DATE:
TO:

ISO 9001
CERTIFIED

shindaiwa

LOW-NOISE DIESEL-POWERED AC GENERATOR

DG250MI-400

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

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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		DG250MI-400	
AC generator		Brushless, 3-Phase synchronous AC generator	
Frequency		(Hz)	50/60
Rated output		(k VA)	20/25
		(kW)	16/20
Rated voltage		(V)	400/440
Rated amperage		(A)	28.9/32.9
Number of polarity		—	4
Rated power factor		—	0.8 (lagging)
Single Phase output		(V)	100/110
		(A)	Terminal 15Ax1
		(A)	Receptacle 15Ax2(total 15A)
Engine Model		—	ISUZU AA-4LE1
Type		—	4-cycle,water-cooled,swirl chamber type
Number of cylinder		—	4
Bore x stroke		(mm)	85x96
Displacement		(L)	2.179
Rated output		(kW)	19.1/23.5
Rated revolution speed		(min^{-1})	1500/1800
Fuel		—	Diesel fuel (JIS K2204,class 1 to 3)
Fuel consumption Note1		(L/hour)	4.2/5.3
Lubricating oil type		—	Class CD or better, SAE30
Lubricating oil capacity		（L）	8.5 (Effective 2.5)
Lubricating oil consumption Note2		（L/hour)	0.02
Coolant capacity		（L）	8.6
Battery		—	75D31R
5 hour capacity		(Ah)	60
Fuel tank capacity		(L)	65
Equipment dimension L×W×H		(mm)	1550×650×890
Mass	Dry weight	(kg)	566
	Amount weight		641

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 AA-4LE1
   Displacement: 2.179 L
   Rated Output/Rated Speed: 19.1kW {26.0PS}/23.5kW{32.0PS}
   : 1500/1800min^{-1}{rpm}
   Fuel: Diesel Fuel ASTM No. 2 or Equivalent (Heavy Oil A to be optional)
   Fuel Filter: Paper Filter
   Automatic Air Extraction: Standard Accessory
   External Fuel Changeover: Standard Accessory
   Battery: 75D31R (12V-60AH)

2. 3-Phase Synchronous Generator
   1) Alternator
   Model: Rotating Field, Self-Ventilation (JCO), Protection (JP20)
   Output: 20.0/25.0 k VA (16.0/20.0kW)
   Rate: Continuous
   Voltage: 400/440V
   Current: 28.9/32.9A
   Frequency: 50/60Hz
   Speed: 1500/1800min^{-1}
   Pole: 4 Poles
   Power Factor: 0.8 Lagging
   Exciting Method: Brushless, AC Exciter
   Wiring: Star, 3-Phase 4-Wire
   Insulation: Stator Wiring Class F
   : Rotor Wiring Class F
   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: 65dB (A)/7m (No Load 1800 min^{-1})
   3) Fuel Tank
   The fuel tank is made of steel and incorporated with the pipe type fuel level gage and the fuel level alarm device.
   Capacity: 65L

4. Control Devices, Gages and Protection Devices
   1) Control Device
      Breaker: Circuit Breaker (Rate 600V 50A)
               : Circuit Breaker (Rate 600V 15A)
      Exciter Circuit: Automatic Voltage Regulator (F/V Characteristic)
      Current Leakage Shut Off Device: 30mA 0.1 second (3-Phase Circuit only)
   2) Gages (Displays)
      AC Volt Meter: 0-600V
      AC Ampere Meter: 0-50-150A
      Frequency Meter: 45-65Hz
      Hour Meter: 9999.9Hr
      Oil Pressure Gage
      Water Temperature Gage
      Preheat Lamp
      Disorder Display Lamps: High Water Temperature, Low Oil Pressure, Insufficient Charging, Low Fuel Level, Air Filter Clog, Battery Fluid Level
      Voltage Adjuster: Adjustable Range; Below–10%- and over +5%
      Panel Light
      Panel Light Switch
      Emergency Stop Button
      Tachometer: hour meter incorporated

   3) Protection Device

Item	Set Value	Display	Trip	Shut-Down
Low Oil Pres.	98.1kPa	◯	-	◯
High Water Temp.	110℃	◯	-	◯
Insufficient Fuel	Balance 25%	◯	-	–
Insufficient Charging	-	◯	-	-
Over Current	50A	◯	◯	-
Current Leakage	30mA 0.1sec.	◯	◯	-

