: 0.8 Lagging
      Exciting Method: Brushless, AC Exciter
      Wiring: Star with neutral, 3-Phase 4-Wire
      Insulation: Stator Wiring Class F
      : Rotor Wiring Class B
      Standard: JIS, JEM, JEC

   2) Characteristic
      Voltage Deviation: Less than ±1.0% for the nominal value
      : Transient Values to be less than 20% (100%kVA, Power Factor 0.4)
      Over-speed Endurance: 2 minutes of120% 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 5MΩ
      Dielectric Insulation: 1500V for 1 minute or 1800V 1 second

3. 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.
      Sound Level: 54/57dB (A)/7m (No Load 1500/1800 min^{-1})
   3) Fuel Tank
      The fuel tank is made of steel and incorporated with the electric type gauge.
      Capacity: 160L

4. Control Devices, Gages and Protection Devices
   1) Control Device
      Breaker: Circuit Breaker (Rate 600V 175A)
               : Circuit Breaker (Rate 600V 100A)
      Exciter Circuit: Automatic Voltage Regulator (F/V Characteristic)
      Current Leakage Shut Off Device: 30mA 0.1 second
   2) Gauges (Displays)
      AC Volt Meter: 0-600V
      AC Ampere Meter: 0-100/200A
      Frequency Meter: 45-65Hz
      Hour Meter: 9999.9Hr
      Oil Pressure Gauge
      Water Temperature Gauge
      Fuel gauge
      Preheat Lamp
      Disorder Display Lamps: High Water Temperature, Low Oil Pressure, Insufficient Charging
      Voltage Adjuster: Adjustable Range; Below–10%- and over +5%
      Panel Light
      Emergency Stop Button

   3) Protection Device

Item	Set Value	Display	Trip	Engine Shut-Down
Low Oil Pres.	98.1kPa	◯	-	◯
High Water Temp.	105℃	◯	-	◯
Insufficient Charging	-	◯	-	-
Over Current (Thermal relay)	120%	-	◯	-
Current Leakage	30mA 0.1sec.	◯	◯	-

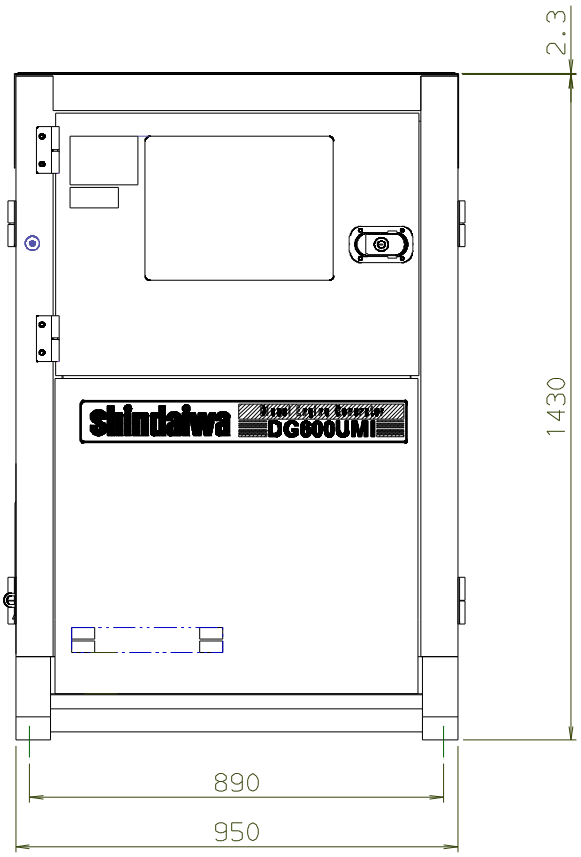
   4) Output Terminals Plate
      R, S, T and O output terminals, 4 (four) receptacles of auxiliary power 100/110V 15A x 4 and 2 (tow) 45A 1-Phase output terminal set

5. Dimension and Weight
   Length: 2000mm
   Width: 950mm
   Height: 1430mm
   Dry Weight: 1420 kg
   Outfitted Weight: 1600kg