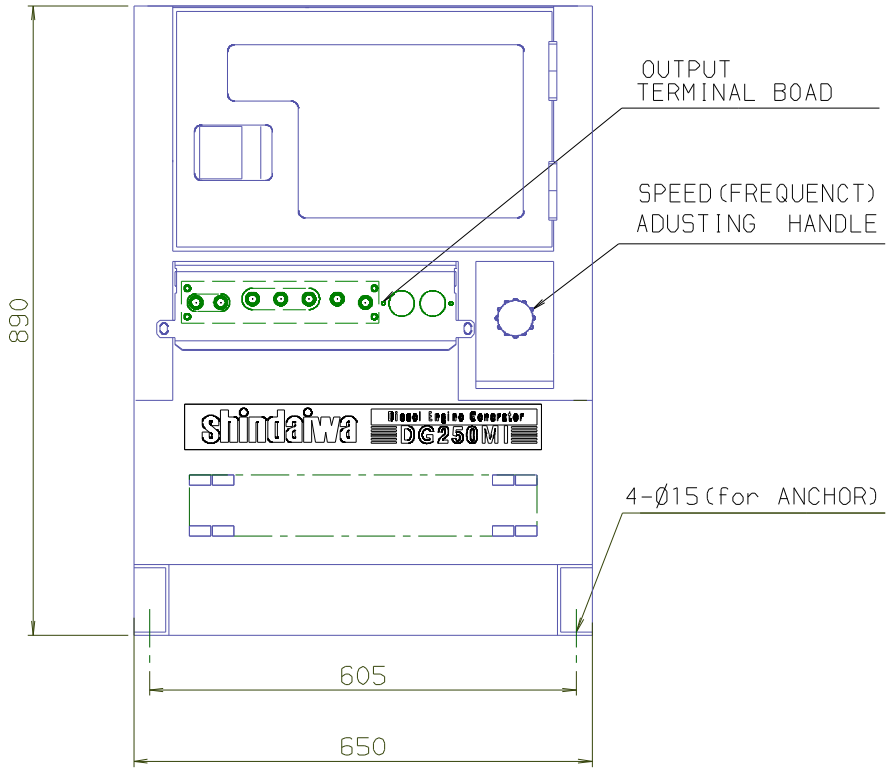
   4) Output Terminals Plate
      R, S, T and O output terminals, 2 (two) receptacles of auxiliary power 100/110V 15A x 2 (total 15A) and 1 (one) 15A 1-Phase output terminal set

5. Dimension and Weight
   Length: 1550mm
   Width: 650mm
   Height: 890mjm
   Dry Weight: 566kg
   Outfitted Weight: 641kg

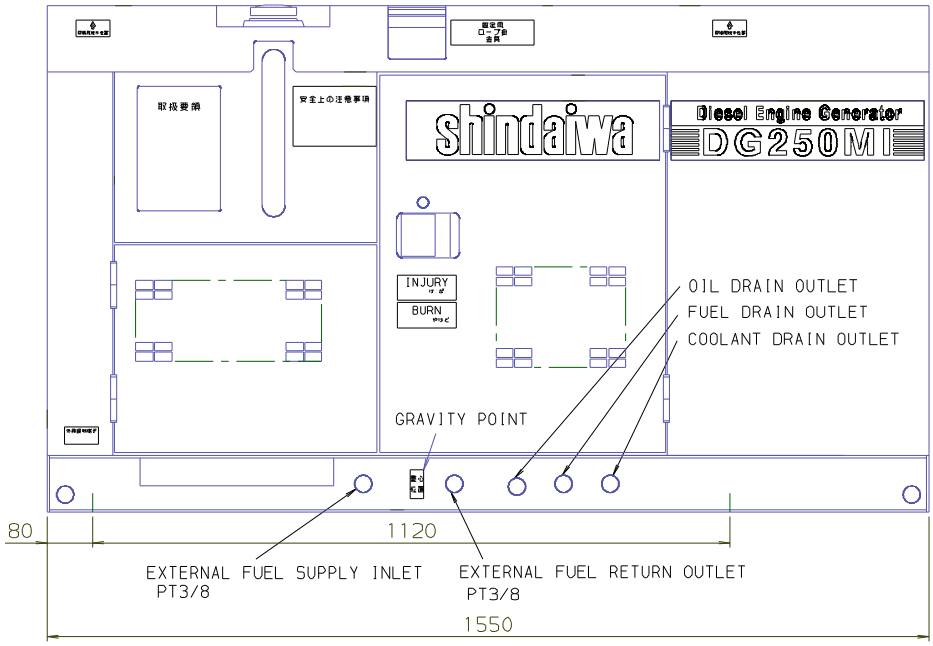
6. Accessories
   Grounding Rod 1 piece
   Fuse 10A 1 piece, 20A 1 piece
   Instruction manual
   Manual, engine