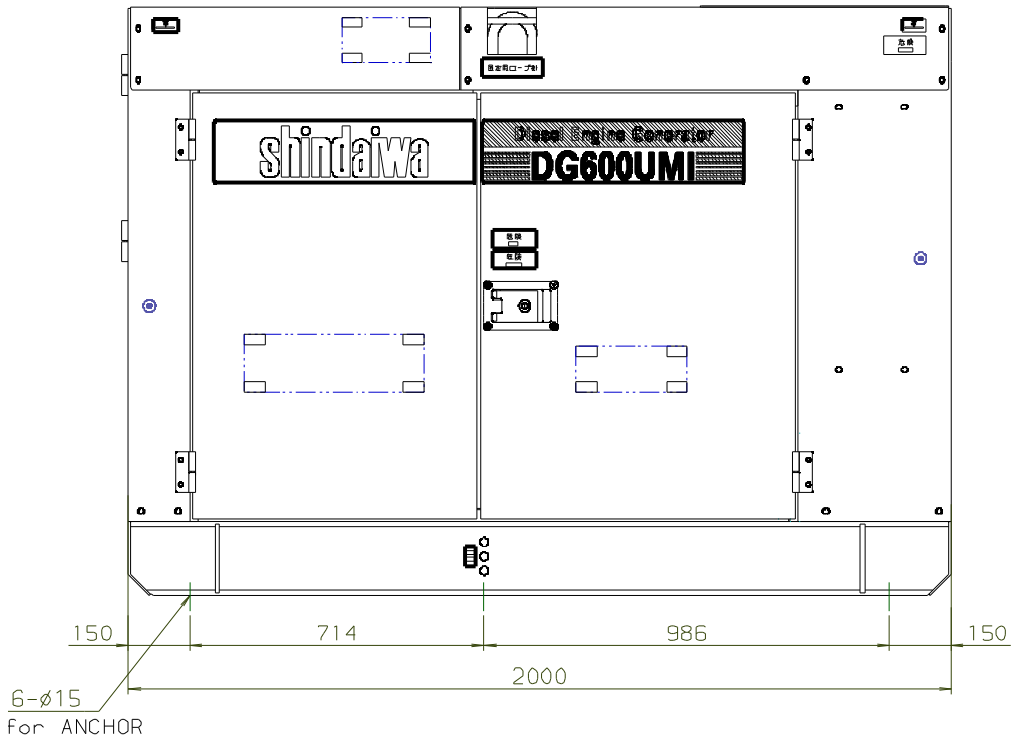
6. Accessories
   Grounding Rod: 1 piece
   Fuse: 10A 1 piece
   Instruction manual
   Manual, engine

- **APPEARANCE**

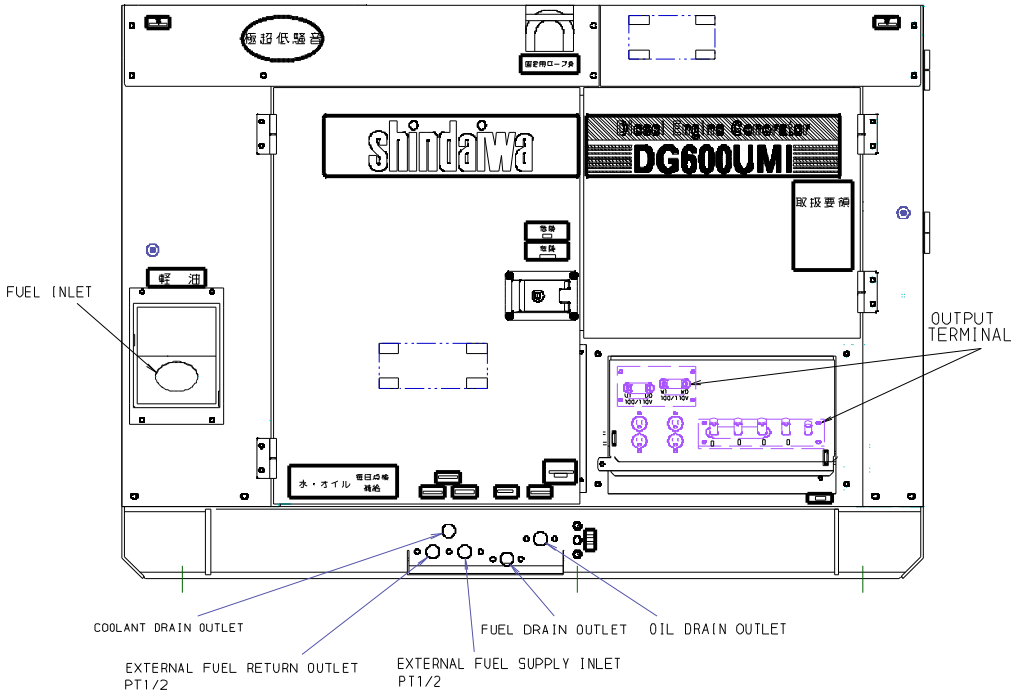
FRONT VIEW



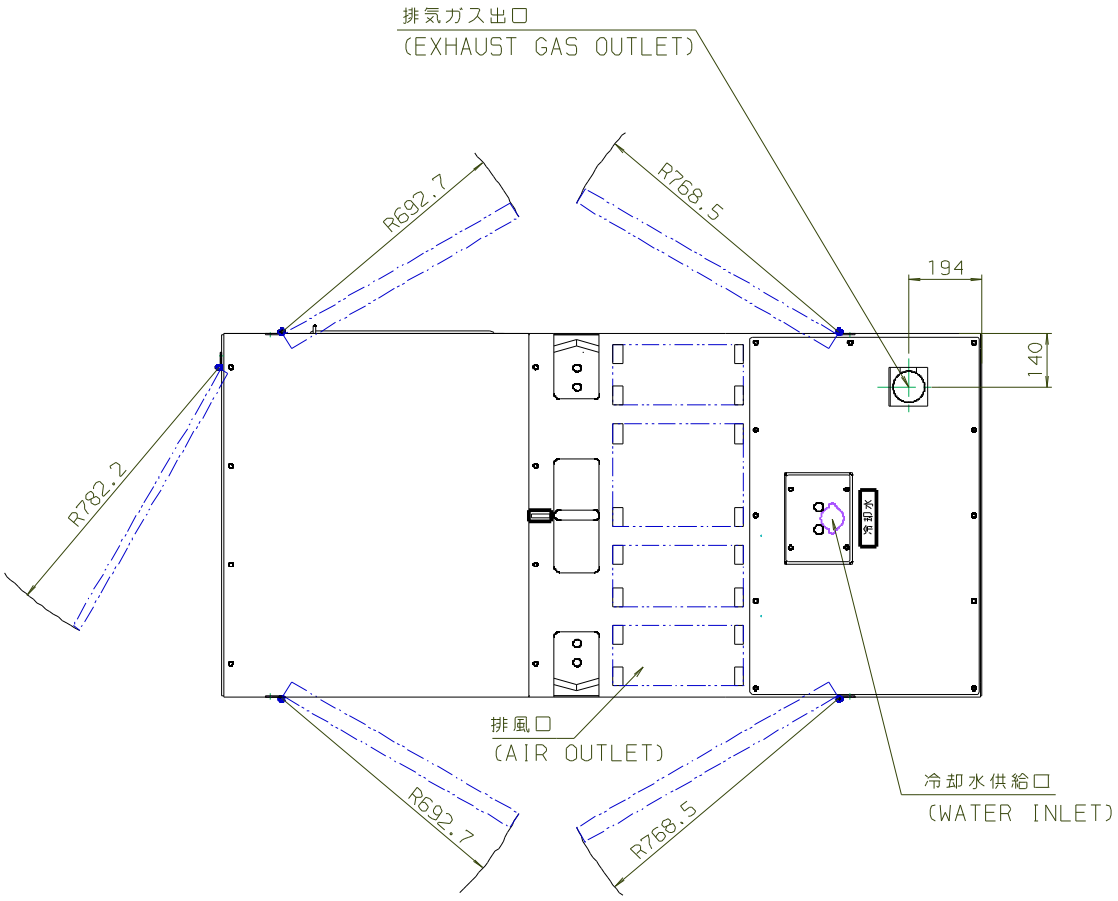
RIGHT SIDE VIEW



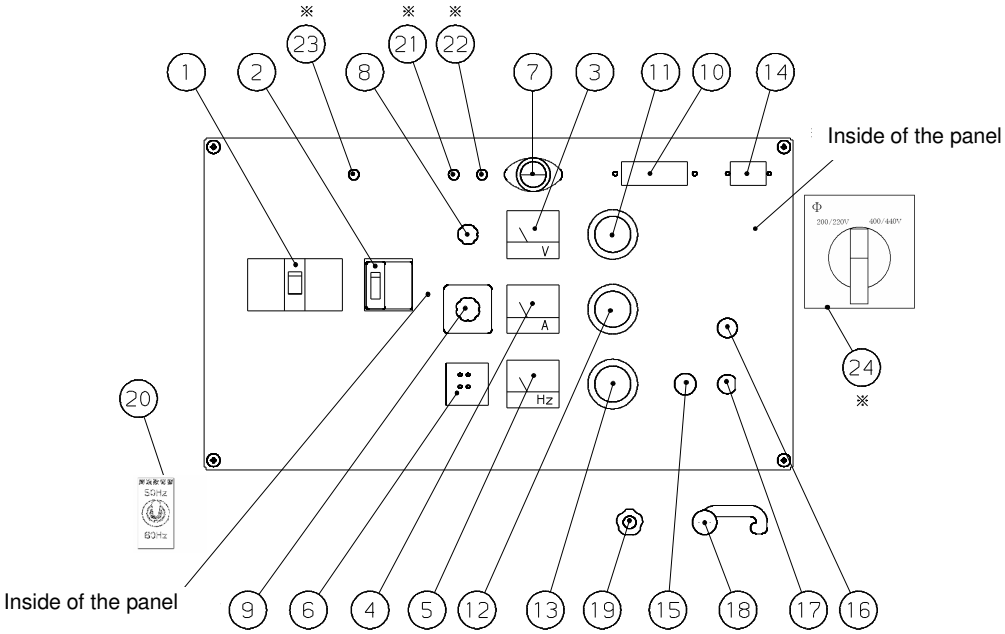
LEFT SIDE VIEW



TOP VIEW



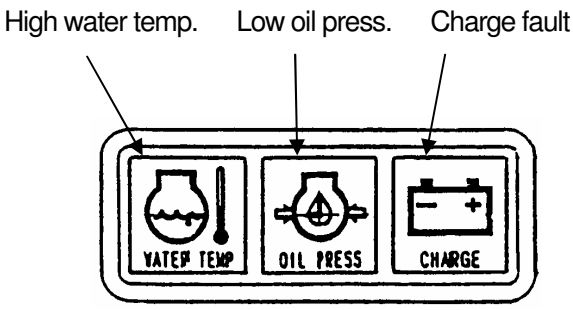
CONTROL PANEL



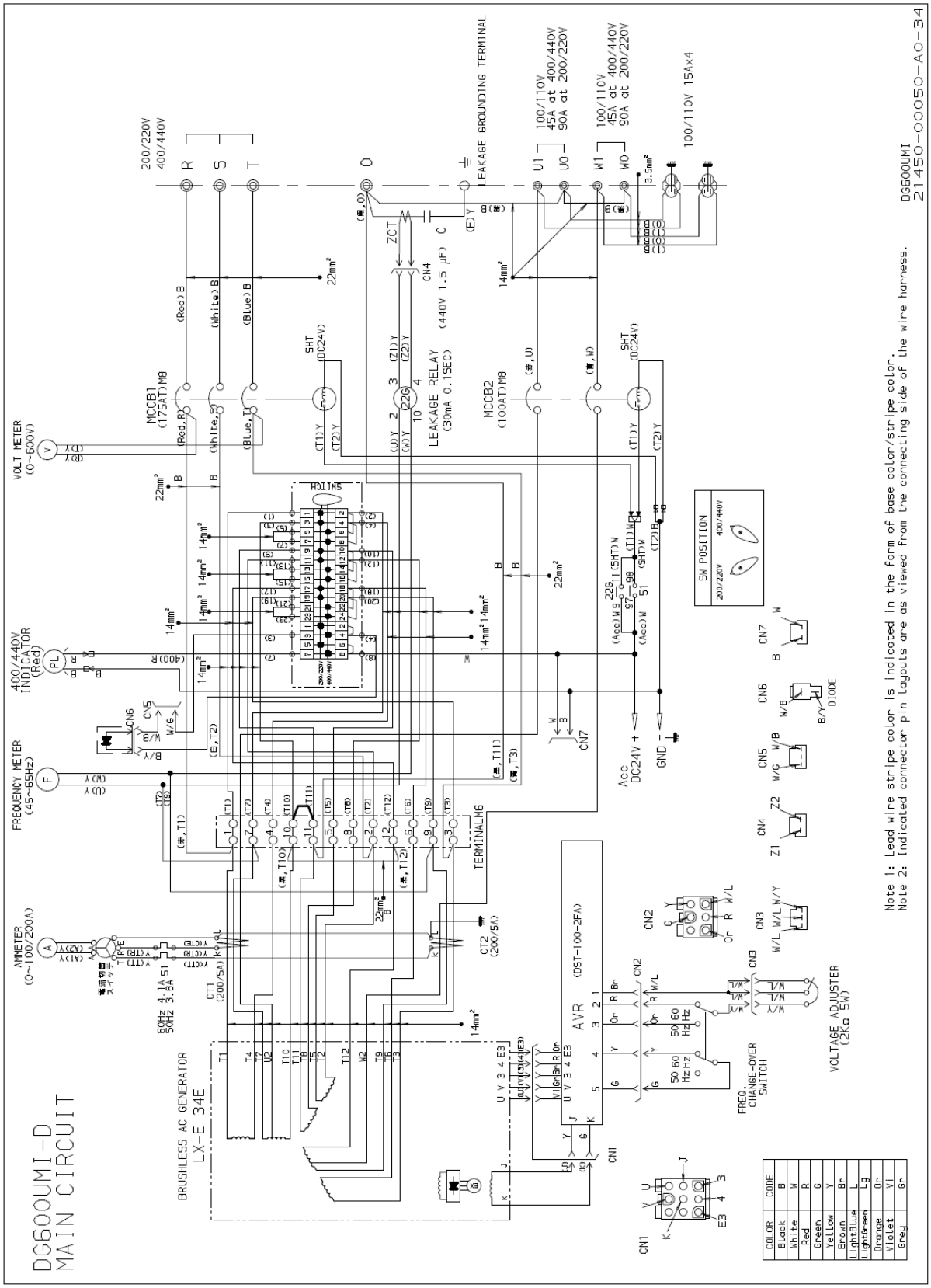
NO.	Name	Description of function
1	3-phase circuit breaker	Turns the power supply to load equipment ON (closed) and OFF (open).
2	1-Phase circuit breaker	Turns the power supply to load equipment ON (closed) and OFF (open).
3	Voltage meter	Indicates voltage.
4	AC ampere meter	Indicates phase current.
5	Frequency meter	Indicates electricity frequency.
6	Earth leakage relay	Detects electric leakage in the 3 phase,4wire output, and turns the circuit breaker OFF when activated
7	Panel light	Illuminates control panel surface and Indicates generated electricity when the engine is in operation and generating.
8	Voltage adjustment dial	Used to adjust voltage.
9	Volt meter change over switch	Used to change the display voltage between phases
10	Warning indicator : NOTE	Lights 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 remaining fuel.
14	Hour meter	Indicates operating hours of the generator unit.
15	Emergency stop switch	When the switch is pressed, stops an engine operation.