- **APPEARANCE**

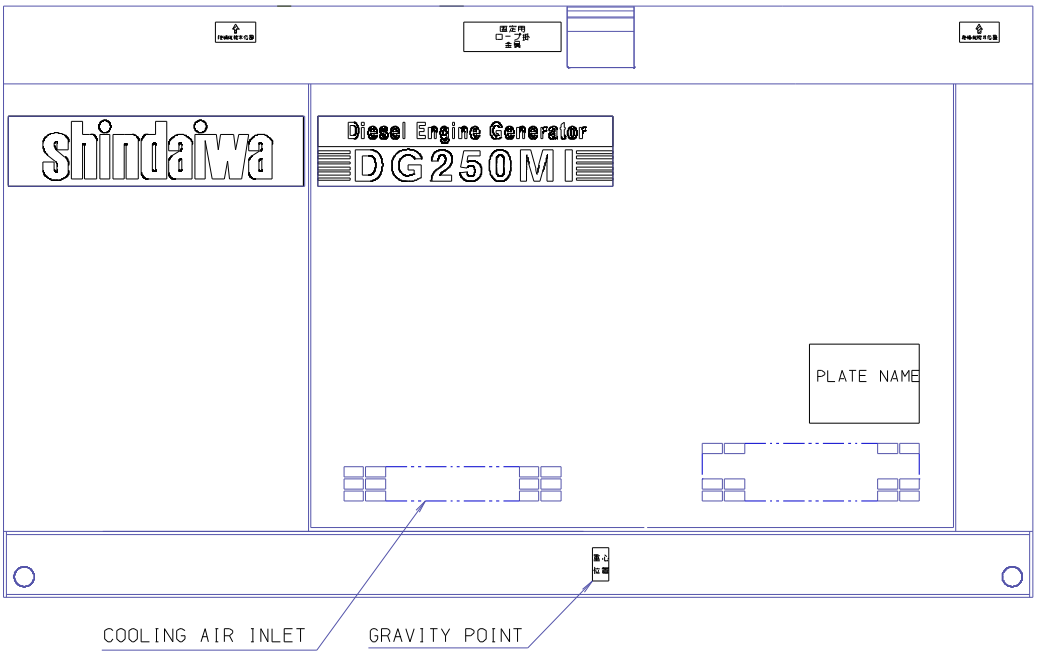
FRONT VIEW



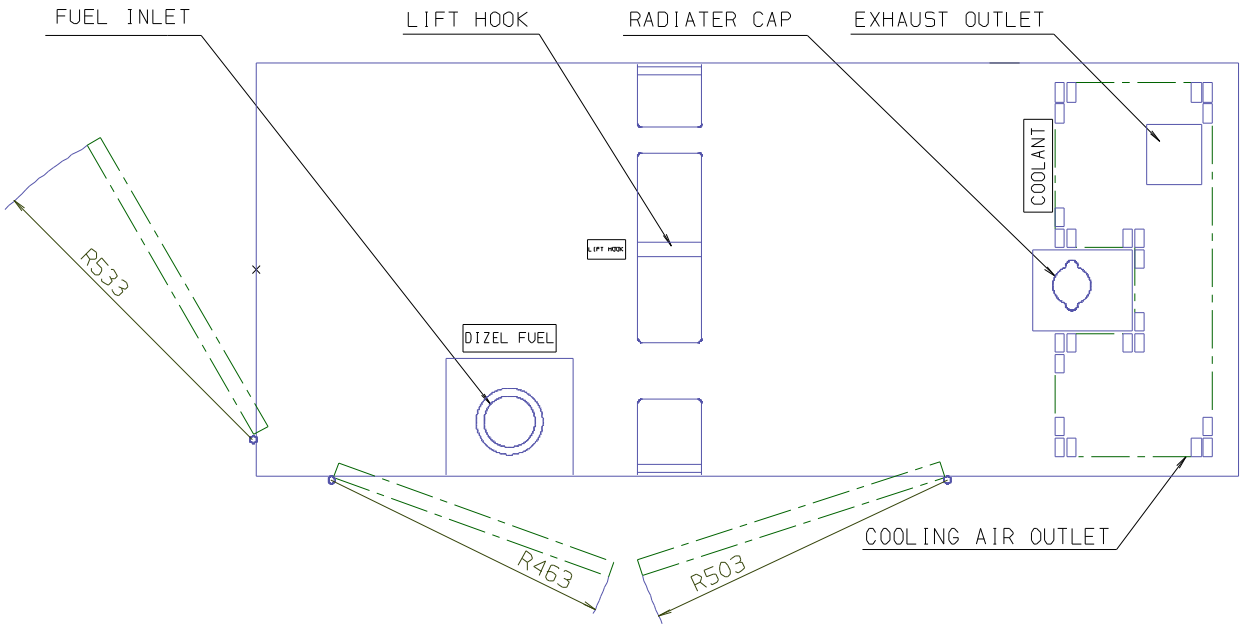
RIGHT SIDE VIEW



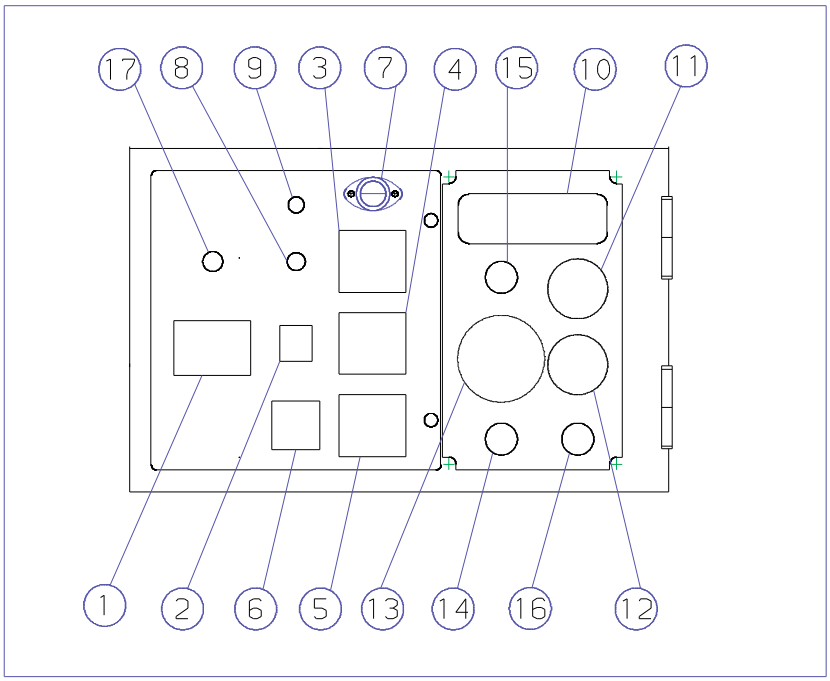
LEFT SIDE VIEW



TOP VIEW



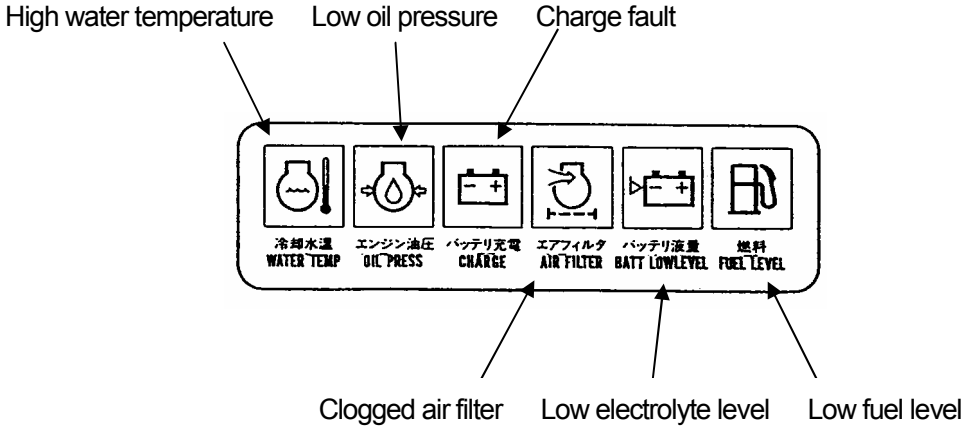
CONTROL PANEL



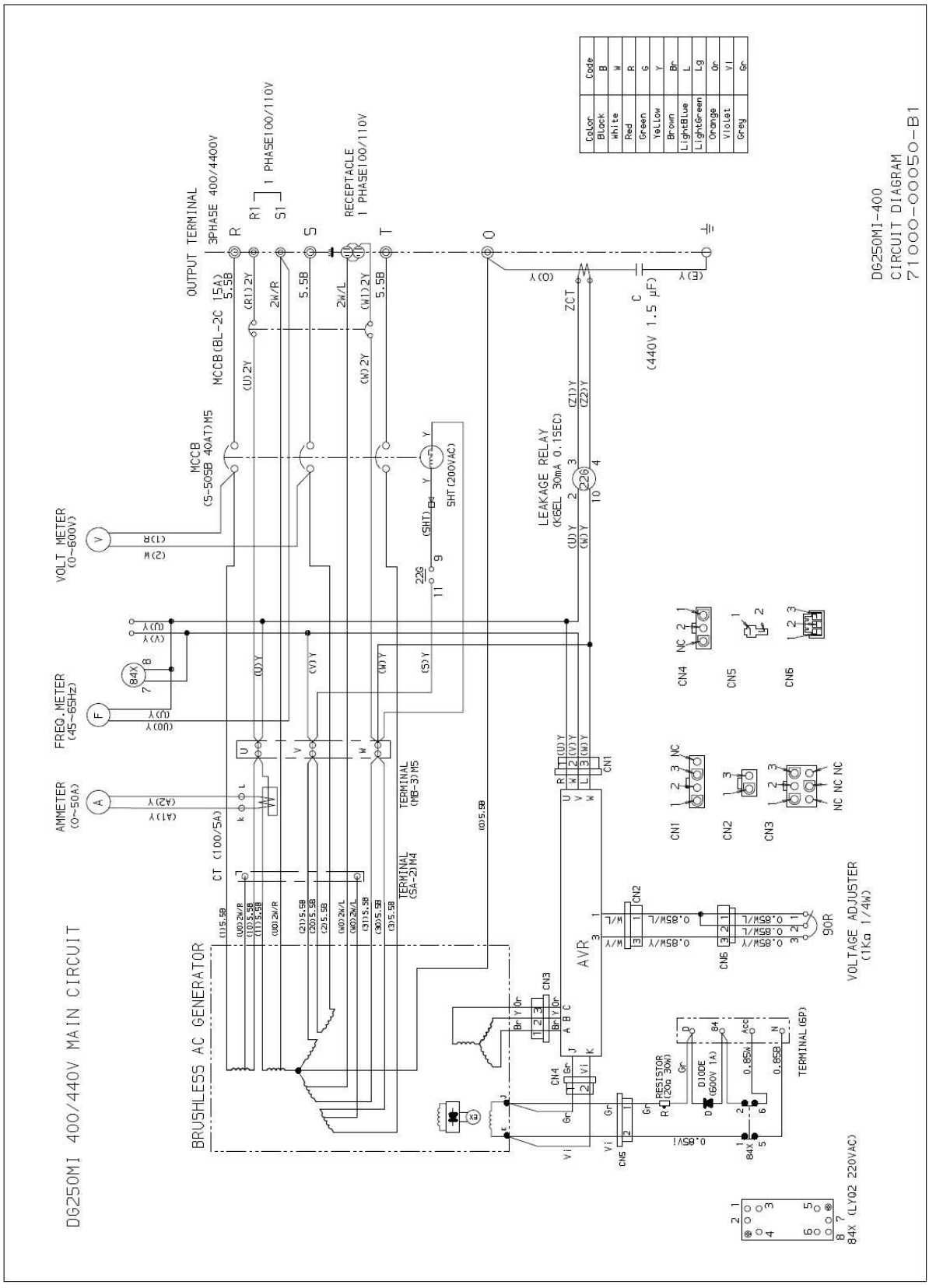
NO.	Name	Description of function
1	3-phase circuit breaker	Turns the power supply to load equipment ON (closed) and OFF (open).
2	1-Phase circuit breaker	Turns the power supply to load equipment ON (closed) and OFF (open).
3	Voltage meter	Indicates voltage.
4	AC ampere meter	Indicates phase current.
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.
8	Voltage adjustment dial	Used to adjust voltage.
9	Panel light switch	On/off switch
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	Tacho meter with hour meter	Indicates rotating speed of the engine, and indicates operating hours of the generator unit.
14	Pre-heating indicator	The indicator lights when the key switch is set to the [ON] position, and starts pre-heating.