NO	Name	Description of function
16	Pre-heat indicator	The indicator lights when pre-heating operation is complete.
17	Starter switch	OFF: stops engine operation. ON: supplies electricity for control operation, and starts pre-heating. START: starts an engine operation
18	Throttle lever	Low idling or rated speed selecting lever.
19	Frequency (Speed) adjusting knob	Used to fine adjustment of frequency
20	Frequency select switch	Select the rated speed of engine.
21	Indicator	Option (not installed)
22	Indicator	Option (not installed)
23	Indicator	Illuminates when a changeover switch set it to 400V
24	Voltage changeover switch	200/220V or 400/440V selector switch

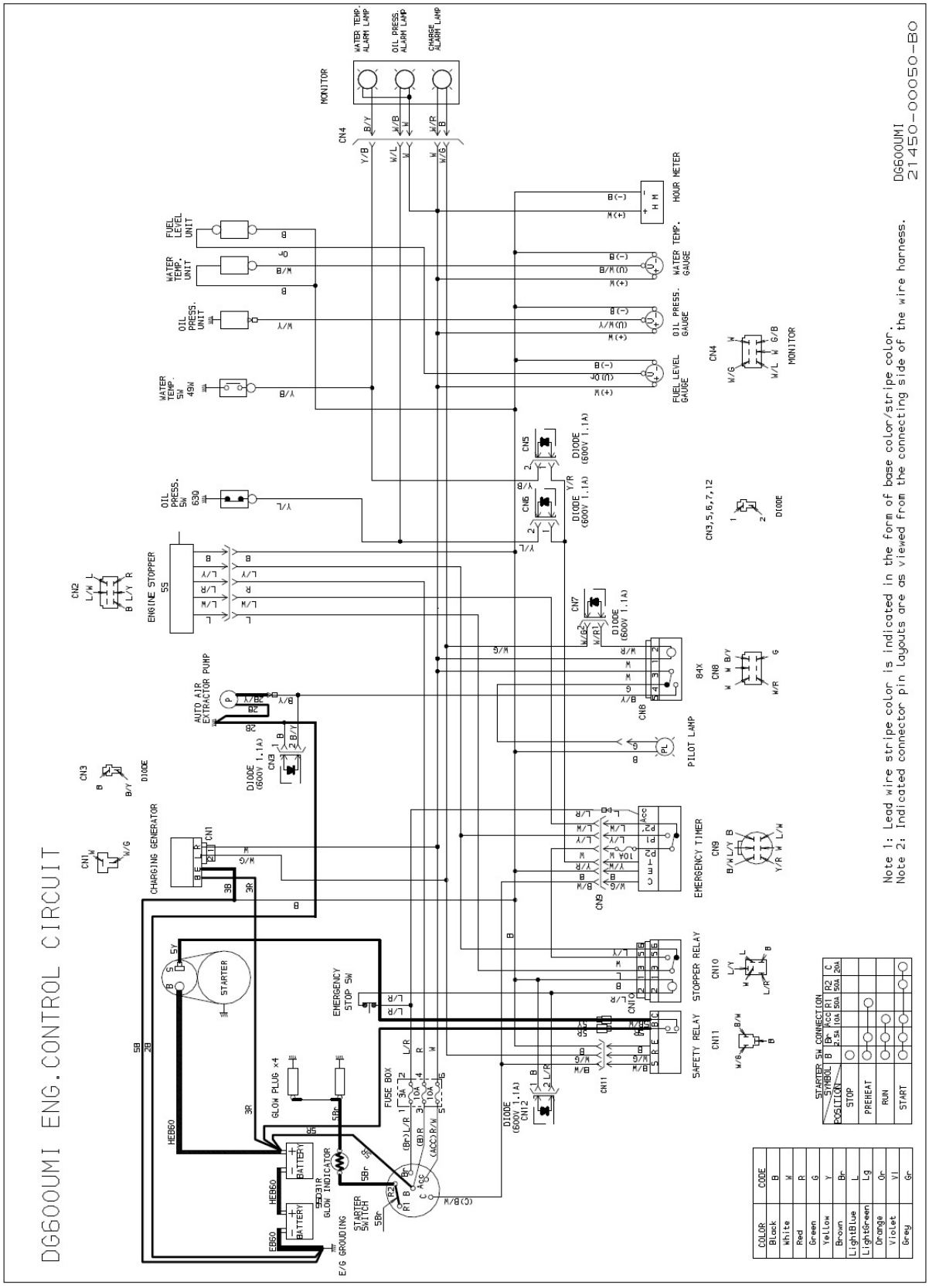
NOTE



- GENERATOR WIREING



- ENGINE WIRING



MENO