NO.	Name	Description of function
15	Emergency stop switch	When the switch is pressed, stops an engine operation.
16	Starter switch	OFF: stops engine operation. ON: supplies electricity for control operation, and starts pre-heating. START: starts an engine operation
17	Electricity indicator lamp	Indicates generated electricity when the engine is in operation and generating.

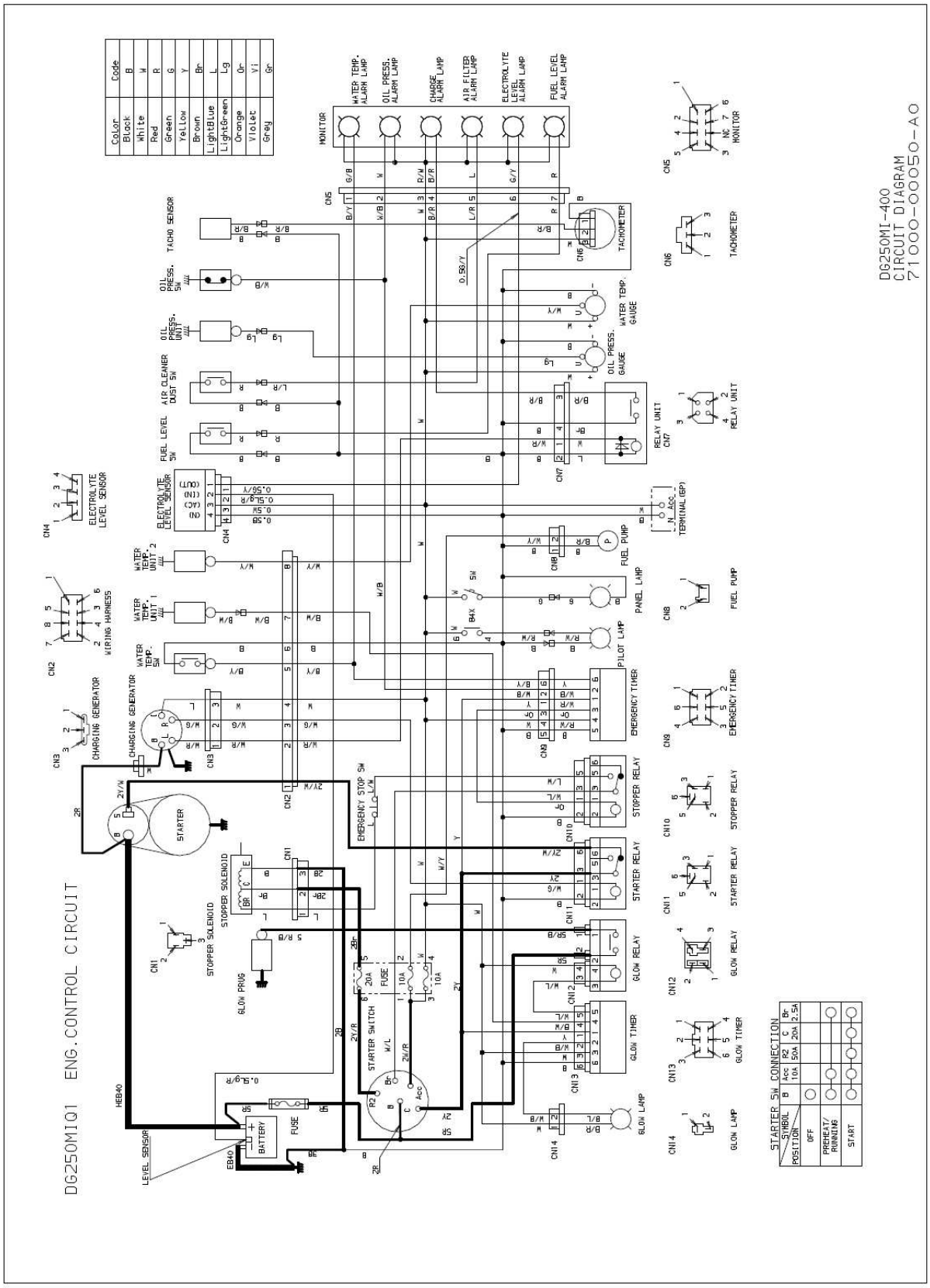
Detail drawing of warning indicator



- GENERATOR WIREING



- ENGINE WIRING



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